Table 5. Columns in the final galaxy property catalog

Column Name	Units	Description
ID	—	A3COSMOS master catalog ID (version 20170426), which equals Laigle et al. (2016) COSMOS2015 catalog ID when ID $\leq$ 1182108.
RA	degree	Fitted ALMA continuum emission's R.A. with Gaussian source models, in the equatorial coordinate in the epoch of J2000.
Dec	degree	Same as above but is Dec., in the equatorial coordinate in the epoch of J2000.
z	—	SED best-fit redshift from the list of prior redshifts in z_prior.
z_prior	—	Prior redshifts (prior-z) in the literature, multiple values are separated by white spaces.
Ref_z_prior	—	References of z_prior [a].
Flag_outlier_CPA	—	Flag = 1 means the source is flagged as an outlier in our counterpart association analysis (Sect. 4.2).
Flag_outlier_SED	—	Flag = 1 means the source is flagged as an outlier in our SED fitting analysis (Sect. 4.4).
M_star	$M_\odot$	Stellar mass from our SED fitting at redshift z. Assumed Chabrier (2003) initial mass function (IMF).
L_dust	$L_\odot$	Infrared 8–1000 μm luminosity from dust from the same SED fitting as above.
SFR	$M_\odot \, yr^{-1}$	Star formation rate integrated from star formation history from the same SED fitting as above. Same IMF as above.
sSFR	Gyr^{-1}	Specific SFR from star formation history, = SFR / M_star $\times 10^9$.

[a] A3COSMOS_specz means the source has the spectroscopic redshift (spec-z) confirmed in our A3COSMOS data cube analysis with at least one S/N > 6 spectral line (Sect. 4.5; Liu et al. in prep). Salvato2017_specz means the source has spec-z in the COSMOS spec-z catalog compiled by M. Salvato et al. (available in the COSMOS collaboration; version 07SEP2017 with 103,964 rows). Salvato2011_Chandra_photoz means the source has photometric redshift (photo-z) (optimized for AGNs) in Salvato et al. (2011) *Chandra* source catalog and the photo-z is inconsistent with any previous redshift (by $> 0.15 \times (1 + z)$ difference, same condition afterwards). Salvato2011_XMM_photoz means the source has photo-z (optimized for AGNs) in Salvato et al. (2011) *XMM-Newton* source catalog and the photo-z is inconsistent with any previous redshift. Laigle2016_photoz means the source has photo-z in the COSMOS2015 catalog provided by Laigle et al. (2016) and the photo-z is inconsistent with any previous redshift. Davidzon2017_photoz means the source has photo-z (optimized for $z > 2.5$ sources) in Davidzon et al. (2017) catalog and the photo-z is inconsistent with any previous redshift. Delvecchio2017_photoz means the source has photo-z (considered mid-IR AGN component) in Delvecchio et al. (2017) catalog and the photo-z is inconsistent with any previous redshift. Jin2018_photoz means the source has photo-z (with far-IR/mm photometry) in Jin et al. (2018) catalog and the photo-z is inconsistent with any previous redshift.