

SKA-Low: Delivery of observing modes and ODPs to the astronomy community

AA2 SV 2027	AA* SV 2029	Cycle 0 2030		Cycle 1 2031			Cycle 2 2032			Cycle 3 2033		
Science Verification (SV)		AA* SV	Shared risk	AA* SV	Shared risk	Standard ops	AA* SV	Shared risk	Standard ops	AA* SV	Shared risk	Standard ops
Single subarray Both sidereal and non-sidereal tracking		4 subarrays Drift scanning capped at a few mins		16 subarrays Drift scanning capped at a few mins			Full drift scanning capabilities				Full drift scanning capabilities	
Calibrated and averaged visibilities, image cubes Full BW (150MHz), FoV Single beam, single pointing 40 channel max 4h max integration	Full BW (300MHz) At least one substation arrangement, capped by data rates Up to 16 station beams 8h max integration, up to 16 images (either in time i.e. 30min pointings or station beams) Gridded visibilities	VLBI at least 2 beams 50 PSS beams	Two substation arrangements, capped by data rates Up to 24 station beams 50h max integration Basic image-based mosaicing	PLDP generation tests Joint deconvolution Limited support for PLDP generation testing Limited joint deconvolution Transient buffer triggered by PSS observations	Source finding (& associated image cutouts) Source finding (& associated image cutouts) PSS full basic capability VLBI full basic capability	Multiple pointings processed independently Greater than 2 substation arrangements, capped by data rates Up to 48 station beams 50h max integration 64k channel max Greater than 2 substation arrangements, capped by data rates Multiple pointings processed independently Increased number of channels Up to 48 station beams 12h max integration PST full 8 beam capability	Improved PSS machine learning for improved triggering Fast imaging Transient buffer triggered by fast imaging	Limited PLDP generation Joint deconvolution Limited PLDP generation Joint deconvolution Transient buffer triggered by PSS observations	Full substation capabilities Improved source finding (& associated image cutouts) Full substation capabilities PSS full basic capability VLBI full basic capability	Autocorrelation processed data products Autocorrelation processed data products	Improved PSS machine learning for improved triggering Fast imaging Transient buffer triggered by fast imaging	Full PLDP capabilities Joint deconvolution Full joint deconvolution capabilities Full PLDP capabilities Transient buffer triggered by PSS observations
Calibrated and averaged visibilities, image cubes Early implementation of the continuum subtraction possible Single beam, single pointing Full FoV, 4k channel max, up to full BW 4h max integration	At least one substation arrangement, capped by data rates Continuum subtraction Up to 8 station beams 4h max integration, up to 8 images (either in time i.e. 30min pointings or station beams) Gridded visibilities		Two substation arrangements, capped by data rates 16k channel max Up to 24 station beams 12h max integration Basic image-based mosaicing PST full 8 beam capability									
PST at least one beam in flowthrough or detected filterbank mode	PST at least 2 beams, full processing VLBI at least one beam 9 PSS beams fully processed											

Telescope mode

Observatory Data Products (ODPs) and their capabilities

Continuum

Spectral

Beamformed

Transient