NANEA141X50DMVCGWMF

GNSS, LTE MIMO & WIFI MIMO External Active Antenna

9001:2015 CERTIFIED

ROHS/REACH COMPLIANT HALOGEN FREE

NIC Components Corp.

Description

NANEA141X50DMVCGWMF is the base part number for an External Active Antenna designed for GNSS L1, LTE MIMO & WIFI MIMO applications. It operates within the frequency ranges of 1561~1602MHz, 617 ~ 7125 MHz & 2400 ~ 7125 MHz respectively, making it perfect for Navigation, Fleet Management, Smart Traffic Gateways.

Features

- GNSS L1 Protocol
- Supports: 5G NR FR1 with a broad bandwidth from 617 ~ 7125 MHz
- Supports: WIFI 6/6E/7
- Waterproof IP67 Rating
- Customizable Connector Options and Cable Lengths
- RoHs Complaint

Part Number Breakdown

NANE A 141x50 D M Vx M x C xxx A0 F

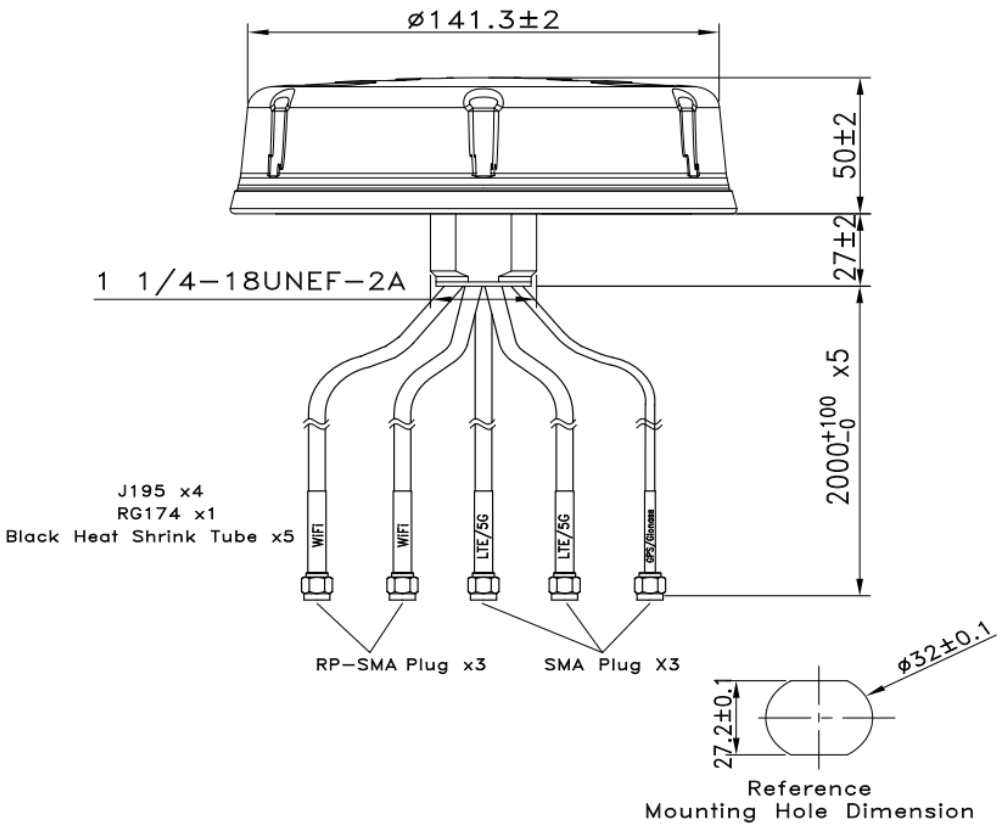
- **F** — **RoHS Compliant**
- **A0** — **Cable Assembly Code** See below Chart
- **xxx** — **Cable Length** Length code in mm (100 = 100 mm). For lengths > 1000mm: First two digits are significant, and third digit is multiplier (102 = 1,000 mm)
- **C** — **Cabled Antenna**
- **x** — **Number of Frequency Bands**
- **M** — **MIMO**
- **Vx** — **Protocol Code** V = Combo, C= Cellular, G = GNSS, W= WIFI
- **M** — **Internal Production Code**
- **D** — **Antenna Type** D = Dome
- **141x50** — **Size (in mm)**
- **A** — **Active Antenna** (only with LNA)
- **NANE** — **Series**

Part Number Options

Part Number	Protocol	Connector	Cable Type	Cable Length
NANEA141X50DMVCGWM10C202A0F	GNSS L1 (1 Port)	SMA MALE	RG174	2000 mm
	LTE MIMO (2 Ports)	SMA MALE	RG58	2000 mm
	WIFI MIMO (2 Ports)	RP-SMA Female	RG58	2000 mm
NANEA141X50DMVCGM7C202A0F	GNSS L1 (1 Port)	SMA MALE	RG174	2000 mm
Without WIFI MIMO	LTE MIMO (2 Ports)	SMA MALE	RG58	2000 mm
NANEA141X50DMVCGM7C502A0F	GNSS L1 (1 Port)	SMA MALE	RG174	5000 mm
Without WIFI MIMO	LTE MIMO (2 Ports)	SMA MALE	RG58	5000 mm
NANE141X50DMVCWM5C202A0F	LTE MIMO (3 Ports)	SMA MALE	RG58	2000 mm
** Without Active GNSS (LNA)**	WIFI (1 Port)	RP-SMA Female	RG58	2000 mm
NANE141X50DMVCWM5C202A1F	LTE MIMO (2 Ports)	SMA MALE	RG58	2000 mm
** Without Active GNSS (LNA)**	WIFI (1 Port)	RP-SMA Female	RG58	2000 mm

The table represents assembled part numbers available on www.niccomp.com. For options not listed above please contact NIC

Dimension Drawing

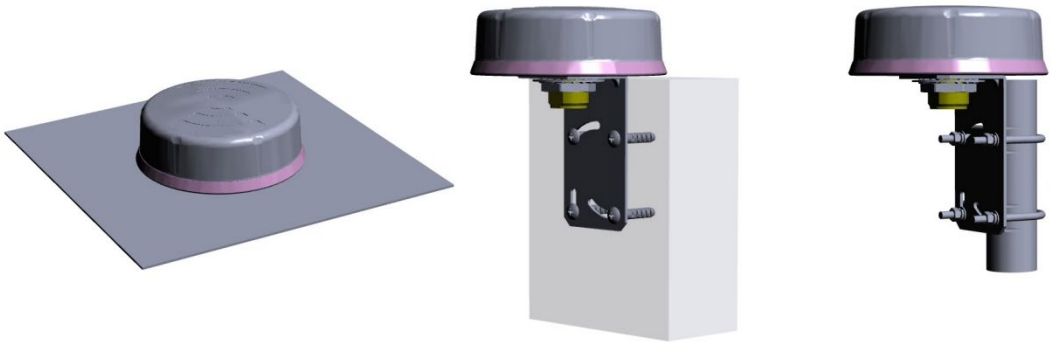


Specifications

Electrical									
Antenna	**GNSS**								
Frequency Bands	1561 MHz			1575.42 MHz			1602 MHz		
VSWR (Max)	1.7			1.5			1.6		
Total Peak Gain (dBi)	29.5			30.9			29.2		
Axial Ratio (dB)	13.6			4.5			5.7		
Noise Figure (dB)	1.2			1.3			1.3		
Input Voltage	3.3 V								
Power Consumption	10 ± 2 mA @ 3.3 V								
Polarization	RHCP								
Radiation	Directional								
Electrical Type	Radiating Patch plus 2-stage LNA								
Impedance	50Ω								
Antenna	**5G NR / LTE Band**						**WIFI BAND**		
Frequency Range (MHz)	617 ~ 960	1710 ~ 2690	3300 ~ 4200	4400 ~ 5000	5150 ~ 5850	5925 ~ 7125	2400 ~ 2500	5150 ~ 5850	5925 ~ 7125
V.S.W.R (Max)	4.7	2.1	2.0	1.6	1.7	2.3	2.0	1.5	1.9
Peak Gain (dBi)	3.8	4.9	3.3	3.7	2.9	0.2	2.5	3.3	2.2
Average Gain (dBi)	-3.3	-3.0	-4.6	-4.3	-5.0	-9.0	-5.0	-5.3	-6.8
Efficiency (%)	48	51	35	38	32	13	32	30	21
Max Power	5 W								
Electrical Type	Monopole								
Polarization	Linear								
Radiation	Omni directional								
Impedance	50Ω								
Environmental & Mechanical									
Operating Temperature	-40°C~+85								
Storage Temperature	-40°C~+85								
Ingress Protection	IP67								
Baseplate Material	Aluminum								
Material	PC / ABS								
Mounting method	Screw Mount with diameter 32mm								
Weight	801 g								
ROHS Compliant	Yes								

Antenna Installation

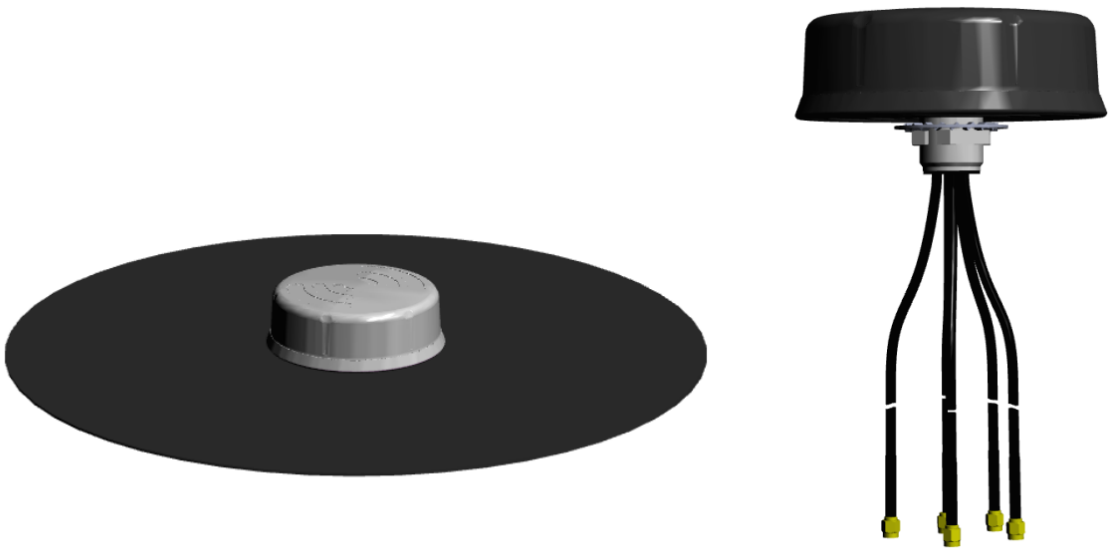
This antenna is designed to mount on the device enclosure directly (Roof Mount) or independent installation through L brackets as shown below. The standard antenna pack excludes L bracket kit.



