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Antenna Diagrams for Umbra SAR

In response to Correspondence Reference Number: 55272

1.0 Objective

In response to Correspondence Reference Number 55272, Umbra Lab is providing our Earth Station / Space Station antenna diagrams in polar format as requested.

2.0 UPLINK – S-Band Command and Control Data

2.1.1 SPACE STATION RECEIVING ANTENNA RADIATION PATTERN (H-PLANE)

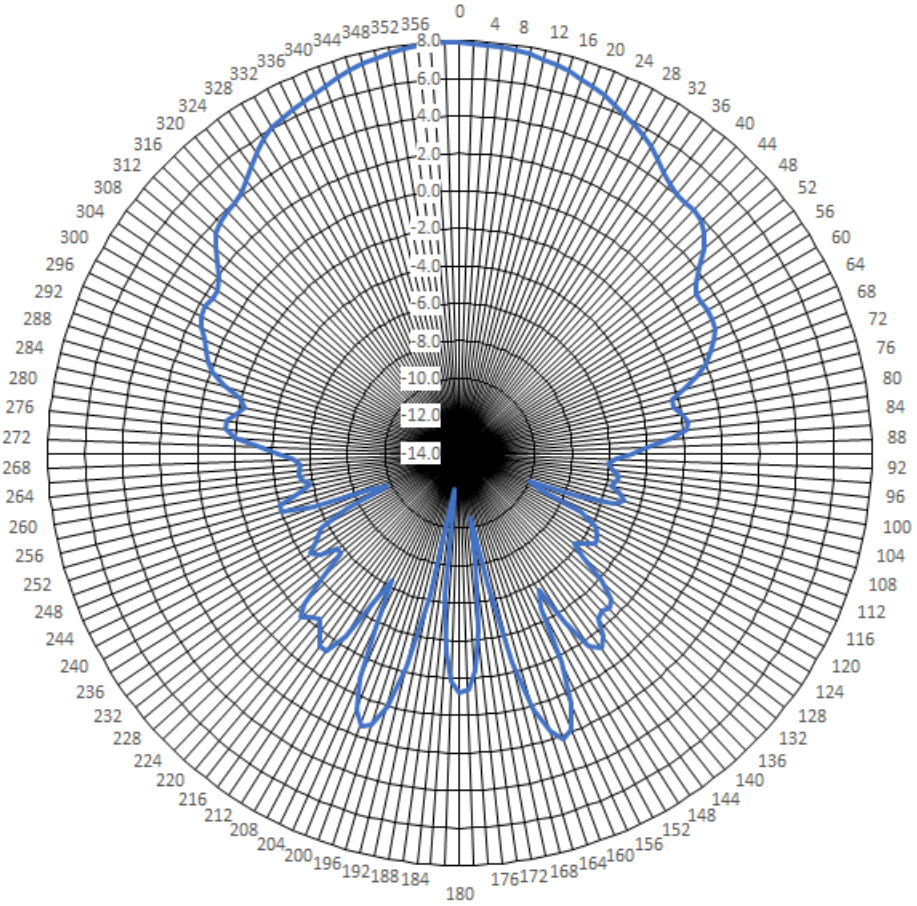

FIGURE 1: S-BAND SPACE ANTENNA H-PLANE (2075 MHZ)

