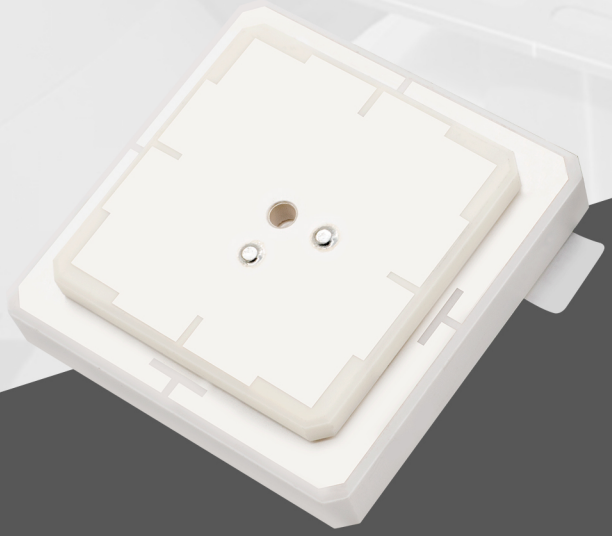
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Datasheet

Circularly Polarized Passive GNSS Embedded Ceramic Patch Antenna

Model: AIGC040

PN: M04-0104690R0A

Covering Bands:

- GPS/QZSS (L1/L2)
- GPS/QZSS/IRNSS (L5)
- Galileo (E1/E5a/E5b)
- GLONASS (G1/G2/G3)
- BeiDou (B1/B2a/B2b)

Features:

Ceramic Patch Element
Four Feed, 4-Pin Configuration
Dimensions: 50 x 50 x 8+40 x 40 x4mm
Tuned for Φ109 mm Ground Plane
Low Axial Ratio
Adhesive Mount
RoHS Compliant

ABOOSTY

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FEATURES & BENEFITS

- Ceramic Patch Element
- Compact, Multi-system Compatible
- Four Feed, 4-Pin Configuration
- Low Axial Ratio
- Adhesive Mount
- Customization Available
- RoHS Compliant
- Covering Bands: GPS， Bei Dou，GLONASS，Galileo

APPLICATIONS

- Satellite Navigation Receivers
- Geodetic Surveying and Mapping
- Channel Surveying and Mapping
- Precision Agriculture
- Marine Surveying
- Asset and Fleet Tracking
- Oil, Gas, and Mining Industries
- M2M Applications
- Hand-held/Portable Devices

ANTENNA IMAGE AND MOUNTING



3M adhesive backing
for easy mounting.

ORDER INFORMATION

Product Name	Circularly Polarized Passive GNSS Embedded Ceramic Stacked Patch Antenna
Model	AIGC040
Part Number	M04-0104690R0A
Dimensions	50 x 50 x 8+40 x 40 x 4 mm
Weight	84.6 g
Mounting	Internal/Embedded/Adhesive Mount
Custom Options	Logo, Packaging, Cable and Connectors

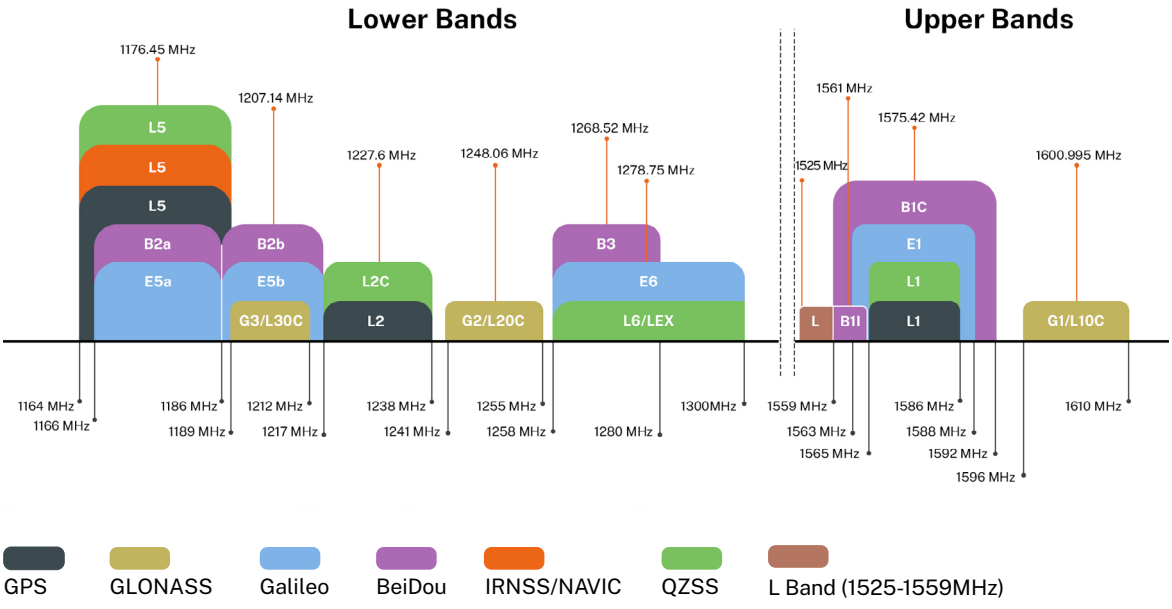
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GNSS FREQUENCY BANDS

