



**Product Name:** External GNSS L1 / L2 Antenna

**Part Number:** EG-45B-DC-A01

**Features:**

- Support GPS L1/ GLONASS L1/ BeiDou L1/ GPS L2 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 Antenna

# External GNSS L1 / L2 Antenna

## MODEL: EG-45B-DC-A01

Rev.A

### I. Specifications:

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

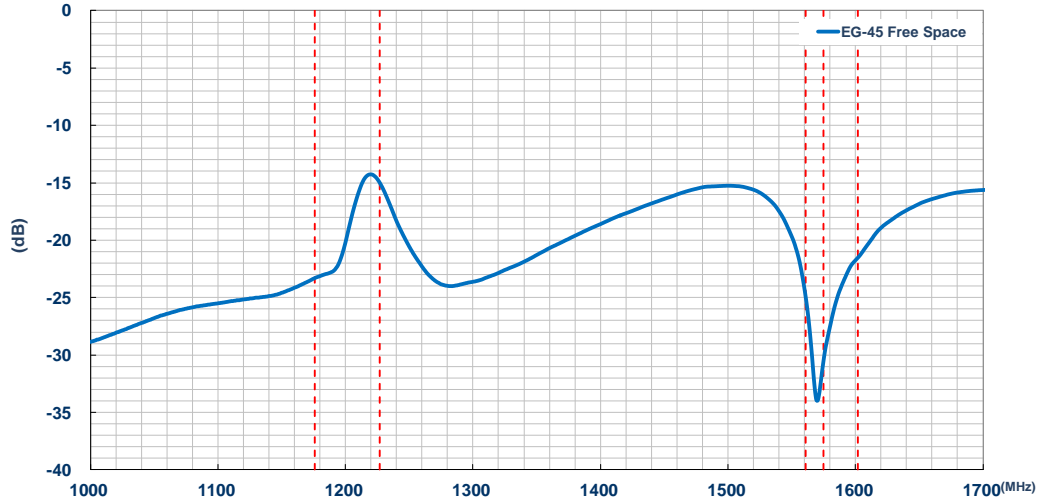
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Active Antenna Performance				
<b>Application bands</b>	GPS L2	BeiDou L1	GPS L1	GLONASS L1
<b>Frequencies (MHz)</b>	1227 ± 5	1561 ± 5	1575.42 ± 1.023	1602 ± 5
<b>Gain (dB)</b>	37	39	39	39
<b>Noise Figure (dB)</b>	1.2	1.4	1.4	1.4
<b>Operation Voltage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

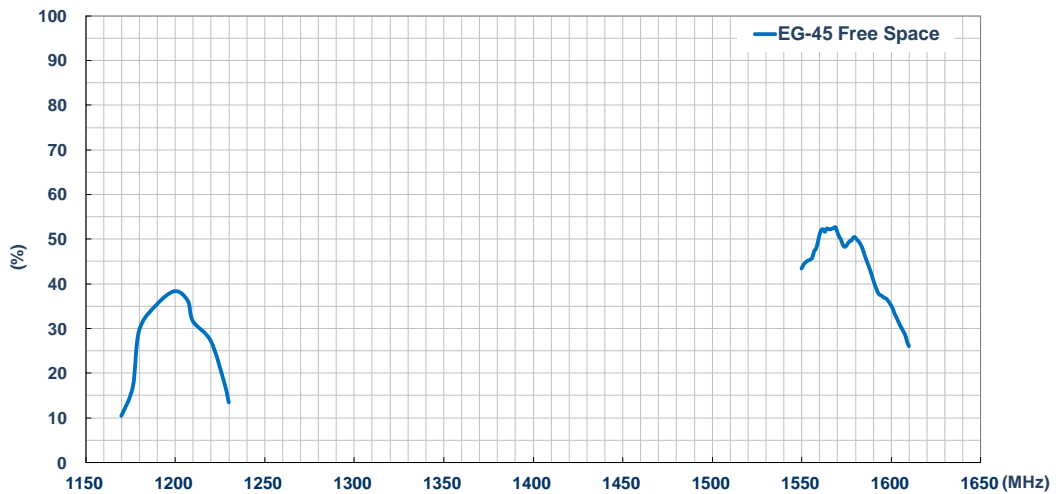
## II. Passive Electrical Properties:

### A) Testing Condition : Free Space

S11 (dB)

