Antenna Datasheet

Product OC: YECW000N1A
Version: 1.4
Date: 2026-01-05
Status: Released

Product Name: 4G Screw Mount Low Profile PIFA External Antenna
Key Features:
Optimized for LPWA
High-efficiency external antenna
Low-profile antenna
Frequency band: 450–470 MHz & 698–960 MHz & 1710–2690 MHz
Efficiency: Up to 60 % (FS)
Dimensions: 150 mm × 50 mm × 36.5 mm
RoHS compliant

Overview

YECW000N1A is a 4G external antenna measuring 150 mm × 50 mm × 36.5 mm. This ultra-wide-band 4G antenna provides broad coverage from 450–470 MHz, 700–960 MHz & 1710–2690 MHz whilst offering backward-compatibility to support 3G and 2G networks as well as LTE Cat-M and narrowband IoT (NB-IoT). The antenna is terminated with SMA Male connector. Ideal for applications where the antenna is required to be discrete, this low profile, terminal mount omni-directional antenna is easy to install with maximum durability assured thanks to its PC + ABS enclosure.

The YECW000N1A is designed as PIFA type to work with various GND plane sizes or in free space for ease of integration with a SMA Male connector to achieve the optimum position. This omni-directional antenna is ideally suited for Gateways & Routers, Smart Metering, Vending Machines, Industrial IoT, Smart Home, Connected Enterprise, offering great performance with its high gain and efficiency.

Typical applications include:

- Gateways & Routers
- Smart Metering
- Vending Machines
- Industrial IoT
- Smart Home
- Connected Enterprise

Quectel provides comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs. We have regional R & D centers to offer quick response to meet your requirements. Please contact our sales & FAEs if you have any requests.

Contents

1 Specification

Test Condition: Free Space & On 500 mm × 500 mm Metal Plane

1.1. Electrical

Electrical	
Frequency Range	450–470 MHz & 698–960 MHz & 1710–2690 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical – Detail							
Band / SPEC	Band	B12 /B13 /B28	B5 /B8 /B26	B1 /B2 /B3	B40	Wi-Fi 2G	B38 /B41
	Freq. (MHz)	700–810	820–960	1700–2170	2300–2400	2400–2500	2500–2690
Max VSWR	FS	2.3	2.9	2.1	2.2	2.0	2.2
	MP	2.7	3.5	2.0	2.2	2.0	2.2
Max Return Loss (dB)	FS	-8.1	-6.3	-8.9	-8.7	-9.3	-8.7
	MP	-6.8	-5.2	-9.7	-8.5	-9.4	-8.5
AVG Eff. (%)	FS	53.9	42.6	45.6	37.1	36.1	35.5
	MP	46.4	30.2	48.9	40.3	38.1	33.4
AVG AVG Gain (dB)	FS	-2.7	-3.7	-3.4	-4.3	-4.4	-4.5
	MP	-3.4	-5.3	-3.1	-4.0	-4.2	-4.8
Max Peak Gain (dBi)	FS	3.6	2.9	2.8	2.1	1.9	1.8
	MP	1.4	1.1	5.1	4.9	5.0	5.2

VSWR	FS	≤ 2.9
	MP	≤ 3.5
Return Loss	FS	≤ -6.3 dB
	MP	≤ -5.2 dB
Peak Gain	FS	≤ 3.6 dBi
	MP	≤ 5.2 dBi

Electrical – Detail			
Band / SPEC	Band	B87/B88	B31/B72/B73
	Freq. (MHz)	410–430 MHz	450–470 MHz
Max. VSWR	FS	-	4.5
	MP	-	2.8
Max. Return Loss (dB)	FS	-	-3.9
	MP	-	-6.5
AVG Eff. (%)	FS	-	28.4
	MP	-	43.5
AVG AVG Gain (dB)	FS	-	-5.6
	MP	-	-3.6
Max. Peak Gain	FS	-	2.8
	MP	-	1.3

VSWR	FS	≤ 4.5
	MP	≤ 2.8
Return Loss	FS	≤ -3.9 dB
	MP	≤ -6.5 dB
Peak Gain	FS	≤ 2.8 dBi
	MP	≤ 1.3 dBi

- FS: Free Space
- MP: On 500 mm × 500 mm Metal Plane

1.2. Supported Bands

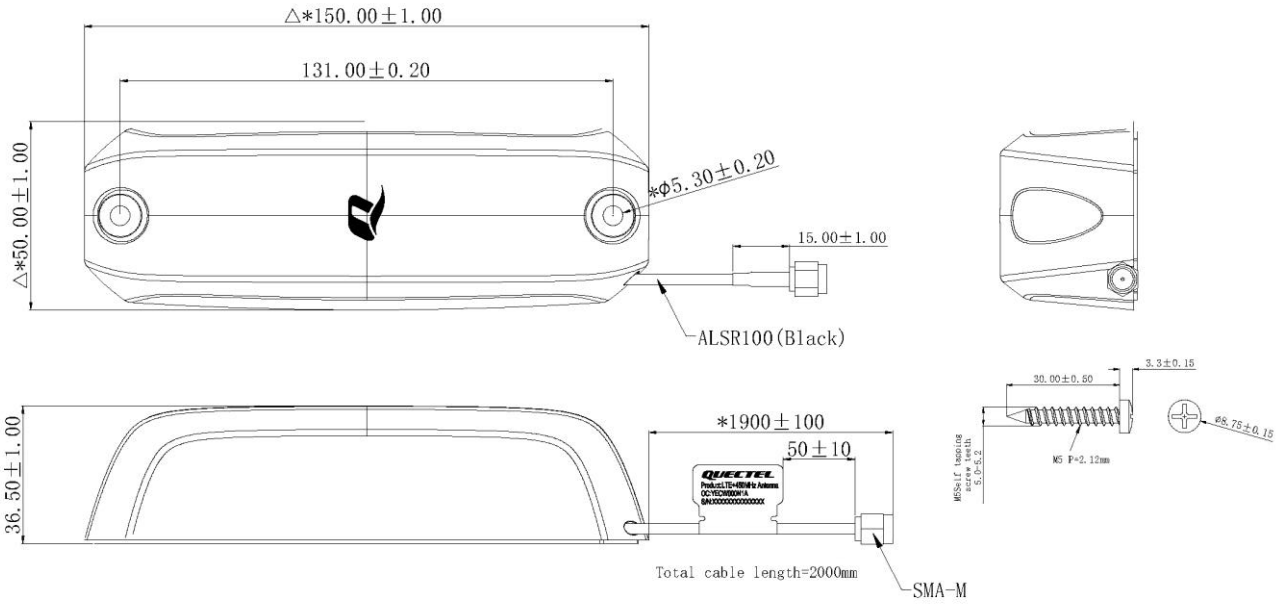
5G NR / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / GPRS / GSM / NB-IoT				
Band	**Frequency (MHz)**	**Uplink (MHz)**	**Downlink (MHz)**	**Covered**
1	2100	1920–1980	2110–2170	√
2	1900	1850–1910	1930–1990	√
3	1800	1710–1785	1805–1880	√
4	1700	1710–1755	2110–2155	√
5	850	824–849	869–894	√
7	2600	2500–2570	2620–2690	√
8	900	880–915	925–960	√
9	1800	1749.9-1784.9	1844.9-1879.9	√
11	1500	1427.9–1447.9	1475.9–1495.9	-
12	700	699–716	729–746	√
13	700	777–787	746–756	√
14	700	788–798	758–768	√
17	700	704–716	734–746	√
18	850	815–830	860–875	√
19	850	830–845	875–890	√
20	800	832–862	791–821	√
21	1500	1447.9–1462.9	1495.9–1510.9	-
22	3500	3410–3490	3510–3590	-
23	2100	2000–2020	2180–2200	√
24	1600	1626.5–1660.5	1525–1559	-
25	1900	1850–1915	1930–1995	√
26	850	814–849	859–894	√
28	700	703–748	758–803	√
31	450	452.5–457.5	462.5–467.5	√

34	2100	2010–2025		√
38	2600	2570–2620		√
39	1900	1880–1920		√
40	2300	2300–2400		√
41	2500	2496–2690		√
42	3500	3400–3600		-
48	3500	3550–3700		-
66	1700	1710–1780	2110–2200	√
71	600	663–698	617–652	-
74	1500	1427–1470	1475–1518	-
77	3500	3300–4200		-
78	3500	3300–3800		-
79	4500	4400–5000		-

1.3. Mechanical & Environmental

Mechanical	
Antenna Dimensions	150 mm × 50 mm × 36.5 mm
Material & Color	PC + ABS & Black
Cable Type & Color & Length	ALSR100 & BLACK & 2000 mm
Connector Type	SMA Male
Mounting Type	Screw
Weight	Typ. 110.4 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS Compliant	Yes