GNSS Frequency Bands Covered					
GPS	L1	L2	L5		
	●	●	●		
GLONASS	G1	G2	G3		
	●	●	●		
Galileo	E1	E5a	E5b	E6	
	●	●	●	○	
Bei Dou	B1I	B1C	B2a	B2b	B3
	●	●	●	●	○
QZSS (Regional)	L1	L2C	L5	L6	
	●	●	●	○	
IRNSS(Regional)	L5				
	●				
SBAS	L1/E1/B1	L5/B2a/E5a	G1	G2	G3
	●	●	●	●	●

*SBAS systems: WASS(L1/L5), EGNOSS(E1/E5a), SDCM(G1/G2/G3), SNAS(B1,B2a), GAGAN(L1/L5), QZSS(L1/L5), KAZZ(L1/L5).



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REFERENCE GUIDE

Antenna					
Center Frequency	**1170-1230 MHz**		**1559-1602 MHz**		
Frequency Band	L2	L5	B1	L1	G1
Return Loss (dB)	≥ 15		≥ 15		
Peak Gain (dBi)	4.47		5.86		
Axial Ratio (dB)	<3				
Polarization	RHCP				
Radiation Pattern	Directional				
Input Impedance	50 Ω				
Environmental					
Operating Temperature	-40°C to +75°C				
Storage Temperature	-40°C to +85°C				
Relative Humidity	40% to 95%				
Vibration	Wave Form: Random Vibration				
	Test Time: 30min/Axis				
	Direction: X, Y, Z Axis				
	PSD Break Points for 9.8 RMS (m/s^2)	Frequency (Hz)	50	300	
		Acceleration $((m/s^2)^2/Hz)$	0.38416	0.38416	
RoHS Compliant	Yes				

All data were measured with a Φ109 mm ground plane. Application data might vary.

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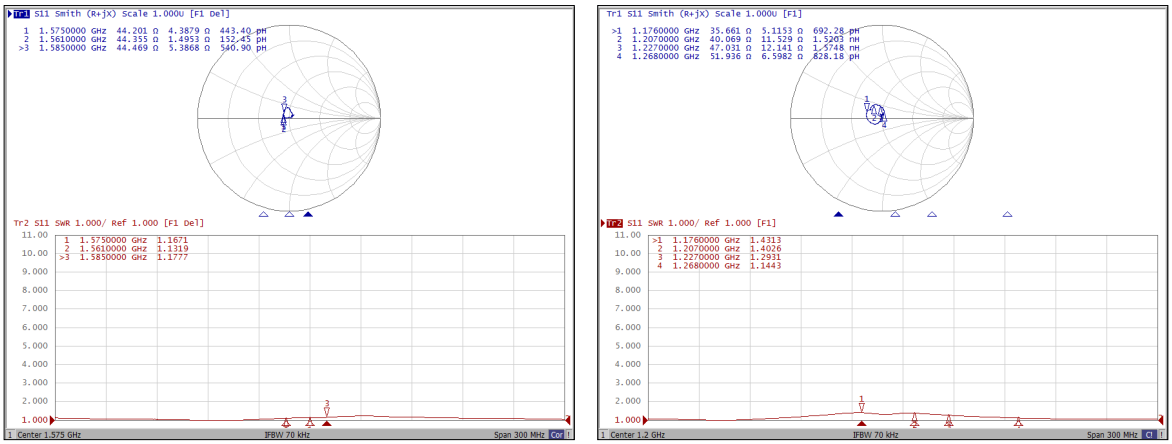
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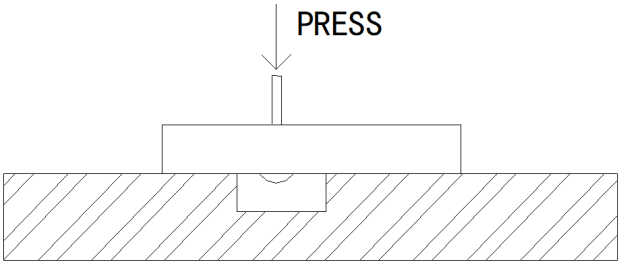
ELECTRICAL PERFORMANCE

◎ Note

All data displayed in "ELECTRICAL PERFORMANCE" were measured with an Φ109 mm ground plane.

