Antenna Datasheet

Product OC: YECA000J1AM
Version: 1.0
Date: 2024-06-18
Status: Released

Product Name: 4G Adhesive Mount Rubber Monopole Antenna
Key Features:
Frequency Band: 700–960 MHz, 1710–2690 MHz
Dimensions: 16 × 60 × 6.3 mm
Efficiency: Up to 80 % (EVB)
RoHS and REACH Compliant

Overview

YECA000J1AM is a 4G rubber antenna measuring 16 × 60 × 6.3 mm. This ultra-wide-band antenna provides broad coverage from 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 213 mm, terminated with SMA Male connector. This low profile, terminal mount omni-directional antenna, ideal for applications where the antenna is required to be discrete, is easy to install with maximum durability assured thanks to its PC+ABS enclosure. It is compatible with Quectel's RM520x Series modules.

It allows constant and reliable transmission and reception due to its omni-directional gain across all frequency bands. The YECA000J1AM is designed as an active 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 PC enclosure.

Typical applications include:

- Asset Tracking
- Smart Metering
- Fleet Management
- IoT Sensors and Modules

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 130 × 130 mm EVB

1.1. Electrical

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

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	-	4.2	3.0	-	4.4	1.5	1.9	2.0	-	-	-
	EVB	-	3.9	3.9	-	5.4	2.6	2.7	3.2	-	-	-
Max. Return Loss (dB)	FS	-	-4.2	-6.0	-	-4.0	-13.6	-10.2	-9.5	-	-	-
	EVB	-	-4.6	-4.6	-	-3.2	-7.2	-6.7	-5.6	-	-	-
AVG Eff. (%)	FS	-	37.6	47.7	-	42.1	54.4	60.5	59.1	-	-	-
	EVB	-	59.1	49.9	-	48.7	67.8	75.0	61.2	-	-	-
AVG AVG Gain (dB)	FS	-	-4.3	-3.2	-	-3.8	-2.6	-2.2	-2.3	-	-	-
	EVB	-	-2.3	-3.1	-	-3.2	-1.7	-1.2	-2.1	-	-	-

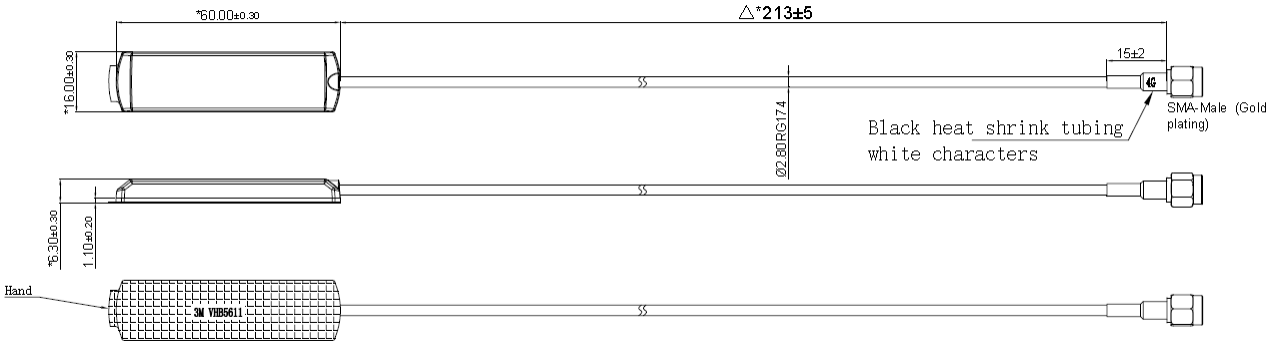
Max. Peak Gain (dBi)	**FS**	-	0.8 (810)	1.9 (960)	-	3.8 (2160)	3.7 (2310)	3.6 (2430)	2.8 (2500)	-	-	-
	EVB	-	2.4 (730)	3.2 (940)	-	3.8 (2030)	4.5 (2380)	4.5 (2420)	4.7 (2690)	-	-	-
VSWR	**FS**	≤ 4.4										
	EVB	≤ 5.4										
Return Loss	**FS**	≤ -4.0 dB										
	EVB	≤ -3.2 dB										
Peak Gain	**FS**	≤ 3.8 dBi										
	EVB	≤ 4.7 dBi										

- FS: Free Space
- EVB: On 130 × 130 mm EVB

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	16 × 60 × 6.3 mm
Material & Color	PC + ABS & Black
Cable Type & Color & Length	RG 174 & Black & 213 mm
Connector Type	SMA Male (Overgild)
Mounting Type	Adhesive
Weight	Typ. 10.3 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS & REACH Compliant	Yes

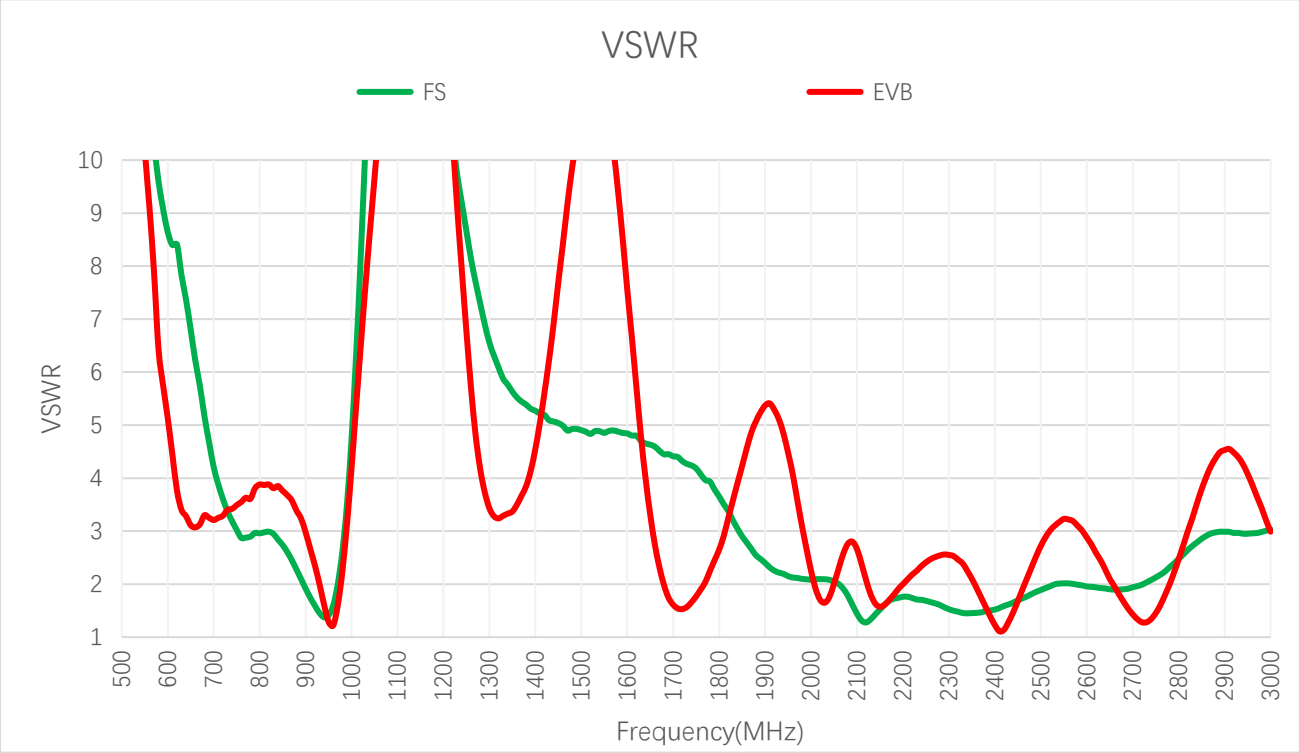
2 Drawing


*60.00±0.30
△*213±5
15±2
*16.00±0.30
Ø2.80RG174
Black heat shrink tubing
white characters
SMA-Male (Gold plating)
*6.30±0.30
1.10±0.20
Hand

