ANT-W63-SPNF1

Panel Mount WiFi 6/6E Antenna

The ANT-W63-SPNF1 is a dipole, panel mount antenna for WiFi 6/WiFi 6E applications in the 2.4 GHz, 5 GHz and 6 GHz bands.

The ANT-W63-SPNF1 provides a ground plane independent dipole antenna solution which mounts permanently to metallic and non-metallic surfaces using the integrated N jack (female socket) connector while enabling an environmentally sealed enclosure and protection from tampering.

FEATURES

- Performance at 2.4 GHz to 2.5 GHz
  - VSWR: ≤ 1.4
  - Peak Gain: 4.5 dBi
  - Efficiency: 89%
- Performance at 5.150 GHz to 7.125 GHz
  - VSWR: ≤ 2.0
  - Peak Gain: 7.2 dBi
  - Efficiency: 85%
- Ground plane independent dipole antenna
- N jack (female socket)
- External mount, includes all hardware for installation including 5/8"-24UNEF hex nut, washer and gasket
- IP-67 ratable
- Impact resistant UV stabilized ABS radome material

APPLICATIONS

- WiFi/WLAN coverage
  - WiFi 6E (802.11ax)
  - WiFi 6 (802.11ax)
  - WiFi 5 (802.11ac)
  - WiFi 4 (802.11n)
  - 802.11b/g
- 2.4 GHz ISM applications
  - Bluetooth®
  - ZigBee®
- U-NII bands 1-8
- Internet of Things (IoT) devices
- Smart Home networking
- Sensing and remote monitoring

ORDERING INFORMATION

Part Number	Description
ANT-W63-SPNF1	WiFi 6/WiFi 6E panel mount antenna with N jack (female socket) connector, washer, hex nut and protective rubber boot

Available from Linx Technologies and select distributors and representatives.

TABLE 1. ELECTRICAL SPECIFICATIONS

Parameter	ISM/WiFi	WiFi/U-NII 1-3	WiFi/U-NII 1-3
Frequency Range	2400 MHz to 2500 MHz	5150 MHz to 5895 MHz	5950 MHz to 7125 MHz
VSWR (max.)	1.4	2.0	1.7
Peak Gain (dBi)	4.5	7.2	7.6
Average Gain (dBi)	-0.6	-1.0	-0.8
Efficiency (%)	89	85	87
Polarization	Linear		
Radiation	Omnidirectional		
Impedance	50 Ω		
Wavelength	1/2-wave		
Max Power	20 W		
Electrical Type	Dipole		

Electrical specifications and plots measured with a 300 mm x 300 mm (11.8 in x 11.8 in) metal plate.

TABLE 2. MECHANICAL SPECIFICATIONS

Parameter	Value		
Connection	N jack (female socket)	Weight	90.0 g (3.17 oz)
IP Rating (Antenna)	IP-67	Operating Temp. Range	-40 °C to +85 °C
Dimensions	80.0 mm x Ø54.0 mm (3.15 in x Ø2.13 in)		