S11



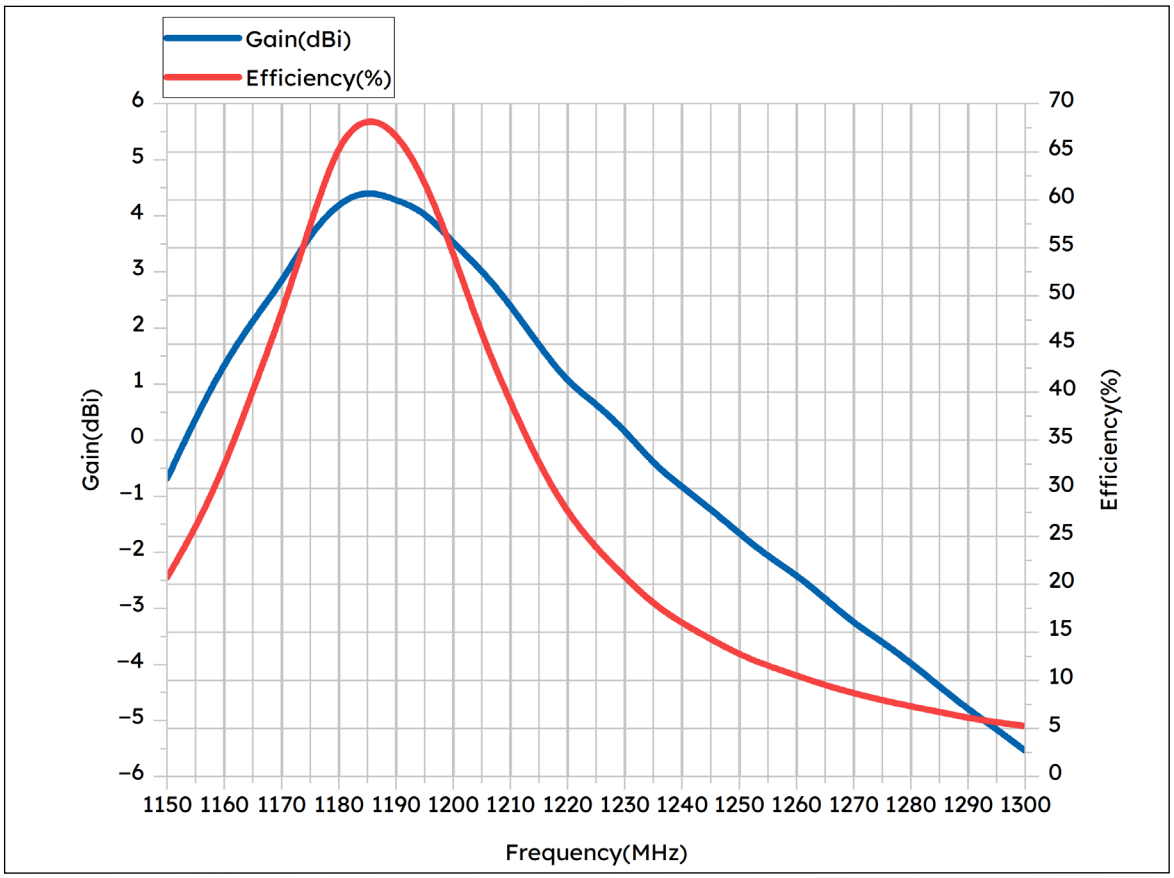


Item	Specification After Test (MHz)
Center Frequency Change	±2.0
-10dB Bandwidth Change	±2.0

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Passive Gain (dBi) and Total Efficiency (%)



Freq (MHz)	Gain (dBi)	Effi. (%)	Freq (MHz)	Gain (dBi)	Effi. (%)
1150	-0.68	20.77	**1230**	0.18	20.78
1155	0.41	25.9	**1235**	-0.42	17.94
1160	1.37	32.27	**1240**	-0.83	15.99
1165	2.14	40.21	**1245**	-1.23	14.31
1170	2.82	48.22	**1250**	-1.66	12.71
1175	3.69	57.51	**1255**	-2.07	11.54
1180	4.25	66.34	**1260**	-2.4	10.53
1185	4.47	68.8	**1265**	-2.82	9.53
1190	4.29	67.22	**1270**	-3.26	8.7
1195	4.09	62.19	**1275**	-3.59	7.96
1200	3.52	54.54	**1280**	-3.97	7.32
1205	3.04	45.86	**1285**	-4.39	6.73
1210	2.41	38.9	**1290**	-4.8	6.11
1215	1.69	32.47	**1295**	-5.15	5.66

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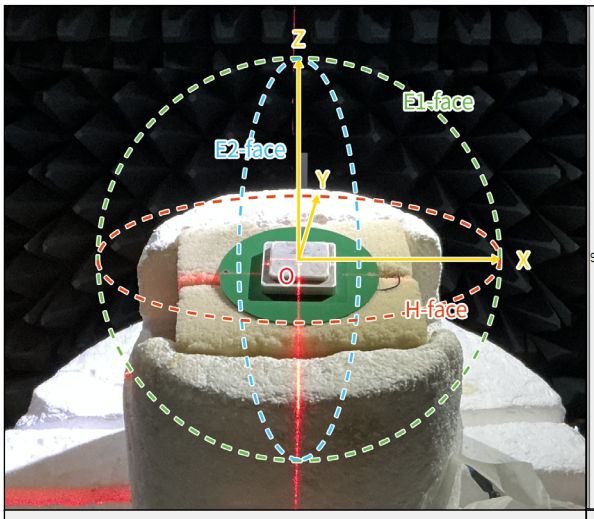
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1220	1.03	27.42	**1300**	-5.54	5.27
1225	0.65	23.76			

