Antenna Datasheet

Product OC: YF0007KA
Version: 2.2
Date: 2025-04-24
Status: Released

Product Name: 4G Adhesive Mount PCB + Cable Monopole Embedded Antenna

Key Features:

Frequency Band: 600–960 MHz, 1427.9–1495.9 MHz, 1710–2690 MHz, 2300–2700 MHz
Dimensions: 50 mm × 25 mm × 0.85 mm
Efficiency: Up to 72.3 % (EVB)
RoHS and REACH Compliant

Overview

This Quectel embedded 4G PCB antenna covers main 4G LTE bands and is compatible with 3G/2G/LPWA bands. Featuring high efficiency and gain, it is an ideal antenna for a smooth and stable connection with high-efficiency data transmission even under the influence of the device's internal structure. Ground plane independent, it's designed to be mounted directly to the underside of either a plastic or non-metallic enclosure. Ease of integration with a cable and connector which can be customized to meet your product design and RF module.

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1 Specification

Test Condition: In free space & stick to ABS board on 130 mm × 130 mm EVB board

1.1. Electrical

Electrical	
Frequency Range	700–960 MHz, 1427.9–1495.9 MHz, 1710–2690 MHz, 2300–2700 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	4.0	4.4	3.6	1.9	3.3	1.5	2.4	3.9	-	-	-
	EVB	3.5	3.0	7.4	1.6	3.0	4.0	4.7	6.8	-	-	-
Max. Return Loss (dB)	FS	-4.4	-4.0	-5.0	-10.0	-5.4	-14.0	-7.7	-4.6	-	-	-
	EVB	-5.0	-6.0	-2.3	-12.9	-6.0	-4.4	-3.7	-2.6	-	-	-
AVG Eff. (%)	FS	15.4	24.1	37.0	38.5	61.4	56.0	58.0	46.2	-	-	-
	EVB	18.7	35.2	30.5	53.8	61.2	50.5	29.6	29.1	-	-	-
AVG AVG Gain (dB)	FS	-8.1	-6.2	-4.4	-4.2	-2.2	-2.5	-2.4	-3.4	-	-	-
	EVB	-7.3	-4.6	-5.3	-2.7	-2.2	-3.0	-5.3	-5.5	-	-	-
Max. Peak	FS	-4.4	-2.6	-0.6	2.7	3.1	2.4	1.9	1.2	-	-	-

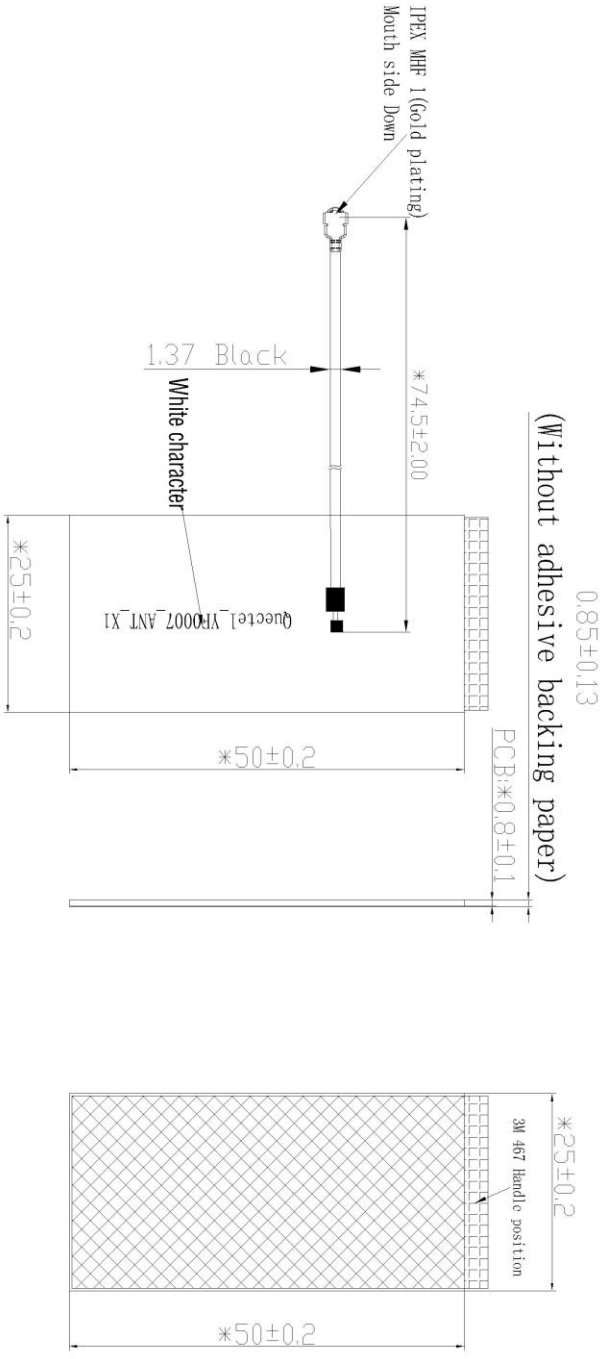
Gain (dBi)	**EVB**	-3.4	-1.1	-1.0	2.8	2.7	3.1	-0.1	1.1	-	-	-
VSWR			**FS**			≤ 4.4						
			EVB			≤ 6.8						
Return Loss			**FS**			≤ -4.0 dB						
			EVB			≤ -2.3 dB						
Peak Gain			**FS**			≤ 3.1 dBi						
			EVB			≤ 3.1 dBi						