PRODUCT DIMENSIONS

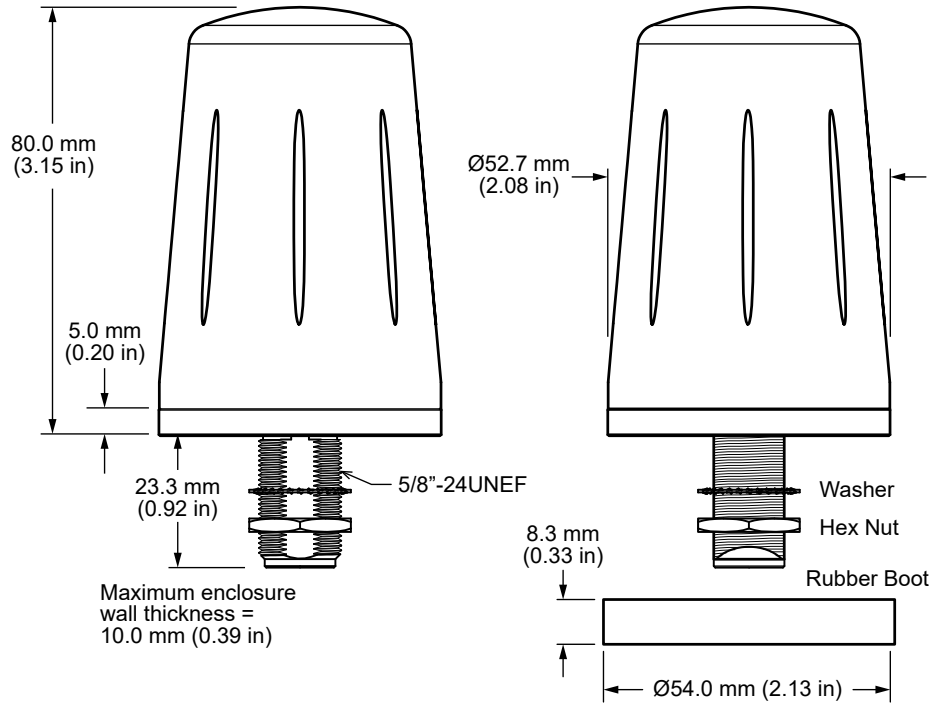


Figure 1: ANT-W63-SPNF1 Antenna Dimensions

PACKAGING INFORMATION

The ANT-W63-SPNF1 antenna is individually placed in a polyethylene bag. 10 pcs. are sealed in larger polyethylene bags. Distribution channels may offer alternative packaging options).

ANTENNA MOUNTING

The ANT-W63-SPNF1 antenna is an externally mounted multiband antenna that can be permanently installed onto metallic and non-metallic surfaces up to 10.0 mm (0.25 in) thick. The antenna terminates in a 5/8"-24UNEF threaded N connector shaft which doubles as the mounting base and is provided with a protective rubber boot, washer and hex nut. Torque applied the the hex nut should not exceed 1N-M (8.85 in-lb). The mounting hole dimensions are shown in Figure 2.

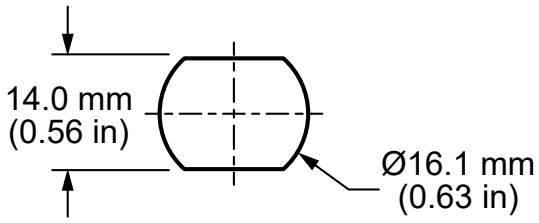


Figure 2: ANT-W63-SPNF1 Mounting Hole Dimensions

VSWR

Figure 3 provides the voltage standing wave ratio (VSWR) across the antenna bandwidth. VSWR describes the power reflected from the antenna back to the radio. A lower VSWR value indicates better antenna performance at a given frequency. Reflected power is also shown on the right-side vertical axis as a gauge of the percentage of transmitter power reflected back from the antenna.