Roof Mount | Wall Mount | Pole Mount

Antenna Test Setup

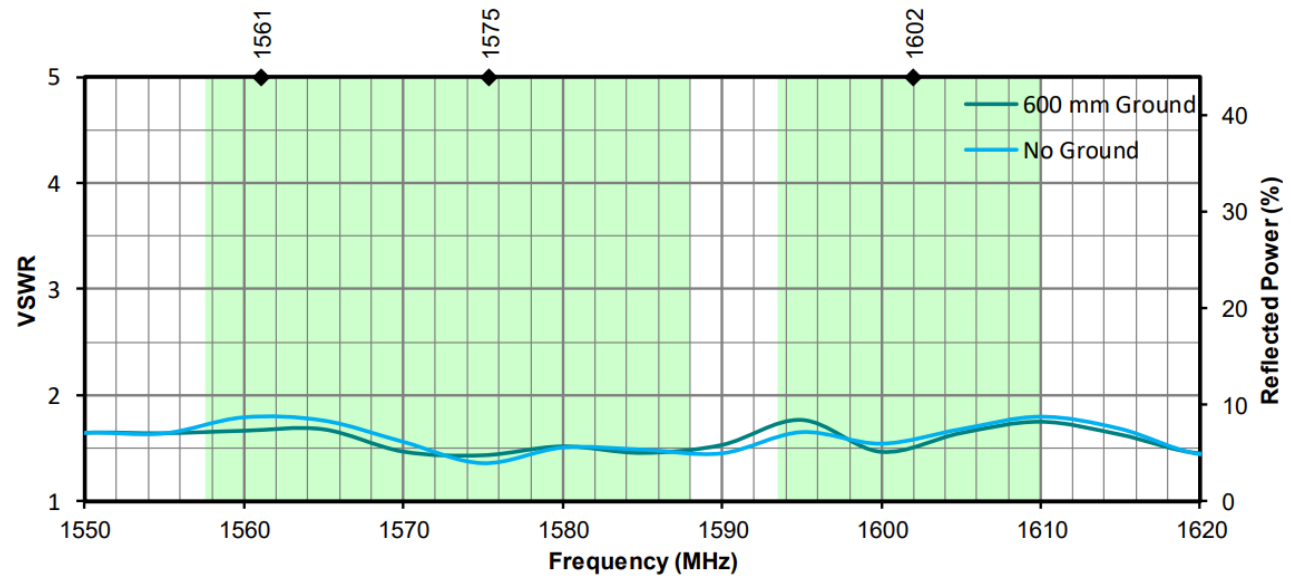
This antenna is tested with a 2-meter-long coaxial cable. The antenna test setup consists of the direct mount on a 600 mm diameter metal plate. This provides insight into the antenna's performance when attached to a metal surface or hanging free as shown below. The following charts represent data taken with the antenna mount on a ground plane and without ground plane.



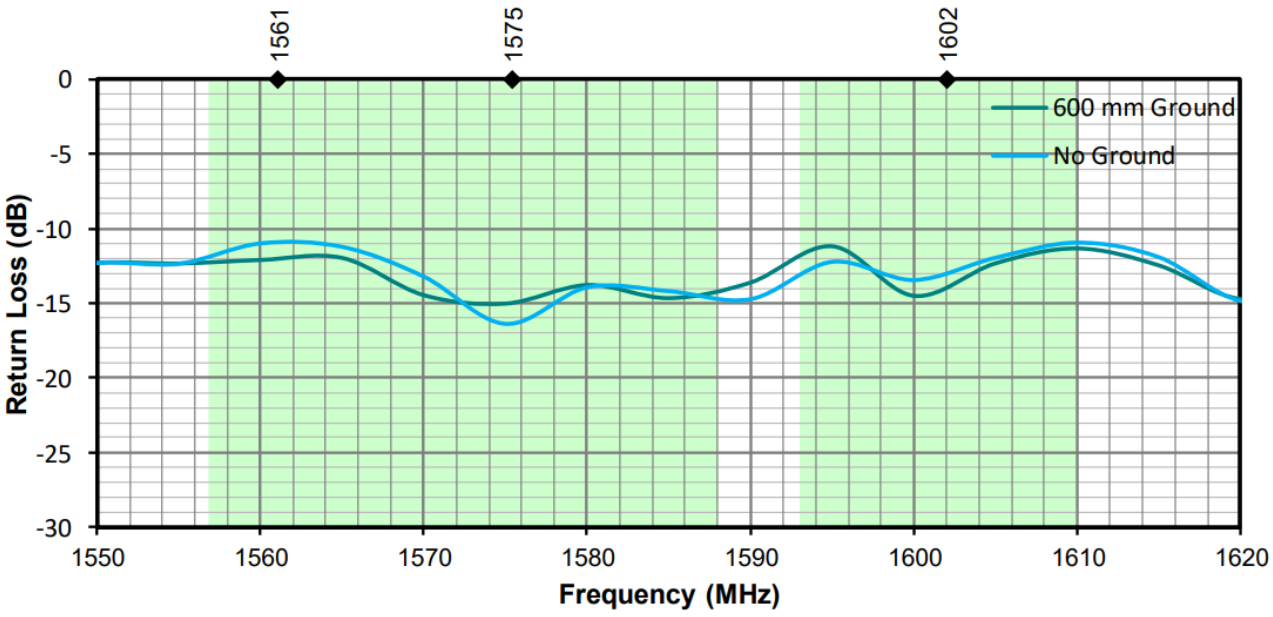
With Ground Plane | Hanging Free, No Ground Plane

