Laird™
External Antennas
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TE connectivity

VFP69383B22JN

5-Port Vehicular MIMO Antenna 698-960/1690-3800 MHz and 2400-2500/4900-6000 MHz

The Gar VFP69383B22JN multiport/multiband antenna provides an excellent solution for Public Safety, Transportation and Aftermarket Fleet applications. Configured for 2-port MIMO operation over the 3G/4G/5G/ISM/CBRS bands and 2-port MIMO operation over the low//high frequency Wi-Fi bands. An additional 5th port provides an active antenna for enabling GNSS global navigation services.

FEATURES & BENEFITS

- One single-hole mount/fixing- reduces vehicle damage and the cost of installation
- Attractive IP67 low profile aerodynamic housing
- Multi-band/MIMO operation
- Operates well on a ground plane and without a ground plane.

APPLICATIONS

- FirstNet/Public Safety
- Transportation
- Aftermarket fleet
- 5G ready
- Rugged LTE Gateways

ELECTRICAL SPECIFICATIONS

Antenna Model	VFP69383B22JN-518J					
Number of Ports	5					
Port Configuration	2x- 3G/4G/5G/ISM/CBRS (LTE/CELL)				2x- Wi-Fi (WI-FI)	
Operating Frequency (MHz)	698-806	824-894	880-960	1690-3800	2400-2500	4900-6000
Avg. Peak Gain* (dBi) – Gnd. Plane [No Gnd. Plane]	0.4 [1.5]	0.8 [2.1]	1.2 [1.7]	4.0 [1.8]	2.6 [0.4]	6.6 [3.8]
Max Peak Gain* (dBi) – Gnd. Plane [No Gnd. Plane]	1.6 [2.5]	1.4 [2.8]	1.5 [2.0]	7.2 [4.8]	3.1 [1.7]	7.5 [4.9]
VSWR** – Avg, Gnd. Plane [No Gnd. Plane]	1.7 [1.8]	1.8 [1.8]	1.9 [1.8]	1.5 [1.5]	1.5 [1.5]	1.2 [1.2]
VSWR** – Max, Gnd. Plane [No Gnd. Plane]	2.5 [2.5]	2.1 [2.5]	2.2 [2.5]	2.1 [2.1]	2.0 [2.0]	

ELECTRICAL SPECIFICATIONS

Isolation (dB)– Gnd. Plane [No Gnd. Plane]						
LTE1 to LTE2	-11 [-11]	-13 [-13]	-14 [-14]	-18 [-18]	-24 [-24]	-33 [-33]
LTE1 to WIFI	-36 [-30]	-37 [-31]	-39 [-32]	-14 [-14]	-14 [-14]	-32 [-32]
LTE1 to WIFI 2	-39 [-40]	-38 [-40]	-38 [-40]	-14 [-25]	-14 [-25]	-35 [-35]
LTE2 to WFI 1	-39 [-40]	-42 [-42]	-40 [-42]	-14 [-25]	-14 [-25]	-32 [-35]
LTE2 to WIFI 2	-34 [-32]	-36 [-32]	-38 [-32]	-14 [-14]	-14 [-14]	-33 [-31]
WIFI 1 to WIFI 2	-74 [-70]	-75 [-75]	-71 [-71]	-30 [-28]	-30 [-28]	-38 [-40]
GNSS to LTE 1	-68 [-68]	-69 [-69]	-71 [-71]	-52 [-52]	-55 [-55]	-52 [-52]
GNSS to LTE 2	-43 [-43]	-41 [-41]	-41 [-41]	-46 [-46]	-51 [-51]	-54 [-54]
GNSS to WIFI 1	-65 [-62]	-68 [-66]	-71 [-69]	-47 [-45]	-47 [-45]	-52 [-49]
GNSS to WIFI 2	-68 [-66]	-69 [-66]	-71 [-69]	-52 [-50]	-55 [-50]	-52 [-50]
Azimuth Plane 3 dB Beamwidth	360°, Omnidirectional					
Nominal Impedance (Ohms)	50					
Polarization	Linear Vertical					
Max Power - Ambient 25°C (W)	30 (LTE/CELL) /10 (Wi-Fi)					

GNSS ANTENNA SPECIFICATIONS

Frequency of Operation (MHz)	1559 - 1606		
Band	BEIDOU	GPS	GLONASS
Frequency Band (MHz)	1559.052 - 1563.144	1574.42 - 1576.42	1598.0625 - 1605.89
Absolute Gain (dBi) – Gnd. Plane [No Gnd. Plane]	2 [3.2]	2 [5.0]	2 [5.3]
LNA Gain, Typ. @ room temp. (dBi)	28 3 3		
Noise Figure @ room temp., Max (dB)	≤ 2.5 @ 1575 MHz		
Max VSWR @ room temp.	2.0		
Polarization	RHCP		
Nominal Impedance (Ohms)	50		
DC Voltage (Vdc)	2.5- 7.0		
Current Consumption, Max @ room temp mA)	8.5 3 3 @ 3.0V		
Out-of-band Signal Rejection Min @ room temp (dBc)	80 (@698-960MHz)	80 (@1428-2700 MHz)	70 (@4900-5800 MHz)
Input Max Power (dBm)	-10		
Cable Type	RG174		

MECHANICAL SPECIFICATIONS	
Dimensions – L x W x H – mm (inches)	179 x 63 x 48 (7.04 x 2.48 x 1.69)
Weight – kg (lbs.)	1.1 kg (2.42 lbs)
Cable Type	LMR 100- pigtails, LMR 195- jumper cables
Mounting	P-Mount
Radome Material	PC, UL94-V0
Baseplate Material	Aluminum

ENVIRONMENTAL SPECIFICATIONS	
Operating Environment	Outdoor Vehicle
Operating Temperature – °C (°F)	-40° to +85°C (-40° to +185°F)
Storage Temperature – °C (°F)	-40° to +85°C (-40° to +185°F)
Ingress Protection Rating	IP67
Rail Compliance Standards	EN61373 (Shock & Vibration), EN50155 (Temperature)
Material Substance Compliance	RoHS

Notes: (*) – This parameter is based on a 30cm (1ft) cable length. For the ground plane measurement, a 30cm (1ft) ground plane was used.

(**) – This parameter is based on a 518cm (17ft) cable length. For the ground plane measurement, a 30cm (1ft) ground plane was used.

Antenna specifications are subject to change according to the ground plane size.