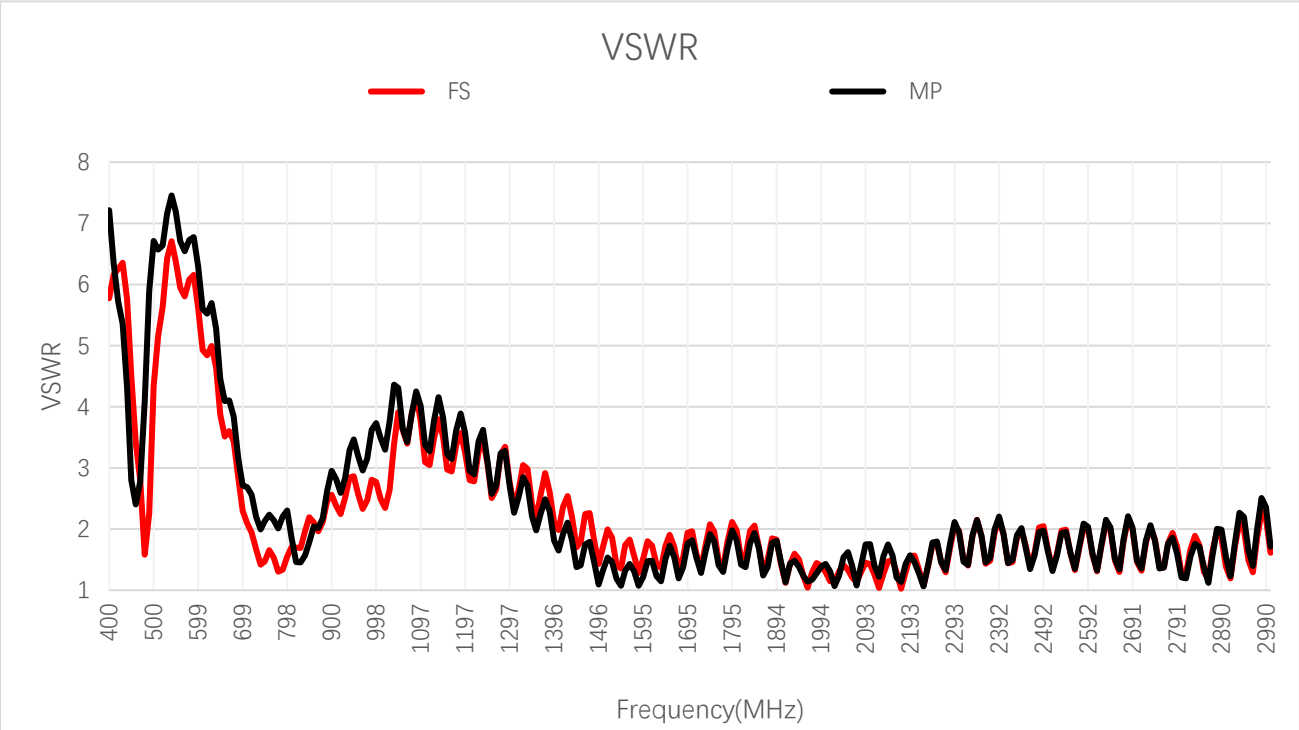
2 Drawing


△*150.00±1.00
131.00±0.20
△*50.00±1.00
*Φ5.30±0.20
15.00±1.00
ALSR100(Black)
36.50±1.00
*1900±100
50±10
Total cable length=2000mm
SMA-M
3.3±0.15
30.00±0.50
Φ8.75±0.15
M5 P=2.12mm

3 Detailed Performance

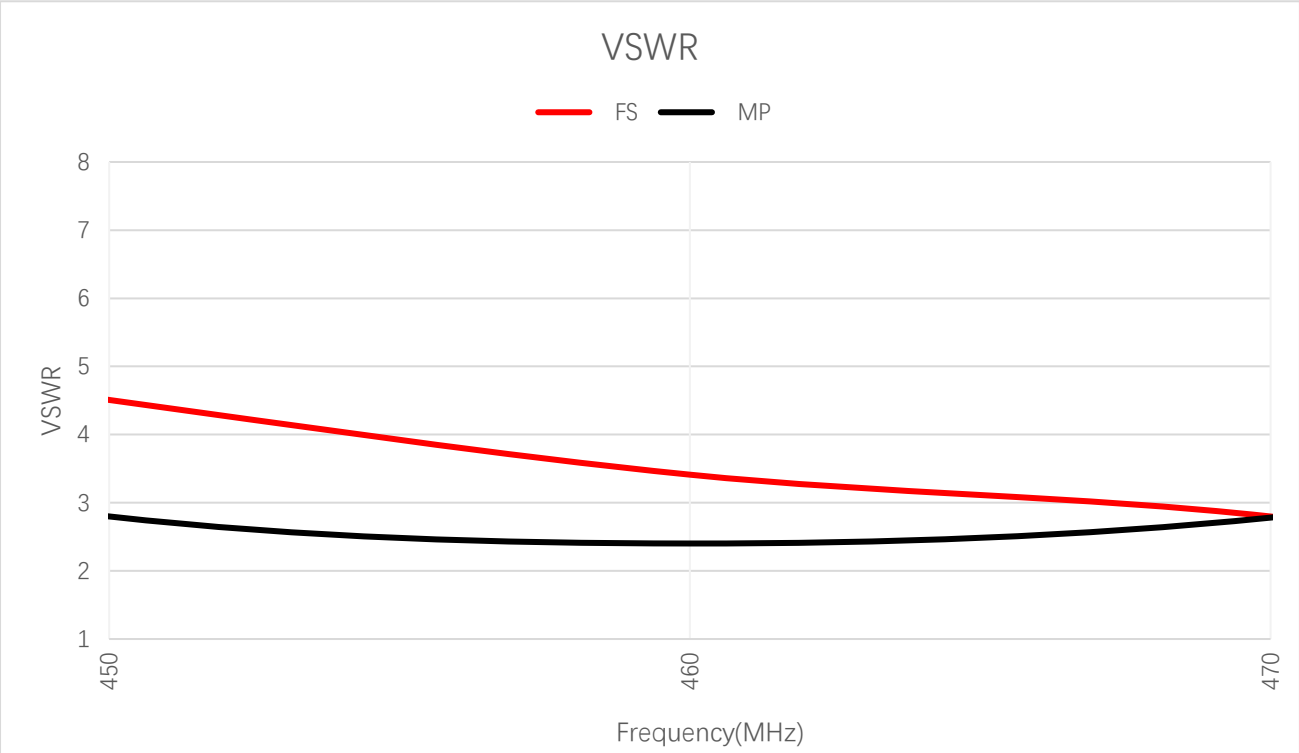
3.1. S-Parameter Test

3.1.1. VSWR



VSWR

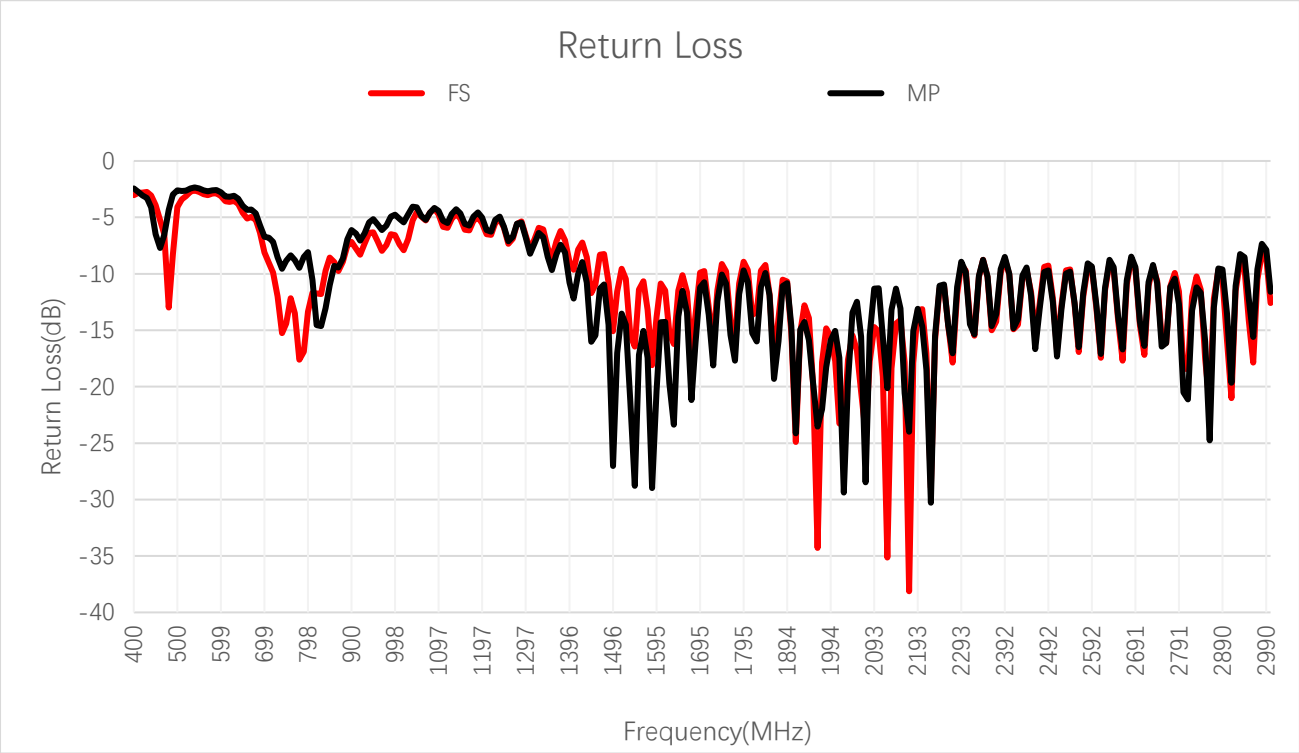
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	2.1	1.7	2.6	2.6	-	1.6	2.1	1.7
MP	-	-	2.7	1.5	3.0	3.2	-	1.5	1.9	1.8
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	1.2	1.5	1.9	1.7	1.6	2.0	-	-	-	-
MP	1.2	1.7	1.9	1.7	1.6	2.0	-	-	-	-



VSWR

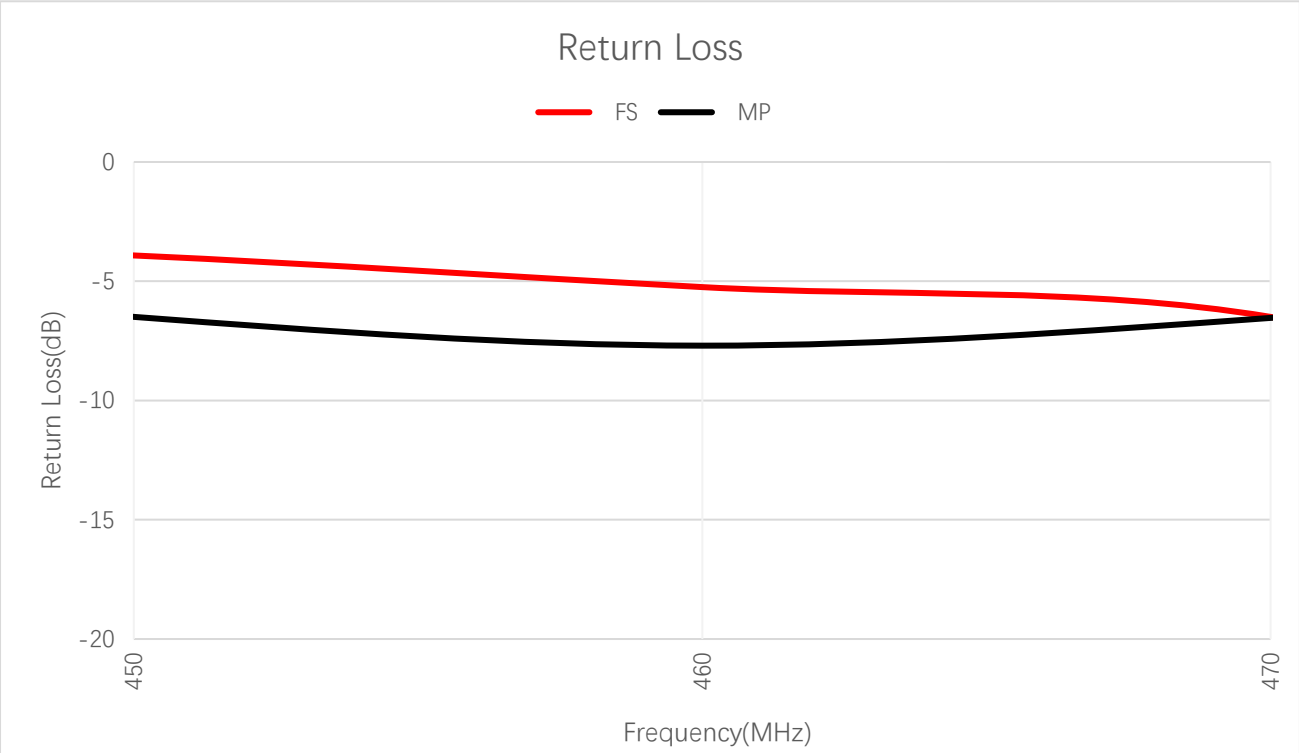
Frequency (MHz)	410	420	430	440	450	460	470
FS	-	-	-	-	4.5	3.4	2.8
MP	-	-	-	-	2.8	2.4	2.8

