

Attachment C

Antenna Beam Information, Patterns and Emission Designators

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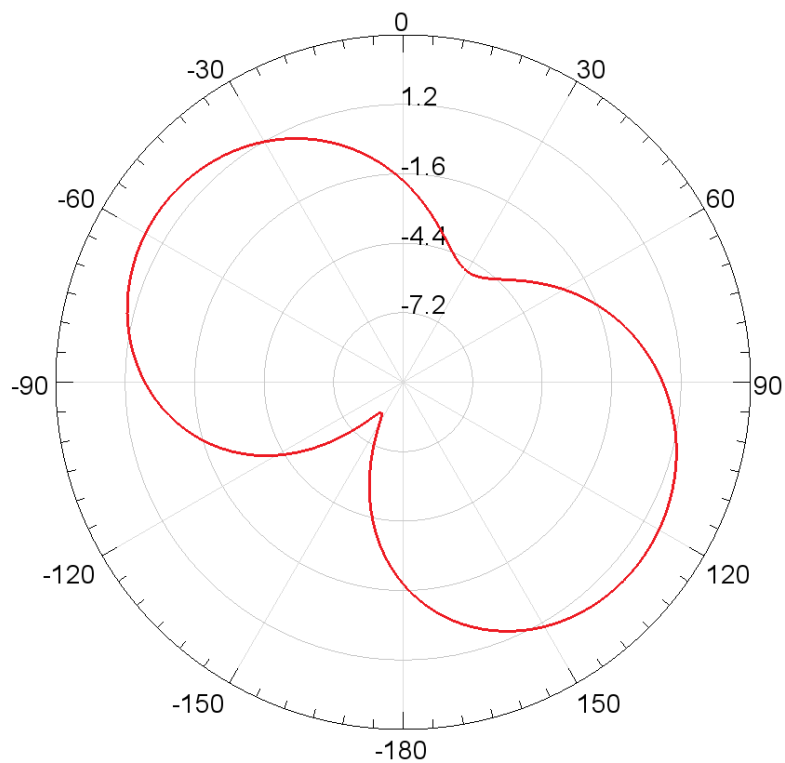
Table 1. List of Emission Designators.

Orbit Altitude	UHF Downlink	S-Band Uplink	S-Band Downlink	X-Band Downlink
≥ 525 km	13K0F1D	100KG1D, 2M00G1D	86K0G1D, 750KG1D, 2M00G1D	9M30G1D, 10M0G1D
≥ 1000 km	3K20F1D			
≥ 2000 km		100KG1D, 920KG1D	90K0G1D, 185KG1D, 550KG1D	4M40G1D
≥ 4000 km		640KG1D	40K0G1D, 130KG1D	4M00G1D
≥ 6000 km		400KG1D	22K0G1D, 80K0G1D	2M50G1D

Table 2. UHF Downlink Antenna.

Model	Radiall MD24-021
Quantity	2
Purpose	Backup Telemetry Downlink
Frequency (MHz)	400.15 – 401 MHz
Peak Gain (dBi)	2.1 dBi
Half-power Beamwidth (deg)	110 deg, Omni-directional
Orientation	Nadir boresight
Polarization	Linear

Radiation Pattern (Phi = 0deg)



Radiation Pattern (Phi = 90deg)