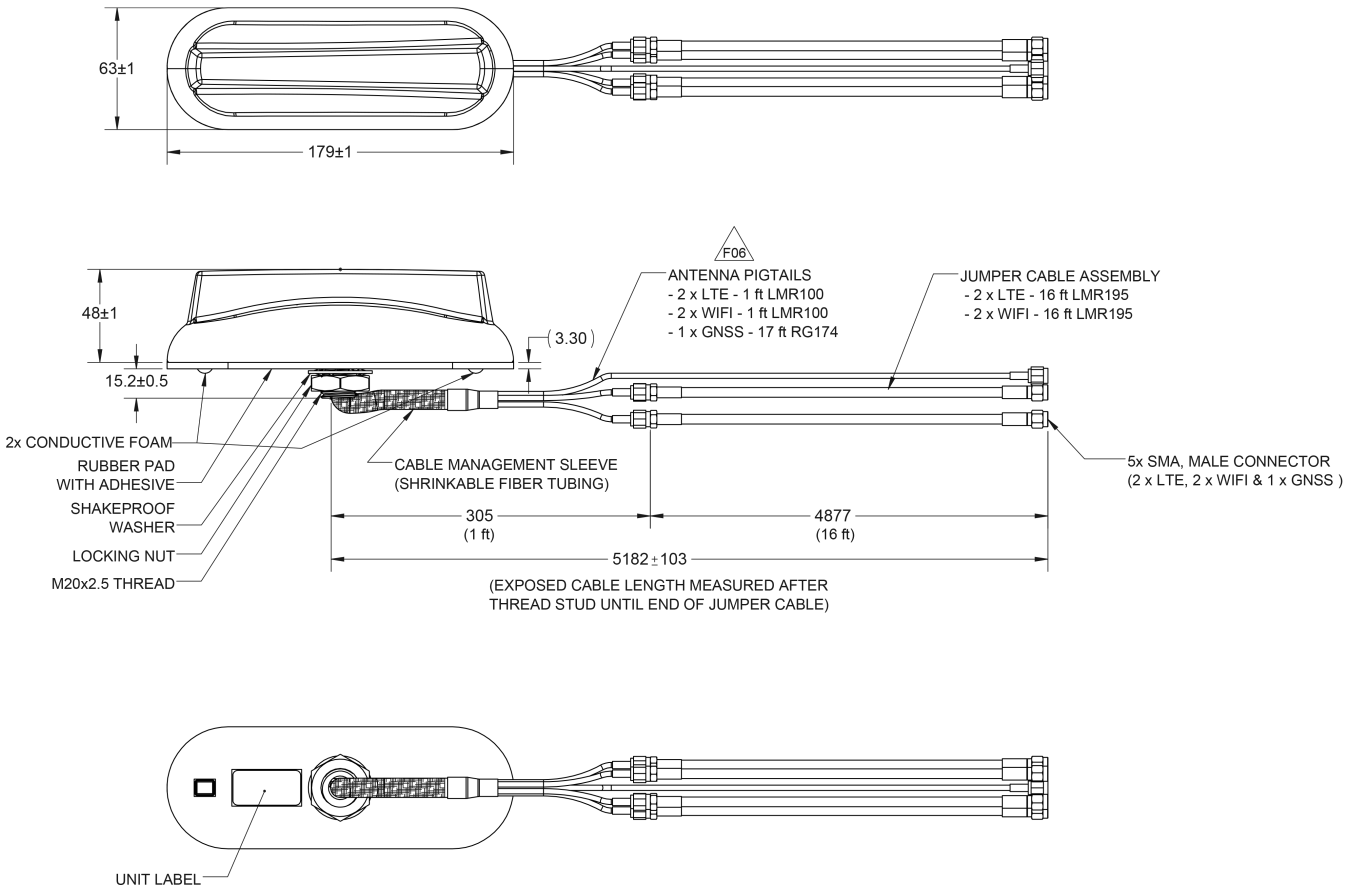
CONFIGURATION

PART NUMBER	CABLE LENGTH		CONNECTORS			COLOR
	PIGTAIL	JUMPER	LTE/CELL	WIFI	GNSS	
VFP69383B22JN-518J	0.3 m (1 ft)	4.9 m (16 ft)	2 x SMA-male	2 x SMA-male	1 x SMA-male	Black
VFP69383B22JN-91L	0.91 m (3 ft)	-	2 x SMA-male	2 x RPSMA-male	1 x SMA-male	Black
L000151-01	0.3 m (1 ft)	1.83 m (6ft)	2 x QMA-male	2 x QMA-male	1 x QMA-male	Black
L000151-02	0.3 m (1 ft)	4.9 m (16 ft)	2 x QMA-male	2 x QMA-male	1 x QMA-male	Black

PACKAGING INFORMATION

PACKAGED DIMENSIONS	CARTON	MASTER CARTON	AIR PALLET	OCEAN PALLET
Number of Antennas	1	4	140	196
Height – mm (in.)	130 (5.12)	235 (9.25)	1335 (52.56)	1813 (71.38)
Length – mm (in.)	222 (8.74)	543 (21.38)	1200 (47.24)	1200 (47.24)
Width – mm (in.)	222 (8.74)	232 (9.13)	800 (31.5)	800 (31.5)
Shipping Weight – kg (lb.)	1.35 (2.98)	5.85 (12.89)	217 (478.4)	299 (659.18)

MECHANICAL DRAWINGS

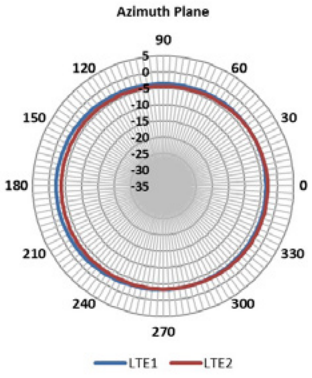


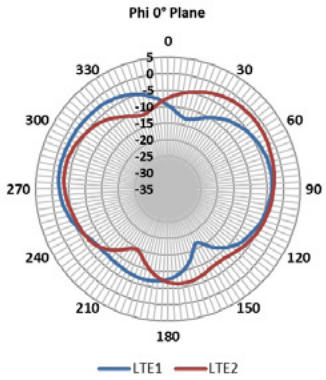
The Gar antenna can create an IP67 water-tight seal when installed on vehicles. Certain vehicles such as a Ford Explorer Interceptor have more narrow roof ridges that are tightly spaced together. For this type, vehicle special adapters are available.

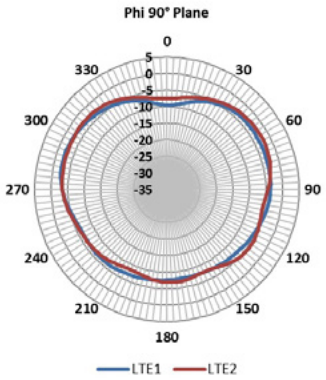
See parts **BKIT-VFX69383-001** (between ridges installation) and **BKIT-VFX69383-003** (atop ridge installation) for product details.

