

# 4G + GPS Sensor Antenna

## FEATURES & BENEFITS

- Lightweight, low profile and rugged design
- Easy installation with built-in bolt interface, can be directly screwed onto devices without additional screws.
- UV-resistant, Impact-resistant, dustproof and waterproof
- RF cables and connectors customization supported

## APPLICATIONS

Various IoT applications, including,

- Smart valves
- Pressure/Level/Flow transmitters
- Temperature transmitters
- Water meters ect.



## ORDER INFORMATION

Product Name	4G + GPS Sensor Antenna
Part Number	M02-0501110R0A
Dimensions	Ø32 x 68 mm
Weight	30 g
Color	Black
Mounting	Screw mount
4G Antenna Cable	Default IPEX 1 RF 1.13 black coaxial cable ( Ø 1.13 x 172 mm ) , customizable.
GPS Antenna Cable	Default IPEX 1 RF 1.13 gray coaxial cable ( Ø 1.13 x 172 mm ) , customizable.

## REFERENCE GUIDE

Technical Features (MHz)	4G Antenna		GPS Antenna
		824-960	1710-2690
Max VSWR	2.0:1	2.0:1	2.0:1
Max Efficiency	90.61%		/
Peak Gain	2.31dBi		/
LNA	Gain	/	11.47±3dBi
	Noise Figure	/	1.5 Max
	DC Voltage	/	3.0±0.5V
	DC Current	/	4.2mA(@3.0V)
Radiation Pattern	Directional		
Polarization	Linear		
Input Impedance	50 Ω		
Operating Temperature	-40°C to +85°C		

Storage Temperature	-40°C to +85°C
Relative Humidity	10 to 70%
Material Substance Compliance	RoHS Compliant
Dimensions (L x W x H)	∅32 x 68 mm
All data were measured on a water meter as shown on cover with an 172-mm-long RF 1.13 cable. Application data might vary.	

## ELECTRICAL PERFORMANCE

- Note

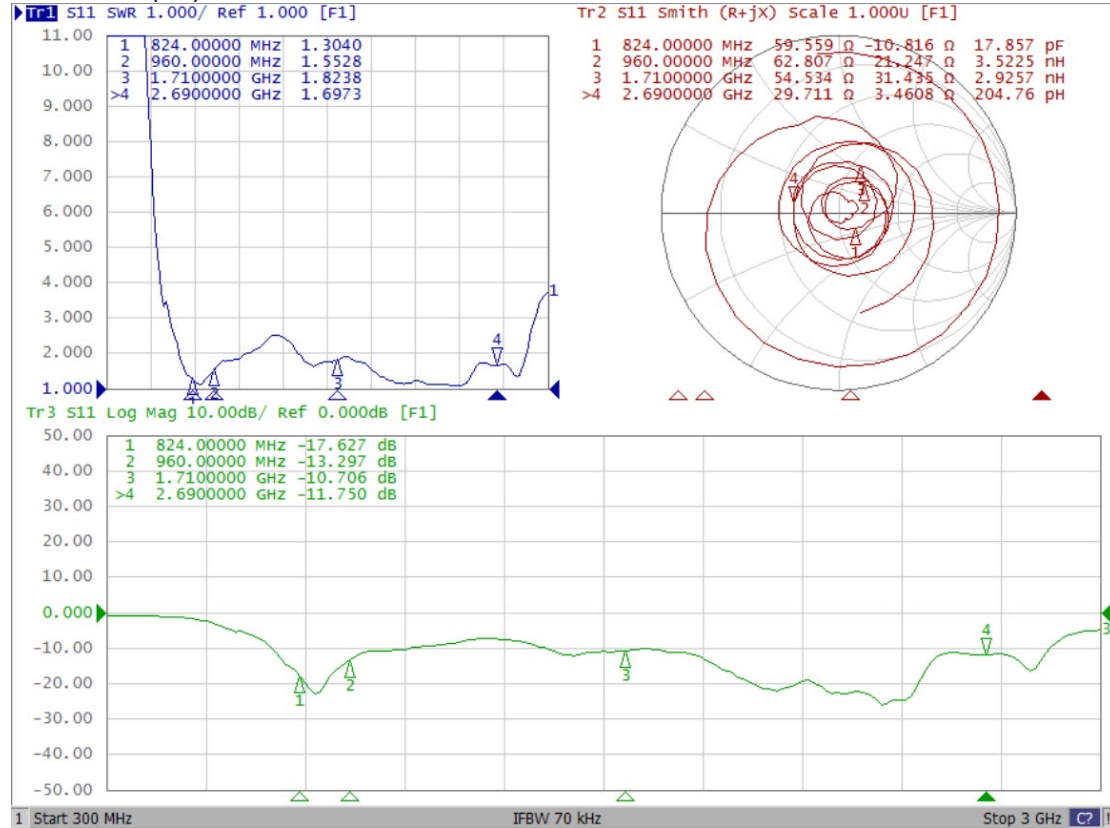
All data displayed in "ELECTRICAL PERFORMANCE" were measured on the water meter as shown below with an 85-mm-long RF 1.13 cable.