GNSS

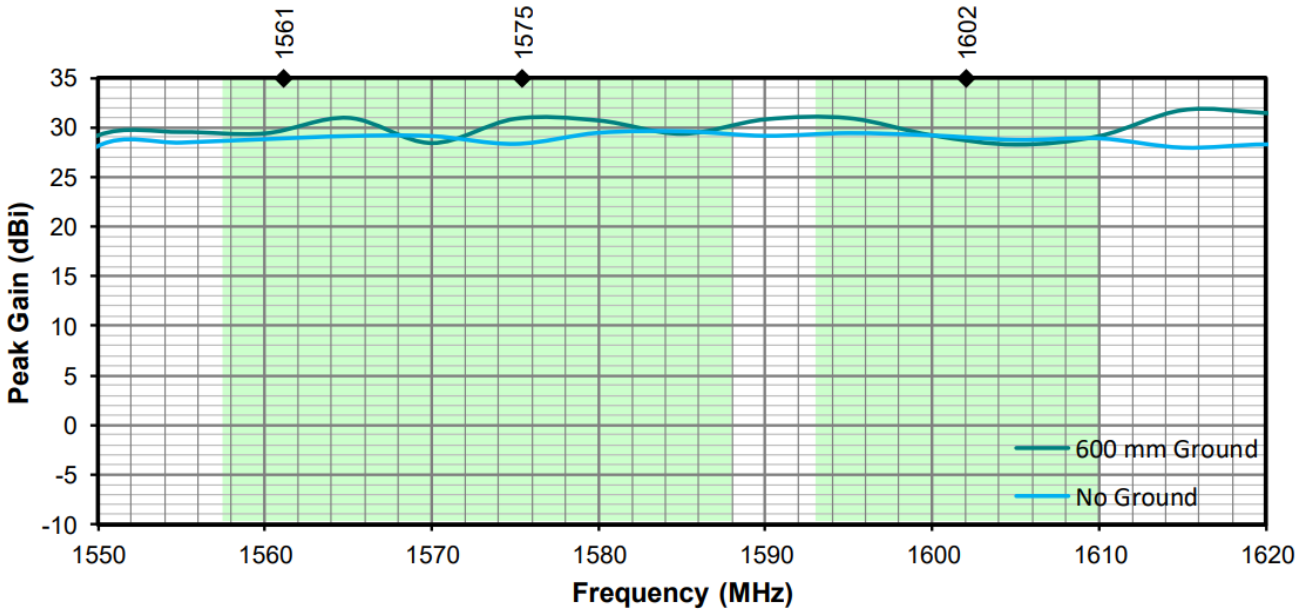
VSWR



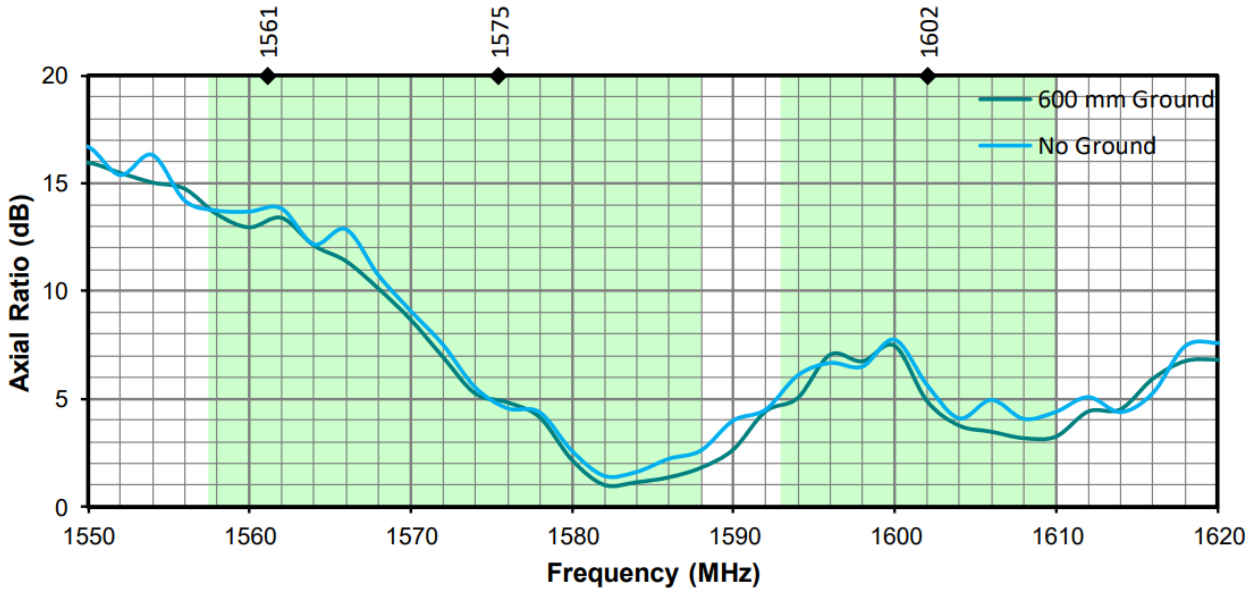
Return Loss



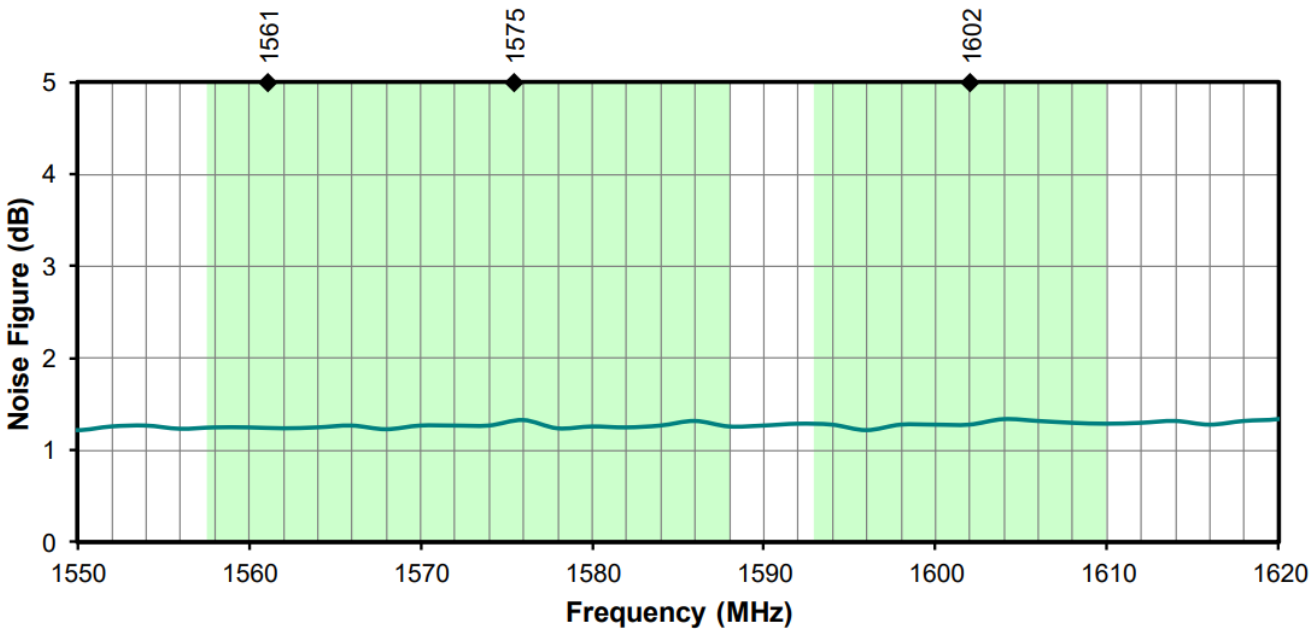
Total Peak Gain



Axial Ratio



Noise Figure



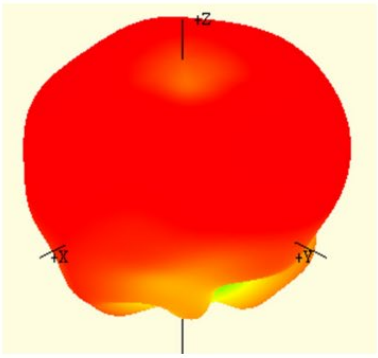
Radiation Patterns

XZ-Plane Gain

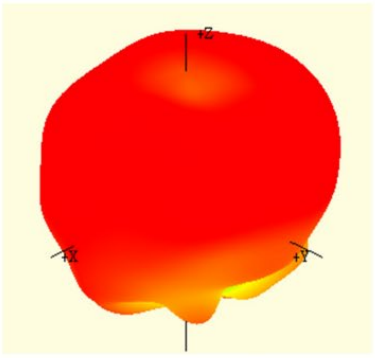
YZ-Plane Gain

XY-Plane Gain

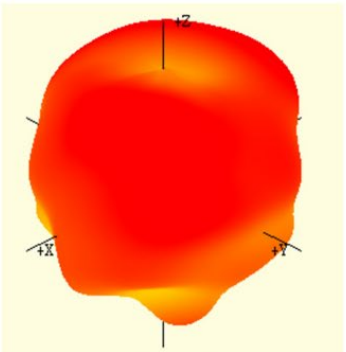
1561 MHz ~ 1602 MHz