RADIATION PATTERNS WITH GROUND PLANE – LTE ANTENNAS

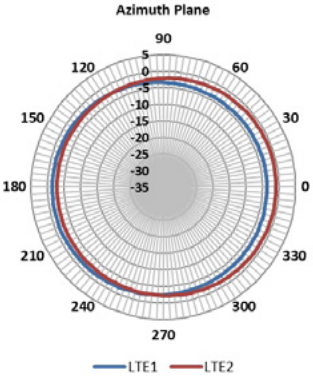
698 MHz

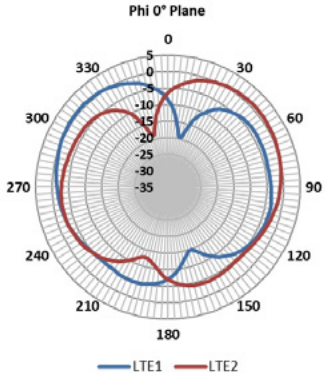


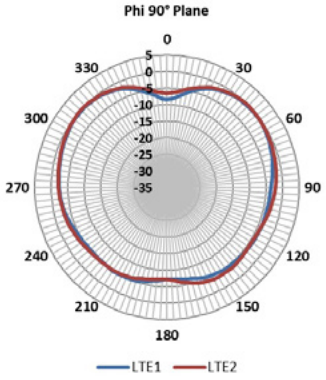




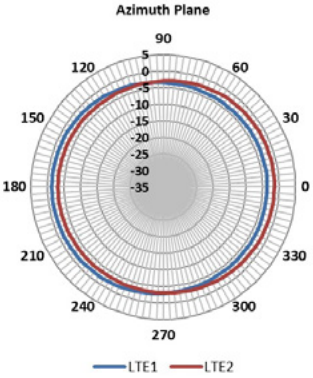
880 MHz

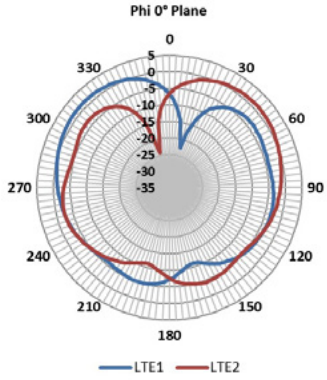


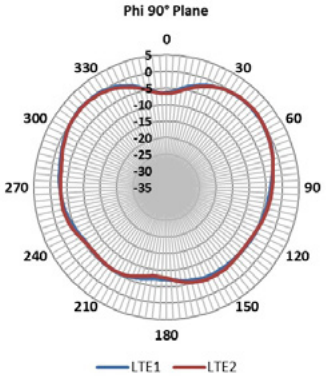




960 MHz

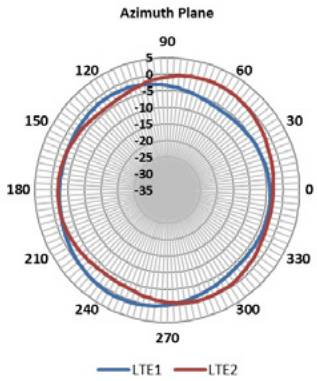


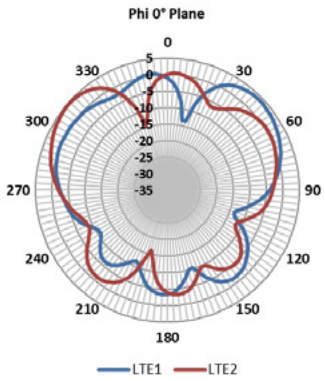


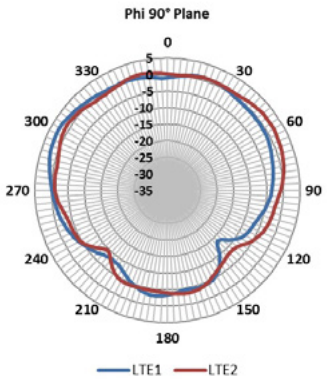


RADIATION PATTERNS WITH GROUND PLANE – LTE ANTENNAS

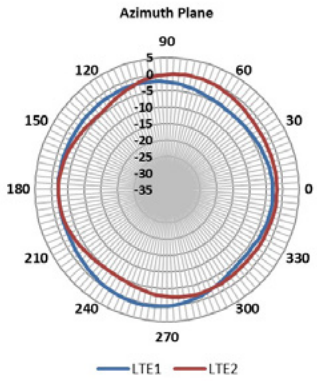
1690 MHz

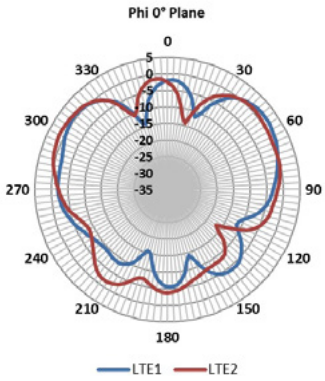