3.1.2. Return Loss



Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	-9.0	-11.8	-7.2	-7.2	-	-12.9	-9.1	-10.5
MP	-	-	-6.8	-14.6	-6.1	-5.6	-	-13.6	-10.1	-11.1
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	-19.8	-14.4	-10.3	-11.6	-13.0	-9.6	-	-	-	-
MP	-19.7	-11.3	-10.2	-11.9	-12.8	-9.4	-	-	-	-

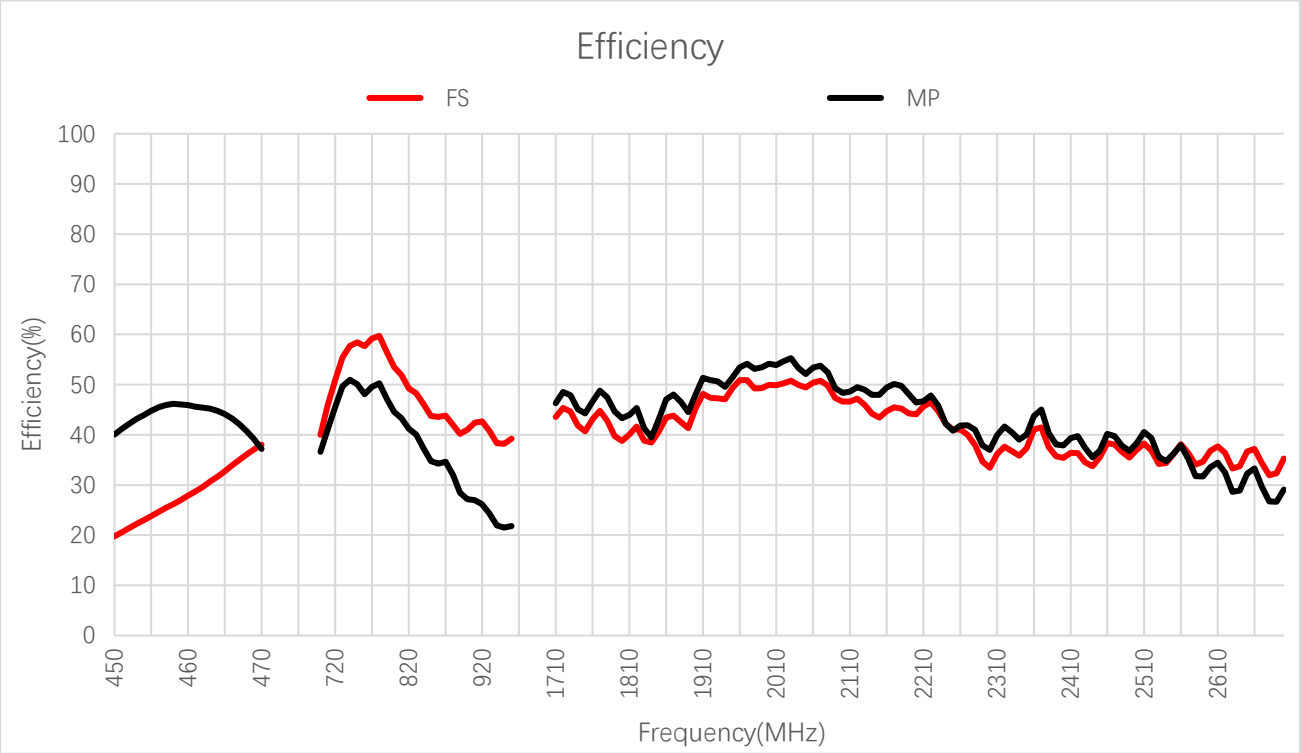


Return Loss (dB)

Frequency (MHz)	410	420	430	440	450	460	470
FS	-	-	-	-	-3.9	-5.2	-6.5
MP	-	-	-	-	-6.5	-7.7	-6.5

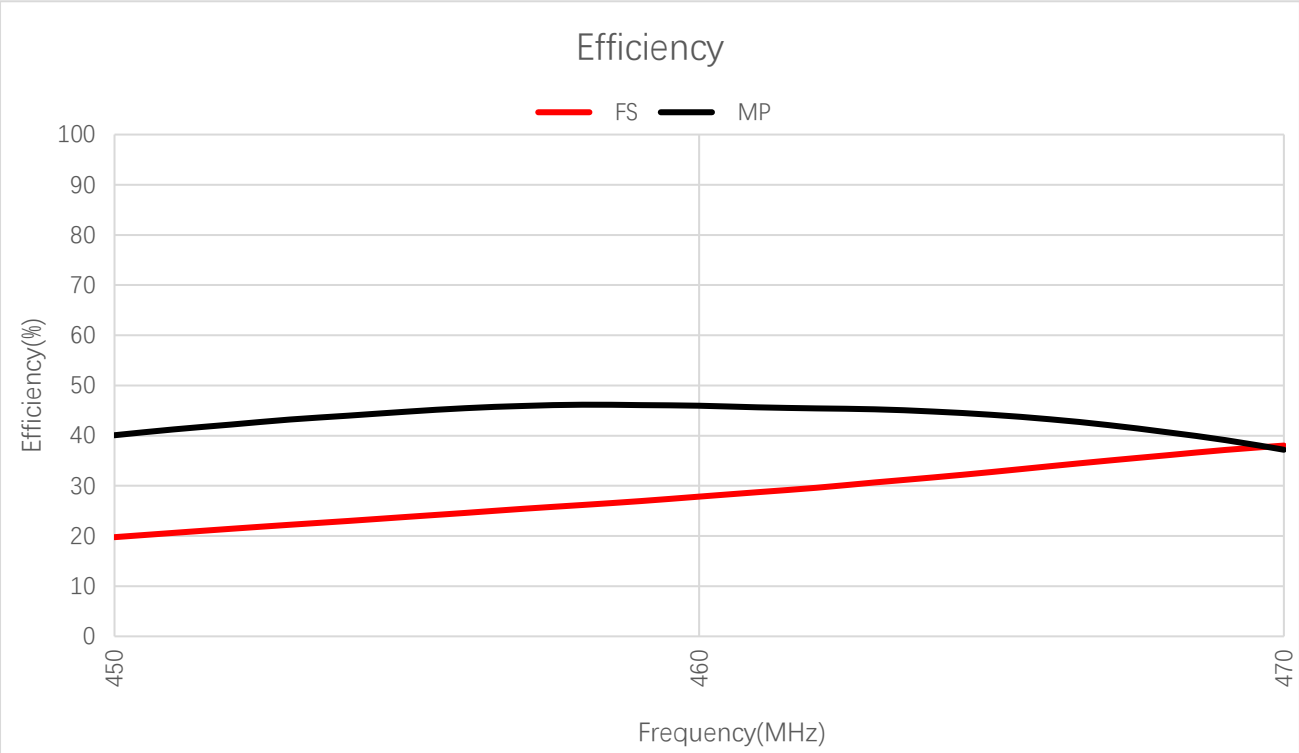
3.2. Radiation Performance Test

3.2.1. Efficiency



Efficiency (%)

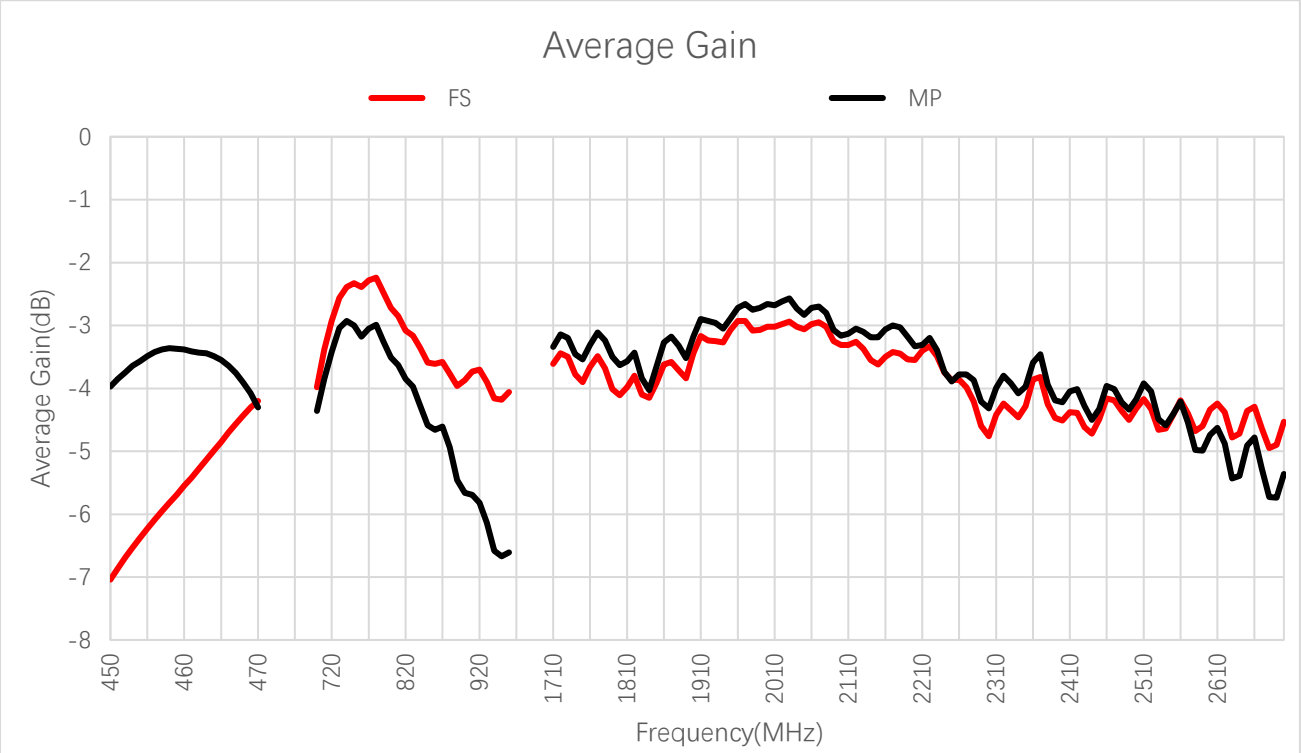
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	46.0	48.3	41.0	39.2	-	43.6	41.8	42.6
MP	-	-	41.2	40.1	27.2	21.8	-	46.3	45.1	46.6
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	49.3	44.2	37.3	35.6	36.8	32.3	-	-	-	-
MP	51.4	48.0	40.1	36.9	33.6	26.7	-	-	-	-