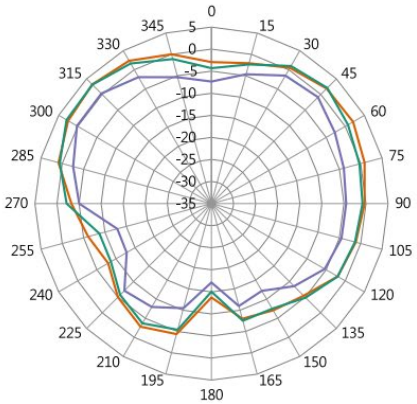
1561 MHz



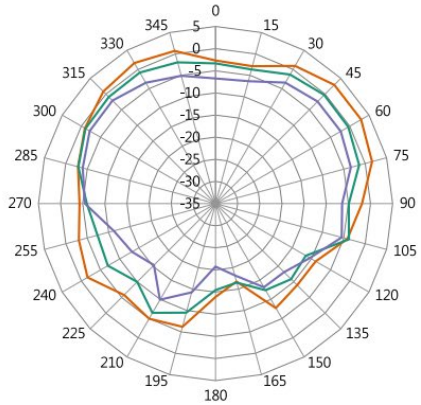
1575.42 MHz



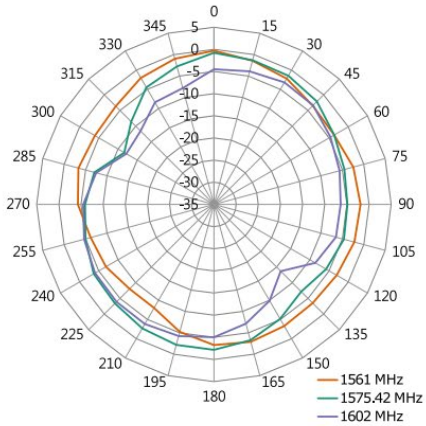
1602 MHz



XZ-Plane Gain



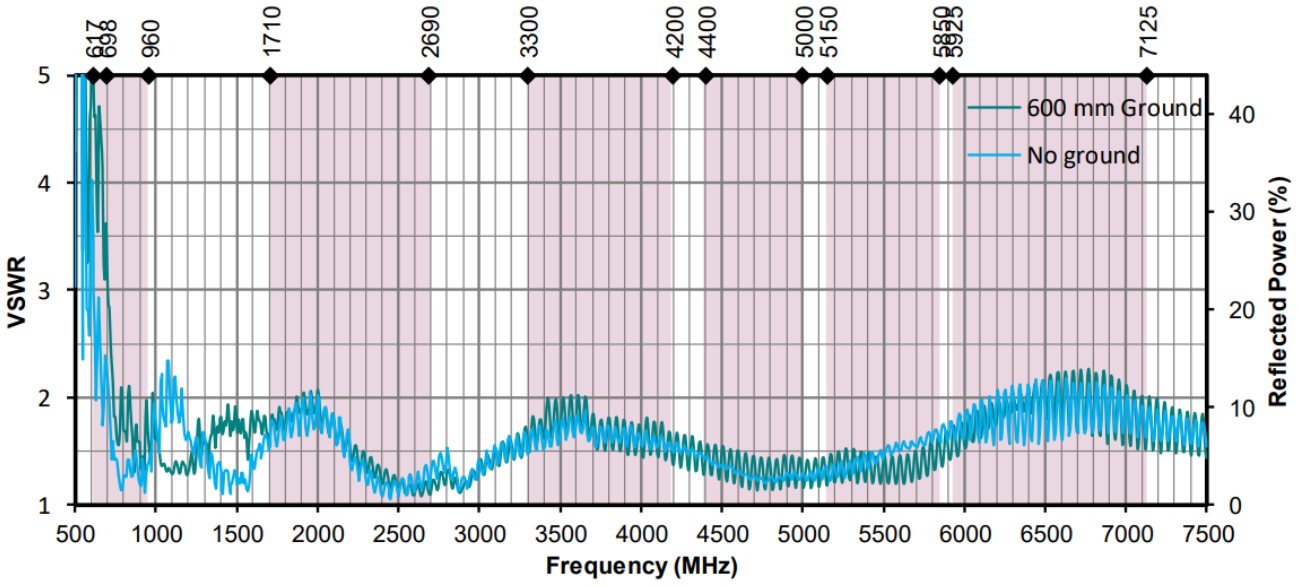
YZ-Plane Gain



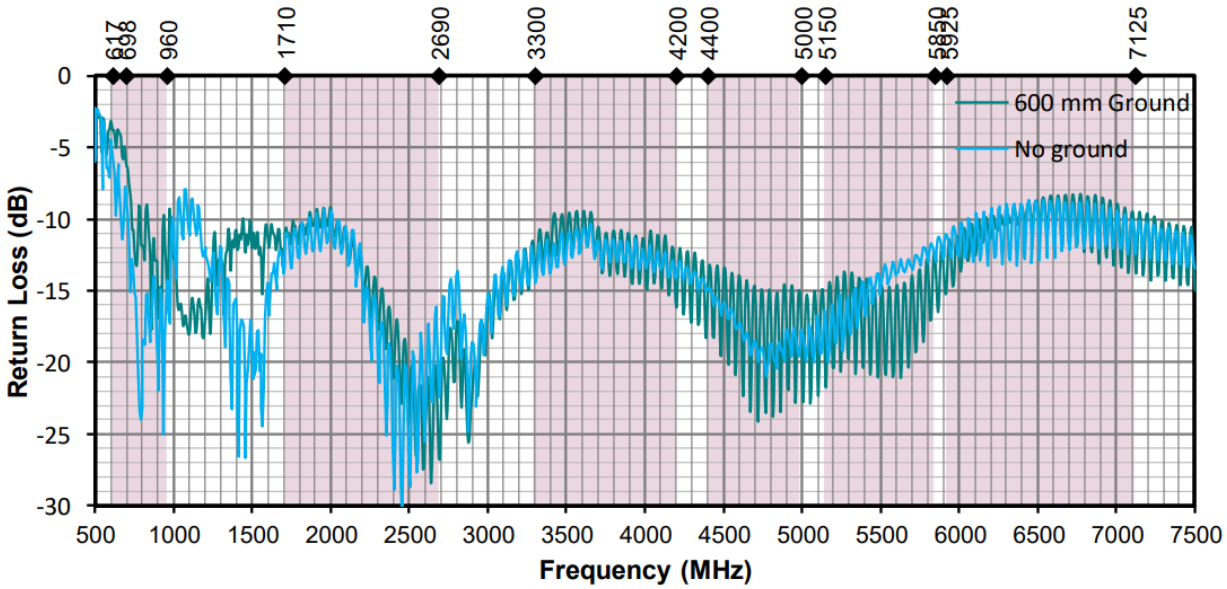
XY-Plane Gain

5G / LTE

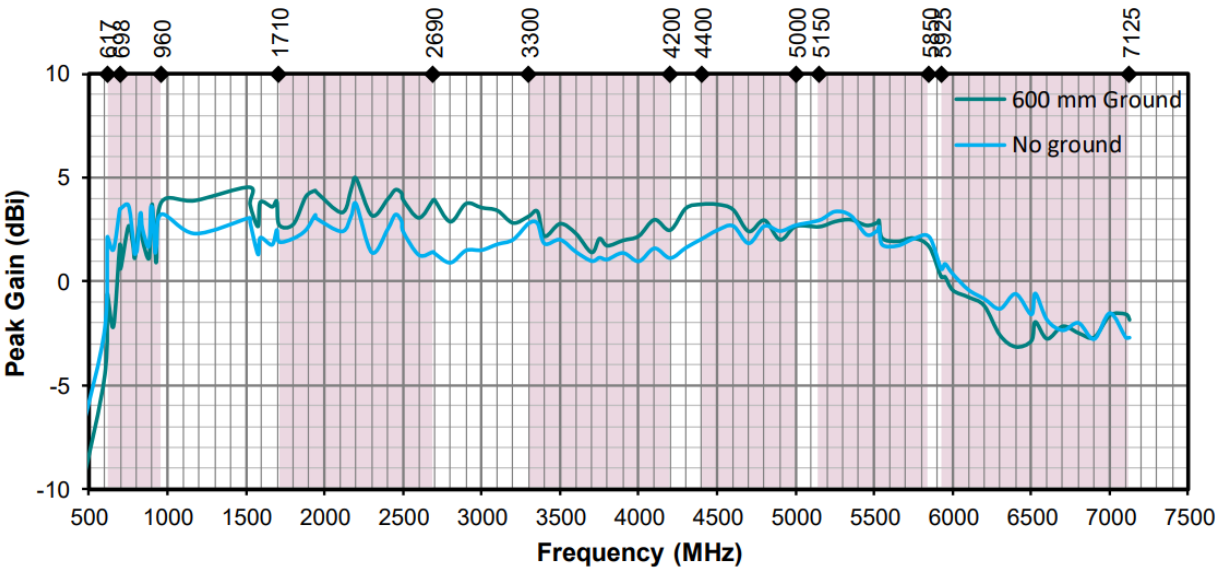
VSWR



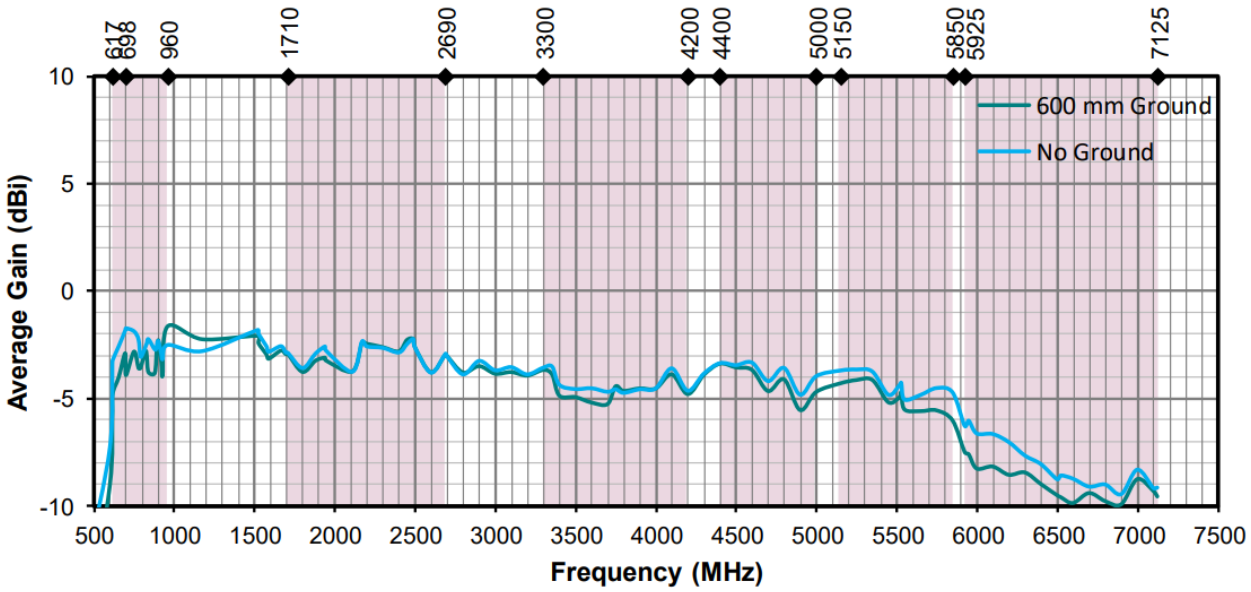
Return Loss



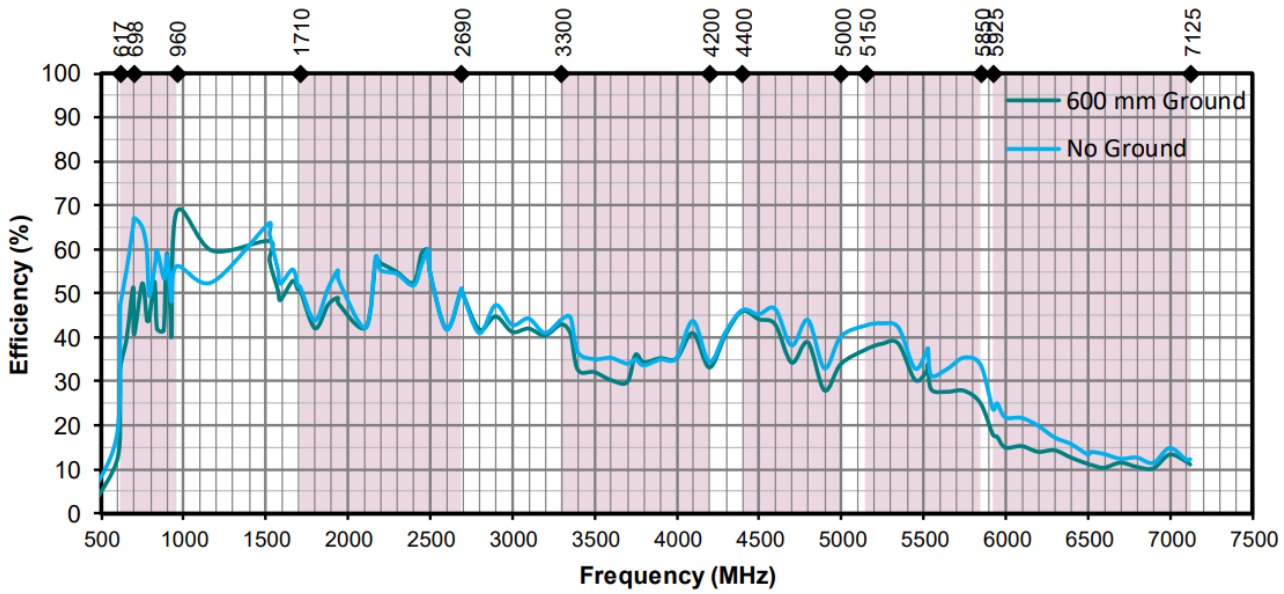
