DSN Stations

D SN O

DSS No.	Antenna Type	Maximum Tracking Rate (Az/El) (deg/sec)	S-Band					X-Band					K/Ka-Band					Simultaneous Downlink Capabilities				
			S-Band Uplink Frequency (MHz)	S-Band EIRP (dBW)	S-Band Transmit Power / Polarization/ LNA	S-Band Downlink Frequency (MHz) [1]	S-Band GAIN / G/T @ 45 deg (dB) [2]	X-Band Uplink Frequency (MHz)	X-Band EIRP (dBW)	X-Band Transmit Power / Polarization / LNA	X-Band Downlink Frequency (MHz) [1]	X-Band GAIN / G/T @ 45 deg (dB) [2]	K/Ka-Band Downlink Frequency (MHz) [1]	Ka-Band Uplink Frequency (MHz)	Ka-Band Uplink EIRP (dBW)	Ka-Band Transmit Power / Poliarizatio n	K/Ka-Band GAIN / G/T @ 45 deg (dB) [2]	Simultaneous Downlink Capability; 1-way	Simultaneous Downlink Capability; 2-way, S-up	Simultaneous Downlink Capability; 2-way, X-up	Simultaneous Downlink Capability; 2-way, Ka-up	Simultaneous Downlink Polarization Capability
14	70m	0.25/0.25	2110-2120	85.6 - 105.6 85.6 - 97.4	20 kW / LCP or RCP / 2 HMT	2200 - 2300	63.5 / 49.8	7145 - 7190	95.8 - 115.8	20 kW / LCP or RCP / HMT	8400 - 8500	74.5 / 61.5	-				-	S + X	S + X	S + X	-	S or X or (S+X)
24	34m BWG1	0.8/0.8*	2025-2120	78.7 - 98.7	20 kW / same as S- Downlink / HMT	2200-2300	56.7 /40.8	7145-7235	110	20 kW / LCP or RCP/ TWM	8400 - 8500	68.2 / 53.0	25500 - 27000				76.5 / 58.2	S + X + Ka	S + X or S + Ka	X + Ka	-	-
25	34m BWG2	0.8/0.8*	-	-	-	-	-	7145-7235	89.5 - 109.5	20 kW / LCP or RCP / HMT	8400 - 8500	68.2 / 54.2	31800 - 32300	34315-34415	97.8 - 103.8	800w TXR / LCP	78.4 / 61.1	X + Ka	-	X + Ka	Ka/Ka + X/X+Ka	X or (X + Ka-rcp)
26	34m BWG3	0.8/0.8*	2025-2120	71.8 - 78.8	250 W / LCP or RCP	2200-2300	56.7 /40.8	7145-7235	89.5 - 109.5 / 89.5 - 115.5 for 80kW	20 kW / LCP or RCP 80 kW / HMT	8400 - 8500	68.2 / 54.2	31800 - 32300				78.4 / 61.1	X + Ka	-	X + Ka	-	X or Ka or (X+Ka) or (X + Ka-rcp)
34	34m BWG1	0.8/0.8*	2025-2120	78.7 - 98.7	20 kW / same as S- Downlink / HMT	2200 - 2300	56.7 / 40.8	7145-7235	89.5 - 109.5	20 kW / LCP or RCP / HMT	8400 - 8500	68.2 / 54.2	25500 - 27000, 31800 - 32300				76.5 / 58.2 78.4 / 61.1	S + X + Ka	S + X or S + Ka	-	-	X or Ka or (X+Ka) or (X + Ka-rcp)
35	34m BWG2	0.8/0.8	-	-	-	-	-	7145-7235	89.5 - 109.5	20 kW / LCP or RCP / HMT	8400 - 8500	68.2 / 54.2	31800 - 32300				78.4 / 61.1	X + Ka	-	X + Ka	-	X or Ka or (X+Ka) or (X + Ka-rcp)
36	34m BWG3	0.8/0.8	2025-2120	71.8 - 78.8	250 W / LCP or RCP	2200-2300	56.7 /40.8	7145-7235	89.5 - 109.5	20 kW / LCP or RCP / HMT	8400 - 8500	68.2 / 54.2	31800 - 32300				78.4 / 61.1	X + Ka	-	X + Ka	-	X or Ka or (X+Ka) or (X + Ka-rcp)
43	70M	0.25/0.25	2110-2120 (4)	85.6 - 105.6 [106.7 118.7] 85.6 -	20 kW * / LCP or RCP / 2 HMT	2200 - 2300	63.5 / 49.8	7145 - 7190	95.8 - 115.8	20 kW / LCP or RCP / HMT	8400 - 8500	74.6 / 61.5	-				-	S + X	S + X	S + X	-	S or X or (S+X)
54	34m BWG1	0.8/0.8*	2110-2120 [3]	78.7 - 98.7	20 kW / same as S- Downlink / HMT	2200 - 2300	56.7 /40.8	7145-7235	89.5 - 109.5	20 kW / LCP or RCP / HMT	8400 - 8500	68.2 / 54.2	25500 - 27000, 31800 - 32300				76.5 / 58.2 78.4 / 61.1	S + X + Ka	S + X or S + Ka	X + Ka	-	X or Ka or (X+Ka) or (X + Ka-rcp)
55	34m BWG2	0.8/0.8*	-	-	-	-	-	7145-7235	89.5 - 109.5	20 kW / LCP or RCP / HMT	8400 - 8500	68.2 / 54.2	31800 - 32300				78.4 / 61.1	X + Ka	-	X + Ka	-	X or Ka or (X+Ka) or (X + Ka-rcp)
56	34m BWG3	0.8/0.8*	-	-	-	-	-	7145-7235	89.5 - 109.5	20 kW / LCP or RCP / HMT	8400 - 8500		31800 - 32300					X + Ka	-	X + Ka	-	X or Ka or (X+Ka) or (X + Ka-rcp)
63	70m	0.25/0.25	2110-2120	85.6 - 97.4	20 kW / LCP or RCP / 2 HMT	2200-2300	63.5 / 49.8	7145 - 7190	95.8 - 115.8	20 kW / LCP or RCP / HMT	8400 - 8500	74.6 / 61.5	-				-	S + X	S + X	S + X	-	S or X or (S+X)
65	34m HEF	0.8/0.8*	2025 - 2110	71.8 - 78.8	250 W / LCP or RCP / HMT	2200 - 2300	56.0 / 39.4	7145 - 7190	89.8 - 109.8	20 kW / LCP or RCP / TWM, HMT	8400 - 8500	68.3 / 53.2	-				-	S + X	S + X	S + X	-	-
Near Earth Spectrum	-	-	2025-2110	-	-	2200-2290	-	7190 - 7235	-	-	8450 - 8500	-	-				-	-	-	-	-	-
		* 0.4/ 0.4 in high winds			* 75 kW TXR limited to VGR ops	**Dual Gain Settings on 34m stations for handling strong X/Ka signals																