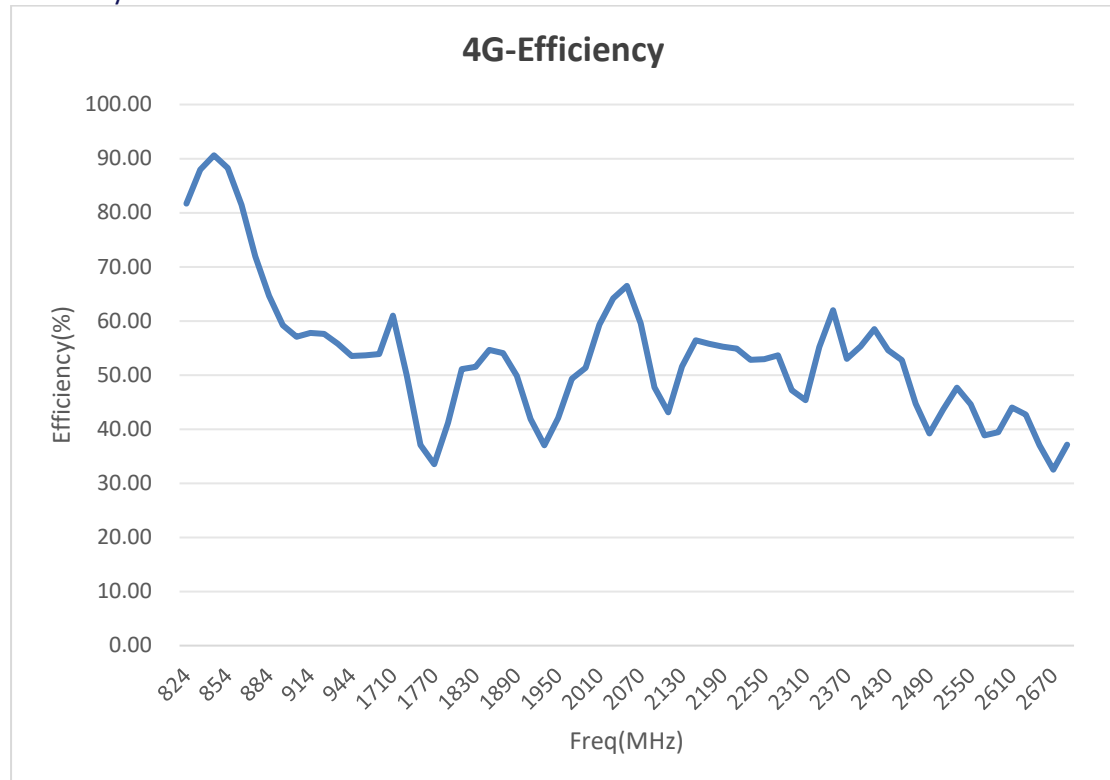
A sample of use cases: Antenna mounted on a water meter

**ELECTRICAL DATA (Data tested on a water meter with 172 mm of RF 1.13 cable)**

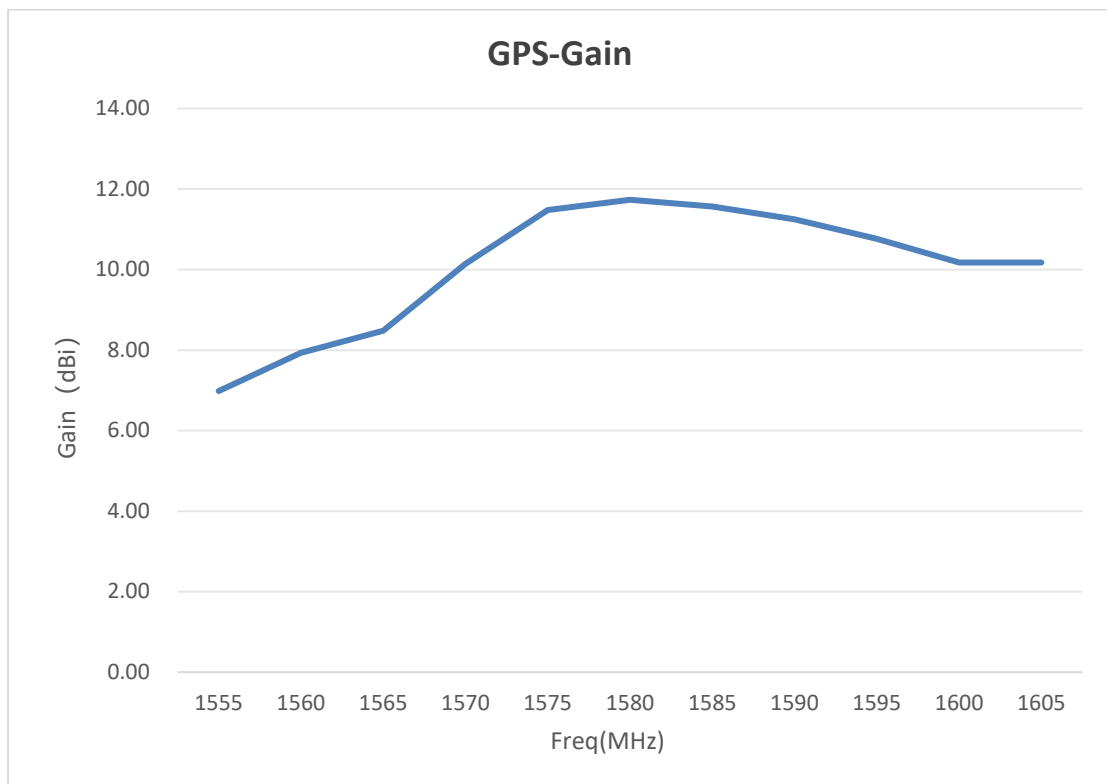
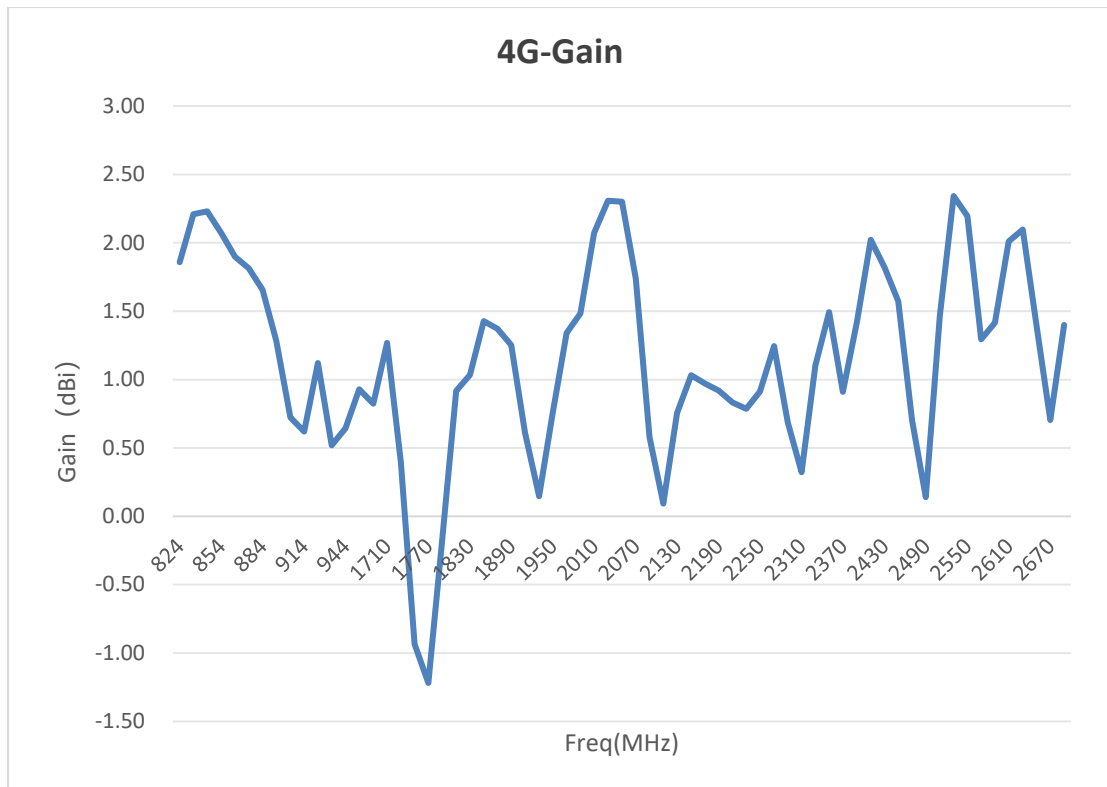
**Return Loss(4G)**



