



Product Name: External GNSS L1 / L2 / L5 Antenna

Part Number: EG-45B-AC-A01

Features:

- Support GPS L1/ GLONASS L1/ BeiDou L1/ GPS L2 / GPS L5 Bands
- Excellent Out of Band Rejection, Up to 65dB
- 39dB Active Peak Gain
- Robust Enclosure, IP67 Waterproof
- RoHS & REACH Compliant

Applications:

- Unmanned Aerial Vehicle (Drone) Navigation
- For all location-based services which need light-weighted GNSS L1 / L2 / L5 Antenna

External GNSS L1 / L2 / L5 Antenna

MODEL: EG-45B-AC-A01

Rev.A

I. Specifications:

Items		Specifications				
Passive Antenna Performance						
Application Bands		GPS L5	GPS L2	BeiDou L1	GPS L1	GLONASS L1
Frequencies (MHz)		1176	1227	1561	1575.42	1602
Efficiency (%)	Free Space	16.90	17.66	52.00	48.75	33.27
	With Ground Plane	23.66	11.91	35.65	34.83	24.60
Average Gain (dBi)	Free Space	-7.72	-7.53	-2.84	-3.12	-4.78
	With Ground Plane	-6.26	-9.24	-4.48	-4.58	-6.09
Peak Gain (dBi)	Free Space	-2.47	-7.53	0.65	0.26	-0.99
	With Ground Plane	0.16	-2.90	1.24	1.14	-0.57
Axial Ratio	Free Space	1.10	1.03	2.52	2.61	2.71
	With Ground Plane	1.29	1.56	2.47	2.66	3.02
V.S.W.R		< 2				
Return loss (dB)		< -10				
Test Conditions		Free Space				
		310 x 225 mm ² (Ground Plane Dimensions)				
Impedance (Ω)		50				
Polarization		R.H.C.P. (Right-Handed Circular Polarization)				

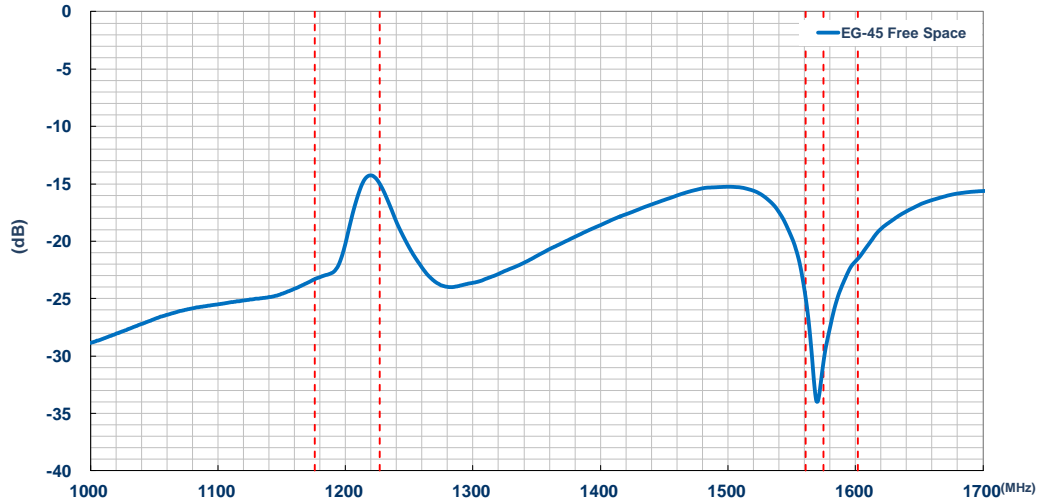
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Active Antenna Performance					
Application bands	GPS L5	GPS L2	BeiDou L1	GPS L1	GLONASS L1
Frequencies (MHz)	1176 ± 5	1227 ± 5	1561 ± 5	1575.42 ± 1.023	1602 ± 5
Gain (dB)	39	37	39	39	39
Noise Figure (dB)	1.2	1.2	1.4	1.4	1.4
Operation Voltage (V)	3.3 ~ 5				
Current Consumption (mA)	15 ± 3				
Output Impedance (Ω)	50				
Out of Band Rejection					
Frequencies (MHz)	600 ~ 1100	1260 ~ 1350	1350 ~ 1500	1650 ~ 3000	
Out of Band Rejection (dB)	55	35	70	75	
ESD Protection					
Contact Discharge (KV)	± 8				
Air Discharge (KV)	± 15				
Mechanical Specifications					
Dimensions (mm)	φ 29.77(D) x 57.68(H)				
Waterproof	IP67				
Connector	SMA (Male)				
Environmental Conditions					
Operation Temperature (°C)	-40 ~ +85				
Storage Temperature (°C)	-40 ~ +85				
Relative Humidity	95% non-condensing				