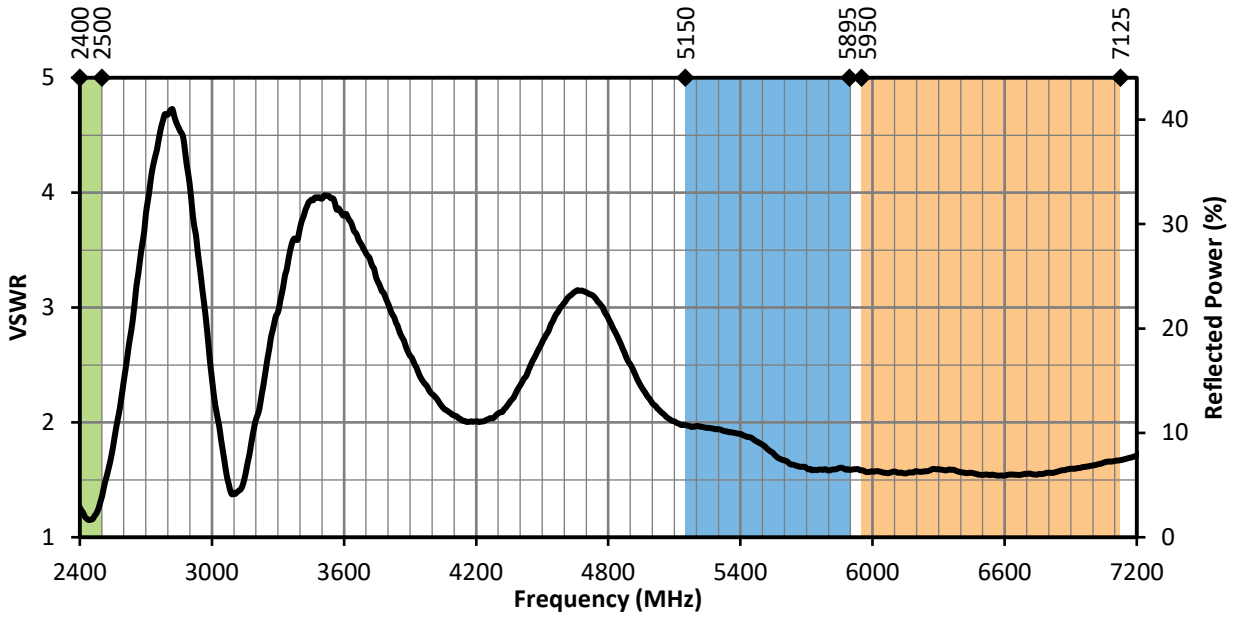


Figure 3: ANT-W63-SPNF1 VSWR with Frequency Band Highlights

RETURN LOSS

Return loss (Figure 4), represents the loss in power at the antenna due to reflected signals. Like VSWR, a lower return loss value indicates better antenna performance at a given frequency.

