

Planck 2018 Results: Cosmological Parameter Tables

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Abstract

These tables summarize the results of *Planck* 2018 parameter estimation exploration results. They are based on *Planck* HFI data and *Planck* lensing, as well as additional non-CMB data as detailed in the main parameter papers.

1 Introduction

The tables are arranged in groups, firstly by cosmological model, and then by data combination. The name tags match those of the full chains also provided on the PLA. The names all start with **base** to denote the baseline model, followed by the parameter tags of any additional parameters that are also varied (as defined in the parameter paper). Data combination tags are as follows (see the parameters paper for full description and references):

| Data tag | Data used |
|-------------------------|---|
| plikHM | Baseline high- ℓ <i>Planck</i> power spectra (plik cross-half-mission, $30 \leq \ell \leq 2508$). |
| CamSpecHM | CamSpec high- ℓ <i>Planck</i> power spectra. |
| CleanedCamSpecHM | Foreground-cleaned CamSpec high- ℓ <i>Planck</i> power spectra. |
| lowl | Low- ℓ <i>Planck</i> temperature (Commander , $2 \leq \ell \leq 29$). |
| lowE | Low- ℓ HFI <i>EE</i> polarization only (SimAll , $2 \leq \ell \leq 29$). |
| lensing | <i>Planck</i> lensing power spectrum reconstruction. When used without other CMB likelihoods, it is marginalized over the theory CMB spectra given. |
| BAO | Baryon oscillation data from BOSS DR12, MGS, and 6DF. |
| Pantheon18 | Supernova data from the Pantheon sample, with updated main distance file with heliocentric redshifts. |
| JLA | Supernova data from the SDSS-II/SNLS3 Joint Light-curve Analysis. |
| Riess18 | Hubble parameter measurement from SHOES (Riess et al. 2018a, $H_0 = 73.45 \pm 1.66$). |
| BK15 | Bicep-Keck (+Planck/WMAP) 2015 analysis (arXiv:1810.05216). |
| zre6p5 | A hard prior, $z_{\text{re}} > 6.5$. |
| reion | A hard prior, $z_{\text{re}} > 6.5$, combined with a Gaussian prior, $z_{\text{re}} = 7 \pm 1$. |
| lenspriors | Standard base parameters with $n_s = 0.96 \pm 0.02$, $\Omega_b h^2 = 0.0222 \pm 0.0005$, $100 > H_0 > 40$, $\tau = 0.055$. |
| DESpriors | DES cosmological parameter priors (flat on $0.1 < \Omega_m < 0.9$, $0.03 < \Omega_b < 0.07$, $55 < H_0 < 91$, $0.5 < 10^9 A_s < 5$, $Y_P = 0.245341$ and, if varied, $0.05\text{eV} < \sum m_\nu < 1\text{eV}$). |
| CookeDH | A Gaussian prior $\Omega_b h^2 = 0.0222 \pm 0.0005$ (conservative, motivated by Cooke et al. 2017). |
| Cooke17 | A Gaussian prior on D/H (Cooke et al. 2017), mean and error adjusted to approximately agree with CookeDH for $N_{\text{eff}} = 3.046$. |
| Aver15 | A Gaussian constraint on $Y_P^{\text{BBN}} = 0.2449 \pm 0.0040$ (Aver et al. 2015). |
| theta | A Gaussian prior $100\theta_{\text{MC}} = 1.0409 \pm 0.0006$ (acoustic scale from <i>Planck</i> CMB without LCDM assumption). |
| WMAP | The full WMAP (temperature and polarization) 9-year data. |
| DES | DES 1yr, cosmic shear+galaxy auto+cross. |
| DESlens | DES 1yr, cosmic shear only. |
| DESw | DES 1yr, galaxy auto+cross only. |

The high- ℓ *Planck* likelihoods have TT, TE, EE variants from each spectrum alone, plus the TTTEEE joint constraint. Note that unless **nnu** is specified in the file name, the neutrino mass sum is fixed to $\sum_\nu m_\nu = 0.06\text{eV}$ (including for DES chains). Non-linear corrections are modelled with HMCode in all cases (including when using DESpriors).

Data likelihoods are either included when running the chains, or by importance sampling. Data combinations that are added by importance sampling appear at the end of the list, following the **post_** tag. Note that the best fits are merely examples of parameter combinations that fit the data well; due to parameter degeneracies there may be other combinations of parameters that fit the data nearly equally well.

Beneath each table is the $\chi_{\text{eff}}^2 = -2\log(\text{likelihood})$ for each best-fit model, and also the contributions coming from each separate part of the likelihood. Mean minus log likelihoods are also given, as $\bar{\chi}_{\text{eff}}^2$. The tables also give the χ_{eff}^2 of the various component parts of the likelihood, where quoted values are the best-fit and mean, standard

deviation (in the case of 1σ tables), or effective degrees of freedom (ν , defined by $\sigma^2/2$). Normalization of likelihoods is arbitrary, i.e., a constant can be added to log likelihoods without affecting any results. Only some likelihoods normalize so that the number is immediately interpretable as similar to a χ^2 for some number of data points.

The $R - 1$ value is also given, which measures the convergence of the sampling chains, with small values being better converged. The sampling uncertainty on quoted mean values are typically of order $R - 1$ in units of the standard deviation.

Parameter constraints were calculated from Monte Carlo chains from **CosmoMC** using **GetDist** (getdist.readthedocs.org).

Parameters and derived parameters, along with the name tags used in the chain files, are briefly described in the tables below.

Additional nuisance parameters for each likelihood are described in more detail in the respective papers.

| Parameter | Tag | baseline | Definition |
|--|-------------|-----------|--|
| $\Omega_b h^2$ | omegab2 | ... | Baryon density today |
| $\Omega_c h^2$ | omegac2 | ... | Cold dark matter density today |
| $100\theta_{\text{MC}}$ | theta | ... | $100\times$ approximation to r_s/D_M (CosmoMC) |
| τ | tau | ... | Thomson scattering optical depth due to reionization |
| Ω_K | omegak | 0 | $\Omega_{\text{tot}} = 1 - \Omega_K$ |
| Σm_ν | mnu | 0.06 | Sum of active neutrino masses in eV |
| $m_{\nu, \text{sterile}}^{\text{eff}}$ | meffsterile | 0 | Effective mass in sterile neutrinos in eV |
| w_0 | w | -1 | Dark energy equation of state, $w(a) = w_0 + (1 - a)w_a$ |
| w_a | wa | 0 | As above (perturbations modelled using PPF) |
| N_{eff} | nnu | 3.046 | Total effective number of massive and massless neutrinos (see text) |
| Y_{P} | yhe | BBN | Fraction of baryonic mass in helium (only if varied independently of BBN) |
| α_{-1} | alpha1 | 0 | Fully correlated isocurvature amplitude parameter |
| A_{L} | Alens | 1 | Amplitude of the lensing power relative to the physical value |
| $A_{\text{L}}^{\phi\phi}$ | Aphiphi | 1 | Amplitude of the lensing reconstruction power relative to the physical value |
| $A_{\text{L}}^{\text{fid}}$ | Alensf | ... | Amplitude of the lensing power relative to a fixed fiducial spectrum |
| n_s | ns | ... | Scalar spectrum power-law index ($k_0 = 0.05\text{Mpc}^{-1}$) |
| n_t | nt | Inflation | Tensor spectrum power-law index ($k_0 = 0.05\text{Mpc}^{-1}$) |
| $d \ln n_s / d \ln k$ | nrun | 0 | Running of the spectral index |
| $\log[10^{10} A_s]$ | logA | ... | Log power of the primordial curvature perturbations ($k_0 = 0.05\text{Mpc}^{-1}$) |
| $r_{0.05}$ | r | 0 | Tensor power spectrum amplitude ($k_0 = 0.05\text{Mpc}^{-1}$) |
| H_0 | H0 | ... | Current expansion rate in $\text{km s}^{-1}\text{Mpc}^{-1}$ |
| Ω_{m} | omegam | ... | Matter density (incl. massive neutrinos) today divided by the critical density |
| Ω_{Λ} | omegal | ... | Dark energy density divided by the critical density today |
| $\Omega_{\text{m}} h^2$ | omegamh2 | ... | Total matter density today (incl. massive neutrinos) |
| $\Omega_{\text{m}} h^3$ | omegamh3 | ... | $h \times$ total matter density today |
| σ_8 | sigma8 | ... | RMS matter fluctuations today in linear theory |
| S_8 | S8 | ... | $\sigma_8(\Omega_{\text{m}}/0.3)^{0.5}$ |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | s8omegamp5 | ... | $\sigma_8 \Omega_{\text{m}}^{0.5}$ constrained by low-redshift lensing |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | s8omegamp25 | ... | $\sigma_8 \Omega_{\text{m}}^{0.25}$ constrained by CMB lensing |
| $\sigma_8 / h^{0.5}$ | s8h5 | ... | $\sigma_8 / h^{0.5}$ |
| $\sigma_8 / h^{0.5}$ | rdragh | ... | $r_{\text{drag}} h$ in Mpc |
| $\langle d^2 \rangle^{1/2}$ | rmsdeflect | ... | RMS CMB lensing deflection angle in arcmin (approx. using $2 \leq L \leq 2000$) |
| z_{re} | zrei | ... | Redshift at which Universe is half reionized |
| $10^9 A_s$ | A | ... | Power of the primordial curvature perturbations ($k_0 = 0.05\text{Mpc}^{-1}$) |
| $10^9 A_s e^{-2\tau}$ | clamp | ... | Parameter determining the small-scale CMB power |
| Y_{P} | yheused | bbn | Fraction of baryonic mass in helium |
| $Y_{\text{P}}^{\text{BBN}}$ | YpBBN | bbn | Nucleon fraction in helium |
| 10^5D/H | DHBBN | bbn | 10^5 deuterium-helium ratio from Parthenope BBN prediction (pre-Marcucci rates) |
| Age/Gyr | age | ... | Time since the start of the hot big bang |

| Parameter | Tag | baseline | Definitions |
|--|----------------|----------|--|
| z_* | zstar | ... | Redshift for which the optical depth equals unity |
| $r_* = r_s(z_*)$ | rstar | ... | Comoving size of the sound horizon at $z = z_*$ |
| $100\theta_*$ | thetastar | ... | 100× Angular size of the sound horizon at last scattering |
| $D_M/\text{Gpc}(z_*)$ | DAstar | ... | Comoving angular diameter distance to last scattering |
| z_{drag} | zdrag | ... | Redshift at which baryon-drag optical depth equals unity |
| $r_{\text{drag}} = r_s(z_{\text{drag}})$ | rdrag | ... | Comoving size of the sound horizon at $z = z_{\text{drag}}$ |
| k_D | kd | ... | Characteristic damping comoving wavenumber (Mpc^{-1}) |
| $100\theta_D$ | thetad | ... | 100× angular extent of photon diffusion at last scattering |
| z_{eq} | zeq | ... | Redshift of matter-radiation equality (massless neutrinos) |
| k_{eq} | keq | ... | $[a(z_{\text{eq}})H(z_{\text{eq}})]^{-1}$ |
| $100\theta_{\text{eq}}$ | thetaeq | ... | 100× angular size of the comoving Horizon at matter-radiation equality |
| $100\theta_{s,\text{eq}}$ | thetarseq | ... | 100× angular size of the comoving sound Horizon at matter-radiation equality |
| D_{40} | D40 | ... | $\ell(\ell+1)C_\ell^{TT}/2\pi$ at $\ell = 40$ in μK^2 |
| D_{220} | D200 | ... | $\ell(\ell+1)C_\ell^{TT}/2\pi$ at $\ell = 220$ in μK^2 |
| D_{810} | D810 | ... | $\ell(\ell+1)C_\ell^{TT}/2\pi$ at $\ell = 810$ in μK^2 |
| D_{1420} | D1420 | ... | $\ell(\ell+1)C_\ell^{TT}/2\pi$ at $\ell = 1420$ in μK^2 |
| D_{2000} | D2000 | ... | $\ell(\ell+1)C_\ell^{TT}/2\pi$ at $\ell = 2000$ in μK^2 |
| $n_{s,0.002}$ | ns02 | ... | Scalar spectral index at $k = 0.002\text{Mpc}^{-1}$ |
| $r_{0.002}$ | r02 | 0 | Tensor/scalar ratio at $k = 0.002\text{Mpc}^{-1}$ |
| $r_{0.01}$ | rBB | 0 | Tensor/scalar ratio at $k = 0.01\text{Mpc}^{-1}$ (roughly BB peak) |
| r_{10} | r10 | 0 | Tensor-scalar temperature C_ℓ amplitude at $\ell = 10$ |
| A_t | AT | 0 | $10^9 A_t$ ($k_0 = 0.05\text{Mpc}^{-1}$) |
| $10^9 A_t e^{-2\tau}$ | ctlamp | 0 | Parameter determining $\ell \simeq 100$ tensor C_ℓ amplitude |
| $H(z)$ | Hubble{100z} | ... | Hubble parameter at redshift z ($\text{km s}^{-1}\text{Mpc}^{-1}$) |
| $D_M(z)$ | DM{100z} | ... | Comoving angular diameter distance to redshift z in Mpc |
| $f\sigma_8(z)$ | fsigma8z{100z} | ... | Growth parameter $f\sigma_8$ at redshift z |
| $\sigma_8(z)$ | sigma8z{100z} | ... | σ_8 at redshift z |
| f_{2000}^{143} | f2000_143 | ... | Total temperature foreground power at $\ell = 2000$ in 143GHz C_ℓ |
| $f_{2000}^{143 \times 217}$ | f2000_x | ... | Total temperature foreground power at $\ell = 2000$ in $217\text{GHz} \times 143\text{GHz}$ C_ℓ |
| f_{2000}^{217} | f2000_217 | ... | Total temperature foreground power at $\ell = 2000$ in 217GHz C_ℓ |
| χ_x^2 | chi2_x | ... | $-2\log(\text{likelihood})$ for likelihood x ; (most are normalized like a χ^2). |

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2 Baseline model

2.1 base_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022126 | 0.02212 ± 0.00022 | $\sigma_8 \Omega_m^{0.25}$ | 0.6116 | 0.611 ± 0.012 | $H(0.15)$ | 72.23 | 72.25 ± 0.78 |
| $\Omega_c h^2$ | 0.12068 | 0.1206 ± 0.0021 | $\sigma_8/h^{0.5}$ | 0.9938 | 0.993 ± 0.016 | $D_M(0.15)$ | 647.8 | 647.7 ± 7.9 |
| $100\theta_{MC}$ | 1.040748 | 1.04077 ± 0.00047 | $r_{drag}h$ | 98.40 | 98.5 ± 1.6 | $H(0.38)$ | 82.50 | 82.52 ± 0.56 |
| τ | 0.0523 | 0.0522 ± 0.0080 | $\langle d^2 \rangle^{1/2}$ | 2.4537 | 2.454 ± 0.038 | $D_M(0.38)$ | 1542.6 | 1542 ± 16 |
| $\ln(10^{10} A_s)$ | 3.0413 | 3.040 ± 0.016 | z_{re} | 7.54 | 7.50 ± 0.82 | $H(0.51)$ | 89.310 | 89.32 ± 0.44 |
| n_s | 0.9635 | 0.9626 ± 0.0057 | $10^9 A_s$ | 2.0933 | 2.092 ± 0.034 | $D_M(0.51)$ | 1996.8 | 1997 ± 18 |
| y_{cal} | 1.00046 | 1.0004 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8853 | 1.884 ± 0.014 | $H(0.61)$ | 94.998 | 95.01 ± 0.35 |
| A_{217}^{CIB} | 48.5 | 48 ± 7 | D_{40} | 1231.7 | 1234 ± 15 | $D_M(0.61)$ | 2322.3 | 2322 ± 20 |
| $\xi^{tSZ \times CIB}$ | 0.32 | — | D_{220} | 5710.4 | 5713 ± 42 | $H(2.33)$ | 236.75 | 236.7 ± 1.3 |
| A_{143}^{tSZ} | 7.03 | 5.1 ± 2.0 | D_{810} | 2538.2 | 2536 ± 14 | $D_M(2.33)$ | 5777.8 | 5778 ± 16 |
| A_{100}^{PS} | 254.9 | 263 ± 28 | D_{1420} | 815.5 | 814.4 ± 5.1 | $f\sigma_8(0.15)$ | 0.4642 | 0.464 ± 0.012 |
| A_{143}^{PS} | 49.8 | 49 ± 8 | D_{2000} | 229.94 | 229.5 ± 1.8 | $\sigma_8(0.15)$ | 0.7500 | 0.7492 ± 0.0075 |
| $A_{143 \times 217}^{PS}$ | 47.3 | 44 ± 9 | $n_{s,0.002}$ | 0.9635 | 0.9626 ± 0.0057 | $f\sigma_8(0.38)$ | 0.4804 | 0.4798 ± 0.0095 |
| A_{217}^{PS} | 119.9 | 115 ± 10 | Y_P | 0.245295 | $0.24529^{+0.00011}_{-0.000088}$ | $\sigma_8(0.38)$ | 0.6638 | 0.6631 ± 0.0060 |
| A^{kSZ} | 0.00 | < 4.84 | Y_P^{BBN} | 0.246621 | $0.24661^{+0.00011}_{-0.000089}$ | $f\sigma_8(0.51)$ | 0.4779 | 0.4773 ± 0.0082 |
| A_{100}^{dustTT} | 8.86 | 8.9 ± 1.8 | $10^5 D/H$ | 2.6321 | 2.634 ± 0.042 | $\sigma_8(0.51)$ | 0.6208 | 0.6202 ± 0.0055 |
| A_{143}^{dustTT} | 10.80 | 10.7 ± 1.8 | Age/Gyr | 13.8300 | 13.830 ± 0.037 | $f\sigma_8(0.61)$ | 0.4722 | 0.4716 ± 0.0072 |
| $A_{143 \times 217}^{dustTT}$ | 19.43 | 18.3 ± 3.3 | z_* | 1090.292 | 1090.30 ± 0.41 | $\sigma_8(0.61)$ | 0.5904 | 0.5899 ± 0.0051 |
| A_{217}^{dustTT} | 94.8 | 93.3 ± 7.4 | r_* | 144.442 | 144.46 ± 0.48 | $f\sigma_8(2.33)$ | 0.29733 | 0.2971 ± 0.0025 |
| c_{100} | 0.99965 | 0.99961 ± 0.00061 | $100\theta_*$ | 1.040956 | 1.04097 ± 0.00046 | $\sigma_8(2.33)$ | 0.30613 | 0.3059 ± 0.0027 |
| c_{217} | 0.99825 | 0.99826 ± 0.00063 | $D_M(z_*)/\text{Gpc}$ | 13.8759 | 13.878 ± 0.044 | f_{2000}^{143} | 30.49 | 31.2 ± 3.0 |
| H_0 | 66.86 | 66.88 ± 0.92 | z_{drag} | 1059.437 | 1059.39 ± 0.46 | $f_{2000}^{143 \times 217}$ | 33.34 | 33.6 ± 2.0 |
| Ω_Λ | 0.6791 | 0.679 ± 0.013 | r_{drag} | 147.182 | 147.21 ± 0.48 | f_{2000}^{217} | 107.77 | 108.2 ± 1.9 |
| Ω_m | 0.3209 | 0.321 ± 0.013 | k_D | 0.14058 | 0.14054 ± 0.00052 | χ_{small}^2 | 395.88 | 397.0 ± 1.7 |
| $\Omega_m h^2$ | 0.14345 | 0.1434 ± 0.0020 | $100\theta_D$ | 0.161051 | 0.16107 ± 0.00027 | χ_{lowl}^2 | 23.60 | 23.9 ± 1.3 |
| $\Omega_m h^3$ | 0.095909 | 0.09589 ± 0.00046 | z_{eq} | 3412.7 | 3411 ± 48 | χ_{plik}^2 | 758.7 | 771.4 ± 5.5 |
| σ_8 | 0.8126 | 0.8118 ± 0.0089 | k_{eq} | 0.010416 | 0.01041 ± 0.00014 | χ_{prior}^2 | 1.35 | 7.3 ± 3.7 |
| S_8 | 0.8405 | 0.840 ± 0.024 | $100\theta_{eq}$ | 0.8106 | 0.8109 ± 0.0089 | χ_{CMB}^2 | 1178.2 | 1192.3 ± 5.5 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4604 | 0.460 ± 0.013 | $100\theta_{s,eq}$ | 0.44817 | 0.4483 ± 0.0046 | | | |

Best-fit $\chi_{eff}^2 = 1179.58$; $\bar{\chi}_{eff}^2 = 1199.58$; $R - 1 = 0.00927$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.88 commander_dx12_v3.2_29: 23.60 plik_rd12_HM_v22_TT: 758.75

2.2 base_plikHM_TT_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022225 | 0.02222 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.9814 | 0.982 ± 0.012 | $H(0.38)$ | 82.969 | 82.96 ± 0.35 |
| $\Omega_c h^2$ | 0.11898 | 0.1190 ± 0.0012 | $r_{\text{drag}} h$ | 99.76 | 99.76 ± 0.94 | $D_M(0.38)$ | 1529.5 | 1529.7 ± 9.4 |
| $100\theta_{\text{MC}}$ | 1.041017 | 1.04098 ± 0.00041 | $\langle d^2 \rangle^{1/2}$ | 2.4251 | 2.429 ± 0.028 | $H(0.51)$ | 89.668 | 89.66 ± 0.29 |
| τ | 0.0532 | $0.0539^{+0.0075}_{-0.0085}$ | z_{re} | 7.59 | 7.64 ± 0.83 | $D_M(0.51)$ | 1981.5 | 1982 ± 11 |
| $\ln(10^{10} A_s)$ | 3.0390 | 3.040 ± 0.017 | $10^9 A_s$ | 2.0885 | $2.091^{+0.033}_{-0.037}$ | $H(0.61)$ | 95.272 | 95.26 ± 0.25 |
| n_s | 0.96734 | 0.9664 ± 0.0043 | $10^9 A_s e^{-2\tau}$ | 1.8777 | 1.877 ± 0.012 | $D_M(0.61)$ | 2305.9 | 2306 ± 12 |
| y_{cal} | 1.00044 | 1.0005 ± 0.0025 | D_{40} | 1223.2 | 1226 ± 13 | $H(2.33)$ | 235.75 | 235.73 ± 0.79 |
| A_{217}^{CIB} | 49.2 | 48 ± 7 | D_{220} | 5716.9 | 5721 ± 41 | $D_M(2.33)$ | 5766.2 | 5767 ± 12 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.26 | — | D_{810} | 2536.8 | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.4542 | 0.4543 ± 0.0077 |
| A_{143}^{tSZ} | 7.06 | $5.1^{+2.2}_{-2.0}$ | D_{1420} | 816.26 | 815.4 ± 5.0 | $\sigma_8(0.15)$ | 0.7459 | 0.7461 ± 0.0070 |
| A_{100}^{PS} | 254.6 | 264 ± 29 | D_{2000} | 230.24 | 229.9 ± 1.8 | $f\sigma_8(0.38)$ | 0.4727 | 0.4729 ± 0.0065 |
| A_{143}^{PS} | 48.1 | 48 ± 8 | $n_{s,0.002}$ | 0.96734 | 0.9664 ± 0.0043 | $\sigma_8(0.38)$ | 0.6613 | 0.6615 ± 0.0060 |
| $A_{143 \times 217}^{\text{PS}}$ | 44.9 | 43 ± 9 | Y_{P} | 0.245336 | $0.245329^{+0.000090}_{-0.000075}$ | $f\sigma_8(0.51)$ | 0.4715 | 0.4716 ± 0.0058 |
| A_{217}^{PS} | 118.4 | 114 ± 10 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246663 | $0.246655^{+0.000090}_{-0.000075}$ | $\sigma_8(0.51)$ | 0.6190 | $0.6191^{+0.0051}_{-0.0057}$ |
| A^{kSZ} | 0.01 | < 4.84 | $10^5 \text{D}/\text{H}$ | 2.6131 | 2.615 ± 0.038 | $f\sigma_8(0.61)$ | 0.4666 | 0.4667 ± 0.0054 |
| A_{100}^{dustTT} | 8.85 | 9.0 ± 1.8 | Age/Gyr | 13.8050 | 13.807 ± 0.028 | $\sigma_8(0.61)$ | 0.5890 | $0.5891^{+0.0049}_{-0.0054}$ |
| A_{143}^{dustTT} | 10.85 | 10.8 ± 1.8 | z_* | 1090.014 | 1090.03 ± 0.30 | $f\sigma_8(2.33)$ | 0.29703 | $0.2971^{+0.0024}_{-0.0027}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.36 | 18.3 ± 3.4 | r_* | 144.806 | 144.82 ± 0.32 | $\sigma_8(2.33)$ | 0.30628 | $0.3063^{+0.0025}_{-0.0028}$ |
| A_{217}^{dustTT} | 94.4 | 93.3 ± 7.5 | $100\theta_*$ | 1.041213 | 1.04118 ± 0.00041 | f_{2000}^{143} | 30.25 | 30.9 ± 2.9 |
| c_{100} | 0.99963 | 0.99961 ± 0.00063 | $D_M(z_*)/\text{Gpc}$ | 13.9074 | 13.909 ± 0.031 | $f_{2000}^{143 \times 217}$ | 33.11 | 33.3 ± 2.0 |
| c_{217} | 0.99826 | 0.99827 ± 0.00062 | z_{drag} | 1059.513 | 1059.50 ± 0.45 | f_{2000}^{217} | 107.61 | 107.9 ± 1.9 |
| H_0 | 67.62 | 67.61 ± 0.55 | r_{drag} | 147.524 | 147.54 ± 0.35 | χ_{small}^2 | 395.89 | 397.1 ± 1.9 |
| Ω_Λ | 0.6898 | 0.6897 ± 0.0073 | k_{D} | 0.140301 | 0.14027 ± 0.00045 | χ_{lowl}^2 | 22.83 | 23.09 ± 0.93 |
| Ω_{m} | 0.3102 | 0.3103 ± 0.0073 | $100\theta_{\text{D}}$ | 0.161006 | 0.16102 ± 0.00026 | χ_{plik}^2 | 760.1 | 772.2 ± 5.5 |
| $\Omega_{\text{m}} h^2$ | 0.14185 | 0.1418 ± 0.0012 | z_{eq} | 3374.4 | 3374 ± 29 | $\chi_{6\text{DF}}^2$ | 0.0217 | 0.059 ± 0.077 |
| $\Omega_{\text{m}} h^3$ | 0.095926 | 0.09589 ± 0.00046 | k_{eq} | 0.010299 | 0.010297 ± 0.000087 | χ_{MGS}^2 | 1.28 | 1.35 ± 0.52 |
| σ_8 | 0.8071 | 0.8073 ± 0.0078 | $100\theta_{\text{eq}}$ | 0.8180 | 0.8181 ± 0.0053 | χ_{DR12BAO}^2 | 4.18 | 4.8 ± 1.6 |
| S_8 | 0.8207 | 0.821 ± 0.015 | $100\theta_{s,\text{eq}}$ | 0.45193 | 0.4520 ± 0.0027 | χ_{prior}^2 | 1.44 | 7.4 ± 3.7 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4495 | 0.4497 ± 0.0081 | $H(0.15)$ | 72.887 | 72.88 ± 0.47 | χ_{BAO}^2 | 5.49 | 6.2 ± 1.3 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6023 | 0.6025 ± 0.0080 | $D_M(0.15)$ | 641.18 | 641.3 ± 4.7 | χ_{CMB}^2 | 1178.8 | 1192.4 ± 5.5 |

Best-fit $\chi_{\text{eff}}^2 = 1185.74$; $\bar{\chi}_{\text{eff}}^2 = 1206.02$; $R - 1 = 0.01940$

χ_{eff}^2 : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.18 CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.89 commander_dx12_v3.2.29: 22.83 plik_rd12_HM_v22.TT: 760.10

2.3 base_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02212 ± 0.00022 | $\sigma_8 \Omega_m^{0.25}$ | 0.612 ± 0.012 | $H(0.15)$ | 72.28 ± 0.78 |
| $\Omega_c h^2$ | 0.1206 ± 0.0021 | $\sigma_8/h^{0.5}$ | 0.994 ± 0.016 | $D_M(0.15)$ | 647.4 ± 7.9 |
| $100\theta_{MC}$ | 1.04077 ± 0.00047 | $r_{drag}h$ | 98.5 ± 1.6 | $H(0.38)$ | 82.54 ± 0.56 |
| τ | $0.0538^{+0.0047}_{-0.0084}$ | $\langle d^2 \rangle^{1/2}$ | 2.457 ± 0.037 | $D_M(0.38)$ | 1542 ± 16 |
| $\ln(10^{10} A_s)$ | $3.044^{+0.012}_{-0.016}$ | z_{re} | $7.68^{+0.53}_{-0.84}$ | $H(0.51)$ | 89.34 ± 0.44 |
| n_s | 0.9629 ± 0.0057 | $10^9 A_s$ | $2.098^{+0.025}_{-0.034}$ | $D_M(0.51)$ | 1996 ± 18 |
| y_{cal} | 1.0004 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.884 ± 0.014 | $H(0.61)$ | 95.02 ± 0.35 |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1234 ± 15 | $D_M(0.61)$ | 2321 ± 20 |
| $\xi^{tSZ \times CIB}$ | — | D_{220} | 5713 ± 42 | $H(2.33)$ | 236.7 ± 1.3 |
| A_{143}^{tSZ} | $5.1^{+2.2}_{-2.0}$ | D_{810} | 2536 ± 14 | $D_M(2.33)$ | 5777 ± 16 |
| A_{100}^{PS} | 263 ± 28 | D_{1420} | 814.4 ± 5.1 | $f\sigma_8(0.15)$ | 0.464 ± 0.012 |
| A_{143}^{PS} | 49 ± 8 | D_{2000} | 229.6 ± 1.8 | $\sigma_8(0.15)$ | 0.7502 ± 0.0070 |
| $A_{143 \times 217}^{PS}$ | 44 ± 9 | $n_{s,0.002}$ | 0.9629 ± 0.0057 | $f\sigma_8(0.38)$ | 0.4803 ± 0.0095 |
| A_{217}^{PS} | 115 ± 10 | Y_P | $0.24529^{+0.00010}_{-0.000088}$ | $\sigma_8(0.38)$ | $0.6641^{+0.0051}_{-0.0059}$ |
| A^{kSZ} | < 4.79 | Y_P^{BBN} | $0.24661^{+0.00011}_{-0.000088}$ | $f\sigma_8(0.51)$ | 0.4778 ± 0.0081 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $10^5 D/H$ | 2.633 ± 0.042 | $\sigma_8(0.51)$ | $0.6211^{+0.0044}_{-0.0054}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | Age/Gyr | 13.829 ± 0.037 | $f\sigma_8(0.61)$ | 0.4721 ± 0.0071 |
| $A_{143 \times 217}^{dustTT}$ | 18.3 ± 3.3 | z_* | 1090.29 ± 0.41 | $\sigma_8(0.61)$ | $0.5907^{+0.0040}_{-0.0050}$ |
| A_{217}^{dustTT} | 93.3 ± 7.4 | r_* | 144.48 ± 0.48 | $f\sigma_8(2.33)$ | $0.2975^{+0.0018}_{-0.0025}$ |
| c_{100} | 0.99961 ± 0.00062 | $100\theta_*$ | 1.04098 ± 0.00046 | $\sigma_8(2.33)$ | $0.3064^{+0.0019}_{-0.0027}$ |
| c_{217} | 0.99826 ± 0.00063 | $D_M(z_*)/\text{Gpc}$ | 13.879 ± 0.044 | f_{2000}^{143} | 31.1 ± 2.9 |
| H_0 | 66.91 ± 0.92 | z_{drag} | 1059.40 ± 0.46 | $f_{2000}^{143 \times 217}$ | 33.5 ± 2.0 |
| Ω_Λ | 0.680 ± 0.013 | r_{drag} | 147.22 ± 0.48 | f_{2000}^{217} | 108.1 ± 1.9 |
| Ω_m | 0.320 ± 0.013 | k_D | 0.14054 ± 0.00052 | χ_{simall}^2 | 396.9 ± 1.7 |
| $\Omega_m h^2$ | 0.1433 ± 0.0020 | $100\theta_D$ | 0.16107 ± 0.00027 | χ_{lowl}^2 | 23.9 ± 1.3 |
| $\Omega_m h^3$ | 0.09589 ± 0.00046 | z_{eq} | 3410 ± 47 | χ_{plik}^2 | 771.3 ± 5.4 |
| σ_8 | 0.8128 ± 0.0085 | k_{eq} | 0.01041 ± 0.00014 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | 0.840 ± 0.024 | $100\theta_{eq}$ | 0.8113 ± 0.0088 | χ_{CMB}^2 | 1192.0 ± 5.4 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.460 ± 0.013 | $100\theta_{s,eq}$ | 0.4485 ± 0.0046 | | |

$\bar{\chi}_{eff}^2 = 1199.32$; $R - 1 = 0.00921$

2.4 base_plikHM_TT_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02222 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.983 ± 0.011 | $H(0.38)$ | 82.97 ± 0.35 |
| $\Omega_c h^2$ | 0.1189 ± 0.0012 | $r_{\text{drag}} h$ | 99.78 ± 0.94 | $D_M(0.38)$ | 1529.5 ± 9.4 |
| $100\theta_{\text{MC}}$ | 1.04099 ± 0.00041 | $\langle d^2 \rangle^{1/2}$ | 2.431 ± 0.027 | $H(0.51)$ | 89.66 ± 0.29 |
| τ | $0.0552^{+0.0053}_{-0.0087}$ | z_{re} | $7.77^{+0.58}_{-0.89}$ | $D_M(0.51)$ | 1982 ± 11 |
| $\ln(10^{10} A_s)$ | $3.043^{+0.012}_{-0.017}$ | $10^9 A_s$ | $2.097^{+0.026}_{-0.037}$ | $H(0.61)$ | 95.27 ± 0.25 |
| n_s | 0.9665 ± 0.0043 | $10^9 A_s e^{-2\tau}$ | 1.877 ± 0.012 | $D_M(0.61)$ | 2306 ± 12 |
| y_{cal} | 1.0005 ± 0.0025 | D_{40} | 1226 ± 13 | $H(2.33)$ | 235.72 ± 0.79 |
| A_{217}^{CIB} | 48 ± 7 | D_{220} | 5721 ± 41 | $D_M(2.33)$ | 5767 ± 12 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{810} | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.4548 ± 0.0076 |
| A_{143}^{tSZ} | $5.1^{+2.2}_{-2.0}$ | D_{1420} | 815.4 ± 5.0 | $\sigma_8(0.15)$ | $0.7469^{+0.0057}_{-0.0070}$ |
| A_{100}^{PS} | 263 ± 29 | D_{2000} | 230.0 ± 1.8 | $f\sigma_8(0.38)$ | 0.4733 ± 0.0063 |
| A_{143}^{PS} | 48 ± 8 | $n_{s,0.002}$ | 0.9665 ± 0.0043 | $\sigma_8(0.38)$ | $0.6623^{+0.0047}_{-0.0061}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | Y_{P} | $0.245331^{+0.000090}_{-0.000075}$ | $f\sigma_8(0.51)$ | 0.4721 ± 0.0056 |
| A_{217}^{PS} | 114 ± 10 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246657^{+0.000091}_{-0.000075}$ | $\sigma_8(0.51)$ | $0.6198^{+0.0043}_{-0.0056}$ |
| A^{kSZ} | < 4.77 | $10^5 \text{D}/\text{H}$ | 2.615 ± 0.038 | $f\sigma_8(0.61)$ | 0.4673 ± 0.0052 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Age/Gyr | 13.806 ± 0.028 | $\sigma_8(0.61)$ | $0.5898^{+0.0040}_{-0.0053}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | z_* | 1090.02 ± 0.30 | $f\sigma_8(2.33)$ | $0.2974^{+0.0020}_{-0.0027}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | r_* | 144.82 ± 0.32 | $\sigma_8(2.33)$ | $0.3067^{+0.0020}_{-0.0028}$ |
| A_{217}^{dustTT} | 93.3 ± 7.5 | $100\theta_*$ | 1.04119 ± 0.00041 | f_{2000}^{143} | 30.8 ± 2.9 |
| c_{100} | 0.99961 ± 0.00063 | $D_M(z_*)/\text{Gpc}$ | 13.909 ± 0.031 | $f_{2000}^{143 \times 217}$ | 33.3 ± 2.0 |
| c_{217} | 0.99827 ± 0.00062 | z_{drag} | 1059.51 ± 0.45 | f_{2000}^{217} | 107.9 ± 1.9 |
| H_0 | 67.63 ± 0.55 | r_{drag} | 147.54 ± 0.35 | χ_{simall}^2 | 397.1 ± 2.0 |
| Ω_Λ | 0.6898 ± 0.0073 | k_{D} | 0.14028 ± 0.00045 | χ_{lowl}^2 | 23.11 ± 0.93 |
| Ω_{m} | 0.3102 ± 0.0073 | $100\theta_{\text{D}}$ | 0.16101 ± 0.00026 | χ_{plik}^2 | 772.0 ± 5.4 |
| $\Omega_{\text{m}} h^2$ | 0.1418 ± 0.0012 | z_{eq} | 3373 ± 29 | $\chi_{6\text{DF}}^2$ | 0.058 ± 0.075 |
| $\Omega_{\text{m}} h^3$ | 0.09589 ± 0.00046 | k_{eq} | 0.010296 ± 0.000087 | χ_{MGS}^2 | 1.36 ± 0.53 |
| σ_8 | $0.8082^{+0.0066}_{-0.0079}$ | $100\theta_{\text{eq}}$ | 0.8182 ± 0.0053 | χ_{DR12BAO}^2 | 4.8 ± 1.6 |
| S_8 | 0.822 ± 0.015 | $100\theta_{\text{s,eq}}$ | 0.4520 ± 0.0027 | χ_{prior}^2 | 7.4 ± 3.7 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4501 ± 0.0081 | $H(0.15)$ | 72.89 ± 0.47 | χ_{BAO}^2 | 6.2 ± 1.3 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6031 ± 0.0078 | $D_M(0.15)$ | 641.2 ± 4.7 | χ_{CMB}^2 | 1192.2 ± 5.5 |
| $\bar{\chi}_{\text{eff}}^2 = 1205.76; R - 1 = 0.02069$ | | | | | |

2.5 base_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|--------------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022377 | 0.02236 ± 0.00015 | $\Omega_m h^3$ | 0.096355 | 0.09633 ± 0.00029 | $100\theta_{\text{eq}}$ | 0.8128 | 0.8125 ± 0.0058 |
| $\Omega_c h^2$ | 0.12010 | 0.1202 ± 0.0014 | σ_8 | 0.8120 | 0.8120 ± 0.0073 | $100\theta_{\text{s,eq}}$ | 0.44914 | 0.4490 ± 0.0030 |
| $100\theta_{\text{MC}}$ | 1.040920 | 1.04090 ± 0.00031 | S_8 | 0.8331 | 0.834 ± 0.016 | $H(0.15)$ | 72.65 | 72.61 ± 0.52 |
| τ | 0.0543 | $0.0544^{+0.0070}_{-0.0081}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4563 | 0.4568 ± 0.0087 | $D_{\text{M}}(0.15)$ | 643.7 | 644.1 ± 5.2 |
| $\ln(10^{10} A_s)$ | 3.0447 | 3.045 ± 0.016 | $\sigma_8 \Omega_m^{0.25}$ | 0.6087 | 0.6090 ± 0.0081 | $H(0.38)$ | 82.848 | 82.82 ± 0.37 |
| n_s | 0.96589 | 0.9649 ± 0.0044 | $\sigma_8/h^{0.5}$ | 0.9896 | 0.990 ± 0.012 | $D_{\text{M}}(0.38)$ | 1534.0 | 1535 ± 10 |
| y_{cal} | 1.00061 | 1.0005 ± 0.0025 | $r_{\text{drag}} h$ | 99.00 | 98.9 ± 1.0 | $H(0.51)$ | 89.614 | 89.59 ± 0.29 |
| A_{217}^{CIB} | 47.2 | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4451 | 2.448 ± 0.028 | $D_{\text{M}}(0.51)$ | 1986.5 | 1988 ± 12 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.42 | — | z_{re} | 7.68 | 7.68 ± 0.79 | $H(0.61)$ | 95.270 | 95.25 ± 0.24 |
| A_{143}^{tSZ} | 7.23 | $5.5^{+2.2}_{-1.9}$ | $10^9 A_s$ | 2.1004 | $2.101^{+0.031}_{-0.034}$ | $D_{\text{M}}(0.61)$ | 2311.1 | 2312 ± 13 |
| A_{100}^{PS} | 250.5 | 258 ± 28 | $10^9 A_s e^{-2\tau}$ | 1.8843 | 1.884 ± 0.012 | $H(2.33)$ | 236.64 | 236.68 ± 0.82 |
| A_{143}^{PS} | 47.4 | 46 ± 8 | D_{40} | 1229.3 | 1232 ± 13 | $D_{\text{M}}(2.33)$ | 5763.6 | 5765 ± 11 |
| $A_{143 \times 217}^{\text{PS}}$ | 47.3 | 42 ± 9 | D_{220} | 5730.4 | 5731 ± 39 | $f\sigma_8(0.15)$ | 0.4605 | 0.4610 ± 0.0081 |
| A_{217}^{PS} | 119.8 | 115 ± 10 | D_{810} | 2541.1 | 2539 ± 14 | $\sigma_8(0.15)$ | 0.7499 | 0.7498 ± 0.0065 |
| A^{kSZ} | 0.01 | < 4.22 | D_{1420} | 818.28 | 817.2 ± 4.9 | $f\sigma_8(0.38)$ | 0.4779 | 0.4782 ± 0.0066 |
| A_{100}^{dustTT} | 8.86 | 8.9 ± 1.8 | D_{2000} | 231.26 | 230.9 ± 1.6 | $\sigma_8(0.38)$ | 0.6642 | 0.6641 ± 0.0055 |
| A_{143}^{dustTT} | 11.10 | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.96589 | 0.9649 ± 0.0044 | $f\sigma_8(0.51)$ | 0.4760 | 0.4762 ± 0.0058 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.83 | 18.6 ± 3.3 | Y_{P} | 0.245398 | $0.245389^{+0.000062}_{-0.000055}$ | $\sigma_8(0.51)$ | 0.6214 | 0.6213 ± 0.0051 |
| A_{217}^{dustTT} | 95.1 | 93.8 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246725 | $0.246716^{+0.000062}_{-0.000055}$ | $f\sigma_8(0.61)$ | 0.4707 | 0.4708 ± 0.0053 |
| A_{100}^{dustTE} | 0.1142 | 0.114 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.5841 | 2.588 ± 0.028 | $\sigma_8(0.61)$ | 0.59117 | 0.5910 ± 0.0048 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1345 | 0.135 ± 0.030 | Age/Gyr | 13.7973 | 13.800 ± 0.024 | $f\sigma_8(2.33)$ | 0.29790 | 0.2978 ± 0.0024 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.480 ± 0.085 | z_* | 1089.920 | 1089.95 ± 0.27 | $\sigma_8(2.33)$ | 0.30694 | $0.3068^{+0.0024}_{-0.0026}$ |
| A_{143}^{dustTE} | 0.224 | 0.226 ± 0.053 | r_* | 144.399 | 144.39 ± 0.30 | f_{2000}^{143} | 28.90 | 29.5 ± 2.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.666 ± 0.080 | $100\theta_*$ | 1.041097 | 1.04109 ± 0.00030 | $f_{2000}^{143 \times 217}$ | 32.04 | 32.2 ± 1.9 |
| A_{217}^{dustTE} | 2.081 | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8699 | 13.869 ± 0.028 | f_{2000}^{217} | 106.69 | 107.0 ± 1.8 |
| c_{100} | 0.99969 | 0.99966 ± 0.00062 | z_{drag} | 1059.971 | 1059.93 ± 0.30 | χ_{small}^2 | 396.05 | 397.1 ± 2.0 |
| c_{217} | 0.99816 | 0.99819 ± 0.00062 | r_{drag} | 147.055 | 147.05 ± 0.30 | χ_{lowl}^2 | 23.26 | 23.55 ± 0.97 |
| H_0 | 67.32 | 67.27 ± 0.60 | k_{D} | 0.140910 | 0.14090 ± 0.00032 | χ_{plik}^2 | 2344.6 | 2359.5 ± 5.8 |
| Ω_{Λ} | 0.6842 | 0.6834 ± 0.0084 | $100\theta_{\text{D}}$ | 0.160744 | 0.16077 ± 0.00017 | χ_{prior}^2 | 1.82 | 11.6 ± 4.5 |
| Ω_{m} | 0.3158 | 0.3166 ± 0.0084 | z_{eq} | 3404.9 | 3407 ± 31 | χ_{CMB}^2 | 2764.0 | 2780.2 ± 5.8 |
| $\Omega_{\text{m}} h^2$ | 0.14313 | 0.1432 ± 0.0013 | k_{eq} | 0.010392 | 0.010398 ± 0.000094 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2765.77$; $\bar{\chi}_{\text{eff}}^2 = 2791.77$; $R - 1 = 0.01231$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.05 commander_dx12_v3.2_29: 23.26 plik_rd12_HM_v22b_TTTEEE: 2344.65

2.6 base_plikHM_TTTEEE_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022432 | 0.02242 ± 0.00013 | σ_8 | 0.8098 | 0.8099 ± 0.0071 | $H(0.15)$ | 72.968 | 72.94 ± 0.39 |
| $\Omega_c h^2$ | 0.11926 | 0.1193 ± 0.0010 | S_8 | 0.8240 | 0.825 ± 0.012 | $D_M(0.15)$ | 640.50 | 640.8 ± 3.8 |
| $100\theta_{MC}$ | 1.041000 | 1.04101 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.4513 | 0.4517 ± 0.0068 | $H(0.38)$ | 83.072 | 83.05 ± 0.28 |
| τ | 0.0553 | $0.0559^{+0.0068}_{-0.0084}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6046 | 0.6048 ± 0.0068 | $D_M(0.38)$ | 1527.8 | 1528.3 ± 7.7 |
| $\ln(10^{10} A_s)$ | 3.0452 | $3.046^{+0.015}_{-0.017}$ | $\sigma_8/h^{0.5}$ | 0.9843 | 0.985 ± 0.010 | $H(0.51)$ | 89.785 | 89.77 ± 0.23 |
| n_s | 0.96801 | 0.9670 ± 0.0038 | $r_{drag} h$ | 99.66 | 99.62 ± 0.78 | $D_M(0.51)$ | 1979.2 | 1979.8 ± 9.0 |
| y_{cal} | 1.00071 | 1.0006 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4326 | 2.436 ± 0.024 | $H(0.61)$ | 95.401 | 95.39 ± 0.19 |
| A_{217}^{CIB} | 46.7 | 47 ± 7 | z_{re} | 7.76 | $7.80^{+0.72}_{-0.81}$ | $D_M(0.61)$ | 2303.2 | 2303.8 ± 9.7 |
| $\xi^{tSZ \times CIB}$ | 0.54 | — | $10^9 A_s$ | 2.1014 | $2.103^{+0.030}_{-0.036}$ | $H(2.33)$ | 236.14 | 236.17 ± 0.62 |
| A_{143}^{tSZ} | 7.12 | $5.5^{+2.1}_{-1.8}$ | $10^9 A_s e^{-2\tau}$ | 1.8813 | 1.880 ± 0.011 | $D_M(2.33)$ | 5758.2 | 5758.8 ± 8.9 |
| A_{100}^{PS} | 248.9 | 258 ± 28 | D_{40} | 1225.2 | 1227 ± 12 | $f\sigma_8(0.15)$ | 0.4560 | 0.4563 ± 0.0064 |
| A_{143}^{PS} | 48.6 | 45 ± 8 | D_{220} | 5735.3 | 5735 ± 38 | $\sigma_8(0.15)$ | 0.7484 | 0.7485 ± 0.0064 |
| $A_{143 \times 217}^{PS}$ | 49.8 | 42 ± 9 | D_{810} | 2541.5 | 2539 ± 13 | $f\sigma_8(0.38)$ | 0.4745 | 0.4747 ± 0.0055 |
| A_{217}^{PS} | 120.4 | 115.0 ± 9.9 | D_{1420} | 819.11 | 817.8 ± 4.8 | $\sigma_8(0.38)$ | 0.6635 | $0.6635^{+0.0051}_{-0.0058}$ |
| A^{kSZ} | 0.00 | < 4.18 | D_{2000} | 231.58 | 231.1 ± 1.6 | $f\sigma_8(0.51)$ | 0.47322 | 0.4734 ± 0.0050 |
| A_{100}^{dustTT} | 8.89 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.96801 | 0.9670 ± 0.0038 | $\sigma_8(0.51)$ | 0.6210 | $0.6210^{+0.0047}_{-0.0054}$ |
| A_{143}^{dustTT} | 11.01 | 10.9 ± 1.8 | Y_P | 0.245420 | $0.245413^{+0.000055}_{-0.000048}$ | $f\sigma_8(0.61)$ | 0.46832 | 0.4685 ± 0.0047 |
| $A_{143 \times 217}^{dustTT}$ | 19.94 | 18.6 ± 3.3 | Y_P^{BBN} | 0.246746 | $0.246739^{+0.000055}_{-0.000048}$ | $\sigma_8(0.61)$ | 0.59088 | $0.5909^{+0.0045}_{-0.0051}$ |
| A_{217}^{dustTT} | 95.2 | 93.8 ± 7.2 | $10^5 D/H$ | 2.5740 | 2.577 ± 0.025 | $f\sigma_8(2.33)$ | 0.29796 | $0.2979^{+0.0022}_{-0.0026}$ |
| A_{100}^{dustTE} | 0.1145 | 0.113 ± 0.038 | Age/Gyr | 13.7857 | 13.787 ± 0.020 | $\sigma_8(2.33)$ | 0.30722 | $0.3072^{+0.0023}_{-0.0027}$ |
| $A_{100 \times 143}^{dustTE}$ | 0.1349 | 0.135 ± 0.030 | z_* | 1089.776 | 1089.80 ± 0.22 | f_{2000}^{143} | 28.52 | 29.3 ± 2.7 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 | 0.479 ± 0.086 | r_* | 144.576 | 144.57 ± 0.24 | $f_{2000}^{143 \times 217}$ | 31.78 | 32.0 ± 1.9 |
| A_{143}^{dustTE} | 0.225 | 0.225 ± 0.054 | $100\theta_*$ | 1.041178 | 1.04119 ± 0.00028 | f_{2000}^{217} | 106.39 | 106.8 ± 1.7 |
| $A_{143 \times 217}^{dustTE}$ | 0.666 | 0.665 ± 0.080 | $D_M(z_*)/\text{Gpc}$ | 13.8858 | 13.885 ± 0.023 | χ_{small}^2 | 396.20 | 397.3 ± 2.2 |
| A_{217}^{dustTE} | 2.081 | 2.09 ± 0.26 | z_{drag} | 1060.009 | 1060.00 ± 0.29 | χ_{lowl}^2 | 22.87 | 23.13 ± 0.82 |
| c_{100} | 0.99971 | 0.99966 ± 0.00063 | r_{drag} | 147.221 | 147.22 ± 0.24 | χ_{plik}^2 | 2345.5 | 2359.6 ± 5.8 |
| c_{217} | 0.99817 | 0.99817 ± 0.00061 | k_D | 0.140779 | 0.14077 ± 0.00029 | χ_{6DF}^2 | 0.0288 | 0.057 ± 0.066 |
| H_0 | 67.693 | 67.67 ± 0.45 | $100\theta_D$ | 0.160709 | 0.16073 ± 0.00017 | χ_{MGS}^2 | 1.217 | 1.25 ± 0.42 |
| Ω_Λ | 0.6894 | 0.6890 ± 0.0061 | z_{eq} | 3385.9 | 3387 ± 23 | $\chi_{DR12BAO}^2$ | 4.41 | 4.9 ± 1.4 |
| Ω_m | 0.3106 | 0.3110 ± 0.0061 | k_{eq} | 0.010334 | 0.010338 ± 0.000070 | χ_{prior}^2 | 1.68 | 11.6 ± 4.6 |
| $\Omega_m h^2$ | 0.14233 | 0.14238 ± 0.00096 | $100\theta_{eq}$ | 0.81645 | 0.8162 ± 0.0043 | χ_{BAO}^2 | 5.66 | 6.2 ± 1.2 |
| $\Omega_m h^3$ | 0.096350 | 0.09634 ± 0.00028 | $100\theta_{s,eq}$ | 0.45098 | 0.4509 ± 0.0022 | χ_{CMB}^2 | 2764.6 | 2780.1 ± 5.7 |

Best-fit $\chi_{\text{eff}}^2 = 2771.92$; $\bar{\chi}_{\text{eff}}^2 = 2797.91$; $R - 1 = 0.01929$
 χ_{eff}^2 : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.41 CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.20 commander_dx12_v3_2_29: 22.87 plik_rd12_HM_v22b_TTTEEE: 2345.51

2.7 base_plikHM_TTTEEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02236 ± 0.00015 | $\Omega_{\text{m}}h^3$ | 0.09633 ± 0.00029 | $100\theta_{\text{eq}}$ | 0.8126 ± 0.0058 |
| $\Omega_{\text{c}}h^2$ | 0.1202 ± 0.0014 | σ_8 | $0.8127^{+0.0063}_{-0.0073}$ | $100\theta_{\text{s,eq}}$ | 0.4490 ± 0.0029 |
| $100\theta_{\text{MC}}$ | 1.04091 ± 0.00031 | S_8 | 0.834 ± 0.016 | $H(0.15)$ | 72.62 ± 0.51 |
| τ | $0.0555^{+0.0051}_{-0.0084}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4571 ± 0.0087 | $D_{\text{M}}(0.15)$ | 644.0 ± 5.2 |
| $\ln(10^{10}A_{\text{s}})$ | $3.047^{+0.012}_{-0.016}$ | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6094 ± 0.0080 | $H(0.38)$ | 82.83 ± 0.37 |
| n_{s} | 0.9650 ± 0.0044 | $\sigma_8/h^{0.5}$ | 0.991 ± 0.011 | $D_{\text{M}}(0.38)$ | 1535 ± 10 |
| y_{cal} | 1.0005 ± 0.0025 | $r_{\text{drag}}h$ | 99.0 ± 1.0 | $H(0.51)$ | 89.60 ± 0.29 |
| A_{217}^{CIB} | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.450 ± 0.027 | $D_{\text{M}}(0.51)$ | 1987 ± 12 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | z_{re} | $7.79^{+0.56}_{-0.83}$ | $H(0.61)$ | 95.26 ± 0.23 |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | $10^9 A_{\text{s}}$ | $2.105^{+0.025}_{-0.034}$ | $D_{\text{M}}(0.61)$ | 2312 ± 13 |
| A_{100}^{PS} | 258 ± 28 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.884 ± 0.012 | $H(2.33)$ | 236.66 ± 0.81 |
| A_{143}^{PS} | 46 ± 8 | D_{40} | 1232 ± 13 | $D_{\text{M}}(2.33)$ | 5764 ± 11 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{220} | 5731 ± 38 | $f\sigma_8(0.15)$ | 0.4612 ± 0.0080 |
| A_{217}^{PS} | 115 ± 10 | D_{810} | 2539 ± 14 | $\sigma_8(0.15)$ | $0.7505^{+0.0054}_{-0.0065}$ |
| A^{kSZ} | < 4.21 | D_{1420} | 817.2 ± 4.9 | $f\sigma_8(0.38)$ | 0.4785 ± 0.0065 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | D_{2000} | 230.9 ± 1.6 | $\sigma_8(0.38)$ | $0.6647^{+0.0044}_{-0.0056}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.9650 ± 0.0044 | $f\sigma_8(0.51)$ | 0.4766 ± 0.0057 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | Y_{P} | $0.245391^{+0.000061}_{-0.000055}$ | $\sigma_8(0.51)$ | $0.6219^{+0.0040}_{-0.0052}$ |
| A_{217}^{dustTT} | 93.8 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246717^{+0.000062}_{-0.000055}$ | $f\sigma_8(0.61)$ | 0.4712 ± 0.0051 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | 10^5D/H | 2.587 ± 0.027 | $\sigma_8(0.61)$ | $0.5916^{+0.0038}_{-0.0049}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | Age/Gyr | 13.799 ± 0.024 | $f\sigma_8(2.33)$ | $0.2981^{+0.0018}_{-0.0025}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.085 | z_* | 1089.94 ± 0.27 | $\sigma_8(2.33)$ | $0.3071^{+0.0019}_{-0.0026}$ |
| A_{143}^{dustTE} | 0.226 ± 0.053 | r_* | 144.40 ± 0.30 | f_{2000}^{143} | 29.4 ± 2.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 ± 0.080 | $100\theta_*$ | 1.04109 ± 0.00030 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.9 |
| A_{217}^{dustTE} | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.870 ± 0.028 | f_{2000}^{217} | 106.9 ± 1.8 |
| c_{100} | 0.99966 ± 0.00062 | z_{drag} | 1059.93 ± 0.30 | χ_{small}^2 | 397.1 ± 2.0 |
| c_{217} | 0.99819 ± 0.00062 | r_{drag} | 147.06 ± 0.30 | χ_{lowl}^2 | 23.56 ± 0.97 |
| H_0 | 67.29 ± 0.60 | k_{D} | 0.14090 ± 0.00032 | χ_{plik}^2 | 2359.3 ± 5.7 |
| Ω_{Λ} | 0.6837 ± 0.0084 | $100\theta_{\text{D}}$ | 0.16076 ± 0.00017 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_{m} | 0.3163 ± 0.0084 | z_{eq} | 3406 ± 31 | χ_{CMB}^2 | 2779.9 ± 5.7 |
| $\Omega_{\text{m}}h^2$ | 0.1432 ± 0.0013 | k_{eq} | 0.010395 ± 0.000094 | | |

$\bar{\chi}_{\text{eff}}^2 = 2791.53$; $R - 1 = 0.01241$

2.8 base_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02242 ± 0.00013 | σ_8 | $0.8105^{+0.0060}_{-0.0072}$ | $H(0.15)$ | 72.95 ± 0.39 |
| $\Omega_c h^2$ | 0.1193 ± 0.0010 | S_8 | 0.825 ± 0.012 | $D_M(0.15)$ | 640.7 ± 3.8 |
| $100\theta_{MC}$ | 1.04101 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.4519 ± 0.0067 | $H(0.38)$ | 83.06 ± 0.28 |
| τ | $0.0566^{+0.0053}_{-0.0086}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6052 ± 0.0067 | $D_M(0.38)$ | 1528.1 ± 7.7 |
| $\ln(10^{10} A_s)$ | $3.047^{+0.012}_{-0.017}$ | $\sigma_8/h^{0.5}$ | $0.9852^{+0.0091}_{-0.010}$ | $H(0.51)$ | 89.78 ± 0.23 |
| n_s | 0.9670 ± 0.0037 | $r_{\text{drag}} h$ | 99.63 ± 0.78 | $D_M(0.51)$ | 1979.6 ± 9.0 |
| y_{cal} | 1.0006 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.437 ± 0.023 | $H(0.61)$ | 95.39 ± 0.19 |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.88^{+0.58}_{-0.85}$ | $D_M(0.61)$ | 2303.6 ± 9.7 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s$ | $2.106^{+0.025}_{-0.036}$ | $H(2.33)$ | 236.16 ± 0.62 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.8}$ | $10^9 A_s e^{-2\tau}$ | 1.880 ± 0.011 | $D_M(2.33)$ | 5758.7 ± 8.8 |
| A_{100}^{PS} | 258 ± 28 | D_{40} | 1227 ± 11 | $f\sigma_8(0.15)$ | 0.4565 ± 0.0063 |
| A_{143}^{PS} | 45 ± 8 | D_{220} | 5735 ± 37 | $\sigma_8(0.15)$ | $0.7490^{+0.0053}_{-0.0066}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{810} | 2539 ± 13 | $f\sigma_8(0.38)$ | 0.4750 ± 0.0054 |
| A_{217}^{PS} | 115.0 ± 9.9 | D_{1420} | 817.8 ± 4.8 | $\sigma_8(0.38)$ | $0.6640^{+0.0044}_{-0.0058}$ |
| A^{kSZ} | < 4.17 | D_{2000} | 231.1 ± 1.6 | $f\sigma_8(0.51)$ | 0.4737 ± 0.0049 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.9670 ± 0.0037 | $\sigma_8(0.51)$ | $0.6214^{+0.0041}_{-0.0054}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P | $0.245414^{+0.000055}_{-0.000048}$ | $f\sigma_8(0.61)$ | $0.4687^{+0.0042}_{-0.0047}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.2 | Y_P^{BBN} | $0.246740^{+0.000055}_{-0.000048}$ | $\sigma_8(0.61)$ | $0.5913^{+0.0038}_{-0.0052}$ |
| A_{217}^{dustTT} | 93.7 ± 7.2 | $10^5 D/H$ | 2.577 ± 0.025 | $f\sigma_8(2.33)$ | $0.2982^{+0.0019}_{-0.0026}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | Age/Gyr | 13.787 ± 0.020 | $\sigma_8(2.33)$ | $0.3074^{+0.0020}_{-0.0027}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | z_* | 1089.80 ± 0.22 | f_{2000}^{143} | 29.2 ± 2.7 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.478 ± 0.086 | r_* | 144.57 ± 0.23 | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.9 |
| A_{143}^{dustTE} | 0.225 ± 0.054 | $100\theta_*$ | 1.04119 ± 0.00028 | f_{2000}^{217} | 106.8 ± 1.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 ± 0.080 | $D_M(z_*)/\text{Gpc}$ | 13.886 ± 0.023 | χ_{simall}^2 | 397.3 ± 2.2 |
| A_{217}^{dustTE} | 2.09 ± 0.27 | z_{drag} | 1060.00 ± 0.29 | χ_{lowl}^2 | 23.14 ± 0.81 |
| c_{100} | 0.99966 ± 0.00063 | r_{drag} | 147.22 ± 0.24 | χ_{plik}^2 | 2359.5 ± 5.7 |
| c_{217} | 0.99817 ± 0.00061 | k_D | 0.14077 ± 0.00029 | $\chi_{6\text{DF}}^2$ | 0.056 ± 0.065 |
| H_0 | 67.67 ± 0.45 | $100\theta_D$ | 0.16072 ± 0.00017 | χ_{MGS}^2 | 1.26 ± 0.42 |
| Ω_Λ | 0.6891 ± 0.0061 | z_{eq} | 3387 ± 23 | χ_{DR12BAO}^2 | 4.9 ± 1.4 |
| Ω_m | 0.3109 ± 0.0061 | k_{eq} | 0.010336 ± 0.000070 | χ_{prior}^2 | 11.6 ± 4.6 |
| $\Omega_m h^2$ | 0.14237 ± 0.00096 | $100\theta_{\text{eq}}$ | 0.8163 ± 0.0043 | χ_{BAO}^2 | 6.2 ± 1.1 |
| $\Omega_m h^3$ | 0.09634 ± 0.00028 | $100\theta_{s,\text{eq}}$ | 0.4509 ± 0.0022 | χ_{CMB}^2 | 2779.9 ± 5.6 |

$$\bar{\chi}_{\text{eff}}^2 = 2797.72; R - 1 = 0.02064$$

2.9 base_plikHM_TT_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022174 | 0.02214 ± 0.00020 | $\sigma_8 \Omega_m^{0.25}$ | 0.6085 | 0.6086 ± 0.0076 | $H(0.15)$ | 72.46 | 72.41 ± 0.60 |
| $\Omega_c h^2$ | 0.12010 | 0.1202 ± 0.0015 | $\sigma_8/h^{0.5}$ | 0.9896 | 0.990 ± 0.010 | $D_M(0.15)$ | 645.5 | 646.1 ± 6.0 |
| $100\theta_{MC}$ | 1.040829 | 1.04080 ± 0.00046 | $r_{drag}h$ | 98.86 | 98.8 ± 1.2 | $H(0.38)$ | 82.667 | 82.62 ± 0.44 |
| τ | 0.0527 | 0.0524 ± 0.0079 | $\langle d^2 \rangle^{1/2}$ | 2.4428 | 2.447 ± 0.025 | $D_M(0.38)$ | 1538.0 | 1539 ± 12 |
| $\ln(10^{10} A_s)$ | 3.0404 | 3.040 ± 0.015 | z_{re} | 7.55 | 7.52 ± 0.80 | $H(0.51)$ | 89.437 | 89.40 ± 0.35 |
| n_s | 0.96529 | 0.9634 ± 0.0048 | $10^9 A_s$ | 2.0913 | 2.091 ± 0.031 | $D_M(0.51)$ | 1991.4 | 1993 ± 14 |
| y_{cal} | 1.00033 | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8823 | 1.882 ± 0.011 | $H(0.61)$ | 95.097 | 95.06 ± 0.29 |
| A_{217}^{CIB} | 47.9 | 48 ± 7 | D_{40} | 1227.4 | 1232 ± 13 | $D_M(0.61)$ | 2316.6 | 2318 ± 15 |
| $\xi^{tSZ \times CIB}$ | 0.44 | — | D_{220} | 5710.2 | 5716 ± 40 | $H(2.33)$ | 236.43 | 236.45 ± 0.94 |
| A_{143}^{tSZ} | 6.92 | 5.0 ± 2.0 | D_{810} | 2537.7 | 2536 ± 13 | $D_M(2.33)$ | 5773.5 | 5775 ± 14 |
| A_{100}^{PS} | 253.7 | 264 ± 28 | D_{1420} | 816.0 | 814.5 ± 5.1 | $f\sigma_8(0.15)$ | 0.4608 | 0.4611 ± 0.0080 |
| A_{143}^{PS} | 51.1 | 49 ± 8 | D_{2000} | 230.18 | 229.6 ± 1.8 | $\sigma_8(0.15)$ | 0.7486 | 0.7482 ± 0.0056 |
| $A_{143 \times 217}^{PS}$ | 49.9 | 43 ± 9 | $n_{s,0.002}$ | 0.96529 | 0.9634 ± 0.0048 | $f\sigma_8(0.38)$ | 0.4778 | 0.4779 ± 0.0062 |
| A_{217}^{PS} | 120.7 | 115 ± 10 | Y_P | 0.245315 | $0.245295^{+0.000095}_{-0.000081}$ | $\sigma_8(0.38)$ | 0.66299 | 0.6625 ± 0.0049 |
| A^{kSZ} | 0.01 | < 5.00 | Y_P^{BBN} | 0.246641 | $0.246622^{+0.000096}_{-0.000081}$ | $f\sigma_8(0.51)$ | 0.4757 | 0.4757 ± 0.0053 |
| A_{100}^{dustTT} | 8.86 | 8.9 ± 1.8 | $10^5 D/H$ | 2.6229 | 2.630 ± 0.039 | $\sigma_8(0.51)$ | 0.62019 | 0.6197 ± 0.0046 |
| A_{143}^{dustTT} | 10.80 | 10.7 ± 1.8 | Age/Gyr | 13.8206 | 13.825 ± 0.032 | $f\sigma_8(0.61)$ | 0.47032 | 0.4702 ± 0.0047 |
| $A_{143 \times 217}^{dustTT}$ | 19.54 | 18.3 ± 3.3 | z_* | 1090.177 | 1090.23 ± 0.34 | $\sigma_8(0.61)$ | 0.58997 | 0.5895 ± 0.0044 |
| A_{217}^{dustTT} | 94.8 | 93.2 ± 7.4 | r_* | 144.554 | 144.56 ± 0.36 | $f\sigma_8(2.33)$ | 0.29724 | 0.2970 ± 0.0023 |
| c_{100} | 0.99966 | 0.99961 ± 0.00062 | $100\theta_*$ | 1.041029 | 1.04101 ± 0.00045 | $\sigma_8(2.33)$ | 0.30620 | 0.3059 ± 0.0026 |
| c_{217} | 0.99826 | 0.99826 ± 0.00063 | $D_M(z_*)/\text{Gpc}$ | 13.8857 | 13.886 ± 0.034 | f_{2000}^{143} | 30.17 | 31.3 ± 2.9 |
| H_0 | 67.12 | 67.06 ± 0.70 | z_{drag} | 1059.475 | 1059.41 ± 0.44 | $f_{2000}^{143 \times 217}$ | 33.12 | 33.6 ± 2.0 |
| Ω_Λ | 0.6828 | 0.6819 ± 0.0097 | r_{drag} | 147.284 | 147.30 ± 0.38 | f_{2000}^{217} | 107.51 | 108.2 ± 1.9 |
| Ω_m | 0.3172 | 0.3181 ± 0.0097 | k_D | 0.140513 | 0.14047 ± 0.00045 | $\chi_{lensing}^2$ | 8.902 | 9.45 ± 0.86 |
| $\Omega_m h^2$ | 0.14292 | 0.1430 ± 0.0015 | $100\theta_D$ | 0.161015 | 0.16106 ± 0.00026 | χ_{small}^2 | 395.86 | 396.9 ± 1.6 |
| $\Omega_m h^3$ | 0.095935 | 0.09587 ± 0.00045 | z_{eq} | 3400.0 | 3401 ± 35 | χ_{lowl}^2 | 23.23 | 23.7 ± 1.0 |
| σ_8 | 0.8108 | 0.8104 ± 0.0063 | k_{eq} | 0.010377 | 0.01038 ± 0.00011 | χ_{plik}^2 | 759.32 | 771.1 ± 5.2 |
| S_8 | 0.8337 | 0.834 ± 0.016 | $100\theta_{eq}$ | 0.8131 | 0.8128 ± 0.0066 | χ_{prior}^2 | 1.25 | 7.3 ± 3.6 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4566 | 0.4570 ± 0.0087 | $100\theta_{s,eq}$ | 0.44941 | 0.4493 ± 0.0034 | χ_{CMB}^2 | 1187.3 | 1201.1 ± 5.5 |

Best-fit $\chi_{eff}^2 = 1188.57$; $\bar{\chi}_{eff}^2 = 1208.41$; $R - 1 = 0.00560$

χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.90 simall_100x143_offlike5_EE_Aplanck_B: 395.86 commander_dx12_v3.2_29: 23.23 plik_rd12_HM_v22_TT: 759.32

2.10 base_plikHM_TT_lowl_lowE_lensing_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022224 | 0.02221 ± 0.00019 | $r_{\text{drag}} h$ | 99.65 | 99.63 ± 0.83 | $H(0.51)$ | 89.633 | 89.63 ± 0.27 |
| $\Omega_c h^2$ | 0.11909 | 0.1191 ± 0.0011 | $\langle d^2 \rangle^{1/2}$ | 2.4309 | 2.436 ± 0.022 | $D_M(0.51)$ | 1982.8 | 1983 ± 10 |
| $100\theta_{\text{MC}}$ | 1.040933 | 1.04097 ± 0.00042 | z_{re} | 7.71 | 7.77 ± 0.75 | $H(0.61)$ | 95.244 | 95.24 ± 0.23 |
| τ | 0.0544 | 0.0552 ± 0.0074 | $10^9 A_s$ | 2.0948 | $2.099^{+0.029}_{-0.032}$ | $D_M(0.61)$ | 2307.4 | 2308 ± 11 |
| $\ln(10^{10} A_s)$ | 3.0421 | 3.044 ± 0.015 | $10^9 A_s e^{-2\tau}$ | 1.8788 | 1.879 ± 0.011 | $H(2.33)$ | 235.81 | 235.83 ± 0.71 |
| n_s | 0.96694 | 0.9659 ± 0.0041 | D_{40} | 1225.0 | 1228 ± 12 | $D_M(2.33)$ | 5767.6 | 5768 ± 12 |
| y_{cal} | 1.00051 | 1.0007 ± 0.0025 | D_{220} | 5719.8 | 5724 ± 39 | $f\sigma_8(0.15)$ | 0.4555 | 0.4560 ± 0.0060 |
| A_{217}^{CIB} | 48.5 | 48 ± 7 | D_{810} | 2537.5 | 2537 ± 13 | $\sigma_8(0.15)$ | 0.7471 | 0.7477 ± 0.0056 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.33 | — | D_{1420} | 816.36 | 815.6 ± 4.9 | $f\sigma_8(0.38)$ | 0.4739 | 0.4744 ± 0.0050 |
| A_{143}^{tSZ} | 7.04 | $5.1^{+2.2}_{-2.0}$ | D_{2000} | 230.29 | 230.0 ± 1.7 | $\sigma_8(0.38)$ | 0.66232 | 0.6628 ± 0.0049 |
| A_{100}^{PS} | 253.4 | 263 ± 28 | $n_{\text{s},0.002}$ | 0.96694 | 0.9659 ± 0.0041 | $f\sigma_8(0.51)$ | 0.47256 | 0.4730 ± 0.0045 |
| A_{143}^{PS} | 49.0 | 49 ± 8 | Y_{P} | 0.245336 | $0.245326^{+0.000085}_{-0.000075}$ | $\sigma_8(0.51)$ | 0.61984 | 0.6203 ± 0.0046 |
| $A_{143 \times 217}^{\text{PS}}$ | 46.8 | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246662 | $0.246652^{+0.000085}_{-0.000076}$ | $f\sigma_8(0.61)$ | 0.46764 | 0.4680 ± 0.0041 |
| A_{217}^{PS} | 119.3 | 115 ± 10 | $10^5 D/H$ | 2.6134 | 2.617 ± 0.036 | $\sigma_8(0.61)$ | 0.58980 | 0.5902 ± 0.0044 |
| A^{kSZ} | 0.03 | < 4.82 | Age/Gyr | 13.8079 | 13.809 ± 0.027 | $f\sigma_8(2.33)$ | 0.29740 | $0.2976^{+0.0021}_{-0.0024}$ |
| A_{100}^{dustTT} | 8.84 | 8.9 ± 1.8 | z_* | 1090.027 | 1090.05 ± 0.28 | $\sigma_8(2.33)$ | 0.30663 | $0.3068^{+0.0023}_{-0.0026}$ |
| A_{143}^{dustTT} | 10.77 | 10.7 ± 1.8 | r_* | 144.779 | 144.78 ± 0.29 | f_{2000}^{143} | 30.08 | 30.9 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.36 | 18.3 ± 3.3 | $100\theta_*$ | 1.041135 | 1.04117 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 33.01 | 33.3 ± 2.0 |
| A_{217}^{dustTT} | 94.5 | 93.4 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.9059 | 13.906 ± 0.029 | f_{2000}^{217} | 107.49 | 107.9 ± 1.9 |
| c_{100} | 0.99966 | 0.99963 ± 0.00062 | z_{drag} | 1059.513 | 1059.49 ± 0.43 | χ^2_{lensing} | 8.875 | 9.26 ± 0.70 |
| c_{217} | 0.99822 | 0.99826 ± 0.00062 | r_{drag} | 147.498 | 147.50 ± 0.32 | χ^2_{simall} | 396.09 | 397.1 ± 1.8 |
| H_0 | 67.559 | 67.54 ± 0.49 | k_{D} | 0.140329 | 0.14031 ± 0.00043 | χ^2_{lowl} | 22.96 | 23.24 ± 0.87 |
| Ω_Λ | 0.6890 | 0.6887 ± 0.0065 | $100\theta_{\text{D}}$ | 0.160992 | 0.16102 ± 0.00025 | χ^2_{plik} | 759.80 | 771.6 ± 5.2 |
| Ω_{m} | 0.3110 | 0.3113 ± 0.0065 | z_{eq} | 3376.9 | 3378 ± 26 | $\chi^2_{6\text{DF}}$ | 0.0292 | 0.060 ± 0.071 |
| $\Omega_{\text{m}} h^2$ | 0.14196 | 0.1420 ± 0.0011 | k_{eq} | 0.010307 | 0.010309 ± 0.000078 | χ^2_{MGS} | 1.217 | 1.27 ± 0.46 |
| $\Omega_{\text{m}} h^3$ | 0.095904 | 0.09590 ± 0.00045 | $100\theta_{\text{eq}}$ | 0.81745 | 0.8173 ± 0.0047 | χ^2_{DR12BAO} | 4.37 | 4.9 ± 1.5 |
| σ_8 | 0.8085 | 0.8091 ± 0.0062 | $100\theta_{\text{s,eq}}$ | 0.45166 | 0.4516 ± 0.0024 | χ^2_{prior} | 1.34 | 7.3 ± 3.6 |
| S_8 | 0.8232 | 0.824 ± 0.012 | $H(0.15)$ | 72.831 | 72.82 ± 0.42 | χ^2_{CMB} | 1187.7 | 1201.2 ± 5.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4509 | 0.4514 ± 0.0064 | $D_M(0.15)$ | 641.74 | 641.9 ± 4.2 | χ^2_{BAO} | 5.62 | 6.2 ± 1.2 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6038 | 0.6043 ± 0.0062 | $H(0.38)$ | 82.926 | 82.92 ± 0.32 | | | |
| $\sigma_8/h^{0.5}$ | 0.9836 | 0.9845 ± 0.0089 | $D_M(0.38)$ | 1530.6 | 1530.9 ± 8.5 | | | |

Best-fit $\chi^2_{\text{eff}} = 1194.68$; $\bar{\chi}^2_{\text{eff}} = 1214.73$; $R - 1 = 0.01723$

χ^2_{eff} : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.37 CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.88 simall_100x143_offlike5_EE_Aplanck_B: 396.09 commander_dx12_v3_2_29: 22.96 plik_rd12_HM_v22_TT: 759.80

2.11 base_plikHM_TT_lowl_lowE_lensing_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022191 | 0.02217 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.9871 | 0.9874 ± 0.0099 | $H(0.38)$ | 82.760 | 82.75 ± 0.41 |
| $\Omega_c h^2$ | 0.11977 | 0.1197 ± 0.0014 | $r_{\text{drag}} h$ | 99.13 | 99.2 ± 1.1 | $D_M(0.38)$ | 1535.4 | 1536 ± 11 |
| $100\theta_{\text{MC}}$ | 1.040888 | 1.04087 ± 0.00045 | $\langle d^2 \rangle^{1/2}$ | 2.4391 | 2.442 ± 0.024 | $H(0.51)$ | 89.509 | 89.50 ± 0.33 |
| τ | 0.0527 | 0.0536 ± 0.0078 | z_{re} | 7.55 | 7.63 ± 0.78 | $D_M(0.51)$ | 1988.4 | 1989 ± 13 |
| $\ln(10^{10} A_s)$ | 3.0404 | 3.042 ± 0.015 | $10^9 A_s$ | 2.0913 | 2.094 ± 0.031 | $H(0.61)$ | 95.152 | 95.14 ± 0.28 |
| n_s | 0.96535 | 0.9645 ± 0.0046 | $10^9 A_s e^{-2\tau}$ | 1.8820 | 1.881 ± 0.011 | $D_M(0.61)$ | 2313.3 | 2314 ± 14 |
| y_{cal} | 1.00064 | 1.0006 ± 0.0025 | D_{40} | 1228.3 | 1230 ± 12 | $H(2.33)$ | 236.23 | 236.18 ± 0.88 |
| A_{217}^{CIB} | 49.8 | 48 ± 7 | D_{220} | 5718.5 | 5720 ± 40 | $D_M(2.33)$ | 5771.1 | 5772 ± 13 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.14 | — | D_{810} | 2538.4 | 2537 ± 13 | $f\sigma_8(0.15)$ | 0.4588 | 0.4588 ± 0.0074 |
| A_{143}^{tSZ} | 7.12 | $5.1^{+2.2}_{-2.0}$ | D_{1420} | 816.2 | 815.1 ± 5.0 | $\sigma_8(0.15)$ | 0.7478 | 0.7480 ± 0.0056 |
| A_{100}^{PS} | 255.7 | 263 ± 28 | D_{2000} | 230.19 | 229.8 ± 1.8 | $f\sigma_8(0.38)$ | 0.4763 | 0.4764 ± 0.0058 |
| A_{143}^{PS} | 46.5 | 49 ± 8 | $n_{s,0.002}$ | 0.96535 | 0.9645 ± 0.0046 | $\sigma_8(0.38)$ | 0.66251 | 0.6626 ± 0.0049 |
| $A_{143 \times 217}^{\text{PS}}$ | 42.0 | 43 ± 9 | Y_{P} | 0.245322 | $0.245310^{+0.000091}_{-0.000079}$ | $f\sigma_8(0.51)$ | 0.4745 | 0.4745 ± 0.0050 |
| A_{217}^{PS} | 117.3 | 115 ± 10 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246648 | $0.246636^{+0.000091}_{-0.000079}$ | $\sigma_8(0.51)$ | 0.61984 | 0.6200 ± 0.0046 |
| A^{kSZ} | 0.00 | < 4.91 | $10^5 D/H$ | 2.6197 | 2.624 ± 0.038 | $f\sigma_8(0.61)$ | 0.46922 | 0.4693 ± 0.0045 |
| A_{100}^{dustTT} | 8.87 | 8.9 ± 1.8 | Age/Gyr | 13.8154 | 13.818 ± 0.030 | $\sigma_8(0.61)$ | 0.58970 | 0.5898 ± 0.0045 |
| A_{143}^{dustTT} | 10.79 | 10.7 ± 1.8 | z_* | 1090.126 | 1090.15 ± 0.32 | $f\sigma_8(2.33)$ | 0.29719 | 0.2973 ± 0.0023 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.97 | 18.3 ± 3.3 | r_* | 144.627 | 144.65 ± 0.34 | $\sigma_8(2.33)$ | 0.30623 | 0.3063 ± 0.0026 |
| A_{217}^{dustTT} | 94.0 | 93.3 ± 7.5 | $100\theta_*$ | 1.041096 | 1.04107 ± 0.00044 | f_{2000}^{143} | 30.41 | 31.1 ± 2.9 |
| c_{100} | 0.99962 | 0.99962 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.8918 | 13.895 ± 0.033 | $f_{2000}^{143 \times 217}$ | 33.15 | 33.5 ± 2.0 |
| c_{217} | 0.99824 | 0.99826 ± 0.00063 | z_{drag} | 1059.513 | 1059.45 ± 0.44 | f_{2000}^{217} | 107.72 | 108.0 ± 1.9 |
| H_0 | 67.28 | 67.27 ± 0.64 | r_{drag} | 147.351 | 147.39 ± 0.36 | χ_{lensing}^2 | 8.843 | 9.35 ± 0.76 |
| Ω_Λ | 0.6849 | 0.6849 ± 0.0087 | k_{D} | 0.140453 | 0.14040 ± 0.00044 | χ_{simall}^2 | 395.87 | 397.0 ± 1.7 |
| Ω_{m} | 0.3151 | 0.3151 ± 0.0087 | $100\theta_{\text{D}}$ | 0.161012 | 0.16104 ± 0.00026 | χ_{lowl}^2 | 23.23 | 23.48 ± 0.97 |
| $\Omega_{\text{m}} h^2$ | 0.14261 | 0.1425 ± 0.0014 | z_{eq} | 3392.4 | 3391 ± 32 | χ_{plik}^2 | 759.12 | 771.3 ± 5.2 |
| $\Omega_{\text{m}} h^3$ | 0.095942 | 0.09589 ± 0.00045 | k_{eq} | 0.010354 | 0.010350 ± 0.000099 | χ_{JLA}^2 | 1035.264 | 1035.42 ± 0.61 |
| σ_8 | 0.8097 | 0.8098 ± 0.0063 | $100\theta_{\text{eq}}$ | 0.8145 | 0.8148 ± 0.0061 | χ_{prior}^2 | 1.55 | 7.3 ± 3.7 |
| S_8 | 0.8298 | 0.830 ± 0.015 | $100\theta_{s,\text{eq}}$ | 0.45016 | 0.4503 ± 0.0031 | χ_{CMB}^2 | 1187.1 | 1201.1 ± 5.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4545 | 0.4546 ± 0.0080 | $H(0.15)$ | 72.59 | 72.59 ± 0.55 | | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6066 | 0.6067 ± 0.0071 | $D_M(0.15)$ | 644.1 | 644.2 ± 5.5 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2223.87$; $\bar{\chi}_{\text{eff}}^2 = 2243.81$; $R - 1 = 0.01128$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.84 simall_100x143_offlike5_EE_Aplanck_B: 395.87 commander_dx12_v3.2.29: 23.23 plik_rd12_HM.v22.TT: 759.12 SN - JLA Pantheon18: 1035.26

2.12 base_plikHM_TT_lowl_lowE_lensing_post_BAO_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022241 | 0.02222 ± 0.00019 | $r_{\text{drag}} h$ | 99.87 | 99.75 ± 0.80 | $H(0.51)$ | 89.702 | 89.66 ± 0.26 |
| $\Omega_c h^2$ | 0.11884 | 0.1190 ± 0.0011 | $\langle d^2 \rangle^{1/2}$ | 2.4298 | 2.434 ± 0.021 | $D_M(0.51)$ | 1980.2 | 1981.8 ± 9.6 |
| $100\theta_{\text{MC}}$ | 1.041029 | 1.04099 ± 0.00042 | z_{re} | 7.86 | 7.81 ± 0.74 | $H(0.61)$ | 95.300 | 95.26 ± 0.22 |
| τ | 0.0560 | 0.0556 ± 0.0074 | $10^9 A_s$ | 2.1009 | $2.100^{+0.029}_{-0.032}$ | $D_M(0.61)$ | 2304.5 | 2306 ± 10 |
| $\ln(10^{10} A_s)$ | 3.0450 | 3.044 ± 0.015 | $10^9 A_s e^{-2\tau}$ | 1.8783 | 1.879 ± 0.011 | $H(2.33)$ | 235.68 | 235.74 ± 0.69 |
| n_s | 0.96789 | 0.9663 ± 0.0040 | D_{40} | 1223.6 | 1227 ± 12 | $D_M(2.33)$ | 5765.0 | 5767 ± 11 |
| y_{cal} | 1.00073 | 1.0008 ± 0.0025 | D_{220} | 5720.8 | 5725 ± 39 | $f\sigma_8(0.15)$ | 0.4548 | 0.4553 ± 0.0059 |
| A_{217}^{CIB} | 48.6 | 48 ± 7 | D_{810} | 2538.4 | 2537 ± 13 | $\sigma_8(0.15)$ | 0.7479 | 0.7476 ± 0.0056 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.30 | — | D_{1420} | 816.96 | 815.8 ± 4.9 | $f\sigma_8(0.38)$ | 0.47357 | 0.4738 ± 0.0049 |
| A_{143}^{tSZ} | 7.09 | $5.1^{+2.2}_{-2.0}$ | D_{2000} | 230.54 | 230.1 ± 1.7 | $\sigma_8(0.38)$ | 0.66319 | 0.6628 ± 0.0050 |
| A_{100}^{PS} | 253.3 | 263 ± 28 | $n_{\text{s},0.002}$ | 0.96789 | 0.9663 ± 0.0040 | $f\sigma_8(0.51)$ | 0.47243 | 0.4726 ± 0.0044 |
| A_{143}^{PS} | 48.1 | 49 ± 8 | Y_{P} | 0.245343 | $0.245331^{+0.000084}_{-0.000075}$ | $\sigma_8(0.51)$ | 0.62074 | 0.6203 ± 0.0047 |
| $A_{143 \times 217}^{\text{PS}}$ | 45.8 | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246669 | $0.246657^{+0.000084}_{-0.000075}$ | $f\sigma_8(0.61)$ | 0.46764 | 0.4677 ± 0.0041 |
| A_{217}^{PS} | 119.0 | 115 ± 10 | $10^5 D/H$ | 2.6100 | 2.615 ± 0.036 | $\sigma_8(0.61)$ | 0.59070 | 0.5903 ± 0.0045 |
| A^{kSZ} | 0.01 | < 4.80 | Age/Gyr | 13.8023 | 13.806 ± 0.026 | $f\sigma_8(2.33)$ | 0.29793 | $0.2977^{+0.0021}_{-0.0024}$ |
| A_{100}^{dustTT} | 8.88 | 8.9 ± 1.8 | z_* | 1089.981 | 1090.02 ± 0.27 | $\sigma_8(2.33)$ | 0.30724 | $0.3069^{+0.0023}_{-0.0026}$ |
| A_{143}^{dustTT} | 10.81 | 10.7 ± 1.8 | r_* | 144.829 | 144.81 ± 0.28 | f_{2000}^{143} | 29.97 | 30.9 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.35 | 18.3 ± 3.3 | $100\theta_*$ | 1.041228 | 1.04119 ± 0.00041 | $f_{2000}^{143 \times 217}$ | 32.95 | 33.3 ± 2.0 |
| A_{217}^{dustTT} | 94.7 | 93.4 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.9094 | 13.908 ± 0.028 | f_{2000}^{217} | 107.50 | 107.9 ± 1.9 |
| c_{100} | 0.99963 | 0.99963 ± 0.00062 | z_{drag} | 1059.551 | 1059.51 ± 0.43 | χ_{lensing}^2 | 8.881 | 9.27 ± 0.73 |
| c_{217} | 0.99826 | 0.99826 ± 0.00063 | r_{drag} | 147.542 | 147.53 ± 0.32 | χ_{small}^2 | 396.37 | 397.2 ± 1.9 |
| H_0 | 67.691 | 67.61 ± 0.47 | k_{D} | 0.140294 | 0.14028 ± 0.00043 | χ_{lowl}^2 | 22.81 | 23.17 ± 0.86 |
| Ω_{Λ} | 0.6907 | 0.6897 ± 0.0063 | $100\theta_{\text{D}}$ | 0.160991 | 0.16102 ± 0.00025 | χ_{plik}^2 | 759.79 | 771.7 ± 5.2 |
| Ω_{m} | 0.3093 | 0.3103 ± 0.0063 | z_{eq} | 3371.5 | 3374 ± 25 | χ_{JLA}^2 | 1034.955 | 1035.08 ± 0.31 |
| $\Omega_{\text{m}} h^2$ | 0.14173 | 0.1418 ± 0.0010 | k_{eq} | 0.010290 | 0.010298 ± 0.000075 | $\chi_{6\text{DF}}^2$ | 0.0156 | 0.049 ± 0.061 |
| $\Omega_{\text{m}} h^3$ | 0.095939 | 0.09590 ± 0.00045 | $100\theta_{\text{eq}}$ | 0.81855 | 0.8180 ± 0.0045 | χ_{MGS}^2 | 1.343 | 1.33 ± 0.45 |
| σ_8 | 0.8091 | 0.8089 ± 0.0062 | $100\theta_{\text{s,eq}}$ | 0.45222 | 0.4520 ± 0.0024 | χ_{DR12BAO}^2 | 4.03 | 4.6 ± 1.3 |
| S_8 | 0.8216 | 0.823 ± 0.011 | $H(0.15)$ | 72.945 | 72.88 ± 0.41 | χ_{prior}^2 | 1.51 | 7.3 ± 3.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4500 | 0.4506 ± 0.0063 | $D_M(0.15)$ | 640.61 | 641.3 ± 4.0 | χ_{CMB}^2 | 1187.9 | 1201.4 ± 5.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6034 | 0.6037 ± 0.0060 | $H(0.38)$ | 83.011 | 82.96 ± 0.31 | χ_{BAO}^2 | 5.39 | 6.0 ± 1.1 |
| $\sigma_8/h^{0.5}$ | 0.9835 | 0.9837 ± 0.0088 | $D_M(0.38)$ | 1528.3 | 1529.7 ± 8.1 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2229.71$; $\bar{\chi}_{\text{eff}}^2 = 2249.77$; $R - 1 = 0.01879$

χ_{eff}^2 : BAO - 6DF: 0.02 MGS: 1.34 DR12BAO: 4.03 CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.88 small_100x143_offlike5_EE_Aplanck_B: 396.37 commander_dx12_v3_2_29: 22.81 plik_rd12_HM_v22_TT: 759.79 SN - JLA Pantheon18: 1034.95

2.13 base_plikHM_TT_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02215 ± 0.00020 | $\sigma_8 \Omega_m^{0.25}$ | 0.6088 ± 0.0075 | $H(0.15)$ | 72.45 ± 0.58 |
| $\Omega_c h^2$ | 0.1201 ± 0.0015 | $\sigma_8 / h^{0.5}$ | 0.990 ± 0.010 | $D_M(0.15)$ | 645.6 ± 5.9 |
| $100\theta_{MC}$ | 1.04082 ± 0.00045 | $r_{drag} h$ | 98.9 ± 1.2 | $H(0.38)$ | 82.66 ± 0.43 |
| τ | $0.0539^{+0.0047}_{-0.0083}$ | $\langle d^2 \rangle^{1/2}$ | 2.449 ± 0.024 | $D_M(0.38)$ | 1538 ± 12 |
| $\ln(10^{10} A_s)$ | $3.043^{+0.011}_{-0.015}$ | z_{re} | $7.68^{+0.54}_{-0.80}$ | $H(0.51)$ | 89.43 ± 0.35 |
| n_s | 0.9638 ± 0.0047 | $10^9 A_s$ | $2.096^{+0.022}_{-0.031}$ | $D_M(0.51)$ | 1992 ± 14 |
| y_{cal} | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.011 | $H(0.61)$ | 95.08 ± 0.29 |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1232 ± 12 | $D_M(0.61)$ | 2317 ± 15 |
| $\xi^{tSZ \times CIB}$ | — | D_{220} | 5716 ± 40 | $H(2.33)$ | 236.37 ± 0.92 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{810} | 2536 ± 13 | $D_M(2.33)$ | 5775 ± 14 |
| A_{100}^{PS} | 264 ± 28 | D_{1420} | 814.5 ± 5.1 | $f\sigma_8(0.15)$ | 0.4610 ± 0.0080 |
| A_{143}^{PS} | 49 ± 8 | D_{2000} | 229.6 ± 1.8 | $\sigma_8(0.15)$ | $0.7490^{+0.0048}_{-0.0054}$ |
| $A_{143 \times 217}^{PS}$ | 43 ± 9 | $n_{s,0.002}$ | 0.9638 ± 0.0047 | $f\sigma_8(0.38)$ | 0.4780 ± 0.0062 |
| A_{217}^{PS} | 115 ± 10 | Y_P | $0.245300^{+0.000094}_{-0.000081}$ | $\sigma_8(0.38)$ | $0.6633^{+0.0040}_{-0.0048}$ |
| A^{kSZ} | < 5.00 | Y_P^{BBN} | $0.246626^{+0.000094}_{-0.000081}$ | $f\sigma_8(0.51)$ | 0.4759 ± 0.0053 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $10^5 D/H$ | 2.628 ± 0.039 | $\sigma_8(0.51)$ | $0.6205^{+0.0036}_{-0.0045}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | Age/Gyr | 13.823 ± 0.032 | $f\sigma_8(0.61)$ | 0.4705 ± 0.0047 |
| $A_{143 \times 217}^{dustTT}$ | 18.2 ± 3.3 | z_* | 1090.21 ± 0.33 | $\sigma_8(0.61)$ | $0.5903^{+0.0034}_{-0.0044}$ |
| A_{217}^{dustTT} | 93.2 ± 7.4 | r_* | 144.59 ± 0.36 | $f\sigma_8(2.33)$ | $0.2974^{+0.0017}_{-0.0023}$ |
| c_{100} | 0.99961 ± 0.00062 | $100\theta_*$ | 1.04103 ± 0.00045 | $\sigma_8(2.33)$ | $0.3064^{+0.0019}_{-0.0026}$ |
| c_{217} | 0.99826 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.889 ± 0.034 | f_{2000}^{143} | 31.2 ± 2.9 |
| H_0 | 67.12 ± 0.68 | z_{drag} | 1059.42 ± 0.44 | $f_{2000}^{143 \times 217}$ | 33.5 ± 2.0 |
| Ω_Λ | 0.6827 ± 0.0094 | r_{drag} | 147.32 ± 0.37 | f_{2000}^{217} | 108.1 ± 1.9 |
| Ω_m | 0.3173 ± 0.0094 | k_D | 0.14045 ± 0.00045 | $\chi_{lensing}^2$ | 9.42 ± 0.86 |
| $\Omega_m h^2$ | 0.1429 ± 0.0014 | $100\theta_D$ | 0.16106 ± 0.00026 | χ_{simall}^2 | 396.8 ± 1.6 |
| $\Omega_m h^3$ | 0.09588 ± 0.00045 | z_{eq} | 3398 ± 34 | χ_{lowl}^2 | 23.7 ± 1.0 |
| σ_8 | 0.8112 ± 0.0059 | k_{eq} | 0.01037 ± 0.00010 | χ_{plik}^2 | 771.0 ± 5.2 |
| S_8 | 0.834 ± 0.016 | $100\theta_{eq}$ | 0.8133 ± 0.0064 | χ_{prior}^2 | 7.3 ± 3.6 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4569 ± 0.0087 | $100\theta_{s,eq}$ | 0.4496 ± 0.0033 | χ_{CMB}^2 | 1200.9 ± 5.4 |

$\bar{\chi}_{eff}^2 = 1208.16$; $R - 1 = 0.00659$

2.14 base_plikHM_TT_lowl_lowE_lensing_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02221 ± 0.00019 | $r_{\text{drag}} h$ | 99.65 ± 0.83 | $H(0.51)$ | 89.63 ± 0.26 |
| $\Omega_c h^2$ | 0.1191 ± 0.0011 | $\langle d^2 \rangle^{1/2}$ | 2.437 ± 0.021 | $D_M(0.51)$ | 1982.9 ± 9.9 |
| $100\theta_{\text{MC}}$ | 1.04098 ± 0.00042 | z_{re} | $7.85^{+0.61}_{-0.76}$ | $H(0.61)$ | 95.24 ± 0.23 |
| τ | $0.0559^{+0.0056}_{-0.0078}$ | $10^9 A_s$ | $2.101^{+0.024}_{-0.032}$ | $D_M(0.61)$ | 2307 ± 11 |
| $\ln(10^{10} A_s)$ | $3.045^{+0.012}_{-0.015}$ | $10^9 A_s e^{-2\tau}$ | 1.879 ± 0.011 | $H(2.33)$ | 235.81 ± 0.70 |
| n_s | 0.9660 ± 0.0041 | D_{40} | 1228 ± 12 | $D_M(2.33)$ | 5768 ± 12 |
| y_{cal} | 1.0007 ± 0.0025 | D_{220} | 5724 ± 39 | $f\sigma_8(0.15)$ | 0.4561 ± 0.0060 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 13 | $\sigma_8(0.15)$ | $0.7481^{+0.0048}_{-0.0057}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.6 ± 4.9 | $f\sigma_8(0.38)$ | 0.4745 ± 0.0049 |
| A_{143}^{tSZ} | $5.1^{+2.2}_{-2.0}$ | D_{2000} | 230.0 ± 1.7 | $\sigma_8(0.38)$ | $0.6632^{+0.0041}_{-0.0051}$ |
| A_{100}^{PS} | 263 ± 28 | $n_{s,0.002}$ | 0.9660 ± 0.0041 | $f\sigma_8(0.51)$ | 0.4732 ± 0.0044 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.245327^{+0.000084}_{-0.000076}$ | $\sigma_8(0.51)$ | $0.6206^{+0.0038}_{-0.0048}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246653^{+0.000085}_{-0.000076}$ | $f\sigma_8(0.61)$ | 0.4682 ± 0.0040 |
| A_{217}^{PS} | 115 ± 10 | 10^5D/H | 2.616 ± 0.036 | $\sigma_8(0.61)$ | $0.5906^{+0.0036}_{-0.0046}$ |
| A^{kSZ} | < 4.82 | Age/Gyr | 13.808 ± 0.027 | $f\sigma_8(2.33)$ | $0.2978^{+0.0018}_{-0.0024}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | z_* | 1090.05 ± 0.28 | $\sigma_8(2.33)$ | $0.3070^{+0.0020}_{-0.0026}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.79 ± 0.29 | f_{2000}^{143} | 30.9 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04118 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 33.3 ± 2.0 |
| A_{217}^{dustTT} | 93.3 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.906 ± 0.028 | f_{2000}^{217} | 107.9 ± 1.9 |
| c_{100} | 0.99963 ± 0.00062 | z_{drag} | 1059.50 ± 0.44 | χ_{lensing}^2 | 9.22 ± 0.66 |
| c_{217} | 0.99826 ± 0.00062 | r_{drag} | 147.51 ± 0.32 | χ_{simall}^2 | 397.1 ± 1.9 |
| H_0 | 67.56 ± 0.48 | k_{D} | 0.14030 ± 0.00043 | χ_{lowl}^2 | 23.24 ± 0.88 |
| Ω_{Λ} | 0.6889 ± 0.0065 | $100\theta_{\text{D}}$ | 0.16102 ± 0.00026 | χ_{plik}^2 | 771.5 ± 5.2 |
| Ω_{m} | 0.3111 ± 0.0065 | z_{eq} | 3377 ± 25 | $\chi_{6\text{DF}}^2$ | 0.057 ± 0.069 |
| $\Omega_{\text{m}} h^2$ | 0.1420 ± 0.0011 | k_{eq} | 0.010307 ± 0.000077 | χ_{MGS}^2 | 1.28 ± 0.45 |
| $\Omega_{\text{m}} h^3$ | 0.09590 ± 0.00045 | $100\theta_{\text{eq}}$ | 0.8175 ± 0.0047 | χ_{DR12BAO}^2 | 4.8 ± 1.5 |
| σ_8 | $0.8095^{+0.0054}_{-0.0063}$ | $100\theta_{s,\text{eq}}$ | 0.4517 ± 0.0024 | χ_{prior}^2 | 7.3 ± 3.6 |
| S_8 | 0.824 ± 0.012 | $H(0.15)$ | 72.83 ± 0.42 | χ_{CMB}^2 | 1201.1 ± 5.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4515 ± 0.0064 | $D_M(0.15)$ | 641.8 ± 4.1 | χ_{BAO}^2 | 6.2 ± 1.2 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6046 ± 0.0061 | $H(0.38)$ | 82.93 ± 0.32 | | |
| $\sigma_8/h^{0.5}$ | 0.9849 ± 0.0087 | $D_M(0.38)$ | 1530.7 ± 8.4 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1214.57; R - 1 = 0.01797$$

2.15 base_plikHM_TT_lowl_lowE_lensing_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02218 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.9879 ± 0.0098 | $H(0.38)$ | 82.77 ± 0.40 |
| $\Omega_c h^2$ | 0.1196 ± 0.0014 | $r_{\text{drag}} h$ | 99.2 ± 1.1 | $D_M(0.38)$ | 1535 ± 11 |
| $100\theta_{\text{MC}}$ | 1.04088 ± 0.00045 | $\langle d^2 \rangle^{1/2}$ | 2.443 ± 0.023 | $H(0.51)$ | 89.52 ± 0.33 |
| τ | $0.0548^{+0.0052}_{-0.0081}$ | z_{re} | $7.75^{+0.57}_{-0.79}$ | $D_M(0.51)$ | 1988 ± 13 |
| $\ln(10^{10} A_s)$ | $3.044^{+0.011}_{-0.015}$ | $10^9 A_s$ | $2.099^{+0.023}_{-0.032}$ | $H(0.61)$ | 95.15 ± 0.27 |
| n_s | 0.9648 ± 0.0045 | $10^9 A_s e^{-2\tau}$ | 1.881 ± 0.011 | $D_M(0.61)$ | 2313 ± 14 |
| y_{cal} | 1.0006 ± 0.0025 | D_{40} | 1230 ± 12 | $H(2.33)$ | 236.13 ± 0.86 |
| A_{217}^{CIB} | 48 ± 7 | D_{220} | 5720 ± 40 | $D_M(2.33)$ | 5771 ± 13 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{810} | 2536 ± 13 | $f\sigma_8(0.15)$ | 0.4589 ± 0.0074 |
| A_{143}^{tSZ} | $5.1^{+2.2}_{-2.0}$ | D_{1420} | 815.0 ± 5.0 | $\sigma_8(0.15)$ | $0.7486^{+0.0048}_{-0.0056}$ |
| A_{100}^{PS} | 263 ± 28 | D_{2000} | 229.8 ± 1.8 | $f\sigma_8(0.38)$ | 0.4765 ± 0.0058 |
| A_{143}^{PS} | 49 ± 8 | $n_{s,0.002}$ | 0.9648 ± 0.0045 | $\sigma_8(0.38)$ | $0.6632^{+0.0040}_{-0.0049}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | Y_{P} | $0.245313^{+0.000090}_{-0.000079}$ | $f\sigma_8(0.51)$ | 0.4747 ± 0.0050 |
| A_{217}^{PS} | 115 ± 10 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246639^{+0.000090}_{-0.000079}$ | $\sigma_8(0.51)$ | $0.6206^{+0.0037}_{-0.0047}$ |
| A^{kSZ} | < 4.91 | $10^5 \text{D}/\text{H}$ | 2.623 ± 0.038 | $f\sigma_8(0.61)$ | 0.4695 ± 0.0045 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Age/Gyr | 13.817 ± 0.030 | $\sigma_8(0.61)$ | $0.5904^{+0.0035}_{-0.0045}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | z_* | 1090.14 ± 0.32 | $f\sigma_8(2.33)$ | $0.2976^{+0.0018}_{-0.0024}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | r_* | 144.67 ± 0.34 | $\sigma_8(2.33)$ | $0.3066^{+0.0019}_{-0.0026}$ |
| A_{217}^{dustTT} | 93.2 ± 7.4 | $100\theta_*$ | 1.04108 ± 0.00044 | f_{2000}^{143} | 31.0 ± 2.9 |
| c_{100} | 0.99962 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.896 ± 0.032 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| c_{217} | 0.99826 ± 0.00062 | z_{drag} | 1059.46 ± 0.44 | f_{2000}^{217} | 108.0 ± 1.9 |
| H_0 | 67.31 ± 0.63 | r_{drag} | 147.40 ± 0.36 | χ_{lensing}^2 | 9.32 ± 0.75 |
| Ω_Λ | 0.6854 ± 0.0086 | k_{D} | 0.14039 ± 0.00044 | χ_{simall}^2 | 396.9 ± 1.7 |
| Ω_{m} | 0.3146 ± 0.0086 | $100\theta_{\text{D}}$ | 0.16104 ± 0.00026 | χ_{lowl}^2 | 23.47 ± 0.97 |
| $\Omega_{\text{m}} h^2$ | 0.1425 ± 0.0013 | z_{eq} | 3389 ± 32 | χ_{plik}^2 | 771.2 ± 5.2 |
| $\Omega_{\text{m}} h^3$ | 0.09589 ± 0.00045 | k_{eq} | 0.010344 ± 0.000097 | χ_{JLA}^2 | 1035.38 ± 0.57 |
| σ_8 | $0.8104^{+0.0055}_{-0.0062}$ | $100\theta_{\text{eq}}$ | 0.8151 ± 0.0060 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | 0.830 ± 0.015 | $100\theta_{\text{s,eq}}$ | 0.4505 ± 0.0031 | χ_{CMB}^2 | 1200.9 ± 5.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4545 ± 0.0080 | $H(0.15)$ | 72.62 ± 0.54 | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6069 ± 0.0071 | $D_M(0.15)$ | 643.9 ± 5.4 | | |
| $\bar{\chi}_{\text{eff}}^2 = 2243.62; R - 1 = 0.01253$ | | | | | |

2.16 base_plikHM_TT_lowl_lowE_lensing_post_BAO_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02222 ± 0.00019 | $r_{\text{drag}} h$ | 99.77 ± 0.80 | $H(0.51)$ | 89.67 ± 0.26 |
| $\Omega_c h^2$ | 0.1190 ± 0.0010 | $\langle d^2 \rangle^{1/2}$ | 2.435 ± 0.021 | $D_M(0.51)$ | 1981.6 ± 9.5 |
| $100\theta_{\text{MC}}$ | 1.04099 ± 0.00042 | z_{re} | $7.88^{+0.62}_{-0.76}$ | $H(0.61)$ | 95.27 ± 0.22 |
| τ | $0.0563^{+0.0058}_{-0.0077}$ | $10^9 A_s$ | $2.102^{+0.025}_{-0.033}$ | $D_M(0.61)$ | 2306 ± 10 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.012}_{-0.015}$ | $10^9 A_s e^{-2\tau}$ | 1.878 ± 0.010 | $H(2.33)$ | 235.73 ± 0.68 |
| n_s | 0.9664 ± 0.0040 | D_{40} | 1227 ± 12 | $D_M(2.33)$ | 5767 ± 11 |
| y_{cal} | 1.0008 ± 0.0025 | D_{220} | 5725 ± 39 | $f\sigma_8(0.15)$ | 0.4554 ± 0.0058 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 13 | $\sigma_8(0.15)$ | $0.7480^{+0.0048}_{-0.0057}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.7 ± 4.9 | $f\sigma_8(0.38)$ | 0.4740 ± 0.0049 |
| A_{143}^{tSZ} | $5.1^{+2.2}_{-2.0}$ | D_{2000} | 230.1 ± 1.7 | $\sigma_8(0.38)$ | $0.6632^{+0.0041}_{-0.0051}$ |
| A_{100}^{PS} | 263 ± 28 | $n_{s,0.002}$ | 0.9664 ± 0.0040 | $f\sigma_8(0.51)$ | 0.4728 ± 0.0043 |
| A_{143}^{PS} | 48 ± 8 | Y_{P} | $0.245331^{+0.000084}_{-0.000075}$ | $\sigma_8(0.51)$ | $0.6207^{+0.0039}_{-0.0048}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246658^{+0.000084}_{-0.000075}$ | $f\sigma_8(0.61)$ | 0.4679 ± 0.0040 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.614 ± 0.036 | $\sigma_8(0.61)$ | $0.5906^{+0.0037}_{-0.0046}$ |
| A^{kSZ} | < 4.80 | Age/Gyr | 13.806 ± 0.026 | $f\sigma_8(2.33)$ | $0.2979^{+0.0019}_{-0.0024}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | z_* | 1090.02 ± 0.27 | $\sigma_8(2.33)$ | $0.3071^{+0.0020}_{-0.0026}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.82 ± 0.28 | f_{2000}^{143} | 30.9 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04119 ± 0.00041 | $f_{2000}^{143 \times 217}$ | 33.3 ± 2.0 |
| A_{217}^{dustTT} | 93.3 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.909 ± 0.028 | f_{2000}^{217} | 107.9 ± 1.9 |
| c_{100} | 0.99963 ± 0.00062 | z_{drag} | 1059.51 ± 0.43 | χ_{lensing}^2 | 9.23 ± 0.68 |
| c_{217} | 0.99826 ± 0.00062 | r_{drag} | 147.54 ± 0.32 | χ_{small}^2 | 397.2 ± 1.9 |
| H_0 | 67.63 ± 0.47 | k_{D} | 0.14028 ± 0.00043 | χ_{lowl}^2 | 23.18 ± 0.86 |
| Ω_{Λ} | 0.6898 ± 0.0062 | $100\theta_{\text{D}}$ | 0.16101 ± 0.00025 | χ_{plik}^2 | 771.6 ± 5.2 |
| Ω_{m} | 0.3102 ± 0.0062 | z_{eq} | 3374 ± 25 | χ_{JLA}^2 | 1035.07 ± 0.30 |
| $\Omega_{\text{m}} h^2$ | 0.1418 ± 0.0010 | k_{eq} | 0.010297 ± 0.000075 | $\chi_{6\text{DF}}^2$ | 0.048 ± 0.059 |
| $\Omega_{\text{m}} h^3$ | 0.09590 ± 0.00045 | $100\theta_{\text{eq}}$ | 0.8181 ± 0.0045 | χ_{MGS}^2 | 1.34 ± 0.45 |
| σ_8 | $0.8093^{+0.0055}_{-0.0063}$ | $100\theta_{s,\text{eq}}$ | 0.4520 ± 0.0023 | χ_{DR12BAO}^2 | 4.6 ± 1.3 |
| S_8 | 0.823 ± 0.011 | $H(0.15)$ | 72.89 ± 0.40 | χ_{prior}^2 | 7.3 ± 3.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4507 ± 0.0062 | $D_M(0.15)$ | 641.2 ± 4.0 | χ_{CMB}^2 | 1201.2 ± 5.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6039 ± 0.0060 | $H(0.38)$ | 82.97 ± 0.31 | χ_{BAO}^2 | 6.0 ± 1.0 |
| $\sigma_8/h^{0.5}$ | 0.9841 ± 0.0086 | $D_M(0.38)$ | 1529.5 ± 8.1 | | |

$\bar{\chi}_{\text{eff}}^2 = 2249.62$; $R - 1 = 0.01932$

2.17 base_plikHM_TTTEEE_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|--------------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022383 | 0.02237 ± 0.00015 | $\Omega_m h^3$ | 0.096360 | 0.09633 ± 0.00030 | $100\theta_{\text{eq}}$ | 0.81281 | 0.8134 ± 0.0050 |
| $\Omega_c h^2$ | 0.12011 | 0.1200 ± 0.0012 | σ_8 | 0.8120 | 0.8111 ± 0.0060 | $100\theta_{\text{s,eq}}$ | 0.44912 | 0.4494 ± 0.0026 |
| $100\theta_{\text{MC}}$ | 1.040909 | 1.04092 ± 0.00031 | S_8 | 0.8331 | 0.832 ± 0.013 | $H(0.15)$ | 72.652 | 72.68 ± 0.46 |
| τ | 0.0543 | 0.0544 ± 0.0073 | $\sigma_8 \Omega_m^{0.5}$ | 0.4563 | 0.4554 ± 0.0070 | $D_{\text{M}}(0.15)$ | 643.66 | 643.4 ± 4.6 |
| $\ln(10^{10} A_s)$ | 3.0448 | 3.044 ± 0.014 | $\sigma_8 \Omega_m^{0.25}$ | 0.6087 | 0.6078 ± 0.0064 | $H(0.38)$ | 82.848 | 82.87 ± 0.34 |
| n_s | 0.96605 | 0.9649 ± 0.0042 | $\sigma_8/h^{0.5}$ | 0.9897 | 0.9883 ± 0.0091 | $D_{\text{M}}(0.38)$ | 1534.0 | 1533.5 ± 9.2 |
| y_{cal} | 1.00044 | 1.0006 ± 0.0024 | $r_{\text{drag}} h$ | 99.00 | 99.08 ± 0.92 | $H(0.51)$ | 89.614 | 89.63 ± 0.27 |
| A_{217}^{CIB} | 46.1 | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4449 | 2.446 ± 0.022 | $D_{\text{M}}(0.51)$ | 1986.5 | 1986 ± 11 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.66 | — | z_{re} | 7.68 | 7.67 ± 0.73 | $H(0.61)$ | 95.272 | 95.28 ± 0.22 |
| A_{143}^{tSZ} | 7.08 | 5.4 ± 2.0 | $10^9 A_s$ | 2.1005 | 2.100 ± 0.030 | $D_{\text{M}}(0.61)$ | 2311.0 | 2310 ± 12 |
| A_{100}^{PS} | 248.2 | 260 ± 28 | $10^9 A_s e^{-2\tau}$ | 1.8843 | 1.883 ± 0.011 | $H(2.33)$ | 236.64 | 236.56 ± 0.70 |
| A_{143}^{PS} | 50.7 | 46 ± 8 | D_{40} | 1229.0 | 1232 ± 12 | $D_{\text{M}}(2.33)$ | 5763.6 | 5763 ± 10 |
| $A_{143 \times 217}^{\text{PS}}$ | 53.3 | 42 ± 9 | D_{220} | 5730.1 | 5736 ± 38 | $f\sigma_8(0.15)$ | 0.4606 | 0.4597 ± 0.0065 |
| A_{217}^{PS} | 121.9 | 115 ± 10 | D_{810} | 2541.3 | 2539 ± 13 | $\sigma_8(0.15)$ | 0.7499 | 0.7492 ± 0.0054 |
| A^{kSZ} | 0.00 | < 4.32 | D_{1420} | 818.44 | 817.2 ± 4.8 | $f\sigma_8(0.38)$ | 0.4780 | 0.4772 ± 0.0053 |
| A_{100}^{dustTT} | 8.80 | 8.9 ± 1.8 | D_{2000} | 231.33 | 230.9 ± 1.6 | $\sigma_8(0.38)$ | 0.66427 | 0.6637 ± 0.0047 |
| A_{143}^{dustTT} | 11.01 | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.96605 | 0.9649 ± 0.0042 | $f\sigma_8(0.51)$ | 0.47606 | 0.4754 ± 0.0046 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.16 | 18.6 ± 3.3 | Y_{P} | 0.245401 | $0.245395^{+0.000060}_{-0.000053}$ | $\sigma_8(0.51)$ | 0.62145 | 0.6209 ± 0.0044 |
| A_{217}^{dustTT} | 95.5 | 93.5 ± 7.2 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246727 | $0.246721^{+0.000060}_{-0.000054}$ | $f\sigma_8(0.61)$ | 0.47073 | 0.4701 ± 0.0042 |
| A_{100}^{dustTE} | 0.1138 | 0.114 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.5831 | 2.585 ± 0.027 | $\sigma_8(0.61)$ | 0.59120 | 0.5907 ± 0.0042 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1346 | 0.135 ± 0.029 | Age/Gyr | 13.7971 | 13.797 ± 0.023 | $f\sigma_8(2.33)$ | 0.29792 | 0.2977 ± 0.0022 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 | 0.481 ± 0.085 | z_* | 1089.914 | 1089.92 ± 0.25 | $\sigma_8(2.33)$ | 0.30695 | 0.3068 ± 0.0024 |
| A_{143}^{dustTE} | 0.225 | 0.225 ± 0.054 | r_* | 144.394 | 144.43 ± 0.26 | f_{2000}^{143} | 28.58 | 29.6 ± 2.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.668 ± 0.080 | $100\theta_*$ | 1.041085 | 1.04110 ± 0.00031 | $f_{2000}^{143 \times 217}$ | 31.97 | 32.3 ± 1.9 |
| A_{217}^{dustTE} | 2.082 | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8696 | 13.873 ± 0.025 | f_{2000}^{217} | 106.46 | 107.1 ± 1.8 |
| c_{100} | 0.99974 | 0.99967 ± 0.00061 | z_{drag} | 1059.971 | 1059.94 ± 0.30 | χ_{lensing}^2 | 8.868 | 9.23 ± 0.69 |
| c_{217} | 0.99819 | 0.99819 ± 0.00062 | r_{drag} | 147.049 | 147.09 ± 0.26 | χ_{small}^2 | 396.05 | 397.0 ± 1.7 |
| H_0 | 67.32 | 67.36 ± 0.54 | k_{D} | 0.140922 | 0.14087 ± 0.00030 | χ_{lowl}^2 | 23.25 | 23.53 ± 0.90 |
| Ω_{Λ} | 0.6842 | 0.6847 ± 0.0073 | $100\theta_{\text{D}}$ | 0.160734 | 0.16076 ± 0.00017 | χ_{plik}^2 | 2344.9 | 2359.4 ± 5.7 |
| Ω_{m} | 0.3158 | 0.3153 ± 0.0073 | z_{eq} | 3405.1 | 3402 ± 26 | χ_{prior}^2 | 1.53 | 11.5 ± 4.5 |
| $\Omega_{\text{m}} h^2$ | 0.14314 | 0.1430 ± 0.0011 | k_{eq} | 0.010393 | 0.010384 ± 0.000081 | χ_{CMB}^2 | 2773.1 | 2789.2 ± 5.8 |

Best-fit $\chi_{\text{eff}}^2 = 2774.63$; $\bar{\chi}_{\text{eff}}^2 = 2800.69$; $R - 1 = 0.01032$

χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.87 simall_100x143_offlike5_EE_Aplanck_B: 396.05 commander_dx12_v3.2_29: 23.25 plik_rd12_HM_v22b_TTTEEE: 2344.93

2.18 base_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022447 | 0.02242 ± 0.00014 | S_8 | 0.8253 | 0.825 ± 0.011 | $H(0.38)$ | 83.083 | 83.05 ± 0.27 |
| $\Omega_c h^2$ | 0.11928 | 0.11933 ± 0.00091 | $\sigma_8 \Omega_m^{0.5}$ | 0.4520 | 0.4519 ± 0.0058 | $D_M(0.38)$ | 1527.5 | 1528.3 ± 7.1 |
| $100\theta_{MC}$ | 1.041010 | 1.04101 ± 0.00029 | $\sigma_8 \Omega_m^{0.25}$ | 0.6055 | 0.6051 ± 0.0058 | $H(0.51)$ | 89.797 | 89.77 ± 0.22 |
| τ | 0.0568 | 0.0561 ± 0.0071 | $\sigma_8/h^{0.5}$ | 0.9857 | 0.9850 ± 0.0085 | $D_M(0.51)$ | 1978.9 | 1979.8 ± 8.4 |
| $\ln(10^{10} A_s)$ | 3.0480 | 3.047 ± 0.014 | $r_{\text{drag}} h$ | 99.66 | 99.61 ± 0.71 | $H(0.61)$ | 95.414 | 95.39 ± 0.18 |
| n_s | 0.96824 | 0.9665 ± 0.0038 | $\langle d^2 \rangle^{1/2}$ | 2.4356 | 2.438 ± 0.021 | $D_M(0.61)$ | 2302.9 | 2303.8 ± 9.1 |
| y_{cal} | 1.00047 | 1.0008 ± 0.0025 | z_{re} | 7.90 | 7.82 ± 0.71 | $H(2.33)$ | 236.17 | 236.18 ± 0.56 |
| A_{217}^{CIB} | 45.6 | 47 ± 7 | $10^9 A_s$ | 2.1073 | 2.105 ± 0.030 | $D_M(2.33)$ | 5757.5 | 5758.7 ± 8.8 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.709 | > 0.375 | $10^9 A_s e^{-2\tau}$ | 1.8811 | 1.881 ± 0.010 | $f\sigma_8(0.15)$ | 0.4567 | 0.4565 ± 0.0055 |
| A_{143}^{tSZ} | 7.06 | $5.4^{+2.2}_{-1.9}$ | D_{40} | 1225.0 | 1229 ± 12 | $\sigma_8(0.15)$ | 0.7495 | 0.7487 ± 0.0054 |
| A_{100}^{PS} | 246.6 | 259 ± 28 | D_{220} | 5734.2 | 5741 ± 38 | $f\sigma_8(0.38)$ | 0.47523 | 0.4749 ± 0.0047 |
| A_{143}^{PS} | 50.6 | 46 ± 8 | D_{810} | 2541.2 | 2540 ± 13 | $\sigma_8(0.38)$ | 0.66450 | 0.6637 ± 0.0048 |
| $A_{143 \times 217}^{\text{PS}}$ | 54.1 | 42 ± 9 | D_{1420} | 819.18 | 817.9 ± 4.7 | $f\sigma_8(0.51)$ | 0.47393 | 0.4736 ± 0.0042 |
| A_{217}^{PS} | 122.3 | 115 ± 10 | D_{2000} | 231.67 | 231.1 ± 1.5 | $\sigma_8(0.51)$ | 0.62190 | 0.6212 ± 0.0044 |
| A^{kSZ} | 0.01 | < 4.27 | $n_{s,0.002}$ | 0.96824 | 0.9665 ± 0.0038 | $f\sigma_8(0.61)$ | 0.46903 | 0.4686 ± 0.0039 |
| A_{100}^{dustTT} | 8.78 | 8.9 ± 1.8 | Y_{P} | 0.245425 | $0.245414^{+0.000055}_{-0.000048}$ | $\sigma_8(0.61)$ | 0.59178 | 0.5911 ± 0.0042 |
| A_{143}^{dustTT} | 10.97 | 10.9 ± 1.8 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246752 | $0.246740^{+0.000055}_{-0.000048}$ | $f\sigma_8(2.33)$ | 0.29841 | 0.2980 ± 0.0022 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.03 | 18.5 ± 3.3 | $10^5 D/H$ | 2.5713 | 2.576 ± 0.025 | $\sigma_8(2.33)$ | 0.30769 | 0.3073 ± 0.0023 |
| A_{217}^{dustTT} | 95.3 | 93.5 ± 7.3 | Age/Gyr | 13.7839 | 13.787 ± 0.020 | f_{2000}^{143} | 28.16 | 29.4 ± 2.7 |
| A_{100}^{dustTE} | 0.1136 | 0.114 ± 0.038 | z_* | 1089.760 | 1089.80 ± 0.21 | $f_{2000}^{143 \times 217}$ | 31.63 | 32.1 ± 1.9 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1347 | 0.135 ± 0.030 | r_* | 144.559 | 144.57 ± 0.22 | f_{2000}^{217} | 106.20 | 106.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 | 0.481 ± 0.084 | $100\theta_*$ | 1.041190 | 1.04119 ± 0.00029 | χ_{lensing}^2 | 8.730 | 9.10 ± 0.59 |
| A_{143}^{dustTE} | 0.224 | 0.225 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8840 | 13.885 ± 0.021 | χ_{small}^2 | 396.52 | 397.2 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.668 ± 0.081 | z_{drag} | 1060.047 | 1060.01 ± 0.29 | χ_{lowl}^2 | 22.90 | 23.25 ± 0.82 |
| A_{217}^{dustTE} | 2.076 | 2.08 ± 0.27 | r_{drag} | 147.198 | 147.21 ± 0.23 | χ_{plik}^2 | 2345.3 | 2359.6 ± 5.8 |
| c_{100} | 0.99973 | 0.99967 ± 0.00062 | k_{D} | 0.140814 | 0.14078 ± 0.00028 | $\chi_{6\text{DF}}^2$ | 0.0289 | 0.053 ± 0.060 |
| c_{217} | 0.99817 | 0.99818 ± 0.00063 | $100\theta_{\text{D}}$ | 0.160690 | 0.16072 ± 0.00017 | χ_{MGS}^2 | 1.217 | 1.24 ± 0.38 |
| H_0 | 67.702 | 67.66 ± 0.42 | z_{eq} | 3386.8 | 3387 ± 21 | χ_{DR12BAO}^2 | 4.42 | 4.8 ± 1.3 |
| Ω_{Λ} | 0.6894 | 0.6889 ± 0.0056 | k_{eq} | 0.010337 | 0.010339 ± 0.000063 | χ_{prior}^2 | 1.56 | 11.5 ± 4.5 |
| Ω_{m} | 0.3106 | 0.3111 ± 0.0056 | $100\theta_{\text{eq}}$ | 0.81635 | 0.8162 ± 0.0039 | χ_{CMB}^2 | 2773.5 | 2789.2 ± 5.9 |
| $\Omega_{\text{m}} h^2$ | 0.14237 | 0.14240 ± 0.00087 | $100\theta_{\text{s,eq}}$ | 0.45092 | 0.4509 ± 0.0020 | χ_{BAO}^2 | 5.67 | 6.1 ± 1.0 |
| $\Omega_{\text{m}} h^3$ | 0.096387 | 0.09635 ± 0.00030 | $H(0.15)$ | 72.978 | 72.94 ± 0.36 | | | |
| σ_8 | 0.8110 | 0.8102 ± 0.0060 | $D_M(0.15)$ | 640.41 | 640.8 ± 3.5 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2780.70$; $\bar{\chi}_{\text{eff}}^2 = 2806.84$; $R - 1 = 0.01508$

χ_{eff}^2 : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.42 CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.73 small_100x143.offlike5_EE_Aplanck_B: 396.52 commander_dx12.v3.2.29: 22.90 plik_rd12_HM_v22b_TTTEEE: 2345.32

2.19 base_plikHM_TTTEEE_lowl_lowE_lensing_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022400 | 0.02239 ± 0.00014 | σ_8 | 0.8112 | 0.8108 ± 0.0060 | $H(0.15)$ | 72.773 | 72.78 ± 0.43 |
| $\Omega_c h^2$ | 0.11977 | 0.1197 ± 0.0011 | S_8 | 0.8296 | 0.829 ± 0.012 | $D_M(0.15)$ | 642.44 | 642.4 ± 4.3 |
| $100\theta_{MC}$ | 1.040941 | 1.04095 ± 0.00031 | $\sigma_8 \Omega_m^{0.5}$ | 0.4544 | 0.4541 ± 0.0067 | $H(0.38)$ | 82.933 | 82.94 ± 0.32 |
| τ | 0.0549 | 0.0550 ± 0.0073 | $\sigma_8 \Omega_m^{0.25}$ | 0.6071 | 0.6068 ± 0.0062 | $D_M(0.38)$ | 1531.6 | 1531.5 ± 8.7 |
| $\ln(10^{10} A_s)$ | 3.0453 | 3.045 ± 0.014 | $\sigma_8/h^{0.5}$ | 0.9876 | 0.9871 ± 0.0089 | $H(0.51)$ | 89.679 | 89.68 ± 0.26 |
| n_s | 0.96641 | 0.9655 ± 0.0041 | $r_{\text{drag}} h$ | 99.25 | 99.28 ± 0.87 | $D_M(0.51)$ | 1983.7 | 1984 ± 10 |
| y_{cal} | 1.00064 | 1.0007 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4413 | 2.443 ± 0.022 | $H(0.61)$ | 95.320 | 95.32 ± 0.21 |
| A_{217}^{CIB} | 47.2 | 47 ± 7 | z_{re} | 7.73 | 7.73 ± 0.73 | $D_M(0.61)$ | 2308.0 | 2308 ± 11 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.446 | > 0.375 | $10^9 A_s$ | 2.1016 | 2.102 ± 0.030 | $H(2.33)$ | 236.44 | 236.41 ± 0.66 |
| A_{143}^{tSZ} | 7.20 | $5.4^{+2.2}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.8832 | 1.883 ± 0.011 | $D_M(2.33)$ | 5761.6 | 5761.7 ± 9.9 |
| A_{100}^{PS} | 250.3 | 259 ± 28 | D_{40} | 1228.7 | 1231 ± 12 | $f\sigma_8(0.15)$ | 0.4588 | 0.4585 ± 0.0062 |
| A_{143}^{PS} | 47.7 | 46 ± 8 | D_{220} | 5734.6 | 5738 ± 38 | $\sigma_8(0.15)$ | 0.7493 | 0.7490 ± 0.0054 |
| $A_{143 \times 217}^{\text{PS}}$ | 47.9 | 42 ± 9 | D_{810} | 2541.2 | 2540 ± 13 | $f\sigma_8(0.38)$ | 0.4766 | 0.4763 ± 0.0051 |
| A_{217}^{PS} | 119.7 | 115 ± 10 | D_{1420} | 818.47 | 817.5 ± 4.7 | $\sigma_8(0.38)$ | 0.66399 | 0.6637 ± 0.0047 |
| A^{kSZ} | 0.00 | < 4.31 | D_{2000} | 231.33 | 231.0 ± 1.6 | $f\sigma_8(0.51)$ | 0.47497 | 0.4747 ± 0.0045 |
| A_{100}^{dustTT} | 8.83 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.96641 | 0.9655 ± 0.0041 | $\sigma_8(0.51)$ | 0.62128 | 0.6210 ± 0.0044 |
| A_{143}^{dustTT} | 11.02 | 10.9 ± 1.8 | Y_P | 0.245407 | $0.245402^{+0.000058}_{-0.000052}$ | $f\sigma_8(0.61)$ | 0.46981 | 0.4695 ± 0.0041 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.81 | 18.5 ± 3.3 | Y_P^{BBN} | 0.246734 | $0.246729^{+0.000059}_{-0.000052}$ | $\sigma_8(0.61)$ | 0.59110 | 0.5909 ± 0.0042 |
| A_{217}^{dustTT} | 95.0 | 93.5 ± 7.3 | $10^5 D/H$ | 2.5800 | 2.582 ± 0.026 | $f\sigma_8(2.33)$ | 0.29794 | 0.2978 ± 0.0022 |
| A_{100}^{dustTE} | 0.1139 | 0.114 ± 0.038 | Age/Gyr | 13.7930 | 13.793 ± 0.022 | $\sigma_8(2.33)$ | 0.30707 | 0.3070 ± 0.0023 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1343 | 0.135 ± 0.030 | z_* | 1089.862 | 1089.87 ± 0.24 | f_{2000}^{143} | 28.79 | 29.5 ± 2.7 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.480 ± 0.085 | r_* | 144.467 | 144.48 ± 0.25 | $f_{2000}^{143 \times 217}$ | 31.98 | 32.2 ± 1.9 |
| A_{143}^{dustTE} | 0.223 | 0.225 ± 0.054 | $100\theta_*$ | 1.041120 | 1.04113 ± 0.00030 | f_{2000}^{217} | 106.61 | 107.0 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.669 ± 0.081 | $D_M(z_*)/\text{Gpc}$ | 13.8761 | 13.877 ± 0.024 | χ_{lensing}^2 | 8.771 | 9.17 ± 0.63 |
| A_{217}^{dustTE} | 2.080 | 2.08 ± 0.27 | z_{drag} | 1059.971 | 1059.97 ± 0.30 | χ_{simall}^2 | 396.16 | 397.1 ± 1.7 |
| c_{100} | 0.99973 | 0.99967 ± 0.00061 | r_{drag} | 147.120 | 147.14 ± 0.25 | χ_{lowl}^2 | 23.18 | 23.42 ± 0.87 |
| c_{217} | 0.99817 | 0.99819 ± 0.00062 | k_D | 0.140861 | 0.14084 ± 0.00029 | χ_{plik}^2 | 2344.9 | 2359.5 ± 5.8 |
| H_0 | 67.46 | 67.48 ± 0.50 | $100\theta_D$ | 0.160728 | 0.16074 ± 0.00017 | χ_{JLA}^2 | 1035.184 | 1035.27 ± 0.43 |
| Ω_Λ | 0.6862 | 0.6863 ± 0.0069 | z_{eq} | 3397.5 | 3396 ± 25 | χ_{prior}^2 | 1.70 | 11.5 ± 4.5 |
| Ω_m | 0.3138 | 0.3137 ± 0.0069 | k_{eq} | 0.010369 | 0.010366 ± 0.000076 | χ_{CMB}^2 | 2773.0 | 2789.2 ± 5.9 |
| $\Omega_m h^2$ | 0.14282 | 0.1428 ± 0.0010 | $100\theta_{\text{eq}}$ | 0.81424 | 0.8144 ± 0.0047 | | | |
| $\Omega_m h^3$ | 0.096351 | 0.09633 ± 0.00030 | $100\theta_{s,\text{eq}}$ | 0.44985 | 0.4500 ± 0.0024 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3809.84$; $\bar{\chi}_{\text{eff}}^2 = 3835.97$; $R - 1 = 0.01281$
 χ_{eff}^2 : CMB - smicadx12_Dec5.ftl_mv2_ndclpp_p.teb_consext8: 8.77 simall_100x143_offlike5_EE_Aplanck_B: 396.16 commander_dx12_v3.2_29: 23.18 plik_rd12_HM_v22b_TTTEEE: 2344.85 SN - JLA Pantheon18: 1035.18

2.20 base_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022451 | 0.02243 ± 0.00013 | S_8 | 0.8237 | 0.824 ± 0.010 | $H(0.38)$ | 83.116 | 83.09 ± 0.26 |
| $\Omega_c h^2$ | 0.11913 | 0.11921 ± 0.00089 | $\sigma_8 \Omega_m^{0.5}$ | 0.4511 | 0.4513 ± 0.0057 | $D_M(0.38)$ | 1526.6 | 1527.4 ± 6.9 |
| $100\theta_{MC}$ | 1.041017 | 1.04102 ± 0.00029 | $\sigma_8 \Omega_m^{0.25}$ | 0.6047 | 0.6046 ± 0.0057 | $H(0.51)$ | 89.821 | 89.80 ± 0.21 |
| τ | 0.0568 | 0.0564 ± 0.0071 | $\sigma_8/h^{0.5}$ | 0.9847 | 0.9844 ± 0.0084 | $D_M(0.51)$ | 1977.8 | 1978.8 ± 8.2 |
| $\ln(10^{10} A_s)$ | 3.0482 | 3.047 ± 0.014 | $r_{\text{drag}} h$ | 99.77 | 99.70 ± 0.69 | $H(0.61)$ | 95.431 | 95.41 ± 0.18 |
| n_s | 0.96823 | 0.9668 ± 0.0037 | $\langle d^2 \rangle^{1/2}$ | 2.4343 | 2.437 ± 0.021 | $D_M(0.61)$ | 2301.7 | 2302.7 ± 8.8 |
| y_{cal} | 1.00085 | 1.0008 ± 0.0025 | z_{re} | 7.90 | 7.85 ± 0.70 | $H(2.33)$ | 236.07 | 236.11 ± 0.55 |
| A_{217}^{CIB} | 46.6 | 47 ± 7 | $10^9 A_s$ | 2.1077 | 2.105 ± 0.030 | $D_M(2.33)$ | 5756.9 | 5757.8 ± 8.7 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.558 | > 0.377 | $10^9 A_s e^{-2\tau}$ | 1.8813 | 1.881 ± 0.010 | $f\sigma_8(0.15)$ | 0.4559 | 0.4559 ± 0.0054 |
| A_{143}^{tSZ} | 7.16 | $5.4^{+2.2}_{-2.0}$ | D_{40} | 1225.7 | 1229 ± 12 | $\sigma_8(0.15)$ | 0.7492 | 0.7486 ± 0.0054 |
| A_{100}^{PS} | 248.6 | 259 ± 28 | D_{220} | 5739.0 | 5741 ± 38 | $f\sigma_8(0.38)$ | 0.47461 | 0.4745 ± 0.0046 |
| A_{143}^{PS} | 48.8 | 46 ± 8 | D_{810} | 2542.0 | 2540 ± 13 | $\sigma_8(0.38)$ | 0.66431 | 0.6637 ± 0.0048 |
| $A_{143 \times 217}^{\text{PS}}$ | 50.4 | 42 ± 9 | D_{1420} | 819.38 | 818.0 ± 4.7 | $f\sigma_8(0.51)$ | 0.47342 | 0.4732 ± 0.0042 |
| A_{217}^{PS} | 120.6 | 115 ± 10 | D_{2000} | 231.70 | 231.2 ± 1.5 | $\sigma_8(0.51)$ | 0.62176 | 0.6212 ± 0.0045 |
| A^{kSZ} | 0.00 | < 4.24 | $n_{s,0.002}$ | 0.96823 | 0.9668 ± 0.0037 | $f\sigma_8(0.61)$ | 0.46858 | 0.4684 ± 0.0039 |
| A_{100}^{dustTT} | 8.84 | 8.9 ± 1.8 | Y_{P} | 0.245427 | $0.245417^{+0.000054}_{-0.000047}$ | $\sigma_8(0.61)$ | 0.59167 | 0.5911 ± 0.0043 |
| A_{143}^{dustTT} | 11.02 | 10.9 ± 1.8 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246753 | $0.246744^{+0.000054}_{-0.000048}$ | $f\sigma_8(2.33)$ | 0.29839 | 0.2981 ± 0.0022 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.94 | 18.5 ± 3.3 | $10^5 \text{D}/\text{H}$ | 2.5706 | 2.575 ± 0.025 | $\sigma_8(2.33)$ | 0.30771 | 0.3074 ± 0.0023 |
| A_{217}^{dustTT} | 95.2 | 93.5 ± 7.3 | Age/Gyr | 13.7827 | 13.785 ± 0.020 | f_{2000}^{143} | 28.47 | 29.3 ± 2.7 |
| A_{100}^{dustTE} | 0.1140 | 0.114 ± 0.037 | z_* | 1089.742 | 1089.78 ± 0.21 | $f_{2000}^{143 \times 217}$ | 31.78 | 32.0 ± 1.9 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1342 | 0.135 ± 0.030 | r_* | 144.595 | 144.59 ± 0.21 | f_{2000}^{217} | 106.41 | 106.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.484 | 0.482 ± 0.084 | $100\theta_*$ | 1.041196 | 1.04120 ± 0.00029 | χ_{lensing}^2 | 8.719 | 9.10 ± 0.60 |
| A_{143}^{dustTE} | 0.224 | 0.225 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8874 | 13.887 ± 0.021 | χ_{small}^2 | 396.52 | 397.2 ± 1.9 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.668 ± 0.081 | z_{drag} | 1060.047 | 1060.02 ± 0.29 | χ_{lowl}^2 | 22.88 | 23.20 ± 0.81 |
| A_{217}^{dustTE} | 2.079 | 2.08 ± 0.27 | r_{drag} | 147.233 | 147.23 ± 0.23 | χ_{plik}^2 | 2345.3 | 2359.7 ± 5.8 |
| c_{100} | 0.99971 | 0.99967 ± 0.00062 | k_{D} | 0.140780 | 0.14076 ± 0.00028 | χ_{JLA}^2 | 1034.974 | 1035.06 ± 0.26 |
| c_{217} | 0.99819 | 0.99818 ± 0.00063 | $100\theta_{\text{D}}$ | 0.160690 | 0.16072 ± 0.00017 | $\chi_{6\text{DF}}^2$ | 0.0218 | 0.046 ± 0.053 |
| H_0 | 67.761 | 67.72 ± 0.40 | z_{eq} | 3383.3 | 3385 ± 20 | χ_{MGS}^2 | 1.279 | 1.29 ± 0.38 |
| Ω_{Λ} | 0.6902 | 0.6896 ± 0.0054 | k_{eq} | 0.010326 | 0.010331 ± 0.000062 | χ_{DR12BAO}^2 | 4.24 | 4.7 ± 1.2 |
| Ω_{m} | 0.3098 | 0.3104 ± 0.0054 | $100\theta_{\text{eq}}$ | 0.81699 | 0.8167 ± 0.0038 | χ_{prior}^2 | 1.77 | 11.5 ± 4.5 |
| $\Omega_{\text{m}} h^2$ | 0.14222 | 0.14229 ± 0.00084 | $100\theta_{\text{s,eq}}$ | 0.45125 | 0.4511 ± 0.0019 | χ_{CMB}^2 | 2773.4 | 2789.3 ± 5.9 |
| $\Omega_{\text{m}} h^3$ | 0.096371 | 0.09635 ± 0.00029 | $H(0.15)$ | 73.027 | 72.99 ± 0.35 | χ_{BAO}^2 | 5.55 | 6.00 ± 0.92 |
| σ_8 | 0.8106 | 0.8100 ± 0.0060 | $D_M(0.15)$ | 639.92 | 640.3 ± 3.4 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3815.67$; $\bar{\chi}_{\text{eff}}^2 = 3841.86$; $R - 1 = 0.01667$

χ_{eff}^2 : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.24 CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.72 small_100x143.offlike5_EE_Aplanck_B: 396.52 commander_dx12.v3.2.29: 22.88 plik_rd12_HM_v22b_TTTEEE: 2345.27 SN - JLA Pantheon18: 1034.97

2.21 base_plikHM_TTTEEE_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|--------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02238 ± 0.00015 | $\Omega_m h^3$ | 0.09633 ± 0.00030 | $100\theta_{\text{eq}}$ | 0.8136 ± 0.0049 |
| $\Omega_c h^2$ | 0.1199 ± 0.0012 | σ_8 | 0.8116 ± 0.0057 | $100\theta_{\text{s,eq}}$ | 0.4495 ± 0.0025 |
| $100\theta_{\text{MC}}$ | 1.04092 ± 0.00031 | S_8 | 0.832 ± 0.013 | $H(0.15)$ | 72.70 ± 0.45 |
| τ | $0.0552^{+0.0053}_{-0.0077}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4555 ± 0.0070 | $D_{\text{M}}(0.15)$ | 643.2 ± 4.5 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.011}_{-0.015}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6080 ± 0.0064 | $H(0.38)$ | 82.88 ± 0.33 |
| n_s | 0.9650 ± 0.0041 | $\sigma_8/h^{0.5}$ | 0.9888 ± 0.0090 | $D_{\text{M}}(0.38)$ | 1533.1 ± 9.1 |
| y_{cal} | 1.0006 ± 0.0024 | $r_{\text{drag}} h$ | 99.12 ± 0.91 | $H(0.51)$ | 89.64 ± 0.27 |
| A_{217}^{CIB} | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.447 ± 0.022 | $D_{\text{M}}(0.51)$ | 1985 ± 11 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | z_{re} | $7.76^{+0.58}_{-0.75}$ | $H(0.61)$ | 95.29 ± 0.22 |
| A_{143}^{tSZ} | 5.4 ± 2.0 | $10^9 A_s$ | $2.103^{+0.023}_{-0.031}$ | $D_{\text{M}}(0.61)$ | 2310 ± 11 |
| A_{100}^{PS} | 259 ± 28 | $10^9 A_s e^{-2\tau}$ | 1.883 ± 0.011 | $H(2.33)$ | 236.53 ± 0.69 |
| A_{143}^{PS} | 46 ± 8 | D_{40} | 1232 ± 12 | $D_{\text{M}}(2.33)$ | 5763 ± 10 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{220} | 5735 ± 38 | $f\sigma_8(0.15)$ | 0.4598 ± 0.0065 |
| A_{217}^{PS} | 115 ± 10 | D_{810} | 2539 ± 13 | $\sigma_8(0.15)$ | $0.7496^{+0.0047}_{-0.0054}$ |
| A^{kSZ} | < 4.30 | D_{1420} | 817.2 ± 4.8 | $f\sigma_8(0.38)$ | 0.4774 ± 0.0052 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | D_{2000} | 230.9 ± 1.6 | $\sigma_8(0.38)$ | $0.6641^{+0.0039}_{-0.0048}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.9650 ± 0.0041 | $f\sigma_8(0.51)$ | 0.4755 ± 0.0046 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | Y_{P} | $0.245396^{+0.000060}_{-0.000053}$ | $\sigma_8(0.51)$ | $0.6214^{+0.0037}_{-0.0045}$ |
| A_{217}^{dustTT} | 93.5 ± 7.2 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246723^{+0.000060}_{-0.000053}$ | $f\sigma_8(0.61)$ | 0.4703 ± 0.0041 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | 10^5D/H | 2.585 ± 0.027 | $\sigma_8(0.61)$ | $0.5912^{+0.0035}_{-0.0043}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | Age/Gyr | 13.796 ± 0.023 | $f\sigma_8(2.33)$ | $0.2979^{+0.0018}_{-0.0022}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | z_* | 1089.91 ± 0.25 | $\sigma_8(2.33)$ | $0.3070^{+0.0019}_{-0.0024}$ |
| A_{143}^{dustTE} | 0.225 ± 0.054 | r_* | 144.44 ± 0.26 | f_{2000}^{143} | 29.6 ± 2.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 ± 0.080 | $100\theta_*$ | 1.04110 ± 0.00031 | $f_{2000}^{143 \times 217}$ | 32.2 ± 1.9 |
| A_{217}^{dustTE} | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.874 ± 0.024 | f_{2000}^{217} | 107.0 ± 1.8 |
| c_{100} | 0.99967 ± 0.00061 | z_{drag} | 1059.95 ± 0.30 | χ_{lensing}^2 | 9.22 ± 0.68 |
| c_{217} | 0.99819 ± 0.00062 | r_{drag} | 147.10 ± 0.26 | χ_{small}^2 | 397.0 ± 1.7 |
| H_0 | 67.38 ± 0.53 | k_{D} | 0.14086 ± 0.00030 | χ_{lowl}^2 | 23.53 ± 0.90 |
| Ω_{Λ} | 0.6850 ± 0.0072 | $100\theta_{\text{D}}$ | 0.16075 ± 0.00017 | χ_{plik}^2 | 2359.3 ± 5.7 |
| Ω_{m} | 0.3150 ± 0.0072 | z_{eq} | 3401 ± 26 | χ_{prior}^2 | 11.5 ± 4.5 |
| $\Omega_{\text{m}} h^2$ | 0.1430 ± 0.0011 | k_{eq} | 0.010380 ± 0.000080 | χ_{CMB}^2 | 2789.0 ± 5.8 |

$$\bar{\chi}_{\text{eff}}^2 = 2800.50; R - 1 = 0.01006$$

2.22 base_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02242 ± 0.00013 | S_8 | 0.825 ± 0.011 | $H(0.38)$ | 83.06 ± 0.27 |
| $\Omega_c h^2$ | 0.11931 ± 0.00091 | $\sigma_8 \Omega_m^{0.5}$ | 0.4520 ± 0.0058 | $D_M(0.38)$ | 1528.1 ± 7.1 |
| $100\theta_{MC}$ | 1.04101 ± 0.00029 | $\sigma_8 \Omega_m^{0.25}$ | 0.6052 ± 0.0057 | $H(0.51)$ | 89.78 ± 0.22 |
| τ | $0.0566^{+0.0058}_{-0.0075}$ | $\sigma_8/h^{0.5}$ | 0.9853 ± 0.0083 | $D_M(0.51)$ | 1979.6 ± 8.3 |
| $\ln(10^{10} A_s)$ | $3.048^{+0.012}_{-0.014}$ | $r_{\text{drag}} h$ | 99.62 ± 0.70 | $H(0.61)$ | 95.39 ± 0.18 |
| n_s | 0.9666 ± 0.0038 | $\langle d^2 \rangle^{1/2}$ | 2.439 ± 0.020 | $D_M(0.61)$ | 2303.7 ± 9.0 |
| y_{cal} | 1.0007 ± 0.0025 | z_{re} | $7.87^{+0.61}_{-0.74}$ | $H(2.33)$ | 236.17 ± 0.56 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.106^{+0.026}_{-0.031}$ | $D_M(2.33)$ | 5758.6 ± 8.8 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | > 0.375 | $10^9 A_s e^{-2\tau}$ | 1.881 ± 0.010 | $f\sigma_8(0.15)$ | 0.4566 ± 0.0054 |
| A_{143}^{tSZ} | $5.4^{+2.2}_{-1.9}$ | D_{40} | 1229 ± 12 | $\sigma_8(0.15)$ | 0.7490 ± 0.0052 |
| A_{100}^{PS} | 259 ± 28 | D_{220} | 5740 ± 38 | $f\sigma_8(0.38)$ | 0.4751 ± 0.0046 |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2540 ± 13 | $\sigma_8(0.38)$ | $0.6640^{+0.0042}_{-0.0048}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.8 ± 4.7 | $f\sigma_8(0.51)$ | 0.4737 ± 0.0042 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.1 ± 1.5 | $\sigma_8(0.51)$ | $0.6214^{+0.0039}_{-0.0045}$ |
| A^{kSZ} | < 4.25 | $n_{s,0.002}$ | 0.9666 ± 0.0038 | $f\sigma_8(0.61)$ | 0.4688 ± 0.0039 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245414^{+0.000054}_{-0.000048}$ | $\sigma_8(0.61)$ | $0.5913^{+0.0037}_{-0.0043}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246741^{+0.000055}_{-0.000048}$ | $f\sigma_8(2.33)$ | $0.2982^{+0.0019}_{-0.0022}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.5 ± 3.3 | 10^5D/H | 2.576 ± 0.025 | $\sigma_8(2.33)$ | $0.3074^{+0.0020}_{-0.0024}$ |
| A_{217}^{dustTT} | 93.5 ± 7.3 | Age/Gyr | 13.786 ± 0.020 | f_{2000}^{143} | 29.4 ± 2.7 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | 1089.79 ± 0.21 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.9 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | r_* | 144.57 ± 0.22 | f_{2000}^{217} | 106.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.084 | $100\theta_*$ | 1.04119 ± 0.00029 | χ_{lensing}^2 | 9.08 ± 0.55 |
| A_{143}^{dustTE} | 0.225 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.885 ± 0.021 | χ_{simall}^2 | 397.2 ± 1.9 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.668 ± 0.081 | z_{drag} | 1060.01 ± 0.29 | χ_{lowl}^2 | 23.25 ± 0.82 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | 147.22 ± 0.23 | χ_{plik}^2 | 2359.5 ± 5.8 |
| c_{100} | 0.99967 ± 0.00062 | k_D | 0.14078 ± 0.00028 | $\chi_{6\text{DF}}^2$ | 0.052 ± 0.058 |
| c_{217} | 0.99819 ± 0.00063 | $100\theta_D$ | 0.16072 ± 0.00017 | χ_{MGS}^2 | 1.25 ± 0.38 |
| H_0 | 67.67 ± 0.41 | z_{eq} | 3387 ± 21 | χ_{DR12BAO}^2 | 4.8 ± 1.3 |
| Ω_Λ | 0.6890 ± 0.0055 | k_{eq} | 0.010337 ± 0.000063 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_m | 0.3110 ± 0.0055 | $100\theta_{\text{eq}}$ | 0.8163 ± 0.0039 | χ_{CMB}^2 | 2789.1 ± 5.8 |
| $\Omega_m h^2$ | 0.14238 ± 0.00086 | $100\theta_{s,\text{eq}}$ | 0.4509 ± 0.0020 | χ_{BAO}^2 | 6.1 ± 1.0 |
| $\Omega_m h^3$ | 0.09635 ± 0.00030 | $H(0.15)$ | 72.95 ± 0.36 | | |
| σ_8 | 0.8105 ± 0.0058 | $D_M(0.15)$ | 640.7 ± 3.5 | | |

$\bar{\chi}_{\text{eff}}^2 = 2806.72$; $R - 1 = 0.01624$

2.23 base_plikHM_TTTEEE_lowl_lowE_lensing_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02240 ± 0.00014 | σ_8 | 0.8112 ± 0.0057 | $H(0.15)$ | 72.80 ± 0.43 |
| $\Omega_c h^2$ | 0.1197 ± 0.0011 | S_8 | 0.829 ± 0.012 | $D_M(0.15)$ | 642.2 ± 4.2 |
| $100\theta_{MC}$ | 1.04095 ± 0.00031 | $\sigma_8 \Omega_m^{0.5}$ | 0.4541 ± 0.0067 | $H(0.38)$ | 82.95 ± 0.31 |
| τ | $0.0558^{+0.0055}_{-0.0076}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6069 ± 0.0062 | $D_M(0.38)$ | 1531.1 ± 8.5 |
| $\ln(10^{10} A_s)$ | $3.047^{+0.012}_{-0.015}$ | $\sigma_8/h^{0.5}$ | 0.9874 ± 0.0088 | $H(0.51)$ | 89.69 ± 0.25 |
| n_s | 0.9656 ± 0.0040 | $r_{\text{drag}} h$ | 99.32 ± 0.85 | $D_M(0.51)$ | 1983 ± 10 |
| y_{cal} | 1.0007 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.444 ± 0.021 | $H(0.61)$ | 95.33 ± 0.21 |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.81^{+0.59}_{-0.75}$ | $D_M(0.61)$ | 2307 ± 11 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | > 0.375 | $10^9 A_s$ | $2.105^{+0.024}_{-0.031}$ | $H(2.33)$ | 236.39 ± 0.65 |
| A_{143}^{tSZ} | $5.4^{+2.2}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.011 | $D_M(2.33)$ | 5761.4 ± 9.8 |
| A_{100}^{PS} | 259 ± 28 | D_{40} | 1231 ± 12 | $f\sigma_8(0.15)$ | 0.4585 ± 0.0062 |
| A_{143}^{PS} | 46 ± 8 | D_{220} | 5737 ± 38 | $\sigma_8(0.15)$ | 0.7494 ± 0.0051 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{810} | 2539 ± 13 | $f\sigma_8(0.38)$ | 0.4765 ± 0.0050 |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 817.4 ± 4.7 | $\sigma_8(0.38)$ | $0.6641^{+0.0041}_{-0.0047}$ |
| A^{kSZ} | < 4.29 | D_{2000} | 231.0 ± 1.6 | $f\sigma_8(0.51)$ | 0.4748 ± 0.0044 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.9656 ± 0.0040 | $\sigma_8(0.51)$ | $0.6214^{+0.0038}_{-0.0045}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P | $0.245404^{+0.000058}_{-0.000051}$ | $f\sigma_8(0.61)$ | 0.4697 ± 0.0041 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.5 ± 3.3 | Y_P^{BBN} | $0.246730^{+0.000058}_{-0.000052}$ | $\sigma_8(0.61)$ | $0.5912^{+0.0036}_{-0.0043}$ |
| A_{217}^{dustTT} | 93.5 ± 7.3 | 10^5D/H | 2.581 ± 0.026 | $f\sigma_8(2.33)$ | $0.2980^{+0.0018}_{-0.0022}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | Age/Gyr | 13.793 ± 0.022 | $\sigma_8(2.33)$ | $0.3072^{+0.0019}_{-0.0024}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | z_* | 1089.86 ± 0.24 | f_{2000}^{143} | 29.5 ± 2.7 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.085 | r_* | 144.49 ± 0.25 | $f_{2000}^{143 \times 217}$ | 32.2 ± 1.9 |
| A_{143}^{dustTE} | 0.225 ± 0.054 | $100\theta_*$ | 1.04113 ± 0.00030 | f_{2000}^{217} | 107.0 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.668 ± 0.081 | $D_M(z_*)/\text{Gpc}$ | 13.878 ± 0.023 | χ_{lensing}^2 | 9.16 ± 0.62 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | z_{drag} | 1059.97 ± 0.30 | χ_{simall}^2 | 397.1 ± 1.8 |
| c_{100} | 0.99967 ± 0.00061 | r_{drag} | 147.14 ± 0.25 | χ_{lowl}^2 | 23.42 ± 0.87 |
| c_{217} | 0.99820 ± 0.00063 | k_D | 0.14083 ± 0.00029 | χ_{plik}^2 | 2359.4 ± 5.8 |
| H_0 | 67.50 ± 0.50 | $100\theta_D$ | 0.16074 ± 0.00017 | χ_{JLA}^2 | 1035.25 ± 0.42 |
| Ω_Λ | 0.6866 ± 0.0067 | z_{eq} | 3396 ± 25 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_m | 0.3134 ± 0.0067 | k_{eq} | 0.010364 ± 0.000075 | χ_{CMB}^2 | 2789.0 ± 5.8 |
| $\Omega_m h^2$ | 0.1427 ± 0.0010 | $100\theta_{\text{eq}}$ | 0.8146 ± 0.0046 | | |
| $\Omega_m h^3$ | 0.09634 ± 0.00030 | $100\theta_{s,\text{eq}}$ | 0.4501 ± 0.0024 | | |

$$\bar{\chi}_{\text{eff}}^2 = 3835.82; R - 1 = 0.01272$$

2.24 base_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02243 ± 0.00013 | S_8 | 0.824 ± 0.010 | $H(0.38)$ | 83.09 ± 0.26 |
| $\Omega_c h^2$ | 0.11920 ± 0.00088 | $\sigma_8 \Omega_m^{0.5}$ | 0.4513 ± 0.0057 | $D_M(0.38)$ | 1527.3 ± 6.9 |
| $100\theta_{MC}$ | 1.04103 ± 0.00029 | $\sigma_8 \Omega_m^{0.25}$ | 0.6048 ± 0.0056 | $H(0.51)$ | 89.80 ± 0.21 |
| τ | $0.0568^{+0.0058}_{-0.0075}$ | $\sigma_8/h^{0.5}$ | 0.9847 ± 0.0082 | $D_M(0.51)$ | 1978.6 ± 8.1 |
| $\ln(10^{10} A_s)$ | $3.048^{+0.012}_{-0.014}$ | $r_{\text{drag}} h$ | 99.71 ± 0.68 | $H(0.61)$ | 95.41 ± 0.18 |
| n_s | 0.9668 ± 0.0037 | $\langle d^2 \rangle^{1/2}$ | 2.438 ± 0.020 | $D_M(0.61)$ | 2302.6 ± 8.8 |
| y_{cal} | 1.0008 ± 0.0025 | z_{re} | $7.89^{+0.61}_{-0.74}$ | $H(2.33)$ | 236.10 ± 0.54 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.107^{+0.026}_{-0.031}$ | $D_M(2.33)$ | 5757.7 ± 8.6 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | > 0.377 | $10^9 A_s e^{-2\tau}$ | 1.881 ± 0.010 | $f\sigma_8(0.15)$ | 0.4560 ± 0.0054 |
| A_{143}^{tSZ} | $5.4^{+2.2}_{-1.9}$ | D_{40} | 1229 ± 12 | $\sigma_8(0.15)$ | 0.7489 ± 0.0052 |
| A_{100}^{PS} | 259 ± 28 | D_{220} | 5741 ± 38 | $f\sigma_8(0.38)$ | 0.4746 ± 0.0046 |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2540 ± 13 | $\sigma_8(0.38)$ | $0.6640^{+0.0043}_{-0.0048}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.9 ± 4.7 | $f\sigma_8(0.51)$ | 0.4734 ± 0.0041 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.2 ± 1.5 | $\sigma_8(0.51)$ | $0.6214^{+0.0040}_{-0.0045}$ |
| A^{kSZ} | < 4.23 | $n_{s,0.002}$ | 0.9668 ± 0.0037 | $f\sigma_8(0.61)$ | 0.4685 ± 0.0038 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245418^{+0.000054}_{-0.000047}$ | $\sigma_8(0.61)$ | $0.5913^{+0.0038}_{-0.0043}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246744^{+0.000054}_{-0.000048}$ | $f\sigma_8(2.33)$ | $0.2982^{+0.0019}_{-0.0022}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.5 ± 3.3 | $10^5 D/H$ | 2.575 ± 0.024 | $\sigma_8(2.33)$ | $0.3075^{+0.0020}_{-0.0024}$ |
| A_{217}^{dustTT} | 93.5 ± 7.3 | Age/Gyr | 13.785 ± 0.020 | f_{2000}^{143} | 29.3 ± 2.7 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | 1089.77 ± 0.21 | $f_{2000}^{143 \times 217}$ | 32.0 ± 1.9 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | r_* | 144.59 ± 0.21 | f_{2000}^{217} | 106.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 ± 0.084 | $100\theta_*$ | 1.04120 ± 0.00029 | χ_{lensing}^2 | 9.07 ± 0.56 |
| A_{143}^{dustTE} | 0.225 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.887 ± 0.020 | χ_{simall}^2 | 397.2 ± 1.9 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 ± 0.081 | z_{drag} | 1060.02 ± 0.29 | χ_{lowl}^2 | 23.21 ± 0.81 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | 147.23 ± 0.22 | χ_{plik}^2 | 2359.6 ± 5.8 |
| c_{100} | 0.99967 ± 0.00062 | k_D | 0.14076 ± 0.00028 | χ_{JLA}^2 | 1035.05 ± 0.26 |
| c_{217} | 0.99818 ± 0.00063 | $100\theta_D$ | 0.16072 ± 0.00017 | $\chi_{6\text{DF}}^2$ | 0.045 ± 0.052 |
| H_0 | 67.72 ± 0.40 | z_{eq} | 3385 ± 20 | χ_{MGS}^2 | 1.30 ± 0.38 |
| Ω_Λ | 0.6897 ± 0.0053 | k_{eq} | 0.010330 ± 0.000061 | χ_{DR12BAO}^2 | 4.6 ± 1.2 |
| Ω_m | 0.3103 ± 0.0053 | $100\theta_{\text{eq}}$ | 0.8167 ± 0.0038 | χ_{prior}^2 | 11.5 ± 4.5 |
| $\Omega_m h^2$ | 0.14228 ± 0.00084 | $100\theta_{s,\text{eq}}$ | 0.4511 ± 0.0019 | χ_{CMB}^2 | 2789.2 ± 5.8 |
| $\Omega_m h^3$ | 0.09635 ± 0.00030 | $H(0.15)$ | 72.99 ± 0.35 | χ_{BAO}^2 | 5.98 ± 0.90 |
| σ_8 | 0.8103 ± 0.0058 | $D_M(0.15)$ | 640.3 ± 3.4 | | |

$$\bar{\chi}_{\text{eff}}^2 = 3841.74; R - 1 = 0.01810$$

2.25 base_plikHM_TTTEE_lowl_lowE_DES

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------|-----------------------------|----------|-------------------------|-----------------------------|----------|-------------------------|
| $\Omega_b h^2$ | 0.022524 | 0.02252 ± 0.00014 | $\Delta z_{l,DES}^1$ | 0.0030 | 0.0036 ± 0.0074 | z_{drag} | 1060.162 | 1060.12 ± 0.30 |
| $\Omega_c h^2$ | 0.11811 | 0.1179 ± 0.0011 | $\Delta z_{l,DES}^2$ | 0.0007 | 0.0008 ± 0.0066 | r_{drag} | 147.420 | 147.49 ± 0.25 |
| $100\theta_{\text{MC}}$ | 1.041116 | 1.04112 ± 0.00030 | $\Delta z_{l,DES}^3$ | 0.0035 | 0.0034 ± 0.0066 | k_D | 0.140636 | 0.14056 ± 0.00030 |
| τ | 0.0552 | 0.0546 ± 0.0080 | $\Delta z_{l,DES}^4$ | 0.0007 | 0.0006 ± 0.0090 | $100\theta_D$ | 0.160639 | 0.16066 ± 0.00017 |
| $\ln(10^{10} A_s)$ | 3.0416 | 3.039 ± 0.016 | $\Delta z_{l,DES}^5$ | -0.0004 | -0.0006 ± 0.0099 | z_{eq} | 3360.8 | 3355 ± 24 |
| n_s | 0.97003 | 0.9696 ± 0.0040 | $\Delta z_{s,DES}^1$ | 0.0007 | -0.003 ± 0.014 | k_{eq} | 0.010257 | 0.010240 ± 0.000074 |
| y_{cal} | 1.00041 | 1.0005 ± 0.0025 | $\Delta z_{s,DES}^2$ | -0.0301 | -0.031 ± 0.011 | $100\theta_{\text{eq}}$ | 0.82136 | 0.8224 ± 0.0046 |
| A_{217}^{CIB} | 47.6 | 47 ± 7 | $\Delta z_{s,DES}^3$ | 0.0029 | 0.0041 ± 0.0096 | $100\theta_{s,\text{eq}}$ | 0.45348 | 0.4540 ± 0.0024 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.44 | — | $\Delta z_{s,DES}^4$ | -0.0301 | -0.030 ± 0.018 | $H(0.15)$ | 73.415 | 73.48 ± 0.42 |
| A_{143}^{tSZ} | 7.25 | $5.5^{+2.1}_{-1.9}$ | H_0 | 68.215 | 68.30 ± 0.49 | $D_M(0.15)$ | 636.09 | 635.4 ± 4.1 |
| A_{100}^{PS} | 249.4 | 259 ± 28 | Ω_Λ | 0.6964 | 0.6975 ± 0.0064 | $H(0.38)$ | 83.395 | 83.44 ± 0.31 |
| A_{143}^{PS} | 46.7 | 45 ± 8 | Ω_m | 0.3036 | 0.3025 ± 0.0064 | $D_M(0.38)$ | 1518.9 | 1517.7 ± 8.3 |
| $A_{143 \times 217}^{\text{PS}}$ | 46.9 | 41 ± 9 | $\Omega_m h^2$ | 0.14128 | 0.1410 ± 0.0010 | $H(0.51)$ | 90.037 | 90.07 ± 0.25 |
| A_{217}^{PS} | 118.5 | 114 ± 10 | $\Omega_m h^3$ | 0.096375 | 0.09632 ± 0.00029 | $D_M(0.51)$ | 1968.9 | 1967.4 ± 9.8 |
| A^{kSZ} | 0.00 | < 4.37 | σ_8 | 0.8048 | 0.8030 ± 0.0068 | $H(0.61)$ | 95.598 | 95.62 ± 0.21 |
| A_{100}^{dustTT} | 8.78 | 8.9 ± 1.8 | S_8 | 0.8097 | 0.806 ± 0.012 | $D_M(0.61)$ | 2292.1 | 2291 ± 11 |
| A_{143}^{dustTT} | 11.04 | 11.0 ± 1.8 | $\sigma_8 \Omega_m^{0.5}$ | 0.4435 | 0.4416 ± 0.0067 | $H(2.33)$ | 235.49 | 235.33 ± 0.64 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.77 | 18.7 ± 3.3 | $\sigma_8 \Omega_m^{0.25}$ | 0.5974 | 0.5955 ± 0.0066 | $D_M(2.33)$ | 5750.0 | 5749.6 ± 9.7 |
| A_{217}^{dustTT} | 94.7 | 93.7 ± 7.4 | $\sigma_8/h^{0.5}$ | 0.9745 | 0.9717 ± 0.0096 | $f\sigma_8(0.15)$ | 0.4487 | 0.4469 ± 0.0063 |
| A_{100}^{dustTE} | 0.1149 | 0.114 ± 0.038 | $r_{\text{drag}} h$ | 100.56 | 100.73 ± 0.85 | $\sigma_8(0.15)$ | 0.7445 | 0.7429 ± 0.0061 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1345 | 0.135 ± 0.029 | $\langle d^2 \rangle^{1/2}$ | 2.4120 | 2.408 ± 0.023 | $f\sigma_8(0.38)$ | 0.4686 | 0.4670 ± 0.0054 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.481 ± 0.084 | z_{re} | 7.71 | 7.62 ± 0.80 | $\sigma_8(0.38)$ | 0.6608 | 0.6595 ± 0.0053 |
| A_{143}^{dustTE} | 0.223 | 0.222 ± 0.054 | $10^9 A_s$ | 2.0940 | 2.090 ± 0.034 | $f\sigma_8(0.51)$ | 0.46816 | 0.4667 ± 0.0049 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.661 ± 0.080 | $10^9 A_s e^{-2\tau}$ | 1.8750 | 1.873 ± 0.011 | $\sigma_8(0.51)$ | 0.61875 | 0.6176 ± 0.0050 |
| A_{217}^{dustTE} | 2.071 | 2.06 ± 0.27 | D_{40} | 1220.3 | 1221 ± 12 | $f\sigma_8(0.61)$ | 0.46385 | 0.4625 ± 0.0045 |
| c_{100} | 0.99970 | 0.99967 ± 0.00061 | D_{220} | 5741.4 | 5744 ± 39 | $\sigma_8(0.61)$ | 0.58898 | 0.5880 ± 0.0048 |
| c_{217} | 0.99819 | 0.99819 ± 0.00063 | D_{810} | 2538.6 | 2537 ± 14 | $f\sigma_8(2.33)$ | 0.29728 | 0.2968 ± 0.0024 |
| b_{DES}^1 | 1.506 | 1.508 ± 0.073 | D_{1420} | 818.89 | 817.9 ± 4.8 | $\sigma_8(2.33)$ | 0.30684 | 0.3064 ± 0.0026 |
| b_{DES}^2 | 1.710 | 1.710 ± 0.052 | D_{2000} | 231.56 | 231.2 ± 1.6 | f_{2000}^{143} | 28.49 | 29.3 ± 2.7 |
| b_{DES}^3 | 1.6967 | 1.698 ± 0.044 | $n_{s,0.002}$ | 0.97003 | 0.9696 ± 0.0040 | $f_{2000}^{143 \times 217}$ | 31.72 | 31.9 ± 1.8 |
| b_{DES}^4 | 2.058 | 2.059 ± 0.052 | Y_P | 0.245453 | 0.245450 ± 0.000053 | f_{2000}^{217} | 106.29 | 106.7 ± 1.8 |
| b_{DES}^5 | 2.161 | 2.159 ± 0.076 | Y_P^{BBN} | 0.246780 | 0.246777 ± 0.000053 | χ_{small}^2 | 396.08 | 397.0 ± 1.8 |
| m_{DES}^1 | 0.0133 | 0.012 ± 0.023 | $10^5 D/H$ | 2.5577 | 2.559 ± 0.025 | χ_{lowl}^2 | 22.49 | 22.59 ± 0.77 |
| m_{DES}^2 | 0.0137 | 0.012 ± 0.022 | Age/Gyr | 13.7679 | 13.767 ± 0.022 | χ_{plik}^2 | 2348.0 | 2363.4 ± 6.4 |
| m_{DES}^3 | -0.0028 | -0.002 ± 0.020 | z_* | 1089.564 | 1089.55 ± 0.23 | χ_{DES}^2 | 509.16 | 518.0 ± 4.9 |
| m_{DES}^4 | 0.0018 | 0.003 ± 0.021 | r_* | 144.803 | 144.87 ± 0.25 | χ_{prior}^2 | 4.0 | 25 ± 7 |
| $A_{\text{IA,DES}}$ | 0.434 | $0.47^{+0.15}_{-0.18}$ | $100\theta_*$ | 1.041291 | 1.04129 ± 0.00030 | χ_{CMB}^2 | 2766.6 | 2783.0 ± 6.3 |
| $\alpha_{\text{IA,DES}}$ | -2.55 | $-1.1^{+1.7}_{-2.9}$ | $D_M(z_*)/\text{Gpc}$ | 13.9061 | 13.912 ± 0.023 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3279.69$; $\bar{\chi}_{\text{eff}}^2 = 3325.69$; $R - 1 = 0.00524$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.08 commander_dx12_v3.2_29: 22.49 plik_rd12_HM_v22b_TTTEEE: 2347.99 WL - DES_1YR_final: 509.16

2.26 base_plikHM_TTTEEE_lowl_lowE_DES_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------|-----------------------------|-----------|-------------------------|-----------------------------|----------|-------------------------|
| $\Omega_b h^2$ | 0.022502 | 0.02251 ± 0.00013 | $\Delta z_{l,DES}^2$ | 0.0005 | 0.0008 ± 0.0066 | k_D | 0.140590 | 0.14057 ± 0.00028 |
| $\Omega_c h^2$ | 0.11810 | 0.11801 ± 0.00087 | $\Delta z_{l,DES}^3$ | 0.0034 | 0.0033 ± 0.0066 | $100\theta_D$ | 0.160668 | 0.16066 ± 0.00017 |
| $100\theta_{MC}$ | 1.041121 | 1.04111 ± 0.00029 | $\Delta z_{l,DES}^4$ | 0.0008 | 0.0004 ± 0.0091 | z_{eq} | 3359.9 | 3358 ± 20 |
| τ | 0.0552 | 0.0543 ± 0.0078 | $\Delta z_{l,DES}^5$ | -0.0003 | -0.0005 ± 0.0099 | k_{eq} | 0.010255 | 0.010249 ± 0.000061 |
| $\ln(10^{10} A_s)$ | 3.0412 | 3.039 ± 0.016 | $\Delta z_{s,DES}^1$ | 0.0007 | -0.003 ± 0.014 | $100\theta_{eq}$ | 0.82145 | 0.8219 ± 0.0038 |
| n_s | 0.96987 | 0.9693 ± 0.0037 | $\Delta z_{s,DES}^2$ | -0.0301 | -0.031 ± 0.011 | $100\theta_{s,eq}$ | 0.45354 | 0.4537 ± 0.0019 |
| y_{cal} | 1.00029 | 1.0004 ± 0.0025 | $\Delta z_{s,DES}^3$ | 0.0033 | 0.0039 ± 0.0096 | $H(0.15)$ | 73.400 | 73.43 ± 0.35 |
| A_{217}^{CIB} | 48.1 | 47 ± 7 | $\Delta z_{s,DES}^4$ | -0.0300 | -0.030 ± 0.018 | $D_M(0.15)$ | 636.23 | 635.9 ± 3.4 |
| $\xi^{tSZ \times CIB}$ | 0.34 | — | H_0 | 68.200 | 68.24 ± 0.40 | $H(0.38)$ | 83.380 | 83.40 ± 0.26 |
| A_{143}^{tSZ} | 7.33 | 5.5 ± 2.0 | Ω_Λ | 0.6963 | 0.6968 ± 0.0052 | $D_M(0.38)$ | 1519.2 | 1518.7 ± 6.8 |
| A_{100}^{PS} | 250.8 | 258 ± 28 | Ω_m | 0.3037 | 0.3032 ± 0.0052 | $H(0.51)$ | 90.021 | 90.04 ± 0.21 |
| A_{143}^{PS} | 45.5 | 45 ± 8 | $\Omega_m h^2$ | 0.14125 | 0.14116 ± 0.00083 | $D_M(0.51)$ | 1969.3 | 1968.6 ± 8.0 |
| $A_{143 \times 217}^{PS}$ | 44.5 | 41 ± 9 | $\Omega_m h^3$ | 0.096330 | 0.09632 ± 0.00029 | $H(0.61)$ | 95.582 | 95.59 ± 0.18 |
| A_{217}^{PS} | 117.7 | 114 ± 10 | σ_8 | 0.8046 | 0.8033 ± 0.0066 | $D_M(0.61)$ | 2292.5 | 2291.8 ± 8.7 |
| A^{kSZ} | 0.00 | < 4.37 | S_8 | 0.8095 | 0.808 ± 0.011 | $H(2.33)$ | 235.46 | 235.40 ± 0.54 |
| A_{100}^{dustTT} | 8.86 | 8.9 ± 1.8 | $\sigma_8 \Omega_m^{0.5}$ | 0.4434 | 0.4423 ± 0.0058 | $D_M(2.33)$ | 5750.9 | 5750.5 ± 8.6 |
| A_{143}^{dustTT} | 11.12 | 10.9 ± 1.8 | $\sigma_8 \Omega_m^{0.25}$ | 0.5973 | 0.5961 ± 0.0060 | $f\sigma_8(0.15)$ | 0.4486 | 0.4475 ± 0.0055 |
| $A_{143 \times 217}^{dustTT}$ | 19.85 | 18.7 ± 3.3 | $\sigma_8/h^{0.5}$ | 0.9743 | 0.9724 ± 0.0090 | $\sigma_8(0.15)$ | 0.7443 | 0.7431 ± 0.0061 |
| A_{217}^{dustTT} | 94.9 | 93.7 ± 7.3 | $r_{drag} h$ | 100.56 | 100.63 ± 0.68 | $f\sigma_8(0.38)$ | 0.46853 | 0.4675 ± 0.0049 |
| A_{100}^{dustTE} | 0.1134 | 0.115 ± 0.038 | $\langle d^2 \rangle^{1/2}$ | 2.4118 | 2.410 ± 0.022 | $\sigma_8(0.38)$ | 0.6606 | 0.6596 ± 0.0053 |
| $A_{100 \times 143}^{dustTE}$ | 0.1350 | 0.135 ± 0.030 | z_{re} | 7.71 | 7.60 ± 0.79 | $f\sigma_8(0.51)$ | 0.46806 | 0.4671 ± 0.0045 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 | 0.481 ± 0.085 | $10^9 A_s$ | 2.0930 | 2.089 ± 0.033 | $\sigma_8(0.51)$ | 0.61859 | 0.6176 ± 0.0050 |
| A_{143}^{dustTE} | 0.224 | 0.222 ± 0.054 | $10^9 A_s e^{-2\tau}$ | 1.8741 | 1.874 ± 0.011 | $f\sigma_8(0.61)$ | 0.46375 | 0.4628 ± 0.0043 |
| $A_{143 \times 217}^{dustTE}$ | 0.660 | 0.662 ± 0.081 | D_{40} | 1219.9 | 1222 ± 11 | $\sigma_8(0.61)$ | 0.58882 | 0.5879 ± 0.0048 |
| A_{217}^{dustTE} | 2.058 | 2.07 ± 0.27 | D_{220} | 5737.9 | 5743 ± 38 | $f\sigma_8(2.33)$ | 0.29720 | 0.2968 ± 0.0024 |
| c_{100} | 0.99969 | 0.99967 ± 0.00062 | D_{810} | 2537.2 | 2537 ± 13 | $\sigma_8(2.33)$ | 0.30675 | 0.3063 ± 0.0025 |
| c_{217} | 0.99821 | 0.99820 ± 0.00063 | D_{1420} | 818.29 | 817.8 ± 4.8 | f_{2000}^{143} | 28.73 | 29.3 ± 2.7 |
| b_{DES}^1 | 1.508 | 1.509 ± 0.073 | D_{2000} | 231.33 | 231.1 ± 1.6 | $f_{2000}^{143 \times 217}$ | 31.86 | 32.0 ± 1.8 |
| b_{DES}^2 | 1.709 | 1.709 ± 0.053 | $n_{s,0.002}$ | 0.96987 | 0.9693 ± 0.0037 | f_{2000}^{217} | 106.48 | 106.8 ± 1.8 |
| b_{DES}^3 | 1.6969 | 1.697 ± 0.044 | Y_P | 0.2454451 | 0.245446 ± 0.000050 | χ_{simall}^2 | 396.08 | 397.0 ± 1.7 |
| b_{DES}^4 | 2.058 | 2.059 ± 0.052 | Y_P^{BBN} | 0.2467718 | 0.246773 ± 0.000050 | χ_{lowl}^2 | 22.50 | 22.63 ± 0.73 |
| b_{DES}^5 | 2.162 | 2.159 ± 0.077 | $10^5 D/H$ | 2.5616 | 2.561 ± 0.024 | χ_{plik}^2 | 2347.8 | 2362.9 ± 6.2 |
| m_{DES}^1 | 0.0132 | 0.011 ± 0.023 | Age/Gyr | 13.7702 | 13.769 ± 0.019 | χ_{6DF}^2 | 0.0002 | 0.021 ± 0.029 |
| m_{DES}^2 | 0.0141 | 0.012 ± 0.022 | z_* | 1089.590 | 1089.57 ± 0.21 | χ_{MGS}^2 | 1.748 | 1.84 ± 0.43 |
| m_{DES}^3 | -0.0024 | -0.003 ± 0.019 | r_* | 144.823 | 144.84 ± 0.21 | $\chi_{DR12BAO}^2$ | 3.458 | 3.74 ± 0.49 |
| m_{DES}^4 | 0.0026 | 0.003 ± 0.021 | $100\theta_*$ | 1.041289 | 1.04128 ± 0.00029 | χ_{DES}^2 | 509.26 | 518.2 ± 4.8 |
| $A_{IA,DES}$ | 0.444 | $0.47_{-0.18}^{+0.14}$ | $D_M(z_*)/Gpc$ | 13.9080 | 13.910 ± 0.021 | χ_{prior}^2 | 4.0 | 25 ± 7 |
| $\alpha_{IA,DES}$ | -2.44 | $-1.2_{-2.9}^{+1.7}$ | z_{drag} | 1060.085 | 1060.11 ± 0.29 | χ_{BAO}^2 | 5.206 | 5.60 ± 0.52 |
| $\Delta z_{l,DES}^1$ | 0.0029 | 0.0036 ± 0.0075 | r_{drag} | 147.450 | 147.47 ± 0.23 | χ_{CMB}^2 | 2766.4 | 2782.5 ± 6.1 |

Best-fit $\chi_{eff}^2 = 3284.92$; $\bar{\chi}_{eff}^2 = 3331.02$; $R - 1 = 0.00830$

χ_{eff}^2 : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.46 CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.08 commander_dx12_v3_2_29: 22.50 plik_rd12_HM_v22b_TTTEEE: 2347.84 WL - DES_1YR_final: 509.26

2.27 base_plikHM_TTTEEE_lowl_lowE_DES_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------|-------------------------------------|----------|-------------------------|--------------------------------|----------|-------------------------|
| $\Omega_b h^2$ | 0.022522 | 0.02251 ± 0.00014 | $\alpha_{\text{IA,DES}}$ | -2.59 | $-1.3^{+1.6}_{-2.9}$ | $100\theta_*$ | 1.041243 | 1.04127 ± 0.00029 |
| $\Omega_c h^2$ | 0.11831 | 0.1181 ± 0.0010 | $\Delta z_{\text{l,DES}}^1$ | 0.0029 | 0.0036 ± 0.0075 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.9019 | 13.907 ± 0.022 |
| $100\theta_{\text{MC}}$ | 1.041072 | 1.04109 ± 0.00030 | $\Delta z_{\text{l,DES}}^2$ | 0.0005 | 0.0008 ± 0.0067 | z_{drag} | 1060.162 | 1060.13 ± 0.30 |
| τ | 0.0560 | 0.0569 ± 0.0076 | $\Delta z_{\text{l,DES}}^3$ | 0.0035 | 0.0034 ± 0.0066 | r_{drag} | 147.370 | 147.43 ± 0.24 |
| $\ln(10^{10} A_{\text{s}})$ | 3.0441 | 3.046 ± 0.015 | $\Delta z_{\text{l,DES}}^4$ | 0.0008 | 0.0004 ± 0.0091 | k_{D} | 0.140689 | 0.14062 ± 0.00029 |
| n_{s} | 0.96914 | 0.9688 ± 0.0039 | $\Delta z_{\text{l,DES}}^5$ | -0.0009 | -0.0006 ± 0.0099 | $100\theta_{\text{D}}$ | 0.160626 | 0.16065 ± 0.00017 |
| y_{cal} | 1.00055 | 1.0007 ± 0.0025 | $\Delta z_{\text{s,DES}}^1$ | 0.0007 | -0.003 ± 0.014 | z_{eq} | 3365.5 | 3361 ± 23 |
| A_{217}^{CIB} | 47.3 | 47 ± 7 | $\Delta z_{\text{s,DES}}^2$ | -0.0303 | -0.031 ± 0.011 | k_{eq} | 0.010272 | 0.010259 ± 0.000069 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.40 | — | $\Delta z_{\text{s,DES}}^3$ | 0.0030 | 0.0034 ± 0.0097 | $100\theta_{\text{eq}}$ | 0.82046 | 0.8213 ± 0.0043 |
| A_{143}^{tSZ} | 7.26 | $5.5^{+2.2}_{-1.9}$ | $\Delta z_{\text{s,DES}}^4$ | -0.0310 | -0.031 ± 0.018 | $100\theta_{\text{s,eq}}$ | 0.45301 | 0.4534 ± 0.0022 |
| A_{100}^{PS} | 249.8 | 258 ± 28 | H_0 | 68.127 | 68.19 ± 0.46 | $H(0.15)$ | 73.340 | 73.39 ± 0.40 |
| A_{143}^{PS} | 46.2 | 45 ± 8 | Ω_{Λ} | 0.6952 | 0.6960 ± 0.0060 | $D_{\text{M}}(0.15)$ | 636.83 | 636.3 ± 3.9 |
| $A_{143 \times 217}^{\text{PS}}$ | 46.0 | 42 ± 9 | Ω_{m} | 0.3048 | 0.3040 ± 0.0060 | $H(0.38)$ | 83.342 | 83.38 ± 0.30 |
| A_{217}^{PS} | 118.9 | 115 ± 10 | $\Omega_{\text{m}} h^2$ | 0.14148 | 0.14130 ± 0.00095 | $D_{\text{M}}(0.38)$ | 1520.4 | 1519.4 ± 7.8 |
| A^{kSZ} | 0.00 | < 4.21 | $\Omega_{\text{m}} h^3$ | 0.096385 | 0.09634 ± 0.00029 | $H(0.51)$ | 89.997 | 90.02 ± 0.24 |
| A_{100}^{dustTT} | 8.85 | 8.9 ± 1.8 | σ_8 | 0.8062 | 0.8062 ± 0.0057 | $D_{\text{M}}(0.51)$ | 1970.6 | 1969.5 ± 9.2 |
| A_{143}^{dustTT} | 11.06 | 10.9 ± 1.8 | S_8 | 0.8126 | 0.811 ± 0.010 | $H(0.61)$ | 95.568 | 95.58 ± 0.20 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.77 | 18.6 ± 3.3 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4451 | 0.4444 ± 0.0057 | $D_{\text{M}}(0.61)$ | 2293.9 | 2293 ± 10 |
| A_{217}^{dustTT} | 95.0 | 93.8 ± 7.3 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.5990 | 0.5986 ± 0.0055 | $H(2.33)$ | 235.61 | 235.49 ± 0.61 |
| A_{100}^{dustTE} | 0.1133 | 0.115 ± 0.038 | $\sigma_8/h^{0.5}$ | 0.9767 | 0.9763 ± 0.0080 | $D_{\text{M}}(2.33)$ | 5751.2 | 5750.8 ± 9.4 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1342 | 0.135 ± 0.030 | $r_{\text{drag}} h$ | 100.40 | 100.53 ± 0.79 | $f\sigma_8(0.15)$ | 0.4502 | 0.4496 ± 0.0053 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.484 | 0.481 ± 0.085 | $\langle d^2 \rangle^{1/2}$ | 2.4188 | 2.420 ± 0.019 | $\sigma_8(0.15)$ | 0.7456 | 0.7457 ± 0.0052 |
| A_{143}^{dustTE} | 0.223 | 0.223 ± 0.054 | z_{re} | 7.79 | 7.86 ± 0.74 | $f\sigma_8(0.38)$ | 0.46993 | 0.4695 ± 0.0045 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 | 0.662 ± 0.081 | $10^9 A_{\text{s}}$ | 2.0991 | 2.102 ± 0.031 | $\sigma_8(0.38)$ | 0.66166 | 0.6618 ± 0.0047 |
| A_{217}^{dustTE} | 2.070 | 2.07 ± 0.27 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8768 | 1.876 ± 0.010 | $f\sigma_8(0.51)$ | 0.46932 | 0.4690 ± 0.0040 |
| c_{100} | 0.99971 | 0.99968 ± 0.00061 | D_{40} | 1223.3 | 1225 ± 11 | $\sigma_8(0.51)$ | 0.61951 | 0.6197 ± 0.0044 |
| c_{217} | 0.99818 | 0.99819 ± 0.00063 | D_{220} | 5746.6 | 5749 ± 38 | $f\sigma_8(0.61)$ | 0.46491 | 0.4647 ± 0.0037 |
| b_{DES}^1 | 1.508 | 1.505 ± 0.073 | D_{810} | 2539.5 | 2539 ± 13 | $\sigma_8(0.61)$ | 0.58966 | 0.5899 ± 0.0043 |
| b_{DES}^2 | 1.706 | 1.704 ± 0.052 | D_{1420} | 818.88 | 818.3 ± 4.8 | $f\sigma_8(2.33)$ | 0.29758 | 0.2977 ± 0.0022 |
| b_{DES}^3 | 1.6944 | 1.691 ± 0.044 | D_{2000} | 231.55 | 231.3 ± 1.6 | $\sigma_8(2.33)$ | 0.30709 | 0.3073 ± 0.0024 |
| b_{DES}^4 | 2.055 | 2.052 ± 0.051 | $n_{\text{s},0.002}$ | 0.96914 | 0.9688 ± 0.0039 | χ_{lensing}^2 | 9.04 | 9.44 ± 0.97 |
| b_{DES}^5 | 2.159 | 2.152 ± 0.075 | Y_{P} | 0.245452 | 0.245448 ± 0.000052 | χ_{simall}^2 | 396.23 | 397.3 ± 2.0 |
| m_{DES}^1 | 0.0137 | 0.012 ± 0.023 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246779 | 0.246774 ± 0.000052 | χ_{lowl}^2 | 22.70 | 22.82 ± 0.76 |
| m_{DES}^2 | 0.0141 | 0.012 ± 0.022 | $10^5 \text{D}/\text{H}$ | 2.5580 | 2.560 ± 0.025 | χ_{plik}^2 | 2347.2 | 2361.9 ± 6.0 |
| m_{DES}^3 | -0.0043 | -0.004 ± 0.019 | Age/Gyr | 13.7704 | 13.770 ± 0.021 | χ_{DES}^2 | 509.51 | 518.5 ± 5.0 |
| m_{DES}^4 | 0.0017 | 0.001 ± 0.021 | z_* | 1089.584 | 1089.58 ± 0.23 | χ_{prior}^2 | 4.2 | 25 ± 7 |
| $A_{\text{IA,DES}}$ | 0.439 | $0.47^{+0.14}_{-0.18}$ | r_* | 144.752 | 144.81 ± 0.23 | χ_{CMB}^2 | 2775.1 | 2791.5 ± 6.3 |

Best-fit $\chi_{\text{eff}}^2 = 3288.86$; $\bar{\chi}_{\text{eff}}^2 = 3334.91$; $R - 1 = 0.01020$

χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 9.04 simall_100x143_offlike5_EE_Aplanck_B: 396.23 commander_dx12_v3.2_29: 22.70 plik_rd12_HM_v22b_TTTEEE: 2347.17 WL - DES_1YR_final: 509.51

2.28 base_plikHM_TTTEEE_lowl_lowE_DES_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------|-----------------------------|-----------|-------------------------|--------------------|----------|-------------------------|
| $\Omega_b h^2$ | 0.022513 | 0.02251 ± 0.00013 | $\Delta z_{l,DES}^2$ | 0.0005 | 0.0008 ± 0.0067 | k_D | 0.140650 | 0.14062 ± 0.00028 |
| $\Omega_c h^2$ | 0.11824 | 0.11818 ± 0.00084 | $\Delta z_{l,DES}^3$ | 0.0034 | 0.0033 ± 0.0066 | $100\theta_D$ | 0.160643 | 0.16066 ± 0.00017 |
| $100\theta_{MC}$ | 1.041084 | 1.04109 ± 0.00029 | $\Delta z_{l,DES}^4$ | 0.0005 | 0.0003 ± 0.0091 | z_{eq} | 3363.5 | 3362 ± 19 |
| τ | 0.0561 | 0.0568 ± 0.0073 | $\Delta z_{l,DES}^5$ | -0.0005 | -0.0005 ± 0.0099 | k_{eq} | 0.010266 | 0.010261 ± 0.000058 |
| $\ln(10^{10} A_s)$ | 3.0444 | 3.045 ± 0.014 | $\Delta z_{s,DES}^1$ | 0.00099 | -0.003 ± 0.014 | $100\theta_{eq}$ | 0.82080 | 0.8211 ± 0.0036 |
| n_s | 0.96936 | 0.9687 ± 0.0036 | $\Delta z_{s,DES}^2$ | -0.0301 | -0.031 ± 0.011 | $100\theta_{s,eq}$ | 0.45320 | 0.4534 ± 0.0019 |
| y_{cal} | 1.00068 | 1.0007 ± 0.0025 | $\Delta z_{s,DES}^3$ | 0.0029 | 0.0033 ± 0.0096 | $H(0.15)$ | 73.358 | 73.37 ± 0.33 |
| A_{217}^{CIB} | 47.5 | 47 ± 7 | $\Delta z_{s,DES}^4$ | -0.0310 | -0.031 ± 0.018 | $D_M(0.15)$ | 636.65 | 636.5 ± 3.3 |
| $\xi^{tSZ \times CIB}$ | 0.39 | — | H_0 | 68.149 | 68.17 ± 0.39 | $H(0.38)$ | 83.352 | 83.36 ± 0.25 |
| A_{143}^{tSZ} | 7.28 | $5.5^{+2.1}_{-1.9}$ | Ω_Λ | 0.6955 | 0.6958 ± 0.0050 | $D_M(0.38)$ | 1520.1 | 1519.8 ± 6.6 |
| A_{100}^{PS} | 250.9 | 258 ± 28 | Ω_m | 0.3045 | 0.3042 ± 0.0050 | $H(0.51)$ | 90.002 | 90.01 ± 0.21 |
| A_{143}^{PS} | 46.4 | 45 ± 8 | $\Omega_m h^2$ | 0.14140 | 0.14133 ± 0.00080 | $D_M(0.51)$ | 1970.2 | 1969.9 ± 7.8 |
| $A_{143 \times 217}^{PS}$ | 46.1 | 42 ± 9 | $\Omega_m h^3$ | 0.096359 | 0.09634 ± 0.00029 | $H(0.61)$ | 95.570 | 95.57 ± 0.18 |
| A_{217}^{PS} | 118.9 | 115 ± 10 | σ_8 | 0.8062 | 0.8062 ± 0.0057 | $D_M(0.61)$ | 2293.5 | 2293.2 ± 8.4 |
| A^{kSZ} | 0.00 | < 4.22 | S_8 | 0.8121 | 0.8117 ± 0.0092 | $H(2.33)$ | 235.56 | 235.51 ± 0.52 |
| A_{100}^{dustTT} | 8.88 | 8.9 ± 1.8 | $\sigma_8 \Omega_m^{0.5}$ | 0.4448 | 0.4446 ± 0.0050 | $D_M(2.33)$ | 5751.2 | 5751.2 ± 8.5 |
| A_{143}^{dustTT} | 11.06 | 10.9 ± 1.8 | $\sigma_8 \Omega_m^{0.25}$ | 0.5988 | 0.5987 ± 0.0051 | $f\sigma_8(0.15)$ | 0.44995 | 0.4498 ± 0.0048 |
| $A_{143 \times 217}^{dustTT}$ | 19.75 | 18.6 ± 3.3 | $\sigma_8/h^{0.5}$ | 0.9766 | 0.9764 ± 0.0076 | $\sigma_8(0.15)$ | 0.7456 | 0.7457 ± 0.0052 |
| A_{217}^{dustTT} | 94.9 | 93.8 ± 7.4 | $r_{drag} h$ | 100.45 | 100.50 ± 0.66 | $f\sigma_8(0.38)$ | 0.46977 | 0.4696 ± 0.0041 |
| A_{100}^{dustTE} | 0.1136 | 0.115 ± 0.038 | $\langle d^2 \rangle^{1/2}$ | 2.4181 | 2.420 ± 0.019 | $\sigma_8(0.38)$ | 0.66173 | 0.6618 ± 0.0047 |
| $A_{100 \times 143}^{dustTE}$ | 0.1351 | 0.134 ± 0.030 | z_{re} | 7.80 | 7.85 ± 0.72 | $f\sigma_8(0.51)$ | 0.46920 | 0.4691 ± 0.0038 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 | 0.481 ± 0.085 | $10^9 A_s$ | 2.0998 | 2.102 ± 0.030 | $\sigma_8(0.51)$ | 0.61959 | 0.6197 ± 0.0044 |
| A_{143}^{dustTE} | 0.223 | 0.222 ± 0.054 | $10^9 A_s e^{-2\tau}$ | 1.8768 | 1.876 ± 0.010 | $f\sigma_8(0.61)$ | 0.46482 | 0.4647 ± 0.0036 |
| $A_{143 \times 217}^{dustTE}$ | 0.660 | 0.662 ± 0.080 | D_{40} | 1222.9 | 1225 ± 11 | $\sigma_8(0.61)$ | 0.58975 | 0.5898 ± 0.0042 |
| A_{217}^{dustTE} | 2.072 | 2.07 ± 0.27 | D_{220} | 5746.3 | 5749 ± 38 | $f\sigma_8(2.33)$ | 0.29764 | 0.2977 ± 0.0022 |
| c_{100} | 0.99974 | 0.99968 ± 0.00061 | D_{810} | 2539.8 | 2539 ± 13 | $\sigma_8(2.33)$ | 0.30717 | 0.3072 ± 0.0023 |
| c_{217} | 0.99817 | 0.99819 ± 0.00063 | D_{1420} | 819.00 | 818.3 ± 4.7 | $\chi^2_{lensing}$ | 9.08 | 9.40 ± 0.92 |
| b_{DES}^1 | 1.507 | 1.505 ± 0.073 | D_{2000} | 231.57 | 231.3 ± 1.6 | χ^2_{small} | 396.28 | 397.3 ± 1.9 |
| b_{DES}^2 | 1.704 | 1.704 ± 0.052 | $n_{s,0.002}$ | 0.96936 | 0.9687 ± 0.0036 | χ^2_{lowl} | 22.65 | 22.83 ± 0.73 |
| b_{DES}^3 | 1.6953 | 1.691 ± 0.044 | Y_P | 0.2454491 | 0.245446 ± 0.000050 | χ^2_{plik} | 2347.3 | 2361.7 ± 5.9 |
| b_{DES}^4 | 2.055 | 2.052 ± 0.051 | Y_P^{BBN} | 0.2467758 | 0.246773 ± 0.000050 | χ^2_{6DF} | 0.0001 | 0.018 ± 0.025 |
| b_{DES}^5 | 2.158 | 2.152 ± 0.075 | $10^5 D/H$ | 2.5596 | 2.561 ± 0.024 | χ^2_{MGS} | 1.677 | 1.76 ± 0.41 |
| m_{DES}^1 | 0.0137 | 0.012 ± 0.022 | Age/Gyr | 13.7707 | 13.771 ± 0.019 | $\chi^2_{DR12BAO}$ | 3.521 | 3.78 ± 0.52 |
| m_{DES}^2 | 0.0137 | 0.012 ± 0.022 | z_* | 1089.589 | 1089.59 ± 0.20 | χ^2_{DES} | 509.38 | 518.5 ± 4.9 |
| m_{DES}^3 | -0.0044 | -0.004 ± 0.019 | r_* | 144.778 | 144.80 ± 0.20 | χ^2_{prior} | 4.2 | 25 ± 7 |
| m_{DES}^4 | 0.0015 | 0.001 ± 0.021 | $100\theta_*$ | 1.041253 | 1.04126 ± 0.00028 | χ^2_{CMB} | 2775.3 | 2791.2 ± 6.1 |
| $A_{IA,DES}$ | 0.437 | $0.47^{+0.14}_{-0.18}$ | $D_M(z_*)/Gpc$ | 13.9042 | 13.906 ± 0.020 | χ^2_{BAO} | 5.198 | 5.55 ± 0.45 |
| $\alpha_{IA,DES}$ | -2.62 | $-1.3^{+1.6}_{-2.9}$ | z_{drag} | 1060.123 | 1060.12 ± 0.29 | | | |
| $\Delta z_{l,DES}^1$ | 0.0031 | 0.0036 ± 0.0075 | r_{drag} | 147.401 | 147.42 ± 0.22 | | | |

Best-fit $\chi^2_{eff} = 3294.09$; $\bar{\chi}^2_{eff} = 3340.17$; $R - 1 = 0.01031$

χ^2_{eff} : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.52 CMB - smicadx12.Dec5.ftl.mv2.ndclpp.p.teb.consext8: 9.08 small_100x143.offlike5_EE_Aplanck_B: 396.28 commander.dx12.v3.2.29: 22.65 plik_rd12_HM_v22b_TTTEEE: 2347.27 WL - DES_1YR.final: 509.38

2.29 base_plikHM_TTTEEE_lowl_lowE_DES_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02252 ± 0.00014 | $\Delta z_{1,\text{DES}}^1$ | 0.0036 ± 0.0074 | z_{drag} | 1060.13 ± 0.30 |
| $\Omega_c h^2$ | 0.1178 ± 0.0011 | $\Delta z_{1,\text{DES}}^2$ | 0.0008 ± 0.0066 | r_{drag} | 147.50 ± 0.25 |
| $100\theta_{\text{MC}}$ | 1.04112 ± 0.00030 | $\Delta z_{1,\text{DES}}^3$ | 0.0034 ± 0.0065 | k_{D} | 0.14055 ± 0.00030 |
| τ | $0.0559^{+0.0053}_{-0.0082}$ | $\Delta z_{1,\text{DES}}^4$ | 0.0006 ± 0.0091 | $100\theta_{\text{D}}$ | 0.16065 ± 0.00017 |
| $\ln(10^{10} A_{\text{s}})$ | $3.042^{+0.012}_{-0.016}$ | $\Delta z_{1,\text{DES}}^5$ | -0.0006 ± 0.0099 | z_{eq} | 3354 ± 24 |
| n_{s} | 0.9697 ± 0.0040 | $\Delta z_{\text{s,DES}}^1$ | -0.003 ± 0.014 | k_{eq} | 0.010237 ± 0.000073 |
| y_{cal} | 1.0005 ± 0.0025 | $\Delta z_{\text{s,DES}}^2$ | -0.031 ± 0.011 | $100\theta_{\text{eq}}$ | 0.8226 ± 0.0046 |
| A_{217}^{CIB} | 47 ± 7 | $\Delta z_{\text{s,DES}}^3$ | 0.0041 ± 0.0096 | $100\theta_{\text{s,eq}}$ | 0.4541 ± 0.0024 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $\Delta z_{\text{s,DES}}^4$ | -0.030 ± 0.018 | $H(0.15)$ | 73.50 ± 0.42 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | H_0 | 68.32 ± 0.48 | $D_{\text{M}}(0.15)$ | 635.3 ± 4.1 |
| A_{100}^{PS} | 258 ± 28 | Ω_{Λ} | 0.6978 ± 0.0063 | $H(0.38)$ | 83.45 ± 0.31 |
| A_{143}^{PS} | 45 ± 8 | Ω_{m} | 0.3022 ± 0.0063 | $D_{\text{M}}(0.38)$ | 1517.3 ± 8.2 |
| $A_{143 \times 217}^{\text{PS}}$ | 41 ± 9 | $\Omega_{\text{m}} h^2$ | 0.1410 ± 0.0010 | $H(0.51)$ | 90.08 ± 0.25 |
| A_{217}^{PS} | 114 ± 10 | $\Omega_{\text{m}} h^3$ | 0.09632 ± 0.00030 | $D_{\text{M}}(0.51)$ | 1967.0 ± 9.7 |
| A^{kSZ} | < 4.32 | σ_8 | $0.8039^{+0.0057}_{-0.0066}$ | $H(0.61)$ | 95.63 ± 0.21 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | S_8 | 0.807 ± 0.012 | $D_{\text{M}}(0.61)$ | 2290 ± 10 |
| A_{143}^{dustTT} | 11.0 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4419 ± 0.0066 | $H(2.33)$ | 235.30 ± 0.64 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.7 ± 3.3 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.5960 ± 0.0064 | $D_{\text{M}}(2.33)$ | 5749.2 ± 9.6 |
| A_{217}^{dustTT} | 93.7 ± 7.4 | $\sigma_8/h^{0.5}$ | 0.9726 ± 0.0092 | $f\sigma_8(0.15)$ | 0.4471 ± 0.0062 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | $r_{\text{drag}} h$ | 100.77 ± 0.84 | $\sigma_8(0.15)$ | $0.7437^{+0.0050}_{-0.0060}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | $\langle d^2 \rangle^{1/2}$ | 2.410 ± 0.023 | $f\sigma_8(0.38)$ | 0.4674 ± 0.0052 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.084 | z_{re} | $7.76^{+0.58}_{-0.79}$ | $\sigma_8(0.38)$ | $0.6603^{+0.0042}_{-0.0052}$ |
| A_{143}^{dustTE} | 0.222 ± 0.054 | $10^9 A_{\text{s}}$ | $2.095^{+0.025}_{-0.033}$ | $f\sigma_8(0.51)$ | 0.4671 ± 0.0047 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.661 ± 0.080 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.873 ± 0.011 | $\sigma_8(0.51)$ | $0.6184^{+0.0039}_{-0.0049}$ |
| A_{217}^{dustTE} | 2.06 ± 0.27 | D_{40} | 1221 ± 12 | $f\sigma_8(0.61)$ | 0.4629 ± 0.0043 |
| c_{100} | 0.99967 ± 0.00062 | D_{220} | 5744 ± 39 | $\sigma_8(0.61)$ | $0.5886^{+0.0037}_{-0.0047}$ |
| c_{217} | 0.99819 ± 0.00063 | D_{810} | 2536 ± 14 | $f\sigma_8(2.33)$ | $0.2972^{+0.0018}_{-0.0024}$ |
| b_{DES}^1 | 1.507 ± 0.073 | D_{1420} | 817.9 ± 4.8 | $\sigma_8(2.33)$ | $0.3068^{+0.0019}_{-0.0025}$ |
| b_{DES}^2 | 1.708 ± 0.052 | D_{2000} | 231.2 ± 1.6 | f_{2000}^{143} | 29.2 ± 2.7 |
| b_{DES}^3 | 1.696 ± 0.044 | $n_{\text{s},0.002}$ | 0.9697 ± 0.0040 | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.8 |
| b_{DES}^4 | 2.057 ± 0.051 | Y_{P} | 0.245452 ± 0.000053 | f_{2000}^{217} | 106.7 ± 1.8 |
| b_{DES}^5 | 2.157 ± 0.075 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246778 ± 0.000053 | χ_{simall}^2 | 397.0 ± 1.8 |
| m_{DES}^1 | 0.012 ± 0.023 | 10^5D/H | 2.558 ± 0.025 | χ_{lowl}^2 | 22.59 ± 0.77 |
| m_{DES}^2 | 0.012 ± 0.022 | Age/Gyr | 13.767 ± 0.022 | χ_{plik}^2 | 2363.2 ± 6.4 |
| m_{DES}^3 | -0.003 ± 0.020 | z_* | 1089.54 ± 0.23 | χ_{DES}^2 | 518.0 ± 4.9 |
| m_{DES}^4 | 0.003 ± 0.021 | r_* | 144.88 ± 0.25 | χ_{prior}^2 | 25 ± 7 |
| $A_{\text{IA,DES}}$ | $0.47^{+0.15}_{-0.18}$ | $100\theta_*$ | 1.04130 ± 0.00030 | χ_{CMB}^2 | 2782.8 ± 6.3 |
| $\alpha_{\text{IA,DES}}$ | $-1.1^{+1.7}_{-2.9}$ | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.913 ± 0.023 | | |

$\bar{\chi}_{\text{eff}}^2 = 3325.44$; $R - 1 = 0.00547$

2.30 base_plikHM_TTTEE_lowl_lowE_DES_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02251 ± 0.00013 | $\Delta z_{\text{l,DES}}^2$ | 0.0008 ± 0.0066 | k_{D} | 0.14057 ± 0.00028 |
| $\Omega_c h^2$ | 0.11798 ± 0.00087 | $\Delta z_{\text{l,DES}}^3$ | 0.0034 ± 0.0066 | $100\theta_{\text{D}}$ | 0.16066 ± 0.00017 |
| $100\theta_{\text{MC}}$ | 1.04111 ± 0.00029 | $\Delta z_{\text{l,DES}}^4$ | 0.0004 ± 0.0091 | z_{eq} | 3357 ± 20 |
| τ | $0.0556^{+0.0052}_{-0.0080}$ | $\Delta z_{\text{l,DES}}^5$ | -0.0005 ± 0.0098 | k_{eq} | 0.010246 ± 0.000061 |
| $\ln(10^{10} A_{\text{s}})$ | $3.042^{+0.012}_{-0.016}$ | $\Delta z_{\text{s,DES}}^1$ | -0.003 ± 0.014 | $100\theta_{\text{eq}}$ | 0.8220 ± 0.0038 |
| n_{s} | 0.9694 ± 0.0036 | $\Delta z_{\text{s,DES}}^2$ | -0.031 ± 0.011 | $100\theta_{\text{s,eq}}$ | 0.4538 ± 0.0019 |
| y_{cal} | 1.0004 ± 0.0025 | $\Delta z_{\text{s,DES}}^3$ | 0.0038 ± 0.0096 | $H(0.15)$ | 73.44 ± 0.34 |
| A_{217}^{CIB} | 47 ± 7 | $\Delta z_{\text{s,DES}}^4$ | -0.030 ± 0.018 | $D_{\text{M}}(0.15)$ | 635.8 ± 3.3 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | H_0 | 68.25 ± 0.40 | $H(0.38)$ | 83.41 ± 0.26 |
| A_{143}^{tSZ} | 5.5 ± 2.0 | Ω_{Λ} | 0.6970 ± 0.0051 | $D_{\text{M}}(0.38)$ | 1518.4 ± 6.8 |
| A_{100}^{PS} | 258 ± 28 | Ω_{m} | 0.3030 ± 0.0051 | $H(0.51)$ | 90.04 ± 0.21 |
| A_{143}^{PS} | 45 ± 8 | $\Omega_{\text{m}} h^2$ | 0.14113 ± 0.00083 | $D_{\text{M}}(0.51)$ | 1968.3 ± 8.0 |
| $A_{143 \times 217}^{\text{PS}}$ | 41 ± 9 | $\Omega_{\text{m}} h^3$ | 0.09632 ± 0.00030 | $H(0.61)$ | 95.60 ± 0.18 |
| A_{217}^{PS} | 114 ± 10 | σ_8 | $0.8042^{+0.0054}_{-0.0064}$ | $D_{\text{M}}(0.61)$ | 2291.5 ± 8.6 |
| A^{kSZ} | < 4.32 | S_8 | 0.808 ± 0.010 | $H(2.33)$ | 235.38 ± 0.54 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4427 ± 0.0057 | $D_{\text{M}}(2.33)$ | 5750.3 ± 8.6 |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.5966 ± 0.0057 | $f\sigma_8(0.15)$ | 0.4479 ± 0.0054 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.7 ± 3.3 | $\sigma_8/h^{0.5}$ | 0.9734 ± 0.0084 | $\sigma_8(0.15)$ | $0.7439^{+0.0048}_{-0.0058}$ |
| A_{217}^{dustTT} | 93.8 ± 7.3 | $r_{\text{drag}} h$ | 100.65 ± 0.68 | $f\sigma_8(0.38)$ | 0.4680 ± 0.0047 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | $\langle d^2 \rangle^{1/2}$ | 2.412 ± 0.021 | $\sigma_8(0.38)$ | $0.6604^{+0.0041}_{-0.0052}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | z_{re} | $7.73^{+0.57}_{-0.78}$ | $f\sigma_8(0.51)$ | 0.4676 ± 0.0042 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | $10^9 A_{\text{s}}$ | $2.094^{+0.024}_{-0.033}$ | $\sigma_8(0.51)$ | $0.6184^{+0.0038}_{-0.0048}$ |
| A_{143}^{dustTE} | 0.222 ± 0.054 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.874 ± 0.011 | $f\sigma_8(0.61)$ | 0.4633 ± 0.0040 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.662 ± 0.081 | D_{40} | 1222 ± 11 | $\sigma_8(0.61)$ | $0.5887^{+0.0036}_{-0.0046}$ |
| A_{217}^{dustTE} | 2.07 ± 0.27 | D_{220} | 5743 ± 38 | $f\sigma_8(2.33)$ | $0.2971^{+0.0018}_{-0.0024}$ |
| c_{100} | 0.99967 ± 0.00061 | D_{810} | 2537 ± 13 | $\sigma_8(2.33)$ | $0.3067^{+0.0019}_{-0.0025}$ |
| c_{217} | 0.99820 ± 0.00063 | D_{1420} | 817.8 ± 4.8 | f_{2000}^{143} | 29.3 ± 2.7 |
| b_{DES}^1 | 1.507 ± 0.073 | D_{2000} | 231.1 ± 1.6 | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.8 |
| b_{DES}^2 | 1.708 ± 0.052 | $n_{\text{s},0.002}$ | 0.9694 ± 0.0036 | f_{2000}^{217} | 106.7 ± 1.8 |
| b_{DES}^3 | 1.695 ± 0.044 | Y_{P} | 0.245447 ± 0.000050 | χ_{simall}^2 | 396.9 ± 1.7 |
| b_{DES}^4 | 2.057 ± 0.052 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246774 ± 0.000050 | χ_{lowl}^2 | 22.64 ± 0.74 |
| b_{DES}^5 | 2.157 ± 0.076 | 10^5D/H | 2.560 ± 0.024 | χ_{plik}^2 | 2362.7 ± 6.2 |
| m_{DES}^1 | 0.012 ± 0.023 | Age/Gyr | 13.769 ± 0.019 | $\chi_{6\text{DF}}^2$ | 0.021 ± 0.029 |
| m_{DES}^2 | 0.012 ± 0.022 | z_* | 1089.57 ± 0.21 | χ_{MGS}^2 | 1.85 ± 0.43 |
| m_{DES}^3 | -0.003 ± 0.019 | r_* | 144.85 ± 0.21 | χ_{DR12BAO}^2 | 3.73 ± 0.48 |
| m_{DES}^4 | 0.002 ± 0.021 | $100\theta_*$ | 1.04128 ± 0.00029 | χ_{DES}^2 | 518.2 ± 4.9 |
| $A_{\text{IA,DES}}$ | $0.47^{+0.14}_{-0.18}$ | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.911 ± 0.021 | χ_{prior}^2 | 25 ± 7 |
| $\alpha_{\text{IA,DES}}$ | $-1.2^{+1.7}_{-2.9}$ | z_{drag} | 1060.11 ± 0.29 | χ_{BAO}^2 | 5.60 ± 0.53 |
| $\Delta z_{\text{l,DES}}^1$ | 0.0036 ± 0.0075 | r_{drag} | 147.47 ± 0.23 | χ_{CMB}^2 | 2782.2 ± 6.1 |

$\bar{\chi}_{\text{eff}}^2 = 3330.75$; $R - 1 = 0.00777$

2.31 base_plikHM_TTTEEE_lowl_lowE_DES_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02251 ± 0.00014 | $\Delta z_{1,\text{DES}}^1$ | 0.0036 ± 0.0075 | z_{drag} | 1060.13 ± 0.30 |
| $\Omega_c h^2$ | 0.11811 ± 0.00099 | $\Delta z_{1,\text{DES}}^2$ | 0.0008 ± 0.0066 | r_{drag} | 147.43 ± 0.24 |
| $100\theta_{\text{MC}}$ | 1.04110 ± 0.00030 | $\Delta z_{1,\text{DES}}^3$ | 0.0034 ± 0.0066 | k_{D} | 0.14061 ± 0.00029 |
| τ | $0.0575^{+0.0060}_{-0.0080}$ | $\Delta z_{1,\text{DES}}^4$ | 0.0004 ± 0.0091 | $100\theta_{\text{D}}$ | 0.16065 ± 0.00017 |
| $\ln(10^{10} A_{\text{s}})$ | $3.047^{+0.012}_{-0.015}$ | $\Delta z_{1,\text{DES}}^5$ | -0.0006 ± 0.0099 | z_{eq} | 3360 ± 22 |
| n_{s} | 0.9689 ± 0.0039 | $\Delta z_{\text{s,DES}}^1$ | -0.003 ± 0.014 | k_{eq} | 0.010256 ± 0.000068 |
| y_{cal} | 1.0007 ± 0.0025 | $\Delta z_{\text{s,DES}}^2$ | -0.031 ± 0.011 | $100\theta_{\text{eq}}$ | 0.8214 ± 0.0043 |
| A_{217}^{CIB} | 47 ± 7 | $\Delta z_{\text{s,DES}}^3$ | 0.0034 ± 0.0097 | $100\theta_{\text{s,eq}}$ | 0.4535 ± 0.0022 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $\Delta z_{\text{s,DES}}^4$ | -0.031 ± 0.018 | $H(0.15)$ | 73.40 ± 0.39 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | H_0 | 68.20 ± 0.45 | $D_{\text{M}}(0.15)$ | 636.2 ± 3.8 |
| A_{100}^{PS} | 258 ± 28 | Ω_{Λ} | 0.6962 ± 0.0059 | $H(0.38)$ | 83.38 ± 0.29 |
| A_{143}^{PS} | 45 ± 8 | Ω_{m} | 0.3038 ± 0.0059 | $D_{\text{M}}(0.38)$ | 1519.2 ± 7.7 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $\Omega_{\text{m}} h^2$ | 0.14127 ± 0.00093 | $H(0.51)$ | 90.03 ± 0.24 |
| A_{217}^{PS} | 115 ± 10 | $\Omega_{\text{m}} h^3$ | 0.09634 ± 0.00029 | $D_{\text{M}}(0.51)$ | 1969.2 ± 9.1 |
| A^{kSZ} | < 4.19 | σ_8 | $0.8065^{+0.0051}_{-0.0057}$ | $H(0.61)$ | 95.59 ± 0.20 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | S_8 | 0.811 ± 0.010 | $D_{\text{M}}(0.61)$ | 2292.4 ± 9.8 |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4445 ± 0.0057 | $H(2.33)$ | 235.47 ± 0.60 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.5987 ± 0.0054 | $D_{\text{M}}(2.33)$ | 5750.6 ± 9.3 |
| A_{217}^{dustTT} | 93.8 ± 7.3 | $\sigma_8/h^{0.5}$ | 0.9766 ± 0.0078 | $f\sigma_8(0.15)$ | 0.4496 ± 0.0053 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | $r_{\text{drag}} h$ | 100.56 ± 0.78 | $\sigma_8(0.15)$ | $0.7460^{+0.0045}_{-0.0053}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.030 | $\langle d^2 \rangle^{1/2}$ | 2.420 ± 0.019 | $f\sigma_8(0.38)$ | 0.4696 ± 0.0044 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | z_{re} | $7.92^{+0.63}_{-0.76}$ | $\sigma_8(0.38)$ | $0.6621^{+0.0040}_{-0.0048}$ |
| A_{143}^{dustTE} | 0.222 ± 0.054 | $10^9 A_{\text{s}}$ | $2.105^{+0.025}_{-0.032}$ | $f\sigma_8(0.51)$ | 0.4691 ± 0.0039 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.662 ± 0.081 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.876 ± 0.010 | $\sigma_8(0.51)$ | $0.6200^{+0.0037}_{-0.0046}$ |
| A_{217}^{dustTE} | 2.07 ± 0.27 | D_{40} | 1224 ± 11 | $f\sigma_8(0.61)$ | 0.4648 ± 0.0036 |
| c_{100} | 0.99968 ± 0.00061 | D_{220} | 5749 ± 38 | $\sigma_8(0.61)$ | $0.5902^{+0.0035}_{-0.0044}$ |
| c_{217} | 0.99819 ± 0.00063 | D_{810} | 2539 ± 13 | $f\sigma_8(2.33)$ | $0.2979^{+0.0018}_{-0.0023}$ |
| b_{DES}^1 | 1.504 ± 0.073 | D_{1420} | 818.3 ± 4.8 | $\sigma_8(2.33)$ | $0.3075^{+0.0020}_{-0.0025}$ |
| b_{DES}^2 | 1.704 ± 0.052 | D_{2000} | 231.3 ± 1.6 | f_{2000}^{143} | 29.1 ± 2.7 |
| b_{DES}^3 | 1.691 ± 0.044 | $n_{\text{s},0.002}$ | 0.9689 ± 0.0039 | $f_{2000}^{143 \times 217}$ | 31.8 ± 1.9 |
| b_{DES}^4 | 2.051 ± 0.051 | Y_{P} | 0.245449 ± 0.000052 | f_{2000}^{217} | 106.7 ± 1.8 |
| b_{DES}^5 | 2.151 ± 0.075 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246775 ± 0.000052 | χ_{lensing}^2 | 9.39 ± 0.91 |
| m_{DES}^1 | 0.012 ± 0.022 | 10^5D/H | 2.560 ± 0.025 | χ_{simall}^2 | 397.3 ± 2.0 |
| m_{DES}^2 | 0.012 ± 0.022 | Age/Gyr | 13.770 ± 0.021 | χ_{lowl}^2 | 22.82 ± 0.76 |
| m_{DES}^3 | -0.004 ± 0.019 | z_* | 1089.58 ± 0.22 | χ_{plik}^2 | 2361.8 ± 6.0 |
| m_{DES}^4 | 0.002 ± 0.021 | r_* | 144.81 ± 0.23 | χ_{DES}^2 | 518.4 ± 5.0 |
| $A_{\text{IA,DES}}$ | $0.47^{+0.14}_{-0.18}$ | $100\theta_*$ | 1.04127 ± 0.00029 | χ_{prior}^2 | 25 ± 7 |
| $\alpha_{\text{IA,DES}}$ | $-1.3^{+1.6}_{-2.9}$ | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.907 ± 0.022 | χ_{CMB}^2 | 2791.4 ± 6.3 |

$$\bar{\chi}_{\text{eff}}^2 = 3334.75; R - 1 = 0.01067$$

2.32 base_plikHM_TTTEEE_lowl_lowE_DES_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02251 ± 0.00013 | $\Delta z_{\text{l,DES}}^3$ | 0.0034 ± 0.0066 | z_{eq} | 3361 ± 19 |
| $\Omega_c h^2$ | 0.11816 ± 0.00083 | $\Delta z_{\text{l,DES}}^4$ | 0.0003 ± 0.0091 | k_{eq} | 0.010260 ± 0.000058 |
| $100\theta_{\text{MC}}$ | 1.04109 ± 0.00029 | $\Delta z_{\text{l,DES}}^5$ | -0.0005 ± 0.0099 | $100\theta_{\text{eq}}$ | 0.8212 ± 0.0036 |
| τ | $0.0573^{+0.0059}_{-0.0076}$ | $\Delta z_{\text{s,DES}}^1$ | -0.003 ± 0.014 | $100\theta_{\text{s,eq}}$ | 0.4534 ± 0.0018 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.012}_{-0.015}$ | $\Delta z_{\text{s,DES}}^2$ | -0.031 ± 0.011 | $H(0.15)$ | 73.38 ± 0.33 |
| n_s | 0.9688 ± 0.0036 | $\Delta z_{\text{s,DES}}^3$ | 0.0033 ± 0.0096 | $D_{\text{M}}(0.15)$ | 636.4 ± 3.2 |
| y_{cal} | 1.0007 ± 0.0025 | $\Delta z_{\text{s,DES}}^4$ | -0.031 ± 0.018 | $H(0.38)$ | 83.37 ± 0.25 |
| A_{217}^{CIB} | 47 ± 7 | H_0 | 68.18 ± 0.38 | $D_{\text{M}}(0.38)$ | 1519.6 ± 6.5 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | Ω_{Λ} | 0.6959 ± 0.0050 | $H(0.51)$ | 90.01 ± 0.21 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | Ω_{m} | 0.3041 ± 0.0050 | $D_{\text{M}}(0.51)$ | 1969.7 ± 7.7 |
| A_{100}^{PS} | 258 ± 28 | $\Omega_{\text{m}} h^2$ | 0.14131 ± 0.00079 | $H(0.61)$ | 95.58 ± 0.17 |
| A_{143}^{PS} | 45 ± 8 | $\Omega_{\text{m}} h^3$ | 0.09634 ± 0.00029 | $D_{\text{M}}(0.61)$ | 2293.0 ± 8.4 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | σ_8 | $0.8065^{+0.0050}_{-0.0057}$ | $H(2.33)$ | 235.50 ± 0.51 |
| A_{217}^{PS} | 115 ± 10 | S_8 | 0.8119 ± 0.0092 | $D_{\text{M}}(2.33)$ | 5751.1 ± 8.4 |
| A^{kSZ} | < 4.20 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4447 ± 0.0050 | $f\sigma_8(0.15)$ | 0.4498 ± 0.0047 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.5989 ± 0.0050 | $\sigma_8(0.15)$ | $0.7460^{+0.0045}_{-0.0053}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $\sigma_8/h^{0.5}$ | 0.9767 ± 0.0074 | $f\sigma_8(0.38)$ | 0.4698 ± 0.0041 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $r_{\text{drag}} h$ | 100.51 ± 0.65 | $\sigma_8(0.38)$ | $0.6621^{+0.0040}_{-0.0048}$ |
| A_{217}^{dustTT} | 93.8 ± 7.3 | $\langle d^2 \rangle^{1/2}$ | 2.421 ± 0.018 | $f\sigma_8(0.51)$ | 0.4692 ± 0.0037 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | z_{re} | $7.90^{+0.62}_{-0.74}$ | $\sigma_8(0.51)$ | $0.6199^{+0.0037}_{-0.0045}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.030 | $10^9 A_s$ | $2.104^{+0.025}_{-0.031}$ | $f\sigma_8(0.61)$ | 0.4649 ± 0.0035 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | $10^9 A_s e^{-2\tau}$ | 1.876 ± 0.010 | $\sigma_8(0.61)$ | $0.5901^{+0.0035}_{-0.0043}$ |
| A_{143}^{dustTE} | 0.222 ± 0.054 | D_{40} | 1225 ± 11 | $f\sigma_8(2.33)$ | $0.2978^{+0.0018}_{-0.0022}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.662 ± 0.080 | D_{220} | 5749 ± 38 | $\sigma_8(2.33)$ | $0.3074^{+0.0019}_{-0.0024}$ |
| A_{217}^{dustTE} | 2.07 ± 0.27 | D_{810} | 2539 ± 13 | f_{2000}^{143} | 29.2 ± 2.7 |
| c_{100} | 0.99968 ± 0.00061 | D_{1420} | 818.2 ± 4.7 | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.8 |
| c_{217} | 0.99819 ± 0.00063 | D_{2000} | 231.3 ± 1.6 | f_{2000}^{217} | 106.7 ± 1.8 |
| b_{DES}^1 | 1.504 ± 0.073 | $n_{\text{s},0.002}$ | 0.9688 ± 0.0036 | χ_{lensing}^2 | 9.35 ± 0.86 |
| b_{DES}^2 | 1.704 ± 0.052 | Y_{P} | 0.245447 ± 0.000050 | χ_{simall}^2 | 397.3 ± 2.0 |
| b_{DES}^3 | 1.691 ± 0.044 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246773 ± 0.000050 | χ_{lowl}^2 | 22.83 ± 0.73 |
| b_{DES}^4 | 2.051 ± 0.051 | 10^5D/H | 2.561 ± 0.024 | χ_{plik}^2 | 2361.6 ± 5.9 |
| b_{DES}^5 | 2.151 ± 0.075 | Age/Gyr | 13.770 ± 0.019 | $\chi_{6\text{DF}}^2$ | 0.018 ± 0.025 |
| m_{DES}^1 | 0.012 ± 0.022 | z_* | 1089.59 ± 0.20 | χ_{MGS}^2 | 1.77 ± 0.40 |
| m_{DES}^2 | 0.012 ± 0.022 | r_* | 144.80 ± 0.20 | χ_{DR12BAO}^2 | 3.77 ± 0.50 |
| m_{DES}^3 | -0.004 ± 0.019 | $100\theta_*$ | 1.04126 ± 0.00028 | χ_{DES}^2 | 518.5 ± 4.9 |
| m_{DES}^4 | 0.001 ± 0.021 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.906 ± 0.020 | χ_{prior}^2 | 25 ± 7 |
| $A_{\text{IA,DES}}$ | $0.47^{+0.14}_{-0.18}$ | z_{drag} | 1060.12 ± 0.29 | χ_{CMB}^2 | 2791.1 ± 6.1 |
| $\alpha_{\text{IA,DES}}$ | $-1.3^{+1.6}_{-2.9}$ | r_{drag} | 147.43 ± 0.22 | χ_{BAO}^2 | 5.55 ± 0.44 |
| $\Delta z_{\text{l,DES}}^1$ | 0.0036 ± 0.0075 | k_{D} | 0.14062 ± 0.00028 | | |
| $\Delta z_{\text{l,DES}}^2$ | 0.0008 ± 0.0066 | $100\theta_{\text{D}}$ | 0.16065 ± 0.00017 | | |

$\bar{\chi}_{\text{eff}}^2 = 3340.03$; $R - 1 = 0.01092$

2.33 base_plikHM_TTTEEE_lowl_lowE_DESlens

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|-------------------------|-----------------------------|----------|-------------------------|
| $\Omega_b h^2$ | 0.022441 | 0.02244 ± 0.00014 | $\Delta z_{s,\text{DES}}^3$ | 0.0048 | 0.004 ± 0.010 | z_{eq} | 3384.2 | 3380 ± 25 |
| $\Omega_c h^2$ | 0.11918 | 0.1190 ± 0.0011 | $\Delta z_{s,\text{DES}}^4$ | -0.0218 | -0.022 ± 0.020 | k_{eq} | 0.010329 | 0.010317 ± 0.000077 |
| $100\theta_{\text{MC}}$ | 1.040995 | 1.04103 ± 0.00030 | H_0 | 67.72 | 67.80 ± 0.50 | $100\theta_{\text{eq}}$ | 0.81677 | 0.8176 ± 0.0048 |
| τ | 0.0533 | $0.0534^{+0.0071}_{-0.0079}$ | Ω_Λ | 0.6898 | 0.6908 ± 0.0068 | $100\theta_{s,\text{eq}}$ | 0.45114 | 0.4516 ± 0.0025 |
| $\ln(10^{10} A_s)$ | 3.0403 | 3.040 ± 0.016 | Ω_m | 0.3102 | 0.3092 ± 0.0068 | $H(0.15)$ | 72.994 | 73.06 ± 0.43 |
| n_s | 0.96784 | 0.9673 ± 0.0040 | $\Omega_m h^2$ | 0.14226 | 0.1421 ± 0.0011 | $D_M(0.15)$ | 640.23 | 639.6 ± 4.3 |
| y_{cal} | 1.00045 | 1.0005 ± 0.0025 | $\Omega_m h^3$ | 0.096347 | 0.09633 ± 0.00029 | $H(0.38)$ | 83.090 | 83.13 ± 0.32 |
| A_{217}^{CIB} | 47.0 | 47 ± 7 | σ_8 | 0.8075 | 0.8066 ± 0.0066 | $D_M(0.38)$ | 1527.2 | 1526.1 ± 8.6 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.44 | — | S_8 | 0.8211 | 0.819 ± 0.013 | $H(0.51)$ | 89.799 | 89.83 ± 0.25 |
| A_{143}^{tSZ} | 7.23 | $5.5^{+2.2}_{-1.9}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4497 | 0.4485 ± 0.0069 | $D_M(0.51)$ | 1978.6 | 1977 ± 10 |
| A_{100}^{PS} | 249.9 | 259 ± 28 | $\sigma_8 \Omega_m^{0.25}$ | 0.6026 | 0.6015 ± 0.0066 | $H(0.61)$ | 95.412 | 95.44 ± 0.21 |
| A_{143}^{PS} | 47.3 | 45 ± 8 | $\sigma_8/h^{0.5}$ | 0.9812 | 0.9797 ± 0.0096 | $D_M(0.61)$ | 2302.5 | 2301 ± 11 |
| $A_{143 \times 217}^{\text{PS}}$ | 47.5 | 42 ± 9 | $r_{\text{drag}} h$ | 99.71 | 99.85 ± 0.87 | $H(2.33)$ | 236.09 | 235.98 ± 0.67 |
| A_{217}^{PS} | 119.8 | 115 ± 10 | $\langle d^2 \rangle^{1/2}$ | 2.4261 | 2.425 ± 0.023 | $D_M(2.33)$ | 5757.8 | 5757.0 ± 9.7 |
| A^{kSZ} | 0.00 | < 4.33 | z_{re} | 7.55 | 7.54 ± 0.78 | $f\sigma_8(0.15)$ | 0.4544 | 0.4533 ± 0.0065 |
| A_{100}^{dustTT} | 8.81 | 8.9 ± 1.8 | $10^9 A_s$ | 2.0911 | 2.091 ± 0.033 | $\sigma_8(0.15)$ | 0.7463 | 0.7456 ± 0.0060 |
| A_{143}^{dustTT} | 11.08 | 10.9 ± 1.8 | $10^9 A_s e^{-2\tau}$ | 1.8797 | 1.879 ± 0.011 | $f\sigma_8(0.38)$ | 0.4730 | 0.4720 ± 0.0054 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.89 | 18.6 ± 3.3 | D_{40} | 1224.4 | 1226 ± 12 | $\sigma_8(0.38)$ | 0.6617 | 0.6612 ± 0.0052 |
| A_{217}^{dustTT} | 95.2 | 93.7 ± 7.4 | D_{220} | 5734.1 | 5737 ± 38 | $f\sigma_8(0.51)$ | 0.47172 | 0.4709 ± 0.0048 |
| A_{100}^{dustTE} | 0.1139 | 0.114 ± 0.038 | D_{810} | 2539.7 | 2538 ± 13 | $\sigma_8(0.51)$ | 0.61926 | 0.6189 ± 0.0049 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1352 | 0.135 ± 0.030 | D_{1420} | 818.52 | 817.7 ± 4.7 | $f\sigma_8(0.61)$ | 0.46687 | 0.4661 ± 0.0045 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 | 0.482 ± 0.084 | D_{2000} | 231.35 | 231.0 ± 1.6 | $\sigma_8(0.61)$ | 0.58928 | 0.5889 ± 0.0046 |
| A_{143}^{dustTE} | 0.225 | 0.225 ± 0.054 | $n_{s,0.002}$ | 0.96784 | 0.9673 ± 0.0040 | $f\sigma_8(2.33)$ | 0.29717 | 0.2970 ± 0.0024 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.664 ± 0.081 | Y_{P} | 0.245423 | 0.245419 ± 0.000053 | $\sigma_8(2.33)$ | 0.30643 | 0.3063 ± 0.0025 |
| A_{217}^{dustTE} | 2.074 | 2.08 ± 0.27 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246749 | 0.246746 ± 0.000053 | f_{2000}^{143} | 28.67 | 29.4 ± 2.7 |
| c_{100} | 0.99972 | 0.99966 ± 0.00062 | $10^5 \text{D}/\text{H}$ | 2.5725 | 2.574 ± 0.025 | $f_{2000}^{143 \times 217}$ | 31.88 | 32.1 ± 1.8 |
| c_{217} | 0.99818 | 0.99820 ± 0.00062 | Age/Gyr | 13.7848 | 13.783 ± 0.022 | f_{2000}^{217} | 106.55 | 106.9 ± 1.8 |
| m_{DES}^1 | 0.0151 | 0.014 ± 0.023 | z_* | 1089.759 | 1089.75 ± 0.23 | χ_{small}^2 | 395.86 | 396.9 ± 1.7 |
| m_{DES}^2 | 0.0119 | 0.012 ± 0.022 | r_* | 144.590 | 144.64 ± 0.26 | χ_{lowl}^2 | 22.84 | 22.99 ± 0.83 |
| m_{DES}^3 | -0.0072 | -0.008 ± 0.020 | $100\theta_*$ | 1.041167 | 1.04121 ± 0.00029 | χ_{plik}^2 | 2346.0 | 2360.9 ± 5.9 |
| m_{DES}^4 | 0.0127 | 0.011 ± 0.021 | $D_M(z_*)/\text{Gpc}$ | 13.8873 | 13.891 ± 0.024 | χ_{DES}^2 | 229.20 | 232.0 ± 2.5 |
| $A_{\text{IA,DES}}$ | 1.44 | 1.24 ± 0.50 | z_{drag} | 1060.047 | 1060.02 ± 0.29 | χ_{prior}^2 | 2.8 | 19.5 ± 6.0 |
| $\alpha_{\text{IA,DES}}$ | 2.49 | $1.9^{+2.8}_{-1.0}$ | r_{drag} | 147.230 | 147.28 ± 0.26 | χ_{CMB}^2 | 2764.7 | 2780.7 ± 5.9 |
| $\Delta z_{s,\text{DES}}^1$ | 0.0046 | 0.005 ± 0.015 | k_{D} | 0.140773 | 0.14072 ± 0.00030 | | | |
| $\Delta z_{s,\text{DES}}^2$ | -0.0203 | -0.021 ± 0.012 | $100\theta_{\text{D}}$ | 0.160699 | 0.16072 ± 0.00017 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2996.67$; $\bar{\chi}_{\text{eff}}^2 = 3032.33$; $R - 1 = 0.00975$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.86 commander_dx12_v3.2_29: 22.84 plik_rd12_HM_v22b_TTTEEE: 2346.01 WL - DES_1YR_final: 229.20

2.34 base_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|-----------|---------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022468 | 0.02245 ± 0.00013 | $\Delta z_{s,\text{DES}}^4$ | -0.0212 | -0.022 ± 0.020 | $100\theta_{\text{eq}}$ | 0.81819 | 0.8187 ± 0.0039 |
| $\Omega_c h^2$ | 0.11885 | 0.11875 ± 0.00090 | H_0 | 67.889 | 67.91 ± 0.41 | $100\theta_{s,\text{eq}}$ | 0.45187 | 0.4521 ± 0.0020 |
| $100\theta_{\text{MC}}$ | 1.041073 | 1.04107 ± 0.00029 | Ω_Λ | 0.6920 | 0.6924 ± 0.0054 | $H(0.15)$ | 73.137 | 73.16 ± 0.35 |
| τ | 0.0548 | $0.0541^{+0.0069}_{-0.0078}$ | Ω_m | 0.3080 | 0.3076 ± 0.0054 | $D_M(0.15)$ | 638.83 | 638.6 ± 3.5 |
| $\ln(10^{10} A_s)$ | 3.0430 | 3.041 ± 0.016 | $\Omega_m h^2$ | 0.14197 | 0.14185 ± 0.00086 | $H(0.38)$ | 83.196 | 83.21 ± 0.26 |
| n_s | 0.96898 | 0.9680 ± 0.0037 | $\Omega_m h^3$ | 0.096379 | 0.09633 ± 0.00029 | $D_M(0.38)$ | 1524.4 | 1524.1 ± 7.0 |
| y_{cal} | 1.00059 | 1.0006 ± 0.0025 | σ_8 | 0.8078 | 0.8062 ± 0.0065 | $H(0.51)$ | 89.883 | 89.89 ± 0.21 |
| A_{217}^{CIB} | 46.7 | 47 ± 7 | S_8 | 0.8185 | 0.816 ± 0.011 | $D_M(0.51)$ | 1975.3 | 1974.9 ± 8.2 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.56 | — | $\sigma_8 \Omega_m^{0.5}$ | 0.4483 | 0.4471 ± 0.0059 | $H(0.61)$ | 95.479 | 95.48 ± 0.18 |
| A_{143}^{tSZ} | 7.23 | 5.5 ± 2.0 | $\sigma_8 \Omega_m^{0.25}$ | 0.6018 | 0.6004 ± 0.0060 | $D_M(0.61)$ | 2299.0 | 2298.6 ± 8.8 |
| A_{100}^{PS} | 248.1 | 259 ± 28 | $\sigma_8/h^{0.5}$ | 0.9804 | 0.9783 ± 0.0089 | $H(2.33)$ | 235.92 | 235.83 ± 0.56 |
| A_{143}^{PS} | 48.6 | 45 ± 8 | $r_{\text{drag}} h$ | 99.99 | 100.06 ± 0.70 | $D_M(2.33)$ | 5754.8 | 5755.2 ± 8.5 |
| $A_{143 \times 217}^{\text{PS}}$ | 50.4 | 42 ± 9 | $\langle d^2 \rangle^{1/2}$ | 2.4236 | 2.422 ± 0.022 | $f\sigma_8(0.15)$ | 0.4532 | 0.4520 ± 0.0056 |
| A_{217}^{PS} | 120.2 | 114 ± 10 | z_{re} | 7.70 | 7.60 ± 0.76 | $\sigma_8(0.15)$ | 0.7468 | 0.7454 ± 0.0059 |
| A^{kSZ} | 0.00 | < 4.36 | $10^9 A_s$ | 2.0968 | $2.092^{+0.030}_{-0.034}$ | $f\sigma_8(0.38)$ | 0.47223 | 0.4711 ± 0.0048 |
| A_{100}^{dustTT} | 8.84 | 8.9 ± 1.8 | $10^9 A_s e^{-2\tau}$ | 1.8790 | 1.878 ± 0.010 | $\sigma_8(0.38)$ | 0.6623 | $0.6612^{+0.0048}_{-0.0054}$ |
| A_{143}^{dustTT} | 11.04 | 10.9 ± 1.8 | D_{40} | 1222.6 | 1225 ± 11 | $f\sigma_8(0.51)$ | 0.47124 | 0.4702 ± 0.0044 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.11 | 18.6 ± 3.3 | D_{220} | 5735.9 | 5739 ± 38 | $\sigma_8(0.51)$ | 0.61999 | $0.6189^{+0.0045}_{-0.0051}$ |
| A_{217}^{dustTT} | 95.2 | 93.6 ± 7.3 | D_{810} | 2540.5 | 2538 ± 13 | $f\sigma_8(0.61)$ | 0.46656 | 0.4656 ± 0.0042 |
| A_{100}^{dustTE} | 0.1136 | 0.114 ± 0.038 | D_{1420} | 819.21 | 818.0 ± 4.7 | $\sigma_8(0.61)$ | 0.59003 | $0.5890^{+0.0043}_{-0.0048}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1347 | 0.135 ± 0.030 | D_{2000} | 231.64 | 231.1 ± 1.5 | $f\sigma_8(2.33)$ | 0.29763 | $0.2972^{+0.0022}_{-0.0025}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 | 0.481 ± 0.084 | $n_{s,0.002}$ | 0.96898 | 0.9680 ± 0.0037 | $\sigma_8(2.33)$ | 0.30700 | $0.3065^{+0.0023}_{-0.0026}$ |
| A_{143}^{dustTE} | 0.224 | 0.224 ± 0.054 | Y_{P} | 0.2454329 | 0.245426 ± 0.000049 | f_{2000}^{143} | 28.40 | 29.3 ± 2.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.660 | 0.663 ± 0.080 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2467596 | 0.246752 ± 0.000050 | $f_{2000}^{143 \times 217}$ | 31.74 | 32.0 ± 1.8 |
| A_{217}^{dustTE} | 2.072 | 2.07 ± 0.27 | $10^5 \text{D}/\text{H}$ | 2.5676 | 2.571 ± 0.024 | f_{2000}^{217} | 106.29 | 106.8 ± 1.8 |
| c_{100} | 0.99973 | 0.99967 ± 0.00062 | Age/Gyr | 13.7782 | 13.779 ± 0.019 | χ_{simall}^2 | 396.05 | 396.9 ± 1.7 |
| c_{217} | 0.99818 | 0.99821 ± 0.00061 | z_* | 1089.697 | 1089.71 ± 0.21 | χ_{lowl}^2 | 22.68 | 22.87 ± 0.77 |
| m_{DES}^1 | 0.0142 | 0.014 ± 0.023 | r_* | 144.653 | 144.69 ± 0.22 | χ_{plik}^2 | 2346.4 | 2361.0 ± 5.9 |
| m_{DES}^2 | 0.0126 | 0.012 ± 0.022 | $100\theta_*$ | 1.041246 | 1.04124 ± 0.00028 | $\chi_{6\text{DF}}^2$ | 0.0103 | 0.028 ± 0.038 |
| m_{DES}^3 | -0.0062 | -0.007 ± 0.020 | $D_M(z_*)/\text{Gpc}$ | 13.8923 | 13.896 ± 0.021 | χ_{MGS}^2 | 1.407 | 1.50 ± 0.41 |
| m_{DES}^4 | 0.0129 | 0.012 ± 0.021 | z_{drag} | 1060.085 | 1060.04 ± 0.28 | χ_{DR12BAO}^2 | 3.94 | 4.18 ± 0.91 |
| $A_{\text{IA,DES}}$ | 1.42 | 1.21 ± 0.50 | r_{drag} | 147.285 | 147.33 ± 0.23 | χ_{DES}^2 | 229.06 | 231.9 ± 2.4 |
| $\alpha_{\text{IA,DES}}$ | 2.58 | $1.85^{+2.9}_{-0.95}$ | k_{D} | 0.140736 | 0.14068 ± 0.00028 | χ_{prior}^2 | 2.6 | 19.4 ± 6.0 |
| $\Delta z_{s,\text{DES}}^1$ | 0.0046 | 0.004 ± 0.015 | $100\theta_{\text{D}}$ | 0.160683 | 0.16071 ± 0.00016 | χ_{BAO}^2 | 5.354 | 5.71 ± 0.65 |
| $\Delta z_{s,\text{DES}}^2$ | -0.0207 | -0.021 ± 0.012 | z_{eq} | 3377.1 | 3374 ± 21 | χ_{CMB}^2 | 2765.1 | 2780.8 ± 5.8 |
| $\Delta z_{s,\text{DES}}^3$ | 0.0053 | 0.005 ± 0.010 | k_{eq} | 0.010307 | 0.010299 ± 0.000063 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3002.12$; $\bar{\chi}_{\text{eff}}^2 = 3037.77$; $R - 1 = 0.01621$
 χ_{eff}^2 : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.94 CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.05 commander_dx12_v3_2_29: 22.68 plik_rd12_HM_v22b_TTTEEE: 2346.36 WL - DES_1YR_final: 229.06

2.35 base_plikHM_TTTEEE_lowl_lowE_DESlens_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022454 | 0.02244 ± 0.00014 | $\Delta z_{s,\text{DES}}^3$ | 0.0047 | 0.004 ± 0.010 | z_{eq} | 3384.0 | 3383 ± 24 |
| $\Omega_c h^2$ | 0.11916 | 0.1191 ± 0.0010 | $\Delta z_{s,\text{DES}}^4$ | -0.0220 | -0.023 ± 0.020 | k_{eq} | 0.010328 | 0.010325 ± 0.000072 |
| $100\theta_{\text{MC}}$ | 1.041001 | 1.04102 ± 0.00030 | H_0 | 67.746 | 67.75 ± 0.48 | $100\theta_{\text{eq}}$ | 0.81685 | 0.8170 ± 0.0045 |
| τ | 0.0554 | $0.0546^{+0.0068}_{-0.0078}$ | Ω_Λ | 0.6900 | 0.6901 ± 0.0064 | $100\theta_{s,\text{eq}}$ | 0.45118 | 0.4513 ± 0.0023 |
| $\ln(10^{10} A_s)$ | 3.0447 | 3.043 ± 0.014 | Ω_m | 0.3100 | 0.3099 ± 0.0064 | $H(0.15)$ | 73.015 | 73.02 ± 0.41 |
| n_s | 0.96825 | 0.9669 ± 0.0040 | $\Omega_m h^2$ | 0.14225 | 0.14221 ± 0.00098 | $D_M(0.15)$ | 640.04 | 640.0 ± 4.0 |
| y_{cal} | 1.00043 | 1.0007 ± 0.0025 | $\Omega_m h^3$ | 0.096372 | 0.09634 ± 0.00029 | $H(0.38)$ | 83.107 | 83.11 ± 0.30 |
| A_{217}^{CIB} | 46.0 | 47 ± 7 | σ_8 | 0.8093 | 0.8081 ± 0.0056 | $D_M(0.38)$ | 1526.8 | 1526.8 ± 8.1 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.62 | — | S_8 | 0.8226 | 0.821 ± 0.011 | $H(0.51)$ | 89.814 | 89.81 ± 0.24 |
| A_{143}^{tSZ} | 7.17 | 5.5 ± 2.0 | $\sigma_8 \Omega_m^{0.5}$ | 0.4505 | 0.4498 ± 0.0059 | $D_M(0.51)$ | 1978.1 | 1978.1 ± 9.6 |
| A_{100}^{PS} | 246.9 | 259 ± 28 | $\sigma_8 \Omega_m^{0.25}$ | 0.6038 | 0.6029 ± 0.0055 | $H(0.61)$ | 95.426 | 95.42 ± 0.20 |
| A_{143}^{PS} | 49.3 | 45 ± 8 | $\sigma_8/h^{0.5}$ | 0.9832 | 0.9818 ± 0.0079 | $D_M(0.61)$ | 2302.0 | 2302 ± 10 |
| $A_{143 \times 217}^{\text{PS}}$ | 52.0 | 42 ± 9 | $r_{\text{drag}} h$ | 99.74 | 99.76 ± 0.82 | $H(2.33)$ | 236.09 | 236.06 ± 0.63 |
| A_{217}^{PS} | 121.4 | 115 ± 10 | $\langle d^2 \rangle^{1/2}$ | 2.4304 | 2.431 ± 0.019 | $D_M(2.33)$ | 5757.1 | 5757.5 ± 9.4 |
| A^{kSZ} | 0.00 | < 4.36 | z_{re} | 7.76 | 7.66 ± 0.74 | $f\sigma_8(0.15)$ | 0.4553 | 0.4545 ± 0.0055 |
| A_{100}^{dustTT} | 8.78 | 8.9 ± 1.8 | $10^9 A_s$ | 2.1004 | $2.097^{+0.028}_{-0.032}$ | $\sigma_8(0.15)$ | 0.7480 | 0.7469 ± 0.0052 |
| A_{143}^{dustTT} | 11.01 | 10.9 ± 1.8 | $10^9 A_s e^{-2\tau}$ | 1.8802 | 1.880 ± 0.010 | $f\sigma_8(0.38)$ | 0.47392 | 0.4732 ± 0.0045 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.06 | 18.6 ± 3.3 | D_{40} | 1224.4 | 1228 ± 11 | $\sigma_8(0.38)$ | 0.66318 | 0.6623 ± 0.0047 |
| A_{217}^{dustTT} | 95.4 | 93.6 ± 7.3 | D_{220} | 5734.8 | 5741 ± 38 | $f\sigma_8(0.51)$ | 0.47270 | 0.4720 ± 0.0040 |
| A_{100}^{dustTE} | 0.1143 | 0.113 ± 0.038 | D_{810} | 2540.5 | 2539 ± 13 | $\sigma_8(0.51)$ | 0.62069 | $0.6198^{+0.0041}_{-0.0046}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1335 | 0.135 ± 0.030 | D_{1420} | 818.96 | 817.9 ± 4.7 | $f\sigma_8(0.61)$ | 0.46785 | 0.4672 ± 0.0037 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.480 ± 0.084 | D_{2000} | 231.57 | 231.1 ± 1.6 | $\sigma_8(0.61)$ | 0.59064 | $0.5898^{+0.0039}_{-0.0044}$ |
| A_{143}^{dustTE} | 0.223 | 0.224 ± 0.054 | $n_{s,0.002}$ | 0.96825 | 0.9669 ± 0.0040 | $f\sigma_8(2.33)$ | 0.29787 | $0.2975^{+0.0020}_{-0.0023}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.662 | 0.664 ± 0.080 | Y_{P} | 0.245428 | 0.245419 ± 0.000052 | $\sigma_8(2.33)$ | 0.30715 | $0.3068^{+0.0022}_{-0.0025}$ |
| A_{217}^{dustTE} | 2.081 | 2.07 ± 0.27 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246754 | 0.246746 ± 0.000053 | f_{2000}^{143} | 28.24 | 29.4 ± 2.7 |
| c_{100} | 0.99975 | 0.99967 ± 0.00062 | $10^5 \text{D}/\text{H}$ | 2.5701 | 2.574 ± 0.025 | $f_{2000}^{143 \times 217}$ | 31.68 | 32.1 ± 1.8 |
| c_{217} | 0.99817 | 0.99821 ± 0.00061 | Age/Gyr | 13.7831 | 13.784 ± 0.021 | f_{2000}^{217} | 106.24 | 106.9 ± 1.8 |
| m_{DES}^1 | 0.0144 | 0.014 ± 0.023 | z_* | 1089.740 | 1089.76 ± 0.23 | χ_{lensing}^2 | 8.767 | 9.16 ± 0.65 |
| m_{DES}^2 | 0.0120 | 0.012 ± 0.022 | r_* | 144.586 | 144.61 ± 0.24 | χ_{small}^2 | 396.20 | 397.0 ± 1.7 |
| m_{DES}^3 | -0.0073 | -0.009 ± 0.020 | $100\theta_*$ | 1.041176 | 1.04120 ± 0.00029 | χ_{lowl}^2 | 22.85 | 23.12 ± 0.80 |
| m_{DES}^4 | 0.0119 | 0.010 ± 0.021 | $D_M(z_*)/\text{Gpc}$ | 13.8868 | 13.889 ± 0.023 | χ_{plik}^2 | 2345.8 | 2360.1 ± 5.7 |
| $A_{\text{IA,DES}}$ | 1.45 | 1.25 ± 0.49 | z_{drag} | 1060.085 | 1060.03 ± 0.29 | χ_{DES}^2 | 229.30 | 232.1 ± 2.6 |
| $\alpha_{\text{IA,DES}}$ | 2.50 | $1.8^{+2.7}_{-1.1}$ | r_{drag} | 147.220 | 147.25 ± 0.24 | χ_{prior}^2 | 2.6 | 19.7 ± 6.0 |
| $\Delta z_{s,\text{DES}}^1$ | 0.0045 | 0.005 ± 0.015 | k_{D} | 0.140792 | 0.14075 ± 0.00029 | χ_{CMB}^2 | 2773.6 | 2789.4 ± 5.9 |
| $\Delta z_{s,\text{DES}}^2$ | -0.0204 | -0.021 ± 0.012 | $100\theta_{\text{D}}$ | 0.160683 | 0.16071 ± 0.00017 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3005.49$; $\bar{\chi}_{\text{eff}}^2 = 3041.15$; $R - 1 = 0.01376$

χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.77 simall_100x143_offlike5_EE_Aplanck_B: 396.20 commander_dx12_v3.2_29: 22.85 plik_rd12_HM_v22b_TTTEEE: 2345.76 WL - DES_1YR_final: 229.30

2.36 base_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|-----------|---------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022468 | 0.02246 ± 0.00013 | $\Delta z_{s,\text{DES}}^4$ | -0.0211 | -0.022 ± 0.020 | $100\theta_{\text{eq}}$ | 0.81832 | 0.8182 ± 0.0037 |
| $\Omega_c h^2$ | 0.11882 | 0.11885 ± 0.00086 | H_0 | 67.889 | 67.88 ± 0.40 | $100\theta_{s,\text{eq}}$ | 0.45193 | 0.4519 ± 0.0019 |
| $100\theta_{\text{MC}}$ | 1.041035 | 1.04106 ± 0.00029 | Ω_Λ | 0.6921 | 0.6919 ± 0.0052 | $H(0.15)$ | 73.135 | 73.13 ± 0.34 |
| τ | 0.0555 | $0.0555^{+0.0066}_{-0.0076}$ | Ω_m | 0.3079 | 0.3081 ± 0.0052 | $D_M(0.15)$ | 638.84 | 638.9 ± 3.4 |
| $\ln(10^{10} A_s)$ | 3.0444 | 3.044 ± 0.014 | $\Omega_m h^2$ | 0.14193 | 0.14195 ± 0.00082 | $H(0.38)$ | 83.192 | 83.19 ± 0.26 |
| n_s | 0.96880 | 0.9676 ± 0.0037 | $\Omega_m h^3$ | 0.096355 | 0.09635 ± 0.00029 | $D_M(0.38)$ | 1524.4 | 1524.6 ± 6.8 |
| y_{cal} | 1.00060 | 1.0008 ± 0.0025 | σ_8 | 0.8081 | 0.8080 ± 0.0057 | $H(0.51)$ | 89.878 | 89.87 ± 0.21 |
| A_{217}^{CIB} | 46.6 | 47 ± 7 | S_8 | 0.8187 | 0.8188 ± 0.0093 | $D_M(0.51)$ | 1975.3 | 1975.6 ± 8.0 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.49 | — | $\sigma_8 \Omega_m^{0.5}$ | 0.4484 | 0.4485 ± 0.0051 | $H(0.61)$ | 95.473 | 95.47 ± 0.18 |
| A_{143}^{tSZ} | 7.30 | 5.5 ± 2.0 | $\sigma_8 \Omega_m^{0.25}$ | 0.6020 | 0.6020 ± 0.0051 | $D_M(0.61)$ | 2299.0 | 2299.3 ± 8.6 |
| A_{100}^{PS} | 248.5 | 259 ± 28 | $\sigma_8/h^{0.5}$ | 0.9808 | 0.9807 ± 0.0076 | $H(2.33)$ | 235.89 | 235.90 ± 0.53 |
| A_{143}^{PS} | 47.4 | 45 ± 8 | $r_{\text{drag}} h$ | 99.997 | 99.99 ± 0.67 | $D_M(2.33)$ | 5755.2 | 5755.5 ± 8.5 |
| $A_{143 \times 217}^{\text{PS}}$ | 48.7 | 42 ± 9 | $\langle d^2 \rangle^{1/2}$ | 2.4254 | 2.428 ± 0.019 | $f\sigma_8(0.15)$ | 0.45331 | 0.4533 ± 0.0048 |
| A_{217}^{PS} | 120.2 | 115 ± 10 | z_{re} | 7.77 | 7.75 ± 0.72 | $\sigma_8(0.15)$ | 0.7471 | 0.7469 ± 0.0052 |
| A^{kSZ} | 0.00 | < 4.29 | $10^9 A_s$ | 2.0997 | $2.100^{+0.028}_{-0.031}$ | $f\sigma_8(0.38)$ | 0.47239 | 0.4724 ± 0.0041 |
| A_{100}^{dustTT} | 8.86 | 8.9 ± 1.8 | $10^9 A_s e^{-2\tau}$ | 1.8789 | 1.879 ± 0.010 | $\sigma_8(0.38)$ | 0.66263 | $0.6625^{+0.0043}_{-0.0048}$ |
| A_{143}^{dustTT} | 11.04 | 10.9 ± 1.8 | D_{40} | 1223.4 | 1227 ± 11 | $f\sigma_8(0.51)$ | 0.47141 | 0.4714 ± 0.0038 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.98 | 18.6 ± 3.3 | D_{220} | 5737.7 | 5743 ± 38 | $\sigma_8(0.51)$ | 0.62027 | $0.6201^{+0.0041}_{-0.0046}$ |
| A_{217}^{dustTT} | 95.3 | 93.6 ± 7.4 | D_{810} | 2540.4 | 2540 ± 13 | $f\sigma_8(0.61)$ | 0.46674 | 0.4667 ± 0.0036 |
| A_{100}^{dustTE} | 0.1138 | 0.113 ± 0.038 | D_{1420} | 819.05 | 818.2 ± 4.7 | $\sigma_8(0.61)$ | 0.59030 | $0.5901^{+0.0039}_{-0.0044}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1342 | 0.135 ± 0.030 | D_{2000} | 231.59 | 231.2 ± 1.5 | $f\sigma_8(2.33)$ | 0.29777 | $0.2977^{+0.0020}_{-0.0023}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 | 0.480 ± 0.084 | $n_{s,0.002}$ | 0.96880 | 0.9676 ± 0.0037 | $\sigma_8(2.33)$ | 0.30715 | $0.3071^{+0.0021}_{-0.0025}$ |
| A_{143}^{dustTE} | 0.224 | 0.224 ± 0.054 | Y_{P} | 0.2454330 | 0.245427 ± 0.000049 | f_{2000}^{143} | 28.41 | 29.3 ± 2.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.663 ± 0.080 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2467597 | 0.246753 ± 0.000050 | $f_{2000}^{143 \times 217}$ | 31.70 | 32.0 ± 1.8 |
| A_{217}^{dustTE} | 2.078 | 2.07 ± 0.27 | $10^5 \text{D}/\text{H}$ | 2.5675 | 2.570 ± 0.024 | f_{2000}^{217} | 106.38 | 106.8 ± 1.8 |
| c_{100} | 0.99974 | 0.99968 ± 0.00062 | Age/Gyr | 13.7792 | 13.780 ± 0.019 | χ_{lensing}^2 | 8.854 | 9.17 ± 0.68 |
| c_{217} | 0.99818 | 0.99820 ± 0.00061 | z_* | 1089.693 | 1089.71 ± 0.20 | χ_{small}^2 | 396.20 | 397.1 ± 1.8 |
| m_{DES}^1 | 0.0139 | 0.014 ± 0.023 | r_* | 144.662 | 144.66 ± 0.21 | χ_{lowl}^2 | 22.73 | 23.01 ± 0.76 |
| m_{DES}^2 | 0.0120 | 0.012 ± 0.022 | $100\theta_*$ | 1.041207 | 1.04124 ± 0.00029 | χ_{plik}^2 | 2346.1 | 2360.3 ± 5.7 |
| m_{DES}^3 | -0.0065 | -0.008 ± 0.020 | $D_M(z_*)/\text{Gpc}$ | 13.8937 | 13.894 ± 0.020 | $\chi_{6\text{DF}}^2$ | 0.0101 | 0.030 ± 0.038 |
| m_{DES}^4 | 0.0134 | 0.011 ± 0.021 | z_{drag} | 1060.085 | 1060.05 ± 0.28 | χ_{MGS}^2 | 1.407 | 1.45 ± 0.39 |
| $A_{\text{IA,DES}}$ | 1.42 | 1.24 ± 0.49 | r_{drag} | 147.295 | 147.30 ± 0.22 | χ_{DR12BAO}^2 | 3.93 | 4.24 ± 0.92 |
| $\alpha_{\text{IA,DES}}$ | 2.57 | $1.8^{+2.8}_{-1.0}$ | k_{D} | 0.140726 | 0.14071 ± 0.00027 | χ_{DES}^2 | 229.07 | 231.9 ± 2.4 |
| $\Delta z_{s,\text{DES}}^1$ | 0.0049 | 0.005 ± 0.015 | $100\theta_{\text{D}}$ | 0.160678 | 0.16070 ± 0.00016 | χ_{prior}^2 | 2.7 | 19.5 ± 6.0 |
| $\Delta z_{s,\text{DES}}^2$ | -0.0205 | -0.021 ± 0.012 | z_{eq} | 3376.3 | 3377 ± 20 | χ_{CMB}^2 | 2773.9 | 2789.5 ± 5.8 |
| $\Delta z_{s,\text{DES}}^3$ | 0.0055 | 0.005 ± 0.010 | k_{eq} | 0.010305 | 0.010306 ± 0.000060 | χ_{BAO}^2 | 5.350 | 5.73 ± 0.66 |

Best-fit $\chi_{\text{eff}}^2 = 3011.01$; $\bar{\chi}_{\text{eff}}^2 = 3046.67$; $R - 1 = 0.01525$
 χ_{eff}^2 : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.93 CMB - smicadx12_Dec5.ftl_mv2_ndclpp_p.teb_consext8: 8.85 small_100x143.offlike5_EE_Aplanck_B: 396.20 commander_dx12.v3.2.29: 22.73 plik_rd12_HM.v22b_TTTEEE: 2346.15 WL - DES.1YR.final: 229.07

2.37 base_plikHM_TTTEEE_lowl_lowE_DESlens_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02244 ± 0.00014 | $\Delta z_{s,\text{DES}}^3$ | 0.004 ± 0.010 | z_{eq} | 3379 ± 25 |
| $\Omega_c h^2$ | 0.1190 ± 0.0011 | $\Delta z_{s,\text{DES}}^4$ | -0.023 ± 0.020 | k_{eq} | 0.010313 ± 0.000076 |
| $100\theta_{\text{MC}}$ | 1.04104 ± 0.00030 | H_0 | 67.82 ± 0.50 | $100\theta_{\text{eq}}$ | 0.8178 ± 0.0047 |
| τ | $0.0548^{+0.0046}_{-0.0083}$ | Ω_{Λ} | 0.6911 ± 0.0067 | $100\theta_{s,\text{eq}}$ | 0.4517 ± 0.0024 |
| $\ln(10^{10} A_s)$ | $3.042^{+0.011}_{-0.016}$ | Ω_{m} | 0.3089 ± 0.0067 | $H(0.15)$ | 73.08 ± 0.43 |
| n_s | 0.9675 ± 0.0040 | $\Omega_{\text{m}} h^2$ | 0.1420 ± 0.0010 | $D_{\text{M}}(0.15)$ | 639.4 ± 4.2 |
| y_{cal} | 1.0005 ± 0.0025 | $\Omega_{\text{m}} h^3$ | 0.09633 ± 0.00029 | $H(0.38)$ | 83.15 ± 0.32 |
| A_{217}^{CIB} | 47 ± 7 | σ_8 | $0.8075^{+0.0056}_{-0.0065}$ | $D_{\text{M}}(0.38)$ | 1525.6 ± 8.5 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | S_8 | 0.819 ± 0.013 | $H(0.51)$ | 89.84 ± 0.25 |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4488 ± 0.0069 | $D_{\text{M}}(0.51)$ | 1977 ± 10 |
| A_{100}^{PS} | 258 ± 28 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6020 ± 0.0065 | $H(0.61)$ | 95.45 ± 0.21 |
| A_{143}^{PS} | 45 ± 8 | $\sigma_8/h^{0.5}$ | 0.9805 ± 0.0093 | $D_{\text{M}}(0.61)$ | 2301 ± 11 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $r_{\text{drag}} h$ | 99.90 ± 0.86 | $H(2.33)$ | 235.95 ± 0.67 |
| A_{217}^{PS} | 115 ± 10 | $\langle d^2 \rangle^{1/2}$ | 2.427 ± 0.023 | $D_{\text{M}}(2.33)$ | 5756.6 ± 9.6 |
| A^{kSZ} | < 4.30 | z_{re} | $7.68^{+0.52}_{-0.81}$ | $f\sigma_8(0.15)$ | 0.4535 ± 0.0064 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $10^9 A_s$ | $2.096^{+0.023}_{-0.033}$ | $\sigma_8(0.15)$ | $0.7464^{+0.0048}_{-0.0059}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $10^9 A_s e^{-2\tau}$ | 1.878 ± 0.011 | $f\sigma_8(0.38)$ | 0.4724 ± 0.0053 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | D_{40} | 1226 ± 12 | $\sigma_8(0.38)$ | $0.6619^{+0.0040}_{-0.0052}$ |
| A_{217}^{dustTT} | 93.7 ± 7.4 | D_{220} | 5737 ± 38 | $f\sigma_8(0.51)$ | 0.4713 ± 0.0047 |
| A_{100}^{dustTE} | 0.113 ± 0.038 | D_{810} | 2538 ± 13 | $\sigma_8(0.51)$ | $0.6196^{+0.0036}_{-0.0049}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | D_{1420} | 817.7 ± 4.7 | $f\sigma_8(0.61)$ | 0.4666 ± 0.0043 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.084 | D_{2000} | 231.1 ± 1.6 | $\sigma_8(0.61)$ | $0.5896^{+0.0034}_{-0.0047}$ |
| A_{143}^{dustTE} | 0.225 ± 0.054 | $n_{s,0.002}$ | 0.9675 ± 0.0040 | $f\sigma_8(2.33)$ | $0.2974^{+0.0017}_{-0.0024}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.080 | Y_{P} | 0.245421 ± 0.000052 | $\sigma_8(2.33)$ | $0.3067^{+0.0018}_{-0.0026}$ |
| A_{217}^{dustTE} | 2.08 ± 0.27 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246748 ± 0.000053 | f_{2000}^{143} | 29.3 ± 2.7 |
| c_{100} | 0.99966 ± 0.00062 | 10^5D/H | 2.573 ± 0.025 | $f_{2000}^{143 \times 217}$ | 32.0 ± 1.8 |
| c_{217} | 0.99820 ± 0.00062 | Age/Gyr | 13.782 ± 0.022 | f_{2000}^{217} | 106.8 ± 1.8 |
| m_{DES}^1 | 0.014 ± 0.023 | z_* | 1089.74 ± 0.23 | χ_{simall}^2 | 396.8 ± 1.7 |
| m_{DES}^2 | 0.012 ± 0.022 | r_* | 144.65 ± 0.25 | χ_{lowl}^2 | 22.99 ± 0.83 |
| m_{DES}^3 | -0.008 ± 0.020 | $100\theta_*$ | 1.04122 ± 0.00029 | χ_{plik}^2 | 2360.7 ± 5.9 |
| m_{DES}^4 | 0.011 ± 0.021 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.892 ± 0.024 | χ_{DES}^2 | 232.1 ± 2.5 |
| $A_{\text{IA,DES}}$ | 1.24 ± 0.50 | z_{drag} | 1060.02 ± 0.29 | χ_{prior}^2 | 19.5 ± 6.0 |
| $\alpha_{\text{IA,DES}}$ | $1.9^{+2.8}_{-1.0}$ | r_{drag} | 147.29 ± 0.26 | χ_{CMB}^2 | 2780.5 ± 5.8 |
| $\Delta z_{s,\text{DES}}^1$ | 0.005 ± 0.015 | k_{D} | 0.14071 ± 0.00030 | | |
| $\Delta z_{s,\text{DES}}^2$ | -0.021 ± 0.012 | $100\theta_{\text{D}}$ | 0.16071 ± 0.00017 | | |

$\bar{\chi}_{\text{eff}}^2 = 3032.07$; $R - 1 = 0.00937$

2.38 base_plikHM_TTTEE_lowl_lowE_DESlens_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02246 ± 0.00013 | $\Delta z_{s,\text{DES}}^4$ | -0.022 ± 0.020 | $100\theta_{\text{eq}}$ | 0.8188 ± 0.0039 |
| $\Omega_c h^2$ | 0.11872 ± 0.00090 | H_0 | 67.93 ± 0.41 | $100\theta_{s,\text{eq}}$ | 0.4522 ± 0.0020 |
| $100\theta_{\text{MC}}$ | 1.04107 ± 0.00029 | Ω_Λ | 0.6926 ± 0.0054 | $H(0.15)$ | 73.17 ± 0.35 |
| τ | $0.0551^{+0.0049}_{-0.0081}$ | Ω_{m} | 0.3074 ± 0.0054 | $D_{\text{M}}(0.15)$ | 638.5 ± 3.4 |
| $\ln(10^{10} A_{\text{s}})$ | $3.043^{+0.012}_{-0.016}$ | $\Omega_{\text{m}} h^2$ | 0.14182 ± 0.00086 | $H(0.38)$ | 83.21 ± 0.26 |
| n_{s} | 0.9681 ± 0.0037 | $\Omega_{\text{m}} h^3$ | 0.09633 ± 0.00029 | $D_{\text{M}}(0.38)$ | 1523.8 ± 6.9 |
| y_{cal} | 1.0006 ± 0.0025 | σ_8 | $0.8070^{+0.0054}_{-0.0065}$ | $H(0.51)$ | 89.89 ± 0.21 |
| A_{217}^{CIB} | 47 ± 7 | S_8 | 0.817 ± 0.011 | $D_{\text{M}}(0.51)$ | 1974.6 ± 8.1 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4474 ± 0.0058 | $H(0.61)$ | 95.48 ± 0.18 |
| A_{143}^{tSZ} | 5.5 ± 2.0 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6009 ± 0.0058 | $D_{\text{M}}(0.61)$ | 2298.3 ± 8.8 |
| A_{100}^{PS} | 258 ± 28 | $\sigma_8/h^{0.5}$ | 0.9791 ± 0.0085 | $H(2.33)$ | 235.81 ± 0.56 |
| A_{143}^{PS} | 45 ± 8 | $r_{\text{drag}} h$ | 100.08 ± 0.70 | $D_{\text{M}}(2.33)$ | 5755.0 ± 8.5 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $\langle d^2 \rangle^{1/2}$ | 2.424 ± 0.021 | $f\sigma_8(0.15)$ | 0.4523 ± 0.0055 |
| A_{217}^{PS} | 114 ± 10 | z_{re} | $7.71^{+0.54}_{-0.80}$ | $\sigma_8(0.15)$ | $0.7461^{+0.0048}_{-0.0060}$ |
| A^{kSZ} | < 4.35 | $10^9 A_{\text{s}}$ | $2.097^{+0.024}_{-0.033}$ | $f\sigma_8(0.38)$ | 0.4715 ± 0.0047 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.877 ± 0.010 | $\sigma_8(0.38)$ | $0.6618^{+0.0040}_{-0.0053}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | D_{40} | 1225 ± 11 | $f\sigma_8(0.51)$ | 0.4706 ± 0.0043 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | D_{220} | 5739 ± 38 | $\sigma_8(0.51)$ | $0.6195^{+0.0037}_{-0.0050}$ |
| A_{217}^{dustTT} | 93.6 ± 7.3 | D_{810} | 2538 ± 13 | $f\sigma_8(0.61)$ | 0.4659 ± 0.0040 |
| A_{100}^{dustTE} | 0.113 ± 0.038 | D_{1420} | 817.9 ± 4.7 | $\sigma_8(0.61)$ | $0.5896^{+0.0035}_{-0.0048}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | D_{2000} | 231.2 ± 1.5 | $f\sigma_8(2.33)$ | $0.2975^{+0.0018}_{-0.0024}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.084 | $n_{\text{s},0.002}$ | 0.9681 ± 0.0037 | $\sigma_8(2.33)$ | $0.3069^{+0.0018}_{-0.0026}$ |
| A_{143}^{dustTE} | 0.224 ± 0.054 | Y_{P} | 0.245427 ± 0.000049 | f_{2000}^{143} | 29.3 ± 2.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 ± 0.080 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246754 ± 0.000050 | $f_{2000}^{143 \times 217}$ | 32.0 ± 1.8 |
| A_{217}^{dustTE} | 2.07 ± 0.27 | 10^5D/H | 2.570 ± 0.024 | f_{2000}^{217} | 106.8 ± 1.7 |
| c_{100} | 0.99966 ± 0.00062 | Age/Gyr | 13.779 ± 0.019 | χ_{simall}^2 | 396.9 ± 1.7 |
| c_{217} | 0.99820 ± 0.00061 | z_* | 1089.70 ± 0.20 | χ_{lowl}^2 | 22.88 ± 0.77 |
| m_{DES}^1 | 0.014 ± 0.023 | r_* | 144.70 ± 0.22 | χ_{plik}^2 | 2360.8 ± 5.9 |
| m_{DES}^2 | 0.012 ± 0.022 | $100\theta_*$ | 1.04125 ± 0.00029 | $\chi_{6\text{DF}}^2$ | 0.027 ± 0.036 |
| m_{DES}^3 | -0.007 ± 0.020 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.897 ± 0.021 | χ_{MGS}^2 | 1.51 ± 0.41 |
| m_{DES}^4 | 0.011 ± 0.021 | z_{drag} | 1060.04 ± 0.28 | χ_{DR12BAO}^2 | 4.15 ± 0.88 |
| $A_{\text{IA,DES}}$ | 1.22 ± 0.50 | r_{drag} | 147.34 ± 0.23 | χ_{DES}^2 | 231.9 ± 2.4 |
| $\alpha_{\text{IA,DES}}$ | $1.84^{+2.9}_{-0.98}$ | k_{D} | 0.14067 ± 0.00028 | χ_{prior}^2 | 19.4 ± 6.0 |
| $\Delta z_{s,\text{DES}}^1$ | 0.004 ± 0.015 | $100\theta_{\text{D}}$ | 0.16071 ± 0.00016 | χ_{BAO}^2 | 5.69 ± 0.63 |
| $\Delta z_{s,\text{DES}}^2$ | -0.021 ± 0.012 | z_{eq} | 3374 ± 21 | χ_{CMB}^2 | 2780.5 ± 5.7 |
| $\Delta z_{s,\text{DES}}^3$ | 0.005 ± 0.010 | k_{eq} | 0.010297 ± 0.000063 | | |

$\bar{\chi}_{\text{eff}}^2 = 3037.53$; $R - 1 = 0.01574$

2.39 base_plikHM_TTTEEE_lowl_lowE_DESlens_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02244 ± 0.00014 | $\Delta z_{s,\text{DES}}^3$ | 0.004 ± 0.010 | z_{eq} | 3382 ± 23 |
| $\Omega_c h^2$ | 0.1191 ± 0.0010 | $\Delta z_{s,\text{DES}}^4$ | -0.023 ± 0.020 | k_{eq} | 0.010321 ± 0.000070 |
| $100\theta_{\text{MC}}$ | 1.04103 ± 0.00030 | H_0 | 67.77 ± 0.47 | $100\theta_{\text{eq}}$ | 0.8173 ± 0.0044 |
| τ | $0.0555^{+0.0051}_{-0.0080}$ | Ω_{Λ} | 0.6904 ± 0.0062 | $100\theta_{s,\text{eq}}$ | 0.4514 ± 0.0022 |
| $\ln(10^{10} A_s)$ | $3.045^{+0.011}_{-0.015}$ | Ω_{m} | 0.3096 ± 0.0062 | $H(0.15)$ | 73.04 ± 0.40 |
| n_s | 0.9671 ± 0.0039 | $\Omega_{\text{m}} h^2$ | 0.14216 ± 0.00097 | $D_{\text{M}}(0.15)$ | 639.8 ± 4.0 |
| y_{cal} | 1.0006 ± 0.0025 | $\Omega_{\text{m}} h^3$ | 0.09634 ± 0.00029 | $H(0.38)$ | 83.12 ± 0.30 |
| A_{217}^{CIB} | 47 ± 7 | σ_8 | $0.8086^{+0.0049}_{-0.0056}$ | $D_{\text{M}}(0.38)$ | 1526.4 ± 8.0 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | S_8 | 0.821 ± 0.011 | $H(0.51)$ | 89.82 ± 0.24 |
| A_{143}^{tSZ} | 5.5 ± 2.0 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4499 ± 0.0059 | $D_{\text{M}}(0.51)$ | 1977.7 ± 9.4 |
| A_{100}^{PS} | 259 ± 28 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6031 ± 0.0054 | $H(0.61)$ | 95.43 ± 0.20 |
| A_{143}^{PS} | 45 ± 8 | $\sigma_8/h^{0.5}$ | 0.9823 ± 0.0078 | $D_{\text{M}}(0.61)$ | 2302 ± 10 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $r_{\text{drag}} h$ | 99.80 ± 0.80 | $H(2.33)$ | 236.03 ± 0.62 |
| A_{217}^{PS} | 115 ± 10 | $\langle d^2 \rangle^{1/2}$ | 2.432 ± 0.019 | $D_{\text{M}}(2.33)$ | 5757.1 ± 9.4 |
| A^{kSZ} | < 4.34 | z_{re} | $7.75^{+0.55}_{-0.78}$ | $f\sigma_8(0.15)$ | 0.4546 ± 0.0055 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $10^9 A_s$ | $2.100^{+0.023}_{-0.032}$ | $\sigma_8(0.15)$ | $0.7474^{+0.0043}_{-0.0052}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $10^9 A_s e^{-2\tau}$ | 1.880 ± 0.010 | $f\sigma_8(0.38)$ | 0.4733 ± 0.0044 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | D_{40} | 1228 ± 11 | $\sigma_8(0.38)$ | $0.6627^{+0.0037}_{-0.0048}$ |
| A_{217}^{dustTT} | 93.6 ± 7.3 | D_{220} | 5741 ± 38 | $f\sigma_8(0.51)$ | 0.4722 ± 0.0039 |
| A_{100}^{dustTE} | 0.113 ± 0.038 | D_{810} | 2539 ± 13 | $\sigma_8(0.51)$ | $0.6203^{+0.0035}_{-0.0045}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | D_{1420} | 817.9 ± 4.7 | $f\sigma_8(0.61)$ | 0.4674 ± 0.0036 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.084 | D_{2000} | 231.1 ± 1.6 | $\sigma_8(0.61)$ | $0.5903^{+0.0033}_{-0.0044}$ |
| A_{143}^{dustTE} | 0.224 ± 0.054 | $n_{s,0.002}$ | 0.9671 ± 0.0039 | $f\sigma_8(2.33)$ | $0.2977^{+0.0017}_{-0.0023}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 ± 0.080 | Y_{P} | 0.245421 ± 0.000052 | $\sigma_8(2.33)$ | $0.3070^{+0.0018}_{-0.0025}$ |
| A_{217}^{dustTE} | 2.07 ± 0.27 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246747 ± 0.000052 | f_{2000}^{143} | 29.3 ± 2.7 |
| c_{100} | 0.99967 ± 0.00062 | 10^5D/H | 2.573 ± 0.025 | $f_{2000}^{143 \times 217}$ | 32.0 ± 1.8 |
| c_{217} | 0.99820 ± 0.00061 | Age/Gyr | 13.783 ± 0.021 | f_{2000}^{217} | 106.9 ± 1.8 |
| m_{DES}^1 | 0.014 ± 0.023 | z_* | 1089.75 ± 0.23 | χ_{lensing}^2 | 9.12 ± 0.60 |
| m_{DES}^2 | 0.012 ± 0.022 | r_* | 144.62 ± 0.23 | χ_{simall}^2 | 396.9 ± 1.8 |
| m_{DES}^3 | -0.009 ± 0.020 | $100\theta_*$ | 1.04120 ± 0.00029 | χ_{lowl}^2 | 23.12 ± 0.80 |
| m_{DES}^4 | 0.010 ± 0.021 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.890 ± 0.022 | χ_{plik}^2 | 2360.0 ± 5.7 |
| $A_{\text{IA,DES}}$ | 1.26 ± 0.49 | z_{drag} | 1060.03 ± 0.29 | χ_{DES}^2 | 232.1 ± 2.5 |
| $\alpha_{\text{IA,DES}}$ | $1.8^{+2.7}_{-1.1}$ | r_{drag} | 147.26 ± 0.24 | χ_{prior}^2 | 19.6 ± 6.1 |
| $\Delta z_{s,\text{DES}}^1$ | 0.005 ± 0.015 | k_{D} | 0.14074 ± 0.00028 | χ_{CMB}^2 | 2789.2 ± 5.8 |
| $\Delta z_{s,\text{DES}}^2$ | -0.021 ± 0.012 | $100\theta_{\text{D}}$ | 0.16071 ± 0.00017 | | |

$\bar{\chi}_{\text{eff}}^2 = 3040.94$; $R - 1 = 0.01565$

2.40 base_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02246 ± 0.00013 | $\Delta z_{s,\text{DES}}^4$ | -0.022 ± 0.020 | $100\theta_{\text{eq}}$ | 0.8184 ± 0.0037 |
| $\Omega_c h^2$ | 0.11882 ± 0.00086 | H_0 | 67.89 ± 0.39 | $100\theta_{s,\text{eq}}$ | 0.4520 ± 0.0019 |
| $100\theta_{\text{MC}}$ | 1.04106 ± 0.00029 | Ω_Λ | 0.6920 ± 0.0052 | $H(0.15)$ | 73.14 ± 0.34 |
| τ | $0.0562^{+0.0054}_{-0.0077}$ | Ω_{m} | 0.3080 ± 0.0052 | $D_{\text{M}}(0.15)$ | 638.8 ± 3.3 |
| $\ln(10^{10} A_{\text{s}})$ | $3.046^{+0.012}_{-0.015}$ | $\Omega_{\text{m}} h^2$ | 0.14192 ± 0.00082 | $H(0.38)$ | 83.19 ± 0.25 |
| n_{s} | 0.9677 ± 0.0037 | $\Omega_{\text{m}} h^3$ | 0.09635 ± 0.00029 | $D_{\text{M}}(0.38)$ | 1524.4 ± 6.7 |
| y_{cal} | 1.0007 ± 0.0025 | σ_8 | $0.8083^{+0.0049}_{-0.0057}$ | $H(0.51)$ | 89.88 ± 0.21 |
| A_{217}^{CIB} | 47 ± 7 | S_8 | 0.8190 ± 0.0093 | $D_{\text{M}}(0.51)$ | 1975.3 ± 7.9 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4486 ± 0.0051 | $H(0.61)$ | 95.47 ± 0.18 |
| A_{143}^{tSZ} | 5.5 ± 2.0 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6022 ± 0.0050 | $D_{\text{M}}(0.61)$ | 2299.0 ± 8.6 |
| A_{100}^{PS} | 259 ± 28 | $\sigma_8/h^{0.5}$ | 0.9811 ± 0.0074 | $H(2.33)$ | 235.88 ± 0.53 |
| A_{143}^{PS} | 45 ± 8 | $r_{\text{drag}} h$ | 100.01 ± 0.67 | $D_{\text{M}}(2.33)$ | 5755.3 ± 8.5 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $\langle d^2 \rangle^{1/2}$ | 2.429 ± 0.018 | $f\sigma_8(0.15)$ | 0.4534 ± 0.0048 |
| A_{217}^{PS} | 115 ± 10 | z_{re} | $7.82^{+0.58}_{-0.75}$ | $\sigma_8(0.15)$ | $0.7473^{+0.0044}_{-0.0053}$ |
| A^{kSZ} | < 4.29 | $10^9 A_{\text{s}}$ | $2.102^{+0.024}_{-0.031}$ | $f\sigma_8(0.38)$ | 0.4725 ± 0.0041 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.879 ± 0.010 | $\sigma_8(0.38)$ | $0.6628^{+0.0039}_{-0.0048}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | D_{40} | 1227 ± 11 | $f\sigma_8(0.51)$ | 0.4715 ± 0.0037 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.5 ± 3.3 | D_{220} | 5743 ± 38 | $\sigma_8(0.51)$ | $0.6204^{+0.0036}_{-0.0046}$ |
| A_{217}^{dustTT} | 93.6 ± 7.4 | D_{810} | 2539 ± 13 | $f\sigma_8(0.61)$ | 0.4669 ± 0.0035 |
| A_{100}^{dustTE} | 0.113 ± 0.038 | D_{1420} | 818.2 ± 4.7 | $\sigma_8(0.61)$ | $0.5905^{+0.0034}_{-0.0044}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | D_{2000} | 231.2 ± 1.5 | $f\sigma_8(2.33)$ | $0.2979^{+0.0018}_{-0.0023}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.084 | $n_{\text{s},0.002}$ | 0.9677 ± 0.0037 | $\sigma_8(2.33)$ | $0.3072^{+0.0019}_{-0.0025}$ |
| A_{143}^{dustTE} | 0.224 ± 0.054 | Y_{P} | 0.245427 ± 0.000049 | f_{2000}^{143} | 29.2 ± 2.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 ± 0.080 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246754 ± 0.000049 | $f_{2000}^{143 \times 217}$ | 32.0 ± 1.8 |
| A_{217}^{dustTE} | 2.07 ± 0.27 | 10^5D/H | 2.570 ± 0.024 | f_{2000}^{217} | 106.8 ± 1.8 |
| c_{100} | 0.99967 ± 0.00062 | Age/Gyr | 13.779 ± 0.019 | χ_{lensing}^2 | 9.13 ± 0.62 |
| c_{217} | 0.99820 ± 0.00061 | z_* | 1089.71 ± 0.20 | χ_{small}^2 | 397.1 ± 1.8 |
| m_{DES}^1 | 0.014 ± 0.023 | r_* | 144.67 ± 0.21 | χ_{lowl}^2 | 23.01 ± 0.76 |
| m_{DES}^2 | 0.012 ± 0.022 | $100\theta_*$ | 1.04124 ± 0.00029 | χ_{plik}^2 | 2360.2 ± 5.7 |
| m_{DES}^3 | -0.008 ± 0.020 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.894 ± 0.020 | $\chi_{6\text{DF}}^2$ | 0.028 ± 0.037 |
| m_{DES}^4 | 0.011 ± 0.021 | z_{drag} | 1060.05 ± 0.28 | χ_{MGS}^2 | 1.46 ± 0.39 |
| $A_{\text{IA,DES}}$ | 1.24 ± 0.49 | r_{drag} | 147.31 ± 0.22 | χ_{DR12BAO}^2 | 4.21 ± 0.89 |
| $\alpha_{\text{IA,DES}}$ | $1.8^{+2.8}_{-1.0}$ | k_{D} | 0.14071 ± 0.00027 | χ_{DES}^2 | 231.9 ± 2.4 |
| $\Delta z_{s,\text{DES}}^1$ | 0.005 ± 0.015 | $100\theta_{\text{D}}$ | 0.16070 ± 0.00016 | χ_{prior}^2 | 19.5 ± 6.0 |
| $\Delta z_{s,\text{DES}}^2$ | -0.021 ± 0.012 | z_{eq} | 3376 ± 19 | χ_{CMB}^2 | 2789.4 ± 5.8 |
| $\Delta z_{s,\text{DES}}^3$ | 0.005 ± 0.010 | k_{eq} | 0.010304 ± 0.000059 | χ_{BAO}^2 | 5.71 ± 0.63 |