Efficiency (%)

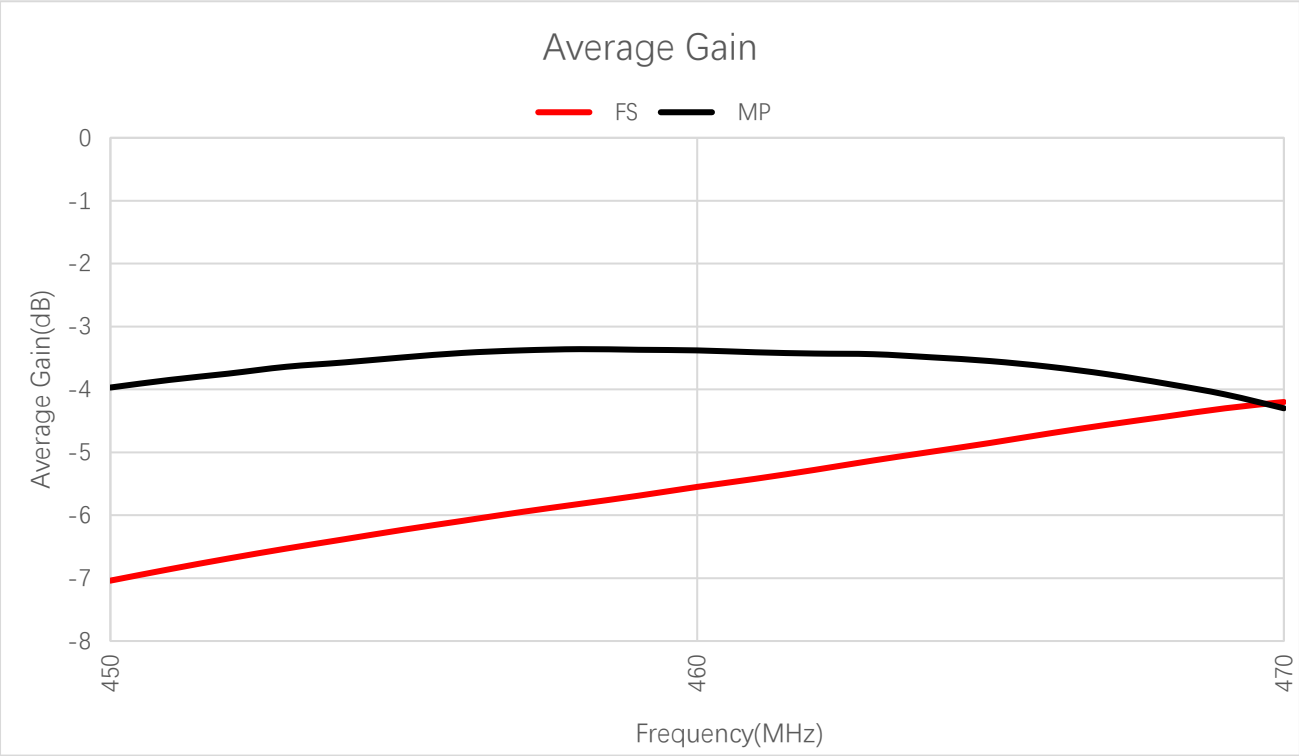
Frequency (MHz)	410	420	430	440	450	460	470
FS	-	-	-	-	19.8	27.9	38.0
MP	-	-	-	-	40.1	46.0	37.2

3.2.2. Average Gain



Average Gain (dB)

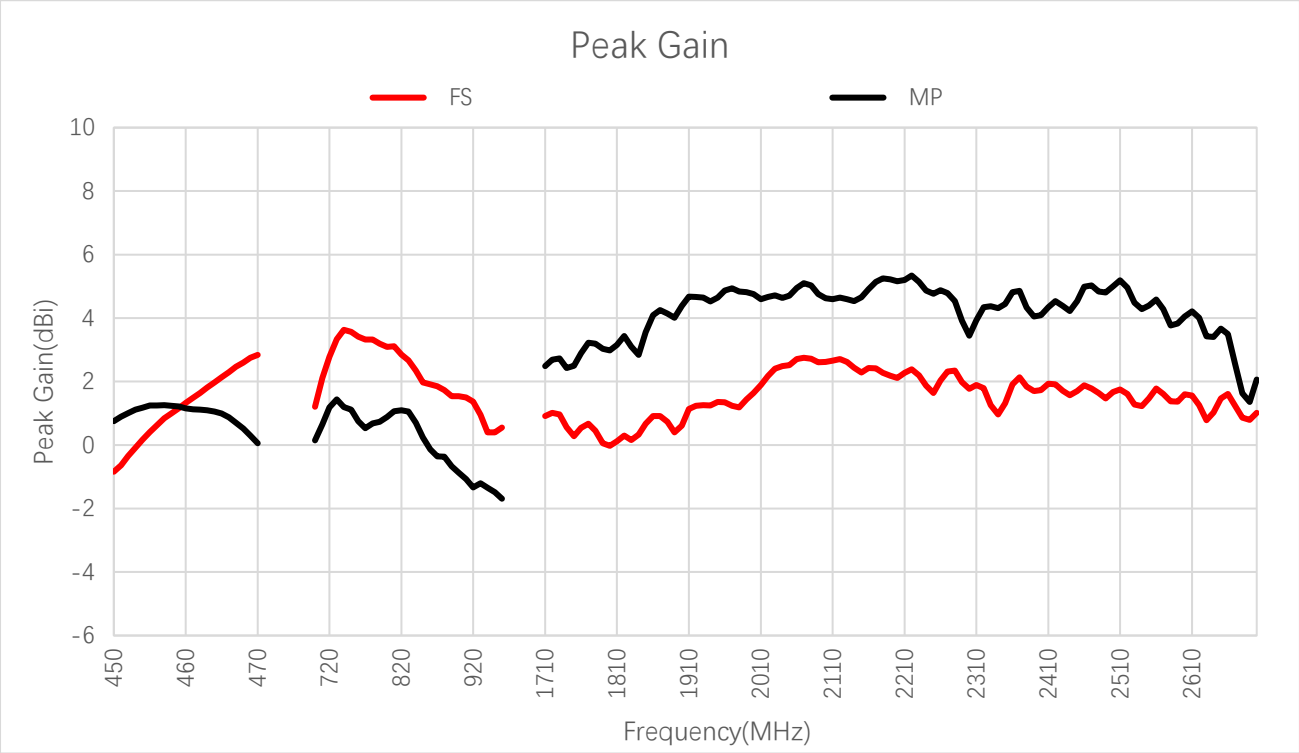
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	-3.4	-3.2	-3.9	-4.1	-	-3.6	-3.8	-3.7
MP	-	-	-3.9	-4.0	-5.7	-6.6	-	-3.3	-3.5	-3.3
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	-3.1	-3.6	-4.3	-4.5	-4.3	-4.9	-	-	-	-
MP	-2.9	-3.2	-4.0	-4.3	-4.7	-5.7	-	-	-	-



Average Gain (dB)

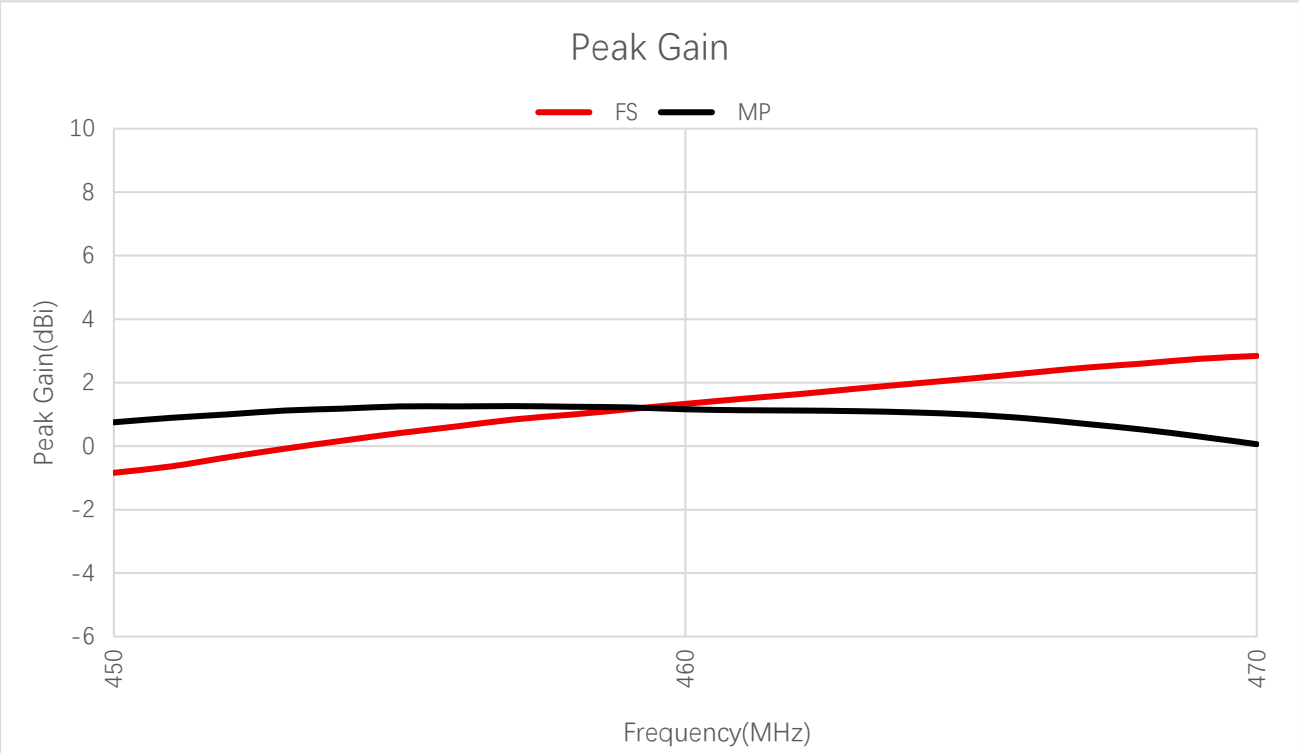
Frequency (MHz)	410	420	430	440	450	460	470
FS	-	-	-	-	-7.0	-5.6	-4.2
MP	-	-	-	-	-4.0	-3.4	-4.3