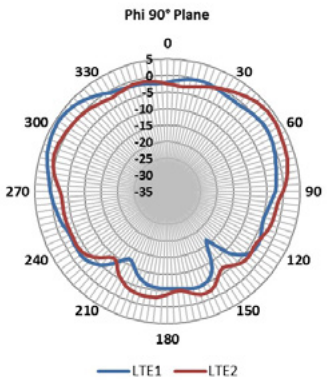




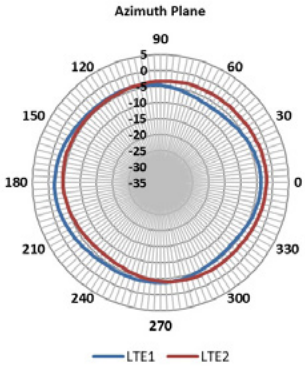
1850 MHz

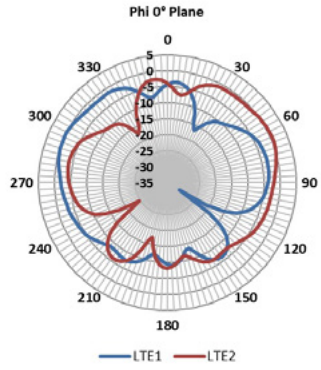


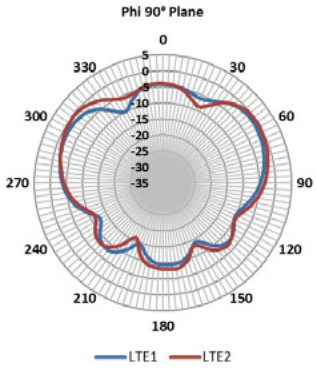




2170 MHz

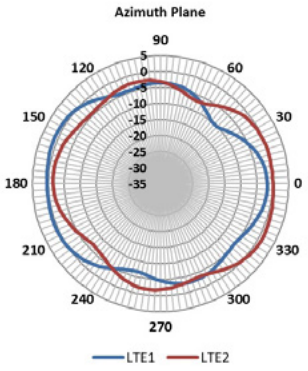


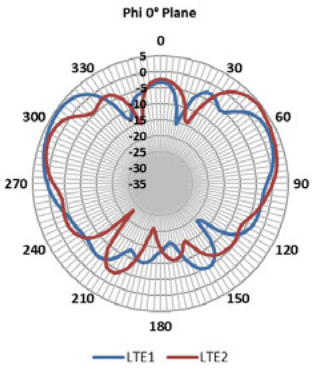


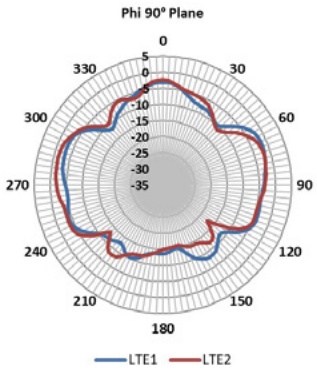


RADIATION PATTERNS WITH GROUND PLANE – LTE ANTENNAS

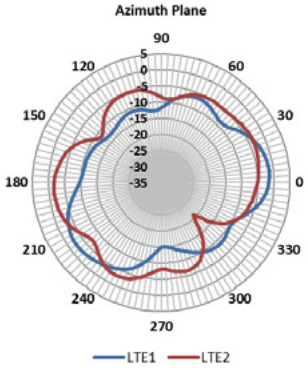
2700 MHz

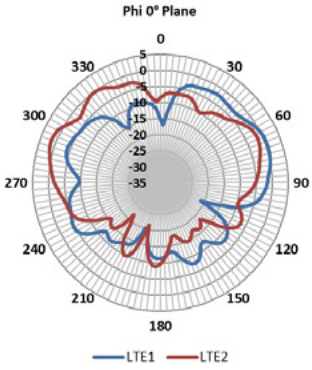


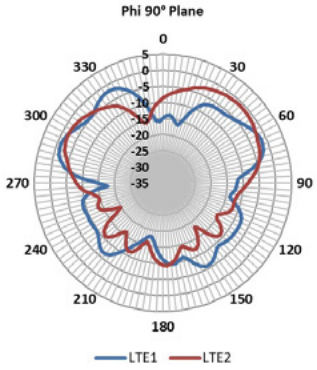




3800 MHz

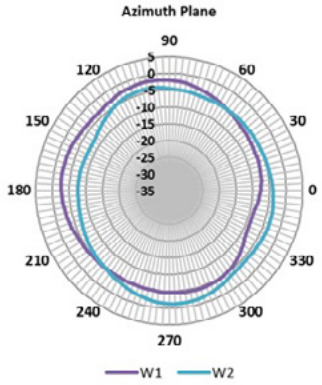


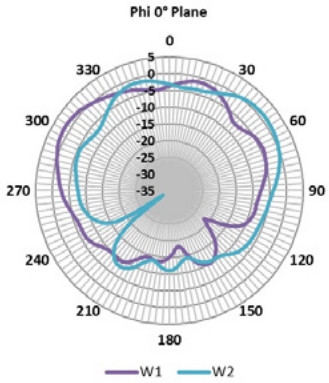


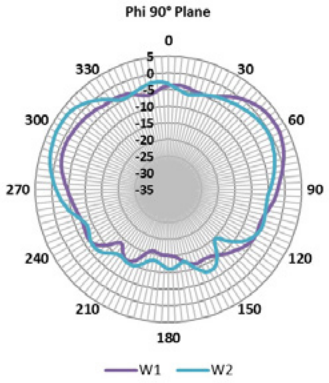


