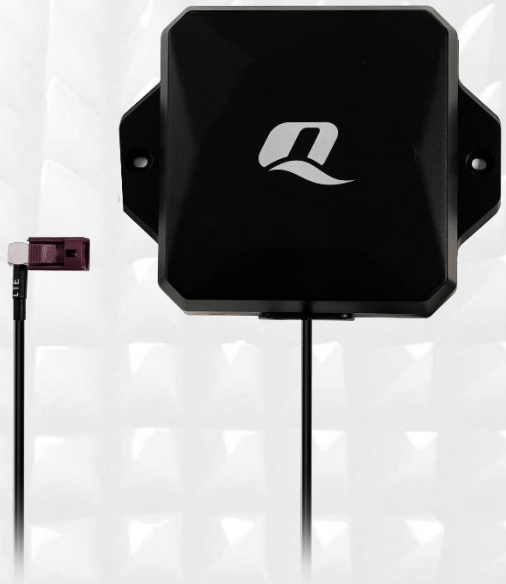


Antenna Datasheet

Product OC: YECM000M5AH
Version: 1.0
Date: 2025-05-26
Status: Released

Product Name: 4G Magnetic Mount External Monopole Antenna
Key Features:
Frequency Band: 450–470 MHz, 700–960 MHz, 1710–2690 MHz
Dimensions: 109.28 mm × 89 mm × 25.8 mm
Efficiency: Up to 57 %
RoHS, REACH and POPS Compliant
IP68

Overview

The YECM000M5AH is a 4G external antenna measuring 109.28 mm × 89 mm × 25.8 mm. This ultra-wide-band 4G external 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 available with connection via cable lengths from 1520 ±20 mm, terminated with FAKRA Female Code D connector. This low profile, magnet & adhesive & screw mount omni-directional external antenna, ideal for applications where the antenna is required to be discrete, is easy to install with maximum durability assured thanks to its IP68 rated, PC enclosure. It is compatible with Quectel's EC2x, EG800x, EG91x and other 4G module Series.

It allows constant and reliable transmission and reception due to its omni-directional gain across all frequency bands. The YECM000M5AH is designed as a dipole antenna, which offers high efficiency in all working bands. It is a perfect antenna product for customers that desire highest performance. This high-efficiency, high-gain omni-directional antenna is ideally suited for smart metering, remote monitoring, vehicle tracking and telematics, and many other IoT devices. It is suitable for outdoor and indoor applications due to its robust UV resistant and flame-resistant PC enclosure meets UL 746c f1 and UL 94 V-0.

Typical applications include:

- Smart Metering,
- Remote Monitoring,
- Vehicle Tracking and Telematics
- IoT Devices

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 300 mm× 300 mm metal plane

1.1. Electrical

Electrical Specifications	
Frequency Range	450–470 MHz, 700–960 MHz, 1710–2690 MHz
Radiation Pattern	Omni-directional
Polarization	Linear
Impedance	50 Ω

Electrical – Detail

Band / SPEC	Band	B71	B12 /B13 /B28	B5 /B8 /B26	n74 /n75 /n76	B1 /B2 /B3	B40	Wi-Fi 2G	B38 /B41	B42 /B48 /n77	n79	Wi-Fi 5G
	Freq. (MHz)	600–700	700–810	820–960	1420–1520	1700–2170	2300–2400	2400–2500	2500–2690	3300–4200	4400–5000	5150–5850
Max. VSWR	FS	-	4.1	2.4	-	2.2	1.8	1.6	1.5	-	-	-
	MP	-	3.6	2.3	-	2.7	1.9	1.9	1.7	-	-	-
Max. Return Loss (dB)	FS	-	-4.3	-7.8	-	-8.3	-10.7	-12.7	-14.3	-	-	-
	MP	-	-4.9	-8.3	-	-6.7	-9.9	-10.1	-12.0	-	-	-
AVG Eff. (%)	FS	-	36.0	53.7	-	42.7	41.4	42.5	41.2	-	-	-
	MP	-	49.3	46.1	-	33.1	42.8	42.6	43.6	-	-	-
AVG AVG Gain (dB)	FS	-	-4.5	-2.7	-	-3.7	-3.8	-3.7	-3.9	-	-	-
	MP	-	-3.1	-3.4	-	-4.8	-3.7	-3.7	-3.6	-	-	-
Max. Peak Gain (dBi)	FS	-	4.4	4.2	-	3.0	0.7	-0.1	0.7	-	-	-
	MP	-	3.1	4.8	-	4.2	6.3	5.3	5.6	-	-	-

VSWR	**FS**	≤ 4.1
	MP	≤ 3.6
Return Loss	**FS**	≤ -4.3 dB
	MP	≤ -4.9 dB
Gain	**FS**	≤ 4.4 dBi
	MP	≤ 6.3 dBi

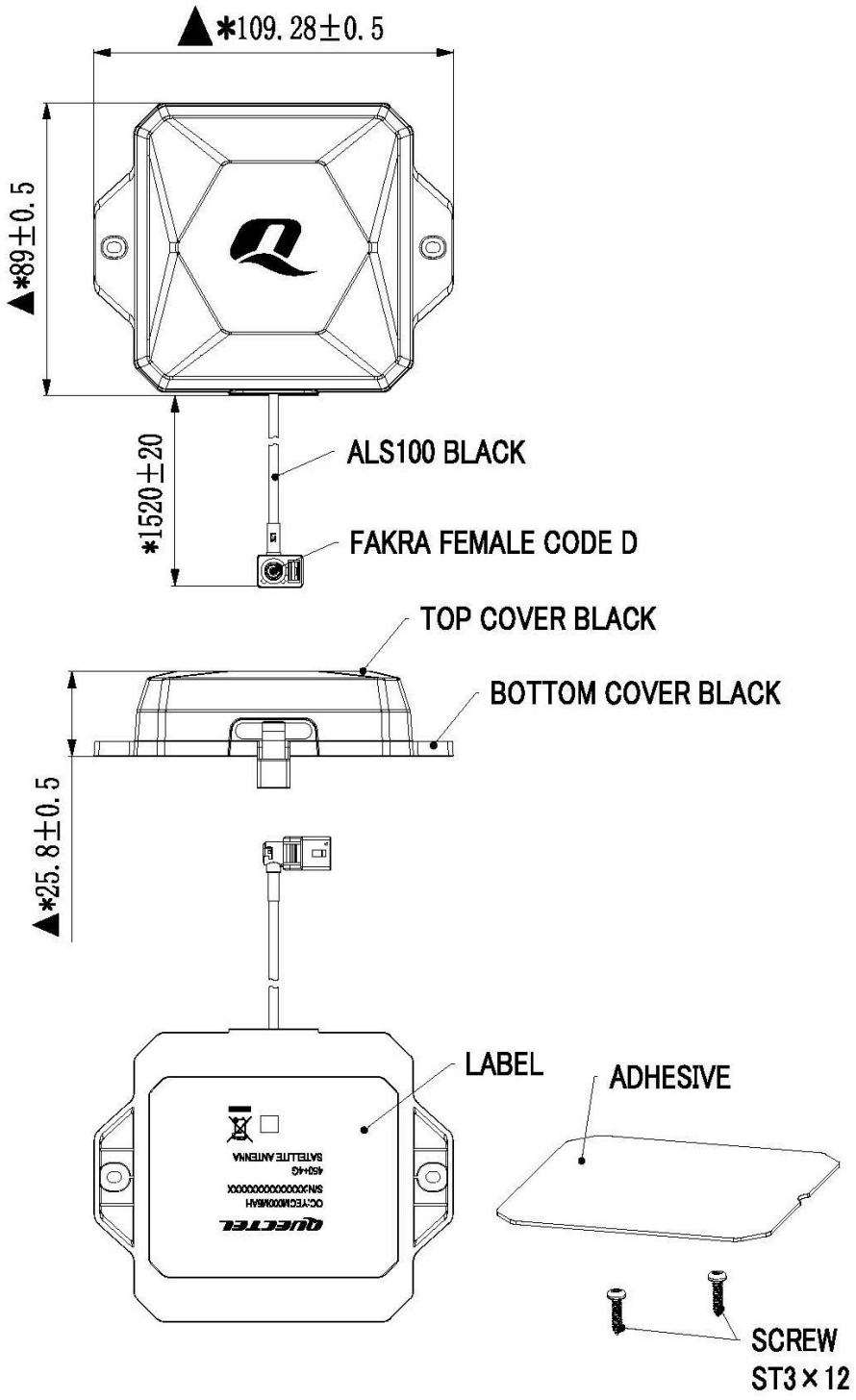
Electrical – Detail			
Band / **SPEC**	**Band**	**B87/B88**	**B31/B72/B73**
	Freq. (MHz)	**410–430 MHz**	**450–470 MHz**
Max. VSWR	**FS**	-	2.0
	MP	-	2.8
Max. Return Loss(dB)	**FS**	-	-9.6
	MP	-	-6.5
AVG Eff. (%)	**FS**	-	52.4
	MP	-	38.5
AVG AVG Gain (dB)	**FS**	-	-2.8
	MP	-	-4.1
Max. Peak Gain (dBi)	**FS**	-	1.8
	MP	-	2.3
VSWR	**FS**	≤ 2.0	
	MP	≤ 2.8	
Return Loss	**FS**	≤ -9.6 dB	
	MP	≤ -6.5 dB	
Peak Gain	**FS**	≤ 1.8 dBi	
	MP	≤ 2.3 dBi	

- FS: In Free Space
- MP: On 300 mm × 300 mm Metal Plane

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	109.28 mm × 89 mm × 25.8 mm
Material & Color	PC & Black
Cable Type & Color & Length	ALS100 & Black & 1520 ±20 mm
Connector Type	FAKRA Female Code D Right Angle (The current state of the connector is not waterproof. If a waterproof connector is required, it can be customized.)
Mounting Type	Magnet & Adhesive & Screw
Weight	Typ. 130 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS & REACH & POPS Compliant	Yes
Ingress Protection (IP) Rating	IP68 (Immersion in 1 meter of water for 1 hour)
Housing Flame Rating	UL 94 V-0
Housing UV Resistant	UL 746c f1