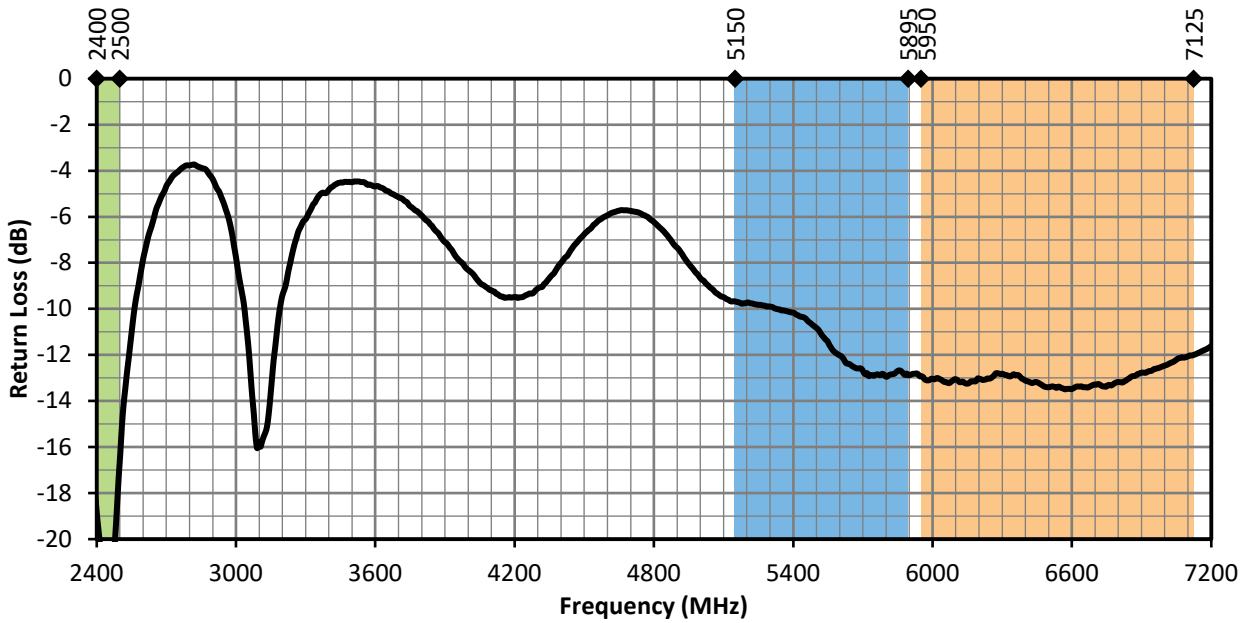


Figure 4: ANT-W63-SPNF1 Return Loss with Frequency Band Highlights

PEAK GAIN

The peak gain across the antenna bandwidth is shown in Figure 5. Peak gain represents the maximum antenna input power concentration across 3-dimensional space, and therefore peak performance at a given frequency, but does not consider any directionality in the gain pattern.

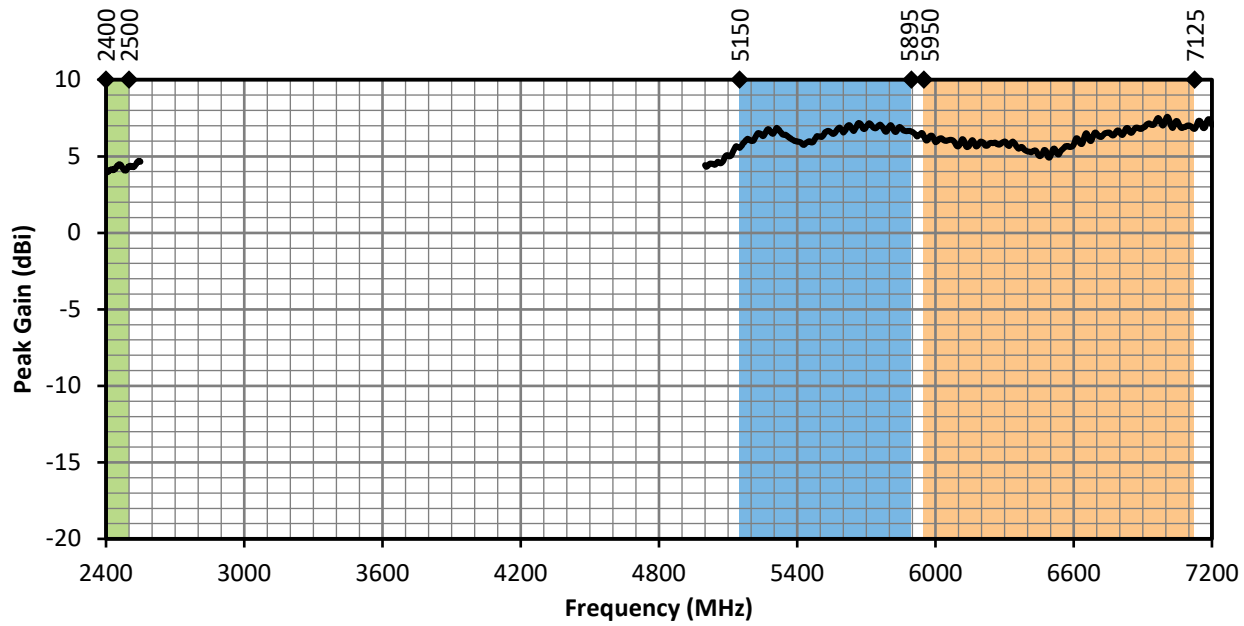


Figure 5: ANT-W63-SPNF1 Peak Gain with Frequency Band Highlights

AVERAGE GAIN

Average gain (Figure 6), is the average of all antenna gain in 3-dimensional space at each frequency, providing an indication of overall performance without expressing antenna directionality.