3 Detailed Performance

3.1. S-Parameter Test

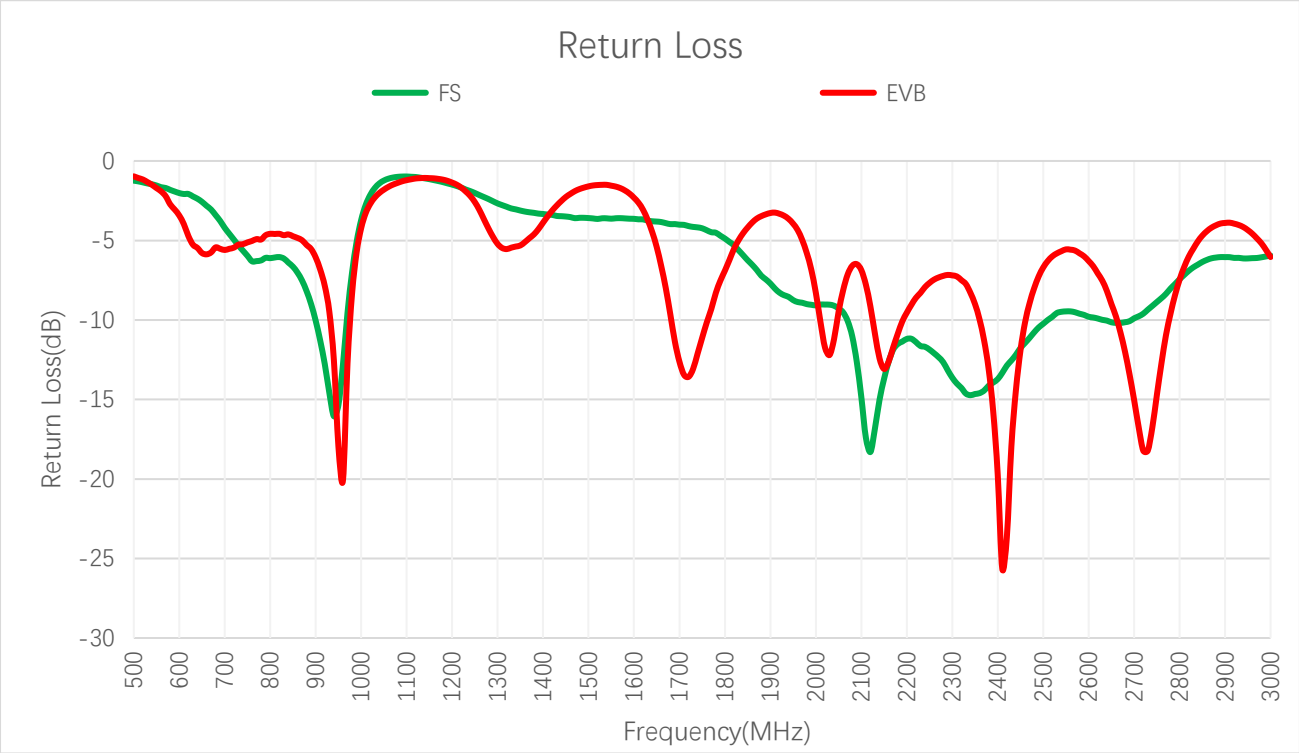
3.1.1. VSWR



VSWR

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
VSWR	FS	-	-	3.9	2.9	1.9	1.6	-	4.4	4.2	2.5
	EVB	-	-	3.3	3.8	3.0	1.2	-	1.5	1.7	5.1
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
VSWR	FS	2.2	1.4	1.5	1.7	2.0	1.9	-	-	-	-
	EVB	4.5	1.6	2.1	1.7	2.9	1.5	-	-	-	-

3.1.2. Return Loss

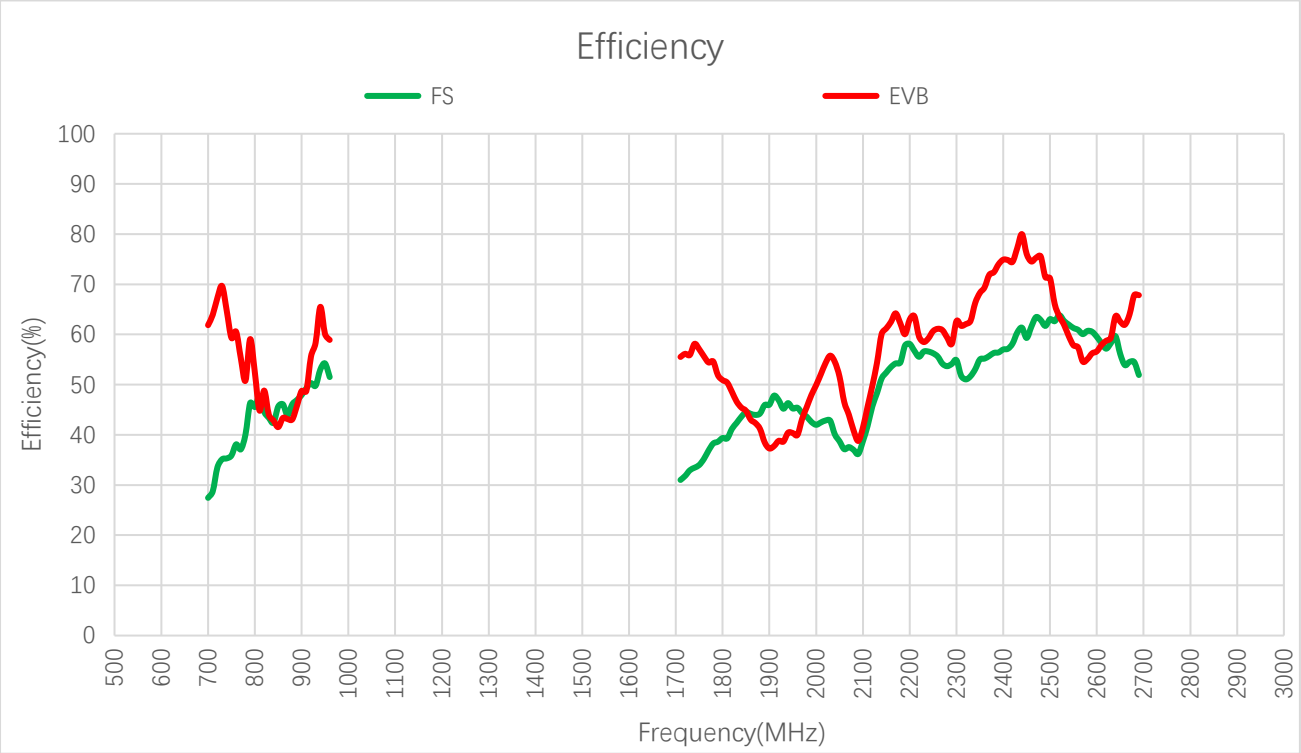


Return Loss (dB)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	FS	-	-	-4.6	-6.1	-10.0	-12.8	-	-4.0	-4.2	-7.2
	EVB	-	-	-5.5	-4.7	-6.1	-20.1	-	-13.4	-12.1	-3.5
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Return Loss (dB)	FS	-8.8	-15.0	-14.7	-11.8	-9.8	-10.1	-	-	-	-
	EVB	-3.9	-12.4	-9.0	-11.9	-6.3	-13.4	-	-	-	-

3.2. Radiation Performance Test

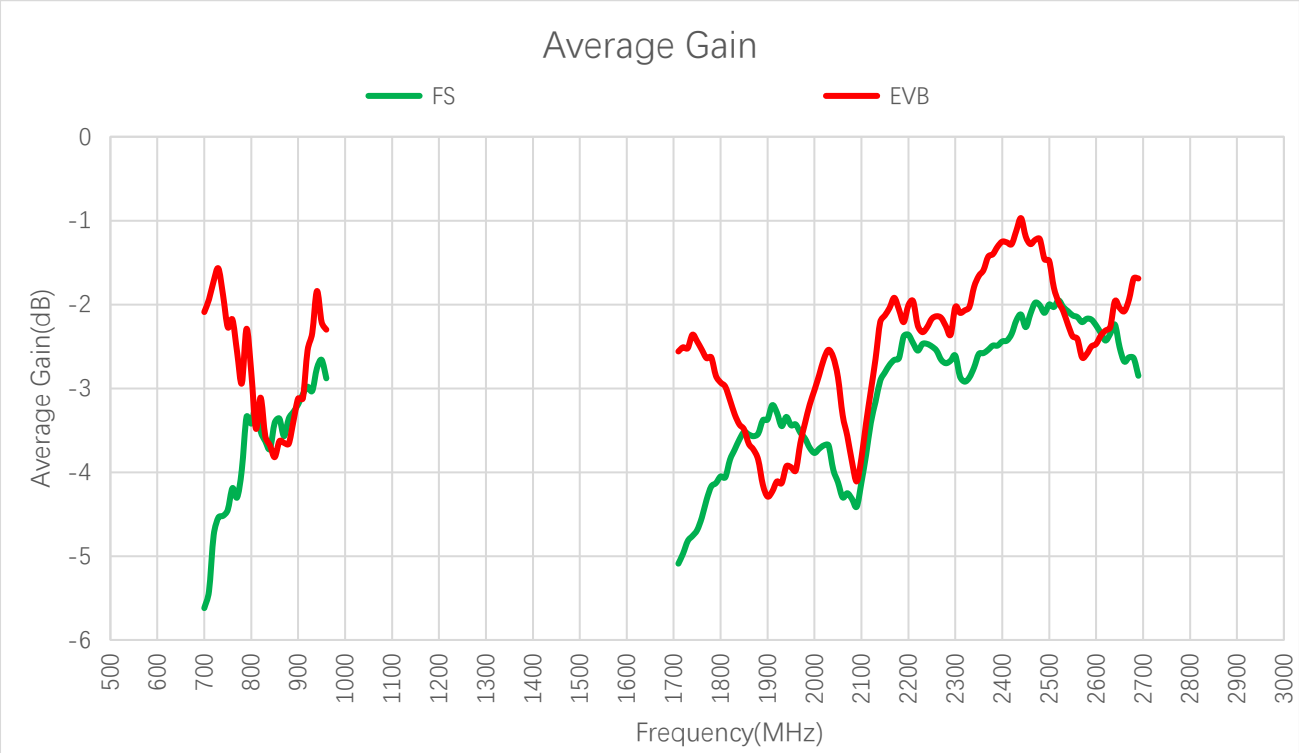
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	FS	-	-	28.7	43.4	47.9	51.5	-	31.0	33.5	44.3
	EVB	-	-	63.9	44.0	48.8	58.9	-	55.5	58.1	41.2
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Efficiency (%)	FS	45.3	51.2	55.0	59.3	59.5	51.9	-	-	-	-
	EVB	40.4	60.1	68.3	76.1	56.6	67.8	-	-	-	-