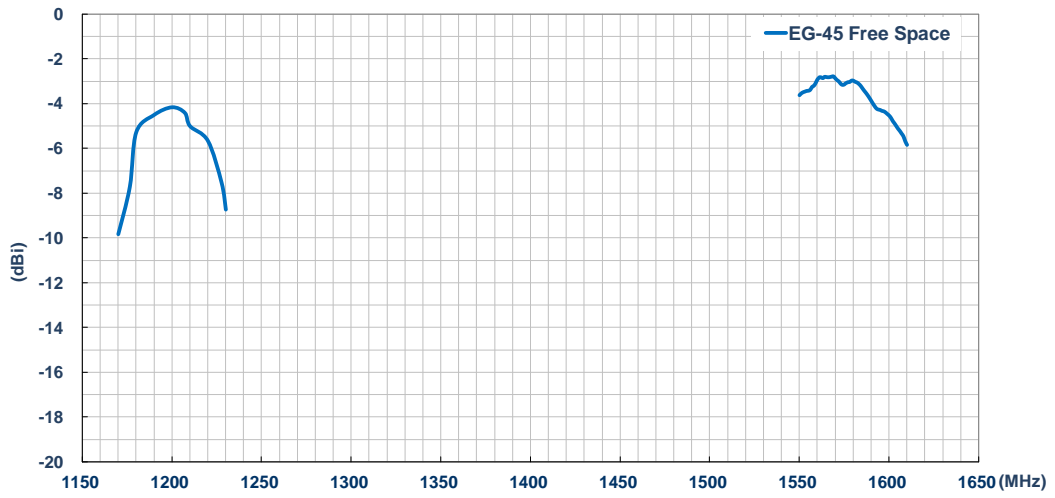


Efficiency (%)

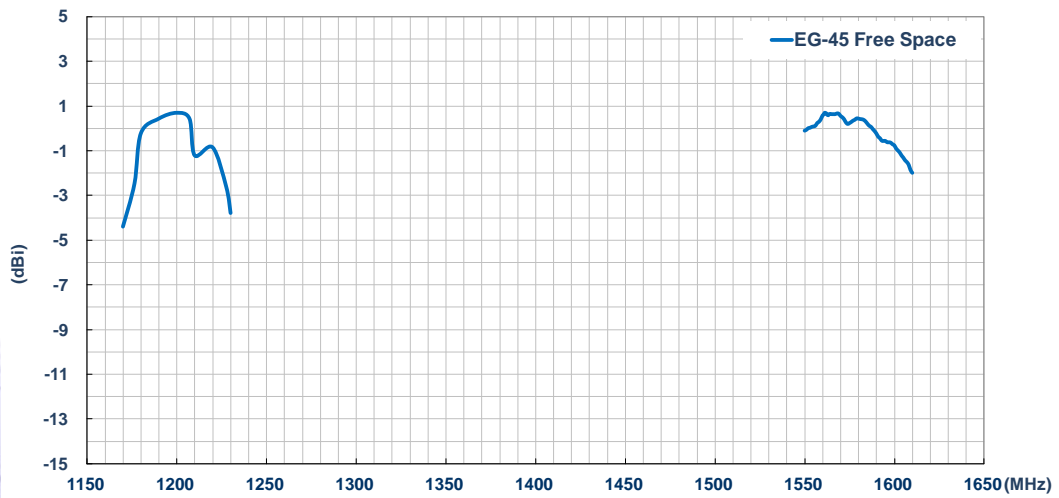


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Average Gain (dBi)

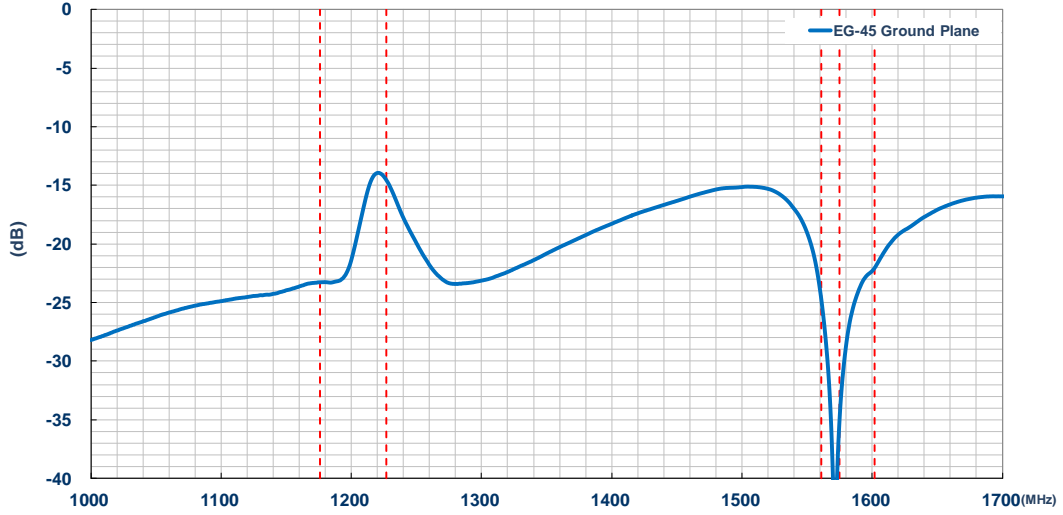


Peak Gain (dBi)