2.1.2 SPACE STATION RECEIVING ANTENNA RADIATION PATTERN (V-PLANE)

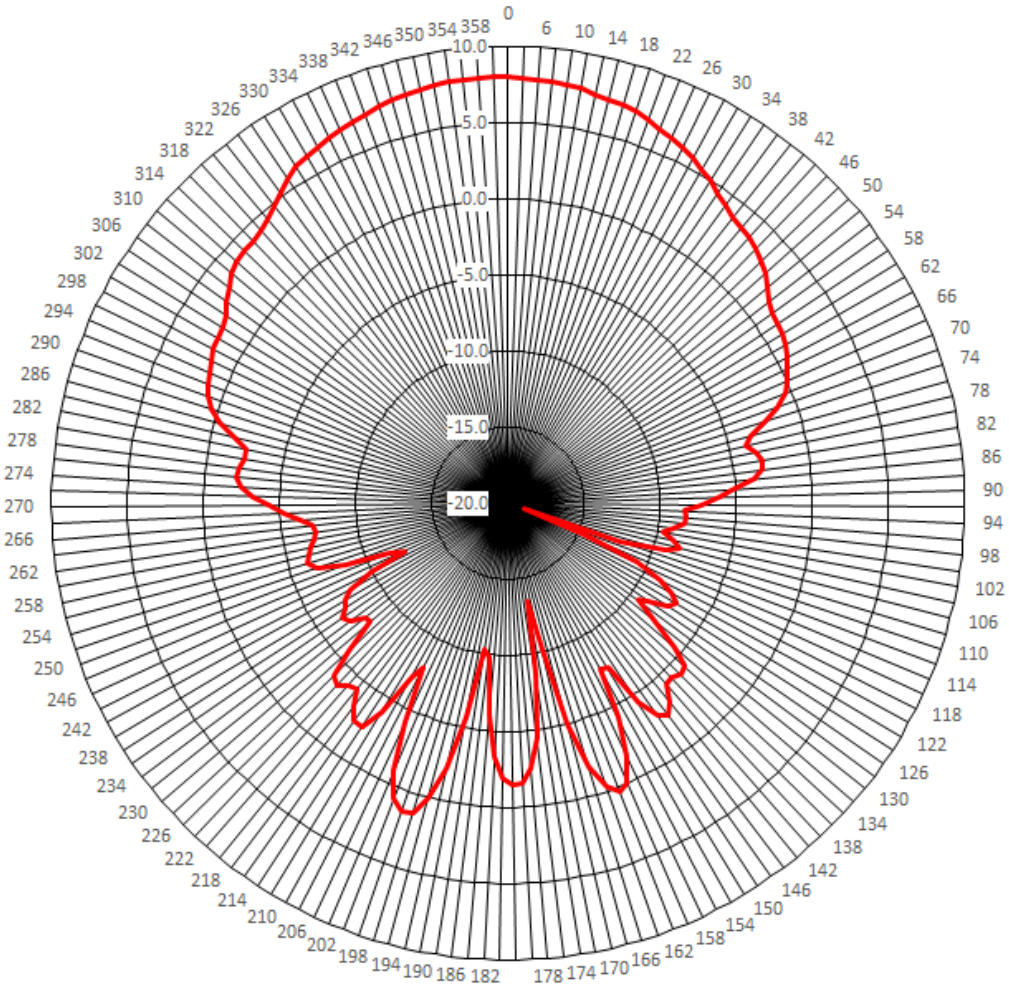

FIGURE 2: S-BAND SPACE ANTENNA V-PLANE (2075 MHZ)

2.2 EARTH STATION TRANSMITTING ANTENNA RADIATION PATTERN

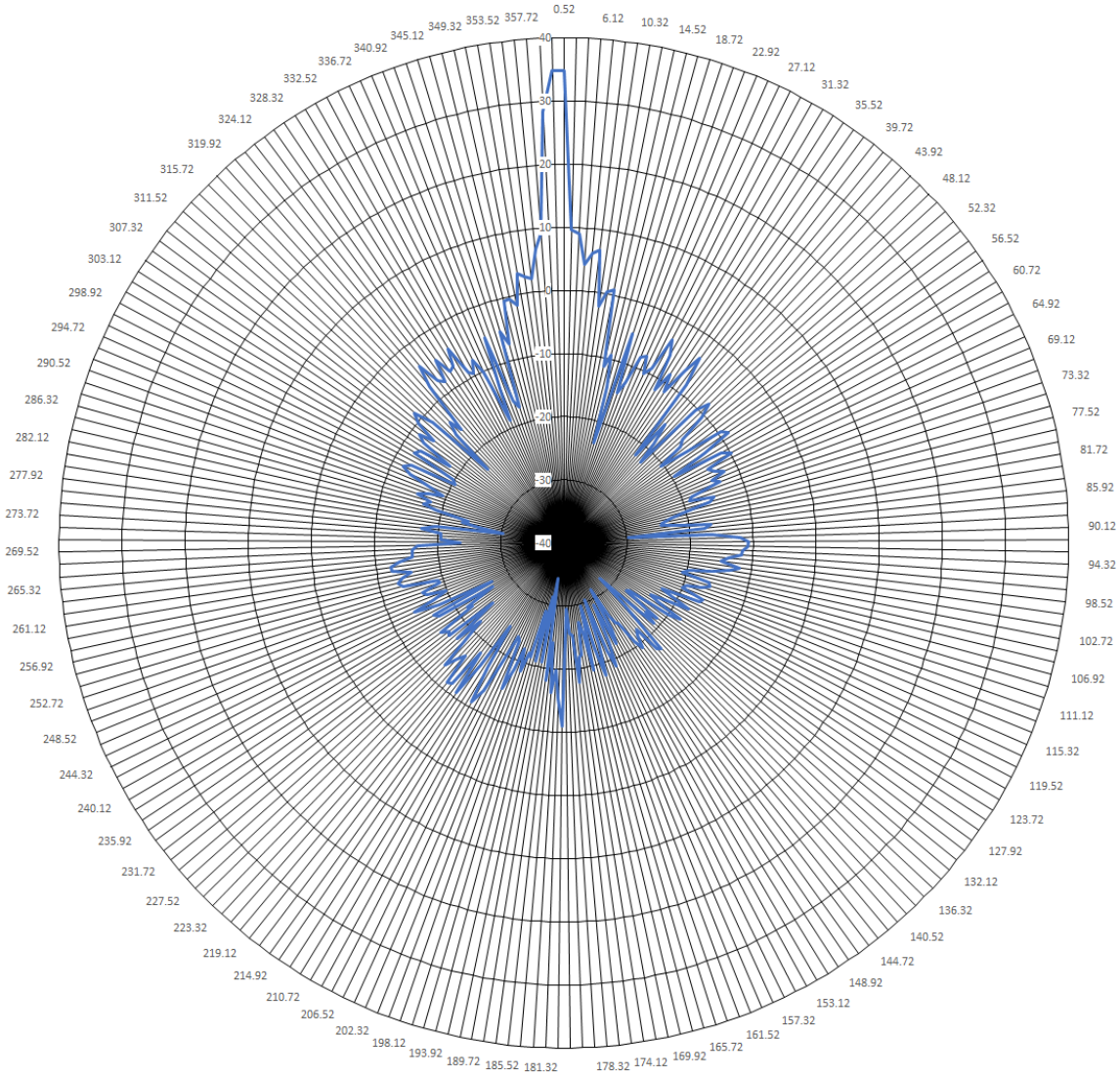

FIGURE 3: S-BAND GROUND ANTENNA (2081 MHZ)