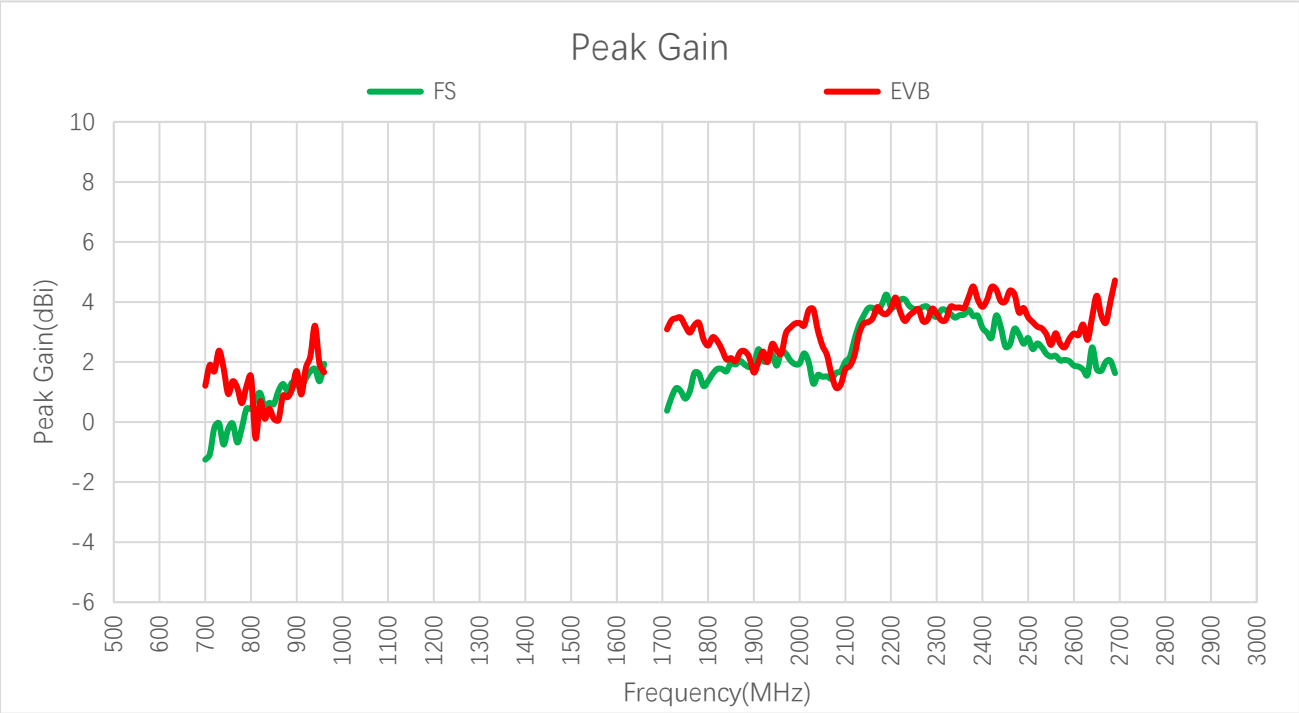
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	FS	-	-	-5.4	-3.6	-3.2	-2.9	-	-5.1	-4.8	-3.5
	EVB	-	-	-1.9	-3.6	-3.1	-2.3	-	-2.6	-2.4	-3.9
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Average Gain (dB)	FS	-3.4	-2.9	-2.6	-2.3	-2.3	-2.9	-	-	-	-
	EVB	3.9	-2.2	-1.7	-1.2	-2.5	-1.7	-	-	-	-

3.2.3. Peak Gain



Peak Gain (dBi)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	FS	-	-	-1.1	0.5	1.2	1.9	-	0.4	1.0	1.9
	EVB	-	-	1.9	0.1	1.7	1.7	-	3.1	3.5	2.4
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Peak Gain (dBi)	FS	1.9	3.5	3.6	2.5	1.9	1.6	-	-	-	-
	EVB	2.4	3.3	3.8	4.0	3.0	4.7	-	-	-	-

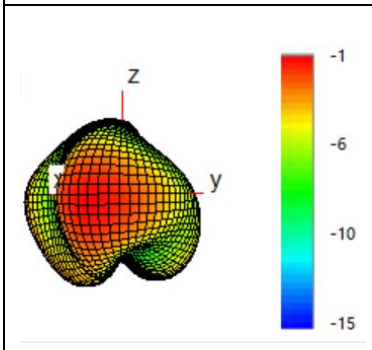
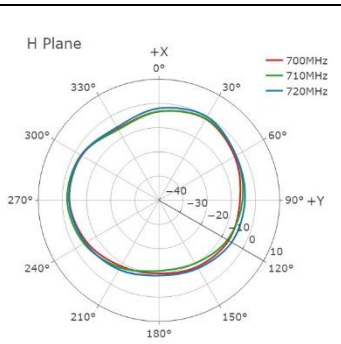
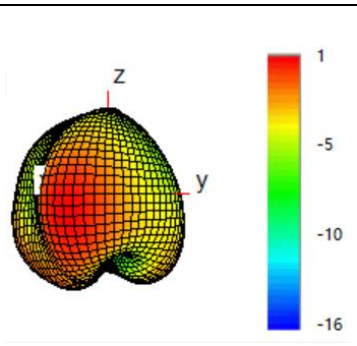
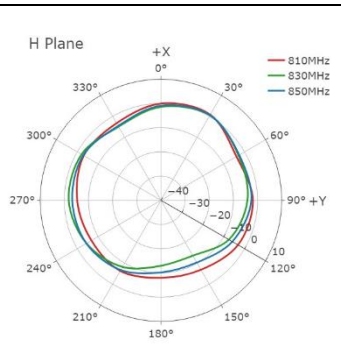
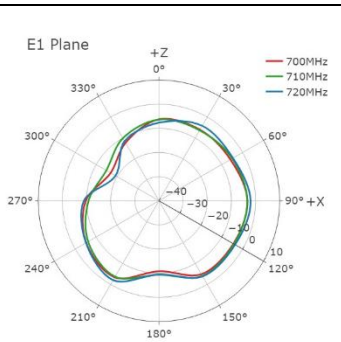
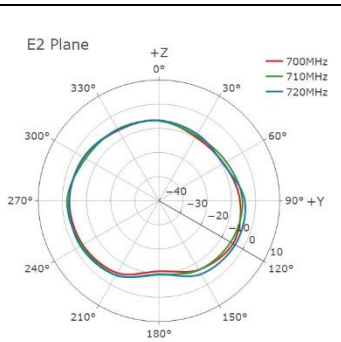
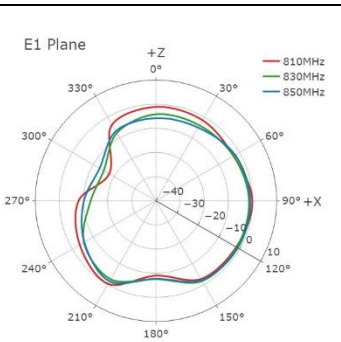
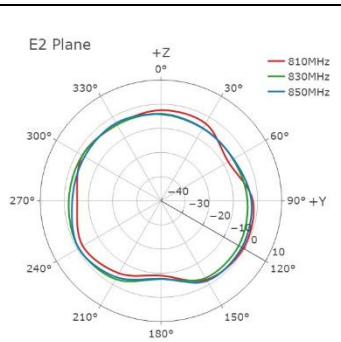
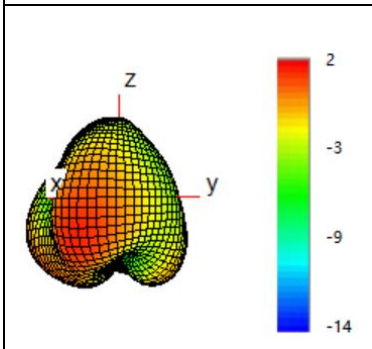
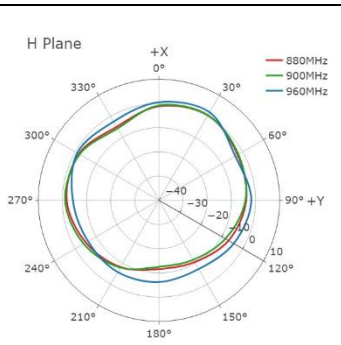
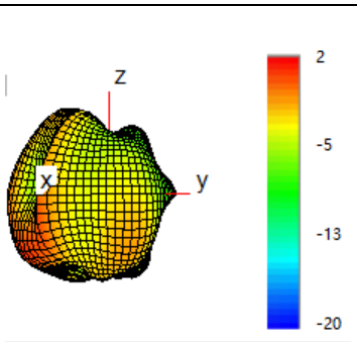
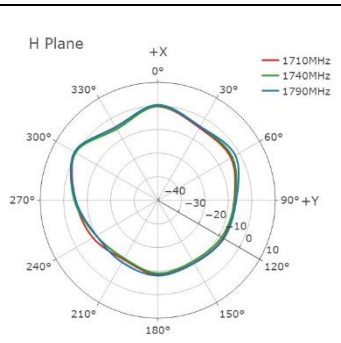
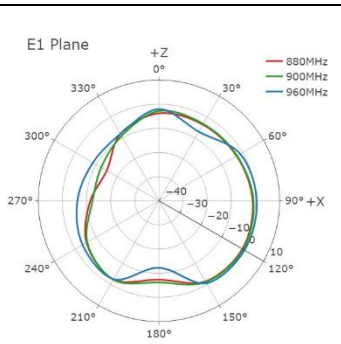
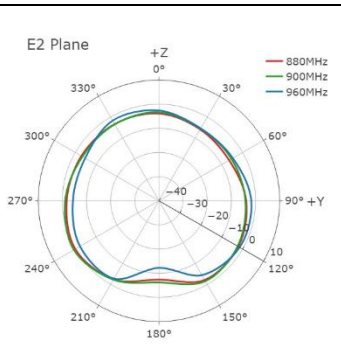
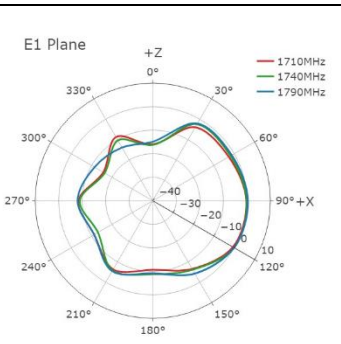
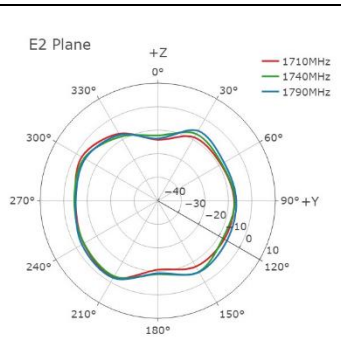
Max Peak Gain (dBi)