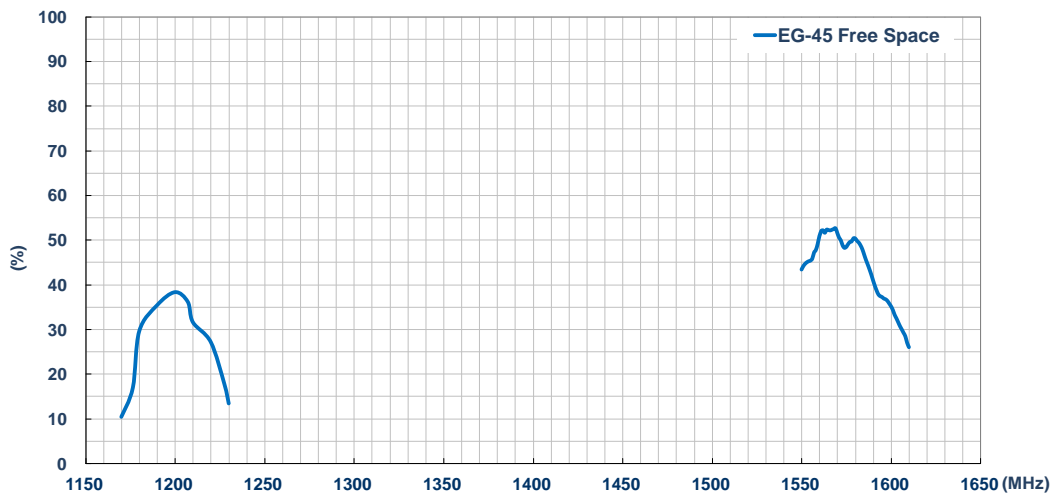
II. Passive Electrical Properties:

A) Testing Condition : Free Space

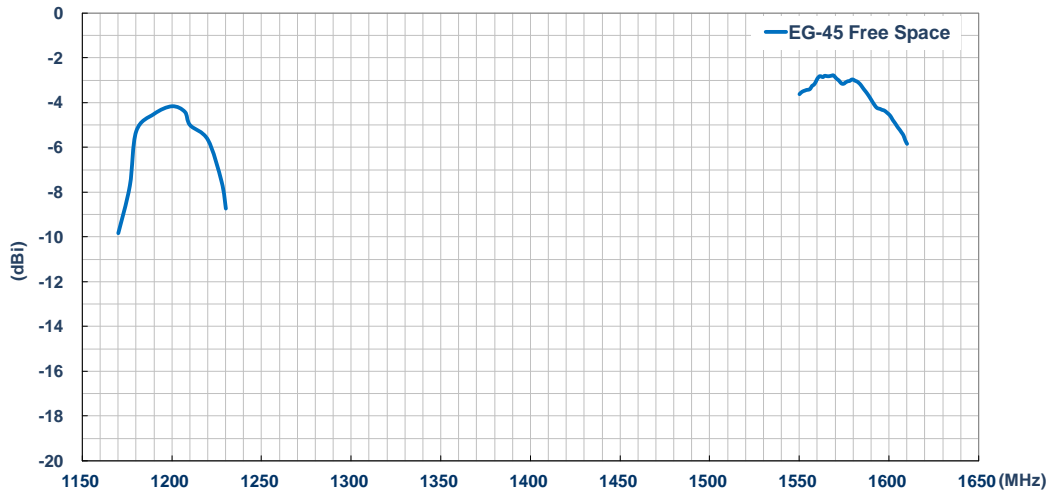
S11 (dB)



Efficiency (%)

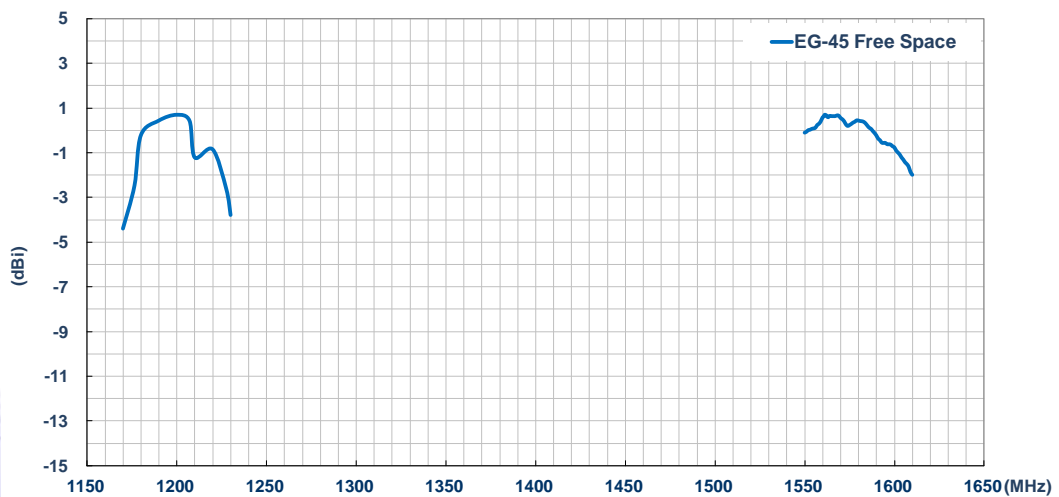


Average Gain (dBi)