3.0 DOWNLINK – S-Band TT&C Data

3.1.1 SPACE STATION TRANSMITTING ANTENNA RADIATION PATTERN (H-PLANE)

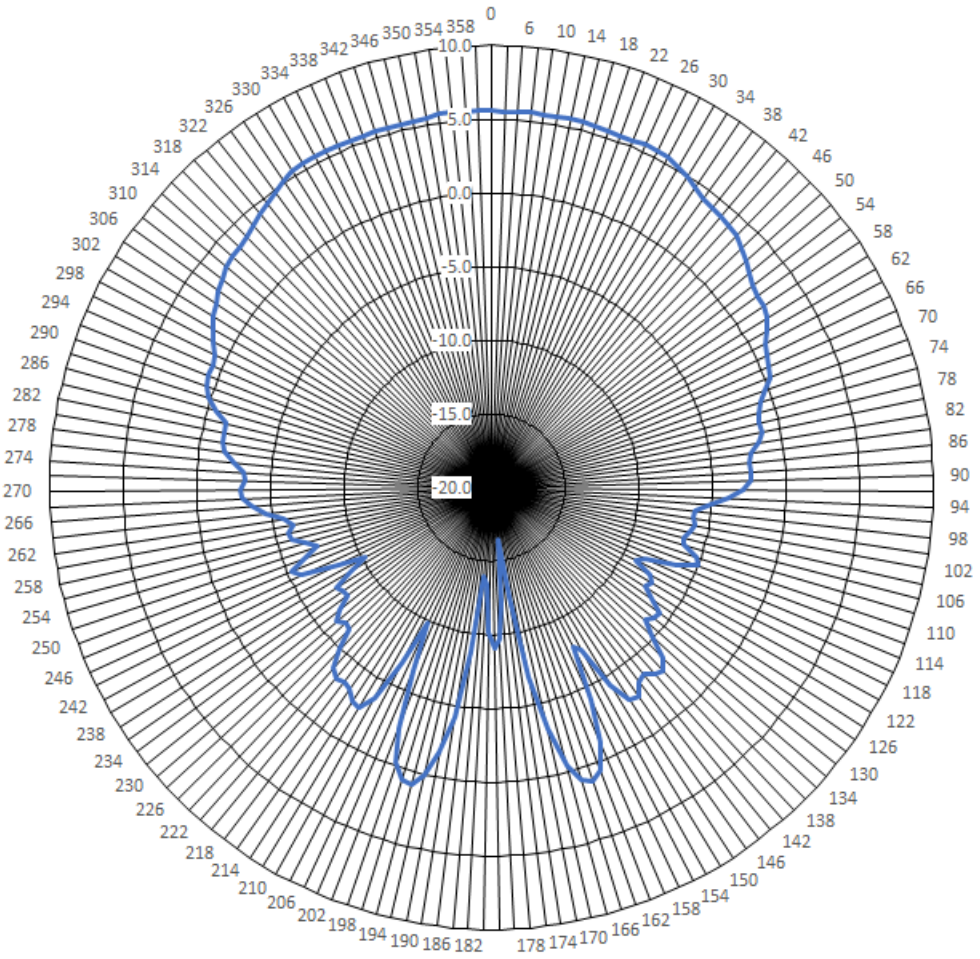

FIGURE 4: S-BAND SPACE ANTENNA H-PLANE (2250 MHZ)

