X25b Bright End of the UV Luminosity Functions at $z = 4 - 7$ Derived with the 100 deg^2 Data of the Subaru HSC Survey

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We investigate the UV luminosity functions (LFs) of $z = 4-7$ dropout galaxies based on the Subaru strategic program survey with Hyper Suprime-Cam (HSC). The effective survey area is about 100 deg^2, which is more than 20 times larger than previous studies of high-z luminous galaxies. This large survey area allows us to cover an unprecedentedly large cosmic volume at $z > 4$ and to identify about $400,000$ luminous sources with $M_{\rm UV} \lesssim -20$ mag. Combining our UV LFs with those from the latest ultra-deep Hubble Space Telescope legacy surveys, we obtain the UV LFs at $z = 4-7$ that span a very wide UV luminosity range of ~ 0.002 – $20\,L^*$. We find a clear overabundance of dropouts at the bright end over the best-fit Schechter function. Our precision UV LF estimates in the wide luminosity range distinguish two UV LF components very clearly for the first time, a galaxy UV LF and a faint-end AGN UV LF.