

ADA-10-9XYZ



ADA-10-9XYZ Combination Antenna

Feature:

- Full GNSS/ LTE/ 5G NR WiFi Combination Antenna
- Versatile Combination with **up to 3 Cables**
- GPS/GLONASS/Beidou/Galileo/QZSS Supporting
- LTE/ 5G NR MIMO or Dual Band WiFi MIMO + Full Band GNSS
- IP67 Rated Waterproof and ESD Protection
- Black or White Housing
- **E-mark & ECE-R118-03 certified**

Application:

- Machine to Machine Communication & IOT
- Vehicle Tracking & Telematics
- First Responder & Emergency Services
- Asset Tracking & Monitoring
- Public Transport

RoHS/Reach

ADA-10-9XYZ

I. Specifications:

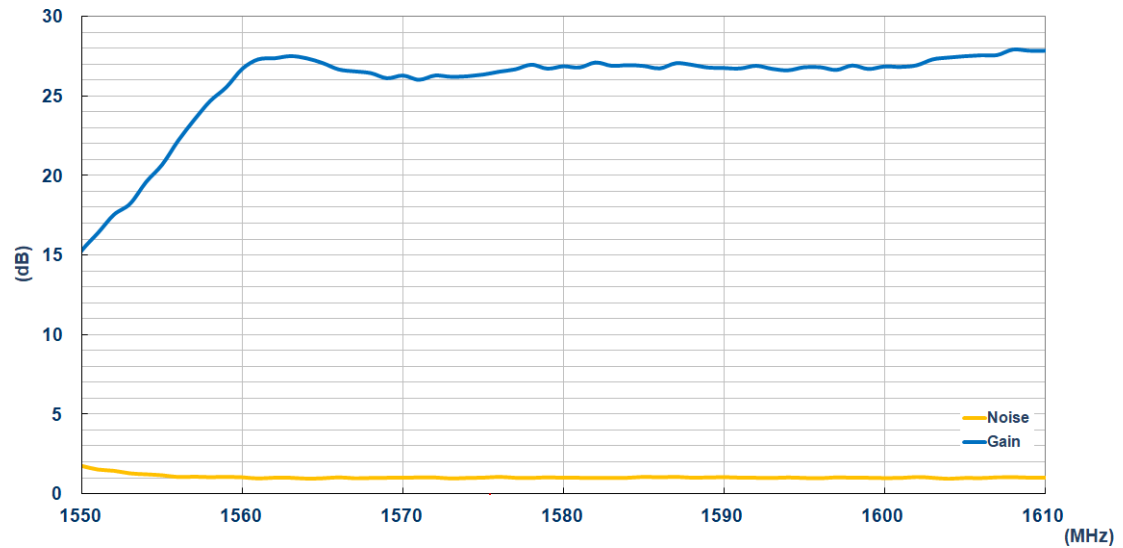
Category	Specifications		
GNSS Electrical Characteristics			
Polarization	R.H.C.P. (Right Handed Circular Polarization)		
Application Band	BeiDou	GPS	GLONASS
Frequency (MHz)	1561.00	1575.42	1602.00
Efficiency (%)	49.89	42.76	58.61
Average Gain (dBi)	-3.02	-3.69	-2.32
Peak Gain (dBi)	1.21	1.21	1.44
Active Antenna Performance			
Application Band	BeiDou	GPS	GLONASS
Frequency (MHz)	1561 ± 2.046	1575.42 ± 1.023	1602 ± 5
Gain (dB)	27	27	27
Noise Figure (dB)	0.98	0.98	0.92
Current Consumption (mA) (typical)	0.9		
Output Impedance (Ω)	50		
GNSS _Out Of Band Rejection			
Frequency (MHz)	600 ~ 1300	1300 ~ 1530	1650 ~ 3000
Gain (dB)	55	30	30
Passive Antenna Performance			
V.S.W.R	< 2		
Return loss (dB)	< -10		

Impedance (Ω)	50						
ESD Protection	±8 KV (direct discharge) ±15 KV (air discharge)						
Cable / Length	H100_0.3 meter						
Connector	SMA (Male)						
LTE Electrical Characteristics							
Polarization	Linear						
Application Band	LTE 700	GSM 850/900	DCS	PCS	UMTS1	LTE2600	5G NR Band
Frequency (MHz)	698 ~ 824	824 ~ 960	1710 ~ 1880	1850 ~ 1990	1920 ~ 2170	2300 ~ 2690	3300 ~3800
Efficiency (%)							
On 30*30cm Ground Plane	37.49	48.49	71.50	82.77	81.49	67.70	73.28
Average Gain (dBi)							
On 30*30cm Ground Plane	-4.26	-3.14	-1.46	-0.82	-0.89	-1.69	-1.35
Peak Gain (dBi)							
On 30*30cm Ground Plane	1.06	2.80	8.21	8.72	8.72	8.14	7.27
V.S.W.R	< 4.5		< 3				< 3.5
Return Loss (dB)	< -4		< -6				< -5.5
Impedance (Ω)	50						
Cable / Length	LMR195_0.3 meter						
Connector	SMA (Male)						

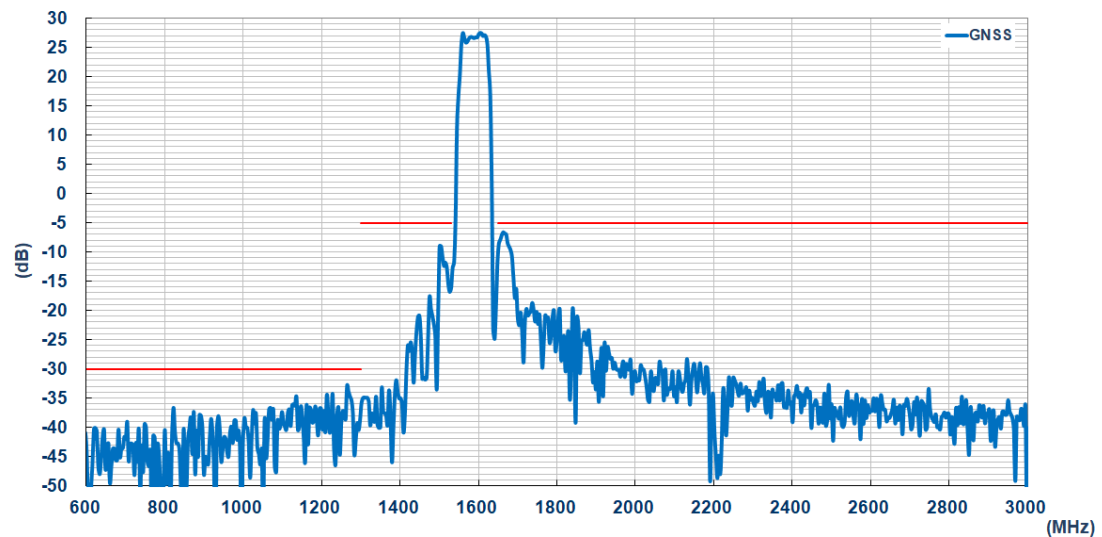
WiFi Electrical Characteristics							
Polarization	Linear						
Frequency (MHz)	2400	2450	2500	5150	5350	5725	5850
Efficiency (%)							
On 30*30cm Ground Plane	70.63	72.44	68.87	74.99	69.98	67.30	55.72
Average Gain (dBi)							
On 30*30cm Ground Plane	-1.51	-1.40	-1.62	-1.25	-1.55	-1.72	-2.54
Peak Gain (dBi)							
On 30*30cm Ground Plane	5.80	6.03	5.71	6.14	6.17	6.37	5.58
V.S.W.R	< 2.5						
Return Loss (dB)	< -8						
Impedance (Ω)	50						
Cable / Length	LMR195_0.3 meter						
Connector	SMA (Male)						
Dimension (mm)	φ80(D) x 37.9(H)						
Environmental Conditions							
Operation Temperature	-40 ~ +85 °C						
Storage Temperature	-40 ~ +85 °C						
Waterproof Resistant	IPX7						
Relative Humidity	95% non-condensing						

