



Product Name: 3 in 1 External Antenna

Part Number:

Features:

- Supporting: LTE & GPS & WIFI
- Stable and reliable in performances
- Low temperature coefficient of frequency
- RoHS 2.0 Compliant

Applications:

- Automotive telematics
- Fleet management
- Teleportation

3 in 1 External Antenna

MODEL:

Version: Preliminary

I. Specifications:

Items	Specifications		
Navigation	LTE		
Center Frequency (MHz)	698~960	1710~2170	2490~2690
Return loss (dB)	<-2	<-5	<-5
Efficiency (%)	~ 50	~ 49	~ 45
Average Gain (dB)	~ -3.1	~ -3.2	~ -3.5
Peak Gain (dBi)	~ 1.3	~ 4.2	~ 4.4
Polarization	Linear Polarization		
Impedance (Ω)	50		

Items	Specifications	
Navigation	GPS	WIFI
Center Frequency (MHz)	1575.42	2400~2484
Return loss (dB)	<-10 Typ.	<-10 Typ.
Efficiency (%)	42 Typ.	38 Typ.
Average Gain (dB)	-3.7 Typ.	-4.2 Typ.
Peak Gain (dBi)	5.5 Typ.	5.9 Typ.
Polarization	RHCP	Linear Polarization
Impedance (Ω)	50	

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II. Low noise amplifier Specifications:

Items	Specifications
Navigation	GPS
Center Frequency (MHz)	1575.42
Gain (dB)	19.1 Typ.
Noise Figure (dB)	2.5 Typ.
Output VSWR	3.0 Max. Typ.
Input Voltage (V)	DC = 3.3 ± 0.5
Current (mA)	8.0 Typ. (at DC 3.3V)
Impedance (Ω)	50

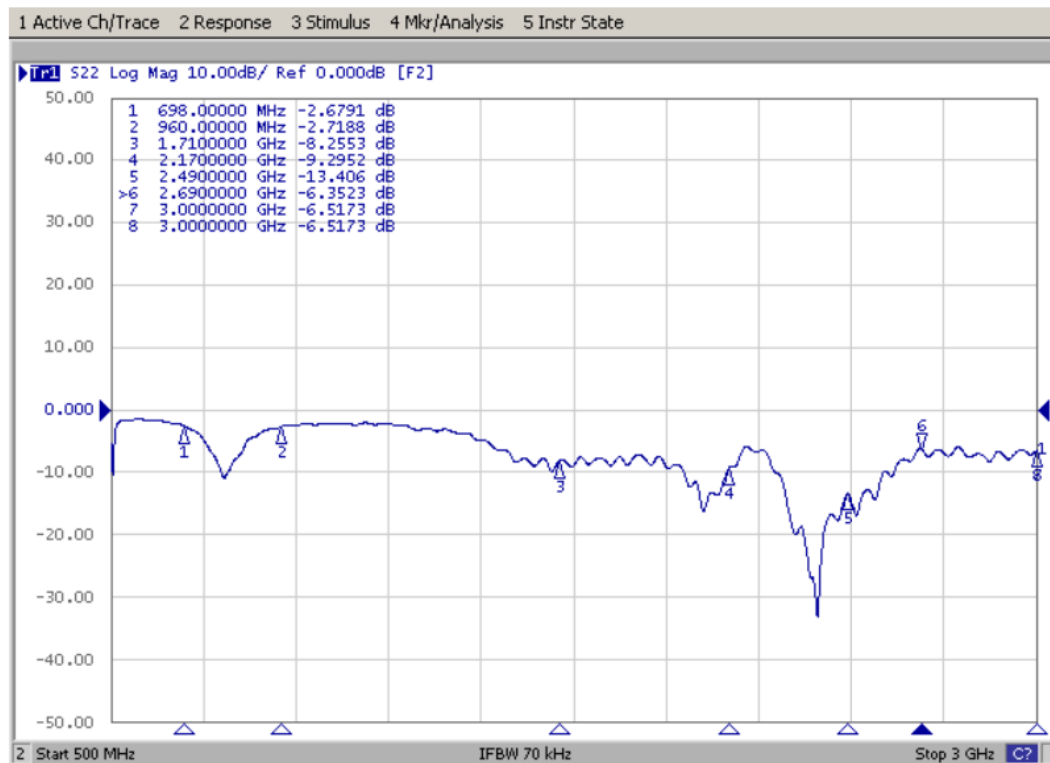
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Environmental Conditions	
Operation & Storage Temperature (° C)	-40 ~ +85
Storage Temperature (° C) (Antenna with packing sealed)	-5 ~ +40
Relative Humidity	10 ~ 70 %

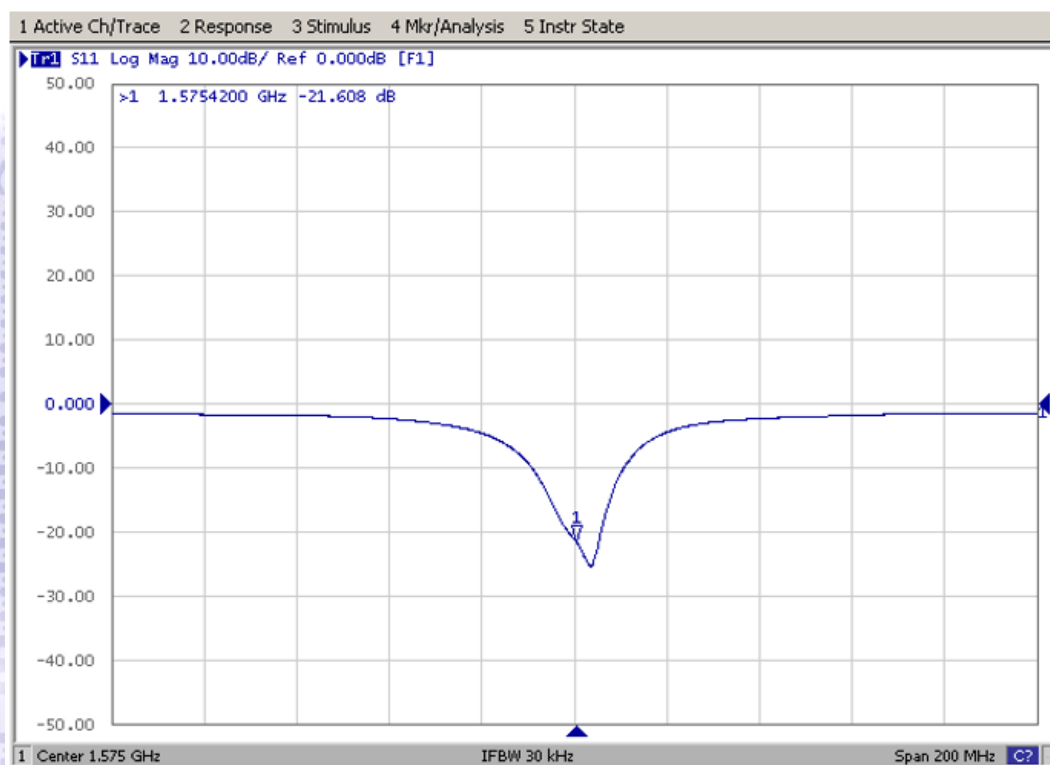
III. Properties:

a) Return loss (dB)

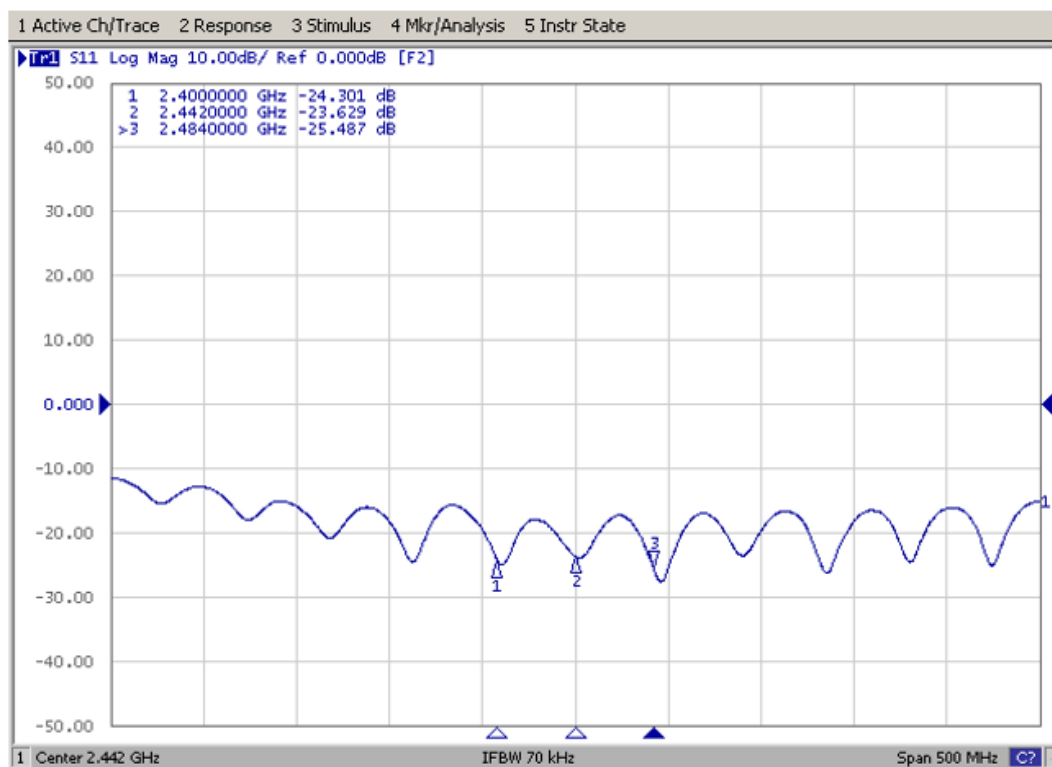
LTE:



GPS:



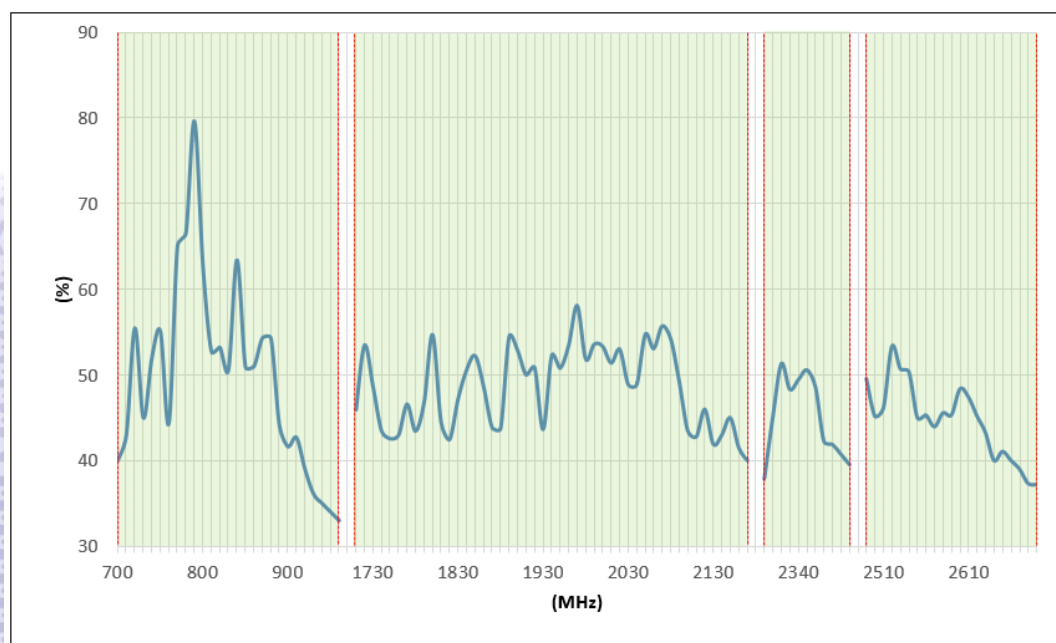
WIFI:



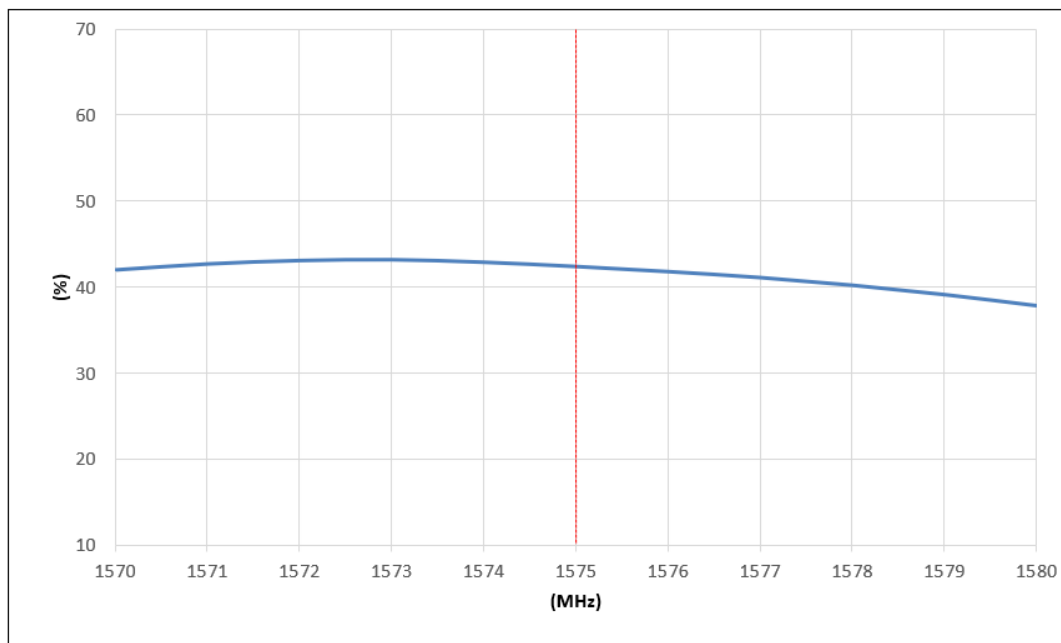
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b) Efficiency (%)

LTE:

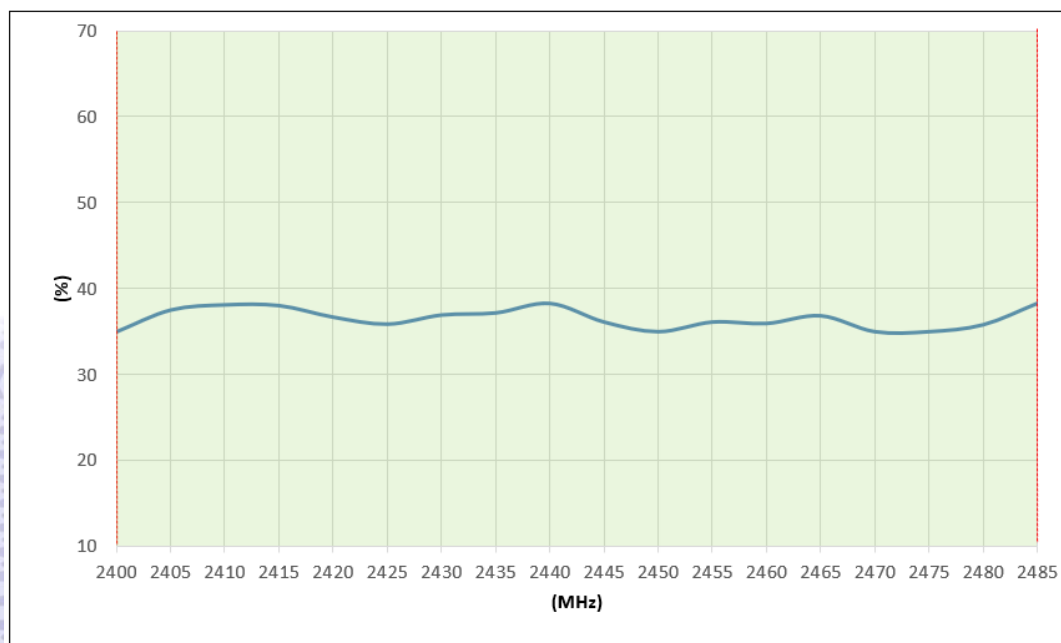


GPS:



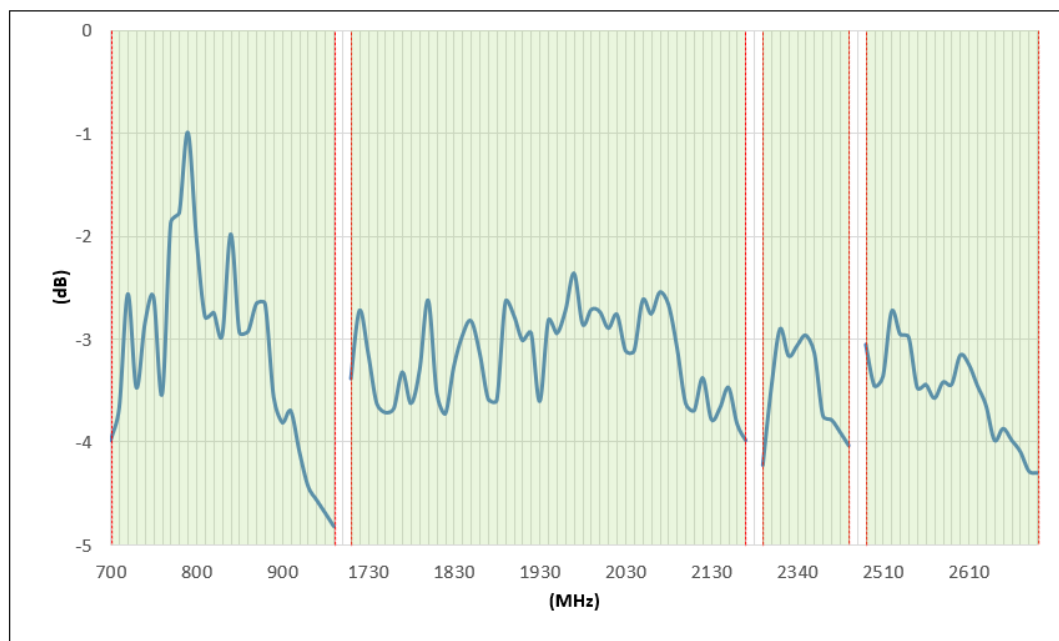
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WIFI:

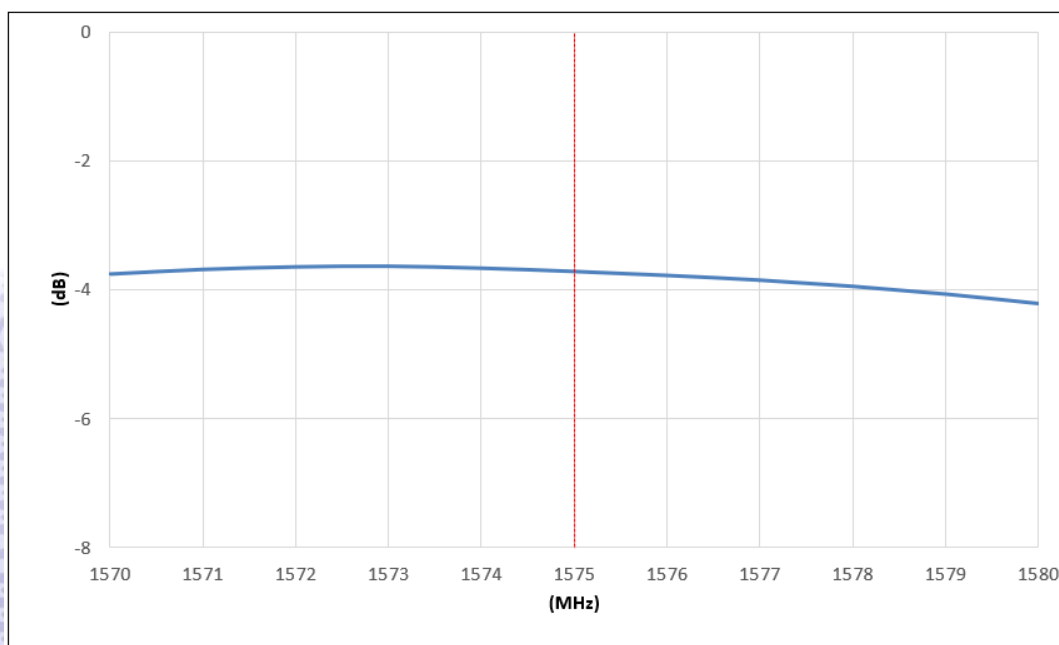


c) Average Gain (dB)

LTE:

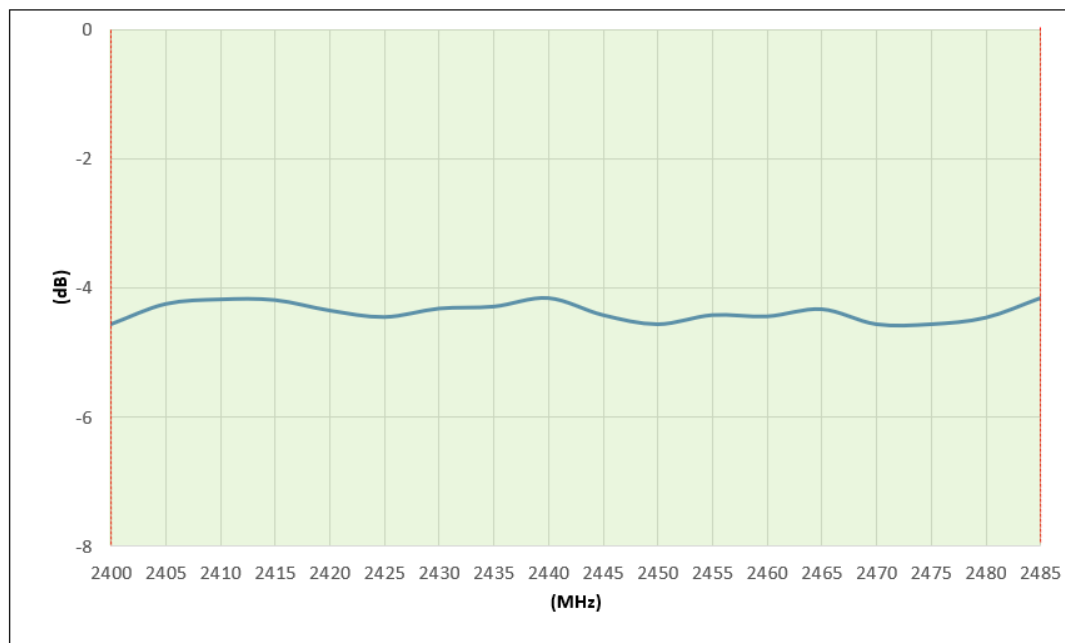


GPS:



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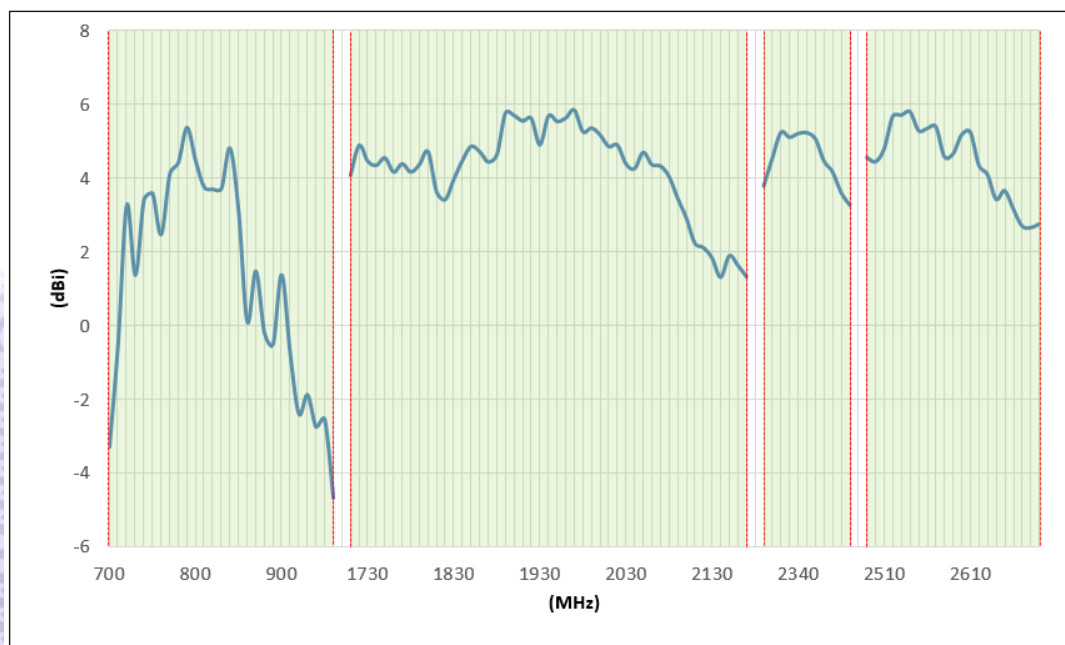
WIFI:



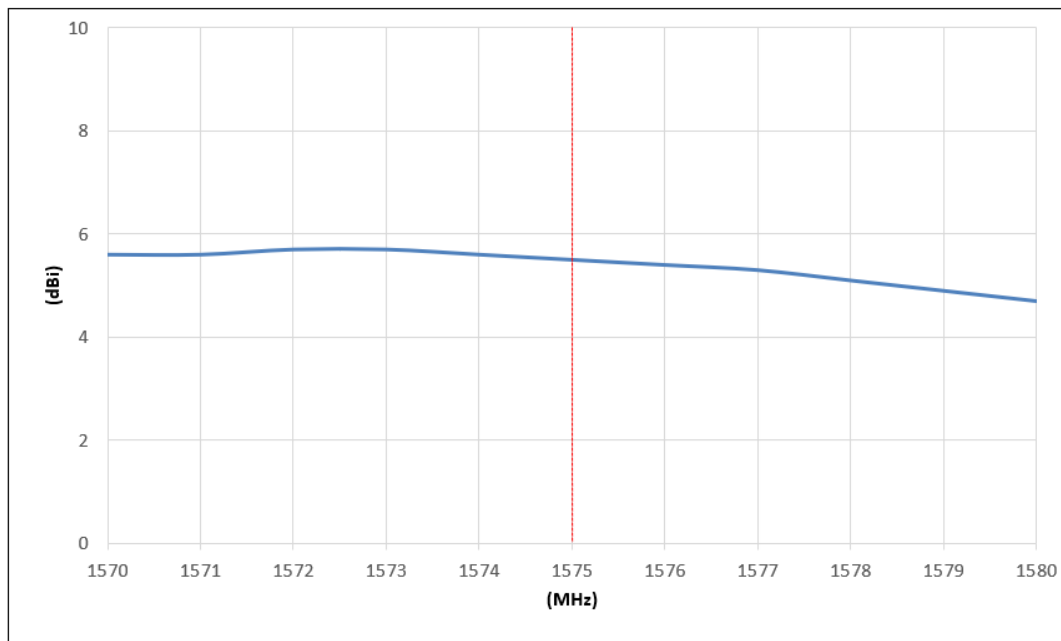
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d) Peak Gain (dBi)

LTE:

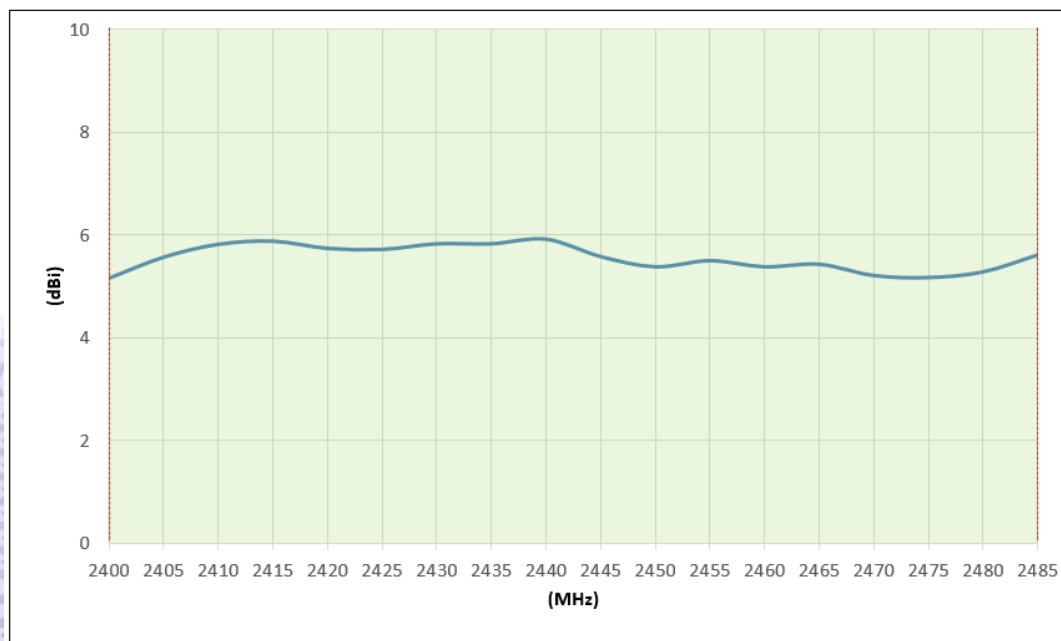


GPS:



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WIFI:



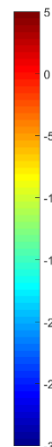
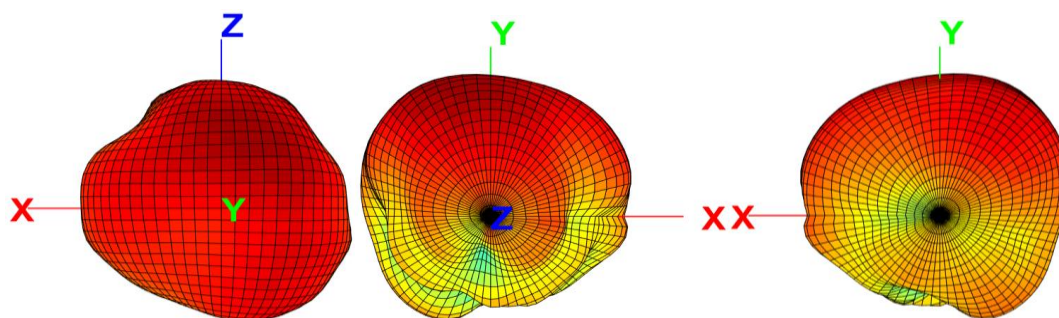
IV. Antenna Radiation Pattern Measurement:

The antenna radiation patterns are measured in Unictron's 3D Anechoic Chamber.

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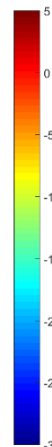
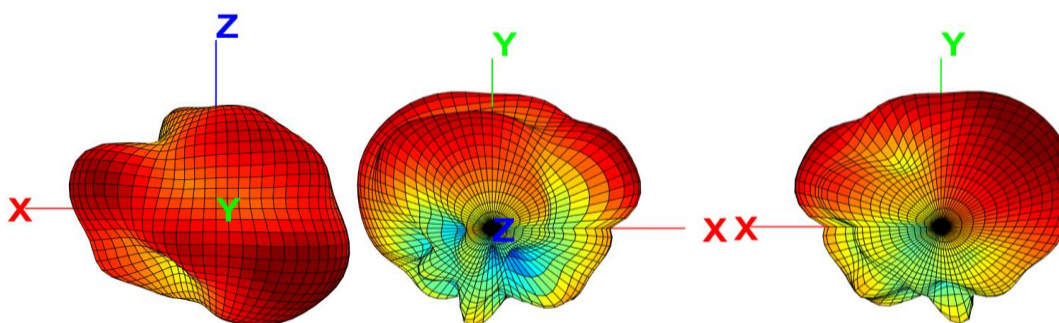
LTE:

a) 830 MHz (unit: dBi)

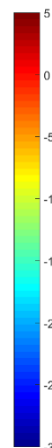
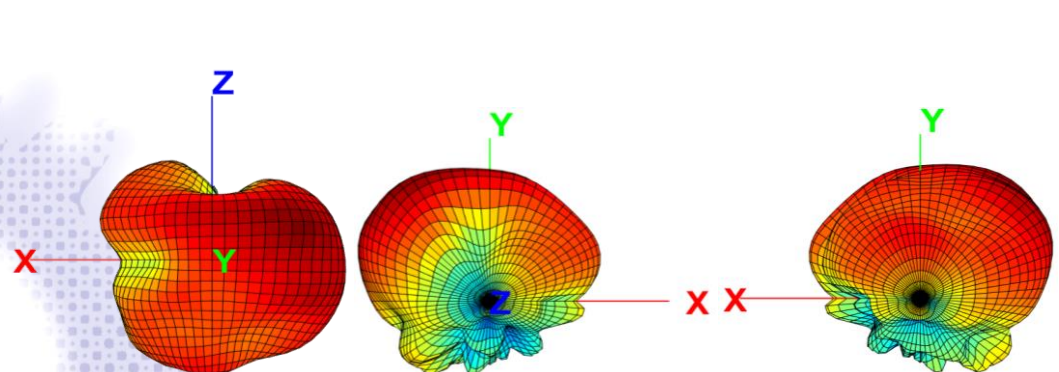


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b) 1940 MHz (unit: dBi)

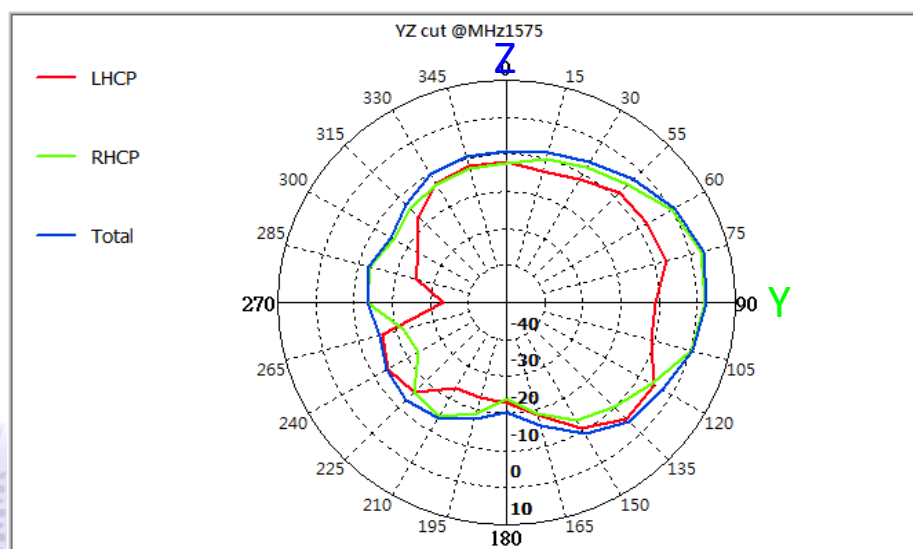
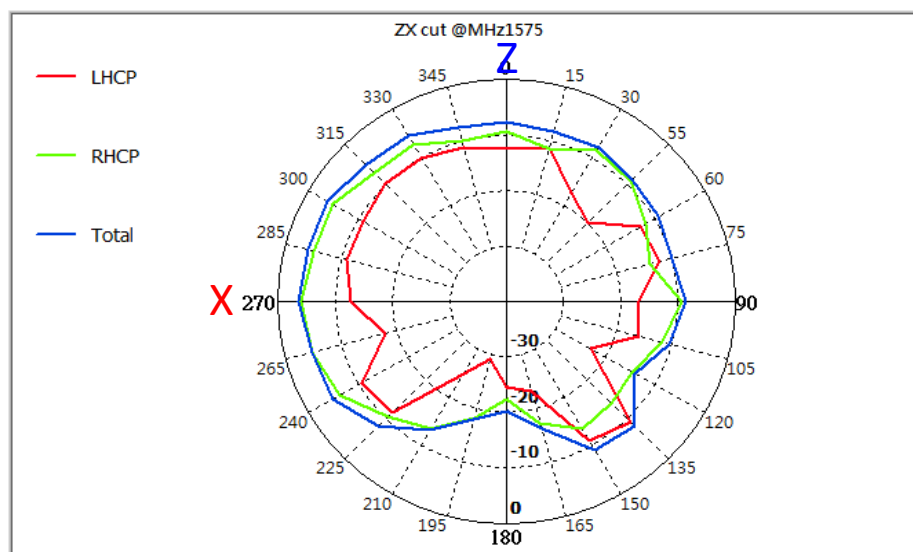


c) 2590 MHz (unit: dBi)



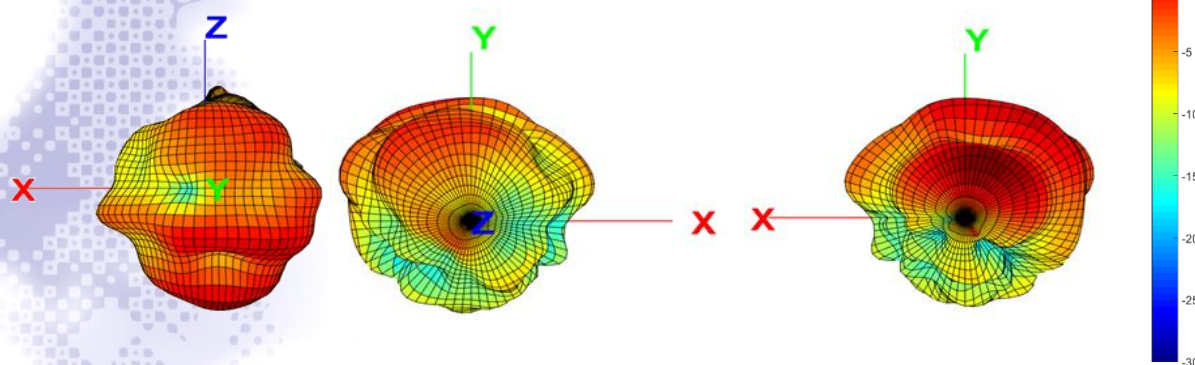
GPS:

1575 MHz (unit: dBi)



WIFI:

2442 MHz (unit: dBi)



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2J6950BGF

CELLULAR/LTE, 2.4/5.0 GHz ISM and GNSS Screw Mount

Key Features

Cable 1: CELLULAR / LTE

- 698-960 MHz
- 1710-2170 MHz
- 2500-2700 MHz

Cable 2: 2.4/5.0 GHz ISM

- 2410-2490 MHz
- 4920-5925 MHz

Cable 3: GPS/GLONASS/QZSS/Galileo

- 1575-1606 MHz

Screw Mount

Anti-Rotation Mechanism

Ground Plane Independent

Customizable Cable and Connector

Dimensions 80 × 74 × 25.6 mm

Certificates: IP67, IP69



1. Antenna and electrical specifications

Cable 1

Parameters	CELLULAR / LTE Antenna		
Standards	2G,3G and 4G		
Band (MHz)	700/850/900	1700/1800/1900/2100	2600
Frequency (MHz)	698-960	1710-2170	2500-2700
Return Loss (dB)	~-9.3	~-6.8	~-19.9
VSWR	~2.1:1	~2.7:1	~1.3:1
Efficiency (%)	~45.9	~50.3	~64.1
Peak Gain (dBi)	~2.7	~5.1	~5.3
Average Gain (dB)	~-3.8	~-3.2	~-1.9
Impedance (Ohm)	50		
Polarisation	Linear		
Radiation Pattern	Omni-Directional		
Max. Input Power (W)	25		
Connector Type	SMA-Male Standard (Other Connectors Available)		
Cable Length	300 cm Standard (Any Cable Length Available)		
Cable Type	D302 Standard (Other Cables Available)		

Cable 2

Parameters	2.4/5.0 GHz ISM Antenna	
Standards	WiFi, BT, ZigBee, ISM	
Band (MHz)	2.4 GHz	5.0 GHz
Frequency (MHz)	2410-2490	4920-5925
Return Loss (dB)	~-13.5	~-12.8
VSWR	~1.6:1	~1.8:1
Efficiency (%)	~35.4	~26.4
Peak Gain (dBi)	~3.4	~3.2
Average Gain (dB)	~-4.5	~-5.8
Impedance (Ohm)	50	
Polarisation	Linear	
Radiation Pattern	Omni-Directional	
Max. Input Power (W)	25	
Connector Type	RP-SMA-Male Standard (Other Connectors Available)	
Cable Length	300 cm Standard (Any Cable Length Available)	
Cable Type	D302 Standard (Other Cables Available)	

Antenna Measurement Conditions:

Mounted on Metal Plate of 30 x 30 cm
 200 cm of Cable D302
 Measured in Certified CTIA 3D Anechoic Chamber

Cable 3

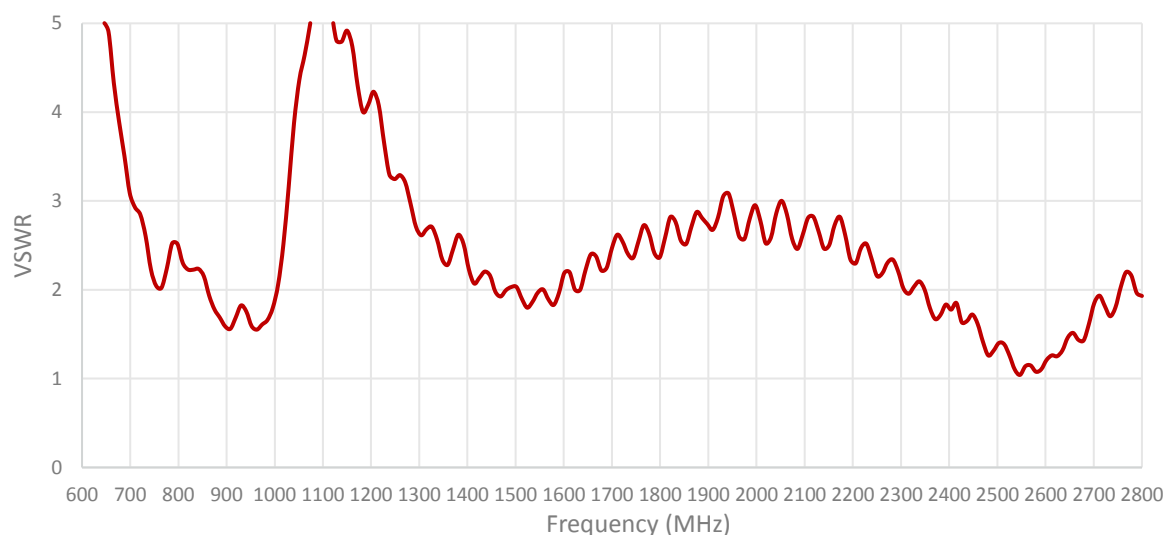
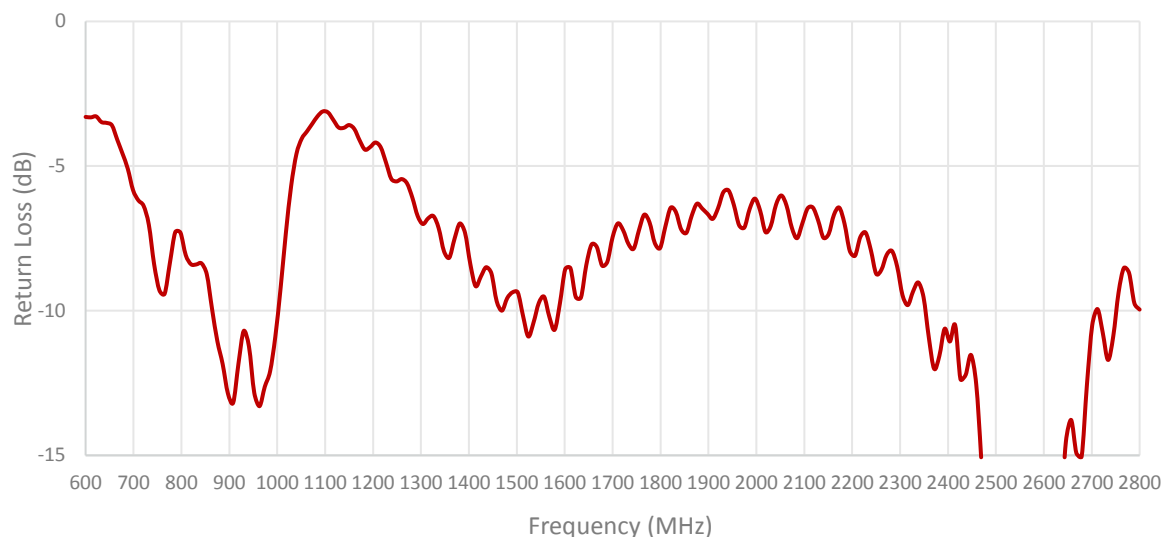
Parameters	GPS/GLONASS Antenna	
Standard	GPS/QZSS/Galileo	GLONASS
Band (MHz)	1575	1602
Frequency(MHz)	1575.42	1598-1606
Patch Size (mm)	25 x 25 x 4	
Return Loss (dB)	<=-15.0 dB	
VSWR	<=1.4:1 dB	
Impedance	50	
Radiation Pattern	Hemispherical	
Polarization	RHCP	
Saw Filter	Pre-filter	
Active Gain (dB)	28 @ 2.7 V	
Noise Figure (dB)	1.5 Typ	
Voltage (V)	1.5 – 3.6	
Current (mA)	9 Typ	
Power Consumption (mW)	24.3 Typ	
ESD Protection (kV)	2kV	
Connector Type	SMA-Male Standard (Other Connectors Available)	
Cable Length	300 cm Standard (Any Cable Length Available)	
Cable Type	D100 Standard (Other Cables Available)	