**Efficiency (%)**



**Peak Gain (dBi)**

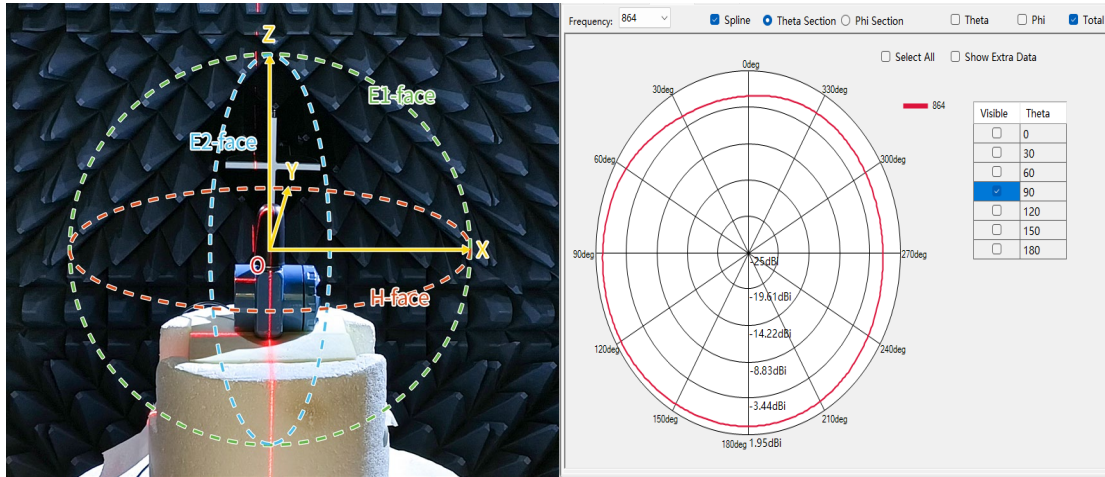


Freq(MHz)	Gain (dBi)	Efficiency(%)	Freq(MHz)	Gain (dBi)	Efficiency(%)	Freq(MHz)	Gain (dBi)	Efficiency(%)

824	1.86	81.69	1850	1.43	54.68	2290	0.68	47.22
834	2.21	87.95	1870	1.37	54.09	2310	0.32	45.38
844	2.23	90.61	1890	1.25	49.84	2330	1.10	55.16
854	2.07	88.26	1910	0.61	41.90	2350	1.49	61.99
864	1.90	81.44	1930	0.15	37.02	2370	0.91	52.99
874	1.81	71.95	1950	0.76	42.06	2390	1.42	55.33
884	1.66	64.62	1970	1.34	49.34	2410	2.02	58.53
894	1.28	59.22	1990	1.48	51.34	2430	1.82	54.58
904	0.72	57.05	2010	2.07	59.35	2450	1.57	52.75
914	0.62	57.80	2030	2.31	64.15	2470	0.70	44.72
924	1.12	57.59	2050	2.30	66.46	2490	0.14	39.21
934	0.52	55.77	2070	1.74	59.54	2510	1.47	43.64
944	0.64	53.54	2090	0.58	47.71	2530	2.34	47.70
954	0.93	53.66	2110	0.09	43.11	2550	2.19	44.62
960	0.82	53.87	2130	0.75	51.57	2570	1.29	38.82
1710	1.27	60.99	2150	1.03	56.40	2590	1.42	39.43
1730	0.40	49.98	2170	0.97	55.79	2610	2.01	43.97
1750	-0.93	37.08	2190	0.92	55.24	2630	2.10	42.69
1770	-1.22	33.54	2210	0.83	54.86	2650	1.39	37.02
1790	-0.18	41.14	2230	0.79	52.84	2670	0.70	32.51
1810	0.92	51.08	2250	0.91	52.92	2690	1.40	37.14
1830	1.03	51.54	2270	1.25	53.67			