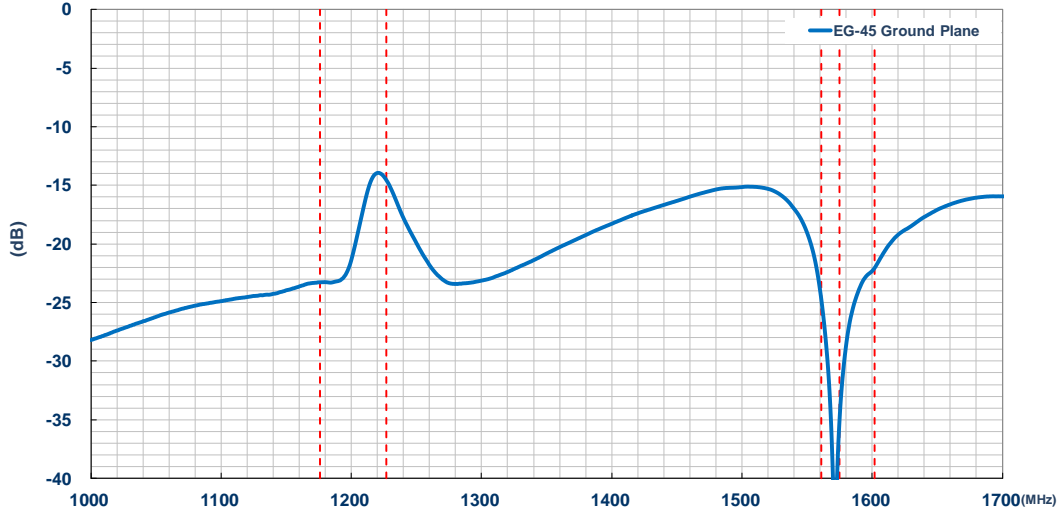
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Peak Gain (dBi)

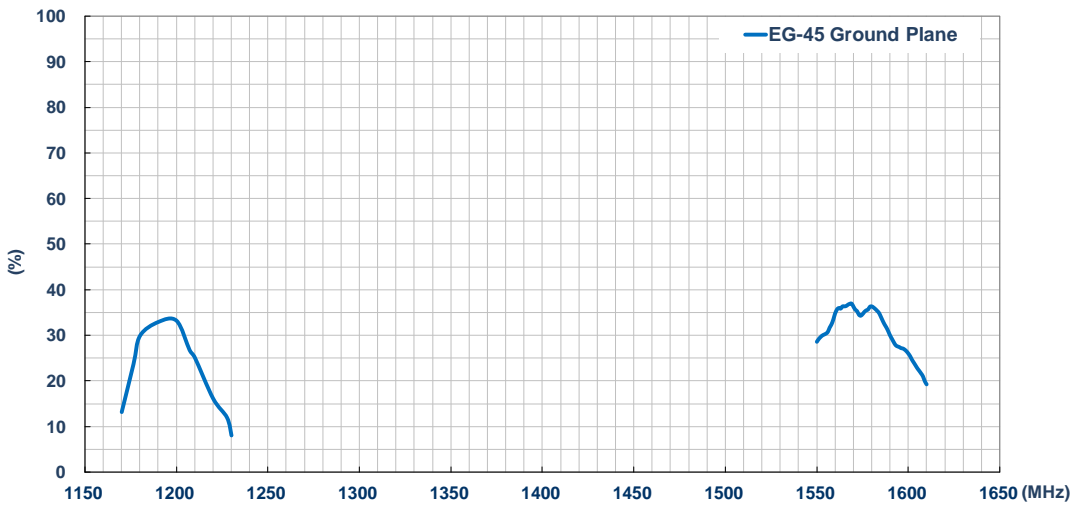


B) Testing Condition : With Ground Plane (310 x 225 mm²)

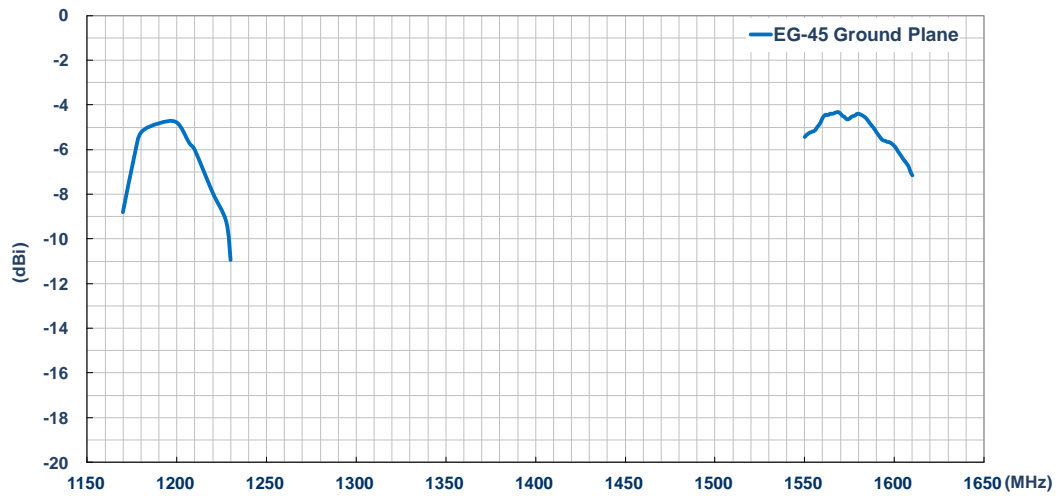
S11 (dB)



Efficiency (%)

