



Product Name: 3-in-1 5G NR/4G LTE/GNSS/WiFi Combination
Antenna, Screw Mount

Part Number: MT-9B-AC-BLW01

Features:

- 5G NR/4G LTE 698-960MHz, 1710-2690MHz, 3300-3800 Supporting
- GPS & GLONASS & BeiDou L1 Bands Supporting
- WiFi Dual Bands 2.4G/5.8GHz Supporting
- Cable Length & Connector are customizable
- Robust Enclosure, IPX7 Waterproof Resistant

Applications:

- Machine to Machine Communication & IOT

3-in-1 5G NR/4G LTE/GNSS/WiFi Combination Antenna, Screw Mount

MODEL: MT-9B-AC-BLW01

Version: Preliminary

I. Specifications:

Category	Specifications		
GNSS Electrical Characteristics			
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
Polarization	R.H.C.P. (Right Handed Circular Polarization)		
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)*	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)		

© Unictron Technologies Corp.
All specifications subject to change without notice.

	±15 KV (air discharge)
Cable / Length	H100_0.3 meter
Connector	SMA (Male)

*Typical value

© Unictron Technologies Corp.
All specifications subject to change without notice.

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	37.89	49.35	71.97	78.46	78.59	69.82	74.21
Average Gain (dBi)*							
On 30*30cm Ground Plane	-4.26	-3.14	-1.45	-1.06	-1.06	-1.58	-1.34
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)						