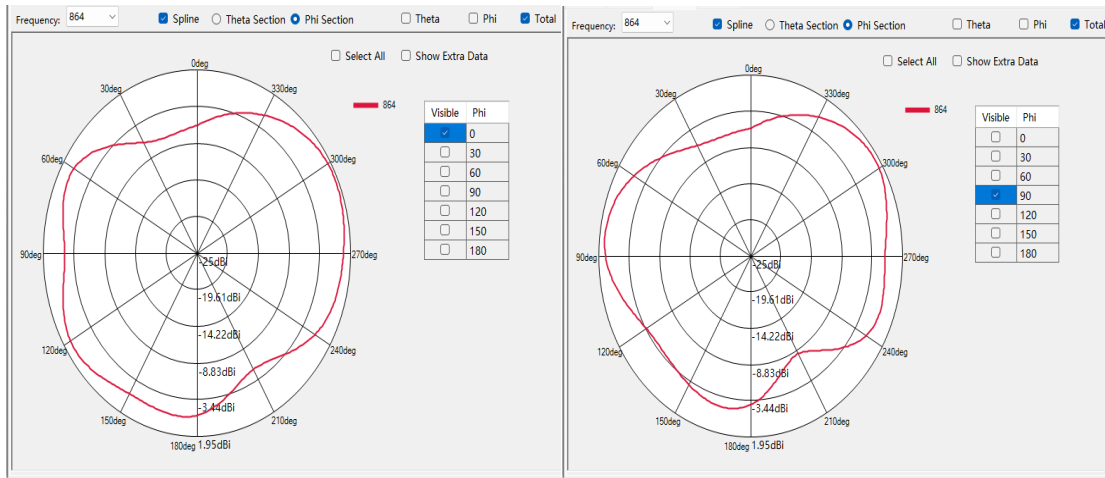
Freq(MHz)	Gain (dBi)
1555	6.98
1560	7.94
1565	8.48
1570	10.14
1575	11.47
1580	11.73
1585	11.57
1590	11.25
1595	10.77
1600	10.17
1605	10.18

### **RADIATION PATTERNS(Data tested on a water meter with 172 mm of RF 1.13 cable)**



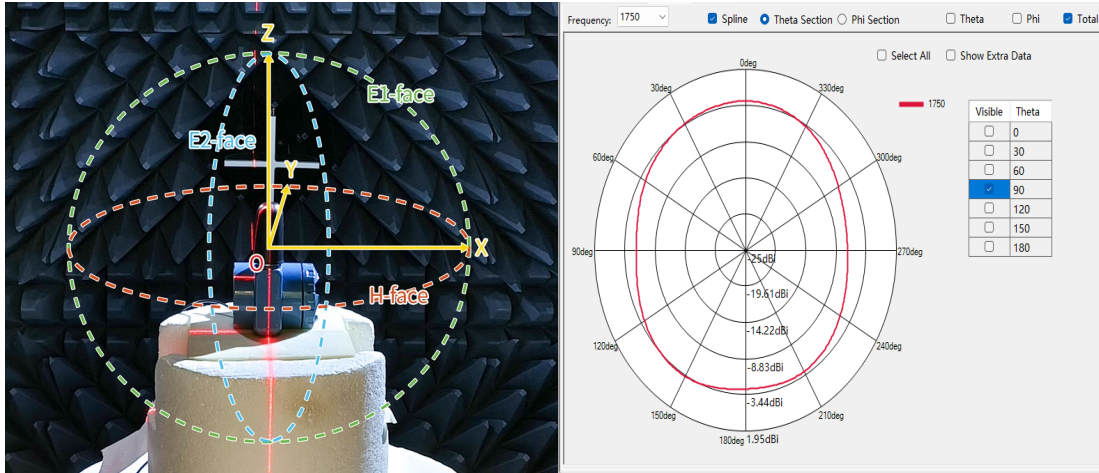
The Antenna in MyAntenna's Anechoic Chamber

$\theta = 90^\circ$  Plane XY at 864MHz(4G)



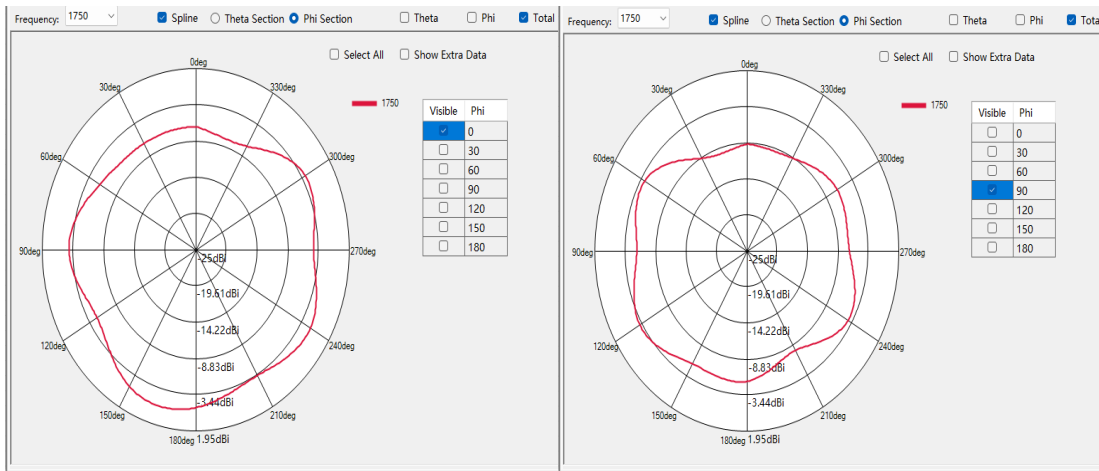
$\Phi = 0^\circ$  Plane XZ at 864MHz(4G)

$\Phi = 90^\circ$  Plane YZ at 864MHz(4G)