II. Antenna Technical Parameters:

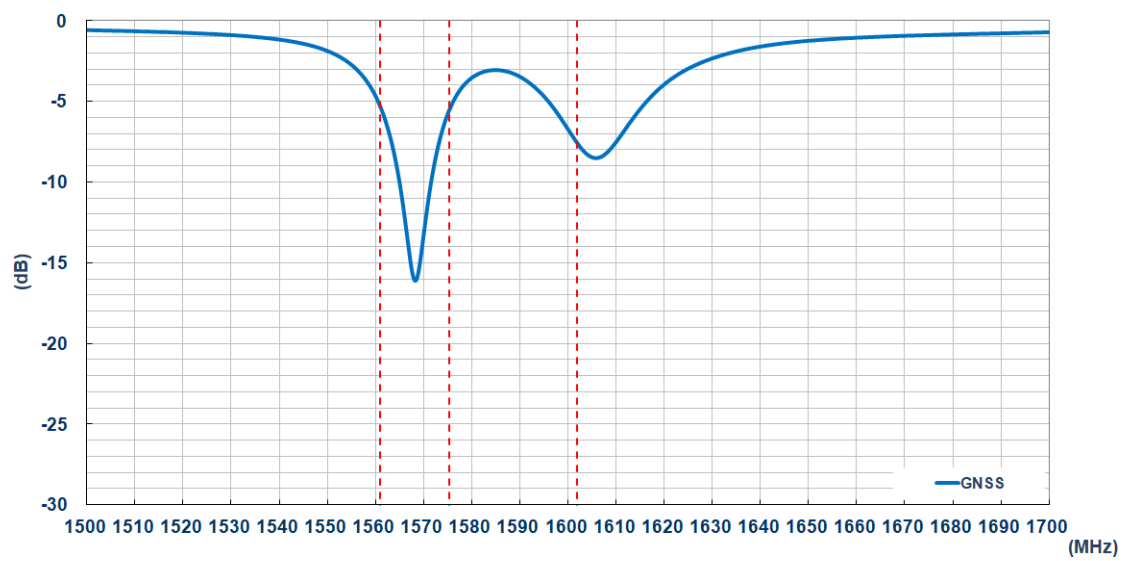
Noise Figure & Gain (dB) - GNSS



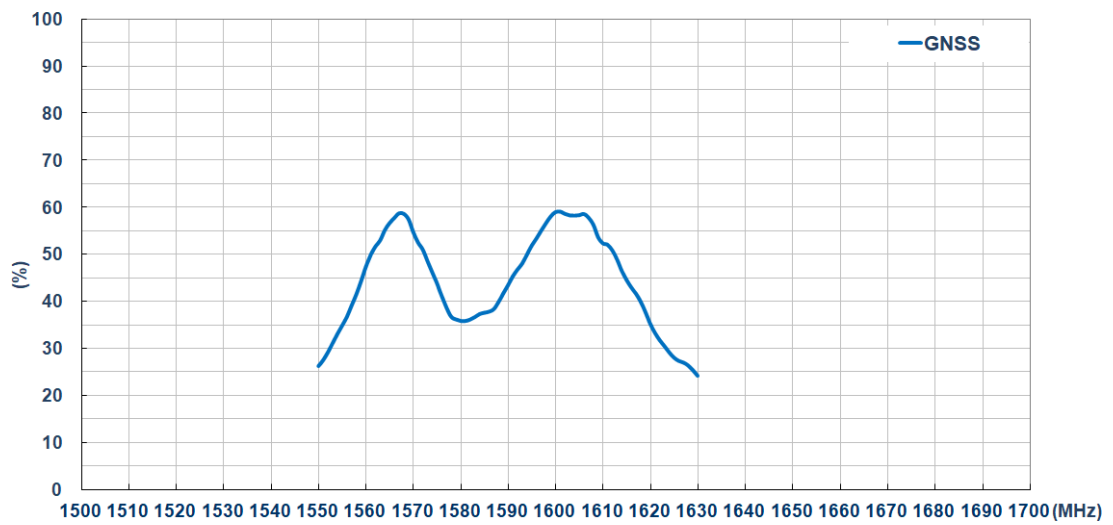
Out of Band Rejection (dB) – GNSS



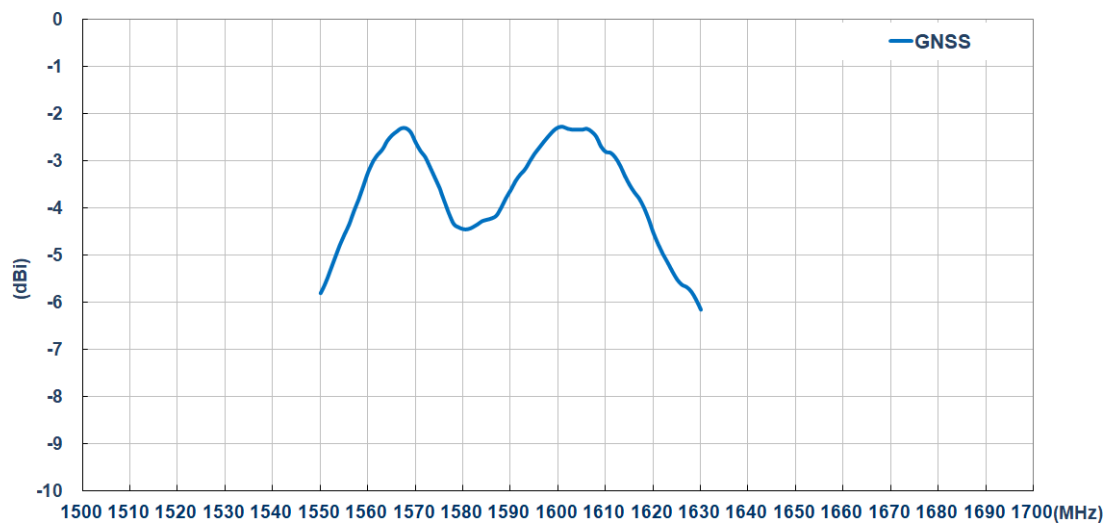
S11 (dB) - GNSS



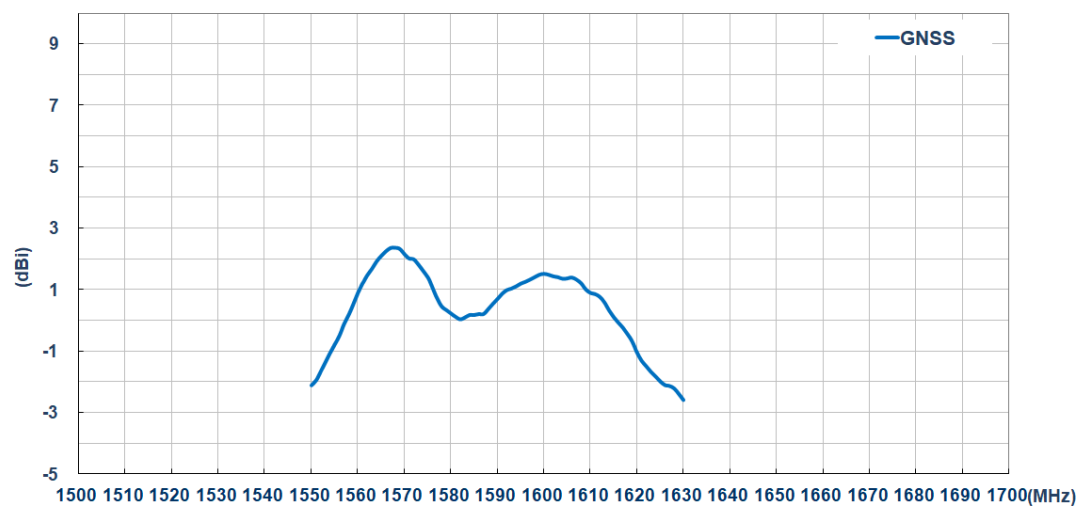
Efficiency (%) - GNSS



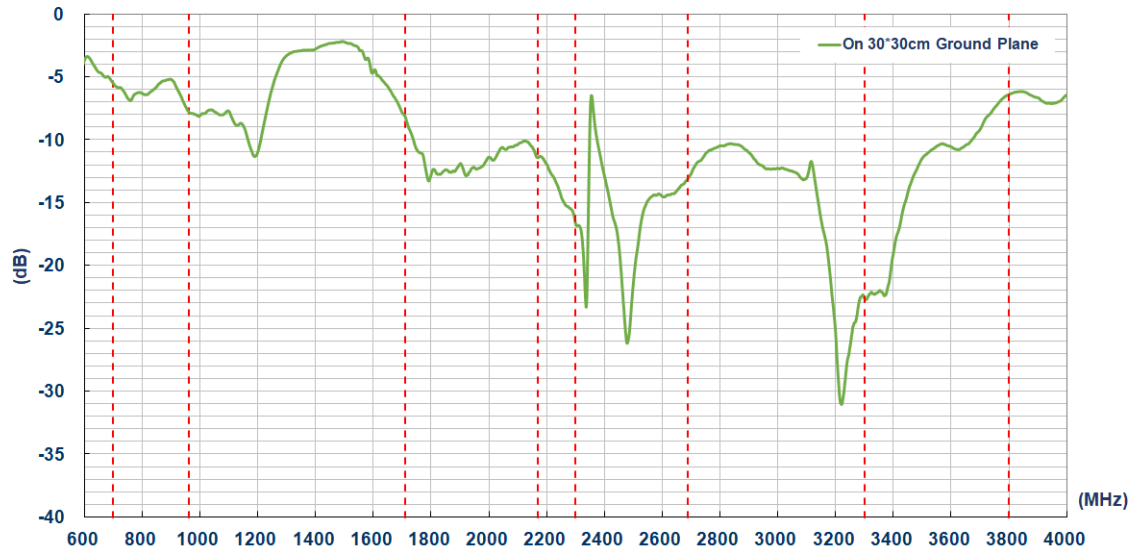
Average Gain (dBi) - GNSS