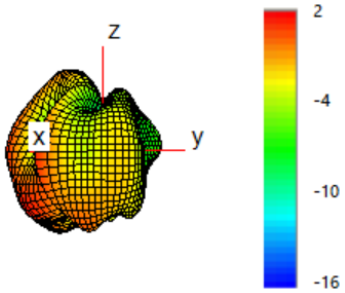
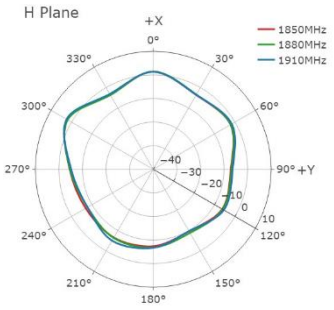
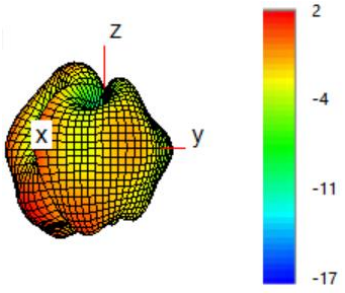
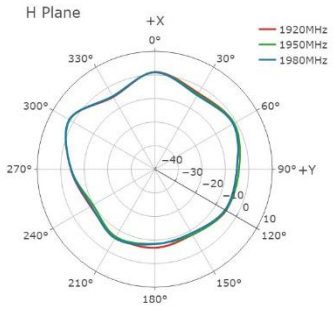
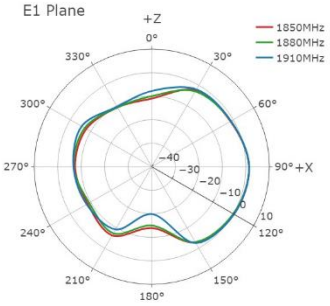
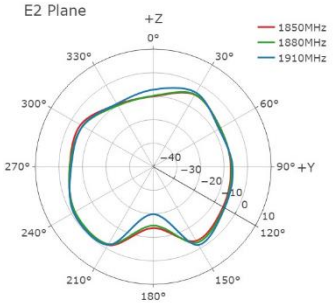
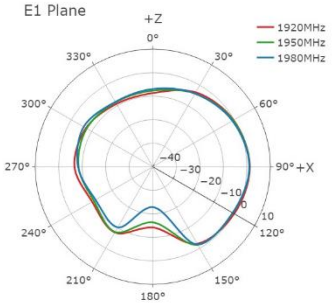
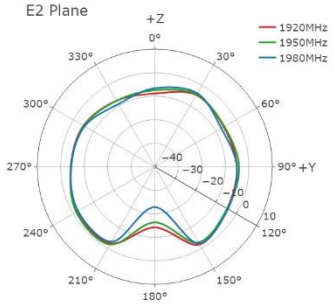
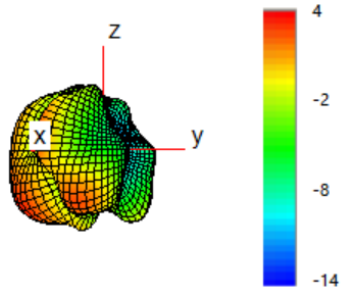
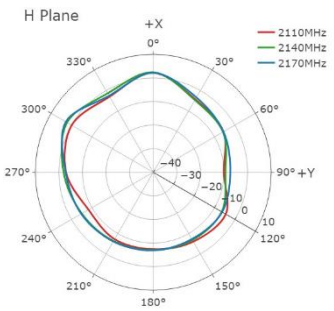
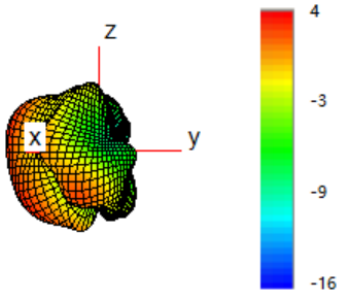
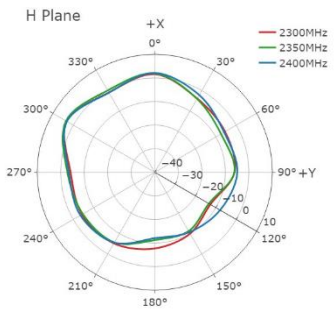
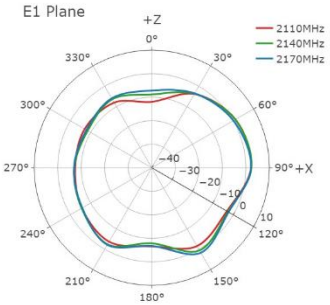
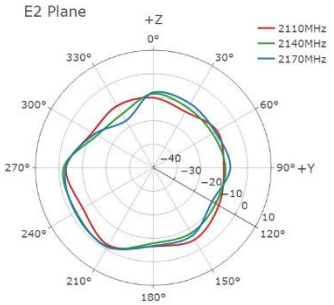
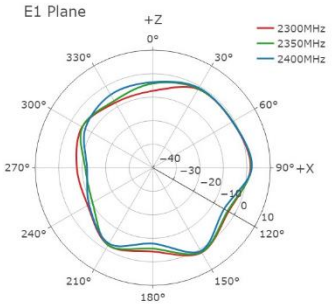
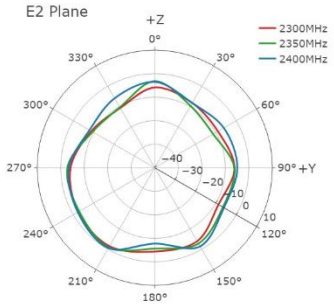
Band		B71	B12 /B13 /B28	B5 /B8 /B26	B1 /B2 /B3	B40	Wi-Fi 2G	B38 /B41
FS	Frequency (MHz)	-	810	960	2160	2310	2430	2500
	Peak Gain (dBi)	-	0.8	1.9	3.8	3.7	3.7	2.8
EVB	Frequency (MHz)	-	730	940	2030	2380	2420	2690
	Peak Gain (dBi)	-	2.4	3.2	3.8	4.5	4.5	4.7