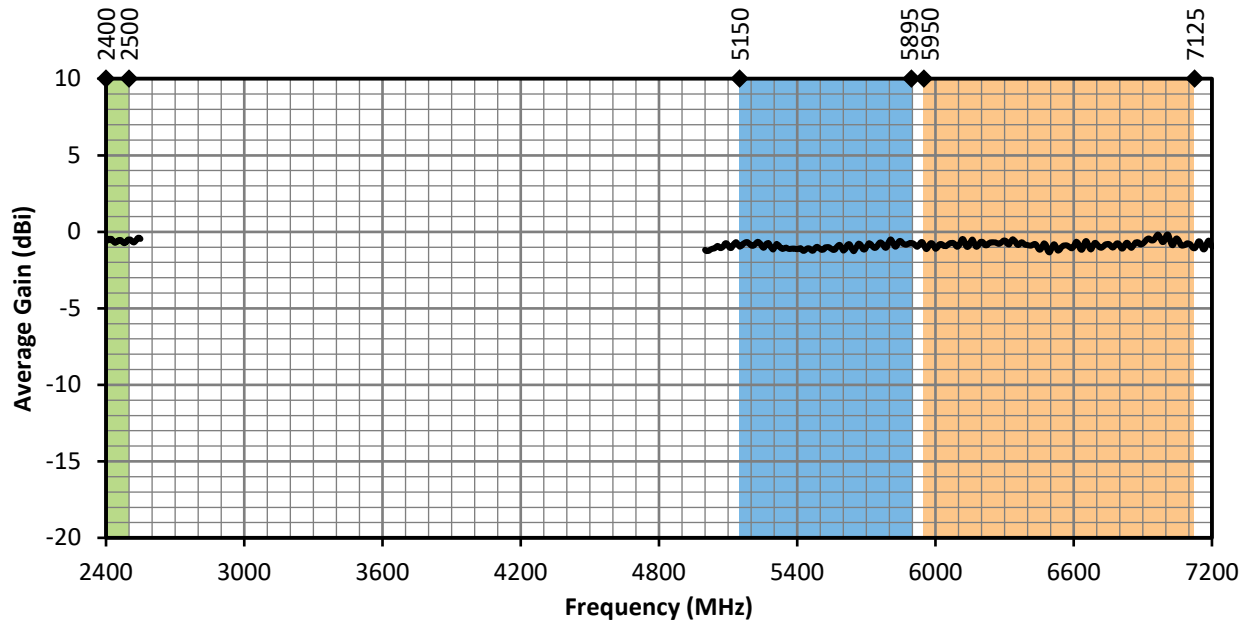


Figure 6: ANT-W63-SPNF1 Antenna Average Gain with Frequency Band Highlights

RADIATION EFFICIENCY

Radiation efficiency (Figure 7), shows the ratio of power delivered to the antenna relative to the power radiated at the antenna, expressed as a percentage, where a higher percentage indicates better performance at a given frequency.