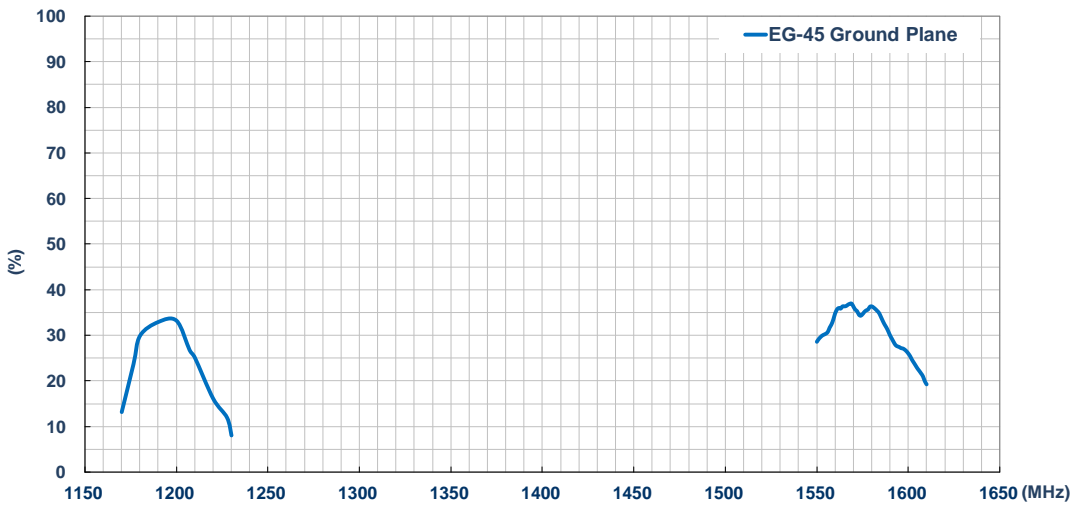


**B) Testing Condition : With Ground Plane (310 x 225 mm<sup>2</sup>)**

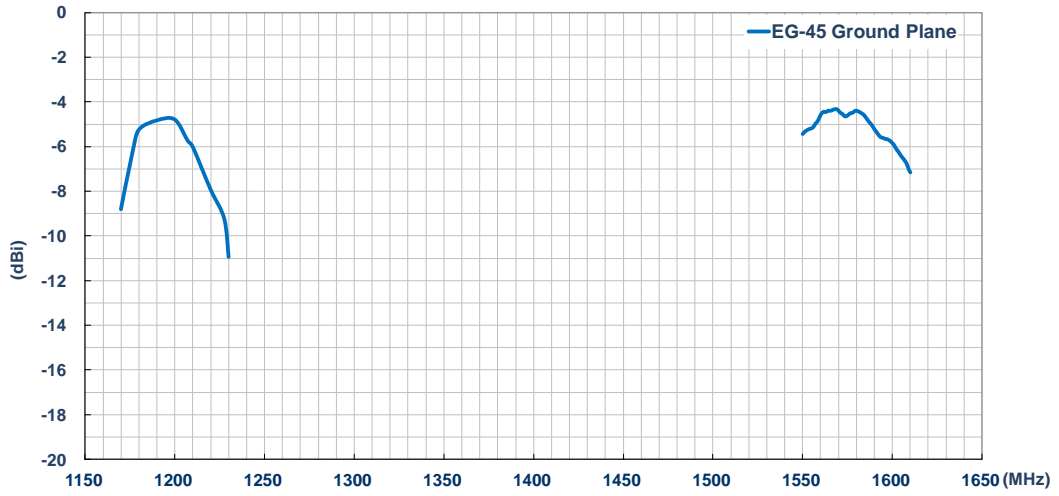
S11 (dB)



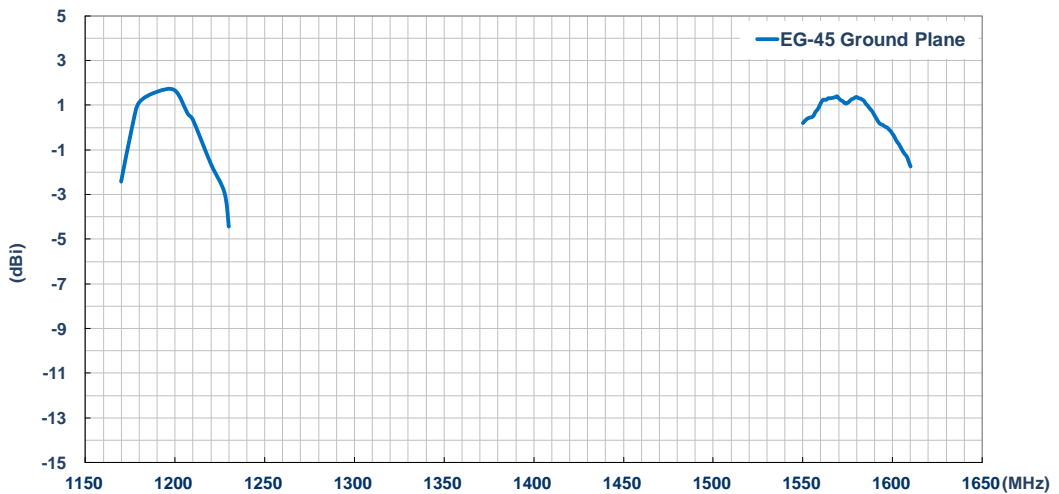
Efficiency (%)