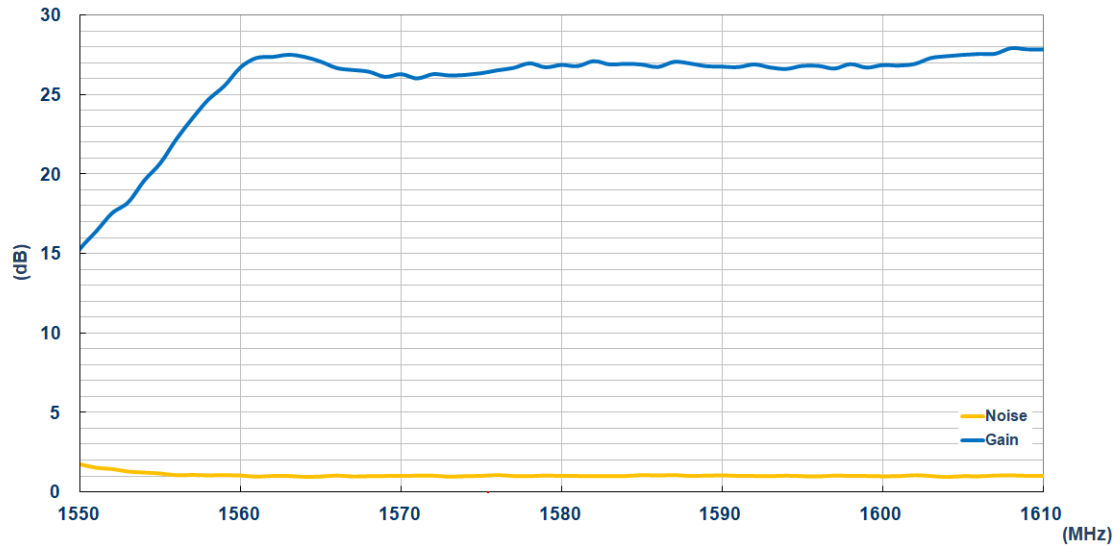
*Typical value

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						

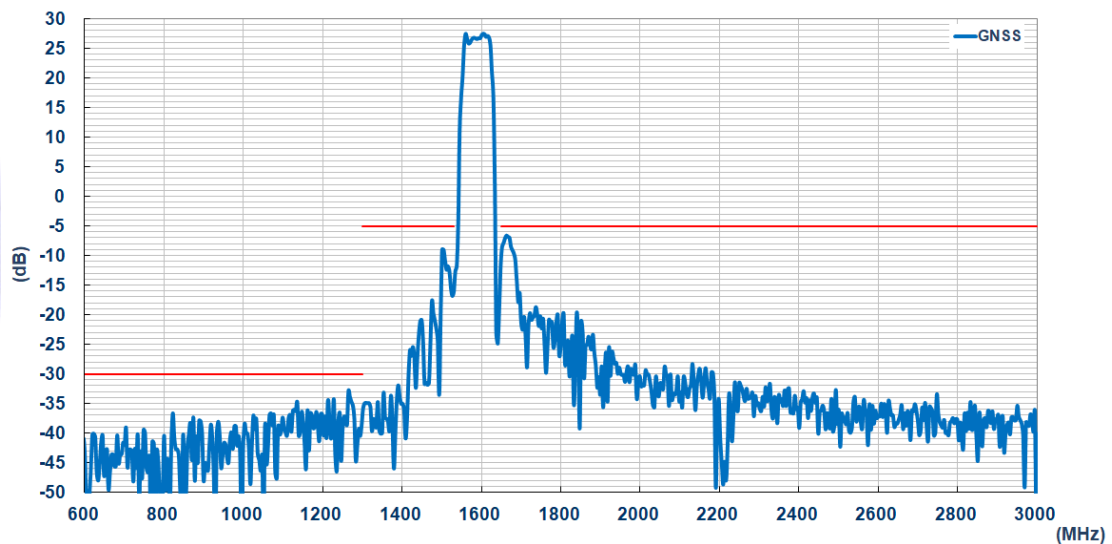
*Typical value

II. Antenna Technical Parameters:

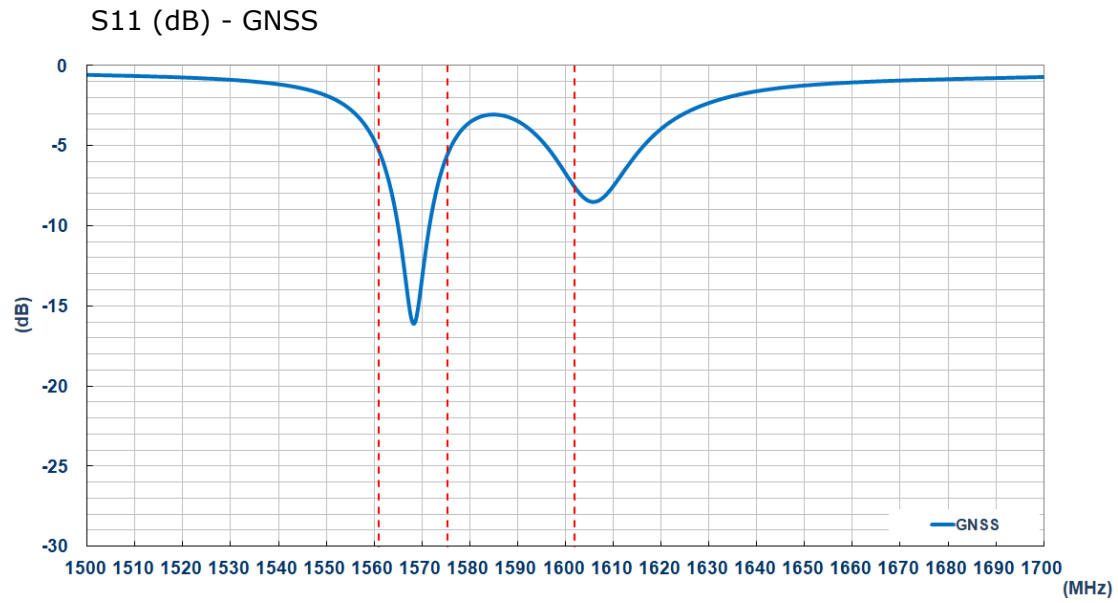
Noise Figure & Gain (dB) - GNSS



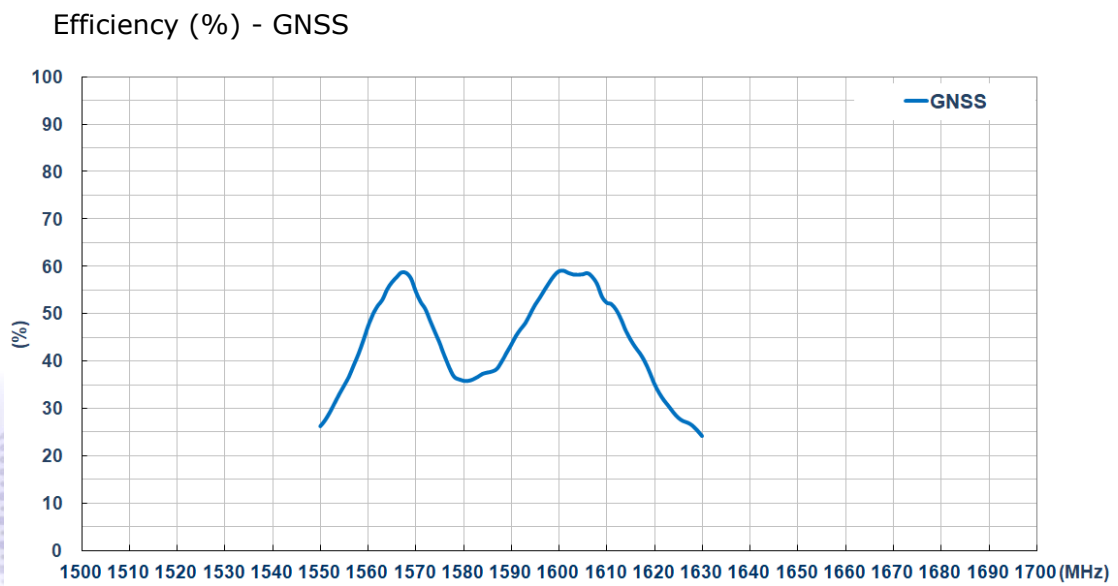
Out of Band Rejection (dB) – GNSS



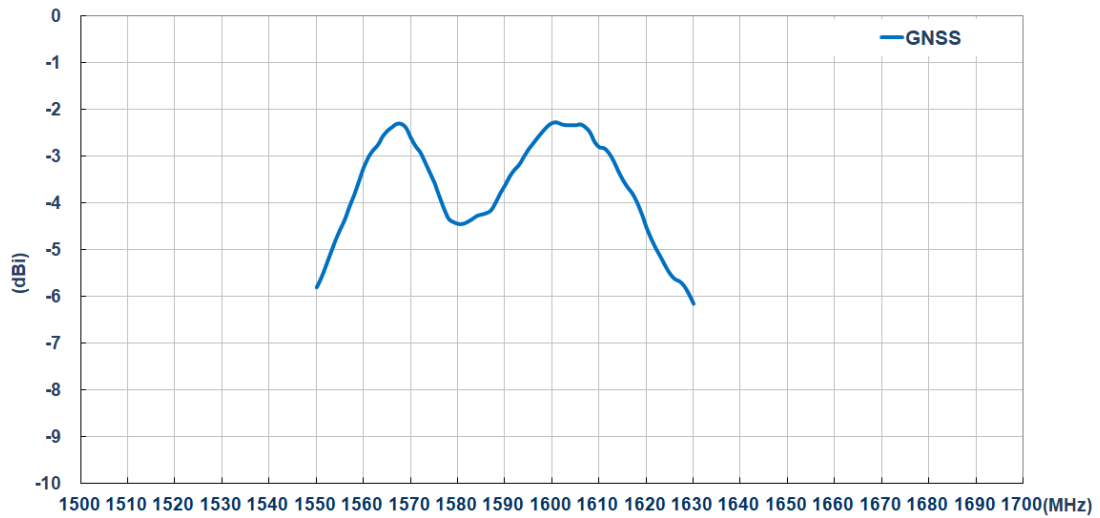
© Unictron Technologies Corp.
All specifications subject to change without notice.



© Unictron Technologies Corp.
All specifications subject to change without notice.

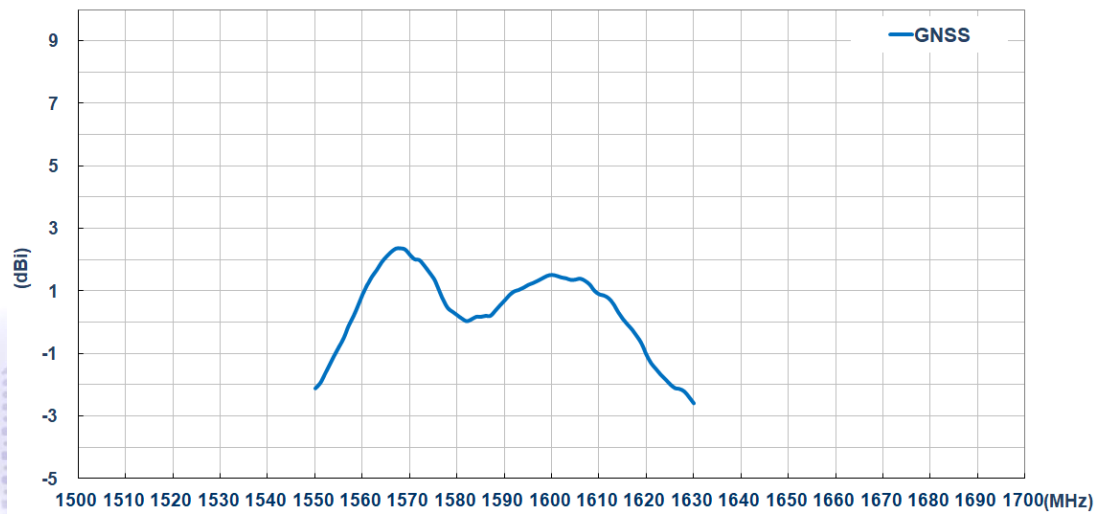


Average Gain (dBi) - GNSS

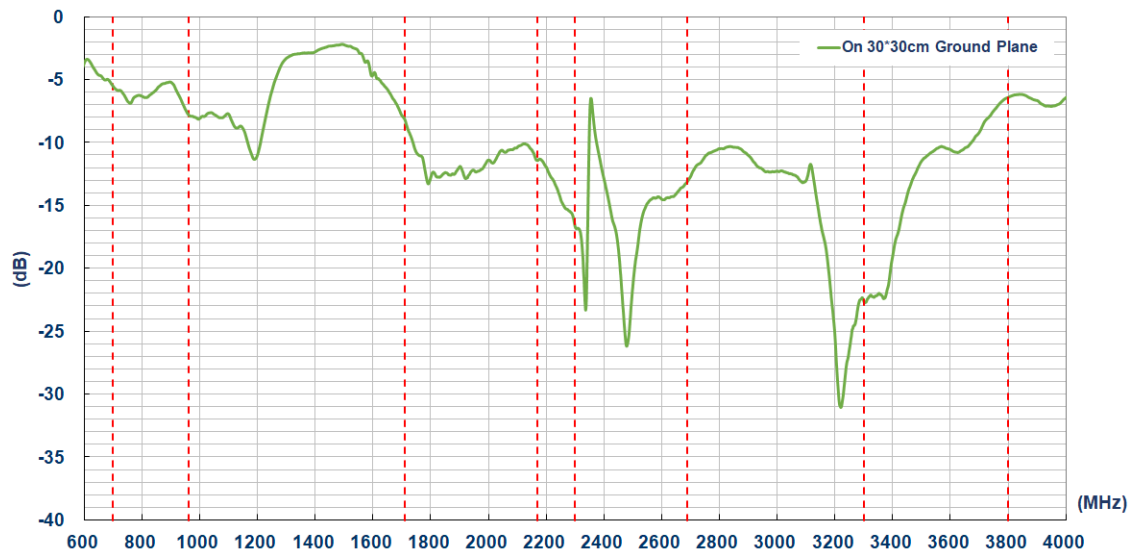


© Unictron Technologies Corp.
All specifications subject to change without notice.