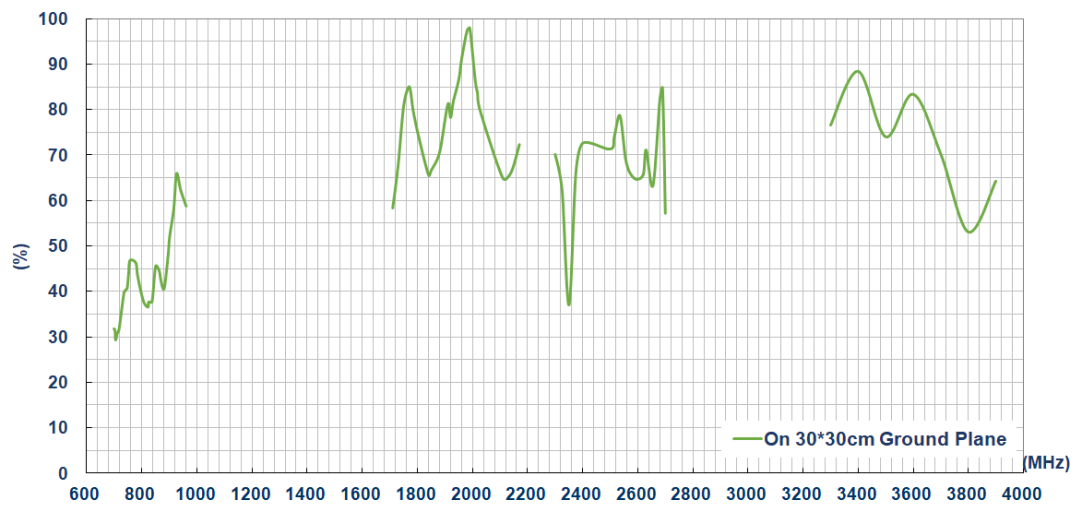
Peak Gain (dBi) - GNSS



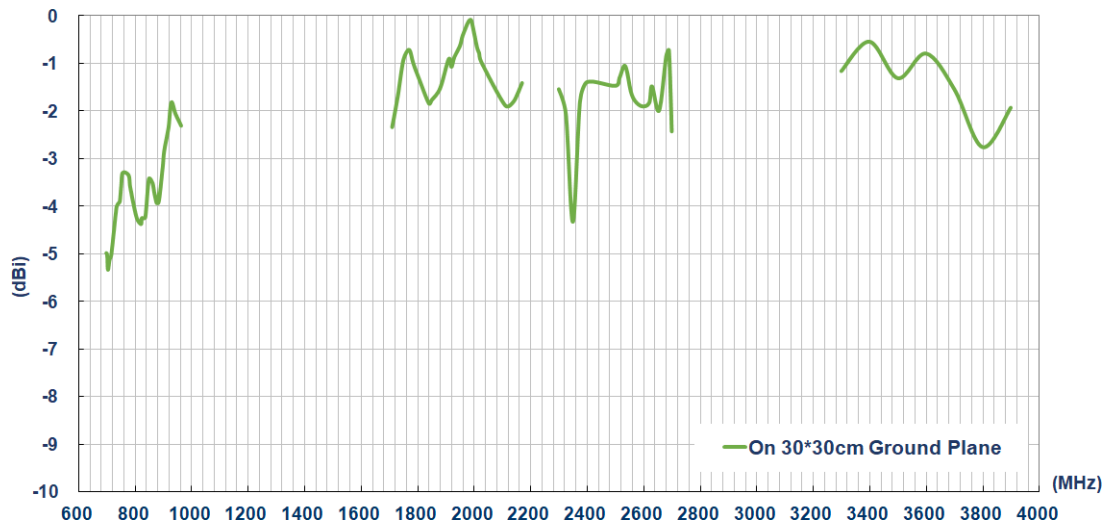
S11 (dB) - LTE



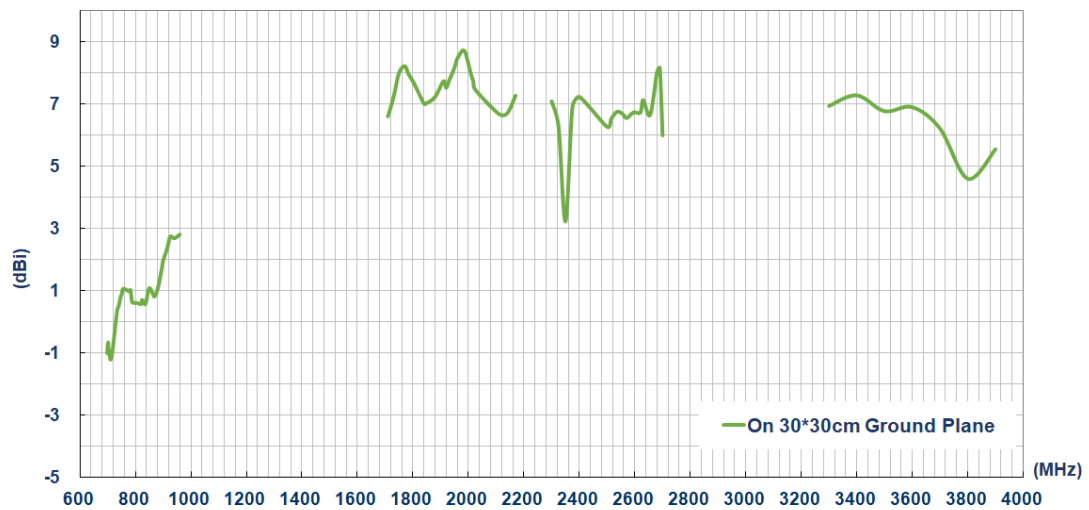
Efficiency (%) – LTE



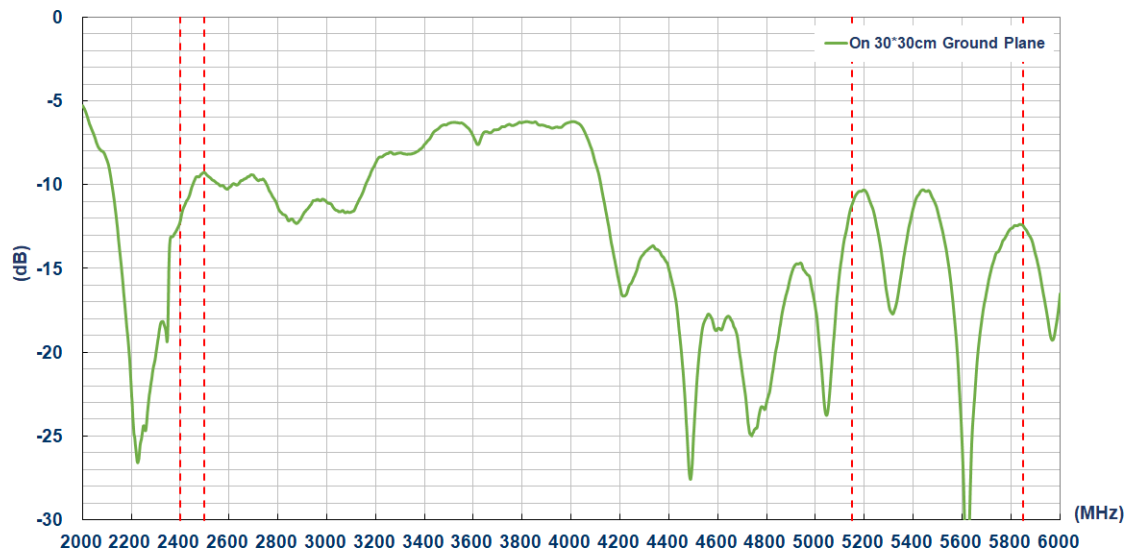
Average Gain (dBi) - LTE



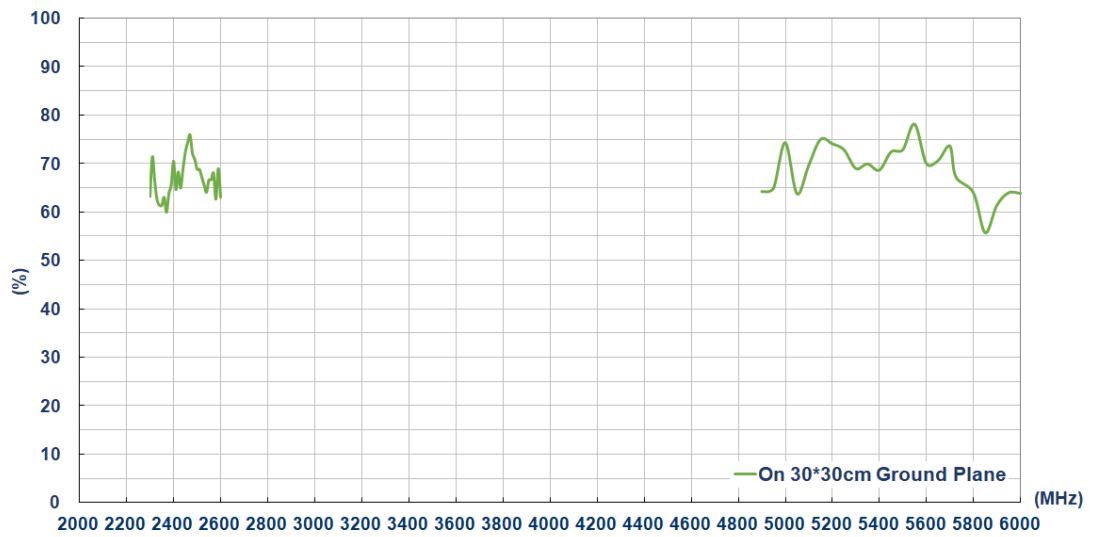
Peak Gain (dBi) - LTE



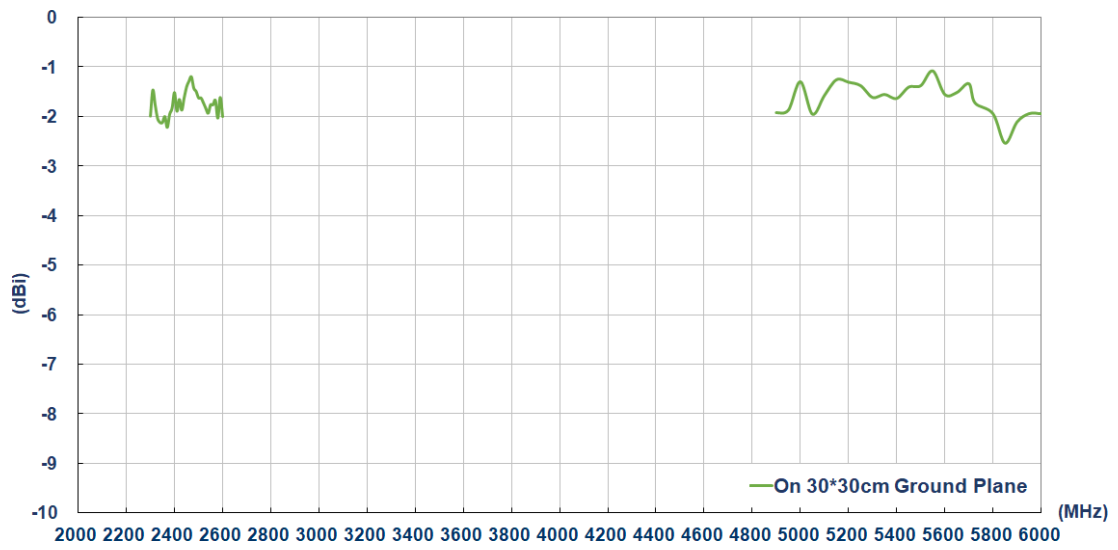
S11 (dB) - WiFi



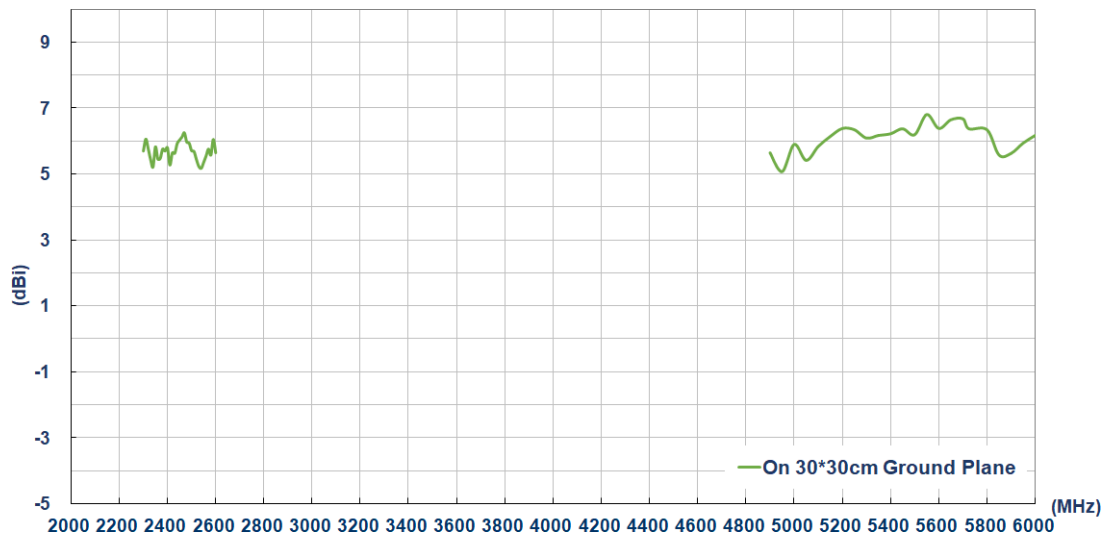