Average Gain (dBi)



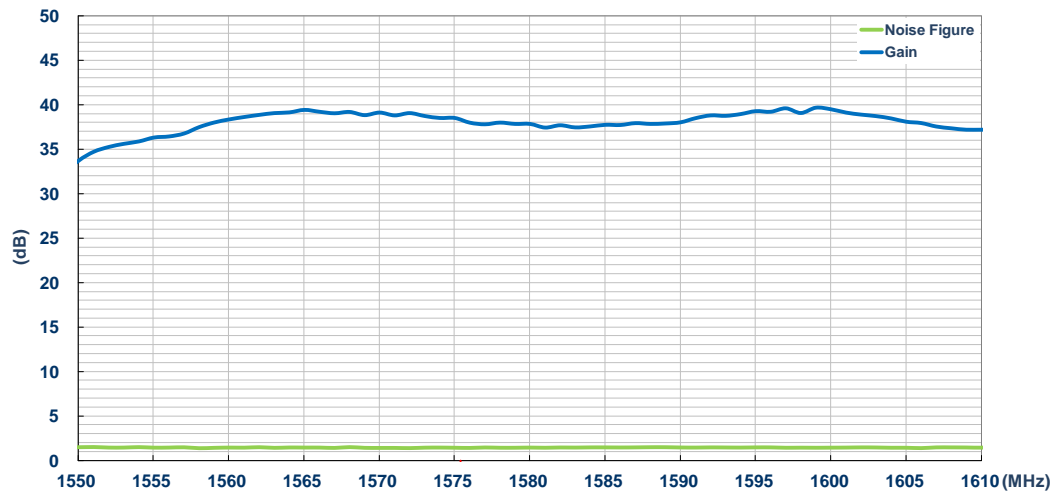
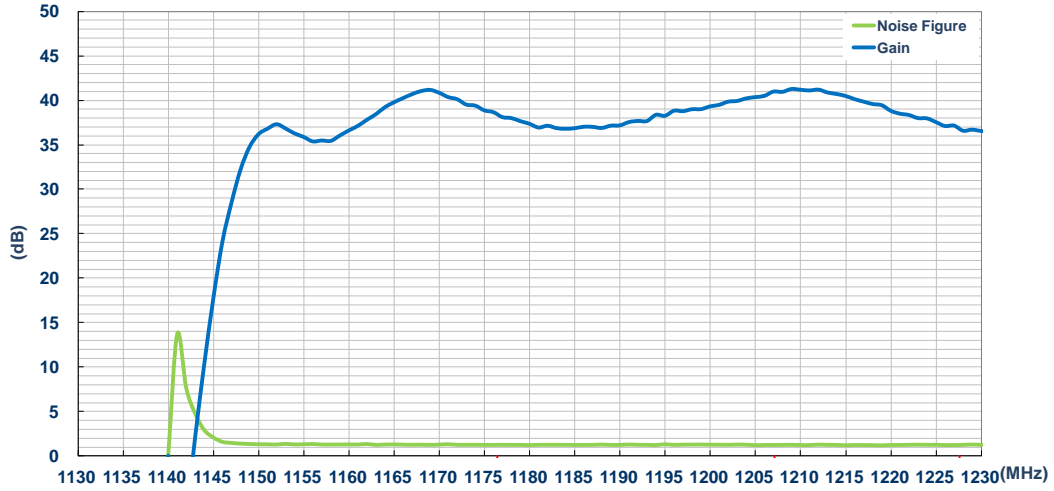
Peak Gain (dBi)