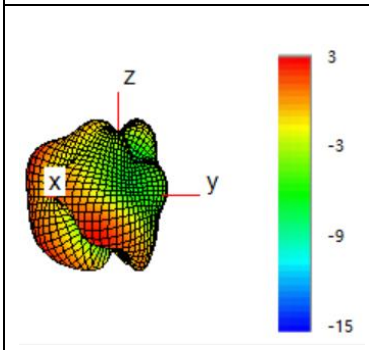
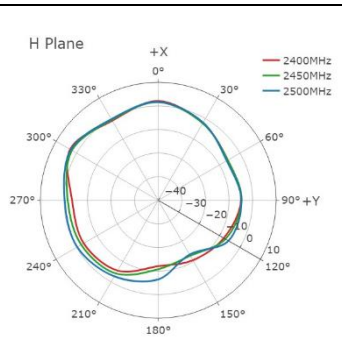
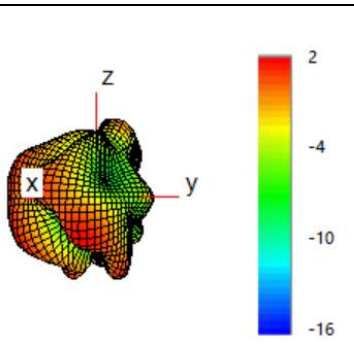
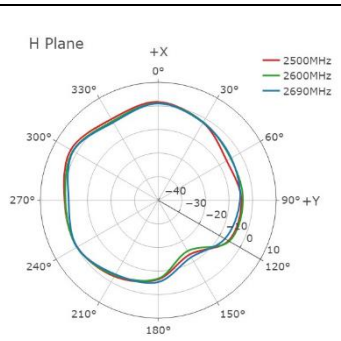
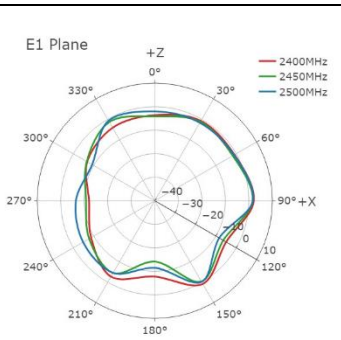
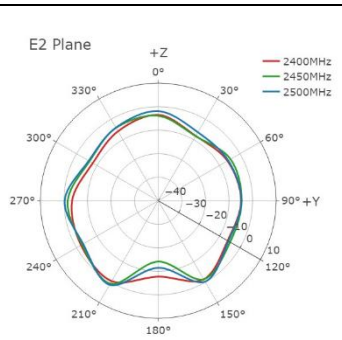
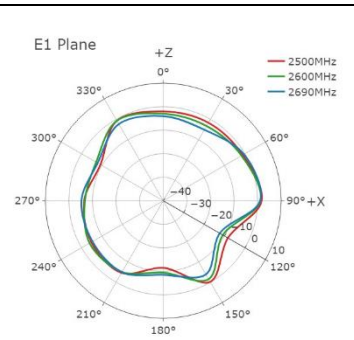
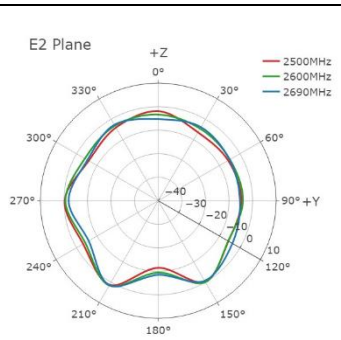
3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Condition: Free Space

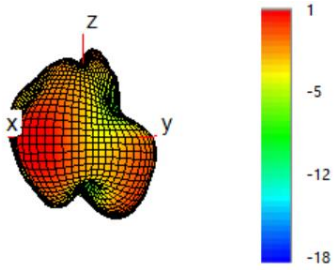
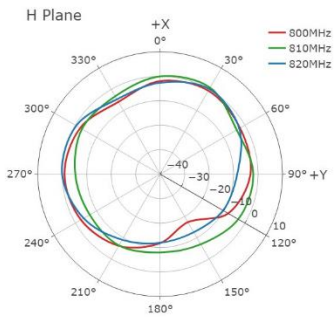
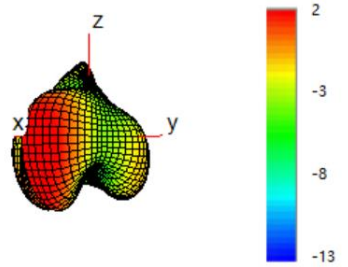
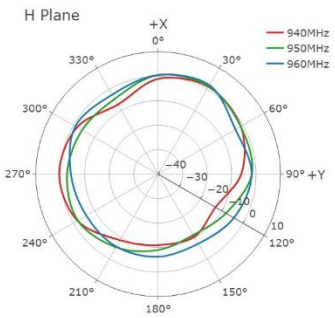
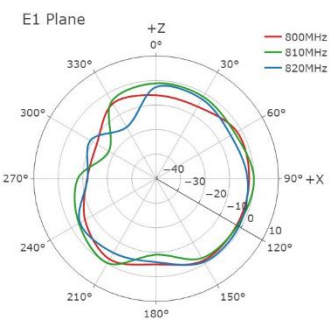
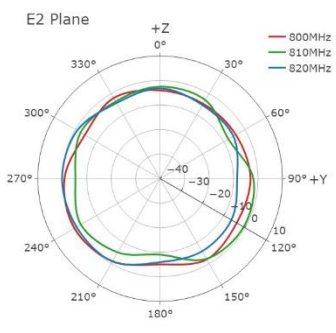
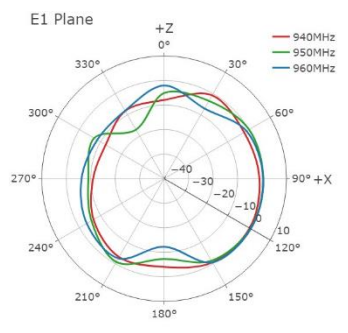
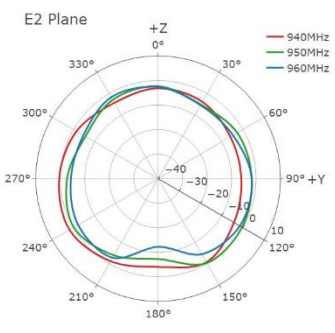
- Test Chamber: HF-G-1

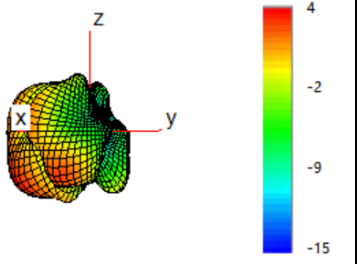
710 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

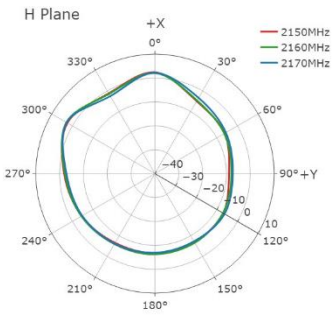
1880 MHz		1950 MHz	
			
			
2140 MHz		2350 MHz	
			
			

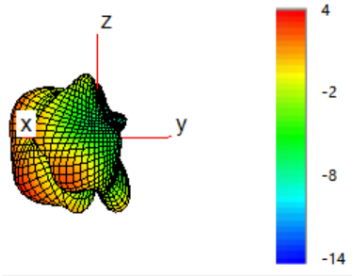
2450 MHz		2600 MHz	
			
			