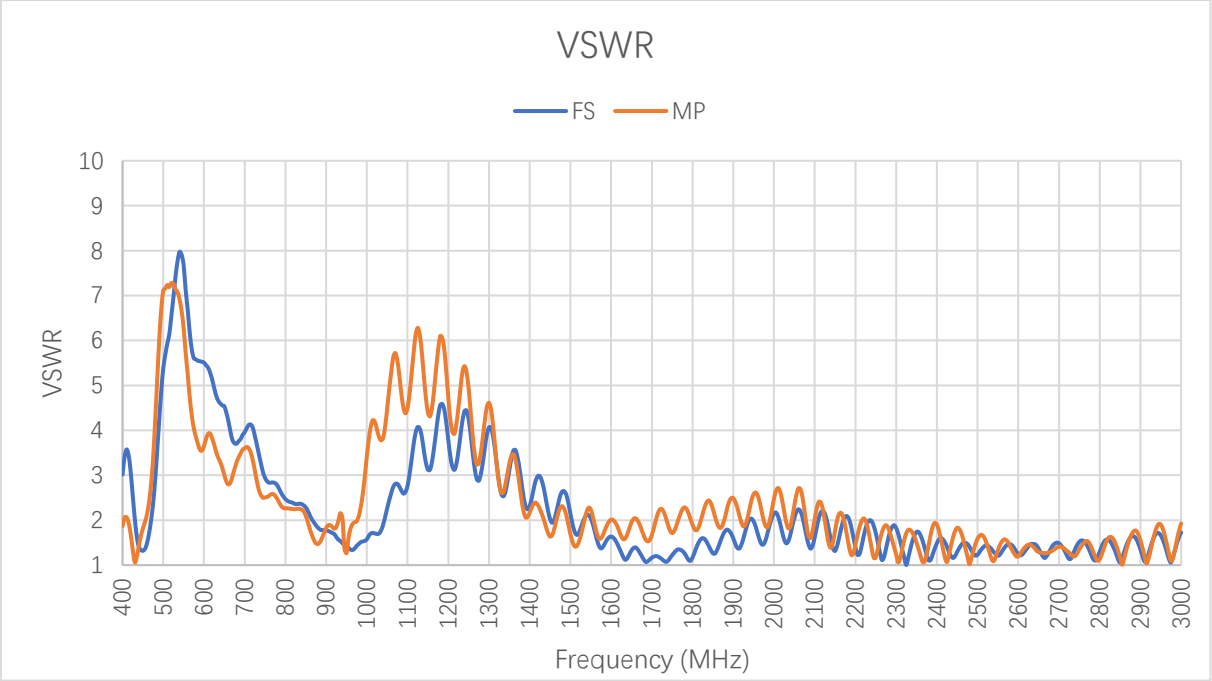
2 Drawing


▲*109.28±0.5
▲*89±0.5
*1520±20
ALS100 BLACK
FAKRA FEMALE CODE D
TOP COVER BLACK
BOTTOM COVER BLACK
▲*25.8±0.5
LABEL
ADHESIVE
SCREW
ST3×12

3 Detailed Performance

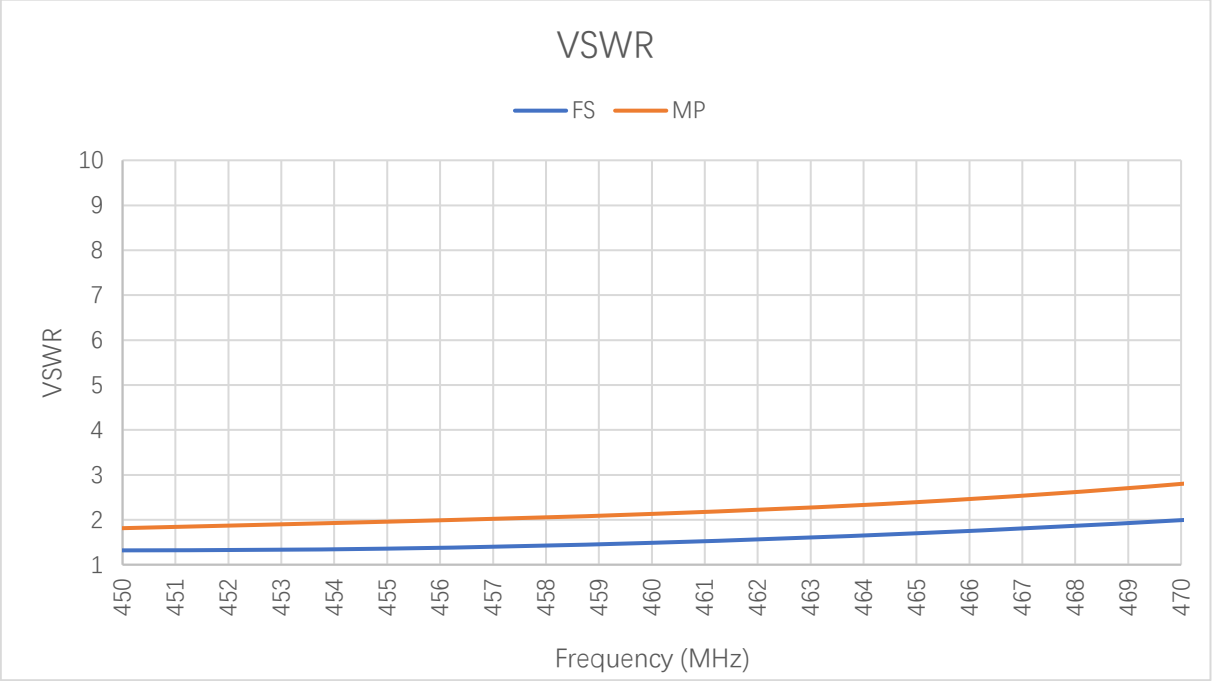
3.1. S-Parameter Test

3.1.1. VSWR



VSWR

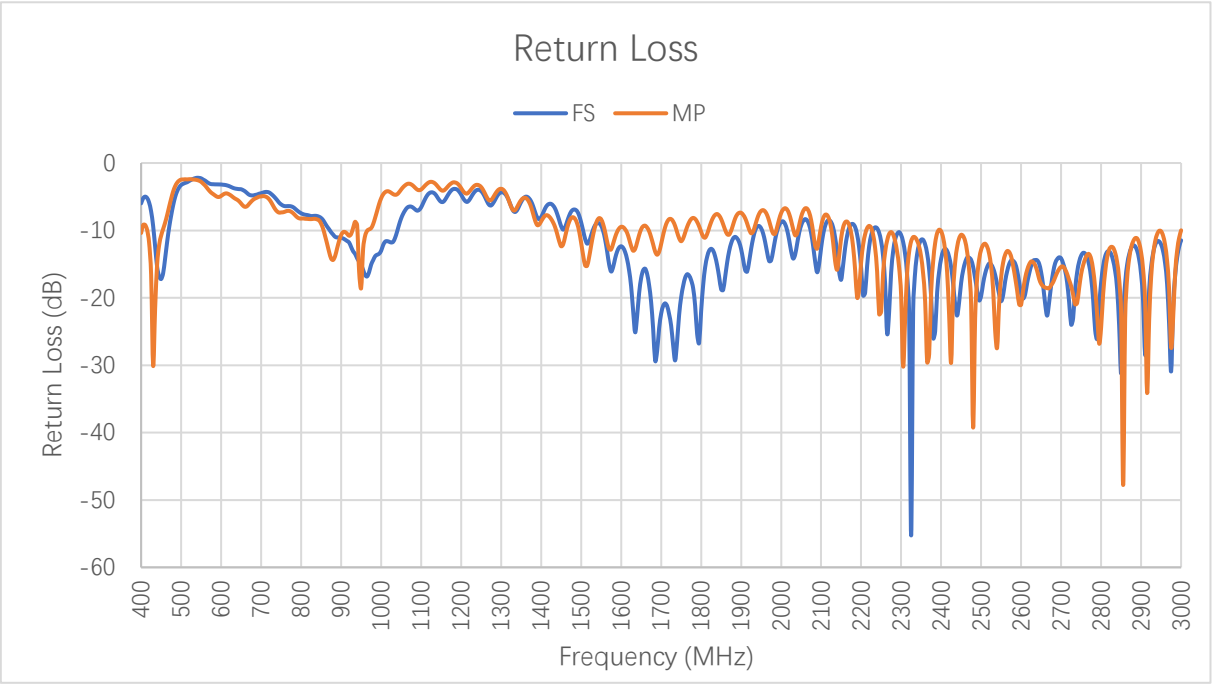
Frequency (MHz)		450	470	710	830	900	960	1440	1710	1740	1880
LTE	FS	1.3	2.0	4.1	2.4	1.8	1.3	-	1.2	1.1	1.8
	MP	1.8	2.8	3.6	2.3	1.8	1.8	-	2.0	1.9	2.1
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE	FS	2.0	1.6	1.7	1.3	1.2	1.5	-	-	-	-
	MP	2.6	1.4	1.5	1.8	1.2	1.4	-	-	-	-



VSWR

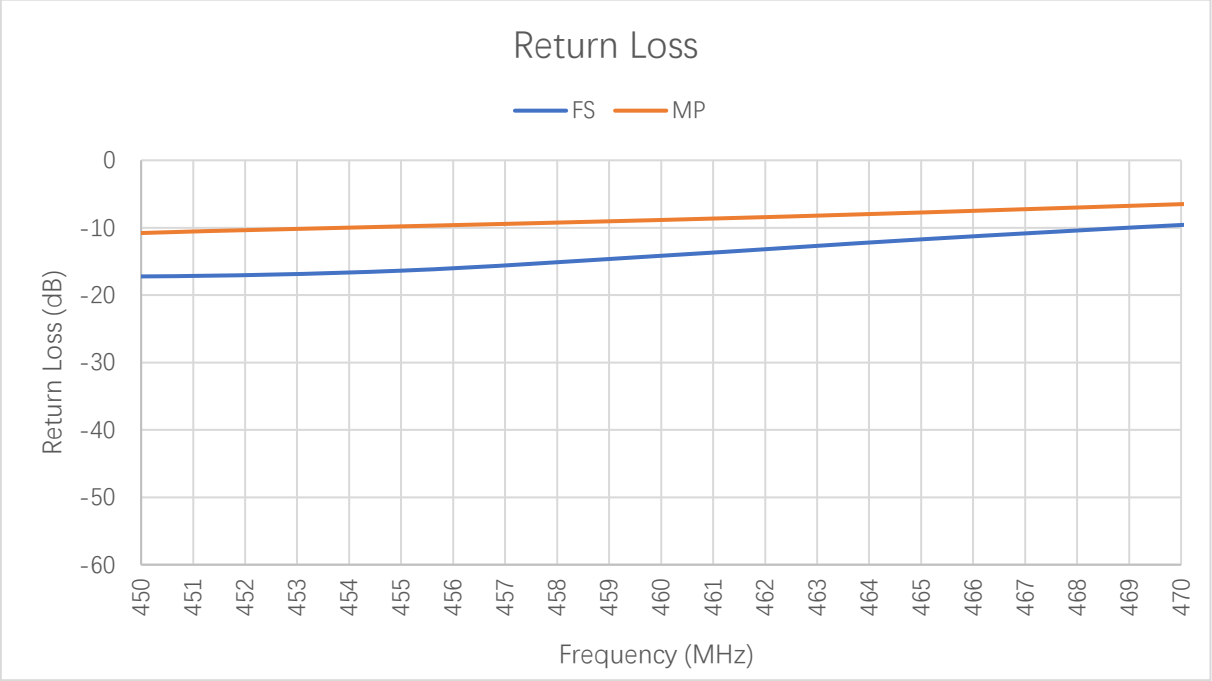
Frequency (MHz)	410	420	430	440	450	460	470
FS	-	-	-	-	1.3	1.5	2.0
MP	-	-	-	-	1.8	2.1	2.8