Peak Gain (dBi) - GNSS

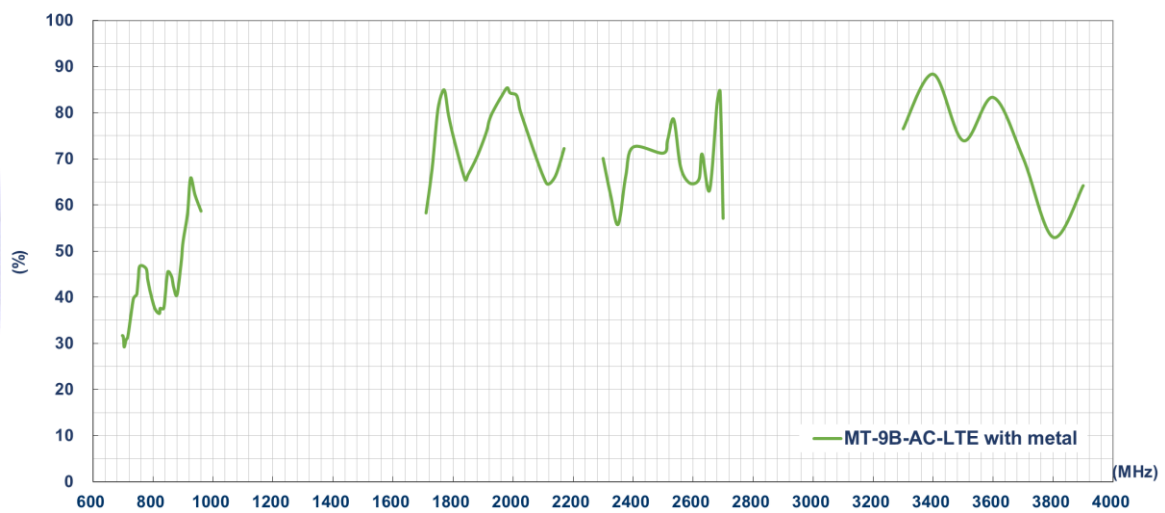


S11 (dB) - LTE

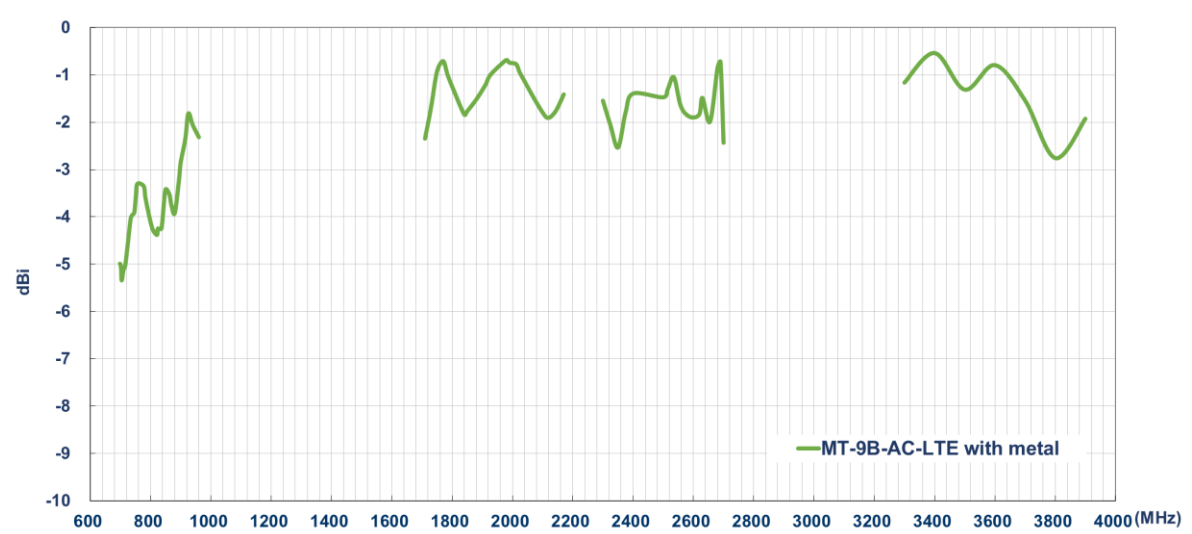


© Unictron Technologies Corp.
All specifications subject to change without notice.

Efficiency (%) - LTE

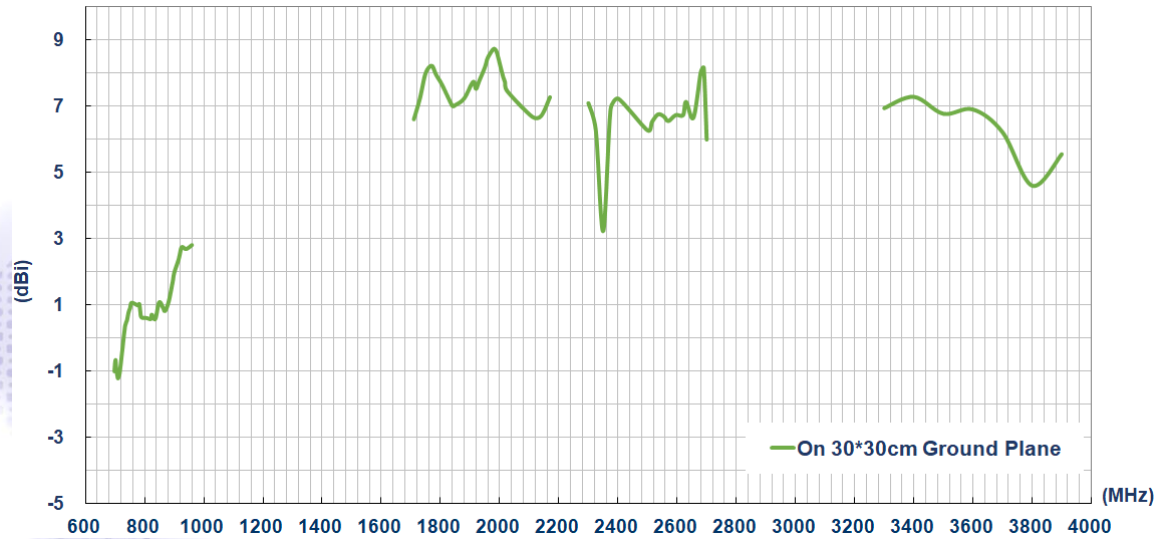


Average Gain (dBi) - LTE

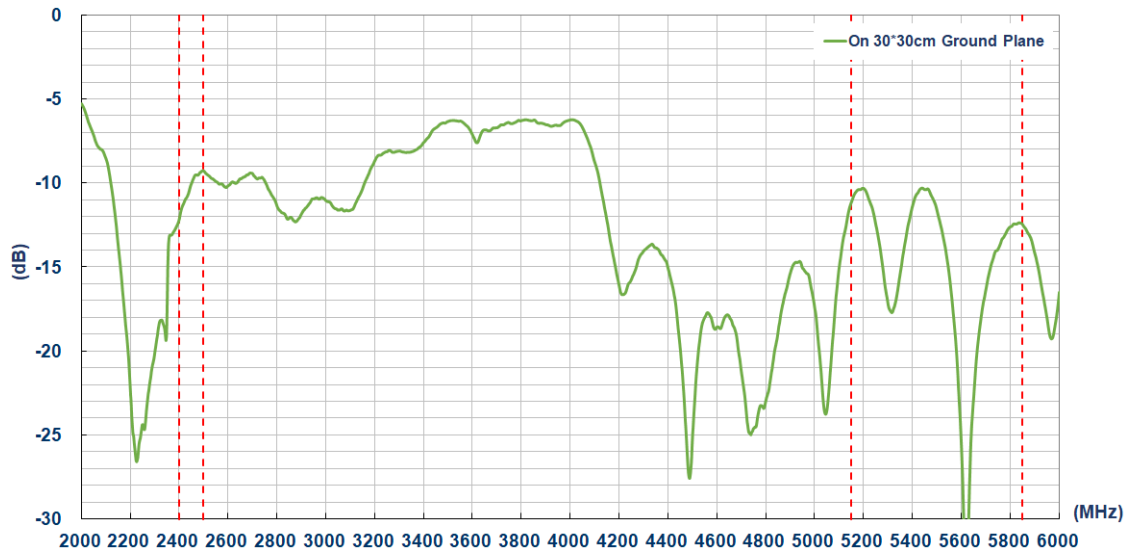


© Unictron Technologies Corp.
All specifications subject to change without notice.