$\bar{\chi}_{\text{eff}}^2 = 3046.49$; $R - 1 = 0.01631$

3 Alens

3.1 base_Alens_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022700 | 0.02260 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.4291 | 0.432 ± 0.016 | $100\theta_{s,eq}$ | 0.4579 | 0.4569 ± 0.0055 |
| $\Omega_c h^2$ | 0.11613 | 0.1166 ± 0.0025 | $\sigma_8 \Omega_m^{0.25}$ | 0.5840 | 0.586 ± 0.015 | $H(0.15)$ | 74.25 | 74.0 ± 1.0 |
| $100\theta_{MC}$ | 1.04143 | 1.04139 ± 0.00053 | $\sigma_8/h^{0.5}$ | 0.9556 | 0.958 ± 0.020 | $D_M(0.15)$ | 628.1 | 630.4 ± 9.8 |
| τ | 0.0519 | $0.0500^{+0.0087}_{-0.0074}$ | $r_{drag}h$ | 102.21 | 101.8 ± 2.0 | $H(0.38)$ | 84.01 | $83.84^{+0.72}_{-0.80}$ |
| A_L | 1.263 | 1.243 ± 0.096 | $\langle d^2 \rangle^{1/2}$ | 2.656 | 2.640 ± 0.077 | $D_M(0.38)$ | 1502.8 | 1507 ± 20 |
| $\ln(10^{10} A_s)$ | 3.0300 | $3.027^{+0.018}_{-0.016}$ | z_{re} | 7.30 | $7.11^{+0.93}_{-0.71}$ | $H(0.51)$ | 90.52 | $90.39^{+0.57}_{-0.65}$ |
| n_s | 0.9769 | 0.9741 ± 0.0071 | $10^9 A_s$ | 2.0697 | $2.064^{+0.038}_{-0.033}$ | $D_M(0.51)$ | 1949.9 | 1955 ± 23 |
| y_{cal} | 0.99986 | 1.0000 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8656 | 1.867 ± 0.014 | $H(0.61)$ | 95.99 | $95.88^{+0.46}_{-0.54}$ |
| A_{217}^{CIB} | 42.5 | 45 ± 7 | D_{40} | 1203.3 | 1209 ± 17 | $D_M(0.61)$ | 2271.5 | 2277 ± 25 |
| $\xi^{tSZ \times CIB}$ | 0.999 | > 0.417 | D_{220} | 5737.0 | 5736 ± 42 | $H(2.33)$ | 234.39 | 234.6 ± 1.4 |
| A_{143}^{tSZ} | 6.83 | $5.6^{+2.1}_{-1.8}$ | D_{810} | 2527.7 | 2527 ± 14 | $D_M(2.33)$ | 5733.4 | 5739^{+23}_{-21} |
| A_{100}^{PS} | 238.2 | 250 ± 30 | D_{1420} | 815.8 | 814.3 ± 5.1 | $f\sigma_8(0.15)$ | 0.4351 | 0.437 ± 0.015 |
| A_{143}^{PS} | 48.5 | 42 ± 8 | D_{2000} | 233.15 | 232.3 ± 2.0 | $\sigma_8(0.15)$ | 0.7364 | $0.7361^{+0.0096}_{-0.0086}$ |
| $A_{143 \times 217}^{PS}$ | 56.6 | 41 ± 9 | $n_{s,0.002}$ | 0.9769 | 0.9741 ± 0.0071 | $f\sigma_8(0.38)$ | 0.4575 | 0.459 ± 0.012 |
| A_{217}^{PS} | 123.0 | 115 ± 10 | Y_P | 0.245516 | $0.24549^{+0.00010}_{-0.00012}$ | $\sigma_8(0.38)$ | 0.6550 | $0.6543^{+0.0075}_{-0.0066}$ |
| A^{kSZ} | 0.00 | < 3.28 | Y_P^{BBN} | 0.246843 | $0.24681^{+0.00010}_{-0.00012}$ | $f\sigma_8(0.51)$ | 0.4584 | 0.459 ± 0.011 |
| A_{100}^{dustTT} | 8.91 | 8.9 ± 1.8 | $10^5 D/H$ | 2.527 | 2.544 ± 0.052 | $\sigma_8(0.51)$ | 0.6139 | $0.6131^{+0.0067}_{-0.0058}$ |
| A_{143}^{dustTT} | 10.60 | 10.5 ± 1.8 | Age/Gyr | 13.7323 | $13.745^{+0.051}_{-0.046}$ | $f\sigma_8(0.61)$ | 0.4552 | 0.4559 ± 0.0094 |
| $A_{143 \times 217}^{dustTT}$ | 19.58 | 17.9 ± 3.3 | z_* | 1089.18 | 1089.34 ± 0.52 | $\sigma_8(0.61)$ | 0.5847 | $0.5838^{+0.0062}_{-0.0053}$ |
| A_{217}^{dustTT} | 95.6 | 93.6 ± 7.3 | r_* | 145.19 | 145.13 ± 0.52 | $f\sigma_8(2.33)$ | 0.29562 | $0.2951^{+0.0029}_{-0.0025}$ |
| c_{100} | 0.99973 | 0.99962 ± 0.00062 | $100\theta_*$ | 1.04157 | 1.04156 ± 0.00051 | $\sigma_8(2.33)$ | 0.30570 | $0.3050^{+0.0029}_{-0.0025}$ |
| c_{217} | 0.99813 | 0.99817 ± 0.00063 | $D_M(z_*)/\text{Gpc}$ | 13.9391 | 13.934 ± 0.048 | f_{2000}^{143} | 25.13 | 27 ± 3 |
| H_0 | 69.18 | 68.9 ± 1.2 | z_{drag} | 1060.43 | 1060.23 ± 0.56 | $f_{2000}^{143 \times 217}$ | 29.23 | 30.0 ± 2.4 |
| Ω_Λ | 0.7085 | 0.705 ± 0.015 | r_{drag} | 147.75 | 147.73 ± 0.50 | f_{2000}^{217} | 103.90 | 105.0 ± 2.2 |
| Ω_m | 0.2915 | 0.295 ± 0.015 | k_D | 0.14041 | 0.14037 ± 0.00052 | χ_{small}^2 | 395.66 | 396.8 ± 1.6 |
| $\Omega_m h^2$ | 0.13947 | 0.1399 ± 0.0023 | $100\theta_D$ | 0.160513 | 0.16063 ± 0.00030 | χ_{lowl}^2 | 21.34 | 21.8 ± 1.1 |
| $\Omega_m h^3$ | 0.09648 | 0.09638 ± 0.00050 | z_{eq} | 3318 | 3328 ± 55 | χ_{plik}^2 | 752.9 | 767.3 ± 5.6 |
| σ_8 | 0.7948 | 0.795 ± 0.011 | k_{eq} | 0.010126 | 0.01016 ± 0.00017 | χ_{prior}^2 | 0.97 | 7.1 ± 3.5 |
| S_8 | 0.7834 | 0.788 ± 0.029 | $100\theta_{eq}$ | 0.8301 | 0.828 ± 0.011 | χ_{CMB}^2 | 1169.9 | 1186.0 ± 5.8 |

Best-fit $\chi_{eff}^2 = 1170.89$; $\Delta\chi_{eff}^2 = -8.69$; $\bar{\chi}_{eff}^2 = 1193.04$; $\Delta\bar{\chi}_{eff}^2 = -6.54$; $R - 1 = 0.00760$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.66 (Δ -0.21) commander_dx12_v3_2_29: 21.34 (Δ -2.26) plik_rd12_HM_v22_TT: 752.92 (Δ -5.83)

3.2 base_Alens_plikHM_TT_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022567 | 0.02249 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.9675 | 0.967 ± 0.013 | $D_M(0.38)$ | 1515.3 | 1517 ± 10 |
| $\Omega_c h^2$ | 0.11772 | 0.1179 ± 0.0013 | $r_{\text{drag}} h$ | 100.91 | 100.8 ± 1.0 | $H(0.51)$ | 90.149 | 90.08 ± 0.33 |
| $100\theta_{\text{MC}}$ | 1.041226 | 1.04122 ± 0.00043 | $\langle d^2 \rangle^{1/2}$ | 2.652 | 2.630 ± 0.076 | $D_M(0.51)$ | 1964.6 | 1967 ± 12 |
| τ | 0.0507 | $0.0492^{+0.0086}_{-0.0072}$ | z_{re} | 7.24 | $7.07^{+0.93}_{-0.71}$ | $H(0.61)$ | 95.690 | 95.62 ± 0.28 |
| A_L | 1.231 | 1.211 ± 0.078 | $10^9 A_s$ | 2.0732 | $2.066^{+0.037}_{-0.032}$ | $D_M(0.61)$ | 2287.5 | 2290 ± 13 |
| $\ln(10^{10} A_s)$ | 3.0317 | $3.028^{+0.018}_{-0.015}$ | $10^9 A_s e^{-2\tau}$ | 1.8731 | 1.872 ± 0.011 | $H(2.33)$ | 235.28 | 235.31 ± 0.79 |
| n_s | 0.97299 | 0.9709 ± 0.0044 | D_{40} | 1211.7 | 1215 ± 13 | $D_M(2.33)$ | 5745.9 | 5749 ± 14 |
| y_{cal} | 0.999996 | 0.99998 ± 0.0025 | D_{220} | 5730.6 | 5730 ± 40 | $f\sigma_8(0.15)$ | 0.4444 | 0.4445 ± 0.0084 |
| A_{217}^{CIB} | 42.8 | 45 ± 7 | D_{810} | 2530.5 | 2528 ± 14 | $\sigma_8(0.15)$ | 0.7405 | $0.7392^{+0.0078}_{-0.0067}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.999 | > 0.406 | D_{1420} | 815.53 | 813.8 ± 5.0 | $f\sigma_8(0.38)$ | 0.4648 | 0.4646 ± 0.0072 |
| A_{143}^{tSZ} | 6.67 | $5.6^{+2.1}_{-1.8}$ | D_{2000} | 232.70 | 231.7 ± 1.8 | $\sigma_8(0.38)$ | 0.6576 | $0.6563^{+0.0065}_{-0.0055}$ |
| A_{100}^{PS} | 239.7 | 251 ± 30 | $n_{s,0.002}$ | 0.97299 | 0.9709 ± 0.0044 | $f\sigma_8(0.51)$ | 0.4647 | 0.4643 ± 0.0065 |
| A_{143}^{PS} | 50.3 | 43 ± 8 | Y_{P} | 0.245468 | 0.245441 ± 0.000086 | $\sigma_8(0.51)$ | 0.6159 | $0.6146^{+0.0060}_{-0.0051}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 57.4 | 42 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246795 | 0.246767 ± 0.000087 | $f\sigma_8(0.61)$ | 0.4606 | 0.4602 ± 0.0060 |
| A_{217}^{PS} | 123.5 | 115 ± 10 | $10^5 D/H$ | 2.5502 | 2.564 ± 0.040 | $\sigma_8(0.61)$ | 0.5863 | $0.5851^{+0.0057}_{-0.0048}$ |
| A^{kSZ} | 0.00 | < 3.44 | Age/Gyr | 13.7589 | 13.767 ± 0.031 | $f\sigma_8(2.33)$ | 0.29604 | $0.2954^{+0.0028}_{-0.0024}$ |
| A_{100}^{dustTT} | 8.85 | 8.9 ± 1.8 | z_* | 1089.476 | 1089.58 ± 0.33 | $\sigma_8(2.33)$ | 0.30567 | $0.3049^{+0.0028}_{-0.0024}$ |
| A_{143}^{dustTT} | 10.67 | 10.5 ± 1.8 | r_* | 144.872 | 144.89 ± 0.32 | f_{2000}^{143} | 25.87 | 27 ± 3 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.73 | 18.0 ± 3.2 | $100\theta_*$ | 1.041387 | 1.04139 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 29.80 | 30.5 ± 2.2 |
| A_{217}^{dustTT} | 95.9 | 93.7 ± 7.2 | $D_M(z_*)/\text{Gpc}$ | 13.9115 | 13.913 ± 0.031 | f_{2000}^{217} | 104.42 | 105.5 ± 2.0 |
| c_{100} | 0.99966 | 0.99961 ± 0.00061 | z_{drag} | 1060.238 | 1060.07 ± 0.48 | χ_{simall}^2 | 395.68 | 396.8 ± 1.6 |
| c_{217} | 0.99814 | 0.99819 ± 0.00064 | r_{drag} | 147.477 | 147.52 ± 0.34 | χ_{lowl}^2 | 21.89 | 22.23 ± 0.80 |
| H_0 | 68.43 | 68.31 ± 0.60 | k_{D} | 0.140607 | 0.14051 ± 0.00045 | χ_{plik}^2 | 752.7 | 766.3 ± 5.3 |
| Ω_{Λ} | 0.6990 | 0.6977 ± 0.0076 | $100\theta_{\text{D}}$ | 0.160609 | 0.16071 ± 0.00027 | $\chi_{6\text{DF}}^2$ | 0.0076 | 0.046 ± 0.066 |
| Ω_{m} | 0.3010 | 0.3023 ± 0.0076 | z_{eq} | 3352.4 | 3354 ± 29 | χ_{MGS}^2 | 1.97 | 1.95 ± 0.64 |
| $\Omega_{\text{m}} h^2$ | 0.14093 | 0.1410 ± 0.0012 | k_{eq} | 0.010232 | 0.010238 ± 0.000089 | χ_{DR12BAO}^2 | 3.382 | 4.05 ± 0.96 |
| $\Omega_{\text{m}} h^3$ | 0.096432 | 0.09632 ± 0.00049 | $100\theta_{\text{eq}}$ | 0.8231 | 0.8226 ± 0.0055 | χ_{prior}^2 | 1.02 | 7.1 ± 3.5 |
| σ_8 | 0.8003 | $0.7990^{+0.0088}_{-0.0076}$ | $100\theta_{s,\text{eq}}$ | 0.45435 | 0.4541 ± 0.0028 | χ_{BAO}^2 | 5.35 | 6.0 ± 1.2 |
| S_8 | 0.8016 | 0.802 ± 0.016 | $H(0.15)$ | 73.60 | 73.50 ± 0.52 | χ_{CMB}^2 | 1170.2 | 1185.3 ± 5.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4391 | 0.4393 ± 0.0088 | $D_M(0.15)$ | 634.32 | 635.3 ± 5.0 | | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.5928 | 0.5924 ± 0.0088 | $H(0.38)$ | 83.533 | 83.45 ± 0.40 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1176.61$; $\Delta\chi_{\text{eff}}^2 = -9.14$; $\bar{\chi}_{\text{eff}}^2 = 1198.50$; $\Delta\bar{\chi}_{\text{eff}}^2 = -7.53$; $R - 1 = 0.01593$
 χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.01) MGS: 1.97 (Δ 0.69) DR12BAO: 3.38 (Δ -0.80) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.68 (Δ -0.21) commander_dx12_v3_2_29: 21.89 (Δ -0.93) plik_rd12_HM_v22_TT: 752.66 (Δ -7.44)

3.3 base_Alens_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02261 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.433 ± 0.016 | $100\theta_{s,eq}$ | 0.4571 ± 0.0056 |
| $\Omega_c h^2$ | 0.1166 ± 0.0025 | $\sigma_8 \Omega_m^{0.25}$ | 0.587 ± 0.014 | $H(0.15)$ | 74.1 ± 1.0 |
| $100\theta_{MC}$ | 1.04141 ± 0.00053 | $\sigma_8/h^{0.5}$ | 0.960 ± 0.020 | $D_M(0.15)$ | 630.1 ± 9.9 |
| τ | $0.0533^{+0.0038}_{-0.0077}$ | $r_{drag}h$ | 101.9 ± 2.0 | $H(0.38)$ | $83.86^{+0.72}_{-0.81}$ |
| A_L | $1.236^{+0.089}_{-0.10}$ | $\langle d^2 \rangle^{1/2}$ | 2.640 ± 0.077 | $D_M(0.38)$ | 1507 ± 20 |
| $\ln(10^{10} A_s)$ | $3.033^{+0.011}_{-0.015}$ | z_{re} | $7.46^{+0.38}_{-0.81}$ | $H(0.51)$ | $90.40^{+0.58}_{-0.66}$ |
| n_s | 0.9744 ± 0.0071 | $10^9 A_s$ | $2.077^{+0.023}_{-0.032}$ | $D_M(0.51)$ | 1955 ± 24 |
| y_{cal} | 1.0000 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.867 ± 0.014 | $H(0.61)$ | $95.89^{+0.46}_{-0.54}$ |
| A_{217}^{CIB} | 45 ± 7 | D_{40} | 1209 ± 17 | $D_M(0.61)$ | 2277 ± 26 |
| $\xi^{tSZ \times CIB}$ | > 0.418 | D_{220} | 5736 ± 42 | $H(2.33)$ | 234.6 ± 1.4 |
| A_{143}^{tSZ} | $5.6^{+2.1}_{-1.8}$ | D_{810} | 2527 ± 14 | $D_M(2.33)$ | 5738^{+24}_{-21} |
| A_{100}^{PS} | 250 ± 30 | D_{1420} | 814.4 ± 5.0 | $f\sigma_8(0.15)$ | 0.438 ± 0.015 |
| A_{143}^{PS} | 42 ± 8 | D_{2000} | 232.3 ± 2.0 | $\sigma_8(0.15)$ | 0.7383 ± 0.0083 |
| $A_{143 \times 217}^{PS}$ | 41 ± 9 | $n_{s,0.002}$ | 0.9744 ± 0.0071 | $f\sigma_8(0.38)$ | 0.460 ± 0.012 |
| A_{217}^{PS} | 114.9 ± 9.9 | Y_P | $0.24549^{+0.00010}_{-0.00012}$ | $\sigma_8(0.38)$ | 0.6563 ± 0.0061 |
| A^{kSZ} | < 3.26 | Y_P^{BBN} | $0.24681^{+0.00010}_{-0.00012}$ | $f\sigma_8(0.51)$ | 0.461 ± 0.010 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $10^5 D/H$ | 2.543 ± 0.052 | $\sigma_8(0.51)$ | 0.6150 ± 0.0053 |
| A_{143}^{dustTT} | 10.5 ± 1.8 | Age/Gyr | $13.743^{+0.052}_{-0.046}$ | $f\sigma_8(0.61)$ | 0.4571 ± 0.0092 |
| $A_{143 \times 217}^{dustTT}$ | 17.9 ± 3.3 | z_* | 1089.33 ± 0.53 | $\sigma_8(0.61)$ | 0.5857 ± 0.0048 |
| A_{217}^{dustTT} | 93.7 ± 7.3 | r_* | 145.14 ± 0.53 | $f\sigma_8(2.33)$ | $0.2960^{+0.0019}_{-0.0023}$ |
| c_{100} | 0.99962 ± 0.00061 | $100\theta_*$ | 1.04157 ± 0.00051 | $\sigma_8(2.33)$ | $0.3060^{+0.0017}_{-0.0024}$ |
| c_{217} | 0.99818 ± 0.00063 | $D_M(z_*)/Gpc$ | 13.935 ± 0.048 | f_{2000}^{143} | 27 ± 3 |
| H_0 | 69.0 ± 1.2 | z_{drag} | 1060.24 ± 0.56 | $f_{2000}^{143 \times 217}$ | 29.9 ± 2.4 |
| Ω_Λ | 0.705 ± 0.015 | r_{drag} | 147.74 ± 0.51 | f_{2000}^{217} | 105.0 ± 2.2 |
| Ω_m | 0.295 ± 0.015 | k_D | 0.14036 ± 0.00052 | χ_{simall}^2 | 396.4 ± 1.1 |
| $\Omega_m h^2$ | 0.1398 ± 0.0023 | $100\theta_D$ | 0.16063 ± 0.00030 | χ_{lowl}^2 | 21.9 ± 1.1 |
| $\Omega_m h^3$ | 0.09638 ± 0.00050 | z_{eq} | 3326 ± 55 | χ_{plik}^2 | 767.3 ± 5.6 |
| σ_8 | 0.797 ± 0.010 | k_{eq} | 0.01015 ± 0.00017 | χ_{prior}^2 | 7.1 ± 3.5 |
| S_8 | 0.790 ± 0.029 | $100\theta_{eq}$ | 0.828 ± 0.011 | χ_{CMB}^2 | 1185.5 ± 5.7 |

$\bar{\chi}_{eff}^2 = 1192.62$; $\Delta\bar{\chi}_{eff}^2 = -6.69$; $R - 1 = 0.00588$

3.4 base_Alens_plikHM_TT_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02249 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.970 ± 0.011 | $D_M(0.38)$ | 1517 ± 10 |
| $\Omega_c h^2$ | 0.1179 ± 0.0013 | $r_{\text{drag}} h$ | 100.8 ± 1.0 | $H(0.51)$ | 90.08 ± 0.33 |
| $100\theta_{\text{MC}}$ | 1.04122 ± 0.00043 | $\langle d^2 \rangle^{1/2}$ | 2.629 ± 0.076 | $D_M(0.51)$ | 1967 ± 12 |
| τ | $0.0526^{+0.0038}_{-0.0072}$ | z_{re} | $7.44^{+0.36}_{-0.80}$ | $H(0.61)$ | 95.63 ± 0.28 |
| A_L | 1.202 ± 0.076 | $10^9 A_s$ | $2.080^{+0.021}_{-0.030}$ | $D_M(0.61)$ | 2290 ± 13 |
| $\ln(10^{10} A_s)$ | $3.035^{+0.010}_{-0.015}$ | $10^9 A_s e^{-2\tau}$ | 1.872 ± 0.011 | $H(2.33)$ | 235.30 ± 0.79 |
| n_s | 0.9710 ± 0.0044 | D_{40} | 1216 ± 13 | $D_M(2.33)$ | 5749 ± 14 |
| y_{cal} | 0.99999 ± 0.0025 | D_{220} | 5729 ± 40 | $f\sigma_8(0.15)$ | 0.4460 ± 0.0079 |
| A_{217}^{CIB} | 45 ± 7 | D_{810} | 2528 ± 14 | $\sigma_8(0.15)$ | $0.7418^{+0.0054}_{-0.0063}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | > 0.408 | D_{1420} | 813.9 ± 4.9 | $f\sigma_8(0.38)$ | 0.4662 ± 0.0066 |
| A_{143}^{tSZ} | $5.6^{+2.1}_{-1.8}$ | D_{2000} | 231.8 ± 1.8 | $\sigma_8(0.38)$ | $0.6585^{+0.0043}_{-0.0053}$ |
| A_{100}^{PS} | 251 ± 30 | $n_{s,0.002}$ | 0.9710 ± 0.0044 | $f\sigma_8(0.51)$ | 0.4659 ± 0.0058 |
| A_{143}^{PS} | 43 ± 8 | Y_{P} | 0.245440 ± 0.000086 | $\sigma_8(0.51)$ | $0.6167^{+0.0038}_{-0.0048}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246767 ± 0.000086 | $f\sigma_8(0.61)$ | 0.4617 ± 0.0052 |
| A_{217}^{PS} | 115 ± 10 | $10^5 D/H$ | 2.564 ± 0.040 | $\sigma_8(0.61)$ | $0.5871^{+0.0035}_{-0.0045}$ |
| A^{kSZ} | < 3.40 | Age/Gyr | 13.767 ± 0.031 | $f\sigma_8(2.33)$ | $0.2964^{+0.0017}_{-0.0023}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | z_* | 1089.58 ± 0.33 | $\sigma_8(2.33)$ | $0.3060^{+0.0017}_{-0.0023}$ |
| A_{143}^{dustTT} | 10.5 ± 1.8 | r_* | 144.89 ± 0.32 | f_{2000}^{143} | 27 ± 3 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.0 ± 3.2 | $100\theta_*$ | 1.04140 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 30.5 ± 2.2 |
| A_{217}^{dustTT} | 93.8 ± 7.2 | $D_M(z_*)/\text{Gpc}$ | 13.913 ± 0.031 | f_{2000}^{217} | 105.4 ± 2.0 |
| c_{100} | 0.99960 ± 0.00061 | z_{drag} | 1060.07 ± 0.48 | χ_{small}^2 | 396.4 ± 1.1 |
| c_{217} | 0.99819 ± 0.00064 | r_{drag} | 147.52 ± 0.34 | χ_{lowl}^2 | 22.29 ± 0.80 |
| H_0 | 68.32 ± 0.60 | k_{D} | 0.14050 ± 0.00045 | χ_{plik}^2 | 766.2 ± 5.3 |
| Ω_{Λ} | 0.6978 ± 0.0076 | $100\theta_{\text{D}}$ | 0.16071 ± 0.00027 | $\chi_{6\text{DF}}^2$ | 0.046 ± 0.067 |
| Ω_{m} | 0.3022 ± 0.0076 | z_{eq} | 3354 ± 29 | χ_{MGS}^2 | 1.96 ± 0.64 |
| $\Omega_{\text{m}} h^2$ | 0.1410 ± 0.0012 | k_{eq} | 0.010237 ± 0.000089 | χ_{DR12BAO}^2 | 4.04 ± 0.96 |
| $\Omega_{\text{m}} h^3$ | 0.09632 ± 0.00048 | $100\theta_{\text{eq}}$ | 0.8226 ± 0.0055 | χ_{prior}^2 | 7.2 ± 3.6 |
| σ_8 | 0.8017 ± 0.0069 | $100\theta_{\text{s,eq}}$ | 0.4542 ± 0.0028 | χ_{BAO}^2 | 6.0 ± 1.2 |
| S_8 | 0.805 ± 0.015 | $H(0.15)$ | 73.50 ± 0.52 | χ_{CMB}^2 | 1184.9 ± 5.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4407 ± 0.0084 | $D_M(0.15)$ | 635.3 ± 5.0 | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.5944 ± 0.0080 | $H(0.38)$ | 83.45 ± 0.39 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1198.08; \Delta \bar{\chi}_{\text{eff}}^2 = -7.68; R - 1 = 0.01471$$

3.5 base_Alens_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022631 | 0.02259 ± 0.00017 | $\Omega_m h^2$ | 0.14113 | 0.1413 ± 0.0014 | k_{eq} | 0.010247 | 0.01026 ± 0.00011 |
| $\Omega_c h^2$ | 0.11786 | 0.1181 ± 0.0016 | $\Omega_m h^3$ | 0.096556 | 0.09650 ± 0.00030 | $100\theta_{\text{eq}}$ | 0.8224 | 0.8214 ± 0.0067 |
| $100\theta_{\text{MC}}$ | 1.041184 | 1.04114 ± 0.00032 | σ_8 | 0.8010 | 0.7997 ± 0.0090 | $100\theta_{\text{s,eq}}$ | 0.45392 | 0.4534 ± 0.0034 |
| τ | 0.0511 | $0.0492^{+0.0088}_{-0.0073}$ | S_8 | 0.8030 | 0.804 ± 0.019 | $H(0.15)$ | 73.60 | 73.48 ± 0.62 |
| A_L | 1.191 | 1.180 ± 0.065 | $\sigma_8 \Omega_m^{0.5}$ | 0.4398 | 0.440 ± 0.011 | $D_M(0.15)$ | 634.4 | 635.6 ± 6.0 |
| $\ln(10^{10} A_s)$ | 3.0331 | $3.029^{+0.018}_{-0.015}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.5935 | 0.593 ± 0.010 | $H(0.38)$ | 83.545 | 83.46 ± 0.45 |
| n_s | 0.97286 | 0.9708 ± 0.0048 | $\sigma_8/h^{0.5}$ | 0.9683 | 0.968 ± 0.014 | $D_M(0.38)$ | 1515.3 | 1518 ± 12 |
| y_{cal} | 0.99999 | 1.0000 ± 0.0024 | $r_{\text{drag}} h$ | 100.82 | 100.6 ± 1.2 | $H(0.51)$ | 90.168 | 90.10 ± 0.36 |
| A_{217}^{CIB} | 42.2 | 45 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.612 | 2.600 ± 0.058 | $D_M(0.51)$ | 1964.6 | 1967 ± 14 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.999 | > 0.436 | z_{re} | 7.27 | $7.05^{+0.95}_{-0.71}$ | $H(0.61)$ | 95.716 | 95.66 ± 0.29 |
| A_{143}^{tSZ} | 6.93 | $5.8^{+2.0}_{-1.8}$ | $10^9 A_s$ | 2.0761 | $2.068^{+0.037}_{-0.032}$ | $D_M(0.61)$ | 2287.3 | 2290 ± 15 |
| A_{100}^{PS} | 237.2 | 249 ± 30 | $10^9 A_s e^{-2\tau}$ | 1.8743 | 1.874 ± 0.012 | $H(2.33)$ | 235.43 | 235.55 ± 0.91 |
| A_{143}^{PS} | 49.1 | 42 ± 8 | D_{40} | 1212.9 | 1217 ± 13 | $D_M(2.33)$ | 5744.0 | 5747 ± 13 |
| $A_{143 \times 217}^{\text{PS}}$ | 57.2 | 42^{+10}_{-9} | D_{220} | 5737.3 | 5739 ± 38 | $f\sigma_8(0.15)$ | 0.4451 | 0.4456 ± 0.0099 |
| A_{217}^{PS} | 124.1 | 116.2 ± 9.9 | D_{810} | 2533.2 | 2531 ± 13 | $\sigma_8(0.15)$ | 0.7411 | 0.7398 ± 0.0078 |
| A^{kSZ} | 0.00 | < 3.04 | D_{1420} | 817.03 | 815.6 ± 4.7 | $f\sigma_8(0.38)$ | 0.4655 | 0.4654 ± 0.0083 |
| A_{100}^{dustTT} | 8.72 | 8.8 ± 1.8 | D_{2000} | 232.94 | 232.2 ± 1.6 | $\sigma_8(0.38)$ | 0.6580 | 0.6566 ± 0.0064 |
| A_{143}^{dustTT} | 10.68 | 10.6 ± 1.8 | $n_{\text{s},0.002}$ | 0.97286 | 0.9708 ± 0.0048 | $f\sigma_8(0.51)$ | 0.4652 | 0.4650 ± 0.0073 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.80 | 18.1 ± 3.2 | Y_{P} | 0.245491 | 0.245477 ± 0.000066 | $\sigma_8(0.51)$ | 0.6163 | $0.6149^{+0.0060}_{-0.0052}$ |
| A_{217}^{dustTT} | 95.7 | 93.7 ± 7.2 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246818 | 0.246804 ± 0.000067 | $f\sigma_8(0.61)$ | 0.4611 | 0.4608 ± 0.0067 |
| A_{100}^{dustTE} | 0.1125 | 0.114 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.5389 | 2.546 ± 0.031 | $\sigma_8(0.61)$ | 0.5867 | $0.5853^{+0.0056}_{-0.0049}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1348 | 0.134 ± 0.030 | Age/Gyr | 13.7542 | 13.761 ± 0.028 | $f\sigma_8(2.33)$ | 0.29620 | $0.2954^{+0.0027}_{-0.0024}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 | 0.479 ± 0.085 | z_* | 1089.410 | 1089.48 ± 0.32 | $\sigma_8(2.33)$ | 0.30582 | $0.3050^{+0.0028}_{-0.0024}$ |
| A_{143}^{dustTE} | 0.224 | 0.222 ± 0.054 | r_* | 144.787 | 144.76 ± 0.33 | f_{2000}^{143} | 25.45 | 26.7 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.659 | 0.661 ± 0.080 | $100\theta_*$ | 1.041338 | 1.04130 ± 0.00032 | $f_{2000}^{143 \times 217}$ | 29.48 | 29.9 ± 2.0 |
| A_{217}^{dustTE} | 2.051 | 2.05 ± 0.27 | $D_M(z_*)/\text{Gpc}$ | 13.9039 | 13.902 ± 0.031 | f_{2000}^{217} | 104.23 | 105.0 ± 1.9 |
| c_{100} | 0.99976 | 0.99969 ± 0.00061 | z_{drag} | 1060.390 | 1060.30 ± 0.33 | χ_{small}^2 | 395.67 | 396.9 ± 1.6 |
| c_{217} | 0.99810 | 0.99812 ± 0.00062 | r_{drag} | 147.369 | 147.35 ± 0.32 | χ_{lowl}^2 | 21.96 | 22.32 ± 0.89 |
| H_0 | 68.42 | 68.28 ± 0.72 | k_{D} | 0.140770 | 0.14076 ± 0.00033 | χ_{plik}^2 | 2337.1 | 2353.8 ± 5.7 |
| Ω_Λ | 0.6985 | 0.6967 ± 0.0094 | $100\theta_{\text{D}}$ | 0.160510 | 0.16056 ± 0.00019 | χ_{prior}^2 | 1.38 | 11.3 ± 4.4 |
| Ω_{m} | 0.3015 | 0.3033 ± 0.0094 | z_{eq} | 3357.2 | 3362 ± 35 | χ_{CMB}^2 | 2754.7 | 2773.0 ± 6.0 |

Best-fit $\chi_{\text{eff}}^2 = 2756.11$; $\Delta\chi_{\text{eff}}^2 = -9.66$; $\bar{\chi}_{\text{eff}}^2 = 2784.27$; $\Delta\bar{\chi}_{\text{eff}}^2 = -7.49$; $R - 1 = 0.01070$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.67 (Δ -0.38) commander_dx12_v3.2.29: 21.96 (Δ -1.30) plik_rd12_HM_v22b_TTTEEE: 2337.11 (Δ -7.54)

3.6 base_Alens_plikHM_TTTEEE_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022617 | 0.02258 ± 0.00015 | σ_8 | 0.8011 | 0.8000 ± 0.0081 | $D_M(0.15)$ | 635.07 | 635.9 ± 4.1 |
| $\Omega_c h^2$ | 0.11802 | 0.1182 ± 0.0011 | S_8 | 0.8046 | 0.805 ± 0.014 | $H(0.38)$ | 83.492 | 83.43 ± 0.32 |
| $100\theta_{MC}$ | 1.041150 | 1.04113 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.4407 | 0.4410 ± 0.0078 | $D_M(0.38)$ | 1516.7 | 1518.5 ± 8.4 |
| τ | 0.0507 | $0.0491^{+0.0089}_{-0.0074}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.5942 | 0.5940 ± 0.0079 | $H(0.51)$ | 90.126 | 90.07 ± 0.26 |
| A_L | 1.185 | 1.177 ± 0.060 | $\sigma_8/h^{0.5}$ | 0.9691 | 0.969 ± 0.012 | $D_M(0.51)$ | 1966.2 | 1968.3 ± 9.9 |
| $\ln(10^{10} A_s)$ | 3.0325 | $3.029^{+0.018}_{-0.016}$ | $r_{drag} h$ | 100.68 | 100.53 ± 0.84 | $H(0.61)$ | 95.682 | 95.64 ± 0.21 |
| n_s | 0.97216 | 0.9705 ± 0.0039 | $\langle d^2 \rangle^{1/2}$ | 2.607 | 2.599 ± 0.058 | $D_M(0.61)$ | 2289.1 | 2291 ± 11 |
| y_{cal} | 0.99994 | 1.0000 ± 0.0025 | z_{re} | 7.23 | $7.04^{+0.96}_{-0.72}$ | $H(2.33)$ | 235.52 | 235.60 ± 0.64 |
| A_{217}^{CIB} | 42.4 | 45 ± 7 | $10^9 A_s$ | 2.0749 | $2.068^{+0.038}_{-0.033}$ | $D_M(2.33)$ | 5745.5 | 5747.7 ± 9.9 |
| $\xi^{tSZ \times CIB}$ | 0.997 | > 0.440 | $10^9 A_s e^{-2\tau}$ | 1.8747 | 1.875 ± 0.011 | $f\sigma_8(0.15)$ | 0.4459 | 0.4461 ± 0.0074 |
| A_{143}^{tSZ} | 6.86 | $5.8^{+2.1}_{-1.8}$ | D_{40} | 1214.3 | 1217 ± 12 | $\sigma_8(0.15)$ | 0.7412 | 0.7400 ± 0.0073 |
| A_{100}^{PS} | 237.9 | 249 ± 30 | D_{220} | 5737.3 | 5738 ± 38 | $f\sigma_8(0.38)$ | 0.4660 | 0.4659 ± 0.0064 |
| A_{143}^{PS} | 49.8 | 42 ± 8 | D_{810} | 2533.0 | 2531 ± 13 | $\sigma_8(0.38)$ | 0.6580 | $0.6568^{+0.0063}_{-0.0056}$ |
| $A_{143 \times 217}^{PS}$ | 57.6 | 42^{+10}_{-9} | D_{1420} | 816.75 | 815.5 ± 4.7 | $f\sigma_8(0.51)$ | 0.4657 | 0.4654 ± 0.0059 |
| A_{217}^{PS} | 124.3 | 116.3 ± 9.9 | D_{2000} | 232.76 | 232.2 ± 1.6 | $\sigma_8(0.51)$ | 0.6161 | $0.6150^{+0.0059}_{-0.0051}$ |
| A^{kSZ} | 0.00 | < 3.11 | $n_{s,0.002}$ | 0.97216 | 0.9705 ± 0.0039 | $f\sigma_8(0.61)$ | 0.4615 | 0.4611 ± 0.0055 |
| A_{100}^{dustTT} | 8.76 | 8.8 ± 1.8 | Y_P | 0.245486 | 0.245473 ± 0.000056 | $\sigma_8(0.61)$ | 0.5865 | $0.5854^{+0.0055}_{-0.0048}$ |
| A_{143}^{dustTT} | 10.62 | 10.6 ± 1.8 | Y_P^{BBN} | 0.246813 | 0.246800 ± 0.000057 | $f\sigma_8(2.33)$ | 0.29608 | $0.2955^{+0.0028}_{-0.0024}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.71 | 18.1 ± 3.2 | $10^5 D/H$ | 2.5414 | 2.548 ± 0.027 | $\sigma_8(2.33)$ | 0.30565 | $0.3050^{+0.0028}_{-0.0024}$ |
| A_{217}^{dustTT} | 95.4 | 93.7 ± 7.2 | Age/Gyr | 13.7574 | 13.763 ± 0.022 | f_{2000}^{143} | 25.75 | 26.7 ± 2.8 |
| A_{100}^{dustTE} | 0.1146 | 0.114 ± 0.039 | z_* | 1089.441 | 1089.50 ± 0.24 | $f_{2000}^{143 \times 217}$ | 29.74 | 30.0 ± 2.0 |
| $A_{100 \times 143}^{dustTE}$ | 0.1336 | 0.135 ± 0.030 | r_* | 144.755 | 144.74 ± 0.24 | f_{2000}^{217} | 104.44 | 105.1 ± 1.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.480 | 0.479 ± 0.086 | $100\theta_*$ | 1.041305 | 1.04129 ± 0.00029 | χ_{small}^2 | 395.67 | 396.9 ± 1.7 |
| A_{143}^{dustTE} | 0.220 | 0.222 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.9013 | 13.900 ± 0.023 | χ_{lowl}^2 | 22.06 | 22.34 ± 0.75 |
| $A_{143 \times 217}^{dustTE}$ | 0.659 | 0.660 ± 0.080 | z_{drag} | 1060.352 | 1060.29 ± 0.31 | χ_{plik}^2 | 2337.1 | 2353.2 ± 5.6 |
| A_{217}^{dustTE} | 2.048 | 2.06 ± 0.27 | r_{drag} | 147.342 | 147.34 ± 0.25 | χ_{6DF}^2 | 0.0016 | 0.030 ± 0.043 |
| c_{100} | 0.99975 | 0.99969 ± 0.00060 | k_D | 0.140789 | 0.14076 ± 0.00029 | χ_{MGS}^2 | 1.82 | 1.79 ± 0.52 |
| c_{217} | 0.99814 | 0.99813 ± 0.00063 | $100\theta_D$ | 0.160519 | 0.16056 ± 0.00018 | $\chi_{DR12BAO}^2$ | 3.428 | 3.95 ± 0.79 |
| H_0 | 68.333 | 68.23 ± 0.49 | z_{eq} | 3360.8 | 3364 ± 24 | χ_{prior}^2 | 1.30 | 11.3 ± 4.4 |
| Ω_Λ | 0.6974 | 0.6962 ± 0.0064 | k_{eq} | 0.010258 | 0.010268 ± 0.000073 | χ_{BAO}^2 | 5.249 | 5.77 ± 0.76 |
| Ω_m | 0.3026 | 0.3038 ± 0.0064 | $100\theta_{eq}$ | 0.82163 | 0.8209 ± 0.0046 | χ_{CMB}^2 | 2754.9 | 2772.4 ± 5.8 |
| $\Omega_m h^2$ | 0.14128 | 0.1414 ± 0.0010 | $100\theta_{s,eq}$ | 0.45355 | 0.4532 ± 0.0024 | | | |
| $\Omega_m h^3$ | 0.096543 | 0.09649 ± 0.00030 | $H(0.15)$ | 73.525 | 73.44 ± 0.43 | | | |

Best-fit $\chi_{eff}^2 = 2761.40$; $\Delta\chi_{eff}^2 = -10.51$; $\bar{\chi}_{eff}^2 = 2789.54$; $\Delta\bar{\chi}_{eff}^2 = -8.37$; $R - 1 = 0.01310$
 χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.03) MGS: 1.82 (Δ 0.60) DR12BAO: 3.43 (Δ -0.99) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.67 (Δ -0.54) commander_dx12_v3_2_29: 22.06 (Δ -0.81) plik_rd12_HM_v22b_TTTEEE: 2337.12 (Δ -8.38)

3.7 base_Alens_plikHM_TTTEEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02259 ± 0.00017 | $\Omega_m h^2$ | 0.1413 ± 0.0014 | k_{eq} | 0.01026 ± 0.00011 |
| $\Omega_c h^2$ | 0.1181 ± 0.0016 | $\Omega_m h^3$ | 0.09650 ± 0.00030 | $100\theta_{\text{eq}}$ | 0.8215 ± 0.0067 |
| $100\theta_{\text{MC}}$ | 1.04114 ± 0.00032 | σ_8 | $0.8023^{+0.0071}_{-0.0079}$ | $100\theta_{\text{s,eq}}$ | 0.4535 ± 0.0034 |
| τ | $0.0527^{+0.0034}_{-0.0076}$ | S_8 | 0.806 ± 0.019 | $H(0.15)$ | 73.49 ± 0.62 |
| A_L | 1.173 ± 0.064 | $\sigma_8 \Omega_m^{0.5}$ | 0.442 ± 0.010 | $D_M(0.15)$ | 635.5 ± 6.0 |
| $\ln(10^{10} A_s)$ | $3.036^{+0.010}_{-0.015}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.5953 ± 0.0095 | $H(0.38)$ | 83.46 ± 0.46 |
| n_s | 0.9709 ± 0.0048 | $\sigma_8/h^{0.5}$ | 0.971 ± 0.013 | $D_M(0.38)$ | 1518 ± 12 |
| y_{cal} | 1.0000 ± 0.0024 | $r_{\text{drag}} h$ | 100.6 ± 1.2 | $H(0.51)$ | 90.10 ± 0.36 |
| A_{217}^{CIB} | 45 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.601 ± 0.059 | $D_M(0.51)$ | 1967 ± 14 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | > 0.432 | z_{re} | $7.43^{+0.31}_{-0.84}$ | $H(0.61)$ | 95.66 ± 0.29 |
| A_{143}^{tSZ} | $5.8^{+2.0}_{-1.8}$ | $10^9 A_s$ | $2.082^{+0.021}_{-0.032}$ | $D_M(0.61)$ | 2290 ± 15 |
| A_{100}^{PS} | 249 ± 28 | $10^9 A_s e^{-2\tau}$ | 1.874 ± 0.012 | $H(2.33)$ | 235.53 ± 0.91 |
| A_{143}^{PS} | 42 ± 8 | D_{40} | 1217 ± 13 | $D_M(2.33)$ | 5747 ± 13 |
| $A_{143 \times 217}^{\text{PS}}$ | 42^{+10}_{-9} | D_{220} | 5739 ± 38 | $f\sigma_8(0.15)$ | 0.4469 ± 0.0096 |
| A_{217}^{PS} | 116.1 ± 9.9 | D_{810} | 2531 ± 13 | $\sigma_8(0.15)$ | $0.7422^{+0.0059}_{-0.0068}$ |
| A^{kSZ} | < 3.03 | D_{1420} | 815.5 ± 4.7 | $f\sigma_8(0.38)$ | 0.4669 ± 0.0078 |
| A_{100}^{dustTT} | 8.8 ± 1.8 | D_{2000} | 232.2 ± 1.6 | $\sigma_8(0.38)$ | $0.6588^{+0.0044}_{-0.0055}$ |
| A_{143}^{dustTT} | 10.6 ± 1.8 | $n_{\text{s},0.002}$ | 0.9709 ± 0.0048 | $f\sigma_8(0.51)$ | 0.4665 ± 0.0068 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.1 ± 3.3 | Y_{P} | 0.245477 ± 0.000067 | $\sigma_8(0.51)$ | $0.6170^{+0.0039}_{-0.0050}$ |
| A_{217}^{dustTT} | 93.7 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246804 ± 0.000067 | $f\sigma_8(0.61)$ | 0.4622 ± 0.0061 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | 10^5D/H | 2.546 ± 0.031 | $\sigma_8(0.61)$ | $0.5873^{+0.0035}_{-0.0047}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.030 | Age/Gyr | 13.760 ± 0.029 | $f\sigma_8(2.33)$ | $0.2965^{+0.0016}_{-0.0023}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.086 | z_* | 1089.48 ± 0.32 | $\sigma_8(2.33)$ | $0.3060^{+0.0016}_{-0.0023}$ |
| A_{143}^{dustTE} | 0.221 ± 0.054 | r_* | 144.76 ± 0.33 | f_{2000}^{143} | 26.7 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.660 ± 0.080 | $100\theta_*$ | 1.04130 ± 0.00032 | $f_{2000}^{143 \times 217}$ | 29.9 ± 2.0 |
| A_{217}^{dustTE} | 2.05 ± 0.27 | $D_M(z_*)/\text{Gpc}$ | 13.902 ± 0.031 | f_{2000}^{217} | 105.0 ± 1.9 |
| c_{100} | 0.99968 ± 0.00061 | z_{drag} | 1060.30 ± 0.33 | χ_{small}^2 | 396.4 ± 1.1 |
| c_{217} | 0.99812 ± 0.00063 | r_{drag} | 147.36 ± 0.32 | χ_{lowl}^2 | 22.38 ± 0.90 |
| H_0 | 68.29 ± 0.72 | k_{D} | 0.14075 ± 0.00033 | χ_{plik}^2 | 2353.8 ± 5.7 |
| Ω_Λ | 0.6969 ± 0.0094 | $100\theta_{\text{D}}$ | 0.16056 ± 0.00019 | χ_{prior}^2 | 11.3 ± 4.4 |
| Ω_{m} | 0.3031 ± 0.0094 | z_{eq} | 3361 ± 35 | χ_{CMB}^2 | 2772.6 ± 5.8 |

$$\bar{\chi}_{\text{eff}}^2 = 2783.87; \Delta \bar{\chi}_{\text{eff}}^2 = -7.66; R - 1 = 0.01066$$

3.8 base_Alens_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02258 ± 0.00015 | σ_8 | $0.8028^{+0.0059}_{-0.0069}$ | $D_M(0.15)$ | 635.9 ± 4.2 |
| $\Omega_c h^2$ | 0.1182 ± 0.0011 | S_8 | 0.808 ± 0.013 | $H(0.38)$ | 83.43 ± 0.32 |
| $100\theta_{MC}$ | 1.04113 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.4425 ± 0.0073 | $D_M(0.38)$ | 1518.4 ± 8.4 |
| τ | $0.0527^{+0.0035}_{-0.0076}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.5960 ± 0.0071 | $H(0.51)$ | 90.07 ± 0.26 |
| A_L | 1.170 ± 0.058 | $\sigma_8/h^{0.5}$ | 0.972 ± 0.010 | $D_M(0.51)$ | 1968.2 ± 9.9 |
| $\ln(10^{10} A_s)$ | $3.036^{+0.010}_{-0.015}$ | $r_{\text{drag}} h$ | 100.54 ± 0.85 | $H(0.61)$ | 95.64 ± 0.21 |
| n_s | 0.9706 ± 0.0039 | $\langle d^2 \rangle^{1/2}$ | 2.600 ± 0.058 | $D_M(0.61)$ | 2291 ± 11 |
| y_{cal} | 1.0000 ± 0.0025 | z_{re} | $7.43^{+0.29}_{-0.87}$ | $H(2.33)$ | 235.60 ± 0.64 |
| A_{217}^{CIB} | 44 ± 7 | $10^9 A_s$ | $2.083^{+0.021}_{-0.031}$ | $D_M(2.33)$ | 5747.6 ± 9.9 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | > 0.434 | $10^9 A_s e^{-2\tau}$ | 1.874 ± 0.011 | $f\sigma_8(0.15)$ | 0.4476 ± 0.0069 |
| A_{143}^{tSZ} | $5.8^{+2.1}_{-1.7}$ | D_{40} | 1218 ± 12 | $\sigma_8(0.15)$ | $0.7426^{+0.0050}_{-0.0061}$ |
| A_{100}^{PS} | 250 ± 28 | D_{220} | 5738 ± 38 | $f\sigma_8(0.38)$ | 0.4675 ± 0.0058 |
| A_{143}^{PS} | 42 ± 8 | D_{810} | 2531 ± 13 | $\sigma_8(0.38)$ | $0.6591^{+0.0040}_{-0.0052}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42^{+10}_{-9} | D_{1420} | 815.5 ± 4.7 | $f\sigma_8(0.51)$ | 0.4670 ± 0.0052 |
| A_{217}^{PS} | 116.4 ± 9.9 | D_{2000} | 232.2 ± 1.6 | $\sigma_8(0.51)$ | $0.6172^{+0.0036}_{-0.0048}$ |
| A^{kSZ} | < 3.06 | $n_{s,0.002}$ | 0.9706 ± 0.0039 | $f\sigma_8(0.61)$ | 0.4627 ± 0.0047 |
| A_{100}^{dustTT} | 8.8 ± 1.9 | Y_P | 0.245473 ± 0.000056 | $\sigma_8(0.61)$ | $0.5875^{+0.0033}_{-0.0046}$ |
| A_{143}^{dustTT} | 10.6 ± 1.8 | Y_P^{BBN} | 0.246800 ± 0.000056 | $f\sigma_8(2.33)$ | $0.2965^{+0.0016}_{-0.0023}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.2 ± 3.3 | $10^5 D/H$ | 2.548 ± 0.026 | $\sigma_8(2.33)$ | $0.3060^{+0.0016}_{-0.0023}$ |
| A_{217}^{dustTT} | 93.8 ± 7.3 | Age/Gyr | 13.762 ± 0.022 | f_{2000}^{143} | 26.7 ± 2.9 |
| A_{100}^{dustTE} | 0.114 ± 0.039 | z_* | 1089.50 ± 0.24 | $f_{2000}^{143 \times 217}$ | 30.0 ± 2.0 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | r_* | 144.74 ± 0.24 | f_{2000}^{217} | 105.1 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 ± 0.086 | $100\theta_*$ | 1.04129 ± 0.00029 | χ_{small}^2 | 396.4 ± 1.1 |
| A_{143}^{dustTE} | 0.221 ± 0.053 | $D_M(z_*)/\text{Gpc}$ | 13.900 ± 0.023 | χ_{lowl}^2 | 22.40 ± 0.75 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.659 ± 0.080 | z_{drag} | 1060.29 ± 0.31 | χ_{plik}^2 | 2353.2 ± 5.5 |
| A_{217}^{dustTE} | 2.06 ± 0.27 | r_{drag} | 147.34 ± 0.25 | $\chi_{6\text{DF}}^2$ | 0.030 ± 0.043 |
| c_{100} | 0.99969 ± 0.00061 | k_D | 0.14076 ± 0.00029 | χ_{MGS}^2 | 1.79 ± 0.52 |
| c_{217} | 0.99812 ± 0.00063 | $100\theta_D$ | 0.16056 ± 0.00018 | χ_{DR12BAO}^2 | 3.95 ± 0.79 |
| H_0 | 68.24 ± 0.50 | z_{eq} | 3364 ± 24 | χ_{prior}^2 | 11.3 ± 4.4 |
| Ω_Λ | 0.6962 ± 0.0064 | k_{eq} | 0.010267 ± 0.000073 | χ_{BAO}^2 | 5.78 ± 0.76 |
| Ω_m | 0.3038 ± 0.0064 | $100\theta_{\text{eq}}$ | 0.8210 ± 0.0046 | χ_{CMB}^2 | 2772.0 ± 5.7 |
| $\Omega_m h^2$ | 0.1414 ± 0.0010 | $100\theta_{s,\text{eq}}$ | 0.4532 ± 0.0024 | | |
| $\Omega_m h^3$ | 0.09649 ± 0.00030 | $H(0.15)$ | 73.44 ± 0.43 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2789.13; \Delta\bar{\chi}_{\text{eff}}^2 = -8.59; R - 1 = 0.01550$$

3.9 base_Alens_plikHM_TT_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022431 | 0.02239 ± 0.00026 | $\sigma_8 \Omega_m^{0.25}$ | 0.5884 | 0.589 ± 0.014 | $D_M(0.15)$ | 632.9 | 634.2 ± 9.3 |
| $\Omega_c h^2$ | 0.11690 | 0.1172 ± 0.0024 | $\sigma_8/h^{0.5}$ | 0.9620 | 0.963 ± 0.019 | $H(0.38)$ | 83.59 | 83.50 ± 0.71 |
| $100\theta_{MC}$ | 1.04121 | 1.04119 ± 0.00051 | $r_{drag}h$ | 101.43 | 101.2 ± 1.9 | $D_M(0.38)$ | 1512.8 | 1515 ± 19 |
| τ | 0.0509 | $0.0496^{+0.0086}_{-0.0075}$ | $\langle d^2 \rangle^{1/2}$ | 2.4768 | 2.479 ± 0.031 | $H(0.51)$ | 90.16 | 90.09 ± 0.57 |
| A_L | 1.084 | 1.082 ± 0.052 | z_{re} | 7.27 | $7.13^{+0.92}_{-0.73}$ | $D_M(0.51)$ | 1962.0 | 1965 ± 22 |
| $\ln(10^{10} A_s)$ | 3.0285 | $3.027^{+0.018}_{-0.016}$ | $10^9 A_s$ | 2.0665 | $2.063^{+0.037}_{-0.033}$ | $H(0.61)$ | 95.661 | 95.61 ± 0.46 |
| n_s | 0.9733 | 0.9710 ± 0.0068 | $10^9 A_s e^{-2\tau}$ | 1.8666 | 1.868 ± 0.015 | $D_M(0.61)$ | 2284.8 | 2288 ± 24 |
| y_{cal} | 0.99984 | 1.0001 ± 0.0025 | D_{40} | 1208.2 | 1214 ± 17 | $H(2.33)$ | 234.60 | 234.8 ± 1.4 |
| A_{217}^{CIB} | 46.7 | 47 ± 7 | D_{220} | 5719.1 | 5725 ± 41 | $D_M(2.33)$ | 5749.6 | 5752 ± 20 |
| $\xi^{tSZ \times CIB}$ | 0.54 | — | D_{810} | 2530.3 | 2530 ± 14 | $f\sigma_8(0.15)$ | 0.4401 | 0.441 ± 0.014 |
| A_{143}^{tSZ} | 7.01 | 5.3 ± 2.0 | D_{1420} | 815.9 | 814.6 ± 5.1 | $\sigma_8(0.15)$ | 0.7377 | 0.7371 ± 0.0089 |
| A_{100}^{PS} | 248.8 | 260 ± 28 | D_{2000} | 231.12 | 230.5 ± 1.9 | $f\sigma_8(0.38)$ | 0.4613 | 0.462 ± 0.012 |
| A_{143}^{PS} | 48.8 | 46 ± 8 | $n_{s,0.002}$ | 0.9733 | 0.9710 ± 0.0068 | $\sigma_8(0.38)$ | 0.6554 | 0.6547 ± 0.0069 |
| $A_{143 \times 217}^{PS}$ | 50.1 | 42 ± 9 | Y_P | 0.245419 | 0.24540 ± 0.00010 | $f\sigma_8(0.51)$ | 0.4615 | 0.462 ± 0.010 |
| A_{217}^{PS} | 120.0 | 114 ± 10 | Y_P^{BBN} | 0.246746 | 0.24672 ± 0.00010 | $\sigma_8(0.51)$ | 0.6140 | 0.6133 ± 0.0061 |
| A^{kSZ} | 0.01 | < 4.50 | $10^5 D/H$ | 2.5742 | 2.583 ± 0.047 | $f\sigma_8(0.61)$ | 0.4578 | 0.4580 ± 0.0089 |
| A_{100}^{dustTT} | 8.94 | 9.0 ± 1.8 | Age/Gyr | 13.7690 | 13.775 ± 0.045 | $\sigma_8(0.61)$ | 0.5847 | 0.5839 ± 0.0057 |
| A_{143}^{dustTT} | 10.81 | 10.8 ± 1.8 | z_* | 1089.571 | 1089.65 ± 0.48 | $f\sigma_8(2.33)$ | 0.29536 | $0.2949^{+0.0027}_{-0.0025}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.52 | 18.3 ± 3.3 | r_* | 145.19 | 145.15 ± 0.51 | $\sigma_8(2.33)$ | 0.30515 | 0.3046 ± 0.0027 |
| A_{217}^{dustTT} | 94.9 | 93.4 ± 7.4 | $100\theta_*$ | 1.04140 | 1.04138 ± 0.00050 | f_{2000}^{143} | 28.45 | 29.7 ± 3.0 |
| c_{100} | 0.99966 | 0.99960 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.9421 | 13.938 ± 0.047 | $f_{2000}^{143 \times 217}$ | 31.77 | 32.3 ± 2.2 |
| c_{217} | 0.99823 | 0.99823 ± 0.00062 | z_{drag} | 1059.856 | 1059.78 ± 0.50 | f_{2000}^{217} | 106.17 | 106.9 ± 2.0 |
| H_0 | 68.61 | 68.5 ± 1.1 | r_{drag} | 147.850 | 147.82 ± 0.50 | $\chi_{lensing}^2$ | 9.31 | 10.1 ± 2.0 |
| Ω_Λ | 0.7026 | $0.700^{+0.015}_{-0.014}$ | k_D | 0.14011 | 0.14011 ± 0.00051 | χ_{simall}^2 | 395.67 | 396.8 ± 1.5 |
| Ω_m | 0.2974 | $0.300^{+0.014}_{-0.015}$ | $100\theta_D$ | 0.160821 | 0.16087 ± 0.00028 | χ_{lowl}^2 | 21.74 | 22.2 ± 1.2 |
| $\Omega_m h^2$ | 0.13997 | 0.1402 ± 0.0022 | z_{eq} | 3329 | 3336 ± 53 | χ_{plik}^2 | 757.8 | 770.4 ± 5.5 |
| $\Omega_m h^3$ | 0.096030 | 0.09599 ± 0.00046 | k_{eq} | 0.010162 | 0.01018 ± 0.00016 | χ_{prior}^2 | 1.29 | 7.3 ± 3.7 |
| σ_8 | 0.7968 | 0.796 ± 0.011 | $100\theta_{eq}$ | 0.8269 | 0.826 ± 0.010 | χ_{CMB}^2 | 1184.5 | 1199.5 ± 5.6 |
| S_8 | 0.7933 | 0.796 ± 0.028 | $100\theta_{s,eq}$ | 0.4565 | 0.4559 ± 0.0053 | | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4345 | 0.436 ± 0.015 | $H(0.15)$ | 73.73 | 73.61 ± 0.96 | | | |

Best-fit $\chi_{eff}^2 = 1185.80$; $\Delta\chi_{eff}^2 = -2.77$; $\bar{\chi}_{eff}^2 = 1206.83$; $\Delta\bar{\chi}_{eff}^2 = -1.59$; $R - 1 = 0.00595$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 9.31 (Δ 0.41) simall_100x143_offlike5_EE_Aplanck_B: 395.67 (Δ -0.20) commander_dx12_v3.2_29: 21.74 (Δ -1.49) plik_rd12_HM_v22_TT: 757.79 (Δ -1.53)

3.10 base_Alens_plikHM_TT_lowl_lowE_lensing_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022366 | 0.02233 ± 0.00021 | $\sigma_8/h^{0.5}$ | 0.9689 | 0.968 ± 0.013 | $D_M(0.38)$ | 1520.0 | 1521 ± 10 |
| $\Omega_c h^2$ | 0.11787 | 0.1179 ± 0.0013 | $r_{\text{drag}} h$ | 100.67 | 100.6 ± 1.0 | $H(0.51)$ | 89.954 | 89.92 ± 0.32 |
| $100\theta_{\text{MC}}$ | 1.041140 | 1.04110 ± 0.00043 | $\langle d^2 \rangle^{1/2}$ | 2.4776 | 2.478 ± 0.031 | $D_M(0.51)$ | 1970.3 | 1971 ± 12 |
| τ | 0.0504 | $0.0492^{+0.0086}_{-0.0075}$ | z_{re} | 7.24 | $7.11^{+0.94}_{-0.74}$ | $H(0.61)$ | 95.505 | 95.48 ± 0.27 |
| A_L | 1.0696 | 1.070 ± 0.040 | $10^9 A_s$ | 2.0692 | 2.065 ± 0.036 | $D_M(0.61)$ | 2293.8 | 2295 ± 13 |
| $\ln(10^{10} A_s)$ | 3.0297 | $3.027^{+0.018}_{-0.016}$ | $10^9 A_s e^{-2\tau}$ | 1.8709 | 1.871 ± 0.012 | $H(2.33)$ | 235.17 | 235.14 ± 0.79 |
| n_s | 0.97035 | 0.9692 ± 0.0045 | D_{40} | 1214.8 | 1217 ± 13 | $D_M(2.33)$ | 5755.9 | 5758 ± 13 |
| y_{cal} | 0.99995 | 1.0001 ± 0.0025 | D_{220} | 5718.8 | 5722 ± 41 | $f\sigma_8(0.15)$ | 0.4456 | 0.4452 ± 0.0083 |
| A_{217}^{CIB} | 48.4 | 47 ± 7 | D_{810} | 2531.3 | 2530 ± 14 | $\sigma_8(0.15)$ | 0.7401 | 0.7390 ± 0.0074 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.28 | — | D_{1420} | 815.29 | 814.3 ± 5.0 | $f\sigma_8(0.38)$ | 0.4656 | 0.4650 ± 0.0071 |
| A_{143}^{tSZ} | 7.11 | 5.2 ± 2.0 | D_{2000} | 230.72 | 230.3 ± 1.7 | $\sigma_8(0.38)$ | 0.6569 | 0.6559 ± 0.0062 |
| A_{100}^{PS} | 252.3 | 261 ± 28 | $n_{s,0.002}$ | 0.97035 | 0.9692 ± 0.0045 | $f\sigma_8(0.51)$ | 0.4652 | 0.4646 ± 0.0064 |
| A_{143}^{PS} | 46.0 | 47 ± 8 | Y_{P} | 0.245394 | $0.245377^{+0.000086}_{-0.000076}$ | $\sigma_8(0.51)$ | 0.6152 | 0.6142 ± 0.0057 |
| $A_{143 \times 217}^{\text{PS}}$ | 43.9 | 42 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246721 | $0.246704^{+0.000086}_{-0.000077}$ | $f\sigma_8(0.61)$ | 0.4609 | 0.4603 ± 0.0059 |
| A_{217}^{PS} | 117.6 | 114 ± 10 | $10^5 D/H$ | 2.5862 | 2.593 ± 0.039 | $\sigma_8(0.61)$ | 0.5856 | 0.5846 ± 0.0054 |
| A^{kSZ} | 0.00 | < 4.61 | Age/Gyr | 13.7822 | 13.786 ± 0.030 | $f\sigma_8(2.33)$ | 0.29559 | 0.2951 ± 0.0027 |
| A_{100}^{dustTT} | 8.98 | 9.0 ± 1.9 | z_* | 1089.739 | 1089.78 ± 0.32 | $\sigma_8(2.33)$ | 0.30511 | 0.3046 ± 0.0028 |
| A_{143}^{dustTT} | 10.86 | 10.8 ± 1.8 | r_* | 144.988 | 145.01 ± 0.32 | f_{2000}^{143} | 29.14 | 30.1 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.27 | 18.3 ± 3.3 | $100\theta_*$ | 1.041322 | 1.04129 ± 0.00043 | $f_{2000}^{143 \times 217}$ | 32.18 | 32.6 ± 2.0 |
| A_{217}^{dustTT} | 94.5 | 93.4 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.9235 | 13.926 ± 0.031 | f_{2000}^{217} | 106.71 | 107.2 ± 1.9 |
| c_{100} | 0.99963 | 0.99959 ± 0.00062 | z_{drag} | 1059.780 | 1059.70 ± 0.46 | χ_{lensing}^2 | 9.42 | 10.1 ± 2.0 |
| c_{217} | 0.99825 | 0.99824 ± 0.00062 | r_{drag} | 147.662 | 147.70 ± 0.34 | χ_{small}^2 | 395.68 | 396.8 ± 1.6 |
| H_0 | 68.18 | 68.14 ± 0.60 | k_{D} | 0.140263 | 0.14020 ± 0.00043 | χ_{lowl}^2 | 22.20 | 22.43 ± 0.87 |
| Ω_Λ | 0.6969 | 0.6965 ± 0.0077 | $100\theta_{\text{D}}$ | 0.160865 | 0.16091 ± 0.00026 | χ_{plik}^2 | 757.2 | 769.6 ± 5.4 |
| Ω_{m} | 0.3031 | 0.3035 ± 0.0077 | z_{eq} | 3351.1 | 3350 ± 29 | $\chi_{6\text{DF}}^2$ | 0.0015 | 0.044 ± 0.062 |
| $\Omega_{\text{m}} h^2$ | 0.14088 | 0.1409 ± 0.0012 | k_{eq} | 0.010228 | 0.010226 ± 0.000089 | χ_{MGS}^2 | 1.82 | 1.87 ± 0.63 |
| $\Omega_{\text{m}} h^3$ | 0.096047 | 0.09597 ± 0.00046 | $100\theta_{\text{eq}}$ | 0.8227 | 0.8227 ± 0.0056 | χ_{DR12BAO}^2 | 3.395 | 4.1 ± 1.0 |
| σ_8 | 0.8000 | 0.7988 ± 0.0083 | $100\theta_{s,\text{eq}}$ | 0.45430 | 0.4543 ± 0.0029 | χ_{prior}^2 | 1.47 | 7.4 ± 3.7 |
| S_8 | 0.8041 | 0.803 ± 0.016 | $H(0.15)$ | 73.37 | 73.33 ± 0.52 | χ_{CMB}^2 | 1184.5 | 1199.0 ± 5.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4404 | 0.4400 ± 0.0088 | $D_M(0.15)$ | 636.5 | 636.8 ± 5.0 | χ_{BAO}^2 | 5.22 | 6.0 ± 1.1 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.5936 | 0.5929 ± 0.0087 | $H(0.38)$ | 83.326 | 83.29 ± 0.39 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1191.14$; $\Delta\chi_{\text{eff}}^2 = -3.55$; $\bar{\chi}_{\text{eff}}^2 = 1212.35$; $\Delta\bar{\chi}_{\text{eff}}^2 = -2.38$; $R - 1 = 0.01232$
 χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.03) MGS: 1.82 (Δ 0.60) DR12BAO: 3.40 (Δ -0.98) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 9.42 (Δ 0.54) small_100x143_offlike5_EE_Aplanck: 395.68 (Δ -0.42) commander_dx12_v3.2_29: 22.20 (Δ -0.76) plik_rd12_HM_v22_TT: 757.15 (Δ -2.65)

3.11 base_Alens_plikHM_TT_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02239 ± 0.00026 | $\sigma_8 \Omega_m^{0.25}$ | 0.591 ± 0.014 | $D_M(0.15)$ | 633.9 ± 9.3 |
| $\Omega_c h^2$ | 0.1171 ± 0.0024 | $\sigma_8 / h^{0.5}$ | 0.965 ± 0.019 | $H(0.38)$ | 83.52 ± 0.71 |
| $100\theta_{MC}$ | 1.04120 ± 0.00052 | $r_{drag} h$ | 101.3 ± 1.9 | $D_M(0.38)$ | 1515 ± 19 |
| τ | $0.0528^{+0.0039}_{-0.0076}$ | $\langle d^2 \rangle^{1/2}$ | 2.479 ± 0.032 | $H(0.51)$ | 90.11 ± 0.57 |
| A_L | 1.076 ± 0.051 | z_{re} | $7.47^{+0.39}_{-0.81}$ | $D_M(0.51)$ | 1964 ± 22 |
| $\ln(10^{10} A_s)$ | $3.033^{+0.011}_{-0.015}$ | $10^9 A_s$ | $2.076^{+0.023}_{-0.031}$ | $H(0.61)$ | 95.62 ± 0.46 |
| n_s | 0.9712 ± 0.0068 | $10^9 A_s e^{-2\tau}$ | 1.868 ± 0.015 | $D_M(0.61)$ | 2287 ± 24 |
| y_{cal} | 1.0001 ± 0.0025 | D_{40} | 1214 ± 17 | $H(2.33)$ | 234.7 ± 1.4 |
| A_{217}^{CIB} | 47 ± 7 | D_{220} | 5725 ± 41 | $D_M(2.33)$ | 5752 ± 20 |
| $\xi^{tSZ \times CIB}$ | — | D_{810} | 2529 ± 14 | $f\sigma_8(0.15)$ | 0.442 ± 0.014 |
| A_{143}^{tSZ} | 5.3 ± 2.0 | D_{1420} | 814.6 ± 5.1 | $\sigma_8(0.15)$ | 0.7393 ± 0.0080 |
| A_{100}^{PS} | 259 ± 28 | D_{2000} | 230.6 ± 1.9 | $f\sigma_8(0.38)$ | 0.463 ± 0.011 |
| A_{143}^{PS} | 46 ± 8 | $n_{s,0.002}$ | 0.9712 ± 0.0068 | $\sigma_8(0.38)$ | 0.6567 ± 0.0059 |
| $A_{143 \times 217}^{PS}$ | 42 ± 9 | Y_P | 0.24540 ± 0.00010 | $f\sigma_8(0.51)$ | 0.4631 ± 0.0098 |
| A_{217}^{PS} | 114 ± 10 | Y_P^{BBN} | 0.24673 ± 0.00010 | $\sigma_8(0.51)$ | $0.6151^{+0.0048}_{-0.0054}$ |
| A^{kSZ} | < 4.49 | $10^5 D/H$ | 2.582 ± 0.048 | $f\sigma_8(0.61)$ | 0.4592 ± 0.0087 |
| A_{100}^{dustTT} | 9.0 ± 1.8 | Age/Gyr | 13.774 ± 0.045 | $\sigma_8(0.61)$ | $0.5857^{+0.0043}_{-0.0049}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | z_* | 1089.64 ± 0.49 | $f\sigma_8(2.33)$ | $0.2958^{+0.0018}_{-0.0023}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.3 ± 3.3 | r_* | 145.16 ± 0.51 | $\sigma_8(2.33)$ | $0.3056^{+0.0017}_{-0.0024}$ |
| A_{217}^{dustTT} | 93.4 ± 7.4 | $100\theta_*$ | 1.04139 ± 0.00050 | f_{2000}^{143} | 29.7 ± 3.1 |
| c_{100} | 0.99960 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.939 ± 0.047 | $f_{2000}^{143 \times 217}$ | 32.3 ± 2.2 |
| c_{217} | 0.99823 ± 0.00062 | z_{drag} | 1059.78 ± 0.50 | f_{2000}^{217} | 106.9 ± 2.0 |
| H_0 | 68.5 ± 1.1 | r_{drag} | 147.83 ± 0.49 | $\chi_{lensing}^2$ | 10.1 ± 2.0 |
| Ω_Λ | $0.701^{+0.015}_{-0.013}$ | k_D | 0.14010 ± 0.00050 | χ_{simall}^2 | 396.4 ± 1.1 |
| Ω_m | $0.299^{+0.013}_{-0.015}$ | $100\theta_D$ | 0.16087 ± 0.00028 | χ_{lowl}^2 | 22.3 ± 1.2 |
| $\Omega_m h^2$ | 0.1402 ± 0.0022 | z_{eq} | 3334 ± 53 | χ_{plik}^2 | 770.4 ± 5.6 |
| $\Omega_m h^3$ | 0.09599 ± 0.00046 | k_{eq} | 0.01018 ± 0.00016 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.7987 ± 0.0099 | $100\theta_{eq}$ | 0.826 ± 0.010 | χ_{CMB}^2 | 1199.2 ± 5.6 |
| S_8 | 0.798 ± 0.028 | $100\theta_{s,eq}$ | 0.4560 ± 0.0053 | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.437 ± 0.015 | $H(0.15)$ | 73.64 ± 0.97 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1206.48; \Delta\bar{\chi}_{\text{eff}}^2 = -1.68; R - 1 = 0.00707$$

3.12 base_Alens_plikHM_TT_lowl_lowE_lensing_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02233 ± 0.00021 | $\sigma_8/h^{0.5}$ | 0.971 ± 0.011 | $D_M(0.38)$ | 1521 ± 10 |
| $\Omega_c h^2$ | 0.1178 ± 0.0013 | $r_{\text{drag}} h$ | 100.7 ± 1.0 | $H(0.51)$ | 89.93 ± 0.32 |
| $100\theta_{\text{MC}}$ | 1.04110 ± 0.00043 | $\langle d^2 \rangle^{1/2}$ | 2.477 ± 0.032 | $D_M(0.51)$ | 1971 ± 12 |
| τ | $0.0526^{+0.0038}_{-0.0074}$ | z_{re} | $7.47^{+0.37}_{-0.81}$ | $H(0.61)$ | 95.48 ± 0.27 |
| A_L | 1.063 ± 0.037 | $10^9 A_s$ | $2.078^{+0.021}_{-0.031}$ | $D_M(0.61)$ | 2295 ± 13 |
| $\ln(10^{10} A_s)$ | $3.034^{+0.010}_{-0.015}$ | $10^9 A_s e^{-2\tau}$ | 1.871 ± 0.012 | $H(2.33)$ | 235.12 ± 0.79 |
| n_s | 0.9693 ± 0.0045 | D_{40} | 1218 ± 13 | $D_M(2.33)$ | 5758 ± 13 |
| y_{cal} | 1.0001 ± 0.0025 | D_{220} | 5722 ± 41 | $f\sigma_8(0.15)$ | 0.4465 ± 0.0080 |
| A_{217}^{CIB} | 47 ± 7 | D_{810} | 2530 ± 14 | $\sigma_8(0.15)$ | $0.7414^{+0.0054}_{-0.0065}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 814.3 ± 5.0 | $f\sigma_8(0.38)$ | 0.4665 ± 0.0066 |
| A_{143}^{tSZ} | 5.2 ± 2.0 | D_{2000} | 230.3 ± 1.7 | $\sigma_8(0.38)$ | $0.6581^{+0.0043}_{-0.0054}$ |
| A_{100}^{PS} | 261 ± 28 | $n_{s,0.002}$ | 0.9693 ± 0.0045 | $f\sigma_8(0.51)$ | 0.4661 ± 0.0058 |
| A_{143}^{PS} | 47 ± 8 | Y_P | $0.245377^{+0.000085}_{-0.000077}$ | $\sigma_8(0.51)$ | $0.6162^{+0.0038}_{-0.0049}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | Y_P^{BBN} | $0.246703^{+0.000086}_{-0.000077}$ | $f\sigma_8(0.61)$ | 0.4618 ± 0.0053 |
| A_{217}^{PS} | 114 ± 10 | $10^5 D/H$ | 2.593 ± 0.038 | $\sigma_8(0.61)$ | $0.5866^{+0.0035}_{-0.0047}$ |
| A^{kSZ} | < 4.54 | Age/Gyr | 13.786 ± 0.030 | $f\sigma_8(2.33)$ | $0.2961^{+0.0017}_{-0.0023}$ |
| A_{100}^{dustTT} | 9.0 ± 1.9 | z_* | 1089.78 ± 0.32 | $\sigma_8(2.33)$ | $0.3056^{+0.0017}_{-0.0023}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | r_* | 145.02 ± 0.31 | f_{2000}^{143} | 30.1 ± 3.0 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.4 | $100\theta_*$ | 1.04129 ± 0.00043 | $f_{2000}^{143 \times 217}$ | 32.5 ± 2.0 |
| A_{217}^{dustTT} | $93.5^{+7.8}_{-7.1}$ | $D_M(z_*)/\text{Gpc}$ | 13.927 ± 0.030 | f_{2000}^{217} | 107.2 ± 1.9 |
| c_{100} | 0.99959 ± 0.00062 | z_{drag} | 1059.69 ± 0.45 | χ_{lensing}^2 | 10.1 ± 2.0 |
| c_{217} | 0.99824 ± 0.00062 | r_{drag} | 147.71 ± 0.33 | χ_{simall}^2 | 396.4 ± 1.1 |
| H_0 | 68.15 ± 0.60 | k_D | 0.14019 ± 0.00043 | χ_{lowl}^2 | 22.50 ± 0.88 |
| Ω_Λ | 0.6967 ± 0.0077 | $100\theta_D$ | 0.16091 ± 0.00026 | χ_{plik}^2 | 769.6 ± 5.4 |
| Ω_m | 0.3033 ± 0.0077 | z_{eq} | 3350 ± 29 | $\chi_{6\text{DF}}^2$ | 0.045 ± 0.062 |
| $\Omega_m h^2$ | 0.1408 ± 0.0012 | k_{eq} | 0.010224 ± 0.000089 | χ_{MGS}^2 | 1.88 ± 0.63 |
| $\Omega_m h^3$ | 0.09596 ± 0.00045 | $100\theta_{\text{eq}}$ | 0.8228 ± 0.0056 | χ_{DR12BAO}^2 | 4.07 ± 0.99 |
| σ_8 | $0.8014^{+0.0064}_{-0.0074}$ | $100\theta_{s,\text{eq}}$ | 0.4544 ± 0.0029 | χ_{prior}^2 | 7.3 ± 3.8 |
| S_8 | 0.806 ± 0.016 | $H(0.15)$ | 73.34 ± 0.52 | χ_{CMB}^2 | 1198.7 ± 5.5 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4414 ± 0.0085 | $D_M(0.15)$ | 636.8 ± 5.0 | χ_{BAO}^2 | 6.0 ± 1.1 |
| $\sigma_8 \Omega_m^{0.25}$ | 0.5947 ± 0.0081 | $H(0.38)$ | 83.30 ± 0.39 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1212.01; \Delta\bar{\chi}_{\text{eff}}^2 = -2.57; R - 1 = 0.01863$$

3.13 base_Alens_plikHM_TTTEEE_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|-------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022553 | 0.02251 ± 0.00017 | $\Omega_m h^3$ | 0.096413 | 0.09637 ± 0.00029 | $100\theta_{s,eq}$ | 0.45361 | 0.4532 ± 0.0033 |
| $\Omega_c h^2$ | 0.11803 | 0.1182 ± 0.0015 | σ_8 | 0.8008 | 0.7999 ± 0.0086 | $H(0.15)$ | 73.46 | 73.37 ± 0.60 |
| $100\theta_{MC}$ | 1.041111 | 1.04110 ± 0.00032 | S_8 | 0.8049 | 0.806 ± 0.019 | $D_M(0.15)$ | 635.7 | 636.6 ± 5.9 |
| τ | 0.0506 | $0.0491^{+0.0086}_{-0.0076}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4409 | 0.441 ± 0.010 | $H(0.38)$ | 83.432 | 83.36 ± 0.44 |
| A_L | 1.0747 | $1.071^{+0.038}_{-0.042}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.5942 | 0.5941 ± 0.0097 | $D_M(0.38)$ | 1518.0 | 1520 ± 12 |
| $\ln(10^{10} A_s)$ | 3.0314 | $3.029^{+0.018}_{-0.016}$ | $\sigma_8/h^{0.5}$ | 0.9692 | 0.969 ± 0.014 | $H(0.51)$ | 90.068 | 90.01 ± 0.35 |
| n_s | 0.97176 | 0.9696 ± 0.0048 | $r_{drag} h$ | 100.63 | 100.5 ± 1.2 | $D_M(0.51)$ | 1967.8 | 1970 ± 14 |
| y_{cal} | 0.99996 | 1.0001 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4832 | 2.482 ± 0.030 | $H(0.61)$ | 95.626 | 95.58 ± 0.28 |
| A_{217}^{CIB} | 44.2 | 46 ± 7 | z_{re} | 7.23 | $7.06^{+0.93}_{-0.74}$ | $D_M(0.61)$ | 2290.9 | 2293 ± 15 |
| $\xi^{tSZ \times CIB}$ | 0.83 | — | $10^9 A_s$ | 2.0726 | 2.067 ± 0.036 | $H(2.33)$ | 235.46 | 235.56 ± 0.88 |
| A_{143}^{tSZ} | 7.00 | $5.6^{+2.1}_{-1.8}$ | $10^9 A_s e^{-2\tau}$ | 1.8733 | 1.874 ± 0.012 | $D_M(2.33)$ | 5748.6 | 5751 ± 13 |
| A_{100}^{PS} | 244.3 | 255 ± 28 | D_{40} | 1213.7 | 1219 ± 14 | $f\sigma_8(0.15)$ | 0.4461 | 0.4464 ± 0.0095 |
| A_{143}^{PS} | 50.3 | 44 ± 8 | D_{220} | 5730.1 | 5735 ± 39 | $\sigma_8(0.15)$ | 0.7408 | 0.7398 ± 0.0075 |
| $A_{143 \times 217}^{PS}$ | 55.3 | 42 ± 9 | D_{810} | 2535.0 | 2533 ± 14 | $f\sigma_8(0.38)$ | 0.4661 | 0.4661 ± 0.0079 |
| A_{217}^{PS} | 122.8 | 115 ± 10 | D_{1420} | 817.98 | 816.5 ± 4.8 | $\sigma_8(0.38)$ | 0.6576 | 0.6566 ± 0.0062 |
| A^{kSZ} | 0.01 | < 3.94 | D_{2000} | 232.01 | 231.3 ± 1.6 | $f\sigma_8(0.51)$ | 0.4657 | 0.4655 ± 0.0070 |
| A_{100}^{dustTT} | 8.82 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.97176 | 0.9696 ± 0.0048 | $\sigma_8(0.51)$ | 0.6158 | 0.6147 ± 0.0057 |
| A_{143}^{dustTT} | 11.02 | 10.9 ± 1.8 | Y_P | 0.245463 | 0.245449 ± 0.000064 | $f\sigma_8(0.61)$ | 0.4614 | 0.4611 ± 0.0064 |
| $A_{143 \times 217}^{dustTT}$ | 20.19 | 18.5 ± 3.3 | Y_P^{BBN} | 0.246790 | 0.246776 ± 0.000064 | $\sigma_8(0.61)$ | 0.5862 | 0.5851 ± 0.0053 |
| A_{217}^{dustTT} | 95.7 | 93.6 ± 7.3 | $10^5 D/H$ | 2.5526 | 2.560 ± 0.030 | $f\sigma_8(2.33)$ | 0.29590 | 0.2953 ± 0.0026 |
| A_{100}^{dustTE} | 0.1138 | 0.114 ± 0.038 | Age/Gyr | 13.7648 | 13.770 ± 0.028 | $\sigma_8(2.33)$ | 0.30543 | $0.3048^{+0.0027}_{-0.0025}$ |
| $A_{100 \times 143}^{dustTE}$ | 0.1343 | 0.135 ± 0.029 | z_* | 1089.519 | 1089.59 ± 0.31 | f_{2000}^{143} | 27.21 | 28.5 ± 2.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.480 | 0.480 ± 0.085 | r_* | 144.801 | 144.78 ± 0.32 | $f_{2000}^{143 \times 217}$ | 30.80 | 31.3 ± 1.9 |
| A_{143}^{dustTE} | 0.224 | 0.223 ± 0.053 | $100\theta_*$ | 1.041283 | 1.04128 ± 0.00031 | f_{2000}^{217} | 105.36 | 106.2 ± 1.8 |
| $A_{143 \times 217}^{dustTE}$ | 0.661 | 0.663 ± 0.080 | $D_M(z_*)/\text{Gpc}$ | 13.9060 | 13.904 ± 0.030 | $\chi^2_{lensing}$ | 10.18 | 10.5 ± 2.2 |
| A_{217}^{dustTE} | 2.059 | 2.06 ± 0.27 | z_{drag} | 1060.200 | 1060.14 ± 0.32 | χ^2_{small} | 395.66 | 396.8 ± 1.5 |
| c_{100} | 0.99974 | 0.99966 ± 0.00061 | r_{drag} | 147.411 | 147.40 ± 0.31 | χ^2_{lowl} | 22.06 | 22.46 ± 0.91 |
| c_{217} | 0.99815 | 0.99817 ± 0.00062 | k_D | 0.140669 | 0.14065 ± 0.00031 | χ^2_{plik} | 2341.8 | 2357.1 ± 6.0 |
| H_0 | 68.27 | 68.16 ± 0.70 | $100\theta_D$ | 0.160601 | 0.16065 ± 0.00018 | χ^2_{prior} | 1.45 | 11.5 ± 4.5 |
| Ω_Λ | 0.6969 | 0.6955 ± 0.0092 | z_{eq} | 3359.6 | 3364 ± 34 | χ^2_{CMB} | 2769.7 | 2786.9 ± 6.0 |
| Ω_m | 0.3031 | 0.3045 ± 0.0092 | k_{eq} | 0.010254 | 0.01027 ± 0.00010 | | | |
| $\Omega_m h^2$ | 0.14123 | 0.1414 ± 0.0014 | $100\theta_{eq}$ | 0.8217 | 0.8209 ± 0.0065 | | | |

Best-fit $\chi^2_{eff} = 2771.20$; $\Delta\chi^2_{eff} = -3.44$; $\bar{\chi}^2_{eff} = 2798.40$; $\Delta\bar{\chi}^2_{eff} = -2.29$; $R - 1 = 0.01801$
 χ^2_{eff} : CMB - smicadx12_Dec5_ftl_mv2_ndclpp-p.teb.consext8: 10.18 (Δ 1.31) small-100x143_offlike5_EE_Aplanck_B: 395.66 (Δ -0.39) commander_dx12_v3_2_29: 22.06 (Δ -1.20) plik_rd12_HM_v22b_TTTEEE: 2341.85 (Δ -3.08)

3.14 base_Alens_plikHM_TTTEE_lowl_lowE_lensing_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|-------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022543 | 0.02251 ± 0.00014 | σ_8 | 0.8002 | 0.8001 ± 0.0079 | $D_M(0.15)$ | 636.48 | 636.7 ± 4.1 |
| $\Omega_c h^2$ | 0.11826 | 0.1183 ± 0.0011 | S_8 | 0.8060 | 0.806 ± 0.014 | $H(0.38)$ | 83.372 | 83.36 ± 0.31 |
| $100\theta_{MC}$ | 1.041093 | 1.04111 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.4415 | 0.4415 ± 0.0076 | $D_M(0.38)$ | 1519.7 | 1520.1 ± 8.3 |
| τ | 0.0492 | $0.0491^{+0.0086}_{-0.0076}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.5943 | 0.5943 ± 0.0077 | $H(0.51)$ | 90.023 | 90.01 ± 0.25 |
| A_L | 1.0723 | $1.071^{+0.033}_{-0.038}$ | $\sigma_8/h^{0.5}$ | 0.9692 | 0.969 ± 0.011 | $D_M(0.51)$ | 1969.7 | 1970.2 ± 9.8 |
| $\ln(10^{10} A_s)$ | 3.0288 | $3.029^{+0.018}_{-0.016}$ | $r_{drag} h$ | 100.45 | 100.45 ± 0.84 | $H(0.61)$ | 95.591 | 95.57 ± 0.21 |
| n_s | 0.97040 | 0.9695 ± 0.0040 | $\langle d^2 \rangle^{1/2}$ | 2.4824 | 2.482 ± 0.030 | $D_M(0.61)$ | 2293.0 | 2294 ± 11 |
| y_{cal} | 0.99980 | 1.0001 ± 0.0025 | z_{re} | 7.09 | $7.06^{+0.94}_{-0.74}$ | $H(2.33)$ | 235.60 | 235.57 ± 0.63 |
| A_{217}^{CIB} | 45.8 | 46 ± 7 | $10^9 A_s$ | 2.0672 | 2.068 ± 0.036 | $D_M(2.33)$ | 5750.0 | 5751.0 ± 9.7 |
| $\xi^{tSZ \times CIB}$ | 0.625 | > 0.382 | $10^9 A_s e^{-2\tau}$ | 1.8735 | 1.874 ± 0.011 | $f\sigma_8(0.15)$ | 0.4466 | 0.4466 ± 0.0072 |
| A_{143}^{tSZ} | 7.17 | $5.6^{+2.1}_{-1.8}$ | D_{40} | 1216.2 | 1219 ± 12 | $\sigma_8(0.15)$ | 0.7401 | 0.7400 ± 0.0070 |
| A_{100}^{PS} | 245.9 | 255 ± 28 | D_{220} | 5731.8 | 5735 ± 38 | $f\sigma_8(0.38)$ | 0.4662 | 0.4662 ± 0.0063 |
| A_{143}^{PS} | 48.0 | 44 ± 8 | D_{810} | 2533.8 | 2534 ± 14 | $\sigma_8(0.38)$ | 0.6568 | 0.6567 ± 0.0060 |
| $A_{143 \times 217}^{PS}$ | 50.9 | 42 ± 9 | D_{1420} | 817.12 | 816.5 ± 4.8 | $f\sigma_8(0.51)$ | 0.4657 | 0.4657 ± 0.0057 |
| A_{217}^{PS} | 120.4 | 115 ± 10 | D_{2000} | 231.65 | 231.3 ± 1.6 | $\sigma_8(0.51)$ | 0.6150 | 0.6149 ± 0.0056 |
| A^{kSZ} | 0.01 | < 3.97 | $n_{s,0.002}$ | 0.97040 | 0.9695 ± 0.0040 | $f\sigma_8(0.61)$ | 0.4613 | 0.4613 ± 0.0053 |
| A_{100}^{dustTT} | 8.88 | 8.9 ± 1.9 | Y_P | 0.245460 | 0.245448 ± 0.000054 | $\sigma_8(0.61)$ | 0.5854 | 0.5853 ± 0.0053 |
| A_{143}^{dustTT} | 11.03 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246786 | 0.246774 ± 0.000054 | $f\sigma_8(2.33)$ | 0.29543 | $0.2954^{+0.0027}_{-0.0024}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.93 | 18.5 ± 3.3 | $10^5 D/H$ | 2.5544 | 2.560 ± 0.026 | $\sigma_8(2.33)$ | 0.30489 | $0.3048^{+0.0027}_{-0.0025}$ |
| A_{217}^{dustTT} | 95.2 | 93.5 ± 7.3 | Age/Gyr | 13.7677 | 13.770 ± 0.022 | f_{2000}^{143} | 27.68 | 28.5 ± 2.7 |
| A_{100}^{dustTE} | 0.1140 | 0.113 ± 0.038 | z_* | 1089.551 | 1089.59 ± 0.24 | $f_{2000}^{143 \times 217}$ | 31.14 | 31.4 ± 1.9 |
| $A_{100 \times 143}^{dustTE}$ | 0.1346 | 0.134 ± 0.030 | r_* | 144.750 | 144.77 ± 0.24 | f_{2000}^{217} | 105.65 | 106.2 ± 1.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.479 | 0.480 ± 0.085 | $100\theta_*$ | 1.041256 | 1.04128 ± 0.00029 | $\chi^2_{lensing}$ | 9.99 | 10.5 ± 2.2 |
| A_{143}^{dustTE} | 0.222 | 0.222 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.9015 | 13.904 ± 0.023 | χ^2_{small} | 395.70 | 396.8 ± 1.5 |
| $A_{143 \times 217}^{dustTE}$ | 0.662 | 0.662 ± 0.080 | z_{drag} | 1060.200 | 1060.14 ± 0.30 | χ^2_{lowl} | 22.25 | 22.46 ± 0.78 |
| A_{217}^{dustTE} | 2.069 | 2.06 ± 0.27 | r_{drag} | 147.362 | 147.40 ± 0.24 | χ^2_{plik} | 2341.7 | 2356.5 ± 5.8 |
| c_{100} | 0.99971 | 0.99966 ± 0.00062 | k_D | 0.140712 | 0.14065 ± 0.00028 | χ^2_{6DF} | 0.0001 | 0.029 ± 0.041 |
| c_{217} | 0.99818 | 0.99817 ± 0.00062 | $100\theta_D$ | 0.160604 | 0.16065 ± 0.00017 | χ^2_{MGS} | 1.68 | 1.74 ± 0.51 |
| H_0 | 68.167 | 68.15 ± 0.49 | z_{eq} | 3364.7 | 3364 ± 24 | $\chi^2_{DR12BAO}$ | 3.526 | 3.98 ± 0.82 |
| Ω_Λ | 0.6956 | 0.6954 ± 0.0064 | k_{eq} | 0.010270 | 0.010267 ± 0.000073 | χ^2_{prior} | 1.64 | 11.6 ± 4.5 |
| Ω_m | 0.3044 | 0.3046 ± 0.0064 | $100\theta_{eq}$ | 0.82067 | 0.8207 ± 0.0046 | χ^2_{CMB} | 2769.6 | 2786.3 ± 5.8 |
| $\Omega_m h^2$ | 0.14145 | 0.1414 ± 0.0010 | $100\theta_{s,eq}$ | 0.45310 | 0.4532 ± 0.0023 | χ^2_{BAO} | 5.204 | 5.75 ± 0.73 |
| $\Omega_m h^3$ | 0.096420 | 0.09637 ± 0.00029 | $H(0.15)$ | 73.377 | 73.36 ± 0.42 | | | |

Best-fit $\chi^2_{eff} = 2776.44$; $\Delta\chi^2_{eff} = -4.26$; $\bar{\chi}^2_{eff} = 2803.67$; $\Delta\bar{\chi}^2_{eff} = -3.17$; $R - 1 = 0.02408$
 χ^2_{eff} : BAO - 6DF: 0.00 (Δ -0.03) MGS: 1.68 (Δ 0.46) DR12BAO: 3.53 (Δ -0.89) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 9.99 (Δ 1.26) small_100x143_offlike5_EE_Aplanck 395.70 (Δ -0.83) commander_dx12_v3.2_29: 22.25 (Δ -0.64) plik_rd12_HM_v22b_TTTEE: 2341.65 (Δ -3.67)

3.15 base_Alens_plikHM_TTTEE_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02252 ± 0.00017 | $\Omega_m h^3$ | 0.09637 ± 0.00029 | $100\theta_{s,eq}$ | 0.4533 ± 0.0033 |
| $\Omega_c h^2$ | 0.1182 ± 0.0015 | σ_8 | 0.8024 ± 0.0074 | $H(0.15)$ | 73.39 ± 0.60 |
| $100\theta_{MC}$ | 1.04111 ± 0.00032 | S_8 | 0.808 ± 0.018 | $D_M(0.15)$ | 636.4 ± 5.9 |
| τ | $0.0526^{+0.0035}_{-0.0076}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4426 ± 0.0099 | $H(0.38)$ | 83.38 ± 0.44 |
| A_L | 1.065 ± 0.039 | $\sigma_8 \Omega_m^{0.25}$ | 0.5959 ± 0.0092 | $D_M(0.38)$ | 1520 ± 12 |
| $\ln(10^{10} A_s)$ | $3.035^{+0.010}_{-0.015}$ | $\sigma_8/h^{0.5}$ | 0.972 ± 0.013 | $H(0.51)$ | 90.02 ± 0.35 |
| n_s | 0.9698 ± 0.0048 | $r_{drag} h$ | 100.5 ± 1.2 | $D_M(0.51)$ | 1970 ± 14 |
| y_{cal} | 1.0001 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.482 ± 0.029 | $H(0.61)$ | 95.59 ± 0.28 |
| A_{217}^{CIB} | 46 ± 7 | z_{re} | $7.43^{+0.32}_{-0.84}$ | $D_M(0.61)$ | 2293 ± 15 |
| $\xi^{tSZ \times CIB}$ | — | $10^9 A_s$ | $2.081^{+0.021}_{-0.031}$ | $H(2.33)$ | 235.53 ± 0.88 |
| A_{143}^{tSZ} | $5.6^{+2.1}_{-1.8}$ | $10^9 A_s e^{-2\tau}$ | 1.873 ± 0.012 | $D_M(2.33)$ | 5750 ± 13 |
| A_{100}^{PS} | 255 ± 28 | D_{40} | 1219 ± 14 | $f\sigma_8(0.15)$ | 0.4477 ± 0.0093 |
| A_{143}^{PS} | 44 ± 8 | D_{220} | 5734 ± 39 | $\sigma_8(0.15)$ | 0.7422 ± 0.0062 |
| $A_{143 \times 217}^{PS}$ | 41 ± 9 | D_{810} | 2533 ± 14 | $f\sigma_8(0.38)$ | 0.4674 ± 0.0076 |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 816.5 ± 4.8 | $\sigma_8(0.38)$ | $0.6587^{+0.0045}_{-0.0053}$ |
| A^{kSZ} | < 3.93 | D_{2000} | 231.4 ± 1.6 | $f\sigma_8(0.51)$ | 0.4669 ± 0.0066 |
| A_{100}^{dustTT} | 9.0 ± 1.8 | $n_{s,0.002}$ | 0.9698 ± 0.0048 | $\sigma_8(0.51)$ | $0.6168^{+0.0040}_{-0.0048}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P | 0.245450 ± 0.000064 | $f\sigma_8(0.61)$ | 0.4626 ± 0.0059 |
| $A_{143 \times 217}^{dustTT}$ | 18.5 ± 3.3 | Y_P^{BBN} | 0.246777 ± 0.000065 | $\sigma_8(0.61)$ | $0.5871^{+0.0036}_{-0.0045}$ |
| A_{217}^{dustTT} | 93.6 ± 7.3 | $10^5 D/H$ | 2.559 ± 0.030 | $f\sigma_8(2.33)$ | $0.2963^{+0.0016}_{-0.0022}$ |
| A_{100}^{dustTE} | 0.113 ± 0.039 | Age/Gyr | 13.769 ± 0.028 | $\sigma_8(2.33)$ | $0.3058^{+0.0016}_{-0.0023}$ |
| $A_{100 \times 143}^{dustTE}$ | 0.134 ± 0.029 | z_* | 1089.58 ± 0.31 | f_{2000}^{143} | 28.4 ± 2.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.480 ± 0.085 | r_* | 144.79 ± 0.32 | $f_{2000}^{143 \times 217}$ | 31.3 ± 1.9 |
| A_{143}^{dustTE} | 0.222 ± 0.053 | $100\theta_*$ | 1.04128 ± 0.00031 | f_{2000}^{217} | 106.1 ± 1.8 |
| $A_{143 \times 217}^{dustTE}$ | 0.662 ± 0.080 | $D_M(z_*)/\text{Gpc}$ | 13.905 ± 0.030 | $\chi_{lensing}^2$ | 10.5 ± 2.2 |
| A_{217}^{dustTE} | 2.06 ± 0.27 | z_{drag} | 1060.15 ± 0.33 | χ_{small}^2 | 396.4 ± 1.1 |
| c_{100} | 0.99965 ± 0.00061 | r_{drag} | 147.41 ± 0.31 | χ_{lowl}^2 | 22.51 ± 0.92 |
| c_{217} | 0.99817 ± 0.00062 | k_D | 0.14064 ± 0.00031 | χ_{plik}^2 | 2357.1 ± 6.0 |
| H_0 | 68.18 ± 0.70 | $100\theta_D$ | 0.16064 ± 0.00019 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_Λ | 0.6958 ± 0.0091 | z_{eq} | 3362 ± 33 | χ_{CMB}^2 | 2786.4 ± 5.9 |
| Ω_m | 0.3042 ± 0.0091 | k_{eq} | 0.01026 ± 0.00010 | | |
| $\Omega_m h^2$ | 0.1414 ± 0.0014 | $100\theta_{eq}$ | 0.8211 ± 0.0065 | | |

$$\bar{\chi}_{eff}^2 = 2797.97; \Delta\bar{\chi}_{eff}^2 = -2.54; R - 1 = 0.02423$$

3.16 base_Alens_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02251 ± 0.00014 | σ_8 | $0.8027^{+0.0060}_{-0.0068}$ | $D_M(0.15)$ | 636.6 ± 4.1 |
| $\Omega_c h^2$ | 0.1182 ± 0.0011 | S_8 | 0.809 ± 0.013 | $H(0.38)$ | 83.36 ± 0.31 |
| $100\theta_{MC}$ | 1.04110 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.4429 ± 0.0073 | $D_M(0.38)$ | 1519.9 ± 8.3 |
| τ | $0.0526^{+0.0036}_{-0.0075}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.5962 ± 0.0071 | $H(0.51)$ | 90.01 ± 0.25 |
| A_L | 1.064 ± 0.033 | $\sigma_8/h^{0.5}$ | 0.972 ± 0.010 | $D_M(0.51)$ | 1970.0 ± 9.8 |
| $\ln(10^{10} A_s)$ | $3.036^{+0.010}_{-0.015}$ | $r_{\text{drag}} h$ | 100.47 ± 0.84 | $H(0.61)$ | 95.58 ± 0.21 |
| n_s | 0.9696 ± 0.0040 | $\langle d^2 \rangle^{1/2}$ | 2.482 ± 0.029 | $D_M(0.61)$ | 2293 ± 11 |
| y_{cal} | 1.0001 ± 0.0025 | z_{re} | $7.44^{+0.32}_{-0.84}$ | $H(2.33)$ | 235.56 ± 0.64 |
| A_{217}^{CIB} | 46 ± 7 | $10^9 A_s$ | $2.082^{+0.021}_{-0.031}$ | $D_M(2.33)$ | 5750.9 ± 9.8 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | > 0.386 | $10^9 A_s e^{-2\tau}$ | 1.874 ± 0.011 | $f\sigma_8(0.15)$ | 0.4480 ± 0.0069 |
| A_{143}^{tSZ} | $5.6^{+2.1}_{-1.8}$ | D_{40} | 1219 ± 12 | $\sigma_8(0.15)$ | $0.7424^{+0.0051}_{-0.0060}$ |
| A_{100}^{PS} | 255 ± 28 | D_{220} | 5735 ± 38 | $f\sigma_8(0.38)$ | 0.4677 ± 0.0058 |
| A_{143}^{PS} | 44 ± 8 | D_{810} | 2533 ± 14 | $\sigma_8(0.38)$ | $0.6589^{+0.0041}_{-0.0051}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 816.5 ± 4.8 | $f\sigma_8(0.51)$ | 0.4671 ± 0.0051 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.4 ± 1.6 | $\sigma_8(0.51)$ | $0.6169^{+0.0036}_{-0.0047}$ |
| A^{kSZ} | < 3.98 | $n_{s,0.002}$ | 0.9696 ± 0.0040 | $f\sigma_8(0.61)$ | 0.4628 ± 0.0047 |
| A_{100}^{dustTT} | 9.0 ± 1.9 | Y_P | 0.245448 ± 0.000054 | $\sigma_8(0.61)$ | $0.5872^{+0.0034}_{-0.0045}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | 0.246775 ± 0.000054 | $f\sigma_8(2.33)$ | $0.2964^{+0.0016}_{-0.0022}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.5 ± 3.3 | $10^5 D/H$ | 2.560 ± 0.026 | $\sigma_8(2.33)$ | $0.3059^{+0.0016}_{-0.0023}$ |
| A_{217}^{dustTT} | 93.6 ± 7.4 | Age/Gyr | 13.770 ± 0.022 | f_{2000}^{143} | 28.4 ± 2.7 |
| A_{100}^{dustTE} | 0.113 ± 0.038 | z_* | 1089.59 ± 0.24 | $f_{2000}^{143 \times 217}$ | 31.3 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.030 | r_* | 144.78 ± 0.24 | f_{2000}^{217} | 106.2 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.085 | $100\theta_*$ | 1.04128 ± 0.00029 | χ_{lensing}^2 | 10.5 ± 2.2 |
| A_{143}^{dustTE} | 0.223 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.904 ± 0.023 | χ_{simall}^2 | 396.4 ± 1.1 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.662 ± 0.080 | z_{drag} | 1060.14 ± 0.30 | χ_{lowl}^2 | 22.52 ± 0.78 |
| A_{217}^{dustTE} | 2.06 ± 0.27 | r_{drag} | 147.40 ± 0.24 | χ_{plik}^2 | 2356.5 ± 5.8 |
| c_{100} | 0.99965 ± 0.00061 | k_D | 0.14065 ± 0.00028 | $\chi_{6\text{DF}}^2$ | 0.030 ± 0.042 |
| c_{217} | 0.99817 ± 0.00063 | $100\theta_D$ | 0.16065 ± 0.00017 | χ_{MGS}^2 | 1.75 ± 0.52 |
| H_0 | 68.16 ± 0.49 | z_{eq} | 3363 ± 24 | χ_{DR12BAO}^2 | 3.98 ± 0.81 |
| Ω_Λ | 0.6956 ± 0.0064 | k_{eq} | 0.010265 ± 0.000073 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_m | 0.3044 ± 0.0064 | $100\theta_{\text{eq}}$ | 0.8209 ± 0.0046 | χ_{CMB}^2 | 2785.9 ± 5.7 |
| $\Omega_m h^2$ | 0.1414 ± 0.0010 | $100\theta_{s,\text{eq}}$ | 0.4532 ± 0.0023 | χ_{BAO}^2 | 5.75 ± 0.74 |
| $\Omega_m h^3$ | 0.09637 ± 0.00029 | $H(0.15)$ | 73.37 ± 0.42 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2803.19; \Delta\bar{\chi}_{\text{eff}}^2 = -3.53; R - 1 = 0.03248$$

4 AphiPhi

4.1 base_AphiPhi_plikHM_TT_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|---------------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022161 | 0.02214 ± 0.00022 | $\sigma_8 \Omega_m^{0.25}$ | 0.6089 | 0.608 ± 0.011 | $D_M(0.15)$ | 646.0 | 645.9 ± 7.8 |
| $\Omega_c h^2$ | 0.12020 | 0.1201 ± 0.0020 | $\sigma_8/h^{0.5}$ | 0.9902 | 0.989 ± 0.016 | $H(0.38)$ | 82.63 | 82.64 ± 0.55 |
| $100\theta_{MC}$ | 1.040781 | 1.04082 ± 0.00048 | $r_{drag}h$ | 98.77 | 98.8 ± 1.6 | $D_M(0.38)$ | 1539.0 | 1539 ± 15 |
| τ | 0.0525 | 0.0519 ± 0.0080 | $\langle d^2 \rangle^{1/2}$ | 2.4460 | 2.445 ± 0.037 | $H(0.51)$ | 89.405 | 89.42 ± 0.43 |
| $\ln(10^{10} A_s)$ | 3.0406 | 3.039 ± 0.016 | z_{re} | 7.55 | $7.46^{+0.83}_{-0.75}$ | $D_M(0.51)$ | 1992.6 | 1992 ± 18 |
| n_s | 0.9644 | 0.9635 ± 0.0057 | $10^9 A_s$ | 2.0917 | 2.088 ± 0.034 | $H(0.61)$ | 95.070 | 95.08 ± 0.35 |
| $A_L^{\phi\phi}$ | 0.9996 | 1.001 ± 0.036 | $10^9 A_s e^{-2\tau}$ | 1.8831 | 1.882 ± 0.014 | $D_M(0.61)$ | 2317.9 | 2318 ± 19 |
| y_{cal} | 1.00046 | 1.0005 ± 0.0025 | D_{40} | 1229.8 | 1232 ± 15 | $H(2.33)$ | 236.47 | 236.4 ± 1.2 |
| A_{217}^{CIB} | 49.2 | 48 ± 7 | D_{220} | 5713.8 | 5716 ± 41 | $D_M(2.33)$ | 5774.8 | 5775 ± 16 |
| $\xi^{tSZ \times CIB}$ | 0.28 | — | D_{810} | 2537.7 | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.4613 | 0.460 ± 0.012 |
| A_{143}^{tSZ} | 7.14 | 5.1 ± 2.0 | D_{1420} | 815.6 | 814.5 ± 5.2 | $\sigma_8(0.15)$ | 0.7487 | 0.7476 ± 0.0075 |
| A_{100}^{PS} | 254.9 | 264 ± 28 | D_{2000} | 230.00 | 229.6 ± 1.8 | $f\sigma_8(0.38)$ | 0.4782 | 0.4774 ± 0.0094 |
| A_{143}^{PS} | 48.7 | 49 ± 8 | $n_{s,0.002}$ | 0.9644 | 0.9635 ± 0.0057 | $\sigma_8(0.38)$ | 0.6630 | 0.6620 ± 0.0060 |
| $A_{143 \times 217}^{PS}$ | 45.8 | 43 ± 9 | Y_P | 0.245310 | $0.24530^{+0.00010}_{-0.000083}$ | $f\sigma_8(0.51)$ | 0.4761 | 0.4752 ± 0.0081 |
| A_{217}^{PS} | 118.5 | 115 ± 10 | Y_P^{BBN} | 0.246636 | $0.24662^{+0.00010}_{-0.000083}$ | $\sigma_8(0.51)$ | 0.6201 | 0.6193 ± 0.0055 |
| A^{kSZ} | 0.01 | < 4.95 | $10^5 D/H$ | 2.6254 | 2.630 ± 0.041 | $f\sigma_8(0.61)$ | 0.4706 | 0.4698 ± 0.0072 |
| A_{100}^{dustTT} | 8.85 | 8.9 ± 1.8 | Age/Gyr | 13.8235 | 13.824 ± 0.036 | $\sigma_8(0.61)$ | 0.58990 | 0.5891 ± 0.0051 |
| A_{143}^{dustTT} | 10.80 | 10.7 ± 1.8 | z_* | 1090.203 | 1090.23 ± 0.39 | $f\sigma_8(2.33)$ | 0.29718 | 0.2968 ± 0.0025 |
| $A_{143 \times 217}^{dustTT}$ | 19.43 | 18.3 ± 3.3 | r_* | 144.538 | 144.57 ± 0.47 | $\sigma_8(2.33)$ | 0.30610 | 0.3057 ± 0.0027 |
| A_{217}^{dustTT} | 94.5 | 93.4 ± 7.4 | $100\theta_*$ | 1.040990 | 1.04102 ± 0.00047 | f_{2000}^{143} | 30.43 | 31.3 ± 2.9 |
| c_{100} | 0.99965 | 0.99961 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.8847 | 13.887 ± 0.044 | $f_{2000}^{143 \times 217}$ | 33.28 | 33.6 ± 2.0 |
| c_{217} | 0.99826 | 0.99826 ± 0.00062 | z_{drag} | 1059.475 | 1059.41 ± 0.45 | f_{2000}^{217} | 107.69 | 108.2 ± 1.9 |
| H_0 | 67.06 | 67.09 ± 0.90 | r_{drag} | 147.270 | 147.31 ± 0.48 | $\chi_{lensing}^2$ | 8.89 | 9.9 ± 1.4 |
| Ω_Λ | 0.6820 | $0.682^{+0.013}_{-0.012}$ | k_D | 0.14052 | 0.14046 ± 0.00052 | χ_{small}^2 | 395.87 | 396.9 ± 1.6 |
| Ω_m | 0.3180 | 0.318 ± 0.013 | $100\theta_D$ | 0.161023 | 0.16106 ± 0.00026 | χ_{lowl}^2 | 23.41 | 23.7 ± 1.3 |
| $\Omega_m h^2$ | 0.14301 | 0.1429 ± 0.0020 | z_{eq} | 3402.1 | 3400 ± 47 | χ_{plik}^2 | 758.9 | 771.7 ± 5.6 |
| $\Omega_m h^3$ | 0.095910 | 0.09587 ± 0.00045 | k_{eq} | 0.010384 | 0.01038 ± 0.00014 | χ_{prior}^2 | 1.44 | 7.3 ± 3.7 |
| σ_8 | 0.8109 | 0.8097 ± 0.0089 | $100\theta_{eq}$ | 0.8126 | 0.8131 ± 0.0087 | χ_{CMB}^2 | 1187.1 | 1202.1 ± 5.7 |
| S_8 | 0.8349 | 0.833 ± 0.023 | $100\theta_{s,eq}$ | 0.44919 | 0.4494 ± 0.0045 | | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4573 | 0.456 ± 0.013 | $H(0.15)$ | 72.41 | 72.43 ± 0.77 | | | |

Best-fit $\chi_{eff}^2 = 1188.51$; $\Delta\chi_{eff}^2 = -0.05$; $\bar{\chi}_{eff}^2 = 1209.46$; $\Delta\bar{\chi}_{eff}^2 = 1.05$; $R - 1 = 0.00514$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.89 (Δ -0.01) small_100x143_offlike5_EE_Aplanck_B: 395.87 (Δ 0.01) commander_dx12_v3_2_29: 23.41 (Δ 0.18) plik_rd12_HM_v22_TT: 758.90 (Δ -0.42)

4.2 base_Aphiphi_plikHM_TT_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02215 ± 0.00021 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.608 ± 0.011 | $D_{\text{M}}(0.15)$ | 645.5 ± 7.7 |
| $\Omega_{\text{c}}h^2$ | 0.1201 ± 0.0020 | $\sigma_8/h^{0.5}$ | 0.990 ± 0.015 | $H(0.38)$ | 82.67 ± 0.55 |
| $100\theta_{\text{MC}}$ | 1.04083 ± 0.00047 | $r_{\text{drag}}h$ | 98.9 ± 1.6 | $D_{\text{M}}(0.38)$ | 1538 ± 15 |
| τ | $0.0536^{+0.0045}_{-0.0083}$ | $\langle d^2 \rangle^{1/2}$ | 2.448 ± 0.037 | $H(0.51)$ | 89.44 ± 0.43 |
| $\ln(10^{10}A_{\text{s}})$ | $3.042^{+0.012}_{-0.015}$ | z_{re} | $7.65^{+0.52}_{-0.82}$ | $D_{\text{M}}(0.51)$ | 1992 ± 18 |
| n_{s} | 0.9637 ± 0.0057 | $10^9 A_{\text{s}}$ | $2.095^{+0.024}_{-0.032}$ | $H(0.61)$ | 95.09 ± 0.35 |
| $A_{\text{L}}^{\phi\phi}$ | 0.999 ± 0.036 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.882 ± 0.014 | $D_{\text{M}}(0.61)$ | 2317 ± 19 |
| y_{cal} | 1.0005 ± 0.0025 | D_{40} | 1232 ± 15 | $H(2.33)$ | 236.4 ± 1.2 |
| A_{217}^{CIB} | 48 ± 7 | D_{220} | 5717 ± 41 | $D_{\text{M}}(2.33)$ | 5774 ± 16 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{810} | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.461 ± 0.012 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{1420} | 814.6 ± 5.2 | $\sigma_8(0.15)$ | 0.7487 ± 0.0069 |
| A_{100}^{PS} | 264 ± 28 | D_{2000} | 229.6 ± 1.8 | $f\sigma_8(0.38)$ | 0.4778 ± 0.0093 |
| A_{143}^{PS} | 49 ± 8 | $n_{\text{s},0.002}$ | 0.9637 ± 0.0057 | $\sigma_8(0.38)$ | 0.6630 ± 0.0054 |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | Y_{P} | $0.24530^{+0.00010}_{-0.000083}$ | $f\sigma_8(0.51)$ | 0.4757 ± 0.0080 |
| A_{217}^{PS} | 115 ± 10 | $Y_{\text{P}}^{\text{BBN}}$ | $0.24663^{+0.00010}_{-0.000083}$ | $\sigma_8(0.51)$ | $0.6202^{+0.0045}_{-0.0051}$ |
| A^{kSZ} | < 4.92 | $10^5 D/H$ | 2.628 ± 0.041 | $f\sigma_8(0.61)$ | 0.4703 ± 0.0070 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | Age/Gyr | 13.822 ± 0.036 | $\sigma_8(0.61)$ | $0.5900^{+0.0041}_{-0.0048}$ |
| $A_{143}^{\text{dust}TT}$ | 10.7 ± 1.8 | z_* | 1090.21 ± 0.39 | $f\sigma_8(2.33)$ | $0.2973^{+0.0019}_{-0.0024}$ |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.3 ± 3.3 | r_* | 144.59 ± 0.47 | $\sigma_8(2.33)$ | $0.3063^{+0.0019}_{-0.0026}$ |
| $A_{217}^{\text{dust}TT}$ | 93.3 ± 7.4 | $100\theta_*$ | 1.04104 ± 0.00047 | f_{2000}^{143} | 31.2 ± 2.9 |
| c_{100} | 0.99961 ± 0.00062 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.889 ± 0.044 | $f_{2000}^{143 \times 217}$ | 33.6 ± 2.0 |
| c_{217} | 0.99826 ± 0.00062 | z_{drag} | 1059.43 ± 0.45 | f_{2000}^{217} | 108.2 ± 1.9 |
| H_0 | 67.13 ± 0.90 | r_{drag} | 147.32 ± 0.47 | χ_{lensing}^2 | 9.8 ± 1.4 |
| Ω_{Λ} | 0.683 ± 0.013 | k_{D} | 0.14045 ± 0.00052 | χ_{simall}^2 | 396.8 ± 1.6 |
| Ω_{m} | 0.317 ± 0.013 | $100\theta_{\text{D}}$ | 0.16105 ± 0.00026 | χ_{lowl}^2 | 23.7 ± 1.3 |
| $\Omega_{\text{m}}h^2$ | 0.1429 ± 0.0019 | z_{eq} | 3398 ± 46 | χ_{plik}^2 | 771.5 ± 5.5 |
| $\Omega_{\text{m}}h^3$ | 0.09588 ± 0.00045 | k_{eq} | 0.01037 ± 0.00014 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.8108 ± 0.0084 | $100\theta_{\text{eq}}$ | 0.8134 ± 0.0087 | χ_{CMB}^2 | 1201.8 ± 5.6 |
| S_8 | 0.834 ± 0.023 | $100\theta_{\text{s,eq}}$ | 0.4496 ± 0.0045 | | |
| $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.457 ± 0.013 | $H(0.15)$ | 72.47 ± 0.76 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1209.13; \Delta\bar{\chi}_{\text{eff}}^2 = 0.97; R - 1 = 0.00594$$

4.3 base_Aphiphi_plikHM_TTTEEE_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022385 | 0.02237 ± 0.00015 | $\Omega_m h^3$ | 0.096362 | 0.09633 ± 0.00030 | $100\theta_{s,eq}$ | 0.44924 | 0.4493 ± 0.0029 |
| $\Omega_c h^2$ | 0.12005 | 0.1201 ± 0.0013 | σ_8 | 0.8118 | 0.8114 ± 0.0073 | $H(0.15)$ | 72.67 | 72.66 ± 0.51 |
| $100\theta_{MC}$ | 1.040915 | 1.04092 ± 0.00031 | S_8 | 0.8325 | 0.832 ± 0.016 | $D_M(0.15)$ | 643.4 | 643.6 ± 5.1 |
| τ | 0.0543 | 0.0543 ± 0.0077 | $\sigma_8 \Omega_m^{0.5}$ | 0.4560 | 0.4559 ± 0.0086 | $H(0.38)$ | 82.864 | 82.85 ± 0.37 |
| $\ln(10^{10} A_s)$ | 3.0448 | 3.044 ± 0.016 | $\sigma_8 \Omega_m^{0.25}$ | 0.6084 | 0.6082 ± 0.0081 | $D_M(0.38)$ | 1533.6 | 1534 ± 10 |
| n_s | 0.96604 | 0.9650 ± 0.0043 | $\sigma_8/h^{0.5}$ | 0.9893 | 0.989 ± 0.011 | $H(0.51)$ | 89.627 | 89.62 ± 0.29 |
| $A_L^{\phi\phi}$ | 0.9990 | 0.998 ± 0.031 | $r_{drag}h$ | 99.04 | 99.0 ± 1.0 | $D_M(0.51)$ | 1986.0 | 1986 ± 12 |
| y_{cal} | 1.00060 | 1.0006 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4444 | 2.446 ± 0.028 | $H(0.61)$ | 95.281 | 95.27 ± 0.23 |
| A_{217}^{CIB} | 46.9 | 47 ± 7 | z_{re} | 7.68 | 7.66 ± 0.78 | $D_M(0.61)$ | 2310.5 | 2311 ± 13 |
| $\xi^{tSZ \times CIB}$ | 0.48 | — | $10^9 A_s$ | 2.1006 | 2.100 ± 0.033 | $H(2.33)$ | 236.61 | 236.60 ± 0.81 |
| A_{143}^{tSZ} | 7.15 | $5.4_{-1.9}^{+2.1}$ | $10^9 A_s e^{-2\tau}$ | 1.8843 | 1.884 ± 0.012 | $D_M(2.33)$ | 5763.2 | 5764 ± 11 |
| A_{100}^{PS} | 249.6 | 259 ± 28 | D_{40} | 1229.2 | 1232 ± 13 | $f\sigma_8(0.15)$ | 0.4602 | 0.4602 ± 0.0081 |
| A_{143}^{PS} | 48.2 | 46 ± 8 | D_{220} | 5731.8 | 5734 ± 39 | $\sigma_8(0.15)$ | 0.7498 | 0.7494 ± 0.0064 |
| $A_{143 \times 217}^{PS}$ | 48.8 | 42 ± 9 | D_{810} | 2541.4 | 2540 ± 14 | $f\sigma_8(0.38)$ | 0.4777 | 0.4776 ± 0.0066 |
| A_{217}^{PS} | 120.3 | 115 ± 10 | D_{1420} | 818.47 | 817.4 ± 4.8 | $\sigma_8(0.38)$ | 0.6642 | 0.6638 ± 0.0054 |
| A^{kSZ} | 0.00 | < 4.26 | D_{2000} | 231.33 | 230.9 ± 1.6 | $f\sigma_8(0.51)$ | 0.4759 | 0.4756 ± 0.0058 |
| A_{100}^{dustTT} | 8.83 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.96604 | 0.9650 ± 0.0043 | $\sigma_8(0.51)$ | 0.62140 | 0.6210 ± 0.0050 |
| A_{143}^{dustTT} | 11.04 | 10.9 ± 1.8 | Y_P | 0.245402 | $0.245392_{-0.000055}^{+0.000062}$ | $f\sigma_8(0.61)$ | 0.4706 | 0.4703 ± 0.0053 |
| $A_{143 \times 217}^{dustTT}$ | 19.90 | 18.6 ± 3.3 | Y_P^{BBN} | 0.246728 | $0.246719_{-0.000055}^{+0.000062}$ | $\sigma_8(0.61)$ | 0.59116 | 0.5908 ± 0.0048 |
| A_{217}^{dustTT} | 95.2 | 93.7 ± 7.4 | $10^5 D/H$ | 2.5826 | 2.587 ± 0.028 | $f\sigma_8(2.33)$ | 0.29791 | 0.2977 ± 0.0024 |
| A_{100}^{dustTE} | 0.1137 | 0.114 ± 0.038 | Age/Gyr | 13.7962 | 13.798 ± 0.024 | $\sigma_8(2.33)$ | 0.30696 | 0.3068 ± 0.0025 |
| $A_{100 \times 143}^{dustTE}$ | 0.1347 | 0.135 ± 0.029 | z_* | 1089.905 | 1089.93 ± 0.27 | f_{2000}^{143} | 28.75 | 29.5 ± 2.7 |
| $A_{100 \times 217}^{dustTE}$ | 0.484 | 0.480 ± 0.084 | r_* | 144.406 | 144.42 ± 0.30 | $f_{2000}^{143 \times 217}$ | 31.97 | 32.2 ± 1.9 |
| A_{143}^{dustTE} | 0.226 | 0.226 ± 0.054 | $100\theta_*$ | 1.041098 | 1.04110 ± 0.00031 | f_{2000}^{217} | 106.60 | 107.0 ± 1.8 |
| $A_{143 \times 217}^{dustTE}$ | 0.666 | 0.667 ± 0.081 | $D_M(z_*)/\text{Gpc}$ | 13.8705 | 13.872 ± 0.028 | $\chi_{lensing}^2$ | 8.83 | 9.8 ± 1.4 |
| A_{217}^{dustTE} | 2.083 | 2.08 ± 0.27 | z_{drag} | 1059.971 | 1059.93 ± 0.30 | χ_{small}^2 | 396.05 | 397.1 ± 1.8 |
| c_{100} | 0.99971 | 0.99966 ± 0.00061 | r_{drag} | 147.061 | 147.08 ± 0.30 | χ_{lowl}^2 | 23.24 | 23.52 ± 0.96 |
| c_{217} | 0.99820 | 0.99819 ± 0.00062 | k_D | 0.140912 | 0.14088 ± 0.00032 | χ_{plik}^2 | 2344.7 | 2359.7 ± 5.8 |
| H_0 | 67.35 | 67.33 ± 0.60 | $100\theta_D$ | 0.160735 | 0.16076 ± 0.00017 | χ_{prior}^2 | 1.75 | 11.6 ± 4.5 |
| Ω_Λ | 0.6845 | 0.6843 ± 0.0083 | z_{eq} | 3403.8 | 3404 ± 30 | χ_{CMB}^2 | 2772.8 | 2790.1 ± 6.0 |
| Ω_m | 0.3155 | 0.3157 ± 0.0083 | k_{eq} | 0.010389 | 0.010389 ± 0.000093 | | | |
| $\Omega_m h^2$ | 0.14308 | 0.1431 ± 0.0013 | $100\theta_{eq}$ | 0.8130 | 0.8131 ± 0.0057 | | | |

Best-fit $\chi_{eff}^2 = 2774.59$; $\Delta\chi_{eff}^2 = -0.04$; $\bar{\chi}_{eff}^2 = 2801.64$; $\Delta\bar{\chi}_{eff}^2 = 0.95$; $R - 1 = 0.01120$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.83 (Δ -0.04) small_100x143_offlike5_EE_Aplanck_B: 396.05 (Δ 0.00) commander_dx12_v3.2.29: 23.24 (Δ -0.01) plik_rd12_HM_v22b_TTTEEE: 2344.72 (Δ -0.21)

4.4 base_Aphiphi_plikHM_TTTEEE_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02237 ± 0.00015 | $\Omega_{\text{m}}h^3$ | 0.09633 ± 0.00029 | $100\theta_{\text{s,eq}}$ | 0.4493 ± 0.0029 |
| $\Omega_{\text{c}}h^2$ | 0.1200 ± 0.0013 | σ_8 | 0.8121 ± 0.0069 | $H(0.15)$ | 72.67 ± 0.51 |
| $100\theta_{\text{MC}}$ | 1.04092 ± 0.00031 | S_8 | 0.833 ± 0.016 | $D_{\text{M}}(0.15)$ | 643.5 ± 5.1 |
| τ | $0.0553^{+0.0053}_{-0.0081}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4562 ± 0.0086 | $H(0.38)$ | 82.86 ± 0.37 |
| $\ln(10^{10}A_{\text{s}})$ | $3.046^{+0.012}_{-0.016}$ | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6087 ± 0.0079 | $D_{\text{M}}(0.38)$ | 1534 ± 10 |
| n_{s} | 0.9651 ± 0.0043 | $\sigma_8/h^{0.5}$ | 0.990 ± 0.011 | $H(0.51)$ | 89.62 ± 0.29 |
| $A_{\text{L}}^{\phi\phi}$ | 0.997 ± 0.031 | $r_{\text{drag}}h$ | 99.1 ± 1.0 | $D_{\text{M}}(0.51)$ | 1986 ± 12 |
| y_{cal} | 1.0006 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.448 ± 0.027 | $H(0.61)$ | 95.27 ± 0.23 |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.77^{+0.58}_{-0.81}$ | $D_{\text{M}}(0.61)$ | 2311 ± 13 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_{\text{s}}$ | $2.104^{+0.025}_{-0.034}$ | $H(2.33)$ | 236.58 ± 0.80 |
| A_{143}^{tSZ} | $5.4^{+2.1}_{-1.9}$ | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.884 ± 0.012 | $D_{\text{M}}(2.33)$ | 5764 ± 11 |
| A_{100}^{PS} | 258 ± 28 | D_{40} | 1232 ± 13 | $f\sigma_8(0.15)$ | 0.4605 ± 0.0080 |
| A_{143}^{PS} | 46 ± 8 | D_{220} | 5734 ± 39 | $\sigma_8(0.15)$ | $0.7501^{+0.0055}_{-0.0063}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{810} | 2540 ± 14 | $f\sigma_8(0.38)$ | 0.4779 ± 0.0065 |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 817.3 ± 4.8 | $\sigma_8(0.38)$ | $0.6644^{+0.0045}_{-0.0054}$ |
| A^{kSZ} | < 4.25 | D_{2000} | 230.9 ± 1.6 | $f\sigma_8(0.51)$ | 0.4760 ± 0.0057 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.9651 ± 0.0043 | $\sigma_8(0.51)$ | $0.6216^{+0.0040}_{-0.0050}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_{P} | $0.245393^{+0.000061}_{-0.000055}$ | $f\sigma_8(0.61)$ | 0.4707 ± 0.0051 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246720^{+0.000061}_{-0.000055}$ | $\sigma_8(0.61)$ | $0.5914^{+0.0038}_{-0.0048}$ |
| A_{217}^{dustTT} | 93.6 ± 7.4 | 10^5D/H | 2.586 ± 0.028 | $f\sigma_8(2.33)$ | $0.2980^{+0.0018}_{-0.0024}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | Age/Gyr | 13.798 ± 0.024 | $\sigma_8(2.33)$ | $0.3071^{+0.0019}_{-0.0025}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | z_* | 1089.92 ± 0.27 | f_{2000}^{143} | 29.5 ± 2.7 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.084 | r_* | 144.42 ± 0.30 | $f_{2000}^{143 \times 217}$ | 32.2 ± 1.9 |
| A_{143}^{dustTE} | 0.226 ± 0.054 | $100\theta_*$ | 1.04110 ± 0.00031 | f_{2000}^{217} | 107.0 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 ± 0.081 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.872 ± 0.028 | χ_{lensing}^2 | 9.8 ± 1.4 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | z_{drag} | 1059.94 ± 0.30 | χ_{simall}^2 | 397.1 ± 1.9 |
| c_{100} | 0.99966 ± 0.00061 | r_{drag} | 147.08 ± 0.29 | χ_{lowl}^2 | 23.53 ± 0.96 |
| c_{217} | 0.99819 ± 0.00062 | k_{D} | 0.14088 ± 0.00032 | χ_{plik}^2 | 2359.5 ± 5.8 |
| H_0 | 67.34 ± 0.59 | $100\theta_{\text{D}}$ | 0.16076 ± 0.00017 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_{Λ} | 0.6844 ± 0.0083 | z_{eq} | 3403 ± 30 | χ_{CMB}^2 | 2789.8 ± 5.9 |
| Ω_{m} | 0.3156 ± 0.0083 | k_{eq} | 0.010387 ± 0.000092 | | |
| $\Omega_{\text{m}}h^2$ | 0.1431 ± 0.0013 | $100\theta_{\text{eq}}$ | 0.8132 ± 0.0057 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2801.40; \Delta\bar{\chi}_{\text{eff}}^2 = 0.90; R - 1 = 0.01121$$

5 alpha1

5.1 base_alpha1_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|---------------------|-------------------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022181 | 0.02219 ± 0.00023 | $\sigma_8 \Omega_m^{0.5}$ | 0.4622 | 0.464 ± 0.014 | $100\theta_{s,eq}$ | 0.44706 | 0.4464 ± 0.0049 |
| $\Omega_c h^2$ | 0.12112 | 0.1214 ± 0.0022 | $\sigma_8 \Omega_m^{0.25}$ | 0.6128 | 0.614 ± 0.012 | $H(0.15)$ | 72.11 | 72.01 ± 0.82 |
| $100\theta_{MC}$ | 1.04062 | 1.04048 ± 0.00055 | $\sigma_8/h^{0.5}$ | 0.9949 | 0.996 ± 0.016 | $D_M(0.15)$ | 649.0 | 650.3 ± 8.4 |
| τ | 0.0526 | 0.0537 ± 0.0083 | $r_{drag}h$ | 98.06 | 97.8 ± 1.7 | $H(0.38)$ | 82.43 | 82.36 ± 0.58 |
| α_{-1} | $-30 \cdot 10^{-5}$ | $-0.0015^{+0.0017}_{-0.0010}$ | $\langle d^2 \rangle^{1/2}$ | 2.4583 | 2.465 ± 0.040 | $D_M(0.38)$ | 1545.0 | 1547 ± 17 |
| $\ln(10^{10} A_s)$ | 3.0442 | 3.047 ± 0.018 | z_{re} | 7.57 | 7.66 ± 0.84 | $H(0.51)$ | 89.265 | 89.22 ± 0.45 |
| n_s | 0.9607 | $0.9575^{+0.0067}_{-0.0079}$ | $10^9 A_s$ | 2.0994 | 2.106 ± 0.038 | $D_M(0.51)$ | 1999.5 | 2002 ± 19 |
| y_{cal} | 1.00050 | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8895 | 1.892 ± 0.015 | $H(0.61)$ | 94.974 | 94.94 ± 0.36 |
| A_{217}^{CIB} | 49.1 | 48 ± 7 | D_{40} | 1222.0 | 1218^{+18}_{-22} | $D_M(0.61)$ | 2325.2 | 2328 ± 21 |
| $\xi^{tSZ \times CIB}$ | 0.28 | — | D_{220} | 5714.5 | 5719 ± 42 | $H(2.33)$ | 237.08 | 237.3 ± 1.4 |
| A_{143}^{tSZ} | 7.02 | 5.0 ± 2.0 | D_{810} | 2540.2 | 2539 ± 14 | $D_M(2.33)$ | 5778.1 | 5780 ± 16 |
| A_{100}^{PS} | 255.4 | 265 ± 28 | D_{1420} | 815.6 | 814.1 ± 5.2 | $f\sigma_8(0.15)$ | 0.4657 | 0.467 ± 0.013 |
| A_{143}^{PS} | 49.1 | 49 ± 8 | D_{2000} | 229.95 | 229.4 ± 1.8 | $\sigma_8(0.15)$ | 0.7497 | 0.7493 ± 0.0076 |
| $A_{143 \times 217}^{PS}$ | 46.1 | 43 ± 9 | $n_{s,0.002}$ | 0.9607 | $0.9575^{+0.0067}_{-0.0079}$ | $f\sigma_8(0.38)$ | 0.4814 | 0.4821 ± 0.0099 |
| A_{217}^{PS} | 118.8 | 115 ± 10 | Y_P | 0.245318 | $0.24532^{+0.00011}_{-0.000085}$ | $\sigma_8(0.38)$ | 0.6632 | 0.6627 ± 0.0061 |
| A^{kSZ} | 0.01 | < 5.17 | Y_P^{BBN} | 0.246644 | $0.24664^{+0.00011}_{-0.000086}$ | $f\sigma_8(0.51)$ | 0.4786 | 0.4791 ± 0.0084 |
| A_{100}^{dustTT} | 8.90 | 9.0 ± 1.8 | $10^5 D/H$ | 2.6215 | 2.620 ± 0.043 | $\sigma_8(0.51)$ | 0.6201 | 0.6196 ± 0.0056 |
| A_{143}^{dustTT} | 10.83 | 10.7 ± 1.8 | Age/Gyr | 13.8302 | 13.834 ± 0.037 | $f\sigma_8(0.61)$ | 0.4727 | 0.4729 ± 0.0074 |
| $A_{143 \times 217}^{dustTT}$ | 19.29 | 18.3 ± 3.3 | z_* | 1090.260 | 1090.27 ± 0.41 | $\sigma_8(0.61)$ | 0.5898 | 0.5891 ± 0.0052 |
| A_{217}^{dustTT} | 94.4 | 93.3 ± 7.3 | r_* | 144.29 | 144.21 ± 0.54 | $f\sigma_8(2.33)$ | 0.29689 | 0.2965 ± 0.0026 |
| c_{100} | 0.99964 | 0.99961 ± 0.00062 | $100\theta_*$ | 1.04082 | 1.04068 ± 0.00055 | $\sigma_8(2.33)$ | 0.30558 | 0.3051 ± 0.0028 |
| c_{217} | 0.99827 | 0.99827 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.8628 | 13.857 ± 0.048 | f_{2000}^{143} | 30.47 | 31.4 ± 2.9 |
| H_0 | 66.71 | 66.58 ± 0.97 | z_{drag} | 1059.589 | 1059.62 ± 0.50 | $f_{2000}^{143 \times 217}$ | 33.36 | 33.7 ± 2.0 |
| Ω_Λ | 0.6765 | 0.674 ± 0.014 | r_{drag} | 147.01 | 146.92 ± 0.55 | f_{2000}^{217} | 107.77 | 108.3 ± 1.9 |
| Ω_m | 0.3235 | 0.326 ± 0.014 | k_D | 0.14081 | 0.14091 ± 0.00062 | χ_{simall}^2 | 395.88 | 397.1 ± 1.7 |
| $\Omega_m h^2$ | 0.14395 | 0.1443 ± 0.0022 | $100\theta_D$ | 0.160939 | 0.16090 ± 0.00031 | χ_{lowl}^2 | 22.18 | 22.1 ± 2.1 |
| $\Omega_m h^3$ | 0.096023 | 0.09602 ± 0.00047 | z_{eq} | 3425 | 3432 ± 52 | χ_{plik}^2 | 759.7 | 774.0 ± 5.8 |
| σ_8 | 0.8126 | 0.8124 ± 0.0090 | k_{eq} | 0.010452 | 0.01047 ± 0.00016 | χ_{prior}^2 | 1.43 | 7.3 ± 3.7 |
| S_8 | 0.8438 | 0.847 ± 0.025 | $100\theta_{eq}$ | 0.8086 | 0.8074 ± 0.0095 | χ_{CMB}^2 | 1177.7 | 1193.2 ± 5.8 |

Best-fit $\chi_{eff}^2 = 1179.15$; $\Delta\chi_{eff}^2 = -0.43$; $\bar{\chi}_{eff}^2 = 1200.56$; $\Delta\bar{\chi}_{eff}^2 = 0.98$; $R - 1 = 0.00658$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.88 (Δ 0.01) commander_dx12_v3.2.29: 22.18 (Δ -1.42) plik_rd12_HM_v22_TT: 759.66 (Δ 0.91)

5.2 base_alpha1_plikHM_TT_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022252 | 0.02228 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.9814 | 0.981 ± 0.012 | $D_M(0.38)$ | 1529.4 | 1529.9 ± 9.4 |
| $\Omega_c h^2$ | 0.11894 | 0.1191 ± 0.0012 | $r_{\text{drag}} h$ | 99.76 | 99.66 ± 0.96 | $H(0.51)$ | 89.669 | 89.67 ± 0.29 |
| $100\theta_{\text{MC}}$ | 1.040919 | 1.04087 ± 0.00047 | $\langle d^2 \rangle^{1/2}$ | 2.4269 | 2.429 ± 0.028 | $D_M(0.51)$ | 1981.4 | 1982 ± 11 |
| τ | 0.0547 | 0.0552 ± 0.0084 | z_{re} | 7.73 | 7.75 ± 0.84 | $H(0.61)$ | 95.273 | 95.28 ± 0.24 |
| α_{-1} | -0.00005 | $-0.0008^{+0.0015}_{-0.0011}$ | $10^9 A_s$ | 2.0951 | 2.100 ± 0.038 | $D_M(0.61)$ | 2305.8 | 2306 ± 12 |
| $\ln(10^{10} A_s)$ | 3.0422 | 3.044 ± 0.018 | $10^9 A_s e^{-2\tau}$ | 1.8781 | 1.880 ± 0.013 | $H(2.33)$ | 235.74 | 235.85 ± 0.81 |
| n_s | 0.9664 | $0.9642^{+0.0053}_{-0.0061}$ | D_{40} | 1218.9 | 1215^{+19}_{-26} | $D_M(2.33)$ | 5766.2 | 5766 ± 12 |
| y_{cal} | 1.00039 | 1.0006 ± 0.0026 | D_{220} | 5719.2 | 5725 ± 41 | $f\sigma_8(0.15)$ | 0.4541 | 0.4543 ± 0.0077 |
| A_{217}^{CIB} | 48.7 | 48 ± 7 | D_{810} | 2536.6 | 2537 ± 14 | $\sigma_8(0.15)$ | 0.7460 | 0.7453 ± 0.0069 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.34 | — | D_{1420} | 816.0 | 815.3 ± 5.1 | $f\sigma_8(0.38)$ | 0.4727 | 0.4727 ± 0.0065 |
| A_{143}^{tSZ} | 6.85 | $5.0^{+2.2}_{-2.0}$ | D_{2000} | 230.14 | 229.9 ± 1.8 | $\sigma_8(0.38)$ | 0.6614 | 0.6608 ± 0.0059 |
| A_{100}^{PS} | 255.5 | 264 ± 28 | $n_{s,0.002}$ | 0.9664 | $0.9642^{+0.0053}_{-0.0061}$ | $f\sigma_8(0.51)$ | 0.4715 | 0.4713 ± 0.0058 |
| A_{143}^{PS} | 49.9 | 48 ± 8 | Y_{P} | 0.245347 | $0.245355^{+0.000099}_{-0.000083}$ | $\sigma_8(0.51)$ | 0.6190 | 0.6184 ± 0.0055 |
| $A_{143 \times 217}^{\text{PS}}$ | 47.0 | 43^{+9}_{-10} | $Y_{\text{P}}^{\text{BBN}}$ | 0.246674 | $0.246682^{+0.000099}_{-0.000083}$ | $f\sigma_8(0.61)$ | 0.4666 | 0.4664 ± 0.0054 |
| A_{217}^{PS} | 119.0 | 114 ± 10 | $10^5 \text{D}/\text{H}$ | 2.6079 | 2.603 ± 0.042 | $\sigma_8(0.61)$ | 0.5890 | 0.5884 ± 0.0052 |
| A^{kSZ} | 0.20 | < 5.05 | Age/Gyr | 13.8050 | 13.804 ± 0.028 | $f\sigma_8(2.33)$ | 0.29705 | 0.2967 ± 0.0026 |
| A_{100}^{dustTT} | 8.89 | 9.0 ± 1.8 | z_* | 1089.976 | 1089.95 ± 0.32 | $\sigma_8(2.33)$ | 0.30631 | 0.3059 ± 0.0027 |
| A_{143}^{dustTT} | 10.74 | 10.8 ± 1.8 | r_* | 144.796 | 144.74 ± 0.34 | f_{2000}^{143} | 30.40 | 31.0 ± 3.0 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.38 | 18.3 ± 3.4 | $100\theta_*$ | 1.041114 | 1.04107 ± 0.00047 | $f_{2000}^{143 \times 217}$ | 33.18 | 33.4 ± 2.0 |
| A_{217}^{dustTT} | 94.5 | 93.5 ± 7.5 | $D_M(z_*)/\text{Gpc}$ | 13.9078 | 13.903 ± 0.032 | f_{2000}^{217} | 107.58 | 108.0 ± 1.9 |
| c_{100} | 0.99970 | 0.99963 ± 0.00061 | z_{drag} | 1059.59 | 1059.66 ± 0.52 | χ_{small}^2 | 396.06 | 397.2 ± 1.8 |
| c_{217} | 0.99823 | 0.99829 ± 0.00061 | r_{drag} | 147.504 | 147.44 ± 0.39 | χ_{lowl}^2 | 22.26 | 22 ± 2 |
| H_0 | 67.63 | 67.60 ± 0.54 | k_{D} | 0.14034 | 0.14043 ± 0.00052 | χ_{plik}^2 | 760.7 | 774.1 ± 5.8 |
| Ω_{Λ} | 0.6899 | 0.6891 ± 0.0074 | $100\theta_{\text{D}}$ | 0.160955 | 0.16091 ± 0.00033 | $\chi_{6\text{DF}}^2$ | 0.0222 | 0.067 ± 0.086 |
| Ω_{m} | 0.3101 | 0.3109 ± 0.0074 | z_{eq} | 3374.0 | 3378 ± 29 | χ_{MGS}^2 | 1.28 | 1.30 ± 0.52 |
| $\Omega_{\text{m}} h^2$ | 0.14183 | 0.1420 ± 0.0012 | k_{eq} | 0.010298 | 0.010309 ± 0.000090 | χ_{DR12BAO}^2 | 4.22 | 5.0 ± 1.8 |
| $\Omega_{\text{m}} h^3$ | 0.095922 | 0.09598 ± 0.00047 | $100\theta_{\text{eq}}$ | 0.8180 | 0.8174 ± 0.0054 | χ_{prior}^2 | 1.20 | 7.3 ± 3.7 |
| σ_8 | 0.8071 | 0.8065 ± 0.0078 | $100\theta_{\text{s,eq}}$ | 0.45195 | 0.4516 ± 0.0028 | χ_{BAO}^2 | 5.52 | 6.4 ± 1.5 |
| S_8 | 0.8206 | 0.821 ± 0.015 | $H(0.15)$ | 72.891 | 72.87 ± 0.47 | χ_{CMB}^2 | 1179.0 | 1193.6 ± 5.7 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4495 | 0.4497 ± 0.0082 | $D_M(0.15)$ | 641.13 | 641.4 ± 4.7 | | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6023 | 0.6022 ± 0.0080 | $H(0.38)$ | 82.971 | 82.96 ± 0.35 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1185.69$; $\Delta\chi_{\text{eff}}^2 = -0.06$; $\bar{\chi}_{\text{eff}}^2 = 1207.24$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.22$; $R - 1 = 0.02382$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ 0.00) MGS: 1.28 (Δ 0.00) DR12BAO: 4.22 (Δ 0.03) CMB - small_100x143.offlike5_EE_Aplanck_B: 396.06 (Δ 0.17) commander_dx12_v3_2_29: 22.26 (Δ -0.57) plik_rd12_HM_v22_TT: 760.65 (Δ 0.55)

5.3 base_alpha1_plikHM_TT_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|---------------------|-------------------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022207 | 0.02223 ± 0.00022 | $\sigma_8 \Omega_m^{0.25}$ | 0.6095 | 0.6094 ± 0.0077 | $D_M(0.15)$ | 646.8 | 647.5 ± 6.4 |
| $\Omega_c h^2$ | 0.12051 | 0.1207 ± 0.0016 | $\sigma_8/h^{0.5}$ | 0.9905 | 0.990 ± 0.010 | $H(0.38)$ | 82.579 | 82.54 ± 0.46 |
| $100\theta_{MC}$ | 1.04069 | 1.04057 ± 0.00051 | $r_{drag}h$ | 98.53 | 98.4 ± 1.3 | $D_M(0.38)$ | 1540.7 | 1542 ± 13 |
| τ | 0.0528 | 0.0536 ± 0.0081 | $\langle d^2 \rangle^{1/2}$ | 2.4491 | 2.452 ± 0.025 | $H(0.51)$ | 89.377 | 89.35 ± 0.36 |
| α_{-1} | $-18 \cdot 10^{-5}$ | $-0.0013^{+0.0017}_{-0.0010}$ | z_{re} | 7.58 | $7.62^{+0.84}_{-0.75}$ | $D_M(0.51)$ | 1994.5 | 1996 ± 15 |
| $\ln(10^{10} A_s)$ | 3.0425 | 3.045 ± 0.016 | $10^9 A_s$ | 2.0957 | 2.101 ± 0.033 | $H(0.61)$ | 95.057 | 95.04 ± 0.30 |
| n_s | 0.9621 | $0.9592^{+0.0057}_{-0.0069}$ | $10^9 A_s e^{-2\tau}$ | 1.8855 | 1.888 ± 0.013 | $D_M(0.61)$ | 2319.8 | 2321 ± 16 |
| y_{cal} | 1.00018 | 1.0004 ± 0.0025 | D_{40} | 1222.2 | 1216^{+16}_{-23} | $H(2.33)$ | 236.72 | 236.8 ± 1.0 |
| A_{217}^{CIB} | 49.4 | 48 ± 7 | D_{220} | 5715.9 | 5721 ± 42 | $D_M(2.33)$ | 5774.8 | 5776 ± 14 |
| $\xi^{tSZ \times CIB}$ | 0.26 | — | D_{810} | 2537.9 | 2538 ± 14 | $f\sigma_8(0.15)$ | 0.4622 | 0.4624 ± 0.0083 |
| A_{143}^{tSZ} | 6.99 | 5.0 ± 2.0 | D_{1420} | 815.2 | 814.2 ± 5.2 | $\sigma_8(0.15)$ | 0.7482 | 0.7473 ± 0.0056 |
| A_{100}^{PS} | 256.6 | 265 ± 28 | D_{2000} | 229.84 | 229.4 ± 1.8 | $f\sigma_8(0.38)$ | 0.4787 | 0.4786 ± 0.0063 |
| A_{143}^{PS} | 48.9 | 49 ± 8 | $n_{s,0.002}$ | 0.9621 | $0.9592^{+0.0057}_{-0.0069}$ | $\sigma_8(0.38)$ | 0.66233 | 0.6614 ± 0.0050 |
| $A_{143 \times 217}^{PS}$ | 45.3 | 43^{+9}_{-10} | Y_P | 0.245329 | $0.24533^{+0.00010}_{-0.000083}$ | $f\sigma_8(0.51)$ | 0.4764 | $0.4761^{+0.0056}_{-0.0050}$ |
| A_{217}^{PS} | 118.1 | 114 ± 10 | Y_P^{BBN} | 0.246655 | $0.24666^{+0.00010}_{-0.000083}$ | $\sigma_8(0.51)$ | 0.61946 | 0.6185 ± 0.0047 |
| A^{kSZ} | 0.00 | < 5.26 | $10^5 D/H$ | 2.6166 | 2.613 ± 0.042 | $f\sigma_8(0.61)$ | 0.47073 | $0.4704^{+0.0050}_{-0.0045}$ |
| A_{100}^{dustTT} | 8.88 | 8.9 ± 1.8 | Age/Gyr | 13.8230 | 13.825 ± 0.032 | $\sigma_8(0.61)$ | 0.58921 | 0.5883 ± 0.0046 |
| A_{143}^{dustTT} | 10.80 | 10.8 ± 1.8 | z_* | 1090.171 | 1090.16 ± 0.35 | $f\sigma_8(2.33)$ | 0.29676 | 0.2963 ± 0.0024 |
| $A_{143 \times 217}^{dustTT}$ | 19.27 | 18.4 ± 3.3 | r_* | 144.423 | 144.37 ± 0.41 | $\sigma_8(2.33)$ | 0.30560 | 0.3051 ± 0.0027 |
| A_{217}^{dustTT} | 94.2 | 93.4 ± 7.4 | $100\theta_*$ | 1.04089 | 1.04076 ± 0.00051 | f_{2000}^{143} | 30.53 | 31.4 ± 3.0 |
| c_{100} | 0.99968 | 0.99962 ± 0.00061 | $D_M(z_*)/\text{Gpc}$ | 13.8750 | 13.872 ± 0.037 | $f_{2000}^{143 \times 217}$ | 33.29 | 33.6 ± 2.0 |
| c_{217} | 0.99827 | 0.99828 ± 0.00061 | z_{drag} | 1059.589 | 1059.65 ± 0.50 | f_{2000}^{217} | 107.62 | 108.2 ± 1.9 |
| H_0 | 66.96 | 66.89 ± 0.74 | r_{drag} | 147.138 | 147.08 ± 0.43 | $\chi_{lensing}^2$ | 8.93 | 9.52 ± 0.98 |
| Ω_Λ | 0.6803 | 0.679 ± 0.010 | k_D | 0.14069 | 0.14077 ± 0.00053 | χ_{simall}^2 | 395.89 | 397.0 ± 1.5 |
| Ω_m | 0.3197 | 0.321 ± 0.010 | $100\theta_D$ | 0.160934 | 0.16089 ± 0.00031 | χ_{lowl}^2 | 22.35 | 22.1 ± 2.2 |
| $\Omega_m h^2$ | 0.14337 | 0.1435 ± 0.0016 | z_{eq} | 3410.6 | 3415 ± 38 | χ_{plik}^2 | 759.7 | 773.7 ± 5.7 |
| $\Omega_m h^3$ | 0.096001 | 0.09600 ± 0.00046 | k_{eq} | 0.010409 | 0.01042 ± 0.00012 | χ_{prior}^2 | 1.27 | 7.3 ± 3.7 |
| σ_8 | 0.8106 | 0.8097 ± 0.0063 | $100\theta_{eq}$ | 0.8112 | 0.8105 ± 0.0071 | χ_{CMB}^2 | 1186.9 | 1202.2 ± 5.7 |
| S_8 | 0.8368 | 0.837 ± 0.017 | $100\theta_{s,eq}$ | 0.44839 | 0.4480 ± 0.0037 | | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4583 | 0.4587 ± 0.0091 | $H(0.15)$ | 72.33 | 72.27 ± 0.63 | | | |

Best-fit $\chi_{eff}^2 = 1188.17$; $\Delta\chi_{eff}^2 = -0.40$; $\bar{\chi}_{eff}^2 = 1209.53$; $\Delta\bar{\chi}_{eff}^2 = 1.12$; $R - 1 = 0.01166$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consect8: 8.93 (Δ 0.03) simall_100x143_offlike5_EE_Aplanck_B: 395.89 (Δ 0.02) commander_dx12_v3.2_29: 22.35 (Δ -0.88) plik_rd12_HM_v22_TT: 759.73 (Δ 0.41)

5.4 base_alpha1_plikHM_TT_lowl_lowE_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022281 | 0.02229 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.9842 | 0.9834 ± 0.0090 | $D_M(0.38)$ | 1529.9 | 1530.8 ± 8.7 |
| $\Omega_c h^2$ | 0.11911 | 0.1192 ± 0.0011 | $r_{\text{drag}} h$ | 99.65 | 99.56 ± 0.87 | $H(0.51)$ | 89.669 | 89.65 ± 0.27 |
| $100\theta_{\text{MC}}$ | 1.040919 | 1.04085 ± 0.00047 | $\langle d^2 \rangle^{1/2}$ | 2.4356 | 2.436 ± 0.021 | $D_M(0.51)$ | 1982.0 | 1983 ± 10 |
| τ | 0.0565 | 0.0566 ± 0.0078 | z_{re} | 7.91 | 7.90 ± 0.77 | $H(0.61)$ | 95.281 | 95.26 ± 0.24 |
| α_{-1} | -0.00008 | $-0.0009^{+0.0015}_{-0.0011}$ | $10^9 A_s$ | 2.1057 | 2.107 ± 0.034 | $D_M(0.61)$ | 2306.4 | 2307 ± 11 |
| $\ln(10^{10} A_s)$ | 3.0472 | 3.048 ± 0.016 | $10^9 A_s e^{-2\tau}$ | 1.8806 | 1.881 ± 0.012 | $H(2.33)$ | 235.89 | 235.95 ± 0.73 |
| n_s | 0.9654 | $0.9637^{+0.0051}_{-0.0060}$ | D_{40} | 1221.4 | 1216^{+17}_{-26} | $D_M(2.33)$ | 5765.4 | 5766 ± 12 |
| y_{cal} | 1.00074 | 1.0007 ± 0.0025 | D_{220} | 5728.5 | 5728 ± 41 | $f\sigma_8(0.15)$ | 0.4558 | 0.4557 ± 0.0061 |
| A_{217}^{CIB} | 50.3 | 48 ± 7 | D_{810} | 2538.5 | 2538 ± 14 | $\sigma_8(0.15)$ | 0.7478 | 0.7468 ± 0.0057 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.099 | — | D_{1420} | 816.35 | 815.5 ± 5.0 | $f\sigma_8(0.38)$ | 0.4743 | 0.4740 ± 0.0051 |
| A_{143}^{tSZ} | 7.14 | $5.0^{+2.2}_{-2.0}$ | D_{2000} | 230.31 | 230.0 ± 1.7 | $\sigma_8(0.38)$ | 0.6629 | 0.6620 ± 0.0050 |
| A_{100}^{PS} | 256.9 | 264 ± 28 | $n_{s,0.002}$ | 0.9654 | $0.9637^{+0.0051}_{-0.0060}$ | $f\sigma_8(0.51)$ | 0.47293 | 0.4725 ± 0.0046 |
| A_{143}^{PS} | 45.7 | 48 ± 8 | Y_P | 0.245360 | $0.245359^{+0.000097}_{-0.000083}$ | $\sigma_8(0.51)$ | 0.62040 | 0.6195 ± 0.0047 |
| $A_{143 \times 217}^{\text{PS}}$ | 40.6 | 43^{+9}_{-10} | Y_P^{BBN} | 0.246686 | $0.246685^{+0.000097}_{-0.000083}$ | $f\sigma_8(0.61)$ | 0.46801 | 0.4676 ± 0.0042 |
| A_{217}^{PS} | 116.4 | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.6023 | 2.602 ± 0.042 | $\sigma_8(0.61)$ | 0.59034 | 0.5895 ± 0.0045 |
| A^{kSZ} | 0.01 | < 4.96 | Age/Gyr | 13.8027 | 13.804 ± 0.028 | $f\sigma_8(2.33)$ | 0.29768 | 0.2972 ± 0.0023 |
| A_{100}^{dustTT} | 8.89 | 8.9 ± 1.8 | z_* | 1089.954 | 1089.96 ± 0.31 | $\sigma_8(2.33)$ | 0.30692 | 0.3064 ± 0.0025 |
| A_{143}^{dustTT} | 10.75 | 10.7 ± 1.7 | r_* | 144.728 | 144.70 ± 0.31 | f_{2000}^{143} | 30.38 | 31.0 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.93 | 18.3 ± 3.3 | $100\theta_*$ | 1.041115 | 1.04104 ± 0.00047 | $f_{2000}^{143 \times 217}$ | 33.10 | 33.3 ± 2.0 |
| A_{217}^{dustTT} | 93.9 | 93.6 ± 7.5 | $D_M(z_*)/\text{Gpc}$ | 13.9013 | 13.899 ± 0.030 | f_{2000}^{217} | 107.70 | 108.0 ± 1.9 |
| c_{100} | 0.99965 | 0.99963 ± 0.00061 | z_{drag} | 1059.67 | 1059.69 ± 0.51 | χ_{lensing}^2 | 8.783 | 9.25 ± 0.72 |
| c_{217} | 0.99827 | 0.99829 ± 0.00061 | r_{drag} | 147.425 | 147.39 ± 0.36 | χ_{small}^2 | 396.43 | 397.3 ± 1.8 |
| H_0 | 67.592 | 67.54 ± 0.50 | k_D | 0.140447 | 0.14048 ± 0.00050 | χ_{lowl}^2 | 22.31 | 22 ± 3 |
| Ω_Λ | 0.6891 | 0.6884 ± 0.0067 | $100\theta_D$ | 0.160910 | 0.16089 ± 0.00032 | χ_{plik}^2 | 759.8 | 773.6 ± 5.7 |
| Ω_m | 0.3109 | 0.3116 ± 0.0067 | z_{eq} | 3378.9 | 3381 ± 26 | $\chi_{6\text{DF}}^2$ | 0.0294 | 0.068 ± 0.080 |
| $\Omega_m h^2$ | 0.14204 | 0.1421 ± 0.0011 | k_{eq} | 0.010313 | 0.010320 ± 0.000081 | χ_{MGS}^2 | 1.217 | 1.23 ± 0.47 |
| $\Omega_m h^3$ | 0.096008 | 0.09600 ± 0.00046 | $100\theta_{\text{eq}}$ | 0.81723 | 0.8168 ± 0.0048 | χ_{DR12BAO}^2 | 4.40 | 5.1 ± 1.7 |
| σ_8 | 0.8092 | 0.8082 ± 0.0063 | $100\theta_{s,\text{eq}}$ | 0.45150 | 0.4513 ± 0.0025 | χ_{prior}^2 | 1.57 | 7.2 ± 3.7 |
| S_8 | 0.8237 | 0.824 ± 0.012 | $H(0.15)$ | 72.864 | 72.82 ± 0.43 | χ_{CMB}^2 | 1187.3 | 1202.5 ± 5.7 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4512 | 0.4511 ± 0.0066 | $D_M(0.15)$ | 641.43 | 641.9 ± 4.3 | χ_{BAO}^2 | 5.64 | 6.4 ± 1.4 |
| $\sigma_8 \Omega_m^{0.25}$ | 0.6042 | 0.6038 ± 0.0063 | $H(0.38)$ | 82.961 | 82.93 ± 0.33 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1194.56$; $\Delta\chi_{\text{eff}}^2 = -0.13$; $\bar{\chi}_{\text{eff}}^2 = 1216.09$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.36$; $R - 1 = 0.02745$

χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.40 (Δ 0.02) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.78 (Δ -0.09) small_100x143_offlike5_EE_Aplanck: 396.43 (Δ 0.34) commander_dx12_v3_2_29: 22.31 (Δ -0.65) plik_rd12_HM_v22_TT: 759.82 (Δ 0.02)

5.5 base_alpha1_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|-------------------------------|-----------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02220 ± 0.00023 | $\sigma_8 \Omega_m^{0.5}$ | 0.464 ± 0.014 | $100\theta_{s,eq}$ | 0.4465 ± 0.0049 |
| $\Omega_c h^2$ | 0.1214 ± 0.0022 | $\sigma_8 \Omega_m^{0.25}$ | 0.614 ± 0.012 | $H(0.15)$ | 72.03 ± 0.81 |
| $100\theta_{MC}$ | 1.04048 ± 0.00055 | $\sigma_8/h^{0.5}$ | 0.997 ± 0.016 | $D_M(0.15)$ | 650.1 ± 8.4 |
| τ | $0.0551^{+0.0054}_{-0.0086}$ | $r_{drag}h$ | 97.9 ± 1.7 | $H(0.38)$ | 82.37 ± 0.58 |
| α_{-1} | $-0.0015^{+0.0017}_{-0.0010}$ | $\langle d^2 \rangle^{1/2}$ | 2.468 ± 0.039 | $D_M(0.38)$ | 1547 ± 17 |
| $\ln(10^{10} A_s)$ | $3.050^{+0.014}_{-0.017}$ | z_{re} | $7.81^{+0.61}_{-0.84}$ | $H(0.51)$ | 89.23 ± 0.45 |
| n_s | $0.9576^{+0.0067}_{-0.0078}$ | $10^9 A_s$ | $2.112^{+0.029}_{-0.037}$ | $D_M(0.51)$ | 2002 ± 19 |
| y_{cal} | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.892 ± 0.015 | $H(0.61)$ | $94.95^{+0.33}_{-0.37}$ |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1217^{+18}_{-22} | $D_M(0.61)$ | 2328 ± 21 |
| $\xi^{tSZ \times CIB}$ | — | D_{220} | 5719 ± 42 | $H(2.33)$ | 237.3 ± 1.4 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{810} | 2539 ± 14 | $D_M(2.33)$ | 5779 ± 16 |
| A_{100}^{PS} | 264 ± 28 | D_{1420} | 814.2 ± 5.2 | $f\sigma_8(0.15)$ | 0.467 ± 0.013 |
| A_{143}^{PS} | 49 ± 8 | D_{2000} | 229.4 ± 1.8 | $\sigma_8(0.15)$ | 0.7502 ± 0.0071 |
| $A_{143 \times 217}^{PS}$ | 43 ± 9 | $n_{s,0.002}$ | $0.9576^{+0.0067}_{-0.0078}$ | $f\sigma_8(0.38)$ | 0.4825 ± 0.0098 |
| A_{217}^{PS} | 115 ± 10 | Y_P | $0.24532^{+0.00010}_{-0.000085}$ | $\sigma_8(0.38)$ | 0.6635 ± 0.0056 |
| A^{kSZ} | < 5.14 | Y_P^{BBN} | $0.24665^{+0.00011}_{-0.000085}$ | $f\sigma_8(0.51)$ | 0.4795 ± 0.0082 |
| A_{100}^{dustTT} | 9.0 ± 1.8 | $10^5 D/H$ | 2.618 ± 0.043 | $\sigma_8(0.51)$ | $0.6203^{+0.0047}_{-0.0053}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | Age/Gyr | 13.833 ± 0.037 | $f\sigma_8(0.61)$ | 0.4734 ± 0.0072 |
| $A_{143 \times 217}^{dustTT}$ | 18.3 ± 3.3 | z_* | 1090.26 ± 0.40 | $\sigma_8(0.61)$ | $0.5899^{+0.0044}_{-0.0050}$ |
| A_{217}^{dustTT} | 93.4 ± 7.3 | r_* | 144.21 ± 0.53 | $f\sigma_8(2.33)$ | $0.2969^{+0.0021}_{-0.0025}$ |
| c_{100} | 0.99961 ± 0.00062 | $100\theta_*$ | 1.04068 ± 0.00055 | $\sigma_8(2.33)$ | $0.3055^{+0.0022}_{-0.0027}$ |
| c_{217} | 0.99827 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.857 ± 0.048 | f_{2000}^{143} | 31.4 ± 2.9 |
| H_0 | 66.60 ± 0.96 | z_{drag} | 1059.64 ± 0.49 | $f_{2000}^{143 \times 217}$ | 33.7 ± 2.0 |
| Ω_Λ | 0.675 ± 0.014 | r_{drag} | 146.92 ± 0.54 | f_{2000}^{217} | 108.2 ± 1.9 |
| Ω_m | 0.325 ± 0.014 | k_D | 0.14092 ± 0.00061 | χ_{simall}^2 | 397.0 ± 1.7 |
| $\Omega_m h^2$ | 0.1442 ± 0.0022 | $100\theta_D$ | 0.16089 ± 0.00030 | χ_{lowl}^2 | 22.1 ± 2.1 |
| $\Omega_m h^3$ | 0.09603 ± 0.00047 | z_{eq} | 3431 ± 51 | χ_{plik}^2 | 773.9 ± 5.8 |
| σ_8 | 0.8133 ± 0.0086 | k_{eq} | 0.01047 ± 0.00016 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | 0.847 ± 0.025 | $100\theta_{eq}$ | 0.8075 ± 0.0094 | χ_{CMB}^2 | 1193.0 ± 5.7 |

$$\bar{\chi}_{eff}^2 = 1200.29; \Delta\bar{\chi}_{eff}^2 = 0.97; R - 1 = 0.00693$$

5.6 base_alpha1_plikHM_TT_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|-------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02229 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.982 ± 0.011 | $D_M(0.38)$ | 1529.8 ± 9.3 |
| $\Omega_c h^2$ | 0.1191 ± 0.0012 | $r_{\text{drag}} h$ | 99.67 ± 0.96 | $H(0.51)$ | 89.67 ± 0.29 |
| $100\theta_{\text{MC}}$ | 1.04087 ± 0.00047 | $\langle d^2 \rangle^{1/2}$ | 2.432 ± 0.026 | $D_M(0.51)$ | 1982 ± 11 |
| τ | $0.0563^{+0.0061}_{-0.0087}$ | z_{re} | $7.87^{+0.65}_{-0.86}$ | $H(0.61)$ | 95.28 ± 0.24 |
| α_{-1} | $-0.0009^{+0.0015}_{-0.0011}$ | $10^9 A_s$ | $2.104^{+0.030}_{-0.038}$ | $D_M(0.61)$ | 2306 ± 12 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.015}_{-0.018}$ | $10^9 A_s e^{-2\tau}$ | 1.880 ± 0.012 | $H(2.33)$ | 235.85 ± 0.81 |
| n_s | $0.9642^{+0.0053}_{-0.0061}$ | D_{40} | 1214^{+18}_{-26} | $D_M(2.33)$ | 5766 ± 12 |
| y_{cal} | 1.0006 ± 0.0025 | D_{220} | 5725 ± 41 | $f\sigma_8(0.15)$ | 0.4547 ± 0.0075 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 14 | $\sigma_8(0.15)$ | 0.7461 ± 0.0064 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.3 ± 5.0 | $f\sigma_8(0.38)$ | 0.4731 ± 0.0063 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{2000} | 229.9 ± 1.8 | $\sigma_8(0.38)$ | 0.6614 ± 0.0055 |
| A_{100}^{PS} | 264 ± 28 | $n_{s,0.002}$ | $0.9642^{+0.0053}_{-0.0061}$ | $f\sigma_8(0.51)$ | 0.4718 ± 0.0056 |
| A_{143}^{PS} | 48 ± 8 | Y_{P} | $0.245358^{+0.000097}_{-0.000083}$ | $\sigma_8(0.51)$ | 0.6190 ± 0.0051 |
| $A_{143 \times 217}^{\text{PS}}$ | 43^{+9}_{-10} | $Y_{\text{P}}^{\text{BBN}}$ | $0.246685^{+0.000098}_{-0.000083}$ | $f\sigma_8(0.61)$ | 0.4669 ± 0.0052 |
| A_{217}^{PS} | 114 ± 10 | $10^5 \text{D}/\text{H}$ | 2.602 ± 0.042 | $\sigma_8(0.61)$ | $0.5890^{+0.0046}_{-0.0051}$ |
| A^{kSZ} | < 5.03 | Age/Gyr | 13.803 ± 0.028 | $f\sigma_8(2.33)$ | $0.2970^{+0.0023}_{-0.0026}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | z_* | 1089.94 ± 0.32 | $\sigma_8(2.33)$ | $0.3063^{+0.0023}_{-0.0027}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | r_* | 144.74 ± 0.34 | f_{2000}^{143} | 31.0 ± 3.0 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.4 | $100\theta_*$ | 1.04106 ± 0.00048 | $f_{2000}^{143 \times 217}$ | 33.3 ± 2.0 |
| A_{217}^{dustTT} | 93.5 ± 7.5 | $D_M(z_*)/\text{Gpc}$ | 13.903 ± 0.032 | f_{2000}^{217} | 107.9 ± 1.9 |
| c_{100} | 0.99962 ± 0.00061 | z_{drag} | 1059.68 ± 0.52 | χ_{small}^2 | 397.1 ± 1.9 |
| c_{217} | 0.99829 ± 0.00061 | r_{drag} | 147.43 ± 0.39 | χ_{lowl}^2 | 22 ± 2 |
| H_0 | 67.60 ± 0.54 | k_{D} | 0.14044 ± 0.00052 | χ_{plik}^2 | 774.0 ± 5.8 |
| Ω_{Λ} | 0.6892 ± 0.0074 | $100\theta_{\text{D}}$ | 0.16090 ± 0.00032 | $\chi_{6\text{DF}}^2$ | 0.066 ± 0.085 |
| Ω_{m} | 0.3108 ± 0.0074 | z_{eq} | 3378 ± 29 | χ_{MGS}^2 | 1.30 ± 0.52 |
| $\Omega_{\text{m}} h^2$ | 0.1420 ± 0.0012 | k_{eq} | 0.010309 ± 0.000090 | χ_{DR12BAO}^2 | 5.0 ± 1.8 |
| $\Omega_{\text{m}} h^3$ | 0.09599 ± 0.00047 | $100\theta_{\text{eq}}$ | 0.8175 ± 0.0054 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.8073 ± 0.0073 | $100\theta_{\text{s,eq}}$ | 0.4516 ± 0.0028 | χ_{BAO}^2 | 6.4 ± 1.5 |
| S_8 | 0.822 ± 0.015 | $H(0.15)$ | 72.87 ± 0.47 | χ_{CMB}^2 | 1193.4 ± 5.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4500 ± 0.0080 | $D_M(0.15)$ | 641.4 ± 4.6 | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6028 ± 0.0077 | $H(0.38)$ | 82.97 ± 0.35 | | |

$\bar{\chi}_{\text{eff}}^2 = 1207.05$; $\Delta \bar{\chi}_{\text{eff}}^2 = 1.29$; $R - 1 = 0.02346$

5.7 base_alpha1_plikHM_TT_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|-------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02224 ± 0.00022 | $\sigma_8 \Omega_m^{0.25}$ | 0.6095 ± 0.0077 | $D_M(0.15)$ | 647.0 ± 6.2 |
| $\Omega_c h^2$ | 0.1205 ± 0.0016 | $\sigma_8 / h^{0.5}$ | $0.990^{+0.011}_{-0.0099}$ | $H(0.38)$ | 82.57 ± 0.45 |
| $100\theta_{MC}$ | 1.04058 ± 0.00051 | $r_{drag} h$ | 98.5 ± 1.3 | $D_M(0.38)$ | 1541 ± 12 |
| τ | $0.0549^{+0.0055}_{-0.0084}$ | $\langle d^2 \rangle^{1/2}$ | 2.453 ± 0.025 | $H(0.51)$ | 89.37 ± 0.36 |
| α_{-1} | $-0.0014^{+0.0017}_{-0.0010}$ | z_{re} | $7.77^{+0.61}_{-0.80}$ | $D_M(0.51)$ | 1995 ± 15 |
| $\ln(10^{10} A_s)$ | $3.047^{+0.013}_{-0.015}$ | $10^9 A_s$ | $2.106^{+0.026}_{-0.033}$ | $H(0.61)$ | 95.06 ± 0.29 |
| n_s | $0.9595^{+0.0056}_{-0.0069}$ | $10^9 A_s e^{-2\tau}$ | 1.887 ± 0.013 | $D_M(0.61)$ | 2320 ± 16 |
| y_{cal} | 1.0004 ± 0.0025 | D_{40} | 1215^{+16}_{-22} | $H(2.33)$ | 236.8 ± 1.0 |
| A_{217}^{CIB} | 48 ± 7 | D_{220} | 5721 ± 41 | $D_M(2.33)$ | 5775 ± 14 |
| $\xi^{tSZ \times CIB}$ | — | D_{810} | 2538 ± 14 | $f\sigma_8(0.15)$ | 0.4623 ± 0.0083 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{1420} | 814.2 ± 5.2 | $\sigma_8(0.15)$ | 0.7479 ± 0.0053 |
| A_{100}^{PS} | 265 ± 28 | D_{2000} | 229.5 ± 1.8 | $f\sigma_8(0.38)$ | $0.4787^{+0.0066}_{-0.0060}$ |
| A_{143}^{PS} | 49 ± 8 | $n_{s,0.002}$ | $0.9595^{+0.0056}_{-0.0069}$ | $\sigma_8(0.38)$ | 0.6620 ± 0.0046 |
| $A_{143 \times 217}^{PS}$ | 43^{+9}_{-10} | Y_P | $0.245337^{+0.000099}_{-0.000082}$ | $f\sigma_8(0.51)$ | $0.4763^{+0.0056}_{-0.0050}$ |
| A_{217}^{PS} | 114 ± 10 | Y_P^{BBN} | $0.246664^{+0.000099}_{-0.000082}$ | $\sigma_8(0.51)$ | $0.6192^{+0.0041}_{-0.0046}$ |
| A^{kSZ} | < 5.25 | $10^5 D/H$ | 2.611 ± 0.042 | $f\sigma_8(0.61)$ | $0.4706^{+0.0050}_{-0.0044}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | Age/Gyr | 13.823 ± 0.032 | $\sigma_8(0.61)$ | $0.5889^{+0.0039}_{-0.0044}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | z_* | 1090.14 ± 0.35 | $f\sigma_8(2.33)$ | $0.2966^{+0.0021}_{-0.0024}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.4 ± 3.3 | r_* | 144.39 ± 0.40 | $\sigma_8(2.33)$ | $0.3054^{+0.0023}_{-0.0027}$ |
| A_{217}^{dustTT} | 93.4 ± 7.4 | $100\theta_*$ | 1.04078 ± 0.00051 | f_{2000}^{143} | 31.4 ± 3.0 |
| c_{100} | 0.99962 ± 0.00061 | $D_M(z_*)/\text{Gpc}$ | 13.874 ± 0.036 | $f_{2000}^{143 \times 217}$ | 33.6 ± 2.0 |
| c_{217} | 0.99828 ± 0.00061 | z_{drag} | 1059.67 ± 0.49 | f_{2000}^{217} | 108.2 ± 1.9 |
| H_0 | 66.95 ± 0.72 | r_{drag} | 147.10 ± 0.43 | $\chi_{lensing}^2$ | 9.50 ± 0.98 |
| Ω_Λ | 0.680 ± 0.010 | k_D | 0.14076 ± 0.00053 | χ_{simall}^2 | 396.9 ± 1.5 |
| Ω_m | 0.320 ± 0.010 | $100\theta_D$ | 0.16088 ± 0.00030 | χ_{lowl}^2 | 22.0 ± 2.2 |
| $\Omega_m h^2$ | 0.1434 ± 0.0016 | z_{eq} | 3412 ± 37 | χ_{plik}^2 | 773.6 ± 5.7 |
| $\Omega_m h^3$ | 0.09601 ± 0.00046 | k_{eq} | 0.01041 ± 0.00011 | χ_{prior}^2 | 7.3 ± 3.6 |
| σ_8 | 0.8103 ± 0.0060 | $100\theta_{eq}$ | 0.8110 ± 0.0069 | χ_{CMB}^2 | 1202.0 ± 5.6 |
| S_8 | 0.837 ± 0.017 | $100\theta_{s,eq}$ | 0.4483 ± 0.0036 | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4585 ± 0.0090 | $H(0.15)$ | 72.32 ± 0.61 | | |

$$\bar{\chi}_{eff}^2 = 1209.29; \Delta\bar{\chi}_{eff}^2 = 1.13; R - 1 = 0.01342$$

5.8 base_alpha1_plikHM_TT_lowl_lowE_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|-------------------------------|-----------------------------|------------------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02229 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.9837 ± 0.0089 | $D_M(0.38)$ | 1530.6 ± 8.6 |
| $\Omega_c h^2$ | 0.1192 ± 0.0011 | $r_{\text{drag}} h$ | 99.58 ± 0.86 | $H(0.51)$ | 89.65 ± 0.27 |
| $100\theta_{\text{MC}}$ | 1.04085 ± 0.00047 | $\langle d^2 \rangle^{1/2}$ | 2.436 ± 0.021 | $D_M(0.51)$ | 1983 ± 10 |
| τ | $0.0572^{+0.0066}_{-0.0080}$ | z_{re} | 7.97 ± 0.70 | $H(0.61)$ | 95.27 ± 0.23 |
| α_{-1} | $-0.0009^{+0.0015}_{-0.0011}$ | $10^9 A_s$ | $2.110^{+0.029}_{-0.034}$ | $D_M(0.61)$ | 2307 ± 11 |
| $\ln(10^{10} A_s)$ | $3.049^{+0.014}_{-0.016}$ | $10^9 A_s e^{-2\tau}$ | 1.881 ± 0.012 | $H(2.33)$ | 235.94 ± 0.73 |
| n_s | $0.9637^{+0.0051}_{-0.0060}$ | D_{40} | 1216^{+17}_{-26} | $D_M(2.33)$ | 5766 ± 12 |
| y_{cal} | 1.0007 ± 0.0025 | D_{220} | 5728 ± 40 | $f\sigma_8(0.15)$ | 0.4558 ± 0.0061 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2538 ± 14 | $\sigma_8(0.15)$ | 0.7471 ± 0.0055 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.5 ± 5.0 | $f\sigma_8(0.38)$ | 0.4741 ± 0.0051 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{2000} | 230.0 ± 1.7 | $\sigma_8(0.38)$ | 0.6623 ± 0.0048 |
| A_{100}^{PS} | 264 ± 28 | $n_{s,0.002}$ | $0.9637^{+0.0051}_{-0.0060}$ | $f\sigma_8(0.51)$ | 0.4727 ± 0.0045 |
| A_{143}^{PS} | 48 ± 8 | Y_{P} | $0.245361^{+0.000095}_{-0.000083}$ | $\sigma_8(0.51)$ | 0.6198 ± 0.0045 |
| $A_{143 \times 217}^{\text{PS}}$ | 43^{+9}_{-10} | $Y_{\text{P}}^{\text{BBN}}$ | $0.246687^{+0.000096}_{-0.000083}$ | $f\sigma_8(0.61)$ | 0.4677 ± 0.0041 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.601 ± 0.042 | $\sigma_8(0.61)$ | 0.5897 ± 0.0043 |
| A^{kSZ} | < 4.97 | Age/Gyr | 13.804 ± 0.027 | $f\sigma_8(2.33)$ | 0.2973 ± 0.0022 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | z_* | 1089.95 ± 0.31 | $\sigma_8(2.33)$ | 0.3066 ± 0.0024 |
| A_{143}^{dustTT} | 10.7 ± 1.7 | r_* | 144.70 ± 0.31 | f_{2000}^{143} | 30.9 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.4 ± 3.3 | $100\theta_*$ | 1.04104 ± 0.00047 | $f_{2000}^{143 \times 217}$ | 33.3 ± 2.0 |
| A_{217}^{dustTT} | 93.6 ± 7.5 | $D_M(z_*)/\text{Gpc}$ | 13.900 ± 0.030 | f_{2000}^{217} | 107.9 ± 1.9 |
| c_{100} | 0.99963 ± 0.00061 | z_{drag} | 1059.70 ± 0.51 | χ_{lensing}^2 | 9.21 ± 0.67 |
| c_{217} | 0.99829 ± 0.00061 | r_{drag} | 147.39 ± 0.36 | χ_{simall}^2 | 397.3 ± 1.8 |
| H_0 | 67.56 ± 0.50 | k_{D} | 0.14049 ± 0.00050 | χ_{lowl}^2 | 22 ± 2 |
| Ω_{Λ} | 0.6885 ± 0.0067 | $100\theta_{\text{D}}$ | 0.16088 ± 0.00032 | χ_{plik}^2 | 773.6 ± 5.7 |
| Ω_{m} | 0.3115 ± 0.0067 | z_{eq} | 3381 ± 26 | $\chi_{6\text{DF}}^2$ | 0.066 ± 0.079 |
| $\Omega_{\text{m}} h^2$ | 0.1421 ± 0.0011 | k_{eq} | 0.010319 ± 0.000080 | χ_{MGS}^2 | 1.24 ± 0.47 |
| $\Omega_{\text{m}} h^3$ | 0.09601 ± 0.00046 | $100\theta_{\text{eq}}$ | 0.8169 ± 0.0048 | χ_{DR12BAO}^2 | 5.0 ± 1.7 |
| σ_8 | 0.8085 ± 0.0061 | $100\theta_{\text{s,eq}}$ | 0.4513 ± 0.0025 | χ_{prior}^2 | 7.2 ± 3.7 |
| S_8 | 0.824 ± 0.012 | $H(0.15)$ | 72.83 ± 0.43 | χ_{CMB}^2 | 1202.4 ± 5.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4512 ± 0.0066 | $D_M(0.15)$ | 641.8 ± 4.3 | χ_{BAO}^2 | 6.3 ± 1.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6040 ± 0.0062 | $H(0.38)$ | 82.94 ± 0.33 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1215.96; \Delta\bar{\chi}_{\text{eff}}^2 = 1.39; R - 1 = 0.02803$$

5.9 base_alpha1_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------------------|------------------------------|--------------------------------|----------|------------------------------------|-----------------------------|----------|-----------------------|
| $\Omega_b h^2$ | 0.022381 | 0.02236 ± 0.00015 | $\Omega_m h^2$ | 0.14328 | 0.1435 ± 0.0018 | k_{eq} | 0.010403 | 0.01042 ± 0.00013 |
| $\Omega_c h^2$ | 0.12025 | 0.1205 ± 0.0018 | $\Omega_m h^3$ | 0.096366 | 0.09634 ± 0.00030 | $100\theta_{\text{eq}}$ | 0.8122 | 0.8113 ± 0.0079 |
| $100\theta_{\text{MC}}$ | 1.040863 | 1.04082 ± 0.00046 | σ_8 | 0.8123 | 0.8126 ± 0.0077 | $100\theta_{\text{s,eq}}$ | 0.44879 | 0.4483 ± 0.0041 |
| τ | 0.0543 | 0.0546 ± 0.0077 | S_8 | 0.8347 | 0.837 ± 0.020 | $H(0.15)$ | 72.60 | 72.51 ± 0.68 |
| α_{-1} | $-0.6 \cdot 10^{-5}$ | -0.00012 ± 0.00055 | $\sigma_8 \Omega_m^{0.5}$ | 0.4572 | 0.459 ± 0.011 | $D_{\text{M}}(0.15)$ | 644.2 | 645.2 ± 6.9 |
| $\ln(10^{10} A_s)$ | 3.0459 | 3.046 ± 0.016 | $\sigma_8 \Omega_m^{0.25}$ | 0.6094 | 0.6104 ± 0.0098 | $H(0.38)$ | 82.811 | 82.75 ± 0.48 |
| n_s | 0.9649 | $0.9635^{+0.0066}_{-0.0075}$ | $\sigma_8/h^{0.5}$ | 0.9905 | 0.992 ± 0.013 | $D_{\text{M}}(0.38)$ | 1535.1 | 1537 ± 14 |
| y_{cal} | 1.00076 | 1.0006 ± 0.0025 | $r_{\text{drag}} h$ | 98.88 | 98.7 ± 1.4 | $H(0.51)$ | 89.587 | 89.54 ± 0.37 |
| A_{217}^{CIB} | 46.8 | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4490 | 2.454 ± 0.034 | $D_{\text{M}}(0.51)$ | 1987.8 | 1990 ± 16 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.51 | — | z_{re} | 7.68 | 7.70 ± 0.78 | $H(0.61)$ | 95.251 | 95.21 ± 0.29 |
| A_{143}^{tSZ} | 7.20 | $5.4^{+2.2}_{-1.9}$ | $10^9 A_s$ | 2.1029 | 2.104 ± 0.034 | $D_{\text{M}}(0.61)$ | 2312.4 | 2315 ± 17 |
| A_{100}^{PS} | 249.6 | 259 ± 28 | $10^9 A_s e^{-2\tau}$ | 1.8866 | 1.886 ± 0.014 | $H(2.33)$ | 236.73 | 236.9 ± 1.1 |
| A_{143}^{PS} | 49.1 | 46 ± 8 | D_{40} | 1230.5 | 1231 ± 14 | $D_{\text{M}}(2.33)$ | 5764.4 | 5766 ± 13 |
| $A_{143 \times 217}^{\text{PS}}$ | 50.0 | 42 ± 9 | D_{220} | 5737.2 | 5733 ± 39 | $f\sigma_8(0.15)$ | 0.4613 | 0.463 ± 0.010 |
| A_{217}^{PS} | 120.7 | 115 ± 10 | D_{810} | 2542.8 | 2540 ± 13 | $\sigma_8(0.15)$ | 0.7501 | 0.7502 ± 0.0066 |
| A^{kSZ} | 0.00 | < 4.26 | D_{1420} | 818.49 | 817.1 ± 4.8 | $f\sigma_8(0.38)$ | 0.4785 | 0.4793 ± 0.0080 |
| A_{100}^{dustTT} | 8.78 | 8.9 ± 1.8 | D_{2000} | 231.29 | 230.8 ± 1.6 | $\sigma_8(0.38)$ | 0.6644 | 0.6643 ± 0.0055 |
| A_{143}^{dustTT} | 11.01 | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.9649 | $0.9635^{+0.0066}_{-0.0075}$ | $f\sigma_8(0.51)$ | 0.4765 | 0.4771 ± 0.0068 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.02 | 18.6 ± 3.3 | Y_{P} | 0.245400 | $0.245389^{+0.000062}_{-0.000055}$ | $\sigma_8(0.51)$ | 0.62150 | 0.6214 ± 0.0051 |
| A_{217}^{dustTT} | 95.3 | 93.7 ± 7.4 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246726 | $0.246716^{+0.000063}_{-0.000055}$ | $f\sigma_8(0.61)$ | 0.4711 | 0.4716 ± 0.0061 |
| A_{100}^{dustTE} | 0.1141 | 0.115 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.5834 | 2.588 ± 0.028 | $\sigma_8(0.61)$ | 0.59123 | 0.5910 ± 0.0048 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1356 | 0.135 ± 0.030 | Age/Gyr | 13.7989 | 13.803 ± 0.028 | $f\sigma_8(2.33)$ | 0.29789 | 0.2977 ± 0.0025 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.480 ± 0.085 | z_* | 1089.929 | 1089.98 ± 0.29 | $\sigma_8(2.33)$ | 0.30689 | 0.3067 ± 0.0027 |
| A_{143}^{dustTE} | 0.226 | 0.227 ± 0.054 | r_* | 144.358 | 144.32 ± 0.43 | f_{2000}^{143} | 28.92 | 29.6 ± 2.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 | 0.666 ± 0.079 | $100\theta_*$ | 1.041050 | 1.04100 ± 0.00046 | $f_{2000}^{143 \times 217}$ | 32.11 | 32.2 ± 1.9 |
| A_{217}^{dustTE} | 2.077 | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8666 | 13.863 ± 0.038 | f_{2000}^{217} | 106.71 | 107.1 ± 1.8 |
| c_{100} | 0.99974 | 0.99967 ± 0.00061 | z_{drag} | 1059.971 | 1059.95 ± 0.32 | χ_{small}^2 | 396.06 | 397.1 ± 1.9 |
| c_{217} | 0.99820 | 0.99819 ± 0.00062 | r_{drag} | 147.014 | 146.98 ± 0.44 | χ_{lowl}^2 | 23.22 | 23.4 ± 1.6 |
| H_0 | 67.26 | 67.15 ± 0.80 | k_{D} | 0.140959 | 0.14098 ± 0.00047 | χ_{plik}^2 | 2344.8 | 2361.5 ± 6.1 |
| Ω_{Λ} | 0.6833 | 0.682 ± 0.011 | $100\theta_{\text{D}}$ | 0.160726 | 0.16074 ± 0.00020 | χ_{prior}^2 | 1.72 | 11.5 ± 4.5 |
| Ω_{m} | 0.3167 | 0.318 ± 0.011 | z_{eq} | 3408.5 | 3414 ± 42 | χ_{CMB}^2 | 2764.1 | 2782.1 ± 6.0 |

Best-fit $\chi_{\text{eff}}^2 = 2765.78$; $\Delta\chi_{\text{eff}}^2 = 0.01$; $\bar{\chi}_{\text{eff}}^2 = 2793.61$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.84$; $R - 1 = 0.01294$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.06 (Δ 0.01) commander_dx12_v3.2.29: 23.22 (Δ -0.04) plik_rd12_HM_v22b_TTTEEE: 2344.78 (Δ 0.14)

5.10 base_alpha1_plikHM_TTTEEE_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|---------------------|---------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|-------------------------|
| $\Omega_b h^2$ | 0.022431 | 0.02240 ± 0.00014 | σ_8 | 0.8109 | 0.8097 ± 0.0071 | $D_M(0.15)$ | 640.04 | 640.0 ± 4.4 |
| $\Omega_c h^2$ | 0.11917 | 0.1191 ± 0.0012 | S_8 | 0.8242 | 0.823 ± 0.014 | $H(0.38)$ | 83.107 | 83.10 ± 0.32 |
| $100\theta_{MC}$ | 1.041066 | 1.04109 ± 0.00038 | $\sigma_8 \Omega_m^{0.5}$ | 0.4515 | 0.4506 ± 0.0075 | $D_M(0.38)$ | 1526.8 | 1526.9 ± 8.7 |
| τ | 0.0561 | $0.0555^{+0.0071}_{-0.0079}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6051 | 0.6040 ± 0.0073 | $H(0.51)$ | 89.813 | $89.81^{+0.24}_{-0.27}$ |
| α_{-1} | $2.2 \cdot 10^{-5}$ | $0.00015^{+0.00035}_{-0.00041}$ | $\sigma_8/h^{0.5}$ | 0.9852 | 0.984 ± 0.011 | $D_M(0.51)$ | 1978.1 | 1978 ± 10 |
| $\ln(10^{10} A_s)$ | 3.0466 | 3.044 ± 0.016 | $r_{drag} h$ | 99.75 | 99.79 ± 0.92 | $H(0.61)$ | 95.424 | $95.41^{+0.19}_{-0.22}$ |
| n_s | 0.9693 | 0.9681 ± 0.0052 | $\langle d^2 \rangle^{1/2}$ | 2.4330 | 2.433 ± 0.026 | $D_M(0.61)$ | 2302.0 | 2302 ± 11 |
| y_{cal} | 1.00082 | 1.0007 ± 0.0024 | z_{re} | 7.83 | 7.76 ± 0.77 | $H(2.33)$ | 236.09 | 236.03 ± 0.73 |
| A_{217}^{CIB} | 45.1 | 47 ± 7 | $10^9 A_s$ | 2.1043 | 2.100 ± 0.034 | $D_M(2.33)$ | 5757.2 | 5758.0 ± 9.4 |
| $\xi^{tSZ \times CIB}$ | 0.76 | — | $10^9 A_s e^{-2\tau}$ | 1.8811 | 1.879 ± 0.012 | $f\sigma_8(0.15)$ | 0.4562 | 0.4554 ± 0.0071 |
| A_{143}^{tSZ} | 7.05 | $5.5^{+2.3}_{-1.9}$ | D_{40} | 1227.3 | 1230 ± 14 | $\sigma_8(0.15)$ | 0.7495 | 0.7483 ± 0.0063 |
| A_{100}^{PS} | 246.4 | 258 ± 28 | D_{220} | 5734.5 | 5734 ± 38 | $f\sigma_8(0.38)$ | 0.4749 | 0.4740 ± 0.0059 |
| A_{143}^{PS} | 51.3 | 45 ± 8 | D_{810} | 2542.5 | 2539 ± 13 | $\sigma_8(0.38)$ | 0.6645 | 0.6635 ± 0.0055 |
| $A_{143 \times 217}^{PS}$ | 55.4 | 42 ± 9 | D_{1420} | 819.89 | 818.0 ± 4.6 | $f\sigma_8(0.51)$ | 0.4737 | 0.4728 ± 0.0053 |
| A_{217}^{PS} | 122.9 | 115 ± 10 | D_{2000} | 231.90 | 231.2 ± 1.5 | $\sigma_8(0.51)$ | 0.6220 | 0.6210 ± 0.0051 |
| A^{kSZ} | 0.00 | < 4.16 | $n_{s,0.002}$ | 0.9693 | 0.9681 ± 0.0052 | $f\sigma_8(0.61)$ | 0.46881 | 0.4680 ± 0.0049 |
| A_{100}^{dustTT} | 8.87 | 9.0 ± 1.8 | Y_P | 0.245419 | $0.245406^{+0.000058}_{-0.000053}$ | $\sigma_8(0.61)$ | 0.59187 | 0.5910 ± 0.0048 |
| A_{143}^{dustTT} | 11.03 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246746 | $0.246733^{+0.000058}_{-0.000053}$ | $f\sigma_8(2.33)$ | 0.29849 | 0.2980 ± 0.0024 |
| $A_{143 \times 217}^{dustTT}$ | 20.24 | 18.7 ± 3.3 | $10^5 D/H$ | 2.5742 | 2.580 ± 0.026 | $\sigma_8(2.33)$ | 0.30779 | 0.3074 ± 0.0026 |
| A_{217}^{dustTT} | 95.8 | 93.9 ± 7.3 | Age/Gyr | 13.7834 | 13.785 ± 0.021 | f_{2000}^{143} | 28.14 | 29.2 ± 2.7 |
| A_{100}^{dustTE} | 0.1136 | 0.115 ± 0.038 | z_* | 1089.771 | 1089.80 ± 0.23 | $f_{2000}^{143 \times 217}$ | 31.63 | 32.0 ± 1.9 |
| $A_{100 \times 143}^{dustTE}$ | 0.1344 | 0.136 ± 0.030 | r_* | 144.600 | 144.64 ± 0.30 | f_{2000}^{217} | 106.17 | 106.9 ± 1.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 | 0.480 ± 0.085 | $100\theta_*$ | 1.041248 | 1.04127 ± 0.00039 | χ_{small}^2 | 396.37 | 397.2 ± 2.0 |
| A_{143}^{dustTE} | 0.225 | 0.227 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8872 | 13.890 ± 0.027 | χ_{lowl}^2 | 23.20 | 23.8 ± 1.7 |
| $A_{143 \times 217}^{dustTE}$ | 0.664 | 0.666 ± 0.079 | z_{drag} | 1060.009 | 1059.95 ± 0.32 | χ_{plik}^2 | 2345.2 | 2360.9 ± 6.0 |
| A_{217}^{dustTE} | 2.080 | 2.08 ± 0.27 | r_{drag} | 147.245 | 147.29 ± 0.31 | χ_{6DF}^2 | 0.0225 | 0.056 ± 0.072 |
| c_{100} | 0.99974 | 0.99965 ± 0.00061 | k_D | 0.140752 | 0.14068 ± 0.00038 | χ_{MGS}^2 | 1.28 | 1.36 ± 0.52 |
| c_{217} | 0.99815 | 0.99820 ± 0.00062 | $100\theta_D$ | 0.160724 | 0.16077 ± 0.00021 | $\chi_{DR12BAO}^2$ | 4.25 | 4.8 ± 1.6 |
| H_0 | 67.75 | 67.75 ± 0.51 | z_{eq} | 3383.8 | 3382 ± 27 | χ_{prior}^2 | 1.60 | 11.7 ± 4.4 |
| Ω_Λ | 0.6901 | 0.6902 ± 0.0070 | k_{eq} | 0.010328 | 0.010322 ± 0.000083 | χ_{BAO}^2 | 5.55 | 6.2 ± 1.3 |
| Ω_m | 0.3099 | 0.3098 ± 0.0070 | $100\theta_{eq}$ | 0.8169 | 0.8172 ± 0.0051 | χ_{CMB}^2 | 2764.7 | 2781.9 ± 5.9 |
| $\Omega_m h^2$ | 0.14224 | 0.1422 ± 0.0011 | $100\theta_{s,eq}$ | 0.45122 | 0.4514 ± 0.0026 | | | |
| $\Omega_m h^3$ | 0.096365 | 0.09631 ± 0.00030 | $H(0.15)$ | 73.015 | 73.02 ± 0.44 | | | |

Best-fit $\chi_{eff}^2 = 2771.88$; $\Delta\chi_{eff}^2 = -0.04$; $\bar{\chi}_{eff}^2 = 2799.77$; $\Delta\bar{\chi}_{eff}^2 = 1.87$; $R - 1 = 0.02417$

χ_{eff}^2 : BAO - 6DF: 0.02 (Δ -0.01) MGS: 1.28 (Δ 0.06) DR12BAO: 4.25 (Δ -0.16) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.37 (Δ 0.17) commander_dx12_v3_2_29: 23.20 (Δ 0.32) plik_rd12_HM_v22b_TTTEEE: 2345.16 (Δ -0.35)

5.11 base_alpha1_plikHM_TTTEEE_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------------------|------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|----------------------|
| $\Omega_b h^2$ | 0.022410 | 0.02238 ± 0.00015 | $\Omega_m h^3$ | 0.096407 | 0.09633 ± 0.00030 | $100\theta_{s,eq}$ | 0.44914 | 0.4491 ± 0.0034 |
| $\Omega_c h^2$ | 0.12008 | 0.1201 ± 0.0015 | σ_8 | 0.8115 | 0.8113 ± 0.0059 | $H(0.15)$ | 72.68 | 72.64 ± 0.57 |
| $100\theta_{MC}$ | 1.040904 | 1.04087 ± 0.00043 | S_8 | 0.8322 | 0.833 ± 0.015 | $D_M(0.15)$ | 643.4 | 643.9 ± 5.7 |
| τ | 0.0543 | 0.0544 ± 0.0075 | $\sigma_8 \Omega_m^{0.5}$ | 0.4558 | 0.4561 ± 0.0081 | $H(0.38)$ | 82.875 | 82.84 ± 0.41 |
| α_{-1} | $-0.3 \cdot 10^{-5}$ | -0.00006 ± 0.00051 | $\sigma_8 \Omega_m^{0.25}$ | 0.6082 | 0.6083 ± 0.0070 | $D_M(0.38)$ | 1533.4 | 1534 ± 11 |
| $\ln(10^{10} A_s)$ | 3.0446 | 3.045 ± 0.014 | $\sigma_8/h^{0.5}$ | 0.9888 | 0.9889 ± 0.0095 | $H(0.51)$ | 89.639 | 89.60 ± 0.32 |
| n_s | 0.9657 | 0.9645 ± 0.0061 | $r_{drag} h$ | 99.03 | 99.0 ± 1.2 | $D_M(0.51)$ | 1985.8 | 1987 ± 13 |
| y_{cal} | 1.00022 | 1.0006 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | 2.4441 | 2.447 ± 0.024 | $H(0.61)$ | 95.295 | 95.26 ± 0.25 |
| A_{217}^{CIB} | 46.1 | 47 ± 7 | z_{re} | 7.68 | 7.67 ± 0.75 | $D_M(0.61)$ | 2310.2 | 2312 ± 14 |
| $\xi^{tSZ \times CIB}$ | 0.60 | — | $10^9 A_s$ | 2.1002 | 2.101 ± 0.030 | $H(2.33)$ | 236.65 | 236.64 ± 0.92 |
| A_{143}^{tSZ} | 7.11 | $5.5^{+2.2}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.8840 | 1.884 ± 0.012 | $D_M(2.33)$ | 5762.3 | 5764 ± 11 |
| A_{100}^{PS} | 248.0 | 259 ± 28 | D_{40} | 1228.1 | 1230 ± 14 | $f\sigma_8(0.15)$ | 0.4601 | 0.4603 ± 0.0074 |
| A_{143}^{PS} | 49.7 | 46^{+8}_{-7} | D_{220} | 5732.0 | 5734 ± 38 | $\sigma_8(0.15)$ | 0.7495 | 0.7492 ± 0.0053 |
| $A_{143 \times 217}^{PS}$ | 51.7 | 42 ± 9 | D_{810} | 2540.6 | 2540 ± 13 | $f\sigma_8(0.38)$ | 0.4776 | 0.4776 ± 0.0057 |
| A_{217}^{PS} | 121.3 | 115 ± 10 | D_{1420} | 818.21 | 817.2 ± 4.8 | $\sigma_8(0.38)$ | 0.66392 | 0.6636 ± 0.0048 |
| A^{kSZ} | 0.00 | < 4.28 | D_{2000} | 231.28 | 230.8 ± 1.6 | $f\sigma_8(0.51)$ | 0.47568 | 0.4757 ± 0.0049 |
| A_{100}^{dustTT} | 8.79 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.9657 | 0.9645 ± 0.0061 | $\sigma_8(0.51)$ | 0.62114 | 0.6208 ± 0.0045 |
| A_{143}^{dustTT} | 11.00 | 10.9 ± 1.8 | Y_P | 0.245411 | $0.245396^{+0.000061}_{-0.000054}$ | $f\sigma_8(0.61)$ | 0.47037 | 0.4703 ± 0.0043 |
| $A_{143 \times 217}^{dustTT}$ | 20.14 | 18.7 ± 3.3 | Y_P^{BBN} | 0.246738 | $0.246722^{+0.000061}_{-0.000054}$ | $\sigma_8(0.61)$ | 0.59092 | 0.5906 ± 0.0044 |
| A_{217}^{dustTT} | 95.5 | 93.8 ± 7.3 | $10^5 D/H$ | 2.5781 | 2.585 ± 0.027 | $f\sigma_8(2.33)$ | 0.29778 | 0.2976 ± 0.0024 |
| A_{100}^{dustTE} | 0.1139 | 0.116 ± 0.038 | Age/Gyr | 13.7942 | 13.799 ± 0.025 | $\sigma_8(2.33)$ | 0.30683 | 0.3066 ± 0.0026 |
| $A_{100 \times 143}^{dustTE}$ | 0.1354 | 0.136 ± 0.030 | z_* | 1089.877 | 1089.92 ± 0.26 | f_{2000}^{143} | 28.56 | 29.6 ± 2.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.482 | 0.481 ± 0.086 | r_* | 144.380 | 144.40 ± 0.36 | $f_{2000}^{143 \times 217}$ | 31.86 | $32.2^{+1.7}_{-2.0}$ |
| A_{143}^{dustTE} | 0.226 | 0.226 ± 0.055 | $100\theta_*$ | 1.041087 | 1.04105 ± 0.00043 | f_{2000}^{217} | 106.36 | 107.0 ± 1.8 |
| $A_{143 \times 217}^{dustTE}$ | 0.667 | 0.666 ± 0.079 | $D_M(z_*)/\text{Gpc}$ | 13.8682 | 13.870 ± 0.032 | $\chi_{lensing}^2$ | 8.835 | 9.35 ± 0.81 |
| A_{217}^{dustTE} | 2.081 | 2.08 ± 0.27 | z_{drag} | 1060.047 | 1059.96 ± 0.32 | χ_{small}^2 | 396.04 | 397.0 ± 1.8 |
| c_{100} | 0.99972 | 0.99966 ± 0.00061 | r_{drag} | 147.025 | 147.06 ± 0.37 | χ_{lowl}^2 | 23.15 | 23.4 ± 1.7 |
| c_{217} | 0.99817 | 0.99820 ± 0.00063 | k_D | 0.140966 | 0.14091 ± 0.00041 | χ_{plik}^2 | 2345.1 | 2361.2 ± 6.0 |
| H_0 | 67.35 | 67.30 ± 0.67 | $100\theta_D$ | 0.160699 | 0.16074 ± 0.00020 | χ_{prior}^2 | 1.58 | 11.6 ± 4.5 |
| Ω_Λ | 0.6845 | 0.6838 ± 0.0093 | z_{eq} | 3405.1 | 3405 ± 35 | χ_{CMB}^2 | 2773.1 | 2791.0 ± 6.1 |
| Ω_m | 0.3155 | 0.3162 ± 0.0093 | k_{eq} | 0.010393 | 0.01039 ± 0.00011 | | | |
| $\Omega_m h^2$ | 0.14314 | 0.1431 ± 0.0014 | $100\theta_{eq}$ | 0.8129 | 0.8128 ± 0.0065 | | | |

Best-fit $\chi_{eff}^2 = 2774.65$; $\Delta\chi_{eff}^2 = 0.02$; $\bar{\chi}_{eff}^2 = 2802.58$; $\Delta\bar{\chi}_{eff}^2 = 1.89$; $R - 1 = 0.01462$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 8.84 (Δ -0.03) small_100x143_offlike5_EE_Aplanck_B: 396.04 (Δ -0.01) commander_dx12_v3_2_29: 23.15 (Δ -0.10) plik_rd12_HM_v22b_TTTEEE: 2345.06 (Δ 0.13)

5.12 base_alpha1_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|---------------------|---------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|-------------------------|
| $\Omega_b h^2$ | 0.022420 | 0.02241 ± 0.00014 | σ_8 | 0.8109 | 0.8105 ± 0.0059 | $D_M(0.15)$ | 640.55 | 640.2 ± 4.0 |
| $\Omega_c h^2$ | 0.11927 | 0.1192 ± 0.0011 | S_8 | 0.8252 | 0.824 ± 0.011 | $H(0.38)$ | 83.067 | $83.09^{+0.27}_{-0.31}$ |
| $100\theta_{MC}$ | 1.041024 | 1.04107 ± 0.00038 | $\sigma_8 \Omega_m^{0.5}$ | 0.4520 | 0.4513 ± 0.0062 | $D_M(0.38)$ | 1527.9 | $1527.2^{+8.4}_{-7.6}$ |
| τ | 0.0560 | $0.0563^{+0.0066}_{-0.0075}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6054 | 0.6048 ± 0.0058 | $H(0.51)$ | 89.781 | $89.80^{+0.22}_{-0.25}$ |
| α_{-1} | $1.3 \cdot 10^{-5}$ | $0.00013^{+0.00035}_{-0.00039}$ | $\sigma_8/h^{0.5}$ | 0.9857 | 0.9848 ± 0.0084 | $D_M(0.51)$ | 1979.3 | $1978.6^{+9.9}_{-8.9}$ |
| $\ln(10^{10} A_s)$ | 3.0467 | 3.046 ± 0.014 | $r_{\text{drag}} h$ | 99.66 | 99.74 ± 0.84 | $H(0.61)$ | 95.397 | $95.41^{+0.18}_{-0.20}$ |
| n_s | 0.9684 | 0.9678 ± 0.0050 | $\langle d^2 \rangle^{1/2}$ | 2.4355 | 2.436 ± 0.021 | $D_M(0.61)$ | 2303.3 | $2303^{+11}_{-9.6}$ |
| y_{cal} | 1.00086 | 1.0008 ± 0.0024 | z_{re} | 7.83 | 7.84 ± 0.72 | $H(2.33)$ | 236.14 | 236.07 ± 0.67 |
| A_{217}^{CIB} | 46.4 | 47 ± 7 | $10^9 A_s$ | 2.1045 | $2.104^{+0.028}_{-0.031}$ | $D_M(2.33)$ | 5758.5 | 5758.2 ± 9.1 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.54 | — | $10^9 A_s e^{-2\tau}$ | 1.8815 | 1.880 ± 0.011 | $f\sigma_8(0.15)$ | 0.4567 | 0.4560 ± 0.0058 |
| A_{143}^{tSZ} | 7.12 | $5.5^{+2.2}_{-1.9}$ | D_{40} | 1228.3 | 1231 ± 14 | $\sigma_8(0.15)$ | 0.7494 | 0.7491 ± 0.0054 |
| A_{100}^{PS} | 249.0 | 258 ± 28 | D_{220} | 5736.3 | 5737 ± 38 | $f\sigma_8(0.38)$ | 0.47520 | 0.4747 ± 0.0048 |
| A_{143}^{PS} | 48.6 | 45 ± 8 | D_{810} | 2542.0 | 2539 ± 13 | $\sigma_8(0.38)$ | 0.66441 | 0.6641 ± 0.0048 |
| $A_{143 \times 217}^{\text{PS}}$ | 49.9 | 42 ± 9 | D_{1420} | 819.36 | 818.1 ± 4.6 | $f\sigma_8(0.51)$ | 0.47389 | 0.4734 ± 0.0043 |
| A_{217}^{PS} | 120.7 | 115 ± 10 | D_{2000} | 231.68 | 231.2 ± 1.5 | $\sigma_8(0.51)$ | 0.62181 | 0.6216 ± 0.0045 |
| A^{kSZ} | 0.00 | < 4.08 | $n_{s,0.002}$ | 0.9684 | 0.9678 ± 0.0050 | $f\sigma_8(0.61)$ | 0.46898 | 0.4686 ± 0.0039 |
| A_{100}^{dustTT} | 8.92 | 8.9 ± 1.8 | Y_P | 0.245415 | $0.245408^{+0.000058}_{-0.000052}$ | $\sigma_8(0.61)$ | 0.59169 | 0.5915 ± 0.0043 |
| A_{143}^{dustTT} | 11.07 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246742 | $0.246734^{+0.000058}_{-0.000052}$ | $f\sigma_8(2.33)$ | 0.29837 | 0.2983 ± 0.0022 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.99 | 18.7 ± 3.3 | 10^5D/H | 2.5762 | 2.579 ± 0.026 | $\sigma_8(2.33)$ | 0.30764 | 0.3076 ± 0.0024 |
| A_{217}^{dustTT} | 95.4 | 93.9 ± 7.4 | Age/Gyr | 13.7862 | 13.786 ± 0.020 | f_{2000}^{143} | 28.49 | 29.2 ± 2.7 |
| A_{100}^{dustTE} | 0.1142 | 0.115 ± 0.038 | z_* | 1089.792 | 1089.80 ± 0.22 | $f_{2000}^{143 \times 217}$ | 31.78 | 32.0 ± 1.9 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1341 | 0.136 ± 0.030 | r_* | 144.582 | 144.62 ± 0.27 | f_{2000}^{217} | 106.43 | 106.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.480 ± 0.085 | $100\theta_*$ | 1.041204 | 1.04125 ± 0.00038 | χ_{lensing}^2 | 8.742 | 9.14 ± 0.62 |
| A_{143}^{dustTE} | 0.225 | 0.226 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8861 | 13.889 ± 0.024 | χ_{small}^2 | 396.38 | 397.3 ± 2.0 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 | 0.665 ± 0.078 | z_{drag} | 1060.009 | 1059.96 ± 0.32 | χ_{lowl}^2 | 23.24 | 23.8 ± 1.7 |
| A_{217}^{dustTE} | 2.086 | 2.08 ± 0.27 | r_{drag} | 147.229 | 147.27 ± 0.29 | χ_{plik}^2 | 2344.9 | 2360.6 ± 5.9 |
| c_{100} | 0.99974 | 0.99965 ± 0.00061 | k_D | 0.140759 | 0.14071 ± 0.00036 | $\chi_{6\text{DF}}^2$ | 0.0290 | 0.053 ± 0.065 |
| c_{217} | 0.99817 | 0.99820 ± 0.00062 | $100\theta_D$ | 0.160729 | 0.16076 ± 0.00021 | χ_{MGS}^2 | 1.217 | 1.33 ± 0.47 |
| H_0 | 67.687 | $67.73^{+0.44}_{-0.50}$ | z_{eq} | 3385.9 | 3383 ± 25 | χ_{DR12BAO}^2 | 4.41 | 4.7 ± 1.5 |
| Ω_Λ | 0.6893 | 0.6899 ± 0.0064 | k_{eq} | 0.010334 | 0.010326 ± 0.000075 | χ_{prior}^2 | 1.69 | 11.6 ± 4.4 |
| Ω_m | 0.3107 | 0.3101 ± 0.0064 | $100\theta_{\text{eq}}$ | 0.81644 | 0.8169 ± 0.0046 | χ_{CMB}^2 | 2773.3 | 2790.9 ± 6.0 |
| $\Omega_m h^2$ | 0.14233 | 0.1422 ± 0.0010 | $100\theta_{s,\text{eq}}$ | 0.45099 | 0.4513 ± 0.0024 | χ_{BAO}^2 | 5.66 | 6.1 ± 1.2 |
| $\Omega_m h^3$ | 0.096341 | 0.09632 ± 0.00030 | $H(0.15)$ | 72.963 | $73.00^{+0.38}_{-0.43}$ | | | |

Best-fit $\chi_{\text{eff}}^2 = 2780.63$; $\Delta\chi_{\text{eff}}^2 = -0.07$; $\bar{\chi}_{\text{eff}}^2 = 2808.59$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.75$; $R - 1 = 0.02748$

χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.41 (Δ -0.01) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.74 (Δ 0.01) small_100x143_offlike5_EE_Aplanck: 396.38 (Δ -0.14) commander_dx12_v3.2_29: 23.24 (Δ 0.34) plik_rd12_HM_v22b_TTTEEE: 2344.91 (Δ -0.41)

5.13 base_alpha1_plikHM_TTTEEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|--------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02236 ± 0.00015 | $\Omega_m h^2$ | 0.1435 ± 0.0018 | k_{eq} | 0.01042 ± 0.00013 |
| $\Omega_c h^2$ | 0.1205 ± 0.0018 | $\Omega_m h^3$ | 0.09634 ± 0.00030 | $100\theta_{\text{eq}}$ | 0.8114 ± 0.0078 |
| $100\theta_{\text{MC}}$ | 1.04082 ± 0.00046 | σ_8 | 0.8133 ± 0.0073 | $100\theta_{\text{s,eq}}$ | 0.4484 ± 0.0041 |
| τ | $0.0556^{+0.0054}_{-0.0080}$ | S_8 | 0.838 ± 0.020 | $H(0.15)$ | 72.52 ± 0.68 |
| α_{-1} | -0.00012 ± 0.00055 | $\sigma_8 \Omega_m^{0.5}$ | 0.459 ± 0.011 | $D_{\text{M}}(0.15)$ | 645.1 ± 6.8 |
| $\ln(10^{10} A_s)$ | $3.048^{+0.013}_{-0.016}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6108 ± 0.0096 | $H(0.38)$ | 82.75 ± 0.48 |
| n_s | $0.9636^{+0.0066}_{-0.0074}$ | $\sigma_8/h^{0.5}$ | 0.992 ± 0.013 | $D_{\text{M}}(0.38)$ | 1537 ± 14 |
| y_{cal} | 1.0006 ± 0.0025 | $r_{\text{drag}} h$ | 98.7 ± 1.4 | $H(0.51)$ | 89.54 ± 0.37 |
| A_{217}^{CIB} | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.455 ± 0.033 | $D_{\text{M}}(0.51)$ | 1990 ± 16 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | z_{re} | $7.81^{+0.59}_{-0.79}$ | $H(0.61)$ | 95.22 ± 0.29 |
| A_{143}^{tSZ} | $5.4^{+2.2}_{-1.9}$ | $10^9 A_s$ | $2.108^{+0.026}_{-0.035}$ | $D_{\text{M}}(0.61)$ | 2315 ± 17 |
| A_{100}^{PS} | 259 ± 28 | $10^9 A_s e^{-2\tau}$ | 1.886 ± 0.014 | $H(2.33)$ | 236.8 ± 1.1 |
| A_{143}^{PS} | 46 ± 8 | D_{40} | 1231 ± 14 | $D_{\text{M}}(2.33)$ | 5766 ± 13 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{220} | 5733 ± 39 | $f\sigma_8(0.15)$ | 0.463 ± 0.010 |
| A_{217}^{PS} | 115 ± 10 | D_{810} | 2540 ± 13 | $\sigma_8(0.15)$ | $0.7509^{+0.0057}_{-0.0065}$ |
| A^{kSZ} | < 4.23 | D_{1420} | 817.1 ± 4.8 | $f\sigma_8(0.38)$ | 0.4797 ± 0.0079 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | D_{2000} | 230.8 ± 1.6 | $\sigma_8(0.38)$ | $0.6649^{+0.0045}_{-0.0054}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | $0.9636^{+0.0066}_{-0.0074}$ | $f\sigma_8(0.51)$ | 0.4775 ± 0.0067 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | Y_{P} | $0.245390^{+0.000062}_{-0.000055}$ | $\sigma_8(0.51)$ | $0.6219^{+0.0041}_{-0.0051}$ |
| A_{217}^{dustTT} | 93.7 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246717^{+0.000062}_{-0.000055}$ | $f\sigma_8(0.61)$ | 0.4719 ± 0.0059 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | 10^5D/H | 2.587 ± 0.028 | $\sigma_8(0.61)$ | $0.5916^{+0.0039}_{-0.0048}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | Age/Gyr | 13.803 ± 0.028 | $f\sigma_8(2.33)$ | $0.2980^{+0.0020}_{-0.0024}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.085 | z_* | 1089.97 ± 0.29 | $\sigma_8(2.33)$ | $0.3070^{+0.0022}_{-0.0026}$ |
| A_{143}^{dustTE} | 0.227 ± 0.054 | r_* | 144.32 ± 0.43 | f_{2000}^{143} | 29.5 ± 2.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 ± 0.079 | $100\theta_*$ | 1.04101 ± 0.00046 | $f_{2000}^{143 \times 217}$ | 32.2 ± 1.9 |
| A_{217}^{dustTE} | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.864 ± 0.038 | f_{2000}^{217} | 107.0 ± 1.8 |
| c_{100} | 0.99967 ± 0.00061 | z_{drag} | 1059.95 ± 0.32 | χ_{small}^2 | 397.1 ± 1.9 |
| c_{217} | 0.99819 ± 0.00062 | r_{drag} | 146.98 ± 0.44 | χ_{lowl}^2 | 23.4 ± 1.6 |
| H_0 | 67.16 ± 0.80 | k_{D} | $0.14098^{+0.00050}_{-0.00045}$ | χ_{plik}^2 | 2361.4 ± 6.1 |
| Ω_{Λ} | 0.682 ± 0.011 | $100\theta_{\text{D}}$ | 0.16074 ± 0.00020 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_{m} | 0.318 ± 0.011 | z_{eq} | 3413 ± 42 | χ_{CMB}^2 | 2781.9 ± 6.0 |

$\bar{\chi}_{\text{eff}}^2 = 2793.42$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.88$; $R - 1 = 0.01296$

5.14 base_alpha1_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|---------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02240 ± 0.00014 | σ_8 | $0.8103^{+0.0063}_{-0.0071}$ | $D_M(0.15)$ | 640.0 ± 4.4 |
| $\Omega_c h^2$ | 0.1191 ± 0.0012 | S_8 | 0.823 ± 0.014 | $H(0.38)$ | $83.11^{+0.30}_{-0.34}$ |
| $100\theta_{MC}$ | 1.04109 ± 0.00039 | $\sigma_8 \Omega_m^{0.5}$ | 0.4509 ± 0.0074 | $D_M(0.38)$ | 1526.8 ± 8.7 |
| τ | $0.0563^{+0.0056}_{-0.0080}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6045 ± 0.0071 | $H(0.51)$ | $89.81^{+0.24}_{-0.27}$ |
| α_{-1} | $0.00015^{+0.00035}_{-0.00040}$ | $\sigma_8/h^{0.5}$ | 0.984 ± 0.010 | $D_M(0.51)$ | 1978 ± 10 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.013}_{-0.016}$ | $r_{drag} h$ | 99.80 ± 0.92 | $H(0.61)$ | $95.42^{+0.19}_{-0.22}$ |
| n_s | 0.9682 ± 0.0052 | $\langle d^2 \rangle^{1/2}$ | 2.434 ± 0.025 | $D_M(0.61)$ | 2302 ± 11 |
| y_{cal} | 1.0007 ± 0.0024 | z_{re} | $7.85^{+0.60}_{-0.80}$ | $H(2.33)$ | 236.02 ± 0.73 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.103^{+0.026}_{-0.035}$ | $D_M(2.33)$ | 5757.9 ± 9.4 |
| $\xi^{tSZ \times CIB}$ | — | $10^9 A_s e^{-2\tau}$ | 1.879 ± 0.012 | $f\sigma_8(0.15)$ | 0.4557 ± 0.0070 |
| A_{143}^{tSZ} | $5.5^{+2.3}_{-1.9}$ | D_{40} | 1230 ± 14 | $\sigma_8(0.15)$ | $0.7489^{+0.0055}_{-0.0063}$ |
| A_{100}^{PS} | 258 ± 28 | D_{220} | 5734 ± 38 | $f\sigma_8(0.38)$ | 0.4744 ± 0.0058 |
| A_{143}^{PS} | 45 ± 8 | D_{810} | 2539 ± 13 | $\sigma_8(0.38)$ | $0.6641^{+0.0047}_{-0.0055}$ |
| $A_{143 \times 217}^{PS}$ | 42 ± 9 | D_{1420} | 818.0 ± 4.6 | $f\sigma_8(0.51)$ | 0.4732 ± 0.0051 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.2 ± 1.5 | $\sigma_8(0.51)$ | $0.6215^{+0.0043}_{-0.0051}$ |
| A^{kSZ} | < 4.14 | $n_{s,0.002}$ | 0.9682 ± 0.0052 | $f\sigma_8(0.61)$ | 0.4684 ± 0.0047 |
| A_{100}^{dustTT} | 9.0 ± 1.9 | Y_P | $0.245407^{+0.000058}_{-0.000052}$ | $\sigma_8(0.61)$ | $0.5914^{+0.0041}_{-0.0048}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246733^{+0.000058}_{-0.000052}$ | $f\sigma_8(2.33)$ | $0.2983^{+0.0020}_{-0.0024}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.7 ± 3.3 | $10^5 D/H$ | 2.580 ± 0.026 | $\sigma_8(2.33)$ | $0.3076^{+0.0022}_{-0.0026}$ |
| A_{217}^{dustTT} | 93.9 ± 7.3 | Age/Gyr | 13.785 ± 0.021 | f_{2000}^{143} | 29.2 ± 2.7 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | z_* | 1089.80 ± 0.23 | $f_{2000}^{143 \times 217}$ | 32.0 ± 1.9 |
| $A_{100 \times 143}^{dustTE}$ | 0.136 ± 0.030 | r_* | 144.64 ± 0.30 | f_{2000}^{217} | 106.8 ± 1.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.479 ± 0.085 | $100\theta_*$ | 1.04127 ± 0.00039 | χ_{small}^2 | 397.2 ± 2.1 |
| A_{143}^{dustTE} | 0.226 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.890 ± 0.027 | χ_{lowl}^2 | 23.8 ± 1.7 |
| $A_{143 \times 217}^{dustTE}$ | 0.666 ± 0.079 | z_{drag} | 1059.95 ± 0.32 | χ_{plik}^2 | 2360.8 ± 6.0 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | 147.29 ± 0.31 | χ_{6DF}^2 | 0.056 ± 0.071 |
| c_{100} | 0.99965 ± 0.00061 | k_D | 0.14068 ± 0.00038 | χ_{MGS}^2 | 1.36 ± 0.52 |
| c_{217} | 0.99820 ± 0.00062 | $100\theta_D$ | 0.16077 ± 0.00021 | $\chi_{DR12BAO}^2$ | 4.8 ± 1.6 |
| H_0 | 67.75 ± 0.51 | z_{eq} | 3382 ± 27 | χ_{prior}^2 | 11.7 ± 4.4 |
| Ω_Λ | 0.6903 ± 0.0070 | k_{eq} | 0.010321 ± 0.000083 | χ_{BAO}^2 | 6.2 ± 1.3 |
| Ω_m | 0.3097 ± 0.0070 | $100\theta_{eq}$ | 0.8172 ± 0.0051 | χ_{CMB}^2 | 2781.8 ± 5.9 |
| $\Omega_m h^2$ | 0.1422 ± 0.0011 | $100\theta_{s,eq}$ | 0.4514 ± 0.0026 | | |
| $\Omega_m h^3$ | 0.09631 ± 0.00030 | $H(0.15)$ | 73.02 ± 0.44 | | |

$$\bar{\chi}_{eff}^2 = 2799.63; \Delta \bar{\chi}_{eff}^2 = 1.91; R - 1 = 0.02644$$

5.15 base_alpha1_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02238 ± 0.00015 | $\Omega_{\text{m}}h^3$ | 0.09633 ± 0.00030 | $100\theta_{\text{s,eq}}$ | 0.4493 ± 0.0033 |
| $\Omega_{\text{c}}h^2$ | 0.1200 ± 0.0015 | σ_8 | 0.8118 ± 0.0056 | $H(0.15)$ | 72.67 ± 0.56 |
| $100\theta_{\text{MC}}$ | 1.04088 ± 0.00043 | S_8 | 0.833 ± 0.015 | $D_{\text{M}}(0.15)$ | 643.6 ± 5.6 |
| τ | $0.0553^{+0.0052}_{-0.0077}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4561 ± 0.0081 | $H(0.38)$ | 82.86 ± 0.40 |
| α_{-1} | -0.00006 ± 0.00051 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6084 ± 0.0069 | $D_{\text{M}}(0.38)$ | 1534 ± 11 |
| $\ln(10^{10}A_{\text{s}})$ | $3.046^{+0.011}_{-0.014}$ | $\sigma_8/h^{0.5}$ | 0.9893 ± 0.0094 | $H(0.51)$ | 89.62 ± 0.31 |
| n_{s} | 0.9647 ± 0.0060 | $r_{\text{drag}}h$ | 99.0 ± 1.2 | $D_{\text{M}}(0.51)$ | 1986 ± 13 |
| y_{cal} | 1.0006 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | 2.448 ± 0.024 | $H(0.61)$ | 95.27 ± 0.25 |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.77^{+0.57}_{-0.75}$ | $D_{\text{M}}(0.61)$ | 2311 ± 14 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_{\text{s}}$ | $2.104^{+0.023}_{-0.030}$ | $H(2.33)$ | 236.59 ± 0.90 |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.884 ± 0.012 | $D_{\text{M}}(2.33)$ | 5764 ± 11 |
| A_{100}^{PS} | 259 ± 28 | D_{40} | 1230 ± 14 | $f\sigma_8(0.15)$ | 0.4603 ± 0.0074 |
| A_{143}^{PS} | 46 ± 8 | D_{220} | 5734 ± 38 | $\sigma_8(0.15)$ | $0.7497^{+0.0047}_{-0.0052}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{810} | 2539 ± 13 | $f\sigma_8(0.38)$ | 0.4777 ± 0.0057 |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 817.2 ± 4.7 | $\sigma_8(0.38)$ | $0.6641^{+0.0040}_{-0.0048}$ |
| A^{kSZ} | < 4.28 | D_{2000} | 230.9 ± 1.6 | $f\sigma_8(0.51)$ | 0.4758 ± 0.0048 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.9647 ± 0.0060 | $\sigma_8(0.51)$ | $0.6213^{+0.0038}_{-0.0045}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_{P} | $0.245397^{+0.000060}_{-0.000053}$ | $f\sigma_8(0.61)$ | 0.4705 ± 0.0043 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.7 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246724^{+0.000060}_{-0.000053}$ | $\sigma_8(0.61)$ | $0.5911^{+0.0036}_{-0.0044}$ |
| A_{217}^{dustTT} | 93.8 ± 7.3 | $10^5 \text{D}/\text{H}$ | 2.584 ± 0.027 | $f\sigma_8(2.33)$ | $0.2979^{+0.0019}_{-0.0023}$ |
| A_{100}^{dustTE} | 0.115 ± 0.038 | Age/Gyr | 13.798 ± 0.025 | $\sigma_8(2.33)$ | $0.3069^{+0.0022}_{-0.0026}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | z_* | 1089.91 ± 0.26 | f_{2000}^{143} | 29.5 ± 2.7 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.086 | r_* | 144.41 ± 0.35 | $f_{2000}^{143 \times 217}$ | $32.2^{+1.7}_{-2.0}$ |
| A_{143}^{dustTE} | 0.226 ± 0.054 | $100\theta_*$ | 1.04106 ± 0.00043 | f_{2000}^{217} | 107.0 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 ± 0.079 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.872 ± 0.031 | χ_{lensing}^2 | 9.34 ± 0.82 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | z_{drag} | 1059.96 ± 0.32 | χ_{small}^2 | 397.0 ± 1.8 |
| c_{100} | 0.99966 ± 0.00060 | r_{drag} | 147.07 ± 0.36 | χ_{lowl}^2 | 23.4 ± 1.7 |
| c_{217} | 0.99820 ± 0.00063 | k_{D} | 0.14090 ± 0.00041 | χ_{plik}^2 | 2361.0 ± 6.0 |
| H_0 | 67.34 ± 0.65 | $100\theta_{\text{D}}$ | 0.16074 ± 0.00020 | χ_{prior}^2 | 11.6 ± 4.4 |
| Ω_{Λ} | 0.6843 ± 0.0091 | z_{eq} | 3403 ± 34 | χ_{CMB}^2 | 2790.8 ± 6.0 |
| Ω_{m} | 0.3157 ± 0.0091 | k_{eq} | 0.01039 ± 0.00010 | | |
| $\Omega_{\text{m}}h^2$ | 0.1431 ± 0.0014 | $100\theta_{\text{eq}}$ | 0.8131 ± 0.0064 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2802.36; \Delta\bar{\chi}_{\text{eff}}^2 = 1.86; R - 1 = 0.01801$$

5.16 base_alpha1_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|---------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02241 ± 0.00014 | σ_8 | 0.8108 ± 0.0057 | $D_M(0.15)$ | $640.2^{+4.2}_{-3.8}$ |
| $\Omega_c h^2$ | 0.1192 ± 0.0011 | S_8 | 0.824 ± 0.011 | $H(0.38)$ | $83.10^{+0.27}_{-0.31}$ |
| $100\theta_{MC}$ | 1.04107 ± 0.00038 | $\sigma_8 \Omega_m^{0.5}$ | 0.4514 ± 0.0062 | $D_M(0.38)$ | $1527.1^{+8.4}_{-7.6}$ |
| τ | $0.0568^{+0.0056}_{-0.0077}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6050 ± 0.0058 | $H(0.51)$ | $89.80^{+0.22}_{-0.25}$ |
| α_{-1} | $0.00013^{+0.00035}_{-0.00039}$ | $\sigma_8/h^{0.5}$ | 0.9852 ± 0.0083 | $D_M(0.51)$ | $1978.4^{+9.9}_{-8.8}$ |
| $\ln(10^{10} A_s)$ | $3.047^{+0.012}_{-0.015}$ | $r_{\text{drag}} h$ | 99.76 ± 0.84 | $H(0.61)$ | $95.41^{+0.18}_{-0.21}$ |
| n_s | 0.9679 ± 0.0050 | $\langle d^2 \rangle^{1/2}$ | 2.437 ± 0.021 | $D_M(0.61)$ | $2302^{+11}_{-9.5}$ |
| y_{cal} | 1.0008 ± 0.0024 | z_{re} | $7.89^{+0.60}_{-0.75}$ | $H(2.33)$ | 236.05 ± 0.66 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.106^{+0.025}_{-0.031}$ | $D_M(2.33)$ | 5758.0 ± 9.1 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.879 ± 0.011 | $f\sigma_8(0.15)$ | 0.4561 ± 0.0057 |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | D_{40} | 1231 ± 14 | $\sigma_8(0.15)$ | 0.7494 ± 0.0051 |
| A_{100}^{PS} | 258 ± 28 | D_{220} | 5737 ± 38 | $f\sigma_8(0.38)$ | 0.4748 ± 0.0047 |
| A_{143}^{PS} | 45 ± 8 | D_{810} | 2539 ± 13 | $\sigma_8(0.38)$ | 0.6644 ± 0.0045 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 818.0 ± 4.6 | $f\sigma_8(0.51)$ | 0.4736 ± 0.0042 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.2 ± 1.5 | $\sigma_8(0.51)$ | 0.6219 ± 0.0043 |
| A^{kSZ} | < 4.08 | $n_{s,0.002}$ | 0.9679 ± 0.0050 | $f\sigma_8(0.61)$ | 0.4687 ± 0.0039 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245408^{+0.000058}_{-0.000051}$ | $\sigma_8(0.61)$ | 0.5918 ± 0.0041 |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246735^{+0.000058}_{-0.000052}$ | $f\sigma_8(2.33)$ | $0.2984^{+0.0020}_{-0.0023}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $10^5 D/H$ | 2.579 ± 0.026 | $\sigma_8(2.33)$ | $0.3077^{+0.0021}_{-0.0024}$ |
| A_{217}^{dustTT} | 93.8 ± 7.3 | Age/Gyr | 13.785 ± 0.020 | f_{2000}^{143} | 29.2 ± 2.7 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | z_* | 1089.80 ± 0.22 | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.9 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.136 ± 0.030 | r_* | 144.62 ± 0.27 | f_{2000}^{217} | 106.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 ± 0.085 | $100\theta_*$ | 1.04125 ± 0.00038 | χ_{lensing}^2 | 9.12 ± 0.58 |
| A_{143}^{dustTE} | 0.226 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.889 ± 0.024 | χ_{simall}^2 | 397.3 ± 2.0 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 ± 0.078 | z_{drag} | 1059.96 ± 0.32 | χ_{lowl}^2 | 23.8 ± 1.7 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | 147.27 ± 0.29 | χ_{plik}^2 | 2360.6 ± 5.9 |
| c_{100} | 0.99965 ± 0.00061 | k_D | 0.14070 ± 0.00036 | $\chi_{6\text{DF}}^2$ | 0.052 ± 0.064 |
| c_{217} | 0.99820 ± 0.00062 | $100\theta_D$ | 0.16076 ± 0.00021 | χ_{MGS}^2 | 1.34 ± 0.47 |
| H_0 | $67.74^{+0.44}_{-0.50}$ | z_{eq} | 3383 ± 25 | χ_{DR12BAO}^2 | 4.7 ± 1.4 |
| Ω_Λ | 0.6900 ± 0.0064 | k_{eq} | 0.010325 ± 0.000075 | χ_{prior}^2 | 11.6 ± 4.4 |
| Ω_m | 0.3100 ± 0.0064 | $100\theta_{\text{eq}}$ | 0.8170 ± 0.0046 | χ_{CMB}^2 | 2790.8 ± 6.0 |
| $\Omega_m h^2$ | 0.1422 ± 0.0010 | $100\theta_{s,\text{eq}}$ | 0.4513 ± 0.0024 | χ_{BAO}^2 | 6.1 ± 1.1 |
| $\Omega_m h^3$ | 0.09632 ± 0.00030 | $H(0.15)$ | $73.00^{+0.38}_{-0.43}$ | | |

$$\bar{\chi}_{\text{eff}}^2 = 2808.47; \Delta\bar{\chi}_{\text{eff}}^2 = 1.75; R - 1 = 0.02935$$

6 mnu

6.1 base_mnu_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-------------------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|----------------------------|
| $\Omega_b h^2$ | 0.022161 | 0.02205 ± 0.00024 | $\sigma_8 \Omega_m^{0.5}$ | 0.4615 | 0.457 ± 0.014 | $H(0.15)$ | 72.80 | $71.2^{+2.0}_{-0.91}$ |
| $\Omega_c h^2$ | 0.12044 | 0.1210 ± 0.0022 | $\sigma_8 \Omega_m^{0.25}$ | 0.6170 | $0.600^{+0.022}_{-0.012}$ | $D_M(0.15)$ | 642.2 | $658.5^{+8.6}_{-21}$ |
| $100\theta_{MC}$ | 1.04081 | 1.04064 ± 0.00051 | $\sigma_8/h^{0.5}$ | 1.0040 | $0.973^{+0.039}_{-0.017}$ | $H(0.38)$ | 82.94 | $81.7^{+1.5}_{-0.68}$ |
| τ | 0.0525 | 0.0517 ± 0.0079 | $r_{drag} h$ | 99.37 | $96.7^{+3.6}_{-1.8}$ | $D_M(0.38)$ | 1531.2 | 1564^{+17}_{-43} |
| Σm_ν [eV] | 0.001 | < 0.195 | $\langle d^2 \rangle^{1/2}$ | 2.4593 | 2.448 ± 0.038 | $H(0.51)$ | 89.68 | $88.7^{+1.3}_{-0.55}$ |
| $\ln(10^{10} A_s)$ | 3.0413 | 3.040 ± 0.016 | z_{re} | 7.55 | 7.49 ± 0.82 | $D_M(0.51)$ | 1983.3 | 2022^{+21}_{-50} |
| n_s | 0.9640 | 0.9613 ± 0.0062 | $10^9 A_s$ | 2.0933 | 2.091 ± 0.034 | $H(0.61)$ | 95.31 | $94.5^{+1.1}_{-0.45}$ |
| y_{cal} | 1.00038 | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8845 | 1.886 ± 0.014 | $D_M(0.61)$ | 2307.6 | 2350^{+22}_{-55} |
| A_{217}^{CIB} | 48.6 | 48 ± 7 | D_{40} | 1231.4 | 1234 ± 15 | $H(2.33)$ | 236.30 | $237.6^{+1.3}_{-2.0}$ |
| $\xi^{tSZ \times CIB}$ | 0.35 | — | D_{220} | 5713.3 | 5712 ± 41 | $D_M(2.33)$ | 5762.6 | 5806^{+19}_{-54} |
| A_{143}^{tSZ} | 6.96 | 5.0 ± 2.0 | D_{810} | 2537.6 | 2537 ± 14 | $f\sigma_8(0.15)$ | 0.4653 | 0.460 ± 0.013 |
| A_{100}^{PS} | 253.9 | 265 ± 29 | D_{1420} | 815.4 | 814.4 ± 5.1 | $\sigma_8(0.15)$ | 0.7619 | $0.727^{+0.039}_{-0.010}$ |
| A_{143}^{PS} | 49.8 | 50 ± 8 | D_{2000} | 230.08 | 229.2 ± 1.9 | $f\sigma_8(0.38)$ | 0.4834 | $0.473^{+0.016}_{-0.0096}$ |
| $A_{143 \times 217}^{PS}$ | 47.7 | 44 ± 9 | $n_{s,0.002}$ | 0.9640 | 0.9613 ± 0.0062 | $\sigma_8(0.38)$ | 0.6750 | $0.642^{+0.036}_{-0.0089}$ |
| A_{217}^{PS} | 119.6 | 115 ± 10 | Y_P | 0.245310 | $0.24525^{+0.00012}_{-0.000093}$ | $f\sigma_8(0.51)$ | 0.4817 | $0.469^{+0.017}_{-0.0081}$ |
| A^{kSZ} | 0.01 | < 5.10 | Y_P^{BBN} | 0.246636 | $0.24658^{+0.00012}_{-0.000093}$ | $\sigma_8(0.51)$ | 0.6315 | $0.600^{+0.034}_{-0.0083}$ |
| A_{100}^{dustTT} | 8.88 | 8.9 ± 1.8 | $10^5 D/H$ | 2.6254 | 2.648 ± 0.047 | $f\sigma_8(0.61)$ | 0.4765 | $0.463^{+0.018}_{-0.0071}$ |
| A_{143}^{dustTT} | 10.82 | 10.7 ± 1.8 | Age/Gyr | 13.795 | $13.896^{+0.043}_{-0.12}$ | $\sigma_8(0.61)$ | 0.6008 | $0.571^{+0.033}_{-0.0079}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.45 | 18.3 ± 3.3 | z_* | 1090.219 | $1090.45^{+0.42}_{-0.50}$ | $f\sigma_8(2.33)$ | 0.3019 | $0.288^{+0.015}_{-0.0034}$ |
| A_{217}^{dustTT} | 94.7 | 93.4 ± 7.3 | r_* | 144.484 | 144.38 ± 0.50 | $\sigma_8(2.33)$ | 0.3116 | $0.296^{+0.018}_{-0.0041}$ |
| c_{100} | 0.99965 | 0.99961 ± 0.00062 | $100\theta_*$ | 1.040989 | 1.04091 ± 0.00047 | f_{2000}^{143} | 30.23 | 31.8 ± 3.0 |
| c_{217} | 0.99826 | 0.99827 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.8795 | 13.871 ± 0.046 | $f_{2000}^{143 \times 217}$ | 33.18 | 34.1 ± 2.1 |
| H_0 | 67.50 | $65.7^{+2.3}_{-1.1}$ | z_{drag} | 1059.475 | 1059.28 ± 0.48 | f_{2000}^{217} | 107.60 | 108.6 ± 2.0 |
| Ω_Λ | 0.6870 | $0.663^{+0.033}_{-0.013}$ | r_{drag} | 147.216 | 147.15 ± 0.49 | χ_{small}^2 | 395.87 | 396.9 ± 1.7 |
| Ω_m | 0.3130 | $0.337^{+0.013}_{-0.033}$ | k_D | 0.14057 | 0.14057 ± 0.00052 | χ_{lowl}^2 | 23.66 | 23.9 ± 1.3 |
| $\Omega_m h^2$ | 0.14261 | $0.1450^{+0.0021}_{-0.0035}$ | $100\theta_D$ | 0.161022 | 0.16112 ± 0.00027 | χ_{plik}^2 | 758.1 | 772.5 ± 5.7 |
| $\Omega_\nu h^2$ | 0.00001 | < 0.00210 | z_{eq} | 3407.7 | 3419 ± 50 | χ_{prior}^2 | 1.33 | 7.3 ± 3.7 |
| $\Omega_m h^3$ | 0.09626 | $0.0952^{+0.0014}_{-0.00050}$ | k_{eq} | 0.010401 | 0.01044 ± 0.00015 | χ_{CMB}^2 | 1177.6 | 1193.4 ± 5.8 |
| σ_8 | 0.8249 | $0.789^{+0.041}_{-0.011}$ | $100\theta_{eq}$ | 0.8116 | 0.8095 ± 0.0092 | | | |
| S_8 | 0.8426 | 0.834 ± 0.025 | $100\theta_{s,eq}$ | 0.44865 | 0.4476 ± 0.0047 | | | |

Best-fit $\chi_{eff}^2 = 1178.95$; $\Delta\chi_{eff}^2 = -0.62$; $\bar{\chi}_{eff}^2 = 1200.74$; $\Delta\bar{\chi}_{eff}^2 = 1.16$; $R - 1 = 0.00818$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.87 (Δ -0.00) commander_dx12_v3_2_29: 23.66 (Δ 0.06) plik_rd12_HM_v22_TT: 758.09 (Δ -0.66)

6.2 base_mnu_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|-------------------------------|-----------------------------|----------------------------------|-----------------------------|----------------------------|
| $\Omega_b h^2$ | 0.02206 ± 0.00024 | $\sigma_8 \Omega_m^{0.5}$ | 0.457 ± 0.014 | $H(0.15)$ | $71.3^{+2.0}_{-0.92}$ |
| $\Omega_c h^2$ | 0.1209 ± 0.0022 | $\sigma_8 \Omega_m^{0.25}$ | $0.601^{+0.022}_{-0.012}$ | $D_M(0.15)$ | $658.1^{+8.6}_{-21}$ |
| $100\theta_{MC}$ | 1.04065 ± 0.00051 | $\sigma_8/h^{0.5}$ | $0.974^{+0.039}_{-0.017}$ | $H(0.38)$ | $81.8^{+1.5}_{-0.68}$ |
| τ | $0.0533^{+0.0047}_{-0.0080}$ | $r_{\text{drag}} h$ | $96.8^{+3.6}_{-1.8}$ | $D_M(0.38)$ | 1563^{+18}_{-43} |
| $\Sigma m_\nu [\text{eV}]$ | < 0.196 | $\langle d^2 \rangle^{1/2}$ | 2.451 ± 0.037 | $H(0.51)$ | $88.7^{+1.3}_{-0.55}$ |
| $\ln(10^{10} A_s)$ | $3.043^{+0.012}_{-0.016}$ | z_{re} | $7.67^{+0.52}_{-0.82}$ | $D_M(0.51)$ | 2021^{+21}_{-50} |
| n_s | 0.9615 ± 0.0062 | $10^9 A_s$ | $2.098^{+0.024}_{-0.033}$ | $H(0.61)$ | $94.5^{+1.1}_{-0.45}$ |
| y_{cal} | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.885 ± 0.014 | $D_M(0.61)$ | 2349^{+22}_{-55} |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1234 ± 15 | $H(2.33)$ | $237.5^{+1.3}_{-2.0}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{220} | 5712 ± 41 | $D_M(2.33)$ | 5805^{+20}_{-54} |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{810} | 2537 ± 14 | $f\sigma_8(0.15)$ | 0.461 ± 0.013 |
| A_{100}^{PS} | 265 ± 29 | D_{1420} | 814.4 ± 5.1 | $\sigma_8(0.15)$ | $0.728^{+0.039}_{-0.010}$ |
| A_{143}^{PS} | 50 ± 8 | D_{2000} | 229.2 ± 1.9 | $f\sigma_8(0.38)$ | $0.473^{+0.016}_{-0.0097}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 44 ± 9 | $n_{s,0.002}$ | 0.9615 ± 0.0062 | $\sigma_8(0.38)$ | $0.643^{+0.036}_{-0.0088}$ |
| A_{217}^{PS} | 115 ± 10 | Y_P | $0.24526^{+0.00012}_{-0.000092}$ | $f\sigma_8(0.51)$ | $0.470^{+0.017}_{-0.0081}$ |
| A^{kSZ} | < 5.06 | Y_P^{BBN} | $0.24658^{+0.00012}_{-0.000092}$ | $\sigma_8(0.51)$ | $0.601^{+0.034}_{-0.0082}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | 10^5D/H | 2.646 ± 0.047 | $f\sigma_8(0.61)$ | $0.463^{+0.018}_{-0.0071}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | Age/Gyr | $13.894^{+0.043}_{-0.12}$ | $\sigma_8(0.61)$ | $0.571^{+0.033}_{-0.0079}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | z_* | $1090.43^{+0.42}_{-0.50}$ | $f\sigma_8(2.33)$ | $0.289^{+0.015}_{-0.0034}$ |
| A_{217}^{dustTT} | 93.4 ± 7.3 | r_* | 144.40 ± 0.50 | $\sigma_8(2.33)$ | $0.296^{+0.017}_{-0.0041}$ |
| c_{100} | 0.99961 ± 0.00062 | $100\theta_*$ | 1.04092 ± 0.00047 | f_{2000}^{143} | 31.7 ± 3.0 |
| c_{217} | 0.99827 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.872 ± 0.046 | $f_{2000}^{143 \times 217}$ | 34.0 ± 2.1 |
| H_0 | $65.8^{+2.3}_{-1.1}$ | z_{drag} | 1059.29 ± 0.48 | f_{2000}^{217} | 108.5 ± 2.0 |
| Ω_Λ | $0.663^{+0.033}_{-0.013}$ | r_{drag} | 147.17 ± 0.49 | χ_{simall}^2 | 396.8 ± 1.7 |
| Ω_m | $0.337^{+0.013}_{-0.033}$ | k_D | 0.14056 ± 0.00052 | χ_{lowl}^2 | 23.9 ± 1.3 |
| $\Omega_m h^2$ | $0.1449^{+0.0021}_{-0.0035}$ | $100\theta_D$ | 0.16112 ± 0.00027 | χ_{plik}^2 | 772.4 ± 5.7 |
| $\Omega_\nu h^2$ | < 0.00211 | z_{eq} | 3417 ± 50 | χ_{prior}^2 | 7.3 ± 3.7 |
| $\Omega_m h^3$ | $0.0952^{+0.0014}_{-0.00051}$ | k_{eq} | 0.01043 ± 0.00015 | χ_{CMB}^2 | 1193.1 ± 5.7 |
| σ_8 | $0.790^{+0.040}_{-0.011}$ | $100\theta_{\text{eq}}$ | 0.8099 ± 0.0092 | | |
| S_8 | 0.835 ± 0.025 | $100\theta_{s,\text{eq}}$ | 0.4478 ± 0.0047 | | |

$\bar{\chi}_{\text{eff}}^2 = 1200.49$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.17$; $R - 1 = 0.01089$

6.3 base_mnu_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-------------------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022395 | 0.02235 ± 0.00015 | $\Omega_\nu h^2$ | 0.00001 | < 0.00115 | $100\theta_{\text{eq}}$ | 0.8131 | 0.8123 ± 0.0059 |
| $\Omega_c h^2$ | 0.12003 | 0.1202 ± 0.0014 | $\Omega_m h^3$ | 0.09669 | $0.09622^{+0.00067}_{-0.00034}$ | $100\theta_{\text{s,eq}}$ | 0.44925 | 0.4489 ± 0.0030 |
| $100\theta_{\text{MC}}$ | 1.040945 | 1.04089 ± 0.00032 | σ_8 | 0.8258 | $0.807^{+0.021}_{-0.0092}$ | $H(0.15)$ | 73.14 | $72.4^{+1.0}_{-0.62}$ |
| τ | 0.0552 | 0.0545 ± 0.0079 | S_8 | 0.8383 | 0.833 ± 0.017 | $D_{\text{M}}(0.15)$ | 638.9 | $646.3^{+6.0}_{-10}$ |
| Σm_ν [eV] | 0.001 | < 0.107 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4592 | 0.4561 ± 0.0091 | $H(0.38)$ | 83.23 | $82.66^{+0.78}_{-0.46}$ |
| $\ln(10^{10} A_{\text{s}})$ | 3.0469 | 3.045 ± 0.016 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6158 | $0.607^{+0.012}_{-0.0089}$ | $D_{\text{M}}(0.38)$ | 1524.2 | 1539^{+12}_{-21} |
| n_{s} | 0.96684 | 0.9646 ± 0.0044 | $\sigma_8/h^{0.5}$ | 1.0024 | $0.986^{+0.021}_{-0.013}$ | $H(0.51)$ | 89.94 | $89.46^{+0.65}_{-0.37}$ |
| y_{cal} | 1.00064 | 1.0006 ± 0.0025 | $r_{\text{drag}} h$ | 99.82 | $98.6^{+1.9}_{-1.2}$ | $D_{\text{M}}(0.51)$ | 1974.8 | 1993^{+14}_{-25} |
| A_{217}^{CIB} | 44.8 | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4543 | 2.446 ± 0.029 | $H(0.61)$ | 95.551 | $95.14^{+0.54}_{-0.30}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.79 | — | z_{re} | 7.76 | 7.69 ± 0.80 | $D_{\text{M}}(0.61)$ | 2298.3 | 2318^{+15}_{-27} |
| A_{143}^{tSZ} | 6.98 | $5.5^{+2.1}_{-1.9}$ | $10^9 A_{\text{s}}$ | 2.1050 | 2.102 ± 0.034 | $H(2.33)$ | 236.28 | $236.87^{+0.88}_{-1.1}$ |
| A_{100}^{PS} | 246.4 | 259 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8851 | 1.884 ± 0.012 | $D_{\text{M}}(2.33)$ | 5749.9 | 5770^{+13}_{-27} |
| A_{143}^{PS} | 51.9 | 46 ± 8 | D_{40} | 1228.3 | 1232 ± 13 | $f\sigma_8(0.15)$ | 0.4633 | 0.4604 ± 0.0085 |
| $A_{143 \times 217}^{\text{PS}}$ | 56.3 | 43 ± 9 | D_{220} | 5729.6 | 5732 ± 39 | $\sigma_8(0.15)$ | 0.7632 | $0.745^{+0.021}_{-0.0083}$ |
| A_{217}^{PS} | 123.6 | 115 ± 10 | D_{810} | 2542.2 | 2540 ± 13 | $f\sigma_8(0.38)$ | 0.4823 | $0.4769^{+0.0086}_{-0.0071}$ |
| A^{kSZ} | 0.01 | < 4.23 | D_{1420} | 818.92 | 817.4 ± 4.7 | $\sigma_8(0.38)$ | 0.6766 | $0.660^{+0.019}_{-0.0073}$ |
| A_{100}^{dustTT} | 8.82 | 8.9 ± 1.8 | D_{2000} | 231.68 | 230.9 ± 1.6 | $f\sigma_8(0.51)$ | 0.4811 | $0.4746^{+0.0089}_{-0.0063}$ |
| A_{143}^{dustTT} | 11.02 | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.96684 | 0.9646 ± 0.0044 | $\sigma_8(0.51)$ | 0.6332 | $0.617^{+0.018}_{-0.0068}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.19 | 18.6 ± 3.3 | Y_{P} | 0.245405 | $0.245385^{+0.000064}_{-0.000056}$ | $f\sigma_8(0.61)$ | 0.4761 | $0.4691^{+0.0092}_{-0.0058}$ |
| A_{217}^{dustTT} | 95.7 | 93.7 ± 7.4 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246732 | $0.246712^{+0.000065}_{-0.000056}$ | $\sigma_8(0.61)$ | 0.6025 | $0.587^{+0.017}_{-0.0065}$ |
| A_{100}^{dustTE} | 0.1140 | 0.114 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.5809 | 2.590 ± 0.028 | $f\sigma_8(2.33)$ | 0.3029 | $0.2961^{+0.0078}_{-0.0030}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1348 | 0.135 ± 0.029 | Age/Gyr | 13.7660 | $13.813^{+0.030}_{-0.061}$ | $\sigma_8(2.33)$ | 0.3128 | $0.3046^{+0.0092}_{-0.0034}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 | 0.481 ± 0.085 | z_* | 1089.887 | 1089.97 ± 0.29 | f_{2000}^{143} | 28.17 | 29.6 ± 2.7 |
| A_{143}^{dustTE} | 0.225 | 0.226 ± 0.054 | r_* | 144.411 | 144.38 ± 0.31 | $f_{2000}^{143 \times 217}$ | 31.68 | 32.3 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 | 0.667 ± 0.080 | $100\theta_*$ | 1.041097 | 1.04110 ± 0.00031 | f_{2000}^{217} | 106.25 | 107.1 ± 1.8 |
| A_{217}^{dustTE} | 2.085 | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8710 | 13.868 ± 0.029 | χ_{small}^2 | 396.20 | 397.2 ± 2.0 |
| c_{100} | 0.99975 | 0.99968 ± 0.00061 | z_{drag} | 1060.009 | 1059.91 ± 0.30 | χ_{lowl}^2 | 23.24 | 23.56 ± 0.97 |
| c_{217} | 0.99817 | 0.99820 ± 0.00062 | r_{drag} | 147.061 | 147.05 ± 0.31 | χ_{plik}^2 | 2343.8 | 2360.2 ± 6.0 |
| H_0 | 67.88 | $67.0^{+1.2}_{-0.72}$ | k_{D} | 0.140911 | 0.14090 ± 0.00033 | χ_{prior}^2 | 1.49 | 11.5 ± 4.5 |
| Ω_{Λ} | 0.6909 | $0.680^{+0.016}_{-0.0093}$ | $100\theta_{\text{D}}$ | 0.160729 | 0.16078 ± 0.00017 | χ_{CMB}^2 | 2763.2 | 2780.9 ± 6.1 |
| Ω_{m} | 0.3091 | $0.3199^{+0.0093}_{-0.016}$ | z_{eq} | 3403.6 | 3408 ± 32 | | | |
| $\Omega_{\text{m}} h^2$ | 0.14244 | $0.1436^{+0.0014}_{-0.0018}$ | k_{eq} | 0.010388 | 0.010400 ± 0.000097 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2764.74$; $\Delta\chi_{\text{eff}}^2 = -1.03$; $\bar{\chi}_{\text{eff}}^2 = 2792.41$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.65$; $R - 1 = 0.01278$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.20 (Δ 0.15) commander_dx12_v3.2.29: 23.24 (Δ -0.01) plik_rd12_HM_v22b_TTTEEE: 2343.80 (Δ -0.85)

6.4 base_mnu_plikHM_TTTEEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02235 ± 0.00015 | $\Omega_\nu h^2$ | < 0.00116 | $100\theta_{\text{eq}}$ | 0.8125 ± 0.0059 |
| $\Omega_c h^2$ | 0.1202 ± 0.0014 | $\Omega_m h^3$ | $0.09622^{+0.00067}_{-0.00035}$ | $100\theta_{\text{s,eq}}$ | 0.4490 ± 0.0030 |
| $100\theta_{\text{MC}}$ | 1.04090 ± 0.00032 | σ_8 | $0.808^{+0.021}_{-0.0089}$ | $H(0.15)$ | $72.4^{+1.0}_{-0.62}$ |
| τ | $0.0556^{+0.0055}_{-0.0082}$ | S_8 | 0.833 ± 0.017 | $D_{\text{M}}(0.15)$ | $646.2^{+6.0}_{-10}$ |
| $\Sigma m_\nu [\text{eV}]$ | < 0.108 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4564 ± 0.0091 | $H(0.38)$ | $82.67^{+0.79}_{-0.46}$ |
| $\ln(10^{10} A_{\text{s}})$ | $3.047^{+0.012}_{-0.016}$ | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | $0.607^{+0.012}_{-0.0089}$ | $D_{\text{M}}(0.38)$ | 1539^{+12}_{-21} |
| n_{s} | 0.9647 ± 0.0044 | $\sigma_8/h^{0.5}$ | $0.986^{+0.021}_{-0.013}$ | $H(0.51)$ | $89.46^{+0.65}_{-0.37}$ |
| y_{cal} | 1.0006 ± 0.0025 | $r_{\text{drag}} h$ | $98.6^{+1.9}_{-1.2}$ | $D_{\text{M}}(0.51)$ | 1993^{+14}_{-25} |
| A_{217}^{CIB} | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.448 ± 0.028 | $H(0.61)$ | $95.15^{+0.55}_{-0.30}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | z_{re} | $7.81^{+0.59}_{-0.81}$ | $D_{\text{M}}(0.61)$ | 2318^{+15}_{-27} |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | $10^9 A_{\text{s}}$ | $2.106^{+0.025}_{-0.035}$ | $H(2.33)$ | $236.85^{+0.88}_{-1.1}$ |
| A_{100}^{PS} | 258 ± 27 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.884 ± 0.012 | $D_{\text{M}}(2.33)$ | 5770^{+14}_{-27} |
| A_{143}^{PS} | 46 ± 8 | D_{40} | 1232 ± 13 | $f\sigma_8(0.15)$ | 0.4607 ± 0.0085 |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | D_{220} | 5732 ± 39 | $\sigma_8(0.15)$ | $0.746^{+0.020}_{-0.0080}$ |
| A_{217}^{PS} | 115 ± 10 | D_{810} | 2540 ± 13 | $f\sigma_8(0.38)$ | $0.4772^{+0.0085}_{-0.0070}$ |
| A^{kSZ} | < 4.21 | D_{1420} | 817.3 ± 4.7 | $\sigma_8(0.38)$ | $0.660^{+0.019}_{-0.0071}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | D_{2000} | 230.9 ± 1.6 | $f\sigma_8(0.51)$ | $0.4750^{+0.0089}_{-0.0062}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.9647 ± 0.0044 | $\sigma_8(0.51)$ | $0.617^{+0.018}_{-0.0066}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | Y_{P} | $0.245387^{+0.000064}_{-0.000056}$ | $f\sigma_8(0.61)$ | $0.4694^{+0.0091}_{-0.0057}$ |
| A_{217}^{dustTT} | 93.8 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246713^{+0.000065}_{-0.000056}$ | $\sigma_8(0.61)$ | $0.587^{+0.017}_{-0.0063}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | 10^5D/H | 2.589 ± 0.028 | $f\sigma_8(2.33)$ | $0.2964^{+0.0077}_{-0.0029}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | Age/Gyr | $13.812^{+0.030}_{-0.061}$ | $\sigma_8(2.33)$ | $0.3049^{+0.0091}_{-0.0033}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | z_* | 1089.96 ± 0.29 | f_{2000}^{143} | 29.5 ± 2.7 |
| A_{143}^{dustTE} | 0.226 ± 0.054 | r_* | 144.39 ± 0.31 | $f_{2000}^{143 \times 217}$ | 32.2 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 ± 0.079 | $100\theta_*$ | 1.04110 ± 0.00031 | f_{2000}^{217} | 107.1 ± 1.8 |
| A_{217}^{dustTE} | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.869 ± 0.029 | χ_{simall}^2 | 397.2 ± 2.0 |
| c_{100} | 0.99967 ± 0.00061 | z_{drag} | 1059.91 ± 0.30 | χ_{lowl}^2 | 23.57 ± 0.97 |
| c_{217} | 0.99820 ± 0.00062 | r_{drag} | 147.05 ± 0.31 | χ_{plik}^2 | 2360.0 ± 6.0 |
| H_0 | $67.0^{+1.2}_{-0.72}$ | k_{D} | 0.14090 ± 0.00032 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_{Λ} | $0.680^{+0.016}_{-0.0092}$ | $100\theta_{\text{D}}$ | 0.16077 ± 0.00017 | χ_{CMB}^2 | 2780.7 ± 6.0 |
| Ω_{m} | $0.3197^{+0.0092}_{-0.016}$ | z_{eq} | 3407 ± 32 | | |
| $\Omega_{\text{m}} h^2$ | $0.1435^{+0.0014}_{-0.0019}$ | k_{eq} | 0.010398 ± 0.000097 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2792.20; \Delta\bar{\chi}_{\text{eff}}^2 = 0.67; R - 1 = 0.01347$$

6.5 base_mnu_plikHM_TT_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|---------------------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022207 | $0.02206^{+0.00025}_{-0.00022}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4564 | 0.4581 ± 0.0090 | $H(0.15)$ | 73.09 | $71.4^{+1.9}_{-0.84}$ |
| $\Omega_c h^2$ | 0.11967 | $0.1210^{+0.0017}_{-0.0022}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6125 | $0.603^{+0.013}_{-0.0083}$ | $D_M(0.15)$ | 639.3 | $656.5^{+7.9}_{-20}$ |
| $100\theta_{MC}$ | 1.04091 | 1.04066 ± 0.00051 | $\sigma_8/h^{0.5}$ | 0.9981 | $0.978^{+0.024}_{-0.012}$ | $H(0.38)$ | 83.15 | $81.9^{+1.5}_{-0.64}$ |
| τ | 0.0529 | 0.0525 ± 0.0077 | $r_{\text{drag}} h$ | 99.98 | $97.0^{+3.5}_{-1.6}$ | $D_M(0.38)$ | 1525.4 | 1560^{+16}_{-41} |
| Σm_ν [eV] | 0.000 | < 0.180 | $\langle d^2 \rangle^{1/2}$ | 2.4453 | 2.451 ± 0.027 | $H(0.51)$ | 89.84 | $88.8^{+1.2}_{-0.53}$ |
| $\ln(10^{10} A_s)$ | 3.0395 | 3.042 ± 0.015 | z_{re} | 7.56 | 7.57 ± 0.79 | $D_M(0.51)$ | 1976.5 | 2017^{+19}_{-48} |
| n_s | 0.9657 | $0.9613^{+0.0062}_{-0.0052}$ | $10^9 A_s$ | 2.0894 | 2.095 ± 0.032 | $H(0.61)$ | 95.43 | $94.57^{+0.99}_{-0.44}$ |
| y_{cal} | 1.00016 | 1.0006 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8797 | 1.886 ± 0.013 | $D_M(0.61)$ | 2300.3 | 2345^{+21}_{-52} |
| A_{217}^{CIB} | 49.3 | 48 ± 7 | D_{40} | 1226.5 | 1235 ± 14 | $H(2.33)$ | 235.85 | $237.4^{+1.1}_{-2.0}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.22 | — | D_{220} | 5712.0 | 5714 ± 41 | $D_M(2.33)$ | 5757.5 | 5800^{+20}_{-50} |
| A_{143}^{tSZ} | 7.16 | 5.0 ± 2.0 | D_{810} | 2535.2 | 2538 ± 14 | $f\sigma_8(0.15)$ | 0.4606 | 0.4618 ± 0.0081 |
| A_{100}^{PS} | 254.2 | 265 ± 28 | D_{1420} | 815.2 | 814.5 ± 5.1 | $\sigma_8(0.15)$ | 0.7598 | $0.732^{+0.030}_{-0.0096}$ |
| A_{143}^{PS} | 47.3 | 50 ± 8 | D_{2000} | 230.06 | 229.3 ± 1.9 | $f\sigma_8(0.38)$ | 0.4797 | $0.4751^{+0.0085}_{-0.0063}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 44.0 | 44 ± 9 | $n_{s,0.002}$ | 0.9657 | $0.9613^{+0.0062}_{-0.0052}$ | $\sigma_8(0.38)$ | 0.6736 | $0.647^{+0.029}_{-0.0090}$ |
| A_{217}^{PS} | 117.8 | 115 ± 10 | Y_P | 0.245329 | $0.24526^{+0.00013}_{-0.000087}$ | $f\sigma_8(0.51)$ | 0.4786 | $0.471^{+0.010}_{-0.0055}$ |
| A^{kSZ} | 0.00 | < 5.03 | Y_P^{BBN} | 0.246655 | $0.24659^{+0.00013}_{-0.000088}$ | $\sigma_8(0.51)$ | 0.6305 | $0.605^{+0.028}_{-0.0086}$ |
| A_{100}^{dustTT} | 8.90 | 8.9 ± 1.8 | $10^5 D/H$ | 2.6167 | $2.645^{+0.042}_{-0.050}$ | $f\sigma_8(0.61)$ | 0.4738 | $0.465^{+0.011}_{-0.0050}$ |
| A_{143}^{dustTT} | 10.79 | 10.7 ± 1.8 | Age/Gyr | 13.784 | $13.883^{+0.045}_{-0.11}$ | $\sigma_8(0.61)$ | 0.5999 | $0.575^{+0.027}_{-0.0083}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.24 | 18.3 ± 3.3 | z_* | 1090.093 | $1090.42^{+0.37}_{-0.51}$ | $f\sigma_8(2.33)$ | 0.3016 | $0.290^{+0.012}_{-0.0038}$ |
| A_{217}^{dustTT} | 94.3 | 93.3 ± 7.3 | r_* | 144.648 | $144.39^{+0.48}_{-0.40}$ | $\sigma_8(2.33)$ | 0.3116 | $0.298^{+0.015}_{-0.0047}$ |
| c_{100} | 0.99964 | 0.99961 ± 0.00061 | $100\theta_*$ | 1.041085 | 1.04092 ± 0.00048 | f_{2000}^{143} | 30.16 | 31.7 ± 3.0 |
| c_{217} | 0.99826 | 0.99827 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.8940 | $13.871^{+0.044}_{-0.038}$ | $f_{2000}^{143 \times 217}$ | 33.04 | 34.0 ± 2.1 |
| H_0 | 67.84 | $65.9^{+2.2}_{-0.97}$ | z_{drag} | 1059.513 | 1059.30 ± 0.48 | f_{2000}^{217} | 107.50 | 108.5 ± 2.0 |
| Ω_Λ | 0.6917 | $0.666^{+0.031}_{-0.012}$ | r_{drag} | 147.369 | $147.15^{+0.46}_{-0.41}$ | χ_{lensing}^2 | 9.04 | 9.43 ± 0.99 |
| Ω_m | 0.3083 | $0.334^{+0.012}_{-0.031}$ | k_D | 0.140444 | 0.14057 ± 0.00049 | χ_{small}^2 | 395.86 | 397.0 ± 1.7 |
| $\Omega_m h^2$ | 0.14188 | $0.1447^{+0.0018}_{-0.0035}$ | $100\theta_D$ | 0.160997 | 0.16111 ± 0.00027 | χ_{lowl}^2 | 23.26 | 24.0 ± 1.2 |
| $\Omega_\nu h^2$ | 0.00000 | < 0.00194 | z_{eq} | 3390.4 | 3419^{+39}_{-48} | χ_{plik}^2 | 758.5 | 771.9 ± 5.4 |
| $\Omega_m h^3$ | 0.09625 | $0.0953^{+0.0012}_{-0.00054}$ | k_{eq} | 0.010348 | $0.01044^{+0.00012}_{-0.00015}$ | χ_{prior}^2 | 1.48 | 7.3 ± 3.7 |
| σ_8 | 0.8221 | $0.794^{+0.030}_{-0.010}$ | $100\theta_{\text{eq}}$ | 0.8149 | $0.8095^{+0.0089}_{-0.0074}$ | χ_{CMB}^2 | 1186.6 | 1202.3 ± 5.8 |
| S_8 | 0.8333 | 0.836 ± 0.016 | $100\theta_{s,\text{eq}}$ | 0.45034 | $0.4476^{+0.0045}_{-0.0038}$ | | | |

Best-fit $\chi_{\text{eff}}^2 = 1188.10$; $\Delta\chi_{\text{eff}}^2 = -0.47$; $\bar{\chi}_{\text{eff}}^2 = 1209.58$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.16$; $R - 1 = 0.00659$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 9.04 (Δ 0.14) simall_100x143_offlike5_EE_Aplanck_B: 395.86 (Δ -0.00) commander_dx12_v3_2_29: 23.26 (Δ 0.03) plik_rd12_HM_v22_TT: 758.46 (Δ -0.86)

6.6 base_mnu_plikHM_TT_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|---------------------------------|-----------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | $0.02207^{+0.00026}_{-0.00022}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4580 ± 0.0090 | $H(0.15)$ | $71.4^{+2.0}_{-0.85}$ |
| $\Omega_c h^2$ | $0.1209^{+0.0017}_{-0.0022}$ | $\sigma_8 \Omega_m^{0.25}$ | $0.603^{+0.013}_{-0.0083}$ | $D_M(0.15)$ | $656.3^{+8.0}_{-20}$ |
| $100\theta_{MC}$ | 1.04067 ± 0.00051 | $\sigma_8/h^{0.5}$ | $0.978^{+0.025}_{-0.012}$ | $H(0.38)$ | $81.9^{+1.5}_{-0.64}$ |
| τ | $0.0538^{+0.0049}_{-0.0081}$ | $r_{\text{drag}} h$ | $97.1^{+3.6}_{-1.6}$ | $D_M(0.38)$ | 1560^{+16}_{-41} |
| Σm_ν [eV] | < 0.184 | $\langle d^2 \rangle^{1/2}$ | 2.452 ± 0.027 | $H(0.51)$ | $88.8^{+1.2}_{-0.53}$ |
| $\ln(10^{10} A_s)$ | $3.044^{+0.011}_{-0.015}$ | z_{re} | $7.71^{+0.54}_{-0.82}$ | $D_M(0.51)$ | 2017^{+19}_{-48} |
| n_s | $0.9616^{+0.0062}_{-0.0051}$ | $10^9 A_s$ | $2.100^{+0.023}_{-0.033}$ | $H(0.61)$ | $94.6^{+1.0}_{-0.45}$ |
| y_{cal} | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.886 ± 0.012 | $D_M(0.61)$ | 2344^{+21}_{-52} |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1235 ± 14 | $H(2.33)$ | $237.4^{+1.1}_{-2.0}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{220} | 5714 ± 41 | $D_M(2.33)$ | 5800^{+20}_{-50} |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{810} | 2537 ± 14 | $f\sigma_8(0.15)$ | 0.4617 ± 0.0081 |
| A_{100}^{PS} | 265 ± 28 | D_{1420} | 814.5 ± 5.1 | $\sigma_8(0.15)$ | $0.732^{+0.030}_{-0.0097}$ |
| A_{143}^{PS} | 50 ± 8 | D_{2000} | 229.3 ± 1.9 | $f\sigma_8(0.38)$ | $0.4751^{+0.0086}_{-0.0063}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 44 ± 9 | $n_{s,0.002}$ | $0.9616^{+0.0062}_{-0.0051}$ | $\sigma_8(0.38)$ | $0.647^{+0.029}_{-0.0090}$ |
| A_{217}^{PS} | 115 ± 10 | Y_P | $0.24526^{+0.00013}_{-0.000086}$ | $f\sigma_8(0.51)$ | $0.471^{+0.010}_{-0.0055}$ |
| A^{kSZ} | < 5.02 | Y_P^{BBN} | $0.24659^{+0.00013}_{-0.000087}$ | $\sigma_8(0.51)$ | $0.605^{+0.028}_{-0.0086}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $10^5 \text{D}/\text{H}$ | $2.643^{+0.042}_{-0.050}$ | $f\sigma_8(0.61)$ | $0.465^{+0.011}_{-0.0050}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | Age/Gyr | $13.883^{+0.046}_{-0.12}$ | $\sigma_8(0.61)$ | $0.575^{+0.027}_{-0.0084}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | z_* | $1090.40^{+0.36}_{-0.51}$ | $f\sigma_8(2.33)$ | $0.291^{+0.012}_{-0.0038}$ |
| A_{217}^{dustTT} | 93.3 ± 7.3 | r_* | $144.41^{+0.48}_{-0.40}$ | $\sigma_8(2.33)$ | $0.298^{+0.015}_{-0.0047}$ |
| c_{100} | 0.99961 ± 0.00061 | $100\theta_*$ | 1.04093 ± 0.00048 | f_{2000}^{143} | 31.7 ± 3.0 |
| c_{217} | 0.99827 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | $13.873^{+0.044}_{-0.037}$ | $f_{2000}^{143 \times 217}$ | 34.0 ± 2.1 |
| H_0 | $65.9^{+2.3}_{-0.97}$ | z_{drag} | 1059.31 ± 0.48 | f_{2000}^{217} | 108.5 ± 2.0 |
| Ω_Λ | $0.666^{+0.031}_{-0.012}$ | r_{drag} | $147.17^{+0.47}_{-0.41}$ | χ_{lensing}^2 | 9.40 ± 0.99 |
| Ω_m | $0.334^{+0.012}_{-0.031}$ | k_D | 0.14056 ± 0.00049 | χ_{simall}^2 | 396.9 ± 1.8 |
| $\Omega_m h^2$ | $0.1447^{+0.0018}_{-0.0035}$ | $100\theta_D$ | 0.16111 ± 0.00027 | χ_{lowl}^2 | 23.9 ± 1.2 |
| $\Omega_\nu h^2$ | < 0.00197 | z_{eq} | 3417^{+38}_{-48} | χ_{plik}^2 | 771.8 ± 5.4 |
| $\Omega_m h^3$ | $0.0953^{+0.0012}_{-0.00054}$ | k_{eq} | $0.01043^{+0.00012}_{-0.00015}$ | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | $0.794^{+0.031}_{-0.010}$ | $100\theta_{\text{eq}}$ | $0.8099^{+0.0089}_{-0.0073}$ | χ_{CMB}^2 | 1202.1 ± 5.8 |
| S_8 | 0.836 ± 0.016 | $100\theta_{s,\text{eq}}$ | $0.4478^{+0.0045}_{-0.0037}$ | | |
| $\bar{\chi}_{\text{eff}}^2 = 1209.38; \Delta\bar{\chi}_{\text{eff}}^2 = 1.22; R - 1 = 0.00698$ | | | | | |

6.7 base_mnu_plikHM_TTTEEE_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-------------------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022421 | 0.02236 ± 0.00015 | $\Omega_\nu h^2$ | 0.00000 | < 0.00116 | $100\theta_{\text{eq}}$ | 0.8145 | 0.8128 ± 0.0054 |
| $\Omega_c h^2$ | 0.11969 | 0.1201 ± 0.0013 | $\Omega_m h^3$ | 0.096681 | $0.09623^{+0.00064}_{-0.00033}$ | $100\theta_{\text{s,eq}}$ | 0.44999 | 0.4491 ± 0.0027 |
| $100\theta_{\text{MC}}$ | 1.040979 | 1.04088 ± 0.00032 | σ_8 | 0.8224 | $0.807^{+0.018}_{-0.0079}$ | $H(0.15)$ | 73.28 | $72.4^{+1.1}_{-0.58}$ |
| τ | 0.0532 | 0.0547 ± 0.0075 | S_8 | 0.8320 | 0.832 ± 0.013 | $D_{\text{M}}(0.15)$ | 637.6 | $645.8^{+5.6}_{-11}$ |
| $\Sigma m_\nu [\text{eV}]$ | 0.000 | < 0.108 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4557 | 0.4556 ± 0.0069 | $H(0.38)$ | 83.33 | $82.69^{+0.80}_{-0.43}$ |
| $\ln(10^{10} A_{\text{s}})$ | 3.0417 | 3.046 ± 0.015 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6122 | $0.6063^{+0.0092}_{-0.0068}$ | $D_{\text{M}}(0.38)$ | 1521.6 | 1538^{+11}_{-22} |
| n_{s} | 0.96641 | 0.9647 ± 0.0043 | $\sigma_8/h^{0.5}$ | 0.9970 | $0.985^{+0.016}_{-0.010}$ | $H(0.51)$ | 90.01 | $89.48^{+0.66}_{-0.35}$ |
| y_{cal} | 1.00050 | 1.0007 ± 0.0025 | $r_{\text{drag}} h$ | 100.09 | $98.7^{+1.9}_{-1.1}$ | $D_{\text{M}}(0.51)$ | 1971.8 | 1992^{+13}_{-25} |
| A_{217}^{CIB} | 47.0 | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4451 | 2.445 ± 0.021 | $H(0.61)$ | 95.607 | $95.16^{+0.55}_{-0.29}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.48 | — | z_{re} | 7.54 | 7.71 ± 0.75 | $D_{\text{M}}(0.61)$ | 2295.0 | 2317^{+14}_{-28} |
| A_{143}^{tSZ} | 7.15 | $5.5^{+2.2}_{-1.9}$ | $10^9 A_{\text{s}}$ | 2.0941 | $2.103^{+0.029}_{-0.032}$ | $H(2.33)$ | 236.08 | $236.80^{+0.79}_{-1.1}$ |
| A_{100}^{PS} | 250.1 | 259 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8828 | 1.884 ± 0.011 | $D_{\text{M}}(2.33)$ | 5747.6 | 5769^{+13}_{-27} |
| A_{143}^{PS} | 48.2 | 46 ± 8 | D_{40} | 1228.6 | 1233 ± 12 | $f\sigma_8(0.15)$ | 0.4599 | 0.4599 ± 0.0064 |
| $A_{143 \times 217}^{\text{PS}}$ | 48.6 | 42 ± 9 | D_{220} | 5735.7 | 5736 ± 39 | $\sigma_8(0.15)$ | 0.7602 | $0.745^{+0.018}_{-0.0074}$ |
| A_{217}^{PS} | 119.9 | 115 ± 10 | D_{810} | 2540.2 | 2540 ± 13 | $f\sigma_8(0.38)$ | 0.4794 | $0.4766^{+0.0062}_{-0.0053}$ |
| A^{kSZ} | 0.00 | < 4.27 | D_{1420} | 818.07 | 817.5 ± 4.7 | $\sigma_8(0.38)$ | 0.6741 | $0.660^{+0.017}_{-0.0067}$ |
| A_{100}^{dustTT} | 8.76 | 8.9 ± 1.8 | D_{2000} | 231.33 | 230.9 ± 1.6 | $f\sigma_8(0.51)$ | 0.4784 | $0.4744^{+0.0066}_{-0.0048}$ |
| A_{143}^{dustTT} | 10.99 | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.96641 | 0.9647 ± 0.0043 | $\sigma_8(0.51)$ | 0.6310 | $0.617^{+0.016}_{-0.0064}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.91 | 18.6 ± 3.3 | Y_{P} | 0.245415 | $0.245391^{+0.000064}_{-0.000056}$ | $f\sigma_8(0.61)$ | 0.4736 | $0.4689^{+0.0070}_{-0.0045}$ |
| A_{217}^{dustTT} | 95.2 | 93.7 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246742 | $0.246717^{+0.000064}_{-0.000056}$ | $\sigma_8(0.61)$ | 0.6004 | $0.587^{+0.016}_{-0.0062}$ |
| A_{100}^{dustTE} | 0.1136 | 0.114 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.5760 | 2.587 ± 0.029 | $f\sigma_8(2.33)$ | 0.30194 | $0.2962^{+0.0070}_{-0.0029}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1349 | 0.135 ± 0.029 | Age/Gyr | 13.7610 | $13.811^{+0.029}_{-0.062}$ | $\sigma_8(2.33)$ | 0.3119 | $0.3048^{+0.0085}_{-0.0034}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 | 0.481 ± 0.085 | z_* | 1089.823 | 1089.94 ± 0.28 | f_{2000}^{143} | 28.74 | 29.6 ± 2.7 |
| A_{143}^{dustTE} | 0.225 | 0.226 ± 0.054 | r_* | 144.480 | $144.40^{+0.29}_{-0.26}$ | $f_{2000}^{143 \times 217}$ | 31.89 | 32.2 ± 1.9 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.666 ± 0.080 | $100\theta_*$ | 1.041123 | 1.04108 ± 0.00030 | f_{2000}^{217} | 106.51 | 107.1 ± 1.8 |
| A_{217}^{dustTE} | 2.080 | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8773 | 13.870 ± 0.026 | χ_{lensing}^2 | 9.022 | 9.29 ± 0.73 |
| c_{100} | 0.99972 | 0.99967 ± 0.00061 | z_{drag} | 1060.009 | 1059.93 ± 0.31 | χ_{small}^2 | 395.85 | 397.1 ± 1.8 |
| c_{217} | 0.99820 | 0.99820 ± 0.00062 | r_{drag} | 147.126 | $147.06^{+0.29}_{-0.26}$ | χ_{lowl}^2 | 23.26 | 23.55 ± 0.88 |
| H_0 | 68.03 | $67.1^{+1.2}_{-0.67}$ | k_{D} | 0.140866 | 0.14089 ± 0.00030 | χ_{plik}^2 | 2344.0 | 2359.8 ± 5.9 |
| Ω_{Λ} | 0.6929 | $0.681^{+0.016}_{-0.0085}$ | $100\theta_{\text{D}}$ | 0.160709 | 0.16076 ± 0.00018 | χ_{prior}^2 | 1.68 | 11.5 ± 4.6 |
| Ω_{m} | 0.3071 | $0.3191^{+0.0085}_{-0.016}$ | z_{eq} | 3396.0 | 3405 ± 29 | χ_{CMB}^2 | 2772.2 | 2789.8 ± 6.1 |
| $\Omega_{\text{m}} h^2$ | 0.14211 | $0.1435^{+0.0013}_{-0.0019}$ | k_{eq} | 0.010365 | 0.010393 ± 0.000087 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2773.86$; $\Delta\chi_{\text{eff}}^2 = -0.78$; $\bar{\chi}_{\text{eff}}^2 = 2801.35$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.66$; $R - 1 = 0.01138$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 9.02 (Δ 0.15) simall_100x143_offlike5_EE_Aplanck.B: 395.85 (Δ -0.20) commander_dx12.v3.2.29: 23.26 (Δ 0.01) plik_rd12_HM.v22b_TTTEEE: 2344.04 (Δ -0.89)