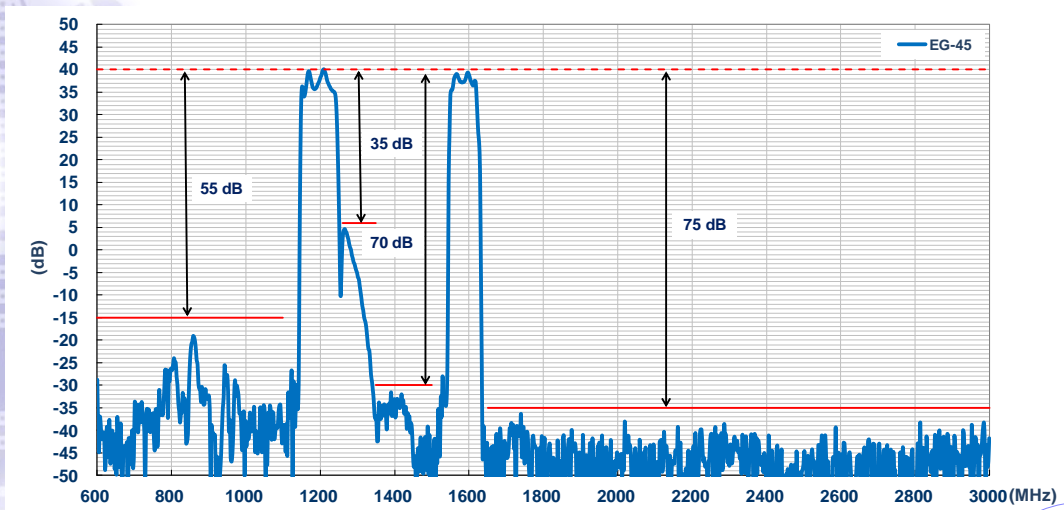


### III. Active Electrical Properties:

Noise Figure & Gain (dB)



Out of Band Rejection (dB)



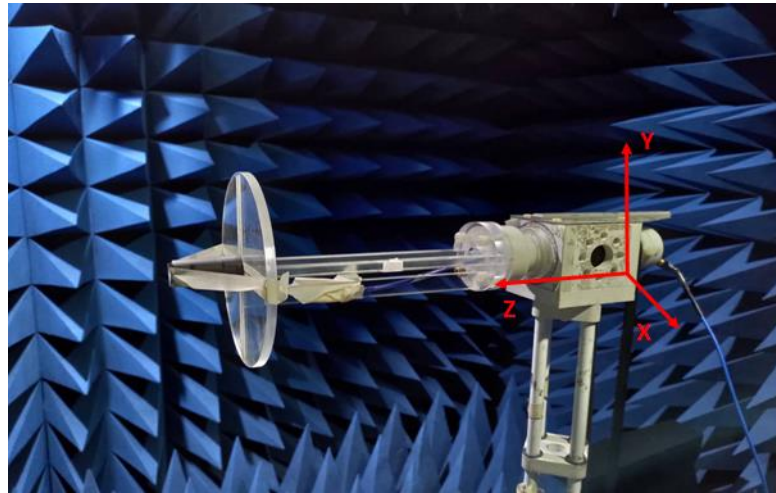
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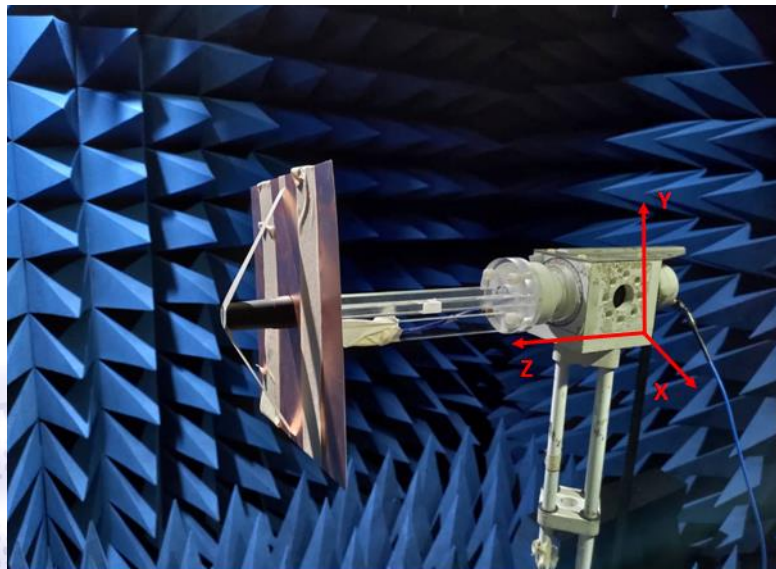
#### IV. Antenna Radiation Pattern Measurement:

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

Free Space



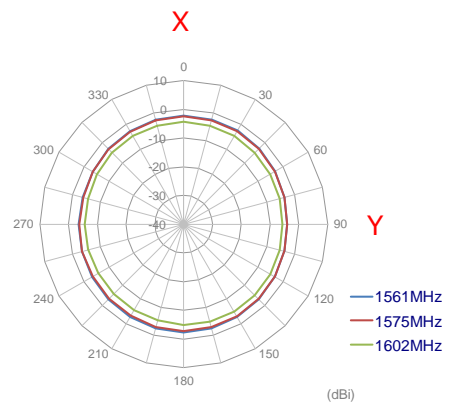
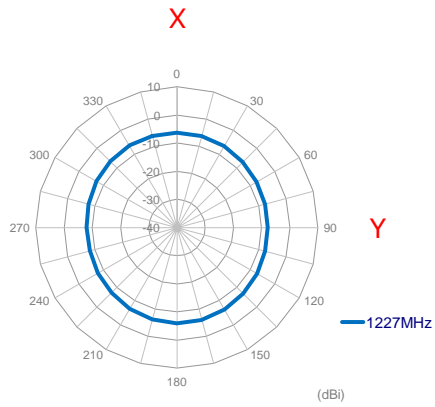
With Ground Plane



