Antenna Datasheet

Product OC: YECT028W1A
Version: 2.2
Date: 2025-04-09
Status: Released

Product Name: 5G Terminal Mount Rubber Dipole External Antenna
Key Features:
Frequency Band: 600–960 MHz, 1710–2690 MHz, 3300–6000 MHz
Dimensions: 225 mm × 54.5 mm × 13 mm
Efficiency: Up to 86 % (FS)
RoHS and REACH Compliant
IP66 (housing)

Overview

YECT028W1A is a 5G external antenna measuring 225 mm × 54.5 mm × 13 mm. This ultra-wide-band 5G antenna provides broad coverage from 600–960 MHz, 1710–2690 MHz, 3300–6000 MHz whilst offering backward-compatibility to support 4G/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 IP66 rated, PC enclosure. The YECT028W1A can be used in harsh environments thanks to its robust UV resistant (UL 746c f1) and flame resistant (UL 94 V-0) enclosure.

The antenna is designed as dipole type to work with various GND plane sizes or in free space for ease of integration with a hinged SMA Male connector to achieve the optimum position. Hinged structure helps to avoid other antennas or objects by rotating to different directions when mounted on terminals. This omni-directional antenna is ideally suited for access points, terminals and routers, high speed video, real-time streaming, public transportation, offering great performance with its high gain and efficiency.

Typical applications include:

- Access points, terminals and routers
- High speed video
- Real-time streaming
- Public transportation

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: In Free Space & On 130 mm × 130 mm EVB

1.1. Electrical

Electrical	
Frequency Range	600–960 MHz, 1710–2690 MHz, 3300–6000 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	1.5	1.3	1.7	-	2.5	1.3	1.2	1.5	1.9	1.3	1.4
	EVB	1.8	1.7	2.6	-	2.5	1.6	1.3	1.2	1.9	1.8	3.3
Max. Return Loss (dB)	FS	-13.7	-17.8	-11.9	-	-7.5	-18.3	-21.1	-13.9	-10.1	-17.4	-14.9
	EVB	-10.6	-11.7	-7.0	-	-7.3	-12.5	-17.1	-21.0	-10.1	-10.7	-5.4
AVG Eff. (%)	FS	66.4	70.6	56.2	-	65.5	80.4	73.3	77.6	69.4	66.3	59.5
	EVB	60.8	79.0	75.2	-	69.7	74.5	72.4	72.0	67.1	57.7	51.9
AVG AVG Gain (dB)	FS	-1.8	-1.5	-2.5	-	-1.8	-0.9	-1.3	-1.1	-1.6	-1.8	-2.3
	EVB	-2.2	-1.0	-1.3	-	-1.6	-1.3	-1.4	-1.4	-1.7	-2.4	-2.9
Max. Peak Gain (dBi)	FS	1.5	1.1	1.7	-	1.5	3.7	3.4	4.0	5.3	5.5	4.2
	EVB	0.1	1.5	1.4	-	3.1	4.2	4.3	4.3	3.5	4.0	4.1
VSWR	FS	≤ 2.5										

	EVB	≤ 2.6
Return Loss	**FS**	≤ -7.5 dB
	EVB	≤ -7.0 dB
Peak Gain	**FS**	≤ 5.5 dBi
	EVB	≤ 4.3 dBi

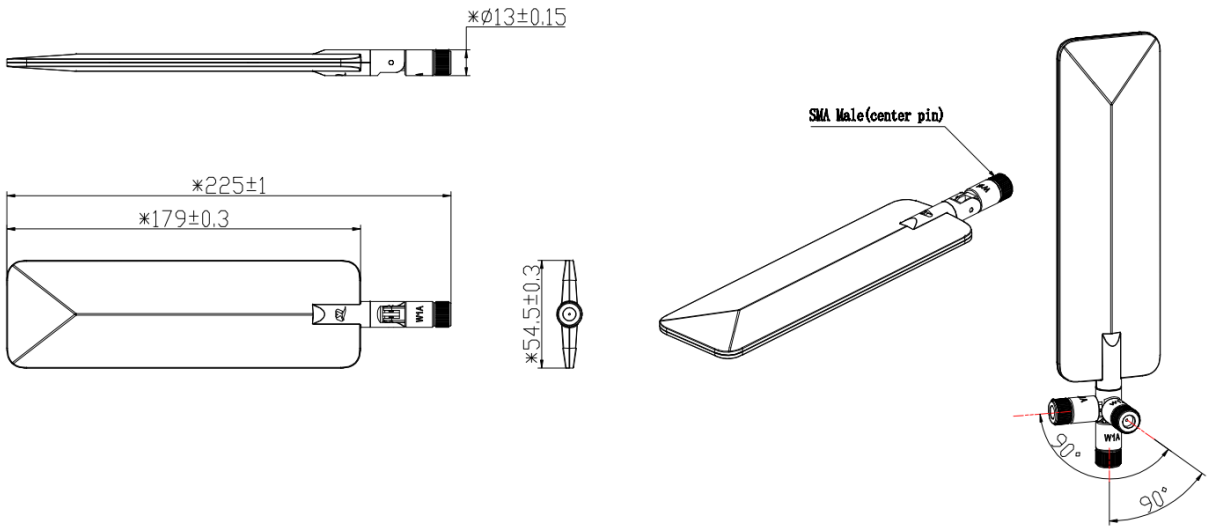
Note:

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

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	225 mm × 54.5 mm × 13 mm
Casing Material & Color	PC & Black
Connector Type	SMA Male
Mounting Type	Terminal
Weight	Typ. 75 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	Antenna's plastic housing meets IP66 rating. The SMA connector itself is not waterproof and requires additional waterproofing measures after installation.
RoHS & REACH Compliant	Yes
Housing Flame Rating	UL 94 V-0
Housing UV Resistant	UL 746c f1