RADIATION PATTERNS with Ground Plane – WiFi ANTENNAS

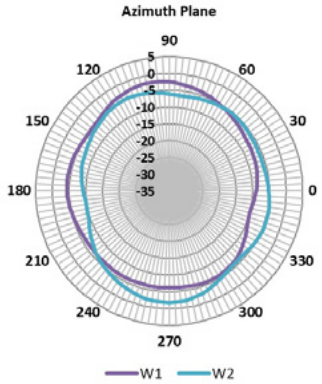
2400 MHz

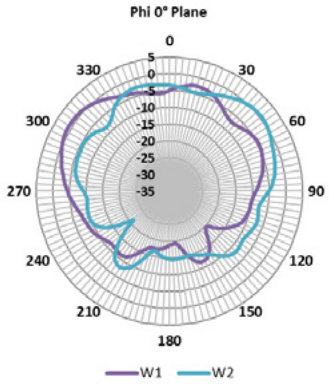


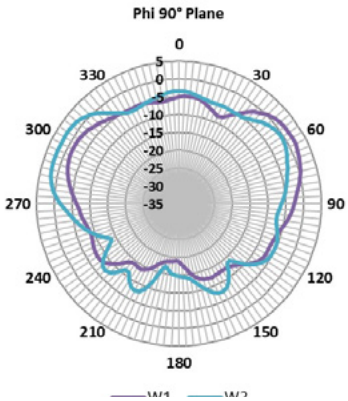




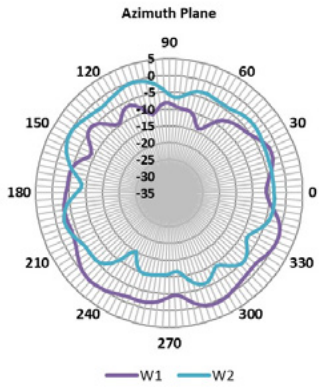
2500 MHz

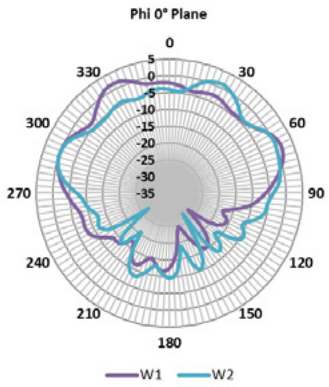


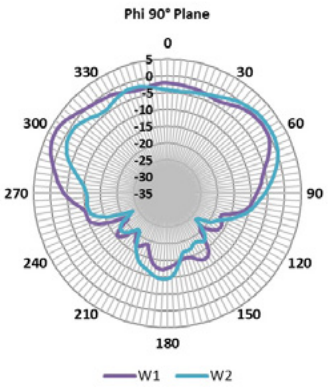




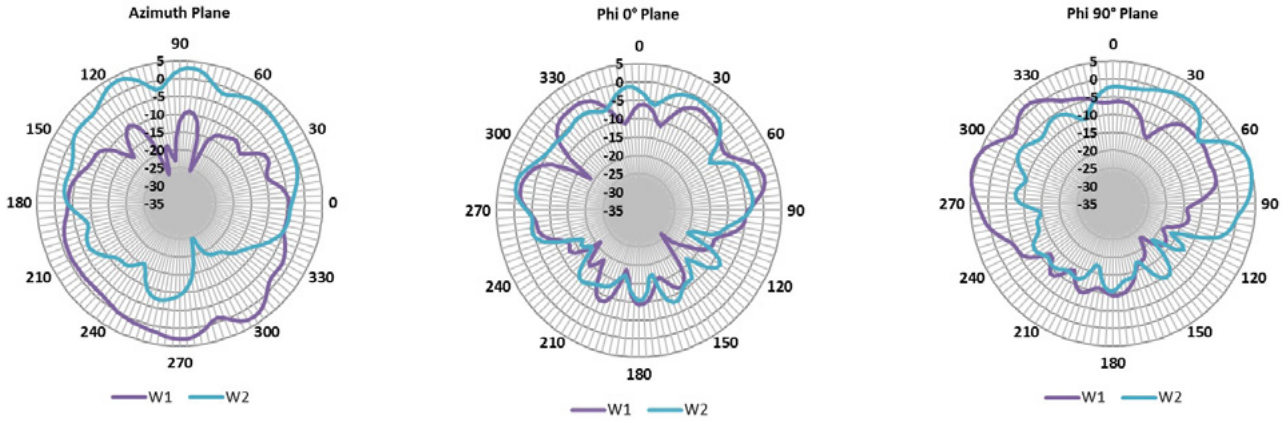
4900 MHz





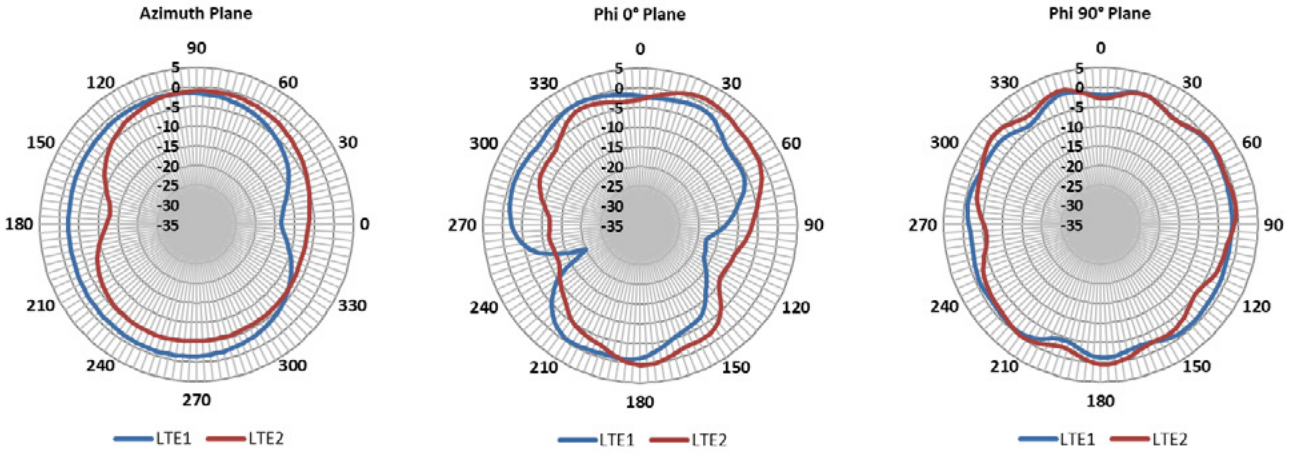


5900 MHz

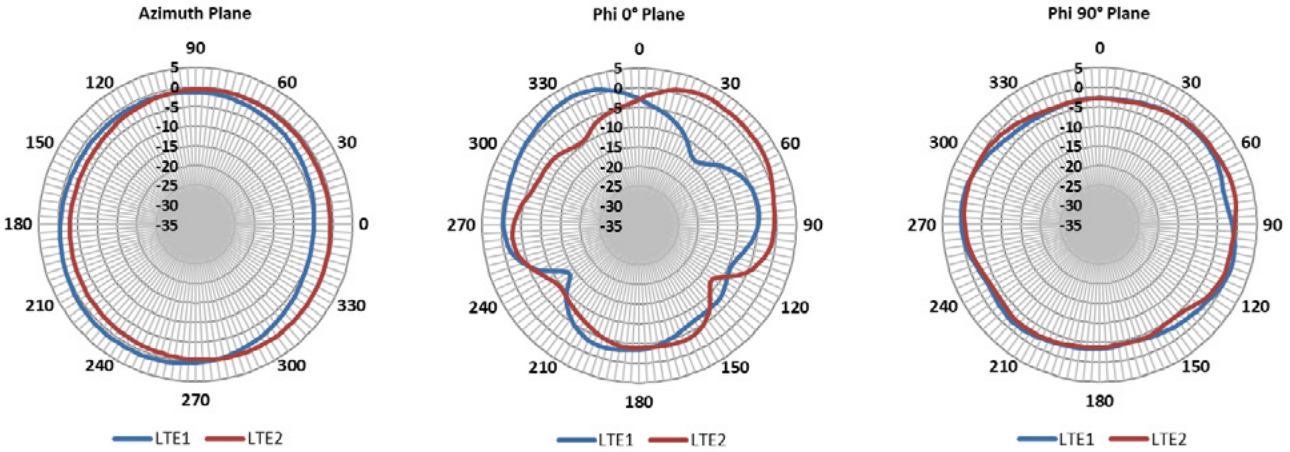


RADIATION PATTERNS *without Ground Plane* – LTE ANTENNAS

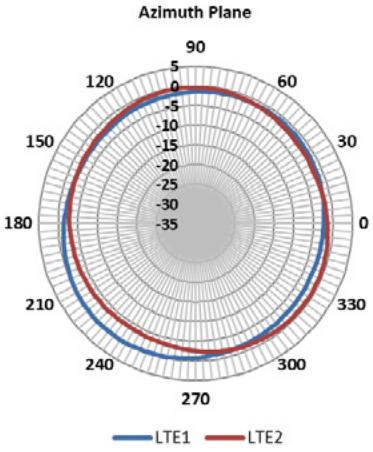
698 MHz