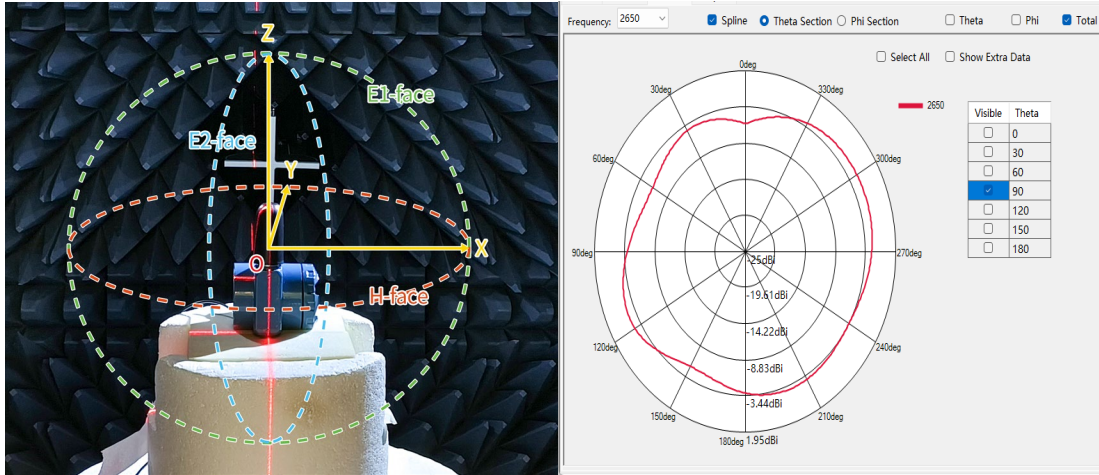
The Antenna in MyAntenna's Anechoic Chamber

$\theta = 90^\circ$  Plane XY at 1750MHz(4G)



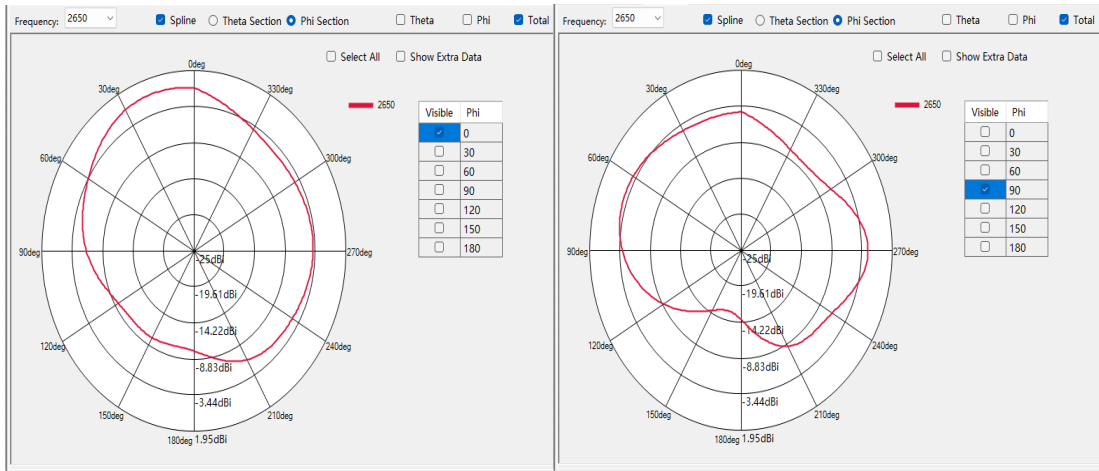
$\Phi = 0^\circ$  Plane XZ at 1750MHz(4G)

$\Phi = 90^\circ$  Plane YZ at 1750MHz(4G)



The Antenna in MyAntenna's Anechoic Chamber

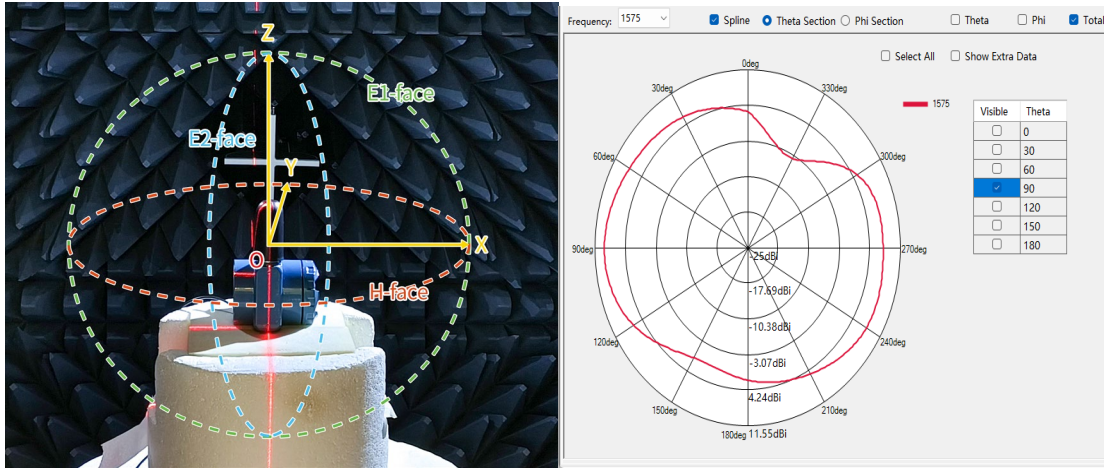
$\theta = 90^\circ$  Plane XY at 2650MHz(4G)



$\Phi = 0^\circ$  Plane XZ at 2650MHz(4G)