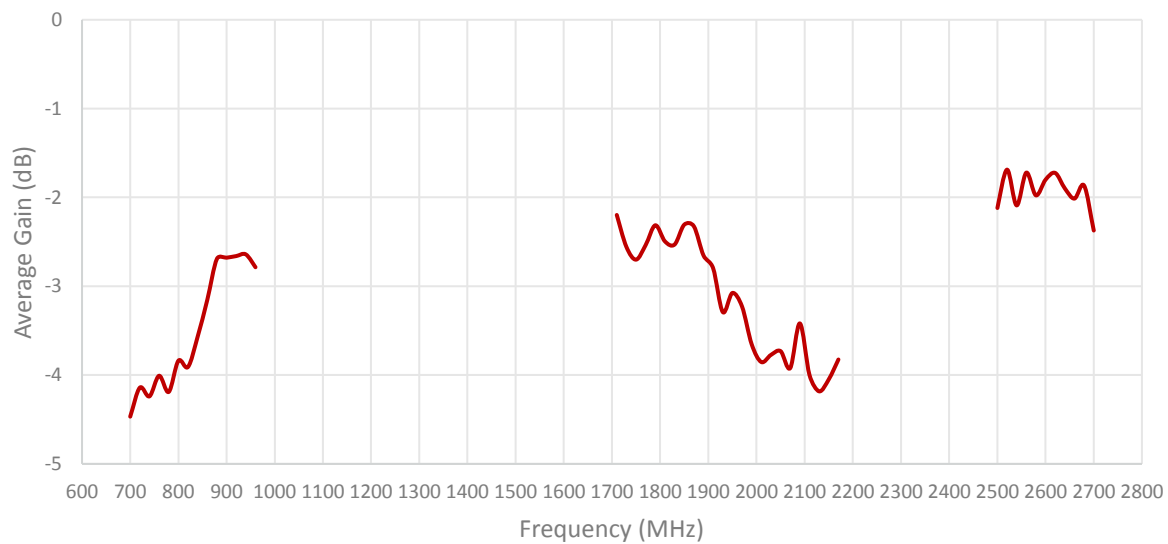
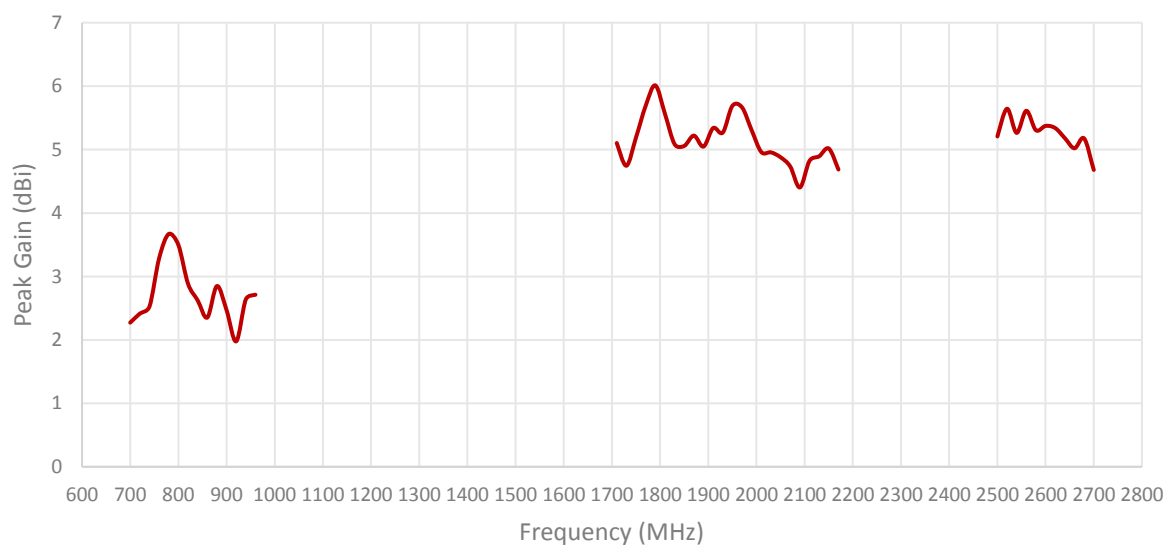
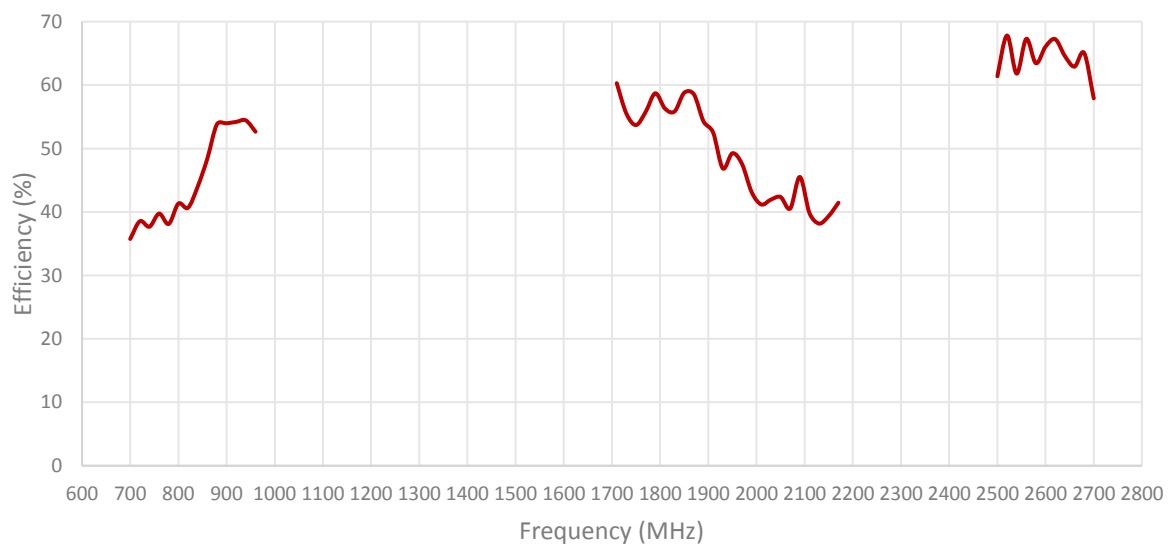
2. Mechanical and environmental specifications

Specifications	2J6950BGF
Mounting Type	Screw Mount
Dimensions (mm)	80 × 74 × 25.6
Max. Tighten Torque (Nm)	5 Nm
Radome Type	ASA UV Stable
Radome Color	Black, White
Operating Temperature (C)	-40 to +85
Storage Temperature (C)	-40 to +85
Substance Compliance	RoHS
Certificates	IP67, IP69

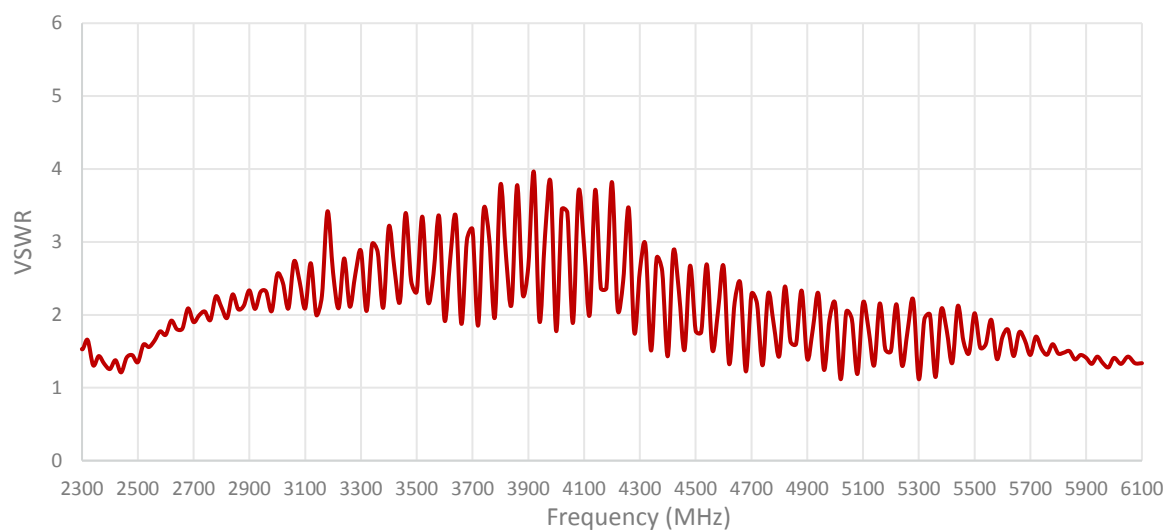
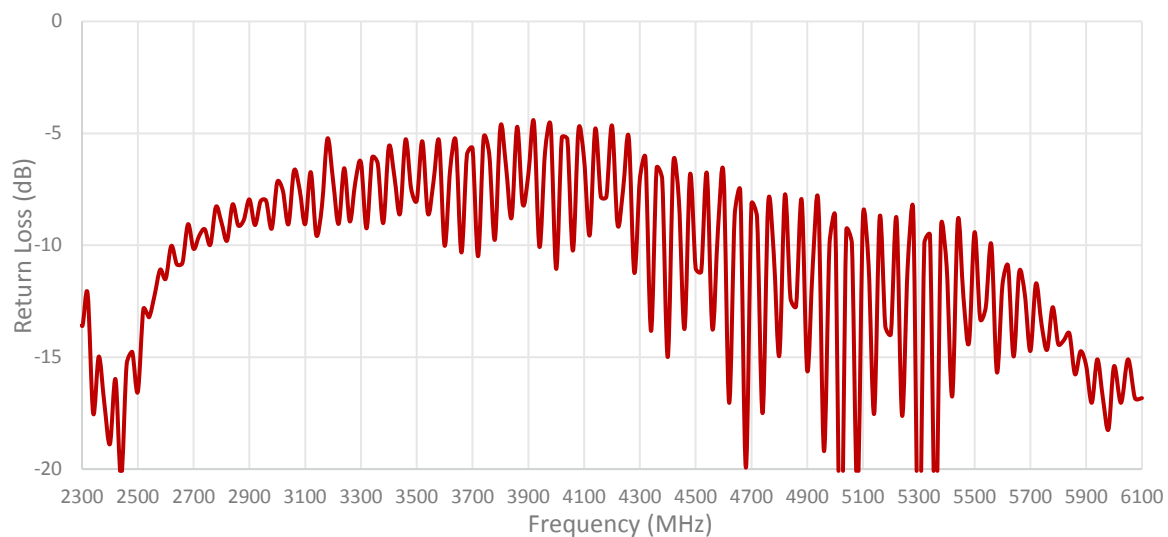
3. Antenna parameters