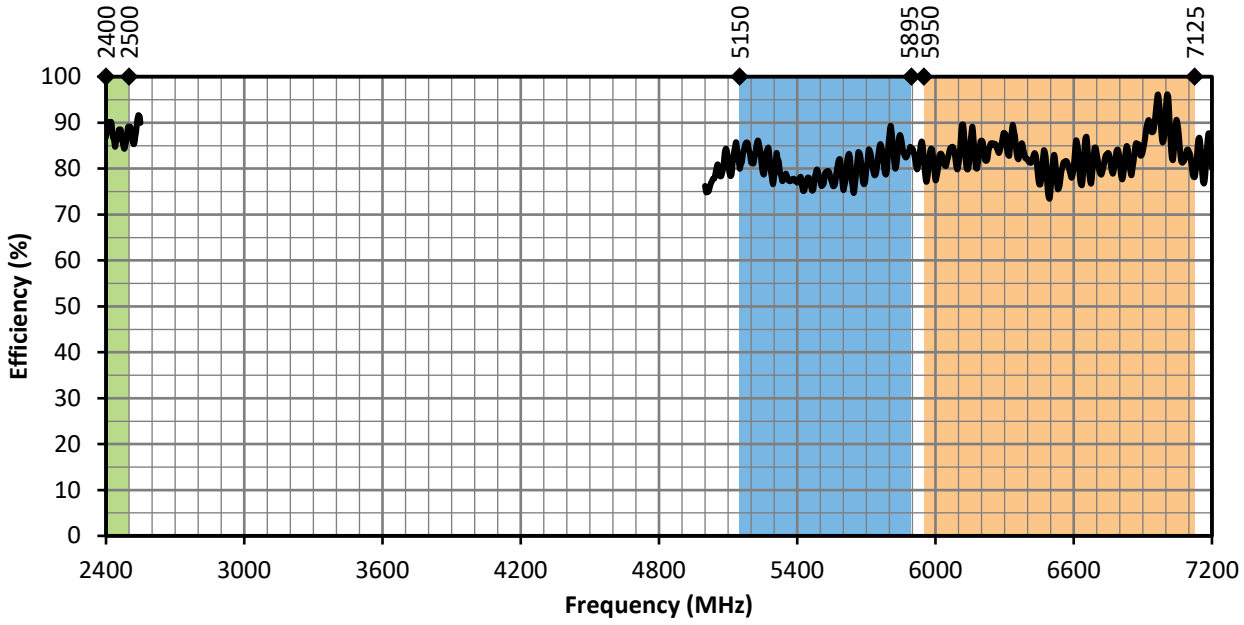


Figure 7: ANT-W63-SPNF1 Antenna Efficiency with Frequency Band Highlights

RADIATION PATTERNS

Radiation patterns provide information about the directionality and 3-dimensional gain performance of the antenna by plotting gain at specific frequencies in three orthogonal planes. Antenna radiation patterns are shown in Figure 8 using polar plots covering 360 degrees. The antenna graphic at the top of the page provides reference to the plane of the column of plots below it. Note: when viewed with typical PDF viewing software, zooming into radiation patterns is possible to reveal fine detail.

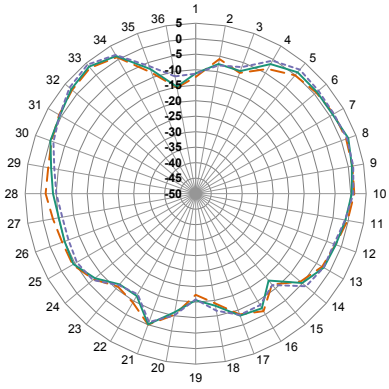
RADIATION PATTERNS

XZ-Plane Gain

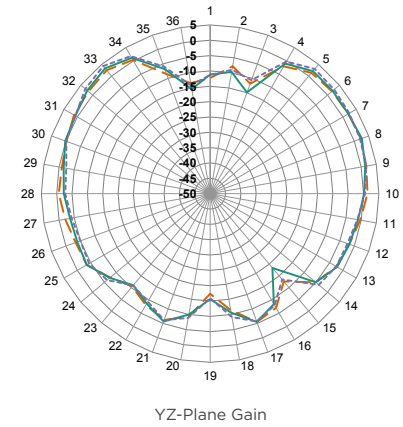
YZ-Plane Gain

XY-Plane Gain

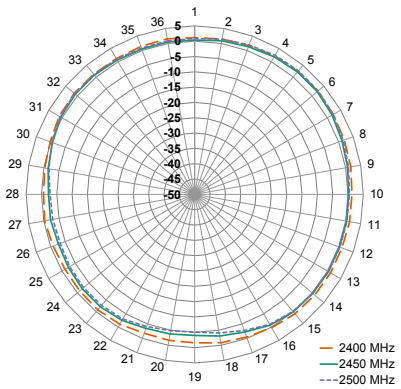
2400 MHZ TO 2500 MHZ (2450 MHZ)