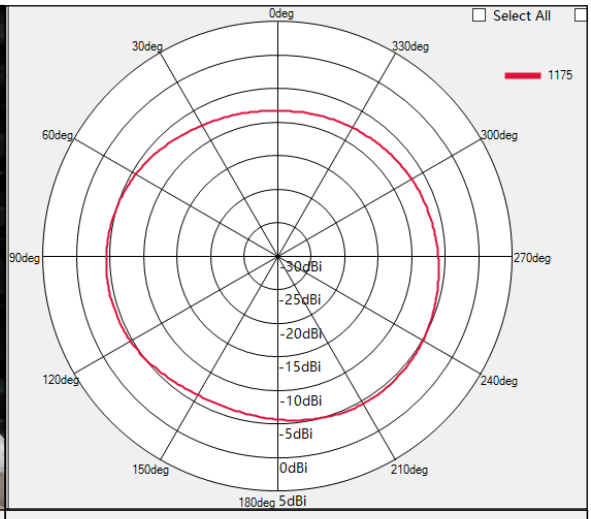
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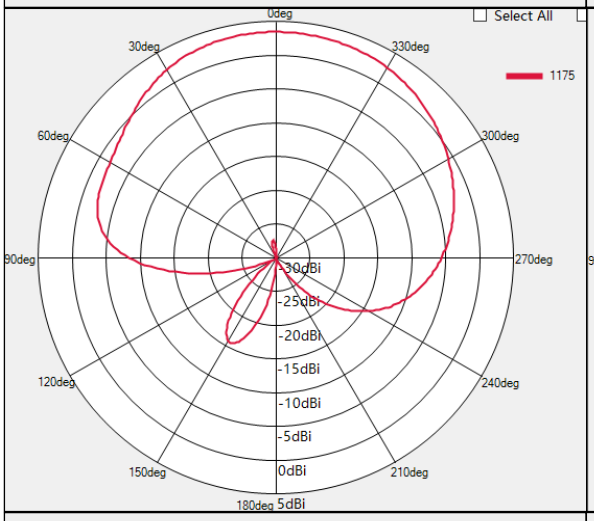
2D Radiation Patterns (1175MHz)



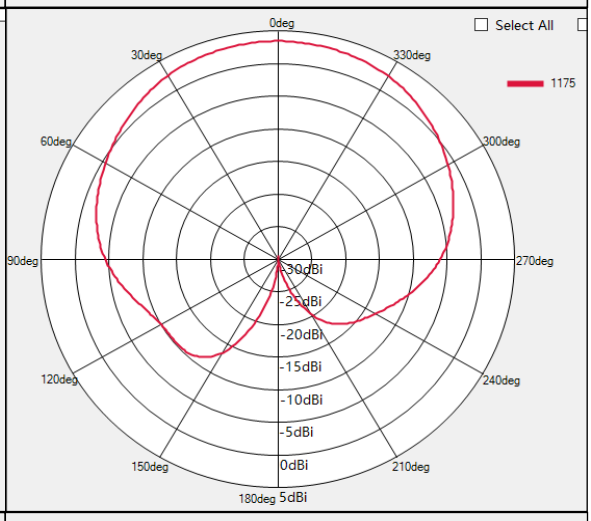
The Antenna in the Aboosty's Anechoic Chamber