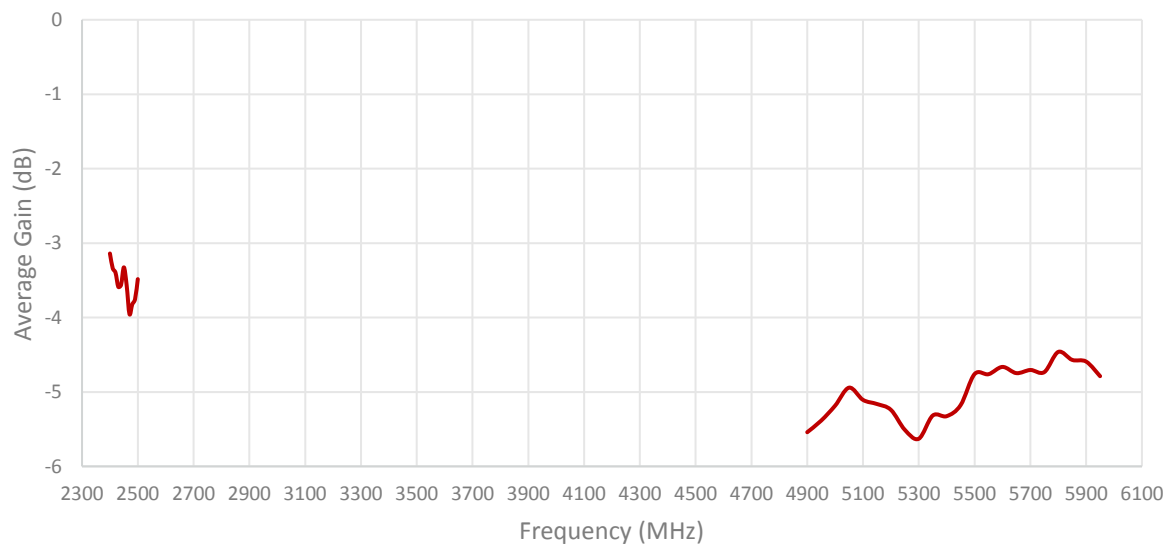
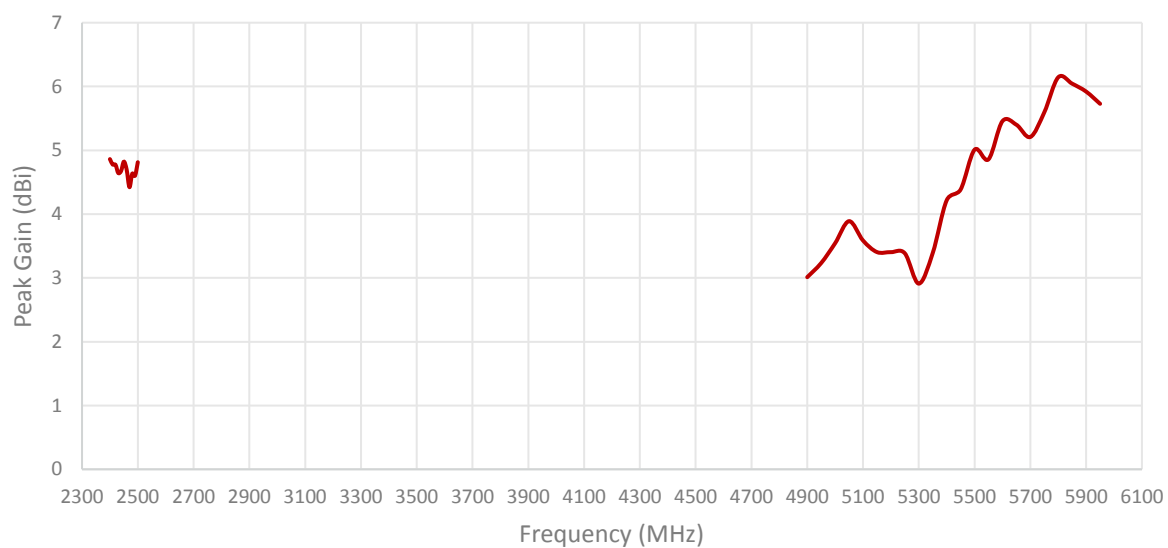
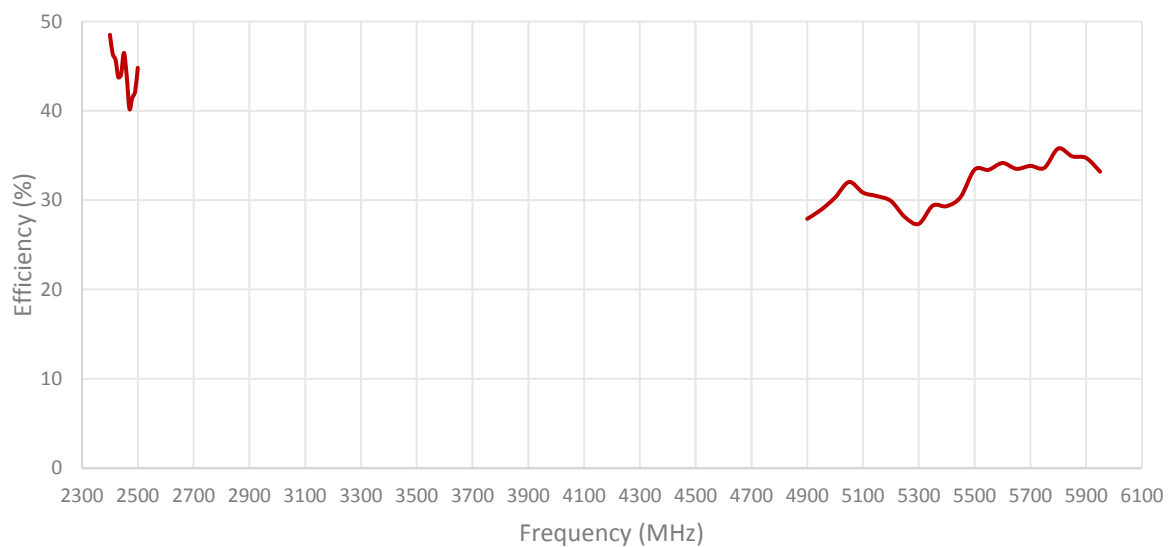
Cable 1: CELLULAR/LTE