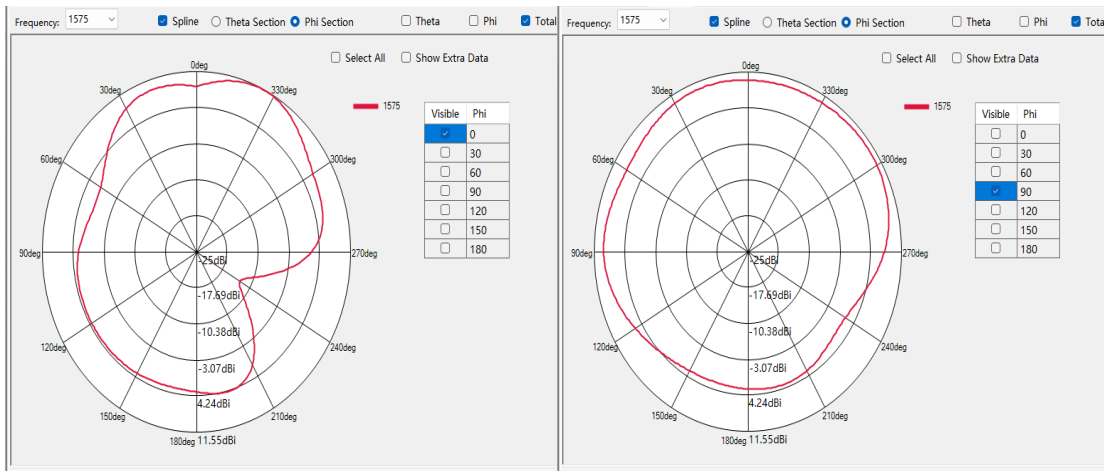
$\Phi = 90^\circ$  Plane YZ at 2650MHz(4G)





The Antenna in MyAntenna's Anechoic Chamber

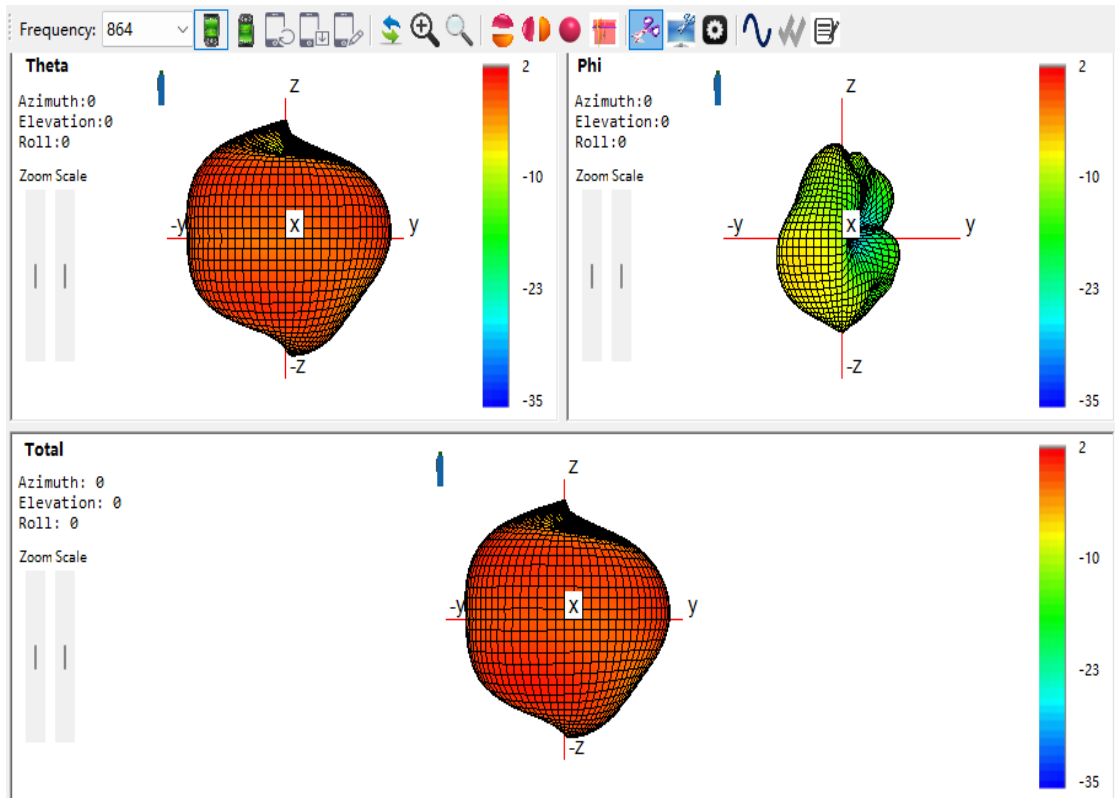
$\theta = 90^\circ$  Plane XY at 1575MHz(GPS)