Note:
FS: In Free Space
EVB: Stick to ABS Board on 130 mm × 130 mm EVB Board

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	50 mm × 25 mm × 0.85 mm
Material & Color	PCB & Black
Cable Type & Color & Length	Φ 1.37 & Black & 74.5 mm
Connector Type	IPEX MHF 1
Mounting Type	Adhesive
Weight	Typ. 3 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS and REACH Compliant	Yes

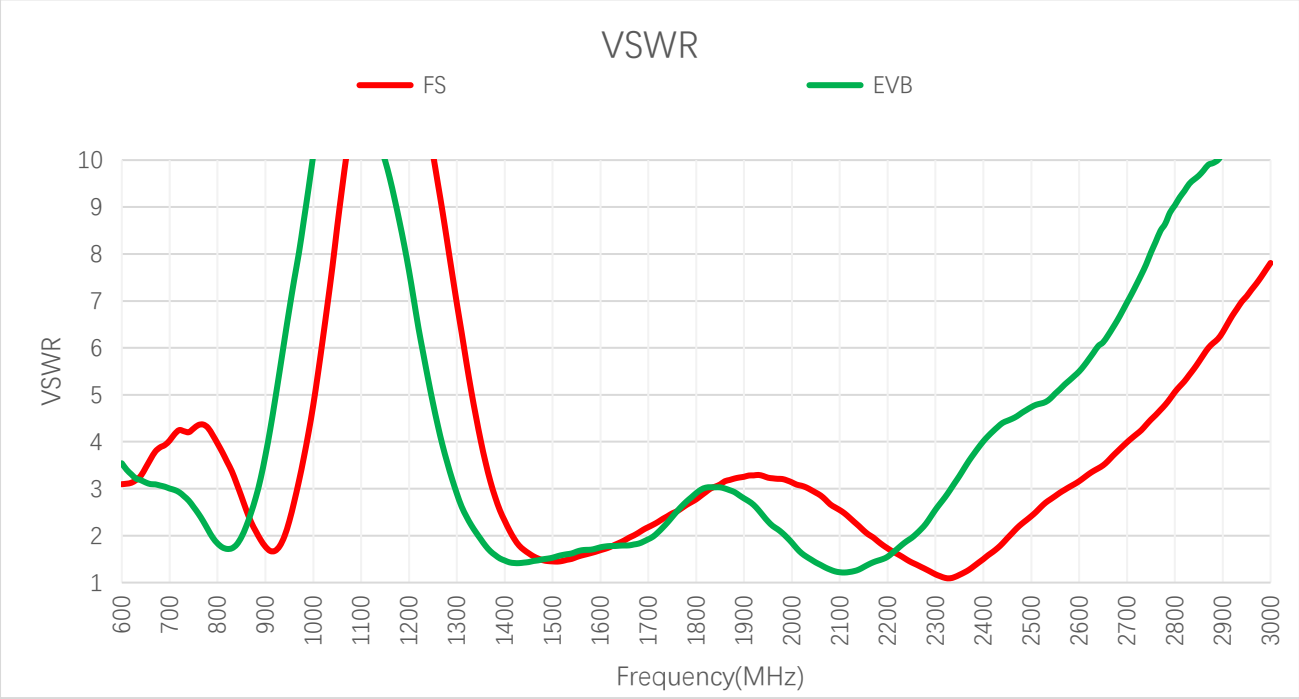
2 Drawing


IPEX MHF I(Gold plating)
Mouth side Down
1.37 Black
White character
*7.4±2.00
*25±0.2