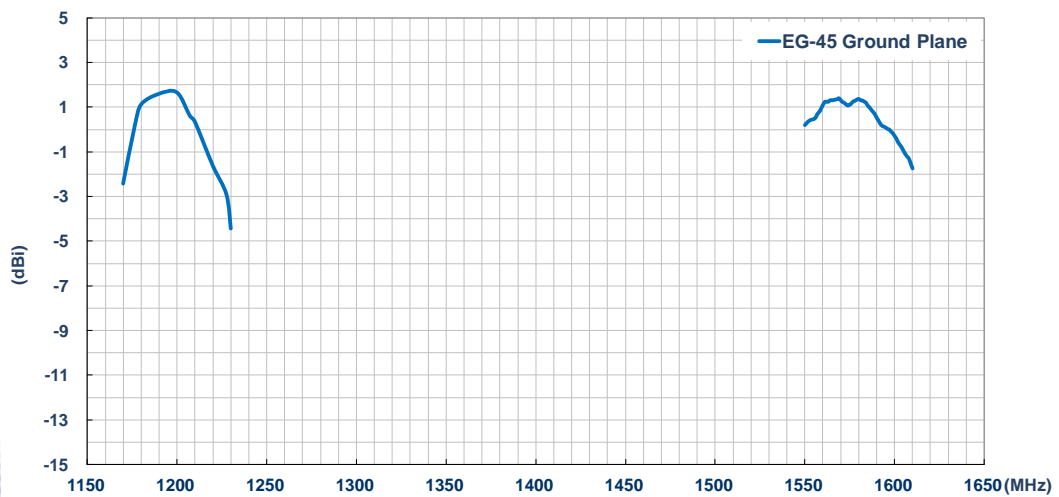


Average Gain (dBi)



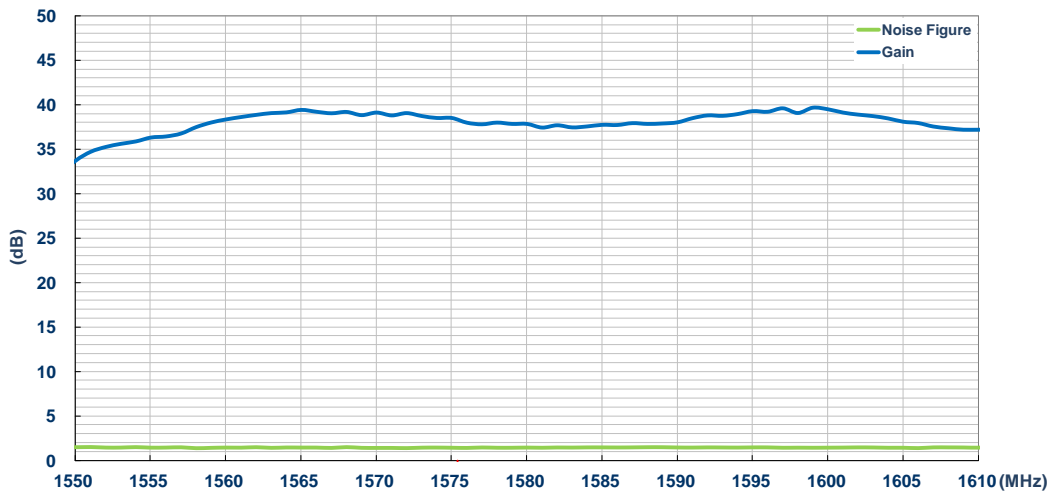
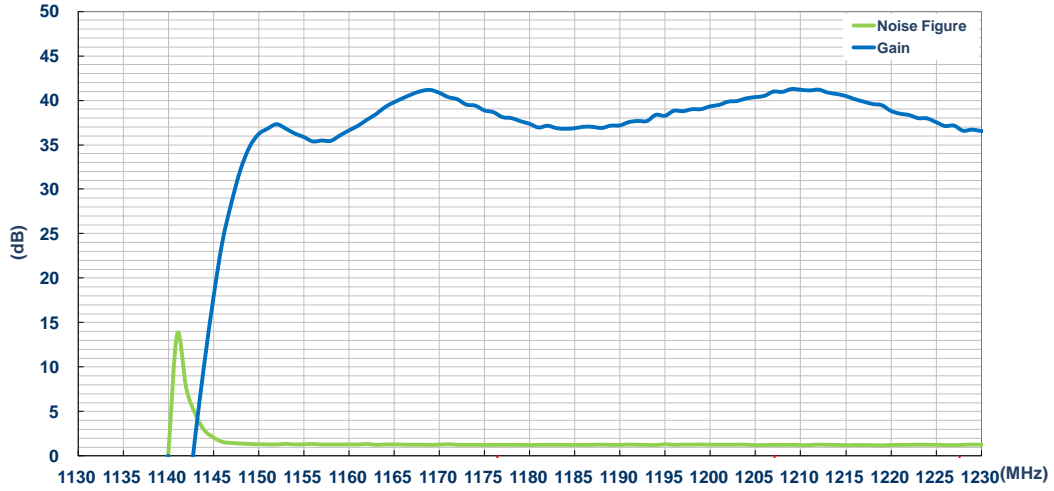
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Peak Gain (dBi)