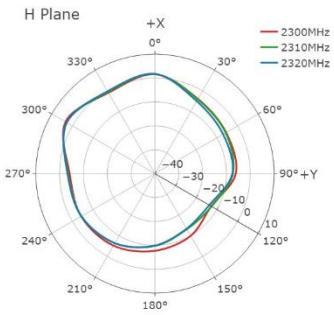
- **Max Peak Gain**

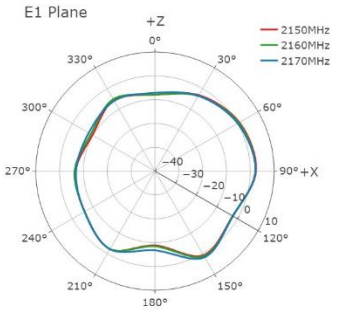
810 MHz		960 MHz	
			
			
2160 MHz		2310 MHz	

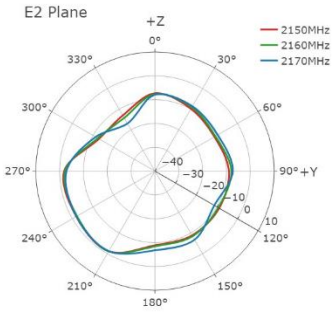


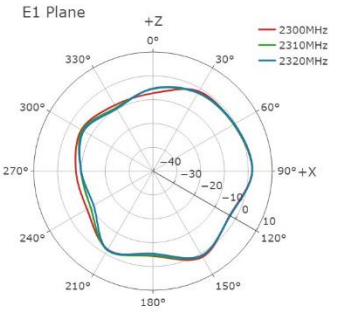


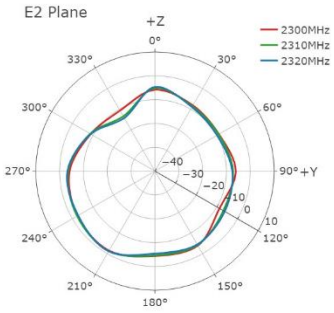






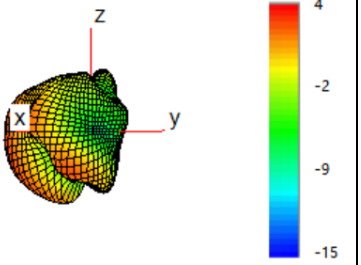


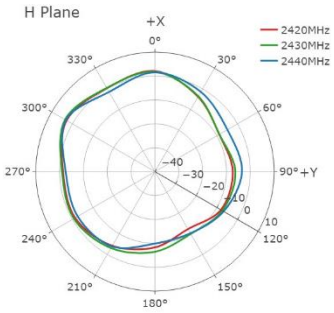


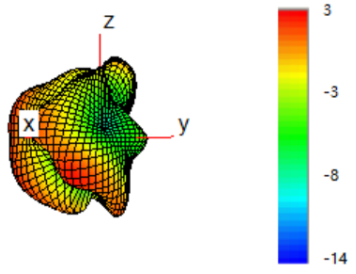


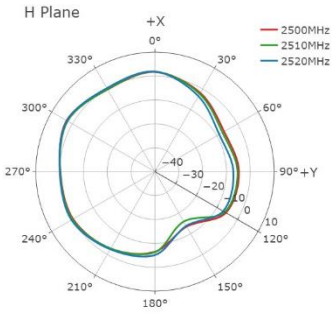
2430 MHz

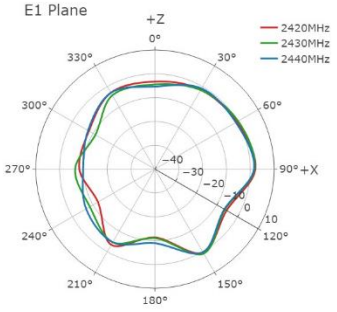
2500 MHz

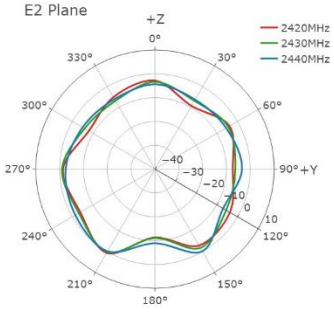


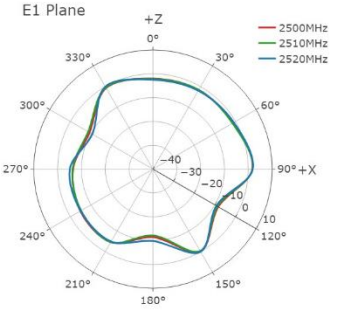


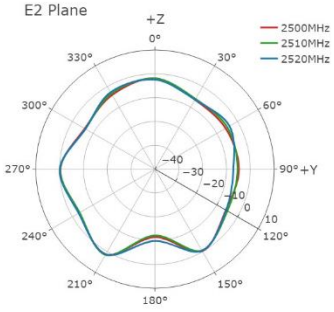






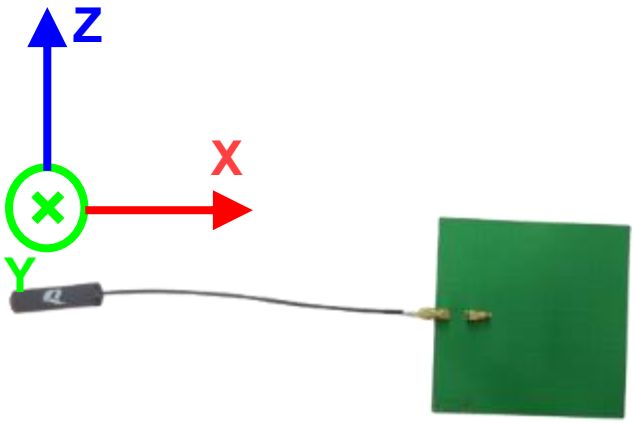


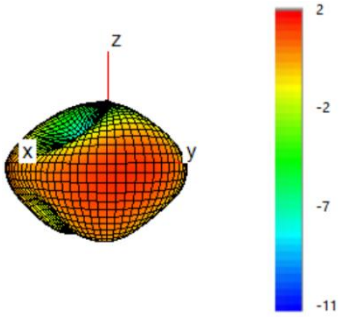
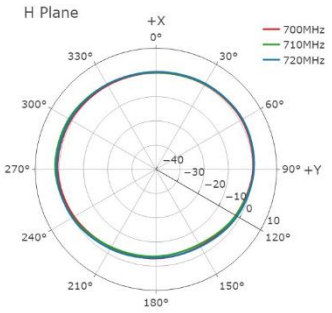
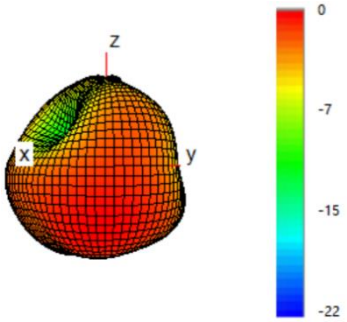
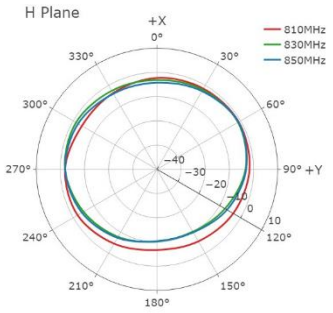
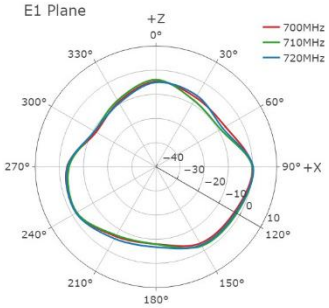
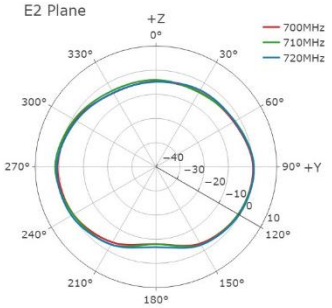
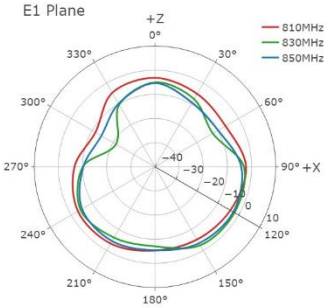
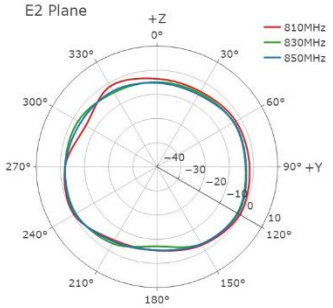
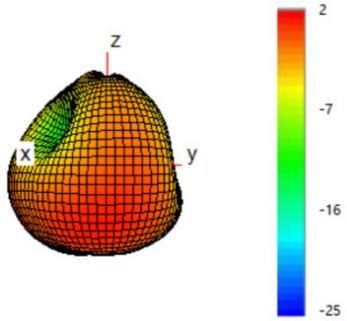
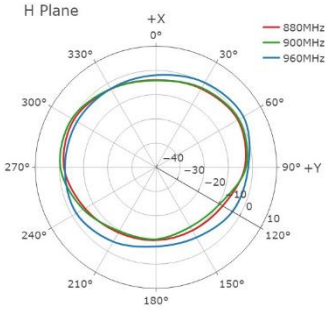
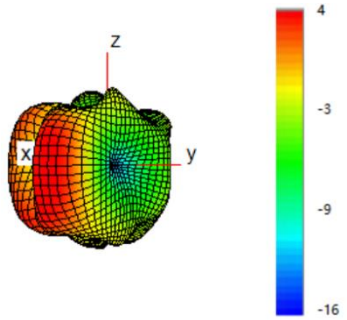
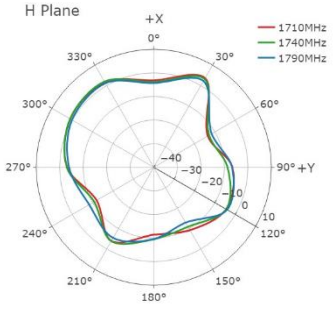
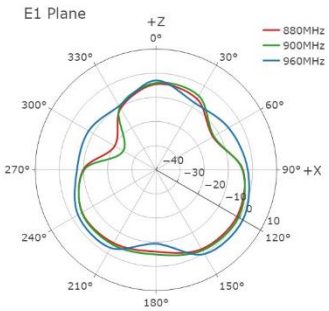
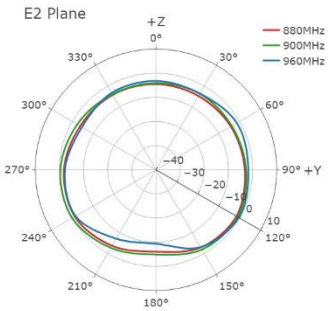
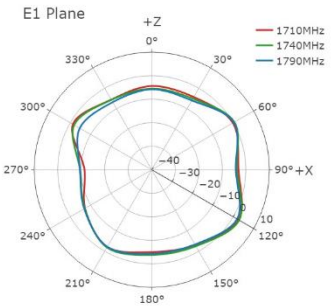
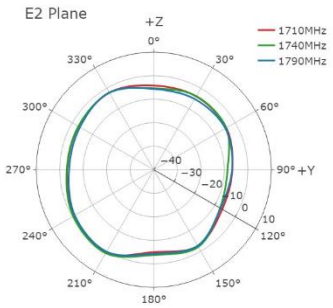