3.1.2. Return Loss



Return Loss (dB)

Frequency (MHz)		450	470	710	830	900	960	1440	1710	1740	1880
LTE	FS	-17.2	-9.6	-4.3	-7.9	-11.1	-16.6	-	-20.8	-26.4	-11.2
	MP	-10.8	-6.5	-5.0	-8.3	-10.7	-10.8	-	-9.5	-10.3	-9.1
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE	FS	-9.7	-13.3	-11.4	-17.8	-19.4	-14.3	-	-	-	-
	MP	-7.1	-15.8	-13.9	-10.7	-21.0	-16.3	-	-	-	-

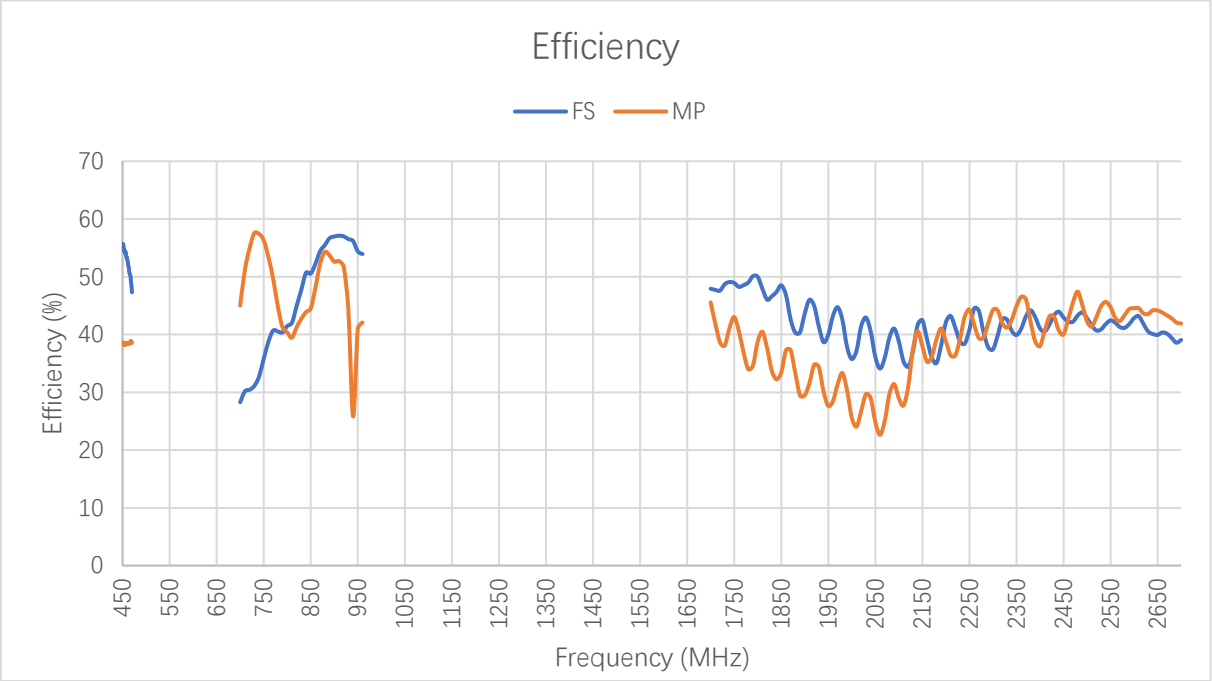


Return Loss (dB)

Frequency (MHz)	410	420	430	440	450	460	470
FS	-	-	-	-	-17.2	-14.2	-9.6
MP	-	-	-	-	-10.8	-8.8	-6.5

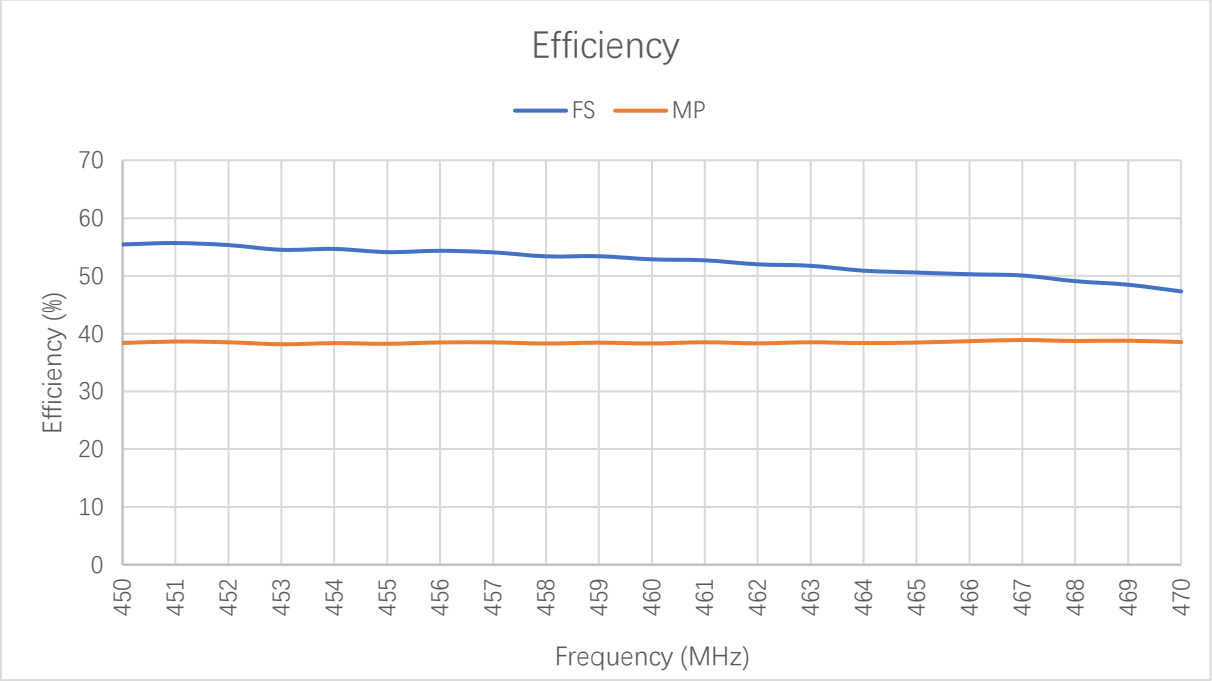
3.2. Radiation Performance Test

3.2.1. Efficiency



Efficiency (%)

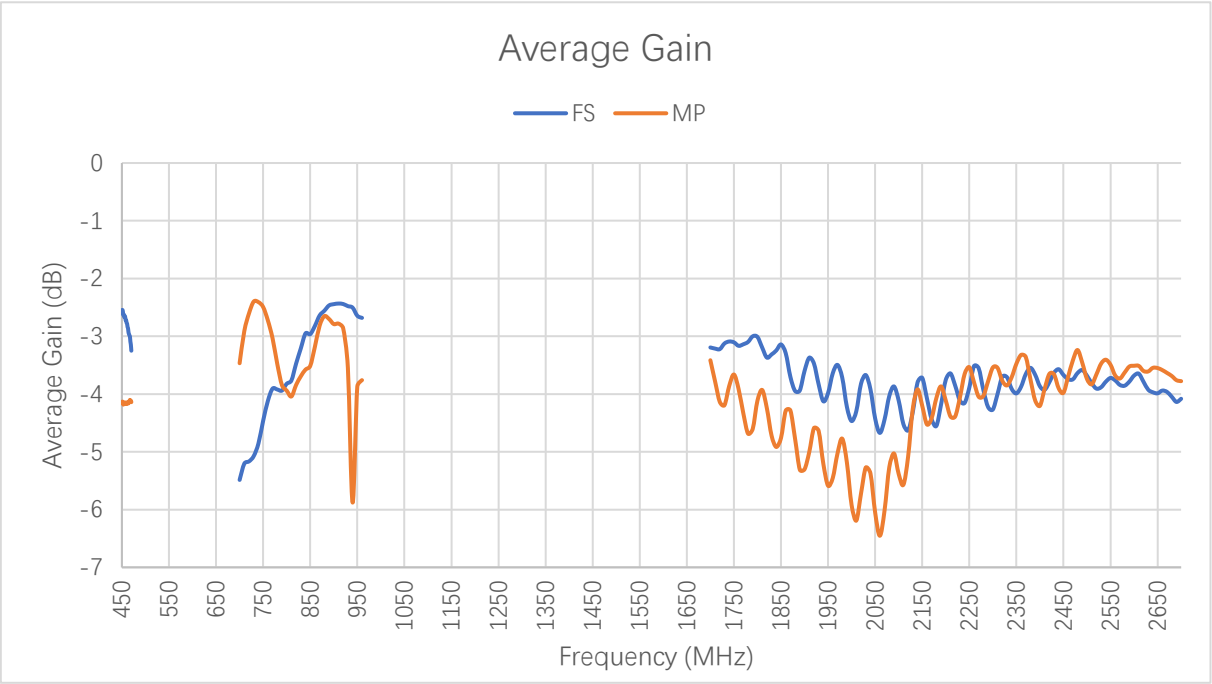
Frequency (MHz)		450	470	710	830	900	960	1440	1710	1740	1880
LTE	FS	55.5	47.3	30.2	47.8	57.0	53.9	-	47.7	49.1	40.3
	MP	38.4	38.6	51.2	42.7	52.6	42.1	-	41.9	41.1	33.3
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE	FS	40.0	41.7	39.9	43.0	42.9	38.6	-	-	-	-
	MP	27.6	40.6	44.9	40.0	44.6	42.1	-	-	-	-