3.2.3. Peak Gain



Peak Gain (dBi)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	2.1	2.7	1.5	0.6	-	0.9	0.6	0.7
MP	-	-	0.7	1.1	-0.9	-1.7	-	2.5	2.4	4.1
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	1.4	2.4	1.3	1.7	1.6	0.8	-	-	-	-
MP	4.7	4.5	4.4	4.5	4.1	1.4	-	-	-	-



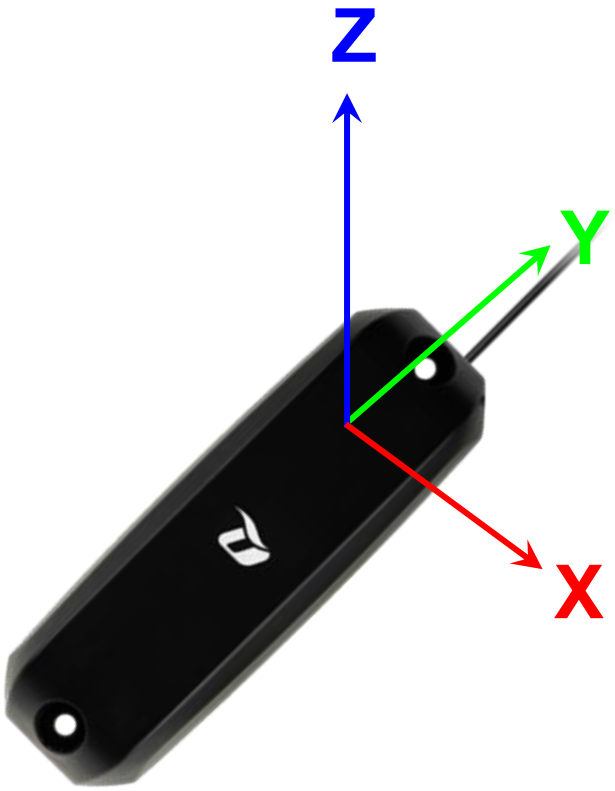
Peak Gain (dBi)

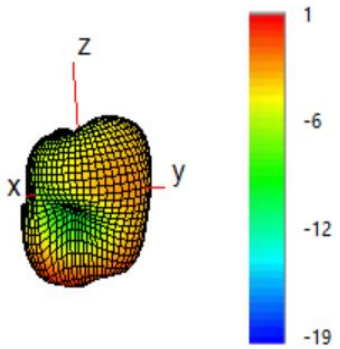
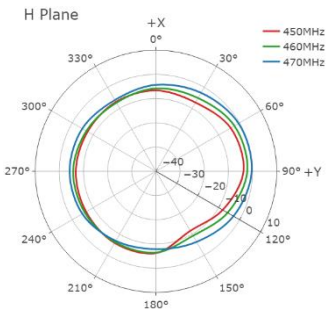
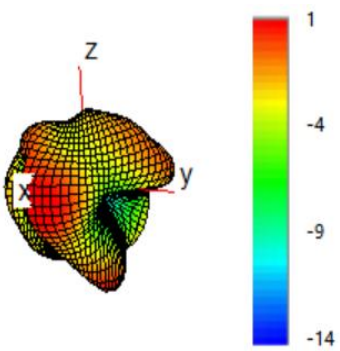
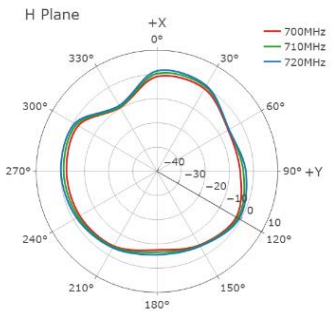
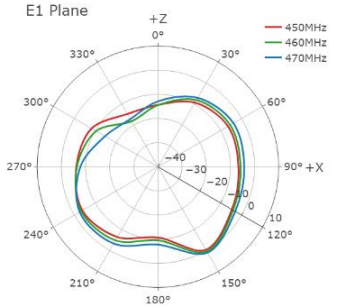
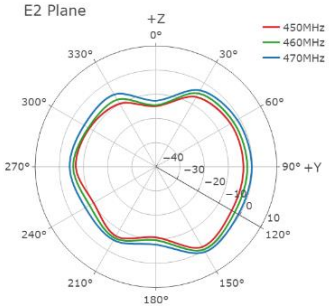
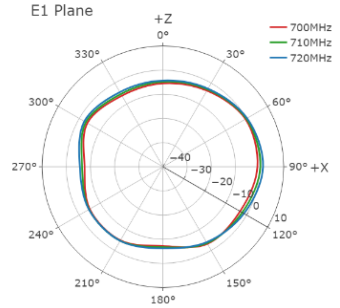
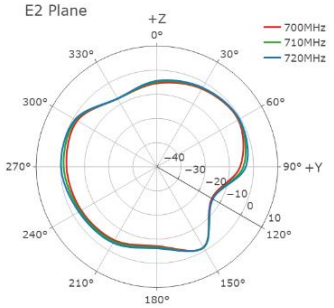
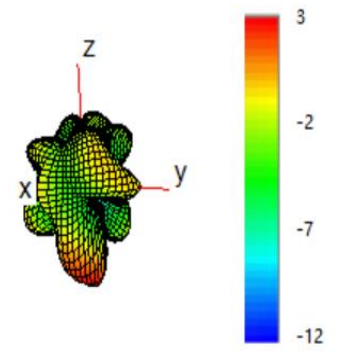
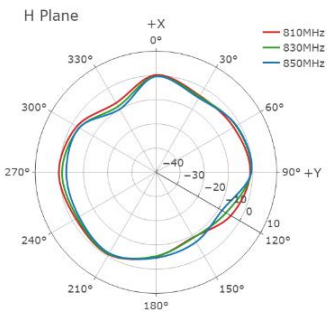
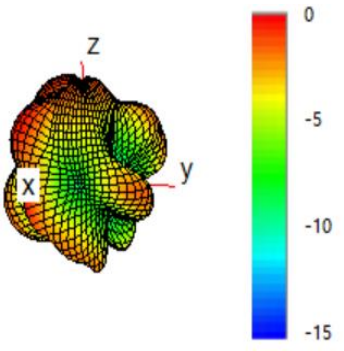
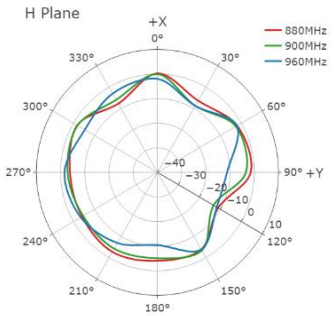
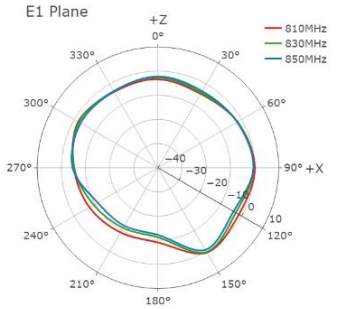
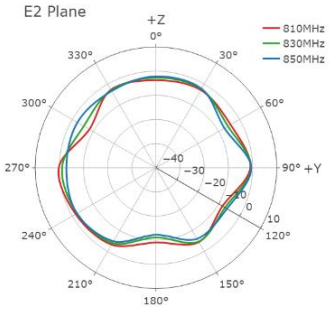
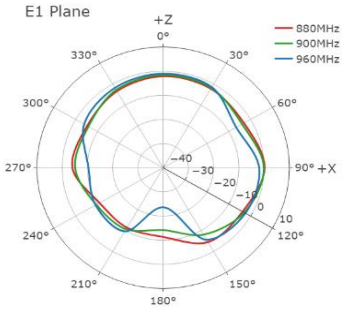
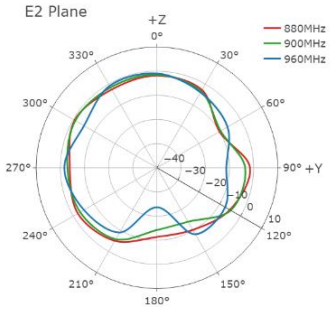
Frequency (MHz)	410	420	430	440	450	460	470
FS	-	-	-	-	-0.8	1.3	2.8
MP	-	-	-	-	0.8	1.2	0.1