θ = 90° Plane XY at 1175 MHz



Φ = 0° Plane XZ at 1175 MHz

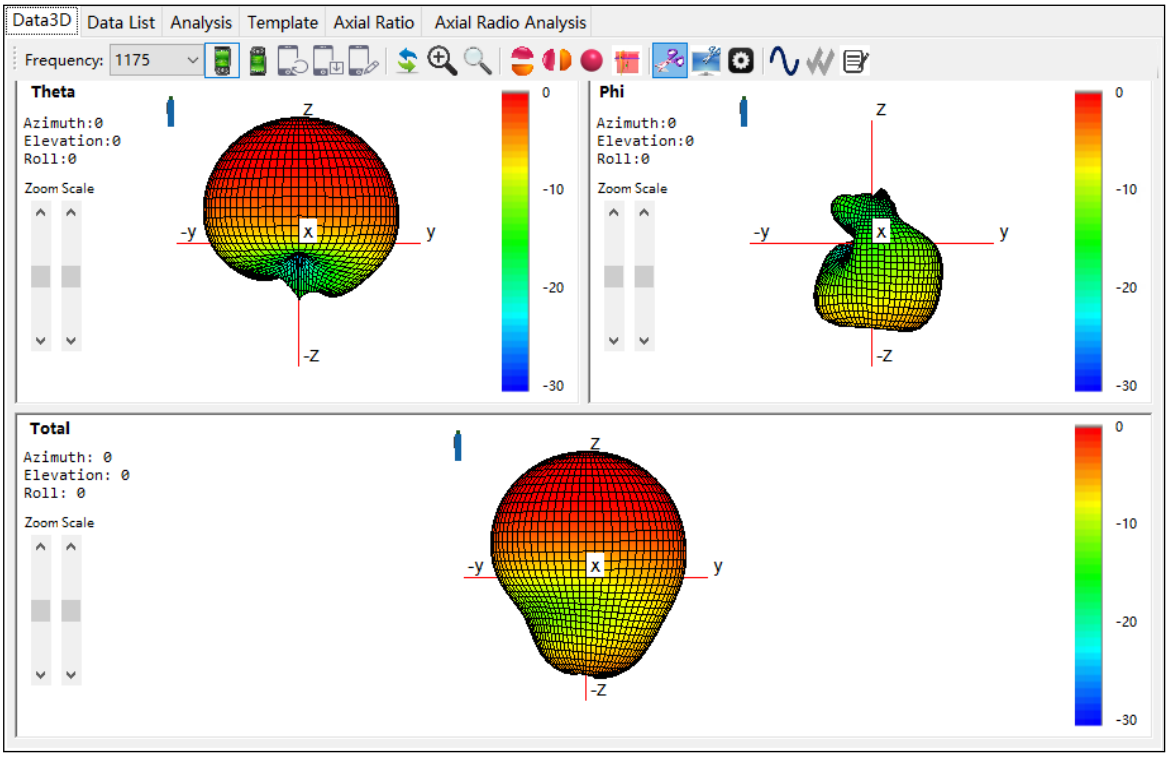


Φ = 90° Plane YZ at 1175 MHz

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3D Radiation Patterns (1175MHz)

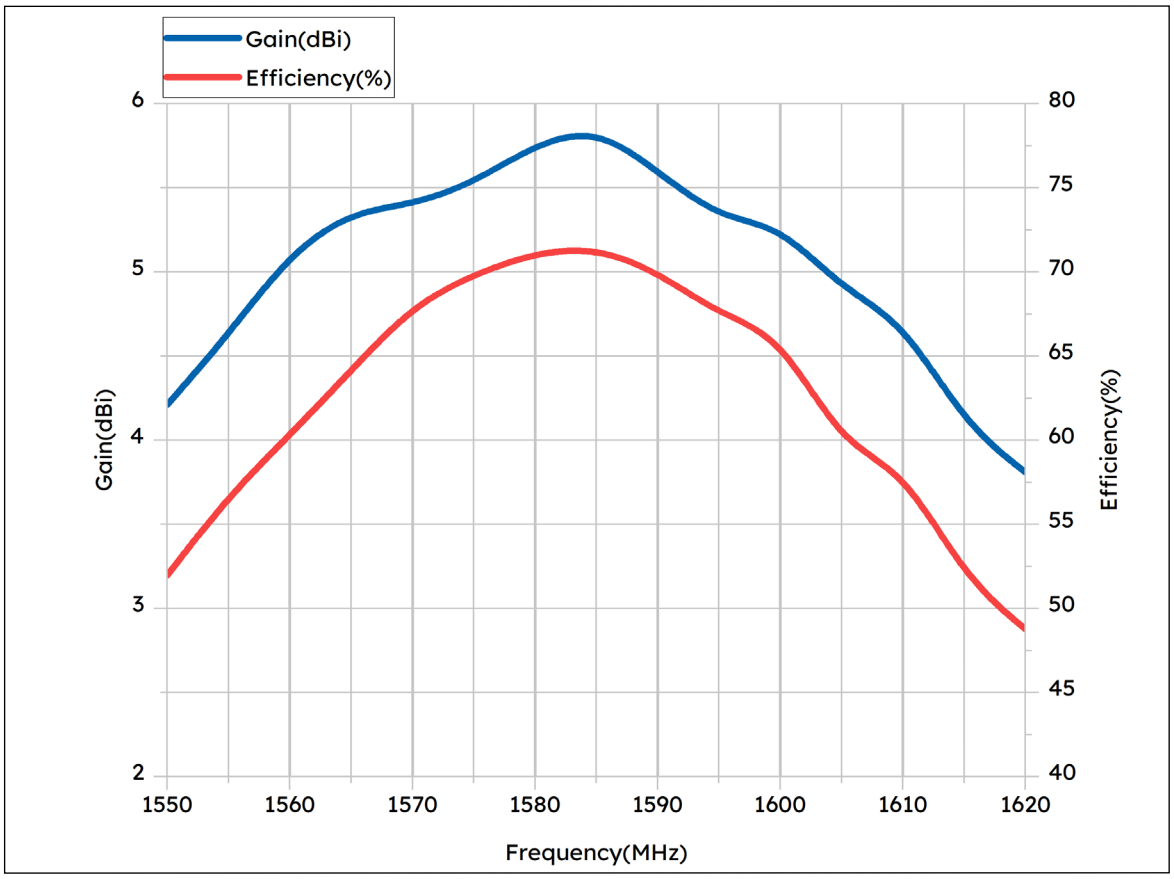


3D at 1175 MHz, Gain= 3.69 dBi

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Passive Gain (dBi) and Total Efficiency (%)