Efficiency (%)

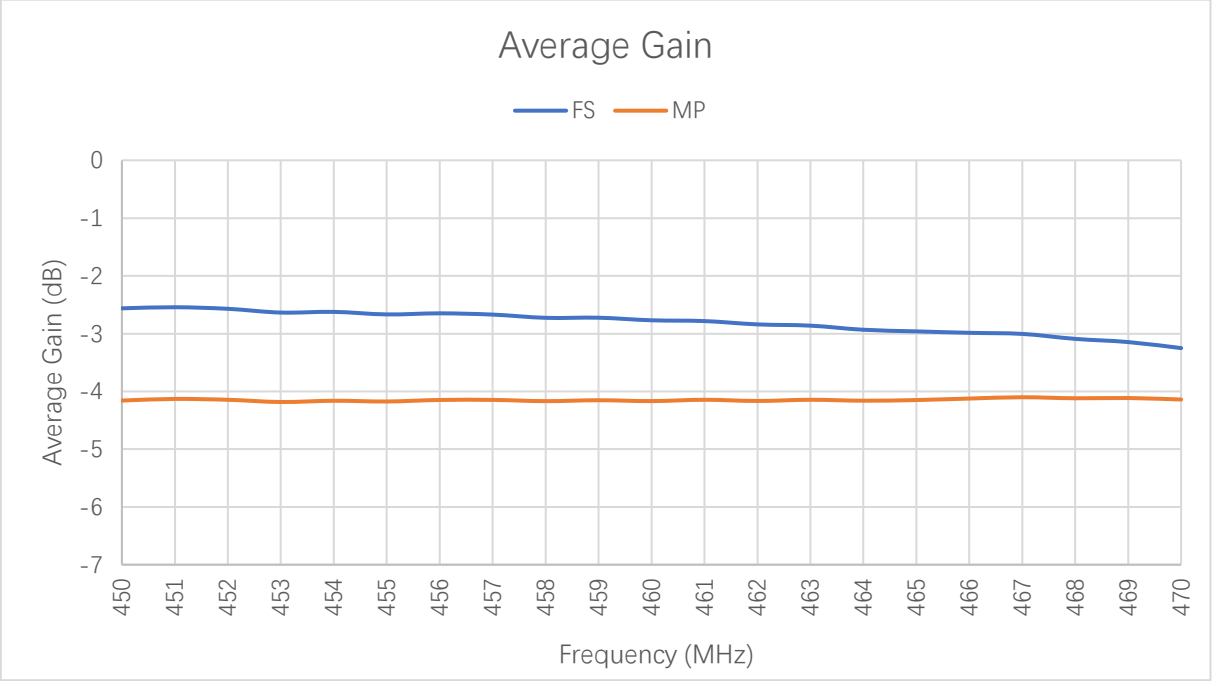
Frequency (MHz)	410	420	430	440	450	460	470
FS	-	-	-	-	55.5	52.9	47.3
MP	-	-	-	-	38.4	38.3	38.6

3.2.2. Average Gain



Average Gain (dB)

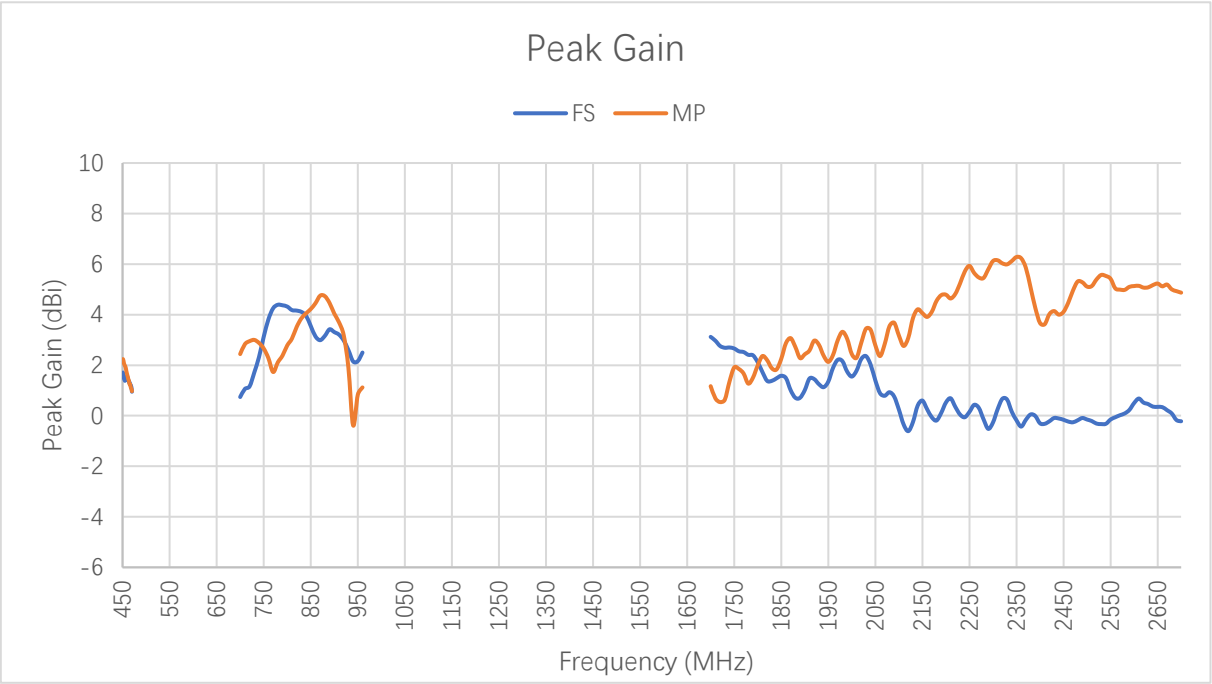
Frequency (MHz)		450	470	710	830	900	960	1440	1710	1740	1880
LTE	FS	-2.6	-3.2	-5.2	-3.2	-2.4	-2.7	-	-3.2	-3.1	-3.9
	MP	-4.2	-4.1	-2.9	-3.7	-2.8	-3.8	-	-3.8	-3.9	-4.8
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE	FS	-4.0	-3.8	-4.0	-3.7	-3.7	-4.1	-	-	-	-
	MP	-5.6	-3.9	-3.5	-4.0	-3.5	-3.8	-	-	-	-



Average Gain (dB)

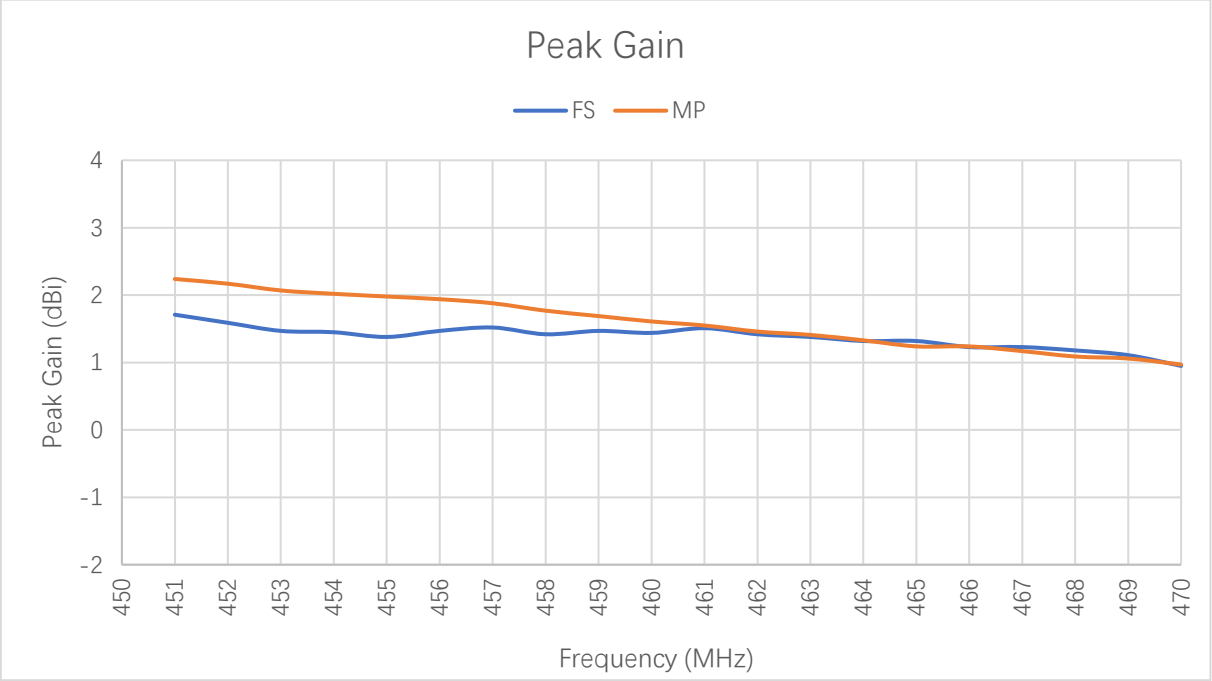
Frequency (MHz)	410	420	430	440	450	460	470
FS	-	-	-	-	-2.6	-2.8	-3.2
MP	-	-	-	-	-4.2	-4.2	-4.1

3.2.3. Peak Gain



Peak Gain (dBi)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
LTE	FS	1.8	1.0	1.1	4.1	3.3	2.5	-	3.0	2.7	0.7
	MP	2.3	1.0	2.8	3.9	4.0	1.1	-	0.7	1.4	2.7
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE	FS	1.4	0.4	-0.2	-0.2	0.5	-0.2	-	-	-	-
	MP	2.1	4.2	6.3	4.1	5.1	4.9	-	-	-	-