6.8 base_mnu_plikHM_TTTEEE_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02237 ± 0.00015 | $\Omega_\nu h^2$ | < 0.00117 | $100\theta_{\text{eq}}$ | 0.8130 ± 0.0053 |
| $\Omega_c h^2$ | 0.1201 ± 0.0013 | $\Omega_m h^3$ | $0.09622^{+0.00064}_{-0.00033}$ | $100\theta_{\text{s,eq}}$ | 0.4492 ± 0.0027 |
| $100\theta_{\text{MC}}$ | 1.04089 ± 0.00032 | σ_8 | $0.807^{+0.018}_{-0.0078}$ | $H(0.15)$ | $72.5^{+1.1}_{-0.58}$ |
| τ | $0.0556^{+0.0057}_{-0.0079}$ | S_8 | 0.832 ± 0.013 | $D_{\text{M}}(0.15)$ | $645.7^{+5.5}_{-11}$ |
| $\Sigma m_\nu [\text{eV}]$ | < 0.109 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4556 ± 0.0069 | $H(0.38)$ | $82.70^{+0.81}_{-0.43}$ |
| $\ln(10^{10} A_{\text{s}})$ | $3.047^{+0.012}_{-0.015}$ | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | $0.6063^{+0.0092}_{-0.0068}$ | $D_{\text{M}}(0.38)$ | 1538^{+11}_{-22} |
| n_{s} | 0.9649 ± 0.0042 | $\sigma_8/h^{0.5}$ | $0.985^{+0.016}_{-0.010}$ | $H(0.51)$ | $89.49^{+0.67}_{-0.35}$ |
| y_{cal} | 1.0007 ± 0.0025 | $r_{\text{drag}} h$ | $98.7^{+1.9}_{-1.1}$ | $D_{\text{M}}(0.51)$ | 1991^{+13}_{-26} |
| A_{217}^{CIB} | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.446 ± 0.021 | $H(0.61)$ | $95.16^{+0.56}_{-0.29}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | z_{re} | $7.80^{+0.62}_{-0.77}$ | $D_{\text{M}}(0.61)$ | 2316^{+14}_{-28} |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | $10^9 A_{\text{s}}$ | $2.106^{+0.024}_{-0.032}$ | $H(2.33)$ | $236.78^{+0.78}_{-1.1}$ |
| A_{100}^{PS} | 259 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.884 ± 0.011 | $D_{\text{M}}(2.33)$ | 5769^{+13}_{-27} |
| A_{143}^{PS} | 46 ± 8 | D_{40} | 1232 ± 12 | $f\sigma_8(0.15)$ | 0.4599 ± 0.0064 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{220} | 5736 ± 39 | $\sigma_8(0.15)$ | $0.745^{+0.018}_{-0.0073}$ |
| A_{217}^{PS} | 115 ± 10 | D_{810} | 2540 ± 13 | $f\sigma_8(0.38)$ | $0.4767^{+0.0063}_{-0.0053}$ |
| A^{kSZ} | < 4.25 | D_{1420} | 817.5 ± 4.7 | $\sigma_8(0.38)$ | $0.660^{+0.017}_{-0.0067}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | D_{2000} | 230.9 ± 1.5 | $f\sigma_8(0.51)$ | $0.4745^{+0.0067}_{-0.0048}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.9649 ± 0.0042 | $\sigma_8(0.51)$ | $0.617^{+0.016}_{-0.0063}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | Y_{P} | $0.245392^{+0.000064}_{-0.000055}$ | $f\sigma_8(0.61)$ | $0.4690^{+0.0071}_{-0.0044}$ |
| A_{217}^{dustTT} | 93.7 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246719^{+0.000064}_{-0.000055}$ | $\sigma_8(0.61)$ | $0.587^{+0.016}_{-0.0061}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | 10^5D/H | 2.587 ± 0.029 | $f\sigma_8(2.33)$ | $0.2963^{+0.0070}_{-0.0029}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | Age/Gyr | $13.811^{+0.029}_{-0.062}$ | $\sigma_8(2.33)$ | $0.3049^{+0.0085}_{-0.0034}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | z_* | 1089.93 ± 0.28 | f_{2000}^{143} | 29.6 ± 2.7 |
| A_{143}^{dustTE} | 0.225 ± 0.053 | r_* | $144.41^{+0.29}_{-0.26}$ | $f_{2000}^{143 \times 217}$ | 32.2 ± 1.9 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 ± 0.080 | $100\theta_*$ | 1.04109 ± 0.00030 | f_{2000}^{217} | 107.1 ± 1.8 |
| A_{217}^{dustTE} | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.871 ± 0.026 | χ_{lensing}^2 | 9.28 ± 0.73 |
| c_{100} | 0.99967 ± 0.00061 | z_{drag} | 1059.93 ± 0.31 | χ_{small}^2 | 397.1 ± 1.9 |
| c_{217} | 0.99820 ± 0.00063 | r_{drag} | $147.07^{+0.28}_{-0.26}$ | χ_{lowl}^2 | 23.54 ± 0.87 |
| H_0 | $67.1^{+1.2}_{-0.66}$ | k_{D} | 0.14088 ± 0.00030 | χ_{plik}^2 | 2359.7 ± 5.9 |
| Ω_{Λ} | $0.681^{+0.016}_{-0.0083}$ | $100\theta_{\text{D}}$ | 0.16076 ± 0.00018 | χ_{prior}^2 | 11.5 ± 4.6 |
| Ω_{m} | $0.3189^{+0.0083}_{-0.016}$ | z_{eq} | 3404 ± 28 | χ_{CMB}^2 | 2789.7 ± 6.1 |
| $\Omega_{\text{m}} h^2$ | $0.1434^{+0.0013}_{-0.0019}$ | k_{eq} | 0.010390 ± 0.000086 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2801.19; \Delta\bar{\chi}_{\text{eff}}^2 = 0.68; R - 1 = 0.01124$$

6.9 base_mnu_plikHM_TT_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|---------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022202 | 0.02222 ± 0.00019 | $\sigma_8 \Omega_m^{0.25}$ | 0.6127 | $0.603^{+0.012}_{-0.0089}$ | $H(0.38)$ | 83.155 | 83.00 ± 0.40 |
| $\Omega_c h^2$ | 0.11966 | 0.1190 ± 0.0013 | $\sigma_8/h^{0.5}$ | 0.9983 | $0.983^{+0.019}_{-0.013}$ | $D_M(0.38)$ | 1525.2 | 1529 ± 10 |
| $100\theta_{MC}$ | 1.040943 | 1.04100 ± 0.00042 | $r_{drag}h$ | 99.99 | 99.82 ± 0.98 | $H(0.51)$ | 89.841 | 89.70 ± 0.33 |
| τ | 0.0529 | 0.0534 ± 0.0080 | $\langle d^2 \rangle^{1/2}$ | 2.4459 | 2.428 ± 0.030 | $D_M(0.51)$ | 1976.3 | 1981 ± 12 |
| Σm_ν [eV] | 0.0026 | < 0.0720 | z_{re} | 7.56 | 7.59 ± 0.82 | $H(0.61)$ | 95.437 | $95.30^{+0.30}_{-0.27}$ |
| $\ln(10^{10} A_s)$ | 3.0404 | 3.039 ± 0.017 | $10^9 A_s$ | 2.0913 | 2.090 ± 0.035 | $D_M(0.61)$ | 2300.1 | 2305 ± 13 |
| n_s | 0.96587 | 0.9665 ± 0.0043 | $10^9 A_s e^{-2\tau}$ | 1.8812 | 1.878 ± 0.012 | $H(2.33)$ | 235.84 | 235.76 ± 0.78 |
| y_{cal} | 1.00046 | 1.0005 ± 0.0025 | D_{40} | 1227.2 | 1226 ± 13 | $D_M(2.33)$ | 5757.3 | 5765^{+13}_{-15} |
| A_{217}^{CIB} | 48.7 | 48 ± 7 | D_{220} | 5715.9 | 5720 ± 40 | $f\sigma_8(0.15)$ | 0.4607 | 0.4550 ± 0.0088 |
| $\xi^{tSZ \times CIB}$ | 0.30 | — | D_{810} | 2537.4 | 2536 ± 14 | $\sigma_8(0.15)$ | 0.7601 | $0.748^{+0.015}_{-0.0082}$ |
| A_{143}^{tSZ} | 7.02 | 5.1 ± 2.0 | D_{1420} | 815.9 | 815.4 ± 5.1 | $f\sigma_8(0.38)$ | 0.4799 | $0.4736^{+0.0087}_{-0.0071}$ |
| A_{100}^{PS} | 254.4 | 262 ± 28 | D_{2000} | 230.27 | 230.0 ± 1.8 | $\sigma_8(0.38)$ | 0.6739 | $0.663^{+0.013}_{-0.0070}$ |
| A_{143}^{PS} | 48.7 | 48 ± 8 | $n_{s,0.002}$ | 0.96587 | 0.9665 ± 0.0043 | $f\sigma_8(0.51)$ | 0.4788 | $0.4724^{+0.0084}_{-0.0064}$ |
| $A_{143 \times 217}^{PS}$ | 46.0 | 43^{+9}_{-10} | Y_P | 0.245327 | $0.245332^{+0.000084}_{-0.000073}$ | $\sigma_8(0.51)$ | 0.6307 | $0.620^{+0.012}_{-0.0065}$ |
| A_{217}^{PS} | 118.9 | 115 ± 10 | Y_P^{BBN} | 0.246653 | $0.246658^{+0.000085}_{-0.000073}$ | $f\sigma_8(0.61)$ | 0.4739 | $0.4676^{+0.0082}_{-0.0059}$ |
| A^{kSZ} | 0.00 | < 4.85 | $10^5 D/H$ | 2.6176 | 2.614 ± 0.036 | $\sigma_8(0.61)$ | 0.6002 | $0.590^{+0.012}_{-0.0062}$ |
| A_{100}^{dustTT} | 8.85 | 9.0 ± 1.8 | Age/Gyr | 13.7838 | $13.802^{+0.030}_{-0.035}$ | $f\sigma_8(2.33)$ | 0.30178 | $0.2977^{+0.0051}_{-0.0030}$ |
| A_{143}^{dustTT} | 10.83 | 10.7 ± 1.8 | z_* | 1090.098 | 1090.02 ± 0.29 | $\sigma_8(2.33)$ | 0.31171 | $0.3070^{+0.0058}_{-0.0032}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.40 | 18.3 ± 3.3 | r_* | 144.655 | 144.80 ± 0.33 | f_{2000}^{143} | 30.13 | 30.8 ± 2.9 |
| A_{217}^{dustTT} | 94.6 | 93.4 ± 7.3 | $100\theta_*$ | 1.041120 | 1.04120 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 33.01 | 33.2 ± 2.0 |
| c_{100} | 0.99966 | 0.99962 ± 0.00061 | $D_M(z_*)/\text{Gpc}$ | 13.8942 | 13.907 ± 0.032 | f_{2000}^{217} | 107.49 | 107.8 ± 1.9 |
| c_{217} | 0.99825 | 0.99825 ± 0.00063 | z_{drag} | 1059.513 | 1059.52 ± 0.43 | χ_{simall}^2 | 395.87 | 397.0 ± 1.8 |
| H_0 | 67.85 | 67.66 ± 0.59 | r_{drag} | 147.377 | 147.52 ± 0.35 | χ_{lowl}^2 | 23.25 | 23.11 ± 0.94 |
| Ω_Λ | 0.6918 | $0.6900^{+0.0081}_{-0.0073}$ | k_D | 0.140431 | 0.14030 ± 0.00045 | χ_{plik}^2 | 758.6 | 772.0 ± 5.5 |
| Ω_m | 0.3082 | $0.3100^{+0.0073}_{-0.0081}$ | $100\theta_D$ | 0.161010 | 0.16101 ± 0.00025 | χ_{6DF}^2 | 0.0101 | 0.059 ± 0.081 |
| $\Omega_m h^2$ | 0.14189 | 0.1419 ± 0.0012 | z_{eq} | 3390.0 | 3375 ± 30 | χ_{MGS}^2 | 1.41 | 1.39 ± 0.55 |
| $\Omega_\nu h^2$ | 0.000028 | < 0.000774 | k_{eq} | 0.010346 | 0.010301 ± 0.000092 | $\chi_{DR12BAO}^2$ | 3.90 | 4.7 ± 1.7 |
| $\Omega_m h^3$ | 0.09627 | $0.09599^{+0.00056}_{-0.00047}$ | $100\theta_{eq}$ | 0.8150 | 0.8178 ± 0.0056 | χ_{prior}^2 | 1.33 | 7.3 ± 3.7 |
| σ_8 | 0.8223 | $0.809^{+0.016}_{-0.0091}$ | $100\theta_{s,eq}$ | 0.45039 | 0.4519 ± 0.0029 | χ_{BAO}^2 | 5.32 | 6.2 ± 1.4 |
| S_8 | 0.8335 | 0.822 ± 0.017 | $H(0.15)$ | 73.10 | 72.92 ± 0.52 | χ_{CMB}^2 | 1177.7 | 1192.1 ± 5.6 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4565 | 0.4503 ± 0.0094 | $D_M(0.15)$ | 639.2 | 640.9 ± 5.1 | | | |

Best-fit $\chi_{eff}^2 = 1184.39$; $\Delta\chi_{eff}^2 = -1.36$; $\bar{\chi}_{eff}^2 = 1205.62$; $\Delta\bar{\chi}_{eff}^2 = -0.41$; $R - 1 = 0.00712$

χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.01) MGS: 1.41 (Δ 0.13) DR12BAO: 3.90 (Δ -0.28) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.87 (Δ -0.02) commander_dx12_v3_2_29: 23.25 (Δ 0.43) plik_rd12_HM_v22_TT: 758.61 (Δ -1.49)

6.10 base_mnu_plikHM_TT_lowl_lowE_BAO_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|---------------------|---------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022194 | 0.02223 ± 0.00019 | $\sigma_8 \Omega_m^{0.25}$ | 0.6118 | $0.603^{+0.011}_{-0.0086}$ | $H(0.38)$ | 83.182 | 83.06 ± 0.37 |
| $\Omega_c h^2$ | 0.11950 | 0.1189 ± 0.0012 | $\sigma_8/h^{0.5}$ | 0.9971 | $0.983^{+0.018}_{-0.013}$ | $D_M(0.38)$ | 1524.4 | 1527.2 ± 9.7 |
| $100\theta_{MC}$ | 1.040962 | 1.04102 ± 0.00042 | $r_{drag}h$ | 100.11 | 99.98 ± 0.93 | $H(0.51)$ | 89.859 | 89.75 ± 0.32 |
| τ | 0.0529 | 0.0536 ± 0.0080 | $\langle d^2 \rangle^{1/2}$ | 2.4431 | 2.426 ± 0.030 | $D_M(0.51)$ | 1975.3 | 1979 ± 11 |
| Σm_ν [eV] | 0.0011 | < 0.0684 | z_{re} | 7.56 | 7.60 ± 0.81 | $H(0.61)$ | 95.447 | 95.34 ± 0.28 |
| $\ln(10^{10} A_s)$ | 3.0395 | 3.039 ± 0.017 | $10^9 A_s$ | 2.0895 | 2.090 ± 0.035 | $D_M(0.61)$ | 2299.1 | 2303 ± 12 |
| n_s | 0.96602 | 0.9668 ± 0.0042 | $10^9 A_s e^{-2\tau}$ | 1.8797 | 1.877 ± 0.012 | $H(2.33)$ | 235.73 | 235.66 ± 0.75 |
| y_{cal} | 1.00027 | 1.0005 ± 0.0025 | D_{40} | 1226.2 | 1225 ± 13 | $D_M(2.33)$ | 5757.1 | 5763^{+13}_{-14} |
| A_{217}^{CIB} | 49.0 | 48 ± 7 | D_{220} | 5713.4 | 5720 ± 40 | $f\sigma_8(0.15)$ | 0.4597 | 0.4543 ± 0.0086 |
| $\xi^{tSZ \times CIB}$ | 0.28 | — | D_{810} | 2535.9 | 2535 ± 14 | $\sigma_8(0.15)$ | 0.7595 | $0.748^{+0.014}_{-0.0083}$ |
| A_{143}^{tSZ} | 7.02 | 5.1 ± 2.0 | D_{1420} | 815.4 | 815.5 ± 5.1 | $f\sigma_8(0.38)$ | 0.4791 | $0.4732^{+0.0084}_{-0.0068}$ |
| A_{100}^{PS} | 255.6 | 262 ± 28 | D_{2000} | 230.08 | 230.0 ± 1.8 | $\sigma_8(0.38)$ | 0.6735 | $0.663^{+0.012}_{-0.0072}$ |
| A_{143}^{PS} | 48.6 | 48 ± 8 | $n_{s,0.002}$ | 0.96602 | 0.9668 ± 0.0042 | $f\sigma_8(0.51)$ | 0.4781 | $0.4721^{+0.0082}_{-0.0062}$ |
| $A_{143 \times 217}^{PS}$ | 45.5 | 43^{+9}_{-10} | Y_P | 0.245323 | $0.245336^{+0.000083}_{-0.000072}$ | $\sigma_8(0.51)$ | 0.6304 | $0.621^{+0.012}_{-0.0067}$ |
| A_{217}^{PS} | 118.5 | 115 ± 10 | Y_P^{BBN} | 0.246650 | $0.246663^{+0.000084}_{-0.000073}$ | $f\sigma_8(0.61)$ | 0.4733 | $0.4674^{+0.0080}_{-0.0058}$ |
| A^{kSZ} | 0.01 | < 4.90 | $10^5 D/H$ | 2.6190 | 2.612 ± 0.036 | $\sigma_8(0.61)$ | 0.5999 | $0.591^{+0.011}_{-0.0063}$ |
| A_{100}^{dustTT} | 8.87 | 9.0 ± 1.8 | Age/Gyr | 13.7836 | $13.798^{+0.030}_{-0.034}$ | $f\sigma_8(2.33)$ | 0.30165 | $0.2980^{+0.0048}_{-0.0030}$ |
| A_{143}^{dustTT} | 10.81 | 10.7 ± 1.8 | z_* | 1090.094 | 1089.99 ± 0.28 | $\sigma_8(2.33)$ | 0.31162 | $0.3073^{+0.0055}_{-0.0032}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.37 | 18.3 ± 3.3 | r_* | 144.700 | 144.84 ± 0.32 | f_{2000}^{143} | 30.27 | 30.8 ± 2.9 |
| A_{217}^{dustTT} | 94.5 | 93.5 ± 7.3 | $100\theta_*$ | 1.041126 | 1.04122 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 33.13 | 33.2 ± 2.0 |
| c_{100} | 0.99964 | 0.99962 ± 0.00061 | $D_M(z_*)/\text{Gpc}$ | 13.8985 | 13.910 ± 0.031 | f_{2000}^{217} | 107.54 | 107.8 ± 1.9 |
| c_{217} | 0.99825 | 0.99826 ± 0.00063 | z_{drag} | 1059.475 | 1059.53 ± 0.43 | χ_{small}^2 | 395.88 | 397.0 ± 1.8 |
| H_0 | 67.90 | 67.76 ± 0.56 | r_{drag} | 147.427 | 147.55 ± 0.35 | χ_{lowl}^2 | 23.21 | 23.05 ± 0.92 |
| Ω_Λ | 0.6927 | 0.6913 ± 0.0072 | k_D | 0.140375 | 0.14027 ± 0.00044 | χ_{plik}^2 | 758.7 | 772.1 ± 5.5 |
| Ω_m | 0.3073 | 0.3087 ± 0.0072 | $100\theta_D$ | 0.161026 | 0.16101 ± 0.00025 | χ_{JLA}^2 | 1034.880 | 1035.03 ± 0.33 |
| $\Omega_m h^2$ | 0.14171 | 0.1417 ± 0.0011 | z_{eq} | 3386.2 | 3372 ± 29 | χ_{6DF}^2 | 0.0060 | 0.047 ± 0.065 |
| $\Omega_\nu h^2$ | $1.1 \cdot 10^{-5}$ | < 0.000736 | k_{eq} | 0.010335 | 0.010291 ± 0.000089 | χ_{MGS}^2 | 1.47 | 1.47 ± 0.53 |
| $\Omega_m h^3$ | 0.09623 | $0.09601^{+0.00055}_{-0.00047}$ | $100\theta_{eq}$ | 0.8157 | 0.8185 ± 0.0054 | $\chi_{DR12BAO}^2$ | 3.77 | 4.5 ± 1.4 |
| σ_8 | 0.8217 | $0.809^{+0.015}_{-0.0092}$ | $100\theta_{s,eq}$ | 0.45074 | 0.4522 ± 0.0028 | χ_{prior}^2 | 1.37 | 7.4 ± 3.7 |
| S_8 | 0.8317 | 0.821 ± 0.017 | $H(0.15)$ | 73.141 | 73.00 ± 0.49 | χ_{BAO}^2 | 5.25 | 6.0 ± 1.1 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4555 | 0.4495 ± 0.0091 | $D_M(0.15)$ | 638.75 | 640.1 ± 4.8 | χ_{CMB}^2 | 1177.8 | 1192.2 ± 5.5 |

Best-fit $\chi_{eff}^2 = 2219.29$; $\bar{\chi}_{eff}^2 = 2240.54$; $R - 1 = 0.00739$

χ_{eff}^2 : BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.77 CMB - small_100x143_offlike5_EE_Aplanck_B: 395.88 commander_dx12_v3.2.29: 23.21 plik_rd12_HM_v22.TT: 758.69
SN - JLA Pantheon18: 1034.88

6.11 base_mnu_plikHM_TT_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|---------------------------------|------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02222 ± 0.00019 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | $0.604^{+0.012}_{-0.0086}$ | $H(0.38)$ | 83.01 ± 0.40 |
| $\Omega_{\text{c}}h^2$ | 0.1190 ± 0.0013 | $\sigma_8/h^{0.5}$ | $0.984^{+0.018}_{-0.012}$ | $D_{\text{M}}(0.38)$ | 1529 ± 10 |
| $100\theta_{\text{MC}}$ | 1.04100 ± 0.00042 | $r_{\text{drag}}h$ | 99.83 ± 0.98 | $H(0.51)$ | 89.70 ± 0.33 |
| τ | $0.0548^{+0.0050}_{-0.0081}$ | $\langle d^2 \rangle^{1/2}$ | 2.431 ± 0.029 | $D_{\text{M}}(0.51)$ | 1981 ± 12 |
| $\Sigma m_{\nu} [\text{eV}]$ | < 0.0732 | z_{re} | $7.73^{+0.56}_{-0.81}$ | $H(0.61)$ | 95.30 ± 0.29 |
| $\ln(10^{10}A_{\text{s}})$ | $3.042^{+0.012}_{-0.016}$ | $10^9 A_{\text{s}}$ | $2.095^{+0.025}_{-0.035}$ | $D_{\text{M}}(0.61)$ | 2305 ± 13 |
| n_{s} | 0.9666 ± 0.0042 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.877 ± 0.012 | $H(2.33)$ | 235.75 ± 0.78 |
| y_{cal} | 1.0005 ± 0.0025 | D_{40} | 1226 ± 13 | $D_{\text{M}}(2.33)$ | 5765^{+13}_{-15} |
| A_{217}^{CIB} | 48 ± 7 | D_{220} | 5719 ± 40 | $f\sigma_8(0.15)$ | 0.4554 ± 0.0087 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{810} | 2535 ± 14 | $\sigma_8(0.15)$ | $0.748^{+0.015}_{-0.0077}$ |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{1420} | 815.4 ± 5.1 | $f\sigma_8(0.38)$ | $0.4741^{+0.0086}_{-0.0069}$ |
| A_{100}^{PS} | 262 ± 28 | D_{2000} | 230.0 ± 1.8 | $\sigma_8(0.38)$ | $0.663^{+0.013}_{-0.0066}$ |
| A_{143}^{PS} | 48 ± 8 | $n_{\text{s},0.002}$ | 0.9666 ± 0.0042 | $f\sigma_8(0.51)$ | $0.4729^{+0.0083}_{-0.0062}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | Y_{P} | $0.245333^{+0.000085}_{-0.000073}$ | $\sigma_8(0.51)$ | $0.621^{+0.012}_{-0.0061}$ |
| A_{217}^{PS} | 115 ± 10 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246659^{+0.000085}_{-0.000073}$ | $f\sigma_8(0.61)$ | $0.4681^{+0.0081}_{-0.0057}$ |
| A^{kSZ} | < 4.83 | $10^5 D/H$ | 2.614 ± 0.036 | $\sigma_8(0.61)$ | $0.591^{+0.011}_{-0.0058}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | Age/Gyr | $13.802^{+0.030}_{-0.035}$ | $f\sigma_8(2.33)$ | $0.2981^{+0.0050}_{-0.0027}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | z_* | 1090.02 ± 0.29 | $\sigma_8(2.33)$ | $0.3073^{+0.0057}_{-0.0030}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | r_* | 144.81 ± 0.33 | f_{2000}^{143} | 30.8 ± 2.9 |
| A_{217}^{dustTT} | 93.5 ± 7.3 | $100\theta_*$ | 1.04120 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 33.2 ± 2.0 |
| c_{100} | 0.99962 ± 0.00061 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.908 ± 0.032 | f_{2000}^{217} | 107.8 ± 1.9 |
| c_{217} | 0.99825 ± 0.00063 | z_{drag} | 1059.52 ± 0.43 | χ_{simall}^2 | 396.9 ± 1.9 |
| H_0 | 67.67 ± 0.59 | r_{drag} | 147.53 ± 0.35 | χ_{lowl}^2 | 23.13 ± 0.93 |
| Ω_{Λ} | $0.6901^{+0.0081}_{-0.0073}$ | k_{D} | 0.14029 ± 0.00045 | χ_{plik}^2 | 771.8 ± 5.5 |
| Ω_{m} | 0.3099 ± 0.0077 | $100\theta_{\text{D}}$ | 0.16101 ± 0.00025 | $\chi_{6\text{DF}}^2$ | 0.058 ± 0.079 |
| $\Omega_{\text{m}}h^2$ | 0.1419 ± 0.0012 | z_{eq} | 3375 ± 30 | χ_{MGS}^2 | 1.39 ± 0.55 |
| $\Omega_{\nu}h^2$ | < 0.000787 | k_{eq} | 0.010300 ± 0.000091 | χ_{DR12BAO}^2 | 4.7 ± 1.7 |
| $\Omega_{\text{m}}h^3$ | $0.09599^{+0.00056}_{-0.00047}$ | $100\theta_{\text{eq}}$ | 0.8179 ± 0.0056 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | $0.810^{+0.016}_{-0.0086}$ | $100\theta_{\text{s,eq}}$ | 0.4519 ± 0.0029 | χ_{BAO}^2 | 6.2 ± 1.4 |
| S_8 | 0.823 ± 0.017 | $H(0.15)$ | 72.93 ± 0.52 | χ_{CMB}^2 | 1191.9 ± 5.5 |
| $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4507 ± 0.0093 | $D_{\text{M}}(0.15)$ | 640.8 ± 5.1 | | |

$\bar{\chi}_{\text{eff}}^2 = 1205.36$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.40$; $R - 1 = 0.00940$

6.12 base_mnu_plikHM_TT_lowl_lowE_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|---------------------------------|-------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}} h^2$ | 0.02223 ± 0.00019 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | $0.604^{+0.011}_{-0.0083}$ | $H(0.38)$ | 83.06 ± 0.38 |
| $\Omega_{\text{c}} h^2$ | 0.1188 ± 0.0012 | $\sigma_8 / h^{0.5}$ | $0.984^{+0.018}_{-0.012}$ | $D_{\text{M}}(0.38)$ | 1527.1 ± 9.7 |
| $100\theta_{\text{MC}}$ | 1.04102 ± 0.00042 | $r_{\text{drag}} h$ | 99.99 ± 0.93 | $H(0.51)$ | 89.75 ± 0.32 |
| τ | $0.0549^{+0.0051}_{-0.0081}$ | $\langle d^2 \rangle^{1/2}$ | 2.429 ± 0.029 | $D_{\text{M}}(0.51)$ | 1979 ± 12 |
| $\Sigma m_{\nu} [\text{eV}]$ | < 0.0694 | z_{re} | $7.74^{+0.57}_{-0.80}$ | $H(0.61)$ | 95.34 ± 0.28 |
| $\ln(10^{10} A_{\text{s}})$ | $3.042^{+0.012}_{-0.016}$ | $10^9 A_{\text{s}}$ | $2.095^{+0.025}_{-0.034}$ | $D_{\text{M}}(0.61)$ | 2303 ± 13 |
| n_{s} | 0.9669 ± 0.0042 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.877 ± 0.012 | $H(2.33)$ | 235.65 ± 0.75 |
| y_{cal} | 1.0005 ± 0.0025 | D_{40} | 1225 ± 13 | $D_{\text{M}}(2.33)$ | 5763^{+13}_{-15} |
| A_{217}^{CIB} | 48 ± 7 | D_{220} | 5720 ± 40 | $f\sigma_8(0.15)$ | $0.4547^{+0.0086}_{-0.0078}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{810} | 2535 ± 14 | $\sigma_8(0.15)$ | $0.749^{+0.014}_{-0.0077}$ |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{1420} | 815.5 ± 5.1 | $f\sigma_8(0.38)$ | $0.4736^{+0.0083}_{-0.0066}$ |
| A_{100}^{PS} | 262 ± 28 | D_{2000} | 230.0 ± 1.8 | $\sigma_8(0.38)$ | $0.664^{+0.012}_{-0.0067}$ |
| A_{143}^{PS} | 48 ± 8 | $n_{\text{s},0.002}$ | 0.9669 ± 0.0042 | $f\sigma_8(0.51)$ | $0.4726^{+0.0081}_{-0.0060}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43^{+9}_{-10} | Y_{P} | $0.245337^{+0.000084}_{-0.000072}$ | $\sigma_8(0.51)$ | $0.621^{+0.012}_{-0.0062}$ |
| A_{217}^{PS} | 115 ± 10 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246664^{+0.000084}_{-0.000072}$ | $f\sigma_8(0.61)$ | $0.4678^{+0.0079}_{-0.0056}$ |
| A^{kSZ} | < 4.84 | $10^5 \text{D}/\text{H}$ | 2.612 ± 0.036 | $\sigma_8(0.61)$ | $0.591^{+0.011}_{-0.0059}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | Age/Gyr | $13.798^{+0.030}_{-0.034}$ | $f\sigma_8(2.33)$ | $0.2983^{+0.0047}_{-0.0028}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | z_* | 1089.99 ± 0.28 | $\sigma_8(2.33)$ | $0.3076^{+0.0054}_{-0.0030}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.4 ± 3.3 | r_* | 144.84 ± 0.32 | f_{2000}^{143} | 30.7 ± 2.9 |
| A_{217}^{dustTT} | 93.6 ± 7.3 | $100\theta_*$ | 1.04122 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 33.2 ± 2.0 |
| c_{100} | 0.99962 ± 0.00061 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.911 ± 0.031 | f_{2000}^{217} | 107.8 ± 1.9 |
| c_{217} | 0.99826 ± 0.00063 | z_{drag} | 1059.53 ± 0.43 | χ_{simall}^2 | 396.9 ± 1.9 |
| H_0 | 67.76 ± 0.56 | r_{drag} | 147.56 ± 0.35 | χ_{lowl}^2 | 23.06 ± 0.92 |
| Ω_{Λ} | 0.6913 ± 0.0072 | k_{D} | 0.14027 ± 0.00044 | χ_{plik}^2 | 771.9 ± 5.5 |
| Ω_{m} | 0.3087 ± 0.0072 | $100\theta_{\text{D}}$ | 0.16101 ± 0.00025 | χ_{JLA}^2 | 1035.03 ± 0.33 |
| $\Omega_{\text{m}} h^2$ | 0.1417 ± 0.0011 | z_{eq} | 3371 ± 29 | $\chi_{6\text{DF}}^2$ | 0.046 ± 0.064 |
| $\Omega_{\nu} h^2$ | < 0.000746 | k_{eq} | 0.010289 ± 0.000088 | χ_{MGS}^2 | 1.48 ± 0.53 |
| $\Omega_{\text{m}} h^3$ | $0.09601^{+0.00055}_{-0.00047}$ | $100\theta_{\text{eq}}$ | 0.8186 ± 0.0054 | χ_{DR12BAO}^2 | 4.4 ± 1.4 |
| σ_8 | $0.810^{+0.015}_{-0.0086}$ | $100\theta_{\text{s,eq}}$ | 0.4523 ± 0.0028 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | $0.821^{+0.017}_{-0.015}$ | $H(0.15)$ | 73.01 ± 0.49 | χ_{BAO}^2 | 6.0 ± 1.1 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | $0.4498^{+0.0092}_{-0.0083}$ | $D_{\text{M}}(0.15)$ | 640.0 ± 4.8 | χ_{CMB}^2 | 1191.9 ± 5.5 |

$$\bar{\chi}_{\text{eff}}^2 = 2240.29; R - 1 = 0.00886$$

6.13 base_mnu_plikHM_TTTEEE_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|---------------------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022420 | 0.02241 ± 0.00013 | $\Omega_m h^3$ | 0.096697 | $0.09648^{+0.00038}_{-0.00031}$ | $H(0.15)$ | 73.286 | $73.04^{+0.45}_{-0.40}$ |
| $\Omega_c h^2$ | 0.11968 | 0.1195 ± 0.0010 | σ_8 | 0.8236 | $0.814^{+0.013}_{-0.0084}$ | $D_M(0.15)$ | 637.45 | $639.9^{+3.9}_{-4.4}$ |
| $100\theta_{MC}$ | 1.041003 | 1.04100 ± 0.00029 | S_8 | 0.8331 | 0.828 ± 0.014 | $H(0.38)$ | 83.337 | $83.13^{+0.34}_{-0.30}$ |
| τ | 0.0546 | 0.0550 ± 0.0077 | $\sigma_8 \Omega_m^{0.5}$ | 0.4563 | 0.4533 ± 0.0074 | $D_M(0.38)$ | 1521.4 | $1526.4^{+7.9}_{-8.9}$ |
| Σm_ν [eV] | 0.0008 | < 0.0581 | $\sigma_8 \Omega_m^{0.25}$ | 0.6130 | $0.6075^{+0.0092}_{-0.0077}$ | $H(0.51)$ | 90.020 | $89.84^{+0.28}_{-0.25}$ |
| $\ln(10^{10} A_s)$ | 3.0444 | 3.045 ± 0.016 | $\sigma_8/h^{0.5}$ | 0.9985 | $0.989^{+0.015}_{-0.012}$ | $D_M(0.51)$ | 1971.5 | $1977.6^{+9.3}_{-11}$ |
| n_s | 0.96690 | 0.9666 ± 0.0038 | $r_{drag} h$ | 100.11 | 99.75 ± 0.83 | $H(0.61)$ | 95.614 | $95.46^{+0.24}_{-0.21}$ |
| y_{cal} | 1.00044 | 1.0008 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4473 | 2.439 ± 0.026 | $D_M(0.61)$ | 2294.7 | 2301^{+10}_{-11} |
| A_{217}^{CIB} | 46.5 | 47 ± 7 | z_{re} | 7.69 | 7.71 ± 0.78 | $H(2.33)$ | 236.08 | 236.17 ± 0.61 |
| $\xi^{tSZ \times CIB}$ | 0.57 | — | $10^9 A_s$ | 2.0998 | 2.101 ± 0.034 | $D_M(2.33)$ | 5747.2 | $5755.3^{+9.7}_{-12}$ |
| A_{143}^{tSZ} | 7.12 | $5.5^{+2.1}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.8826 | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4605 | 0.4579 ± 0.0070 |
| A_{100}^{PS} | 248.4 | 258 ± 28 | D_{40} | 1227.6 | 1229 ± 12 | $\sigma_8(0.15)$ | 0.7614 | $0.752^{+0.012}_{-0.0076}$ |
| A_{143}^{PS} | 49.1 | 46 ± 8 | D_{220} | 5732.5 | 5737 ± 38 | $f\sigma_8(0.38)$ | 0.4800 | $0.4766^{+0.0068}_{-0.0061}$ |
| $A_{143 \times 217}^{PS}$ | 50.7 | 42 ± 9 | D_{810} | 2540.2 | 2540 ± 13 | $\sigma_8(0.38)$ | 0.6752 | $0.667^{+0.011}_{-0.0066}$ |
| A_{217}^{PS} | 120.9 | 115 ± 10 | D_{1420} | 818.24 | 817.9 ± 4.8 | $f\sigma_8(0.51)$ | 0.4791 | $0.4754^{+0.0066}_{-0.0056}$ |
| A^{kSZ} | 0.00 | < 4.07 | D_{2000} | 231.43 | 231.2 ± 1.6 | $\sigma_8(0.51)$ | 0.6320 | $0.6243^{+0.0099}_{-0.0062}$ |
| A_{100}^{dustTT} | 8.78 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.96690 | 0.9666 ± 0.0038 | $f\sigma_8(0.61)$ | 0.4743 | $0.4705^{+0.0065}_{-0.0053}$ |
| A_{143}^{dustTT} | 11.02 | 10.9 ± 1.8 | Y_P | 0.245415 | $0.245409^{+0.000054}_{-0.000048}$ | $\sigma_8(0.61)$ | 0.6014 | $0.5941^{+0.0094}_{-0.0058}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.91 | 18.6 ± 3.3 | Y_P^{BBN} | 0.246742 | $0.246736^{+0.000054}_{-0.000048}$ | $f\sigma_8(2.33)$ | 0.30243 | $0.2994^{+0.0041}_{-0.0029}$ |
| A_{217}^{dustTT} | 95.1 | 93.8 ± 7.3 | $10^5 D/H$ | 2.5763 | 2.579 ± 0.025 | $\sigma_8(2.33)$ | 0.31244 | $0.3088^{+0.0048}_{-0.0030}$ |
| A_{100}^{dustTE} | 0.1137 | 0.114 ± 0.038 | Age/Gyr | 13.7601 | $13.779^{+0.022}_{-0.028}$ | f_{2000}^{143} | 28.51 | 29.3 ± 2.7 |
| $A_{100 \times 143}^{dustTE}$ | 0.1342 | 0.135 ± 0.029 | z_* | 1089.824 | 1089.82 ± 0.22 | $f_{2000}^{143 \times 217}$ | 31.83 | 32.0 ± 1.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 | 0.481 ± 0.085 | r_* | 144.483 | 144.55 ± 0.24 | f_{2000}^{217} | 106.42 | 106.9 ± 1.8 |
| A_{143}^{dustTE} | 0.226 | 0.225 ± 0.054 | $100\theta_*$ | 1.041157 | 1.04118 ± 0.00029 | χ_{small}^2 | 396.08 | 397.1 ± 1.9 |
| $A_{143 \times 217}^{dustTE}$ | 0.667 | 0.664 ± 0.079 | $D_M(z_*)/\text{Gpc}$ | 13.8771 | 13.883 ± 0.023 | χ_{lowl}^2 | 23.21 | 23.25 ± 0.85 |
| A_{217}^{dustTE} | 2.082 | 2.08 ± 0.27 | z_{drag} | 1060.009 | 1059.99 ± 0.29 | χ_{plik}^2 | 2343.8 | 2359.3 ± 5.9 |
| c_{100} | 0.99970 | 0.99967 ± 0.00061 | r_{drag} | 147.129 | 147.20 ± 0.24 | χ_{6DF}^2 | 0.0059 | 0.051 ± 0.070 |
| c_{217} | 0.99819 | 0.99819 ± 0.00062 | k_D | 0.140861 | 0.14078 ± 0.00029 | χ_{MGS}^2 | 1.473 | 1.33 ± 0.45 |
| H_0 | 68.044 | $67.76^{+0.51}_{-0.46}$ | $100\theta_D$ | 0.160716 | 0.16074 ± 0.00017 | $\chi_{DR12BAO}^2$ | 3.82 | 4.7 ± 1.5 |
| Ω_Λ | 0.6931 | $0.6899^{+0.0067}_{-0.0060}$ | z_{eq} | 3395.8 | 3390 ± 23 | χ_{prior}^2 | 1.67 | 11.6 ± 4.6 |
| Ω_m | 0.3069 | $0.3101^{+0.0060}_{-0.0067}$ | k_{eq} | 0.010364 | 0.010347 ± 0.000070 | χ_{BAO}^2 | 5.30 | 6.1 ± 1.2 |
| $\Omega_m h^2$ | 0.14211 | 0.14238 ± 0.00096 | $100\theta_{eq}$ | 0.81460 | 0.8156 ± 0.0043 | χ_{CMB}^2 | 2763.1 | 2779.7 ± 5.8 |
| $\Omega_\nu h^2$ | $0.8 \cdot 10^{-5}$ | < 0.000625 | $100\theta_{s,eq}$ | 0.45003 | 0.4506 ± 0.0022 | | | |

Best-fit $\chi_{eff}^2 = 2770.08$; $\Delta\chi_{eff}^2 = -1.83$; $\bar{\chi}_{eff}^2 = 2797.32$; $\Delta\bar{\chi}_{eff}^2 = -0.59$; $R - 1 = 0.00869$

χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.02) MGS: 1.47 (Δ 0.26) DR12BAO: 3.82 (Δ -0.60) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.08 (Δ -0.12) commander_dx12_v3_2_29: 23.21 (Δ 0.34) plik_rd12_HM_v22b_TTTEEE: 2343.84 (Δ -1.67)

6.14 base_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|---------------------|-----------------------|------------------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.022432 | 0.02242 ± 0.00013 | $\Omega_{\text{m}}h^3$ | 0.096700 | $0.09649^{+0.00037}_{-0.00031}$ | $H(0.15)$ | 73.341 | 73.10 ± 0.41 |
| $\Omega_{\text{c}}h^2$ | 0.11954 | 0.11935 ± 0.00097 | σ_8 | 0.8238 | $0.814^{+0.012}_{-0.0084}$ | $D_{\text{M}}(0.15)$ | 636.92 | 639.3 ± 4.1 |
| $100\theta_{\text{MC}}$ | 1.041009 | 1.04102 ± 0.00029 | S_8 | 0.8321 | 0.827 ± 0.013 | $H(0.38)$ | 83.376 | 83.18 ± 0.31 |
| τ | 0.0554 | 0.0551 ± 0.0077 | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4558 | 0.4528 ± 0.0072 | $D_{\text{M}}(0.38)$ | 1520.3 | 1525.2 ± 8.2 |
| Σm_{ν} [eV] | 0.0011 | < 0.0554 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6128 | $0.6072^{+0.0089}_{-0.0076}$ | $H(0.51)$ | 90.050 | $89.88^{+0.27}_{-0.24}$ |
| $\ln(10^{10}A_{\text{s}})$ | 3.0457 | 3.045 ± 0.016 | $\sigma_8/h^{0.5}$ | 0.9982 | $0.989^{+0.014}_{-0.011}$ | $D_{\text{M}}(0.51)$ | 1970.3 | 1976.2 ± 9.7 |
| n_{s} | 0.96763 | 0.9668 ± 0.0037 | $r_{\text{drag}}h$ | 100.22 | 99.86 ± 0.78 | $H(0.61)$ | 95.638 | $95.49^{+0.23}_{-0.20}$ |
| y_{cal} | 1.00044 | 1.0008 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4458 | 2.438 ± 0.026 | $D_{\text{M}}(0.61)$ | 2293.4 | 2300 ± 11 |
| A_{217}^{CIB} | 45.6 | 47 ± 7 | z_{re} | 7.76 | 7.72 ± 0.78 | $H(2.33)$ | 236.00 | 236.10 ± 0.58 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.66 | — | $10^9 A_{\text{s}}$ | 2.1024 | 2.101 ± 0.034 | $D_{\text{M}}(2.33)$ | 5746.3 | $5754.0^{+9.4}_{-12}$ |
| A_{143}^{tSZ} | 7.09 | 5.5 ± 1.9 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.8819 | 1.881 ± 0.011 | $f\sigma_8(0.15)$ | 0.4601 | 0.4575 ± 0.0068 |
| A_{100}^{PS} | 247.2 | 257 ± 28 | D_{40} | 1226.1 | 1228 ± 12 | $\sigma_8(0.15)$ | 0.7616 | $0.753^{+0.011}_{-0.0076}$ |
| A_{143}^{PS} | 50.1 | 45 ± 8 | D_{220} | 5731.1 | 5737 ± 38 | $f\sigma_8(0.38)$ | 0.4798 | 0.4764 ± 0.0064 |
| $A_{143 \times 217}^{\text{PS}}$ | 52.8 | 42 ± 9 | D_{810} | 2540.3 | 2540 ± 14 | $\sigma_8(0.38)$ | 0.6755 | $0.667^{+0.010}_{-0.0066}$ |
| A_{217}^{PS} | 122.0 | 115 ± 10 | D_{1420} | 818.55 | 817.9 ± 4.8 | $f\sigma_8(0.51)$ | 0.4789 | $0.4752^{+0.0064}_{-0.0056}$ |
| A^{kSZ} | 0.01 | < 4.13 | D_{2000} | 231.58 | 231.2 ± 1.6 | $\sigma_8(0.51)$ | 0.6323 | $0.6247^{+0.0095}_{-0.0062}$ |
| A_{100}^{dustTT} | 8.81 | 8.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.96763 | 0.9668 ± 0.0037 | $f\sigma_8(0.61)$ | 0.4743 | $0.4704^{+0.0062}_{-0.0053}$ |
| A_{143}^{dustTT} | 11.05 | 10.9 ± 1.8 | Y_{P} | 0.245420 | $0.245412^{+0.000054}_{-0.000048}$ | $\sigma_8(0.61)$ | 0.6017 | $0.5945^{+0.0090}_{-0.0058}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.16 | 18.6 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246746 | $0.246739^{+0.000054}_{-0.000048}$ | $f\sigma_8(2.33)$ | 0.30265 | $0.2996^{+0.0040}_{-0.0029}$ |
| A_{217}^{dustTT} | 95.5 | 93.8 ± 7.3 | 10^5D/H | 2.5740 | 2.577 ± 0.025 | $\sigma_8(2.33)$ | 0.31271 | $0.3091^{+0.0045}_{-0.0030}$ |
| A_{100}^{dustTE} | 0.1145 | 0.115 ± 0.038 | Age/Gyr | 13.7580 | $13.776^{+0.021}_{-0.026}$ | f_{2000}^{143} | 28.28 | 29.2 ± 2.7 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1340 | 0.135 ± 0.029 | z_* | 1089.795 | 1089.80 ± 0.22 | $f_{2000}^{143 \times 217}$ | 31.63 | 32.0 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.481 ± 0.085 | r_* | 144.510 | 144.57 ± 0.23 | f_{2000}^{217} | 106.22 | 106.8 ± 1.8 |
| A_{143}^{dustTE} | 0.224 | 0.224 ± 0.054 | $100\theta_*$ | 1.041161 | 1.04119 ± 0.00029 | χ_{small}^2 | 396.22 | 397.2 ± 1.9 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.664 ± 0.079 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8797 | 13.885 ± 0.022 | χ_{lowl}^2 | 23.08 | 23.20 ± 0.84 |
| A_{217}^{dustTE} | 2.080 | 2.08 ± 0.27 | z_{drag} | 1060.047 | 1060.00 ± 0.29 | χ_{plik}^2 | 2344.0 | 2359.3 ± 5.9 |
| c_{100} | 0.99973 | 0.99967 ± 0.00060 | r_{drag} | 147.151 | 147.22 ± 0.24 | χ_{JLA}^2 | 1034.839 | 1035.02 ± 0.29 |
| c_{217} | 0.99817 | 0.99819 ± 0.00062 | k_{D} | 0.140845 | 0.14077 ± 0.00029 | $\chi_{6\text{DF}}^2$ | 0.0030 | 0.042 ± 0.057 |
| H_0 | 68.108 | 67.83 ± 0.47 | $100\theta_{\text{D}}$ | 0.160704 | 0.16073 ± 0.00017 | χ_{MGS}^2 | 1.540 | 1.39 ± 0.44 |
| Ω_{Λ} | 0.6939 | 0.6908 ± 0.0061 | z_{eq} | 3392.6 | 3388 ± 22 | χ_{DR12BAO}^2 | 3.71 | 4.5 ± 1.3 |
| Ω_{m} | 0.3061 | 0.3092 ± 0.0061 | k_{eq} | 0.010354 | 0.010340 ± 0.000068 | χ_{prior}^2 | 1.56 | 11.5 ± 4.6 |
| $\Omega_{\text{m}}h^2$ | 0.14198 | 0.14225 ± 0.00092 | $100\theta_{\text{eq}}$ | 0.81521 | 0.8161 ± 0.0042 | χ_{BAO}^2 | 5.254 | 5.93 ± 0.99 |
| $\Omega_{\nu}h^2$ | $1.2 \cdot 10^{-5}$ | < 0.000596 | $100\theta_{\text{s,eq}}$ | 0.45033 | 0.4508 ± 0.0021 | χ_{CMB}^2 | 2763.3 | 2779.7 ± 5.8 |

Best-fit $\chi_{\text{eff}}^2 = 3804.95$; $\bar{\chi}_{\text{eff}}^2 = 3832.15$; $R - 1 = 0.01154$

χ_{eff}^2 : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 3.71 CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.22 commander_dx12_v3_2_29: 23.08 plik_rd12_HM_v22b_TTTEEE: 2343.99 SN - JLA Pantheon18: 1034.84

6.15 base_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02241 ± 0.00013 | $\Omega_m h^3$ | $0.09648^{+0.00038}_{-0.00031}$ | $H(0.15)$ | $73.04^{+0.45}_{-0.41}$ |
| $\Omega_c h^2$ | 0.1194 ± 0.0010 | σ_8 | $0.815^{+0.013}_{-0.0080}$ | $D_M(0.15)$ | $639.8^{+3.9}_{-4.4}$ |
| $100\theta_{MC}$ | 1.04101 ± 0.00029 | S_8 | 0.828 ± 0.014 | $H(0.38)$ | $83.14^{+0.34}_{-0.30}$ |
| τ | $0.0559^{+0.0054}_{-0.0081}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4536 ± 0.0074 | $D_M(0.38)$ | $1526.3^{+8.0}_{-9.0}$ |
| Σm_ν [eV] | < 0.0586 | $\sigma_8 \Omega_m^{0.25}$ | $0.6079^{+0.0092}_{-0.0075}$ | $H(0.51)$ | $89.85^{+0.28}_{-0.25}$ |
| $\ln(10^{10} A_s)$ | $3.047^{+0.013}_{-0.016}$ | $\sigma_8/h^{0.5}$ | $0.990^{+0.015}_{-0.011}$ | $D_M(0.51)$ | $1977.4^{+9.4}_{-11}$ |
| n_s | 0.9667 ± 0.0038 | $r_{\text{drag}} h$ | 99.76 ± 0.83 | $H(0.61)$ | $95.46^{+0.24}_{-0.21}$ |
| y_{cal} | 1.0008 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.441 ± 0.026 | $D_M(0.61)$ | 2301^{+10}_{-11} |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.81^{+0.59}_{-0.80}$ | $H(2.33)$ | 236.16 ± 0.61 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s$ | $2.104^{+0.026}_{-0.035}$ | $D_M(2.33)$ | $5755.2^{+9.8}_{-12}$ |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4582 ± 0.0070 |
| A_{100}^{PS} | 258 ± 28 | D_{40} | 1229 ± 12 | $\sigma_8(0.15)$ | $0.753^{+0.012}_{-0.0072}$ |
| A_{143}^{PS} | 46 ± 8 | D_{220} | 5737 ± 38 | $f\sigma_8(0.38)$ | $0.4770^{+0.0067}_{-0.0060}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{810} | 2540 ± 13 | $\sigma_8(0.38)$ | $0.668^{+0.010}_{-0.0062}$ |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 817.9 ± 4.8 | $f\sigma_8(0.51)$ | $0.4757^{+0.0065}_{-0.0055}$ |
| A^{kSZ} | < 4.05 | D_{2000} | 231.2 ± 1.6 | $\sigma_8(0.51)$ | $0.6248^{+0.0098}_{-0.0058}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.9667 ± 0.0038 | $f\sigma_8(0.61)$ | $0.4708^{+0.0064}_{-0.0051}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P | $0.245410^{+0.000054}_{-0.000048}$ | $\sigma_8(0.61)$ | $0.5945^{+0.0093}_{-0.0055}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | Y_P^{BBN} | $0.246737^{+0.000054}_{-0.000048}$ | $f\sigma_8(2.33)$ | $0.2997^{+0.0040}_{-0.0027}$ |
| A_{217}^{dustTT} | 93.8 ± 7.3 | $10^5 D/H$ | 2.578 ± 0.025 | $\sigma_8(2.33)$ | $0.3091^{+0.0047}_{-0.0028}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | Age/Gyr | $13.779^{+0.022}_{-0.028}$ | f_{2000}^{143} | 29.2 ± 2.7 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | z_* | 1089.82 ± 0.22 | $f_{2000}^{143 \times 217}$ | 32.0 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.084 | r_* | 144.55 ± 0.24 | f_{2000}^{217} | 106.8 ± 1.8 |
| A_{143}^{dustTE} | 0.225 ± 0.054 | $100\theta_*$ | 1.04118 ± 0.00029 | χ_{simall}^2 | 397.1 ± 2.0 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.080 | $D_M(z_*)/\text{Gpc}$ | 13.883 ± 0.023 | χ_{lowl}^2 | 23.25 ± 0.85 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | z_{drag} | 1059.99 ± 0.29 | χ_{plik}^2 | 2359.1 ± 5.9 |
| c_{100} | 0.99967 ± 0.00061 | r_{drag} | 147.20 ± 0.24 | $\chi_{6\text{DF}}^2$ | 0.051 ± 0.069 |
| c_{217} | 0.99819 ± 0.00062 | k_D | 0.14078 ± 0.00029 | χ_{MGS}^2 | 1.34 ± 0.46 |
| H_0 | 67.77 ± 0.50 | $100\theta_D$ | 0.16074 ± 0.00017 | χ_{DR12BAO}^2 | 4.7 ± 1.5 |
| Ω_Λ | $0.6900^{+0.0067}_{-0.0060}$ | z_{eq} | 3390 ± 23 | χ_{prior}^2 | 11.6 ± 4.6 |
| Ω_m | $0.3100^{+0.0060}_{-0.0067}$ | k_{eq} | 0.010345 ± 0.000070 | χ_{BAO}^2 | 6.1 ± 1.2 |
| $\Omega_m h^2$ | 0.14236 ± 0.00096 | $100\theta_{\text{eq}}$ | 0.8157 ± 0.0043 | χ_{CMB}^2 | 2779.5 ± 5.8 |
| $\Omega_\nu h^2$ | < 0.000630 | $100\theta_{s,\text{eq}}$ | 0.4506 ± 0.0022 | | |

$\bar{\chi}_{\text{eff}}^2 = 2797.12$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.59$; $R - 1 = 0.00800$

6.16 base_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02242 ± 0.00013 | $\Omega_{\text{m}}h^3$ | $0.09649^{+0.00037}_{-0.00031}$ | $H(0.15)$ | 73.10 ± 0.41 |
| $\Omega_{\text{c}}h^2$ | 0.11933 ± 0.00097 | σ_8 | $0.815^{+0.012}_{-0.0080}$ | $D_{\text{M}}(0.15)$ | 639.2 ± 4.1 |
| $100\theta_{\text{MC}}$ | 1.04102 ± 0.00029 | S_8 | 0.827 ± 0.013 | $H(0.38)$ | 83.18 ± 0.31 |
| τ | $0.0561^{+0.0055}_{-0.0081}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4531 ± 0.0072 | $D_{\text{M}}(0.38)$ | 1525.1 ± 8.2 |
| $\Sigma m_{\nu} [\text{eV}]$ | < 0.0560 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | $0.6077^{+0.0089}_{-0.0074}$ | $H(0.51)$ | $89.88^{+0.27}_{-0.24}$ |
| $\ln(10^{10}A_{\text{s}})$ | $3.047^{+0.013}_{-0.016}$ | $\sigma_8/h^{0.5}$ | $0.990^{+0.014}_{-0.011}$ | $D_{\text{M}}(0.51)$ | 1976.0 ± 9.7 |
| n_{s} | 0.9669 ± 0.0037 | $r_{\text{drag}}h$ | 99.88 ± 0.78 | $H(0.61)$ | $95.49^{+0.23}_{-0.20}$ |
| y_{cal} | 1.0007 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.440 ± 0.025 | $D_{\text{M}}(0.61)$ | 2300 ± 11 |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.82^{+0.60}_{-0.79}$ | $H(2.33)$ | 236.09 ± 0.58 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_{\text{s}}$ | $2.105^{+0.026}_{-0.035}$ | $D_{\text{M}}(2.33)$ | $5753.9^{+9.5}_{-12}$ |
| A_{143}^{tSZ} | 5.5 ± 1.9 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.881 ± 0.011 | $f\sigma_8(0.15)$ | 0.4578 ± 0.0068 |
| A_{100}^{PS} | 257 ± 28 | D_{40} | 1228 ± 12 | $\sigma_8(0.15)$ | $0.753^{+0.011}_{-0.0072}$ |
| A_{143}^{PS} | 45 ± 8 | D_{220} | 5737 ± 38 | $f\sigma_8(0.38)$ | $0.4767^{+0.0065}_{-0.0059}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{810} | 2540 ± 14 | $\sigma_8(0.38)$ | $0.6680^{+0.0099}_{-0.0062}$ |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 817.9 ± 4.8 | $f\sigma_8(0.51)$ | $0.4756^{+0.0063}_{-0.0054}$ |
| A^{kSZ} | < 4.08 | D_{2000} | 231.2 ± 1.6 | $\sigma_8(0.51)$ | $0.6252^{+0.0093}_{-0.0058}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.9669 ± 0.0037 | $f\sigma_8(0.61)$ | $0.4708^{+0.0062}_{-0.0051}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | Y_{P} | $0.245413^{+0.000054}_{-0.000047}$ | $\sigma_8(0.61)$ | $0.5950^{+0.0088}_{-0.0055}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246740^{+0.000054}_{-0.000048}$ | $f\sigma_8(2.33)$ | $0.2999^{+0.0038}_{-0.0027}$ |
| A_{217}^{dustTT} | 93.8 ± 7.3 | 10^5D/H | 2.577 ± 0.024 | $\sigma_8(2.33)$ | $0.3093^{+0.0044}_{-0.0028}$ |
| A_{100}^{dustTE} | 0.115 ± 0.038 | Age/Gyr | $13.776^{+0.021}_{-0.026}$ | f_{2000}^{143} | 29.2 ± 2.7 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | z_* | 1089.80 ± 0.22 | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.084 | r_* | 144.57 ± 0.23 | f_{2000}^{217} | 106.8 ± 1.8 |
| A_{143}^{dustTE} | 0.224 ± 0.054 | $100\theta_*$ | 1.04119 ± 0.00029 | χ_{simall}^2 | 397.1 ± 2.0 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.079 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.885 ± 0.022 | χ_{lowl}^2 | 23.22 ± 0.84 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | z_{drag} | 1060.00 ± 0.29 | χ_{plik}^2 | 2359.1 ± 5.9 |
| c_{100} | 0.99967 ± 0.00060 | r_{drag} | 147.22 ± 0.24 | χ_{JLA}^2 | 1035.02 ± 0.28 |
| c_{217} | 0.99818 ± 0.00062 | k_{D} | 0.14077 ± 0.00029 | $\chi_{6\text{DF}}^2$ | 0.041 ± 0.056 |
| H_0 | 67.84 ± 0.48 | $100\theta_{\text{D}}$ | 0.16073 ± 0.00017 | χ_{MGS}^2 | 1.40 ± 0.44 |
| Ω_{Λ} | 0.6909 ± 0.0061 | z_{eq} | 3387 ± 22 | χ_{DR12BAO}^2 | 4.5 ± 1.2 |
| Ω_{m} | 0.3091 ± 0.0061 | k_{eq} | 0.010338 ± 0.000068 | χ_{prior}^2 | 11.5 ± 4.6 |
| $\Omega_{\text{m}}h^2$ | 0.14224 ± 0.00091 | $100\theta_{\text{eq}}$ | 0.8162 ± 0.0042 | χ_{BAO}^2 | 5.92 ± 0.97 |
| $\Omega_{\nu}h^2$ | < 0.000602 | $100\theta_{\text{s,eq}}$ | 0.4509 ± 0.0021 | χ_{CMB}^2 | 2779.5 ± 5.8 |

$$\bar{\chi}_{\text{eff}}^2 = 3831.97; R - 1 = 0.01168$$

6.17 base_mnu_plikHM_TT_lowl_lowE_lensing_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|----------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022232 | 0.02222 ± 0.00019 | $\sigma_8 \Omega_m^{0.25}$ | 0.6115 | $0.6058^{+0.0083}_{-0.0068}$ | $H(0.38)$ | 83.236 | 83.01 ± 0.38 |
| $\Omega_c h^2$ | 0.11936 | 0.1192 ± 0.0011 | $\sigma_8/h^{0.5}$ | 0.9967 | $0.987^{+0.013}_{-0.010}$ | $D_M(0.38)$ | 1523.0 | 1528.6 ± 9.9 |
| $100\theta_{MC}$ | 1.040955 | 1.04097 ± 0.00042 | $r_{\text{drag}} h$ | 100.22 | 99.81 ± 0.92 | $H(0.51)$ | 89.905 | 89.71 ± 0.32 |
| τ | 0.0542 | 0.0542 ± 0.0074 | $\langle d^2 \rangle^{1/2}$ | 2.4437 | 2.435 ± 0.022 | $D_M(0.51)$ | 1973.7 | 1980 ± 12 |
| Σm_ν [eV] | 0.0037 | < 0.0628 | z_{re} | 7.68 | 7.67 ± 0.75 | $H(0.61)$ | 95.487 | 95.32 ± 0.28 |
| $\ln(10^{10} A_s)$ | 3.0419 | 3.042 ± 0.015 | $10^9 A_s$ | 2.0944 | 2.095 ± 0.031 | $D_M(0.61)$ | 2297.3 | 2305 ± 13 |
| n_s | 0.96622 | 0.9659 ± 0.0041 | $10^9 A_s e^{-2\tau}$ | 1.8794 | 1.879 ± 0.011 | $H(2.33)$ | 235.68 | 235.80 ± 0.70 |
| y_{cal} | 1.00022 | 1.0006 ± 0.0025 | D_{40} | 1226.6 | 1228 ± 12 | $D_M(2.33)$ | 5755.2 | 5764 ± 14 |
| A_{217}^{CIB} | 48.3 | 48 ± 7 | D_{220} | 5718.2 | 5723 ± 40 | $f\sigma_8(0.15)$ | 0.4593 | 0.4566 ± 0.0064 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.36 | — | D_{810} | 2536.1 | 2536 ± 14 | $\sigma_8(0.15)$ | 0.7598 | $0.750^{+0.011}_{-0.0068}$ |
| A_{143}^{tSZ} | 7.04 | 5.1 ± 2.0 | D_{1420} | 815.6 | 815.5 ± 5.1 | $f\sigma_8(0.38)$ | 0.4788 | $0.4753^{+0.0061}_{-0.0054}$ |
| A_{100}^{PS} | 252.9 | 263 ± 28 | D_{2000} | 230.22 | 230.0 ± 1.8 | $\sigma_8(0.38)$ | 0.6738 | $0.6653^{+0.0098}_{-0.0060}$ |
| A_{143}^{PS} | 49.3 | 48 ± 8 | $n_{s,0.002}$ | 0.96622 | 0.9659 ± 0.0041 | $f\sigma_8(0.51)$ | 0.4779 | $0.4741^{+0.0059}_{-0.0049}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 47.5 | 43 ± 9 | Y_P | 0.245339 | $0.245330^{+0.000086}_{-0.000074}$ | $\sigma_8(0.51)$ | 0.6307 | $0.6226^{+0.0093}_{-0.0057}$ |
| A_{217}^{PS} | 119.5 | 115 ± 10 | Y_P^{BBN} | 0.246666 | $0.246656^{+0.000086}_{-0.000074}$ | $f\sigma_8(0.61)$ | 0.4732 | $0.4692^{+0.0057}_{-0.0046}$ |
| A^{kSZ} | 0.00 | < 4.76 | $10^5 D/H$ | 2.6117 | 2.615 ± 0.037 | $\sigma_8(0.61)$ | 0.6002 | $0.5925^{+0.0089}_{-0.0054}$ |
| A_{100}^{dustTT} | 8.88 | 8.9 ± 1.8 | Age/Gyr | 13.7793 | $13.800^{+0.030}_{-0.034}$ | $f\sigma_8(2.33)$ | 0.30190 | $0.2987^{+0.0039}_{-0.0026}$ |
| A_{143}^{dustTT} | 10.78 | 10.7 ± 1.8 | z_* | 1090.035 | 1090.04 ± 0.29 | $\sigma_8(2.33)$ | 0.31191 | $0.3080^{+0.0046}_{-0.0029}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.46 | 18.3 ± 3.3 | r_* | 144.709 | 144.77 ± 0.28 | f_{2000}^{143} | 30.01 | 30.8 ± 2.9 |
| A_{217}^{dustTT} | 94.7 | 93.4 ± 7.3 | $100\theta_*$ | 1.041127 | 1.04116 ± 0.00041 | $f_{2000}^{143 \times 217}$ | 32.96 | 33.2 ± 2.0 |
| c_{100} | 0.99967 | 0.99961 ± 0.00061 | $D_M(z_*)/\text{Gpc}$ | 13.8993 | 13.905 ± 0.028 | f_{2000}^{217} | 107.38 | 107.9 ± 1.9 |
| c_{217} | 0.99825 | 0.99826 ± 0.00062 | z_{drag} | 1059.551 | 1059.52 ± 0.44 | χ_{lensing}^2 | 8.963 | 9.41 ± 0.79 |
| H_0 | 67.98 | 67.67 ± 0.57 | r_{drag} | 147.424 | 147.49 ± 0.31 | χ_{small}^2 | 396.04 | 397.0 ± 1.7 |
| Ω_Λ | 0.6935 | 0.6900 ± 0.0072 | k_D | 0.140409 | 0.14033 ± 0.00042 | χ_{lowl}^2 | 23.24 | 23.28 ± 0.87 |
| Ω_m | 0.3065 | 0.3100 ± 0.0072 | $100\theta_D$ | 0.160977 | 0.16101 ± 0.00026 | χ_{plik}^2 | 758.7 | 771.4 ± 5.3 |
| $\Omega_m h^2$ | 0.14163 | 0.1419 ± 0.0011 | z_{eq} | 3383.6 | 3379 ± 25 | $\chi_{6\text{DF}}^2$ | 0.0030 | 0.055 ± 0.073 |
| $\Omega_\nu h^2$ | 0.000040 | < 0.000675 | k_{eq} | 0.010327 | 0.010312 ± 0.000077 | χ_{MGS}^2 | 1.54 | 1.37 ± 0.51 |
| $\Omega_m h^3$ | 0.096281 | 0.09604 ± 0.00049 | $100\theta_{\text{eq}}$ | 0.81623 | 0.8172 ± 0.0047 | χ_{DR12BAO}^2 | 3.67 | 4.7 ± 1.6 |
| σ_8 | 0.8218 | $0.812^{+0.012}_{-0.0074}$ | $100\theta_{s,\text{eq}}$ | 0.45102 | 0.4515 ± 0.0024 | χ_{prior}^2 | 1.30 | 7.3 ± 3.7 |
| S_8 | 0.8306 | 0.825 ± 0.013 | $H(0.15)$ | 73.209 | 72.93 ± 0.50 | χ_{CMB}^2 | 1186.9 | 1201.0 ± 5.5 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4550 | 0.4520 ± 0.0069 | $D_M(0.15)$ | 638.09 | 640.8 ± 4.9 | χ_{BAO}^2 | 5.21 | 6.1 ± 1.3 |

Best-fit $\chi_{\text{eff}}^2 = 1193.44$; $\Delta\chi_{\text{eff}}^2 = -1.25$; $\bar{\chi}_{\text{eff}}^2 = 1214.40$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.33$; $R - 1 = 0.00805$

χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.03) MGS: 1.54 (Δ 0.32) DR12BAO: 3.67 (Δ -0.70) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 8.96 (Δ 0.09) simall_100x143_offlike5_EE_Aplanck 396.04 (Δ -0.05) commander_dx12_v3.2_29: 23.24 (Δ 0.28) plik_rd12_HM_v22_TT: 758.68 (Δ -1.12)

6.18 base_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|---------------------|----------------------------|-----------------------------|----------|------------------------------------|--------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022235 | 0.02223 ± 0.00019 | $\sigma_8 \Omega_m^{0.25}$ | 0.6103 | $0.6055^{+0.0082}_{-0.0067}$ | $H(0.38)$ | 83.272 | 83.07 ± 0.36 |
| $\Omega_c h^2$ | 0.11922 | 0.1190 ± 0.0011 | $\sigma_8/h^{0.5}$ | 0.9952 | $0.987^{+0.013}_{-0.0098}$ | $D_M(0.38)$ | 1522.0 | 1527.2 ± 9.4 |
| $100\theta_{MC}$ | 1.040966 | 1.04098 ± 0.00042 | $r_{drag}h$ | 100.33 | 99.95 ± 0.87 | $H(0.51)$ | 89.931 | 89.75 ± 0.31 |
| τ | 0.0531 | 0.0544 ± 0.0074 | $\langle d^2 \rangle^{1/2}$ | 2.4387 | 2.434 ± 0.022 | $D_M(0.51)$ | 1972.5 | 1979 ± 11 |
| Σm_ν [eV] | 0.0002 | < 0.0592 | z_{re} | 7.57 | 7.69 ± 0.74 | $H(0.61)$ | 95.506 | 95.35 ± 0.27 |
| $\ln(10^{10} A_s)$ | 3.0397 | 3.042 ± 0.015 | $10^9 A_s$ | 2.0899 | 2.095 ± 0.031 | $D_M(0.61)$ | 2296.1 | 2303 ± 12 |
| n_s | 0.96676 | 0.9662 ± 0.0040 | $10^9 A_s e^{-2\tau}$ | 1.8792 | 1.879 ± 0.011 | $H(2.33)$ | 235.59 | 235.71 ± 0.68 |
| y_{cal} | 1.00041 | 1.0007 ± 0.0025 | D_{40} | 1225.3 | 1228 ± 12 | $D_M(2.33)$ | 5754.5 | 5762 ± 14 |
| A_{217}^{CIB} | 48.7 | 48 ± 7 | D_{220} | 5718.4 | 5724 ± 40 | $f\sigma_8(0.15)$ | 0.4581 | 0.4561 ± 0.0063 |
| $\xi^{tSZ \times CIB}$ | 0.29 | — | D_{810} | 2536.8 | 2537 ± 14 | $\sigma_8(0.15)$ | 0.7590 | $0.751^{+0.011}_{-0.0067}$ |
| A_{143}^{tSZ} | 7.04 | 5.1 ± 2.0 | D_{1420} | 816.0 | 815.6 ± 5.1 | $f\sigma_8(0.38)$ | 0.4778 | $0.4750^{+0.0060}_{-0.0053}$ |
| A_{100}^{PS} | 254.1 | 262 ± 28 | D_{2000} | 230.33 | 230.1 ± 1.8 | $\sigma_8(0.38)$ | 0.6732 | $0.6658^{+0.0095}_{-0.0059}$ |
| A_{143}^{PS} | 48.2 | 48 ± 8 | $n_{s,0.002}$ | 0.96676 | 0.9662 ± 0.0040 | $f\sigma_8(0.51)$ | 0.4770 | $0.4739^{+0.0058}_{-0.0048}$ |
| $A_{143 \times 217}^{PS}$ | 45.7 | 43 ± 9 | Y_P | 0.245340 | $0.245334^{+0.000085}_{-0.000074}$ | $\sigma_8(0.51)$ | 0.6302 | $0.6232^{+0.0089}_{-0.0056}$ |
| A_{217}^{PS} | 118.8 | 115 ± 10 | Y_P^{BBN} | 0.246667 | $0.246660^{+0.000086}_{-0.000074}$ | $f\sigma_8(0.61)$ | 0.4724 | $0.4692^{+0.0056}_{-0.0045}$ |
| A^{kSZ} | 0.01 | < 4.79 | $10^5 D/H$ | 2.6113 | 2.613 ± 0.037 | $\sigma_8(0.61)$ | 0.5997 | $0.5930^{+0.0085}_{-0.0053}$ |
| A_{100}^{dustTT} | 8.91 | 8.9 ± 1.8 | Age/Gyr | 13.7778 | 13.796 ± 0.031 | $f\sigma_8(2.33)$ | 0.30165 | $0.2990^{+0.0037}_{-0.0026}$ |
| A_{143}^{dustTT} | 10.76 | 10.7 ± 1.8 | z_* | 1090.019 | 1090.02 ± 0.28 | $\sigma_8(2.33)$ | 0.31171 | $0.3084^{+0.0044}_{-0.0029}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.24 | 18.2 ± 3.3 | r_* | 144.743 | 144.80 ± 0.28 | $\chi^2_{lensing}$ | 8.911 | 9.40 ± 0.78 |
| A_{217}^{dustTT} | 94.4 | 93.4 ± 7.3 | $100\theta_*$ | 1.041135 | 1.04118 ± 0.00041 | χ^2_{small} | 395.89 | 397.0 ± 1.7 |
| c_{100} | 0.99966 | 0.99961 ± 0.00061 | $D_M(z_*)/\text{Gpc}$ | 13.9024 | 13.907 ± 0.027 | χ^2_{lowl} | 23.08 | 23.23 ± 0.85 |
| c_{217} | 0.99824 | 0.99826 ± 0.00063 | z_{drag} | 1059.551 | 1059.53 ± 0.44 | χ^2_{plik} | 758.9 | 771.4 ± 5.3 |
| H_0 | 68.04 | 67.75 ± 0.54 | r_{drag} | 147.457 | 147.51 ± 0.31 | χ^2_{JLA} | 1034.824 | 1035.03 ± 0.31 |
| Ω_Λ | 0.6945 | 0.6911 ± 0.0068 | k_D | 0.140375 | 0.14031 ± 0.00042 | χ^2_{6DF} | 0.00096 | 0.044 ± 0.060 |
| Ω_m | 0.3055 | 0.3089 ± 0.0068 | $100\theta_D$ | 0.160979 | 0.16100 ± 0.00026 | χ^2_{MGS} | 1.608 | 1.45 ± 0.50 |
| $\Omega_m h^2$ | 0.14146 | 0.1418 ± 0.0010 | z_{eq} | 3380.3 | 3376 ± 25 | $\chi^2_{DR12BAO}$ | 3.58 | 4.4 ± 1.3 |
| $\Omega_\nu h^2$ | $0.2 \cdot 10^{-5}$ | < 0.000636 | k_{eq} | 0.010317 | 0.010303 ± 0.000075 | χ^2_{prior} | 1.37 | 7.3 ± 3.7 |
| $\Omega_m h^3$ | 0.096251 | 0.09606 ± 0.00049 | $100\theta_{eq}$ | 0.81683 | 0.8177 ± 0.0046 | χ^2_{CMB} | 1186.8 | 1201.1 ± 5.5 |
| σ_8 | 0.8209 | $0.812^{+0.011}_{-0.0073}$ | $100\theta_{s,eq}$ | 0.45133 | 0.4518 ± 0.0024 | χ^2_{BAO} | 5.188 | 5.9 ± 1.0 |
| S_8 | 0.8284 | 0.824 ± 0.012 | $H(0.15)$ | 73.262 | 73.00 ± 0.47 | | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4538 | 0.4514 ± 0.0067 | $D_M(0.15)$ | 637.56 | 640.1 ± 4.6 | | | |

Best-fit $\chi^2_{eff} = 2228.19$; $\Delta\chi^2_{eff} = -1.52$; $\bar{\chi}^2_{eff} = 2249.31$; $\Delta\bar{\chi}^2_{eff} = -0.46$; $R - 1 = 0.00867$

χ^2_{eff} : BAO - 6DF: 0.00 (Δ -0.01) MGS: 1.61 (Δ 0.27) DR12BAO: 3.58 (Δ -0.45) CMB - smicadx12.Dec5.ftl_mv2_ndclpp_p.teb.consext8: 8.91 (Δ 0.03) simall_100x143_offlike5.EE.Aplanck 395.89 (Δ -0.48) commander_dx12_v3.2.29: 23.08 (Δ 0.27) plik_rd12_HM_v22.TT: 758.94 (Δ -0.85) SN - JLA Pantheon18: 1034.82 (Δ -0.13)

6.19 base_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02222 ± 0.00019 | $\sigma_8 \Omega_m^{0.25}$ | $0.6060^{+0.0083}_{-0.0067}$ | $H(0.38)$ | 83.02 ± 0.38 |
| $\Omega_c h^2$ | 0.1191 ± 0.0011 | $\sigma_8/h^{0.5}$ | $0.987^{+0.013}_{-0.0097}$ | $D_M(0.38)$ | $1528.4^{+9.3}_{-10}$ |
| $100\theta_{MC}$ | 1.04097 ± 0.00042 | $r_{drag}h$ | 99.83 ± 0.92 | $H(0.51)$ | $89.72^{+0.34}_{-0.30}$ |
| τ | $0.0551^{+0.0055}_{-0.0076}$ | $\langle d^2 \rangle^{1/2}$ | 2.436 ± 0.022 | $D_M(0.51)$ | 1980^{+11}_{-12} |
| Σm_ν [eV] | < 0.0636 | z_{re} | $7.77^{+0.59}_{-0.74}$ | $H(0.61)$ | $95.32^{+0.29}_{-0.26}$ |
| $\ln(10^{10} A_s)$ | $3.043^{+0.012}_{-0.015}$ | $10^9 A_s$ | $2.098^{+0.024}_{-0.031}$ | $D_M(0.61)$ | 2304^{+12}_{-13} |
| n_s | 0.9660 ± 0.0040 | $10^9 A_s e^{-2\tau}$ | 1.879 ± 0.011 | $H(2.33)$ | 235.78 ± 0.70 |
| y_{cal} | 1.0006 ± 0.0025 | D_{40} | 1228 ± 12 | $D_M(2.33)$ | 5764^{+13}_{-15} |
| A_{217}^{CIB} | 48 ± 7 | D_{220} | 5723 ± 40 | $f\sigma_8(0.15)$ | 0.4568 ± 0.0064 |
| $\xi^{tSZ \times CIB}$ | — | D_{810} | 2536 ± 14 | $\sigma_8(0.15)$ | $0.751^{+0.011}_{-0.0065}$ |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{1420} | 815.4 ± 5.1 | $f\sigma_8(0.38)$ | $0.4755^{+0.0061}_{-0.0053}$ |
| A_{100}^{PS} | 263 ± 28 | D_{2000} | 230.0 ± 1.8 | $\sigma_8(0.38)$ | $0.6657^{+0.0098}_{-0.0058}$ |
| A_{143}^{PS} | 48 ± 8 | $n_{s,0.002}$ | 0.9660 ± 0.0040 | $f\sigma_8(0.51)$ | $0.4743^{+0.0058}_{-0.0048}$ |
| $A_{143 \times 217}^{PS}$ | 43 ± 9 | Y_P | $0.245331^{+0.000085}_{-0.000074}$ | $\sigma_8(0.51)$ | $0.6230^{+0.0093}_{-0.0054}$ |
| A_{217}^{PS} | 115 ± 10 | Y_P^{BBN} | $0.246657^{+0.000086}_{-0.000075}$ | $f\sigma_8(0.61)$ | $0.4695^{+0.0057}_{-0.0045}$ |
| A^{kSZ} | < 4.76 | $10^5 D/H$ | 2.614 ± 0.037 | $\sigma_8(0.61)$ | $0.5928^{+0.0088}_{-0.0052}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Age/Gyr | $13.800^{+0.030}_{-0.034}$ | $f\sigma_8(2.33)$ | $0.2989^{+0.0038}_{-0.0025}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | z_* | 1090.03 ± 0.29 | $\sigma_8(2.33)$ | $0.3082^{+0.0045}_{-0.0028}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.3 ± 3.3 | r_* | 144.78 ± 0.28 | f_{2000}^{143} | 30.8 ± 2.9 |
| A_{217}^{dustTT} | 93.4 ± 7.3 | $100\theta_*$ | 1.04117 ± 0.00041 | $f_{2000}^{143 \times 217}$ | 33.2 ± 2.0 |
| c_{100} | 0.99961 ± 0.00061 | $D_M(z_*)/\text{Gpc}$ | 13.905 ± 0.028 | f_{2000}^{217} | 107.8 ± 1.9 |
| c_{217} | 0.99826 ± 0.00062 | z_{drag} | 1059.52 ± 0.44 | $\chi_{lensing}^2$ | 9.38 ± 0.76 |
| H_0 | 67.68 ± 0.57 | r_{drag} | 147.50 ± 0.31 | χ_{small}^2 | 396.9 ± 1.7 |
| Ω_Λ | $0.6901^{+0.0076}_{-0.0068}$ | k_D | 0.14032 ± 0.00042 | χ_{lowl}^2 | 23.27 ± 0.87 |
| Ω_m | $0.3099^{+0.0068}_{-0.0076}$ | $100\theta_D$ | 0.16101 ± 0.00026 | χ_{plik}^2 | 771.3 ± 5.3 |
| $\Omega_m h^2$ | 0.1419 ± 0.0011 | z_{eq} | 3378 ± 25 | χ_{6DF}^2 | 0.054 ± 0.073 |
| $\Omega_\nu h^2$ | < 0.000684 | k_{eq} | 0.010309 ± 0.000077 | χ_{MGS}^2 | 1.39 ± 0.52 |
| $\Omega_m h^3$ | 0.09604 ± 0.00049 | $100\theta_{eq}$ | 0.8173 ± 0.0047 | $\chi_{DR12BAO}^2$ | 4.7 ± 1.6 |
| σ_8 | $0.812^{+0.012}_{-0.0072}$ | $100\theta_{s,eq}$ | 0.4516 ± 0.0024 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | 0.825 ± 0.013 | $H(0.15)$ | 72.94 ± 0.50 | χ_{CMB}^2 | 1200.9 ± 5.5 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4521 ± 0.0069 | $D_M(0.15)$ | $640.7^{+4.5}_{-5.1}$ | χ_{BAO}^2 | 6.1 ± 1.3 |

$\bar{\chi}_{eff}^2 = 1214.24$; $\Delta\bar{\chi}_{eff}^2 = -0.34$; $R - 1 = 0.00889$

6.20 base_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02223 ± 0.00019 | $\sigma_8/h^{0.5}$ | $0.987^{+0.013}_{-0.0096}$ | $H(0.51)$ | 89.76 ± 0.31 |
| $\Omega_c h^2$ | 0.1190 ± 0.0011 | $r_{\text{drag}} h$ | 99.97 ± 0.88 | $D_M(0.51)$ | 1979 ± 11 |
| $100\theta_{\text{MC}}$ | 1.04099 ± 0.00042 | $\langle d^2 \rangle^{1/2}$ | 2.435 ± 0.022 | $H(0.61)$ | 95.35 ± 0.27 |
| τ | $0.0553^{+0.0056}_{-0.0075}$ | z_{re} | $7.78^{+0.60}_{-0.74}$ | $D_M(0.61)$ | 2303 ± 12 |
| $\Sigma m_\nu [\text{eV}]$ | < 0.0600 | $10^9 A_s$ | $2.098^{+0.024}_{-0.031}$ | $H(2.33)$ | 235.70 ± 0.68 |
| $\ln(10^{10} A_s)$ | $3.044^{+0.012}_{-0.015}$ | $10^9 A_s e^{-2\tau}$ | 1.878 ± 0.011 | $D_M(2.33)$ | 5762 ± 14 |
| n_s | 0.9663 ± 0.0040 | D_{40} | 1227 ± 12 | $f\sigma_8(0.15)$ | 0.4562 ± 0.0063 |
| y_{cal} | 1.0006 ± 0.0025 | D_{220} | 5724 ± 40 | $\sigma_8(0.15)$ | $0.751^{+0.010}_{-0.0064}$ |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2536 ± 14 | $f\sigma_8(0.38)$ | $0.4752^{+0.0060}_{-0.0052}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.6 ± 5.1 | $\sigma_8(0.38)$ | $0.6661^{+0.0094}_{-0.0056}$ |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 230.1 ± 1.8 | $f\sigma_8(0.51)$ | $0.4741^{+0.0057}_{-0.0048}$ |
| A_{100}^{PS} | 262 ± 28 | $n_{s,0.002}$ | 0.9663 ± 0.0040 | $\sigma_8(0.51)$ | $0.6235^{+0.0089}_{-0.0053}$ |
| A_{143}^{PS} | 48 ± 8 | Y_{P} | $0.245335^{+0.000086}_{-0.000074}$ | $f\sigma_8(0.61)$ | $0.4694^{+0.0056}_{-0.0044}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246661^{+0.000086}_{-0.000074}$ | $\sigma_8(0.61)$ | $0.5934^{+0.0085}_{-0.0051}$ |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.613 ± 0.037 | $f\sigma_8(2.33)$ | $0.2991^{+0.0037}_{-0.0025}$ |
| A^{kSZ} | < 4.79 | Age/Gyr | 13.796 ± 0.032 | $\sigma_8(2.33)$ | $0.3086^{+0.0043}_{-0.0027}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | z_* | 1090.01 ± 0.28 | f_{2000}^{143} | 30.7 ± 2.9 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.80 ± 0.28 | $f_{2000}^{143 \times 217}$ | 33.2 ± 2.0 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.2 ± 3.3 | $100\theta_*$ | 1.04118 ± 0.00041 | f_{2000}^{217} | 107.8 ± 1.9 |
| A_{217}^{dustTT} | 93.4 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.907 ± 0.027 | χ_{lensing}^2 | 9.37 ± 0.75 |
| c_{100} | 0.99961 ± 0.00061 | z_{drag} | 1059.53 ± 0.44 | χ_{simall}^2 | 397.0 ± 1.7 |
| c_{217} | 0.99826 ± 0.00063 | r_{drag} | 147.52 ± 0.31 | χ_{lowl}^2 | 23.22 ± 0.86 |
| H_0 | 67.77 ± 0.54 | k_{D} | 0.14031 ± 0.00042 | χ_{plik}^2 | 771.4 ± 5.3 |
| Ω_Λ | 0.6912 ± 0.0068 | $100\theta_{\text{D}}$ | 0.16100 ± 0.00026 | χ_{JLA}^2 | 1035.02 ± 0.31 |
| Ω_{m} | 0.3088 ± 0.0068 | z_{eq} | 3375 ± 25 | $\chi_{6\text{DF}}^2$ | 0.043 ± 0.060 |
| $\Omega_{\text{m}} h^2$ | 0.1418 ± 0.0010 | k_{eq} | 0.010301 ± 0.000075 | χ_{MGS}^2 | 1.46 ± 0.50 |
| $\Omega_\nu h^2$ | < 0.000645 | $100\theta_{\text{eq}}$ | 0.8179 ± 0.0045 | χ_{DR12BAO}^2 | 4.4 ± 1.3 |
| $\Omega_{\text{m}} h^3$ | 0.09606 ± 0.00049 | $100\theta_{\text{s,eq}}$ | 0.4519 ± 0.0023 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | $0.813^{+0.011}_{-0.0070}$ | $H(0.15)$ | 73.01 ± 0.47 | χ_{CMB}^2 | 1200.9 ± 5.5 |
| S_8 | 0.824 ± 0.012 | $D_M(0.15)$ | 640.0 ± 4.6 | χ_{BAO}^2 | 5.9 ± 1.0 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4515 ± 0.0068 | $H(0.38)$ | 83.07 ± 0.37 | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | $0.6057^{+0.0082}_{-0.0066}$ | $D_M(0.38)$ | 1527.0 ± 9.4 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2249.16; \Delta \bar{\chi}_{\text{eff}}^2 = -0.47; R - 1 = 0.00928$$

6.21 base_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------------------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022417 | 0.02242 ± 0.00013 | $\Omega_m h^3$ | 0.096661 | $0.09649^{+0.00037}_{-0.00031}$ | $H(0.15)$ | 73.330 | $73.09^{+0.46}_{-0.40}$ |
| $\Omega_c h^2$ | 0.11952 | 0.11934 ± 0.00093 | σ_8 | 0.8220 | $0.814^{+0.010}_{-0.0070}$ | $D_M(0.15)$ | 637.01 | $639.4^{+3.9}_{-4.6}$ |
| $100\theta_{MC}$ | 1.040999 | 1.04100 ± 0.00029 | S_8 | 0.8303 | 0.826 ± 0.011 | $H(0.38)$ | 83.364 | $83.17^{+0.35}_{-0.30}$ |
| τ | 0.0533 | 0.0553 ± 0.0073 | $\sigma_8 \Omega_m^{0.5}$ | 0.4548 | 0.4527 ± 0.0060 | $D_M(0.38)$ | 1520.5 | $1525.4^{+7.9}_{-9.3}$ |
| Σm_ν [eV] | 0.0009 | < 0.0578 | $\sigma_8 \Omega_m^{0.25}$ | 0.6114 | $0.6070^{+0.0070}_{-0.0062}$ | $H(0.51)$ | 90.038 | $89.87^{+0.29}_{-0.25}$ |
| $\ln(10^{10} A_s)$ | 3.0415 | 3.045 ± 0.014 | $\sigma_8/h^{0.5}$ | 0.9961 | $0.988^{+0.011}_{-0.0093}$ | $D_M(0.51)$ | 1970.6 | $1976.4^{+9.3}_{-11}$ |
| n_s | 0.96721 | 0.9666 ± 0.0037 | $r_{drag} h$ | 100.22 | 99.85 ± 0.83 | $H(0.61)$ | 95.625 | $95.48^{+0.25}_{-0.21}$ |
| y_{cal} | 1.00055 | 1.0006 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | 2.4415 | 2.438 ± 0.020 | $D_M(0.61)$ | 2293.7 | 2300^{+10}_{-12} |
| A_{217}^{CIB} | 46.5 | 47 ± 7 | z_{re} | 7.55 | 7.75 ± 0.73 | $H(2.33)$ | 235.97 | 236.10 ± 0.59 |
| $\xi^{tSZ \times CIB}$ | 0.50 | — | $10^9 A_s$ | 2.0937 | 2.101 ± 0.030 | $D_M(2.33)$ | 5747.0 | $5754.3^{+9.9}_{-12}$ |
| A_{143}^{tSZ} | 7.23 | $5.5^{+2.2}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.8820 | 1.881 ± 0.010 | $f\sigma_8(0.15)$ | 0.4591 | 0.4573 ± 0.0056 |
| A_{100}^{PS} | 248.9 | 258 ± 28 | D_{40} | 1226.5 | 1229 ± 11 | $\sigma_8(0.15)$ | 0.7599 | $0.7524^{+0.0098}_{-0.0064}$ |
| A_{143}^{PS} | 48.1 | 45 ± 8 | D_{220} | 5732.7 | 5738 ± 38 | $f\sigma_8(0.38)$ | 0.4787 | 0.4762 ± 0.0051 |
| $A_{143 \times 217}^{PS}$ | 49.2 | 42 ± 9 | D_{810} | 2540.3 | 2539 ± 13 | $\sigma_8(0.38)$ | 0.6740 | $0.6672^{+0.0089}_{-0.0057}$ |
| A_{217}^{PS} | 120.4 | 115 ± 10 | D_{1420} | 818.33 | 817.6 ± 4.7 | $f\sigma_8(0.51)$ | 0.47786 | $0.4751^{+0.0050}_{-0.0044}$ |
| A^{kSZ} | 0.00 | < 4.13 | D_{2000} | 231.42 | 231.1 ± 1.5 | $\sigma_8(0.51)$ | 0.6309 | $0.6244^{+0.0084}_{-0.0053}$ |
| A_{100}^{dustTT} | 8.86 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.96721 | 0.9666 ± 0.0037 | $f\sigma_8(0.61)$ | 0.47320 | $0.4702^{+0.0049}_{-0.0042}$ |
| A_{143}^{dustTT} | 11.04 | 10.9 ± 1.8 | Y_P | 0.245414 | $0.245414^{+0.000054}_{-0.000048}$ | $\sigma_8(0.61)$ | 0.6004 | $0.5942^{+0.0080}_{-0.0051}$ |
| $A_{143 \times 217}^{dustTT}$ | 20.04 | 18.6 ± 3.3 | Y_P^{BBN} | 0.246741 | $0.246740^{+0.000054}_{-0.000048}$ | $f\sigma_8(2.33)$ | 0.30197 | $0.2995^{+0.0035}_{-0.0025}$ |
| A_{217}^{dustTT} | 95.5 | 93.7 ± 7.4 | $10^5 D/H$ | 2.5767 | 2.576 ± 0.025 | $\sigma_8(2.33)$ | 0.31200 | $0.3090^{+0.0042}_{-0.0027}$ |
| A_{100}^{dustTE} | 0.1140 | 0.114 ± 0.038 | Age/Gyr | 13.7599 | $13.777^{+0.023}_{-0.028}$ | f_{2000}^{143} | 28.58 | 29.3 ± 2.7 |
| $A_{100 \times 143}^{dustTE}$ | 0.1347 | 0.135 ± 0.030 | z_* | 1089.812 | 1089.79 ± 0.22 | $f_{2000}^{143 \times 217}$ | 31.85 | 32.0 ± 1.9 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 | 0.481 ± 0.085 | r_* | 144.527 | 144.57 ± 0.22 | f_{2000}^{217} | 106.44 | 106.8 ± 1.8 |
| A_{143}^{dustTE} | 0.225 | 0.225 ± 0.053 | $100\theta_*$ | 1.041148 | 1.04117 ± 0.00029 | $\chi_{lensing}^2$ | 8.966 | 9.24 ± 0.63 |
| $A_{143 \times 217}^{dustTE}$ | 0.664 | 0.664 ± 0.080 | $D_M(z_*)/\text{Gpc}$ | 13.8815 | 13.885 ± 0.021 | χ_{small}^2 | 395.88 | 397.1 ± 1.8 |
| A_{217}^{dustTE} | 2.079 | 2.08 ± 0.27 | z_{drag} | 1060.009 | 1060.00 ± 0.29 | χ_{lowl}^2 | 23.09 | 23.25 ± 0.79 |
| c_{100} | 0.99973 | 0.99967 ± 0.00062 | r_{drag} | 147.173 | 147.22 ± 0.23 | χ_{plik}^2 | 2344.2 | 2359.3 ± 5.8 |
| c_{217} | 0.99818 | 0.99818 ± 0.00062 | k_D | 0.140811 | 0.14077 ± 0.00028 | χ_{6DF}^2 | 0.0030 | 0.046 ± 0.065 |
| H_0 | 68.098 | $67.83^{+0.53}_{-0.46}$ | $100\theta_D$ | 0.160723 | 0.16073 ± 0.00017 | χ_{MGS}^2 | 1.540 | 1.39 ± 0.46 |
| Ω_Λ | 0.6939 | $0.6907^{+0.0068}_{-0.0059}$ | z_{eq} | 3391.8 | 3388 ± 21 | $\chi_{DR12BAO}^2$ | 3.71 | 4.6 ± 1.4 |
| Ω_m | 0.3061 | $0.3093^{+0.0059}_{-0.0068}$ | k_{eq} | 0.010352 | 0.010339 ± 0.000065 | χ_{prior}^2 | 1.71 | 11.6 ± 4.5 |
| $\Omega_m h^2$ | 0.14194 | 0.14226 ± 0.00094 | $100\theta_{eq}$ | 0.81530 | 0.8161 ± 0.0040 | χ_{CMB}^2 | 2772.2 | 2788.9 ± 5.9 |
| $\Omega_\nu h^2$ | $0.97 \cdot 10^{-5}$ | < 0.000622 | $100\theta_{s,eq}$ | 0.45039 | 0.4508 ± 0.0020 | χ_{BAO}^2 | 5.252 | 6.0 ± 1.1 |

Best-fit $\chi_{eff}^2 = 2779.13$; $\Delta\chi_{eff}^2 = -1.56$; $\bar{\chi}_{eff}^2 = 2806.44$; $\Delta\bar{\chi}_{eff}^2 = -0.40$; $R - 1 = 0.01008$
 χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.03) MGS: 1.54 (Δ 0.32) DR12BAO: 3.71 (Δ -0.71) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.97 (Δ 0.24) small_100x143_offlike5_EE_Aplanck 395.88 (Δ -0.64) commander_dx12_v3.2_29: 23.09 (Δ 0.19) plik_rd12_HM_v22b_TTTEEE: 2344.24 (Δ -1.08)

6.22 base_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|---------------------|---------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022419 | 0.02243 ± 0.00013 | σ_8 | 0.8217 | $0.8145^{+0.0098}_{-0.0069}$ | $H(0.38)$ | 83.364 | $83.22^{+0.33}_{-0.29}$ |
| $\Omega_c h^2$ | 0.11950 | 0.11925 ± 0.00091 | S_8 | 0.8300 | 0.826 ± 0.011 | $D_M(0.38)$ | 1520.5 | $1524.2^{+7.6}_{-8.6}$ |
| $100\theta_{MC}$ | 1.040996 | 1.04101 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.4546 | 0.4523 ± 0.0058 | $H(0.51)$ | 90.038 | $89.91^{+0.27}_{-0.24}$ |
| τ | 0.0533 | 0.0555 ± 0.0073 | $\sigma_8 \Omega_m^{0.25}$ | 0.6112 | $0.6069^{+0.0069}_{-0.0061}$ | $D_M(0.51)$ | 1970.6 | $1975.0^{+9.0}_{-10}$ |
| Σm_ν [eV] | 0.0035 | < 0.0537 | $\sigma_8/h^{0.5}$ | 0.9957 | $0.988^{+0.011}_{-0.0091}$ | $H(0.61)$ | 95.624 | $95.51^{+0.23}_{-0.20}$ |
| $\ln(10^{10} A_s)$ | 3.0414 | 3.045 ± 0.014 | $r_{\text{drag}} h$ | 100.22 | 99.96 ± 0.78 | $D_M(0.61)$ | 2293.7 | $2298.6^{+9.8}_{-11}$ |
| n_s | 0.96738 | 0.9668 ± 0.0036 | $\langle d^2 \rangle^{1/2}$ | 2.4408 | 2.438 ± 0.020 | $H(2.33)$ | 235.96 | 236.03 ± 0.56 |
| y_{cal} | 1.00052 | 1.0007 ± 0.0025 | z_{re} | 7.55 | 7.76 ± 0.73 | $D_M(2.33)$ | 5747.1 | $5752.9^{+9.7}_{-11}$ |
| A_{217}^{CIB} | 46.4 | 47 ± 7 | $10^9 A_s$ | 2.0935 | 2.101 ± 0.030 | $f\sigma_8(0.15)$ | 0.4590 | 0.4570 ± 0.0055 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.55 | — | $10^9 A_s e^{-2\tau}$ | 1.8820 | 1.880 ± 0.010 | $\sigma_8(0.15)$ | 0.7597 | $0.7529^{+0.0092}_{-0.0063}$ |
| A_{143}^{tSZ} | 7.12 | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1226.1 | 1228 ± 11 | $f\sigma_8(0.38)$ | 0.47860 | 0.4761 ± 0.0050 |
| A_{100}^{PS} | 248.2 | 258 ± 28 | D_{220} | 5732.2 | 5738 ± 38 | $\sigma_8(0.38)$ | 0.6738 | $0.6677^{+0.0084}_{-0.0056}$ |
| A_{143}^{PS} | 48.8 | 45 ± 8 | D_{810} | 2540.4 | 2539 ± 13 | $f\sigma_8(0.51)$ | 0.47774 | 0.4750 ± 0.0048 |
| $A_{143 \times 217}^{\text{PS}}$ | 50.3 | 42 ± 9 | D_{1420} | 818.44 | 817.7 ± 4.7 | $\sigma_8(0.51)$ | 0.6307 | $0.6250^{+0.0079}_{-0.0053}$ |
| A_{217}^{PS} | 120.8 | 115 ± 10 | D_{2000} | 231.46 | 231.1 ± 1.5 | $f\sigma_8(0.61)$ | 0.47309 | $0.4703^{+0.0048}_{-0.0042}$ |
| A^{kSZ} | 0.00 | < 4.06 | $n_{s,0.002}$ | 0.96738 | 0.9668 ± 0.0036 | $\sigma_8(0.61)$ | 0.6002 | $0.5947^{+0.0076}_{-0.0050}$ |
| A_{100}^{dustTT} | 8.91 | 8.9 ± 1.8 | Y_P | 0.245415 | $0.245417^{+0.000053}_{-0.000048}$ | $f\sigma_8(2.33)$ | 0.30191 | $0.2998^{+0.0033}_{-0.0025}$ |
| A_{143}^{dustTT} | 11.04 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246741 | $0.246743^{+0.000053}_{-0.000048}$ | $\sigma_8(2.33)$ | 0.31194 | $0.3093^{+0.0039}_{-0.0027}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.00 | 18.6 ± 3.3 | $10^5 \text{D}/\text{H}$ | 2.5765 | 2.575 ± 0.024 | f_{2000}^{143} | 28.49 | 29.2 ± 2.7 |
| A_{217}^{dustTT} | 95.4 | 93.7 ± 7.5 | Age/Gyr | 13.7600 | $13.774^{+0.022}_{-0.026}$ | $f_{2000}^{143 \times 217}$ | 31.79 | 31.9 ± 1.9 |
| A_{100}^{dustTE} | 0.1141 | 0.115 ± 0.039 | z_* | 1089.809 | 1089.78 ± 0.21 | f_{2000}^{217} | 106.39 | 106.8 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1352 | 0.135 ± 0.029 | r_* | 144.531 | 144.59 ± 0.22 | χ_{lensing}^2 | 8.960 | 9.22 ± 0.62 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 | 0.483 ± 0.086 | $100\theta_*$ | 1.041147 | 1.04118 ± 0.00029 | χ_{small}^2 | 395.88 | 397.1 ± 1.9 |
| A_{143}^{dustTE} | 0.226 | 0.223 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8819 | 13.887 ± 0.021 | χ_{lowl}^2 | 23.05 | 23.22 ± 0.77 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 | 0.663 ± 0.081 | z_{drag} | 1060.009 | 1060.02 ± 0.29 | χ_{plik}^2 | 2344.3 | 2359.2 ± 5.8 |
| A_{217}^{dustTE} | 2.083 | 2.08 ± 0.27 | r_{drag} | 147.177 | 147.23 ± 0.23 | χ_{JLA}^2 | 1034.840 | 1034.99 ± 0.27 |
| c_{100} | 0.99971 | 0.99966 ± 0.00062 | k_D | 0.140808 | 0.14076 ± 0.00028 | $\chi_{6\text{DF}}^2$ | 0.0030 | 0.037 ± 0.053 |
| c_{217} | 0.99818 | 0.99818 ± 0.00061 | $100\theta_D$ | 0.160721 | 0.16072 ± 0.00017 | χ_{MGS}^2 | 1.540 | 1.45 ± 0.44 |
| H_0 | 68.098 | $67.89^{+0.49}_{-0.45}$ | z_{eq} | 3391.4 | 3386 ± 21 | χ_{DR12BAO}^2 | 3.71 | 4.4 ± 1.2 |
| Ω_Λ | 0.6939 | $0.6916^{+0.0064}_{-0.0057}$ | k_{eq} | 0.010351 | 0.010333 ± 0.000063 | χ_{prior}^2 | 1.68 | 11.6 ± 4.6 |
| Ω_m | 0.3061 | $0.3084^{+0.0057}_{-0.0064}$ | $100\theta_{\text{eq}}$ | 0.81538 | 0.8165 ± 0.0039 | χ_{CMB}^2 | 2772.2 | 2788.7 ± 5.9 |
| $\Omega_m h^2$ | 0.14196 | 0.14215 ± 0.00089 | $100\theta_{s,\text{eq}}$ | 0.45043 | 0.4510 ± 0.0020 | χ_{BAO}^2 | 5.249 | 5.86 ± 0.92 |
| $\Omega_\nu h^2$ | $3.8 \cdot 10^{-5}$ | < 0.000578 | $H(0.15)$ | 73.329 | $73.15^{+0.43}_{-0.39}$ | | | |
| $\Omega_m h^3$ | 0.096668 | $0.09650^{+0.00036}_{-0.00030}$ | $D_M(0.15)$ | 637.02 | $638.8^{+3.8}_{-4.3}$ | | | |

Best-fit $\chi_{\text{eff}}^2 = 3813.97$; $\Delta\chi_{\text{eff}}^2 = -1.70$; $\bar{\chi}_{\text{eff}}^2 = 3841.20$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.65$; $R - 1 = 0.01317$
 χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.02) MGS: 1.54 (Δ 0.26) DR12BAO: 3.71 (Δ -0.54) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.96 (Δ 0.24) small_100x143_offlike5_EE_Aplanck
395.88 (Δ -0.64) commander_dx12_v3.2_29: 23.05 (Δ 0.17) plik_rd12_HM_v22b.TTTEEE: 2344.32 (Δ -0.95) SN - JLA Pantheon18: 1034.84 (Δ -0.13)

6.23 base_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02242 ± 0.00013 | $\Omega_{\text{m}}h^3$ | $0.09648^{+0.00037}_{-0.00031}$ | $H(0.15)$ | $73.09^{+0.46}_{-0.40}$ |
| $\Omega_{\text{c}}h^2$ | 0.11931 ± 0.00092 | σ_8 | $0.814^{+0.010}_{-0.0067}$ | $D_{\text{M}}(0.15)$ | $639.3^{+3.9}_{-4.6}$ |
| $100\theta_{\text{MC}}$ | 1.04100 ± 0.00029 | S_8 | 0.827 ± 0.011 | $H(0.38)$ | $83.18^{+0.35}_{-0.30}$ |
| τ | $0.0561^{+0.0056}_{-0.0076}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4528 ± 0.0059 | $D_{\text{M}}(0.38)$ | $1525.3^{+7.9}_{-9.3}$ |
| $\Sigma m_{\nu} [\text{eV}]$ | < 0.0584 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | $0.6072^{+0.0070}_{-0.0061}$ | $H(0.51)$ | $89.88^{+0.29}_{-0.25}$ |
| $\ln(10^{10}A_{\text{s}})$ | $3.046^{+0.012}_{-0.015}$ | $\sigma_8/h^{0.5}$ | $0.989^{+0.011}_{-0.0091}$ | $D_{\text{M}}(0.51)$ | $1976.2^{+9.3}_{-11}$ |
| n_{s} | 0.9667 ± 0.0037 | $r_{\text{drag}}h$ | 99.87 ± 0.83 | $H(0.61)$ | $95.48^{+0.25}_{-0.21}$ |
| y_{cal} | 1.0006 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | 2.439 ± 0.020 | $D_{\text{M}}(0.61)$ | 2300^{+10}_{-12} |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.82^{+0.60}_{-0.74}$ | $H(2.33)$ | 236.09 ± 0.58 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_{\text{s}}$ | $2.104^{+0.024}_{-0.031}$ | $D_{\text{M}}(2.33)$ | 5754^{+10}_{-12} |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.881 ± 0.010 | $f\sigma_8(0.15)$ | 0.4575 ± 0.0055 |
| A_{100}^{PS} | 258 ± 28 | D_{40} | 1229 ± 11 | $\sigma_8(0.15)$ | $0.7527^{+0.0097}_{-0.0061}$ |
| A_{143}^{PS} | 45 ± 8 | D_{220} | 5737 ± 38 | $f\sigma_8(0.38)$ | 0.4764 ± 0.0050 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{810} | 2539 ± 13 | $\sigma_8(0.38)$ | $0.6675^{+0.0088}_{-0.0054}$ |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 817.6 ± 4.7 | $f\sigma_8(0.51)$ | $0.4753^{+0.0049}_{-0.0044}$ |
| A^{kSZ} | < 4.12 | D_{2000} | 231.1 ± 1.5 | $\sigma_8(0.51)$ | $0.6247^{+0.0083}_{-0.0051}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.9667 ± 0.0037 | $f\sigma_8(0.61)$ | $0.4704^{+0.0048}_{-0.0041}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_{P} | $0.245414^{+0.000054}_{-0.000048}$ | $\sigma_8(0.61)$ | $0.5945^{+0.0080}_{-0.0049}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246741^{+0.000054}_{-0.000048}$ | $f\sigma_8(2.33)$ | $0.2997^{+0.0035}_{-0.0024}$ |
| A_{217}^{dustTT} | 93.7 ± 7.4 | 10^5D/H | 2.576 ± 0.025 | $\sigma_8(2.33)$ | $0.3091^{+0.0041}_{-0.0026}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | Age/Gyr | $13.777^{+0.023}_{-0.028}$ | f_{2000}^{143} | 29.3 ± 2.7 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | z_* | 1089.79 ± 0.21 | $f_{2000}^{143 \times 217}$ | 32.0 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | r_* | 144.57 ± 0.22 | f_{2000}^{217} | 106.8 ± 1.8 |
| A_{143}^{dustTE} | 0.224 ± 0.053 | $100\theta_*$ | 1.04118 ± 0.00029 | χ_{lensing}^2 | 9.22 ± 0.62 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.080 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.886 ± 0.021 | χ_{simall}^2 | 397.1 ± 1.9 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | z_{drag} | 1060.01 ± 0.29 | χ_{lowl}^2 | 23.25 ± 0.79 |
| c_{100} | 0.99966 ± 0.00062 | r_{drag} | 147.22 ± 0.23 | χ_{plik}^2 | 2359.1 ± 5.8 |
| c_{217} | 0.99818 ± 0.00062 | k_{D} | 0.14077 ± 0.00028 | $\chi_{6\text{DF}}^2$ | 0.045 ± 0.063 |
| H_0 | $67.83^{+0.53}_{-0.46}$ | $100\theta_{\text{D}}$ | 0.16072 ± 0.00017 | χ_{MGS}^2 | 1.39 ± 0.46 |
| Ω_{Λ} | $0.6908^{+0.0068}_{-0.0059}$ | z_{eq} | 3387 ± 21 | χ_{DR12BAO}^2 | 4.5 ± 1.4 |
| Ω_{m} | $0.3092^{+0.0059}_{-0.0068}$ | k_{eq} | 0.010337 ± 0.000064 | χ_{prior}^2 | 11.6 ± 4.5 |
| $\Omega_{\text{m}}h^2$ | 0.14224 ± 0.00093 | $100\theta_{\text{eq}}$ | 0.8162 ± 0.0039 | χ_{CMB}^2 | 2788.7 ± 5.9 |
| $\Omega_{\nu}h^2$ | < 0.000628 | $100\theta_{\text{s,eq}}$ | 0.4509 ± 0.0020 | χ_{BAO}^2 | 6.0 ± 1.1 |

$\bar{\chi}_{\text{eff}}^2 = 2806.28$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.44$; $R - 1 = 0.01177$

6.24 base_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|---------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02243 ± 0.00013 | σ_8 | $0.8148^{+0.0098}_{-0.0066}$ | $H(0.38)$ | $83.22^{+0.33}_{-0.29}$ |
| $\Omega_c h^2$ | 0.11922 ± 0.00090 | S_8 | 0.826 ± 0.011 | $D_M(0.38)$ | $1524.1^{+7.6}_{-8.6}$ |
| $100\theta_{MC}$ | 1.04102 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.4524 ± 0.0058 | $H(0.51)$ | $89.91^{+0.27}_{-0.24}$ |
| τ | $0.0562^{+0.0057}_{-0.0076}$ | $\sigma_8 \Omega_m^{0.25}$ | $0.6072^{+0.0068}_{-0.0060}$ | $D_M(0.51)$ | $1974.9^{+9.0}_{-10}$ |
| Σm_ν [eV] | < 0.0544 | $\sigma_8/h^{0.5}$ | $0.989^{+0.011}_{-0.0090}$ | $H(0.61)$ | $95.51^{+0.23}_{-0.20}$ |
| $\ln(10^{10} A_s)$ | $3.046^{+0.012}_{-0.015}$ | $r_{\text{drag}} h$ | 99.97 ± 0.78 | $D_M(0.61)$ | $2298.4^{+9.8}_{-11}$ |
| n_s | 0.9669 ± 0.0036 | $\langle d^2 \rangle^{1/2}$ | 2.439 ± 0.020 | $H(2.33)$ | 236.02 ± 0.56 |
| y_{cal} | 1.0006 ± 0.0025 | z_{re} | $7.83^{+0.61}_{-0.75}$ | $D_M(2.33)$ | $5752.9^{+9.7}_{-11}$ |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.104^{+0.025}_{-0.031}$ | $f\sigma_8(0.15)$ | 0.4571 ± 0.0054 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.880 ± 0.010 | $\sigma_8(0.15)$ | $0.7532^{+0.0092}_{-0.0060}$ |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1228 ± 11 | $f\sigma_8(0.38)$ | 0.4762 ± 0.0049 |
| A_{100}^{PS} | 257 ± 28 | D_{220} | 5738 ± 38 | $\sigma_8(0.38)$ | $0.6680^{+0.0083}_{-0.0053}$ |
| A_{143}^{PS} | 45 ± 8 | D_{810} | 2539 ± 13 | $f\sigma_8(0.51)$ | 0.4752 ± 0.0047 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.7 ± 4.7 | $\sigma_8(0.51)$ | $0.6253^{+0.0079}_{-0.0050}$ |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.1 ± 1.5 | $f\sigma_8(0.61)$ | $0.4704^{+0.0047}_{-0.0041}$ |
| A^{kSZ} | < 4.05 | $n_{s,0.002}$ | 0.9669 ± 0.0036 | $\sigma_8(0.61)$ | $0.5950^{+0.0075}_{-0.0048}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245417^{+0.000053}_{-0.000048}$ | $f\sigma_8(2.33)$ | $0.2999^{+0.0033}_{-0.0023}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246744^{+0.000053}_{-0.000048}$ | $\sigma_8(2.33)$ | $0.3094^{+0.0039}_{-0.0026}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | 10^5D/H | 2.575 ± 0.024 | f_{2000}^{143} | 29.2 ± 2.7 |
| A_{217}^{dustTT} | 93.7 ± 7.5 | Age/Gyr | $13.774^{+0.022}_{-0.026}$ | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.9 |
| A_{100}^{dustTE} | 0.115 ± 0.039 | z_* | 1089.77 ± 0.21 | f_{2000}^{217} | 106.8 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | r_* | 144.59 ± 0.21 | χ_{lensing}^2 | 9.20 ± 0.60 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 ± 0.086 | $100\theta_*$ | 1.04119 ± 0.00029 | χ_{small}^2 | 397.1 ± 1.9 |
| A_{143}^{dustTE} | 0.223 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.887 ± 0.021 | χ_{lowl}^2 | 23.22 ± 0.77 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 ± 0.081 | z_{drag} | 1060.02 ± 0.29 | χ_{plik}^2 | 2359.0 ± 5.8 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | 147.24 ± 0.23 | χ_{JLA}^2 | 1034.99 ± 0.27 |
| c_{100} | 0.99966 ± 0.00062 | k_D | 0.14076 ± 0.00028 | $\chi_{6\text{DF}}^2$ | 0.037 ± 0.052 |
| c_{217} | 0.99818 ± 0.00061 | $100\theta_D$ | 0.16072 ± 0.00017 | χ_{MGS}^2 | 1.45 ± 0.44 |
| H_0 | $67.90^{+0.49}_{-0.45}$ | z_{eq} | 3385 ± 20 | χ_{DR12BAO}^2 | 4.4 ± 1.2 |
| Ω_Λ | $0.6917^{+0.0063}_{-0.0057}$ | k_{eq} | 0.010331 ± 0.000062 | χ_{prior}^2 | 11.6 ± 4.6 |
| Ω_m | $0.3083^{+0.0057}_{-0.0063}$ | $100\theta_{\text{eq}}$ | 0.8166 ± 0.0038 | χ_{CMB}^2 | 2788.6 ± 5.9 |
| $\Omega_m h^2$ | 0.14213 ± 0.00089 | $100\theta_{s,\text{eq}}$ | 0.4511 ± 0.0020 | χ_{BAO}^2 | 5.84 ± 0.91 |
| $\Omega_\nu h^2$ | < 0.000585 | $H(0.15)$ | $73.15^{+0.43}_{-0.39}$ | | |
| $\Omega_m h^3$ | $0.09650^{+0.00036}_{-0.00030}$ | $D_M(0.15)$ | $638.7^{+3.7}_{-4.2}$ | | |

$\bar{\chi}_{\text{eff}}^2 = 3841.03$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.71$; $R - 1 = 0.01560$

6.25 base_mnu_plikHM_TTTEEE_lowl_lowE_DES

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|---------------------------|-------------------------------------|----------|---------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022543 | 0.02251 ± 0.00015 | $\Delta z_{\text{l,DES}}^1$ | 0.0034 | 0.0035 ± 0.0075 | z_{drag} | 1060.200 | 1060.12 ± 0.31 |
| $\Omega_c h^2$ | 0.11794 | 0.1180 ± 0.0011 | $\Delta z_{\text{l,DES}}^2$ | 0.0006 | 0.0008 ± 0.0066 | r_{drag} | 147.452 | 147.47 ± 0.26 |
| $100\theta_{\text{MC}}$ | 1.041145 | 1.04110 ± 0.00031 | $\Delta z_{\text{l,DES}}^3$ | 0.0036 | 0.0034 ± 0.0065 | k_{D} | 0.140609 | 0.14058 ± 0.00030 |
| τ | 0.0554 | 0.0545 ± 0.0080 | $\Delta z_{\text{l,DES}}^4$ | 0.0007 | 0.0006 ± 0.0090 | $100\theta_{\text{D}}$ | 0.160625 | 0.16066 ± 0.00018 |
| Σm_ν [eV] | 0.000 | < 0.111 | $\Delta z_{\text{l,DES}}^5$ | -0.0007 | -0.0006 ± 0.0098 | z_{eq} | 3357.0 | 3357 ± 25 |
| $\ln(10^{10} A_s)$ | 3.0423 | 3.040 ± 0.016 | $\Delta z_{\text{s,DES}}^1$ | 0.0000 | -0.004 ± 0.014 | k_{eq} | 0.010246 | 0.010245 ± 0.000078 |
| n_s | 0.97063 | 0.9694 ± 0.0042 | $\Delta z_{\text{s,DES}}^2$ | -0.0300 | -0.031 ± 0.011 | $100\theta_{\text{eq}}$ | 0.82207 | 0.8221 ± 0.0049 |
| y_{cal} | 1.00057 | 1.0005 ± 0.0024 | $\Delta z_{\text{s,DES}}^3$ | 0.0035 | 0.0042 ± 0.0096 | $100\theta_{\text{s,eq}}$ | 0.45383 | 0.4539 ± 0.0025 |
| A_{217}^{CIB} | 46.5 | 47 ± 7 | $\Delta z_{\text{s,DES}}^4$ | -0.0307 | -0.029 ± 0.018 | $H(0.15)$ | 73.95 | $73.1^{+1.2}_{-0.40}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.57 | — | H_0 | 68.82 | $67.9^{+1.4}_{-0.46}$ | $D_{\text{M}}(0.15)$ | 631.0 | $638.9^{+3.6}_{-12}$ |
| A_{143}^{tSZ} | 7.16 | $5.5^{+2.2}_{-1.9}$ | Ω_Λ | 0.7034 | $0.692^{+0.017}_{-0.0054}$ | $H(0.38)$ | 83.81 | $83.18^{+0.93}_{-0.30}$ |
| A_{100}^{PS} | 248.5 | 259 ± 28 | Ω_{m} | 0.2966 | $0.3075^{+0.0054}_{-0.017}$ | $D_{\text{M}}(0.38)$ | 1508.4 | $1524.7^{+7.4}_{-24}$ |
| A_{143}^{PS} | 48.3 | 45 ± 8 | $\Omega_{\text{m}} h^2$ | 0.14048 | $0.1416^{+0.0010}_{-0.0020}$ | $H(0.51)$ | 90.39 | $89.85^{+0.78}_{-0.24}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 50.1 | 41 ± 9 | $\Omega_\nu h^2$ | 0.00000 | < 0.00120 | $D_{\text{M}}(0.51)$ | 1956.4 | $1975.7^{+8.7}_{-29}$ |
| A_{217}^{PS} | 120.0 | 114 ± 10 | $\Omega_{\text{m}} h^3$ | 0.09668 | $0.09614^{+0.00080}_{-0.00025}$ | $H(0.61)$ | 95.899 | $95.44^{+0.66}_{-0.20}$ |
| A^{kSZ} | 0.00 | < 4.48 | σ_8 | 0.8176 | $0.795^{+0.026}_{-0.0063}$ | $D_{\text{M}}(0.61)$ | 2278.5 | $2299.5^{+9.5}_{-31}$ |
| A_{100}^{dustTT} | 8.82 | 9.0 ± 1.8 | S_8 | 0.8129 | $0.804^{+0.014}_{-0.013}$ | $H(2.33)$ | 235.07 | $235.62^{+0.65}_{-1.1}$ |
| A_{143}^{dustTT} | 11.07 | 11.0 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4453 | $0.4403^{+0.0078}_{-0.0069}$ | $D_{\text{M}}(2.33)$ | 5735.7 | $5758.6^{+8.5}_{-32}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.00 | 18.7 ± 3.3 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6034 | $0.591^{+0.014}_{-0.0064}$ | $f\sigma_8(0.15)$ | 0.4503 | $0.4456^{+0.0075}_{-0.0065}$ |
| A_{217}^{dustTT} | 95.2 | 93.6 ± 7.3 | $\sigma_8/h^{0.5}$ | 0.9855 | $0.964^{+0.025}_{-0.0091}$ | $\sigma_8(0.15)$ | 0.7568 | $0.735^{+0.025}_{-0.0057}$ |
| A_{100}^{dustTE} | 0.1127 | 0.114 ± 0.038 | $r_{\text{drag}} h$ | 101.48 | $100.2^{+2.1}_{-0.81}$ | $f\sigma_8(0.38)$ | 0.4720 | $0.4647^{+0.0094}_{-0.0052}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1337 | 0.135 ± 0.029 | $\langle d^2 \rangle^{1/2}$ | 2.4189 | 2.404 ± 0.024 | $\sigma_8(0.38)$ | 0.6723 | $0.652^{+0.023}_{-0.0050}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.481 ± 0.085 | z_{re} | 7.72 | 7.63 ± 0.80 | $f\sigma_8(0.51)$ | 0.4722 | $0.464^{+0.010}_{-0.0045}$ |
| A_{143}^{dustTE} | 0.222 | 0.223 ± 0.054 | $10^9 A_s$ | 2.0953 | 2.090 ± 0.034 | $\sigma_8(0.51)$ | 0.6298 | $0.611^{+0.022}_{-0.0046}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.662 | 0.661 ± 0.080 | $10^9 A_s e^{-2\tau}$ | 1.8754 | 1.874 ± 0.011 | $f\sigma_8(0.61)$ | 0.4684 | $0.459^{+0.011}_{-0.0040}$ |
| A_{217}^{dustTE} | 2.064 | 2.06 ± 0.27 | D_{40} | 1220.0 | 1221 ± 12 | $\sigma_8(0.61)$ | 0.5996 | $0.581^{+0.021}_{-0.0044}$ |
| c_{100} | 0.99972 | 0.99967 ± 0.00061 | D_{220} | 5743.8 | 5745 ± 39 | $f\sigma_8(2.33)$ | 0.3019 | $0.2939^{+0.0095}_{-0.0021}$ |
| c_{217} | 0.99819 | 0.99819 ± 0.00062 | D_{810} | 2539.2 | 2537 ± 13 | $\sigma_8(2.33)$ | 0.3124 | $0.303^{+0.011}_{-0.0023}$ |
| b_{DES}^1 | 1.484 | $1.526^{+0.075}_{-0.093}$ | D_{1420} | 819.17 | 818.2 ± 4.7 | f_{2000}^{143} | 28.15 | 29.3 ± 2.8 |
| b_{DES}^2 | 1.682 | $1.729^{+0.053}_{-0.081}$ | D_{2000} | 231.80 | 231.2 ± 1.6 | $f_{2000}^{143 \times 217}$ | 31.49 | 32.0 ± 1.9 |
| b_{DES}^3 | 1.671 | $1.716^{+0.044}_{-0.074}$ | $n_{\text{s},0.002}$ | 0.97063 | 0.9694 ± 0.0042 | f_{2000}^{217} | 106.03 | 106.8 ± 1.8 |
| b_{DES}^4 | 2.026 | $2.080^{+0.051}_{-0.087}$ | Y_{P} | 0.245460 | 0.245447 ± 0.000057 | χ_{small}^2 | 396.08 | 397.0 ± 1.8 |
| b_{DES}^5 | 2.130 | $2.182^{+0.079}_{-0.10}$ | $Y_{\text{P}}^{\text{BBN}}$ | 0.246786 | 0.246774 ± 0.000058 | χ_{lowl}^2 | 22.51 | 22.56 ± 0.78 |
| m_{DES}^1 | 0.0137 | 0.012 ± 0.023 | 10^5D/H | 2.5544 | 2.560 ± 0.027 | χ_{plik}^2 | 2346.9 | 2364.5 ± 6.9 |
| m_{DES}^2 | 0.0134 | 0.013 ± 0.022 | Age/Gyr | 13.7357 | $13.788^{+0.019}_{-0.073}$ | χ_{DES}^2 | 508.94 | 518.1 ± 4.9 |
| m_{DES}^3 | -0.0026 | -0.002 ± 0.020 | z_* | 1089.518 | 1089.57 ± 0.26 | χ_{prior}^2 | 3.9 | 25 ± 7 |
| m_{DES}^4 | 0.0017 | 0.003 ± 0.021 | r_* | 144.841 | 144.85 ± 0.26 | χ_{CMB}^2 | 2765.5 | 2784.0 ± 6.9 |
| $A_{\text{IA,DES}}$ | 0.454 | $0.46^{+0.15}_{-0.19}$ | $100\theta_*$ | 1.041286 | 1.04129 ± 0.00029 | | | |
| $\alpha_{\text{IA,DES}}$ | -2.29 | $-1.1^{+1.7}_{-2.9}$ | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.9098 | 13.910 ± 0.025 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3278.36$; $\Delta\chi_{\text{eff}}^2 = -1.33$; $\bar{\chi}_{\text{eff}}^2 = 3326.78$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.09$; $R - 1 = 0.00796$
 χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.07 (Δ -0.00) commander_dx12_v3.2_29: 22.51 (Δ 0.02) plik_rd12_HM_v22b_TTTEEE: 2346.89 (Δ -1.11) WL - DES_1YR_final: 508.94 (Δ -0.21)

6.26 base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------|-------------------------------------|---------------------|---------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022502 | 0.02252 ± 0.00013 | $\Delta z_{\text{l,DES}}^2$ | 0.0005 | 0.0008 ± 0.0066 | k_{D} | 0.140653 | 0.14058 ± 0.00029 |
| $\Omega_c h^2$ | 0.11837 | 0.11796 ± 0.00091 | $\Delta z_{\text{l,DES}}^3$ | 0.0034 | 0.0034 ± 0.0066 | $100\theta_{\text{D}}$ | 0.160663 | 0.16066 ± 0.00017 |
| $100\theta_{\text{MC}}$ | 1.041136 | 1.04112 ± 0.00028 | $\Delta z_{\text{l,DES}}^4$ | 0.0009 | 0.0006 ± 0.0090 | z_{eq} | 3366.3 | 3357 ± 21 |
| τ | 0.0538 | 0.0542 ± 0.0079 | $\Delta z_{\text{l,DES}}^5$ | -0.0008 | -0.0007 ± 0.0097 | k_{eq} | 0.010274 | 0.010246 ± 0.000063 |
| Σm_ν [eV] | 0.0002 | < 0.0866 | $\Delta z_{\text{s,DES}}^1$ | 0.0009 | -0.003 ± 0.014 | $100\theta_{\text{eq}}$ | 0.82025 | 0.8220 ± 0.0040 |
| $\ln(10^{10} A_{\text{s}})$ | 3.0387 | 3.039 ± 0.016 | $\Delta z_{\text{s,DES}}^2$ | -0.0303 | -0.031 ± 0.011 | $100\theta_{\text{s,eq}}$ | 0.45291 | 0.4538 ± 0.0020 |
| n_{s} | 0.96915 | 0.9694 ± 0.0037 | $\Delta z_{\text{s,DES}}^3$ | 0.0025 | 0.0040 ± 0.0095 | $H(0.15)$ | 73.782 | $73.43^{+0.54}_{-0.41}$ |
| y_{cal} | 0.99999 | 1.0005 ± 0.0025 | $\Delta z_{\text{s,DES}}^4$ | -0.0314 | -0.030 ± 0.018 | $D_{\text{M}}(0.15)$ | 632.60 | $636.0^{+3.9}_{-5.3}$ |
| A_{217}^{CIB} | 47.7 | 47 ± 7 | H_0 | 68.62 | $68.23^{+0.62}_{-0.47}$ | $H(0.38)$ | 83.692 | $83.40^{+0.43}_{-0.31}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.40 | — | Ω_{Λ} | 0.7009 | $0.6965^{+0.0073}_{-0.0057}$ | $D_{\text{M}}(0.38)$ | 1511.7 | $1518.8^{+7.9}_{-11}$ |
| A_{143}^{tSZ} | 7.34 | $5.5^{+2.2}_{-1.9}$ | Ω_{m} | 0.2991 | $0.3035^{+0.0057}_{-0.0073}$ | $H(0.51)$ | 90.293 | $90.04^{+0.37}_{-0.26}$ |
| A_{100}^{PS} | 249.8 | 259 ± 28 | $\Omega_{\text{m}} h^2$ | 0.14087 | 0.14123 ± 0.00091 | $D_{\text{M}}(0.51)$ | 1960.2 | $1968.7^{+9.3}_{-13}$ |
| A_{143}^{PS} | 46.2 | 45 ± 8 | $\Omega_{\nu} h^2$ | $0.2 \cdot 10^{-5}$ | < 0.000931 | $H(0.61)$ | 95.824 | $95.60^{+0.32}_{-0.22}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 46.2 | 41 ± 9 | $\Omega_{\text{m}} h^3$ | 0.096672 | $0.09636^{+0.00048}_{-0.00034}$ | $D_{\text{M}}(0.61)$ | 2282.6 | 2292^{+10}_{-14} |
| A_{217}^{PS} | 118.3 | 114 ± 10 | σ_8 | 0.8173 | $0.802^{+0.016}_{-0.0089}$ | $H(2.33)$ | 235.31 | 235.43 ± 0.56 |
| A^{kSZ} | 0.00 | < 4.43 | S_8 | 0.8161 | 0.807 ± 0.012 | $D_{\text{M}}(2.33)$ | 5738.8 | 5750^{+10}_{-16} |
| A_{100}^{dustTT} | 8.87 | 8.9 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4470 | 0.4420 ± 0.0068 | $f\sigma_8(0.15)$ | 0.4518 | 0.4473 ± 0.0064 |
| A_{143}^{dustTT} | 11.02 | 11.0 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6044 | $0.596^{+0.010}_{-0.0072}$ | $\sigma_8(0.15)$ | 0.7563 | $0.742^{+0.015}_{-0.0083}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.74 | 18.6 ± 3.3 | $\sigma_8/h^{0.5}$ | 0.9866 | $0.971^{+0.017}_{-0.011}$ | $f\sigma_8(0.38)$ | 0.4729 | $0.4673^{+0.0070}_{-0.0055}$ |
| A_{217}^{dustTT} | 94.6 | 93.6 ± 7.3 | $r_{\text{drag}} h$ | 101.14 | $100.62^{+0.94}_{-0.78}$ | $\sigma_8(0.38)$ | 0.6716 | $0.659^{+0.014}_{-0.0074}$ |
| A_{100}^{dustTE} | 0.1140 | 0.114 ± 0.038 | $\langle d^2 \rangle^{1/2}$ | 2.4220 | 2.408 ± 0.024 | $f\sigma_8(0.51)$ | 0.4729 | $0.4669^{+0.0072}_{-0.0052}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1344 | 0.135 ± 0.029 | z_{re} | 7.56 | 7.59 ± 0.79 | $\sigma_8(0.51)$ | 0.6290 | $0.617^{+0.013}_{-0.0069}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 | 0.481 ± 0.084 | $10^9 A_{\text{s}}$ | 2.0877 | 2.089 ± 0.033 | $f\sigma_8(0.61)$ | 0.4688 | $0.4627^{+0.0073}_{-0.0050}$ |
| A_{143}^{dustTE} | 0.223 | 0.223 ± 0.053 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8748 | 1.874 ± 0.011 | $\sigma_8(0.61)$ | 0.5987 | $0.587^{+0.013}_{-0.0066}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.661 ± 0.080 | D_{40} | 1221.3 | 1222 ± 12 | $f\sigma_8(2.33)$ | 0.30141 | $0.2967^{+0.0055}_{-0.0031}$ |
| A_{217}^{dustTE} | 2.076 | 2.06 ± 0.27 | D_{220} | 5736.1 | 5744 ± 39 | $\sigma_8(2.33)$ | 0.31176 | $0.3061^{+0.0064}_{-0.0035}$ |
| c_{100} | 0.99974 | 0.99967 ± 0.00061 | D_{810} | 2536.1 | 2537 ± 13 | f_{2000}^{143} | 28.59 | 29.2 ± 2.7 |
| c_{217} | 0.99819 | 0.99820 ± 0.00062 | D_{1420} | 817.61 | 818.0 ± 4.7 | $f_{2000}^{143 \times 217}$ | 31.78 | 31.9 ± 1.8 |
| b_{DES}^1 | 1.486 | 1.511 ± 0.076 | D_{2000} | 231.24 | 231.2 ± 1.6 | f_{2000}^{217} | 106.33 | 106.7 ± 1.8 |
| b_{DES}^2 | 1.684 | 1.712 ± 0.058 | $n_{\text{s},0.002}$ | 0.96915 | 0.9694 ± 0.0037 | χ_{simall}^2 | 395.87 | 396.9 ± 1.7 |
| b_{DES}^3 | 1.6722 | 1.700 ± 0.050 | Y_{P} | 0.2454450 | 0.245450 ± 0.000050 | χ_{lowl}^2 | 22.73 | 22.63 ± 0.76 |
| b_{DES}^4 | 2.029 | 2.061 ± 0.059 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2467717 | 0.246776 ± 0.000050 | χ_{plik}^2 | 2346.2 | 2363.3 ± 6.6 |
| b_{DES}^5 | 2.133 | 2.163 ± 0.081 | $10^5 \text{D}/\text{H}$ | 2.5616 | 2.559 ± 0.024 | $\chi_{6\text{DF}}^2$ | 0.0180 | 0.033 ± 0.047 |
| m_{DES}^1 | 0.0138 | 0.012 ± 0.023 | Age/Gyr | 13.7422 | $13.769^{+0.023}_{-0.037}$ | χ_{MGS}^2 | 2.12 | 1.84 ± 0.54 |
| m_{DES}^2 | 0.0134 | 0.013 ± 0.022 | z_* | 1089.610 | 1089.56 ± 0.21 | χ_{DR12BAO}^2 | 3.423 | 3.93 ± 0.87 |
| m_{DES}^3 | -0.0046 | -0.003 ± 0.020 | r_* | 144.761 | 144.85 ± 0.22 | χ_{DES}^2 | 509.52 | 518.3 ± 4.9 |
| m_{DES}^4 | 0.0017 | 0.003 ± 0.021 | $100\theta_*$ | 1.041274 | 1.04130 ± 0.00028 | χ_{prior}^2 | 4.2 | 25 ± 7 |
| $A_{\text{IA,DES}}$ | 0.444 | $0.47^{+0.15}_{-0.18}$ | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.9023 | 13.910 ± 0.021 | χ_{BAO}^2 | 5.558 | 5.81 ± 0.83 |
| $\alpha_{\text{IA,DES}}$ | -2.56 | $-1.1^{+1.8}_{-2.9}$ | z_{drag} | 1060.123 | 1060.13 ± 0.29 | χ_{CMB}^2 | 2764.8 | 2782.8 ± 6.6 |
| $\Delta z_{\text{l,DES}}^1$ | 0.0033 | 0.0036 ± 0.0075 | r_{drag} | 147.385 | 147.47 ± 0.23 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3284.12$; $\Delta\chi_{\text{eff}}^2 = -0.81$; $\bar{\chi}_{\text{eff}}^2 = 3331.54$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.52$; $R - 1 = 0.01000$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ 0.02) MGS: 2.12 (Δ 0.37) DR12BAO: 3.42 (Δ -0.04) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.87 (Δ -0.21) commander_dx12_v3_2_29: 22.73 (Δ 0.23) plik_rd12_HM_v22b_TTTEEE: 2346.19 (Δ -1.66) WL - DES_1YR_final: 509.52 (Δ 0.26)

6.27 base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-------------------------------------|---------------------|---------------------------------|--------------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022566 | 0.02252 ± 0.00014 | $\alpha_{\text{IA,DES}}$ | -2.38 | $-1.2^{+1.7}_{-2.9}$ | $100\theta_*$ | 1.041310 | 1.04128 ± 0.00029 |
| $\Omega_c h^2$ | 0.11794 | 0.1181 ± 0.0011 | $\Delta z_{\text{l,DES}}^1$ | 0.0033 | 0.0035 ± 0.0075 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.9076 | 13.907 ± 0.023 |
| $100\theta_{\text{MC}}$ | 1.041181 | 1.04111 ± 0.00030 | $\Delta z_{\text{l,DES}}^2$ | 0.0007 | 0.0008 ± 0.0066 | z_{drag} | 1060.238 | 1060.15 ± 0.30 |
| τ | 0.0561 | $0.0568^{+0.0070}_{-0.0080}$ | $\Delta z_{\text{l,DES}}^3$ | 0.0035 | 0.0034 ± 0.0066 | r_{drag} | 147.426 | 147.43 ± 0.25 |
| $\Sigma m_\nu [\text{eV}]$ | 0.0003 | < 0.0705 | $\Delta z_{\text{l,DES}}^4$ | 0.0008 | 0.0005 ± 0.0090 | k_{D} | 0.140656 | 0.14062 ± 0.00029 |
| $\ln(10^{10} A_{\text{s}})$ | 3.0445 | 3.045 ± 0.015 | $\Delta z_{\text{l,DES}}^5$ | -0.0007 | -0.0006 ± 0.0097 | $100\theta_{\text{D}}$ | 0.160597 | 0.16064 ± 0.00017 |
| n_{s} | 0.97075 | 0.9690 ± 0.0040 | $\Delta z_{\text{s,DES}}^1$ | 0.0009 | -0.003 ± 0.014 | z_{eq} | 3357.7 | 3360 ± 24 |
| y_{cal} | 1.00084 | 1.0007 ± 0.0024 | $\Delta z_{\text{s,DES}}^2$ | -0.0303 | -0.031 ± 0.011 | k_{eq} | 0.010248 | 0.010256 ± 0.000073 |
| A_{217}^{CIB} | 45.4 | 47 ± 7 | $\Delta z_{\text{s,DES}}^3$ | 0.0033 | 0.0035 ± 0.0095 | $100\theta_{\text{eq}}$ | 0.82202 | 0.8215 ± 0.0046 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.69 | — | $\Delta z_{\text{s,DES}}^4$ | -0.0301 | -0.031 ± 0.018 | $100\theta_{\text{s,eq}}$ | 0.45379 | 0.4535 ± 0.0023 |
| A_{143}^{tSZ} | 7.15 | $5.5^{+2.2}_{-1.9}$ | H_0 | 68.84 | $68.25^{+0.89}_{-0.50}$ | $H(0.15)$ | 73.97 | $73.45^{+0.78}_{-0.43}$ |
| A_{100}^{PS} | 246.8 | 258 ± 28 | Ω_{Λ} | 0.7035 | $0.696^{+0.011}_{-0.0061}$ | $D_{\text{M}}(0.15)$ | 630.8 | $635.9^{+4.1}_{-7.6}$ |
| A_{143}^{PS} | 49.7 | 45 ± 8 | Ω_{m} | 0.2965 | $0.3035^{+0.0061}_{-0.011}$ | $H(0.38)$ | 83.837 | $83.42^{+0.60}_{-0.33}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 53.2 | 42 ± 9 | $\Omega_{\text{m}} h^2$ | 0.14051 | $0.1413^{+0.0010}_{-0.0014}$ | $D_{\text{M}}(0.38)$ | 1508.0 | $1518.4^{+8.3}_{-15}$ |
| A_{217}^{PS} | 121.9 | 115 ± 10 | $\Omega_{\nu} h^2$ | $0.4 \cdot 10^{-5}$ | < 0.000758 | $H(0.51)$ | 90.412 | $90.06^{+0.50}_{-0.26}$ |
| A^{kSZ} | 0.00 | < 4.27 | $\Omega_{\text{m}} h^3$ | 0.096736 | $0.09642^{+0.00049}_{-0.00030}$ | $D_{\text{M}}(0.51)$ | 1955.8 | $1968.3^{+9.8}_{-18}$ |
| A_{100}^{dustTT} | 8.76 | 8.9 ± 1.8 | σ_8 | 0.8185 | $0.807^{+0.014}_{-0.0060}$ | $H(0.61)$ | 95.922 | $95.62^{+0.42}_{-0.22}$ |
| A_{143}^{dustTT} | 11.05 | 10.9 ± 1.8 | S_8 | 0.8136 | 0.811 ± 0.011 | $D_{\text{M}}(0.61)$ | 2277.8 | 2291^{+11}_{-20} |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.19 | 18.6 ± 3.3 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4456 | 0.4443 ± 0.0058 | $H(2.33)$ | 235.10 | $235.48^{+0.64}_{-0.84}$ |
| A_{217}^{dustTT} | 95.8 | 93.7 ± 7.3 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6039 | $0.5987^{+0.0078}_{-0.0057}$ | $D_{\text{M}}(2.33)$ | 5734.4 | $5749.0^{+9.9}_{-20}$ |
| A_{100}^{dustTE} | 0.1125 | 0.114 ± 0.038 | $\sigma_8/h^{0.5}$ | 0.9864 | $0.977^{+0.013}_{-0.0083}$ | $f\sigma_8(0.15)$ | 0.4507 | 0.4496 ± 0.0054 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1334 | 0.134 ± 0.029 | $r_{\text{drag}} h$ | 101.49 | $100.6^{+1.4}_{-0.85}$ | $\sigma_8(0.15)$ | 0.7577 | $0.746^{+0.014}_{-0.0055}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 | 0.481 ± 0.084 | $\langle d^2 \rangle^{1/2}$ | 2.4212 | 2.419 ± 0.020 | $f\sigma_8(0.38)$ | 0.47241 | $0.4696^{+0.0053}_{-0.0046}$ |
| A_{143}^{dustTE} | 0.221 | 0.223 ± 0.053 | z_{re} | 7.78 | 7.85 ± 0.75 | $\sigma_8(0.38)$ | 0.6731 | $0.662^{+0.013}_{-0.0050}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.661 | 0.661 ± 0.080 | $10^9 A_{\text{s}}$ | 2.1000 | $2.102^{+0.029}_{-0.033}$ | $f\sigma_8(0.51)$ | 0.47272 | $0.4692^{+0.0056}_{-0.0041}$ |
| A_{217}^{dustTE} | 2.059 | 2.06 ± 0.27 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8771 | 1.876 ± 0.010 | $\sigma_8(0.51)$ | 0.6305 | $0.620^{+0.012}_{-0.0047}$ |
| c_{100} | 0.99973 | 0.99969 ± 0.00061 | D_{40} | 1221.1 | 1225 ± 11 | $f\sigma_8(0.61)$ | 0.46888 | $0.4649^{+0.0058}_{-0.0038}$ |
| c_{217} | 0.99818 | 0.99819 ± 0.00062 | D_{220} | 5749.9 | 5750 ± 38 | $\sigma_8(0.61)$ | 0.6003 | $0.590^{+0.012}_{-0.0045}$ |
| b_{DES}^1 | 1.483 | 1.504 ± 0.077 | D_{810} | 2541.4 | 2539 ± 13 | $f\sigma_8(2.33)$ | 0.30231 | $0.2981^{+0.0054}_{-0.0023}$ |
| b_{DES}^2 | 1.680 | 1.703 ± 0.058 | D_{1420} | 820.03 | 818.4 ± 4.7 | $\sigma_8(2.33)$ | 0.31282 | $0.3077^{+0.0064}_{-0.0025}$ |
| b_{DES}^3 | 1.6692 | $1.691^{+0.045}_{-0.051}$ | D_{2000} | 232.12 | 231.4 ± 1.6 | χ_{lensing}^2 | 8.81 | 9.5 ± 1.1 |
| b_{DES}^4 | 2.025 | $2.050^{+0.052}_{-0.061}$ | $n_{\text{s},0.002}$ | 0.97075 | 0.9690 ± 0.0040 | χ_{simall}^2 | 396.20 | 397.3 ± 2.1 |
| b_{DES}^5 | 2.128 | 2.153 ± 0.081 | Y_{P} | 0.245468 | 0.245452 ± 0.000054 | χ_{lowl}^2 | 22.54 | 22.83 ± 0.77 |
| m_{DES}^1 | 0.0133 | 0.012 ± 0.023 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246795 | 0.246779 ± 0.000054 | χ_{plik}^2 | 2346.8 | 2362.1 ± 6.1 |
| m_{DES}^2 | 0.0135 | 0.012 ± 0.022 | $10^5 \text{D}/\text{H}$ | 2.5503 | 2.558 ± 0.026 | χ_{DES}^2 | 508.98 | 518.5 ± 5.0 |
| m_{DES}^3 | -0.0031 | -0.004 ± 0.020 | Age/Gyr | 13.7326 | $13.766^{+0.022}_{-0.045}$ | χ_{prior}^2 | 3.9 | 25 ± 7 |
| m_{DES}^4 | 0.0020 | 0.002 ± 0.021 | z_* | 1089.490 | 1089.56 ± 0.24 | χ_{CMB}^2 | 2774.3 | 2791.8 ± 6.6 |
| $A_{\text{IA,DES}}$ | 0.453 | $0.47^{+0.15}_{-0.18}$ | r_* | 144.821 | 144.81 ± 0.24 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3287.27$; $\Delta\chi_{\text{eff}}^2 = -1.59$; $\bar{\chi}_{\text{eff}}^2 = 3335.12$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.21$; $R - 1 = 0.00852$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp-p.teb.consext8: 8.81 (Δ -0.24) simall_100x143_offlike5_EE_Aplanck_B: 396.20 (Δ -0.02) commander_dx12_v3_2_29: 22.54 (Δ -0.16) plik_rd12_HM_v22b_TTTEEE: 2346.80 (Δ -0.37) WL - DES_1YR_final: 508.98 (Δ -0.53)

6.28 base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|---------------------|---------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022515 | 0.02252 ± 0.00013 | $\Delta z_{l,DES}^2$ | 0.0005 | 0.0007 ± 0.0066 | k_D | 0.140697 | 0.14063 ± 0.00028 |
| $\Omega_c h^2$ | 0.11843 | 0.11818 ± 0.00085 | $\Delta z_{l,DES}^3$ | 0.0034 | 0.0034 ± 0.0066 | $100\theta_D$ | 0.160645 | 0.16065 ± 0.00017 |
| $100\theta_{MC}$ | 1.041157 | 1.04110 ± 0.00028 | $\Delta z_{l,DES}^4$ | 0.0008 | 0.0005 ± 0.0090 | z_{eq} | 3368.2 | 3362 ± 19 |
| τ | 0.0558 | $0.0561^{+0.0068}_{-0.0078}$ | $\Delta z_{l,DES}^5$ | -0.0005 | -0.0007 ± 0.0097 | k_{eq} | 0.010280 | 0.010262 ± 0.000059 |
| Σm_ν [eV] | 0.0010 | < 0.0661 | $\Delta z_{s,DES}^1$ | 0.00097 | -0.003 ± 0.014 | $100\theta_{eq}$ | 0.81995 | 0.8211 ± 0.0037 |
| $\ln(10^{10} A_s)$ | 3.0430 | 3.044 ± 0.015 | $\Delta z_{s,DES}^2$ | -0.0303 | -0.031 ± 0.011 | $100\theta_{s,eq}$ | 0.45275 | 0.4533 ± 0.0019 |
| n_s | 0.96861 | 0.9688 ± 0.0037 | $\Delta z_{s,DES}^3$ | 0.0024 | 0.0034 ± 0.0095 | $H(0.15)$ | 73.778 | $73.48^{+0.48}_{-0.38}$ |
| y_{cal} | 0.99998 | 1.0007 ± 0.0024 | $\Delta z_{s,DES}^4$ | -0.0323 | -0.031 ± 0.018 | $D_M(0.15)$ | 632.66 | $635.5^{+3.7}_{-4.7}$ |
| A_{217}^{CIB} | 48.3 | 47 ± 7 | H_0 | 68.618 | $68.29^{+0.55}_{-0.44}$ | $H(0.38)$ | 83.693 | $83.45^{+0.38}_{-0.29}$ |
| $\xi^{tSZ \times CIB}$ | 0.28 | — | Ω_Λ | 0.7006 | $0.6970^{+0.0068}_{-0.0054}$ | $D_M(0.38)$ | 1511.8 | $1517.7^{+7.5}_{-9.6}$ |
| A_{143}^{tSZ} | 7.38 | $5.5^{+2.2}_{-1.9}$ | Ω_m | 0.2994 | $0.3030^{+0.0054}_{-0.0068}$ | $H(0.51)$ | 90.298 | $90.09^{+0.32}_{-0.24}$ |
| A_{100}^{PS} | 250.6 | 258 ± 28 | $\Omega_m h^2$ | 0.14096 | 0.14128 ± 0.00089 | $D_M(0.51)$ | 1960.3 | $1967.3^{+8.8}_{-11}$ |
| A_{143}^{PS} | 44.5 | 45 ± 8 | $\Omega_\nu h^2$ | $1.1 \cdot 10^{-5}$ | < 0.000711 | $H(0.61)$ | 95.832 | $95.65^{+0.27}_{-0.21}$ |
| $A_{143 \times 217}^{PS}$ | 42.8 | 42 ± 9 | $\Omega_m h^3$ | 0.096722 | $0.09647^{+0.00040}_{-0.00032}$ | $D_M(0.61)$ | 2282.6 | $2290.4^{+9.6}_{-12}$ |
| A_{217}^{PS} | 117.0 | 115 ± 10 | σ_8 | 0.8190 | $0.809^{+0.012}_{-0.0069}$ | $H(2.33)$ | 235.37 | 235.48 ± 0.55 |
| A^{kSZ} | 0.00 | < 4.29 | S_8 | 0.8182 | 0.8125 ± 0.0098 | $D_M(2.33)$ | 5738.2 | $5747.6^{+9.7}_{-13}$ |
| A_{100}^{dustTT} | 8.82 | 8.9 ± 1.8 | $\sigma_8 \Omega_m^{0.5}$ | 0.4481 | 0.4450 ± 0.0054 | $f\sigma_8(0.15)$ | 0.4530 | 0.4502 ± 0.0050 |
| A_{143}^{dustTT} | 11.03 | 10.9 ± 1.8 | $\sigma_8 \Omega_m^{0.25}$ | 0.6058 | $0.5998^{+0.0072}_{-0.0057}$ | $\sigma_8(0.15)$ | 0.7579 | $0.748^{+0.011}_{-0.0064}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.59 | 18.6 ± 3.3 | $\sigma_8/h^{0.5}$ | 0.9887 | $0.978^{+0.012}_{-0.0087}$ | $f\sigma_8(0.38)$ | 0.47405 | $0.4704^{+0.0050}_{-0.0044}$ |
| A_{217}^{dustTT} | 94.5 | 93.7 ± 7.3 | $r_{drag} h$ | 101.11 | $100.67^{+0.86}_{-0.74}$ | $\sigma_8(0.38)$ | 0.6730 | $0.664^{+0.010}_{-0.0058}$ |
| A_{100}^{dustTE} | 0.1141 | 0.114 ± 0.038 | $\langle d^2 \rangle^{1/2}$ | 2.4288 | 2.420 ± 0.019 | $f\sigma_8(0.51)$ | 0.47400 | $0.4700^{+0.0051}_{-0.0041}$ |
| $A_{100 \times 143}^{dustTE}$ | 0.1343 | 0.135 ± 0.029 | z_{re} | 7.77 | 7.78 ± 0.74 | $\sigma_8(0.51)$ | 0.6303 | $0.6217^{+0.0095}_{-0.0055}$ |
| $A_{100 \times 217}^{dustTE}$ | 0.482 | 0.481 ± 0.084 | $10^9 A_s$ | 2.0968 | $2.099^{+0.028}_{-0.032}$ | $f\sigma_8(0.61)$ | 0.46992 | $0.4658^{+0.0051}_{-0.0039}$ |
| A_{143}^{dustTE} | 0.223 | 0.223 ± 0.053 | $10^9 A_s e^{-2\tau}$ | 1.8753 | 1.876 ± 0.010 | $\sigma_8(0.61)$ | 0.6000 | $0.5918^{+0.0091}_{-0.0052}$ |
| $A_{143 \times 217}^{dustTE}$ | 0.662 | 0.661 ± 0.080 | D_{40} | 1223.6 | 1225 ± 11 | $f\sigma_8(2.33)$ | 0.30202 | $0.2987^{+0.0040}_{-0.0025}$ |
| A_{217}^{dustTE} | 2.066 | 2.06 ± 0.27 | D_{220} | 5739.9 | 5749 ± 38 | $\sigma_8(2.33)$ | 0.31238 | $0.3083^{+0.0047}_{-0.0028}$ |
| c_{100} | 0.99970 | 0.99969 ± 0.00061 | D_{810} | 2535.9 | 2539 ± 13 | f_{2000}^{143} | 28.71 | 29.1 ± 2.7 |
| c_{217} | 0.99819 | 0.99819 ± 0.00062 | D_{1420} | 817.36 | 818.2 ± 4.7 | $f_{2000}^{143 \times 217}$ | 31.75 | 31.8 ± 1.8 |
| b_{DES}^1 | 1.485 | 1.502 ± 0.074 | D_{2000} | 231.20 | 231.3 ± 1.5 | f_{2000}^{217} | 106.37 | 106.7 ± 1.8 |
| b_{DES}^2 | 1.680 | 1.700 ± 0.054 | $n_{s,0.002}$ | 0.96861 | 0.9688 ± 0.0037 | $\chi^2_{lensing}$ | 8.76 | 9.45 ± 0.97 |
| b_{DES}^3 | 1.6688 | 1.688 ± 0.046 | Y_P | 0.2454499 | 0.245450 ± 0.000050 | χ^2_{small} | 396.19 | 397.2 ± 1.9 |
| b_{DES}^4 | 2.025 | 2.046 ± 0.054 | Y_P^{BBN} | 0.2467766 | 0.246776 ± 0.000050 | χ^2_{lowl} | 22.92 | 22.86 ± 0.75 |
| b_{DES}^5 | 2.127 | 2.149 ± 0.078 | $10^5 D/H$ | 2.5592 | 2.559 ± 0.024 | χ^2_{plik} | 2345.5 | 2361.6 ± 6.0 |
| m_{DES}^1 | 0.0137 | 0.012 ± 0.023 | Age/Gyr | 13.7407 | $13.763^{+0.022}_{-0.031}$ | χ^2_{6DF} | 0.0162 | 0.029 ± 0.042 |
| m_{DES}^2 | 0.0136 | 0.012 ± 0.022 | z_* | 1089.598 | 1089.58 ± 0.20 | χ^2_{MGS} | 2.12 | 1.87 ± 0.51 |
| m_{DES}^3 | -0.0050 | -0.005 ± 0.020 | r_* | 144.733 | 144.80 ± 0.21 | $\chi^2_{DR12BAO}$ | 3.415 | 3.85 ± 0.75 |
| m_{DES}^4 | 0.0006 | 0.001 ± 0.020 | $100\theta_*$ | 1.041290 | 1.04127 ± 0.00028 | χ^2_{DES} | 509.67 | 518.6 ± 4.9 |
| $A_{IA,DES}$ | 0.443 | $0.48^{+0.15}_{-0.18}$ | $D_M(z_*)/\text{Gpc}$ | 13.8994 | 13.906 ± 0.020 | χ^2_{prior} | 4.5 | 25 ± 7 |
| $\alpha_{IA,DES}$ | -2.62 | $-1.2^{+1.7}_{-2.8}$ | z_{drag} | 1060.162 | 1060.14 ± 0.29 | χ^2_{CMB} | 2773.4 | 2791.0 ± 6.4 |
| $\Delta z_{l,DES}^1$ | 0.0030 | 0.0034 ± 0.0075 | r_{drag} | 147.352 | 147.42 ± 0.22 | χ^2_{BAO} | 5.547 | 5.75 ± 0.74 |

Best-fit $\chi^2_{eff} = 3293.06$; $\Delta\chi^2_{eff} = -1.03$; $\bar{\chi}^2_{eff} = 3340.25$; $\Delta\bar{\chi}^2_{eff} = 0.08$; $R - 1 = 0.00952$
 χ^2_{eff} : BAO - 6DF: 0.02 (Δ 0.02) MGS: 2.12 (Δ 0.44) DR12BAO: 3.42 (Δ -0.11) CMB - smicadx12_Dec5_ftl_mv2.ndclpp_p-teb_consext8: 8.76 (Δ -0.32) small_100x143_offlike5_EE_Aplanck: 396.19 (Δ -0.09) commander_dx12_v3.2.29: 22.92 (Δ 0.27) plik_rd12_HM_v22b.TTTEEE: 2345.49 (Δ -1.78) WL - DES_1YR_final: 509.67 (Δ 0.29)

6.29 base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02251 ± 0.00015 | $\Delta z_{1,\text{DES}}^1$ | 0.0035 ± 0.0075 | z_{drag} | 1060.12 ± 0.31 |
| $\Omega_c h^2$ | 0.1179 ± 0.0011 | $\Delta z_{1,\text{DES}}^2$ | 0.0008 ± 0.0066 | r_{drag} | 147.48 ± 0.26 |
| $100\theta_{\text{MC}}$ | 1.04110 ± 0.00031 | $\Delta z_{1,\text{DES}}^3$ | 0.0034 ± 0.0065 | k_{D} | 0.14057 ± 0.00031 |
| τ | $0.0558^{+0.0051}_{-0.0085}$ | $\Delta z_{1,\text{DES}}^4$ | 0.0006 ± 0.0090 | $100\theta_{\text{D}}$ | 0.16065 ± 0.00018 |
| Σm_ν [eV] | < 0.112 | $\Delta z_{1,\text{DES}}^5$ | -0.0006 ± 0.0098 | z_{eq} | 3356 ± 25 |
| $\ln(10^{10} A_s)$ | $3.042^{+0.012}_{-0.016}$ | $\Delta z_{s,\text{DES}}^1$ | -0.004 ± 0.014 | k_{eq} | 0.010242 ± 0.000077 |
| n_s | 0.9695 ± 0.0042 | $\Delta z_{s,\text{DES}}^2$ | -0.031 ± 0.011 | $100\theta_{\text{eq}}$ | 0.8223 ± 0.0048 |
| y_{cal} | 1.0005 ± 0.0024 | $\Delta z_{s,\text{DES}}^3$ | 0.0042 ± 0.0096 | $100\theta_{s,\text{eq}}$ | 0.4540 ± 0.0025 |
| A_{217}^{CIB} | 47 ± 7 | $\Delta z_{s,\text{DES}}^4$ | -0.029 ± 0.018 | $H(0.15)$ | $73.2^{+1.2}_{-0.39}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | H_0 | $67.9^{+1.4}_{-0.45}$ | $D_{\text{M}}(0.15)$ | $638.8^{+3.6}_{-12}$ |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | Ω_Λ | $0.693^{+0.017}_{-0.0053}$ | $H(0.38)$ | $83.19^{+0.94}_{-0.30}$ |
| A_{100}^{PS} | 259 ± 28 | Ω_{m} | $0.3074^{+0.0053}_{-0.017}$ | $D_{\text{M}}(0.38)$ | $1524.5^{+7.3}_{-24}$ |
| A_{143}^{PS} | 45 ± 8 | $\Omega_{\text{m}} h^2$ | $0.14157^{+0.00099}_{-0.0020}$ | $H(0.51)$ | $89.86^{+0.79}_{-0.24}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 41 ± 9 | $\Omega_\nu h^2$ | < 0.00121 | $D_{\text{M}}(0.51)$ | $1975.5^{+8.6}_{-29}$ |
| A_{217}^{PS} | 114 ± 10 | $\Omega_{\text{m}} h^3$ | $0.09613^{+0.00081}_{-0.00025}$ | $H(0.61)$ | $95.44^{+0.67}_{-0.20}$ |
| A^{kSZ} | < 4.44 | σ_8 | $0.795^{+0.026}_{-0.0058}$ | $D_{\text{M}}(0.61)$ | $2299.3^{+9.3}_{-31}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | S_8 | $0.804^{+0.014}_{-0.013}$ | $H(2.33)$ | $235.60^{+0.64}_{-1.1}$ |
| A_{143}^{dustTT} | 11.0 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | $0.4405^{+0.0078}_{-0.0069}$ | $D_{\text{M}}(2.33)$ | $5758.5^{+8.4}_{-33}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | $0.592^{+0.014}_{-0.0061}$ | $f\sigma_8(0.15)$ | $0.4458^{+0.0075}_{-0.0064}$ |
| A_{217}^{dustTT} | 93.6 ± 7.3 | $\sigma_8/h^{0.5}$ | $0.965^{+0.025}_{-0.0086}$ | $\sigma_8(0.15)$ | $0.735^{+0.025}_{-0.0053}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | $r_{\text{drag}} h$ | $100.2^{+2.1}_{-0.79}$ | $f\sigma_8(0.38)$ | $0.4650^{+0.0094}_{-0.0050}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | $\langle d^2 \rangle^{1/2}$ | 2.406 ± 0.024 | $\sigma_8(0.38)$ | $0.653^{+0.023}_{-0.0046}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | z_{re} | $7.76^{+0.57}_{-0.82}$ | $f\sigma_8(0.51)$ | $0.464^{+0.010}_{-0.0043}$ |
| A_{143}^{dustTE} | 0.223 ± 0.054 | $10^9 A_s$ | $2.095^{+0.024}_{-0.034}$ | $\sigma_8(0.51)$ | $0.611^{+0.022}_{-0.0043}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.661 ± 0.080 | $10^9 A_s e^{-2\tau}$ | 1.874 ± 0.011 | $f\sigma_8(0.61)$ | $0.460^{+0.011}_{-0.0038}$ |
| A_{217}^{dustTE} | 2.06 ± 0.27 | D_{40} | 1221 ± 12 | $\sigma_8(0.61)$ | $0.582^{+0.021}_{-0.0041}$ |
| c_{100} | 0.99966 ± 0.00061 | D_{220} | 5745 ± 39 | $f\sigma_8(2.33)$ | $0.2941^{+0.0095}_{-0.0019}$ |
| c_{217} | 0.99819 ± 0.00062 | D_{810} | 2537 ± 13 | $\sigma_8(2.33)$ | $0.303^{+0.011}_{-0.0021}$ |
| b_{DES}^1 | $1.525^{+0.075}_{-0.093}$ | D_{1420} | 818.2 ± 4.7 | f_{2000}^{143} | 29.2 ± 2.8 |
| b_{DES}^2 | $1.728^{+0.052}_{-0.082}$ | D_{2000} | 231.2 ± 1.6 | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.9 |
| b_{DES}^3 | $1.715^{+0.043}_{-0.074}$ | $n_{s,0.002}$ | 0.9695 ± 0.0042 | f_{2000}^{217} | 106.7 ± 1.8 |
| b_{DES}^4 | $2.079^{+0.050}_{-0.088}$ | Y_{P} | 0.245449 ± 0.000057 | χ_{simall}^2 | 397.0 ± 1.8 |
| b_{DES}^5 | $2.180^{+0.079}_{-0.10}$ | $Y_{\text{P}}^{\text{BBN}}$ | 0.246775 ± 0.000058 | χ_{lowl}^2 | 22.56 ± 0.78 |
| m_{DES}^1 | 0.012 ± 0.023 | 10^5D/H | 2.560 ± 0.027 | χ_{plik}^2 | 2364.3 ± 6.9 |
| m_{DES}^2 | 0.013 ± 0.022 | Age/Gyr | $13.788^{+0.018}_{-0.074}$ | χ_{DES}^2 | 518.1 ± 4.9 |
| m_{DES}^3 | -0.003 ± 0.020 | z_* | 1089.56 ± 0.26 | χ_{prior}^2 | 25 ± 7 |
| m_{DES}^4 | 0.003 ± 0.021 | r_* | 144.85 ± 0.26 | χ_{CMB}^2 | 2783.8 ± 6.8 |
| $A_{\text{IA,DES}}$ | $0.46^{+0.15}_{-0.19}$ | $100\theta_*$ | 1.04130 ± 0.00029 | | |
| $\alpha_{\text{IA,DES}}$ | $-1.1^{+1.7}_{-2.9}$ | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.911 ± 0.025 | | |

$$\bar{\chi}_{\text{eff}}^2 = 3326.52; \Delta \bar{\chi}_{\text{eff}}^2 = 1.08; R - 1 = 0.00752$$

6.30 base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02252 ± 0.00013 | $\Delta z_{\text{l,DES}}^2$ | 0.0007 ± 0.0066 | k_D | 0.14057 ± 0.00029 |
| $\Omega_c h^2$ | 0.11793 ± 0.00090 | $\Delta z_{\text{l,DES}}^3$ | 0.0034 ± 0.0066 | $100\theta_D$ | 0.16065 ± 0.00017 |
| $100\theta_{\text{MC}}$ | 1.04112 ± 0.00028 | $\Delta z_{\text{l,DES}}^4$ | 0.0006 ± 0.0090 | z_{eq} | 3356 ± 21 |
| τ | $0.0555^{+0.0051}_{-0.0082}$ | $\Delta z_{\text{l,DES}}^5$ | -0.0007 ± 0.0097 | k_{eq} | 0.010244 ± 0.000063 |
| Σm_ν [eV] | < 0.0881 | $\Delta z_{\text{s,DES}}^1$ | -0.003 ± 0.014 | $100\theta_{\text{eq}}$ | 0.8222 ± 0.0039 |
| $\ln(10^{10} A_s)$ | $3.041^{+0.012}_{-0.016}$ | $\Delta z_{\text{s,DES}}^2$ | -0.031 ± 0.011 | $100\theta_{\text{s,eq}}$ | 0.4539 ± 0.0020 |
| n_s | 0.9695 ± 0.0037 | $\Delta z_{\text{s,DES}}^3$ | 0.0039 ± 0.0095 | $H(0.15)$ | $73.43^{+0.55}_{-0.41}$ |
| y_{cal} | 1.0005 ± 0.0025 | $\Delta z_{\text{s,DES}}^4$ | -0.030 ± 0.018 | $D_{\text{M}}(0.15)$ | $636.0^{+3.9}_{-5.3}$ |
| A_{217}^{CIB} | 47 ± 7 | H_0 | $68.24^{+0.62}_{-0.47}$ | $H(0.38)$ | $83.40^{+0.43}_{-0.31}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | Ω_Λ | $0.6966^{+0.0074}_{-0.0058}$ | $D_{\text{M}}(0.38)$ | $1518.7^{+7.9}_{-11}$ |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | Ω_{m} | $0.3034^{+0.0058}_{-0.0074}$ | $H(0.51)$ | $90.04^{+0.37}_{-0.26}$ |
| A_{100}^{PS} | 258 ± 28 | $\Omega_{\text{m}} h^2$ | 0.14121 ± 0.00091 | $D_{\text{M}}(0.51)$ | $1968.6^{+9.4}_{-13}$ |
| A_{143}^{PS} | 45 ± 8 | $\Omega_\nu h^2$ | < 0.000947 | $H(0.61)$ | $95.60^{+0.32}_{-0.22}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 41 ± 9 | $\Omega_{\text{m}} h^3$ | $0.09635^{+0.00048}_{-0.00034}$ | $D_{\text{M}}(0.61)$ | 2292^{+10}_{-14} |
| A_{217}^{PS} | 114 ± 10 | σ_8 | $0.803^{+0.016}_{-0.0086}$ | $H(2.33)$ | 235.42 ± 0.56 |
| A^{kSZ} | < 4.39 | S_8 | 0.807 ± 0.012 | $D_{\text{M}}(2.33)$ | 5750^{+10}_{-16} |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4423 ± 0.0067 | $f\sigma_8(0.15)$ | 0.4477 ± 0.0063 |
| A_{143}^{dustTT} | 11.0 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | $0.596^{+0.010}_{-0.0071}$ | $\sigma_8(0.15)$ | $0.743^{+0.015}_{-0.0080}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $\sigma_8/h^{0.5}$ | $0.972^{+0.017}_{-0.011}$ | $f\sigma_8(0.38)$ | $0.4677^{+0.0069}_{-0.0055}$ |
| A_{217}^{dustTT} | 93.7 ± 7.3 | $r_{\text{drag}} h$ | $100.63^{+0.94}_{-0.78}$ | $\sigma_8(0.38)$ | $0.660^{+0.014}_{-0.0071}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | $\langle d^2 \rangle^{1/2}$ | 2.410 ± 0.023 | $f\sigma_8(0.51)$ | $0.4673^{+0.0071}_{-0.0051}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.029 | z_{re} | $7.72^{+0.56}_{-0.80}$ | $\sigma_8(0.51)$ | $0.618^{+0.013}_{-0.0067}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.084 | $10^9 A_s$ | $2.094^{+0.024}_{-0.034}$ | $f\sigma_8(0.61)$ | $0.4630^{+0.0073}_{-0.0049}$ |
| A_{143}^{dustTE} | 0.223 ± 0.053 | $10^9 A_s e^{-2\tau}$ | 1.874 ± 0.011 | $\sigma_8(0.61)$ | $0.588^{+0.012}_{-0.0064}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.660 ± 0.080 | D_{40} | 1222 ± 12 | $f\sigma_8(2.33)$ | $0.2970^{+0.0054}_{-0.0029}$ |
| A_{217}^{dustTE} | 2.06 ± 0.27 | D_{220} | 5744 ± 39 | $\sigma_8(2.33)$ | $0.3064^{+0.0064}_{-0.0033}$ |
| c_{100} | 0.99967 ± 0.00061 | D_{810} | 2537 ± 13 | f_{2000}^{143} | 29.2 ± 2.7 |
| c_{217} | 0.99819 ± 0.00062 | D_{1420} | 818.0 ± 4.7 | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.8 |
| b_{DES}^1 | 1.510 ± 0.076 | D_{2000} | 231.2 ± 1.5 | f_{2000}^{217} | 106.7 ± 1.8 |
| b_{DES}^2 | 1.710 ± 0.058 | $n_{\text{s},0.002}$ | 0.9695 ± 0.0037 | χ_{simall}^2 | 396.9 ± 1.8 |
| b_{DES}^3 | 1.698 ± 0.050 | Y_{P} | 0.245451 ± 0.000050 | χ_{lowl}^2 | 22.64 ± 0.77 |
| b_{DES}^4 | $2.059^{+0.055}_{-0.061}$ | $Y_{\text{P}}^{\text{BBN}}$ | 0.246778 ± 0.000050 | χ_{plik}^2 | 2363.1 ± 6.6 |
| b_{DES}^5 | 2.162 ± 0.081 | 10^5D/H | 2.559 ± 0.024 | $\chi_{6\text{DF}}^2$ | 0.033 ± 0.047 |
| m_{DES}^1 | 0.012 ± 0.023 | Age/Gyr | $13.769^{+0.023}_{-0.037}$ | χ_{MGS}^2 | 1.85 ± 0.54 |
| m_{DES}^2 | 0.013 ± 0.022 | z_* | 1089.55 ± 0.21 | χ_{DR12BAO}^2 | 3.93 ± 0.87 |
| m_{DES}^3 | -0.003 ± 0.020 | r_* | 144.86 ± 0.22 | χ_{DES}^2 | 518.3 ± 4.9 |
| m_{DES}^4 | 0.003 ± 0.021 | $100\theta_*$ | 1.04130 ± 0.00028 | χ_{prior}^2 | 25 ± 7 |
| $A_{\text{IA,DES}}$ | $0.47^{+0.15}_{-0.18}$ | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.911 ± 0.021 | χ_{BAO}^2 | 5.81 ± 0.83 |
| $\alpha_{\text{IA,DES}}$ | $-1.1^{+1.7}_{-2.9}$ | z_{drag} | 1060.13 ± 0.29 | χ_{CMB}^2 | 2782.6 ± 6.5 |
| $\Delta z_{\text{l,DES}}^1$ | 0.0036 ± 0.0075 | r_{drag} | 147.48 ± 0.23 | | |

$$\bar{\chi}_{\text{eff}}^2 = 3331.28; \Delta \bar{\chi}_{\text{eff}}^2 = 0.53; R - 1 = 0.00944$$

6.31 base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02252 ± 0.00014 | $\Delta z_{1,\text{DES}}^1$ | 0.0035 ± 0.0075 | z_{drag} | 1060.15 ± 0.30 |
| $\Omega_c h^2$ | 0.1181 ± 0.0011 | $\Delta z_{1,\text{DES}}^2$ | 0.0007 ± 0.0066 | r_{drag} | 147.44 ± 0.25 |
| $100\theta_{\text{MC}}$ | 1.04111 ± 0.00030 | $\Delta z_{1,\text{DES}}^3$ | 0.0034 ± 0.0066 | k_{D} | 0.14062 ± 0.00029 |
| τ | $0.0573^{+0.0059}_{-0.0083}$ | $\Delta z_{1,\text{DES}}^4$ | 0.0005 ± 0.0090 | $100\theta_{\text{D}}$ | 0.16064 ± 0.00017 |
| $\Sigma m_\nu [\text{eV}]$ | < 0.0710 | $\Delta z_{1,\text{DES}}^5$ | -0.0007 ± 0.0097 | z_{eq} | 3360 ± 24 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.012}_{-0.016}$ | $\Delta z_{s,\text{DES}}^1$ | -0.003 ± 0.014 | k_{eq} | 0.010254 ± 0.000072 |
| n_s | 0.9691 ± 0.0040 | $\Delta z_{s,\text{DES}}^2$ | -0.031 ± 0.011 | $100\theta_{\text{eq}}$ | 0.8216 ± 0.0045 |
| y_{cal} | 1.0007 ± 0.0024 | $\Delta z_{s,\text{DES}}^3$ | 0.0035 ± 0.0095 | $100\theta_{s,\text{eq}}$ | 0.4536 ± 0.0023 |
| A_{217}^{CIB} | 47 ± 7 | $\Delta z_{s,\text{DES}}^4$ | -0.031 ± 0.018 | $H(0.15)$ | $73.45^{+0.78}_{-0.43}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | H_0 | $68.26^{+0.90}_{-0.49}$ | $D_{\text{M}}(0.15)$ | $635.8^{+4.0}_{-7.6}$ |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | Ω_Λ | $0.697^{+0.011}_{-0.0060}$ | $H(0.38)$ | $83.43^{+0.60}_{-0.32}$ |
| A_{100}^{PS} | 258 ± 28 | Ω_{m} | $0.3034^{+0.0060}_{-0.011}$ | $D_{\text{M}}(0.38)$ | $1518.3^{+8.2}_{-16}$ |
| A_{143}^{PS} | 45 ± 8 | $\Omega_{\text{m}} h^2$ | $0.1413^{+0.0010}_{-0.0014}$ | $H(0.51)$ | $90.07^{+0.50}_{-0.26}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $\Omega_\nu h^2$ | < 0.000763 | $D_{\text{M}}(0.51)$ | $1968.1^{+9.7}_{-18}$ |
| A_{217}^{PS} | 115 ± 10 | $\Omega_{\text{m}} h^3$ | $0.09642^{+0.00050}_{-0.00030}$ | $H(0.61)$ | $95.63^{+0.42}_{-0.22}$ |
| A^{kSZ} | < 4.26 | σ_8 | $0.807^{+0.014}_{-0.0058}$ | $D_{\text{M}}(0.61)$ | 2291^{+11}_{-20} |
| A_{100}^{dustTT} | 8.9 ± 1.8 | S_8 | 0.811 ± 0.011 | $H(2.33)$ | $235.47^{+0.64}_{-0.84}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4444 ± 0.0058 | $D_{\text{M}}(2.33)$ | $5748.9^{+9.8}_{-20}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | $0.5988^{+0.0078}_{-0.0057}$ | $f\sigma_8(0.15)$ | 0.4496 ± 0.0054 |
| A_{217}^{dustTT} | 93.7 ± 7.3 | $\sigma_8/h^{0.5}$ | $0.977^{+0.013}_{-0.0081}$ | $\sigma_8(0.15)$ | $0.747^{+0.014}_{-0.0053}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | $r_{\text{drag}} h$ | $100.6^{+1.4}_{-0.85}$ | $f\sigma_8(0.38)$ | $0.4697^{+0.0053}_{-0.0046}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.029 | $\langle d^2 \rangle^{1/2}$ | 2.419 ± 0.019 | $\sigma_8(0.38)$ | $0.663^{+0.013}_{-0.0048}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.084 | z_{re} | $7.91^{+0.62}_{-0.79}$ | $f\sigma_8(0.51)$ | $0.4693^{+0.0055}_{-0.0041}$ |
| A_{143}^{dustTE} | 0.223 ± 0.053 | $10^9 A_s$ | $2.104^{+0.025}_{-0.033}$ | $\sigma_8(0.51)$ | $0.621^{+0.012}_{-0.0045}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.661 ± 0.080 | $10^9 A_s e^{-2\tau}$ | 1.876 ± 0.010 | $f\sigma_8(0.61)$ | $0.4650^{+0.0058}_{-0.0037}$ |
| A_{217}^{dustTE} | 2.06 ± 0.27 | D_{40} | 1225 ± 11 | $\sigma_8(0.61)$ | $0.591^{+0.012}_{-0.0043}$ |
| c_{100} | 0.99969 ± 0.00061 | D_{220} | 5750 ± 38 | $f\sigma_8(2.33)$ | $0.2983^{+0.0053}_{-0.0022}$ |
| c_{217} | 0.99819 ± 0.00062 | D_{810} | 2539 ± 13 | $\sigma_8(2.33)$ | $0.3078^{+0.0064}_{-0.0024}$ |
| b_{DES}^1 | 1.504 ± 0.077 | D_{1420} | 818.4 ± 4.7 | f_{2000}^{143} | 29.0 ± 2.8 |
| b_{DES}^2 | 1.703 ± 0.058 | D_{2000} | 231.4 ± 1.6 | $f_{2000}^{143 \times 217}$ | 31.8 ± 1.9 |
| b_{DES}^3 | $1.691^{+0.045}_{-0.051}$ | $n_{s,0.002}$ | 0.9691 ± 0.0040 | f_{2000}^{217} | 106.7 ± 1.8 |
| b_{DES}^4 | $2.050^{+0.052}_{-0.061}$ | Y_{P} | 0.245453 ± 0.000054 | χ_{lensing}^2 | 9.5 ± 1.0 |
| b_{DES}^5 | 2.152 ± 0.081 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246779 ± 0.000054 | χ_{simall}^2 | 397.3 ± 2.1 |
| m_{DES}^1 | 0.012 ± 0.023 | 10^5D/H | 2.558 ± 0.026 | χ_{lowl}^2 | 22.82 ± 0.77 |
| m_{DES}^2 | 0.012 ± 0.022 | Age/Gyr | $13.766^{+0.022}_{-0.046}$ | χ_{plik}^2 | 2362.0 ± 6.1 |
| m_{DES}^3 | -0.004 ± 0.020 | z_* | 1089.56 ± 0.24 | χ_{DES}^2 | 518.5 ± 5.0 |
| m_{DES}^4 | 0.002 ± 0.021 | r_* | 144.82 ± 0.24 | χ_{prior}^2 | 25 ± 7 |
| $A_{\text{IA,DES}}$ | $0.47^{+0.15}_{-0.18}$ | $100\theta_*$ | 1.04128 ± 0.00029 | χ_{CMB}^2 | 2791.7 ± 6.6 |
| $\alpha_{\text{IA,DES}}$ | $-1.2^{+1.7}_{-2.9}$ | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.908 ± 0.023 | | |

$$\bar{\chi}_{\text{eff}}^2 = 3334.99; \Delta \bar{\chi}_{\text{eff}}^2 = 0.24; R - 1 = 0.00823$$

6.32 base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02252 ± 0.00013 | $\Delta z_{\text{l,DES}}^2$ | 0.0007 ± 0.0066 | k_D | 0.14063 ± 0.00028 |
| $\Omega_c h^2$ | 0.11815 ± 0.00084 | $\Delta z_{\text{l,DES}}^3$ | 0.0034 ± 0.0066 | $100\theta_D$ | 0.16065 ± 0.00017 |
| $100\theta_{\text{MC}}$ | 1.04111 ± 0.00028 | $\Delta z_{\text{l,DES}}^4$ | 0.0005 ± 0.0090 | z_{eq} | 3362 ± 19 |
| τ | $0.0568^{+0.0056}_{-0.0080}$ | $\Delta z_{\text{l,DES}}^5$ | -0.0007 ± 0.0097 | k_{eq} | 0.010260 ± 0.000059 |
| Σm_ν [eV] | < 0.0670 | $\Delta z_{\text{s,DES}}^1$ | -0.003 ± 0.014 | $100\theta_{\text{eq}}$ | 0.8212 ± 0.0037 |
| $\ln(10^{10} A_s)$ | $3.045^{+0.012}_{-0.015}$ | $\Delta z_{\text{s,DES}}^2$ | -0.031 ± 0.011 | $100\theta_{\text{s,eq}}$ | 0.4534 ± 0.0019 |
| n_s | 0.9688 ± 0.0036 | $\Delta z_{\text{s,DES}}^3$ | 0.0034 ± 0.0095 | $H(0.15)$ | $73.49^{+0.49}_{-0.38}$ |
| y_{cal} | 1.0007 ± 0.0024 | $\Delta z_{\text{s,DES}}^4$ | -0.031 ± 0.018 | $D_{\text{M}}(0.15)$ | $635.4^{+3.6}_{-4.7}$ |
| A_{217}^{CIB} | 47 ± 7 | H_0 | $68.29^{+0.55}_{-0.44}$ | $H(0.38)$ | $83.46^{+0.38}_{-0.29}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | Ω_Λ | $0.6971^{+0.0068}_{-0.0054}$ | $D_{\text{M}}(0.38)$ | $1517.6^{+7.4}_{-9.7}$ |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | Ω_{m} | $0.3029^{+0.0054}_{-0.0068}$ | $H(0.51)$ | $90.09^{+0.32}_{-0.24}$ |
| A_{100}^{PS} | 258 ± 28 | $\Omega_{\text{m}} h^2$ | 0.14126 ± 0.00088 | $D_{\text{M}}(0.51)$ | $1967.2^{+8.8}_{-11}$ |
| A_{143}^{PS} | 45 ± 8 | $\Omega_\nu h^2$ | < 0.000720 | $H(0.61)$ | $95.65^{+0.28}_{-0.21}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $\Omega_{\text{m}} h^3$ | $0.09647^{+0.00040}_{-0.00032}$ | $D_{\text{M}}(0.61)$ | $2290.2^{+9.6}_{-13}$ |
| A_{217}^{PS} | 115 ± 10 | σ_8 | $0.809^{+0.012}_{-0.0067}$ | $H(2.33)$ | 235.47 ± 0.55 |
| A^{kSZ} | < 4.28 | S_8 | 0.8126 ± 0.0098 | $D_{\text{M}}(2.33)$ | $5747.6^{+9.7}_{-14}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4451 ± 0.0054 | $f\sigma_8(0.15)$ | 0.4503 ± 0.0050 |
| A_{143}^{dustTT} | 10.9 ± 1.8 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | $0.6000^{+0.0072}_{-0.0056}$ | $\sigma_8(0.15)$ | $0.748^{+0.011}_{-0.0062}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $\sigma_8/h^{0.5}$ | $0.979^{+0.012}_{-0.0085}$ | $f\sigma_8(0.38)$ | $0.4706^{+0.0050}_{-0.0044}$ |
| A_{217}^{dustTT} | 93.7 ± 7.3 | $r_{\text{drag}} h$ | $100.68^{+0.87}_{-0.73}$ | $\sigma_8(0.38)$ | $0.664^{+0.010}_{-0.0056}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | $\langle d^2 \rangle^{1/2}$ | 2.420 ± 0.019 | $f\sigma_8(0.51)$ | $0.4702^{+0.0051}_{-0.0041}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | z_{re} | $7.85^{+0.60}_{-0.77}$ | $\sigma_8(0.51)$ | $0.6219^{+0.0095}_{-0.0053}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.084 | $10^9 A_s$ | $2.102^{+0.024}_{-0.032}$ | $f\sigma_8(0.61)$ | $0.4659^{+0.0051}_{-0.0039}$ |
| A_{143}^{dustTE} | 0.223 ± 0.053 | $10^9 A_s e^{-2\tau}$ | 1.876 ± 0.010 | $\sigma_8(0.61)$ | $0.5920^{+0.0091}_{-0.0051}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.661 ± 0.080 | D_{40} | 1225 ± 11 | $f\sigma_8(2.33)$ | $0.2988^{+0.0039}_{-0.0024}$ |
| A_{217}^{dustTE} | 2.06 ± 0.27 | D_{220} | 5749 ± 38 | $\sigma_8(2.33)$ | $0.3084^{+0.0047}_{-0.0027}$ |
| c_{100} | 0.99969 ± 0.00061 | D_{810} | 2538 ± 13 | f_{2000}^{143} | 29.1 ± 2.7 |
| c_{217} | 0.99819 ± 0.00062 | D_{1420} | 818.2 ± 4.7 | $f_{2000}^{143 \times 217}$ | 31.8 ± 1.8 |
| b_{DES}^1 | 1.501 ± 0.073 | D_{2000} | 231.3 ± 1.5 | f_{2000}^{217} | 106.7 ± 1.7 |
| b_{DES}^2 | 1.699 ± 0.054 | $n_{\text{s},0.002}$ | 0.9688 ± 0.0036 | χ_{lensing}^2 | 9.40 ± 0.92 |
| b_{DES}^3 | 1.687 ± 0.046 | Y_{P} | 0.245450 ± 0.000050 | χ_{simall}^2 | 397.2 ± 2.0 |
| b_{DES}^4 | 2.046 ± 0.054 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246777 ± 0.000050 | χ_{lowl}^2 | 22.86 ± 0.75 |
| b_{DES}^5 | 2.148 ± 0.078 | 10^5D/H | 2.559 ± 0.024 | χ_{plik}^2 | 2361.5 ± 6.0 |
| m_{DES}^1 | 0.012 ± 0.023 | Age/Gyr | $13.763^{+0.022}_{-0.031}$ | $\chi_{6\text{DF}}^2$ | 0.030 ± 0.042 |
| m_{DES}^2 | 0.012 ± 0.022 | z_* | 1089.57 ± 0.20 | χ_{MGS}^2 | 1.88 ± 0.51 |
| m_{DES}^3 | -0.005 ± 0.020 | r_* | 144.80 ± 0.21 | χ_{DR12BAO}^2 | 3.85 ± 0.74 |
| m_{DES}^4 | 0.001 ± 0.020 | $100\theta_*$ | 1.04128 ± 0.00028 | χ_{DES}^2 | 518.6 ± 4.9 |
| $A_{\text{IA,DES}}$ | $0.48^{+0.15}_{-0.18}$ | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.906 ± 0.020 | χ_{prior}^2 | 25 ± 7 |
| $\alpha_{\text{IA,DES}}$ | $-1.2^{+1.7}_{-2.8}$ | z_{drag} | 1060.14 ± 0.29 | χ_{CMB}^2 | 2790.9 ± 6.4 |
| $\Delta z_{\text{l,DES}}^1$ | 0.0035 ± 0.0075 | r_{drag} | 147.42 ± 0.22 | χ_{BAO}^2 | 5.76 ± 0.74 |

$$\bar{\chi}_{\text{eff}}^2 = 3340.12; \Delta\bar{\chi}_{\text{eff}}^2 = 0.09; R - 1 = 0.00912$$

6.33 base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022462 | 0.02243 ± 0.00014 | $\Delta z_{s,\text{DES}}^2$ | -0.0205 | -0.021 ± 0.012 | k_D | 0.140762 | 0.14072 ± 0.00030 |
| $\Omega_c h^2$ | 0.11903 | 0.1190 ± 0.0011 | $\Delta z_{s,\text{DES}}^3$ | 0.0047 | 0.004 ± 0.010 | $100\theta_D$ | 0.160687 | 0.16072 ± 0.00017 |
| $100\theta_{\text{MC}}$ | 1.041074 | 1.04100 ± 0.00031 | $\Delta z_{s,\text{DES}}^4$ | -0.0213 | -0.022 ± 0.020 | z_{eq} | 3381.2 | 3381 ± 26 |
| τ | 0.0535 | 0.0536 ± 0.0079 | H_0 | 68.33 | $67.6^{+1.1}_{-0.57}$ | k_{eq} | 0.010320 | 0.010318 ± 0.000079 |
| Σm_ν [eV] | 0.002 | < 0.100 | Ω_Λ | 0.6969 | $0.688^{+0.014}_{-0.0071}$ | $100\theta_{\text{eq}}$ | 0.81738 | 0.8175 ± 0.0049 |
| $\ln(10^{10} A_s)$ | 3.0406 | 3.040 ± 0.016 | Ω_m | 0.3031 | $0.3119^{+0.0071}_{-0.014}$ | $100\theta_{s,\text{eq}}$ | 0.45144 | 0.4515 ± 0.0025 |
| n_s | 0.96824 | 0.9672 ± 0.0041 | $\Omega_m h^2$ | 0.14152 | $0.1424^{+0.0012}_{-0.0016}$ | $H(0.15)$ | 73.53 | $72.88^{+0.94}_{-0.49}$ |
| y_{cal} | 1.00044 | 1.0004 ± 0.0025 | $\Omega_\nu h^2$ | 0.00003 | < 0.00108 | $D_M(0.15)$ | 635.1 | $641.5^{+4.7}_{-9.4}$ |
| A_{217}^{CIB} | 47.0 | 47 ± 7 | $\Omega_m h^3$ | 0.096698 | $0.09624^{+0.00062}_{-0.00031}$ | $H(0.38)$ | 83.51 | $83.00^{+0.72}_{-0.37}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.47 | — | σ_8 | 0.8200 | $0.802^{+0.021}_{-0.0081}$ | $D_M(0.38)$ | 1516.6 | $1529.7^{+9.5}_{-19}$ |
| A_{143}^{tSZ} | 7.21 | $5.5^{+2.2}_{-1.9}$ | S_8 | 0.8243 | 0.818 ± 0.014 | $H(0.51)$ | 90.154 | $89.72^{+0.60}_{-0.30}$ |
| A_{100}^{PS} | 249.1 | 258 ± 28 | $\sigma_8 \Omega_m^{0.5}$ | 0.4515 | 0.4479 ± 0.0074 | $D_M(0.51)$ | 1966.0 | 1982^{+11}_{-23} |
| A_{143}^{PS} | 47.2 | 45 ± 8 | $\sigma_8 \Omega_m^{0.25}$ | 0.6085 | $0.599^{+0.012}_{-0.0074}$ | $H(0.61)$ | 95.717 | $95.34^{+0.51}_{-0.25}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 47.9 | 42 ± 9 | $\sigma_8/h^{0.5}$ | 0.9921 | $0.976^{+0.020}_{-0.011}$ | $D_M(0.61)$ | 2288.8 | 2306^{+12}_{-24} |
| A_{217}^{PS} | 119.5 | 114 ± 10 | $r_{\text{drag}} h$ | 100.61 | $99.6^{+1.7}_{-0.98}$ | $H(2.33)$ | 235.70 | $236.13^{+0.72}_{-0.94}$ |
| A^{kSZ} | 0.00 | < 4.31 | $\langle d^2 \rangle^{1/2}$ | 2.4331 | 2.423 ± 0.025 | $D_M(2.33)$ | 5743.1 | 5762^{+11}_{-25} |
| A_{100}^{dustTT} | 8.86 | 8.9 ± 1.8 | z_{re} | 7.55 | 7.56 ± 0.80 | $f\sigma_8(0.15)$ | 0.4560 | 0.4528 ± 0.0070 |
| A_{143}^{dustTT} | 11.01 | 11.0 ± 1.8 | $10^9 A_s$ | 2.0918 | 2.091 ± 0.033 | $\sigma_8(0.15)$ | 0.7585 | $0.741^{+0.020}_{-0.0075}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.82 | 18.7 ± 3.2 | $10^9 A_s e^{-2\tau}$ | 1.8796 | 1.878 ± 0.011 | $f\sigma_8(0.38)$ | 0.4763 | $0.4709^{+0.0079}_{-0.0058}$ |
| A_{217}^{dustTT} | 95.0 | 93.7 ± 7.2 | D_{40} | 1224.2 | 1226 ± 12 | $\sigma_8(0.38)$ | 0.6731 | $0.657^{+0.018}_{-0.0066}$ |
| A_{100}^{dustTE} | 0.1134 | 0.114 ± 0.038 | D_{220} | 5735.6 | 5736 ± 39 | $f\sigma_8(0.51)$ | 0.4758 | $0.4696^{+0.0084}_{-0.0052}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1343 | 0.135 ± 0.030 | D_{810} | 2539.5 | 2537 ± 13 | $\sigma_8(0.51)$ | 0.6302 | $0.615^{+0.017}_{-0.0063}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 | 0.481 ± 0.085 | D_{1420} | 818.48 | 817.4 ± 4.7 | $f\sigma_8(0.61)$ | 0.4714 | $0.4647^{+0.0088}_{-0.0049}$ |
| A_{143}^{dustTE} | 0.226 | 0.224 ± 0.054 | D_{2000} | 231.50 | 230.9 ± 1.6 | $\sigma_8(0.61)$ | 0.5998 | $0.585^{+0.017}_{-0.0060}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 | 0.663 ± 0.080 | $n_{s,0.002}$ | 0.96824 | 0.9672 ± 0.0041 | $f\sigma_8(2.33)$ | 0.3018 | $0.2956^{+0.0075}_{-0.0028}$ |
| A_{217}^{dustTE} | 2.087 | 2.07 ± 0.27 | Y_P | 0.245431 | $0.245418^{+0.000057}_{-0.000052}$ | $\sigma_8(2.33)$ | 0.3120 | $0.3045^{+0.0089}_{-0.0032}$ |
| c_{100} | 0.99972 | 0.99967 ± 0.00061 | Y_P^{BBN} | 0.246757 | $0.246744^{+0.000057}_{-0.000052}$ | f_{2000}^{143} | 28.43 | 29.4 ± 2.7 |
| c_{217} | 0.99818 | 0.99820 ± 0.00062 | $10^5 D/H$ | 2.5686 | 2.575 ± 0.026 | $f_{2000}^{143 \times 217}$ | 31.67 | 32.1 ± 1.9 |
| m_{DES}^1 | 0.0144 | 0.014 ± 0.023 | Age/Gyr | 13.7513 | $13.794^{+0.025}_{-0.056}$ | f_{2000}^{217} | 106.30 | 106.9 ± 1.8 |
| m_{DES}^2 | 0.0124 | 0.012 ± 0.022 | z_* | 1089.714 | 1089.76 ± 0.25 | χ_{small}^2 | 395.86 | 397.0 ± 1.7 |
| m_{DES}^3 | -0.0067 | -0.008 ± 0.020 | r_* | 144.618 | 144.63 ± 0.26 | χ_{lowl}^2 | 22.90 | 22.99 ± 0.82 |
| m_{DES}^4 | 0.0119 | 0.011 ± 0.021 | $100\theta_*$ | 1.041214 | 1.04119 ± 0.00030 | χ_{plik}^2 | 2344.9 | 2361.4 ± 6.3 |
| $A_{\text{IA,DES}}$ | 1.43 | 1.24 ± 0.50 | $D_M(z_*)/\text{Gpc}$ | 13.8894 | 13.891 ± 0.024 | χ_{DES}^2 | 229.21 | 232.0 ± 2.5 |
| $\alpha_{\text{IA,DES}}$ | 2.44 | $1.8^{+2.8}_{-1.1}$ | z_{drag} | 1060.085 | 1060.01 ± 0.30 | χ_{prior}^2 | 2.7 | 19.6 ± 6.0 |
| $\Delta z_{s,\text{DES}}^1$ | 0.0045 | 0.005 ± 0.014 | r_{drag} | 147.251 | 147.28 ± 0.26 | χ_{CMB}^2 | 2763.6 | 2781.4 ± 6.2 |

Best-fit $\chi_{\text{eff}}^2 = 2995.54$; $\Delta\chi_{\text{eff}}^2 = -1.13$; $\bar{\chi}_{\text{eff}}^2 = 3033.01$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.68$; $R - 1 = 0.00759$

χ_{eff}^2 : CMB - small_100x143_offlike5_EE_Aplanck_B: 395.86 (Δ -0.00) commander_dx12_v3.2.29: 22.90 (Δ 0.07) plik_rd12_HM_v22b_TTTEEE: 2344.87 (Δ -1.15) WL - DES_1YR_final: 229.21 (Δ 0.02)

6.34 base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|-----------|---------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022444 | 0.02246 ± 0.00013 | $\Delta z_{s,\text{DES}}^4$ | -0.0221 | -0.022 ± 0.020 | $100\theta_{\text{eq}}$ | 0.81725 | 0.8186 ± 0.0040 |
| $\Omega_c h^2$ | 0.11906 | 0.11876 ± 0.00093 | H_0 | 68.29 | $67.99^{+0.53}_{-0.47}$ | $100\theta_{s,\text{eq}}$ | 0.45139 | 0.4521 ± 0.0021 |
| $100\theta_{\text{MC}}$ | 1.041040 | 1.04105 ± 0.00029 | Ω_Λ | 0.6965 | $0.6931^{+0.0067}_{-0.0059}$ | $H(0.15)$ | 73.495 | $73.23^{+0.47}_{-0.41}$ |
| τ | 0.0532 | 0.0540 ± 0.0078 | Ω_m | 0.3035 | $0.3069^{+0.0059}_{-0.0067}$ | $D_M(0.15)$ | 635.39 | $638.0^{+4.0}_{-4.6}$ |
| Σm_ν [eV] | 0.0025 | < 0.0693 | $\Omega_m h^2$ | 0.14153 | 0.14183 ± 0.00091 | $H(0.38)$ | 83.481 | $83.27^{+0.36}_{-0.31}$ |
| $\ln(10^{10} A_s)$ | 3.0387 | 3.040 ± 0.016 | $\Omega_\nu h^2$ | 0.000027 | < 0.000745 | $D_M(0.38)$ | 1517.3 | $1522.6^{+8.1}_{-9.3}$ |
| n_s | 0.96835 | 0.9680 ± 0.0037 | $\Omega_m h^3$ | 0.096654 | $0.09643^{+0.00040}_{-0.00032}$ | $H(0.51)$ | 90.128 | $89.94^{+0.30}_{-0.26}$ |
| y_{cal} | 0.99984 | 1.0004 ± 0.0025 | σ_8 | 0.8194 | $0.808^{+0.014}_{-0.0081}$ | $D_M(0.51)$ | 1966.8 | $1973.2^{+9.5}_{-11}$ |
| A_{217}^{CIB} | 46.8 | 47 ± 7 | S_8 | 0.8242 | 0.818 ± 0.012 | $H(0.61)$ | 95.693 | $95.53^{+0.26}_{-0.21}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.48 | — | $\sigma_8 \Omega_m^{0.5}$ | 0.4514 | 0.4478 ± 0.0067 | $D_M(0.61)$ | 2289.7 | 2297^{+10}_{-12} |
| A_{143}^{tSZ} | 7.30 | $5.6^{+2.2}_{-1.9}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6082 | $0.6017^{+0.0091}_{-0.0070}$ | $H(2.33)$ | 235.70 | 235.82 ± 0.57 |
| A_{100}^{PS} | 247.7 | 258 ± 28 | $\sigma_8/h^{0.5}$ | 0.9916 | $0.980^{+0.015}_{-0.011}$ | $D_M(2.33)$ | 5744.3 | 5753^{+10}_{-13} |
| A_{143}^{PS} | 47.3 | 45 ± 8 | $r_{\text{drag}} h$ | 100.57 | 100.17 ± 0.82 | $f\sigma_8(0.15)$ | 0.4559 | 0.4527 ± 0.0063 |
| $A_{143 \times 217}^{\text{PS}}$ | 48.3 | 42 ± 9 | $\langle d^2 \rangle^{1/2}$ | 2.4310 | 2.423 ± 0.024 | $\sigma_8(0.15)$ | 0.7579 | $0.748^{+0.013}_{-0.0074}$ |
| A_{217}^{PS} | 119.7 | 115 ± 10 | z_{re} | 7.53 | 7.59 ± 0.79 | $f\sigma_8(0.38)$ | 0.4761 | $0.4721^{+0.0064}_{-0.0055}$ |
| A^{kSZ} | 0.00 | < 4.20 | $10^9 A_s$ | 2.0877 | 2.091 ± 0.033 | $\sigma_8(0.38)$ | 0.6725 | $0.663^{+0.012}_{-0.0066}$ |
| A_{100}^{dustTT} | 8.89 | 8.9 ± 1.9 | $10^9 A_s e^{-2\tau}$ | 1.8769 | 1.877 ± 0.011 | $f\sigma_8(0.51)$ | 0.4756 | $0.4712^{+0.0064}_{-0.0051}$ |
| A_{143}^{dustTT} | 11.07 | 10.9 ± 1.8 | D_{40} | 1221.9 | 1225 ± 12 | $\sigma_8(0.51)$ | 0.6296 | $0.621^{+0.011}_{-0.0062}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.89 | 18.6 ± 3.2 | D_{220} | 5724.8 | 5736 ± 38 | $f\sigma_8(0.61)$ | 0.4712 | $0.4667^{+0.0064}_{-0.0049}$ |
| A_{217}^{dustTT} | 95.0 | 93.8 ± 7.2 | D_{810} | 2536.0 | 2537 ± 13 | $\sigma_8(0.61)$ | 0.5992 | $0.591^{+0.010}_{-0.0059}$ |
| A_{100}^{dustTE} | 0.1147 | 0.114 ± 0.038 | D_{1420} | 817.36 | 817.6 ± 4.7 | $f\sigma_8(2.33)$ | 0.30150 | $0.2981^{+0.0046}_{-0.0028}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1345 | 0.134 ± 0.030 | D_{2000} | 231.15 | 231.1 ± 1.6 | $\sigma_8(2.33)$ | 0.31164 | $0.3075^{+0.0053}_{-0.0031}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 | 0.479 ± 0.085 | $n_{s,0.002}$ | 0.96835 | 0.9680 ± 0.0037 | f_{2000}^{143} | 28.47 | 29.2 ± 2.7 |
| A_{143}^{dustTE} | 0.223 | 0.223 ± 0.054 | Y_{P} | 0.2454240 | 0.245428 ± 0.000050 | $f_{2000}^{143 \times 217}$ | 31.74 | 31.9 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 | 0.662 ± 0.079 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2467506 | 0.246754 ± 0.000050 | f_{2000}^{217} | 106.27 | 106.7 ± 1.8 |
| A_{217}^{dustTE} | 2.072 | 2.07 ± 0.27 | 10^5D/H | 2.5719 | 2.570 ± 0.024 | χ_{simall}^2 | 395.84 | 397.0 ± 1.7 |
| c_{100} | 0.99970 | 0.99968 ± 0.00061 | Age/Gyr | 13.7542 | $13.774^{+0.023}_{-0.030}$ | χ_{lowl}^2 | 22.84 | 22.92 ± 0.78 |
| c_{217} | 0.99817 | 0.99818 ± 0.00063 | z_* | 1089.740 | 1089.70 ± 0.21 | χ_{plik}^2 | 2345.0 | 2360.9 ± 6.1 |
| m_{DES}^1 | 0.0155 | 0.014 ± 0.023 | r_* | 144.625 | 144.69 ± 0.22 | $\chi_{6\text{DF}}^2$ | 0.0003 | 0.033 ± 0.048 |
| m_{DES}^2 | 0.0116 | 0.012 ± 0.022 | $100\theta_*$ | 1.041185 | 1.04123 ± 0.00029 | χ_{MGS}^2 | 1.748 | 1.57 ± 0.48 |
| m_{DES}^3 | -0.0071 | -0.007 ± 0.020 | $D_M(z_*)/\text{Gpc}$ | 13.8904 | 13.896 ± 0.021 | χ_{DR12BAO}^2 | 3.47 | 4.2 ± 1.1 |
| m_{DES}^4 | 0.0121 | 0.011 ± 0.021 | z_{drag} | 1060.047 | 1060.05 ± 0.29 | χ_{DES}^2 | 229.17 | 231.9 ± 2.4 |
| $A_{\text{IA,DES}}$ | 1.45 | 1.23 ± 0.51 | r_{drag} | 147.264 | 147.33 ± 0.23 | χ_{prior}^2 | 2.8 | 19.4 ± 6.0 |
| $\alpha_{\text{IA,DES}}$ | 2.51 | $1.86^{+2.9}_{-0.94}$ | k_{D} | 0.140734 | 0.14068 ± 0.00029 | χ_{BAO}^2 | 5.218 | 5.78 ± 0.83 |
| $\Delta z_{s,\text{DES}}^1$ | 0.0044 | 0.004 ± 0.014 | $100\theta_{\text{D}}$ | 0.160707 | 0.16070 ± 0.00017 | χ_{CMB}^2 | 2763.7 | 2780.8 ± 6.0 |
| $\Delta z_{s,\text{DES}}^2$ | -0.0207 | -0.021 ± 0.012 | z_{eq} | 3381.5 | 3375 ± 21 | | | |
| $\Delta z_{s,\text{DES}}^3$ | 0.0050 | 0.005 ± 0.010 | k_{eq} | 0.010320 | 0.010300 ± 0.000064 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3000.82$; $\Delta\chi_{\text{eff}}^2 = -1.30$; $\bar{\chi}_{\text{eff}}^2 = 3037.89$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.12$; $R - 1 = 0.00772$
 χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.01) MGS: 1.75 (Δ 0.34) DR12BAO: 3.47 (Δ -0.47) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.84 (Δ -0.21) commander_dx12_v3_2_29: 22.84 (Δ 0.17) plik_rd12_HM_v22b_TTTEEE: 2344.98 (Δ -1.38) WL - DES_1YR_final: 229.17 (Δ 0.11)

6.35 base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022472 | 0.02244 ± 0.00014 | $\Delta z_{s,\text{DES}}^3$ | 0.0048 | 0.004 ± 0.010 | z_{eq} | 3380.6 | 3382 ± 24 |
| $\Omega_c h^2$ | 0.11899 | 0.1191 ± 0.0011 | $\Delta z_{s,\text{DES}}^4$ | -0.0223 | -0.023 ± 0.020 | k_{eq} | 0.010318 | 0.010323 ± 0.000075 |
| $100\theta_{\text{MC}}$ | 1.041036 | 1.04100 ± 0.00031 | H_0 | 68.34 | $67.71^{+0.94}_{-0.56}$ | $100\theta_{\text{eq}}$ | 0.81750 | 0.8172 ± 0.0047 |
| τ | 0.0540 | 0.0549 ± 0.0076 | Ω_Λ | 0.6971 | $0.689^{+0.012}_{-0.0071}$ | $100\theta_{s,\text{eq}}$ | 0.45150 | 0.4513 ± 0.0024 |
| Σm_ν [eV] | 0.0011 | < 0.0846 | Ω_m | 0.3029 | $0.3106^{+0.0071}_{-0.012}$ | $H(0.15)$ | 73.54 | $72.99^{+0.82}_{-0.49}$ |
| $\ln(10^{10} A_s)$ | 3.0418 | 3.043 ± 0.015 | $\Omega_m h^2$ | 0.14148 | $0.1423^{+0.0011}_{-0.0015}$ | $D_M(0.15)$ | 635.0 | $640.4^{+4.7}_{-8.2}$ |
| n_s | 0.96887 | 0.9670 ± 0.0040 | $\Omega_\nu h^2$ | 0.000012 | < 0.000910 | $H(0.38)$ | 83.52 | $83.09^{+0.63}_{-0.37}$ |
| y_{cal} | 1.00052 | 1.0006 ± 0.0024 | $\Omega_m h^3$ | 0.096690 | $0.09635^{+0.00051}_{-0.00031}$ | $D_M(0.38)$ | 1516.4 | $1527.6^{+9.4}_{-17}$ |
| A_{217}^{CIB} | 45.1 | 47 ± 7 | σ_8 | 0.8206 | $0.807^{+0.015}_{-0.0068}$ | $H(0.51)$ | 90.160 | $89.80^{+0.52}_{-0.30}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.80 | — | S_8 | 0.8246 | 0.821 ± 0.011 | $D_M(0.51)$ | 1965.7 | 1979^{+11}_{-20} |
| A_{143}^{tSZ} | 7.09 | $5.5^{+2.1}_{-1.9}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4517 | 0.4497 ± 0.0060 | $H(0.61)$ | 95.722 | $95.41^{+0.44}_{-0.25}$ |
| A_{100}^{PS} | 245.9 | 258 ± 28 | $\sigma_8 \Omega_m^{0.25}$ | 0.6088 | $0.6024^{+0.0082}_{-0.0061}$ | $D_M(0.61)$ | 2288.5 | 2303^{+12}_{-21} |
| A_{143}^{PS} | 51.7 | 45 ± 8 | $\sigma_8/h^{0.5}$ | 0.9927 | $0.981^{+0.014}_{-0.0091}$ | $H(2.33)$ | 235.68 | $236.10^{+0.70}_{-0.86}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 56.4 | 42 ± 9 | $r_{\text{drag}} h$ | 100.64 | $99.7^{+1.5}_{-0.96}$ | $D_M(2.33)$ | 5742.9 | 5758^{+11}_{-21} |
| A_{217}^{PS} | 122.9 | 115 ± 10 | $\langle d^2 \rangle^{1/2}$ | 2.4330 | 2.430 ± 0.020 | $f\sigma_8(0.15)$ | 0.4562 | 0.4545 ± 0.0056 |
| A^{kSZ} | 0.00 | < 4.21 | z_{re} | 7.60 | 7.69 ± 0.76 | $\sigma_8(0.15)$ | 0.7590 | $0.746^{+0.015}_{-0.0063}$ |
| A_{100}^{dustTT} | 8.85 | 8.9 ± 1.8 | $10^9 A_s$ | 2.0944 | 2.098 ± 0.031 | $f\sigma_8(0.38)$ | 0.4765 | $0.4730^{+0.0055}_{-0.0048}$ |
| A_{143}^{dustTT} | 10.99 | 10.9 ± 1.8 | $10^9 A_s e^{-2\tau}$ | 1.8801 | 1.879 ± 0.011 | $\sigma_8(0.38)$ | 0.6736 | $0.661^{+0.014}_{-0.0058}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.32 | 18.6 ± 3.2 | D_{40} | 1223.3 | 1228 ± 11 | $f\sigma_8(0.51)$ | 0.4761 | $0.4718^{+0.0058}_{-0.0044}$ |
| A_{217}^{dustTT} | 95.8 | 93.8 ± 7.2 | D_{220} | 5735.5 | 5740 ± 38 | $\sigma_8(0.51)$ | 0.6307 | $0.619^{+0.013}_{-0.0055}$ |
| A_{100}^{dustTE} | 0.1141 | 0.114 ± 0.038 | D_{810} | 2540.7 | 2539 ± 13 | $f\sigma_8(0.61)$ | 0.4717 | $0.4669^{+0.0061}_{-0.0041}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1344 | 0.134 ± 0.029 | D_{1420} | 819.16 | 817.7 ± 4.7 | $\sigma_8(0.61)$ | 0.6002 | $0.589^{+0.013}_{-0.0053}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 | 0.480 ± 0.085 | D_{2000} | 231.77 | 231.1 ± 1.5 | $f\sigma_8(2.33)$ | 0.30202 | $0.2973^{+0.0057}_{-0.0026}$ |
| A_{143}^{dustTE} | 0.224 | 0.223 ± 0.054 | $n_{s,0.002}$ | 0.96887 | 0.9670 ± 0.0040 | $\sigma_8(2.33)$ | 0.31221 | $0.3064^{+0.0070}_{-0.0030}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.663 ± 0.079 | Y_{P} | 0.245434 | $0.245421^{+0.000056}_{-0.000050}$ | f_{2000}^{143} | 28.08 | 29.3 ± 2.7 |
| A_{217}^{dustTE} | 2.067 | 2.07 ± 0.27 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246761 | $0.246747^{+0.000056}_{-0.000051}$ | $f_{2000}^{143 \times 217}$ | 31.64 | 32.0 ± 1.8 |
| c_{100} | 0.99977 | 0.99968 ± 0.00061 | $10^5 D/H$ | 2.5668 | 2.573 ± 0.026 | f_{2000}^{217} | 106.07 | 106.8 ± 1.8 |
| c_{217} | 0.99818 | 0.99819 ± 0.00064 | Age/Gyr | 13.7509 | $13.786^{+0.025}_{-0.048}$ | χ_{lensing}^2 | 8.835 | 9.29 ± 0.76 |
| m_{DES}^1 | 0.0151 | 0.014 ± 0.023 | z_* | 1089.699 | 1089.75 ± 0.24 | χ_{small}^2 | 395.92 | 397.1 ± 1.8 |
| m_{DES}^2 | 0.0128 | 0.011 ± 0.022 | r_* | 144.620 | 144.61 ± 0.25 | χ_{lowl}^2 | 22.80 | 23.13 ± 0.79 |
| m_{DES}^3 | -0.0069 | -0.009 ± 0.020 | $100\theta_*$ | 1.041183 | 1.04118 ± 0.00030 | χ_{plik}^2 | 2345.2 | 2360.4 ± 5.8 |
| m_{DES}^4 | 0.0129 | 0.010 ± 0.021 | $D_M(z_*)/\text{Gpc}$ | 13.8900 | 13.889 ± 0.023 | χ_{DES}^2 | 229.17 | 232.1 ± 2.6 |
| $A_{\text{IA,DES}}$ | 1.46 | 1.26 ± 0.49 | z_{drag} | 1060.085 | 1060.03 ± 0.29 | χ_{prior}^2 | 2.5 | 19.6 ± 6.0 |
| $\alpha_{\text{IA,DES}}$ | 2.50 | $1.8^{+2.7}_{-1.1}$ | r_{drag} | 147.252 | 147.25 ± 0.25 | χ_{CMB}^2 | 2772.7 | 2789.9 ± 6.0 |
| $\Delta z_{s,\text{DES}}^1$ | 0.0050 | 0.005 ± 0.015 | k_{D} | 0.140771 | 0.14075 ± 0.00029 | | | |
| $\Delta z_{s,\text{DES}}^2$ | -0.0205 | -0.021 ± 0.011 | $100\theta_{\text{D}}$ | 0.160670 | 0.16071 ± 0.00017 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3004.39$; $\Delta\chi_{\text{eff}}^2 = -1.10$; $\bar{\chi}_{\text{eff}}^2 = 3041.59$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.43$; $R - 1 = 0.00745$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.84 (Δ 0.07) small_100x143_offlike5_EE_Aplanck.B: 395.92 (Δ -0.29) commander_dx12.v3.2.29: 22.80 (Δ -0.04) plik_rd12_HM.v22b_TTTEEE: 2345.16 (Δ -0.59) WL - DES.1YR_final: 229.17 (Δ -0.13)

6.36 base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|---------------------|---------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022459 | 0.02246 ± 0.00013 | $\Delta z_{s,\text{DES}}^4$ | -0.0219 | -0.022 ± 0.020 | $100\theta_{\text{eq}}$ | 0.81709 | 0.8182 ± 0.0037 |
| $\Omega_c h^2$ | 0.11909 | 0.11885 ± 0.00087 | H_0 | 68.299 | 68.01 ± 0.50 | $100\theta_{s,\text{eq}}$ | 0.45130 | 0.4519 ± 0.0019 |
| $100\theta_{\text{MC}}$ | 1.041046 | 1.04104 ± 0.00029 | Ω_Λ | 0.6965 | $0.6933^{+0.0065}_{-0.0058}$ | $H(0.15)$ | 73.504 | $73.25^{+0.45}_{-0.40}$ |
| τ | 0.0539 | 0.0551 ± 0.0074 | Ω_m | 0.3035 | $0.3067^{+0.0058}_{-0.0065}$ | $D_M(0.15)$ | 635.32 | $637.8^{+3.9}_{-4.4}$ |
| Σm_ν [eV] | 0.0003 | < 0.0619 | $\Omega_m h^2$ | 0.14156 | 0.14185 ± 0.00089 | $H(0.38)$ | 83.492 | $83.29^{+0.34}_{-0.30}$ |
| $\ln(10^{10} A_s)$ | 3.0415 | 3.043 ± 0.015 | $\Omega_\nu h^2$ | $0.4 \cdot 10^{-5}$ | < 0.000665 | $D_M(0.38)$ | 1517.1 | $1522.2^{+7.9}_{-9.0}$ |
| n_s | 0.96838 | 0.9676 ± 0.0036 | $\Omega_m h^3$ | 0.096682 | $0.09647^{+0.00036}_{-0.00031}$ | $H(0.51)$ | 90.139 | $89.96^{+0.29}_{-0.25}$ |
| y_{cal} | 1.00034 | 1.0005 ± 0.0024 | σ_8 | 0.8208 | $0.811^{+0.011}_{-0.0069}$ | $D_M(0.51)$ | 1966.6 | $1972.7^{+9.3}_{-11}$ |
| A_{217}^{CIB} | 45.6 | 47 ± 7 | S_8 | 0.8255 | 0.820 ± 0.010 | $H(0.61)$ | 95.705 | $95.55^{+0.25}_{-0.21}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.71 | — | $\sigma_8 \Omega_m^{0.5}$ | 0.4522 | 0.4492 ± 0.0055 | $D_M(0.61)$ | 2289.4 | 2296^{+10}_{-12} |
| A_{143}^{tSZ} | 7.08 | $5.6^{+2.1}_{-1.9}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6092 | $0.6036^{+0.0069}_{-0.0058}$ | $H(2.33)$ | 235.73 | 235.84 ± 0.55 |
| A_{100}^{PS} | 246.5 | 257 ± 28 | $\sigma_8/h^{0.5}$ | 0.9932 | $0.984^{+0.011}_{-0.0088}$ | $D_M(2.33)$ | 5743.6 | 5752^{+10}_{-12} |
| A_{143}^{PS} | 50.7 | 45 ± 8 | $r_{\text{drag}} h$ | 100.56 | 100.19 ± 0.80 | $f\sigma_8(0.15)$ | 0.4567 | 0.4541 ± 0.0051 |
| $A_{143 \times 217}^{\text{PS}}$ | 54.0 | 42 ± 9 | $\langle d^2 \rangle^{1/2}$ | 2.4346 | 2.429 ± 0.019 | $\sigma_8(0.15)$ | 0.7591 | $0.750^{+0.010}_{-0.0064}$ |
| A_{217}^{PS} | 122.1 | 115 ± 10 | z_{re} | 7.59 | 7.71 ± 0.74 | $f\sigma_8(0.38)$ | 0.47687 | 0.4735 ± 0.0048 |
| A^{kSZ} | 0.00 | < 4.14 | $10^9 A_s$ | 2.0936 | 2.097 ± 0.031 | $\sigma_8(0.38)$ | 0.6736 | $0.6653^{+0.0092}_{-0.0057}$ |
| A_{100}^{dustTT} | 8.80 | 8.9 ± 1.8 | $10^9 A_s e^{-2\tau}$ | 1.8798 | 1.878 ± 0.010 | $f\sigma_8(0.51)$ | 0.47633 | $0.4727^{+0.0049}_{-0.0042}$ |
| A_{143}^{dustTT} | 11.06 | 10.9 ± 1.8 | D_{40} | 1223.9 | 1226 ± 11 | $\sigma_8(0.51)$ | 0.6306 | $0.6229^{+0.0087}_{-0.0054}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.23 | 18.6 ± 3.2 | D_{220} | 5733.8 | 5740 ± 38 | $f\sigma_8(0.61)$ | 0.47190 | $0.4681^{+0.0049}_{-0.0040}$ |
| A_{217}^{dustTT} | 95.5 | 93.8 ± 7.2 | D_{810} | 2539.7 | 2538 ± 13 | $\sigma_8(0.61)$ | 0.6002 | $0.5928^{+0.0084}_{-0.0052}$ |
| A_{100}^{dustTE} | 0.1158 | 0.114 ± 0.038 | D_{1420} | 818.61 | 817.8 ± 4.7 | $f\sigma_8(2.33)$ | 0.30197 | $0.2990^{+0.0037}_{-0.0025}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1341 | 0.134 ± 0.030 | D_{2000} | 231.57 | 231.2 ± 1.5 | $\sigma_8(2.33)$ | 0.31213 | $0.3085^{+0.0044}_{-0.0028}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.479 ± 0.085 | $n_{s,0.002}$ | 0.96838 | 0.9676 ± 0.0036 | f_{2000}^{143} | 28.26 | 29.1 ± 2.7 |
| A_{143}^{dustTE} | 0.223 | 0.223 ± 0.055 | Y_{P} | 0.2454297 | 0.245428 ± 0.000050 | $f_{2000}^{143 \times 217}$ | 31.66 | 31.9 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.662 ± 0.079 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2467563 | 0.246755 ± 0.000050 | f_{2000}^{217} | 106.16 | 106.7 ± 1.8 |
| A_{217}^{dustTE} | 2.066 | 2.07 ± 0.27 | $10^5 \text{D}/\text{H}$ | 2.5692 | 2.569 ± 0.024 | χ^2_{lensing} | 8.846 | 9.24 ± 0.68 |
| c_{100} | 0.99972 | 0.99968 ± 0.00061 | Age/Gyr | 13.7524 | $13.771^{+0.023}_{-0.028}$ | χ^2_{small} | 395.93 | 397.0 ± 1.7 |
| c_{217} | 0.99818 | 0.99818 ± 0.00064 | z_* | 1089.724 | 1089.71 ± 0.21 | χ^2_{lowl} | 22.90 | 23.04 ± 0.75 |
| m_{DES}^1 | 0.0150 | 0.014 ± 0.023 | r_* | 144.604 | 144.66 ± 0.21 | χ^2_{plik} | 2344.9 | 2360.1 ± 5.7 |
| m_{DES}^2 | 0.0128 | 0.011 ± 0.022 | $100\theta_*$ | 1.041192 | 1.04121 ± 0.00029 | $\chi^2_{6\text{DF}}$ | 0.0002 | 0.031 ± 0.045 |
| m_{DES}^3 | -0.0081 | -0.008 ± 0.020 | $D_M(z_*)/\text{Gpc}$ | 13.8883 | 13.894 ± 0.020 | χ^2_{MGS} | 1.748 | 1.58 ± 0.47 |
| m_{DES}^4 | 0.0117 | 0.011 ± 0.021 | z_{drag} | 1060.085 | 1060.06 ± 0.29 | χ^2_{DR12BAO} | 3.476 | 4.1 ± 1.0 |
| $A_{\text{IA,DES}}$ | 1.46 | 1.25 ± 0.50 | r_{drag} | 147.238 | 147.30 ± 0.22 | χ^2_{DES} | 229.18 | 232.0 ± 2.5 |
| $\alpha_{\text{IA,DES}}$ | 2.52 | $1.9^{+2.8}_{-1.0}$ | k_{D} | 0.140774 | 0.14071 ± 0.00028 | χ^2_{prior} | 2.6 | 19.4 ± 6.0 |
| $\Delta z_{s,\text{DES}}^1$ | 0.0049 | 0.004 ± 0.015 | $100\theta_{\text{D}}$ | 0.160686 | 0.16069 ± 0.00017 | χ^2_{CMB} | 2772.6 | 2789.4 ± 5.9 |
| $\Delta z_{s,\text{DES}}^2$ | -0.0209 | -0.021 ± 0.011 | z_{eq} | 3382.7 | 3377 ± 20 | χ^2_{BAO} | 5.224 | 5.75 ± 0.78 |
| $\Delta z_{s,\text{DES}}^3$ | 0.0049 | 0.004 ± 0.010 | k_{eq} | 0.010324 | 0.010307 ± 0.000060 | | | |

Best-fit $\chi^2_{\text{eff}} = 3009.63$; $\Delta\chi^2_{\text{eff}} = -1.38$; $\bar{\chi}^2_{\text{eff}} = 3046.60$; $\Delta\bar{\chi}^2_{\text{eff}} = -0.08$; $R - 1 = 0.00939$
 χ^2_{eff} : BAO - 6DF: 0.00 (Δ -0.01) MGS: 1.75 (Δ 0.34) DR12BAO: 3.48 (Δ -0.46) CMB - smicadx12.Dec5.ftl_mv2.ndclpp-p.teb.consext8: 8.85 (Δ -0.01) small_100x143.offlike5_EE_Aplanc
395.93 (Δ -0.27) commander_dx12_v3.2_29: 22.90 (Δ 0.16) plik_rd12_HM_v22b.TTTEEE: 2344.91 (Δ -1.24) WL - DES_1YR_final: 229.18 (Δ 0.12)

6.37 base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02244 ± 0.00014 | $\Delta z_{s,\text{DES}}^2$ | -0.021 ± 0.012 | k_D | 0.14071 ± 0.00030 |
| $\Omega_c h^2$ | 0.1190 ± 0.0011 | $\Delta z_{s,\text{DES}}^3$ | 0.004 ± 0.010 | $100\theta_D$ | 0.16071 ± 0.00017 |
| $100\theta_{\text{MC}}$ | 1.04101 ± 0.00031 | $\Delta z_{s,\text{DES}}^4$ | -0.023 ± 0.020 | z_{eq} | 3379 ± 26 |
| τ | $0.0550^{+0.0052}_{-0.0083}$ | H_0 | $67.6^{+1.1}_{-0.56}$ | k_{eq} | 0.010314 ± 0.000078 |
| Σm_ν [eV] | < 0.101 | Ω_Λ | $0.688^{+0.014}_{-0.0071}$ | $100\theta_{\text{eq}}$ | 0.8177 ± 0.0049 |
| $\ln(10^{10} A_s)$ | $3.043^{+0.012}_{-0.016}$ | Ω_m | $0.3117^{+0.0071}_{-0.014}$ | $100\theta_{s,\text{eq}}$ | 0.4516 ± 0.0025 |
| n_s | 0.9674 ± 0.0041 | $\Omega_m h^2$ | $0.1424^{+0.0011}_{-0.0016}$ | $H(0.15)$ | $72.90^{+0.95}_{-0.49}$ |
| y_{cal} | 1.0004 ± 0.0025 | $\Omega_\nu h^2$ | < 0.00109 | $D_M(0.15)$ | $641.3^{+4.6}_{-9.4}$ |
| A_{217}^{CIB} | 47 ± 7 | $\Omega_m h^3$ | $0.09624^{+0.00063}_{-0.00031}$ | $H(0.38)$ | $83.01^{+0.73}_{-0.36}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | σ_8 | $0.803^{+0.021}_{-0.0076}$ | $D_M(0.38)$ | $1529.4^{+9.4}_{-19}$ |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | S_8 | 0.818 ± 0.014 | $H(0.51)$ | $89.73^{+0.61}_{-0.30}$ |
| A_{100}^{PS} | 258 ± 28 | $\sigma_8 \Omega_m^{0.5}$ | 0.4481 ± 0.0074 | $D_M(0.51)$ | 1981^{+11}_{-23} |
| A_{143}^{PS} | 45 ± 8 | $\sigma_8 \Omega_m^{0.25}$ | $0.600^{+0.012}_{-0.0072}$ | $H(0.61)$ | $95.35^{+0.51}_{-0.24}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $\sigma_8/h^{0.5}$ | $0.977^{+0.020}_{-0.010}$ | $D_M(0.61)$ | 2305^{+12}_{-25} |
| A_{217}^{PS} | 114 ± 10 | $r_{\text{drag}} h$ | $99.6^{+1.7}_{-0.97}$ | $H(2.33)$ | $236.11^{+0.72}_{-0.95}$ |
| A^{kSZ} | < 4.27 | $\langle d^2 \rangle^{1/2}$ | 2.425 ± 0.024 | $D_M(2.33)$ | 5761^{+11}_{-25} |
| A_{100}^{dustTT} | 8.9 ± 1.8 | z_{re} | $7.71^{+0.57}_{-0.81}$ | $f\sigma_8(0.15)$ | 0.4530 ± 0.0070 |
| A_{143}^{dustTT} | 11.0 ± 1.8 | $10^9 A_s$ | $2.096^{+0.025}_{-0.033}$ | $\sigma_8(0.15)$ | $0.742^{+0.020}_{-0.0070}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.7 ± 3.2 | $10^9 A_s e^{-2\tau}$ | 1.878 ± 0.011 | $f\sigma_8(0.38)$ | $0.4713^{+0.0079}_{-0.0057}$ |
| A_{217}^{dustTT} | 93.7 ± 7.2 | D_{40} | 1226 ± 12 | $\sigma_8(0.38)$ | $0.658^{+0.018}_{-0.0063}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | D_{220} | 5735 ± 39 | $f\sigma_8(0.51)$ | $0.4699^{+0.0084}_{-0.0051}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.030 | D_{810} | 2537 ± 13 | $\sigma_8(0.51)$ | $0.616^{+0.017}_{-0.0059}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | D_{1420} | 817.4 ± 4.7 | $f\sigma_8(0.61)$ | $0.4650^{+0.0087}_{-0.0047}$ |
| A_{143}^{dustTE} | 0.224 ± 0.054 | D_{2000} | 231.0 ± 1.6 | $\sigma_8(0.61)$ | $0.586^{+0.017}_{-0.0056}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 ± 0.080 | $n_{s,0.002}$ | 0.9674 ± 0.0041 | $f\sigma_8(2.33)$ | $0.2959^{+0.0074}_{-0.0026}$ |
| A_{217}^{dustTE} | 2.07 ± 0.27 | Y_P | 0.245419 ± 0.000055 | $\sigma_8(2.33)$ | $0.3048^{+0.0088}_{-0.0030}$ |
| c_{100} | 0.99967 ± 0.00061 | Y_P^{BBN} | 0.246746 ± 0.000055 | f_{2000}^{143} | 29.4 ± 2.7 |
| c_{217} | 0.99820 ± 0.00063 | 10^5D/H | 2.574 ± 0.026 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.9 |
| m_{DES}^1 | 0.014 ± 0.023 | Age/Gyr | $13.794^{+0.025}_{-0.057}$ | f_{2000}^{217} | 106.8 ± 1.8 |
| m_{DES}^2 | 0.012 ± 0.022 | z_* | 1089.75 ± 0.25 | χ_{simall}^2 | 396.9 ± 1.7 |
| m_{DES}^3 | -0.008 ± 0.020 | r_* | 144.64 ± 0.26 | χ_{lowl}^2 | 22.99 ± 0.83 |
| m_{DES}^4 | 0.011 ± 0.021 | $100\theta_*$ | 1.04120 ± 0.00030 | χ_{plik}^2 | 2361.2 ± 6.2 |
| $A_{\text{IA,DES}}$ | 1.25 ± 0.50 | $D_M(z_*)/\text{Gpc}$ | 13.892 ± 0.024 | χ_{DES}^2 | 232.1 ± 2.5 |
| $\alpha_{\text{IA,DES}}$ | $1.8^{+2.8}_{-1.1}$ | z_{drag} | 1060.02 ± 0.30 | χ_{prior}^2 | 19.6 ± 6.0 |
| $\Delta z_{s,\text{DES}}^1$ | 0.005 ± 0.014 | r_{drag} | 147.29 ± 0.26 | χ_{CMB}^2 | 2781.1 ± 6.1 |

$$\bar{\chi}_{\text{eff}}^2 = 3032.75; \Delta\bar{\chi}_{\text{eff}}^2 = 0.68; R - 1 = 0.00988$$

6.38 base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02246 ± 0.00013 | $\Delta z_{s,\text{DES}}^4$ | -0.022 ± 0.020 | $100\theta_{\text{eq}}$ | 0.8187 ± 0.0040 |
| $\Omega_c h^2$ | 0.11873 ± 0.00092 | H_0 | $68.00^{+0.54}_{-0.47}$ | $100\theta_{s,\text{eq}}$ | 0.4522 ± 0.0020 |
| $100\theta_{\text{MC}}$ | 1.04106 ± 0.00029 | Ω_Λ | $0.6933^{+0.0068}_{-0.0059}$ | $H(0.15)$ | $73.24^{+0.47}_{-0.41}$ |
| τ | $0.0553^{+0.0052}_{-0.0079}$ | Ω_m | $0.3067^{+0.0059}_{-0.0068}$ | $D_M(0.15)$ | $637.9^{+4.0}_{-4.6}$ |
| $\Sigma m_\nu [\text{eV}]$ | < 0.0703 | $\Omega_m h^2$ | 0.14180 ± 0.00091 | $H(0.38)$ | $83.27^{+0.36}_{-0.31}$ |
| $\ln(10^{10} A_s)$ | $3.043^{+0.012}_{-0.016}$ | $\Omega_\nu h^2$ | < 0.000755 | $D_M(0.38)$ | $1522.5^{+8.1}_{-9.4}$ |
| n_s | 0.9681 ± 0.0037 | $\Omega_m h^3$ | $0.09643^{+0.00041}_{-0.00032}$ | $H(0.51)$ | $89.95^{+0.31}_{-0.26}$ |
| y_{cal} | 1.0004 ± 0.0025 | σ_8 | $0.809^{+0.014}_{-0.0077}$ | $D_M(0.51)$ | $1973.0^{+9.5}_{-11}$ |
| A_{217}^{CIB} | 47 ± 7 | S_8 | 0.818 ± 0.012 | $H(0.61)$ | $95.53^{+0.26}_{-0.22}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $\sigma_8 \Omega_m^{0.5}$ | 0.4481 ± 0.0066 | $D_M(0.61)$ | 2296^{+10}_{-12} |
| A_{143}^{tSZ} | $5.6^{+2.1}_{-1.9}$ | $\sigma_8 \Omega_m^{0.25}$ | $0.6021^{+0.0090}_{-0.0069}$ | $H(2.33)$ | 235.80 ± 0.57 |
| A_{100}^{PS} | 257 ± 28 | $\sigma_8/h^{0.5}$ | $0.981^{+0.015}_{-0.010}$ | $D_M(2.33)$ | 5753^{+10}_{-13} |
| A_{143}^{PS} | 45 ± 8 | $r_{\text{drag}} h$ | 100.19 ± 0.83 | $f\sigma_8(0.15)$ | 0.4531 ± 0.0062 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $\langle d^2 \rangle^{1/2}$ | 2.425 ± 0.023 | $\sigma_8(0.15)$ | $0.748^{+0.013}_{-0.0070}$ |
| A_{217}^{PS} | 115 ± 10 | z_{re} | $7.72^{+0.56}_{-0.79}$ | $f\sigma_8(0.38)$ | $0.4724^{+0.0063}_{-0.0054}$ |
| A^{kSZ} | < 4.16 | $10^9 A_s$ | $2.096^{+0.025}_{-0.033}$ | $\sigma_8(0.38)$ | $0.664^{+0.011}_{-0.0062}$ |
| A_{100}^{dustTT} | 8.9 ± 1.9 | $10^9 A_s e^{-2\tau}$ | 1.877 ± 0.011 | $f\sigma_8(0.51)$ | $0.4716^{+0.0063}_{-0.0050}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | D_{40} | 1224 ± 12 | $\sigma_8(0.51)$ | $0.621^{+0.011}_{-0.0058}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.7 ± 3.2 | D_{220} | 5736 ± 38 | $f\sigma_8(0.61)$ | $0.4670^{+0.0063}_{-0.0047}$ |
| A_{217}^{dustTT} | 93.8 ± 7.2 | D_{810} | 2537 ± 13 | $\sigma_8(0.61)$ | $0.591^{+0.010}_{-0.0055}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | D_{1420} | 817.6 ± 4.7 | $f\sigma_8(2.33)$ | $0.2984^{+0.0045}_{-0.0026}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | D_{2000} | 231.1 ± 1.5 | $\sigma_8(2.33)$ | $0.3078^{+0.0053}_{-0.0028}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 ± 0.085 | $n_{s,0.002}$ | 0.9681 ± 0.0037 | f_{2000}^{143} | 29.1 ± 2.7 |
| A_{143}^{dustTE} | 0.223 ± 0.055 | Y_{P} | 0.245429 ± 0.000050 | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.662 ± 0.079 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246755 ± 0.000050 | f_{2000}^{217} | 106.7 ± 1.8 |
| A_{217}^{dustTE} | 2.07 ± 0.27 | 10^5D/H | 2.569 ± 0.024 | χ_{simall}^2 | 396.9 ± 1.7 |
| c_{100} | 0.99968 ± 0.00061 | Age/Gyr | $13.774^{+0.023}_{-0.030}$ | χ_{lowl}^2 | 22.92 ± 0.78 |
| c_{217} | 0.99819 ± 0.00063 | z_* | 1089.69 ± 0.21 | χ_{plik}^2 | 2360.7 ± 6.0 |
| m_{DES}^1 | 0.014 ± 0.023 | r_* | 144.70 ± 0.22 | $\chi_{6\text{DF}}^2$ | 0.032 ± 0.047 |
| m_{DES}^2 | 0.011 ± 0.022 | $100\theta_*$ | 1.04123 ± 0.00029 | χ_{MGS}^2 | 1.58 ± 0.49 |
| m_{DES}^3 | -0.007 ± 0.020 | $D_M(z_*)/\text{Gpc}$ | 13.897 ± 0.021 | χ_{DR12BAO}^2 | 4.2 ± 1.1 |
| m_{DES}^4 | 0.011 ± 0.021 | z_{drag} | 1060.05 ± 0.29 | χ_{DES}^2 | 231.9 ± 2.5 |
| $A_{\text{IA,DES}}$ | 1.24 ± 0.50 | r_{drag} | 147.33 ± 0.23 | χ_{prior}^2 | 19.4 ± 6.0 |
| $\alpha_{\text{IA,DES}}$ | $1.85^{+2.9}_{-0.96}$ | k_{D} | 0.14068 ± 0.00029 | χ_{BAO}^2 | 5.77 ± 0.82 |
| $\Delta z_{s,\text{DES}}^1$ | 0.004 ± 0.014 | $100\theta_{\text{D}}$ | 0.16070 ± 0.00017 | χ_{CMB}^2 | 2780.5 ± 5.9 |
| $\Delta z_{s,\text{DES}}^2$ | -0.021 ± 0.012 | z_{eq} | 3374 ± 21 | | |
| $\Delta z_{s,\text{DES}}^3$ | 0.005 ± 0.010 | k_{eq} | 0.010297 ± 0.000064 | | |

$\bar{\chi}_{\text{eff}}^2 = 3037.64$; $\Delta \bar{\chi}_{\text{eff}}^2 = 0.11$; $R - 1 = 0.00834$

6.39 base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02244 ± 0.00014 | $\Delta z_{s,\text{DES}}^3$ | 0.004 ± 0.010 | z_{eq} | 3381 ± 24 |
| $\Omega_c h^2$ | 0.1190 ± 0.0011 | $\Delta z_{s,\text{DES}}^4$ | -0.023 ± 0.020 | k_{eq} | 0.010319 ± 0.000074 |
| $100\theta_{\text{MC}}$ | 1.04100 ± 0.00031 | H_0 | $67.73^{+0.95}_{-0.56}$ | $100\theta_{\text{eq}}$ | 0.8174 ± 0.0046 |
| τ | $0.0558^{+0.0055}_{-0.0080}$ | Ω_{Λ} | $0.690^{+0.012}_{-0.0070}$ | $100\theta_{s,\text{eq}}$ | 0.4515 ± 0.0023 |
| $\Sigma m_{\nu} [\text{eV}]$ | < 0.0857 | Ω_{m} | $0.3103^{+0.0070}_{-0.012}$ | $H(0.15)$ | $73.00^{+0.83}_{-0.49}$ |
| $\ln(10^{10} A_s)$ | $3.045^{+0.012}_{-0.015}$ | $\Omega_{\text{m}} h^2$ | $0.1423^{+0.0011}_{-0.0015}$ | $D_{\text{M}}(0.15)$ | $640.3^{+4.6}_{-8.2}$ |
| n_s | 0.9671 ± 0.0040 | $\Omega_{\nu} h^2$ | < 0.000922 | $H(0.38)$ | $83.09^{+0.63}_{-0.36}$ |
| y_{cal} | 1.0006 ± 0.0024 | $\Omega_{\text{m}} h^3$ | $0.09634^{+0.00052}_{-0.00031}$ | $D_{\text{M}}(0.38)$ | $1527.3^{+9.4}_{-17}$ |
| A_{217}^{CIB} | 47 ± 7 | σ_8 | $0.808^{+0.015}_{-0.0066}$ | $H(0.51)$ | $89.80^{+0.53}_{-0.30}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | S_8 | 0.821 ± 0.011 | $D_{\text{M}}(0.51)$ | 1979^{+11}_{-20} |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4497 ± 0.0060 | $H(0.61)$ | $95.41^{+0.44}_{-0.25}$ |
| A_{100}^{PS} | 258 ± 28 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | $0.6026^{+0.0082}_{-0.0061}$ | $D_{\text{M}}(0.61)$ | 2303^{+12}_{-21} |
| A_{143}^{PS} | 45 ± 8 | $\sigma_8/h^{0.5}$ | $0.981^{+0.014}_{-0.0090}$ | $H(2.33)$ | $236.07^{+0.69}_{-0.86}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $r_{\text{drag}} h$ | $99.7^{+1.5}_{-0.95}$ | $D_{\text{M}}(2.33)$ | 5758^{+11}_{-21} |
| A_{217}^{PS} | 115 ± 10 | $\langle d^2 \rangle^{1/2}$ | 2.431 ± 0.019 | $f\sigma_8(0.15)$ | 0.4546 ± 0.0056 |
| A^{kSZ} | < 4.18 | z_{re} | $7.79^{+0.59}_{-0.77}$ | $\sigma_8(0.15)$ | $0.746^{+0.015}_{-0.0061}$ |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | $10^9 A_s$ | $2.101^{+0.024}_{-0.032}$ | $f\sigma_8(0.38)$ | $0.4732^{+0.0055}_{-0.0048}$ |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.8 | $10^9 A_s e^{-2\tau}$ | 1.879 ± 0.010 | $\sigma_8(0.38)$ | $0.662^{+0.014}_{-0.0056}$ |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.2 | D_{40} | 1227 ± 11 | $f\sigma_8(0.51)$ | $0.4719^{+0.0058}_{-0.0044}$ |
| $A_{217}^{\text{dust}TT}$ | 93.8 ± 7.2 | D_{220} | 5740 ± 38 | $\sigma_8(0.51)$ | $0.619^{+0.013}_{-0.0053}$ |
| $A_{100}^{\text{dust}TE}$ | 0.114 ± 0.038 | D_{810} | 2538 ± 13 | $f\sigma_8(0.61)$ | $0.4671^{+0.0061}_{-0.0040}$ |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.134 ± 0.029 | D_{1420} | 817.7 ± 4.7 | $\sigma_8(0.61)$ | $0.589^{+0.013}_{-0.0051}$ |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.480 ± 0.085 | D_{2000} | 231.1 ± 1.5 | $f\sigma_8(2.33)$ | $0.2975^{+0.0058}_{-0.0025}$ |
| $A_{143}^{\text{dust}TE}$ | 0.224 ± 0.054 | $n_{s,0.002}$ | 0.9671 ± 0.0040 | $\sigma_8(2.33)$ | $0.3066^{+0.0070}_{-0.0028}$ |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.663 ± 0.079 | Y_{P} | $0.245422^{+0.000056}_{-0.000050}$ | f_{2000}^{143} | 29.2 ± 2.7 |
| $A_{217}^{\text{dust}TE}$ | 2.07 ± 0.27 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246749^{+0.000056}_{-0.000050}$ | $f_{2000}^{143 \times 217}$ | 32.0 ± 1.8 |
| c_{100} | 0.99968 ± 0.00061 | $10^5 \text{D}/\text{H}$ | 2.572 ± 0.026 | f_{2000}^{217} | 106.8 ± 1.8 |
| c_{217} | 0.99819 ± 0.00064 | Age/Gyr | $13.786^{+0.025}_{-0.049}$ | χ_{lensing}^2 | 9.25 ± 0.72 |
| m_{DES}^1 | 0.014 ± 0.023 | z_* | 1089.74 ± 0.24 | χ_{small}^2 | 397.0 ± 1.8 |
| m_{DES}^2 | 0.011 ± 0.022 | r_* | 144.62 ± 0.24 | χ_{lowl}^2 | 23.12 ± 0.80 |
| m_{DES}^3 | -0.009 ± 0.020 | $100\theta_*$ | 1.04119 ± 0.00030 | χ_{plik}^2 | 2360.3 ± 5.8 |
| m_{DES}^4 | 0.010 ± 0.021 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.890 ± 0.023 | χ_{DES}^2 | 232.1 ± 2.6 |
| $A_{\text{IA,DES}}$ | 1.26 ± 0.50 | z_{drag} | 1060.04 ± 0.30 | χ_{prior}^2 | 19.5 ± 6.0 |
| $\alpha_{\text{IA,DES}}$ | $1.8^{+2.7}_{-1.1}$ | r_{drag} | 147.26 ± 0.25 | χ_{CMB}^2 | 2789.7 ± 6.0 |
| $\Delta z_{s,\text{DES}}^1$ | 0.005 ± 0.015 | k_{D} | 0.14074 ± 0.00029 | | |
| $\Delta z_{s,\text{DES}}^2$ | -0.021 ± 0.011 | $100\theta_{\text{D}}$ | 0.16070 ± 0.00017 | | |

$\bar{\chi}_{\text{eff}}^2 = 3041.41$; $\Delta \bar{\chi}_{\text{eff}}^2 = 0.47$; $R - 1 = 0.00879$

6.40 base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02246 ± 0.00013 | $\Delta z_{s,\text{DES}}^4$ | -0.023 ± 0.020 | $100\theta_{\text{eq}}$ | 0.8183 ± 0.0037 |
| $\Omega_c h^2$ | 0.11881 ± 0.00086 | H_0 | $68.02^{+0.52}_{-0.46}$ | $100\theta_{s,\text{eq}}$ | 0.4519 ± 0.0019 |
| $100\theta_{\text{MC}}$ | 1.04104 ± 0.00029 | Ω_Λ | $0.6934^{+0.0066}_{-0.0058}$ | $H(0.15)$ | $73.26^{+0.45}_{-0.40}$ |
| τ | $0.0559^{+0.0055}_{-0.0077}$ | Ω_m | $0.3066^{+0.0058}_{-0.0066}$ | $D_M(0.15)$ | $637.7^{+3.9}_{-4.5}$ |
| $\Sigma m_\nu [\text{eV}]$ | < 0.0628 | $\Omega_m h^2$ | 0.14182 ± 0.00088 | $H(0.38)$ | $83.29^{+0.35}_{-0.30}$ |
| $\ln(10^{10} A_s)$ | $3.045^{+0.012}_{-0.015}$ | $\Omega_\nu h^2$ | < 0.000675 | $D_M(0.38)$ | $1522.1^{+7.8}_{-9.1}$ |
| n_s | 0.9678 ± 0.0036 | $\Omega_m h^3$ | $0.09647^{+0.00037}_{-0.00031}$ | $H(0.51)$ | $89.96^{+0.29}_{-0.25}$ |
| y_{cal} | 1.0005 ± 0.0024 | σ_8 | $0.812^{+0.011}_{-0.0067}$ | $D_M(0.51)$ | $1972.5^{+9.3}_{-11}$ |
| A_{217}^{CIB} | 47 ± 7 | S_8 | 0.820 ± 0.010 | $H(0.61)$ | $95.55^{+0.25}_{-0.21}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $\sigma_8 \Omega_m^{0.5}$ | 0.4493 ± 0.0055 | $D_M(0.61)$ | 2296^{+10}_{-12} |
| A_{143}^{tSZ} | $5.6^{+2.1}_{-1.9}$ | $\sigma_8 \Omega_m^{0.25}$ | $0.6038^{+0.0070}_{-0.0058}$ | $H(2.33)$ | 235.82 ± 0.55 |
| A_{100}^{PS} | 257 ± 28 | $\sigma_8/h^{0.5}$ | $0.984^{+0.011}_{-0.0087}$ | $D_M(2.33)$ | 5752^{+10}_{-12} |
| A_{143}^{PS} | 45 ± 8 | $r_{\text{drag}} h$ | 100.20 ± 0.80 | $f\sigma_8(0.15)$ | 0.4542 ± 0.0051 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $\langle d^2 \rangle^{1/2}$ | 2.430 ± 0.019 | $\sigma_8(0.15)$ | $0.750^{+0.010}_{-0.0061}$ |
| A_{217}^{PS} | 115 ± 10 | z_{re} | $7.79^{+0.58}_{-0.75}$ | $f\sigma_8(0.38)$ | $0.4737^{+0.0050}_{-0.0045}$ |
| A^{kSZ} | < 4.12 | $10^9 A_s$ | $2.101^{+0.024}_{-0.031}$ | $\sigma_8(0.38)$ | $0.6657^{+0.0092}_{-0.0055}$ |
| A_{100}^{dustTT} | 8.9 ± 1.9 | $10^9 A_s e^{-2\tau}$ | 1.878 ± 0.010 | $f\sigma_8(0.51)$ | $0.4728^{+0.0049}_{-0.0042}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | D_{40} | 1226 ± 11 | $\sigma_8(0.51)$ | $0.6232^{+0.0087}_{-0.0052}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.2 | D_{220} | 5740 ± 38 | $f\sigma_8(0.61)$ | $0.4682^{+0.0049}_{-0.0039}$ |
| A_{217}^{dustTT} | 93.8 ± 7.2 | D_{810} | 2538 ± 13 | $\sigma_8(0.61)$ | $0.5931^{+0.0084}_{-0.0049}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | D_{1420} | 817.7 ± 4.7 | $f\sigma_8(2.33)$ | $0.2991^{+0.0037}_{-0.0024}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.030 | D_{2000} | 231.2 ± 1.5 | $\sigma_8(2.33)$ | $0.3086^{+0.0043}_{-0.0026}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 ± 0.085 | $n_{s,0.002}$ | 0.9678 ± 0.0036 | f_{2000}^{143} | 29.1 ± 2.7 |
| A_{143}^{dustTE} | 0.223 ± 0.055 | Y_{P} | 0.245429 ± 0.000050 | $f_{2000}^{143 \times 217}$ | 31.8 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.662 ± 0.079 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246756 ± 0.000050 | f_{2000}^{217} | 106.7 ± 1.8 |
| A_{217}^{dustTE} | 2.07 ± 0.27 | 10^5D/H | 2.569 ± 0.024 | χ_{lensing}^2 | 9.21 ± 0.63 |
| c_{100} | 0.99968 ± 0.00061 | Age/Gyr | $13.771^{+0.023}_{-0.028}$ | χ_{small}^2 | 397.0 ± 1.8 |
| c_{217} | 0.99818 ± 0.00064 | z_* | 1089.70 ± 0.20 | χ_{lowl}^2 | 23.04 ± 0.75 |
| m_{DES}^1 | 0.014 ± 0.023 | r_* | 144.67 ± 0.21 | χ_{plik}^2 | 2360.0 ± 5.7 |
| m_{DES}^2 | 0.011 ± 0.022 | $100\theta_*$ | 1.04121 ± 0.00029 | $\chi_{6\text{DF}}^2$ | 0.030 ± 0.045 |
| m_{DES}^3 | -0.008 ± 0.020 | $D_M(z_*)/\text{Gpc}$ | 13.895 ± 0.020 | χ_{MGS}^2 | 1.59 ± 0.47 |
| m_{DES}^4 | 0.011 ± 0.021 | z_{drag} | 1060.06 ± 0.29 | χ_{DR12BAO}^2 | 4.1 ± 1.0 |
| $A_{\text{IA,DES}}$ | 1.25 ± 0.50 | r_{drag} | 147.31 ± 0.22 | χ_{DES}^2 | 232.0 ± 2.5 |
| $\alpha_{\text{IA,DES}}$ | $1.8^{+2.8}_{-1.0}$ | k_{D} | 0.14071 ± 0.00027 | χ_{prior}^2 | 19.4 ± 6.0 |
| $\Delta z_{s,\text{DES}}^1$ | 0.004 ± 0.014 | $100\theta_{\text{D}}$ | 0.16069 ± 0.00017 | χ_{CMB}^2 | 2789.3 ± 5.8 |
| $\Delta z_{s,\text{DES}}^2$ | -0.021 ± 0.011 | z_{eq} | 3376 ± 20 | χ_{BAO}^2 | 5.74 ± 0.78 |
| $\Delta z_{s,\text{DES}}^3$ | 0.004 ± 0.010 | k_{eq} | 0.010304 ± 0.000060 | | |

$\bar{\chi}_{\text{eff}}^2 = 3046.43$; $\Delta \bar{\chi}_{\text{eff}}^2 = -0.06$; $R - 1 = 0.00976$

7 nnu

7.1 base_nnu_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022023 | 0.02207 ± 0.00031 | $\sigma_8 \Omega_m^{0.5}$ | 0.4621 | 0.460 ± 0.013 | $100\theta_{s,eq}$ | 0.4460 | 0.4476 ± 0.0061 |
| $\Omega_c h^2$ | 0.11884 | 0.1200 ± 0.0040 | $\sigma_8 \Omega_m^{0.25}$ | 0.6108 | 0.610 ± 0.012 | $H(0.15)$ | 71.12 | 71.9 ± 2.2 |
| $100\theta_{MC}$ | 1.04093 | 1.04086 ± 0.00058 | $\sigma_8/h^{0.5}$ | 0.9958 | 0.993 ± 0.016 | $D_M(0.15)$ | 658.4 | 652 ± 21 |
| τ | 0.0519 | 0.0514 ± 0.0080 | $r_{drag}h$ | 97.65 | 98.2 ± 2.1 | $H(0.38)$ | 81.40 | 82.2 ± 2.2 |
| N_{eff} | 2.895 | 3.00 ± 0.28 | $\langle d^2 \rangle^{1/2}$ | 2.4673 | 2.457 ± 0.045 | $D_M(0.38)$ | 1566.3 | 1551 ± 47 |
| $\ln(10^{10} A_s)$ | 3.0355 | 3.037 ± 0.021 | z_{re} | 7.47 | 7.41 ± 0.84 | $H(0.51)$ | 88.20 | 89.0 ± 2.1 |
| n_s | 0.9575 | 0.961 ± 0.013 | $10^9 A_s$ | 2.0811 | 2.085 ± 0.043 | $D_M(0.51)$ | 2026 | 2007 ± 59 |
| y_{cal} | 1.00046 | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8760 | 1.881 ± 0.022 | $H(0.61)$ | 93.88 | 94.7 ± 2.1 |
| A_{217}^{CIB} | 46.8 | 48 ± 7 | D_{40} | 1239.8 | 1237 ± 22 | $D_M(0.61)$ | 2356 | 2334 ± 66 |
| $\xi^{tSZ \times CIB}$ | 0.55 | — | D_{220} | 5710.2 | 5713 ± 41 | $H(2.33)$ | 234.95 | 236.1 ± 3.6 |
| A_{143}^{tSZ} | 6.95 | 5.1 ± 2.0 | D_{810} | 2536.8 | 2536 ± 14 | $D_M(2.33)$ | 5844 | 5801 ± 120 |
| A_{100}^{PS} | 249.8 | 262 ± 29 | D_{1420} | 816.5 | 814.8 ± 5.2 | $f\sigma_8(0.15)$ | 0.4653 | 0.464 ± 0.012 |
| A_{143}^{PS} | 50.6 | 49 ± 9 | D_{2000} | 230.89 | 229.9 ± 2.3 | $\sigma_8(0.15)$ | 0.7445 | 0.747 ± 0.013 |
| $A_{143 \times 217}^{PS}$ | 51.5 | 44 ± 9 | $n_{s,0.002}$ | 0.9575 | 0.961 ± 0.013 | $f\sigma_8(0.38)$ | 0.4800 | 0.4793 ± 0.0095 |
| A_{217}^{PS} | 121.2 | 115 ± 10 | Y_P | 0.24321 | 0.2446 ± 0.0039 | $\sigma_8(0.38)$ | 0.6582 | 0.661 ± 0.012 |
| A^{kSZ} | 0.00 | < 4.72 | Y_P^{BBN} | 0.24453 | 0.2459 ± 0.0039 | $f\sigma_8(0.51)$ | 0.4767 | 0.4766 ± 0.0084 |
| A_{100}^{dustTT} | 8.77 | 8.9 ± 1.8 | $10^5 D/H$ | 2.599 | 2.625 ± 0.069 | $\sigma_8(0.51)$ | 0.6153 | 0.618 ± 0.012 |
| A_{143}^{dustTT} | 10.74 | 10.7 ± 1.8 | Age/Gyr | 13.986 | 13.89 ± 0.30 | $f\sigma_8(0.61)$ | 0.4705 | 0.4707 ± 0.0079 |
| $A_{143 \times 217}^{dustTT}$ | 19.66 | 18.2 ± 3.3 | z_* | 1090.110 | 1090.25 ± 0.49 | $\sigma_8(0.61)$ | 0.5850 | 0.588 ± 0.012 |
| A_{217}^{dustTT} | 95.2 | 93.3 ± 7.4 | r_* | 145.76 | 144.9 ± 2.5 | $f\sigma_8(2.33)$ | 0.2944 | 0.2959 ± 0.0062 |
| c_{100} | 0.99966 | 0.99960 ± 0.00062 | $100\theta_*$ | 1.04126 | 1.04110 ± 0.00072 | $\sigma_8(2.33)$ | 0.3028 | 0.3047 ± 0.0069 |
| c_{217} | 0.99824 | 0.99825 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.999 | 13.92 ± 0.23 | f_{2000}^{143} | 29.17 | 31 ± 4 |
| H_0 | 65.73 | 66.5 ± 2.3 | z_{drag} | 1058.94 | 1059.2 ± 1.1 | $f_{2000}^{143 \times 217}$ | 32.43 | 33.3 ± 2.6 |
| Ω_Λ | 0.6725 | $0.677_{-0.017}^{+0.019}$ | r_{drag} | 148.56 | 147.7 ± 2.6 | f_{2000}^{217} | 106.89 | 107.9 ± 2.3 |
| Ω_m | 0.3275 | $0.323_{-0.019}^{+0.017}$ | k_D | 0.13965 | 0.1402 ± 0.0019 | χ_{small}^2 | 395.85 | 396.9 ± 1.6 |
| $\Omega_m h^2$ | 0.14151 | 0.1428 ± 0.0041 | $100\theta_D$ | 0.16071 | 0.16097 ± 0.00065 | χ_{lowl}^2 | 24.50 | 24.4 ± 2.2 |
| $\Omega_m h^3$ | 0.0930 | $0.0950_{-0.0058}^{+0.0051}$ | z_{eq} | 3436 | 3419 ± 63 | χ_{plik}^2 | 757.7 | 771.7 ± 5.8 |
| σ_8 | 0.8074 | 0.810 ± 0.014 | k_{eq} | 0.010379 | 0.01040 ± 0.00016 | χ_{prior}^2 | 1.26 | 7.3 ± 3.6 |
| S_8 | 0.8436 | 0.840 ± 0.024 | $100\theta_{eq}$ | 0.8063 | 0.810 ± 0.012 | χ_{CMB}^2 | 1178.0 | 1192.9 ± 5.6 |

Best-fit $\chi_{eff}^2 = 1179.27$; $\Delta\chi_{eff}^2 = -0.31$; $\bar{\chi}_{eff}^2 = 1200.18$; $\Delta\bar{\chi}_{eff}^2 = 0.61$; $R - 1 = 0.00449$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.85 (Δ -0.02) commander_dx12_v3.2.29: 24.50 (Δ 0.89) plik_rd12_HM_v22_TT: 757.66 (Δ -1.09)

7.2 base_nnu_plikHM_TT_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022013 | 0.02206 ± 0.00029 | $\sigma_8 \Omega_m^{0.25}$ | 0.6060 | 0.6073 ± 0.0084 | $D_M(0.15)$ | 660.8 | 653 ± 20 |
| $\Omega_c h^2$ | 0.11746 | 0.1190 ± 0.0038 | $\sigma_8/h^{0.5}$ | 0.9906 | 0.990 ± 0.010 | $H(0.38)$ | 81.07 | 81.9 ± 2.0 |
| $100\theta_{MC}$ | 1.04110 | 1.04096 ± 0.00058 | $r_{\text{drag}} h$ | 97.78 | 98.3 ± 1.7 | $D_M(0.38)$ | 1572.1 | 1555 ± 44 |
| τ | 0.0503 | 0.0512 ± 0.0079 | $\langle d^2 \rangle^{1/2}$ | 2.4593 | 2.454 ± 0.031 | $H(0.51)$ | 87.84 | 88.7 ± 2.0 |
| N_{eff} | 2.831 | 2.95 ± 0.27 | z_{re} | 7.28 | 7.38 ± 0.82 | $D_M(0.51)$ | 2034 | 2013 ± 54 |
| $\ln(10^{10} A_s)$ | 3.0283 | 3.034 ± 0.020 | $10^9 A_s$ | 2.0663 | 2.078 ± 0.042 | $H(0.61)$ | 93.48 | 94.3 ± 2.0 |
| n_s | 0.9559 | 0.959 ± 0.012 | $10^9 A_s e^{-2\tau}$ | 1.8685 | 1.876 ± 0.022 | $D_M(0.61)$ | 2365 | 2341 ± 62 |
| y_{cal} | 1.00025 | 1.0005 ± 0.0025 | D_{40} | 1240.1 | 1237 ± 19 | $H(2.33)$ | 233.82 | 235.2 ± 3.5 |
| A_{217}^{CIB} | 46.8 | 47 ± 7 | D_{220} | 5711.8 | 5715 ± 41 | $D_M(2.33)$ | 5869 | 5821 ± 120 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.53 | — | D_{810} | 2534.5 | 2535 ± 14 | $f\sigma_8(0.15)$ | 0.4615 | 0.4612 ± 0.0081 |
| A_{143}^{tSZ} | 6.99 | $5.2_{-2.0}^{+2.2}$ | D_{1420} | 816.7 | 815.1 ± 5.2 | $\sigma_8(0.15)$ | 0.7393 | 0.744 ± 0.013 |
| A_{100}^{PS} | 248.4 | 261 ± 28 | D_{2000} | 231.20 | 230.1 ± 2.3 | $f\sigma_8(0.38)$ | 0.4762 | 0.4770 ± 0.0066 |
| A_{143}^{PS} | 49.2 | 48 ± 9 | $n_{s,0.002}$ | 0.9559 | 0.959 ± 0.012 | $\sigma_8(0.38)$ | 0.6538 | 0.658 ± 0.012 |
| $A_{143 \times 217}^{\text{PS}}$ | 50.2 | 43 ± 9 | Y_P | 0.24233 | 0.2439 ± 0.0038 | $f\sigma_8(0.51)$ | 0.4731 | 0.4744 ± 0.0064 |
| A_{217}^{PS} | 120.4 | 115 ± 10 | Y_P^{BBN} | 0.24364 | 0.2452 ± 0.0038 | $\sigma_8(0.51)$ | 0.6112 | 0.616 ± 0.012 |
| A^{kSZ} | 0.01 | < 4.66 | $10^5 D/H$ | 2.578 | 2.609 ± 0.068 | $f\sigma_8(0.61)$ | 0.4670 | 0.4686 ± 0.0063 |
| A_{100}^{dustTT} | 8.82 | 9.0 ± 1.8 | Age/Gyr | 14.047 | 13.93 ± 0.29 | $\sigma_8(0.61)$ | 0.5812 | 0.585 ± 0.011 |
| A_{143}^{dustTT} | 10.70 | 10.7 ± 1.8 | z_* | 1089.935 | 1090.12 ± 0.47 | $f\sigma_8(2.33)$ | 0.2925 | 0.2948 ± 0.0062 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.43 | 18.2 ± 3.3 | r_* | 146.47 | 145.5 ± 2.5 | $\sigma_8(2.33)$ | 0.3009 | 0.3035 ± 0.0068 |
| A_{217}^{dustTT} | 94.7 | 93.4 ± 7.4 | $100\theta_*$ | 1.04145 | 1.04124 ± 0.00072 | f_{2000}^{143} | 28.72 | 30 ± 4 |
| c_{100} | 0.99964 | 0.99960 ± 0.00063 | $D_M(z_*)/\text{Gpc}$ | 14.064 | 13.97 ± 0.23 | $f_{2000}^{143 \times 217}$ | 31.99 | 33.0 ± 2.5 |
| c_{217} | 0.99821 | 0.99824 ± 0.00061 | z_{drag} | 1058.75 | 1059.1 ± 1.1 | f_{2000}^{217} | 106.46 | 107.6 ± 2.3 |
| H_0 | 65.50 | 66.3 ± 2.1 | r_{drag} | 149.28 | 148.3 ± 2.6 | χ_{lensing}^2 | 8.61 | 9.37 ± 0.98 |
| Ω_Λ | 0.6734 | 0.678 ± 0.015 | k_D | 0.13915 | 0.1398 ± 0.0018 | χ_{small}^2 | 395.69 | 396.8 ± 1.5 |
| Ω_m | 0.3266 | 0.322 ± 0.015 | $100\theta_D$ | 0.16054 | 0.16084 ± 0.00064 | χ_{lowl}^2 | 24.61 | 24.4 ± 1.9 |
| $\Omega_m h^2$ | 0.14012 | 0.1417 ± 0.0040 | z_{eq} | 3432 | 3416 ± 50 | χ_{plik}^2 | 757.8 | 771.1 ± 5.5 |
| $\Omega_m h^3$ | 0.0918 | $0.0941_{-0.0056}^{+0.0049}$ | k_{eq} | 0.010323 | 0.01035 ± 0.00014 | χ_{prior}^2 | 1.28 | 7.3 ± 3.6 |
| σ_8 | 0.8017 | 0.806 ± 0.013 | $100\theta_{\text{eq}}$ | 0.8070 | 0.8101 ± 0.0095 | χ_{CMB}^2 | 1186.7 | 1201.7 ± 5.6 |
| S_8 | 0.8365 | 0.835 ± 0.016 | $100\theta_{s,\text{eq}}$ | 0.44635 | 0.4479 ± 0.0048 | | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4582 | 0.4576 ± 0.0089 | $H(0.15)$ | 70.86 | 71.7 ± 2.1 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1188.03$; $\Delta\chi_{\text{eff}}^2 = -0.54$; $\bar{\chi}_{\text{eff}}^2 = 1208.98$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.57$; $R - 1 = 0.00963$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.62 (Δ -0.29) simall.100x143_offlike5_EE_Aplanck_B: 395.69 (Δ -0.17) commander_dx12_v3_2_29: 24.61 (Δ 1.37) plik_rd12_HM_v22_TT: 757.83 (Δ -1.49)

7.3 base_nnu_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02210 ± 0.00030 | $\sigma_8 \Omega_m^{0.5}$ | 0.460 ± 0.013 | $100\theta_{s,eq}$ | 0.4480 ± 0.0060 |
| $\Omega_c h^2$ | 0.1202 ± 0.0040 | $\sigma_8 \Omega_m^{0.25}$ | 0.611 ± 0.012 | $H(0.15)$ | 72.1 ± 2.2 |
| $100\theta_{MC}$ | 1.04084 ± 0.00058 | $\sigma_8/h^{0.5}$ | 0.994 ± 0.016 | $D_M(0.15)$ | 650 ± 21 |
| τ | $0.0533^{+0.0044}_{-0.0082}$ | $r_{drag}h$ | 98.4 ± 2.1 | $H(0.38)$ | 82.3 ± 2.1 |
| N_{eff} | 3.02 ± 0.28 | $\langle d^2 \rangle^{1/2}$ | 2.459 ± 0.044 | $D_M(0.38)$ | 1548 ± 47 |
| $\ln(10^{10} A_s)$ | $3.041^{+0.016}_{-0.019}$ | z_{re} | $7.63^{+0.48}_{-0.86}$ | $H(0.51)$ | 89.1 ± 2.1 |
| n_s | 0.962 ± 0.013 | $10^9 A_s$ | $2.094^{+0.033}_{-0.041}$ | $D_M(0.51)$ | 2003 ± 58 |
| y_{cal} | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.022 | $H(0.61)$ | 94.8 ± 2.1 |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1235 ± 22 | $D_M(0.61)$ | 2330 ± 65 |
| $\xi^{tSZ \times CIB}$ | — | D_{220} | 5713 ± 41 | $H(2.33)$ | 236.3 ± 3.6 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{810} | 2536 ± 14 | $D_M(2.33)$ | 5793 ± 120 |
| A_{100}^{PS} | 262 ± 29 | D_{1420} | 814.8 ± 5.2 | $f\sigma_8(0.15)$ | 0.464 ± 0.012 |
| A_{143}^{PS} | 49 ± 9 | D_{2000} | 229.8 ± 2.3 | $\sigma_8(0.15)$ | 0.749 ± 0.012 |
| $A_{143 \times 217}^{PS}$ | 44 ± 9 | $n_{s,0.002}$ | 0.962 ± 0.013 | $f\sigma_8(0.38)$ | 0.4799 ± 0.0094 |
| A_{217}^{PS} | 115 ± 10 | Y_P | 0.2448 ± 0.0038 | $\sigma_8(0.38)$ | 0.663 ± 0.012 |
| A^{kSZ} | < 4.73 | Y_P^{BBN} | 0.2461 ± 0.0038 | $f\sigma_8(0.51)$ | 0.4773 ± 0.0083 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $10^5 D/H$ | 2.626 ± 0.069 | $\sigma_8(0.51)$ | 0.620 ± 0.011 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | Age/Gyr | 13.87 ± 0.29 | $f\sigma_8(0.61)$ | 0.4715 ± 0.0077 |
| $A_{143 \times 217}^{dustTT}$ | 18.2 ± 3.3 | z_* | 1090.25 ± 0.49 | $\sigma_8(0.61)$ | 0.589 ± 0.011 |
| A_{217}^{dustTT} | 93.3 ± 7.4 | r_* | 144.8 ± 2.5 | $f\sigma_8(2.33)$ | 0.2968 ± 0.0059 |
| c_{100} | 0.99960 ± 0.00062 | $100\theta_*$ | 1.04108 ± 0.00071 | $\sigma_8(2.33)$ | 0.3056 ± 0.0066 |
| c_{217} | 0.99825 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.91 ± 0.23 | f_{2000}^{143} | 31 ± 4 |
| H_0 | 66.7 ± 2.3 | z_{drag} | 1059.3 ± 1.1 | $f_{2000}^{143 \times 217}$ | 33.3 ± 2.6 |
| Ω_Λ | $0.678^{+0.019}_{-0.017}$ | r_{drag} | 147.6 ± 2.6 | f_{2000}^{217} | 107.9 ± 2.4 |
| Ω_m | $0.322^{+0.017}_{-0.019}$ | k_D | 0.1403 ± 0.0018 | χ_{simall}^2 | 396.7 ± 1.5 |
| $\Omega_m h^2$ | 0.1429 ± 0.0041 | $100\theta_D$ | 0.16100 ± 0.00065 | χ_{lowl}^2 | 24.2 ± 2.2 |
| $\Omega_m h^3$ | $0.0954^{+0.0051}_{-0.0057}$ | z_{eq} | 3415 ± 63 | χ_{plik}^2 | 771.7 ± 5.8 |
| σ_8 | 0.811 ± 0.013 | k_{eq} | 0.01040 ± 0.00016 | χ_{prior}^2 | 7.3 ± 3.6 |
| S_8 | 0.840 ± 0.024 | $100\theta_{eq}$ | 0.810 ± 0.012 | χ_{CMB}^2 | 1192.7 ± 5.5 |

$\bar{\chi}_{eff}^2 = 1199.93$; $\Delta\bar{\chi}_{eff}^2 = 0.61$; $R - 1 = 0.00341$

7.4 base_nnu_plikHM_TT_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02209 ± 0.00029 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6077 ± 0.0083 | $D_{\mathrm{M}}(0.15)$ | 651 ± 19 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1191 ± 0.0038 | $\sigma_8/h^{0.5}$ | 0.990 ± 0.010 | $H(0.38)$ | 82.1 ± 2.0 |
| $100\theta_{\mathrm{MC}}$ | 1.04095 ± 0.00058 | $r_{\mathrm{drag}}h$ | 98.5 ± 1.7 | $D_{\mathrm{M}}(0.38)$ | 1551 ± 43 |
| τ | $0.0532^{+0.0043}_{-0.0081}$ | $\langle d^2 \rangle^{1/2}$ | 2.454 ± 0.031 | $H(0.51)$ | 88.9 ± 2.0 |
| N_{eff} | 2.97 ± 0.27 | z_{re} | $7.59^{+0.45}_{-0.86}$ | $D_{\mathrm{M}}(0.51)$ | 2008 ± 53 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.038^{+0.016}_{-0.019}$ | $10^9 A_{\mathrm{s}}$ | $2.087^{+0.033}_{-0.040}$ | $H(0.61)$ | 94.5 ± 2.0 |
| n_{s} | 0.961 ± 0.012 | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.876 ± 0.022 | $D_{\mathrm{M}}(0.61)$ | 2335 ± 60 |
| y_{cal} | 1.0004 ± 0.0025 | D_{40} | 1236 ± 18 | $H(2.33)$ | 235.4 ± 3.5 |
| A_{217}^{CIB} | 47 ± 7 | D_{220} | 5716 ± 41 | $D_{\mathrm{M}}(2.33)$ | 5811 ± 120 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{810} | 2535 ± 14 | $f\sigma_8(0.15)$ | 0.4610 ± 0.0081 |
| A_{143}^{tSZ} | 5.2 ± 2.0 | D_{1420} | 815.0 ± 5.3 | $\sigma_8(0.15)$ | 0.746 ± 0.012 |
| A_{100}^{PS} | 261 ± 28 | D_{2000} | 230.1 ± 2.3 | $f\sigma_8(0.38)$ | 0.4773 ± 0.0066 |
| A_{143}^{PS} | 48 ± 9 | $n_{\mathrm{s},0.002}$ | 0.961 ± 0.012 | $\sigma_8(0.38)$ | 0.660 ± 0.012 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43 ± 9 | Y_{P} | 0.2442 ± 0.0037 | $f\sigma_8(0.51)$ | 0.4748 ± 0.0063 |
| A_{217}^{PS} | 115 ± 10 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.2455 ± 0.0037 | $\sigma_8(0.51)$ | 0.617 ± 0.011 |
| A^{kSZ} | < 4.66 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.611 ± 0.069 | $f\sigma_8(0.61)$ | 0.4692 ± 0.0062 |
| $A_{100}^{\mathrm{dustTT}}$ | 9.0 ± 1.8 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.91 ± 0.28 | $\sigma_8(0.61)$ | 0.587 ± 0.011 |
| $A_{143}^{\mathrm{dustTT}}$ | 10.7 ± 1.8 | z_* | 1090.11 ± 0.47 | $f\sigma_8(2.33)$ | 0.2957 ± 0.0059 |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 18.2 ± 3.3 | r_* | 145.3 ± 2.5 | $\sigma_8(2.33)$ | 0.3045 ± 0.0065 |
| $A_{217}^{\mathrm{dustTT}}$ | 93.4 ± 7.4 | $100\theta_*$ | 1.04121 ± 0.00071 | f_{2000}^{143} | 31 ± 4 |
| c_{100} | 0.99960 ± 0.00063 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.96 ± 0.23 | $f_{2000}^{143 \times 217}$ | 33.0 ± 2.5 |
| c_{217} | 0.99825 ± 0.00061 | z_{drag} | 1059.2 ± 1.0 | f_{2000}^{217} | 107.7 ± 2.3 |
| H_0 | 66.6 ± 2.0 | r_{drag} | 148.1 ± 2.6 | $\chi_{\mathrm{lensing}}^2$ | 9.38 ± 0.99 |
| Ω_{Λ} | 0.679 ± 0.014 | k_{D} | 0.1399 ± 0.0018 | χ_{simall}^2 | 396.7 ± 1.5 |
| Ω_{m} | 0.321 ± 0.014 | $100\theta_{\mathrm{D}}$ | 0.16088 ± 0.00064 | χ_{lowl}^2 | 24.2 ± 1.9 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1418 ± 0.0040 | z_{eq} | 3410 ± 48 | χ_{plik}^2 | 771.2 ± 5.5 |
| $\Omega_{\mathrm{m}}h^3$ | $0.0944^{+0.0049}_{-0.0055}$ | k_{eq} | 0.01035 ± 0.00013 | χ_{prior}^2 | 7.3 ± 3.6 |
| σ_8 | 0.808 ± 0.012 | $100\theta_{\mathrm{eq}}$ | 0.8113 ± 0.0091 | χ_{CMB}^2 | 1201.4 ± 5.6 |
| S_8 | 0.835 ± 0.016 | $100\theta_{\mathrm{s,eq}}$ | 0.4485 ± 0.0046 | | |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4572 ± 0.0089 | $H(0.15)$ | 71.9 ± 2.0 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 1208.73$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.57$; $R - 1 = 0.01118$

7.5 base_nnu_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|--------------------------------|----------|-----------------------|-----------------------------|----------|-----------------------|
| $\Omega_b h^2$ | 0.022194 | 0.02225 ± 0.00022 | $\Omega_m h^2$ | 0.14008 | 0.1413 ± 0.0030 | k_{eq} | 0.010317 | 0.01035 ± 0.00012 |
| $\Omega_c h^2$ | 0.11725 | 0.1184 ± 0.0029 | $\Omega_m h^3$ | 0.09221 | 0.0938 ± 0.0037 | $100\theta_{\text{eq}}$ | 0.8082 | 0.8099 ± 0.0068 |
| $100\theta_{\text{MC}}$ | 1.041225 | 1.04111 ± 0.00043 | σ_8 | 0.8040 | 0.806 ± 0.011 | $100\theta_{\text{s,eq}}$ | 0.44683 | 0.4477 ± 0.0034 |
| τ | 0.0538 | 0.0532 ± 0.0077 | S_8 | 0.8347 | 0.833 ± 0.016 | $H(0.15)$ | 71.15 | 71.7 ± 1.4 |
| N_{eff} | 2.836 | 2.92 ± 0.19 | $\sigma_8 \Omega_m^{0.5}$ | 0.4572 | 0.4565 ± 0.0086 | $D_{\text{M}}(0.15)$ | 657.8 | 653 ± 13 |
| $\ln(10^{10} A_s)$ | 3.0365 | 3.038 ± 0.018 | $\sigma_8 \Omega_m^{0.25}$ | 0.6063 | 0.6066 ± 0.0087 | $H(0.38)$ | 81.33 | 81.9 ± 1.4 |
| n_s | 0.9579 | 0.9597 ± 0.0085 | $\sigma_8/h^{0.5}$ | 0.9910 | 0.989 ± 0.012 | $D_{\text{M}}(0.38)$ | 1565.8 | 1554 ± 30 |
| y_{cal} | 1.00052 | 1.0008 ± 0.0025 | $r_{\text{drag}} h$ | 98.15 | 98.5 ± 1.2 | $H(0.51)$ | 88.07 | 88.7 ± 1.4 |
| A_{217}^{CIB} | 43.5 | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4604 | 2.456 ± 0.030 | $D_{\text{M}}(0.51)$ | 2026.5 | 2012 ± 37 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.962 | > 0.385 | z_{re} | 7.60 | 7.54 ± 0.79 | $H(0.61)$ | 93.70 | 94.3 ± 1.4 |
| A_{143}^{tSZ} | 6.85 | $5.6_{-1.9}^{+2.1}$ | $10^9 A_s$ | 2.0831 | 2.086 ± 0.038 | $D_{\text{M}}(0.61)$ | 2356.6 | 2340 ± 42 |
| A_{100}^{PS} | 243.7 | 256 ± 28 | $10^9 A_s e^{-2\tau}$ | 1.8707 | 1.876 ± 0.018 | $H(2.33)$ | 233.89 | 234.9 ± 2.6 |
| A_{143}^{PS} | 52.4 | 45 ± 8 | D_{40} | 1239.7 | 1239 ± 16 | $D_{\text{M}}(2.33)$ | 5857 | 5822 ± 84 |
| $A_{143 \times 217}^{\text{PS}}$ | 58.7 | 42 ± 9 | D_{220} | 5729.7 | 5734 ± 38 | $f\sigma_8(0.15)$ | 0.4608 | 0.4603 ± 0.0081 |
| A_{217}^{PS} | 124.4 | 115 ± 10 | D_{810} | 2539.3 | 2539 ± 14 | $\sigma_8(0.15)$ | 0.7418 | 0.744 ± 0.010 |
| A^{kSZ} | 0.00 | < 3.89 | D_{1420} | 819.67 | 818.0 ± 4.8 | $f\sigma_8(0.38)$ | 0.4763 | 0.4764 ± 0.0069 |
| A_{100}^{dustTT} | 8.70 | 8.9 ± 1.8 | D_{2000} | 232.48 | 231.6 ± 1.8 | $\sigma_8(0.38)$ | 0.6563 | 0.6585 ± 0.0096 |
| A_{143}^{dustTT} | 10.90 | 10.8 ± 1.8 | $n_{\text{s},0.002}$ | 0.9579 | 0.9597 ± 0.0085 | $f\sigma_8(0.51)$ | 0.4736 | 0.4740 ± 0.0065 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.22 | 18.4 ± 3.3 | Y_{P} | 0.24247 | 0.2436 ± 0.0026 | $\sigma_8(0.51)$ | 0.6137 | 0.6159 ± 0.0091 |
| A_{217}^{dustTT} | 96.0 | 93.6 ± 7.4 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24378 | 0.2449 ± 0.0026 | $f\sigma_8(0.61)$ | 0.4677 | 0.4683 ± 0.0063 |
| A_{100}^{dustTE} | 0.1143 | 0.114 ± 0.038 | 10^5D/H | 2.5456 | 2.564 ± 0.044 | $\sigma_8(0.61)$ | 0.5836 | 0.5858 ± 0.0088 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1342 | 0.135 ± 0.030 | Age/Gyr | 14.018 | 13.94 ± 0.20 | $f\sigma_8(2.33)$ | 0.29383 | 0.2950 ± 0.0046 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.481 ± 0.085 | z_* | 1089.693 | 1089.81 ± 0.34 | $\sigma_8(2.33)$ | 0.30242 | 0.3038 ± 0.0050 |
| A_{143}^{dustTE} | 0.225 | 0.225 ± 0.053 | r_* | 146.36 | 145.6 ± 1.8 | f_{2000}^{143} | 27.19 | 28.7 ± 3.0 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.668 | 0.666 ± 0.080 | $100\theta_*$ | 1.04156 | 1.04139 ± 0.00054 | $f_{2000}^{143 \times 217}$ | 30.88 | 31.6 ± 2.1 |
| A_{217}^{dustTE} | 2.087 | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 14.052 | 13.98 ± 0.17 | f_{2000}^{217} | 105.44 | 106.5 ± 1.9 |
| c_{100} | 0.99976 | 0.99968 ± 0.00061 | z_{drag} | 1059.17 | 1059.42 ± 0.78 | χ_{small}^2 | 396.03 | 397.0 ± 1.7 |
| c_{217} | 0.99816 | 0.99817 ± 0.00062 | r_{drag} | 149.11 | 148.3 ± 1.9 | χ_{lowl}^2 | 24.41 | 24.3 ± 1.5 |
| H_0 | 65.82 | 66.4 ± 1.4 | k_{D} | 0.13944 | 0.1400 ± 0.0014 | χ_{plik}^2 | 2343.0 | 2359.2 ± 6.0 |
| Ω_{Λ} | 0.6767 | 0.679 ± 0.010 | $100\theta_{\text{D}}$ | 0.160328 | 0.16052 ± 0.00040 | χ_{prior}^2 | 1.33 | 11.6 ± 4.6 |
| Ω_{m} | 0.3233 | 0.321 ± 0.010 | z_{eq} | 3428.9 | 3420 ± 36 | χ_{CMB}^2 | 2763.4 | 2780.5 ± 6.0 |

Best-fit $\chi_{\text{eff}}^2 = 2764.72$; $\Delta\chi_{\text{eff}}^2 = -1.05$; $\bar{\chi}_{\text{eff}}^2 = 2792.10$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.33$; $R - 1 = 0.01315$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.03 (Δ -0.02) commander_dx12_v3_2_29: 24.41 (Δ 1.15) plik_rd12_HM_v22b_TTTEEE: 2342.95 (Δ -1.69)