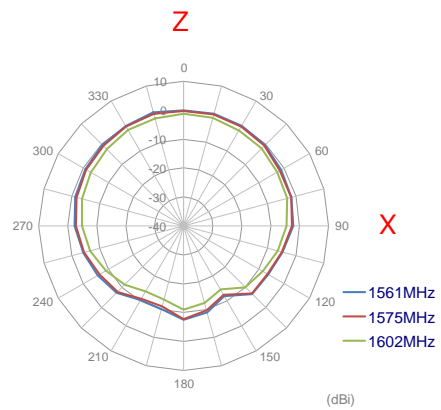
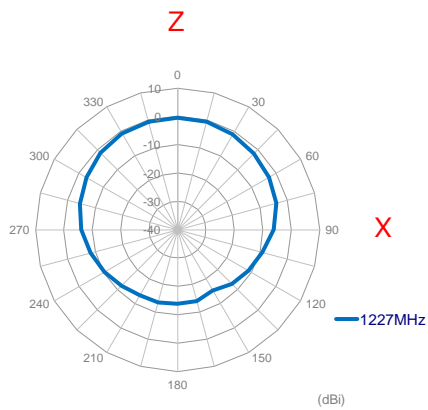
## A) 2D Radiation Pattern:

### a) Free Space

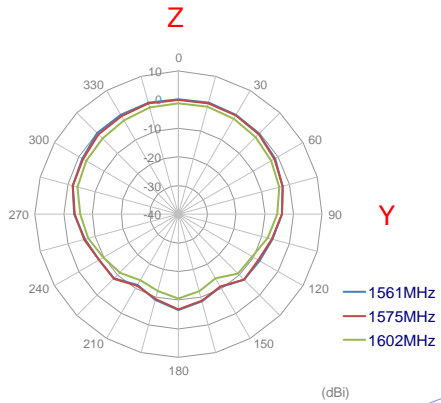
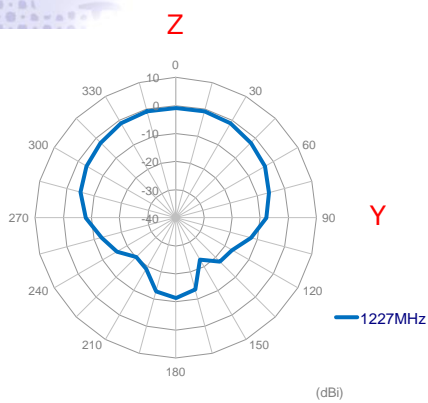
#### X-Y Plane



#### X-Z Plane



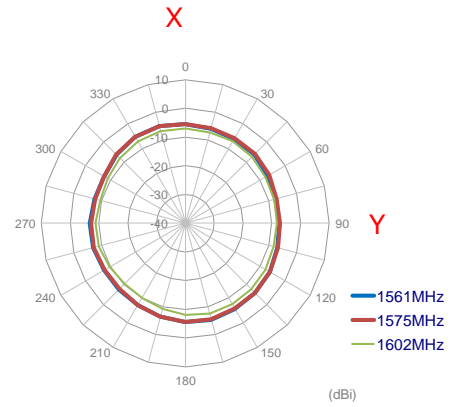
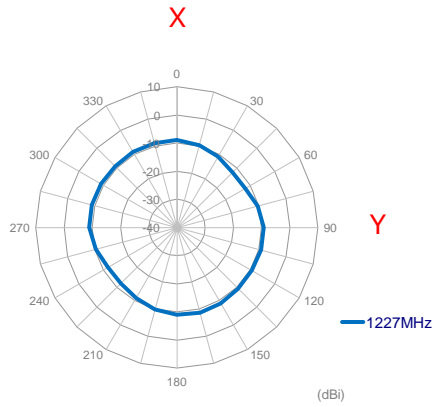
#### Y-Z Plane



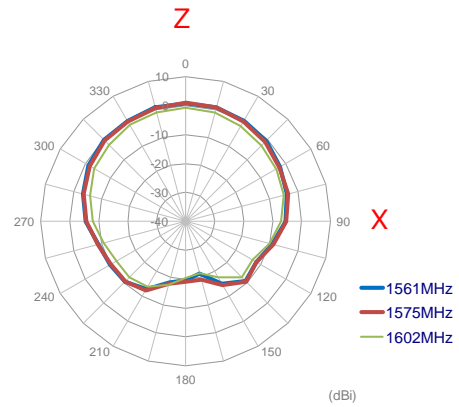
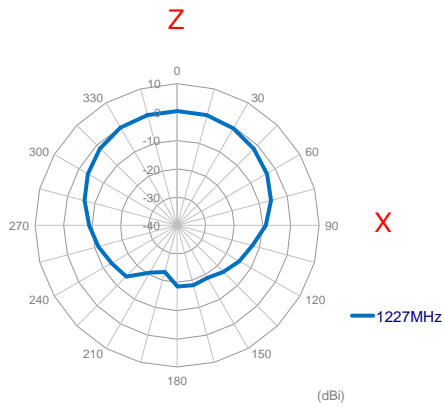
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## b) With Ground Plane