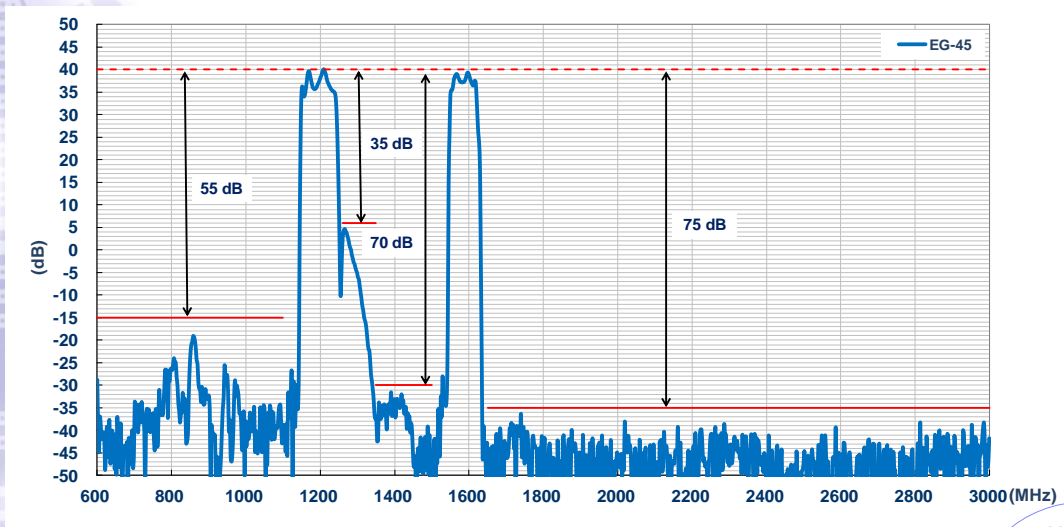


III. Active Electrical Properties:

Noise Figure & Gain (dB)



Out of Band Rejection (dB)

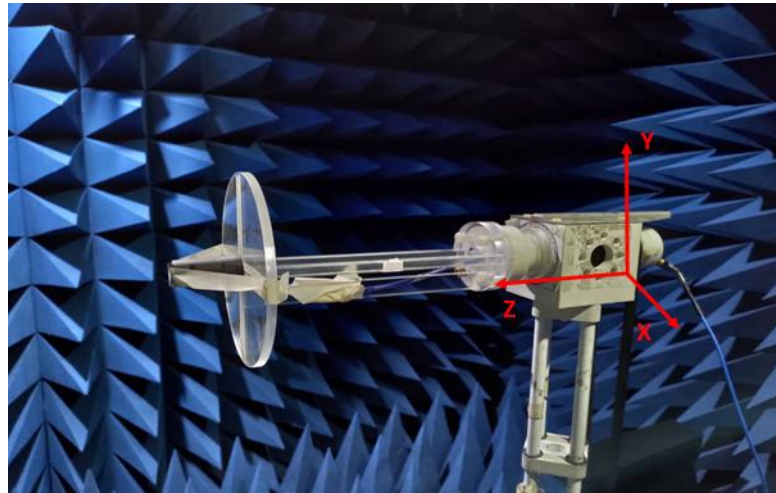


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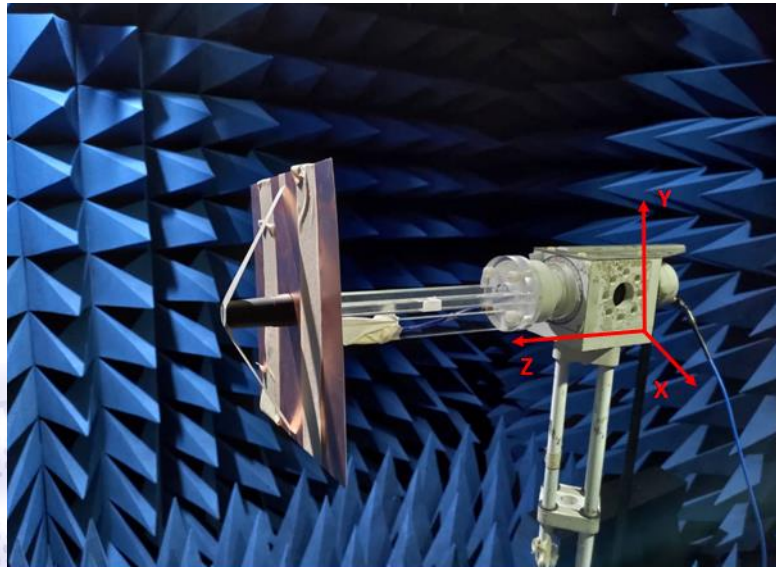
IV. Antenna Radiation Pattern Measurement:

The antenna radiation patterns are measured in 3D Anechoic Chamber.
The measurement setup is as show below,

Free Space



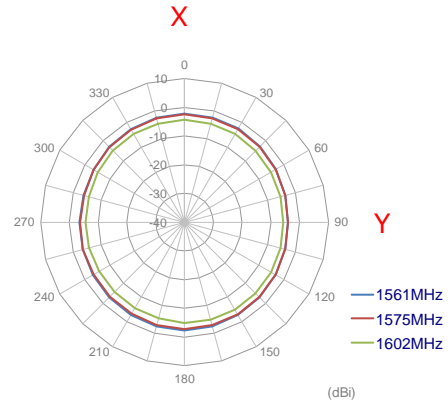
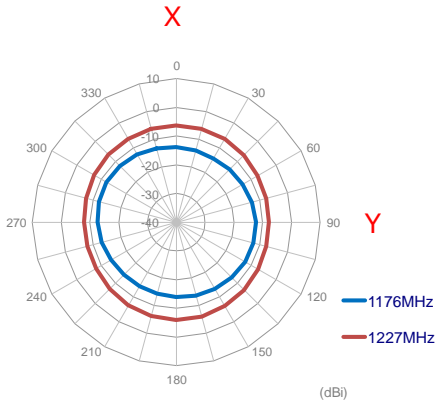
With Ground Plane