7.6 base_nnu_plikHM_TTTEEE_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022195 | 0.02224 ± 0.00022 | $\Omega_m h^3$ | 0.09181 | 0.0933 ± 0.0037 | $100\theta_{s,eq}$ | 0.44715 | 0.4478 ± 0.0031 |
| $\Omega_c h^2$ | 0.11671 | 0.1179 ± 0.0028 | σ_8 | 0.8018 | 0.8044 ± 0.0099 | $H(0.15)$ | 71.10 | 71.6 ± 1.4 |
| $100\theta_{MC}$ | 1.041296 | 1.04116 ± 0.00043 | S_8 | 0.8312 | 0.831 ± 0.013 | $D_M(0.15)$ | 658.2 | 654 ± 13 |
| τ | 0.0533 | 0.0530 ± 0.0072 | $\sigma_8 \Omega_m^{0.5}$ | 0.4553 | 0.4554 ± 0.0069 | $H(0.38)$ | 81.25 | 81.8 ± 1.4 |
| N_{eff} | 2.815 | 2.89 ± 0.19 | $\sigma_8 \Omega_m^{0.25}$ | 0.6042 | 0.6052 ± 0.0070 | $D_M(0.38)$ | 1567.0 | 1557 ± 29 |
| $\ln(10^{10} A_s)$ | 3.0339 | 3.036 ± 0.017 | $\sigma_8/h^{0.5}$ | 0.9885 | 0.9880 ± 0.0089 | $H(0.51)$ | 87.97 | 88.5 ± 1.4 |
| n_s | 0.9577 | 0.9589 ± 0.0084 | $r_{drag} h$ | 98.27 | 98.5 ± 1.1 | $D_M(0.51)$ | 2028.1 | 2015 ± 37 |
| y_{cal} | 1.00049 | 1.0007 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4559 | 2.454 ± 0.024 | $H(0.61)$ | 93.59 | 94.1 ± 1.4 |
| A_{217}^{CIB} | 43.4 | 46 ± 7 | z_{re} | 7.53 | 7.50 ± 0.74 | $D_M(0.61)$ | 2358.6 | 2344 ± 42 |
| $\xi^{tSZ \times CIB}$ | 0.984 | > 0.391 | $10^9 A_s$ | 2.0778 | 2.083 ± 0.035 | $H(2.33)$ | 233.46 | 234.5 ± 2.6 |
| A_{143}^{tSZ} | 6.95 | $5.6_{-1.9}^{+2.2}$ | $10^9 A_s e^{-2\tau}$ | 1.8679 | 1.873 ± 0.017 | $D_M(2.33)$ | 5864 | 5832 ± 84 |
| A_{100}^{PS} | 242.3 | 256 ± 28 | D_{40} | 1239.1 | 1240 ± 15 | $f\sigma_8(0.15)$ | 0.4589 | 0.4592 ± 0.0064 |
| A_{143}^{PS} | 52.0 | 44 ± 8 | D_{220} | 5730.4 | 5736 ± 38 | $\sigma_8(0.15)$ | 0.7399 | 0.7424 ± 0.0095 |
| $A_{143 \times 217}^{PS}$ | 59.1 | 42 ± 9 | D_{810} | 2538.8 | 2538 ± 13 | $f\sigma_8(0.38)$ | 0.4747 | 0.4753 ± 0.0055 |
| A_{217}^{PS} | 124.4 | 115 ± 10 | D_{1420} | 819.91 | 818.1 ± 4.8 | $\sigma_8(0.38)$ | 0.6547 | 0.6571 ± 0.0090 |
| A^{kSZ} | 0.01 | < 3.94 | D_{2000} | 232.64 | 231.7 ± 1.8 | $f\sigma_8(0.51)$ | 0.4720 | 0.4729 ± 0.0053 |
| A_{100}^{dustTT} | 8.69 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.9577 | 0.9589 ± 0.0084 | $\sigma_8(0.51)$ | 0.6122 | 0.6146 ± 0.0087 |
| A_{143}^{dustTT} | 10.89 | 10.8 ± 1.8 | Y_P | 0.24218 | 0.2433 ± 0.0026 | $f\sigma_8(0.61)$ | 0.4662 | 0.4673 ± 0.0052 |
| $A_{143 \times 217}^{dustTT}$ | 20.32 | 18.4 ± 3.3 | Y_P^{BBN} | 0.24349 | 0.2446 ± 0.0026 | $\sigma_8(0.61)$ | 0.5822 | 0.5845 ± 0.0084 |
| A_{217}^{dustTT} | 96.1 | 93.6 ± 7.4 | $10^5 D/H$ | 2.5380 | 2.558 ± 0.043 | $f\sigma_8(2.33)$ | 0.29318 | 0.2944 ± 0.0044 |
| A_{100}^{dustTE} | 0.1135 | 0.114 ± 0.038 | Age/Gyr | 14.036 | 13.96 ± 0.20 | $\sigma_8(2.33)$ | 0.30178 | 0.3031 ± 0.0049 |
| $A_{100 \times 143}^{dustTE}$ | 0.1357 | 0.135 ± 0.029 | z_* | 1089.620 | 1089.75 ± 0.32 | f_{2000}^{143} | 26.90 | 28.6 ± 3.0 |
| $A_{100 \times 217}^{dustTE}$ | 0.482 | 0.480 ± 0.086 | r_* | 146.61 | 145.9 ± 1.8 | $f_{2000}^{143 \times 217}$ | 30.75 | 31.5 ± 2.0 |
| A_{143}^{dustTE} | 0.228 | 0.225 ± 0.053 | $100\theta_*$ | 1.04165 | 1.04145 ± 0.00053 | f_{2000}^{217} | 105.29 | 106.4 ± 1.9 |
| $A_{143 \times 217}^{dustTE}$ | 0.669 | 0.667 ± 0.081 | $D_M(z_*)/\text{Gpc}$ | 14.075 | 14.01 ± 0.17 | $\chi_{lensing}^2$ | 8.501 | 9.02 ± 0.70 |
| A_{217}^{dustTE} | 2.090 | 2.08 ± 0.27 | z_{drag} | 1059.09 | 1059.35 ± 0.79 | χ_{small}^2 | 395.95 | 396.8 ± 1.5 |
| c_{100} | 0.99976 | 0.99969 ± 0.00061 | r_{drag} | 149.36 | 148.6 ± 1.9 | χ_{lowl}^2 | 24.36 | 24.4 ± 1.5 |
| c_{217} | 0.99816 | 0.99817 ± 0.00062 | k_D | 0.13926 | 0.1398 ± 0.0014 | χ_{plik}^2 | 2343.0 | 2359.1 ± 5.9 |
| H_0 | 65.79 | 66.3 ± 1.4 | $100\theta_D$ | 0.160274 | 0.16046 ± 0.00040 | χ_{prior}^2 | 1.43 | 11.6 ± 4.6 |
| Ω_Λ | 0.6776 | 0.6794 ± 0.0097 | z_{eq} | 3425.7 | 3419 ± 33 | χ_{CMB}^2 | 2771.9 | 2789.3 ± 6.0 |
| Ω_m | 0.3224 | 0.3206 ± 0.0097 | k_{eq} | 0.010292 | 0.01033 ± 0.00011 | | | |
| $\Omega_m h^2$ | 0.13955 | 0.1408 ± 0.0030 | $100\theta_{eq}$ | 0.8088 | 0.8101 ± 0.0062 | | | |

Best-fit $\chi_{eff}^2 = 2773.28$; $\Delta\chi_{eff}^2 = -1.35$; $\bar{\chi}_{eff}^2 = 2800.86$; $\Delta\bar{\chi}_{eff}^2 = 0.17$; $R - 1 = 0.01957$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consect8: 8.50 (Δ -0.37) small_100x143_offlike5_EE_Aplanck_B: 395.95 (Δ -0.10) commander_dx12_v3_2_29: 24.36 (Δ 1.11) plik_rd12_HM_v22b_TTTEEE: 2343.04 (Δ -1.89)

7.7 base_nnu_plikHM_TTTEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|--------------------------------|---------------------------|-----------------------------|-----------------------|
| $\Omega_b h^2$ | 0.02225 ± 0.00022 | $\Omega_m h^2$ | 0.1413 ± 0.0030 | k_{eq} | 0.01035 ± 0.00012 |
| $\Omega_c h^2$ | 0.1184 ± 0.0029 | $\Omega_m h^3$ | 0.0939 ± 0.0037 | $100\theta_{\text{eq}}$ | 0.8102 ± 0.0068 |
| $100\theta_{\text{MC}}$ | 1.04111 ± 0.00043 | σ_8 | 0.807 ± 0.010 | $100\theta_{\text{s,eq}}$ | 0.4479 ± 0.0034 |
| τ | $0.0546^{+0.0049}_{-0.0079}$ | S_8 | 0.834 ± 0.016 | $H(0.15)$ | 71.8 ± 1.4 |
| N_{eff} | 2.92 ± 0.19 | $\sigma_8 \Omega_m^{0.5}$ | 0.4569 ± 0.0086 | $D_{\text{M}}(0.15)$ | 652 ± 13 |
| $\ln(10^{10} A_s)$ | $3.041^{+0.014}_{-0.018}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6073 ± 0.0085 | $H(0.38)$ | 82.0 ± 1.4 |
| n_s | 0.9600 ± 0.0085 | $\sigma_8/h^{0.5}$ | 0.991 ± 0.011 | $D_{\text{M}}(0.38)$ | 1553 ± 30 |
| y_{cal} | 1.0007 ± 0.0025 | $r_{\text{drag}} h$ | 98.5 ± 1.2 | $H(0.51)$ | 88.7 ± 1.4 |
| A_{217}^{CIB} | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.458 ± 0.029 | $D_{\text{M}}(0.51)$ | 2011 ± 37 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | > 0.385 | z_{re} | $7.69^{+0.55}_{-0.78}$ | $H(0.61)$ | 94.3 ± 1.4 |
| A_{143}^{tSZ} | $5.6^{+2.1}_{-1.8}$ | $10^9 A_s$ | $2.092^{+0.030}_{-0.038}$ | $D_{\text{M}}(0.61)$ | 2338 ± 42 |
| A_{100}^{PS} | 256 ± 28 | $10^9 A_s e^{-2\tau}$ | 1.876 ± 0.018 | $H(2.33)$ | 235.0 ± 2.6 |
| A_{143}^{PS} | 45 ± 8 | D_{40} | 1239 ± 16 | $D_{\text{M}}(2.33)$ | 5819 ± 83 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{220} | 5734 ± 38 | $f\sigma_8(0.15)$ | 0.4607 ± 0.0080 |
| A_{217}^{PS} | 115 ± 10 | D_{810} | 2538 ± 14 | $\sigma_8(0.15)$ | 0.7451 ± 0.0099 |
| A^{kSZ} | < 3.87 | D_{1420} | 818.0 ± 4.8 | $f\sigma_8(0.38)$ | 0.4770 ± 0.0068 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | D_{2000} | 231.6 ± 1.8 | $\sigma_8(0.38)$ | 0.6596 ± 0.0091 |
| A_{143}^{dustTT} | 10.8 ± 1.8 | $n_{\text{s},0.002}$ | 0.9600 ± 0.0085 | $f\sigma_8(0.51)$ | 0.4746 ± 0.0063 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.4 ± 3.3 | Y_{P} | 0.2437 ± 0.0026 | $\sigma_8(0.51)$ | 0.6169 ± 0.0087 |
| A_{217}^{dustTT} | 93.6 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2450 ± 0.0026 | $f\sigma_8(0.61)$ | 0.4689 ± 0.0060 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.565 ± 0.044 | $\sigma_8(0.61)$ | 0.5867 ± 0.0084 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | Age/Gyr | 13.93 ± 0.20 | $f\sigma_8(2.33)$ | 0.2955 ± 0.0044 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.085 | z_* | 1089.81 ± 0.34 | $\sigma_8(2.33)$ | 0.3043 ± 0.0048 |
| A_{143}^{dustTE} | 0.225 ± 0.053 | r_* | 145.6 ± 1.8 | f_{2000}^{143} | 28.7 ± 3.0 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 ± 0.080 | $100\theta_*$ | 1.04138 ± 0.00054 | $f_{2000}^{143 \times 217}$ | 31.6 ± 2.1 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.98 ± 0.17 | f_{2000}^{217} | 106.5 ± 1.9 |
| c_{100} | 0.99968 ± 0.00061 | z_{drag} | 1059.45 ± 0.78 | χ_{small}^2 | 396.9 ± 1.8 |
| c_{217} | 0.99817 ± 0.00063 | r_{drag} | 148.3 ± 1.9 | χ_{lowl}^2 | 24.3 ± 1.5 |
| H_0 | 66.4 ± 1.4 | k_{D} | 0.1400 ± 0.0014 | χ_{plik}^2 | 2359.1 ± 6.0 |
| Ω_{Λ} | 0.680 ± 0.010 | $100\theta_{\text{D}}$ | 0.16053 ± 0.00040 | χ_{prior}^2 | 11.5 ± 4.6 |
| Ω_{m} | 0.320 ± 0.010 | z_{eq} | 3418 ± 36 | χ_{CMB}^2 | 2780.3 ± 5.9 |

$$\bar{\chi}_{\text{eff}}^2 = 2791.81; \Delta\bar{\chi}_{\text{eff}}^2 = 0.28; R - 1 = 0.01491$$

7.8 base_nnu_plikHM_TTTEE_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_{\text{b}}h^2$ | 0.02224 ± 0.00022 | $\Omega_{\text{m}}h^3$ | 0.0934 ± 0.0037 | $100\theta_{\text{s,eq}}$ | 0.4480 ± 0.0031 |
| $\Omega_{\text{c}}h^2$ | 0.1179 ± 0.0028 | σ_8 | 0.8052 ± 0.0096 | $H(0.15)$ | 71.7 ± 1.4 |
| $100\theta_{\text{MC}}$ | 1.04116 ± 0.00043 | S_8 | 0.831 ± 0.013 | $D_{\text{M}}(0.15)$ | 653 ± 13 |
| τ | $0.0542^{+0.0048}_{-0.0074}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4554 ± 0.0069 | $H(0.38)$ | 81.8 ± 1.4 |
| N_{eff} | 2.90 ± 0.19 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6056 ± 0.0069 | $D_{\text{M}}(0.38)$ | 1555 ± 29 |
| $\ln(10^{10}A_{\text{s}})$ | $3.038^{+0.014}_{-0.017}$ | $\sigma_8/h^{0.5}$ | 0.9886 ± 0.0088 | $H(0.51)$ | 88.6 ± 1.4 |
| n_{s} | 0.9593 ± 0.0084 | $r_{\text{drag}}h$ | 98.6 ± 1.1 | $D_{\text{M}}(0.51)$ | 2014 ± 37 |
| y_{cal} | 1.0007 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.455 ± 0.024 | $H(0.61)$ | 94.2 ± 1.4 |
| A_{217}^{CIB} | 46 ± 7 | z_{re} | $7.63^{+0.53}_{-0.74}$ | $D_{\text{M}}(0.61)$ | 2342 ± 42 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | > 0.391 | $10^9 A_{\text{s}}$ | $2.087^{+0.028}_{-0.035}$ | $H(2.33)$ | 234.6 ± 2.6 |
| A_{143}^{tSZ} | $5.6^{+2.2}_{-1.9}$ | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.873 ± 0.017 | $D_{\text{M}}(2.33)$ | 5829 ± 83 |
| A_{100}^{PS} | 256 ± 28 | D_{40} | 1239 ± 15 | $f\sigma_8(0.15)$ | 0.4593 ± 0.0064 |
| A_{143}^{PS} | 44 ± 8 | D_{220} | 5735 ± 38 | $\sigma_8(0.15)$ | 0.7433 ± 0.0092 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{810} | 2538 ± 13 | $f\sigma_8(0.38)$ | 0.4756 ± 0.0055 |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 818.0 ± 4.8 | $\sigma_8(0.38)$ | 0.6580 ± 0.0087 |
| A^{kSZ} | < 3.91 | D_{2000} | 231.6 ± 1.8 | $f\sigma_8(0.51)$ | 0.4732 ± 0.0052 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.9593 ± 0.0084 | $\sigma_8(0.51)$ | 0.6154 ± 0.0083 |
| A_{143}^{dustTT} | 10.8 ± 1.8 | Y_{P} | 0.2433 ± 0.0026 | $f\sigma_8(0.61)$ | 0.4676 ± 0.0051 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.4 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2446 ± 0.0026 | $\sigma_8(0.61)$ | 0.5853 ± 0.0081 |
| A_{217}^{dustTT} | 93.6 ± 7.3 | 10^5D/H | 2.558 ± 0.043 | $f\sigma_8(2.33)$ | 0.2948 ± 0.0043 |
| A_{100}^{dustTE} | 0.114 ± 0.039 | Age/Gyr | 13.95 ± 0.20 | $\sigma_8(2.33)$ | 0.3036 ± 0.0047 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | z_* | 1089.75 ± 0.32 | f_{2000}^{143} | 28.6 ± 3.0 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.087 | r_* | 145.9 ± 1.8 | $f_{2000}^{143 \times 217}$ | 31.5 ± 2.0 |
| A_{143}^{dustTE} | 0.224 ± 0.053 | $100\theta_*$ | 1.04145 ± 0.00053 | f_{2000}^{217} | 106.4 ± 1.9 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 ± 0.081 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 14.01 ± 0.17 | χ_{lensing}^2 | 9.01 ± 0.70 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | z_{drag} | 1059.37 ± 0.79 | χ_{simall}^2 | 396.8 ± 1.5 |
| c_{100} | 0.99969 ± 0.00061 | r_{drag} | 148.6 ± 1.9 | χ_{lowl}^2 | 24.4 ± 1.5 |
| c_{217} | 0.99817 ± 0.00062 | k_{D} | 0.1398 ± 0.0014 | χ_{plik}^2 | 2358.9 ± 5.9 |
| H_0 | 66.3 ± 1.4 | $100\theta_{\text{D}}$ | 0.16047 ± 0.00040 | χ_{prior}^2 | 11.5 ± 4.6 |
| Ω_{Λ} | 0.6800 ± 0.0095 | z_{eq} | 3417 ± 32 | χ_{CMB}^2 | 2789.1 ± 5.9 |
| Ω_{m} | 0.3200 ± 0.0095 | k_{eq} | 0.01032 ± 0.00011 | | |
| $\Omega_{\text{m}}h^2$ | 0.1408 ± 0.0029 | $100\theta_{\text{eq}}$ | 0.8105 ± 0.0062 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2800.61; \Delta\bar{\chi}_{\text{eff}}^2 = 0.11; R - 1 = 0.02136$$

7.9 base_nnu_plikHM_TT_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022244 | 0.02227 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.9823 | 0.983 ± 0.012 | $D_M(0.38)$ | 1525.5 | 1518 ± 30 |
| $\Omega_c h^2$ | 0.11934 | 0.1206 ± 0.0039 | $r_{\text{drag}} h$ | 99.87 | 99.96 ± 1.0 | $H(0.51)$ | 89.87 | 90.3 ± 1.6 |
| $100\theta_{\text{MC}}$ | 1.04094 | 1.04085 ± 0.00056 | $\langle d^2 \rangle^{1/2}$ | 2.4251 | 2.426 ± 0.028 | $D_M(0.51)$ | 1976.5 | 1967 ± 38 |
| τ | 0.0545 | 0.0539 ± 0.0080 | z_{re} | 7.72 | 7.67 ± 0.83 | $H(0.61)$ | 95.47 | 96.0 ± 1.6 |
| N_{eff} | 3.075 | 3.15 ± 0.23 | $10^9 A_s$ | 2.0950 | 2.100 ± 0.042 | $D_M(0.61)$ | 2300.2 | 2289 ± 43 |
| $\ln(10^{10} A_s)$ | 3.0421 | 3.044 ± 0.020 | $10^9 A_s e^{-2\tau}$ | 1.8787 | 1.885 ± 0.021 | $H(2.33)$ | 236.10 | 237.1 ± 3.4 |
| n_s | 0.9686 | 0.9696 ± 0.0084 | D_{40} | 1221.3 | 1222 ± 15 | $D_M(2.33)$ | 5754 | 5728 ± 93 |
| y_{cal} | 1.00034 | 1.0006 ± 0.0025 | D_{220} | 5713.9 | 5719 ± 40 | $f\sigma_8(0.15)$ | 0.4546 | 0.4557 ± 0.0085 |
| A_{217}^{CIB} | 49.7 | 48 ± 7 | D_{810} | 2536.1 | 2537 ± 14 | $\sigma_8(0.15)$ | 0.7477 | 0.750 ± 0.013 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.19 | — | D_{1420} | 815.8 | 814.9 ± 5.2 | $f\sigma_8(0.38)$ | 0.4734 | 0.4748 ± 0.0081 |
| A_{143}^{tSZ} | 7.05 | 4.9 ± 2.0 | D_{2000} | 230.01 | 229.4 ± 2.2 | $\sigma_8(0.38)$ | 0.6630 | 0.666 ± 0.012 |
| A_{100}^{PS} | 256.6 | 266 ± 29 | $n_{s,0.002}$ | 0.9686 | 0.9696 ± 0.0084 | $f\sigma_8(0.51)$ | 0.4723 | 0.4737 ± 0.0079 |
| A_{143}^{PS} | 47.6 | 50 ± 9 | Y_{P} | 0.24573 | 0.2466 ± 0.0031 | $\sigma_8(0.51)$ | 0.6206 | 0.623 ± 0.011 |
| $A_{143 \times 217}^{\text{PS}}$ | 43.4 | 44_{-10}^{+9} | $Y_{\text{P}}^{\text{BBN}}$ | 0.24706 | 0.2480 ± 0.0031 | $f\sigma_8(0.61)$ | 0.4675 | 0.4690 ± 0.0077 |
| A_{217}^{PS} | 117.6 | 115 ± 10 | $10^5 D/H$ | 2.620 | 2.640 ± 0.067 | $\sigma_8(0.61)$ | 0.5906 | 0.593 ± 0.010 |
| A^{kSZ} | 0.00 | < 5.15 | Age/Gyr | 13.777 | 13.71 ± 0.22 | $f\sigma_8(2.33)$ | 0.2979 | 0.2991 ± 0.0054 |
| A_{100}^{dustTT} | 8.86 | 9.0 ± 1.8 | z_* | 1090.051 | 1090.19 ± 0.49 | $\sigma_8(2.33)$ | 0.3072 | 0.3085 ± 0.0057 |
| A_{143}^{dustTT} | 10.81 | 10.8 ± 1.8 | r_* | 144.55 | 143.9 ± 2.2 | f_{2000}^{143} | 30.47 | 31.7 ± 3.4 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.15 | 18.3 ± 3.3 | $100\theta_*$ | 1.04111 | 1.04098 ± 0.00067 | $f_{2000}^{143 \times 217}$ | 33.22 | 33.9 ± 2.5 |
| A_{217}^{dustTT} | 94.1 | 93.2 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.884 | 13.82 ± 0.20 | f_{2000}^{217} | 107.69 | 108.5 ± 2.3 |
| c_{100} | 0.99965 | 0.99961 ± 0.00061 | z_{drag} | 1059.63 | 1059.81 ± 0.86 | χ_{small}^2 | 396.05 | 397.1 ± 1.9 |
| c_{217} | 0.99825 | 0.99828 ± 0.00062 | r_{drag} | 147.26 | 146.6 ± 2.3 | χ_{lowl}^2 | 22.69 | 22.8 ± 1.1 |
| H_0 | 67.82 | 68.2 ± 1.5 | k_{D} | 0.14048 | 0.1410 ± 0.0017 | χ_{plik}^2 | 760.2 | 773.2 ± 5.7 |
| Ω_{Λ} | 0.6908 | 0.6914 ± 0.0083 | $100\theta_{\text{D}}$ | 0.16107 | 0.16125 ± 0.00058 | $\chi_{6\text{DF}}^2$ | 0.0157 | 0.057 ± 0.076 |
| Ω_{m} | 0.3092 | 0.3086 ± 0.0083 | z_{eq} | 3370.5 | 3368 ± 31 | χ_{MGS}^2 | 1.34 | 1.47 ± 0.60 |
| $\Omega_{\text{m}} h^2$ | 0.14223 | 0.1435 ± 0.0040 | k_{eq} | 0.010307 | 0.01035 ± 0.00015 | χ_{DR12BAO}^2 | 4.05 | 4.7 ± 1.6 |
| $\Omega_{\text{m}} h^3$ | 0.09646 | $0.0979_{-0.0048}^{+0.0043}$ | $100\theta_{\text{eq}}$ | 0.8187 | 0.8192 ± 0.0059 | χ_{prior}^2 | 1.38 | 7.3 ± 3.7 |
| σ_8 | 0.8089 | 0.812 ± 0.014 | $100\theta_{s,\text{eq}}$ | 0.45229 | 0.4525 ± 0.0030 | χ_{BAO}^2 | 5.41 | 6.2 ± 1.3 |
| S_8 | 0.8213 | 0.823 ± 0.016 | $H(0.15)$ | 73.08 | 73.5 ± 1.5 | χ_{CMB}^2 | 1178.9 | 1193.0 ± 5.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4498 | 0.4509 ± 0.0088 | $D_M(0.15)$ | 639.4 | 636 ± 13 | | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6032 | 0.605 ± 0.010 | $H(0.38)$ | 83.17 | 83.6 ± 1.5 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1185.72$; $\Delta\chi_{\text{eff}}^2 = -0.03$; $\bar{\chi}_{\text{eff}}^2 = 1206.54$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.52$; $R - 1 = 0.01083$

χ_{eff}^2 : BAO - 6DF: 0.02 (Δ -0.01) MGS: 1.34 (Δ 0.06) DR12BAO: 4.05 (Δ -0.14) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.05 (Δ 0.16) commander_dx12_v3_2_29: 22.69 (Δ -0.14) plik_rd12_HM_v22_TT: 760.20 (Δ 0.10)

7.10 base_nnu_plikHM_TT_lowl_lowE_BAO_post_lensing_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022279 | 0.02228 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.9832 | 0.9842 ± 0.0092 | $D_M(0.38)$ | 1523.2 | 1519 ± 28 |
| $\Omega_c h^2$ | 0.11969 | 0.1203 ± 0.0036 | $r_{\text{drag}} h$ | 99.88 | 99.96 ± 0.94 | $H(0.51)$ | 90.00 | 90.2 ± 1.5 |
| $100\theta_{\text{MC}}$ | 1.04093 | 1.04087 ± 0.00054 | $\langle d^2 \rangle^{1/2}$ | 2.4272 | 2.430 ± 0.022 | $D_M(0.51)$ | 1973.6 | 1968 ± 36 |
| τ | 0.0545 | 0.0554 ± 0.0074 | z_{re} | 7.72 | 7.81 ± 0.75 | $H(0.61)$ | 95.61 | 95.9 ± 1.5 |
| N_{eff} | 3.092 | 3.13 ± 0.22 | $10^9 A_s$ | 2.0992 | 2.106 ± 0.036 | $D_M(0.61)$ | 2296.8 | 2291 ± 41 |
| $\ln(10^{10} A_s)$ | 3.0441 | 3.047 ± 0.017 | $10^9 A_s e^{-2\tau}$ | 1.8823 | 1.885 ± 0.019 | $H(2.33)$ | 236.42 | 236.9 ± 3.1 |
| n_s | 0.9689 | 0.9691 ± 0.0080 | D_{40} | 1222.7 | 1224 ± 14 | $D_M(2.33)$ | 5746 | 5733 ± 89 |
| y_{cal} | 1.00071 | 1.0007 ± 0.0025 | D_{220} | 5722.4 | 5725 ± 40 | $f\sigma_8(0.15)$ | 0.4553 | 0.4561 ± 0.0066 |
| A_{217}^{CIB} | 49.2 | 48 ± 7 | D_{810} | 2539.1 | 2538 ± 14 | $\sigma_8(0.15)$ | 0.7490 | 0.751 ± 0.011 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.25 | — | D_{1420} | 816.6 | 815.3 ± 5.2 | $f\sigma_8(0.38)$ | 0.4742 | 0.4751 ± 0.0064 |
| A_{143}^{tSZ} | 7.08 | 5.0 ± 2.0 | D_{2000} | 230.24 | 229.6 ± 2.2 | $\sigma_8(0.38)$ | 0.6642 | 0.666 ± 0.010 |
| A_{100}^{PS} | 256.0 | 265 ± 28 | $n_{s,0.002}$ | 0.9689 | 0.9691 ± 0.0080 | $f\sigma_8(0.51)$ | 0.4731 | 0.4740 ± 0.0063 |
| A_{143}^{PS} | 48.4 | 49 ± 8 | Y_{P} | 0.24597 | 0.2464 ± 0.0029 | $\sigma_8(0.51)$ | 0.6217 | 0.6234 ± 0.0096 |
| $A_{143 \times 217}^{\text{PS}}$ | 45.1 | 43_{-10}^{+9} | $Y_{\text{P}}^{\text{BBN}}$ | 0.24730 | 0.2478 ± 0.0029 | $f\sigma_8(0.61)$ | 0.4683 | 0.4693 ± 0.0063 |
| A_{217}^{PS} | 118.5 | 115 ± 10 | $10^5 D/H$ | 2.619 | 2.633 ± 0.064 | $\sigma_8(0.61)$ | 0.5916 | 0.5933 ± 0.0093 |
| A^{kSZ} | 0.00 | < 5.07 | Age/Gyr | 13.758 | 13.73 ± 0.21 | $f\sigma_8(2.33)$ | 0.29839 | 0.2993 ± 0.0048 |
| A_{100}^{dustTT} | 8.89 | 9.0 ± 1.8 | z_* | 1090.052 | 1090.15 ± 0.46 | $\sigma_8(2.33)$ | 0.3077 | 0.3087 ± 0.0052 |
| A_{143}^{dustTT} | 10.78 | 10.7 ± 1.8 | r_* | 144.35 | 144.0 ± 2.1 | f_{2000}^{143} | 30.41 | 31.5 ± 3.4 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.37 | 18.3 ± 3.3 | $100\theta_*$ | 1.04109 | 1.04101 ± 0.00065 | $f_{2000}^{143 \times 217}$ | 33.22 | 33.7 ± 2.4 |
| A_{217}^{dustTT} | 94.6 | 93.2 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.865 | 13.84 ± 0.19 | f_{2000}^{217} | 107.74 | 108.3 ± 2.2 |
| c_{100} | 0.99967 | 0.99962 ± 0.00062 | z_{drag} | 1059.74 | 1059.80 ± 0.82 | χ_{lensing}^2 | 8.98 | 9.45 ± 0.82 |
| c_{217} | 0.99827 | 0.99827 ± 0.00062 | r_{drag} | 147.04 | 146.7 ± 2.1 | χ_{simall}^2 | 396.05 | 397.2 ± 1.9 |
| H_0 | 67.92 | 68.1 ± 1.4 | k_{D} | 0.14067 | 0.1409 ± 0.0016 | χ_{lowl}^2 | 22.70 | 22.9 ± 1.1 |
| Ω_{Λ} | 0.6909 | 0.6914 ± 0.0075 | $100\theta_{\text{D}}$ | 0.16107 | 0.16119 ± 0.00056 | χ_{plik}^2 | 760.1 | 772.6 ± 5.5 |
| Ω_{m} | 0.3091 | 0.3086 ± 0.0075 | z_{eq} | 3372.0 | 3369 ± 28 | χ_{JLA}^2 | 1034.948 | 1035.04 ± 0.34 |
| $\Omega_{\text{m}} h^2$ | 0.14262 | 0.1432 ± 0.0037 | k_{eq} | 0.010323 | 0.01034 ± 0.00013 | $\chi_{6\text{DF}}^2$ | 0.0156 | 0.048 ± 0.065 |
| $\Omega_{\text{m}} h^3$ | 0.09687 | 0.0976 ± 0.0043 | $100\theta_{\text{eq}}$ | 0.8185 | 0.8191 ± 0.0053 | χ_{MGS}^2 | 1.34 | 1.45 ± 0.54 |
| σ_8 | 0.8103 | 0.812 ± 0.012 | $100\theta_{s,\text{eq}}$ | 0.45218 | 0.4525 ± 0.0027 | χ_{DR12BAO}^2 | 4.05 | 4.5 ± 1.4 |
| S_8 | 0.8226 | 0.824 ± 0.012 | $H(0.15)$ | 73.19 | 73.4 ± 1.4 | χ_{prior}^2 | 1.42 | 7.3 ± 3.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4506 | 0.4512 ± 0.0068 | $D_M(0.15)$ | 638.4 | 637 ± 12 | χ_{CMB}^2 | 1187.9 | 1202.1 ± 5.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6042 | 0.6054 ± 0.0081 | $H(0.38)$ | 83.29 | 83.5 ± 1.4 | χ_{BAO}^2 | 5.41 | 6.0 ± 1.1 |

Best-fit $\chi_{\text{eff}}^2 = 2229.65$; $\Delta\chi_{\text{eff}}^2 = -0.06$; $\bar{\chi}_{\text{eff}}^2 = 2250.41$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.64$; $R - 1 = 0.01118$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ 0.00) MGS: 1.34 (Δ 0.00) DR12BAO: 4.05 (Δ 0.02) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.98 (Δ 0.10) simall_100x143_offlike5_EE_Aplanck.L
396.06 (Δ -0.31) commander_dx12_v3.2_29: 22.70 (Δ -0.11) plik_rd12_HM_v22_TT: 760.14 (Δ 0.35) SN - JLA Pantheon18: 1034.95 (Δ -0.01)

7.11 base_nnu_plikHM_TT_lowl_lowE_BAO_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022244 | 0.02225 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.9835 | 0.9847 ± 0.0092 | $D_M(0.38)$ | 1529.9 | 1523 ± 29 |
| $\Omega_c h^2$ | 0.11919 | 0.1201 ± 0.0036 | $r_{\text{drag}} h$ | 99.65 | 99.80 ± 0.99 | $H(0.51)$ | 89.67 | 90.1 ± 1.5 |
| $100\theta_{\text{MC}}$ | 1.04095 | 1.04088 ± 0.00054 | $\langle d^2 \rangle^{1/2}$ | 2.4306 | 2.432 ± 0.023 | $D_M(0.51)$ | 1981.9 | 1973 ± 37 |
| τ | 0.0544 | 0.0551 ± 0.0075 | z_{re} | 7.70 | 7.78 ± 0.75 | $H(0.61)$ | 95.29 | 95.7 ± 1.6 |
| N_{eff} | 3.050 | 3.11 ± 0.22 | $10^9 A_s$ | 2.0947 | 2.103 ± 0.036 | $D_M(0.61)$ | 2306.3 | 2296 ± 42 |
| $\ln(10^{10} A_s)$ | 3.0420 | 3.046 ± 0.017 | $10^9 A_s e^{-2\tau}$ | 1.8789 | 1.884 ± 0.020 | $H(2.33)$ | 235.92 | 236.7 ± 3.2 |
| n_s | 0.9671 | 0.9681 ± 0.0083 | D_{40} | 1224.7 | 1225 ± 14 | $D_M(2.33)$ | 5765 | 5742 ± 91 |
| y_{cal} | 1.00054 | 1.0007 ± 0.0025 | D_{220} | 5719.9 | 5724 ± 40 | $f\sigma_8(0.15)$ | 0.4555 | 0.4565 ± 0.0066 |
| A_{217}^{CIB} | 49.2 | 48 ± 7 | D_{810} | 2537.2 | 2538 ± 14 | $\sigma_8(0.15)$ | 0.7472 | 0.750 ± 0.011 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.23 | — | D_{1420} | 816.3 | 815.3 ± 5.2 | $f\sigma_8(0.38)$ | 0.4740 | 0.4752 ± 0.0064 |
| A_{143}^{tSZ} | 7.15 | 5.0 ± 2.0 | D_{2000} | 230.29 | 229.7 ± 2.2 | $\sigma_8(0.38)$ | 0.6624 | 0.665 ± 0.010 |
| A_{100}^{PS} | 253.8 | 265 ± 28 | $n_{\text{s},0.002}$ | 0.9671 | 0.9681 ± 0.0083 | $f\sigma_8(0.51)$ | 0.4726 | 0.4740 ± 0.0063 |
| A_{143}^{PS} | 47.5 | 49 ± 8 | Y_{P} | 0.24540 | 0.2462 ± 0.0030 | $\sigma_8(0.51)$ | 0.6199 | 0.6226 ± 0.0098 |
| $A_{143 \times 217}^{\text{PS}}$ | 44.2 | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24673 | 0.2475 ± 0.0030 | $f\sigma_8(0.61)$ | 0.4677 | 0.4692 ± 0.0063 |
| A_{217}^{PS} | 118.0 | 115 ± 10 | $10^5 D/H$ | 2.611 | 2.630 ± 0.065 | $\sigma_8(0.61)$ | 0.5899 | 0.5925 ± 0.0094 |
| A^{kSZ} | 0.06 | < 5.02 | Age/Gyr | 13.802 | 13.75 ± 0.22 | $f\sigma_8(2.33)$ | 0.29746 | 0.2988 ± 0.0049 |
| A_{100}^{dustTT} | 9.00 | 9.0 ± 1.8 | z_* | 1090.014 | 1090.14 ± 0.46 | $\sigma_8(2.33)$ | 0.3067 | 0.3081 ± 0.0053 |
| A_{143}^{dustTT} | 10.76 | 10.7 ± 1.8 | r_* | 144.72 | 144.2 ± 2.1 | f_{2000}^{143} | 30.21 | 31.4 ± 3.4 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.28 | 18.3 ± 3.3 | $100\theta_*$ | 1.04113 | 1.04104 ± 0.00065 | $f_{2000}^{143 \times 217}$ | 33.07 | 33.7 ± 2.4 |
| A_{217}^{dustTT} | 94.5 | 93.3 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.900 | 13.85 ± 0.19 | f_{2000}^{217} | 107.57 | 108.3 ± 2.2 |
| c_{100} | 0.99968 | 0.99962 ± 0.00062 | z_{drag} | 1059.59 | 1059.72 ± 0.84 | χ_{lensing}^2 | 8.90 | 9.42 ± 0.81 |
| c_{217} | 0.99825 | 0.99827 ± 0.00062 | r_{drag} | 147.43 | 146.9 ± 2.2 | χ_{simall}^2 | 396.08 | 397.1 ± 1.9 |
| H_0 | 67.59 | 68.0 ± 1.4 | k_{D} | 0.14040 | 0.1408 ± 0.0016 | χ_{lowl}^2 | 22.94 | 23.0 ± 1.2 |
| Ω_{Λ} | 0.6890 | 0.6902 ± 0.0080 | $100\theta_{\text{D}}$ | 0.16098 | 0.16115 ± 0.00056 | χ_{plik}^2 | 759.7 | 772.4 ± 5.5 |
| Ω_{m} | 0.3110 | 0.3098 ± 0.0080 | z_{eq} | 3377.8 | 3373 ± 29 | $\chi_{6\text{DF}}^2$ | 0.0293 | 0.060 ± 0.079 |
| $\Omega_{\text{m}} h^2$ | 0.14208 | 0.1430 ± 0.0037 | k_{eq} | 0.010313 | 0.01034 ± 0.00013 | χ_{MGS}^2 | 1.22 | 1.37 ± 0.55 |
| $\Omega_{\text{m}} h^3$ | 0.09603 | 0.0973 ± 0.0044 | $100\theta_{\text{eq}}$ | 0.8173 | 0.8183 ± 0.0056 | χ_{DR12BAO}^2 | 4.38 | 4.8 ± 1.6 |
| σ_8 | 0.8086 | 0.812 ± 0.012 | $100\theta_{\text{s,eq}}$ | 0.45159 | 0.4521 ± 0.0028 | χ_{prior}^2 | 1.45 | 7.3 ± 3.6 |
| S_8 | 0.8233 | 0.825 ± 0.013 | $H(0.15)$ | 72.87 | 73.2 ± 1.4 | χ_{CMB}^2 | 1187.6 | 1201.9 ± 5.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4509 | 0.4518 ± 0.0069 | $D_M(0.15)$ | 641.4 | 638 ± 13 | χ_{BAO}^2 | 5.63 | 6.2 ± 1.3 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6038 | 0.6055 ± 0.0081 | $H(0.38)$ | 82.96 | 83.4 ± 1.5 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1194.71$; $\Delta\chi_{\text{eff}}^2 = 0.03$; $\bar{\chi}_{\text{eff}}^2 = 1215.41$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.68$; $R - 1 = 0.01056$
 χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.38 (Δ 0.01) CMB - smicadx12_Dec5_ftl_mv2_ndclpp-p.teb.consext8: 8.90 (Δ 0.03) simall_100x143_offlike5_EE_Aplanck.L
396.08 (Δ -0.01) commander_dx12_v3.2_29: 22.94 (Δ -0.02) plik_rd12_HM_v22_TT: 759.72 (Δ -0.09)

7.12 base_nnu_plikHM_TT_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02227 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.984 ± 0.012 | $D_M(0.38)$ | 1517 ± 30 |
| $\Omega_c h^2$ | 0.1206 ± 0.0039 | $r_{\text{drag}} h$ | 99.99 ± 1.0 | $H(0.51)$ | 90.4 ± 1.6 |
| $100\theta_{\text{MC}}$ | 1.04084 ± 0.00056 | $\langle d^2 \rangle^{1/2}$ | 2.428 ± 0.027 | $D_M(0.51)$ | 1965 ± 38 |
| τ | $0.0552^{+0.0053}_{-0.0082}$ | z_{re} | $7.80^{+0.60}_{-0.82}$ | $H(0.61)$ | 96.0 ± 1.6 |
| N_{eff} | 3.15 ± 0.23 | $10^9 A_s$ | $2.105^{+0.033}_{-0.041}$ | $D_M(0.61)$ | 2287 ± 43 |
| $\ln(10^{10} A_s)$ | $3.047^{+0.016}_{-0.019}$ | $10^9 A_s e^{-2\tau}$ | 1.885 ± 0.021 | $H(2.33)$ | 237.2 ± 3.4 |
| n_s | 0.9699 ± 0.0084 | D_{40} | 1222 ± 15 | $D_M(2.33)$ | 5725 ± 93 |
| y_{cal} | 1.0006 ± 0.0025 | D_{220} | 5719 ± 40 | $f\sigma_8(0.15)$ | 0.4562 ± 0.0084 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 14 | $\sigma_8(0.15)$ | 0.752 ± 0.012 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 814.9 ± 5.2 | $f\sigma_8(0.38)$ | 0.4753 ± 0.0079 |
| A_{143}^{tSZ} | 4.9 ± 2.0 | D_{2000} | 229.4 ± 2.2 | $\sigma_8(0.38)$ | 0.667 ± 0.011 |
| A_{100}^{PS} | 266 ± 29 | $n_{s,0.002}$ | 0.9699 ± 0.0084 | $f\sigma_8(0.51)$ | 0.4743 ± 0.0076 |
| A_{143}^{PS} | 50 ± 9 | Y_{P} | 0.2467 ± 0.0031 | $\sigma_8(0.51)$ | 0.624 ± 0.010 |
| $A_{143 \times 217}^{\text{PS}}$ | 44^{+9}_{-10} | $Y_{\text{P}}^{\text{BBN}}$ | 0.2480 ± 0.0031 | $f\sigma_8(0.61)$ | 0.4696 ± 0.0075 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.641 ± 0.067 | $\sigma_8(0.61)$ | 0.594 ± 0.010 |
| A^{kSZ} | < 5.13 | Age/Gyr | 13.71 ± 0.22 | $f\sigma_8(2.33)$ | 0.2995 ± 0.0052 |
| A_{100}^{dustTT} | 9.0 ± 1.8 | z_* | 1090.20 ± 0.49 | $\sigma_8(2.33)$ | 0.3090 ± 0.0055 |
| A_{143}^{dustTT} | 10.8 ± 1.8 | r_* | 143.9 ± 2.2 | f_{2000}^{143} | 31.7 ± 3.4 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04097 ± 0.00067 | $f_{2000}^{143 \times 217}$ | 33.9 ± 2.5 |
| A_{217}^{dustTT} | 93.2 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.82 ± 0.20 | f_{2000}^{217} | 108.4 ± 2.3 |
| c_{100} | 0.99961 ± 0.00061 | z_{drag} | 1059.84 ± 0.85 | χ_{small}^2 | 397.0 ± 1.9 |
| c_{217} | 0.99828 ± 0.00062 | r_{drag} | 146.6 ± 2.3 | χ_{lowl}^2 | 22.8 ± 1.1 |
| H_0 | 68.2 ± 1.5 | k_{D} | 0.1410 ± 0.0017 | χ_{plik}^2 | 773.0 ± 5.7 |
| Ω_{Λ} | 0.6917 ± 0.0083 | $100\theta_{\text{D}}$ | 0.16126 ± 0.00058 | $\chi_{6\text{DF}}^2$ | 0.056 ± 0.075 |
| Ω_{m} | 0.3083 ± 0.0083 | z_{eq} | 3368 ± 31 | χ_{MGS}^2 | 1.48 ± 0.60 |
| $\Omega_{\text{m}} h^2$ | 0.1436 ± 0.0040 | k_{eq} | 0.01035 ± 0.00015 | χ_{DR12BAO}^2 | 4.6 ± 1.5 |
| $\Omega_{\text{m}} h^3$ | $0.0980^{+0.0043}_{-0.0048}$ | $100\theta_{\text{eq}}$ | 0.8193 ± 0.0059 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.813 ± 0.013 | $100\theta_{\text{s,eq}}$ | 0.4526 ± 0.0030 | χ_{BAO}^2 | 6.2 ± 1.3 |
| S_8 | 0.824 ± 0.016 | $H(0.15)$ | 73.5 ± 1.5 | χ_{CMB}^2 | 1192.8 ± 5.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4514 ± 0.0087 | $D_M(0.15)$ | 636 ± 13 | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.606 ± 0.010 | $H(0.38)$ | 83.6 ± 1.5 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1206.29; \Delta\bar{\chi}_{\text{eff}}^2 = 0.53; R - 1 = 0.01028$$

7.13 base_nnu_plikHM_TT_lowl_lowE_BAO_post_lensing_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02228 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.9846 ± 0.0090 | $D_M(0.38)$ | 1519 ± 28 |
| $\Omega_c h^2$ | 0.1203 ± 0.0036 | $r_{\text{drag}} h$ | 99.98 ± 0.93 | $H(0.51)$ | 90.3 ± 1.5 |
| $100\theta_{\text{MC}}$ | 1.04087 ± 0.00054 | $\langle d^2 \rangle^{1/2}$ | 2.431 ± 0.022 | $D_M(0.51)$ | 1968 ± 36 |
| τ | $0.0561^{+0.0057}_{-0.0077}$ | z_{re} | $7.88^{+0.62}_{-0.76}$ | $H(0.61)$ | 95.9 ± 1.5 |
| N_{eff} | 3.13 ± 0.22 | $10^9 A_s$ | $2.108^{+0.031}_{-0.036}$ | $D_M(0.61)$ | 2290 ± 41 |
| $\ln(10^{10} A_s)$ | $3.048^{+0.015}_{-0.017}$ | $10^9 A_s e^{-2\tau}$ | 1.885 ± 0.019 | $H(2.33)$ | 236.9 ± 3.1 |
| n_s | 0.9692 ± 0.0080 | D_{40} | 1224 ± 14 | $D_M(2.33)$ | 5732 ± 89 |
| y_{cal} | 1.0007 ± 0.0025 | D_{220} | 5725 ± 40 | $f\sigma_8(0.15)$ | 0.4562 ± 0.0066 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2538 ± 14 | $\sigma_8(0.15)$ | 0.751 ± 0.011 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.3 ± 5.2 | $f\sigma_8(0.38)$ | 0.4753 ± 0.0063 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{2000} | 229.6 ± 2.2 | $\sigma_8(0.38)$ | 0.6665 ± 0.0099 |
| A_{100}^{PS} | 265 ± 28 | $n_{s,0.002}$ | 0.9692 ± 0.0080 | $f\sigma_8(0.51)$ | 0.4743 ± 0.0062 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | 0.2465 ± 0.0029 | $\sigma_8(0.51)$ | 0.6239 ± 0.0094 |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2478 ± 0.0029 | $f\sigma_8(0.61)$ | 0.4695 ± 0.0062 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.633 ± 0.065 | $\sigma_8(0.61)$ | 0.5937 ± 0.0091 |
| A^{kSZ} | < 5.06 | Age/Gyr | 13.72 ± 0.21 | $f\sigma_8(2.33)$ | 0.2995 ± 0.0047 |
| A_{100}^{dustTT} | 9.0 ± 1.8 | z_* | 1090.14 ± 0.46 | $\sigma_8(2.33)$ | 0.3089 ± 0.0051 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.0 ± 2.1 | f_{2000}^{143} | 31.5 ± 3.4 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04101 ± 0.00065 | $f_{2000}^{143 \times 217}$ | 33.7 ± 2.5 |
| A_{217}^{dustTT} | 93.2 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.84 ± 0.19 | f_{2000}^{217} | 108.3 ± 2.2 |
| c_{100} | 0.99962 ± 0.00062 | z_{drag} | 1059.81 ± 0.82 | χ_{lensing}^2 | 9.42 ± 0.78 |
| c_{217} | 0.99827 ± 0.00062 | r_{drag} | 146.7 ± 2.1 | χ_{simall}^2 | 397.1 ± 1.9 |
| H_0 | 68.2 ± 1.4 | k_{D} | 0.1409 ± 0.0016 | χ_{lowl}^2 | 22.9 ± 1.1 |
| Ω_{Λ} | 0.6916 ± 0.0074 | $100\theta_{\text{D}}$ | 0.16119 ± 0.00056 | χ_{plik}^2 | 772.5 ± 5.5 |
| Ω_{m} | 0.3084 ± 0.0074 | z_{eq} | 3368 ± 28 | χ_{JLA}^2 | 1035.03 ± 0.32 |
| $\Omega_{\text{m}} h^2$ | 0.1432 ± 0.0037 | k_{eq} | 0.01034 ± 0.00013 | $\chi_{6\text{DF}}^2$ | 0.047 ± 0.063 |
| $\Omega_{\text{m}} h^3$ | $0.0977^{+0.0040}_{-0.0045}$ | $100\theta_{\text{eq}}$ | $0.8192^{+0.0049}_{-0.0054}$ | χ_{MGS}^2 | 1.47 ± 0.53 |
| σ_8 | 0.813 ± 0.011 | $100\theta_{\text{s,eq}}$ | 0.4525 ± 0.0027 | χ_{DR12BAO}^2 | 4.5 ± 1.3 |
| S_8 | 0.824 ± 0.012 | $H(0.15)$ | 73.4 ± 1.4 | χ_{prior}^2 | 7.3 ± 3.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4513 ± 0.0068 | $D_M(0.15)$ | 636 ± 12 | χ_{CMB}^2 | 1202.0 ± 5.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6057 ± 0.0080 | $H(0.38)$ | 83.5 ± 1.4 | χ_{BAO}^2 | 6.0 ± 1.1 |

$$\bar{\chi}_{\text{eff}}^2 = 2250.26; \Delta\bar{\chi}_{\text{eff}}^2 = 0.63; R - 1 = 0.01176$$

7.14 base_nnu_plikHM_TT_lowl_lowE_BAO_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02226 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.9851 ± 0.0090 | $D_M(0.38)$ | 1522 ± 29 |
| $\Omega_c h^2$ | 0.1201 ± 0.0036 | $r_{\text{drag}} h$ | 99.84 ± 0.98 | $H(0.51)$ | 90.1 ± 1.5 |
| $100\theta_{\text{MC}}$ | 1.04088 ± 0.00054 | $\langle d^2 \rangle^{1/2}$ | 2.433 ± 0.023 | $D_M(0.51)$ | 1972 ± 37 |
| τ | $0.0558^{+0.0056}_{-0.0078}$ | z_{re} | $7.85^{+0.61}_{-0.76}$ | $H(0.61)$ | 95.7 ± 1.6 |
| N_{eff} | 3.11 ± 0.22 | $10^9 A_s$ | $2.106^{+0.031}_{-0.036}$ | $D_M(0.61)$ | 2295 ± 42 |
| $\ln(10^{10} A_s)$ | $3.047^{+0.015}_{-0.017}$ | $10^9 A_s e^{-2\tau}$ | 1.884 ± 0.020 | $H(2.33)$ | 236.8 ± 3.2 |
| n_s | 0.9683 ± 0.0083 | D_{40} | 1225 ± 14 | $D_M(2.33)$ | 5741 ± 91 |
| y_{cal} | 1.0007 ± 0.0025 | D_{220} | 5724 ± 40 | $f\sigma_8(0.15)$ | 0.4566 ± 0.0066 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2538 ± 14 | $\sigma_8(0.15)$ | 0.751 ± 0.011 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.3 ± 5.2 | $f\sigma_8(0.38)$ | 0.4754 ± 0.0063 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{2000} | 229.7 ± 2.2 | $\sigma_8(0.38)$ | 0.666 ± 0.010 |
| A_{100}^{PS} | 265 ± 28 | $n_{s,0.002}$ | 0.9683 ± 0.0083 | $f\sigma_8(0.51)$ | 0.4743 ± 0.0062 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | 0.2462 ± 0.0030 | $\sigma_8(0.51)$ | 0.6231 ± 0.0096 |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2475 ± 0.0030 | $f\sigma_8(0.61)$ | 0.4694 ± 0.0062 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.631 ± 0.065 | $\sigma_8(0.61)$ | 0.5930 ± 0.0092 |
| A^{kSZ} | < 5.00 | Age/Gyr | 13.74 ± 0.22 | $f\sigma_8(2.33)$ | 0.2991 ± 0.0048 |
| A_{100}^{dustTT} | 9.0 ± 1.8 | z_* | 1090.14 ± 0.46 | $\sigma_8(2.33)$ | 0.3084 ± 0.0052 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.2 ± 2.1 | f_{2000}^{143} | 31.4 ± 3.4 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04104 ± 0.00065 | $f_{2000}^{143 \times 217}$ | 33.6 ± 2.5 |
| A_{217}^{dustTT} | 93.3 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.85 ± 0.19 | f_{2000}^{217} | 108.2 ± 2.2 |
| c_{100} | 0.99962 ± 0.00062 | z_{drag} | 1059.74 ± 0.83 | χ_{lensing}^2 | 9.39 ± 0.77 |
| c_{217} | 0.99827 ± 0.00061 | r_{drag} | 146.9 ± 2.2 | χ_{simall}^2 | 397.1 ± 1.9 |
| H_0 | 68.0 ± 1.4 | k_{D} | 0.1408 ± 0.0016 | χ_{lowl}^2 | 23.0 ± 1.2 |
| Ω_{Λ} | 0.6904 ± 0.0079 | $100\theta_{\text{D}}$ | 0.16116 ± 0.00056 | χ_{plik}^2 | 772.3 ± 5.5 |
| Ω_{m} | 0.3096 ± 0.0079 | z_{eq} | 3372 ± 29 | $\chi_{6\text{DF}}^2$ | 0.058 ± 0.076 |
| $\Omega_{\text{m}} h^2$ | 0.1430 ± 0.0037 | k_{eq} | 0.01034 ± 0.00013 | χ_{MGS}^2 | 1.39 ± 0.55 |
| $\Omega_{\text{m}} h^3$ | 0.0973 ± 0.0044 | $100\theta_{\text{eq}}$ | 0.8184 ± 0.0055 | χ_{DR12BAO}^2 | 4.7 ± 1.6 |
| σ_8 | 0.812 ± 0.011 | $100\theta_{s,\text{eq}}$ | 0.4521 ± 0.0028 | χ_{prior}^2 | 7.2 ± 3.6 |
| S_8 | 0.825 ± 0.013 | $H(0.15)$ | 73.3 ± 1.4 | χ_{CMB}^2 | 1201.8 ± 5.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4519 ± 0.0069 | $D_M(0.15)$ | 638 ± 13 | χ_{BAO}^2 | 6.2 ± 1.3 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6058 ± 0.0080 | $H(0.38)$ | 83.4 ± 1.5 | | |

$\bar{\chi}_{\text{eff}}^2 = 1215.24$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.67$; $R - 1 = 0.01151$

7.15 base_nnu_plikHM_TTTEEE_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022382 | 0.02239 ± 0.00018 | σ_8 | 0.8060 | 0.808 ± 0.012 | $D_M(0.15)$ | 645.7 | 643 ± 11 |
| $\Omega_c h^2$ | 0.11790 | 0.1186 ± 0.0031 | S_8 | 0.8229 | 0.823 ± 0.014 | $H(0.38)$ | 82.48 | 82.8 ± 1.2 |
| $100\theta_{MC}$ | 1.041192 | 1.04110 ± 0.00044 | $\sigma_8 \Omega_m^{0.5}$ | 0.4507 | 0.4509 ± 0.0075 | $D_M(0.38)$ | 1539.6 | 1534 ± 24 |
| τ | 0.0551 | 0.0556 ± 0.0080 | $\sigma_8 \Omega_m^{0.25}$ | 0.6027 | 0.6035 ± 0.0087 | $H(0.51)$ | 89.17 | 89.5 ± 1.2 |
| N_{eff} | 2.956 | 3.01 ± 0.18 | $\sigma_8/h^{0.5}$ | 0.9837 | 0.984 ± 0.011 | $D_M(0.51)$ | 1994.2 | 1987 ± 30 |
| $\ln(10^{10} A_s)$ | 3.0415 | 3.043 ± 0.019 | $r_{\text{drag}} h$ | 99.43 | 99.56 ± 0.85 | $H(0.61)$ | 94.77 | 95.1 ± 1.3 |
| n_s | 0.9652 | 0.9655 ± 0.0070 | $\langle d^2 \rangle^{1/2}$ | 2.4359 | 2.436 ± 0.025 | $D_M(0.61)$ | 2320.4 | 2312 ± 35 |
| y_{cal} | 1.00061 | 1.0007 ± 0.0025 | z_{re} | 7.72 | 7.76 ± 0.80 | $H(2.33)$ | 234.91 | 235.5 ± 2.7 |
| A_{217}^{CIB} | 44.0 | 46 ± 7 | $10^9 A_s$ | 2.0936 | $2.098^{+0.036}_{-0.041}$ | $D_M(2.33)$ | 5795 | 5777 ± 75 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.89 | — | $10^9 A_s e^{-2\tau}$ | 1.8751 | 1.877 ± 0.018 | $f\sigma_8(0.15)$ | 0.4552 | 0.4554 ± 0.0073 |
| A_{143}^{tSZ} | 7.01 | $5.6^{+2.1}_{-1.9}$ | D_{40} | 1228.4 | 1229 ± 13 | $\sigma_8(0.15)$ | 0.7447 | 0.746 ± 0.011 |
| A_{100}^{PS} | 244.3 | 257 ± 28 | D_{220} | 5735.9 | 5737 ± 39 | $f\sigma_8(0.38)$ | 0.4732 | 0.4737 ± 0.0069 |
| A_{143}^{PS} | 52.0 | 45 ± 8 | D_{810} | 2541.0 | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6600 | 0.6616 ± 0.0097 |
| $A_{143 \times 217}^{\text{PS}}$ | 57.7 | 42 ± 9 | D_{1420} | 820.11 | 818.1 ± 4.9 | $f\sigma_8(0.51)$ | 0.4716 | 0.4723 ± 0.0067 |
| A_{217}^{PS} | 124.0 | 115 ± 10 | D_{2000} | 232.28 | 231.4 ± 1.9 | $\sigma_8(0.51)$ | 0.6176 | 0.6191 ± 0.0092 |
| A^{kSZ} | 0.01 | < 4.05 | $n_{s,0.002}$ | 0.9652 | 0.9655 ± 0.0070 | $f\sigma_8(0.61)$ | 0.4666 | 0.4673 ± 0.0066 |
| A_{100}^{dustTT} | 8.76 | 8.9 ± 1.8 | Y_{P} | 0.24418 | 0.2448 ± 0.0025 | $\sigma_8(0.61)$ | 0.5876 | 0.5891 ± 0.0088 |
| A_{143}^{dustTT} | 11.02 | 10.9 ± 1.8 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24551 | 0.2461 ± 0.0025 | $f\sigma_8(2.33)$ | 0.29624 | 0.2970 ± 0.0045 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.45 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5521 | 2.569 ± 0.046 | $\sigma_8(2.33)$ | 0.30535 | 0.3062 ± 0.0048 |
| A_{217}^{dustTT} | 96.2 | 93.8 ± 7.3 | Age/Gyr | 13.874 | 13.83 ± 0.18 | f_{2000}^{143} | 27.52 | 29.0 ± 3.0 |
| A_{100}^{dustTE} | 0.1135 | 0.114 ± 0.038 | z_* | 1089.632 | 1089.74 ± 0.35 | $f_{2000}^{143 \times 217}$ | 31.16 | 31.8 ± 2.1 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1351 | 0.135 ± 0.029 | r_* | 145.42 | 145.0 ± 1.8 | f_{2000}^{217} | 105.72 | 106.7 ± 2.0 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 | 0.482 ± 0.085 | $100\theta_*$ | 1.04144 | 1.04131 ± 0.00054 | χ_{small}^2 | 396.16 | 397.3 ± 2.1 |
| A_{143}^{dustTE} | 0.225 | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.964 | 13.93 ± 0.16 | χ_{lowl}^2 | 23.21 | 23.3 ± 1.1 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 | 0.664 ± 0.080 | z_{drag} | 1059.74 | 1059.84 ± 0.70 | χ_{plik}^2 | 2344.8 | 2360.4 ± 6.2 |
| A_{217}^{dustTE} | 2.070 | 2.08 ± 0.27 | r_{drag} | 148.10 | 147.7 ± 1.8 | $\chi_{6\text{DF}}^2$ | 0.0470 | 0.066 ± 0.077 |
| c_{100} | 0.99975 | 0.99966 ± 0.00061 | k_{D} | 0.14017 | 0.1404 ± 0.0013 | χ_{MGS}^2 | 1.097 | 1.23 ± 0.46 |
| c_{217} | 0.99816 | 0.99818 ± 0.00062 | $100\theta_{\text{D}}$ | 0.160506 | 0.16065 ± 0.00040 | χ_{DR12BAO}^2 | 4.79 | 5.0 ± 1.6 |
| H_0 | 67.14 | 67.4 ± 1.2 | z_{eq} | 3393.6 | 3389 ± 25 | χ_{prior}^2 | 1.47 | 11.6 ± 4.6 |
| Ω_{Λ} | 0.6873 | 0.6883 ± 0.0069 | k_{eq} | 0.010295 | 0.01031 ± 0.00012 | χ_{BAO}^2 | 5.93 | 6.3 ± 1.3 |
| Ω_{m} | 0.3127 | 0.3117 ± 0.0069 | $100\theta_{\text{eq}}$ | 0.81501 | 0.8159 ± 0.0047 | χ_{CMB}^2 | 2764.2 | 2781.0 ± 6.0 |
| $\Omega_{\text{m}} h^2$ | 0.14093 | 0.1417 ± 0.0032 | $100\theta_{s,\text{eq}}$ | 0.45027 | 0.4507 ± 0.0024 | | | |
| $\Omega_{\text{m}} h^3$ | 0.09462 | 0.0956 ± 0.0035 | $H(0.15)$ | 72.40 | 72.7 ± 1.2 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2771.61$; $\Delta\chi_{\text{eff}}^2 = -0.30$; $\bar{\chi}_{\text{eff}}^2 = 2798.95$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.05$; $R - 1 = 0.01038$

χ_{eff}^2 : BAO - 6DF: 0.05 (Δ 0.02) MGS: 1.10 (Δ -0.12) DR12BAO: 4.79 (Δ 0.38) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.16 (Δ -0.04) commander_dx12_v3_2_29: 23.21 (Δ 0.34) plik_rd12_HM_v22b_TTTEEE: 2344.84 (Δ -0.67)

7.16 base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022397 | 0.02239 ± 0.00018 | σ_8 | 0.8068 | 0.808 ± 0.010 | $D_M(0.15)$ | 644.4 | 643 ± 10 |
| $\Omega_c h^2$ | 0.11805 | 0.1185 ± 0.0029 | S_8 | 0.8225 | 0.823 ± 0.011 | $H(0.38)$ | 82.60 | 82.8 ± 1.2 |
| $100\theta_{MC}$ | 1.041150 | 1.04111 ± 0.00043 | $\sigma_8 \Omega_m^{0.5}$ | 0.4505 | 0.4507 ± 0.0060 | $D_M(0.38)$ | 1536.9 | 1534 ± 23 |
| τ | 0.0559 | 0.0566 ± 0.0074 | $\sigma_8 \Omega_m^{0.25}$ | 0.6029 | 0.6035 ± 0.0071 | $H(0.51)$ | 89.30 | 89.5 ± 1.2 |
| N_{eff} | 2.971 | 3.00 ± 0.17 | $\sigma_8/h^{0.5}$ | 0.9837 | 0.9840 ± 0.0086 | $D_M(0.51)$ | 1990.8 | 1987 ± 29 |
| $\ln(10^{10} A_s)$ | 3.0437 | 3.045 ± 0.016 | $r_{\text{drag}} h$ | 99.53 | 99.62 ± 0.79 | $H(0.61)$ | 94.89 | 95.1 ± 1.2 |
| n_s | 0.9653 | 0.9655 ± 0.0067 | $\langle d^2 \rangle^{1/2}$ | 2.4371 | 2.438 ± 0.021 | $D_M(0.61)$ | 2316.6 | 2312 ± 34 |
| y_{cal} | 1.00085 | 1.0008 ± 0.0025 | z_{re} | 7.80 | 7.86 ± 0.73 | $H(2.33)$ | 235.07 | 235.4 ± 2.5 |
| A_{217}^{CIB} | 46.4 | 46 ± 7 | $10^9 A_s$ | 2.0982 | 2.102 ± 0.034 | $D_M(2.33)$ | 5788 | 5778 ± 72 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.50 | — | $10^9 A_s e^{-2\tau}$ | 1.8762 | 1.877 ± 0.017 | $f\sigma_8(0.15)$ | 0.4550 | 0.4553 ± 0.0058 |
| A_{143}^{tSZ} | 7.18 | $5.6^{+2.2}_{-1.8}$ | D_{40} | 1229.6 | 1230 ± 13 | $\sigma_8(0.15)$ | 0.7455 | 0.7467 ± 0.0094 |
| A_{100}^{PS} | 248.7 | 257 ± 28 | D_{220} | 5741.1 | 5740 ± 38 | $f\sigma_8(0.38)$ | 0.4732 | 0.4737 ± 0.0056 |
| A_{143}^{PS} | 46.9 | 45 ± 8 | D_{810} | 2541.0 | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6608 | 0.6620 ± 0.0086 |
| $A_{143 \times 217}^{\text{PS}}$ | 48.3 | 42 ± 9 | D_{1420} | 819.67 | 818.4 ± 4.9 | $f\sigma_8(0.51)$ | 0.4718 | 0.4723 ± 0.0055 |
| A_{217}^{PS} | 120.1 | 115 ± 10 | D_{2000} | 232.05 | 231.5 ± 1.9 | $\sigma_8(0.51)$ | 0.6184 | 0.6195 ± 0.0082 |
| A^{kSZ} | 0.00 | < 3.98 | $n_{s,0.002}$ | 0.9653 | 0.9655 ± 0.0067 | $f\sigma_8(0.61)$ | 0.4668 | 0.4674 ± 0.0055 |
| A_{100}^{dustTT} | 8.79 | 8.9 ± 1.8 | Y_{P} | 0.24440 | 0.2448 ± 0.0024 | $\sigma_8(0.61)$ | 0.5884 | 0.5895 ± 0.0079 |
| A_{143}^{dustTT} | 11.00 | 10.9 ± 1.8 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24573 | 0.2461 ± 0.0024 | $f\sigma_8(2.33)$ | 0.29667 | 0.2973 ± 0.0041 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.74 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5548 | 2.565 ± 0.044 | $\sigma_8(2.33)$ | 0.30583 | 0.3065 ± 0.0044 |
| A_{217}^{dustTT} | 95.1 | 93.8 ± 7.4 | Age/Gyr | 13.858 | 13.83 ± 0.17 | f_{2000}^{143} | 27.99 | 28.8 ± 3.0 |
| A_{100}^{dustTE} | 0.1142 | 0.114 ± 0.038 | z_* | 1089.642 | 1089.71 ± 0.33 | $f_{2000}^{143 \times 217}$ | 31.35 | 31.7 ± 2.1 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1346 | 0.135 ± 0.030 | r_* | 145.29 | 145.1 ± 1.7 | f_{2000}^{217} | 106.12 | 106.6 ± 2.0 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 | 0.482 ± 0.085 | $100\theta_*$ | 1.04138 | 1.04132 ± 0.00052 | χ_{lensing}^2 | 8.619 | 9.06 ± 0.65 |
| A_{143}^{dustTE} | 0.225 | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.952 | 13.93 ± 0.16 | χ_{small}^2 | 396 | 230 ± 200 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 | 0.664 ± 0.080 | z_{drag} | 1059.78 | 1059.84 ± 0.68 | χ_{lowl}^2 | 23 | 191 ± 200 |
| A_{217}^{dustTE} | 2.078 | 2.07 ± 0.27 | r_{drag} | 147.96 | 147.7 ± 1.8 | χ_{plik}^2 | 2344.6 | 2359.9 ± 6.0 |
| c_{100} | 0.99973 | 0.99968 ± 0.00061 | k_{D} | 0.14026 | 0.1404 ± 0.0013 | χ_{JLA}^2 | 1035.072 | 1035.12 ± 0.34 |
| c_{217} | 0.99815 | 0.99817 ± 0.00062 | $100\theta_{\text{D}}$ | 0.160536 | 0.16062 ± 0.00039 | $\chi_{6\text{DF}}^2$ | 0.038 | 0.59 ± 0.66 |
| H_0 | 67.27 | 67.4 ± 1.1 | z_{eq} | 3390.1 | 3387 ± 23 | χ_{MGS}^2 | 1.16 | 0.72 ± 0.68 |
| Ω_{Λ} | 0.6882 | 0.6889 ± 0.0064 | k_{eq} | 0.010295 | 0.01030 ± 0.00011 | χ_{DR12BAO}^2 | 4.60 | 4.9 ± 1.4 |
| Ω_{m} | 0.3118 | 0.3111 ± 0.0064 | $100\theta_{\text{eq}}$ | 0.81566 | 0.8163 ± 0.0044 | χ_{prior}^2 | 1.72 | 11.6 ± 4.5 |
| $\Omega_{\text{m}} h^2$ | 0.14109 | 0.1415 ± 0.0030 | $100\theta_{s,\text{eq}}$ | 0.45060 | 0.4509 ± 0.0022 | χ_{CMB}^2 | 2772.8 | 2789.7 ± 6.0 |
| $\Omega_{\text{m}} h^3$ | 0.09491 | 0.0955 ± 0.0034 | $H(0.15)$ | 72.53 | 72.7 ± 1.1 | χ_{BAO}^2 | 5.79 | 6.2 ± 1.1 |

Best-fit $\chi_{\text{eff}}^2 = 3815.38$; $\Delta\chi_{\text{eff}}^2 = -0.29$; $\bar{\chi}_{\text{eff}}^2 = 3842.56$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.70$; $R - 1 = 0.01451$

χ_{eff}^2 : BAO - 6DF: 0.04 (Δ 0.02) MGS: 1.16 (Δ -0.12) DR12BAO: 4.60 (Δ 0.35) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.62 (Δ -0.10) small_100x143_offlike5_EE_Aplanck 396.33 (Δ -0.19) commander_dx12_v3.2_29: 23.25 (Δ 0.37) plik_rd12_HM_v22b.TTTEEE: 2344.60 (Δ -0.67) SN - JLA Pantheon18: 1035.07 (Δ 0.10)

7.17 base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022341 | 0.02237 ± 0.00018 | σ_8 | 0.8047 | 0.8076 ± 0.0099 | $D_M(0.15)$ | 648.2 | 644 ± 10 |
| $\Omega_c h^2$ | 0.11726 | 0.1183 ± 0.0029 | S_8 | 0.8229 | 0.824 ± 0.011 | $H(0.38)$ | 82.19 | 82.7 ± 1.2 |
| $100\theta_{MC}$ | 1.041259 | 1.04112 ± 0.00043 | $\sigma_8 \Omega_m^{0.5}$ | 0.4507 | 0.4512 ± 0.0061 | $D_M(0.38)$ | 1545.4 | 1537 ± 24 |
| τ | 0.0558 | 0.0563 ± 0.0074 | $\sigma_8 \Omega_m^{0.25}$ | 0.6022 | 0.6036 ± 0.0071 | $H(0.51)$ | 88.88 | 89.4 ± 1.2 |
| N_{eff} | 2.914 | 2.99 ± 0.17 | $\sigma_8/h^{0.5}$ | 0.9841 | 0.9844 ± 0.0086 | $D_M(0.51)$ | 2001.6 | 1990 ± 30 |
| $\ln(10^{10} A_s)$ | 3.0412 | 3.044 ± 0.016 | $r_{\text{drag}} h$ | 99.31 | 99.49 ± 0.82 | $H(0.61)$ | 94.46 | 95.0 ± 1.2 |
| n_s | 0.9635 | 0.9647 ± 0.0069 | $\langle d^2 \rangle^{1/2}$ | 2.4400 | 2.440 ± 0.021 | $D_M(0.61)$ | 2328.9 | 2316 ± 34 |
| y_{cal} | 1.00056 | 1.0008 ± 0.0025 | z_{re} | 7.78 | 7.83 ± 0.73 | $H(2.33)$ | 234.31 | 235.3 ± 2.5 |
| A_{217}^{CIB} | 44.0 | 46 ± 7 | $10^9 A_s$ | 2.0929 | 2.100 ± 0.034 | $D_M(2.33)$ | 5814 | 5785 ± 73 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.92 | — | $10^9 A_s e^{-2\tau}$ | 1.8719 | 1.876 ± 0.017 | $f\sigma_8(0.15)$ | 0.4551 | 0.4557 ± 0.0058 |
| A_{143}^{tSZ} | 6.98 | $5.6_{-1.8}^{+2.2}$ | D_{40} | 1230.9 | 1231 ± 13 | $\sigma_8(0.15)$ | 0.7434 | 0.7462 ± 0.0094 |
| A_{100}^{PS} | 243.4 | 256 ± 28 | D_{220} | 5736.4 | 5739 ± 38 | $f\sigma_8(0.38)$ | 0.4728 | 0.4738 ± 0.0056 |
| A_{143}^{PS} | 51.9 | 45 ± 8 | D_{810} | 2540.1 | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6587 | 0.6613 ± 0.0086 |
| $A_{143 \times 217}^{\text{PS}}$ | 58.2 | 42 ± 9 | D_{1420} | 820.08 | 818.4 ± 4.9 | $f\sigma_8(0.51)$ | 0.4712 | 0.4724 ± 0.0055 |
| A_{217}^{PS} | 123.9 | 115 ± 10 | D_{2000} | 232.41 | 231.5 ± 1.9 | $\sigma_8(0.51)$ | 0.6163 | 0.6189 ± 0.0082 |
| A^{kSZ} | 0.01 | < 3.94 | $n_{s,0.002}$ | 0.9635 | 0.9647 ± 0.0069 | $f\sigma_8(0.61)$ | 0.4660 | 0.4673 ± 0.0054 |
| A_{100}^{dustTT} | 8.73 | 8.9 ± 1.8 | Y_{P} | 0.24360 | 0.2445 ± 0.0024 | $\sigma_8(0.61)$ | 0.5864 | 0.5889 ± 0.0079 |
| A_{143}^{dustTT} | 10.94 | 10.9 ± 1.8 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24492 | 0.2459 ± 0.0024 | $f\sigma_8(2.33)$ | 0.29559 | 0.2969 ± 0.0041 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.27 | 18.6 ± 3.3 | 10^5D/H | 2.5452 | 2.564 ± 0.044 | $\sigma_8(2.33)$ | 0.30464 | 0.3061 ± 0.0044 |
| A_{217}^{dustTT} | 95.8 | 93.7 ± 7.4 | Age/Gyr | 13.918 | 13.85 ± 0.17 | f_{2000}^{143} | 27.26 | 28.8 ± 3.0 |
| A_{100}^{dustTE} | 0.1141 | 0.114 ± 0.038 | z_* | 1089.587 | 1089.71 ± 0.33 | $f_{2000}^{143 \times 217}$ | 31.03 | 31.6 ± 2.1 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1351 | 0.135 ± 0.030 | r_* | 145.84 | 145.2 ± 1.7 | f_{2000}^{217} | 105.56 | 106.6 ± 2.0 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.482 ± 0.085 | $100\theta_*$ | 1.04153 | 1.04135 ± 0.00053 | χ_{lensing}^2 | 8.540 | 9.05 ± 0.65 |
| A_{143}^{dustTE} | 0.225 | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 14.002 | 13.94 ± 0.16 | χ_{simall}^2 | 396 | 229 ± 200 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 | 0.664 ± 0.080 | z_{drag} | 1059.55 | 1059.78 ± 0.69 | χ_{lowl}^2 | 23 | 192 ± 200 |
| A_{217}^{dustTE} | 2.076 | 2.07 ± 0.27 | r_{drag} | 148.53 | 147.9 ± 1.8 | χ_{plik}^2 | 2344.3 | 2359.7 ± 6.0 |
| c_{100} | 0.99977 | 0.99968 ± 0.00061 | k_{D} | 0.13985 | 0.1403 ± 0.0013 | $\chi_{6\text{DF}}^2$ | 0.057 | 0.57 ± 0.63 |
| c_{217} | 0.99816 | 0.99817 ± 0.00062 | $100\theta_{\text{D}}$ | 0.160431 | 0.16060 ± 0.00039 | χ_{MGS}^2 | 1.04 | 0.69 ± 0.65 |
| H_0 | 66.86 | 67.3 ± 1.1 | z_{eq} | 3396.3 | 3391 ± 24 | χ_{DR12BAO}^2 | 5.00 | 5.1 ± 1.6 |
| Ω_{Λ} | 0.6863 | 0.6878 ± 0.0067 | k_{eq} | 0.010274 | 0.01031 ± 0.00011 | χ_{prior}^2 | 1.42 | 11.6 ± 4.5 |
| Ω_{m} | 0.3137 | 0.3122 ± 0.0067 | $100\theta_{\text{eq}}$ | 0.81444 | 0.8155 ± 0.0045 | χ_{CMB}^2 | 2772.7 | 2789.5 ± 6.0 |
| $\Omega_{\text{m}} h^2$ | 0.14025 | 0.1414 ± 0.0030 | $100\theta_{s,\text{eq}}$ | 0.45000 | 0.4505 ± 0.0023 | χ_{BAO}^2 | 6.09 | 6.4 ± 1.3 |
| $\Omega_{\text{m}} h^3$ | 0.09378 | $0.0952_{-0.0036}^{+0.0032}$ | $H(0.15)$ | 72.12 | 72.6 ± 1.1 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2780.19$; $\Delta\chi_{\text{eff}}^2 = -0.51$; $\bar{\chi}_{\text{eff}}^2 = 2807.45$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.60$; $R - 1 = 0.01513$

χ_{eff}^2 : BAO - 6DF: 0.06 (Δ 0.03) MGS: 1.04 (Δ -0.18) DR12BAO: 5.00 (Δ 0.58) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.54 (Δ -0.19) simall_100x143_offlike5_EE_Aplanck 396.33 (Δ -0.19) commander_dx12_v3.2_29: 23.47 (Δ 0.57) plik_rd12_HM_v22b.TTTEEE: 2344.34 (Δ -0.98)

7.18 base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02239 ± 0.00018 | σ_8 | 0.809 ± 0.011 | $D_M(0.15)$ | 643 ± 11 |
| $\Omega_c h^2$ | 0.1186 ± 0.0031 | S_8 | 0.824 ± 0.013 | $H(0.38)$ | 82.8 ± 1.2 |
| $100\theta_{MC}$ | 1.04110 ± 0.00044 | $\sigma_8 \Omega_m^{0.5}$ | 0.4512 ± 0.0074 | $D_M(0.38)$ | 1533 ± 24 |
| τ | $0.0565^{+0.0056}_{-0.0083}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6040 ± 0.0085 | $H(0.51)$ | 89.5 ± 1.2 |
| N_{eff} | 3.01 ± 0.18 | $\sigma_8/h^{0.5}$ | 0.984 ± 0.010 | $D_M(0.51)$ | 1986 ± 30 |
| $\ln(10^{10} A_s)$ | $3.045^{+0.015}_{-0.019}$ | $r_{\text{drag}} h$ | 99.57 ± 0.85 | $H(0.61)$ | 95.1 ± 1.3 |
| n_s | 0.9657 ± 0.0069 | $\langle d^2 \rangle^{1/2}$ | 2.438 ± 0.024 | $D_M(0.61)$ | 2311 ± 35 |
| y_{cal} | 1.0007 ± 0.0025 | z_{re} | $7.86^{+0.61}_{-0.82}$ | $H(2.33)$ | 235.6 ± 2.7 |
| A_{217}^{CIB} | 46 ± 7 | $10^9 A_s$ | $2.102^{+0.031}_{-0.040}$ | $D_M(2.33)$ | 5776 ± 75 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.877 ± 0.018 | $f\sigma_8(0.15)$ | 0.4558 ± 0.0071 |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | D_{40} | 1229 ± 13 | $\sigma_8(0.15)$ | 0.747 ± 0.010 |
| A_{100}^{PS} | 257 ± 28 | D_{220} | 5737 ± 39 | $f\sigma_8(0.38)$ | 0.4741 ± 0.0067 |
| A_{143}^{PS} | 45 ± 8 | D_{810} | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6623 ± 0.0094 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 818.1 ± 4.9 | $f\sigma_8(0.51)$ | 0.4727 ± 0.0065 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.4 ± 1.9 | $\sigma_8(0.51)$ | 0.6198 ± 0.0089 |
| A^{kSZ} | < 4.04 | $n_{s,0.002}$ | 0.9657 ± 0.0069 | $f\sigma_8(0.61)$ | 0.4677 ± 0.0064 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | 0.2449 ± 0.0025 | $\sigma_8(0.61)$ | $0.5897^{+0.0079}_{-0.0088}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | 0.2462 ± 0.0025 | $f\sigma_8(2.33)$ | $0.2974^{+0.0040}_{-0.0045}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | 10^5D/H | 2.569 ± 0.046 | $\sigma_8(2.33)$ | $0.3066^{+0.0043}_{-0.0048}$ |
| A_{217}^{dustTT} | 93.8 ± 7.3 | Age/Gyr | 13.83 ± 0.18 | f_{2000}^{143} | 29.0 ± 3.0 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | 1089.74 ± 0.35 | $f_{2000}^{143 \times 217}$ | 31.7 ± 2.1 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | r_* | 145.0 ± 1.8 | f_{2000}^{217} | 106.6 ± 2.0 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 ± 0.085 | $100\theta_*$ | 1.04131 ± 0.00054 | χ_{small}^2 | 397.3 ± 2.2 |
| A_{143}^{dustTE} | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.92 ± 0.16 | χ_{lowl}^2 | 23.3 ± 1.1 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.080 | z_{drag} | 1059.85 ± 0.70 | χ_{plik}^2 | 2360.2 ± 6.2 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | 147.7 ± 1.8 | $\chi_{6\text{DF}}^2$ | 0.065 ± 0.076 |
| c_{100} | 0.99966 ± 0.00061 | k_D | 0.1405 ± 0.0013 | χ_{MGS}^2 | 1.24 ± 0.46 |
| c_{217} | 0.99818 ± 0.00062 | $100\theta_D$ | 0.16065 ± 0.00040 | χ_{DR12BAO}^2 | 5.0 ± 1.6 |
| H_0 | 67.4 ± 1.2 | z_{eq} | 3388 ± 25 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_Λ | 0.6885 ± 0.0069 | k_{eq} | 0.01031 ± 0.00012 | χ_{BAO}^2 | 6.3 ± 1.3 |
| Ω_m | 0.3115 ± 0.0069 | $100\theta_{\text{eq}}$ | 0.8160 ± 0.0047 | χ_{CMB}^2 | 2780.8 ± 6.0 |
| $\Omega_m h^2$ | 0.1417 ± 0.0032 | $100\theta_{s,\text{eq}}$ | 0.4508 ± 0.0024 | | |
| $\Omega_m h^3$ | 0.0956 ± 0.0035 | $H(0.15)$ | 72.7 ± 1.2 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2798.76; \Delta \bar{\chi}_{\text{eff}}^2 = 1.04; R - 1 = 0.01049$$

7.19 base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02240 ± 0.00018 | σ_8 | 0.8084 ± 0.0098 | $D_M(0.15)$ | 643 ± 10 |
| $\Omega_c h^2$ | 0.1184 ± 0.0029 | S_8 | 0.823 ± 0.011 | $H(0.38)$ | 82.8 ± 1.2 |
| $100\theta_{MC}$ | 1.04111 ± 0.00043 | $\sigma_8 \Omega_m^{0.5}$ | 0.4508 ± 0.0060 | $D_M(0.38)$ | 1533 ± 23 |
| τ | $0.0572^{+0.0058}_{-0.0077}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6037 ± 0.0070 | $H(0.51)$ | 89.5 ± 1.2 |
| N_{eff} | 3.00 ± 0.17 | $\sigma_8/h^{0.5}$ | 0.9843 ± 0.0084 | $D_M(0.51)$ | 1986 ± 29 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.014}_{-0.017}$ | $r_{\text{drag}} h$ | 99.64 ± 0.78 | $H(0.61)$ | 95.1 ± 1.2 |
| n_s | 0.9656 ± 0.0067 | $\langle d^2 \rangle^{1/2}$ | 2.439 ± 0.020 | $D_M(0.61)$ | 2311 ± 34 |
| y_{cal} | 1.0008 ± 0.0025 | z_{re} | $7.92^{+0.61}_{-0.75}$ | $H(2.33)$ | 235.4 ± 2.5 |
| A_{217}^{CIB} | 46 ± 7 | $10^9 A_s$ | $2.104^{+0.029}_{-0.035}$ | $D_M(2.33)$ | 5778 ± 72 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.877 ± 0.017 | $f\sigma_8(0.15)$ | 0.4554 ± 0.0058 |
| A_{143}^{tSZ} | $5.6^{+2.2}_{-1.8}$ | D_{40} | 1230 ± 13 | $\sigma_8(0.15)$ | 0.7471 ± 0.0093 |
| A_{100}^{PS} | 257 ± 28 | D_{220} | 5740 ± 38 | $f\sigma_8(0.38)$ | 0.4738 ± 0.0055 |
| A_{143}^{PS} | 45 ± 8 | D_{810} | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6623 ± 0.0085 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 818.4 ± 4.9 | $f\sigma_8(0.51)$ | 0.4725 ± 0.0054 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.5 ± 1.9 | $\sigma_8(0.51)$ | 0.6198 ± 0.0081 |
| A^{kSZ} | < 3.99 | $n_{s,0.002}$ | 0.9656 ± 0.0067 | $f\sigma_8(0.61)$ | 0.4676 ± 0.0054 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | Y_P | 0.2448 ± 0.0024 | $\sigma_8(0.61)$ | 0.5898 ± 0.0078 |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.8 | Y_P^{BBN} | 0.2461 ± 0.0024 | $f\sigma_8(2.33)$ | 0.2974 ± 0.0040 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.3 | 10^5D/H | 2.565 ± 0.044 | $\sigma_8(2.33)$ | 0.3066 ± 0.0043 |
| $A_{217}^{\text{dust}TT}$ | 93.8 ± 7.4 | Age/Gyr | 13.83 ± 0.17 | f_{2000}^{143} | 28.8 ± 3.0 |
| $A_{100}^{\text{dust}TE}$ | 0.114 ± 0.038 | z_* | 1089.70 ± 0.33 | $f_{2000}^{143 \times 217}$ | 31.7 ± 2.1 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.135 ± 0.030 | r_* | 145.1 ± 1.7 | f_{2000}^{217} | 106.6 ± 2.0 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.482 ± 0.085 | $100\theta_*$ | 1.04132 ± 0.00052 | χ_{lensing}^2 | 9.03 ± 0.62 |
| $A_{143}^{\text{dust}TE}$ | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.93 ± 0.16 | χ_{simall}^2 | 230 ± 200 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.664 ± 0.080 | z_{drag} | 1059.85 ± 0.68 | χ_{lowl}^2 | 190 ± 200 |
| $A_{217}^{\text{dust}TE}$ | 2.07 ± 0.27 | r_{drag} | 147.7 ± 1.8 | χ_{plik}^2 | 2359.8 ± 6.0 |
| c_{100} | 0.99967 ± 0.00062 | k_D | 0.1404 ± 0.0013 | χ_{JLA}^2 | 1035.11 ± 0.33 |
| c_{217} | 0.99817 ± 0.00062 | $100\theta_D$ | 0.16063 ± 0.00039 | $\chi_{6\text{DF}}^2$ | 0.59 ± 0.66 |
| H_0 | 67.5 ± 1.1 | z_{eq} | 3386 ± 23 | χ_{MGS}^2 | 0.73 ± 0.68 |
| Ω_Λ | 0.6890 ± 0.0063 | k_{eq} | 0.01030 ± 0.00011 | χ_{DR12BAO}^2 | 4.8 ± 1.4 |
| Ω_m | 0.3110 ± 0.0063 | $100\theta_{\text{eq}}$ | 0.8163 ± 0.0043 | χ_{prior}^2 | 11.6 ± 4.5 |
| $\Omega_m h^2$ | 0.1415 ± 0.0030 | $100\theta_{s,\text{eq}}$ | 0.4510 ± 0.0022 | χ_{CMB}^2 | 2789.6 ± 6.0 |
| $\Omega_m h^3$ | 0.0955 ± 0.0034 | $H(0.15)$ | 72.7 ± 1.1 | χ_{BAO}^2 | 6.1 ± 1.1 |

$$\bar{\chi}_{\text{eff}}^2 = 3842.41; \Delta\bar{\chi}_{\text{eff}}^2 = 0.67; R - 1 = 0.01464$$

7.20 base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02238 ± 0.00018 | σ_8 | 0.8080 ± 0.0098 | $D_M(0.15)$ | 644 ± 10 |
| $\Omega_c h^2$ | 0.1183 ± 0.0029 | S_8 | 0.824 ± 0.011 | $H(0.38)$ | 82.7 ± 1.2 |
| $100\theta_{MC}$ | 1.04113 ± 0.00043 | $\sigma_8 \Omega_m^{0.5}$ | 0.4513 ± 0.0060 | $D_M(0.38)$ | 1536 ± 24 |
| τ | $0.0569^{+0.0057}_{-0.0077}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6039 ± 0.0070 | $H(0.51)$ | 89.4 ± 1.2 |
| N_{eff} | 2.99 ± 0.17 | $\sigma_8/h^{0.5}$ | 0.9848 ± 0.0084 | $D_M(0.51)$ | 1990 ± 30 |
| $\ln(10^{10} A_s)$ | $3.045^{+0.014}_{-0.017}$ | $r_{\text{drag}} h$ | 99.51 ± 0.81 | $H(0.61)$ | 95.0 ± 1.2 |
| n_s | 0.9648 ± 0.0068 | $\langle d^2 \rangle^{1/2}$ | 2.441 ± 0.021 | $D_M(0.61)$ | 2315 ± 34 |
| y_{cal} | 1.0008 ± 0.0025 | z_{re} | $7.89^{+0.61}_{-0.75}$ | $H(2.33)$ | 235.3 ± 2.5 |
| A_{217}^{CIB} | 46 ± 7 | $10^9 A_s$ | $2.102^{+0.029}_{-0.035}$ | $D_M(2.33)$ | 5785 ± 73 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.876 ± 0.017 | $f\sigma_8(0.15)$ | 0.4558 ± 0.0058 |
| A_{143}^{tSZ} | $5.6^{+2.2}_{-1.8}$ | D_{40} | 1231 ± 13 | $\sigma_8(0.15)$ | 0.7466 ± 0.0092 |
| A_{100}^{PS} | 256 ± 28 | D_{220} | 5739 ± 38 | $f\sigma_8(0.38)$ | 0.4740 ± 0.0055 |
| A_{143}^{PS} | 45 ± 8 | D_{810} | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6617 ± 0.0085 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 818.4 ± 4.9 | $f\sigma_8(0.51)$ | 0.4725 ± 0.0054 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.5 ± 1.9 | $\sigma_8(0.51)$ | 0.6192 ± 0.0081 |
| A^{kSZ} | < 3.95 | $n_{s,0.002}$ | 0.9648 ± 0.0068 | $f\sigma_8(0.61)$ | 0.4675 ± 0.0054 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | Y_P | 0.2446 ± 0.0024 | $\sigma_8(0.61)$ | 0.5892 ± 0.0078 |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.8 | Y_P^{BBN} | 0.2459 ± 0.0024 | $f\sigma_8(2.33)$ | 0.2971 ± 0.0040 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.3 | $10^5 \text{D}/\text{H}$ | 2.564 ± 0.044 | $\sigma_8(2.33)$ | $0.3062^{+0.0040}_{-0.0045}$ |
| $A_{217}^{\text{dust}TT}$ | 93.7 ± 7.4 | Age/Gyr | 13.85 ± 0.17 | f_{2000}^{143} | 28.8 ± 3.0 |
| $A_{100}^{\text{dust}TE}$ | 0.114 ± 0.038 | z_* | 1089.71 ± 0.33 | $f_{2000}^{143 \times 217}$ | 31.6 ± 2.1 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.135 ± 0.030 | r_* | 145.2 ± 1.7 | f_{2000}^{217} | 106.5 ± 2.0 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.482 ± 0.085 | $100\theta_*$ | 1.04135 ± 0.00053 | χ_{lensing}^2 | 9.02 ± 0.61 |
| $A_{143}^{\text{dust}TE}$ | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.94 ± 0.16 | χ_{simall}^2 | 230 ± 200 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.664 ± 0.080 | z_{drag} | 1059.78 ± 0.69 | χ_{lowl}^2 | 191 ± 200 |
| $A_{217}^{\text{dust}TE}$ | 2.07 ± 0.27 | r_{drag} | 147.9 ± 1.8 | χ_{plik}^2 | 2359.6 ± 6.0 |
| c_{100} | 0.99967 ± 0.00061 | k_D | 0.1403 ± 0.0013 | $\chi_{6\text{DF}}^2$ | 0.57 ± 0.63 |
| c_{217} | 0.99817 ± 0.00062 | $100\theta_D$ | 0.16060 ± 0.00039 | χ_{MGS}^2 | 0.69 ± 0.65 |
| H_0 | 67.3 ± 1.1 | z_{eq} | 3390 ± 24 | χ_{DR12BAO}^2 | 5.1 ± 1.6 |
| Ω_Λ | 0.6879 ± 0.0066 | k_{eq} | 0.01030 ± 0.00011 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_m | 0.3121 ± 0.0066 | $100\theta_{\text{eq}}$ | 0.8156 ± 0.0045 | χ_{CMB}^2 | 2789.4 ± 6.0 |
| $\Omega_m h^2$ | 0.1414 ± 0.0030 | $100\theta_{s,\text{eq}}$ | 0.4506 ± 0.0023 | χ_{BAO}^2 | 6.3 ± 1.3 |
| $\Omega_m h^3$ | $0.0952^{+0.0032}_{-0.0036}$ | $H(0.15)$ | 72.6 ± 1.1 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2807.29; \Delta\bar{\chi}_{\text{eff}}^2 = 0.57; R - 1 = 0.01488$$

8 nnu+meffsterile

8.1 base_nnu_meffsterile_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|--------------------------------|-----------------------------|----------|---------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022161 | 0.02223 ± 0.00023 | S_8 | 0.8374 | $0.816^{+0.030}_{-0.026}$ | $100\theta_{s,eq}$ | 0.4490 | $0.4547^{+0.0044}_{-0.0080}$ |
| $\Omega_c h^2$ | 0.12031 | $0.1215^{+0.0041}_{-0.0032}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4587 | $0.447^{+0.017}_{-0.014}$ | $H(0.15)$ | 72.33 | $72.52^{+0.85}_{-1.4}$ |
| $100\theta_{MC}$ | 1.04072 | 1.04053 ± 0.00051 | $\sigma_8 \Omega_m^{0.25}$ | 0.6101 | $0.591^{+0.023}_{-0.015}$ | $D_M(0.15)$ | 646.8 | $646^{+13}_{-9.3}$ |
| τ | 0.0529 | 0.0525 ± 0.0080 | $\sigma_8/h^{0.5}$ | 0.9918 | $0.953^{+0.039}_{-0.023}$ | $H(0.38)$ | 82.57 | $83.02^{+0.54}_{-1.2}$ |
| $m_{\nu, sterile}^{eff} [eV]$ | 0.011 | < 0.335 | $r_{drag} h$ | 98.58 | 97.5 ± 2.1 | $D_M(0.38)$ | 1540.7 | 1537^{+28}_{-18} |
| N_{eff} | 3.046 | $3.223^{+0.041}_{-0.18}$ | $\langle d^2 \rangle^{1/2}$ | 2.4513 | 2.448 ± 0.041 | $H(0.51)$ | 89.36 | $89.97^{+0.40}_{-1.1}$ |
| $\ln(10^{10} A_s)$ | 3.0415 | 3.047 ± 0.017 | z_{re} | 7.59 | 7.60 ± 0.83 | $D_M(0.51)$ | 1994.6 | 1988^{+34}_{-20} |
| n_s | 0.9637 | $0.9657^{+0.0071}_{-0.0096}$ | $10^9 A_s$ | 2.0936 | 2.105 ± 0.037 | $H(0.61)$ | 95.04 | $95.77^{+0.33}_{-1.1}$ |
| y_{cal} | 1.00030 | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8833 | 1.895 ± 0.016 | $D_M(0.61)$ | 2320.0 | 2311^{+38}_{-21} |
| A_{217}^{CIB} | 48.9 | 49 ± 7 | D_{40} | 1231.0 | 1228 ± 19 | $H(2.33)$ | 236.62 | $239.8^{+1.9}_{-3.0}$ |
| $\xi^{tSZ \times CIB}$ | 0.30 | — | D_{220} | 5711.9 | 5712 ± 41 | $D_M(2.33)$ | 5776.1 | 5729^{+62}_{-19} |
| A_{143}^{tSZ} | 7.00 | 4.8 ± 2.0 | D_{810} | 2537.4 | 2539 ± 14 | $f\sigma_8(0.15)$ | 0.4626 | $0.451^{+0.017}_{-0.013}$ |
| A_{100}^{PS} | 254.4 | 269 ± 28 | D_{1420} | 815.1 | 813.2 ± 5.2 | $\sigma_8(0.15)$ | 0.7492 | $0.719^{+0.033}_{-0.018}$ |
| A_{143}^{PS} | 49.4 | 52 ± 8 | D_{2000} | 229.95 | 228.2 ± 2.0 | $f\sigma_8(0.38)$ | 0.4792 | $0.465^{+0.018}_{-0.012}$ |
| $A_{143 \times 217}^{PS}$ | 46.5 | 45^{+9}_{-10} | $n_{s,0.002}$ | 0.9637 | $0.9657^{+0.0071}_{-0.0096}$ | $\sigma_8(0.38)$ | 0.6632 | $0.636^{+0.030}_{-0.017}$ |
| A_{217}^{PS} | 119.0 | 116 ± 10 | Y_P | 0.24531 | $0.24765^{+0.0069}_{-0.0023}$ | $f\sigma_8(0.51)$ | 0.4769 | $0.461^{+0.018}_{-0.011}$ |
| A^{kSZ} | 0.02 | < 5.54 | Y_P^{BBN} | 0.24664 | $0.24899^{+0.0070}_{-0.0023}$ | $\sigma_8(0.51)$ | 0.6203 | $0.595^{+0.029}_{-0.016}$ |
| A_{100}^{dustTT} | 8.78 | 9.0 ± 1.8 | $10^5 D/H$ | 2.625 | $2.675^{+0.047}_{-0.056}$ | $f\sigma_8(0.61)$ | 0.4712 | $0.455^{+0.019}_{-0.011}$ |
| A_{143}^{dustTT} | 10.77 | 10.8 ± 1.8 | Age/Gyr | 13.826 | $13.71^{+0.15}_{-0.045}$ | $\sigma_8(0.61)$ | 0.5900 | $0.565^{+0.028}_{-0.016}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.31 | 18.4 ± 3.3 | z_* | 1090.224 | 1090.63 ± 0.47 | $f\sigma_8(2.33)$ | 0.2972 | $0.285^{+0.014}_{-0.0080}$ |
| A_{217}^{dustTT} | 94.4 | 93.1 ± 7.4 | r_* | 144.48 | $142.8^{+1.7}_{-0.84}$ | $\sigma_8(2.33)$ | 0.3060 | $0.293^{+0.015}_{-0.0088}$ |
| c_{100} | 0.99962 | 0.99960 ± 0.00061 | $100\theta_*$ | 1.04093 | 1.04064 ± 0.00054 | f_{2000}^{143} | 30.40 | 33.1 ± 3.2 |
| c_{217} | 0.99823 | 0.99829 ± 0.00062 | $D_M(z_*)/Gpc$ | 13.880 | $13.72^{+0.15}_{-0.079}$ | $f_{2000}^{143 \times 217}$ | 33.22 | 35.1 ± 2.3 |
| H_0 | 66.97 | $67.0^{+1.1}_{-1.5}$ | z_{drag} | 1059.47 | $1060.03^{+0.56}_{-0.71}$ | f_{2000}^{217} | 107.62 | 109.5 ± 2.1 |
| Ω_Λ | 0.6806 | $0.671^{+0.019}_{-0.016}$ | r_{drag} | 147.21 | $145.5^{+1.7}_{-0.86}$ | χ_{simall}^2 | 395.94 | 397.0 ± 1.8 |
| Ω_m | 0.3194 | $0.329^{+0.016}_{-0.019}$ | k_D | 0.14058 | $0.14192^{+0.0080}_{-0.0013}$ | χ_{lowl}^2 | 23.58 | 23.5 ± 1.6 |
| $\Omega_m h^2$ | 0.14324 | $0.1474^{+0.0027}_{-0.0041}$ | $100\theta_D$ | 0.161005 | $0.16135^{+0.0031}_{-0.0047}$ | χ_{plik}^2 | 758.8 | 774.5 ± 5.9 |
| $\Omega_\nu h^2$ | 0.00077 | $0.00372^{+0.00083}_{-0.0031}$ | z_{eq} | 3405 | 3355^{+73}_{-47} | χ_{prior}^2 | 1.36 | 7.4 ± 3.7 |
| $\Omega_m h^3$ | 0.09592 | $0.09878^{+0.00095}_{-0.0031}$ | k_{eq} | 0.010393 | $0.01039^{+0.00022}_{-0.00016}$ | χ_{CMB}^2 | 1178.3 | 1195.0 ± 5.9 |
| σ_8 | 0.8116 | $0.780^{+0.035}_{-0.019}$ | $100\theta_{eq}$ | 0.8122 | $0.8232^{+0.0085}_{-0.015}$ | | | |

Best-fit $\chi_{eff}^2 = 1179.66$; $\Delta\chi_{eff}^2 = 0.08$; $\bar{\chi}_{eff}^2 = 1202.36$; $\Delta\bar{\chi}_{eff}^2 = 2.79$; $R - 1 = 0.01778$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.94 (Δ 0.06) commander_dx12_v3.2.29: 23.58 (Δ -0.02) plik_rd12_HM_v22_TT: 758.77 (Δ 0.03)

8.2 base_nnu_meffsterile_plikHM_TT_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|--------------------------------|-----------------------------|----------|---------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022210 | 0.02221 ± 0.00022 | S_8 | 0.8311 | $0.819^{+0.023}_{-0.018}$ | $100\theta_{s,eq}$ | 0.46004 | $0.4541^{+0.0030}_{-0.0067}$ |
| $\Omega_c h^2$ | 0.11605 | $0.1216^{+0.0038}_{-0.0029}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4552 | $0.448^{+0.013}_{-0.010}$ | $H(0.15)$ | 72.55 | $72.37^{+0.69}_{-1.1}$ |
| $100\theta_{MC}$ | 1.04082 | 1.04053 ± 0.00050 | $\sigma_8 \Omega_m^{0.25}$ | 0.6073 | $0.592^{+0.019}_{-0.012}$ | $D_M(0.15)$ | 644.5 | $647^{+11}_{-7.6}$ |
| τ | 0.0541 | 0.0529 ± 0.0077 | $\sigma_8/h^{0.5}$ | 0.9880 | $0.955^{+0.032}_{-0.018}$ | $H(0.38)$ | 82.74 | $82.89^{+0.43}_{-0.98}$ |
| $m_{\nu, sterile}^{eff} [eV]$ | 0.361 | < 0.333 | $r_{drag} h$ | 99.03 | $97.3^{+1.9}_{-1.7}$ | $D_M(0.38)$ | 1536.1 | 1539^{+23}_{-14} |
| N_{eff} | 3.047 | $3.210^{+0.039}_{-0.16}$ | $\langle d^2 \rangle^{1/2}$ | 2.4443 | 2.453 ± 0.029 | $H(0.51)$ | 89.49 | $89.85^{+0.32}_{-0.92}$ |
| $\ln(10^{10} A_s)$ | 3.0425 | 3.048 ± 0.016 | z_{re} | 7.70 | 7.63 ± 0.80 | $D_M(0.51)$ | 1989.2 | 1991^{+28}_{-16} |
| n_s | 0.9653 | $0.9647^{+0.0061}_{-0.0079}$ | $10^9 A_s$ | 2.0958 | $2.107^{+0.031}_{-0.035}$ | $H(0.61)$ | 95.14 | $95.65^{+0.28}_{-0.91}$ |
| y_{cal} | 1.00022 | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8808 | $1.895^{+0.013}_{-0.016}$ | $D_M(0.61)$ | 2314.2 | 2315^{+31}_{-17} |
| A_{217}^{CIB} | 48.4 | 49 ± 7 | D_{40} | 1227.7 | 1230 ± 15 | $H(2.33)$ | 236.32 | $239.7^{+1.7}_{-2.9}$ |
| $\xi^{tSZ \times CIB}$ | 0.34 | — | D_{220} | 5713.1 | 5714 ± 41 | $D_M(2.33)$ | 5771.4 | 5735^{+52}_{-16} |
| A_{143}^{tSZ} | 7.00 | 4.8 ± 2.0 | D_{810} | 2536.9 | 2539 ± 14 | $f\sigma_8(0.15)$ | 0.4595 | $0.452^{+0.013}_{-0.0096}$ |
| A_{100}^{PS} | 253.0 | 269 ± 28 | D_{1420} | 815.6 | 813.3 ± 5.2 | $\sigma_8(0.15)$ | 0.7481 | $0.720^{+0.029}_{-0.017}$ |
| A_{143}^{PS} | 49.0 | 52 ± 8 | D_{2000} | 230.21 | 228.3 ± 2.0 | $f\sigma_8(0.38)$ | 0.4768 | $0.465^{+0.015}_{-0.0091}$ |
| $A_{143 \times 217}^{PS}$ | 47.0 | 45^{+9}_{-10} | $n_{s,0.002}$ | 0.9653 | $0.9647^{+0.0061}_{-0.0079}$ | $\sigma_8(0.38)$ | 0.6627 | $0.636^{+0.027}_{-0.016}$ |
| A_{217}^{PS} | 119.3 | 116 ± 10 | Y_P | 0.24535 | $0.24748^{+0.00065}_{-0.0020}$ | $f\sigma_8(0.51)$ | 0.4749 | $0.462^{+0.015}_{-0.0090}$ |
| A^{kSZ} | 0.02 | < 5.46 | Y_P^{BBN} | 0.24667 | $0.24881^{+0.00065}_{-0.0020}$ | $\sigma_8(0.51)$ | 0.6200 | $0.595^{+0.025}_{-0.016}$ |
| A_{100}^{dustTT} | 8.90 | 9.0 ± 1.8 | $10^5 D/H$ | 2.616 | $2.673^{+0.046}_{-0.056}$ | $f\sigma_8(0.61)$ | 0.4696 | $0.456^{+0.016}_{-0.0090}$ |
| A_{143}^{dustTT} | 10.87 | 10.8 ± 1.8 | Age/Gyr | 13.816 | $13.73^{+0.12}_{-0.039}$ | $\sigma_8(0.61)$ | 0.5898 | $0.565^{+0.024}_{-0.015}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.37 | 18.4 ± 3.3 | z_* | 1090.112 | $1090.63^{+0.40}_{-0.47}$ | $f\sigma_8(2.33)$ | 0.2972 | $0.285^{+0.012}_{-0.0078}$ |
| A_{217}^{dustTT} | 94.5 | 93.2 ± 7.4 | r_* | 144.58 | $142.9^{+1.6}_{-0.78}$ | $\sigma_8(2.33)$ | 0.3062 | $0.293^{+0.013}_{-0.0086}$ |
| c_{100} | 0.99964 | 0.99960 ± 0.00061 | $100\theta_*$ | 1.04102 | 1.04065 ± 0.00053 | f_{2000}^{143} | 29.97 | 33.0 ± 3.2 |
| c_{217} | 0.99824 | 0.99829 ± 0.00062 | $D_M(z_*)/Gpc$ | 13.888 | $13.73^{+0.14}_{-0.073}$ | $f_{2000}^{143 \times 217}$ | 32.94 | 35.0 ± 2.2 |
| H_0 | 67.23 | $66.84^{+0.87}_{-1.2}$ | z_{drag} | 1059.55 | $1059.99^{+0.54}_{-0.65}$ | f_{2000}^{217} | 107.36 | 109.5 ± 2.1 |
| Ω_Λ | 0.6842 | $0.670^{+0.017}_{-0.013}$ | r_{drag} | 147.30 | $145.5^{+1.6}_{-0.80}$ | $\chi^2_{lensing}$ | 8.88 | 9.27 ± 0.94 |
| Ω_m | 0.3158 | $0.330^{+0.013}_{-0.017}$ | k_D | 0.14052 | $0.14187^{+0.00075}_{-0.0013}$ | χ^2_{small} | 396 | 502 ± 200 |
| $\Omega_m h^2$ | 0.14274 | $0.1474^{+0.0024}_{-0.0040}$ | $100\theta_D$ | 0.160971 | $0.16132^{+0.00030}_{-0.00044}$ | χ^2_{lowl} | 23.29 | 23.6 ± 1.3 |
| $\Omega_\nu h^2$ | 0.00449 | $0.00366^{+0.00080}_{-0.0030}$ | z_{eq} | 3303.3 | 3362^{+62}_{-33} | χ^2_{plik} | 759 | 668 ± 200 |
| $\Omega_m h^3$ | 0.09597 | $0.09853^{+0.00091}_{-0.0027}$ | k_{eq} | 0.010152 | $0.01041^{+0.00020}_{-0.00013}$ | χ^2_{prior} | 1.35 | 7.3 ± 3.7 |
| σ_8 | 0.8101 | $0.781^{+0.030}_{-0.018}$ | $100\theta_{eq}$ | 0.8333 | $0.8219^{+0.0059}_{-0.013}$ | χ^2_{CMB} | 1187.2 | 1203.6 ± 5.9 |

Best-fit $\chi^2_{eff} = 1188.51$; $\Delta\chi^2_{eff} = -0.06$; $\bar{\chi}^2_{eff} = 1210.94$; $\Delta\bar{\chi}^2_{eff} = 2.53$; $R - 1 = 0.01963$
 χ^2_{eff} : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consect8: 8.88 (Δ -0.02) small_100x143_offlike5_EE_Aplanck_B: 396.04 (Δ 0.18) commander_dx12_v3_2_29: 23.29 (Δ 0.06) plik_rd12_HM_v22_TT: 758.94 (Δ -0.38)

8.3 base_nnu_meffsterile_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|--------------------------------|-----------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02223 ± 0.00023 | S_8 | $0.817^{+0.030}_{-0.026}$ | $100\theta_{s,eq}$ | $0.4549^{+0.0043}_{-0.0079}$ |
| $\Omega_c h^2$ | $0.1215^{+0.0041}_{-0.0032}$ | $\sigma_8 \Omega_m^{0.5}$ | $0.447^{+0.016}_{-0.014}$ | $H(0.15)$ | $72.56^{+0.86}_{-1.4}$ |
| $100\theta_{MC}$ | 1.04053 ± 0.00051 | $\sigma_8 \Omega_m^{0.25}$ | $0.591^{+0.023}_{-0.015}$ | $D_M(0.15)$ | $646^{+13}_{-9.4}$ |
| τ | $0.0539^{+0.0050}_{-0.0082}$ | $\sigma_8/h^{0.5}$ | $0.954^{+0.038}_{-0.022}$ | $H(0.38)$ | $83.06^{+0.54}_{-1.2}$ |
| $m_{\nu, sterile}^{eff} [eV]$ | < 0.331 | $r_{drag} h$ | 97.5 ± 2.1 | $D_M(0.38)$ | 1536^{+28}_{-18} |
| N_{eff} | $3.225^{+0.042}_{-0.18}$ | $\langle d^2 \rangle^{1/2}$ | 2.449 ± 0.041 | $H(0.51)$ | $90.00^{+0.40}_{-1.2}$ |
| $\ln(10^{10} A_s)$ | $3.049^{+0.013}_{-0.017}$ | z_{re} | $7.75^{+0.56}_{-0.82}$ | $D_M(0.51)$ | 1987^{+35}_{-20} |
| n_s | $0.9661^{+0.0070}_{-0.0096}$ | $10^9 A_s$ | $2.111^{+0.027}_{-0.037}$ | $H(0.61)$ | $95.80^{+0.34}_{-1.1}$ |
| y_{cal} | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.895 ± 0.016 | $D_M(0.61)$ | 2310^{+38}_{-21} |
| A_{217}^{CIB} | 49 ± 7 | D_{40} | 1227 ± 19 | $H(2.33)$ | $239.8^{+1.9}_{-3.0}$ |
| $\xi^{tSZ \times CIB}$ | — | D_{220} | 5712 ± 41 | $D_M(2.33)$ | 5728^{+63}_{-19} |
| A_{143}^{tSZ} | 4.8 ± 2.0 | D_{810} | 2539 ± 14 | $f\sigma_8(0.15)$ | $0.451^{+0.016}_{-0.013}$ |
| A_{100}^{PS} | 268 ± 28 | D_{1420} | 813.2 ± 5.2 | $\sigma_8(0.15)$ | $0.721^{+0.033}_{-0.018}$ |
| A_{143}^{PS} | 52 ± 8 | D_{2000} | 228.2 ± 2.0 | $f\sigma_8(0.38)$ | $0.465^{+0.018}_{-0.012}$ |
| $A_{143 \times 217}^{PS}$ | 45^{+9}_{-10} | $n_{s,0.002}$ | $0.9661^{+0.0070}_{-0.0096}$ | $\sigma_8(0.38)$ | $0.637^{+0.030}_{-0.017}$ |
| A_{217}^{PS} | 116 ± 10 | Y_P | $0.24769^{+0.00072}_{-0.0023}$ | $f\sigma_8(0.51)$ | $0.462^{+0.018}_{-0.011}$ |
| A^{kSZ} | < 5.51 | Y_P^{BBN} | $0.24902^{+0.00072}_{-0.0023}$ | $\sigma_8(0.51)$ | $0.596^{+0.029}_{-0.016}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | $10^5 D/H$ | $2.674^{+0.048}_{-0.057}$ | $f\sigma_8(0.61)$ | $0.456^{+0.018}_{-0.011}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | Age/Gyr | $13.71^{+0.15}_{-0.046}$ | $\sigma_8(0.61)$ | $0.566^{+0.028}_{-0.015}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.3 ± 3.3 | z_* | 1090.62 ± 0.47 | $f\sigma_8(2.33)$ | $0.286^{+0.014}_{-0.0079}$ |
| A_{217}^{dustTT} | 93.1 ± 7.4 | r_* | $142.8^{+1.7}_{-0.85}$ | $\sigma_8(2.33)$ | $0.293^{+0.015}_{-0.0086}$ |
| c_{100} | 0.99960 ± 0.00061 | $100\theta_*$ | $1.04064^{+0.00057}_{-0.00051}$ | f_{2000}^{143} | 33.0 ± 3.2 |
| c_{217} | 0.99828 ± 0.00062 | $D_M(z_*)/Gpc$ | $13.72^{+0.16}_{-0.080}$ | $f_{2000}^{143 \times 217}$ | 35.1 ± 2.3 |
| H_0 | $67.1^{+1.1}_{-1.5}$ | z_{drag} | $1060.04^{+0.56}_{-0.71}$ | f_{2000}^{217} | 109.5 ± 2.1 |
| Ω_Λ | $0.672^{+0.019}_{-0.016}$ | r_{drag} | $145.5^{+1.7}_{-0.87}$ | χ_{small}^2 | 396.9 ± 1.8 |
| Ω_m | $0.328^{+0.016}_{-0.019}$ | k_D | $0.14192^{+0.00081}_{-0.0013}$ | χ_{lowl}^2 | 23.4 ± 1.6 |
| $\Omega_m h^2$ | $0.1474^{+0.0027}_{-0.0041}$ | $100\theta_D$ | $0.16136^{+0.00031}_{-0.00047}$ | χ_{plik}^2 | 774.4 ± 5.9 |
| $\Omega_\nu h^2$ | $0.00369^{+0.00084}_{-0.0031}$ | z_{eq} | 3354^{+72}_{-46} | χ_{prior}^2 | 7.4 ± 3.7 |
| $\Omega_m h^3$ | $0.09883^{+0.00097}_{-0.0031}$ | k_{eq} | $0.01039^{+0.00022}_{-0.00016}$ | χ_{CMB}^2 | 1194.8 ± 5.9 |
| σ_8 | $0.781^{+0.035}_{-0.019}$ | $100\theta_{eq}$ | $0.8235^{+0.0084}_{-0.015}$ | | |

$$\bar{\chi}_{eff}^2 = 1202.13; \Delta\bar{\chi}_{eff}^2 = 2.81; R - 1 = 0.02055$$

8.4 base_nnu_meffsterile_plikHM_TT_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|--------------------------------|-----------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02222 ± 0.00022 | S_8 | $0.819^{+0.023}_{-0.018}$ | $100\theta_{s,eq}$ | $0.4542^{+0.0029}_{-0.0067}$ |
| $\Omega_c h^2$ | $0.1215^{+0.0038}_{-0.0029}$ | $\sigma_8 \Omega_m^{0.5}$ | $0.448^{+0.013}_{-0.010}$ | $H(0.15)$ | $72.42^{+0.68}_{-1.1}$ |
| $100\theta_{MC}$ | 1.04054 ± 0.00050 | $\sigma_8 \Omega_m^{0.25}$ | $0.592^{+0.019}_{-0.012}$ | $D_M(0.15)$ | $647^{+11}_{-7.5}$ |
| τ | $0.0540^{+0.0051}_{-0.0080}$ | $\sigma_8/h^{0.5}$ | $0.955^{+0.032}_{-0.018}$ | $H(0.38)$ | $82.93^{+0.42}_{-0.98}$ |
| $m_{\nu, sterile}^{eff} [eV]$ | < 0.331 | $r_{drag} h$ | $97.4^{+1.9}_{-1.7}$ | $D_M(0.38)$ | 1538^{+23}_{-14} |
| N_{eff} | $3.212^{+0.040}_{-0.16}$ | $\langle d^2 \rangle^{1/2}$ | 2.454 ± 0.029 | $H(0.51)$ | $89.88^{+0.31}_{-0.93}$ |
| $\ln(10^{10} A_s)$ | $3.050^{+0.012}_{-0.016}$ | z_{re} | $7.76^{+0.57}_{-0.80}$ | $D_M(0.51)$ | 1990^{+28}_{-16} |
| n_s | $0.9651^{+0.0059}_{-0.0079}$ | $10^9 A_s$ | $2.111^{+0.025}_{-0.035}$ | $H(0.61)$ | $95.68^{+0.27}_{-0.92}$ |
| y_{cal} | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | $1.895^{+0.013}_{-0.016}$ | $D_M(0.61)$ | 2313^{+31}_{-16} |
| A_{217}^{CIB} | 49 ± 7 | D_{40} | 1229 ± 15 | $H(2.33)$ | $239.7^{+1.7}_{-2.9}$ |
| $\xi^{tSZ \times CIB}$ | — | D_{220} | 5714 ± 41 | $D_M(2.33)$ | 5734^{+53}_{-16} |
| A_{143}^{tSZ} | 4.8 ± 2.0 | D_{810} | 2539 ± 14 | $f\sigma_8(0.15)$ | $0.452^{+0.013}_{-0.0096}$ |
| A_{100}^{PS} | 268 ± 28 | D_{1420} | 813.3 ± 5.2 | $\sigma_8(0.15)$ | $0.720^{+0.029}_{-0.017}$ |
| A_{143}^{PS} | 52 ± 8 | D_{2000} | 228.3 ± 2.0 | $f\sigma_8(0.38)$ | $0.466^{+0.015}_{-0.0091}$ |
| $A_{143 \times 217}^{PS}$ | 45^{+9}_{-10} | $n_{s,0.002}$ | $0.9651^{+0.0059}_{-0.0079}$ | $\sigma_8(0.38)$ | $0.637^{+0.027}_{-0.016}$ |
| A_{217}^{PS} | 116 ± 10 | Y_P | $0.24751^{+0.00067}_{-0.0021}$ | $f\sigma_8(0.51)$ | $0.462^{+0.015}_{-0.0090}$ |
| A^{kSZ} | < 5.41 | Y_P^{BBN} | $0.24884^{+0.00067}_{-0.0021}$ | $\sigma_8(0.51)$ | $0.595^{+0.025}_{-0.015}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | $10^5 D/H$ | $2.672^{+0.046}_{-0.056}$ | $f\sigma_8(0.61)$ | $0.456^{+0.016}_{-0.0090}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | Age/Gyr | $13.72^{+0.13}_{-0.039}$ | $\sigma_8(0.61)$ | $0.566^{+0.024}_{-0.015}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.4 ± 3.3 | z_* | $1090.62^{+0.40}_{-0.47}$ | $f\sigma_8(2.33)$ | $0.285^{+0.012}_{-0.0078}$ |
| A_{217}^{dustTT} | 93.2 ± 7.4 | r_* | $142.9^{+1.6}_{-0.79}$ | $\sigma_8(2.33)$ | $0.293^{+0.013}_{-0.0086}$ |
| c_{100} | 0.99960 ± 0.00061 | $100\theta_*$ | 1.04066 ± 0.00053 | f_{2000}^{143} | 33.0 ± 3.2 |
| c_{217} | 0.99828 ± 0.00062 | $D_M(z_*)/Gpc$ | $13.73^{+0.15}_{-0.074}$ | $f_{2000}^{143 \times 217}$ | 35.0 ± 2.2 |
| H_0 | $66.90^{+0.87}_{-1.2}$ | z_{drag} | $1060.00^{+0.54}_{-0.65}$ | f_{2000}^{217} | 109.4 ± 2.1 |
| Ω_Λ | $0.670^{+0.017}_{-0.013}$ | r_{drag} | $145.5^{+1.6}_{-0.81}$ | $\chi^2_{lensing}$ | 9.25 ± 0.93 |
| Ω_m | $0.330^{+0.013}_{-0.017}$ | k_D | $0.14187^{+0.00076}_{-0.0013}$ | χ^2_{small} | 501 ± 200 |
| $\Omega_m h^2$ | $0.1474^{+0.0024}_{-0.0040}$ | $100\theta_D$ | $0.16132^{+0.00031}_{-0.00045}$ | χ^2_{lowl} | 23.5 ± 1.3 |
| $\Omega_\nu h^2$ | $0.00364^{+0.00077}_{-0.0030}$ | z_{eq} | 3360^{+61}_{-31} | χ^2_{plik} | 669 ± 200 |
| $\Omega_m h^3$ | $0.09857^{+0.00093}_{-0.0028}$ | k_{eq} | $0.01040^{+0.00020}_{-0.00013}$ | χ^2_{prior} | 7.3 ± 3.7 |
| σ_8 | $0.781^{+0.030}_{-0.018}$ | $100\theta_{eq}$ | $0.8223^{+0.0056}_{-0.013}$ | χ^2_{CMB} | 1203.4 ± 5.8 |

$$\bar{\chi}^2_{eff} = 1210.72; \Delta\bar{\chi}^2_{eff} = 2.56; R - 1 = 0.02178$$

8.5 base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|---------------------------------|-------------------------------------|----------|---------------------------------|-----------------------------|----------|---------------------------------|
| $\Omega_b h^2$ | 0.022445 | 0.02243 ± 0.00016 | $\Omega_m h^2$ | 0.14339 | $0.1459^{+0.0017}_{-0.0028}$ | k_{eq} | 0.010384 | $0.01035^{+0.00019}_{-0.00010}$ |
| $\Omega_c h^2$ | 0.12030 | $0.1199^{+0.0035}_{-0.0021}$ | $\Omega_\nu h^2$ | 0.00065 | $0.00353^{+0.00063}_{-0.0029}$ | $100\theta_{\text{eq}}$ | 0.8150 | $0.8239^{+0.0055}_{-0.014}$ |
| $100\theta_{\text{MC}}$ | 1.040883 | $1.04074^{+0.00035}_{-0.00031}$ | $\Omega_m h^3$ | 0.09713 | $0.09795^{+0.00059}_{-0.0018}$ | $100\theta_{\text{s,eq}}$ | 0.4502 | $0.4549^{+0.0028}_{-0.0075}$ |
| τ | 0.0602 | 0.0546 ± 0.0079 | σ_8 | 0.8174 | $0.783^{+0.030}_{-0.017}$ | $H(0.15)$ | 73.05 | $72.58^{+0.54}_{-0.76}$ |
| $m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$ | 0.000 | < 0.323 | S_8 | 0.8342 | $0.813^{+0.027}_{-0.019}$ | $D_{\text{M}}(0.15)$ | 639.9 | $644.9^{+7.4}_{-5.8}$ |
| N_{eff} | 3.084 | $3.152^{+0.024}_{-0.11}$ | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4569 | $0.445^{+0.015}_{-0.010}$ | $H(0.38)$ | 83.215 | $82.97^{+0.33}_{-0.63}$ |
| $\ln(10^{10} A_{\text{s}})$ | 3.0581 | 3.049 ± 0.017 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6111 | $0.590^{+0.021}_{-0.012}$ | $D_{\text{M}}(0.38)$ | 1525.9 | 1535^{+15}_{-11} |
| n_{s} | 0.9687 | $0.9655^{+0.0049}_{-0.0059}$ | $\sigma_8/h^{0.5}$ | 0.9932 | $0.955^{+0.035}_{-0.018}$ | $H(0.51)$ | 89.965 | $89.86^{+0.25}_{-0.58}$ |
| y_{cal} | 1.00100 | 1.0008 ± 0.0025 | $r_{\text{drag}} h$ | 99.40 | $98.0^{+1.5}_{-1.2}$ | $D_{\text{M}}(0.51)$ | 1976.5 | 1987^{+18}_{-12} |
| A_{217}^{CIB} | 45.5 | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4513 | 2.448 ± 0.028 | $H(0.61)$ | 95.611 | $95.60^{+0.21}_{-0.57}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.74 | — | z_{re} | 8.27 | 7.74 ± 0.80 | $D_{\text{M}}(0.61)$ | 2299.8 | 2310^{+20}_{-13} |
| A_{143}^{tSZ} | 7.03 | 5.3 ± 2.0 | $10^9 A_{\text{s}}$ | 2.1288 | $2.110^{+0.032}_{-0.036}$ | $H(2.33)$ | 236.96 | $238.7^{+1.2}_{-2.1}$ |
| A_{100}^{PS} | 247.5 | 261 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8872 | 1.891 ± 0.013 | $D_{\text{M}}(2.33)$ | 5744.7 | 5740^{+33}_{-11} |
| A_{143}^{PS} | 51.8 | 48 ± 8 | D_{40} | 1227.2 | 1230 ± 14 | $f\sigma_8(0.15)$ | 0.4615 | $0.449^{+0.015}_{-0.010}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 55.4 | 43 ± 9 | D_{220} | 5734.8 | 5733 ± 39 | $\sigma_8(0.15)$ | 0.7552 | $0.722^{+0.029}_{-0.016}$ |
| A_{217}^{PS} | 122.9 | 116 ± 10 | D_{810} | 2544.6 | 2542 ± 14 | $f\sigma_8(0.38)$ | 0.4797 | $0.464^{+0.016}_{-0.0096}$ |
| A^{kSZ} | 0.00 | < 4.66 | D_{1420} | 819.33 | 816.6 ± 4.8 | $\sigma_8(0.38)$ | 0.6694 | $0.639^{+0.026}_{-0.014}$ |
| A_{100}^{dustTT} | 8.81 | 9.0 ± 1.8 | D_{2000} | 231.71 | 230.0 ± 1.7 | $f\sigma_8(0.51)$ | 0.4782 | $0.461^{+0.016}_{-0.0094}$ |
| A_{143}^{dustTT} | 11.02 | 11.0 ± 1.8 | $n_{\text{s}, 0.002}$ | 0.9687 | $0.9655^{+0.0049}_{-0.0059}$ | $\sigma_8(0.51)$ | 0.6264 | $0.598^{+0.025}_{-0.013}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.27 | 18.8 ± 3.3 | Y_{P} | 0.24593 | $0.24681^{+0.00044}_{-0.0013}$ | $f\sigma_8(0.61)$ | 0.4731 | $0.456^{+0.017}_{-0.0092}$ |
| A_{217}^{dustTT} | 95.7 | 93.8 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24726 | $0.24815^{+0.00044}_{-0.0013}$ | $\sigma_8(0.61)$ | 0.5960 | $0.568^{+0.024}_{-0.013}$ |
| A_{100}^{dustTE} | 0.1137 | 0.114 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.5849 | $2.612^{+0.029}_{-0.034}$ | $f\sigma_8(2.33)$ | 0.3004 | $0.286^{+0.012}_{-0.0066}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1350 | 0.134 ± 0.029 | Age/Gyr | 13.753 | $13.740^{+0.080}_{-0.026}$ | $\sigma_8(2.33)$ | 0.3097 | $0.295^{+0.013}_{-0.0071}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 | 0.480 ± 0.085 | z_* | 1089.891 | $1090.16^{+0.29}_{-0.33}$ | f_{2000}^{143} | 28.47 | 30.8 ± 2.8 |
| A_{143}^{dustTE} | 0.225 | 0.224 ± 0.054 | r_* | 144.11 | $143.3^{+1.1}_{-0.53}$ | $f_{2000}^{143 \times 217}$ | 31.89 | 33.2 ± 1.9 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.666 ± 0.080 | $100\theta_*$ | 1.041033 | $1.04087^{+0.00037}_{-0.00032}$ | f_{2000}^{217} | 106.43 | 108.0 ± 1.9 |
| A_{217}^{dustTE} | 2.081 | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.843 | $13.77^{+0.10}_{-0.050}$ | χ_{simall}^2 | 397.59 | 397.2 ± 2.0 |
| c_{100} | 0.99974 | 0.99966 ± 0.00061 | z_{drag} | 1060.162 | $1060.33^{+0.35}_{-0.49}$ | χ_{lowl}^2 | 23.02 | 23.4 ± 1.1 |
| c_{217} | 0.99817 | 0.99821 ± 0.00062 | r_{drag} | 146.74 | $146.0^{+1.1}_{-0.54}$ | χ_{plik}^2 | 2344.4 | 2362.4 ± 6.2 |
| H_0 | 67.74 | $67.14^{+0.68}_{-0.85}$ | k_{D} | 0.14115 | $0.14178^{+0.00050}_{-0.00092}$ | χ_{prior}^2 | 1.64 | 11.7 ± 4.7 |
| Ω_{Λ} | 0.6875 | $0.676^{+0.013}_{-0.0094}$ | $100\theta_{\text{D}}$ | 0.160784 | $0.16090^{+0.00019}_{-0.00025}$ | χ_{CMB}^2 | 2765.0 | 2783.1 ± 6.3 |
| Ω_{m} | 0.3125 | $0.3239^{+0.0094}_{-0.013}$ | z_{eq} | 3393.7 | 3355^{+68}_{-30} | | | |

Best-fit $\chi_{\text{eff}}^2 = 2766.68$; $\Delta\chi_{\text{eff}}^2 = 0.91$; $\bar{\chi}_{\text{eff}}^2 = 2794.77$; $\Delta\bar{\chi}_{\text{eff}}^2 = 3.00$; $R - 1 = 0.01444$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 397.59 (Δ 1.54) commander_dx12_v3.2.29: 23.02 (Δ -0.24) plik_rd12_HM_v22b_TTTEEE: 2344.43 (Δ -0.22)

8.6 base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|---------------------------------|-------------------------------------|----------|---------------------------------|-----------------------------|----------|----------------------------------|
| $\Omega_b h^2$ | 0.022389 | $0.02242^{+0.00014}_{-0.00016}$ | $\Omega_m h^2$ | 0.14291 | $0.1459^{+0.0017}_{-0.0027}$ | k_{eq} | 0.009249 | $0.01035^{+0.00017}_{-0.000097}$ |
| $\Omega_c h^2$ | 0.09952 | $0.1200^{+0.0032}_{-0.0020}$ | $\Omega_\nu h^2$ | 0.02100 | $0.00338^{+0.00084}_{-0.0027}$ | $100\theta_{\text{eq}}$ | 0.9283 | $0.8230^{+0.0051}_{-0.013}$ |
| $100\theta_{\text{MC}}$ | 1.040940 | $1.04074^{+0.00033}_{-0.00029}$ | $\Omega_m h^3$ | 0.09635 | $0.09787^{+0.00055}_{-0.0017}$ | $100\theta_{\text{s,eq}}$ | 0.50955 | $0.4545^{+0.0026}_{-0.0066}$ |
| τ | 0.0543 | $0.0552^{+0.0070}_{-0.0079}$ | σ_8 | 0.8065 | $0.784^{+0.026}_{-0.016}$ | $H(0.15)$ | 72.74 | $72.56^{+0.50}_{-0.70}$ |
| $m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$ | 1.915 | < 0.319 | S_8 | 0.8256 | $0.815^{+0.022}_{-0.016}$ | $D_{\text{M}}(0.15)$ | 642.8 | $645.2^{+6.8}_{-5.3}$ |
| N_{eff} | 3.054 | $3.147^{+0.023}_{-0.10}$ | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4522 | $0.446^{+0.012}_{-0.0087}$ | $H(0.38)$ | 82.906 | $82.95^{+0.31}_{-0.57}$ |
| $\ln(10^{10} A_{\text{s}})$ | 3.0438 | $3.050^{+0.014}_{-0.016}$ | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6039 | $0.591^{+0.017}_{-0.011}$ | $D_{\text{M}}(0.38)$ | 1532.4 | 1536^{+14}_{-10} |
| n_{s} | 0.9660 | $0.9652^{+0.0045}_{-0.0056}$ | $\sigma_8/h^{0.5}$ | 0.9822 | $0.957^{+0.029}_{-0.017}$ | $H(0.51)$ | 89.658 | $89.83^{+0.23}_{-0.53}$ |
| y_{cal} | 1.00046 | 1.0009 ± 0.0025 | $r_{\text{drag}} h$ | 99.18 | $98.0^{+1.4}_{-1.2}$ | $D_{\text{M}}(0.51)$ | 1984.6 | 1987^{+17}_{-11} |
| A_{217}^{CIB} | 47.7 | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4444 | 2.451 ± 0.023 | $H(0.61)$ | 95.304 | $95.58^{+0.18}_{-0.52}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.33 | — | z_{re} | 7.68 | 7.80 ± 0.76 | $D_{\text{M}}(0.61)$ | 2309.0 | 2311^{+18}_{-12} |
| A_{143}^{tSZ} | 7.30 | 5.3 ± 2.0 | $10^9 A_{\text{s}}$ | 2.0984 | $2.112^{+0.029}_{-0.034}$ | $H(2.33)$ | 236.50 | $238.6^{+1.2}_{-2.0}$ |
| A_{100}^{PS} | 250.6 | 262 ± 27 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8823 | 1.891 ± 0.012 | $D_{\text{M}}(2.33)$ | 5762.3 | $5742^{+31}_{-9.7}$ |
| A_{143}^{PS} | 45.9 | 48 ± 8 | D_{40} | 1228.4 | 1231 ± 13 | $f\sigma_8(0.15)$ | 0.4565 | $0.450^{+0.012}_{-0.0086}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 44.8 | 43 ± 9 | D_{220} | 5729.5 | 5734 ± 39 | $\sigma_8(0.15)$ | 0.7449 | $0.723^{+0.024}_{-0.016}$ |
| A_{217}^{PS} | 118.6 | 116 ± 10 | D_{810} | 2539.8 | 2542 ± 14 | $f\sigma_8(0.38)$ | 0.4741 | $0.465^{+0.013}_{-0.0087}$ |
| A^{kSZ} | 0.00 | < 4.57 | D_{1420} | 817.6 | 816.6 ± 4.9 | $\sigma_8(0.38)$ | 0.6600 | $0.640^{+0.022}_{-0.014}$ |
| A_{100}^{dustTT} | 8.90 | 9.0 ± 1.8 | D_{2000} | 231.22 | 230.1 ± 1.7 | $f\sigma_8(0.51)$ | 0.4724 | $0.462^{+0.014}_{-0.0087}$ |
| A_{143}^{dustTT} | 11.04 | 11.0 ± 1.8 | $n_{\text{s}, 0.002}$ | 0.9660 | $0.9652^{+0.0045}_{-0.0056}$ | $\sigma_8(0.51)$ | 0.6175 | $0.598^{+0.021}_{-0.014}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.71 | 18.8 ± 3.2 | Y_{P} | 0.24551 | $0.24675^{+0.00043}_{-0.0013}$ | $f\sigma_8(0.61)$ | 0.4672 | $0.456^{+0.014}_{-0.0087}$ |
| A_{217}^{dustTT} | 95.0 | 93.9 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24683 | $0.24809^{+0.00043}_{-0.0013}$ | $\sigma_8(0.61)$ | 0.5875 | $0.569^{+0.020}_{-0.013}$ |
| A_{100}^{dustTE} | 0.1142 | 0.115 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.5846 | $2.611^{+0.029}_{-0.034}$ | $f\sigma_8(2.33)$ | 0.2961 | $0.287^{+0.010}_{-0.0068}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1351 | 0.134 ± 0.029 | Age/Gyr | 13.7944 | $13.744^{+0.073}_{-0.023}$ | $\sigma_8(2.33)$ | 0.3052 | $0.295^{+0.011}_{-0.0074}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.477 ± 0.084 | z_* | 1089.890 | $1090.16^{+0.28}_{-0.32}$ | f_{2000}^{143} | 28.90 | 30.8 ± 2.8 |
| A_{143}^{dustTE} | 0.225 | 0.224 ± 0.054 | r_* | 144.45 | $143.4^{+1.0}_{-0.53}$ | $f_{2000}^{143 \times 217}$ | 31.96 | $33.2^{+1.8}_{-2.1}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.664 ± 0.081 | $100\theta_*$ | 1.041114 | $1.04087^{+0.00036}_{-0.00030}$ | f_{2000}^{217} | 106.62 | 108.0 ± 1.9 |
| A_{217}^{dustTE} | 2.077 | 2.08 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.874 | $13.775^{+0.096}_{-0.050}$ | χ_{lensing}^2 | 8.958 | 9.03 ± 0.70 |
| c_{100} | 0.99972 | 0.99966 ± 0.00061 | z_{drag} | 1059.971 | $1060.31^{+0.34}_{-0.47}$ | χ_{simall}^2 | 396 | 1646 ± 900 |
| c_{217} | 0.99819 | 0.99822 ± 0.00062 | r_{drag} | 147.10 | $146.0^{+1.1}_{-0.54}$ | χ_{lowl}^2 | 23.22 | 23.5 ± 1.0 |
| H_0 | 67.42 | $67.11^{+0.63}_{-0.79}$ | k_{D} | 0.14087 | $0.14176^{+0.00051}_{-0.00088}$ | χ_{plik}^2 | 2344 | 1113 ± 900 |
| Ω_{Λ} | 0.6856 | $0.676^{+0.012}_{-0.0093}$ | $100\theta_{\text{D}}$ | 0.160743 | $0.16089^{+0.00019}_{-0.00024}$ | χ_{prior}^2 | 1.81 | 11.6 ± 4.7 |
| Ω_{m} | 0.3144 | $0.3240^{+0.0093}_{-0.012}$ | z_{eq} | 2910.2 | 3359^{+60}_{-27} | χ_{CMB}^2 | 2772.3 | 2791.6 ± 6.3 |

Best-fit $\chi_{\text{eff}}^2 = 2774.15$; $\Delta\chi_{\text{eff}}^2 = -0.49$; $\bar{\chi}_{\text{eff}}^2 = 2803.21$; $\Delta\bar{\chi}_{\text{eff}}^2 = 2.51$; $R - 1 = 0.04894$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.96 (Δ 0.09) simall_100x143_offlike5_EE_Aplanck.B: 396.02 (Δ -0.03) commander_dx12.v3.2.29: 23.22 (Δ -0.03) plik_rd12_HM_v22b_TTTEEE: 2344.13 (Δ -0.80)

8.7 base_nnu_meffsterile_plikHM_TTTEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|-------------------------------------|---------------------------------|-----------------------------|---------------------------------|
| $\Omega_b h^2$ | 0.02243 ± 0.00016 | $\Omega_m h^2$ | $0.1459^{+0.0017}_{-0.0029}$ | k_{eq} | $0.01035^{+0.00019}_{-0.00010}$ |
| $\Omega_c h^2$ | $0.1200^{+0.0035}_{-0.0021}$ | $\Omega_\nu h^2$ | $0.00351^{+0.00062}_{-0.0029}$ | $100\theta_{\text{eq}}$ | $0.8239^{+0.0056}_{-0.014}$ |
| $100\theta_{\text{MC}}$ | 1.04074 ± 0.00033 | $\Omega_m h^3$ | $0.09797^{+0.00059}_{-0.0018}$ | $100\theta_{\text{s,eq}}$ | $0.4549^{+0.0028}_{-0.0074}$ |
| τ | $0.0556^{+0.0056}_{-0.0082}$ | σ_8 | $0.784^{+0.030}_{-0.016}$ | $H(0.15)$ | $72.60^{+0.53}_{-0.76}$ |
| $m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$ | < 0.321 | S_8 | $0.814^{+0.027}_{-0.019}$ | $D_{\text{M}}(0.15)$ | $644.8^{+7.4}_{-5.7}$ |
| N_{eff} | $3.152^{+0.024}_{-0.11}$ | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | $0.446^{+0.015}_{-0.010}$ | $H(0.38)$ | $82.98^{+0.33}_{-0.64}$ |
| $\ln(10^{10} A_{\text{s}})$ | $3.051^{+0.013}_{-0.017}$ | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | $0.591^{+0.021}_{-0.012}$ | $D_{\text{M}}(0.38)$ | 1535^{+15}_{-11} |
| n_{s} | $0.9656^{+0.0049}_{-0.0059}$ | $\sigma_8/h^{0.5}$ | $0.956^{+0.035}_{-0.018}$ | $H(0.51)$ | $89.87^{+0.25}_{-0.59}$ |
| y_{cal} | 1.0008 ± 0.0025 | $r_{\text{drag}} h$ | $98.0^{+1.5}_{-1.2}$ | $D_{\text{M}}(0.51)$ | 1986^{+18}_{-12} |
| A_{217}^{CIB} | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.450 ± 0.028 | $H(0.61)$ | $95.61^{+0.21}_{-0.58}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | z_{re} | $7.84^{+0.62}_{-0.81}$ | $D_{\text{M}}(0.61)$ | 2310^{+20}_{-13} |
| A_{143}^{tSZ} | 5.3 ± 2.0 | $10^9 A_{\text{s}}$ | $2.113^{+0.026}_{-0.036}$ | $H(2.33)$ | $238.7^{+1.2}_{-2.1}$ |
| A_{100}^{PS} | 261 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.891 ± 0.013 | $D_{\text{M}}(2.33)$ | 5740^{+34}_{-11} |
| A_{143}^{PS} | 48 ± 8 | D_{40} | 1230 ± 14 | $f\sigma_8(0.15)$ | $0.449^{+0.015}_{-0.0099}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | D_{220} | 5732 ± 39 | $\sigma_8(0.15)$ | $0.723^{+0.029}_{-0.015}$ |
| A_{217}^{PS} | 116 ± 10 | D_{810} | 2542 ± 14 | $f\sigma_8(0.38)$ | $0.464^{+0.016}_{-0.0095}$ |
| A^{kSZ} | < 4.62 | D_{1420} | 816.6 ± 4.8 | $\sigma_8(0.38)$ | $0.640^{+0.026}_{-0.014}$ |
| $A_{100}^{\text{dust}TT}$ | 9.0 ± 1.8 | D_{2000} | 230.0 ± 1.7 | $f\sigma_8(0.51)$ | $0.462^{+0.016}_{-0.0092}$ |
| $A_{143}^{\text{dust}TT}$ | 11.0 ± 1.8 | $n_{\text{s}, 0.002}$ | $0.9656^{+0.0049}_{-0.0059}$ | $\sigma_8(0.51)$ | $0.598^{+0.025}_{-0.013}$ |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.7 ± 3.3 | Y_{P} | $0.24683^{+0.00044}_{-0.0014}$ | $f\sigma_8(0.61)$ | $0.456^{+0.017}_{-0.0091}$ |
| $A_{217}^{\text{dust}TT}$ | 93.8 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | $0.24816^{+0.00044}_{-0.0014}$ | $\sigma_8(0.61)$ | $0.569^{+0.024}_{-0.013}$ |
| $A_{100}^{\text{dust}TE}$ | 0.114 ± 0.038 | $10^5 \text{D}/\text{H}$ | $2.611^{+0.029}_{-0.034}$ | $f\sigma_8(2.33)$ | $0.287^{+0.012}_{-0.0065}$ |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.134 ± 0.029 | Age/Gyr | $13.739^{+0.080}_{-0.027}$ | $\sigma_8(2.33)$ | $0.295^{+0.013}_{-0.0069}$ |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.480 ± 0.085 | z_* | $1090.16^{+0.29}_{-0.32}$ | f_{2000}^{143} | 30.7 ± 2.8 |
| $A_{143}^{\text{dust}TE}$ | 0.224 ± 0.054 | r_* | $143.3^{+1.1}_{-0.53}$ | $f_{2000}^{143 \times 217}$ | 33.2 ± 1.9 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.666 ± 0.081 | $100\theta_*$ | $1.04087^{+0.00037}_{-0.00032}$ | f_{2000}^{217} | 107.9 ± 1.9 |
| $A_{217}^{\text{dust}TE}$ | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | $13.77^{+0.10}_{-0.050}$ | χ_{small}^2 | 397.2 ± 2.0 |
| c_{100} | 0.99966 ± 0.00061 | z_{drag} | $1060.33^{+0.35}_{-0.49}$ | χ_{lowl}^2 | 23.4 ± 1.1 |
| c_{217} | 0.99821 ± 0.00062 | r_{drag} | $146.0^{+1.1}_{-0.54}$ | χ_{plik}^2 | 2362.2 ± 6.2 |
| H_0 | $67.15^{+0.67}_{-0.85}$ | k_{D} | $0.14179^{+0.00050}_{-0.00093}$ | χ_{prior}^2 | 11.7 ± 4.7 |
| Ω_{Λ} | $0.676^{+0.013}_{-0.0093}$ | $100\theta_{\text{D}}$ | $0.16089^{+0.00019}_{-0.00025}$ | χ_{CMB}^2 | 2782.9 ± 6.2 |
| Ω_{m} | $0.3238^{+0.0093}_{-0.013}$ | z_{eq} | 3355^{+67}_{-30} | | |

$\bar{\chi}_{\text{eff}}^2 = 2794.57$; $\Delta\bar{\chi}_{\text{eff}}^2 = 3.04$; $R - 1 = 0.01250$

8.8 base_nnu_meffsterile_plikHM_TTTEE_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|---------------------------------|-------------------------------------|---------------------------------|-----------------------------|----------------------------------|
| $\Omega_b h^2$ | $0.02243^{+0.00014}_{-0.00016}$ | $\Omega_m h^2$ | $0.1458^{+0.0017}_{-0.0027}$ | k_{eq} | $0.01035^{+0.00017}_{-0.000097}$ |
| $\Omega_c h^2$ | $0.1200^{+0.0032}_{-0.0020}$ | $\Omega_\nu h^2$ | $0.00339^{+0.00084}_{-0.0027}$ | $100\theta_{\text{eq}}$ | $0.8232^{+0.0050}_{-0.013}$ |
| $100\theta_{\text{MC}}$ | $1.04075^{+0.00033}_{-0.00029}$ | $\Omega_m h^3$ | $0.09789^{+0.00056}_{-0.0017}$ | $100\theta_{\text{s,eq}}$ | $0.4546^{+0.0026}_{-0.0065}$ |
| τ | $0.0559^{+0.0058}_{-0.0080}$ | σ_8 | $0.784^{+0.026}_{-0.016}$ | $H(0.15)$ | $72.57^{+0.50}_{-0.70}$ |
| $m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$ | < 0.320 | S_8 | $0.815^{+0.022}_{-0.016}$ | $D_{\text{M}}(0.15)$ | $645.0^{+6.8}_{-5.3}$ |
| N_{eff} | $3.148^{+0.023}_{-0.10}$ | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | $0.446^{+0.012}_{-0.0087}$ | $H(0.38)$ | $82.96^{+0.31}_{-0.57}$ |
| $\ln(10^{10} A_{\text{s}})$ | $3.051^{+0.012}_{-0.016}$ | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | $0.592^{+0.017}_{-0.011}$ | $D_{\text{M}}(0.38)$ | 1535^{+14}_{-10} |
| n_{s} | $0.9654^{+0.0045}_{-0.0056}$ | $\sigma_8/h^{0.5}$ | $0.957^{+0.029}_{-0.017}$ | $H(0.51)$ | $89.84^{+0.23}_{-0.53}$ |
| y_{cal} | 1.0009 ± 0.0026 | $r_{\text{drag}} h$ | $98.0^{+1.4}_{-1.2}$ | $D_{\text{M}}(0.51)$ | 1987^{+17}_{-11} |
| A_{217}^{CIB} | 47 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.451 ± 0.022 | $H(0.61)$ | $95.59^{+0.18}_{-0.53}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | z_{re} | $7.86^{+0.63}_{-0.79}$ | $D_{\text{M}}(0.61)$ | 2311^{+18}_{-12} |
| A_{143}^{tSZ} | $5.3^{+2.1}_{-1.9}$ | $10^9 A_{\text{s}}$ | $2.115^{+0.025}_{-0.034}$ | $H(2.33)$ | $238.6^{+1.2}_{-2.0}$ |
| A_{100}^{PS} | 262 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.891 ± 0.012 | $D_{\text{M}}(2.33)$ | $5741^{+31}_{-9.8}$ |
| A_{143}^{PS} | 48 ± 8 | D_{40} | 1231 ± 13 | $f\sigma_8(0.15)$ | $0.450^{+0.012}_{-0.0086}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | D_{220} | 5734 ± 39 | $\sigma_8(0.15)$ | $0.724^{+0.025}_{-0.015}$ |
| A_{217}^{PS} | 116 ± 10 | D_{810} | 2542 ± 14 | $f\sigma_8(0.38)$ | $0.465^{+0.013}_{-0.0086}$ |
| A^{kSZ} | < 4.54 | D_{1420} | 816.6 ± 4.9 | $\sigma_8(0.38)$ | $0.640^{+0.022}_{-0.014}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | D_{2000} | 230.1 ± 1.7 | $f\sigma_8(0.51)$ | $0.462^{+0.014}_{-0.0086}$ |
| A_{143}^{dustTT} | 11.0 ± 1.8 | $n_{\text{s}, 0.002}$ | $0.9654^{+0.0045}_{-0.0056}$ | $\sigma_8(0.51)$ | $0.599^{+0.021}_{-0.014}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.8 ± 3.2 | Y_{P} | $0.24677^{+0.00044}_{-0.0013}$ | $f\sigma_8(0.61)$ | $0.457^{+0.014}_{-0.0086}$ |
| A_{217}^{dustTT} | 93.9 ± 7.2 | $Y_{\text{P}}^{\text{BBN}}$ | $0.24810^{+0.00044}_{-0.0013}$ | $\sigma_8(0.61)$ | $0.569^{+0.020}_{-0.013}$ |
| A_{100}^{dustTE} | 0.115 ± 0.038 | $10^5 \text{D}/\text{H}$ | $2.611^{+0.029}_{-0.034}$ | $f\sigma_8(2.33)$ | $0.287^{+0.010}_{-0.0068}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.029 | Age/Gyr | $13.742^{+0.073}_{-0.023}$ | $\sigma_8(2.33)$ | $0.295^{+0.011}_{-0.0073}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.477 ± 0.084 | z_* | $1090.16^{+0.28}_{-0.32}$ | f_{2000}^{143} | 30.8 ± 2.8 |
| A_{143}^{dustTE} | 0.224 ± 0.054 | r_* | $143.4^{+1.0}_{-0.54}$ | $f_{2000}^{143 \times 217}$ | $33.2^{+1.8}_{-2.0}$ |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.082 | $100\theta_*$ | $1.04088^{+0.00036}_{-0.00030}$ | f_{2000}^{217} | 108.0 ± 1.9 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | $13.775^{+0.097}_{-0.051}$ | χ_{lensing}^2 | 9.01 ± 0.68 |
| c_{100} | 0.99966 ± 0.00061 | z_{drag} | $1060.32^{+0.35}_{-0.47}$ | χ_{small}^2 | 1645 ± 900 |
| c_{217} | 0.99822 ± 0.00061 | r_{drag} | $146.0^{+1.1}_{-0.55}$ | χ_{lowl}^2 | 23.5 ± 1.0 |
| H_0 | $67.13^{+0.63}_{-0.78}$ | k_{D} | $0.14176^{+0.00052}_{-0.00088}$ | χ_{plik}^2 | 1114 ± 900 |
| Ω_{Λ} | $0.676^{+0.012}_{-0.0092}$ | $100\theta_{\text{D}}$ | $0.16089^{+0.00019}_{-0.00024}$ | χ_{prior}^2 | 11.6 ± 4.7 |
| Ω_{m} | $0.3238^{+0.0092}_{-0.012}$ | z_{eq} | 3358^{+60}_{-27} | χ_{CMB}^2 | 2791.5 ± 6.2 |

$$\bar{\chi}_{\text{eff}}^2 = 2803.10; \Delta\bar{\chi}_{\text{eff}}^2 = 2.59; R - 1 = 0.04623$$

8.9 base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|----------------------------------|-----------------------------|----------|---------------------------------|-----------------------------|----------|----------------------------|
| $\Omega_b h^2$ | 0.022314 | 0.02235 ± 0.00021 | $\sigma_8 \Omega_m^{0.5}$ | 0.4502 | $0.441^{+0.015}_{-0.010}$ | $D_M(0.15)$ | 636.1 | $633^{+12}_{-6.0}$ |
| $\Omega_c h^2$ | 0.11991 | $0.1203^{+0.0044}_{-0.0035}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6047 | $0.591^{+0.020}_{-0.012}$ | $H(0.38)$ | 83.52 | $83.98^{+0.54}_{-1.3}$ |
| $100\theta_{MC}$ | 1.04093 | $1.04074^{+0.00054}_{-0.00047}$ | $\sigma_8/h^{0.5}$ | 0.9835 | $0.957^{+0.031}_{-0.016}$ | $D_M(0.38)$ | 1518.2 | 1511^{+26}_{-13} |
| τ | 0.0557 | 0.0548 ± 0.0082 | $r_{drag} h$ | 100.10 | 99.8 ± 1.0 | $H(0.51)$ | 90.23 | $90.75^{+0.51}_{-1.3}$ |
| $m_{\nu, sterile}^{eff} [eV]$ | 0.001 | < 0.165 | $\langle d^2 \rangle^{1/2}$ | 2.4279 | 2.412 ± 0.030 | $D_M(0.51)$ | 1967.3 | 1958^{+33}_{-15} |
| N_{eff} | 3.118 | < 3.30 | z_{re} | 7.85 | 7.77 ± 0.84 | $H(0.61)$ | 95.84 | $96.41^{+0.50}_{-1.4}$ |
| $\ln(10^{10} A_s)$ | 3.0484 | 3.048 ± 0.019 | $10^9 A_s$ | 2.1083 | $2.107^{+0.036}_{-0.040}$ | $D_M(0.61)$ | 2289.7 | 2279^{+38}_{-17} |
| n_s | 0.9701 | $0.9728^{+0.0061}_{-0.0088}$ | $10^9 A_s e^{-2\tau}$ | 1.8858 | $1.888^{+0.013}_{-0.019}$ | $H(2.33)$ | 236.69 | $238.5^{+1.4}_{-3.1}$ |
| y_{cal} | 1.00131 | 1.0006 ± 0.0025 | D_{40} | 1223.1 | 1215 ± 16 | $D_M(2.33)$ | 5734 | 5699^{+78}_{-28} |
| A_{217}^{CIB} | 49.8 | 49 ± 7 | D_{220} | 5730.6 | 5720 ± 40 | $f\sigma_8(0.15)$ | 0.4552 | $0.446^{+0.015}_{-0.0098}$ |
| $\xi^{tSZ \times CIB}$ | 0.20 | — | D_{810} | 2543.0 | 2538 ± 14 | $\sigma_8(0.15)$ | 0.7509 | $0.732^{+0.025}_{-0.015}$ |
| A_{143}^{tSZ} | 7.10 | 4.9 ± 2.0 | D_{1420} | 817.5 | 814.3 ± 5.0 | $f\sigma_8(0.38)$ | 0.4745 | $0.464^{+0.016}_{-0.0095}$ |
| A_{100}^{PS} | 255.9 | 267 ± 28 | D_{2000} | 230.48 | 228.7 ± 1.9 | $\sigma_8(0.38)$ | 0.6660 | $0.649^{+0.023}_{-0.014}$ |
| A_{143}^{PS} | 48.0 | 51 ± 8 | $n_{s,0.002}$ | 0.9701 | $0.9728^{+0.0061}_{-0.0088}$ | $f\sigma_8(0.51)$ | 0.4736 | $0.463^{+0.016}_{-0.0093}$ |
| $A_{143 \times 217}^{PS}$ | 43.9 | 44^{+9}_{-10} | Y_P | 0.24634 | $0.24796^{+0.00086}_{-0.0026}$ | $\sigma_8(0.51)$ | 0.6235 | $0.607^{+0.021}_{-0.013}$ |
| A_{217}^{PS} | 118.0 | 115 ± 10 | Y_P^{BBN} | 0.24767 | $0.24930^{+0.00086}_{-0.0026}$ | $f\sigma_8(0.61)$ | 0.4689 | $0.458^{+0.015}_{-0.0091}$ |
| A^{kSZ} | 0.01 | < 5.56 | $10^5 D/H$ | 2.621 | $2.658^{+0.046}_{-0.065}$ | $\sigma_8(0.61)$ | 0.5934 | $0.578^{+0.020}_{-0.012}$ |
| A_{100}^{dustTT} | 8.89 | 9.1 ± 1.9 | Age/Gyr | 13.728 | $13.64^{+0.19}_{-0.067}$ | $f\sigma_8(2.33)$ | 0.2993 | $0.292^{+0.010}_{-0.0063}$ |
| A_{143}^{dustTT} | 10.79 | 10.8 ± 1.8 | z_* | 1090.053 | $1090.29^{+0.35}_{-0.45}$ | $\sigma_8(2.33)$ | 0.3088 | $0.301^{+0.011}_{-0.0067}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.20 | 18.4 ± 3.3 | r_* | 144.14 | $143.1^{+1.9}_{-0.73}$ | f_{2000}^{143} | 30.59 | 32.6 ± 3.2 |
| A_{217}^{dustTT} | 94.2 | 93.3 ± 7.3 | $100\theta_*$ | 1.04108 | $1.04083^{+0.00063}_{-0.00049}$ | $f_{2000}^{143 \times 217}$ | 33.32 | 34.7 ± 2.2 |
| c_{100} | 0.99967 | 0.99961 ± 0.00061 | $D_M(z_*)/Gpc$ | 13.845 | $13.75^{+0.18}_{-0.069}$ | f_{2000}^{217} | 107.92 | 109.1 ± 2.1 |
| c_{217} | 0.99826 | 0.99829 ± 0.00062 | z_{drag} | 1059.86 | $1060.16^{+0.54}_{-0.76}$ | χ_{small}^2 | 396.28 | 397.2 ± 2.0 |
| H_0 | 68.18 | $68.47^{+0.67}_{-1.3}$ | r_{drag} | 146.82 | $145.8^{+2.0}_{-0.77}$ | χ_{lowl}^2 | 22.61 | 22.3 ± 1.1 |
| Ω_Λ | 0.6927 | 0.6903 ± 0.0079 | k_D | 0.14084 | $0.14157^{+0.00068}_{-0.0015}$ | χ_{plik}^2 | 760.1 | 775.2 ± 6.0 |
| Ω_m | 0.3073 | 0.3097 ± 0.0079 | $100\theta_D$ | 0.161116 | $0.16141^{+0.00036}_{-0.00058}$ | χ_{6DF}^2 | 0.0062 | 0.063 ± 0.082 |
| $\Omega_m h^2$ | 0.14288 | $0.1451^{+0.0018}_{-0.0038}$ | z_{eq} | 3366.1 | 3321^{+59}_{-25} | χ_{MGS}^2 | 1.47 | 1.36 ± 0.56 |
| $\Omega_\nu h^2$ | 0.00065 | $0.002500^{+0.000091}_{-0.0019}$ | k_{eq} | 0.010323 | $0.01029^{+0.00021}_{-0.00013}$ | $\chi_{DR12BAO}^2$ | 3.79 | 4.9 ± 1.8 |
| $\Omega_m h^3$ | 0.09741 | $0.0994^{+0.0013}_{-0.0039}$ | $100\theta_{eq}$ | 0.8197 | $0.8294^{+0.0042}_{-0.013}$ | χ_{prior}^2 | 1.65 | 7.4 ± 3.7 |
| σ_8 | 0.8121 | $0.792^{+0.027}_{-0.016}$ | $100\theta_{s,eq}$ | 0.45278 | $0.4578^{+0.0021}_{-0.0065}$ | χ_{BAO}^2 | 5.27 | 6.3 ± 1.5 |
| S_8 | 0.8220 | $0.804^{+0.027}_{-0.019}$ | $H(0.15)$ | 73.44 | $73.79^{+0.61}_{-1.3}$ | χ_{CMB}^2 | 1179.0 | 1194.7 ± 5.8 |

Best-fit $\chi_{eff}^2 = 1185.94$; $\Delta\chi_{eff}^2 = 0.20$; $\bar{\chi}_{eff}^2 = 1208.40$; $\Delta\bar{\chi}_{eff}^2 = 2.37$; $R - 1 = 0.03028$

χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.02) MGS: 1.47 (Δ 0.19) DR12BAO: 3.79 (Δ -0.40) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.28 (Δ 0.39) commander_dx12_v3_2_29: 22.61 (Δ -0.22) plik_rd12_HM_v22_TT: 760.13 (Δ 0.03)

8.10 base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|----------------------------------|-----------------------------|----------|---------------------------------|--------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022246 | 0.02236 ± 0.00021 | $\sigma_8 \Omega_m^{0.5}$ | 0.4472 | $0.440^{+0.014}_{-0.0099}$ | $D_M(0.15)$ | 639.5 | $632^{+12}_{-6.1}$ |
| $\Omega_c h^2$ | 0.11894 | $0.1204^{+0.0043}_{-0.0036}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6002 | $0.591^{+0.019}_{-0.012}$ | $H(0.38)$ | 83.12 | $84.08^{+0.57}_{-1.4}$ |
| $100\theta_{MC}$ | 1.04093 | $1.04074^{+0.00054}_{-0.00047}$ | $\sigma_8/h^{0.5}$ | 0.9780 | $0.957^{+0.030}_{-0.016}$ | $D_M(0.38)$ | 1525.9 | 1509^{+26}_{-13} |
| τ | 0.0525 | 0.0549 ± 0.0082 | $r_{drag} h$ | 99.98 | 99.93 ± 0.95 | $H(0.51)$ | 89.81 | $90.84^{+0.55}_{-1.4}$ |
| $m_{\nu, sterile}^{eff} [eV]$ | 0.000 | < 0.153 | $\langle d^2 \rangle^{1/2}$ | 2.4181 | 2.409 ± 0.029 | $D_M(0.51)$ | 1977.2 | 1955^{+33}_{-16} |
| N_{eff} | 3.062 | < 3.31 | z_{re} | 7.51 | 7.78 ± 0.84 | $H(0.61)$ | 95.40 | $96.50^{+0.54}_{-1.4}$ |
| $\ln(10^{10} A_s)$ | 3.0364 | 3.048 ± 0.019 | $10^9 A_s$ | 2.0831 | $2.108^{+0.036}_{-0.041}$ | $D_M(0.61)$ | 2301.1 | 2275^{+38}_{-18} |
| n_s | 0.9679 | $0.9735^{+0.0062}_{-0.0088}$ | $10^9 A_s e^{-2\tau}$ | 1.8754 | $1.888^{+0.014}_{-0.019}$ | $H(2.33)$ | 235.79 | $238.5^{+1.4}_{-3.2}$ |
| y_{cal} | 1.00006 | 1.0006 ± 0.0025 | D_{40} | 1220.8 | 1214 ± 15 | $D_M(2.33)$ | 5759 | 5694^{+81}_{-31} |
| A_{217}^{CIB} | 50.4 | 49 ± 7 | D_{220} | 5713.1 | 5721 ± 40 | $f\sigma_8(0.15)$ | 0.4521 | $0.445^{+0.015}_{-0.0096}$ |
| $\xi^{tSZ \times CIB}$ | 0.12 | — | D_{810} | 2534.2 | 2538 ± 14 | $\sigma_8(0.15)$ | 0.7445 | $0.733^{+0.024}_{-0.015}$ |
| A_{143}^{tSZ} | 7.14 | 4.9 ± 2.0 | D_{1420} | 815.0 | 814.3 ± 5.0 | $f\sigma_8(0.38)$ | 0.4710 | $0.464^{+0.015}_{-0.0093}$ |
| A_{100}^{PS} | 256.2 | 267 ± 28 | D_{2000} | 229.83 | 228.7 ± 2.0 | $\sigma_8(0.38)$ | 0.6603 | $0.650^{+0.022}_{-0.014}$ |
| A_{143}^{PS} | 46.1 | 51 ± 8 | $n_{s,0.002}$ | 0.9679 | $0.9735^{+0.0062}_{-0.0088}$ | $f\sigma_8(0.51)$ | 0.4699 | $0.463^{+0.015}_{-0.0091}$ |
| $A_{143 \times 217}^{PS}$ | 41.3 | 44^{+9}_{-10} | Y_P | 0.24556 | $0.24808^{+0.00094}_{-0.0027}$ | $\sigma_8(0.51)$ | 0.6180 | $0.609^{+0.020}_{-0.013}$ |
| A_{217}^{PS} | 116.1 | 115 ± 10 | Y_P^{BBN} | 0.24689 | $0.24942^{+0.00095}_{-0.0027}$ | $f\sigma_8(0.61)$ | 0.4652 | $0.459^{+0.015}_{-0.0090}$ |
| A^{kSZ} | 0.09 | < 5.56 | $10^5 D/H$ | 2.615 | $2.659^{+0.047}_{-0.066}$ | $\sigma_8(0.61)$ | 0.5882 | $0.579^{+0.020}_{-0.012}$ |
| A_{100}^{dustTT} | 8.88 | 9.1 ± 1.9 | Age/Gyr | 13.788 | $13.63^{+0.19}_{-0.074}$ | $f\sigma_8(2.33)$ | 0.2967 | $0.2927^{+0.0099}_{-0.0061}$ |
| A_{143}^{dustTT} | 10.81 | 10.8 ± 1.8 | z_* | 1090.003 | $1090.28^{+0.35}_{-0.46}$ | $\sigma_8(2.33)$ | 0.3060 | $0.302^{+0.010}_{-0.0066}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.10 | 18.4 ± 3.3 | r_* | 144.72 | $143.1^{+2.0}_{-0.79}$ | χ_{small}^2 | 396 | 312 ± 200 |
| A_{217}^{dustTT} | 93.9 | 93.3 ± 7.3 | $100\theta_*$ | 1.04112 | $1.04082^{+0.00064}_{-0.00050}$ | χ_{lowl}^2 | 22.70 | 107 ± 200 |
| c_{100} | 0.99966 | 0.99961 ± 0.00061 | $D_M(z_*)/Gpc$ | 13.900 | $13.74^{+0.19}_{-0.074}$ | χ_{plik}^2 | 760.5 | 775.3 ± 5.9 |
| c_{217} | 0.99829 | 0.99829 ± 0.00062 | z_{drag} | 1059.59 | $1060.20^{+0.54}_{-0.78}$ | χ_{JLA}^2 | 1034.919 | 1035.04 ± 0.33 |
| H_0 | 67.81 | $68.59^{+0.68}_{-1.3}$ | r_{drag} | 147.43 | $145.7^{+2.1}_{-0.83}$ | χ_{6DF}^2 | 0.011 | 0.36 ± 0.63 |
| Ω_Λ | 0.6916 | 0.6914 ± 0.0074 | k_D | 0.14035 | $0.14161^{+0.00072}_{-0.0015}$ | χ_{MGS}^2 | 1.41 | 1.13 ± 0.76 |
| Ω_m | 0.3084 | 0.3086 ± 0.0074 | $100\theta_D$ | 0.161026 | $0.16142^{+0.00038}_{-0.00059}$ | $\chi_{DR12BAO}^2$ | 3.91 | 4.6 ± 1.5 |
| $\Omega_m h^2$ | 0.14183 | $0.1451^{+0.0019}_{-0.0039}$ | z_{eq} | 3366.6 | 3320^{+56}_{-24} | χ_{prior}^2 | 1.49 | 7.4 ± 3.7 |
| $\Omega_\nu h^2$ | 0.00065 | $0.002364^{+0.000086}_{-0.0018}$ | k_{eq} | 0.010286 | $0.01029^{+0.00020}_{-0.00013}$ | χ_{BAO}^2 | 5.33 | 6.1 ± 1.2 |
| $\Omega_m h^3$ | 0.09618 | $0.0996^{+0.0014}_{-0.0041}$ | $100\theta_{eq}$ | 0.8194 | $0.8294^{+0.0042}_{-0.012}$ | χ_{CMB}^2 | 1179.0 | 1194.7 ± 5.8 |
| σ_8 | 0.8053 | $0.793^{+0.026}_{-0.016}$ | $100\theta_{s,eq}$ | 0.45265 | $0.4578^{+0.0021}_{-0.0061}$ | | | |
| S_8 | 0.8166 | $0.804^{+0.026}_{-0.018}$ | $H(0.15)$ | 73.06 | $73.90^{+0.63}_{-1.3}$ | | | |

Best-fit $\chi_{eff}^2 = 2220.73$; $\bar{\chi}_{eff}^2 = 2243.31$; $R - 1 = 0.02477$

χ_{eff}^2 : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.91 CMB - small_100x143_offlike5_EE_Aplanck_B: 395.81 commander_dx12_v3.2.29: 22.70 plik_rd12_HM_v22_TT: 760.48
SN - JLA Pantheon18: 1034.92

8.11 base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|----------------------------------|-----------------------------|---------------------------------|-----------------------------|----------------------------|
| $\Omega_b h^2$ | 0.02235 ± 0.00021 | $\sigma_8 \Omega_m^{0.5}$ | $0.441^{+0.015}_{-0.010}$ | $D_M(0.15)$ | $633^{+12}_{-6.0}$ |
| $\Omega_c h^2$ | $0.1203^{+0.0044}_{-0.0035}$ | $\sigma_8 \Omega_m^{0.25}$ | $0.591^{+0.020}_{-0.012}$ | $H(0.38)$ | $83.99^{+0.54}_{-1.3}$ |
| $100\theta_{MC}$ | $1.04074^{+0.00054}_{-0.00047}$ | $\sigma_8/h^{0.5}$ | $0.958^{+0.031}_{-0.016}$ | $D_M(0.38)$ | 1511^{+26}_{-13} |
| τ | $0.0559^{+0.0057}_{-0.0086}$ | $r_{\text{drag}} h$ | 99.8 ± 1.0 | $H(0.51)$ | $90.77^{+0.51}_{-1.4}$ |
| $m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$ | < 0.165 | $\langle d^2 \rangle^{1/2}$ | 2.414 ± 0.029 | $D_M(0.51)$ | 1957^{+33}_{-15} |
| N_{eff} | < 3.30 | z_{re} | $7.88^{+0.64}_{-0.85}$ | $H(0.61)$ | $96.43^{+0.50}_{-1.4}$ |
| $\ln(10^{10} A_s)$ | $3.050^{+0.014}_{-0.019}$ | $10^9 A_s$ | $2.111^{+0.030}_{-0.041}$ | $D_M(0.61)$ | 2278^{+38}_{-17} |
| n_s | $0.9730^{+0.0061}_{-0.0088}$ | $10^9 A_s e^{-2\tau}$ | $1.888^{+0.014}_{-0.019}$ | $H(2.33)$ | $238.5^{+1.4}_{-3.1}$ |
| y_{cal} | 1.0006 ± 0.0025 | D_{40} | 1215 ± 16 | $D_M(2.33)$ | 5698^{+79}_{-29} |
| A_{217}^{CIB} | 49 ± 7 | D_{220} | 5720 ± 40 | $f\sigma_8(0.15)$ | $0.446^{+0.015}_{-0.0096}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{810} | 2538 ± 14 | $\sigma_8(0.15)$ | $0.733^{+0.025}_{-0.015}$ |
| A_{143}^{tSZ} | 4.9 ± 2.0 | D_{1420} | 814.3 ± 5.0 | $f\sigma_8(0.38)$ | $0.464^{+0.016}_{-0.0092}$ |
| A_{100}^{PS} | 267 ± 28 | D_{2000} | 228.7 ± 2.0 | $\sigma_8(0.38)$ | $0.650^{+0.022}_{-0.013}$ |
| A_{143}^{PS} | 51 ± 8 | $n_{s,0.002}$ | $0.9730^{+0.0061}_{-0.0088}$ | $f\sigma_8(0.51)$ | $0.463^{+0.015}_{-0.0090}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 44^{+9}_{-10} | Y_{P} | $0.24799^{+0.00087}_{-0.0026}$ | $\sigma_8(0.51)$ | $0.608^{+0.021}_{-0.013}$ |
| A_{217}^{PS} | 115 ± 10 | $Y_{\text{P}}^{\text{BBN}}$ | $0.24933^{+0.00087}_{-0.0026}$ | $f\sigma_8(0.61)$ | $0.459^{+0.015}_{-0.0089}$ |
| A^{kSZ} | < 5.54 | $10^5 \text{D}/\text{H}$ | $2.658^{+0.046}_{-0.065}$ | $\sigma_8(0.61)$ | $0.579^{+0.020}_{-0.012}$ |
| A_{100}^{dustTT} | 9.1 ± 1.9 | Age/Gyr | $13.64^{+0.19}_{-0.068}$ | $f\sigma_8(2.33)$ | $0.292^{+0.010}_{-0.0061}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | z_* | $1090.29^{+0.35}_{-0.45}$ | $\sigma_8(2.33)$ | $0.301^{+0.011}_{-0.0066}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.4 ± 3.3 | r_* | $143.1^{+1.9}_{-0.74}$ | f_{2000}^{143} | 32.6 ± 3.2 |
| A_{217}^{dustTT} | 93.3 ± 7.3 | $100\theta_*$ | $1.04082^{+0.00063}_{-0.00049}$ | $f_{2000}^{143 \times 217}$ | 34.7 ± 2.2 |
| c_{100} | 0.99961 ± 0.00061 | $D_M(z_*)/\text{Gpc}$ | $13.75^{+0.18}_{-0.070}$ | f_{2000}^{217} | 109.1 ± 2.1 |
| c_{217} | 0.99829 ± 0.00062 | z_{drag} | $1060.18^{+0.53}_{-0.77}$ | χ_{small}^2 | 397.2 ± 2.0 |
| H_0 | $68.49^{+0.68}_{-1.3}$ | r_{drag} | $145.7^{+2.0}_{-0.78}$ | χ_{lowl}^2 | 22.3 ± 1.1 |
| Ω_Λ | 0.6904 ± 0.0079 | k_{D} | $0.14159^{+0.00069}_{-0.0015}$ | χ_{plik}^2 | 775.0 ± 5.9 |
| Ω_m | 0.3096 ± 0.0079 | $100\theta_{\text{D}}$ | $0.16141^{+0.00037}_{-0.00058}$ | χ_{6DF}^2 | 0.062 ± 0.081 |
| $\Omega_m h^2$ | $0.1452^{+0.0019}_{-0.0038}$ | z_{eq} | 3320^{+59}_{-24} | χ_{MGS}^2 | 1.37 ± 0.56 |
| $\Omega_\nu h^2$ | $0.002495^{+0.000085}_{-0.0019}$ | k_{eq} | $0.01029^{+0.00021}_{-0.00013}$ | χ_{DR12BAO}^2 | 4.9 ± 1.7 |
| $\Omega_m h^3$ | $0.0994^{+0.0013}_{-0.0039}$ | $100\theta_{\text{eq}}$ | $0.8294^{+0.0041}_{-0.012}$ | χ_{prior}^2 | 7.4 ± 3.7 |
| σ_8 | $0.793^{+0.027}_{-0.016}$ | $100\theta_{s,\text{eq}}$ | $0.4578^{+0.0021}_{-0.0065}$ | χ_{BAO}^2 | 6.3 ± 1.4 |
| S_8 | $0.805^{+0.027}_{-0.018}$ | $H(0.15)$ | $73.81^{+0.61}_{-1.3}$ | χ_{CMB}^2 | 1194.5 ± 5.8 |

$$\bar{\chi}_{\text{eff}}^2 = 1208.20; \Delta\bar{\chi}_{\text{eff}}^2 = 2.44; R - 1 = 0.02851$$

8.12 base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|----------------------------------|-----------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02237 ± 0.00021 | $\sigma_8 \Omega_m^{0.25}$ | $0.591^{+0.019}_{-0.012}$ | $D_M(0.38)$ | 1509^{+26}_{-13} |
| $\Omega_c h^2$ | 0.1204 ± 0.0043 | $\sigma_8/h^{0.5}$ | $0.958^{+0.030}_{-0.015}$ | $H(0.51)$ | $90.86^{+0.55}_{-1.4}$ |
| $100\theta_{MC}$ | $1.04074^{+0.00054}_{-0.00047}$ | $r_{drag}h$ | 99.94 ± 0.95 | $D_M(0.51)$ | 1955^{+33}_{-16} |
| τ | $0.0559^{+0.0058}_{-0.0085}$ | $\langle d^2 \rangle^{1/2}$ | 2.411 ± 0.029 | $H(0.61)$ | $96.52^{+0.55}_{-1.4}$ |
| $m_{\nu, sterile}^{eff} [eV]$ | < 0.152 | z_{re} | $7.89^{+0.64}_{-0.85}$ | $D_M(0.61)$ | 2275^{+38}_{-18} |
| N_{eff} | < 3.32 | $10^9 A_s$ | $2.112^{+0.030}_{-0.041}$ | $H(2.33)$ | $238.5^{+1.5}_{-3.3}$ |
| $\ln(10^{10} A_s)$ | $3.050^{+0.015}_{-0.019}$ | $10^9 A_s e^{-2\tau}$ | $1.888^{+0.014}_{-0.019}$ | $D_M(2.33)$ | 5693^{+81}_{-32} |
| n_s | $0.9737^{+0.0062}_{-0.0087}$ | D_{40} | 1214 ± 15 | $f\sigma_8(0.15)$ | $0.446^{+0.014}_{-0.0094}$ |
| y_{cal} | 1.0006 ± 0.0025 | D_{220} | 5721 ± 40 | $\sigma_8(0.15)$ | $0.734^{+0.024}_{-0.015}$ |
| A_{217}^{CIB} | 49 ± 7 | D_{810} | 2538 ± 14 | $f\sigma_8(0.38)$ | $0.465^{+0.015}_{-0.0092}$ |
| $\xi^{tSZ \times CIB}$ | — | D_{1420} | 814.3 ± 5.0 | $\sigma_8(0.38)$ | $0.651^{+0.022}_{-0.013}$ |
| A_{143}^{tSZ} | 4.9 ± 2.0 | D_{2000} | 228.7 ± 2.0 | $f\sigma_8(0.51)$ | $0.464^{+0.015}_{-0.0090}$ |
| A_{100}^{PS} | 267 ± 28 | $n_{s,0.002}$ | $0.9737^{+0.0062}_{-0.0087}$ | $\sigma_8(0.51)$ | $0.609^{+0.020}_{-0.013}$ |
| A_{143}^{PS} | 51 ± 8 | Y_P | $0.24811^{+0.00095}_{-0.0027}$ | $f\sigma_8(0.61)$ | $0.459^{+0.015}_{-0.0088}$ |
| $A_{143 \times 217}^{PS}$ | 44^{+9}_{-10} | Y_P^{BBN} | $0.24945^{+0.00096}_{-0.0028}$ | $\sigma_8(0.61)$ | $0.580^{+0.019}_{-0.012}$ |
| A_{217}^{PS} | 115 ± 10 | $10^5 D/H$ | $2.659^{+0.047}_{-0.066}$ | $f\sigma_8(2.33)$ | $0.2930^{+0.0098}_{-0.0061}$ |
| A^{kSZ} | < 5.55 | Age/Gyr | $13.63^{+0.19}_{-0.075}$ | $\sigma_8(2.33)$ | $0.302^{+0.010}_{-0.0065}$ |
| A_{100}^{dustTT} | 9.1 ± 1.9 | z_* | $1090.28^{+0.35}_{-0.46}$ | f_{2000}^{143} | 32.6 ± 3.2 |
| A_{143}^{dustTT} | 10.8 ± 1.8 | r_* | $143.0^{+2.0}_{-0.80}$ | $f_{2000}^{143 \times 217}$ | 34.7 ± 2.3 |
| $A_{143 \times 217}^{dustTT}$ | 18.5 ± 3.3 | $100\theta_*$ | $1.04081^{+0.00064}_{-0.00050}$ | f_{2000}^{217} | 109.1 ± 2.1 |
| A_{217}^{dustTT} | 93.3 ± 7.3 | $D_M(z_*)/Gpc$ | $13.74^{+0.19}_{-0.076}$ | χ_{small}^2 | 312 ± 200 |
| c_{100} | 0.99961 ± 0.00062 | z_{drag} | $1060.22^{+0.54}_{-0.78}$ | χ_{lowl}^2 | 107 ± 200 |
| c_{217} | 0.99829 ± 0.00062 | r_{drag} | $145.7^{+2.1}_{-0.84}$ | χ_{plik}^2 | 775.2 ± 5.9 |
| H_0 | $68.61^{+0.69}_{-1.3}$ | k_D | $0.14163^{+0.00073}_{-0.0015}$ | χ_{JLA}^2 | 1035.03 ± 0.33 |
| Ω_Λ | 0.6915 ± 0.0074 | $100\theta_D$ | $0.16142^{+0.00038}_{-0.00059}$ | χ_{6DF}^2 | 0.36 ± 0.63 |
| Ω_m | 0.3085 ± 0.0074 | z_{eq} | 3320^{+55}_{-24} | χ_{MGS}^2 | 1.13 ± 0.76 |
| $\Omega_m h^2$ | $0.1452^{+0.0019}_{-0.0040}$ | k_{eq} | $0.01029^{+0.00020}_{-0.00013}$ | $\chi_{DR12BAO}^2$ | 4.6 ± 1.5 |
| $\Omega_\nu h^2$ | $0.002357^{+0.000088}_{-0.0018}$ | $100\theta_{eq}$ | $0.8294^{+0.0042}_{-0.012}$ | χ_{prior}^2 | 7.4 ± 3.7 |
| $\Omega_m h^3$ | $0.0996^{+0.0014}_{-0.0041}$ | $100\theta_{s,eq}$ | $0.4578^{+0.0021}_{-0.0061}$ | χ_{BAO}^2 | 6.1 ± 1.2 |
| σ_8 | $0.794^{+0.026}_{-0.016}$ | $H(0.15)$ | $73.92^{+0.64}_{-1.3}$ | χ_{CMB}^2 | 1194.6 ± 5.7 |
| S_8 | $0.805^{+0.026}_{-0.018}$ | $D_M(0.15)$ | $632^{+12}_{-6.2}$ | | |
| $\sigma_8 \Omega_m^{0.5}$ | $0.441^{+0.014}_{-0.0098}$ | $H(0.38)$ | $84.10^{+0.58}_{-1.4}$ | | |

$$\bar{\chi}_{eff}^2 = 2243.12; R - 1 = 0.02260$$

8.13 base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022412 | 0.02250 ± 0.00015 | $\Omega_\nu h^2$ | 0.00386 | $0.00272^{+0.00050}_{-0.0022}$ | $100\theta_{s,eq}$ | 0.45952 | $0.4565^{+0.0019}_{-0.0070}$ |
| $\Omega_c h^2$ | 0.11606 | $0.1187^{+0.0034}_{-0.0022}$ | $\Omega_m h^3$ | 0.09632 | $0.09773^{+0.00033}_{-0.0017}$ | $H(0.15)$ | 72.95 | $73.21^{+0.38}_{-0.67}$ |
| $100\theta_{MC}$ | 1.041014 | 1.04091 ± 0.00032 | σ_8 | 0.8085 | $0.792^{+0.023}_{-0.014}$ | $D_M(0.15)$ | 640.7 | $638.6^{+6.2}_{-3.9}$ |
| τ | 0.0546 | $0.0564^{+0.0069}_{-0.0083}$ | S_8 | 0.8229 | $0.808^{+0.023}_{-0.016}$ | $H(0.38)$ | 83.056 | $83.39^{+0.25}_{-0.64}$ |
| $m_{\nu, sterile}^{eff} [eV]$ | 0.302 | < 0.220 | $\sigma_8 \Omega_m^{0.5}$ | 0.4507 | $0.443^{+0.013}_{-0.0087}$ | $D_M(0.38)$ | 1528.1 | $1523^{+14}_{-7.6}$ |
| N_{eff} | 3.0471 | < 3.14 | $\sigma_8 \Omega_m^{0.25}$ | 0.6037 | $0.592^{+0.017}_{-0.010}$ | $H(0.51)$ | 89.770 | $90.15^{+0.19}_{-0.62}$ |
| $\ln(10^{10} A_s)$ | 3.0434 | $3.049^{+0.015}_{-0.017}$ | $\sigma_8/h^{0.5}$ | 0.9828 | $0.961^{+0.027}_{-0.015}$ | $D_M(0.51)$ | 1979.7 | $1972^{+17}_{-8.7}$ |
| n_s | 0.96775 | $0.9687^{+0.0043}_{-0.0056}$ | $r_{drag} h$ | 99.64 | 99.42 ± 0.83 | $H(0.61)$ | 95.387 | $95.81^{+0.16}_{-0.62}$ |
| y_{cal} | 1.00074 | 1.0008 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4324 | 2.430 ± 0.025 | $D_M(0.61)$ | 2303.7 | $2295^{+19}_{-9.3}$ |
| A_{217}^{CIB} | 47.9 | 47 ± 7 | z_{re} | 7.69 | 7.87 ± 0.79 | $H(2.33)$ | 236.13 | $237.42^{+0.71}_{-1.6}$ |
| $\xi^{tSZ \times CIB}$ | 0.33 | — | $10^9 A_s$ | 2.0976 | $2.110^{+0.032}_{-0.036}$ | $D_M(2.33)$ | 5759.0 | $5733^{+35}_{-8.0}$ |
| A_{143}^{tSZ} | 7.17 | 5.4 ± 2.0 | $10^9 A_s e^{-2\tau}$ | 1.8806 | 1.885 ± 0.012 | $f\sigma_8(0.15)$ | 0.4554 | $0.447^{+0.013}_{-0.0084}$ |
| A_{100}^{PS} | 251.0 | 260 ± 28 | D_{40} | 1225.0 | 1225 ± 13 | $\sigma_8(0.15)$ | 0.7472 | $0.732^{+0.022}_{-0.013}$ |
| A_{143}^{PS} | 45.9 | 47 ± 8 | D_{220} | 5731.6 | 5738 ± 39 | $f\sigma_8(0.38)$ | 0.4738 | $0.465^{+0.013}_{-0.0082}$ |
| $A_{143 \times 217}^{PS}$ | 44.5 | 43 ± 9 | D_{810} | 2541.0 | 2541 ± 13 | $\sigma_8(0.38)$ | 0.6624 | $0.648^{+0.019}_{-0.011}$ |
| A_{217}^{PS} | 118.3 | 115 ± 10 | D_{1420} | 818.57 | 817.3 ± 4.7 | $f\sigma_8(0.51)$ | 0.4725 | $0.463^{+0.013}_{-0.0080}$ |
| A^{kSZ} | 0.00 | < 4.45 | D_{2000} | 231.47 | 230.6 ± 1.6 | $\sigma_8(0.51)$ | 0.6199 | $0.607^{+0.018}_{-0.011}$ |
| A_{100}^{dustTT} | 8.91 | 9.0 ± 1.8 | $n_{s,0.002}$ | 0.96775 | $0.9687^{+0.0043}_{-0.0056}$ | $f\sigma_8(0.61)$ | 0.4676 | $0.459^{+0.013}_{-0.0078}$ |
| A_{143}^{dustTT} | 10.97 | 11.0 ± 1.8 | Y_P | 0.24543 | $0.24655^{+0.00022}_{-0.0011}$ | $\sigma_8(0.61)$ | 0.5899 | $0.577^{+0.017}_{-0.010}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.48 | 18.7 ± 3.2 | Y_P^{BBN} | 0.24675 | $0.24788^{+0.00022}_{-0.0011}$ | $f\sigma_8(2.33)$ | 0.2974 | $0.2914^{+0.0088}_{-0.0053}$ |
| A_{217}^{dustTT} | 94.6 | 93.7 ± 7.3 | $10^5 D/H$ | 2.5782 | $2.591^{+0.025}_{-0.032}$ | $\sigma_8(2.33)$ | 0.3067 | $0.3002^{+0.0092}_{-0.0056}$ |
| A_{100}^{dustTE} | 0.1123 | 0.114 ± 0.038 | Age/Gyr | 13.787 | $13.725^{+0.083}_{-0.019}$ | f_{2000}^{143} | 28.79 | 30.1 ± 2.8 |
| $A_{100 \times 143}^{dustTE}$ | 0.1341 | 0.135 ± 0.029 | z_* | 1089.804 | $1089.89^{+0.23}_{-0.26}$ | $f_{2000}^{143 \times 217}$ | 31.88 | 32.6 ± 1.9 |
| $A_{100 \times 217}^{dustTE}$ | 0.482 | 0.481 ± 0.085 | r_* | 144.59 | $143.83^{+0.90}_{-0.28}$ | f_{2000}^{217} | 106.57 | 107.4 ± 1.8 |
| A_{143}^{dustTE} | 0.223 | 0.224 ± 0.054 | $100\theta_*$ | 1.041192 | $1.04104^{+0.00036}_{-0.00030}$ | χ_{small}^2 | 396.05 | 397.4 ± 2.2 |
| $A_{143 \times 217}^{dustTE}$ | 0.663 | 0.664 ± 0.081 | $D_M(z_*)/Gpc$ | 13.887 | $13.816^{+0.084}_{-0.027}$ | χ_{lowl}^2 | 22.87 | 22.90 ± 0.92 |
| A_{217}^{dustTE} | 2.081 | 2.08 ± 0.27 | z_{drag} | 1059.971 | $1060.34^{+0.33}_{-0.45}$ | χ_{plik}^2 | 2345.2 | 2362.0 ± 6.2 |
| c_{100} | 0.99971 | 0.99966 ± 0.00061 | r_{drag} | 147.24 | $146.44^{+0.94}_{-0.29}$ | χ_{6DF}^2 | 0.0300 | 0.077 ± 0.085 |
| c_{217} | 0.99820 | 0.99820 ± 0.00063 | k_D | 0.14074 | $0.14138^{+0.00034}_{-0.00076}$ | χ_{MGS}^2 | 1.217 | 1.15 ± 0.43 |
| H_0 | 67.67 | $67.89^{+0.45}_{-0.70}$ | $100\theta_D$ | 0.160740 | $0.16084^{+0.00017}_{-0.00027}$ | $\chi_{DR12BAO}^2$ | 4.44 | 5.4 ± 1.8 |
| Ω_Λ | 0.6892 | 0.6876 ± 0.0066 | z_{eq} | 3308.6 | 3337^{+63}_{-21} | χ_{prior}^2 | 1.83 | 11.7 ± 4.6 |
| Ω_m | 0.3108 | 0.3124 ± 0.0066 | k_{eq} | 0.010157 | $0.01027^{+0.00018}_{-0.000096}$ | χ_{BAO}^2 | 5.68 | 6.6 ± 1.5 |
| $\Omega_m h^2$ | 0.14233 | $0.1440^{+0.0011}_{-0.0020}$ | $100\theta_{eq}$ | 0.8326 | $0.8269^{+0.0037}_{-0.013}$ | χ_{CMB}^2 | 2764.1 | 2782.3 ± 6.1 |

Best-fit $\chi_{eff}^2 = 2771.63$; $\Delta\chi_{eff}^2 = -0.28$; $\bar{\chi}_{eff}^2 = 2800.57$; $\Delta\bar{\chi}_{eff}^2 = 2.66$; $R - 1 = 0.01553$

χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.44 (Δ 0.02) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.05 (Δ -0.15) commander_dx12_v3_2_29: 22.87 (Δ 0.00) plik_rd12_HM_v22b_TTTEEE: 2345.20 (Δ -0.30)

8.14 base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|--------------------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022440 | 0.02251 ± 0.00015 | $\Omega_m h^3$ | 0.09635 | $0.09781^{+0.00032}_{-0.0018}$ | $D_M(0.15)$ | 640.0 | $637.7^{+6.4}_{-3.7}$ |
| $\Omega_c h^2$ | 0.11887 | $0.1187^{+0.0035}_{-0.0023}$ | σ_8 | 0.8111 | $0.792^{+0.023}_{-0.014}$ | $H(0.38)$ | 83.108 | $83.47^{+0.24}_{-0.67}$ |
| $100\theta_{MC}$ | 1.041020 | 1.04092 ± 0.00032 | S_8 | 0.8243 | $0.807^{+0.023}_{-0.016}$ | $D_M(0.38)$ | 1526.8 | $1521^{+14}_{-7.2}$ |
| τ | 0.0585 | $0.0566^{+0.0069}_{-0.0083}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4515 | $0.442^{+0.013}_{-0.0085}$ | $H(0.51)$ | 89.813 | $90.22^{+0.18}_{-0.66}$ |
| $m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$ | 0.025 | < 0.211 | $\sigma_8 \Omega_m^{0.25}$ | 0.6051 | $0.592^{+0.017}_{-0.010}$ | $D_M(0.51)$ | 1978.0 | $1970^{+17}_{-8.3}$ |
| N_{eff} | 3.0462 | < 3.14 | $\sigma_8/h^{0.5}$ | 0.9854 | $0.961^{+0.027}_{-0.015}$ | $H(0.61)$ | 95.424 | $95.87^{+0.15}_{-0.65}$ |
| $\ln(10^{10} A_s)$ | 3.0505 | $3.049^{+0.015}_{-0.017}$ | $r_{\text{drag}} h$ | 99.76 | 99.57 ± 0.80 | $D_M(0.61)$ | 2301.9 | $2293^{+20}_{-8.8}$ |
| n_s | 0.96715 | $0.9692^{+0.0042}_{-0.0056}$ | $\langle d^2 \rangle^{1/2}$ | 2.4400 | 2.428 ± 0.024 | $H(2.33)$ | 236.07 | $237.37^{+0.69}_{-1.6}$ |
| y_{cal} | 1.00052 | 1.0007 ± 0.0025 | z_{re} | 8.07 | 7.88 ± 0.78 | $D_M(2.33)$ | 5757.3 | $5730^{+37}_{-7.8}$ |
| A_{217}^{CIB} | 48.2 | 47 ± 7 | $10^9 A_s$ | 2.1127 | $2.110^{+0.032}_{-0.037}$ | $f\sigma_8(0.15)$ | 0.4562 | $0.447^{+0.013}_{-0.0084}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.34 | — | $10^9 A_s e^{-2\tau}$ | 1.8796 | $1.884^{+0.012}_{-0.013}$ | $\sigma_8(0.15)$ | 0.7497 | $0.732^{+0.022}_{-0.013}$ |
| A_{143}^{tSZ} | 7.23 | $5.4^{+2.2}_{-2.0}$ | D_{40} | 1227.8 | 1224 ± 13 | $f\sigma_8(0.38)$ | 0.4749 | $0.465^{+0.013}_{-0.0082}$ |
| A_{100}^{PS} | 251.4 | 260 ± 28 | D_{220} | 5737.7 | 5739 ± 39 | $\sigma_8(0.38)$ | 0.6647 | $0.649^{+0.019}_{-0.012}$ |
| A_{143}^{PS} | 46.4 | 47 ± 8 | D_{810} | 2539.4 | 2540 ± 13 | $f\sigma_8(0.51)$ | 0.4737 | $0.463^{+0.013}_{-0.0080}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 44.9 | 43 ± 9 | D_{1420} | 817.80 | 817.3 ± 4.7 | $\sigma_8(0.51)$ | 0.6221 | $0.607^{+0.018}_{-0.011}$ |
| A_{217}^{PS} | 118.0 | 115 ± 10 | D_{2000} | 231.26 | 230.6 ± 1.6 | $f\sigma_8(0.61)$ | 0.4689 | $0.458^{+0.013}_{-0.0079}$ |
| A^{kSZ} | 0.00 | < 4.51 | $n_{s,0.002}$ | 0.96715 | $0.9692^{+0.0042}_{-0.0056}$ | $\sigma_8(0.61)$ | 0.5920 | $0.578^{+0.017}_{-0.011}$ |
| A_{100}^{dustTT} | 8.79 | 9.0 ± 1.8 | Y_P | 0.24542 | $0.24660^{+0.00021}_{-0.0012}$ | $f\sigma_8(2.33)$ | 0.2986 | $0.2917^{+0.0088}_{-0.0054}$ |
| A_{143}^{dustTT} | 11.04 | 11.0 ± 1.8 | Y_P^{BBN} | 0.24675 | $0.24793^{+0.00022}_{-0.0012}$ | $\sigma_8(2.33)$ | 0.3079 | $0.3006^{+0.0092}_{-0.0057}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.71 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5727 | $2.590^{+0.025}_{-0.033}$ | f_{2000}^{143} | 29.04 | 30.1 ± 2.8 |
| A_{217}^{dustTT} | 94.7 | 93.6 ± 7.3 | Age/Gyr | 13.784 | $13.719^{+0.087}_{-0.018}$ | $f_{2000}^{143 \times 217}$ | 32.04 | 32.6 ± 1.9 |
| A_{100}^{dustTE} | 0.1136 | 0.113 ± 0.038 | z_* | 1089.756 | $1089.87^{+0.22}_{-0.26}$ | f_{2000}^{217} | 106.65 | 107.4 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1337 | 0.135 ± 0.030 | r_* | 144.60 | $143.83^{+0.94}_{-0.28}$ | χ_{small}^2 | 397 | 291 ± 200 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 | 0.480 ± 0.084 | $100\theta_*$ | 1.041203 | $1.04105^{+0.00036}_{-0.00030}$ | χ_{lowl}^2 | 23 | 129 ± 200 |
| A_{143}^{dustTE} | 0.223 | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.888 | $13.816^{+0.088}_{-0.027}$ | χ_{plik}^2 | 2344.6 | 2362.3 ± 6.2 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.662 | 0.663 ± 0.082 | z_{drag} | 1060.047 | $1060.36^{+0.32}_{-0.47}$ | χ_{JLA}^2 | 1034.977 | 1035.12 ± 0.33 |
| A_{217}^{dustTE} | 2.069 | 2.07 ± 0.27 | r_{drag} | 147.24 | $146.44^{+0.98}_{-0.29}$ | $\chi_{6\text{DF}}^2$ | 0.022 | 0.40 ± 0.59 |
| c_{100} | 0.99970 | 0.99966 ± 0.00061 | k_D | 0.14076 | $0.14138^{+0.00034}_{-0.00079}$ | χ_{MGS}^2 | 1.28 | 0.89 ± 0.63 |
| c_{217} | 0.99820 | 0.99820 ± 0.00063 | $100\theta_D$ | 0.160706 | $0.16084^{+0.00018}_{-0.00028}$ | χ_{DR12BAO}^2 | 4.25 | 5.0 ± 1.6 |
| H_0 | 67.75 | $68.00^{+0.43}_{-0.72}$ | z_{eq} | 3376.8 | 3335^{+63}_{-19} | χ_{prior}^2 | 1.78 | 11.7 ± 4.6 |
| Ω_Λ | 0.6902 | 0.6888 ± 0.0063 | k_{eq} | 0.010311 | $0.01026^{+0.00019}_{-0.000095}$ | χ_{BAO}^2 | 5.56 | 6.3 ± 1.3 |
| Ω_m | 0.3098 | 0.3112 ± 0.0063 | $100\theta_{\text{eq}}$ | 0.8183 | $0.8275^{+0.0034}_{-0.013}$ | χ_{CMB}^2 | 2764.7 | 2782.5 ± 6.1 |
| $\Omega_m h^2$ | 0.14222 | $0.1438^{+0.0011}_{-0.0021}$ | $100\theta_{s,\text{eq}}$ | 0.45195 | $0.4567^{+0.0017}_{-0.0070}$ | | | |
| $\Omega_\nu h^2$ | 0.00091 | $0.00266^{+0.00045}_{-0.0022}$ | $H(0.15)$ | 73.02 | $73.30^{+0.36}_{-0.70}$ | | | |

Best-fit $\chi_{\text{eff}}^2 = 3806.99$; $\bar{\chi}_{\text{eff}}^2 = 3835.68$; $R - 1 = 0.01641$
 χ_{eff}^2 : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.25 CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.96 commander_dx12_v3_2_29: 23.15 plik_rd12_HM_v22b_TTTEEE: 2344.56 SN - JLA Pantheon18: 1034.98

8.15 base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02250 ± 0.00015 | $\Omega_\nu h^2$ | $0.00272^{+0.00048}_{-0.0022}$ | $100\theta_{s,eq}$ | $0.4565^{+0.0019}_{-0.0070}$ |
| $\Omega_c h^2$ | $0.1187^{+0.0034}_{-0.0022}$ | $\Omega_m h^3$ | $0.09775^{+0.00033}_{-0.0017}$ | $H(0.15)$ | $73.22^{+0.38}_{-0.67}$ |
| $100\theta_{MC}$ | 1.04091 ± 0.00032 | σ_8 | $0.792^{+0.023}_{-0.013}$ | $D_M(0.15)$ | $638.5^{+6.2}_{-3.9}$ |
| τ | $0.0570^{+0.0057}_{-0.0085}$ | S_8 | $0.808^{+0.023}_{-0.016}$ | $H(0.38)$ | $83.40^{+0.25}_{-0.64}$ |
| $m_{\nu, sterile}^{eff} [eV]$ | < 0.219 | $\sigma_8 \Omega_m^{0.5}$ | $0.443^{+0.013}_{-0.0086}$ | $D_M(0.38)$ | $1523^{+14}_{-7.6}$ |
| N_{eff} | < 3.14 | $\sigma_8 \Omega_m^{0.25}$ | $0.592^{+0.017}_{-0.010}$ | $H(0.51)$ | $90.16^{+0.19}_{-0.63}$ |
| $\ln(10^{10} A_s)$ | $3.050^{+0.013}_{-0.017}$ | $\sigma_8/h^{0.5}$ | $0.961^{+0.027}_{-0.014}$ | $D_M(0.51)$ | $1972^{+17}_{-8.7}$ |
| n_s | $0.9688^{+0.0043}_{-0.0056}$ | $r_{drag} h$ | 99.43 ± 0.83 | $H(0.61)$ | $95.82^{+0.16}_{-0.62}$ |
| y_{cal} | 1.0008 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.432 ± 0.024 | $D_M(0.61)$ | $2295^{+19}_{-9.3}$ |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.93^{+0.63}_{-0.83}$ | $H(2.33)$ | $237.43^{+0.72}_{-1.6}$ |
| $\xi^{tSZ \times CIB}$ | — | $10^9 A_s$ | $2.112^{+0.028}_{-0.037}$ | $D_M(2.33)$ | $5733^{+35}_{-8.1}$ |
| A_{143}^{tSZ} | $5.4^{+2.2}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.885 ± 0.012 | $f\sigma_8(0.15)$ | $0.447^{+0.013}_{-0.0083}$ |
| A_{100}^{PS} | 260 ± 28 | D_{40} | 1225 ± 13 | $\sigma_8(0.15)$ | $0.732^{+0.022}_{-0.012}$ |
| A_{143}^{PS} | 47 ± 8 | D_{220} | 5738 ± 39 | $f\sigma_8(0.38)$ | $0.465^{+0.013}_{-0.0080}$ |
| $A_{143 \times 217}^{PS}$ | 43 ± 9 | D_{810} | 2541 ± 13 | $\sigma_8(0.38)$ | $0.649^{+0.019}_{-0.011}$ |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 817.3 ± 4.7 | $f\sigma_8(0.51)$ | $0.464^{+0.013}_{-0.0078}$ |
| A^{kSZ} | < 4.43 | D_{2000} | 230.6 ± 1.6 | $\sigma_8(0.51)$ | $0.607^{+0.018}_{-0.011}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | $n_{s,0.002}$ | $0.9688^{+0.0043}_{-0.0056}$ | $f\sigma_8(0.61)$ | $0.459^{+0.013}_{-0.0077}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P | $0.24656^{+0.00022}_{-0.0011}$ | $\sigma_8(0.61)$ | $0.578^{+0.017}_{-0.010}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.7 ± 3.2 | Y_P^{BBN} | $0.24789^{+0.00022}_{-0.0011}$ | $f\sigma_8(2.33)$ | $0.2916^{+0.0088}_{-0.0052}$ |
| A_{217}^{dustTT} | 93.7 ± 7.3 | $10^5 D/H$ | $2.591^{+0.025}_{-0.033}$ | $\sigma_8(2.33)$ | $0.3004^{+0.0091}_{-0.0055}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | Age/Gyr | $13.724^{+0.084}_{-0.019}$ | f_{2000}^{143} | 30.0 ± 2.8 |
| $A_{100 \times 143}^{dustTE}$ | 0.135 ± 0.029 | z_* | $1089.89^{+0.23}_{-0.26}$ | $f_{2000}^{143 \times 217}$ | 32.6 ± 1.9 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 ± 0.085 | r_* | $143.83^{+0.91}_{-0.28}$ | f_{2000}^{217} | 107.4 ± 1.8 |
| A_{143}^{dustTE} | 0.224 ± 0.054 | $100\theta_*$ | $1.04104^{+0.00036}_{-0.00030}$ | χ_{simall}^2 | 397.4 ± 2.3 |
| $A_{143 \times 217}^{dustTE}$ | 0.664 ± 0.081 | $D_M(z_*)/Gpc$ | $13.816^{+0.085}_{-0.027}$ | χ_{lowl}^2 | 22.90 ± 0.92 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | z_{drag} | $1060.34^{+0.33}_{-0.45}$ | χ_{plik}^2 | 2361.9 ± 6.2 |
| c_{100} | 0.99966 ± 0.00061 | r_{drag} | $146.44^{+0.94}_{-0.30}$ | χ_{6DF}^2 | 0.076 ± 0.084 |
| c_{217} | 0.99820 ± 0.00063 | k_D | $0.14139^{+0.00034}_{-0.00076}$ | χ_{MGS}^2 | 1.15 ± 0.44 |
| H_0 | $67.90^{+0.45}_{-0.70}$ | $100\theta_D$ | $0.16084^{+0.00017}_{-0.00027}$ | $\chi_{DR12BAO}^2$ | 5.3 ± 1.8 |
| Ω_Λ | 0.6877 ± 0.0066 | z_{eq} | 3337^{+63}_{-21} | χ_{prior}^2 | 11.7 ± 4.6 |
| Ω_m | 0.3123 ± 0.0066 | k_{eq} | $0.01027^{+0.00019}_{-0.000096}$ | χ_{BAO}^2 | 6.6 ± 1.5 |
| $\Omega_m h^2$ | $0.1440^{+0.0011}_{-0.0020}$ | $100\theta_{eq}$ | $0.8270^{+0.0037}_{-0.013}$ | χ_{CMB}^2 | 2782.2 ± 6.1 |

$$\bar{\chi}_{eff}^2 = 2800.45; \Delta\bar{\chi}_{eff}^2 = 2.74; R - 1 = 0.01583$$

8.16 base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|--------------------------------|-----------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02251 ± 0.00015 | $\Omega_m h^3$ | $0.09783^{+0.00033}_{-0.0018}$ | $D_M(0.15)$ | $637.6^{+6.4}_{-3.7}$ |
| $\Omega_c h^2$ | $0.1187^{+0.0035}_{-0.0023}$ | σ_8 | $0.793^{+0.023}_{-0.014}$ | $H(0.38)$ | $83.47^{+0.24}_{-0.67}$ |
| $100\theta_{MC}$ | 1.04092 ± 0.00032 | S_8 | $0.807^{+0.023}_{-0.015}$ | $D_M(0.38)$ | $1521^{+14}_{-7.2}$ |
| τ | $0.0571^{+0.0058}_{-0.0085}$ | $\sigma_8 \Omega_m^{0.5}$ | $0.442^{+0.013}_{-0.0085}$ | $H(0.51)$ | $90.23^{+0.18}_{-0.66}$ |
| $m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$ | < 0.210 | $\sigma_8 \Omega_m^{0.25}$ | $0.592^{+0.017}_{-0.010}$ | $D_M(0.51)$ | $1970^{+17}_{-8.3}$ |
| N_{eff} | < 3.14 | $\sigma_8/h^{0.5}$ | $0.961^{+0.027}_{-0.014}$ | $H(0.61)$ | $95.87^{+0.15}_{-0.66}$ |
| $\ln(10^{10} A_s)$ | $3.050^{+0.014}_{-0.017}$ | $r_{\text{drag}} h$ | 99.58 ± 0.80 | $D_M(0.61)$ | $2292^{+20}_{-8.8}$ |
| n_s | $0.9693^{+0.0042}_{-0.0056}$ | $\langle d^2 \rangle^{1/2}$ | 2.429 ± 0.024 | $H(2.33)$ | $237.38^{+0.69}_{-1.6}$ |
| y_{cal} | 1.0007 ± 0.0025 | z_{re} | $7.94^{+0.64}_{-0.83}$ | $D_M(2.33)$ | $5730^{+37}_{-7.9}$ |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.112^{+0.028}_{-0.037}$ | $f\sigma_8(0.15)$ | $0.447^{+0.013}_{-0.0083}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.884 ± 0.013 | $\sigma_8(0.15)$ | $0.732^{+0.022}_{-0.013}$ |
| A_{143}^{tSZ} | $5.4^{+2.2}_{-2.0}$ | D_{40} | 1224 ± 13 | $f\sigma_8(0.38)$ | $0.465^{+0.013}_{-0.0080}$ |
| A_{100}^{PS} | 260 ± 28 | D_{220} | 5739 ± 39 | $\sigma_8(0.38)$ | $0.649^{+0.019}_{-0.011}$ |
| A_{143}^{PS} | 47 ± 8 | D_{810} | 2540 ± 13 | $f\sigma_8(0.51)$ | $0.464^{+0.013}_{-0.0079}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | D_{1420} | 817.3 ± 4.7 | $\sigma_8(0.51)$ | $0.608^{+0.018}_{-0.011}$ |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 230.6 ± 1.6 | $f\sigma_8(0.61)$ | $0.459^{+0.013}_{-0.0078}$ |
| A^{kSZ} | < 4.48 | $n_{s,0.002}$ | $0.9693^{+0.0042}_{-0.0056}$ | $\sigma_8(0.61)$ | $0.578^{+0.017}_{-0.010}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | Y_P | $0.24661^{+0.00022}_{-0.0012}$ | $f\sigma_8(2.33)$ | $0.2919^{+0.0088}_{-0.0053}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.24794^{+0.00022}_{-0.0012}$ | $\sigma_8(2.33)$ | $0.3007^{+0.0092}_{-0.0056}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $10^5 D/H$ | $2.590^{+0.025}_{-0.033}$ | f_{2000}^{143} | 30.0 ± 2.8 |
| A_{217}^{dustTT} | 93.6 ± 7.3 | Age/Gyr | $13.718^{+0.088}_{-0.018}$ | $f_{2000}^{143 \times 217}$ | 32.6 ± 1.9 |
| A_{100}^{dustTE} | 0.113 ± 0.038 | z_* | $1089.87^{+0.22}_{-0.27}$ | f_{2000}^{217} | 107.4 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | r_* | $143.83^{+0.94}_{-0.28}$ | χ_{small}^2 | 291 ± 200 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.084 | $100\theta_*$ | $1.04104^{+0.00036}_{-0.00030}$ | χ_{lowl}^2 | 129 ± 200 |
| A_{143}^{dustTE} | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | $13.816^{+0.089}_{-0.027}$ | χ_{plik}^2 | 2362.2 ± 6.2 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 ± 0.082 | z_{drag} | $1060.37^{+0.32}_{-0.47}$ | χ_{JLA}^2 | 1035.12 ± 0.33 |
| A_{217}^{dustTE} | 2.07 ± 0.27 | r_{drag} | $146.43^{+0.98}_{-0.29}$ | $\chi_{6\text{DF}}^2$ | 0.40 ± 0.59 |
| c_{100} | 0.99966 ± 0.00061 | k_D | $0.14139^{+0.00034}_{-0.00079}$ | χ_{MGS}^2 | 0.89 ± 0.64 |
| c_{217} | 0.99819 ± 0.00063 | $100\theta_D$ | $0.16084^{+0.00018}_{-0.00028}$ | χ_{DR12BAO}^2 | 5.0 ± 1.6 |
| H_0 | $68.00^{+0.43}_{-0.72}$ | z_{eq} | 3334^{+63}_{-19} | χ_{prior}^2 | 11.7 ± 4.6 |
| Ω_Λ | 0.6889 ± 0.0063 | k_{eq} | $0.01026^{+0.00019}_{-0.000095}$ | χ_{BAO}^2 | 6.3 ± 1.3 |
| Ω_m | 0.3111 ± 0.0063 | $100\theta_{\text{eq}}$ | $0.8275^{+0.0033}_{-0.013}$ | χ_{CMB}^2 | 2782.4 ± 6.1 |
| $\Omega_m h^2$ | $0.1439^{+0.0011}_{-0.0021}$ | $100\theta_{s,\text{eq}}$ | $0.4567^{+0.0017}_{-0.0070}$ | | |
| $\Omega_\nu h^2$ | $0.00267^{+0.00044}_{-0.0022}$ | $H(0.15)$ | $73.31^{+0.36}_{-0.70}$ | | |

$$\bar{\chi}_{\text{eff}}^2 = 3835.56; R - 1 = 0.01701$$

8.17 base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|------------------------------------|--------------------------------------|----------|---------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.022264 | 0.02232 ± 0.00021 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6054 | $0.596^{+0.015}_{-0.0093}$ | $D_{\mathrm{M}}(0.38)$ | 1526.2 | 1516^{+24}_{-12} |
| $\Omega_{\mathrm{c}}h^2$ | 0.11957 | $0.1204^{+0.0038}_{-0.0034}$ | $\sigma_8/h^{0.5}$ | 0.9853 | $0.966^{+0.022}_{-0.012}$ | $H(0.51)$ | 89.86 | $90.53^{+0.45}_{-1.2}$ |
| $100\theta_{\mathrm{MC}}$ | 1.040912 | 1.04076 ± 0.00049 | $r_{\mathrm{drag}}h$ | 99.73 | 99.51 ± 0.93 | $D_{\mathrm{M}}(0.51)$ | 1977.3 | 1964^{+30}_{-14} |
| τ | 0.0558 | 0.0566 ± 0.0078 | $\langle d^2 \rangle^{1/2}$ | 2.4345 | 2.427 ± 0.023 | $H(0.61)$ | 95.48 | $96.20^{+0.44}_{-1.2}$ |
| $m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$ | 0.000 | < 0.149 | z_{re} | 7.85 | 7.96 ± 0.78 | $D_{\mathrm{M}}(0.61)$ | 2301.0 | 2285^{+35}_{-15} |
| N_{eff} | 3.077 | < 3.26 | $10^9 A_{\mathrm{s}}$ | 2.1047 | $2.116^{+0.032}_{-0.037}$ | $H(2.33)$ | 236.27 | $238.3^{+1.2}_{-2.7}$ |
| $\ln(10^{10} A_{\mathrm{s}})$ | 3.0467 | 3.052 ± 0.017 | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.8825 | $1.890^{+0.012}_{-0.017}$ | $D_{\mathrm{M}}(2.33)$ | 5753.7 | 5710^{+69}_{-25} |
| n_{s} | 0.9679 | $0.9709^{+0.0057}_{-0.0080}$ | D_{40} | 1225.4 | 1221 ± 14 | $f\sigma_8(0.15)$ | 0.4565 | $0.450^{+0.011}_{-0.0072}$ |
| y_{cal} | 1.00095 | 1.0008 ± 0.0025 | D_{220} | 5725.1 | 5724 ± 40 | $\sigma_8(0.15)$ | 0.7496 | $0.737^{+0.020}_{-0.013}$ |
| A_{217}^{CIB} | 48.8 | 49 ± 7 | D_{810} | 2540.4 | 2540 ± 14 | $f\sigma_8(0.38)$ | 0.4751 | $0.468^{+0.012}_{-0.0072}$ |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | 0.30 | — | D_{1420} | 816.78 | 814.9 ± 5.0 | $\sigma_8(0.38)$ | 0.6646 | $0.653^{+0.018}_{-0.012}$ |
| A_{143}^{tSZ} | 7.05 | 4.9 ± 2.0 | D_{2000} | 230.43 | 229.1 ± 1.9 | $f\sigma_8(0.51)$ | 0.4739 | $0.467^{+0.012}_{-0.0072}$ |
| A_{100}^{PS} | 254.5 | 267 ± 28 | $n_{\mathrm{s}, 0.002}$ | 0.9679 | $0.9709^{+0.0057}_{-0.0080}$ | $\sigma_8(0.51)$ | 0.6220 | $0.612^{+0.017}_{-0.012}$ |
| A_{143}^{PS} | 49.2 | 51 ± 8 | Y_{P} | 0.24576 | $0.24756^{+0.00071}_{-0.0022}$ | $f\sigma_8(0.61)$ | 0.4690 | $0.462^{+0.012}_{-0.0073}$ |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 46.2 | 44^{+9}_{-10} | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.24709 | $0.24889^{+0.00071}_{-0.0022}$ | $\sigma_8(0.61)$ | 0.5919 | $0.582^{+0.016}_{-0.011}$ |
| A_{217}^{PS} | 119.1 | 115 ± 10 | $10^5 D/H$ | 2.616 | $2.653^{+0.043}_{-0.059}$ | $f\sigma_8(2.33)$ | 0.2985 | $0.2938^{+0.0083}_{-0.0057}$ |
| A^{kSZ} | 0.00 | < 5.21 | Age/Gyr | 13.775 | $13.67^{+0.16}_{-0.059}$ | $\sigma_8(2.33)$ | 0.3078 | $0.3026^{+0.0087}_{-0.0062}$ |
| $A_{100}^{\mathrm{dustTT}}$ | 8.86 | 9.0 ± 1.8 | z_* | 1090.047 | $1090.30^{+0.33}_{-0.41}$ | f_{2000}^{143} | 30.39 | 32.3 ± 3.1 |
| $A_{143}^{\mathrm{dustTT}}$ | 10.78 | 10.7 ± 1.8 | r_* | 144.47 | $143.3^{+1.7}_{-0.63}$ | $f_{2000}^{143 \times 217}$ | 33.18 | 34.4 ± 2.2 |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 19.42 | 18.3 ± 3.3 | $100\theta_*$ | 1.04109 | $1.04086^{+0.00059}_{-0.00049}$ | f_{2000}^{217} | 107.69 | 108.9 ± 2.0 |
| $A_{217}^{\mathrm{dustTT}}$ | 94.7 | 93.2 ± 7.4 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.877 | $13.76^{+0.16}_{-0.059}$ | $\chi_{\mathrm{lensing}}^2$ | 8.84 | 9.5 ± 1.0 |
| c_{100} | 0.99965 | 0.99961 ± 0.00062 | z_{drag} | 1059.67 | $1060.08^{+0.51}_{-0.71}$ | χ_{simall}^2 | 396.34 | 397.5 ± 2.2 |
| c_{217} | 0.99826 | 0.99828 ± 0.00062 | r_{drag} | 147.17 | $145.9^{+1.7}_{-0.66}$ | χ_{lowl}^2 | 22.91 | 22.6 ± 1.0 |
| H_0 | 67.77 | $68.20^{+0.63}_{-1.2}$ | k_{D} | 0.14059 | $0.14148^{+0.00061}_{-0.0013}$ | χ_{plik}^2 | 759.6 | 773.6 ± 5.6 |
| Ω_{Λ} | 0.6897 | 0.6881 ± 0.0074 | $100\theta_{\mathrm{D}}$ | 0.161035 | $0.16134^{+0.00033}_{-0.00052}$ | $\chi_{6\mathrm{DF}}^2$ | 0.0236 | 0.076 ± 0.090 |
| Ω_{m} | 0.3103 | 0.3119 ± 0.0074 | z_{eq} | 3375.6 | 3337^{+49}_{-23} | χ_{MGS}^2 | 1.279 | 1.21 ± 0.50 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14248 | $0.1450^{+0.0016}_{-0.0033}$ | k_{eq} | 0.010324 | $0.01032^{+0.00018}_{-0.00012}$ | $\chi_{\mathrm{DR12BAO}}^2$ | 4.25 | 5.3 ± 1.9 |
| $\Omega_{\nu}h^2$ | 0.00065 | $0.0022471^{+0.0000082}_{-0.0016}$ | $100\theta_{\mathrm{eq}}$ | 0.8178 | $0.8261^{+0.0038}_{-0.010}$ | χ_{prior}^2 | 1.49 | 7.3 ± 3.7 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09656 | $0.0989^{+0.0011}_{-0.0034}$ | $100\theta_{\mathrm{s,eq}}$ | 0.45181 | $0.4561^{+0.0019}_{-0.0054}$ | χ_{CMB}^2 | 1187.7 | 1203.3 ± 5.8 |
| σ_8 | 0.8111 | $0.798^{+0.021}_{-0.014}$ | $H(0.15)$ | 73.04 | $73.53^{+0.56}_{-1.2}$ | χ_{BAO}^2 | 5.56 | 6.5 ± 1.6 |
| S_8 | 0.8249 | $0.813^{+0.020}_{-0.014}$ | $D_{\mathrm{M}}(0.15)$ | 639.8 | $636^{+11}_{-5.6}$ | | | |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4518 | $0.445^{+0.011}_{-0.0074}$ | $H(0.38)$ | 83.15 | $83.74^{+0.48}_{-1.2}$ | | | |

Best-fit $\chi_{\mathrm{eff}}^2 = 1194.69$; $\Delta\chi_{\mathrm{eff}}^2 = 0.01$; $\bar{\chi}_{\mathrm{eff}}^2 = 1217.17$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 2.44$; $R - 1 = 0.01959$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ -0.01) MGS: 1.28 (Δ 0.06) DR12BAO: 4.25 (Δ -0.12) CMB - smicadx12.Dec5.ftl.mv2.ndclpp-p.teb.consext8: 8.84 (Δ -0.04) simall_100x143.offlike5_EE_Aplanc
396.34 (Δ 0.24) commander_dx12.v3.2.29: 22.91 (Δ -0.05) plik_rd12_HM.v22.TT: 759.57 (Δ -0.24)

8.18 base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|----------------------------------|--------------------------------------|----------|---------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.022239 | 0.02234 ± 0.00021 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6042 | $0.596^{+0.015}_{-0.0091}$ | $D_{\mathrm{M}}(0.38)$ | 1530.2 | 1514^{+25}_{-12} |
| $\Omega_{\mathrm{c}}h^2$ | 0.11711 | $0.1205^{+0.0039}_{-0.0034}$ | $\sigma_8/h^{0.5}$ | 0.9842 | $0.966^{+0.023}_{-0.012}$ | $H(0.51)$ | 89.66 | $90.62^{+0.49}_{-1.3}$ |
| $100\theta_{\mathrm{MC}}$ | 1.041023 | 1.04076 ± 0.00049 | $r_{\mathrm{drag}}h$ | 99.65 | 99.65 ± 0.90 | $D_{\mathrm{M}}(0.51)$ | 1982.3 | 1961^{+31}_{-15} |
| τ | 0.0567 | 0.0571 ± 0.0077 | $\langle d^2 \rangle^{1/2}$ | 2.4382 | 2.426 ± 0.023 | $H(0.61)$ | 95.27 | $96.29^{+0.47}_{-1.3}$ |
| $m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$ | 0.193 | < 0.139 | z_{re} | 7.94 | 8.01 ± 0.77 | $D_{\mathrm{M}}(0.61)$ | 2306.7 | 2282^{+36}_{-16} |
| N_{eff} | 3.047 | < 3.27 | $10^9 A_{\mathrm{s}}$ | 2.1022 | 2.119 ± 0.035 | $H(2.33)$ | 235.88 | $238.3^{+1.2}_{-2.9}$ |
| $\ln(10^{10} A_{\mathrm{s}})$ | 3.0456 | 3.053 ± 0.016 | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.8768 | $1.890^{+0.013}_{-0.018}$ | $D_{\mathrm{M}}(2.33)$ | 5766 | 5706^{+73}_{-27} |
| n_{s} | 0.9661 | $0.9715^{+0.0057}_{-0.0081}$ | D_{40} | 1226.6 | 1220 ± 14 | $f\sigma_8(0.15)$ | 0.4558 | $0.450^{+0.011}_{-0.0070}$ |
| y_{cal} | 1.00006 | 1.0008 ± 0.0025 | D_{220} | 5717.4 | 5725 ± 40 | $\sigma_8(0.15)$ | 0.7477 | $0.738^{+0.020}_{-0.013}$ |
| A_{217}^{CIB} | 50.1 | 49 ± 7 | D_{810} | 2534.5 | 2540 ± 14 | $f\sigma_8(0.38)$ | 0.4742 | $0.468^{+0.012}_{-0.0070}$ |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | 0.18 | — | D_{1420} | 814.87 | 814.9 ± 5.0 | $\sigma_8(0.38)$ | 0.6628 | $0.654^{+0.018}_{-0.012}$ |
| A_{143}^{tSZ} | 7.16 | 4.9 ± 2.0 | D_{2000} | 229.97 | 229.1 ± 1.9 | $f\sigma_8(0.51)$ | 0.4729 | $0.467^{+0.012}_{-0.0071}$ |
| A_{100}^{PS} | 255.9 | 267 ± 28 | $n_{\mathrm{s}, 0.002}$ | 0.9661 | $0.9715^{+0.0057}_{-0.0081}$ | $\sigma_8(0.51)$ | 0.6203 | $0.613^{+0.017}_{-0.011}$ |
| A_{143}^{PS} | 47.4 | 51 ± 8 | Y_{P} | 0.24536 | $0.24768^{+0.00078}_{-0.0023}$ | $f\sigma_8(0.61)$ | 0.4680 | $0.462^{+0.012}_{-0.0071}$ |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42.9 | 44 ± 9 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.24668 | $0.24901^{+0.00078}_{-0.0024}$ | $\sigma_8(0.61)$ | 0.5902 | $0.583^{+0.016}_{-0.011}$ |
| A_{217}^{PS} | 116.7 | 115 ± 10 | $10^5 D/H$ | 2.611 | $2.653^{+0.044}_{-0.061}$ | $f\sigma_8(2.33)$ | 0.2976 | $0.2944^{+0.0084}_{-0.0057}$ |
| A^{kSZ} | 0.00 | < 5.22 | Age/Gyr | 13.804 | $13.66^{+0.17}_{-0.064}$ | $\sigma_8(2.33)$ | 0.3068 | $0.3033^{+0.0088}_{-0.0062}$ |
| $A_{100}^{\mathrm{dustTT}}$ | 8.84 | 9.0 ± 1.8 | z_* | 1090.013 | $1090.28^{+0.34}_{-0.41}$ | f_{2000}^{143} | 30.60 | 32.3 ± 3.1 |
| $A_{143}^{\mathrm{dustTT}}$ | 10.87 | 10.7 ± 1.8 | r_* | 144.75 | $143.2^{+1.8}_{-0.68}$ | $f_{2000}^{143 \times 217}$ | 33.29 | 34.4 ± 2.2 |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 19.35 | 18.3 ± 3.3 | $100\theta_*$ | 1.04122 | $1.04085^{+0.00060}_{-0.00049}$ | f_{2000}^{217} | 107.63 | 108.9 ± 2.0 |
| $A_{217}^{\mathrm{dustTT}}$ | 94.2 | 93.2 ± 7.4 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.902 | $13.76^{+0.16}_{-0.063}$ | $\chi_{\mathrm{lensing}}^2$ | 8.78 | 9.6 ± 1.0 |
| c_{100} | 0.99963 | 0.99962 ± 0.00061 | z_{drag} | 1059.59 | $1060.12^{+0.53}_{-0.73}$ | χ_{small}^2 | 397 | 290 ± 200 |
| c_{217} | 0.99827 | 0.99828 ± 0.00063 | r_{drag} | 147.46 | $145.9^{+1.8}_{-0.71}$ | χ_{lowl}^2 | 23 | 131 ± 200 |
| H_0 | 67.58 | $68.32^{+0.63}_{-1.2}$ | k_{D} | 0.14038 | $0.14152^{+0.00063}_{-0.0014}$ | χ_{plik}^2 | 759.1 | 773.8 ± 5.6 |
| Ω_{Λ} | 0.6890 | 0.6892 ± 0.0071 | $100\theta_{\mathrm{D}}$ | 0.160982 | $0.16135^{+0.00035}_{-0.00054}$ | χ_{JLA}^2 | 1035.034 | 1035.12 ± 0.37 |
| Ω_{m} | 0.3110 | 0.3108 ± 0.0071 | z_{eq} | 3329.4 | 3334^{+49}_{-22} | $\chi_{6\mathrm{DF}}^2$ | 0.029 | 0.41 ± 0.62 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14204 | $0.1450^{+0.0017}_{-0.0035}$ | k_{eq} | 0.010199 | $0.01031^{+0.00018}_{-0.00012}$ | χ_{MGS}^2 | 1.22 | 0.93 ± 0.69 |
| $\Omega_{\nu}h^2$ | 0.00269 | $0.002206^{+0.000048}_{-0.0016}$ | $100\theta_{\mathrm{eq}}$ | 0.8275 | $0.8266^{+0.0037}_{-0.010}$ | $\chi_{\mathrm{DR12BAO}}^2$ | 4.37 | 5.0 ± 1.7 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09599 | $0.0991^{+0.0012}_{-0.0036}$ | $100\theta_{\mathrm{s,eq}}$ | 0.45697 | $0.4564^{+0.0018}_{-0.0053}$ | χ_{prior}^2 | 1.49 | 7.3 ± 3.7 |
| σ_8 | 0.8091 | $0.799^{+0.021}_{-0.014}$ | $H(0.15)$ | 72.85 | $73.65^{+0.58}_{-1.2}$ | χ_{CMB}^2 | 1187.7 | 1203.5 ± 5.9 |
| S_8 | 0.8238 | $0.813^{+0.020}_{-0.013}$ | $D_{\mathrm{M}}(0.15)$ | 641.6 | $635^{+11}_{-5.7}$ | χ_{BAO}^2 | 5.62 | 6.3 ± 1.4 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4512 | $0.445^{+0.011}_{-0.0072}$ | $H(0.38)$ | 82.95 | $83.85^{+0.51}_{-1.2}$ | | | |

Best-fit $\chi_{\mathrm{eff}}^2 = 2229.80$; $\Delta\chi_{\mathrm{eff}}^2 = 0.09$; $\bar{\chi}_{\mathrm{eff}}^2 = 2252.23$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 2.45$; $R - 1 = 0.01841$
 χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.01) MGS: 1.22 (Δ -0.13) DR12BAO: 4.37 (Δ 0.34) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.78 (Δ -0.10) small_100x143_offlike5_EE_Aplanck 396.58 (Δ 0.21) commander_dx12_v3_2.29: 23.22 (Δ 0.40) plik_rd12_HM_v22_TT: 759.08 (Δ -0.71) SN - JLA Pantheon18: 1035.03 (Δ 0.08)

8.19 base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|----------------------------------|---------------------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}} h^2$ | 0.02232 ± 0.00021 | $\sigma_8 \Omega_{\mathrm{m}}^{0.25}$ | $0.596^{+0.015}_{-0.0093}$ | $D_{\mathrm{M}}(0.38)$ | 1516^{+24}_{-11} |
| $\Omega_{\mathrm{c}} h^2$ | $0.1204^{+0.0038}_{-0.0034}$ | $\sigma_8/h^{0.5}$ | $0.966^{+0.022}_{-0.012}$ | $H(0.51)$ | $90.54^{+0.45}_{-1.2}$ |
| $100\theta_{\mathrm{MC}}$ | 1.04076 ± 0.00049 | $r_{\mathrm{drag}} h$ | 99.53 ± 0.93 | $D_{\mathrm{M}}(0.51)$ | 1964^{+30}_{-14} |
| τ | $0.0571^{+0.0061}_{-0.0082}$ | $\langle d^2 \rangle^{1/2}$ | 2.428 ± 0.023 | $H(0.61)$ | $96.21^{+0.44}_{-1.2}$ |
| $m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$ | < 0.150 | z_{re} | $8.01^{+0.66}_{-0.80}$ | $D_{\mathrm{M}}(0.61)$ | 2285^{+35}_{-15} |
| N_{eff} | < 3.26 | $10^9 A_{\mathrm{s}}$ | $2.118^{+0.029}_{-0.037}$ | $H(2.33)$ | $238.3^{+1.2}_{-2.7}$ |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.053^{+0.014}_{-0.017}$ | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | $1.890^{+0.012}_{-0.017}$ | $D_{\mathrm{M}}(2.33)$ | 5710^{+69}_{-25} |
| n_{s} | $0.9711^{+0.0056}_{-0.0080}$ | D_{40} | 1221 ± 14 | $f\sigma_8(0.15)$ | $0.450^{+0.011}_{-0.0072}$ |
| y_{cal} | 1.0008 ± 0.0025 | D_{220} | 5724 ± 40 | $\sigma_8(0.15)$ | $0.737^{+0.020}_{-0.013}$ |
| A_{217}^{CIB} | 49 ± 7 | D_{810} | 2540 ± 14 | $f\sigma_8(0.38)$ | $0.468^{+0.012}_{-0.0072}$ |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{1420} | 814.9 ± 5.0 | $\sigma_8(0.38)$ | $0.654^{+0.018}_{-0.012}$ |
| A_{143}^{tSZ} | 4.9 ± 2.0 | D_{2000} | 229.1 ± 1.9 | $f\sigma_8(0.51)$ | $0.467^{+0.012}_{-0.0072}$ |
| A_{100}^{PS} | 267 ± 28 | $n_{\mathrm{s}, 0.002}$ | $0.9711^{+0.0056}_{-0.0080}$ | $\sigma_8(0.51)$ | $0.612^{+0.017}_{-0.012}$ |
| A_{143}^{PS} | 51 ± 8 | Y_{P} | $0.24757^{+0.00072}_{-0.0022}$ | $f\sigma_8(0.61)$ | $0.462^{+0.012}_{-0.0073}$ |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 44^{+9}_{-10} | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.24891^{+0.00072}_{-0.0022}$ | $\sigma_8(0.61)$ | $0.582^{+0.016}_{-0.011}$ |
| A_{217}^{PS} | 115 ± 10 | $10^5 D/H$ | $2.653^{+0.043}_{-0.060}$ | $f\sigma_8(2.33)$ | $0.2939^{+0.0083}_{-0.0057}$ |
| A^{kSZ} | < 5.21 | $\mathrm{Age}/\mathrm{Gyr}$ | $13.67^{+0.16}_{-0.059}$ | $\sigma_8(2.33)$ | $0.3028^{+0.0086}_{-0.0062}$ |
| $A_{100}^{\mathrm{dustTT}}$ | 9.0 ± 1.8 | z_* | $1090.29^{+0.33}_{-0.41}$ | f_{2000}^{143} | 32.2 ± 3.1 |
| $A_{143}^{\mathrm{dustTT}}$ | 10.7 ± 1.8 | r_* | $143.3^{+1.7}_{-0.63}$ | $f_{2000}^{143 \times 217}$ | 34.4 ± 2.2 |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | $1.04086^{+0.00059}_{-0.00048}$ | f_{2000}^{217} | 108.9 ± 2.0 |
| $A_{217}^{\mathrm{dustTT}}$ | 93.2 ± 7.4 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | $13.76^{+0.16}_{-0.059}$ | $\chi_{\mathrm{lensing}}^2$ | 9.52 ± 0.99 |
| c_{100} | 0.99961 ± 0.00062 | z_{drag} | $1060.08^{+0.52}_{-0.70}$ | χ_{small}^2 | 397.5 ± 2.2 |
| c_{217} | 0.99828 ± 0.00062 | r_{drag} | $145.9^{+1.7}_{-0.67}$ | χ_{lowl}^2 | 22.6 ± 1.0 |
| H_0 | $68.21^{+0.61}_{-1.2}$ | k_{D} | $0.14148^{+0.00062}_{-0.0013}$ | χ_{plik}^2 | 773.6 ± 5.6 |
| Ω_{Λ} | 0.6883 ± 0.0073 | $100\theta_{\mathrm{D}}$ | $0.16134^{+0.00033}_{-0.00053}$ | $\chi_{6\mathrm{DF}}^2$ | 0.074 ± 0.087 |
| Ω_{m} | 0.3117 ± 0.0073 | z_{eq} | 3336^{+49}_{-22} | χ_{MGS}^2 | 1.22 ± 0.50 |
| $\Omega_{\mathrm{m}} h^2$ | $0.1450^{+0.0016}_{-0.0033}$ | k_{eq} | $0.01031^{+0.00018}_{-0.00012}$ | $\chi_{\mathrm{DR12BAO}}^2$ | 5.2 ± 1.9 |
| $\Omega_{\nu} h^2$ | $0.002255^{+0.000012}_{-0.0016}$ | $100\theta_{\mathrm{eq}}$ | $0.8262^{+0.0037}_{-0.010}$ | χ_{prior}^2 | 7.3 ± 3.7 |
| $\Omega_{\mathrm{m}} h^3$ | $0.0989^{+0.0011}_{-0.0034}$ | $100\theta_{\mathrm{s,eq}}$ | $0.4562^{+0.0019}_{-0.0054}$ | χ_{CMB}^2 | 1203.2 ± 5.8 |
| σ_8 | $0.798^{+0.021}_{-0.014}$ | $H(0.15)$ | $73.55^{+0.55}_{-1.2}$ | χ_{BAO}^2 | 6.5 ± 1.5 |
| S_8 | $0.813^{+0.020}_{-0.014}$ | $D_{\mathrm{M}}(0.15)$ | $636^{+11}_{-5.5}$ | | |
| $\sigma_8 \Omega_{\mathrm{m}}^{0.5}$ | $0.445^{+0.011}_{-0.0074}$ | $H(0.38)$ | $83.76^{+0.47}_{-1.2}$ | | |

$$\bar{\chi}_{\mathrm{eff}}^2 = 1217.05; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 2.48; R - 1 = 0.01947$$

8.20 base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|----------------------------------|-----------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02234 ± 0.00021 | $\sigma_8 \Omega_m^{0.25}$ | $0.596^{+0.015}_{-0.0090}$ | $D_M(0.38)$ | 1514^{+25}_{-12} |
| $\Omega_c h^2$ | $0.1205^{+0.0040}_{-0.0034}$ | $\sigma_8/h^{0.5}$ | $0.966^{+0.023}_{-0.012}$ | $H(0.51)$ | $90.63^{+0.48}_{-1.3}$ |
| $100\theta_{MC}$ | 1.04076 ± 0.00049 | $r_{drag}h$ | 99.67 ± 0.90 | $D_M(0.51)$ | 1961^{+31}_{-14} |
| τ | $0.0576^{+0.0064}_{-0.0080}$ | $\langle d^2 \rangle^{1/2}$ | 2.427 ± 0.022 | $H(0.61)$ | $96.30^{+0.47}_{-1.3}$ |
| $m_{\nu, sterile}^{eff} [eV]$ | < 0.140 | z_{re} | $8.06^{+0.67}_{-0.78}$ | $D_M(0.61)$ | 2282^{+36}_{-16} |
| N_{eff} | < 3.27 | $10^9 A_s$ | $2.121^{+0.030}_{-0.036}$ | $H(2.33)$ | $238.3^{+1.2}_{-2.9}$ |
| $\ln(10^{10} A_s)$ | $3.054^{+0.015}_{-0.017}$ | $10^9 A_s e^{-2\tau}$ | $1.890^{+0.013}_{-0.018}$ | $D_M(2.33)$ | 5705^{+73}_{-27} |
| n_s | $0.9716^{+0.0057}_{-0.0080}$ | D_{40} | 1220 ± 14 | $f\sigma_8(0.15)$ | $0.450^{+0.011}_{-0.0070}$ |
| y_{cal} | 1.0008 ± 0.0025 | D_{220} | 5725 ± 40 | $\sigma_8(0.15)$ | $0.738^{+0.020}_{-0.013}$ |
| A_{217}^{CIB} | 49 ± 7 | D_{810} | 2540 ± 14 | $f\sigma_8(0.38)$ | $0.468^{+0.012}_{-0.0070}$ |
| $\xi^{tSZ \times CIB}$ | — | D_{1420} | 814.9 ± 5.1 | $\sigma_8(0.38)$ | $0.655^{+0.018}_{-0.012}$ |
| A_{143}^{tSZ} | 4.9 ± 2.0 | D_{2000} | 229.1 ± 1.9 | $f\sigma_8(0.51)$ | $0.467^{+0.012}_{-0.0070}$ |
| A_{100}^{PS} | 267 ± 28 | $n_{s,0.002}$ | $0.9716^{+0.0057}_{-0.0080}$ | $\sigma_8(0.51)$ | $0.613^{+0.017}_{-0.011}$ |
| A_{143}^{PS} | 51 ± 8 | Y_P | $0.24769^{+0.00079}_{-0.0024}$ | $f\sigma_8(0.61)$ | $0.462^{+0.012}_{-0.0071}$ |
| $A_{143 \times 217}^{PS}$ | 44 ± 9 | Y_P^{BBN} | $0.24902^{+0.00079}_{-0.0024}$ | $\sigma_8(0.61)$ | $0.583^{+0.016}_{-0.011}$ |
| A_{217}^{PS} | 115 ± 10 | $10^5 D/H$ | $2.653^{+0.044}_{-0.061}$ | $f\sigma_8(2.33)$ | $0.2944^{+0.0084}_{-0.0056}$ |
| A^{kSZ} | < 5.22 | Age/Gyr | $13.66^{+0.17}_{-0.064}$ | $\sigma_8(2.33)$ | $0.3034^{+0.0088}_{-0.0061}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | z_* | $1090.28^{+0.34}_{-0.41}$ | f_{2000}^{143} | 32.2 ± 3.1 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | $143.2^{+1.8}_{-0.68}$ | $f_{2000}^{143 \times 217}$ | 34.4 ± 2.2 |
| $A_{143 \times 217}^{dustTT}$ | 18.3 ± 3.3 | $100\theta_*$ | $1.04085^{+0.00060}_{-0.00049}$ | f_{2000}^{217} | 108.9 ± 2.0 |
| A_{217}^{dustTT} | 93.2 ± 7.4 | $D_M(z_*)/Gpc$ | $13.76^{+0.16}_{-0.064}$ | $\chi^2_{lensing}$ | 9.6 ± 1.0 |
| c_{100} | 0.99962 ± 0.00061 | z_{drag} | $1060.13^{+0.53}_{-0.73}$ | χ^2_{small} | 290 ± 200 |
| c_{217} | 0.99827 ± 0.00063 | r_{drag} | $145.9^{+1.8}_{-0.72}$ | χ^2_{lowl} | 130 ± 200 |
| H_0 | $68.34^{+0.63}_{-1.2}$ | k_D | $0.14152^{+0.00063}_{-0.0014}$ | χ^2_{plik} | 773.7 ± 5.6 |
| Ω_Λ | 0.6894 ± 0.0071 | $100\theta_D$ | $0.16135^{+0.00035}_{-0.00054}$ | χ^2_{JLA} | 1035.11 ± 0.36 |
| Ω_m | 0.3106 ± 0.0071 | z_{eq} | 3333^{+49}_{-21} | χ^2_{6DF} | 0.41 ± 0.63 |
| $\Omega_m h^2$ | $0.1450^{+0.0017}_{-0.0035}$ | k_{eq} | $0.01031^{+0.00018}_{-0.00012}$ | χ^2_{MGS} | 0.94 ± 0.69 |
| $\Omega_\nu h^2$ | $0.002216^{+0.000047}_{-0.0016}$ | $100\theta_{eq}$ | $0.8267^{+0.0036}_{-0.010}$ | $\chi^2_{DR12BAO}$ | 4.9 ± 1.6 |
| $\Omega_m h^3$ | $0.0991^{+0.0012}_{-0.0036}$ | $100\theta_{s,eq}$ | $0.4564^{+0.0018}_{-0.0053}$ | χ^2_{prior} | 7.3 ± 3.7 |
| σ_8 | $0.799^{+0.021}_{-0.014}$ | $H(0.15)$ | $73.66^{+0.57}_{-1.2}$ | χ^2_{CMB} | 1203.4 ± 5.8 |
| S_8 | $0.813^{+0.020}_{-0.013}$ | $D_M(0.15)$ | $635^{+11}_{-5.6}$ | χ^2_{BAO} | 6.3 ± 1.3 |
| $\sigma_8 \Omega_m^{0.5}$ | $0.445^{+0.011}_{-0.0072}$ | $H(0.38)$ | $83.86^{+0.51}_{-1.2}$ | | |

$$\bar{\chi}^2_{eff} = 2252.12; \Delta\bar{\chi}^2_{eff} = 2.50; R - 1 = 0.01798$$

8.21 base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|---------------------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022461 | $0.02249^{+0.00014}_{-0.00015}$ | $\Omega_m h^3$ | 0.09644 | $0.09765^{+0.00023}_{-0.0016}$ | $D_M(0.15)$ | 640.31 | $639.2^{+6.0}_{-3.5}$ |
| $\Omega_c h^2$ | 0.11343 | $0.1187^{+0.0033}_{-0.0022}$ | σ_8 | 0.8100 | $0.793^{+0.021}_{-0.012}$ | $H(0.38)$ | 83.098 | $83.34^{+0.23}_{-0.60}$ |
| $100\theta_{MC}$ | 1.041059 | $1.04091^{+0.00033}_{-0.00029}$ | S_8 | 0.8242 | $0.810^{+0.021}_{-0.013}$ | $D_M(0.38)$ | 1527.3 | $1524^{+13}_{-6.8}$ |
| τ | 0.0564 | $0.0577^{+0.0068}_{-0.0079}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4514 | $0.444^{+0.011}_{-0.0073}$ | $H(0.51)$ | 89.813 | $90.10^{+0.16}_{-0.59}$ |
| $m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$ | 0.555 | < 0.223 | $\sigma_8 \Omega_m^{0.25}$ | 0.6047 | $0.593^{+0.015}_{-0.0089}$ | $D_M(0.51)$ | 1978.6 | $1974^{+16}_{-7.8}$ |
| N_{eff} | 3.0479 | $3.1252^{+0.0051}_{-0.078}$ | $\sigma_8/h^{0.5}$ | 0.9843 | $0.963^{+0.024}_{-0.013}$ | $H(0.61)$ | 95.431 | $95.76^{+0.12}_{-0.58}$ |
| $\ln(10^{10} A_s)$ | 3.0481 | $3.052^{+0.014}_{-0.016}$ | $r_{\text{drag}} h$ | 99.65 | 99.32 ± 0.81 | $D_M(0.61)$ | 2302.5 | $2297^{+18}_{-8.3}$ |
| n_s | 0.96739 | $0.9683^{+0.0041}_{-0.0055}$ | $\langle d^2 \rangle^{1/2}$ | 2.4392 | 2.437 ± 0.021 | $H(2.33)$ | 236.22 | $237.42^{+0.65}_{-1.5}$ |
| y_{cal} | 1.00108 | 1.0009 ± 0.0024 | z_{re} | 7.86 | 8.00 ± 0.74 | $D_M(2.33)$ | 5756.4 | $5735^{+33}_{-5.7}$ |
| A_{217}^{CIB} | 47.2 | 47 ± 7 | $10^9 A_s$ | 2.1075 | $2.116^{+0.029}_{-0.034}$ | $f\sigma_8(0.15)$ | 0.4561 | $0.448^{+0.011}_{-0.0072}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.46 | — | $10^9 A_s e^{-2\tau}$ | 1.8828 | $1.886^{+0.011}_{-0.012}$ | $\sigma_8(0.15)$ | 0.7485 | $0.733^{+0.020}_{-0.012}$ |
| A_{143}^{tSZ} | 7.20 | 5.4 ± 2.0 | D_{40} | 1228.2 | 1227 ± 12 | $f\sigma_8(0.38)$ | 0.4746 | $0.466^{+0.012}_{-0.0071}$ |
| A_{100}^{PS} | 250.4 | 260 ± 28 | D_{220} | 5743.5 | 5741 ± 37 | $\sigma_8(0.38)$ | 0.6636 | $0.650^{+0.018}_{-0.011}$ |
| A_{143}^{PS} | 47.6 | 47 ± 8 | D_{810} | 2543.4 | 2542 ± 13 | $f\sigma_8(0.51)$ | 0.4733 | $0.465^{+0.012}_{-0.0070}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 48.0 | 43 ± 9 | D_{1420} | 819.38 | 817.6 ± 4.6 | $\sigma_8(0.51)$ | 0.6211 | $0.608^{+0.016}_{-0.010}$ |
| A_{217}^{PS} | 119.4 | 115 ± 10 | D_{2000} | 231.83 | 230.7 ± 1.6 | $f\sigma_8(0.61)$ | 0.4684 | $0.460^{+0.012}_{-0.0069}$ |
| A^{kSZ} | 0.00 | < 4.39 | $n_{s,0.002}$ | 0.96739 | $0.9683^{+0.0041}_{-0.0055}$ | $\sigma_8(0.61)$ | 0.5910 | $0.578^{+0.016}_{-0.0098}$ |
| A_{100}^{dustTT} | 8.81 | 8.9 ± 1.8 | Y_P | 0.24546 | $0.24649^{+0.00014}_{-0.0010}$ | $f\sigma_8(2.33)$ | 0.2980 | $0.2918^{+0.0080}_{-0.0051}$ |
| A_{143}^{dustTT} | 11.04 | 10.9 ± 1.8 | Y_P^{BBN} | 0.24678 | $0.24782^{+0.00014}_{-0.0010}$ | $\sigma_8(2.33)$ | 0.3073 | $0.3006^{+0.0083}_{-0.0054}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.83 | 18.7 ± 3.3 | $10^5 D/H$ | 2.5695 | $2.591^{+0.024}_{-0.032}$ | f_{2000}^{143} | 28.64 | 30.0 ± 2.8 |
| A_{217}^{dustTT} | 95.1 | 93.7 ± 7.3 | Age/Gyr | 13.7813 | $13.731^{+0.078}_{-0.013}$ | $f_{2000}^{143 \times 217}$ | 31.82 | 32.6 ± 1.9 |
| A_{100}^{dustTE} | 0.1138 | 0.114 ± 0.038 | z_* | 1089.747 | 1089.90 ± 0.24 | f_{2000}^{217} | 106.47 | 107.4 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1346 | 0.135 ± 0.029 | r_* | 144.54 | $143.85^{+0.85}_{-0.24}$ | χ_{lensing}^2 | 8.748 | 9.14 ± 0.77 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 | 0.481 ± 0.085 | $100\theta_*$ | 1.041231 | $1.04104^{+0.00036}_{-0.00029}$ | χ_{simall}^2 | 396.42 | 397.6 ± 2.3 |
| A_{143}^{dustTE} | 0.224 | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.881 | $13.818^{+0.079}_{-0.023}$ | χ_{lowl}^2 | 23.05 | 23.03 ± 0.90 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.664 ± 0.080 | z_{drag} | 1060.085 | $1060.32^{+0.31}_{-0.45}$ | χ_{plik}^2 | 2344.6 | 2361.3 ± 6.1 |
| A_{217}^{dustTE} | 2.069 | 2.08 ± 0.27 | r_{drag} | 147.17 | $146.46^{+0.88}_{-0.25}$ | $\chi_{6\text{DF}}^2$ | 0.029 | 0.084 ± 0.089 |
| c_{100} | 0.99971 | 0.99967 ± 0.00061 | k_D | 0.14085 | $0.14137^{+0.00031}_{-0.00072}$ | χ_{MGS}^2 | 1.217 | 1.10 ± 0.42 |
| c_{217} | 0.99818 | 0.99821 ± 0.00062 | $100\theta_D$ | 0.160677 | $0.16083^{+0.00017}_{-0.00026}$ | χ_{DR12BAO}^2 | 4.42 | 5.5 ± 1.9 |
| H_0 | 67.71 | $67.82^{+0.41}_{-0.69}$ | z_{eq} | 3246.4 | 3339^{+63}_{-19} | χ_{prior}^2 | 1.87 | 11.6 ± 4.6 |
| Ω_Λ | 0.6894 | 0.6869 ± 0.0064 | k_{eq} | 0.010016 | $0.01027^{+0.00018}_{-0.000093}$ | χ_{CMB}^2 | 2772.9 | 2791.1 ± 6.2 |
| Ω_m | 0.3106 | 0.3131 ± 0.0064 | $100\theta_{\text{eq}}$ | 0.8464 | $0.8266^{+0.0034}_{-0.013}$ | χ_{BAO}^2 | 5.67 | 6.7 ± 1.6 |
| $\Omega_m h^2$ | 0.14243 | $0.1440^{+0.0010}_{-0.0019}$ | $100\theta_{s,\text{eq}}$ | 0.46672 | $0.4563^{+0.0017}_{-0.0069}$ | | | |
| $\Omega_\nu h^2$ | 0.00654 | $0.00277^{+0.00033}_{-0.0021}$ | $H(0.15)$ | 72.990 | $73.14^{+0.34}_{-0.65}$ | | | |

Best-fit $\chi_{\text{eff}}^2 = 2780.39$; $\Delta\chi_{\text{eff}}^2 = -0.30$; $\bar{\chi}_{\text{eff}}^2 = 2809.48$; $\Delta\bar{\chi}_{\text{eff}}^2 = 2.64$; $R - 1 = 0.02379$
 χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.42 (Δ 0.00) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb_consext8: 8.75 (Δ 0.02) simall_100x143_offlike5_EE_Aplanck.L
396.43 (Δ -0.10) commander_dx12_v3.2.29: 23.05 (Δ 0.16) plik_rd12_HM_v22b.TTTEEE: 2344.63 (Δ -0.69)

8.22 base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|---------------------------------|-----------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | $0.02250^{+0.00014}_{-0.00015}$ | $\Omega_m h^3$ | $0.09775^{+0.00022}_{-0.0017}$ | $D_M(0.15)$ | $638.4^{+6.3}_{-3.2}$ |
| $\Omega_c h^2$ | $0.1188^{+0.0033}_{-0.0023}$ | σ_8 | $0.795^{+0.020}_{-0.013}$ | $H(0.38)$ | $83.41^{+0.19}_{-0.64}$ |
| $100\theta_{MC}$ | $1.04091^{+0.00033}_{-0.00030}$ | S_8 | $0.811^{+0.020}_{-0.013}$ | $D_M(0.38)$ | $1522^{+14}_{-6.0}$ |
| τ | $0.0576^{+0.0068}_{-0.0078}$ | $\sigma_8 \Omega_m^{0.5}$ | $0.444^{+0.011}_{-0.0074}$ | $H(0.51)$ | $90.17^{+0.14}_{-0.63}$ |
| $m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$ | < 0.203 | $\sigma_8 \Omega_m^{0.25}$ | $0.594^{+0.015}_{-0.0090}$ | $D_M(0.51)$ | $1972^{+17}_{-6.8}$ |
| N_{eff} | < 3.13 | $\sigma_8/h^{0.5}$ | $0.964^{+0.023}_{-0.013}$ | $H(0.61)$ | $95.82^{+0.11}_{-0.62}$ |
| $\ln(10^{10} A_s)$ | $3.052^{+0.014}_{-0.016}$ | $r_{\text{drag}} h$ | 99.45 ± 0.77 | $D_M(0.61)$ | $2295^{+19}_{-7.2}$ |
| n_s | $0.9687^{+0.0040}_{-0.0055}$ | $\langle d^2 \rangle^{1/2}$ | 2.434 ± 0.021 | $H(2.33)$ | $237.40^{+0.60}_{-1.6}$ |
| y_{cal} | 1.0009 ± 0.0024 | z_{re} | 7.99 ± 0.74 | $D_M(2.33)$ | $5733^{+35}_{-5.4}$ |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.116^{+0.030}_{-0.034}$ | $f\sigma_8(0.15)$ | $0.449^{+0.011}_{-0.0072}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | $1.886^{+0.011}_{-0.013}$ | $\sigma_8(0.15)$ | $0.734^{+0.019}_{-0.012}$ |
| A_{143}^{tSZ} | 5.4 ± 2.0 | D_{40} | 1226 ± 12 | $f\sigma_8(0.38)$ | $0.466^{+0.011}_{-0.0071}$ |
| A_{100}^{PS} | 260 ± 28 | D_{220} | 5741 ± 37 | $\sigma_8(0.38)$ | $0.651^{+0.017}_{-0.011}$ |
| A_{143}^{PS} | 47 ± 8 | D_{810} | 2542 ± 13 | $f\sigma_8(0.51)$ | $0.465^{+0.012}_{-0.0070}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | D_{1420} | 817.7 ± 4.6 | $\sigma_8(0.51)$ | $0.609^{+0.016}_{-0.010}$ |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 230.7 ± 1.6 | $f\sigma_8(0.61)$ | $0.460^{+0.011}_{-0.0070}$ |
| A^{kSZ} | < 4.42 | $n_{s,0.002}$ | $0.9687^{+0.0040}_{-0.0055}$ | $\sigma_8(0.61)$ | $0.580^{+0.015}_{-0.0098}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | Y_P | $0.24654^{+0.00012}_{-0.0011}$ | $f\sigma_8(2.33)$ | $0.2925^{+0.0077}_{-0.0051}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.24787^{+0.00012}_{-0.0011}$ | $\sigma_8(2.33)$ | $0.3013^{+0.0080}_{-0.0054}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.7 ± 3.3 | $10^5 D/H$ | $2.590^{+0.024}_{-0.032}$ | f_{2000}^{143} | 30.0 ± 2.8 |
| A_{217}^{dustTT} | 93.8 ± 7.3 | Age/Gyr | $13.724^{+0.083}_{-0.012}$ | $f_{2000}^{143 \times 217}$ | 32.6 ± 1.9 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | $1089.89^{+0.21}_{-0.25}$ | f_{2000}^{217} | 107.4 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | r_* | $143.83^{+0.90}_{-0.22}$ | χ_{lensing}^2 | 9.18 ± 0.80 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 ± 0.085 | $100\theta_*$ | $1.04104^{+0.00037}_{-0.00030}$ | χ_{simall}^2 | 262 ± 200 |
| A_{143}^{dustTE} | 0.223 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | $13.816^{+0.085}_{-0.021}$ | χ_{lowl}^2 | 158 ± 200 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.080 | z_{drag} | $1060.34^{+0.30}_{-0.47}$ | χ_{plik}^2 | 2361.5 ± 6.0 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | $146.44^{+0.94}_{-0.23}$ | χ_{JLA}^2 | 1035.16 ± 0.34 |
| c_{100} | 0.99968 ± 0.00061 | k_D | $0.14138^{+0.00029}_{-0.00078}$ | $\chi_{6\text{DF}}^2$ | 0.47 ± 0.59 |
| c_{217} | 0.99821 ± 0.00062 | $100\theta_D$ | $0.16083^{+0.00017}_{-0.00028}$ | χ_{MGS}^2 | 0.76 ± 0.62 |
| H_0 | $67.91^{+0.38}_{-0.71}$ | z_{eq} | 3340^{+59}_{-18} | χ_{DR12BAO}^2 | 5.2 ± 1.6 |
| Ω_Λ | 0.6879 ± 0.0061 | k_{eq} | $0.01028^{+0.00018}_{-0.000095}$ | χ_{prior}^2 | 11.7 ± 4.5 |
| Ω_m | 0.3121 ± 0.0061 | $100\theta_{\text{eq}}$ | $0.8264^{+0.0033}_{-0.012}$ | χ_{CMB}^2 | 2791.2 ± 6.2 |
| $\Omega_m h^2$ | $0.14392^{+0.00097}_{-0.0020}$ | $100\theta_{s,\text{eq}}$ | $0.4561^{+0.0017}_{-0.0065}$ | χ_{BAO}^2 | 6.5 ± 1.3 |
| $\Omega_\nu h^2$ | $0.00260^{+0.00024}_{-0.0020}$ | $H(0.15)$ | $73.23^{+0.30}_{-0.69}$ | | |

$\bar{\chi}_{\text{eff}}^2 = 3844.44$; $\Delta\bar{\chi}_{\text{eff}}^2 = 2.59$; $R - 1 = 0.02316$

8.23 base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|---------------------------------|-----------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | $0.02249^{+0.00014}_{-0.00015}$ | $\Omega_m h^3$ | $0.09766^{+0.00023}_{-0.0016}$ | $D_M(0.15)$ | $639.1^{+6.0}_{-3.5}$ |
| $\Omega_c h^2$ | $0.1187^{+0.0033}_{-0.0022}$ | σ_8 | $0.794^{+0.021}_{-0.012}$ | $H(0.38)$ | $83.34^{+0.22}_{-0.60}$ |
| $100\theta_{MC}$ | $1.04091^{+0.00033}_{-0.00029}$ | S_8 | $0.811^{+0.021}_{-0.013}$ | $D_M(0.38)$ | $1524^{+13}_{-6.8}$ |
| τ | $0.0580^{+0.0061}_{-0.0080}$ | $\sigma_8 \Omega_m^{0.5}$ | $0.444^{+0.011}_{-0.0073}$ | $H(0.51)$ | $90.11^{+0.16}_{-0.59}$ |
| $m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$ | < 0.222 | $\sigma_8 \Omega_m^{0.25}$ | $0.594^{+0.015}_{-0.0089}$ | $D_M(0.51)$ | $1974^{+16}_{-7.8}$ |
| N_{eff} | $3.1258^{+0.0053}_{-0.079}$ | $\sigma_8/h^{0.5}$ | $0.964^{+0.024}_{-0.013}$ | $H(0.61)$ | $95.77^{+0.12}_{-0.59}$ |
| $\ln(10^{10} A_s)$ | $3.053^{+0.013}_{-0.016}$ | $r_{\text{drag}} h$ | 99.33 ± 0.81 | $D_M(0.61)$ | $2297^{+18}_{-8.3}$ |
| n_s | $0.9683^{+0.0041}_{-0.0055}$ | $\langle d^2 \rangle^{1/2}$ | 2.437 ± 0.021 | $H(2.33)$ | $237.43^{+0.66}_{-1.5}$ |
| y_{cal} | 1.0009 ± 0.0024 | z_{re} | $8.04^{+0.64}_{-0.78}$ | $D_M(2.33)$ | $5735^{+33}_{-5.8}$ |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.118^{+0.027}_{-0.035}$ | $f\sigma_8(0.15)$ | $0.449^{+0.011}_{-0.0071}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | $1.886^{+0.011}_{-0.012}$ | $\sigma_8(0.15)$ | $0.733^{+0.020}_{-0.012}$ |
| A_{143}^{tSZ} | 5.4 ± 2.0 | D_{40} | 1226 ± 12 | $f\sigma_8(0.38)$ | $0.466^{+0.012}_{-0.0070}$ |
| A_{100}^{PS} | 260 ± 28 | D_{220} | 5740 ± 37 | $\sigma_8(0.38)$ | $0.650^{+0.018}_{-0.011}$ |
| A_{143}^{PS} | 47 ± 8 | D_{810} | 2542 ± 13 | $f\sigma_8(0.51)$ | $0.465^{+0.012}_{-0.0069}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | D_{1420} | 817.6 ± 4.6 | $\sigma_8(0.51)$ | $0.608^{+0.016}_{-0.010}$ |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 230.7 ± 1.6 | $f\sigma_8(0.61)$ | $0.460^{+0.012}_{-0.0069}$ |
| A^{kSZ} | < 4.39 | $n_{s,0.002}$ | $0.9683^{+0.0041}_{-0.0055}$ | $\sigma_8(0.61)$ | $0.579^{+0.016}_{-0.0097}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.24650^{+0.00014}_{-0.0011}$ | $f\sigma_8(2.33)$ | $0.2919^{+0.0080}_{-0.0050}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.24783^{+0.00015}_{-0.0011}$ | $\sigma_8(2.33)$ | $0.3007^{+0.0083}_{-0.0054}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $10^5 D/H$ | $2.591^{+0.024}_{-0.032}$ | f_{2000}^{143} | 30.0 ± 2.8 |
| A_{217}^{dustTT} | 93.7 ± 7.3 | Age/Gyr | $13.730^{+0.078}_{-0.013}$ | $f_{2000}^{143 \times 217}$ | 32.6 ± 1.9 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | 1089.90 ± 0.24 | f_{2000}^{217} | 107.4 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | r_* | $143.84^{+0.85}_{-0.24}$ | χ_{lensing}^2 | 9.12 ± 0.73 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | $100\theta_*$ | $1.04104^{+0.00036}_{-0.00029}$ | χ_{simall}^2 | 397.6 ± 2.3 |
| A_{143}^{dustTE} | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | $13.817^{+0.080}_{-0.023}$ | χ_{lowl}^2 | 23.03 ± 0.90 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.081 | z_{drag} | $1060.32^{+0.31}_{-0.45}$ | χ_{plik}^2 | 2361.3 ± 6.1 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | $146.46^{+0.89}_{-0.26}$ | $\chi_{6\text{DF}}^2$ | 0.084 ± 0.088 |
| c_{100} | 0.99967 ± 0.00061 | k_D | $0.14138^{+0.00031}_{-0.00073}$ | χ_{MGS}^2 | 1.10 ± 0.42 |
| c_{217} | 0.99821 ± 0.00062 | $100\theta_D$ | $0.16083^{+0.00017}_{-0.00026}$ | χ_{DR12BAO}^2 | 5.5 ± 1.9 |
| H_0 | $67.82^{+0.41}_{-0.69}$ | z_{eq} | 3339^{+62}_{-19} | χ_{prior}^2 | 11.6 ± 4.6 |
| Ω_Λ | 0.6869 ± 0.0064 | k_{eq} | $0.01027^{+0.00018}_{-0.000093}$ | χ_{CMB}^2 | 2791.1 ± 6.2 |
| Ω_m | 0.3131 ± 0.0064 | $100\theta_{\text{eq}}$ | $0.8266^{+0.0034}_{-0.013}$ | χ_{BAO}^2 | 6.7 ± 1.6 |
| $\Omega_m h^2$ | $0.1440^{+0.0010}_{-0.0019}$ | $100\theta_{s,\text{eq}}$ | $0.4563^{+0.0017}_{-0.0069}$ | | |
| $\Omega_\nu h^2$ | $0.00276^{+0.00034}_{-0.0021}$ | $H(0.15)$ | $73.15^{+0.34}_{-0.65}$ | | |

$$\bar{\chi}_{\text{eff}}^2 = 2809.40; \Delta\bar{\chi}_{\text{eff}}^2 = 2.68; R - 1 = 0.02345$$

8.24 base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|---------------------------------|-----------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | $0.02250^{+0.00014}_{-0.00015}$ | $\Omega_m h^3$ | $0.09776^{+0.00022}_{-0.0017}$ | $D_M(0.15)$ | $638.3^{+6.3}_{-3.2}$ |
| $\Omega_c h^2$ | $0.1188^{+0.0033}_{-0.0023}$ | σ_8 | $0.795^{+0.020}_{-0.012}$ | $H(0.38)$ | $83.41^{+0.19}_{-0.65}$ |
| $100\theta_{MC}$ | $1.04091^{+0.00033}_{-0.00030}$ | S_8 | $0.811^{+0.020}_{-0.013}$ | $D_M(0.38)$ | $1522^{+14}_{-6.0}$ |
| τ | $0.0580^{+0.0061}_{-0.0079}$ | $\sigma_8 \Omega_m^{0.5}$ | $0.444^{+0.011}_{-0.0073}$ | $H(0.51)$ | $90.17^{+0.14}_{-0.63}$ |
| $m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$ | < 0.202 | $\sigma_8 \Omega_m^{0.25}$ | $0.594^{+0.015}_{-0.0089}$ | $D_M(0.51)$ | $1972^{+17}_{-6.8}$ |
| N_{eff} | < 3.13 | $\sigma_8/h^{0.5}$ | $0.965^{+0.023}_{-0.013}$ | $H(0.61)$ | $95.83^{+0.11}_{-0.63}$ |
| $\ln(10^{10} A_s)$ | $3.053^{+0.013}_{-0.016}$ | $r_{\text{drag}} h$ | 99.46 ± 0.77 | $D_M(0.61)$ | $2294^{+19}_{-7.2}$ |
| n_s | $0.9688^{+0.0040}_{-0.0055}$ | $\langle d^2 \rangle^{1/2}$ | 2.435 ± 0.021 | $H(2.33)$ | $237.41^{+0.61}_{-1.6}$ |
| y_{cal} | 1.0009 ± 0.0024 | z_{re} | $8.03^{+0.64}_{-0.77}$ | $D_M(2.33)$ | $5732^{+35}_{-5.4}$ |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.117^{+0.027}_{-0.035}$ | $f\sigma_8(0.15)$ | $0.449^{+0.011}_{-0.0071}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | $1.886^{+0.011}_{-0.013}$ | $\sigma_8(0.15)$ | $0.735^{+0.019}_{-0.012}$ |
| A_{143}^{tSZ} | 5.4 ± 2.0 | D_{40} | 1226 ± 12 | $f\sigma_8(0.38)$ | $0.467^{+0.011}_{-0.0070}$ |
| A_{100}^{PS} | 259 ± 28 | D_{220} | 5741 ± 37 | $\sigma_8(0.38)$ | $0.651^{+0.017}_{-0.011}$ |
| A_{143}^{PS} | 47 ± 8 | D_{810} | 2542 ± 13 | $f\sigma_8(0.51)$ | $0.465^{+0.012}_{-0.0069}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | D_{1420} | 817.6 ± 4.6 | $\sigma_8(0.51)$ | $0.609^{+0.016}_{-0.010}$ |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 230.7 ± 1.6 | $f\sigma_8(0.61)$ | $0.460^{+0.011}_{-0.0069}$ |
| A^{kSZ} | < 4.42 | $n_{s,0.002}$ | $0.9688^{+0.0040}_{-0.0055}$ | $\sigma_8(0.61)$ | $0.580^{+0.015}_{-0.0097}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | Y_P | $0.24654^{+0.00012}_{-0.0011}$ | $f\sigma_8(2.33)$ | $0.2926^{+0.0077}_{-0.0050}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.24788^{+0.00012}_{-0.0011}$ | $\sigma_8(2.33)$ | $0.3014^{+0.0080}_{-0.0054}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.7 ± 3.3 | $10^5 D/H$ | $2.590^{+0.024}_{-0.032}$ | f_{2000}^{143} | 30.0 ± 2.8 |
| A_{217}^{dustTT} | 93.8 ± 7.3 | Age/Gyr | $13.723^{+0.084}_{-0.012}$ | $f_{2000}^{143 \times 217}$ | 32.6 ± 1.9 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | $1089.89^{+0.21}_{-0.25}$ | f_{2000}^{217} | 107.4 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | r_* | $143.83^{+0.91}_{-0.22}$ | χ_{lensing}^2 | 9.16 ± 0.76 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 ± 0.085 | $100\theta_*$ | $1.04104^{+0.00037}_{-0.00030}$ | χ_{simall}^2 | 262 ± 200 |
| A_{143}^{dustTE} | 0.223 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | $13.816^{+0.085}_{-0.021}$ | χ_{lowl}^2 | 158 ± 200 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.080 | z_{drag} | $1060.34^{+0.30}_{-0.47}$ | χ_{plik}^2 | 2361.4 ± 6.0 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | $146.44^{+0.95}_{-0.24}$ | χ_{JLA}^2 | 1035.16 ± 0.34 |
| c_{100} | 0.99968 ± 0.00061 | k_D | $0.14139^{+0.00029}_{-0.00078}$ | $\chi_{6\text{DF}}^2$ | 0.47 ± 0.59 |
| c_{217} | 0.99820 ± 0.00062 | $100\theta_D$ | $0.16083^{+0.00017}_{-0.00028}$ | χ_{MGS}^2 | 0.76 ± 0.62 |
| H_0 | $67.92^{+0.37}_{-0.72}$ | z_{eq} | 3340^{+59}_{-18} | χ_{DR12BAO}^2 | 5.2 ± 1.6 |
| Ω_Λ | 0.6879 ± 0.0061 | k_{eq} | $0.01028^{+0.00018}_{-0.000095}$ | χ_{prior}^2 | 11.7 ± 4.5 |
| Ω_m | 0.3121 ± 0.0061 | $100\theta_{\text{eq}}$ | $0.8264^{+0.0032}_{-0.012}$ | χ_{CMB}^2 | 2791.1 ± 6.2 |
| $\Omega_m h^2$ | $0.14392^{+0.00098}_{-0.0020}$ | $100\theta_{s,\text{eq}}$ | $0.4562^{+0.0016}_{-0.0065}$ | χ_{BAO}^2 | 6.4 ± 1.3 |
| $\Omega_\nu h^2$ | $0.00260^{+0.00025}_{-0.0020}$ | $H(0.15)$ | $73.23^{+0.30}_{-0.69}$ | | |

$$\bar{\chi}_{\text{eff}}^2 = 3844.37; \Delta \bar{\chi}_{\text{eff}}^2 = 2.63; R - 1 = 0.02468$$

9 nnu+mnu

9.1 base_nnu_mnu_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|---------------------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|----------------------------|
| $\Omega_b h^2$ | 0.022010 | $0.02193^{+0.00040}_{-0.00034}$ | S_8 | 0.8458 | 0.836 ± 0.026 | $100\theta_{s,eq}$ | 0.4461 | 0.4456 ± 0.0068 |
| $\Omega_c h^2$ | 0.11840 | 0.1199 ± 0.0041 | $\sigma_8 \Omega_m^{0.5}$ | 0.4633 | 0.458 ± 0.014 | $H(0.15)$ | 71.48 | $70.1^{+3.9}_{-2.6}$ |
| $100\theta_{MC}$ | 1.04105 | 1.04076 ± 0.00060 | $\sigma_8 \Omega_m^{0.25}$ | 0.6156 | $0.597^{+0.027}_{-0.013}$ | $D_M(0.15)$ | 654.6 | 672^{+23}_{-43} |
| τ | 0.0504 | 0.0509 ± 0.0082 | $\sigma_8/h^{0.5}$ | 1.0056 | $0.969^{+0.045}_{-0.018}$ | $H(0.38)$ | 81.64 | $80.7^{+3.3}_{-2.5}$ |
| Σm_ν [eV] | 0.001 | < 0.241 | $r_{drag}h$ | 98.45 | $95.5^{+5.2}_{-2.5}$ | $D_M(0.38)$ | 1559 | 1592^{+51}_{-89} |
| N_{eff} | 2.874 | 2.93 ± 0.30 | $\langle d^2 \rangle^{1/2}$ | 2.4706 | 2.461 ± 0.047 | $H(0.51)$ | 88.37 | $87.7^{+3.1}_{-2.5}$ |
| $\ln(10^{10} A_s)$ | 3.0306 | 3.035 ± 0.021 | z_{re} | 7.30 | 7.40 ± 0.86 | $D_M(0.51)$ | 2018 | 2056^{+63}_{-110} |
| n_s | 0.9573 | $0.956^{+0.016}_{-0.014}$ | $10^9 A_s$ | 2.0710 | 2.080 ± 0.045 | $H(0.61)$ | 94.00 | $93.5^{+2.9}_{-2.5}$ |
| y_{cal} | 1.00012 | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8726 | 1.878 ± 0.023 | $D_M(0.61)$ | 2347 | 2388^{+71}_{-120} |
| A_{217}^{CIB} | 46.7 | 48 ± 7 | D_{40} | 1238.4 | 1240 ± 23 | $H(2.33)$ | 234.25 | 236.5 ± 3.8 |
| $\xi^{tSZ \times CIB}$ | 0.58 | — | D_{220} | 5703.7 | 5710 ± 41 | $D_M(2.33)$ | 5839 | 5869^{+140}_{-180} |
| A_{143}^{tSZ} | 6.92 | 5.1 ± 2.0 | D_{810} | 2534.3 | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.4663 | $0.460^{+0.014}_{-0.013}$ |
| A_{100}^{PS} | 248.6 | 263 ± 29 | D_{1420} | 816.0 | 814.8 ± 5.2 | $\sigma_8(0.15)$ | 0.7547 | $0.716^{+0.053}_{-0.016}$ |
| A_{143}^{PS} | 50.6 | 49 ± 9 | D_{2000} | 230.94 | 229.6 ± 2.3 | $f\sigma_8(0.38)$ | 0.4825 | $0.470^{+0.019}_{-0.0096}$ |
| $A_{143 \times 217}^{PS}$ | 51.9 | 44 ± 9 | $n_{s,0.002}$ | 0.9573 | $0.956^{+0.016}_{-0.014}$ | $\sigma_8(0.38)$ | 0.6678 | $0.632^{+0.050}_{-0.015}$ |
| A_{217}^{PS} | 121.0 | 115 ± 10 | Y_P | 0.24291 | 0.2436 ± 0.0042 | $f\sigma_8(0.51)$ | 0.4799 | $0.465^{+0.021}_{-0.0084}$ |
| A^{kSZ} | 0.00 | < 4.86 | Y_P^{BBN} | 0.24423 | 0.2449 ± 0.0042 | $\sigma_8(0.51)$ | 0.6244 | $0.590^{+0.048}_{-0.015}$ |
| A_{100}^{dustTT} | 8.76 | 8.9 ± 1.8 | $10^5 D/H$ | 2.594 | 2.630 ± 0.072 | $f\sigma_8(0.61)$ | 0.4741 | $0.458^{+0.023}_{-0.0079}$ |
| A_{143}^{dustTT} | 10.72 | 10.7 ± 1.8 | Age/Gyr | 13.977 | $14.05^{+0.32}_{-0.42}$ | $\sigma_8(0.61)$ | 0.5938 | $0.561^{+0.047}_{-0.014}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.62 | 18.3 ± 3.3 | z_* | 1090.06 | $1090.40^{+0.51}_{-0.59}$ | $f\sigma_8(2.33)$ | 0.2981 | $0.283^{+0.022}_{-0.0069}$ |
| A_{217}^{dustTT} | 95.0 | 93.4 ± 7.4 | r_* | 146.01 | 145.4 ± 2.7 | $\sigma_8(2.33)$ | 0.3073 | $0.290^{+0.026}_{-0.0082}$ |
| c_{100} | 0.99963 | 0.99960 ± 0.00061 | $100\theta_*$ | 1.04134 | 1.04113 ± 0.00073 | f_{2000}^{143} | 28.88 | 31 ± 4 |
| c_{217} | 0.99824 | 0.99825 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 14.021 | 13.96 ± 0.25 | $f_{2000}^{143 \times 217}$ | 32.15 | 33.6 ± 2.6 |
| H_0 | 66.16 | $64.5^{+4.2}_{-2.7}$ | z_{drag} | 1058.83 | $1058.8^{+1.3}_{-1.2}$ | f_{2000}^{217} | 106.54 | 108.2 ± 2.4 |
| Ω_Λ | 0.6792 | $0.650^{+0.050}_{-0.017}$ | r_{drag} | 148.81 | 148.2 ± 2.8 | χ_{small}^2 | 395.70 | 396.9 ± 1.7 |
| Ω_m | 0.3208 | $0.350^{+0.017}_{-0.050}$ | k_D | 0.13945 | 0.1399 ± 0.0020 | χ_{lowl}^2 | 24.55 | 24.9 ± 2.6 |
| $\Omega_m h^2$ | 0.14042 | $0.1440^{+0.0044}_{-0.0049}$ | $100\theta_D$ | 0.16067 | 0.16090 ± 0.00069 | χ_{plik}^2 | 757.2 | 772.7 ± 6.1 |
| $\Omega_\nu h^2$ | 0.00001 | < 0.00247 | z_{eq} | 3435 | 3442 ± 73 | χ_{prior}^2 | 1.27 | 7.3 ± 3.6 |
| $\Omega_m h^3$ | 0.0929 | 0.0929 ± 0.0063 | k_{eq} | 0.010361 | 0.01042 ± 0.00017 | χ_{CMB}^2 | 1177.4 | 1194.5 ± 6.1 |
| σ_8 | 0.8179 | $0.778^{+0.054}_{-0.016}$ | $100\theta_{eq}$ | 0.8064 | 0.805 ± 0.013 | | | |

Best-fit $\chi_{eff}^2 = 1178.71$; $\Delta\chi_{eff}^2 = -0.87$; $\bar{\chi}_{eff}^2 = 1201.83$; $\Delta\bar{\chi}_{eff}^2 = 2.25$; $R - 1 = 0.00661$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.70 (Δ -0.18) commander_dx12_v3_2_29: 24.55 (Δ 0.95) plik_rd12_HM_v22_TT: 757.19 (Δ -1.56)

9.2 base_nnu_mnu_plikHM_TT_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|---------------------------------|-----------------------------|----------|---------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022083 | $0.02190^{+0.00039}_{-0.00033}$ | S_8 | 0.8336 | 0.839 ± 0.017 | $100\theta_{s,eq}$ | 0.4479 | $0.4448^{+0.0067}_{-0.0060}$ |
| $\Omega_c h^2$ | 0.11708 | 0.1192 ± 0.0039 | $\sigma_8 \Omega_m^{0.5}$ | 0.4566 | 0.4596 ± 0.0093 | $H(0.15)$ | 71.70 | $69.8^{+3.5}_{-2.6}$ |
| $100\theta_{MC}$ | 1.04119 | 1.04082 ± 0.00061 | $\sigma_8 \Omega_m^{0.25}$ | 0.6093 | $0.599^{+0.017}_{-0.0096}$ | $D_M(0.15)$ | 652.1 | 674^{+24}_{-39} |
| τ | 0.0507 | 0.0512 ± 0.0080 | $\sigma_8/h^{0.5}$ | 0.9976 | $0.973^{+0.030}_{-0.013}$ | $H(0.38)$ | 81.75 | $80.4^{+3.0}_{-2.5}$ |
| Σm_ν [eV] | 0.001 | < 0.242 | $r_{drag}h$ | 99.15 | $95.5^{+4.9}_{-2.6}$ | $D_M(0.38)$ | 1554 | 1597^{+53}_{-82} |
| N_{eff} | 2.850 | 2.88 ± 0.29 | $\langle d^2 \rangle^{1/2}$ | 2.4560 | $2.467^{+0.033}_{-0.040}$ | $H(0.51)$ | 88.42 | $87.4^{+2.8}_{-2.5}$ |
| $\ln(10^{10} A_s)$ | 3.0280 | 3.034 ± 0.021 | z_{re} | 7.29 | 7.42 ± 0.84 | $D_M(0.51)$ | 2013 | 2062^{+65}_{-99} |
| n_s | 0.9580 | $0.954^{+0.015}_{-0.013}$ | $10^9 A_s$ | 2.0655 | 2.078 ± 0.043 | $H(0.61)$ | 93.99 | 93.2 ± 2.5 |
| y_{cal} | 1.00009 | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8664 | 1.875 ± 0.022 | $D_M(0.61)$ | 2342 | 2395^{+74}_{-110} |
| A_{217}^{CIB} | 47.1 | 47 ± 7 | D_{40} | 1236.2 | 1245 ± 21 | $H(2.33)$ | 233.37 | 235.8 ± 3.7 |
| $\xi^{tSZ \times CIB}$ | 0.47 | — | D_{220} | 5713.3 | 5711 ± 41 | $D_M(2.33)$ | 5842 | 5887^{+140}_{-160} |
| A_{143}^{tSZ} | 7.05 | 5.2 ± 2.0 | D_{810} | 2532.6 | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.4601 | 0.4621 ± 0.0081 |
| A_{100}^{PS} | 249.6 | 261 ± 30 | D_{1420} | 816.3 | 815.1 ± 5.3 | $\sigma_8(0.15)$ | 0.7510 | $0.718^{+0.044}_{-0.019}$ |
| A_{143}^{PS} | 48.0 | 48 ± 9 | D_{2000} | 231.19 | 230.0 ± 2.3 | $f\sigma_8(0.38)$ | 0.4775 | $0.472^{+0.011}_{-0.0069}$ |
| $A_{143 \times 217}^{PS}$ | 48.4 | 44 ± 9 | $n_{s,0.002}$ | 0.9580 | $0.954^{+0.015}_{-0.013}$ | $\sigma_8(0.38)$ | 0.6651 | $0.633^{+0.042}_{-0.019}$ |
| A_{217}^{PS} | 119.5 | 115 ± 10 | Y_P | 0.24261 | 0.2429 ± 0.0041 | $f\sigma_8(0.51)$ | 0.4755 | $0.467^{+0.014}_{-0.0069}$ |
| A^{kSZ} | 0.00 | < 4.67 | Y_P^{BBN} | 0.24393 | 0.2442 ± 0.0041 | $\sigma_8(0.51)$ | 0.6221 | $0.592^{+0.041}_{-0.018}$ |
| A_{100}^{dustTT} | 8.86 | 8.9 ± 1.8 | $10^5 D/H$ | 2.571 | 2.617 ± 0.071 | $f\sigma_8(0.61)$ | 0.4702 | $0.460^{+0.016}_{-0.0072}$ |
| A_{143}^{dustTT} | 10.81 | 10.7 ± 1.8 | Age/Gyr | 13.985 | $14.09^{+0.32}_{-0.39}$ | $\sigma_8(0.61)$ | 0.5918 | $0.562^{+0.039}_{-0.018}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.48 | 18.2 ± 3.3 | z_* | 1089.83 | $1090.31^{+0.49}_{-0.59}$ | $f\sigma_8(2.33)$ | 0.2973 | $0.284^{+0.019}_{-0.0088}$ |
| A_{217}^{dustTT} | 95.0 | 93.5 ± 7.4 | r_* | 146.43 | 145.8 ± 2.6 | $\sigma_8(2.33)$ | 0.3068 | $0.291^{+0.022}_{-0.010}$ |
| c_{100} | 0.99964 | 0.99961 ± 0.00061 | $100\theta_*$ | 1.04150 | 1.04122 ± 0.00072 | f_{2000}^{143} | 28.63 | 31 ± 4 |
| c_{217} | 0.99824 | 0.99824 ± 0.00063 | $D_M(z_*)/Gpc$ | 14.059 | 14.01 ± 0.24 | $f_{2000}^{143 \times 217}$ | 31.89 | 33.2 ± 2.6 |
| H_0 | 66.45 | $64.3^{+3.9}_{-2.7}$ | z_{drag} | 1058.90 | 1058.7 ± 1.2 | f_{2000}^{217} | 106.39 | 107.8 ± 2.4 |
| Ω_Λ | 0.6848 | $0.651^{+0.047}_{-0.019}$ | r_{drag} | 149.21 | 148.7 ± 2.7 | $\chi_{lensing}^2$ | 8.74 | 9.2 ± 1.1 |
| Ω_m | 0.3152 | $0.349^{+0.019}_{-0.047}$ | k_D | 0.13919 | 0.1395 ± 0.0019 | χ_{small}^2 | 395.68 | 396.9 ± 1.7 |
| $\Omega_m h^2$ | 0.13918 | 0.1432 ± 0.0046 | $100\theta_D$ | 0.16054 | 0.16077 ± 0.00066 | χ_{lowl}^2 | 24.31 | 25.3 ± 2.4 |
| $\Omega_\nu h^2$ | 0.00001 | < 0.00244 | z_{eq} | 3416 | 3450^{+61}_{-75} | χ_{plik}^2 | 757.7 | 771.6 ± 5.6 |
| $\Omega_m h^3$ | 0.0925 | 0.0920 ± 0.0059 | k_{eq} | 0.010286 | $0.01041^{+0.00015}_{-0.00017}$ | χ_{prior}^2 | 1.35 | 7.3 ± 3.6 |
| σ_8 | 0.8132 | $0.780^{+0.044}_{-0.019}$ | $100\theta_{eq}$ | 0.8101 | $0.804^{+0.013}_{-0.012}$ | χ_{CMB}^2 | 1186.4 | 1203.1 ± 5.9 |