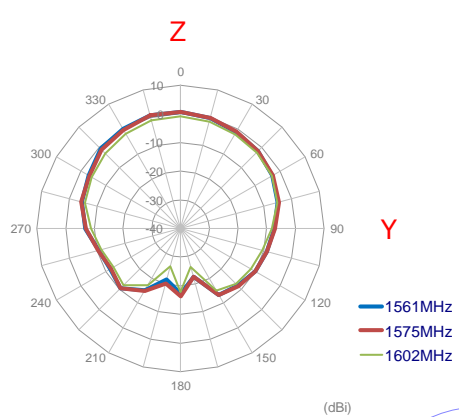
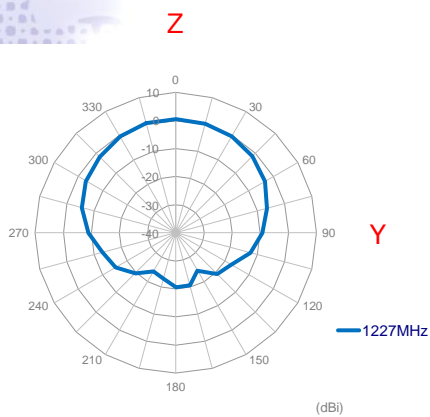
### X-Y Plane



### X-Z Plane

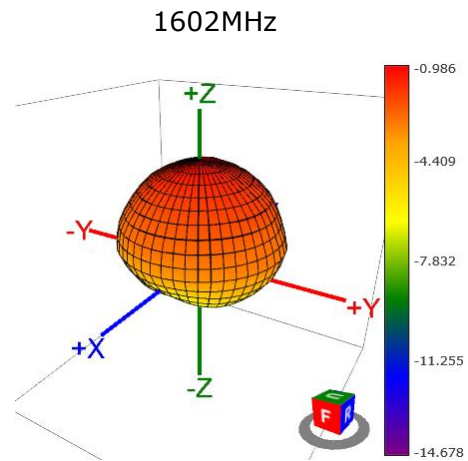
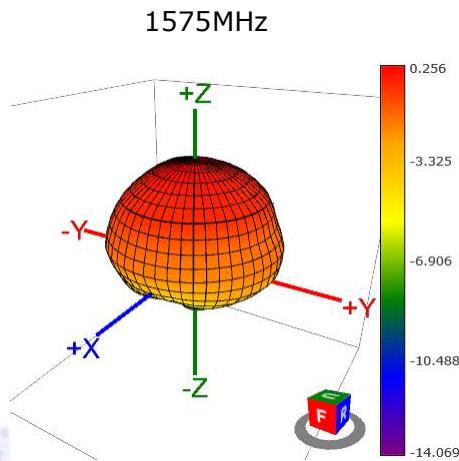
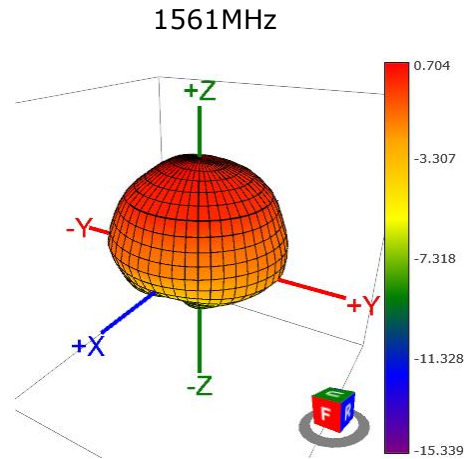
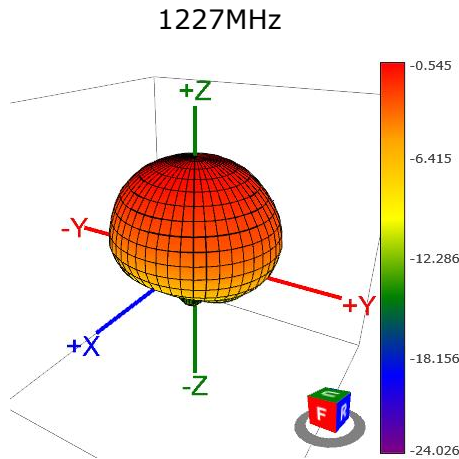