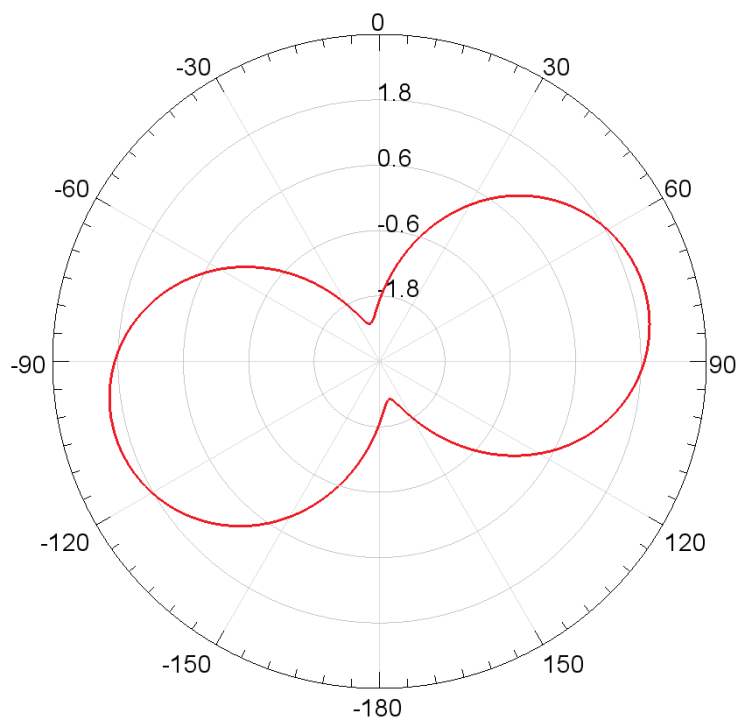
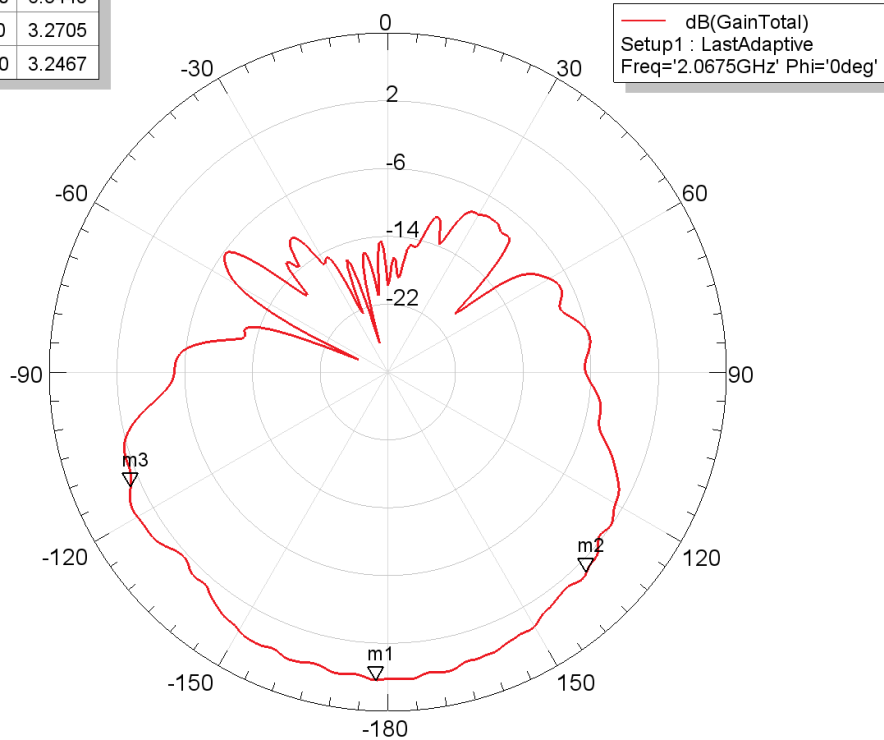


Table 3. S-Band Uplink and Downlink Antenna.

Model	PlaneWave PW2022-111	
Quantity	4	
Purpose	Primary TT&C Uplink	Primary TT&C Downlink
Frequency (MHz)	2025 – 2110 MHz	2200 – 2290 MHz
Peak Gain (dBi)	6.56 dBi	
Half-power Beamwidth (deg)	111 deg	
Orientation	Nadir boresight, Zenith boresight	
Polarization	RHCP	

Radiation Pattern (Phi = 0deg)

Name	Theta [deg]	Ang	Mag
m1	-178	-178.0000	6.3443
m2	135	135.0000	3.2705
m3	-114	-114.0000	3.2467



Radiation Pattern (Phi = 90deg)

Name	Theta [deg]	Ang	Mag
m1	171	171.0000	6.4402
m2	133	133.0000	3.3157
m3	-133	-133.0000	3.4037