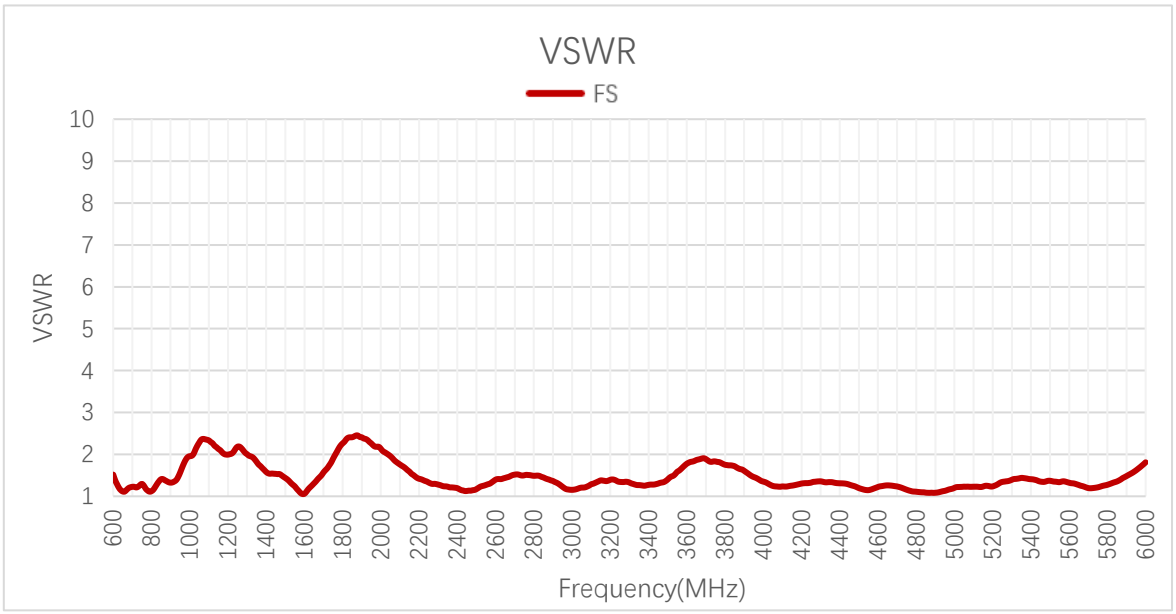
2 Drawing

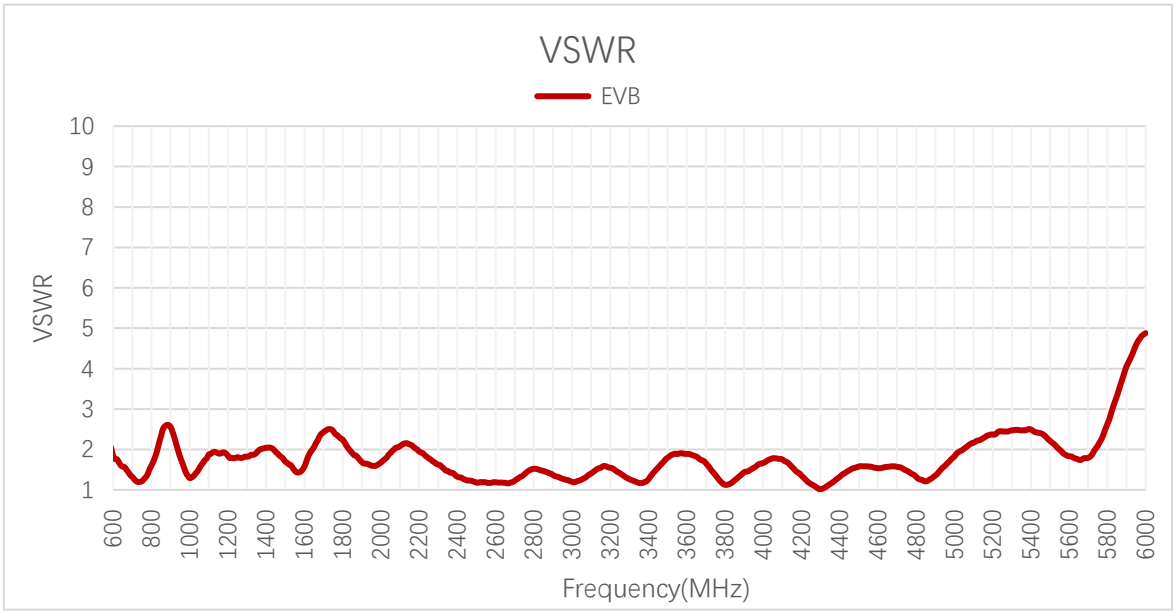


3 Detailed Performance

3.1. S-Parameter Test

3.1.1. VSWR

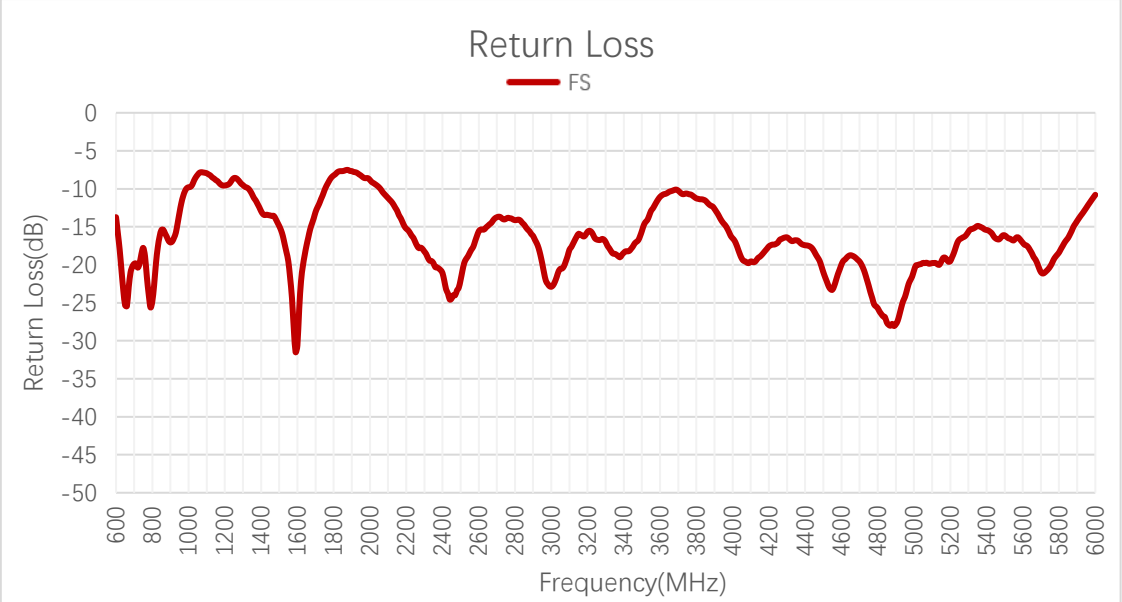


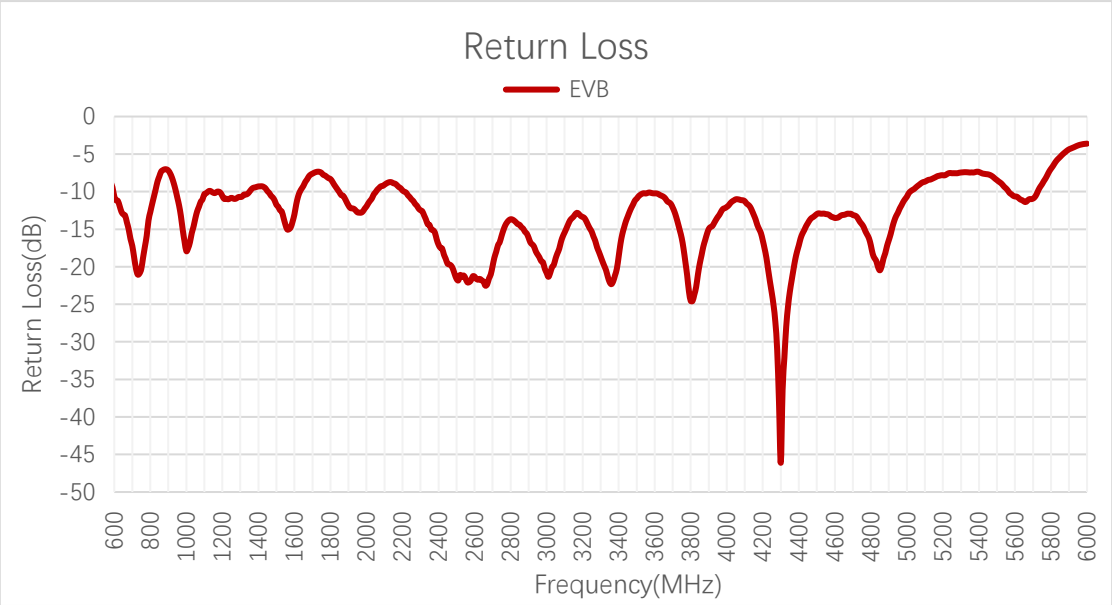


VSWR

Frequency (MHz)	600	630	710	820	900	960	1440	1710	1740	1880
FS	1.5	1.2	1.2	1.3	1.3	1.7	-	1.6	1.8	2.4
EVB	1.8	1.7	1.3	2.0	2.6	1.7	-	2.5	2.5	1.8
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
FS	2.3	1.6	1.2	1.1	1.4	1.8	1.2	1.2	1.4	1.8
EVB	1.6	2.1	1.5	1.2	1.2	1.9	1.6	1.8	2.2	4.9

3.1.2. Return Loss



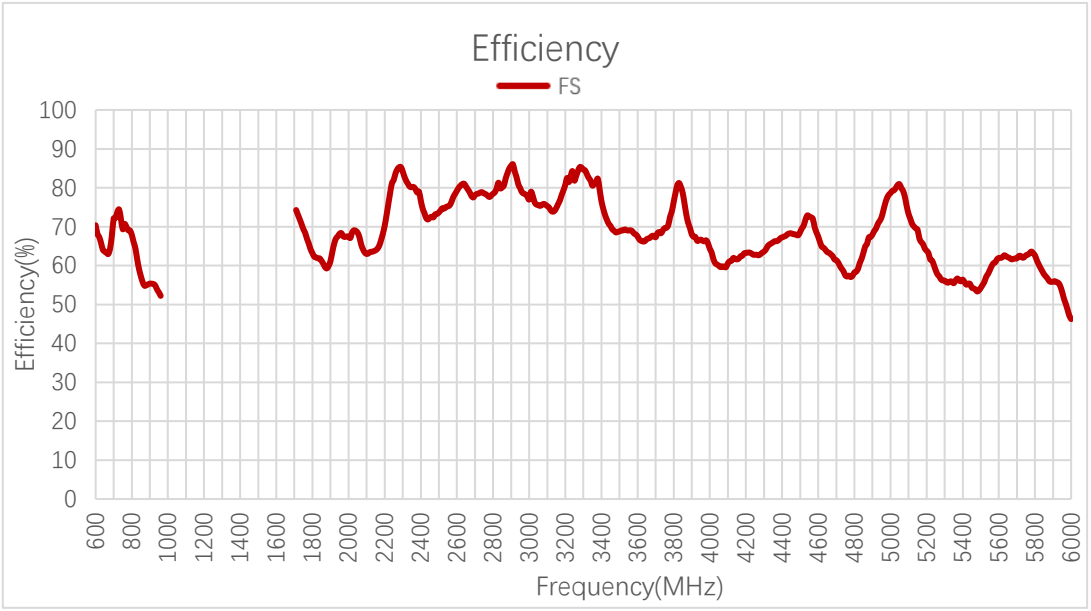


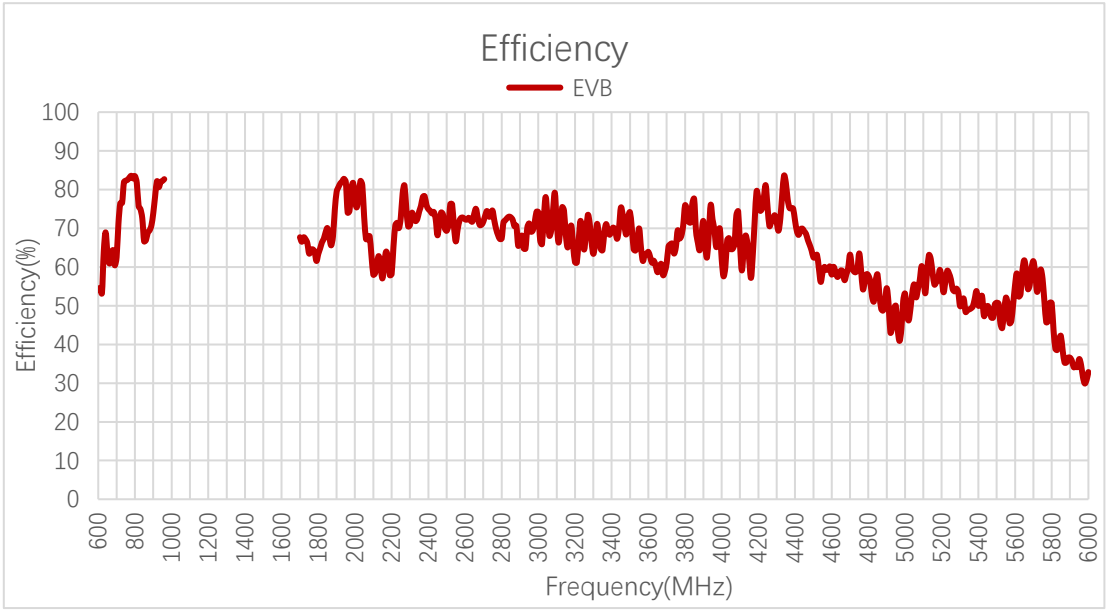
Return Loss (dB)