Efficiency (%) - WiFi



Average Gain (dBi) – WiFi

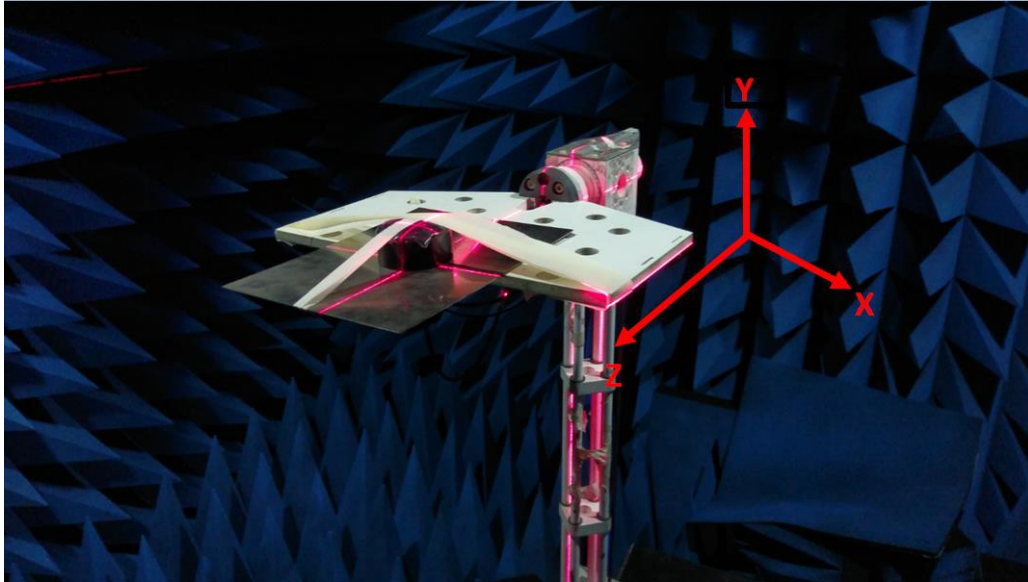


Peak Gain (dBi) – WiFi



III. Antenna Radiation Pattern Measurement:

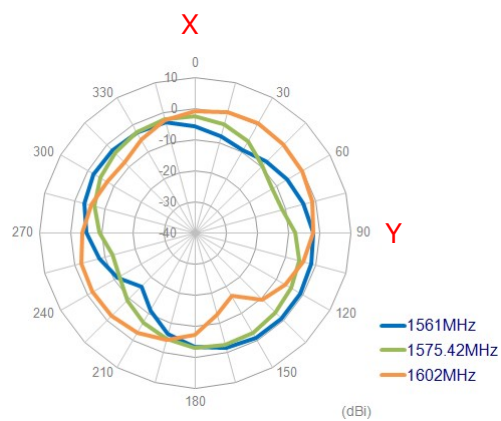
The antenna radiation patterns were measured in Anechoic Chamber. The measurement setup as below,



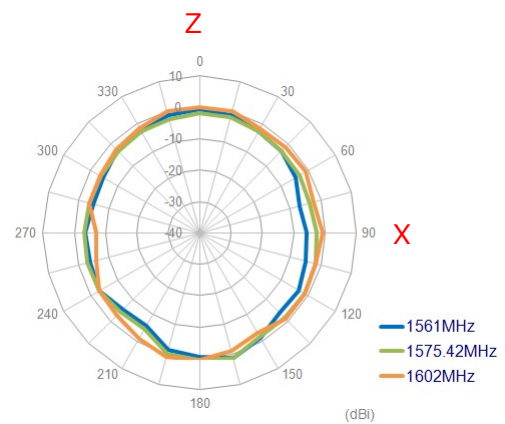
IV. 2D Radiation Pattern:

GNSS