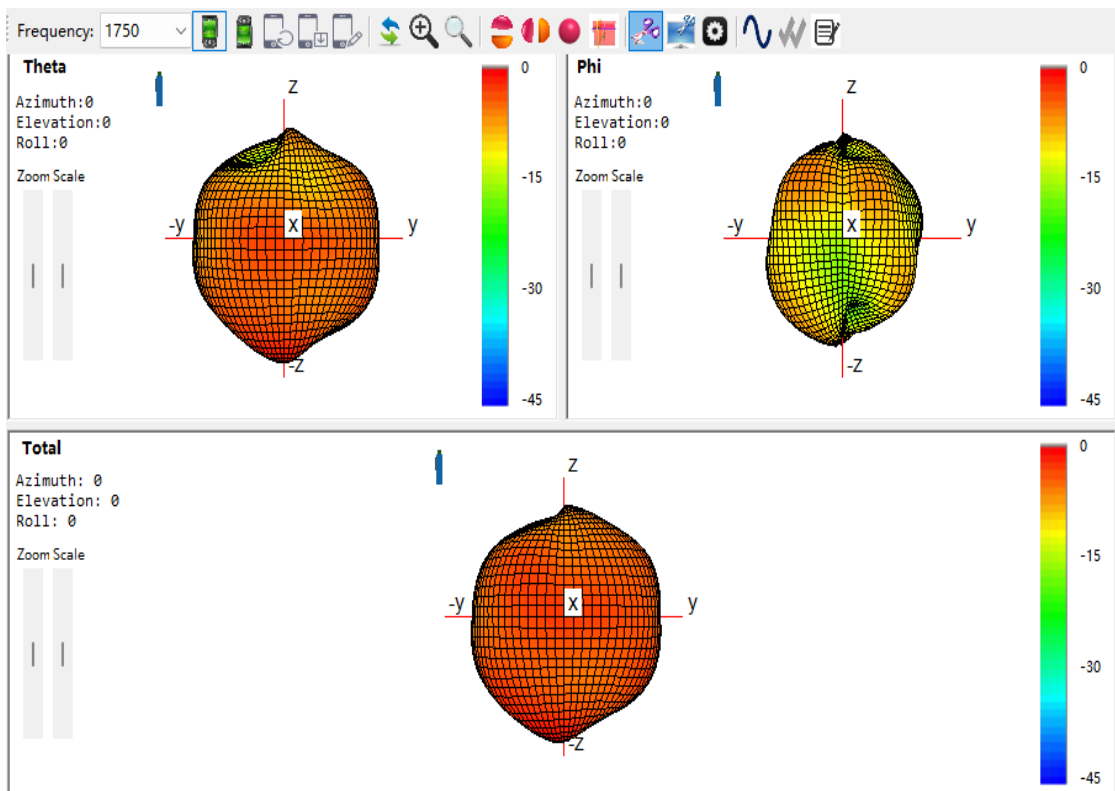
$\Phi = 0^\circ$  Plane XZ at 1575MHz(GPS)

$\Phi = 90^\circ$  Plane YZ at 1575MHz(GPS)

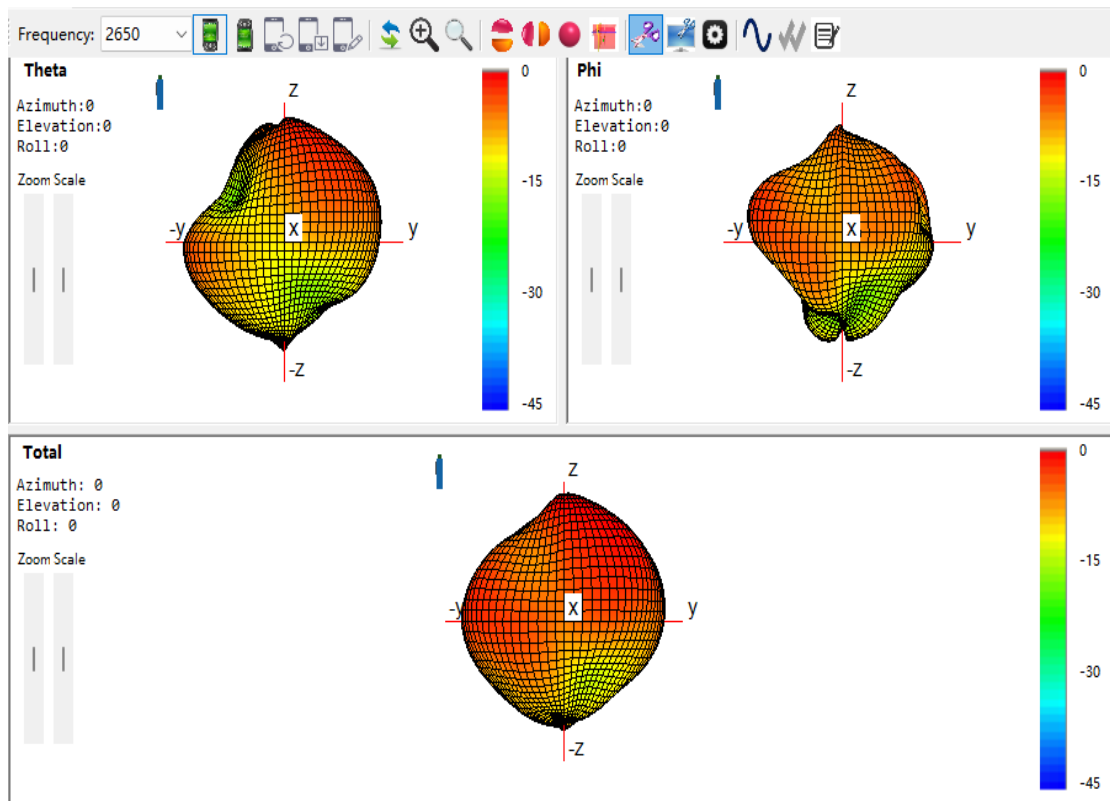
### 3D Radiation Pattern at 864MHz(4G)