Quectel_YF0007_ANT_X1
*50±0.2
0.85±0.13
(Without adhesive backing paper)
PCB:*0.8±0.1
*25±0.2
3M 467 Handle position
*50±0.2

3 Detailed Performance

3.1. S-Parameter Test

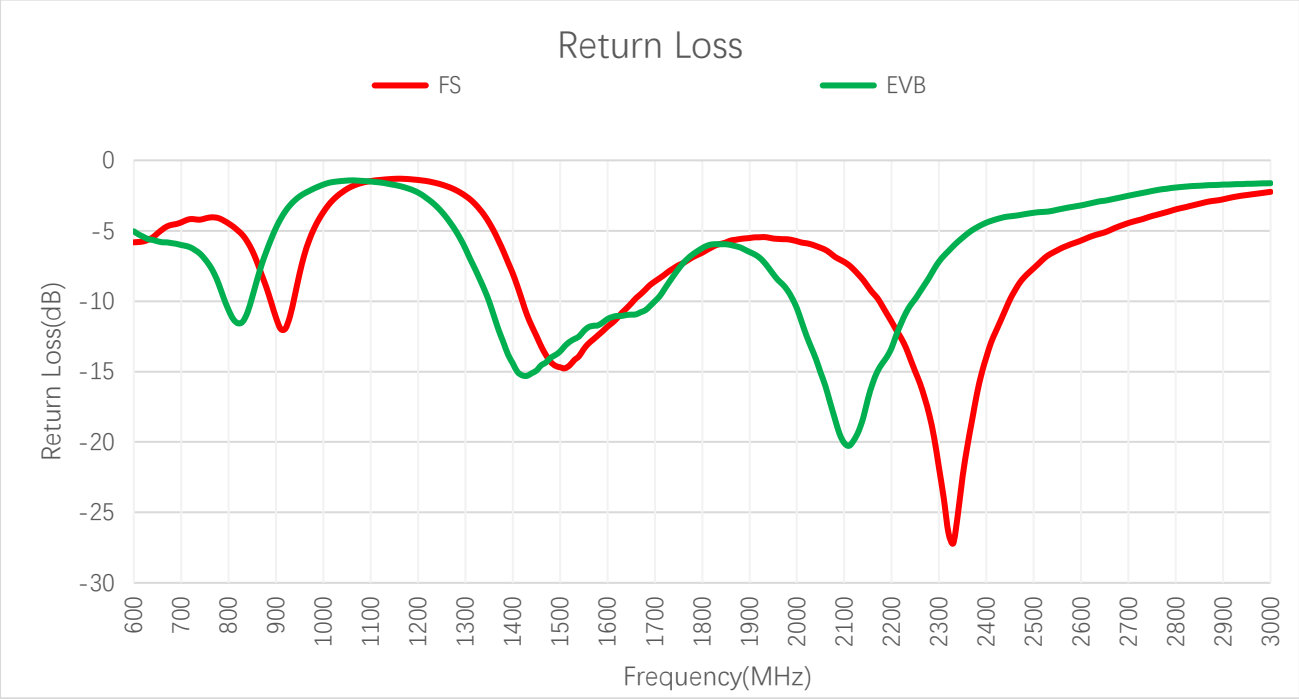
3.1.1. VSWR



VSWR

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
VSWR	FS	3.1	3.2	4.2	3.4	1.8	2.7	1.7	2.2	2.4	3.2
	EVB	3.5	3.2	3.0	1.7	3.7	7.4	1.4	2.0	2.3	2.9
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
VSWR	FS	3.2	2.2	1.2	1.9	3.2	3.2	-	-	-	-
	EVB	2.3	1.3	3.3	4.4	5.5	6.8	-	-	-	-