Peak Gain (dBi)

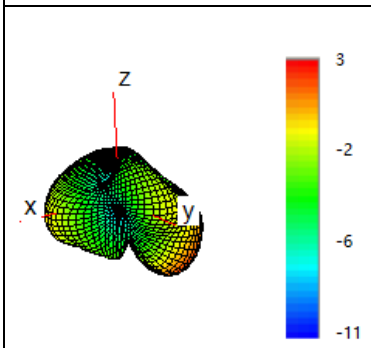
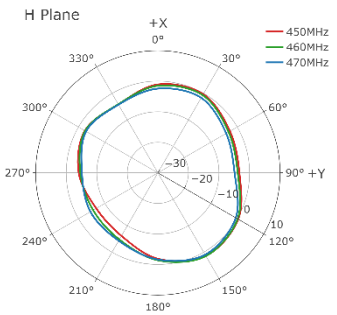
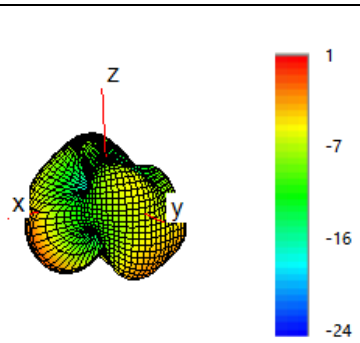
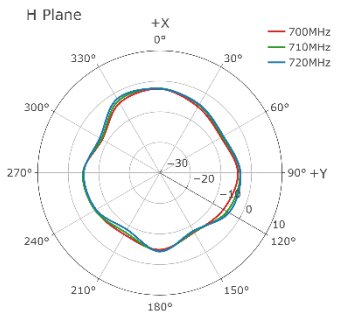
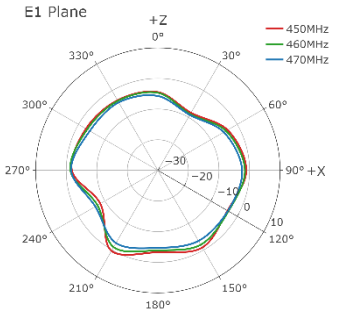
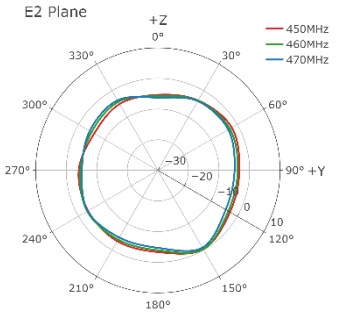
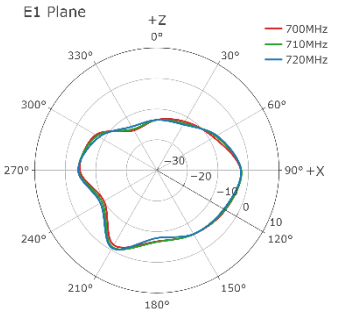
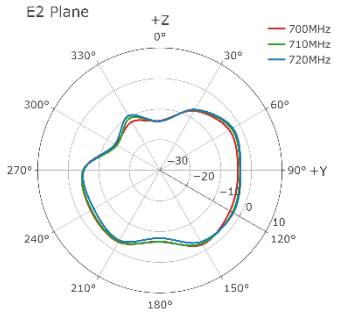
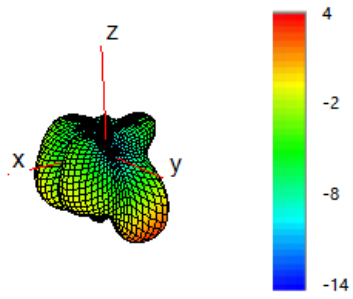
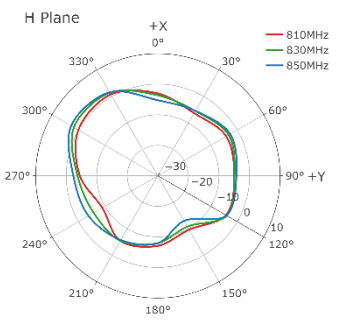
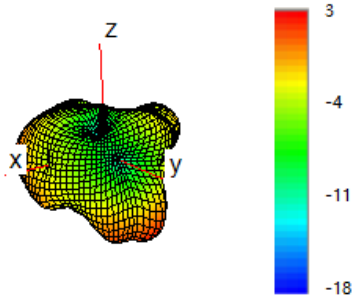
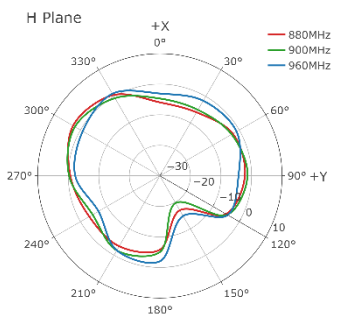
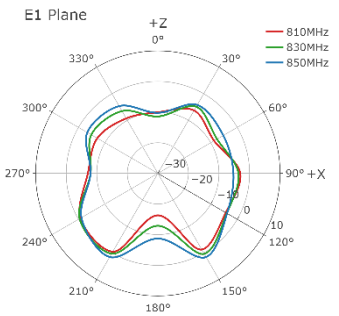
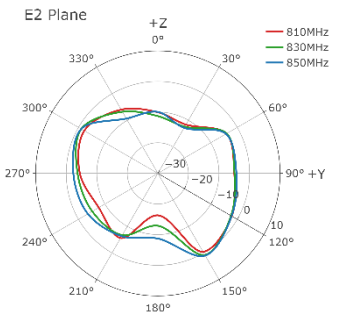
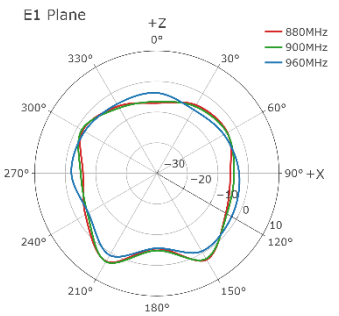
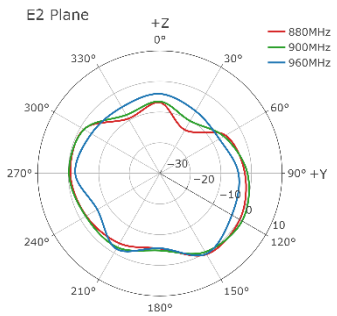
Frequency (MHz)	410	420	430	440	450	460	470
FS	-	-	-	-	1.8	1.4	1.0
MP	-	-	-	-	2.3	1.6	1.0

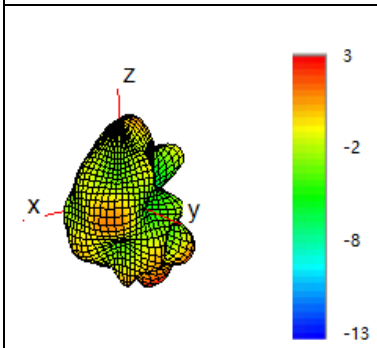
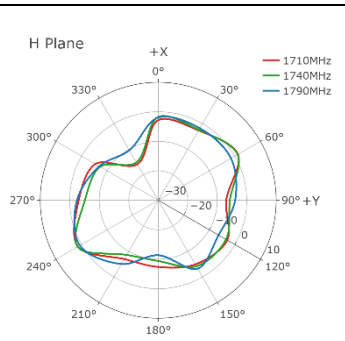
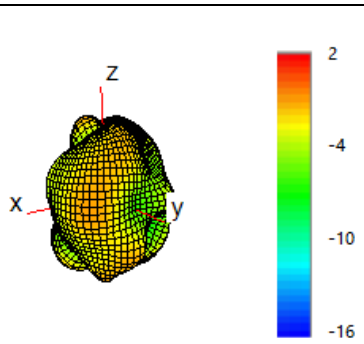
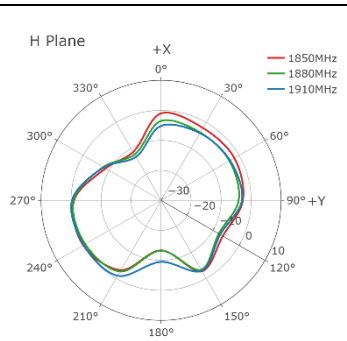
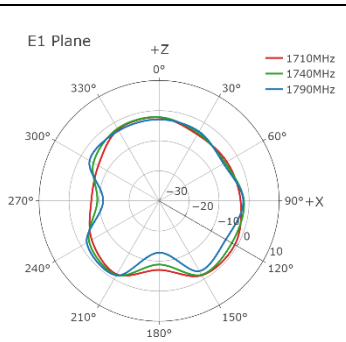
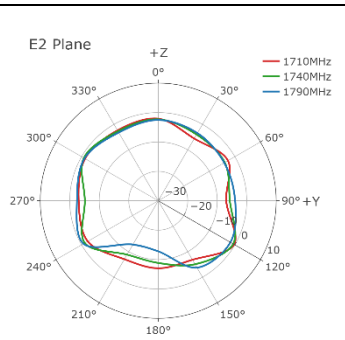
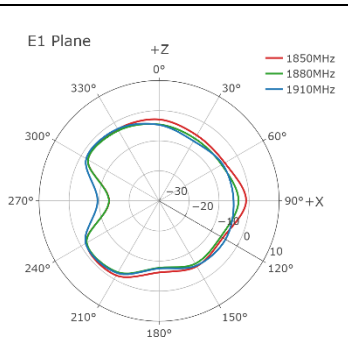
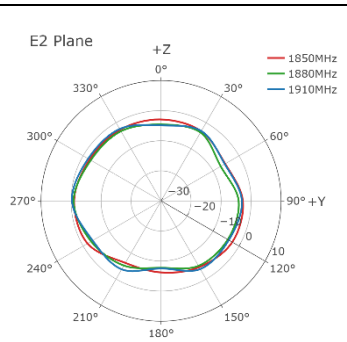
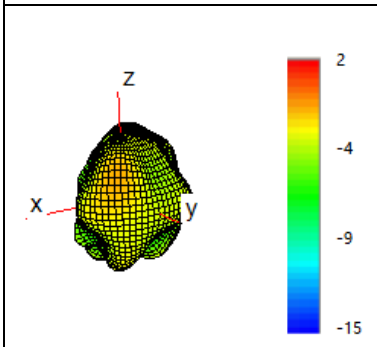
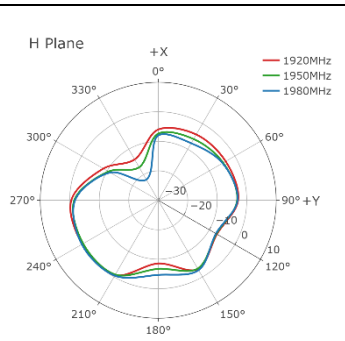
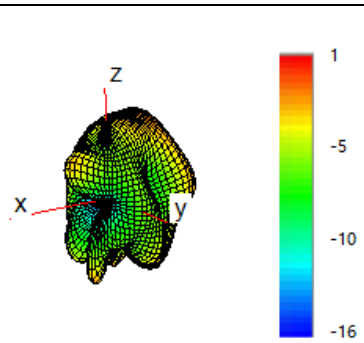
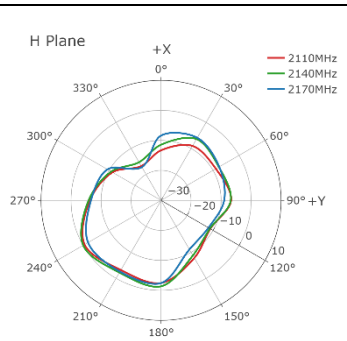
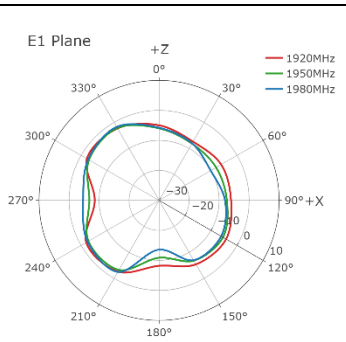
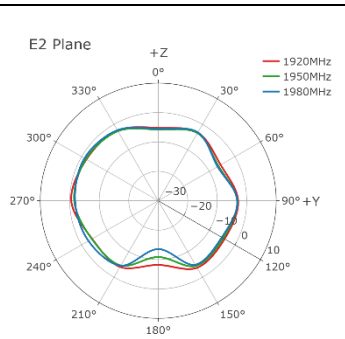
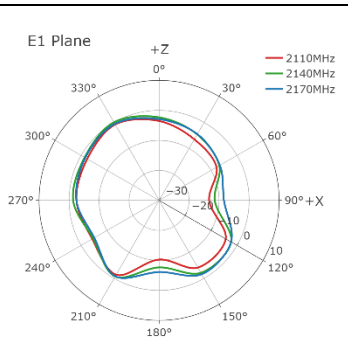
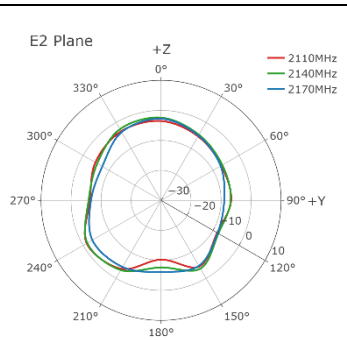
3.2.4. 3D & 2D Radiation Pattern