Peak Gain (dBi) – LTE

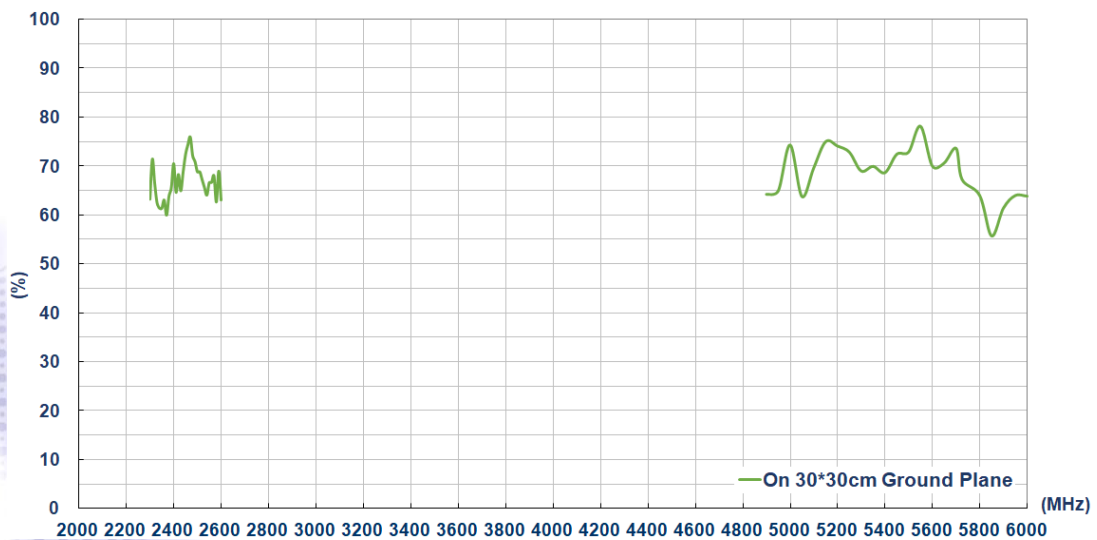


S11 (dB) - WiFi

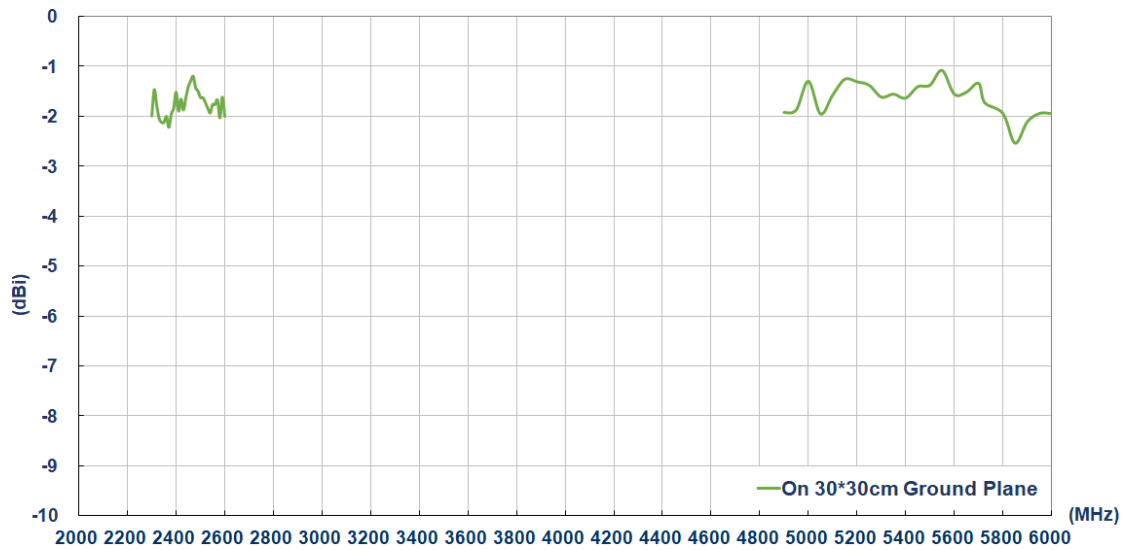


© Unictron Technologies Corp.
All specifications subject to change without notice.