Peak Gain



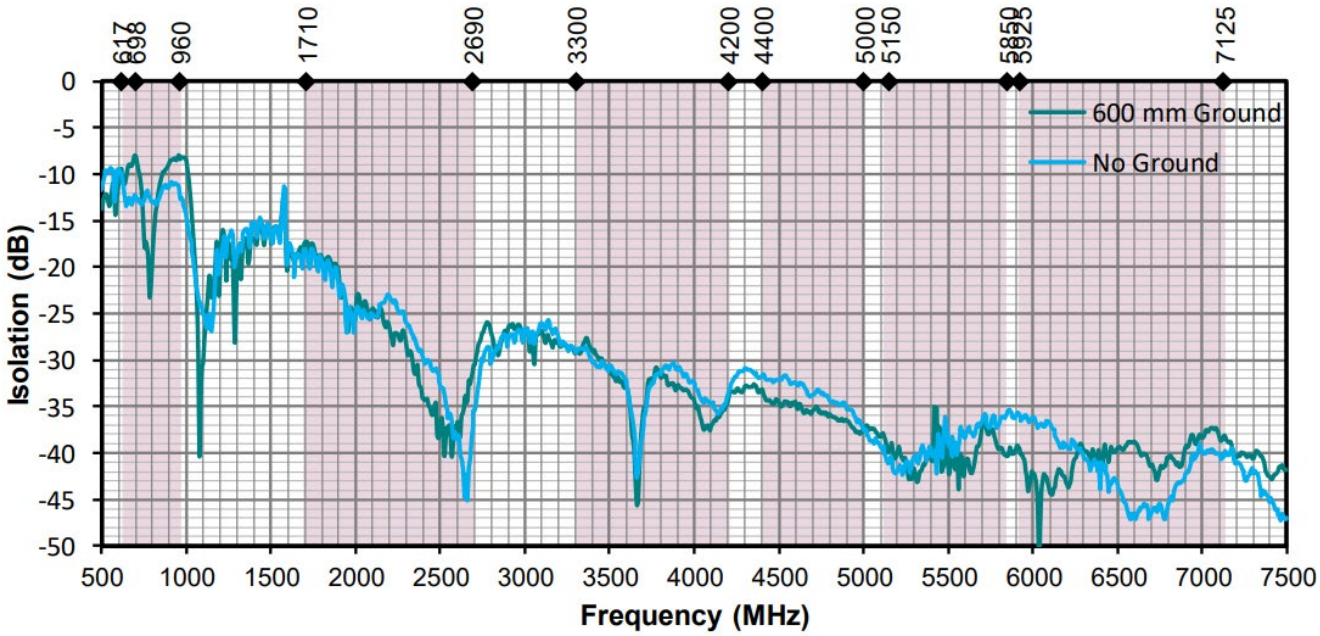
Average Gain



Efficiency



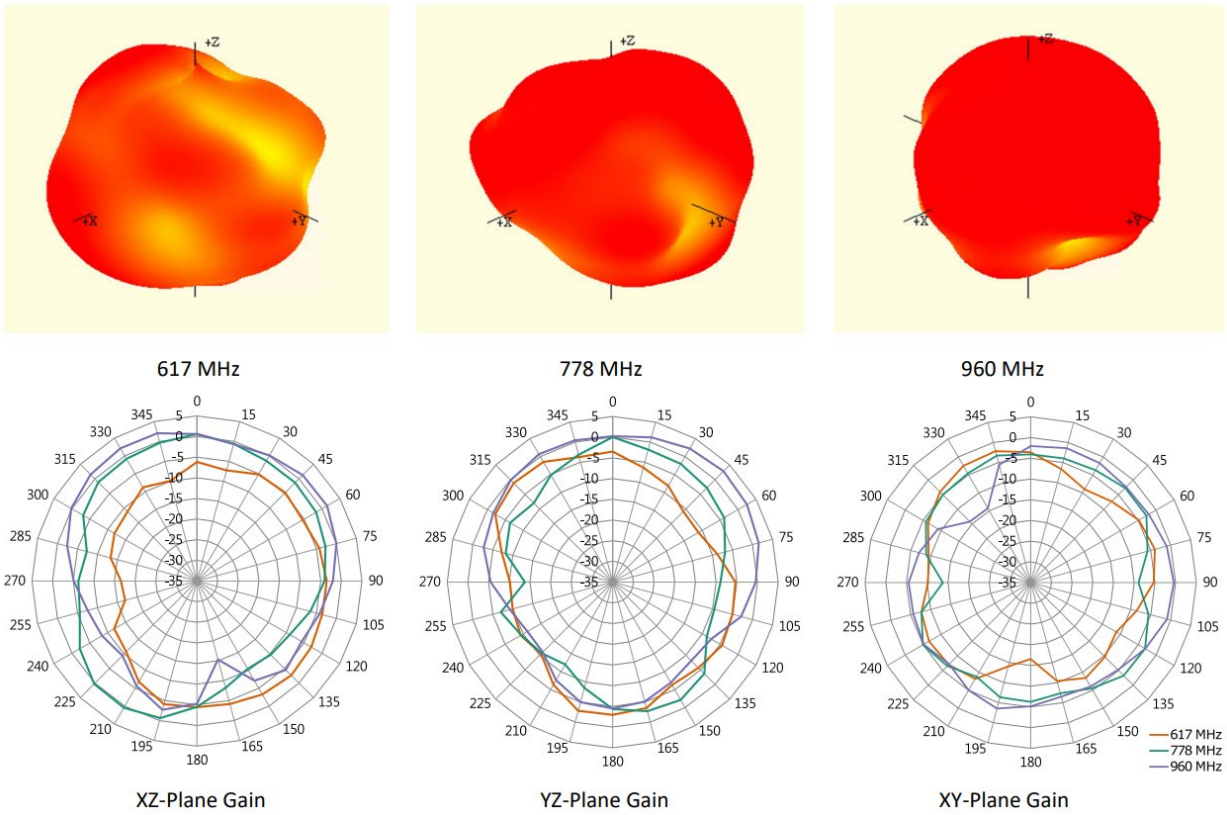
Isolation



Radiation Patterns

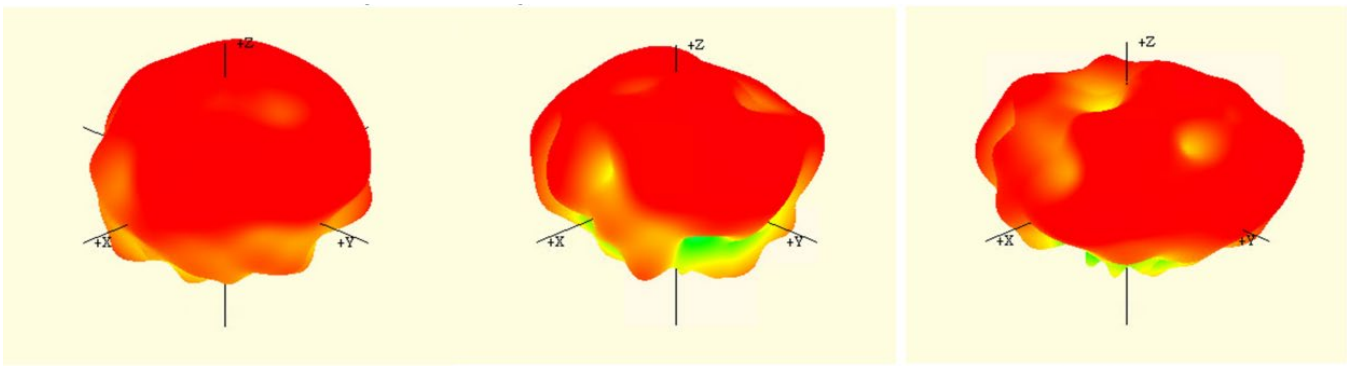
XZ-Plane Gain | YZ-Plane Gain | XY-Plane Gain

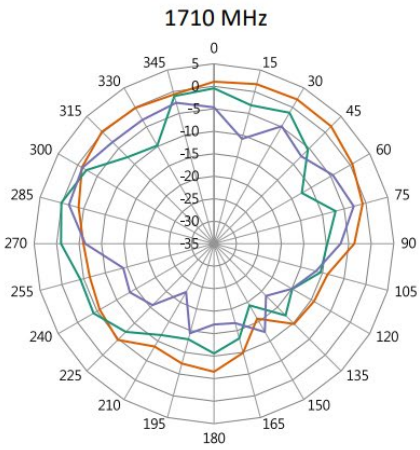
617 MHz ~ 960 MHz

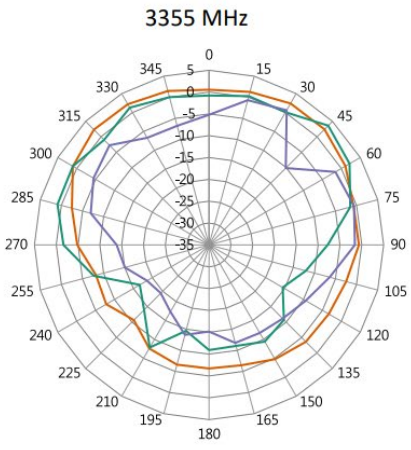


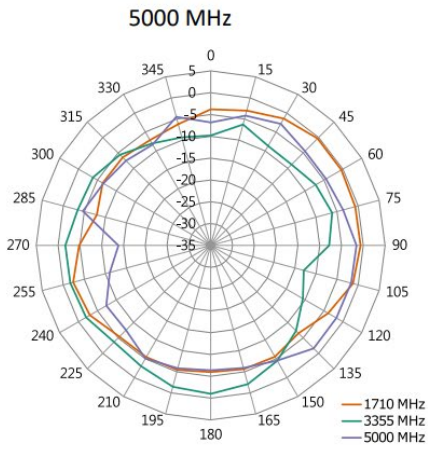
XZ-Plane Gain | YZ-Plane Gain | XY-Plane Gain