Frequency (MHz)	600	630	710	820	900	960	1440	1710	1740	1880
FS	-13.7	-20.7	-19.9	-17.7	-17.1	-11.9	-	-12.5	-10.8	-7.5
EVB	-10.6	-11.9	-18.7	-9.7	-7.2	-11.9	-	-7.5	-7.4	-10.9
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
FS	-8.3	-12.5	-19.8	-24.5	-15.6	-11.1	-19.6	-20.8	-16.1	-10.8
EVB	-12.8	-8.8	-14.4	-19.6	-21.3	-10.2	-13.1	-10.7	-8.5	-3.6

3.2. Radiation Performance Test

3.2.1. Efficiency



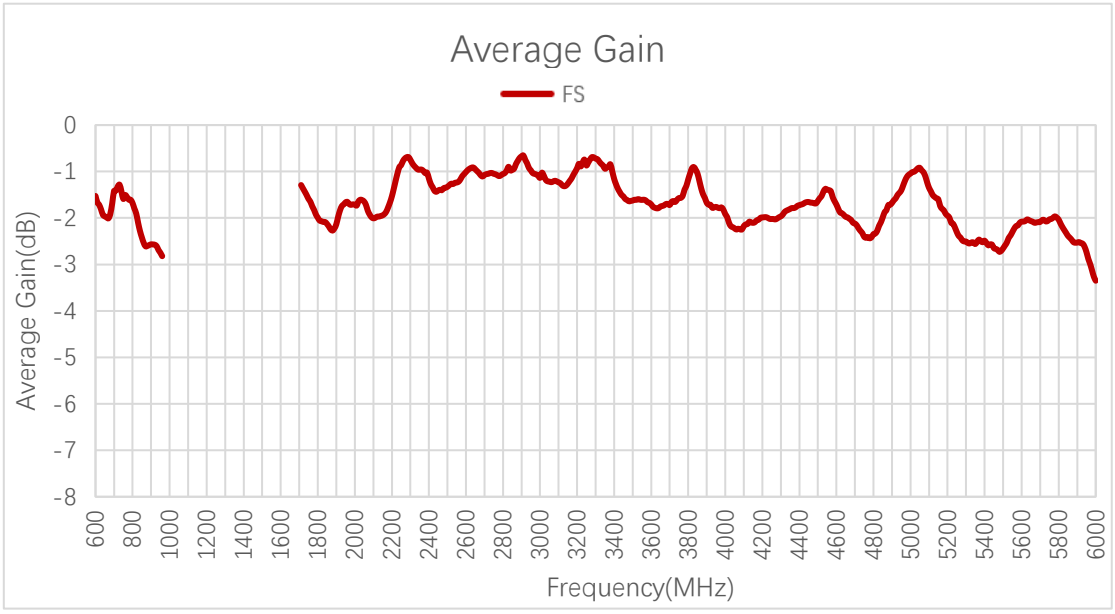


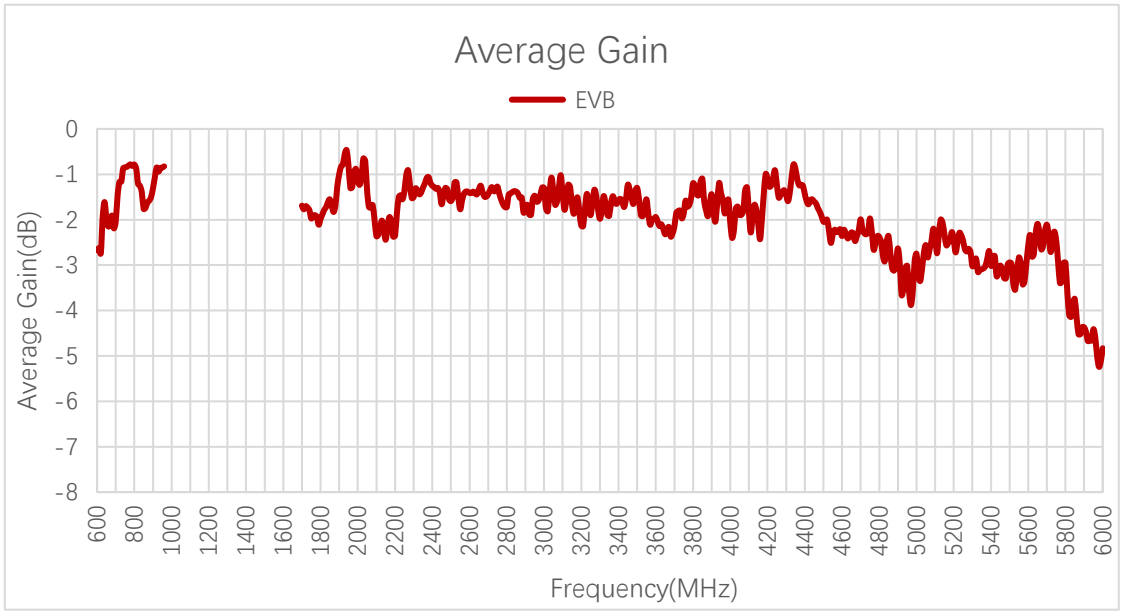
Efficiency (%)

Frequency (MHz)	600	630	710	820	900	960	1440	1710	1740	1880
FS	70.4	65.8	72.3	61.6	55.4	52.2	-	74.3	70.6	59.3
EVB	54.1	64.0	71.2	75.0	73.9	82.7	-	66.5	66.2	67.9
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**

FS	68.2	63.7	80.2	72.3	79.2	67.5	61.4	78.6	54.3	46.2
EVB	82.0	59.9	74.3	68.2	72.3	63.9	63.2	53.1	50.8	32.9

3.2.2. Average Gain



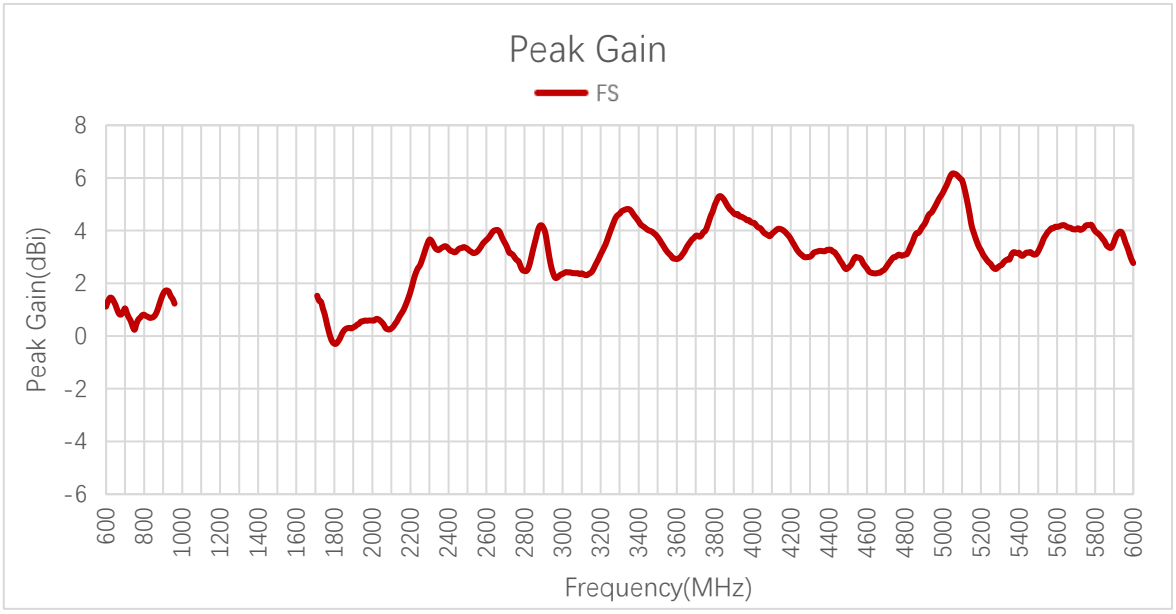


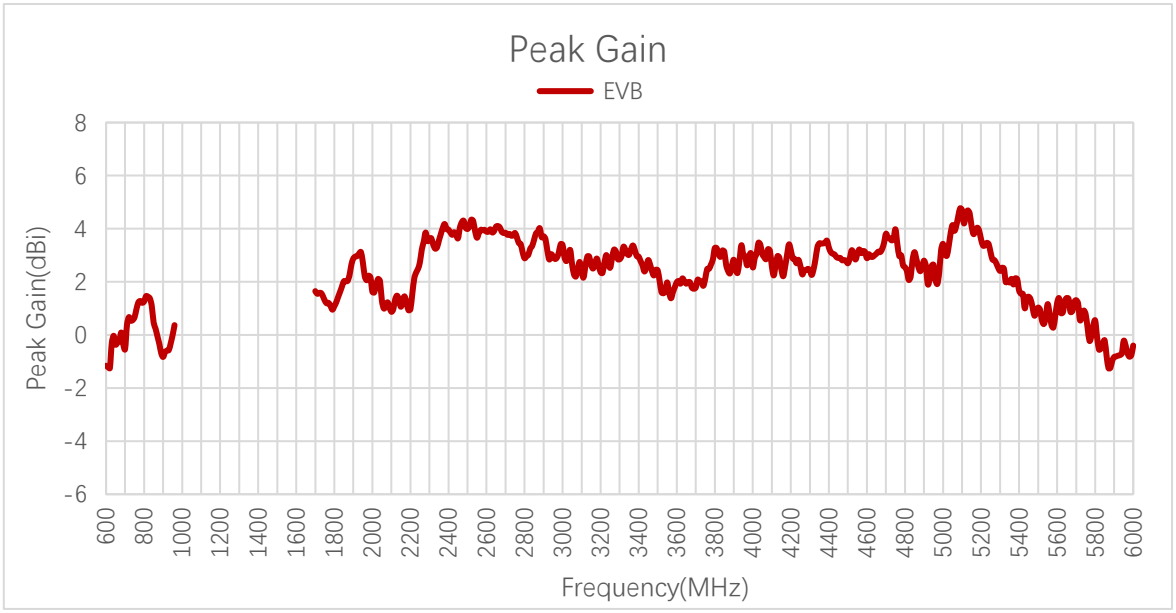
Average Gain (dB)