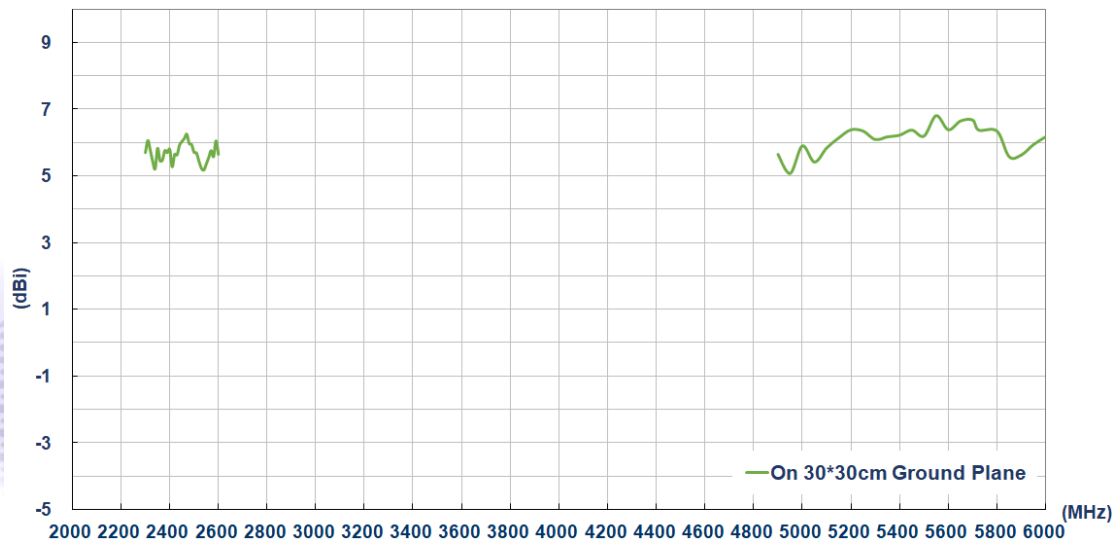
Efficiency (%) - WiFi



Average Gain (dBi) – WiFi



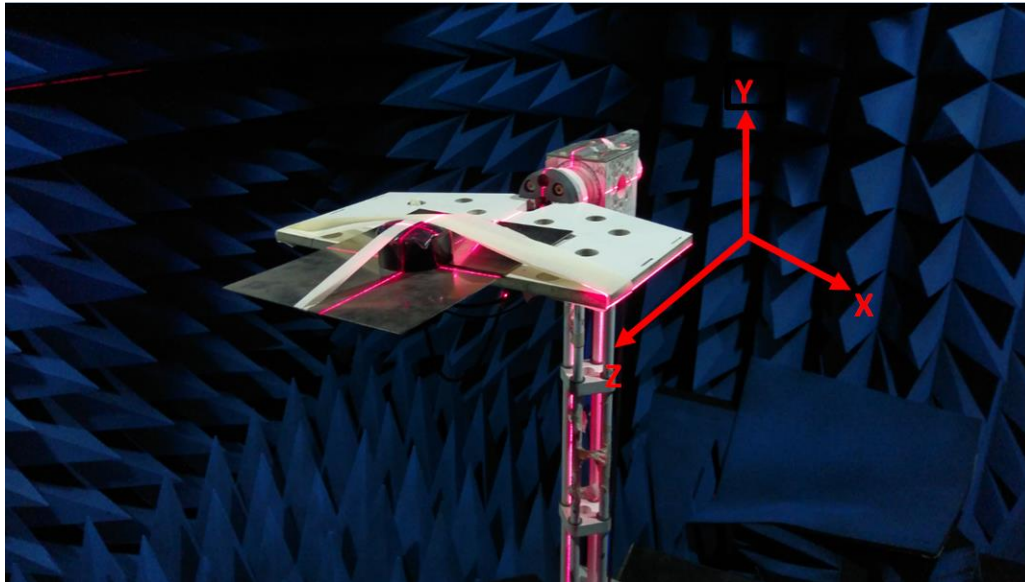
Peak Gain (dBi) – WiFi



© Unictron Technologies Corp.
All specifications subject to change without notice.

III. Antenna Radiation Pattern Measurement:

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

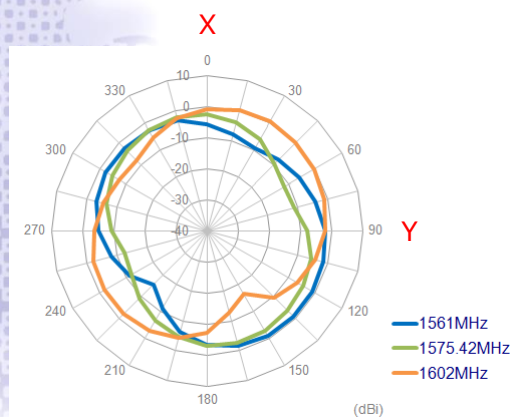


© Unictron Technologies Corp.
All specifications subject to change without notice.

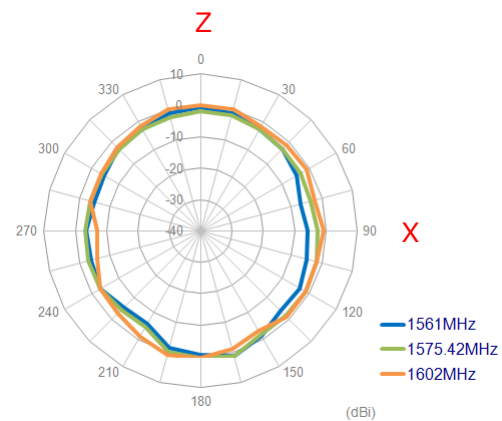
IV. 2D Radiation Pattern:

GNSS

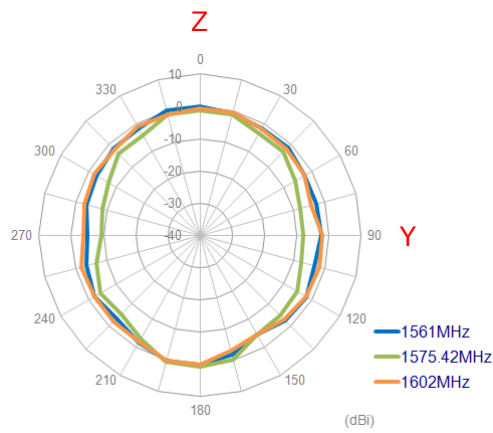
X-Y Plane



X-Z Plane

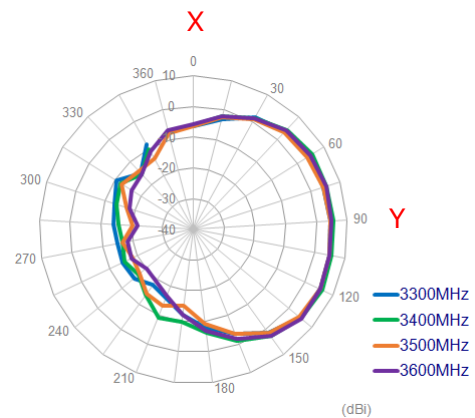
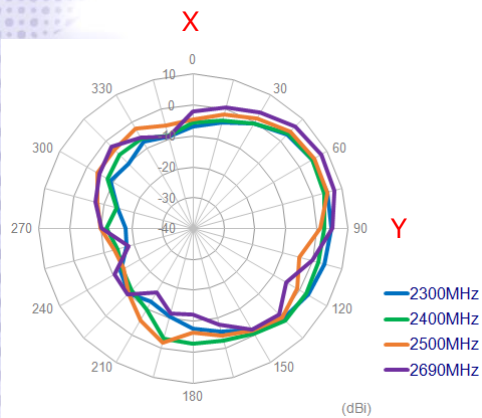
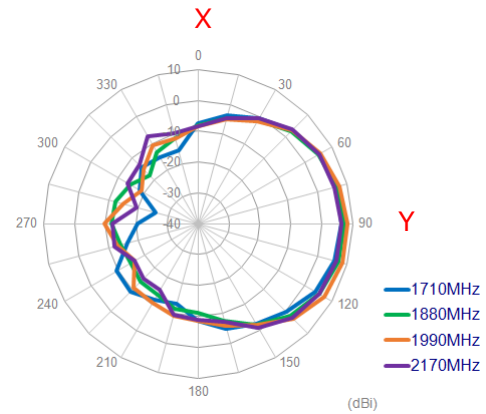
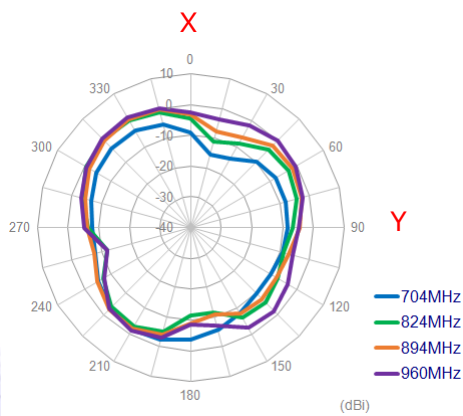