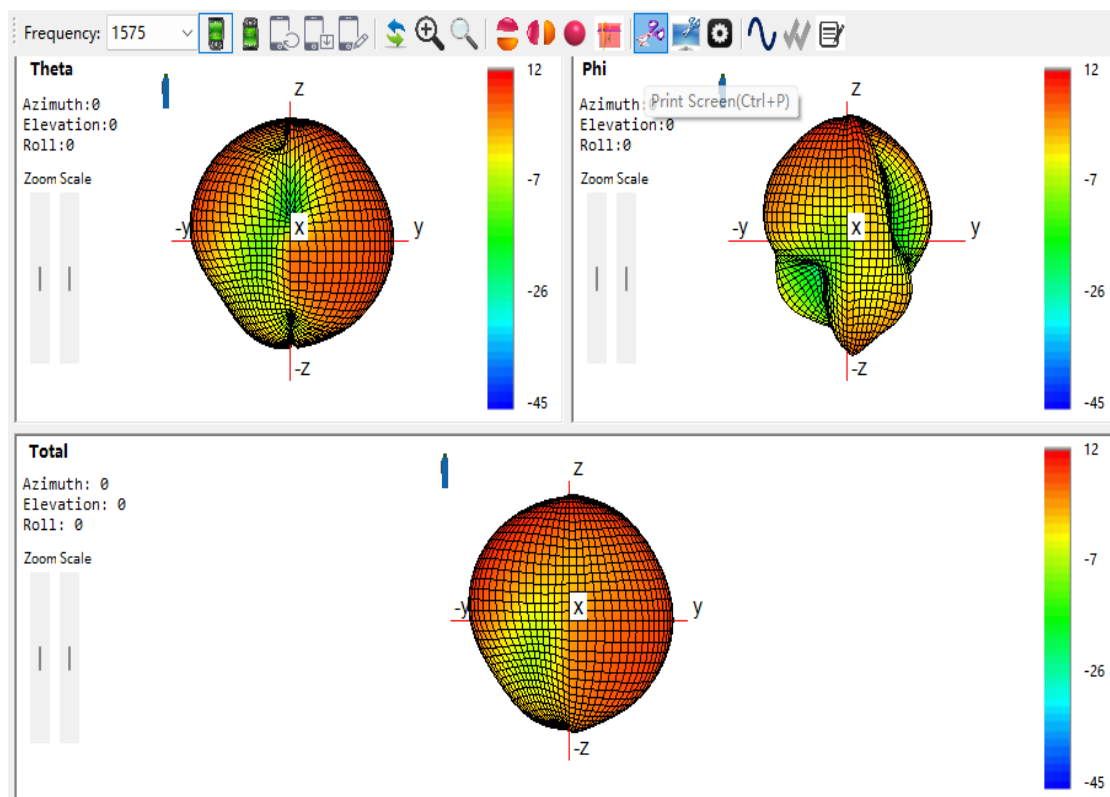
### 3D Radiation Pattern at 1750MHz(4G)



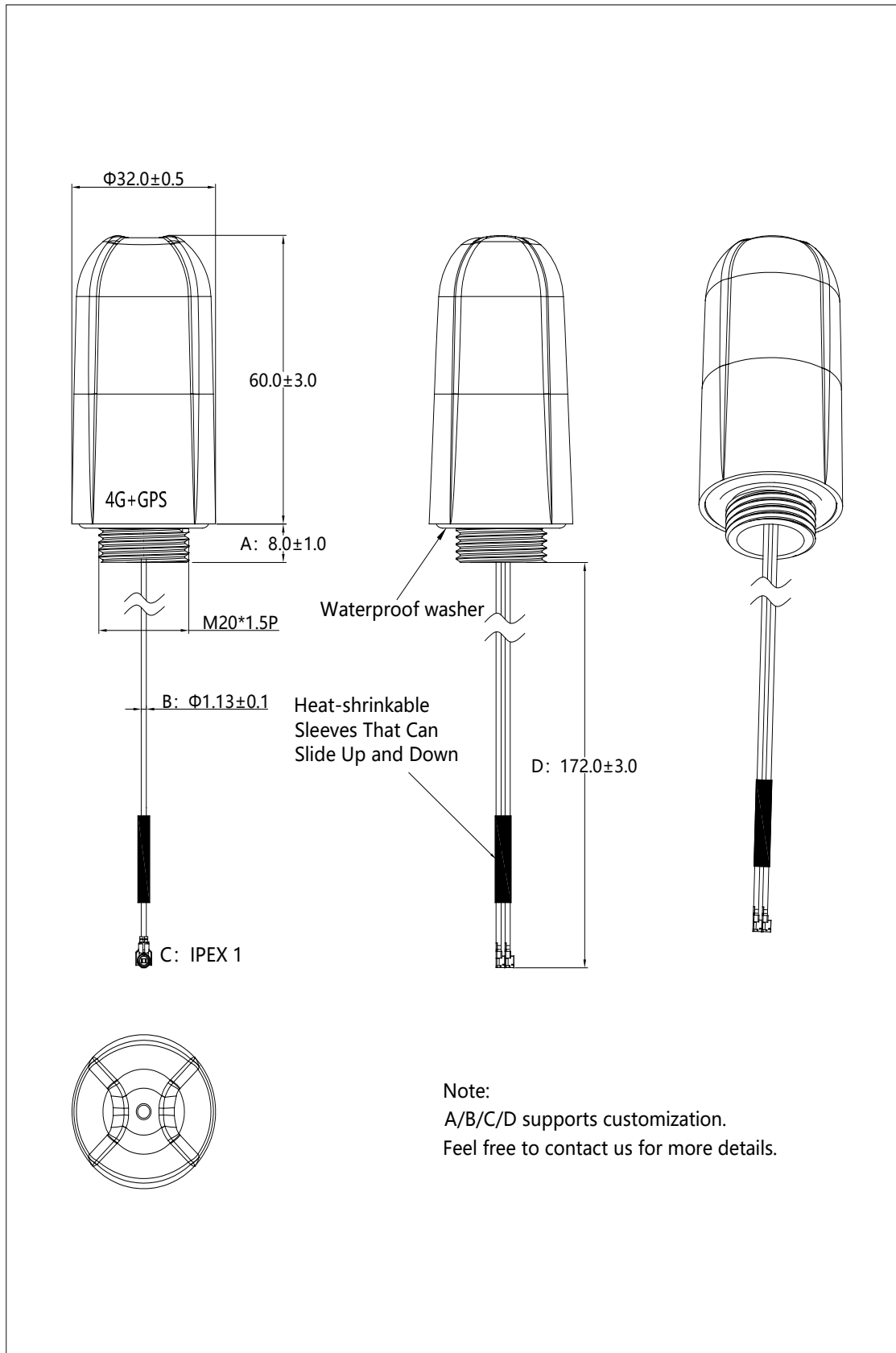
3D Radiation Pattern at 2650MHz(4G)



3D Radiation Pattern at 1575MHz(GPS)



## HOUSING CONFIGURATIONS



Note:  
A/B/C/D supports customization.  
Feel free to contact us for more details.



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