Frequency (MHz)	**600**	**630**	**710**	**820**	**900**	**960**	**1440**	**1710**	**1740**	**1880**
FS	-1.5	-1.8	-1.4	-2.1	-2.6	-2.8	-	-1.3	-1.5	-2.3

EVB	-2.7	-1.9	-1.5	-1.3	-1.3	-0.8	-	-1.8	-1.8	-1.7
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
FS	-1.7	-2.0	-1.0	-1.4	-1.0	-1.7	-2.1	-1.0	-2.7	-3.3
EVB	-0.8	-2.2	-1.3	-1.7	-1.4	-1.9	-2.0	-2.8	-2.9	-4.8

3.2.3. Peak Gain





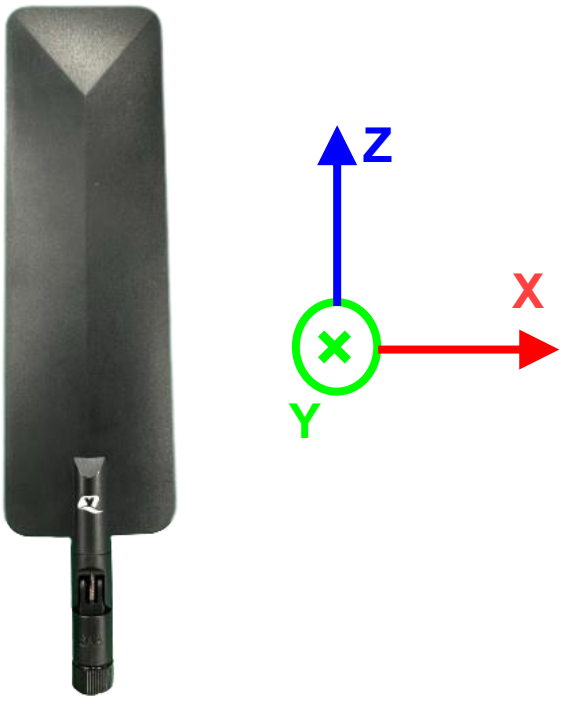
Peak Gain (dBi)

Frequency (MHz)	600	630	710	820	900	960	1440	1710	1740	1880
FS	1.1	1.4	0.9	0.7	1.6	1.2	-	1.5	1.0	0.3
EVB	-1.2	-0.3	0.4	1.4	-0.8	0.4	-	1.6	1.5	2.3
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
FS	0.6	0.7	3.3	3.3	3.7	2.9	2.6	5.5	3.2	2.8
EVB	2.7	1.3	3.6	3.6	3.9	2.0	3.8	3.4	1.0	-0.4