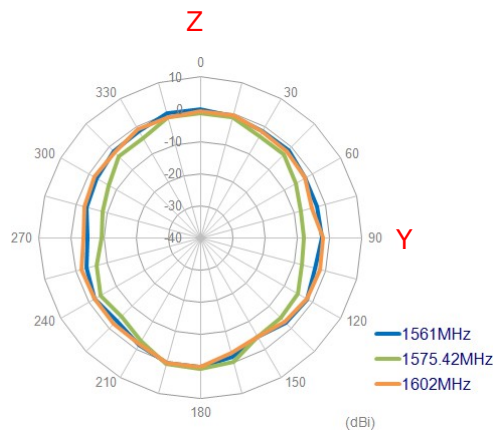
X-Y Plane



X-Z Plane

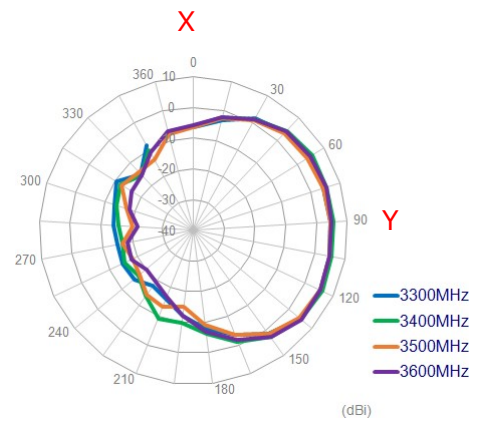
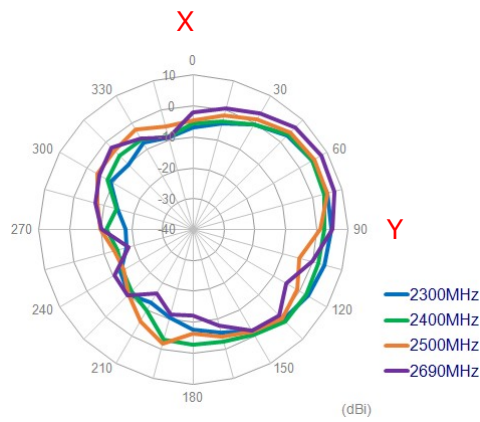
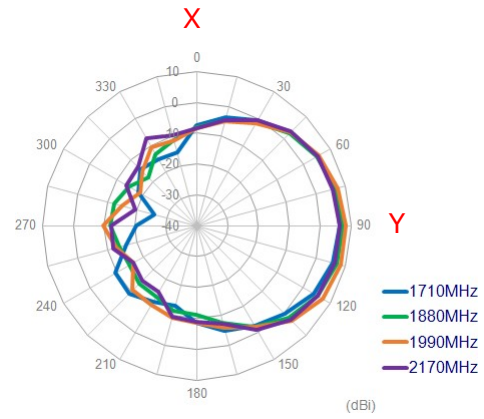
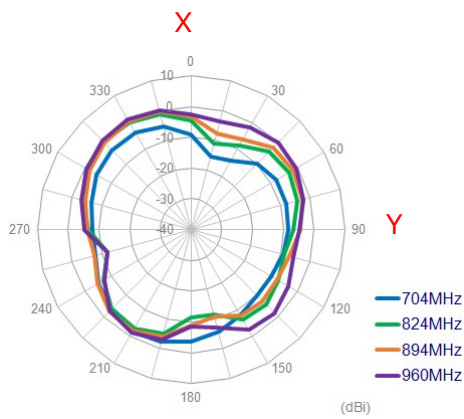


Y-Z Plane

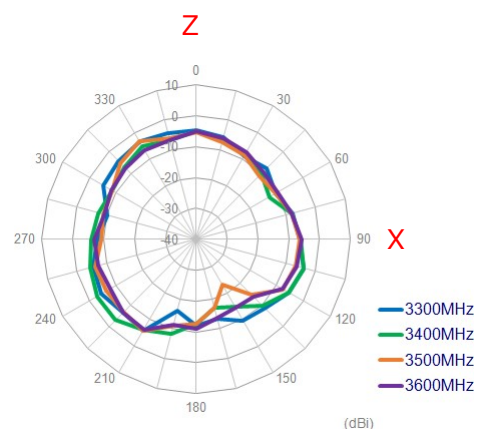
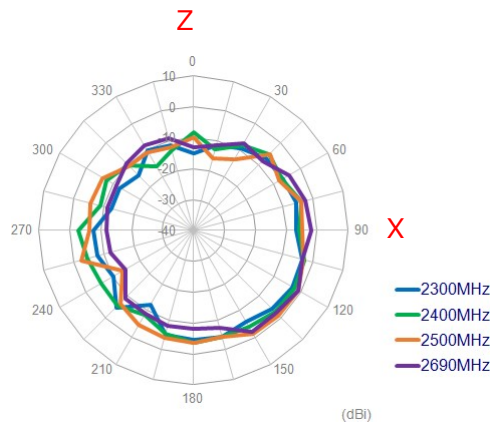
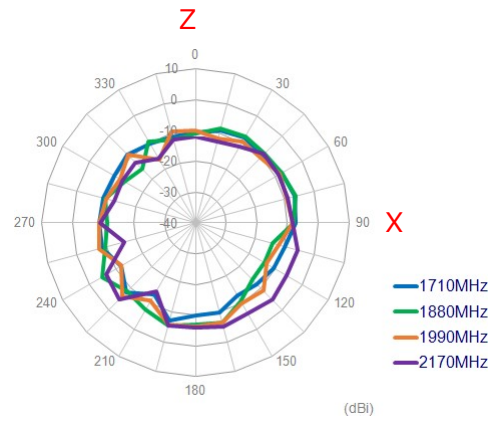
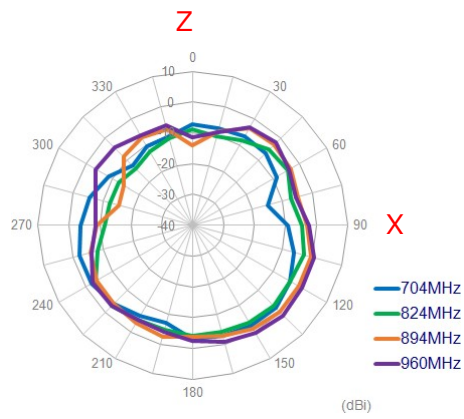