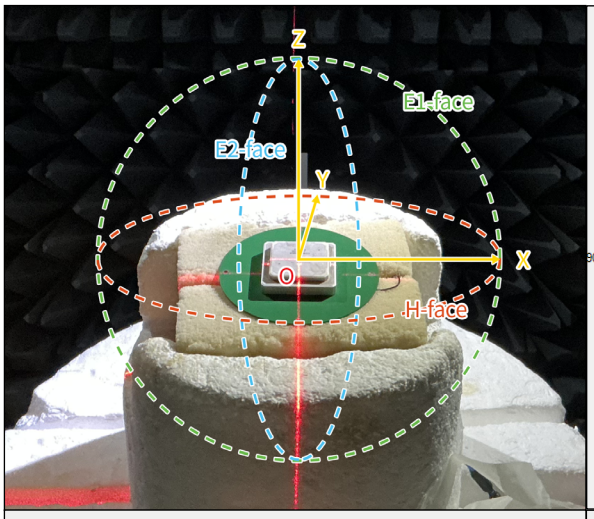


Freq (MHz)	Gain (dBi)	Effi. (%)
1550	4.21	51.97
1555	4.63	56.69
1560	5.11	60.3
1565	5.36	64.14
1570	5.4	68
1575	5.53	69.88
1580	5.76	71.15
1585	5.86	71.47
1590	5.6	70.01
1595	5.32	67.5
1600	5.28	66.28
1605	4.9	59.67
1610	4.71	58.35
1615	4.1	51.86
1620	3.81	48.78

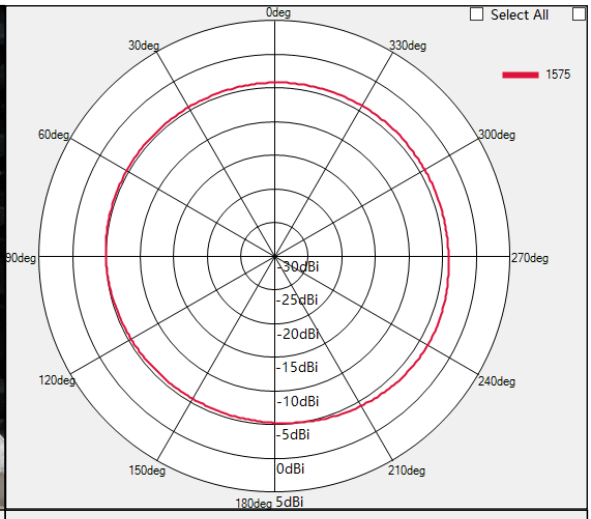
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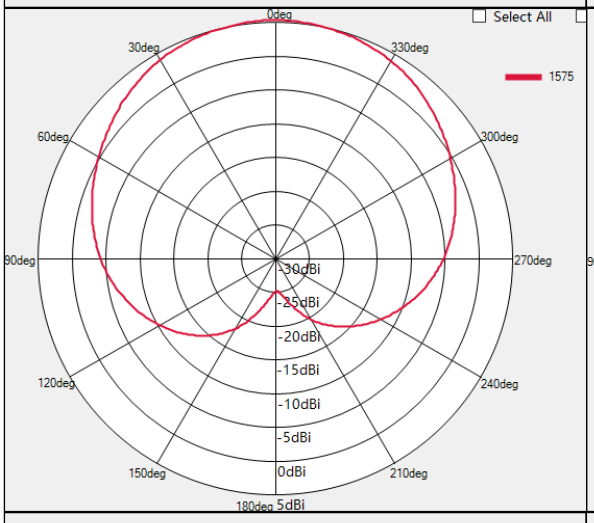
2D Radiation Patterns (1575MHz)



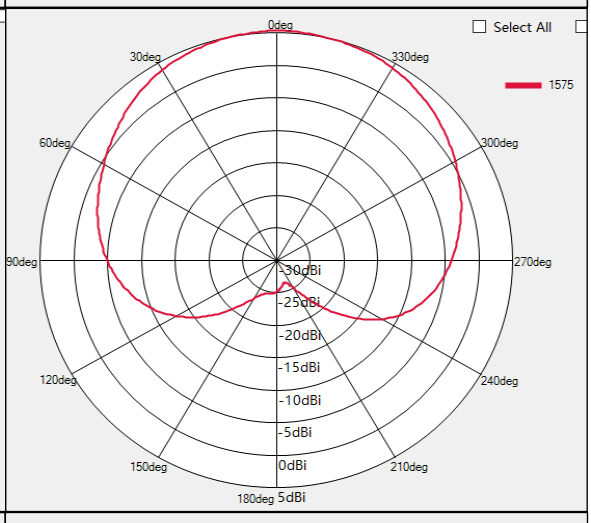
The Antenna in the Aboosty's Anechoic Chamber