3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Condition: In Free Space

- Test Chamber: GL-S-1



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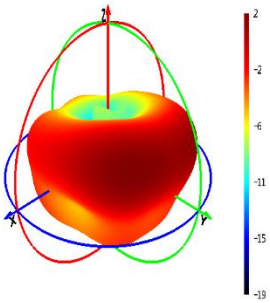
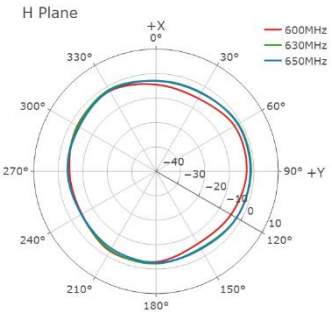
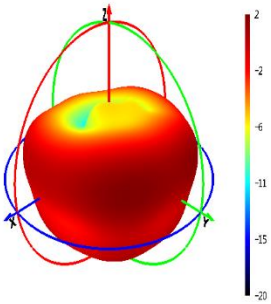
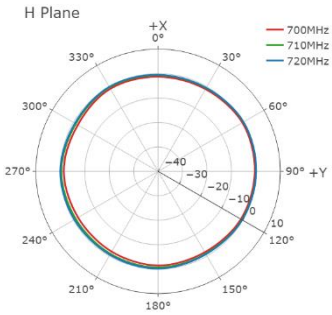
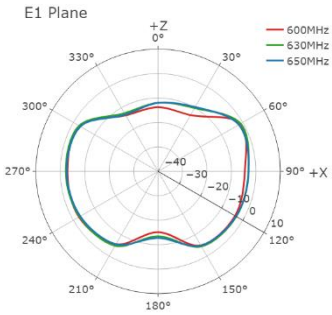
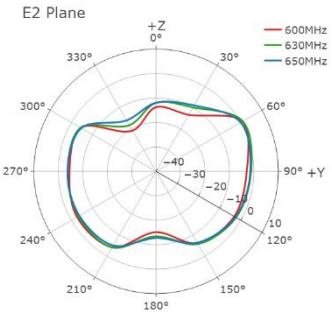
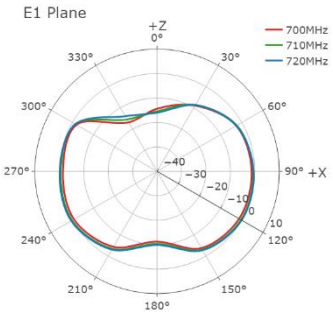
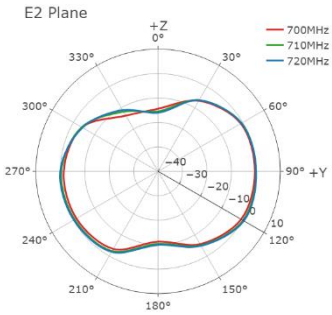
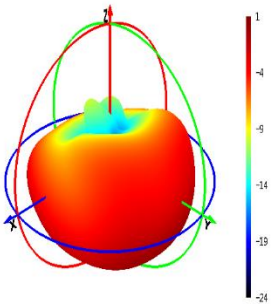
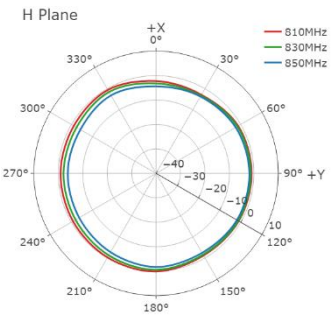
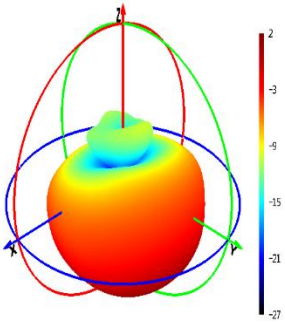
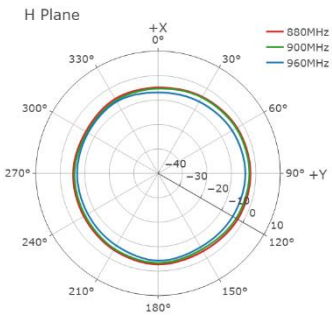
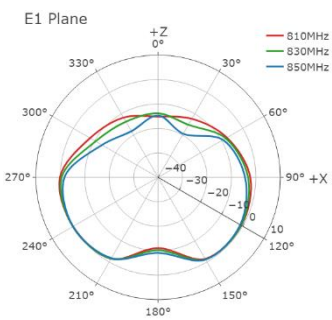
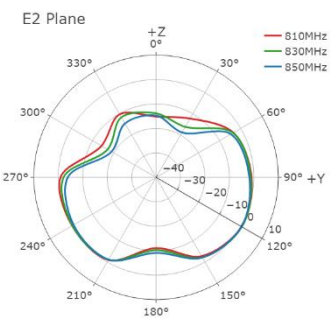
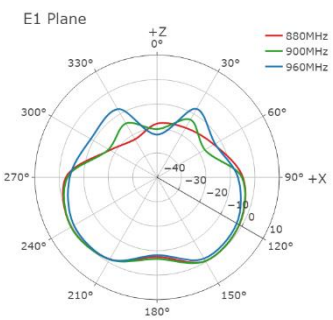
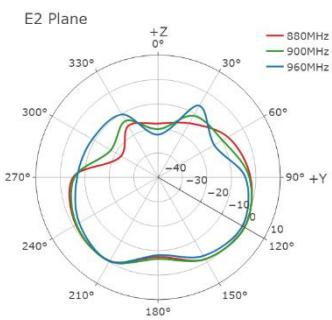
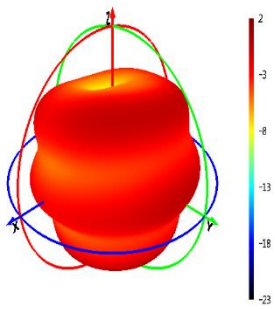
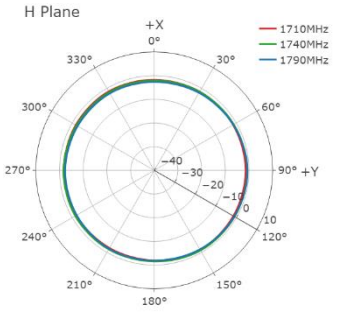
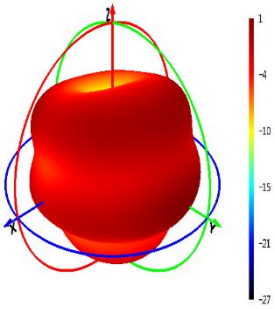
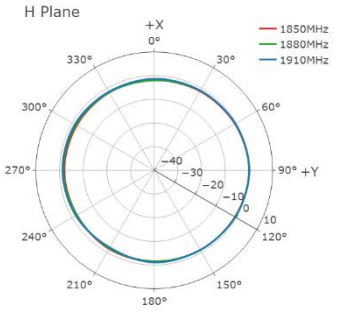
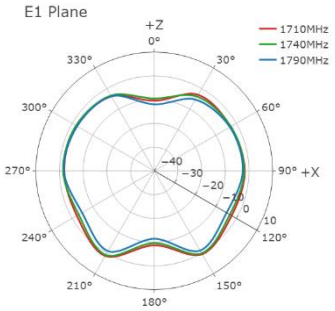
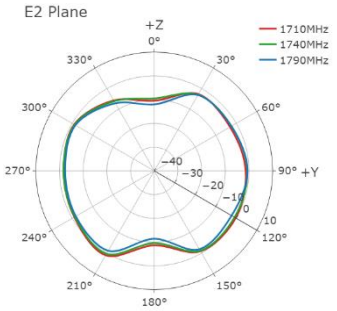
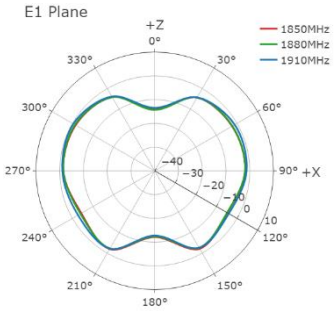
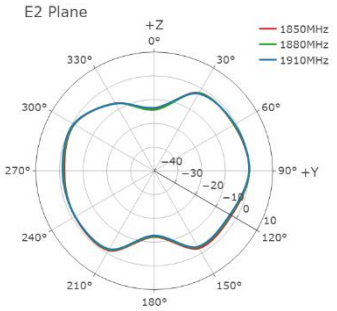
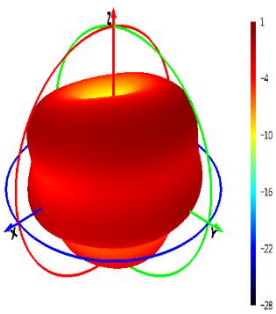
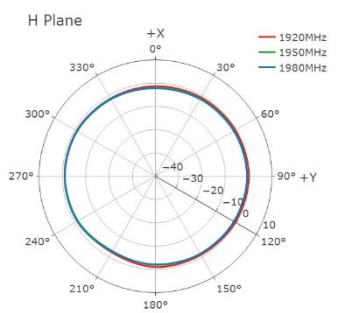
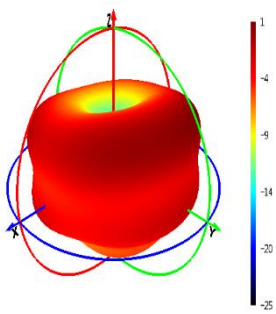
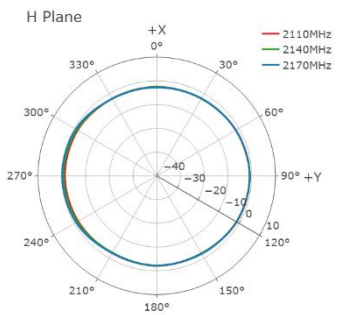
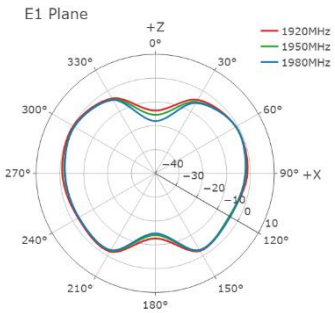
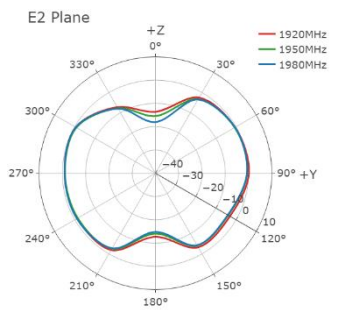
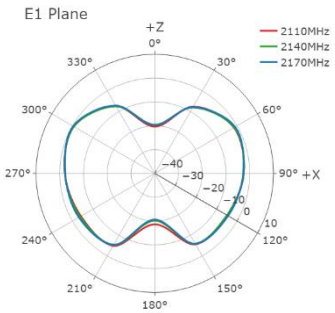
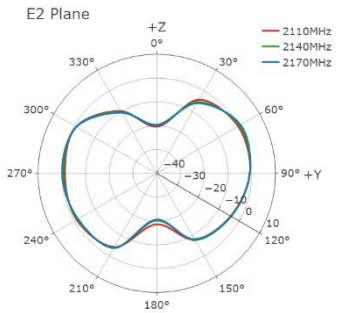
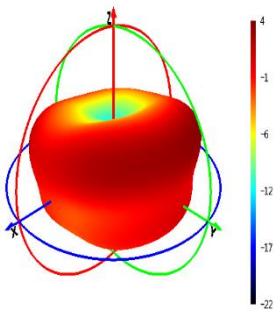
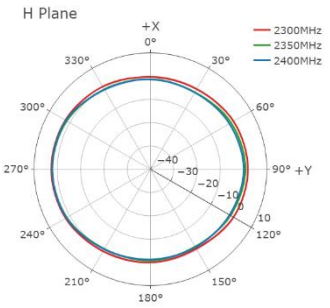
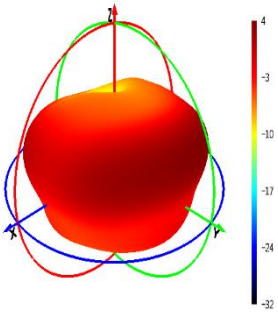
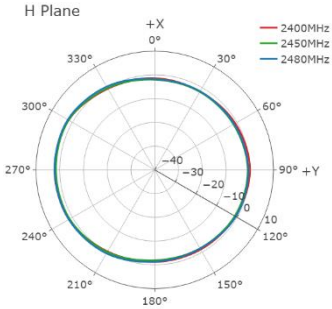
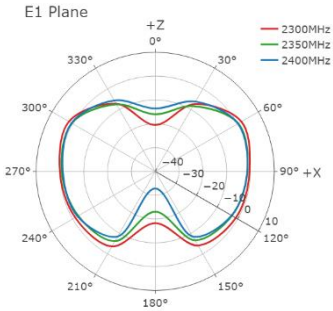
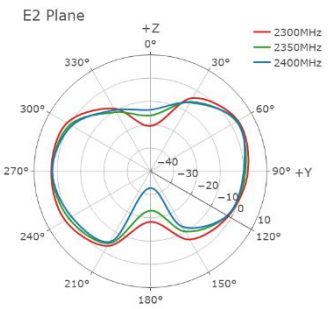
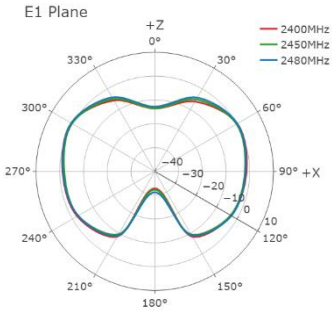
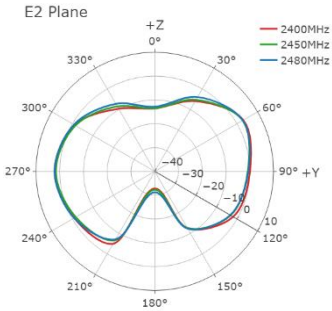
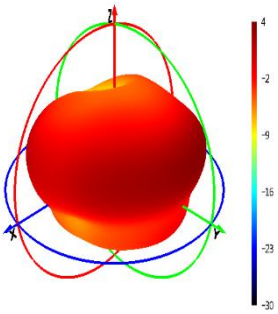
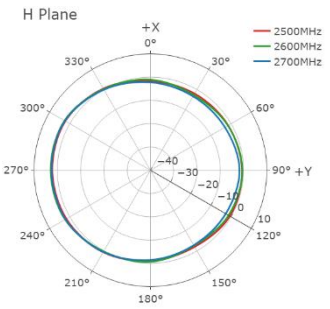
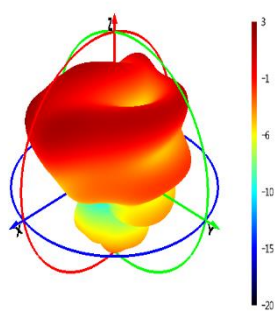
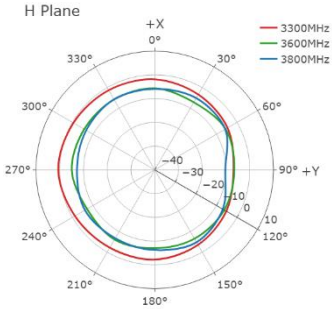
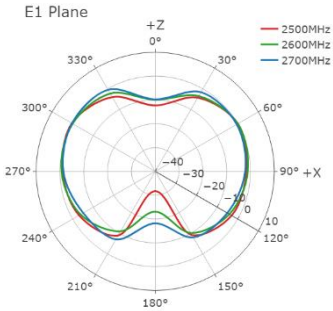
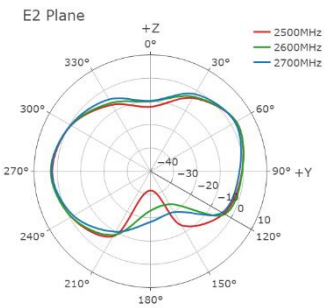
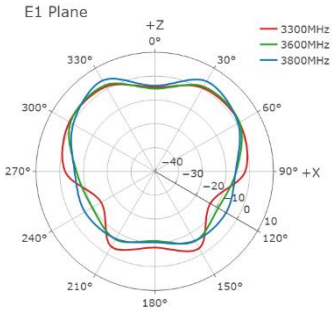
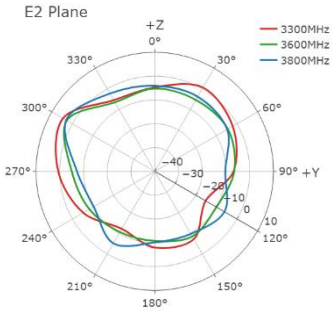
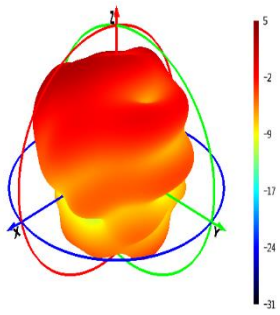
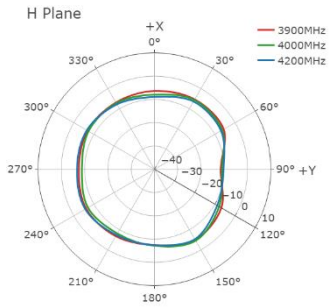
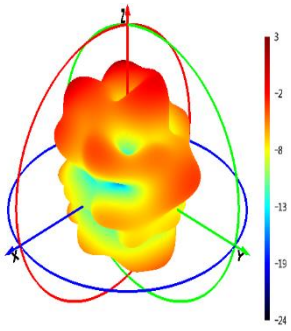
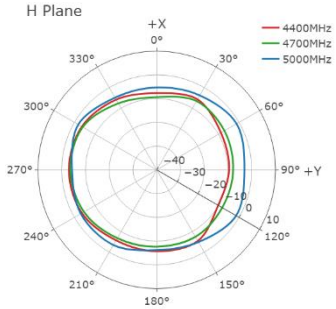
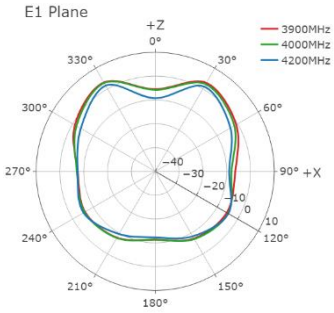
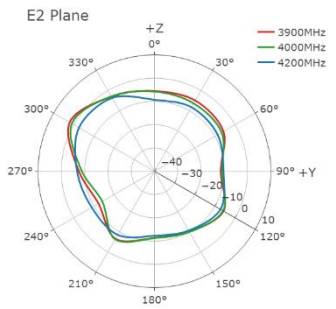
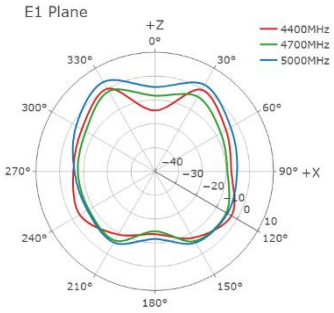
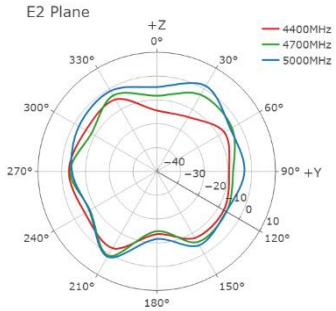
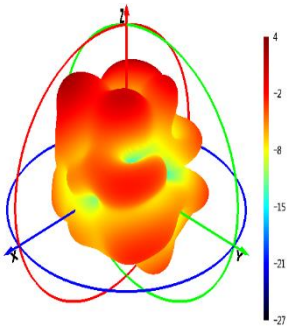
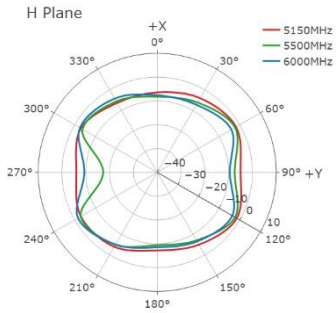
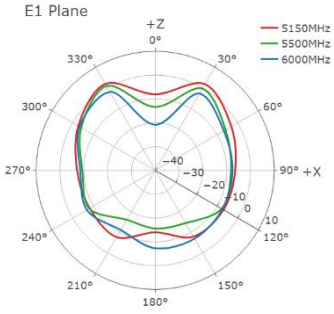
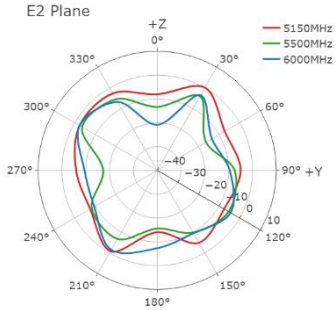
			