Notes:

1). Downlink Frequency Bands (S, X, & Ka) are referenced to spacecraft communications. Wider X-Band (8200-8600 MHz) is available for VLBI and Radar services.

2). G/T is referenced to 45-deg Elevation, 90% weather condition (CD=0.90), and diplexed configuration.

3). Deep Space S-Band Transmission (2110-2120 MHz) is restricted to emergency support at Madrid.

4). Ka-Band (32Ghz) = Frequency Band designation for Deep Space UL/DL Ka-Band.

5). K-Band (26Ghz) = Frequency Band designation for Near Earth UL/DL K-Band. (K-Band was previously referred to as "Ka Phase-2").

6). High Power S-Band Transmission at DSS-43 is restricted to Voyager mission (legacy support).

S-Band:

Receiver LNA Type: HMT on 14, 24, 26, 34, 36, 43, 54, 56, 63, 65.

X-Band:

Receiver LNA Type: HMT on 14, 25, 43, 63, 65. TWM type on 24, 65.

Ka-Band:

Receiver LNA Type: HMT on 24, 25, 26, 34, 35, 36, 54 & 55.

Additional Capabilities:

X-Band Acq Aid capability on 24, 34, & 54.

New Antennas To Be Commissioned:

DSS-53 34mB4 on February 16, 2022: X-Band Down/Up, Ka-Band Down, .

DSS-33 34mB4 on October 2024: X-Band Down/Up, Ka-Band Down, 80KW TXR in baseline plan.

DSS-23 34mB4 on October 2024: X-Band Down/Up, Ka-Band Down. Optical D/L to be added after delivery.

Antennas To Be DeCommissioned:

DSS-65 expected to be decommissioned in October 2026.

Future/Planned Capabilities:

DSN is adding Near Earth Ka U/L & D/L capability to six antennas: DSS-24, DSS-26, DSS-34, DSS-36, DSS-54, & DSS-56. Expected to be completed by 2024.

DSS-43 will undergo major transmitter upgrades for S-Band & X-Band during the entire 2020 calendar year.

Future plans to add Deep Space Ka U/L to DSS-35 & DSS-55, to match DSS-25. Date-TBD.

Prepared By:J.Buckley D SN O ps Interface Engineer