3.1.2 SPACE STATION RECEIVING ANTENNA RADIATION PATTERN (V-PLANE)

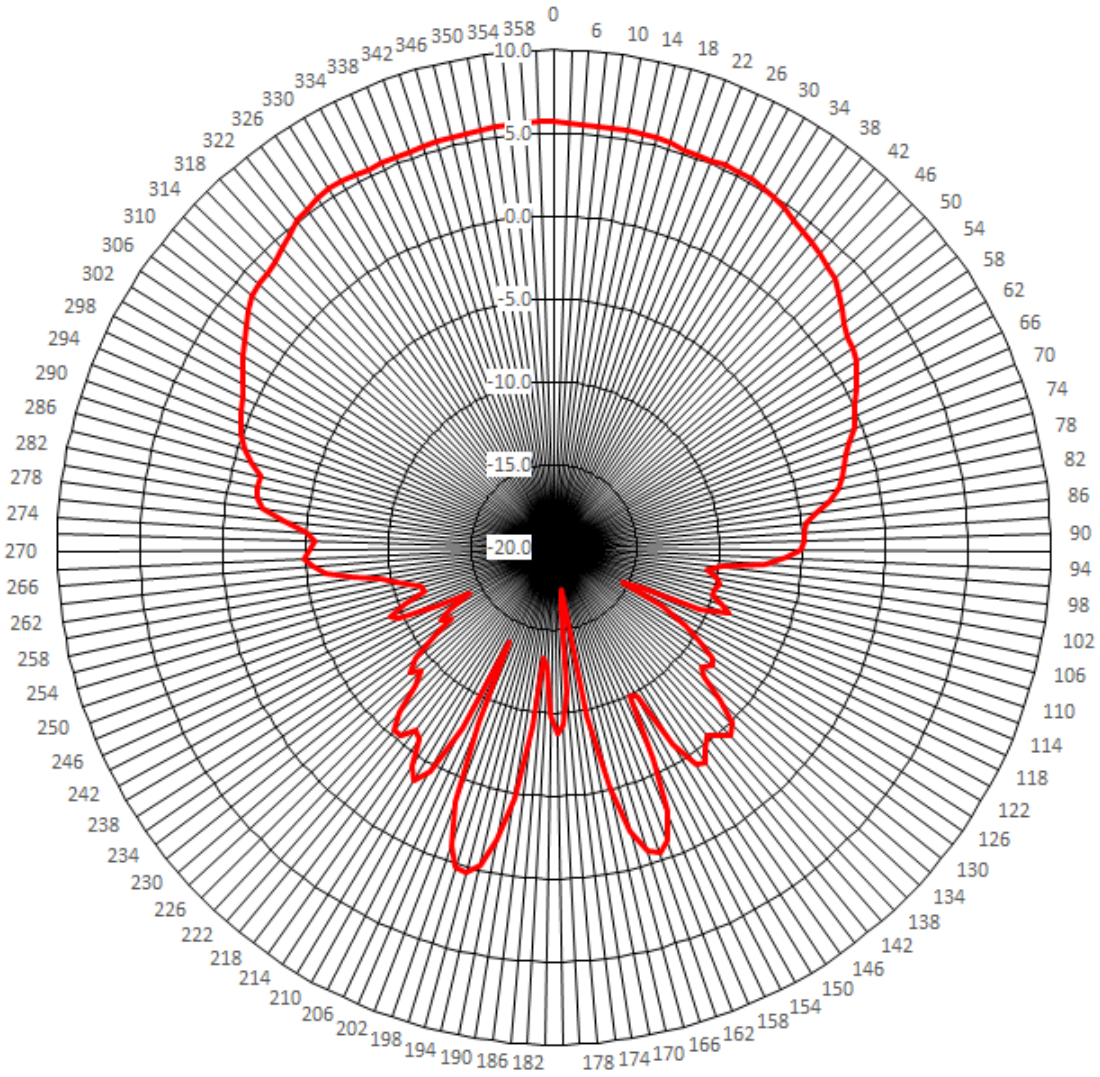

FIGURE 5: S-BAND SPACE ANTENNA V-PLANE (2250 MHZ)