Best-fit $\chi_{eff}^2 = 1187.75$; $\Delta\chi_{eff}^2 = -0.82$; $\bar{\chi}_{eff}^2 = 1210.35$; $\Delta\bar{\chi}_{eff}^2 = 1.93$; $R - 1 = 0.00978$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.74 (Δ -0.16) small_100x143_offlike5_EE_Aplanck_B: 395.68 (Δ -0.18) commander_dx12_v3_2_29: 24.31 (Δ 1.07) plik_rd12_HM_v22_TT: 757.67 (Δ -1.65)

9.3 base_nnu_mnu_plikHM_TTTEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-------------------------------------|----------|------------------------------|-----------------------------|----------|----------------------------|
| $\Omega_b h^2$ | 0.022244 | 0.02222 ± 0.00023 | $\Omega_m h^2$ | 0.13936 | $0.1416^{+0.0030}_{-0.0035}$ | k_{eq} | 0.010299 | 0.01035 ± 0.00012 |
| $\Omega_c h^2$ | 0.11712 | $0.1183^{+0.0028}_{-0.0031}$ | $\Omega_\nu h^2$ | 0.00000 | < 0.00122 | $100\theta_{\text{eq}}$ | 0.8100 | 0.8094 ± 0.0070 |
| $100\theta_{\text{MC}}$ | 1.041282 | 1.04111 ± 0.00044 | $\Omega_m h^3$ | 0.09285 | 0.0934 ± 0.0039 | $100\theta_{\text{s,eq}}$ | 0.44774 | 0.4475 ± 0.0035 |
| τ | 0.0540 | 0.0535 ± 0.0078 | σ_8 | 0.8167 | $0.799^{+0.027}_{-0.012}$ | $H(0.15)$ | 71.87 | $71.3^{+1.8}_{-1.5}$ |
| $\Sigma m_\nu [\text{eV}]$ | 0.000 | < 0.118 | S_8 | 0.8355 | 0.832 ± 0.017 | $D_{\text{M}}(0.15)$ | 650.5 | 657^{+14}_{-18} |
| N_{eff} | 2.852 | 2.91 ± 0.19 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4576 | 0.4556 ± 0.0094 | $H(0.38)$ | 81.91 | 81.6 ± 1.6 |
| $\ln(10^{10} A_{\text{s}})$ | 3.0369 | 3.038 ± 0.019 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6113 | $0.603^{+0.015}_{-0.0095}$ | $D_{\text{M}}(0.38)$ | 1550.9 | 1562^{+31}_{-39} |
| n_{s} | 0.9593 | 0.9590 ± 0.0087 | $\sigma_8/h^{0.5}$ | 1.0006 | $0.983^{+0.024}_{-0.013}$ | $H(0.51)$ | 88.57 | 88.4 ± 1.6 |
| y_{cal} | 1.00060 | 1.0006 ± 0.0025 | $r_{\text{drag}} h$ | 99.27 | $97.9^{+2.2}_{-1.4}$ | $D_{\text{M}}(0.51)$ | 2008.6 | 2022^{+39}_{-48} |
| A_{217}^{CIB} | 43.8 | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4629 | 2.454 ± 0.031 | $H(0.61)$ | 94.15 | 94.1 ± 1.5 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.88 | — | z_{re} | 7.60 | 7.58 ± 0.80 | $D_{\text{M}}(0.61)$ | 2337.0 | 2351^{+44}_{-53} |
| A_{143}^{tSZ} | 6.91 | $5.6^{+2.1}_{-1.9}$ | $10^9 A_{\text{s}}$ | 2.0841 | 2.086 ± 0.039 | $H(2.33)$ | 233.57 | $235.0^{+2.5}_{-2.8}$ |
| A_{100}^{PS} | 244.0 | 256 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8708 | 1.874 ± 0.018 | $D_{\text{M}}(2.33)$ | 5833 | 5835 ± 91 |
| A_{143}^{PS} | 50.8 | 45 ± 8 | D_{40} | 1238.0 | 1239 ± 16 | $f\sigma_8(0.15)$ | 0.4613 | 0.4594 ± 0.0090 |
| $A_{143 \times 217}^{\text{PS}}$ | 56.5 | 42 ± 9 | D_{220} | 5733.2 | 5732 ± 39 | $\sigma_8(0.15)$ | 0.7543 | $0.737^{+0.026}_{-0.011}$ |
| A_{217}^{PS} | 123.6 | 115 ± 10 | D_{810} | 2539.2 | 2538 ± 14 | $f\sigma_8(0.38)$ | 0.4790 | $0.474^{+0.010}_{-0.0074}$ |
| A^{kSZ} | 0.00 | < 3.93 | D_{1420} | 819.62 | 817.9 ± 4.9 | $\sigma_8(0.38)$ | 0.6681 | $0.652^{+0.024}_{-0.011}$ |
| A_{100}^{dustTT} | 8.70 | 8.9 ± 1.8 | D_{2000} | 232.57 | 231.5 ± 1.8 | $f\sigma_8(0.51)$ | 0.4772 | $0.472^{+0.011}_{-0.0069}$ |
| A_{143}^{dustTT} | 10.91 | 10.8 ± 1.8 | $n_{\text{s},0.002}$ | 0.9593 | 0.9590 ± 0.0087 | $\sigma_8(0.51)$ | 0.6250 | $0.609^{+0.023}_{-0.010}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.10 | 18.5 ± 3.3 | Y_{P} | 0.24271 | 0.2434 ± 0.0027 | $f\sigma_8(0.61)$ | 0.4719 | $0.466^{+0.011}_{-0.0066}$ |
| A_{217}^{dustTT} | 95.9 | 93.8 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24402 | 0.2447 ± 0.0027 | $\sigma_8(0.61)$ | 0.5946 | $0.580^{+0.022}_{-0.0098}$ |
| A_{100}^{dustTE} | 0.1132 | 0.115 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.5418 | 2.565 ± 0.045 | $f\sigma_8(2.33)$ | 0.2987 | $0.292^{+0.010}_{-0.0049}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1346 | 0.135 ± 0.029 | Age/Gyr | 13.964 | 13.97 ± 0.21 | $\sigma_8(2.33)$ | 0.3083 | $0.300^{+0.012}_{-0.0055}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.482 ± 0.085 | z_* | 1089.628 | 1089.82 ± 0.36 | f_{2000}^{143} | 27.03 | 28.7 ± 3.0 |
| A_{143}^{dustTE} | 0.226 | 0.225 ± 0.054 | r_* | 146.28 | 145.7 ± 1.8 | $f_{2000}^{143 \times 217}$ | 30.74 | 31.6 ± 2.1 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.667 ± 0.080 | $100\theta_*$ | 1.04157 | 1.04142 ± 0.00054 | f_{2000}^{217} | 105.38 | 106.5 ± 2.0 |
| A_{217}^{dustTE} | 2.075 | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 14.044 | 13.99 ± 0.17 | χ_{small}^2 | 396.02 | 397.1 ± 1.9 |
| c_{100} | 0.99975 | 0.99967 ± 0.00061 | z_{drag} | 1059.28 | 1059.36 ± 0.79 | χ_{lowl}^2 | 24.29 | 24.4 ± 1.5 |
| c_{217} | 0.99817 | 0.99818 ± 0.00063 | r_{drag} | 149.01 | 148.4 ± 1.9 | χ_{plik}^2 | 2342.0 | 2360.0 ± 6.4 |
| H_0 | 66.62 | $66.0^{+1.9}_{-1.6}$ | k_{D} | 0.13952 | 0.1399 ± 0.0014 | χ_{prior}^2 | 1.45 | 11.6 ± 4.5 |
| Ω_Λ | 0.6860 | $0.674^{+0.019}_{-0.011}$ | $100\theta_{\text{D}}$ | 0.160335 | 0.16051 ± 0.00041 | χ_{CMB}^2 | 2762.3 | 2781.4 ± 6.3 |
| Ω_{m} | 0.3140 | $0.326^{+0.011}_{-0.019}$ | z_{eq} | 3419.4 | 3423 ± 37 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2763.73$; $\Delta\chi_{\text{eff}}^2 = -2.04$; $\bar{\chi}_{\text{eff}}^2 = 2792.98$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.21$; $R - 1 = 0.00589$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.02 (Δ -0.03) commander_dx12_v3.2.29: 24.29 (Δ 1.03) plik_rd12_HM_v22b_TTTEE: 2341.98 (Δ -2.66)

9.4 base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-------------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022236 | 0.02221 ± 0.00022 | $\Omega_m h^2$ | 0.13857 | $0.1411^{+0.0029}_{-0.0034}$ | k_{eq} | 0.010263 | 0.01033 ± 0.00011 |
| $\Omega_c h^2$ | 0.11633 | $0.1179^{+0.0027}_{-0.0030}$ | $\Omega_\nu h^2$ | 0.00000 | < 0.00124 | $100\theta_{\text{eq}}$ | 0.8107 | 0.8093 ± 0.0067 |
| $100\theta_{\text{MC}}$ | 1.041340 | 1.04116 ± 0.00044 | $\Omega_m h^3$ | 0.09220 | 0.0930 ± 0.0037 | $100\theta_{\text{s,eq}}$ | 0.44814 | 0.4474 ± 0.0034 |
| τ | 0.0528 | 0.0536 ± 0.0075 | σ_8 | 0.8129 | $0.798^{+0.022}_{-0.012}$ | $H(0.15)$ | 71.76 | 71.2 ± 1.7 |
| $\Sigma m_\nu [\text{eV}]$ | 0.000 | < 0.120 | S_8 | 0.8303 | 0.831 ± 0.013 | $D_{\text{M}}(0.15)$ | 651.4 | 658^{+14}_{-18} |
| N_{eff} | 2.820 | 2.88 ± 0.19 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4548 | 0.4552 ± 0.0071 | $H(0.38)$ | 81.76 | 81.5 ± 1.5 |
| $\ln(10^{10} A_{\text{s}})$ | 3.0318 | 3.037 ± 0.017 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6080 | $0.603^{+0.011}_{-0.0079}$ | $D_{\text{M}}(0.38)$ | 1553.3 | 1565^{+32}_{-38} |
| n_{s} | 0.9587 | 0.9582 ± 0.0086 | $\sigma_8/h^{0.5}$ | 0.9965 | $0.983^{+0.018}_{-0.011}$ | $H(0.51)$ | 88.40 | 88.3 ± 1.5 |
| y_{cal} | 1.00043 | 1.0006 ± 0.0025 | $r_{\text{drag}} h$ | 99.41 | $97.9^{+2.2}_{-1.4}$ | $D_{\text{M}}(0.51)$ | 2011.9 | 2025^{+40}_{-46} |
| A_{217}^{CIB} | 43.8 | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4557 | 2.454 ± 0.024 | $H(0.61)$ | 93.95 | 93.9 ± 1.5 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.923 | > 0.386 | z_{re} | 7.46 | 7.57 ± 0.77 | $D_{\text{M}}(0.61)$ | 2340.9 | 2354^{+45}_{-52} |
| A_{143}^{tSZ} | 7.00 | $5.6^{+2.1}_{-1.9}$ | $10^9 A_{\text{s}}$ | 2.0734 | 2.084 ± 0.036 | $H(2.33)$ | 232.94 | $234.6^{+2.5}_{-2.8}$ |
| A_{100}^{PS} | 243.0 | 255 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8658 | 1.872 ± 0.017 | $D_{\text{M}}(2.33)$ | 5846 | 5845 ± 88 |
| A_{143}^{PS} | 51.1 | 45 ± 8 | D_{40} | 1237.0 | 1240 ± 15 | $f\sigma_8(0.15)$ | 0.4585 | 0.4590 ± 0.0066 |
| $A_{143 \times 217}^{\text{PS}}$ | 57.4 | 42 ± 9 | D_{220} | 5731.5 | 5734 ± 39 | $\sigma_8(0.15)$ | 0.7508 | $0.736^{+0.022}_{-0.012}$ |
| A_{217}^{PS} | 123.5 | 115 ± 10 | D_{810} | 2537.0 | 2538 ± 14 | $f\sigma_8(0.38)$ | 0.4763 | $0.4741^{+0.0072}_{-0.0060}$ |
| A^{kSZ} | 0.01 | < 3.86 | D_{1420} | 819.41 | 818.0 ± 4.9 | $\sigma_8(0.38)$ | 0.6652 | $0.651^{+0.021}_{-0.011}$ |
| A_{100}^{dustTT} | 8.72 | 8.8 ± 1.8 | D_{2000} | 232.61 | 231.6 ± 1.8 | $f\sigma_8(0.51)$ | 0.4747 | $0.4711^{+0.0080}_{-0.0059}$ |
| A_{143}^{dustTT} | 10.93 | 10.8 ± 1.8 | $n_{\text{s},0.002}$ | 0.9587 | 0.9582 ± 0.0086 | $\sigma_8(0.51)$ | 0.6223 | $0.609^{+0.020}_{-0.011}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.22 | 18.5 ± 3.3 | Y_{P} | 0.24226 | 0.2431 ± 0.0026 | $f\sigma_8(0.61)$ | 0.4695 | $0.4652^{+0.0087}_{-0.0059}$ |
| A_{217}^{dustTT} | 95.8 | 93.8 ± 7.2 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24357 | 0.2444 ± 0.0026 | $\sigma_8(0.61)$ | 0.5920 | $0.579^{+0.019}_{-0.010}$ |
| A_{100}^{dustTE} | 0.1140 | 0.115 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.5320 | 2.559 ± 0.044 | $f\sigma_8(2.33)$ | 0.2975 | $0.2921^{+0.0090}_{-0.0053}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1342 | 0.135 ± 0.029 | Age/Gyr | 13.994 | 13.99 ± 0.21 | $\sigma_8(2.33)$ | 0.3071 | $0.300^{+0.011}_{-0.0060}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.482 ± 0.085 | z_* | 1089.536 | 1089.77 ± 0.35 | f_{2000}^{143} | 26.90 | 28.6 ± 3.0 |
| A_{143}^{dustTE} | 0.226 | 0.225 ± 0.054 | r_* | 146.67 | 146.0 ± 1.8 | $f_{2000}^{143 \times 217}$ | 30.65 | 31.4 ± 2.1 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.667 ± 0.080 | $100\theta_*$ | 1.04166 | 1.04148 ± 0.00053 | f_{2000}^{217} | 105.23 | 106.4 ± 2.0 |
| A_{217}^{dustTE} | 2.072 | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 14.080 | 14.02 ± 0.17 | χ_{lensing}^2 | 8.66 | 9.09 ± 0.81 |
| c_{100} | 0.99975 | 0.99968 ± 0.00062 | z_{drag} | 1059.17 | 1059.28 ± 0.79 | χ_{small}^2 | 395.84 | 397.0 ± 1.7 |
| c_{217} | 0.99816 | 0.99817 ± 0.00063 | r_{drag} | 149.40 | 148.7 ± 1.9 | χ_{lowl}^2 | 24.25 | 24.5 ± 1.5 |
| H_0 | 66.54 | $65.9^{+1.8}_{-1.6}$ | k_{D} | 0.13923 | 0.1397 ± 0.0014 | χ_{plik}^2 | 2342.4 | 2359.4 ± 6.0 |
| Ω_Λ | 0.6870 | $0.674^{+0.019}_{-0.011}$ | $100\theta_{\text{D}}$ | 0.160256 | 0.16045 ± 0.00040 | χ_{prior}^2 | 1.44 | 11.5 ± 4.4 |
| Ω_{m} | 0.3130 | $0.326^{+0.011}_{-0.019}$ | z_{eq} | 3415.2 | 3423 ± 36 | χ_{CMB}^2 | 2771.2 | 2790.0 ± 6.2 |

Best-fit $\chi_{\text{eff}}^2 = 2772.59$; $\Delta\chi_{\text{eff}}^2 = -2.04$; $\bar{\chi}_{\text{eff}}^2 = 2801.54$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.85$; $R - 1 = 0.00830$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp-p.teb.consext8: 8.66 (Δ -0.21) simall.100x143_offlike5_EE_Aplanck_B: 395.84 (Δ -0.21) commander_dx12_v3.2.29: 24.25 (Δ 1.00) plik_rd12_HM_v22b_TTTEEE: 2342.41 (Δ -2.52)

9.5 base_nnu_mnu_plikHM_TT_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|---------------------|---------------------------|-----------------------------|----------|------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022179 | 0.02226 ± 0.00023 | $\sigma_8 \Omega_m^{0.5}$ | 0.4562 | 0.451 ± 0.010 | $D_M(0.15)$ | 639.9 | 636 ± 13 |
| $\Omega_c h^2$ | 0.11942 | 0.1204 ± 0.0039 | $\sigma_8 \Omega_m^{0.25}$ | 0.6122 | $0.605^{+0.013}_{-0.011}$ | $H(0.38)$ | 83.07 | 83.6 ± 1.5 |
| $100\theta_{MC}$ | 1.04094 | 1.04084 ± 0.00057 | $\sigma_8/h^{0.5}$ | 0.9980 | $0.983^{+0.020}_{-0.014}$ | $D_M(0.38)$ | 1526.8 | 1519 ± 29 |
| τ | 0.0529 | 0.0536 ± 0.0081 | $r_{\text{drag}} h$ | 99.99 | 99.96 ± 1.0 | $H(0.51)$ | 89.75 | 90.3 ± 1.6 |
| Σm_ν [eV] | 0.0015 | < 0.0790 | $\langle d^2 \rangle^{1/2}$ | 2.4460 | $2.425^{+0.034}_{-0.031}$ | $D_M(0.51)$ | 1978.4 | 1968 ± 37 |
| N_{eff} | 3.034 | 3.14 ± 0.23 | z_{re} | 7.56 | 7.64 ± 0.84 | $H(0.61)$ | 95.34 | 95.9 ± 1.6 |
| $\ln(10^{10} A_s)$ | 3.0396 | 3.043 ± 0.020 | $10^9 A_s$ | 2.0898 | 2.098 ± 0.042 | $D_M(0.61)$ | 2302.6 | 2290 ± 43 |
| n_s | 0.9653 | 0.9694 ± 0.0088 | $10^9 A_s e^{-2\tau}$ | 1.8799 | 1.884 ± 0.021 | $H(2.33)$ | 235.62 | 237.0 ± 3.4 |
| y_{cal} | 1.00051 | 1.0006 ± 0.0025 | D_{40} | 1227.9 | 1223 ± 16 | $D_M(2.33)$ | 5763 | 5730 ± 94 |
| A_{217}^{CIB} | 49.2 | 48 ± 7 | D_{220} | 5715.5 | 5719 ± 40 | $f\sigma_8(0.15)$ | 0.4603 | 0.4558 ± 0.0096 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.19 | — | D_{810} | 2536.7 | 2537 ± 14 | $\sigma_8(0.15)$ | 0.7594 | $0.750^{+0.018}_{-0.014}$ |
| A_{143}^{tSZ} | 7.19 | 5.0 ± 2.0 | D_{1420} | 815.7 | 814.8 ± 5.2 | $f\sigma_8(0.38)$ | 0.4795 | $0.4749^{+0.0099}_{-0.0087}$ |
| A_{100}^{PS} | 254.0 | 265 ± 29 | D_{2000} | 230.20 | 229.4 ± 2.2 | $\sigma_8(0.38)$ | 0.6733 | $0.665^{+0.016}_{-0.012}$ |
| A_{143}^{PS} | 46.9 | 50 ± 9 | $n_{s,0.002}$ | 0.9653 | 0.9694 ± 0.0088 | $f\sigma_8(0.51)$ | 0.4783 | $0.4738^{+0.0098}_{-0.0084}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43.2 | 44 ± 9 | Y_P | 0.24515 | 0.2465 ± 0.0032 | $\sigma_8(0.51)$ | 0.6301 | $0.623^{+0.015}_{-0.012}$ |
| A_{217}^{PS} | 118.1 | 115 ± 10 | Y_P^{BBN} | 0.24648 | 0.2479 ± 0.0032 | $f\sigma_8(0.61)$ | 0.4735 | $0.4691^{+0.0097}_{-0.0083}$ |
| A^{kSZ} | 0.00 | < 5.14 | $10^5 \text{D}/\text{H}$ | 2.618 | 2.639 ± 0.068 | $\sigma_8(0.61)$ | 0.5996 | $0.593^{+0.014}_{-0.011}$ |
| A_{100}^{dustTT} | 8.92 | 9.0 ± 1.8 | Age/Gyr | 13.798 | 13.72 ± 0.22 | $f\sigma_8(2.33)$ | 0.3015 | $0.2991^{+0.0066}_{-0.0056}$ |
| A_{143}^{dustTT} | 10.74 | 10.8 ± 1.8 | z_* | 1090.094 | 1090.19 ± 0.49 | $\sigma_8(2.33)$ | 0.3114 | $0.3084^{+0.0073}_{-0.0060}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.23 | 18.3 ± 3.3 | r_* | 144.80 | 144.0 ± 2.2 | f_{2000}^{143} | 30.21 | 31.6 ± 3.4 |
| A_{217}^{dustTT} | 94.4 | 93.3 ± 7.3 | $100\theta_*$ | 1.04113 | 1.04098 ± 0.00068 | $f_{2000}^{143 \times 217}$ | 33.04 | 33.9 ± 2.5 |
| c_{100} | 0.99964 | 0.99961 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.908 | 13.83 ± 0.21 | f_{2000}^{217} | 107.63 | 108.4 ± 2.3 |
| c_{217} | 0.99824 | 0.99827 ± 0.00063 | z_{drag} | 1059.44 | 1059.78 ± 0.87 | χ_{small}^2 | 395.86 | 397.1 ± 1.8 |
| H_0 | 67.78 | 68.2 ± 1.4 | r_{drag} | 147.53 | 146.7 ± 2.3 | χ_{lowl}^2 | 23.31 | 22.8 ± 1.2 |
| Ω_Λ | 0.6917 | 0.6913 ± 0.0083 | k_D | 0.14030 | 0.1409 ± 0.0017 | χ_{plik}^2 | 758.4 | 773.3 ± 5.9 |
| Ω_m | 0.3083 | 0.3087 ± 0.0083 | $100\theta_D$ | 0.16100 | 0.16124 ± 0.00059 | $\chi_{6\text{DF}}^2$ | 0.0103 | 0.057 ± 0.077 |
| $\Omega_m h^2$ | 0.14161 | 0.1434 ± 0.0041 | z_{eq} | 3389.2 | 3368 ± 34 | χ_{MGS}^2 | 1.41 | 1.47 ± 0.60 |
| $\Omega_\nu h^2$ | $1.6 \cdot 10^{-5}$ | < 0.000839 | k_{eq} | 0.010336 | 0.01034 ± 0.00015 | χ_{DR12BAO}^2 | 3.91 | 4.6 ± 1.6 |
| $\Omega_m h^3$ | 0.09598 | 0.0978 ± 0.0046 | $100\theta_{\text{eq}}$ | 0.8150 | $0.8192^{+0.0060}_{-0.0068}$ | χ_{prior}^2 | 1.52 | 7.4 ± 3.7 |
| σ_8 | 0.8216 | $0.812^{+0.019}_{-0.015}$ | $100\theta_{s,\text{eq}}$ | 0.45044 | $0.4525^{+0.0031}_{-0.0035}$ | χ_{BAO}^2 | 5.32 | 6.2 ± 1.3 |
| S_8 | 0.8329 | 0.823 ± 0.018 | $H(0.15)$ | 73.02 | 73.4 ± 1.4 | χ_{CMB}^2 | 1177.6 | 1193.2 ± 5.8 |

Best-fit $\chi_{\text{eff}}^2 = 1184.40$; $\Delta\chi_{\text{eff}}^2 = -1.35$; $\bar{\chi}_{\text{eff}}^2 = 1206.70$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.68$; $R - 1 = 0.00673$

χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.01) MGS: 1.41 (Δ 0.13) DR12BAO: 3.91 (Δ -0.28) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.87 (Δ -0.02) commander_dx12_v3_2_29: 23.31 (Δ 0.49) plik_rd12_HM_v22_TT: 758.38 (Δ -1.72)

9.6 base_nnu_mnu_plikHM_TT_lowl_lowE_BAO_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|---------------------------|-----------------------------|----------|------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022208 | 0.02227 ± 0.00023 | $\sigma_8 \Omega_m^{0.25}$ | 0.6119 | $0.605^{+0.013}_{-0.011}$ | $D_M(0.38)$ | 1524.2 | 1516 ± 29 |
| $\Omega_c h^2$ | 0.11952 | 0.1205 ± 0.0039 | $\sigma_8/h^{0.5}$ | 0.9973 | $0.983^{+0.020}_{-0.014}$ | $H(0.51)$ | 89.87 | 90.4 ± 1.5 |
| $100\theta_{MC}$ | 1.04097 | 1.04083 ± 0.00057 | $r_{drag}h$ | 100.11 | 100.11 ± 0.99 | $D_M(0.51)$ | 1975.1 | 1964 ± 36 |
| τ | 0.0530 | 0.0538 ± 0.0081 | $\langle d^2 \rangle^{1/2}$ | 2.4437 | $2.423^{+0.033}_{-0.030}$ | $H(0.61)$ | 95.46 | 96.0 ± 1.6 |
| Σm_ν [eV] | 0.0018 | < 0.0768 | z_{re} | 7.57 | 7.65 ± 0.84 | $D_M(0.61)$ | 2298.8 | 2286 ± 42 |
| N_{eff} | 3.046 | 3.15 ± 0.23 | $10^9 A_s$ | 2.0908 | 2.099 ± 0.042 | $H(2.33)$ | 235.76 | 237.2 ± 3.4 |
| $\ln(10^{10} A_s)$ | 3.0401 | 3.044 ± 0.020 | $10^9 A_s e^{-2\tau}$ | 1.8806 | 1.885 ± 0.021 | $D_M(2.33)$ | 5756 | 5724 ± 92 |
| n_s | 0.9661 | 0.9701 ± 0.0086 | D_{40} | 1226.8 | 1222 ± 15 | $f\sigma_8(0.15)$ | 0.4598 | 0.4555 ± 0.0095 |
| y_{cal} | 1.00045 | 1.0006 ± 0.0025 | D_{220} | 5716.7 | 5719 ± 40 | $\sigma_8(0.15)$ | 0.7597 | $0.751^{+0.017}_{-0.014}$ |
| A_{217}^{CIB} | 48.8 | 48 ± 7 | D_{810} | 2537.1 | 2537 ± 14 | $f\sigma_8(0.38)$ | 0.4792 | $0.4748^{+0.0097}_{-0.0087}$ |
| $\xi^{tSZ \times CIB}$ | 0.31 | — | D_{1420} | 815.8 | 814.8 ± 5.2 | $\sigma_8(0.38)$ | 0.6737 | $0.666^{+0.015}_{-0.012}$ |
| A_{143}^{tSZ} | 7.03 | 5.0 ± 2.0 | D_{2000} | 230.24 | 229.3 ± 2.2 | $f\sigma_8(0.51)$ | 0.4782 | $0.4738^{+0.0096}_{-0.0084}$ |
| A_{100}^{PS} | 254.0 | 265 ± 28 | $n_{s,0.002}$ | 0.9661 | 0.9701 ± 0.0086 | $\sigma_8(0.51)$ | 0.6306 | $0.624^{+0.015}_{-0.011}$ |
| A_{143}^{PS} | 49.0 | 50 ± 8 | Y_P | 0.24533 | 0.2467 ± 0.0031 | $f\sigma_8(0.61)$ | 0.4734 | $0.4692^{+0.0095}_{-0.0082}$ |
| $A_{143 \times 217}^{PS}$ | 46.5 | 44^{+9}_{-10} | Y_P^{BBN} | 0.24666 | 0.2481 ± 0.0031 | $\sigma_8(0.61)$ | 0.6000 | $0.594^{+0.014}_{-0.011}$ |
| A_{217}^{PS} | 119.0 | 115 ± 10 | $10^5 D/H$ | 2.616 | 2.641 ± 0.068 | $f\sigma_8(2.33)$ | 0.3017 | $0.2996^{+0.0064}_{-0.0055}$ |
| A^{kSZ} | 0.01 | < 5.18 | Age/Gyr | 13.782 | 13.70 ± 0.22 | $\sigma_8(2.33)$ | 0.3117 | $0.3089^{+0.0072}_{-0.0059}$ |
| A_{100}^{dustTT} | 8.87 | 9.0 ± 1.8 | z_* | 1090.079 | 1090.19 ± 0.49 | f_{2000}^{143} | 30.16 | 31.7 ± 3.4 |
| A_{143}^{dustTT} | 10.81 | 10.8 ± 1.8 | r_* | 144.69 | 143.9 ± 2.2 | $f_{2000}^{143 \times 217}$ | 33.08 | 34.0 ± 2.5 |
| $A_{143 \times 217}^{dustTT}$ | 19.34 | 18.3 ± 3.3 | $100\theta_*$ | 1.04113 | 1.04096 ± 0.00068 | f_{2000}^{217} | 107.55 | 108.5 ± 2.3 |
| A_{217}^{dustTT} | 94.4 | 93.3 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.897 | 13.82 ± 0.21 | χ_{small}^2 | 395.88 | 397.1 ± 1.8 |
| c_{100} | 0.99963 | 0.99961 ± 0.00061 | z_{drag} | 1059.51 | 1059.83 ± 0.86 | χ_{lowl}^2 | 23.21 | 22.7 ± 1.2 |
| c_{217} | 0.99826 | 0.99827 ± 0.00062 | r_{drag} | 147.41 | 146.6 ± 2.3 | χ_{plik}^2 | 758.6 | 773.4 ± 5.9 |
| H_0 | 67.91 | 68.3 ± 1.4 | k_D | 0.14041 | 0.1410 ± 0.0017 | χ_{JLA}^2 | 1034.879 | 1035.01 ± 0.32 |
| Ω_Λ | 0.6927 | 0.6925 ± 0.0078 | $100\theta_D$ | 0.16101 | 0.16126 ± 0.00058 | χ_{6DF}^2 | 0.0060 | 0.047 ± 0.064 |
| Ω_m | 0.3073 | 0.3075 ± 0.0078 | z_{eq} | 3386.7 | 3365 ± 33 | χ_{MGS}^2 | 1.47 | 1.55 ± 0.58 |
| $\Omega_m h^2$ | 0.14174 | 0.1435 ± 0.0041 | k_{eq} | 0.010336 | 0.01034 ± 0.00015 | $\chi_{DR12BAO}^2$ | 3.78 | 4.4 ± 1.3 |
| $\Omega_\nu h^2$ | 0.000019 | < 0.000816 | $100\theta_{eq}$ | 0.8156 | $0.8198^{+0.0057}_{-0.0066}$ | χ_{prior}^2 | 1.41 | 7.3 ± 3.7 |
| $\Omega_m h^3$ | 0.09626 | 0.0981 ± 0.0045 | $100\theta_{s,eq}$ | 0.45071 | $0.4529^{+0.0029}_{-0.0034}$ | χ_{BAO}^2 | 5.26 | 6.0 ± 1.1 |
| σ_8 | 0.8219 | $0.812^{+0.019}_{-0.015}$ | $H(0.15)$ | 73.15 | 73.6 ± 1.4 | χ_{CMB}^2 | 1177.7 | 1193.2 ± 5.8 |
| S_8 | 0.8318 | 0.822 ± 0.018 | $D_M(0.15)$ | 638.7 | 635 ± 13 | | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4556 | 0.450 ± 0.010 | $H(0.38)$ | 83.19 | 83.7 ± 1.5 | | | |

Best-fit $\chi_{eff}^2 = 2219.27$; $\bar{\chi}_{eff}^2 = 2241.49$; $R - 1 = 0.00842$
 χ_{eff}^2 : BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.78 CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.88 commander_dx12_v3.2.29: 23.21 plik_rd12_HM_v22.TT: 758.62
SN - JLA Pantheon18: 1034.88

9.7 base_nnu_mnu_plikHM_TT_lowl_lowE_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02228 ± 0.00023 | $\sigma_8 \Omega_m^{0.25}$ | $0.606^{+0.013}_{-0.011}$ | $D_M(0.38)$ | 1515 ± 29 |
| $\Omega_c h^2$ | 0.1206 ± 0.0039 | $\sigma_8/h^{0.5}$ | $0.984^{+0.019}_{-0.013}$ | $H(0.51)$ | 90.4 ± 1.5 |
| $100\theta_{MC}$ | 1.04083 ± 0.00057 | $r_{drag}h$ | 100.12 ± 0.98 | $D_M(0.51)$ | 1963 ± 36 |
| τ | $0.0552^{+0.0052}_{-0.0084}$ | $\langle d^2 \rangle^{1/2}$ | $2.426^{+0.032}_{-0.029}$ | $H(0.61)$ | 96.1 ± 1.6 |
| Σm_ν [eV] | < 0.0777 | z_{re} | $7.80^{+0.59}_{-0.84}$ | $D_M(0.61)$ | 2285 ± 42 |
| N_{eff} | 3.16 ± 0.23 | $10^9 A_s$ | $2.105^{+0.031}_{-0.042}$ | $H(2.33)$ | 237.2 ± 3.4 |
| $\ln(10^{10} A_s)$ | $3.047^{+0.015}_{-0.020}$ | $10^9 A_s e^{-2\tau}$ | 1.885 ± 0.021 | $D_M(2.33)$ | 5721 ± 92 |
| n_s | 0.9704 ± 0.0086 | D_{40} | 1222 ± 15 | $f\sigma_8(0.15)$ | 0.4560 ± 0.0094 |
| y_{cal} | 1.0006 ± 0.0025 | D_{220} | 5719 ± 40 | $\sigma_8(0.15)$ | $0.752^{+0.017}_{-0.013}$ |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 14 | $f\sigma_8(0.38)$ | $0.4754^{+0.0096}_{-0.0084}$ |
| $\xi^{tSZ \times CIB}$ | — | D_{1420} | 814.8 ± 5.2 | $\sigma_8(0.38)$ | $0.667^{+0.015}_{-0.012}$ |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{2000} | 229.4 ± 2.2 | $f\sigma_8(0.51)$ | $0.4745^{+0.0094}_{-0.0082}$ |
| A_{100}^{PS} | 265 ± 28 | $n_{s,0.002}$ | 0.9704 ± 0.0086 | $\sigma_8(0.51)$ | $0.625^{+0.014}_{-0.011}$ |
| A_{143}^{PS} | 50 ± 8 | Y_P | 0.2468 ± 0.0031 | $f\sigma_8(0.61)$ | $0.4698^{+0.0093}_{-0.0080}$ |
| $A_{143 \times 217}^{PS}$ | 44^{+9}_{-10} | Y_P^{BBN} | 0.2481 ± 0.0031 | $\sigma_8(0.61)$ | $0.594^{+0.014}_{-0.011}$ |
| A_{217}^{PS} | 115 ± 10 | $10^5 D/H$ | 2.641 ± 0.068 | $f\sigma_8(2.33)$ | $0.3000^{+0.0063}_{-0.0053}$ |
| A^{kSZ} | < 5.17 | Age/Gyr | 13.70 ± 0.22 | $\sigma_8(2.33)$ | $0.3094^{+0.0070}_{-0.0057}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | z_* | 1090.19 ± 0.49 | f_{2000}^{143} | 31.7 ± 3.4 |
| A_{143}^{dustTT} | 10.8 ± 1.8 | r_* | 143.8 ± 2.2 | $f_{2000}^{143 \times 217}$ | 33.9 ± 2.5 |
| $A_{143 \times 217}^{dustTT}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04095 ± 0.00068 | f_{2000}^{217} | 108.5 ± 2.3 |
| A_{217}^{dustTT} | 93.3 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.82 ± 0.20 | χ_{simall}^2 | 397.0 ± 1.9 |
| c_{100} | 0.99961 ± 0.00062 | z_{drag} | 1059.86 ± 0.85 | χ_{lowl}^2 | 22.7 ± 1.2 |
| c_{217} | 0.99826 ± 0.00062 | r_{drag} | 146.5 ± 2.3 | χ_{plik}^2 | 773.2 ± 5.9 |
| H_0 | 68.4 ± 1.4 | k_D | 0.1410 ± 0.0017 | χ_{JLA}^2 | 1035.00 ± 0.32 |
| Ω_Λ | 0.6926 ± 0.0078 | $100\theta_D$ | 0.16127 ± 0.00059 | χ_{6DF}^2 | 0.046 ± 0.063 |
| Ω_m | 0.3074 ± 0.0078 | z_{eq} | 3364 ± 33 | χ_{MGS}^2 | 1.56 ± 0.58 |
| $\Omega_m h^2$ | 0.1436 ± 0.0041 | k_{eq} | 0.01034 ± 0.00015 | $\chi_{DR12BAO}^2$ | 4.4 ± 1.3 |
| $\Omega_\nu h^2$ | < 0.000827 | $100\theta_{eq}$ | $0.8199^{+0.0058}_{-0.0066}$ | χ_{prior}^2 | 7.3 ± 3.7 |
| $\Omega_m h^3$ | 0.0982 ± 0.0045 | $100\theta_{s,eq}$ | $0.4529^{+0.0030}_{-0.0034}$ | χ_{BAO}^2 | 6.0 ± 1.1 |
| σ_8 | $0.814^{+0.018}_{-0.014}$ | $H(0.15)$ | 73.6 ± 1.4 | χ_{CMB}^2 | 1192.9 ± 5.7 |
| S_8 | $0.823^{+0.019}_{-0.017}$ | $D_M(0.15)$ | 635 ± 12 | | |
| $\sigma_8 \Omega_m^{0.5}$ | $0.451^{+0.010}_{-0.0092}$ | $H(0.38)$ | 83.7 ± 1.5 | | |

$$\bar{\chi}_{eff}^2 = 2241.24; R - 1 = 0.00999$$

9.8 base_nnu_mnu_plikHM_TTTEE_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|---------------------|---------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022344 | 0.02237 ± 0.00019 | $\Omega_\nu h^2$ | $0.1 \cdot 10^{-5}$ | < 0.000607 | $100\theta_{s,eq}$ | 0.44971 | 0.4503 ± 0.0025 |
| $\Omega_c h^2$ | 0.11777 | 0.1184 ± 0.0030 | $\Omega_m h^3$ | 0.09448 | 0.0953 ± 0.0036 | $H(0.15)$ | 72.64 | 72.7 ± 1.2 |
| $100\theta_{MC}$ | 1.041224 | 1.04113 ± 0.00044 | σ_8 | 0.8179 | $0.811^{+0.014}_{-0.012}$ | $D_M(0.15)$ | 643.2 | 643 ± 11 |
| τ | 0.0545 | 0.0551 ± 0.0079 | S_8 | 0.8290 | 0.826 ± 0.014 | $H(0.38)$ | 82.64 | 82.7 ± 1.2 |
| Σm_ν [eV] | 0.0001 | < 0.0580 | $\sigma_8 \Omega_m^{0.5}$ | 0.4541 | 0.4523 ± 0.0077 | $D_M(0.38)$ | 1534.7 | 1534 ± 24 |
| N_{eff} | 2.935 | 2.98 ± 0.18 | $\sigma_8 \Omega_m^{0.25}$ | 0.6094 | 0.6058 ± 0.0096 | $H(0.51)$ | 89.28 | 89.4 ± 1.2 |
| $\ln(10^{10} A_s)$ | 3.0394 | 3.042 ± 0.018 | $\sigma_8/h^{0.5}$ | 0.9961 | $0.988^{+0.014}_{-0.012}$ | $D_M(0.51)$ | 1988.6 | 1988 ± 31 |
| n_s | 0.9629 | 0.9644 ± 0.0072 | $r_{drag} h$ | 99.99 | 99.66 ± 0.90 | $H(0.61)$ | 94.84 | 95.0 ± 1.3 |
| y_{cal} | 1.00058 | 1.0006 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4498 | 2.441 ± 0.027 | $D_M(0.61)$ | 2314.5 | 2313 ± 35 |
| A_{217}^{CIB} | 46.9 | 46 ± 7 | z_{re} | 7.65 | 7.71 ± 0.80 | $H(2.33)$ | 234.38 | 235.2 ± 2.7 |
| $\xi^{tSZ \times CIB}$ | 0.43 | — | $10^9 A_s$ | 2.0894 | 2.095 ± 0.039 | $D_M(2.33)$ | 5793 | 5782 ± 76 |
| A_{143}^{tSZ} | 7.23 | $5.5^{+2.1}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.8735 | 1.876 ± 0.018 | $f\sigma_8(0.15)$ | 0.4582 | 0.4568 ± 0.0073 |
| A_{100}^{PS} | 248.3 | 257 ± 28 | D_{40} | 1232.7 | 1231 ± 14 | $\sigma_8(0.15)$ | 0.7560 | $0.750^{+0.013}_{-0.011}$ |
| A_{143}^{PS} | 45.5 | 45 ± 8 | D_{220} | 5736.9 | 5736 ± 38 | $f\sigma_8(0.38)$ | 0.4773 | 0.4753 ± 0.0072 |
| $A_{143 \times 217}^{PS}$ | 46.0 | 42 ± 9 | D_{810} | 2538.3 | 2538 ± 14 | $\sigma_8(0.38)$ | 0.6703 | $0.665^{+0.012}_{-0.010}$ |
| A_{217}^{PS} | 118.9 | 115 ± 10 | D_{1420} | 818.63 | 817.9 ± 4.8 | $f\sigma_8(0.51)$ | 0.4762 | 0.4739 ± 0.0072 |
| A^{kSZ} | 0.00 | < 4.05 | D_{2000} | 231.94 | 231.4 ± 1.8 | $\sigma_8(0.51)$ | 0.6273 | $0.622^{+0.011}_{-0.0098}$ |
| A_{100}^{dustTT} | 8.81 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.9629 | 0.9644 ± 0.0072 | $f\sigma_8(0.61)$ | 0.4714 | 0.4690 ± 0.0071 |
| A_{143}^{dustTT} | 10.98 | 10.8 ± 1.8 | Y_P | 0.24388 | 0.2445 ± 0.0025 | $\sigma_8(0.61)$ | 0.5969 | $0.592^{+0.011}_{-0.0094}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.61 | 18.6 ± 3.3 | Y_P^{BBN} | 0.24520 | 0.2458 ± 0.0025 | $f\sigma_8(2.33)$ | 0.30013 | 0.2982 ± 0.0051 |
| A_{217}^{dustTT} | 94.9 | 93.8 ± 7.4 | $10^5 D/H$ | 2.5517 | 2.564 ± 0.046 | $\sigma_8(2.33)$ | 0.3100 | $0.3075^{+0.0057}_{-0.0051}$ |
| A_{100}^{dustTE} | 0.1143 | 0.114 ± 0.038 | Age/Gyr | 13.870 | 13.84 ± 0.18 | f_{2000}^{143} | 27.97 | 28.8 ± 3.0 |
| $A_{100 \times 143}^{dustTE}$ | 0.1342 | 0.134 ± 0.029 | z_* | 1089.642 | 1089.72 ± 0.35 | $f_{2000}^{143 \times 217}$ | 31.26 | 31.6 ± 2.1 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 | 0.482 ± 0.084 | r_* | 145.60 | 145.2 ± 1.8 | f_{2000}^{217} | 106.02 | 106.5 ± 2.0 |
| A_{143}^{dustTE} | 0.224 | 0.224 ± 0.054 | $100\theta_*$ | 1.04145 | 1.04135 ± 0.00054 | χ_{small}^2 | 396.06 | 397.2 ± 2.0 |
| $A_{143 \times 217}^{dustTE}$ | 0.664 | 0.664 ± 0.080 | $D_M(z_*)/\text{Gpc}$ | 13.981 | 13.94 ± 0.16 | χ_{lowl}^2 | 23.72 | 23.6 ± 1.2 |
| A_{217}^{dustTE} | 2.085 | 2.08 ± 0.27 | z_{drag} | 1059.63 | 1059.76 ± 0.71 | χ_{plik}^2 | 2342.8 | 2359.7 ± 6.3 |
| c_{100} | 0.99971 | 0.99967 ± 0.00061 | r_{drag} | 148.29 | 147.9 ± 1.8 | χ_{6DF}^2 | 0.0102 | 0.062 ± 0.079 |
| c_{217} | 0.99818 | 0.99819 ± 0.00062 | k_D | 0.14001 | 0.1403 ± 0.0014 | χ_{MGS}^2 | 1.407 | 1.29 ± 0.49 |
| H_0 | 67.43 | 67.4 ± 1.2 | $100\theta_D$ | 0.160487 | 0.16060 ± 0.00041 | $\chi_{DR12BAO}^2$ | 3.91 | 4.9 ± 1.6 |
| Ω_Λ | 0.6918 | 0.6890 ± 0.0073 | z_{eq} | 3399.0 | 3393 ± 26 | χ_{prior}^2 | 1.75 | 11.5 ± 4.5 |
| Ω_m | 0.3082 | 0.3110 ± 0.0073 | k_{eq} | 0.010296 | 0.01031 ± 0.00012 | χ_{BAO}^2 | 5.33 | 6.2 ± 1.3 |
| $\Omega_m h^2$ | 0.14011 | 0.1413 ± 0.0032 | $100\theta_{eq}$ | 0.81389 | 0.8151 ± 0.0049 | χ_{CMB}^2 | 2762.6 | 2780.5 ± 6.1 |

Best-fit $\chi_{eff}^2 = 2769.67$; $\Delta\chi_{eff}^2 = -2.25$; $\bar{\chi}_{eff}^2 = 2798.17$; $\Delta\bar{\chi}_{eff}^2 = 0.26$; $R - 1 = 0.00732$

χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.02) MGS: 1.41 (Δ 0.19) DR12BAO: 3.91 (Δ -0.50) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.06 (Δ -0.15) commander_dx12_v3_2_29: 23.72 (Δ 0.85) plik_rd12_HM_v22b_TTTEE: 2342.81 (Δ -2.69)

9.9 base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|---------------------|-----------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|----------------------------|
| $\Omega_b h^2$ | 0.022340 | 0.02239 ± 0.00018 | $\Omega_m h^3$ | 0.09455 | 0.0955 ± 0.0035 | $D_M(0.15)$ | 643.0 | 642 ± 10 |
| $\Omega_c h^2$ | 0.11784 | 0.1185 ± 0.0030 | σ_8 | 0.8170 | $0.812^{+0.014}_{-0.012}$ | $H(0.38)$ | 82.66 | 82.9 ± 1.2 |
| $100\theta_{MC}$ | 1.041195 | 1.04112 ± 0.00043 | S_8 | 0.8281 | 0.825 ± 0.014 | $D_M(0.38)$ | 1534.4 | 1532 ± 24 |
| τ | 0.0531 | 0.0553 ± 0.0079 | $\sigma_8 \Omega_m^{0.5}$ | 0.4536 | 0.4519 ± 0.0076 | $H(0.51)$ | 89.30 | 89.5 ± 1.2 |
| Σm_ν [eV] | 0.0008 | < 0.0552 | $\sigma_8 \Omega_m^{0.25}$ | 0.6088 | 0.6057 ± 0.0095 | $D_M(0.51)$ | 1988.2 | 1984 ± 30 |
| N_{eff} | 2.939 | 3.00 ± 0.18 | $\sigma_8/h^{0.5}$ | 0.9949 | $0.988^{+0.014}_{-0.012}$ | $H(0.61)$ | 94.87 | 95.1 ± 1.3 |
| $\ln(10^{10} A_s)$ | 3.0367 | 3.042 ± 0.018 | $r_{\text{drag}} h$ | 99.99 | 99.81 ± 0.84 | $D_M(0.61)$ | 2314.0 | 2309 ± 34 |
| n_s | 0.9633 | 0.9651 ± 0.0071 | $\langle d^2 \rangle^{1/2}$ | 2.4457 | 2.439 ± 0.026 | $H(2.33)$ | 234.43 | 235.3 ± 2.7 |
| y_{cal} | 1.00042 | 1.0006 ± 0.0025 | z_{re} | 7.51 | 7.73 ± 0.80 | $D_M(2.33)$ | 5792 | 5776 ± 75 |
| A_{217}^{CIB} | 46.0 | 46 ± 7 | $10^9 A_s$ | 2.0837 | 2.096 ± 0.039 | $f\sigma_8(0.15)$ | 0.4577 | 0.4564 ± 0.0073 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.55 | — | $10^9 A_s e^{-2\tau}$ | 1.8736 | 1.876 ± 0.018 | $\sigma_8(0.15)$ | 0.7552 | $0.750^{+0.013}_{-0.011}$ |
| A_{143}^{tSZ} | 7.17 | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1231.1 | 1230 ± 14 | $f\sigma_8(0.38)$ | 0.4767 | 0.4752 ± 0.0072 |
| A_{100}^{PS} | 247.0 | 257 ± 28 | D_{220} | 5733.7 | 5736 ± 38 | $\sigma_8(0.38)$ | 0.6695 | $0.665^{+0.012}_{-0.010}$ |
| A_{143}^{PS} | 47.4 | 45 ± 8 | D_{810} | 2538.1 | 2538 ± 14 | $f\sigma_8(0.51)$ | 0.4756 | 0.4740 ± 0.0071 |
| $A_{143 \times 217}^{\text{PS}}$ | 49.5 | 42 ± 9 | D_{1420} | 818.63 | 817.9 ± 4.8 | $\sigma_8(0.51)$ | 0.6266 | $0.623^{+0.011}_{-0.0098}$ |
| A_{217}^{PS} | 120.5 | 115 ± 10 | D_{2000} | 231.90 | 231.4 ± 1.8 | $f\sigma_8(0.61)$ | 0.4708 | 0.4691 ± 0.0071 |
| A^{kSZ} | 0.00 | < 4.04 | $n_{s,0.002}$ | 0.9633 | 0.9651 ± 0.0071 | $\sigma_8(0.61)$ | 0.5963 | $0.593^{+0.010}_{-0.0094}$ |
| A_{100}^{dustTT} | 8.78 | 8.9 ± 1.8 | Y_P | 0.24394 | 0.2447 ± 0.0025 | $f\sigma_8(2.33)$ | 0.29980 | 0.2986 ± 0.0050 |
| A_{143}^{dustTT} | 10.96 | 10.8 ± 1.8 | Y_P^{BBN} | 0.24526 | 0.2460 ± 0.0025 | $\sigma_8(2.33)$ | 0.3097 | 0.3080 ± 0.0054 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.78 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5539 | 2.565 ± 0.046 | f_{2000}^{143} | 27.87 | 28.9 ± 3.0 |
| A_{217}^{dustTT} | 95.2 | 93.8 ± 7.3 | Age/Gyr | 13.867 | 13.83 ± 0.18 | $f_{2000}^{143 \times 217}$ | 31.27 | 31.6 ± 2.1 |
| A_{100}^{dustTE} | 0.1146 | 0.114 ± 0.038 | z_* | 1089.656 | 1089.71 ± 0.34 | f_{2000}^{217} | 105.93 | 106.5 ± 2.0 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1355 | 0.134 ± 0.029 | r_* | 145.57 | 145.1 ± 1.8 | χ_{simall}^2 | 395.86 | 397.2 ± 2.1 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 | 0.482 ± 0.084 | $100\theta_*$ | 1.04142 | 1.04133 ± 0.00053 | χ_{lowl}^2 | 23.60 | 23.5 ± 1.1 |
| A_{143}^{dustTE} | 0.226 | 0.224 ± 0.053 | $D_M(z_*)/\text{Gpc}$ | 13.978 | 13.93 ± 0.16 | χ_{plik}^2 | 2343.2 | 2359.9 ± 6.3 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 | 0.664 ± 0.081 | z_{drag} | 1059.63 | 1059.82 ± 0.70 | χ_{JLA}^2 | 1034.910 | 1035.07 ± 0.33 |
| A_{217}^{dustTE} | 2.075 | 2.07 ± 0.27 | r_{drag} | 148.25 | 147.8 ± 1.8 | $\chi_{6\text{DF}}^2$ | 0.0104 | 0.049 ± 0.064 |
| c_{100} | 0.99973 | 0.99968 ± 0.00062 | k_D | 0.14003 | 0.1404 ± 0.0013 | χ_{MGS}^2 | 1.407 | 1.36 ± 0.47 |
| c_{217} | 0.99815 | 0.99820 ± 0.00061 | $100\theta_D$ | 0.160503 | 0.16062 ± 0.00040 | χ_{DR12BAO}^2 | 3.92 | 4.6 ± 1.4 |
| H_0 | 67.44 | 67.6 ± 1.1 | z_{eq} | 3398.6 | 3390 ± 25 | χ_{prior}^2 | 1.62 | 11.4 ± 4.6 |
| Ω_Λ | 0.6918 | 0.6902 ± 0.0068 | k_{eq} | 0.010298 | 0.01031 ± 0.00012 | χ_{BAO}^2 | 5.337 | 6.0 ± 1.1 |
| Ω_m | 0.3082 | 0.3098 ± 0.0068 | $100\theta_{\text{eq}}$ | 0.81393 | 0.8157 ± 0.0047 | χ_{CMB}^2 | 2762.7 | 2780.6 ± 6.1 |
| $\Omega_m h^2$ | 0.14018 | 0.1413 ± 0.0032 | $100\theta_{s,\text{eq}}$ | 0.44974 | 0.4506 ± 0.0024 | | | |
| $\Omega_\nu h^2$ | $0.8 \cdot 10^{-5}$ | < 0.000577 | $H(0.15)$ | 72.66 | 72.8 ± 1.1 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3804.54$; $\bar{\chi}_{\text{eff}}^2 = 3833.11$; $R - 1 = 0.00833$
 χ_{eff}^2 : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.92 CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.86 commander_dx12_v3_2_29: 23.60 plik_rd12_HM_v22b_TTTEEE: 2343.21 SN - JLA Pantheon18: 1034.91

9.10 base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02239 ± 0.00018 | $\Omega_m h^3$ | 0.0956 ± 0.0035 | $D_M(0.15)$ | 642 ± 10 |
| $\Omega_c h^2$ | 0.1185 ± 0.0030 | σ_8 | 0.813 ± 0.013 | $H(0.38)$ | 82.9 ± 1.2 |
| $100\theta_{MC}$ | 1.04112 ± 0.00043 | S_8 | 0.826 ± 0.014 | $D_M(0.38)$ | 1531 ± 24 |
| τ | $0.0563^{+0.0055}_{-0.0084}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4522 ± 0.0075 | $H(0.51)$ | 89.6 ± 1.2 |
| Σm_ν [eV] | < 0.0558 | $\sigma_8 \Omega_m^{0.25}$ | 0.6062 ± 0.0094 | $D_M(0.51)$ | 1984 ± 30 |
| N_{eff} | 3.00 ± 0.18 | $\sigma_8/h^{0.5}$ | $0.989^{+0.014}_{-0.011}$ | $H(0.61)$ | 95.2 ± 1.3 |
| $\ln(10^{10} A_s)$ | $3.044^{+0.015}_{-0.019}$ | $r_{\text{drag}} h$ | 99.82 ± 0.84 | $D_M(0.61)$ | 2309 ± 34 |
| n_s | 0.9653 ± 0.0070 | $\langle d^2 \rangle^{1/2}$ | 2.441 ± 0.026 | $H(2.33)$ | 235.3 ± 2.7 |
| y_{cal} | 1.0006 ± 0.0025 | z_{re} | $7.83^{+0.60}_{-0.83}$ | $D_M(2.33)$ | 5775 ± 74 |
| A_{217}^{CIB} | 46 ± 7 | $10^9 A_s$ | $2.100^{+0.030}_{-0.040}$ | $f\sigma_8(0.15)$ | 0.4568 ± 0.0072 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.876 ± 0.018 | $\sigma_8(0.15)$ | 0.751 ± 0.012 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1230 ± 14 | $f\sigma_8(0.38)$ | 0.4756 ± 0.0071 |
| A_{100}^{PS} | 257 ± 28 | D_{220} | 5737 ± 38 | $\sigma_8(0.38)$ | 0.666 ± 0.011 |
| A_{143}^{PS} | 45 ± 8 | D_{810} | 2538 ± 14 | $f\sigma_8(0.51)$ | 0.4744 ± 0.0070 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.9 ± 4.8 | $\sigma_8(0.51)$ | 0.623 ± 0.011 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.4 ± 1.8 | $f\sigma_8(0.61)$ | 0.4695 ± 0.0069 |
| A^{kSZ} | < 4.03 | $n_{s,0.002}$ | 0.9653 ± 0.0070 | $\sigma_8(0.61)$ | 0.593 ± 0.010 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | Y_P | 0.2447 ± 0.0024 | $f\sigma_8(2.33)$ | 0.2989 ± 0.0048 |
| $A_{143}^{\text{dust}TT}$ | 10.8 ± 1.8 | Y_P^{BBN} | 0.2460 ± 0.0025 | $\sigma_8(2.33)$ | 0.3083 ± 0.0053 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.5 ± 3.3 | 10^5D/H | 2.565 ± 0.045 | f_{2000}^{143} | 28.8 ± 3.0 |
| $A_{217}^{\text{dust}TT}$ | 93.8 ± 7.3 | Age/Gyr | 13.83 ± 0.18 | $f_{2000}^{143 \times 217}$ | 31.6 ± 2.1 |
| $A_{100}^{\text{dust}TE}$ | 0.114 ± 0.038 | z_* | 1089.71 ± 0.34 | f_{2000}^{217} | 106.5 ± 2.0 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.134 ± 0.029 | r_* | 145.1 ± 1.8 | χ_{simall}^2 | 397.2 ± 2.1 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.482 ± 0.084 | $100\theta_*$ | 1.04132 ± 0.00053 | χ_{lowl}^2 | 23.5 ± 1.1 |
| $A_{143}^{\text{dust}TE}$ | 0.224 ± 0.053 | $D_M(z_*)/\text{Gpc}$ | 13.93 ± 0.16 | χ_{plik}^2 | 2359.7 ± 6.2 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.664 ± 0.080 | z_{drag} | 1059.83 ± 0.70 | χ_{JLA}^2 | 1035.06 ± 0.33 |
| $A_{217}^{\text{dust}TE}$ | 2.07 ± 0.27 | r_{drag} | 147.7 ± 1.8 | $\chi_{6\text{DF}}^2$ | 0.048 ± 0.063 |
| c_{100} | 0.99968 ± 0.00062 | k_D | 0.1404 ± 0.0013 | χ_{MGS}^2 | 1.37 ± 0.47 |
| c_{217} | 0.99820 ± 0.00061 | $100\theta_D$ | 0.16062 ± 0.00040 | χ_{DR12BAO}^2 | 4.6 ± 1.4 |
| H_0 | 67.6 ± 1.1 | z_{eq} | 3389 ± 24 | χ_{prior}^2 | 11.4 ± 4.6 |
| Ω_Λ | 0.6903 ± 0.0068 | k_{eq} | 0.01031 ± 0.00012 | χ_{BAO}^2 | 6.0 ± 1.1 |
| Ω_m | 0.3097 ± 0.0068 | $100\theta_{\text{eq}}$ | 0.8158 ± 0.0046 | χ_{CMB}^2 | 2780.4 ± 6.1 |
| $\Omega_m h^2$ | 0.1414 ± 0.0032 | $100\theta_{s,\text{eq}}$ | 0.4507 ± 0.0024 | | |
| $\Omega_\nu h^2$ | < 0.000584 | $H(0.15)$ | 72.8 ± 1.1 | | |

$$\bar{\chi}_{\text{eff}}^2 = 3832.93; R - 1 = 0.00910$$

9.11 base_nnu_mnu_plikHM_TT_lowl_lowE_lensing_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|---------------------|-----------------------|------------------------------------|----------|---------------------------|-----------------------------|----------|---------------------|
| $\Omega_{\text{b}}h^2$ | 0.022184 | 0.02223 ± 0.00024 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6092 | 0.6062 ± 0.0089 | $D_{\text{M}}(0.38)$ | 1531.5 | 1524 ± 30 |
| $\Omega_{\text{c}}h^2$ | 0.11826 | 0.1199 ± 0.0038 | $\sigma_8/h^{0.5}$ | 0.9952 | $0.986_{-0.010}^{+0.013}$ | $H(0.51)$ | 89.45 | 90.0 ± 1.6 |
| $100\theta_{\text{MC}}$ | 1.04106 | 1.04090 ± 0.00057 | $r_{\text{drag}}h$ | 100.10 | 99.9 ± 1.0 | $D_{\text{M}}(0.51)$ | 1984.5 | 1974 ± 38 |
| τ | 0.0530 | 0.0544 ± 0.0077 | $\langle d^2 \rangle^{1/2}$ | 2.4418 | 2.433 ± 0.024 | $H(0.61)$ | 95.01 | 95.6 ± 1.6 |
| $\Sigma m_{\nu} [\text{eV}]$ | 0.0004 | < 0.0687 | z_{re} | 7.55 | 7.70 ± 0.78 | $D_{\text{M}}(0.61)$ | 2309.8 | 2298 ± 44 |
| N_{eff} | 2.978 | 3.09 ± 0.23 | $10^9 A_{\text{s}}$ | 2.0835 | $2.098_{-0.040}^{+0.036}$ | $H(2.33)$ | 234.68 | 236.4 ± 3.4 |
| $\ln(10^{10} A_{\text{s}})$ | 3.0366 | 3.044 ± 0.018 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8739 | 1.882 ± 0.021 | $D_{\text{M}}(2.33)$ | 5783 | 5748 ± 95 |
| n_{s} | 0.9646 | 0.9674 ± 0.0089 | D_{40} | 1227.2 | 1226 ± 15 | $f\sigma_8(0.15)$ | 0.4578 | 0.4568 ± 0.0068 |
| y_{cal} | 1.00030 | 1.0006 ± 0.0025 | D_{220} | 5715.0 | 5722 ± 41 | $\sigma_8(0.15)$ | 0.7563 | 0.751 ± 0.013 |
| A_{217}^{CIB} | 47.4 | 48 ± 7 | D_{810} | 2535.4 | 2537 ± 14 | $f\sigma_8(0.38)$ | 0.4771 | 0.4757 ± 0.0067 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.46 | — | D_{1420} | 816.3 | 815.1 ± 5.2 | $\sigma_8(0.38)$ | 0.6706 | 0.666 ± 0.012 |
| A_{143}^{tSZ} | 7.02 | 5.0 ± 2.0 | D_{2000} | 230.71 | 229.7 ± 2.2 | $f\sigma_8(0.51)$ | 0.4761 | 0.4745 ± 0.0067 |
| A_{100}^{PS} | 250.8 | 264 ± 29 | $n_{\text{s},0.002}$ | 0.9646 | 0.9674 ± 0.0089 | $\sigma_8(0.51)$ | 0.6276 | 0.624 ± 0.011 |
| A_{143}^{PS} | 49.7 | 49 ± 9 | Y_{P} | 0.24441 | 0.2459 ± 0.0032 | $f\sigma_8(0.61)$ | 0.4713 | 0.4697 ± 0.0067 |
| $A_{143 \times 217}^{\text{PS}}$ | 49.4 | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24573 | 0.2472 ± 0.0032 | $\sigma_8(0.61)$ | 0.5972 | 0.593 ± 0.011 |
| A_{217}^{PS} | 120.2 | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.597 | 2.628 ± 0.067 | $f\sigma_8(2.33)$ | 0.3003 | 0.2993 ± 0.0053 |
| A^{kSZ} | 0.01 | < 4.94 | Age/Gyr | 13.847 | 13.76 ± 0.23 | $\sigma_8(2.33)$ | 0.3102 | 0.3086 ± 0.0058 |
| A_{100}^{dustTT} | 8.87 | 8.9 ± 1.8 | z_* | 1089.930 | 1090.12 ± 0.47 | f_{2000}^{143} | 29.40 | 31.2 ± 3.4 |
| A_{143}^{dustTT} | 10.82 | 10.7 ± 1.8 | r_* | 145.37 | 144.4 ± 2.2 | $f_{2000}^{143 \times 217}$ | 32.52 | 33.6 ± 2.5 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.63 | 18.3 ± 3.3 | $100\theta_*$ | 1.04128 | 1.04107 ± 0.00068 | f_{2000}^{217} | 106.94 | 108.2 ± 2.3 |
| A_{217}^{dustTT} | 95.1 | 93.4 ± 7.4 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.961 | 13.87 ± 0.21 | χ_{lensing}^2 | 8.81 | 9.52 ± 0.90 |
| c_{100} | 0.99965 | 0.99962 ± 0.00062 | z_{drag} | 1059.32 | 1059.64 ± 0.89 | χ_{small}^2 | 395.85 | 397.1 ± 1.8 |
| c_{217} | 0.99825 | 0.99826 ± 0.00063 | r_{drag} | 148.11 | 147.1 ± 2.3 | χ_{lowl}^2 | 23.32 | 23.2 ± 1.3 |
| H_0 | 67.58 | 67.9 ± 1.5 | k_{D} | 0.13991 | 0.1406 ± 0.0017 | χ_{plik}^2 | 758.7 | 772.4 ± 5.6 |
| Ω_{Λ} | 0.6925 | 0.6906 ± 0.0084 | $100\theta_{\text{D}}$ | 0.16084 | 0.16112 ± 0.00058 | $\chi_{6\text{DF}}^2$ | 0.0061 | 0.060 ± 0.082 |
| Ω_{m} | 0.3075 | 0.3094 ± 0.0084 | z_{eq} | 3386.9 | 3375 ± 31 | χ_{MGS}^2 | 1.47 | 1.42 ± 0.59 |
| $\Omega_{\text{m}}h^2$ | 0.14045 | 0.1427 ± 0.0040 | k_{eq} | 0.010290 | 0.01033 ± 0.00014 | χ_{DR12BAO}^2 | 3.77 | 4.7 ± 1.7 |
| $\Omega_{\nu}h^2$ | $0.5 \cdot 10^{-5}$ | < 0.000725 | $100\theta_{\text{eq}}$ | 0.8155 | 0.8179 ± 0.0059 | χ_{prior}^2 | 1.32 | 7.3 ± 3.6 |
| $\Omega_{\text{m}}h^3$ | 0.09492 | 0.0970 ± 0.0046 | $100\theta_{\text{s,eq}}$ | 0.45069 | 0.4519 ± 0.0030 | χ_{CMB}^2 | 1186.6 | 1202.1 ± 5.7 |
| σ_8 | 0.8181 | 0.813 ± 0.013 | $H(0.15)$ | 72.80 | 73.2 ± 1.5 | χ_{BAO}^2 | 5.24 | 6.2 ± 1.4 |
| S_8 | 0.8283 | 0.825 ± 0.013 | $D_{\text{M}}(0.15)$ | 641.7 | 639 ± 13 | | | |
| $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4537 | 0.4521 ± 0.0072 | $H(0.38)$ | 82.80 | 83.3 ± 1.5 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1193.21$; $\Delta\chi_{\text{eff}}^2 = -1.47$; $\bar{\chi}_{\text{eff}}^2 = 1215.63$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.90$; $R - 1 = 0.00858$
 χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.02) MGS: 1.47 (Δ 0.26) DR12BAO: 3.77 (Δ -0.61) CMB - smicadx12_Dec5_ftl_mv2_ndclpp-p.teb.consext8: 8.81 (Δ -0.06) small_100x143_offlike5_EE_Aplanc
395.85 (Δ -0.24) commander_dx12_v3.2.29: 23.32 (Δ 0.37) plik_rd12_HM_v22.TT: 758.66 (Δ -1.14)

9.12 base_nnu_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|---------------------|-----------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022226 | 0.02225 ± 0.00024 | $\sigma_8 \Omega_m^{0.25}$ | 0.6090 | 0.6063 ± 0.0088 | $D_M(0.38)$ | 1527.8 | 1521 ± 29 |
| $\Omega_c h^2$ | 0.11853 | 0.1200 ± 0.0037 | $\sigma_8/h^{0.5}$ | 0.9943 | $0.986^{+0.013}_{-0.010}$ | $H(0.51)$ | 89.63 | 90.1 ± 1.5 |
| $100\theta_{MC}$ | 1.04103 | 1.04089 ± 0.00056 | $r_{drag}h$ | 100.22 | 100.04 ± 0.97 | $D_M(0.51)$ | 1979.9 | 1970 ± 37 |
| τ | 0.0531 | 0.0547 ± 0.0076 | $\langle d^2 \rangle^{1/2}$ | 2.4407 | 2.431 ± 0.024 | $H(0.61)$ | 95.19 | 95.8 ± 1.6 |
| Σm_ν [eV] | 0.0005 | < 0.0657 | z_{re} | 7.55 | 7.73 ± 0.77 | $D_M(0.61)$ | 2304.5 | 2293 ± 42 |
| N_{eff} | 3.000 | 3.11 ± 0.23 | $10^9 A_s$ | 2.0849 | 2.101 ± 0.038 | $H(2.33)$ | 234.97 | 236.6 ± 3.4 |
| $\ln(10^{10} A_s)$ | 3.0373 | 3.045 ± 0.018 | $10^9 A_s e^{-2\tau}$ | 1.8749 | 1.883 ± 0.020 | $D_M(2.33)$ | 5773 | 5740 ± 93 |
| n_s | 0.9649 | 0.9682 ± 0.0086 | D_{40} | 1227.5 | 1225 ± 15 | $f\sigma_8(0.15)$ | 0.4574 | 0.4565 ± 0.0067 |
| y_{cal} | 1.00035 | 1.0006 ± 0.0025 | D_{220} | 5719.5 | 5723 ± 41 | $\sigma_8(0.15)$ | 0.7567 | 0.752 ± 0.012 |
| A_{217}^{CIB} | 49.4 | 48 ± 7 | D_{810} | 2534.8 | 2537 ± 14 | $f\sigma_8(0.38)$ | 0.4769 | 0.4757 ± 0.0067 |
| $\xi^{tSZ \times CIB}$ | 0.22 | — | D_{1420} | 815.8 | 815.1 ± 5.2 | $\sigma_8(0.38)$ | 0.6711 | 0.667 ± 0.011 |
| A_{143}^{tSZ} | 7.20 | 5.0 ± 2.0 | D_{2000} | 230.47 | 229.7 ± 2.2 | $f\sigma_8(0.51)$ | 0.4760 | 0.4747 ± 0.0066 |
| A_{100}^{PS} | 253.6 | 264 ± 29 | $n_{s,0.002}$ | 0.9649 | 0.9682 ± 0.0086 | $\sigma_8(0.51)$ | 0.6282 | 0.625 ± 0.011 |
| A_{143}^{PS} | 46.4 | 49 ± 8 | Y_P | 0.24472 | 0.2461 ± 0.0031 | $f\sigma_8(0.61)$ | 0.4713 | 0.4700 ± 0.0067 |
| $A_{143 \times 217}^{PS}$ | 43.2 | 43 ± 9 | Y_P^{BBN} | 0.24604 | 0.2475 ± 0.0031 | $\sigma_8(0.61)$ | 0.5978 | 0.594 ± 0.010 |
| A_{217}^{PS} | 117.1 | 115 ± 10 | $10^5 D/H$ | 2.597 | 2.630 ± 0.066 | $f\sigma_8(2.33)$ | 0.3006 | 0.2998 ± 0.0051 |
| A^{kSZ} | 0.01 | < 5.01 | Age/Gyr | 13.822 | 13.74 ± 0.22 | $\sigma_8(2.33)$ | 0.3106 | 0.3092 ± 0.0056 |
| A_{100}^{dustTT} | 8.87 | 8.9 ± 1.8 | z_* | 1089.921 | 1090.12 ± 0.47 | f_{2000}^{143} | 29.84 | 31.3 ± 3.4 |
| A_{143}^{dustTT} | 10.86 | 10.7 ± 1.8 | r_* | 145.16 | 144.3 ± 2.2 | $f_{2000}^{143 \times 217}$ | 32.74 | 33.6 ± 2.5 |
| $A_{143 \times 217}^{dustTT}$ | 19.32 | 18.3 ± 3.3 | $100\theta_*$ | 1.04123 | 1.04105 ± 0.00068 | f_{2000}^{217} | 107.23 | 108.2 ± 2.3 |
| A_{217}^{dustTT} | 94.4 | 93.4 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.941 | 13.86 ± 0.20 | $\chi_{lensing}^2$ | 8.80 | 9.54 ± 0.90 |
| c_{100} | 0.99961 | 0.99962 ± 0.00062 | z_{drag} | 1059.44 | 1059.70 ± 0.87 | χ_{small}^2 | 395.86 | 397.1 ± 1.8 |
| c_{217} | 0.99826 | 0.99827 ± 0.00062 | r_{drag} | 147.88 | 147.0 ± 2.3 | χ_{lowl}^2 | 23.32 | 23.1 ± 1.2 |
| H_0 | 67.77 | 68.1 ± 1.4 | k_D | 0.14010 | 0.1407 ± 0.0016 | χ_{plik}^2 | 758.5 | 772.5 ± 5.5 |
| Ω_Λ | 0.6935 | 0.6919 ± 0.0078 | $100\theta_D$ | 0.16085 | 0.16115 ± 0.00058 | χ_{JLA}^2 | 1034.852 | 1035.03 ± 0.34 |
| Ω_m | 0.3065 | 0.3081 ± 0.0078 | z_{eq} | 3384.4 | 3371 ± 30 | χ_{6DF}^2 | 0.0030 | 0.048 ± 0.066 |
| $\Omega_m h^2$ | 0.14076 | 0.1428 ± 0.0040 | k_{eq} | 0.010297 | 0.01033 ± 0.00014 | χ_{MGS}^2 | 1.54 | 1.51 ± 0.56 |
| $\Omega_\nu h^2$ | $0.5 \cdot 10^{-5}$ | < 0.000696 | $100\theta_{eq}$ | 0.8161 | 0.8187 ± 0.0056 | $\chi_{DR12BAO}^2$ | 3.67 | 4.5 ± 1.4 |
| $\Omega_m h^3$ | 0.09539 | 0.0973 ± 0.0045 | $100\theta_{s,eq}$ | 0.45095 | 0.4523 ± 0.0028 | χ_{prior}^2 | 1.58 | 7.3 ± 3.6 |
| σ_8 | 0.8185 | 0.814 ± 0.013 | $H(0.15)$ | 72.98 | 73.4 ± 1.4 | χ_{CMB}^2 | 1186.5 | 1202.2 ± 5.7 |
| S_8 | 0.8273 | 0.825 ± 0.013 | $D_M(0.15)$ | 640.1 | 637 ± 13 | χ_{BAO}^2 | 5.21 | 6.0 ± 1.1 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4531 | 0.4517 ± 0.0071 | $H(0.38)$ | 82.98 | 83.4 ± 1.5 | | | |

Best-fit $\chi_{eff}^2 = 2228.14$; $\Delta\chi_{eff}^2 = -1.57$; $\bar{\chi}_{eff}^2 = 2250.50$; $\Delta\bar{\chi}_{eff}^2 = 0.73$; $R - 1 = 0.00908$
 χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.01) MGS: 1.54 (Δ 0.20) DR12BAO: 3.67 (Δ -0.37) CMB - smicadx12_Dec5_ftl_mv2_ndclpp-p.teb.consext8: 8.80 (Δ -0.08) small_100x143_offlike5_EE_Aplanc
395.86 (Δ -0.51) commander_dx12_v3.2_29: 23.32 (Δ 0.51) plik_rd12_HM_v22.TT: 758.53 (Δ -1.26) SN - JLA Pantheon18: 1034.85 (Δ -0.10)

9.13 base_nnu_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02226 ± 0.00023 | $\sigma_8 \Omega_m^{0.25}$ | 0.6065 ± 0.0088 | $D_M(0.38)$ | 1520 ± 29 |
| $\Omega_c h^2$ | 0.1200 ± 0.0037 | $\sigma_8 / h^{0.5}$ | $0.987^{+0.013}_{-0.010}$ | $H(0.51)$ | 90.2 ± 1.5 |
| $100\theta_{MC}$ | 1.04089 ± 0.00056 | $r_{drag} h$ | 100.07 ± 0.97 | $D_M(0.51)$ | 1970 ± 37 |
| τ | $0.0556^{+0.0055}_{-0.0081}$ | $\langle d^2 \rangle^{1/2}$ | 2.432 ± 0.023 | $H(0.61)$ | 95.8 ± 1.6 |
| Σm_ν [eV] | < 0.0670 | z_{re} | $7.83^{+0.60}_{-0.80}$ | $D_M(0.61)$ | 2292 ± 42 |
| N_{eff} | 3.11 ± 0.23 | $10^9 A_s$ | $2.104^{+0.031}_{-0.039}$ | $H(2.33)$ | 236.6 ± 3.4 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.015}_{-0.018}$ | $10^9 A_s e^{-2\tau}$ | 1.883 ± 0.020 | $D_M(2.33)$ | 5739 ± 92 |
| n_s | 0.9684 ± 0.0086 | D_{40} | 1225 ± 15 | $f\sigma_8(0.15)$ | 0.4566 ± 0.0067 |
| y_{cal} | 1.0006 ± 0.0025 | D_{220} | 5723 ± 41 | $\sigma_8(0.15)$ | 0.753 ± 0.012 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 14 | $f\sigma_8(0.38)$ | 0.4759 ± 0.0066 |
| $\xi^{tSZ \times CIB}$ | — | D_{1420} | 815.1 ± 5.2 | $\sigma_8(0.38)$ | 0.668 ± 0.011 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{2000} | 229.7 ± 2.2 | $f\sigma_8(0.51)$ | 0.4749 ± 0.0066 |
| A_{100}^{PS} | 264 ± 29 | $n_{s,0.002}$ | 0.9684 ± 0.0086 | $\sigma_8(0.51)$ | 0.625 ± 0.011 |
| A_{143}^{PS} | 49 ± 8 | Y_P | 0.2462 ± 0.0031 | $f\sigma_8(0.61)$ | 0.4702 ± 0.0066 |
| $A_{143 \times 217}^{PS}$ | 43 ± 9 | Y_P^{BBN} | 0.2475 ± 0.0031 | $\sigma_8(0.61)$ | 0.595 ± 0.010 |
| A_{217}^{PS} | 115 ± 10 | $10^5 D/H$ | 2.630 ± 0.066 | $f\sigma_8(2.33)$ | 0.3000 ± 0.0051 |
| A^{kSZ} | < 5.01 | Age/Gyr | 13.74 ± 0.22 | $\sigma_8(2.33)$ | 0.3095 ± 0.0056 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | z_* | 1090.12 ± 0.47 | f_{2000}^{143} | 31.3 ± 3.4 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.3 ± 2.2 | $f_{2000}^{143 \times 217}$ | 33.6 ± 2.5 |
| $A_{143 \times 217}^{dustTT}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04105 ± 0.00068 | f_{2000}^{217} | 108.2 ± 2.3 |
| A_{217}^{dustTT} | 93.4 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.86 ± 0.20 | $\chi_{lensing}^2$ | 9.51 ± 0.88 |
| c_{100} | 0.99962 ± 0.00062 | z_{drag} | 1059.71 ± 0.87 | χ_{simall}^2 | 397.1 ± 1.8 |
| c_{217} | 0.99827 ± 0.00062 | r_{drag} | 147.0 ± 2.3 | χ_{lowl}^2 | 23.0 ± 1.2 |
| H_0 | 68.1 ± 1.4 | k_D | 0.1407 ± 0.0016 | χ_{plik}^2 | 772.4 ± 5.5 |
| Ω_Λ | 0.6921 ± 0.0077 | $100\theta_D$ | 0.16116 ± 0.00058 | χ_{JLA}^2 | 1035.02 ± 0.33 |
| Ω_m | 0.3079 ± 0.0077 | z_{eq} | 3370 ± 29 | χ_{6DF}^2 | 0.046 ± 0.065 |
| $\Omega_m h^2$ | 0.1428 ± 0.0040 | k_{eq} | 0.01033 ± 0.00014 | χ_{MGS}^2 | 1.52 ± 0.56 |
| $\Omega_\nu h^2$ | < 0.000711 | $100\theta_{eq}$ | 0.8189 ± 0.0055 | $\chi_{DR12BAO}^2$ | 4.4 ± 1.3 |
| $\Omega_m h^3$ | 0.0973 ± 0.0045 | $100\theta_{s,eq}$ | 0.4524 ± 0.0028 | χ_{prior}^2 | 7.3 ± 3.6 |
| σ_8 | 0.814 ± 0.013 | $H(0.15)$ | 73.4 ± 1.4 | χ_{CMB}^2 | 1202.0 ± 5.7 |
| S_8 | 0.825 ± 0.013 | $D_M(0.15)$ | 637 ± 13 | χ_{BAO}^2 | 6.0 ± 1.1 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4518 ± 0.0071 | $H(0.38)$ | 83.5 ± 1.5 | | |

$$\bar{\chi}_{eff}^2 = 2250.35; \Delta\bar{\chi}_{eff}^2 = 0.72; R - 1 = 0.00891$$

9.14 base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|---------------------|-----------------------|-----------------------------|----------|----------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022329 | 0.02236 ± 0.00019 | $\Omega_m h^3$ | 0.09360 | 0.0948 ± 0.0035 | $D_M(0.15)$ | 645.3 | 644 ± 11 |
| $\Omega_c h^2$ | 0.11694 | 0.1180 ± 0.0029 | σ_8 | 0.8158 | 0.811 ± 0.011 | $H(0.38)$ | 82.38 | 82.6 ± 1.2 |
| $100\theta_{MC}$ | 1.041277 | 1.04116 ± 0.00044 | S_8 | 0.8271 | 0.825 ± 0.011 | $D_M(0.38)$ | 1539.7 | 1537 ± 24 |
| τ | 0.0546 | 0.0552 ± 0.0075 | $\sigma_8 \Omega_m^{0.5}$ | 0.4530 | 0.4520 ± 0.0062 | $H(0.51)$ | 89.00 | 89.3 ± 1.2 |
| Σm_ν [eV] | 0.0002 | < 0.0549 | $\sigma_8 \Omega_m^{0.25}$ | 0.6079 | 0.6054 ± 0.0076 | $D_M(0.51)$ | 1995.1 | 1991 ± 30 |
| N_{eff} | 2.890 | 2.96 ± 0.18 | $\sigma_8/h^{0.5}$ | 0.9952 | $0.988_{-0.0094}^{+0.011}$ | $H(0.61)$ | 94.55 | 94.9 ± 1.2 |
| $\ln(10^{10} A_s)$ | 3.0376 | 3.041 ± 0.017 | $r_{\text{drag}} h$ | 99.98 | 99.67 ± 0.88 | $D_M(0.61)$ | 2321.9 | 2317 ± 35 |
| n_s | 0.9627 | 0.9636 ± 0.0071 | $\langle d^2 \rangle^{1/2}$ | 2.4478 | 2.442 ± 0.022 | $H(2.33)$ | 233.67 | 234.8 ± 2.6 |
| y_{cal} | 1.00055 | 1.0006 ± 0.0024 | z_{re} | 7.64 | 7.71 ± 0.76 | $D_M(2.33)$ | 5811 | 5791 ± 74 |
| A_{217}^{CIB} | 43.5 | 46 ± 7 | $10^9 A_s$ | 2.0856 | 2.093 ± 0.035 | $f\sigma_8(0.15)$ | 0.4571 | 0.4565 ± 0.0059 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.98 | — | $10^9 A_s e^{-2\tau}$ | 1.8698 | 1.874 ± 0.017 | $\sigma_8(0.15)$ | 0.7540 | 0.749 ± 0.011 |
| A_{143}^{tSZ} | 7.02 | $5.6_{-1.9}^{+2.1}$ | D_{40} | 1231.5 | 1232 ± 13 | $f\sigma_8(0.38)$ | 0.4761 | 0.4749 ± 0.0057 |
| A_{100}^{PS} | 241.9 | 256 ± 28 | D_{220} | 5734.0 | 5738 ± 37 | $\sigma_8(0.38)$ | 0.6685 | 0.6641 ± 0.0098 |
| A_{143}^{PS} | 52.2 | 44 ± 8 | D_{810} | 2538.6 | 2538 ± 13 | $f\sigma_8(0.51)$ | 0.4750 | 0.4736 ± 0.0057 |
| $A_{143 \times 217}^{\text{PS}}$ | 59.1 | 42 ± 9 | D_{1420} | 819.77 | 818.1 ± 4.8 | $\sigma_8(0.51)$ | 0.6257 | 0.6215 ± 0.0094 |
| A_{217}^{PS} | 124.3 | 115 ± 10 | D_{2000} | 232.54 | 231.6 ± 1.8 | $f\sigma_8(0.61)$ | 0.4702 | 0.4687 ± 0.0057 |
| A^{kSZ} | 0.01 | < 3.92 | $n_{s,0.002}$ | 0.9627 | 0.9636 ± 0.0071 | $\sigma_8(0.61)$ | 0.5954 | 0.5914 ± 0.0090 |
| $A_{100}^{\text{dust}TT}$ | 8.77 | 8.9 ± 1.8 | Y_P | 0.24327 | 0.2442 ± 0.0024 | $f\sigma_8(2.33)$ | 0.29933 | 0.2980 ± 0.0044 |
| $A_{143}^{\text{dust}TT}$ | 10.97 | 10.8 ± 1.8 | Y_P^{BBN} | 0.24459 | 0.2455 ± 0.0024 | $\sigma_8(2.33)$ | 0.30918 | 0.3073 ± 0.0049 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 20.47 | 18.5 ± 3.3 | $10^5 D/H$ | 2.5391 | 2.558 ± 0.045 | f_{2000}^{143} | 27.11 | 28.6 ± 3.0 |
| $A_{217}^{\text{dust}TT}$ | 96.2 | 93.8 ± 7.3 | Age/Gyr | 13.913 | 13.87 ± 0.18 | $f_{2000}^{143 \times 217}$ | 30.84 | 31.5 ± 2.1 |
| $A_{100}^{\text{dust}TE}$ | 0.1139 | 0.114 ± 0.038 | z_* | 1089.543 | 1089.67 ± 0.33 | f_{2000}^{217} | 105.33 | 106.4 ± 2.0 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.1347 | 0.135 ± 0.029 | r_* | 146.06 | 145.4 ± 1.7 | χ_{lensing}^2 | 8.663 | 9.11 ± 0.68 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.482 | 0.481 ± 0.085 | $100\theta_*$ | 1.04154 | 1.04140 ± 0.00053 | χ_{simall}^2 | 396.05 | 397.1 ± 1.9 |
| $A_{143}^{\text{dust}TE}$ | 0.223 | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 14.024 | 13.97 ± 0.16 | χ_{lowl}^2 | 23.64 | 23.7 ± 1.2 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.665 | 0.665 ± 0.080 | z_{drag} | 1059.47 | 1059.69 ± 0.70 | χ_{plik}^2 | 2343.0 | 2359.2 ± 5.9 |
| $A_{217}^{\text{dust}TE}$ | 2.072 | 2.08 ± 0.27 | r_{drag} | 148.76 | 148.1 ± 1.8 | $\chi_{6\text{DF}}^2$ | 0.0107 | 0.060 ± 0.077 |
| c_{100} | 0.99975 | 0.99967 ± 0.00061 | k_D | 0.13969 | 0.1401 ± 0.0013 | χ_{MGS}^2 | 1.407 | 1.29 ± 0.48 |
| c_{217} | 0.99814 | 0.99818 ± 0.00062 | $100\theta_D$ | 0.160372 | 0.16054 ± 0.00040 | χ_{DR12BAO}^2 | 3.91 | 4.9 ± 1.6 |
| H_0 | 67.21 | 67.3 ± 1.1 | z_{eq} | 3399.3 | 3394 ± 24 | χ_{prior}^2 | 1.45 | 11.5 ± 4.5 |
| Ω_Λ | 0.6917 | 0.6890 ± 0.0072 | k_{eq} | 0.010266 | 0.01030 ± 0.00011 | χ_{CMB}^2 | 2771.4 | 2789.1 ± 6.0 |
| Ω_m | 0.3083 | 0.3110 ± 0.0072 | $100\theta_{\text{eq}}$ | 0.81381 | 0.8149 ± 0.0046 | χ_{BAO}^2 | 5.33 | 6.2 ± 1.3 |
| $\Omega_m h^2$ | 0.13927 | 0.1408 ± 0.0031 | $100\theta_{s,\text{eq}}$ | 0.44968 | 0.4502 ± 0.0023 | | | |
| $\Omega_\nu h^2$ | $0.2 \cdot 10^{-5}$ | < 0.000573 | $H(0.15)$ | 72.41 | 72.6 ± 1.2 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2778.17$; $\Delta\chi_{\text{eff}}^2 = -2.53$; $\bar{\chi}_{\text{eff}}^2 = 2806.81$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.03$; $R - 1 = 0.00810$
 χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.02) MGS: 1.41 (Δ 0.19) DR12BAO: 3.91 (Δ -0.51) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.66 (Δ -0.07) simall_100x143_offlike5_EE_Aplanc
396.05 (Δ -0.47) commander_dx12_v3.2.29: 23.64 (Δ 0.74) plik_rd12_HM_v22b.TTTEEE: 2343.02 (Δ -2.29)

9.15 base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|---------------------|-----------------------|-----------------------------|----------|----------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022338 | 0.02238 ± 0.00018 | $\Omega_m h^3$ | 0.09363 | 0.0951 ± 0.0034 | $D_M(0.15)$ | 644.6 | 643 ± 10 |
| $\Omega_c h^2$ | 0.11681 | 0.1181 ± 0.0029 | σ_8 | 0.8146 | 0.812 ± 0.011 | $H(0.38)$ | 82.43 | 82.7 ± 1.2 |
| $100\theta_{MC}$ | 1.041304 | 1.04116 ± 0.00044 | S_8 | 0.8245 | 0.825 ± 0.011 | $D_M(0.38)$ | 1538.4 | 1534 ± 23 |
| τ | 0.0537 | 0.0555 ± 0.0075 | $\sigma_8 \Omega_m^{0.5}$ | 0.4516 | 0.4517 ± 0.0061 | $H(0.51)$ | 89.04 | 89.4 ± 1.2 |
| Σm_ν [eV] | 0.0006 | < 0.0518 | $\sigma_8 \Omega_m^{0.25}$ | 0.6065 | 0.6055 ± 0.0075 | $D_M(0.51)$ | 1993.5 | 1987 ± 30 |
| N_{eff} | 2.891 | 2.97 ± 0.17 | $\sigma_8/h^{0.5}$ | 0.9930 | $0.988^{+0.011}_{-0.0093}$ | $H(0.61)$ | 94.58 | 95.0 ± 1.2 |
| $\ln(10^{10} A_s)$ | 3.0354 | 3.042 ± 0.017 | $r_{\text{drag}} h$ | 100.11 | 99.81 ± 0.84 | $D_M(0.61)$ | 2320.2 | 2313 ± 34 |
| n_s | 0.9631 | 0.9643 ± 0.0070 | $\langle d^2 \rangle^{1/2}$ | 2.4425 | 2.441 ± 0.022 | $H(2.33)$ | 233.60 | 234.9 ± 2.6 |
| y_{cal} | 1.00048 | 1.0006 ± 0.0024 | z_{re} | 7.55 | 7.74 ± 0.75 | $D_M(2.33)$ | 5810 | 5785 ± 73 |
| A_{217}^{CIB} | 43.5 | 46 ± 7 | $10^9 A_s$ | 2.0810 | 2.095 ± 0.035 | $f\sigma_8(0.15)$ | 0.4558 | 0.4562 ± 0.0058 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.95 | — | $10^9 A_s e^{-2\tau}$ | 1.8692 | 1.875 ± 0.017 | $\sigma_8(0.15)$ | 0.7530 | 0.750 ± 0.011 |
| A_{143}^{tSZ} | 6.93 | $5.6^{+2.2}_{-1.9}$ | D_{40} | 1230.2 | 1231 ± 13 | $f\sigma_8(0.38)$ | 0.4749 | 0.4749 ± 0.0057 |
| A_{100}^{PS} | 243.0 | 256 ± 28 | D_{220} | 5734.2 | 5739 ± 37 | $\sigma_8(0.38)$ | 0.6677 | 0.6651 ± 0.0096 |
| A_{143}^{PS} | 51.6 | 44 ± 8 | D_{810} | 2538.6 | 2538 ± 13 | $f\sigma_8(0.51)$ | 0.4739 | 0.4737 ± 0.0057 |
| $A_{143 \times 217}^{\text{PS}}$ | 58.1 | 42 ± 9 | D_{1420} | 819.89 | 818.2 ± 4.8 | $\sigma_8(0.51)$ | 0.6249 | 0.6224 ± 0.0092 |
| A_{217}^{PS} | 124.1 | 115 ± 10 | D_{2000} | 232.56 | 231.6 ± 1.8 | $f\sigma_8(0.61)$ | 0.4692 | 0.4688 ± 0.0057 |
| A^{kSZ} | 0.01 | < 3.91 | $n_{s,0.002}$ | 0.9631 | 0.9643 ± 0.0070 | $\sigma_8(0.61)$ | 0.5947 | 0.5923 ± 0.0088 |
| A_{100}^{dustTT} | 8.79 | 8.9 ± 1.8 | Y_P | 0.24329 | 0.2444 ± 0.0024 | $f\sigma_8(2.33)$ | 0.29903 | 0.2984 ± 0.0043 |
| A_{143}^{dustTT} | 10.96 | 10.8 ± 1.8 | Y_P^{BBN} | 0.24461 | 0.2457 ± 0.0024 | $\sigma_8(2.33)$ | 0.30891 | 0.3079 ± 0.0048 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.30 | 18.5 ± 3.3 | $10^5 D/H$ | 2.5378 | 2.559 ± 0.045 | f_{2000}^{143} | 26.94 | 28.6 ± 3.0 |
| A_{217}^{dustTT} | 96.1 | 93.8 ± 7.3 | Age/Gyr | 13.910 | 13.85 ± 0.17 | $f_{2000}^{143 \times 217}$ | 30.72 | 31.5 ± 2.1 |
| A_{100}^{dustTE} | 0.1144 | 0.114 ± 0.038 | z_* | 1089.521 | 1089.67 ± 0.33 | f_{2000}^{217} | 105.29 | 106.4 ± 2.0 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1344 | 0.135 ± 0.029 | r_* | 146.09 | 145.3 ± 1.7 | χ_{lensing}^2 | 8.609 | 9.12 ± 0.68 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 | 0.481 ± 0.085 | $100\theta_*$ | 1.04156 | 1.04138 ± 0.00053 | χ_{small}^2 | 395.92 | 397.2 ± 1.9 |
| A_{143}^{dustTE} | 0.225 | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 14.026 | 13.96 ± 0.16 | χ_{lowl}^2 | 23.52 | 23.6 ± 1.1 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.665 ± 0.080 | z_{drag} | 1059.51 | 1059.74 ± 0.69 | χ_{plik}^2 | 2343.5 | 2359.3 ± 5.9 |
| A_{217}^{dustTE} | 2.072 | 2.08 ± 0.27 | r_{drag} | 148.78 | 148.0 ± 1.8 | χ_{JLA}^2 | 1034.881 | 1035.07 ± 0.33 |
| c_{100} | 0.99975 | 0.99967 ± 0.00061 | k_D | 0.13967 | 0.1402 ± 0.0013 | $\chi_{6\text{DF}}^2$ | 0.0060 | 0.048 ± 0.064 |
| c_{217} | 0.99815 | 0.99818 ± 0.00062 | $100\theta_D$ | 0.160373 | 0.16056 ± 0.00040 | χ_{MGS}^2 | 1.473 | 1.37 ± 0.47 |
| H_0 | 67.28 | 67.4 ± 1.1 | z_{eq} | 3395.7 | 3391 ± 23 | χ_{DR12BAO}^2 | 3.77 | 4.6 ± 1.4 |
| Ω_Λ | 0.6926 | 0.6902 ± 0.0068 | k_{eq} | 0.010256 | 0.01030 ± 0.00011 | χ_{prior}^2 | 1.39 | 11.5 ± 4.5 |
| Ω_m | 0.3074 | 0.3098 ± 0.0068 | $100\theta_{\text{eq}}$ | 0.81450 | 0.8155 ± 0.0045 | χ_{CMB}^2 | 2771.6 | 2789.2 ± 6.0 |
| $\Omega_m h^2$ | 0.13915 | 0.1409 ± 0.0031 | $100\theta_{s,\text{eq}}$ | 0.45004 | 0.4505 ± 0.0023 | χ_{BAO}^2 | 5.251 | 6.0 ± 1.1 |
| $\Omega_\nu h^2$ | $0.6 \cdot 10^{-5}$ | < 0.000541 | $H(0.15)$ | 72.48 | 72.7 ± 1.1 | | | |

Best-fit $\chi_{\text{eff}}^2 = 3813.11$; $\Delta\chi_{\text{eff}}^2 = -2.56$; $\bar{\chi}_{\text{eff}}^2 = 3841.73$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.12$; $R - 1 = 0.00935$
 χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.02) MGS: 1.47 (Δ 0.19) DR12BAO: 3.77 (Δ -0.47) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.61 (Δ -0.11) small_100x143_offlike5_EE_Aplanc
395.92 (Δ -0.60) commander_dx12_v3.2.29: 23.52 (Δ 0.64) plik_rd12_HM_v22b.TTTEEE: 2343.54 (Δ -1.73) SN - JLA Pantheon18: 1034.88 (Δ -0.09)

9.16 base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|----------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02238 ± 0.00018 | $\Omega_m h^3$ | 0.0951 ± 0.0034 | $D_M(0.15)$ | 643 ± 10 |
| $\Omega_c h^2$ | 0.1181 ± 0.0029 | σ_8 | 0.812 ± 0.011 | $H(0.38)$ | 82.7 ± 1.2 |
| $100\theta_{MC}$ | 1.04116 ± 0.00044 | S_8 | 0.825 ± 0.011 | $D_M(0.38)$ | 1534 ± 23 |
| τ | $0.0563^{+0.0055}_{-0.0079}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4518 ± 0.0061 | $H(0.51)$ | 89.4 ± 1.2 |
| Σm_ν [eV] | < 0.0528 | $\sigma_8 \Omega_m^{0.25}$ | 0.6057 ± 0.0075 | $D_M(0.51)$ | 1987 ± 30 |
| N_{eff} | 2.97 ± 0.17 | $\sigma_8/h^{0.5}$ | $0.989^{+0.011}_{-0.0092}$ | $H(0.61)$ | 95.0 ± 1.2 |
| $\ln(10^{10} A_s)$ | $3.043^{+0.014}_{-0.017}$ | $r_{\text{drag}} h$ | 99.83 ± 0.83 | $D_M(0.61)$ | 2312 ± 34 |
| n_s | 0.9644 ± 0.0069 | $\langle d^2 \rangle^{1/2}$ | 2.442 ± 0.021 | $H(2.33)$ | 234.9 ± 2.6 |
| y_{cal} | 1.0006 ± 0.0024 | z_{re} | $7.83^{+0.59}_{-0.77}$ | $D_M(2.33)$ | 5784 ± 73 |
| A_{217}^{CIB} | 46 ± 7 | $10^9 A_s$ | $2.098^{+0.029}_{-0.035}$ | $f\sigma_8(0.15)$ | 0.4564 ± 0.0058 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.874 ± 0.017 | $\sigma_8(0.15)$ | 0.751 ± 0.010 |
| A_{143}^{tSZ} | $5.6^{+2.2}_{-1.9}$ | D_{40} | 1231 ± 13 | $f\sigma_8(0.38)$ | 0.4751 ± 0.0057 |
| A_{100}^{PS} | 256 ± 28 | D_{220} | 5738 ± 37 | $\sigma_8(0.38)$ | 0.6655 ± 0.0096 |
| A_{143}^{PS} | 44 ± 8 | D_{810} | 2538 ± 13 | $f\sigma_8(0.51)$ | 0.4739 ± 0.0056 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 818.1 ± 4.8 | $\sigma_8(0.51)$ | 0.6228 ± 0.0091 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.6 ± 1.8 | $f\sigma_8(0.61)$ | 0.4691 ± 0.0056 |
| A^{kSZ} | < 3.92 | $n_{s,0.002}$ | 0.9644 ± 0.0069 | $\sigma_8(0.61)$ | 0.5927 ± 0.0087 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | Y_P | 0.2444 ± 0.0024 | $f\sigma_8(2.33)$ | 0.2987 ± 0.0043 |
| $A_{143}^{\text{dust}TT}$ | 10.8 ± 1.8 | Y_P^{BBN} | 0.2457 ± 0.0024 | $\sigma_8(2.33)$ | 0.3081 ± 0.0047 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.5 ± 3.3 | 10^5D/H | 2.559 ± 0.045 | f_{2000}^{143} | 28.6 ± 3.0 |
| $A_{217}^{\text{dust}TT}$ | 93.8 ± 7.3 | Age/Gyr | 13.85 ± 0.17 | $f_{2000}^{143 \times 217}$ | 31.5 ± 2.1 |
| $A_{100}^{\text{dust}TE}$ | 0.114 ± 0.038 | z_* | 1089.66 ± 0.33 | f_{2000}^{217} | 106.4 ± 2.0 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.135 ± 0.029 | r_* | 145.3 ± 1.7 | χ_{lensing}^2 | 9.10 ± 0.66 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.481 ± 0.084 | $100\theta_*$ | 1.04138 ± 0.00053 | χ_{simall}^2 | 397.2 ± 2.0 |
| $A_{143}^{\text{dust}TE}$ | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.96 ± 0.16 | χ_{lowl}^2 | 23.6 ± 1.1 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.665 ± 0.080 | z_{drag} | 1059.75 ± 0.69 | χ_{plik}^2 | 2359.2 ± 5.9 |
| $A_{217}^{\text{dust}TE}$ | 2.08 ± 0.27 | r_{drag} | 148.0 ± 1.8 | χ_{JLA}^2 | 1035.06 ± 0.33 |
| c_{100} | 0.99967 ± 0.00061 | k_D | 0.1402 ± 0.0013 | $\chi_{6\text{DF}}^2$ | 0.047 ± 0.062 |
| c_{217} | 0.99818 ± 0.00062 | $100\theta_D$ | 0.16056 ± 0.00040 | χ_{MGS}^2 | 1.38 ± 0.47 |
| H_0 | 67.5 ± 1.1 | z_{eq} | 3390 ± 23 | χ_{DR12BAO}^2 | 4.6 ± 1.3 |
| Ω_Λ | 0.6904 ± 0.0067 | k_{eq} | 0.01029 ± 0.00011 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_m | 0.3096 ± 0.0067 | $100\theta_{\text{eq}}$ | 0.8156 ± 0.0044 | χ_{CMB}^2 | 2789.0 ± 6.0 |
| $\Omega_m h^2$ | 0.1409 ± 0.0031 | $100\theta_{s,\text{eq}}$ | 0.4506 ± 0.0022 | χ_{BAO}^2 | 6.0 ± 1.1 |
| $\Omega_\nu h^2$ | < 0.000552 | $H(0.15)$ | 72.7 ± 1.1 | | |

$$\bar{\chi}_{\text{eff}}^2 = 3841.56; \Delta\bar{\chi}_{\text{eff}}^2 = -0.18; R - 1 = 0.01012$$

10 nnu+nrn

10.1 base_nnu_nrn_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-------------------------------------|----------|------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022135 | 0.02216 ± 0.00023 | $\Omega_m h^2$ | 0.13853 | 0.1390 ± 0.0034 | $100\theta_{\text{eq}}$ | 0.8044 | 0.8049 ± 0.0077 |
| $\Omega_c h^2$ | 0.11575 | 0.1162 ± 0.0032 | $\Omega_m h^3$ | 0.08991 | $0.0906^{+0.0039}_{-0.0044}$ | $100\theta_{\text{s,eq}}$ | 0.44490 | 0.4452 ± 0.0039 |
| $100\theta_{\text{MC}}$ | 1.041436 | 1.04139 ± 0.00048 | σ_8 | 0.7989 | 0.800 ± 0.012 | $H(0.15)$ | 70.25 | 70.5 ± 1.6 |
| τ | 0.0548 | 0.0549 ± 0.0079 | S_8 | 0.8365 | 0.836 ± 0.016 | $D_{\text{M}}(0.15)$ | 666.7 | 665 ± 16 |
| N_{eff} | 2.711 | 2.74 ± 0.22 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4582 | 0.4579 ± 0.0089 | $H(0.38)$ | 80.43 | 80.7 ± 1.6 |
| $\ln(10^{10} A_{\text{s}})$ | 3.0364 | 3.037 ± 0.018 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6050 | 0.6051 ± 0.0088 | $D_{\text{M}}(0.38)$ | 1585.6 | 1582 ± 36 |
| n_{s} | 0.9500 | 0.950 ± 0.011 | $\sigma_8/h^{0.5}$ | 0.9917 | 0.991 ± 0.012 | $H(0.51)$ | 87.17 | 87.4 ± 1.6 |
| $dn_{\text{s}}/d \ln k$ | -0.0105 | -0.0119 ± 0.0079 | $r_{\text{drag}} h$ | 97.52 | 97.6 ± 1.4 | $D_{\text{M}}(0.51)$ | 2051.3 | 2046 ± 45 |
| y_{cal} | 1.00054 | 1.0005 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4579 | 2.455 ± 0.030 | $H(0.61)$ | 92.79 | 93.0 ± 1.6 |
| A_{217}^{CIB} | 46.8 | 47 ± 7 | z_{re} | 7.68 | 7.66 ± 0.79 | $D_{\text{M}}(0.61)$ | 2385 | 2379 ± 51 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.49 | — | $10^9 A_{\text{s}}$ | 2.0830 | 2.085 ± 0.039 | $H(2.33)$ | 232.43 | 232.9 ± 3.0 |
| A_{143}^{tSZ} | 7.06 | 5.2 ± 2.0 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8666 | 1.868 ± 0.019 | $D_{\text{M}}(2.33)$ | 5912 | 5899 ± 100 |
| A_{100}^{PS} | 249.9 | 261 ± 28 | D_{40} | 1225.2 | 1223 ± 19 | $f\sigma_8(0.15)$ | 0.4613 | 0.4611 ± 0.0082 |
| A_{143}^{PS} | 48.8 | 47 ± 8 | D_{220} | 5729.1 | 5729 ± 39 | $\sigma_8(0.15)$ | 0.7366 | 0.737 ± 0.011 |
| $A_{143 \times 217}^{\text{PS}}$ | 49.0 | 42 ± 9 | D_{810} | 2540.0 | 2539 ± 14 | $f\sigma_8(0.38)$ | 0.4755 | 0.4755 ± 0.0070 |
| A_{217}^{PS} | 120.4 | 115 ± 10 | D_{1420} | 817.62 | 816.0 ± 5.0 | $\sigma_8(0.38)$ | 0.6511 | 0.652 ± 0.010 |
| A^{kSZ} | 0.00 | < 4.56 | D_{2000} | 231.55 | 230.8 ± 1.9 | $f\sigma_8(0.51)$ | 0.4721 | 0.4722 ± 0.0066 |
| A_{100}^{dustTT} | 8.71 | 8.8 ± 1.8 | $n_{\text{s},0.002}$ | 0.9838 | 0.988 ± 0.021 | $\sigma_8(0.51)$ | 0.6086 | 0.609 ± 0.010 |
| A_{143}^{dustTT} | 10.87 | 10.8 ± 1.8 | Y_{P} | 0.24071 | 0.2411 ± 0.0031 | $f\sigma_8(0.61)$ | 0.4659 | 0.4660 ± 0.0064 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.76 | 18.5 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24202 | 0.2424 ± 0.0031 | $\sigma_8(0.61)$ | 0.5787 | 0.5793 ± 0.0097 |
| A_{217}^{dustTT} | 95.1 | 93.6 ± 7.3 | $10^5 D/\text{H}$ | 2.513 | 2.520 ± 0.053 | $f\sigma_8(2.33)$ | 0.2912 | 0.2915 ± 0.0051 |
| A_{100}^{dustTE} | 0.1152 | 0.114 ± 0.038 | Age/Gyr | 14.148 | 14.12 ± 0.24 | $\sigma_8(2.33)$ | 0.2994 | 0.2998 ± 0.0056 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1350 | 0.134 ± 0.030 | z_* | 1089.507 | 1089.55 ± 0.38 | f_{2000}^{143} | 28.82 | 30.1 ± 3.1 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.484 | 0.481 ± 0.085 | r_* | 147.47 | 147.2 ± 2.1 | $f_{2000}^{143 \times 217}$ | 31.94 | 32.5 ± 2.2 |
| A_{143}^{dustTE} | 0.224 | 0.224 ± 0.054 | $100\theta_*$ | 1.04186 | 1.04180 ± 0.00061 | f_{2000}^{217} | 106.53 | 107.3 ± 2.0 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.665 ± 0.081 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 14.154 | 14.13 ± 0.20 | χ_{simall}^2 | 396.09 | 397.1 ± 1.7 |
| A_{217}^{dustTE} | 2.087 | 2.08 ± 0.27 | z_{drag} | 1058.83 | 1058.92 ± 0.85 | χ_{lowl}^2 | 22.41 | 22.5 ± 1.5 |
| c_{100} | 0.99976 | 0.99971 ± 0.00061 | r_{drag} | 150.24 | 150.0 ± 2.2 | χ_{plik}^2 | 2343.2 | 2360.1 ± 6.1 |
| c_{217} | 0.99818 | 0.99821 ± 0.00063 | k_{D} | 0.13872 | 0.1389 ± 0.0015 | χ_{prior}^2 | 1.51 | 11.4 ± 4.5 |
| H_0 | 64.90 | 65.1 ± 1.7 | $100\theta_{\text{D}}$ | 0.16000 | 0.16007 ± 0.00050 | χ_{CMB}^2 | 2761.7 | 2779.7 ± 6.1 |
| Ω_{Λ} | 0.6712 | 0.672 ± 0.012 | z_{eq} | 3450.0 | 3448 ± 42 | | | |
| Ω_{m} | 0.3288 | 0.328 ± 0.012 | k_{eq} | 0.010290 | 0.01031 ± 0.00012 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2763.19$; $\Delta\chi_{\text{eff}}^2 = -2.59$; $\bar{\chi}_{\text{eff}}^2 = 2791.11$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.66$; $R - 1 = 0.01356$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.09 (Δ 0.04) commander_dx12_v3.2.29: 22.41 (Δ -0.85) plik_rd12_HM_v22b_TTTEEE: 2343.18 (Δ -1.47)

10.2 base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------------|-----------------------------|----------|-----------------------|
| $\Omega_b h^2$ | 0.022331 | 0.02236 ± 0.00018 | $\Omega_m h^3$ | 0.09294 | $0.0937^{+0.0035}_{-0.0041}$ | $H(0.15)$ | 71.85 | 72.1 ± 1.3 |
| $\Omega_c h^2$ | 0.11659 | $0.1172^{+0.0030}_{-0.0035}$ | σ_8 | 0.8022 | 0.803 ± 0.012 | $D_M(0.15)$ | 650.8 | 649 ± 12 |
| $100\theta_{MC}$ | 1.041312 | 1.04127 ± 0.00048 | S_8 | 0.8217 | 0.822 ± 0.013 | $H(0.38)$ | 81.90 | 82.1 ± 1.3 |
| τ | 0.0568 | 0.0566 ± 0.0077 | $\sigma_8 \Omega_m^{0.5}$ | 0.4500 | 0.4501 ± 0.0073 | $D_M(0.38)$ | 1551.3 | 1547 ± 27 |
| N_{eff} | 2.870 | $2.91^{+0.18}_{-0.21}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6008 | 0.6012 ± 0.0086 | $H(0.51)$ | 88.58 | 88.8 ± 1.4 |
| $\ln(10^{10} A_s)$ | 3.0423 | 3.043 ± 0.018 | $\sigma_8/h^{0.5}$ | 0.9830 | 0.982 ± 0.010 | $D_M(0.51)$ | 2009.1 | 2003 ± 34 |
| n_s | 0.9605 | 0.9602 ± 0.0083 | $r_{\text{drag}} h$ | 99.19 | 99.25 ± 0.87 | $H(0.61)$ | 94.16 | 94.4 ± 1.4 |
| $dn_s/d \ln k$ | -0.0064 | -0.0080 ± 0.0075 | $\langle d^2 \rangle^{1/2}$ | 2.4329 | 2.431 ± 0.026 | $D_M(0.61)$ | 2337.4 | 2331 ± 39 |
| y_{cal} | 1.00065 | 1.0006 ± 0.0025 | z_{re} | 7.86 | 7.83 ± 0.77 | $H(2.33)$ | 233.71 | $234.3^{+2.7}_{-3.0}$ |
| A_{217}^{CIB} | 47.1 | 47 ± 7 | $10^9 A_s$ | 2.0954 | $2.098^{+0.035}_{-0.040}$ | $D_M(2.33)$ | 5832 | 5817 ± 84 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.51 | — | $10^9 A_s e^{-2\tau}$ | 1.8705 | 1.873 ± 0.018 | $f\sigma_8(0.15)$ | 0.4543 | 0.4545 ± 0.0070 |
| A_{143}^{tSZ} | 7.11 | 5.3 ± 2.0 | D_{40} | 1219.0 | 1217 ± 19 | $\sigma_8(0.15)$ | 0.7409 | 0.742 ± 0.011 |
| A_{100}^{PS} | 249.2 | 262 ± 28 | D_{220} | 5734.6 | 5738 ± 39 | $f\sigma_8(0.38)$ | 0.4718 | 0.4720 ± 0.0067 |
| A_{143}^{PS} | 48.7 | 47 ± 8 | D_{810} | 2540.2 | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6564 | 0.657 ± 0.010 |
| $A_{143 \times 217}^{\text{PS}}$ | 49.4 | 42 ± 9 | D_{1420} | 818.51 | 817.0 ± 4.9 | $f\sigma_8(0.51)$ | 0.4700 | 0.4703 ± 0.0066 |
| A_{217}^{PS} | 120.0 | 115 ± 10 | D_{2000} | 231.61 | 230.8 ± 1.8 | $\sigma_8(0.51)$ | 0.6142 | 0.6150 ± 0.0095 |
| A^{kSZ} | 0.00 | < 4.71 | $n_{s,0.002}$ | 0.9812 | 0.986 ± 0.021 | $f\sigma_8(0.61)$ | 0.4648 | 0.4652 ± 0.0065 |
| A_{100}^{dustTT} | 8.80 | 8.8 ± 1.8 | Y_P | 0.24299 | 0.2435 ± 0.0027 | $\sigma_8(0.61)$ | 0.5843 | 0.5851 ± 0.0091 |
| A_{143}^{dustTT} | 10.95 | 10.9 ± 1.8 | Y_P^{BBN} | 0.24431 | 0.2448 ± 0.0027 | $f\sigma_8(2.33)$ | 0.29451 | 0.2949 ± 0.0047 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.78 | 18.5 ± 3.2 | $10^5 D/H$ | 2.532 | 2.539 ± 0.052 | $\sigma_8(2.33)$ | 0.3035 | 0.3039 ± 0.0050 |
| A_{217}^{dustTT} | 94.8 | 93.5 ± 7.3 | Age/Gyr | 13.962 | 13.93 ± 0.20 | f_{2000}^{143} | 28.68 | 30.0 ± 3.1 |
| A_{100}^{dustTE} | 0.1141 | 0.115 ± 0.038 | z_* | 1089.496 | 1089.55 ± 0.38 | $f_{2000}^{143 \times 217}$ | 31.90 | 32.6 ± 2.2 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1343 | 0.134 ± 0.029 | r_* | 146.25 | 145.9 ± 2.0 | f_{2000}^{217} | 106.47 | 107.3 ± 2.0 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 | 0.479 ± 0.085 | $100\theta_*$ | 1.04162 | 1.04155 ± 0.00059 | χ_{small}^2 | 396.37 | 397.2 ± 1.9 |
| A_{143}^{dustTE} | 0.224 | 0.224 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 14.041 | 14.01 ± 0.18 | χ_{lowl}^2 | 22.08 | 22.2 ± 1.5 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.661 ± 0.082 | z_{drag} | 1059.47 | 1059.60 ± 0.73 | χ_{plik}^2 | 2344.7 | 2361.1 ± 6.2 |
| A_{217}^{dustTE} | 2.071 | 2.06 ± 0.27 | r_{drag} | 148.95 | 148.6 ± 2.0 | $\chi_{6\text{DF}}^2$ | 0.070 | 0.095 ± 0.10 |
| c_{100} | 0.99975 | 0.99969 ± 0.00061 | k_D | 0.13957 | 0.1399 ± 0.0014 | χ_{MGS}^2 | 0.982 | 1.07 ± 0.44 |
| c_{217} | 0.99820 | 0.99819 ± 0.00063 | $100\theta_D$ | 0.160307 | 0.16038 ± 0.00047 | χ_{DR12BAO}^2 | 5.26 | 5.6 ± 2.0 |
| H_0 | 66.59 | 66.8 ± 1.3 | z_{eq} | 3400.4 | 3399 ± 26 | χ_{prior}^2 | 1.58 | 11.6 ± 4.6 |
| Ω_Λ | 0.6852 | 0.6857 ± 0.0072 | k_{eq} | 0.010255 | $0.01028^{+0.00011}_{-0.00013}$ | χ_{BAO}^2 | 6.31 | 6.8 ± 1.7 |
| Ω_m | 0.3148 | 0.3143 ± 0.0072 | $100\theta_{\text{eq}}$ | 0.81369 | 0.8140 ± 0.0049 | χ_{CMB}^2 | 2763.1 | 2780.6 ± 6.2 |
| $\Omega_m h^2$ | 0.13957 | $0.1402^{+0.0031}_{-0.0036}$ | $100\theta_{s,\text{eq}}$ | 0.44962 | 0.4497 ± 0.0025 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2770.98$; $\Delta\chi_{\text{eff}}^2 = -0.93$; $\bar{\chi}_{\text{eff}}^2 = 2798.94$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.03$; $R - 1 = 0.03824$
 χ_{eff}^2 : BAO - 6DF: 0.07 (Δ 0.04) MGS: 0.98 (Δ -0.24) DR12BAO: 5.26 (Δ 0.85) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.37 (Δ 0.16) commander_dx12_v3_2_29: 22.08 (Δ -0.79) plik_rd12_HM_v22b_TTTEEE: 2344.66 (Δ -0.85)

10.3 base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-------------------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022113 | 0.02216 ± 0.00022 | $\Omega_m h^2$ | 0.13764 | 0.1385 ± 0.0033 | $100\theta_{\text{eq}}$ | 0.8049 | 0.8060 ± 0.0069 |
| $\Omega_c h^2$ | 0.11489 | 0.1157 ± 0.0032 | $\Omega_m h^3$ | 0.08913 | 0.0903 ± 0.0041 | $100\theta_{\text{s,eq}}$ | 0.44518 | 0.4457 ± 0.0035 |
| $100\theta_{\text{MC}}$ | 1.041532 | 1.04144 ± 0.00048 | σ_8 | 0.7952 | 0.797 ± 0.011 | $H(0.15)$ | 70.08 | 70.5 ± 1.6 |
| τ | 0.0536 | 0.0540 ± 0.0074 | S_8 | 0.8317 | 0.831 ± 0.013 | $D_{\text{M}}(0.15)$ | 668.2 | 665 ± 15 |
| N_{eff} | 2.672 | 2.73 ± 0.22 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4556 | 0.4554 ± 0.0070 | $H(0.38)$ | 80.22 | 80.6 ± 1.6 |
| $\ln(10^{10} A_{\text{s}})$ | 3.0309 | 3.034 ± 0.017 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6019 | 0.6025 ± 0.0072 | $D_{\text{M}}(0.38)$ | 1589.5 | 1581 ± 35 |
| n_{s} | 0.9494 | 0.950 ± 0.011 | $\sigma_8/h^{0.5}$ | 0.9881 | 0.9876 ± 0.0090 | $H(0.51)$ | 86.94 | 87.4 ± 1.6 |
| $dn_{\text{s}}/d \ln k$ | -0.0098 | -0.0111 ± 0.0079 | $r_{\text{drag}} h$ | 97.61 | 97.8 ± 1.2 | $D_{\text{M}}(0.51)$ | 2056.4 | 2046 ± 43 |
| y_{cal} | 1.00027 | 1.0004 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4525 | 2.450 ± 0.024 | $H(0.61)$ | 92.54 | 93.0 ± 1.6 |
| A_{217}^{CIB} | 45.6 | 47 ± 7 | z_{re} | 7.53 | 7.57 ± 0.74 | $D_{\text{M}}(0.61)$ | 2390.7 | 2379 ± 49 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.68 | — | $10^9 A_{\text{s}}$ | 2.0716 | 2.078 ± 0.035 | $H(2.33)$ | 231.70 | 232.5 ± 2.9 |
| A_{143}^{tSZ} | 6.95 | 5.2 ± 2.0 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8611 | 1.865 ± 0.018 | $D_{\text{M}}(2.33)$ | 5928 | 5903 ± 98 |
| A_{100}^{PS} | 247.2 | 261 ± 28 | D_{40} | 1225.8 | 1223 ± 19 | $f\sigma_8(0.15)$ | 0.4587 | 0.4587 ± 0.0064 |
| A_{143}^{PS} | 50.6 | 46 ± 8 | D_{220} | 5727.1 | 5731 ± 39 | $\sigma_8(0.15)$ | 0.7332 | 0.735 ± 0.011 |
| $A_{143 \times 217}^{\text{PS}}$ | 53.1 | 42 ± 9 | D_{810} | 2538.1 | 2537 ± 14 | $f\sigma_8(0.38)$ | 0.4730 | 0.4734 ± 0.0057 |
| A_{217}^{PS} | 121.8 | 115 ± 10 | D_{1420} | 817.9 | 816.1 ± 5.0 | $\sigma_8(0.38)$ | 0.6482 | 0.650 ± 0.010 |
| A^{kSZ} | 0.00 | < 4.56 | D_{2000} | 231.82 | 230.9 ± 1.9 | $f\sigma_8(0.51)$ | 0.4697 | 0.4703 ± 0.0056 |
| A_{100}^{dustTT} | 8.72 | 8.8 ± 1.8 | $n_{\text{s},0.002}$ | 0.9809 | 0.986 ± 0.021 | $\sigma_8(0.51)$ | 0.6059 | 0.6078 ± 0.0098 |
| A_{143}^{dustTT} | 10.90 | 10.8 ± 1.8 | Y_{P} | 0.24014 | 0.2410 ± 0.0031 | $f\sigma_8(0.61)$ | 0.4636 | 0.4643 ± 0.0056 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.00 | 18.5 ± 3.2 | $Y_{\text{P}}^{\text{BBN}}$ | 0.24145 | 0.2423 ± 0.0031 | $\sigma_8(0.61)$ | 0.5761 | 0.5779 ± 0.0095 |
| A_{217}^{dustTT} | 95.4 | 93.5 ± 7.3 | $10^5 D/H$ | 2.503 | 2.515 ± 0.052 | $f\sigma_8(2.33)$ | 0.2899 | 0.2909 ± 0.0050 |
| A_{100}^{dustTE} | 0.1134 | 0.115 ± 0.038 | Age/Gyr | 14.188 | 14.13 ± 0.23 | $\sigma_8(2.33)$ | 0.2981 | 0.2993 ± 0.0055 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1346 | 0.134 ± 0.030 | z_* | 1089.420 | 1089.49 ± 0.37 | f_{2000}^{143} | 28.30 | 29.9 ± 3.1 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 | 0.482 ± 0.084 | r_* | 147.93 | 147.4 ± 2.1 | $f_{2000}^{143 \times 217}$ | 31.60 | 32.4 ± 2.2 |
| A_{143}^{dustTE} | 0.226 | 0.225 ± 0.054 | $100\theta_*$ | 1.04198 | 1.04185 ± 0.00061 | f_{2000}^{217} | 106.09 | 107.1 ± 2.0 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.665 ± 0.081 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 14.197 | 14.15 ± 0.19 | χ_{lensing}^2 | 8.63 | 9.17 ± 0.81 |
| A_{217}^{dustTE} | 2.074 | 2.07 ± 0.27 | z_{drag} | 1058.67 | 1058.88 ± 0.84 | χ_{small}^2 | 395.91 | 396.8 ± 1.5 |
| c_{100} | 0.99976 | 0.99971 ± 0.00061 | r_{drag} | 150.72 | 150.2 ± 2.2 | χ_{lowl}^2 | 22.56 | 22.6 ± 1.5 |
| c_{217} | 0.99817 | 0.99820 ± 0.00063 | k_{D} | 0.13837 | 0.1388 ± 0.0015 | χ_{plik}^2 | 2343.4 | 2359.8 ± 5.9 |
| H_0 | 64.76 | 65.2 ± 1.6 | $100\theta_{\text{D}}$ | 0.159919 | 0.16004 ± 0.00050 | χ_{prior}^2 | 1.39 | 11.4 ± 4.5 |
| Ω_{Λ} | 0.6718 | 0.673 ± 0.011 | z_{eq} | 3446.9 | 3441 ± 37 | χ_{CMB}^2 | 2770.6 | 2788.4 ± 6.1 |
| Ω_{m} | 0.3282 | 0.327 ± 0.011 | k_{eq} | 0.010253 | 0.01028 ± 0.00011 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2771.94$; $\Delta\chi_{\text{eff}}^2 = -2.70$; $\bar{\chi}_{\text{eff}}^2 = 2799.77$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.92$; $R - 1 = 0.01835$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp-p.teb.consext8: 8.63 (Δ -0.24) simall_100x143_offlike5_EE_Aplanck_B: 395.92 (Δ -0.13) commander_dx12_v3_2_29: 22.56 (Δ -0.70) plik_rd12_HM_v22b_TTTEEE: 2343.45 (Δ -1.48)

10.4 base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|---------------------------------|-----------------------------|---------------------|
| $\Omega_{\text{b}}h^2$ | 0.02235 ± 0.00018 | $\Omega_{\text{m}}h^3$ | $0.0934^{+0.0036}_{-0.0040}$ | $H(0.15)$ | 71.9 ± 1.3 |
| $\Omega_{\text{c}}h^2$ | $0.1169^{+0.0030}_{-0.0033}$ | σ_8 | 0.803 ± 0.011 | $D_{\text{M}}(0.15)$ | 650 ± 12 |
| $100\theta_{\text{MC}}$ | 1.04130 ± 0.00048 | S_8 | 0.822 ± 0.011 | $H(0.38)$ | 82.0 ± 1.3 |
| τ | 0.0571 ± 0.0072 | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4503 ± 0.0060 | $D_{\text{M}}(0.38)$ | 1550 ± 27 |
| N_{eff} | 2.89 ± 0.19 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6012 ± 0.0073 | $H(0.51)$ | 88.7 ± 1.3 |
| $\ln(10^{10}A_{\text{s}})$ | 3.044 ± 0.016 | $\sigma_8/h^{0.5}$ | 0.9830 ± 0.0084 | $D_{\text{M}}(0.51)$ | 2007 ± 34 |
| n_{s} | 0.9593 ± 0.0083 | $r_{\text{drag}}h$ | 99.20 ± 0.84 | $H(0.61)$ | 94.3 ± 1.4 |
| $\text{d}n_{\text{s}}/\text{d}\ln k$ | -0.0077 ± 0.0075 | $\langle d^2 \rangle^{1/2}$ | 2.434 ± 0.022 | $D_{\text{M}}(0.61)$ | 2335 ± 39 |
| y_{cal} | 1.0007 ± 0.0025 | z_{re} | 7.88 ± 0.71 | $H(2.33)$ | 234.0 ± 2.8 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_{\text{s}}$ | 2.099 ± 0.034 | $D_{\text{M}}(2.33)$ | 5826 ± 83 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.872 ± 0.017 | $f\sigma_8(0.15)$ | 0.4546 ± 0.0058 |
| A_{143}^{tSZ} | 5.3 ± 2.0 | D_{40} | 1220 ± 19 | $\sigma_8(0.15)$ | 0.741 ± 0.010 |
| A_{100}^{PS} | 261 ± 28 | D_{220} | 5741 ± 39 | $f\sigma_8(0.38)$ | 0.4720 ± 0.0057 |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2540 ± 14 | $\sigma_8(0.38)$ | 0.6569 ± 0.0093 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.2 ± 4.9 | $f\sigma_8(0.51)$ | 0.4703 ± 0.0057 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.0 ± 1.8 | $\sigma_8(0.51)$ | 0.6146 ± 0.0089 |
| A^{kSZ} | < 4.62 | $n_{\text{s},0.002}$ | 0.984 ± 0.021 | $f\sigma_8(0.61)$ | 0.4651 ± 0.0057 |
| $A_{100}^{\text{dust}TT}$ | 8.8 ± 1.8 | Y_{P} | 0.2432 ± 0.0027 | $\sigma_8(0.61)$ | 0.5847 ± 0.0086 |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.7 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2445 ± 0.0027 | $f\sigma_8(2.33)$ | 0.2947 ± 0.0045 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.5 ± 3.2 | 10^5D/H | 2.535 ± 0.051 | $\sigma_8(2.33)$ | 0.3037 ± 0.0048 |
| $A_{217}^{\text{dust}TT}$ | 93.6 ± 7.3 | Age/Gyr | 13.95 ± 0.20 | f_{2000}^{143} | 29.9 ± 3.1 |
| $A_{100}^{\text{dust}TE}$ | 0.115 ± 0.038 | z_* | 1089.52 ± 0.37 | $f_{2000}^{143 \times 217}$ | 32.4 ± 2.2 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.134 ± 0.030 | r_* | 146.1 ± 1.9 | f_{2000}^{217} | 107.2 ± 2.0 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.480 ± 0.084 | $100\theta_*$ | 1.04159 ± 0.00059 | χ_{lensing}^2 | 9.09 ± 0.64 |
| $A_{143}^{\text{dust}TE}$ | 0.225 ± 0.055 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 14.03 ± 0.18 | χ_{simall}^2 | 397.2 ± 1.8 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.661 ± 0.081 | z_{drag} | 1059.53 ± 0.73 | χ_{lowl}^2 | 22.4 ± 1.5 |
| $A_{217}^{\text{dust}TE}$ | 2.06 ± 0.27 | r_{drag} | 148.8 ± 2.0 | χ_{plik}^2 | 2360.6 ± 6.1 |
| c_{100} | 0.99970 ± 0.00061 | k_{D} | 0.1397 ± 0.0014 | $\chi_{6\text{DF}}^2$ | 0.099 ± 0.098 |
| c_{217} | 0.99818 ± 0.00062 | $100\theta_{\text{D}}$ | 0.16033 ± 0.00046 | χ_{MGS}^2 | 1.04 ± 0.42 |
| H_0 | 66.7 ± 1.3 | z_{eq} | 3401 ± 25 | χ_{DR12BAO}^2 | 5.7 ± 1.9 |
| Ω_{Λ} | 0.6853 ± 0.0070 | k_{eq} | $0.01027^{+0.00011}_{-0.00012}$ | χ_{prior}^2 | 11.5 ± 4.6 |
| Ω_{m} | 0.3147 ± 0.0070 | $100\theta_{\text{eq}}$ | 0.8137 ± 0.0047 | χ_{CMB}^2 | 2789.2 ± 6.2 |
| $\Omega_{\text{m}}h^2$ | $0.1399^{+0.0031}_{-0.0034}$ | $100\theta_{\text{s,eq}}$ | 0.4496 ± 0.0024 | χ_{BAO}^2 | 6.8 ± 1.7 |

$$\bar{\chi}_{\text{eff}}^2 = 2807.63; \Delta\bar{\chi}_{\text{eff}}^2 = 0.78; R - 1 = 0.03868$$

10.5 base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02216 ± 0.00022 | $\Omega_{\mathrm{m}}h^2$ | 0.1390 ± 0.0034 | $100\theta_{\mathrm{eq}}$ | 0.8051 ± 0.0077 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1162 ± 0.0032 | $\Omega_{\mathrm{m}}h^3$ | 0.0906 ± 0.0042 | $100\theta_{\mathrm{s,eq}}$ | 0.4452 ± 0.0039 |
| $100\theta_{\mathrm{MC}}$ | 1.04140 ± 0.00048 | σ_8 | 0.800 ± 0.011 | $H(0.15)$ | 70.5 ± 1.6 |
| τ | $0.0559^{+0.0054}_{-0.0084}$ | S_8 | 0.837 ± 0.016 | $D_{\mathrm{M}}(0.15)$ | 665 ± 16 |
| N_{eff} | 2.75 ± 0.22 | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4582 ± 0.0089 | $H(0.38)$ | 80.7 ± 1.6 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.039^{+0.015}_{-0.019}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6056 ± 0.0087 | $D_{\mathrm{M}}(0.38)$ | 1581 ± 36 |
| n_{s} | 0.950 ± 0.011 | $\sigma_8/h^{0.5}$ | 0.992 ± 0.012 | $H(0.51)$ | 87.4 ± 1.6 |
| $\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$ | -0.0121 ± 0.0080 | $r_{\mathrm{drag}}h$ | 97.6 ± 1.4 | $D_{\mathrm{M}}(0.51)$ | 2045 ± 45 |
| y_{cal} | 1.0004 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.457 ± 0.030 | $H(0.61)$ | 93.1 ± 1.6 |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.78^{+0.58}_{-0.83}$ | $D_{\mathrm{M}}(0.61)$ | 2378 ± 51 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $10^9 A_{\mathrm{s}}$ | $2.089^{+0.031}_{-0.039}$ | $H(2.33)$ | 232.9 ± 3.0 |
| A_{143}^{tSZ} | 5.2 ± 2.0 | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.868 ± 0.018 | $D_{\mathrm{M}}(2.33)$ | 5898 ± 100 |
| A_{100}^{PS} | 261 ± 28 | D_{40} | 1222 ± 19 | $f\sigma_8(0.15)$ | 0.4614 ± 0.0082 |
| A_{143}^{PS} | 47 ± 8 | D_{220} | 5729 ± 39 | $\sigma_8(0.15)$ | 0.738 ± 0.011 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | D_{810} | 2538 ± 14 | $f\sigma_8(0.38)$ | 0.4758 ± 0.0069 |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 816.0 ± 5.0 | $\sigma_8(0.38)$ | 0.652 ± 0.010 |
| A^{kSZ} | < 4.54 | D_{2000} | 230.8 ± 1.9 | $f\sigma_8(0.51)$ | 0.4726 ± 0.0065 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.8 ± 1.8 | $n_{\mathrm{s},0.002}$ | 0.989 ± 0.021 | $\sigma_8(0.51)$ | 0.6099 ± 0.0098 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.8 ± 1.8 | Y_{P} | 0.2412 ± 0.0031 | $f\sigma_8(0.61)$ | 0.4664 ± 0.0063 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.5 ± 3.3 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.2425 ± 0.0031 | $\sigma_8(0.61)$ | 0.5799 ± 0.0094 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.6 ± 7.3 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.519 ± 0.053 | $f\sigma_8(2.33)$ | 0.2918 ± 0.0050 |
| $A_{100}^{\mathrm{dust}TE}$ | 0.114 ± 0.038 | $\mathrm{Age}/\mathrm{Gyr}$ | 14.12 ± 0.24 | $\sigma_8(2.33)$ | 0.3002 ± 0.0054 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.134 ± 0.030 | z_* | 1089.55 ± 0.38 | f_{2000}^{143} | 30.1 ± 3.1 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.481 ± 0.085 | r_* | 147.2 ± 2.1 | $f_{2000}^{143 \times 217}$ | 32.5 ± 2.2 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.224 ± 0.054 | $100\theta_*$ | 1.04180 ± 0.00061 | f_{2000}^{217} | 107.3 ± 2.0 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.665 ± 0.081 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 14.13 ± 0.20 | χ_{simall}^2 | 397.0 ± 1.8 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.08 ± 0.27 | z_{drag} | 1058.94 ± 0.85 | χ_{lowl}^2 | 22.5 ± 1.5 |
| c_{100} | 0.99971 ± 0.00062 | r_{drag} | 149.9 ± 2.2 | χ_{plik}^2 | 2360.0 ± 6.1 |
| c_{217} | 0.99821 ± 0.00063 | k_{D} | 0.1390 ± 0.0015 | χ_{prior}^2 | 11.4 ± 4.5 |
| H_0 | 65.1 ± 1.7 | $100\theta_{\mathrm{D}}$ | 0.16007 ± 0.00050 | χ_{CMB}^2 | 2779.5 ± 6.0 |
| Ω_{Λ} | 0.672 ± 0.012 | z_{eq} | 3447 ± 42 | | |
| Ω_{m} | 0.328 ± 0.012 | k_{eq} | 0.01030 ± 0.00012 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 2790.91$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = -0.63$; $R - 1 = 0.01332$

10.6 base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------------|-----------------------------|-----------------------|
| $\Omega_b h^2$ | 0.02236 ± 0.00018 | $\Omega_m h^3$ | $0.0937^{+0.0035}_{-0.0041}$ | $H(0.15)$ | 72.1 ± 1.3 |
| $\Omega_c h^2$ | $0.1172^{+0.0030}_{-0.0035}$ | σ_8 | 0.803 ± 0.012 | $D_M(0.15)$ | 649 ± 12 |
| $100\theta_{MC}$ | 1.04128 ± 0.00048 | S_8 | 0.822 ± 0.013 | $H(0.38)$ | 82.1 ± 1.3 |
| τ | $0.0573^{+0.0062}_{-0.0080}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4503 ± 0.0072 | $D_M(0.38)$ | 1547 ± 27 |
| N_{eff} | $2.91^{+0.18}_{-0.21}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6015 ± 0.0085 | $H(0.51)$ | 88.8 ± 1.4 |
| $\ln(10^{10} A_s)$ | $3.045^{+0.015}_{-0.019}$ | $\sigma_8/h^{0.5}$ | 0.983 ± 0.010 | $D_M(0.51)$ | 2003 ± 34 |
| n_s | 0.9602 ± 0.0083 | $r_{\text{drag}} h$ | 99.26 ± 0.87 | $H(0.61)$ | 94.4 ± 1.4 |
| $dn_s/d \ln k$ | -0.0081 ± 0.0075 | $\langle d^2 \rangle^{1/2}$ | 2.432 ± 0.025 | $D_M(0.61)$ | 2331 ± 39 |
| y_{cal} | 1.0006 ± 0.0025 | z_{re} | $7.90^{+0.64}_{-0.80}$ | $H(2.33)$ | $234.2^{+2.7}_{-3.0}$ |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.100^{+0.032}_{-0.039}$ | $D_M(2.33)$ | 5818 ± 84 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.873 ± 0.018 | $f\sigma_8(0.15)$ | 0.4547 ± 0.0070 |
| A_{143}^{tSZ} | 5.2 ± 2.0 | D_{40} | 1217 ± 19 | $\sigma_8(0.15)$ | 0.742 ± 0.011 |
| A_{100}^{PS} | 262 ± 28 | D_{220} | 5737 ± 39 | $f\sigma_8(0.38)$ | 0.4723 ± 0.0067 |
| A_{143}^{PS} | 47 ± 8 | D_{810} | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6576 ± 0.0099 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 816.9 ± 4.8 | $f\sigma_8(0.51)$ | 0.4706 ± 0.0065 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 230.8 ± 1.8 | $\sigma_8(0.51)$ | 0.6153 ± 0.0094 |
| A^{kSZ} | < 4.70 | $n_{s,0.002}$ | 0.986 ± 0.021 | $f\sigma_8(0.61)$ | 0.4654 ± 0.0065 |
| $A_{100}^{\text{dust}TT}$ | 8.8 ± 1.8 | Y_P | 0.2435 ± 0.0027 | $\sigma_8(0.61)$ | 0.5854 ± 0.0090 |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.8 | Y_P^{BBN} | 0.2448 ± 0.0027 | $f\sigma_8(2.33)$ | 0.2951 ± 0.0046 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.2 | $10^5 D/H$ | 2.539 ± 0.052 | $\sigma_8(2.33)$ | 0.3041 ± 0.0049 |
| $A_{217}^{\text{dust}TT}$ | 93.6 ± 7.3 | Age/Gyr | 13.93 ± 0.20 | f_{2000}^{143} | 30.1 ± 3.1 |
| $A_{100}^{\text{dust}TE}$ | 0.115 ± 0.038 | z_* | 1089.54 ± 0.38 | $f_{2000}^{143 \times 217}$ | 32.6 ± 2.2 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.134 ± 0.030 | r_* | 145.9 ± 1.9 | f_{2000}^{217} | 107.3 ± 2.0 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.479 ± 0.085 | $100\theta_*$ | 1.04155 ± 0.00059 | χ_{simall}^2 | 397.2 ± 1.9 |
| $A_{143}^{\text{dust}TE}$ | 0.224 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 14.01 ± 0.18 | χ_{lowl}^2 | 22.2 ± 1.5 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.661 ± 0.082 | z_{drag} | 1059.60 ± 0.73 | χ_{plik}^2 | 2361.0 ± 6.2 |
| $A_{217}^{\text{dust}TE}$ | 2.06 ± 0.27 | r_{drag} | 148.6 ± 2.0 | $\chi_{6\text{DF}}^2$ | 0.094 ± 0.099 |
| c_{100} | 0.99970 ± 0.00062 | k_D | 0.1398 ± 0.0014 | χ_{MGS}^2 | 1.08 ± 0.44 |
| c_{217} | 0.99819 ± 0.00063 | $100\theta_D$ | 0.16037 ± 0.00047 | χ_{DR12BAO}^2 | 5.6 ± 2.0 |
| H_0 | 66.8 ± 1.3 | z_{eq} | 3399 ± 26 | χ_{prior}^2 | 11.6 ± 4.6 |
| Ω_Λ | 0.6858 ± 0.0072 | k_{eq} | $0.01028^{+0.00011}_{-0.00013}$ | χ_{BAO}^2 | 6.8 ± 1.7 |
| Ω_m | 0.3142 ± 0.0072 | $100\theta_{\text{eq}}$ | 0.8140 ± 0.0049 | χ_{CMB}^2 | 2780.4 ± 6.1 |
| $\Omega_m h^2$ | $0.1402^{+0.0031}_{-0.0036}$ | $100\theta_{s,\text{eq}}$ | 0.4498 ± 0.0025 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2798.78; \Delta \bar{\chi}_{\text{eff}}^2 = 1.06; R - 1 = 0.04433$$

10.7 base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_{\text{b}}h^2$ | 0.02217 ± 0.00022 | $\Omega_{\text{m}}h^2$ | 0.1385 ± 0.0033 | $100\theta_{\text{eq}}$ | 0.8064 ± 0.0069 |
| $\Omega_{\text{c}}h^2$ | 0.1157 ± 0.0032 | $\Omega_{\text{m}}h^3$ | 0.0904 ± 0.0041 | $100\theta_{\text{s,eq}}$ | 0.4459 ± 0.0035 |
| $100\theta_{\text{MC}}$ | 1.04145 ± 0.00048 | σ_8 | 0.798 ± 0.011 | $H(0.15)$ | 70.5 ± 1.6 |
| τ | $0.0551^{+0.0051}_{-0.0077}$ | S_8 | 0.832 ± 0.013 | $D_{\text{M}}(0.15)$ | 664 ± 15 |
| N_{eff} | 2.73 ± 0.22 | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4555 ± 0.0070 | $H(0.38)$ | 80.7 ± 1.6 |
| $\ln(10^{10}A_{\text{s}})$ | $3.036^{+0.014}_{-0.017}$ | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6028 ± 0.0072 | $D_{\text{M}}(0.38)$ | 1580 ± 34 |
| n_{s} | 0.950 ± 0.010 | $\sigma_8/h^{0.5}$ | 0.9881 ± 0.0089 | $H(0.51)$ | 87.4 ± 1.6 |
| $\text{d}n_{\text{s}}/\text{d}\ln k$ | -0.0112 ± 0.0079 | $r_{\text{drag}}h$ | 97.9 ± 1.2 | $D_{\text{M}}(0.51)$ | 2045 ± 43 |
| y_{cal} | 1.0004 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.451 ± 0.024 | $H(0.61)$ | 93.0 ± 1.6 |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.69^{+0.54}_{-0.77}$ | $D_{\text{M}}(0.61)$ | 2377 ± 49 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_{\text{s}}$ | $2.082^{+0.029}_{-0.035}$ | $H(2.33)$ | 232.5 ± 2.9 |
| A_{143}^{tSZ} | 5.2 ± 2.0 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.865 ± 0.018 | $D_{\text{M}}(2.33)$ | 5901 ± 98 |
| A_{100}^{PS} | 261 ± 28 | D_{40} | 1223 ± 18 | $f\sigma_8(0.15)$ | 0.4588 ± 0.0065 |
| A_{143}^{PS} | 46 ± 8 | D_{220} | 5731 ± 38 | $\sigma_8(0.15)$ | 0.736 ± 0.010 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{810} | 2537 ± 14 | $f\sigma_8(0.38)$ | 0.4736 ± 0.0057 |
| A_{217}^{PS} | 114 ± 10 | D_{1420} | 816.1 ± 5.0 | $\sigma_8(0.38)$ | 0.6508 ± 0.0099 |
| A^{kSZ} | < 4.53 | D_{2000} | 230.9 ± 1.8 | $f\sigma_8(0.51)$ | 0.4706 ± 0.0055 |
| $A_{100}^{\text{dust}TT}$ | 8.8 ± 1.8 | $n_{\text{s},0.002}$ | 0.986 ± 0.021 | $\sigma_8(0.51)$ | 0.6085 ± 0.0095 |
| $A_{143}^{\text{dust}TT}$ | 10.8 ± 1.8 | Y_{P} | 0.2410 ± 0.0031 | $f\sigma_8(0.61)$ | 0.4646 ± 0.0055 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.5 ± 3.2 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2423 ± 0.0031 | $\sigma_8(0.61)$ | 0.5786 ± 0.0092 |
| $A_{217}^{\text{dust}TT}$ | 93.5 ± 7.3 | 10^5D/H | 2.514 ± 0.052 | $f\sigma_8(2.33)$ | 0.2912 ± 0.0049 |
| $A_{100}^{\text{dust}TE}$ | 0.115 ± 0.038 | Age/Gyr | 14.12 ± 0.23 | $\sigma_8(2.33)$ | 0.2997 ± 0.0054 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.134 ± 0.030 | z_* | 1089.48 ± 0.37 | f_{2000}^{143} | 29.9 ± 3.1 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.481 ± 0.084 | r_* | 147.4 ± 2.1 | $f_{2000}^{143 \times 217}$ | 32.4 ± 2.2 |
| $A_{143}^{\text{dust}TE}$ | 0.225 ± 0.055 | $100\theta_*$ | 1.04185 ± 0.00061 | f_{2000}^{217} | 107.1 ± 2.0 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.665 ± 0.081 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 14.14 ± 0.19 | χ_{lensing}^2 | 9.18 ± 0.82 |
| $A_{217}^{\text{dust}TE}$ | 2.07 ± 0.27 | z_{drag} | 1058.90 ± 0.83 | χ_{simall}^2 | 396.8 ± 1.5 |
| c_{100} | 0.99971 ± 0.00061 | r_{drag} | 150.1 ± 2.2 | χ_{lowl}^2 | 22.6 ± 1.5 |
| c_{217} | 0.99821 ± 0.00063 | k_{D} | 0.1388 ± 0.0015 | χ_{plik}^2 | 2359.6 ± 5.9 |
| H_0 | 65.2 ± 1.6 | $100\theta_{\text{D}}$ | 0.16004 ± 0.00050 | χ_{prior}^2 | 11.4 ± 4.5 |
| Ω_{Λ} | 0.674 ± 0.011 | z_{eq} | 3440 ± 37 | χ_{CMB}^2 | 2788.2 ± 6.0 |
| Ω_{m} | 0.326 ± 0.011 | k_{eq} | 0.01027 ± 0.00011 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2799.54; \Delta\bar{\chi}_{\text{eff}}^2 = -0.96; R - 1 = 0.01748$$

10.8 base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02235 ± 0.00018 | $\Omega_m h^3$ | $0.0933^{+0.0036}_{-0.0040}$ | $H(0.15)$ | 72.0 ± 1.3 |
| $\Omega_c h^2$ | $0.1169^{+0.0030}_{-0.0033}$ | σ_8 | 0.803 ± 0.011 | $D_M(0.15)$ | 650 ± 12 |
| $100\theta_{MC}$ | 1.04130 ± 0.00048 | S_8 | 0.822 ± 0.011 | $H(0.38)$ | 82.0 ± 1.3 |
| τ | $0.0575^{+0.0063}_{-0.0074}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4503 ± 0.0060 | $D_M(0.38)$ | 1550 ± 27 |
| N_{eff} | 2.89 ± 0.19 | $\sigma_8 \Omega_m^{0.25}$ | 0.6013 ± 0.0073 | $H(0.51)$ | 88.7 ± 1.3 |
| $\ln(10^{10} A_s)$ | $3.045^{+0.015}_{-0.016}$ | $\sigma_8/h^{0.5}$ | 0.9832 ± 0.0083 | $D_M(0.51)$ | 2007 ± 34 |
| n_s | 0.9593 ± 0.0083 | $r_{\text{drag}} h$ | 99.21 ± 0.84 | $H(0.61)$ | 94.3 ± 1.4 |
| $dn_s/d \ln k$ | -0.0078 ± 0.0075 | $\langle d^2 \rangle^{1/2}$ | 2.435 ± 0.022 | $D_M(0.61)$ | 2335 ± 39 |
| y_{cal} | 1.0007 ± 0.0025 | z_{re} | $7.92^{+0.64}_{-0.73}$ | $H(2.33)$ | 234.0 ± 2.8 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.100^{+0.030}_{-0.035}$ | $D_M(2.33)$ | 5826 ± 83 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.872 ± 0.017 | $f\sigma_8(0.15)$ | 0.4546 ± 0.0058 |
| A_{143}^{tSZ} | 5.3 ± 2.0 | D_{40} | 1219 ± 19 | $\sigma_8(0.15)$ | 0.742 ± 0.010 |
| A_{100}^{PS} | 261 ± 28 | D_{220} | 5741 ± 39 | $f\sigma_8(0.38)$ | 0.4721 ± 0.0057 |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6571 ± 0.0093 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.1 ± 4.8 | $f\sigma_8(0.51)$ | 0.4704 ± 0.0057 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.0 ± 1.8 | $\sigma_8(0.51)$ | 0.6148 ± 0.0088 |
| A^{kSZ} | < 4.61 | $n_{s,0.002}$ | 0.984 ± 0.021 | $f\sigma_8(0.61)$ | 0.4652 ± 0.0057 |
| $A_{100}^{\text{dust}TT}$ | 8.8 ± 1.8 | Y_P | 0.2432 ± 0.0027 | $\sigma_8(0.61)$ | 0.5849 ± 0.0085 |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.7 | Y_P^{BBN} | 0.2445 ± 0.0027 | $f\sigma_8(2.33)$ | 0.2948 ± 0.0044 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.2 | $10^5 D/H$ | 2.535 ± 0.051 | $\sigma_8(2.33)$ | 0.3038 ± 0.0048 |
| $A_{217}^{\text{dust}TT}$ | 93.6 ± 7.3 | Age/Gyr | 13.95 ± 0.20 | f_{2000}^{143} | 29.9 ± 3.1 |
| $A_{100}^{\text{dust}TE}$ | 0.115 ± 0.038 | z_* | 1089.52 ± 0.37 | $f_{2000}^{143 \times 217}$ | 32.4 ± 2.2 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.134 ± 0.030 | r_* | 146.1 ± 1.9 | f_{2000}^{217} | 107.2 ± 2.0 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.479 ± 0.084 | $100\theta_*$ | 1.04159 ± 0.00059 | χ_{lensing}^2 | 9.07 ± 0.62 |
| $A_{143}^{\text{dust}TE}$ | 0.224 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 14.03 ± 0.18 | χ_{simall}^2 | 397.2 ± 1.8 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.661 ± 0.081 | z_{drag} | 1059.53 ± 0.72 | χ_{lowl}^2 | 22.4 ± 1.5 |
| $A_{217}^{\text{dust}TE}$ | 2.06 ± 0.27 | r_{drag} | 148.8 ± 2.0 | χ_{plik}^2 | 2360.5 ± 6.1 |
| c_{100} | 0.99970 ± 0.00061 | k_D | 0.1397 ± 0.0014 | $\chi_{6\text{DF}}^2$ | 0.097 ± 0.096 |
| c_{217} | 0.99818 ± 0.00062 | $100\theta_D$ | 0.16033 ± 0.00046 | χ_{MGS}^2 | 1.05 ± 0.42 |
| H_0 | 66.7 ± 1.3 | z_{eq} | 3401 ± 25 | χ_{DR12BAO}^2 | 5.7 ± 1.9 |
| Ω_Λ | 0.6853 ± 0.0069 | k_{eq} | $0.01027^{+0.00011}_{-0.00012}$ | χ_{prior}^2 | 11.5 ± 4.6 |
| Ω_m | 0.3147 ± 0.0069 | $100\theta_{\text{eq}}$ | 0.8137 ± 0.0047 | χ_{CMB}^2 | 2789.2 ± 6.2 |
| $\Omega_m h^2$ | 0.1399 ± 0.0033 | $100\theta_{s,\text{eq}}$ | 0.4496 ± 0.0024 | χ_{BAO}^2 | 6.8 ± 1.6 |

$$\bar{\chi}_{\text{eff}}^2 = 2807.49; \Delta \bar{\chi}_{\text{eff}}^2 = 0.77; R - 1 = 0.04192$$

11 nnu+yhe

11.1 base_nnu_yhe_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------------|-----------------------------|----------|-----------------------|
| $\Omega_b h^2$ | 0.021996 | 0.02207 ± 0.00032 | S_8 | 0.8463 | 0.841 ± 0.025 | $100\theta_{s,eq}$ | 0.4442 | 0.4467 ± 0.0075 |
| $\Omega_c h^2$ | 0.1168 | $0.1190^{+0.0063}_{-0.0083}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4635 | 0.461 ± 0.014 | $H(0.15)$ | 70.22 | $71.5^{+3.0}_{-3.6}$ |
| $100\theta_{MC}$ | 1.04151 | 1.0413 ± 0.0020 | $\sigma_8 \Omega_m^{0.25}$ | 0.6107 | 0.610 ± 0.012 | $D_M(0.15)$ | 667.1 | 657 ± 32 |
| τ | 0.0521 | 0.0516 ± 0.0081 | $\sigma_8/h^{0.5}$ | 0.9994 | 0.994 ± 0.017 | $H(0.38)$ | 80.47 | $81.7^{+3.0}_{-3.6}$ |
| N_{eff} | 2.74 | $2.92^{+0.44}_{-0.58}$ | $r_{drag}h$ | 97.18 | 98.0 ± 2.4 | $D_M(0.38)$ | 1586 | 1562 ± 71 |
| Y_P | 0.2526 | $0.251^{+0.033}_{-0.029}$ | $\langle d^2 \rangle^{1/2}$ | 2.4737 | 2.459 ± 0.046 | $H(0.51)$ | 87.25 | $88.5^{+3.0}_{-3.7}$ |
| $\ln(10^{10} A_s)$ | 3.0334 | 3.036 ± 0.023 | z_{re} | 7.50 | 7.44 ± 0.85 | $D_M(0.51)$ | 2051 | 2022 ± 89 |
| n_s | 0.9561 | 0.960 ± 0.014 | $10^9 A_s$ | 2.0768 | 2.082 ± 0.047 | $H(0.61)$ | 92.91 | $94.1^{+3.1}_{-3.8}$ |
| y_{cal} | 1.00053 | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8713 | 1.878 ± 0.027 | $D_M(0.61)$ | 2384 | 2351 ± 100 |
| A_{217}^{CIB} | 47.0 | 48 ± 7 | D_{40} | 1240.3 | 1236 ± 23 | $H(2.33)$ | 233.1 | $235.1^{+5.7}_{-7.2}$ |
| $\xi^{tSZ \times CIB}$ | 0.57 | — | D_{220} | 5708.2 | 5712 ± 42 | $D_M(2.33)$ | 5903 | 5837 ± 210 |
| A_{143}^{tSZ} | 6.89 | 5.0 ± 2.0 | D_{810} | 2537.2 | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.4664 | 0.464 ± 0.012 |
| A_{100}^{PS} | 250.5 | 264 ± 29 | D_{1420} | 816.5 | 814.3 ± 5.3 | $\sigma_8(0.15)$ | 0.7417 | 0.745 ± 0.017 |
| A_{143}^{PS} | 51.7 | 50 ± 9 | D_{2000} | 230.78 | 229.5 ± 2.4 | $f\sigma_8(0.38)$ | 0.4801 | 0.4790 ± 0.0098 |
| $A_{143 \times 217}^{PS}$ | 52.6 | 44 ± 9 | $n_{s,0.002}$ | 0.9561 | 0.960 ± 0.014 | $\sigma_8(0.38)$ | 0.6553 | 0.659 ± 0.016 |
| A_{217}^{PS} | 121.7 | 115 ± 10 | Y_P | 0.2526 | $0.251^{+0.033}_{-0.029}$ | $f\sigma_8(0.51)$ | 0.4763 | 0.4761 ± 0.0091 |
| A^{kSZ} | 0.01 | < 4.96 | Y_P^{BBN} | 0.2540 | $0.253^{+0.033}_{-0.029}$ | $\sigma_8(0.51)$ | 0.6124 | 0.616 ± 0.015 |
| A_{100}^{dustTT} | 8.82 | 8.9 ± 1.8 | Age/Gyr | 14.127 | 13.97 ± 0.49 | $f\sigma_8(0.61)$ | 0.4698 | 0.4701 ± 0.0088 |
| A_{143}^{dustTT} | 10.74 | 10.7 ± 1.8 | z_* | 1090.28 | 1090.41 ± 0.72 | $\sigma_8(0.61)$ | 0.5822 | 0.586 ± 0.015 |
| $A_{143 \times 217}^{dustTT}$ | 19.63 | 18.3 ± 3.3 | r_* | 147.06 | $145.7^{+4.8}_{-4.3}$ | $f\sigma_8(2.33)$ | 0.2928 | 0.2950 ± 0.0080 |
| A_{217}^{dustTT} | 95.0 | 93.4 ± 7.3 | $100\theta_*$ | 1.04163 | 1.0414 ± 0.0014 | $\sigma_8(2.33)$ | 0.3010 | 0.3037 ± 0.0089 |
| c_{100} | 0.99965 | 0.99960 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 14.118 | $13.99^{+0.44}_{-0.40}$ | f_{2000}^{143} | 29.44 | 31 ± 4 |
| c_{217} | 0.99824 | 0.99826 ± 0.00062 | z_{drag} | 1058.98 | 1059.3 ± 1.2 | $f_{2000}^{143 \times 217}$ | 32.67 | 33.8 ± 2.8 |
| H_0 | 64.84 | $66.1^{+3.0}_{-3.6}$ | r_{drag} | 149.89 | $148.5^{+4.9}_{-4.4}$ | f_{2000}^{217} | 107.11 | 108.3 ± 2.6 |
| Ω_Λ | 0.6682 | $0.675^{+0.021}_{-0.019}$ | k_D | 0.13838 | $0.1395^{+0.0037}_{-0.0046}$ | χ_{small}^2 | 395.90 | 396.9 ± 1.6 |
| Ω_m | 0.3318 | 0.325 ± 0.020 | $100\theta_D$ | 0.16080 | 0.16110 ± 0.00075 | χ_{lowl}^2 | 24.59 | 24.3 ± 2.3 |
| $\Omega_m h^2$ | 0.1395 | $0.1417^{+0.0063}_{-0.0084}$ | z_{eq} | 3457 | 3432 ± 84 | χ_{plik}^2 | 757.4 | 772.6 ± 6.1 |
| $\Omega_m h^3$ | 0.0904 | $0.0938^{+0.0076}_{-0.011}$ | k_{eq} | 0.010337 | $0.01037^{+0.00019}_{-0.00024}$ | χ_{prior}^2 | 1.26 | 7.3 ± 3.6 |
| σ_8 | 0.8047 | 0.808 ± 0.017 | $100\theta_{eq}$ | 0.8028 | 0.808 ± 0.015 | χ_{CMB}^2 | 1177.9 | 1193.8 ± 5.9 |

Best-fit $\chi_{eff}^2 = 1179.18$; $\Delta\chi_{eff}^2 = -0.40$; $\bar{\chi}_{eff}^2 = 1201.13$; $\Delta\bar{\chi}_{eff}^2 = 1.55$; $R - 1 = 0.01463$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.90 (Δ 0.02) commander_dx12_v3.2.29: 24.59 (Δ 0.99) plik_rd12_HM_v22.TT: 757.43 (Δ -1.32)

11.2 base_nnu_yhe_plikHM_TT_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------------|-----------------------------|----------|-----------------------|
| $\Omega_b h^2$ | 0.022258 | 0.02226 ± 0.00024 | $\sigma_8 \Omega_m^{0.25}$ | 0.6026 | 0.606 ± 0.011 | $D_M(0.38)$ | 1526.0 | 1516 ± 47 |
| $\Omega_c h^2$ | 0.1192 | $0.1212^{+0.0062}_{-0.0081}$ | $\sigma_8/h^{0.5}$ | 0.9814 | 0.983 ± 0.012 | $H(0.51)$ | 89.83 | $90.5^{+2.3}_{-2.9}$ |
| $100\theta_{MC}$ | 1.04105 | 1.0408 ± 0.0019 | $r_{drag}h$ | 99.88 | 99.9 ± 1.1 | $D_M(0.51)$ | 1977 | 1964 ± 60 |
| τ | 0.0533 | 0.0539 ± 0.0079 | $\langle d^2 \rangle^{1/2}$ | 2.4231 | 2.426 ± 0.028 | $H(0.61)$ | 95.44 | $96.1^{+2.4}_{-3.0}$ |
| N_{eff} | 3.065 | $3.18^{+0.39}_{-0.51}$ | z_{re} | 7.60 | 7.66 ± 0.82 | $D_M(0.61)$ | 2301 | 2286 ± 69 |
| Y_P | 0.2473 | $0.245^{+0.033}_{-0.029}$ | $10^9 A_s$ | 2.0910 | 2.100 ± 0.042 | $H(2.33)$ | 236.0 | $237.6^{+5.4}_{-6.7}$ |
| $\ln(10^{10} A_s)$ | 3.0402 | 3.044 ± 0.020 | $10^9 A_s e^{-2\tau}$ | 1.8797 | 1.886 ± 0.024 | $D_M(2.33)$ | 5757 | 5721^{+170}_{-150} |
| n_s | 0.9685 | 0.9697 ± 0.0087 | D_{40} | 1221.8 | 1222 ± 17 | $f\sigma_8(0.15)$ | 0.4541 | 0.4562 ± 0.0090 |
| y_{cal} | 1.00045 | 1.0006 ± 0.0025 | D_{220} | 5718.4 | 5719 ± 41 | $\sigma_8(0.15)$ | 0.7469 | 0.751 ± 0.015 |
| A_{217}^{CIB} | 50.2 | 48 ± 7 | D_{810} | 2537.1 | 2537 ± 14 | $f\sigma_8(0.38)$ | 0.4729 | 0.4752 ± 0.0089 |
| $\xi^{tSZ \times CIB}$ | 0.11 | — | D_{1420} | 815.9 | 814.8 ± 5.4 | $\sigma_8(0.38)$ | 0.6623 | 0.666 ± 0.014 |
| A_{143}^{tSZ} | 7.13 | 5.0 ± 2.0 | D_{2000} | 229.94 | 229.3 ± 2.4 | $f\sigma_8(0.51)$ | 0.4718 | 0.4741 ± 0.0089 |
| A_{100}^{PS} | 256.4 | 266 ± 29 | $n_{s,0.002}$ | 0.9685 | 0.9697 ± 0.0087 | $\sigma_8(0.51)$ | 0.6199 | 0.623 ± 0.013 |
| A_{143}^{PS} | 46.6 | 50 ± 9 | Y_P | 0.2473 | $0.245^{+0.033}_{-0.029}$ | $f\sigma_8(0.61)$ | 0.4670 | 0.4694 ± 0.0088 |
| $A_{143 \times 217}^{PS}$ | 41.4 | 44^{+9}_{-10} | Y_P^{BBN} | 0.2487 | $0.246^{+0.033}_{-0.029}$ | $\sigma_8(0.61)$ | 0.5899 | 0.593 ± 0.013 |
| A_{217}^{PS} | 116.9 | 115 ± 10 | Age/Gyr | 13.782 | $13.70^{+0.40}_{-0.36}$ | $f\sigma_8(2.33)$ | 0.2975 | 0.2993 ± 0.0064 |
| A^{kSZ} | 0.00 | < 5.09 | z_* | 1090.08 | 1090.21 ± 0.68 | $\sigma_8(2.33)$ | 0.3068 | 0.3087 ± 0.0069 |
| A_{100}^{dustTT} | 8.95 | 9.0 ± 1.8 | r_* | 144.62 | $143.7^{+4.1}_{-3.7}$ | f_{2000}^{143} | 30.68 | 32 ± 4 |
| A_{143}^{dustTT} | 10.80 | 10.8 ± 1.8 | $100\theta_*$ | 1.04118 | 1.0409 ± 0.0013 | $f_{2000}^{143 \times 217}$ | 33.37 | 34.0 ± 2.9 |
| $A_{143 \times 217}^{dustTT}$ | 19.14 | 18.4 ± 3.3 | $D_M(z_*)/\text{Gpc}$ | 13.890 | $13.81^{+0.38}_{-0.34}$ | f_{2000}^{217} | 107.90 | 108.4 ± 2.6 |
| A_{217}^{dustTT} | 94.1 | 93.4 ± 7.4 | z_{drag} | 1059.70 | 1059.8 ± 1.1 | χ_{small}^2 | 395.88 | 397.0 ± 1.8 |
| c_{100} | 0.99964 | 0.99962 ± 0.00061 | r_{drag} | 147.32 | $146.4^{+4.2}_{-3.8}$ | χ_{lowl}^2 | 22.69 | 22.8 ± 1.3 |
| c_{217} | 0.99827 | 0.99828 ± 0.00062 | k_D | 0.14040 | $0.1412^{+0.0034}_{-0.0042}$ | χ_{plik}^2 | 760.2 | 774.2 ± 5.9 |
| H_0 | 67.80 | $68.3^{+2.0}_{-2.4}$ | $100\theta_D$ | 0.16110 | 0.16125 ± 0.00074 | χ_{6DF}^2 | 0.0154 | 0.059 ± 0.080 |
| Ω_Λ | 0.6908 | 0.6913 ± 0.0086 | z_{eq} | 3372.3 | 3368 ± 44 | χ_{MGS}^2 | 1.34 | 1.45 ± 0.60 |
| Ω_m | 0.3092 | 0.3087 ± 0.0086 | k_{eq} | 0.010306 | $0.01037^{+0.00020}_{-0.00025}$ | $\chi_{DR12BAO}^2$ | 4.04 | 4.7 ± 1.6 |
| $\Omega_m h^2$ | 0.1421 | $0.1441^{+0.0062}_{-0.0081}$ | $100\theta_{eq}$ | 0.8185 | 0.8192 ± 0.0074 | χ_{prior}^2 | 1.52 | 7.3 ± 3.6 |
| $\Omega_m h^3$ | 0.0964 | $0.0986^{+0.0066}_{-0.0091}$ | $100\theta_{s,eq}$ | 0.45217 | 0.4525 ± 0.0038 | χ_{BAO}^2 | 5.39 | 6.2 ± 1.4 |
| σ_8 | 0.8080 | 0.813 ± 0.016 | $H(0.15)$ | 73.06 | $73.6^{+2.1}_{-2.5}$ | χ_{CMB}^2 | 1178.8 | 1194.0 ± 5.9 |
| S_8 | 0.8204 | 0.824 ± 0.017 | $D_M(0.15)$ | 639.6 | 635 ± 20 | | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4493 | 0.4514 ± 0.0092 | $H(0.38)$ | 83.13 | $83.7^{+2.2}_{-2.7}$ | | | |

Best-fit $\chi_{eff}^2 = 1185.69$; $\Delta\chi_{eff}^2 = -0.05$; $\bar{\chi}_{eff}^2 = 1207.58$; $\Delta\bar{\chi}_{eff}^2 = 1.55$; $R - 1 = 0.02042$
 χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.01) MGS: 1.34 (Δ 0.06) DR12BAO: 4.04 (Δ -0.15) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.88 (Δ -0.01) commander_dx12_v3_2_29: 22.69 (Δ -0.14) plik_rd12_HM_v22_TT: 760.21 (Δ 0.11)

11.3 base_nnu_yhe_plikHM_TT_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------------|-----------------------------|----------|-----------------------|
| $\Omega_b h^2$ | 0.022005 | 0.02207 ± 0.00030 | $\sigma_8 \Omega_m^{0.5}$ | 0.4582 | 0.4576 ± 0.0090 | $D_M(0.15)$ | 671.6 | 661 ± 29 |
| $\Omega_c h^2$ | 0.1145 | $0.1170^{+0.0060}_{-0.0077}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6043 | 0.6061 ± 0.0089 | $H(0.38)$ | 79.90 | $81.1^{+2.8}_{-3.3}$ |
| $100\theta_{MC}$ | 1.04200 | 1.0417 ± 0.0019 | $\sigma_8/h^{0.5}$ | 0.9930 | 0.992 ± 0.012 | $D_M(0.38)$ | 1597 | 1573 ± 66 |
| τ | 0.0502 | 0.0514 ± 0.0080 | $r_{drag}h$ | 97.35 | 98.0 ± 1.9 | $H(0.51)$ | 86.62 | $87.8^{+2.9}_{-3.4}$ |
| N_{eff} | 2.627 | $2.81^{+0.43}_{-0.54}$ | $\langle d^2 \rangle^{1/2}$ | 2.4621 | 2.455 ± 0.032 | $D_M(0.51)$ | 2066 | 2036 ± 83 |
| Y_P | 0.2565 | $0.256^{+0.032}_{-0.028}$ | z_{re} | 7.27 | 7.40 ± 0.83 | $H(0.61)$ | 92.22 | $93.5^{+2.9}_{-3.4}$ |
| $\ln(10^{10} A_s)$ | 3.0242 | 3.031 ± 0.022 | $10^9 A_s$ | 2.0578 | 2.073 ± 0.046 | $D_M(0.61)$ | 2401 | 2367 ± 94 |
| n_s | 0.9547 | 0.959 ± 0.012 | $10^9 A_s e^{-2\tau}$ | 1.8613 | 1.871 ± 0.026 | $H(2.33)$ | 231.3 | $233.4^{+5.5}_{-6.7}$ |
| y_{cal} | 1.00029 | 1.0004 ± 0.0025 | D_{40} | 1239.1 | 1235 ± 19 | $D_M(2.33)$ | 5948 | 5878 ± 200 |
| A_{217}^{CIB} | 46.5 | 48 ± 7 | D_{220} | 5710.9 | 5714 ± 42 | $f\sigma_8(0.15)$ | 0.4612 | 0.4610 ± 0.0081 |
| $\xi^{tSZ \times CIB}$ | 0.62 | — | D_{810} | 2534.9 | 2535 ± 14 | $\sigma_8(0.15)$ | 0.7346 | 0.741 ± 0.016 |
| A_{143}^{tSZ} | 6.87 | 5.0 ± 2.0 | D_{1420} | 816.6 | 814.5 ± 5.4 | $f\sigma_8(0.38)$ | 0.4750 | 0.4762 ± 0.0070 |
| A_{100}^{PS} | 250.2 | 263 ± 29 | D_{2000} | 230.93 | 229.6 ± 2.4 | $\sigma_8(0.38)$ | 0.6492 | 0.655 ± 0.015 |
| A_{143}^{PS} | 52.2 | 49 ± 9 | $n_{s,0.002}$ | 0.9547 | 0.959 ± 0.012 | $f\sigma_8(0.51)$ | 0.4714 | 0.4732 ± 0.0070 |
| $A_{143 \times 217}^{PS}$ | 53.5 | 44 ± 9 | Y_P | 0.2565 | $0.256^{+0.032}_{-0.028}$ | $\sigma_8(0.51)$ | 0.6067 | 0.613 ± 0.015 |
| A_{217}^{PS} | 122.2 | 115 ± 10 | Y_P^{BBN} | 0.2579 | $0.257^{+0.032}_{-0.028}$ | $f\sigma_8(0.61)$ | 0.4651 | 0.4673 ± 0.0073 |
| A^{kSZ} | 0.00 | < 4.92 | Age/Gyr | 14.234 | 14.07 ± 0.47 | $\sigma_8(0.61)$ | 0.5768 | 0.583 ± 0.014 |
| A_{100}^{dustTT} | 8.83 | 8.9 ± 1.8 | z_* | 1090.17 | 1090.36 ± 0.70 | $f\sigma_8(2.33)$ | 0.2902 | 0.2933 ± 0.0076 |
| A_{143}^{dustTT} | 10.81 | 10.7 ± 1.8 | r_* | 148.29 | 146.8 ± 4.4 | $\sigma_8(2.33)$ | 0.2983 | 0.3018 ± 0.0085 |
| $A_{143 \times 217}^{dustTT}$ | 19.83 | 18.3 ± 3.3 | $100\theta_*$ | 1.04205 | 1.0417 ± 0.0013 | f_{2000}^{143} | 29.35 | 31 ± 4 |
| A_{217}^{dustTT} | 95.4 | 93.4 ± 7.2 | $D_M(z_*)/\text{Gpc}$ | 14.231 | 14.09 ± 0.40 | $f_{2000}^{143 \times 217}$ | 32.56 | 33.7 ± 2.8 |
| c_{100} | 0.99966 | 0.99959 ± 0.00062 | z_{drag} | 1058.90 | 1059.3 ± 1.2 | f_{2000}^{217} | 106.95 | 108.2 ± 2.6 |
| c_{217} | 0.99822 | 0.99827 ± 0.00062 | r_{drag} | 151.14 | 149.6 ± 4.5 | $\chi_{lensing}^2$ | 8.48 | 9.3 ± 1.0 |
| H_0 | 64.41 | $65.6^{+2.8}_{-3.2}$ | k_D | 0.13737 | $0.1385^{+0.0036}_{-0.0043}$ | χ_{small}^2 | 395.70 | 396.8 ± 1.5 |
| Ω_Λ | 0.6694 | $0.675^{+0.018}_{-0.016}$ | $100\theta_D$ | 0.16070 | 0.16105 ± 0.00074 | χ_{lowl}^2 | 24.56 | 24.3 ± 2.0 |
| Ω_m | 0.3306 | 0.325 ± 0.017 | z_{eq} | 3457 | 3435 ± 72 | χ_{plik}^2 | 757.9 | 772.0 ± 5.8 |
| $\Omega_m h^2$ | 0.1372 | $0.1397^{+0.0061}_{-0.0077}$ | k_{eq} | 0.010251 | $0.01031^{+0.00017}_{-0.00021}$ | χ_{prior}^2 | 1.16 | 7.3 ± 3.6 |
| $\Omega_m h^3$ | 0.0884 | $0.0918^{+0.0072}_{-0.0096}$ | $100\theta_{eq}$ | 0.8031 | 0.807 ± 0.012 | χ_{CMB}^2 | 1186.7 | 1202.4 ± 5.9 |
| σ_8 | 0.7969 | 0.803 ± 0.016 | $100\theta_{s,eq}$ | 0.4443 | 0.4465 ± 0.0064 | | | |
| S_8 | 0.8366 | 0.836 ± 0.017 | $H(0.15)$ | 69.74 | $70.9^{+2.8}_{-3.2}$ | | | |

Best-fit $\chi_{eff}^2 = 1187.84$; $\Delta\chi_{eff}^2 = -0.73$; $\bar{\chi}_{eff}^2 = 1209.69$; $\Delta\bar{\chi}_{eff}^2 = 1.28$; $R - 1 = 0.01748$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.48 (Δ -0.42) small_100x143_offlike5_EE_Aplanck_B: 395.70 (Δ -0.16) commander_dx12_v3_2_29: 24.56 (Δ 1.32) plik_rd12_HM_v22_TT: 757.94 (Δ -1.38)

11.4 base_nnu_yhe_plikHM_TT_lowl_lowE_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------------|---------------------------|----------|-----------------------|
| $\Omega_b h^2$ | 0.022245 | 0.02226 ± 0.00024 | $\sigma_8 \Omega_m^{0.5}$ | 0.4511 | 0.4517 ± 0.0071 | $D_M(0.15)$ | 641.9 | 639 ± 20 |
| $\Omega_c h^2$ | 0.1190 | $0.1200^{+0.0058}_{-0.0072}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6040 | 0.6053 ± 0.0089 | $H(0.38)$ | 82.90 | $83.3^{+2.1}_{-2.5}$ |
| $100\theta_{MC}$ | 1.04108 | 1.0410 ± 0.0018 | $\sigma_8/h^{0.5}$ | 0.9842 | 0.9847 ± 0.0095 | $D_M(0.38)$ | 1531.0 | 1525 ± 45 |
| τ | 0.0544 | 0.0550 ± 0.0073 | $r_{\text{drag}} h$ | 99.65 | 99.8 ± 1.0 | $H(0.51)$ | 89.61 | $90.0^{+2.2}_{-2.6}$ |
| N_{eff} | 3.036 | $3.10^{+0.37}_{-0.46}$ | $\langle d^2 \rangle^{1/2}$ | 2.4306 | 2.432 ± 0.023 | $D_M(0.51)$ | 1983 | 1976 ± 58 |
| Y_P | 0.2473 | $0.247^{+0.031}_{-0.028}$ | z_{re} | 7.71 | 7.77 ± 0.74 | $H(0.61)$ | 95.22 | $95.6^{+2.3}_{-2.7}$ |
| $\ln(10^{10} A_s)$ | 3.0425 | 3.045 ± 0.017 | $10^9 A_s$ | 2.0957 | 2.102 ± 0.036 | $D_M(0.61)$ | 2308 | 2299 ± 66 |
| n_s | 0.9675 | 0.9682 ± 0.0085 | $10^9 A_s e^{-2\tau}$ | 1.8796 | 1.883 ± 0.022 | $H(2.33)$ | 235.8 | $236.6^{+5.0}_{-6.0}$ |
| y_{cal} | 1.00046 | 1.0007 ± 0.0025 | D_{40} | 1224.0 | 1225 ± 17 | $D_M(2.33)$ | 5769 | 5749 ± 150 |
| A_{217}^{CIB} | 48.4 | 48 ± 7 | D_{220} | 5720.0 | 5723 ± 41 | $f\sigma_8(0.15)$ | 0.4557 | 0.4564 ± 0.0069 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.34 | — | D_{810} | 2538.3 | 2538 ± 14 | $\sigma_8(0.15)$ | 0.7475 | 0.750 ± 0.013 |
| A_{143}^{tSZ} | 7.06 | 5.0 ± 2.0 | D_{1420} | 816.5 | 815.2 ± 5.4 | $f\sigma_8(0.38)$ | 0.4741 | 0.4751 ± 0.0070 |
| A_{100}^{PS} | 252.8 | 266 ± 29 | D_{2000} | 230.28 | 229.6 ± 2.4 | $\sigma_8(0.38)$ | 0.6626 | 0.665 ± 0.012 |
| A_{143}^{PS} | 49.2 | 50 ± 9 | $n_{s,0.002}$ | 0.9675 | 0.9682 ± 0.0085 | $f\sigma_8(0.51)$ | 0.4728 | 0.4738 ± 0.0070 |
| $A_{143 \times 217}^{\text{PS}}$ | 47.3 | 44 ± 9 | Y_P | 0.2473 | $0.247^{+0.031}_{-0.028}$ | $\sigma_8(0.51)$ | 0.6201 | 0.622 ± 0.011 |
| A_{217}^{PS} | 119.8 | 115 ± 10 | Y_P^{BBN} | 0.2487 | $0.249^{+0.031}_{-0.029}$ | $f\sigma_8(0.61)$ | 0.4678 | 0.4690 ± 0.0071 |
| A^{kSZ} | 0.00 | < 5.01 | Age/Gyr | 13.812 | 13.76 ± 0.36 | $\sigma_8(0.61)$ | 0.5901 | 0.592 ± 0.011 |
| A_{100}^{dustTT} | 8.90 | 8.9 ± 1.8 | z_* | 1090.07 | 1090.19 ± 0.68 | $f\sigma_8(2.33)$ | 0.2975 | 0.2986 ± 0.0057 |
| A_{143}^{dustTT} | 10.75 | 10.7 ± 1.8 | r_* | 144.83 | 144.4 ± 3.7 | $\sigma_8(2.33)$ | 0.3068 | 0.3079 ± 0.0062 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.37 | 18.3 ± 3.3 | $100\theta_*$ | 1.04123 | 1.0411 ± 0.0012 | χ_{lensing}^2 | 8.87 | 9.43 ± 0.85 |
| A_{217}^{dustTT} | 94.6 | 93.3 ± 7.5 | $D_M(z_*)/\text{Gpc}$ | 13.909 | 13.87 ± 0.34 | χ_{small}^2 | 396.08 | 397.1 ± 1.7 |
| c_{100} | 0.99968 | 0.99962 ± 0.00061 | z_{drag} | 1059.63 | 1059.8 ± 1.1 | χ_{lowl}^2 | 22.88 | 23.0 ± 1.3 |
| c_{217} | 0.99826 | 0.99828 ± 0.00062 | r_{drag} | 147.54 | 147.1 ± 3.7 | χ_{plik}^2 | 759.9 | 773.4 ± 5.8 |
| H_0 | 67.54 | $67.9^{+1.9}_{-2.3}$ | k_D | 0.14025 | $0.1406^{+0.0032}_{-0.0038}$ | $\chi_{6\text{DF}}^2$ | 0.0290 | 0.064 ± 0.084 |
| Ω_Λ | 0.6890 | 0.6898 ± 0.0083 | $100\theta_D$ | 0.16104 | 0.16120 ± 0.00074 | χ_{MGS}^2 | 1.22 | 1.36 ± 0.56 |
| Ω_m | 0.3110 | 0.3102 ± 0.0083 | z_{eq} | 3379.7 | 3376 ± 44 | χ_{DR12BAO}^2 | 4.36 | 4.9 ± 1.7 |
| $\Omega_m h^2$ | 0.1419 | $0.1429^{+0.0058}_{-0.0072}$ | k_{eq} | 0.010308 | $0.01034^{+0.00018}_{-0.00021}$ | χ_{prior}^2 | 1.32 | 7.3 ± 3.7 |
| $\Omega_m h^3$ | 0.0958 | $0.0972^{+0.0063}_{-0.0082}$ | $100\theta_{\text{eq}}$ | 0.8171 | 0.8179 ± 0.0072 | χ_{CMB}^2 | 1187.7 | 1202.9 ± 5.9 |
| σ_8 | 0.8088 | 0.811 ± 0.014 | $100\theta_{s,\text{eq}}$ | 0.45146 | 0.4518 ± 0.0037 | χ_{BAO}^2 | 5.61 | 6.3 ± 1.4 |
| S_8 | 0.8236 | 0.825 ± 0.013 | $H(0.15)$ | 72.81 | $73.2^{+2.0}_{-2.4}$ | | | |

Best-fit $\chi_{\text{eff}}^2 = 1194.67$; $\Delta\chi_{\text{eff}}^2 = -0.01$; $\bar{\chi}_{\text{eff}}^2 = 1216.49$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.76$; $R - 1 = 0.01644$
 χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.36 (Δ -0.01) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.87 (Δ -0.01) simall_100x143_offlike5_EE_Aplanck 396.08 (Δ -0.01) commander_dx12_v3.2.29: 22.88 (Δ -0.08) plik_rd12_HM_v22_TT: 759.91 (Δ 0.10)

11.5 base_nnu_yhe_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02210 ± 0.00032 | S_8 | 0.841 ± 0.025 | $100\theta_{s,eq}$ | 0.4472 ± 0.0074 |
| $\Omega_c h^2$ | $0.1191^{+0.0062}_{-0.0083}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.460 ± 0.014 | $H(0.15)$ | $71.6^{+2.9}_{-3.6}$ |
| $100\theta_{MC}$ | 1.0413 ± 0.0020 | $\sigma_8 \Omega_m^{0.25}$ | 0.611 ± 0.012 | $D_M(0.15)$ | 655 ± 31 |
| τ | $0.0535^{+0.0044}_{-0.0085}$ | $\sigma_8/h^{0.5}$ | 0.995 ± 0.017 | $H(0.38)$ | $81.9^{+2.9}_{-3.6}$ |
| N_{eff} | $2.94^{+0.44}_{-0.58}$ | $r_{drag}h$ | 98.2 ± 2.3 | $D_M(0.38)$ | 1558 ± 70 |
| Y_P | $0.251^{+0.033}_{-0.029}$ | $\langle d^2 \rangle^{1/2}$ | 2.460 ± 0.046 | $H(0.51)$ | $88.7^{+3.0}_{-3.7}$ |
| $\ln(10^{10} A_s)$ | 3.040 ± 0.020 | z_{re} | $7.65^{+0.49}_{-0.87}$ | $D_M(0.51)$ | 2017 ± 88 |
| n_s | 0.961 ± 0.013 | $10^9 A_s$ | $2.091^{+0.038}_{-0.043}$ | $H(0.61)$ | $94.3^{+3.0}_{-3.8}$ |
| y_{cal} | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.879 ± 0.027 | $D_M(0.61)$ | 2345 ± 100 |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1235 ± 22 | $H(2.33)$ | $235.3^{+5.7}_{-7.2}$ |
| $\xi^{tSZ \times CIB}$ | — | D_{220} | 5712 ± 42 | $D_M(2.33)$ | 5827 ± 210 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{810} | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.464 ± 0.012 |
| A_{100}^{PS} | 264 ± 29 | D_{1420} | 814.3 ± 5.3 | $\sigma_8(0.15)$ | $0.747^{+0.015}_{-0.017}$ |
| A_{143}^{PS} | 50 ± 9 | D_{2000} | 229.5 ± 2.4 | $f\sigma_8(0.38)$ | 0.4795 ± 0.0098 |
| $A_{143 \times 217}^{PS}$ | 44^{+9}_{-10} | $n_{s,0.002}$ | 0.961 ± 0.013 | $\sigma_8(0.38)$ | $0.661^{+0.014}_{-0.016}$ |
| A_{217}^{PS} | 115 ± 10 | Y_P | $0.251^{+0.033}_{-0.029}$ | $f\sigma_8(0.51)$ | 0.4767 ± 0.0090 |
| A^{kSZ} | < 4.97 | Y_P^{BBN} | $0.253^{+0.033}_{-0.029}$ | $\sigma_8(0.51)$ | $0.618^{+0.014}_{-0.015}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Age/Gyr | 13.95 ± 0.49 | $f\sigma_8(0.61)$ | 0.4708 ± 0.0087 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | z_* | 1090.40 ± 0.72 | $\sigma_8(0.61)$ | $0.588^{+0.013}_{-0.015}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.3 ± 3.3 | r_* | $145.6^{+4.8}_{-4.3}$ | $f\sigma_8(2.33)$ | $0.2959^{+0.0071}_{-0.0080}$ |
| A_{217}^{dustTT} | 93.4 ± 7.3 | $100\theta_*$ | 1.0413 ± 0.0014 | $\sigma_8(2.33)$ | $0.3046^{+0.0079}_{-0.0089}$ |
| c_{100} | 0.99960 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | $13.98^{+0.44}_{-0.39}$ | f_{2000}^{143} | 31 ± 4 |
| c_{217} | 0.99826 ± 0.00062 | z_{drag} | 1059.4 ± 1.2 | $f_{2000}^{143 \times 217}$ | 33.8 ± 2.9 |
| H_0 | $66.3^{+3.0}_{-3.6}$ | r_{drag} | $148.4^{+4.9}_{-4.4}$ | f_{2000}^{217} | 108.3 ± 2.6 |
| Ω_Λ | 0.676 ± 0.020 | k_D | $0.1396^{+0.0037}_{-0.0046}$ | χ_{small}^2 | 396.8 ± 1.6 |
| Ω_m | 0.324 ± 0.020 | $100\theta_D$ | 0.16112 ± 0.00075 | χ_{lowl}^2 | 24.2 ± 2.3 |
| $\Omega_m h^2$ | $0.1419^{+0.0063}_{-0.0084}$ | z_{eq} | 3427 ± 83 | χ_{plik}^2 | 772.5 ± 6.2 |
| $\Omega_m h^3$ | $0.0942^{+0.0075}_{-0.011}$ | k_{eq} | $0.01037^{+0.00019}_{-0.00024}$ | χ_{prior}^2 | 7.3 ± 3.6 |
| σ_8 | $0.810^{+0.015}_{-0.017}$ | $100\theta_{eq}$ | 0.809 ± 0.014 | χ_{CMB}^2 | 1193.5 ± 5.8 |

$\bar{\chi}_{eff}^2 = 1200.83$; $\Delta\bar{\chi}_{eff}^2 = 1.51$; $R - 1 = 0.01329$

11.6 base_nnu_yhe_plikHM_TT_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|---------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02227 ± 0.00024 | $\sigma_8 \Omega_m^{0.25}$ | $0.606^{+0.010}_{-0.012}$ | $D_M(0.38)$ | 1516 ± 47 |
| $\Omega_c h^2$ | $0.1211^{+0.0062}_{-0.0080}$ | $\sigma_8/h^{0.5}$ | 0.984 ± 0.011 | $H(0.51)$ | $90.5^{+2.3}_{-2.8}$ |
| $100\theta_{MC}$ | 1.0408 ± 0.0019 | $r_{drag}h$ | 99.96 ± 1.1 | $D_M(0.51)$ | 1964 ± 60 |
| τ | $0.0551^{+0.0056}_{-0.0078}$ | $\langle d^2 \rangle^{1/2}$ | 2.429 ± 0.027 | $H(0.61)$ | $96.1^{+2.4}_{-3.0}$ |
| N_{eff} | $3.18^{+0.39}_{-0.50}$ | z_{re} | $7.79^{+0.59}_{-0.81}$ | $D_M(0.61)$ | 2286 ± 69 |
| Y_P | $0.245^{+0.032}_{-0.029}$ | $10^9 A_s$ | $2.105^{+0.033}_{-0.041}$ | $H(2.33)$ | $237.5^{+5.4}_{-6.6}$ |
| $\ln(10^{10} A_s)$ | $3.047^{+0.016}_{-0.019}$ | $10^9 A_s e^{-2\tau}$ | 1.886 ± 0.024 | $D_M(2.33)$ | 5721 ± 160 |
| n_s | 0.9699 ± 0.0087 | D_{40} | 1222 ± 17 | $f\sigma_8(0.15)$ | $0.4566^{+0.0083}_{-0.0093}$ |
| y_{cal} | 1.0006 ± 0.0025 | D_{220} | 5719 ± 41 | $\sigma_8(0.15)$ | $0.752^{+0.014}_{-0.016}$ |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 14 | $f\sigma_8(0.38)$ | $0.4757^{+0.0081}_{-0.0093}$ |
| $\xi^{tSZ \times CIB}$ | — | D_{1420} | 814.8 ± 5.4 | $\sigma_8(0.38)$ | $0.667^{+0.012}_{-0.014}$ |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{2000} | 229.3 ± 2.4 | $f\sigma_8(0.51)$ | $0.4746^{+0.0080}_{-0.0092}$ |
| A_{100}^{PS} | 266 ± 29 | $n_{s,0.002}$ | 0.9699 ± 0.0087 | $\sigma_8(0.51)$ | $0.624^{+0.012}_{-0.013}$ |
| A_{143}^{PS} | 50 ± 9 | Y_P | $0.245^{+0.032}_{-0.029}$ | $f\sigma_8(0.61)$ | $0.4699^{+0.0079}_{-0.0092}$ |
| $A_{143 \times 217}^{PS}$ | 44^{+9}_{-10} | Y_P^{BBN} | $0.247^{+0.032}_{-0.029}$ | $\sigma_8(0.61)$ | $0.594^{+0.011}_{-0.013}$ |
| A_{217}^{PS} | 115 ± 10 | Age/Gyr | 13.70 ± 0.38 | $f\sigma_8(2.33)$ | $0.2997^{+0.0058}_{-0.0066}$ |
| A^{kSZ} | < 5.05 | z_* | 1090.21 ± 0.68 | $\sigma_8(2.33)$ | $0.3091^{+0.0062}_{-0.0071}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | r_* | 143.7 ± 3.9 | f_{2000}^{143} | 32 ± 4 |
| A_{143}^{dustTT} | 10.8 ± 1.8 | $100\theta_*$ | 1.0409 ± 0.0013 | $f_{2000}^{143 \times 217}$ | 33.9 ± 2.9 |
| $A_{143 \times 217}^{dustTT}$ | 18.4 ± 3.3 | $D_M(z_*)/\text{Gpc}$ | $13.81^{+0.38}_{-0.34}$ | f_{2000}^{217} | 108.4 ± 2.6 |
| A_{217}^{dustTT} | 93.4 ± 7.4 | z_{drag} | 1059.8 ± 1.1 | χ_{simall}^2 | 397.0 ± 1.8 |
| c_{100} | 0.99962 ± 0.00061 | r_{drag} | 146.4 ± 4.0 | χ_{lowl}^2 | 22.8 ± 1.3 |
| c_{217} | 0.99828 ± 0.00062 | k_D | $0.1412^{+0.0034}_{-0.0041}$ | χ_{plik}^2 | 774.0 ± 5.9 |
| H_0 | $68.3^{+2.0}_{-2.4}$ | $100\theta_D$ | 0.16126 ± 0.00074 | χ_{6DF}^2 | 0.058 ± 0.079 |
| Ω_Λ | 0.6915 ± 0.0086 | z_{eq} | 3368 ± 44 | χ_{MGS}^2 | 1.47 ± 0.60 |
| Ω_m | 0.3085 ± 0.0086 | k_{eq} | $0.01036^{+0.00020}_{-0.00024}$ | $\chi_{DR12BAO}^2$ | 4.7 ± 1.6 |
| $\Omega_m h^2$ | $0.1440^{+0.0062}_{-0.0080}$ | $100\theta_{eq}$ | 0.8193 ± 0.0074 | χ_{prior}^2 | 7.3 ± 3.6 |
| $\Omega_m h^3$ | $0.0986^{+0.0067}_{-0.0090}$ | $100\theta_{s,eq}$ | 0.4526 ± 0.0038 | χ_{BAO}^2 | 6.2 ± 1.3 |
| σ_8 | $0.813^{+0.014}_{-0.017}$ | $H(0.15)$ | $73.6^{+2.1}_{-2.5}$ | χ_{CMB}^2 | 1193.8 ± 5.8 |
| S_8 | $0.825^{+0.016}_{-0.017}$ | $D_M(0.15)$ | 635 ± 20 | | |
| $\sigma_8 \Omega_m^{0.5}$ | $0.4518^{+0.0085}_{-0.0095}$ | $H(0.38)$ | $83.8^{+2.2}_{-2.7}$ | | |

$$\bar{\chi}_{eff}^2 = 1207.34; \Delta\bar{\chi}_{eff}^2 = 1.58; R - 1 = 0.02392$$

11.7 base_nnu_yhe_plikHM_TT_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|---------------------------------|-----------------------------|-----------------------|
| $\Omega_{\text{b}}h^2$ | 0.02210 ± 0.00029 | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4572 ± 0.0090 | $D_{\text{M}}(0.15)$ | 659 ± 28 |
| $\Omega_{\text{c}}h^2$ | $0.1171^{+0.0060}_{-0.0076}$ | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6065 ± 0.0089 | $H(0.38)$ | $81.3^{+2.7}_{-3.2}$ |
| $100\theta_{\text{MC}}$ | 1.0416 ± 0.0019 | $\sigma_8/h^{0.5}$ | 0.992 ± 0.012 | $D_{\text{M}}(0.38)$ | 1568 ± 64 |
| τ | $0.0533^{+0.0045}_{-0.0082}$ | $r_{\text{drag}}h$ | 98.3 ± 1.9 | $H(0.51)$ | $88.0^{+2.8}_{-3.3}$ |
| N_{eff} | $2.83^{+0.42}_{-0.53}$ | $\langle d^2 \rangle^{1/2}$ | 2.455 ± 0.032 | $D_{\text{M}}(0.51)$ | 2030 ± 81 |
| Y_{P} | $0.255^{+0.032}_{-0.028}$ | z_{re} | $7.61^{+0.47}_{-0.86}$ | $H(0.61)$ | $93.7^{+2.9}_{-3.4}$ |
| $\ln(10^{10}A_{\text{s}})$ | 3.036 ± 0.019 | $10^9 A_{\text{s}}$ | 2.082 ± 0.041 | $D_{\text{M}}(0.61)$ | 2360 ± 92 |
| n_{s} | 0.960 ± 0.012 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.871 ± 0.026 | $H(2.33)$ | $233.6^{+5.5}_{-6.6}$ |
| y_{cal} | 1.0005 ± 0.0025 | D_{40} | 1234 ± 19 | $D_{\text{M}}(2.33)$ | 5866 ± 190 |
| A_{217}^{CIB} | 48 ± 7 | D_{220} | 5714 ± 42 | $f\sigma_8(0.15)$ | 0.4608 ± 0.0081 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{810} | 2535 ± 14 | $\sigma_8(0.15)$ | 0.742 ± 0.015 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{1420} | 814.5 ± 5.4 | $f\sigma_8(0.38)$ | 0.4764 ± 0.0070 |
| A_{100}^{PS} | 264 ± 29 | D_{2000} | 229.6 ± 2.4 | $\sigma_8(0.38)$ | 0.657 ± 0.014 |
| A_{143}^{PS} | 49 ± 9 | $n_{\text{s},0.002}$ | 0.960 ± 0.012 | $f\sigma_8(0.51)$ | 0.4737 ± 0.0069 |
| $A_{143 \times 217}^{\text{PS}}$ | 44 ± 9 | Y_{P} | $0.255^{+0.032}_{-0.028}$ | $\sigma_8(0.51)$ | 0.614 ± 0.014 |
| A_{217}^{PS} | 115 ± 10 | $Y_{\text{P}}^{\text{BBN}}$ | $0.257^{+0.032}_{-0.029}$ | $f\sigma_8(0.61)$ | 0.4679 ± 0.0071 |
| A^{kSZ} | < 4.93 | Age/Gyr | 14.04 ± 0.46 | $\sigma_8(0.61)$ | 0.584 ± 0.014 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | z_* | 1090.34 ± 0.70 | $f\sigma_8(2.33)$ | 0.2942 ± 0.0073 |
| $A_{143}^{\text{dust}TT}$ | 10.7 ± 1.8 | r_* | 146.6 ± 4.3 | $\sigma_8(2.33)$ | 0.3028 ± 0.0081 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.0416 ± 0.0013 | f_{2000}^{143} | 31 ± 4 |
| $A_{217}^{\text{dust}TT}$ | 93.4 ± 7.2 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 14.08 ± 0.40 | $f_{2000}^{143 \times 217}$ | 33.7 ± 2.8 |
| c_{100} | 0.99960 ± 0.00062 | z_{drag} | 1059.4 ± 1.2 | f_{2000}^{217} | 108.2 ± 2.6 |
| c_{217} | 0.99827 ± 0.00062 | r_{drag} | 149.4 ± 4.4 | χ_{lensing}^2 | 9.3 ± 1.0 |
| H_0 | $65.8^{+2.7}_{-3.1}$ | k_{D} | $0.1387^{+0.0036}_{-0.0043}$ | χ_{simall}^2 | 396.7 ± 1.5 |
| Ω_{Λ} | 0.677 ± 0.016 | $100\theta_{\text{D}}$ | 0.16107 ± 0.00074 | χ_{lowl}^2 | 24.1 ± 1.9 |
| Ω_{m} | 0.323 ± 0.016 | z_{eq} | 3428 ± 70 | χ_{plik}^2 | 772.0 ± 5.8 |
| $\Omega_{\text{m}}h^2$ | $0.1398^{+0.0061}_{-0.0077}$ | k_{eq} | $0.01030^{+0.00017}_{-0.00021}$ | χ_{prior}^2 | 7.3 ± 3.6 |
| $\Omega_{\text{m}}h^3$ | $0.0923^{+0.0072}_{-0.0095}$ | $100\theta_{\text{eq}}$ | 0.809 ± 0.012 | χ_{CMB}^2 | 1202.1 ± 5.8 |
| σ_8 | 0.805 ± 0.015 | $100\theta_{\text{s,eq}}$ | 0.4471 ± 0.0062 | | |
| S_8 | 0.835 ± 0.016 | $H(0.15)$ | $71.2^{+2.7}_{-3.2}$ | | |

$$\bar{\chi}_{\text{eff}}^2 = 1209.43; \Delta\bar{\chi}_{\text{eff}}^2 = 1.27; R - 1 = 0.01928$$

11.8 base_nnu_yhe_plikHM_TT_lowl_lowE_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|---------------------------------|-----------------------------|-----------------------|
| $\Omega_{\text{b}}h^2$ | 0.02226 ± 0.00024 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6055 ± 0.0089 | $D_{\text{M}}(0.38)$ | 1525 ± 45 |
| $\Omega_{\text{c}}h^2$ | $0.1199^{+0.0058}_{-0.0071}$ | $\sigma_8/h^{0.5}$ | 0.9851 ± 0.0093 | $H(0.51)$ | $90.0^{+2.2}_{-2.6}$ |
| $100\theta_{\text{MC}}$ | 1.0410 ± 0.0018 | $r_{\text{drag}}h$ | 99.8 ± 1.0 | $D_{\text{M}}(0.51)$ | 1976 ± 57 |
| τ | $0.0557^{+0.0059}_{-0.0074}$ | $\langle d^2 \rangle^{1/2}$ | 2.433 ± 0.022 | $H(0.61)$ | $95.6^{+2.3}_{-2.7}$ |
| N_{eff} | $3.10^{+0.37}_{-0.46}$ | z_{re} | $7.85^{+0.62}_{-0.75}$ | $D_{\text{M}}(0.61)$ | 2299 ± 66 |
| Y_{P} | 0.248 ± 0.030 | $10^9 A_{\text{s}}$ | $2.105^{+0.031}_{-0.035}$ | $H(2.33)$ | $236.5^{+5.0}_{-5.9}$ |
| $\ln(10^{10} A_{\text{s}})$ | $3.047^{+0.015}_{-0.017}$ | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.883 ± 0.022 | $D_{\text{M}}(2.33)$ | 5750 ± 150 |
| n_{s} | 0.9683 ± 0.0085 | D_{40} | 1225 ± 17 | $f\sigma_8(0.15)$ | 0.4565 ± 0.0069 |
| y_{cal} | 1.0007 ± 0.0025 | D_{220} | 5723 ± 41 | $\sigma_8(0.15)$ | 0.750 ± 0.013 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2538 ± 14 | $f\sigma_8(0.38)$ | 0.4752 ± 0.0069 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.2 ± 5.4 | $\sigma_8(0.38)$ | 0.665 ± 0.012 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{2000} | 229.6 ± 2.4 | $f\sigma_8(0.51)$ | 0.4740 ± 0.0070 |
| A_{100}^{PS} | 266 ± 29 | $n_{\text{s},0.002}$ | 0.9683 ± 0.0085 | $\sigma_8(0.51)$ | 0.622 ± 0.011 |
| A_{143}^{PS} | 50 ± 9 | Y_{P} | 0.248 ± 0.030 | $f\sigma_8(0.61)$ | 0.4691 ± 0.0070 |
| $A_{143 \times 217}^{\text{PS}}$ | 44 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.249 ± 0.030 | $\sigma_8(0.61)$ | 0.592 ± 0.011 |
| A_{217}^{PS} | 115 ± 10 | Age/Gyr | 13.77 ± 0.36 | $f\sigma_8(2.33)$ | 0.2987 ± 0.0057 |
| A^{kSZ} | < 4.99 | z_* | 1090.19 ± 0.68 | $\sigma_8(2.33)$ | 0.3081 ± 0.0061 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | r_* | 144.4 ± 3.6 | f_{2000}^{143} | 32 ± 4 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | $100\theta_*$ | 1.0411 ± 0.0012 | $f_{2000}^{143 \times 217}$ | 33.8 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.87 ± 0.33 | f_{2000}^{217} | 108.3 ± 2.6 |
| A_{217}^{dustTT} | 93.3 ± 7.5 | z_{drag} | 1059.8 ± 1.1 | χ_{lensing}^2 | 9.39 ± 0.81 |
| c_{100} | 0.99962 ± 0.00061 | r_{drag} | 147.1 ± 3.7 | χ_{simall}^2 | 397.0 ± 1.8 |
| c_{217} | 0.99828 ± 0.00062 | k_{D} | $0.1406^{+0.0032}_{-0.0038}$ | χ_{lowl}^2 | 23.0 ± 1.3 |
| H_0 | $67.9^{+1.9}_{-2.3}$ | $100\theta_{\text{D}}$ | 0.16120 ± 0.00074 | χ_{plik}^2 | 773.3 ± 5.8 |
| Ω_{Λ} | 0.6900 ± 0.0083 | z_{eq} | 3376 ± 44 | $\chi_{6\text{DF}}^2$ | 0.062 ± 0.082 |
| Ω_{m} | 0.3100 ± 0.0083 | k_{eq} | $0.01033^{+0.00018}_{-0.00021}$ | χ_{MGS}^2 | 1.37 ± 0.56 |
| $\Omega_{\text{m}}h^2$ | $0.1428^{+0.0058}_{-0.0071}$ | $100\theta_{\text{eq}}$ | 0.8180 ± 0.0072 | χ_{DR12BAO}^2 | 4.8 ± 1.7 |
| $\Omega_{\text{m}}h^3$ | $0.0971^{+0.0063}_{-0.0081}$ | $100\theta_{\text{s,eq}}$ | 0.4519 ± 0.0037 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.812 ± 0.013 | $H(0.15)$ | $73.2^{+2.0}_{-2.3}$ | χ_{CMB}^2 | 1202.8 ± 5.8 |
| S_8 | 0.825 ± 0.013 | $D_{\text{M}}(0.15)$ | 639 ± 19 | χ_{BAO}^2 | 6.2 ± 1.4 |
| $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4518 ± 0.0071 | $H(0.38)$ | $83.3^{+2.1}_{-2.5}$ | | |

$$\bar{\chi}_{\text{eff}}^2 = 1216.32; \Delta\bar{\chi}_{\text{eff}}^2 = 1.75; R - 1 = 0.01882$$

11.9 base_nnu_yhe_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-------------------------------------|----------|------------------------------|-----------------------------|----------|-----------------------|
| $\Omega_b h^2$ | 0.022215 | 0.02225 ± 0.00022 | Ω_m | 0.3227 | 0.321 ± 0.011 | k_{eq} | 0.010297 | 0.01033 ± 0.00016 |
| $\Omega_c h^2$ | 0.11668 | $0.1179^{+0.0045}_{-0.0050}$ | $\Omega_m h^2$ | 0.13954 | $0.1408^{+0.0045}_{-0.0051}$ | $100\theta_{\text{eq}}$ | 0.8083 | 0.8094 ± 0.0079 |
| $100\theta_{\text{MC}}$ | 1.04140 | 1.0413 ± 0.0012 | $\Omega_m h^3$ | 0.0918 | $0.0934^{+0.0050}_{-0.0060}$ | $100\theta_{\text{s,eq}}$ | 0.44689 | 0.4474 ± 0.0040 |
| τ | 0.0539 | 0.0536 ± 0.0079 | σ_8 | 0.8029 | 0.806 ± 0.013 | $H(0.15)$ | 71.08 | $71.6^{+1.7}_{-2.0}$ |
| N_{eff} | 2.807 | $2.89^{+0.29}_{-0.33}$ | S_8 | 0.8327 | 0.833 ± 0.017 | $D_{\text{M}}(0.15)$ | 658.4 | 654 ± 18 |
| Y_{P} | 0.2449 | 0.246 ± 0.018 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4561 | 0.4564 ± 0.0092 | $H(0.38)$ | 81.22 | $81.7^{+1.8}_{-2.0}$ |
| $\ln(10^{10} A_{\text{s}})$ | 3.0357 | 3.038 ± 0.019 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6051 | 0.6063 ± 0.0096 | $D_{\text{M}}(0.38)$ | 1567.6 | 1558 ± 40 |
| n_{s} | 0.9584 | 0.9597 ± 0.0086 | $\sigma_8/h^{0.5}$ | 0.9901 | 0.990 ± 0.012 | $H(0.51)$ | 87.95 | $88.5^{+1.8}_{-2.1}$ |
| y_{cal} | 1.00047 | 1.0007 ± 0.0025 | $r_{\text{drag}} h$ | 98.23 | 98.4 ± 1.3 | $D_{\text{M}}(0.51)$ | 2029 | 2017 ± 50 |
| A_{217}^{CIB} | 43.8 | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4575 | 2.456 ± 0.031 | $H(0.61)$ | 93.57 | $94.1^{+1.9}_{-2.2}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.89 | — | z_{re} | 7.60 | 7.58 ± 0.81 | $D_{\text{M}}(0.61)$ | 2359 | 2345 ± 57 |
| A_{143}^{tSZ} | 6.90 | $5.5^{+2.2}_{-1.9}$ | $10^9 A_{\text{s}}$ | 2.0815 | 2.086 ± 0.040 | $H(2.33)$ | 233.45 | 234.5 ± 4.1 |
| A_{100}^{PS} | 243.8 | 257 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8689 | 1.874 ± 0.020 | $D_{\text{M}}(2.33)$ | 5865 | 5834 ± 120 |
| A_{143}^{PS} | 51.4 | 45 ± 8 | D_{40} | 1238.1 | 1238 ± 16 | $f\sigma_8(0.15)$ | 0.4597 | 0.4602 ± 0.0086 |
| $A_{143 \times 217}^{\text{PS}}$ | 57.2 | 42 ± 9 | D_{220} | 5729.7 | 5733 ± 38 | $\sigma_8(0.15)$ | 0.7408 | 0.743 ± 0.012 |
| A_{217}^{PS} | 124.0 | 115 ± 10 | D_{810} | 2539.1 | 2538 ± 14 | $f\sigma_8(0.38)$ | 0.4754 | 0.4762 ± 0.0076 |
| A^{kSZ} | 0.00 | < 3.97 | D_{1420} | 819.66 | 817.9 ± 4.7 | $\sigma_8(0.38)$ | 0.6555 | 0.658 ± 0.011 |
| A_{100}^{dustTT} | 8.69 | 8.9 ± 1.8 | D_{2000} | 232.45 | 231.5 ± 1.8 | $f\sigma_8(0.51)$ | 0.4727 | 0.4737 ± 0.0073 |
| A_{143}^{dustTT} | 10.86 | 10.8 ± 1.8 | $n_{\text{s},0.002}$ | 0.9584 | 0.9597 ± 0.0086 | $\sigma_8(0.51)$ | 0.6130 | 0.615 ± 0.011 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.06 | 18.5 ± 3.3 | Y_{P} | 0.2449 | 0.246 ± 0.018 | $f\sigma_8(0.61)$ | 0.4669 | 0.4681 ± 0.0071 |
| A_{217}^{dustTT} | 95.8 | 93.9 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2463 | 0.247 ± 0.018 | $\sigma_8(0.61)$ | 0.5829 | 0.585 ± 0.010 |
| A_{100}^{dustTE} | 0.1149 | 0.115 ± 0.038 | Age/Gyr | 14.039 | 13.97 ± 0.29 | $f\sigma_8(2.33)$ | 0.2935 | 0.2948 ± 0.0053 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1340 | 0.135 ± 0.029 | z_* | 1089.700 | 1089.85 ± 0.45 | $\sigma_8(2.33)$ | 0.3021 | 0.3035 ± 0.0058 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.483 ± 0.084 | r_* | 146.63 | 145.9 ± 2.8 | f_{2000}^{143} | 27.20 | 28.9 ± 3.1 |
| A_{143}^{dustTE} | 0.222 | 0.225 ± 0.054 | $100\theta_*$ | 1.04168 | 1.04153 ± 0.00094 | $f_{2000}^{143 \times 217}$ | 30.92 | 31.7 ± 2.2 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.667 ± 0.080 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 14.077 | 14.01 ± 0.26 | f_{2000}^{217} | 105.51 | 106.6 ± 2.1 |
| A_{217}^{dustTE} | 2.094 | 2.09 ± 0.27 | z_{drag} | 1059.25 | 1059.48 ± 0.84 | χ_{small}^2 | 396.03 | 397.1 ± 1.8 |
| c_{100} | 0.99974 | 0.99967 ± 0.00061 | r_{drag} | 149.38 | 148.7 ± 2.9 | χ_{lowl}^2 | 24.26 | 24.3 ± 1.6 |
| c_{217} | 0.99814 | 0.99818 ± 0.00063 | k_{D} | 0.13918 | $0.1397^{+0.0024}_{-0.0027}$ | χ_{plik}^2 | 2343.1 | 2360.3 ± 6.2 |
| H_0 | 65.76 | $66.2^{+1.7}_{-2.0}$ | $100\theta_{\text{D}}$ | 0.160354 | 0.16056 ± 0.00048 | χ_{prior}^2 | 1.37 | 11.5 ± 4.5 |
| Ω_{Λ} | 0.6773 | 0.679 ± 0.011 | z_{eq} | 3429.1 | 3424 ± 44 | χ_{CMB}^2 | 2763.3 | 2781.7 ± 6.1 |

Best-fit $\chi_{\text{eff}}^2 = 2764.72$; $\Delta\chi_{\text{eff}}^2 = -1.05$; $\bar{\chi}_{\text{eff}}^2 = 2793.18$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.41$; $R - 1 = 0.01243$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.03 (Δ -0.02) commander_dx12_v3_2_29: 24.26 (Δ 1.00) plik_rd12_HM_v22b_TTTEEE: 2343.05 (Δ -1.59)

11.10 base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022350 | 0.02239 ± 0.00019 | $\Omega_m h^3$ | 0.0946 | 0.0956 ± 0.0054 | $D_M(0.15)$ | 645.7 | 643 ± 15 |
| $\Omega_c h^2$ | 0.11794 | 0.1186 ± 0.0048 | σ_8 | 0.8053 | 0.807 ± 0.013 | $H(0.38)$ | 82.48 | 82.8 ± 1.7 |
| $100\theta_{MC}$ | 1.04108 | 1.0411 ± 0.0012 | S_8 | 0.8222 | 0.823 ± 0.014 | $D_M(0.38)$ | 1539.7 | 1534 ± 34 |
| τ | 0.0551 | 0.0555 ± 0.0079 | $\sigma_8 \Omega_m^{0.5}$ | 0.4503 | 0.4508 ± 0.0079 | $H(0.51)$ | 89.17 | 89.5 ± 1.8 |
| N_{eff} | 2.962 | 3.01 ± 0.30 | $\sigma_8 \Omega_m^{0.25}$ | 0.6022 | 0.6033 ± 0.0096 | $D_M(0.51)$ | 1994.3 | 1987 ± 43 |
| Y_P | 0.2422 | 0.244 ± 0.018 | $\sigma_8/h^{0.5}$ | 0.9829 | 0.983 ± 0.011 | $H(0.61)$ | 94.77 | 95.1 ± 1.9 |
| $\ln(10^{10} A_s)$ | 3.0401 | 3.043 ± 0.019 | $r_{\text{drag}} h$ | 99.42 | 99.55 ± 0.88 | $D_M(0.61)$ | 2320 | 2313 ± 50 |
| n_s | 0.9648 | 0.9652 ± 0.0072 | $\langle d^2 \rangle^{1/2}$ | 2.4350 | 2.437 ± 0.026 | $H(2.33)$ | 234.91 | 235.5 ± 4.1 |
| y_{cal} | 1.00029 | 1.0007 ± 0.0024 | z_{re} | 7.71 | 7.75 ± 0.80 | $D_M(2.33)$ | 5796 | 5779 ± 110 |
| A_{217}^{CIB} | 44.5 | 46 ± 7 | $10^9 A_s$ | 2.0908 | 2.097 ± 0.040 | $f\sigma_8(0.15)$ | 0.4548 | 0.4553 ± 0.0077 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.82 | — | $10^9 A_s e^{-2\tau}$ | 1.8726 | 1.877 ± 0.020 | $\sigma_8(0.15)$ | 0.7440 | 0.746 ± 0.012 |
| A_{143}^{tSZ} | 7.03 | $5.6_{-1.9}^{+2.2}$ | D_{40} | 1227.9 | 1230 ± 14 | $f\sigma_8(0.38)$ | 0.4728 | 0.4735 ± 0.0075 |
| A_{100}^{PS} | 244.5 | 257 ± 28 | D_{220} | 5729.3 | 5738 ± 38 | $\sigma_8(0.38)$ | 0.6594 | 0.661 ± 0.011 |
| A_{143}^{PS} | 50.7 | 45 ± 8 | D_{810} | 2538.4 | 2539 ± 14 | $f\sigma_8(0.51)$ | 0.4712 | 0.4721 ± 0.0074 |
| $A_{143 \times 217}^{\text{PS}}$ | 55.6 | 42 ± 9 | D_{1420} | 819.43 | 818.2 ± 4.8 | $\sigma_8(0.51)$ | 0.6170 | 0.619 ± 0.010 |
| A_{217}^{PS} | 122.8 | 115.0 ± 9.9 | D_{2000} | 232.14 | 231.4 ± 1.8 | $f\sigma_8(0.61)$ | 0.4662 | 0.4671 ± 0.0073 |
| A^{kSZ} | 0.01 | < 4.03 | $n_{s,0.002}$ | 0.9648 | 0.9652 ± 0.0072 | $\sigma_8(0.61)$ | 0.5871 | 0.589 ± 0.010 |
| A_{100}^{dustTT} | 8.83 | 8.9 ± 1.8 | Y_P | 0.2422 | 0.244 ± 0.018 | $f\sigma_8(2.33)$ | 0.2960 | 0.2969 ± 0.0052 |
| A_{143}^{dustTT} | 10.99 | 10.9 ± 1.8 | Y_P^{BBN} | 0.2435 | 0.246 ± 0.018 | $\sigma_8(2.33)$ | 0.3051 | 0.3061 ± 0.0055 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.28 | 18.6 ± 3.2 | Age/Gyr | 13.874 | 13.83 ± 0.27 | f_{2000}^{143} | 27.46 | 29.0 ± 3.1 |
| A_{217}^{dustTT} | 95.9 | 93.8 ± 7.1 | z_* | 1089.600 | 1089.73 ± 0.43 | $f_{2000}^{143 \times 217}$ | 31.06 | 31.8 ± 2.2 |
| A_{100}^{dustTE} | 0.1142 | 0.114 ± 0.038 | r_* | 145.42 | 145.1 ± 2.7 | f_{2000}^{217} | 105.56 | 106.7 ± 2.1 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1341 | 0.135 ± 0.029 | $100\theta_*$ | 1.04138 | 1.04133 ± 0.00092 | χ_{small}^2 | 396.16 | 397.3 ± 2.0 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 | 0.481 ± 0.085 | $D_M(z_*)/\text{Gpc}$ | 13.964 | 13.93 ± 0.25 | χ_{lowl}^2 | 23.25 | 23.4 ± 1.2 |
| A_{143}^{dustTE} | 0.225 | 0.225 ± 0.055 | z_{drag} | 1059.59 | 1059.83 ± 0.78 | χ_{plik}^2 | 2344.8 | 2361.2 ± 6.2 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 | 0.664 ± 0.081 | r_{drag} | 148.10 | 147.7 ± 2.8 | $\chi_{6\text{DF}}^2$ | 0.0474 | 0.069 ± 0.082 |
| A_{217}^{dustTE} | 2.081 | 2.08 ± 0.27 | k_D | 0.14020 | 0.1405 ± 0.0025 | χ_{MGS}^2 | 1.097 | 1.23 ± 0.47 |
| c_{100} | 0.99974 | 0.99966 ± 0.00061 | $100\theta_D$ | 0.160470 | 0.16063 ± 0.00047 | χ_{DR12BAO}^2 | 4.80 | 5.1 ± 1.7 |
| c_{217} | 0.99817 | 0.99817 ± 0.00063 | z_{eq} | 3390.9 | 3389 ± 33 | χ_{prior}^2 | 1.48 | 11.6 ± 4.5 |
| H_0 | 67.13 | 67.4 ± 1.6 | k_{eq} | 0.010291 | 0.01031 ± 0.00016 | χ_{BAO}^2 | 5.94 | 6.4 ± 1.4 |
| Ω_Λ | 0.6873 | 0.6882 ± 0.0072 | $100\theta_{\text{eq}}$ | 0.8153 | 0.8158 ± 0.0056 | χ_{CMB}^2 | 2764.2 | 2781.9 ± 6.0 |
| Ω_m | 0.3127 | 0.3118 ± 0.0072 | $100\theta_{s,\text{eq}}$ | 0.45045 | 0.4507 ± 0.0029 | | | |
| $\Omega_m h^2$ | 0.14094 | 0.1417 ± 0.0049 | $H(0.15)$ | 72.40 | 72.7 ± 1.6 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2771.61$; $\Delta\chi_{\text{eff}}^2 = -0.31$; $\bar{\chi}_{\text{eff}}^2 = 2799.87$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.96$; $R - 1 = 0.02630$
 χ_{eff}^2 : BAO - 6DF: 0.05 (Δ 0.02) MGS: 1.10 (Δ -0.12) DR12BAO: 4.80 (Δ 0.39) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.16 (Δ -0.04) commander_dx12_v3_2_29: 23.25 (Δ 0.38) plik_rd12_HM_v22b_TTTEEE: 2344.78 (Δ -0.73)

11.11 base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------------|-----------------------------|----------|-----------------------|
| $\Omega_b h^2$ | 0.022215 | 0.02224 ± 0.00022 | $\Omega_m h^2$ | 0.13914 | $0.1400^{+0.0042}_{-0.0049}$ | $100\theta_{s,eq}$ | 0.44698 | 0.4474 ± 0.0038 |
| $\Omega_c h^2$ | 0.11628 | $0.1171^{+0.0042}_{-0.0049}$ | $\Omega_m h^3$ | 0.0914 | $0.0925^{+0.0048}_{-0.0059}$ | $H(0.15)$ | 71.01 | $71.3^{+1.7}_{-1.9}$ |
| $100\theta_{MC}$ | 1.04151 | 1.0415 ± 0.0012 | σ_8 | 0.8019 | 0.803 ± 0.011 | $D_M(0.15)$ | 659.0 | 656 ± 17 |
| τ | 0.0539 | 0.0535 ± 0.0076 | S_8 | 0.8312 | 0.831 ± 0.013 | $H(0.38)$ | 81.14 | $81.5^{+1.7}_{-2.0}$ |
| N_{eff} | 2.787 | $2.84^{+0.27}_{-0.32}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4552 | 0.4552 ± 0.0071 | $D_M(0.38)$ | 1569.1 | 1563 ± 39 |
| Y_P | 0.2458 | 0.247 ± 0.018 | $\sigma_8 \Omega_m^{0.25}$ | 0.6042 | 0.6046 ± 0.0076 | $H(0.51)$ | 87.85 | $88.2^{+1.8}_{-2.0}$ |
| $\ln(10^{10} A_s)$ | 3.0349 | 3.036 ± 0.018 | $\sigma_8/h^{0.5}$ | 0.9893 | 0.9886 ± 0.0095 | $D_M(0.51)$ | 2030.9 | 2023 ± 49 |
| n_s | 0.9583 | 0.9589 ± 0.0085 | $r_{drag} h$ | 98.28 | 98.4 ± 1.2 | $H(0.61)$ | 93.46 | $93.8^{+1.8}_{-2.1}$ |
| y_{cal} | 1.00046 | 1.0007 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | 2.4559 | 2.454 ± 0.024 | $D_M(0.61)$ | 2362 | 2353 ± 56 |
| A_{217}^{CIB} | 44.0 | 46 ± 7 | z_{re} | 7.60 | 7.55 ± 0.77 | $H(2.33)$ | 233.12 | $233.8^{+3.7}_{-4.2}$ |
| $\xi^{tSZ \times CIB}$ | 0.89 | — | $10^9 A_s$ | 2.0799 | 2.082 ± 0.037 | $D_M(2.33)$ | 5872 | 5853 ± 120 |
| A_{143}^{tSZ} | 6.95 | $5.6^{+2.1}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.8673 | 1.871 ± 0.019 | $f\sigma_8(0.15)$ | 0.4589 | 0.4589 ± 0.0067 |
| A_{100}^{PS} | 243.8 | 256 ± 28 | D_{40} | 1237.7 | 1238 ± 16 | $\sigma_8(0.15)$ | 0.7399 | 0.741 ± 0.011 |
| A_{143}^{PS} | 51.6 | 45 ± 8 | D_{220} | 5729.7 | 5734 ± 38 | $f\sigma_8(0.38)$ | 0.4747 | 0.4749 ± 0.0060 |
| $A_{143 \times 217}^{PS}$ | 57.1 | 42 ± 9 | D_{810} | 2538.7 | 2538 ± 13 | $\sigma_8(0.38)$ | 0.6547 | 0.656 ± 0.010 |
| A_{217}^{PS} | 123.5 | 115 ± 10 | D_{1420} | 819.62 | 817.9 ± 4.7 | $f\sigma_8(0.51)$ | 0.4720 | 0.4724 ± 0.0059 |
| A^{kSZ} | 0.00 | < 3.96 | D_{2000} | 232.44 | 231.6 ± 1.8 | $\sigma_8(0.51)$ | 0.6123 | 0.614 ± 0.010 |
| A_{100}^{dustTT} | 8.71 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.9583 | 0.9589 ± 0.0085 | $f\sigma_8(0.61)$ | 0.4663 | 0.4667 ± 0.0059 |
| A_{143}^{dustTT} | 10.92 | 10.8 ± 1.8 | Y_P | 0.2458 | 0.247 ± 0.018 | $\sigma_8(0.61)$ | 0.5823 | 0.5836 ± 0.0097 |
| $A_{143 \times 217}^{dustTT}$ | 20.27 | 18.5 ± 3.3 | Y_P^{BBN} | 0.2472 | 0.249 ± 0.018 | $f\sigma_8(2.33)$ | 0.2932 | 0.2939 ± 0.0051 |
| A_{217}^{dustTT} | 96.0 | 93.9 ± 7.2 | Age/Gyr | 14.056 | 14.01 ± 0.28 | $\sigma_8(2.33)$ | 0.3018 | 0.3026 ± 0.0056 |
| A_{100}^{dustTE} | 0.1139 | 0.115 ± 0.038 | z_* | 1089.692 | 1089.82 ± 0.44 | f_{2000}^{143} | 27.34 | 28.8 ± 3.1 |
| $A_{100 \times 143}^{dustTE}$ | 0.1353 | 0.135 ± 0.029 | r_* | 146.84 | 146.4 ± 2.7 | $f_{2000}^{143 \times 217}$ | 30.98 | 31.6 ± 2.2 |
| $A_{100 \times 217}^{dustTE}$ | 0.483 | 0.483 ± 0.084 | $100\theta_*$ | 1.04177 | 1.04166 ± 0.00092 | f_{2000}^{217} | 105.51 | 106.6 ± 2.1 |
| A_{143}^{dustTE} | 0.227 | 0.225 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 14.096 | 14.05 ± 0.25 | $\chi_{lensing}^2$ | 8.49 | 9.01 ± 0.75 |
| $A_{143 \times 217}^{dustTE}$ | 0.667 | 0.667 ± 0.080 | z_{drag} | 1059.25 | 1059.42 ± 0.84 | χ_{small}^2 | 396.03 | 396.9 ± 1.6 |
| A_{217}^{dustTE} | 2.090 | 2.09 ± 0.27 | r_{drag} | 149.59 | 149.1 ± 2.8 | χ_{lowl}^2 | 24.24 | 24.3 ± 1.5 |
| c_{100} | 0.99974 | 0.99968 ± 0.00061 | k_D | 0.13899 | $0.1393^{+0.0023}_{-0.0026}$ | χ_{plik}^2 | 2343.0 | 2359.9 ± 6.0 |
| c_{217} | 0.99817 | 0.99817 ± 0.00063 | $100\theta_D$ | 0.160353 | 0.16052 ± 0.00048 | χ_{prior}^2 | 1.47 | 11.5 ± 4.5 |
| H_0 | 65.70 | $66.0^{+1.7}_{-1.9}$ | z_{eq} | 3428.5 | 3425 ± 42 | χ_{CMB}^2 | 2771.8 | 2790.2 ± 6.2 |
| Ω_Λ | 0.6777 | 0.679 ± 0.010 | k_{eq} | 0.010281 | $0.01030^{+0.00013}_{-0.00015}$ | | | |
| Ω_m | 0.3223 | 0.321 ± 0.010 | $100\theta_{eq}$ | 0.8085 | 0.8092 ± 0.0074 | | | |

Best-fit $\chi_{eff}^2 = 2773.24$; $\Delta\chi_{eff}^2 = -1.39$; $\bar{\chi}_{eff}^2 = 2801.64$; $\Delta\bar{\chi}_{eff}^2 = 0.95$; $R - 1 = 0.01539$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.49 (Δ -0.37) small_100x143_offlike5_EE_Aplanck_B: 396.03 (Δ -0.02) commander_dx12_v3_2_29: 24.23 (Δ 0.98) plik_rd12_HM_v22b_TTTEEE: 2343.02 (Δ -1.91)

11.12 base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------|--------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022358 | 0.02238 ± 0.00019 | $\Omega_m h^2$ | 0.14037 | 0.1412 ± 0.0046 | $100\theta_{s,eq}$ | 0.45028 | 0.4504 ± 0.0028 |
| $\Omega_c h^2$ | 0.11736 | 0.1182 ± 0.0045 | $\Omega_m h^3$ | 0.0940 | $0.0950^{+0.0048}_{-0.0054}$ | $H(0.15)$ | 72.24 | 72.5 ± 1.6 |
| $100\theta_{MC}$ | 1.04126 | 1.0412 ± 0.0012 | σ_8 | 0.8054 | 0.807 ± 0.011 | $D_M(0.15)$ | 647.1 | 645 ± 14 |
| τ | 0.0563 | 0.0562 ± 0.0073 | S_8 | 0.8225 | 0.824 ± 0.012 | $H(0.38)$ | 82.30 | 82.6 ± 1.7 |
| N_{eff} | 2.926 | 2.97 ± 0.29 | $\sigma_8 \Omega_m^{0.5}$ | 0.4505 | 0.4511 ± 0.0063 | $D_M(0.38)$ | 1543.0 | 1538 ± 33 |
| Y_P | 0.2443 | 0.245 ± 0.018 | $\sigma_8 \Omega_m^{0.25}$ | 0.6024 | 0.6033 ± 0.0077 | $H(0.51)$ | 88.98 | 89.3 ± 1.7 |
| $\ln(10^{10} A_s)$ | 3.0426 | 3.044 ± 0.017 | $\sigma_8/h^{0.5}$ | 0.9841 | 0.9843 ± 0.0090 | $D_M(0.51)$ | 1998.6 | 1993 ± 42 |
| n_s | 0.9644 | 0.9644 ± 0.0071 | $r_{drag} h$ | 99.42 | 99.46 ± 0.85 | $H(0.61)$ | 94.57 | 94.9 ± 1.8 |
| y_{cal} | 1.00073 | 1.0008 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | 2.4386 | 2.440 ± 0.021 | $D_M(0.61)$ | 2325.5 | 2319 ± 49 |
| A_{217}^{CIB} | 44.4 | 46 ± 7 | z_{re} | 7.83 | 7.82 ± 0.73 | $H(2.33)$ | 234.43 | 235.1 ± 3.9 |
| $\xi^{tSZ \times CIB}$ | 0.80 | — | $10^9 A_s$ | 2.0959 | 2.099 ± 0.035 | $D_M(2.33)$ | 5808 | 5791 ± 110 |
| A_{143}^{tSZ} | 7.00 | $5.6^{+2.1}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.8727 | 1.875 ± 0.019 | $f\sigma_8(0.15)$ | 0.4550 | 0.4556 ± 0.0062 |
| A_{100}^{PS} | 244.8 | 257 ± 28 | D_{40} | 1229.6 | 1231 ± 14 | $\sigma_8(0.15)$ | 0.7441 | 0.746 ± 0.011 |
| A_{143}^{PS} | 50.5 | 45 ± 8 | D_{220} | 5736.6 | 5741 ± 37 | $f\sigma_8(0.38)$ | 0.4729 | 0.4736 ± 0.0060 |
| $A_{143 \times 217}^{PS}$ | 55.2 | 42 ± 9 | D_{810} | 2540.5 | 2539 ± 13 | $\sigma_8(0.38)$ | 0.6595 | 0.6609 ± 0.0098 |
| A_{217}^{PS} | 123.0 | 115.2 ± 9.8 | D_{1420} | 820.11 | 818.4 ± 4.7 | $f\sigma_8(0.51)$ | 0.4713 | 0.4721 ± 0.0060 |
| A^{kSZ} | 0.00 | < 3.94 | D_{2000} | 232.36 | 231.5 ± 1.8 | $\sigma_8(0.51)$ | 0.6171 | 0.6184 ± 0.0094 |
| A_{100}^{dustTT} | 8.82 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.9644 | 0.9644 ± 0.0071 | $f\sigma_8(0.61)$ | 0.4663 | 0.4671 ± 0.0060 |
| A_{143}^{dustTT} | 10.98 | 10.8 ± 1.8 | Y_P | 0.2443 | 0.245 ± 0.018 | $\sigma_8(0.61)$ | 0.5871 | 0.5884 ± 0.0090 |
| $A_{143 \times 217}^{dustTT}$ | 20.22 | 18.6 ± 3.2 | Y_P^{BBN} | 0.2456 | 0.246 ± 0.018 | $f\sigma_8(2.33)$ | 0.29600 | 0.2967 ± 0.0047 |
| A_{217}^{dustTT} | 96.0 | 93.9 ± 7.2 | Age/Gyr | 13.904 | 13.86 ± 0.26 | $\sigma_8(2.33)$ | 0.3051 | 0.3058 ± 0.0050 |
| A_{100}^{dustTE} | 0.1152 | 0.114 ± 0.038 | z_* | 1089.607 | 1089.71 ± 0.43 | $\chi_{lensing}^2$ | 8.56 | 9.06 ± 0.70 |
| $A_{100 \times 143}^{dustTE}$ | 0.1336 | 0.135 ± 0.030 | r_* | 145.73 | 145.3 ± 2.6 | χ_{small}^2 | 396.43 | 397.3 ± 1.9 |
| $A_{100 \times 217}^{dustTE}$ | 0.484 | 0.482 ± 0.085 | $100\theta_*$ | 1.04150 | 1.04141 ± 0.00089 | χ_{lowl}^2 | 23.32 | 23.5 ± 1.2 |
| A_{143}^{dustTE} | 0.223 | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.993 | 13.96 ± 0.24 | χ_{plik}^2 | 2344.5 | 2360.6 ± 6.0 |
| $A_{143 \times 217}^{dustTE}$ | 0.665 | 0.664 ± 0.081 | z_{drag} | 1059.63 | 1059.78 ± 0.78 | χ_{6DF}^2 | 0.0477 | 0.074 ± 0.083 |
| A_{217}^{dustTE} | 2.080 | 2.08 ± 0.27 | r_{drag} | 148.42 | 148.0 ± 2.7 | χ_{MGS}^2 | 1.097 | 1.18 ± 0.45 |
| c_{100} | 0.99975 | 0.99967 ± 0.00061 | k_D | 0.13991 | 0.1402 ± 0.0024 | $\chi_{DR12BAO}^2$ | 4.79 | 5.2 ± 1.7 |
| c_{217} | 0.99816 | 0.99816 ± 0.00063 | $100\theta_D$ | 0.160471 | 0.16060 ± 0.00047 | χ_{prior}^2 | 1.48 | 11.6 ± 4.5 |
| H_0 | 66.98 | 67.2 ± 1.6 | z_{eq} | 3393.4 | 3393 ± 32 | χ_{CMB}^2 | 2772.8 | 2790.5 ± 6.0 |
| Ω_Λ | 0.6872 | 0.6875 ± 0.0071 | k_{eq} | 0.010274 | 0.01030 ± 0.00014 | χ_{BAO}^2 | 5.94 | 6.4 ± 1.4 |
| Ω_m | 0.3128 | 0.3125 ± 0.0071 | $100\theta_{eq}$ | 0.8150 | 0.8152 ± 0.0055 | | | |

Best-fit $\chi_{eff}^2 = 2780.20$; $\Delta\chi_{eff}^2 = -0.50$; $\bar{\chi}_{eff}^2 = 2808.46$; $\Delta\bar{\chi}_{eff}^2 = 1.62$; $R - 1 = 0.02254$
 χ_{eff}^2 : BAO - 6DF: 0.05 (Δ 0.02) MGS: 1.10 (Δ -0.12) DR12BAO: 4.79 (Δ 0.37) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.56 (Δ -0.17) simall_100x143_offlike5_EE_Aplanck
396.44 (Δ -0.09) commander_dx12_v3.2.29: 23.32 (Δ 0.42) plik_rd12_HM_v22b_TTTEEE: 2344.47 (Δ -0.85)

11.13 base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-------------------------------------|------------------------------|-----------------------------|-----------------------|
| $\Omega_b h^2$ | 0.02226 ± 0.00022 | Ω_m | 0.321 ± 0.011 | k_{eq} | 0.01033 ± 0.00016 |
| $\Omega_c h^2$ | $0.1179^{+0.0045}_{-0.0050}$ | $\Omega_m h^2$ | $0.1409^{+0.0045}_{-0.0051}$ | $100\theta_{\text{eq}}$ | 0.8097 ± 0.0078 |
| $100\theta_{\text{MC}}$ | 1.0413 ± 0.0012 | $\Omega_m h^3$ | $0.0935^{+0.0050}_{-0.0060}$ | $100\theta_{\text{s,eq}}$ | 0.4476 ± 0.0040 |
| τ | $0.0550^{+0.0051}_{-0.0083}$ | σ_8 | 0.807 ± 0.012 | $H(0.15)$ | $71.6^{+1.7}_{-2.0}$ |
| N_{eff} | $2.89^{+0.29}_{-0.33}$ | S_8 | 0.834 ± 0.017 | $D_{\text{M}}(0.15)$ | 654 ± 17 |
| Y_{P} | 0.246 ± 0.018 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4567 ± 0.0091 | $H(0.38)$ | $81.8^{+1.8}_{-2.0}$ |
| $\ln(10^{10} A_{\text{s}})$ | $3.041^{+0.015}_{-0.019}$ | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6070 ± 0.0095 | $D_{\text{M}}(0.38)$ | 1557 ± 39 |
| n_{s} | 0.9601 ± 0.0085 | $\sigma_8/h^{0.5}$ | 0.991 ± 0.012 | $H(0.51)$ | $88.5^{+1.8}_{-2.1}$ |
| y_{cal} | 1.0007 ± 0.0025 | $r_{\text{drag}} h$ | 98.5 ± 1.3 | $D_{\text{M}}(0.51)$ | 2015 ± 50 |
| A_{217}^{CIB} | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.458 ± 0.030 | $H(0.61)$ | $94.2^{+1.9}_{-2.1}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | z_{re} | $7.72^{+0.57}_{-0.82}$ | $D_{\text{M}}(0.61)$ | 2344 ± 57 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | $10^9 A_{\text{s}}$ | $2.092^{+0.032}_{-0.040}$ | $H(2.33)$ | 234.6 ± 4.1 |
| A_{100}^{PS} | 256 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.874 ± 0.020 | $D_{\text{M}}(2.33)$ | 5832 ± 120 |
| A_{143}^{PS} | 45 ± 8 | D_{40} | 1238 ± 16 | $f\sigma_8(0.15)$ | 0.4605 ± 0.0085 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{220} | 5733 ± 38 | $\sigma_8(0.15)$ | 0.745 ± 0.012 |
| A_{217}^{PS} | 115 ± 10 | D_{810} | 2538 ± 14 | $f\sigma_8(0.38)$ | 0.4767 ± 0.0075 |
| A^{kSZ} | < 3.97 | D_{1420} | 817.8 ± 4.8 | $\sigma_8(0.38)$ | 0.659 ± 0.011 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | D_{2000} | 231.5 ± 1.8 | $f\sigma_8(0.51)$ | 0.4743 ± 0.0071 |
| A_{143}^{dustTT} | 10.8 ± 1.8 | $n_{\text{s},0.002}$ | 0.9601 ± 0.0085 | $\sigma_8(0.51)$ | 0.616 ± 0.010 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.5 ± 3.3 | Y_{P} | 0.246 ± 0.018 | $f\sigma_8(0.61)$ | 0.4686 ± 0.0069 |
| A_{217}^{dustTT} | 93.9 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.248 ± 0.018 | $\sigma_8(0.61)$ | 0.5862 ± 0.0099 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | Age/Gyr | 13.96 ± 0.29 | $f\sigma_8(2.33)$ | 0.2953 ± 0.0051 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | z_* | 1089.85 ± 0.45 | $\sigma_8(2.33)$ | 0.3040 ± 0.0056 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 ± 0.084 | r_* | 145.9 ± 2.8 | f_{2000}^{143} | 28.9 ± 3.1 |
| A_{143}^{dustTE} | 0.224 ± 0.054 | $100\theta_*$ | 1.04152 ± 0.00094 | $f_{2000}^{143 \times 217}$ | 31.7 ± 2.2 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 ± 0.080 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 14.01 ± 0.26 | f_{2000}^{217} | 106.6 ± 2.1 |
| A_{217}^{dustTE} | 2.09 ± 0.27 | z_{drag} | 1059.51 ± 0.83 | χ_{small}^2 | 397.0 ± 1.8 |
| c_{100} | 0.99967 ± 0.00061 | r_{drag} | 148.6 ± 2.9 | χ_{lowl}^2 | 24.3 ± 1.5 |
| c_{217} | 0.99818 ± 0.00063 | k_{D} | $0.1397^{+0.0024}_{-0.0027}$ | χ_{plik}^2 | 2360.1 ± 6.1 |
| H_0 | $66.3^{+1.7}_{-2.0}$ | $100\theta_{\text{D}}$ | 0.16057 ± 0.00047 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_{Λ} | 0.679 ± 0.011 | z_{eq} | 3422 ± 44 | χ_{CMB}^2 | 2781.4 ± 6.1 |

$\bar{\chi}_{\text{eff}}^2 = 2792.90$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.36$; $R - 1 = 0.01223$

11.14 base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02239 ± 0.00019 | $\Omega_{\mathrm{m}}h^3$ | 0.0956 ± 0.0054 | $D_{\mathrm{M}}(0.15)$ | 643 ± 15 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1186 ± 0.0048 | σ_8 | 0.808 ± 0.013 | $H(0.38)$ | 82.8 ± 1.7 |
| $100\theta_{\mathrm{MC}}$ | 1.0411 ± 0.0012 | S_8 | 0.824 ± 0.014 | $D_{\mathrm{M}}(0.38)$ | 1534 ± 34 |
| τ | $0.0564^{+0.0059}_{-0.0082}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4511 ± 0.0078 | $H(0.51)$ | 89.5 ± 1.8 |
| N_{eff} | 3.01 ± 0.30 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6038 ± 0.0093 | $D_{\mathrm{M}}(0.51)$ | 1987 ± 43 |
| Y_{P} | 0.244 ± 0.018 | $\sigma_8/h^{0.5}$ | 0.984 ± 0.011 | $H(0.61)$ | 95.1 ± 1.9 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.045^{+0.016}_{-0.019}$ | $r_{\mathrm{drag}}h$ | 99.56 ± 0.88 | $D_{\mathrm{M}}(0.61)$ | 2312 ± 49 |
| n_{s} | 0.9653 ± 0.0071 | $\langle d^2 \rangle^{1/2}$ | 2.439 ± 0.025 | $H(2.33)$ | 235.5 ± 4.1 |
| y_{cal} | 1.0007 ± 0.0024 | z_{re} | $7.85^{+0.64}_{-0.82}$ | $D_{\mathrm{M}}(2.33)$ | 5778 ± 110 |
| A_{217}^{CIB} | 46 ± 7 | $10^9 A_{\mathrm{s}}$ | $2.101^{+0.033}_{-0.041}$ | $f\sigma_8(0.15)$ | 0.4557 ± 0.0076 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.877 ± 0.020 | $\sigma_8(0.15)$ | 0.747 ± 0.012 |
| A_{143}^{tSZ} | $5.6^{+2.2}_{-1.9}$ | D_{40} | 1230 ± 14 | $f\sigma_8(0.38)$ | 0.4739 ± 0.0073 |
| A_{100}^{PS} | 257 ± 28 | D_{220} | 5738 ± 38 | $\sigma_8(0.38)$ | 0.662 ± 0.011 |
| A_{143}^{PS} | 45 ± 8 | D_{810} | 2539 ± 14 | $f\sigma_8(0.51)$ | 0.4725 ± 0.0072 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | D_{1420} | 818.1 ± 4.8 | $\sigma_8(0.51)$ | 0.619 ± 0.010 |
| A_{217}^{PS} | 115.0 ± 9.9 | D_{2000} | 231.4 ± 1.8 | $f\sigma_8(0.61)$ | 0.4676 ± 0.0071 |
| A^{kSZ} | < 4.03 | $n_{\mathrm{s},0.002}$ | 0.9653 ± 0.0071 | $\sigma_8(0.61)$ | 0.5895 ± 0.0098 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | Y_{P} | 0.244 ± 0.018 | $f\sigma_8(2.33)$ | 0.2972 ± 0.0050 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.9 ± 1.8 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.246 ± 0.018 | $\sigma_8(2.33)$ | 0.3064 ± 0.0053 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.6 ± 3.2 | Age/Gyr | 13.83 ± 0.27 | f_{2000}^{143} | 29.0 ± 3.1 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.8 ± 7.1 | z_* | 1089.73 ± 0.44 | $f_{2000}^{143 \times 217}$ | 31.8 ± 2.2 |
| $A_{100}^{\mathrm{dust}TE}$ | 0.114 ± 0.038 | r_* | 145.0 ± 2.7 | f_{2000}^{217} | 106.7 ± 2.1 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.135 ± 0.029 | $100\theta_*$ | 1.04133 ± 0.00092 | χ_{simall}^2 | 397.3 ± 2.0 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.481 ± 0.085 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.93 ± 0.25 | χ_{lowl}^2 | 23.4 ± 1.2 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.224 ± 0.054 | z_{drag} | 1059.84 ± 0.78 | χ_{plik}^2 | 2361.0 ± 6.1 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.664 ± 0.081 | r_{drag} | 147.7 ± 2.8 | $\chi_{6\mathrm{DF}}^2$ | 0.068 ± 0.080 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.08 ± 0.27 | k_{D} | 0.1405 ± 0.0025 | χ_{MGS}^2 | 1.23 ± 0.47 |
| c_{100} | 0.99966 ± 0.00061 | $100\theta_{\mathrm{D}}$ | 0.16064 ± 0.00047 | $\chi_{\mathrm{DR12BAO}}^2$ | 5.1 ± 1.7 |
| c_{217} | 0.99817 ± 0.00064 | z_{eq} | 3389 ± 33 | χ_{prior}^2 | 11.6 ± 4.5 |
| H_0 | 67.4 ± 1.6 | k_{eq} | 0.01031 ± 0.00016 | χ_{BAO}^2 | 6.3 ± 1.4 |
| Ω_{Λ} | 0.6883 ± 0.0072 | $100\theta_{\mathrm{eq}}$ | 0.8159 ± 0.0056 | χ_{CMB}^2 | 2781.7 ± 6.0 |
| Ω_{m} | 0.3117 ± 0.0072 | $100\theta_{\mathrm{s,eq}}$ | 0.4507 ± 0.0029 | | |
| $\Omega_{\mathrm{m}}h^2$ | 0.1417 ± 0.0048 | $H(0.15)$ | 72.7 ± 1.6 | | |

$$\bar{\chi}_{\mathrm{eff}}^2 = 2799.64; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1.93; R - 1 = 0.02640$$

11.15 base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------|-----------------------------|-----------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02225 ± 0.00022 | $\Omega_{\mathrm{m}}h^2$ | $0.1400^{+0.0042}_{-0.0049}$ | $100\theta_{\mathrm{s,eq}}$ | 0.4476 ± 0.0037 |
| $\Omega_{\mathrm{c}}h^2$ | $0.1171^{+0.0042}_{-0.0048}$ | $\Omega_{\mathrm{m}}h^3$ | $0.0926^{+0.0048}_{-0.0058}$ | $H(0.15)$ | $71.4^{+1.7}_{-1.9}$ |
| $100\theta_{\mathrm{MC}}$ | 1.0415 ± 0.0012 | σ_8 | 0.804 ± 0.011 | $D_{\mathrm{M}}(0.15)$ | 656 ± 17 |
| τ | $0.0547^{+0.0050}_{-0.0078}$ | S_8 | 0.831 ± 0.013 | $H(0.38)$ | $81.5^{+1.7}_{-2.0}$ |
| N_{eff} | $2.85^{+0.27}_{-0.32}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4552 ± 0.0071 | $D_{\mathrm{M}}(0.38)$ | 1561 ± 39 |
| Y_{P} | 0.248 ± 0.018 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6050 ± 0.0076 | $H(0.51)$ | $88.3^{+1.8}_{-2.0}$ |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.038^{+0.014}_{-0.017}$ | $\sigma_8/h^{0.5}$ | 0.9892 ± 0.0093 | $D_{\mathrm{M}}(0.51)$ | 2021 ± 49 |
| n_{s} | 0.9594 ± 0.0083 | $r_{\mathrm{drag}}h$ | 98.5 ± 1.2 | $H(0.61)$ | $93.9^{+1.8}_{-2.1}$ |
| y_{cal} | 1.0006 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | 2.455 ± 0.024 | $D_{\mathrm{M}}(0.61)$ | 2351 ± 56 |
| A_{217}^{CIB} | 46 ± 7 | z_{re} | $7.68^{+0.54}_{-0.79}$ | $H(2.33)$ | $233.8^{+3.7}_{-4.2}$ |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $10^9 A_{\mathrm{s}}$ | $2.087^{+0.030}_{-0.037}$ | $D_{\mathrm{M}}(2.33)$ | 5850 ± 120 |
| A_{143}^{tSZ} | $5.6^{+2.1}_{-1.9}$ | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.870 ± 0.019 | $f\sigma_8(0.15)$ | 0.4590 ± 0.0067 |
| A_{100}^{PS} | 256 ± 28 | D_{40} | 1238 ± 15 | $\sigma_8(0.15)$ | 0.742 ± 0.011 |
| A_{143}^{PS} | 45 ± 8 | D_{220} | 5734 ± 38 | $f\sigma_8(0.38)$ | 0.4752 ± 0.0060 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | D_{810} | 2537 ± 13 | $\sigma_8(0.38)$ | 0.657 ± 0.010 |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 817.9 ± 4.7 | $f\sigma_8(0.51)$ | 0.4728 ± 0.0058 |
| A^{kSZ} | < 3.96 | D_{2000} | 231.5 ± 1.8 | $\sigma_8(0.51)$ | 0.6144 ± 0.0097 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | $n_{\mathrm{s},0.002}$ | 0.9594 ± 0.0083 | $f\sigma_8(0.61)$ | 0.4671 ± 0.0058 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.8 ± 1.8 | Y_{P} | 0.248 ± 0.018 | $\sigma_8(0.61)$ | 0.5844 ± 0.0094 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.5 ± 3.2 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.249 ± 0.018 | $f\sigma_8(2.33)$ | 0.2944 ± 0.0049 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.9 ± 7.2 | Age/Gyr | 14.00 ± 0.28 | $\sigma_8(2.33)$ | 0.3031 ± 0.0054 |
| $A_{100}^{\mathrm{dust}TE}$ | 0.115 ± 0.038 | z_* | 1089.81 ± 0.44 | f_{2000}^{143} | 28.8 ± 3.1 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.135 ± 0.029 | r_* | 146.4 ± 2.7 | $f_{2000}^{143 \times 217}$ | 31.6 ± 2.2 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.483 ± 0.084 | $100\theta_*$ | 1.04166 ± 0.00092 | f_{2000}^{217} | 106.5 ± 2.1 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.225 ± 0.054 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 14.05 ± 0.25 | $\chi_{\mathrm{lensing}}^2$ | 9.00 ± 0.75 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.666 ± 0.080 | z_{drag} | 1059.46 ± 0.83 | χ_{simall}^2 | 396.9 ± 1.7 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.09 ± 0.27 | r_{drag} | 149.1 ± 2.8 | χ_{lowl}^2 | 24.3 ± 1.5 |
| c_{100} | 0.99967 ± 0.00061 | k_{D} | $0.1393^{+0.0023}_{-0.0026}$ | χ_{plik}^2 | 2359.7 ± 6.0 |
| c_{217} | 0.99817 ± 0.00063 | $100\theta_{\mathrm{D}}$ | 0.16053 ± 0.00048 | χ_{prior}^2 | 11.4 ± 4.5 |
| H_0 | $66.1^{+1.7}_{-1.9}$ | z_{eq} | 3423 ± 41 | χ_{CMB}^2 | 2789.9 ± 6.1 |
| Ω_{Λ} | 0.679 ± 0.010 | k_{eq} | 0.01030 ± 0.00014 | | |
| Ω_{m} | 0.321 ± 0.010 | $100\theta_{\mathrm{eq}}$ | 0.8097 ± 0.0072 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 2801.36$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.85$; $R - 1 = 0.01489$

11.16 base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|---------------------------|-----------------------------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02238 ± 0.00019 | $\Omega_{\mathrm{m}}h^3$ | 0.0950 ± 0.0051 | $D_{\mathrm{M}}(0.15)$ | 645 ± 14 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1181 ± 0.0045 | σ_8 | 0.807 ± 0.011 | $H(0.38)$ | 82.6 ± 1.7 |
| $100\theta_{\mathrm{MC}}$ | 1.0412 ± 0.0012 | S_8 | 0.824 ± 0.011 | $D_{\mathrm{M}}(0.38)$ | 1538 ± 33 |
| τ | $0.0568^{+0.0060}_{-0.0076}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4512 ± 0.0063 | $H(0.51)$ | 89.3 ± 1.7 |
| N_{eff} | 2.97 ± 0.29 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6036 ± 0.0076 | $D_{\mathrm{M}}(0.51)$ | 1993 ± 42 |
| Y_{P} | 0.245 ± 0.018 | $\sigma_8/h^{0.5}$ | 0.9847 ± 0.0088 | $H(0.61)$ | 94.9 ± 1.8 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.045^{+0.015}_{-0.017}$ | $r_{\mathrm{drag}}h$ | 99.48 ± 0.84 | $D_{\mathrm{M}}(0.61)$ | 2318 ± 49 |
| n_{s} | 0.9645 ± 0.0071 | $\langle d^2 \rangle^{1/2}$ | 2.441 ± 0.021 | $H(2.33)$ | 235.1 ± 3.9 |
| y_{cal} | 1.0008 ± 0.0024 | z_{re} | $7.88^{+0.64}_{-0.74}$ | $D_{\mathrm{M}}(2.33)$ | 5791 ± 110 |
| A_{217}^{CIB} | 46 ± 7 | $10^9 A_{\mathrm{s}}$ | $2.101^{+0.030}_{-0.036}$ | $f\sigma_8(0.15)$ | 0.4557 ± 0.0061 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.875 ± 0.019 | $\sigma_8(0.15)$ | 0.746 ± 0.011 |
| A_{143}^{tSZ} | $5.6^{+2.1}_{-1.9}$ | D_{40} | 1231 ± 14 | $f\sigma_8(0.38)$ | 0.4738 ± 0.0060 |
| A_{100}^{PS} | 257 ± 28 | D_{220} | 5740 ± 37 | $\sigma_8(0.38)$ | 0.6612 ± 0.0097 |
| A_{143}^{PS} | 45 ± 8 | D_{810} | 2539 ± 13 | $f\sigma_8(0.51)$ | 0.4723 ± 0.0060 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | D_{1420} | 818.3 ± 4.7 | $\sigma_8(0.51)$ | 0.6187 ± 0.0093 |
| A_{217}^{PS} | 115.2 ± 9.9 | D_{2000} | 231.5 ± 1.8 | $f\sigma_8(0.61)$ | 0.4673 ± 0.0060 |
| A^{kSZ} | < 3.95 | $n_{\mathrm{s},0.002}$ | 0.9645 ± 0.0071 | $\sigma_8(0.61)$ | 0.5887 ± 0.0089 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | Y_{P} | 0.245 ± 0.018 | $f\sigma_8(2.33)$ | 0.2968 ± 0.0046 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.8 ± 1.8 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.247 ± 0.018 | $\sigma_8(2.33)$ | 0.3060 ± 0.0050 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.6 ± 3.2 | Age/Gyr | 13.86 ± 0.26 | f_{2000}^{143} | 28.9 ± 3.1 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.9 ± 7.2 | z_* | 1089.71 ± 0.43 | $f_{2000}^{143 \times 217}$ | 31.7 ± 2.2 |
| $A_{100}^{\mathrm{dust}TE}$ | 0.114 ± 0.038 | r_* | 145.3 ± 2.6 | f_{2000}^{217} | 106.6 ± 2.1 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.134 ± 0.030 | $100\theta_*$ | 1.04141 ± 0.00089 | $\chi_{\mathrm{lensing}}^2$ | 9.03 ± 0.66 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.481 ± 0.085 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.96 ± 0.24 | χ_{simall}^2 | 397.3 ± 1.9 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.224 ± 0.054 | z_{drag} | 1059.79 ± 0.78 | χ_{lowl}^2 | 23.5 ± 1.2 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.665 ± 0.081 | r_{drag} | 148.0 ± 2.7 | χ_{plik}^2 | 2360.5 ± 6.0 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.08 ± 0.27 | k_{D} | 0.1402 ± 0.0024 | $\chi_{6\mathrm{DF}}^2$ | 0.072 ± 0.081 |
| c_{100} | 0.99967 ± 0.00061 | $100\theta_{\mathrm{D}}$ | 0.16060 ± 0.00047 | χ_{MGS}^2 | 1.19 ± 0.44 |
| c_{217} | 0.99816 ± 0.00063 | z_{eq} | 3392 ± 32 | $\chi_{\mathrm{DR12BAO}}^2$ | 5.1 ± 1.7 |
| H_0 | 67.2 ± 1.6 | k_{eq} | 0.01030 ± 0.00014 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_{Λ} | 0.6876 ± 0.0070 | $100\theta_{\mathrm{eq}}$ | 0.8153 ± 0.0055 | χ_{CMB}^2 | 2790.3 ± 6.0 |
| Ω_{m} | 0.3124 ± 0.0070 | $100\theta_{\mathrm{s,eq}}$ | 0.4504 ± 0.0028 | χ_{BAO}^2 | 6.4 ± 1.4 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1412 ± 0.0046 | $H(0.15)$ | 72.5 ± 1.6 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 2808.31$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1.59$; $R - 1 = 0.02301$

12 nrun

12.1 base_nrun_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022178 | 0.02216 ± 0.00023 | $\sigma_8 \Omega_m^{0.5}$ | 0.4595 | 0.460 ± 0.013 | $100\theta_{s,eq}$ | 0.44832 | 0.4480 ± 0.0046 |
| $\Omega_c h^2$ | 0.12059 | 0.1208 ± 0.0021 | $\sigma_8 \Omega_m^{0.25}$ | 0.6110 | 0.612 ± 0.012 | $H(0.15)$ | 72.32 | 72.26 ± 0.79 |
| $100\theta_{MC}$ | 1.040803 | 1.04078 ± 0.00047 | $\sigma_8/h^{0.5}$ | 0.9928 | 0.994 ± 0.016 | $D_M(0.15)$ | 646.9 | 647.7 ± 8.0 |
| τ | 0.0531 | 0.0534 ± 0.0083 | $r_{drag}h$ | 98.52 | 98.4 ± 1.6 | $H(0.38)$ | 82.57 | 82.53 ± 0.56 |
| $\ln(10^{10} A_s)$ | 3.0432 | 3.044 ± 0.018 | $\langle d^2 \rangle^{1/2}$ | 2.4475 | 2.451 ± 0.038 | $D_M(0.38)$ | 1540.8 | 1542 ± 16 |
| n_s | 0.9635 | 0.9619 ± 0.0060 | z_{re} | 7.60 | $7.62^{+0.87}_{-0.76}$ | $H(0.51)$ | 89.374 | 89.34 ± 0.44 |
| $dn_s/d \ln k$ | -0.0029 | -0.0043 ± 0.0075 | $10^9 A_s$ | 2.0971 | 2.100 ± 0.037 | $D_M(0.51)$ | 1994.7 | 1996 ± 19 |
| y_{cal} | 1.00044 | 1.0004 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8860 | 1.887 ± 0.014 | $H(0.61)$ | 95.056 | 95.03 ± 0.35 |
| A_{217}^{CIB} | 49.4 | 48 ± 7 | D_{40} | 1224.5 | 1225 ± 21 | $D_M(0.61)$ | 2320.0 | 2322 ± 20 |
| $\xi^{tSZ \times CIB}$ | 0.24 | — | D_{220} | 5711.5 | 5713 ± 42 | $H(2.33)$ | 236.75 | 236.8 ± 1.3 |
| A_{143}^{tSZ} | 7.04 | 4.9 ± 2.0 | D_{810} | 2539.2 | 2538 ± 14 | $D_M(2.33)$ | 5774.7 | 5776 ± 17 |
| A_{100}^{PS} | 256.3 | 266 ± 29 | D_{1420} | 815.3 | 813.9 ± 5.3 | $f\sigma_8(0.15)$ | 0.4634 | 0.464 ± 0.012 |
| A_{143}^{PS} | 49.3 | 50 ± 8 | D_{2000} | 229.77 | 229.1 ± 2.0 | $\sigma_8(0.15)$ | 0.7498 | 0.7498 ± 0.0076 |
| $A_{143 \times 217}^{PS}$ | 45.4 | 44 ± 9 | $n_{s,0.002}$ | 0.9728 | 0.976 ± 0.023 | $f\sigma_8(0.38)$ | 0.4799 | 0.4804 ± 0.0096 |
| A_{217}^{PS} | 118.7 | 115 ± 10 | Y_P | 0.245317 | $0.24530^{+0.00011}_{-0.000090}$ | $\sigma_8(0.38)$ | 0.6637 | 0.6636 ± 0.0061 |
| A^{kSZ} | 0.02 | < 5.30 | Y_P^{BBN} | 0.246643 | $0.24663^{+0.00011}_{-0.000090}$ | $f\sigma_8(0.51)$ | 0.4775 | 0.4778 ± 0.0082 |
| A_{100}^{dustTT} | 8.89 | 9.0 ± 1.8 | $10^5 D/H$ | 2.6221 | 2.626 ± 0.044 | $\sigma_8(0.51)$ | 0.6208 | 0.6206 ± 0.0055 |
| A_{143}^{dustTT} | 10.86 | 10.8 ± 1.8 | Age/Gyr | 13.8228 | 13.826 ± 0.037 | $f\sigma_8(0.61)$ | 0.4718 | 0.4721 ± 0.0073 |
| $A_{143 \times 217}^{dustTT}$ | 19.37 | 18.3 ± 3.3 | z_* | 1090.215 | 1090.26 ± 0.41 | $\sigma_8(0.61)$ | 0.5904 | 0.5902 ± 0.0052 |
| A_{217}^{dustTT} | 94.4 | 93.3 ± 7.3 | r_* | 144.426 | 144.40 ± 0.50 | $f\sigma_8(2.33)$ | 0.29738 | 0.2972 ± 0.0026 |
| c_{100} | 0.99963 | 0.99961 ± 0.00062 | $100\theta_*$ | 1.041004 | 1.04098 ± 0.00046 | $\sigma_8(2.33)$ | 0.30622 | 0.3060 ± 0.0027 |
| c_{217} | 0.99825 | 0.99827 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.8737 | 13.872 ± 0.046 | f_{2000}^{143} | 30.89 | 32.0 ± 3.2 |
| H_0 | 66.95 | 66.88 ± 0.92 | z_{drag} | 1059.55 | 1059.50 ± 0.50 | $f_{2000}^{143 \times 217}$ | 33.62 | 34.2 ± 2.2 |
| Ω_Λ | 0.6801 | 0.679 ± 0.013 | r_{drag} | 147.15 | 147.13 ± 0.51 | f_{2000}^{217} | 108.00 | 108.6 ± 2.1 |
| Ω_m | 0.3199 | 0.321 ± 0.013 | k_D | 0.14066 | 0.14066 ± 0.00057 | χ_{small}^2 | 395.91 | 397.1 ± 1.7 |
| $\Omega_m h^2$ | 0.14341 | 0.1436 ± 0.0020 | $100\theta_D$ | 0.160990 | 0.16101 ± 0.00029 | χ_{lowl}^2 | 22.74 | 23.1 ± 2.1 |
| $\Omega_m h^3$ | 0.096015 | 0.09599 ± 0.00049 | z_{eq} | 3411.7 | 3415 ± 49 | χ_{plik}^2 | 759.4 | 772.7 ± 5.7 |
| σ_8 | 0.8123 | 0.8124 ± 0.0090 | k_{eq} | 0.010413 | 0.01042 ± 0.00015 | χ_{prior}^2 | 1.43 | 7.3 ± 3.7 |
| S_8 | 0.8389 | 0.841 ± 0.024 | $100\theta_{eq}$ | 0.8110 | 0.8104 ± 0.0090 | χ_{CMB}^2 | 1178.0 | 1192.9 ± 5.6 |

Best-fit $\chi_{eff}^2 = 1179.45$; $\Delta\chi_{eff}^2 = -0.13$; $\bar{\chi}_{eff}^2 = 1200.22$; $\Delta\bar{\chi}_{eff}^2 = 0.64$; $R - 1 = 0.00668$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.91 (Δ 0.03) commander_dx12_v3.2.29: 22.74 (Δ -0.86) plik_rd12_HM_v22_TT: 759.37 (Δ 0.62)

12.2 base_nrun_plikHM_TT_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022255 | 0.02225 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.9819 | 0.982 ± 0.012 | $D_M(0.38)$ | 1529.2 | 1529.1 ± 9.3 |
| $\Omega_c h^2$ | 0.11900 | 0.1190 ± 0.0012 | $r_{\text{drag}} h$ | 99.76 | 99.78 ± 0.94 | $H(0.51)$ | 89.685 | 89.69 ± 0.29 |
| $100\theta_{\text{MC}}$ | 1.041013 | 1.04100 ± 0.00043 | $\langle d^2 \rangle^{1/2}$ | 2.4235 | 2.424 ± 0.029 | $D_M(0.51)$ | 1981.1 | 1981 ± 11 |
| τ | 0.0549 | 0.0550 ± 0.0082 | z_{re} | 7.75 | $7.74^{+0.84}_{-0.76}$ | $H(0.61)$ | 95.291 | 95.29 ± 0.25 |
| $\ln(10^{10} A_s)$ | 3.0428 | 3.043 ± 0.018 | $10^9 A_s$ | 2.0964 | 2.098 ± 0.037 | $D_M(0.61)$ | 2305.4 | 2305 ± 12 |
| n_s | 0.96634 | 0.9660 ± 0.0045 | $10^9 A_s e^{-2\tau}$ | 1.8784 | 1.879 ± 0.012 | $H(2.33)$ | 235.79 | 235.78 ± 0.81 |
| $dn_s/d \ln k$ | -0.0034 | -0.0035 ± 0.0075 | D_{40} | 1216.8 | 1218 ± 20 | $D_M(2.33)$ | 5765.1 | 5765 ± 13 |
| y_{cal} | 1.00027 | 1.0006 ± 0.0025 | D_{220} | 5717.1 | 5721 ± 41 | $f\sigma_8(0.15)$ | 0.4544 | 0.4544 ± 0.0077 |
| A_{217}^{CIB} | 51.1 | 48 ± 7 | D_{810} | 2536.4 | 2537 ± 14 | $\sigma_8(0.15)$ | 0.7463 | 0.7463 ± 0.0070 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.06 | — | D_{1420} | 815.0 | 815.0 ± 5.1 | $f\sigma_8(0.38)$ | 0.4730 | 0.4729 ± 0.0065 |
| A_{143}^{tSZ} | 7.16 | 5.0 ± 2.1 | D_{2000} | 229.65 | 229.6 ± 1.9 | $\sigma_8(0.38)$ | 0.6617 | 0.6617 ± 0.0060 |
| A_{100}^{PS} | 257.6 | 264 ± 29 | $n_{s,0.002}$ | 0.9773 | 0.977 ± 0.023 | $f\sigma_8(0.51)$ | 0.4718 | 0.4717 ± 0.0059 |
| A_{143}^{PS} | 46.5 | 49 ± 8 | Y_{P} | 0.245348 | $0.245345^{+0.000095}_{-0.000080}$ | $\sigma_8(0.51)$ | 0.6193 | 0.6193 ± 0.0055 |
| $A_{143 \times 217}^{\text{PS}}$ | 40.2 | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246675 | $0.246671^{+0.000095}_{-0.000080}$ | $f\sigma_8(0.61)$ | 0.4669 | 0.4669 ± 0.0054 |
| A_{217}^{PS} | 115.5 | 114 ± 10 | $10^5 \text{D}/\text{H}$ | 2.6075 | 2.608 ± 0.041 | $\sigma_8(0.61)$ | 0.5893 | 0.5894 ± 0.0052 |
| A^{kSZ} | 0.08 | < 5.17 | Age/Gyr | 13.8023 | 13.802 ± 0.029 | $f\sigma_8(2.33)$ | 0.29720 | 0.2972 ± 0.0026 |
| A_{100}^{dustTT} | 8.98 | 9.0 ± 1.8 | z_* | 1089.978 | 1089.98 ± 0.31 | $\sigma_8(2.33)$ | 0.30646 | 0.3065 ± 0.0027 |
| A_{143}^{dustTT} | 10.79 | 10.8 ± 1.8 | r_* | 144.778 | 144.79 ± 0.34 | f_{2000}^{143} | 31.12 | 31.5 ± 3.2 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.00 | 18.4 ± 3.3 | $100\theta_*$ | 1.041204 | 1.04120 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 33.66 | 33.8 ± 2.2 |
| A_{217}^{dustTT} | 93.6 | 93.4 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.9049 | 13.906 ± 0.033 | f_{2000}^{217} | 108.00 | 108.3 ± 2.1 |
| c_{100} | 0.99963 | 0.99961 ± 0.00061 | z_{drag} | 1059.589 | 1059.59 ± 0.49 | χ_{small}^2 | 396.07 | 397.2 ± 1.9 |
| c_{217} | 0.99828 | 0.99827 ± 0.00063 | r_{drag} | 147.486 | 147.49 ± 0.37 | χ_{lowl}^2 | 22.13 | 22.6 ± 1.8 |
| H_0 | 67.64 | 67.65 ± 0.54 | k_{D} | 0.140363 | 0.14035 ± 0.00050 | χ_{plik}^2 | 760.4 | 773.1 ± 5.7 |
| Ω_{Λ} | 0.6898 | 0.6899 ± 0.0073 | $100\theta_{\text{D}}$ | 0.160964 | 0.16097 ± 0.00029 | $\chi_{6\text{DF}}^2$ | 0.0220 | 0.058 ± 0.076 |
| Ω_{m} | 0.3102 | 0.3101 ± 0.0073 | z_{eq} | 3375.5 | 3375 ± 29 | χ_{MGS}^2 | 1.28 | 1.36 ± 0.52 |
| $\Omega_{\text{m}} h^2$ | 0.14190 | 0.1419 ± 0.0012 | k_{eq} | 0.010303 | 0.010301 ± 0.000089 | χ_{DR12BAO}^2 | 4.20 | 4.8 ± 1.6 |
| $\Omega_{\text{m}} h^3$ | 0.095980 | 0.09597 ± 0.00050 | $100\theta_{\text{eq}}$ | 0.8178 | 0.8180 ± 0.0053 | χ_{prior}^2 | 1.60 | 7.4 ± 3.7 |
| σ_8 | 0.8075 | 0.8075 ± 0.0078 | $100\theta_{s,\text{eq}}$ | 0.45184 | 0.4519 ± 0.0028 | χ_{BAO}^2 | 5.50 | 6.2 ± 1.3 |
| S_8 | 0.8211 | 0.821 ± 0.015 | $H(0.15)$ | 72.903 | 72.91 ± 0.47 | χ_{CMB}^2 | 1178.6 | 1192.9 ± 5.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4497 | 0.4497 ± 0.0081 | $D_M(0.15)$ | 641.04 | 641.0 ± 4.6 | | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6026 | 0.6026 ± 0.0080 | $H(0.38)$ | 82.986 | 82.99 ± 0.35 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1185.71$; $\Delta\chi_{\text{eff}}^2 = -0.04$; $\bar{\chi}_{\text{eff}}^2 = 1206.47$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.44$; $R - 1 = 0.01307$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ 0.00) MGS: 1.28 (Δ 0.00) DR12BAO: 4.20 (Δ 0.02) CMB - small_100x143.offlike5_EE_Aplanck_B: 396.07 (Δ 0.19) commander_dx12_v3_2_29: 22.13 (Δ -0.70) plik_rd12_HM_v22_TT: 760.40 (Δ 0.30)

12.3 base_nrun_plikHM_TT_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|---------------------------------------|----------------------|-----------------------|------------------------------------|----------|----------------------------------|-----------------------------|----------|---------------------|
| $\Omega_{\text{b}}h^2$ | 0.022169 | 0.02218 ± 0.00023 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6087 | 0.6085 ± 0.0078 | $D_{\text{M}}(0.15)$ | 646.0 | 645.7 ± 6.3 |
| $\Omega_{\text{c}}h^2$ | 0.12026 | 0.1202 ± 0.0016 | $\sigma_8/h^{0.5}$ | 0.9898 | 0.990 ± 0.011 | $H(0.38)$ | 82.631 | 82.66 ± 0.46 |
| $100\theta_{\text{MC}}$ | 1.040808 | 1.04082 ± 0.00045 | $r_{\text{drag}}h$ | 98.75 | 98.8 ± 1.2 | $D_{\text{M}}(0.38)$ | 1539.0 | 1538 ± 13 |
| τ | 0.0527 | 0.0533 ± 0.0081 | $\langle d^2 \rangle^{1/2}$ | 2.4447 | 2.443 ± 0.027 | $H(0.51)$ | 89.411 | 89.44 ± 0.37 |
| $\ln(10^{10}A_{\text{s}})$ | 3.0407 | 3.043 ± 0.016 | z_{re} | 7.56 | $7.60^{+0.85}_{-0.73}$ | $D_{\text{M}}(0.51)$ | 1992.6 | 1992 ± 15 |
| n_{s} | 0.9634 | 0.9631 ± 0.0051 | $10^9 A_{\text{s}}$ | 2.0919 | 2.096 ± 0.033 | $H(0.61)$ | 95.078 | 95.10 ± 0.31 |
| $\text{d}n_{\text{s}}/\text{d} \ln k$ | $-155 \cdot 10^{-5}$ | -0.0030 ± 0.0074 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8827 | 1.884 ± 0.012 | $D_{\text{M}}(0.61)$ | 2317.8 | 2317 ± 16 |
| y_{cal} | 1.00017 | 1.0005 ± 0.0025 | D_{40} | 1227.4 | 1225 ± 20 | $H(2.33)$ | 236.52 | 236.48 ± 0.98 |
| A_{217}^{CIB} | 51.0 | 48 ± 7 | D_{220} | 5712.9 | 5716 ± 41 | $D_{\text{M}}(2.33)$ | 5774.2 | 5773 ± 15 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.01 | — | D_{810} | 2535.9 | 2537 ± 14 | $f\sigma_8(0.15)$ | 0.4612 | 0.4609 ± 0.0083 |
| A_{143}^{tSZ} | 7.22 | 5.0 ± 2.1 | D_{1420} | 814.3 | 814.2 ± 5.2 | $\sigma_8(0.15)$ | 0.7483 | 0.7484 ± 0.0056 |
| A_{100}^{PS} | 258.2 | 265 ± 29 | D_{2000} | 229.47 | 229.3 ± 1.9 | $f\sigma_8(0.38)$ | 0.4781 | 0.4778 ± 0.0064 |
| A_{143}^{PS} | 45.8 | 50 ± 8 | $n_{\text{s},0.002}$ | 0.9684 | 0.973 ± 0.023 | $\sigma_8(0.38)$ | 0.66261 | 0.6627 ± 0.0049 |
| $A_{143 \times 217}^{\text{PS}}$ | 39.3 | 43 ± 9 | Y_{P} | 0.245313 | $0.24531^{+0.00011}_{-0.000085}$ | $f\sigma_8(0.51)$ | 0.4759 | 0.4757 ± 0.0054 |
| A_{217}^{PS} | 115.9 | 115 ± 10 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246639 | $0.24664^{+0.00011}_{-0.000086}$ | $\sigma_8(0.51)$ | 0.61979 | 0.6199 ± 0.0046 |
| A^{kSZ} | 0.00 | < 5.20 | $10^5 \text{D}/\text{H}$ | 2.6239 | 2.623 ± 0.043 | $f\sigma_8(0.61)$ | 0.47037 | 0.4702 ± 0.0048 |
| A_{100}^{dustTT} | 8.95 | 9.0 ± 1.8 | Age/Gyr | 13.8221 | 13.820 ± 0.034 | $\sigma_8(0.61)$ | 0.58956 | 0.5897 ± 0.0044 |
| A_{143}^{dustTT} | 10.82 | 10.7 ± 1.8 | z_* | 1090.197 | 1090.18 ± 0.37 | $f\sigma_8(2.33)$ | 0.29700 | 0.2971 ± 0.0023 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.98 | 18.4 ± 3.3 | r_* | 144.518 | 144.53 ± 0.38 | $\sigma_8(2.33)$ | 0.30591 | 0.3060 ± 0.0026 |
| A_{217}^{dustTT} | 93.8 | 93.3 ± 7.3 | $100\theta_*$ | 1.041017 | 1.04103 ± 0.00045 | f_{2000}^{143} | 31.16 | 31.8 ± 3.2 |
| c_{100} | 0.99962 | 0.99961 ± 0.00062 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8824 | 13.884 ± 0.036 | $f_{2000}^{143 \times 217}$ | 33.71 | 34.0 ± 2.2 |
| c_{217} | 0.99827 | 0.99827 ± 0.00062 | z_{drag} | 1059.47 | 1059.50 ± 0.50 | f_{2000}^{217} | 108.15 | 108.5 ± 2.1 |
| H_0 | 67.06 | 67.10 ± 0.73 | r_{drag} | 147.248 | 147.26 ± 0.40 | χ_{lensing}^2 | 8.93 | 9.59 ± 0.97 |
| Ω_{Λ} | 0.6819 | 0.682 ± 0.010 | k_{D} | 0.140546 | 0.14054 ± 0.00050 | χ_{small}^2 | 395.89 | 397.0 ± 1.6 |
| Ω_{m} | 0.3181 | 0.318 ± 0.010 | $100\theta_{\text{D}}$ | 0.161015 | 0.16101 ± 0.00029 | χ_{lowl}^2 | 23.13 | 23.2 ± 2.1 |
| $\Omega_{\text{m}}h^2$ | 0.14307 | 0.1430 ± 0.0015 | z_{eq} | 3403.6 | 3402 ± 36 | χ_{plik}^2 | 758.9 | 772.1 ± 5.5 |
| $\Omega_{\text{m}}h^3$ | 0.095947 | 0.09595 ± 0.00049 | k_{eq} | 0.010388 | 0.01038 ± 0.00011 | χ_{prior}^2 | 1.60 | 7.3 ± 3.7 |
| σ_8 | 0.8105 | 0.8105 ± 0.0063 | $100\theta_{\text{eq}}$ | 0.8124 | 0.8128 ± 0.0068 | χ_{CMB}^2 | 1186.9 | 1201.9 ± 5.6 |
| S_8 | 0.8347 | 0.834 ± 0.016 | $100\theta_{\text{s,eq}}$ | 0.44907 | 0.4493 ± 0.0035 | | | |
| $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4572 | 0.4569 ± 0.0090 | $H(0.15)$ | 72.41 | 72.45 ± 0.62 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1188.47$; $\Delta\chi_{\text{eff}}^2 = -0.10$; $\bar{\chi}_{\text{eff}}^2 = 1209.27$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.86$; $R - 1 = 0.01153$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp.p_teb_consext8: 8.93 (Δ 0.03) small_100x143_offlike5_EE_Aplanck_B: 395.89 (Δ 0.02) commander_dx12_v3_2_29: 23.13 (Δ -0.10) plik_rd12_HM_v22_TT: 758.91 (Δ -0.41)