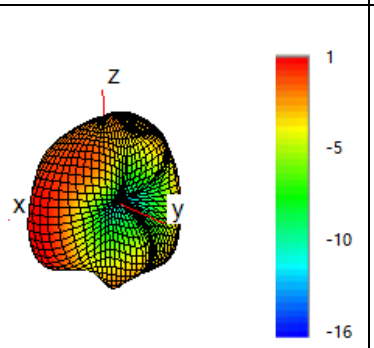
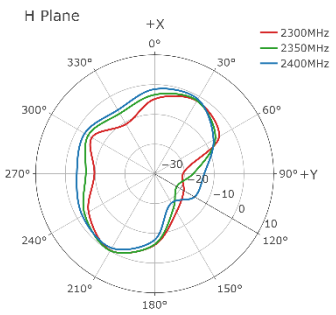
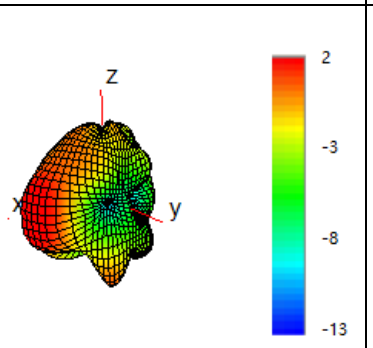
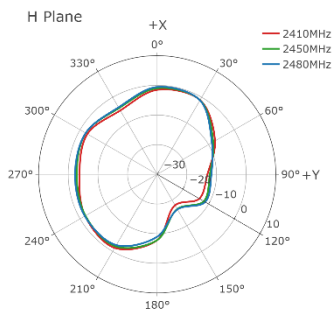
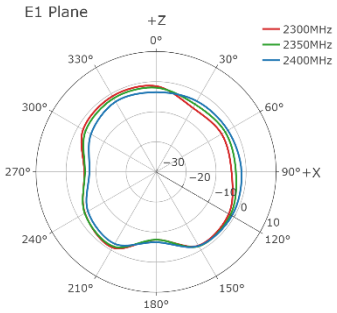
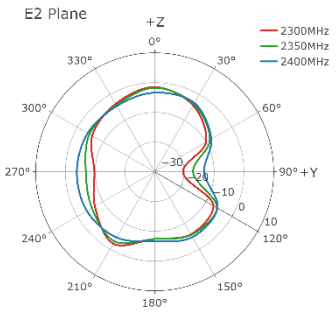
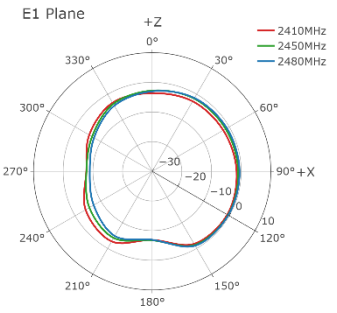
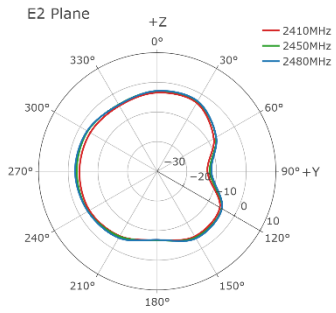
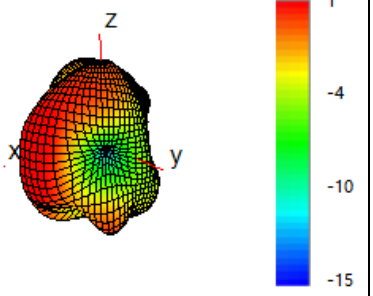
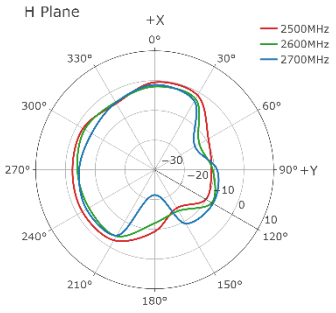
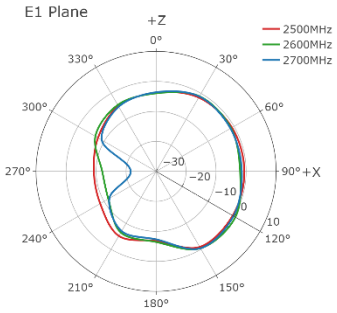
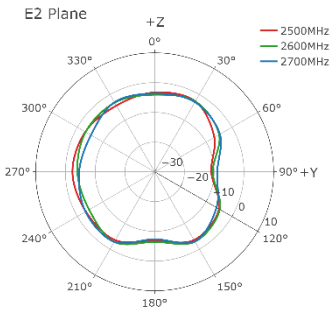
3.2.4.1. Test Status: Free Space

- Test Chamber: FS-G-1

- **LTE**

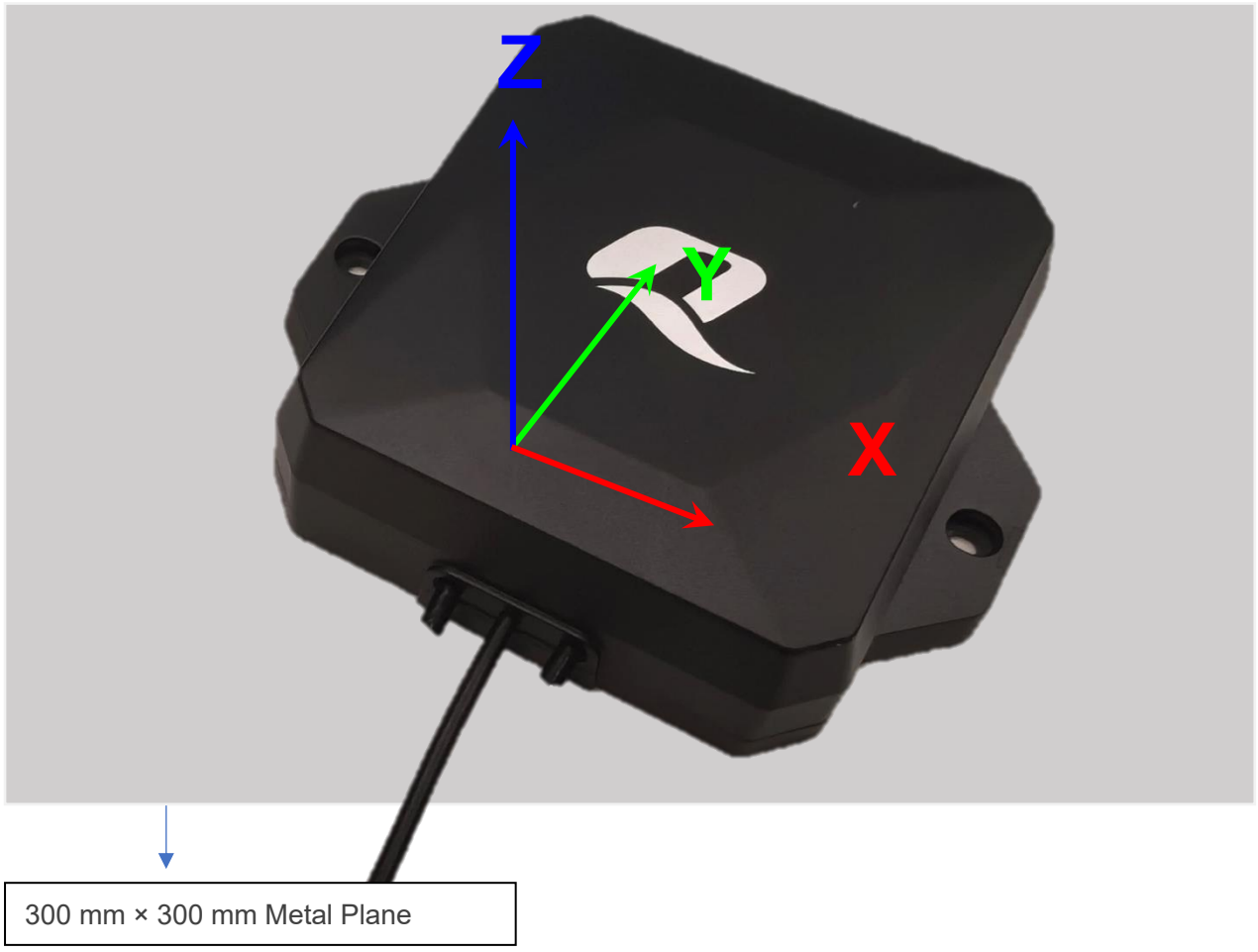
460 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			