3.2 EARTH STATION RECEIVING ANTENNA RADIATION PATTERN

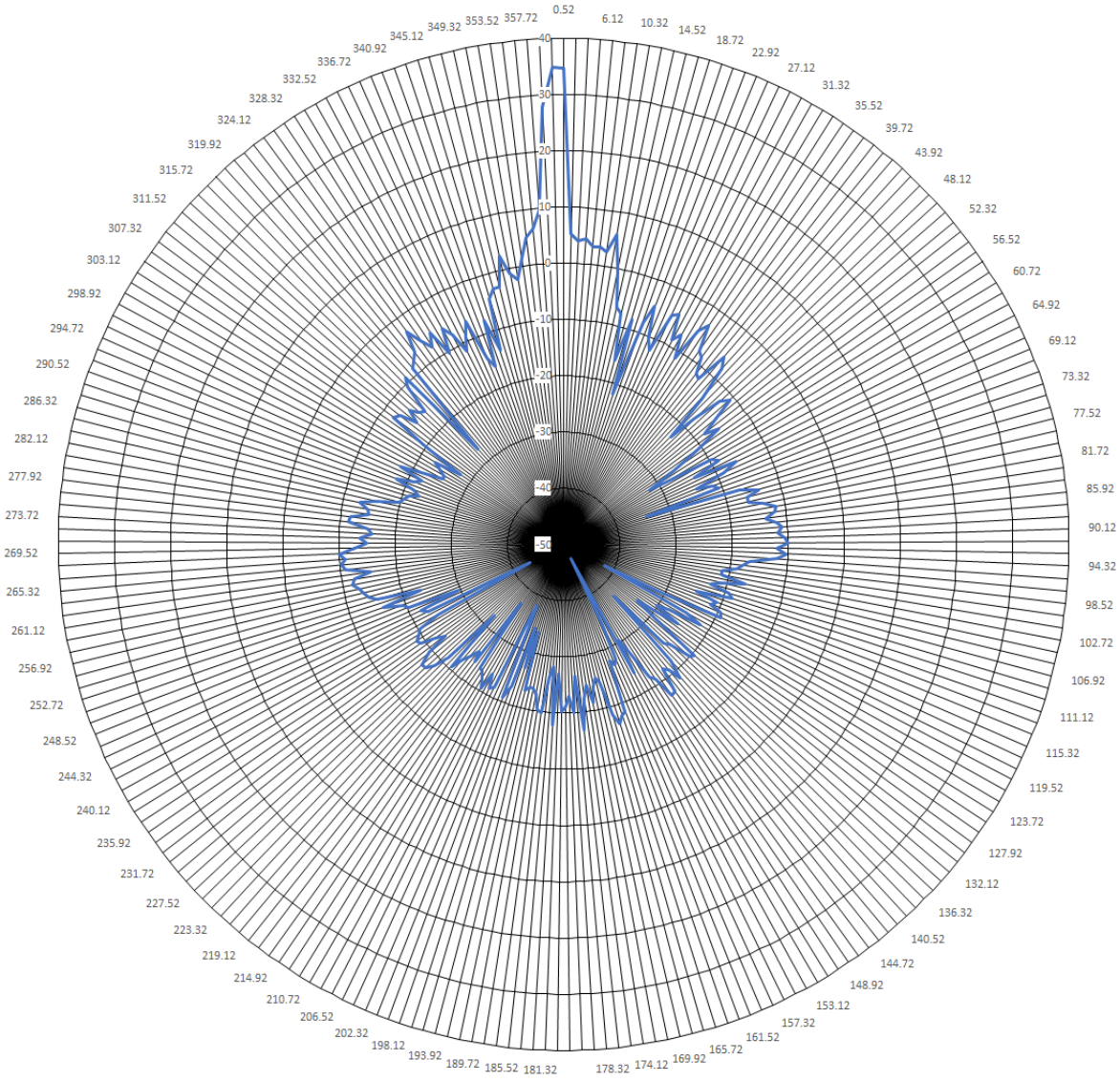

FIGURE 6: S-BAND GOUND ANTENNA (2250 MHZ)

4.0 DOWNLINK – X-Band Mission Data

4.1.1 SPACE STATION TRANSMITTING ANTENNA RADIATION PATTERN (H-PLANE)

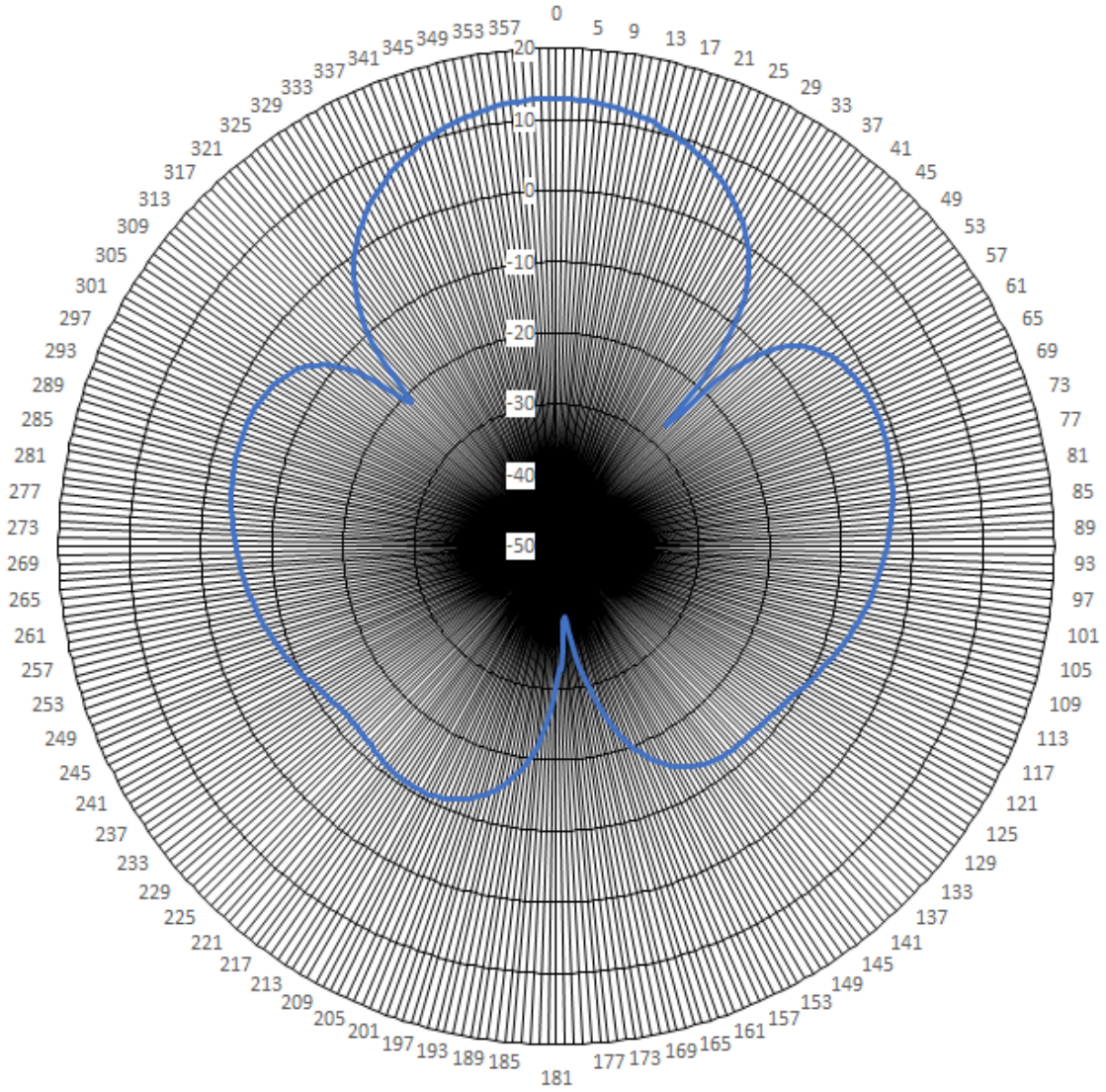

FIGURE 7: X-BAND SPACE ANTENNA H-PLANE (8150 MHZ)