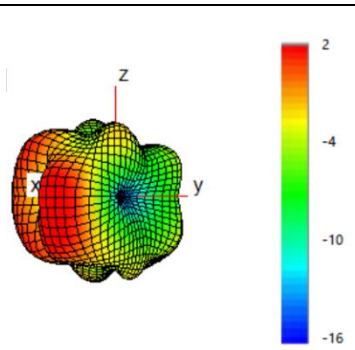
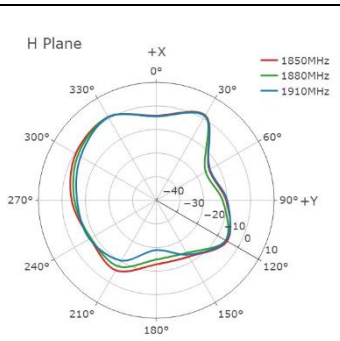
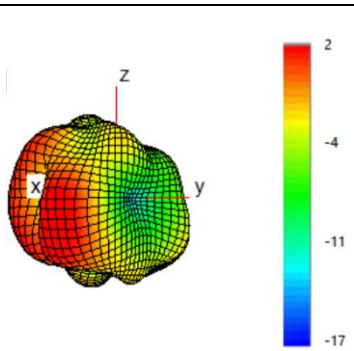
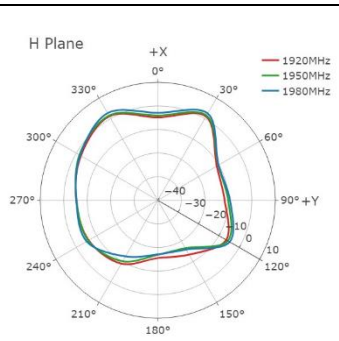
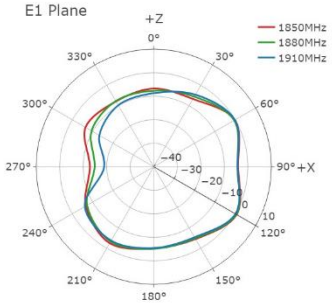
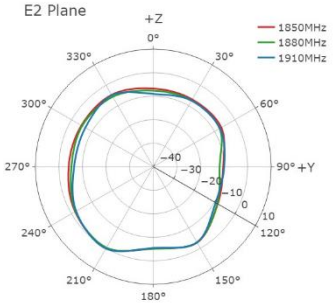
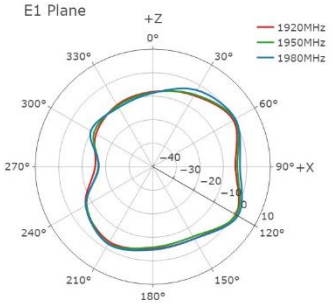
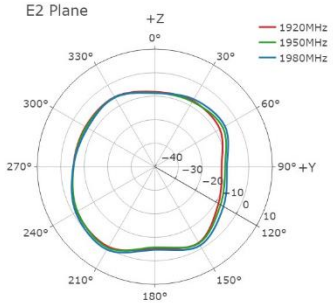
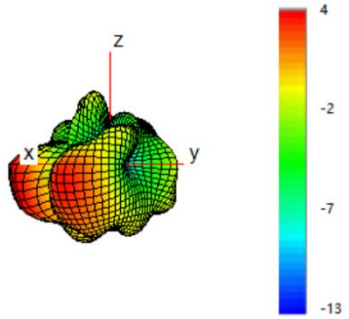
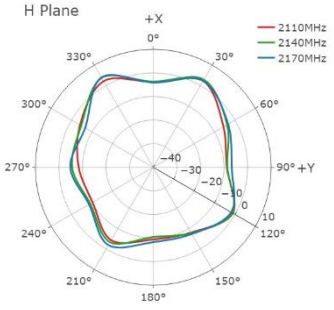
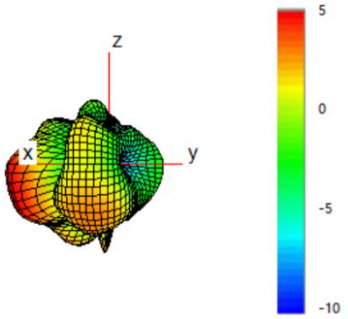
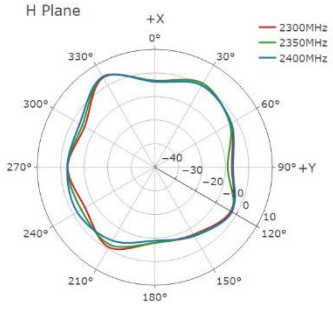
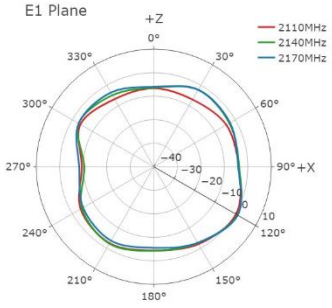
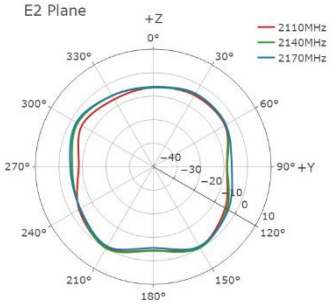
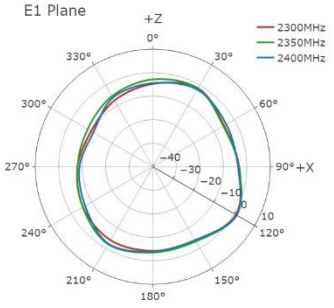
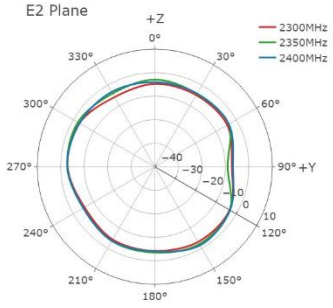


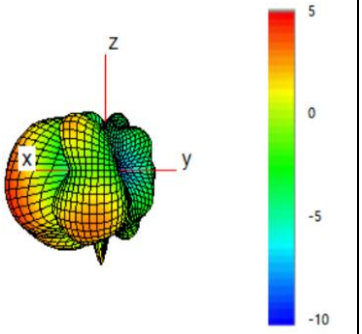
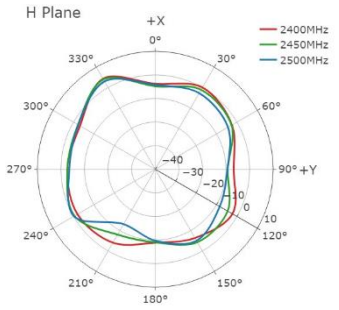
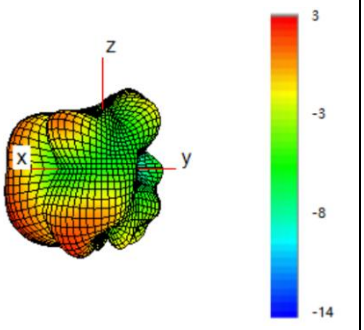
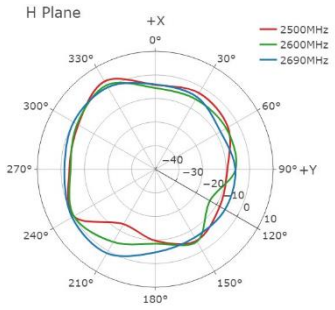
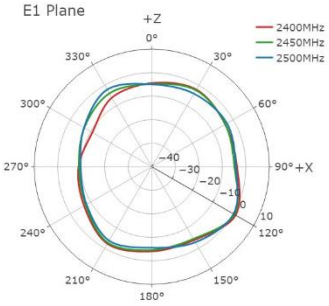
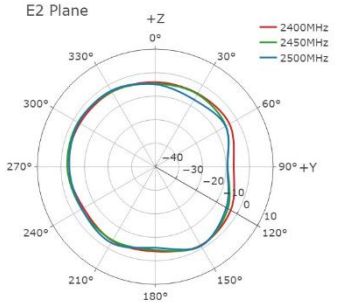
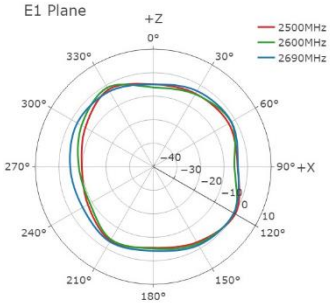
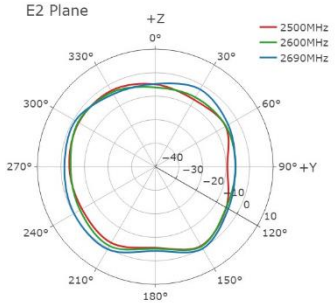
3.2.4.2. Test Condition: On 130 × 130 mm EVB

- Test Chamber: HF-G-1

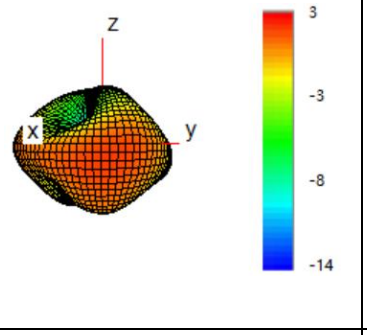
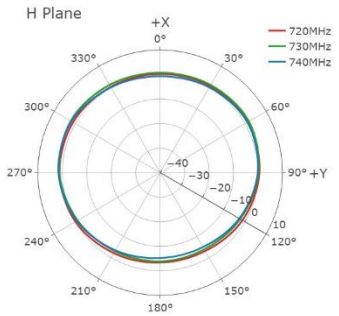
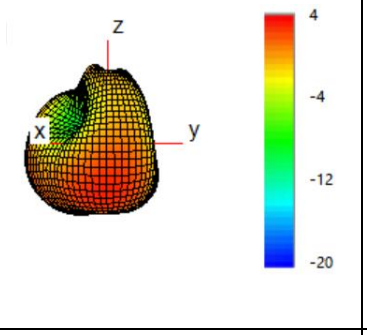
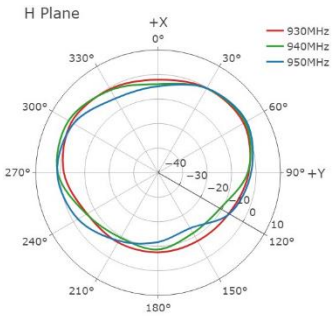
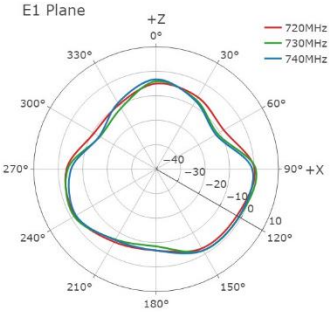
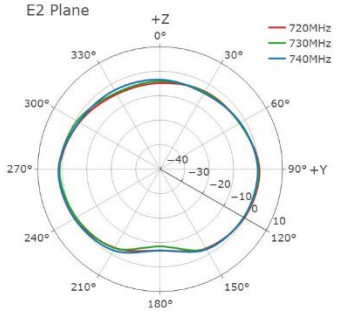
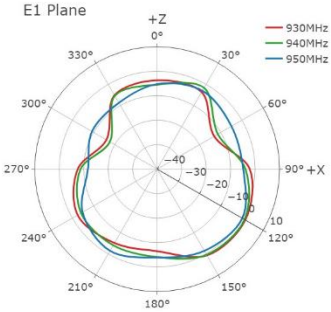
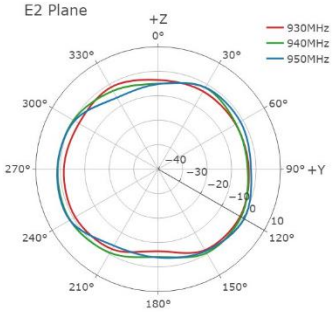