12.4 base_nrun_plikHM_TT_lowl_lowE_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022258 | 0.02225 ± 0.00021 | $\sigma_8/h^{0.5}$ | 0.9836 | 0.9841 ± 0.0089 | $D_M(0.38)$ | 1529.3 | 1529.8 ± 8.7 |
| $\Omega_c h^2$ | 0.11902 | 0.1191 ± 0.0011 | $r_{\text{drag}} h$ | 99.74 | 99.69 ± 0.84 | $H(0.51)$ | 89.684 | 89.67 ± 0.28 |
| $100\theta_{\text{MC}}$ | 1.041006 | 1.04099 ± 0.00042 | $\langle d^2 \rangle^{1/2}$ | 2.4298 | 2.431 ± 0.023 | $D_M(0.51)$ | 1981.2 | 1982 ± 10 |
| τ | 0.0553 | 0.0561 ± 0.0075 | z_{re} | 7.79 | 7.86 ± 0.75 | $H(0.61)$ | 95.291 | 95.28 ± 0.24 |
| $\ln(10^{10} A_s)$ | 3.0442 | 3.046 ± 0.015 | $10^9 A_s$ | 2.0992 | 2.104 ± 0.032 | $D_M(0.61)$ | 2305.6 | 2306 ± 11 |
| n_s | 0.96720 | 0.9657 ± 0.0043 | $10^9 A_s e^{-2\tau}$ | 1.8795 | 1.880 ± 0.011 | $H(2.33)$ | 235.81 | 235.85 ± 0.72 |
| $dn_s/d \ln k$ | -0.0008 | -0.0029 ± 0.0074 | D_{40} | 1223.0 | 1221 ± 19 | $D_M(2.33)$ | 5765.1 | 5766 ± 13 |
| y_{cal} | 1.00066 | 1.0007 ± 0.0025 | D_{220} | 5722.7 | 5725 ± 40 | $f\sigma_8(0.15)$ | 0.4553 | 0.4556 ± 0.0061 |
| A_{217}^{CIB} | 48.8 | 48 ± 7 | D_{810} | 2538.8 | 2538 ± 14 | $\sigma_8(0.15)$ | 0.7476 | 0.7477 ± 0.0056 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.32 | — | D_{1420} | 816.8 | 815.3 ± 5.1 | $f\sigma_8(0.38)$ | 0.4739 | 0.4741 ± 0.0051 |
| A_{143}^{tSZ} | 7.02 | 5.0 ± 2.1 | D_{2000} | 230.43 | 229.8 ± 1.9 | $\sigma_8(0.38)$ | 0.66284 | 0.6629 ± 0.0049 |
| A_{100}^{PS} | 254.5 | 264 ± 28 | $n_{s,0.002}$ | 0.9699 | 0.975 ± 0.023 | $f\sigma_8(0.51)$ | 0.47261 | 0.4728 ± 0.0045 |
| A_{143}^{PS} | 49.0 | 49 ± 8 | Y_{P} | 0.245350 | $0.245344^{+0.000094}_{-0.000080}$ | $\sigma_8(0.51)$ | 0.62036 | 0.6204 ± 0.0046 |
| $A_{143 \times 217}^{\text{PS}}$ | 46.7 | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246676 | $0.246670^{+0.000094}_{-0.000080}$ | $f\sigma_8(0.61)$ | 0.46774 | 0.4679 ± 0.0042 |
| A_{217}^{PS} | 119.1 | 114 ± 10 | $10^5 D/H$ | 2.6067 | 2.609 ± 0.040 | $\sigma_8(0.61)$ | 0.59032 | 0.5903 ± 0.0044 |
| A^{kSZ} | 0.01 | < 5.08 | Age/Gyr | 13.8022 | 13.803 ± 0.029 | $f\sigma_8(2.33)$ | 0.29769 | 0.2977 ± 0.0023 |
| A_{100}^{dustTT} | 8.86 | 9.0 ± 1.8 | z_* | 1089.976 | 1089.99 ± 0.30 | $\sigma_8(2.33)$ | 0.30696 | 0.3069 ± 0.0024 |
| A_{143}^{dustTT} | 10.79 | 10.7 ± 1.8 | r_* | 144.769 | 144.76 ± 0.30 | f_{2000}^{143} | 30.14 | 31.4 ± 3.2 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.35 | 18.4 ± 3.3 | $100\theta_*$ | 1.041200 | 1.04119 ± 0.00041 | $f_{2000}^{143 \times 217}$ | 33.07 | 33.7 ± 2.2 |
| A_{217}^{dustTT} | 94.5 | 93.4 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.9041 | 13.903 ± 0.030 | f_{2000}^{217} | 107.56 | 108.2 ± 2.1 |
| c_{100} | 0.99965 | 0.99962 ± 0.00061 | z_{drag} | 1059.589 | 1059.59 ± 0.49 | χ_{lensing}^2 | 8.883 | 9.35 ± 0.75 |
| c_{217} | 0.99825 | 0.99826 ± 0.00063 | r_{drag} | 147.476 | 147.47 ± 0.34 | χ_{simall}^2 | 396.19 | 397.2 ± 1.8 |
| H_0 | 67.632 | 67.60 ± 0.50 | k_{D} | 0.140377 | 0.14038 ± 0.00047 | χ_{lowl}^2 | 22.70 | 22.8 ± 1.9 |
| Ω_{Λ} | 0.6897 | 0.6892 ± 0.0066 | $100\theta_{\text{D}}$ | 0.160958 | 0.16097 ± 0.00028 | χ_{plik}^2 | 759.9 | 772.4 ± 5.5 |
| Ω_{m} | 0.3103 | 0.3108 ± 0.0066 | z_{eq} | 3376.2 | 3378 ± 26 | $\chi_{6\text{DF}}^2$ | 0.0230 | 0.056 ± 0.069 |
| $\Omega_{\text{m}} h^2$ | 0.14193 | 0.1420 ± 0.0011 | k_{eq} | 0.010305 | 0.010309 ± 0.000079 | χ_{MGS}^2 | 1.279 | 1.30 ± 0.46 |
| $\Omega_{\text{m}} h^3$ | 0.095989 | 0.09598 ± 0.00049 | $100\theta_{\text{eq}}$ | 0.81772 | 0.8175 ± 0.0047 | χ_{DR12BAO}^2 | 4.23 | 4.8 ± 1.5 |
| σ_8 | 0.8089 | 0.8091 ± 0.0062 | $100\theta_{s,\text{eq}}$ | 0.45178 | 0.4517 ± 0.0025 | χ_{prior}^2 | 1.39 | 7.4 ± 3.7 |
| S_8 | 0.8227 | 0.823 ± 0.012 | $H(0.15)$ | 72.898 | 72.87 ± 0.43 | χ_{CMB}^2 | 1187.7 | 1201.8 ± 5.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4506 | 0.4510 ± 0.0065 | $D_M(0.15)$ | 641.09 | 641.4 ± 4.3 | χ_{BAO}^2 | 5.53 | 6.1 ± 1.2 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6037 | 0.6041 ± 0.0062 | $H(0.38)$ | 82.983 | 82.96 ± 0.33 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1194.63$; $\Delta\chi_{\text{eff}}^2 = -0.05$; $\bar{\chi}_{\text{eff}}^2 = 1215.34$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.61$; $R - 1 = 0.01612$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ -0.01) MGS: 1.28 (Δ 0.06) DR12BAO: 4.23 (Δ -0.15) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.88 (Δ 0.01) simall_100x143_offlike5_EE_Aplanck 396.19 (Δ 0.09) commander_dx12_v3_2.29: 22.70 (Δ -0.26) plik_rd12_HM_v22_TT: 759.95 (Δ 0.14)

12.5 base_nrun_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02217 ± 0.00023 | $\sigma_8 \Omega_m^{0.5}$ | 0.461 ± 0.013 | $100\theta_{s,eq}$ | 0.4482 ± 0.0046 |
| $\Omega_c h^2$ | 0.1207 ± 0.0021 | $\sigma_8 \Omega_m^{0.25}$ | 0.612 ± 0.012 | $H(0.15)$ | 72.29 ± 0.78 |
| $100\theta_{MC}$ | 1.04079 ± 0.00047 | $\sigma_8/h^{0.5}$ | 0.994 ± 0.016 | $D_M(0.15)$ | 647.3 ± 7.9 |
| τ | $0.0549^{+0.0055}_{-0.0083}$ | $r_{drag}h$ | 98.5 ± 1.6 | $H(0.38)$ | 82.56 ± 0.56 |
| $\ln(10^{10} A_s)$ | $3.047^{+0.014}_{-0.017}$ | $\langle d^2 \rangle^{1/2}$ | 2.452 ± 0.038 | $D_M(0.38)$ | 1542 ± 16 |
| n_s | 0.9621 ± 0.0059 | z_{re} | $7.78^{+0.61}_{-0.81}$ | $H(0.51)$ | 89.36 ± 0.44 |
| $dn_s/d \ln k$ | -0.0046 ± 0.0075 | $10^9 A_s$ | $2.106^{+0.028}_{-0.035}$ | $D_M(0.51)$ | 1996 ± 18 |
| y_{cal} | 1.0005 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.887 ± 0.014 | $H(0.61)$ | 95.05 ± 0.35 |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1224 ± 21 | $D_M(0.61)$ | 2321 ± 20 |
| $\xi^{tSZ \times CIB}$ | — | D_{220} | 5713 ± 41 | $H(2.33)$ | 236.8 ± 1.3 |
| A_{143}^{tSZ} | 4.9 ± 2.0 | D_{810} | 2538 ± 14 | $D_M(2.33)$ | 5775 ± 16 |
| A_{100}^{PS} | 266 ± 29 | D_{1420} | 813.9 ± 5.3 | $f\sigma_8(0.15)$ | 0.464 ± 0.012 |
| A_{143}^{PS} | 50 ± 8 | D_{2000} | 229.2 ± 1.9 | $\sigma_8(0.15)$ | 0.7507 ± 0.0071 |
| $A_{143 \times 217}^{PS}$ | 44 ± 9 | $n_{s,0.002}$ | 0.977 ± 0.023 | $f\sigma_8(0.38)$ | 0.4807 ± 0.0096 |
| A_{217}^{PS} | 115 ± 10 | Y_P | $0.24531^{+0.00011}_{-0.000089}$ | $\sigma_8(0.38)$ | 0.6645 ± 0.0055 |
| A^{kSZ} | < 5.29 | Y_P^{BBN} | $0.24663^{+0.00011}_{-0.000089}$ | $f\sigma_8(0.51)$ | 0.4782 ± 0.0081 |
| A_{100}^{dustTT} | 9.0 ± 1.8 | $10^5 D/H$ | 2.624 ± 0.044 | $\sigma_8(0.51)$ | $0.6214^{+0.0046}_{-0.0052}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | Age/Gyr | 13.824 ± 0.037 | $f\sigma_8(0.61)$ | 0.4725 ± 0.0072 |
| $A_{143 \times 217}^{dustTT}$ | 18.3 ± 3.3 | z_* | 1090.24 ± 0.41 | $\sigma_8(0.61)$ | $0.5911^{+0.0042}_{-0.0049}$ |
| A_{217}^{dustTT} | 93.3 ± 7.3 | r_* | 144.41 ± 0.50 | $f\sigma_8(2.33)$ | $0.2977^{+0.0020}_{-0.0025}$ |
| c_{100} | 0.99961 ± 0.00062 | $100\theta_*$ | 1.04099 ± 0.00046 | $\sigma_8(2.33)$ | $0.3065^{+0.0020}_{-0.0026}$ |
| c_{217} | 0.99827 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.872 ± 0.046 | f_{2000}^{143} | 32.0 ± 3.2 |
| H_0 | 66.91 ± 0.91 | z_{drag} | 1059.52 ± 0.50 | $f_{2000}^{143 \times 217}$ | 34.1 ± 2.2 |
| Ω_Λ | 0.679 ± 0.013 | r_{drag} | 147.14 ± 0.51 | f_{2000}^{217} | 108.6 ± 2.1 |
| Ω_m | 0.321 ± 0.013 | k_D | 0.14066 ± 0.00057 | χ_{simall}^2 | 397.0 ± 1.7 |
| $\Omega_m h^2$ | 0.1435 ± 0.0020 | $100\theta_D$ | 0.16100 ± 0.00029 | χ_{lowl}^2 | 23.0 ± 2.0 |
| $\Omega_m h^3$ | 0.09601 ± 0.00049 | z_{eq} | 3414 ± 48 | χ_{plik}^2 | 772.6 ± 5.7 |
| σ_8 | 0.8134 ± 0.0086 | k_{eq} | 0.01042 ± 0.00015 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | 0.841 ± 0.024 | $100\theta_{eq}$ | 0.8107 ± 0.0089 | χ_{CMB}^2 | 1192.6 ± 5.5 |

$\bar{\chi}_{eff}^2 = 1199.98$; $\Delta\bar{\chi}_{eff}^2 = 0.66$; $R - 1 = 0.00614$

12.6 base_nrun_plikHM_TT_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02226 ± 0.00021 | $\sigma_8/h^{0.5}$ | 0.983 ± 0.011 | $D_M(0.38)$ | 1528.9 ± 9.3 |
| $\Omega_c h^2$ | 0.1190 ± 0.0012 | $r_{\text{drag}} h$ | 99.79 ± 0.93 | $H(0.51)$ | 89.70 ± 0.29 |
| $100\theta_{\text{MC}}$ | 1.04101 ± 0.00042 | $\langle d^2 \rangle^{1/2}$ | 2.426 ± 0.028 | $D_M(0.51)$ | 1981 ± 11 |
| τ | $0.0562^{+0.0060}_{-0.0082}$ | z_{re} | $7.86^{+0.64}_{-0.80}$ | $H(0.61)$ | 95.30 ± 0.25 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.014}_{-0.017}$ | $10^9 A_s$ | $2.103^{+0.029}_{-0.036}$ | $D_M(0.61)$ | 2305 ± 12 |
| n_s | 0.9661 ± 0.0045 | $10^9 A_s e^{-2\tau}$ | 1.879 ± 0.012 | $H(2.33)$ | 235.78 ± 0.81 |
| $dn_s/d \ln k$ | -0.0038 ± 0.0074 | D_{40} | 1218 ± 20 | $D_M(2.33)$ | 5765 ± 13 |
| y_{cal} | 1.0006 ± 0.0025 | D_{220} | 5721 ± 41 | $f\sigma_8(0.15)$ | 0.4548 ± 0.0075 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 14 | $\sigma_8(0.15)$ | $0.7472^{+0.0060}_{-0.0068}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.0 ± 5.1 | $f\sigma_8(0.38)$ | 0.4734 ± 0.0063 |
| A_{143}^{tSZ} | 5.0 ± 2.1 | D_{2000} | 229.6 ± 1.9 | $\sigma_8(0.38)$ | $0.6625^{+0.0050}_{-0.0058}$ |
| A_{100}^{PS} | 264 ± 29 | $n_{s,0.002}$ | 0.978 ± 0.023 | $f\sigma_8(0.51)$ | 0.4722 ± 0.0056 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.245347^{+0.000094}_{-0.000080}$ | $\sigma_8(0.51)$ | $0.6200^{+0.0046}_{-0.0054}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246674^{+0.000095}_{-0.000080}$ | $f\sigma_8(0.61)$ | 0.4673 ± 0.0052 |
| A_{217}^{PS} | 114 ± 10 | $10^5 \text{D}/\text{H}$ | 2.607 ± 0.040 | $\sigma_8(0.61)$ | $0.5900^{+0.0043}_{-0.0051}$ |
| A^{kSZ} | < 5.18 | Age/Gyr | 13.801 ± 0.029 | $f\sigma_8(2.33)$ | $0.2976^{+0.0021}_{-0.0025}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | z_* | 1089.97 ± 0.31 | $\sigma_8(2.33)$ | $0.3068^{+0.0022}_{-0.0027}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | r_* | 144.78 ± 0.34 | f_{2000}^{143} | 31.5 ± 3.2 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.4 ± 3.3 | $100\theta_*$ | 1.04120 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 33.8 ± 2.2 |
| A_{217}^{dustTT} | 93.4 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.905 ± 0.033 | f_{2000}^{217} | 108.3 ± 2.1 |
| c_{100} | 0.99961 ± 0.00061 | z_{drag} | 1059.61 ± 0.49 | χ_{small}^2 | 397.1 ± 1.9 |
| c_{217} | 0.99827 ± 0.00063 | r_{drag} | 147.49 ± 0.37 | χ_{lowl}^2 | 22.6 ± 1.8 |
| H_0 | 67.66 ± 0.54 | k_{D} | 0.14036 ± 0.00050 | χ_{plik}^2 | 773.0 ± 5.7 |
| Ω_{Λ} | 0.6900 ± 0.0073 | $100\theta_{\text{D}}$ | 0.16096 ± 0.00028 | $\chi_{6\text{DF}}^2$ | 0.057 ± 0.075 |
| Ω_{m} | 0.3100 ± 0.0073 | z_{eq} | 3375 ± 29 | χ_{MGS}^2 | 1.36 ± 0.52 |
| $\Omega_{\text{m}} h^2$ | 0.1419 ± 0.0012 | k_{eq} | 0.010301 ± 0.000089 | χ_{DR12BAO}^2 | 4.7 ± 1.6 |
| $\Omega_{\text{m}} h^3$ | 0.09598 ± 0.00050 | $100\theta_{\text{eq}}$ | 0.8180 ± 0.0053 | χ_{prior}^2 | 7.4 ± 3.7 |
| σ_8 | $0.8084^{+0.0069}_{-0.0077}$ | $100\theta_{s,\text{eq}}$ | 0.4519 ± 0.0028 | χ_{BAO}^2 | 6.2 ± 1.3 |
| S_8 | 0.822 ± 0.015 | $H(0.15)$ | 72.92 ± 0.47 | χ_{CMB}^2 | 1192.6 ± 5.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4501 ± 0.0080 | $D_M(0.15)$ | 640.9 ± 4.6 | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6032 ± 0.0077 | $H(0.38)$ | 83.00 ± 0.35 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1206.22; \Delta \bar{\chi}_{\text{eff}}^2 = 0.46; R - 1 = 0.01231$$

12.7 base_nrun_plikHM_TT_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02219 ± 0.00023 | $\sigma_8 \Omega_m^{0.25}$ | 0.6086 ± 0.0078 | $D_M(0.15)$ | 645.1 ± 6.1 |
| $\Omega_c h^2$ | 0.1200 ± 0.0015 | $\sigma_8 / h^{0.5}$ | 0.990 ± 0.011 | $H(0.38)$ | 82.70 ± 0.45 |
| $100\theta_{MC}$ | 1.04084 ± 0.00045 | $r_{drag} h$ | 98.9 ± 1.2 | $D_M(0.38)$ | 1537 ± 12 |
| τ | $0.0548^{+0.0055}_{-0.0081}$ | $\langle d^2 \rangle^{1/2}$ | 2.444 ± 0.027 | $H(0.51)$ | 89.47 ± 0.36 |
| $\ln(10^{10} A_s)$ | $3.045^{+0.012}_{-0.015}$ | z_{re} | $7.76^{+0.60}_{-0.78}$ | $D_M(0.51)$ | 1991 ± 14 |
| n_s | 0.9635 ± 0.0050 | $10^9 A_s$ | $2.101^{+0.026}_{-0.032}$ | $H(0.61)$ | 95.12 ± 0.30 |
| $dn_s/d \ln k$ | -0.0033 ± 0.0074 | $10^9 A_s e^{-2\tau}$ | 1.883 ± 0.012 | $D_M(0.61)$ | 2316 ± 15 |
| y_{cal} | 1.0004 ± 0.0025 | D_{40} | 1224 ± 20 | $H(2.33)$ | 236.41 ± 0.96 |
| A_{217}^{CIB} | 48 ± 7 | D_{220} | 5717 ± 41 | $D_M(2.33)$ | 5772 ± 15 |
| $\xi^{tSZ \times CIB}$ | — | D_{810} | 2537 ± 14 | $f\sigma_8(0.15)$ | 0.4607 ± 0.0082 |
| A_{143}^{tSZ} | 5.0 ± 2.1 | D_{1420} | 814.2 ± 5.2 | $\sigma_8(0.15)$ | 0.7491 ± 0.0052 |
| A_{100}^{PS} | 265 ± 28 | D_{2000} | 229.3 ± 1.9 | $f\sigma_8(0.38)$ | 0.4779 ± 0.0064 |
| A_{143}^{PS} | 50 ± 8 | $n_{s,0.002}$ | 0.974 ± 0.023 | $\sigma_8(0.38)$ | $0.6634^{+0.0042}_{-0.0047}$ |
| $A_{143 \times 217}^{PS}$ | 43 ± 9 | Y_P | $0.24532^{+0.00011}_{-0.000085}$ | $f\sigma_8(0.51)$ | 0.4758 ± 0.0054 |
| A_{217}^{PS} | 114 ± 10 | Y_P^{BBN} | $0.24664^{+0.00011}_{-0.000085}$ | $\sigma_8(0.51)$ | $0.6206^{+0.0038}_{-0.0044}$ |
| A^{kSZ} | < 5.19 | $10^5 D/H$ | 2.620 ± 0.043 | $f\sigma_8(0.61)$ | 0.4704 ± 0.0048 |
| A_{100}^{dustTT} | 9.0 ± 1.8 | Age/Gyr | 13.818 ± 0.033 | $\sigma_8(0.61)$ | $0.5904^{+0.0036}_{-0.0042}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | z_* | 1090.15 ± 0.36 | $f\sigma_8(2.33)$ | $0.2975^{+0.0019}_{-0.0023}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.4 ± 3.3 | r_* | 144.56 ± 0.38 | $\sigma_8(2.33)$ | $0.3065^{+0.0021}_{-0.0025}$ |
| A_{217}^{dustTT} | 93.3 ± 7.3 | $100\theta_*$ | 1.04104 ± 0.00044 | f_{2000}^{143} | 31.7 ± 3.2 |
| c_{100} | 0.99961 ± 0.00061 | $D_M(z_*)/\text{Gpc}$ | 13.886 ± 0.035 | $f_{2000}^{143 \times 217}$ | 33.9 ± 2.2 |
| c_{217} | 0.99827 ± 0.00063 | z_{drag} | 1059.52 ± 0.50 | f_{2000}^{217} | 108.4 ± 2.1 |
| H_0 | 67.17 ± 0.70 | r_{drag} | 147.28 ± 0.40 | $\chi_{lensing}^2$ | 9.58 ± 0.97 |
| Ω_Λ | 0.6831 ± 0.0097 | k_D | 0.14053 ± 0.00050 | χ_{simall}^2 | 396.9 ± 1.6 |
| Ω_m | 0.3169 ± 0.0097 | $100\theta_D$ | 0.16100 ± 0.00029 | χ_{lowl}^2 | 23.1 ± 2.0 |
| $\Omega_m h^2$ | 0.1429 ± 0.0015 | z_{eq} | 3399 ± 35 | χ_{plik}^2 | 772.1 ± 5.5 |
| $\Omega_m h^3$ | 0.09596 ± 0.00049 | k_{eq} | 0.01037 ± 0.00011 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.8112 ± 0.0060 | $100\theta_{eq}$ | 0.8134 ± 0.0066 | χ_{CMB}^2 | 1201.7 ± 5.5 |
| S_8 | 0.834 ± 0.016 | $100\theta_{s,eq}$ | 0.4495 ± 0.0034 | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4566 ± 0.0090 | $H(0.15)$ | 72.50 ± 0.60 | | |

$\bar{\chi}_{eff}^2 = 1209.03$; $\Delta \bar{\chi}_{eff}^2 = 0.87$; $R - 1 = 0.01103$

12.8 base_nrun_plikHM_TT_lowl_lowE_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02226 ± 0.00021 | $\sigma_8/h^{0.5}$ | 0.9844 ± 0.0088 | $D_M(0.38)$ | 1529.5 ± 8.6 |
| $\Omega_c h^2$ | 0.1191 ± 0.0011 | $r_{\text{drag}} h$ | 99.72 ± 0.83 | $H(0.51)$ | 89.68 ± 0.28 |
| $100\theta_{\text{MC}}$ | 1.04099 ± 0.00042 | $\langle d^2 \rangle^{1/2}$ | 2.432 ± 0.023 | $D_M(0.51)$ | 1982 ± 10 |
| τ | $0.0568^{+0.0062}_{-0.0075}$ | z_{re} | 7.93 ± 0.68 | $H(0.61)$ | 95.29 ± 0.24 |
| $\ln(10^{10} A_s)$ | $3.047^{+0.013}_{-0.015}$ | $10^9 A_s$ | $2.106^{+0.028}_{-0.032}$ | $D_M(0.61)$ | 2306 ± 11 |
| n_s | 0.9658 ± 0.0043 | $10^9 A_s e^{-2\tau}$ | 1.880 ± 0.011 | $H(2.33)$ | 235.83 ± 0.71 |
| $dn_s/d \ln k$ | -0.0031 ± 0.0073 | D_{40} | 1221 ± 19 | $D_M(2.33)$ | 5765 ± 12 |
| y_{cal} | 1.0007 ± 0.0025 | D_{220} | 5725 ± 40 | $f\sigma_8(0.15)$ | 0.4557 ± 0.0061 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2538 ± 14 | $\sigma_8(0.15)$ | 0.7481 ± 0.0053 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.3 ± 5.1 | $f\sigma_8(0.38)$ | 0.4743 ± 0.0050 |
| A_{143}^{tSZ} | 5.1 ± 2.1 | D_{2000} | 229.8 ± 1.9 | $\sigma_8(0.38)$ | $0.6632^{+0.0044}_{-0.0049}$ |
| A_{100}^{PS} | 264 ± 28 | $n_{s,0.002}$ | 0.976 ± 0.023 | $f\sigma_8(0.51)$ | 0.4730 ± 0.0045 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.245345^{+0.000093}_{-0.000080}$ | $\sigma_8(0.51)$ | $0.6207^{+0.0041}_{-0.0046}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246672^{+0.000094}_{-0.000080}$ | $f\sigma_8(0.61)$ | 0.4681 ± 0.0041 |
| A_{217}^{PS} | 114 ± 10 | $10^5 D/H$ | 2.608 ± 0.040 | $\sigma_8(0.61)$ | $0.5906^{+0.0039}_{-0.0044}$ |
| A^{kSZ} | < 5.08 | Age/Gyr | 13.803 ± 0.029 | $f\sigma_8(2.33)$ | $0.2979^{+0.0020}_{-0.0023}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | z_* | 1089.98 ± 0.30 | $\sigma_8(2.33)$ | $0.3071^{+0.0021}_{-0.0024}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.76 ± 0.30 | f_{2000}^{143} | 31.4 ± 3.2 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.4 ± 3.3 | $100\theta_*$ | 1.04119 ± 0.00041 | $f_{2000}^{143 \times 217}$ | 33.7 ± 2.2 |
| A_{217}^{dustTT} | 93.4 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.904 ± 0.030 | f_{2000}^{217} | 108.2 ± 2.1 |
| c_{100} | 0.99962 ± 0.00061 | z_{drag} | 1059.60 ± 0.49 | χ_{lensing}^2 | 9.32 ± 0.71 |
| c_{217} | 0.99826 ± 0.00063 | r_{drag} | 147.47 ± 0.34 | χ_{simall}^2 | 397.2 ± 1.8 |
| H_0 | 67.62 ± 0.49 | k_{D} | 0.14038 ± 0.00047 | χ_{lowl}^2 | 22.8 ± 1.9 |
| Ω_{Λ} | 0.6894 ± 0.0065 | $100\theta_{\text{D}}$ | 0.16096 ± 0.00028 | χ_{plik}^2 | 772.4 ± 5.5 |
| Ω_{m} | 0.3106 ± 0.0065 | z_{eq} | 3377 ± 26 | $\chi_{6\text{DF}}^2$ | 0.054 ± 0.066 |
| $\Omega_{\text{m}} h^2$ | 0.1420 ± 0.0011 | k_{eq} | 0.010307 ± 0.000078 | χ_{MGS}^2 | 1.31 ± 0.46 |
| $\Omega_{\text{m}} h^3$ | 0.09599 ± 0.00049 | $100\theta_{\text{eq}}$ | 0.8176 ± 0.0047 | χ_{DR12BAO}^2 | 4.7 ± 1.5 |
| σ_8 | 0.8095 ± 0.0059 | $100\theta_{\text{s,eq}}$ | 0.4517 ± 0.0024 | χ_{prior}^2 | 7.4 ± 3.7 |
| S_8 | 0.824 ± 0.012 | $H(0.15)$ | 72.89 ± 0.43 | χ_{CMB}^2 | 1201.7 ± 5.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4511 ± 0.0065 | $D_M(0.15)$ | 641.2 ± 4.2 | χ_{BAO}^2 | 6.1 ± 1.2 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6043 ± 0.0061 | $H(0.38)$ | 82.97 ± 0.33 | | |

$\bar{\chi}_{\text{eff}}^2 = 1215.17$; $\Delta \bar{\chi}_{\text{eff}}^2 = 0.60$; $R - 1 = 0.01603$

12.9 base_nrun_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|-------------------------|
| $\Omega_b h^2$ | 0.022392 | 0.02239 ± 0.00015 | $\Omega_m h^2$ | 0.14339 | 0.1434 ± 0.0013 | k_{eq} | 0.010411 | 0.010410 ± 0.000094 |
| $\Omega_c h^2$ | 0.12035 | 0.1203 ± 0.0014 | $\Omega_m h^3$ | 0.096415 | 0.09640 ± 0.00031 | $100\theta_{\text{eq}}$ | 0.8117 | 0.8119 ± 0.0058 |
| $100\theta_{\text{MC}}$ | 1.040892 | 1.04090 ± 0.00032 | σ_8 | 0.8122 | 0.8127 ± 0.0078 | $100\theta_{\text{s,eq}}$ | 0.44855 | 0.4486 ± 0.0030 |
| τ | 0.0548 | 0.0558 ± 0.0080 | S_8 | 0.8351 | 0.836 ± 0.016 | $H(0.15)$ | 72.58 | 72.59 ± 0.51 |
| $\ln(10^{10} A_s)$ | 3.0469 | 3.049 ± 0.017 | $\sigma_8 \Omega_m^{0.5}$ | 0.4574 | 0.4577 ± 0.0090 | $D_M(0.15)$ | 644.4 | 644.3 ± 5.2 |
| n_s | 0.96434 | 0.9635 ± 0.0046 | $\sigma_8 \Omega_m^{0.25}$ | 0.6095 | 0.6099 ± 0.0086 | $H(0.38)$ | 82.806 | 82.81 ± 0.37 |
| $dn_s/d \ln k$ | -0.0047 | -0.0055 ± 0.0067 | $\sigma_8/h^{0.5}$ | 0.9905 | 0.991 ± 0.012 | $D_M(0.38)$ | 1535.4 | 1535 ± 10 |
| y_{cal} | 1.00040 | 1.0007 ± 0.0025 | $r_{\text{drag}} h$ | 98.82 | 98.8 ± 1.0 | $H(0.51)$ | 89.588 | 89.59 ± 0.29 |
| A_{217}^{CIB} | 48.9 | 48 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4421 | 2.445 ± 0.029 | $D_M(0.51)$ | 1988.0 | 1988 ± 12 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.24 | — | z_{re} | 7.73 | 7.81 ± 0.80 | $H(0.61)$ | 95.256 | 95.26 ± 0.24 |
| A_{143}^{tSZ} | 7.28 | 5.2 ± 2.0 | $10^9 A_s$ | 2.1050 | 2.111 ± 0.036 | $D_M(0.61)$ | 2312.6 | 2313 ± 13 |
| A_{100}^{PS} | 253.9 | 263 ± 28 | $10^9 A_s e^{-2\tau}$ | 1.8867 | 1.887 ± 0.012 | $H(2.33)$ | 236.81 | 236.80 ± 0.82 |
| A_{143}^{PS} | 46.8 | 48 ± 8 | D_{40} | 1220.4 | 1221 ± 19 | $D_M(2.33)$ | 5763.9 | 5764 ± 11 |
| $A_{143 \times 217}^{\text{PS}}$ | 43.9 | 42 ± 9 | D_{220} | 5728.0 | 5733 ± 39 | $f\sigma_8(0.15)$ | 0.4615 | 0.4618 ± 0.0084 |
| A_{217}^{PS} | 118.2 | 115 ± 10 | D_{810} | 2541.5 | 2542 ± 14 | $\sigma_8(0.15)$ | 0.7499 | 0.7504 ± 0.0068 |
| A^{kSZ} | 0.00 | < 4.86 | D_{1420} | 816.82 | 816.3 ± 4.9 | $f\sigma_8(0.38)$ | 0.4786 | 0.4789 ± 0.0069 |
| A_{100}^{dustTT} | 8.93 | 8.9 ± 1.8 | D_{2000} | 230.48 | 230.2 ± 1.8 | $\sigma_8(0.38)$ | 0.6642 | 0.6646 ± 0.0057 |
| A_{143}^{dustTT} | 11.07 | 11.0 ± 1.8 | $n_{\text{s},0.002}$ | 0.9794 | 0.981 ± 0.021 | $f\sigma_8(0.51)$ | 0.4766 | 0.4768 ± 0.0061 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.67 | 18.6 ± 3.3 | Y_{P} | 0.245404 | $0.245400^{+0.000062}_{-0.000055}$ | $\sigma_8(0.51)$ | 0.6213 | 0.6217 ± 0.0053 |
| A_{217}^{dustTT} | 94.5 | 93.4 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246731 | $0.246726^{+0.000062}_{-0.000055}$ | $f\sigma_8(0.61)$ | 0.4711 | 0.4714 ± 0.0056 |
| A_{100}^{dustTE} | 0.1137 | 0.115 ± 0.038 | $10^5 D/H$ | 2.5814 | 2.583 ± 0.028 | $\sigma_8(0.61)$ | 0.59101 | 0.5914 ± 0.0050 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1350 | 0.134 ± 0.029 | Age/Gyr | 13.7975 | 13.798 ± 0.024 | $f\sigma_8(2.33)$ | 0.29777 | 0.2980 ± 0.0025 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.482 ± 0.085 | z_* | 1089.924 | 1089.93 ± 0.27 | $\sigma_8(2.33)$ | 0.30674 | 0.3070 ± 0.0026 |
| A_{143}^{dustTE} | 0.226 | 0.224 ± 0.054 | r_* | 144.323 | 144.33 ± 0.31 | f_{2000}^{143} | 29.94 | 30.7 ± 3.1 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 | 0.665 ± 0.080 | $100\theta_*$ | 1.041072 | 1.04108 ± 0.00031 | $f_{2000}^{143 \times 217}$ | 32.80 | 33.1 ± 2.2 |
| A_{217}^{dustTE} | 2.085 | 2.09 ± 0.27 | $D_M(z_*)/\text{Gpc}$ | 13.8629 | 13.864 ± 0.028 | f_{2000}^{217} | 107.41 | 107.8 ± 2.0 |
| c_{100} | 0.99972 | 0.99969 ± 0.00061 | z_{drag} | 1060.009 | 1060.00 ± 0.31 | χ_{small}^2 | 396.07 | 397.3 ± 2.0 |
| c_{217} | 0.99820 | 0.99822 ± 0.00062 | r_{drag} | 146.974 | 146.99 ± 0.30 | χ_{lowl}^2 | 22.25 | 22.6 ± 1.6 |
| H_0 | 67.24 | 67.25 ± 0.60 | k_{D} | 0.141009 | 0.14099 ± 0.00034 | χ_{plik}^2 | 2345.3 | 2360.9 ± 6.0 |
| Ω_{Λ} | 0.6828 | 0.6828 ± 0.0084 | $100\theta_{\text{D}}$ | 0.160712 | 0.16072 ± 0.00018 | χ_{prior}^2 | 1.81 | 11.5 ± 4.6 |
| Ω_{m} | 0.3172 | 0.3172 ± 0.0084 | z_{eq} | 3411.2 | 3411 ± 31 | χ_{CMB}^2 | 2763.6 | 2780.7 ± 5.9 |

Best-fit $\chi_{\text{eff}}^2 = 2765.41$; $\Delta\chi_{\text{eff}}^2 = -0.36$; $\bar{\chi}_{\text{eff}}^2 = 2792.22$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.45$; $R - 1 = 0.01212$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.07 (Δ 0.02) commander_dx12_v3.2.29: 22.25 (Δ -1.00) plik_rd12_HM_v22b_TTTEEE: 2345.28 (Δ 0.63)

12.10 base_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022465 | 0.02245 ± 0.00014 | σ_8 | 0.8102 | 0.8101 ± 0.0075 | $D_M(0.15)$ | 640.32 | 640.8 ± 3.8 |
| $\Omega_c h^2$ | 0.11929 | 0.1194 ± 0.0010 | S_8 | 0.8243 | 0.825 ± 0.013 | $H(0.38)$ | 83.094 | 83.06 ± 0.29 |
| $100\theta_{MC}$ | 1.041005 | 1.04101 ± 0.00030 | $\sigma_8 \Omega_m^{0.5}$ | 0.4515 | 0.4520 ± 0.0071 | $D_M(0.38)$ | 1527.3 | 1528.2 ± 7.7 |
| τ | 0.0566 | $0.0568^{+0.0075}_{-0.0084}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6048 | 0.6051 ± 0.0073 | $H(0.51)$ | 89.808 | 89.78 ± 0.23 |
| $\ln(10^{10} A_s)$ | 3.0483 | 3.049 ± 0.017 | $\sigma_8/h^{0.5}$ | 0.9846 | 0.985 ± 0.011 | $D_M(0.51)$ | 1978.7 | 1979.7 ± 9.1 |
| n_s | 0.96736 | 0.9658 ± 0.0041 | $r_{drag} h$ | 99.66 | 99.58 ± 0.78 | $H(0.61)$ | 95.425 | 95.41 ± 0.19 |
| $dn_s/d \ln k$ | -0.0034 | -0.0049 ± 0.0068 | $\langle d^2 \rangle^{1/2}$ | 2.4295 | 2.431 ± 0.026 | $D_M(0.61)$ | 2302.6 | 2303.7 ± 9.8 |
| y_{cal} | 1.00057 | 1.0007 ± 0.0025 | z_{re} | 7.88 | 7.88 ± 0.81 | $H(2.33)$ | 236.19 | 236.25 ± 0.62 |
| A_{217}^{CIB} | 47.4 | 48 ± 7 | $10^9 A_s$ | 2.1080 | 2.110 ± 0.037 | $D_M(2.33)$ | 5756.8 | 5757.7 ± 9.2 |
| $\xi^{tSZ \times CIB}$ | 0.48 | — | $10^9 A_s e^{-2\tau}$ | 1.8824 | 1.883 ± 0.012 | $f\sigma_8(0.15)$ | 0.4562 | 0.4566 ± 0.0068 |
| A_{143}^{tSZ} | 7.17 | $5.2^{+2.2}_{-1.9}$ | D_{40} | 1218.0 | 1218 ± 18 | $\sigma_8(0.15)$ | 0.7487 | 0.7486 ± 0.0067 |
| A_{100}^{PS} | 251.3 | 262 ± 28 | D_{220} | 5734.6 | 5737 ± 38 | $f\sigma_8(0.38)$ | 0.4747 | 0.4750 ± 0.0059 |
| A_{143}^{PS} | 49.3 | 47 ± 8 | D_{810} | 2541.7 | 2541 ± 13 | $\sigma_8(0.38)$ | 0.6638 | 0.6636 ± 0.0058 |
| $A_{143 \times 217}^{PS}$ | 49.4 | 42 ± 9 | D_{1420} | 818.25 | 816.9 ± 4.8 | $f\sigma_8(0.51)$ | 0.4734 | 0.4736 ± 0.0054 |
| A_{217}^{PS} | 120.2 | 114 ± 10 | D_{2000} | 231.12 | 230.5 ± 1.7 | $\sigma_8(0.51)$ | 0.6212 | 0.6210 ± 0.0054 |
| A^{kSZ} | 0.00 | < 4.74 | $n_{s,0.002}$ | 0.9784 | 0.982 ± 0.021 | $f\sigma_8(0.61)$ | 0.46851 | 0.4686 ± 0.0050 |
| A_{100}^{dustTT} | 8.86 | 8.9 ± 1.8 | Y_P | 0.245432 | $0.245423^{+0.000055}_{-0.000050}$ | $\sigma_8(0.61)$ | 0.5912 | 0.5909 ± 0.0051 |
| A_{143}^{dustTT} | 11.05 | 11.0 ± 1.8 | Y_P^{BBN} | 0.246758 | $0.246750^{+0.000055}_{-0.000050}$ | $f\sigma_8(2.33)$ | 0.29810 | 0.2980 ± 0.0026 |
| $A_{143 \times 217}^{dustTT}$ | 19.96 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5682 | 2.572 ± 0.026 | $\sigma_8(2.33)$ | 0.30737 | 0.3072 ± 0.0026 |
| A_{217}^{dustTT} | 95.0 | 93.4 ± 7.1 | Age/Gyr | 13.7823 | 13.784 ± 0.021 | f_{2000}^{143} | 29.26 | 30.4 ± 3.2 |
| A_{100}^{dustTE} | 0.1138 | 0.115 ± 0.038 | z_* | 1089.739 | 1089.77 ± 0.23 | $f_{2000}^{143 \times 217}$ | 32.34 | 32.8 ± 2.1 |
| $A_{100 \times 143}^{dustTE}$ | 0.1340 | 0.134 ± 0.030 | r_* | 144.543 | 144.53 ± 0.24 | f_{2000}^{217} | 106.86 | 107.6 ± 2.0 |
| $A_{100 \times 217}^{dustTE}$ | 0.484 | 0.480 ± 0.086 | $100\theta_*$ | 1.041184 | 1.04119 ± 0.00029 | χ_{small}^2 | 396.37 | 397.4 ± 2.2 |
| A_{143}^{dustTE} | 0.225 | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8826 | 13.881 ± 0.023 | χ_{lowl}^2 | 22.10 | 22.3 ± 1.5 |
| $A_{143 \times 217}^{dustTE}$ | 0.662 | 0.661 ± 0.080 | z_{drag} | 1060.085 | 1060.07 ± 0.30 | χ_{plik}^2 | 2345.8 | 2360.9 ± 5.9 |
| A_{217}^{dustTE} | 2.081 | 2.08 ± 0.26 | r_{drag} | 147.177 | 147.17 ± 0.25 | χ_{6DF}^2 | 0.0289 | 0.060 ± 0.069 |
| c_{100} | 0.99973 | 0.99969 ± 0.00061 | k_D | 0.140851 | 0.14085 ± 0.00030 | χ_{MGS}^2 | 1.217 | 1.23 ± 0.42 |
| c_{217} | 0.99819 | 0.99822 ± 0.00061 | $100\theta_D$ | 0.160664 | 0.16069 ± 0.00018 | $\chi_{DR12BAO}^2$ | 4.42 | 5.0 ± 1.5 |
| H_0 | 67.712 | 67.66 ± 0.45 | z_{eq} | 3387.4 | 3390 ± 23 | χ_{prior}^2 | 1.70 | 11.6 ± 4.6 |
| Ω_Λ | 0.6894 | 0.6887 ± 0.0061 | k_{eq} | 0.010339 | 0.010345 ± 0.000070 | χ_{BAO}^2 | 5.67 | 6.3 ± 1.2 |
| Ω_m | 0.3106 | 0.3113 ± 0.0061 | $100\theta_{eq}$ | 0.81628 | 0.8159 ± 0.0043 | χ_{CMB}^2 | 2764.3 | 2780.6 ± 5.8 |
| $\Omega_m h^2$ | 0.14240 | 0.14249 ± 0.00096 | $100\theta_{s,eq}$ | 0.45087 | 0.4507 ± 0.0022 | | | |
| $\Omega_m h^3$ | 0.096420 | 0.09641 ± 0.00031 | $H(0.15)$ | 72.988 | 72.95 ± 0.39 | | | |

Best-fit $\chi_{eff}^2 = 2771.68$; $\Delta\chi_{eff}^2 = -0.24$; $\bar{\chi}_{eff}^2 = 2798.48$; $\Delta\bar{\chi}_{eff}^2 = 0.57$; $R - 1 = 0.02043$
 χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.42 (Δ 0.01) CMB - small_100x143.offlike5_EE_Aplanck_B: 396.37 (Δ 0.16) commander_dx12_v3_2_29: 22.11 (Δ -0.77) plik_rd12_HM_v22b_TTTEEE: 2345.83 (Δ 0.33)

12.11 base_nrun_plikHM_TTTEEE_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022396 | 0.02240 ± 0.00015 | $\Omega_m h^3$ | 0.096378 | 0.09639 ± 0.00030 | $100\theta_{s,eq}$ | 0.44926 | 0.4492 ± 0.0026 |
| $\Omega_c h^2$ | 0.12003 | 0.1200 ± 0.0012 | σ_8 | 0.8113 | 0.8113 ± 0.0061 | $H(0.15)$ | 72.687 | 72.69 ± 0.45 |
| $100\theta_{MC}$ | 1.040911 | 1.04092 ± 0.00031 | S_8 | 0.8317 | 0.832 ± 0.013 | $D_M(0.15)$ | 643.31 | 643.3 ± 4.5 |
| τ | 0.0546 | 0.0553 ± 0.0075 | $\sigma_8 \Omega_m^{0.5}$ | 0.4555 | 0.4557 ± 0.0070 | $H(0.38)$ | 82.875 | 82.88 ± 0.33 |
| $\ln(10^{10} A_s)$ | 3.0457 | 3.047 ± 0.015 | $\sigma_8 \Omega_m^{0.25}$ | 0.6079 | 0.6080 ± 0.0064 | $D_M(0.38)$ | 1533.3 | 1533.3 ± 9.1 |
| n_s | 0.96500 | 0.9641 ± 0.0044 | $\sigma_8/h^{0.5}$ | 0.9885 | 0.9886 ± 0.0092 | $H(0.51)$ | 89.637 | 89.64 ± 0.27 |
| $dn_s/d \ln k$ | -0.0025 | -0.0045 ± 0.0067 | $r_{drag} h$ | 99.06 | 99.06 ± 0.91 | $D_M(0.51)$ | 1985.7 | 1986 ± 11 |
| y_{cal} | 1.00056 | 1.0007 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4413 | 2.441 ± 0.023 | $H(0.61)$ | 95.290 | 95.30 ± 0.22 |
| A_{217}^{CIB} | 48.9 | 48 ± 7 | z_{re} | 7.71 | 7.76 ± 0.74 | $D_M(0.61)$ | 2310.1 | 2310 ± 11 |
| $\xi^{tSZ \times CIB}$ | 0.23 | — | $10^9 A_s$ | 2.1024 | 2.106 ± 0.031 | $H(2.33)$ | 236.61 | 236.62 ± 0.71 |
| A_{143}^{tSZ} | 7.27 | $5.2_{-2.0}^{+2.2}$ | $10^9 A_s e^{-2\tau}$ | 1.8848 | 1.886 ± 0.011 | $D_M(2.33)$ | 5762.7 | 5762 ± 10 |
| A_{100}^{PS} | 253.5 | 263 ± 28 | D_{40} | 1225.1 | 1222 ± 18 | $f\sigma_8(0.15)$ | 0.4598 | 0.4599 ± 0.0065 |
| A_{143}^{PS} | 45.9 | 47 ± 8 | D_{220} | 5733.4 | 5735 ± 39 | $\sigma_8(0.15)$ | 0.7493 | 0.7493 ± 0.0054 |
| $A_{143 \times 217}^{PS}$ | 42.9 | 42 ± 9 | D_{810} | 2541.0 | 2541 ± 13 | $f\sigma_8(0.38)$ | 0.4773 | 0.4774 ± 0.0053 |
| A_{217}^{PS} | 117.7 | 115 ± 10 | D_{1420} | 817.32 | 816.4 ± 4.9 | $\sigma_8(0.38)$ | 0.66376 | 0.6638 ± 0.0048 |
| A^{kSZ} | 0.00 | < 4.86 | D_{2000} | 230.77 | 230.3 ± 1.8 | $f\sigma_8(0.51)$ | 0.47547 | 0.4755 ± 0.0046 |
| A_{100}^{dustTT} | 8.90 | 8.9 ± 1.8 | $n_{s,0.002}$ | 0.9729 | 0.979 ± 0.021 | $\sigma_8(0.51)$ | 0.62100 | 0.6210 ± 0.0045 |
| A_{143}^{dustTT} | 11.01 | 11.0 ± 1.8 | Y_P | 0.245406 | $0.245405_{-0.000053}^{+0.000060}$ | $f\sigma_8(0.61)$ | 0.47019 | 0.4702 ± 0.0042 |
| $A_{143 \times 217}^{dustTT}$ | 19.55 | 18.6 ± 3.3 | Y_P^{BBN} | 0.246732 | $0.246731_{-0.000053}^{+0.000060}$ | $\sigma_8(0.61)$ | 0.59079 | 0.5908 ± 0.0043 |
| A_{217}^{dustTT} | 94.5 | 93.5 ± 7.3 | $10^5 D/H$ | 2.5806 | 2.581 ± 0.027 | $f\sigma_8(2.33)$ | 0.29773 | 0.2977 ± 0.0022 |
| A_{100}^{dustTE} | 0.1156 | 0.115 ± 0.038 | Age/Gyr | 13.7951 | 13.795 ± 0.023 | $\sigma_8(2.33)$ | 0.30678 | 0.3068 ± 0.0024 |
| $A_{100 \times 143}^{dustTE}$ | 0.1344 | 0.134 ± 0.029 | z_* | 1089.890 | 1089.89 ± 0.25 | f_{2000}^{143} | 29.67 | 30.6 ± 3.2 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 | 0.481 ± 0.085 | r_* | 144.402 | 144.40 ± 0.26 | $f_{2000}^{143 \times 217}$ | 32.55 | 33.0 ± 2.2 |
| A_{143}^{dustTE} | 0.225 | 0.224 ± 0.054 | $100\theta_*$ | 1.041095 | 1.04110 ± 0.00031 | f_{2000}^{217} | 107.20 | 107.7 ± 2.0 |
| $A_{143 \times 217}^{dustTE}$ | 0.665 | 0.663 ± 0.080 | $D_M(z_*)/\text{Gpc}$ | 13.8702 | 13.870 ± 0.025 | $\chi_{lensing}^2$ | 8.89 | 9.43 ± 0.79 |
| A_{217}^{dustTE} | 2.083 | 2.08 ± 0.27 | z_{drag} | 1060.009 | 1060.00 ± 0.31 | χ_{small}^2 | 396.06 | 397.1 ± 1.7 |
| c_{100} | 0.99971 | 0.99968 ± 0.00061 | r_{drag} | 147.052 | 147.05 ± 0.27 | χ_{lowl}^2 | 22.71 | 22.7 ± 1.7 |
| c_{217} | 0.99821 | 0.99823 ± 0.00061 | k_D | 0.140928 | 0.14093 ± 0.00031 | χ_{plik}^2 | 2345.0 | 2360.5 ± 5.8 |
| H_0 | 67.36 | 67.36 ± 0.53 | $100\theta_D$ | 0.160720 | 0.16072 ± 0.00018 | χ_{prior}^2 | 1.79 | 11.6 ± 4.6 |
| Ω_Λ | 0.6847 | 0.6846 ± 0.0073 | z_{eq} | 3403.7 | 3404 ± 27 | χ_{CMB}^2 | 2772.6 | 2789.7 ± 5.9 |
| Ω_m | 0.3153 | 0.3154 ± 0.0073 | k_{eq} | 0.010388 | 0.010390 ± 0.000081 | | | |
| $\Omega_m h^2$ | 0.14308 | 0.1431 ± 0.0011 | $100\theta_{eq}$ | 0.8131 | 0.8131 ± 0.0050 | | | |

Best-fit $\chi_{eff}^2 = 2774.42$; $\Delta\chi_{eff}^2 = -0.22$; $\bar{\chi}_{eff}^2 = 2801.27$; $\Delta\bar{\chi}_{eff}^2 = 0.58$; $R - 1 = 0.02010$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.89 (Δ 0.02) small_100x143_offlike5_EE_Aplanck_B: 396.06 (Δ 0.01) commander_dx12_v3.2_29: 22.71 (Δ -0.54) plik_rd12_HM_v22b_TTTEEE: 2344.96 (Δ 0.03)

12.12 base_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022447 | 0.02245 ± 0.00014 | σ_8 | 0.8101 | 0.8104 ± 0.0060 | $D_M(0.15)$ | 640.44 | 640.7 ± 3.6 |
| $\Omega_c h^2$ | 0.11930 | 0.11937 ± 0.00092 | S_8 | 0.8245 | 0.825 ± 0.011 | $H(0.38)$ | 83.082 | 83.07 ± 0.27 |
| $100\theta_{MC}$ | 1.041029 | 1.04101 ± 0.00030 | $\sigma_8 \Omega_m^{0.5}$ | 0.4516 | 0.4520 ± 0.0058 | $D_M(0.38)$ | 1527.6 | 1528.1 ± 7.2 |
| τ | 0.0565 | $0.0570^{+0.0068}_{-0.0076}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6048 | 0.6052 ± 0.0058 | $H(0.51)$ | 89.798 | 89.79 ± 0.22 |
| $\ln(10^{10} A_s)$ | 3.0482 | 3.049 ± 0.015 | $\sigma_8/h^{0.5}$ | 0.9846 | 0.9851 ± 0.0085 | $D_M(0.51)$ | 1979.0 | 1979.6 ± 8.5 |
| n_s | 0.96692 | 0.9659 ± 0.0040 | $r_{drag} h$ | 99.65 | 99.59 ± 0.71 | $H(0.61)$ | 95.415 | 95.41 ± 0.18 |
| $dn_s/d \ln k$ | -0.0033 | -0.0041 ± 0.0067 | $\langle d^2 \rangle^{1/2}$ | 2.4307 | 2.433 ± 0.022 | $D_M(0.61)$ | 2302.9 | 2303.6 ± 9.1 |
| y_{cal} | 1.00058 | 1.0008 ± 0.0025 | z_{re} | 7.88 | 7.91 ± 0.72 | $H(2.33)$ | 236.19 | 236.23 ± 0.56 |
| A_{217}^{CIB} | 48.6 | 47 ± 7 | $10^9 A_s$ | 2.1077 | 2.111 ± 0.032 | $D_M(2.33)$ | 5757.3 | 5757.7 ± 8.9 |
| $\xi^{tSZ \times CIB}$ | 0.31 | — | $10^9 A_s e^{-2\tau}$ | 1.8823 | 1.883 ± 0.011 | $f\sigma_8(0.15)$ | 0.4562 | 0.4566 ± 0.0055 |
| A_{143}^{tSZ} | 7.22 | $5.3^{+2.3}_{-1.9}$ | D_{40} | 1219.2 | 1220 ± 18 | $\sigma_8(0.15)$ | 0.7487 | 0.7489 ± 0.0055 |
| A_{100}^{PS} | 252.7 | 262 ± 29 | D_{220} | 5735.2 | 5739 ± 38 | $f\sigma_8(0.38)$ | 0.47474 | 0.4751 ± 0.0047 |
| A_{143}^{PS} | 46.9 | 47 ± 8 | D_{810} | 2541.3 | 2541 ± 13 | $\sigma_8(0.38)$ | 0.66374 | 0.6639 ± 0.0048 |
| $A_{143 \times 217}^{PS}$ | 44.8 | 42 ± 9 | D_{1420} | 817.87 | 817.1 ± 4.8 | $f\sigma_8(0.51)$ | 0.47343 | 0.4737 ± 0.0042 |
| A_{217}^{PS} | 118.2 | 114 ± 10 | D_{2000} | 230.96 | 230.6 ± 1.7 | $\sigma_8(0.51)$ | 0.62119 | 0.6213 ± 0.0045 |
| A^{kSZ} | 0.01 | < 4.69 | $n_{s,0.002}$ | 0.9776 | 0.979 ± 0.021 | $f\sigma_8(0.61)$ | 0.46852 | 0.4687 ± 0.0040 |
| A_{100}^{dustTT} | 8.93 | 8.9 ± 1.8 | Y_P | 0.245425 | $0.245423^{+0.000055}_{-0.000049}$ | $\sigma_8(0.61)$ | 0.59110 | 0.5912 ± 0.0043 |
| A_{143}^{dustTT} | 11.07 | 11.0 ± 1.8 | Y_P^{BBN} | 0.246752 | $0.246750^{+0.000055}_{-0.000049}$ | $f\sigma_8(2.33)$ | 0.29807 | 0.2981 ± 0.0022 |
| $A_{143 \times 217}^{dustTT}$ | 19.70 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5712 | 2.572 ± 0.025 | $\sigma_8(2.33)$ | 0.30733 | 0.3073 ± 0.0023 |
| A_{217}^{dustTT} | 94.6 | 93.5 ± 7.2 | Age/Gyr | 13.7835 | 13.784 ± 0.020 | f_{2000}^{143} | 29.48 | 30.3 ± 3.2 |
| A_{100}^{dustTE} | 0.1152 | 0.115 ± 0.039 | z_* | 1089.762 | 1089.77 ± 0.22 | $f_{2000}^{143 \times 217}$ | 32.45 | 32.7 ± 2.1 |
| $A_{100 \times 143}^{dustTE}$ | 0.1352 | 0.134 ± 0.030 | r_* | 144.552 | 144.54 ± 0.22 | f_{2000}^{217} | 107.07 | 107.5 ± 2.0 |
| $A_{100 \times 217}^{dustTE}$ | 0.483 | 0.481 ± 0.085 | $100\theta_*$ | 1.041204 | 1.04118 ± 0.00029 | $\chi^2_{lensing}$ | 8.839 | 9.25 ± 0.63 |
| A_{143}^{dustTE} | 0.224 | 0.223 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8832 | 13.882 ± 0.021 | χ^2_{small} | 396.36 | 397.3 ± 1.9 |
| $A_{143 \times 217}^{dustTE}$ | 0.663 | 0.661 ± 0.080 | z_{drag} | 1060.047 | 1060.07 ± 0.30 | χ^2_{lowl} | 22.20 | 22.5 ± 1.6 |
| A_{217}^{dustTE} | 2.076 | 2.08 ± 0.26 | r_{drag} | 147.191 | 147.17 ± 0.23 | χ^2_{plik} | 2345.6 | 2360.5 ± 5.7 |
| c_{100} | 0.99970 | 0.99968 ± 0.00061 | k_D | 0.140822 | 0.14084 ± 0.00029 | χ^2_{6DF} | 0.0296 | 0.055 ± 0.061 |
| c_{217} | 0.99821 | 0.99822 ± 0.00061 | $100\theta_D$ | 0.160691 | 0.16069 ± 0.00017 | χ^2_{MGS} | 1.217 | 1.24 ± 0.39 |
| H_0 | 67.698 | 67.67 ± 0.42 | z_{eq} | 3387.4 | 3389 ± 21 | $\chi^2_{DR12BAO}$ | 4.44 | 4.9 ± 1.3 |
| Ω_Λ | 0.6893 | 0.6888 ± 0.0056 | k_{eq} | 0.010339 | 0.010343 ± 0.000064 | χ^2_{prior} | 1.81 | 11.6 ± 4.6 |
| Ω_m | 0.3107 | 0.3112 ± 0.0056 | $100\theta_{eq}$ | 0.81625 | 0.8160 ± 0.0039 | χ^2_{CMB} | 2773.0 | 2789.6 ± 5.8 |
| $\Omega_m h^2$ | 0.14240 | 0.14246 ± 0.00087 | $100\theta_{s,eq}$ | 0.45087 | 0.4507 ± 0.0020 | χ^2_{BAO} | 5.68 | 6.2 ± 1.1 |
| $\Omega_m h^3$ | 0.096400 | 0.09640 ± 0.00030 | $H(0.15)$ | 72.975 | 72.95 ± 0.36 | | | |

Best-fit $\chi^2_{eff} = 2780.51$; $\Delta\chi^2_{eff} = -0.19$; $\bar{\chi}^2_{eff} = 2807.32$; $\Delta\bar{\chi}^2_{eff} = 0.48$; $R - 1 = 0.02542$
 χ^2_{eff} : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.43 (Δ 0.01) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.84 (Δ 0.11) small_100x143_offlike5_EE_Aplanck.L
396.36 (Δ -0.16) commander_dx12_v3.2_29: 22.20 (Δ -0.70) plik_rd12_HM_v22b_TTTEEE: 2345.61 (Δ 0.30)

12.13 base_nrun_plikHM_TTTEEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02239 ± 0.00015 | $\Omega_{\text{m}}h^2$ | 0.1434 ± 0.0013 | k_{eq} | 0.010408 ± 0.000094 |
| $\Omega_{\text{c}}h^2$ | 0.1203 ± 0.0014 | $\Omega_{\text{m}}h^3$ | 0.09641 ± 0.00031 | $100\theta_{\text{eq}}$ | 0.8120 ± 0.0057 |
| $100\theta_{\text{MC}}$ | 1.04090 ± 0.00032 | σ_8 | 0.8133 ± 0.0074 | $100\theta_{\text{s,eq}}$ | 0.4487 ± 0.0029 |
| τ | $0.0567^{+0.0058}_{-0.0084}$ | S_8 | 0.836 ± 0.016 | $H(0.15)$ | 72.60 ± 0.51 |
| $\ln(10^{10}A_{\text{s}})$ | $3.051^{+0.014}_{-0.017}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4579 ± 0.0090 | $D_{\text{M}}(0.15)$ | 644.2 ± 5.2 |
| n_{s} | 0.9636 ± 0.0046 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6103 ± 0.0084 | $H(0.38)$ | 82.82 ± 0.37 |
| $\text{d}n_{\text{s}}/\text{d}\ln k$ | -0.0056 ± 0.0067 | $\sigma_8/h^{0.5}$ | 0.992 ± 0.012 | $D_{\text{M}}(0.38)$ | 1535 ± 10 |
| y_{cal} | 1.0007 ± 0.0025 | $r_{\text{drag}}h$ | 98.9 ± 1.0 | $H(0.51)$ | 89.60 ± 0.29 |
| A_{217}^{CIB} | 48 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.446 ± 0.029 | $D_{\text{M}}(0.51)$ | 1988 ± 12 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | z_{re} | $7.91^{+0.63}_{-0.82}$ | $H(0.61)$ | 95.26 ± 0.24 |
| A_{143}^{tSZ} | 5.2 ± 2.0 | $10^9 A_{\text{s}}$ | $2.114^{+0.028}_{-0.036}$ | $D_{\text{M}}(0.61)$ | 2312 ± 13 |
| A_{100}^{PS} | 263 ± 28 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.887 ± 0.012 | $H(2.33)$ | 236.79 ± 0.82 |
| A_{143}^{PS} | 48 ± 8 | D_{40} | 1221 ± 19 | $D_{\text{M}}(2.33)$ | 5764 ± 11 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{220} | 5733 ± 39 | $f\sigma_8(0.15)$ | 0.4621 ± 0.0084 |
| A_{217}^{PS} | 115 ± 10 | D_{810} | 2542 ± 14 | $\sigma_8(0.15)$ | 0.7510 ± 0.0064 |
| A^{kSZ} | < 4.84 | D_{1420} | 816.2 ± 4.9 | $f\sigma_8(0.38)$ | 0.4792 ± 0.0068 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | D_{2000} | 230.2 ± 1.8 | $\sigma_8(0.38)$ | $0.6651^{+0.0050}_{-0.0056}$ |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.982 ± 0.021 | $f\sigma_8(0.51)$ | 0.4772 ± 0.0060 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.3 | Y_{P} | $0.245401^{+0.000062}_{-0.000055}$ | $\sigma_8(0.51)$ | $0.6222^{+0.0045}_{-0.0052}$ |
| $A_{217}^{\text{dust}TT}$ | 93.5 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246727^{+0.000062}_{-0.000055}$ | $f\sigma_8(0.61)$ | 0.4717 ± 0.0054 |
| $A_{100}^{\text{dust}TE}$ | 0.115 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.583 ± 0.028 | $\sigma_8(0.61)$ | $0.5919^{+0.0042}_{-0.0049}$ |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.134 ± 0.029 | Age/Gyr | 13.797 ± 0.024 | $f\sigma_8(2.33)$ | $0.2982^{+0.0020}_{-0.0025}$ |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.482 ± 0.085 | z_* | 1089.93 ± 0.27 | $\sigma_8(2.33)$ | $0.3072^{+0.0020}_{-0.0026}$ |
| $A_{143}^{\text{dust}TE}$ | 0.224 ± 0.053 | r_* | 144.34 ± 0.30 | f_{2000}^{143} | 30.7 ± 3.1 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.665 ± 0.080 | $100\theta_*$ | 1.04108 ± 0.00031 | $f_{2000}^{143 \times 217}$ | 33.1 ± 2.2 |
| $A_{217}^{\text{dust}TE}$ | 2.09 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.864 ± 0.028 | f_{2000}^{217} | 107.8 ± 2.0 |
| c_{100} | 0.99969 ± 0.00061 | z_{drag} | 1060.00 ± 0.31 | χ_{small}^2 | 397.3 ± 2.0 |
| c_{217} | 0.99822 ± 0.00062 | r_{drag} | 146.99 ± 0.30 | χ_{lowl}^2 | 22.6 ± 1.6 |
| H_0 | 67.26 ± 0.60 | k_{D} | 0.14099 ± 0.00033 | χ_{plik}^2 | 2360.7 ± 5.9 |
| Ω_{Λ} | 0.6830 ± 0.0084 | $100\theta_{\text{D}}$ | 0.16072 ± 0.00018 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_{m} | 0.3170 ± 0.0084 | z_{eq} | 3410 ± 31 | χ_{CMB}^2 | 2780.5 ± 5.9 |

$\bar{\chi}_{\text{eff}}^2 = 2792.02$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.49$; $R - 1 = 0.01357$

12.14 base_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02245 ± 0.00014 | σ_8 | 0.8107 ± 0.0071 | $D_M(0.15)$ | 640.7 ± 3.8 |
| $\Omega_c h^2$ | 0.1194 ± 0.0010 | S_8 | 0.826 ± 0.013 | $H(0.38)$ | 83.07 ± 0.29 |
| $100\theta_{MC}$ | 1.04101 ± 0.00030 | $\sigma_8 \Omega_m^{0.5}$ | 0.4522 ± 0.0071 | $D_M(0.38)$ | 1528.1 ± 7.7 |
| τ | $0.0575^{+0.0060}_{-0.0086}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6055 ± 0.0071 | $H(0.51)$ | 89.79 ± 0.23 |
| $\ln(10^{10} A_s)$ | $3.050^{+0.014}_{-0.018}$ | $\sigma_8/h^{0.5}$ | 0.986 ± 0.010 | $D_M(0.51)$ | 1979.6 ± 9.1 |
| n_s | 0.9659 ± 0.0041 | $r_{\text{drag}} h$ | 99.59 ± 0.78 | $H(0.61)$ | 95.41 ± 0.19 |
| $dn_s/d \ln k$ | -0.0050 ± 0.0068 | $\langle d^2 \rangle^{1/2}$ | 2.433 ± 0.026 | $D_M(0.61)$ | 2303.6 ± 9.8 |
| y_{cal} | 1.0007 ± 0.0025 | z_{re} | $7.96^{+0.65}_{-0.84}$ | $H(2.33)$ | 236.24 ± 0.62 |
| A_{217}^{CIB} | 48 ± 7 | $10^9 A_s$ | $2.113^{+0.029}_{-0.038}$ | $D_M(2.33)$ | 5757.6 ± 9.2 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.883 ± 0.011 | $f\sigma_8(0.15)$ | 0.4568 ± 0.0067 |
| A_{143}^{tSZ} | $5.2^{+2.2}_{-1.9}$ | D_{40} | 1218 ± 18 | $\sigma_8(0.15)$ | 0.7491 ± 0.0064 |
| A_{100}^{PS} | 262 ± 28 | D_{220} | 5737 ± 38 | $f\sigma_8(0.38)$ | 0.4752 ± 0.0057 |
| A_{143}^{PS} | 47 ± 8 | D_{810} | 2541 ± 13 | $\sigma_8(0.38)$ | $0.6641^{+0.0050}_{-0.0058}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 816.9 ± 4.8 | $f\sigma_8(0.51)$ | 0.4739 ± 0.0052 |
| A_{217}^{PS} | 114 ± 10 | D_{2000} | 230.5 ± 1.7 | $\sigma_8(0.51)$ | $0.6215^{+0.0046}_{-0.0054}$ |
| A^{kSZ} | < 4.72 | $n_{s,0.002}$ | 0.982 ± 0.021 | $f\sigma_8(0.61)$ | 0.4689 ± 0.0048 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245424^{+0.000055}_{-0.000049}$ | $\sigma_8(0.61)$ | $0.5914^{+0.0043}_{-0.0051}$ |
| A_{143}^{dustTT} | 11.0 ± 1.8 | Y_P^{BBN} | $0.246751^{+0.000056}_{-0.000050}$ | $f\sigma_8(2.33)$ | $0.2982^{+0.0021}_{-0.0026}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | 10^5D/H | 2.571 ± 0.026 | $\sigma_8(2.33)$ | $0.3074^{+0.0022}_{-0.0027}$ |
| A_{217}^{dustTT} | 93.4 ± 7.1 | Age/Gyr | 13.784 ± 0.021 | f_{2000}^{143} | 30.4 ± 3.2 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | z_* | 1089.77 ± 0.23 | $f_{2000}^{143 \times 217}$ | 32.8 ± 2.1 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.030 | r_* | 144.53 ± 0.24 | f_{2000}^{217} | 107.6 ± 2.0 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.086 | $100\theta_*$ | 1.04119 ± 0.00029 | χ_{small}^2 | 397.4 ± 2.2 |
| A_{143}^{dustTE} | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.881 ± 0.023 | χ_{lowl}^2 | 22.3 ± 1.5 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.662 ± 0.080 | z_{drag} | 1060.07 ± 0.30 | χ_{plik}^2 | 2360.8 ± 5.9 |
| A_{217}^{dustTE} | 2.08 ± 0.26 | r_{drag} | 147.17 ± 0.25 | $\chi_{6\text{DF}}^2$ | 0.059 ± 0.068 |
| c_{100} | 0.99968 ± 0.00061 | k_D | 0.14085 ± 0.00030 | χ_{MGS}^2 | 1.24 ± 0.42 |
| c_{217} | 0.99823 ± 0.00061 | $100\theta_D$ | 0.16068 ± 0.00018 | χ_{DR12BAO}^2 | 4.9 ± 1.5 |
| H_0 | 67.67 ± 0.45 | z_{eq} | 3389 ± 23 | χ_{prior}^2 | 11.6 ± 4.6 |
| Ω_Λ | 0.6888 ± 0.0061 | k_{eq} | 0.010345 ± 0.000070 | χ_{BAO}^2 | 6.2 ± 1.2 |
| Ω_m | 0.3112 ± 0.0061 | $100\theta_{\text{eq}}$ | 0.8159 ± 0.0043 | χ_{CMB}^2 | 2780.5 ± 5.7 |
| $\Omega_m h^2$ | 0.14248 ± 0.00096 | $100\theta_{s,\text{eq}}$ | 0.4507 ± 0.0022 | | |
| $\Omega_m h^3$ | 0.09641 ± 0.00031 | $H(0.15)$ | 72.95 ± 0.39 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2798.32; \Delta \bar{\chi}_{\text{eff}}^2 = 0.61; R - 1 = 0.02163$$

12.15 base_nrun_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02240 ± 0.00015 | $\Omega_{\mathrm{m}}h^3$ | 0.09639 ± 0.00030 | $100\theta_{\mathrm{s,eq}}$ | 0.4493 ± 0.0025 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1200 ± 0.0012 | σ_8 | 0.8118 ± 0.0058 | $H(0.15)$ | 72.71 ± 0.45 |
| $100\theta_{\mathrm{MC}}$ | 1.04093 ± 0.00031 | S_8 | 0.832 ± 0.013 | $D_{\mathrm{M}}(0.15)$ | 643.2 ± 4.5 |
| τ | $0.0561^{+0.0055}_{-0.0078}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4557 ± 0.0070 | $H(0.38)$ | 82.89 ± 0.33 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.049^{+0.012}_{-0.015}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6082 ± 0.0064 | $D_{\mathrm{M}}(0.38)$ | 1533.0 ± 9.0 |
| n_{s} | 0.9643 ± 0.0043 | $\sigma_8/h^{0.5}$ | 0.9890 ± 0.0090 | $H(0.51)$ | 89.65 ± 0.26 |
| $\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$ | -0.0045 ± 0.0067 | $r_{\mathrm{drag}}h$ | 99.09 ± 0.90 | $D_{\mathrm{M}}(0.51)$ | 1985 ± 11 |
| y_{cal} | 1.0006 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.441 ± 0.023 | $H(0.61)$ | 95.30 ± 0.22 |
| A_{217}^{CIB} | 48 ± 7 | z_{re} | $7.84^{+0.59}_{-0.76}$ | $D_{\mathrm{M}}(0.61)$ | 2310 ± 11 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $10^9 A_{\mathrm{s}}$ | $2.109^{+0.025}_{-0.032}$ | $H(2.33)$ | 236.60 ± 0.70 |
| A_{143}^{tSZ} | $5.2^{+2.2}_{-2.0}$ | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.885 ± 0.011 | $D_{\mathrm{M}}(2.33)$ | 5762 ± 10 |
| A_{100}^{PS} | 263 ± 29 | D_{40} | 1222 ± 18 | $f\sigma_8(0.15)$ | 0.4600 ± 0.0065 |
| A_{143}^{PS} | 47 ± 8 | D_{220} | 5734 ± 39 | $\sigma_8(0.15)$ | 0.7498 ± 0.0051 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | D_{810} | 2541 ± 13 | $f\sigma_8(0.38)$ | 0.4775 ± 0.0052 |
| A_{217}^{PS} | 114 ± 10 | D_{1420} | 816.4 ± 4.9 | $\sigma_8(0.38)$ | 0.6642 ± 0.0045 |
| A^{kSZ} | < 4.84 | D_{2000} | 230.3 ± 1.8 | $f\sigma_8(0.51)$ | 0.4757 ± 0.0046 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | $n_{\mathrm{s},0.002}$ | 0.979 ± 0.021 | $\sigma_8(0.51)$ | $0.6214^{+0.0039}_{-0.0044}$ |
| $A_{143}^{\mathrm{dust}TT}$ | 11.0 ± 1.8 | Y_{P} | $0.245406^{+0.000060}_{-0.000053}$ | $f\sigma_8(0.61)$ | 0.4704 ± 0.0041 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.6 ± 3.3 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246732^{+0.000060}_{-0.000053}$ | $\sigma_8(0.61)$ | $0.5912^{+0.0037}_{-0.0042}$ |
| $A_{217}^{\mathrm{dust}TT}$ | 93.5 ± 7.3 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.580 ± 0.027 | $f\sigma_8(2.33)$ | $0.2980^{+0.0018}_{-0.0022}$ |
| $A_{100}^{\mathrm{dust}TE}$ | 0.115 ± 0.038 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.794 ± 0.023 | $\sigma_8(2.33)$ | $0.3070^{+0.0020}_{-0.0024}$ |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.134 ± 0.029 | z_* | 1089.88 ± 0.25 | f_{2000}^{143} | 30.6 ± 3.2 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.481 ± 0.085 | r_* | 144.41 ± 0.26 | $f_{2000}^{143 \times 217}$ | 33.0 ± 2.2 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.224 ± 0.054 | $100\theta_*$ | 1.04111 ± 0.00031 | f_{2000}^{217} | 107.7 ± 2.0 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.663 ± 0.080 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.871 ± 0.025 | $\chi_{\mathrm{lensing}}^2$ | 9.42 ± 0.79 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.08 ± 0.27 | z_{drag} | 1060.01 ± 0.31 | χ_{small}^2 | 397.0 ± 1.8 |
| c_{100} | 0.99968 ± 0.00061 | r_{drag} | 147.06 ± 0.27 | χ_{lowl}^2 | 22.7 ± 1.7 |
| c_{217} | 0.99823 ± 0.00061 | k_{D} | 0.14093 ± 0.00031 | χ_{plik}^2 | 2360.4 ± 5.8 |
| H_0 | 67.38 ± 0.52 | $100\theta_{\mathrm{D}}$ | 0.16072 ± 0.00018 | χ_{prior}^2 | 11.6 ± 4.6 |
| Ω_{Λ} | 0.6849 ± 0.0072 | z_{eq} | 3403 ± 26 | χ_{CMB}^2 | 2789.5 ± 5.9 |
| Ω_{m} | 0.3151 ± 0.0072 | k_{eq} | 0.010386 ± 0.000080 | | |
| $\Omega_{\mathrm{m}}h^2$ | 0.1431 ± 0.0011 | $100\theta_{\mathrm{eq}}$ | 0.8133 ± 0.0049 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 2801.11$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.60$; $R - 1 = 0.02119$

12.16 base_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02245 ± 0.00014 | σ_8 | 0.8107 ± 0.0058 | $D_{\mathrm{M}}(0.15)$ | 640.6 ± 3.5 |
| $\Omega_{\mathrm{c}}h^2$ | 0.11935 ± 0.00092 | S_8 | 0.825 ± 0.011 | $H(0.38)$ | 83.07 ± 0.27 |
| $100\theta_{\mathrm{MC}}$ | 1.04101 ± 0.00030 | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4521 ± 0.0058 | $D_{\mathrm{M}}(0.38)$ | 1528.0 ± 7.1 |
| τ | $0.0575^{+0.0059}_{-0.0078}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6054 ± 0.0057 | $H(0.51)$ | 89.79 ± 0.22 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.050^{+0.013}_{-0.015}$ | $\sigma_8/h^{0.5}$ | 0.9854 ± 0.0083 | $D_{\mathrm{M}}(0.51)$ | 1979.4 ± 8.4 |
| n_{s} | 0.9659 ± 0.0040 | $r_{\mathrm{drag}}h$ | 99.61 ± 0.71 | $H(0.61)$ | 95.41 ± 0.18 |
| $\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$ | -0.0042 ± 0.0067 | $\langle d^2 \rangle^{1/2}$ | 2.434 ± 0.022 | $D_{\mathrm{M}}(0.61)$ | 2303.4 ± 9.1 |
| y_{cal} | 1.0008 ± 0.0024 | z_{re} | $7.96^{+0.62}_{-0.75}$ | $H(2.33)$ | 236.22 ± 0.56 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_{\mathrm{s}}$ | $2.112^{+0.027}_{-0.033}$ | $D_{\mathrm{M}}(2.33)$ | 5757.6 ± 8.9 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.883 ± 0.011 | $f\sigma_8(0.15)$ | 0.4567 ± 0.0054 |
| A_{143}^{tSZ} | $5.3^{+2.3}_{-1.9}$ | D_{40} | 1220 ± 18 | $\sigma_8(0.15)$ | 0.7491 ± 0.0053 |
| A_{100}^{PS} | 262 ± 29 | D_{220} | 5739 ± 38 | $f\sigma_8(0.38)$ | 0.4752 ± 0.0046 |
| A_{143}^{PS} | 47 ± 8 | D_{810} | 2541 ± 13 | $\sigma_8(0.38)$ | 0.6641 ± 0.0046 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | D_{1420} | 817.1 ± 4.8 | $f\sigma_8(0.51)$ | 0.4738 ± 0.0042 |
| A_{217}^{PS} | 114 ± 10 | D_{2000} | 230.6 ± 1.7 | $\sigma_8(0.51)$ | $0.6215^{+0.0041}_{-0.0045}$ |
| A^{kSZ} | < 4.68 | $n_{\mathrm{s},0.002}$ | 0.979 ± 0.021 | $f\sigma_8(0.61)$ | 0.4689 ± 0.0039 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | Y_{P} | $0.245424^{+0.000055}_{-0.000049}$ | $\sigma_8(0.61)$ | $0.5914^{+0.0039}_{-0.0043}$ |
| $A_{143}^{\mathrm{dust}TT}$ | 11.0 ± 1.8 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246750^{+0.000055}_{-0.000049}$ | $f\sigma_8(2.33)$ | $0.2982^{+0.0020}_{-0.0022}$ |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.6 ± 3.3 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.572 ± 0.025 | $\sigma_8(2.33)$ | $0.3075^{+0.0020}_{-0.0024}$ |
| $A_{217}^{\mathrm{dust}TT}$ | 93.5 ± 7.1 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.784 ± 0.020 | f_{2000}^{143} | 30.2 ± 3.2 |
| $A_{100}^{\mathrm{dust}TE}$ | 0.115 ± 0.039 | z_* | 1089.77 ± 0.22 | $f_{2000}^{143 \times 217}$ | 32.7 ± 2.1 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.134 ± 0.030 | r_* | 144.54 ± 0.22 | f_{2000}^{217} | 107.5 ± 2.0 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.481 ± 0.085 | $100\theta_*$ | 1.04118 ± 0.00029 | $\chi_{\mathrm{lensing}}^2$ | 9.23 ± 0.61 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.223 ± 0.054 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.882 ± 0.021 | χ_{simall}^2 | 397.3 ± 1.9 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.662 ± 0.080 | z_{drag} | 1060.07 ± 0.30 | χ_{lowl}^2 | 22.5 ± 1.6 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.08 ± 0.26 | r_{drag} | 147.18 ± 0.23 | χ_{plik}^2 | 2360.4 ± 5.7 |
| c_{100} | 0.99968 ± 0.00060 | k_{D} | 0.14084 ± 0.00029 | $\chi_{6\mathrm{DF}}^2$ | 0.054 ± 0.060 |
| c_{217} | 0.99823 ± 0.00061 | $100\theta_{\mathrm{D}}$ | 0.16069 ± 0.00017 | χ_{MGS}^2 | 1.24 ± 0.38 |
| H_0 | 67.68 ± 0.42 | z_{eq} | 3389 ± 21 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.8 ± 1.3 |
| Ω_{Λ} | 0.6889 ± 0.0056 | k_{eq} | 0.010342 ± 0.000063 | χ_{prior}^2 | 11.6 ± 4.6 |
| Ω_{m} | 0.3111 ± 0.0056 | $100\theta_{\mathrm{eq}}$ | 0.8160 ± 0.0039 | χ_{CMB}^2 | 2789.5 ± 5.7 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14245 ± 0.00087 | $100\theta_{\mathrm{s,eq}}$ | 0.4508 ± 0.0020 | χ_{BAO}^2 | 6.1 ± 1.1 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09640 ± 0.00030 | $H(0.15)$ | 72.96 ± 0.36 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 2807.20$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.48$; $R - 1 = 0.02657$

13 nrun+nrnunrun

13.1 base_nrun_nrunrun_plikHM_TTTEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|---------------------------|--------------------------------|----------|---------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022332 | 0.02234 ± 0.00017 | $\Omega_m h^2$ | 0.14367 | 0.1436 ± 0.0014 | $100\theta_{\text{eq}}$ | 0.8103 | 0.8106 ± 0.0061 |
| $\Omega_c h^2$ | 0.12070 | 0.1206 ± 0.0015 | $\Omega_m h^3$ | 0.096331 | 0.09636 ± 0.00031 | $100\theta_{\text{s,eq}}$ | 0.44786 | 0.4480 ± 0.0031 |
| $100\theta_{\text{MC}}$ | 1.040823 | 1.04086 ± 0.00031 | σ_8 | 0.8178 | 0.8169 ± 0.0087 | $H(0.15)$ | 72.42 | 72.46 ± 0.56 |
| τ | 0.0570 | 0.0577 ± 0.0086 | S_8 | 0.8441 | 0.843 ± 0.018 | $D_{\text{M}}(0.15)$ | 646.0 | 645.7 ± 5.6 |
| $\ln(10^{10} A_s)$ | 3.0513 | $3.053^{+0.016}_{-0.018}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4623 | 0.4615 ± 0.0099 | $H(0.38)$ | 82.680 | 82.71 ± 0.40 |
| n_s | 0.9624 | 0.9612 ± 0.0053 | $\sigma_8 \Omega_m^{0.25}$ | 0.6149 | 0.6140 ± 0.0094 | $D_{\text{M}}(0.38)$ | 1538.7 | 1538 ± 11 |
| $dn_s/d \ln k$ | 0.0053 | 0.001 ± 0.010 | $\sigma_8/h^{0.5}$ | 0.9987 | 0.997 ± 0.014 | $H(0.51)$ | 89.483 | 89.51 ± 0.32 |
| $d^2 n_s/d \ln k^2$ | 0.0139 | 0.012 ± 0.013 | $r_{\text{drag}} h$ | 98.53 | 98.6 ± 1.1 | $D_{\text{M}}(0.51)$ | 1992.0 | 1991 ± 13 |
| y_{cal} | 1.00047 | 1.0006 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | 2.4477 | 2.446 ± 0.029 | $H(0.61)$ | 95.169 | 95.20 ± 0.26 |
| A_{217}^{CIB} | 45.2 | 47 ± 7 | z_{re} | 7.98 | 8.02 ± 0.85 | $D_{\text{M}}(0.61)$ | 2316.9 | 2316 ± 14 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.70 | — | $10^9 A_s$ | 2.1142 | $2.118^{+0.034}_{-0.039}$ | $H(2.33)$ | 236.97 | 236.95 ± 0.86 |
| A_{143}^{tSZ} | 7.08 | 5.4 ± 2.0 | $10^9 A_s e^{-2\tau}$ | 1.8864 | 1.887 ± 0.012 | $D_{\text{M}}(2.33)$ | 5768.0 | 5767 ± 12 |
| A_{100}^{PS} | 246.6 | 259 ± 29 | D_{40} | 1221.4 | 1218 ± 19 | $f\sigma_8(0.15)$ | 0.4663 | 0.4655 ± 0.0092 |
| A_{143}^{PS} | 49.0 | 45 ± 9 | D_{220} | 5738.6 | 5740 ± 39 | $\sigma_8(0.15)$ | 0.7549 | 0.7541 ± 0.0077 |
| $A_{143 \times 217}^{\text{PS}}$ | 52.6 | 41 ± 9 | D_{810} | 2540.2 | 2539 ± 13 | $f\sigma_8(0.38)$ | 0.4829 | 0.4822 ± 0.0076 |
| A_{217}^{PS} | 121.3 | 114 ± 10 | D_{1420} | 818.87 | 817.0 ± 4.9 | $\sigma_8(0.38)$ | 0.6683 | 0.6676 ± 0.0065 |
| A^{kSZ} | 0.00 | < 4.36 | D_{2000} | 232.19 | 231.2 ± 2.1 | $f\sigma_8(0.51)$ | 0.4806 | 0.4799 ± 0.0068 |
| A_{100}^{dustTT} | 8.80 | 8.9 ± 1.8 | $n_{\text{s},0.002}$ | 1.0171 | 1.019 ± 0.045 | $\sigma_8(0.51)$ | 0.6250 | 0.6244 ± 0.0060 |
| A_{143}^{dustTT} | 11.05 | 10.9 ± 1.8 | Y_{P} | 0.245380 | 0.245383 ± 0.000066 | $f\sigma_8(0.61)$ | 0.4749 | 0.4742 ± 0.0062 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.09 | 18.5 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246707 | 0.246709 ± 0.000066 | $\sigma_8(0.61)$ | 0.5945 | $0.5940^{+0.0053}_{-0.0058}$ |
| A_{217}^{dustTT} | 95.6 | 93.6 ± 7.4 | $10^5 \text{D}/\text{H}$ | 2.5926 | 2.591 ± 0.031 | $f\sigma_8(2.33)$ | 0.29943 | $0.2992^{+0.0026}_{-0.0029}$ |
| A_{100}^{dustTE} | 0.1145 | 0.115 ± 0.038 | Age/Gyr | 13.8069 | 13.804 ± 0.026 | $\sigma_8(2.33)$ | 0.30835 | $0.3081^{+0.0027}_{-0.0031}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1341 | 0.135 ± 0.029 | z_* | 1090.028 | 1090.01 ± 0.30 | f_{2000}^{143} | 27.49 | 29 ± 3 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 | 0.483 ± 0.085 | r_* | 144.281 | 144.29 ± 0.32 | $f_{2000}^{143 \times 217}$ | 30.98 | 31.9 ± 2.5 |
| A_{143}^{dustTE} | 0.225 | 0.226 ± 0.054 | $100\theta_*$ | 1.041014 | 1.04104 ± 0.00031 | f_{2000}^{217} | 105.57 | 106.7 ± 2.3 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.668 | 0.667 ± 0.079 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8597 | 13.860 ± 0.029 | χ_{simall}^2 | 396.42 | 397.5 ± 2.1 |
| A_{217}^{dustTE} | 2.090 | 2.10 ± 0.27 | z_{drag} | 1059.895 | 1059.92 ± 0.33 | χ_{lowl}^2 | 21.69 | 22.4 ± 1.5 |
| c_{100} | 0.99975 | 0.99969 ± 0.00061 | r_{drag} | 146.951 | 146.95 ± 0.31 | χ_{plik}^2 | 2344.6 | 2360.7 ± 5.9 |
| c_{217} | 0.99815 | 0.99819 ± 0.00062 | k_{D} | 0.140987 | 0.14099 ± 0.00034 | χ_{prior}^2 | 1.49 | 11.5 ± 4.6 |
| H_0 | 67.05 | 67.09 ± 0.65 | $100\theta_{\text{D}}$ | 0.160775 | 0.16077 ± 0.00019 | χ_{CMB}^2 | 2762.7 | 2780.6 ± 6.1 |
| Ω_{Λ} | 0.6804 | 0.6808 ± 0.0091 | z_{eq} | 3418.0 | 3417 ± 33 | | | |
| Ω_{m} | 0.3196 | 0.3192 ± 0.0091 | k_{eq} | 0.010432 | 0.01043 ± 0.00010 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2764.20$; $\Delta\chi_{\text{eff}}^2 = -1.57$; $\bar{\chi}_{\text{eff}}^2 = 2792.05$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.29$; $R - 1 = 0.02103$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.42 (Δ 0.37) commander_dx12_v3.2.29: 21.69 (Δ -1.57) plik_rd12_HM_v22b_TTTEE: 2344.61 (Δ -0.04)

13.2 base_nrun_nrunrun_plikHM_TTTEE_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|------------------------------|--------------------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.022418 | 0.02243 ± 0.00015 | $\Omega_{\mathrm{m}}h^3$ | 0.096385 | 0.09638 ± 0.00031 | $H(0.15)$ | 72.866 | 72.90 ± 0.40 |
| $\Omega_{\mathrm{c}}h^2$ | 0.11958 | 0.1195 ± 0.0010 | σ_8 | 0.8146 | $0.8137^{+0.0076}_{-0.0086}$ | $D_{\mathrm{M}}(0.15)$ | 641.53 | 641.2 ± 4.0 |
| $100\theta_{\mathrm{MC}}$ | 1.041014 | 1.04100 ± 0.00029 | S_8 | 0.8313 | 0.830 ± 0.014 | $H(0.38)$ | 83.003 | 83.03 ± 0.30 |
| τ | 0.0586 | $0.0592^{+0.0076}_{-0.0090}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4553 | 0.4545 ± 0.0076 | $D_{\mathrm{M}}(0.38)$ | 1529.8 | 1529.1 ± 8.0 |
| $\ln(10^{10}A_{\mathrm{s}})$ | 3.0524 | $3.053^{+0.016}_{-0.019}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6090 | 0.6081 ± 0.0078 | $H(0.51)$ | 89.735 | 89.75 ± 0.24 |
| n_{s} | 0.96518 | 0.9644 ± 0.0045 | $\sigma_8/h^{0.5}$ | 0.9910 | 0.990 ± 0.012 | $D_{\mathrm{M}}(0.51)$ | 1981.5 | 1980.8 ± 9.4 |
| $\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$ | 0.0033 | 0.000 ± 0.010 | $r_{\mathrm{drag}}h$ | 99.43 | 99.50 ± 0.80 | $H(0.61)$ | 95.366 | 95.38 ± 0.20 |
| $\mathrm{d}^2n_{\mathrm{s}}/\mathrm{d}\ln k^2$ | 0.0112 | 0.009 ± 0.013 | $\langle d^2 \rangle^{1/2}$ | 2.4325 | 2.432 ± 0.025 | $D_{\mathrm{M}}(0.61)$ | 2305.7 | 2305 ± 10 |
| y_{cal} | 1.00062 | 1.0007 ± 0.0025 | z_{re} | 8.09 | 8.13 ± 0.84 | $H(2.33)$ | 236.34 | 236.29 ± 0.63 |
| A_{217}^{CIB} | 45.9 | 47 ± 7 | $10^9 A_{\mathrm{s}}$ | 2.1167 | $2.119^{+0.032}_{-0.040}$ | $D_{\mathrm{M}}(2.33)$ | 5759.5 | 5758.9 ± 9.6 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | 0.58 | — | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.8826 | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4599 | 0.4590 ± 0.0072 |
| A_{143}^{tSZ} | 7.19 | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1216.6 | 1215 ± 18 | $\sigma_8(0.15)$ | 0.7527 | $0.7519^{+0.0068}_{-0.0077}$ |
| A_{100}^{PS} | 247.6 | 259 ± 29 | D_{220} | 5743.7 | 5744 ± 39 | $f\sigma_8(0.38)$ | 0.4781 | 0.4773 ± 0.0063 |
| A_{143}^{PS} | 47.3 | 45 ± 9 | D_{810} | 2540.6 | 2540 ± 14 | $\sigma_8(0.38)$ | 0.6671 | $0.6664^{+0.0058}_{-0.0067}$ |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 49.7 | 41 ± 9 | D_{1420} | 819.29 | 817.8 ± 5.0 | $f\sigma_8(0.51)$ | 0.4766 | 0.4759 ± 0.0058 |
| A_{217}^{PS} | 120.5 | 114 ± 10 | D_{2000} | 232.19 | 231.4 ± 2.1 | $\sigma_8(0.51)$ | 0.6242 | $0.6236^{+0.0054}_{-0.0063}$ |
| A^{kSZ} | 0.01 | < 4.31 | $n_{\mathrm{s},0.002}$ | 1.0127 | 1.012 ± 0.045 | $f\sigma_8(0.61)$ | 0.4715 | 0.4708 ± 0.0055 |
| $A_{100}^{\mathrm{dustTT}}$ | 8.83 | 8.9 ± 1.8 | Y_{P} | 0.245414 | $0.245416^{+0.000061}_{-0.000054}$ | $\sigma_8(0.61)$ | 0.5939 | $0.5934^{+0.0051}_{-0.0060}$ |
| $A_{143}^{\mathrm{dustTT}}$ | 11.06 | 10.9 ± 1.8 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.246741 | $0.246743^{+0.000061}_{-0.000054}$ | $f\sigma_8(2.33)$ | 0.29943 | $0.2992^{+0.0026}_{-0.0030}$ |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 19.94 | 18.5 ± 3.3 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.5765 | 2.575 ± 0.027 | $\sigma_8(2.33)$ | 0.30866 | $0.3084^{+0.0026}_{-0.0031}$ |
| $A_{217}^{\mathrm{dustTT}}$ | 95.4 | 93.5 ± 7.3 | Age/Gyr | 13.7882 | 13.787 ± 0.022 | f_{2000}^{143} | 27.72 | 29 ± 4 |
| $A_{100}^{\mathrm{dustTE}}$ | 0.1138 | 0.114 ± 0.038 | z_* | 1089.821 | 1089.80 ± 0.24 | $f_{2000}^{143 \times 217}$ | 31.16 | 31.8 ± 2.5 |
| $A_{100 \times 143}^{\mathrm{dustTE}}$ | 0.1340 | 0.135 ± 0.030 | r_* | 144.503 | 144.52 ± 0.24 | f_{2000}^{217} | 105.88 | 106.7 ± 2.3 |
| $A_{100 \times 217}^{\mathrm{dustTE}}$ | 0.481 | 0.481 ± 0.085 | $100\theta_*$ | 1.041189 | 1.04118 ± 0.00028 | χ_{small}^2 | 396.62 | 397.7 ± 2.3 |
| $A_{143}^{\mathrm{dustTE}}$ | 0.222 | 0.224 ± 0.055 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.8787 | 13.880 ± 0.023 | χ_{lowl}^2 | 21.44 | 22.2 ± 1.6 |
| $A_{143 \times 217}^{\mathrm{dustTE}}$ | 0.666 | 0.665 ± 0.080 | z_{drag} | 1060.009 | 1060.03 ± 0.32 | χ_{plik}^2 | 2345.1 | 2360.9 ± 6.0 |
| $A_{217}^{\mathrm{dustTE}}$ | 2.081 | 2.08 ± 0.26 | r_{drag} | 147.150 | 147.16 ± 0.25 | $\chi_{6\mathrm{DF}}^2$ | 0.0468 | 0.068 ± 0.076 |
| c_{100} | 0.99974 | 0.99969 ± 0.00061 | k_{D} | 0.140842 | 0.14084 ± 0.00031 | χ_{MGS}^2 | 1.097 | 1.19 ± 0.43 |
| c_{217} | 0.99817 | 0.99818 ± 0.00061 | $100\theta_{\mathrm{D}}$ | 0.160720 | 0.16071 ± 0.00019 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.82 | 5.1 ± 1.6 |
| H_0 | 67.571 | 67.61 ± 0.47 | z_{eq} | 3393.3 | 3391 ± 23 | χ_{prior}^2 | 1.64 | 11.5 ± 4.5 |
| Ω_{Λ} | 0.6876 | 0.6881 ± 0.0063 | k_{eq} | 0.010357 | 0.010351 ± 0.000071 | χ_{BAO}^2 | 5.97 | 6.4 ± 1.3 |
| Ω_{m} | 0.3124 | 0.3119 ± 0.0063 | $100\theta_{\mathrm{eq}}$ | 0.81509 | 0.8155 ± 0.0044 | χ_{CMB}^2 | 2763.2 | 2780.9 ± 6.1 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14264 | 0.14256 ± 0.00098 | $100\theta_{\mathrm{s,eq}}$ | 0.45028 | 0.4505 ± 0.0023 | | | |

Best-fit $\chi_{\mathrm{eff}}^2 = 2770.78$; $\Delta\chi_{\mathrm{eff}}^2 = -1.14$; $\bar{\chi}_{\mathrm{eff}}^2 = 2798.78$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.87$; $R - 1 = 0.02726$
 χ_{eff}^2 : BAO - 6DF: 0.05 (Δ 0.02) MGS: 1.10 (Δ -0.12) DR12BAO: 4.83 (Δ 0.41) CMB - small_100x143_offlike5_EE_Aplanck_B: 396.62 (Δ 0.42) commander_dx12_v3_2_29: 21.44 (Δ -1.43) plik_rd12_HM_v22b_TTTEE: 2345.10 (Δ -0.40)

13.3 base_nrun_nrunrun_plikHM_TTTEE_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|--------------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022365 | 0.02237 ± 0.00016 | $\Omega_m h^2$ | 0.14319 | 0.1432 ± 0.0012 | $100\theta_{\text{eq}}$ | 0.8125 | 0.8125 ± 0.0052 |
| $\Omega_c h^2$ | 0.12018 | 0.1202 ± 0.0012 | $\Omega_m h^3$ | 0.096342 | 0.09634 ± 0.00031 | $100\theta_{\text{s,eq}}$ | 0.44899 | 0.4490 ± 0.0027 |
| $100\theta_{\text{MC}}$ | 1.040911 | 1.04090 ± 0.00030 | σ_8 | 0.8152 | 0.8141 ± 0.0066 | $H(0.15)$ | 72.620 | 72.62 ± 0.48 |
| τ | 0.0564 | 0.0565 ± 0.0079 | S_8 | 0.8371 | 0.836 ± 0.014 | $D_{\text{M}}(0.15)$ | 643.98 | 644.0 ± 4.8 |
| $\ln(10^{10} A_s)$ | 3.0482 | 3.049 ± 0.015 | $\sigma_8 \Omega_m^{0.5}$ | 0.4585 | 0.4579 ± 0.0075 | $H(0.38)$ | 82.823 | 82.83 ± 0.35 |
| n_s | 0.96387 | 0.9625 ± 0.0048 | $\sigma_8 \Omega_m^{0.25}$ | 0.6114 | 0.6106 ± 0.0069 | $D_{\text{M}}(0.38)$ | 1534.7 | 1534.7 ± 9.7 |
| $dn_s/d \ln k$ | 0.0057 | 0.002 ± 0.010 | $\sigma_8/h^{0.5}$ | 0.9939 | 0.993 ± 0.010 | $H(0.51)$ | 89.594 | 89.60 ± 0.28 |
| $d^2 n_s/d \ln k^2$ | 0.0129 | 0.010 ± 0.013 | $r_{\text{drag}} h$ | 98.94 | 98.94 ± 0.96 | $D_{\text{M}}(0.51)$ | 1987.3 | 1987 ± 11 |
| y_{cal} | 1.00025 | 1.0005 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4386 | 2.439 ± 0.022 | $H(0.61)$ | 95.254 | 95.26 ± 0.23 |
| A_{217}^{CIB} | 45.3 | 47 ± 7 | z_{re} | 7.90 | 7.89 ± 0.78 | $D_{\text{M}}(0.61)$ | 2311.9 | 2312 ± 12 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.70 | — | $10^9 A_s$ | 2.1078 | $2.110^{+0.030}_{-0.033}$ | $H(2.33)$ | 236.67 | 236.68 ± 0.73 |
| A_{143}^{tSZ} | 7.09 | $5.5^{+2.2}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.8830 | 1.884 ± 0.011 | $D_{\text{M}}(2.33)$ | 5764.4 | 5764 ± 11 |
| A_{100}^{PS} | 246.3 | 259 ± 29 | D_{40} | 1220.7 | 1219 ± 18 | $f\sigma_8(0.15)$ | 0.4627 | 0.4621 ± 0.0069 |
| A_{143}^{PS} | 48.6 | 45 ± 9 | D_{220} | 5738.0 | 5740 ± 39 | $\sigma_8(0.15)$ | 0.7528 | 0.7518 ± 0.0060 |
| $A_{143 \times 217}^{\text{PS}}$ | 52.4 | 41 ± 9 | D_{810} | 2538.6 | 2538 ± 14 | $f\sigma_8(0.38)$ | 0.4801 | 0.4794 ± 0.0056 |
| A_{217}^{PS} | 121.0 | 114 ± 10 | D_{1420} | 818.92 | 817.2 ± 5.0 | $\sigma_8(0.38)$ | 0.6668 | 0.6659 ± 0.0053 |
| A^{kSZ} | 0.00 | < 4.41 | D_{2000} | 232.23 | 231.2 ± 2.1 | $f\sigma_8(0.51)$ | 0.47808 | 0.4774 ± 0.0050 |
| A_{100}^{dustTT} | 8.81 | 8.9 ± 1.8 | $n_{\text{s},0.002}$ | 1.0122 | 1.011 ± 0.044 | $\sigma_8(0.51)$ | 0.62381 | 0.6230 ± 0.0049 |
| A_{143}^{dustTT} | 10.97 | 10.9 ± 1.8 | Y_{P} | 0.245394 | $0.245392^{+0.000067}_{-0.000060}$ | $f\sigma_8(0.61)$ | 0.47270 | 0.4720 ± 0.0046 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.00 | 18.5 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246720 | $0.246719^{+0.000067}_{-0.000060}$ | $\sigma_8(0.61)$ | 0.59344 | 0.5926 ± 0.0047 |
| A_{217}^{dustTT} | 95.4 | 93.6 ± 7.3 | $10^5 \text{D}/\text{H}$ | 2.5864 | 2.587 ± 0.030 | $f\sigma_8(2.33)$ | 0.29902 | 0.2986 ± 0.0024 |
| A_{100}^{dustTE} | 0.1146 | 0.114 ± 0.038 | Age/Gyr | 13.7990 | 13.799 ± 0.024 | $\sigma_8(2.33)$ | 0.30807 | 0.3077 ± 0.0026 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1352 | 0.135 ± 0.029 | z_* | 1089.943 | 1089.94 ± 0.27 | f_{2000}^{143} | 27.35 | 29 ± 3 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.484 | 0.483 ± 0.085 | r_* | 144.389 | 144.39 ± 0.27 | $f_{2000}^{143 \times 217}$ | 30.88 | 31.8 ± 2.5 |
| A_{143}^{dustTE} | 0.224 | 0.226 ± 0.054 | $100\theta_*$ | 1.041091 | 1.04108 ± 0.00029 | f_{2000}^{217} | 105.45 | 106.6 ± 2.3 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.668 | 0.666 ± 0.079 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8691 | 13.869 ± 0.026 | χ_{lensing}^2 | 8.98 | 9.47 ± 0.89 |
| A_{217}^{dustTE} | 2.092 | 2.09 ± 0.26 | z_{drag} | 1059.933 | 1059.94 ± 0.33 | χ_{small}^2 | 396.28 | 397.2 ± 1.7 |
| c_{100} | 0.99975 | 0.99969 ± 0.00061 | r_{drag} | 147.051 | 147.05 ± 0.27 | χ_{lowl}^2 | 21.70 | 22.5 ± 1.6 |
| c_{217} | 0.99817 | 0.99819 ± 0.00062 | k_{D} | 0.140907 | 0.14091 ± 0.00032 | χ_{plik}^2 | 2344.9 | 2360.5 ± 5.7 |
| H_0 | 67.28 | 67.28 ± 0.56 | $100\theta_{\text{D}}$ | 0.160757 | 0.16075 ± 0.00019 | χ_{prior}^2 | 1.51 | 11.5 ± 4.5 |
| Ω_{Λ} | 0.6837 | 0.6836 ± 0.0077 | z_{eq} | 3406.3 | 3407 ± 28 | χ_{CMB}^2 | 2771.8 | 2789.6 ± 6.1 |
| Ω_{m} | 0.3163 | 0.3164 ± 0.0077 | k_{eq} | 0.010396 | 0.010397 ± 0.000084 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2773.34$; $\Delta\chi_{\text{eff}}^2 = -1.29$; $\bar{\chi}_{\text{eff}}^2 = 2801.12$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.43$; $R - 1 = 0.02893$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.98 (Δ 0.11) small_100x143_offlike5_EE_Aplanck_B: 396.28 (Δ 0.23) commander_dx12_v3.2_29: 21.70 (Δ -1.55) plik_rd12_HM_v22b_TTTEE: 2344.88 (Δ -0.05)

13.4 base_nrun_nrunrun_plikHM_TTTEE_lowl_lowE_post_BAO_lensing

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02243 ± 0.00015 | $\Omega_{\mathrm{m}}h^3$ | 0.09637 ± 0.00031 | $H(0.15)$ | 72.93 ± 0.38 |
| $\Omega_{\mathrm{c}}h^2$ | 0.11939 ± 0.00096 | σ_8 | 0.8131 ± 0.0066 | $D_{\mathrm{M}}(0.15)$ | 640.9 ± 3.7 |
| $100\theta_{\mathrm{MC}}$ | 1.04100 ± 0.00028 | S_8 | 0.828 ± 0.011 | $H(0.38)$ | 83.05 ± 0.28 |
| τ | $0.0587^{+0.0071}_{-0.0080}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4537 ± 0.0061 | $D_{\mathrm{M}}(0.38)$ | 1528.6 ± 7.5 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.052^{+0.014}_{-0.016}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6074 ± 0.0062 | $H(0.51)$ | 89.77 ± 0.23 |
| n_{s} | 0.9647 ± 0.0043 | $\sigma_8/h^{0.5}$ | 0.9886 ± 0.0092 | $D_{\mathrm{M}}(0.51)$ | 1980.2 ± 8.8 |
| $\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$ | 0.0011 ± 0.0099 | $r_{\mathrm{drag}}h$ | 99.56 ± 0.74 | $H(0.61)$ | 95.39 ± 0.19 |
| $\mathrm{d}^2n_{\mathrm{s}}/\mathrm{d}\ln k^2$ | 0.009 ± 0.012 | $\langle d^2 \rangle^{1/2}$ | 2.431 ± 0.021 | $D_{\mathrm{M}}(0.61)$ | 2304.2 ± 9.5 |
| y_{cal} | 1.0007 ± 0.0025 | z_{re} | 8.09 ± 0.76 | $H(2.33)$ | 236.23 ± 0.58 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_{\mathrm{s}}$ | $2.117^{+0.029}_{-0.033}$ | $D_{\mathrm{M}}(2.33)$ | 5758.6 ± 9.3 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4583 ± 0.0058 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1217 ± 18 | $\sigma_8(0.15)$ | 0.7513 ± 0.0061 |
| A_{100}^{PS} | 258 ± 29 | D_{220} | 5745 ± 38 | $f\sigma_8(0.38)$ | 0.4767 ± 0.0050 |
| A_{143}^{PS} | 45 ± 9 | D_{810} | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6660 ± 0.0053 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 41 ± 9 | D_{1420} | 817.9 ± 5.0 | $f\sigma_8(0.51)$ | 0.4753 ± 0.0046 |
| A_{217}^{PS} | 114 ± 10 | D_{2000} | 231.5 ± 2.1 | $\sigma_8(0.51)$ | 0.6233 ± 0.0050 |
| A^{kSZ} | < 4.27 | $n_{\mathrm{s},0.002}$ | 1.008 ± 0.044 | $f\sigma_8(0.61)$ | 0.4704 ± 0.0043 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | Y_{P} | $0.245417^{+0.000060}_{-0.000053}$ | $\sigma_8(0.61)$ | 0.5931 ± 0.0048 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.9 ± 1.8 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246743^{+0.000060}_{-0.000053}$ | $f\sigma_8(2.33)$ | $0.2990^{+0.0023}_{-0.0026}$ |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.5 ± 3.3 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.575 ± 0.027 | $\sigma_8(2.33)$ | $0.3083^{+0.0024}_{-0.0027}$ |
| $A_{217}^{\mathrm{dust}TT}$ | 93.4 ± 7.3 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.786 ± 0.021 | f_{2000}^{143} | 29 ± 4 |
| $A_{100}^{\mathrm{dust}TE}$ | 0.114 ± 0.038 | z_* | 1089.79 ± 0.23 | $f_{2000}^{143 \times 217}$ | 31.7 ± 2.5 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.135 ± 0.029 | r_* | 144.54 ± 0.23 | f_{2000}^{217} | 106.6 ± 2.3 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.481 ± 0.085 | $100\theta_*$ | 1.04118 ± 0.00028 | $\chi_{\mathrm{lensing}}^2$ | 9.21 ± 0.63 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.224 ± 0.055 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.883 ± 0.022 | χ_{simall}^2 | 397.5 ± 2.0 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.665 ± 0.080 | z_{drag} | 1060.03 ± 0.32 | χ_{lowl}^2 | 22.3 ± 1.6 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.08 ± 0.26 | r_{drag} | 147.19 ± 0.24 | χ_{plik}^2 | 2360.7 ± 5.8 |
| c_{100} | 0.99968 ± 0.00061 | k_{D} | 0.14081 ± 0.00030 | $\chi_{6\mathrm{DF}}^2$ | 0.059 ± 0.066 |
| c_{217} | 0.99818 ± 0.00062 | $100\theta_{\mathrm{D}}$ | 0.16071 ± 0.00018 | χ_{MGS}^2 | 1.22 ± 0.40 |
| H_0 | 67.64 ± 0.44 | z_{eq} | 3389 ± 22 | $\chi_{\mathrm{DR12BAO}}^2$ | 5.0 ± 1.4 |
| Ω_{Λ} | 0.6886 ± 0.0058 | k_{eq} | 0.010344 ± 0.000066 | χ_{prior}^2 | 11.5 ± 4.4 |
| Ω_{m} | 0.3114 ± 0.0058 | $100\theta_{\mathrm{eq}}$ | 0.8159 ± 0.0041 | χ_{CMB}^2 | 2789.8 ± 6.1 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14247 ± 0.00091 | $100\theta_{\mathrm{s,eq}}$ | 0.4507 ± 0.0021 | χ_{BAO}^2 | 6.2 ± 1.2 |

$$\bar{\chi}_{\mathrm{eff}}^2 = 2807.58; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.74; R - 1 = 0.02956$$

13.5 base_nrun_nrunrun_plikHM_TTTEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02235 ± 0.00017 | $\Omega_{\text{m}}h^2$ | 0.1436 ± 0.0014 | $100\theta_{\text{eq}}$ | 0.8107 ± 0.0061 |
| $\Omega_{\text{c}}h^2$ | 0.1206 ± 0.0015 | $\Omega_{\text{m}}h^3$ | 0.09636 ± 0.00031 | $100\theta_{\text{s,eq}}$ | 0.4480 ± 0.0031 |
| $100\theta_{\text{MC}}$ | 1.04086 ± 0.00031 | σ_8 | $0.8174^{+0.0079}_{-0.0088}$ | $H(0.15)$ | 72.47 ± 0.56 |
| τ | $0.0584^{+0.0065}_{-0.0089}$ | S_8 | 0.843 ± 0.018 | $D_{\text{M}}(0.15)$ | 645.6 ± 5.6 |
| $\ln(10^{10}A_{\text{s}})$ | $3.054^{+0.014}_{-0.018}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4617 ± 0.0099 | $H(0.38)$ | 82.72 ± 0.40 |
| n_{s} | 0.9612 ± 0.0053 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6143 ± 0.0093 | $D_{\text{M}}(0.38)$ | 1538 ± 11 |
| $\text{d}n_{\text{s}}/\text{d}\ln k$ | 0.001 ± 0.010 | $\sigma_8/h^{0.5}$ | 0.998 ± 0.013 | $H(0.51)$ | 89.52 ± 0.32 |
| $\text{d}^2n_{\text{s}}/\text{d}\ln k^2$ | 0.012 ± 0.013 | $r_{\text{drag}}h$ | 98.6 ± 1.1 | $D_{\text{M}}(0.51)$ | 1991 ± 13 |
| y_{cal} | 1.0005 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | 2.447 ± 0.028 | $H(0.61)$ | 95.20 ± 0.26 |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $8.09^{+0.70}_{-0.86}$ | $D_{\text{M}}(0.61)$ | 2316 ± 14 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_{\text{s}}$ | $2.121^{+0.029}_{-0.039}$ | $H(2.33)$ | 236.94 ± 0.86 |
| A_{143}^{tSZ} | 5.4 ± 2.0 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.887 ± 0.012 | $D_{\text{M}}(2.33)$ | 5767 ± 12 |
| A_{100}^{PS} | 259 ± 29 | D_{40} | 1218 ± 18 | $f\sigma_8(0.15)$ | 0.4657 ± 0.0092 |
| A_{143}^{PS} | 45 ± 9 | D_{220} | 5740 ± 39 | $\sigma_8(0.15)$ | $0.7546^{+0.0067}_{-0.0078}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 41 ± 9 | D_{810} | 2539 ± 13 | $f\sigma_8(0.38)$ | 0.4825 ± 0.0076 |
| A_{217}^{PS} | 114 ± 10 | D_{1420} | 817.0 ± 4.9 | $\sigma_8(0.38)$ | $0.6681^{+0.0055}_{-0.0066}$ |
| A^{kSZ} | < 4.33 | D_{2000} | 231.2 ± 2.1 | $f\sigma_8(0.51)$ | 0.4801 ± 0.0067 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | $n_{\text{s},0.002}$ | 1.020 ± 0.044 | $\sigma_8(0.51)$ | $0.6248^{+0.0050}_{-0.0062}$ |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.8 | Y_{P} | 0.245384 ± 0.000066 | $f\sigma_8(0.61)$ | 0.4745 ± 0.0061 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.5 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246710 ± 0.000066 | $\sigma_8(0.61)$ | $0.5943^{+0.0047}_{-0.0058}$ |
| $A_{217}^{\text{dust}TT}$ | 93.7 ± 7.3 | 10^5D/H | 2.591 ± 0.031 | $f\sigma_8(2.33)$ | $0.2994^{+0.0023}_{-0.0029}$ |
| $A_{100}^{\text{dust}TE}$ | 0.115 ± 0.038 | Age/Gyr | 13.804 ± 0.026 | $\sigma_8(2.33)$ | $0.3083^{+0.0023}_{-0.0031}$ |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.135 ± 0.029 | z_* | 1090.01 ± 0.30 | f_{2000}^{143} | 29 ± 3 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.483 ± 0.085 | r_* | 144.29 ± 0.32 | $f_{2000}^{143 \times 217}$ | 31.9 ± 2.5 |
| $A_{143}^{\text{dust}TE}$ | 0.226 ± 0.054 | $100\theta_*$ | 1.04105 ± 0.00031 | f_{2000}^{217} | 106.7 ± 2.3 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.667 ± 0.079 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.860 ± 0.029 | χ_{simall}^2 | 397.5 ± 2.1 |
| $A_{217}^{\text{dust}TE}$ | 2.10 ± 0.27 | z_{drag} | 1059.93 ± 0.33 | χ_{lowl}^2 | 22.4 ± 1.4 |
| c_{100} | 0.99969 ± 0.00061 | r_{drag} | 146.96 ± 0.31 | χ_{plik}^2 | 2360.5 ± 5.9 |
| c_{217} | 0.99819 ± 0.00062 | k_{D} | 0.14099 ± 0.00034 | χ_{prior}^2 | 11.4 ± 4.5 |
| H_0 | 67.10 ± 0.65 | $100\theta_{\text{D}}$ | 0.16076 ± 0.00019 | χ_{CMB}^2 | 2780.4 ± 6.1 |
| Ω_{Λ} | 0.6809 ± 0.0091 | z_{eq} | 3417 ± 33 | | |
| Ω_{m} | 0.3191 ± 0.0091 | k_{eq} | 0.01043 ± 0.00010 | | |

$\bar{\chi}_{\text{eff}}^2 = 2791.89$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.35$; $R - 1 = 0.02012$

13.6 base_nrun_nrunrun_plikHM_TTTEE_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02243 ± 0.00015 | $\Omega_m h^3$ | 0.09638 ± 0.00031 | $H(0.15)$ | 72.90 ± 0.40 |
| $\Omega_c h^2$ | 0.1195 ± 0.0010 | σ_8 | $0.8141^{+0.0071}_{-0.0085}$ | $D_M(0.15)$ | 641.2 ± 4.0 |
| $100\theta_{MC}$ | 1.04100 ± 0.00029 | S_8 | 0.830 ± 0.014 | $H(0.38)$ | 83.03 ± 0.30 |
| τ | $0.0597^{+0.0067}_{-0.0091}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4546 ± 0.0075 | $D_M(0.38)$ | 1529.1 ± 8.0 |
| $\ln(10^{10} A_s)$ | $3.054^{+0.014}_{-0.019}$ | $\sigma_8 \Omega_m^{0.25}$ | $0.6084^{+0.0071}_{-0.0080}$ | $H(0.51)$ | 89.76 ± 0.24 |
| n_s | 0.9644 ± 0.0045 | $\sigma_8/h^{0.5}$ | $0.990^{+0.010}_{-0.012}$ | $D_M(0.51)$ | 1980.7 ± 9.4 |
| $dn_s/d \ln k$ | 0.000 ± 0.010 | $r_{drag} h$ | 99.50 ± 0.80 | $H(0.61)$ | 95.38 ± 0.20 |
| $d^2 n_s/d \ln k^2$ | 0.0095 ± 0.013 | $\langle d^2 \rangle^{1/2}$ | 2.433 ± 0.025 | $D_M(0.61)$ | 2305 ± 10 |
| y_{cal} | 1.0007 ± 0.0025 | z_{re} | $8.18^{+0.70}_{-0.88}$ | $H(2.33)$ | 236.29 ± 0.63 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.121^{+0.029}_{-0.040}$ | $D_M(2.33)$ | 5758.8 ± 9.5 |
| $\xi^{tSZ \times CIB}$ | — | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4592 ± 0.0071 |
| A_{143}^{tSZ} | 5.5 ± 2.0 | D_{40} | 1215 ± 18 | $\sigma_8(0.15)$ | $0.7522^{+0.0063}_{-0.0077}$ |
| A_{100}^{PS} | 258 ± 29 | D_{220} | 5744 ± 39 | $f\sigma_8(0.38)$ | 0.4775 ± 0.0062 |
| A_{143}^{PS} | 45 ± 9 | D_{810} | 2539 ± 14 | $\sigma_8(0.38)$ | $0.6667^{+0.0054}_{-0.0067}$ |
| $A_{143 \times 217}^{PS}$ | 41 ± 9 | D_{1420} | 817.7 ± 4.9 | $f\sigma_8(0.51)$ | $0.4761^{+0.0052}_{-0.0059}$ |
| A_{217}^{PS} | 114 ± 10 | D_{2000} | 231.4 ± 2.1 | $\sigma_8(0.51)$ | $0.6239^{+0.0050}_{-0.0063}$ |
| A^{kSZ} | < 4.28 | $n_{s,0.002}$ | 1.013 ± 0.045 | $f\sigma_8(0.61)$ | $0.4710^{+0.0049}_{-0.0056}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245416^{+0.000060}_{-0.000053}$ | $\sigma_8(0.61)$ | $0.5937^{+0.0047}_{-0.0060}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246743^{+0.000060}_{-0.000053}$ | $f\sigma_8(2.33)$ | $0.2993^{+0.0023}_{-0.0030}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.5 ± 3.3 | $10^5 D/H$ | 2.575 ± 0.027 | $\sigma_8(2.33)$ | $0.3086^{+0.0024}_{-0.0031}$ |
| A_{217}^{dustTT} | 93.5 ± 7.3 | Age/Gyr | 13.787 ± 0.022 | f_{2000}^{143} | 29 ± 4 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | 1089.80 ± 0.24 | $f_{2000}^{143 \times 217}$ | 31.8 ± 2.5 |
| $A_{100 \times 143}^{dustTE}$ | 0.135 ± 0.030 | r_* | 144.52 ± 0.24 | f_{2000}^{217} | 106.6 ± 2.3 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 ± 0.085 | $100\theta_*$ | 1.04118 ± 0.00028 | χ_{simall}^2 | 397.7 ± 2.3 |
| A_{143}^{dustTE} | 0.224 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 13.880 ± 0.023 | χ_{lowl}^2 | 22.2 ± 1.5 |
| $A_{143 \times 217}^{dustTE}$ | 0.665 ± 0.080 | z_{drag} | 1060.03 ± 0.32 | χ_{plik}^2 | 2360.8 ± 6.0 |
| A_{217}^{dustTE} | 2.09 ± 0.26 | r_{drag} | 147.16 ± 0.25 | χ_{6DF}^2 | 0.067 ± 0.076 |
| c_{100} | 0.99969 ± 0.00061 | k_D | 0.14084 ± 0.00031 | χ_{MGS}^2 | 1.19 ± 0.42 |
| c_{217} | 0.99818 ± 0.00061 | $100\theta_D$ | 0.16071 ± 0.00018 | $\chi_{DR12BAO}^2$ | 5.1 ± 1.6 |
| H_0 | 67.61 ± 0.47 | z_{eq} | 3391 ± 23 | χ_{prior}^2 | 11.5 ± 4.4 |
| Ω_Λ | 0.6881 ± 0.0063 | k_{eq} | 0.010350 ± 0.000071 | χ_{BAO}^2 | 6.4 ± 1.3 |
| Ω_m | 0.3119 ± 0.0063 | $100\theta_{eq}$ | 0.8155 ± 0.0044 | χ_{CMB}^2 | 2780.8 ± 6.1 |
| $\Omega_m h^2$ | 0.14256 ± 0.00098 | $100\theta_{s,eq}$ | 0.4505 ± 0.0022 | | |

$\bar{\chi}_{eff}^2 = 2798.65$; $\Delta\bar{\chi}_{eff}^2 = 0.93$; $R - 1 = 0.02773$

13.7 base_nrun_nrunrun_plikHM_TTTEE_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02237 ± 0.00016 | $\Omega_{\text{m}}h^2$ | 0.1432 ± 0.0011 | $100\theta_{\text{eq}}$ | 0.8127 ± 0.0052 |
| $\Omega_{\text{c}}h^2$ | 0.1201 ± 0.0012 | $\Omega_{\text{m}}h^3$ | 0.09634 ± 0.00031 | $100\theta_{\text{s,eq}}$ | 0.4491 ± 0.0026 |
| $100\theta_{\text{MC}}$ | 1.04090 ± 0.00030 | σ_8 | 0.8145 ± 0.0064 | $H(0.15)$ | 72.64 ± 0.48 |
| τ | $0.0572^{+0.0062}_{-0.0081}$ | S_8 | 0.836 ± 0.014 | $D_{\text{M}}(0.15)$ | 643.9 ± 4.8 |
| $\ln(10^{10}A_{\text{s}})$ | $3.050^{+0.012}_{-0.016}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4580 ± 0.0075 | $H(0.38)$ | 82.84 ± 0.35 |
| n_{s} | 0.9626 ± 0.0048 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6107 ± 0.0069 | $D_{\text{M}}(0.38)$ | 1534.4 ± 9.6 |
| $\text{d}n_{\text{s}}/\text{d}\ln k$ | 0.002 ± 0.010 | $\sigma_8/h^{0.5}$ | 0.9929 ± 0.0099 | $H(0.51)$ | 89.61 ± 0.28 |
| $\text{d}^2n_{\text{s}}/\text{d}\ln k^2$ | 0.011 ± 0.013 | $r_{\text{drag}}h$ | 98.97 ± 0.95 | $D_{\text{M}}(0.51)$ | 1987 ± 11 |
| y_{cal} | 1.0005 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.439 ± 0.022 | $H(0.61)$ | 95.26 ± 0.23 |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.96^{+0.65}_{-0.78}$ | $D_{\text{M}}(0.61)$ | 2312 ± 12 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_{\text{s}}$ | $2.112^{+0.026}_{-0.033}$ | $H(2.33)$ | 236.65 ± 0.73 |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.884 ± 0.011 | $D_{\text{M}}(2.33)$ | 5764 ± 11 |
| A_{100}^{PS} | 259 ± 29 | D_{40} | 1219 ± 18 | $f\sigma_8(0.15)$ | 0.4622 ± 0.0069 |
| A_{143}^{PS} | 45 ± 9 | D_{220} | 5740 ± 39 | $\sigma_8(0.15)$ | $0.7522^{+0.0053}_{-0.0060}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 41 ± 9 | D_{810} | 2538 ± 13 | $f\sigma_8(0.38)$ | 0.4795 ± 0.0056 |
| A_{217}^{PS} | 114 ± 10 | D_{1420} | 817.1 ± 5.0 | $\sigma_8(0.38)$ | $0.6663^{+0.0045}_{-0.0053}$ |
| A^{kSZ} | < 4.41 | D_{2000} | 231.3 ± 2.1 | $f\sigma_8(0.51)$ | 0.4776 ± 0.0049 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | $n_{\text{s},0.002}$ | 1.012 ± 0.044 | $\sigma_8(0.51)$ | $0.6233^{+0.0042}_{-0.0050}$ |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.8 | Y_{P} | $0.245394^{+0.000066}_{-0.000059}$ | $f\sigma_8(0.61)$ | 0.4722 ± 0.0045 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246720^{+0.000066}_{-0.000060}$ | $\sigma_8(0.61)$ | $0.5930^{+0.0040}_{-0.0048}$ |
| $A_{217}^{\text{dust}TT}$ | 93.6 ± 7.3 | 10^5D/H | 2.586 ± 0.029 | $f\sigma_8(2.33)$ | $0.2988^{+0.0020}_{-0.0025}$ |
| $A_{100}^{\text{dust}TE}$ | 0.114 ± 0.038 | Age/Gyr | 13.798 ± 0.024 | $\sigma_8(2.33)$ | $0.3079^{+0.0021}_{-0.0027}$ |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.135 ± 0.029 | z_* | 1089.93 ± 0.27 | f_{2000}^{143} | 29 ± 3 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.483 ± 0.085 | r_* | 144.39 ± 0.27 | $f_{2000}^{143 \times 217}$ | 31.8 ± 2.5 |
| $A_{143}^{\text{dust}TE}$ | 0.226 ± 0.054 | $100\theta_*$ | 1.04109 ± 0.00029 | f_{2000}^{217} | 106.6 ± 2.3 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.666 ± 0.079 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.870 ± 0.025 | χ_{lensing}^2 | 9.47 ± 0.90 |
| $A_{217}^{\text{dust}TE}$ | 2.09 ± 0.26 | z_{drag} | 1059.95 ± 0.33 | χ_{simall}^2 | 397.2 ± 1.7 |
| c_{100} | 0.99969 ± 0.00062 | r_{drag} | 147.05 ± 0.27 | χ_{lowl}^2 | 22.4 ± 1.6 |
| c_{217} | 0.99819 ± 0.00062 | k_{D} | 0.14091 ± 0.00032 | χ_{plik}^2 | 2360.4 ± 5.7 |
| H_0 | 67.30 ± 0.55 | $100\theta_{\text{D}}$ | 0.16075 ± 0.00019 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_{Λ} | 0.6839 ± 0.0076 | z_{eq} | 3406 ± 27 | χ_{CMB}^2 | 2789.5 ± 6.0 |
| Ω_{m} | 0.3161 ± 0.0076 | k_{eq} | 0.010394 ± 0.000084 | | |

$\bar{\chi}_{\text{eff}}^2 = 2800.94$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.43$; $R - 1 = 0.02757$

13.8 base_nrun_nrunrun_plikHM_TTTEE_lowl_lowE_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02243 ± 0.00015 | $\Omega_m h^3$ | 0.09637 ± 0.00031 | $H(0.15)$ | 72.93 ± 0.37 |
| $\Omega_c h^2$ | 0.11938 ± 0.00095 | σ_8 | 0.8133 ± 0.0065 | $D_M(0.15)$ | 640.9 ± 3.7 |
| $100\theta_{MC}$ | 1.04100 ± 0.00028 | S_8 | 0.828 ± 0.011 | $H(0.38)$ | 83.05 ± 0.28 |
| τ | $0.0591^{+0.0065}_{-0.0081}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4538 ± 0.0061 | $D_M(0.38)$ | 1528.5 ± 7.5 |
| $\ln(10^{10} A_s)$ | $3.053^{+0.013}_{-0.016}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6075 ± 0.0061 | $H(0.51)$ | 89.77 ± 0.23 |
| n_s | 0.9647 ± 0.0043 | $\sigma_8/h^{0.5}$ | 0.9888 ± 0.0091 | $D_M(0.51)$ | 1980.0 ± 8.8 |
| $dn_s/d \ln k$ | 0.0011 ± 0.0099 | $r_{drag} h$ | 99.58 ± 0.74 | $H(0.61)$ | 95.39 ± 0.19 |
| $d^2 n_s/d \ln k^2$ | 0.009 ± 0.012 | $\langle d^2 \rangle^{1/2}$ | 2.432 ± 0.021 | $D_M(0.61)$ | 2304.0 ± 9.5 |
| y_{cal} | 1.0007 ± 0.0025 | z_{re} | $8.12^{+0.67}_{-0.78}$ | $H(2.33)$ | 236.22 ± 0.58 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.118^{+0.027}_{-0.034}$ | $D_M(2.33)$ | 5758.5 ± 9.2 |
| $\xi^{tSZ \times CIB}$ | — | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4584 ± 0.0058 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1217 ± 18 | $\sigma_8(0.15)$ | $0.7515^{+0.0055}_{-0.0061}$ |
| A_{100}^{PS} | 258 ± 29 | D_{220} | 5745 ± 39 | $f\sigma_8(0.38)$ | 0.4768 ± 0.0049 |
| A_{143}^{PS} | 44 ± 9 | D_{810} | 2539 ± 14 | $\sigma_8(0.38)$ | $0.6662^{+0.0048}_{-0.0055}$ |
| $A_{143 \times 217}^{PS}$ | 41 ± 9 | D_{1420} | 817.8 ± 5.0 | $f\sigma_8(0.51)$ | 0.4754 ± 0.0045 |
| A_{217}^{PS} | 114 ± 10 | D_{2000} | 231.5 ± 2.1 | $\sigma_8(0.51)$ | $0.6235^{+0.0044}_{-0.0052}$ |
| A^{kSZ} | < 4.26 | $n_{s,0.002}$ | 1.009 ± 0.044 | $f\sigma_8(0.61)$ | 0.4705 ± 0.0042 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245417^{+0.000060}_{-0.000053}$ | $\sigma_8(0.61)$ | $0.5933^{+0.0042}_{-0.0050}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246744^{+0.000060}_{-0.000053}$ | $f\sigma_8(2.33)$ | $0.2991^{+0.0021}_{-0.0026}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.5 ± 3.3 | $10^5 D/H$ | 2.575 ± 0.027 | $\sigma_8(2.33)$ | $0.3084^{+0.0022}_{-0.0027}$ |
| A_{217}^{dustTT} | 93.4 ± 7.3 | Age/Gyr | 13.786 ± 0.021 | f_{2000}^{143} | 29 ± 4 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | 1089.79 ± 0.23 | $f_{2000}^{143 \times 217}$ | 31.7 ± 2.5 |
| $A_{100 \times 143}^{dustTE}$ | 0.135 ± 0.029 | r_* | 144.55 ± 0.23 | f_{2000}^{217} | 106.5 ± 2.3 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 ± 0.085 | $100\theta_*$ | 1.04118 ± 0.00028 | $\chi_{lensing}^2$ | 9.20 ± 0.62 |
| A_{143}^{dustTE} | 0.224 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 13.883 ± 0.022 | χ_{simall}^2 | 397.5 ± 2.0 |
| $A_{143 \times 217}^{dustTE}$ | 0.665 ± 0.080 | z_{drag} | 1060.03 ± 0.32 | χ_{lowl}^2 | 22.3 ± 1.6 |
| A_{217}^{dustTE} | 2.09 ± 0.26 | r_{drag} | 147.19 ± 0.24 | χ_{plik}^2 | 2360.7 ± 5.8 |
| c_{100} | 0.99968 ± 0.00061 | k_D | 0.14081 ± 0.00030 | χ_{6DF}^2 | 0.058 ± 0.065 |
| c_{217} | 0.99818 ± 0.00062 | $100\theta_D$ | 0.16071 ± 0.00018 | χ_{MGS}^2 | 1.23 ± 0.40 |
| H_0 | 67.65 ± 0.43 | z_{eq} | 3389 ± 22 | $\chi_{DR12BAO}^2$ | 4.9 ± 1.4 |
| Ω_Λ | 0.6887 ± 0.0058 | k_{eq} | 0.010343 ± 0.000066 | χ_{prior}^2 | 11.5 ± 4.4 |
| Ω_m | 0.3113 ± 0.0058 | $100\theta_{eq}$ | 0.8160 ± 0.0041 | χ_{CMB}^2 | 2789.7 ± 6.0 |
| $\Omega_m h^2$ | 0.14245 ± 0.00090 | $100\theta_{s,eq}$ | 0.4507 ± 0.0021 | χ_{BAO}^2 | 6.2 ± 1.1 |

$\bar{\chi}_{eff}^2 = 2807.47$; $\Delta \bar{\chi}_{eff}^2 = 0.75$; $R - 1 = 0.02999$

14 nrun+r

14.1 base_nrun_r_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022169 | 0.02221 ± 0.00024 | $\sigma_8/h^{0.5}$ | 0.9939 | 0.991 ± 0.016 | $H(0.51)$ | 89.332 | 89.43 ± 0.45 |
| $\Omega_c h^2$ | 0.12080 | 0.1205 ± 0.0021 | $r_{\text{drag}} h$ | 98.35 | 98.6 ± 1.6 | $D_M(0.51)$ | 1996.5 | 1993 ± 19 |
| $100\theta_{\text{MC}}$ | 1.040762 | 1.04082 ± 0.00048 | $\langle d^2 \rangle^{1/2}$ | 2.4503 | 2.438 ± 0.039 | $H(0.61)$ | 95.025 | 95.10 ± 0.36 |
| τ | 0.0529 | 0.0537 ± 0.0085 | z_{re} | 7.60 | 7.64 ± 0.86 | $D_M(0.61)$ | 2322.0 | 2318 ± 20 |
| $\ln(10^{10} A_s)$ | 3.0434 | 3.045 ± 0.018 | $10^9 A_s$ | 2.0977 | 2.101 ± 0.037 | $H(2.33)$ | 236.87 | 236.7 ± 1.3 |
| n_s | 0.9625 | 0.9627 ± 0.0060 | $10^9 A_s e^{-2\tau}$ | 1.8870 | 1.887 ± 0.014 | $D_M(2.33)$ | 5776.0 | 5773 ± 17 |
| $dn_s/d \ln k$ | -0.0036 | -0.0078 ± 0.0082 | D_{40} | 1224.8 | 1233 ± 23 | $f\sigma_8(0.15)$ | 0.4644 | 0.462 ± 0.012 |
| r | 0.0001 | < 0.0654 | D_{220} | 5711.8 | 5711 ± 41 | $\sigma_8(0.15)$ | 0.7500 | 0.7488 ± 0.0076 |
| y_{cal} | 1.00039 | 1.0005 ± 0.0025 | D_{810} | 2538.8 | 2539 ± 14 | $f\sigma_8(0.38)$ | 0.4806 | 0.4788 ± 0.0096 |
| A_{217}^{CIB} | 50.9 | 49 ± 7 | D_{1420} | 814.7 | 813.8 ± 5.2 | $\sigma_8(0.38)$ | 0.6638 | 0.6629 ± 0.0061 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.07 | — | D_{2000} | 229.49 | 229.0 ± 1.9 | $f\sigma_8(0.51)$ | 0.4781 | 0.4765 ± 0.0082 |
| A_{143}^{tSZ} | 7.15 | 4.9 ± 2.0 | $n_{s,0.002}$ | 0.9741 | 0.988 ± 0.026 | $\sigma_8(0.51)$ | 0.6207 | 0.6201 ± 0.0056 |
| A_{100}^{PS} | 257.8 | 267 ± 29 | Y_{P} | 0.245313 | $0.24533^{+0.00011}_{-0.000087}$ | $f\sigma_8(0.61)$ | 0.4723 | 0.4709 ± 0.0073 |
| A_{143}^{PS} | 46.9 | 51 ± 8 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246639 | $0.24665^{+0.00011}_{-0.000087}$ | $\sigma_8(0.61)$ | 0.5904 | 0.5898 ± 0.0052 |
| $A_{143 \times 217}^{\text{PS}}$ | 41.0 | 44 ± 9 | $10^5 D/H$ | 2.6238 | 2.616 ± 0.045 | $f\sigma_8(2.33)$ | 0.29729 | 0.2971 ± 0.0026 |
| A_{217}^{PS} | 116.7 | 115 ± 10 | Age/Gyr | 13.8256 | 13.818 ± 0.038 | $\sigma_8(2.33)$ | 0.30608 | 0.3060 ± 0.0027 |
| A^{kSZ} | 0.01 | < 5.47 | z_* | 1090.246 | 1090.16 ± 0.42 | $r_{0.002}$ | 0.0001 | < 0.0622 |
| A_{100}^{dustTT} | 8.90 | 9.0 ± 1.8 | r_* | 144.378 | 144.43 ± 0.49 | $r_{0.01}$ | 0.0001 | < 0.0630 |
| A_{143}^{dustTT} | 10.82 | 10.8 ± 1.8 | $100\theta_*$ | 1.040968 | 1.04102 ± 0.00047 | $\ln(10^{10} A_t)$ | -6.50 | $-0.37^{+1.4}_{-0.64}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.02 | 18.4 ± 3.3 | $D_M(z_*)/\text{Gpc}$ | 13.8696 | 13.874 ± 0.046 | r_{10} | 0.0000 | < 0.0323 |
| A_{217}^{dustTT} | 93.8 | 93.2 ± 7.4 | z_{drag} | 1059.513 | 1059.60 ± 0.50 | $10^9 A_t$ | 0.000 | < 0.137 |
| c_{100} | 0.99964 | 0.99961 ± 0.00062 | r_{drag} | 147.11 | 147.14 ± 0.50 | $10^9 A_t e^{-2\tau}$ | 0.000 | < 0.123 |
| c_{217} | 0.99828 | 0.99828 ± 0.00062 | k_D | 0.14070 | 0.14069 ± 0.00057 | f_{2000}^{143} | 31.19 | 32.3 ± 3.2 |
| H_0 | 66.86 | 67.03 ± 0.93 | $100\theta_D$ | 0.160989 | 0.16095 ± 0.00029 | $f_{2000}^{143 \times 217}$ | 33.81 | 34.4 ± 2.2 |
| Ω_Λ | 0.6787 | 0.681 ± 0.013 | z_{eq} | 3416.5 | 3410 ± 48 | f_{2000}^{217} | 108.28 | 108.9 ± 2.1 |
| Ω_m | 0.3213 | 0.319 ± 0.013 | k_{eq} | 0.010428 | 0.01041 ± 0.00015 | χ_{small}^2 | 395.91 | 397.3 ± 1.8 |
| $\Omega_m h^2$ | 0.14361 | 0.1433 ± 0.0020 | $100\theta_{\text{eq}}$ | 0.8101 | 0.8115 ± 0.0090 | χ_{lowl}^2 | 22.73 | 23.7 ± 2.3 |
| $\Omega_m h^3$ | 0.096017 | 0.09606 ± 0.00050 | $100\theta_{s,\text{eq}}$ | 0.44785 | 0.4486 ± 0.0046 | χ_{plik}^2 | 759.2 | 773.6 ± 5.8 |
| σ_8 | 0.8127 | 0.8112 ± 0.0090 | $H(0.15)$ | 72.24 | 72.39 ± 0.79 | χ_{prior}^2 | 1.53 | 7.3 ± 3.7 |
| S_8 | 0.8410 | 0.837 ± 0.024 | $D_M(0.15)$ | 647.7 | 646.3 ± 8.0 | χ_{CMB}^2 | 1177.9 | 1194.6 ± 5.9 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4607 | 0.458 ± 0.013 | $H(0.38)$ | 82.52 | 82.64 ± 0.57 | | | |
| $\sigma_8 \Omega_m^{0.25}$ | 0.6119 | 0.610 ± 0.012 | $D_M(0.38)$ | 1542.4 | 1540 ± 16 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1179.41$; $\Delta\chi_{\text{eff}}^2 = -0.16$; $\bar{\chi}_{\text{eff}}^2 = 1201.96$; $\Delta\bar{\chi}_{\text{eff}}^2 = 2.38$; $R - 1 = 0.00730$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.91 (Δ 0.03) commander_dx12_v3.2.29: 22.73 (Δ -0.87) plik_rd12_HM_v22_TT: 759.25 (Δ 0.50)

14.2 base_nrun_r_plikHM_TT_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022267 | 0.02230 ± 0.00022 | $r_{\text{drag}} h$ | 99.84 | 99.83 ± 0.94 | $H(0.61)$ | 95.319 | 95.34 ± 0.26 |
| $\Omega_c h^2$ | 0.11893 | 0.1189 ± 0.0012 | $\langle d^2 \rangle^{1/2}$ | 2.4201 | 2.415 ± 0.030 | $D_M(0.61)$ | 2304.2 | 2304 ± 12 |
| $100\theta_{\text{MC}}$ | 1.041065 | 1.04102 ± 0.00042 | z_{re} | 7.64 | 7.76 ± 0.84 | $H(2.33)$ | 235.76 | 235.80 ± 0.80 |
| τ | 0.0539 | 0.0553 ± 0.0084 | $10^9 A_s$ | 2.0907 | 2.100 ± 0.038 | $D_M(2.33)$ | 5763.8 | 5763 ± 13 |
| $\ln(10^{10} A_s)$ | 3.0401 | 3.045 ± 0.018 | $10^9 A_s e^{-2\tau}$ | 1.8772 | 1.880 ± 0.012 | $f\sigma_8(0.15)$ | 0.4535 | 0.4538 ± 0.0077 |
| n_s | 0.96707 | 0.9662 ± 0.0045 | D_{40} | 1217.0 | 1228^{+21}_{-23} | $\sigma_8(0.15)$ | 0.7455 | 0.7459 ± 0.0070 |
| $dn_s/d \ln k$ | -0.0024 | -0.0077 ± 0.0082 | D_{220} | 5715.1 | 5717 ± 41 | $f\sigma_8(0.38)$ | 0.4722 | 0.4724 ± 0.0065 |
| r | 0.0000 | < 0.0722 | D_{810} | 2535.9 | 2538 ± 14 | $\sigma_8(0.38)$ | 0.6611 | 0.6614 ± 0.0059 |
| y_{cal} | 1.00017 | 1.0006 ± 0.0025 | D_{1420} | 815.4 | 814.7 ± 5.0 | $f\sigma_8(0.51)$ | 0.4710 | 0.4713 ± 0.0059 |
| A_{217}^{CIB} | 50.7 | 49 ± 7 | D_{2000} | 229.88 | 229.3 ± 1.8 | $\sigma_8(0.51)$ | 0.6188 | 0.6190 ± 0.0055 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.04 | — | $n_{s,0.002}$ | 0.9750 | 0.991 ± 0.026 | $f\sigma_8(0.61)$ | 0.4662 | 0.4664 ± 0.0054 |
| A_{143}^{tSZ} | 7.24 | 4.9 ± 2.0 | Y_{P} | 0.245354 | $0.245363^{+0.000092}_{-0.000081}$ | $\sigma_8(0.61)$ | 0.5888 | 0.5891 ± 0.0052 |
| A_{100}^{PS} | 256.6 | 266 ± 28 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246680 | $0.246690^{+0.000093}_{-0.000081}$ | $f\sigma_8(2.33)$ | 0.29696 | 0.2971 ± 0.0026 |
| A_{143}^{PS} | 45.3 | 50 ± 8 | $10^5 D/H$ | 2.6050 | 2.600 ± 0.041 | $\sigma_8(2.33)$ | 0.30624 | 0.3064 ± 0.0027 |
| $A_{143 \times 217}^{\text{PS}}$ | 39.4 | 43^{+9}_{-10} | Age/Gyr | 13.7992 | 13.797 ± 0.030 | $r_{0.002}$ | 0.0000 | < 0.0695 |
| A_{217}^{PS} | 115.9 | 114 ± 10 | z_* | 1089.955 | 1089.92 ± 0.31 | $r_{0.01}$ | 0.0000 | < 0.0701 |
| A^{kSZ} | 0.00 | < 5.43 | r_* | 144.788 | 144.76 ± 0.33 | $\ln(10^{10} A_t)$ | -7.24 | $-0.27^{+1.4}_{-0.64}$ |
| A_{100}^{dustTT} | 8.96 | 9.0 ± 1.8 | $100\theta_*$ | 1.041254 | 1.04121 ± 0.00042 | r_{10} | 0.0000 | < 0.0361 |
| A_{143}^{dustTT} | 10.79 | 10.8 ± 1.8 | $D_M(z_*)/\text{Gpc}$ | 13.9051 | 13.903 ± 0.032 | $10^9 A_t$ | 0.000 | < 0.151 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.00 | 18.4 ± 3.3 | z_{drag} | 1059.628 | 1059.69 ± 0.49 | $10^9 A_t e^{-2\tau}$ | 0.000 | < 0.136 |
| A_{217}^{dustTT} | 93.8 | 93.2 ± 7.3 | r_{drag} | 147.490 | 147.45 ± 0.37 | f_{2000}^{143} | 30.71 | 32.0 ± 3.2 |
| c_{100} | 0.99965 | 0.99960 ± 0.00061 | k_{D} | 0.140367 | 0.14043 ± 0.00049 | $f_{2000}^{143 \times 217}$ | 33.34 | 34.2 ± 2.2 |
| c_{217} | 0.99827 | 0.99828 ± 0.00062 | $100\theta_{\text{D}}$ | 0.160957 | 0.16091 ± 0.00029 | f_{2000}^{217} | 107.84 | 108.6 ± 2.1 |
| H_0 | 67.69 | 67.70 ± 0.55 | z_{eq} | 3374.1 | 3375 ± 29 | χ_{small}^2 | 395.94 | 397.4 ± 1.9 |
| Ω_{Λ} | 0.6905 | 0.6903 ± 0.0073 | k_{eq} | 0.010298 | 0.010302 ± 0.000088 | χ_{lowl}^2 | 22.22 | 23.2 ± 2.1 |
| Ω_{m} | 0.3095 | 0.3097 ± 0.0073 | $100\theta_{\text{eq}}$ | 0.8182 | 0.8181 ± 0.0053 | χ_{plik}^2 | 760.6 | 774.0 ± 5.7 |
| $\Omega_{\text{m}} h^2$ | 0.14184 | 0.1419 ± 0.0012 | $100\theta_{\text{s,eq}}$ | 0.45201 | 0.4519 ± 0.0028 | $\chi_{6\text{DF}}^2$ | 0.0173 | 0.055 ± 0.072 |
| $\Omega_{\text{m}} h^3$ | 0.096015 | 0.09606 ± 0.00050 | $H(0.15)$ | 72.950 | 72.96 ± 0.48 | χ_{MGS}^2 | 1.34 | 1.38 ± 0.53 |
| σ_8 | 0.8066 | 0.8070 ± 0.0078 | $D_M(0.15)$ | 640.57 | 640.5 ± 4.7 | χ_{DR12BAO}^2 | 4.08 | 4.7 ± 1.6 |
| S_8 | 0.8193 | 0.820 ± 0.015 | $H(0.38)$ | 83.023 | 83.04 ± 0.36 | χ_{prior}^2 | 1.54 | 7.4 ± 3.7 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4488 | 0.4491 ± 0.0082 | $D_M(0.38)$ | 1528.2 | 1528.0 ± 9.5 | χ_{BAO}^2 | 5.44 | 6.2 ± 1.3 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6016 | 0.6020 ± 0.0080 | $H(0.51)$ | 89.718 | 89.73 ± 0.30 | χ_{CMB}^2 | 1178.8 | 1194.6 ± 5.8 |
| $\sigma_8/h^{0.5}$ | 0.9804 | 0.981 ± 0.012 | $D_M(0.51)$ | 1980.0 | 1980 ± 11 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1185.74$; $\Delta\chi_{\text{eff}}^2 = -0.01$; $\bar{\chi}_{\text{eff}}^2 = 1208.12$; $\Delta\bar{\chi}_{\text{eff}}^2 = 2.09$; $R - 1 = 0.01047$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ -0.00) MGS: 1.34 (Δ 0.06) DR12BAO: 4.08 (Δ -0.10) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.94 (Δ 0.06) commander_dx12_v3_2_29: 22.22 (Δ -0.61) plik_rd12_HM_v22_TT: 760.60 (Δ 0.50)

14.3 base_nrun_r_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|---------------------------------------|------------------------------|--------------------------------|----------------------------------|-------------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02222 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.992 ± 0.016 | $H(0.51)$ | 89.45 ± 0.45 |
| $\Omega_{\text{c}}h^2$ | 0.1204 ± 0.0021 | $r_{\text{drag}}h$ | 98.7 ± 1.6 | $D_{\text{M}}(0.51)$ | 1992 ± 19 |
| $100\theta_{\text{MC}}$ | 1.04083 ± 0.00048 | $\langle d^2 \rangle^{1/2}$ | 2.440 ± 0.039 | $H(0.61)$ | 95.12 ± 0.36 |
| τ | $0.0552^{+0.0054}_{-0.0088}$ | z_{re} | $7.80^{+0.60}_{-0.85}$ | $D_{\text{M}}(0.61)$ | 2317 ± 20 |
| $\ln(10^{10}A_{\text{s}})$ | $3.048^{+0.013}_{-0.017}$ | $10^9 A_{\text{s}}$ | $2.107^{+0.027}_{-0.037}$ | $H(2.33)$ | 236.7 ± 1.3 |
| n_{s} | 0.9628 ± 0.0060 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.887 ± 0.014 | $D_{\text{M}}(2.33)$ | 5772 ± 17 |
| $\text{d}n_{\text{s}}/\text{d} \ln k$ | -0.0081 ± 0.0082 | D_{40} | 1233 ± 23 | $f\sigma_8(0.15)$ | 0.462 ± 0.012 |
| r | < 0.0660 | D_{220} | 5711 ± 41 | $\sigma_8(0.15)$ | 0.7497 ± 0.0071 |
| y_{cal} | 1.0005 ± 0.0025 | D_{810} | 2539 ± 14 | $f\sigma_8(0.38)$ | 0.4791 ± 0.0096 |
| A_{217}^{CIB} | 49 ± 7 | D_{1420} | 813.8 ± 5.1 | $\sigma_8(0.38)$ | 0.6638 ± 0.0056 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{2000} | 229.0 ± 1.9 | $f\sigma_8(0.51)$ | 0.4769 ± 0.0082 |
| A_{143}^{tSZ} | 4.9 ± 2.0 | $n_{\text{s},0.002}$ | 0.989 ± 0.026 | $\sigma_8(0.51)$ | $0.6209^{+0.0046}_{-0.0053}$ |
| A_{100}^{PS} | 267 ± 29 | Y_{P} | $0.24533^{+0.00011}_{-0.000087}$ | $f\sigma_8(0.61)$ | 0.4713 ± 0.0072 |
| A_{143}^{PS} | 51 ± 8 | $Y_{\text{P}}^{\text{BBN}}$ | $0.24666^{+0.00011}_{-0.000087}$ | $\sigma_8(0.61)$ | $0.5906^{+0.0042}_{-0.0050}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 44 ± 9 | $10^5 \text{D}/\text{H}$ | 2.614 ± 0.044 | $f\sigma_8(2.33)$ | $0.2975^{+0.0020}_{-0.0025}$ |
| A_{217}^{PS} | 115 ± 10 | Age/Gyr | 13.816 ± 0.037 | $\sigma_8(2.33)$ | $0.3064^{+0.0020}_{-0.0027}$ |
| A^{kSZ} | < 5.47 | z_* | 1090.14 ± 0.41 | $r_{0.002}$ | < 0.0630 |
| $A_{100}^{\text{dust}TT}$ | 9.0 ± 1.8 | r_* | 144.44 ± 0.49 | $r_{0.01}$ | < 0.0638 |
| $A_{143}^{\text{dust}TT}$ | 10.8 ± 1.8 | $100\theta_*$ | 1.04103 ± 0.00047 | $\ln(10^{10}A_{\text{t}})$ | $-0.35^{+1.4}_{-0.64}$ |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.4 ± 3.3 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.875 ± 0.046 | r_{10} | < 0.0327 |
| $A_{217}^{\text{dust}TT}$ | 93.2 ± 7.4 | z_{drag} | 1059.62 ± 0.50 | $10^9 A_{\text{t}}$ | < 0.139 |
| c_{100} | 0.99961 ± 0.00062 | r_{drag} | 147.15 ± 0.50 | $10^9 A_{\text{t}}e^{-2\tau}$ | < 0.125 |
| c_{217} | 0.99828 ± 0.00062 | k_{D} | 0.14069 ± 0.00056 | f_{2000}^{143} | 32.3 ± 3.2 |
| H_0 | 67.07 ± 0.92 | $100\theta_{\text{D}}$ | 0.16094 ± 0.00029 | $f_{2000}^{143 \times 217}$ | 34.4 ± 2.2 |
| Ω_{Λ} | 0.681 ± 0.013 | z_{eq} | 3409 ± 48 | f_{2000}^{217} | 108.8 ± 2.1 |
| Ω_{m} | 0.319 ± 0.013 | k_{eq} | 0.01040 ± 0.00015 | χ_{simall}^2 | 397.2 ± 1.8 |
| $\Omega_{\text{m}}h^2$ | 0.1433 ± 0.0020 | $100\theta_{\text{eq}}$ | 0.8118 ± 0.0090 | χ_{lowl}^2 | 23.6 ± 2.2 |
| $\Omega_{\text{m}}h^3$ | 0.09608 ± 0.00050 | $100\theta_{\text{s,eq}}$ | 0.4487 ± 0.0046 | χ_{plik}^2 | 773.6 ± 5.8 |
| σ_8 | 0.8121 ± 0.0086 | $H(0.15)$ | 72.42 ± 0.79 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | 0.837 ± 0.024 | $D_{\text{M}}(0.15)$ | 646.0 ± 8.0 | χ_{CMB}^2 | 1194.4 ± 5.9 |
| $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.459 ± 0.013 | $H(0.38)$ | 82.66 ± 0.57 | | |
| $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.610 ± 0.012 | $D_{\text{M}}(0.38)$ | 1539 ± 16 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1201.72; \Delta\bar{\chi}_{\text{eff}}^2 = 2.40; R - 1 = 0.00869$$

14.4 base_nrun_r_plikHM_TT_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------------|----------------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02231 ± 0.00022 | $r_{\mathrm{drag}}h$ | 99.85 ± 0.94 | $H(0.61)$ | 95.34 ± 0.26 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1189 ± 0.0012 | $\langle d^2 \rangle^{1/2}$ | 2.417 ± 0.029 | $D_{\mathrm{M}}(0.61)$ | 2304 ± 12 |
| $100\theta_{\mathrm{MC}}$ | 1.04102 ± 0.00042 | z_{re} | $7.87^{+0.64}_{-0.84}$ | $H(2.33)$ | 235.80 ± 0.80 |
| τ | $0.0564^{+0.0059}_{-0.0086}$ | $10^9 A_{\mathrm{s}}$ | $2.105^{+0.029}_{-0.038}$ | $D_{\mathrm{M}}(2.33)$ | 5763 ± 13 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.047^{+0.014}_{-0.018}$ | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.880 ± 0.012 | $f\sigma_8(0.15)$ | 0.4541 ± 0.0076 |
| n_{s} | 0.9663 ± 0.0045 | D_{40} | 1228^{+20}_{-23} | $\sigma_8(0.15)$ | $0.7466^{+0.0060}_{-0.0068}$ |
| $\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$ | -0.0079 ± 0.0082 | D_{220} | 5717 ± 41 | $f\sigma_8(0.38)$ | 0.4728 ± 0.0064 |
| r | < 0.0726 | D_{810} | 2538 ± 14 | $\sigma_8(0.38)$ | $0.6621^{+0.0049}_{-0.0058}$ |
| y_{cal} | 1.0006 ± 0.0025 | D_{1420} | 814.7 ± 5.0 | $f\sigma_8(0.51)$ | 0.4717 ± 0.0057 |
| A_{217}^{CIB} | 49 ± 7 | D_{2000} | 229.3 ± 1.8 | $\sigma_8(0.51)$ | $0.6197^{+0.0045}_{-0.0054}$ |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $n_{\mathrm{s},0.002}$ | 0.992 ± 0.026 | $f\sigma_8(0.61)$ | 0.4669 ± 0.0052 |
| A_{143}^{tSZ} | 4.9 ± 2.0 | Y_{P} | $0.245366^{+0.000091}_{-0.000080}$ | $\sigma_8(0.61)$ | $0.5897^{+0.0042}_{-0.0051}$ |
| A_{100}^{PS} | 266 ± 28 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246692^{+0.000092}_{-0.000080}$ | $f\sigma_8(2.33)$ | $0.2974^{+0.0021}_{-0.0026}$ |
| A_{143}^{PS} | 50 ± 8 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.598 ± 0.040 | $\sigma_8(2.33)$ | $0.3067^{+0.0021}_{-0.0027}$ |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43^{+9}_{-10} | $\mathrm{Age}/\mathrm{Gyr}$ | 13.796 ± 0.030 | $r_{0.002}$ | < 0.0699 |
| A_{217}^{PS} | 114 ± 10 | z_{*} | 1089.91 ± 0.31 | $r_{0.01}$ | < 0.0706 |
| A^{kSZ} | < 5.44 | r_{*} | 144.76 ± 0.33 | $\ln(10^{10} A_{\mathrm{t}})$ | $-0.26^{+1.4}_{-0.63}$ |
| $A_{100}^{\mathrm{dust}TT}$ | 9.0 ± 1.8 | $100\theta_{*}$ | 1.04121 ± 0.00042 | r_{10} | < 0.0363 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.8 ± 1.8 | $D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$ | 13.903 ± 0.032 | $10^9 A_{\mathrm{t}}$ | < 0.153 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.4 ± 3.3 | z_{drag} | 1059.71 ± 0.49 | $10^9 A_{\mathrm{t}} e^{-2\tau}$ | < 0.137 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.2 ± 7.3 | r_{drag} | 147.45 ± 0.37 | f_{2000}^{143} | 32.0 ± 3.2 |
| c_{100} | 0.99960 ± 0.00061 | k_{D} | 0.14044 ± 0.00049 | $f_{2000}^{143 \times 217}$ | 34.2 ± 2.2 |
| c_{217} | 0.99828 ± 0.00063 | $100\theta_{\mathrm{D}}$ | 0.16090 ± 0.00028 | f_{2000}^{217} | 108.6 ± 2.1 |
| H_0 | 67.71 ± 0.55 | z_{eq} | 3375 ± 29 | χ_{simall}^2 | 397.4 ± 1.9 |
| Ω_{Λ} | 0.6905 ± 0.0073 | k_{eq} | 0.010301 ± 0.000088 | χ_{lowl}^2 | 23.2 ± 2.0 |
| Ω_{m} | 0.3095 ± 0.0073 | $100\theta_{\mathrm{eq}}$ | 0.8181 ± 0.0053 | χ_{plik}^2 | 773.9 ± 5.7 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1419 ± 0.0012 | $100\theta_{\mathrm{s,eq}}$ | 0.4519 ± 0.0028 | $\chi_{6\mathrm{DF}}^2$ | 0.054 ± 0.071 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09607 ± 0.00050 | $H(0.15)$ | 72.97 ± 0.47 | χ_{MGS}^2 | 1.39 ± 0.53 |
| σ_8 | $0.8078^{+0.0069}_{-0.0076}$ | $D_{\mathrm{M}}(0.15)$ | 640.4 ± 4.7 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.7 ± 1.5 |
| S_8 | 0.820 ± 0.015 | $H(0.38)$ | 83.05 ± 0.36 | χ_{prior}^2 | 7.4 ± 3.7 |
| $\sigma_8 \Omega_{\mathrm{m}}^{0.5}$ | 0.4494 ± 0.0081 | $D_{\mathrm{M}}(0.38)$ | 1527.8 ± 9.4 | χ_{BAO}^2 | 6.1 ± 1.3 |
| $\sigma_8 \Omega_{\mathrm{m}}^{0.25}$ | 0.6025 ± 0.0078 | $H(0.51)$ | 89.74 ± 0.30 | χ_{CMB}^2 | 1194.4 ± 5.8 |
| $\sigma_8/h^{0.5}$ | 0.982 ± 0.011 | $D_{\mathrm{M}}(0.51)$ | 1979 ± 11 | | |

$$\bar{\chi}_{\mathrm{eff}}^2 = 1207.94; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 2.18; R - 1 = 0.01172$$

14.5 base_nrun_r_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022399 | 0.02241 ± 0.00016 | σ_8 | 0.8129 | 0.8119 ± 0.0077 | $H(0.38)$ | 82.837 | 82.87 ± 0.39 |
| $\Omega_c h^2$ | 0.12022 | 0.1202 ± 0.0014 | S_8 | 0.8348 | 0.833 ± 0.017 | $D_M(0.38)$ | 1534.5 | 1534 ± 11 |
| $100\theta_{MC}$ | 1.040896 | 1.04091 ± 0.00032 | $\sigma_8 \Omega_m^{0.5}$ | 0.4572 | 0.4564 ± 0.0091 | $H(0.51)$ | 89.610 | 89.64 ± 0.30 |
| τ | 0.0561 | 0.0563 ± 0.0082 | $\sigma_8 \Omega_m^{0.25}$ | 0.6097 | 0.6087 ± 0.0085 | $D_M(0.51)$ | 1987.0 | 1986 ± 12 |
| $\ln(10^{10} A_s)$ | 3.0495 | 3.050 ± 0.017 | $\sigma_8/h^{0.5}$ | 0.9910 | 0.989 ± 0.012 | $H(0.61)$ | 95.272 | 95.30 ± 0.24 |
| n_s | 0.96469 | 0.9643 ± 0.0047 | $r_{\text{drag}} h$ | 98.92 | 99.0 ± 1.1 | $D_M(0.61)$ | 2311.5 | 2311 ± 13 |
| $dn_s/d \ln k$ | -0.0044 | -0.0094 ± 0.0074 | $\langle d^2 \rangle^{1/2}$ | 2.4438 | 2.433 ± 0.030 | $H(2.33)$ | 236.73 | 236.71 ± 0.84 |
| r | 0.0001 | < 0.0810 | z_{re} | 7.86 | 7.85 ± 0.82 | $D_M(2.33)$ | 5763.3 | 5762 ± 11 |
| y_{cal} | 1.00053 | 1.0007 ± 0.0025 | $10^9 A_s$ | 2.1105 | 2.113 ± 0.036 | $f\sigma_8(0.15)$ | 0.4614 | 0.4606 ± 0.0085 |
| A_{217}^{CIB} | 48.9 | 48 ± 7 | $10^9 A_s e^{-2\tau}$ | 1.8865 | 1.888 ± 0.012 | $\sigma_8(0.15)$ | 0.7507 | 0.7498 ± 0.0068 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.26 | — | D_{40} | 1221.1 | 1232 ± 21 | $f\sigma_8(0.38)$ | 0.4787 | 0.4779 ± 0.0069 |
| A_{143}^{tSZ} | 7.29 | 5.1 ± 2.0 | D_{220} | 5730.3 | 5726 ± 39 | $\sigma_8(0.38)$ | 0.6649 | 0.6642 ± 0.0057 |
| A_{100}^{PS} | 253.1 | 264 ± 28 | D_{810} | 2541.9 | 2543 ± 13 | $f\sigma_8(0.51)$ | 0.4768 | 0.4760 ± 0.0061 |
| A_{143}^{PS} | 46.8 | 49 ± 8 | D_{1420} | 817.10 | 816.0 ± 4.9 | $\sigma_8(0.51)$ | 0.6220 | 0.6213 ± 0.0053 |
| $A_{143 \times 217}^{\text{PS}}$ | 44.0 | 43_{-10}^{+9} | D_{2000} | 230.61 | 229.9 ± 1.8 | $f\sigma_8(0.61)$ | 0.4714 | 0.4707 ± 0.0056 |
| A_{217}^{PS} | 118.0 | 115 ± 10 | $n_{s,0.002}$ | 0.9789 | $0.995_{-0.024}^{+0.022}$ | $\sigma_8(0.61)$ | 0.59173 | 0.5911 ± 0.0050 |
| A^{kSZ} | 0.01 | < 5.05 | Y_{P} | 0.245407 | $0.245410_{-0.000056}^{+0.000062}$ | $f\sigma_8(2.33)$ | 0.29816 | 0.2979 ± 0.0025 |
| A_{100}^{dustTT} | 8.90 | 8.9 ± 1.8 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246733 | $0.246737_{-0.000056}^{+0.000062}$ | $\sigma_8(2.33)$ | 0.30718 | 0.3069 ± 0.0026 |
| A_{143}^{dustTT} | 11.06 | 10.9 ± 1.8 | $10^5 \text{D}/\text{H}$ | 2.5802 | 2.578 ± 0.029 | $r_{0.002}$ | 0.0001 | < 0.0787 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.72 | 18.6 ± 3.3 | Age/Gyr | 13.7963 | 13.794 ± 0.025 | $r_{0.01}$ | 0.0001 | < 0.0789 |
| A_{217}^{dustTT} | 94.6 | 93.4 ± 7.3 | z_* | 1089.904 | 1089.88 ± 0.28 | $\ln(10^{10} A_t)$ | -6.53 | $-0.12_{-0.54}^{+1.3}$ |
| A_{100}^{dustTE} | 0.1138 | 0.116 ± 0.038 | r_* | 144.353 | 144.36 ± 0.31 | r_{10} | 0.0000 | < 0.0410 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1349 | 0.136 ± 0.029 | $100\theta_*$ | 1.041074 | 1.04109 ± 0.00031 | $10^9 A_t$ | 0.000 | < 0.171 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.484 | 0.481 ± 0.084 | $D_M(z_*)/\text{Gpc}$ | 13.8658 | 13.866 ± 0.029 | $10^9 A_t e^{-2\tau}$ | 0.000 | < 0.153 |
| A_{143}^{dustTE} | 0.226 | 0.227 ± 0.054 | z_{drag} | 1060.009 | 1060.05 ± 0.32 | f_{2000}^{143} | 29.85 | 31.2 ± 3.1 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 | 0.664 ± 0.080 | r_{drag} | 147.003 | 147.00 ± 0.31 | $f_{2000}^{143 \times 217}$ | 32.71 | 33.5 ± 2.2 |
| A_{217}^{dustTE} | 2.089 | 2.08 ± 0.27 | k_{D} | 0.140983 | 0.14099 ± 0.00034 | f_{2000}^{217} | 107.32 | 108.1 ± 2.0 |
| c_{100} | 0.99971 | 0.99967 ± 0.00062 | $100\theta_{\text{D}}$ | 0.160708 | 0.16069 ± 0.00018 | χ_{small}^2 | 396.34 | 397.6 ± 2.0 |
| c_{217} | 0.99821 | 0.99823 ± 0.00063 | z_{eq} | 3408.1 | 3407 ± 32 | χ_{lowl}^2 | 22.29 | 23.3 ± 1.9 |
| H_0 | 67.29 | 67.34 ± 0.62 | k_{eq} | 0.010402 | 0.010399 ± 0.000097 | χ_{plik}^2 | 2344.9 | 2361.1 ± 6.1 |
| Ω_{Λ} | 0.6836 | 0.6840 ± 0.0086 | $100\theta_{\text{eq}}$ | 0.8123 | 0.8126 ± 0.0059 | χ_{prior}^2 | 1.85 | 11.6 ± 4.6 |
| Ω_{m} | 0.3164 | 0.3160 ± 0.0086 | $100\theta_{\text{s,eq}}$ | 0.44884 | 0.4490 ± 0.0030 | χ_{CMB}^2 | 2763.6 | 2782.0 ± 6.2 |
| $\Omega_{\text{m}} h^2$ | 0.14326 | 0.1432 ± 0.0013 | $H(0.15)$ | 72.63 | 72.67 ± 0.53 | | | |
| $\Omega_{\text{m}} h^3$ | 0.096404 | 0.09643 ± 0.00031 | $D_M(0.15)$ | 643.9 | 643.6 ± 5.3 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2765.44$; $\Delta\chi_{\text{eff}}^2 = -0.33$; $\bar{\chi}_{\text{eff}}^2 = 2793.62$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.86$; $R - 1 = 0.01370$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.35 (Δ 0.30) commander_dx12_v3.2.29: 22.29 (Δ -0.96) plik_rd12_HM_v22b_TTTEEE: 2344.95 (Δ 0.30)

14.6 base_nrun_r_plikHM_TTTEEE_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-------------------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022443 | 0.02247 ± 0.00014 | S_8 | 0.8261 | 0.824 ± 0.013 | $H(0.51)$ | 89.770 | 89.82 ± 0.23 |
| $\Omega_c h^2$ | 0.11944 | 0.1193 ± 0.0010 | $\sigma_8 \Omega_m^{0.5}$ | 0.4525 | 0.4511 ± 0.0071 | $D_M(0.51)$ | 1980.2 | 1978.3 ± 9.1 |
| $100\theta_{MC}$ | 1.041007 | 1.04102 ± 0.00030 | $\sigma_8 \Omega_m^{0.25}$ | 0.6057 | 0.6043 ± 0.0071 | $H(0.61)$ | 95.395 | 95.44 ± 0.19 |
| τ | 0.0568 | 0.0574 ± 0.0082 | $\sigma_8/h^{0.5}$ | 0.9858 | 0.984 ± 0.010 | $D_M(0.61)$ | 2304.2 | 2302.2 ± 9.9 |
| $\ln(10^{10} A_s)$ | 3.0489 | 3.051 ± 0.017 | $r_{\text{drag}} h$ | 99.54 | 99.68 ± 0.79 | $H(2.33)$ | 236.27 | 236.19 ± 0.63 |
| n_s | 0.96669 | 0.9665 ± 0.0040 | $\langle d^2 \rangle^{1/2}$ | 2.4324 | 2.420 ± 0.027 | $D_M(2.33)$ | 5758.2 | 5756.2 ± 9.2 |
| $dn_s/d \ln k$ | -0.0038 | $-0.0092^{+0.0078}_{-0.0070}$ | z_{re} | 7.91 | 7.94 ± 0.81 | $f\sigma_8(0.15)$ | 0.4571 | 0.4558 ± 0.0067 |
| r | 0.0009 | < 0.0865 | $10^9 A_s$ | 2.1093 | 2.113 ± 0.036 | $\sigma_8(0.15)$ | 0.7491 | 0.7482 ± 0.0065 |
| y_{cal} | 1.00054 | 1.0008 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8827 | 1.884 ± 0.011 | $f\sigma_8(0.38)$ | 0.4754 | 0.4743 ± 0.0057 |
| A_{217}^{CIB} | 48.8 | 48 ± 7 | D_{40} | 1218.7 | 1230^{+19}_{-21} | $\sigma_8(0.38)$ | 0.6641 | 0.6634 ± 0.0056 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.25 | — | D_{220} | 5732.8 | 5729 ± 39 | $f\sigma_8(0.51)$ | 0.4740 | 0.4730 ± 0.0052 |
| A_{143}^{tSZ} | 7.28 | 5.2 ± 2.0 | D_{810} | 2541.1 | 2542 ± 14 | $\sigma_8(0.51)$ | 0.6214 | 0.6209 ± 0.0052 |
| A_{100}^{PS} | 253.5 | 263 ± 28 | D_{1420} | 817.65 | 816.6 ± 4.9 | $f\sigma_8(0.61)$ | 0.46904 | 0.4682 ± 0.0049 |
| A_{143}^{PS} | 45.9 | 48 ± 8 | D_{2000} | 230.87 | 230.2 ± 1.8 | $\sigma_8(0.61)$ | 0.59132 | 0.5908 ± 0.0050 |
| $A_{143 \times 217}^{\text{PS}}$ | 43.2 | 42 ± 9 | $n_{s,0.002}$ | 0.9788 | $0.996^{+0.022}_{-0.025}$ | $f\sigma_8(2.33)$ | 0.29815 | 0.2979 ± 0.0025 |
| A_{217}^{PS} | 117.6 | 114 ± 10 | Y_{P} | 0.245424 | 0.245433 ± 0.000053 | $\sigma_8(2.33)$ | 0.30737 | 0.3072 ± 0.0026 |
| A^{kSZ} | 0.00 | < 4.99 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246750 | 0.246760 ± 0.000054 | $r_{0.002}$ | 0.0008 | < 0.0848 |
| A_{100}^{dustTT} | 8.89 | 8.9 ± 1.9 | $10^5 \text{D}/\text{H}$ | 2.5720 | 2.567 ± 0.026 | $r_{0.01}$ | 0.0009 | < 0.0846 |
| A_{143}^{dustTT} | 11.01 | 11.0 ± 1.8 | Age/Gyr | 13.7853 | 13.781 ± 0.021 | $\ln(10^{10} A_t)$ | -3.97 | $-0.05^{+1.3}_{-0.53}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.58 | 18.6 ± 3.3 | z_* | 1089.778 | 1089.73 ± 0.23 | r_{10} | 0.0004 | < 0.0441 |
| A_{217}^{dustTT} | 94.5 | 93.4 ± 7.3 | r_* | 144.521 | 144.54 ± 0.24 | $10^9 A_t$ | 0.002 | < 0.183 |
| A_{100}^{dustTE} | 0.1151 | 0.116 ± 0.038 | $100\theta_*$ | 1.041178 | 1.04119 ± 0.00029 | $10^9 A_t e^{-2\tau}$ | 0.002 | < 0.163 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1353 | 0.135 ± 0.029 | $D_M(z_*)/\text{Gpc}$ | 13.8806 | 13.882 ± 0.024 | f_{2000}^{143} | 29.52 | 30.9 ± 3.1 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.478 | 0.481 ± 0.083 | z_{drag} | 1060.047 | 1060.12 ± 0.31 | $f_{2000}^{143 \times 217}$ | 32.42 | 33.2 ± 2.1 |
| A_{143}^{dustTE} | 0.225 | 0.225 ± 0.053 | r_{drag} | 147.161 | 147.17 ± 0.26 | f_{2000}^{217} | 107.07 | 107.9 ± 2.0 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 | 0.662 ± 0.079 | k_{D} | 0.140850 | 0.14086 ± 0.00031 | χ_{small}^2 | 396.43 | 397.8 ± 2.1 |
| A_{217}^{dustTE} | 2.074 | 2.07 ± 0.27 | $100\theta_{\text{D}}$ | 0.160689 | 0.16066 ± 0.00018 | χ_{lowl}^2 | 22.15 | 23.1 ± 1.8 |
| c_{100} | 0.99972 | 0.99967 ± 0.00061 | z_{eq} | 3390.5 | 3387 ± 23 | χ_{plik}^2 | 2345.5 | 2361.2 ± 6.2 |
| c_{217} | 0.99821 | 0.99823 ± 0.00062 | k_{eq} | 0.010348 | 0.010338 ± 0.000072 | $\chi_{6\text{DF}}^2$ | 0.0377 | 0.053 ± 0.065 |
| H_0 | 67.639 | 67.73 ± 0.46 | $100\theta_{\text{eq}}$ | 0.81567 | 0.8164 ± 0.0044 | χ_{MGS}^2 | 1.156 | 1.29 ± 0.43 |
| Ω_{Λ} | 0.6885 | 0.6896 ± 0.0062 | $100\theta_{s,\text{eq}}$ | 0.45057 | 0.4509 ± 0.0023 | χ_{DR12BAO}^2 | 4.63 | 4.8 ± 1.4 |
| Ω_{m} | 0.3115 | 0.3104 ± 0.0062 | $H(0.15)$ | 72.925 | 73.01 ± 0.39 | χ_{prior}^2 | 1.79 | 11.6 ± 4.5 |
| $\Omega_{\text{m}} h^2$ | 0.14252 | 0.14239 ± 0.00098 | $D_M(0.15)$ | 640.94 | 640.2 ± 3.9 | χ_{BAO}^2 | 5.82 | 6.1 ± 1.1 |
| $\Omega_{\text{m}} h^3$ | 0.096402 | 0.09643 ± 0.00031 | $H(0.38)$ | 83.047 | 83.11 ± 0.29 | χ_{CMB}^2 | 2764.1 | 2782.0 ± 6.2 |
| σ_8 | 0.8107 | 0.8096 ± 0.0073 | $D_M(0.38)$ | 1528.6 | 1527.0 ± 7.8 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2771.67$; $\Delta\chi_{\text{eff}}^2 = -0.25$; $\bar{\chi}_{\text{eff}}^2 = 2799.74$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.83$; $R - 1 = 0.01808$
 χ_{eff}^2 : BAO - 6DF: 0.04 (Δ 0.01) MGS: 1.16 (Δ -0.06) DR12BAO: 4.63 (Δ 0.21) CMB - simall_100x143.offlike5_EE_Aplanck.B: 396.43 (Δ 0.23) commander_dx12_v3_2_29: 22.15 (Δ -0.72) plik_rd12_HM_v22b_TTTEEE: 2345.48 (Δ -0.02)

14.7 base_nrun_r_plikHM_TTTEEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|-------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02242 ± 0.00015 | σ_8 | 0.8125 ± 0.0073 | $H(0.38)$ | 82.88 ± 0.38 |
| $\Omega_c h^2$ | 0.1201 ± 0.0014 | S_8 | 0.834 ± 0.016 | $D_M(0.38)$ | 1534 ± 11 |
| $100\theta_{MC}$ | 1.04091 ± 0.00032 | $\sigma_8 \Omega_m^{0.5}$ | 0.4566 ± 0.0090 | $H(0.51)$ | 89.64 ± 0.30 |
| τ | $0.0571^{+0.0062}_{-0.0086}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6091 ± 0.0084 | $D_M(0.51)$ | 1986 ± 12 |
| $\ln(10^{10} A_s)$ | $3.052^{+0.014}_{-0.017}$ | $\sigma_8/h^{0.5}$ | 0.990 ± 0.012 | $H(0.61)$ | 95.30 ± 0.24 |
| n_s | 0.9643 ± 0.0047 | $r_{\text{drag}} h$ | 99.0 ± 1.1 | $D_M(0.61)$ | 2310 ± 13 |
| $dn_s/d \ln k$ | $-0.0095^{+0.0077}_{-0.0069}$ | $\langle d^2 \rangle^{1/2}$ | 2.435 ± 0.030 | $H(2.33)$ | 236.70 ± 0.84 |
| r | < 0.0810 | z_{re} | $7.94^{+0.67}_{-0.83}$ | $D_M(2.33)$ | 5762 ± 11 |
| y_{cal} | 1.0007 ± 0.0025 | $10^9 A_s$ | $2.116^{+0.029}_{-0.037}$ | $f\sigma_8(0.15)$ | 0.4608 ± 0.0084 |
| A_{217}^{CIB} | 48 ± 7 | $10^9 A_s e^{-2\tau}$ | 1.888 ± 0.012 | $\sigma_8(0.15)$ | $0.7504^{+0.0059}_{-0.0067}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{40} | 1232^{+19}_{-22} | $f\sigma_8(0.38)$ | 0.4782 ± 0.0068 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{220} | 5726 ± 39 | $\sigma_8(0.38)$ | $0.6647^{+0.0048}_{-0.0057}$ |
| A_{100}^{PS} | 264 ± 28 | D_{810} | 2543 ± 13 | $f\sigma_8(0.51)$ | 0.4763 ± 0.0060 |
| A_{143}^{PS} | 49 ± 8 | D_{1420} | 816.0 ± 4.9 | $\sigma_8(0.51)$ | $0.6218^{+0.0044}_{-0.0053}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | D_{2000} | 229.9 ± 1.8 | $f\sigma_8(0.61)$ | 0.4710 ± 0.0054 |
| A_{217}^{PS} | 115 ± 10 | $n_{s,0.002}$ | $0.995^{+0.021}_{-0.024}$ | $\sigma_8(0.61)$ | $0.5916^{+0.0041}_{-0.0050}$ |
| A^{kSZ} | < 5.04 | Y_P | $0.245412^{+0.000061}_{-0.000056}$ | $f\sigma_8(2.33)$ | $0.2981^{+0.0020}_{-0.0025}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P^{BBN} | $0.246738^{+0.000062}_{-0.000056}$ | $\sigma_8(2.33)$ | $0.3072^{+0.0021}_{-0.0026}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | 10^5D/H | 2.577 ± 0.028 | $r_{0.002}$ | < 0.0789 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.7 ± 3.3 | Age/Gyr | 13.793 ± 0.025 | $r_{0.01}$ | < 0.0790 |
| A_{217}^{dustTT} | 93.4 ± 7.3 | z_* | 1089.87 ± 0.28 | $\ln(10^{10} A_t)$ | $-0.12^{+1.3}_{-0.54}$ |
| A_{100}^{dustTE} | 0.116 ± 0.038 | r_* | 144.36 ± 0.31 | r_{10} | < 0.0411 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.136 ± 0.029 | $100\theta_*$ | 1.04109 ± 0.00031 | $10^9 A_t$ | < 0.172 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.084 | $D_M(z_*)/\text{Gpc}$ | 13.866 ± 0.029 | $10^9 A_t e^{-2\tau}$ | < 0.153 |
| A_{143}^{dustTE} | 0.226 ± 0.054 | z_{drag} | 1060.06 ± 0.31 | f_{2000}^{143} | 31.2 ± 3.1 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.080 | r_{drag} | 147.00 ± 0.31 | $f_{2000}^{143 \times 217}$ | 33.5 ± 2.2 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | k_D | 0.14099 ± 0.00034 | f_{2000}^{217} | 108.1 ± 2.0 |
| c_{100} | 0.99967 ± 0.00062 | $100\theta_D$ | 0.16069 ± 0.00018 | χ_{simall}^2 | 397.6 ± 2.0 |
| c_{217} | 0.99823 ± 0.00063 | z_{eq} | 3407 ± 32 | χ_{lowl}^2 | 23.3 ± 1.9 |
| H_0 | 67.35 ± 0.62 | k_{eq} | 0.010397 ± 0.000096 | χ_{plik}^2 | 2360.9 ± 6.1 |
| Ω_Λ | 0.6842 ± 0.0086 | $100\theta_{\text{eq}}$ | 0.8127 ± 0.0059 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_m | 0.3158 ± 0.0086 | $100\theta_{s,\text{eq}}$ | 0.4490 ± 0.0030 | χ_{CMB}^2 | 2781.8 ± 6.1 |
| $\Omega_m h^2$ | 0.1432 ± 0.0013 | $H(0.15)$ | 72.68 ± 0.53 | | |
| $\Omega_m h^3$ | 0.09643 ± 0.00031 | $D_M(0.15)$ | 643.5 ± 5.3 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2793.42; \Delta \bar{\chi}_{\text{eff}}^2 = 1.88; R - 1 = 0.01323$$

14.8 base_nrun_r_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|-------------------------------|-----------------------------|---------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02248 ± 0.00014 | S_8 | 0.824 ± 0.013 | $H(0.51)$ | 89.82 ± 0.23 |
| $\Omega_c h^2$ | 0.1193 ± 0.0010 | $\sigma_8 \Omega_m^{0.5}$ | 0.4513 ± 0.0069 | $D_M(0.51)$ | 1978.2 ± 9.1 |
| $100\theta_{MC}$ | 1.04102 ± 0.00030 | $\sigma_8 \Omega_m^{0.25}$ | 0.6047 ± 0.0069 | $H(0.61)$ | 95.44 ± 0.19 |
| τ | $0.0581^{+0.0064}_{-0.0086}$ | $\sigma_8/h^{0.5}$ | 0.984 ± 0.010 | $D_M(0.61)$ | 2302.0 ± 9.8 |
| $\ln(10^{10} A_s)$ | $3.052^{+0.014}_{-0.018}$ | $r_{\text{drag}} h$ | 99.69 ± 0.78 | $H(2.33)$ | 236.19 ± 0.63 |
| n_s | 0.9665 ± 0.0040 | $\langle d^2 \rangle^{1/2}$ | 2.422 ± 0.026 | $D_M(2.33)$ | 5756.1 ± 9.2 |
| $dn_s/d \ln k$ | $-0.0093^{+0.0078}_{-0.0069}$ | z_{re} | $8.01^{+0.68}_{-0.83}$ | $f\sigma_8(0.15)$ | 0.4560 ± 0.0065 |
| r | < 0.0867 | $10^9 A_s$ | $2.116^{+0.030}_{-0.038}$ | $\sigma_8(0.15)$ | $0.7487^{+0.0057}_{-0.0065}$ |
| y_{cal} | 1.0007 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.884 ± 0.011 | $f\sigma_8(0.38)$ | 0.4746 ± 0.0056 |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1230 ± 20 | $\sigma_8(0.38)$ | $0.6638^{+0.0048}_{-0.0057}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{220} | 5729 ± 39 | $f\sigma_8(0.51)$ | 0.4733 ± 0.0051 |
| A_{143}^{tSZ} | 5.2 ± 2.0 | D_{810} | 2542 ± 14 | $\sigma_8(0.51)$ | $0.6213^{+0.0045}_{-0.0053}$ |
| A_{100}^{PS} | 263 ± 28 | D_{1420} | 816.6 ± 4.9 | $f\sigma_8(0.61)$ | 0.4684 ± 0.0047 |
| A_{143}^{PS} | 48 ± 8 | D_{2000} | 230.2 ± 1.8 | $\sigma_8(0.61)$ | $0.5912^{+0.0042}_{-0.0050}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $n_{s,0.002}$ | $0.997^{+0.021}_{-0.025}$ | $f\sigma_8(2.33)$ | $0.2981^{+0.0021}_{-0.0025}$ |
| A_{217}^{PS} | 114 ± 10 | Y_P | 0.245434 ± 0.000053 | $\sigma_8(2.33)$ | $0.3074^{+0.0022}_{-0.0026}$ |
| A^{kSZ} | < 4.99 | Y_P^{BBN} | 0.246761 ± 0.000053 | $r_{0.002}$ | < 0.0849 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.9 | $10^5 D/H$ | 2.567 ± 0.025 | $r_{0.01}$ | < 0.0848 |
| $A_{143}^{\text{dust}TT}$ | 11.0 ± 1.8 | Age/Gyr | 13.781 ± 0.021 | $\ln(10^{10} A_t)$ | $-0.05^{+1.3}_{-0.54}$ |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.3 | z_* | 1089.72 ± 0.23 | r_{10} | < 0.0442 |
| $A_{217}^{\text{dust}TT}$ | 93.3 ± 7.3 | r_* | 144.54 ± 0.24 | $10^9 A_t$ | < 0.184 |
| $A_{100}^{\text{dust}TE}$ | 0.116 ± 0.038 | $100\theta_*$ | 1.04119 ± 0.00029 | $10^9 A_t e^{-2\tau}$ | < 0.163 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.135 ± 0.029 | $D_M(z_*)/\text{Gpc}$ | 13.882 ± 0.023 | f_{2000}^{143} | 30.9 ± 3.1 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.481 ± 0.083 | z_{drag} | 1060.13 ± 0.30 | $f_{2000}^{143 \times 217}$ | 33.2 ± 2.1 |
| $A_{143}^{\text{dust}TE}$ | 0.225 ± 0.054 | r_{drag} | 147.17 ± 0.26 | f_{2000}^{217} | 107.9 ± 2.0 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.662 ± 0.079 | k_D | 0.14086 ± 0.00031 | χ_{simall}^2 | 397.7 ± 2.2 |
| $A_{217}^{\text{dust}TE}$ | 2.07 ± 0.27 | $100\theta_D$ | 0.16065 ± 0.00018 | χ_{lowl}^2 | 23.1 ± 1.8 |
| c_{100} | 0.99968 ± 0.00061 | z_{eq} | 3387 ± 23 | χ_{plik}^2 | 2361.0 ± 6.1 |
| c_{217} | 0.99823 ± 0.00062 | k_{eq} | 0.010337 ± 0.000071 | $\chi_{6\text{DF}}^2$ | 0.053 ± 0.064 |
| H_0 | 67.74 ± 0.45 | $100\theta_{\text{eq}}$ | 0.8164 ± 0.0044 | χ_{MGS}^2 | 1.29 ± 0.43 |
| Ω_Λ | 0.6896 ± 0.0061 | $100\theta_{s,\text{eq}}$ | 0.4509 ± 0.0022 | χ_{DR12BAO}^2 | 4.8 ± 1.4 |
| Ω_m | 0.3104 ± 0.0061 | $H(0.15)$ | 73.01 ± 0.39 | χ_{prior}^2 | 11.6 ± 4.5 |
| $\Omega_m h^2$ | 0.14238 ± 0.00098 | $D_M(0.15)$ | 640.1 ± 3.9 | χ_{BAO}^2 | 6.1 ± 1.1 |
| $\Omega_m h^3$ | 0.09644 ± 0.00031 | $H(0.38)$ | 83.11 ± 0.29 | χ_{CMB}^2 | 2781.9 ± 6.1 |
| σ_8 | $0.8101^{+0.0065}_{-0.0072}$ | $D_M(0.38)$ | 1526.9 ± 7.7 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2799.55; \Delta\bar{\chi}_{\text{eff}}^2 = 1.83; R - 1 = 0.01821$$

14.9 base_nrun_r_plikHM_TT_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022185 | 0.02223 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.9883 | 0.988 ± 0.011 | $H(0.51)$ | 89.464 | 89.49 ± 0.37 |
| $\Omega_c h^2$ | 0.11999 | 0.1201 ± 0.0016 | $r_{\text{drag}} h$ | 98.95 | 98.9 ± 1.2 | $D_M(0.51)$ | 1990.3 | 1990 ± 15 |
| $100\theta_{\text{MC}}$ | 1.040839 | 1.04084 ± 0.00044 | $\langle d^2 \rangle^{1/2}$ | 2.4408 | 2.435 ± 0.028 | $H(0.61)$ | 95.118 | 95.15 ± 0.31 |
| τ | 0.0528 | 0.0538 ± 0.0081 | z_{re} | 7.56 | 7.64 ± 0.80 | $D_M(0.61)$ | 2315.4 | 2315 ± 16 |
| $\ln(10^{10} A_s)$ | 3.0406 | 3.044 ± 0.016 | $10^9 A_s$ | 2.0917 | 2.099 ± 0.033 | $H(2.33)$ | 236.36 | 236.47 ± 0.97 |
| n_s | 0.9646 | 0.9635 ± 0.0051 | $10^9 A_s e^{-2\tau}$ | 1.8821 | 1.885 ± 0.012 | $D_M(2.33)$ | 5772.5 | 5771 ± 15 |
| $dn_s/d \ln k$ | -0.0010 | -0.0062 ± 0.0080 | D_{40} | 1226.7 | 1235^{+20}_{-22} | $f\sigma_8(0.15)$ | 0.4599 | 0.4601 ± 0.0082 |
| r | 0.0000 | < 0.0626 | D_{220} | 5714.7 | 5716 ± 41 | $\sigma_8(0.15)$ | 0.7480 | 0.7481 ± 0.0056 |
| y_{cal} | 1.00026 | 1.0006 ± 0.0024 | D_{810} | 2537.2 | 2539 ± 13 | $f\sigma_8(0.38)$ | 0.4771 | 0.4773 ± 0.0063 |
| A_{217}^{CIB} | 49.7 | 49 ± 7 | D_{1420} | 815.3 | 814.4 ± 5.2 | $\sigma_8(0.38)$ | 0.66252 | 0.6626 ± 0.0048 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.22 | — | D_{2000} | 229.84 | 229.2 ± 1.9 | $f\sigma_8(0.51)$ | 0.4751 | 0.4752 ± 0.0054 |
| A_{143}^{tSZ} | 6.99 | 4.9 ± 2.0 | $n_{s,0.002}$ | 0.9678 | 0.983 ± 0.025 | $\sigma_8(0.51)$ | 0.61979 | 0.6198 ± 0.0045 |
| A_{100}^{PS} | 255.9 | 266 ± 29 | Y_{P} | 0.245320 | $0.24533^{+0.00010}_{-0.000088}$ | $f\sigma_8(0.61)$ | 0.46972 | 0.4698 ± 0.0048 |
| A_{143}^{PS} | 48.4 | 50 ± 8 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246646 | $0.24666^{+0.00010}_{-0.000088}$ | $\sigma_8(0.61)$ | 0.58960 | 0.5896 ± 0.0044 |
| $A_{143 \times 217}^{\text{PS}}$ | 44.4 | 43^{+9}_{-10} | $10^5 \text{D}/\text{H}$ | 2.6207 | 2.613 ± 0.044 | $f\sigma_8(2.33)$ | 0.29709 | 0.2971 ± 0.0023 |
| A_{217}^{PS} | 117.9 | 114 ± 10 | Age/Gyr | 13.8184 | 13.815 ± 0.034 | $\sigma_8(2.33)$ | 0.30607 | 0.3061 ± 0.0025 |
| A^{kSZ} | 0.02 | < 5.31 | z_* | 1090.152 | 1090.11 ± 0.37 | $r_{0.002}$ | 0.0000 | < 0.0592 |
| A_{100}^{dustTT} | 9.07 | 9.0 ± 1.8 | r_* | 144.575 | 144.52 ± 0.38 | $r_{0.01}$ | 0.0000 | < 0.0603 |
| A_{143}^{dustTT} | 10.88 | 10.8 ± 1.8 | $100\theta_*$ | 1.041046 | 1.04104 ± 0.00043 | $\ln(10^{10} A_t)$ | -8.76 | $-0.41^{+1.4}_{-0.62}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.29 | 18.3 ± 3.3 | $D_M(z_*)/\text{Gpc}$ | 13.8874 | 13.882 ± 0.036 | r_{10} | 0.0000 | < 0.0307 |
| A_{217}^{dustTT} | 94.3 | 93.2 ± 7.4 | z_{drag} | 1059.51 | 1059.61 ± 0.51 | $10^9 A_t$ | 0.000 | < 0.131 |
| c_{100} | 0.99966 | 0.99961 ± 0.00061 | r_{drag} | 147.299 | 147.23 ± 0.40 | $10^9 A_t e^{-2\tau}$ | 0.000 | < 0.118 |
| c_{217} | 0.99830 | 0.99828 ± 0.00062 | k_{D} | 0.14050 | 0.14061 ± 0.00050 | f_{2000}^{143} | 30.59 | 32.0 ± 3.2 |
| H_0 | 67.18 | 67.18 ± 0.72 | $100\theta_{\text{D}}$ | 0.161005 | 0.16095 ± 0.00030 | $f_{2000}^{143 \times 217}$ | 33.38 | 34.1 ± 2.2 |
| Ω_{Λ} | 0.6835 | 0.6831 ± 0.0098 | z_{eq} | 3397.6 | 3401 ± 36 | f_{2000}^{217} | 107.82 | 108.6 ± 2.1 |
| Ω_{m} | 0.3165 | 0.3169 ± 0.0098 | k_{eq} | 0.010370 | 0.01038 ± 0.00011 | χ_{lensing}^2 | 8.89 | 9.69 ± 0.95 |
| $\Omega_{\text{m}} h^2$ | 0.14282 | 0.1430 ± 0.0015 | $100\theta_{\text{eq}}$ | 0.8136 | 0.8131 ± 0.0067 | χ_{small}^2 | 395.90 | 397.2 ± 1.7 |
| $\Omega_{\text{m}} h^3$ | 0.095945 | 0.09604 ± 0.00049 | $100\theta_{s,\text{eq}}$ | 0.44965 | 0.4494 ± 0.0035 | χ_{lowl}^2 | 23.09 | 23.9 ± 2.3 |
| σ_8 | 0.8100 | 0.8101 ± 0.0063 | $H(0.15)$ | 72.51 | 72.52 ± 0.62 | χ_{plik}^2 | 759.3 | 772.8 ± 5.5 |
| S_8 | 0.8320 | 0.833 ± 0.016 | $D_M(0.15)$ | 645.0 | 645.0 ± 6.2 | χ_{prior}^2 | 1.40 | 7.3 ± 3.7 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4557 | 0.4560 ± 0.0089 | $H(0.38)$ | 82.701 | 82.72 ± 0.46 | χ_{CMB}^2 | 1187.1 | 1203.5 ± 5.9 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6076 | 0.6078 ± 0.0077 | $D_M(0.38)$ | 1537.0 | 1537 ± 12 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1188.53$; $\Delta\chi_{\text{eff}}^2 = -0.03$; $\bar{\chi}_{\text{eff}}^2 = 1210.83$; $\Delta\bar{\chi}_{\text{eff}}^2 = 2.42$; $R - 1 = 0.00920$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp-p.teb.consext8: 8.88 (Δ -0.02) small_100x143_offlike5_EE_Aplanck_B: 395.90 (Δ 0.04) commander_dx12_v3.2.29: 23.09 (Δ -0.15) plik_rd12_HM_v22_TT: 759.26 (Δ -0.06)

14.10 base_nrun_r_plikHM_TT_lowl_lowE_lensing_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022206 | 0.02230 ± 0.00022 | $r_{\text{drag}} h$ | 99.62 | 99.73 ± 0.84 | $H(0.61)$ | 95.235 | 95.32 ± 0.25 |
| $\Omega_c h^2$ | 0.11914 | 0.1191 ± 0.0011 | $\langle d^2 \rangle^{1/2}$ | 2.4294 | 2.424 ± 0.024 | $D_M(0.61)$ | 2307.9 | 2305 ± 11 |
| $100\theta_{\text{MC}}$ | 1.040977 | 1.04099 ± 0.00041 | z_{re} | 7.73 | 7.88 ± 0.75 | $H(2.33)$ | 235.84 | 235.88 ± 0.72 |
| τ | 0.0545 | $0.0564^{+0.0071}_{-0.0080}$ | $10^9 A_s$ | 2.0946 | 2.107 ± 0.033 | $D_M(2.33)$ | 5768.0 | 5764 ± 13 |
| $\ln(10^{10} A_s)$ | 3.0420 | 3.048 ± 0.016 | $10^9 A_s e^{-2\tau}$ | 1.8782 | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4557 | 0.4552 ± 0.0062 |
| n_s | 0.96672 | 0.9660 ± 0.0042 | D_{40} | 1222.0 | 1232 ± 21 | $\sigma_8(0.15)$ | 0.7471 | 0.7475 ± 0.0056 |
| $dn_s/d \ln k$ | -0.00099 | -0.0064 ± 0.0082 | D_{220} | 5713.6 | 5723 ± 40 | $f\sigma_8(0.38)$ | 0.4740 | 0.4738 ± 0.0051 |
| r | 0.0001 | < 0.0672 | D_{810} | 2536.3 | 2540 ± 13 | $\sigma_8(0.38)$ | 0.66226 | 0.6627 ± 0.0049 |
| y_{cal} | 1.00043 | 1.0008 ± 0.0024 | D_{1420} | 815.6 | 815.4 ± 5.0 | $f\sigma_8(0.51)$ | 0.47264 | 0.4725 ± 0.0046 |
| A_{217}^{CIB} | 50.1 | 48 ± 7 | D_{2000} | 229.95 | 229.6 ± 1.9 | $\sigma_8(0.51)$ | 0.61977 | 0.6202 ± 0.0046 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.14 | — | $n_{s,0.002}$ | 0.9699 | 0.986 ± 0.026 | $f\sigma_8(0.61)$ | 0.46770 | 0.4676 ± 0.0042 |
| A_{143}^{tSZ} | 7.13 | 4.9 ± 2.0 | Y_P | 0.245328 | $0.245362^{+0.000093}_{-0.000084}$ | $\sigma_8(0.61)$ | 0.58973 | 0.5902 ± 0.0044 |
| A_{100}^{PS} | 256.2 | 265 ± 28 | Y_P^{BBN} | 0.246655 | $0.246689^{+0.000093}_{-0.000084}$ | $f\sigma_8(2.33)$ | 0.29736 | 0.2976 ± 0.0022 |
| A_{143}^{PS} | 47.0 | 50 ± 8 | 10^5D/H | 2.6168 | 2.600 ± 0.041 | $\sigma_8(2.33)$ | 0.30657 | 0.3069 ± 0.0024 |
| $A_{143 \times 217}^{\text{PS}}$ | 42.2 | 43 ± 9 | Age/Gyr | 13.8088 | 13.799 ± 0.030 | $r_{0.002}$ | 0.0001 | < 0.0644 |
| A_{217}^{PS} | 117.2 | 115 ± 10 | z_* | 1090.055 | 1089.93 ± 0.31 | $r_{0.01}$ | 0.0001 | < 0.0652 |
| A^{kSZ} | 0.00 | < 5.21 | r_* | 144.778 | 144.73 ± 0.30 | $\ln(10^{10} A_t)$ | -6.05 | $-0.34^{+1.4}_{-0.61}$ |
| A_{100}^{dustTT} | 8.96 | 8.9 ± 1.9 | $100\theta_*$ | 1.041174 | 1.04118 ± 0.00040 | r_{10} | 0.0001 | < 0.0333 |
| A_{143}^{dustTT} | 10.87 | 10.7 ± 1.8 | $D_M(z_*)/\text{Gpc}$ | 13.9053 | 13.901 ± 0.030 | $10^9 A_t$ | 0.000 | < 0.142 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.18 | 18.3 ± 3.3 | z_{drag} | 1059.475 | 1059.70 ± 0.50 | $10^9 A_t e^{-2\tau}$ | 0.000 | < 0.127 |
| A_{217}^{dustTT} | 94.1 | 93.2 ± 7.4 | r_{drag} | 147.503 | 147.42 ± 0.34 | f_{2000}^{143} | 30.69 | 31.6 ± 3.2 |
| c_{100} | 0.99962 | 0.99962 ± 0.00061 | k_D | 0.140310 | 0.14046 ± 0.00047 | $f_{2000}^{143 \times 217}$ | 33.40 | 33.9 ± 2.2 |
| c_{217} | 0.99827 | 0.99828 ± 0.00062 | $100\theta_D$ | 0.161021 | 0.16090 ± 0.00029 | f_{2000}^{217} | 107.88 | 108.4 ± 2.1 |
| H_0 | 67.54 | 67.65 ± 0.50 | z_{eq} | 3377.8 | 3378 ± 26 | χ_{lensing}^2 | 8.96 | 9.49 ± 0.78 |
| Ω_Λ | 0.6887 | 0.6896 ± 0.0066 | k_{eq} | 0.010309 | 0.010310 ± 0.000078 | χ_{small}^2 | 396.06 | 397.5 ± 1.9 |
| Ω_m | 0.3113 | 0.3104 ± 0.0066 | $100\theta_{\text{eq}}$ | 0.81726 | 0.8175 ± 0.0047 | χ_{lowl}^2 | 22.68 | 23.5 ± 2.2 |
| $\Omega_m h^2$ | 0.14200 | 0.1420 ± 0.0011 | $100\theta_{s,\text{eq}}$ | 0.45158 | 0.4516 ± 0.0024 | χ_{plik}^2 | 759.8 | 773.1 ± 5.5 |
| $\Omega_m h^3$ | 0.095900 | 0.09606 ± 0.00050 | $H(0.15)$ | 72.812 | 72.91 ± 0.44 | $\chi_{6\text{DF}}^2$ | 0.0312 | 0.054 ± 0.068 |
| σ_8 | 0.8085 | 0.8088 ± 0.0062 | $D_M(0.15)$ | 641.92 | 641.0 ± 4.3 | χ_{MGS}^2 | 1.217 | 1.32 ± 0.47 |
| S_8 | 0.8236 | 0.823 ± 0.012 | $H(0.38)$ | 82.912 | 83.00 ± 0.34 | χ_{DR12BAO}^2 | 4.41 | 4.7 ± 1.5 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4511 | 0.4506 ± 0.0066 | $D_M(0.38)$ | 1531.0 | 1528.9 ± 8.8 | χ_{prior}^2 | 1.57 | 7.3 ± 3.7 |
| $\sigma_8 \Omega_m^{0.25}$ | 0.6039 | 0.6037 ± 0.0063 | $H(0.51)$ | 89.622 | 89.71 ± 0.28 | χ_{CMB}^2 | 1187.5 | 1203.5 ± 5.7 |
| $\sigma_8/h^{0.5}$ | 0.9838 | 0.9834 ± 0.0090 | $D_M(0.51)$ | 1983.3 | 1981 ± 10 | χ_{BAO}^2 | 5.66 | 6.1 ± 1.2 |

Best-fit $\chi_{\text{eff}}^2 = 1194.69$; $\Delta\chi_{\text{eff}}^2 = 0.01$; $\bar{\chi}_{\text{eff}}^2 = 1216.99$; $\Delta\bar{\chi}_{\text{eff}}^2 = 2.26$; $R - 1 = 0.01565$

χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.41 (Δ 0.04) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.96 (Δ 0.08) small_100x143_offlike5_EE_Aplanck.L 396.06 (Δ -0.03) commander_dx12_v3.2_29: 22.68 (Δ -0.28) plik_rd12_HM_v22_TT: 759.76 (Δ -0.04)

14.11 base_nrun_r_plikHM_TT_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|---------------------------------------|------------------------------|--------------------------------|----------------------------------|-------------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02224 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.989 ± 0.011 | $H(0.51)$ | 89.51 ± 0.36 |
| $\Omega_{\text{c}}h^2$ | 0.1200 ± 0.0015 | $r_{\text{drag}}h$ | 99.0 ± 1.2 | $D_{\text{M}}(0.51)$ | 1989 ± 14 |
| $100\theta_{\text{MC}}$ | 1.04085 ± 0.00044 | $\langle d^2 \rangle^{1/2}$ | 2.436 ± 0.028 | $H(0.61)$ | 95.17 ± 0.30 |
| τ | $0.0550^{+0.0052}_{-0.0086}$ | z_{re} | $7.77^{+0.57}_{-0.83}$ | $D_{\text{M}}(0.61)$ | 2314 ± 15 |
| $\ln(10^{10}A_{\text{s}})$ | $3.046^{+0.012}_{-0.016}$ | $10^9 A_{\text{s}}$ | $2.104^{+0.025}_{-0.034}$ | $H(2.33)$ | 236.41 ± 0.95 |
| n_{s} | 0.9638 ± 0.0050 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.884 ± 0.012 | $D_{\text{M}}(2.33)$ | 5770 ± 15 |
| $\text{d}n_{\text{s}}/\text{d} \ln k$ | -0.0064 ± 0.0080 | D_{40} | 1234 ± 21 | $f\sigma_8(0.15)$ | 0.4600 ± 0.0082 |
| r | < 0.0632 | D_{220} | 5716 ± 41 | $\sigma_8(0.15)$ | 0.7487 ± 0.0052 |
| y_{cal} | 1.0006 ± 0.0025 | D_{810} | 2539 ± 13 | $f\sigma_8(0.38)$ | 0.4773 ± 0.0063 |
| A_{217}^{CIB} | 49 ± 7 | D_{1420} | 814.4 ± 5.2 | $\sigma_8(0.38)$ | $0.6632^{+0.0041}_{-0.0047}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{2000} | 229.3 ± 1.9 | $f\sigma_8(0.51)$ | 0.4754 ± 0.0054 |
| A_{143}^{tSZ} | 4.9 ± 2.0 | $n_{\text{s},0.002}$ | 0.984 ± 0.025 | $\sigma_8(0.51)$ | $0.6204^{+0.0038}_{-0.0045}$ |
| A_{100}^{PS} | 266 ± 29 | Y_{P} | $0.24534^{+0.00010}_{-0.000087}$ | $f\sigma_8(0.61)$ | 0.4700 ± 0.0048 |
| A_{143}^{PS} | 50 ± 8 | $Y_{\text{P}}^{\text{BBN}}$ | $0.24666^{+0.00010}_{-0.000088}$ | $\sigma_8(0.61)$ | $0.5902^{+0.0035}_{-0.0043}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43^{+9}_{-10} | $10^5 \text{D}/\text{H}$ | 2.611 ± 0.044 | $f\sigma_8(2.33)$ | $0.2974^{+0.0018}_{-0.0023}$ |
| A_{217}^{PS} | 114 ± 10 | Age/Gyr | 13.813 ± 0.034 | $\sigma_8(2.33)$ | $0.3064^{+0.0020}_{-0.0025}$ |
| A^{kSZ} | < 5.30 | z_* | 1090.09 ± 0.36 | $r_{0.002}$ | < 0.0599 |
| $A_{100}^{\text{dust}TT}$ | 9.0 ± 1.8 | r_* | 144.54 ± 0.37 | $r_{0.01}$ | < 0.0610 |
| $A_{143}^{\text{dust}TT}$ | 10.8 ± 1.8 | $100\theta_*$ | 1.04105 ± 0.00043 | $\ln(10^{10}A_{\text{t}})$ | $-0.40^{+1.4}_{-0.63}$ |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.3 ± 3.3 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.884 ± 0.035 | r_{10} | < 0.0311 |
| $A_{217}^{\text{dust}TT}$ | 93.2 ± 7.4 | z_{drag} | 1059.62 ± 0.51 | $10^9 A_{\text{t}}$ | < 0.133 |
| c_{100} | 0.99961 ± 0.00061 | r_{drag} | 147.25 ± 0.40 | $10^9 A_{\text{t}}e^{-2\tau}$ | < 0.119 |
| c_{217} | 0.99828 ± 0.00062 | k_{D} | 0.14060 ± 0.00050 | f_{2000}^{143} | 32.0 ± 3.2 |
| H_0 | 67.23 ± 0.70 | $100\theta_{\text{D}}$ | 0.16094 ± 0.00030 | $f_{2000}^{143 \times 217}$ | 34.1 ± 2.2 |
| Ω_{Λ} | 0.6838 ± 0.0095 | z_{eq} | 3399 ± 35 | f_{2000}^{217} | 108.6 ± 2.0 |
| Ω_{m} | 0.3162 ± 0.0095 | k_{eq} | 0.01037 ± 0.00011 | χ_{lensing}^2 | 9.67 ± 0.95 |
| $\Omega_{\text{m}}h^2$ | 0.1429 ± 0.0015 | $100\theta_{\text{eq}}$ | 0.8136 ± 0.0066 | χ_{simall}^2 | 397.1 ± 1.7 |
| $\Omega_{\text{m}}h^3$ | 0.09604 ± 0.00049 | $100\theta_{\text{s,eq}}$ | 0.4496 ± 0.0034 | χ_{lowl}^2 | 23.8 ± 2.3 |
| σ_8 | 0.8107 ± 0.0060 | $H(0.15)$ | 72.56 ± 0.60 | χ_{plik}^2 | 772.7 ± 5.5 |
| S_8 | 0.832 ± 0.016 | $D_{\text{M}}(0.15)$ | 644.5 ± 6.0 | χ_{prior}^2 | 7.3 ± 3.7 |
| $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4559 ± 0.0089 | $H(0.38)$ | 82.75 ± 0.45 | χ_{CMB}^2 | 1203.3 ± 5.8 |
| $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6079 ± 0.0077 | $D_{\text{M}}(0.38)$ | 1536 ± 12 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1210.63; \Delta\bar{\chi}_{\text{eff}}^2 = 2.47; R - 1 = 0.00844$$

14.12 base_nrun_r_plikHM_TT_lowl_lowE_lensing_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------------|----------------------------------|------------------------------|
| $\Omega_{\mathrm{b}} h^2$ | 0.02230 ± 0.00022 | $r_{\mathrm{drag}} h$ | 99.75 ± 0.84 | $H(0.61)$ | 95.32 ± 0.25 |
| $\Omega_{\mathrm{c}} h^2$ | 0.1190 ± 0.0011 | $\langle d^2 \rangle^{1/2}$ | 2.424 ± 0.024 | $D_{\mathrm{M}}(0.61)$ | 2305 ± 11 |
| $100\theta_{\mathrm{MC}}$ | 1.04099 ± 0.00041 | z_{re} | $7.94^{+0.64}_{-0.78}$ | $H(2.33)$ | 235.86 ± 0.71 |
| τ | $0.0570^{+0.0060}_{-0.0082}$ | $10^9 A_{\mathrm{s}}$ | $2.109^{+0.027}_{-0.034}$ | $D_{\mathrm{M}}(2.33)$ | 5763 ± 13 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.049^{+0.013}_{-0.016}$ | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4553 ± 0.0061 |
| n_{s} | 0.9660 ± 0.0042 | D_{40} | 1232 ± 21 | $\sigma_8(0.15)$ | 0.7478 ± 0.0053 |
| $\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$ | -0.0065 ± 0.0082 | D_{220} | 5723 ± 40 | $f\sigma_8(0.38)$ | 0.4739 ± 0.0051 |
| r | < 0.0676 | D_{810} | 2540 ± 13 | $\sigma_8(0.38)$ | $0.6630^{+0.0043}_{-0.0049}$ |
| y_{cal} | 1.0008 ± 0.0024 | D_{1420} | 815.4 ± 5.0 | $f\sigma_8(0.51)$ | 0.4727 ± 0.0045 |
| A_{217}^{CIB} | 48 ± 7 | D_{2000} | 229.6 ± 1.9 | $\sigma_8(0.51)$ | $0.6205^{+0.0040}_{-0.0046}$ |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $n_{\mathrm{s},0.002}$ | 0.987 ± 0.026 | $f\sigma_8(0.61)$ | 0.4678 ± 0.0041 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | Y_{P} | $0.245363^{+0.000093}_{-0.000083}$ | $\sigma_8(0.61)$ | $0.5905^{+0.0038}_{-0.0044}$ |
| A_{100}^{PS} | 265 ± 28 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246690^{+0.000093}_{-0.000084}$ | $f\sigma_8(2.33)$ | $0.2978^{+0.0019}_{-0.0023}$ |
| A_{143}^{PS} | 50 ± 8 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.600 ± 0.041 | $\sigma_8(2.33)$ | $0.3071^{+0.0020}_{-0.0025}$ |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43 ± 9 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.798 ± 0.029 | $r_{0.002}$ | < 0.0648 |
| A_{217}^{PS} | 115 ± 10 | z_{*} | 1089.93 ± 0.31 | $r_{0.01}$ | < 0.0657 |
| A^{kSZ} | < 5.22 | r_{*} | 144.73 ± 0.30 | $\ln(10^{10} A_{\mathrm{t}})$ | $-0.33^{+1.4}_{-0.61}$ |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.9 | $100\theta_{*}$ | 1.04118 ± 0.00040 | r_{10} | < 0.0335 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.7 ± 1.8 | $D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$ | 13.901 ± 0.030 | $10^9 A_{\mathrm{t}}$ | < 0.143 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.3 ± 3.3 | z_{drag} | 1059.70 ± 0.50 | $10^9 A_{\mathrm{t}} e^{-2\tau}$ | < 0.127 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.2 ± 7.4 | r_{drag} | 147.43 ± 0.34 | f_{2000}^{143} | 31.7 ± 3.2 |
| c_{100} | 0.99962 ± 0.00062 | k_{D} | 0.14046 ± 0.00047 | $f_{2000}^{143 \times 217}$ | 33.9 ± 2.2 |
| c_{217} | 0.99828 ± 0.00062 | $100\theta_{\mathrm{D}}$ | 0.16090 ± 0.00029 | f_{2000}^{217} | 108.4 ± 2.1 |
| H_0 | 67.66 ± 0.50 | z_{eq} | 3378 ± 26 | $\chi_{\mathrm{lensing}}^2$ | 9.46 ± 0.74 |
| Ω_{Λ} | 0.6898 ± 0.0065 | k_{eq} | 0.010309 ± 0.000078 | χ_{small}^2 | 397.4 ± 1.9 |
| Ω_{m} | 0.3102 ± 0.0065 | $100\theta_{\mathrm{eq}}$ | 0.8176 ± 0.0047 | χ_{lowl}^2 | 23.5 ± 2.1 |
| $\Omega_{\mathrm{m}} h^2$ | 0.1420 ± 0.0011 | $100\theta_{\mathrm{s,eq}}$ | 0.4517 ± 0.0024 | χ_{plik}^2 | 773.0 ± 5.5 |
| $\Omega_{\mathrm{m}} h^3$ | 0.09606 ± 0.00050 | $H(0.15)$ | 72.93 ± 0.44 | $\chi_{6\mathrm{DF}}^2$ | 0.052 ± 0.066 |
| σ_8 | 0.8091 ± 0.0059 | $D_{\mathrm{M}}(0.15)$ | 640.9 ± 4.3 | χ_{MGS}^2 | 1.33 ± 0.47 |
| S_8 | 0.823 ± 0.012 | $H(0.38)$ | 83.01 ± 0.33 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.7 ± 1.4 |
| $\sigma_8 \Omega_{\mathrm{m}}^{0.5}$ | 0.4507 ± 0.0066 | $D_{\mathrm{M}}(0.38)$ | 1528.7 ± 8.7 | χ_{prior}^2 | 7.3 ± 3.7 |
| $\sigma_8 \Omega_{\mathrm{m}}^{0.25}$ | 0.6039 ± 0.0062 | $H(0.51)$ | 89.71 ± 0.28 | χ_{CMB}^2 | 1203.4 ± 5.7 |
| $\sigma_8/h^{0.5}$ | 0.9837 ± 0.0089 | $D_{\mathrm{M}}(0.51)$ | 1981 ± 10 | χ_{BAO}^2 | 6.1 ± 1.1 |

$$\bar{\chi}_{\mathrm{eff}}^2 = 1216.87; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 2.29; R - 1 = 0.01475$$

14.13 base_nrun_r_plikHM_TTTEE_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022398 | 0.02243 ± 0.00015 | σ_8 | 0.8121 | 0.8109 ± 0.0060 | $H(0.38)$ | 82.860 | 82.93 ± 0.34 |
| $\Omega_c h^2$ | 0.12015 | 0.1199 ± 0.0012 | S_8 | 0.8333 | 0.830 ± 0.013 | $D_M(0.38)$ | 1533.9 | 1531.9 ± 9.3 |
| $100\theta_{MC}$ | 1.040936 | 1.04093 ± 0.00030 | $\sigma_8 \Omega_m^{0.5}$ | 0.4564 | 0.4547 ± 0.0069 | $H(0.51)$ | 89.628 | 89.69 ± 0.27 |
| τ | 0.0546 | 0.0561 ± 0.0077 | $\sigma_8 \Omega_m^{0.25}$ | 0.6088 | 0.6072 ± 0.0064 | $D_M(0.51)$ | 1986.3 | 1984 ± 11 |
| $\ln(10^{10} A_s)$ | 3.0464 | 3.049 ± 0.015 | $\sigma_8/h^{0.5}$ | 0.9897 | 0.9874 ± 0.0090 | $H(0.61)$ | 95.286 | 95.33 ± 0.22 |
| n_s | 0.96542 | 0.9647 ± 0.0044 | $r_{\text{drag}} h$ | 98.99 | 99.18 ± 0.93 | $D_M(0.61)$ | 2310.7 | 2308 ± 12 |
| $dn_s/d \ln k$ | -0.0025 | -0.0085 ± 0.0073 | $\langle d^2 \rangle^{1/2}$ | 2.4423 | 2.431 ± 0.024 | $H(2.33)$ | 236.69 | 236.55 ± 0.72 |
| r | 0.0007 | < 0.0778 | z_{re} | 7.71 | 7.83 ± 0.76 | $D_M(2.33)$ | 5762.6 | 5761 ± 10 |
| y_{cal} | 1.00064 | 1.0007 ± 0.0025 | $10^9 A_s$ | 2.1039 | $2.110^{+0.030}_{-0.033}$ | $f\sigma_8(0.15)$ | 0.4606 | 0.4590 ± 0.0064 |
| A_{217}^{CIB} | 47.4 | 48 ± 7 | $10^9 A_s e^{-2\tau}$ | 1.8862 | 1.886 ± 0.011 | $\sigma_8(0.15)$ | 0.7500 | 0.7490 ± 0.0054 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.47 | — | D_{40} | 1224.7 | 1233^{+19}_{-21} | $f\sigma_8(0.38)$ | 0.4780 | 0.4767 ± 0.0052 |
| A_{143}^{tSZ} | 7.12 | 5.2 ± 2.0 | D_{220} | 5732.5 | 5729 ± 39 | $\sigma_8(0.38)$ | 0.66430 | 0.6636 ± 0.0048 |
| A_{100}^{PS} | 251.3 | 264 ± 28 | D_{810} | 2542.8 | 2542 ± 13 | $f\sigma_8(0.51)$ | 0.47611 | 0.4749 ± 0.0046 |
| A_{143}^{PS} | 49.3 | 48 ± 8 | D_{1420} | 818.14 | 816.2 ± 5.0 | $\sigma_8(0.51)$ | 0.62148 | 0.6209 ± 0.0045 |
| $A_{143 \times 217}^{\text{PS}}$ | 49.2 | 43 ± 9 | D_{2000} | 231.06 | 230.0 ± 1.8 | $f\sigma_8(0.61)$ | 0.47077 | 0.4697 ± 0.0042 |
| A_{217}^{PS} | 120.2 | 115 ± 10 | $n_{s,0.002}$ | 0.9735 | 0.992 ± 0.023 | $\sigma_8(0.61)$ | 0.59123 | 0.5907 ± 0.0043 |
| A^{kSZ} | 0.00 | < 5.03 | Y_P | 0.245407 | 0.245416 ± 0.000059 | $f\sigma_8(2.33)$ | 0.29793 | 0.2977 ± 0.0022 |
| A_{100}^{dustTT} | 8.87 | 9.0 ± 1.8 | Y_P^{BBN} | 0.246733 | 0.246743 ± 0.000059 | $\sigma_8(2.33)$ | 0.30696 | 0.3068 ± 0.0024 |
| A_{143}^{dustTT} | 11.05 | 11.0 ± 1.8 | $10^5 D/H$ | 2.5802 | 2.575 ± 0.028 | $r_{0.002}$ | 0.0006 | < 0.0752 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.92 | 18.7 ± 3.3 | Age/Gyr | 13.7949 | 13.791 ± 0.023 | $r_{0.01}$ | 0.0006 | < 0.0756 |
| A_{217}^{dustTT} | 95.0 | 93.5 ± 7.4 | z_* | 1089.898 | 1089.84 ± 0.26 | $\ln(10^{10} A_t)$ | -4.27 | $-0.17^{+1.3}_{-0.52}$ |
| A_{100}^{dustTE} | 0.1141 | 0.115 ± 0.038 | r_* | 144.371 | 144.41 ± 0.27 | r_{10} | 0.0003 | < 0.0391 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1348 | 0.136 ± 0.029 | $100\theta_*$ | 1.041112 | 1.04111 ± 0.00030 | $10^9 A_t$ | 0.001 | < 0.164 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 | 0.479 ± 0.085 | $D_M(z_*)/\text{Gpc}$ | 13.8670 | 13.871 ± 0.025 | $10^9 A_t e^{-2\tau}$ | 0.001 | < 0.147 |
| A_{143}^{dustTE} | 0.224 | 0.226 ± 0.054 | z_{drag} | 1060.009 | 1060.06 ± 0.32 | f_{2000}^{143} | 29.32 | 31.1 ± 3.1 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 | 0.664 ± 0.080 | r_{drag} | 147.021 | 147.05 ± 0.27 | $f_{2000}^{143 \times 217}$ | 32.38 | 33.4 ± 2.2 |
| A_{217}^{dustTE} | 2.085 | 2.08 ± 0.27 | k_D | 0.140963 | 0.14095 ± 0.00032 | f_{2000}^{217} | 106.91 | 108.0 ± 2.0 |
| c_{100} | 0.99973 | 0.99968 ± 0.00061 | $100\theta_D$ | 0.160717 | 0.16068 ± 0.00019 | χ_{lensing}^2 | 8.96 | 9.56 ± 0.76 |
| c_{217} | 0.99820 | 0.99822 ± 0.00062 | z_{eq} | 3406.4 | 3401 ± 27 | χ_{small}^2 | 396.06 | 397.4 ± 1.8 |
| H_0 | 67.33 | 67.44 ± 0.54 | k_{eq} | 0.010397 | 0.010381 ± 0.000082 | χ_{lowl}^2 | 22.66 | 23.4 ± 1.9 |
| Ω_Λ | 0.6841 | 0.6856 ± 0.0074 | $100\theta_{\text{eq}}$ | 0.8126 | 0.8137 ± 0.0051 | χ_{plik}^2 | 2345.1 | 2360.6 ± 5.9 |
| Ω_m | 0.3159 | 0.3144 ± 0.0074 | $100\theta_{s,\text{eq}}$ | 0.44901 | 0.4495 ± 0.0026 | χ_{prior}^2 | 1.66 | 11.6 ± 4.6 |
| $\Omega_m h^2$ | 0.14319 | 0.1430 ± 0.0011 | $H(0.15)$ | 72.661 | 72.76 ± 0.46 | χ_{CMB}^2 | 2772.8 | 2791.0 ± 6.2 |
| $\Omega_m h^3$ | 0.096409 | 0.09642 ± 0.00031 | $D_M(0.15)$ | 643.59 | 642.6 ± 4.6 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2774.45$; $\Delta\chi_{\text{eff}}^2 = -0.18$; $\bar{\chi}_{\text{eff}}^2 = 2802.59$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.90$; $R - 1 = 0.00905$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp.p_teb_consext8: 8.96 (Δ 0.09) simall_100x143_offlike5_EE_Aplanck_B: 396.06 (Δ 0.01) commander_dx12_v3.2_29: 22.66 (Δ -0.59) plik_rdl2_HM_v22b_TTTEE: 2345.10 (Δ 0.17)

14.14 base_nrun_r_plikHM_TTTEE_lowl_lowE_lensing_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022442 | 0.02248 ± 0.00014 | S_8 | 0.8260 | 0.824 ± 0.011 | $H(0.51)$ | 89.767 | 89.82 ± 0.22 |
| $\Omega_c h^2$ | 0.11941 | 0.11925 ± 0.00094 | $\sigma_8 \Omega_m^{0.5}$ | 0.4524 | 0.4513 ± 0.0058 | $D_M(0.51)$ | 1980.2 | 1978.2 ± 8.6 |
| $100\theta_{MC}$ | 1.040977 | 1.04101 ± 0.00029 | $\sigma_8 \Omega_m^{0.25}$ | 0.6056 | 0.6046 ± 0.0057 | $H(0.61)$ | 95.390 | 95.44 ± 0.19 |
| τ | 0.0569 | $0.0579^{+0.0067}_{-0.0076}$ | $\sigma_8/h^{0.5}$ | 0.9857 | 0.9843 ± 0.0083 | $D_M(0.61)$ | 2304.2 | 2302.1 ± 9.3 |
| $\ln(10^{10} A_s)$ | 3.0493 | $3.052^{+0.014}_{-0.016}$ | $r_{\text{drag}} h$ | 99.54 | 99.69 ± 0.73 | $H(2.33)$ | 236.25 | 236.18 ± 0.58 |
| n_s | 0.96642 | 0.9664 ± 0.0040 | $\langle d^2 \rangle^{1/2}$ | 2.4332 | 2.424 ± 0.023 | $D_M(2.33)$ | 5758.5 | 5756.2 ± 9.1 |
| $dn_s/d \ln k$ | -0.0037 | -0.0084 ± 0.0074 | z_{re} | 7.92 | 7.99 ± 0.73 | $f\sigma_8(0.15)$ | 0.4570 | 0.4560 ± 0.0054 |
| r | 0.0004 | < 0.0813 | $10^9 A_s$ | 2.1101 | $2.115^{+0.029}_{-0.034}$ | $\sigma_8(0.15)$ | 0.7491 | 0.7487 ± 0.0054 |
| y_{cal} | 1.00069 | 1.0008 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8831 | 1.884 ± 0.011 | $f\sigma_8(0.38)$ | 0.47538 | 0.4746 ± 0.0046 |
| A_{217}^{CIB} | 49.0 | 48 ± 7 | D_{40} | 1219.6 | 1231^{+19}_{-22} | $\sigma_8(0.38)$ | 0.66405 | 0.6638 ± 0.0048 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.19 | — | D_{220} | 5736.1 | 5733 ± 39 | $f\sigma_8(0.51)$ | 0.47399 | 0.4733 ± 0.0042 |
| A_{143}^{tSZ} | 7.30 | 5.2 ± 2.0 | D_{810} | 2541.5 | 2542 ± 13 | $\sigma_8(0.51)$ | 0.62144 | 0.6212 ± 0.0045 |
| A_{100}^{PS} | 253.3 | 263 ± 28 | D_{1420} | 817.64 | 816.8 ± 4.9 | $f\sigma_8(0.61)$ | 0.46901 | 0.4684 ± 0.0039 |
| A_{143}^{PS} | 45.1 | 48 ± 8 | D_{2000} | 230.85 | 230.3 ± 1.8 | $\sigma_8(0.61)$ | 0.59132 | 0.5912 ± 0.0043 |
| $A_{143 \times 217}^{\text{PS}}$ | 41.9 | 42 ± 9 | $n_{s,0.002}$ | 0.9785 | 0.993 ± 0.023 | $f\sigma_8(2.33)$ | 0.29815 | 0.2981 ± 0.0022 |
| A_{217}^{PS} | 117.4 | 114 ± 10 | Y_{P} | 0.245423 | 0.245434 ± 0.000054 | $\sigma_8(2.33)$ | 0.30738 | $0.3074^{+0.0022}_{-0.0024}$ |
| A^{kSZ} | 0.00 | < 4.92 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246750 | 0.246761 ± 0.000054 | $r_{0.002}$ | 0.0004 | < 0.0793 |
| A_{100}^{dustTT} | 8.93 | 9.0 ± 1.8 | $10^5 \text{D}/\text{H}$ | 2.5722 | 2.567 ± 0.026 | $r_{0.01}$ | 0.0004 | < 0.0793 |
| A_{143}^{dustTT} | 11.01 | 11.0 ± 1.8 | Age/Gyr | 13.7860 | 13.781 ± 0.021 | $\ln(10^{10} A_t)$ | -4.68 | $-0.13^{+1.3}_{-0.51}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.41 | 18.6 ± 3.3 | z_* | 1089.777 | 1089.72 ± 0.22 | r_{10} | 0.0002 | < 0.0411 |
| A_{217}^{dustTT} | 94.4 | 93.4 ± 7.4 | r_* | 144.529 | 144.54 ± 0.22 | $10^9 A_t$ | 0.001 | < 0.172 |
| A_{100}^{dustTE} | 0.1144 | 0.115 ± 0.039 | $100\theta_*$ | 1.041153 | 1.04118 ± 0.00028 | $10^9 A_t e^{-2\tau}$ | 0.001 | < 0.153 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1358 | 0.136 ± 0.030 | $D_M(z_*)/\text{Gpc}$ | 13.8817 | 13.883 ± 0.022 | f_{2000}^{143} | 29.62 | 30.8 ± 3.1 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 | 0.478 ± 0.084 | z_{drag} | 1060.047 | 1060.12 ± 0.31 | $f_{2000}^{143 \times 217}$ | 32.52 | 33.1 ± 2.1 |
| A_{143}^{dustTE} | 0.225 | 0.225 ± 0.054 | r_{drag} | 147.169 | 147.17 ± 0.24 | f_{2000}^{217} | 107.22 | 107.9 ± 2.0 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 | 0.664 ± 0.079 | k_{D} | 0.140841 | 0.14086 ± 0.00030 | χ_{lensing}^2 | 8.840 | 9.42 ± 0.64 |
| A_{217}^{dustTE} | 2.072 | 2.07 ± 0.27 | $100\theta_{\text{D}}$ | 0.160687 | 0.16065 ± 0.00018 | χ_{small}^2 | 396.45 | 397.7 ± 2.0 |
| c_{100} | 0.99971 | 0.99968 ± 0.00062 | z_{eq} | 3389.8 | 3387 ± 21 | χ_{lowl}^2 | 22.19 | 23.2 ± 1.9 |
| c_{217} | 0.99820 | 0.99822 ± 0.00062 | k_{eq} | 0.010346 | 0.010337 ± 0.000065 | χ_{plik}^2 | 2345.4 | 2360.6 ± 5.9 |
| H_0 | 67.640 | 67.73 ± 0.43 | $100\theta_{\text{eq}}$ | 0.81577 | 0.8164 ± 0.0040 | $\chi_{6\text{DF}}^2$ | 0.0373 | 0.049 ± 0.058 |
| Ω_{Λ} | 0.6885 | 0.6896 ± 0.0057 | $100\theta_{s,\text{eq}}$ | 0.45062 | 0.4509 ± 0.0021 | χ_{MGS}^2 | 1.156 | 1.29 ± 0.40 |
| Ω_{m} | 0.3115 | 0.3104 ± 0.0057 | $H(0.15)$ | 72.925 | 73.01 ± 0.37 | χ_{DR12BAO}^2 | 4.62 | 4.7 ± 1.3 |
| $\Omega_{\text{m}} h^2$ | 0.14250 | 0.14237 ± 0.00090 | $D_M(0.15)$ | 640.94 | 640.1 ± 3.6 | χ_{prior}^2 | 1.89 | 11.7 ± 4.6 |
| $\Omega_{\text{m}} h^3$ | 0.096383 | 0.09643 ± 0.00031 | $H(0.38)$ | 83.044 | 83.11 ± 0.27 | χ_{CMB}^2 | 2772.8 | 2790.9 ± 6.2 |
| σ_8 | 0.8107 | 0.8101 ± 0.0059 | $D_M(0.38)$ | 1528.6 | 1527.0 ± 7.3 | χ_{BAO}^2 | 5.81 | 6.1 ± 1.0 |

Best-fit $\chi_{\text{eff}}^2 = 2780.54$; $\Delta\chi_{\text{eff}}^2 = -0.16$; $\bar{\chi}_{\text{eff}}^2 = 2808.64$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.79$; $R - 1 = 0.01143$
 χ_{eff}^2 : BAO - 6DF: 0.04 (Δ 0.01) MGS: 1.16 (Δ -0.06) DR12BAO: 4.62 (Δ 0.20) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.84 (Δ 0.11) small_100x143_offlike5_EE_Aplanck: 396.45 (Δ -0.07) commander_dx12_v3.2_29: 22.19 (Δ -0.71) plik_rd12_HM_v22b_TTTEE: 2345.36 (Δ 0.04)

14.15 base_nrun_r_plikHM_TTTEE_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|---|------------------------------|---------------------------------------|------------------------------|----------------------------------|------------------------------|
| $\Omega_{\mathrm{b}} h^2$ | 0.02243 ± 0.00015 | σ_8 | $0.8113^{+0.0054}_{-0.0060}$ | $H(0.38)$ | 82.95 ± 0.34 |
| $\Omega_{\mathrm{c}} h^2$ | 0.1199 ± 0.0012 | S_8 | 0.830 ± 0.013 | $D_{\mathrm{M}}(0.38)$ | 1531.6 ± 9.2 |
| $100\theta_{\mathrm{MC}}$ | 1.04094 ± 0.00030 | $\sigma_8 \Omega_{\mathrm{m}}^{0.5}$ | 0.4547 ± 0.0070 | $H(0.51)$ | 89.70 ± 0.27 |
| τ | $0.0568^{+0.0058}_{-0.0080}$ | $\sigma_8 \Omega_{\mathrm{m}}^{0.25}$ | 0.6073 ± 0.0063 | $D_{\mathrm{M}}(0.51)$ | 1984 ± 11 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.051^{+0.012}_{-0.016}$ | $\sigma_8/h^{0.5}$ | 0.9877 ± 0.0089 | $H(0.61)$ | 95.34 ± 0.22 |
| n_{s} | 0.9649 ± 0.0044 | $r_{\mathrm{drag}} h$ | 99.21 ± 0.92 | $D_{\mathrm{M}}(0.61)$ | 2308 ± 12 |
| $\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$ | -0.0086 ± 0.0073 | $\langle d^2 \rangle^{1/2}$ | 2.431 ± 0.024 | $H(2.33)$ | 236.53 ± 0.71 |
| r | < 0.0784 | z_{re} | $7.90^{+0.61}_{-0.76}$ | $D_{\mathrm{M}}(2.33)$ | 5760 ± 10 |
| y_{cal} | 1.0007 ± 0.0025 | $10^9 A_{\mathrm{s}}$ | $2.113^{+0.025}_{-0.034}$ | $f\sigma_8(0.15)$ | 0.4590 ± 0.0065 |
| A_{217}^{CIB} | 48 ± 7 | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.886 ± 0.011 | $\sigma_8(0.15)$ | $0.7494^{+0.0047}_{-0.0055}$ |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{40} | 1233^{+19}_{-21} | $f\sigma_8(0.38)$ | 0.4768 ± 0.0052 |
| A_{143}^{tSZ} | 5.2 ± 2.0 | D_{220} | 5729 ± 39 | $\sigma_8(0.38)$ | $0.6640^{+0.0040}_{-0.0048}$ |
| A_{100}^{PS} | 264 ± 28 | D_{810} | 2542 ± 13 | $f\sigma_8(0.51)$ | 0.4751 ± 0.0045 |
| A_{143}^{PS} | 48 ± 8 | D_{1420} | 816.2 ± 5.0 | $\sigma_8(0.51)$ | $0.6213^{+0.0038}_{-0.0046}$ |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43 ± 9 | D_{2000} | 230.0 ± 1.8 | $f\sigma_8(0.61)$ | 0.4699 ± 0.0041 |
| A_{217}^{PS} | 115 ± 10 | $n_{\mathrm{s},0.002}$ | 0.992 ± 0.023 | $\sigma_8(0.61)$ | $0.5911^{+0.0036}_{-0.0044}$ |
| A^{kSZ} | < 5.03 | Y_{P} | 0.245418 ± 0.000059 | $f\sigma_8(2.33)$ | $0.2979^{+0.0018}_{-0.0023}$ |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.246744 ± 0.000059 | $\sigma_8(2.33)$ | $0.3070^{+0.0019}_{-0.0025}$ |
| $A_{143}^{\mathrm{dust}TT}$ | 11.0 ± 1.8 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.574 ± 0.028 | $r_{0.002}$ | < 0.0758 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.7 ± 3.3 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.790 ± 0.023 | $r_{0.01}$ | < 0.0763 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.5 ± 7.4 | z_* | 1089.83 ± 0.26 | $\ln(10^{10} A_{\mathrm{t}})$ | $-0.16^{+1.3}_{-0.52}$ |
| $A_{100}^{\mathrm{dust}TE}$ | 0.115 ± 0.038 | r_* | 144.42 ± 0.27 | r_{10} | < 0.0395 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.136 ± 0.029 | $100\theta_*$ | 1.04111 ± 0.00030 | $10^9 A_{\mathrm{t}}$ | < 0.166 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.479 ± 0.085 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.872 ± 0.025 | $10^9 A_{\mathrm{t}} e^{-2\tau}$ | < 0.148 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.226 ± 0.054 | z_{drag} | 1060.07 ± 0.32 | f_{2000}^{143} | 31.1 ± 3.1 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.664 ± 0.080 | r_{drag} | 147.06 ± 0.27 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.2 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.08 ± 0.27 | k_{D} | 0.14095 ± 0.00031 | f_{2000}^{217} | 108.0 ± 2.0 |
| c_{100} | 0.99968 ± 0.00061 | $100\theta_{\mathrm{D}}$ | 0.16068 ± 0.00019 | $\chi_{\mathrm{lensing}}^2$ | 9.55 ± 0.76 |
| c_{217} | 0.99822 ± 0.00062 | z_{eq} | 3400 ± 27 | χ_{small}^2 | 397.4 ± 1.9 |
| H_0 | 67.46 ± 0.53 | k_{eq} | 0.010378 ± 0.000081 | χ_{lowl}^2 | 23.3 ± 1.9 |
| Ω_{Λ} | 0.6859 ± 0.0073 | $100\theta_{\mathrm{eq}}$ | 0.8139 ± 0.0050 | χ_{plik}^2 | 2360.5 ± 5.9 |
| Ω_{m} | 0.3141 ± 0.0073 | $100\theta_{\mathrm{s,eq}}$ | 0.4496 ± 0.0026 | χ_{prior}^2 | 11.6 ± 4.6 |
| $\Omega_{\mathrm{m}} h^2$ | 0.1429 ± 0.0011 | $H(0.15)$ | 72.78 ± 0.46 | χ_{CMB}^2 | 2790.8 ± 6.2 |
| $\Omega_{\mathrm{m}} h^3$ | 0.09642 ± 0.00031 | $D_{\mathrm{M}}(0.15)$ | 642.5 ± 4.6 | | |

$$\bar{\chi}_{\mathrm{eff}}^2 = 2802.46; \Delta \bar{\chi}_{\mathrm{eff}}^2 = 1.95; R - 1 = 0.01057$$

14.16 base_nrun_r_plikHM_TTTEE_lowl_lowE_lensing_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02248 ± 0.00014 | S_8 | 0.824 ± 0.011 | $H(0.51)$ | 89.83 ± 0.22 |
| $\Omega_c h^2$ | 0.11924 ± 0.00094 | $\sigma_8 \Omega_m^{0.5}$ | 0.4513 ± 0.0058 | $D_M(0.51)$ | 1978.0 ± 8.6 |
| $100\theta_{MC}$ | 1.04101 ± 0.00029 | $\sigma_8 \Omega_m^{0.25}$ | 0.6048 ± 0.0056 | $H(0.61)$ | 95.44 ± 0.19 |
| τ | $0.0583^{+0.0060}_{-0.0077}$ | $\sigma_8/h^{0.5}$ | 0.9845 ± 0.0082 | $D_M(0.61)$ | 2301.9 ± 9.3 |
| $\ln(10^{10} A_s)$ | $3.052^{+0.013}_{-0.016}$ | $r_{\text{drag}} h$ | 99.70 ± 0.72 | $H(2.33)$ | 236.17 ± 0.57 |
| n_s | 0.9664 ± 0.0040 | $\langle d^2 \rangle^{1/2}$ | 2.424 ± 0.023 | $D_M(2.33)$ | 5756.0 ± 9.0 |
| $dn_s/d \ln k$ | -0.0084 ± 0.0074 | z_{re} | $8.03^{+0.63}_{-0.74}$ | $f\sigma_8(0.15)$ | 0.4560 ± 0.0054 |
| r | < 0.0819 | $10^9 A_s$ | $2.117^{+0.027}_{-0.034}$ | $\sigma_8(0.15)$ | $0.7489^{+0.0048}_{-0.0056}$ |
| y_{cal} | 1.0008 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.884 ± 0.011 | $f\sigma_8(0.38)$ | 0.4746 ± 0.0046 |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1231^{+19}_{-22} | $\sigma_8(0.38)$ | $0.6640^{+0.0042}_{-0.0049}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{220} | 5733 ± 39 | $f\sigma_8(0.51)$ | 0.4734 ± 0.0041 |
| A_{143}^{tSZ} | 5.2 ± 2.0 | D_{810} | 2542 ± 13 | $\sigma_8(0.51)$ | $0.6214^{+0.0039}_{-0.0047}$ |
| A_{100}^{PS} | 263 ± 28 | D_{1420} | 816.8 ± 4.9 | $f\sigma_8(0.61)$ | 0.4685 ± 0.0038 |
| A_{143}^{PS} | 48 ± 8 | D_{2000} | 230.3 ± 1.8 | $\sigma_8(0.61)$ | $0.5913^{+0.0037}_{-0.0045}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $n_{s,0.002}$ | 0.994 ± 0.023 | $f\sigma_8(2.33)$ | $0.2982^{+0.0019}_{-0.0023}$ |
| A_{217}^{PS} | 114 ± 10 | Y_P | 0.245435 ± 0.000054 | $\sigma_8(2.33)$ | $0.3075^{+0.0020}_{-0.0024}$ |
| A^{kSZ} | < 4.92 | Y_P^{BBN} | 0.246761 ± 0.000054 | $r_{0.002}$ | < 0.0797 |
| $A_{100}^{\text{dust}TT}$ | 9.0 ± 1.8 | 10^5D/H | 2.566 ± 0.026 | $r_{0.01}$ | < 0.0798 |
| $A_{143}^{\text{dust}TT}$ | 11.0 ± 1.8 | Age/Gyr | 13.781 ± 0.020 | $\ln(10^{10} A_t)$ | $-0.12^{+1.3}_{-0.51}$ |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.3 | z_* | 1089.72 ± 0.22 | r_{10} | < 0.0413 |
| $A_{217}^{\text{dust}TT}$ | 93.4 ± 7.4 | r_* | 144.55 ± 0.22 | $10^9 A_t$ | < 0.173 |
| $A_{100}^{\text{dust}TE}$ | 0.115 ± 0.039 | $100\theta_*$ | 1.04119 ± 0.00028 | $10^9 A_t e^{-2\tau}$ | < 0.154 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.136 ± 0.030 | $D_M(z_*)/\text{Gpc}$ | 13.883 ± 0.022 | f_{2000}^{143} | 30.8 ± 3.1 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.478 ± 0.084 | z_{drag} | 1060.13 ± 0.31 | $f_{2000}^{143 \times 217}$ | 33.1 ± 2.1 |
| $A_{143}^{\text{dust}TE}$ | 0.225 ± 0.054 | r_{drag} | 147.17 ± 0.24 | f_{2000}^{217} | 107.8 ± 2.0 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.664 ± 0.080 | k_D | 0.14086 ± 0.00030 | χ_{lensing}^2 | 9.40 ± 0.63 |
| $A_{217}^{\text{dust}TE}$ | 2.07 ± 0.27 | $100\theta_D$ | 0.16065 ± 0.00018 | χ_{small}^2 | 397.7 ± 2.1 |
| c_{100} | 0.99968 ± 0.00062 | z_{eq} | 3387 ± 21 | χ_{lowl}^2 | 23.2 ± 1.9 |
| c_{217} | 0.99822 ± 0.00062 | k_{eq} | 0.010336 ± 0.000065 | χ_{plik}^2 | 2360.5 ± 5.9 |
| H_0 | 67.74 ± 0.42 | $100\theta_{\text{eq}}$ | 0.8165 ± 0.0040 | $\chi_{6\text{DF}}^2$ | 0.048 ± 0.057 |
| Ω_Λ | 0.6897 ± 0.0057 | $100\theta_{s,\text{eq}}$ | 0.4510 ± 0.0021 | χ_{MGS}^2 | 1.30 ± 0.40 |
| Ω_m | 0.3103 ± 0.0057 | $H(0.15)$ | 73.02 ± 0.37 | χ_{DR12BAO}^2 | 4.7 ± 1.3 |
| $\Omega_m h^2$ | 0.14236 ± 0.00089 | $D_M(0.15)$ | 640.1 ± 3.6 | χ_{prior}^2 | 11.7 ± 4.5 |
| $\Omega_m h^3$ | 0.09644 ± 0.00031 | $H(0.38)$ | 83.12 ± 0.27 | χ_{CMB}^2 | 2790.8 ± 6.2 |
| σ_8 | $0.8103^{+0.0054}_{-0.0061}$ | $D_M(0.38)$ | 1526.8 ± 7.3 | χ_{BAO}^2 | 6.1 ± 1.0 |

$$\bar{\chi}_{\text{eff}}^2 = 2808.56; \Delta\bar{\chi}_{\text{eff}}^2 = 1.84; R - 1 = 0.01181$$

15 omegak

15.1 base_omegak_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|---------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022613 | 0.02255 ± 0.00026 | $\sigma_8 \Omega_m^{0.5}$ | 0.5525 | 0.552 ± 0.033 | $100\theta_{s,eq}$ | 0.4557 | 0.4554 ± 0.0051 |
| $\Omega_c h^2$ | 0.11712 | 0.1173 ± 0.0023 | $\sigma_8 \Omega_m^{0.25}$ | 0.6506 | $0.649^{+0.016}_{-0.014}$ | $H(0.15)$ | 58.15 | 58.4 ± 4.0 |
| $100\theta_{MC}$ | 1.04130 | 1.04126 ± 0.00051 | $\sigma_8/h^{0.5}$ | 1.0629 | $1.061^{+0.025}_{-0.022}$ | $D_M(0.15)$ | 819 | 820^{+55}_{-67} |
| τ | 0.0493 | $0.0485^{+0.0087}_{-0.0077}$ | $r_{drag}h$ | 76.7 | 77.1 ± 6.4 | $H(0.38)$ | 69.65 | $69.9^{+3.3}_{-3.8}$ |
| Ω_K | -0.0549 | $-0.056^{+0.028}_{-0.018}$ | $\langle d^2 \rangle^{1/2}$ | 2.678 | 2.679 ± 0.082 | $D_M(0.38)$ | 1902 | 1902^{+120}_{-130} |
| $\ln(10^{10} A_s)$ | 3.0275 | $3.026^{+0.019}_{-0.016}$ | z_{re} | 6.91 | $6.82^{+0.96}_{-0.75}$ | $H(0.51)$ | 77.07 | $77.3^{+3.1}_{-3.6}$ |
| n_s | 0.9744 | 0.9720 ± 0.0064 | $10^9 A_s$ | 2.0645 | $2.061^{+0.038}_{-0.033}$ | $D_M(0.51)$ | 2432 | 2431^{+140}_{-160} |
| y_{cal} | 0.99993 | 1.0000 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8706 | 1.871 ± 0.014 | $H(0.61)$ | 83.18 | $83.5^{+3.0}_{-3.4}$ |
| A_{217}^{CIB} | 42.4 | 45 ± 7 | D_{40} | 1197.5 | 1203 ± 17 | $D_M(0.61)$ | 2805 | 2803^{+150}_{-170} |
| $\xi^{tSZ \times CIB}$ | 0.999 | > 0.414 | D_{220} | 5740.4 | 5745 ± 42 | $H(2.33)$ | 227.33 | 227.6 ± 3.0 |
| A_{143}^{tSZ} | 6.81 | $5.6^{+2.1}_{-1.8}$ | D_{810} | 2531.7 | 2529 ± 14 | $D_M(2.33)$ | 6471 | 6463 ± 220 |
| A_{100}^{PS} | 236.1 | 250 ± 30 | D_{1420} | 815.7 | 813.7 ± 5.1 | $f\sigma_8(0.15)$ | 0.5388 | 0.537 ± 0.024 |
| A_{143}^{PS} | 48.6 | 42 ± 8 | D_{2000} | 233.29 | 232.3 ± 2.0 | $\sigma_8(0.15)$ | 0.6909 | $0.690^{+0.024}_{-0.020}$ |
| $A_{143 \times 217}^{PS}$ | 56.2 | 40 ± 9 | $n_{s,0.002}$ | 0.9744 | 0.9720 ± 0.0064 | $f\sigma_8(0.38)$ | 0.5139 | $0.512^{+0.011}_{-0.0080}$ |
| A_{217}^{PS} | 122.6 | 114 ± 10 | Y_P | 0.245485 | 0.24546 ± 0.00011 | $\sigma_8(0.38)$ | 0.5949 | $0.594^{+0.026}_{-0.022}$ |
| A^{kSZ} | 0.00 | < 3.46 | Y_P^{BBN} | 0.246811 | 0.24679 ± 0.00011 | $f\sigma_8(0.51)$ | 0.4928 | $0.4908^{+0.0071}_{-0.0062}$ |
| A_{100}^{dustTT} | 8.96 | 9.0 ± 1.8 | $10^5 D/H$ | 2.5421 | 2.554 ± 0.048 | $\sigma_8(0.51)$ | 0.5497 | $0.550^{+0.026}_{-0.023}$ |
| A_{143}^{dustTT} | 10.62 | 10.5 ± 1.8 | Age/Gyr | 15.64 | 15.62 ± 0.60 | $f\sigma_8(0.61)$ | 0.4753 | $0.4735^{+0.0074}_{-0.0061}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.81 | 18.0 ± 3.2 | z_* | 1089.364 | 1089.46 ± 0.48 | $\sigma_8(0.61)$ | 0.5188 | $0.519^{+0.026}_{-0.023}$ |
| A_{217}^{dustTT} | 96.1 | 93.7 ± 7.3 | r_* | 144.996 | 145.00 ± 0.50 | $f\sigma_8(2.33)$ | 0.2572 | $0.257^{+0.014}_{-0.013}$ |
| c_{100} | 0.99971 | 0.99963 ± 0.00062 | $100\theta_*$ | 1.041455 | 1.04143 ± 0.00049 | $\sigma_8(2.33)$ | 0.2561 | 0.257 ± 0.016 |
| c_{217} | 0.99815 | 0.99818 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.9225 | 13.923 ± 0.046 | f_{2000}^{143} | 25.17 | 27 ± 3 |
| H_0 | 51.94 | 52.2 ± 4.3 | z_{drag} | 1060.276 | 1060.16 ± 0.52 | $f_{2000}^{143 \times 217}$ | 29.14 | 29.9 ± 2.3 |
| Ω_Λ | 0.535 | $0.531^{+0.069}_{-0.049}$ | r_{drag} | 147.590 | 147.61 ± 0.49 | f_{2000}^{217} | 103.80 | 104.9 ± 2.2 |
| Ω_m | 0.520 | $0.526^{+0.067}_{-0.096}$ | k_D | 0.14052 | 0.14045 ± 0.00051 | χ_{small}^2 | 395.52 | 396.8 ± 1.7 |
| $\Omega_m h^2$ | 0.14037 | 0.1405 ± 0.0021 | $100\theta_D$ | 0.160580 | 0.16066 ± 0.00029 | χ_{lowl}^2 | 20.969 | 21.39 ± 0.70 |
| $\Omega_m h^3$ | 0.0729 | 0.0734 ± 0.0066 | z_{eq} | 3339 | 3342 ± 51 | χ_{plik}^2 | 752.3 | 766.6 ± 5.4 |
| σ_8 | 0.7660 | $0.765^{+0.021}_{-0.017}$ | k_{eq} | 0.010191 | 0.01020 ± 0.00016 | χ_{prior}^2 | 1.00 | 7.1 ± 3.5 |
| S_8 | 1.009 | 1.008 ± 0.061 | $100\theta_{eq}$ | 0.8257 | 0.825 ± 0.010 | χ_{CMB}^2 | 1168.8 | 1184.8 ± 5.7 |

Best-fit $\chi_{eff}^2 = 1169.83$; $\Delta\chi_{eff}^2 = -9.74$; $\bar{\chi}_{eff}^2 = 1191.91$; $\Delta\bar{\chi}_{eff}^2 = -7.67$; $R - 1 = 0.01634$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.52 (Δ -0.35) commander_dx12_v3_2_29: 20.97 (Δ -2.63) plik_rd12_HM_v22_TT: 752.34 (Δ -6.41)

15.2 base_omegak_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|----------------------------|
| $\Omega_b h^2$ | 0.02255 ± 0.00026 | $\sigma_8 \Omega_m^{0.5}$ | 0.549 ± 0.033 | $100\theta_{s,eq}$ | 0.4555 ± 0.0051 |
| $\Omega_c h^2$ | 0.1173 ± 0.0023 | $\sigma_8 \Omega_m^{0.25}$ | 0.650 ± 0.015 | $H(0.15)$ | 59.0 ± 3.9 |
| $100\theta_{MC}$ | 1.04126 ± 0.00051 | $\sigma_8/h^{0.5}$ | $1.062^{+0.025}_{-0.022}$ | $D_M(0.15)$ | 811^{+54}_{-63} |
| τ | $0.0531^{+0.0033}_{-0.0069}$ | $r_{drag}h$ | 77.9 ± 6.2 | $H(0.38)$ | $70.4^{+3.2}_{-3.7}$ |
| Ω_K | $-0.053^{+0.026}_{-0.017}$ | $\langle d^2 \rangle^{1/2}$ | 2.678 ± 0.081 | $D_M(0.38)$ | 1885 ± 120 |
| $\ln(10^{10} A_s)$ | $3.0350^{+0.0096}_{-0.014}$ | z_{re} | < 7.52 | $H(0.51)$ | $77.8^{+3.0}_{-3.5}$ |
| n_s | 0.9722 ± 0.0065 | $10^9 A_s$ | $2.080^{+0.020}_{-0.029}$ | $D_M(0.51)$ | 2411 ± 140 |
| y_{cal} | 1.0001 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.871 ± 0.014 | $H(0.61)$ | $83.9^{+2.9}_{-3.4}$ |
| A_{217}^{CIB} | 45 ± 7 | D_{40} | 1204 ± 17 | $D_M(0.61)$ | 2781 ± 160 |
| $\xi^{tSZ \times CIB}$ | > 0.423 | D_{220} | 5744 ± 42 | $H(2.33)$ | 227.8 ± 3.0 |
| A_{143}^{tSZ} | 5.6 ± 1.9 | D_{810} | 2529 ± 14 | $D_M(2.33)$ | 6435 ± 210 |
| A_{100}^{PS} | 250 ± 30 | D_{1420} | 813.8 ± 5.1 | $f\sigma_8(0.15)$ | 0.536 ± 0.024 |
| A_{143}^{PS} | 42 ± 8 | D_{2000} | 232.4 ± 2.0 | $\sigma_8(0.15)$ | $0.696^{+0.022}_{-0.019}$ |
| $A_{143 \times 217}^{PS}$ | 40 ± 9 | $n_{s,0.002}$ | 0.9722 ± 0.0065 | $f\sigma_8(0.38)$ | $0.513^{+0.011}_{-0.0080}$ |
| A_{217}^{PS} | 114.1 ± 9.9 | Y_P | 0.24546 ± 0.00011 | $\sigma_8(0.38)$ | 0.600 ± 0.023 |
| A^{kSZ} | < 3.45 | Y_P^{BBN} | 0.24679 ± 0.00011 | $f\sigma_8(0.51)$ | 0.4926 ± 0.0063 |
| A_{100}^{dustTT} | 9.0 ± 1.8 | $10^5 D/H$ | 2.554 ± 0.048 | $\sigma_8(0.51)$ | 0.555 ± 0.023 |
| A_{143}^{dustTT} | 10.5 ± 1.8 | Age/Gyr | 15.55 ± 0.58 | $f\sigma_8(0.61)$ | 0.4757 ± 0.0061 |
| $A_{143 \times 217}^{dustTT}$ | 18.0 ± 3.2 | z_* | 1089.46 ± 0.47 | $\sigma_8(0.61)$ | 0.524 ± 0.023 |
| A_{217}^{dustTT} | 93.7 ± 7.3 | r_* | 145.01 ± 0.50 | $f\sigma_8(2.33)$ | 0.260 ± 0.013 |
| c_{100} | 0.99963 ± 0.00062 | $100\theta_*$ | 1.04143 ± 0.00050 | $\sigma_8(2.33)$ | 0.260 ± 0.015 |
| c_{217} | 0.99817 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.924 ± 0.046 | f_{2000}^{143} | 27 ± 3 |
| H_0 | 52.8 ± 4.2 | z_{drag} | 1060.15 ± 0.52 | $f_{2000}^{143 \times 217}$ | 29.9 ± 2.4 |
| Ω_Λ | $0.540^{+0.064}_{-0.048}$ | r_{drag} | 147.62 ± 0.48 | f_{2000}^{217} | 104.9 ± 2.2 |
| Ω_m | $0.513^{+0.065}_{-0.089}$ | k_D | 0.14044 ± 0.00051 | χ_{simall}^2 | 396.4 ± 1.3 |
| $\Omega_m h^2$ | 0.1405 ± 0.0021 | $100\theta_D$ | 0.16066 ± 0.00029 | χ_{lowl}^2 | 21.39 ± 0.73 |
| $\Omega_m h^3$ | 0.0742 ± 0.0064 | z_{eq} | 3341 ± 51 | χ_{plik}^2 | 766.6 ± 5.5 |
| σ_8 | $0.770^{+0.018}_{-0.016}$ | k_{eq} | 0.01020 ± 0.00016 | χ_{prior}^2 | 7.1 ± 3.5 |
| S_8 | 1.003 ± 0.060 | $100\theta_{eq}$ | 0.825 ± 0.010 | χ_{CMB}^2 | 1184.4 ± 5.7 |

$$\bar{\chi}_{eff}^2 = 1191.43; \Delta \bar{\chi}_{eff}^2 = -7.88; R - 1 = 0.01578$$

15.3 base_omegak_plikHM_TTTEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|----------------------------|--------------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022632 | 0.02260 ± 0.00017 | $\Omega_m h^2$ | 0.14120 | 0.1413 ± 0.0014 | k_{eq} | 0.010251 | 0.01026 ± 0.00010 |
| $\Omega_c h^2$ | 0.11792 | 0.1181 ± 0.0015 | $\Omega_m h^3$ | 0.0764 | $0.0769^{+0.0048}_{-0.0059}$ | $100\theta_{\text{eq}}$ | 0.8221 | 0.8214 ± 0.0065 |
| $100\theta_{\text{MC}}$ | 1.041187 | 1.04116 ± 0.00033 | σ_8 | 0.7750 | 0.774 ± 0.015 | $100\theta_{\text{s,eq}}$ | 0.45376 | 0.4534 ± 0.0033 |
| τ | 0.0495 | 0.0486 ± 0.0082 | S_8 | 0.9830 | 0.981 ± 0.049 | $H(0.15)$ | 60.17 | $60.4^{+3.0}_{-3.7}$ |
| Ω_K | -0.0438 | $-0.044^{+0.018}_{-0.015}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.5384 | 0.537 ± 0.027 | $D_{\text{M}}(0.15)$ | 789.0 | 788 ± 48 |
| $\ln(10^{10} A_s)$ | 3.0304 | 3.028 ± 0.017 | $\sigma_8 \Omega_m^{0.25}$ | 0.6460 | $0.645^{+0.013}_{-0.011}$ | $H(0.38)$ | 71.48 | $71.8^{+2.6}_{-3.3}$ |
| n_s | 0.97235 | 0.9706 ± 0.0048 | $\sigma_8/h^{0.5}$ | 1.0538 | $1.051^{+0.021}_{-0.018}$ | $D_{\text{M}}(0.38)$ | 1841 | 1838 ± 99 |
| y_{cal} | 1.00012 | 0.9999 ± 0.0025 | $r_{\text{drag}} h$ | 79.7 | $80.1^{+4.8}_{-5.8}$ | $H(0.51)$ | 78.82 | $79.1^{+2.5}_{-3.1}$ |
| A_{217}^{CIB} | 42.1 | 45 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.646 | 2.643 ± 0.065 | $D_{\text{M}}(0.51)$ | 2358 | 2355 ± 120 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.9999 | > 0.440 | z_{re} | 6.96 | $6.86^{+0.90}_{-0.75}$ | $H(0.61)$ | 84.88 | $85.2^{+2.4}_{-3.0}$ |
| A_{143}^{tSZ} | 6.82 | $5.8^{+2.0}_{-1.8}$ | $10^9 A_s$ | 2.0706 | 2.066 ± 0.036 | $D_{\text{M}}(0.61)$ | 2723 | 2719 ± 130 |
| A_{100}^{PS} | 237.7 | 248 ± 30 | $10^9 A_s e^{-2\tau}$ | 1.8754 | 1.875 ± 0.012 | $H(2.33)$ | 228.92 | $229.2^{+2.0}_{-2.4}$ |
| A_{143}^{PS} | 48.5 | 41 ± 8 | D_{40} | 1204.9 | 1208 ± 14 | $D_{\text{M}}(2.33)$ | 6357 | 6346^{+190}_{-170} |
| $A_{143 \times 217}^{\text{PS}}$ | 56.4 | 41 ± 9 | D_{220} | 5747.6 | 5748 ± 39 | $f\sigma_8(0.15)$ | 0.5285 | $0.527^{+0.022}_{-0.018}$ |
| A_{217}^{PS} | 123.6 | 115.5 ± 9.7 | D_{810} | 2535.4 | 2532 ± 14 | $\sigma_8(0.15)$ | 0.7017 | 0.701 ± 0.018 |
| A^{kSZ} | 0.00 | < 3.05 | D_{1420} | 816.95 | 815.2 ± 4.7 | $f\sigma_8(0.38)$ | 0.5110 | $0.5092^{+0.0098}_{-0.0068}$ |
| A_{100}^{dustTT} | 8.77 | 8.9 ± 1.8 | D_{2000} | 233.33 | 232.5 ± 1.7 | $\sigma_8(0.38)$ | 0.6069 | 0.607 ± 0.020 |
| A_{143}^{dustTT} | 10.68 | 10.6 ± 1.8 | $n_{\text{s},0.002}$ | 0.97235 | 0.9706 ± 0.0048 | $f\sigma_8(0.51)$ | 0.4928 | $0.4912^{+0.0057}_{-0.0047}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.69 | 18.1 ± 3.2 | Y_{P} | 0.245491 | $0.245481^{+0.000059}_{-0.000066}$ | $\sigma_8(0.51)$ | 0.5619 | 0.562 ± 0.020 |
| A_{217}^{dustTT} | 95.6 | 93.6 ± 7.2 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246818 | $0.246808^{+0.000059}_{-0.000066}$ | $f\sigma_8(0.61)$ | 0.47707 | $0.4757^{+0.0052}_{-0.0047}$ |
| A_{100}^{dustTE} | 0.1138 | 0.114 ± 0.038 | $10^5 \text{D}/\text{H}$ | 2.5387 | 2.545 ± 0.031 | $\sigma_8(0.61)$ | 0.5309 | 0.531 ± 0.020 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1349 | 0.134 ± 0.030 | Age/Gyr | 15.331 | 15.31 ± 0.47 | $f\sigma_8(2.33)$ | 0.2638 | 0.264 ± 0.011 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 | 0.479 ± 0.085 | z_* | 1089.411 | 1089.47 ± 0.31 | $\sigma_8(2.33)$ | 0.2639 | 0.264 ± 0.013 |
| A_{143}^{dustTE} | 0.223 | 0.223 ± 0.053 | r_* | 144.771 | 144.75 ± 0.32 | f_{2000}^{143} | 25.11 | 26 ± 3 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.661 | 0.661 ± 0.079 | $100\theta_*$ | 1.041338 | 1.04132 ± 0.00032 | $f_{2000}^{143 \times 217}$ | 29.16 | 29.6 ± 2.1 |
| A_{217}^{dustTE} | 2.055 | 2.06 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.9024 | 13.901 ± 0.029 | f_{2000}^{217} | 103.94 | 104.7 ± 1.9 |
| c_{100} | 0.99977 | 0.99970 ± 0.00061 | z_{drag} | 1060.390 | 1060.33 ± 0.33 | χ_{small}^2 | 395.55 | 396.7 ± 1.6 |
| c_{217} | 0.99808 | 0.99812 ± 0.00062 | r_{drag} | 147.353 | 147.35 ± 0.30 | χ_{lowl}^2 | 21.16 | 21.51 ± 0.63 |
| H_0 | 54.09 | $54.4^{+3.3}_{-4.0}$ | k_{D} | 0.140786 | 0.14077 ± 0.00031 | χ_{plik}^2 | 2336.5 | 2353.2 ± 5.7 |
| Ω_{Λ} | 0.5611 | $0.560^{+0.050}_{-0.043}$ | $100\theta_{\text{D}}$ | 0.160509 | 0.16055 ± 0.00019 | χ_{prior}^2 | 1.27 | 11.2 ± 4.4 |
| Ω_{m} | 0.483 | $0.485^{+0.058}_{-0.068}$ | z_{eq} | 3358.8 | 3362 ± 33 | χ_{CMB}^2 | 2753.2 | 2771.4 ± 5.9 |

Best-fit $\chi_{\text{eff}}^2 = 2754.51$; $\Delta\chi_{\text{eff}}^2 = -11.26$; $\bar{\chi}_{\text{eff}}^2 = 2782.60$; $\Delta\bar{\chi}_{\text{eff}}^2 = -9.17$; $R - 1 = 0.01257$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.55 (Δ -0.50) commander_dx12_v3_2_29: 21.16 (Δ -2.09) plik_rd12_HM_v22b_TTTEE: 2336.53 (Δ -8.12)

15.4 base_omegak_plikHM_TTTEEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02260 ± 0.00017 | $\Omega_{\text{m}}h^2$ | 0.1413 ± 0.0014 | k_{eq} | 0.01026 ± 0.00010 |
| $\Omega_{\text{c}}h^2$ | 0.1181 ± 0.0015 | $\Omega_{\text{m}}h^3$ | $0.0778^{+0.0046}_{-0.0060}$ | $100\theta_{\text{eq}}$ | 0.8215 ± 0.0065 |
| $100\theta_{\text{MC}}$ | 1.04116 ± 0.00033 | σ_8 | 0.779 ± 0.014 | $100\theta_{\text{s,eq}}$ | 0.4535 ± 0.0033 |
| τ | $0.0528^{+0.0029}_{-0.0069}$ | S_8 | 0.974 ± 0.048 | $H(0.15)$ | $61.1^{+2.9}_{-3.7}$ |
| Ω_K | $-0.041^{+0.017}_{-0.015}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.534 ± 0.026 | $D_{\text{M}}(0.15)$ | 779 ± 46 |
| $\ln(10^{10}A_{\text{s}})$ | $3.0365^{+0.0094}_{-0.014}$ | $\sigma_8\Omega_{\text{m}}^{0.25}$ | $0.645^{+0.013}_{-0.011}$ | $H(0.38)$ | $72.3^{+2.5}_{-3.3}$ |
| n_{s} | 0.9708 ± 0.0048 | $\sigma_8/h^{0.5}$ | $1.051^{+0.021}_{-0.018}$ | $D_{\text{M}}(0.38)$ | 1819 ± 94 |
| y_{cal} | 0.99996 ± 0.0025 | $r_{\text{drag}}h$ | $81.1^{+4.6}_{-5.8}$ | $H(0.51)$ | $79.6^{+2.4}_{-3.2}$ |
| A_{217}^{CIB} | 45 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.640 ± 0.064 | $D_{\text{M}}(0.51)$ | 2332 ± 110 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | > 0.441 | z_{re} | < 7.52 | $H(0.61)$ | $85.6^{+2.3}_{-3.0}$ |
| A_{143}^{tSZ} | $5.8^{+2.0}_{-1.8}$ | $10^9 A_{\text{s}}$ | $2.083^{+0.019}_{-0.030}$ | $D_{\text{M}}(0.61)$ | 2694 ± 120 |
| A_{100}^{PS} | 248 ± 30 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.874 ± 0.012 | $H(2.33)$ | $229.5^{+2.0}_{-2.5}$ |
| A_{143}^{PS} | 41 ± 8 | D_{40} | 1209 ± 14 | $D_{\text{M}}(2.33)$ | 6314^{+190}_{-160} |
| $A_{143 \times 217}^{\text{PS}}$ | 41 ± 9 | D_{220} | 5748 ± 39 | $f\sigma_8(0.15)$ | $0.525^{+0.022}_{-0.019}$ |
| A_{217}^{PS} | 115.5 ± 9.7 | D_{810} | 2532 ± 14 | $\sigma_8(0.15)$ | 0.707 ± 0.016 |
| A^{kSZ} | < 2.99 | D_{1420} | 815.3 ± 4.8 | $f\sigma_8(0.38)$ | $0.509^{+0.010}_{-0.0071}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | D_{2000} | 232.6 ± 1.7 | $\sigma_8(0.38)$ | 0.612 ± 0.018 |
| A_{143}^{dustTT} | 10.6 ± 1.8 | $n_{\text{s},0.002}$ | 0.9708 ± 0.0048 | $f\sigma_8(0.51)$ | $0.4924^{+0.0055}_{-0.0044}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.1 ± 3.2 | Y_{P} | 0.245482 ± 0.000066 | $\sigma_8(0.51)$ | 0.567 ± 0.019 |
| A_{217}^{dustTT} | 93.5 ± 7.2 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246809 ± 0.000066 | $f\sigma_8(0.61)$ | 0.4774 ± 0.0043 |
| A_{100}^{dustTE} | 0.113 ± 0.038 | 10^5D/H | 2.544 ± 0.031 | $\sigma_8(0.61)$ | 0.536 ± 0.019 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.029 | Age/Gyr | $15.22^{+0.48}_{-0.43}$ | $f\sigma_8(2.33)$ | 0.267 ± 0.010 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 ± 0.085 | z_* | 1089.46 ± 0.31 | $\sigma_8(2.33)$ | $0.268^{+0.011}_{-0.013}$ |
| A_{143}^{dustTE} | 0.223 ± 0.053 | r_* | 144.76 ± 0.32 | f_{2000}^{143} | 26 ± 3 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.660 ± 0.079 | $100\theta_*$ | 1.04132 ± 0.00032 | $f_{2000}^{143 \times 217}$ | 29.6 ± 2.1 |
| A_{217}^{dustTE} | 2.06 ± 0.27 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.901 ± 0.029 | f_{2000}^{217} | 104.7 ± 1.9 |
| c_{100} | 0.99970 ± 0.00061 | z_{drag} | 1060.33 ± 0.33 | χ_{small}^2 | 396.3 ± 1.3 |
| c_{217} | 0.99812 ± 0.00062 | r_{drag} | 147.35 ± 0.30 | χ_{lowl}^2 | 21.53 ± 0.67 |
| H_0 | $55.1^{+3.1}_{-3.9}$ | k_{D} | 0.14077 ± 0.00031 | χ_{plik}^2 | 2353.2 ± 5.7 |
| Ω_{Λ} | $0.569^{+0.046}_{-0.041}$ | $100\theta_{\text{D}}$ | 0.16055 ± 0.00019 | χ_{prior}^2 | 11.2 ± 4.4 |
| Ω_{m} | $0.472^{+0.056}_{-0.063}$ | z_{eq} | 3361 ± 33 | χ_{CMB}^2 | 2771.0 ± 5.8 |

$$\bar{\chi}_{\text{eff}}^2 = 2782.22; \Delta\bar{\chi}_{\text{eff}}^2 = -9.31; R - 1 = 0.01621$$

15.5 base_omegak_plikHM_TT_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022179 | 0.02216 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.9841 | 0.984 ± 0.013 | $D_M(0.38)$ | 1524.4 | 1525 ± 14 |
| $\Omega_c h^2$ | 0.11988 | 0.1198 ± 0.0022 | $r_{\text{drag}} h$ | 99.95 | 99.9 ± 1.0 | $H(0.51)$ | 89.99 | 89.95 ± 0.70 |
| $100\theta_{\text{MC}}$ | 1.040904 | 1.04087 ± 0.00048 | $\langle d^2 \rangle^{1/2}$ | 2.4310 | 2.431 ± 0.029 | $D_M(0.51)$ | 1974.9 | 1976 ± 17 |
| τ | 0.0527 | 0.0529 ± 0.0079 | z_{re} | 7.56 | 7.56 ± 0.80 | $H(0.61)$ | 95.61 | 95.57 ± 0.72 |
| Ω_K | 0.00125 | 0.0012 ± 0.0026 | $10^9 A_s$ | 2.0908 | 2.091 ± 0.034 | $D_M(0.61)$ | 2298.2 | 2299 ± 19 |
| $\ln(10^{10} A_s)$ | 3.0401 | 3.040 ± 0.016 | $10^9 A_s e^{-2\tau}$ | 1.8815 | 1.881 ± 0.014 | $H(2.33)$ | 236.58 | 236.5 ± 1.8 |
| n_s | 0.9651 | 0.9647 ± 0.0060 | D_{40} | 1228.2 | 1229 ± 16 | $D_M(2.33)$ | 5748.0 | 5751 ± 38 |
| y_{cal} | 1.00056 | 1.0006 ± 0.0025 | D_{220} | 5714.0 | 5717 ± 41 | $f\sigma_8(0.15)$ | 0.4559 | 0.4558 ± 0.0084 |
| A_{217}^{CIB} | 49.5 | 48 ± 7 | D_{810} | 2538.1 | 2537 ± 14 | $\sigma_8(0.15)$ | 0.7492 | 0.7488 ± 0.0093 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.19 | — | D_{1420} | 815.8 | 815.2 ± 5.1 | $f\sigma_8(0.38)$ | 0.4745 | 0.4743 ± 0.0074 |
| A_{143}^{tSZ} | 7.11 | 5.1 ± 2.0 | D_{2000} | 230.09 | 229.7 ± 1.9 | $\sigma_8(0.38)$ | 0.6643 | 0.6639 ± 0.0082 |
| A_{100}^{PS} | 256.0 | 263 ± 28 | $n_{s,0.002}$ | 0.9651 | 0.9647 ± 0.0060 | $f\sigma_8(0.51)$ | 0.4733 | 0.4731 ± 0.0068 |
| A_{143}^{PS} | 48.0 | 49 ± 8 | Y_{P} | 0.245317 | $0.24530^{+0.00011}_{-0.000087}$ | $\sigma_8(0.51)$ | 0.6217 | 0.6214 ± 0.0076 |
| $A_{143 \times 217}^{\text{PS}}$ | 43.7 | 44 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246644 | $0.24663^{+0.00011}_{-0.000087}$ | $f\sigma_8(0.61)$ | 0.4684 | 0.4682 ± 0.0064 |
| A_{217}^{PS} | 118.1 | 115 ± 10 | $10^5 D/H$ | 2.6219 | 2.626 ± 0.043 | $\sigma_8(0.61)$ | 0.5916 | 0.5914 ± 0.0073 |
| A^{kSZ} | 0.00 | < 4.80 | Age/Gyr | 13.757 | 13.764 ± 0.098 | $f\sigma_8(2.33)$ | 0.29831 | 0.2982 ± 0.0036 |
| A_{100}^{dustTT} | 8.90 | 9.0 ± 1.8 | z_* | 1090.152 | 1090.17 ± 0.43 | $\sigma_8(2.33)$ | 0.30779 | 0.3076 ± 0.0040 |
| A_{143}^{dustTT} | 10.77 | 10.7 ± 1.8 | r_* | 144.608 | 144.65 ± 0.48 | f_{2000}^{143} | 30.67 | 31.1 ± 3.0 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.31 | 18.3 ± 3.3 | $100\theta_*$ | 1.041105 | 1.04108 ± 0.00047 | $f_{2000}^{143 \times 217}$ | 33.38 | 33.5 ± 2.1 |
| A_{217}^{dustTT} | 94.5 | 93.4 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.8899 | 13.894 ± 0.045 | f_{2000}^{217} | 107.87 | 108.1 ± 1.9 |
| c_{100} | 0.99965 | 0.99961 ± 0.00061 | z_{drag} | 1059.475 | 1059.43 ± 0.46 | χ_{small}^2 | 395.85 | 397.0 ± 1.7 |
| c_{217} | 0.99827 | 0.99825 ± 0.00062 | r_{drag} | 147.338 | 147.39 ± 0.48 | χ_{lowl}^2 | 23.34 | 23.6 ± 1.5 |
| H_0 | 67.84 | 67.81 ± 0.69 | k_{D} | 0.14046 | 0.14039 ± 0.00051 | χ_{plik}^2 | 759.6 | 772.4 ± 5.4 |
| Ω_Λ | 0.6887 | 0.6886 ± 0.0075 | $100\theta_{\text{D}}$ | 0.161024 | 0.16106 ± 0.00027 | $\chi_{6\text{DF}}^2$ | 0.0107 | 0.056 ± 0.076 |
| Ω_{m} | 0.3101 | 0.3102 ± 0.0072 | z_{eq} | 3394.7 | 3392 ± 49 | χ_{MGS}^2 | 1.41 | 1.48 ± 0.60 |
| $\Omega_{\text{m}} h^2$ | 0.14270 | 0.1426 ± 0.0020 | k_{eq} | 0.010361 | 0.01035 ± 0.00015 | χ_{DR12BAO}^2 | 3.66 | 4.6 ± 1.8 |
| $\Omega_{\text{m}} h^3$ | 0.09681 | 0.0967 ± 0.0018 | $100\theta_{\text{eq}}$ | 0.8141 | 0.8146 ± 0.0092 | χ_{prior}^2 | 1.46 | 7.3 ± 3.7 |
| σ_8 | 0.8106 | 0.810 ± 0.010 | $100\theta_{s,\text{eq}}$ | 0.44994 | 0.4502 ± 0.0047 | χ_{BAO}^2 | 5.08 | 6.1 ± 1.6 |
| S_8 | 0.8241 | 0.824 ± 0.016 | $H(0.15)$ | 73.13 | 73.10 ± 0.67 | χ_{CMB}^2 | 1178.8 | 1192.9 ± 5.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4514 | 0.4512 ± 0.0089 | $D_M(0.15)$ | 639.1 | 639.4 ± 6.2 | | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6049 | 0.6046 ± 0.0094 | $H(0.38)$ | 83.26 | 83.22 ± 0.68 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1185.37$; $\Delta\chi_{\text{eff}}^2 = -0.38$; $\bar{\chi}_{\text{eff}}^2 = 1206.26$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.24$; $R - 1 = 0.01197$
 χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.01) MGS: 1.41 (Δ 0.13) DR12BAO: 3.66 (Δ -0.52) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.85 (Δ -0.04) commander_dx12_v3_2_29: 23.34 (Δ 0.52) plik_rd12_HM_v22_TT: 759.63 (Δ -0.47)

15.6 base_omegak_plikHM_TT_lowl_lowE_BAO_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022209 | 0.02217 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.9849 | 0.9857 ± 0.0096 | $D_M(0.38)$ | 1525.9 | 1526 ± 14 |
| $\Omega_c h^2$ | 0.11978 | 0.1198 ± 0.0020 | $r_{\text{drag}} h$ | 99.84 | 99.84 ± 0.96 | $H(0.51)$ | 89.92 | 89.91 ± 0.70 |
| $100\theta_{\text{MC}}$ | 1.040876 | 1.04086 ± 0.00048 | $\langle d^2 \rangle^{1/2}$ | 2.4347 | 2.436 ± 0.022 | $D_M(0.51)$ | 1976.7 | 1977 ± 17 |
| τ | 0.0539 | 0.0540 ± 0.0074 | z_{re} | 7.68 | 7.68 ± 0.74 | $H(0.61)$ | 95.54 | 95.54 ± 0.72 |
| Ω_K | 0.00100 | 0.0011 ± 0.0025 | $10^9 A_s$ | 2.0952 | 2.097 ± 0.030 | $D_M(0.61)$ | 2300.3 | 2301 ± 19 |
| $\ln(10^{10} A_s)$ | 3.0422 | 3.043 ± 0.014 | $10^9 A_s e^{-2\tau}$ | 1.8811 | 1.882 ± 0.012 | $H(2.33)$ | 236.49 | 236.5 ± 1.7 |
| n_s | 0.9649 | 0.9644 ± 0.0057 | D_{40} | 1229.1 | 1231 ± 15 | $D_M(2.33)$ | 5751.5 | 5752 ± 38 |
| y_{cal} | 1.00045 | 1.0007 ± 0.0025 | D_{220} | 5718.2 | 5721 ± 41 | $f\sigma_8(0.15)$ | 0.4564 | 0.4568 ± 0.0065 |
| A_{217}^{CIB} | 49.4 | 48 ± 7 | D_{810} | 2537.5 | 2538 ± 13 | $\sigma_8(0.15)$ | 0.7493 | 0.7498 ± 0.0078 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.12 | — | D_{1420} | 815.6 | 815.4 ± 5.1 | $f\sigma_8(0.38)$ | 0.4749 | 0.4753 ± 0.0057 |
| A_{143}^{tSZ} | 7.12 | 5.1 ± 2.0 | D_{2000} | 230.07 | 229.8 ± 1.9 | $\sigma_8(0.38)$ | 0.6643 | 0.6647 ± 0.0070 |
| A_{100}^{PS} | 257.2 | 263 ± 28 | $n_{s,0.002}$ | 0.9649 | 0.9644 ± 0.0057 | $f\sigma_8(0.51)$ | 0.4736 | 0.4739 ± 0.0052 |
| A_{143}^{PS} | 46.7 | 49 ± 8 | Y_{P} | 0.245329 | $0.24531^{+0.00010}_{-0.000085}$ | $\sigma_8(0.51)$ | 0.6217 | 0.6221 ± 0.0066 |
| $A_{143 \times 217}^{\text{PS}}$ | 41.4 | 44 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246656 | $0.24663^{+0.00010}_{-0.000086}$ | $f\sigma_8(0.61)$ | 0.46866 | 0.4690 ± 0.0049 |
| A_{217}^{PS} | 117.7 | 115 ± 10 | $10^5 D/H$ | 2.6163 | 2.625 ± 0.042 | $\sigma_8(0.61)$ | 0.5916 | 0.5920 ± 0.0063 |
| A^{kSZ} | 0.01 | < 4.79 | Age/Gyr | 13.766 | 13.768 ± 0.098 | $f\sigma_8(2.33)$ | 0.29829 | 0.2985 ± 0.0032 |
| A_{100}^{dustTT} | 8.81 | 8.9 ± 1.9 | z_* | 1090.106 | 1090.17 ± 0.41 | $\sigma_8(2.33)$ | 0.30772 | 0.3079 ± 0.0036 |
| A_{143}^{dustTT} | 10.84 | 10.7 ± 1.8 | r_* | 144.610 | 144.63 ± 0.44 | f_{2000}^{143} | 30.60 | 31.1 ± 3.0 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.32 | 18.3 ± 3.3 | $100\theta_*$ | 1.041073 | 1.04107 ± 0.00047 | $f_{2000}^{143 \times 217}$ | 33.17 | 33.5 ± 2.0 |
| A_{217}^{dustTT} | 94.7 | 93.4 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.8905 | 13.893 ± 0.040 | f_{2000}^{217} | 107.81 | 108.1 ± 1.9 |
| c_{100} | 0.99966 | 0.99962 ± 0.00061 | z_{drag} | 1059.551 | 1059.45 ± 0.46 | χ_{lensing}^2 | 8.876 | 9.34 ± 0.74 |
| c_{217} | 0.99825 | 0.99825 ± 0.00062 | r_{drag} | 147.328 | 147.36 ± 0.44 | χ_{simall}^2 | 396 | 295 ± 200 |
| H_0 | 67.77 | 67.75 ± 0.68 | k_{D} | 0.140493 | 0.14042 ± 0.00048 | χ_{lowl}^2 | 23 | 125 ± 200 |
| Ω_Λ | 0.6884 | 0.6881 ± 0.0066 | $100\theta_{\text{D}}$ | 0.160982 | 0.16104 ± 0.00026 | χ_{plik}^2 | 759.40 | 771.7 ± 5.2 |
| Ω_{m} | 0.3106 | 0.3109 ± 0.0065 | z_{eq} | 3393.2 | 3393 ± 44 | $\chi_{6\text{DF}}^2$ | 0.016 | 0.43 ± 0.68 |
| $\Omega_{\text{m}} h^2$ | 0.14264 | 0.1426 ± 0.0018 | k_{eq} | 0.010356 | 0.01036 ± 0.00013 | χ_{MGS}^2 | 1.34 | 1.04 ± 0.77 |
| $\Omega_{\text{m}} h^3$ | 0.09666 | 0.0966 ± 0.0018 | $100\theta_{\text{eq}}$ | 0.8144 | 0.8144 ± 0.0084 | χ_{DR12BAO}^2 | 3.85 | 4.7 ± 1.9 |
| σ_8 | 0.8108 | 0.8113 ± 0.0084 | $100\theta_{s,\text{eq}}$ | 0.45009 | 0.4501 ± 0.0043 | χ_{prior}^2 | 1.42 | 7.3 ± 3.7 |
| S_8 | 0.8249 | 0.826 ± 0.013 | $H(0.15)$ | 73.06 | 73.04 ± 0.67 | χ_{CMB}^2 | 1187.7 | 1201.7 ± 5.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4518 | 0.4523 ± 0.0070 | $D_M(0.15)$ | 639.7 | 640.0 ± 6.1 | χ_{BAO}^2 | 5.21 | 6.1 ± 1.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6052 | 0.6058 ± 0.0073 | $H(0.38)$ | 83.19 | 83.18 ± 0.68 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1194.36$; $\Delta\chi_{\text{eff}}^2 = -0.33$; $\bar{\chi}_{\text{eff}}^2 = 1215.14$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.41$; $R - 1 = 0.01348$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ -0.01) MGS: 1.34 (Δ 0.13) DR12BAO: 3.85 (Δ -0.52) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.88 (Δ 0.00) simall_100x143_offlike5_EE_Aplanck
396.03 (Δ -0.07) commander_dx12_v3.2_29: 23.43 (Δ 0.47) plik_rd12_HM_v22_TT: 759.40 (Δ -0.40)