1740 MHz		1880 MHz	
			
			
1950 MHz		2140 MHz	
			
			

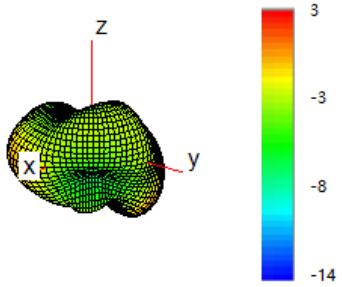
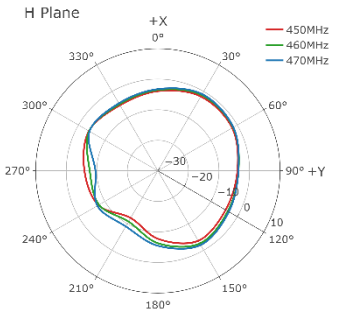
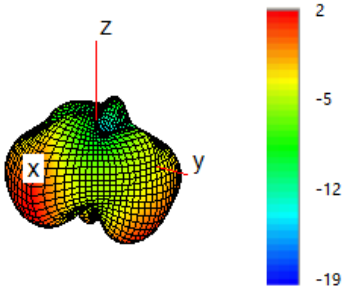
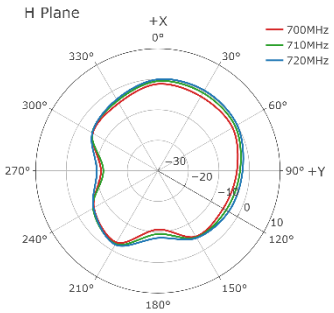
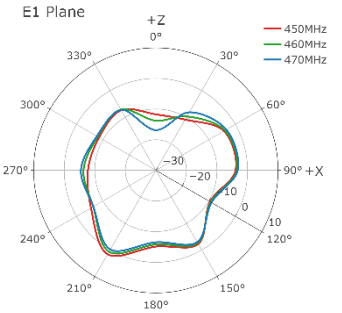
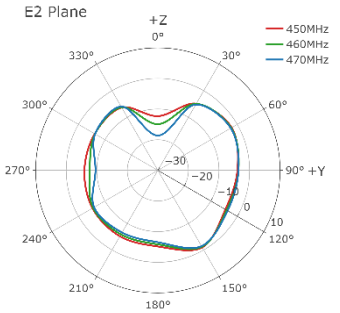
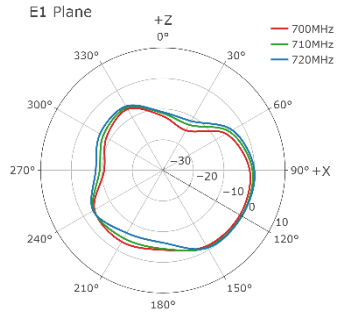
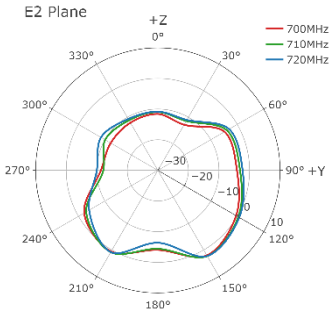
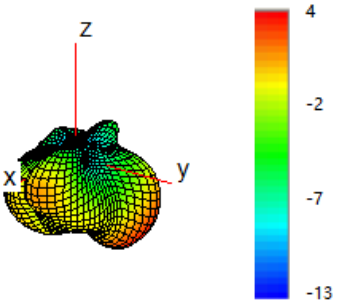
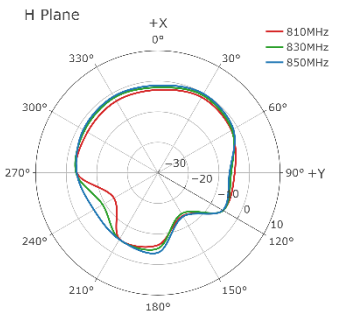
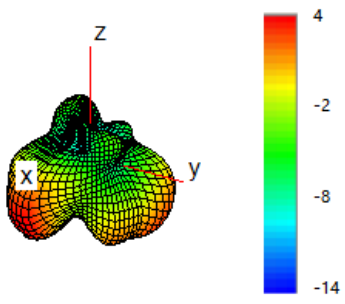
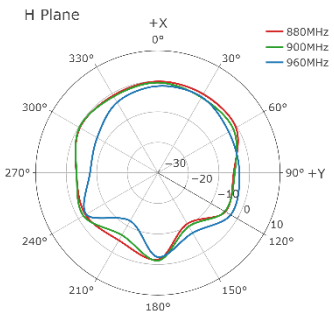
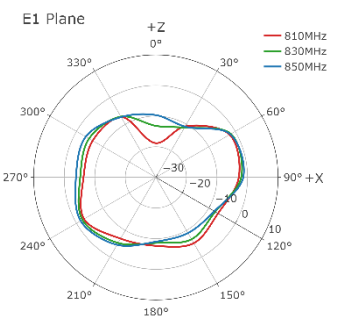
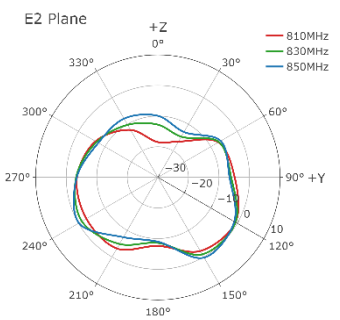
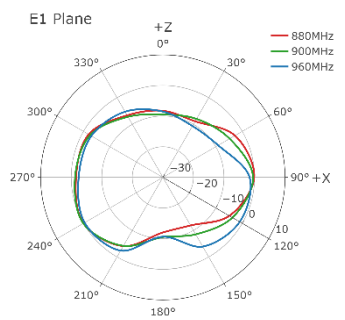
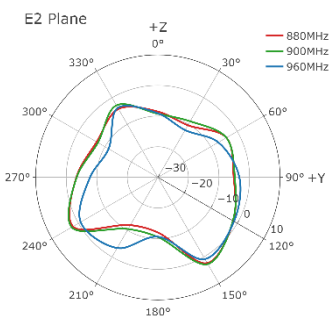
2350 MHz		2450 MHz	
			
			
2600 MHz			
			
			