1710 MHz ~ 5000 MHz

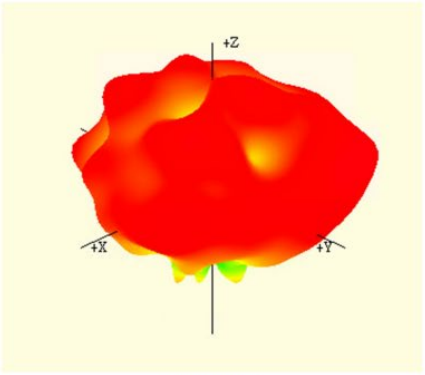




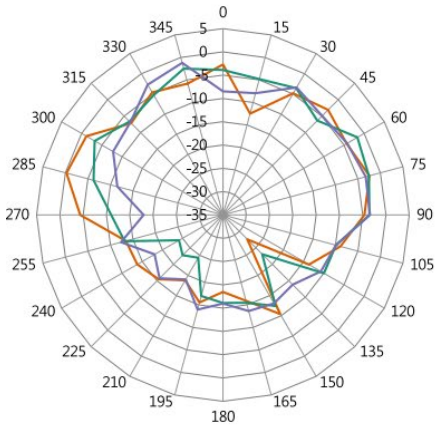




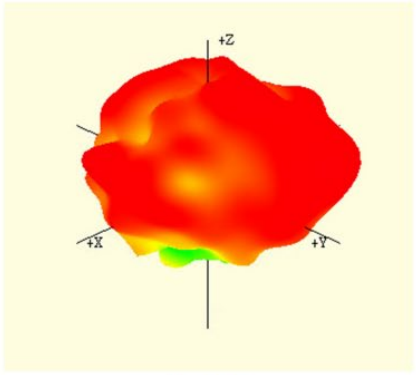
5150 MHz ~ 5850 MHz



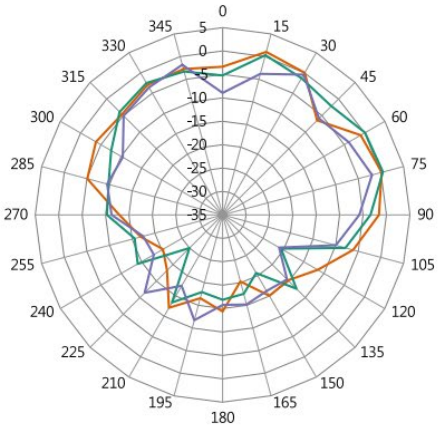
5150MHz



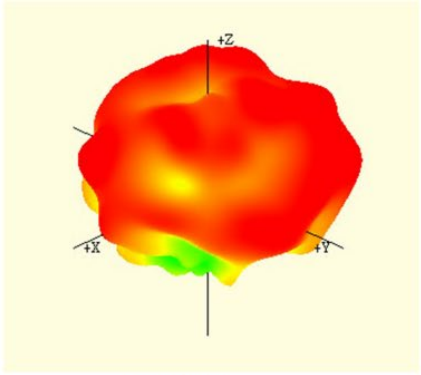
XZ-Plane Gain



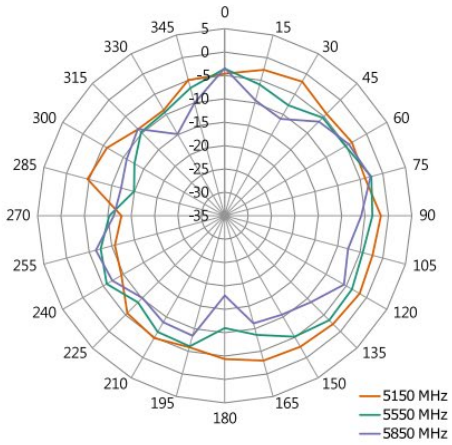
5500 MHz



YZ-Plane Gain

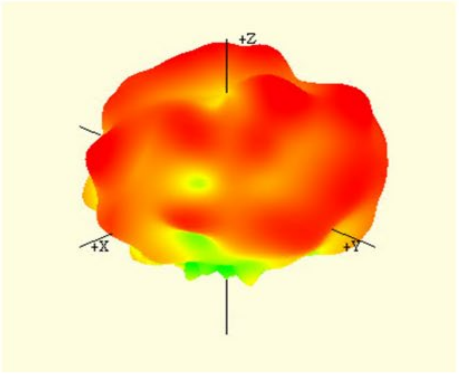


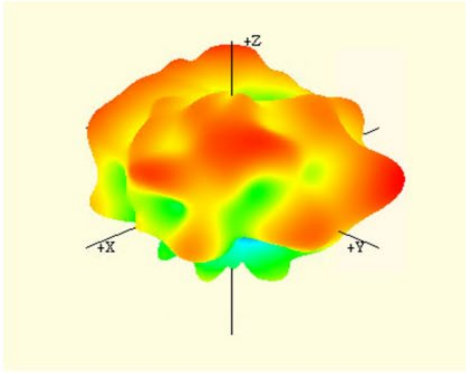
5850 MHz

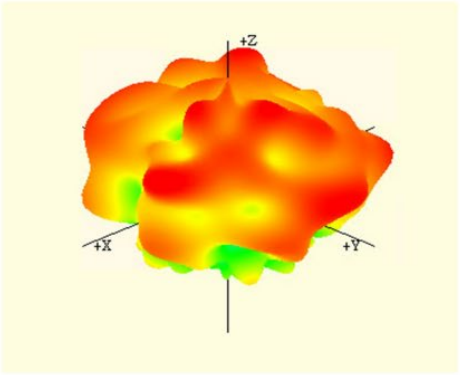


XY-Plane Gain

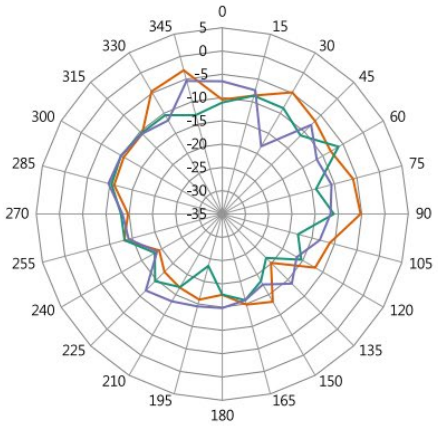
5925 MHz ~ 7125 MHz





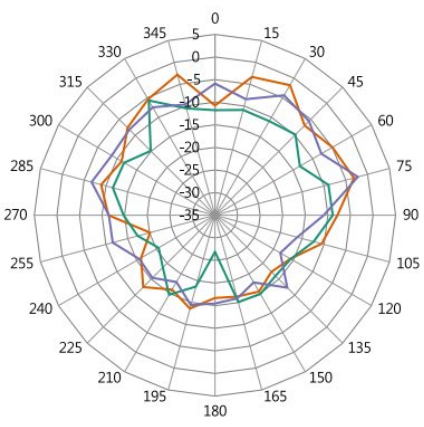


5925 MHz



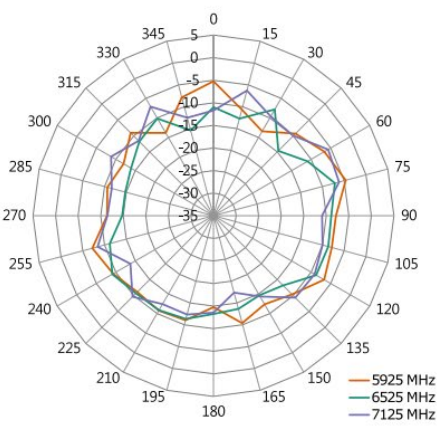
XZ-Plane Gain

6525 MHz



YZ-Plane Gain

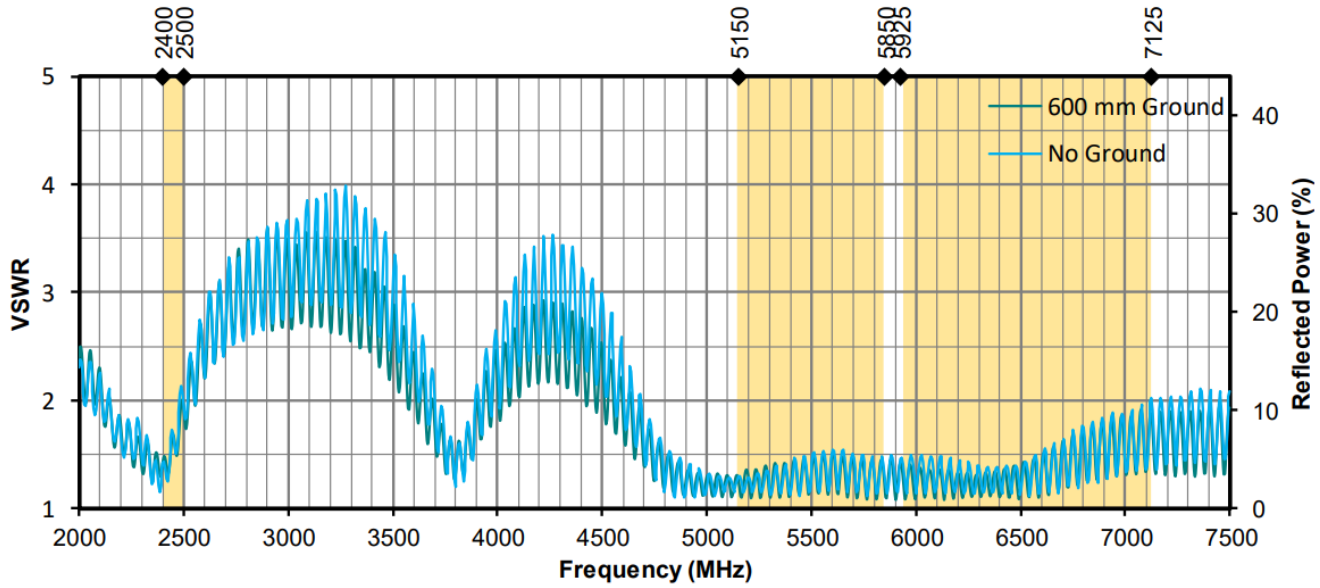