Y-Z Plane

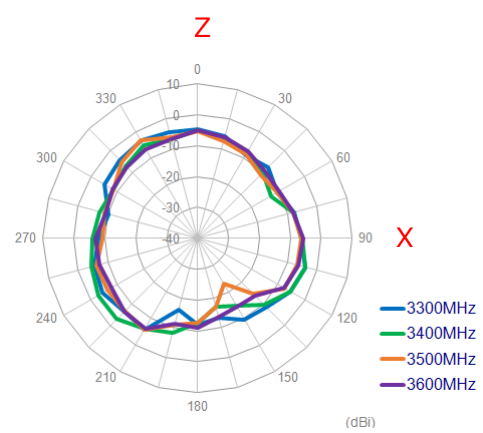
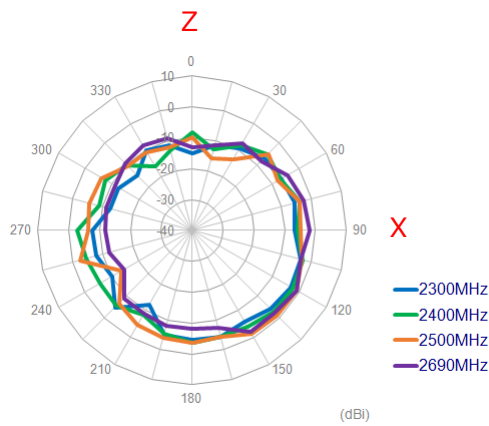
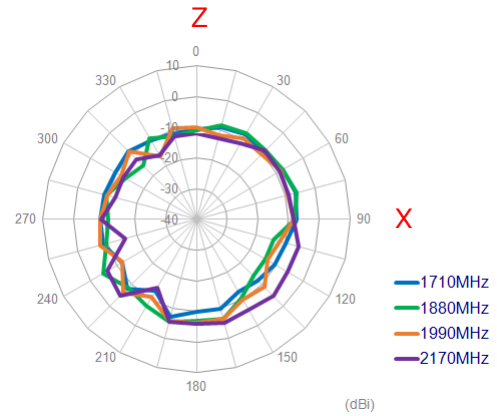
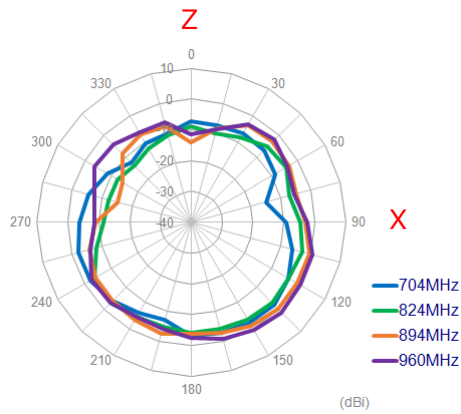


LTE – On 30*30cm Ground Plane

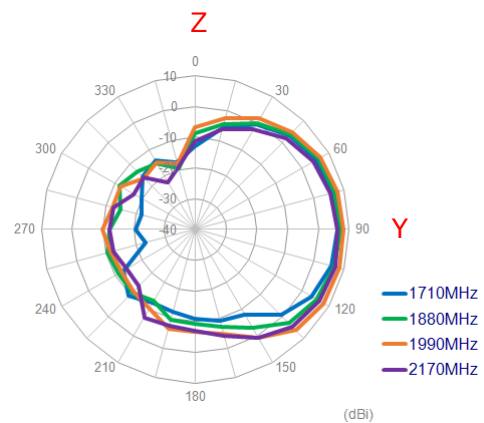
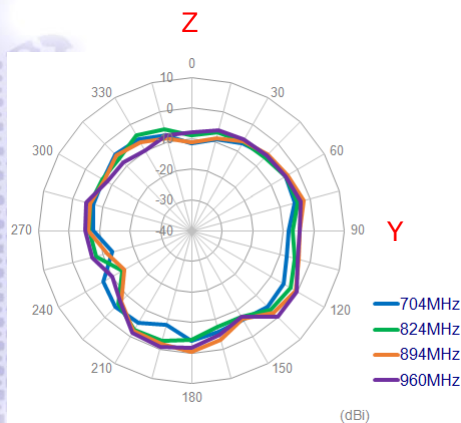
X-Y Plane



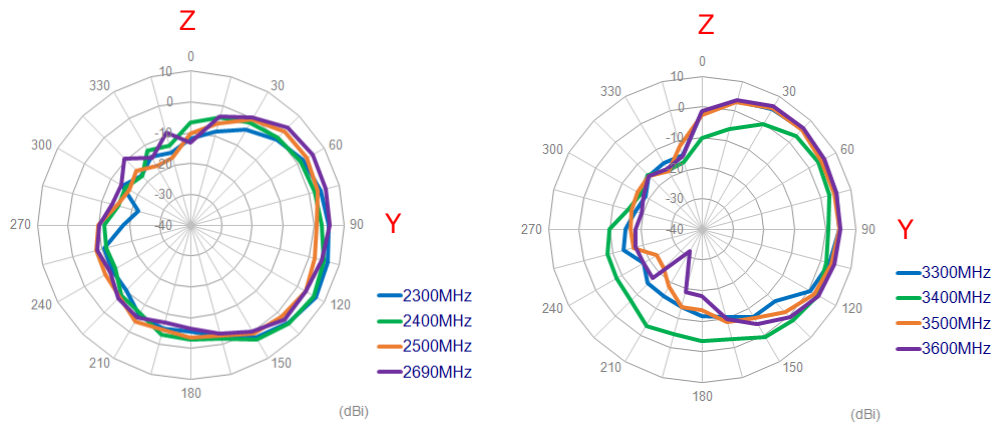
X-Z Plane



Y-Z Plane

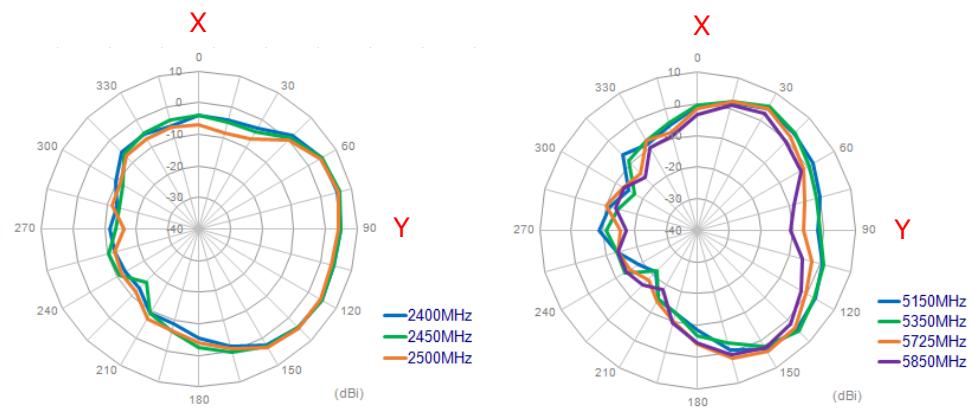


© Unictron Technologies Corp.
All specifications subject to change without notice.