15.7 base_omegak_plikHM_TT_lowl_lowE_BAO_post_lensing_Pantheon18

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|-----------------------|-----------------------------|----------------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02218 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.9849 ± 0.0095 | $D_M(0.38)$ | 1525 ± 13 |
| $\Omega_c h^2$ | 0.1197 ± 0.0019 | $r_{\text{drag}} h$ | 99.96 ± 0.93 | $H(0.51)$ | 89.94 ± 0.69 |
| $100\theta_{\text{MC}}$ | 1.04088 ± 0.00047 | $\langle d^2 \rangle^{1/2}$ | 2.435 ± 0.022 | $D_M(0.51)$ | 1976 ± 17 |
| τ | 0.0543 ± 0.0074 | z_{re} | 7.71 ± 0.74 | $H(0.61)$ | 95.56 ± 0.72 |
| Ω_K | 0.0011 ± 0.0025 | $10^9 A_s$ | 2.098 ± 0.030 | $D_M(0.61)$ | 2299 ± 19 |
| $\ln(10^{10} A_s)$ | 3.043 ± 0.014 | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.012 | $H(2.33)$ | 236.4 ± 1.7 |
| n_s | 0.9648 ± 0.0056 | D_{40} | 1230 ± 15 | $D_M(2.33)$ | 5751 ± 38 |
| y_{cal} | 1.0008 ± 0.0025 | D_{220} | 5722 ± 41 | $f\sigma_8(0.15)$ | 0.4561 ± 0.0064 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2538 ± 13 | $\sigma_8(0.15)$ | 0.7496 ± 0.0078 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.6 ± 5.1 | $f\sigma_8(0.38)$ | 0.4747 ± 0.0056 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 229.9 ± 1.8 | $\sigma_8(0.38)$ | 0.6647 ± 0.0070 |
| A_{100}^{PS} | 263 ± 28 | $n_{s,0.002}$ | 0.9648 ± 0.0056 | $f\sigma_8(0.51)$ | 0.4735 ± 0.0052 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.24531^{+0.00010}_{-0.000084}$ | $\sigma_8(0.51)$ | 0.6221 ± 0.0066 |
| $A_{143 \times 217}^{\text{PS}}$ | 44 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | $0.24664^{+0.00010}_{-0.000085}$ | $f\sigma_8(0.61)$ | 0.4686 ± 0.0049 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.622 ± 0.042 | $\sigma_8(0.61)$ | 0.5920 ± 0.0063 |
| A^{kSZ} | < 4.75 | Age/Gyr | 13.766 ± 0.097 | $f\sigma_8(2.33)$ | 0.2985 ± 0.0032 |
| A_{100}^{dustTT} | 8.9 ± 1.9 | z_* | 1090.14 ± 0.40 | $\sigma_8(2.33)$ | 0.3080 ± 0.0036 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.66 ± 0.43 | f_{2000}^{143} | 31.0 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04109 ± 0.00047 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| A_{217}^{dustTT} | 93.4 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.895 ± 0.040 | f_{2000}^{217} | 108.1 ± 1.9 |
| c_{100} | 0.99962 ± 0.00061 | z_{drag} | 1059.47 ± 0.46 | χ_{lensing}^2 | 9.34 ± 0.75 |
| c_{217} | 0.99825 ± 0.00062 | r_{drag} | 147.39 ± 0.43 | χ_{simall}^2 | 294 ± 200 |
| H_0 | 67.82 ± 0.66 | k_{D} | 0.14040 ± 0.00048 | χ_{lowl}^2 | 127 ± 200 |
| Ω_Λ | 0.6890 ± 0.0063 | $100\theta_{\text{D}}$ | 0.16103 ± 0.00026 | χ_{plik}^2 | 771.8 ± 5.2 |
| Ω_{m} | 0.3099 ± 0.0062 | z_{eq} | 3390 ± 44 | χ_{JLA}^2 | 1035.08 ± 0.30 |
| $\Omega_{\text{m}} h^2$ | 0.1425 ± 0.0018 | k_{eq} | 0.01035 ± 0.00013 | $\chi_{6\text{DF}}^2$ | 0.45 ± 0.71 |
| $\Omega_{\text{m}} h^3$ | 0.0966 ± 0.0018 | $100\theta_{\text{eq}}$ | 0.8150 ± 0.0083 | χ_{MGS}^2 | 1.08 ± 0.80 |
| σ_8 | 0.8110 ± 0.0084 | $100\theta_{\text{s,eq}}$ | 0.4504 ± 0.0042 | χ_{DR12BAO}^2 | 4.5 ± 1.7 |
| S_8 | 0.824 ± 0.012 | $H(0.15)$ | 73.10 ± 0.66 | χ_{prior}^2 | 7.3 ± 3.7 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4515 ± 0.0068 | $D_M(0.15)$ | 639.4 ± 6.0 | χ_{CMB}^2 | 1201.7 ± 5.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6051 ± 0.0072 | $H(0.38)$ | 83.22 ± 0.67 | χ_{BAO}^2 | 6.0 ± 1.5 |

$$\bar{\chi}_{\text{eff}}^2 = 2250.15; \Delta\bar{\chi}_{\text{eff}}^2 = 0.37; R - 1 = 0.01337$$

15.8 base_omegak_plikHM_TT_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|------------------------------------|----------------------------------|-----------------------------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02217 ± 0.00023 | $\sigma_8/h^{0.5}$ | 0.985 ± 0.012 | $D_{\mathrm{M}}(0.38)$ | 1525 ± 14 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1197 ± 0.0022 | $r_{\mathrm{drag}}h$ | 99.9 ± 1.0 | $H(0.51)$ | 89.94 ± 0.70 |
| $100\theta_{\mathrm{MC}}$ | 1.04088 ± 0.00048 | $\langle d^2 \rangle^{1/2}$ | 2.434 ± 0.028 | $D_{\mathrm{M}}(0.51)$ | 1976 ± 17 |
| τ | $0.0543^{+0.0050}_{-0.0081}$ | z_{re} | $7.71^{+0.55}_{-0.81}$ | $H(0.61)$ | 95.56 ± 0.73 |
| Ω_K | 0.0011 ± 0.0026 | $10^9 A_{\mathrm{s}}$ | $2.097^{+0.025}_{-0.034}$ | $D_{\mathrm{M}}(0.61)$ | 2300 ± 19 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.043^{+0.012}_{-0.016}$ | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.881 ± 0.014 | $H(2.33)$ | 236.4 ± 1.8 |
| n_{s} | 0.9649 ± 0.0060 | D_{40} | 1229 ± 16 | $D_{\mathrm{M}}(2.33)$ | 5751 ± 38 |
| y_{cal} | 1.0006 ± 0.0025 | D_{220} | 5717 ± 41 | $f\sigma_8(0.15)$ | 0.4562 ± 0.0083 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 14 | $\sigma_8(0.15)$ | 0.7497 ± 0.0091 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{1420} | 815.2 ± 5.1 | $f\sigma_8(0.38)$ | 0.4748 ± 0.0073 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 229.8 ± 1.9 | $\sigma_8(0.38)$ | 0.6647 ± 0.0079 |
| A_{100}^{PS} | 263 ± 28 | $n_{\mathrm{s},0.002}$ | 0.9649 ± 0.0060 | $f\sigma_8(0.51)$ | 0.4736 ± 0.0066 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.24531^{+0.00011}_{-0.000086}$ | $\sigma_8(0.51)$ | 0.6221 ± 0.0074 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 44 ± 9 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.24663^{+0.00011}_{-0.000087}$ | $f\sigma_8(0.61)$ | 0.4687 ± 0.0062 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.625 ± 0.043 | $\sigma_8(0.61)$ | 0.5920 ± 0.0070 |
| A^{kSZ} | < 4.79 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.766 ± 0.099 | $f\sigma_8(2.33)$ | 0.2985 ± 0.0034 |
| $A_{100}^{\mathrm{dust}TT}$ | 9.0 ± 1.8 | z_* | 1090.16 ± 0.43 | $\sigma_8(2.33)$ | 0.3080 ± 0.0039 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.7 ± 1.8 | r_* | 144.66 ± 0.48 | f_{2000}^{143} | 31.0 ± 3.0 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04109 ± 0.00047 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.1 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.4 ± 7.4 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.895 ± 0.045 | f_{2000}^{217} | 108.1 ± 1.9 |
| c_{100} | 0.99961 ± 0.00061 | z_{drag} | 1059.44 ± 0.46 | χ_{small}^2 | 396.9 ± 1.7 |
| c_{217} | 0.99825 ± 0.00062 | r_{drag} | 147.40 ± 0.48 | χ_{lowl}^2 | 23.6 ± 1.5 |
| H_0 | 67.81 ± 0.69 | k_{D} | 0.14039 ± 0.00051 | χ_{plik}^2 | 772.2 ± 5.4 |
| Ω_{Λ} | 0.6888 ± 0.0075 | $100\theta_{\mathrm{D}}$ | 0.16105 ± 0.00027 | $\chi_{6\mathrm{DF}}^2$ | 0.057 ± 0.076 |
| Ω_{m} | 0.3101 ± 0.0072 | z_{eq} | 3391 ± 49 | χ_{MGS}^2 | 1.48 ± 0.61 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1425 ± 0.0020 | k_{eq} | 0.01035 ± 0.00015 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.6 ± 1.9 |
| $\Omega_{\mathrm{m}}h^3$ | 0.0967 ± 0.0018 | $100\theta_{\mathrm{eq}}$ | 0.8149 ± 0.0092 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.811 ± 0.010 | $100\theta_{\mathrm{s,eq}}$ | 0.4504 ± 0.0047 | χ_{BAO}^2 | 6.1 ± 1.6 |
| S_8 | 0.825 ± 0.016 | $H(0.15)$ | 73.09 ± 0.68 | χ_{CMB}^2 | 1192.6 ± 5.4 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4517 ± 0.0089 | $D_{\mathrm{M}}(0.15)$ | 639.5 ± 6.2 | | |
| $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6052 ± 0.0093 | $H(0.38)$ | 83.21 ± 0.68 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 1206.04$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.28$; $R - 1 = 0.01397$

15.9 base_omegak_plikHM_TT_lowl_lowE_BAO_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|----------------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02217 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.9861 ± 0.0095 | $D_M(0.38)$ | 1526 ± 14 |
| $\Omega_c h^2$ | 0.1197 ± 0.0019 | $r_{\text{drag}} h$ | 99.85 ± 0.96 | $H(0.51)$ | 89.90 ± 0.70 |
| $100\theta_{\text{MC}}$ | 1.04087 ± 0.00048 | $\langle d^2 \rangle^{1/2}$ | 2.438 ± 0.022 | $D_M(0.51)$ | 1977 ± 17 |
| τ | $0.0549^{+0.0054}_{-0.0078}$ | z_{re} | $7.77^{+0.58}_{-0.76}$ | $H(0.61)$ | 95.52 ± 0.72 |
| Ω_K | 0.00099 ± 0.0025 | $10^9 A_s$ | $2.100^{+0.023}_{-0.031}$ | $D_M(0.61)$ | 2301 ± 19 |
| $\ln(10^{10} A_s)$ | $3.045^{+0.011}_{-0.014}$ | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.012 | $H(2.33)$ | 236.4 ± 1.7 |
| n_s | 0.9646 ± 0.0056 | D_{40} | 1230 ± 15 | $D_M(2.33)$ | 5753 ± 38 |
| y_{cal} | 1.0007 ± 0.0025 | D_{220} | 5721 ± 41 | $f\sigma_8(0.15)$ | 0.4569 ± 0.0065 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 13 | $\sigma_8(0.15)$ | 0.7501 ± 0.0077 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.4 ± 5.1 | $f\sigma_8(0.38)$ | 0.4754 ± 0.0056 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 229.9 ± 1.9 | $\sigma_8(0.38)$ | 0.6650 ± 0.0069 |
| A_{100}^{PS} | 263 ± 28 | $n_{s,0.002}$ | 0.9646 ± 0.0056 | $f\sigma_8(0.51)$ | 0.4741 ± 0.0052 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.24531^{+0.00010}_{-0.000084}$ | $\sigma_8(0.51)$ | 0.6224 ± 0.0065 |
| $A_{143 \times 217}^{\text{PS}}$ | 44 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | $0.24664^{+0.00010}_{-0.000085}$ | $f\sigma_8(0.61)$ | 0.4692 ± 0.0049 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.623 ± 0.042 | $\sigma_8(0.61)$ | 0.5923 ± 0.0062 |
| A^{kSZ} | < 4.79 | Age/Gyr | 13.771 ± 0.097 | $f\sigma_8(2.33)$ | 0.2986 ± 0.0031 |
| A_{100}^{dustTT} | 8.9 ± 1.9 | z_* | 1090.15 ± 0.40 | $\sigma_8(2.33)$ | 0.3081 ± 0.0036 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.65 ± 0.43 | f_{2000}^{143} | 31.0 ± 3.0 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04108 ± 0.00047 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| A_{217}^{dustTT} | 93.5 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.894 ± 0.040 | f_{2000}^{217} | 108.1 ± 1.9 |
| c_{100} | 0.99962 ± 0.00061 | z_{drag} | 1059.46 ± 0.46 | χ_{lensing}^2 | 9.29 ± 0.69 |
| c_{217} | 0.99825 ± 0.00062 | r_{drag} | 147.38 ± 0.43 | χ_{simall}^2 | 296 ± 200 |
| H_0 | 67.75 ± 0.68 | k_{D} | 0.14041 ± 0.00047 | χ_{lowl}^2 | 125 ± 200 |
| Ω_Λ | 0.6884 ± 0.0065 | $100\theta_{\text{D}}$ | 0.16104 ± 0.00026 | χ_{plik}^2 | 771.6 ± 5.2 |
| Ω_{m} | 0.3106 ± 0.0064 | z_{eq} | 3391 ± 43 | $\chi_{6\text{DF}}^2$ | 0.43 ± 0.68 |
| $\Omega_{\text{m}} h^2$ | 0.1426 ± 0.0018 | k_{eq} | 0.01035 ± 0.00013 | χ_{MGS}^2 | 1.04 ± 0.78 |
| $\Omega_{\text{m}} h^3$ | 0.0966 ± 0.0018 | $100\theta_{\text{eq}}$ | 0.8147 ± 0.0082 | χ_{DR12BAO}^2 | 4.7 ± 1.9 |
| σ_8 | 0.8117 ± 0.0083 | $100\theta_{\text{s,eq}}$ | 0.4503 ± 0.0042 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | 0.826 ± 0.013 | $H(0.15)$ | 73.04 ± 0.67 | χ_{CMB}^2 | 1201.5 ± 5.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4524 ± 0.0069 | $D_M(0.15)$ | 639.9 ± 6.1 | χ_{BAO}^2 | 6.2 ± 1.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6059 ± 0.0073 | $H(0.38)$ | 83.17 ± 0.68 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1214.95; \Delta\bar{\chi}_{\text{eff}}^2 = 0.38; R - 1 = 0.01494$$

15.10 base_omegak_plikHM_TT_lowl_lowE_BAO_post_lensing_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|------------------------------------|----------------------------------|-----------------------------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02219 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.9853 ± 0.0094 | $D_{\mathrm{M}}(0.38)$ | 1525 ± 13 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1196 ± 0.0019 | $r_{\mathrm{drag}}h$ | 99.97 ± 0.93 | $H(0.51)$ | 89.93 ± 0.69 |
| $100\theta_{\mathrm{MC}}$ | 1.04089 ± 0.00047 | $\langle d^2 \rangle^{1/2}$ | 2.436 ± 0.022 | $D_{\mathrm{M}}(0.51)$ | 1976 ± 17 |
| τ | $0.0552^{+0.0055}_{-0.0078}$ | z_{re} | $7.80^{+0.59}_{-0.76}$ | $H(0.61)$ | 95.55 ± 0.72 |
| Ω_K | 0.00099 ± 0.0025 | $10^9 A_{\mathrm{s}}$ | $2.101^{+0.024}_{-0.031}$ | $D_{\mathrm{M}}(0.61)$ | 2300 ± 19 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.045^{+0.011}_{-0.015}$ | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.881 ± 0.012 | $H(2.33)$ | 236.3 ± 1.7 |
| n_{s} | 0.9650 ± 0.0056 | D_{40} | 1230 ± 15 | $D_{\mathrm{M}}(2.33)$ | 5752 ± 38 |
| y_{cal} | 1.0008 ± 0.0025 | D_{220} | 5722 ± 41 | $f\sigma_8(0.15)$ | 0.4562 ± 0.0064 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 13 | $\sigma_8(0.15)$ | 0.7500 ± 0.0077 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{1420} | 815.6 ± 5.1 | $f\sigma_8(0.38)$ | 0.4749 ± 0.0055 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 229.9 ± 1.8 | $\sigma_8(0.38)$ | 0.6650 ± 0.0069 |
| A_{100}^{PS} | 263 ± 28 | $n_{\mathrm{s},0.002}$ | 0.9650 ± 0.0056 | $f\sigma_8(0.51)$ | 0.4737 ± 0.0051 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.24532^{+0.00010}_{-0.000084}$ | $\sigma_8(0.51)$ | 0.6224 ± 0.0065 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 44 ± 9 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.24664^{+0.00010}_{-0.000084}$ | $f\sigma_8(0.61)$ | 0.4688 ± 0.0049 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.621 ± 0.042 | $\sigma_8(0.61)$ | 0.5923 ± 0.0062 |
| A^{kSZ} | < 4.76 | Age/Gyr | 13.768 ± 0.097 | $f\sigma_8(2.33)$ | 0.2987 ± 0.0031 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.9 | z_* | 1090.12 ± 0.40 | $\sigma_8(2.33)$ | 0.3082 ± 0.0036 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.7 ± 1.8 | r_* | 144.68 ± 0.43 | f_{2000}^{143} | 31.0 ± 3.0 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04109 ± 0.00047 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.4 ± 7.3 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.897 ± 0.040 | f_{2000}^{217} | 108.0 ± 1.9 |
| c_{100} | 0.99962 ± 0.00061 | z_{drag} | 1059.48 ± 0.46 | $\chi_{\mathrm{lensing}}^2$ | 9.29 ± 0.70 |
| c_{217} | 0.99825 ± 0.00062 | r_{drag} | 147.41 ± 0.43 | χ_{simall}^2 | 294 ± 200 |
| H_0 | 67.82 ± 0.66 | k_{D} | 0.14039 ± 0.00047 | χ_{lowl}^2 | 126 ± 200 |
| Ω_{Λ} | 0.6893 ± 0.0063 | $100\theta_{\mathrm{D}}$ | 0.16103 ± 0.00026 | χ_{plik}^2 | 771.7 ± 5.2 |
| Ω_{m} | 0.3097 ± 0.0062 | z_{eq} | 3388 ± 43 | χ_{JLA}^2 | 1035.07 ± 0.30 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1424 ± 0.0018 | k_{eq} | 0.01034 ± 0.00013 | $\chi_{6\mathrm{DF}}^2$ | 0.45 ± 0.71 |
| $\Omega_{\mathrm{m}}h^3$ | 0.0966 ± 0.0018 | $100\theta_{\mathrm{eq}}$ | 0.8153 ± 0.0082 | χ_{MGS}^2 | 1.08 ± 0.80 |
| σ_8 | 0.8114 ± 0.0083 | $100\theta_{\mathrm{s,eq}}$ | 0.4506 ± 0.0042 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.5 ± 1.7 |
| S_8 | 0.824 ± 0.012 | $H(0.15)$ | 73.10 ± 0.66 | χ_{prior}^2 | 7.3 ± 3.7 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4516 ± 0.0068 | $D_{\mathrm{M}}(0.15)$ | 639.4 ± 6.0 | χ_{CMB}^2 | 1201.5 ± 5.4 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6053 ± 0.0072 | $H(0.38)$ | 83.21 ± 0.67 | χ_{BAO}^2 | 6.0 ± 1.5 |

$$\bar{\chi}_{\mathrm{eff}}^2 = 2249.97; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.34; R - 1 = 0.01495$$

15.11 base_omegak_plikHM_TTTEEE_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022396 | 0.02239 ± 0.00015 | σ_8 | 0.8109 | 0.8109 ± 0.0084 | $D_M(0.15)$ | 638.9 | 638.8 ± 6.0 |
| $\Omega_c h^2$ | 0.11972 | 0.1197 ± 0.0014 | S_8 | 0.8242 | 0.824 ± 0.013 | $H(0.38)$ | 83.28 | 83.29 ± 0.62 |
| $100\theta_{MC}$ | 1.040949 | 1.04095 ± 0.00031 | $\sigma_8 \Omega_m^{0.5}$ | 0.4515 | 0.4514 ± 0.0070 | $D_M(0.38)$ | 1523.9 | 1524 ± 13 |
| τ | 0.0544 | 0.0548 ± 0.0078 | $\sigma_8 \Omega_m^{0.25}$ | 0.6051 | 0.6050 ± 0.0073 | $H(0.51)$ | 90.00 | 90.01 ± 0.61 |
| Ω_K | 0.00079 | 0.0008 ± 0.0019 | $\sigma_8/h^{0.5}$ | 0.9843 | 0.984 ± 0.010 | $D_M(0.51)$ | 1974.3 | 1974 ± 16 |
| $\ln(10^{10} A_s)$ | 3.0441 | 3.044 ± 0.016 | $r_{drag} h$ | 99.86 | 99.89 ± 0.99 | $H(0.61)$ | 95.63 | 95.64 ± 0.61 |
| n_s | 0.96638 | 0.9659 ± 0.0045 | $\langle d^2 \rangle^{1/2}$ | 2.4336 | 2.434 ± 0.025 | $D_M(0.61)$ | 2297.5 | 2297 ± 18 |
| y_{cal} | 1.00064 | 1.0006 ± 0.0025 | z_{re} | 7.69 | 7.71 ± 0.79 | $H(2.33)$ | 236.59 | 236.6 ± 1.2 |
| A_{217}^{CIB} | 47.4 | 47 ± 7 | $10^9 A_s$ | 2.0991 | 2.100 ± 0.034 | $D_M(2.33)$ | 5746.4 | 5746 ± 31 |
| $\xi^{tSZ \times CIB}$ | 0.43 | — | $10^9 A_s e^{-2\tau}$ | 1.8827 | 1.882 ± 0.012 | $f\sigma_8(0.15)$ | 0.4561 | 0.4560 ± 0.0066 |
| A_{143}^{tSZ} | 7.16 | $5.4_{-1.9}^{+2.1}$ | D_{40} | 1228.1 | 1229 ± 13 | $\sigma_8(0.15)$ | 0.7495 | 0.7495 ± 0.0077 |
| A_{100}^{PS} | 251.1 | 259 ± 28 | D_{220} | 5732.8 | 5734 ± 39 | $f\sigma_8(0.38)$ | 0.4747 | 0.4747 ± 0.0058 |
| A_{143}^{PS} | 48.1 | 46 ± 8 | D_{810} | 2541.2 | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6646 | 0.6646 ± 0.0069 |
| $A_{143 \times 217}^{PS}$ | 47.6 | 42 ± 9 | D_{1420} | 818.24 | 817.5 ± 4.8 | $f\sigma_8(0.51)$ | 0.4735 | 0.4735 ± 0.0053 |
| A_{217}^{PS} | 119.5 | 115 ± 10 | D_{2000} | 231.28 | 230.9 ± 1.6 | $\sigma_8(0.51)$ | 0.6220 | 0.6221 ± 0.0065 |
| A^{kSZ} | 0.00 | < 4.39 | $n_{s,0.002}$ | 0.96638 | 0.9659 ± 0.0045 | $f\sigma_8(0.61)$ | 0.4686 | 0.4686 ± 0.0051 |
| A_{100}^{dustTT} | 8.79 | 8.9 ± 1.8 | Y_P | 0.245406 | $0.245400_{-0.000055}^{+0.000063}$ | $\sigma_8(0.61)$ | 0.5919 | 0.5920 ± 0.0062 |
| A_{143}^{dustTT} | 11.01 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246732 | $0.246726_{-0.000055}^{+0.000063}$ | $f\sigma_8(2.33)$ | 0.29846 | 0.2985 ± 0.0032 |
| $A_{143 \times 217}^{dustTT}$ | 19.80 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5806 | 2.583 ± 0.028 | $\sigma_8(2.33)$ | 0.30789 | 0.3080 ± 0.0035 |
| A_{217}^{dustTT} | 94.9 | 93.7 ± 7.3 | Age/Gyr | 13.755 | 13.755 ± 0.080 | f_{2000}^{143} | 29.06 | 29.5 ± 2.8 |
| A_{100}^{dustTE} | 0.1141 | 0.115 ± 0.039 | z_* | 1089.862 | 1089.88 ± 0.28 | $f_{2000}^{143 \times 217}$ | 32.10 | 32.2 ± 1.9 |
| $A_{100 \times 143}^{dustTE}$ | 0.1352 | 0.135 ± 0.030 | r_* | 144.483 | 144.50 ± 0.31 | f_{2000}^{217} | 106.68 | 107.0 ± 1.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.482 | 0.482 ± 0.085 | $100\theta_*$ | 1.041130 | 1.04113 ± 0.00031 | χ_{small}^2 | 396.06 | 397.2 ± 1.9 |
| A_{143}^{dustTE} | 0.225 | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8775 | 13.879 ± 0.029 | χ_{lowl}^2 | 23.21 | 23.4 ± 1.1 |
| $A_{143 \times 217}^{dustTE}$ | 0.666 | 0.665 ± 0.080 | z_{drag} | 1059.971 | 1059.95 ± 0.31 | χ_{plik}^2 | 2345.1 | 2360.2 ± 5.8 |
| A_{217}^{dustTE} | 2.082 | 2.08 ± 0.27 | r_{drag} | 147.137 | 147.15 ± 0.31 | χ_{6DF}^2 | 0.0157 | 0.057 ± 0.079 |
| c_{100} | 0.99969 | 0.99969 ± 0.00062 | k_D | 0.140840 | 0.14081 ± 0.00033 | χ_{MGS}^2 | 1.34 | 1.44 ± 0.59 |
| c_{217} | 0.99817 | 0.99822 ± 0.00062 | $100\theta_D$ | 0.160736 | 0.16075 ± 0.00018 | $\chi_{DR12BAO}^2$ | 3.92 | 4.7 ± 1.9 |
| H_0 | 67.87 | 67.88 ± 0.68 | z_{eq} | 3396.2 | 3396 ± 32 | χ_{prior}^2 | 1.75 | 11.6 ± 4.5 |
| Ω_Λ | 0.6893 | 0.6894 ± 0.0061 | k_{eq} | 0.010365 | 0.010364 ± 0.000097 | χ_{BAO}^2 | 5.28 | 6.2 ± 1.7 |
| Ω_m | 0.3099 | 0.3098 ± 0.0066 | $100\theta_{eq}$ | 0.8145 | 0.8146 ± 0.0060 | χ_{CMB}^2 | 2764.4 | 2780.7 ± 5.8 |
| $\Omega_m h^2$ | 0.14276 | 0.1427 ± 0.0013 | $100\theta_{s,eq}$ | 0.44998 | 0.4501 ± 0.0031 | | | |
| $\Omega_m h^3$ | 0.09689 | 0.0969 ± 0.0014 | $H(0.15)$ | 73.15 | 73.17 ± 0.65 | | | |

Best-fit $\chi_{eff}^2 = 2771.38$; $\Delta\chi_{eff}^2 = -0.53$; $\bar{\chi}_{eff}^2 = 2798.58$; $\Delta\bar{\chi}_{eff}^2 = 0.67$; $R - 1 = 0.01668$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ -0.01) MGS: 1.34 (Δ 0.13) DR12BAO: 3.92 (Δ -0.50) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.06 (Δ -0.14) commander_dx12_v3_2_29: 23.21 (Δ 0.34) plik_rd12_HM_v22b_TTTEEE: 2345.09 (Δ -0.42)

15.12 base_omegak_plikHM_TTTEE_lowl_lowE_BAO_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022412 | 0.02239 ± 0.00015 | σ_8 | 0.8118 | 0.8115 ± 0.0072 | $D_M(0.15)$ | 638.8 | 639.0 ± 5.8 |
| $\Omega_c h^2$ | 0.11970 | 0.1197 ± 0.0014 | S_8 | 0.8250 | 0.825 ± 0.011 | $H(0.38)$ | 83.28 | 83.27 ± 0.61 |
| $100\theta_{MC}$ | 1.040988 | 1.04095 ± 0.00032 | $\sigma_8 \Omega_m^{0.5}$ | 0.4519 | 0.4518 ± 0.0058 | $D_M(0.38)$ | 1523.8 | 1524 ± 13 |
| τ | 0.0556 | 0.0556 ± 0.0073 | $\sigma_8 \Omega_m^{0.25}$ | 0.6057 | 0.6055 ± 0.0060 | $H(0.51)$ | 90.00 | 89.99 ± 0.60 |
| Ω_K | 0.00073 | 0.0007 ± 0.0019 | $\sigma_8/h^{0.5}$ | 0.9854 | 0.9851 ± 0.0085 | $D_M(0.51)$ | 1974.2 | 1975 ± 16 |
| $\ln(10^{10} A_s)$ | 3.0462 | 3.046 ± 0.014 | $r_{\text{drag}} h$ | 99.86 | 99.86 ± 0.95 | $H(0.61)$ | 95.63 | 95.61 ± 0.60 |
| n_s | 0.96694 | 0.9658 ± 0.0044 | $\langle d^2 \rangle^{1/2}$ | 2.4351 | 2.437 ± 0.020 | $D_M(0.61)$ | 2297.4 | 2298 ± 18 |
| y_{cal} | 1.00049 | 1.0007 ± 0.0025 | z_{re} | 7.80 | 7.78 ± 0.73 | $H(2.33)$ | 236.58 | 236.6 ± 1.2 |
| A_{217}^{CIB} | 46.8 | 47 ± 7 | $10^9 A_s$ | 2.1036 | 2.104 ± 0.030 | $D_M(2.33)$ | 5746.3 | 5747 ± 31 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.47 | — | $10^9 A_s e^{-2\tau}$ | 1.8821 | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4565 | 0.4564 ± 0.0055 |
| A_{143}^{tSZ} | 7.20 | $5.4_{-1.9}^{+2.1}$ | D_{40} | 1226.9 | 1230 ± 13 | $\sigma_8(0.15)$ | 0.7503 | 0.7501 ± 0.0068 |
| A_{100}^{PS} | 249.1 | 259 ± 28 | D_{220} | 5730.0 | 5737 ± 39 | $f\sigma_8(0.38)$ | 0.47523 | 0.4751 ± 0.0047 |
| A_{143}^{PS} | 47.7 | 46 ± 8 | D_{810} | 2540.9 | 2540 ± 13 | $\sigma_8(0.38)$ | 0.6653 | 0.6651 ± 0.0062 |
| $A_{143 \times 217}^{\text{PS}}$ | 48.3 | 42 ± 9 | D_{1420} | 818.43 | 817.7 ± 4.7 | $f\sigma_8(0.51)$ | 0.47401 | 0.4739 ± 0.0044 |
| A_{217}^{PS} | 120.2 | 115 ± 10 | D_{2000} | 231.41 | 231.0 ± 1.6 | $\sigma_8(0.51)$ | 0.6227 | 0.6225 ± 0.0059 |
| A^{kSZ} | 0.00 | < 4.24 | $n_{s,0.002}$ | 0.96694 | 0.9658 ± 0.0044 | $f\sigma_8(0.61)$ | 0.46915 | 0.4690 ± 0.0041 |
| A_{100}^{dustTT} | 8.83 | 8.9 ± 1.8 | Y_{P} | 0.245412 | $0.245403_{-0.000055}^{+0.000061}$ | $\sigma_8(0.61)$ | 0.5926 | 0.5923 ± 0.0057 |
| A_{143}^{dustTT} | 11.00 | 10.9 ± 1.8 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246738 | $0.246729_{-0.000055}^{+0.000061}$ | $f\sigma_8(2.33)$ | 0.29880 | 0.2987 ± 0.0029 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.80 | 18.6 ± 3.3 | $10^5 \text{D}/\text{H}$ | 2.5777 | 2.582 ± 0.028 | $\sigma_8(2.33)$ | 0.30823 | 0.3081 ± 0.0033 |
| A_{217}^{dustTT} | 95.1 | 93.7 ± 7.4 | Age/Gyr | 13.755 | 13.758 ± 0.079 | f_{2000}^{143} | 28.62 | 29.5 ± 2.8 |
| A_{100}^{dustTE} | 0.1142 | 0.114 ± 0.038 | z_* | 1089.840 | 1089.86 ± 0.28 | $f_{2000}^{143 \times 217}$ | 31.86 | 32.2 ± 1.9 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1335 | 0.135 ± 0.029 | r_* | 144.478 | 144.50 ± 0.30 | f_{2000}^{217} | 106.50 | 107.0 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 | 0.483 ± 0.085 | $100\theta_*$ | 1.041163 | 1.04113 ± 0.00031 | χ_{lensing}^2 | 8.786 | 9.13 ± 0.58 |
| A_{143}^{dustTE} | 0.223 | 0.225 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 13.8766 | 13.879 ± 0.028 | χ_{small}^2 | 396 | 291 ± 200 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.664 ± 0.080 | z_{drag} | 1060.009 | 1059.97 ± 0.30 | χ_{lowl}^2 | 23 | 129 ± 200 |
| A_{217}^{dustTE} | 2.091 | 2.08 ± 0.27 | r_{drag} | 147.126 | 147.15 ± 0.29 | χ_{plik}^2 | 2345.0 | 2359.8 ± 5.8 |
| c_{100} | 0.99971 | 0.99969 ± 0.00061 | k_{D} | 0.140863 | 0.14082 ± 0.00031 | $\chi_{6\text{DF}}^2$ | 0.016 | 0.44 ± 0.69 |
| c_{217} | 0.99818 | 0.99821 ± 0.00061 | $100\theta_{\text{D}}$ | 0.160720 | 0.16074 ± 0.00017 | χ_{MGS}^2 | 1.34 | 1.03 ± 0.77 |
| H_0 | 67.87 | 67.86 ± 0.65 | z_{eq} | 3395.9 | 3395 ± 31 | χ_{DR12BAO}^2 | 3.93 | 4.7 ± 1.9 |
| Ω_{Λ} | 0.6894 | 0.6893 ± 0.0058 | k_{eq} | 0.010365 | 0.010362 ± 0.000093 | χ_{prior}^2 | 1.70 | 11.5 ± 4.4 |
| Ω_{m} | 0.3099 | 0.3100 ± 0.0063 | $100\theta_{\text{eq}}$ | 0.8146 | 0.8147 ± 0.0058 | χ_{CMB}^2 | 2773.2 | 2789.5 ± 5.9 |
| $\Omega_{\text{m}} h^2$ | 0.14275 | 0.1427 ± 0.0013 | $100\theta_{s,\text{eq}}$ | 0.45003 | 0.4501 ± 0.0030 | χ_{BAO}^2 | 5.29 | 6.2 ± 1.6 |
| $\Omega_{\text{m}} h^3$ | 0.09689 | 0.0969 ± 0.0014 | $H(0.15)$ | 73.16 | 73.15 ± 0.63 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2780.16$; $\Delta\chi_{\text{eff}}^2 = -0.54$; $\bar{\chi}_{\text{eff}}^2 = 2807.21$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.36$; $R - 1 = 0.02276$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ -0.01) MGS: 1.34 (Δ 0.13) DR12BAO: 3.93 (Δ -0.49) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 8.79 (Δ 0.06) small_100x143_offlike5_EE_Aplanck 396.28 (Δ -0.24) commander_dx12_v3.2_29: 23.14 (Δ 0.24) plik_rd12_HM_v22b.TTTEE: 2344.96 (Δ -0.36)

15.13 base_omegak_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022420 | 0.02240 ± 0.00015 | σ_8 | 0.8117 | 0.8115 ± 0.0072 | $D_M(0.15)$ | 638.2 | 638.4 ± 5.7 |
| $\Omega_c h^2$ | 0.11956 | 0.1196 ± 0.0014 | S_8 | 0.8238 | 0.824 ± 0.010 | $H(0.38)$ | 83.32 | 83.32 ± 0.60 |
| $100\theta_{MC}$ | 1.040974 | 1.04096 ± 0.00032 | $\sigma_8 \Omega_m^{0.5}$ | 0.4512 | 0.4512 ± 0.0057 | $D_M(0.38)$ | 1522.7 | 1523 ± 12 |
| τ | 0.0559 | 0.0559 ± 0.0073 | $\sigma_8 \Omega_m^{0.25}$ | 0.6052 | 0.6051 ± 0.0059 | $H(0.51)$ | 90.04 | 90.03 ± 0.60 |
| Ω_K | 0.00077 | 0.0008 ± 0.0019 | $\sigma_8/h^{0.5}$ | 0.9848 | 0.9846 ± 0.0084 | $D_M(0.51)$ | 1972.9 | 1973 ± 15 |
| $\ln(10^{10} A_s)$ | 3.0470 | 3.047 ± 0.014 | $r_{drag} h$ | 99.98 | 99.97 ± 0.92 | $H(0.61)$ | 95.66 | 95.65 ± 0.60 |
| n_s | 0.96722 | $0.9660^{+0.0042}_{-0.0047}$ | $\langle d^2 \rangle^{1/2}$ | 2.4339 | 2.436 ± 0.020 | $D_M(0.61)$ | 2296.0 | 2296 ± 17 |
| y_{cal} | 1.00076 | 1.0007 ± 0.0025 | z_{re} | 7.83 | 7.81 ± 0.72 | $H(2.33)$ | 236.51 | 236.5 ± 1.2 |
| A_{217}^{CIB} | 46.4 | 47 ± 7 | $10^9 A_s$ | 2.1052 | 2.105 ± 0.030 | $D_M(2.33)$ | 5745.2 | 5745 ± 31 |
| $\xi^{tSZ \times CIB}$ | 0.61 | — | $10^9 A_s e^{-2\tau}$ | 1.8825 | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4559 | 0.4559 ± 0.0054 |
| A_{143}^{tSZ} | 7.10 | $5.4^{+2.1}_{-1.9}$ | D_{40} | 1227.0 | 1229 ± 13 | $\sigma_8(0.15)$ | 0.7503 | 0.7501 ± 0.0068 |
| A_{100}^{PS} | 249.2 | 259 ± 28 | D_{220} | 5734.0 | 5738 ± 39 | $f\sigma_8(0.38)$ | 0.47481 | 0.4748 ± 0.0047 |
| A_{143}^{PS} | 49.9 | 46 ± 8 | D_{810} | 2542.2 | 2540 ± 13 | $\sigma_8(0.38)$ | 0.6654 | 0.6652 ± 0.0062 |
| $A_{143 \times 217}^{PS}$ | 51.9 | 42 ± 9 | D_{1420} | 818.91 | 817.8 ± 4.7 | $f\sigma_8(0.51)$ | 0.47369 | 0.4736 ± 0.0043 |
| A_{217}^{PS} | 121.2 | 115 ± 10 | D_{2000} | 231.57 | 231.1 ± 1.6 | $\sigma_8(0.51)$ | 0.6228 | 0.6227 ± 0.0059 |
| A^{kSZ} | 0.00 | < 4.22 | $n_{s,0.002}$ | 0.96722 | $0.9660^{+0.0042}_{-0.0047}$ | $f\sigma_8(0.61)$ | 0.46890 | 0.4688 ± 0.0041 |
| A_{100}^{dustTT} | 8.84 | 8.9 ± 1.8 | Y_P | 0.245415 | $0.245405^{+0.000061}_{-0.000054}$ | $\sigma_8(0.61)$ | 0.5927 | 0.5925 ± 0.0057 |
| A_{143}^{dustTT} | 11.07 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246742 | $0.246732^{+0.000061}_{-0.000055}$ | $f\sigma_8(2.33)$ | 0.29891 | 0.2988 ± 0.0029 |
| $A_{143 \times 217}^{dustTT}$ | 20.13 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5761 | 2.580 ± 0.028 | $\sigma_8(2.33)$ | 0.30839 | 0.3083 ± 0.0033 |
| A_{217}^{dustTT} | 95.4 | 93.7 ± 7.4 | Age/Gyr | 13.752 | 13.753 ± 0.079 | f_{2000}^{143} | 28.63 | 29.5 ± 2.8 |
| A_{100}^{dustTE} | 0.1137 | 0.114 ± 0.038 | z_* | 1089.818 | 1089.85 ± 0.28 | $f_{2000}^{143 \times 217}$ | 31.97 | 32.1 ± 1.9 |
| $A_{100 \times 143}^{dustTE}$ | 0.1340 | 0.135 ± 0.029 | r_* | 144.506 | 144.51 ± 0.30 | f_{2000}^{217} | 106.52 | 107.0 ± 1.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.482 | 0.483 ± 0.085 | $100\theta_*$ | 1.041150 | 1.04114 ± 0.00031 | $\chi_{lensing}^2$ | 8.771 | 9.13 ± 0.58 |
| A_{143}^{dustTE} | 0.226 | 0.224 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 13.8794 | 13.880 ± 0.028 | χ_{small}^2 | 396 | 291 ± 200 |
| $A_{143 \times 217}^{dustTE}$ | 0.668 | 0.664 ± 0.080 | z_{drag} | 1060.009 | 1059.98 ± 0.30 | χ_{lowl}^2 | 23 | 129 ± 200 |
| A_{217}^{dustTE} | 2.094 | 2.08 ± 0.27 | r_{drag} | 147.152 | 147.16 ± 0.29 | χ_{plik}^2 | 2345.1 | 2359.9 ± 5.8 |
| c_{100} | 0.99972 | 0.99969 ± 0.00061 | k_D | 0.140842 | 0.14081 ± 0.00031 | χ_{JLA}^2 | 1034.957 | 1035.03 ± 0.27 |
| c_{217} | 0.99819 | 0.99821 ± 0.00061 | $100\theta_D$ | 0.160711 | 0.16074 ± 0.00017 | χ_{6DF}^2 | 0.010 | 0.46 ± 0.72 |
| H_0 | 67.94 | 67.93 ± 0.64 | z_{eq} | 3393.0 | 3393 ± 30 | χ_{MGS}^2 | 1.41 | 1.07 ± 0.79 |
| Ω_Λ | 0.6902 | 0.6900 ± 0.0056 | k_{eq} | 0.010356 | 0.010357 ± 0.000093 | $\chi_{DR12BAO}^2$ | 3.79 | 4.5 ± 1.7 |
| Ω_m | 0.3090 | 0.3092 ± 0.0060 | $100\theta_{eq}$ | 0.8151 | 0.8150 ± 0.0058 | χ_{prior}^2 | 1.68 | 11.5 ± 4.5 |
| $\Omega_m h^2$ | 0.14263 | 0.1426 ± 0.0013 | $100\theta_{s,eq}$ | 0.45030 | 0.4503 ± 0.0030 | χ_{CMB}^2 | 2773.3 | 2789.6 ± 5.9 |
| $\Omega_m h^3$ | 0.09690 | 0.0969 ± 0.0014 | $H(0.15)$ | 73.22 | 73.21 ± 0.62 | χ_{BAO}^2 | 5.20 | 6.1 ± 1.4 |

Best-fit $\chi_{eff}^2 = 3815.13$; $\Delta\chi_{eff}^2 = -0.54$; $\bar{\chi}_{eff}^2 = 3842.20$; $\Delta\bar{\chi}_{eff}^2 = 0.34$; $R - 1 = 0.02228$
 χ_{eff}^2 : BAO - 6DF: 0.01 (Δ -0.01) MGS: 1.41 (Δ 0.13) DR12BAO: 3.79 (Δ -0.46) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 8.77 (Δ 0.05) small_100x143_offlike5_EE_Aplanck 396.34 (Δ -0.18) commander_dx12_v3.2_29: 23.10 (Δ 0.21) plik_rd12_HM_v22b.TTTEEE: 2345.08 (Δ -0.18) SN - JLA Pantheon18: 1034.96 (Δ -0.02)

15.14 base_omegak_plikHM_TTTEE_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02239 ± 0.00015 | σ_8 | $0.8117^{+0.0073}_{-0.0084}$ | $D_{\mathrm{M}}(0.15)$ | 638.7 ± 6.0 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1197 ± 0.0014 | S_8 | 0.825 ± 0.013 | $H(0.38)$ | 83.29 ± 0.62 |
| $100\theta_{\mathrm{MC}}$ | 1.04095 ± 0.00031 | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4517 ± 0.0069 | $D_{\mathrm{M}}(0.38)$ | 1524 ± 13 |
| τ | $0.0558^{+0.0057}_{-0.0081}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6055 ± 0.0071 | $H(0.51)$ | 90.02 ± 0.61 |
| Ω_K | 0.0008 ± 0.0019 | $\sigma_8/h^{0.5}$ | $0.9851^{+0.0094}_{-0.010}$ | $D_{\mathrm{M}}(0.51)$ | 1974 ± 16 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.046^{+0.013}_{-0.016}$ | $r_{\mathrm{drag}}h$ | 99.91 ± 0.99 | $H(0.61)$ | 95.64 ± 0.61 |
| n_{s} | 0.9660 ± 0.0044 | $\langle d^2 \rangle^{1/2}$ | $2.436^{+0.022}_{-0.025}$ | $D_{\mathrm{M}}(0.61)$ | 2297 ± 18 |
| y_{cal} | 1.0006 ± 0.0025 | z_{re} | $7.81^{+0.62}_{-0.80}$ | $H(2.33)$ | 236.6 ± 1.2 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_{\mathrm{s}}$ | $2.104^{+0.026}_{-0.035}$ | $D_{\mathrm{M}}(2.33)$ | 5746 ± 31 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.882 ± 0.012 | $f\sigma_8(0.15)$ | 0.4563 ± 0.0065 |
| A_{143}^{tSZ} | $5.4^{+2.2}_{-1.9}$ | D_{40} | 1229 ± 13 | $\sigma_8(0.15)$ | $0.7502^{+0.0067}_{-0.0077}$ |
| A_{100}^{PS} | 259 ± 28 | D_{220} | 5734 ± 39 | $f\sigma_8(0.38)$ | 0.4751 ± 0.0056 |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2539 ± 14 | $\sigma_8(0.38)$ | $0.6652^{+0.0060}_{-0.0069}$ |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | D_{1420} | 817.5 ± 4.8 | $f\sigma_8(0.51)$ | 0.4739 ± 0.0052 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 230.9 ± 1.6 | $\sigma_8(0.51)$ | $0.6227^{+0.0057}_{-0.0065}$ |
| A^{kSZ} | < 4.38 | $n_{\mathrm{s},0.002}$ | 0.9660 ± 0.0044 | $f\sigma_8(0.61)$ | 0.4690 ± 0.0048 |
| $A_{100}^{\mathrm{dustTT}}$ | 8.9 ± 1.8 | Y_{P} | $0.245400^{+0.000063}_{-0.000055}$ | $\sigma_8(0.61)$ | $0.5925^{+0.0054}_{-0.0062}$ |
| $A_{143}^{\mathrm{dustTT}}$ | 10.9 ± 1.8 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246727^{+0.000063}_{-0.000055}$ | $f\sigma_8(2.33)$ | $0.2988^{+0.0027}_{-0.0031}$ |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 18.6 ± 3.3 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.583 ± 0.028 | $\sigma_8(2.33)$ | $0.3083^{+0.0031}_{-0.0035}$ |
| $A_{217}^{\mathrm{dustTT}}$ | 93.7 ± 7.3 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.755 ± 0.080 | f_{2000}^{143} | 29.5 ± 2.8 |
| $A_{100}^{\mathrm{dustTE}}$ | 0.115 ± 0.039 | z_* | 1089.87 ± 0.28 | $f_{2000}^{143 \times 217}$ | 32.2 ± 1.9 |
| $A_{100 \times 143}^{\mathrm{dustTE}}$ | 0.135 ± 0.029 | r_* | 144.50 ± 0.31 | f_{2000}^{217} | 107.0 ± 1.8 |
| $A_{100 \times 217}^{\mathrm{dustTE}}$ | 0.482 ± 0.085 | $100\theta_*$ | 1.04113 ± 0.00031 | χ_{small}^2 | 397.1 ± 1.9 |
| $A_{143}^{\mathrm{dustTE}}$ | 0.224 ± 0.054 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.879 ± 0.029 | χ_{lowl}^2 | 23.4 ± 1.1 |
| $A_{143 \times 217}^{\mathrm{dustTE}}$ | 0.665 ± 0.080 | z_{drag} | 1059.95 ± 0.31 | χ_{plik}^2 | 2360.0 ± 5.8 |
| $A_{217}^{\mathrm{dustTE}}$ | 2.08 ± 0.27 | r_{drag} | 147.16 ± 0.31 | $\chi_{6\mathrm{DF}}^2$ | 0.057 ± 0.078 |
| c_{100} | 0.99968 ± 0.00062 | k_{D} | 0.14081 ± 0.00033 | χ_{MGS}^2 | 1.45 ± 0.59 |
| c_{217} | 0.99822 ± 0.00062 | $100\theta_{\mathrm{D}}$ | 0.16075 ± 0.00018 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.7 ± 1.9 |
| H_0 | 67.89 ± 0.67 | z_{eq} | 3395 ± 32 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_{Λ} | 0.6895 ± 0.0061 | k_{eq} | 0.010362 ± 0.000097 | χ_{BAO}^2 | 6.2 ± 1.7 |
| Ω_{m} | 0.3097 ± 0.0066 | $100\theta_{\mathrm{eq}}$ | 0.8147 ± 0.0060 | χ_{CMB}^2 | 2780.5 ± 5.7 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1427 ± 0.0013 | $100\theta_{\mathrm{s,eq}}$ | 0.4501 ± 0.0031 | | |
| $\Omega_{\mathrm{m}}h^3$ | 0.0969 ± 0.0014 | $H(0.15)$ | 73.18 ± 0.65 | | |

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.34; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.62; R - 1 = 0.01378$$

15.15 base_omegak_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02240 ± 0.00015 | σ_8 | 0.8119 ± 0.0070 | $D_M(0.15)$ | 638.9 ± 5.8 |
| $\Omega_c h^2$ | 0.1197 ± 0.0014 | S_8 | 0.825 ± 0.011 | $H(0.38)$ | 83.27 ± 0.61 |
| $100\theta_{MC}$ | 1.04096 ± 0.00032 | $\sigma_8 \Omega_m^{0.5}$ | 0.4519 ± 0.0058 | $D_M(0.38)$ | 1524 ± 13 |
| τ | $0.0562^{+0.0060}_{-0.0076}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6057 ± 0.0059 | $H(0.51)$ | 90.00 ± 0.60 |
| Ω_K | 0.0007 ± 0.0019 | $\sigma_8/h^{0.5}$ | 0.9855 ± 0.0083 | $D_M(0.51)$ | 1974 ± 16 |
| $\ln(10^{10} A_s)$ | $3.047^{+0.012}_{-0.015}$ | $r_{\text{drag}} h$ | 99.88 ± 0.95 | $H(0.61)$ | 95.62 ± 0.60 |
| n_s | $0.9659^{+0.0042}_{-0.0047}$ | $\langle d^2 \rangle^{1/2}$ | 2.438 ± 0.020 | $D_M(0.61)$ | 2298 ± 18 |
| y_{cal} | 1.0007 ± 0.0025 | z_{re} | $7.85^{+0.64}_{-0.74}$ | $H(2.33)$ | 236.5 ± 1.2 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.106^{+0.026}_{-0.031}$ | $D_M(2.33)$ | 5747 ± 31 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4565 ± 0.0055 |
| A_{143}^{tSZ} | $5.4^{+2.1}_{-1.9}$ | D_{40} | 1229 ± 13 | $\sigma_8(0.15)$ | $0.7504^{+0.0062}_{-0.0069}$ |
| A_{100}^{PS} | 259 ± 28 | D_{220} | 5737 ± 39 | $f\sigma_8(0.38)$ | 0.4752 ± 0.0047 |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2540 ± 13 | $\sigma_8(0.38)$ | $0.6654^{+0.0056}_{-0.0063}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.7 ± 4.7 | $f\sigma_8(0.51)$ | 0.4740 ± 0.0043 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.0 ± 1.6 | $\sigma_8(0.51)$ | $0.6228^{+0.0053}_{-0.0060}$ |
| A^{kSZ} | < 4.22 | $n_{s,0.002}$ | $0.9659^{+0.0042}_{-0.0047}$ | $f\sigma_8(0.61)$ | 0.4692 ± 0.0041 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245403^{+0.000061}_{-0.000055}$ | $\sigma_8(0.61)$ | $0.5927^{+0.0051}_{-0.0058}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246730^{+0.000062}_{-0.000055}$ | $f\sigma_8(2.33)$ | $0.2989^{+0.0026}_{-0.0030}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.5 ± 3.3 | 10^5D/H | 2.581 ± 0.028 | $\sigma_8(2.33)$ | $0.3083^{+0.0030}_{-0.0034}$ |
| A_{217}^{dustTT} | 93.7 ± 7.4 | Age/Gyr | 13.757 ± 0.079 | f_{2000}^{143} | 29.5 ± 2.8 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | 1089.86 ± 0.28 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.9 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | r_* | 144.50 ± 0.30 | f_{2000}^{217} | 107.0 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 ± 0.085 | $100\theta_*$ | 1.04114 ± 0.00031 | χ_{lensing}^2 | 9.11 ± 0.55 |
| A_{143}^{dustTE} | 0.224 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 13.879 ± 0.028 | χ_{simall}^2 | 291 ± 200 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.080 | z_{drag} | 1059.97 ± 0.30 | χ_{lowl}^2 | 130 ± 200 |
| A_{217}^{dustTE} | 2.08 ± 0.26 | r_{drag} | 147.16 ± 0.29 | χ_{plik}^2 | 2359.7 ± 5.8 |
| c_{100} | 0.99969 ± 0.00061 | k_D | 0.14082 ± 0.00031 | $\chi_{6\text{DF}}^2$ | 0.45 ± 0.70 |
| c_{217} | 0.99821 ± 0.00061 | $100\theta_D$ | 0.16074 ± 0.00018 | χ_{MGS}^2 | 1.03 ± 0.78 |
| H_0 | 67.87 ± 0.65 | z_{eq} | 3395 ± 30 | χ_{DR12BAO}^2 | 4.7 ± 1.9 |
| Ω_Λ | 0.6894 ± 0.0057 | k_{eq} | 0.010360 ± 0.000093 | χ_{prior}^2 | 11.5 ± 4.4 |
| Ω_m | 0.3098 ± 0.0062 | $100\theta_{\text{eq}}$ | 0.8148 ± 0.0058 | χ_{CMB}^2 | 2789.4 ± 5.9 |
| $\Omega_m h^2$ | 0.1427 ± 0.0013 | $100\theta_{s,\text{eq}}$ | 0.4502 ± 0.0030 | χ_{BAO}^2 | 6.2 ± 1.6 |
| $\Omega_m h^3$ | 0.0969 ± 0.0014 | $H(0.15)$ | 73.16 ± 0.63 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2807.05; \Delta\bar{\chi}_{\text{eff}}^2 = 0.33; R - 1 = 0.02354$$

15.16 base_omegak_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02240 ± 0.00015 | σ_8 | 0.8119 ± 0.0070 | $D_M(0.15)$ | 638.3 ± 5.7 |
| $\Omega_c h^2$ | 0.1196 ± 0.0014 | S_8 | 0.824 ± 0.010 | $H(0.38)$ | 83.32 ± 0.60 |
| $100\theta_{MC}$ | 1.04096 ± 0.00032 | $\sigma_8 \Omega_m^{0.5}$ | 0.4513 ± 0.0057 | $D_M(0.38)$ | 1523 ± 12 |
| τ | $0.0564^{+0.0060}_{-0.0076}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6053 ± 0.0058 | $H(0.51)$ | 90.04 ± 0.60 |
| Ω_K | 0.0008 ± 0.0019 | $\sigma_8/h^{0.5}$ | 0.9850 ± 0.0082 | $D_M(0.51)$ | 1973 ± 15 |
| $\ln(10^{10} A_s)$ | $3.048^{+0.012}_{-0.015}$ | $r_{\text{drag}} h$ | 99.99 ± 0.92 | $H(0.61)$ | 95.66 ± 0.60 |
| n_s | $0.9661^{+0.0042}_{-0.0047}$ | $\langle d^2 \rangle^{1/2}$ | 2.436 ± 0.020 | $D_M(0.61)$ | 2296 ± 17 |
| y_{cal} | 1.0007 ± 0.0025 | z_{re} | $7.87^{+0.64}_{-0.74}$ | $H(2.33)$ | 236.5 ± 1.2 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.107^{+0.026}_{-0.031}$ | $D_M(2.33)$ | 5745 ± 31 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4560 ± 0.0053 |
| A_{143}^{tSZ} | $5.4^{+2.1}_{-1.9}$ | D_{40} | 1229 ± 13 | $\sigma_8(0.15)$ | $0.7505^{+0.0062}_{-0.0069}$ |
| A_{100}^{PS} | 259 ± 28 | D_{220} | 5738 ± 39 | $f\sigma_8(0.38)$ | 0.4749 ± 0.0046 |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2540 ± 13 | $\sigma_8(0.38)$ | $0.6655^{+0.0056}_{-0.0063}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.8 ± 4.7 | $f\sigma_8(0.51)$ | 0.4738 ± 0.0043 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.1 ± 1.6 | $\sigma_8(0.51)$ | $0.6229^{+0.0053}_{-0.0061}$ |
| A^{kSZ} | < 4.20 | $n_{s,0.002}$ | $0.9661^{+0.0042}_{-0.0047}$ | $f\sigma_8(0.61)$ | 0.4690 ± 0.0041 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245406^{+0.000061}_{-0.000054}$ | $\sigma_8(0.61)$ | $0.5928^{+0.0051}_{-0.0058}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246733^{+0.000061}_{-0.000055}$ | $f\sigma_8(2.33)$ | $0.2990^{+0.0026}_{-0.0030}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.5 ± 3.4 | $10^5 D/H$ | 2.580 ± 0.028 | $\sigma_8(2.33)$ | $0.3085^{+0.0030}_{-0.0034}$ |
| A_{217}^{dustTT} | 93.7 ± 7.4 | Age/Gyr | 13.753 ± 0.079 | f_{2000}^{143} | 29.4 ± 2.8 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | 1089.84 ± 0.28 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.9 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | r_* | 144.52 ± 0.30 | f_{2000}^{217} | 106.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 ± 0.085 | $100\theta_*$ | 1.04114 ± 0.00031 | χ_{lensing}^2 | 9.10 ± 0.55 |
| A_{143}^{dustTE} | 0.224 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 13.881 ± 0.027 | χ_{simall}^2 | 291 ± 200 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.080 | z_{drag} | 1059.98 ± 0.30 | χ_{lowl}^2 | 130 ± 200 |
| A_{217}^{dustTE} | 2.08 ± 0.26 | r_{drag} | 147.17 ± 0.29 | χ_{plik}^2 | 2359.8 ± 5.8 |
| c_{100} | 0.99969 ± 0.00061 | k_D | 0.14081 ± 0.00031 | χ_{JLA}^2 | 1035.03 ± 0.26 |
| c_{217} | 0.99821 ± 0.00061 | $100\theta_D$ | 0.16074 ± 0.00018 | $\chi_{6\text{DF}}^2$ | 0.46 ± 0.72 |
| H_0 | 67.94 ± 0.64 | z_{eq} | 3393 ± 30 | χ_{MGS}^2 | 1.07 ± 0.80 |
| Ω_Λ | 0.6902 ± 0.0055 | k_{eq} | 0.010355 ± 0.000093 | χ_{DR12BAO}^2 | 4.5 ± 1.7 |
| Ω_m | 0.3090 ± 0.0060 | $100\theta_{\text{eq}}$ | 0.8151 ± 0.0058 | χ_{prior}^2 | 11.5 ± 4.4 |
| $\Omega_m h^2$ | 0.1426 ± 0.0013 | $100\theta_{s,\text{eq}}$ | 0.4503 ± 0.0029 | χ_{CMB}^2 | 2789.5 ± 5.9 |
| $\Omega_m h^3$ | 0.0969 ± 0.0014 | $H(0.15)$ | 73.22 ± 0.62 | χ_{BAO}^2 | 6.0 ± 1.4 |

$$\bar{\chi}_{\text{eff}}^2 = 3842.05; \Delta \bar{\chi}_{\text{eff}}^2 = 0.31; R - 1 = 0.02292$$

15.17 base_omegak_plikHM_TT_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|-----------------------|
| $\Omega_b h^2$ | 0.022317 | 0.02232 ± 0.00024 | $\sigma_8 \Omega_m^{0.25}$ | 0.6101 | 0.6099 ± 0.0074 | $D_M(0.15)$ | 675.7 | 682 ± 24 |
| $\Omega_c h^2$ | 0.11806 | 0.1178 ± 0.0021 | $\sigma_8/h^{0.5}$ | 0.9955 | 0.996 ± 0.011 | $H(0.38)$ | 79.71 | 79.2 ± 2.2 |
| $100\theta_{MC}$ | 1.041071 | 1.04111 ± 0.00049 | $r_{\text{drag}} h$ | 94.45 | 93.6 ± 3.4 | $D_M(0.38)$ | 1604 | 1618 ± 53 |
| τ | 0.0510 | 0.0494 ± 0.0081 | $\langle d^2 \rangle^{1/2}$ | 2.4687 | 2.473 ± 0.029 | $H(0.51)$ | 86.54 | $86.0^{+2.0}_{-2.2}$ |
| Ω_K | -0.0092 | -0.0114 ± 0.0075 | z_{re} | 7.29 | $7.08^{+0.88}_{-0.74}$ | $D_M(0.51)$ | 2073 | 2091 ± 65 |
| $\ln(10^{10} A_s)$ | 3.0316 | 3.027 ± 0.017 | $10^9 A_s$ | 2.0731 | 2.065 ± 0.035 | $H(0.61)$ | 92.24 | $91.8^{+2.0}_{-2.2}$ |
| n_s | 0.9696 | 0.9693 ± 0.0062 | $10^9 A_s e^{-2\tau}$ | 1.8719 | 1.870 ± 0.014 | $D_M(0.61)$ | 2409 | 2428 ± 72 |
| y_{cal} | 1.00010 | 0.99998 ± 0.0025 | D_{40} | 1213.4 | 1213 ± 17 | $H(2.33)$ | 233.28 | $232.8^{+2.3}_{-2.6}$ |
| A_{217}^{CIB} | 48.0 | 47 ± 7 | D_{220} | 5718.2 | 5723 ± 41 | $D_M(2.33)$ | 5924 | 5953 ± 110 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.40 | — | D_{810} | 2533.1 | 2531 ± 14 | $f\sigma_8(0.15)$ | 0.4700 | 0.471 ± 0.010 |
| A_{143}^{tSZ} | 7.01 | 5.2 ± 2.0 | D_{1420} | 815.3 | 814.3 ± 5.1 | $\sigma_8(0.15)$ | 0.7325 | 0.729 ± 0.014 |
| A_{100}^{PS} | 252.1 | 261 ± 28 | D_{2000} | 230.62 | 230.3 ± 1.9 | $f\sigma_8(0.38)$ | 0.4812 | 0.4812 ± 0.0062 |
| A_{143}^{PS} | 48.5 | 47 ± 8 | $n_{s,0.002}$ | 0.9696 | 0.9693 ± 0.0062 | $\sigma_8(0.38)$ | 0.6457 | 0.642 ± 0.014 |
| $A_{143 \times 217}^{\text{PS}}$ | 47.1 | 42 ± 9 | Y_P | 0.245374 | $0.245373^{+0.000099}_{-0.000086}$ | $f\sigma_8(0.51)$ | 0.47615 | 0.4756 ± 0.0050 |
| A_{217}^{PS} | 118.8 | 114 ± 10 | Y_P^{BBN} | 0.246701 | $0.24670^{+0.00010}_{-0.000087}$ | $\sigma_8(0.51)$ | 0.6028 | 0.599 ± 0.014 |
| A^{kSZ} | 0.22 | < 4.66 | $10^5 D/H$ | 2.5954 | 2.595 ± 0.044 | $f\sigma_8(0.61)$ | 0.46877 | 0.4678 ± 0.0047 |
| A_{100}^{dustTT} | 8.97 | 9.0 ± 1.8 | Age/Gyr | 14.203 | 14.28 ± 0.29 | $\sigma_8(0.61)$ | 0.5726 | 0.569 ± 0.014 |
| A_{143}^{dustTT} | 10.93 | 10.7 ± 1.8 | z_* | 1089.816 | 1089.79 ± 0.44 | $f\sigma_8(2.33)$ | 0.2878 | 0.2856 ± 0.0075 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.50 | 18.3 ± 3.3 | r_* | 144.975 | 145.03 ± 0.47 | $\sigma_8(2.33)$ | 0.2942 | 0.2917 ± 0.0093 |
| A_{217}^{dustTT} | 94.6 | 93.5 ± 7.4 | $100\theta_*$ | 1.041264 | 1.04130 ± 0.00047 | f_{2000}^{143} | 29.55 | 30.1 ± 3.0 |
| c_{100} | 0.99963 | 0.99961 ± 0.00061 | $D_M(z_*)/\text{Gpc}$ | 13.9229 | 13.928 ± 0.043 | $f_{2000}^{143 \times 217}$ | 32.50 | 32.6 ± 2.1 |
| c_{217} | 0.99822 | 0.99825 ± 0.00062 | z_{drag} | 1059.666 | 1059.67 ± 0.47 | f_{2000}^{217} | 106.95 | 107.2 ± 2.0 |
| H_0 | 63.96 | 63.4 ± 2.4 | r_{drag} | 147.666 | 147.72 ± 0.46 | χ_{lensing}^2 | 9.44 | 10.4 ± 2.2 |
| Ω_Λ | 0.6645 | $0.660^{+0.019}_{-0.017}$ | k_D | 0.140222 | 0.14016 ± 0.00048 | χ_{simall}^2 | 395.67 | 396.7 ± 1.5 |
| Ω_m | 0.3447 | $0.352^{+0.023}_{-0.026}$ | $100\theta_D$ | 0.160917 | 0.16093 ± 0.00027 | χ_{lowl}^2 | 21.81 | 22.0 ± 1.2 |
| $\Omega_m h^2$ | 0.14103 | 0.1408 ± 0.0020 | z_{eq} | 3354.7 | 3349 ± 48 | χ_{plik}^2 | 757.9 | 770.7 ± 5.5 |
| $\Omega_m h^3$ | 0.09020 | $0.0893^{+0.0039}_{-0.0043}$ | k_{eq} | 0.010239 | 0.01022 ± 0.00015 | χ_{prior}^2 | 1.44 | 7.3 ± 3.7 |
| σ_8 | 0.7962 | 0.792 ± 0.013 | $100\theta_{\text{eq}}$ | 0.8219 | 0.8230 ± 0.0094 | χ_{CMB}^2 | 1184.8 | 1199.8 ± 5.6 |
| S_8 | 0.8534 | 0.857 ± 0.022 | $100\theta_{s,\text{eq}}$ | 0.45389 | 0.4545 ± 0.0048 | | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4675 | 0.470 ± 0.012 | $H(0.15)$ | 69.39 | 68.8 ± 2.3 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1186.22$; $\Delta\chi_{\text{eff}}^2 = -2.35$; $\bar{\chi}_{\text{eff}}^2 = 1207.14$; $\Delta\bar{\chi}_{\text{eff}}^2 = -1.28$; $R - 1 = 0.01227$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 9.44 (Δ 0.54) simall_100x143_offlike5_EE_Aplanck_B: 395.67 (Δ -0.19) commander_dx12_v3_2_29: 21.81 (Δ -1.43) plik_rd12_HM_v22_TT: 757.86 (Δ -1.46)

15.18 base_omegak_plikHM_TT_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|-------------------------------|--------------------------------------|------------------------------------|-----------------------------|-----------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02233 ± 0.00024 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6101 ± 0.0074 | $D_{\mathrm{M}}(0.15)$ | 679 ± 23 |
| $\Omega_{\mathrm{c}}h^2$ | $0.1177^{+0.0020}_{-0.0022}$ | $\sigma_8/h^{0.5}$ | 0.996 ± 0.011 | $H(0.38)$ | $79.5^{+2.0}_{-2.2}$ |
| $100\theta_{\mathrm{MC}}$ | 1.04113 ± 0.00049 | $r_{\mathrm{drag}}h$ | $94.2^{+3.1}_{-3.4}$ | $D_{\mathrm{M}}(0.38)$ | 1610 ± 50 |
| τ | $0.0525^{+0.0036}_{-0.0074}$ | $\langle d^2 \rangle^{1/2}$ | 2.473 ± 0.029 | $H(0.51)$ | $86.3^{+1.9}_{-2.2}$ |
| Ω_K | $-0.0104^{+0.0076}_{-0.0068}$ | z_{re} | $7.42^{+0.30}_{-0.84}$ | $D_{\mathrm{M}}(0.51)$ | 2081 ± 62 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.033^{+0.010}_{-0.015}$ | $10^9 A_{\mathrm{s}}$ | $2.077^{+0.021}_{-0.031}$ | $H(0.61)$ | $92.0^{+1.9}_{-2.1}$ |
| n_{s} | 0.9696 ± 0.0062 | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.870 ± 0.013 | $D_{\mathrm{M}}(0.61)$ | 2417 ± 69 |
| y_{cal} | 0.99997 ± 0.0025 | D_{40} | 1213 ± 17 | $H(2.33)$ | $232.9^{+2.3}_{-2.6}$ |
| A_{217}^{CIB} | 47 ± 7 | D_{220} | 5723 ± 41 | $D_{\mathrm{M}}(2.33)$ | 5938 ± 110 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{810} | 2530 ± 14 | $f\sigma_8(0.15)$ | 0.470 ± 0.010 |
| A_{143}^{tSZ} | 5.2 ± 2.0 | D_{1420} | 814.3 ± 5.1 | $\sigma_8(0.15)$ | 0.731 ± 0.012 |
| A_{100}^{PS} | 260 ± 28 | D_{2000} | 230.3 ± 1.9 | $f\sigma_8(0.38)$ | 0.4812 ± 0.0062 |
| A_{143}^{PS} | 47 ± 8 | $n_{\mathrm{s},0.002}$ | 0.9696 ± 0.0062 | $\sigma_8(0.38)$ | 0.645 ± 0.013 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | Y_{P} | $0.245376^{+0.000098}_{-0.000088}$ | $f\sigma_8(0.51)$ | 0.4760 ± 0.0049 |
| A_{217}^{PS} | 114 ± 10 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246703^{+0.000099}_{-0.000089}$ | $\sigma_8(0.51)$ | 0.602 ± 0.013 |
| A^{kSZ} | < 4.62 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.594 ± 0.044 | $f\sigma_8(0.61)$ | 0.4685 ± 0.0045 |
| $A_{100}^{\mathrm{dust}TT}$ | 9.0 ± 1.8 | $\mathrm{Age}/\mathrm{Gyr}$ | 14.24 ± 0.28 | $\sigma_8(0.61)$ | 0.571 ± 0.013 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.7 ± 1.8 | z_* | 1089.77 ± 0.44 | $f\sigma_8(2.33)$ | 0.2872 ± 0.0070 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.3 ± 3.3 | r_* | 145.05 ± 0.47 | $\sigma_8(2.33)$ | 0.2935 ± 0.0087 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.4 ± 7.4 | $100\theta_*$ | 1.04132 ± 0.00048 | f_{2000}^{143} | 30.0 ± 3.0 |
| c_{100} | 0.99961 ± 0.00061 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.930 ± 0.043 | $f_{2000}^{143 \times 217}$ | 32.5 ± 2.1 |
| c_{217} | 0.99825 ± 0.00063 | z_{drag} | 1059.68 ± 0.47 | f_{2000}^{217} | 107.1 ± 2.0 |
| H_0 | $63.8^{+2.2}_{-2.4}$ | r_{drag} | 147.74 ± 0.46 | $\chi_{\mathrm{lensing}}^2$ | 10.4 ± 2.1 |
| Ω_{Λ} | 0.663 ± 0.017 | k_{D} | 0.14015 ± 0.00048 | χ_{simall}^2 | 396.4 ± 1.1 |
| Ω_{m} | 0.347 ± 0.023 | $100\theta_{\mathrm{D}}$ | 0.16092 ± 0.00027 | χ_{lowl}^2 | 22.1 ± 1.2 |
| $\Omega_{\mathrm{m}}h^2$ | $0.1407^{+0.0019}_{-0.0021}$ | z_{eq} | 3347^{+44}_{-50} | χ_{plik}^2 | 770.6 ± 5.5 |
| $\Omega_{\mathrm{m}}h^3$ | $0.0897^{+0.0038}_{-0.0043}$ | k_{eq} | $0.01022^{+0.00014}_{-0.00015}$ | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.795 ± 0.012 | $100\theta_{\mathrm{eq}}$ | 0.8234 ± 0.0094 | χ_{CMB}^2 | 1199.4 ± 5.6 |
| S_8 | 0.855 ± 0.021 | $100\theta_{\mathrm{s,eq}}$ | 0.4547 ± 0.0048 | | |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.468 ± 0.012 | $H(0.15)$ | $69.2^{+2.1}_{-2.3}$ | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 1206.71$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = -1.45$; $R - 1 = 0.01427$

15.19 base_omegak_plikHM_TTTEEE_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------|-----------------------------|----------|----------------------|
| $\Omega_b h^2$ | 0.022509 | 0.02249 ± 0.00016 | $\Omega_m h^3$ | 0.09063 | $0.0900^{+0.0033}_{-0.0038}$ | $100\theta_{s,eq}$ | 0.45283 | 0.4527 ± 0.0033 |
| $\Omega_c h^2$ | 0.11839 | 0.1185 ± 0.0015 | σ_8 | 0.7974 | 0.795 ± 0.011 | $H(0.15)$ | 69.47 | $69.0^{+2.0}_{-2.2}$ |
| $100\theta_{MC}$ | 1.041060 | 1.04107 ± 0.00032 | S_8 | 0.8554 | 0.860 ± 0.021 | $D_M(0.15)$ | 675.0 | 680 ± 22 |
| τ | 0.0515 | $0.0497^{+0.0082}_{-0.0071}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4685 | 0.471 ± 0.011 | $H(0.38)$ | 79.82 | $79.4^{+1.8}_{-2.1}$ |
| Ω_K | -0.0092 | -0.0106 ± 0.0065 | $\sigma_8 \Omega_m^{0.25}$ | 0.6112 | 0.6121 ± 0.0066 | $D_M(0.38)$ | 1602.4 | 1614 ± 48 |
| $\ln(10^{10} A_s)$ | 3.0336 | $3.030^{+0.017}_{-0.015}$ | $\sigma_8/h^{0.5}$ | 0.9965 | 0.998 ± 0.010 | $H(0.51)$ | 86.67 | $86.3^{+1.8}_{-2.0}$ |
| n_s | 0.96989 | 0.9688 ± 0.0047 | $r_{drag} h$ | 94.36 | $93.7^{+3.0}_{-3.4}$ | $D_M(0.51)$ | 2071 | 2084 ± 59 |
| y_{cal} | 1.00002 | 0.99998 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4720 | 2.478 ± 0.028 | $H(0.61)$ | 92.38 | $92.0^{+1.7}_{-2.0}$ |
| A_{217}^{CIB} | 46.8 | 46 ± 7 | z_{re} | 7.30 | $7.09^{+0.90}_{-0.70}$ | $D_M(0.61)$ | 2406 | 2420 ± 65 |
| $\xi^{tSZ \times CIB}$ | 0.52 | — | $10^9 A_s$ | 2.0772 | $2.070^{+0.035}_{-0.032}$ | $H(2.33)$ | 233.70 | 233.6 ± 1.9 |
| A_{143}^{tSZ} | 7.25 | $5.5^{+2.1}_{-1.9}$ | $10^9 A_s e^{-2\tau}$ | 1.8741 | 1.874 ± 0.012 | $D_M(2.33)$ | 5915 | 5935 ± 100 |
| A_{100}^{PS} | 247.2 | 257 ± 28 | D_{40} | 1214.6 | 1216 ± 14 | $f\sigma_8(0.15)$ | 0.4710 | 0.4731 ± 0.0098 |
| A_{143}^{PS} | 47.2 | 44 ± 8 | D_{220} | 5731.3 | 5735 ± 38 | $\sigma_8(0.15)$ | 0.7335 | 0.731 ± 0.012 |
| $A_{143 \times 217}^{PS}$ | 48.3 | 41 ± 9 | D_{810} | 2535.3 | 2534 ± 13 | $f\sigma_8(0.38)$ | 0.4821 | 0.4829 ± 0.0057 |
| A_{217}^{PS} | 119.1 | 114 ± 10 | D_{1420} | 817.16 | 816.2 ± 4.7 | $\sigma_8(0.38)$ | 0.6466 | 0.644 ± 0.013 |
| A^{kSZ} | 0.01 | < 4.17 | D_{2000} | 231.60 | 231.2 ± 1.6 | $f\sigma_8(0.51)$ | 0.47699 | 0.4771 ± 0.0044 |
| A_{100}^{dustTT} | 8.94 | 9.0 ± 1.8 | $n_{s,0.002}$ | 0.96989 | 0.9688 ± 0.0047 | $\sigma_8(0.51)$ | 0.6035 | 0.601 ± 0.013 |
| A_{143}^{dustTT} | 11.10 | 10.9 ± 1.8 | Y_P | 0.245448 | 0.245438 ± 0.000060 | $f\sigma_8(0.61)$ | 0.46955 | 0.4693 ± 0.0040 |
| $A_{143 \times 217}^{dustTT}$ | 20.03 | 18.6 ± 3.3 | Y_P^{BBN} | 0.246774 | 0.246765 ± 0.000061 | $\sigma_8(0.61)$ | 0.5733 | 0.571 ± 0.013 |
| A_{217}^{dustTT} | 95.1 | 93.6 ± 7.3 | $10^5 D/H$ | 2.5603 | 2.565 ± 0.029 | $f\sigma_8(2.33)$ | 0.2881 | 0.2866 ± 0.0069 |
| A_{100}^{dustTE} | 0.1140 | 0.113 ± 0.038 | Age/Gyr | 14.182 | 14.23 ± 0.26 | $\sigma_8(2.33)$ | 0.2946 | 0.2928 ± 0.0085 |
| $A_{100 \times 143}^{dustTE}$ | 0.1346 | 0.134 ± 0.030 | z_* | 1089.606 | 1089.64 ± 0.30 | f_{2000}^{143} | 28.11 | 28.8 ± 2.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.480 | 0.481 ± 0.085 | r_* | 144.741 | 144.73 ± 0.32 | $f_{2000}^{143 \times 217}$ | 31.35 | 31.5 ± 1.9 |
| A_{143}^{dustTE} | 0.224 | 0.223 ± 0.053 | $100\theta_*$ | 1.041231 | 1.04124 ± 0.00031 | f_{2000}^{217} | 105.88 | 106.3 ± 1.8 |
| $A_{143 \times 217}^{dustTE}$ | 0.660 | 0.663 ± 0.081 | $D_M(z_*)/\text{Gpc}$ | 13.9010 | 13.900 ± 0.030 | $\chi^2_{lensing}$ | 9.78 | 10.9 ± 2.4 |
| A_{217}^{dustTE} | 2.072 | 2.07 ± 0.27 | z_{drag} | 1060.123 | 1060.10 ± 0.31 | χ^2_{small} | 395.65 | 396.7 ± 1.5 |
| c_{100} | 0.99970 | 0.99968 ± 0.00060 | r_{drag} | 147.364 | 147.36 ± 0.31 | χ^2_{lowl} | 21.84 | 22.15 ± 0.98 |
| c_{217} | 0.99817 | 0.99818 ± 0.00062 | k_D | 0.140685 | 0.14067 ± 0.00032 | χ^2_{plik} | 2342.4 | 2357.5 ± 5.9 |
| H_0 | 64.03 | $63.6^{+2.1}_{-2.3}$ | $100\theta_D$ | 0.160641 | 0.16067 ± 0.00018 | χ^2_{prior} | 1.76 | 11.5 ± 4.5 |
| Ω_Λ | 0.6639 | 0.659 ± 0.017 | z_{eq} | 3367.1 | 3369 ± 33 | χ^2_{CMB} | 2769.7 | 2787.2 ± 5.9 |
| Ω_m | 0.3453 | 0.352 ± 0.023 | k_{eq} | 0.010277 | 0.01028 ± 0.00010 | | | |
| $\Omega_m h^2$ | 0.14155 | 0.1416 ± 0.0014 | $100\theta_{eq}$ | 0.8201 | 0.8198 ± 0.0064 | | | |

Best-fit $\chi^2_{eff} = 2771.41$; $\Delta\chi^2_{eff} = -3.23$; $\bar{\chi}^2_{eff} = 2798.70$; $\Delta\bar{\chi}^2_{eff} = -1.99$; $R - 1 = 0.02587$
 χ^2_{eff} : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb_consext8: 9.79 (Δ 0.92) simall_100x143_offlike5_EE_Aplanck_B: 395.65 (Δ -0.40) commander_dx12_v3.2.29: 21.84 (Δ -1.41) plik_rd12_HM_v22b_TTTEEE: 2342.38 (Δ -2.55)

15.20 base_omegak_plikHM_TTTEE_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02249 ± 0.00016 | $\Omega_{\text{m}}h^3$ | $0.0906^{+0.0032}_{-0.0038}$ | $100\theta_{\text{s,eq}}$ | 0.4527 ± 0.0033 |
| $\Omega_{\text{c}}h^2$ | 0.1185 ± 0.0015 | σ_8 | $0.7982^{+0.0093}_{-0.010}$ | $H(0.15)$ | $69.4^{+1.9}_{-2.2}$ |
| $100\theta_{\text{MC}}$ | 1.04107 ± 0.00032 | S_8 | 0.858 ± 0.020 | $D_{\text{M}}(0.15)$ | 676 ± 21 |
| τ | $0.0528^{+0.0036}_{-0.0073}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.470 ± 0.011 | $H(0.38)$ | $79.8^{+1.8}_{-2.1}$ |
| Ω_K | -0.0096 ± 0.0061 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6124 ± 0.0065 | $D_{\text{M}}(0.38)$ | 1605 ± 45 |
| $\ln(10^{10}A_{\text{s}})$ | $3.0361^{+0.0099}_{-0.014}$ | $\sigma_8/h^{0.5}$ | 0.998 ± 0.010 | $H(0.51)$ | $86.6^{+1.7}_{-2.0}$ |
| n_{s} | 0.9689 ± 0.0047 | $r_{\text{drag}}h$ | $94.2^{+2.8}_{-3.3}$ | $D_{\text{M}}(0.51)$ | 2074 ± 55 |
| y_{cal} | 0.99997 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.478 ± 0.028 | $H(0.61)$ | $92.3^{+1.7}_{-1.9}$ |
| A_{217}^{CIB} | 46 ± 7 | z_{re} | $7.42^{+0.32}_{-0.82}$ | $D_{\text{M}}(0.61)$ | 2409 ± 62 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_{\text{s}}$ | $2.083^{+0.020}_{-0.030}$ | $H(2.33)$ | $233.7^{+1.8}_{-2.0}$ |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.874 ± 0.012 | $D_{\text{M}}(2.33)$ | 5919 ± 96 |
| A_{100}^{PS} | 257 ± 28 | D_{40} | 1217 ± 14 | $f\sigma_8(0.15)$ | 0.4722 ± 0.0097 |
| A_{143}^{PS} | 44 ± 8 | D_{220} | 5734 ± 38 | $\sigma_8(0.15)$ | $0.734^{+0.010}_{-0.011}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 41 ± 9 | D_{810} | 2533 ± 13 | $f\sigma_8(0.38)$ | 0.4829 ± 0.0058 |
| A_{217}^{PS} | 114 ± 10 | D_{1420} | 816.2 ± 4.7 | $\sigma_8(0.38)$ | $0.647^{+0.011}_{-0.012}$ |
| A^{kSZ} | < 4.10 | D_{2000} | 231.2 ± 1.6 | $f\sigma_8(0.51)$ | 0.4777 ± 0.0043 |
| A_{100}^{dustTT} | 9.0 ± 1.8 | $n_{\text{s},0.002}$ | 0.9689 ± 0.0047 | $\sigma_8(0.51)$ | $0.604^{+0.011}_{-0.012}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_{P} | 0.245440 ± 0.000060 | $f\sigma_8(0.61)$ | 0.4701 ± 0.0037 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246766 ± 0.000061 | $\sigma_8(0.61)$ | $0.574^{+0.011}_{-0.012}$ |
| A_{217}^{dustTT} | 93.6 ± 7.3 | 10^5D/H | 2.564 ± 0.029 | $f\sigma_8(2.33)$ | $0.2883^{+0.0058}_{-0.0067}$ |
| A_{100}^{dustTE} | 0.113 ± 0.038 | Age/Gyr | 14.19 ± 0.24 | $\sigma_8(2.33)$ | $0.2947^{+0.0072}_{-0.0084}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.029 | z_* | 1089.64 ± 0.30 | f_{2000}^{143} | 28.7 ± 2.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 ± 0.085 | r_* | 144.74 ± 0.32 | $f_{2000}^{143 \times 217}$ | 31.4 ± 1.9 |
| A_{143}^{dustTE} | 0.222 ± 0.054 | $100\theta_*$ | 1.04124 ± 0.00031 | f_{2000}^{217} | 106.3 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 ± 0.081 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.901 ± 0.030 | χ_{lensing}^2 | 10.8 ± 2.4 |
| A_{217}^{dustTE} | 2.07 ± 0.27 | z_{drag} | 1060.10 ± 0.31 | χ_{simall}^2 | 396.4 ± 1.2 |
| c_{100} | 0.99968 ± 0.00060 | r_{drag} | 147.37 ± 0.31 | χ_{lowl}^2 | 22.2 ± 1.0 |
| c_{217} | 0.99818 ± 0.00062 | k_{D} | 0.14067 ± 0.00032 | χ_{plik}^2 | 2357.4 ± 5.9 |
| H_0 | $64.0^{+2.0}_{-2.3}$ | $100\theta_{\text{D}}$ | 0.16067 ± 0.00018 | χ_{prior}^2 | 11.5 ± 4.4 |
| Ω_{Λ} | 0.662 ± 0.016 | z_{eq} | 3368 ± 33 | χ_{CMB}^2 | 2786.8 ± 5.8 |
| Ω_{m} | 0.347 ± 0.022 | k_{eq} | 0.01028 ± 0.00010 | | |
| $\Omega_{\text{m}}h^2$ | 0.1416 ± 0.0014 | $100\theta_{\text{eq}}$ | 0.8199 ± 0.0064 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2798.28; \Delta\bar{\chi}_{\text{eff}}^2 = -2.23; R - 1 = 0.02761$$

16 r

16.1 base_r_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022127 | 0.02213 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.9947 | 0.990 ± 0.016 | $D_M(0.38)$ | 1542.1 | 1540 ± 16 |
| $\Omega_c h^2$ | 0.12064 | 0.1203 ± 0.0021 | $r_{\text{drag}} h$ | 98.45 | 98.7 ± 1.6 | $H(0.51)$ | 89.323 | 89.38 ± 0.44 |
| $100\theta_{\text{MC}}$ | 1.040778 | 1.04082 ± 0.00047 | $\langle d^2 \rangle^{1/2}$ | 2.4556 | 2.446 ± 0.038 | $D_M(0.51)$ | 1996.3 | 1994 ± 18 |
| τ | 0.0535 | 0.0518 ± 0.0080 | z_{re} | 7.66 | 7.46 ± 0.83 | $H(0.61)$ | 95.008 | 95.05 ± 0.35 |
| $\ln(10^{10} A_s)$ | 3.0436 | 3.039 ± 0.017 | $10^9 A_s$ | 2.0980 | 2.089 ± 0.034 | $D_M(0.61)$ | 2321.8 | 2319 ± 20 |
| n_s | 0.9637 | 0.9639 ± 0.0057 | $10^9 A_s e^{-2\tau}$ | 1.8853 | 1.883 ± 0.014 | $H(2.33)$ | 236.73 | 236.5 ± 1.3 |
| r | 0.0001 | < 0.0468 | D_{40} | 1231.7 | 1244^{+16}_{-19} | $D_M(2.33)$ | 5777.4 | 5776 ± 16 |
| y_{cal} | 1.00047 | 1.0005 ± 0.0025 | D_{220} | 5710.6 | 5711 ± 41 | $f\sigma_8(0.15)$ | 0.4644 | 0.462 ± 0.012 |
| A_{217}^{CIB} | 49.0 | 48 ± 7 | D_{810} | 2538.4 | 2537 ± 14 | $\sigma_8(0.15)$ | 0.7508 | 0.7483 ± 0.0077 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.28 | — | D_{1420} | 815.6 | 815.0 ± 5.1 | $f\sigma_8(0.38)$ | 0.4808 | 0.4783 ± 0.0097 |
| A_{143}^{tSZ} | 7.00 | 5.1 ± 2.0 | D_{2000} | 230.00 | 229.7 ± 1.8 | $\sigma_8(0.38)$ | 0.6645 | 0.6625 ± 0.0061 |
| A_{100}^{PS} | 254.7 | 263 ± 28 | $n_{s,0.002}$ | 0.9637 | 0.9639 ± 0.0057 | $f\sigma_8(0.51)$ | 0.4783 | 0.4760 ± 0.0083 |
| A_{143}^{PS} | 49.3 | 49 ± 8 | Y_{P} | 0.245295 | $0.24529^{+0.00010}_{-0.000087}$ | $\sigma_8(0.51)$ | 0.6215 | 0.6197 ± 0.0056 |
| $A_{143 \times 217}^{\text{PS}}$ | 46.2 | 44 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246621 | $0.24662^{+0.00010}_{-0.000087}$ | $f\sigma_8(0.61)$ | 0.4726 | 0.4705 ± 0.0074 |
| A_{217}^{PS} | 119.2 | 115 ± 10 | $10^5 D/H$ | 2.6320 | 2.632 ± 0.042 | $\sigma_8(0.61)$ | 0.5911 | 0.5895 ± 0.0052 |
| A^{kSZ} | 0.01 | < 4.75 | Age/Gyr | 13.8290 | 13.826 ± 0.036 | $f\sigma_8(2.33)$ | 0.29769 | 0.2969 ± 0.0026 |
| A_{100}^{dustTT} | 8.91 | 8.9 ± 1.8 | z_* | 1090.287 | 1090.26 ± 0.41 | $\sigma_8(2.33)$ | 0.30652 | 0.3058 ± 0.0027 |
| A_{143}^{dustTT} | 10.76 | 10.7 ± 1.8 | r_* | 144.452 | 144.54 ± 0.48 | $r_{0.002}$ | 0.0001 | < 0.0424 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.30 | 18.3 ± 3.3 | $100\theta_*$ | 1.040982 | 1.04102 ± 0.00046 | $r_{0.01}$ | 0.0001 | < 0.0446 |
| A_{217}^{dustTT} | 94.4 | 93.5 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.8765 | 13.884 ± 0.044 | $\ln(10^{10} A_t)$ | -6.27 | $-0.72^{+1.4}_{-0.61}$ |
| c_{100} | 0.99965 | 0.99959 ± 0.00061 | z_{drag} | 1059.399 | 1059.39 ± 0.45 | r_{10} | 0.0000 | < 0.0218 |
| c_{217} | 0.99828 | 0.99826 ± 0.00062 | r_{drag} | 147.196 | 147.28 ± 0.48 | $10^9 A_t$ | 0.0002 | < 0.0977 |
| H_0 | 66.88 | 67.01 ± 0.92 | k_{D} | 0.14057 | 0.14048 ± 0.00051 | $10^9 A_t e^{-2\tau}$ | 0.0002 | < 0.0880 |
| Ω_Λ | 0.6794 | 0.681 ± 0.013 | $100\theta_{\text{D}}$ | 0.161055 | 0.16108 ± 0.00026 | f_{2000}^{143} | 30.47 | 31.0 ± 2.9 |
| Ω_{m} | 0.3206 | 0.319 ± 0.013 | z_{eq} | 3411.6 | 3404 ± 47 | $f_{2000}^{143 \times 217}$ | 33.32 | 33.5 ± 2.0 |
| $\Omega_{\text{m}} h^2$ | 0.14341 | 0.1431 ± 0.0020 | k_{eq} | 0.010413 | 0.01039 ± 0.00014 | f_{2000}^{217} | 107.81 | 108.0 ± 1.9 |
| $\Omega_{\text{m}} h^3$ | 0.095916 | 0.09588 ± 0.00045 | $100\theta_{\text{eq}}$ | 0.8108 | 0.8123 ± 0.0089 | χ_{small}^2 | 396.03 | 397.1 ± 1.7 |
| σ_8 | 0.8135 | 0.8106 ± 0.0091 | $100\theta_{s,\text{eq}}$ | 0.44827 | 0.4490 ± 0.0046 | χ_{lowl}^2 | 23.61 | 25.0 ± 1.8 |
| S_8 | 0.8409 | 0.836 ± 0.024 | $H(0.15)$ | 72.26 | 72.37 ± 0.78 | χ_{plik}^2 | 758.6 | 771.7 ± 5.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4606 | 0.458 ± 0.013 | $D_M(0.15)$ | 647.5 | 646.5 ± 7.9 | χ_{prior}^2 | 1.38 | 7.3 ± 3.7 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6121 | 0.609 ± 0.012 | $H(0.38)$ | 82.52 | 82.60 ± 0.57 | χ_{CMB}^2 | 1178.2 | 1193.7 ± 5.7 |

Best-fit $\chi_{\text{eff}}^2 = 1179.62$; $\Delta\chi_{\text{eff}}^2 = 0.04$; $\bar{\chi}_{\text{eff}}^2 = 1201.03$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.45$; $R - 1 = 0.00654$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.03 (Δ 0.15) commander_dx12_v3.2.29: 23.61 (Δ 0.01) plik_rd12_HM_v22_TT: 758.60 (Δ -0.15)

16.2 base_r_plikHM_TT_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022246 | 0.02222 ± 0.00020 | $\langle d^2 \rangle^{1/2}$ | 2.4237 | 2.423 ± 0.028 | $D_M(0.61)$ | 2305.8 | 2305 ± 12 |
| $\Omega_c h^2$ | 0.11896 | 0.1188 ± 0.0012 | z_{re} | 7.58 | 7.56 ± 0.81 | $H(2.33)$ | 235.76 | 235.65 ± 0.79 |
| $100\theta_{\text{MC}}$ | 1.040956 | 1.04101 ± 0.00041 | $10^9 A_s$ | 2.0870 | 2.088 ± 0.034 | $D_M(2.33)$ | 5766.0 | 5766 ± 12 |
| τ | 0.0532 | 0.0532 ± 0.0079 | $10^9 A_s e^{-2\tau}$ | 1.8761 | 1.877 ± 0.012 | $f\sigma_8(0.15)$ | 0.4539 | 0.4533 ± 0.0078 |
| $\ln(10^{10} A_s)$ | 3.0383 | 3.038 ± 0.016 | D_{40} | 1222.0 | 1238_{-18}^{+14} | $\sigma_8(0.15)$ | 0.7455 | 0.7453 ± 0.0069 |
| n_s | 0.96753 | 0.9673 ± 0.0042 | D_{220} | 5713.6 | 5717 ± 41 | $f\sigma_8(0.38)$ | 0.4725 | 0.4720 ± 0.0066 |
| r | 0.0001 | < 0.0502 | D_{810} | 2535.0 | 2536 ± 14 | $\sigma_8(0.38)$ | 0.6610 | 0.6609 ± 0.0059 |
| y_{cal} | 1.00014 | 1.0006 ± 0.0025 | D_{1420} | 815.9 | 815.8 ± 5.0 | $f\sigma_8(0.51)$ | 0.4712 | 0.4708 ± 0.0059 |
| A_{217}^{CIB} | 48.9 | 48 ± 7 | D_{2000} | 230.18 | 230.1 ± 1.8 | $\sigma_8(0.51)$ | 0.6186 | 0.6186 ± 0.0054 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.28 | — | $n_{s,0.002}$ | 0.96753 | 0.9673 ± 0.0042 | $f\sigma_8(0.61)$ | 0.4664 | 0.4661 ± 0.0054 |
| A_{143}^{tSZ} | 7.11 | 5.2 ± 2.0 | Y_{P} | 0.245345 | $0.245329_{-0.000075}^{+0.000088}$ | $\sigma_8(0.61)$ | 0.5887 | 0.5886 ± 0.0051 |
| A_{100}^{PS} | 253.9 | 262 ± 28 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246671 | $0.246655_{-0.000075}^{+0.000089}$ | $f\sigma_8(2.33)$ | 0.29687 | 0.2969 ± 0.0026 |
| A_{143}^{PS} | 48.1 | 48 ± 8 | $10^5 D/H$ | 2.6091 | 2.615 ± 0.037 | $\sigma_8(2.33)$ | 0.30612 | 0.3062 ± 0.0026 |
| $A_{143 \times 217}^{\text{PS}}$ | 45.5 | 43_{-10}^{+9} | Age/Gyr | 13.8045 | 13.806 ± 0.028 | $r_{0.002}$ | 0.0001 | < 0.0462 |
| A_{217}^{PS} | 118.4 | 115 ± 10 | z_* | 1089.986 | 1090.02 ± 0.30 | $r_{0.01}$ | 0.0001 | < 0.0481 |
| A^{kSZ} | 0.01 | < 4.67 | r_* | 144.795 | 144.85 ± 0.32 | $\ln(10^{10} A_t)$ | -5.91 | $-0.64_{-0.61}^{+1.4}$ |
| A_{100}^{dustTT} | 8.92 | 8.9 ± 1.9 | $100\theta_*$ | 1.041157 | 1.04121 ± 0.00040 | r_{10} | 0.0001 | < 0.0237 |
| A_{143}^{dustTT} | 10.83 | 10.7 ± 1.8 | $D_M(z_*)/\text{Gpc}$ | 13.9071 | 13.912 ± 0.031 | $10^9 A_t$ | 0.000 | < 0.105 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.37 | 18.3 ± 3.3 | z_{drag} | 1059.589 | 1059.49 ± 0.44 | $10^9 A_t e^{-2\tau}$ | 0.0002 | < 0.0941 |
| A_{217}^{dustTT} | 94.5 | 93.5 ± 7.4 | r_{drag} | 147.503 | 147.57 ± 0.35 | f_{2000}^{143} | 30.07 | 30.7 ± 2.9 |
| c_{100} | 0.99964 | 0.99960 ± 0.00061 | k_{D} | 0.140336 | 0.14024 ± 0.00045 | $f_{2000}^{143 \times 217}$ | 33.00 | 33.2 ± 2.0 |
| c_{217} | 0.99827 | 0.99826 ± 0.00063 | $100\theta_{\text{D}}$ | 0.160969 | 0.16103 ± 0.00026 | f_{2000}^{217} | 107.41 | 107.8 ± 1.9 |
| H_0 | 67.63 | 67.67 ± 0.54 | z_{eq} | 3374.4 | 3371 ± 29 | χ_{small}^2 | 395.88 | 397.2 ± 1.8 |
| Ω_{Λ} | 0.6899 | 0.6905 ± 0.0073 | k_{eq} | 0.010299 | 0.010288 ± 0.000088 | χ_{lowl}^2 | 22.78 | 24.3 ± 1.6 |
| Ω_{m} | 0.3101 | 0.3095 ± 0.0073 | $100\theta_{\text{eq}}$ | 0.8180 | 0.8187 ± 0.0053 | χ_{plik}^2 | 760.2 | 772.4 ± 5.5 |
| $\Omega_{\text{m}} h^2$ | 0.14185 | 0.1417 ± 0.0012 | $100\theta_{s,\text{eq}}$ | 0.45192 | 0.4523 ± 0.0028 | $\chi_{6\text{DF}}^2$ | 0.0222 | 0.053 ± 0.072 |
| $\Omega_{\text{m}} h^3$ | 0.095935 | 0.09588 ± 0.00046 | $H(0.15)$ | 72.892 | 72.92 ± 0.47 | χ_{MGS}^2 | 1.28 | 1.41 ± 0.53 |
| σ_8 | 0.8066 | 0.8064 ± 0.0078 | $D_M(0.15)$ | 641.13 | 640.8 ± 4.6 | χ_{DR12BAO}^2 | 4.21 | 4.6 ± 1.5 |
| S_8 | 0.8202 | 0.819 ± 0.015 | $H(0.38)$ | 82.973 | 82.99 ± 0.35 | χ_{prior}^2 | 1.44 | 7.4 ± 3.7 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4492 | 0.4486 ± 0.0082 | $D_M(0.38)$ | 1529.4 | 1528.8 ± 9.4 | χ_{BAO}^2 | 5.51 | 6.1 ± 1.2 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6020 | 0.6015 ± 0.0081 | $H(0.51)$ | 89.672 | 89.68 ± 0.29 | χ_{CMB}^2 | 1178.8 | 1193.8 ± 5.7 |
| $\sigma_8/h^{0.5}$ | 0.9809 | 0.980 ± 0.012 | $D_M(0.51)$ | 1981.4 | 1981 ± 11 | | | |
| $r_{\text{drag}} h$ | 99.76 | 99.86 ± 0.94 | $H(0.61)$ | 95.276 | 95.28 ± 0.25 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1185.79$; $\Delta\chi_{\text{eff}}^2 = 0.05$; $\bar{\chi}_{\text{eff}}^2 = 1207.29$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.27$; $R - 1 = 0.01115$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ 0.00) MGS: 1.28 (Δ 0.00) DR12BAO: 4.21 (Δ 0.03) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.88 (Δ -0.01) commander_dx12_v3_2_29: 22.79 (Δ -0.04) plik_rd12_HM_v22_TT: 760.17 (Δ 0.07)

16.3 base_r_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02213 ± 0.00022 | $\sigma_8/h^{0.5}$ | 0.991 ± 0.016 | $D_M(0.38)$ | 1539 ± 16 |
| $\Omega_c h^2$ | 0.1202 ± 0.0021 | $r_{\text{drag}} h$ | 98.8 ± 1.6 | $H(0.51)$ | 89.40 ± 0.44 |
| $100\theta_{\text{MC}}$ | 1.04083 ± 0.00046 | $\langle d^2 \rangle^{1/2}$ | 2.449 ± 0.037 | $D_M(0.51)$ | 1993 ± 18 |
| τ | $0.0536^{+0.0045}_{-0.0083}$ | z_{re} | $7.65^{+0.50}_{-0.84}$ | $H(0.61)$ | 95.07 ± 0.35 |
| $\ln(10^{10} A_s)$ | $3.042^{+0.012}_{-0.016}$ | $10^9 A_s$ | $2.096^{+0.024}_{-0.034}$ | $D_M(0.61)$ | 2318 ± 20 |
| n_s | 0.9642 ± 0.0056 | $10^9 A_s e^{-2\tau}$ | 1.883 ± 0.014 | $H(2.33)$ | 236.5 ± 1.3 |
| r | < 0.0469 | D_{40} | 1244^{+16}_{-19} | $D_M(2.33)$ | 5775 ± 16 |
| y_{cal} | 1.0005 ± 0.0025 | D_{220} | 5711 ± 41 | $f\sigma_8(0.15)$ | 0.462 ± 0.012 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2536 ± 14 | $\sigma_8(0.15)$ | 0.7494 ± 0.0071 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.0 ± 5.1 | $f\sigma_8(0.38)$ | 0.4788 ± 0.0096 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 229.8 ± 1.8 | $\sigma_8(0.38)$ | $0.6636^{+0.0052}_{-0.0059}$ |
| A_{100}^{PS} | 262 ± 28 | $n_{s,0.002}$ | 0.9642 ± 0.0056 | $f\sigma_8(0.51)$ | 0.4766 ± 0.0082 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.24529^{+0.00010}_{-0.000085}$ | $\sigma_8(0.51)$ | $0.6207^{+0.0045}_{-0.0053}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 44 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | $0.24662^{+0.00010}_{-0.000086}$ | $f\sigma_8(0.61)$ | 0.4710 ± 0.0072 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.631 ± 0.041 | $\sigma_8(0.61)$ | $0.5904^{+0.0041}_{-0.0050}$ |
| A^{kSZ} | < 4.70 | Age/Gyr | 13.825 ± 0.036 | $f\sigma_8(2.33)$ | $0.2974^{+0.0019}_{-0.0025}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | z_* | 1090.24 ± 0.40 | $\sigma_8(2.33)$ | $0.3064^{+0.0019}_{-0.0026}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.55 ± 0.47 | $r_{0.002}$ | < 0.0425 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04104 ± 0.00046 | $r_{0.01}$ | < 0.0447 |
| A_{217}^{dustTT} | 93.5 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.885 ± 0.044 | $\ln(10^{10} A_t)$ | $-0.72^{+1.4}_{-0.61}$ |
| c_{100} | 0.99959 ± 0.00061 | z_{drag} | 1059.40 ± 0.45 | r_{10} | < 0.0218 |
| c_{217} | 0.99826 ± 0.00062 | r_{drag} | 147.29 ± 0.47 | $10^9 A_t$ | < 0.0981 |
| H_0 | 67.05 ± 0.91 | k_{D} | 0.14047 ± 0.00051 | $10^9 A_t e^{-2\tau}$ | < 0.0881 |
| Ω_Λ | 0.682 ± 0.013 | $100\theta_{\text{D}}$ | 0.16107 ± 0.00026 | f_{2000}^{143} | 30.9 ± 2.9 |
| Ω_{m} | 0.318 ± 0.013 | z_{eq} | 3402 ± 47 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| $\Omega_{\text{m}} h^2$ | 0.1430 ± 0.0020 | k_{eq} | 0.01038 ± 0.00014 | f_{2000}^{217} | 108.0 ± 1.9 |
| $\Omega_{\text{m}} h^3$ | 0.09588 ± 0.00045 | $100\theta_{\text{eq}}$ | 0.8127 ± 0.0088 | χ_{simall}^2 | 397.0 ± 1.7 |
| σ_8 | 0.8117 ± 0.0086 | $100\theta_{s,\text{eq}}$ | 0.4492 ± 0.0045 | χ_{lowl}^2 | 25.0 ± 1.8 |
| S_8 | 0.836 ± 0.024 | $H(0.15)$ | 72.40 ± 0.78 | χ_{plik}^2 | 771.5 ± 5.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.458 ± 0.013 | $D_M(0.15)$ | 646.2 ± 7.9 | χ_{prior}^2 | 7.3 ± 3.7 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.610 ± 0.012 | $H(0.38)$ | 82.62 ± 0.56 | χ_{CMB}^2 | 1193.4 ± 5.6 |

$\bar{\chi}_{\text{eff}}^2 = 1200.73$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.41$; $R - 1 = 0.00675$

16.4 base_r_plikHM_TT_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|------------------------------------|------------------------------------|----------------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02222 ± 0.00020 | $\langle d^2 \rangle^{1/2}$ | 2.426 ± 0.027 | $D_{\mathrm{M}}(0.61)$ | 2305 ± 12 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1188 ± 0.0012 | z_{re} | $7.72^{+0.53}_{-0.82}$ | $H(2.33)$ | 235.63 ± 0.79 |
| $100\theta_{\mathrm{MC}}$ | 1.04101 ± 0.00041 | $10^9 A_{\mathrm{s}}$ | $2.093^{+0.024}_{-0.035}$ | $D_{\mathrm{M}}(2.33)$ | 5766 ± 12 |
| τ | $0.0546^{+0.0047}_{-0.0082}$ | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.877 ± 0.012 | $f\sigma_8(0.15)$ | 0.4538 ± 0.0077 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.041^{+0.012}_{-0.017}$ | D_{40} | 1238^{+14}_{-18} | $\sigma_8(0.15)$ | $0.7463^{+0.0057}_{-0.0068}$ |
| n_{s} | 0.9674 ± 0.0042 | D_{220} | 5717 ± 41 | $f\sigma_8(0.38)$ | 0.4726 ± 0.0064 |
| r | < 0.0502 | D_{810} | 2536 ± 14 | $\sigma_8(0.38)$ | $0.6618^{+0.0047}_{-0.0058}$ |
| y_{cal} | 1.0006 ± 0.0025 | D_{1420} | 815.8 ± 5.0 | $f\sigma_8(0.51)$ | 0.4714 ± 0.0057 |
| A_{217}^{CIB} | 48 ± 7 | D_{2000} | 230.1 ± 1.8 | $\sigma_8(0.51)$ | $0.6194^{+0.0042}_{-0.0054}$ |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $n_{\mathrm{s},0.002}$ | 0.9674 ± 0.0042 | $f\sigma_8(0.61)$ | 0.4666 ± 0.0052 |
| A_{143}^{tSZ} | 5.2 ± 2.0 | Y_{P} | $0.245330^{+0.000088}_{-0.000075}$ | $\sigma_8(0.61)$ | $0.5895^{+0.0040}_{-0.0051}$ |
| A_{100}^{PS} | 261 ± 28 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246656^{+0.000089}_{-0.000075}$ | $f\sigma_8(2.33)$ | $0.2973^{+0.0019}_{-0.0026}$ |
| A_{143}^{PS} | 48 ± 8 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.615 ± 0.037 | $\sigma_8(2.33)$ | $0.3066^{+0.0019}_{-0.0027}$ |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43^{+9}_{-10} | Age/Gyr | 13.805 ± 0.028 | $r_{0.002}$ | < 0.0463 |
| A_{217}^{PS} | 115 ± 10 | z_* | 1090.01 ± 0.30 | $r_{0.01}$ | < 0.0481 |
| A^{kSZ} | < 4.64 | r_* | 144.86 ± 0.32 | $\ln(10^{10} A_{\mathrm{t}})$ | $-0.64^{+1.4}_{-0.61}$ |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | $100\theta_*$ | 1.04121 ± 0.00040 | r_{10} | < 0.0236 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.7 ± 1.8 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.912 ± 0.031 | $10^9 A_{\mathrm{t}}$ | < 0.105 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.3 ± 3.3 | z_{drag} | 1059.50 ± 0.44 | $10^9 A_{\mathrm{t}} e^{-2\tau}$ | < 0.0941 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.5 ± 7.3 | r_{drag} | 147.58 ± 0.35 | f_{2000}^{143} | 30.6 ± 2.9 |
| c_{100} | 0.99960 ± 0.00061 | k_{D} | 0.14024 ± 0.00045 | $f_{2000}^{143 \times 217}$ | 33.2 ± 2.0 |
| c_{217} | 0.99826 ± 0.00063 | $100\theta_{\mathrm{D}}$ | 0.16102 ± 0.00026 | f_{2000}^{217} | 107.8 ± 1.9 |
| H_0 | 67.68 ± 0.55 | z_{eq} | 3370 ± 29 | χ_{small}^2 | 397.1 ± 1.8 |
| Ω_{Λ} | 0.6906 ± 0.0073 | k_{eq} | 0.010286 ± 0.000088 | χ_{lowl}^2 | 24.3 ± 1.6 |
| Ω_{m} | 0.3094 ± 0.0073 | $100\theta_{\mathrm{eq}}$ | 0.8188 ± 0.0053 | χ_{plik}^2 | 772.2 ± 5.4 |
| $\Omega_{\mathrm{m}} h^2$ | 0.1417 ± 0.0012 | $100\theta_{\mathrm{s,eq}}$ | 0.4523 ± 0.0028 | $\chi_{6\mathrm{DF}}^2$ | 0.053 ± 0.071 |
| $\Omega_{\mathrm{m}} h^3$ | 0.09588 ± 0.00046 | $H(0.15)$ | 72.93 ± 0.47 | χ_{MGS}^2 | 1.42 ± 0.53 |
| σ_8 | $0.8074^{+0.0067}_{-0.0076}$ | $D_{\mathrm{M}}(0.15)$ | 640.7 ± 4.6 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.6 ± 1.5 |
| S_8 | 0.820 ± 0.015 | $H(0.38)$ | 83.00 ± 0.35 | χ_{prior}^2 | 7.4 ± 3.7 |
| $\sigma_8 \Omega_{\mathrm{m}}^{0.5}$ | 0.4491 ± 0.0082 | $D_{\mathrm{M}}(0.38)$ | 1528.6 ± 9.4 | χ_{BAO}^2 | 6.1 ± 1.2 |
| $\sigma_8 \Omega_{\mathrm{m}}^{0.25}$ | 0.6022 ± 0.0078 | $H(0.51)$ | 89.69 ± 0.29 | χ_{CMB}^2 | 1193.6 ± 5.6 |
| $\sigma_8/h^{0.5}$ | 0.982 ± 0.011 | $D_{\mathrm{M}}(0.51)$ | 1981 ± 11 | | |
| $r_{\mathrm{drag}} h$ | 99.88 ± 0.94 | $H(0.61)$ | 95.28 ± 0.25 | | |

$$\bar{\chi}_{\mathrm{eff}}^2 = 1207.00; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1.24; R - 1 = 0.01158$$

16.5 base_r_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022376 | 0.02236 ± 0.00015 | σ_8 | 0.8119 | 0.8112 ± 0.0074 | $D_M(0.15)$ | 643.6 | 643.6 ± 5.2 |
| $\Omega_c h^2$ | 0.12007 | 0.1200 ± 0.0014 | S_8 | 0.8328 | 0.832 ± 0.016 | $H(0.38)$ | 82.852 | 82.85 ± 0.37 |
| $100\theta_{MC}$ | 1.040902 | 1.04091 ± 0.00031 | $\sigma_8 \Omega_m^{0.5}$ | 0.4562 | 0.4557 ± 0.0088 | $D_M(0.38)$ | 1533.9 | 1534 ± 10 |
| τ | 0.0543 | $0.0539^{+0.0069}_{-0.0078}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6086 | 0.6080 ± 0.0083 | $H(0.51)$ | 89.616 | 89.61 ± 0.29 |
| $\ln(10^{10} A_s)$ | 3.0449 | 3.043 ± 0.016 | $\sigma_8/h^{0.5}$ | 0.9895 | 0.989 ± 0.012 | $D_M(0.51)$ | 1986.4 | 1986 ± 12 |
| n_s | 0.96606 | 0.9657 ± 0.0044 | $r_{\text{drag}} h$ | 99.02 | 99.0 ± 1.1 | $H(0.61)$ | 95.271 | 95.27 ± 0.24 |
| r | 0.0001 | < 0.0522 | $\langle d^2 \rangle^{1/2}$ | 2.4447 | 2.443 ± 0.028 | $D_M(0.61)$ | 2310.9 | 2311 ± 13 |
| y_{cal} | 1.00059 | 1.0007 ± 0.0024 | z_{re} | 7.68 | 7.62 ± 0.77 | $H(2.33)$ | 236.61 | 236.57 ± 0.82 |
| A_{217}^{CIB} | 46.5 | 47 ± 7 | $10^9 A_s$ | 2.1008 | 2.098 ± 0.033 | $D_M(2.33)$ | 5763.7 | 5764 ± 11 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.55 | — | $10^9 A_s e^{-2\tau}$ | 1.8845 | 1.883 ± 0.012 | $f\sigma_8(0.15)$ | 0.4604 | 0.4599 ± 0.0082 |
| A_{143}^{tSZ} | 7.14 | $5.5^{+2.2}_{-1.9}$ | D_{40} | 1229.2 | 1244^{+14}_{-18} | $\sigma_8(0.15)$ | 0.7499 | 0.7492 ± 0.0065 |
| A_{100}^{PS} | 248.2 | 258 ± 28 | D_{220} | 5731.2 | 5730 ± 38 | $f\sigma_8(0.38)$ | 0.4779 | 0.4773 ± 0.0067 |
| A_{143}^{PS} | 49.3 | 46 ± 8 | D_{810} | 2541.7 | 2540 ± 13 | $\sigma_8(0.38)$ | 0.6643 | 0.6636 ± 0.0055 |
| $A_{143 \times 217}^{\text{PS}}$ | 50.7 | 42 ± 9 | D_{1420} | 818.53 | 817.8 ± 4.7 | $f\sigma_8(0.51)$ | 0.4760 | 0.4755 ± 0.0059 |
| A_{217}^{PS} | 121.1 | 115 ± 10 | D_{2000} | 231.34 | 231.1 ± 1.5 | $\sigma_8(0.51)$ | 0.62145 | 0.6209 ± 0.0051 |
| A^{kSZ} | 0.00 | < 4.16 | $n_{s,0.002}$ | 0.96606 | 0.9657 ± 0.0044 | $f\sigma_8(0.61)$ | 0.4707 | 0.4701 ± 0.0054 |
| A_{100}^{dustTT} | 8.86 | 8.9 ± 1.8 | Y_P | 0.245398 | $0.245390^{+0.000062}_{-0.000053}$ | $\sigma_8(0.61)$ | 0.59121 | 0.5907 ± 0.0048 |
| A_{143}^{dustTT} | 10.99 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246725 | $0.246716^{+0.000062}_{-0.000053}$ | $f\sigma_8(2.33)$ | 0.29793 | 0.2977 ± 0.0024 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.00 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5843 | 2.588 ± 0.027 | $\sigma_8(2.33)$ | 0.30697 | 0.3067 ± 0.0025 |
| A_{217}^{dustTT} | 95.3 | 93.7 ± 7.4 | Age/Gyr | 13.7975 | 13.799 ± 0.024 | $r_{0.002}$ | 0.0001 | < 0.0477 |
| A_{100}^{dustTE} | 0.1152 | 0.115 ± 0.038 | z_* | 1089.918 | 1089.93 ± 0.27 | $r_{0.01}$ | 0.0001 | < 0.0499 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1352 | 0.135 ± 0.030 | r_* | 144.409 | 144.43 ± 0.30 | $\ln(10^{10} A_t)$ | -6.12 | $-0.58^{+1.3}_{-0.58}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.484 | 0.482 ± 0.084 | $100\theta_*$ | 1.041090 | 1.04109 ± 0.00030 | r_{10} | 0.0000 | < 0.0245 |
| A_{143}^{dustTE} | 0.225 | 0.226 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8710 | 13.873 ± 0.028 | $10^9 A_t$ | 0.000 | < 0.110 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 | 0.666 ± 0.079 | z_{drag} | 1059.971 | 1059.92 ± 0.30 | $10^9 A_t e^{-2\tau}$ | 0.0002 | < 0.0981 |
| A_{217}^{dustTE} | 2.089 | 2.08 ± 0.27 | r_{drag} | 147.065 | 147.10 ± 0.30 | f_{2000}^{143} | 28.71 | 29.3 ± 2.7 |
| c_{100} | 0.99974 | 0.99965 ± 0.00061 | k_D | 0.140898 | 0.14086 ± 0.00032 | $f_{2000}^{143 \times 217}$ | 31.98 | 32.1 ± 1.8 |
| c_{217} | 0.99817 | 0.99820 ± 0.00062 | $100\theta_D$ | 0.160745 | 0.16077 ± 0.00017 | f_{2000}^{217} | 106.60 | 106.9 ± 1.8 |
| H_0 | 67.33 | 67.34 ± 0.61 | z_{eq} | 3404.0 | 3403 ± 31 | χ_{small}^2 | 396.05 | 397.2 ± 1.8 |
| Ω_Λ | 0.6844 | 0.6844 ± 0.0084 | k_{eq} | 0.010389 | 0.010385 ± 0.000094 | χ_{lowl}^2 | 23.24 | 24.8 ± 1.6 |
| Ω_m | 0.3156 | 0.3156 ± 0.0084 | $100\theta_{\text{eq}}$ | 0.8130 | 0.8132 ± 0.0058 | χ_{plik}^2 | 2344.9 | 2359.6 ± 5.8 |
| $\Omega_m h^2$ | 0.14309 | 0.1430 ± 0.0013 | $100\theta_{s,\text{eq}}$ | 0.44922 | 0.4494 ± 0.0030 | χ_{prior}^2 | 1.62 | 11.6 ± 4.5 |
| $\Omega_m h^3$ | 0.096344 | 0.09631 ± 0.00029 | $H(0.15)$ | 72.66 | 72.66 ± 0.52 | χ_{CMB}^2 | 2764.1 | 2781.6 ± 6.0 |

Best-fit $\chi_{\text{eff}}^2 = 2765.76$; $\Delta\chi_{\text{eff}}^2 = -0.01$; $\bar{\chi}_{\text{eff}}^2 = 2793.18$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.41$; $R - 1 = 0.00988$

χ_{eff}^2 : CMB - small_100x143_offlike5_EE_Aplanck_B: 396.05 (Δ 0.00) commander_dx12_v3.2.29: 23.24 (Δ -0.01) plik_rd12_HM_v22b_TTTEEE: 2344.85 (Δ 0.20)

16.6 base_r_plikHM_TTTEEE_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022440 | 0.02241 ± 0.00013 | $\sigma_8 \Omega_m^{0.5}$ | 0.4518 | 0.4509 ± 0.0068 | $D_M(0.51)$ | 1979.1 | 1979.3 ± 8.9 |
| $\Omega_c h^2$ | 0.11926 | 0.1192 ± 0.0010 | $\sigma_8 \Omega_m^{0.25}$ | 0.6051 | 0.6040 ± 0.0069 | $H(0.61)$ | 95.406 | 95.39 ± 0.19 |
| $100\theta_{MC}$ | 1.040993 | 1.04100 ± 0.00029 | $\sigma_8/h^{0.5}$ | 0.9852 | 0.983 ± 0.010 | $D_M(0.61)$ | 2303.0 | 2303.3 ± 9.6 |
| τ | 0.0565 | $0.0550^{+0.0070}_{-0.0078}$ | $r_{drag}h$ | 99.66 | 99.68 ± 0.77 | $H(2.33)$ | 236.15 | 236.10 ± 0.61 |
| $\ln(10^{10} A_s)$ | 3.0472 | 3.044 ± 0.016 | $\langle d^2 \rangle^{1/2}$ | 2.4350 | 2.431 ± 0.024 | $D_M(2.33)$ | 5757.9 | 5758.8 ± 8.8 |
| n_s | 0.96802 | 0.9677 ± 0.0038 | z_{re} | 7.88 | 7.72 ± 0.77 | $f\sigma_8(0.15)$ | 0.4564 | 0.4555 ± 0.0064 |
| r | 0.0001 | < 0.0561 | $10^9 A_s$ | 2.1057 | $2.099^{+0.031}_{-0.034}$ | $\sigma_8(0.15)$ | 0.7491 | 0.7478 ± 0.0063 |
| y_{cal} | 1.00048 | 1.0008 ± 0.0024 | $10^9 A_s e^{-2\tau}$ | 1.8806 | 1.880 ± 0.011 | $f\sigma_8(0.38)$ | 0.4750 | 0.4741 ± 0.0055 |
| A_{217}^{CIB} | 46.1 | 47 ± 7 | D_{40} | 1225.2 | 1241^{+13}_{-17} | $\sigma_8(0.38)$ | 0.6642 | 0.6630 ± 0.0055 |
| $\xi^{tSZ \times CIB}$ | 0.63 | — | D_{220} | 5733.7 | 5733 ± 37 | $f\sigma_8(0.51)$ | 0.4737 | 0.4728 ± 0.0051 |
| A_{143}^{tSZ} | 7.12 | $5.5^{+2.2}_{-1.9}$ | D_{810} | 2540.4 | 2540 ± 13 | $\sigma_8(0.51)$ | 0.6216 | 0.6205 ± 0.0051 |
| A_{100}^{PS} | 248.7 | 258 ± 28 | D_{1420} | 818.81 | 818.3 ± 4.5 | $f\sigma_8(0.61)$ | 0.46878 | 0.4679 ± 0.0047 |
| A_{143}^{PS} | 49.9 | 45 ± 8 | D_{2000} | 231.53 | 231.3 ± 1.5 | $\sigma_8(0.61)$ | 0.59147 | 0.5904 ± 0.0048 |
| $A_{143 \times 217}^{PS}$ | 52.3 | 42 ± 9 | $n_{s,0.002}$ | 0.96802 | 0.9677 ± 0.0038 | $f\sigma_8(2.33)$ | 0.29826 | 0.2977 ± 0.0024 |
| A_{217}^{PS} | 121.3 | 115 ± 10 | Y_P | 0.245422 | $0.245411^{+0.000053}_{-0.000047}$ | $\sigma_8(2.33)$ | 0.30753 | 0.3070 ± 0.0025 |
| A^{kSZ} | 0.01 | < 4.11 | Y_P^{BBN} | 0.246749 | $0.246738^{+0.000053}_{-0.000048}$ | $r_{0.002}$ | 0.0001 | < 0.0515 |
| A_{100}^{dustTT} | 8.83 | 8.9 ± 1.9 | $10^5 D/H$ | 2.5726 | 2.578 ± 0.024 | $r_{0.01}$ | 0.0001 | < 0.0537 |
| A_{143}^{dustTT} | 11.02 | 10.9 ± 1.8 | Age/Gyr | 13.7850 | 13.787 ± 0.020 | $\ln(10^{10} A_t)$ | -6.22 | $-0.52^{+1.3}_{-0.57}$ |
| $A_{143 \times 217}^{dustTT}$ | 20.11 | 18.6 ± 3.4 | z_* | 1089.767 | 1089.80 ± 0.22 | r_{10} | 0.0000 | < 0.0264 |
| A_{217}^{dustTT} | 95.4 | 93.8 ± 7.4 | r_* | 144.570 | 144.60 ± 0.24 | $10^9 A_t$ | 0.000 | < 0.117 |
| A_{100}^{dustTE} | 0.1147 | 0.115 ± 0.038 | $100\theta_*$ | 1.041176 | 1.04118 ± 0.00029 | $10^9 A_t e^{-2\tau}$ | 0.000 | < 0.105 |
| $A_{100 \times 143}^{dustTE}$ | 0.1346 | 0.136 ± 0.030 | $D_M(z_*)/\text{Gpc}$ | 13.8852 | 13.888 ± 0.023 | f_{2000}^{143} | 28.46 | 29.1 ± 2.7 |
| $A_{100 \times 217}^{dustTE}$ | 0.480 | 0.482 ± 0.084 | z_{drag} | 1060.047 | 1059.98 ± 0.29 | $f_{2000}^{143 \times 217}$ | 31.78 | 31.9 ± 1.8 |
| A_{143}^{dustTE} | 0.224 | 0.226 ± 0.054 | r_{drag} | 147.209 | 147.25 ± 0.24 | f_{2000}^{217} | 106.28 | 106.8 ± 1.8 |
| $A_{143 \times 217}^{dustTE}$ | 0.662 | 0.665 ± 0.079 | k_D | 0.140795 | 0.14073 ± 0.00029 | χ_{small}^2 | 396 | 1323 ± 1000 |
| A_{217}^{dustTE} | 2.076 | 2.08 ± 0.26 | $100\theta_D$ | 0.160698 | 0.16074 ± 0.00017 | χ_{lowl}^2 | 22.92 | 24.5 ± 1.5 |
| c_{100} | 0.99973 | 0.99966 ± 0.00061 | z_{eq} | 3386.2 | 3385 ± 23 | χ_{plik}^2 | 2345 | 1435 ± 1000 |
| c_{217} | 0.99818 | 0.99820 ± 0.00062 | k_{eq} | 0.010335 | 0.010330 ± 0.000070 | χ_{6DF}^2 | 0.0289 | 0.052 ± 0.062 |
| H_0 | 67.698 | 67.70 ± 0.44 | $100\theta_{eq}$ | 0.81643 | 0.8167 ± 0.0043 | χ_{MGS}^2 | 1.217 | 1.29 ± 0.42 |
| Ω_Λ | 0.6894 | 0.6895 ± 0.0060 | $100\theta_{s,eq}$ | 0.45097 | 0.4511 ± 0.0022 | $\chi_{DR12BAO}^2$ | 4.42 | 4.8 ± 1.4 |
| Ω_m | 0.3106 | 0.3105 ± 0.0060 | $H(0.15)$ | 72.973 | 72.97 ± 0.38 | χ_{prior}^2 | 1.58 | 11.5 ± 4.5 |
| $\Omega_m h^2$ | 0.14234 | 0.14228 ± 0.00095 | $D_M(0.15)$ | 640.45 | 640.5 ± 3.8 | χ_{BAO}^2 | 5.67 | 6.1 ± 1.1 |
| $\Omega_m h^3$ | 0.096364 | 0.09631 ± 0.00029 | $H(0.38)$ | 83.077 | 83.07 ± 0.28 | χ_{CMB}^2 | 2764.7 | 2781.6 ± 5.9 |
| σ_8 | 0.8106 | 0.8091 ± 0.0071 | $D_M(0.38)$ | 1527.7 | 1527.8 ± 7.6 | | | |
| S_8 | 0.8248 | 0.823 ± 0.012 | $H(0.51)$ | 89.790 | 89.78 ± 0.22 | | | |

Best-fit $\chi_{eff}^2 = 2771.96$; $\Delta\chi_{eff}^2 = 0.05$; $\bar{\chi}_{eff}^2 = 2799.17$; $\Delta\bar{\chi}_{eff}^2 = 1.27$; $R - 1 = 0.01744$
 χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.42 (Δ 0.00) CMB - simall_100x143.offlike5_EE_Aplanck_B: 396.48 (Δ 0.28) commander_dx12_v3_2_29: 22.92 (Δ 0.05) plik_rd12_HM_v22b_TTTEEE: 2345.31 (Δ -0.19)

16.7 base_r_plikHM_TTTEEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02236 ± 0.00015 | σ_8 | 0.8119 ± 0.0070 | $D_M(0.15)$ | 643.4 ± 5.2 |
| $\Omega_c h^2$ | 0.1200 ± 0.0014 | S_8 | 0.832 ± 0.016 | $H(0.38)$ | 82.86 ± 0.37 |
| $100\theta_{MC}$ | 1.04091 ± 0.00031 | $\sigma_8 \Omega_m^{0.5}$ | 0.4559 ± 0.0088 | $D_M(0.38)$ | 1534 ± 10 |
| τ | $0.0550^{+0.0049}_{-0.0082}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6084 ± 0.0081 | $H(0.51)$ | 89.62 ± 0.29 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.012}_{-0.016}$ | $\sigma_8/h^{0.5}$ | 0.989 ± 0.011 | $D_M(0.51)$ | 1986 ± 12 |
| n_s | 0.9659 ± 0.0044 | $r_{\text{drag}} h$ | 99.1 ± 1.1 | $H(0.61)$ | 95.27 ± 0.24 |
| r | < 0.0520 | $\langle d^2 \rangle^{1/2}$ | 2.445 ± 0.027 | $D_M(0.61)$ | 2311 ± 13 |
| y_{cal} | 1.0007 ± 0.0024 | z_{re} | $7.73^{+0.54}_{-0.80}$ | $H(2.33)$ | 236.55 ± 0.82 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.102^{+0.024}_{-0.034}$ | $D_M(2.33)$ | 5764 ± 11 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.883 ± 0.012 | $f\sigma_8(0.15)$ | 0.4602 ± 0.0082 |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | D_{40} | 1244^{+14}_{-18} | $\sigma_8(0.15)$ | $0.7499^{+0.0056}_{-0.0064}$ |
| A_{100}^{PS} | 258 ± 28 | D_{220} | 5730 ± 38 | $f\sigma_8(0.38)$ | 0.4777 ± 0.0066 |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2540 ± 13 | $\sigma_8(0.38)$ | $0.6643^{+0.0045}_{-0.0054}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.8 ± 4.6 | $f\sigma_8(0.51)$ | 0.4758 ± 0.0058 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.1 ± 1.5 | $\sigma_8(0.51)$ | $0.6215^{+0.0040}_{-0.0051}$ |
| A^{kSZ} | < 4.15 | $n_{s,0.002}$ | 0.9659 ± 0.0044 | $f\sigma_8(0.61)$ | 0.4705 ± 0.0052 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245391^{+0.000062}_{-0.000053}$ | $\sigma_8(0.61)$ | $0.5913^{+0.0037}_{-0.0048}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246718^{+0.000062}_{-0.000053}$ | $f\sigma_8(2.33)$ | $0.2980^{+0.0018}_{-0.0024}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $10^5 D/H$ | 2.587 ± 0.027 | $\sigma_8(2.33)$ | $0.3070^{+0.0018}_{-0.0026}$ |
| A_{217}^{dustTT} | 93.7 ± 7.4 | Age/Gyr | 13.798 ± 0.024 | $r_{0.002}$ | < 0.0475 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | z_* | 1089.93 ± 0.27 | $r_{0.01}$ | < 0.0497 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | r_* | 144.44 ± 0.30 | $\ln(10^{10} A_t)$ | $-0.58^{+1.4}_{-0.58}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 ± 0.084 | $100\theta_*$ | 1.04110 ± 0.00030 | r_{10} | < 0.0244 |
| A_{143}^{dustTE} | 0.226 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.874 ± 0.028 | $10^9 A_t$ | < 0.109 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 ± 0.079 | z_{drag} | 1059.92 ± 0.30 | $10^9 A_t e^{-2\tau}$ | < 0.0979 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | 147.10 ± 0.30 | f_{2000}^{143} | 29.3 ± 2.7 |
| c_{100} | 0.99965 ± 0.00061 | k_D | 0.14085 ± 0.00032 | $f_{2000}^{143 \times 217}$ | 32.0 ± 1.8 |
| c_{217} | 0.99819 ± 0.00062 | $100\theta_D$ | 0.16077 ± 0.00017 | f_{2000}^{217} | 106.9 ± 1.8 |
| H_0 | 67.35 ± 0.60 | z_{eq} | 3402 ± 31 | χ_{small}^2 | 397.2 ± 1.9 |
| Ω_Λ | 0.6846 ± 0.0084 | k_{eq} | 0.010383 ± 0.000094 | χ_{lowl}^2 | 24.8 ± 1.6 |
| Ω_m | 0.3154 ± 0.0084 | $100\theta_{\text{eq}}$ | 0.8134 ± 0.0058 | χ_{plik}^2 | 2359.4 ± 5.8 |
| $\Omega_m h^2$ | 0.1430 ± 0.0013 | $100\theta_{s,\text{eq}}$ | 0.4494 ± 0.0030 | χ_{prior}^2 | 11.5 ± 4.5 |
| $\Omega_m h^3$ | 0.09631 ± 0.00029 | $H(0.15)$ | 72.68 ± 0.52 | χ_{CMB}^2 | 2781.4 ± 5.9 |

$$\bar{\chi}_{\text{eff}}^2 = 2792.94; \Delta \bar{\chi}_{\text{eff}}^2 = 1.40; R - 1 = 0.01114$$

16.8 base_r_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02242 ± 0.00013 | $\sigma_8 \Omega_m^{0.5}$ | 0.4512 ± 0.0067 | $D_M(0.51)$ | 1979.1 ± 8.8 |
| $\Omega_c h^2$ | 0.1192 ± 0.0010 | $\sigma_8 \Omega_m^{0.25}$ | 0.6044 ± 0.0067 | $H(0.61)$ | 95.40 ± 0.19 |
| $100\theta_{MC}$ | 1.04101 ± 0.00029 | $\sigma_8/h^{0.5}$ | 0.9842 ± 0.0097 | $D_M(0.61)$ | 2303.1 ± 9.5 |
| τ | $0.0559^{+0.0054}_{-0.0080}$ | $r_{\text{drag}} h$ | 99.70 ± 0.77 | $H(2.33)$ | 236.09 ± 0.61 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.012}_{-0.016}$ | $\langle d^2 \rangle^{1/2}$ | $2.433^{+0.022}_{-0.025}$ | $D_M(2.33)$ | 5758.6 ± 8.8 |
| n_s | 0.9678 ± 0.0037 | z_{re} | $7.81^{+0.59}_{-0.79}$ | $f\sigma_8(0.15)$ | 0.4558 ± 0.0064 |
| r | < 0.0557 | $10^9 A_s$ | $2.103^{+0.025}_{-0.034}$ | $\sigma_8(0.15)$ | $0.7484^{+0.0053}_{-0.0064}$ |
| y_{cal} | 1.0008 ± 0.0024 | $10^9 A_s e^{-2\tau}$ | 1.880 ± 0.011 | $f\sigma_8(0.38)$ | 0.4744 ± 0.0054 |
| A_{217}^{CIB} | 47 ± 7 | D_{40} | 1241^{+13}_{-17} | $\sigma_8(0.38)$ | $0.6635^{+0.0044}_{-0.0056}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{220} | 5733 ± 37 | $f\sigma_8(0.51)$ | 0.4731 ± 0.0049 |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | D_{810} | 2540 ± 13 | $\sigma_8(0.51)$ | $0.6210^{+0.0041}_{-0.0052}$ |
| A_{100}^{PS} | 258 ± 28 | D_{1420} | 818.3 ± 4.5 | $f\sigma_8(0.61)$ | 0.4682 ± 0.0045 |
| A_{143}^{PS} | 45 ± 8 | D_{2000} | 231.3 ± 1.5 | $\sigma_8(0.61)$ | $0.5909^{+0.0038}_{-0.0049}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | $n_{s,0.002}$ | 0.9678 ± 0.0037 | $f\sigma_8(2.33)$ | $0.2980^{+0.0019}_{-0.0025}$ |
| A_{217}^{PS} | 115 ± 10 | Y_P | $0.245412^{+0.000053}_{-0.000047}$ | $\sigma_8(2.33)$ | $0.3073^{+0.0019}_{-0.0026}$ |
| A^{kSZ} | < 4.10 | Y_P^{BBN} | $0.246738^{+0.000053}_{-0.000047}$ | $r_{0.002}$ | < 0.0513 |
| A_{100}^{dustTT} | 8.9 ± 1.9 | 10^5D/H | 2.577 ± 0.024 | $r_{0.01}$ | < 0.0535 |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Age/Gyr | 13.787 ± 0.020 | $\ln(10^{10} A_t)$ | $-0.53^{+1.3}_{-0.57}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.4 | z_* | 1089.79 ± 0.22 | r_{10} | < 0.0263 |
| A_{217}^{dustTT} | 93.8 ± 7.4 | r_* | 144.60 ± 0.24 | $10^9 A_t$ | < 0.117 |
| A_{100}^{dustTE} | 0.116 ± 0.037 | $100\theta_*$ | 1.04119 ± 0.00029 | $10^9 A_t e^{-2\tau}$ | < 0.105 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.136 ± 0.030 | $D_M(z_*)/\text{Gpc}$ | 13.888 ± 0.023 | f_{2000}^{143} | 29.0 ± 2.7 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 ± 0.084 | z_{drag} | 1059.99 ± 0.28 | $f_{2000}^{143 \times 217}$ | 31.8 ± 1.8 |
| A_{143}^{dustTE} | 0.226 ± 0.054 | r_{drag} | 147.25 ± 0.25 | f_{2000}^{217} | 106.8 ± 1.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 ± 0.079 | k_D | 0.14073 ± 0.00029 | χ_{small}^2 | 1323 ± 1000 |
| A_{217}^{dustTE} | 2.08 ± 0.26 | $100\theta_D$ | 0.16073 ± 0.00017 | χ_{lowl}^2 | 24.5 ± 1.5 |
| c_{100} | 0.99966 ± 0.00061 | z_{eq} | 3384 ± 23 | χ_{plik}^2 | 1434 ± 1000 |
| c_{217} | 0.99819 ± 0.00062 | k_{eq} | 0.010329 ± 0.000070 | $\chi_{6\text{DF}}^2$ | 0.051 ± 0.062 |
| H_0 | 67.70 ± 0.44 | $100\theta_{\text{eq}}$ | 0.8168 ± 0.0043 | χ_{MGS}^2 | 1.30 ± 0.42 |
| Ω_Λ | 0.6896 ± 0.0060 | $100\theta_{s,\text{eq}}$ | 0.4512 ± 0.0022 | χ_{DR12BAO}^2 | 4.7 ± 1.4 |
| Ω_m | 0.3104 ± 0.0060 | $H(0.15)$ | 72.98 ± 0.38 | χ_{prior}^2 | 11.5 ± 4.5 |
| $\Omega_m h^2$ | 0.14226 ± 0.00095 | $D_M(0.15)$ | 640.4 ± 3.8 | χ_{BAO}^2 | 6.1 ± 1.1 |
| $\Omega_m h^3$ | 0.09631 ± 0.00029 | $H(0.38)$ | 83.07 ± 0.28 | χ_{CMB}^2 | 2781.4 ± 5.9 |
| σ_8 | $0.8098^{+0.0060}_{-0.0071}$ | $D_M(0.38)$ | 1527.6 ± 7.5 | | |
| S_8 | 0.824 ± 0.012 | $H(0.51)$ | 89.78 ± 0.22 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2798.95; \Delta\bar{\chi}_{\text{eff}}^2 = 1.23; R - 1 = 0.02065$$

16.9 base_r_plikHM_TT_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022177 | 0.02214 ± 0.00021 | $r_{\text{drag}} h$ | 98.82 | 98.9 ± 1.2 | $D_M(0.51)$ | 1991.6 | 1992 ± 14 |
| $\Omega_c h^2$ | 0.12018 | 0.1200 ± 0.0015 | $\langle d^2 \rangle^{1/2}$ | 2.4451 | 2.444 ± 0.025 | $H(0.61)$ | 95.099 | 95.08 ± 0.30 |
| $100\theta_{\text{MC}}$ | 1.040852 | 1.04082 ± 0.00045 | z_{re} | 7.55 | $7.53^{+0.80}_{-0.71}$ | $D_M(0.61)$ | 2316.8 | 2317 ± 15 |
| τ | 0.0526 | 0.0525 ± 0.0077 | $10^9 A_s$ | 2.0922 | 2.091 ± 0.031 | $H(2.33)$ | 236.48 | 236.35 ± 0.94 |
| $\ln(10^{10} A_s)$ | 3.0408 | 3.040 ± 0.015 | $10^9 A_s e^{-2\tau}$ | 1.8834 | 1.882 ± 0.011 | $D_M(2.33)$ | 5773.2 | 5775 ± 14 |
| n_s | 0.96474 | 0.9643 ± 0.0048 | D_{40} | 1229.4 | 1244^{+14}_{-17} | $f\sigma_8(0.15)$ | 0.4611 | 0.4603 ± 0.0081 |
| r | 0.0002 | < 0.0468 | D_{220} | 5714.8 | 5714 ± 42 | $\sigma_8(0.15)$ | 0.7488 | 0.7481 ± 0.0056 |
| y_{cal} | 1.00047 | 1.0006 ± 0.0025 | D_{810} | 2538.4 | 2537 ± 14 | $f\sigma_8(0.38)$ | 0.4781 | 0.4774 ± 0.0063 |
| A_{217}^{CIB} | 48.7 | 48 ± 7 | D_{1420} | 816.1 | 815.0 ± 5.2 | $\sigma_8(0.38)$ | 0.66315 | 0.6625 ± 0.0048 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.34 | — | D_{2000} | 230.18 | 229.8 ± 1.8 | $f\sigma_8(0.51)$ | 0.4760 | 0.4753 ± 0.0054 |
| A_{143}^{tSZ} | 7.01 | 5.1 ± 2.0 | $n_{s,0.002}$ | 0.96474 | 0.9643 ± 0.0048 | $\sigma_8(0.51)$ | 0.62032 | 0.6198 ± 0.0046 |
| A_{100}^{PS} | 254.4 | 263 ± 28 | Y_{P} | 0.245316 | $0.245297^{+0.000096}_{-0.000083}$ | $f\sigma_8(0.61)$ | 0.47054 | 0.4699 ± 0.0048 |
| A_{143}^{PS} | 49.5 | 49 ± 8 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246643 | $0.246623^{+0.000097}_{-0.000083}$ | $\sigma_8(0.61)$ | 0.59009 | 0.5896 ± 0.0044 |
| $A_{143 \times 217}^{\text{PS}}$ | 47.3 | 44 ± 9 | $10^5 D/H$ | 2.6223 | 2.629 ± 0.040 | $f\sigma_8(2.33)$ | 0.29729 | 0.2970 ± 0.0023 |
| A_{217}^{PS} | 119.3 | 115 ± 10 | Age/Gyr | 13.8198 | 13.824 ± 0.032 | $\sigma_8(2.33)$ | 0.30623 | 0.3060 ± 0.0025 |
| A^{kSZ} | 0.02 | < 4.76 | z_* | 1090.179 | 1090.22 ± 0.35 | $r_{0.002}$ | 0.0001 | < 0.0425 |
| A_{100}^{dustTT} | 8.88 | 8.9 ± 1.8 | r_* | 144.532 | 144.60 ± 0.36 | $r_{0.01}$ | 0.0001 | < 0.0446 |
| A_{143}^{dustTT} | 10.79 | 10.7 ± 1.8 | $100\theta_*$ | 1.041055 | 1.04103 ± 0.00044 | $\ln(10^{10} A_t)$ | -5.72 | $-0.70^{+1.4}_{-0.62}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.46 | 18.3 ± 3.3 | $D_M(z_*)/\text{Gpc}$ | 13.8833 | 13.890 ± 0.034 | r_{10} | 0.0001 | < 0.0218 |
| A_{217}^{dustTT} | 94.7 | 93.5 ± 7.3 | z_{drag} | 1059.513 | 1059.41 ± 0.45 | $10^9 A_t$ | 0.0003 | < 0.0977 |
| c_{100} | 0.99965 | 0.99960 ± 0.00061 | r_{drag} | 147.258 | 147.34 ± 0.38 | $10^9 A_t e^{-2\tau}$ | 0.0003 | < 0.0879 |
| c_{217} | 0.99827 | 0.99827 ± 0.00063 | k_{D} | 0.140540 | 0.14043 ± 0.00045 | f_{2000}^{143} | 30.23 | 31.0 ± 2.9 |
| H_0 | 67.11 | 67.12 ± 0.70 | $100\theta_{\text{D}}$ | 0.161012 | 0.16106 ± 0.00026 | $f_{2000}^{143 \times 217}$ | 33.17 | 33.5 ± 2.0 |
| Ω_{Λ} | 0.6825 | 0.6828 ± 0.0097 | z_{eq} | 3401.9 | 3398 ± 35 | f_{2000}^{217} | 107.60 | 108.1 ± 1.9 |
| Ω_{m} | 0.3175 | 0.3172 ± 0.0097 | k_{eq} | 0.010383 | 0.01037 ± 0.00011 | χ_{lensing}^2 | 8.901 | 9.46 ± 0.85 |
| $\Omega_{\text{m}} h^2$ | 0.14300 | 0.1428 ± 0.0015 | $100\theta_{\text{eq}}$ | 0.8128 | 0.8135 ± 0.0066 | χ_{small}^2 | 395.87 | 397.1 ± 1.6 |
| $\Omega_{\text{m}} h^3$ | 0.095967 | 0.09586 ± 0.00045 | $100\theta_{s,\text{eq}}$ | 0.44925 | 0.4496 ± 0.0034 | χ_{lowl}^2 | 23.37 | 24.9 ± 1.6 |
| σ_8 | 0.8110 | 0.8102 ± 0.0063 | $H(0.15)$ | 72.45 | 72.46 ± 0.60 | χ_{plik}^2 | 759.04 | 771.2 ± 5.2 |
| S_8 | 0.8344 | 0.833 ± 0.016 | $D_M(0.15)$ | 645.6 | 645.5 ± 6.1 | χ_{prior}^2 | 1.36 | 7.3 ± 3.7 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4570 | 0.4562 ± 0.0088 | $H(0.38)$ | 82.662 | 82.66 ± 0.45 | χ_{CMB}^2 | 1187.2 | 1202.6 ± 5.7 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6088 | 0.6079 ± 0.0077 | $D_M(0.38)$ | 1538.2 | 1538 ± 12 | | | |
| $\sigma_8/h^{0.5}$ | 0.9900 | 0.989 ± 0.010 | $H(0.51)$ | 89.437 | 89.43 ± 0.36 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1188.55$; $\Delta\chi_{\text{eff}}^2 = -0.02$; $\bar{\chi}_{\text{eff}}^2 = 1209.87$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.46$; $R - 1 = 0.00994$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp-p.teb.consext8: 8.90 (Δ -0.00) small_100x143_offlike5_EE_Aplanck_B: 395.87 (Δ 0.01) commander_dx12.v3.2.29: 23.37 (Δ 0.14) plik_rd12_HM.v22.TT: 759.04 (Δ -0.28)

16.10 base_r_plikHM_TT_lowl_lowE_lensing_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022253 | 0.02221 ± 0.00020 | $\langle d^2 \rangle^{1/2}$ | 2.4337 | 2.433 ± 0.022 | $D_M(0.61)$ | 2306.8 | 2307 ± 11 |
| $\Omega_c h^2$ | 0.11914 | 0.1190 ± 0.0011 | z_{re} | 7.75 | 7.75 ± 0.73 | $H(2.33)$ | 235.88 | 235.78 ± 0.69 |
| $100\theta_{\text{MC}}$ | 1.040958 | 1.04098 ± 0.00042 | $10^9 A_s$ | 2.0990 | 2.097 ± 0.030 | $D_M(2.33)$ | 5766.1 | 5768 ± 12 |
| τ | 0.0549 | 0.0549 ± 0.0072 | $10^9 A_s e^{-2\tau}$ | 1.8808 | 1.879 ± 0.011 | $f\sigma_8(0.15)$ | 0.4560 | 0.4555 ± 0.0061 |
| $\ln(10^{10} A_s)$ | 3.0440 | 3.043 ± 0.014 | D_{40} | 1226.7 | 1241^{+13}_{-17} | $\sigma_8(0.15)$ | 0.7479 | 0.7474 ± 0.0056 |
| n_s | 0.96686 | 0.9666 ± 0.0041 | D_{220} | 5727.7 | 5722 ± 41 | $f\sigma_8(0.38)$ | 0.4744 | 0.4740 ± 0.0051 |
| r | 0.0000 | < 0.0490 | D_{810} | 2540.0 | 2537 ± 14 | $\sigma_8(0.38)$ | 0.66299 | 0.6626 ± 0.0049 |
| y_{cal} | 1.00090 | 1.0008 ± 0.0025 | D_{1420} | 817.3 | 816.1 ± 5.0 | $f\sigma_8(0.51)$ | 0.47305 | 0.4726 ± 0.0045 |
| A_{217}^{CIB} | 48.1 | 48 ± 7 | D_{2000} | 230.62 | 230.2 ± 1.8 | $\sigma_8(0.51)$ | 0.62047 | 0.6201 ± 0.0046 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.42 | — | $n_{s,0.002}$ | 0.96686 | 0.9666 ± 0.0041 | $f\sigma_8(0.61)$ | 0.46812 | 0.4677 ± 0.0042 |
| A_{143}^{tSZ} | 6.96 | $5.2^{+2.2}_{-1.9}$ | Y_{P} | 0.245348 | $0.245326^{+0.000087}_{-0.000076}$ | $\sigma_8(0.61)$ | 0.59040 | 0.5901 ± 0.0044 |
| A_{100}^{PS} | 253.6 | 262 ± 28 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246674 | $0.246652^{+0.000087}_{-0.000076}$ | $f\sigma_8(2.33)$ | 0.29770 | 0.2976 ± 0.0022 |
| A_{143}^{PS} | 50.6 | 48 ± 8 | $10^5 \text{D}/\text{H}$ | 2.6077 | 2.617 ± 0.037 | $\sigma_8(2.33)$ | 0.30694 | 0.3068 ± 0.0024 |
| $A_{143 \times 217}^{\text{PS}}$ | 49.2 | 43 ± 9 | Age/Gyr | 13.8045 | 13.808 ± 0.028 | $r_{0.002}$ | 0.0000 | < 0.0448 |
| A_{217}^{PS} | 120.3 | 115 ± 10 | z_* | 1089.993 | 1090.04 ± 0.29 | $r_{0.01}$ | 0.0000 | < 0.0469 |
| A^{kSZ} | 0.01 | < 4.59 | r_* | 144.744 | 144.80 ± 0.28 | $\ln(10^{10} A_t)$ | -6.92 | $-0.65^{+1.4}_{-0.61}$ |
| A_{100}^{dustTT} | 8.89 | 8.9 ± 1.8 | $100\theta_*$ | 1.041155 | 1.04118 ± 0.00042 | r_{10} | 0.0000 | < 0.0229 |
| A_{143}^{dustTT} | 10.83 | 10.7 ± 1.8 | $D_M(z_*)/\text{Gpc}$ | 13.9023 | 13.908 ± 0.028 | $10^9 A_t$ | 0.000 | < 0.103 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.58 | 18.3 ± 3.2 | z_{drag} | 1059.589 | 1059.49 ± 0.45 | $10^9 A_t e^{-2\tau}$ | 0.0001 | < 0.0920 |
| A_{217}^{dustTT} | 94.9 | 93.6 ± 7.2 | r_{drag} | 147.452 | 147.53 ± 0.32 | f_{2000}^{143} | 30.07 | 30.7 ± 2.9 |
| c_{100} | 0.99967 | 0.99960 ± 0.00061 | k_{D} | 0.140399 | 0.14028 ± 0.00043 | $f_{2000}^{143 \times 217}$ | 33.02 | 33.2 ± 2.0 |
| c_{217} | 0.99823 | 0.99827 ± 0.00063 | $100\theta_{\text{D}}$ | 0.160954 | 0.16103 ± 0.00026 | f_{2000}^{217} | 107.50 | 107.9 ± 1.9 |
| H_0 | 67.574 | 67.58 ± 0.49 | z_{eq} | 3378.7 | 3376 ± 25 | χ^2_{lensing} | 8.808 | 9.32 ± 0.77 |
| Ω_{Λ} | 0.6889 | 0.6892 ± 0.0065 | k_{eq} | 0.010312 | 0.010303 ± 0.000076 | χ^2_{small} | 396.18 | 397.3 ± 1.7 |
| Ω_{m} | 0.3111 | 0.3108 ± 0.0065 | $100\theta_{\text{eq}}$ | 0.81721 | 0.8177 ± 0.0046 | χ^2_{lowl} | 23.01 | 24.5 ± 1.5 |
| $\Omega_{\text{m}} h^2$ | 0.14203 | 0.1419 ± 0.0010 | $100\theta_{s,\text{eq}}$ | 0.45151 | 0.4518 ± 0.0024 | χ^2_{plik} | 759.74 | 771.5 ± 5.2 |
| $\Omega_{\text{m}} h^3$ | 0.095978 | 0.09589 ± 0.00045 | $H(0.15)$ | 72.847 | 72.85 ± 0.43 | $\chi^2_{6\text{DF}}$ | 0.0299 | 0.055 ± 0.068 |
| σ_8 | 0.8093 | 0.8088 ± 0.0062 | $D_M(0.15)$ | 641.59 | 641.6 ± 4.2 | χ^2_{MGS} | 1.217 | 1.30 ± 0.46 |
| S_8 | 0.8241 | 0.823 ± 0.012 | $H(0.38)$ | 82.945 | 82.94 ± 0.33 | χ^2_{DR12BAO} | 4.40 | 4.8 ± 1.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4514 | 0.4509 ± 0.0065 | $D_M(0.38)$ | 1530.3 | 1530.4 ± 8.6 | χ^2_{prior} | 1.35 | 7.3 ± 3.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6044 | 0.6039 ± 0.0062 | $H(0.51)$ | 89.654 | 89.64 ± 0.27 | χ^2_{CMB} | 1187.7 | 1202.6 ± 5.6 |
| $\sigma_8/h^{0.5}$ | 0.9845 | 0.9839 ± 0.0089 | $D_M(0.51)$ | 1982.4 | 1983 ± 10 | χ^2_{BAO} | 5.64 | 6.1 ± 1.2 |
| $r_{\text{drag}} h$ | 99.64 | 99.69 ± 0.83 | $H(0.61)$ | 95.267 | 95.25 ± 0.24 | | | |

Best-fit $\chi^2_{\text{eff}} = 1194.73$; $\Delta\chi^2_{\text{eff}} = 0.04$; $\bar{\chi}^2_{\text{eff}} = 1215.99$; $\Delta\bar{\chi}^2_{\text{eff}} = 1.26$; $R - 1 = 0.01776$
 χ^2_{eff} : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.40 (Δ 0.02) CMB - smicadx12_Dec5_ft1_mv2_ndclpp_p_teb_consext8: 8.81 (Δ -0.07) small_100x143_offlike5_EE_Aplanck: 396.18 (Δ 0.08) commander_dx12_v3_2_29: 23.01 (Δ 0.05) plik_rd12_HM_v22_TT: 759.74 (Δ -0.06)

16.11 base_r_plikHM_TT_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|------------------------------------|------------------------------------|----------------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02215 ± 0.00021 | $r_{\mathrm{drag}}h$ | 99.0 ± 1.2 | $D_{\mathrm{M}}(0.51)$ | 1991 ± 14 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1199 ± 0.0015 | $\langle d^2 \rangle^{1/2}$ | 2.445 ± 0.025 | $H(0.61)$ | 95.10 ± 0.29 |
| $100\theta_{\mathrm{MC}}$ | 1.04083 ± 0.00045 | z_{re} | $7.68^{+0.55}_{-0.77}$ | $D_{\mathrm{M}}(0.61)$ | 2316 ± 15 |
| τ | $0.0540^{+0.0050}_{-0.0079}$ | $10^9 A_{\mathrm{s}}$ | $2.096^{+0.023}_{-0.030}$ | $H(2.33)$ | 236.28 ± 0.92 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.043^{+0.011}_{-0.014}$ | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.881 ± 0.011 | $D_{\mathrm{M}}(2.33)$ | 5774 ± 14 |
| n_{s} | 0.9646 ± 0.0047 | D_{40} | 1243^{+14}_{-17} | $f\sigma_8(0.15)$ | 0.4602 ± 0.0081 |
| r | < 0.0471 | D_{220} | 5714 ± 42 | $\sigma_8(0.15)$ | 0.7488 ± 0.0051 |
| y_{cal} | 1.0006 ± 0.0025 | D_{810} | 2536 ± 14 | $f\sigma_8(0.38)$ | 0.4775 ± 0.0063 |
| A_{217}^{CIB} | 48 ± 7 | D_{1420} | 815.1 ± 5.2 | $\sigma_8(0.38)$ | $0.6632^{+0.0040}_{-0.0047}$ |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{2000} | 229.8 ± 1.8 | $f\sigma_8(0.51)$ | 0.4755 ± 0.0053 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | $n_{\mathrm{s},0.002}$ | 0.9646 ± 0.0047 | $\sigma_8(0.51)$ | $0.6205^{+0.0037}_{-0.0044}$ |
| A_{100}^{PS} | 263 ± 28 | Y_{P} | $0.245301^{+0.000096}_{-0.000082}$ | $f\sigma_8(0.61)$ | 0.4701 ± 0.0047 |
| A_{143}^{PS} | 49 ± 8 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246627^{+0.000096}_{-0.000082}$ | $\sigma_8(0.61)$ | $0.5903^{+0.0035}_{-0.0042}$ |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 44 ± 9 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.628 ± 0.040 | $f\sigma_8(2.33)$ | $0.2974^{+0.0017}_{-0.0023}$ |
| A_{217}^{PS} | 115 ± 10 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.822 ± 0.032 | $\sigma_8(2.33)$ | $0.3064^{+0.0019}_{-0.0025}$ |
| A^{kSZ} | < 4.71 | z_* | 1090.19 ± 0.34 | $r_{0.002}$ | < 0.0428 |
| $A_{100}^{\mathrm{dustTT}}$ | 8.9 ± 1.8 | r_* | 144.62 ± 0.35 | $r_{0.01}$ | < 0.0449 |
| $A_{143}^{\mathrm{dustTT}}$ | 10.7 ± 1.8 | $100\theta_*$ | 1.04104 ± 0.00044 | $\ln(10^{10} A_{\mathrm{t}})$ | $-0.69^{+1.4}_{-0.62}$ |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 18.3 ± 3.3 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.892 ± 0.033 | r_{10} | < 0.0220 |
| $A_{217}^{\mathrm{dustTT}}$ | 93.5 ± 7.3 | z_{drag} | 1059.42 ± 0.45 | $10^9 A_{\mathrm{t}}$ | < 0.0987 |
| c_{100} | 0.99960 ± 0.00061 | r_{drag} | 147.36 ± 0.37 | $10^9 A_{\mathrm{t}} e^{-2\tau}$ | < 0.0885 |
| c_{217} | 0.99827 ± 0.00063 | k_{D} | 0.14041 ± 0.00045 | f_{2000}^{143} | 31.0 ± 2.9 |
| H_0 | 67.18 ± 0.69 | $100\theta_{\mathrm{D}}$ | 0.16106 ± 0.00026 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| Ω_{Λ} | 0.6836 ± 0.0094 | z_{eq} | 3395 ± 34 | f_{2000}^{217} | 108.0 ± 1.9 |
| Ω_{m} | 0.3164 ± 0.0094 | k_{eq} | 0.01036 ± 0.00010 | $\chi_{\mathrm{lensing}}^2$ | 9.43 ± 0.84 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1427 ± 0.0014 | $100\theta_{\mathrm{eq}}$ | 0.8140 ± 0.0064 | χ_{simall}^2 | 397.0 ± 1.6 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09586 ± 0.00045 | $100\theta_{\mathrm{s,eq}}$ | 0.4499 ± 0.0033 | χ_{lowl}^2 | 24.9 ± 1.6 |
| σ_8 | 0.8109 ± 0.0060 | $H(0.15)$ | 72.51 ± 0.59 | χ_{plik}^2 | 771.1 ± 5.2 |
| S_8 | 0.833 ± 0.016 | $D_{\mathrm{M}}(0.15)$ | 645.0 ± 5.9 | χ_{prior}^2 | 7.3 ± 3.7 |
| $\sigma_8 \Omega_{\mathrm{m}}^{0.5}$ | 0.4561 ± 0.0088 | $H(0.38)$ | 82.69 ± 0.44 | χ_{CMB}^2 | 1202.4 ± 5.6 |
| $\sigma_8 \Omega_{\mathrm{m}}^{0.25}$ | 0.6081 ± 0.0076 | $D_{\mathrm{M}}(0.38)$ | 1537 ± 12 | | |
| $\sigma_8/h^{0.5}$ | 0.989 ± 0.010 | $H(0.51)$ | 89.45 ± 0.35 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 1209.64$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1.48$; $R - 1 = 0.01135$

16.12 base_r_plikHM_TT_lowl_lowE_lensing_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|--------------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02221 ± 0.00020 | $\langle d^2 \rangle^{1/2}$ | 2.434 ± 0.021 | $D_M(0.61)$ | 2307 ± 11 |
| $\Omega_c h^2$ | 0.1190 ± 0.0011 | z_{re} | $7.83^{+0.61}_{-0.72}$ | $H(2.33)$ | 235.76 ± 0.68 |
| $100\theta_{\text{MC}}$ | 1.04098 ± 0.00042 | $10^9 A_s$ | $2.100^{+0.025}_{-0.031}$ | $D_M(2.33)$ | 5767 ± 12 |
| τ | $0.0557^{+0.0056}_{-0.0074}$ | $10^9 A_s e^{-2\tau}$ | 1.879 ± 0.011 | $f\sigma_8(0.15)$ | 0.4556 ± 0.0061 |
| $\ln(10^{10} A_s)$ | $3.045^{+0.012}_{-0.014}$ | D_{40} | 1241^{+13}_{-17} | $\sigma_8(0.15)$ | $0.7479^{+0.0049}_{-0.0056}$ |
| n_s | 0.9667 ± 0.0041 | D_{220} | 5722 ± 41 | $f\sigma_8(0.38)$ | 0.4741 ± 0.0050 |
| r | < 0.0492 | D_{810} | 2537 ± 14 | $\sigma_8(0.38)$ | $0.6630^{+0.0042}_{-0.0049}$ |
| y_{cal} | 1.0008 ± 0.0025 | D_{1420} | 816.1 ± 5.0 | $f\sigma_8(0.51)$ | 0.4728 ± 0.0044 |
| A_{217}^{CIB} | 48 ± 7 | D_{2000} | 230.2 ± 1.8 | $\sigma_8(0.51)$ | $0.6205^{+0.0039}_{-0.0046}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $n_{s,0.002}$ | 0.9667 ± 0.0041 | $f\sigma_8(0.61)$ | 0.4679 ± 0.0041 |
| A_{143}^{tSZ} | $5.2^{+2.2}_{-1.9}$ | Y_{P} | $0.245328^{+0.000087}_{-0.000076}$ | $\sigma_8(0.61)$ | $0.5905^{+0.0037}_{-0.0044}$ |
| A_{100}^{PS} | 262 ± 28 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246654^{+0.000087}_{-0.000076}$ | $f\sigma_8(2.33)$ | $0.2978^{+0.0019}_{-0.0023}$ |
| A_{143}^{PS} | 48 ± 8 | $10^5 \text{D}/\text{H}$ | 2.616 ± 0.037 | $\sigma_8(2.33)$ | $0.3070^{+0.0020}_{-0.0024}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | Age/Gyr | 13.807 ± 0.028 | $r_{0.002}$ | < 0.0453 |
| A_{217}^{PS} | 115 ± 10 | z_* | 1090.04 ± 0.29 | $r_{0.01}$ | < 0.0472 |
| A^{kSZ} | < 4.58 | r_* | 144.81 ± 0.28 | $\ln(10^{10} A_{\text{t}})$ | $-0.64^{+1.4}_{-0.61}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $100\theta_*$ | 1.04118 ± 0.00042 | r_{10} | < 0.0231 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | $D_M(z_*)/\text{Gpc}$ | 13.908 ± 0.028 | $10^9 A_{\text{t}}$ | < 0.104 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | z_{drag} | 1059.50 ± 0.45 | $10^9 A_{\text{t}} e^{-2\tau}$ | < 0.0926 |
| A_{217}^{dustTT} | 93.6 ± 7.2 | r_{drag} | 147.53 ± 0.32 | f_{2000}^{143} | 30.7 ± 2.9 |
| c_{100} | 0.99960 ± 0.00061 | k_{D} | 0.14028 ± 0.00043 | $f_{2000}^{143 \times 217}$ | 33.2 ± 2.0 |
| c_{217} | 0.99827 ± 0.00063 | $100\theta_{\text{D}}$ | 0.16102 ± 0.00026 | f_{2000}^{217} | 107.9 ± 1.9 |
| H_0 | 67.59 ± 0.49 | z_{eq} | 3375 ± 25 | χ_{lensing}^2 | 9.28 ± 0.72 |
| Ω_{Λ} | 0.6894 ± 0.0064 | k_{eq} | 0.010300 ± 0.000075 | χ_{simall}^2 | 397.2 ± 1.7 |
| Ω_{m} | 0.3106 ± 0.0064 | $100\theta_{\text{eq}}$ | 0.8179 ± 0.0046 | χ_{lowl}^2 | 24.5 ± 1.5 |
| $\Omega_{\text{m}} h^2$ | 0.1419 ± 0.0010 | $100\theta_{\text{s,eq}}$ | 0.4519 ± 0.0024 | χ_{plik}^2 | 771.4 ± 5.2 |
| $\Omega_{\text{m}} h^3$ | 0.09589 ± 0.00045 | $H(0.15)$ | 72.86 ± 0.43 | $\chi_{6\text{DF}}^2$ | 0.053 ± 0.066 |
| σ_8 | $0.8092^{+0.0055}_{-0.0062}$ | $D_M(0.15)$ | 641.5 ± 4.2 | χ_{MGS}^2 | 1.32 ± 0.46 |
| S_8 | 0.823 ± 0.012 | $H(0.38)$ | 82.95 ± 0.33 | χ_{DR12BAO}^2 | 4.7 ± 1.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4510 ± 0.0065 | $D_M(0.38)$ | 1530.1 ± 8.5 | χ_{prior}^2 | 7.3 ± 3.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6041 ± 0.0061 | $H(0.51)$ | 89.65 ± 0.27 | χ_{CMB}^2 | 1202.5 ± 5.6 |
| $\sigma_8/h^{0.5}$ | 0.9843 ± 0.0088 | $D_M(0.51)$ | 1982 ± 10 | χ_{BAO}^2 | 6.1 ± 1.1 |
| $r_{\text{drag}} h$ | 99.72 ± 0.83 | $H(0.61)$ | 95.25 ± 0.24 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1215.85; \Delta\bar{\chi}_{\text{eff}}^2 = 1.27; R - 1 = 0.01875$$

16.13 base_r_plikHM_TTTEEE_lowl_lowE_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------|
| $\Omega_b h^2$ | 0.022391 | 0.02237 ± 0.00014 | S_8 | 0.8320 | 0.830 ± 0.013 | $D_M(0.38)$ | 1533.2 | 1532.9 ± 9.3 |
| $\Omega_c h^2$ | 0.12002 | 0.1199 ± 0.0012 | $\sigma_8 \Omega_m^{0.5}$ | 0.4557 | 0.4549 ± 0.0070 | $H(0.51)$ | 89.639 | 89.64 ± 0.27 |
| $100\theta_{MC}$ | 1.040933 | 1.04092 ± 0.00031 | $\sigma_8 \Omega_m^{0.25}$ | 0.6082 | 0.6073 ± 0.0064 | $D_M(0.51)$ | 1985.6 | 1985 ± 11 |
| τ | 0.0543 | 0.0543 ± 0.0075 | $\sigma_8/h^{0.5}$ | 0.9889 | 0.9878 ± 0.0090 | $H(0.61)$ | 95.291 | 95.29 ± 0.22 |
| $\ln(10^{10} A_s)$ | 3.0445 | 3.044 ± 0.014 | $r_{\text{drag}} h$ | 99.08 | 99.16 ± 0.93 | $D_M(0.61)$ | 2310.0 | 2310 ± 12 |
| n_s | 0.96634 | 0.9659 ± 0.0041 | $\langle d^2 \rangle^{1/2}$ | 2.4430 | 2.442 ± 0.022 | $H(2.33)$ | 236.59 | 236.49 ± 0.72 |
| r | 0.0005 | < 0.0494 | z_{re} | 7.68 | 7.66 ± 0.75 | $D_M(2.33)$ | 5762.7 | 5763 ± 10 |
| y_{cal} | 1.00038 | 1.0006 ± 0.0025 | $10^9 A_s$ | 2.0999 | 2.099 ± 0.030 | $f\sigma_8(0.15)$ | 0.4600 | 0.4592 ± 0.0065 |
| A_{217}^{CIB} | 45.8 | 47 ± 7 | $10^9 A_s e^{-2\tau}$ | 1.8836 | 1.883 ± 0.011 | $\sigma_8(0.15)$ | 0.7496 | 0.7490 ± 0.0053 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.65 | — | D_{40} | 1228.3 | 1243_{-17}^{+13} | $f\sigma_8(0.38)$ | 0.4775 | 0.4768 ± 0.0052 |
| A_{143}^{tSZ} | 7.08 | $5.5_{-1.9}^{+2.1}$ | D_{220} | 5729.4 | 5730 ± 39 | $\sigma_8(0.38)$ | 0.66410 | 0.6636 ± 0.0047 |
| A_{100}^{PS} | 248.4 | 258 ± 28 | D_{810} | 2540.9 | 2539 ± 13 | $f\sigma_8(0.51)$ | 0.47567 | 0.4750 ± 0.0046 |
| A_{143}^{PS} | 50.6 | 46 ± 8 | D_{1420} | 818.43 | 817.6 ± 4.8 | $\sigma_8(0.51)$ | 0.62132 | 0.6209 ± 0.0044 |
| $A_{143 \times 217}^{\text{PS}}$ | 53.1 | 43 ± 9 | D_{2000} | 231.35 | 231.0 ± 1.6 | $f\sigma_8(0.61)$ | 0.47039 | 0.4698 ± 0.0041 |
| A_{217}^{PS} | 122.1 | 115 ± 10 | $n_{s,0.002}$ | 0.96634 | 0.9659 ± 0.0041 | $\sigma_8(0.61)$ | 0.59110 | 0.5907 ± 0.0042 |
| A^{kSZ} | 0.00 | < 4.07 | Y_{P} | 0.245404 | $0.245394_{-0.000052}^{+0.000060}$ | $f\sigma_8(2.33)$ | 0.29789 | 0.2977 ± 0.0022 |
| A_{100}^{dustTT} | 8.81 | 8.9 ± 1.8 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246730 | $0.246720_{-0.000052}^{+0.000060}$ | $\sigma_8(2.33)$ | 0.30695 | 0.3068 ± 0.0024 |
| A_{143}^{dustTT} | 11.02 | 10.8 ± 1.8 | $10^5 \text{D}/\text{H}$ | 2.5815 | 2.586 ± 0.027 | $r_{0.002}$ | 0.0004 | < 0.0452 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.21 | 18.6 ± 3.3 | Age/Gyr | 13.7951 | 13.797 ± 0.023 | $r_{0.01}$ | 0.0004 | < 0.0473 |
| A_{217}^{dustTT} | 95.6 | 93.8 ± 7.3 | z_* | 1089.894 | 1089.91 ± 0.25 | $\ln(10^{10} A_t)$ | -4.62 | $-0.65_{-0.57}^{+1.4}$ |
| A_{100}^{dustTE} | 0.1151 | 0.115 ± 0.038 | r_* | 144.411 | 144.46 ± 0.27 | r_{10} | 0.0002 | < 0.0231 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1353 | 0.135 ± 0.030 | $100\theta_*$ | 1.041110 | 1.04110 ± 0.00030 | $10^9 A_t$ | 0.001 | < 0.104 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.481 ± 0.084 | $D_M(z_*)/\text{Gpc}$ | 13.8709 | 13.876 ± 0.025 | $10^9 A_t e^{-2\tau}$ | 0.0009 | < 0.0930 |
| A_{143}^{dustTE} | 0.226 | 0.226 ± 0.054 | z_{drag} | 1059.971 | 1059.93 ± 0.29 | f_{2000}^{143} | 28.57 | 29.3 ± 2.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 | 0.667 ± 0.081 | r_{drag} | 147.065 | 147.12 ± 0.27 | $f_{2000}^{143 \times 217}$ | 31.92 | 32.1 ± 1.8 |
| A_{217}^{dustTE} | 2.088 | 2.09 ± 0.27 | k_{D} | 0.140912 | 0.14084 ± 0.00030 | f_{2000}^{217} | 106.44 | 106.9 ± 1.8 |
| c_{100} | 0.99973 | 0.99966 ± 0.00061 | $100\theta_{\text{D}}$ | 0.160730 | 0.16076 ± 0.00017 | χ_{lensing}^2 | 8.839 | 9.25 ± 0.67 |
| c_{217} | 0.99818 | 0.99819 ± 0.00062 | z_{eq} | 3403.1 | 3400 ± 27 | χ_{small}^2 | 396.05 | 397.2 ± 1.8 |
| H_0 | 67.37 | 67.40 ± 0.54 | k_{eq} | 0.010387 | 0.010376 ± 0.000082 | χ_{lowl}^2 | 23.21 | 24.7 ± 1.5 |
| Ω_{Λ} | 0.6848 | 0.6853 ± 0.0074 | $100\theta_{\text{eq}}$ | 0.8132 | 0.8138 ± 0.0051 | χ_{plik}^2 | 2345.0 | 2359.2 ± 5.7 |
| Ω_{m} | 0.3152 | 0.3147 ± 0.0074 | $100\theta_{s,\text{eq}}$ | 0.44932 | 0.4496 ± 0.0026 | χ_{prior}^2 | 1.55 | 11.6 ± 4.5 |
| $\Omega_{\text{m}} h^2$ | 0.14305 | 0.1429 ± 0.0011 | $H(0.15)$ | 72.693 | 72.71 ± 0.46 | χ_{CMB}^2 | 2773.1 | 2790.4 ± 6.0 |
| $\Omega_{\text{m}} h^3$ | 0.096372 | 0.09631 ± 0.00029 | $D_M(0.15)$ | 643.25 | 643.1 ± 4.6 | | | |
| σ_8 | 0.8117 | 0.8109 ± 0.0059 | $H(0.38)$ | 82.879 | 82.89 ± 0.34 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2774.63$; $\Delta\chi_{\text{eff}}^2 = 0.00$; $\bar{\chi}_{\text{eff}}^2 = 2801.95$; $\Delta\bar{\chi}_{\text{eff}}^2 = 1.26$; $R - 1 = 0.00682$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 8.84 (Δ -0.03) small_100x143_offlike5_EE_Aplanck_B: 396.05 (Δ 0.00) commander_dx12_v3.2_29: 23.20 (Δ -0.05) plik_rd12_HM_v22b_TTTEEE: 2344.99 (Δ 0.06)

16.14 base_r_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|------------------------------|---------------------------------------|----------|------------------------------------|----------------------------------|----------|------------------------|
| $\Omega_{\mathrm{b}} h^2$ | 0.022447 | 0.02242 ± 0.00013 | $\sigma_8 \Omega_{\mathrm{m}}^{0.5}$ | 0.4521 | 0.4515 ± 0.0058 | $D_{\mathrm{M}}(0.51)$ | 1979.0 | 1979.3 ± 8.6 |
| $\Omega_{\mathrm{c}} h^2$ | 0.11929 | 0.11924 ± 0.00094 | $\sigma_8 \Omega_{\mathrm{m}}^{0.25}$ | 0.6056 | 0.6047 ± 0.0056 | $H(0.61)$ | 95.413 | 95.40 ± 0.18 |
| $100\theta_{\mathrm{MC}}$ | 1.041014 | 1.04101 ± 0.00029 | $\sigma_8/h^{0.5}$ | 0.9859 | 0.9846 ± 0.0083 | $D_{\mathrm{M}}(0.61)$ | 2303.0 | 2303.3 ± 9.3 |
| τ | 0.0566 | $0.0561^{+0.0068}_{-0.0076}$ | $r_{\mathrm{drag}} h$ | 99.65 | 99.67 ± 0.73 | $H(2.33)$ | 236.18 | 236.11 ± 0.57 |
| $\ln(10^{10} A_{\mathrm{s}})$ | 3.0484 | 3.046 ± 0.014 | $\langle d^2 \rangle^{1/2}$ | 2.4367 | 2.435 ± 0.020 | $D_{\mathrm{M}}(2.33)$ | 5757.5 | 5758.7 ± 8.8 |
| n_{s} | 0.96801 | 0.9675 ± 0.0038 | z_{re} | 7.89 | 7.82 ± 0.73 | $f\sigma_8(0.15)$ | 0.4568 | 0.4561 ± 0.0054 |
| r | 0.0000 | < 0.0513 | $10^9 A_{\mathrm{s}}$ | 2.1082 | $2.104^{+0.028}_{-0.031}$ | $\sigma_8(0.15)$ | 0.7496 | 0.7486 ± 0.0053 |
| y_{cal} | 1.00082 | 1.0008 ± 0.0024 | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.8825 | 1.880 ± 0.011 | $f\sigma_8(0.38)$ | 0.47533 | 0.4746 ± 0.0046 |
| A_{217}^{CIB} | 45.7 | 46 ± 7 | D_{40} | 1226.5 | 1241^{+12}_{-18} | $\sigma_8(0.38)$ | 0.66460 | 0.6637 ± 0.0047 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | 0.666 | > 0.367 | D_{220} | 5739.5 | 5735 ± 38 | $f\sigma_8(0.51)$ | 0.47403 | 0.4733 ± 0.0041 |
| A_{143}^{tSZ} | 7.06 | 5.5 ± 1.9 | D_{810} | 2542.8 | 2540 ± 13 | $\sigma_8(0.51)$ | 0.62199 | 0.6212 ± 0.0044 |
| A_{100}^{PS} | 248.2 | 258 ± 28 | D_{1420} | 819.61 | 818.3 ± 4.7 | $f\sigma_8(0.61)$ | 0.46911 | 0.4684 ± 0.0038 |
| A_{143}^{PS} | 50.2 | 45 ± 8 | D_{2000} | 231.78 | 231.3 ± 1.5 | $\sigma_8(0.61)$ | 0.59186 | 0.5911 ± 0.0042 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 52.9 | 42 ± 9 | $n_{\mathrm{s},0.002}$ | 0.96801 | 0.9675 ± 0.0038 | $f\sigma_8(2.33)$ | 0.29845 | 0.2981 ± 0.0022 |
| A_{217}^{PS} | 122.0 | 115 ± 10 | Y_{P} | 0.245425 | $0.245412^{+0.000055}_{-0.000047}$ | $\sigma_8(2.33)$ | 0.30773 | 0.3073 ± 0.0023 |
| A^{kSZ} | 0.01 | < 3.99 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.246752 | $0.246739^{+0.000055}_{-0.000047}$ | $r_{0.002}$ | 0.0000 | < 0.0471 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.82 | 8.9 ± 1.8 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.5713 | 2.577 ± 0.025 | $r_{0.01}$ | 0.0000 | < 0.0491 |
| $A_{143}^{\mathrm{dust}TT}$ | 11.04 | 10.8 ± 1.8 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.7840 | 13.787 ± 0.020 | $\ln(10^{10} A_{\mathrm{t}})$ | -7.83 | $-0.60^{+1.4}_{-0.57}$ |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 20.21 | 18.6 ± 3.3 | z_* | 1089.760 | 1089.79 ± 0.22 | r_{10} | 0.0000 | < 0.0241 |
| $A_{217}^{\mathrm{dust}TT}$ | 95.8 | 93.9 ± 7.4 | r_* | 144.557 | 144.59 ± 0.22 | $10^9 A_{\mathrm{t}}$ | 0.000 | < 0.108 |
| $A_{100}^{\mathrm{dust}TE}$ | 0.1138 | 0.114 ± 0.038 | $100\theta_*$ | 1.041188 | 1.04119 ± 0.00029 | $10^9 A_{\mathrm{t}} e^{-2\tau}$ | 0.0000 | < 0.0964 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.1343 | 0.135 ± 0.030 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.8838 | 13.887 ± 0.021 | f_{2000}^{143} | 28.29 | 29.1 ± 2.7 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.478 | 0.482 ± 0.085 | z_{drag} | 1060.047 | 1059.99 ± 0.29 | $f_{2000}^{143 \times 217}$ | 31.68 | 31.9 ± 1.8 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.223 | 0.226 ± 0.054 | r_{drag} | 147.196 | 147.24 ± 0.23 | f_{2000}^{217} | 106.33 | 106.8 ± 1.7 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.665 | 0.665 ± 0.080 | k_{D} | 0.140817 | 0.14075 ± 0.00028 | $\chi_{\mathrm{lensing}}^2$ | 8.720 | 9.14 ± 0.60 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.082 | 2.08 ± 0.27 | $100\theta_{\mathrm{D}}$ | 0.160689 | 0.16073 ± 0.00017 | χ_{small}^2 | 396 | 1296 ± 1000 |
| c_{100} | 0.99975 | 0.99966 ± 0.00062 | z_{eq} | 3387.0 | 3385 ± 21 | χ_{lowl}^2 | 22.95 | 24.5 ± 1.5 |
| c_{217} | 0.99818 | 0.99819 ± 0.00062 | k_{eq} | 0.010337 | 0.010332 ± 0.000065 | χ_{plik}^2 | 2345 | 1461 ± 1000 |
| H_0 | 67.698 | 67.69 ± 0.43 | $100\theta_{\mathrm{eq}}$ | 0.81631 | 0.8166 ± 0.0040 | $\chi_{6\mathrm{DF}}^2$ | 0.0294 | 0.050 ± 0.058 |
| Ω_{Λ} | 0.6893 | 0.6894 ± 0.0057 | $100\theta_{\mathrm{s,eq}}$ | 0.45090 | 0.4511 ± 0.0021 | χ_{MGS}^2 | 1.217 | 1.28 ± 0.40 |
| Ω_{m} | 0.3107 | 0.3106 ± 0.0057 | $H(0.15)$ | 72.975 | 72.97 ± 0.37 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.43 | 4.8 ± 1.3 |
| $\Omega_{\mathrm{m}} h^2$ | 0.14238 | 0.14230 ± 0.00089 | $D_{\mathrm{M}}(0.15)$ | 640.44 | 640.5 ± 3.6 | χ_{prior}^2 | 1.58 | 11.6 ± 4.6 |
| $\Omega_{\mathrm{m}} h^3$ | 0.096388 | 0.09632 ± 0.00029 | $H(0.38)$ | 83.081 | 83.07 ± 0.27 | χ_{CMB}^2 | 2773.4 | 2790.4 ± 5.9 |
| σ_8 | 0.8112 | 0.8101 ± 0.0059 | $D_{\mathrm{M}}(0.38)$ | 1527.6 | 1527.8 ± 7.3 | χ_{BAO}^2 | 5.68 | 6.1 ± 1.0 |
| S_8 | 0.8255 | 0.824 ± 0.011 | $H(0.51)$ | 89.795 | 89.78 ± 0.22 | | | |

Best-fit $\chi_{\mathrm{eff}}^2 = 2780.69$; $\Delta\chi_{\mathrm{eff}}^2 = -0.00$; $\bar{\chi}_{\mathrm{eff}}^2 = 2808.06$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1.22$; $R - 1 = 0.01525$
 χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.43 (Δ 0.01) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb_consext8: 8.72 (Δ -0.01) small_100x143_offlike5_EE_Aplanck: 396.49 (Δ -0.03) commander_dx12_v3.2_29: 22.95 (Δ 0.05) plik_rd12_HM_v22b.TTTEEE: 2345.28 (Δ -0.03)

16.15 base_r_plikHM_TTTEEE_lowl_lowE_lensing_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02238 ± 0.00014 | S_8 | 0.831 ± 0.013 | $D_M(0.38)$ | 1532.4 ± 9.1 |
| $\Omega_c h^2$ | 0.1198 ± 0.0012 | $\sigma_8 \Omega_m^{0.5}$ | 0.4549 ± 0.0070 | $H(0.51)$ | 89.65 ± 0.27 |
| $100\theta_{MC}$ | 1.04093 ± 0.00030 | $\sigma_8 \Omega_m^{0.25}$ | 0.6075 ± 0.0063 | $D_M(0.51)$ | 1985 ± 11 |
| τ | $0.0552^{+0.0053}_{-0.0079}$ | $\sigma_8/h^{0.5}$ | 0.9882 ± 0.0089 | $H(0.61)$ | 95.30 ± 0.22 |
| $\ln(10^{10} A_s)$ | $3.045^{+0.011}_{-0.014}$ | $r_{\text{drag}} h$ | 99.20 ± 0.92 | $D_M(0.61)$ | 2309 ± 12 |
| n_s | 0.9661 ± 0.0041 | $\langle d^2 \rangle^{1/2}$ | 2.443 ± 0.021 | $H(2.33)$ | 236.45 ± 0.70 |
| r | < 0.0493 | z_{re} | $7.76^{+0.58}_{-0.76}$ | $D_M(2.33)$ | 5763 ± 10 |
| y_{cal} | 1.0006 ± 0.0024 | $10^9 A_s$ | $2.102^{+0.023}_{-0.031}$ | $f\sigma_8(0.15)$ | 0.4592 ± 0.0065 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.011 | $\sigma_8(0.15)$ | $0.7495^{+0.0047}_{-0.0052}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{40} | 1243^{+13}_{-17} | $f\sigma_8(0.38)$ | 0.4770 ± 0.0052 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | D_{220} | 5730 ± 38 | $\sigma_8(0.38)$ | $0.6641^{+0.0039}_{-0.0047}$ |
| A_{100}^{PS} | 258 ± 28 | D_{810} | 2539 ± 13 | $f\sigma_8(0.51)$ | 0.4752 ± 0.0045 |
| A_{143}^{PS} | 46 ± 8 | D_{1420} | 817.6 ± 4.7 | $\sigma_8(0.51)$ | $0.6213^{+0.0036}_{-0.0044}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | D_{2000} | 231.0 ± 1.6 | $f\sigma_8(0.61)$ | 0.4700 ± 0.0041 |
| A_{217}^{PS} | 115 ± 10 | $n_{s,0.002}$ | 0.9661 ± 0.0041 | $\sigma_8(0.61)$ | $0.5911^{+0.0034}_{-0.0043}$ |
| A^{kSZ} | < 4.07 | Y_P | $0.245396^{+0.000059}_{-0.000052}$ | $f\sigma_8(2.33)$ | $0.2979^{+0.0017}_{-0.0022}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P^{BBN} | $0.246722^{+0.000060}_{-0.000052}$ | $\sigma_8(2.33)$ | $0.3071^{+0.0019}_{-0.0024}$ |
| A_{143}^{dustTT} | 10.8 ± 1.8 | $10^5 D/H$ | 2.585 ± 0.026 | $r_{0.002}$ | < 0.0451 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | Age/Gyr | 13.796 ± 0.023 | $r_{0.01}$ | < 0.0472 |
| A_{217}^{dustTT} | 93.8 ± 7.3 | z_* | 1089.90 ± 0.25 | $\ln(10^{10} A_t)$ | $-0.65^{+1.4}_{-0.57}$ |
| A_{100}^{dustTE} | 0.115 ± 0.038 | r_* | 144.47 ± 0.26 | r_{10} | < 0.0231 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.030 | $100\theta_*$ | 1.04111 ± 0.00030 | $10^9 A_t$ | < 0.104 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 ± 0.084 | $D_M(z_*)/\text{Gpc}$ | 13.877 ± 0.025 | $10^9 A_t e^{-2\tau}$ | < 0.0927 |
| A_{143}^{dustTE} | 0.226 ± 0.054 | z_{drag} | 1059.94 ± 0.29 | f_{2000}^{143} | 29.3 ± 2.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 ± 0.081 | r_{drag} | 147.13 ± 0.26 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.8 |
| A_{217}^{dustTE} | 2.09 ± 0.27 | k_D | 0.14083 ± 0.00030 | f_{2000}^{217} | 106.9 ± 1.8 |
| c_{100} | 0.99966 ± 0.00061 | $100\theta_D$ | 0.16076 ± 0.00017 | χ_{lensing}^2 | 9.22 ± 0.65 |
| c_{217} | 0.99819 ± 0.00063 | z_{eq} | 3398 ± 26 | χ_{simall}^2 | 397.2 ± 1.8 |
| H_0 | 67.42 ± 0.53 | k_{eq} | 0.010372 ± 0.000081 | χ_{lowl}^2 | 24.7 ± 1.5 |
| Ω_Λ | 0.6857 ± 0.0073 | $100\theta_{\text{eq}}$ | 0.8141 ± 0.0050 | χ_{plik}^2 | 2359.1 ± 5.6 |
| Ω_m | 0.3143 ± 0.0073 | $100\theta_{s,\text{eq}}$ | 0.4498 ± 0.0026 | χ_{prior}^2 | 11.5 ± 4.5 |
| $\Omega_m h^2$ | 0.1428 ± 0.0011 | $H(0.15)$ | 72.74 ± 0.46 | χ_{CMB}^2 | 2790.2 ± 5.9 |
| $\Omega_m h^3$ | 0.09631 ± 0.00029 | $D_M(0.15)$ | 642.8 ± 4.6 | | |
| σ_8 | 0.8114 ± 0.0056 | $H(0.38)$ | 82.90 ± 0.33 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2801.72; \Delta \bar{\chi}_{\text{eff}}^2 = 1.22; R - 1 = 0.00705$$

16.16 base_r_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------------|---------------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02242 ± 0.00013 | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4516 ± 0.0057 | $D_{\mathrm{M}}(0.51)$ | 1979.1 ± 8.6 |
| $\Omega_{\mathrm{c}}h^2$ | 0.11922 ± 0.00093 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6049 ± 0.0055 | $H(0.61)$ | 95.40 ± 0.18 |
| $100\theta_{\mathrm{MC}}$ | 1.04101 ± 0.00029 | $\sigma_8/h^{0.5}$ | 0.9850 ± 0.0081 | $D_{\mathrm{M}}(0.61)$ | 2303.1 ± 9.3 |
| τ | $0.0566^{+0.0058}_{-0.0078}$ | $r_{\mathrm{drag}}h$ | 99.69 ± 0.73 | $H(2.33)$ | 236.10 ± 0.57 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.047^{+0.012}_{-0.015}$ | $\langle d^2 \rangle^{1/2}$ | 2.436 ± 0.020 | $D_{\mathrm{M}}(2.33)$ | 5758.5 ± 8.8 |
| n_{s} | 0.9676 ± 0.0038 | z_{re} | $7.88^{+0.62}_{-0.76}$ | $f\sigma_8(0.15)$ | 0.4562 ± 0.0054 |
| r | < 0.0511 | $10^9 A_{\mathrm{s}}$ | $2.106^{+0.024}_{-0.031}$ | $\sigma_8(0.15)$ | $0.7490^{+0.0048}_{-0.0054}$ |
| y_{cal} | 1.0008 ± 0.0024 | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.880 ± 0.010 | $f\sigma_8(0.38)$ | 0.4748 ± 0.0045 |
| A_{217}^{CIB} | 46 ± 7 | D_{40} | 1241^{+12}_{-18} | $\sigma_8(0.38)$ | $0.6640^{+0.0041}_{-0.0048}$ |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | > 0.367 | D_{220} | 5734 ± 38 | $f\sigma_8(0.51)$ | 0.4735 ± 0.0040 |
| A_{143}^{tSZ} | 5.5 ± 1.9 | D_{810} | 2540 ± 13 | $\sigma_8(0.51)$ | $0.6215^{+0.0038}_{-0.0045}$ |
| A_{100}^{PS} | 258 ± 28 | D_{1420} | 818.2 ± 4.7 | $f\sigma_8(0.61)$ | 0.4686 ± 0.0038 |
| A_{143}^{PS} | 45 ± 8 | D_{2000} | 231.3 ± 1.5 | $\sigma_8(0.61)$ | $0.5914^{+0.0036}_{-0.0044}$ |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | $n_{\mathrm{s},0.002}$ | 0.9676 ± 0.0038 | $f\sigma_8(2.33)$ | $0.2982^{+0.0018}_{-0.0023}$ |
| A_{217}^{PS} | 115 ± 10 | Y_{P} | $0.245413^{+0.000055}_{-0.000047}$ | $\sigma_8(2.33)$ | $0.3075^{+0.0019}_{-0.0024}$ |
| A^{kSZ} | < 3.99 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246739^{+0.000055}_{-0.000047}$ | $r_{0.002}$ | < 0.0470 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.577 ± 0.025 | $r_{0.01}$ | < 0.0490 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.8 ± 1.8 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.787 ± 0.020 | $\ln(10^{10}A_{\mathrm{t}})$ | $-0.60^{+1.4}_{-0.57}$ |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.6 ± 3.3 | z_* | 1089.79 ± 0.22 | r_{10} | < 0.0240 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.9 ± 7.4 | r_* | 144.60 ± 0.22 | $10^9 A_{\mathrm{t}}$ | < 0.108 |
| $A_{100}^{\mathrm{dust}TE}$ | 0.114 ± 0.038 | $100\theta_*$ | 1.04119 ± 0.00029 | $10^9 A_{\mathrm{t}}e^{-2\tau}$ | < 0.0961 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.135 ± 0.030 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.888 ± 0.021 | f_{2000}^{143} | 29.1 ± 2.7 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.482 ± 0.085 | z_{drag} | 1059.99 ± 0.29 | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.8 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.226 ± 0.054 | r_{drag} | 147.25 ± 0.23 | f_{2000}^{217} | 106.8 ± 1.7 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.665 ± 0.080 | k_{D} | 0.14074 ± 0.00028 | $\chi_{\mathrm{lensing}}^2$ | 9.12 ± 0.55 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.08 ± 0.27 | $100\theta_{\mathrm{D}}$ | 0.16073 ± 0.00017 | χ_{simall}^2 | 1291 ± 1000 |
| c_{100} | 0.99966 ± 0.00062 | z_{eq} | 3385 ± 21 | χ_{lowl}^2 | 24.5 ± 1.5 |
| c_{217} | 0.99819 ± 0.00063 | k_{eq} | 0.010330 ± 0.000064 | χ_{plik}^2 | 1466 ± 1000 |
| H_0 | 67.70 ± 0.42 | $100\theta_{\mathrm{eq}}$ | 0.8167 ± 0.0040 | $\chi_{6\mathrm{DF}}^2$ | 0.049 ± 0.057 |
| Ω_{Λ} | 0.6895 ± 0.0057 | $100\theta_{\mathrm{s,eq}}$ | 0.4511 ± 0.0020 | χ_{MGS}^2 | 1.29 ± 0.40 |
| Ω_{m} | 0.3105 ± 0.0057 | $H(0.15)$ | 72.97 ± 0.37 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.7 ± 1.3 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14228 ± 0.00088 | $D_{\mathrm{M}}(0.15)$ | 640.5 ± 3.6 | χ_{prior}^2 | 11.6 ± 4.6 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09632 ± 0.00029 | $H(0.38)$ | 83.07 ± 0.27 | χ_{CMB}^2 | 2790.2 ± 5.9 |
| σ_8 | 0.8104 ± 0.0056 | $D_{\mathrm{M}}(0.38)$ | 1527.7 ± 7.3 | χ_{BAO}^2 | 6.05 ± 0.99 |
| S_8 | 0.824 ± 0.010 | $H(0.51)$ | 89.78 ± 0.22 | | |

$$\bar{\chi}_{\mathrm{eff}}^2 = 2807.89; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1.17; R - 1 = 0.01530$$

17 w

17.1 base_w_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|----------------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|---------------------------|
| $\Omega_b h^2$ | 0.022222 | 0.02215 ± 0.00022 | $\sigma_8 \Omega_m^{0.5}$ | 0.4077 | $0.431^{+0.016}_{-0.023}$ | $100\theta_{s,eq}$ | 0.44903 | 0.4487 ± 0.0046 |
| $\Omega_c h^2$ | 0.12025 | 0.1205 ± 0.0021 | $\sigma_8 \Omega_m^{0.25}$ | 0.6626 | $0.643^{+0.023}_{-0.018}$ | $H(0.15)$ | 88.71 | $81.8^{+6.6}_{-2.8}$ |
| $100\theta_{MC}$ | 1.040876 | 1.04080 ± 0.00047 | $\sigma_8/h^{0.5}$ | 1.0772 | $1.045^{+0.037}_{-0.026}$ | $D_M(0.15)$ | 480.8 | 547^{+20}_{-65} |
| τ | 0.0523 | 0.0516 ± 0.0079 | $r_{drag}h$ | 147.1 | 125^{+20}_{-8} | $H(0.38)$ | 84.31 | $84.0^{+1.1}_{-0.89}$ |
| w_0 | -1.971 | $-1.56^{+0.19}_{-0.39}$ | $\langle d^2 \rangle^{1/2}$ | 2.5278 | $2.504^{+0.048}_{-0.042}$ | $D_M(0.38)$ | 1288 | 1386^{+34}_{-98} |
| $\ln(10^{10} A_s)$ | 3.0403 | 3.039 ± 0.016 | z_{re} | 7.44 | $7.38^{+0.83}_{-0.72}$ | $H(0.51)$ | 86.62 | $88.1^{+1.4}_{-0.86}$ |
| n_s | 0.9647 | 0.9630 ± 0.0057 | $10^9 A_s$ | 2.0912 | 2.088 ± 0.034 | $D_M(0.51)$ | 1745 | 1840^{+35}_{-97} |
| y_{cal} | 1.00031 | 1.0004 ± 0.0024 | $10^9 A_s e^{-2\tau}$ | 1.8835 | 1.884 ± 0.013 | $H(0.61)$ | 90.06 | $92.4^{+1.6}_{-1.9}$ |
| A_{217}^{CIB} | 48.3 | 48 ± 7 | D_{40} | 1225.0 | 1230 ± 15 | $D_M(0.61)$ | 2085 | 2172^{+34}_{-92} |
| $\xi^{tSZ \times CIB}$ | 0.38 | — | D_{220} | 5717.3 | 5716 ± 41 | $H(2.33)$ | 230.54 | $232.3^{+1.4}_{-2.7}$ |
| A_{143}^{tSZ} | 6.98 | 5.1 ± 2.0 | D_{810} | 2537.0 | 2535 ± 13 | $D_M(2.33)$ | 5737.5 | 5750^{+18}_{-23} |
| A_{100}^{PS} | 253.0 | 263 ± 28 | D_{1420} | 815.4 | 814.0 ± 5.0 | $f\sigma_8(0.15)$ | 0.5108 | 0.491 ± 0.021 |
| A_{143}^{PS} | 49.1 | 49 ± 8 | D_{2000} | 230.40 | 229.7 ± 1.8 | $\sigma_8(0.15)$ | 1.015 | $0.901^{+0.11}_{-0.052}$ |
| $A_{143 \times 217}^{PS}$ | 47.5 | 43 ± 9 | $n_{s,0.002}$ | 0.9647 | 0.9630 ± 0.0057 | $f\sigma_8(0.38)$ | 0.648 | $0.574^{+0.066}_{-0.045}$ |
| A_{217}^{PS} | 119.3 | 115 ± 10 | Y_P | 0.245335 | $0.24530^{+0.00010}_{-0.000082}$ | $\sigma_8(0.38)$ | 0.908 | $0.803^{+0.099}_{-0.046}$ |
| A^{kSZ} | 0.00 | < 4.73 | Y_P^{BBN} | 0.246661 | $0.24663^{+0.00010}_{-0.000082}$ | $f\sigma_8(0.51)$ | 0.680 | $0.590^{+0.080}_{-0.049}$ |
| A_{100}^{dustTT} | 8.88 | 8.9 ± 1.8 | $10^5 D/H$ | 2.6136 | 2.627 ± 0.042 | $\sigma_8(0.51)$ | 0.849 | $0.751^{+0.092}_{-0.042}$ |
| A_{143}^{dustTT} | 10.76 | 10.7 ± 1.8 | Age/Gyr | 13.451 | $13.592^{+0.055}_{-0.15}$ | $f\sigma_8(0.61)$ | 0.685 | $0.591^{+0.086}_{-0.048}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.35 | 18.2 ± 3.3 | z_* | 1090.128 | 1090.24 ± 0.40 | $\sigma_8(0.61)$ | 0.805 | $0.713^{+0.087}_{-0.039}$ |
| A_{217}^{dustTT} | 94.5 | 93.3 ± 7.3 | r_* | 144.479 | 144.48 ± 0.48 | $f\sigma_8(2.33)$ | 0.4006 | $0.357^{+0.041}_{-0.017}$ |
| c_{100} | 0.99965 | 0.99961 ± 0.00062 | $100\theta_*$ | 1.041078 | 1.04101 ± 0.00046 | $\sigma_8(2.33)$ | 0.4011 | $0.360^{+0.039}_{-0.017}$ |
| c_{217} | 0.99823 | 0.99825 ± 0.00063 | $D_M(z_*)/\text{Gpc}$ | 13.8778 | 13.879 ± 0.044 | f_{2000}^{143} | 29.71 | 30.9 ± 2.9 |
| H_0 | 99.9 | > 80.4 | z_{drag} | 1059.628 | 1059.46 ± 0.45 | $f_{2000}^{143 \times 217}$ | 32.74 | 33.4 ± 2.0 |
| Ω_Λ | 0.8566 | $0.792^{+0.065}_{-0.017}$ | r_{drag} | 147.188 | 147.22 ± 0.48 | f_{2000}^{217} | 107.21 | 107.9 ± 1.9 |
| Ω_m | 0.1434 | $0.208^{+0.017}_{-0.065}$ | k_D | 0.14065 | 0.14056 ± 0.00053 | χ_{small}^2 | 395.73 | 396.8 ± 1.6 |
| $\Omega_m h^2$ | 0.14312 | 0.1433 ± 0.0020 | $100\theta_D$ | 0.160950 | 0.16104 ± 0.00026 | χ_{lowl}^2 | 22.64 | 23.2 ± 1.2 |
| $\Omega_m h^3$ | 0.1430 | $0.122^{+0.019}_{-0.0092}$ | z_{eq} | 3404.7 | 3408 ± 47 | χ_{plik}^2 | 756.6 | 770.0 ± 5.4 |
| σ_8 | 1.077 | $0.963^{+0.11}_{-0.053}$ | k_{eq} | 0.010392 | 0.01040 ± 0.00014 | χ_{prior}^2 | 1.29 | 7.2 ± 3.6 |
| S_8 | 0.7444 | $0.787^{+0.030}_{-0.042}$ | $100\theta_{eq}$ | 0.8124 | 0.8117 ± 0.0089 | χ_{CMB}^2 | 1175.0 | 1190.0 ± 5.7 |

Best-fit $\chi_{eff}^2 = 1176.30$; $\Delta\chi_{eff}^2 = -3.28$; $\bar{\chi}_{eff}^2 = 1197.21$; $\Delta\bar{\chi}_{eff}^2 = -2.37$; $R - 1 = 0.00888$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.73 (Δ -0.14) commander_dx12_v3_2_29: 22.64 (Δ -0.96) plik_rd12_HM_v22_TT: 756.63 (Δ -2.12)

17.2 base_w_plikHM_TT_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|----------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------------|
| $\Omega_b h^2$ | 0.022274 | 0.02221 ± 0.00021 | $\sigma_8 \Omega_m^{0.25}$ | 0.6517 | $0.635^{+0.018}_{-0.013}$ | $D_M(0.15)$ | 479.2 | 543^{+20}_{-63} |
| $\Omega_c h^2$ | 0.11880 | 0.1193 ± 0.0016 | $\sigma_8/h^{0.5}$ | 1.0622 | $1.034^{+0.029}_{-0.019}$ | $H(0.38)$ | 84.97 | $84.4^{+1.0}_{-0.69}$ |
| $100\theta_{MC}$ | 1.040976 | 1.04092 ± 0.00045 | $r_{drag}h$ | 147.4 | 126^{+20}_{-8} | $D_M(0.38)$ | 1280 | 1378^{+33}_{-97} |
| τ | 0.0519 | 0.0508 ± 0.0078 | $\langle d^2 \rangle^{1/2}$ | 2.5004 | $2.482^{+0.031}_{-0.028}$ | $H(0.51)$ | 87.18 | $88.5^{+1.1}_{-0.73}$ |
| w_0 | -1.928 | $-1.54^{+0.17}_{-0.37}$ | z_{re} | 7.37 | $7.27^{+0.84}_{-0.70}$ | $D_M(0.51)$ | 1734 | 1829^{+34}_{-96} |
| $\ln(10^{10} A_s)$ | 3.0353 | $3.034^{+0.015}_{-0.014}$ | $10^9 A_s$ | 2.0807 | 2.079 ± 0.031 | $H(0.61)$ | 90.51 | $92.7^{+1.4}_{-1.7}$ |
| n_s | 0.96759 | 0.9654 ± 0.0049 | $10^9 A_s e^{-2\tau}$ | 1.8757 | 1.878 ± 0.011 | $D_M(0.61)$ | 2072 | 2161^{+33}_{-91} |
| y_{cal} | 1.00002 | 1.0002 ± 0.0024 | D_{40} | 1217.1 | 1223 ± 13 | $H(2.33)$ | 229.51 | $231.5^{+1.1}_{-2.6}$ |
| A_{217}^{CIB} | 48.5 | 48 ± 7 | D_{220} | 5717.8 | 5718 ± 40 | $D_M(2.33)$ | 5729.4 | 5743^{+15}_{-22} |
| $\xi^{tSZ \times CIB}$ | 0.32 | — | D_{810} | 2533.5 | 2533 ± 13 | $f\sigma_8(0.15)$ | 0.4978 | 0.482 ± 0.015 |
| A_{143}^{tSZ} | 7.03 | 5.1 ± 2.0 | D_{1420} | 815.05 | 814.1 ± 5.0 | $\sigma_8(0.15)$ | 1.001 | $0.893^{+0.10}_{-0.046}$ |
| A_{100}^{PS} | 253.3 | 263 ± 28 | D_{2000} | 230.24 | 229.7 ± 1.8 | $f\sigma_8(0.38)$ | 0.6319 | $0.564^{+0.059}_{-0.037}$ |
| A_{143}^{PS} | 48.2 | 48 ± 8 | $n_{s,0.002}$ | 0.96759 | 0.9654 ± 0.0049 | $\sigma_8(0.38)$ | 0.898 | $0.798^{+0.093}_{-0.042}$ |
| $A_{143 \times 217}^{PS}$ | 46.0 | 43 ± 9 | Y_P | 0.245357 | $0.245326^{+0.000094}_{-0.000079}$ | $f\sigma_8(0.51)$ | 0.664 | $0.581^{+0.073}_{-0.042}$ |
| A_{217}^{PS} | 118.6 | 115 ± 10 | Y_P^{BBN} | 0.246683 | $0.246652^{+0.000095}_{-0.000079}$ | $\sigma_8(0.51)$ | 0.839 | $0.746^{+0.087}_{-0.038}$ |
| A^{kSZ} | 0.01 | < 4.85 | $10^5 D/H$ | 2.6037 | 2.617 ± 0.040 | $f\sigma_8(0.61)$ | 0.671 | $0.583^{+0.079}_{-0.042}$ |
| A_{100}^{dustTT} | 8.97 | 9.0 ± 1.8 | Age/Gyr | 13.437 | $13.576^{+0.056}_{-0.14}$ | $\sigma_8(0.61)$ | 0.797 | $0.709^{+0.082}_{-0.036}$ |
| A_{143}^{dustTT} | 10.84 | 10.7 ± 1.8 | z_* | 1089.935 | 1090.07 ± 0.35 | $f\sigma_8(2.33)$ | 0.3973 | $0.356^{+0.039}_{-0.016}$ |
| $A_{143 \times 217}^{dustTT}$ | 19.40 | 18.3 ± 3.3 | r_* | 144.816 | 144.73 ± 0.38 | $\sigma_8(2.33)$ | 0.3980 | $0.359^{+0.036}_{-0.016}$ |
| A_{217}^{dustTT} | 94.5 | 93.2 ± 7.3 | $100\theta_*$ | 1.041175 | 1.04112 ± 0.00044 | f_{2000}^{143} | 29.77 | 30.9 ± 2.9 |
| c_{100} | 0.99967 | 0.99962 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.9089 | 13.901 ± 0.035 | $f_{2000}^{143 \times 217}$ | 32.73 | 33.3 ± 2.0 |
| c_{217} | 0.99825 | 0.99825 ± 0.00064 | z_{drag} | 1059.628 | 1059.51 ± 0.45 | f_{2000}^{217} | 107.17 | 107.8 ± 1.9 |
| H_0 | 99.9 | > 81.1 | r_{drag} | 147.518 | 147.45 ± 0.39 | $\chi_{lensing}^2$ | 8.41 | 9.0 ± 1.2 |
| Ω_Λ | 0.8581 | $0.796^{+0.062}_{-0.016}$ | k_D | 0.140344 | 0.14036 ± 0.00046 | χ_{small}^2 | 395.65 | 396.6 ± 1.3 |
| Ω_m | 0.1419 | $0.204^{+0.016}_{-0.062}$ | $100\theta_D$ | 0.160939 | 0.16101 ± 0.00026 | χ_{lowl}^2 | 22.16 | 22.74 ± 0.94 |
| $\Omega_m h^2$ | 0.14172 | 0.1422 ± 0.0015 | z_{eq} | 3371.1 | 3382 ± 36 | χ_{plik}^2 | 757.7 | 770.3 ± 5.3 |
| $\Omega_m h^3$ | 0.1416 | $0.121^{+0.019}_{-0.0087}$ | k_{eq} | 0.010289 | 0.01032 ± 0.00011 | χ_{prior}^2 | 1.32 | 7.3 ± 3.7 |
| σ_8 | 1.062 | $0.955^{+0.098}_{-0.047}$ | $100\theta_{eq}$ | 0.8187 | 0.8165 ± 0.0069 | χ_{CMB}^2 | 1183.9 | 1198.7 ± 5.6 |
| S_8 | 0.7303 | $0.774^{+0.025}_{-0.042}$ | $100\theta_{s,eq}$ | 0.45226 | 0.4512 ± 0.0035 | | | |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4000 | $0.424^{+0.014}_{-0.023}$ | $H(0.15)$ | 89.23 | $82.3^{+6.6}_{-2.8}$ | | | |

Best-fit $\chi_{eff}^2 = 1185.20$; $\Delta\chi_{eff}^2 = -3.37$; $\bar{\chi}_{eff}^2 = 1205.98$; $\Delta\bar{\chi}_{eff}^2 = -2.44$; $R - 1 = 0.01136$
 χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.41 (Δ -0.49) simall.100x143_offlike5_EE_Aplanck_B: 395.65 (Δ -0.21) commander_dx12_v3_2_29: 22.16 (Δ -1.07) plik_rd12_HM_v22_TT: 757.66 (Δ -1.66)

17.3 base_w_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|----------------------------------|-----------------------------|---------------------------|
| $\Omega_b h^2$ | 0.02216 ± 0.00022 | $\sigma_8 \Omega_m^{0.5}$ | $0.431^{+0.016}_{-0.023}$ | $100\theta_{s,eq}$ | 0.4489 ± 0.0045 |
| $\Omega_c h^2$ | 0.1204 ± 0.0021 | $\sigma_8 \Omega_m^{0.25}$ | $0.644^{+0.023}_{-0.018}$ | $H(0.15)$ | $81.8^{+6.6}_{-2.8}$ |
| $100\theta_{MC}$ | 1.04082 ± 0.00047 | $\sigma_8/h^{0.5}$ | $1.046^{+0.037}_{-0.025}$ | $D_M(0.15)$ | 546^{+20}_{-65} |
| τ | $0.0535^{+0.0044}_{-0.0079}$ | $r_{drag}h$ | 125^{+20}_{-8} | $H(0.38)$ | $84.0^{+1.1}_{-0.88}$ |
| w_0 | $-1.56^{+0.19}_{-0.39}$ | $\langle d^2 \rangle^{1/2}$ | $2.507^{+0.046}_{-0.041}$ | $D_M(0.38)$ | 1385^{+34}_{-98} |
| $\ln(10^{10} A_s)$ | $3.043^{+0.011}_{-0.015}$ | z_{re} | $7.59^{+0.48}_{-0.79}$ | $H(0.51)$ | $88.1^{+1.4}_{-0.86}$ |
| n_s | 0.9633 ± 0.0056 | $10^9 A_s$ | $2.096^{+0.023}_{-0.032}$ | $D_M(0.51)$ | 1839^{+35}_{-96} |
| y_{cal} | 1.0004 ± 0.0024 | $10^9 A_s e^{-2\tau}$ | 1.883 ± 0.013 | $H(0.61)$ | $92.4^{+1.6}_{-1.9}$ |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1230 ± 15 | $D_M(0.61)$ | 2171^{+34}_{-91} |
| $\xi^{tSZ \times CIB}$ | — | D_{220} | 5716 ± 41 | $H(2.33)$ | $232.3^{+1.4}_{-2.7}$ |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{810} | 2535 ± 13 | $D_M(2.33)$ | 5750^{+17}_{-23} |
| A_{100}^{PS} | 262 ± 28 | D_{1420} | 814.1 ± 5.0 | $f\sigma_8(0.15)$ | 0.492 ± 0.021 |
| A_{143}^{PS} | 49 ± 8 | D_{2000} | 229.8 ± 1.8 | $\sigma_8(0.15)$ | $0.902^{+0.11}_{-0.052}$ |
| $A_{143 \times 217}^{PS}$ | 43 ± 9 | $n_{s,0.002}$ | 0.9633 ± 0.0056 | $f\sigma_8(0.38)$ | $0.574^{+0.066}_{-0.045}$ |
| A_{217}^{PS} | 115 ± 10 | Y_P | $0.24530^{+0.00010}_{-0.000082}$ | $\sigma_8(0.38)$ | $0.805^{+0.099}_{-0.046}$ |
| A^{kSZ} | < 4.69 | Y_P^{BBN} | $0.24663^{+0.00010}_{-0.000082}$ | $f\sigma_8(0.51)$ | $0.591^{+0.080}_{-0.049}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | $10^5 D/H$ | 2.626 ± 0.041 | $\sigma_8(0.51)$ | $0.752^{+0.092}_{-0.042}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | Age/Gyr | $13.590^{+0.055}_{-0.15}$ | $f\sigma_8(0.61)$ | $0.592^{+0.086}_{-0.049}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.2 ± 3.3 | z_* | 1090.22 ± 0.40 | $\sigma_8(0.61)$ | $0.714^{+0.087}_{-0.038}$ |
| A_{217}^{dustTT} | 93.3 ± 7.3 | r_* | 144.50 ± 0.48 | $f\sigma_8(2.33)$ | $0.358^{+0.041}_{-0.017}$ |
| c_{100} | 0.99961 ± 0.00062 | $100\theta_*$ | 1.04102 ± 0.00046 | $\sigma_8(2.33)$ | $0.361^{+0.038}_{-0.017}$ |
| c_{217} | 0.99825 ± 0.00063 | $D_M(z_*)/\text{Gpc}$ | 13.880 ± 0.044 | f_{2000}^{143} | 30.8 ± 2.9 |
| H_0 | > 80.5 | z_{drag} | 1059.47 ± 0.45 | $f_{2000}^{143 \times 217}$ | 33.3 ± 2.0 |
| Ω_Λ | $0.792^{+0.065}_{-0.017}$ | r_{drag} | 147.23 ± 0.48 | f_{2000}^{217} | 107.9 ± 1.9 |
| Ω_m | $0.208^{+0.017}_{-0.065}$ | k_D | 0.14056 ± 0.00052 | χ_{simall}^2 | 396.6 ± 1.5 |
| $\Omega_m h^2$ | 0.1432 ± 0.0020 | $100\theta_D$ | 0.16103 ± 0.00026 | χ_{lowl}^2 | 23.2 ± 1.2 |
| $\Omega_m h^3$ | $0.122^{+0.019}_{-0.0092}$ | z_{eq} | 3406 ± 47 | χ_{plik}^2 | 769.8 ± 5.4 |
| σ_8 | $0.964^{+0.11}_{-0.053}$ | k_{eq} | 0.01040 ± 0.00014 | χ_{prior}^2 | 7.2 ± 3.6 |
| S_8 | $0.787^{+0.029}_{-0.042}$ | $100\theta_{eq}$ | 0.8120 ± 0.0088 | χ_{CMB}^2 | 1189.7 ± 5.6 |

$\bar{\chi}_{eff}^2 = 1196.88$; $\Delta\bar{\chi}_{eff}^2 = -2.44$; $R - 1 = 0.00979$

17.4 base_w_plikHM_TT_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|-------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|---------------------------|
| $\Omega_b h^2$ | 0.02222 ± 0.00021 | $\sigma_8 \Omega_m^{0.25}$ | $0.635^{+0.018}_{-0.013}$ | $D_M(0.15)$ | 544^{+20}_{-64} |
| $\Omega_c h^2$ | 0.1191 ± 0.0015 | $\sigma_8/h^{0.5}$ | $1.034^{+0.029}_{-0.019}$ | $H(0.38)$ | $84.5^{+1.1}_{-0.67}$ |
| $100\theta_{MC}$ | 1.04094 ± 0.00045 | $r_{drag}h$ | 126^{+20}_{-8} | $D_M(0.38)$ | 1378^{+34}_{-99} |
| τ | $0.0530^{+0.0042}_{-0.0075}$ | $\langle d^2 \rangle^{1/2}$ | $2.483^{+0.031}_{-0.027}$ | $H(0.51)$ | $88.6^{+1.1}_{-0.70}$ |
| w_0 | $-1.53^{+0.17}_{-0.37}$ | z_{re} | $7.51^{+0.43}_{-0.78}$ | $D_M(0.51)$ | 1830^{+35}_{-98} |
| $\ln(10^{10} A_s)$ | $3.038^{+0.010}_{-0.013}$ | $10^9 A_s$ | $2.087^{+0.021}_{-0.028}$ | $H(0.61)$ | $92.8^{+1.5}_{-1.7}$ |
| n_s | 0.9659 ± 0.0049 | $10^9 A_s e^{-2\tau}$ | 1.877 ± 0.011 | $D_M(0.61)$ | 2161^{+33}_{-93} |
| y_{cal} | 1.0002 ± 0.0024 | D_{40} | 1223 ± 13 | $H(2.33)$ | $231.4^{+1.0}_{-2.6}$ |
| A_{217}^{CIB} | 48 ± 7 | D_{220} | 5718 ± 40 | $D_M(2.33)$ | 5742^{+15}_{-23} |
| $\xi^{tSZ \times CIB}$ | — | D_{810} | 2533 ± 13 | $f\sigma_8(0.15)$ | 0.481 ± 0.015 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{1420} | 814.2 ± 5.0 | $\sigma_8(0.15)$ | $0.893^{+0.10}_{-0.047}$ |
| A_{100}^{PS} | 262 ± 28 | D_{2000} | 229.8 ± 1.8 | $f\sigma_8(0.38)$ | $0.563^{+0.059}_{-0.038}$ |
| A_{143}^{PS} | 48 ± 8 | $n_{s,0.002}$ | 0.9659 ± 0.0049 | $\sigma_8(0.38)$ | $0.797^{+0.095}_{-0.042}$ |
| $A_{143 \times 217}^{PS}$ | 43 ± 9 | Y_P | $0.245330^{+0.000092}_{-0.000079}$ | $f\sigma_8(0.51)$ | $0.580^{+0.074}_{-0.042}$ |
| A_{217}^{PS} | 115 ± 10 | Y_P^{BBN} | $0.246657^{+0.000093}_{-0.000080}$ | $\sigma_8(0.51)$ | $0.746^{+0.089}_{-0.038}$ |
| A^{kSZ} | < 4.81 | $10^5 D/H$ | 2.615 ± 0.039 | $f\sigma_8(0.61)$ | $0.582^{+0.080}_{-0.043}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Age/Gyr | $13.576^{+0.057}_{-0.15}$ | $\sigma_8(0.61)$ | $0.709^{+0.084}_{-0.036}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | z_* | 1090.04 ± 0.34 | $f\sigma_8(2.33)$ | $0.356^{+0.040}_{-0.016}$ |
| $A_{143 \times 217}^{dustTT}$ | 18.3 ± 3.3 | r_* | 144.77 ± 0.37 | $\sigma_8(2.33)$ | $0.359^{+0.037}_{-0.016}$ |
| A_{217}^{dustTT} | 93.3 ± 7.3 | $100\theta_*$ | 1.04114 ± 0.00044 | f_{2000}^{143} | 30.8 ± 3.0 |
| c_{100} | 0.99961 ± 0.00063 | $D_M(z_*)/\text{Gpc}$ | 13.905 ± 0.034 | $f_{2000}^{143 \times 217}$ | 33.2 ± 2.0 |
| c_{217} | 0.99825 ± 0.00064 | z_{drag} | 1059.52 ± 0.45 | f_{2000}^{217} | 107.8 ± 1.9 |
| H_0 | > 80.8 | r_{drag} | 147.49 ± 0.38 | $\chi_{lensing}^2$ | 9.1 ± 1.2 |
| Ω_Λ | $0.795^{+0.063}_{-0.016}$ | k_D | 0.14033 ± 0.00045 | χ_{simall}^2 | 396.4 ± 1.2 |
| Ω_m | $0.205^{+0.016}_{-0.063}$ | $100\theta_D$ | 0.16100 ± 0.00026 | χ_{lowl}^2 | 22.70 ± 0.95 |
| $\Omega_m h^2$ | 0.1420 ± 0.0015 | z_{eq} | 3378 ± 35 | χ_{plik}^2 | 770.2 ± 5.3 |
| $\Omega_m h^3$ | $0.121^{+0.019}_{-0.0087}$ | k_{eq} | 0.01031 ± 0.00011 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | $0.954^{+0.10}_{-0.047}$ | $100\theta_{eq}$ | 0.8173 ± 0.0067 | χ_{CMB}^2 | 1198.3 ± 5.5 |
| S_8 | $0.774^{+0.025}_{-0.042}$ | $100\theta_{s,eq}$ | 0.4516 ± 0.0034 | | |
| $\sigma_8 \Omega_m^{0.5}$ | $0.424^{+0.014}_{-0.023}$ | $H(0.15)$ | $82.2^{+6.8}_{-2.8}$ | | |

$\bar{\chi}_{eff}^2 = 1205.67$; $\Delta\bar{\chi}_{eff}^2 = -2.49$; $R - 1 = 0.01511$

17.5 base_w_plikHM_TTTEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|---------------------------|-----------------------------|----------|----------------------------|-----------------------------|----------|---------------------------|
| $\Omega_b h^2$ | 0.022434 | 0.02239 ± 0.00015 | $\Omega_m h^2$ | 0.14291 | 0.1430 ± 0.0013 | k_{eq} | 0.010376 | 0.010380 ± 0.000093 |
| $\Omega_c h^2$ | 0.11983 | 0.1199 ± 0.0014 | $\Omega_m h^3$ | 0.1427 | $0.124^{+0.018}_{-0.0077}$ | $100\theta_{\text{eq}}$ | 0.8140 | 0.8136 ± 0.0058 |
| $100\theta_{\text{MC}}$ | 1.040967 | 1.04094 ± 0.00032 | σ_8 | 1.072 | $0.972^{+0.094}_{-0.044}$ | $100\theta_{\text{s,eq}}$ | 0.44969 | 0.4495 ± 0.0030 |
| τ | 0.0540 | 0.0539 ± 0.0079 | S_8 | 0.7409 | $0.777^{+0.022}_{-0.036}$ | $H(0.15)$ | 88.98 | $82.9^{+5.9}_{-2.3}$ |
| w_0 | -1.947 | $-1.58^{+0.16}_{-0.35}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4058 | $0.426^{+0.012}_{-0.020}$ | $D_M(0.15)$ | 480.1 | 537^{+17}_{-56} |
| $\ln(10^{10} A_s)$ | 3.0435 | 3.043 ± 0.016 | $\sigma_8 \Omega_m^{0.25}$ | 0.6596 | $0.643^{+0.019}_{-0.013}$ | $H(0.38)$ | 84.72 | $84.49^{+0.81}_{-0.58}$ |
| n_s | 0.96668 | 0.9654 ± 0.0043 | $\sigma_8/h^{0.5}$ | 1.0728 | $1.045^{+0.030}_{-0.019}$ | $D_M(0.38)$ | 1284 | 1368^{+28}_{-84} |
| y_{cal} | 1.00030 | 1.0005 ± 0.0025 | $r_{\text{drag}} h$ | 146.9 | 127^{+20}_{-7} | $H(0.51)$ | 87.01 | $88.4^{+1.2}_{-0.82}$ |
| A_{217}^{CIB} | 45.5 | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.5215 | $2.501^{+0.037}_{-0.031}$ | $D_M(0.51)$ | 1739 | 1820^{+28}_{-82} |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.67 | — | z_{re} | 7.57 | 7.57 ± 0.80 | $H(0.61)$ | 90.41 | $92.5^{+1.2}_{-1.9}$ |
| A_{143}^{tSZ} | 7.02 | $5.5^{+2.1}_{-1.9}$ | $10^9 A_s$ | 2.0978 | 2.098 ± 0.034 | $D_M(0.61)$ | 2077 | 2151^{+27}_{-77} |
| A_{100}^{PS} | 247.5 | 257 ± 28 | $10^9 A_s e^{-2\tau}$ | 1.8831 | 1.883 ± 0.012 | $H(2.33)$ | 230.42 | $231.86^{+0.89}_{-2.1}$ |
| A_{143}^{PS} | 49.8 | 46 ± 8 | D_{40} | 1223.0 | 1227 ± 13 | $D_M(2.33)$ | 5726.0 | 5735^{+12}_{-16} |
| $A_{143 \times 217}^{\text{PS}}$ | 52.9 | 43 ± 9 | D_{220} | 5733.8 | 5735 ± 39 | $f\sigma_8(0.15)$ | 0.5064 | $0.489^{+0.017}_{-0.015}$ |
| A_{217}^{PS} | 122.0 | 116 ± 10 | D_{810} | 2539.6 | 2539 ± 13 | $\sigma_8(0.15)$ | 1.011 | $0.911^{+0.095}_{-0.043}$ |
| A^{kSZ} | 0.01 | < 4.00 | D_{1420} | 817.83 | 816.9 ± 4.8 | $f\sigma_8(0.38)$ | 0.6421 | $0.576^{+0.059}_{-0.035}$ |
| A_{100}^{dustTT} | 8.80 | 8.9 ± 1.8 | D_{2000} | 231.54 | 231.1 ± 1.6 | $\sigma_8(0.38)$ | 0.905 | $0.813^{+0.088}_{-0.039}$ |
| A_{143}^{dustTT} | 10.97 | 10.9 ± 1.8 | $n_{\text{s},0.002}$ | 0.96668 | 0.9654 ± 0.0043 | $f\sigma_8(0.51)$ | 0.674 | $0.595^{+0.072}_{-0.039}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.99 | 18.5 ± 3.3 | Y_{P} | 0.245420 | 0.245402 ± 0.000057 | $\sigma_8(0.51)$ | 0.846 | $0.760^{+0.082}_{-0.035}$ |
| A_{217}^{dustTT} | 95.4 | 93.7 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246747 | 0.246729 ± 0.000058 | $f\sigma_8(0.61)$ | 0.680 | $0.597^{+0.077}_{-0.039}$ |
| A_{100}^{dustTE} | 0.1150 | 0.114 ± 0.038 | $10^5 D/H$ | 2.5737 | 2.582 ± 0.027 | $\sigma_8(0.61)$ | 0.803 | $0.722^{+0.077}_{-0.033}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1341 | 0.135 ± 0.029 | Age/Gyr | 13.427 | $13.544^{+0.043}_{-0.12}$ | $f\sigma_8(2.33)$ | 0.3998 | $0.362^{+0.036}_{-0.015}$ |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.480 | 0.482 ± 0.085 | z_* | 1089.824 | 1089.89 ± 0.27 | $\sigma_8(2.33)$ | 0.4004 | $0.365^{+0.034}_{-0.015}$ |
| A_{143}^{dustTE} | 0.225 | 0.225 ± 0.054 | r_* | 144.427 | 144.43 ± 0.30 | f_{2000}^{143} | 28.05 | 29.1 ± 2.7 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.665 ± 0.080 | $100\theta_*$ | 1.041140 | 1.04112 ± 0.00031 | $f_{2000}^{143 \times 217}$ | 31.50 | 31.9 ± 1.9 |
| A_{217}^{dustTE} | 2.084 | 2.08 ± 0.27 | $D_M(z_*)/\text{Gpc}$ | 13.8720 | 13.873 ± 0.028 | f_{2000}^{217} | 106.10 | 106.8 ± 1.8 |
| c_{100} | 0.99973 | 0.99967 ± 0.00061 | z_{drag} | 1060.085 | 1059.98 ± 0.30 | χ_{small}^2 | 395.85 | 397.0 ± 1.8 |
| c_{217} | 0.99819 | 0.99818 ± 0.00063 | r_{drag} | 147.065 | 147.09 ± 0.30 | χ_{lowl}^2 | 22.44 | 22.87 ± 0.85 |
| H_0 | 99.9 | > 82.6 | k_{D} | 0.140942 | 0.14089 ± 0.00032 | χ_{plik}^2 | 2341.6 | 2357.3 ± 5.8 |
| Ω_{Λ} | 0.8567 | $0.802^{+0.055}_{-0.014}$ | $100\theta_{\text{D}}$ | 0.160683 | 0.16073 ± 0.00017 | χ_{prior}^2 | 1.51 | 11.5 ± 4.5 |
| Ω_{m} | 0.1433 | $0.198^{+0.014}_{-0.055}$ | z_{eq} | 3399.6 | 3401 ± 31 | χ_{CMB}^2 | 2759.9 | 2777.1 ± 5.9 |

Best-fit $\chi_{\text{eff}}^2 = 2761.37$; $\Delta\chi_{\text{eff}}^2 = -4.40$; $\bar{\chi}_{\text{eff}}^2 = 2788.65$; $\Delta\bar{\chi}_{\text{eff}}^2 = -3.11$; $R - 1 = 0.00965$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.85 (Δ -0.20) commander_dx12.v3.2.29: 22.45 (Δ -0.81) plik_rd12_HM.v22b.TTTEE: 2341.57 (Δ -3.07)

17.6 base_w_plikHM_TTTEE_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|---------------------------|-----------------------------|----------|----------------------------|-----------------------------|----------|---------------------------|
| $\Omega_b h^2$ | 0.022465 | 0.02243 ± 0.00015 | $\Omega_m h^3$ | 0.1420 | $0.123^{+0.017}_{-0.0081}$ | $100\theta_{s,eq}$ | 0.45136 | 0.4508 ± 0.0026 |
| $\Omega_c h^2$ | 0.11907 | 0.1193 ± 0.0012 | σ_8 | 1.062 | $0.964^{+0.090}_{-0.044}$ | $H(0.15)$ | 89.25 | $83.0^{+5.9}_{-2.5}$ |
| $100\theta_{MC}$ | 1.040998 | 1.04099 ± 0.00031 | S_8 | 0.7324 | $0.771^{+0.021}_{-0.036}$ | $D_M(0.15)$ | 479.3 | 537^{+18}_{-56} |
| τ | 0.0523 | 0.0523 ± 0.0074 | $\sigma_8 \Omega_m^{0.5}$ | 0.4011 | $0.422^{+0.012}_{-0.020}$ | $H(0.38)$ | 85.07 | $84.72^{+0.81}_{-0.53}$ |
| w_0 | -1.925 | $-1.57^{+0.16}_{-0.33}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6528 | $0.637^{+0.016}_{-0.011}$ | $D_M(0.38)$ | 1280 | 1366^{+30}_{-84} |
| $\ln(10^{10} A_s)$ | 3.0373 | 3.038 ± 0.014 | $\sigma_8/h^{0.5}$ | 1.0631 | $1.037^{+0.027}_{-0.016}$ | $H(0.51)$ | 87.31 | $88.6^{+1.1}_{-0.70}$ |
| n_s | 0.96834 | 0.9666 ± 0.0041 | $r_{drag} h$ | 147.0 | 127^{+20}_{-8} | $D_M(0.51)$ | 1733 | 1816^{+31}_{-82} |
| y_{cal} | 1.00007 | 1.0003 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.5024 | $2.485^{+0.028}_{-0.024}$ | $H(0.61)$ | 90.65 | $92.7^{+1.3}_{-1.7}$ |
| A_{217}^{CIB} | 46.3 | 47 ± 7 | z_{re} | 7.37 | 7.39 ± 0.76 | $D_M(0.61)$ | 2071 | 2147^{+29}_{-77} |
| $\xi^{tSZ \times CIB}$ | 0.57 | — | $10^9 A_s$ | 2.0849 | 2.087 ± 0.030 | $H(2.33)$ | 229.89 | $231.49^{+0.81}_{-2.1}$ |
| A_{143}^{tSZ} | 7.18 | 5.5 ± 2.0 | $10^9 A_s e^{-2\tau}$ | 1.8779 | 1.879 ± 0.011 | $D_M(2.33)$ | 5721.7 | 5731^{+12}_{-16} |
| A_{100}^{PS} | 248.4 | 257 ± 28 | D_{40} | 1217.3 | 1223 ± 12 | $f\sigma_8(0.15)$ | 0.4987 | $0.483^{+0.014}_{-0.013}$ |
| A_{143}^{PS} | 48.5 | 45 ± 8 | D_{220} | 5730.0 | 5734 ± 39 | $\sigma_8(0.15)$ | 1.002 | $0.903^{+0.091}_{-0.043}$ |
| $A_{143 \times 217}^{PS}$ | 50.3 | 42 ± 9 | D_{810} | 2536.5 | 2536 ± 13 | $f\sigma_8(0.38)$ | 0.6323 | $0.569^{+0.055}_{-0.034}$ |
| A_{217}^{PS} | 120.5 | 115 ± 10 | D_{1420} | 817.35 | 816.6 ± 4.7 | $\sigma_8(0.38)$ | 0.898 | $0.806^{+0.084}_{-0.039}$ |
| A^{kSZ} | 0.00 | < 4.17 | D_{2000} | 231.36 | 230.9 ± 1.6 | $f\sigma_8(0.51)$ | 0.664 | $0.587^{+0.068}_{-0.039}$ |
| A_{100}^{dustTT} | 8.81 | 9.0 ± 1.8 | $n_{s,0.002}$ | 0.96834 | 0.9666 ± 0.0041 | $\sigma_8(0.51)$ | 0.840 | $0.755^{+0.079}_{-0.036}$ |
| A_{143}^{dustTT} | 11.06 | 10.9 ± 1.8 | Y_P | 0.245432 | 0.245415 ± 0.000056 | $f\sigma_8(0.61)$ | 0.671 | $0.590^{+0.072}_{-0.039}$ |
| $A_{143 \times 217}^{dustTT}$ | 20.06 | 18.6 ± 3.3 | Y_P^{BBN} | 0.246758 | 0.246742 ± 0.000057 | $\sigma_8(0.61)$ | 0.797 | $0.717^{+0.074}_{-0.034}$ |
| A_{217}^{dustTT} | 95.3 | 93.7 ± 7.4 | $10^5 D/H$ | 2.5681 | 2.576 ± 0.027 | $f\sigma_8(2.33)$ | 0.3974 | $0.360^{+0.035}_{-0.015}$ |
| A_{100}^{dustTE} | 0.1142 | 0.114 ± 0.038 | Age/Gyr | 13.420 | $13.539^{+0.047}_{-0.12}$ | $\sigma_8(2.33)$ | 0.3981 | $0.362^{+0.033}_{-0.015}$ |
| $A_{100 \times 143}^{dustTE}$ | 0.1348 | 0.135 ± 0.029 | z_* | 1089.720 | 1089.79 ± 0.26 | f_{2000}^{143} | 28.30 | 29.2 ± 2.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.484 | 0.483 ± 0.085 | r_* | 144.599 | 144.56 ± 0.27 | $f_{2000}^{143 \times 217}$ | 31.58 | 31.9 ± 1.9 |
| A_{143}^{dustTE} | 0.223 | 0.225 ± 0.054 | $100\theta_*$ | 1.041180 | 1.04117 ± 0.00030 | f_{2000}^{217} | 106.15 | 106.8 ± 1.8 |
| $A_{143 \times 217}^{dustTE}$ | 0.665 | 0.664 ± 0.081 | $D_M(z_*)/\text{Gpc}$ | 13.8880 | 13.885 ± 0.025 | $\chi^2_{lensing}$ | 8.68 | 9.0 ± 1.1 |
| A_{217}^{dustTE} | 2.076 | 2.07 ± 0.27 | z_{drag} | 1060.085 | 1060.02 ± 0.30 | χ^2_{small} | 396 | 1325 ± 1000 |
| c_{100} | 0.99972 | 0.99966 ± 0.00061 | r_{drag} | 147.232 | 147.21 ± 0.26 | χ^2_{lowl} | 22.13 | 22.59 ± 0.76 |
| c_{217} | 0.99818 | 0.99819 ± 0.00063 | k_D | 0.140791 | 0.14079 ± 0.00029 | χ^2_{plik} | 2342 | 1430 ± 1000 |
| H_0 | 99.9 | > 82.4 | $100\theta_D$ | 0.160670 | 0.16072 ± 0.00017 | χ^2_{prior} | 1.61 | 11.6 ± 4.5 |
| Ω_Λ | 0.8574 | $0.803^{+0.055}_{-0.015}$ | z_{eq} | 3382.2 | 3388 ± 27 | χ^2_{CMB} | 2768.9 | 2786.1 ± 6.0 |
| Ω_m | 0.1426 | $0.197^{+0.015}_{-0.055}$ | k_{eq} | 0.010323 | 0.010339 ± 0.000082 | | | |
| $\Omega_m h^2$ | 0.14218 | 0.1424 ± 0.0011 | $100\theta_{eq}$ | 0.8172 | 0.8162 ± 0.0051 | | | |

Best-fit $\chi^2_{eff} = 2770.54$; $\Delta\chi^2_{eff} = -4.10$; $\bar{\chi}^2_{eff} = 2797.72$; $\Delta\bar{\chi}^2_{eff} = -2.97$; $R - 1 = 0.01426$
 χ^2_{eff} : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.68 (Δ -0.19) simall.100x143_offlike5_EE_Aplanck_B: 395.65 (Δ -0.40) commander_dx12_v3_2_29: 22.13 (Δ -1.12) plik_rd12_HM_v22b_TTTEE: 2342.46 (Δ -2.47)

17.7 base_w_plikHM_TTTEEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|----------------------------|-----------------------------|---------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02240 ± 0.00015 | $\Omega_{\mathrm{m}}h^2$ | 0.1429 ± 0.0013 | k_{eq} | 0.010377 ± 0.000093 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1199 ± 0.0013 | $\Omega_{\mathrm{m}}h^3$ | $0.124^{+0.018}_{-0.0078}$ | $100\theta_{\mathrm{eq}}$ | 0.8138 ± 0.0057 |
| $100\theta_{\mathrm{MC}}$ | 1.04094 ± 0.00032 | σ_8 | $0.973^{+0.094}_{-0.044}$ | $100\theta_{\mathrm{s,eq}}$ | 0.4496 ± 0.0029 |
| τ | $0.0553^{+0.0049}_{-0.0083}$ | S_8 | $0.778^{+0.022}_{-0.037}$ | $H(0.15)$ | $82.9^{+5.9}_{-2.3}$ |
| w_0 | $-1.58^{+0.16}_{-0.34}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | $0.426^{+0.012}_{-0.020}$ | $D_{\mathrm{M}}(0.15)$ | 537^{+18}_{-56} |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.046^{+0.012}_{-0.016}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | $0.643^{+0.019}_{-0.013}$ | $H(0.38)$ | $84.51^{+0.81}_{-0.57}$ |
| n_{s} | 0.9656 ± 0.0043 | $\sigma_8/h^{0.5}$ | $1.046^{+0.030}_{-0.019}$ | $D_{\mathrm{M}}(0.38)$ | 1368^{+28}_{-84} |
| y_{cal} | 1.0005 ± 0.0025 | $r_{\mathrm{drag}}h$ | 127^{+20}_{-7} | $H(0.51)$ | $88.4^{+1.2}_{-0.81}$ |
| A_{217}^{CIB} | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | $2.504^{+0.036}_{-0.030}$ | $D_{\mathrm{M}}(0.51)$ | 1819^{+28}_{-82} |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | z_{re} | $7.72^{+0.55}_{-0.82}$ | $H(0.61)$ | $92.5^{+1.2}_{-1.9}$ |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | $10^9 A_{\mathrm{s}}$ | $2.103^{+0.024}_{-0.035}$ | $D_{\mathrm{M}}(0.61)$ | 2151^{+27}_{-77} |
| A_{100}^{PS} | 257 ± 28 | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.883 ± 0.012 | $H(2.33)$ | $231.84^{+0.88}_{-2.1}$ |
| A_{143}^{PS} | 45 ± 8 | D_{40} | 1227 ± 13 | $D_{\mathrm{M}}(2.33)$ | 5735^{+12}_{-16} |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43 ± 9 | D_{220} | 5735 ± 38 | $f\sigma_8(0.15)$ | $0.489^{+0.017}_{-0.015}$ |
| A_{217}^{PS} | 116 ± 10 | D_{810} | 2538 ± 13 | $\sigma_8(0.15)$ | $0.911^{+0.095}_{-0.043}$ |
| A^{kSZ} | < 3.96 | D_{1420} | 816.9 ± 4.7 | $f\sigma_8(0.38)$ | $0.577^{+0.059}_{-0.035}$ |
| $A_{100}^{\mathrm{dustTT}}$ | 8.9 ± 1.8 | D_{2000} | 231.1 ± 1.6 | $\sigma_8(0.38)$ | $0.814^{+0.088}_{-0.039}$ |
| $A_{143}^{\mathrm{dustTT}}$ | 10.8 ± 1.8 | $n_{\mathrm{s},0.002}$ | 0.9656 ± 0.0043 | $f\sigma_8(0.51)$ | $0.595^{+0.072}_{-0.039}$ |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 18.5 ± 3.3 | Y_{P} | 0.245404 ± 0.000057 | $\sigma_8(0.51)$ | $0.761^{+0.082}_{-0.036}$ |
| $A_{217}^{\mathrm{dustTT}}$ | 93.7 ± 7.3 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.246731 ± 0.000057 | $f\sigma_8(0.61)$ | $0.597^{+0.077}_{-0.039}$ |
| $A_{100}^{\mathrm{dustTE}}$ | 0.114 ± 0.038 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.581 ± 0.027 | $\sigma_8(0.61)$ | $0.723^{+0.077}_{-0.033}$ |
| $A_{100 \times 143}^{\mathrm{dustTE}}$ | 0.135 ± 0.029 | $\mathrm{Age}/\mathrm{Gyr}$ | $13.544^{+0.044}_{-0.12}$ | $f\sigma_8(2.33)$ | $0.362^{+0.036}_{-0.015}$ |
| $A_{100 \times 217}^{\mathrm{dustTE}}$ | 0.482 ± 0.085 | z_* | 1089.88 ± 0.27 | $\sigma_8(2.33)$ | $0.365^{+0.034}_{-0.015}$ |
| $A_{143}^{\mathrm{dustTE}}$ | 0.225 ± 0.054 | r_* | 144.44 ± 0.30 | f_{2000}^{143} | 29.0 ± 2.7 |
| $A_{143 \times 217}^{\mathrm{dustTE}}$ | 0.665 ± 0.081 | $100\theta_*$ | 1.04113 ± 0.00031 | $f_{2000}^{143 \times 217}$ | 31.8 ± 1.8 |
| $A_{217}^{\mathrm{dustTE}}$ | 2.08 ± 0.27 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.874 ± 0.028 | f_{2000}^{217} | 106.7 ± 1.8 |
| c_{100} | 0.99967 ± 0.00062 | z_{drag} | 1059.99 ± 0.30 | χ_{small}^2 | 396.9 ± 1.8 |
| c_{217} | 0.99818 ± 0.00063 | r_{drag} | 147.09 ± 0.29 | χ_{lowl}^2 | 22.87 ± 0.85 |
| H_0 | > 82.6 | k_{D} | 0.14088 ± 0.00032 | χ_{plik}^2 | 2357.1 ± 5.7 |
| Ω_{Λ} | $0.802^{+0.055}_{-0.014}$ | $100\theta_{\mathrm{D}}$ | 0.16073 ± 0.00017 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_{m} | $0.198^{+0.014}_{-0.055}$ | z_{eq} | 3400 ± 30 | χ_{CMB}^2 | 2776.9 ± 5.9 |

$\bar{\chi}_{\mathrm{eff}}^2 = 2788.38$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = -3.15$; $R - 1 = 0.01060$

17.8 base_w_plikHM_TTTEE_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|----------------------------|-----------------------------|---------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02243 ± 0.00015 | $\Omega_{\text{m}}h^3$ | $0.123^{+0.017}_{-0.0083}$ | $100\theta_{\text{s,eq}}$ | 0.4510 ± 0.0026 |
| $\Omega_{\text{c}}h^2$ | 0.1192 ± 0.0012 | σ_8 | $0.963^{+0.090}_{-0.045}$ | $H(0.15)$ | $82.9^{+6.0}_{-2.6}$ |
| $100\theta_{\text{MC}}$ | 1.04100 ± 0.00031 | S_8 | $0.771^{+0.022}_{-0.036}$ | $D_{\text{M}}(0.15)$ | 537^{+19}_{-57} |
| τ | $0.0540^{+0.0044}_{-0.0076}$ | $\sigma_8\Omega_{\text{m}}^{0.5}$ | $0.422^{+0.012}_{-0.020}$ | $H(0.38)$ | $84.75^{+0.82}_{-0.51}$ |
| w_0 | $-1.56^{+0.16}_{-0.33}$ | $\sigma_8\Omega_{\text{m}}^{0.25}$ | $0.637^{+0.016}_{-0.011}$ | $D_{\text{M}}(0.38)$ | 1367^{+31}_{-86} |
| $\ln(10^{10}A_{\text{s}})$ | $3.041^{+0.010}_{-0.014}$ | $\sigma_8/h^{0.5}$ | $1.037^{+0.027}_{-0.016}$ | $H(0.51)$ | $88.7^{+1.1}_{-0.67}$ |
| n_{s} | 0.9669 ± 0.0040 | $r_{\text{drag}}h$ | 127^{+20}_{-8} | $D_{\text{M}}(0.51)$ | 1817^{+31}_{-83} |
| y_{cal} | 1.0002 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | $2.487^{+0.028}_{-0.024}$ | $H(0.61)$ | $92.8^{+1.3}_{-1.7}$ |
| A_{217}^{CIB} | 46 ± 7 | z_{re} | $7.56^{+0.47}_{-0.77}$ | $D_{\text{M}}(0.61)$ | 2148^{+29}_{-78} |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_{\text{s}}$ | $2.093^{+0.021}_{-0.030}$ | $H(2.33)$ | $231.47^{+0.78}_{-2.1}$ |
| A_{143}^{tSZ} | 5.5 ± 2.0 | $10^9 A_{\text{s}}e^{-2\tau}$ | 1.879 ± 0.010 | $D_{\text{M}}(2.33)$ | 5731^{+11}_{-16} |
| A_{100}^{PS} | 257 ± 28 | D_{40} | 1223 ± 12 | $f\sigma_8(0.15)$ | 0.483 ± 0.013 |
| A_{143}^{PS} | 45 ± 8 | D_{220} | 5733 ± 38 | $\sigma_8(0.15)$ | $0.902^{+0.091}_{-0.045}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{810} | 2536 ± 13 | $f\sigma_8(0.38)$ | $0.568^{+0.055}_{-0.035}$ |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 816.5 ± 4.7 | $\sigma_8(0.38)$ | $0.806^{+0.085}_{-0.040}$ |
| A^{kSZ} | < 4.12 | D_{2000} | 231.0 ± 1.6 | $f\sigma_8(0.51)$ | $0.586^{+0.068}_{-0.040}$ |
| A_{100}^{dustTT} | 9.0 ± 1.8 | $n_{\text{s},0.002}$ | 0.9669 ± 0.0040 | $\sigma_8(0.51)$ | $0.754^{+0.079}_{-0.037}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_{P} | 0.245418 ± 0.000056 | $f\sigma_8(0.61)$ | $0.589^{+0.072}_{-0.040}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246745 ± 0.000056 | $\sigma_8(0.61)$ | $0.716^{+0.074}_{-0.035}$ |
| A_{217}^{dustTT} | 93.7 ± 7.4 | 10^5D/H | 2.574 ± 0.027 | $f\sigma_8(2.33)$ | $0.359^{+0.036}_{-0.016}$ |
| A_{100}^{dustTE} | 0.114 ± 0.038 | Age/Gyr | $13.540^{+0.048}_{-0.12}$ | $\sigma_8(2.33)$ | $0.362^{+0.033}_{-0.015}$ |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | z_* | 1089.78 ± 0.25 | f_{2000}^{143} | 29.1 ± 2.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.483 ± 0.085 | r_* | 144.58 ± 0.26 | $f_{2000}^{143 \times 217}$ | 31.9 ± 1.8 |
| A_{143}^{dustTE} | 0.225 ± 0.054 | $100\theta_*$ | 1.04118 ± 0.00030 | f_{2000}^{217} | 106.7 ± 1.8 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.081 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.886 ± 0.024 | χ_{lensing}^2 | 9.0 ± 1.1 |
| A_{217}^{dustTE} | 2.07 ± 0.27 | z_{drag} | 1060.03 ± 0.30 | χ_{simall}^2 | 1339 ± 1000 |
| c_{100} | 0.99966 ± 0.00061 | r_{drag} | 147.22 ± 0.26 | χ_{lowl}^2 | 22.58 ± 0.76 |
| c_{217} | 0.99819 ± 0.00064 | k_{D} | 0.14077 ± 0.00029 | χ_{plik}^2 | 1416 ± 1000 |
| H_0 | > 82.2 | $100\theta_{\text{D}}$ | 0.16071 ± 0.00017 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_{Λ} | $0.802^{+0.056}_{-0.015}$ | z_{eq} | 3385 ± 26 | χ_{CMB}^2 | 2785.8 ± 5.9 |
| Ω_{m} | $0.198^{+0.015}_{-0.056}$ | k_{eq} | 0.010333 ± 0.000080 | | |
| $\Omega_{\text{m}}h^2$ | 0.1423 ± 0.0011 | $100\theta_{\text{eq}}$ | 0.8166 ± 0.0050 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2797.43; \Delta\bar{\chi}_{\text{eff}}^2 = -3.08; R - 1 = 0.01516$$

17.9 base_w_plikHM_TT_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------------|
| $\Omega_b h^2$ | 0.022173 | 0.02217 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.9895 | 0.992 ± 0.020 | $D_M(0.38)$ | 1524.8 | 1522 ± 17 |
| $\Omega_c h^2$ | 0.11961 | 0.1197 ± 0.0018 | $r_{\text{drag}} h$ | 100.45 | $100.9^{+1.9}_{-2.3}$ | $H(0.51)$ | 89.543 | $89.50^{+0.39}_{-0.34}$ |
| $100\theta_{\text{MC}}$ | 1.040921 | 1.04090 ± 0.00044 | $\langle d^2 \rangle^{1/2}$ | 2.4411 | 2.445 ± 0.040 | $D_M(0.51)$ | 1977.2 | 1974 ± 17 |
| τ | 0.0528 | 0.0531 ± 0.0080 | z_{re} | 7.56 | 7.57 ± 0.82 | $H(0.61)$ | 95.092 | $95.02^{+0.49}_{-0.40}$ |
| w_0 | -1.027 | $-1.041^{+0.074}_{-0.060}$ | $10^9 A_s$ | 2.0905 | 2.091 ± 0.034 | $D_M(0.61)$ | 2302.2 | 2299 ± 17 |
| $\ln(10^{10} A_s)$ | 3.0400 | 3.040 ± 0.016 | $10^9 A_s e^{-2\tau}$ | 1.8811 | 1.880 ± 0.013 | $H(2.33)$ | 235.70 | 235.65 ± 0.80 |
| n_s | 0.9655 | 0.9649 ± 0.0051 | D_{40} | 1227.4 | 1228 ± 14 | $D_M(2.33)$ | 5768.2 | 5768 ± 12 |
| y_{cal} | 1.00058 | 1.0005 ± 0.0025 | D_{220} | 5717.3 | 5716 ± 40 | $f\sigma_8(0.15)$ | 0.4594 | 0.461 ± 0.013 |
| A_{217}^{CIB} | 49.6 | 48 ± 7 | D_{810} | 2537.6 | 2536 ± 14 | $\sigma_8(0.15)$ | 0.7551 | 0.759 ± 0.022 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.21 | — | D_{1420} | 815.8 | 815.0 ± 5.1 | $f\sigma_8(0.38)$ | 0.4799 | $0.483^{+0.016}_{-0.018}$ |
| A_{143}^{tSZ} | 6.99 | 5.1 ± 2.0 | D_{2000} | 230.04 | 229.8 ± 1.8 | $\sigma_8(0.38)$ | 0.6694 | 0.673 ± 0.020 |
| A_{100}^{PS} | 256.8 | 263 ± 28 | $n_{s,0.002}$ | 0.9655 | 0.9649 ± 0.0051 | $f\sigma_8(0.51)$ | 0.4791 | $0.482^{+0.017}_{-0.019}$ |
| A_{143}^{PS} | 48.2 | 49 ± 8 | Y_{P} | 0.245315 | $0.245310^{+0.000091}_{-0.000077}$ | $\sigma_8(0.51)$ | 0.6263 | 0.629 ± 0.018 |
| $A_{143 \times 217}^{\text{PS}}$ | 43.9 | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246641 | $0.246636^{+0.000092}_{-0.000078}$ | $f\sigma_8(0.61)$ | 0.4743 | $0.477^{+0.017}_{-0.019}$ |
| A_{217}^{PS} | 117.7 | 115 ± 10 | $10^5 D/H$ | 2.6231 | 2.624 ± 0.038 | $\sigma_8(0.61)$ | 0.5959 | 0.599 ± 0.017 |
| A^{kSZ} | 0.12 | < 4.72 | Age/Gyr | 13.7989 | 13.794 ± 0.035 | $f\sigma_8(2.33)$ | 0.3004 | 0.3018 ± 0.0084 |
| A_{100}^{dustTT} | 8.86 | 9.0 ± 1.8 | z_* | 1090.135 | 1090.15 ± 0.35 | $\sigma_8(2.33)$ | 0.3090 | 0.3102 ± 0.0071 |
| A_{143}^{dustTT} | 10.82 | 10.7 ± 1.8 | r_* | 144.683 | 144.66 ± 0.42 | f_{2000}^{143} | 30.67 | 31.0 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.34 | 18.3 ± 3.3 | $100\theta_*$ | 1.041129 | 1.04110 ± 0.00044 | $f_{2000}^{143 \times 217}$ | 33.38 | 33.4 ± 2.0 |
| A_{217}^{dustTT} | 94.5 | 93.3 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.8967 | 13.895 ± 0.039 | f_{2000}^{217} | 107.87 | 108.0 ± 1.9 |
| c_{100} | 0.99965 | 0.99960 ± 0.00062 | z_{drag} | 1059.437 | 1059.45 ± 0.43 | χ_{small}^2 | 395.86 | 397.0 ± 1.8 |
| c_{217} | 0.99829 | 0.99826 ± 0.00062 | r_{drag} | 147.416 | 147.40 ± 0.43 | χ_{lowl}^2 | 23.15 | 23.3 ± 1.0 |
| H_0 | 68.14 | $68.5^{+1.4}_{-1.7}$ | k_{D} | 0.140374 | 0.14039 ± 0.00049 | χ_{plik}^2 | 759.1 | 771.5 ± 5.6 |
| Ω_Λ | 0.6933 | 0.696 ± 0.012 | $100\theta_{\text{D}}$ | 0.161047 | 0.16105 ± 0.00025 | $\chi_{6\text{DF}}^2$ | 0.002 | 0.13 ± 0.19 |
| Ω_{m} | 0.3067 | 0.304 ± 0.012 | z_{eq} | 3388.2 | 3390 ± 41 | χ_{MGS}^2 | 1.54 | 1.9 ± 1.0 |
| $\Omega_{\text{m}} h^2$ | 0.14243 | 0.1425 ± 0.0017 | k_{eq} | 0.010341 | 0.01035 ± 0.00012 | χ_{DR12BAO}^2 | 4.36 | 5.2 ± 1.5 |
| $\Omega_{\text{m}} h^3$ | 0.09705 | $0.0976^{+0.0027}_{-0.0031}$ | $100\theta_{\text{eq}}$ | 0.8153 | 0.8149 ± 0.0076 | χ_{prior}^2 | 1.47 | 7.3 ± 3.7 |
| σ_8 | 0.8168 | 0.821 ± 0.024 | $100\theta_{s,\text{eq}}$ | 0.45056 | 0.4504 ± 0.0039 | χ_{BAO}^2 | 5.90 | 7.2 ± 1.9 |
| S_8 | 0.8260 | 0.826 ± 0.017 | $H(0.15)$ | 73.14 | 73.31 ± 0.87 | χ_{CMB}^2 | 1178.1 | 1191.8 ± 5.6 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4524 | 0.4524 ± 0.0094 | $D_M(0.15)$ | 637.7 | 636 ± 11 | | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6079 | 0.609 ± 0.014 | $H(0.38)$ | 82.945 | 82.96 ± 0.35 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1185.52$; $\Delta\chi_{\text{eff}}^2 = -0.23$; $\bar{\chi}_{\text{eff}}^2 = 1206.32$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.29$; $R - 1 = 0.00799$

χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.02) MGS: 1.54 (Δ 0.26) DR12BAO: 4.36 (Δ 0.18) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.86 (Δ -0.03) commander_dx12_v3_2_29: 23.15 (Δ 0.32) plik_rd12_HM_v22_TT: 759.14 (Δ -0.96)

17.10 base_w_plikHM_TT_lowl_lowE_BAO_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|------------------------------|------------------------------------|----------|------------------------------------|-----------------------------|----------|---------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.022205 | 0.02217 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.9908 | 0.992 ± 0.014 | $D_{\mathrm{M}}(0.38)$ | 1523.4 | 1521 ± 16 |
| $\Omega_{\mathrm{c}}h^2$ | 0.11959 | 0.1197 ± 0.0014 | $r_{\mathrm{drag}}h$ | 100.60 | $101.0^{+1.9}_{-2.2}$ | $H(0.51)$ | 89.554 | 89.52 ± 0.31 |
| $100\theta_{\mathrm{MC}}$ | 1.040857 | 1.04090 ± 0.00042 | $\langle d^2 \rangle^{1/2}$ | 2.4444 | 2.445 ± 0.027 | $D_{\mathrm{M}}(0.51)$ | 1975.7 | 1973 ± 17 |
| τ | 0.0542 | 0.0533 ± 0.0078 | z_{re} | 7.70 | 7.59 ± 0.79 | $H(0.61)$ | 95.092 | $95.03^{+0.40}_{-0.34}$ |
| w_0 | -1.031 | $-1.042^{+0.062}_{-0.052}$ | $10^9 A_{\mathrm{s}}$ | 2.0957 | 2.092 ± 0.031 | $D_{\mathrm{M}}(0.61)$ | 2300.6 | 2298 ± 17 |
| $\ln(10^{10} A_{\mathrm{s}})$ | 3.0425 | 3.041 ± 0.015 | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.8805 | 1.880 ± 0.011 | $H(2.33)$ | 235.66 | 235.59 ± 0.79 |
| n_{s} | 0.96550 | 0.9649 ± 0.0045 | D_{40} | 1227.6 | 1229 ± 12 | $D_{\mathrm{M}}(2.33)$ | 5767.3 | 5768 ± 12 |
| y_{cal} | 1.00028 | 1.0005 ± 0.0024 | D_{220} | 5718.5 | 5718 ± 40 | $f\sigma_8(0.15)$ | 0.4600 | 0.4605 ± 0.0091 |
| A_{217}^{CIB} | 48.6 | 48 ± 7 | D_{810} | 2536.8 | 2536 ± 13 | $\sigma_8(0.15)$ | 0.7568 | 0.759 ± 0.017 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | 0.32 | — | D_{1420} | 815.6 | 815.0 ± 5.0 | $f\sigma_8(0.38)$ | 0.4809 | $0.483^{+0.012}_{-0.013}$ |
| A_{143}^{tSZ} | 7.02 | $5.1^{+2.2}_{-2.0}$ | D_{2000} | 230.08 | 229.8 ± 1.7 | $\sigma_8(0.38)$ | 0.6709 | 0.673 ± 0.015 |
| A_{100}^{PS} | 254.1 | 263 ± 28 | $n_{\mathrm{s},0.002}$ | 0.96550 | 0.9649 ± 0.0045 | $f\sigma_8(0.51)$ | 0.4802 | $0.482^{+0.013}_{-0.014}$ |
| A_{143}^{PS} | 49.2 | 49 ± 8 | Y_{P} | 0.245328 | $0.245312^{+0.000090}_{-0.000074}$ | $\sigma_8(0.51)$ | 0.6278 | 0.630 ± 0.014 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 46.9 | 43 ± 9 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.246654 | $0.246638^{+0.000091}_{-0.000074}$ | $f\sigma_8(0.61)$ | 0.4754 | $0.477^{+0.013}_{-0.015}$ |
| A_{217}^{PS} | 119.5 | 115 ± 10 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.6170 | 2.623 ± 0.037 | $\sigma_8(0.61)$ | 0.5973 | 0.599 ± 0.013 |
| A^{kSZ} | 0.01 | < 4.72 | Age/Gyr | 13.7956 | 13.793 ± 0.034 | $f\sigma_8(2.33)$ | 0.3012 | 0.3020 ± 0.0066 |
| $A_{100}^{\mathrm{dustTT}}$ | 8.88 | 8.9 ± 1.9 | z_* | 1090.093 | 1090.14 ± 0.31 | $\sigma_8(2.33)$ | 0.3097 | 0.3104 ± 0.0056 |
| $A_{143}^{\mathrm{dustTT}}$ | 10.80 | 10.7 ± 1.8 | r_* | 144.663 | 144.67 ± 0.33 | f_{2000}^{143} | 30.19 | 31.0 ± 2.9 |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 19.36 | 18.3 ± 3.2 | $100\theta_*$ | 1.041056 | 1.04110 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 33.12 | 33.4 ± 2.0 |
| $A_{217}^{\mathrm{dustTT}}$ | 94.5 | 93.2 ± 7.2 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.8958 | 13.896 ± 0.032 | f_{2000}^{217} | 107.58 | 108.0 ± 1.9 |
| c_{100} | 0.99966 | 0.99960 ± 0.00061 | z_{drag} | 1059.513 | 1059.46 ± 0.44 | $\chi_{\mathrm{lensing}}^2$ | 8.734 | 9.35 ± 0.86 |
| c_{217} | 0.99823 | 0.99826 ± 0.00062 | r_{drag} | 147.385 | 147.40 ± 0.35 | χ_{small}^2 | 396.05 | 397.0 ± 1.7 |
| H_0 | 68.25 | $68.5^{+1.3}_{-1.5}$ | k_{D} | 0.140431 | 0.14039 ± 0.00044 | χ_{lowl}^2 | 23.21 | 23.32 ± 0.89 |
| Ω_{Λ} | 0.6943 | 0.696 ± 0.012 | $100\theta_{\mathrm{D}}$ | 0.160992 | 0.16104 ± 0.00025 | χ_{plik}^2 | 759.0 | 770.9 ± 5.3 |
| Ω_{m} | 0.3057 | 0.304 ± 0.012 | z_{eq} | 3388.5 | 3389 ± 31 | $\chi_{6\mathrm{DF}}^2$ | 0.000 | 0.13 ± 0.18 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14244 | 0.1425 ± 0.0013 | k_{eq} | 0.010342 | 0.010345 ± 0.000095 | χ_{MGS}^2 | 1.61 | 1.92 ± 0.99 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09722 | $0.0977^{+0.0023}_{-0.0026}$ | $100\theta_{\mathrm{eq}}$ | 0.8152 | 0.8151 ± 0.0058 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.33 | 5.1 ± 1.4 |
| σ_8 | 0.8186 | 0.821 ± 0.018 | $100\theta_{\mathrm{s,eq}}$ | 0.45052 | 0.4505 ± 0.0030 | χ_{prior}^2 | 1.31 | 7.2 ± 3.6 |
| S_8 | 0.8264 | 0.825 ± 0.012 | $H(0.15)$ | 73.21 | 73.36 ± 0.85 | χ_{CMB}^2 | 1187.0 | 1200.6 ± 5.6 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4526 | 0.4521 ± 0.0067 | $D_{\mathrm{M}}(0.15)$ | 636.9 | 635 ± 10 | χ_{BAO}^2 | 5.94 | 7.2 ± 1.8 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6087 | 0.6092 ± 0.0095 | $H(0.38)$ | 82.973 | 82.98 ± 0.34 | | | |

Best-fit $\chi_{\mathrm{eff}}^2 = 1194.29$; $\Delta\chi_{\mathrm{eff}}^2 = -0.39$; $\bar{\chi}_{\mathrm{eff}}^2 = 1214.98$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.25$; $R - 1 = 0.01126$
 χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.03) MGS: 1.61 (Δ 0.39) DR12BAO: 4.33 (Δ -0.04) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.73 (Δ -0.14) small_100x143_offlike5_EE_Aplanc
396.05 (Δ -0.05) commander_dx12_v3.2.29: 23.21 (Δ 0.25) plik_rd12_HM_v22.TT: 759.05 (Δ -0.75)

17.11 base_w_plikHM_TT_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|---------------------------|
| $\Omega_b h^2$ | 0.02217 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.992 ± 0.020 | $D_M(0.38)$ | 1522 ± 17 |
| $\Omega_c h^2$ | 0.1197 ± 0.0018 | $r_{\text{drag}} h$ | $100.9^{+1.9}_{-2.3}$ | $H(0.51)$ | $89.51^{+0.39}_{-0.34}$ |
| $100\theta_{\text{MC}}$ | 1.04091 ± 0.00044 | $\langle d^2 \rangle^{1/2}$ | 2.447 ± 0.040 | $D_M(0.51)$ | 1974 ± 17 |
| τ | $0.0545^{+0.0050}_{-0.0082}$ | z_{re} | $7.72^{+0.56}_{-0.82}$ | $H(0.61)$ | $95.03^{+0.49}_{-0.39}$ |
| w_0 | $-1.040^{+0.074}_{-0.060}$ | $10^9 A_s$ | $2.097^{+0.025}_{-0.034}$ | $D_M(0.61)$ | 2299 ± 17 |
| $\ln(10^{10} A_s)$ | $3.043^{+0.012}_{-0.016}$ | $10^9 A_s e^{-2\tau}$ | 1.880 ± 0.013 | $H(2.33)$ | 235.64 ± 0.81 |
| n_s | 0.9651 ± 0.0051 | D_{40} | 1229 ± 14 | $D_M(2.33)$ | 5768 ± 12 |
| y_{cal} | 1.0005 ± 0.0025 | D_{220} | 5716 ± 40 | $f\sigma_8(0.15)$ | 0.461 ± 0.013 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2536 ± 14 | $\sigma_8(0.15)$ | 0.759 ± 0.022 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.0 ± 5.1 | $f\sigma_8(0.38)$ | $0.483^{+0.016}_{-0.018}$ |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 229.8 ± 1.8 | $\sigma_8(0.38)$ | 0.673 ± 0.020 |
| A_{100}^{PS} | 263 ± 28 | $n_{s,0.002}$ | 0.9651 ± 0.0051 | $f\sigma_8(0.51)$ | $0.482^{+0.017}_{-0.019}$ |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.245312^{+0.000090}_{-0.000077}$ | $\sigma_8(0.51)$ | 0.630 ± 0.018 |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246638^{+0.000090}_{-0.000077}$ | $f\sigma_8(0.61)$ | $0.478^{+0.017}_{-0.020}$ |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.623 ± 0.038 | $\sigma_8(0.61)$ | 0.599 ± 0.017 |
| A^{kSZ} | < 4.68 | Age/Gyr | 13.794 ± 0.035 | $f\sigma_8(2.33)$ | 0.3021 ± 0.0084 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | z_* | 1090.14 ± 0.35 | $\sigma_8(2.33)$ | 0.3106 ± 0.0070 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.67 ± 0.42 | f_{2000}^{143} | 30.9 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04111 ± 0.00044 | $f_{2000}^{143 \times 217}$ | 33.3 ± 2.0 |
| A_{217}^{dustTT} | 93.3 ± 7.3 | $D_M(z_*)/\text{Gpc}$ | 13.896 ± 0.040 | f_{2000}^{217} | 107.9 ± 1.9 |
| c_{100} | 0.99960 ± 0.00062 | z_{drag} | 1059.46 ± 0.43 | χ_{small}^2 | 396.9 ± 1.8 |
| c_{217} | 0.99825 ± 0.00062 | r_{drag} | 147.40 ± 0.43 | χ_{lowl}^2 | 23.3 ± 1.0 |
| H_0 | $68.5^{+1.4}_{-1.6}$ | k_{D} | 0.14039 ± 0.00049 | χ_{plik}^2 | 771.3 ± 5.6 |
| Ω_{Λ} | 0.696 ± 0.012 | $100\theta_{\text{D}}$ | 0.16104 ± 0.00025 | $\chi_{6\text{DF}}^2$ | 0.13 ± 0.19 |
| Ω_{m} | 0.304 ± 0.012 | z_{eq} | 3389 ± 41 | χ_{MGS}^2 | 1.88 ± 0.99 |
| $\Omega_{\text{m}} h^2$ | 0.1425 ± 0.0017 | k_{eq} | 0.01034 ± 0.00012 | χ_{DR12BAO}^2 | 5.2 ± 1.5 |
| $\Omega_{\text{m}} h^3$ | $0.0976^{+0.0027}_{-0.0031}$ | $100\theta_{\text{eq}}$ | 0.8151 ± 0.0076 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.821 ± 0.024 | $100\theta_{\text{s,eq}}$ | 0.4505 ± 0.0039 | χ_{BAO}^2 | 7.2 ± 1.9 |
| S_8 | 0.827 ± 0.017 | $H(0.15)$ | 73.31 ± 0.87 | χ_{CMB}^2 | 1191.6 ± 5.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4527 ± 0.0094 | $D_M(0.15)$ | 636 ± 11 | | |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.610 ± 0.014 | $H(0.38)$ | 82.96 ± 0.35 | | |

$$\bar{\chi}_{\text{eff}}^2 = 1206.07; \Delta\bar{\chi}_{\text{eff}}^2 = 0.31; R - 1 = 0.00764$$

17.12 base_w_plikHM_TT_lowl_lowE_BAO_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|------------------------------------|------------------------------------|-----------------------------|---------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02218 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.992 ± 0.014 | $D_{\mathrm{M}}(0.38)$ | 1521 ± 16 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1196 ± 0.0013 | $r_{\mathrm{drag}}h$ | $101.0^{+1.9}_{-2.2}$ | $H(0.51)$ | 89.54 ± 0.31 |
| $100\theta_{\mathrm{MC}}$ | 1.04091 ± 0.00042 | $\langle d^2 \rangle^{1/2}$ | 2.446 ± 0.027 | $D_{\mathrm{M}}(0.51)$ | 1973 ± 17 |
| τ | $0.0546^{+0.0052}_{-0.0079}$ | z_{re} | $7.73^{+0.56}_{-0.79}$ | $H(0.61)$ | $95.05^{+0.39}_{-0.33}$ |
| w_0 | $-1.039^{+0.060}_{-0.052}$ | $10^9 A_{\mathrm{s}}$ | $2.097^{+0.023}_{-0.031}$ | $D_{\mathrm{M}}(0.61)$ | 2298 ± 17 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.043^{+0.011}_{-0.015}$ | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.880 ± 0.011 | $H(2.33)$ | 235.57 ± 0.79 |
| n_{s} | 0.9651 ± 0.0044 | D_{40} | 1229 ± 12 | $D_{\mathrm{M}}(2.33)$ | 5767 ± 12 |
| y_{cal} | 1.0005 ± 0.0024 | D_{220} | 5718 ± 40 | $f\sigma_8(0.15)$ | 0.4604 ± 0.0091 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2536 ± 13 | $\sigma_8(0.15)$ | $0.759^{+0.016}_{-0.018}$ |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{1420} | 815.1 ± 5.0 | $f\sigma_8(0.38)$ | $0.482^{+0.012}_{-0.013}$ |
| A_{143}^{tSZ} | $5.1^{+2.2}_{-1.9}$ | D_{2000} | 229.9 ± 1.7 | $\sigma_8(0.38)$ | 0.673 ± 0.015 |
| A_{100}^{PS} | 262 ± 28 | $n_{\mathrm{s},0.002}$ | 0.9651 ± 0.0044 | $f\sigma_8(0.51)$ | $0.482^{+0.013}_{-0.014}$ |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.245315^{+0.000089}_{-0.000073}$ | $\sigma_8(0.51)$ | 0.630 ± 0.014 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43 ± 9 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246641^{+0.000089}_{-0.000074}$ | $f\sigma_8(0.61)$ | $0.477^{+0.013}_{-0.015}$ |
| A_{217}^{PS} | 115 ± 10 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.622 ± 0.037 | $\sigma_8(0.61)$ | 0.599 ± 0.013 |
| A^{kSZ} | < 4.65 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.793 ± 0.034 | $f\sigma_8(2.33)$ | 0.3021 ± 0.0066 |
| $A_{100}^{\mathrm{dustTT}}$ | 8.9 ± 1.9 | z_* | 1090.12 ± 0.31 | $\sigma_8(2.33)$ | 0.3105 ± 0.0055 |
| $A_{143}^{\mathrm{dustTT}}$ | 10.7 ± 1.8 | r_* | 144.69 ± 0.33 | f_{2000}^{143} | 30.9 ± 2.9 |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 18.3 ± 3.2 | $100\theta_*$ | 1.04111 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 33.3 ± 2.0 |
| $A_{217}^{\mathrm{dustTT}}$ | 93.3 ± 7.2 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.898 ± 0.032 | f_{2000}^{217} | 107.9 ± 1.9 |
| c_{100} | 0.99960 ± 0.00061 | z_{drag} | 1059.47 ± 0.43 | $\chi_{\mathrm{lensing}}^2$ | 9.33 ± 0.85 |
| c_{217} | 0.99826 ± 0.00062 | r_{drag} | 147.42 ± 0.35 | χ_{simall}^2 | 396.9 ± 1.8 |
| H_0 | $68.5^{+1.3}_{-1.5}$ | k_{D} | 0.14038 ± 0.00044 | χ_{lowl}^2 | 23.31 ± 0.89 |
| Ω_{Λ} | 0.696 ± 0.012 | $100\theta_{\mathrm{D}}$ | 0.16104 ± 0.00025 | χ_{plik}^2 | 770.9 ± 5.3 |
| Ω_{m} | 0.304 ± 0.012 | z_{eq} | 3387 ± 31 | $\chi_{6\mathrm{DF}}^2$ | 0.13 ± 0.18 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1424 ± 0.0013 | k_{eq} | 0.010338 ± 0.000094 | χ_{MGS}^2 | 1.91 ± 0.98 |
| $\Omega_{\mathrm{m}}h^3$ | $0.0975^{+0.0023}_{-0.0026}$ | $100\theta_{\mathrm{eq}}$ | 0.8155 ± 0.0057 | $\chi_{\mathrm{DR12BAO}}^2$ | 5.1 ± 1.4 |
| σ_8 | 0.821 ± 0.018 | $100\theta_{\mathrm{s,eq}}$ | 0.4507 ± 0.0029 | χ_{prior}^2 | 7.2 ± 3.6 |
| S_8 | 0.826 ± 0.012 | $H(0.15)$ | 73.35 ± 0.85 | χ_{CMB}^2 | 1200.4 ± 5.6 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4522 ± 0.0067 | $D_{\mathrm{M}}(0.15)$ | 635 ± 10 | χ_{BAO}^2 | 7.1 ± 1.7 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6092 ± 0.0095 | $H(0.38)$ | 83.00 ± 0.34 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 1214.74$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.16$; $R - 1 = 0.01087$

17.13 base_w_plikHM_TTTEEE_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------------|
| $\Omega_b h^2$ | 0.022384 | 0.02238 ± 0.00015 | σ_8 | 0.8230 | 0.822 ± 0.019 | $D_M(0.15)$ | 634.2 | 634 ± 10 |
| $\Omega_c h^2$ | 0.11994 | 0.1199 ± 0.0013 | S_8 | 0.8281 | 0.827 ± 0.013 | $H(0.38)$ | 83.119 | 83.11 ± 0.31 |
| $100\theta_{MC}$ | 1.040916 | 1.04095 ± 0.00031 | $\sigma_8 \Omega_m^{0.5}$ | 0.4536 | 0.4530 ± 0.0071 | $D_M(0.38)$ | 1518.4 | 1519 ± 16 |
| τ | 0.0544 | 0.0546 ± 0.0078 | $\sigma_8 \Omega_m^{0.25}$ | 0.6110 | 0.610 ± 0.011 | $H(0.51)$ | 89.664 | $89.66^{+0.29}_{-0.25}$ |
| w_0 | -1.041 | $-1.041^{+0.060}_{-0.053}$ | $\sigma_8/h^{0.5}$ | 0.9936 | 0.993 ± 0.015 | $D_M(0.51)$ | 1970.1 | 1970 ± 17 |
| $\ln(10^{10} A_s)$ | 3.0443 | 3.044 ± 0.016 | $r_{drag} h$ | 100.92 | $101.0^{+1.9}_{-2.2}$ | $H(0.61)$ | 95.183 | $95.18^{+0.37}_{-0.31}$ |
| n_s | 0.96630 | 0.9654 ± 0.0042 | $\langle d^2 \rangle^{1/2}$ | 2.4486 | 2.449 ± 0.031 | $D_M(0.61)$ | 2294.7 | 2295 ± 17 |
| y_{cal} | 1.00033 | 1.0006 ± 0.0025 | z_{re} | 7.68 | 7.68 ± 0.79 | $H(2.33)$ | 235.93 | 235.95 ± 0.71 |
| A_{217}^{CIB} | 46.4 | 47 ± 7 | $10^9 A_s$ | 2.0995 | 2.100 ± 0.034 | $D_M(2.33)$ | 5758.7 | 5758.7 ± 9.1 |
| $\xi^{tSZ \times CIB}$ | 0.56 | — | $10^9 A_s e^{-2\tau}$ | 1.8829 | 1.883 ± 0.012 | $f\sigma_8(0.15)$ | 0.4618 | 0.4613 ± 0.0097 |
| A_{143}^{tSZ} | 7.10 | $5.5^{+2.2}_{-1.9}$ | D_{40} | 1227.5 | 1230 ± 12 | $\sigma_8(0.15)$ | 0.7610 | 0.760 ± 0.018 |
| A_{100}^{PS} | 249.3 | 259 ± 28 | D_{220} | 5728.7 | 5734 ± 39 | $f\sigma_8(0.38)$ | 0.4838 | $0.483^{+0.013}_{-0.014}$ |
| A_{143}^{PS} | 49.5 | 46 ± 8 | D_{810} | 2540.0 | 2539 ± 14 | $\sigma_8(0.38)$ | 0.6747 | 0.674 ± 0.016 |
| $A_{143 \times 217}^{PS}$ | 50.8 | 42 ± 9 | D_{1420} | 818.02 | 817.3 ± 4.8 | $f\sigma_8(0.51)$ | 0.4833 | $0.483^{+0.013}_{-0.015}$ |
| A_{217}^{PS} | 121.1 | 115 ± 10 | D_{2000} | 231.23 | 231.0 ± 1.6 | $\sigma_8(0.51)$ | 0.6313 | 0.631 ± 0.015 |
| A^{kSZ} | 0.00 | < 4.23 | $n_{s,0.002}$ | 0.96630 | 0.9654 ± 0.0042 | $f\sigma_8(0.61)$ | 0.4786 | $0.478^{+0.014}_{-0.015}$ |
| A_{100}^{dustTT} | 8.81 | 8.9 ± 1.8 | Y_P | 0.245401 | $0.245399^{+0.000060}_{-0.000053}$ | $\sigma_8(0.61)$ | 0.6006 | 0.600 ± 0.014 |
| A_{143}^{dustTT} | 11.04 | 10.9 ± 1.7 | Y_P^{BBN} | 0.246728 | $0.246725^{+0.000060}_{-0.000053}$ | $f\sigma_8(2.33)$ | 0.3028 | 0.3025 ± 0.0072 |
| $A_{143 \times 217}^{dustTT}$ | 20.03 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5828 | 2.584 ± 0.027 | $\sigma_8(2.33)$ | 0.3112 | 0.3110 ± 0.0061 |
| A_{217}^{dustTT} | 95.4 | 93.7 ± 7.3 | Age/Gyr | 13.7710 | 13.772 ± 0.031 | f_{2000}^{143} | 28.75 | 29.4 ± 2.7 |
| A_{100}^{dustTE} | 0.1143 | 0.115 ± 0.038 | z_* | 1089.897 | 1089.89 ± 0.26 | $f_{2000}^{143 \times 217}$ | 31.98 | 32.1 ± 1.8 |
| $A_{100 \times 143}^{dustTE}$ | 0.1359 | 0.135 ± 0.029 | r_* | 144.435 | 144.46 ± 0.28 | f_{2000}^{217} | 106.51 | 107.0 ± 1.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.480 | 0.481 ± 0.086 | $100\theta_*$ | 1.041097 | 1.04113 ± 0.00031 | χ_{small}^2 | 396.06 | 397.1 ± 1.9 |
| A_{143}^{dustTE} | 0.227 | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8734 | 13.875 ± 0.026 | χ_{lowl}^2 | 23.12 | 23.35 ± 0.89 |
| $A_{143 \times 217}^{dustTE}$ | 0.666 | 0.665 ± 0.080 | z_{drag} | 1059.971 | 1059.96 ± 0.30 | χ_{plik}^2 | 2344.5 | 2359.4 ± 5.9 |
| A_{217}^{dustTE} | 2.093 | 2.08 ± 0.27 | r_{drag} | 147.090 | 147.11 ± 0.28 | χ_{6DF}^2 | 0.001 | 0.13 ± 0.19 |
| c_{100} | 0.99970 | 0.99967 ± 0.00062 | k_D | 0.140879 | 0.14086 ± 0.00031 | χ_{MGS}^2 | 1.75 | 1.89 ± 0.99 |
| c_{217} | 0.99819 | 0.99819 ± 0.00062 | $100\theta_D$ | 0.160740 | 0.16075 ± 0.00017 | $\chi_{DR12BAO}^2$ | 4.40 | 5.2 ± 1.4 |
| H_0 | 68.61 | $68.6^{+1.3}_{-1.5}$ | z_{eq} | 3401.2 | 3399 ± 28 | χ_{prior}^2 | 1.66 | 11.5 ± 4.5 |
| Ω_Λ | 0.6963 | 0.696 ± 0.012 | k_{eq} | 0.010381 | 0.010376 ± 0.000086 | χ_{BAO}^2 | 6.15 | 7.2 ± 1.7 |
| Ω_m | 0.3037 | 0.304 ± 0.012 | $100\theta_{eq}$ | 0.8135 | 0.8139 ± 0.0053 | χ_{CMB}^2 | 2763.7 | 2779.9 ± 5.9 |
| $\Omega_m h^2$ | 0.14297 | 0.1429 ± 0.0012 | $100\theta_{s,eq}$ | 0.44949 | 0.4497 ± 0.0027 | | | |
| $\Omega_m h^3$ | 0.09809 | $0.0981^{+0.0023}_{-0.0026}$ | $H(0.15)$ | 73.46 | 73.46 ± 0.85 | | | |