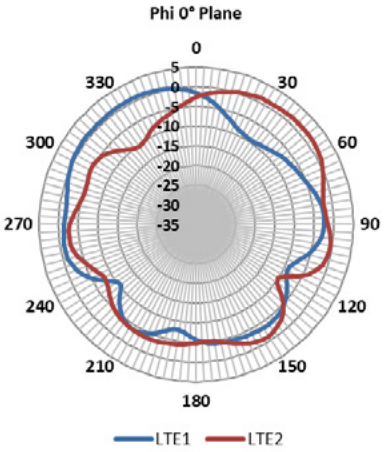


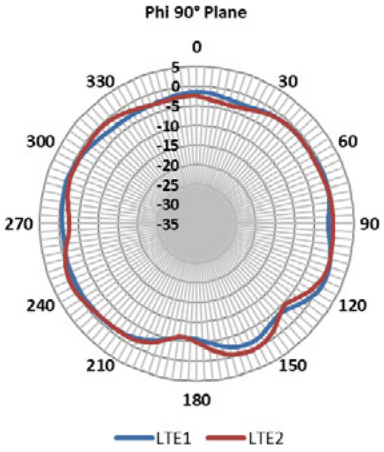
880 MHz



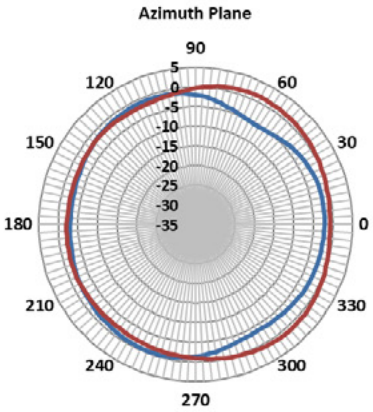
960 MHz

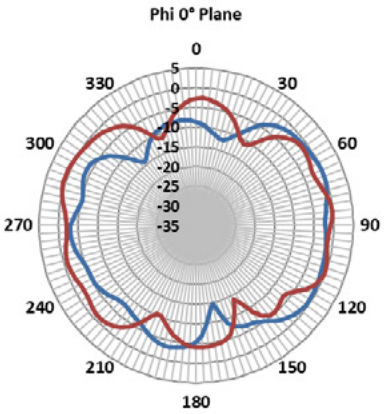


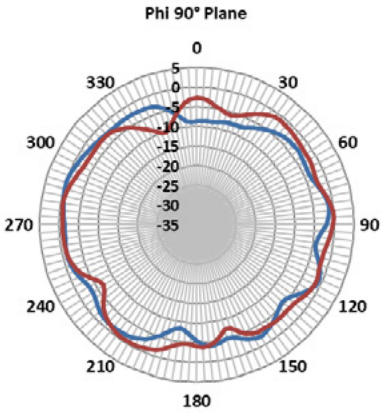




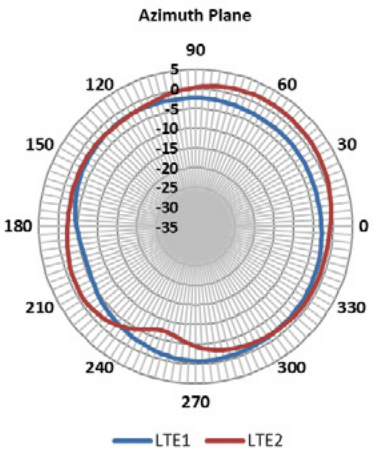
1690 MHz

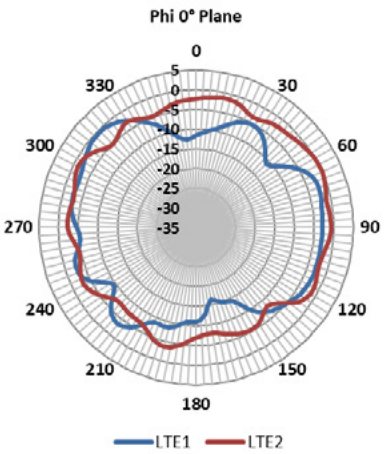


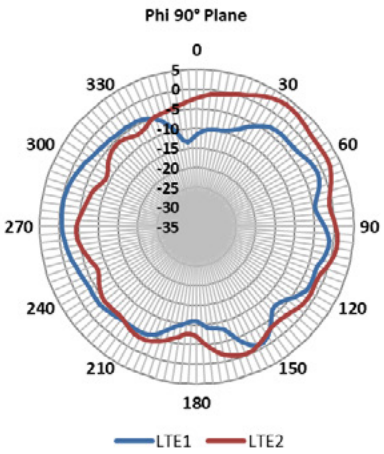




1850 MHz







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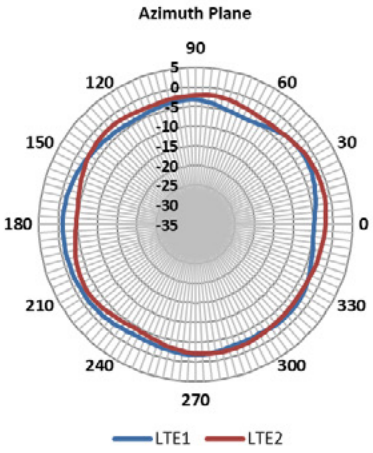
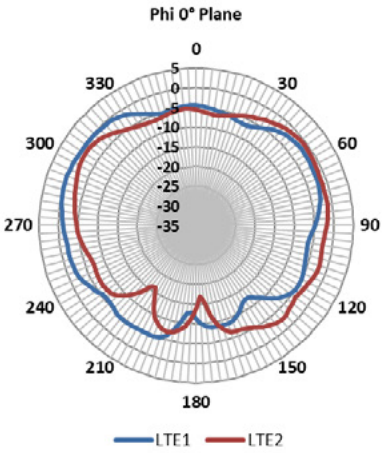
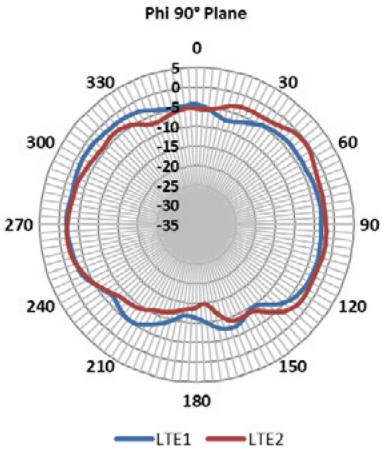
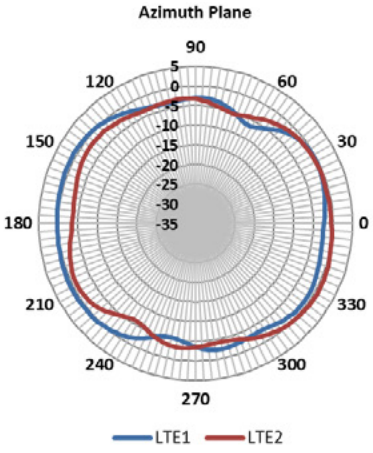
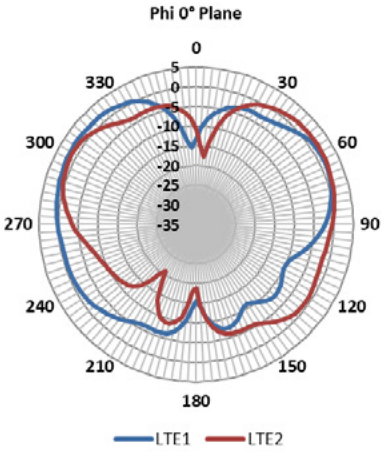