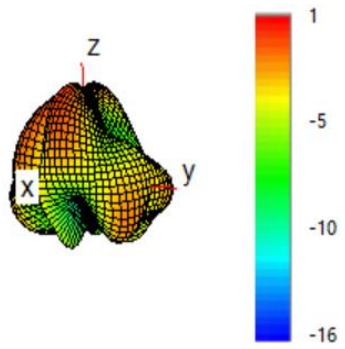
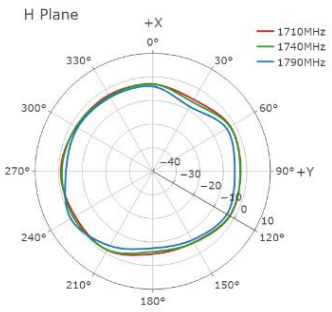
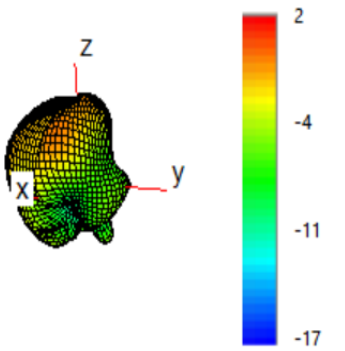
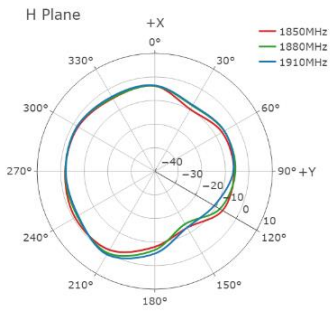
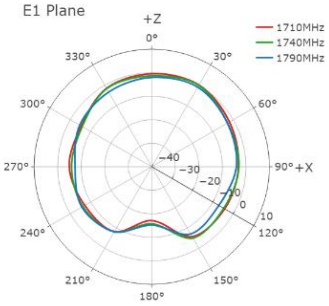
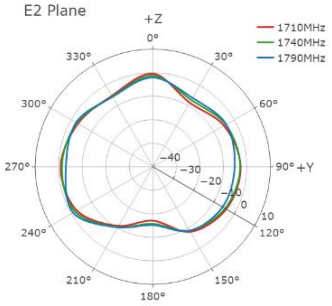
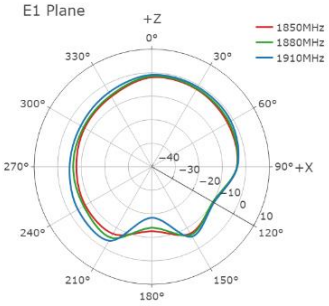
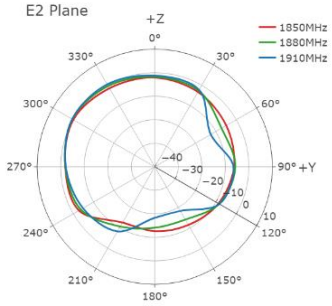
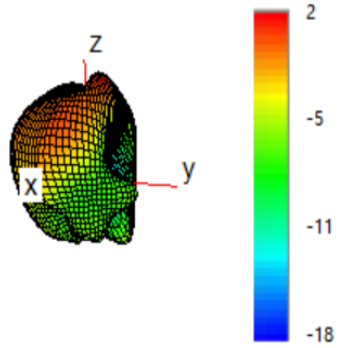
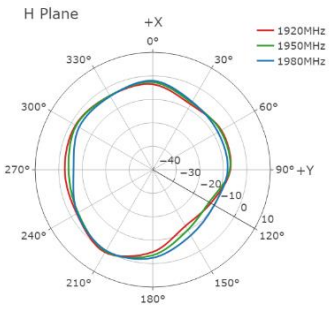
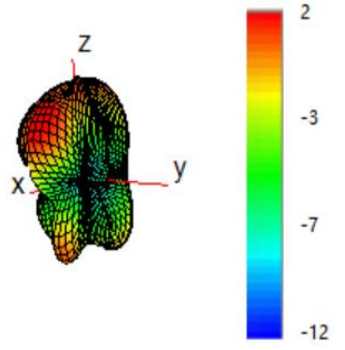
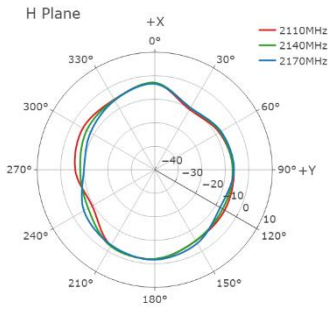
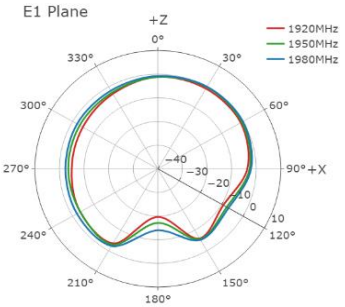
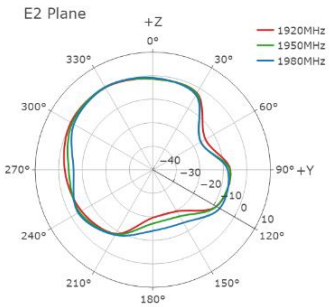
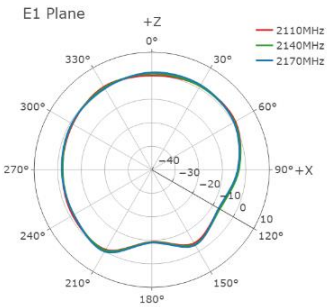
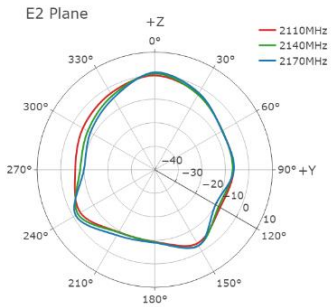
3.2.4. 3D & 2D Radiation Pattern

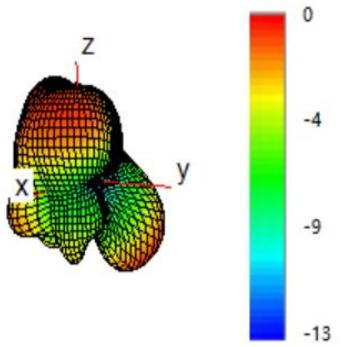
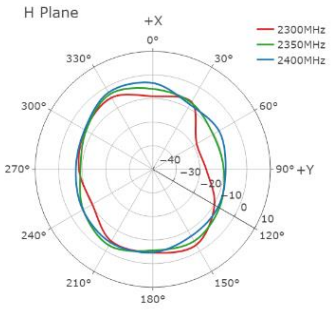
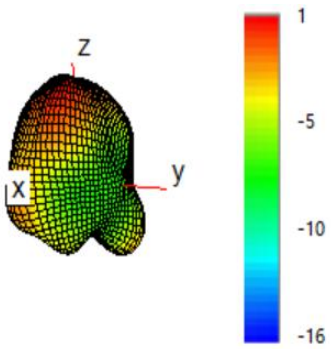
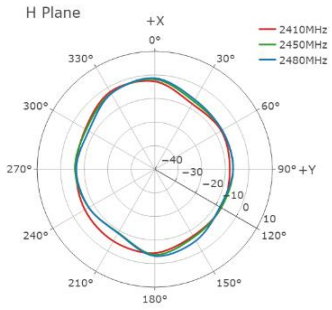
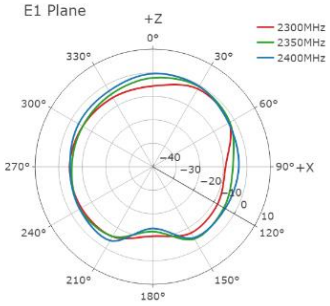
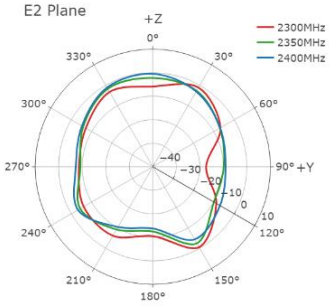
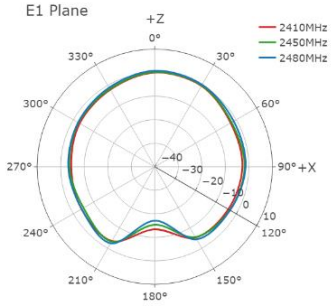
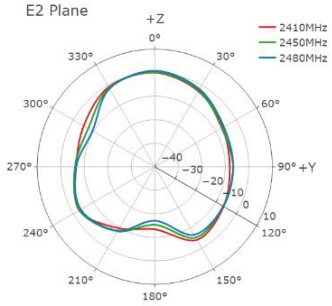
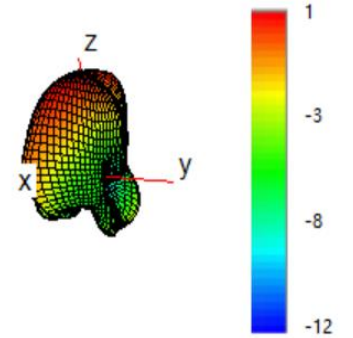
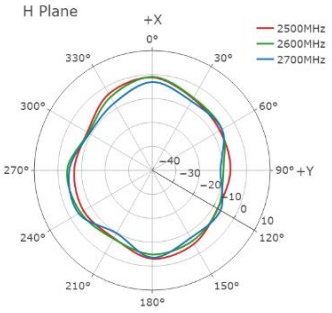
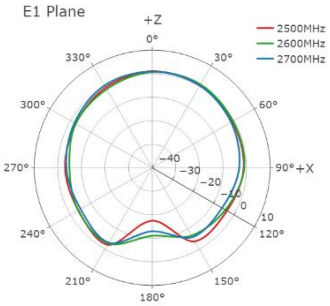
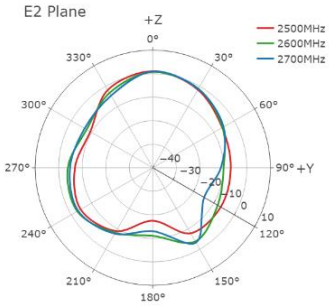
3.2.4.1. Test Condition: Free Space

- Test Chamber: GL-S-1



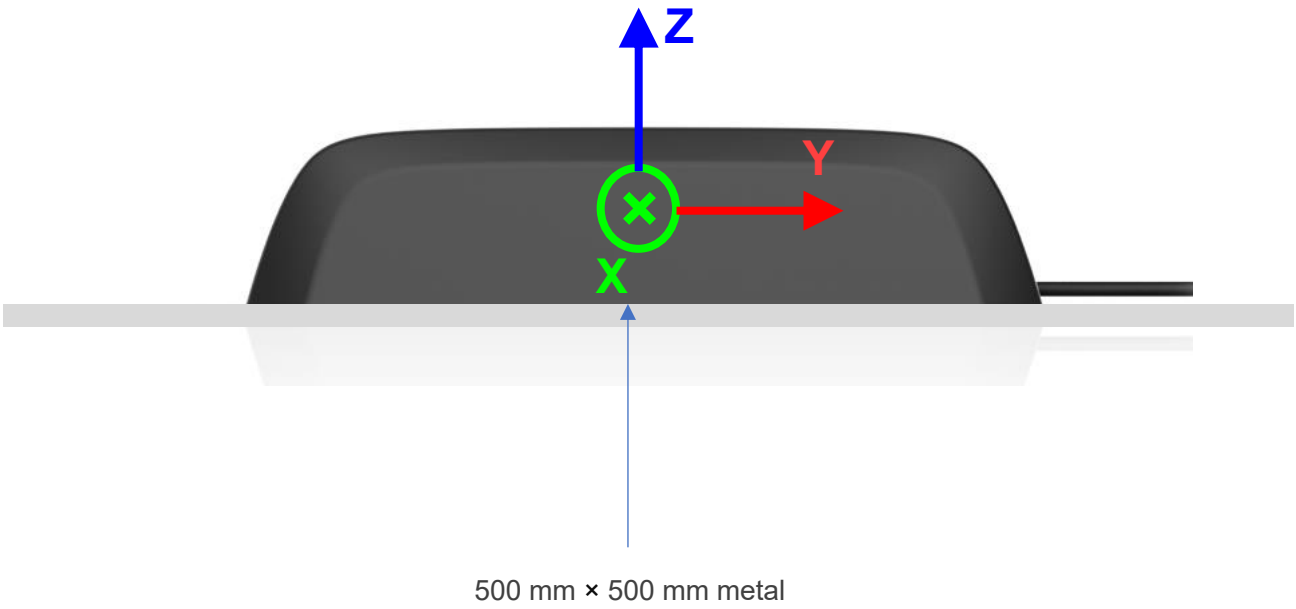
460 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			