			
830 MHz		**900 MHz**	
			
			

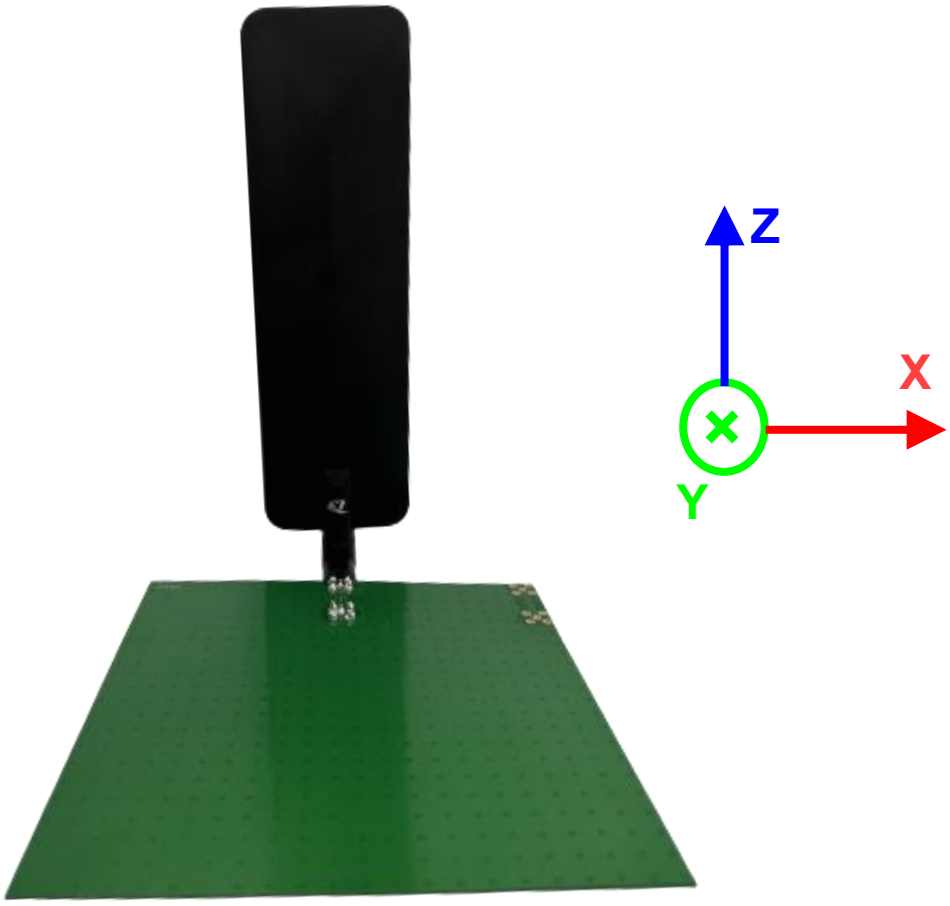
1740 MHz		1880 MHz	
			
			
1950 MHz		2140 MHz	
			
			

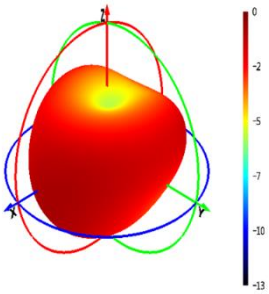
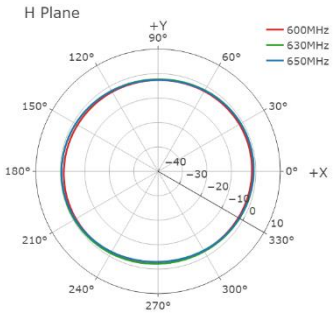
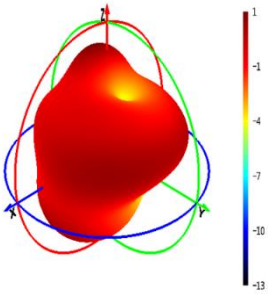
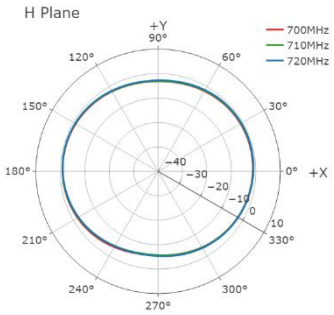
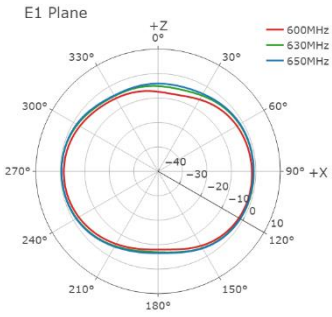
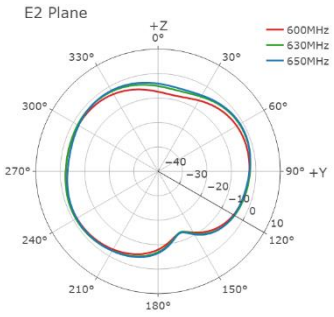
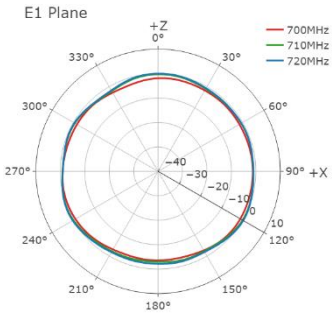
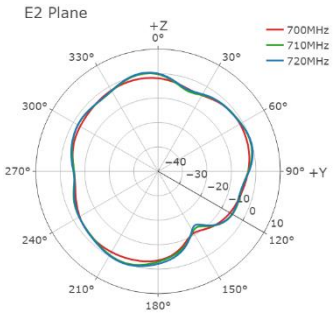
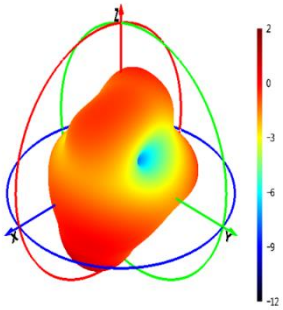
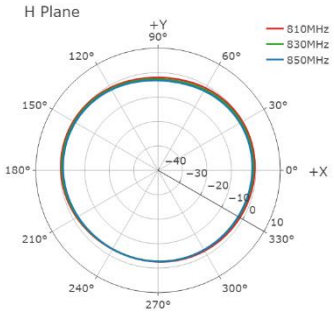
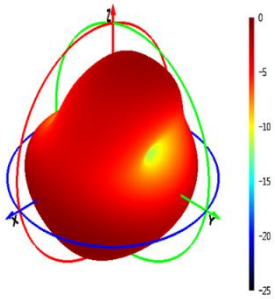
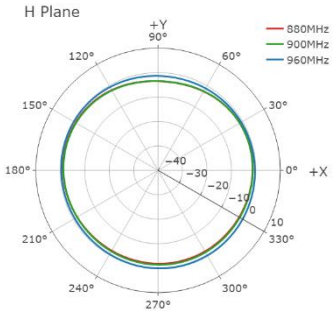
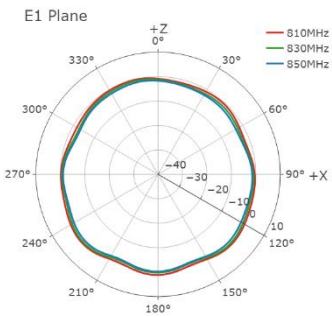
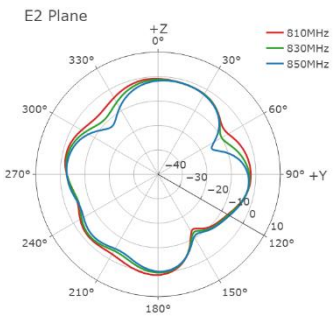
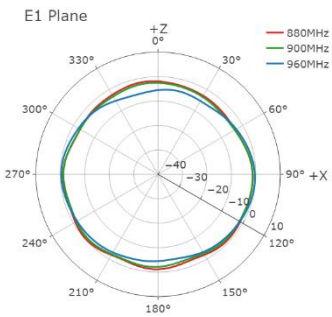
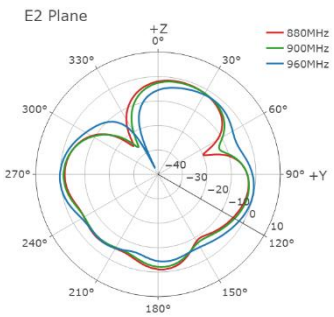
2350 MHz		2450 MHz	
			