7125 MHz



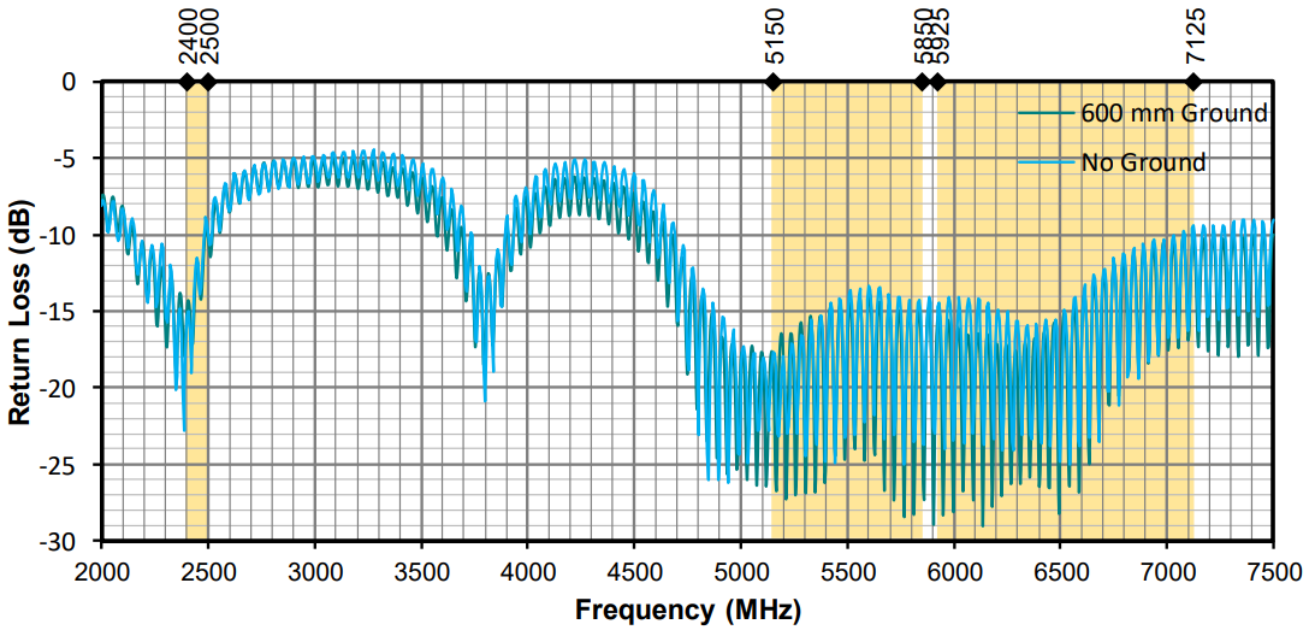
XY-Plane Gain

WIFI

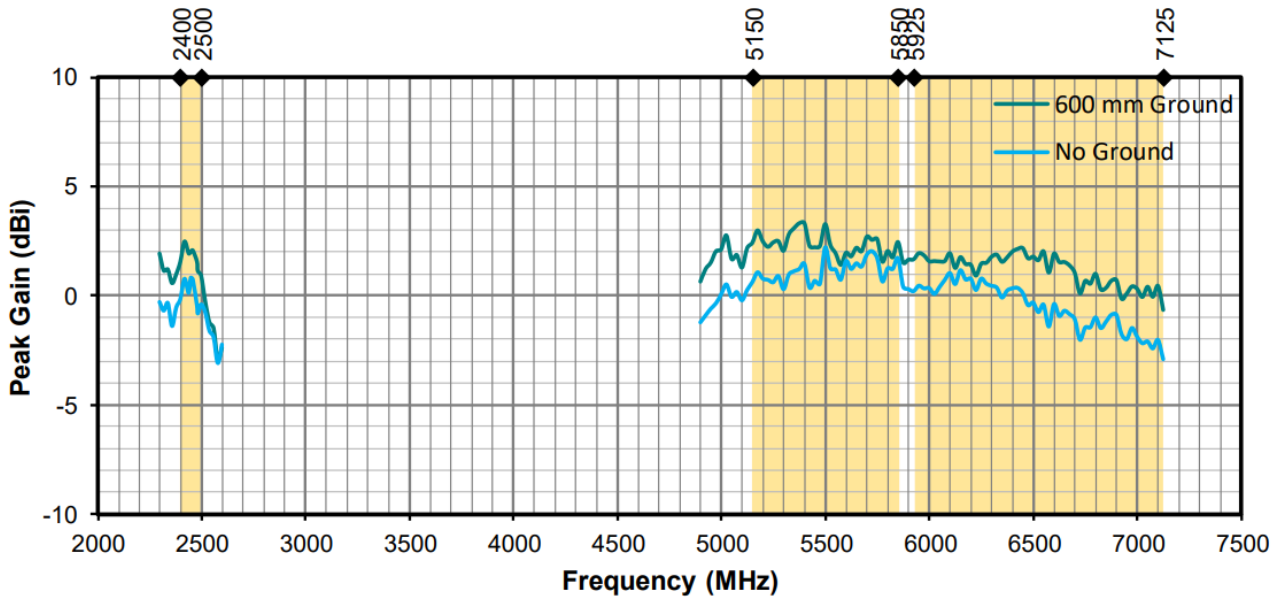
VSWR



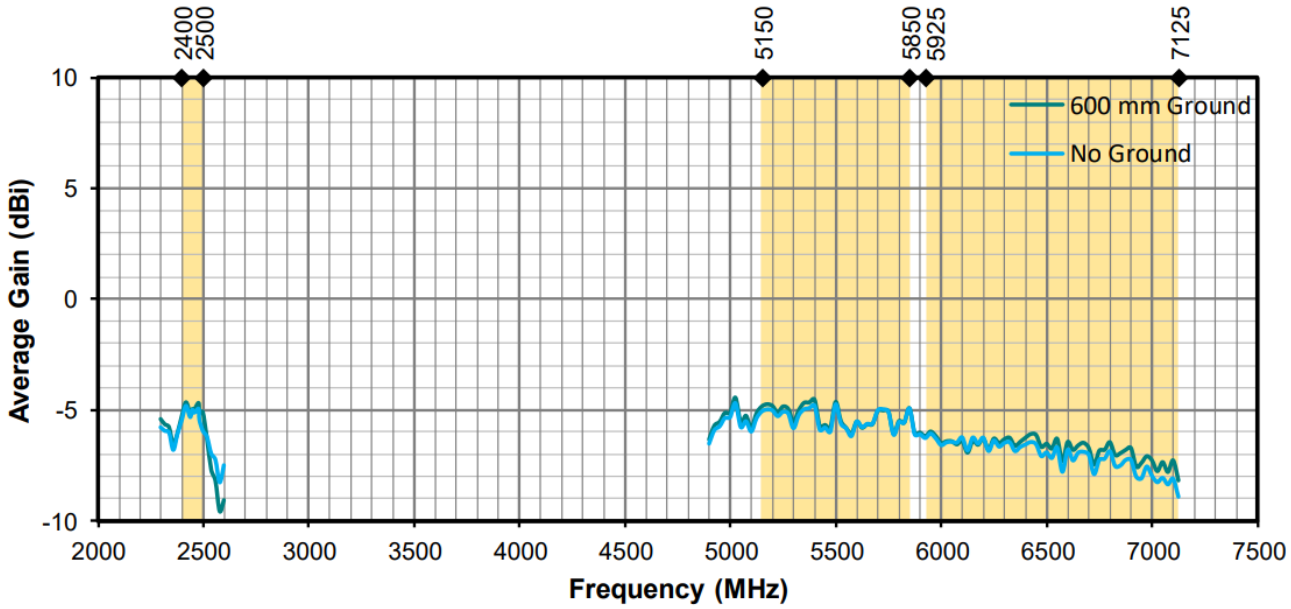
Return Loss



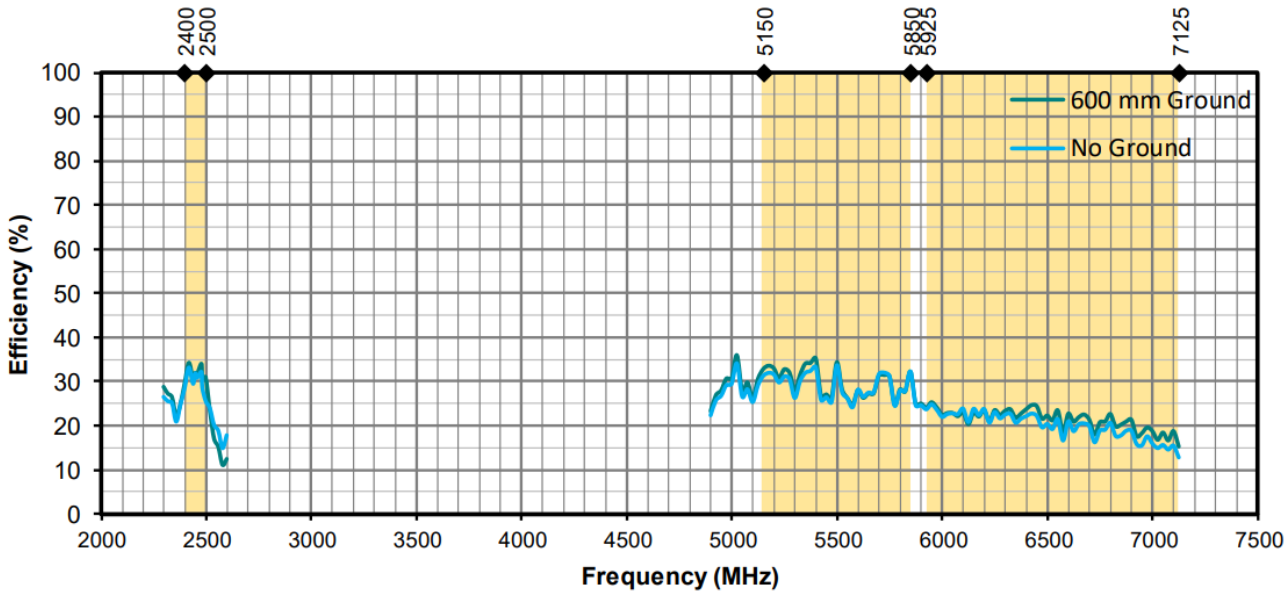
Peak Gain



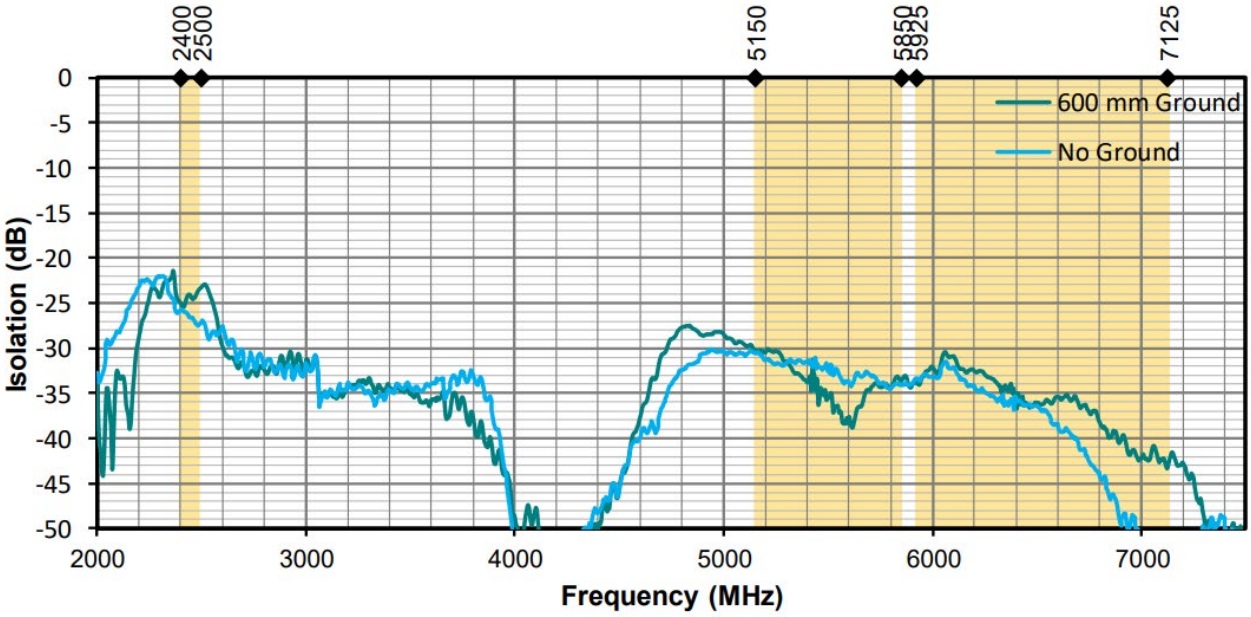
Average Gain



Efficiency



Isolation



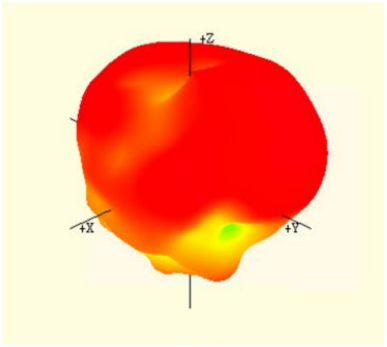
Radiation Patterns

XZ-Plane Gain

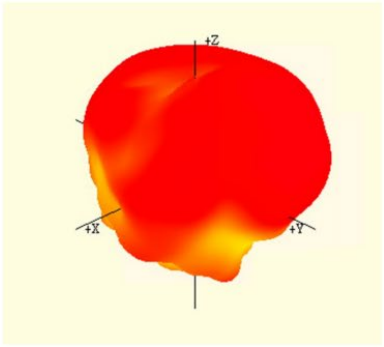
YZ-Plane Gain

XY-Plane Gain

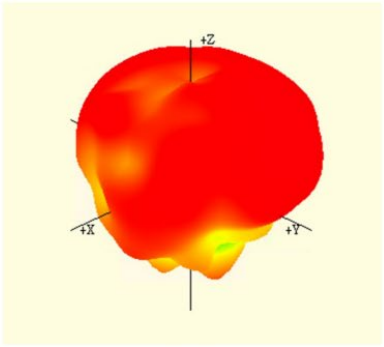
2400 MHz ~ 2500 MHz



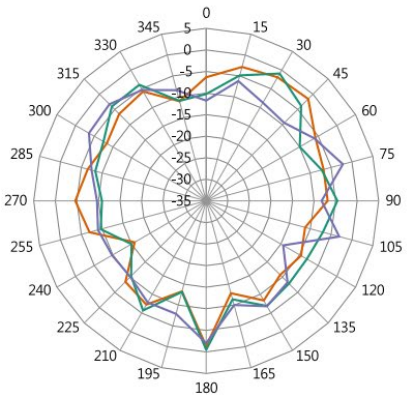
2400 MHz



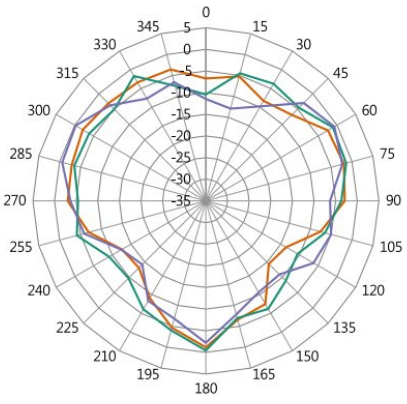
2450 MHz



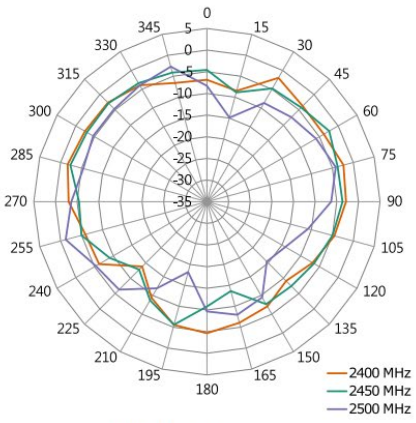
2500 MHz



XZ-Plane Gain