4.1.2 SPACE STATION TRANSMITTING ANTENNA RADIATION PATTERN (V-PLANE)

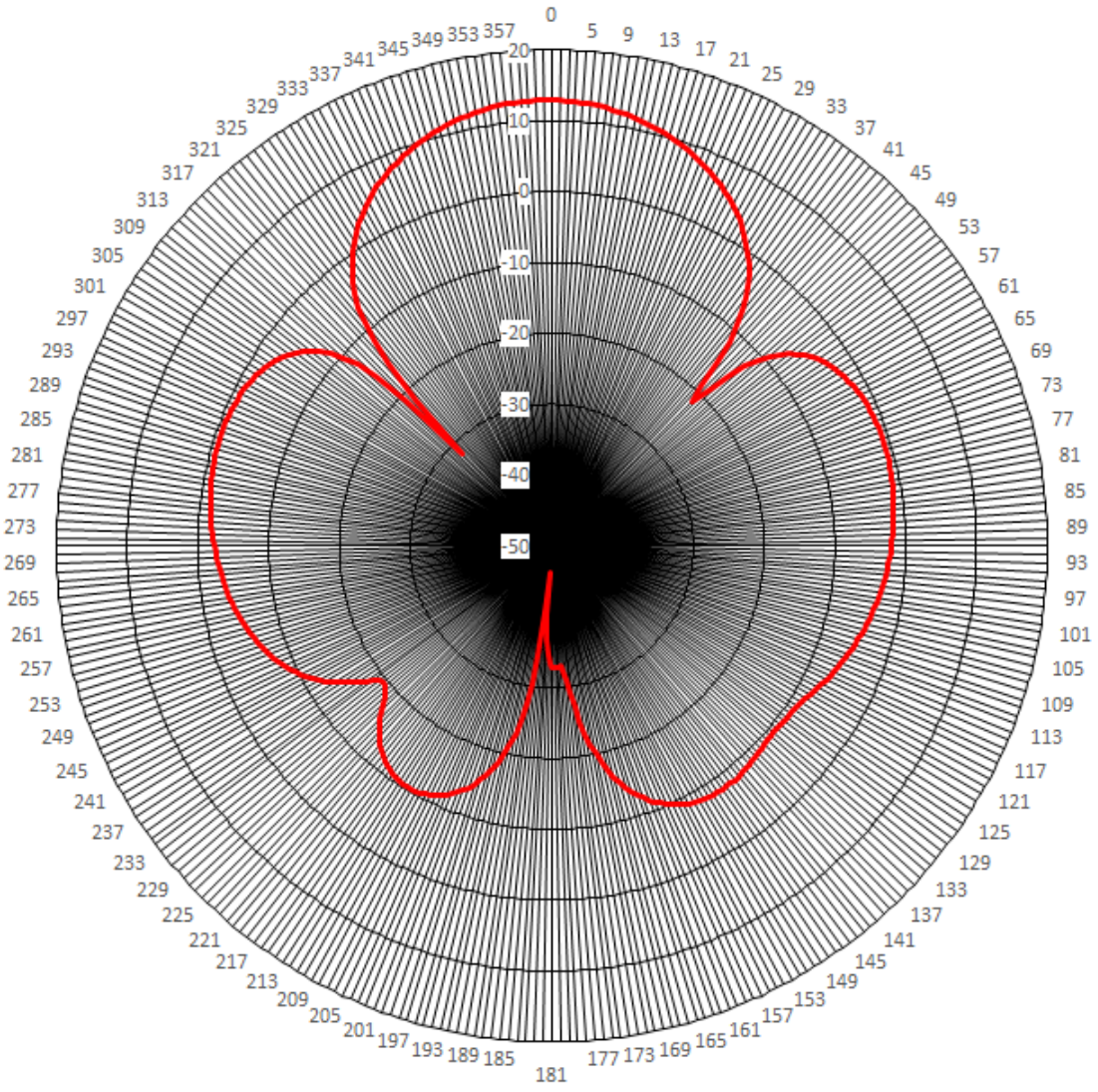

FIGURE 8: X-BAND SPACE ANTENNA V-PLANE (8150 MHZ)