XZ-Plane Gain

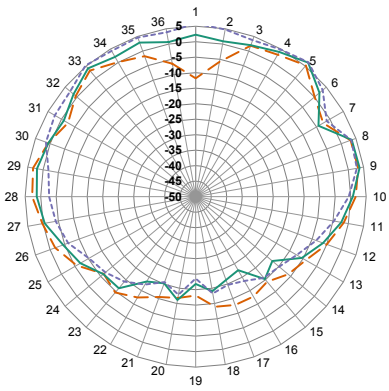


YZ-Plane Gain

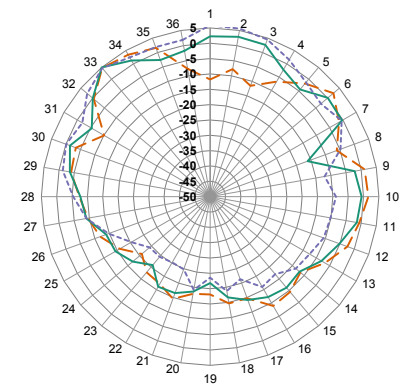


XY-Plane Gain

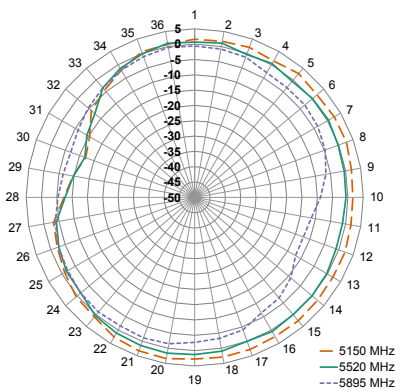
5150 MHZ TO 5895 MHZ (5500 MHZ)



XZ-Plane Gain

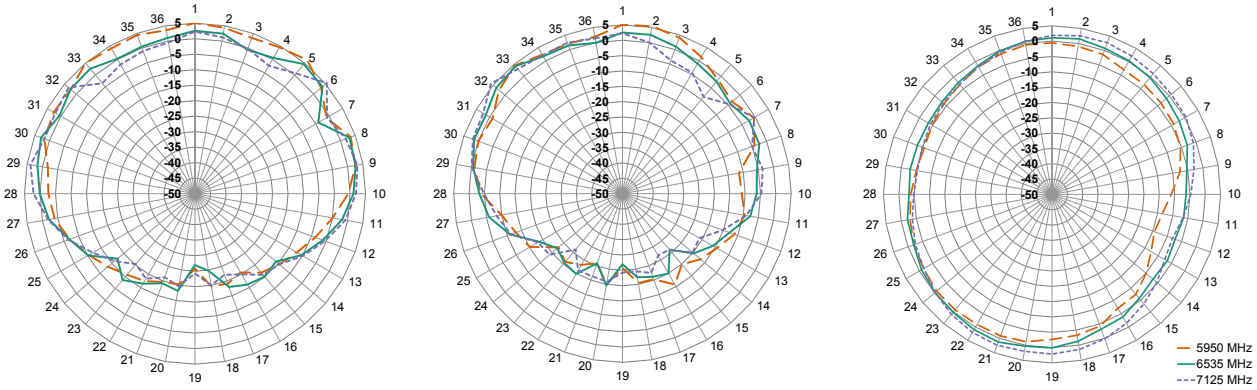


YZ-Plane Gain



XY-Plane Gain

5950 MHZ TO 7125 MHZ (6500 MHZ)



XZ-Plane Gain

YZ-Plane Gain

XY-Plane Gain

Figure 8: Radiation Patterns for ANT-W63-SPNF1

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