LTE – On 30*30cm Ground Plane

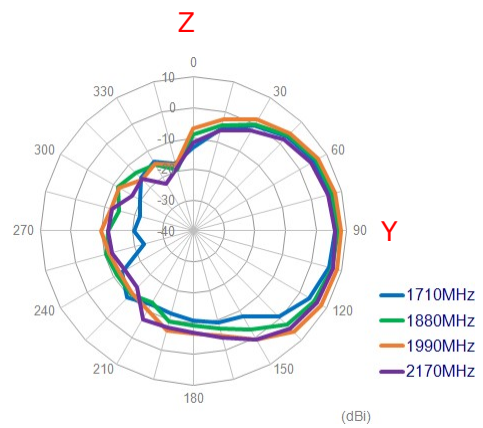
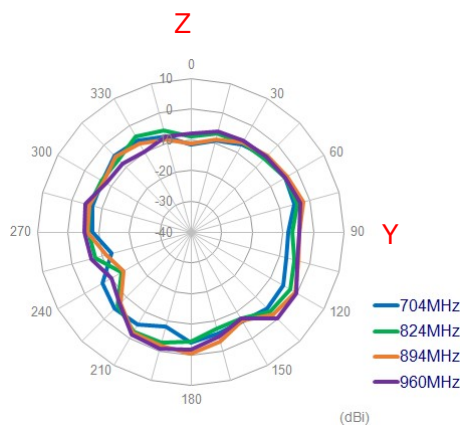
X-Y Plane

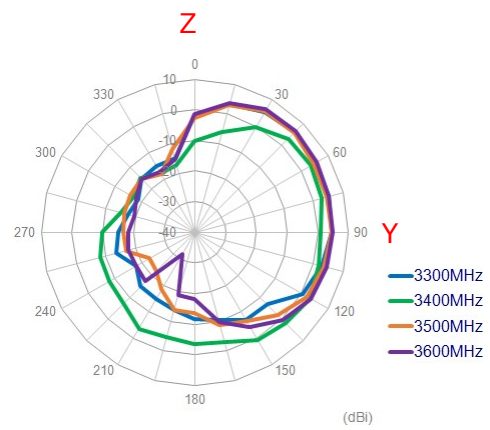
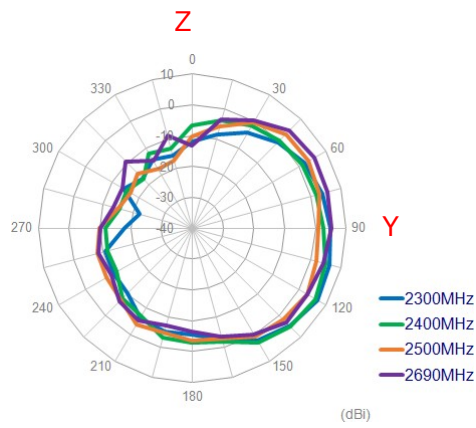


X-Z Plane



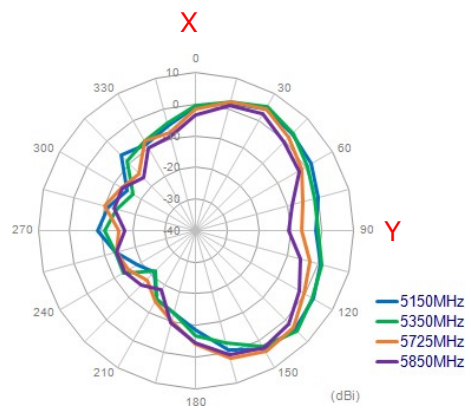
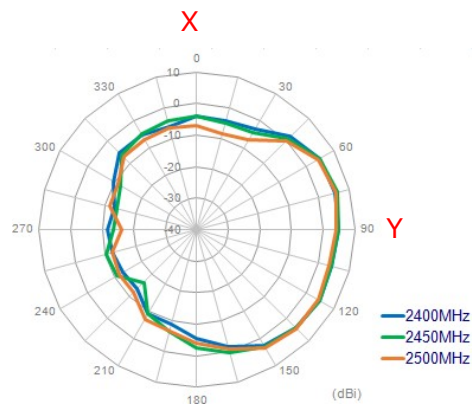
Y-Z Plane



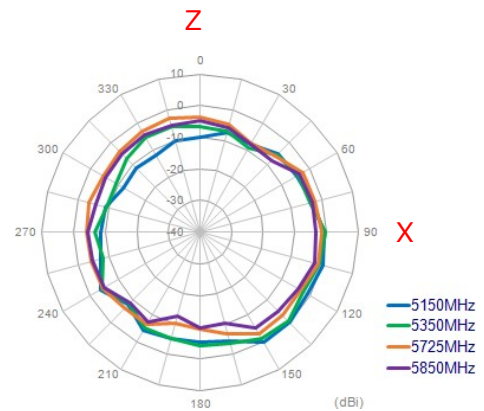
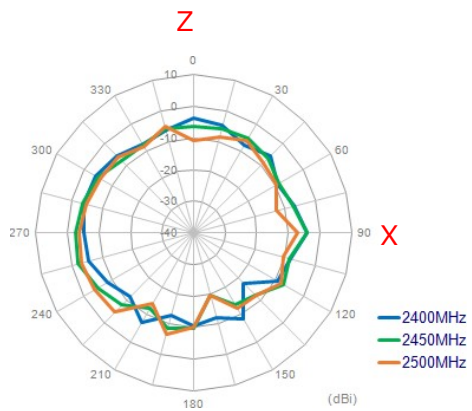