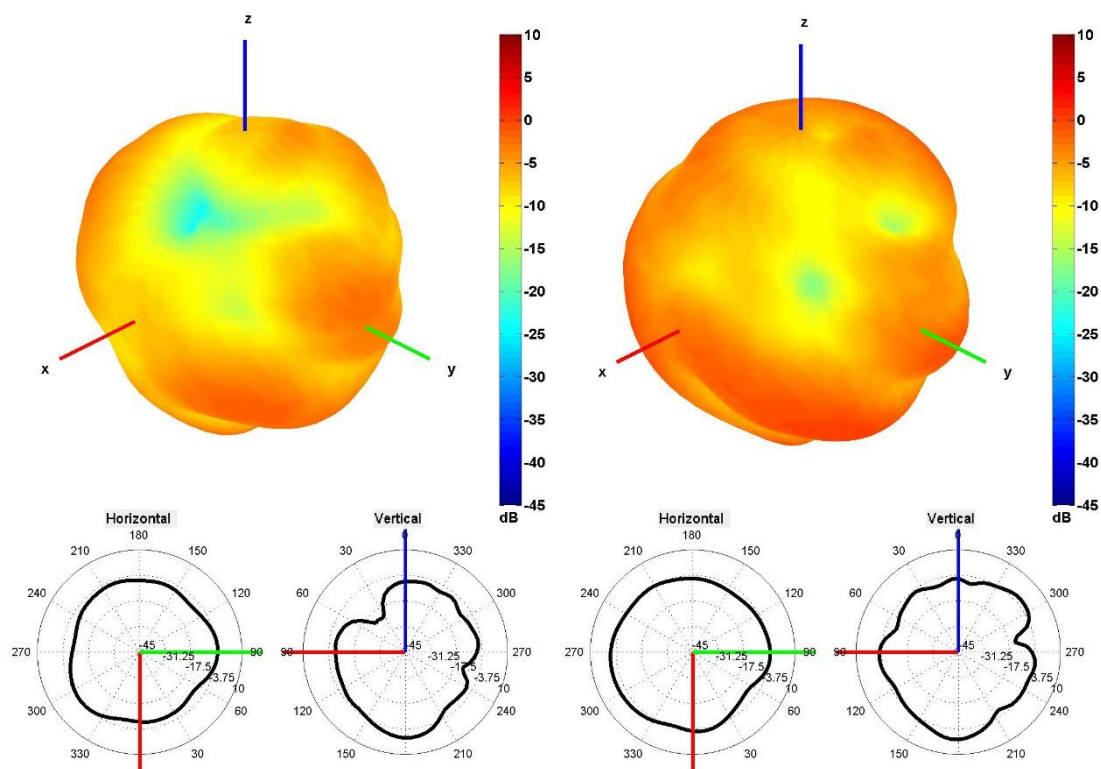


Cable 2: 2.4/5.0 GHz ISM

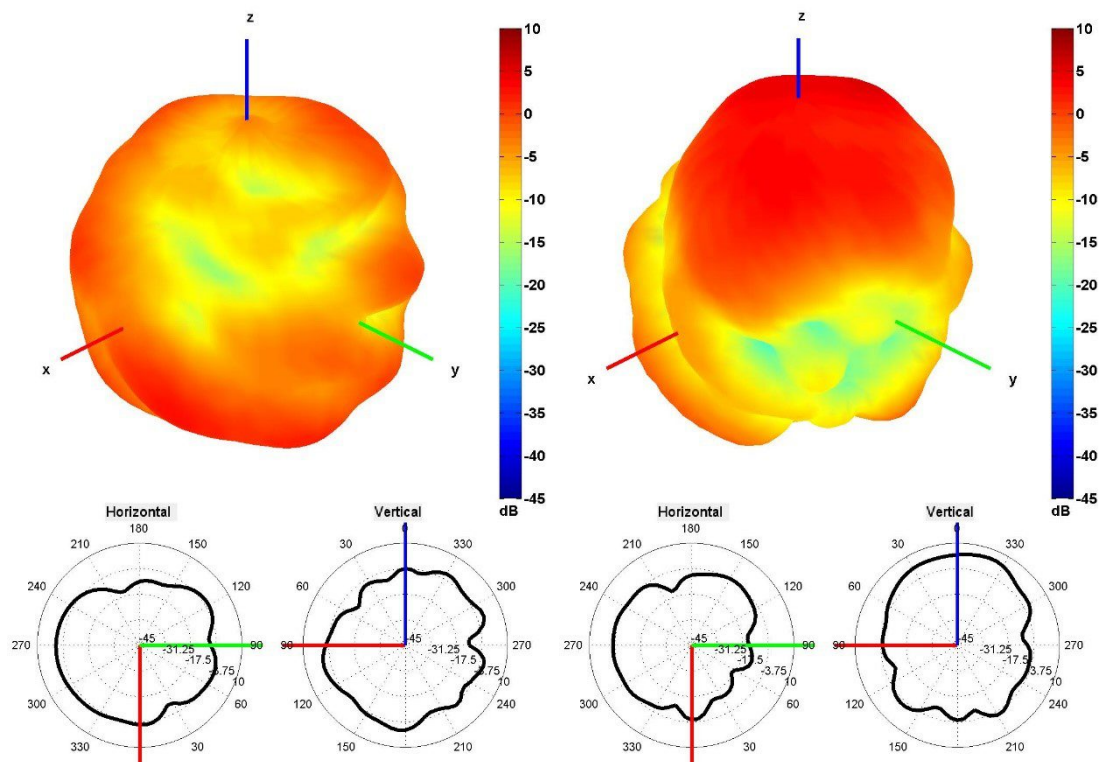




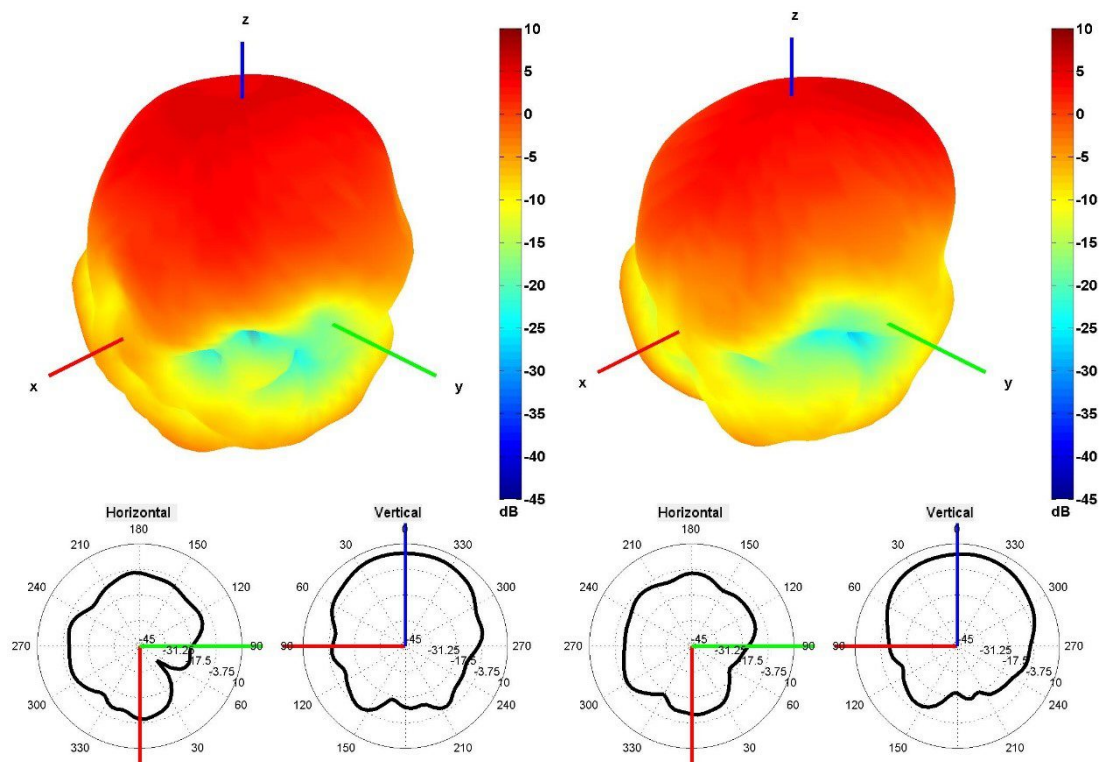
Cable 1: CELLULAR/LTE



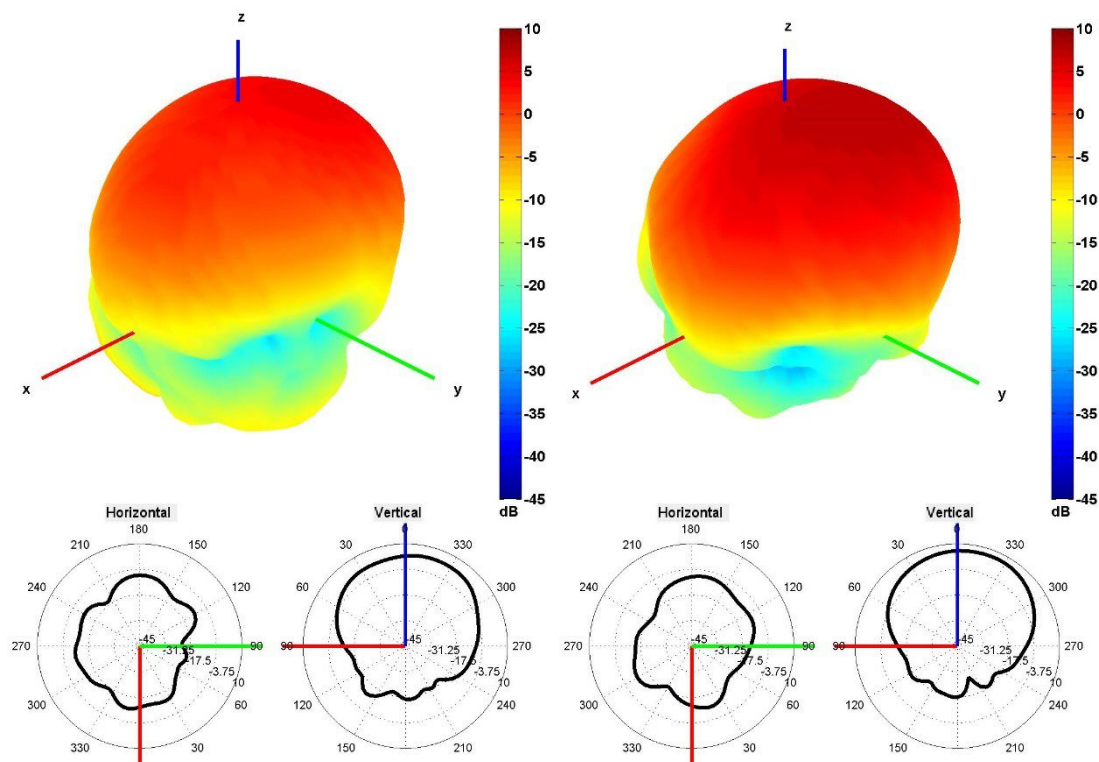
750 and 850 MHz Radiation pattern



940 and 1750 MHz Radiation pattern

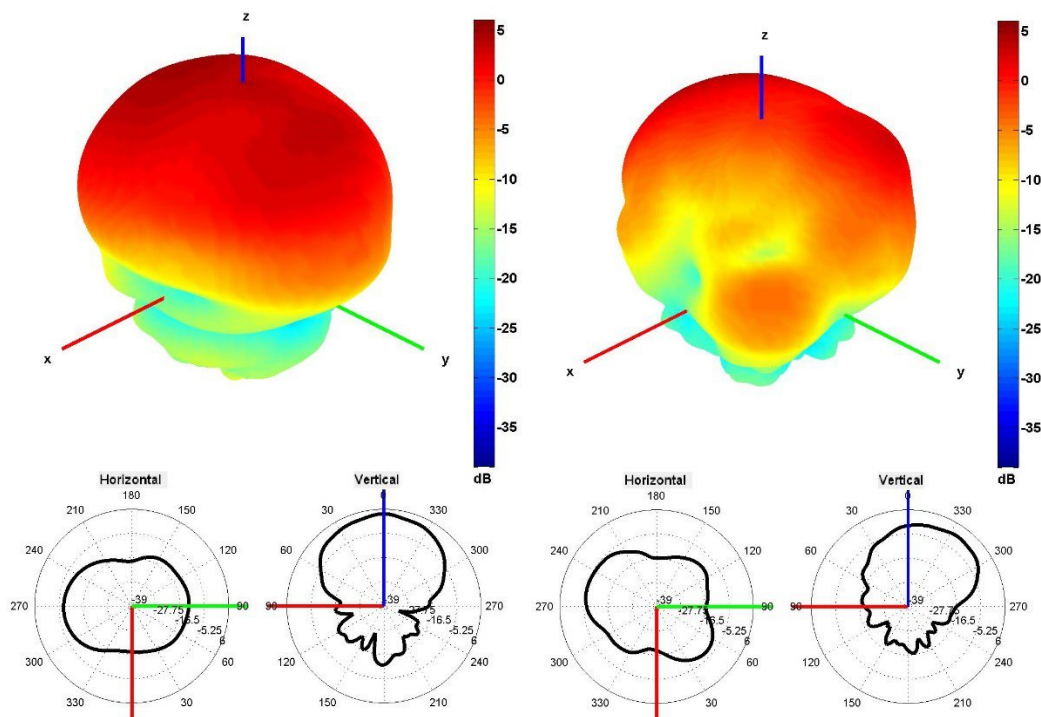


1850 and 1950 MHz Radiation pattern



2100 and 2600 MHz Radiation pattern

Cable 2: 2.4/5.0 GHz ISM



2450 and 5500 MHz Radiation pattern