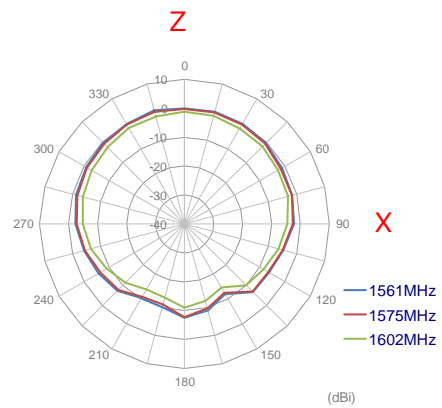
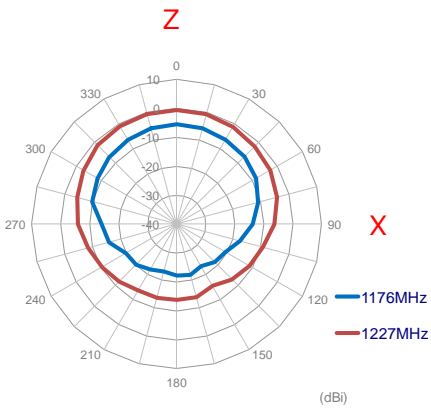
A) 2D Radiation Pattern:

a) Free Space

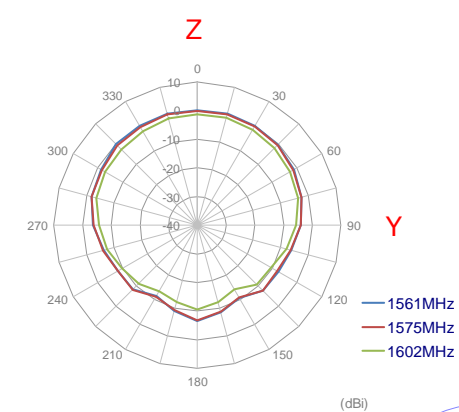
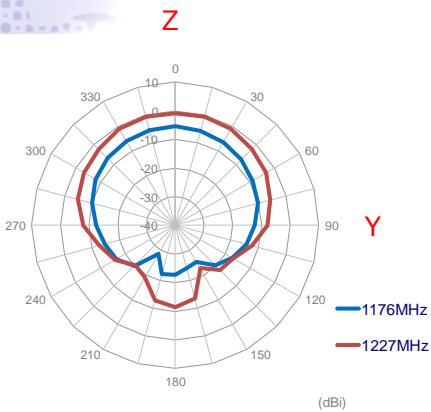
X-Y Plane



X-Z Plane



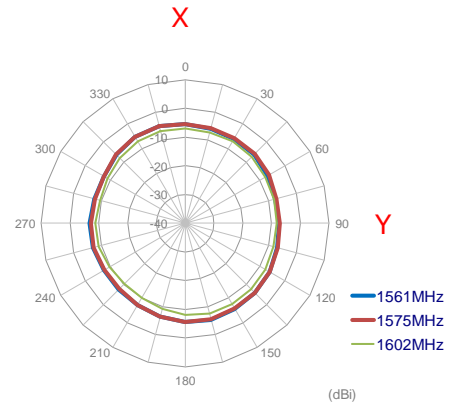
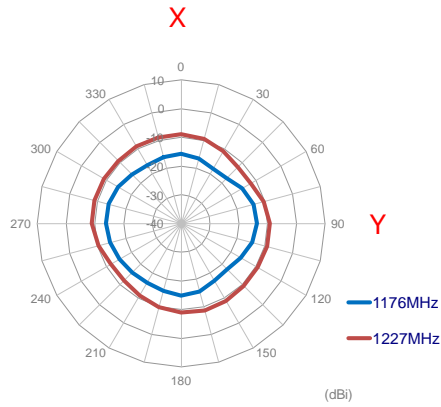
Y-Z Plane



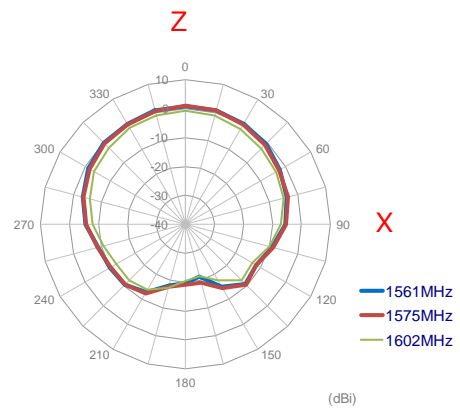
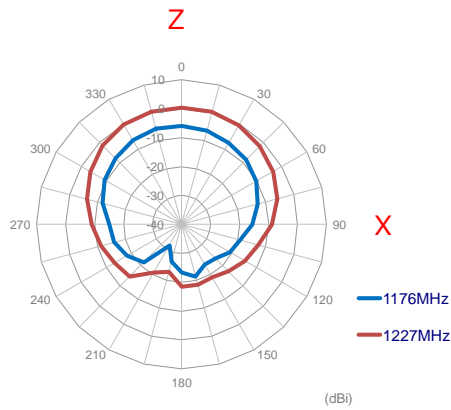
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b) With Ground Plane