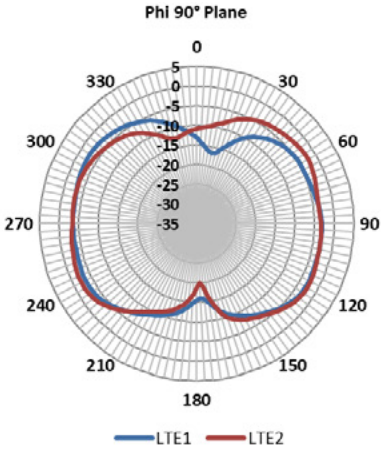




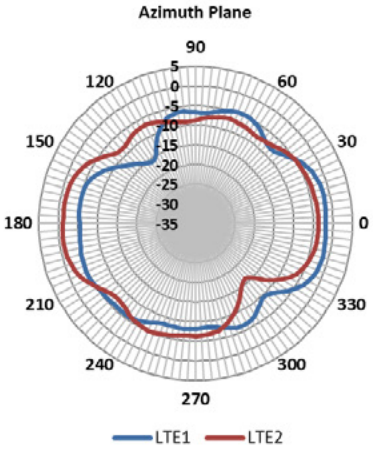
2700 MHz

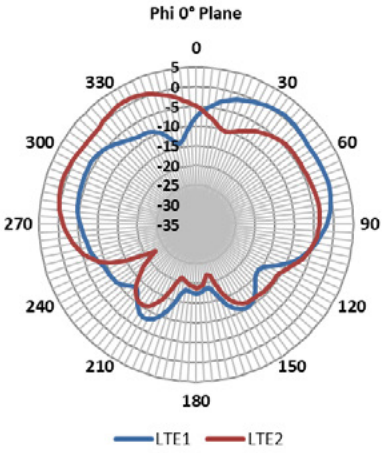


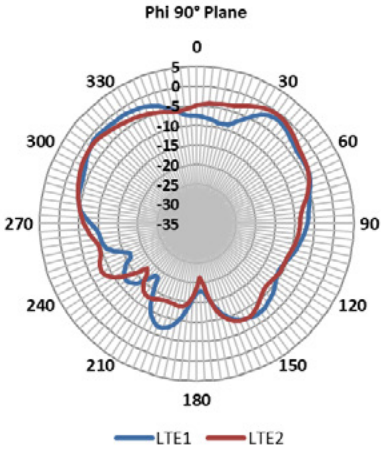




3800 MHz

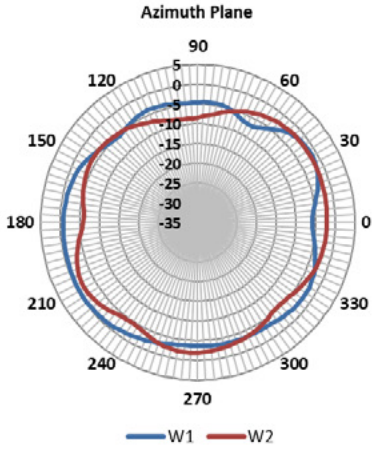


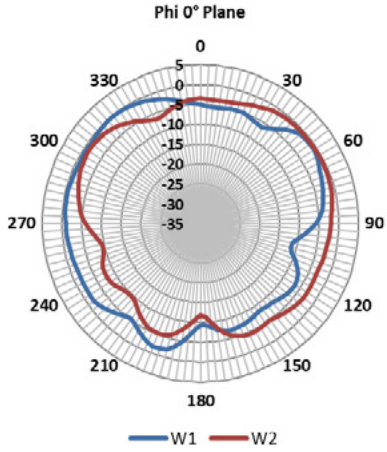


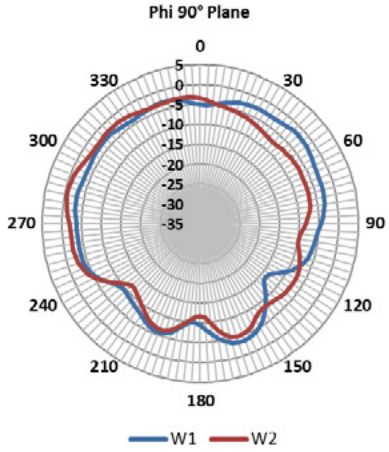


RADIATION PATTERNS *without Ground Plane* – LTE ANTENNAS

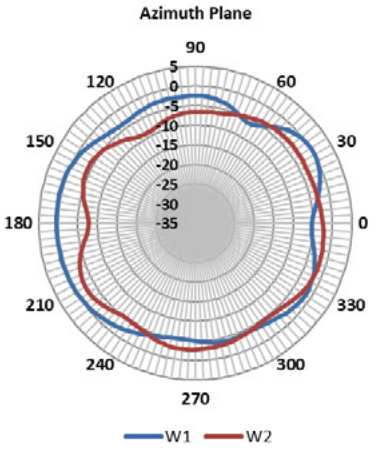
2400 MHz

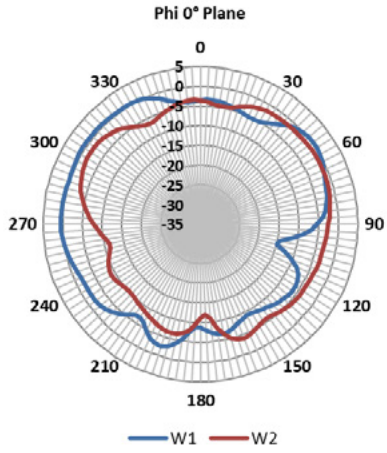


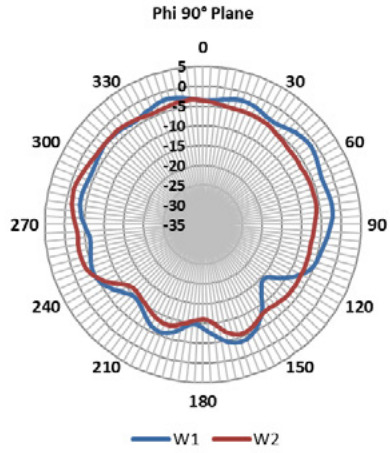




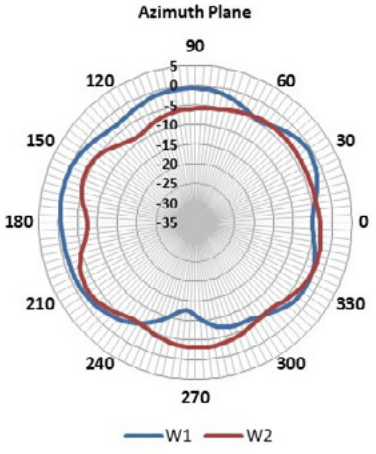
2450 MHz