4.2 EARTH STATION RECEIVING ANTENNA RADIATION PATTERN

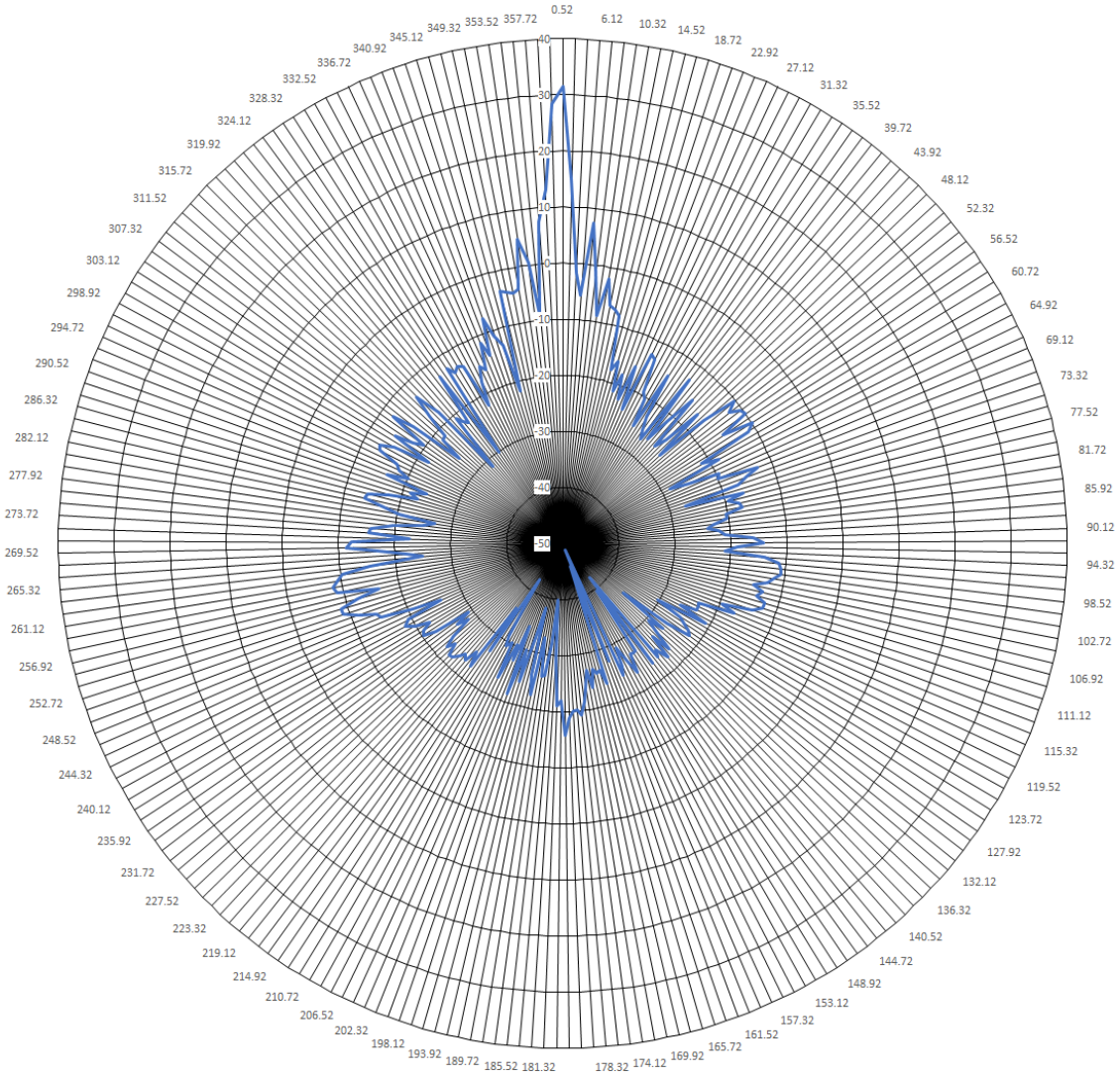

FIGURE 9: X-BAND GROUND ANTENNA (8200 MHZ)