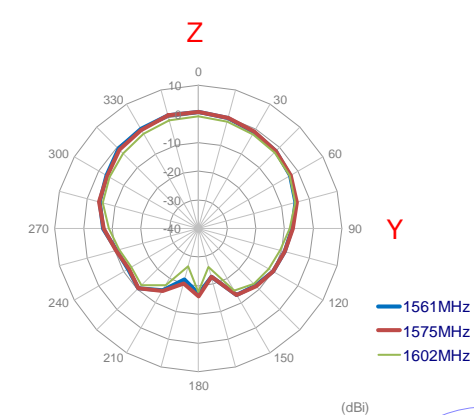
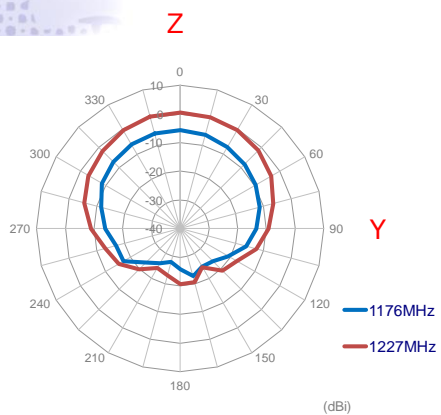
X-Y Plane



X-Z Plane



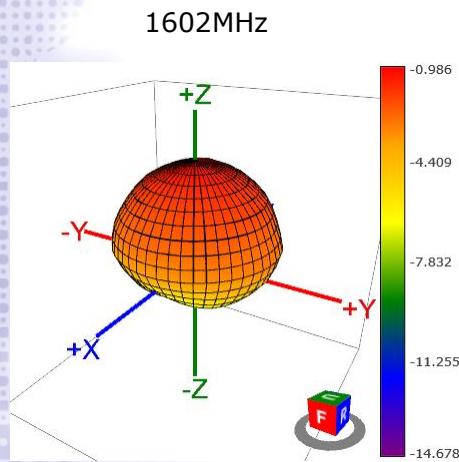
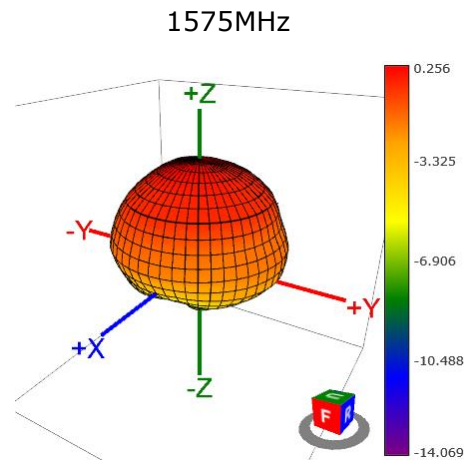
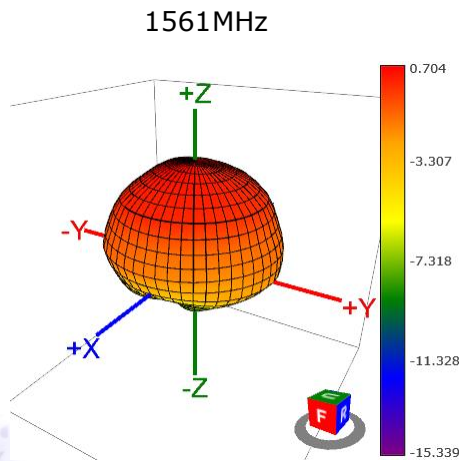
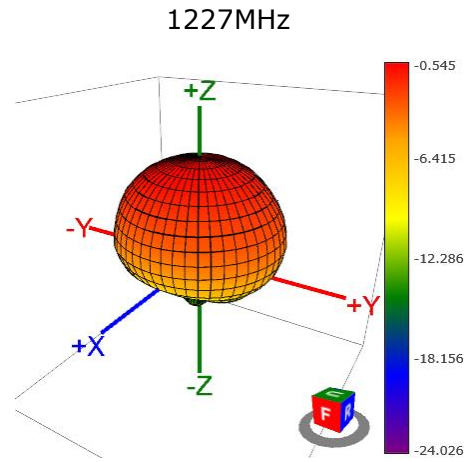
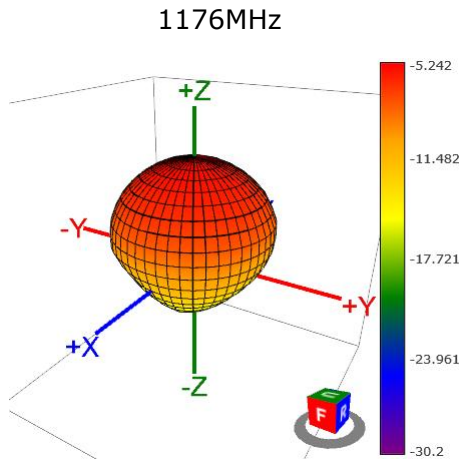
Y-Z Plane