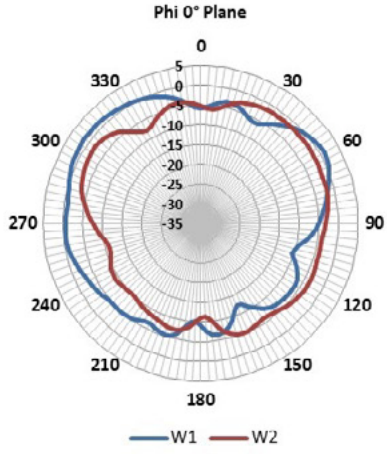


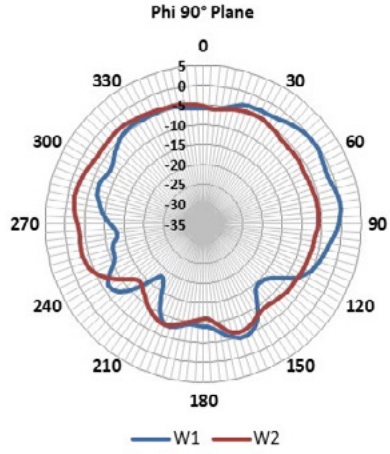




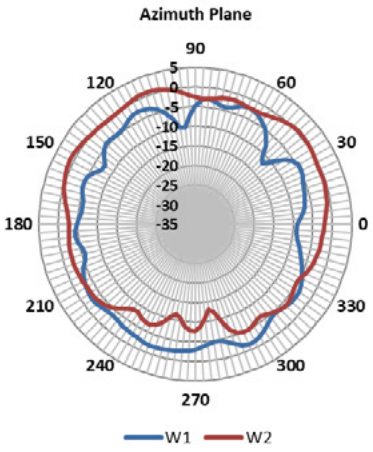
2500 MHz

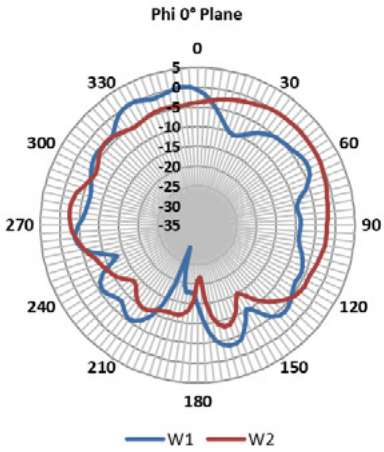


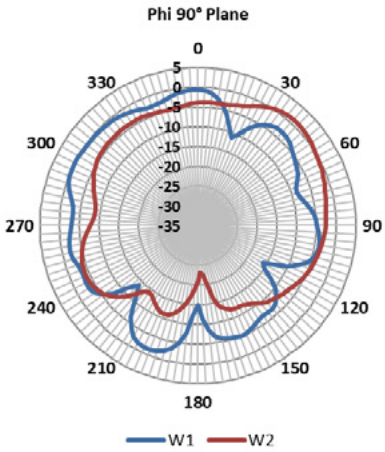




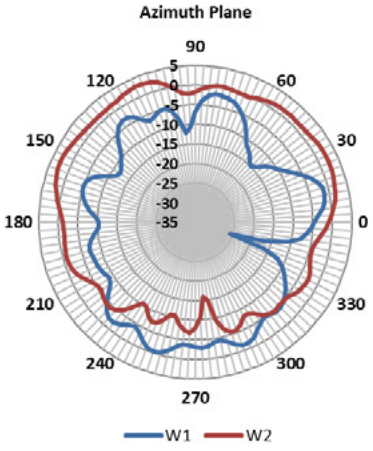
4900 MHz

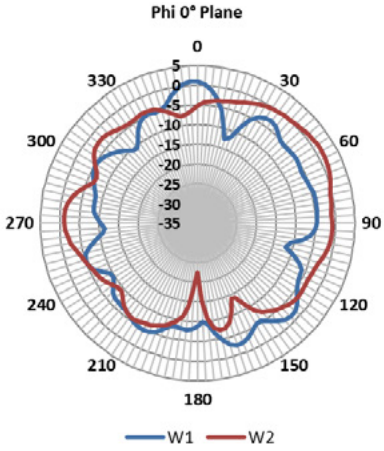


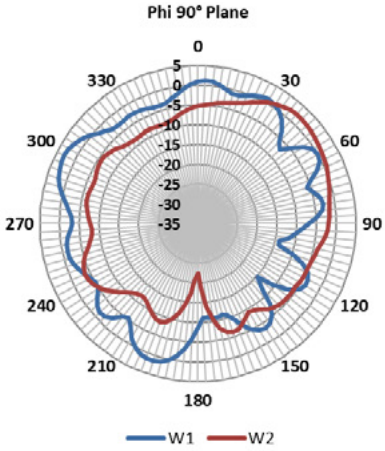




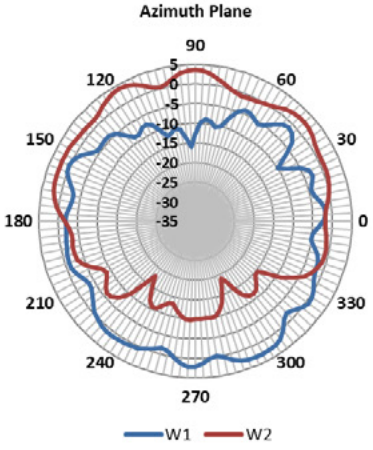
5250 MHz

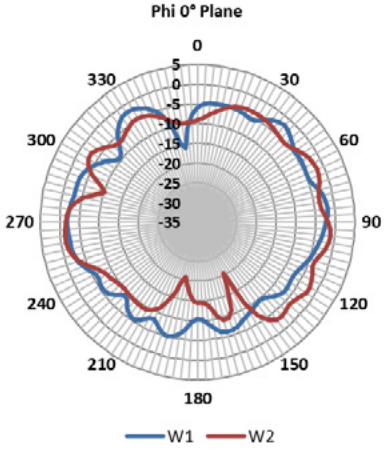


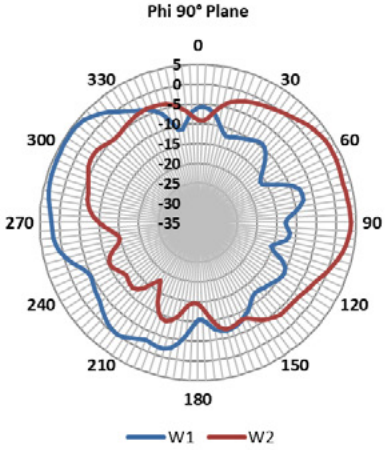




5950 MHz







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