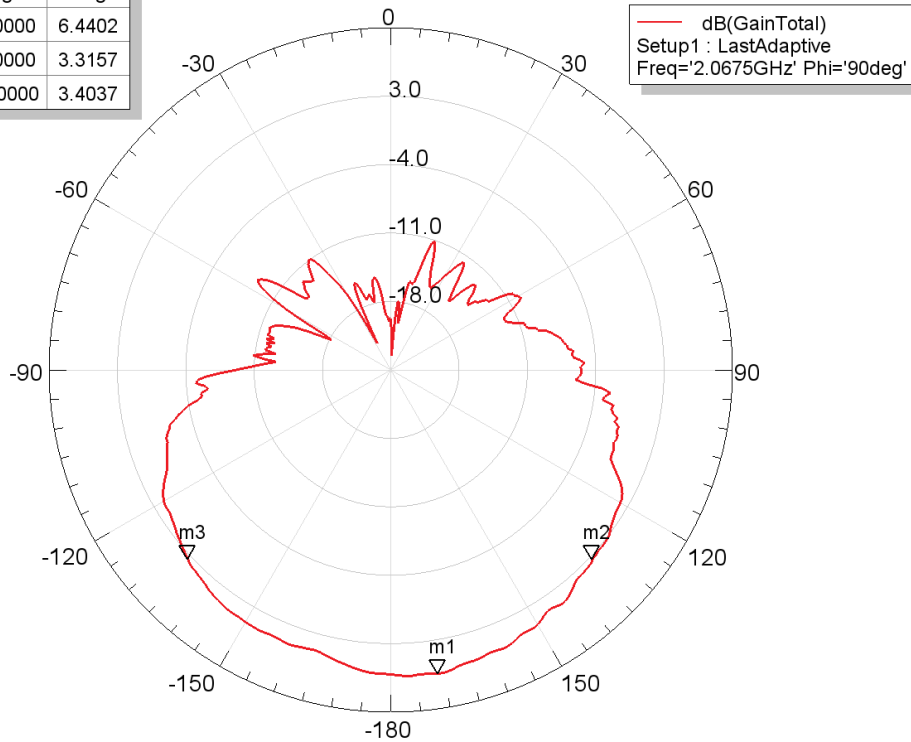
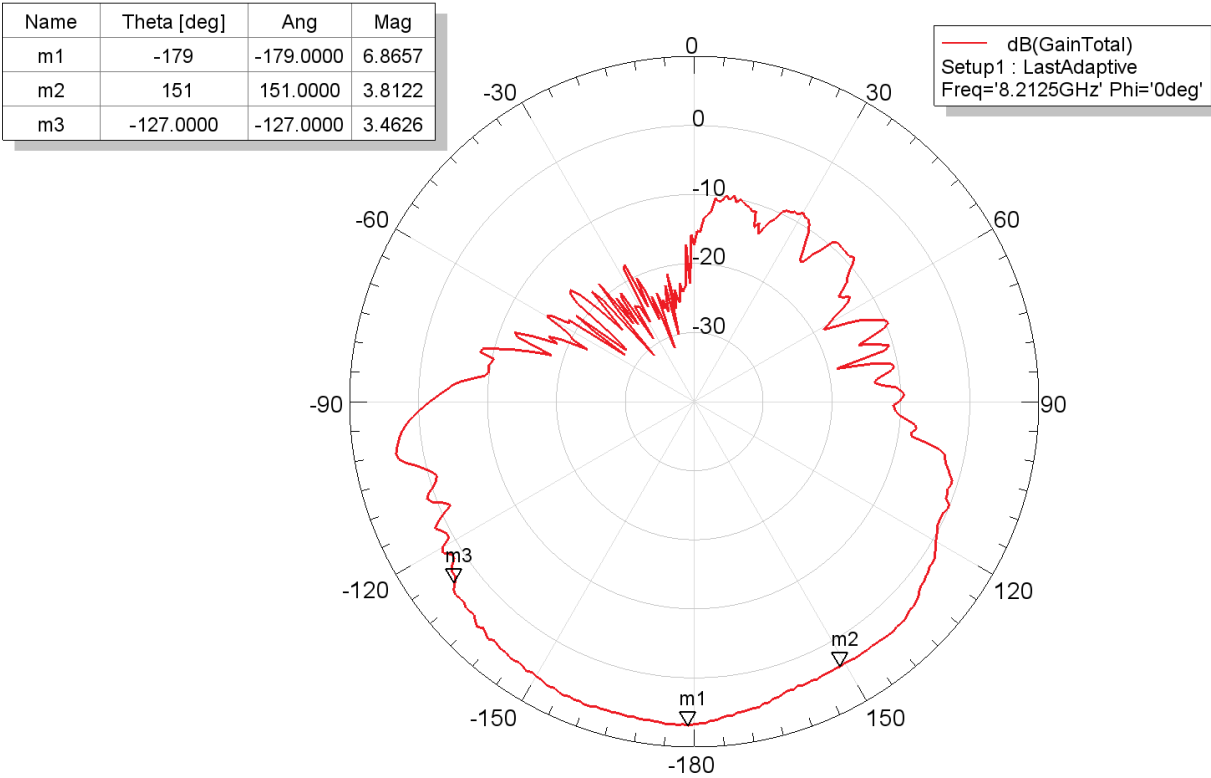


Table 4. X-Band Downlink Antenna.

Model	PlaneWave PW8282-100
Quantity	2
Purpose	Primary Data Downlink
Frequency (MHz)	8450 – 8500 MHz
Peak Gain (dBi)	8.12 dBi
Half-power Beamwidth (deg)	84 deg
Orientation	Nadir boresight
Polarization	RHCP

Radiation Pattern (Phi = 0deg)



Radiation Pattern (Phi = 90deg)

Name	Theta [deg]	Ang	Mag
m1	165	165.0000	7.1842
m2	124	124.0000	4.2101
m3	-152	-152.0000	4.2374