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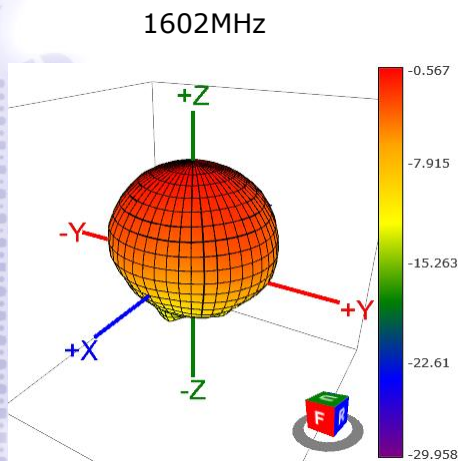
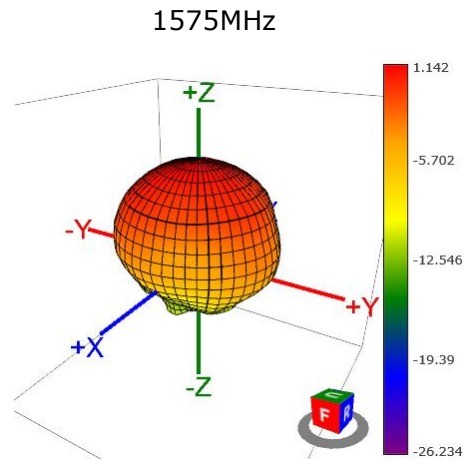
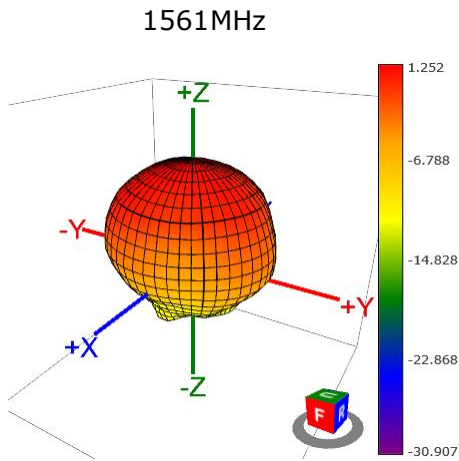
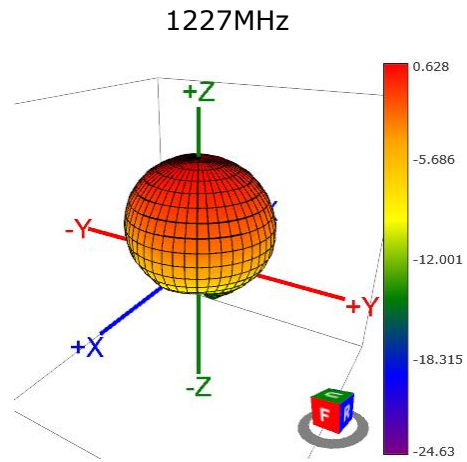
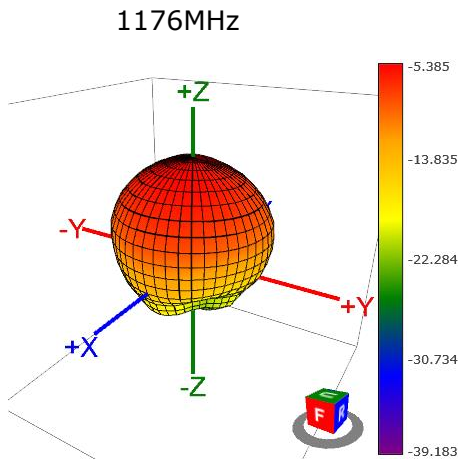
B) 3D Radiation Pattern:

a) Free Space



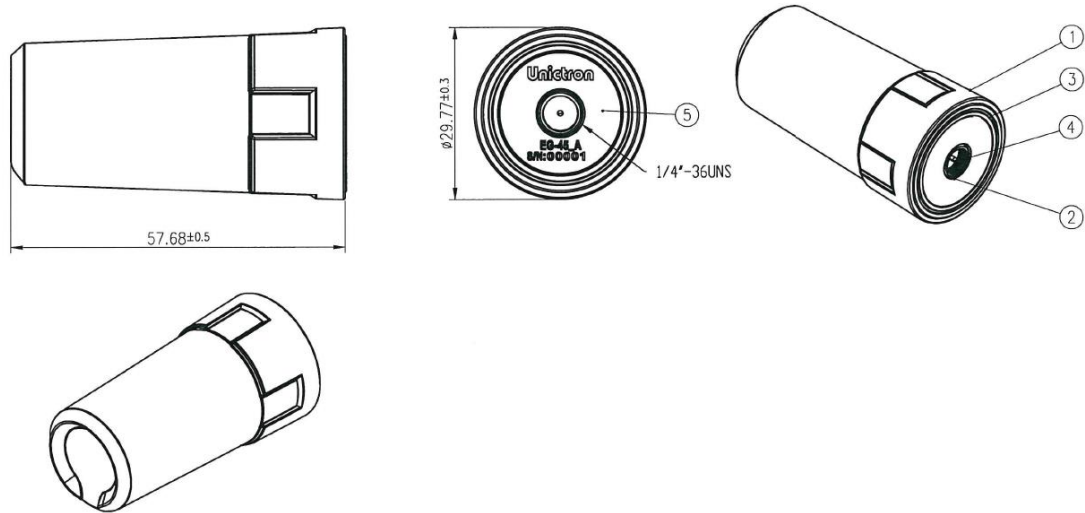
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b) With Ground Plane



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V. Mechanical Drawing (Unit:mm):



Notes:

1. All material must be RoHS compliant.
2. IP Code : Waterproof grade can reach IP67 once installed on a mating surface.

5	Label	PET	Silver	1
4	SMA PLUG	Brass	Au Plated	1
3	O-ring	Silicone	Black	1
2	Base	PC	Black	1
1	Top housing	PC	Black	1
No	NAME	MATERIAL	FINISH	QTY

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