θ = 90° Plane XY at 1575 MHz



Φ = 0° Plane XZ at 1575 MHz

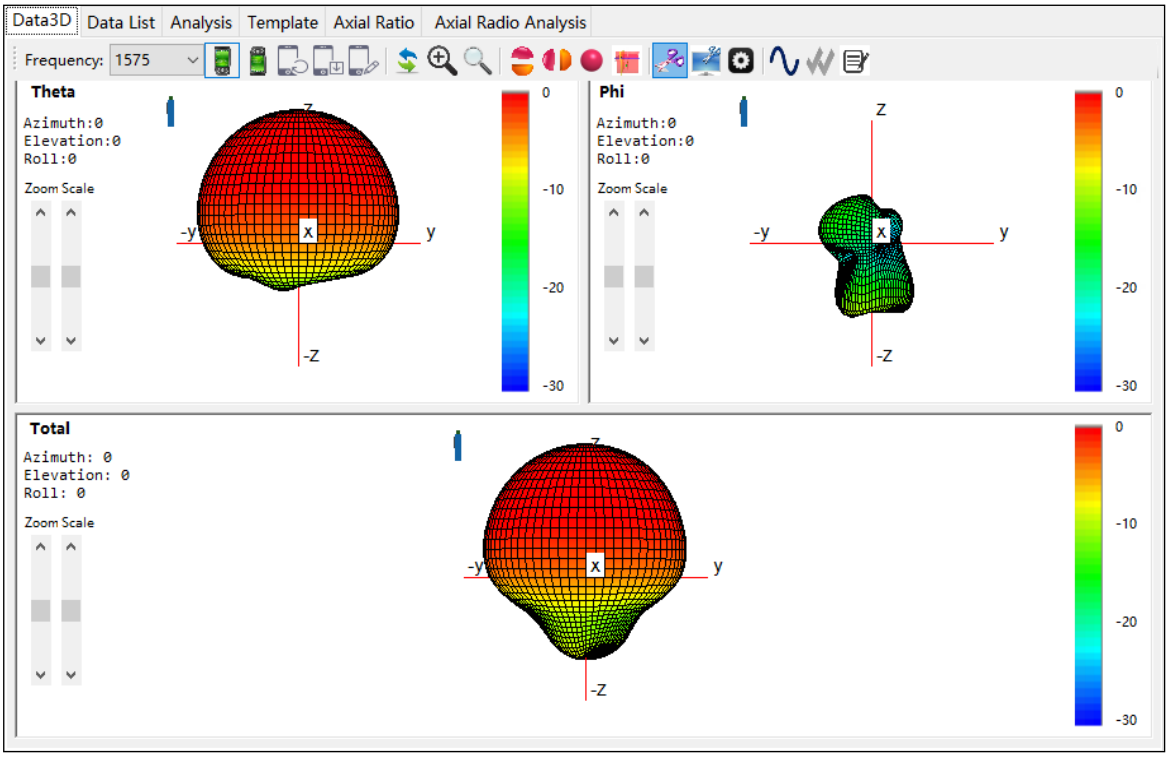


Φ = 90° Plane YZ at 1575 MHz

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3D Radiation Patterns (1575MHz)