5.0 SAR Payload Radiation Pattern

5.1.1 SPACE STATION TRANSMITTING ANTENNA RADIATION PATTERN (H-PLANE)

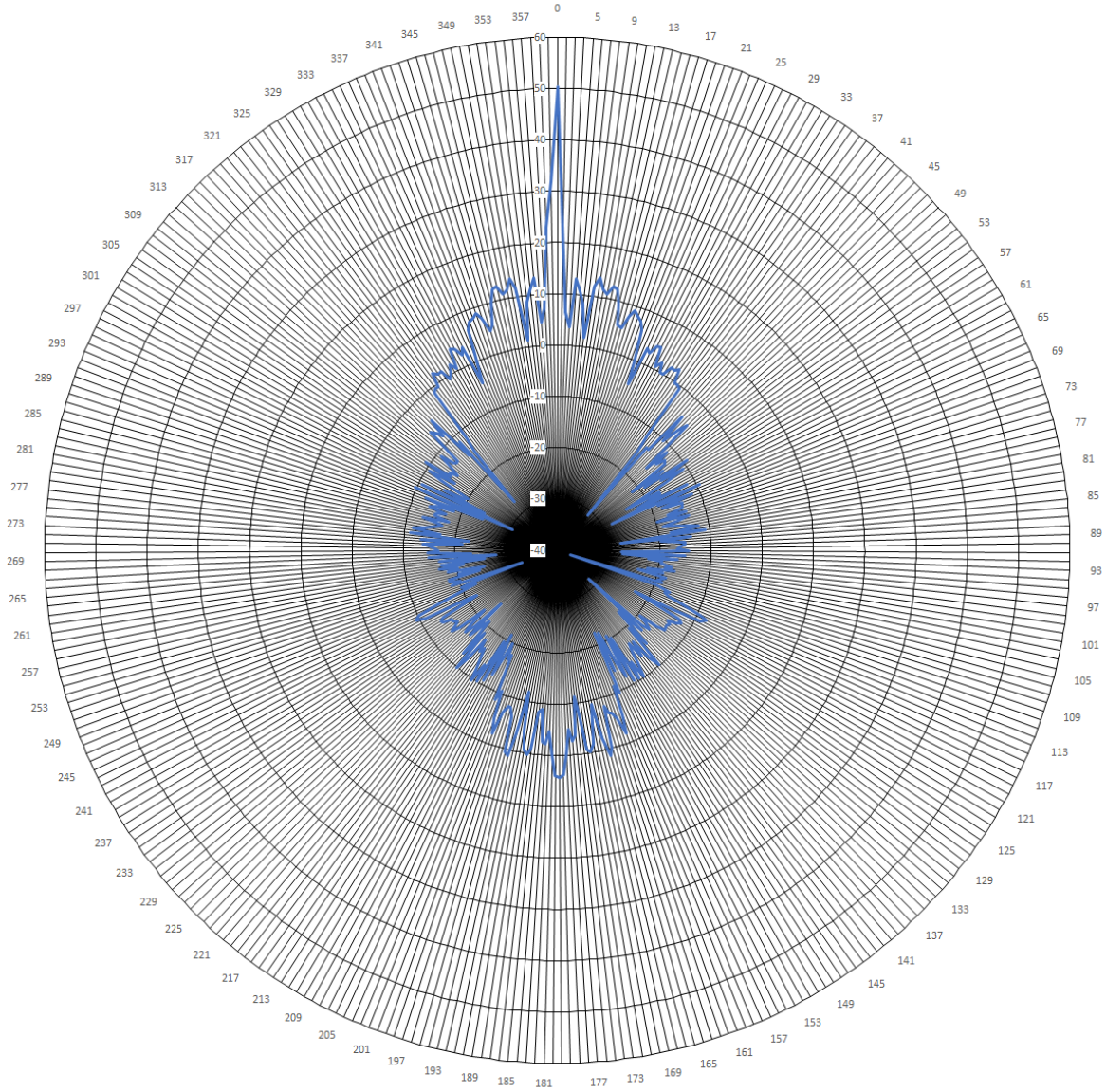

FIGURE 10: UMBRA-2001 SAR SPACE ANTENNA H-PLANE

5.1.2 SPACE STATION TRANSMITTING ANTENNA RADIATION PATTERN (V-PLANE)

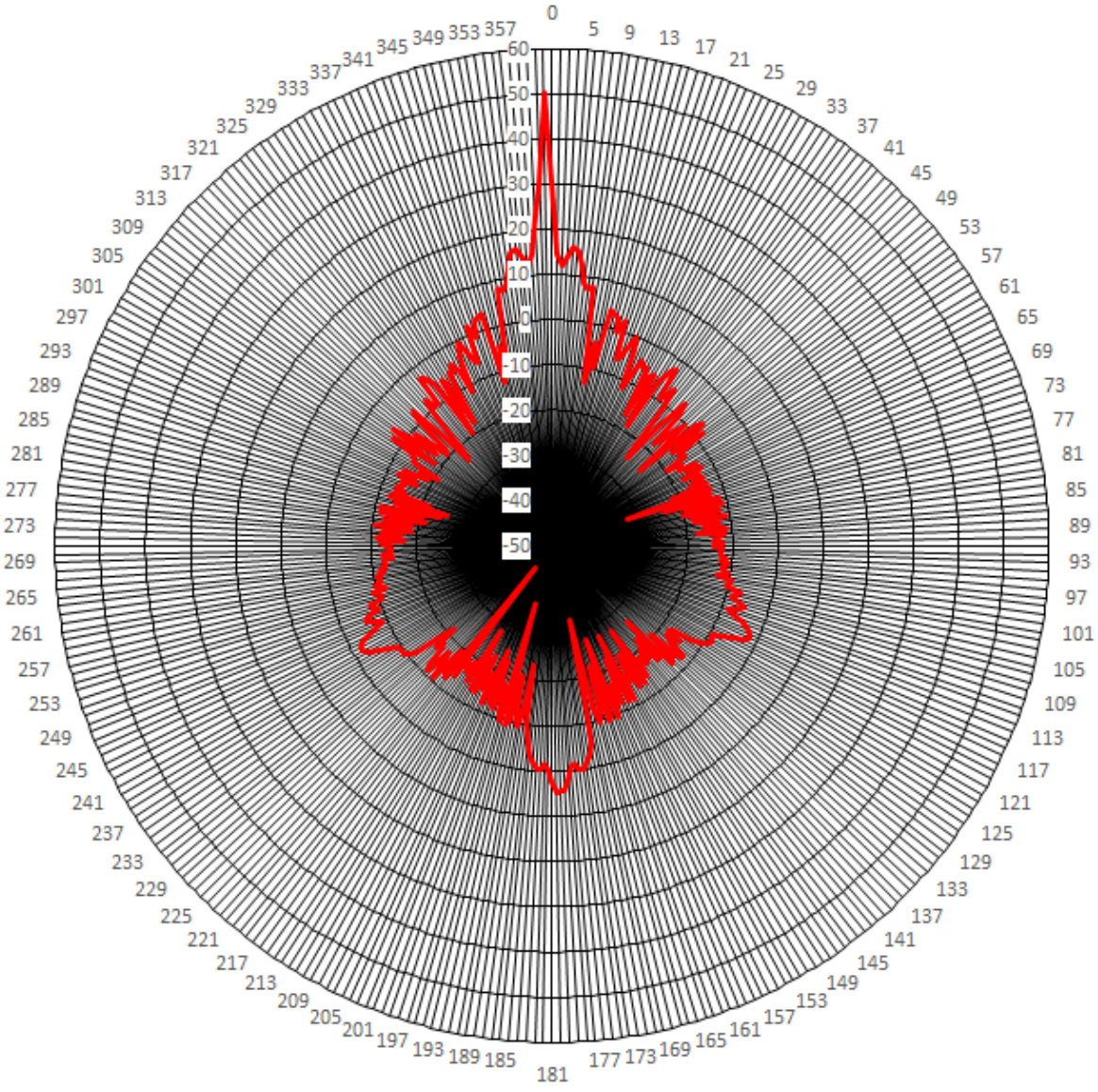

FIGURE 11: UMBRA-2001 SAR SPACE ANTENNA V-PLANE