WiFi - On 30*30cm Ground Plane

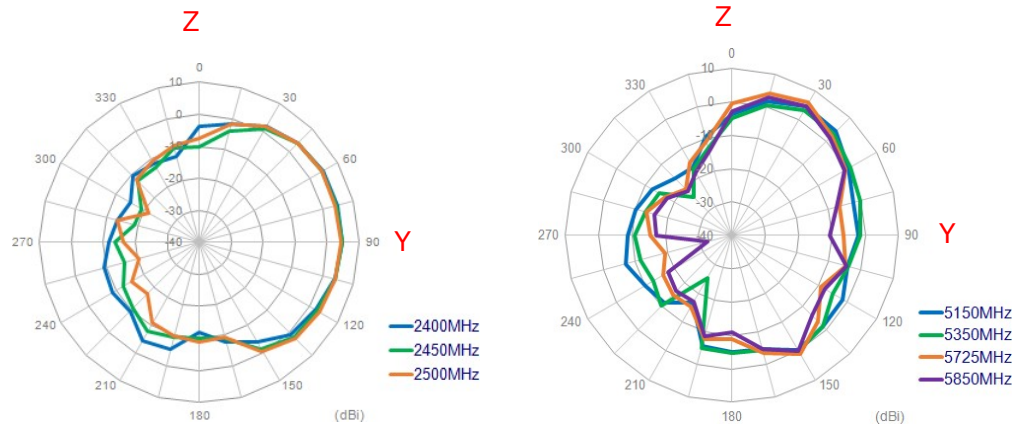
X-Y Plane



X-Z Plane

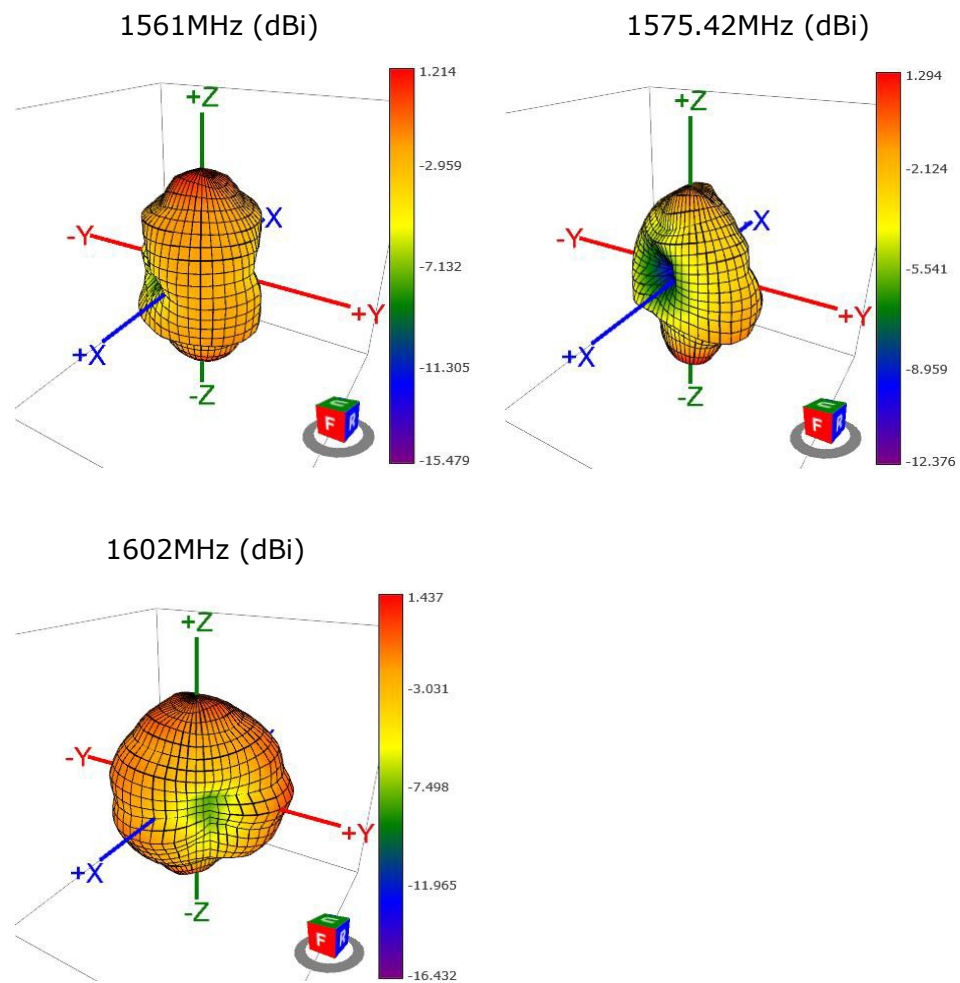


Y-Z Plane

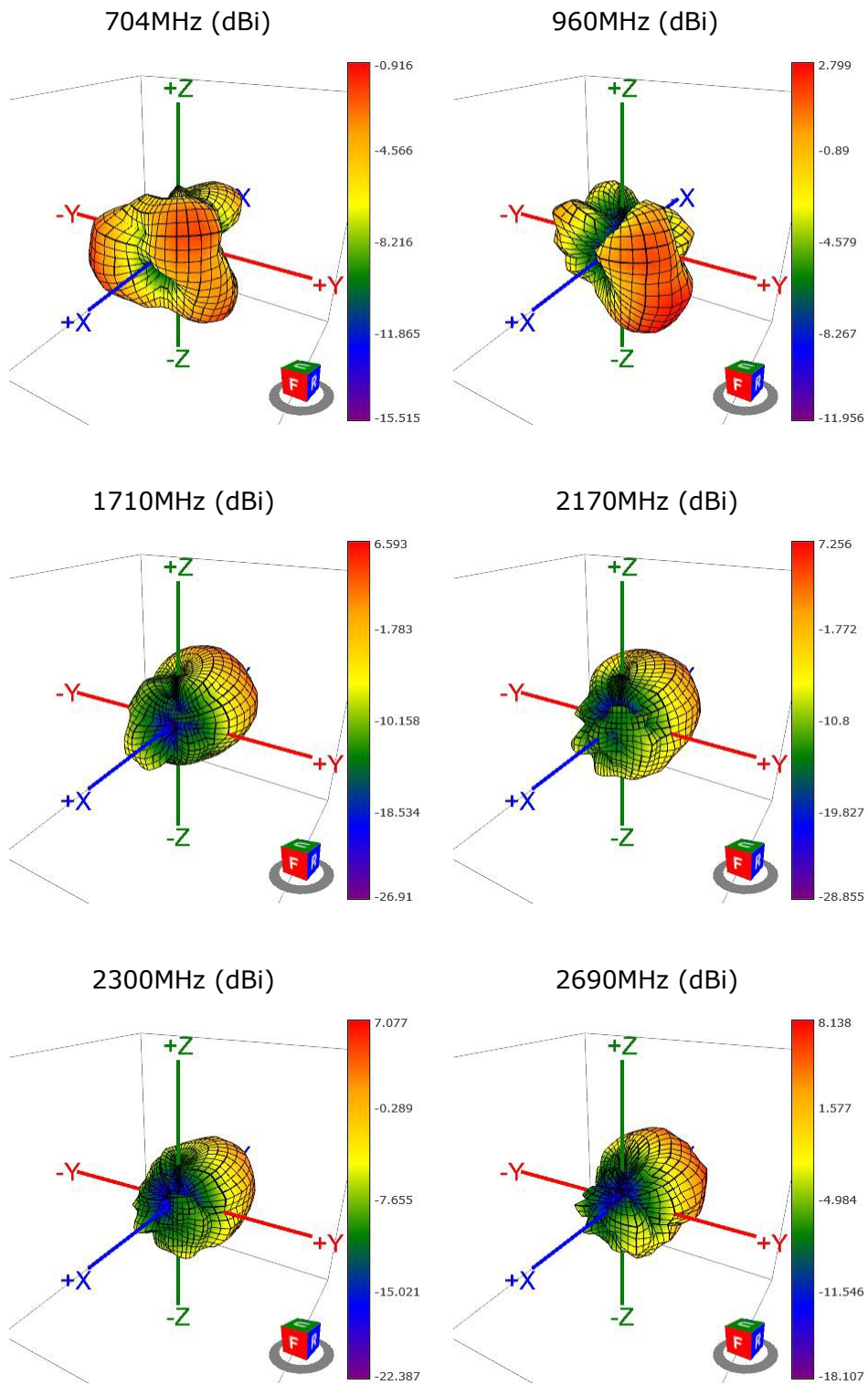


V. 3D Radiation Pattern:

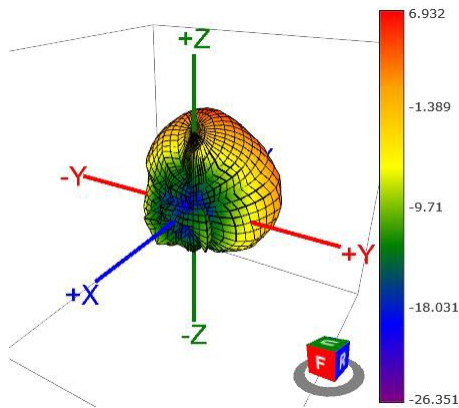
GNSS



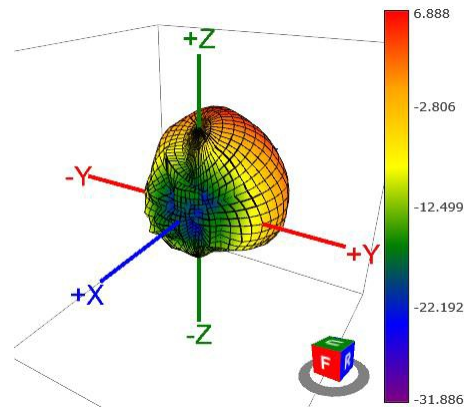
LTE – On 30*30cm Ground Plane



3300MHz (dBi)