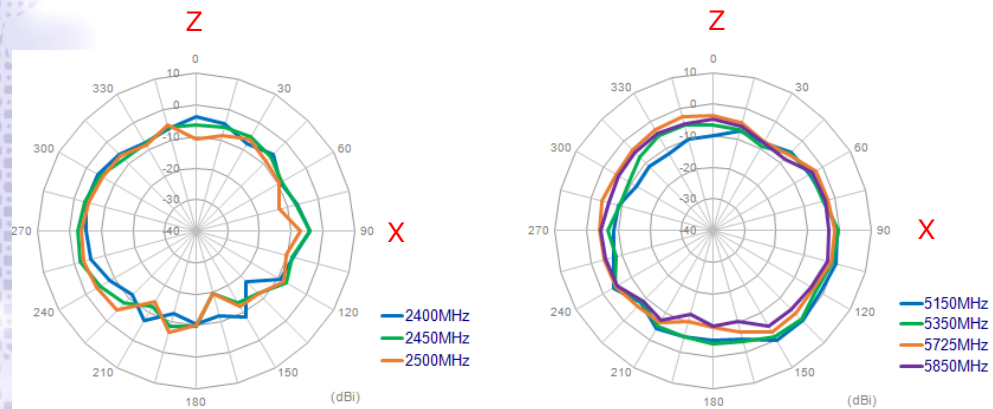


WiFi - On 30*30cm Ground Plane

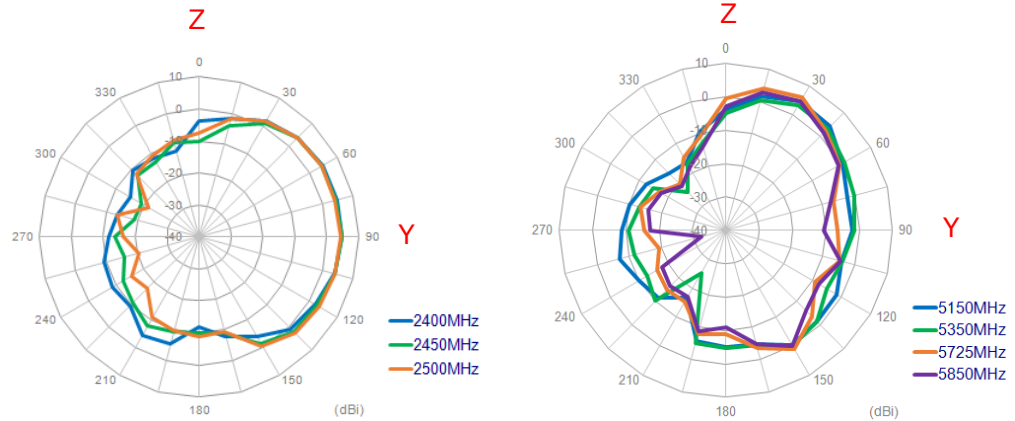
X-Y Plane



X-Z Plane



Y-Z Plane

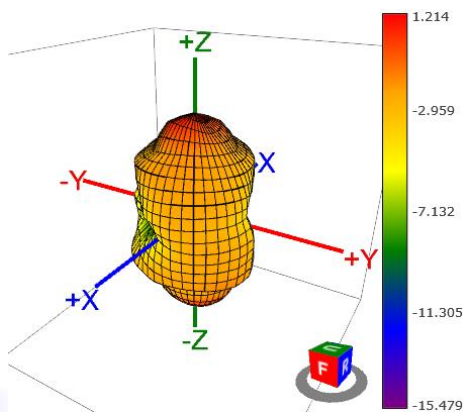


© Unictron Technologies Corp.
All specifications subject to change without notice.

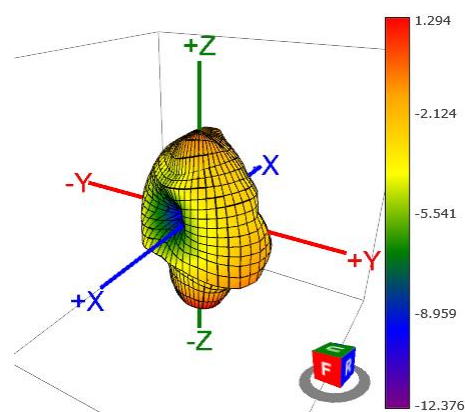
V. 3D Radiation Pattern:

GNSS

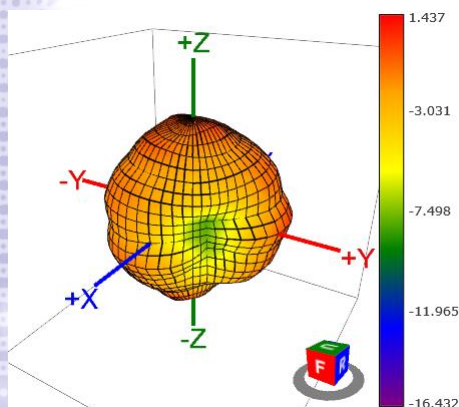
1561MHz (dBi)



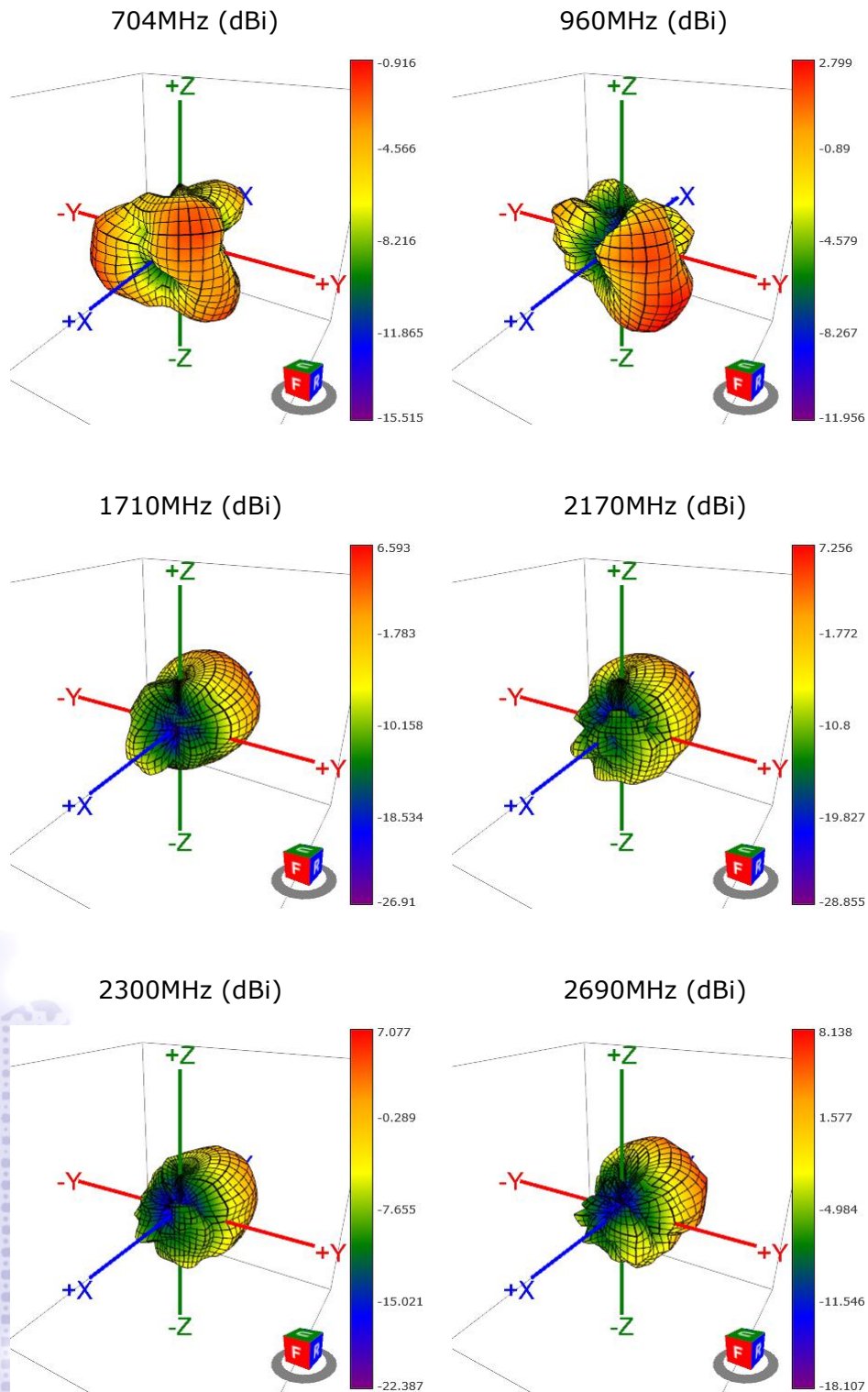
1575.42MHz (dBi)



1602MHz (dBi)

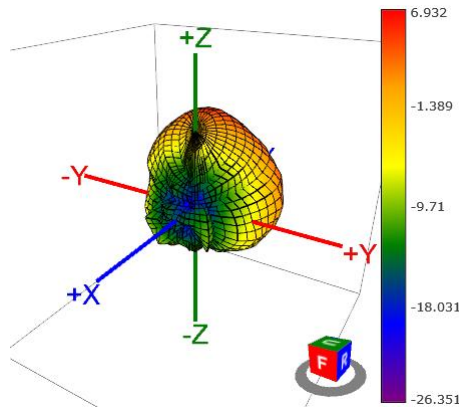


LTE – On 30*30cm Ground Plane

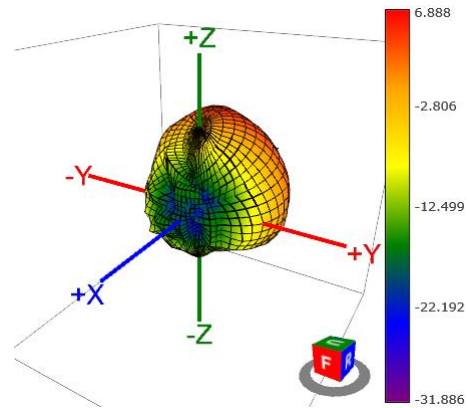


© Unictron Technologies Corp.
All specifications subject to change without notice.