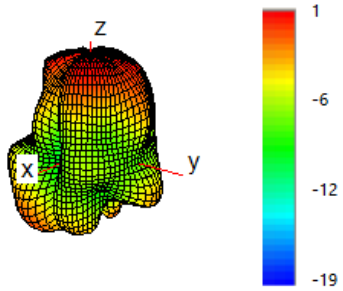
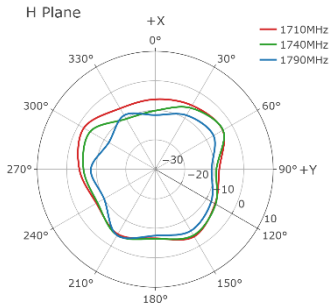
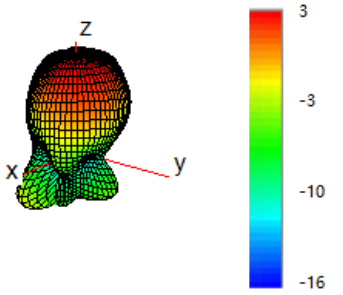
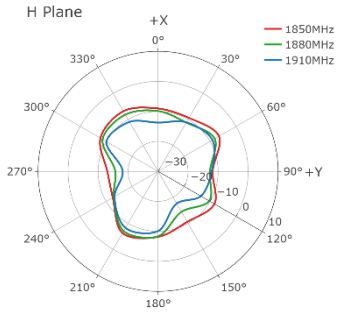
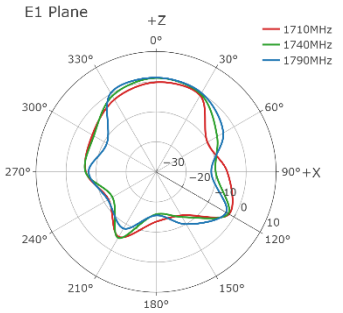
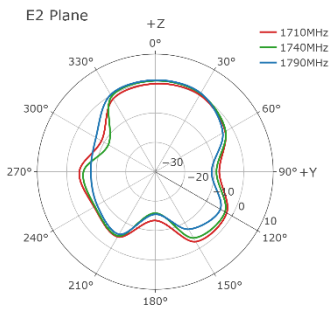
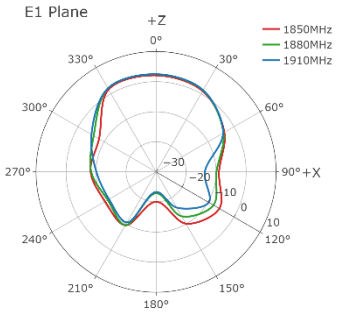
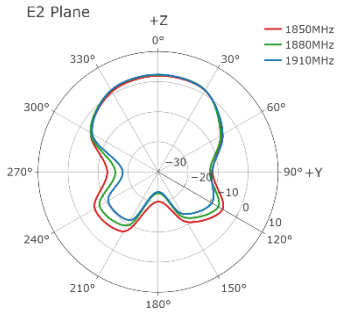
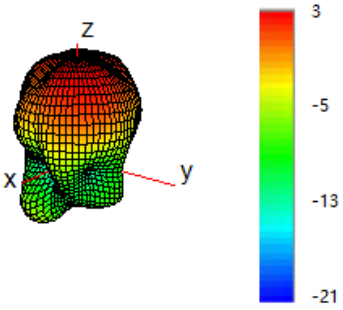
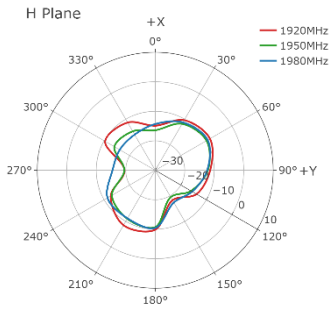
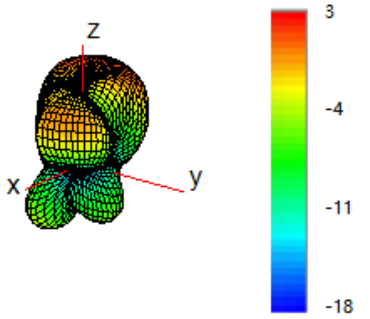
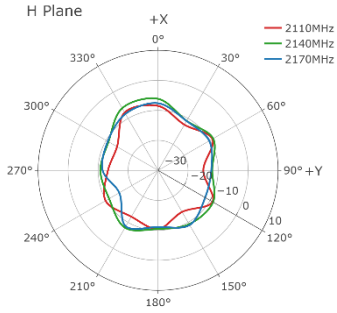
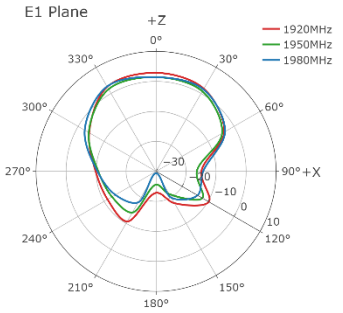
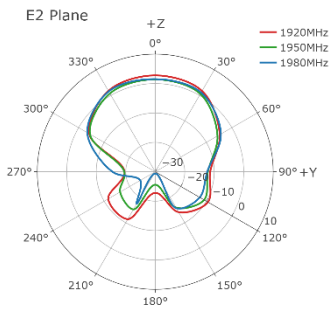
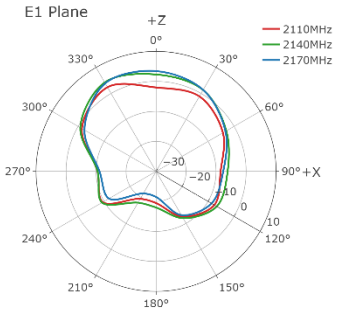
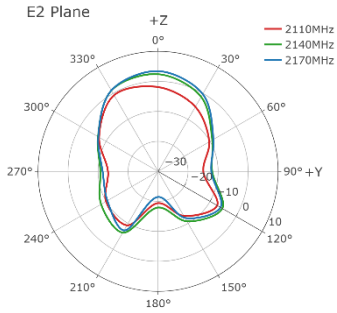
3.2.4.2. Test Status: On 300 mm × 300 mm Metal Plane

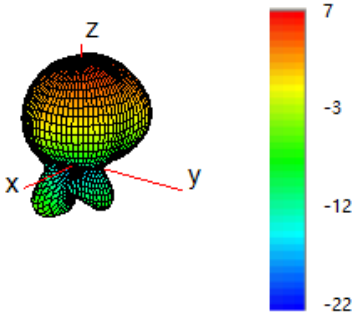
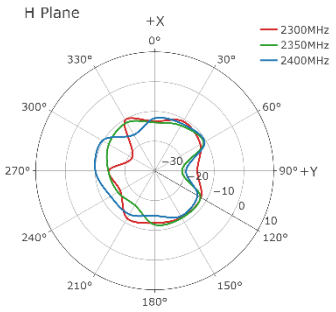
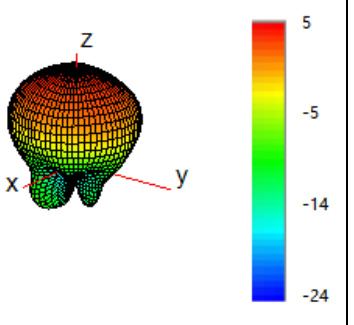
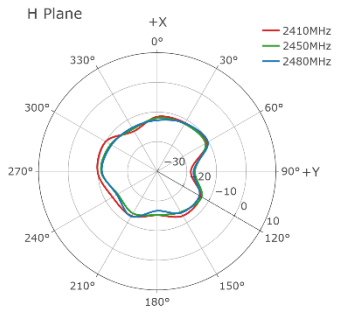
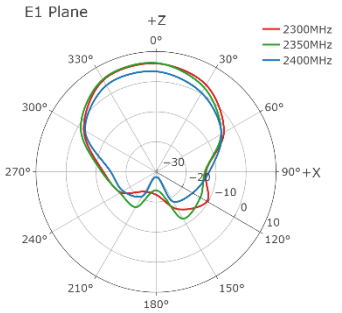
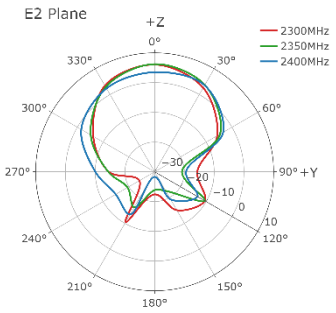
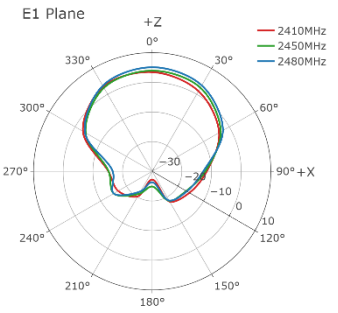
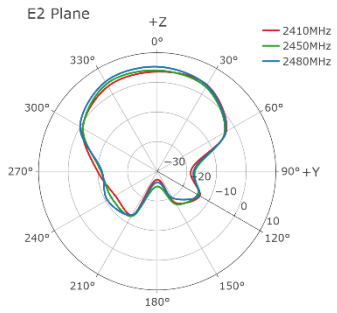
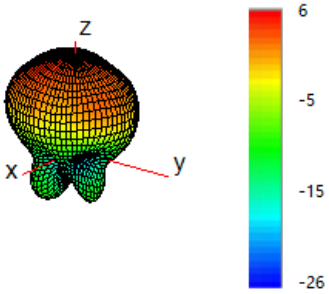
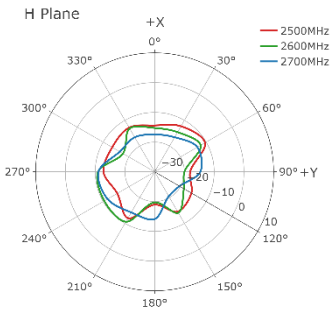
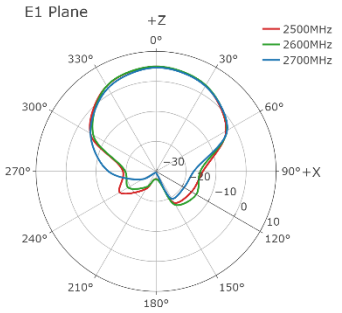
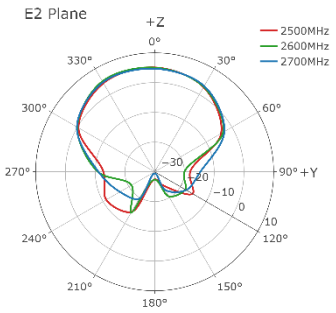
- Test Chamber: FS-G-1



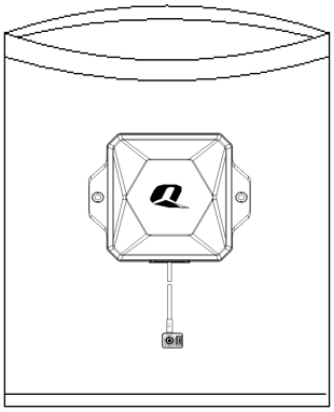
- **LTE**

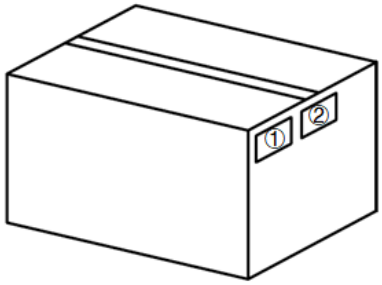
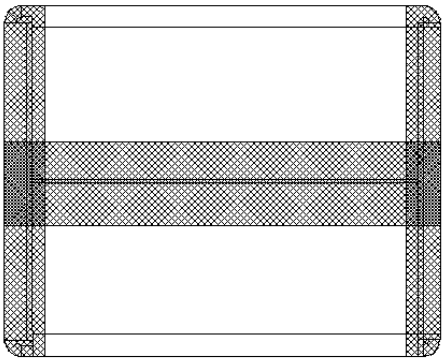
460 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			

1740 MHz		1880 MHz	
			
			
1950 MHz		2140 MHz	
			
			

2350 MHz		2450 MHz	
			
			
2600 MHz			
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 pc antenna product in a PE bag. (1 PC Antenna / PE Bag)
2		5 pcs antenna products in an inner box. (5 PCS Antennas / Inner Box)
3		(6 Inner Boxes / Carton Box) (30 Pcs 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 = 600 × 404 × 164 mm

4		**Position for Attaching Labels** ① Carton Label ② Quality Label
5		**Sealing Cartons** H-shaped sealing cartons
Note	The initial packaging method described above is for reference only, and the final actual packaging method shall be subject to the actual shipping packaging.	

Contact Us

At Quectel, our aim is to provide timely and comprehensive services to our customers. If you require any assistance, please contact our headquarters:

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Or our local offices. For more information, please visit:
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Revision History

Version	Date	Author	Note
-	2025-05-26	Mordecai LIU/ Rojin LUO/ Riva REN/ Rainey LIAO	Creation of the document
1.0	2025-05-26	Mordecai LIU/ Rojin LUO/ Riva REN/ Rainey LIAO	First official release

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