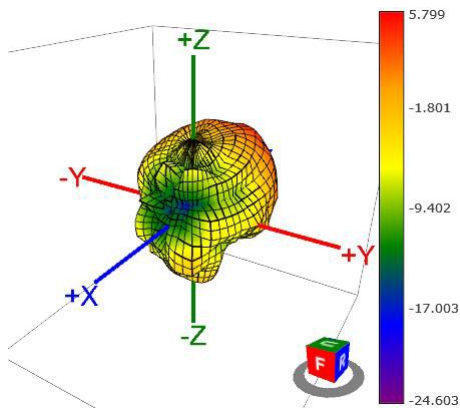


3600MHz (dBi)

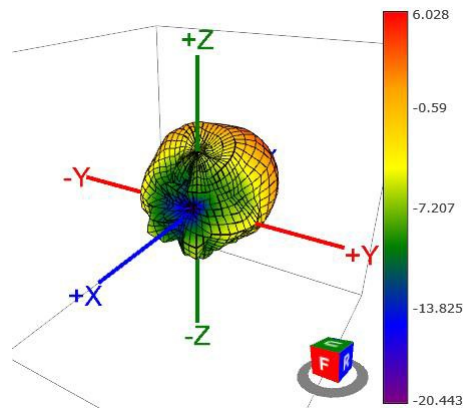


WiFi - On 30*30cm Ground Plane

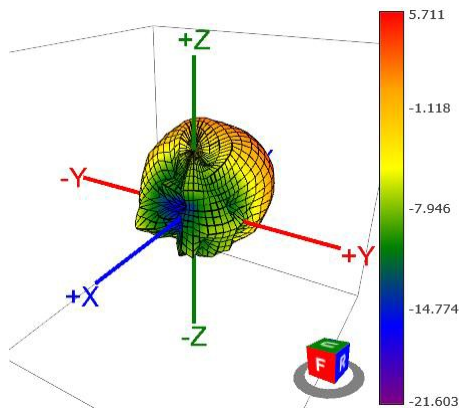
2400MHz (dBi)



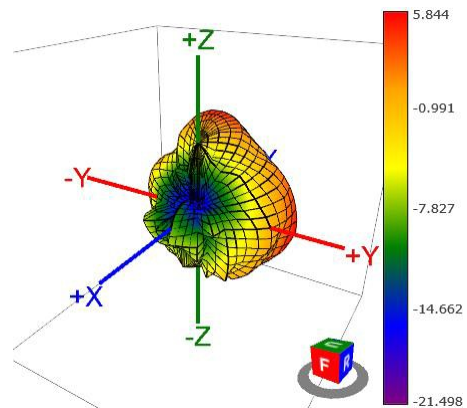
2450MHz (dBi)



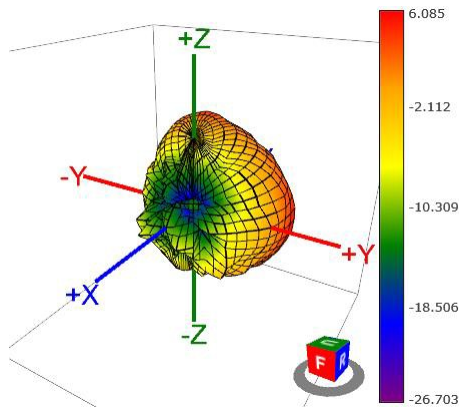
2500MHz (dBi)



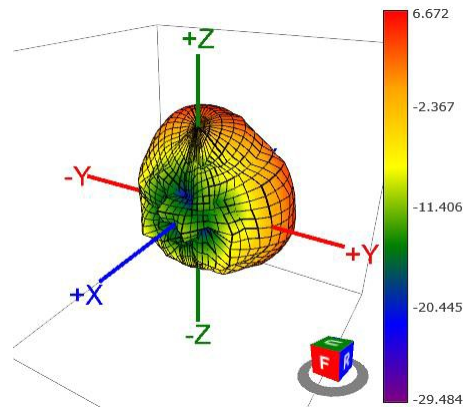
5150MHz (dBi)



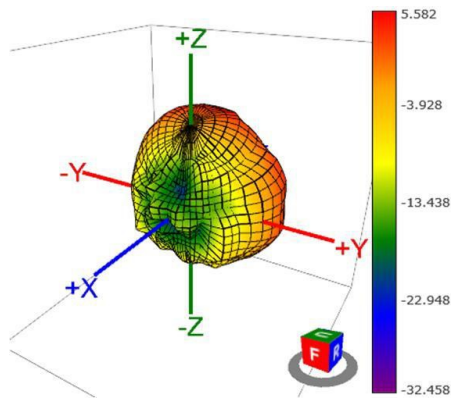
5350MHz (dBi)



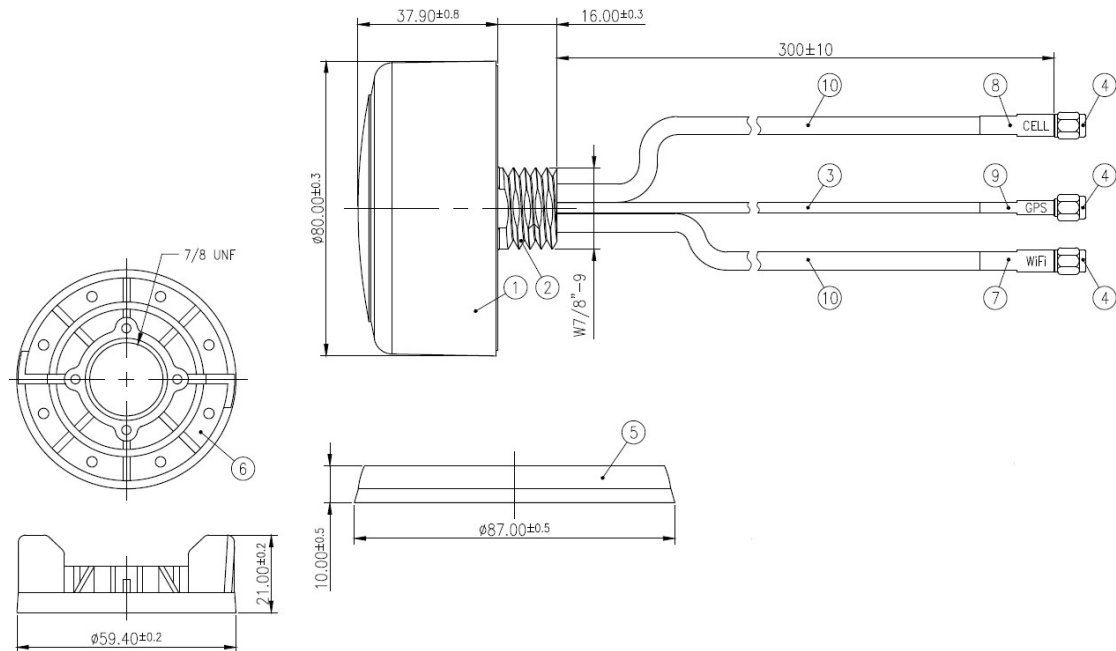
5725MHz (dBi)



5850MHz (dBi)



VI. Mechanical Drawing (Unit:mm):



10	Cable LMR195	PVC	Black	2
9	GPS Heat Shrink Tube	CTMS	Blue	1
8	CELL Heat Shrink Tube	CTMS	White	1
7	WiFi Heat Shrink Tube	CTMS	Yellow	1
6	Nut	PC+PBT	Black	1
5	Gasket	Silicone	Black	1
4	SMA(M) Connector	Brass	Au Plated	3
3	Cable H100	PVC	Black	1
2	AU9 Bottom Base	Zinc Alloy	Ni Plated	1
1	AU9 Top Housing	PC+PBT	Black	1
No	NAME	MATERIAL	FINISH	Q'TY

Ordering Codes: **ADA-10-9XYZ (maximum 3 cables)**

X=0 -
X=1 GPS
X=2 GPS/GLONASS
X=3 GPS/GLONASS/Beidou/Galileo/QZSS

Y=0 -
Y=1 4G/LTE/5G
Y=2 2x 4G/LTE/5G

Z=0 -
Z=1 WIFI 2.4/5,0-5.8
Z=2 2xWIFI 2.4/5.0-5.8

Example:

ADA-10-9320 means GPS/GLONASS/Beidou/Galileo/QZSS +
2x 4G/LTE/5G