3300MHz (dBi)

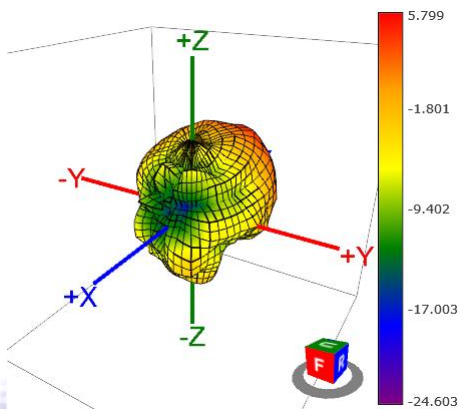


3600MHz (dBi)

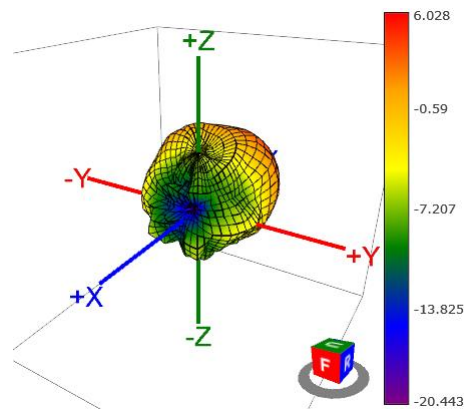


WiFi - On 30*30cm Ground Plane

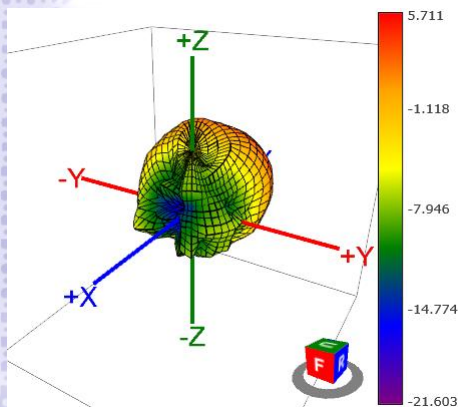
2400MHz (dBi)



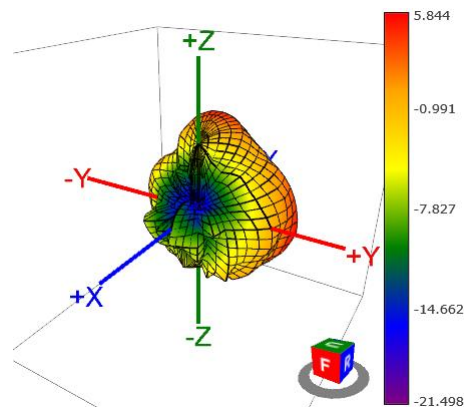
2450MHz (dBi)



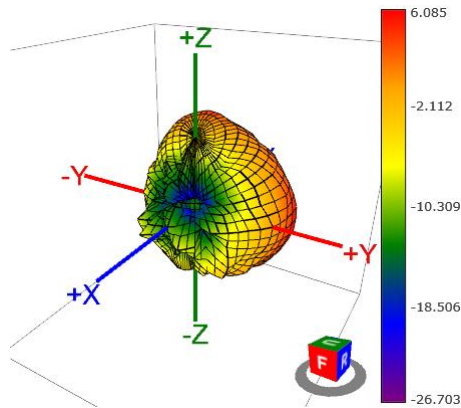
2500MHz (dBi)



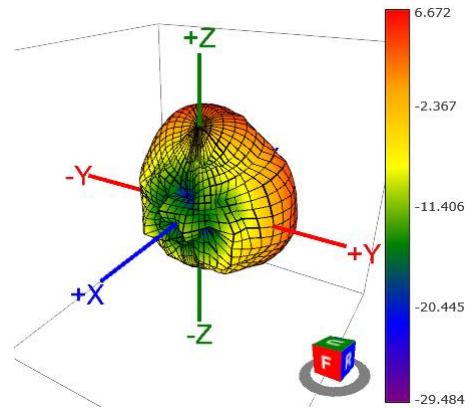
5150MHz (dBi)



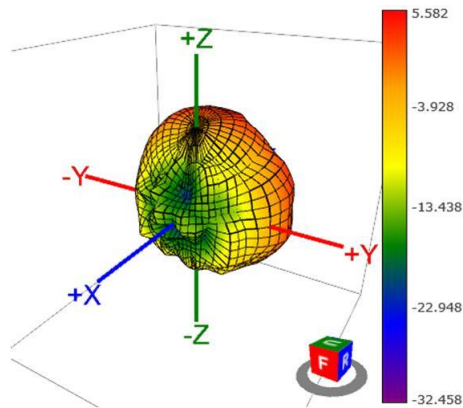
5350MHz (dBi)



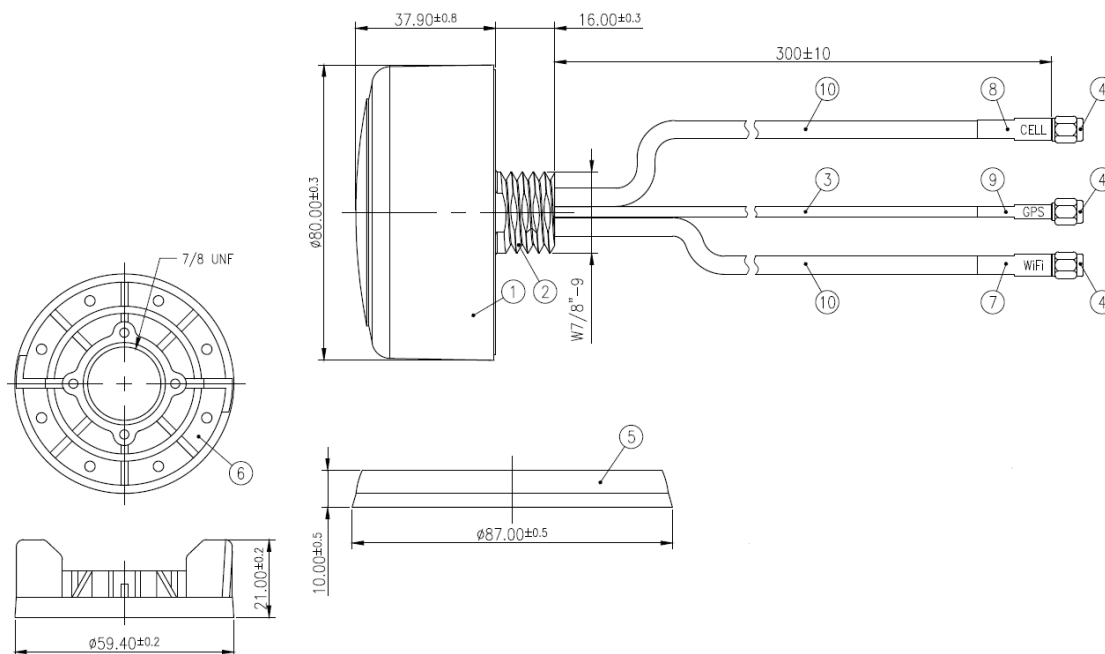
5725MHz (dBi)



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	QTY

© Unictron Technologies Corp.
All specifications subject to change without notice.