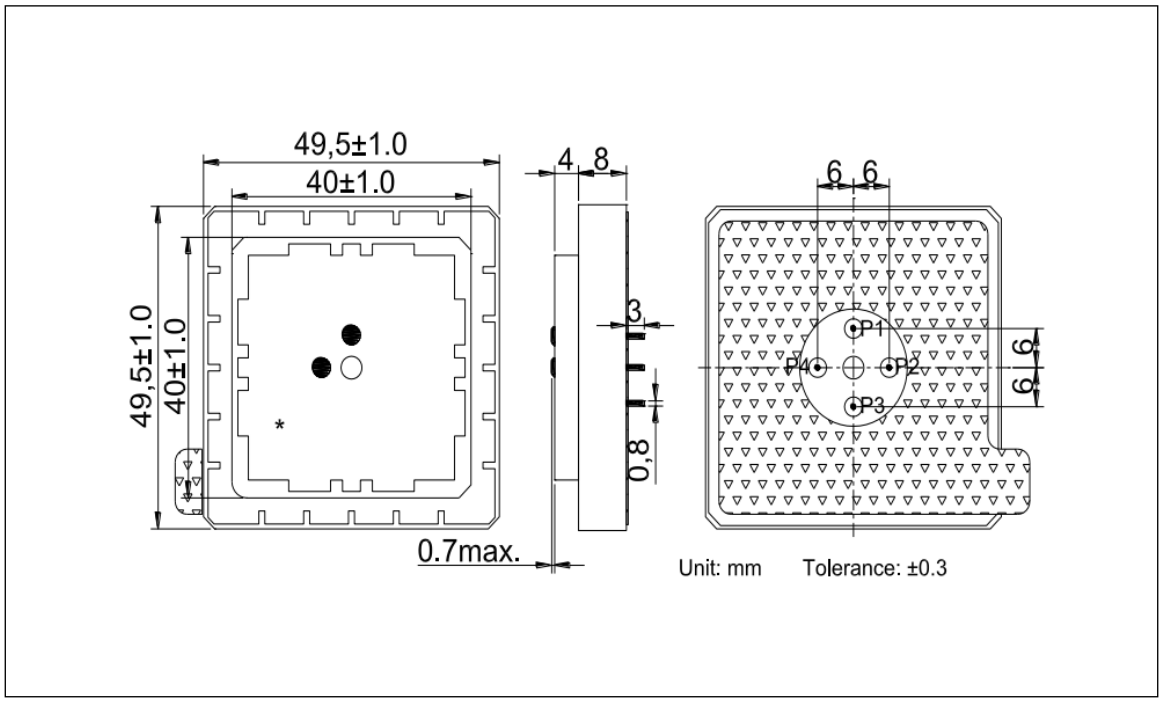


3D at 1575 MHz, Gain= 5.53 dBi

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MECHANICAL DIMENSIONS



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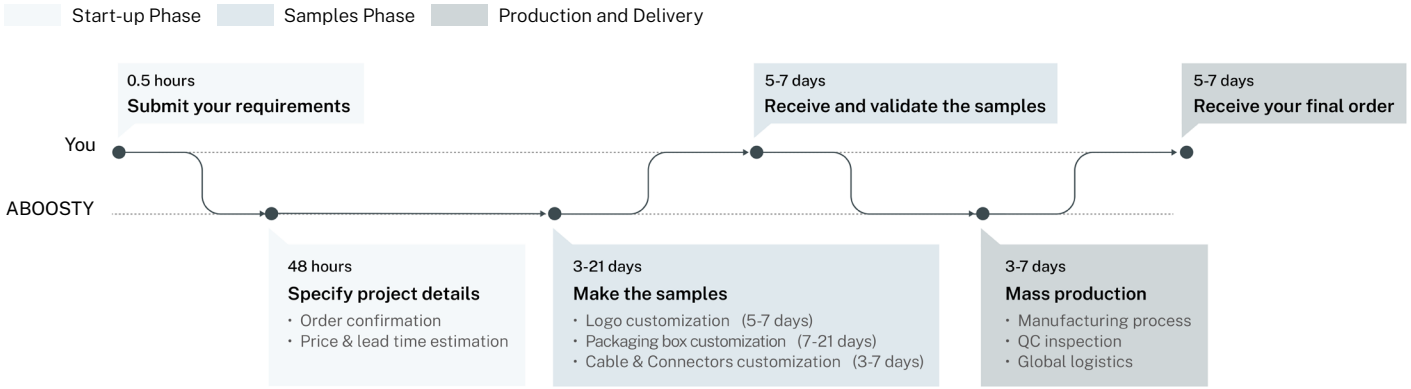
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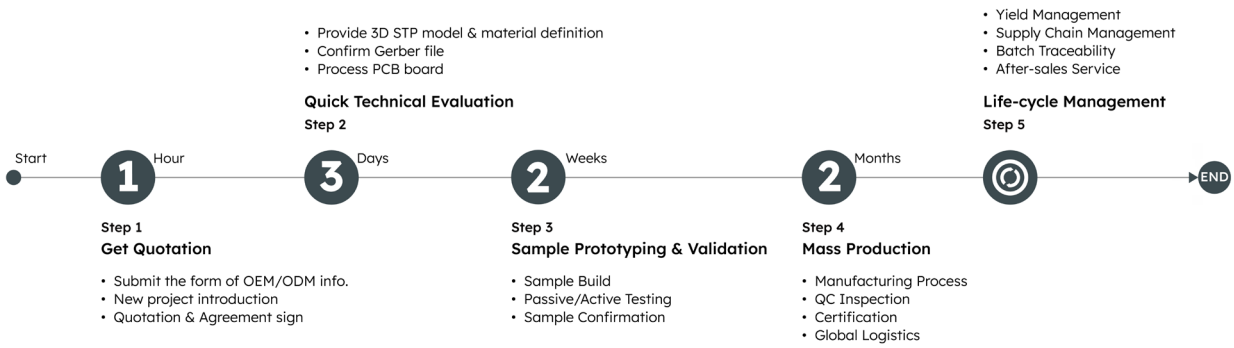
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