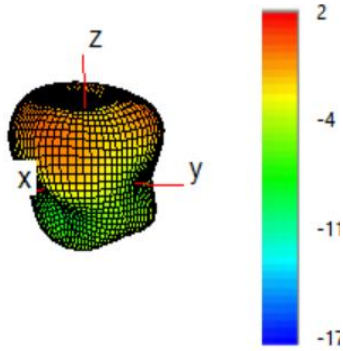
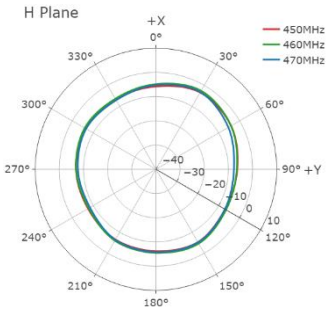
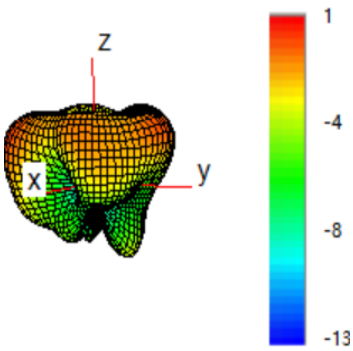
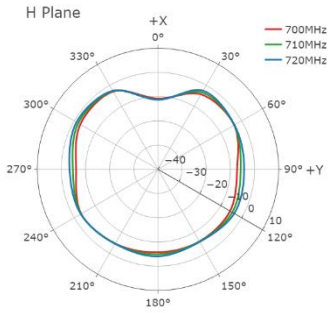
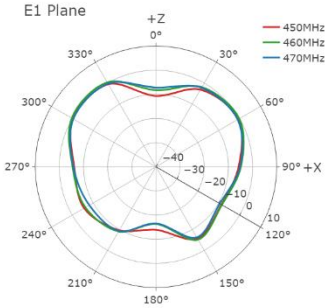
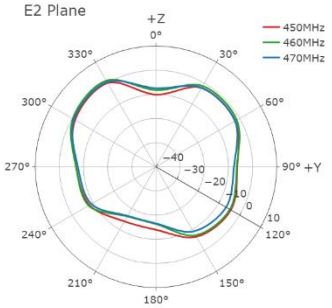
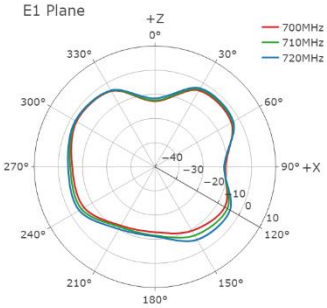
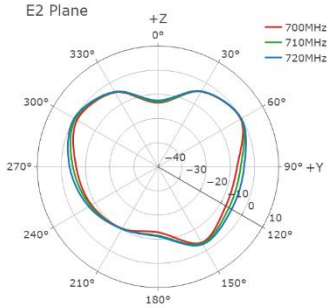
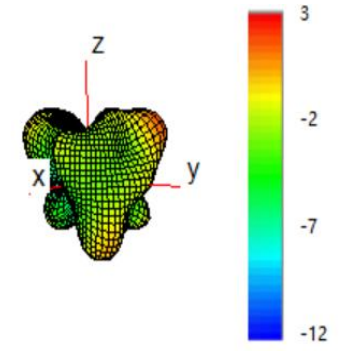
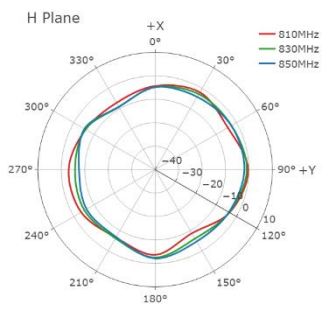
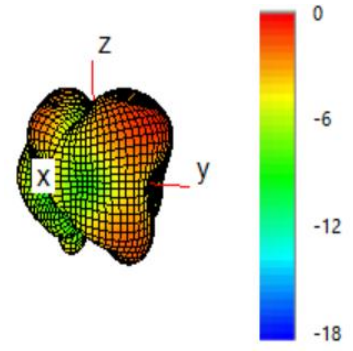
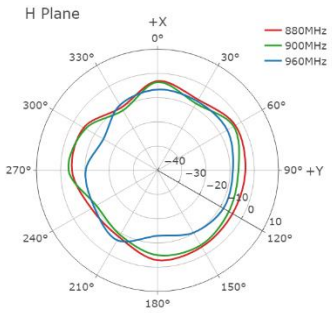
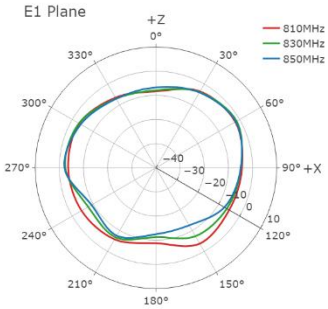
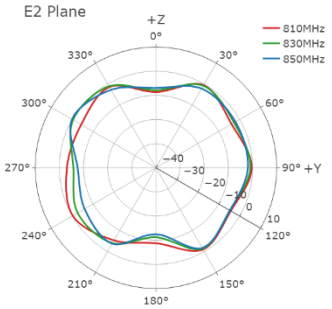
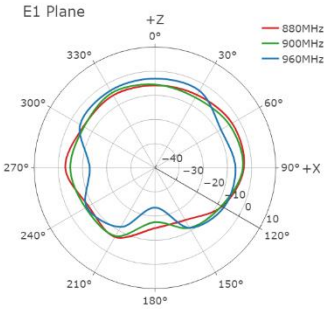
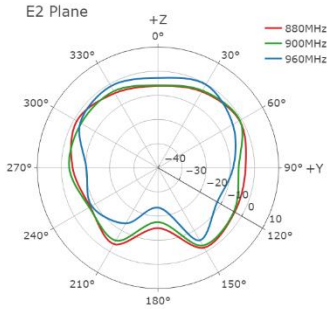
1740 MHz		1880 MHz	
			
			
1950 MHz		2140 MHz	
			
			

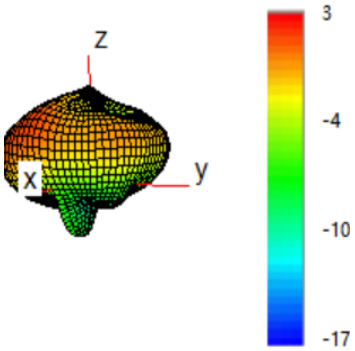
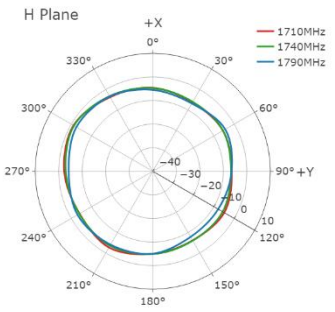
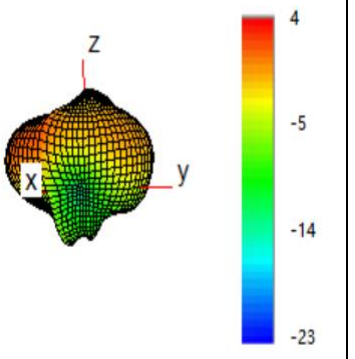
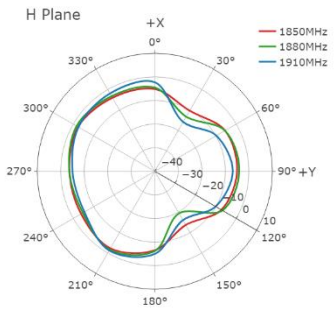
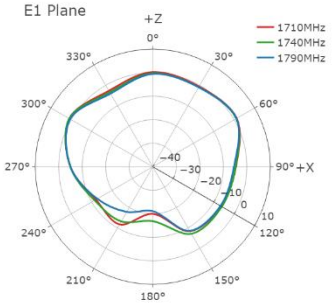
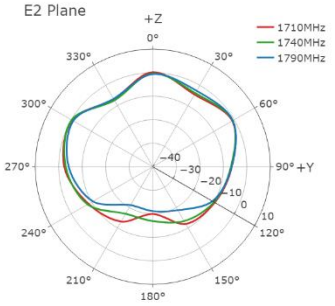
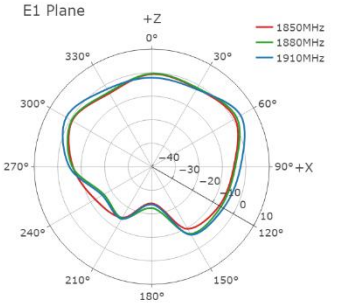
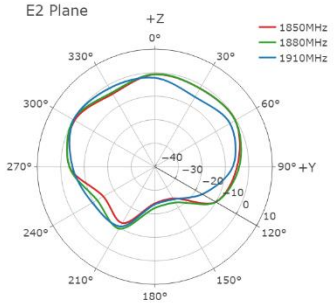
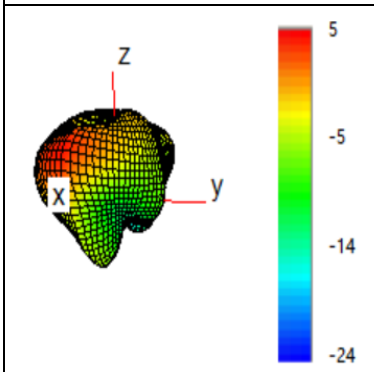
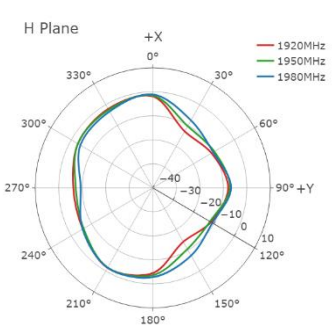
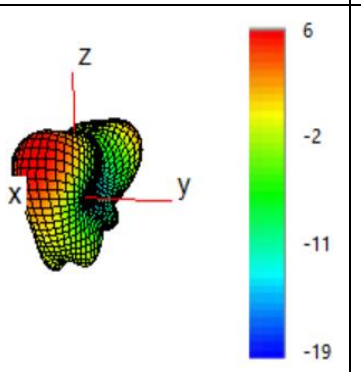
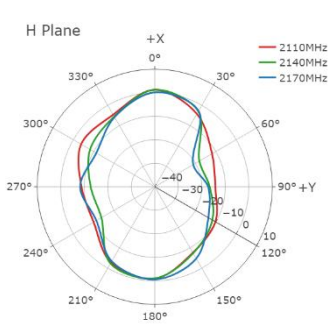
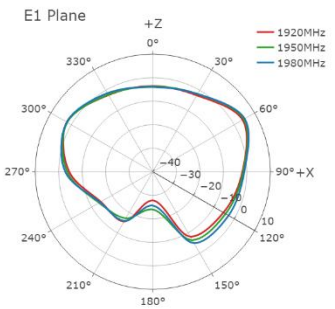
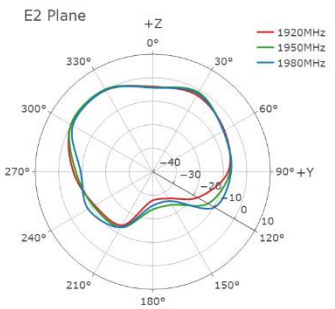
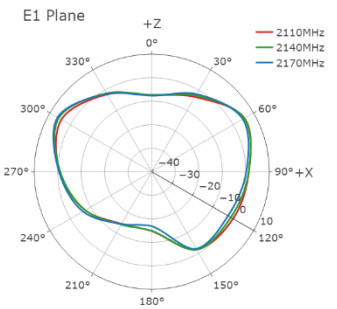
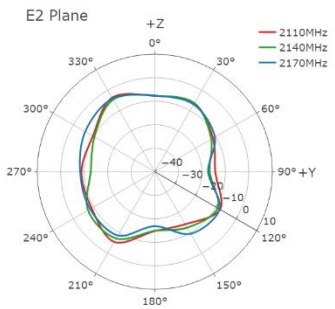
2350 MHz		2450 MHz	
			