			
2600 MHz		3600 MHz	
			
			

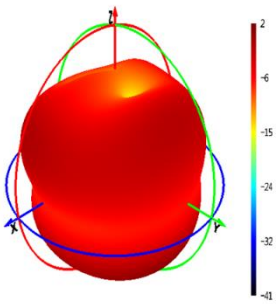
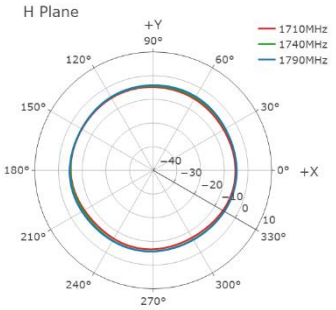
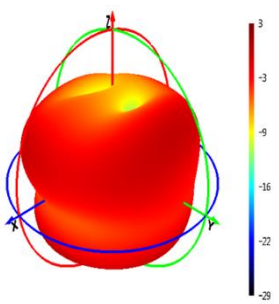
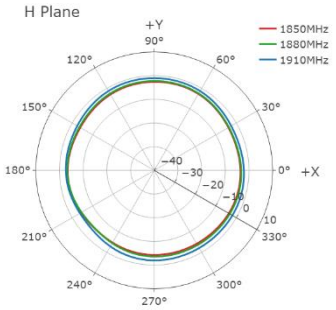
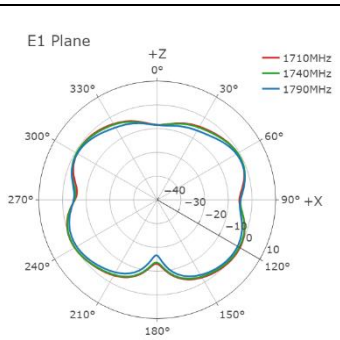
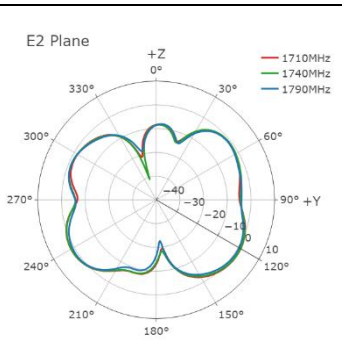
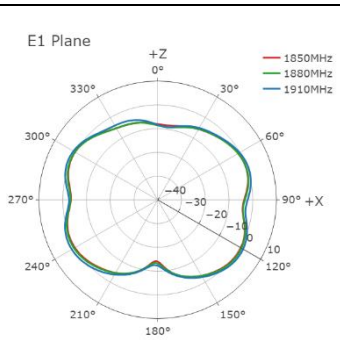
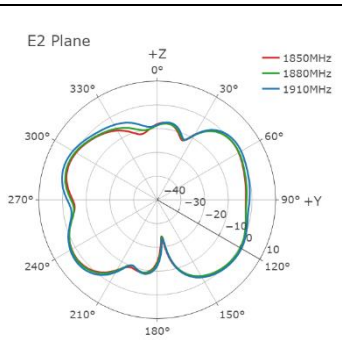
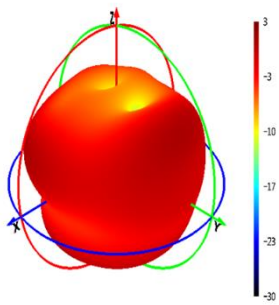
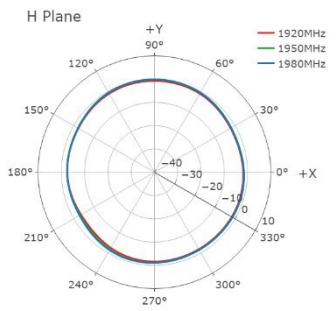
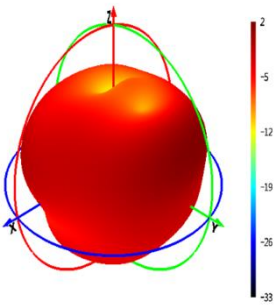
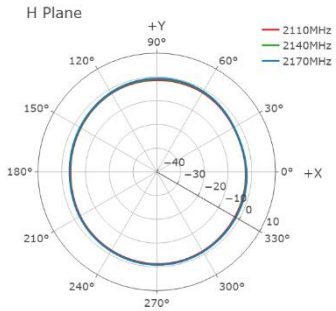
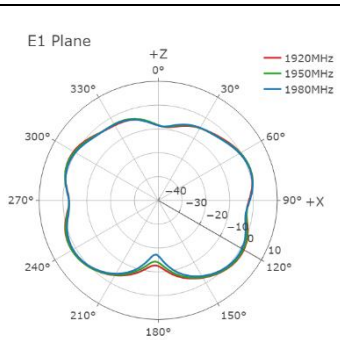
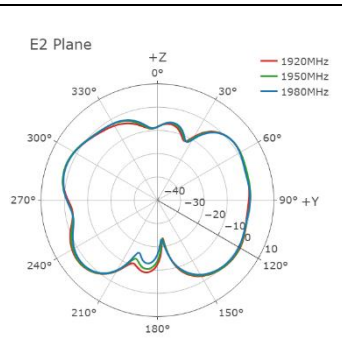
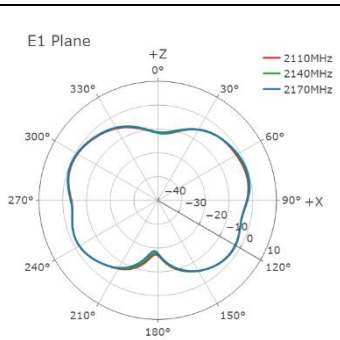
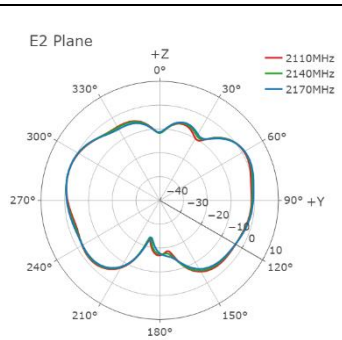
4000 MHz		4700 MHz	
			
			
5500 MHz			
			
			