### Y-Z Plane

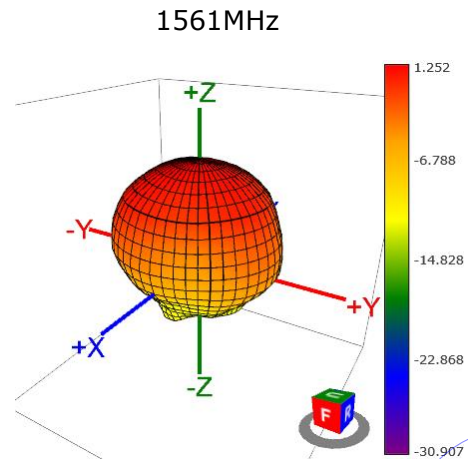
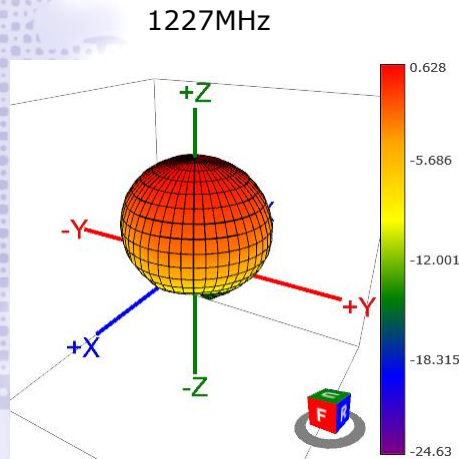


## B) 3D Radiation Pattern:

### a) Free Space

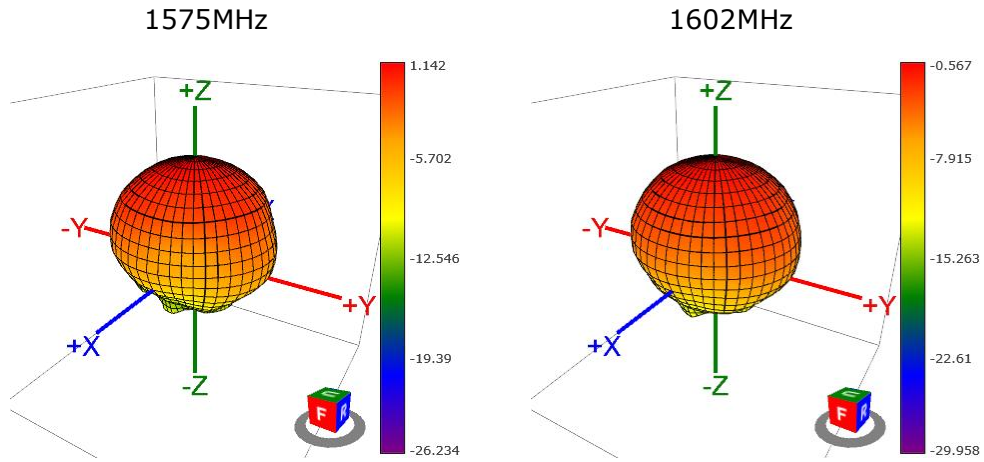


### b) With Ground Plane

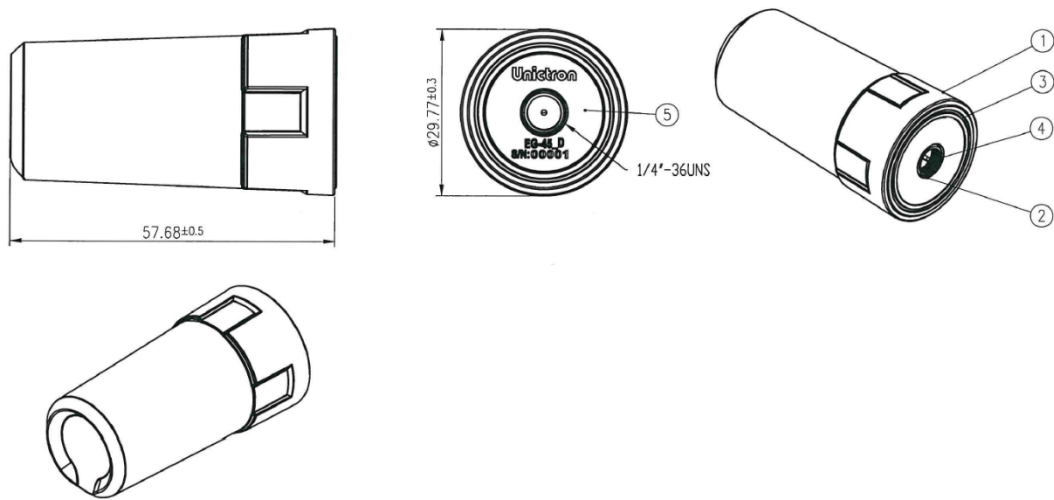


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## V. Mechanical Drawing (Unit:mm):



- 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	Q'TY