			
2600 MHz			
			
			

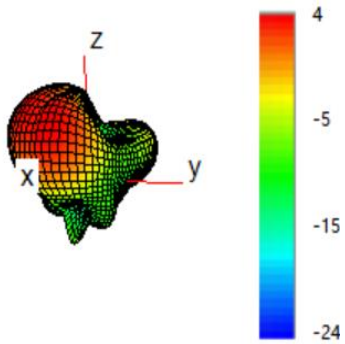
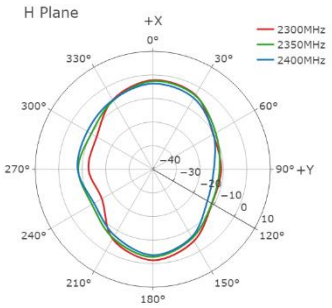
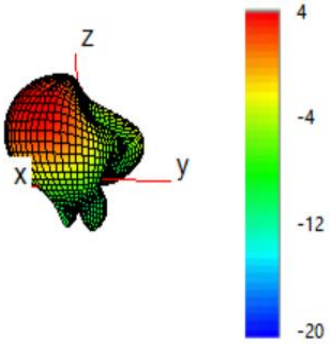
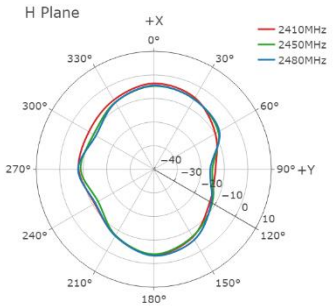
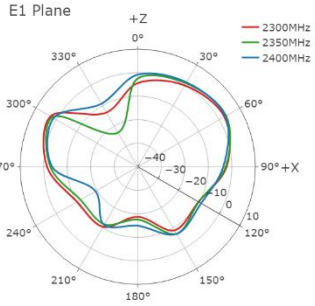
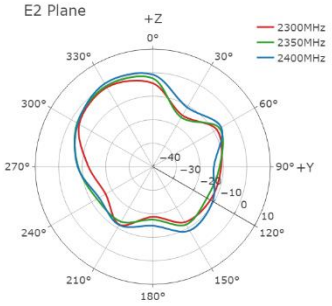
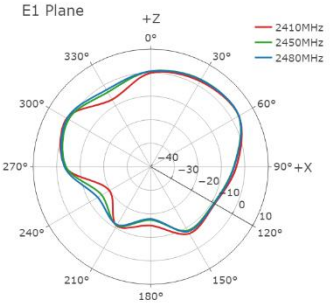
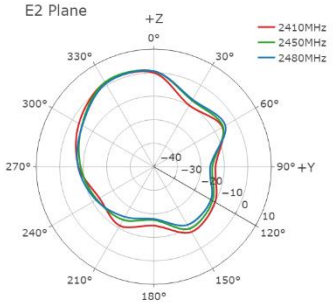
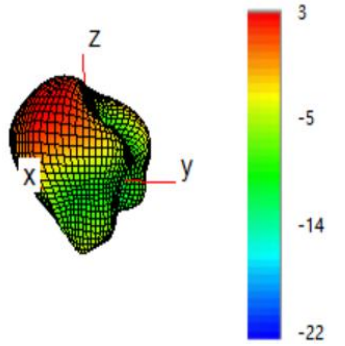
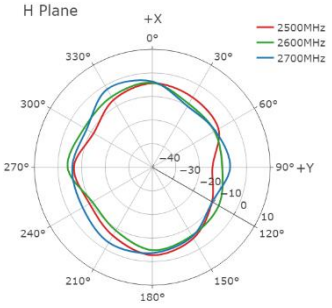
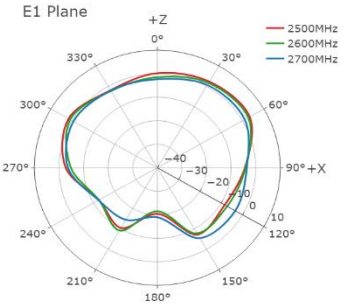
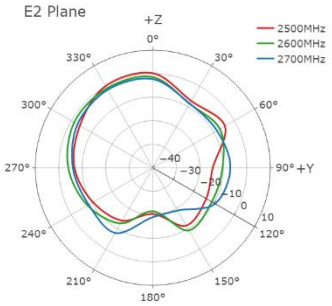
3.2.4.2. Test Condition: On 500 mm × 500 mm Metal Plane

- Test Chamber: GL-S-1

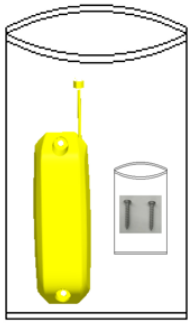
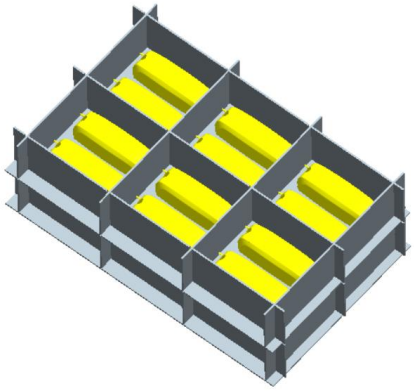
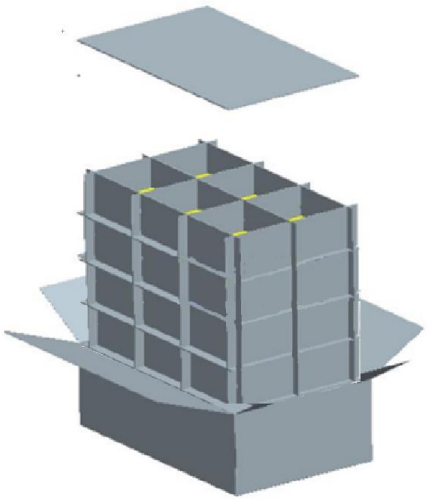


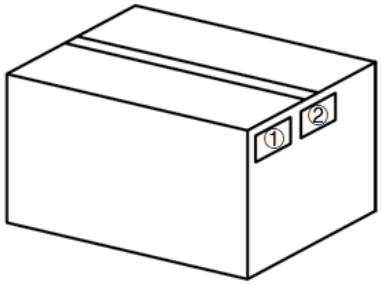
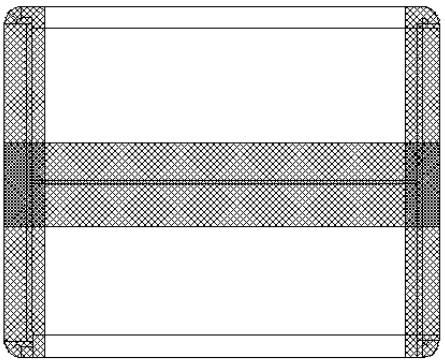
460 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			

1740 MHz		1880 MHz	
			
			
1950 MHz		2140 MHz	
			
			

2350 MHz		2450 MHz	
			
			
2600 MHz			
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 antenna product in a bubble bag. (1 Antenna / Bubble Bag)
2		The products are put into the knife card surface, the cavity of each knife card is loaded with 2 products, and a layer of knife card is loaded with 12 products.
3		Place a clapboard at the bottom and top. Put 4 layers of stack knife cards. (48 Antennas / Carton Box) Estimated quantity Products that cannot fill the entire carton box are packed in a suitable size carton box. Carton Size: L × W × H = 550 × 350 × 405 mm

4		**Position for Attaching Labels** ① Carton Label ② Quality Label
5		**Sealing Cartons** H-shaped sealing cartons

Contact Us

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Revision History

Version	Date	Author	Note
-	2023-05-18	Andy Yan/ Bailey Zhang/ David Liu/ Aria Chu	Creation of the document
1.0	2023-05-18	Andy Yan/ Bailey Zhang/ David Liu/ Aria Chu	First official release
1.1	2023-09-01	Bailey Zhang	Updated the drawing (Chapter 2).
1.2	2024-04-18	David Liu	1. Deleted the table about “Storage” and added the storage temperature (Chapter 1.2). 2. Updated the drawing (Chapter 2). 3. Updated the Packaging (Chapter 4)
1.3	2024-05-09	Bailey Zhang	Updated the cable type (Chapter 1.3 and 2).
1.4	2026-01-05	Bailey Zhang/ Rainey Liao	1. Updated product name. 2. Updated the antenna image (Cover). 3. Updated the overview. 4. Updated the starting frequency to 698 MHz (Cover, Overview and Chapter 1.1). 5. Updated the drawing (Chapter 2). 6. Updated the package (Chapter 4). 7. Listed the relevant data from 450 MHz to 470 MHz separately.

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