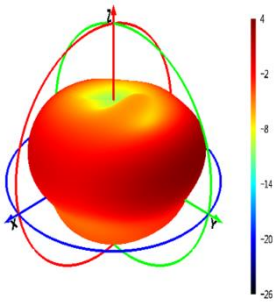
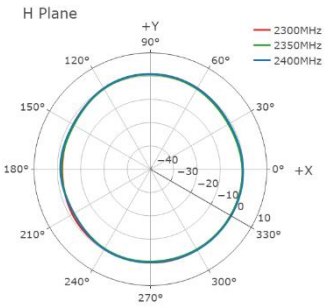
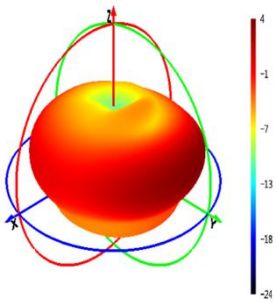
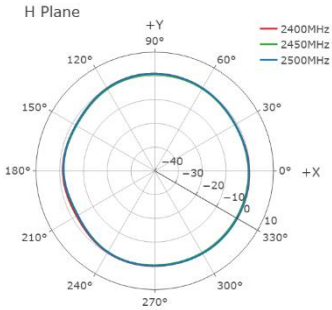
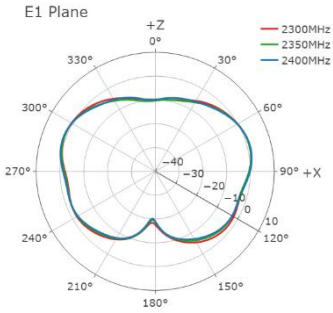
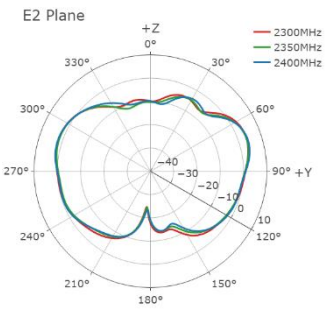
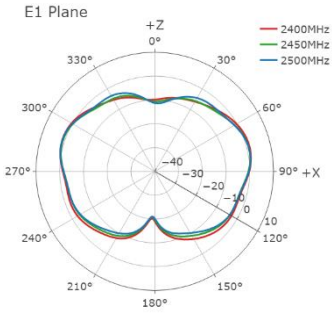
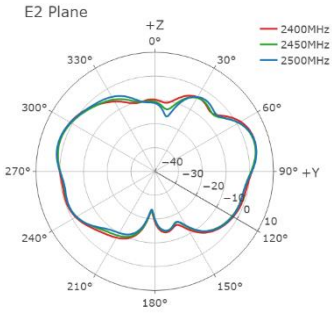
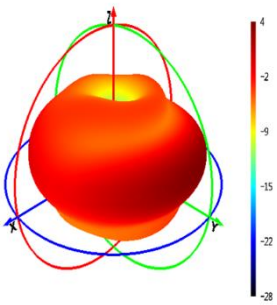
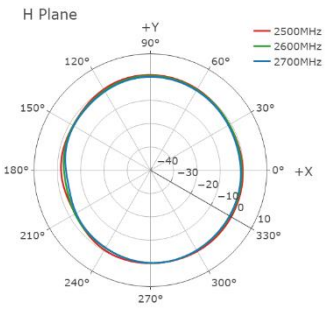
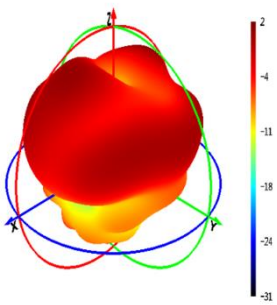
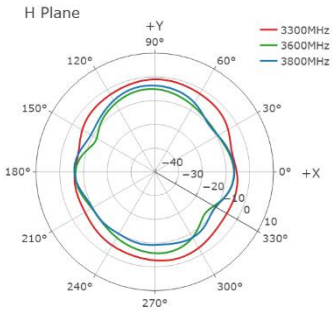
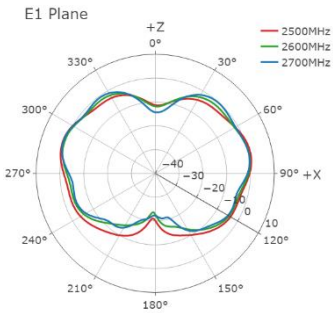
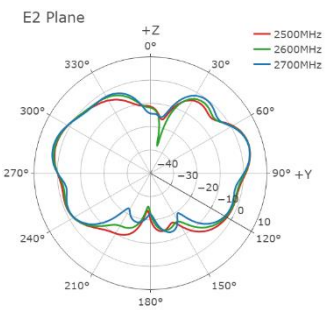
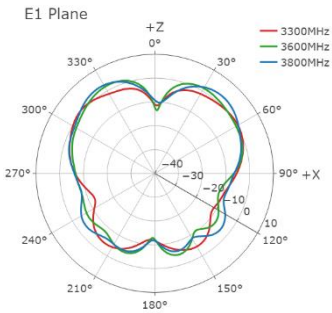
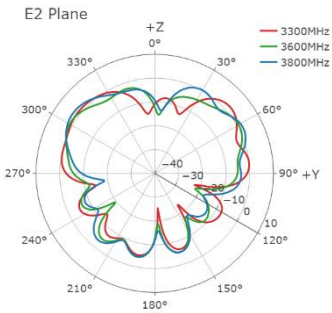
3.2.4.2. Test Condition: On 130 mm × 130 mm EVB

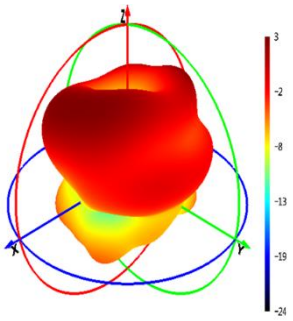
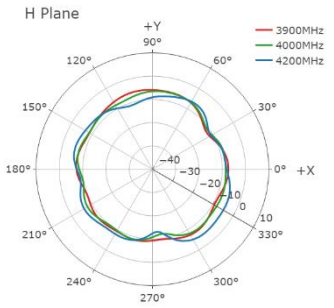
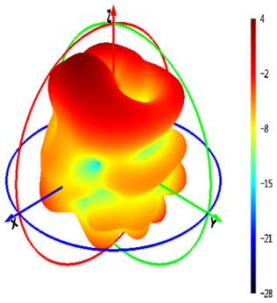
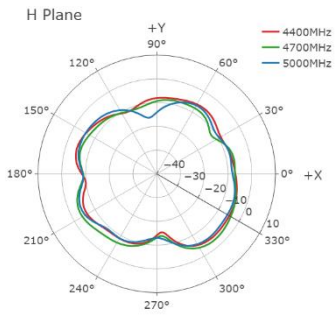
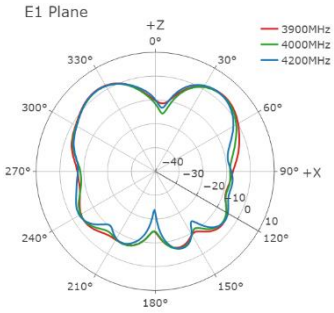
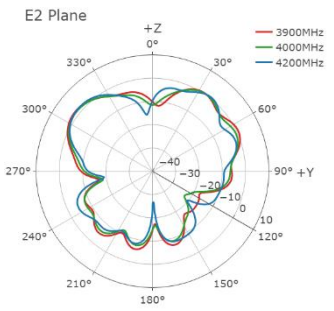
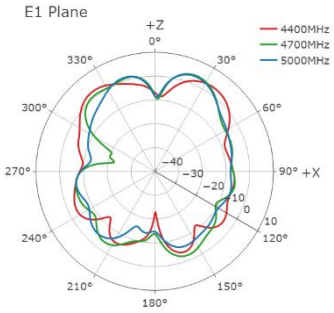
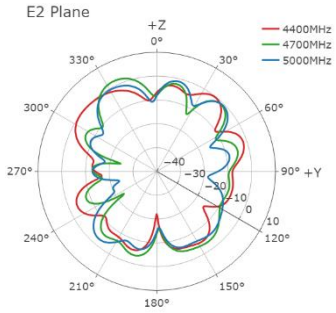
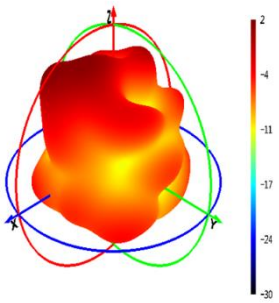
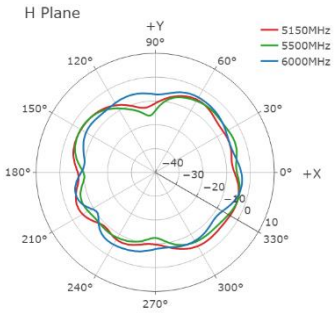
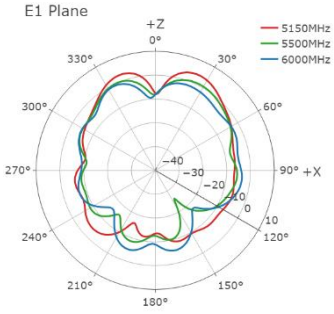
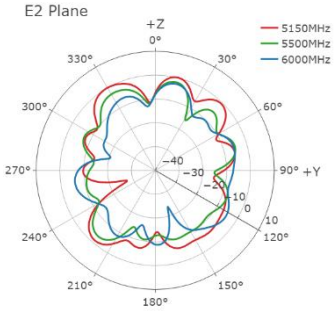
- Test Chamber: GL-S-1



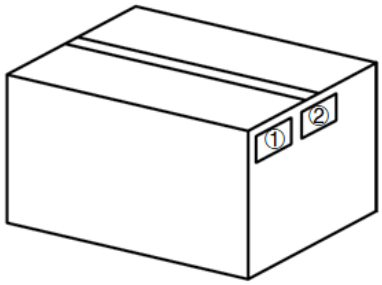
630 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			

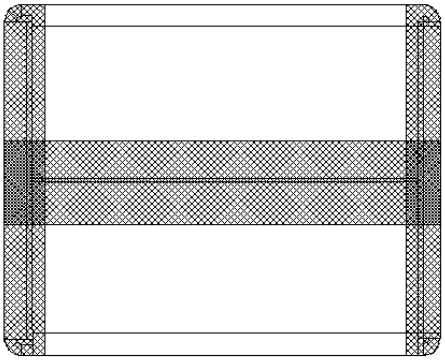
1740 MHz		1880 MHz	
			
			
1950 MHz		2140 MHz	
			
			

2350 MHz		2450 MHz	
			
			
2600 MHz		3600 MHz	
			
			

4000 MHz		4700 MHz	
			
			
5500 MHz			
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		Put the product in a one-piece bag. Each one-piece bag contains 10 products.
2		10 pcs antenna products in a PE bag. (10 PCS / PE Bag) PE Bag Size: L × W = 320 × 220 mm
3		(10 PE Bags / Carton Box) (100 PCS Antennas / 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** H-shaped sealing cartons

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
-	2023-09-05	Ezail TAN/ Hart HU/ David LIU/ Aria CHU	Creation of the document
1.0	2023-09-05	Ezail TAN/ Hart HU/ David LIU/ Aria CHU	First official release
2.0	2023-11-07	Hart HU/ Black LI	1. Updated efficiency data (Front page) 2. Added antenna installation instructions (Chapter 2). 3. Added EVB status test data (Chapter 3).
2.1	2024-11-05	Shea LI/ Aria CHU	1. Updated the overview. 2. Added housing flame rating and housing UV resistant (Chapter 1.2). 3. Updated Chapter 2.
2.2	2025-04-09	Aria CHU	Updated the antenna image (Cover page).

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