Best-fit $\chi_{eff}^2 = 2771.48$; $\Delta\chi_{eff}^2 = -0.44$; $\bar{\chi}_{eff}^2 = 2798.61$; $\Delta\bar{\chi}_{eff}^2 = 0.70$; $R - 1 = 0.00736$
 χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.03) MGS: 1.75 (Δ 0.53) DR12BAO: 4.40 (Δ -0.01) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.06 (Δ -0.14) commander_dx12_v3_2_29: 23.12 (Δ 0.25) plik_rd12_HM_v22b_TTTEEE: 2344.49 (Δ -1.02)

17.14 base_w_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------------|
| $\Omega_b h^2$ | 0.022391 | 0.02239 ± 0.00014 | σ_8 | 0.8220 | 0.821 ± 0.016 | $D_M(0.15)$ | 634.3 | 634.3 ± 9.8 |
| $\Omega_c h^2$ | 0.11983 | 0.1198 ± 0.0011 | S_8 | 0.8271 | 0.826 ± 0.010 | $H(0.38)$ | 83.137 | 83.14 ± 0.31 |
| $100\theta_{MC}$ | 1.040936 | 1.04095 ± 0.00030 | $\sigma_8 \Omega_m^{0.5}$ | 0.4530 | 0.4522 ± 0.0057 | $D_M(0.38)$ | 1518.5 | 1518 ± 16 |
| τ | 0.0545 | 0.0545 ± 0.0075 | $\sigma_8 \Omega_m^{0.25}$ | 0.6102 | 0.6093 ± 0.0081 | $H(0.51)$ | 89.688 | $89.69^{+0.26}_{-0.23}$ |
| w_0 | -1.038 | $-1.038^{+0.055}_{-0.048}$ | $\sigma_8/h^{0.5}$ | 0.9926 | 0.991 ± 0.012 | $D_M(0.51)$ | 1970.0 | 1970 ± 16 |
| $\ln(10^{10} A_s)$ | 3.0448 | 3.044 ± 0.015 | $r_{drag} h$ | 100.89 | $101.0^{+1.9}_{-2.1}$ | $H(0.61)$ | 95.211 | $95.21^{+0.33}_{-0.27}$ |
| n_s | 0.96622 | 0.9656 ± 0.0039 | $\langle d^2 \rangle^{1/2}$ | 2.4477 | 2.447 ± 0.024 | $D_M(0.61)$ | 2294.5 | 2294 ± 16 |
| y_{cal} | 1.00062 | 1.0006 ± 0.0025 | z_{re} | 7.68 | 7.67 ± 0.75 | $H(2.33)$ | 235.90 | 235.91 ± 0.71 |
| A_{217}^{CIB} | 46.4 | 47 ± 7 | $10^9 A_s$ | 2.1005 | 2.099 ± 0.031 | $D_M(2.33)$ | 5758.1 | 5758.0 ± 9.0 |
| $\xi^{tSZ \times CIB}$ | 0.58 | — | $10^9 A_s e^{-2\tau}$ | 1.8837 | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4611 | 0.4603 ± 0.0075 |
| A_{143}^{tSZ} | 7.12 | $5.4^{+2.1}_{-1.9}$ | D_{40} | 1228.7 | 1230 ± 11 | $\sigma_8(0.15)$ | 0.7601 | 0.759 ± 0.016 |
| A_{100}^{PS} | 249.0 | 259 ± 28 | D_{220} | 5734.9 | 5736 ± 39 | $f\sigma_8(0.38)$ | 0.4829 | $0.482^{+0.010}_{-0.012}$ |
| A_{143}^{PS} | 50.1 | 46 ± 8 | D_{810} | 2541.3 | 2539 ± 13 | $\sigma_8(0.38)$ | 0.6739 | 0.673 ± 0.014 |
| $A_{143 \times 217}^{PS}$ | 51.5 | 42 ± 9 | D_{1420} | 818.39 | 817.4 ± 4.8 | $f\sigma_8(0.51)$ | 0.4824 | $0.482^{+0.011}_{-0.013}$ |
| A_{217}^{PS} | 121.4 | 115 ± 10 | D_{2000} | 231.32 | 231.0 ± 1.6 | $\sigma_8(0.51)$ | 0.6306 | 0.630 ± 0.013 |
| A^{kSZ} | 0.01 | < 4.24 | $n_{s,0.002}$ | 0.96622 | 0.9656 ± 0.0039 | $f\sigma_8(0.61)$ | 0.4777 | $0.477^{+0.011}_{-0.013}$ |
| A_{100}^{dustTT} | 8.80 | 8.9 ± 1.8 | Y_P | 0.245404 | $0.245403^{+0.000059}_{-0.000050}$ | $\sigma_8(0.61)$ | 0.5999 | 0.599 ± 0.012 |
| A_{143}^{dustTT} | 11.00 | 10.9 ± 1.7 | Y_P^{BBN} | 0.246730 | $0.246730^{+0.000059}_{-0.000051}$ | $f\sigma_8(2.33)$ | 0.3025 | 0.3022 ± 0.0062 |
| $A_{143 \times 217}^{dustTT}$ | 20.14 | 18.6 ± 3.2 | $10^5 D/H$ | 2.5815 | 2.582 ± 0.026 | $\sigma_8(2.33)$ | 0.3109 | 0.3107 ± 0.0053 |
| A_{217}^{dustTT} | 95.6 | 93.6 ± 7.3 | Age/Gyr | 13.7708 | 13.771 ± 0.030 | f_{2000}^{143} | 28.88 | 29.5 ± 2.7 |
| A_{100}^{dustTE} | 0.1141 | 0.114 ± 0.038 | z_* | 1089.878 | 1089.87 ± 0.24 | $f_{2000}^{143 \times 217}$ | 32.09 | 32.1 ± 1.8 |
| $A_{100 \times 143}^{dustTE}$ | 0.1350 | 0.135 ± 0.029 | r_* | 144.459 | 144.48 ± 0.24 | f_{2000}^{217} | 106.64 | 107.0 ± 1.7 |
| $A_{100 \times 217}^{dustTE}$ | 0.482 | 0.481 ± 0.085 | $100\theta_*$ | 1.041116 | 1.04113 ± 0.00030 | $\chi^2_{lensing}$ | 8.752 | 9.16 ± 0.68 |
| A_{143}^{dustTE} | 0.226 | 0.225 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8754 | 13.877 ± 0.023 | χ^2_{small} | 396 | 226 ± 200 |
| $A_{143 \times 217}^{dustTE}$ | 0.663 | 0.664 ± 0.079 | z_{drag} | 1059.971 | 1059.97 ± 0.30 | χ^2_{lowl} | 23 | 194 ± 200 |
| A_{217}^{dustTE} | 2.078 | 2.08 ± 0.27 | r_{drag} | 147.114 | 147.13 ± 0.25 | χ^2_{plik} | 2344.6 | 2359.2 ± 5.8 |
| c_{100} | 0.99973 | 0.99968 ± 0.00061 | k_D | 0.140860 | 0.14084 ± 0.00029 | χ^2_{6DF} | 0.00 | 0.9 ± 1.1 |
| c_{217} | 0.99818 | 0.99819 ± 0.00062 | $100\theta_D$ | 0.160737 | 0.16074 ± 0.00017 | χ^2_{MGS} | 1.75 | 1.1 ± 1.1 |
| H_0 | 68.58 | $68.6^{+1.3}_{-1.4}$ | z_{eq} | 3398.6 | 3397 ± 24 | $\chi^2_{DR12BAO}$ | 4.32 | 5.1 ± 1.3 |
| Ω_Λ | 0.6962 | 0.696 ± 0.012 | k_{eq} | 0.010373 | 0.010368 ± 0.000074 | χ^2_{prior} | 1.64 | 11.5 ± 4.4 |
| Ω_m | 0.3038 | 0.304 ± 0.012 | $100\theta_{eq}$ | 0.81401 | 0.8144 ± 0.0046 | χ^2_{CMB} | 2772.5 | 2788.7 ± 5.9 |
| $\Omega_m h^2$ | 0.14286 | 0.1428 ± 0.0010 | $100\theta_{s,eq}$ | 0.44974 | 0.4499 ± 0.0023 | χ^2_{BAO} | 6.07 | 7.1 ± 1.6 |
| $\Omega_m h^3$ | 0.09798 | $0.0980^{+0.0021}_{-0.0024}$ | $H(0.15)$ | 73.46 | 73.47 ± 0.83 | | | |

Best-fit $\chi^2_{eff} = 2780.22$; $\Delta\chi^2_{eff} = -0.48$; $\bar{\chi}^2_{eff} = 2807.23$; $\Delta\bar{\chi}^2_{eff} = 0.39$; $R - 1 = 0.01456$
 χ^2_{eff} : BAO - 6DF: 0.00 (Δ -0.03) MGS: 1.75 (Δ 0.53) DR12BAO: 4.32 (Δ -0.10) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 8.75 (Δ 0.02) small_100x143_offlike5_EE_Aplanck 396.04 (Δ -0.48) commander_dx12_v3.2_29: 23.15 (Δ 0.25) plik_rd12_HM_v22b.TTTEEE: 2344.57 (Δ -0.75)

17.15 base_w_plikHM_TTTEEE_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|---------------------------|
| $\Omega_b h^2$ | 0.02239 ± 0.00015 | σ_8 | 0.823 ± 0.019 | $D_M(0.15)$ | 634 ± 10 |
| $\Omega_c h^2$ | 0.1198 ± 0.0013 | S_8 | 0.828 ± 0.013 | $H(0.38)$ | 83.12 ± 0.31 |
| $100\theta_{MC}$ | 1.04095 ± 0.00031 | $\sigma_8 \Omega_m^{0.5}$ | 0.4533 ± 0.0070 | $D_M(0.38)$ | 1519 ± 16 |
| τ | $0.0556^{+0.0053}_{-0.0081}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.611 ± 0.010 | $H(0.51)$ | $89.67^{+0.29}_{-0.25}$ |
| w_0 | $-1.040^{+0.060}_{-0.053}$ | $\sigma_8/h^{0.5}$ | 0.993 ± 0.015 | $D_M(0.51)$ | 1970 ± 17 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.013}_{-0.016}$ | $r_{\text{drag}} h$ | $100.9^{+1.9}_{-2.2}$ | $H(0.61)$ | $95.19^{+0.37}_{-0.31}$ |
| n_s | 0.9656 ± 0.0042 | $\langle d^2 \rangle^{1/2}$ | 2.451 ± 0.031 | $D_M(0.61)$ | 2295 ± 17 |
| y_{cal} | 1.0006 ± 0.0025 | z_{re} | $7.79^{+0.59}_{-0.79}$ | $H(2.33)$ | 235.95 ± 0.71 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.104^{+0.026}_{-0.034}$ | $D_M(2.33)$ | 5758.5 ± 9.1 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.883 ± 0.012 | $f\sigma_8(0.15)$ | 0.4615 ± 0.0097 |
| A_{143}^{tSZ} | $5.5^{+2.2}_{-1.9}$ | D_{40} | 1230 ± 12 | $\sigma_8(0.15)$ | 0.761 ± 0.018 |
| A_{100}^{PS} | 258 ± 28 | D_{220} | 5734 ± 39 | $f\sigma_8(0.38)$ | 0.483 ± 0.013 |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2539 ± 14 | $\sigma_8(0.38)$ | 0.675 ± 0.016 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.4 ± 4.8 | $f\sigma_8(0.51)$ | $0.483^{+0.014}_{-0.015}$ |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.0 ± 1.6 | $\sigma_8(0.51)$ | 0.631 ± 0.015 |
| A^{kSZ} | < 4.21 | $n_{s,0.002}$ | 0.9656 ± 0.0042 | $f\sigma_8(0.61)$ | $0.478^{+0.014}_{-0.015}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245400^{+0.000059}_{-0.000053}$ | $\sigma_8(0.61)$ | 0.600 ± 0.014 |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246726^{+0.000060}_{-0.000053}$ | $f\sigma_8(2.33)$ | 0.3027 ± 0.0072 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | 10^5D/H | 2.583 ± 0.027 | $\sigma_8(2.33)$ | 0.3112 ± 0.0061 |
| A_{217}^{dustTT} | 93.7 ± 7.3 | Age/Gyr | 13.772 ± 0.031 | f_{2000}^{143} | 29.4 ± 2.7 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | z_* | 1089.89 ± 0.26 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | r_* | 144.46 ± 0.28 | f_{2000}^{217} | 106.9 ± 1.7 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.086 | $100\theta_*$ | 1.04114 ± 0.00031 | χ_{small}^2 | 397.1 ± 1.9 |
| A_{143}^{dustTE} | 0.224 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.875 ± 0.026 | χ_{lowl}^2 | 23.36 ± 0.89 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.664 ± 0.080 | z_{drag} | 1059.96 ± 0.30 | χ_{plik}^2 | 2359.2 ± 5.9 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | 147.12 ± 0.28 | $\chi_{6\text{DF}}^2$ | 0.13 ± 0.19 |
| c_{100} | 0.99967 ± 0.00062 | k_D | 0.14085 ± 0.00031 | χ_{MGS}^2 | 1.88 ± 0.98 |
| c_{217} | 0.99819 ± 0.00062 | $100\theta_D$ | 0.16075 ± 0.00017 | χ_{DR12BAO}^2 | 5.1 ± 1.4 |
| H_0 | $68.6^{+1.3}_{-1.5}$ | z_{eq} | 3399 ± 28 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_Λ | 0.696 ± 0.012 | k_{eq} | 0.010374 ± 0.000086 | χ_{BAO}^2 | 7.2 ± 1.7 |
| Ω_m | 0.304 ± 0.012 | $100\theta_{\text{eq}}$ | 0.8140 ± 0.0053 | χ_{CMB}^2 | 2779.7 ± 5.9 |
| $\Omega_m h^2$ | 0.1429 ± 0.0012 | $100\theta_{s,\text{eq}}$ | 0.4497 ± 0.0027 | | |
| $\Omega_m h^3$ | $0.0980^{+0.0023}_{-0.0026}$ | $H(0.15)$ | 73.46 ± 0.85 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2798.36; \Delta \bar{\chi}_{\text{eff}}^2 = 0.65; R - 1 = 0.00833$$

17.16 base_w_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|---------------------------|
| $\Omega_b h^2$ | 0.02240 ± 0.00014 | σ_8 | 0.821 ± 0.016 | $D_M(0.15)$ | 634.4 ± 9.7 |
| $\Omega_c h^2$ | 0.1197 ± 0.0011 | S_8 | 0.826 ± 0.010 | $H(0.38)$ | 83.14 ± 0.31 |
| $100\theta_{MC}$ | 1.04096 ± 0.00030 | $\sigma_8 \Omega_m^{0.5}$ | 0.4524 ± 0.0057 | $D_M(0.38)$ | 1519 ± 16 |
| τ | $0.0554^{+0.0054}_{-0.0077}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6094 ± 0.0081 | $H(0.51)$ | 89.70 ± 0.24 |
| w_0 | $-1.036^{+0.055}_{-0.048}$ | $\sigma_8/h^{0.5}$ | 0.991 ± 0.012 | $D_M(0.51)$ | 1970 ± 16 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.012}_{-0.015}$ | $r_{\text{drag}} h$ | $100.9^{+1.9}_{-2.1}$ | $H(0.61)$ | $95.22^{+0.32}_{-0.27}$ |
| n_s | 0.9657 ± 0.0039 | $\langle d^2 \rangle^{1/2}$ | 2.448 ± 0.023 | $D_M(0.61)$ | 2295 ± 16 |
| y_{cal} | 1.0006 ± 0.0025 | z_{re} | $7.76^{+0.58}_{-0.76}$ | $H(2.33)$ | 235.90 ± 0.70 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.103^{+0.024}_{-0.032}$ | $D_M(2.33)$ | 5757.8 ± 9.0 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4603 ± 0.0075 |
| A_{143}^{tSZ} | $5.4^{+2.1}_{-1.9}$ | D_{40} | 1230 ± 11 | $\sigma_8(0.15)$ | 0.759 ± 0.015 |
| A_{100}^{PS} | 259 ± 28 | D_{220} | 5736 ± 39 | $f\sigma_8(0.38)$ | $0.482^{+0.010}_{-0.012}$ |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2539 ± 13 | $\sigma_8(0.38)$ | 0.673 ± 0.014 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.4 ± 4.8 | $f\sigma_8(0.51)$ | $0.482^{+0.011}_{-0.013}$ |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.0 ± 1.6 | $\sigma_8(0.51)$ | 0.630 ± 0.013 |
| A^{kSZ} | < 4.23 | $n_{s,0.002}$ | 0.9657 ± 0.0039 | $f\sigma_8(0.61)$ | $0.477^{+0.011}_{-0.013}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245404^{+0.000058}_{-0.000050}$ | $\sigma_8(0.61)$ | 0.599 ± 0.012 |
| A_{143}^{dustTT} | 10.9 ± 1.7 | Y_P^{BBN} | $0.246731^{+0.000058}_{-0.000051}$ | $f\sigma_8(2.33)$ | 0.3022 ± 0.0062 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | 10^5D/H | 2.581 ± 0.026 | $\sigma_8(2.33)$ | 0.3108 ± 0.0052 |
| A_{217}^{dustTT} | 93.6 ± 7.3 | Age/Gyr | 13.771 ± 0.030 | f_{2000}^{143} | 29.4 ± 2.7 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | 1089.86 ± 0.24 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | r_* | 144.49 ± 0.24 | f_{2000}^{217} | 106.9 ± 1.7 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | $100\theta_*$ | 1.04114 ± 0.00030 | χ_{lensing}^2 | 9.15 ± 0.68 |
| A_{143}^{dustTE} | 0.225 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.878 ± 0.023 | χ_{simall}^2 | 227 ± 200 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.663 ± 0.079 | z_{drag} | 1059.98 ± 0.30 | χ_{lowl}^2 | 193 ± 200 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | 147.14 ± 0.25 | χ_{plik}^2 | 2359.1 ± 5.8 |
| c_{100} | 0.99968 ± 0.00062 | k_D | 0.14084 ± 0.00029 | $\chi_{6\text{DF}}^2$ | 0.9 ± 1.1 |
| c_{217} | 0.99819 ± 0.00062 | $100\theta_D$ | 0.16074 ± 0.00017 | χ_{MGS}^2 | 1.1 ± 1.1 |
| H_0 | $68.6^{+1.3}_{-1.4}$ | z_{eq} | 3396 ± 24 | χ_{DR12BAO}^2 | 5.0 ± 1.3 |
| Ω_Λ | 0.696 ± 0.012 | k_{eq} | 0.010364 ± 0.000073 | χ_{prior}^2 | 11.5 ± 4.4 |
| Ω_m | 0.304 ± 0.012 | $100\theta_{\text{eq}}$ | 0.8146 ± 0.0045 | χ_{CMB}^2 | 2788.5 ± 5.9 |
| $\Omega_m h^2$ | 0.1427 ± 0.0010 | $100\theta_{s,\text{eq}}$ | 0.4500 ± 0.0023 | χ_{BAO}^2 | 7.0 ± 1.6 |
| $\Omega_m h^3$ | $0.0979^{+0.0021}_{-0.0023}$ | $H(0.15)$ | 73.46 ± 0.83 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2807.01; \Delta\bar{\chi}_{\text{eff}}^2 = 0.29; R - 1 = 0.01536$$

17.17 base_w_plikHM_TT_lowl_lowE_BAO_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022184 | 0.02218 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.9902 | 0.989 ± 0.016 | $D_M(0.38)$ | 1524.9 | 1525 ± 10 |
| $\Omega_c h^2$ | 0.11970 | 0.1195 ± 0.0015 | $r_{\text{drag}} h$ | 100.43 | 100.5 ± 1.2 | $H(0.51)$ | 89.531 | 89.55 ± 0.34 |
| $100\theta_{\text{MC}}$ | 1.040889 | 1.04092 ± 0.00043 | $\langle d^2 \rangle^{1/2}$ | 2.4422 | 2.441 ± 0.034 | $D_M(0.51)$ | 1977.4 | 1977 ± 12 |
| τ | 0.0527 | 0.0531 ± 0.0081 | z_{re} | 7.54 | 7.57 ± 0.83 | $H(0.61)$ | 95.080 | 95.10 ± 0.35 |
| w_0 | -1.0287 | -1.027 ± 0.037 | $10^9 A_s$ | 2.0903 | 2.091 ± 0.035 | $D_M(0.61)$ | 2302.4 | 2302 ± 12 |
| $\ln(10^{10} A_s)$ | 3.0399 | 3.040 ± 0.017 | $10^9 A_s e^{-2\tau}$ | 1.8813 | 1.880 ± 0.012 | $H(2.33)$ | 235.75 | 235.66 ± 0.75 |
| n_s | 0.96541 | 0.9651 ± 0.0047 | D_{40} | 1227.5 | 1228 ± 13 | $D_M(2.33)$ | 5768.3 | 5768 ± 12 |
| y_{cal} | 1.00054 | 1.0005 ± 0.0025 | D_{220} | 5717.4 | 5719 ± 41 | $f\sigma_8(0.15)$ | 0.4599 | 0.459 ± 0.011 |
| A_{217}^{CIB} | 49.7 | 48 ± 7 | D_{810} | 2537.7 | 2536 ± 14 | $\sigma_8(0.15)$ | 0.7556 | 0.754 ± 0.014 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.17 | — | D_{1420} | 815.9 | 815.0 ± 5.1 | $f\sigma_8(0.38)$ | 0.4805 | 0.479 ± 0.012 |
| A_{143}^{tSZ} | 7.09 | 5.1 ± 2.0 | D_{2000} | 230.10 | 229.8 ± 1.8 | $\sigma_8(0.38)$ | 0.6698 | 0.669 ± 0.012 |
| A_{100}^{PS} | 257.4 | 263 ± 28 | $n_{s,0.002}$ | 0.96541 | 0.9651 ± 0.0047 | $f\sigma_8(0.51)$ | 0.4796 | 0.479 ± 0.012 |
| A_{143}^{PS} | 47.0 | 49 ± 8 | Y_{P} | 0.245319 | $0.245312_{-0.000077}^{+0.000095}$ | $\sigma_8(0.51)$ | 0.6267 | 0.626 ± 0.011 |
| $A_{143 \times 217}^{\text{PS}}$ | 42.9 | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246646 | $0.246638_{-0.000077}^{+0.000095}$ | $f\sigma_8(0.61)$ | 0.4748 | 0.474 ± 0.012 |
| A_{217}^{PS} | 117.5 | 115 ± 10 | $10^5 D/H$ | 2.6209 | 2.623 ± 0.039 | $\sigma_8(0.61)$ | 0.5962 | 0.595 ± 0.010 |
| A^{kSZ} | 0.04 | < 4.88 | Age/Gyr | 13.7985 | 13.799 ± 0.029 | $f\sigma_8(2.33)$ | 0.3006 | 0.3002 ± 0.0051 |
| A_{100}^{dustTT} | 8.84 | 8.9 ± 1.8 | z_* | 1090.128 | 1090.12 ± 0.33 | $\sigma_8(2.33)$ | 0.30912 | 0.3089 ± 0.0044 |
| A_{143}^{dustTT} | 10.75 | 10.7 ± 1.8 | r_* | 144.651 | 144.71 ± 0.37 | f_{2000}^{143} | 30.40 | 31.1 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.02 | 18.3 ± 3.3 | $100\theta_*$ | 1.041087 | 1.04112 ± 0.00043 | $f_{2000}^{143 \times 217}$ | 33.24 | 33.5 ± 2.0 |
| A_{217}^{dustTT} | 94.1 | 93.4 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.8942 | 13.899 ± 0.036 | f_{2000}^{217} | 107.71 | 108.0 ± 1.9 |
| c_{100} | 0.99967 | 0.99962 ± 0.00061 | z_{drag} | 1059.475 | 1059.45 ± 0.45 | χ_{small}^2 | 395.85 | 397.0 ± 1.8 |
| c_{217} | 0.99827 | 0.99826 ± 0.00063 | r_{drag} | 147.379 | 147.44 ± 0.39 | χ_{lowl}^2 | 23.15 | 23.3 ± 1.0 |
| H_0 | 68.15 | 68.16 ± 0.83 | k_{D} | 0.140421 | 0.14035 ± 0.00047 | χ_{plik}^2 | 759.1 | 771.6 ± 5.4 |
| Ω_{Λ} | 0.6931 | 0.6935 ± 0.0078 | $100\theta_{\text{D}}$ | 0.161022 | 0.16105 ± 0.00026 | χ_{JLA}^2 | 1034.715 | 1035.4 ± 1.0 |
| Ω_{m} | 0.3069 | 0.3065 ± 0.0078 | z_{eq} | 3390.6 | 3386 ± 35 | $\chi_{6\text{DF}}^2$ | 0.0022 | 0.049 ± 0.068 |
| $\Omega_{\text{m}} h^2$ | 0.14253 | 0.1423 ± 0.0015 | k_{eq} | 0.010348 | 0.01033 ± 0.00011 | χ_{MGS}^2 | 1.54 | 1.64 ± 0.61 |
| $\Omega_{\text{m}} h^3$ | 0.09713 | 0.0970 ± 0.0016 | $100\theta_{\text{eq}}$ | 0.8148 | 0.8158 ± 0.0066 | χ_{DR12BAO}^2 | 4.45 | 4.9 ± 1.5 |
| σ_8 | 0.8174 | 0.816 ± 0.015 | $100\theta_{s,\text{eq}}$ | 0.45032 | 0.4508 ± 0.0034 | χ_{prior}^2 | 1.44 | 7.3 ± 3.7 |
| S_8 | 0.8267 | 0.825 ± 0.017 | $H(0.15)$ | 73.13 | 73.15 ± 0.54 | χ_{BAO}^2 | 6.00 | 6.6 ± 1.3 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4528 | 0.4517 ± 0.0090 | $D_M(0.15)$ | 637.7 | 637.6 ± 6.1 | χ_{CMB}^2 | 1178.1 | 1191.9 ± 5.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6084 | 0.607 ± 0.011 | $H(0.38)$ | 82.933 | 82.95 ± 0.34 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2220.25$; $\bar{\chi}_{\text{eff}}^2 = 2241.16$; $R - 1 = 0.00635$
 χ_{eff}^2 : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 4.45 CMB - small_100x143_offlike5_EE_Aplanck_B: 395.85 commander_dx12_v3.2.29: 23.15 plik_rd12_HM_v22_TT: 759.09
SN - JLA Pantheon18: 1034.71

17.18 base_w_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|-----------------------|--------------------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.022206 | 0.02218 ± 0.00020 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6081 | 0.6079 ± 0.0080 | $D_{\mathrm{M}}(0.15)$ | 637.6 | 637.3 ± 6.1 |
| $\Omega_{\mathrm{c}}h^2$ | 0.11964 | 0.1195 ± 0.0013 | $\sigma_8/h^{0.5}$ | 0.9897 | 0.990 ± 0.011 | $H(0.38)$ | 82.971 | 82.96 ± 0.32 |
| $100\theta_{\mathrm{MC}}$ | 1.040966 | 1.04090 ± 0.00043 | $r_{\mathrm{drag}}h$ | 100.44 | 100.6 ± 1.2 | $D_{\mathrm{M}}(0.38)$ | 1524.4 | 1524 ± 10 |
| τ | 0.0529 | 0.0536 ± 0.0077 | $\langle d^2 \rangle^{1/2}$ | 2.4416 | 2.443 ± 0.024 | $H(0.51)$ | 89.573 | 89.55 ± 0.30 |
| w_0 | -1.0268 | -1.029 ± 0.034 | z_{re} | 7.57 | 7.62 ± 0.78 | $D_{\mathrm{M}}(0.51)$ | 1976.6 | 1977 ± 11 |
| $\ln(10^{10}A_{\mathrm{s}})$ | 3.0408 | 3.041 ± 0.015 | 10^9A_{s} | 2.0921 | 2.093 ± 0.031 | $H(0.61)$ | 95.124 | 95.09 ± 0.31 |
| n_{s} | 0.96562 | 0.9649 ± 0.0043 | $10^9A_{\mathrm{s}}e^{-2\tau}$ | 1.8819 | 1.880 ± 0.011 | $D_{\mathrm{M}}(0.61)$ | 2301.5 | 2301 ± 12 |
| y_{cal} | 1.00071 | 1.0006 ± 0.0025 | D_{40} | 1227.9 | 1229 ± 12 | $H(2.33)$ | 235.77 | 235.66 ± 0.68 |
| A_{217}^{CIB} | 49.4 | 48 ± 7 | D_{220} | 5721.3 | 5721 ± 40 | $D_{\mathrm{M}}(2.33)$ | 5766.4 | 5768 ± 12 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | 0.23 | — | D_{810} | 2538.9 | 2536 ± 13 | $f\sigma_8(0.15)$ | 0.4595 | 0.4593 ± 0.0078 |
| A_{143}^{tSZ} | 7.00 | 5.1 ± 2.0 | D_{1420} | 816.4 | 815.1 ± 5.1 | $\sigma_8(0.15)$ | 0.7553 | 0.756 ± 0.011 |
| A_{100}^{PS} | 257.6 | 263 ± 28 | D_{2000} | 230.30 | 229.8 ± 1.8 | $f\sigma_8(0.38)$ | 0.4800 | 0.4801 ± 0.0090 |
| A_{143}^{PS} | 48.0 | 49 ± 8 | $n_{\mathrm{s},0.002}$ | 0.96562 | 0.9649 ± 0.0043 | $\sigma_8(0.38)$ | 0.6696 | 0.6698 ± 0.0097 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 44.2 | 43 ± 9 | Y_{P} | 0.245328 | $0.245314^{+0.000093}_{-0.000076}$ | $f\sigma_8(0.51)$ | 0.4792 | 0.4793 ± 0.0092 |
| A_{217}^{PS} | 118.1 | 115 ± 10 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.246654 | $0.246640^{+0.000093}_{-0.000076}$ | $\sigma_8(0.51)$ | 0.6265 | 0.6268 ± 0.0089 |
| A^{kSZ} | 0.03 | < 4.90 | $10^5D/H$ | 2.6168 | 2.622 ± 0.038 | $f\sigma_8(0.61)$ | 0.4744 | 0.4746 ± 0.0092 |
| $A_{100}^{\mathrm{dustTT}}$ | 8.81 | 8.9 ± 1.8 | Age/Gyr | 13.7949 | 13.798 ± 0.029 | $\sigma_8(0.61)$ | 0.5961 | 0.5963 ± 0.0084 |
| $A_{143}^{\mathrm{dustTT}}$ | 10.80 | 10.7 ± 1.8 | z_* | 1090.097 | 1090.12 ± 0.31 | $f\sigma_8(2.33)$ | 0.30054 | 0.3006 ± 0.0042 |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 19.22 | 18.3 ± 3.3 | r_* | 144.649 | 144.69 ± 0.31 | $\sigma_8(2.33)$ | 0.30915 | 0.3092 ± 0.0036 |
| $A_{217}^{\mathrm{dustTT}}$ | 94.3 | 93.3 ± 7.4 | $100\theta_*$ | 1.041162 | 1.04110 ± 0.00042 | $\chi_{\mathrm{lensing}}^2$ | 8.770 | 9.26 ± 0.76 |
| c_{100} | 0.99967 | 0.99962 ± 0.00062 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.8931 | 13.898 ± 0.030 | χ_{small}^2 | 395.89 | 397.0 ± 1.7 |
| c_{217} | 0.99823 | 0.99825 ± 0.00063 | z_{drag} | 1059.513 | 1059.46 ± 0.45 | χ_{lowl}^2 | 23.14 | 23.35 ± 0.88 |
| H_0 | 68.16 | 68.21 ± 0.83 | r_{drag} | 147.371 | 147.42 ± 0.34 | χ_{plik}^2 | 759.25 | 771.2 ± 5.2 |
| Ω_{Λ} | 0.6933 | 0.6938 ± 0.0077 | k_{D} | 0.140447 | 0.14037 ± 0.00043 | χ_{JLA}^2 | 1034.712 | 1035.40 ± 0.96 |
| Ω_{m} | 0.3067 | 0.3062 ± 0.0077 | $100\theta_{\mathrm{D}}$ | 0.161005 | 0.16104 ± 0.00026 | $\chi_{6\mathrm{DF}}^2$ | 0.0018 | 0.048 ± 0.067 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14249 | 0.1424 ± 0.0012 | z_{eq} | 3389.7 | 3387 ± 29 | χ_{MGS}^2 | 1.54 | 1.66 ± 0.60 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09712 | 0.0971 ± 0.0015 | k_{eq} | 0.010346 | 0.010337 ± 0.000088 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.36 | 4.8 ± 1.2 |
| σ_8 | 0.8171 | 0.817 ± 0.012 | $100\theta_{\mathrm{eq}}$ | 0.8151 | 0.8156 ± 0.0054 | χ_{prior}^2 | 1.36 | 7.3 ± 3.7 |
| S_8 | 0.8262 | 0.825 ± 0.012 | $100\theta_{\mathrm{s,eq}}$ | 0.45045 | 0.4507 ± 0.0028 | χ_{CMB}^2 | 1187.1 | 1200.8 ± 5.4 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4525 | 0.4521 ± 0.0067 | $H(0.15)$ | 73.16 | 73.18 ± 0.54 | χ_{BAO}^2 | 5.90 | 6.5 ± 1.1 |

Best-fit $\chi_{\mathrm{eff}}^2 = 2229.02$; $\Delta\chi_{\mathrm{eff}}^2 = -0.69$; $\bar{\chi}_{\mathrm{eff}}^2 = 2249.95$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.18$; $R - 1 = 0.00823$
 χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.01) MGS: 1.54 (Δ 0.20) DR12BAO: 4.36 (Δ 0.33) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.77 (Δ -0.11) small_100x143_offlike5_EE_Aplanck 395.89 (Δ -0.48) commander_dx12_v3.2_29: 23.14 (Δ 0.33) plik_rd12_HM_v22.TT: 759.25 (Δ -0.53) SN - JLA Pantheon18: 1034.71 (Δ -0.24)

17.19 base_w_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02218 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.990 ± 0.016 | $D_M(0.38)$ | 1524 ± 10 |
| $\Omega_c h^2$ | 0.1195 ± 0.0015 | $r_{\text{drag}} h$ | 100.5 ± 1.2 | $H(0.51)$ | 89.56 ± 0.33 |
| $100\theta_{\text{MC}}$ | 1.04092 ± 0.00043 | $\langle d^2 \rangle^{1/2}$ | 2.443 ± 0.033 | $D_M(0.51)$ | 1977 ± 12 |
| τ | $0.0546^{+0.0048}_{-0.0084}$ | z_{re} | $7.72^{+0.55}_{-0.83}$ | $H(0.61)$ | 95.11 ± 0.35 |
| w_0 | -1.026 ± 0.037 | $10^9 A_s$ | $2.097^{+0.024}_{-0.034}$ | $D_M(0.61)$ | 2302 ± 12 |
| $\ln(10^{10} A_s)$ | $3.043^{+0.012}_{-0.016}$ | $10^9 A_s e^{-2\tau}$ | 1.880 ± 0.012 | $H(2.33)$ | 235.65 ± 0.75 |
| n_s | 0.9653 ± 0.0047 | D_{40} | 1228 ± 13 | $D_M(2.33)$ | 5768 ± 12 |
| y_{cal} | 1.0005 ± 0.0025 | D_{220} | 5719 ± 41 | $f\sigma_8(0.15)$ | 0.459 ± 0.011 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2536 ± 14 | $\sigma_8(0.15)$ | 0.755 ± 0.014 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 815.0 ± 5.1 | $f\sigma_8(0.38)$ | 0.480 ± 0.012 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 229.8 ± 1.8 | $\sigma_8(0.38)$ | 0.670 ± 0.012 |
| A_{100}^{PS} | 263 ± 28 | $n_{s,0.002}$ | 0.9653 ± 0.0047 | $f\sigma_8(0.51)$ | 0.479 ± 0.012 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.245315^{+0.000094}_{-0.000076}$ | $\sigma_8(0.51)$ | 0.627 ± 0.011 |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | $0.246641^{+0.000094}_{-0.000076}$ | $f\sigma_8(0.61)$ | 0.474 ± 0.012 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.622 ± 0.038 | $\sigma_8(0.61)$ | 0.596 ± 0.010 |
| A^{kSZ} | < 4.83 | Age/Gyr | 13.799 ± 0.029 | $f\sigma_8(2.33)$ | 0.3006 ± 0.0050 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | z_* | 1090.11 ± 0.33 | $\sigma_8(2.33)$ | 0.3092 ± 0.0043 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.72 ± 0.37 | f_{2000}^{143} | 31.0 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04113 ± 0.00043 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| A_{217}^{dustTT} | 93.4 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.900 ± 0.035 | f_{2000}^{217} | 108.0 ± 1.9 |
| c_{100} | 0.99962 ± 0.00061 | z_{drag} | 1059.46 ± 0.45 | χ_{simall}^2 | 396.9 ± 1.8 |
| c_{217} | 0.99825 ± 0.00063 | r_{drag} | 147.45 ± 0.39 | χ_{lowl}^2 | 23.3 ± 1.0 |
| H_0 | 68.16 ± 0.83 | k_{D} | 0.14035 ± 0.00047 | χ_{plik}^2 | 771.4 ± 5.4 |
| Ω_{Λ} | 0.6936 ± 0.0078 | $100\theta_{\text{D}}$ | 0.16104 ± 0.00026 | χ_{JLA}^2 | 1035.42 ± 0.99 |
| Ω_{m} | 0.3064 ± 0.0078 | z_{eq} | 3385 ± 35 | $\chi_{6\text{DF}}^2$ | 0.049 ± 0.068 |
| $\Omega_{\text{m}} h^2$ | 0.1423 ± 0.0015 | k_{eq} | 0.01033 ± 0.00011 | χ_{MGS}^2 | 1.65 ± 0.61 |
| $\Omega_{\text{m}} h^3$ | 0.0970 ± 0.0016 | $100\theta_{\text{eq}}$ | 0.8160 ± 0.0066 | χ_{DR12BAO}^2 | 4.8 ± 1.4 |
| σ_8 | 0.817 ± 0.015 | $100\theta_{\text{s,eq}}$ | 0.4509 ± 0.0034 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | 0.825 ± 0.016 | $H(0.15)$ | 73.16 ± 0.54 | χ_{BAO}^2 | 6.5 ± 1.3 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4521 ± 0.0090 | $D_M(0.15)$ | 637.6 ± 6.1 | χ_{CMB}^2 | 1191.6 ± 5.4 |
| $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.608 ± 0.011 | $H(0.38)$ | 82.96 ± 0.34 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2240.85; R - 1 = 0.00444$$

17.20 **base_w_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5**

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|------------------------------------|------------------------------------|-----------------------------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02219 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.990 ± 0.011 | $D_{\mathrm{M}}(0.38)$ | 1524 ± 10 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1195 ± 0.0012 | $r_{\mathrm{drag}}h$ | 100.6 ± 1.2 | $H(0.51)$ | 89.56 ± 0.30 |
| $100\theta_{\mathrm{MC}}$ | 1.04091 ± 0.00043 | $\langle d^2 \rangle^{1/2}$ | 2.444 ± 0.024 | $D_{\mathrm{M}}(0.51)$ | 1976 ± 11 |
| τ | $0.0548^{+0.0051}_{-0.0080}$ | z_{re} | $7.74^{+0.56}_{-0.79}$ | $H(0.61)$ | 95.11 ± 0.31 |
| w_0 | -1.028 ± 0.033 | $10^9 A_{\mathrm{s}}$ | $2.098^{+0.023}_{-0.031}$ | $D_{\mathrm{M}}(0.61)$ | 2301 ± 12 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.043^{+0.011}_{-0.015}$ | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.880 ± 0.011 | $H(2.33)$ | 235.64 ± 0.67 |
| n_{s} | 0.9651 ± 0.0043 | D_{40} | 1229 ± 12 | $D_{\mathrm{M}}(2.33)$ | 5768 ± 12 |
| y_{cal} | 1.0006 ± 0.0025 | D_{220} | 5721 ± 40 | $f\sigma_8(0.15)$ | 0.4593 ± 0.0078 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2536 ± 13 | $\sigma_8(0.15)$ | 0.756 ± 0.011 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{1420} | 815.1 ± 5.1 | $f\sigma_8(0.38)$ | 0.4801 ± 0.0091 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 229.8 ± 1.8 | $\sigma_8(0.38)$ | 0.6701 ± 0.0097 |
| A_{100}^{PS} | 263 ± 28 | $n_{\mathrm{s},0.002}$ | 0.9651 ± 0.0043 | $f\sigma_8(0.51)$ | 0.4793 ± 0.0093 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.245317^{+0.000092}_{-0.000075}$ | $\sigma_8(0.51)$ | 0.6270 ± 0.0089 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43 ± 9 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246643^{+0.000092}_{-0.000075}$ | $f\sigma_8(0.61)$ | 0.4745 ± 0.0092 |
| A_{217}^{PS} | 115 ± 10 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.621 ± 0.038 | $\sigma_8(0.61)$ | 0.5966 ± 0.0083 |
| A^{kSZ} | < 4.90 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.798 ± 0.029 | $f\sigma_8(2.33)$ | 0.3008 ± 0.0042 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | z_* | 1090.11 ± 0.31 | $\sigma_8(2.33)$ | 0.3094 ± 0.0036 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.7 ± 1.8 | r_* | 144.71 ± 0.31 | f_{2000}^{143} | 31.0 ± 2.9 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04111 ± 0.00042 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.4 ± 7.3 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.900 ± 0.030 | f_{2000}^{217} | 108.0 ± 1.9 |
| c_{100} | 0.99962 ± 0.00062 | z_{drag} | 1059.47 ± 0.44 | $\chi_{\mathrm{lensing}}^2$ | 9.24 ± 0.74 |
| c_{217} | 0.99825 ± 0.00062 | r_{drag} | 147.44 ± 0.33 | χ_{simall}^2 | 396.9 ± 1.7 |
| H_0 | 68.20 ± 0.82 | k_{D} | 0.14036 ± 0.00043 | χ_{lowl}^2 | 23.34 ± 0.88 |
| Ω_{Λ} | 0.6939 ± 0.0077 | $100\theta_{\mathrm{D}}$ | 0.16103 ± 0.00026 | χ_{plik}^2 | 771.1 ± 5.2 |
| Ω_{m} | 0.3061 ± 0.0077 | z_{eq} | 3385 ± 28 | χ_{JLA}^2 | 1035.38 ± 0.93 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1423 ± 0.0012 | k_{eq} | 0.010332 ± 0.000087 | $\chi_{6\mathrm{DF}}^2$ | 0.047 ± 0.065 |
| $\Omega_{\mathrm{m}}h^3$ | 0.0970 ± 0.0015 | $100\theta_{\mathrm{eq}}$ | 0.8159 ± 0.0053 | χ_{MGS}^2 | 1.67 ± 0.60 |
| σ_8 | 0.818 ± 0.012 | $100\theta_{\mathrm{s,eq}}$ | 0.4509 ± 0.0027 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.7 ± 1.2 |
| S_8 | 0.826 ± 0.012 | $H(0.15)$ | 73.18 ± 0.53 | χ_{prior}^2 | 7.3 ± 3.7 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4522 ± 0.0067 | $D_{\mathrm{M}}(0.15)$ | 637.3 ± 6.1 | χ_{CMB}^2 | 1200.6 ± 5.4 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6080 ± 0.0080 | $H(0.38)$ | 82.97 ± 0.32 | χ_{BAO}^2 | 6.5 ± 1.1 |

$\bar{\chi}_{\mathrm{eff}}^2 = 2249.69$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.06$; $R - 1 = 0.00980$

17.21 base_w_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022402 | 0.02239 ± 0.00014 | σ_8 | 0.8195 | 0.819 ± 0.013 | $D_M(0.15)$ | 635.7 | 636.3 ± 6.0 |
| $\Omega_c h^2$ | 0.11974 | 0.1197 ± 0.0012 | S_8 | 0.8269 | 0.827 ± 0.013 | $H(0.38)$ | 83.118 | 83.09 ± 0.28 |
| $100\theta_{MC}$ | 1.040938 | 1.04096 ± 0.00030 | $\sigma_8 \Omega_m^{0.5}$ | 0.4529 | 0.4529 ± 0.0072 | $D_M(0.38)$ | 1520.7 | 1522 ± 10 |
| τ | 0.0545 | 0.0549 ± 0.0078 | $\sigma_8 \Omega_m^{0.25}$ | 0.6092 | 0.6089 ± 0.0090 | $H(0.51)$ | 89.707 | 89.69 ± 0.25 |
| w_0 | -1.0300 | -1.028 ± 0.033 | $\sigma_8/h^{0.5}$ | 0.9911 | 0.991 ± 0.013 | $D_M(0.51)$ | 1972.2 | 1973 ± 11 |
| $\ln(10^{10} A_s)$ | 3.0451 | 3.045 ± 0.016 | $r_{drag} h$ | 100.60 | 100.5 ± 1.2 | $H(0.61)$ | 95.250 | 95.25 ± 0.27 |
| n_s | 0.96644 | 0.9660 ± 0.0040 | $\langle d^2 \rangle^{1/2}$ | 2.4455 | 2.446 ± 0.028 | $D_M(0.61)$ | 2296.6 | 2298 ± 11 |
| y_{cal} | 1.00092 | 1.0006 ± 0.0025 | z_{re} | 7.68 | 7.71 ± 0.79 | $H(2.33)$ | 235.98 | 236.01 ± 0.61 |
| A_{217}^{CIB} | 47.2 | 47 ± 7 | $10^9 A_s$ | 2.1012 | 2.101 ± 0.034 | $D_M(2.33)$ | 5758.2 | 5758.9 ± 8.8 |
| $\xi^{tSZ \times CIB}$ | 0.42 | — | $10^9 A_s e^{-2\tau}$ | 1.8844 | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4602 | 0.4600 ± 0.0084 |
| A_{143}^{tSZ} | 7.25 | $5.5_{-1.9}^{+2.1}$ | D_{40} | 1229.0 | 1229 ± 12 | $\sigma_8(0.15)$ | 0.7577 | 0.757 ± 0.012 |
| A_{100}^{PS} | 250.0 | 258 ± 28 | D_{220} | 5738.5 | 5734 ± 38 | $f\sigma_8(0.38)$ | 0.4812 | 0.4808 ± 0.0097 |
| A_{143}^{PS} | 47.2 | 46 ± 8 | D_{810} | 2542.6 | 2539 ± 13 | $\sigma_8(0.38)$ | 0.6718 | 0.671 ± 0.011 |
| $A_{143 \times 217}^{PS}$ | 47.4 | 42 ± 9 | D_{1420} | 818.90 | 817.5 ± 4.8 | $f\sigma_8(0.51)$ | 0.4805 | 0.4800 ± 0.0099 |
| A_{217}^{PS} | 119.8 | 115 ± 10 | D_{2000} | 231.47 | 231.0 ± 1.6 | $\sigma_8(0.51)$ | 0.6286 | 0.6279 ± 0.0099 |
| A^{kSZ} | 0.00 | < 4.15 | $n_{s,0.002}$ | 0.96644 | 0.9660 ± 0.0040 | $f\sigma_8(0.61)$ | 0.4758 | 0.4753 ± 0.0098 |
| A_{100}^{dustTT} | 8.82 | 8.9 ± 1.8 | Y_P | 0.245408 | $0.245401_{-0.000050}^{+0.000057}$ | $\sigma_8(0.61)$ | 0.5981 | 0.5974 ± 0.0093 |
| A_{143}^{dustTT} | 10.97 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246735 | $0.246728_{-0.000051}^{+0.000058}$ | $f\sigma_8(2.33)$ | 0.30157 | 0.3012 ± 0.0047 |
| $A_{143 \times 217}^{dustTT}$ | 19.69 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5796 | 2.582 ± 0.026 | $\sigma_8(2.33)$ | 0.31016 | 0.3098 ± 0.0041 |
| A_{217}^{dustTT} | 95.0 | 93.7 ± 7.3 | Age/Gyr | 13.7741 | 13.777 ± 0.022 | f_{2000}^{143} | 28.75 | 29.3 ± 2.7 |
| A_{100}^{dustTE} | 0.1136 | 0.114 ± 0.038 | z_* | 1089.856 | 1089.87 ± 0.24 | $f_{2000}^{143 \times 217}$ | 31.96 | 32.1 ± 1.8 |
| $A_{100 \times 143}^{dustTE}$ | 0.1353 | 0.135 ± 0.029 | r_* | 144.474 | 144.49 ± 0.26 | f_{2000}^{217} | 106.67 | 106.9 ± 1.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.482 | 0.481 ± 0.085 | $100\theta_*$ | 1.041124 | 1.04114 ± 0.00029 | χ_{small}^2 | 396.06 | 397.2 ± 2.0 |
| A_{143}^{dustTE} | 0.225 | 0.225 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 13.8768 | 13.878 ± 0.025 | χ_{lowl}^2 | 23.11 | 23.27 ± 0.86 |
| $A_{143 \times 217}^{dustTE}$ | 0.665 | 0.666 ± 0.080 | z_{drag} | 1060.009 | 1059.96 ± 0.29 | χ_{plik}^2 | 2344.5 | 2359.3 ± 5.8 |
| A_{217}^{dustTE} | 2.083 | 2.08 ± 0.26 | r_{drag} | 147.123 | 147.14 ± 0.27 | χ_{JLA}^2 | 1034.741 | 1035.39 ± 0.96 |
| c_{100} | 0.99971 | 0.99967 ± 0.00061 | k_D | 0.140855 | 0.14083 ± 0.00030 | χ_{6DF}^2 | 0.0002 | 0.048 ± 0.066 |
| c_{217} | 0.99818 | 0.99819 ± 0.00062 | $100\theta_D$ | 0.160727 | 0.16075 ± 0.00017 | χ_{MGS}^2 | 1.61 | 1.64 ± 0.60 |
| H_0 | 68.38 | 68.31 ± 0.82 | z_{eq} | 3396.7 | 3396 ± 26 | $\chi_{DR12BAO}^2$ | 4.35 | 4.8 ± 1.2 |
| Ω_Λ | 0.6946 | 0.6939 ± 0.0076 | k_{eq} | 0.010367 | 0.010366 ± 0.000080 | χ_{prior}^2 | 1.86 | 11.5 ± 4.5 |
| Ω_m | 0.3054 | 0.3061 ± 0.0076 | $100\theta_{eq}$ | 0.81438 | 0.8145 ± 0.0049 | χ_{BAO}^2 | 5.96 | 6.5 ± 1.0 |
| $\Omega_m h^2$ | 0.14279 | 0.1428 ± 0.0011 | $100\theta_{s,eq}$ | 0.44992 | 0.4500 ± 0.0025 | χ_{CMB}^2 | 2763.7 | 2779.8 ± 5.8 |
| $\Omega_m h^3$ | 0.09763 | 0.0975 ± 0.0014 | $H(0.15)$ | 73.34 | 73.30 ± 0.52 | | | |

Best-fit $\chi_{eff}^2 = 3806.25$; $\bar{\chi}_{eff}^2 = 3833.20$; $R - 1 = 0.00703$

χ_{eff}^2 : BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 4.35 CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.06 commander_dx12_v3_2_29: 23.11 plik_rd12_HM_v22b_TTTEEE: 2344.51 SN - JLA Pantheon18: 1034.74

17.22 **base_w_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing**

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|--------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022416 | 0.02240 ± 0.00014 | $\Omega_m h^3$ | 0.09767 | 0.0975 ± 0.0013 | $100\theta_{s,eq}$ | 0.45013 | 0.4501 ± 0.0022 |
| $\Omega_c h^2$ | 0.11965 | 0.1197 ± 0.0010 | σ_8 | 0.8197 | 0.818 ± 0.011 | $H(0.15)$ | 73.40 | 73.32 ± 0.52 |
| $100\theta_{MC}$ | 1.040982 | 1.04096 ± 0.00029 | S_8 | 0.8260 | 0.826 ± 0.010 | $D_M(0.15)$ | 635.2 | 636.1 ± 5.9 |
| τ | 0.0551 | 0.0550 ± 0.0074 | $\sigma_8 \Omega_m^{0.5}$ | 0.4524 | 0.4524 ± 0.0057 | $H(0.38)$ | 83.158 | 83.11 ± 0.27 |
| w_0 | -1.0302 | -1.028 ± 0.031 | $\sigma_8 \Omega_m^{0.25}$ | 0.6090 | 0.6085 ± 0.0069 | $D_M(0.38)$ | 1519.6 | 1521.2 ± 9.9 |
| $\ln(10^{10} A_s)$ | 3.0459 | 3.045 ± 0.014 | $\sigma_8/h^{0.5}$ | 0.9908 | 0.990 ± 0.010 | $H(0.51)$ | 89.739 | 89.71 ± 0.23 |
| n_s | 0.96684 | 0.9659 ± 0.0038 | $r_{drag} h$ | 100.70 | 100.6 ± 1.2 | $D_M(0.51)$ | 1970.9 | 1973 ± 11 |
| y_{cal} | 1.00070 | 1.0006 ± 0.0025 | $\langle d^2 \rangle^{1/2}$ | 2.4445 | 2.445 ± 0.022 | $H(0.61)$ | 95.277 | 95.26 ± 0.25 |
| A_{217}^{CIB} | 46.6 | 47 ± 7 | z_{re} | 7.75 | 7.72 ± 0.74 | $D_M(0.61)$ | 2295.2 | 2297 ± 11 |
| $\xi^{tSZ \times CIB}$ | 0.56 | — | $10^9 A_s$ | 2.1029 | 2.101 ± 0.030 | $H(2.33)$ | 235.93 | 235.97 ± 0.58 |
| A_{143}^{tSZ} | 7.14 | $5.5_{-1.9}^{+2.1}$ | $10^9 A_s e^{-2\tau}$ | 1.8833 | 1.882 ± 0.011 | $D_M(2.33)$ | 5756.9 | 5758.4 ± 8.6 |
| A_{100}^{PS} | 249.5 | 258 ± 28 | D_{40} | 1227.8 | 1229 ± 11 | $f\sigma_8(0.15)$ | 0.4598 | 0.4596 ± 0.0066 |
| A_{143}^{PS} | 49.4 | 46 ± 8 | D_{220} | 5736.6 | 5735 ± 38 | $\sigma_8(0.15)$ | 0.7579 | 0.757 ± 0.010 |
| $A_{143 \times 217}^{PS}$ | 50.9 | 42 ± 9 | D_{810} | 2541.8 | 2539 ± 13 | $f\sigma_8(0.38)$ | 0.4810 | 0.4805 ± 0.0079 |
| A_{217}^{PS} | 120.9 | 115 ± 10 | D_{1420} | 818.80 | 817.5 ± 4.8 | $\sigma_8(0.38)$ | 0.6721 | 0.6709 ± 0.0091 |
| A^{kSZ} | 0.01 | < 4.16 | D_{2000} | 231.49 | 231.0 ± 1.6 | $f\sigma_8(0.51)$ | 0.4804 | 0.4797 ± 0.0082 |
| A_{100}^{dustTT} | 8.82 | 8.9 ± 1.9 | $n_{s,0.002}$ | 0.96684 | 0.9659 ± 0.0038 | $\sigma_8(0.51)$ | 0.6289 | 0.6278 ± 0.0085 |
| A_{143}^{dustTT} | 11.04 | 10.9 ± 1.8 | Y_P | 0.245413 | $0.245404_{-0.000050}^{+0.000056}$ | $f\sigma_8(0.61)$ | 0.4758 | 0.4750 ± 0.0082 |
| $A_{143 \times 217}^{dustTT}$ | 20.01 | 18.6 ± 3.3 | Y_P^{BBN} | 0.246740 | $0.246730_{-0.000050}^{+0.000056}$ | $\sigma_8(0.61)$ | 0.5984 | 0.5973 ± 0.0080 |
| A_{217}^{dustTT} | 95.2 | 93.7 ± 7.4 | $10^5 D/H$ | 2.5770 | 2.581 ± 0.025 | $f\sigma_8(2.33)$ | 0.30176 | 0.3012 ± 0.0040 |
| A_{100}^{dustTE} | 0.1143 | 0.114 ± 0.038 | Age/Gyr | 13.7710 | 13.776 ± 0.022 | $\sigma_8(2.33)$ | 0.31037 | 0.3098 ± 0.0035 |
| $A_{100 \times 143}^{dustTE}$ | 0.1347 | 0.135 ± 0.030 | z_* | 1089.831 | 1089.86 ± 0.23 | $\chi_{lensing}^2$ | 8.716 | 9.13 ± 0.63 |
| $A_{100 \times 217}^{dustTE}$ | 0.481 | 0.480 ± 0.086 | r_* | 144.488 | 144.50 ± 0.23 | χ_{small}^2 | 396.20 | 397.1 ± 1.8 |
| A_{143}^{dustTE} | 0.225 | 0.225 ± 0.055 | $100\theta_*$ | 1.041160 | 1.04114 ± 0.00029 | χ_{lowl}^2 | 23.06 | 23.27 ± 0.79 |
| $A_{143 \times 217}^{dustTE}$ | 0.663 | 0.664 ± 0.080 | $D_M(z_*)/Gpc$ | 13.8776 | 13.879 ± 0.022 | χ_{plik}^2 | 2344.7 | 2359.1 ± 5.6 |
| A_{217}^{dustTE} | 2.083 | 2.08 ± 0.27 | z_{drag} | 1060.009 | 1059.97 ± 0.29 | χ_{JLA}^2 | 1034.757 | 1035.36 ± 0.92 |
| c_{100} | 0.99974 | 0.99966 ± 0.00061 | r_{drag} | 147.135 | 147.15 ± 0.24 | χ_{6DF}^2 | 0.0000 | 0.046 ± 0.064 |
| c_{217} | 0.99819 | 0.99819 ± 0.00061 | k_D | 0.140856 | 0.14082 ± 0.00029 | χ_{MGS}^2 | 1.68 | 1.67 ± 0.59 |
| H_0 | 68.44 | 68.34 ± 0.81 | $100\theta_D$ | 0.160717 | 0.16074 ± 0.00017 | $\chi_{DR12BAO}^2$ | 4.23 | 4.7 ± 1.0 |
| Ω_Λ | 0.6953 | 0.6943 ± 0.0075 | z_{eq} | 3394.8 | 3395 ± 23 | χ_{prior}^2 | 1.67 | 11.6 ± 4.5 |
| Ω_m | 0.3047 | 0.3057 ± 0.0075 | k_{eq} | 0.010361 | 0.010362 ± 0.000071 | χ_{CMB}^2 | 2772.6 | 2788.6 ± 5.7 |
| $\Omega_m h^2$ | 0.14271 | 0.14271 ± 0.00097 | $100\theta_{eq}$ | 0.81479 | 0.8147 ± 0.0044 | χ_{BAO}^2 | 5.91 | 6.45 ± 0.92 |

Best-fit $\chi_{eff}^2 = 3814.98$; $\Delta\chi_{eff}^2 = -0.69$; $\bar{\chi}_{eff}^2 = 3841.96$; $\Delta\bar{\chi}_{eff}^2 = 0.11$; $R - 1 = 0.01118$
 χ_{eff}^2 : BAO - 6DF: 0.00 (Δ -0.02) MGS: 1.68 (Δ 0.40) DR12BAO: 4.23 (Δ -0.01) CMB - smicadx12_Dec5_ftl_mv2_ndclpp-p.teb.consext8: 8.72 (Δ -0.00) small_100x143_offlike5_EE_Aplanc. 396.20 (Δ -0.32) commander_dx12_v3.2_29: 23.06 (Δ 0.18) plik_rd12_HM_v22b_TTTEEE: 2344.67 (Δ -0.60) SN - JLA Pantheon18: 1034.76 (Δ -0.22)

17.23 base_w_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02239 ± 0.00014 | σ_8 | 0.819 ± 0.013 | $D_M(0.15)$ | 636.3 ± 6.0 |
| $\Omega_c h^2$ | 0.1197 ± 0.0012 | S_8 | 0.827 ± 0.013 | $H(0.38)$ | 83.10 ± 0.28 |
| $100\theta_{MC}$ | 1.04096 ± 0.00030 | $\sigma_8 \Omega_m^{0.5}$ | 0.4532 ± 0.0071 | $D_M(0.38)$ | 1522 ± 10 |
| τ | $0.0559^{+0.0054}_{-0.0083}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6093 ± 0.0088 | $H(0.51)$ | 89.70 ± 0.25 |
| w_0 | -1.028 ± 0.033 | $\sigma_8/h^{0.5}$ | 0.991 ± 0.013 | $D_M(0.51)$ | 1973 ± 11 |
| $\ln(10^{10} A_s)$ | $3.047^{+0.012}_{-0.016}$ | $r_{\text{drag}} h$ | 100.5 ± 1.2 | $H(0.61)$ | 95.25 ± 0.27 |
| n_s | 0.9660 ± 0.0040 | $\langle d^2 \rangle^{1/2}$ | 2.448 ± 0.028 | $D_M(0.61)$ | 2298 ± 11 |
| y_{cal} | 1.0006 ± 0.0025 | z_{re} | $7.82^{+0.60}_{-0.81}$ | $H(2.33)$ | 236.00 ± 0.61 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.105^{+0.026}_{-0.035}$ | $D_M(2.33)$ | 5758.7 ± 8.8 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4603 ± 0.0083 |
| A_{143}^{tSZ} | 5.5 ± 2.0 | D_{40} | 1229 ± 12 | $\sigma_8(0.15)$ | 0.757 ± 0.012 |
| A_{100}^{PS} | 258 ± 28 | D_{220} | 5734 ± 38 | $f\sigma_8(0.38)$ | 0.4811 ± 0.0096 |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2539 ± 13 | $\sigma_8(0.38)$ | 0.672 ± 0.011 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.5 ± 4.8 | $f\sigma_8(0.51)$ | 0.4804 ± 0.0098 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.0 ± 1.6 | $\sigma_8(0.51)$ | 0.6284 ± 0.0098 |
| A^{kSZ} | < 4.13 | $n_{s,0.002}$ | 0.9660 ± 0.0040 | $f\sigma_8(0.61)$ | 0.4756 ± 0.0098 |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245402^{+0.000057}_{-0.000050}$ | $\sigma_8(0.61)$ | 0.5978 ± 0.0092 |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246729^{+0.000057}_{-0.000050}$ | $f\sigma_8(2.33)$ | 0.3014 ± 0.0046 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.3 | 10^5D/H | 2.582 ± 0.026 | $\sigma_8(2.33)$ | 0.3101 ± 0.0040 |
| A_{217}^{dustTT} | 93.7 ± 7.3 | Age/Gyr | 13.776 ± 0.022 | f_{2000}^{143} | 29.3 ± 2.7 |
| A_{100}^{dustTE} | 0.114 ± 0.038 | z_* | 1089.87 ± 0.24 | $f_{2000}^{143 \times 217}$ | 32.0 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | r_* | 144.49 ± 0.26 | f_{2000}^{217} | 106.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 ± 0.085 | $100\theta_*$ | 1.04114 ± 0.00029 | χ_{simall}^2 | 397.2 ± 2.0 |
| A_{143}^{dustTE} | 0.225 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 13.878 ± 0.025 | χ_{lowl}^2 | 23.28 ± 0.86 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 ± 0.080 | z_{drag} | 1059.96 ± 0.29 | χ_{plik}^2 | 2359.1 ± 5.8 |
| A_{217}^{dustTE} | 2.08 ± 0.26 | r_{drag} | 147.14 ± 0.27 | χ_{JLA}^2 | 1035.39 ± 0.96 |
| c_{100} | 0.99966 ± 0.00061 | k_D | 0.14083 ± 0.00030 | $\chi_{6\text{DF}}^2$ | 0.047 ± 0.066 |
| c_{217} | 0.99819 ± 0.00062 | $100\theta_D$ | 0.16075 ± 0.00017 | χ_{MGS}^2 | 1.64 ± 0.60 |
| H_0 | 68.31 ± 0.82 | z_{eq} | 3396 ± 26 | χ_{DR12BAO}^2 | 4.8 ± 1.2 |
| Ω_Λ | 0.6940 ± 0.0076 | k_{eq} | 0.010365 ± 0.000080 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_m | 0.3060 ± 0.0076 | $100\theta_{\text{eq}}$ | 0.8146 ± 0.0049 | χ_{BAO}^2 | 6.5 ± 1.0 |
| $\Omega_m h^2$ | 0.1428 ± 0.0011 | $100\theta_{s,\text{eq}}$ | 0.4500 ± 0.0025 | χ_{CMB}^2 | 2779.6 ± 5.7 |
| $\Omega_m h^3$ | 0.0975 ± 0.0014 | $H(0.15)$ | 73.30 ± 0.52 | | |

$\bar{\chi}_{\text{eff}}^2 = 3832.98; R - 1 = 0.00746$

17.24 base_w_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02240 ± 0.00014 | σ_8 | 0.819 ± 0.011 | $D_M(0.15)$ | 636.1 ± 5.9 |
| $\Omega_c h^2$ | 0.1196 ± 0.0010 | S_8 | 0.826 ± 0.010 | $H(0.38)$ | 83.12 ± 0.26 |
| $100\theta_{MC}$ | 1.04097 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.4526 ± 0.0057 | $D_M(0.38)$ | 1521.1 ± 9.9 |
| τ | $0.0558^{+0.0055}_{-0.0077}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6087 ± 0.0069 | $H(0.51)$ | 89.72 ± 0.23 |
| w_0 | -1.027 ± 0.031 | $\sigma_8/h^{0.5}$ | 0.990 ± 0.010 | $D_M(0.51)$ | 1973 ± 11 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.012}_{-0.015}$ | $r_{\text{drag}} h$ | 100.6 ± 1.2 | $H(0.61)$ | 95.27 ± 0.24 |
| n_s | 0.9661 ± 0.0038 | $\langle d^2 \rangle^{1/2}$ | 2.446 ± 0.022 | $D_M(0.61)$ | 2297 ± 11 |
| y_{cal} | 1.0006 ± 0.0025 | z_{re} | $7.80^{+0.59}_{-0.76}$ | $H(2.33)$ | 235.96 ± 0.58 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.104^{+0.024}_{-0.031}$ | $D_M(2.33)$ | 5758.2 ± 8.5 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.011 | $f\sigma_8(0.15)$ | 0.4597 ± 0.0066 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1229 ± 11 | $\sigma_8(0.15)$ | 0.757 ± 0.010 |
| A_{100}^{PS} | 258 ± 28 | D_{220} | 5735 ± 38 | $f\sigma_8(0.38)$ | 0.4805 ± 0.0079 |
| A_{143}^{PS} | 45 ± 8 | D_{810} | 2539 ± 13 | $\sigma_8(0.38)$ | 0.6711 ± 0.0091 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 817.5 ± 4.8 | $f\sigma_8(0.51)$ | 0.4798 ± 0.0082 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.0 ± 1.6 | $\sigma_8(0.51)$ | 0.6280 ± 0.0084 |
| A^{kSZ} | < 4.13 | $n_{s,0.002}$ | 0.9661 ± 0.0038 | $f\sigma_8(0.61)$ | 0.4751 ± 0.0082 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | Y_P | $0.245405^{+0.000055}_{-0.000050}$ | $\sigma_8(0.61)$ | 0.5975 ± 0.0079 |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.8 | Y_P^{BBN} | $0.246731^{+0.000056}_{-0.000050}$ | $f\sigma_8(2.33)$ | 0.3013 ± 0.0040 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.3 | $10^5 \text{D}/\text{H}$ | 2.581 ± 0.025 | $\sigma_8(2.33)$ | 0.3100 ± 0.0035 |
| $A_{217}^{\text{dust}TT}$ | 93.7 ± 7.4 | Age/Gyr | 13.775 ± 0.022 | f_{2000}^{143} | 29.3 ± 2.7 |
| $A_{100}^{\text{dust}TE}$ | 0.114 ± 0.038 | z_* | 1089.85 ± 0.23 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.8 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.135 ± 0.029 | r_* | 144.51 ± 0.23 | f_{2000}^{217} | 106.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.480 ± 0.086 | $100\theta_*$ | 1.04115 ± 0.00029 | χ_{lensing}^2 | 9.11 ± 0.61 |
| $A_{143}^{\text{dust}TE}$ | 0.225 ± 0.055 | $D_M(z_*)/\text{Gpc}$ | 13.879 ± 0.022 | χ_{simall}^2 | 397.1 ± 1.8 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.664 ± 0.080 | z_{drag} | 1059.98 ± 0.29 | χ_{lowl}^2 | 23.27 ± 0.80 |
| $A_{217}^{\text{dust}TE}$ | 2.08 ± 0.27 | r_{drag} | 147.16 ± 0.24 | χ_{plik}^2 | 2359.0 ± 5.6 |
| c_{100} | 0.99966 ± 0.00061 | k_D | 0.14082 ± 0.00029 | χ_{JLA}^2 | 1035.36 ± 0.92 |
| c_{217} | 0.99819 ± 0.00061 | $100\theta_D$ | 0.16074 ± 0.00017 | $\chi_{6\text{DF}}^2$ | 0.046 ± 0.064 |
| H_0 | 68.33 ± 0.81 | z_{eq} | 3394 ± 23 | χ_{MGS}^2 | 1.67 ± 0.59 |
| Ω_Λ | 0.6943 ± 0.0075 | k_{eq} | 0.010359 ± 0.000070 | χ_{DR12BAO}^2 | 4.7 ± 1.0 |
| Ω_m | 0.3057 ± 0.0075 | $100\theta_{\text{eq}}$ | 0.8149 ± 0.0043 | χ_{prior}^2 | 11.6 ± 4.5 |
| $\Omega_m h^2$ | 0.14267 ± 0.00096 | $100\theta_{s,\text{eq}}$ | 0.4502 ± 0.0022 | χ_{CMB}^2 | 2788.4 ± 5.7 |
| $\Omega_m h^3$ | 0.0975 ± 0.0013 | $H(0.15)$ | 73.32 ± 0.52 | χ_{BAO}^2 | 6.42 ± 0.91 |

$$\bar{\chi}_{\text{eff}}^2 = 3841.79; \Delta\bar{\chi}_{\text{eff}}^2 = 0.05; R - 1 = 0.01215$$

18 w+wa

18.1 base_w_wa_plikHM_TT_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|----------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022172 | 0.02213 ± 0.00021 | $\sigma_8 \Omega_m^{0.25}$ | 0.6089 | 0.609 ± 0.014 | $H(0.38)$ | 84.71 | $84.8^{+1.2}_{-1.1}$ |
| $\Omega_c h^2$ | 0.12035 | 0.1206 ± 0.0019 | $\sigma_8/h^{0.5}$ | 0.9899 | 0.990 ± 0.020 | $D_M(0.38)$ | 1527.0 | 1527 ± 17 |
| $100\theta_{MC}$ | 1.040791 | 1.04078 ± 0.00046 | $r_{\text{drag}} h$ | 95.60 | $95.5^{+3.1}_{-4.1}$ | $H(0.51)$ | 91.42 | 91.4 ± 1.2 |
| τ | 0.0530 | 0.0516 ± 0.0081 | $\langle d^2 \rangle^{1/2}$ | 2.4660 | 2.469 ± 0.042 | $D_M(0.51)$ | 1969.8 | 1969 ± 18 |
| w_0 | -0.617 | $-0.59^{+0.29}_{-0.26}$ | z_{re} | 7.57 | $7.42^{+0.84}_{-0.75}$ | $H(0.61)$ | 96.82 | 96.8 ± 1.2 |
| w_a | -1.20 | -1.33 ± 0.79 | $10^9 A_s$ | 2.0932 | 2.089 ± 0.035 | $D_M(0.61)$ | 2288.5 | 2288 ± 18 |
| $\ln(10^{10} A_s)$ | 3.0413 | 3.039 ± 0.017 | $10^9 A_s e^{-2\tau}$ | 1.8827 | 1.884 ± 0.013 | $H(2.33)$ | 233.96 | $234.0^{+1.1}_{-1.3}$ |
| n_s | 0.9644 | 0.9630 ± 0.0053 | D_{40} | 1228.6 | 1232 ± 14 | $D_M(2.33)$ | 5754.1 | 5757 ± 14 |
| y_{cal} | 1.00010 | 1.0004 ± 0.0025 | D_{220} | 5710.0 | 5714 ± 41 | $f\sigma_8(0.15)$ | 0.4487 | 0.449 ± 0.014 |
| A_{217}^{CIB} | 48.3 | 48 ± 7 | D_{810} | 2536.0 | 2536 ± 14 | $\sigma_8(0.15)$ | 0.7361 | $0.736^{+0.023}_{-0.026}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.37 | — | D_{1420} | 815.1 | 814.4 ± 5.0 | $f\sigma_8(0.38)$ | 0.4595 | $0.460^{+0.020}_{-0.022}$ |
| A_{143}^{tSZ} | 6.99 | 5.1 ± 2.0 | D_{2000} | 230.03 | 229.7 ± 1.8 | $\sigma_8(0.38)$ | 0.6535 | $0.653^{+0.020}_{-0.023}$ |
| A_{100}^{PS} | 253.4 | 262 ± 28 | $n_{s,0.002}$ | 0.9644 | 0.9630 ± 0.0053 | $f\sigma_8(0.51)$ | 0.4597 | $0.460^{+0.020}_{-0.023}$ |
| A_{143}^{PS} | 49.9 | 49 ± 8 | Y_{P} | 0.245314 | $0.24529^{+0.00010}_{-0.000079}$ | $\sigma_8(0.51)$ | 0.6122 | $0.612^{+0.019}_{-0.021}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 48.0 | 44 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246641 | $0.24662^{+0.00010}_{-0.000080}$ | $f\sigma_8(0.61)$ | 0.4569 | $0.458^{+0.020}_{-0.022}$ |
| A_{217}^{PS} | 119.8 | 115 ± 10 | $10^5 D/H$ | 2.6233 | 2.631 ± 0.040 | $\sigma_8(0.61)$ | 0.5830 | $0.583^{+0.017}_{-0.019}$ |
| A^{kSZ} | 0.01 | < 4.70 | Age/Gyr | 13.7748 | 13.777 ± 0.035 | $f\sigma_8(2.33)$ | 0.2963 | $0.2960^{+0.0078}_{-0.0088}$ |
| A_{100}^{dustTT} | 8.90 | 8.9 ± 1.8 | z_* | 1090.201 | 1090.28 ± 0.37 | $\sigma_8(2.33)$ | 0.3014 | $0.3010^{+0.0078}_{-0.0090}$ |
| A_{143}^{dustTT} | 10.75 | 10.7 ± 1.8 | r_* | 144.493 | 144.47 ± 0.43 | f_{2000}^{143} | 30.14 | 31.0 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.42 | 18.3 ± 3.3 | $100\theta_*$ | 1.041002 | 1.04099 ± 0.00045 | $f_{2000}^{143 \times 217}$ | 33.07 | 33.4 ± 2.0 |
| A_{217}^{dustTT} | 94.6 | 93.5 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.8802 | 13.878 ± 0.041 | f_{2000}^{217} | 107.46 | 108.0 ± 1.9 |
| c_{100} | 0.99965 | 0.99960 ± 0.00061 | z_{drag} | 1059.513 | 1059.42 ± 0.44 | χ_{small}^2 | 395.89 | 396.9 ± 1.7 |
| c_{217} | 0.99825 | 0.99825 ± 0.00062 | r_{drag} | 147.220 | 147.21 ± 0.44 | χ_{lowl}^2 | 23.46 | 23.8 ± 1.2 |
| H_0 | 64.94 | $64.9^{+2.1}_{-2.8}$ | k_{D} | 0.14058 | 0.14055 ± 0.00050 | χ_{plik}^2 | 758.0 | 770.5 ± 5.3 |
| Ω_Λ | 0.6605 | 0.658 ± 0.026 | $100\theta_{\text{D}}$ | 0.161005 | 0.16106 ± 0.00026 | $\chi_{6\text{DF}}^2$ | 0.316 | 0.56 ± 0.60 |
| Ω_{m} | 0.3395 | 0.342 ± 0.026 | z_{eq} | 3405.7 | 3410 ± 42 | χ_{MGS}^2 | 0.63 | 0.89 ± 0.88 |
| $\Omega_{\text{m}} h^2$ | 0.14316 | 0.1433 ± 0.0018 | k_{eq} | 0.010395 | 0.01041 ± 0.00013 | χ_{DR12BAO}^2 | 3.49 | 5.0 ± 1.5 |
| $\Omega_{\text{m}} h^3$ | 0.09297 | $0.0930^{+0.0033}_{-0.0041}$ | $100\theta_{\text{eq}}$ | 0.8120 | 0.8113 ± 0.0079 | χ_{prior}^2 | 1.32 | 7.2 ± 3.6 |
| σ_8 | 0.7977 | $0.798^{+0.024}_{-0.027}$ | $100\theta_{s,\text{eq}}$ | 0.44886 | 0.4485 ± 0.0041 | χ_{BAO}^2 | 4.43 | 6.4 ± 1.9 |
| S_8 | 0.8486 | 0.850 ± 0.022 | $H(0.15)$ | 73.09 | 73.14 ± 0.92 | χ_{CMB}^2 | 1177.3 | 1191.2 ± 5.5 |
| $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4648 | 0.466 ± 0.012 | $D_M(0.15)$ | 651.6 | 652 ± 14 | | | |

Best-fit $\chi_{\text{eff}}^2 = 1183.08$; $\Delta\chi_{\text{eff}}^2 = -2.67$; $\bar{\chi}_{\text{eff}}^2 = 1204.85$; $\Delta\bar{\chi}_{\text{eff}}^2 = -1.18$; $R - 1 = 0.00724$

χ_{eff}^2 : BAO - 6DF: 0.32 (Δ 0.29) MGS: 0.62 (Δ -0.65) DR12BAO: 3.49 (Δ -0.70) CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.89 (Δ 0.00) commander_dx12_v3_2_29: 23.46 (Δ 0.64) plik_rd12_HM_v22_TT: 757.98 (Δ -2.12)

18.2 base_w_wa_plikHM_TT_lowl_lowE_BAO_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|------------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022196 | 0.02216 ± 0.00020 | $\sigma_8 \Omega_m^{0.25}$ | 0.6047 | 0.6046 ± 0.0098 | $H(0.38)$ | 84.55 | 84.7 ± 1.1 |
| $\Omega_c h^2$ | 0.11973 | 0.1199 ± 0.0014 | $\sigma_8/h^{0.5}$ | 0.9841 | 0.984 ± 0.014 | $D_M(0.38)$ | 1527.2 | 1528 ± 17 |
| $100\theta_{MC}$ | 1.040926 | 1.04083 ± 0.00044 | $r_{\text{drag}} h$ | 96.12 | $95.7^{+3.3}_{-4.1}$ | $H(0.51)$ | 91.30 | 91.5 ± 1.2 |
| τ | 0.0525 | 0.0512 ± 0.0080 | $\langle d^2 \rangle^{1/2}$ | 2.4508 | 2.455 ± 0.027 | $D_M(0.51)$ | 1970.8 | 1970 ± 17 |
| w_0 | -0.662 | -0.61 ± 0.27 | z_{re} | 7.51 | 7.36 ± 0.82 | $H(0.61)$ | 96.75 | 96.9 ± 1.2 |
| w_a | -1.01 | -1.21 ± 0.76 | $10^9 A_s$ | 2.0882 | 2.084 ± 0.032 | $D_M(0.61)$ | 2289.8 | 2289 ± 18 |
| $\ln(10^{10} A_s)$ | 3.0389 | 3.037 ± 0.015 | $10^9 A_s e^{-2\tau}$ | 1.8801 | 1.881 ± 0.011 | $H(2.33)$ | 234.01 | $233.9^{+1.1}_{-1.4}$ |
| n_s | 0.96570 | 0.9641 ± 0.0045 | D_{40} | 1225.7 | 1229 ± 12 | $D_M(2.33)$ | 5752.4 | 5755 ± 14 |
| y_{cal} | 1.00014 | 1.0003 ± 0.0024 | D_{220} | 5712.1 | 5715 ± 41 | $f\sigma_8(0.15)$ | 0.4463 | 0.445 ± 0.012 |
| A_{217}^{CIB} | 48.8 | 48 ± 7 | D_{810} | 2535.8 | 2535 ± 13 | $\sigma_8(0.15)$ | 0.7336 | $0.732^{+0.022}_{-0.024}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.30 | — | D_{1420} | 815.40 | 814.4 ± 5.0 | $f\sigma_8(0.38)$ | 0.4577 | $0.456^{+0.019}_{-0.021}$ |
| A_{143}^{tSZ} | 7.06 | 5.1 ± 2.0 | D_{2000} | 230.09 | 229.6 ± 1.8 | $\sigma_8(0.38)$ | 0.6513 | $0.650^{+0.019}_{-0.021}$ |
| A_{100}^{PS} | 254.4 | 263 ± 28 | $n_{s,0.002}$ | 0.96570 | 0.9641 ± 0.0045 | $f\sigma_8(0.51)$ | 0.4577 | $0.456^{+0.019}_{-0.021}$ |
| A_{143}^{PS} | 48.8 | 49 ± 8 | Y_P | 0.245324 | $0.245306^{+0.000095}_{-0.000075}$ | $\sigma_8(0.51)$ | 0.6103 | $0.609^{+0.017}_{-0.019}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 46.1 | 43 ± 9 | Y_P^{BBN} | 0.246650 | $0.246632^{+0.000096}_{-0.000075}$ | $f\sigma_8(0.61)$ | 0.4547 | 0.453 ± 0.019 |
| A_{217}^{PS} | 118.8 | $115^{+11}_{-9.8}$ | $10^5 \text{D}/\text{H}$ | 2.6187 | 2.626 ± 0.038 | $\sigma_8(0.61)$ | 0.5811 | $0.580^{+0.016}_{-0.018}$ |
| A^{kSZ} | 0.01 | < 4.75 | Age/Gyr | 13.7765 | 13.779 ± 0.034 | $f\sigma_8(2.33)$ | 0.2953 | $0.2945^{+0.0071}_{-0.0080}$ |
| A_{100}^{dustTT} | 8.88 | 8.9 ± 1.9 | z_* | 1090.116 | 1090.18 ± 0.32 | $\sigma_8(2.33)$ | 0.3011 | $0.2999^{+0.0076}_{-0.0086}$ |
| A_{143}^{dustTT} | 10.84 | 10.7 ± 1.8 | r_* | 144.633 | 144.61 ± 0.33 | f_{2000}^{143} | 30.19 | 31.1 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.47 | 18.3 ± 3.3 | $100\theta_*$ | 1.041123 | 1.04104 ± 0.00044 | $f_{2000}^{143 \times 217}$ | 33.06 | 33.5 ± 2.0 |
| A_{217}^{dustTT} | 94.6 | 93.4 ± 7.2 | $D_M(z_*)/\text{Gpc}$ | 13.8921 | 13.891 ± 0.032 | f_{2000}^{217} | 107.48 | 108.0 ± 1.9 |
| c_{100} | 0.99965 | 0.99960 ± 0.00061 | z_{drag} | 1059.513 | 1059.44 ± 0.44 | χ_{lensing}^2 | 8.80 | 9.4 ± 1.0 |
| c_{217} | 0.99825 | 0.99824 ± 0.00063 | r_{drag} | 147.356 | 147.35 ± 0.35 | χ_{small}^2 | 395.81 | 396.8 ± 1.5 |
| H_0 | 65.23 | $64.9^{+2.2}_{-2.8}$ | k_D | 0.140453 | 0.14043 ± 0.00044 | χ_{lowl}^2 | 23.18 | 23.52 ± 0.93 |
| Ω_Λ | 0.6649 | 0.660 ± 0.026 | $100\theta_D$ | 0.161010 | 0.16104 ± 0.00026 | χ_{plik}^2 | 758.58 | 770.6 ± 5.2 |
| Ω_m | 0.3351 | 0.340 ± 0.026 | z_{eq} | 3391.6 | 3395 ± 32 | $\chi_{6\text{DF}}^2$ | 0.254 | 0.55 ± 0.59 |
| $\Omega_m h^2$ | 0.14257 | 0.1427 ± 0.0013 | k_{eq} | 0.010352 | 0.010363 ± 0.000097 | χ_{MGS}^2 | 0.72 | 0.91 ± 0.89 |
| $\Omega_m h^3$ | 0.09300 | $0.0927^{+0.0033}_{-0.0040}$ | $100\theta_{\text{eq}}$ | 0.8147 | 0.8139 ± 0.0059 | χ_{DR12BAO}^2 | 3.34 | 4.9 ± 1.5 |
| σ_8 | 0.7948 | 0.793 ± 0.024 | $100\theta_{s,\text{eq}}$ | 0.45025 | 0.4499 ± 0.0030 | χ_{prior}^2 | 1.36 | 7.2 ± 3.6 |
| S_8 | 0.8400 | 0.842 ± 0.016 | $H(0.15)$ | 73.05 | 73.07 ± 0.89 | χ_{CMB}^2 | 1186.4 | 1200.3 ± 5.4 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4601 | 0.4613 ± 0.0088 | $D_M(0.15)$ | 650.6 | 652 ± 15 | χ_{BAO}^2 | 4.31 | 6.3 ± 1.9 |

Best-fit $\chi_{\text{eff}}^2 = 1192.04$; $\Delta\chi_{\text{eff}}^2 = -2.65$; $\bar{\chi}_{\text{eff}}^2 = 1213.89$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.84$; $R - 1 = 0.01045$

χ_{eff}^2 : BAO - 6DF: 0.25 (Δ 0.23) MGS: 0.72 (Δ -0.50) DR12BAO: 3.34 (Δ -1.03) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 8.80 (Δ -0.08) small_100x143_offlike5_EE_Aplanc 395.81 (Δ -0.28) commander_dx12_v3.2_29: 23.18 (Δ 0.22) plik_rd12_HM_v22_TT: 758.58 (Δ -1.23)

18.3 base_w_wa_plikHM_TT_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|------------------------------------|----------------------------------|-----------------------------|------------------------------|
| $\Omega_{\text{b}}h^2$ | 0.02214 ± 0.00021 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.610 ± 0.014 | $H(0.38)$ | $84.8^{+1.2}_{-1.1}$ |
| $\Omega_{\text{c}}h^2$ | 0.1205 ± 0.0019 | $\sigma_8/h^{0.5}$ | 0.992 ± 0.020 | $D_{\text{M}}(0.38)$ | 1527 ± 17 |
| $100\theta_{\text{MC}}$ | 1.04079 ± 0.00046 | $r_{\text{drag}}h$ | $95.6^{+3.1}_{-4.1}$ | $H(0.51)$ | 91.4 ± 1.2 |
| τ | $0.0535^{+0.0044}_{-0.0082}$ | $\langle d^2 \rangle^{1/2}$ | 2.472 ± 0.042 | $D_{\text{M}}(0.51)$ | 1969 ± 18 |
| w_0 | $-0.59^{+0.29}_{-0.26}$ | z_{re} | $7.62^{+0.50}_{-0.83}$ | $H(0.61)$ | 96.8 ± 1.2 |
| w_a | -1.31 ± 0.79 | $10^9 A_{\text{s}}$ | $2.097^{+0.024}_{-0.033}$ | $D_{\text{M}}(0.61)$ | 2288 ± 18 |
| $\ln(10^{10} A_{\text{s}})$ | $3.043^{+0.012}_{-0.016}$ | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.884 ± 0.013 | $H(2.33)$ | $234.0^{+1.1}_{-1.3}$ |
| n_{s} | 0.9632 ± 0.0053 | D_{40} | 1232 ± 14 | $D_{\text{M}}(2.33)$ | 5757 ± 14 |
| y_{cal} | 1.0004 ± 0.0025 | D_{220} | 5714 ± 41 | $f\sigma_8(0.15)$ | 0.449 ± 0.014 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2536 ± 14 | $\sigma_8(0.15)$ | $0.737^{+0.023}_{-0.026}$ |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{1420} | 814.4 ± 5.1 | $f\sigma_8(0.38)$ | $0.460^{+0.020}_{-0.022}$ |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 229.7 ± 1.8 | $\sigma_8(0.38)$ | $0.654^{+0.020}_{-0.023}$ |
| A_{100}^{PS} | 262 ± 28 | $n_{\text{s},0.002}$ | 0.9632 ± 0.0053 | $f\sigma_8(0.51)$ | $0.461^{+0.020}_{-0.023}$ |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.24530^{+0.00010}_{-0.000080}$ | $\sigma_8(0.51)$ | $0.613^{+0.019}_{-0.021}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 44 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | $0.24662^{+0.00010}_{-0.000080}$ | $f\sigma_8(0.61)$ | $0.458^{+0.020}_{-0.022}$ |
| A_{217}^{PS} | 115 ± 10 | $10^5 \text{D}/\text{H}$ | 2.630 ± 0.040 | $\sigma_8(0.61)$ | $0.584^{+0.017}_{-0.019}$ |
| A^{kSZ} | < 4.66 | Age/Gyr | 13.777 ± 0.035 | $f\sigma_8(2.33)$ | $0.2964^{+0.0078}_{-0.0088}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | z_* | 1090.26 ± 0.37 | $\sigma_8(2.33)$ | $0.3015^{+0.0077}_{-0.0089}$ |
| A_{143}^{dustTT} | 10.7 ± 1.8 | r_* | 144.48 ± 0.43 | f_{2000}^{143} | 30.9 ± 2.9 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04100 ± 0.00045 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| A_{217}^{dustTT} | 93.4 ± 7.4 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.879 ± 0.041 | f_{2000}^{217} | 108.0 ± 1.9 |
| c_{100} | 0.99960 ± 0.00061 | z_{drag} | 1059.43 ± 0.44 | χ_{simall}^2 | 396.7 ± 1.6 |
| c_{217} | 0.99824 ± 0.00062 | r_{drag} | 147.22 ± 0.44 | χ_{lowl}^2 | 23.8 ± 1.2 |
| H_0 | $64.9^{+2.1}_{-2.8}$ | k_{D} | 0.14055 ± 0.00050 | χ_{plik}^2 | 770.3 ± 5.3 |
| Ω_{Λ} | 0.659 ± 0.026 | $100\theta_{\text{D}}$ | 0.16105 ± 0.00026 | $\chi_{6\text{DF}}^2$ | 0.56 ± 0.60 |
| Ω_{m} | 0.341 ± 0.026 | z_{eq} | 3408 ± 42 | χ_{MGS}^2 | 0.89 ± 0.88 |
| $\Omega_{\text{m}}h^2$ | 0.1433 ± 0.0018 | k_{eq} | 0.01040 ± 0.00013 | χ_{DR12BAO}^2 | 5.0 ± 1.5 |
| $\Omega_{\text{m}}h^3$ | $0.0930^{+0.0033}_{-0.0041}$ | $100\theta_{\text{eq}}$ | 0.8116 ± 0.0079 | χ_{prior}^2 | 7.2 ± 3.6 |
| σ_8 | $0.799^{+0.024}_{-0.027}$ | $100\theta_{\text{s,eq}}$ | 0.4486 ± 0.0041 | χ_{BAO}^2 | 6.4 ± 1.9 |
| S_8 | 0.851 ± 0.022 | $H(0.15)$ | 73.13 ± 0.92 | χ_{CMB}^2 | 1190.9 ± 5.4 |
| $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.466 ± 0.012 | $D_{\text{M}}(0.15)$ | 652 ± 14 | | |

$\bar{\chi}_{\text{eff}}^2 = 1204.53$; $\Delta\bar{\chi}_{\text{eff}}^2 = -1.22$; $R - 1 = 0.00721$

18.4 base_w_wa_plikHM_TT_lowl_lowE_BAO_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02217 ± 0.00020 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6048 ± 0.0098 | $H(0.38)$ | 84.7 ± 1.1 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1198 ± 0.0013 | $\sigma_8/h^{0.5}$ | 0.984 ± 0.014 | $D_{\mathrm{M}}(0.38)$ | 1528 ± 17 |
| $100\theta_{\mathrm{MC}}$ | 1.04085 ± 0.00044 | $r_{\mathrm{drag}}h$ | $95.7^{+3.3}_{-4.1}$ | $H(0.51)$ | 91.5 ± 1.3 |
| τ | $0.0532^{+0.0043}_{-0.0080}$ | $\langle d^2 \rangle^{1/2}$ | 2.456 ± 0.027 | $D_{\mathrm{M}}(0.51)$ | 1971 ± 17 |
| w_0 | -0.61 ± 0.27 | z_{re} | $7.58^{+0.47}_{-0.82}$ | $H(0.61)$ | 96.9 ± 1.2 |
| w_a | $-1.18^{+0.82}_{-0.74}$ | $10^9 A_{\mathrm{s}}$ | $2.091^{+0.021}_{-0.030}$ | $D_{\mathrm{M}}(0.61)$ | 2289 ± 18 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.040^{+0.010}_{-0.014}$ | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.880 ± 0.011 | $H(2.33)$ | $233.9^{+1.2}_{-1.4}$ |
| n_{s} | 0.9645 ± 0.0045 | D_{40} | 1229 ± 12 | $D_{\mathrm{M}}(2.33)$ | 5755 ± 14 |
| y_{cal} | 1.0003 ± 0.0024 | D_{220} | 5715 ± 41 | $f\sigma_8(0.15)$ | 0.445 ± 0.013 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2535 ± 13 | $\sigma_8(0.15)$ | 0.732 ± 0.023 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{1420} | 814.4 ± 5.0 | $f\sigma_8(0.38)$ | $0.456^{+0.019}_{-0.021}$ |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 229.7 ± 1.8 | $\sigma_8(0.38)$ | 0.650 ± 0.020 |
| A_{100}^{PS} | 263 ± 28 | $n_{\mathrm{s},0.002}$ | 0.9645 ± 0.0045 | $f\sigma_8(0.51)$ | 0.456 ± 0.020 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.245310^{+0.000094}_{-0.000075}$ | $\sigma_8(0.51)$ | 0.609 ± 0.018 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43^{+9}_{-10} | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246636^{+0.000094}_{-0.000076}$ | $f\sigma_8(0.61)$ | 0.454 ± 0.020 |
| A_{217}^{PS} | $115^{+11}_{-9.8}$ | $10^5 \mathrm{D}/\mathrm{H}$ | 2.624 ± 0.038 | $\sigma_8(0.61)$ | 0.580 ± 0.017 |
| A^{kSZ} | < 4.72 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.780 ± 0.035 | $f\sigma_8(2.33)$ | $0.2947^{+0.0072}_{-0.0080}$ |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.9 | z_* | 1090.15 ± 0.32 | $\sigma_8(2.33)$ | $0.3004^{+0.0076}_{-0.0086}$ |
| $A_{143}^{\mathrm{dust}TT}$ | 10.8 ± 1.8 | r_* | 144.64 ± 0.33 | f_{2000}^{143} | 31.0 ± 2.9 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.3 ± 3.2 | $100\theta_*$ | 1.04105 ± 0.00044 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.4 ± 7.2 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.894 ± 0.031 | f_{2000}^{217} | 108.0 ± 1.9 |
| c_{100} | 0.99960 ± 0.00061 | z_{drag} | 1059.46 ± 0.44 | $\chi_{\mathrm{lensing}}^2$ | 9.4 ± 1.0 |
| c_{217} | 0.99824 ± 0.00062 | r_{drag} | 147.38 ± 0.35 | χ_{small}^2 | 396.6 ± 1.4 |
| H_0 | $65.0^{+2.2}_{-2.8}$ | k_{D} | 0.14041 ± 0.00044 | χ_{lowl}^2 | 23.50 ± 0.93 |
| Ω_{Λ} | 0.661 ± 0.026 | $100\theta_{\mathrm{D}}$ | 0.16104 ± 0.00026 | χ_{plik}^2 | 770.5 ± 5.2 |
| Ω_{m} | 0.339 ± 0.026 | z_{eq} | 3392 ± 31 | $\chi_{6\mathrm{DF}}^2$ | 0.54 ± 0.60 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1426 ± 0.0013 | k_{eq} | 0.010352 ± 0.000093 | χ_{MGS}^2 | 0.91 ± 0.89 |
| $\Omega_{\mathrm{m}}h^3$ | $0.0926^{+0.0034}_{-0.0040}$ | $100\theta_{\mathrm{eq}}$ | 0.8146 ± 0.0057 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.9 ± 1.5 |
| σ_8 | 0.793 ± 0.024 | $100\theta_{\mathrm{s,eq}}$ | 0.4502 ± 0.0029 | χ_{prior}^2 | 7.3 ± 3.6 |
| S_8 | 0.842 ± 0.016 | $H(0.15)$ | 73.05 ± 0.89 | χ_{CMB}^2 | 1200.0 ± 5.3 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4612 ± 0.0088 | $D_{\mathrm{M}}(0.15)$ | 652 ± 15 | χ_{BAO}^2 | 6.3 ± 1.9 |

$$\bar{\chi}_{\mathrm{eff}}^2 = 1213.56; \Delta\bar{\chi}_{\mathrm{eff}}^2 = -1.01; R - 1 = 0.01398$$

18.5 base_w_wa_plikHM_TTTEE_lowl_lowE_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022395 | 0.02236 ± 0.00014 | $\Omega_m h^3$ | 0.09287 | $0.0930^{+0.0032}_{-0.0039}$ | $H(0.15)$ | 73.19 | 73.24 ± 0.88 |
| $\Omega_c h^2$ | 0.12001 | 0.1203 ± 0.0013 | σ_8 | 0.7948 | $0.795^{+0.022}_{-0.025}$ | $D_M(0.15)$ | 651.2 | 652 ± 14 |
| $100\theta_{MC}$ | 1.040930 | 1.04089 ± 0.00031 | S_8 | 0.8454 | 0.848 ± 0.017 | $H(0.38)$ | 84.95 | 85.0 ± 1.1 |
| τ | 0.0546 | 0.0538 ± 0.0078 | $\sigma_8 \Omega_m^{0.5}$ | 0.4631 | 0.4642 ± 0.0094 | $D_M(0.38)$ | 1524.6 | 1524 ± 17 |
| w_0 | -0.603 | -0.58 ± 0.27 | $\sigma_8 \Omega_m^{0.25}$ | 0.6067 | 0.608 ± 0.010 | $H(0.51)$ | 91.71 | 91.7 ± 1.2 |
| w_a | -1.20 | -1.32 ± 0.76 | $\sigma_8/h^{0.5}$ | 0.9865 | 0.988 ± 0.015 | $D_M(0.51)$ | 1966.1 | 1965 ± 17 |
| $\ln(10^{10} A_s)$ | 3.0454 | 3.044 ± 0.016 | $r_{drag} h$ | 95.47 | $95.4^{+3.2}_{-3.9}$ | $H(0.61)$ | 97.14 | 97.1 ± 1.2 |
| n_s | 0.96636 | 0.9645 ± 0.0042 | $\langle d^2 \rangle^{1/2}$ | 2.4606 | 2.466 ± 0.032 | $D_M(0.61)$ | 2283.8 | 2283 ± 18 |
| y_{cal} | 1.00057 | 1.0005 ± 0.0025 | z_{re} | 7.68 | 7.60 ± 0.79 | $H(2.33)$ | 234.06 | $234.1^{+1.0}_{-1.3}$ |
| A_{217}^{CIB} | 45.5 | 47 ± 7 | $10^9 A_s$ | 2.1018 | 2.099 ± 0.033 | $D_M(2.33)$ | 5742.5 | 5746 ± 11 |
| $\xi^{tSZ \times CIB}$ | 0.69 | — | $10^9 A_s e^{-2\tau}$ | 1.8846 | 1.884 ± 0.011 | $f\sigma_8(0.15)$ | 0.4460 | $0.446^{+0.011}_{-0.013}$ |
| A_{143}^{tSZ} | 7.02 | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1228.1 | 1232 ± 12 | $\sigma_8(0.15)$ | 0.7335 | $0.734^{+0.021}_{-0.024}$ |
| A_{100}^{PS} | 248.1 | 258 ± 28 | D_{220} | 5732.4 | 5731 ± 38 | $f\sigma_8(0.38)$ | 0.4563 | $0.457^{+0.017}_{-0.021}$ |
| A_{143}^{PS} | 51.1 | 46 ± 8 | D_{810} | 2541.5 | 2539 ± 13 | $\sigma_8(0.38)$ | 0.6514 | $0.652^{+0.019}_{-0.021}$ |
| $A_{143 \times 217}^{PS}$ | 54.0 | 42 ± 9 | D_{1420} | 818.52 | 816.8 ± 4.8 | $f\sigma_8(0.51)$ | 0.4565 | $0.457^{+0.018}_{-0.021}$ |
| A_{217}^{PS} | 122.4 | 115 ± 10 | D_{2000} | 231.50 | 230.9 ± 1.6 | $\sigma_8(0.51)$ | 0.6105 | $0.611^{+0.017}_{-0.019}$ |
| A^{kSZ} | 0.01 | < 4.20 | $n_{s,0.002}$ | 0.96636 | 0.9645 ± 0.0042 | $f\sigma_8(0.61)$ | 0.4538 | $0.455^{+0.018}_{-0.020}$ |
| A_{100}^{dustTT} | 8.79 | 8.9 ± 1.8 | Y_P | 0.245405 | $0.245388^{+0.000059}_{-0.000053}$ | $\sigma_8(0.61)$ | 0.5814 | $0.582^{+0.016}_{-0.018}$ |
| A_{143}^{dustTT} | 11.00 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246732 | $0.246714^{+0.000059}_{-0.000053}$ | $f\sigma_8(2.33)$ | 0.2958 | $0.2957^{+0.0072}_{-0.0081}$ |
| $A_{143 \times 217}^{dustTT}$ | 20.17 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5808 | 2.589 ± 0.027 | $\sigma_8(2.33)$ | 0.3011 | $0.3008^{+0.0075}_{-0.0086}$ |
| A_{217}^{dustTT} | 95.7 | 93.7 ± 7.4 | Age/Gyr | 13.7528 | 13.755 ± 0.030 | f_{2000}^{143} | 28.50 | 29.4 ± 2.7 |
| A_{100}^{dustTE} | 0.1149 | 0.115 ± 0.038 | z_* | 1089.889 | 1089.96 ± 0.26 | $f_{2000}^{143 \times 217}$ | 31.83 | 32.1 ± 1.8 |
| $A_{100 \times 143}^{dustTE}$ | 0.1349 | 0.134 ± 0.029 | r_* | 144.409 | 144.37 ± 0.29 | f_{2000}^{217} | 106.35 | 106.9 ± 1.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.483 | 0.482 ± 0.085 | $100\theta_*$ | 1.041107 | 1.04108 ± 0.00031 | χ_{small}^2 | 396.05 | 397.0 ± 1.8 |
| A_{143}^{dustTE} | 0.226 | 0.225 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8707 | 13.867 ± 0.027 | χ_{lowl}^2 | 23.24 | 23.63 ± 0.94 |
| $A_{143 \times 217}^{dustTE}$ | 0.665 | 0.667 ± 0.080 | z_{drag} | 1060.009 | 1059.92 ± 0.30 | χ_{plik}^2 | 2343.6 | 2358.5 ± 5.8 |
| A_{217}^{dustTE} | 2.086 | 2.09 ± 0.27 | r_{drag} | 147.059 | 147.03 ± 0.29 | χ_{6DF}^2 | 0.329 | 0.57 ± 0.61 |
| c_{100} | 0.99973 | 0.99967 ± 0.00061 | k_D | 0.140919 | 0.14092 ± 0.00032 | χ_{MGS}^2 | 0.63 | 0.87 ± 0.86 |
| c_{217} | 0.99818 | 0.99819 ± 0.00062 | $100\theta_D$ | 0.160724 | 0.16077 ± 0.00017 | $\chi_{DR12BAO}^2$ | 3.45 | 4.9 ± 1.5 |
| H_0 | 64.92 | $64.9^{+2.1}_{-2.7}$ | z_{eq} | 3403.1 | 3409 ± 29 | χ_{prior}^2 | 1.56 | 11.5 ± 4.5 |
| Ω_Λ | 0.6606 | 0.658 ± 0.025 | k_{eq} | 0.010387 | 0.010403 ± 0.000088 | χ_{BAO}^2 | 4.40 | 6.3 ± 1.8 |
| Ω_m | 0.3394 | 0.342 ± 0.025 | $100\theta_{eq}$ | 0.8132 | 0.8121 ± 0.0054 | χ_{CMB}^2 | 2762.9 | 2779.1 ± 5.8 |
| $\Omega_m h^2$ | 0.14305 | 0.1433 ± 0.0012 | $100\theta_{s,eq}$ | 0.44932 | 0.4488 ± 0.0028 | | | |

Best-fit $\chi_{eff}^2 = 2768.85$; $\Delta\chi_{eff}^2 = -3.07$; $\bar{\chi}_{eff}^2 = 2796.92$; $\Delta\bar{\chi}_{eff}^2 = -0.99$; $R - 1 = 0.01402$
 χ_{eff}^2 : BAO - 6DF: 0.33 (Δ 0.30) MGS: 0.62 (Δ -0.59) DR12BAO: 3.45 (Δ -0.96) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.05 (Δ -0.15) commander_dx12_v3_2_29: 23.24 (Δ 0.37) plik_rd12_HM_v22b_TTTEE: 2343.59 (Δ -1.91)

18.6 base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022408 | 0.02238 ± 0.00014 | $\Omega_m h^3$ | 0.09286 | $0.0928^{+0.0032}_{-0.0039}$ | $H(0.15)$ | 73.10 | 73.20 ± 0.87 |
| $\Omega_c h^2$ | 0.11969 | 0.1199 ± 0.0011 | σ_8 | 0.7917 | $0.792^{+0.021}_{-0.024}$ | $D_M(0.15)$ | 651.2 | 651 ± 14 |
| $100\theta_{MC}$ | 1.040950 | 1.04092 ± 0.00031 | S_8 | 0.8396 | 0.842 ± 0.014 | $H(0.38)$ | 84.79 | 85.0 ± 1.1 |
| τ | 0.0530 | 0.0529 ± 0.0075 | $\sigma_8 \Omega_m^{0.5}$ | 0.4599 | 0.4612 ± 0.0078 | $D_M(0.38)$ | 1526.2 | 1525 ± 17 |
| w_0 | -0.635 | -0.59 ± 0.27 | $\sigma_8 \Omega_m^{0.25}$ | 0.6034 | 0.6043 ± 0.0084 | $H(0.51)$ | 91.58 | 91.7 ± 1.2 |
| w_a | -1.07 | -1.24 ± 0.74 | $\sigma_8/h^{0.5}$ | 0.9817 | 0.983 ± 0.013 | $D_M(0.51)$ | 1968.5 | 1966 ± 17 |
| $\ln(10^{10} A_s)$ | 3.0408 | 3.041 ± 0.015 | $r_{\text{drag}} h$ | 95.71 | $95.6^{+3.2}_{-4.0}$ | $H(0.61)$ | 97.05 | 97.1 ± 1.2 |
| n_s | 0.96706 | 0.9652 ± 0.0039 | $\langle d^2 \rangle^{1/2}$ | 2.4480 | 2.455 ± 0.024 | $D_M(0.61)$ | 2286.5 | 2284 ± 17 |
| y_{cal} | 1.00045 | 1.0004 ± 0.0025 | z_{re} | 7.51 | 7.50 ± 0.76 | $H(2.33)$ | 234.19 | $234.1^{+1.1}_{-1.3}$ |
| A_{217}^{CIB} | 46.6 | 47 ± 7 | $10^9 A_s$ | 2.0922 | 2.092 ± 0.031 | $D_M(2.33)$ | 5742.7 | 5744 ± 11 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.52 | — | $10^9 A_s e^{-2\tau}$ | 1.8818 | 1.882 ± 0.010 | $f\sigma_8(0.15)$ | 0.4444 | $0.444^{+0.011}_{-0.013}$ |
| A_{143}^{tSZ} | 7.16 | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1225.3 | 1229 ± 11 | $\sigma_8(0.15)$ | 0.7307 | $0.731^{+0.021}_{-0.024}$ |
| A_{100}^{PS} | 249.2 | 258 ± 28 | D_{220} | 5729.1 | 5732 ± 38 | $f\sigma_8(0.38)$ | 0.4549 | $0.455^{+0.017}_{-0.020}$ |
| A_{143}^{PS} | 48.6 | 46 ± 8 | D_{810} | 2539.7 | 2538 ± 13 | $\sigma_8(0.38)$ | 0.6489 | $0.649^{+0.018}_{-0.020}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 49.7 | 42 ± 9 | D_{1420} | 818.18 | 816.7 ± 4.8 | $f\sigma_8(0.51)$ | 0.4548 | $0.455^{+0.018}_{-0.021}$ |
| A_{217}^{PS} | 120.6 | 115 ± 10 | D_{2000} | 231.36 | 230.8 ± 1.6 | $\sigma_8(0.51)$ | 0.6081 | $0.608^{+0.016}_{-0.019}$ |
| A^{kSZ} | 0.00 | < 4.32 | $n_{s,0.002}$ | 0.96706 | 0.9652 ± 0.0039 | $f\sigma_8(0.61)$ | 0.4519 | $0.452^{+0.017}_{-0.020}$ |
| A_{100}^{dustTT} | 8.85 | 8.9 ± 1.8 | Y_P | 0.245411 | $0.245397^{+0.000057}_{-0.000052}$ | $\sigma_8(0.61)$ | 0.5791 | $0.579^{+0.015}_{-0.017}$ |
| A_{143}^{dustTT} | 11.02 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246737 | $0.246723^{+0.000057}_{-0.000052}$ | $f\sigma_8(2.33)$ | 0.2945 | $0.2946^{+0.0069}_{-0.0077}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.87 | 18.6 ± 3.2 | $10^5 D/H$ | 2.5784 | 2.584 ± 0.026 | $\sigma_8(2.33)$ | 0.3004 | $0.3001^{+0.0074}_{-0.0084}$ |
| A_{217}^{dustTT} | 95.2 | 93.7 ± 7.2 | Age/Gyr | 13.7575 | 13.756 ± 0.030 | f_{2000}^{143} | 28.64 | 29.5 ± 2.7 |
| A_{100}^{dustTE} | 0.1139 | 0.115 ± 0.038 | z_* | 1089.844 | 1089.90 ± 0.24 | $f_{2000}^{143 \times 217}$ | 31.89 | 32.1 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1346 | 0.134 ± 0.029 | r_* | 144.481 | 144.45 ± 0.25 | f_{2000}^{217} | 106.47 | 106.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.481 | 0.479 ± 0.084 | $100\theta_*$ | 1.041125 | 1.04111 ± 0.00031 | χ_{lensing}^2 | 8.766 | 9.28 ± 0.87 |
| A_{143}^{dustTE} | 0.225 | 0.224 ± 0.053 | $D_M(z_*)/\text{Gpc}$ | 13.8774 | 13.875 ± 0.023 | χ_{small}^2 | 395.82 | 396.8 ± 1.5 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 | 0.666 ± 0.081 | z_{drag} | 1060.009 | 1059.95 ± 0.30 | χ_{lowl}^2 | 23.02 | 23.44 ± 0.82 |
| A_{217}^{dustTE} | 2.082 | 2.08 ± 0.27 | r_{drag} | 147.129 | 147.11 ± 0.25 | χ_{plik}^2 | 2344.2 | 2358.6 ± 5.7 |
| c_{100} | 0.99971 | 0.99966 ± 0.00061 | k_D | 0.140855 | 0.14085 ± 0.00030 | $\chi_{6\text{DF}}^2$ | 0.313 | 0.56 ± 0.61 |
| c_{217} | 0.99819 | 0.99819 ± 0.00063 | $100\theta_D$ | 0.160720 | 0.16075 ± 0.00017 | χ_{MGS}^2 | 0.63 | 0.89 ± 0.87 |
| H_0 | 65.05 | $65.0^{+2.2}_{-2.7}$ | z_{eq} | 3395.8 | 3400 ± 25 | χ_{DR12BAO}^2 | 3.35 | 4.8 ± 1.5 |
| Ω_Λ | 0.6627 | 0.660 ± 0.025 | k_{eq} | 0.010364 | 0.010377 ± 0.000075 | χ_{prior}^2 | 1.68 | 11.5 ± 4.5 |
| Ω_m | 0.3373 | 0.340 ± 0.025 | $100\theta_{\text{eq}}$ | 0.81457 | 0.8137 ± 0.0046 | χ_{CMB}^2 | 2771.8 | 2788.1 ± 5.9 |
| $\Omega_m h^2$ | 0.14275 | 0.1429 ± 0.0010 | $100\theta_{s,\text{eq}}$ | 0.45002 | 0.4496 ± 0.0024 | χ_{BAO}^2 | 4.28 | 6.3 ± 1.9 |

Best-fit $\chi_{\text{eff}}^2 = 2777.81$; $\Delta\chi_{\text{eff}}^2 = -2.88$; $\bar{\chi}_{\text{eff}}^2 = 2805.90$; $\Delta\bar{\chi}_{\text{eff}}^2 = -0.95$; $R - 1 = 0.01750$

χ_{eff}^2 : BAO - 6DF: 0.31 (Δ 0.28) MGS: 0.62 (Δ -0.59) DR12BAO: 3.35 (Δ -1.07) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 8.77 (Δ 0.04) small_100x143_offlike5_EE_Aplanck 395.82 (Δ -0.70) commander_dx12_v3.2_29: 23.02 (Δ 0.12) plik_rd12_HM_v22b.TTTEEE: 2344.24 (Δ -1.08)

18.7 base_w_wa_plikHM_TTTEE_lowl_lowE_BAO_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02236 ± 0.00014 | $\Omega_m h^3$ | $0.0929^{+0.0032}_{-0.0039}$ | $H(0.15)$ | 73.23 ± 0.88 |
| $\Omega_c h^2$ | 0.1202 ± 0.0013 | σ_8 | $0.796^{+0.022}_{-0.025}$ | $D_M(0.15)$ | 652 ± 14 |
| $100\theta_{MC}$ | 1.04090 ± 0.00031 | S_8 | 0.848 ± 0.017 | $H(0.38)$ | 85.0 ± 1.1 |
| τ | $0.0551^{+0.0049}_{-0.0083}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4646 ± 0.0094 | $D_M(0.38)$ | 1524 ± 17 |
| w_0 | -0.58 ± 0.27 | $\sigma_8 \Omega_m^{0.25}$ | 0.608 ± 0.010 | $H(0.51)$ | 91.7 ± 1.2 |
| w_a | -1.31 ± 0.76 | $\sigma_8/h^{0.5}$ | 0.988 ± 0.015 | $D_M(0.51)$ | 1966 ± 17 |
| $\ln(10^{10} A_s)$ | $3.046^{+0.012}_{-0.016}$ | $r_{\text{drag}} h$ | $95.4^{+3.1}_{-4.0}$ | $H(0.61)$ | 97.1 ± 1.2 |
| n_s | 0.9647 ± 0.0042 | $\langle d^2 \rangle^{1/2}$ | 2.468 ± 0.031 | $D_M(0.61)$ | 2283 ± 18 |
| y_{cal} | 1.0005 ± 0.0025 | z_{re} | $7.73^{+0.55}_{-0.81}$ | $H(2.33)$ | $234.1^{+1.0}_{-1.3}$ |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.104^{+0.025}_{-0.034}$ | $D_M(2.33)$ | 5745 ± 11 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.884 ± 0.011 | $f\sigma_8(0.15)$ | $0.447^{+0.011}_{-0.013}$ |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1232 ± 12 | $\sigma_8(0.15)$ | $0.735^{+0.021}_{-0.024}$ |
| A_{100}^{PS} | 258 ± 28 | D_{220} | 5731 ± 38 | $f\sigma_8(0.38)$ | $0.457^{+0.018}_{-0.021}$ |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2539 ± 13 | $\sigma_8(0.38)$ | $0.652^{+0.019}_{-0.021}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 816.8 ± 4.8 | $f\sigma_8(0.51)$ | $0.458^{+0.018}_{-0.021}$ |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 230.9 ± 1.6 | $\sigma_8(0.51)$ | $0.611^{+0.017}_{-0.019}$ |
| A^{kSZ} | < 4.18 | $n_{s,0.002}$ | 0.9647 ± 0.0042 | $f\sigma_8(0.61)$ | $0.455^{+0.018}_{-0.020}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245389^{+0.000059}_{-0.000053}$ | $\sigma_8(0.61)$ | $0.582^{+0.016}_{-0.018}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246716^{+0.000059}_{-0.000053}$ | $f\sigma_8(2.33)$ | 0.2959 ± 0.0076 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.5 ± 3.3 | $10^5 D/H$ | 2.588 ± 0.027 | $\sigma_8(2.33)$ | $0.3011^{+0.0075}_{-0.0086}$ |
| A_{217}^{dustTT} | 93.7 ± 7.4 | Age/Gyr | $13.755^{+0.028}_{-0.031}$ | f_{2000}^{143} | 29.4 ± 2.7 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | z_* | 1089.96 ± 0.26 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.134 ± 0.029 | r_* | 144.38 ± 0.29 | f_{2000}^{217} | 106.9 ± 1.7 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 ± 0.085 | $100\theta_*$ | 1.04108 ± 0.00031 | χ_{simall}^2 | 397.0 ± 1.9 |
| A_{143}^{dustTE} | 0.225 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.868 ± 0.027 | χ_{lowl}^2 | 23.64 ± 0.94 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 ± 0.080 | z_{drag} | 1059.93 ± 0.30 | χ_{plik}^2 | 2358.3 ± 5.7 |
| A_{217}^{dustTE} | 2.09 ± 0.27 | r_{drag} | 147.04 ± 0.29 | $\chi_{6\text{DF}}^2$ | 0.57 ± 0.61 |
| c_{100} | 0.99967 ± 0.00061 | k_D | 0.14091 ± 0.00032 | χ_{MGS}^2 | 0.87 ± 0.86 |
| c_{217} | 0.99819 ± 0.00062 | $100\theta_D$ | 0.16076 ± 0.00017 | χ_{DR12BAO}^2 | 4.9 ± 1.5 |
| H_0 | $64.9^{+2.1}_{-2.7}$ | z_{eq} | 3408 ± 29 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_Λ | 0.658 ± 0.025 | k_{eq} | 0.010401 ± 0.000088 | χ_{BAO}^2 | 6.3 ± 1.8 |
| Ω_m | 0.342 ± 0.025 | $100\theta_{\text{eq}}$ | 0.8123 ± 0.0054 | χ_{CMB}^2 | 2778.9 ± 5.8 |
| $\Omega_m h^2$ | 0.1432 ± 0.0012 | $100\theta_{s,\text{eq}}$ | 0.4489 ± 0.0028 | | |

$$\bar{\chi}_{\text{eff}}^2 = 2796.70; \Delta \bar{\chi}_{\text{eff}}^2 = -1.01; R - 1 = 0.01451$$

18.8 base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02238 ± 0.00014 | $\Omega_m h^3$ | $0.0928^{+0.0032}_{-0.0039}$ | $H(0.15)$ | 73.18 ± 0.87 |
| $\Omega_c h^2$ | 0.1198 ± 0.0011 | σ_8 | $0.792^{+0.021}_{-0.024}$ | $D_M(0.15)$ | 652 ± 14 |
| $100\theta_{MC}$ | 1.04093 ± 0.00031 | S_8 | 0.842 ± 0.014 | $H(0.38)$ | 85.0 ± 1.1 |
| τ | $0.0543^{+0.0047}_{-0.0078}$ | $\sigma_8 \Omega_m^{0.5}$ | 0.4613 ± 0.0078 | $D_M(0.38)$ | 1525 ± 17 |
| w_0 | -0.60 ± 0.27 | $\sigma_8 \Omega_m^{0.25}$ | 0.6045 ± 0.0084 | $H(0.51)$ | 91.7 ± 1.2 |
| w_a | -1.22 ± 0.74 | $\sigma_8/h^{0.5}$ | 0.983 ± 0.013 | $D_M(0.51)$ | 1967 ± 17 |
| $\ln(10^{10} A_s)$ | $3.043^{+0.010}_{-0.015}$ | $r_{\text{drag}} h$ | $95.6^{+3.2}_{-4.0}$ | $H(0.61)$ | 97.1 ± 1.2 |
| n_s | 0.9655 ± 0.0039 | $\langle d^2 \rangle^{1/2}$ | 2.457 ± 0.023 | $D_M(0.61)$ | 2284 ± 17 |
| y_{cal} | 1.0003 ± 0.0025 | z_{re} | $7.64^{+0.51}_{-0.78}$ | $H(2.33)$ | $234.1^{+1.1}_{-1.3}$ |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s$ | $2.097^{+0.022}_{-0.031}$ | $D_M(2.33)$ | 5744 ± 11 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.881 ± 0.010 | $f\sigma_8(0.15)$ | $0.444^{+0.011}_{-0.012}$ |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1229 ± 11 | $\sigma_8(0.15)$ | $0.731^{+0.021}_{-0.023}$ |
| A_{100}^{PS} | 258 ± 28 | D_{220} | 5731 ± 38 | $f\sigma_8(0.38)$ | $0.455^{+0.017}_{-0.020}$ |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2537 ± 13 | $\sigma_8(0.38)$ | $0.650^{+0.018}_{-0.020}$ |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 816.7 ± 4.8 | $f\sigma_8(0.51)$ | $0.455^{+0.018}_{-0.021}$ |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 230.8 ± 1.6 | $\sigma_8(0.51)$ | $0.609^{+0.017}_{-0.019}$ |
| A^{kSZ} | < 4.31 | $n_{s,0.002}$ | 0.9655 ± 0.0039 | $f\sigma_8(0.61)$ | $0.452^{+0.017}_{-0.020}$ |
| A_{100}^{dustTT} | 8.9 ± 1.8 | Y_P | $0.245399^{+0.000057}_{-0.000051}$ | $\sigma_8(0.61)$ | $0.580^{+0.015}_{-0.017}$ |
| A_{143}^{dustTT} | 10.9 ± 1.8 | Y_P^{BBN} | $0.246725^{+0.000057}_{-0.000051}$ | $f\sigma_8(2.33)$ | 0.2948 ± 0.0073 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.6 ± 3.2 | $10^5 D/H$ | 2.583 ± 0.026 | $\sigma_8(2.33)$ | $0.3003^{+0.0075}_{-0.0084}$ |
| A_{217}^{dustTT} | 93.7 ± 7.3 | Age/Gyr | 13.757 ± 0.030 | f_{2000}^{143} | 29.4 ± 2.7 |
| A_{100}^{dustTE} | 0.115 ± 0.038 | z_* | 1089.89 ± 0.23 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.8 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.135 ± 0.029 | r_* | 144.47 ± 0.24 | f_{2000}^{217} | 106.9 ± 1.8 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.479 ± 0.084 | $100\theta_*$ | 1.04112 ± 0.00031 | χ_{lensing}^2 | 9.29 ± 0.89 |
| A_{143}^{dustTE} | 0.224 ± 0.053 | $D_M(z_*)/\text{Gpc}$ | 13.876 ± 0.023 | χ_{simall}^2 | 396.7 ± 1.6 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.667 ± 0.080 | z_{drag} | 1059.95 ± 0.30 | χ_{lowl}^2 | 23.43 ± 0.83 |
| A_{217}^{dustTE} | 2.08 ± 0.27 | r_{drag} | 147.12 ± 0.25 | χ_{plik}^2 | 2358.5 ± 5.7 |
| c_{100} | 0.99966 ± 0.00061 | k_D | 0.14084 ± 0.00029 | $\chi_{6\text{DF}}^2$ | 0.56 ± 0.61 |
| c_{217} | 0.99819 ± 0.00063 | $100\theta_D$ | 0.16075 ± 0.00017 | χ_{MGS}^2 | 0.89 ± 0.87 |
| H_0 | $65.0^{+2.2}_{-2.7}$ | z_{eq} | 3398 ± 24 | χ_{DR12BAO}^2 | 4.8 ± 1.5 |
| Ω_Λ | 0.660 ± 0.026 | k_{eq} | 0.010372 ± 0.000073 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_m | 0.340 ± 0.026 | $100\theta_{\text{eq}}$ | 0.8141 ± 0.0045 | χ_{CMB}^2 | 2787.9 ± 5.8 |
| $\Omega_m h^2$ | 0.1429 ± 0.0010 | $100\theta_{s,\text{eq}}$ | 0.4498 ± 0.0023 | χ_{BAO}^2 | 6.3 ± 1.9 |

$$\bar{\chi}_{\text{eff}}^2 = 2805.65; \Delta\bar{\chi}_{\text{eff}}^2 = -1.07; R - 1 = 0.01782$$

18.9 base_w_wa_plikHM_TT_lowl_lowE_BAO_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|------------------------------|
| $\Omega_b h^2$ | 0.022152 | 0.02212 ± 0.00021 | $\sigma_8 \Omega_m^{0.25}$ | 0.6137 | 0.615 ± 0.013 | $H(0.38)$ | 83.41 | 83.44 ± 0.62 |
| $\Omega_c h^2$ | 0.12027 | 0.1206 ± 0.0018 | $\sigma_8/h^{0.5}$ | 0.9978 | 0.999 ± 0.019 | $D_M(0.38)$ | 1516.3 | 1516 ± 14 |
| $100\theta_{MC}$ | 1.040823 | 1.04079 ± 0.00045 | $r_{drag}h$ | 100.49 | 100.3 ± 1.2 | $H(0.51)$ | 89.88 | 89.88 ± 0.50 |
| τ | 0.0526 | 0.0519 ± 0.0079 | $\langle d^2 \rangle^{1/2}$ | 2.4596 | 2.466 ± 0.042 | $D_M(0.51)$ | 1966.6 | 1966 ± 16 |
| w_0 | -0.971 | -0.953 ± 0.085 | z_{re} | 7.55 | 7.46 ± 0.82 | $H(0.61)$ | 95.307 | 95.27 ± 0.44 |
| w_a | -0.265 | $-0.36^{+0.41}_{-0.31}$ | $10^9 A_s$ | 2.0918 | 2.091 ± 0.034 | $D_M(0.61)$ | 2290.6 | 2290 ± 17 |
| $\ln(10^{10} A_s)$ | 3.0406 | 3.040 ± 0.016 | $10^9 A_s e^{-2\tau}$ | 1.8828 | 1.884 ± 0.013 | $H(2.33)$ | 235.10 | 235.13 ± 0.98 |
| n_s | 0.9646 | 0.9629 ± 0.0052 | D_{40} | 1228.3 | 1232 ± 14 | $D_M(2.33)$ | 5763.8 | 5766 ± 13 |
| y_{cal} | 1.00031 | 1.0005 ± 0.0025 | D_{220} | 5709.7 | 5713 ± 41 | $f\sigma_8(0.15)$ | 0.4618 | 0.462 ± 0.011 |
| A_{217}^{CIB} | 48.9 | 48 ± 7 | D_{810} | 2536.9 | 2536 ± 14 | $\sigma_8(0.15)$ | 0.7621 | 0.763 ± 0.016 |
| $\xi^{tSZ \times CIB}$ | 0.31 | — | D_{1420} | 815.3 | 814.4 ± 5.1 | $f\sigma_8(0.38)$ | 0.4832 | 0.484 ± 0.013 |
| A_{143}^{tSZ} | 7.11 | 5.1 ± 2.0 | D_{2000} | 230.01 | 229.6 ± 1.8 | $\sigma_8(0.38)$ | 0.6759 | 0.676 ± 0.014 |
| A_{100}^{PS} | 253.9 | 263 ± 28 | $n_{s,0.002}$ | 0.9646 | 0.9629 ± 0.0052 | $f\sigma_8(0.51)$ | 0.4834 | 0.484 ± 0.013 |
| A_{143}^{PS} | 49.0 | 49 ± 8 | Y_P | 0.245306 | $0.245289^{+0.000098}_{-0.000081}$ | $\sigma_8(0.51)$ | 0.6325 | 0.633 ± 0.013 |
| $A_{143 \times 217}^{PS}$ | 46.5 | 43 ± 9 | Y_P^{BBN} | 0.246632 | $0.246615^{+0.000098}_{-0.000082}$ | $f\sigma_8(0.61)$ | 0.4793 | 0.480 ± 0.013 |
| A_{217}^{PS} | 119.0 | 115 ± 10 | $10^5 D/H$ | 2.6270 | 2.633 ± 0.040 | $\sigma_8(0.61)$ | 0.6018 | 0.602 ± 0.012 |
| A^{kSZ} | 0.01 | < 4.83 | Age/Gyr | 13.7778 | 13.779 ± 0.035 | $f\sigma_8(2.33)$ | 0.3040 | $0.3040^{+0.0065}_{-0.0057}$ |
| A_{100}^{dustTT} | 8.86 | 9.0 ± 1.8 | z_* | 1090.220 | 1090.29 ± 0.36 | $\sigma_8(2.33)$ | 0.31100 | 0.3108 ± 0.0047 |
| A_{143}^{dustTT} | 10.85 | 10.7 ± 1.8 | r_* | 144.527 | 144.48 ± 0.43 | f_{2000}^{143} | 30.29 | 31.1 ± 2.9 |
| $A_{143 \times 217}^{dustTT}$ | 19.45 | 18.3 ± 3.3 | $100\theta_*$ | 1.041026 | 1.04100 ± 0.00044 | $f_{2000}^{143 \times 217}$ | 33.19 | 33.5 ± 2.0 |
| A_{217}^{dustTT} | 94.5 | 93.4 ± 7.4 | $D_M(z_*)/\text{Gpc}$ | 13.8831 | 13.879 ± 0.040 | f_{2000}^{217} | 107.61 | 108.1 ± 1.9 |
| c_{100} | 0.99966 | 0.99961 ± 0.00061 | z_{drag} | 1059.437 | 1059.40 ± 0.45 | χ_{small}^2 | 395.87 | 396.9 ± 1.6 |
| c_{217} | 0.99825 | 0.99826 ± 0.00062 | r_{drag} | 147.263 | 147.22 ± 0.44 | χ_{lowl}^2 | 23.28 | 23.7 ± 1.1 |
| H_0 | 68.24 | 68.14 ± 0.83 | k_D | 0.14052 | 0.14054 ± 0.00050 | χ_{plik}^2 | 758.4 | 770.8 ± 5.4 |
| Ω_Λ | 0.6928 | 0.6912 ± 0.0082 | $100\theta_D$ | 0.161039 | 0.16107 ± 0.00026 | χ_{JLA}^2 | 1034.78 | 1035.9 ± 1.5 |
| Ω_m | 0.3072 | 0.3088 ± 0.0082 | z_{eq} | 3403.5 | 3410 ± 42 | χ_{6DF}^2 | 0.0012 | 0.052 ± 0.073 |
| $\Omega_m h^2$ | 0.14307 | 0.1433 ± 0.0018 | k_{eq} | 0.010388 | 0.01041 ± 0.00013 | χ_{MGS}^2 | 1.82 | 1.87 ± 0.69 |
| $\Omega_m h^3$ | 0.09763 | 0.0977 ± 0.0017 | $100\theta_{eq}$ | 0.8124 | 0.8113 ± 0.0078 | $\chi_{DR12BAO}^2$ | 4.04 | 5.0 ± 1.3 |
| σ_8 | 0.8243 | 0.825 ± 0.017 | $100\theta_{s,eq}$ | 0.44906 | 0.4485 ± 0.0040 | χ_{prior}^2 | 1.38 | 7.3 ± 3.7 |
| S_8 | 0.8342 | 0.837 ± 0.020 | $H(0.15)$ | 73.60 | 73.63 ± 0.73 | χ_{BAO}^2 | 5.86 | 6.9 ± 1.5 |
| $\sigma_8 \Omega_m^{0.5}$ | 0.4569 | 0.458 ± 0.011 | $D_M(0.15)$ | 634.9 | 635.2 ± 6.6 | χ_{CMB}^2 | 1177.5 | 1191.3 ± 5.5 |

Best-fit $\chi_{eff}^2 = 2219.53$; $\bar{\chi}_{eff}^2 = 2241.47$; $R - 1 = 0.00718$

χ_{eff}^2 : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 4.04 CMB - small_100x143_offlike5_EE_Aplanck_B: 395.87 commander_dx12_v3.2.29: 23.29 plik_rd12_HM_v22_TT: 758.36
SN - JLA Pantheon18: 1034.78

18.10 base_w_wa_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-------------------------|------------------------------------|----------|------------------------------------|---------------------------|----------|---------------------|
| $\Omega_{\text{b}}h^2$ | 0.022187 | 0.02215 ± 0.00020 | $\sigma_8\Omega_{\text{m}}^{0.25}$ | 0.6096 | 0.6111 ± 0.0086 | $H(0.38)$ | 83.40 | 83.44 ± 0.63 |
| $\Omega_{\text{c}}h^2$ | 0.11971 | 0.1200 ± 0.0014 | $\sigma_8/h^{0.5}$ | 0.9921 | 0.994 ± 0.012 | $D_{\text{M}}(0.38)$ | 1517.3 | 1517 ± 13 |
| $100\theta_{\text{MC}}$ | 1.040810 | 1.04083 ± 0.00044 | $r_{\text{drag}}h$ | 100.49 | 100.4 ± 1.2 | $H(0.51)$ | 89.90 | 89.91 ± 0.52 |
| τ | 0.0528 | 0.0517 ± 0.0077 | $\langle d^2 \rangle^{1/2}$ | 2.4487 | 2.455 ± 0.027 | $D_{\text{M}}(0.51)$ | 1967.5 | 1967 ± 16 |
| w_0 | -0.974 | -0.960 ± 0.081 | z_{re} | 7.55 | 7.43 ± 0.80 | $H(0.61)$ | 95.356 | 95.33 ± 0.44 |
| w_a | -0.216 | $-0.29^{+0.34}_{-0.27}$ | $10^9 A_{\text{s}}$ | 2.0899 | 2.087 ± 0.031 | $D_{\text{M}}(0.61)$ | 2291.4 | 2291 ± 17 |
| $\ln(10^{10} A_{\text{s}})$ | 3.0397 | 3.038 ± 0.015 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8804 | 1.882 ± 0.011 | $H(2.33)$ | 235.02 | 235.03 ± 0.99 |
| n_{s} | 0.96535 | 0.9638 ± 0.0044 | D_{40} | 1226.7 | 1230 ± 12 | $D_{\text{M}}(2.33)$ | 5762.9 | 5765 ± 13 |
| y_{cal} | 1.00032 | 1.0004 ± 0.0025 | D_{220} | 5714.6 | 5716 ± 41 | $f\sigma_8(0.15)$ | 0.4584 | 0.4594 ± 0.0078 |
| A_{217}^{CIB} | 49.0 | 48 ± 7 | D_{810} | 2536.1 | 2535 ± 13 | $\sigma_8(0.15)$ | 0.7576 | 0.759 ± 0.011 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.26 | — | D_{1420} | 815.3 | 814.4 ± 5.0 | $f\sigma_8(0.38)$ | 0.4794 | 0.4805 ± 0.0092 |
| A_{143}^{tSZ} | 7.10 | 5.1 ± 2.0 | D_{2000} | 229.98 | 229.6 ± 1.7 | $\sigma_8(0.38)$ | 0.6720 | 0.673 ± 0.010 |
| A_{100}^{PS} | 254.8 | 264 ± 28 | $n_{\text{s},0.002}$ | 0.96535 | 0.9638 ± 0.0044 | $f\sigma_8(0.51)$ | 0.4795 | 0.4808 ± 0.0095 |
| A_{143}^{PS} | 48.4 | 49 ± 8 | Y_{P} | 0.245320 | $0.245301^{+0.000093}_{-0.000077}$ | $\sigma_8(0.51)$ | 0.6290 | 0.6298 ± 0.0094 |
| $A_{143 \times 217}^{\text{PS}}$ | 45.2 | 43 ± 9 | $Y_{\text{P}}^{\text{BBN}}$ | 0.246647 | $0.246627^{+0.000094}_{-0.000077}$ | $f\sigma_8(0.61)$ | 0.4754 | 0.4768 ± 0.0096 |
| A_{217}^{PS} | 118.5 | 115 ± 10 | $10^5 D/\text{H}$ | 2.6204 | 2.628 ± 0.038 | $\sigma_8(0.61)$ | 0.5985 | 0.5992 ± 0.0089 |
| A^{kSZ} | 0.01 | < 4.91 | Age/Gyr | 13.7809 | 13.781 ± 0.034 | $f\sigma_8(2.33)$ | 0.30235 | 0.3027 ± 0.0046 |
| A_{100}^{dustTT} | 8.91 | 9.0 ± 1.8 | z_* | 1090.126 | 1090.21 ± 0.32 | $\sigma_8(2.33)$ | 0.30984 | 0.3098 ± 0.0036 |
| A_{143}^{dustTT} | 10.82 | 10.8 ± 1.8 | r_* | 144.646 | 144.59 ± 0.33 | χ^2_{lensing} | 8.72 | 9.40 ± 0.97 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.47 | 18.3 ± 3.3 | $100\theta_*$ | 1.041016 | 1.04103 ± 0.00043 | χ^2_{small} | 395.86 | 396.8 ± 1.5 |
| A_{217}^{dustTT} | 94.8 | 93.5 ± 7.3 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8947 | 13.889 ± 0.032 | χ^2_{lowl} | 23.14 | 23.48 ± 0.91 |
| c_{100} | 0.99963 | 0.99961 ± 0.00061 | z_{drag} | 1059.475 | 1059.42 ± 0.44 | χ^2_{plik} | 758.71 | 770.7 ± 5.3 |
| c_{217} | 0.99826 | 0.99826 ± 0.00062 | r_{drag} | 147.373 | 147.33 ± 0.35 | χ^2_{JLA} | 1034.79 | 1035.9 ± 1.5 |
| H_0 | 68.19 | 68.14 ± 0.83 | k_{D} | 0.140429 | 0.14045 ± 0.00044 | $\chi^2_{6\text{DF}}$ | 0.0010 | 0.053 ± 0.075 |
| Ω_{Λ} | 0.6934 | 0.6922 ± 0.0079 | $100\theta_{\text{D}}$ | 0.161007 | 0.16105 ± 0.00026 | χ^2_{MGS} | 1.82 | 1.89 ± 0.69 |
| Ω_{m} | 0.3066 | 0.3078 ± 0.0079 | z_{eq} | 3390.9 | 3398 ± 31 | χ^2_{DR12BAO} | 3.86 | 4.8 ± 1.3 |
| $\Omega_{\text{m}}h^2$ | 0.14254 | 0.1428 ± 0.0013 | k_{eq} | 0.010350 | 0.010371 ± 0.000095 | χ^2_{prior} | 1.46 | 7.3 ± 3.7 |
| $\Omega_{\text{m}}h^3$ | 0.09720 | 0.0973 ± 0.0015 | $100\theta_{\text{eq}}$ | 0.8147 | 0.8134 ± 0.0058 | χ^2_{CMB} | 1186.4 | 1200.4 ± 5.6 |
| σ_8 | 0.8193 | 0.821 ± 0.012 | $100\theta_{\text{s,eq}}$ | 0.45026 | 0.4496 ± 0.0030 | χ^2_{BAO} | 5.68 | 6.7 ± 1.5 |
| S_8 | 0.8282 | 0.831 ± 0.013 | $H(0.15)$ | 73.54 | 73.59 ± 0.71 | | | |
| $\sigma_8\Omega_{\text{m}}^{0.5}$ | 0.4536 | 0.4551 ± 0.0073 | $D_{\text{M}}(0.15)$ | 635.4 | 635.4 ± 6.5 | | | |

Best-fit $\chi^2_{\text{eff}} = 2228.36$; $\Delta\chi^2_{\text{eff}} = -1.35$; $\bar{\chi}^2_{\text{eff}} = 2250.30$; $\Delta\bar{\chi}^2_{\text{eff}} = 0.53$; $R - 1 = 0.00973$
 χ^2_{eff} : BAO - 6DF: 0.00 (Δ -0.01) MGS: 1.82 (Δ 0.48) DR12BAO: 3.86 (Δ -0.17) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 8.72 (Δ -0.16) small_100x143_offlike5_EE_Aplanc
395.86 (Δ -0.51) commander_dx12_v3.2_29: 23.14 (Δ 0.33) plik_rd12_HM_v22.TT: 758.71 (Δ -1.08) SN - JLA Pantheon18: 1034.79 (Δ -0.16)

18.11 base_w_wa_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02213 ± 0.00021 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.615 ± 0.013 | $H(0.38)$ | 83.44 ± 0.62 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1205 ± 0.0018 | $\sigma_8/h^{0.5}$ | 1.000 ± 0.019 | $D_{\mathrm{M}}(0.38)$ | 1516 ± 14 |
| $100\theta_{\mathrm{MC}}$ | 1.04080 ± 0.00045 | $r_{\mathrm{drag}}h$ | 100.3 ± 1.2 | $H(0.51)$ | 89.88 ± 0.50 |
| τ | $0.0536^{+0.0046}_{-0.0081}$ | $\langle d^2 \rangle^{1/2}$ | 2.468 ± 0.041 | $D_{\mathrm{M}}(0.51)$ | 1967 ± 16 |
| w_0 | -0.953 ± 0.084 | z_{re} | $7.65^{+0.52}_{-0.82}$ | $H(0.61)$ | 95.29 ± 0.43 |
| w_a | $-0.35^{+0.41}_{-0.31}$ | $10^9 A_{\mathrm{s}}$ | $2.097^{+0.024}_{-0.033}$ | $D_{\mathrm{M}}(0.61)$ | 2291 ± 17 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.043^{+0.012}_{-0.016}$ | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.884 ± 0.013 | $H(2.33)$ | 235.13 ± 0.98 |
| n_{s} | 0.9632 ± 0.0051 | D_{40} | 1232 ± 14 | $D_{\mathrm{M}}(2.33)$ | 5766 ± 13 |
| y_{cal} | 1.0005 ± 0.0025 | D_{220} | 5713 ± 42 | $f\sigma_8(0.15)$ | 0.463 ± 0.011 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2536 ± 14 | $\sigma_8(0.15)$ | 0.763 ± 0.016 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{1420} | 814.5 ± 5.1 | $f\sigma_8(0.38)$ | 0.484 ± 0.013 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | D_{2000} | 229.7 ± 1.8 | $\sigma_8(0.38)$ | 0.677 ± 0.014 |
| A_{100}^{PS} | 263 ± 28 | $n_{\mathrm{s},0.002}$ | 0.9632 ± 0.0051 | $f\sigma_8(0.51)$ | 0.485 ± 0.013 |
| A_{143}^{PS} | 49 ± 8 | Y_{P} | $0.245291^{+0.000097}_{-0.000081}$ | $\sigma_8(0.51)$ | 0.633 ± 0.013 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43 ± 9 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246618^{+0.000098}_{-0.000082}$ | $f\sigma_8(0.61)$ | 0.481 ± 0.013 |
| A_{217}^{PS} | 115 ± 10 | $10^5 D/H$ | 2.632 ± 0.040 | $\sigma_8(0.61)$ | 0.603 ± 0.012 |
| A^{kSZ} | < 4.77 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.779 ± 0.035 | $f\sigma_8(2.33)$ | $0.3043^{+0.0065}_{-0.0057}$ |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | z_* | 1090.27 ± 0.36 | $\sigma_8(2.33)$ | 0.3111 ± 0.0046 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.7 ± 1.8 | r_* | 144.49 ± 0.43 | f_{2000}^{143} | 31.0 ± 2.9 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04101 ± 0.00044 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.5 ± 7.4 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.880 ± 0.040 | f_{2000}^{217} | 108.0 ± 1.9 |
| c_{100} | 0.99960 ± 0.00061 | z_{drag} | 1059.41 ± 0.45 | χ_{simall}^2 | 396.8 ± 1.6 |
| c_{217} | 0.99826 ± 0.00062 | r_{drag} | 147.24 ± 0.44 | χ_{lowl}^2 | 23.7 ± 1.1 |
| H_0 | 68.13 ± 0.83 | k_{D} | 0.14053 ± 0.00050 | χ_{plik}^2 | 770.6 ± 5.4 |
| Ω_{Λ} | 0.6912 ± 0.0082 | $100\theta_{\mathrm{D}}$ | 0.16107 ± 0.00026 | χ_{JLA}^2 | 1035.9 ± 1.5 |
| Ω_{m} | 0.3088 ± 0.0082 | z_{eq} | 3408 ± 41 | $\chi_{6\mathrm{DF}}^2$ | 0.053 ± 0.073 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1433 ± 0.0017 | k_{eq} | 0.01040 ± 0.00013 | χ_{MGS}^2 | 1.86 ± 0.69 |
| $\Omega_{\mathrm{m}}h^3$ | 0.0976 ± 0.0017 | $100\theta_{\mathrm{eq}}$ | 0.8116 ± 0.0077 | $\chi_{\mathrm{DR12BAO}}^2$ | 5.0 ± 1.3 |
| σ_8 | 0.826 ± 0.017 | $100\theta_{\mathrm{s,eq}}$ | 0.4487 ± 0.0040 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | 0.838 ± 0.020 | $H(0.15)$ | 73.62 ± 0.73 | χ_{BAO}^2 | 6.9 ± 1.5 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.459 ± 0.011 | $D_{\mathrm{M}}(0.15)$ | 635.3 ± 6.6 | χ_{CMB}^2 | 1191.0 ± 5.4 |

$$\bar{\chi}_{\mathrm{eff}}^2 = 2241.17; R - 1 = 0.00784$$

18.12 base_w_wa_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|------------------------------------|------------------------------------|-----------------------------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02216 ± 0.00020 | $\sigma_8/h^{0.5}$ | 0.994 ± 0.012 | $H(0.51)$ | 89.92 ± 0.52 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1199 ± 0.0013 | $r_{\mathrm{drag}}h$ | 100.4 ± 1.2 | $D_{\mathrm{M}}(0.51)$ | 1967 ± 16 |
| $100\theta_{\mathrm{MC}}$ | 1.04084 ± 0.00044 | $\langle d^2 \rangle^{1/2}$ | 2.456 ± 0.027 | $H(0.61)$ | 95.35 ± 0.44 |
| τ | $0.0534^{+0.0046}_{-0.0079}$ | z_{re} | $7.61^{+0.51}_{-0.80}$ | $D_{\mathrm{M}}(0.61)$ | 2291 ± 17 |
| w_0 | -0.961 ± 0.081 | $10^9 A_{\mathrm{s}}$ | $2.093^{+0.023}_{-0.030}$ | $H(2.33)$ | 235.0 ± 1.0 |
| w_a | $-0.28^{+0.34}_{-0.27}$ | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.881 ± 0.011 | $D_{\mathrm{M}}(2.33)$ | 5764 ± 13 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.041^{+0.011}_{-0.014}$ | D_{40} | 1230 ± 12 | $f\sigma_8(0.15)$ | 0.4593 ± 0.0078 |
| n_{s} | 0.9642 ± 0.0043 | D_{220} | 5716 ± 41 | $\sigma_8(0.15)$ | 0.759 ± 0.011 |
| y_{cal} | 1.0004 ± 0.0025 | D_{810} | 2535 ± 13 | $f\sigma_8(0.38)$ | 0.4803 ± 0.0092 |
| A_{217}^{CIB} | 48 ± 7 | D_{1420} | 814.5 ± 5.0 | $\sigma_8(0.38)$ | 0.673 ± 0.010 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{2000} | 229.7 ± 1.7 | $f\sigma_8(0.51)$ | 0.4805 ± 0.0095 |
| A_{143}^{tSZ} | 5.1 ± 2.0 | $n_{\mathrm{s},0.002}$ | 0.9642 ± 0.0043 | $\sigma_8(0.51)$ | 0.6299 ± 0.0095 |
| A_{100}^{PS} | 263 ± 28 | Y_{P} | $0.245305^{+0.000093}_{-0.000076}$ | $f\sigma_8(0.61)$ | 0.4765 ± 0.0096 |
| A_{143}^{PS} | 49 ± 8 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246631^{+0.000093}_{-0.000077}$ | $\sigma_8(0.61)$ | 0.5993 ± 0.0089 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43 ± 9 | $10^5 \mathrm{D}/\mathrm{H}$ | 2.626 ± 0.038 | $f\sigma_8(2.33)$ | 0.3027 ± 0.0046 |
| A_{217}^{PS} | 115 ± 10 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.781 ± 0.034 | $\sigma_8(2.33)$ | 0.3100 ± 0.0036 |
| A^{kSZ} | < 4.86 | z_* | 1090.18 ± 0.31 | f_{2000}^{143} | 31.0 ± 2.9 |
| $A_{100}^{\mathrm{dust}TT}$ | 9.0 ± 1.8 | r_* | 144.62 ± 0.32 | $f_{2000}^{143 \times 217}$ | 33.4 ± 2.0 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.8 ± 1.8 | $100\theta_*$ | 1.04104 ± 0.00043 | f_{2000}^{217} | 108.1 ± 1.9 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.3 ± 3.3 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.892 ± 0.031 | $\chi_{\mathrm{lensing}}^2$ | 9.39 ± 0.98 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.5 ± 7.3 | z_{drag} | 1059.44 ± 0.44 | χ_{simall}^2 | 396.7 ± 1.4 |
| c_{100} | 0.99961 ± 0.00061 | r_{drag} | 147.35 ± 0.35 | χ_{lowl}^2 | 23.44 ± 0.89 |
| c_{217} | 0.99826 ± 0.00062 | k_{D} | 0.14043 ± 0.00044 | χ_{plik}^2 | 770.6 ± 5.3 |
| H_0 | 68.12 ± 0.83 | $100\theta_{\mathrm{D}}$ | 0.16105 ± 0.00026 | χ_{JLA}^2 | 1035.9 ± 1.5 |
| Ω_{Λ} | 0.6924 ± 0.0079 | z_{eq} | 3395 ± 30 | $\chi_{6\mathrm{DF}}^2$ | 0.053 ± 0.075 |
| Ω_{m} | 0.3076 ± 0.0079 | k_{eq} | 0.010362 ± 0.000092 | χ_{MGS}^2 | 1.88 ± 0.70 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1427 ± 0.0013 | $100\theta_{\mathrm{eq}}$ | 0.8140 ± 0.0056 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.8 ± 1.2 |
| $\Omega_{\mathrm{m}}h^3$ | 0.0972 ± 0.0015 | $100\theta_{\mathrm{s,eq}}$ | 0.4499 ± 0.0029 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.821 ± 0.012 | $H(0.15)$ | 73.57 ± 0.71 | χ_{CMB}^2 | 1200.1 ± 5.5 |
| S_8 | 0.831 ± 0.013 | $D_{\mathrm{M}}(0.15)$ | 635.6 ± 6.5 | χ_{BAO}^2 | 6.7 ± 1.5 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4551 ± 0.0073 | $H(0.38)$ | 83.44 ± 0.63 | | |
| $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6111 ± 0.0086 | $D_{\mathrm{M}}(0.38)$ | 1517 ± 13 | | |

$$\bar{\chi}_{\mathrm{eff}}^2 = 2250.01; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.39; R - 1 = 0.01194$$

18.13 base_w_wa_plikHM_TTTEE_lowl_lowE_BAO_Pantheon18

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-------------------------|-----------------------------|----------|------------------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022366 | 0.02236 ± 0.00014 | $\Omega_m h^3$ | 0.09770 | 0.0978 ± 0.0015 | $H(0.15)$ | 73.70 | 73.81 ± 0.72 |
| $\Omega_c h^2$ | 0.12004 | 0.1202 ± 0.0013 | σ_8 | 0.8226 | 0.823 ± 0.014 | $D_M(0.15)$ | 634.2 | 633.7 ± 6.5 |
| $100\theta_{MC}$ | 1.040882 | 1.04090 ± 0.00030 | S_8 | 0.8318 | 0.833 ± 0.015 | $H(0.38)$ | 83.57 | 83.66 ± 0.61 |
| τ | 0.0544 | 0.0539 ± 0.0078 | $\sigma_8 \Omega_m^{0.5}$ | 0.4556 | 0.4561 ± 0.0080 | $D_M(0.38)$ | 1514.1 | 1512 ± 13 |
| w_0 | -0.967 | -0.953 ± 0.082 | $\sigma_8 \Omega_m^{0.25}$ | 0.6122 | 0.6128 ± 0.0098 | $H(0.51)$ | 90.071 | 90.12 ± 0.49 |
| w_a | -0.250 | $-0.33_{-0.28}^{+0.35}$ | $\sigma_8/h^{0.5}$ | 0.9954 | 0.996 ± 0.014 | $D_M(0.51)$ | 1963.5 | 1961 ± 16 |
| $\ln(10^{10} A_s)$ | 3.0448 | 3.044 ± 0.016 | $r_{drag} h$ | 100.45 | 100.4 ± 1.2 | $H(0.61)$ | 95.518 | 95.53 ± 0.40 |
| n_s | 0.96608 | 0.9646 ± 0.0042 | $\langle d^2 \rangle^{1/2}$ | 2.4562 | 2.461 ± 0.032 | $D_M(0.61)$ | 2286.8 | 2285 ± 17 |
| y_{cal} | 1.00059 | 1.0005 ± 0.0025 | z_{re} | 7.68 | 7.62 ± 0.79 | $H(2.33)$ | 235.30 | 235.26 ± 0.93 |
| A_{217}^{CIB} | 46.9 | 47 ± 7 | $10^9 A_s$ | 2.1006 | 2.099 ± 0.033 | $D_M(2.33)$ | 5754.1 | 5754.2 ± 9.9 |
| $\xi^{tSZ \times CIB}$ | 0.46 | — | $10^9 A_s e^{-2\tau}$ | 1.8840 | 1.884 ± 0.011 | $f\sigma_8(0.15)$ | 0.4601 | 0.4601 ± 0.0082 |
| A_{143}^{tSZ} | 7.23 | $5.5_{-1.9}^{+2.1}$ | D_{40} | 1228.1 | 1231 ± 12 | $\sigma_8(0.15)$ | 0.7607 | 0.761 ± 0.013 |
| A_{100}^{PS} | 248.8 | 259 ± 28 | D_{220} | 5729.0 | 5733 ± 38 | $f\sigma_8(0.38)$ | 0.4813 | 0.4815 ± 0.0097 |
| A_{143}^{PS} | 47.8 | 46 ± 8 | D_{810} | 2540.6 | 2539 ± 13 | $\sigma_8(0.38)$ | 0.6748 | 0.675 ± 0.012 |
| $A_{143 \times 217}^{PS}$ | 48.3 | 42 ± 9 | D_{1420} | 818.06 | 817.0 ± 4.7 | $f\sigma_8(0.51)$ | 0.4815 | 0.482 ± 0.010 |
| A_{217}^{PS} | 120.2 | 115 ± 10 | D_{2000} | 231.25 | 230.9 ± 1.6 | $\sigma_8(0.51)$ | 0.6316 | 0.632 ± 0.011 |
| A^{kSZ} | 0.00 | < 4.22 | $n_{s,0.002}$ | 0.96608 | 0.9646 ± 0.0042 | $f\sigma_8(0.61)$ | 0.4774 | 0.478 ± 0.010 |
| A_{100}^{dustTT} | 8.87 | 8.9 ± 1.8 | Y_P | 0.245394 | $0.245391_{-0.000052}^{+0.000060}$ | $\sigma_8(0.61)$ | 0.6010 | 0.601 ± 0.010 |
| A_{143}^{dustTT} | 11.00 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246721 | $0.246717_{-0.000052}^{+0.000060}$ | $f\sigma_8(2.33)$ | 0.3037 | 0.3039 ± 0.0053 |
| $A_{143 \times 217}^{dustTT}$ | 19.92 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5862 | 2.587 ± 0.026 | $\sigma_8(2.33)$ | 0.31097 | 0.3109 ± 0.0042 |
| A_{217}^{dustTT} | 95.3 | 93.7 ± 7.3 | Age/Gyr | 13.7585 | 13.755 ± 0.030 | f_{2000}^{143} | 28.75 | 29.5 ± 2.7 |
| A_{100}^{dustTE} | 0.1132 | 0.115 ± 0.038 | z_* | 1089.929 | 1089.95 ± 0.26 | $f_{2000}^{143 \times 217}$ | 31.95 | 32.2 ± 1.8 |
| $A_{100 \times 143}^{dustTE}$ | 0.1347 | 0.135 ± 0.030 | r_* | 144.424 | 144.38 ± 0.28 | f_{2000}^{217} | 106.63 | 107.0 ± 1.8 |
| $A_{100 \times 217}^{dustTE}$ | 0.480 | 0.482 ± 0.085 | $100\theta_*$ | 1.041071 | 1.04108 ± 0.00030 | χ_{small}^2 | 396.04 | 397.0 ± 1.8 |
| A_{143}^{dustTE} | 0.226 | 0.225 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8726 | 13.869 ± 0.027 | χ_{lowl}^2 | 23.14 | 23.49 ± 0.91 |
| $A_{143 \times 217}^{dustTE}$ | 0.664 | 0.666 ± 0.080 | z_{drag} | 1059.933 | 1059.93 ± 0.29 | χ_{plik}^2 | 2344.0 | 2358.7 ± 5.7 |
| A_{217}^{dustTE} | 2.075 | 2.09 ± 0.27 | r_{drag} | 147.085 | 147.04 ± 0.28 | χ_{JLA}^2 | 1034.82 | 1035.9 ± 1.6 |
| c_{100} | 0.99972 | 0.99966 ± 0.00062 | k_D | 0.140871 | 0.14091 ± 0.00031 | χ_{6DF}^2 | 0.0009 | 0.054 ± 0.077 |
| c_{217} | 0.99819 | 0.99819 ± 0.00062 | $100\theta_D$ | 0.160757 | 0.16076 ± 0.00017 | χ_{MGS}^2 | 1.82 | 1.95 ± 0.69 |
| H_0 | 68.29 | 68.31 ± 0.83 | z_{eq} | 3403.1 | 3407 ± 29 | $\chi_{DR12BAO}^2$ | 3.91 | 4.8 ± 1.2 |
| Ω_Λ | 0.6933 | 0.6929 ± 0.0078 | k_{eq} | 0.010387 | 0.010399 ± 0.000088 | χ_{prior}^2 | 1.76 | 11.6 ± 4.6 |
| Ω_m | 0.3067 | 0.3071 ± 0.0078 | $100\theta_{eq}$ | 0.8131 | 0.8124 ± 0.0054 | χ_{BAO}^2 | 5.73 | 6.8 ± 1.5 |
| $\Omega_m h^2$ | 0.14305 | 0.1432 ± 0.0012 | $100\theta_{s,eq}$ | 0.44928 | 0.4489 ± 0.0028 | χ_{CMB}^2 | 2763.1 | 2779.2 ± 5.8 |

Best-fit $\chi_{eff}^2 = 3805.46$; $\bar{\chi}_{eff}^2 = 3833.50$; $R - 1 = 0.00745$

χ_{eff}^2 : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.91 CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.04 commander_dx12_v3_2_29: 23.14 plik_rd12_HM_v22b_TTTEEE: 2343.97 SN - JLA Pantheon18: 1034.82

18.14 base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-------------------------|-----------------------------|----------|------------------------------------|--------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022398 | 0.02238 ± 0.00014 | $\Omega_m h^3$ | 0.09764 | 0.0977 ± 0.0014 | $H(0.15)$ | 73.71 | 73.78 ± 0.70 |
| $\Omega_c h^2$ | 0.11992 | 0.1199 ± 0.0011 | σ_8 | 0.8210 | 0.820 ± 0.011 | $D_M(0.15)$ | 634.2 | 633.8 ± 6.3 |
| $100\theta_{MC}$ | 1.040936 | 1.04092 ± 0.00029 | S_8 | 0.8298 | 0.829 ± 0.011 | $H(0.38)$ | 83.60 | 83.66 ± 0.61 |
| τ | 0.0540 | 0.0535 ± 0.0075 | $\sigma_8 \Omega_m^{0.5}$ | 0.4545 | 0.4542 ± 0.0060 | $D_M(0.38)$ | 1513.9 | 1513 ± 13 |
| w_0 | -0.967 | -0.957 ± 0.080 | $\sigma_8 \Omega_m^{0.25}$ | 0.6108 | 0.6104 ± 0.0072 | $H(0.51)$ | 90.105 | 90.13 ± 0.49 |
| w_a | -0.237 | $-0.29^{+0.32}_{-0.26}$ | $\sigma_8/h^{0.5}$ | 0.9934 | 0.993 ± 0.010 | $D_M(0.51)$ | 1963.2 | 1962 ± 15 |
| $\ln(10^{10} A_s)$ | 3.0437 | 3.042 ± 0.015 | $r_{drag} h$ | 100.45 | 100.5 ± 1.2 | $H(0.61)$ | 95.558 | 95.56 ± 0.40 |
| n_s | 0.96656 | 0.9650 ± 0.0040 | $\langle d^2 \rangle^{1/2}$ | 2.4517 | 2.454 ± 0.023 | $D_M(0.61)$ | 2286.3 | 2285 ± 16 |
| y_{cal} | 1.00050 | 1.0004 ± 0.0025 | z_{re} | 7.63 | 7.56 ± 0.76 | $H(2.33)$ | 235.33 | 235.22 ± 0.93 |
| A_{217}^{CIB} | 46.3 | 47 ± 7 | $10^9 A_s$ | 2.0982 | 2.095 ± 0.030 | $D_M(2.33)$ | 5752.4 | 5753.3 ± 9.9 |
| $\xi^{tSZ \times CIB}$ | 0.57 | — | $10^9 A_s e^{-2\tau}$ | 1.8834 | 1.883 ± 0.010 | $f\sigma_8(0.15)$ | 0.4589 | 0.4582 ± 0.0065 |
| A_{143}^{tSZ} | 7.19 | $5.4^{+2.2}_{-1.9}$ | D_{40} | 1227.0 | 1230 ± 11 | $\sigma_8(0.15)$ | 0.7592 | 0.759 ± 0.010 |
| A_{100}^{PS} | 249.1 | 259 ± 27 | D_{220} | 5730.3 | 5734 ± 39 | $f\sigma_8(0.38)$ | 0.4800 | 0.4795 ± 0.0079 |
| A_{143}^{PS} | 49.0 | 46 ± 8 | D_{810} | 2540.7 | 2538 ± 13 | $\sigma_8(0.38)$ | 0.6735 | 0.6732 ± 0.0094 |
| $A_{143 \times 217}^{PS}$ | 50.9 | 42 ± 9 | D_{1420} | 818.39 | 816.9 ± 4.7 | $f\sigma_8(0.51)$ | 0.4802 | 0.4799 ± 0.0083 |
| A_{217}^{PS} | 121.1 | 115 ± 10 | D_{2000} | 231.40 | 230.8 ± 1.6 | $\sigma_8(0.51)$ | 0.6304 | 0.6301 ± 0.0088 |
| A^{kSZ} | 0.00 | < 4.30 | $n_{s,0.002}$ | 0.96656 | 0.9650 ± 0.0040 | $f\sigma_8(0.61)$ | 0.4762 | 0.4760 ± 0.0084 |
| A_{100}^{dustTT} | 8.85 | 9.0 ± 1.8 | Y_P | 0.245406 | $0.245398^{+0.000057}_{-0.000050}$ | $\sigma_8(0.61)$ | 0.5999 | 0.5996 ± 0.0083 |
| A_{143}^{dustTT} | 11.05 | 10.9 ± 1.8 | Y_P^{BBN} | 0.246733 | $0.246724^{+0.000057}_{-0.000050}$ | $f\sigma_8(2.33)$ | 0.30312 | 0.3030 ± 0.0043 |
| $A_{143 \times 217}^{dustTT}$ | 20.07 | 18.6 ± 3.3 | $10^5 D/H$ | 2.5803 | 2.584 ± 0.025 | $\sigma_8(2.33)$ | 0.31058 | 0.3102 ± 0.0035 |
| A_{217}^{dustTT} | 95.4 | 93.6 ± 7.2 | Age/Gyr | 13.7559 | 13.756 ± 0.029 | $\chi^2_{lensing}$ | 8.805 | 9.20 ± 0.79 |
| A_{100}^{dustTE} | 0.1152 | 0.114 ± 0.038 | z_* | 1089.877 | 1089.90 ± 0.23 | χ^2_{small} | 396.01 | 396.9 ± 1.6 |
| $A_{100 \times 143}^{dustTE}$ | 0.1349 | 0.135 ± 0.030 | r_* | 144.431 | 144.44 ± 0.25 | χ^2_{lowl} | 23.05 | 23.38 ± 0.81 |
| $A_{100 \times 217}^{dustTE}$ | 0.480 | 0.484 ± 0.085 | $100\theta_*$ | 1.041115 | 1.04110 ± 0.00029 | χ^2_{plik} | 2344.2 | 2358.6 ± 5.6 |
| A_{143}^{dustTE} | 0.226 | 0.225 ± 0.054 | $D_M(z_*)/\text{Gpc}$ | 13.8727 | 13.874 ± 0.023 | χ^2_{JLA} | 1034.83 | 1035.9 ± 1.6 |
| $A_{143 \times 217}^{dustTE}$ | 0.663 | 0.667 ± 0.081 | z_{drag} | 1060.009 | 1059.95 ± 0.29 | χ^2_{6DF} | 0.0010 | 0.053 ± 0.076 |
| A_{217}^{dustTE} | 2.077 | 2.08 ± 0.26 | r_{drag} | 147.081 | 147.10 ± 0.25 | χ^2_{MGS} | 1.82 | 1.96 ± 0.69 |
| c_{100} | 0.99971 | 0.99967 ± 0.00061 | k_D | 0.140898 | 0.14087 ± 0.00029 | $\chi^2_{DR12BAO}$ | 3.86 | 4.7 ± 1.1 |
| c_{217} | 0.99818 | 0.99820 ± 0.00062 | $100\theta_D$ | 0.160725 | 0.16075 ± 0.00017 | χ^2_{prior} | 1.70 | 11.6 ± 4.5 |
| H_0 | 68.30 | 68.31 ± 0.82 | z_{eq} | 3400.9 | 3401 ± 24 | χ^2_{CMB} | 2772.1 | 2788.0 ± 5.8 |
| Ω_Λ | 0.6935 | 0.6935 ± 0.0077 | k_{eq} | 0.010380 | 0.010380 ± 0.000075 | χ^2_{BAO} | 5.68 | 6.7 ± 1.4 |
| Ω_m | 0.3065 | 0.3065 ± 0.0077 | $100\theta_{eq}$ | 0.81362 | 0.8136 ± 0.0046 | | | |
| $\Omega_m h^2$ | 0.14296 | 0.1430 ± 0.0010 | $100\theta_{s,eq}$ | 0.44953 | 0.4495 ± 0.0023 | | | |

Best-fit $\chi^2_{eff} = 3814.30$; $\Delta\chi^2_{eff} = -1.37$; $\bar{\chi}^2_{eff} = 3842.17$; $\Delta\bar{\chi}^2_{eff} = 0.31$; $R - 1 = 0.01143$
 χ^2_{eff} : BAO - 6DF: 0.00 (Δ -0.02) MGS: 1.82 (Δ 0.54) DR12BAO: 3.86 (Δ -0.38) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb.consext8: 8.80 (Δ 0.09) small_100x143_offlike5_EE_Aplanck 396.01 (Δ -0.51) commander_dx12_v3.2_29: 23.05 (Δ 0.17) plik_rd12_HM_v22b.TTTEEE: 2344.24 (Δ -1.03) SN - JLA Pantheon18: 1034.83 (Δ -0.14)

18.15 base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------------|-----------------------------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02237 ± 0.00014 | $\Omega_{\mathrm{m}}h^3$ | 0.0978 ± 0.0015 | $H(0.15)$ | 73.80 ± 0.72 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1202 ± 0.0013 | σ_8 | 0.824 ± 0.014 | $D_{\mathrm{M}}(0.15)$ | 633.7 ± 6.5 |
| $100\theta_{\mathrm{MC}}$ | 1.04090 ± 0.00030 | S_8 | 0.833 ± 0.014 | $H(0.38)$ | 83.66 ± 0.61 |
| τ | $0.0551^{+0.0052}_{-0.0083}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4565 ± 0.0079 | $D_{\mathrm{M}}(0.38)$ | 1513 ± 13 |
| w_0 | -0.953 ± 0.081 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6133 ± 0.0096 | $H(0.51)$ | 90.12 ± 0.49 |
| w_a | $-0.32^{+0.35}_{-0.28}$ | $\sigma_8/h^{0.5}$ | 0.997 ± 0.014 | $D_{\mathrm{M}}(0.51)$ | 1962 ± 15 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.046^{+0.012}_{-0.016}$ | $r_{\mathrm{drag}}h$ | 100.4 ± 1.2 | $H(0.61)$ | 95.53 ± 0.40 |
| n_{s} | 0.9647 ± 0.0042 | $\langle d^2 \rangle^{1/2}$ | 2.463 ± 0.031 | $D_{\mathrm{M}}(0.61)$ | 2285 ± 17 |
| y_{cal} | 1.0005 ± 0.0025 | z_{re} | $7.74^{+0.58}_{-0.82}$ | $H(2.33)$ | 235.26 ± 0.93 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_{\mathrm{s}}$ | $2.104^{+0.025}_{-0.034}$ | $D_{\mathrm{M}}(2.33)$ | 5754.1 ± 9.9 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.884 ± 0.011 | $f\sigma_8(0.15)$ | 0.4605 ± 0.0081 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | D_{40} | 1231 ± 12 | $\sigma_8(0.15)$ | 0.762 ± 0.013 |
| A_{100}^{PS} | 258 ± 28 | D_{220} | 5732 ± 39 | $f\sigma_8(0.38)$ | 0.4819 ± 0.0096 |
| A_{143}^{PS} | 46 ± 8 | D_{810} | 2539 ± 13 | $\sigma_8(0.38)$ | 0.676 ± 0.011 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | D_{1420} | 816.9 ± 4.7 | $f\sigma_8(0.51)$ | 0.482 ± 0.010 |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 230.9 ± 1.6 | $\sigma_8(0.51)$ | 0.633 ± 0.011 |
| A^{kSZ} | < 4.20 | $n_{\mathrm{s},0.002}$ | 0.9647 ± 0.0042 | $f\sigma_8(0.61)$ | 0.479 ± 0.010 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | Y_{P} | $0.245392^{+0.000060}_{-0.000051}$ | $\sigma_8(0.61)$ | 0.602 ± 0.010 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.9 ± 1.8 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | $0.246718^{+0.000060}_{-0.000051}$ | $f\sigma_8(2.33)$ | 0.3041 ± 0.0052 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.6 ± 3.3 | $10^5 \mathrm{D}/\mathrm{H}$ | $2.587^{+0.025}_{-0.028}$ | $\sigma_8(2.33)$ | 0.3112 ± 0.0041 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.7 ± 7.3 | $\mathrm{Age}/\mathrm{Gyr}$ | 13.755 ± 0.030 | f_{2000}^{143} | 29.5 ± 2.7 |
| $A_{100}^{\mathrm{dust}TE}$ | 0.114 ± 0.038 | z_* | 1089.94 ± 0.26 | $f_{2000}^{143 \times 217}$ | 32.1 ± 1.8 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.135 ± 0.030 | r_* | 144.39 ± 0.28 | f_{2000}^{217} | 107.0 ± 1.8 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.482 ± 0.085 | $100\theta_*$ | 1.04108 ± 0.00030 | χ_{simall}^2 | 397.0 ± 1.8 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.226 ± 0.054 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.869 ± 0.027 | χ_{lowl}^2 | 23.50 ± 0.91 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.666 ± 0.081 | z_{drag} | 1059.94 ± 0.29 | χ_{plik}^2 | 2358.5 ± 5.7 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.09 ± 0.27 | r_{drag} | 147.05 ± 0.28 | χ_{JLA}^2 | 1035.9 ± 1.6 |
| c_{100} | 0.99966 ± 0.00062 | k_{D} | 0.14091 ± 0.00031 | $\chi_{6\mathrm{DF}}^2$ | 0.054 ± 0.077 |
| c_{217} | 0.99819 ± 0.00062 | $100\theta_{\mathrm{D}}$ | 0.16076 ± 0.00017 | χ_{MGS}^2 | 1.95 ± 0.70 |
| H_0 | 68.30 ± 0.83 | z_{eq} | 3406 ± 29 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.7 ± 1.2 |
| Ω_{Λ} | 0.6929 ± 0.0078 | k_{eq} | 0.010397 ± 0.000088 | χ_{prior}^2 | 11.6 ± 4.6 |
| Ω_{m} | 0.3071 ± 0.0078 | $100\theta_{\mathrm{eq}}$ | 0.8125 ± 0.0054 | χ_{BAO}^2 | 6.7 ± 1.5 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1432 ± 0.0012 | $100\theta_{\mathrm{s,eq}}$ | 0.4490 ± 0.0028 | χ_{CMB}^2 | 2779.0 ± 5.7 |

$\bar{\chi}_{\mathrm{eff}}^2 = 3833.27$; $R - 1 = 0.00878$

18.16 base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------------|-----------------------------|---------------------|
| $\Omega_b h^2$ | 0.02238 ± 0.00014 | σ_8 | 0.821 ± 0.011 | $H(0.38)$ | 83.65 ± 0.60 |
| $\Omega_c h^2$ | 0.1199 ± 0.0011 | S_8 | 0.829 ± 0.011 | $D_M(0.38)$ | 1513 ± 13 |
| $100\theta_{MC}$ | 1.04092 ± 0.00029 | $\sigma_8 \Omega_m^{0.5}$ | 0.4543 ± 0.0060 | $H(0.51)$ | 90.13 ± 0.49 |
| τ | $0.0546^{+0.0051}_{-0.0079}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6106 ± 0.0071 | $D_M(0.51)$ | 1962 ± 15 |
| w_0 | -0.958 ± 0.079 | $\sigma_8/h^{0.5}$ | 0.993 ± 0.010 | $H(0.61)$ | 95.56 ± 0.40 |
| w_a | $-0.28^{+0.32}_{-0.26}$ | $r_{\text{drag}} h$ | 100.5 ± 1.2 | $D_M(0.61)$ | 2285 ± 16 |
| $\ln(10^{10} A_s)$ | $3.044^{+0.011}_{-0.015}$ | $\langle d^2 \rangle^{1/2}$ | 2.455 ± 0.023 | $H(2.33)$ | 235.23 ± 0.93 |
| n_s | 0.9653 ± 0.0039 | z_{re} | $7.68^{+0.56}_{-0.79}$ | $D_M(2.33)$ | 5753.2 ± 9.9 |
| y_{cal} | 1.0004 ± 0.0025 | $10^9 A_s$ | $2.099^{+0.024}_{-0.031}$ | $f\sigma_8(0.15)$ | 0.4584 ± 0.0065 |
| A_{217}^{CIB} | 47 ± 7 | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.010 | $\sigma_8(0.15)$ | 0.759 ± 0.010 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{40} | 1230 ± 11 | $f\sigma_8(0.38)$ | 0.4796 ± 0.0079 |
| A_{143}^{tSZ} | $5.4^{+2.2}_{-1.9}$ | D_{220} | 5733 ± 39 | $\sigma_8(0.38)$ | 0.6734 ± 0.0094 |
| A_{100}^{PS} | 259 ± 27 | D_{810} | 2538 ± 13 | $f\sigma_8(0.51)$ | 0.4799 ± 0.0082 |
| A_{143}^{PS} | 46 ± 8 | D_{1420} | 816.8 ± 4.8 | $\sigma_8(0.51)$ | 0.6304 ± 0.0087 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{2000} | 230.8 ± 1.6 | $f\sigma_8(0.61)$ | 0.4761 ± 0.0084 |
| A_{217}^{PS} | 115 ± 10 | $n_{s,0.002}$ | 0.9653 ± 0.0039 | $\sigma_8(0.61)$ | 0.5998 ± 0.0082 |
| A^{kSZ} | < 4.29 | Y_P | $0.245399^{+0.000057}_{-0.000049}$ | $f\sigma_8(2.33)$ | 0.3031 ± 0.0043 |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | Y_P^{BBN} | $0.246726^{+0.000057}_{-0.000049}$ | $\sigma_8(2.33)$ | 0.3104 ± 0.0035 |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.8 | $10^5 D/H$ | 2.583 ± 0.025 | f_{2000}^{143} | 29.5 ± 2.7 |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.3 | Age/Gyr | 13.756 ± 0.029 | $f_{2000}^{143 \times 217}$ | 32.2 ± 1.8 |
| $A_{217}^{\text{dust}TT}$ | 93.6 ± 7.2 | z_* | 1089.89 ± 0.23 | f_{2000}^{217} | 107.0 ± 1.8 |
| $A_{100}^{\text{dust}TE}$ | 0.114 ± 0.038 | r_* | 144.45 ± 0.24 | χ_{lensing}^2 | 9.19 ± 0.80 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.135 ± 0.030 | $100\theta_*$ | 1.04110 ± 0.00029 | χ_{small}^2 | 396.8 ± 1.6 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.485 ± 0.085 | $D_M(z_*)/\text{Gpc}$ | 13.875 ± 0.023 | χ_{lowl}^2 | 23.37 ± 0.81 |
| $A_{143}^{\text{dust}TE}$ | 0.226 ± 0.054 | z_{drag} | 1059.96 ± 0.29 | χ_{plik}^2 | 2358.4 ± 5.6 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.667 ± 0.081 | r_{drag} | 147.11 ± 0.25 | χ_{JLA}^2 | 1035.9 ± 1.6 |
| $A_{217}^{\text{dust}TE}$ | 2.08 ± 0.26 | k_D | 0.14086 ± 0.00029 | $\chi_{6\text{DF}}^2$ | 0.053 ± 0.077 |
| c_{100} | 0.99967 ± 0.00061 | $100\theta_D$ | 0.16074 ± 0.00017 | χ_{MGS}^2 | 1.95 ± 0.69 |
| c_{217} | 0.99819 ± 0.00062 | z_{eq} | 3400 ± 24 | χ_{DR12BAO}^2 | 4.6 ± 1.1 |
| H_0 | 68.30 ± 0.82 | k_{eq} | 0.010376 ± 0.000073 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_Λ | 0.6935 ± 0.0077 | $100\theta_{\text{eq}}$ | 0.8138 ± 0.0045 | χ_{CMB}^2 | 2787.8 ± 5.7 |
| Ω_m | 0.3065 ± 0.0077 | $100\theta_{s,\text{eq}}$ | 0.4497 ± 0.0023 | χ_{BAO}^2 | 6.6 ± 1.4 |
| $\Omega_m h^2$ | 0.1429 ± 0.0010 | $H(0.15)$ | 73.77 ± 0.69 | | |
| $\Omega_m h^3$ | 0.0976 ± 0.0014 | $D_M(0.15)$ | 633.9 ± 6.3 | | |

$$\bar{\chi}_{\text{eff}}^2 = 3841.93; \Delta\bar{\chi}_{\text{eff}}^2 = 0.19; R - 1 = 0.01414$$

19 yhe

19.1 base_yhe_plikHM_TT_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022104 | 0.02212 ± 0.00030 | $\sigma_8 \Omega_m^{0.5}$ | 0.4596 | 0.460 ± 0.013 | $H(0.15)$ | 72.21 | 72.28 ± 0.96 |
| $\Omega_c h^2$ | 0.12062 | 0.1206 ± 0.0022 | $\sigma_8 \Omega_m^{0.25}$ | 0.6106 | 0.611 ± 0.012 | $D_M(0.15)$ | 648.0 | 647.5 ± 9.6 |
| $100\theta_{MC}$ | 1.04067 | 1.04080 ± 0.00089 | $\sigma_8/h^{0.5}$ | 0.9924 | 0.992 ± 0.016 | $H(0.38)$ | 82.48 | 82.54 ± 0.73 |
| τ | 0.0518 | 0.0518 ± 0.0081 | $r_{drag}h$ | 98.40 | 98.5 ± 1.8 | $D_M(0.38)$ | 1543.1 | 1542 ± 19 |
| Y_P | 0.2421 | 0.246 ± 0.021 | $\langle d^2 \rangle^{1/2}$ | 2.4524 | 2.453 ± 0.043 | $H(0.51)$ | 89.28 | 89.34 ± 0.60 |
| $\ln(10^{10} A_s)$ | 3.0391 | 3.040 ± 0.018 | z_{re} | 7.48 | 7.47 ± 0.84 | $D_M(0.51)$ | 1997.5 | 1996 ± 23 |
| n_s | 0.9627 | 0.963 ± 0.011 | $10^9 A_s$ | 2.0887 | 2.091 ± 0.037 | $H(0.61)$ | 94.97 | 95.02 ± 0.51 |
| y_{cal} | 1.00043 | 1.0004 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8831 | 1.885 ± 0.015 | $D_M(0.61)$ | 2323.1 | 2322 ± 25 |
| A_{217}^{CIB} | 48.2 | 48 ± 7 | D_{40} | 1232.3 | 1233 ± 22 | $H(2.33)$ | 236.68 | 236.7 ± 1.3 |
| $\xi^{tSZ \times CIB}$ | 0.38 | — | D_{220} | 5708.6 | 5713 ± 41 | $D_M(2.33)$ | 5779.7 | 5777 ± 25 |
| A_{143}^{tSZ} | 6.95 | 5.0 ± 2.0 | D_{810} | 2537.4 | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.4634 | 0.463 ± 0.012 |
| A_{100}^{PS} | 253.8 | 264 ± 29 | D_{1420} | 815.9 | 814.3 ± 5.4 | $\sigma_8(0.15)$ | 0.7487 | 0.7491 ± 0.0084 |
| A_{143}^{PS} | 49.8 | 49 ± 9 | D_{2000} | 230.27 | 229.4 ± 2.4 | $f\sigma_8(0.38)$ | 0.4797 | 0.4796 ± 0.0095 |
| $A_{143 \times 217}^{PS}$ | 48.3 | 43 ± 9 | $n_{s,0.002}$ | 0.9627 | 0.963 ± 0.011 | $\sigma_8(0.38)$ | 0.6627 | 0.6631 ± 0.0073 |
| A_{217}^{PS} | 119.9 | 115 ± 10 | Y_P | 0.2421 | 0.246 ± 0.021 | $f\sigma_8(0.51)$ | 0.4771 | 0.4771 ± 0.0081 |
| A^{kSZ} | 0.05 | < 5.01 | Y_P^{BBN} | 0.2434 | 0.247 ± 0.021 | $\sigma_8(0.51)$ | 0.6197 | 0.6201 ± 0.0069 |
| A_{100}^{dustTT} | 8.89 | 9.0 ± 1.8 | Age/Gyr | 13.835 | 13.829 ± 0.058 | $f\sigma_8(0.61)$ | 0.4714 | 0.4714 ± 0.0072 |
| A_{143}^{dustTT} | 10.88 | 10.7 ± 1.8 | z_* | 1090.18 | 1090.33 ± 0.65 | $\sigma_8(0.61)$ | 0.5894 | 0.5898 ± 0.0066 |
| $A_{143 \times 217}^{dustTT}$ | 19.45 | 18.3 ± 3.3 | r_* | 144.486 | 144.46 ± 0.48 | $f\sigma_8(2.33)$ | 0.29683 | 0.2970 ± 0.0034 |
| A_{217}^{dustTT} | 94.7 | 93.2 ± 7.3 | $100\theta_*$ | 1.04096 | 1.04099 ± 0.00050 | $\sigma_8(2.33)$ | 0.30562 | 0.3059 ± 0.0038 |
| c_{100} | 0.99965 | 0.99961 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.8801 | 13.877 ± 0.045 | f_{2000}^{143} | 30.03 | 31 ± 4 |
| c_{217} | 0.99823 | 0.99827 ± 0.00062 | z_{drag} | 1059.25 | 1059.4 ± 1.2 | $f_{2000}^{143 \times 217}$ | 33.05 | 33.7 ± 2.9 |
| H_0 | 66.83 | 66.9 ± 1.1 | r_{drag} | 147.236 | 147.21 ± 0.49 | f_{2000}^{217} | 107.48 | 108.3 ± 2.6 |
| Ω_Λ | 0.6790 | 0.679 ± 0.015 | k_D | 0.14064 | 0.14051 ± 0.00075 | χ_{small}^2 | 395.83 | 396.9 ± 1.7 |
| Ω_m | 0.3210 | 0.321 ± 0.015 | $100\theta_D$ | 0.16093 | 0.16111 ± 0.00077 | χ_{lowl}^2 | 23.69 | 24.0 ± 2.1 |
| $\Omega_m h^2$ | 0.14337 | 0.1434 ± 0.0020 | z_{eq} | 3410.6 | 3411 ± 48 | χ_{plik}^2 | 758.7 | 772.2 ± 5.8 |
| $\Omega_m h^3$ | 0.09582 | 0.09591 ± 0.00078 | k_{eq} | 0.010410 | 0.01041 ± 0.00015 | χ_{prior}^2 | 1.32 | 7.3 ± 3.7 |
| σ_8 | 0.8113 | 0.8117 ± 0.0095 | $100\theta_{eq}$ | 0.8109 | 0.8111 ± 0.0092 | χ_{CMB}^2 | 1178.2 | 1193.1 ± 5.7 |
| S_8 | 0.8392 | 0.839 ± 0.024 | $100\theta_{s,eq}$ | 0.44831 | 0.4484 ± 0.0047 | | | |

Best-fit $\chi_{eff}^2 = 1179.56$; $\Delta\chi_{eff}^2 = -0.01$; $\bar{\chi}_{eff}^2 = 1200.43$; $\Delta\bar{\chi}_{eff}^2 = 0.85$; $R - 1 = 0.00562$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 395.83 (Δ -0.04) commander_dx12_v3.2.29: 23.69 (Δ 0.09) plik_rd12_HM_v22_TT: 758.72 (Δ -0.02)

19.2 base_yhe_plikHM_TT_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|-----------------------|--------------------------------------|----------|-------------------------|-----------------------------|----------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.022249 | 0.02227 ± 0.00025 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6030 | 0.6033 ± 0.0084 | $H(0.38)$ | 83.023 | 83.07 ± 0.44 |
| $\Omega_{\mathrm{c}}h^2$ | 0.11890 | 0.1190 ± 0.0012 | $\sigma_8/h^{0.5}$ | 0.9827 | 0.983 ± 0.012 | $D_{\mathrm{M}}(0.38)$ | 1528.1 | 1527 ± 11 |
| $100\theta_{\mathrm{MC}}$ | 1.04108 | 1.04125 ± 0.00074 | $r_{\mathrm{drag}}h$ | 99.86 | 99.87 ± 0.98 | $H(0.51)$ | 89.715 | 89.76 ± 0.39 |
| τ | 0.0545 | 0.0536 ± 0.0078 | $\langle d^2 \rangle^{1/2}$ | 2.4251 | 2.424 ± 0.029 | $D_{\mathrm{M}}(0.51)$ | 1979.9 | 1979 ± 13 |
| Y_{P} | 0.2484 | 0.253 ± 0.018 | z_{re} | 7.73 | 7.63 ± 0.81 | $H(0.61)$ | 95.315 | 95.37 ± 0.35 |
| $\ln(10^{10}A_{\mathrm{s}})$ | 3.0423 | 3.042 ± 0.017 | $10^9 A_{\mathrm{s}}$ | 2.0952 | 2.095 ± 0.036 | $D_{\mathrm{M}}(0.61)$ | 2304.2 | 2303 ± 14 |
| n_{s} | 0.9688 | 0.9693 ± 0.0082 | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.8788 | 1.881 ± 0.015 | $H(2.33)$ | 235.73 | 235.84 ± 0.83 |
| y_{cal} | 1.00048 | 1.0005 ± 0.0025 | D_{40} | 1221.0 | 1221 ± 17 | $D_{\mathrm{M}}(2.33)$ | 5764.1 | 5761 ± 19 |
| A_{217}^{CIB} | 49.2 | 49 ± 7 | D_{220} | 5716.2 | 5720 ± 40 | $f\sigma_8(0.15)$ | 0.4545 | 0.4547 ± 0.0078 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | 0.24 | — | D_{810} | 2537.3 | 2537 ± 14 | $\sigma_8(0.15)$ | 0.7473 | 0.7477 ± 0.0082 |
| A_{143}^{tSZ} | 7.03 | 4.9 ± 2.0 | D_{1420} | 816.0 | 814.5 ± 5.3 | $f\sigma_8(0.38)$ | 0.4732 | 0.4735 ± 0.0068 |
| A_{100}^{PS} | 255.8 | 267 ± 28 | D_{2000} | 230.00 | 229.1 ± 2.4 | $\sigma_8(0.38)$ | 0.6627 | 0.6630 ± 0.0072 |
| A_{143}^{PS} | 49.1 | 50 ± 9 | $n_{\mathrm{s},0.002}$ | 0.9688 | 0.9693 ± 0.0082 | $f\sigma_8(0.51)$ | 0.4721 | 0.4723 ± 0.0062 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 45.0 | 44 ± 9 | Y_{P} | 0.2484 | 0.253 ± 0.018 | $\sigma_8(0.51)$ | 0.6202 | 0.6206 ± 0.0068 |
| A_{217}^{PS} | 118.6 | 115 ± 10 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.2498 | 0.255 ± 0.019 | $f\sigma_8(0.61)$ | 0.4673 | 0.4675 ± 0.0058 |
| A^{kSZ} | 0.02 | < 5.26 | Age/Gyr | 13.8000 | 13.793 ± 0.043 | $\sigma_8(0.61)$ | 0.5902 | 0.5906 ± 0.0065 |
| $A_{100}^{\mathrm{dustTT}}$ | 8.93 | 9.0 ± 1.8 | z_* | 1090.10 | 1090.29 ± 0.65 | $f\sigma_8(2.33)$ | 0.29769 | 0.2978 ± 0.0033 |
| $A_{143}^{\mathrm{dustTT}}$ | 10.77 | 10.8 ± 1.8 | r_* | 144.798 | 144.73 ± 0.38 | $\sigma_8(2.33)$ | 0.30699 | 0.3072 ± 0.0035 |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 19.46 | 18.3 ± 3.3 | $100\theta_*$ | 1.041207 | 1.04123 ± 0.00043 | f_{2000}^{143} | 30.74 | 32 ± 4 |
| $A_{217}^{\mathrm{dustTT}}$ | 94.8 | 93.1 ± 7.3 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.9067 | 13.900 ± 0.038 | $f_{2000}^{143 \times 217}$ | 33.40 | 34.2 ± 2.8 |
| c_{100} | 0.99961 | 0.99961 ± 0.00062 | z_{drag} | 1059.67 | 1059.9 ± 1.1 | f_{2000}^{217} | 107.88 | 108.7 ± 2.6 |
| c_{217} | 0.99828 | 0.99827 ± 0.00062 | r_{drag} | 147.510 | 147.44 ± 0.43 | χ_{small}^2 | 396.06 | 397.0 ± 1.8 |
| H_0 | 67.70 | 67.74 ± 0.62 | k_{D} | 0.14021 | 0.14009 ± 0.00058 | χ_{lowl}^2 | 22.64 | 22.8 ± 1.3 |
| Ω_{Λ} | 0.6906 | 0.6906 ± 0.0076 | $100\theta_{\mathrm{D}}$ | 0.16112 | 0.16133 ± 0.00073 | χ_{plik}^2 | 760.1 | 773.3 ± 5.7 |
| Ω_{m} | 0.3094 | 0.3094 ± 0.0076 | z_{eq} | 3373.0 | 3376 ± 29 | $\chi_{6\mathrm{DF}}^2$ | 0.0162 | 0.056 ± 0.075 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14179 | 0.1419 ± 0.0012 | k_{eq} | 0.010295 | 0.010304 ± 0.000089 | χ_{MGS}^2 | 1.34 | 1.41 ± 0.55 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09599 | 0.09613 ± 0.00074 | $100\theta_{\mathrm{eq}}$ | 0.8183 | 0.8180 ± 0.0053 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.05 | 4.7 ± 1.6 |
| σ_8 | 0.8085 | 0.8089 ± 0.0090 | $100\theta_{\mathrm{s,eq}}$ | 0.45211 | 0.4519 ± 0.0028 | χ_{prior}^2 | 1.51 | 7.3 ± 3.7 |
| S_8 | 0.8211 | 0.822 ± 0.015 | $H(0.15)$ | 72.95 | 73.00 ± 0.55 | χ_{BAO}^2 | 5.41 | 6.2 ± 1.3 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4497 | 0.4500 ± 0.0083 | $D_{\mathrm{M}}(0.15)$ | 640.5 | 640.2 ± 5.3 | χ_{CMB}^2 | 1178.8 | 1193.1 ± 5.6 |

Best-fit $\chi_{\mathrm{eff}}^2 = 1185.74$; $\Delta\chi_{\mathrm{eff}}^2 = -0.00$; $\bar{\chi}_{\mathrm{eff}}^2 = 1206.53$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.51$; $R - 1 = 0.01126$
 χ_{eff}^2 : BAO - 6DF: 0.02 (Δ -0.01) MGS: 1.34 (Δ 0.06) DR12BAO: 4.05 (Δ -0.13) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.06 (Δ 0.17) commander_dx12_v3_2_29: 22.64 (Δ -0.18) plik_rd12_HM_v22_TT: 760.12 (Δ 0.02)

19.3 base_yhe_plikHM_TT_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-----------------------------|----------|-----------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022126 | 0.02213 ± 0.00028 | $\sigma_8 \Omega_m^{0.5}$ | 0.4568 | 0.4572 ± 0.0090 | $H(0.15)$ | 72.36 | 72.37 ± 0.77 |
| $\Omega_c h^2$ | 0.12014 | 0.1203 ± 0.0016 | $\sigma_8 \Omega_m^{0.25}$ | 0.6081 | 0.6085 ± 0.0077 | $D_M(0.15)$ | 646.5 | 646.4 ± 7.7 |
| $100\theta_{MC}$ | 1.04064 | 1.04078 ± 0.00085 | $\sigma_8/h^{0.5}$ | 0.9890 | 0.990 ± 0.011 | $H(0.38)$ | 82.57 | 82.60 ± 0.61 |
| τ | 0.0525 | 0.0519 ± 0.0079 | $r_{\text{drag}} h$ | 98.74 | 98.7 ± 1.4 | $D_M(0.38)$ | 1540.2 | 1540 ± 16 |
| Y_P | 0.2394 | 0.244 ± 0.020 | $\langle d^2 \rangle^{1/2}$ | 2.4478 | 2.448 ± 0.029 | $H(0.51)$ | 89.35 | 89.38 ± 0.52 |
| $\ln(10^{10} A_s)$ | 3.0392 | 3.039 ± 0.017 | z_{re} | 7.53 | 7.47 ± 0.82 | $D_M(0.51)$ | 1994.1 | 1994 ± 19 |
| n_s | 0.9626 | 0.9629 ± 0.0099 | $10^9 A_s$ | 2.0889 | 2.089 ± 0.035 | $H(0.61)$ | 95.015 | 95.05 ± 0.45 |
| y_{cal} | 1.00055 | 1.0004 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.8806 | 1.882 ± 0.014 | $D_M(0.61)$ | 2319.5 | 2319 ± 20 |
| A_{217}^{CIB} | 47.8 | 48 ± 7 | D_{40} | 1232.7 | 1233 ± 19 | $H(2.33)$ | 236.39 | 236.48 ± 0.95 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.46 | — | D_{220} | 5715.4 | 5716 ± 41 | $D_M(2.33)$ | 5778.0 | 5776 ± 23 |
| A_{143}^{tSZ} | 6.93 | 5.0 ± 2.0 | D_{810} | 2537.6 | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.4608 | 0.4612 ± 0.0082 |
| A_{100}^{PS} | 252.4 | 264 ± 29 | D_{1420} | 816.7 | 814.4 ± 5.3 | $\sigma_8(0.15)$ | 0.7475 | 0.7479 ± 0.0072 |
| A_{143}^{PS} | 50.2 | 49 ± 9 | D_{2000} | 230.72 | 229.6 ± 2.4 | $f\sigma_8(0.38)$ | 0.4776 | 0.4779 ± 0.0063 |
| $A_{143 \times 217}^{\text{PS}}$ | 49.5 | 43 ± 9 | $n_{s,0.002}$ | 0.9626 | 0.9629 ± 0.0099 | $\sigma_8(0.38)$ | 0.6618 | 0.6622 ± 0.0067 |
| A_{217}^{PS} | 119.9 | 115 ± 10 | Y_P | 0.2394 | 0.244 ± 0.020 | $f\sigma_8(0.51)$ | 0.4754 | 0.4756 ± 0.0055 |
| A^{kSZ} | 0.00 | < 5.00 | Y_P^{BBN} | 0.2407 | 0.246 ± 0.020 | $\sigma_8(0.51)$ | 0.6191 | 0.6194 ± 0.0064 |
| A_{100}^{dustTT} | 8.86 | 8.9 ± 1.9 | Age/Gyr | 13.831 | 13.827 ± 0.053 | $f\sigma_8(0.61)$ | 0.46988 | 0.4701 ± 0.0050 |
| A_{143}^{dustTT} | 10.77 | 10.7 ± 1.8 | z_* | 1090.00 | 1090.23 ± 0.64 | $\sigma_8(0.61)$ | 0.5889 | 0.5892 ± 0.0063 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 19.49 | 18.3 ± 3.3 | r_* | 144.601 | 144.55 ± 0.39 | $f\sigma_8(2.33)$ | 0.29665 | 0.2968 ± 0.0034 |
| A_{217}^{dustTT} | 94.8 | 93.2 ± 7.2 | $100\theta_*$ | 1.041002 | 1.04101 ± 0.00048 | $\sigma_8(2.33)$ | 0.30555 | 0.3057 ± 0.0037 |
| c_{100} | 0.99965 | 0.99961 ± 0.00062 | $D_M(z_*)/\text{Gpc}$ | 13.8906 | 13.886 ± 0.037 | f_{2000}^{143} | 29.57 | 31 ± 4 |
| c_{217} | 0.99824 | 0.99827 ± 0.00063 | z_{drag} | 1059.17 | 1059.4 ± 1.2 | $f_{2000}^{143 \times 217}$ | 32.63 | 33.6 ± 2.9 |
| H_0 | 67.01 | 67.02 ± 0.88 | r_{drag} | 147.345 | 147.30 ± 0.42 | f_{2000}^{217} | 107.03 | 108.1 ± 2.6 |
| Ω_Λ | 0.6817 | 0.681 ± 0.011 | k_D | 0.14065 | 0.14049 ± 0.00067 | χ_{lensing}^2 | 8.83 | 9.48 ± 0.91 |
| Ω_m | 0.3183 | 0.319 ± 0.011 | $100\theta_D$ | 0.16080 | 0.16105 ± 0.00076 | χ_{small}^2 | 395.86 | 396.8 ± 1.6 |
| $\Omega_m h^2$ | 0.14291 | 0.1430 ± 0.0015 | z_{eq} | 3399.8 | 3403 ± 36 | χ_{lowl}^2 | 23.69 | 23.9 ± 1.8 |
| $\Omega_m h^3$ | 0.09577 | 0.09585 ± 0.00078 | k_{eq} | 0.010376 | 0.01038 ± 0.00011 | χ_{plik}^2 | 758.8 | 771.8 ± 5.6 |
| σ_8 | 0.8096 | 0.8101 ± 0.0076 | $100\theta_{\text{eq}}$ | 0.8128 | 0.8125 ± 0.0069 | χ_{prior}^2 | 1.30 | 7.3 ± 3.7 |
| S_8 | 0.8339 | 0.835 ± 0.016 | $100\theta_{s,\text{eq}}$ | 0.44932 | 0.4492 ± 0.0035 | χ_{CMB}^2 | 1187.2 | 1202.1 ± 5.7 |

Best-fit $\chi_{\text{eff}}^2 = 1188.45$; $\Delta\chi_{\text{eff}}^2 = -0.12$; $\bar{\chi}_{\text{eff}}^2 = 1209.39$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.98$; $R - 1 = 0.00784$

χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.83 (Δ -0.07) small_100x143_offlike5_EE_Aplanck_B: 395.86 (Δ -0.00) commander_dx12_v3_2_29: 23.69 (Δ 0.46) plik_rd12_HM_v22_TT: 758.77 (Δ -0.55)

19.4 base_yhe_plikHM_TT_lowl_lowE_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|-----------------------|------------------------------------|----------|-------------------------|-----------------------------|----------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.022238 | 0.02226 ± 0.00025 | $\sigma_8/h^{0.5}$ | 0.9849 | 0.9850 ± 0.0096 | $H(0.51)$ | 89.663 | 89.72 ± 0.38 |
| $\Omega_{\mathrm{c}}h^2$ | 0.11918 | 0.1191 ± 0.0011 | $r_{\mathrm{drag}}h$ | 99.65 | 99.74 ± 0.90 | $D_{\mathrm{M}}(0.51)$ | 1982.2 | 1981 ± 13 |
| $100\theta_{\mathrm{MC}}$ | 1.04106 | 1.04118 ± 0.00074 | $\langle d^2 \rangle^{1/2}$ | 2.4323 | 2.431 ± 0.023 | $H(0.61)$ | 95.276 | 95.33 ± 0.35 |
| τ | 0.0549 | 0.0548 ± 0.0073 | z_{re} | 7.77 | 7.76 ± 0.74 | $D_{\mathrm{M}}(0.61)$ | 2306.6 | 2305 ± 14 |
| Y_{P} | 0.2480 | 0.251 ± 0.018 | $10^9 A_{\mathrm{s}}$ | 2.0982 | 2.100 ± 0.032 | $H(2.33)$ | 235.90 | 235.91 ± 0.75 |
| $\ln(10^{10} A_{\mathrm{s}})$ | 3.0437 | 3.045 ± 0.015 | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.8802 | 1.882 ± 0.014 | $D_{\mathrm{M}}(2.33)$ | 5765.6 | 5763 ± 19 |
| n_{s} | 0.9674 | 0.9681 ± 0.0082 | D_{40} | 1224.6 | 1224 ± 17 | $f\sigma_8(0.15)$ | 0.4562 | 0.4560 ± 0.0063 |
| y_{cal} | 1.00054 | 1.0006 ± 0.0024 | D_{220} | 5720.1 | 5724 ± 40 | $\sigma_8(0.15)$ | 0.7482 | 0.7487 ± 0.0072 |
| A_{217}^{CIB} | 50.2 | 48 ± 7 | D_{810} | 2537.4 | 2538 ± 14 | $f\sigma_8(0.38)$ | 0.4746 | 0.4746 ± 0.0054 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | 0.12 | — | D_{1420} | 815.7 | 814.9 ± 5.2 | $\sigma_8(0.38)$ | 0.6633 | 0.6638 ± 0.0065 |
| A_{143}^{tSZ} | 7.21 | 4.9 ± 2.0 | D_{2000} | 229.90 | 229.4 ± 2.4 | $f\sigma_8(0.51)$ | 0.47324 | 0.4733 ± 0.0050 |
| A_{100}^{PS} | 256.4 | 266 ± 28 | $n_{\mathrm{s},0.002}$ | 0.9674 | 0.9681 ± 0.0082 | $\sigma_8(0.51)$ | 0.6207 | 0.6213 ± 0.0061 |
| A_{143}^{PS} | 46.8 | 50 ± 9 | Y_{P} | 0.2480 | 0.251 ± 0.018 | $f\sigma_8(0.61)$ | 0.46831 | 0.4684 ± 0.0047 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 41.9 | 44 ± 9 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.2494 | 0.253 ± 0.019 | $\sigma_8(0.61)$ | 0.5906 | 0.5912 ± 0.0059 |
| A_{217}^{PS} | 117.1 | 115 ± 10 | Age/Gyr | 13.8032 | 13.797 ± 0.043 | $f\sigma_8(2.33)$ | 0.29783 | 0.2981 ± 0.0031 |
| A^{kSZ} | 0.00 | < 5.18 | z_* | 1090.13 | 1090.25 ± 0.64 | $\sigma_8(2.33)$ | 0.30706 | 0.3074 ± 0.0033 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.95 | 9.0 ± 1.8 | r_* | 144.736 | 144.72 ± 0.35 | f_{2000}^{143} | 30.76 | 32 ± 4 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.80 | 10.7 ± 1.8 | $100\theta_*$ | 1.041187 | 1.04121 ± 0.00043 | $f_{2000}^{143 \times 217}$ | 33.49 | 34.0 ± 2.8 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 19.20 | 18.3 ± 3.3 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.9010 | 13.899 ± 0.035 | f_{2000}^{217} | 107.99 | 108.6 ± 2.5 |
| $A_{217}^{\mathrm{dust}TT}$ | 94.2 | 93.2 ± 7.2 | z_{drag} | 1059.67 | 1059.8 ± 1.1 | $\chi_{\mathrm{lensing}}^2$ | 8.88 | 9.36 ± 0.76 |
| c_{100} | 0.99965 | 0.99962 ± 0.00063 | r_{drag} | 147.448 | 147.42 ± 0.40 | χ_{simall}^2 | 396.18 | 397.0 ± 1.8 |
| c_{217} | 0.99826 | 0.99827 ± 0.00062 | k_{D} | 0.14028 | 0.14018 ± 0.00057 | χ_{lowl}^2 | 22.92 | 23.0 ± 1.3 |
| H_0 | 67.58 | 67.65 ± 0.59 | $100\theta_{\mathrm{D}}$ | 0.16110 | 0.16125 ± 0.00072 | χ_{plik}^2 | 759.5 | 772.7 ± 5.6 |
| Ω_{Λ} | 0.6890 | 0.6895 ± 0.0070 | z_{eq} | 3379.3 | 3379 ± 26 | $\chi_{6\mathrm{DF}}^2$ | 0.0293 | 0.057 ± 0.073 |
| Ω_{m} | 0.3110 | 0.3105 ± 0.0070 | k_{eq} | 0.010314 | 0.010313 ± 0.000080 | χ_{MGS}^2 | 1.217 | 1.33 ± 0.50 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14206 | 0.1421 ± 0.0011 | $100\theta_{\mathrm{eq}}$ | 0.81714 | 0.8174 ± 0.0047 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.37 | 4.8 ± 1.6 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09601 | 0.09610 ± 0.00074 | $100\theta_{\mathrm{s,eq}}$ | 0.45149 | 0.4516 ± 0.0025 | χ_{prior}^2 | 1.54 | 7.3 ± 3.7 |
| σ_8 | 0.8096 | 0.8101 ± 0.0077 | $H(0.15)$ | 72.85 | 72.92 ± 0.52 | χ_{CMB}^2 | 1187.5 | 1202.1 ± 5.6 |
| S_8 | 0.8244 | 0.824 ± 0.012 | $D_{\mathrm{M}}(0.15)$ | 641.5 | 640.9 ± 5.1 | χ_{BAO}^2 | 5.62 | 6.2 ± 1.3 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4515 | 0.4514 ± 0.0067 | $H(0.38)$ | 82.954 | 83.01 ± 0.43 | | | |
| $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6046 | 0.6047 ± 0.0067 | $D_{\mathrm{M}}(0.38)$ | 1530.1 | 1529 ± 11 | | | |

Best-fit $\chi_{\mathrm{eff}}^2 = 1194.68$; $\Delta\chi_{\mathrm{eff}}^2 = -0.00$; $\bar{\chi}_{\mathrm{eff}}^2 = 1215.53$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.80$; $R - 1 = 0.01408$
 χ_{eff}^2 : BAO - 6DF: 0.03 (Δ 0.00) MGS: 1.22 (Δ 0.00) DR12BAO: 4.37 (Δ 0.00) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.88 (Δ 0.00) simall_100x143_offlike5_EE_Aplanck.L
396.18 (Δ 0.09) commander_dx12_v3.2.29: 22.92 (Δ -0.04) plik_rd12_HM_v22.TT: 759.54 (Δ -0.26)

19.5 base_yhe_plikHM_TT_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|---------------------------------------|---------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}} h^2$ | 0.02213 ± 0.00030 | $\sigma_8 \Omega_{\mathrm{m}}^{0.5}$ | 0.460 ± 0.013 | $H(0.15)$ | 72.33 ± 0.95 |
| $\Omega_{\mathrm{c}} h^2$ | 0.1205 ± 0.0021 | $\sigma_8 \Omega_{\mathrm{m}}^{0.25}$ | 0.611 ± 0.012 | $D_{\mathrm{M}}(0.15)$ | 647.0 ± 9.5 |
| $100\theta_{\mathrm{MC}}$ | 1.04084 ± 0.00088 | $\sigma_8/h^{0.5}$ | 0.993 ± 0.016 | $H(0.38)$ | 82.58 ± 0.72 |
| τ | $0.0536^{+0.0046}_{-0.0083}$ | $r_{\mathrm{drag}} h$ | 98.6 ± 1.8 | $D_{\mathrm{M}}(0.38)$ | 1541 ± 19 |
| Y_{P} | 0.247 ± 0.020 | $\langle d^2 \rangle^{1/2}$ | 2.455 ± 0.042 | $H(0.51)$ | 89.37 ± 0.60 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.043^{+0.012}_{-0.017}$ | z_{re} | $7.66^{+0.52}_{-0.84}$ | $D_{\mathrm{M}}(0.51)$ | 1995 ± 23 |
| n_{s} | 0.964 ± 0.011 | $10^9 A_{\mathrm{s}}$ | $2.098^{+0.026}_{-0.036}$ | $H(0.61)$ | 95.05 ± 0.51 |
| y_{cal} | 1.0004 ± 0.0025 | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.885 ± 0.015 | $D_{\mathrm{M}}(0.61)$ | 2320 ± 25 |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1233 ± 22 | $H(2.33)$ | 236.7 ± 1.3 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{220} | 5713 ± 41 | $D_{\mathrm{M}}(2.33)$ | 5776 ± 25 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{810} | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.464 ± 0.012 |
| A_{100}^{PS} | 264 ± 29 | D_{1420} | 814.2 ± 5.3 | $\sigma_8(0.15)$ | $0.7503^{+0.0073}_{-0.0082}$ |
| A_{143}^{PS} | 49 ± 9 | D_{2000} | 229.4 ± 2.4 | $f\sigma_8(0.38)$ | 0.4800 ± 0.0095 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 43 ± 9 | $n_{\mathrm{s},0.002}$ | 0.964 ± 0.011 | $\sigma_8(0.38)$ | $0.6642^{+0.0060}_{-0.0072}$ |
| A_{217}^{PS} | 115 ± 10 | Y_{P} | 0.247 ± 0.020 | $f\sigma_8(0.51)$ | 0.4776 ± 0.0081 |
| A^{kSZ} | < 5.01 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.248 ± 0.020 | $\sigma_8(0.51)$ | $0.6212^{+0.0056}_{-0.0067}$ |
| $A_{100}^{\mathrm{dust}TT}$ | 9.0 ± 1.8 | Age/Gyr | 13.825 ± 0.058 | $f\sigma_8(0.61)$ | 0.4720 ± 0.0071 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.7 ± 1.8 | z_* | 1090.34 ± 0.65 | $\sigma_8(0.61)$ | $0.5909^{+0.0053}_{-0.0065}$ |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.3 ± 3.3 | r_* | 144.47 ± 0.48 | $f\sigma_8(2.33)$ | $0.2976^{+0.0028}_{-0.0034}$ |
| $A_{217}^{\mathrm{dust}TT}$ | 93.2 ± 7.3 | $100\theta_*$ | 1.04101 ± 0.00050 | $\sigma_8(2.33)$ | $0.3065^{+0.0031}_{-0.0037}$ |
| c_{100} | 0.99961 ± 0.00062 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.878 ± 0.045 | f_{2000}^{143} | 31 ± 4 |
| c_{217} | 0.99827 ± 0.00062 | z_{drag} | 1059.5 ± 1.2 | $f_{2000}^{143 \times 217}$ | 33.7 ± 2.9 |
| H_0 | 67.0 ± 1.1 | r_{drag} | 147.22 ± 0.50 | f_{2000}^{217} | 108.3 ± 2.6 |
| Ω_{Λ} | 0.680 ± 0.015 | k_{D} | 0.14049 ± 0.00075 | χ_{simall}^2 | 396.8 ± 1.6 |
| Ω_{m} | 0.320 ± 0.015 | $100\theta_{\mathrm{D}}$ | 0.16114 ± 0.00076 | χ_{lowl}^2 | 23.9 ± 2.0 |
| $\Omega_{\mathrm{m}} h^2$ | 0.1433 ± 0.0020 | z_{eq} | 3409 ± 48 | χ_{plik}^2 | 772.1 ± 5.8 |
| $\Omega_{\mathrm{m}} h^3$ | 0.09594 ± 0.00078 | k_{eq} | 0.01040 ± 0.00015 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.8129 ± 0.0090 | $100\theta_{\mathrm{eq}}$ | 0.8115 ± 0.0092 | χ_{CMB}^2 | 1192.9 ± 5.6 |
| S_8 | 0.839 ± 0.025 | $100\theta_{\mathrm{s,eq}}$ | 0.4486 ± 0.0047 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 1200.15$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.83$; $R - 1 = 0.00514$

19.6 base_yhe_plikHM_TT_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|---------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02228 ± 0.00025 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6039 ± 0.0082 | $H(0.38)$ | 83.08 ± 0.44 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1190 ± 0.0012 | $\sigma_8/h^{0.5}$ | 0.984 ± 0.012 | $D_{\mathrm{M}}(0.38)$ | 1527 ± 11 |
| $100\theta_{\mathrm{MC}}$ | 1.04126 ± 0.00074 | $r_{\mathrm{drag}}h$ | 99.89 ± 0.98 | $H(0.51)$ | 89.77 ± 0.39 |
| τ | $0.0549^{+0.0054}_{-0.0078}$ | $\langle d^2 \rangle^{1/2}$ | 2.426 ± 0.028 | $D_{\mathrm{M}}(0.51)$ | 1979 ± 13 |
| Y_{P} | 0.253 ± 0.018 | z_{re} | $7.76^{+0.58}_{-0.81}$ | $H(0.61)$ | 95.37 ± 0.35 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.044^{+0.013}_{-0.017}$ | $10^9 A_{\mathrm{s}}$ | $2.100^{+0.027}_{-0.037}$ | $D_{\mathrm{M}}(0.61)$ | 2303 ± 14 |
| n_{s} | 0.9695 ± 0.0082 | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.881 ± 0.015 | $H(2.33)$ | 235.83 ± 0.84 |
| y_{cal} | 1.0005 ± 0.0025 | D_{40} | 1221 ± 17 | $D_{\mathrm{M}}(2.33)$ | 5761 ± 19 |
| A_{217}^{CIB} | 49 ± 7 | D_{220} | 5719 ± 40 | $f\sigma_8(0.15)$ | 0.4551 ± 0.0077 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{810} | 2537 ± 14 | $\sigma_8(0.15)$ | $0.7486^{+0.0071}_{-0.0082}$ |
| A_{143}^{tSZ} | 4.9 ± 2.0 | D_{1420} | 814.5 ± 5.3 | $f\sigma_8(0.38)$ | 0.4739 ± 0.0066 |
| A_{100}^{PS} | 267 ± 28 | D_{2000} | 229.1 ± 2.4 | $\sigma_8(0.38)$ | $0.6638^{+0.0062}_{-0.0072}$ |
| A_{143}^{PS} | 50 ± 9 | $n_{\mathrm{s},0.002}$ | 0.9695 ± 0.0082 | $f\sigma_8(0.51)$ | 0.4728 ± 0.0060 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 44 ± 9 | Y_{P} | 0.253 ± 0.018 | $\sigma_8(0.51)$ | $0.6213^{+0.0058}_{-0.0067}$ |
| A_{217}^{PS} | 115 ± 10 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.255 ± 0.019 | $f\sigma_8(0.61)$ | $0.4680^{+0.0053}_{-0.0059}$ |
| A^{kSZ} | < 5.26 | Age/Gyr | 13.792 ± 0.043 | $\sigma_8(0.61)$ | $0.5913^{+0.0055}_{-0.0064}$ |
| $A_{100}^{\mathrm{dustTT}}$ | 9.0 ± 1.8 | z_* | 1090.29 ± 0.65 | $f\sigma_8(2.33)$ | $0.2982^{+0.0028}_{-0.0033}$ |
| $A_{143}^{\mathrm{dustTT}}$ | 10.8 ± 1.8 | r_* | 144.74 ± 0.38 | $\sigma_8(2.33)$ | $0.3076^{+0.0029}_{-0.0034}$ |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 18.3 ± 3.3 | $100\theta_*$ | 1.04124 ± 0.00043 | f_{2000}^{143} | 32 ± 4 |
| $A_{217}^{\mathrm{dustTT}}$ | 93.1 ± 7.3 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.900 ± 0.038 | $f_{2000}^{143 \times 217}$ | 34.2 ± 2.8 |
| c_{100} | 0.99961 ± 0.00063 | z_{drag} | 1059.9 ± 1.1 | f_{2000}^{217} | 108.7 ± 2.6 |
| c_{217} | 0.99827 ± 0.00062 | r_{drag} | 147.44 ± 0.43 | χ_{simall}^2 | 396.9 ± 1.8 |
| H_0 | 67.75 ± 0.62 | k_{D} | 0.14009 ± 0.00058 | χ_{lowl}^2 | 22.8 ± 1.3 |
| Ω_{Λ} | 0.6907 ± 0.0076 | $100\theta_{\mathrm{D}}$ | 0.16133 ± 0.00073 | χ_{plik}^2 | 773.2 ± 5.7 |
| Ω_{m} | 0.3093 ± 0.0076 | z_{eq} | 3376 ± 29 | $\chi_{6\mathrm{DF}}^2$ | 0.055 ± 0.074 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1419 ± 0.0012 | k_{eq} | 0.010303 ± 0.000090 | χ_{MGS}^2 | 1.43 ± 0.55 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09614 ± 0.00074 | $100\theta_{\mathrm{eq}}$ | 0.8181 ± 0.0053 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.7 ± 1.6 |
| σ_8 | $0.8099^{+0.0079}_{-0.0091}$ | $100\theta_{\mathrm{s,eq}}$ | 0.4520 ± 0.0028 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | 0.822 ± 0.015 | $H(0.15)$ | 73.01 ± 0.55 | χ_{BAO}^2 | 6.1 ± 1.3 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4504 ± 0.0082 | $D_{\mathrm{M}}(0.15)$ | 640.1 ± 5.3 | χ_{CMB}^2 | 1192.9 ± 5.6 |
| $\bar{\chi}_{\mathrm{eff}}^2 = 1206.38$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.62$; $R - 1 = 0.01225$ | | | | | |

19.7 base_yhe_plikHM_TT_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|---------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02215 ± 0.00028 | $\sigma_8 \Omega_m^{0.5}$ | 0.4569 ± 0.0090 | $H(0.15)$ | 72.45 ± 0.75 |
| $\Omega_c h^2$ | 0.1201 ± 0.0016 | $\sigma_8 \Omega_m^{0.25}$ | 0.6087 ± 0.0077 | $D_M(0.15)$ | 645.7 ± 7.5 |
| $100\theta_{MC}$ | 1.04083 ± 0.00084 | $\sigma_8/h^{0.5}$ | 0.990 ± 0.011 | $H(0.38)$ | 82.65 ± 0.59 |
| τ | $0.0536^{+0.0048}_{-0.0079}$ | $r_{\text{drag}} h$ | 98.9 ± 1.3 | $D_M(0.38)$ | 1538 ± 15 |
| Y_P | 0.245 ± 0.020 | $\langle d^2 \rangle^{1/2}$ | 2.448 ± 0.029 | $H(0.51)$ | 89.42 ± 0.50 |
| $\ln(10^{10} A_s)$ | $3.042^{+0.012}_{-0.016}$ | z_{re} | $7.64^{+0.52}_{-0.82}$ | $D_M(0.51)$ | 1992 ± 18 |
| n_s | 0.9636 ± 0.0097 | $10^9 A_s$ | $2.095^{+0.024}_{-0.034}$ | $H(0.61)$ | 95.08 ± 0.44 |
| y_{cal} | 1.0004 ± 0.0025 | $10^9 A_s e^{-2\tau}$ | 1.882 ± 0.014 | $D_M(0.61)$ | 2317 ± 20 |
| A_{217}^{CIB} | 48 ± 7 | D_{40} | 1232 ± 19 | $H(2.33)$ | 236.40 ± 0.93 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | D_{220} | 5716 ± 41 | $D_M(2.33)$ | 5775 ± 23 |
| A_{143}^{tSZ} | 5.0 ± 2.0 | D_{810} | 2536 ± 14 | $f\sigma_8(0.15)$ | 0.4610 ± 0.0082 |
| A_{100}^{PS} | 264 ± 29 | D_{1420} | 814.4 ± 5.3 | $\sigma_8(0.15)$ | $0.7488^{+0.0062}_{-0.0070}$ |
| A_{143}^{PS} | 49 ± 9 | D_{2000} | 229.5 ± 2.4 | $f\sigma_8(0.38)$ | 0.4780 ± 0.0063 |
| $A_{143 \times 217}^{\text{PS}}$ | 43 ± 9 | $n_{s,0.002}$ | 0.9636 ± 0.0097 | $\sigma_8(0.38)$ | $0.6631^{+0.0057}_{-0.0065}$ |
| A_{217}^{PS} | 115 ± 10 | Y_P | 0.245 ± 0.020 | $f\sigma_8(0.51)$ | 0.4759 ± 0.0054 |
| A^{kSZ} | < 4.98 | Y_P^{BBN} | 0.246 ± 0.020 | $\sigma_8(0.51)$ | $0.6203^{+0.0054}_{-0.0063}$ |
| A_{100}^{dustTT} | 8.9 ± 1.9 | Age/Gyr | 13.823 ± 0.052 | $f\sigma_8(0.61)$ | 0.4704 ± 0.0049 |
| A_{143}^{dustTT} | 10.7 ± 1.8 | z_* | 1090.23 ± 0.64 | $\sigma_8(0.61)$ | $0.5901^{+0.0052}_{-0.0061}$ |
| $A_{143 \times 217}^{\text{dustTT}}$ | 18.3 ± 3.3 | r_* | 144.58 ± 0.38 | $f\sigma_8(2.33)$ | $0.2973^{+0.0028}_{-0.0033}$ |
| A_{217}^{dustTT} | 93.1 ± 7.2 | $100\theta_*$ | 1.04103 ± 0.00047 | $\sigma_8(2.33)$ | $0.3063^{+0.0031}_{-0.0036}$ |
| c_{100} | 0.99961 ± 0.00063 | $D_M(z_*)/\text{Gpc}$ | 13.888 ± 0.037 | f_{2000}^{143} | 31 ± 4 |
| c_{217} | 0.99827 ± 0.00062 | z_{drag} | 1059.4 ± 1.2 | $f_{2000}^{143 \times 217}$ | 33.6 ± 2.9 |
| H_0 | 67.11 ± 0.85 | r_{drag} | 147.32 ± 0.42 | f_{2000}^{217} | 108.1 ± 2.6 |
| Ω_Λ | 0.682 ± 0.011 | k_D | 0.14045 ± 0.00066 | χ_{lensing}^2 | 9.46 ± 0.91 |
| Ω_m | 0.318 ± 0.011 | $100\theta_D$ | 0.16107 ± 0.00076 | χ_{simall}^2 | 396.7 ± 1.5 |
| $\Omega_m h^2$ | 0.1429 ± 0.0015 | z_{eq} | 3399 ± 35 | χ_{lowl}^2 | 23.8 ± 1.8 |
| $\Omega_m h^3$ | 0.09588 ± 0.00078 | k_{eq} | 0.01038 ± 0.00011 | χ_{plik}^2 | 771.8 ± 5.6 |
| σ_8 | $0.8110^{+0.0068}_{-0.0076}$ | $100\theta_{\text{eq}}$ | 0.8132 ± 0.0067 | χ_{prior}^2 | 7.3 ± 3.7 |
| S_8 | 0.834 ± 0.016 | $100\theta_{s,\text{eq}}$ | 0.4495 ± 0.0034 | χ_{CMB}^2 | 1201.8 ± 5.6 |

$$\bar{\chi}_{\text{eff}}^2 = 1209.13; \Delta\bar{\chi}_{\text{eff}}^2 = 0.97; R - 1 = 0.00826$$

19.8 base_yhe_plikHM_TT_lowl_lowE_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|------------------------------------|---------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02226 ± 0.00025 | $\sigma_8/h^{0.5}$ | 0.9854 ± 0.0095 | $H(0.51)$ | 89.73 ± 0.38 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1191 ± 0.0011 | $r_{\mathrm{drag}}h$ | 99.76 ± 0.89 | $D_{\mathrm{M}}(0.51)$ | 1980 ± 13 |
| $100\theta_{\mathrm{MC}}$ | 1.04119 ± 0.00074 | $\langle d^2 \rangle^{1/2}$ | 2.432 ± 0.023 | $H(0.61)$ | 95.33 ± 0.35 |
| τ | $0.0556^{+0.0057}_{-0.0074}$ | z_{re} | $7.83^{+0.61}_{-0.75}$ | $D_{\mathrm{M}}(0.61)$ | 2304 ± 14 |
| Y_{P} | 0.251 ± 0.018 | $10^9 A_{\mathrm{s}}$ | $2.103^{+0.026}_{-0.033}$ | $H(2.33)$ | 235.89 ± 0.75 |
| $\ln(10^{10} A_{\mathrm{s}})$ | $3.046^{+0.013}_{-0.016}$ | $10^9 A_{\mathrm{s}} e^{-2\tau}$ | 1.882 ± 0.014 | $D_{\mathrm{M}}(2.33)$ | 5763 ± 19 |
| n_{s} | 0.9683 ± 0.0082 | D_{40} | 1224 ± 17 | $f\sigma_8(0.15)$ | 0.4561 ± 0.0063 |
| y_{cal} | 1.0006 ± 0.0024 | D_{220} | 5723 ± 40 | $\sigma_8(0.15)$ | 0.7492 ± 0.0069 |
| A_{217}^{CIB} | 48 ± 7 | D_{810} | 2537 ± 13 | $f\sigma_8(0.38)$ | 0.4748 ± 0.0054 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | D_{1420} | 814.8 ± 5.2 | $\sigma_8(0.38)$ | 0.6642 ± 0.0062 |
| A_{143}^{tSZ} | 4.9 ± 2.0 | D_{2000} | 229.4 ± 2.4 | $f\sigma_8(0.51)$ | 0.4735 ± 0.0049 |
| A_{100}^{PS} | 266 ± 28 | $n_{\mathrm{s},0.002}$ | 0.9683 ± 0.0082 | $\sigma_8(0.51)$ | 0.6217 ± 0.0059 |
| A_{143}^{PS} | 50 ± 9 | Y_{P} | 0.251 ± 0.018 | $f\sigma_8(0.61)$ | 0.4687 ± 0.0046 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 44 ± 9 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.253 ± 0.018 | $\sigma_8(0.61)$ | 0.5916 ± 0.0056 |
| A_{217}^{PS} | 115 ± 10 | Age/Gyr | 13.797 ± 0.043 | $f\sigma_8(2.33)$ | 0.2983 ± 0.0029 |
| A^{kSZ} | < 5.17 | z_* | 1090.24 ± 0.64 | $\sigma_8(2.33)$ | $0.3076^{+0.0029}_{-0.0033}$ |
| $A_{100}^{\mathrm{dustTT}}$ | 9.0 ± 1.8 | r_* | 144.72 ± 0.35 | f_{2000}^{143} | 32 ± 4 |
| $A_{143}^{\mathrm{dustTT}}$ | 10.7 ± 1.8 | $100\theta_*$ | 1.04121 ± 0.00043 | $f_{2000}^{143 \times 217}$ | 34.0 ± 2.8 |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 18.3 ± 3.3 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.899 ± 0.035 | f_{2000}^{217} | 108.6 ± 2.5 |
| $A_{217}^{\mathrm{dustTT}}$ | 93.2 ± 7.2 | z_{drag} | 1059.8 ± 1.1 | $\chi_{\mathrm{lensing}}^2$ | 9.32 ± 0.71 |
| c_{100} | 0.99962 ± 0.00063 | r_{drag} | 147.43 ± 0.41 | χ_{simall}^2 | 397.0 ± 1.8 |
| c_{217} | 0.99827 ± 0.00062 | k_{D} | 0.14017 ± 0.00057 | χ_{lowl}^2 | 23.0 ± 1.3 |
| H_0 | 67.67 ± 0.58 | $100\theta_{\mathrm{D}}$ | 0.16126 ± 0.00072 | χ_{plik}^2 | 772.6 ± 5.6 |
| Ω_{Λ} | 0.6898 ± 0.0070 | z_{eq} | 3378 ± 26 | $\chi_{6\mathrm{DF}}^2$ | 0.055 ± 0.070 |
| Ω_{m} | 0.3102 ± 0.0070 | k_{eq} | 0.010311 ± 0.000080 | χ_{MGS}^2 | 1.35 ± 0.49 |
| $\Omega_{\mathrm{m}}h^2$ | 0.1420 ± 0.0011 | $100\theta_{\mathrm{eq}}$ | 0.8175 ± 0.0047 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.7 ± 1.5 |
| $\Omega_{\mathrm{m}}h^3$ | 0.09610 ± 0.00074 | $100\theta_{\mathrm{s,eq}}$ | 0.4517 ± 0.0024 | χ_{prior}^2 | 7.3 ± 3.7 |
| σ_8 | 0.8106 ± 0.0074 | $H(0.15)$ | 72.94 ± 0.52 | χ_{CMB}^2 | 1202.0 ± 5.6 |
| S_8 | 0.824 ± 0.012 | $D_{\mathrm{M}}(0.15)$ | 640.8 ± 5.0 | χ_{BAO}^2 | 6.1 ± 1.2 |
| $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4515 ± 0.0067 | $H(0.38)$ | 83.02 ± 0.42 | | |
| $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6049 ± 0.0066 | $D_{\mathrm{M}}(0.38)$ | 1529 ± 10 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 1215.38$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.80$; $R - 1 = 0.01428$

19.9 base_yhe_plikHM_TTTEEE_lowl_lowE

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-------------------------------------|----------|-------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022281 | 0.02229 ± 0.00020 | $\Omega_m h^2$ | 0.14325 | 0.1432 ± 0.0013 | $100\theta_{\text{eq}}$ | 0.8118 | 0.8122 ± 0.0058 |
| $\Omega_c h^2$ | 0.12033 | 0.1202 ± 0.0014 | $\Omega_m h^3$ | 0.09606 | 0.09611 ± 0.00053 | $100\theta_{\text{s,eq}}$ | 0.44865 | 0.4489 ± 0.0030 |
| $100\theta_{\text{MC}}$ | 1.04058 | 1.04069 ± 0.00055 | σ_8 | 0.8109 | 0.8105 ± 0.0082 | $H(0.15)$ | 72.41 | 72.48 ± 0.60 |
| τ | 0.0540 | 0.0538 ± 0.0081 | S_8 | 0.8357 | 0.834 ± 0.016 | $D_{\text{M}}(0.15)$ | 646.0 | 645.4 ± 6.0 |
| Y_{P} | 0.2365 | 0.240 ± 0.013 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4577 | 0.4569 ± 0.0088 | $H(0.38)$ | 82.642 | 82.70 ± 0.46 |
| $\ln(10^{10} A_{\text{s}})$ | 3.0431 | 3.042 ± 0.017 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6093 | 0.6085 ± 0.0083 | $D_{\text{M}}(0.38)$ | 1539.0 | 1538 ± 12 |
| n_{s} | 0.9621 | 0.9622 ± 0.0072 | $\sigma_8/h^{0.5}$ | 0.9903 | 0.989 ± 0.012 | $H(0.51)$ | 89.430 | 89.48 ± 0.38 |
| y_{cal} | 1.00057 | 1.0006 ± 0.0024 | $r_{\text{drag}} h$ | 98.65 | 98.8 ± 1.1 | $D_{\text{M}}(0.51)$ | 1992.5 | 1991 ± 14 |
| A_{217}^{CIB} | 44.3 | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4544 | 2.452 ± 0.030 | $H(0.61)$ | 95.102 | 95.15 ± 0.33 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.85 | — | z_{re} | 7.63 | 7.61 ± 0.82 | $D_{\text{M}}(0.61)$ | 2317.7 | 2316 ± 15 |
| A_{143}^{tSZ} | 6.95 | 5.5 ± 2.0 | $10^9 A_{\text{s}}$ | 2.0970 | 2.096 ± 0.036 | $H(2.33)$ | 236.66 | 236.62 ± 0.81 |
| A_{100}^{PS} | 244.6 | 257 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8823 | 1.882 ± 0.012 | $D_{\text{M}}(2.33)$ | 5772.5 | 5770 ± 16 |
| A_{143}^{PS} | 51.3 | 45 ± 8 | D_{40} | 1236.4 | 1236 ± 16 | $f\sigma_8(0.15)$ | 0.4617 | 0.4610 ± 0.0082 |
| $A_{143 \times 217}^{\text{PS}}$ | 56.6 | 42 ± 9 | D_{220} | 5732.6 | 5733 ± 39 | $\sigma_8(0.15)$ | 0.7487 | 0.7483 ± 0.0074 |
| A_{217}^{PS} | 123.5 | 115 ± 10 | D_{810} | 2541.3 | 2538 ± 13 | $f\sigma_8(0.38)$ | 0.4785 | 0.4779 ± 0.0067 |
| A^{kSZ} | 0.01 | < 4.10 | D_{1420} | 819.43 | 817.5 ± 4.7 | $\sigma_8(0.38)$ | 0.6629 | 0.6626 ± 0.0065 |
| A_{100}^{dustTT} | 8.71 | 8.9 ± 1.8 | D_{2000} | 232.13 | 231.2 ± 1.8 | $f\sigma_8(0.51)$ | 0.4763 | 0.4757 ± 0.0060 |
| A_{143}^{dustTT} | 10.88 | 10.8 ± 1.8 | $n_{\text{s},0.002}$ | 0.9621 | 0.9622 ± 0.0072 | $\sigma_8(0.51)$ | 0.6200 | 0.6198 ± 0.0061 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.13 | 18.5 ± 3.3 | Y_{P} | 0.2365 | 0.240 ± 0.013 | $f\sigma_8(0.61)$ | 0.4707 | 0.4702 ± 0.0055 |
| A_{217}^{dustTT} | 95.7 | 93.7 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2378 | 0.241 ± 0.013 | $\sigma_8(0.61)$ | 0.5898 | 0.5896 ± 0.0058 |
| A_{100}^{dustTE} | 0.1140 | 0.114 ± 0.038 | Age/Gyr | 13.8179 | 13.813 ± 0.037 | $f\sigma_8(2.33)$ | 0.29708 | 0.2970 ± 0.0030 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1345 | 0.134 ± 0.030 | z_* | 1089.707 | 1089.81 ± 0.42 | $\sigma_8(2.33)$ | 0.30597 | 0.3060 ± 0.0032 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.484 | 0.482 ± 0.085 | r_* | 144.445 | 144.45 ± 0.32 | f_{2000}^{143} | 27.45 | 28.9 ± 3.1 |
| A_{143}^{dustTE} | 0.224 | 0.224 ± 0.053 | $100\theta_*$ | 1.041004 | 1.04103 ± 0.00033 | $f_{2000}^{143 \times 217}$ | 31.09 | 31.7 ± 2.2 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.665 | 0.666 ± 0.080 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8756 | 13.876 ± 0.030 | f_{2000}^{217} | 105.68 | 106.6 ± 2.1 |
| A_{217}^{dustTE} | 2.089 | 2.09 ± 0.27 | z_{drag} | 1059.47 | 1059.58 ± 0.78 | χ_{small}^2 | 396.06 | 397.1 ± 2.0 |
| c_{100} | 0.99975 | 0.99967 ± 0.00061 | r_{drag} | 147.129 | 147.13 ± 0.33 | χ_{lowl}^2 | 23.94 | 24.1 ± 1.5 |
| c_{217} | 0.99815 | 0.99819 ± 0.00063 | k_{D} | 0.141113 | 0.14099 ± 0.00041 | χ_{plik}^2 | 2343.8 | 2359.9 ± 6.0 |
| H_0 | 67.05 | 67.13 ± 0.69 | $100\theta_{\text{D}}$ | 0.160447 | 0.16059 ± 0.00046 | χ_{prior}^2 | 1.44 | 11.5 ± 4.5 |
| Ω_{Λ} | 0.6814 | 0.6821 ± 0.0090 | z_{eq} | 3407.9 | 3406 ± 31 | χ_{CMB}^2 | 2763.8 | 2781.1 ± 6.0 |
| Ω_{m} | 0.3186 | 0.3179 ± 0.0090 | k_{eq} | 0.010401 | 0.010396 ± 0.000093 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2765.27$; $\Delta\chi_{\text{eff}}^2 = -0.51$; $\bar{\chi}_{\text{eff}}^2 = 2792.56$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.80$; $R - 1 = 0.00867$

χ_{eff}^2 : CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.06 (Δ 0.01) commander_dx12_v3.2.29: 23.95 (Δ 0.69) plik_rd12_HM_v22b_TTTEEE: 2343.82 (Δ -0.83)

19.10 base_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--|----------|-----------------------|--------------------------------------|----------|-------------------------|-----------------------------|----------|---------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.022389 | 0.02239 ± 0.00018 | $\Omega_{\mathrm{m}}h^3$ | 0.09619 | 0.09623 ± 0.00051 | $H(0.15)$ | 72.868 | 72.90 ± 0.44 |
| $\Omega_{\mathrm{c}}h^2$ | 0.11930 | 0.1193 ± 0.0010 | σ_8 | 0.8090 | 0.8090 ± 0.0083 | $D_{\mathrm{M}}(0.15)$ | 641.45 | 641.1 ± 4.3 |
| $100\theta_{\mathrm{MC}}$ | 1.04082 | 1.04091 ± 0.00051 | S_8 | 0.8244 | 0.824 ± 0.013 | $H(0.38)$ | 82.984 | 83.01 ± 0.34 |
| τ | 0.0553 | 0.0556 ± 0.0082 | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4516 | 0.4514 ± 0.0071 | $D_{\mathrm{M}}(0.38)$ | 1529.8 | 1529.1 ± 8.8 |
| Y_{P} | 0.2402 | 0.243 ± 0.012 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6044 | 0.6043 ± 0.0074 | $H(0.51)$ | 89.704 | 89.73 ± 0.30 |
| $\ln(10^{10}A_{\mathrm{s}})$ | 3.0444 | 3.044 ± 0.018 | $\sigma_8/h^{0.5}$ | 0.9840 | 0.984 ± 0.011 | $D_{\mathrm{M}}(0.51)$ | 1981.7 | 1981 ± 10 |
| n_{s} | 0.9658 | 0.9658 ± 0.0062 | $r_{\mathrm{drag}}h$ | 99.54 | 99.59 ± 0.80 | $H(0.61)$ | 95.325 | 95.35 ± 0.26 |
| y_{cal} | 1.00071 | 1.0006 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | 2.4372 | 2.437 ± 0.026 | $D_{\mathrm{M}}(0.61)$ | 2305.9 | 2305 ± 11 |
| A_{217}^{CIB} | 44.9 | 47 ± 7 | z_{re} | 7.75 | 7.76 ± 0.83 | $H(2.33)$ | 236.11 | 236.10 ± 0.65 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | 0.78 | — | $10^9 A_{\mathrm{s}}$ | 2.0998 | 2.100 ± 0.037 | $D_{\mathrm{M}}(2.33)$ | 5762.4 | 5761 ± 14 |
| A_{143}^{tSZ} | 6.99 | $5.5^{+2.2}_{-1.9}$ | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.8798 | 1.879 ± 0.012 | $f\sigma_8(0.15)$ | 0.4561 | 0.4560 ± 0.0067 |
| A_{100}^{PS} | 245.8 | 257 ± 28 | D_{40} | 1229.6 | 1229 ± 15 | $\sigma_8(0.15)$ | 0.7475 | 0.7476 ± 0.0076 |
| A_{143}^{PS} | 50.9 | 45 ± 8 | D_{220} | 5738.9 | 5737 ± 39 | $f\sigma_8(0.38)$ | 0.4744 | 0.4743 ± 0.0059 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 55.1 | 42 ± 9 | D_{810} | 2541.4 | 2539 ± 13 | $\sigma_8(0.38)$ | 0.6626 | 0.6627 ± 0.0067 |
| A_{217}^{PS} | 122.6 | 115 ± 10 | D_{1420} | 819.78 | 817.9 ± 4.7 | $f\sigma_8(0.51)$ | 0.4730 | 0.4729 ± 0.0055 |
| A^{kSZ} | 0.00 | < 4.18 | D_{2000} | 232.10 | 231.3 ± 1.8 | $\sigma_8(0.51)$ | 0.6201 | 0.6202 ± 0.0063 |
| $A_{100}^{\mathrm{dust}TT}$ | 8.79 | 8.9 ± 1.8 | $n_{\mathrm{s},0.002}$ | 0.9658 | 0.9658 ± 0.0062 | $f\sigma_8(0.61)$ | 0.4680 | 0.4680 ± 0.0052 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.95 | 10.9 ± 1.8 | Y_{P} | 0.2402 | 0.243 ± 0.012 | $\sigma_8(0.61)$ | 0.5900 | 0.5902 ± 0.0060 |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 20.17 | 18.6 ± 3.3 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.2415 | 0.244 ± 0.012 | $f\sigma_8(2.33)$ | 0.29749 | 0.2976 ± 0.0031 |
| $A_{217}^{\mathrm{dust}TT}$ | 95.7 | 93.7 ± 7.3 | Age/Gyr | 13.7954 | 13.793 ± 0.031 | $\sigma_8(2.33)$ | 0.30669 | 0.3068 ± 0.0032 |
| $A_{100}^{\mathrm{dust}TE}$ | 0.1135 | 0.113 ± 0.038 | z_* | 1089.623 | 1089.73 ± 0.41 | f_{2000}^{143} | 27.76 | 29.0 ± 3.1 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.1355 | 0.134 ± 0.030 | r_* | 144.617 | 144.61 ± 0.28 | $f_{2000}^{143 \times 217}$ | 31.26 | 31.7 ± 2.2 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.482 | 0.482 ± 0.086 | $100\theta_*$ | 1.041145 | 1.04116 ± 0.00030 | f_{2000}^{217} | 105.85 | 106.6 ± 2.1 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.227 | 0.222 ± 0.053 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.8902 | 13.890 ± 0.027 | χ_{small}^2 | 396.22 | 397.4 ± 2.2 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.664 | 0.665 ± 0.079 | z_{drag} | 1059.74 | 1059.84 ± 0.73 | χ_{lowl}^2 | 23.25 | 23.4 ± 1.2 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.072 | 2.08 ± 0.27 | r_{drag} | 147.273 | 147.27 ± 0.30 | χ_{plik}^2 | 2344.9 | 2360.4 ± 6.0 |
| c_{100} | 0.99974 | 0.99966 ± 0.00061 | k_{D} | 0.140902 | 0.14080 ± 0.00036 | $\chi_{6\mathrm{DF}}^2$ | 0.0379 | 0.061 ± 0.071 |
| c_{217} | 0.99818 | 0.99819 ± 0.00062 | $100\theta_{\mathrm{D}}$ | 0.160519 | 0.16064 ± 0.00045 | χ_{MGS}^2 | 1.156 | 1.24 ± 0.43 |
| H_0 | 67.59 | 67.62 ± 0.50 | z_{eq} | 3385.8 | 3385 ± 23 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.62 | 5.0 ± 1.5 |
| Ω_{Λ} | 0.6884 | 0.6887 ± 0.0063 | k_{eq} | 0.010334 | 0.010333 ± 0.000071 | χ_{prior}^2 | 1.55 | 11.6 ± 4.5 |
| Ω_{m} | 0.3116 | 0.3113 ± 0.0063 | $100\theta_{\mathrm{eq}}$ | 0.81621 | 0.8164 ± 0.0043 | χ_{BAO}^2 | 5.82 | 6.3 ± 1.3 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14233 | 0.14231 ± 0.00098 | $100\theta_{\mathrm{s,eq}}$ | 0.45089 | 0.4510 ± 0.0022 | χ_{CMB}^2 | 2764.3 | 2781.1 ± 6.0 |

Best-fit $\chi_{\mathrm{eff}}^2 = 2771.70$; $\Delta\chi_{\mathrm{eff}}^2 = -0.21$; $\bar{\chi}_{\mathrm{eff}}^2 = 2798.91$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1.00$; $R - 1 = 0.02958$
 χ_{eff}^2 : BAO - 6DF: 0.04 (Δ 0.01) MGS: 1.16 (Δ -0.06) DR12BAO: 4.62 (Δ 0.21) CMB - simall_100x143_offlike5_EE_Aplanck_B: 396.22 (Δ 0.02) commander_dx12_v3_2_29: 23.25 (Δ 0.38) plik_rd12_HM_v22b_TTTEEE: 2344.87 (Δ -0.64)

19.11 base_yhe_plikHM_TTTEE_lowl_lowE_post_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|--------------------------------------|----------|-----------------------|-------------------------------------|----------|-------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022304 | 0.02230 ± 0.00020 | $\Omega_m h^2$ | 0.14297 | 0.1430 ± 0.0011 | $100\theta_{\text{eq}}$ | 0.8131 | 0.8129 ± 0.0051 |
| $\Omega_c h^2$ | 0.12002 | 0.1201 ± 0.0012 | $\Omega_m h^3$ | 0.09606 | 0.09609 ± 0.00053 | $100\theta_{\text{s,eq}}$ | 0.44931 | 0.4492 ± 0.0026 |
| $100\theta_{\text{MC}}$ | 1.04061 | 1.04067 ± 0.00055 | σ_8 | 0.8097 | 0.8095 ± 0.0069 | $H(0.15)$ | 72.52 | 72.53 ± 0.55 |
| τ | 0.0541 | 0.0537 ± 0.0077 | S_8 | 0.8319 | 0.832 ± 0.013 | $D_{\text{M}}(0.15)$ | 644.9 | 644.9 ± 5.4 |
| Y_{P} | 0.2366 | 0.239 ± 0.013 | $\sigma_8 \Omega_{\text{m}}^{0.5}$ | 0.4557 | 0.4557 ± 0.0069 | $H(0.38)$ | 82.724 | 82.73 ± 0.42 |
| $\ln(10^{10} A_{\text{s}})$ | 3.0422 | 3.042 ± 0.016 | $\sigma_8 \Omega_{\text{m}}^{0.25}$ | 0.6074 | 0.6073 ± 0.0064 | $D_{\text{M}}(0.38)$ | 1536.7 | 1537 ± 11 |
| n_{s} | 0.9629 | 0.9621 ± 0.0070 | $\sigma_8/h^{0.5}$ | 0.9878 | 0.9876 ± 0.0091 | $H(0.51)$ | 89.492 | 89.50 ± 0.36 |
| y_{cal} | 1.00046 | 1.0005 ± 0.0024 | $r_{\text{drag}} h$ | 98.89 | 98.9 ± 1.0 | $D_{\text{M}}(0.51)$ | 1989.8 | 1990 ± 13 |
| A_{217}^{CIB} | 44.7 | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.4484 | 2.450 ± 0.023 | $H(0.61)$ | 95.150 | 95.16 ± 0.31 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | 0.78 | — | z_{re} | 7.64 | 7.59 ± 0.78 | $D_{\text{M}}(0.61)$ | 2314.8 | 2315 ± 14 |
| A_{143}^{tSZ} | 7.00 | $5.5^{+2.1}_{-1.9}$ | $10^9 A_{\text{s}}$ | 2.0951 | 2.094 ± 0.033 | $H(2.33)$ | 236.48 | 236.51 ± 0.72 |
| A_{100}^{PS} | 244.9 | 257 ± 28 | $10^9 A_{\text{s}} e^{-2\tau}$ | 1.8801 | 1.881 ± 0.012 | $D_{\text{M}}(2.33)$ | 5770.5 | 5770 ± 16 |
| A_{143}^{PS} | 50.0 | 45 ± 8 | D_{40} | 1234.0 | 1236 ± 15 | $f\sigma_8(0.15)$ | 0.4598 | 0.4598 ± 0.0064 |
| $A_{143 \times 217}^{\text{PS}}$ | 54.6 | 42 ± 9 | D_{220} | 5731.3 | 5735 ± 39 | $\sigma_8(0.15)$ | 0.7477 | 0.7475 ± 0.0064 |
| A_{217}^{PS} | 122.5 | 115 ± 10 | D_{810} | 2540.0 | 2538 ± 13 | $f\sigma_8(0.38)$ | 0.4770 | 0.4769 ± 0.0052 |
| A^{kSZ} | 0.01 | < 4.10 | D_{1420} | 819.29 | 817.5 ± 4.8 | $\sigma_8(0.38)$ | 0.6622 | 0.6620 ± 0.0058 |
| A_{100}^{dustTT} | 8.70 | 8.9 ± 1.8 | D_{2000} | 232.10 | 231.3 ± 1.8 | $f\sigma_8(0.51)$ | 0.47498 | 0.4749 ± 0.0047 |
| A_{143}^{dustTT} | 10.94 | 10.8 ± 1.8 | $n_{\text{s},0.002}$ | 0.9629 | 0.9621 ± 0.0070 | $\sigma_8(0.51)$ | 0.6195 | 0.6193 ± 0.0056 |
| $A_{143 \times 217}^{\text{dustTT}}$ | 20.05 | 18.6 ± 3.3 | Y_{P} | 0.2366 | 0.239 ± 0.013 | $f\sigma_8(0.61)$ | 0.46959 | 0.4695 ± 0.0043 |
| A_{217}^{dustTT} | 95.7 | 93.9 ± 7.3 | $Y_{\text{P}}^{\text{BBN}}$ | 0.2379 | 0.240 ± 0.013 | $\sigma_8(0.61)$ | 0.5893 | 0.5891 ± 0.0054 |
| A_{100}^{dustTE} | 0.1152 | 0.113 ± 0.038 | Age/Gyr | 13.8135 | 13.812 ± 0.036 | $f\sigma_8(2.33)$ | 0.29694 | 0.2968 ± 0.0028 |
| $A_{100 \times 143}^{\text{dustTE}}$ | 0.1356 | 0.134 ± 0.030 | z_* | 1089.656 | 1089.76 ± 0.41 | $\sigma_8(2.33)$ | 0.30591 | 0.3058 ± 0.0031 |
| $A_{100 \times 217}^{\text{dustTE}}$ | 0.482 | 0.482 ± 0.086 | r_* | 144.508 | 144.49 ± 0.28 | f_{2000}^{143} | 27.38 | 28.8 ± 3.1 |
| A_{143}^{dustTE} | 0.226 | 0.224 ± 0.054 | $100\theta_*$ | 1.041023 | 1.04103 ± 0.00032 | $f_{2000}^{143 \times 217}$ | 31.01 | 31.6 ± 2.2 |
| $A_{143 \times 217}^{\text{dustTE}}$ | 0.666 | 0.667 ± 0.080 | $D_{\text{M}}(z_*)/\text{Gpc}$ | 13.8813 | 13.880 ± 0.027 | f_{2000}^{217} | 105.61 | 106.5 ± 2.1 |
| A_{217}^{dustTE} | 2.091 | 2.08 ± 0.27 | z_{drag} | 1059.51 | 1059.56 ± 0.77 | χ_{lensing}^2 | 8.756 | 9.18 ± 0.69 |
| c_{100} | 0.99973 | 0.99967 ± 0.00061 | r_{drag} | 147.185 | 147.17 ± 0.30 | χ_{small}^2 | 396.05 | 397.0 ± 1.7 |
| c_{217} | 0.99818 | 0.99819 ± 0.00062 | k_{D} | 0.141070 | 0.14098 ± 0.00039 | χ_{lowl}^2 | 23.75 | 24.0 ± 1.4 |
| H_0 | 67.19 | 67.19 ± 0.63 | $100\theta_{\text{D}}$ | 0.160430 | 0.16055 ± 0.00045 | χ_{plik}^2 | 2344.0 | 2359.6 ± 5.9 |
| Ω_{Λ} | 0.6833 | 0.6831 ± 0.0081 | z_{eq} | 3401.0 | 3402 ± 27 | χ_{prior}^2 | 1.51 | 11.5 ± 4.5 |
| Ω_{m} | 0.3167 | 0.3169 ± 0.0081 | k_{eq} | 0.010380 | 0.010384 ± 0.000082 | χ_{CMB}^2 | 2772.6 | 2789.9 ± 6.0 |

Best-fit $\chi_{\text{eff}}^2 = 2774.06$; $\Delta\chi_{\text{eff}}^2 = -0.57$; $\bar{\chi}_{\text{eff}}^2 = 2801.34$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.65$; $R - 1 = 0.01603$

χ_{eff}^2 : CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p.teb.consext8: 8.76 (Δ -0.11) small_100x143_offlike5_EE_Aplanck_B: 396.05 (Δ -0.00) commander_dx12_v3_2_29: 23.75 (Δ 0.50) plik_rd12_HM_v22b_TTTEE: 2344.00 (Δ -0.93)

19.12 base_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing

| Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits | Parameter | Best fit | 68% limits |
|-------------------------------|----------|-----------------------|-----------------------------|----------|-------------------------|-----------------------------|----------|---------------------|
| $\Omega_b h^2$ | 0.022390 | 0.02239 ± 0.00018 | σ_8 | 0.8089 | 0.8095 ± 0.0070 | $H(0.38)$ | 82.983 | 83.00 ± 0.34 |
| $\Omega_c h^2$ | 0.11926 | 0.11930 ± 0.00094 | S_8 | 0.8243 | 0.825 ± 0.011 | $D_M(0.38)$ | 1529.8 | 1529.5 ± 8.5 |
| $100\theta_{MC}$ | 1.04080 | 1.04088 ± 0.00051 | $\sigma_8 \Omega_m^{0.5}$ | 0.4515 | 0.4518 ± 0.0058 | $H(0.51)$ | 89.702 | 89.72 ± 0.29 |
| τ | 0.0559 | 0.0562 ± 0.0075 | $\sigma_8 \Omega_m^{0.25}$ | 0.6043 | 0.6047 ± 0.0060 | $D_M(0.51)$ | 1981.7 | 1981 ± 10 |
| Y_P | 0.2395 | 0.242 ± 0.012 | $\sigma_8/h^{0.5}$ | 0.9840 | 0.9846 ± 0.0088 | $H(0.61)$ | 95.321 | 95.34 ± 0.26 |
| $\ln(10^{10} A_s)$ | 3.0450 | 3.046 ± 0.016 | $r_{drag} h$ | 99.55 | 99.56 ± 0.76 | $D_M(0.61)$ | 2305.9 | 2306 ± 11 |
| n_s | 0.9653 | 0.9653 ± 0.0062 | $\langle d^2 \rangle^{1/2}$ | 2.4386 | 2.440 ± 0.022 | $H(2.33)$ | 236.08 | 236.11 ± 0.60 |
| y_{cal} | 1.00070 | 1.0007 ± 0.0024 | z_{re} | 7.80 | 7.82 ± 0.75 | $D_M(2.33)$ | 5762.6 | 5762 ± 14 |
| A_{217}^{CIB} | 46.0 | 46 ± 7 | $10^9 A_s$ | 2.1011 | 2.103 ± 0.033 | $f\sigma_8(0.15)$ | 0.4561 | 0.4564 ± 0.0055 |
| $\xi^{tSZ \times CIB}$ | 0.57 | — | $10^9 A_s e^{-2\tau}$ | 1.8788 | 1.879 ± 0.011 | $\sigma_8(0.15)$ | 0.7475 | 0.7480 ± 0.0065 |
| A_{143}^{tSZ} | 7.15 | $5.5_{-1.9}^{+2.2}$ | D_{40} | 1230.4 | 1231 ± 14 | $f\sigma_8(0.38)$ | 0.47437 | 0.4747 ± 0.0048 |
| A_{100}^{PS} | 247.5 | 257 ± 28 | D_{220} | 5739.5 | 5740 ± 38 | $\sigma_8(0.38)$ | 0.6626 | 0.6631 ± 0.0058 |
| A_{143}^{PS} | 47.5 | 45 ± 8 | D_{810} | 2540.4 | 2539 ± 13 | $f\sigma_8(0.51)$ | 0.47297 | 0.4733 ± 0.0045 |
| $A_{143 \times 217}^{PS}$ | 49.7 | 42 ± 9 | D_{1420} | 819.44 | 818.2 ± 4.7 | $\sigma_8(0.51)$ | 0.6201 | 0.6205 ± 0.0055 |
| A_{217}^{PS} | 120.5 | 115 ± 10 | D_{2000} | 232.04 | 231.4 ± 1.8 | $f\sigma_8(0.61)$ | 0.46800 | 0.4683 ± 0.0043 |
| A^{kSZ} | 0.00 | < 4.08 | $n_{s,0.002}$ | 0.9653 | 0.9653 ± 0.0062 | $\sigma_8(0.61)$ | 0.5900 | 0.5904 ± 0.0053 |
| A_{100}^{dustTT} | 8.80 | 8.9 ± 1.8 | Y_P | 0.2395 | 0.242 ± 0.012 | $f\sigma_8(2.33)$ | 0.29749 | 0.2977 ± 0.0027 |
| A_{143}^{dustTT} | 10.92 | 10.9 ± 1.8 | Y_P^{BBN} | 0.2408 | 0.243 ± 0.012 | $\sigma_8(2.33)$ | 0.30670 | 0.3069 ± 0.0029 |
| $A_{143 \times 217}^{dustTT}$ | 19.83 | 18.6 ± 3.3 | Age/Gyr | 13.7960 | 13.794 ± 0.031 | f_{2000}^{143} | 27.80 | 28.8 ± 3.1 |
| A_{217}^{dustTT} | 95.3 | 93.8 ± 7.3 | z_* | 1089.594 | 1089.70 ± 0.40 | $f_{2000}^{143 \times 217}$ | 31.23 | 31.6 ± 2.2 |
| A_{100}^{dustTE} | 0.1140 | 0.112 ± 0.038 | r_* | 144.627 | 144.61 ± 0.26 | f_{2000}^{217} | 105.95 | 106.5 ± 2.1 |
| $A_{100 \times 143}^{dustTE}$ | 0.1339 | 0.134 ± 0.030 | $100\theta_*$ | 1.041135 | 1.04115 ± 0.00030 | $\chi_{lensing}^2$ | 8.664 | 9.08 ± 0.61 |
| $A_{100 \times 217}^{dustTE}$ | 0.483 | 0.482 ± 0.086 | $D_M(z_*)/\text{Gpc}$ | 13.8913 | 13.890 ± 0.026 | χ_{small}^2 | 396.33 | 397.3 ± 2.0 |
| A_{143}^{dustTE} | 0.224 | 0.222 ± 0.054 | z_{drag} | 1059.74 | 1059.81 ± 0.73 | χ_{lowl}^2 | 23.34 | 23.5 ± 1.2 |
| $A_{143 \times 217}^{dustTE}$ | 0.664 | 0.666 ± 0.079 | r_{drag} | 147.281 | 147.27 ± 0.29 | χ_{plik}^2 | 2344.6 | 2360.0 ± 5.9 |
| A_{217}^{dustTE} | 2.079 | 2.08 ± 0.27 | k_D | 0.140918 | 0.14083 ± 0.00035 | χ_{6DF}^2 | 0.0372 | 0.060 ± 0.068 |
| c_{100} | 0.99974 | 0.99966 ± 0.00061 | $100\theta_D$ | 0.160488 | 0.16061 ± 0.00045 | χ_{MGS}^2 | 1.156 | 1.22 ± 0.41 |
| c_{217} | 0.99818 | 0.99819 ± 0.00062 | z_{eq} | 3385.1 | 3386 ± 22 | $\chi_{DR12BAO}^2$ | 4.61 | 5.0 ± 1.5 |
| H_0 | 67.588 | 67.60 ± 0.48 | k_{eq} | 0.010332 | 0.010334 ± 0.000066 | χ_{prior}^2 | 1.65 | 11.6 ± 4.5 |
| Ω_Λ | 0.6885 | 0.6885 ± 0.0060 | $100\theta_{eq}$ | 0.81633 | 0.8163 ± 0.0040 | χ_{CMB}^2 | 2773.0 | 2789.8 ± 6.0 |
| Ω_m | 0.3115 | 0.3115 ± 0.0060 | $100\theta_{s,eq}$ | 0.45095 | 0.4509 ± 0.0020 | χ_{BAO}^2 | 5.80 | 6.2 ± 1.2 |
| $\Omega_m h^2$ | 0.14230 | 0.14233 ± 0.00090 | $H(0.15)$ | 72.870 | 72.88 ± 0.42 | | | |
| $\Omega_m h^3$ | 0.09618 | 0.09621 ± 0.00051 | $D_M(0.15)$ | 641.42 | 641.3 ± 4.2 | | | |

Best-fit $\chi_{\text{eff}}^2 = 2780.41$; $\Delta\chi_{\text{eff}}^2 = -0.29$; $\bar{\chi}_{\text{eff}}^2 = 2807.64$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.79$; $R - 1 = 0.02881$
 χ_{eff}^2 : BAO - 6DF: 0.04 (Δ 0.01) MGS: 1.16 (Δ -0.06) DR12BAO: 4.61 (Δ 0.19) CMB - smicadx12_Dec5_ftl_mv2_ndclpp_p_teb_consext8: 8.66 (Δ -0.07) simall_100x143_offlike5_EE_Aplanck
396.33 (Δ -0.19) commander_dx12_v3.2.29: 23.34 (Δ 0.45) plik_rd12_HM_v22b.TTTEEE: 2344.62 (Δ -0.70)

19.13 base_yhe_plikHM_TTTEE_lowl_lowE_post_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02230 ± 0.00020 | $\Omega_{\mathrm{m}}h^2$ | 0.1432 ± 0.0013 | $100\theta_{\mathrm{eq}}$ | 0.8124 ± 0.0058 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1202 ± 0.0014 | $\Omega_{\mathrm{m}}h^3$ | 0.09613 ± 0.00053 | $100\theta_{\mathrm{s,eq}}$ | 0.4490 ± 0.0030 |
| $100\theta_{\mathrm{MC}}$ | 1.04071 ± 0.00055 | σ_8 | $0.8115^{+0.0070}_{-0.0079}$ | $H(0.15)$ | 72.50 ± 0.60 |
| τ | $0.0552^{+0.0051}_{-0.0085}$ | S_8 | 0.835 ± 0.016 | $D_{\mathrm{M}}(0.15)$ | 645.2 ± 5.9 |
| Y_{P} | 0.240 ± 0.013 | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4573 ± 0.0087 | $H(0.38)$ | 82.72 ± 0.46 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.045^{+0.013}_{-0.017}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6091 ± 0.0081 | $D_{\mathrm{M}}(0.38)$ | 1537 ± 12 |
| n_{s} | 0.9625 ± 0.0072 | $\sigma_8/h^{0.5}$ | 0.990 ± 0.011 | $H(0.51)$ | 89.49 ± 0.38 |
| y_{cal} | 1.0006 ± 0.0024 | $r_{\mathrm{drag}}h$ | 98.8 ± 1.1 | $D_{\mathrm{M}}(0.51)$ | 1990 ± 14 |
| A_{217}^{CIB} | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.455 ± 0.029 | $H(0.61)$ | 95.16 ± 0.32 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | z_{re} | $7.75^{+0.56}_{-0.85}$ | $D_{\mathrm{M}}(0.61)$ | 2315 ± 15 |
| A_{143}^{tSZ} | 5.5 ± 1.9 | $10^9 A_{\mathrm{s}}$ | $2.101^{+0.026}_{-0.036}$ | $H(2.33)$ | 236.61 ± 0.81 |
| A_{100}^{PS} | 257 ± 28 | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.882 ± 0.012 | $D_{\mathrm{M}}(2.33)$ | 5770 ± 16 |
| A_{143}^{PS} | 45 ± 8 | D_{40} | 1236 ± 16 | $f\sigma_8(0.15)$ | 0.4614 ± 0.0081 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | D_{220} | 5733 ± 38 | $\sigma_8(0.15)$ | $0.7493^{+0.0061}_{-0.0072}$ |
| A_{217}^{PS} | 115 ± 10 | D_{810} | 2538 ± 13 | $f\sigma_8(0.38)$ | 0.4783 ± 0.0066 |
| A^{kSZ} | < 4.05 | D_{1420} | 817.5 ± 4.7 | $\sigma_8(0.38)$ | $0.6635^{+0.0052}_{-0.0064}$ |
| $A_{100}^{\mathrm{dustTT}}$ | 8.9 ± 1.8 | D_{2000} | 231.3 ± 1.8 | $f\sigma_8(0.51)$ | 0.4762 ± 0.0058 |
| $A_{143}^{\mathrm{dustTT}}$ | 10.8 ± 1.8 | $n_{\mathrm{s},0.002}$ | 0.9625 ± 0.0072 | $\sigma_8(0.51)$ | $0.6207^{+0.0048}_{-0.0061}$ |
| $A_{143 \times 217}^{\mathrm{dustTT}}$ | 18.5 ± 3.3 | Y_{P} | 0.240 ± 0.013 | $f\sigma_8(0.61)$ | 0.4708 ± 0.0053 |
| $A_{217}^{\mathrm{dustTT}}$ | 93.7 ± 7.3 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.241 ± 0.013 | $\sigma_8(0.61)$ | $0.5904^{+0.0046}_{-0.0058}$ |
| $A_{100}^{\mathrm{dustTE}}$ | 0.114 ± 0.038 | Age/Gyr | 13.812 ± 0.037 | $f\sigma_8(2.33)$ | $0.2975^{+0.0023}_{-0.0030}$ |
| $A_{100 \times 143}^{\mathrm{dustTE}}$ | 0.134 ± 0.030 | z_* | 1089.81 ± 0.42 | $\sigma_8(2.33)$ | $0.3064^{+0.0025}_{-0.0032}$ |
| $A_{100 \times 217}^{\mathrm{dustTE}}$ | 0.481 ± 0.085 | r_* | 144.45 ± 0.32 | f_{2000}^{143} | 28.9 ± 3.1 |
| $A_{143}^{\mathrm{dustTE}}$ | 0.224 ± 0.053 | $100\theta_*$ | 1.04103 ± 0.00033 | $f_{2000}^{143 \times 217}$ | 31.7 ± 2.2 |
| $A_{143 \times 217}^{\mathrm{dustTE}}$ | 0.666 ± 0.080 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.876 ± 0.030 | f_{2000}^{217} | 106.6 ± 2.1 |
| $A_{217}^{\mathrm{dustTE}}$ | 2.09 ± 0.27 | z_{drag} | 1059.61 ± 0.78 | χ_{simall}^2 | 397.1 ± 2.0 |
| c_{100} | 0.99967 ± 0.00061 | r_{drag} | 147.13 ± 0.33 | χ_{lowl}^2 | 24.1 ± 1.5 |
| c_{217} | 0.99819 ± 0.00063 | k_{D} | 0.14099 ± 0.00041 | χ_{plik}^2 | 2359.7 ± 6.0 |
| H_0 | 67.15 ± 0.69 | $100\theta_{\mathrm{D}}$ | 0.16059 ± 0.00046 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_{Λ} | 0.6824 ± 0.0090 | z_{eq} | 3406 ± 31 | χ_{CMB}^2 | 2780.8 ± 5.9 |
| Ω_{m} | 0.3176 ± 0.0090 | k_{eq} | 0.010394 ± 0.000093 | | |

$\bar{\chi}_{\mathrm{eff}}^2 = 2792.32$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.79$; $R - 1 = 0.01241$

19.14 base_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02239 ± 0.00018 | $\Omega_{\mathrm{m}}h^3$ | 0.09624 ± 0.00051 | $H(0.15)$ | 72.91 ± 0.44 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1193 ± 0.0010 | σ_8 | $0.8099^{+0.0071}_{-0.0083}$ | $D_{\mathrm{M}}(0.15)$ | 641.0 ± 4.3 |
| $100\theta_{\mathrm{MC}}$ | 1.04092 ± 0.00051 | S_8 | 0.825 ± 0.013 | $H(0.38)$ | 83.02 ± 0.34 |
| τ | $0.0566^{+0.0058}_{-0.0083}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4517 ± 0.0070 | $D_{\mathrm{M}}(0.38)$ | 1528.9 ± 8.8 |
| Y_{P} | 0.243 ± 0.012 | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6048 ± 0.0071 | $H(0.51)$ | 89.74 ± 0.29 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.047^{+0.014}_{-0.018}$ | $\sigma_8/h^{0.5}$ | 0.985 ± 0.010 | $D_{\mathrm{M}}(0.51)$ | 1981 ± 10 |
| n_{s} | 0.9660 ± 0.0062 | $r_{\mathrm{drag}}h$ | 99.60 ± 0.80 | $H(0.61)$ | 95.36 ± 0.26 |
| y_{cal} | 1.0006 ± 0.0024 | $\langle d^2 \rangle^{1/2}$ | 2.439 ± 0.025 | $D_{\mathrm{M}}(0.61)$ | 2305 ± 11 |
| A_{217}^{CIB} | 47 ± 7 | z_{re} | $7.87^{+0.62}_{-0.84}$ | $H(2.33)$ | 236.10 ± 0.65 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | $10^9 A_{\mathrm{s}}$ | $2.104^{+0.028}_{-0.038}$ | $D_{\mathrm{M}}(2.33)$ | 5761 ± 14 |
| A_{143}^{tSZ} | 5.5 ± 2.0 | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.879 ± 0.012 | $f\sigma_8(0.15)$ | 0.4563 ± 0.0066 |
| A_{100}^{PS} | 257 ± 28 | D_{40} | 1229 ± 15 | $\sigma_8(0.15)$ | $0.7484^{+0.0064}_{-0.0076}$ |
| A_{143}^{PS} | 45 ± 8 | D_{220} | 5736 ± 39 | $f\sigma_8(0.38)$ | 0.4747 ± 0.0058 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | D_{810} | 2539 ± 13 | $\sigma_8(0.38)$ | $0.6634^{+0.0055}_{-0.0067}$ |
| A_{217}^{PS} | 115 ± 10 | D_{1420} | 817.9 ± 4.7 | $f\sigma_8(0.51)$ | 0.4734 ± 0.0053 |
| A^{kSZ} | < 4.14 | D_{2000} | 231.3 ± 1.8 | $\sigma_8(0.51)$ | $0.6209^{+0.0052}_{-0.0063}$ |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | $n_{\mathrm{s},0.002}$ | 0.9660 ± 0.0062 | $f\sigma_8(0.61)$ | 0.4684 ± 0.0050 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.9 ± 1.8 | Y_{P} | 0.243 ± 0.012 | $\sigma_8(0.61)$ | $0.5908^{+0.0049}_{-0.0060}$ |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.6 ± 3.3 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.244 ± 0.012 | $f\sigma_8(2.33)$ | $0.2979^{+0.0025}_{-0.0031}$ |
| $A_{217}^{\mathrm{dust}TT}$ | 93.8 ± 7.3 | Age/Gyr | 13.792 ± 0.031 | $\sigma_8(2.33)$ | $0.3071^{+0.0026}_{-0.0032}$ |
| $A_{100}^{\mathrm{dust}TE}$ | 0.113 ± 0.038 | z_* | 1089.73 ± 0.41 | f_{2000}^{143} | 28.9 ± 3.1 |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.134 ± 0.030 | r_* | 144.61 ± 0.28 | $f_{2000}^{143 \times 217}$ | 31.7 ± 2.2 |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.482 ± 0.086 | $100\theta_*$ | 1.04117 ± 0.00030 | f_{2000}^{217} | 106.6 ± 2.1 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.222 ± 0.053 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.889 ± 0.027 | χ_{simall}^2 | 397.3 ± 2.3 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.665 ± 0.079 | z_{drag} | 1059.86 ± 0.73 | χ_{lowl}^2 | 23.4 ± 1.2 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.08 ± 0.27 | r_{drag} | 147.27 ± 0.31 | χ_{plik}^2 | 2360.2 ± 6.0 |
| c_{100} | 0.99966 ± 0.00061 | k_{D} | 0.14080 ± 0.00036 | $\chi_{6\mathrm{DF}}^2$ | 0.060 ± 0.070 |
| c_{217} | 0.99819 ± 0.00062 | $100\theta_{\mathrm{D}}$ | 0.16065 ± 0.00045 | χ_{MGS}^2 | 1.25 ± 0.43 |
| H_0 | 67.63 ± 0.50 | z_{eq} | 3385 ± 23 | $\chi_{\mathrm{DR12BAO}}^2$ | 4.9 ± 1.5 |
| Ω_{Λ} | 0.6888 ± 0.0063 | k_{eq} | 0.010332 ± 0.000071 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_{m} | 0.3112 ± 0.0063 | $100\theta_{\mathrm{eq}}$ | 0.8164 ± 0.0043 | χ_{BAO}^2 | 6.2 ± 1.2 |
| $\Omega_{\mathrm{m}}h^2$ | 0.14230 ± 0.00098 | $100\theta_{\mathrm{s,eq}}$ | 0.4510 ± 0.0022 | χ_{CMB}^2 | 2780.9 ± 5.9 |

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.67; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.96; R - 1 = 0.03223$$

19.15 base_yhe_plikHM_TTTEE_lowl_lowE_post_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--|------------------------------|--------------------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_{\mathrm{b}}h^2$ | 0.02231 ± 0.00020 | $\Omega_{\mathrm{m}}h^2$ | 0.1430 ± 0.0011 | $100\theta_{\mathrm{eq}}$ | 0.8133 ± 0.0050 |
| $\Omega_{\mathrm{c}}h^2$ | 0.1200 ± 0.0012 | $\Omega_{\mathrm{m}}h^3$ | 0.09610 ± 0.00052 | $100\theta_{\mathrm{s,eq}}$ | 0.4494 ± 0.0026 |
| $100\theta_{\mathrm{MC}}$ | 1.04070 ± 0.00054 | σ_8 | $0.8103^{+0.0059}_{-0.0067}$ | $H(0.15)$ | 72.56 ± 0.54 |
| τ | $0.0549^{+0.0052}_{-0.0080}$ | S_8 | 0.832 ± 0.013 | $D_{\mathrm{M}}(0.15)$ | 644.5 ± 5.3 |
| Y_{P} | 0.239 ± 0.013 | $\sigma_8\Omega_{\mathrm{m}}^{0.5}$ | 0.4557 ± 0.0069 | $H(0.38)$ | 82.76 ± 0.42 |
| $\ln(10^{10}A_{\mathrm{s}})$ | $3.044^{+0.012}_{-0.016}$ | $\sigma_8\Omega_{\mathrm{m}}^{0.25}$ | 0.6077 ± 0.0063 | $D_{\mathrm{M}}(0.38)$ | 1536 ± 11 |
| n_{s} | 0.9625 ± 0.0069 | $\sigma_8/h^{0.5}$ | 0.9882 ± 0.0089 | $H(0.51)$ | 89.52 ± 0.35 |
| y_{cal} | 1.0005 ± 0.0024 | $r_{\mathrm{drag}}h$ | 98.95 ± 0.98 | $D_{\mathrm{M}}(0.51)$ | 1989 ± 13 |
| A_{217}^{CIB} | 46 ± 7 | $\langle d^2 \rangle^{1/2}$ | 2.451 ± 0.023 | $H(0.61)$ | 95.18 ± 0.31 |
| $\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$ | — | z_{re} | $7.71^{+0.56}_{-0.81}$ | $D_{\mathrm{M}}(0.61)$ | 2314 ± 14 |
| A_{143}^{tSZ} | $5.5^{+2.1}_{-1.9}$ | $10^9 A_{\mathrm{s}}$ | $2.099^{+0.025}_{-0.033}$ | $H(2.33)$ | 236.48 ± 0.71 |
| A_{100}^{PS} | 257 ± 28 | $10^9 A_{\mathrm{s}}e^{-2\tau}$ | 1.880 ± 0.012 | $D_{\mathrm{M}}(2.33)$ | 5769 ± 15 |
| A_{143}^{PS} | 45 ± 8 | D_{40} | 1236 ± 15 | $f\sigma_8(0.15)$ | 0.4599 ± 0.0064 |
| $A_{143 \times 217}^{\mathrm{PS}}$ | 42 ± 9 | D_{220} | 5735 ± 39 | $\sigma_8(0.15)$ | $0.7483^{+0.0054}_{-0.0063}$ |
| A_{217}^{PS} | 115 ± 10 | D_{810} | 2538 ± 13 | $f\sigma_8(0.38)$ | 0.4771 ± 0.0052 |
| A^{kSZ} | < 4.08 | D_{1420} | 817.5 ± 4.8 | $\sigma_8(0.38)$ | $0.6628^{+0.0048}_{-0.0058}$ |
| $A_{100}^{\mathrm{dust}TT}$ | 8.9 ± 1.8 | D_{2000} | 231.3 ± 1.8 | $f\sigma_8(0.51)$ | 0.4752 ± 0.0046 |
| $A_{143}^{\mathrm{dust}TT}$ | 10.8 ± 1.8 | $n_{\mathrm{s},0.002}$ | 0.9625 ± 0.0069 | $\sigma_8(0.51)$ | $0.6200^{+0.0045}_{-0.0055}$ |
| $A_{143 \times 217}^{\mathrm{dust}TT}$ | 18.6 ± 3.3 | Y_{P} | 0.239 ± 0.013 | $f\sigma_8(0.61)$ | 0.4698 ± 0.0042 |
| $A_{217}^{\mathrm{dust}TT}$ | 93.8 ± 7.3 | $Y_{\mathrm{P}}^{\mathrm{BBN}}$ | 0.240 ± 0.013 | $\sigma_8(0.61)$ | $0.5898^{+0.0043}_{-0.0053}$ |
| $A_{100}^{\mathrm{dust}TE}$ | 0.113 ± 0.038 | Age/Gyr | 13.810 ± 0.036 | $f\sigma_8(2.33)$ | $0.2972^{+0.0023}_{-0.0028}$ |
| $A_{100 \times 143}^{\mathrm{dust}TE}$ | 0.134 ± 0.030 | z_* | 1089.76 ± 0.41 | $\sigma_8(2.33)$ | $0.3062^{+0.0025}_{-0.0031}$ |
| $A_{100 \times 217}^{\mathrm{dust}TE}$ | 0.482 ± 0.086 | r_* | 144.50 ± 0.28 | f_{2000}^{143} | 28.8 ± 3.1 |
| $A_{143}^{\mathrm{dust}TE}$ | 0.224 ± 0.054 | $100\theta_*$ | 1.04104 ± 0.00032 | $f_{2000}^{143 \times 217}$ | 31.6 ± 2.2 |
| $A_{143 \times 217}^{\mathrm{dust}TE}$ | 0.667 ± 0.080 | $D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$ | 13.880 ± 0.027 | f_{2000}^{217} | 106.5 ± 2.1 |
| $A_{217}^{\mathrm{dust}TE}$ | 2.08 ± 0.27 | z_{drag} | 1059.59 ± 0.77 | $\chi_{\mathrm{lensing}}^2$ | 9.17 ± 0.69 |
| c_{100} | 0.99967 ± 0.00061 | r_{drag} | 147.18 ± 0.30 | χ_{small}^2 | 396.9 ± 1.8 |
| c_{217} | 0.99819 ± 0.00062 | k_{D} | 0.14097 ± 0.00039 | χ_{lowl}^2 | 24.0 ± 1.4 |
| H_0 | 67.23 ± 0.61 | $100\theta_{\mathrm{D}}$ | 0.16056 ± 0.00045 | χ_{plik}^2 | 2359.5 ± 5.8 |
| Ω_{Λ} | 0.6836 ± 0.0079 | z_{eq} | 3401 ± 26 | χ_{prior}^2 | 11.5 ± 4.5 |
| Ω_{m} | 0.3164 ± 0.0079 | k_{eq} | 0.010379 ± 0.000081 | χ_{CMB}^2 | 2789.6 ± 5.9 |

$\bar{\chi}_{\mathrm{eff}}^2 = 2801.11$; $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 0.60$; $R - 1 = 0.01737$

19.16 base_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5

| Parameter | 68% limits | Parameter | 68% limits | Parameter | 68% limits |
|--------------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|------------------------------|
| $\Omega_b h^2$ | 0.02239 ± 0.00018 | σ_8 | $0.8099^{+0.0062}_{-0.0070}$ | $H(0.38)$ | 83.01 ± 0.33 |
| $\Omega_c h^2$ | 0.11927 ± 0.00093 | S_8 | 0.825 ± 0.011 | $D_M(0.38)$ | 1529.3 ± 8.4 |
| $100\theta_{MC}$ | 1.04089 ± 0.00050 | $\sigma_8 \Omega_m^{0.5}$ | 0.4519 ± 0.0058 | $H(0.51)$ | 89.72 ± 0.29 |
| τ | $0.0568^{+0.0059}_{-0.0076}$ | $\sigma_8 \Omega_m^{0.25}$ | 0.6050 ± 0.0059 | $D_M(0.51)$ | 1981 ± 10 |
| Y_P | 0.242 ± 0.012 | $\sigma_8/h^{0.5}$ | 0.9850 ± 0.0086 | $H(0.61)$ | 95.34 ± 0.26 |
| $\ln(10^{10} A_s)$ | $3.047^{+0.013}_{-0.016}$ | $r_{\text{drag}} h$ | 99.58 ± 0.75 | $D_M(0.61)$ | 2305 ± 11 |
| n_s | 0.9655 ± 0.0062 | $\langle d^2 \rangle^{1/2}$ | 2.441 ± 0.021 | $H(2.33)$ | 236.10 ± 0.60 |
| y_{cal} | 1.0007 ± 0.0024 | z_{re} | $7.89^{+0.63}_{-0.76}$ | $D_M(2.33)$ | 5762 ± 13 |
| A_{217}^{CIB} | 46 ± 7 | $10^9 A_s$ | $2.106^{+0.027}_{-0.033}$ | $f\sigma_8(0.15)$ | 0.4565 ± 0.0055 |
| $\xi^{\text{tSZ} \times \text{CIB}}$ | — | $10^9 A_s e^{-2\tau}$ | 1.879 ± 0.011 | $\sigma_8(0.15)$ | $0.7484^{+0.0057}_{-0.0065}$ |
| A_{143}^{tSZ} | 5.5 ± 2.0 | D_{40} | 1231 ± 14 | $f\sigma_8(0.38)$ | 0.4749 ± 0.0047 |
| A_{100}^{PS} | 257 ± 28 | D_{220} | 5740 ± 38 | $\sigma_8(0.38)$ | $0.6635^{+0.0050}_{-0.0059}$ |
| A_{143}^{PS} | 45 ± 8 | D_{810} | 2539 ± 13 | $f\sigma_8(0.51)$ | 0.4735 ± 0.0044 |
| $A_{143 \times 217}^{\text{PS}}$ | 42 ± 9 | D_{1420} | 818.2 ± 4.7 | $\sigma_8(0.51)$ | $0.6209^{+0.0048}_{-0.0056}$ |
| A_{217}^{PS} | 115 ± 10 | D_{2000} | 231.4 ± 1.8 | $f\sigma_8(0.61)$ | 0.4685 ± 0.0041 |
| A^{kSZ} | < 4.06 | $n_{s,0.002}$ | 0.9655 ± 0.0062 | $\sigma_8(0.61)$ | $0.5908^{+0.0046}_{-0.0054}$ |
| $A_{100}^{\text{dust}TT}$ | 8.9 ± 1.8 | Y_P | 0.242 ± 0.012 | $f\sigma_8(2.33)$ | $0.2979^{+0.0024}_{-0.0028}$ |
| $A_{143}^{\text{dust}TT}$ | 10.9 ± 1.8 | Y_P^{BBN} | 0.243 ± 0.012 | $\sigma_8(2.33)$ | $0.3071^{+0.0025}_{-0.0030}$ |
| $A_{143 \times 217}^{\text{dust}TT}$ | 18.6 ± 3.3 | Age/Gyr | 13.793 ± 0.031 | f_{2000}^{143} | 28.8 ± 3.1 |
| $A_{217}^{\text{dust}TT}$ | 93.8 ± 7.3 | z_* | 1089.70 ± 0.40 | $f_{2000}^{143 \times 217}$ | 31.6 ± 2.2 |
| $A_{100}^{\text{dust}TE}$ | 0.112 ± 0.038 | r_* | 144.62 ± 0.26 | f_{2000}^{217} | 106.5 ± 2.1 |
| $A_{100 \times 143}^{\text{dust}TE}$ | 0.134 ± 0.030 | $100\theta_*$ | 1.04115 ± 0.00030 | χ_{lensing}^2 | 9.05 ± 0.57 |
| $A_{100 \times 217}^{\text{dust}TE}$ | 0.482 ± 0.086 | $D_M(z_*)/\text{Gpc}$ | 13.890 ± 0.026 | χ_{small}^2 | 397.3 ± 2.1 |
| $A_{143}^{\text{dust}TE}$ | 0.222 ± 0.054 | z_{drag} | 1059.82 ± 0.73 | χ_{lowl}^2 | 23.5 ± 1.2 |
| $A_{143 \times 217}^{\text{dust}TE}$ | 0.665 ± 0.079 | r_{drag} | 147.27 ± 0.29 | χ_{plik}^2 | 2359.9 ± 5.9 |
| $A_{217}^{\text{dust}TE}$ | 2.08 ± 0.27 | k_D | 0.14082 ± 0.00035 | $\chi_{6\text{DF}}^2$ | 0.058 ± 0.065 |
| c_{100} | 0.99966 ± 0.00061 | $100\theta_D$ | 0.16061 ± 0.00045 | χ_{MGS}^2 | 1.23 ± 0.41 |
| c_{217} | 0.99819 ± 0.00062 | z_{eq} | 3385 ± 21 | χ_{DR12BAO}^2 | 4.9 ± 1.4 |
| H_0 | 67.62 ± 0.48 | k_{eq} | 0.010332 ± 0.000065 | χ_{prior}^2 | 11.6 ± 4.5 |
| Ω_Λ | 0.6887 ± 0.0059 | $100\theta_{\text{eq}}$ | 0.8164 ± 0.0040 | χ_{CMB}^2 | 2789.7 ± 5.9 |
| Ω_m | 0.3113 ± 0.0059 | $100\theta_{s,\text{eq}}$ | 0.4510 ± 0.0020 | χ_{BAO}^2 | 6.2 ± 1.1 |
| $\Omega_m h^2$ | 0.14231 ± 0.00090 | $H(0.15)$ | 72.90 ± 0.42 | | |
| $\Omega_m h^3$ | 0.09622 ± 0.00051 | $D_M(0.15)$ | 641.2 ± 4.1 | | |

$\bar{\chi}_{\text{eff}}^2 = 2807.47$; $\Delta\bar{\chi}_{\text{eff}}^2 = 0.75$; $R - 1 = 0.03003$