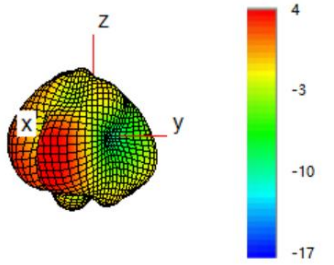
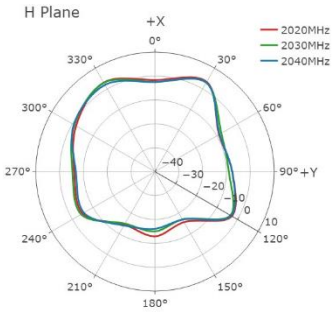
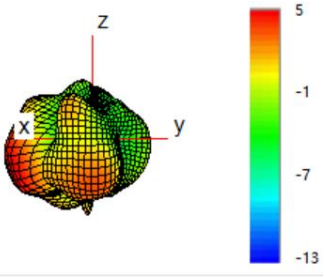
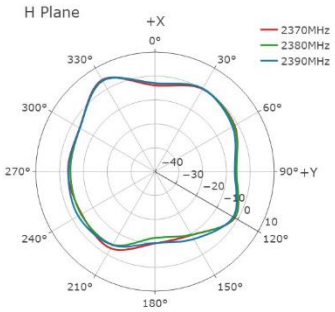
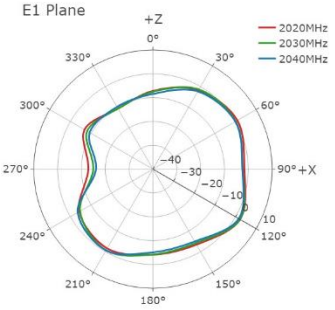
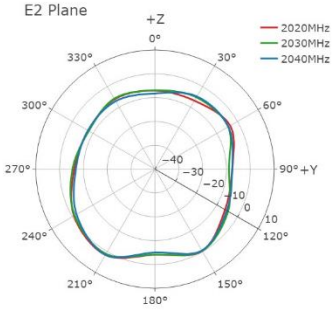
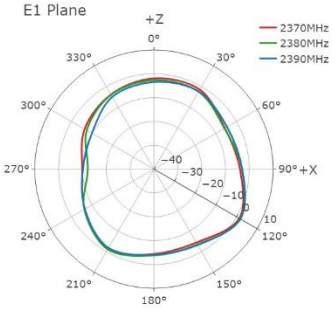
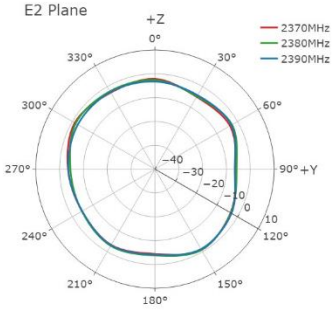
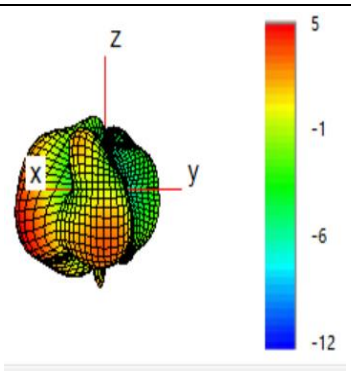
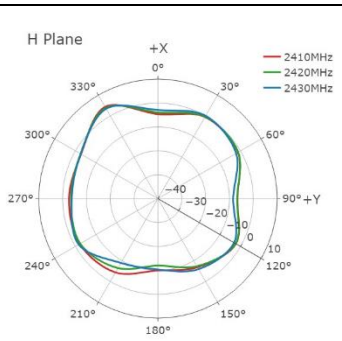
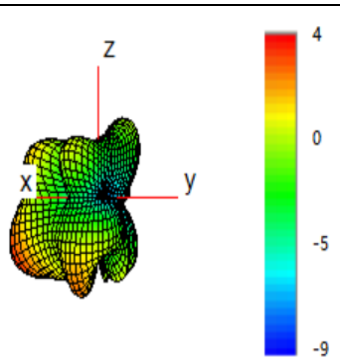
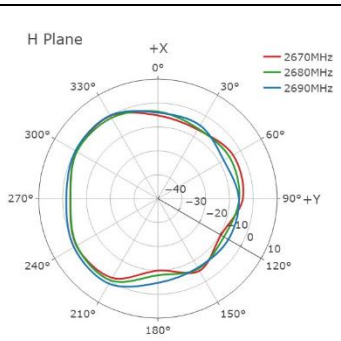
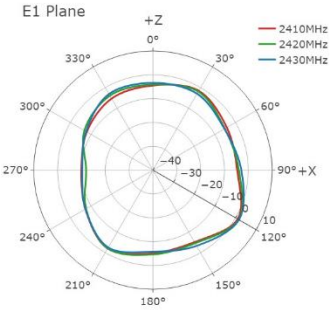
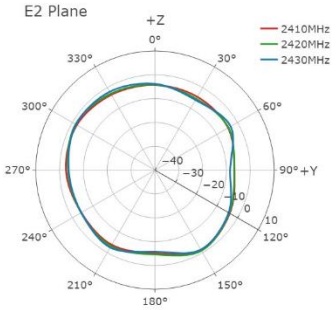
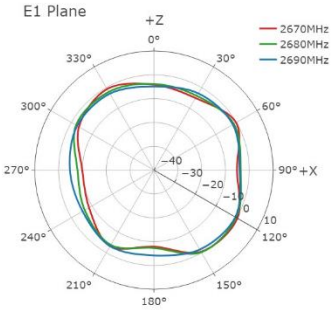
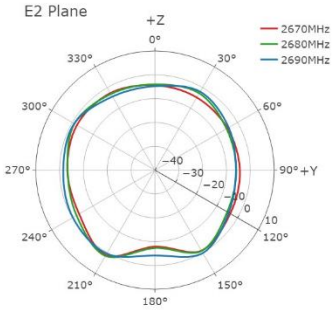
710 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

1880 MHz		1950 MHz	
			
			
2140 MHz		2350 MHz	
			
			

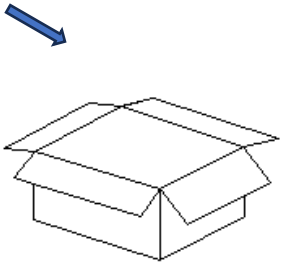
2450 MHz		2600 MHz	
			
			

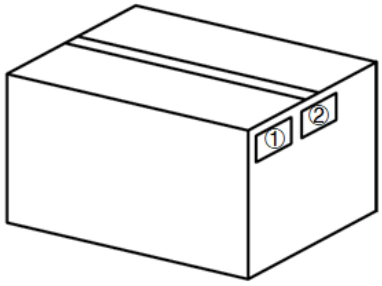
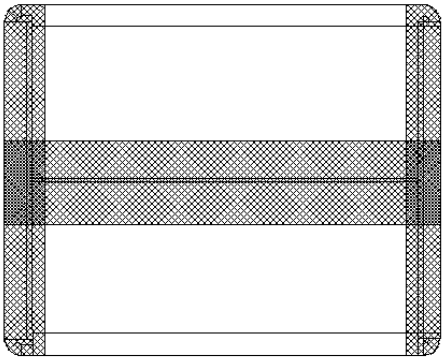
- **Max Peak Gain**

730 MHz		940 MHz	
			
			

2030 MHz		2380 MHz	
			
			
2420 MHz		2690 MHz	
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 pc antenna product in a small PE Bag. (1 PC / Small PE Bag)
2		30 pcs antenna products in a big PE bag. (30 PCS / Big PE Bag)
3	 	(12 PE Bags / Carton Box) (360 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 = 405 × 293 × 185 mm

4		**Position for Attaching Labels** ① Carton Label ② Quality Label
5		**Sealing Cartons** "工" type 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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Tel: +86 21 5108 6236
Email: info@quectel.com

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

Version	Date	Author	Note
-	2024-06-18	Kane LIU/ Blake XIANG/ David LIU/ Rainey LIAO	Creation of the document
1.0	2024-06-18	Kane LIU/ Blake XIANG/ David LIU/ Rainey LIAO	First official release

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