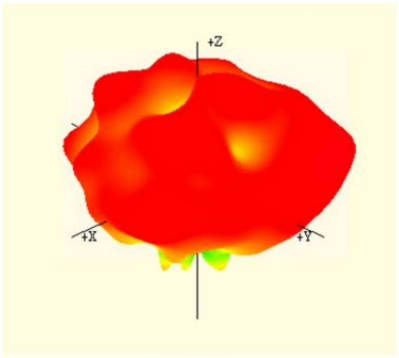


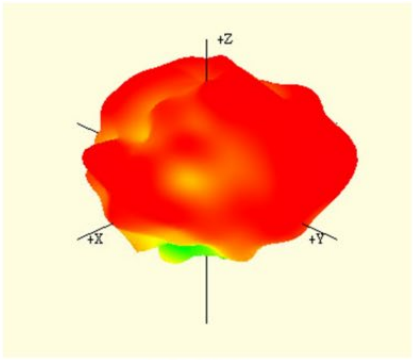
YZ-Plane Gain

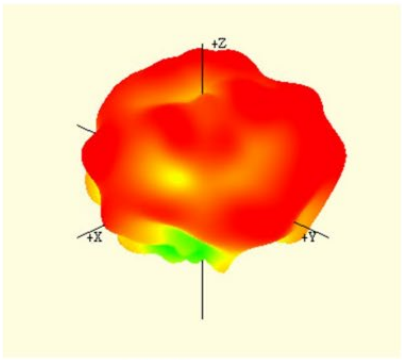


XY-Plane Gain

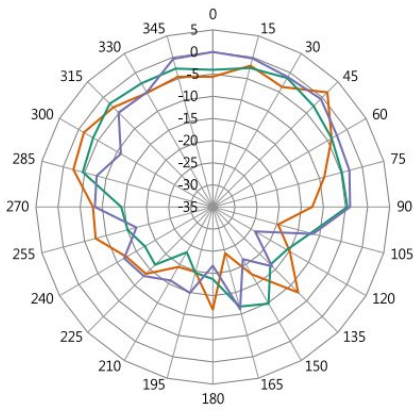
5150 MHz ~ 5850 MHz





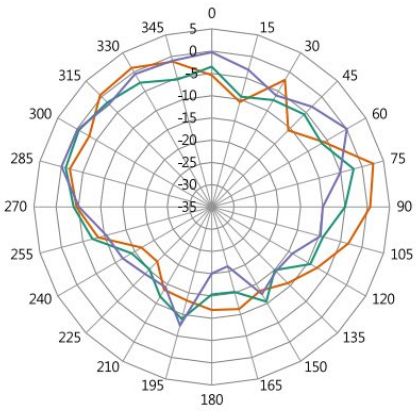


5150MHz



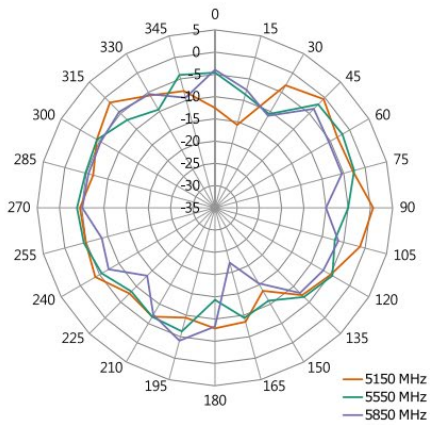
XZ-Plane Gain

5500 MHz



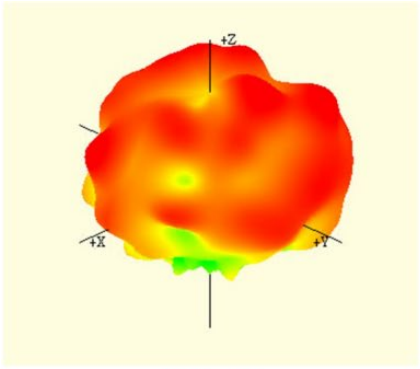
YZ-Plane Gain

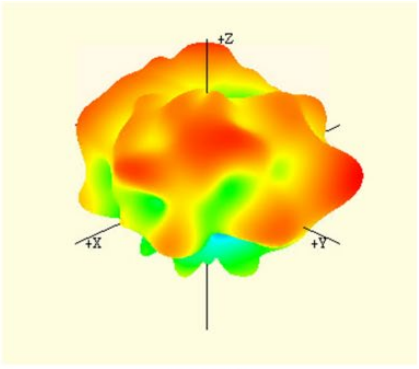
5850 MHz

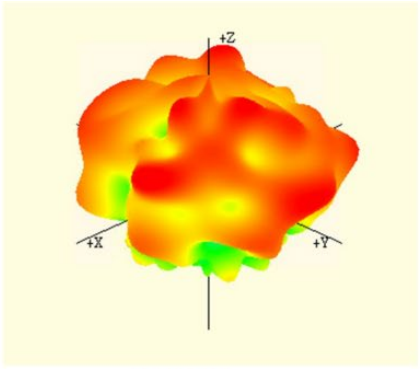


XY-Plane Gain

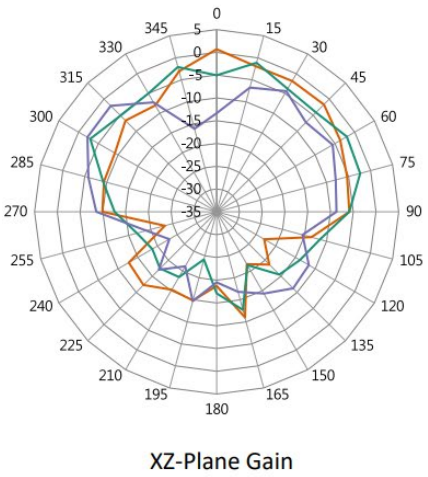
5925 MHz ~ 7125 MHz





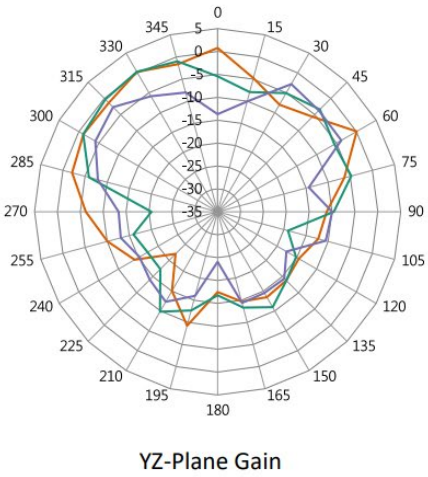


5925 MHz



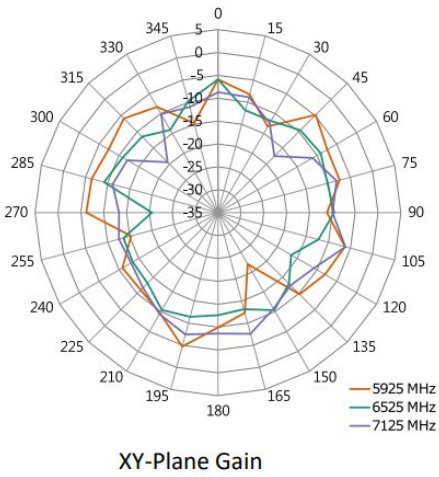
XZ-Plane Gain

6525 MHz



YZ-Plane Gain

7125 MHz



XY-Plane Gain