3.1.2. Return Loss

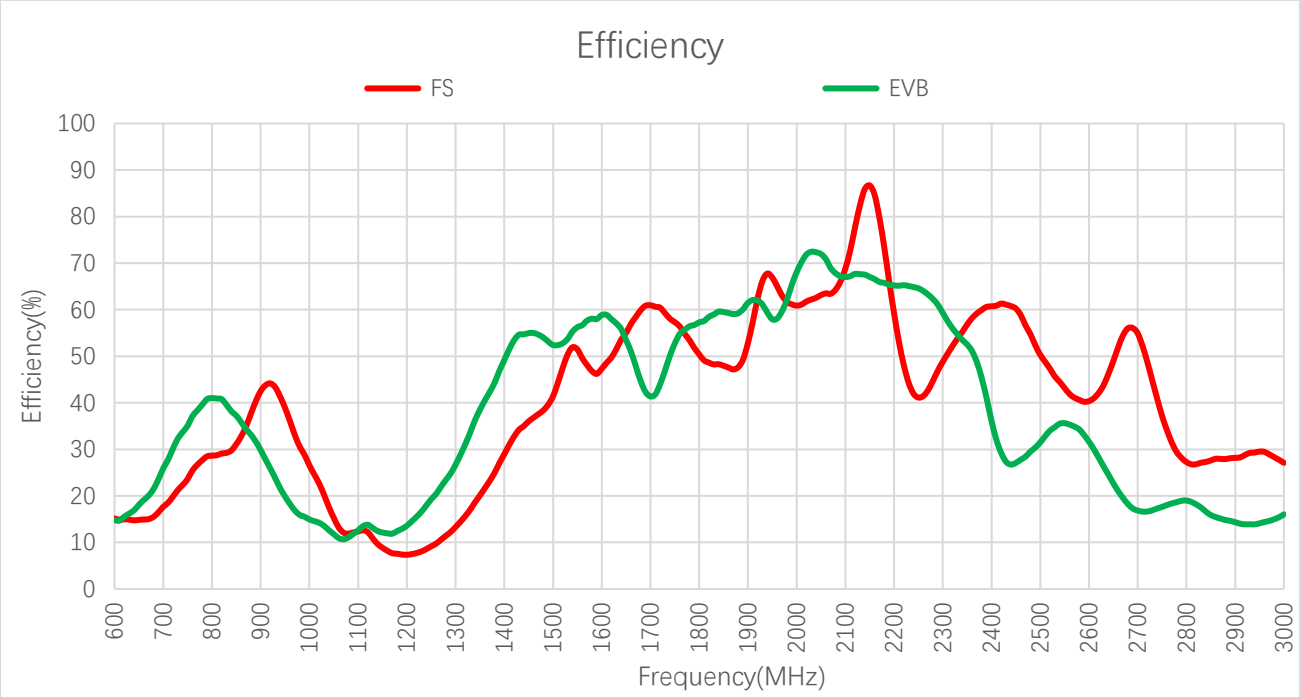


Return Loss (dB)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	FS	-5.8	-5.6	-4.3	-5.3	-11.2	-6.7	-11.8	-8.4	-7.7	-5.6
	EVB	-5.0	-5.6	-6.1	-11.5	-4.8	-2.3	-15.1	-9.7	-8.2	-6.2
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Return Loss (dB)	FS	-5.6	-8.5	-22.4	-9.9	-5.7	-5.6	-	-	-	-
	EVB	-8.1	-18.3	-5.5	-4.0	-3.2	-2.6	-	-	-	-

3.2. Radiation Performance Test

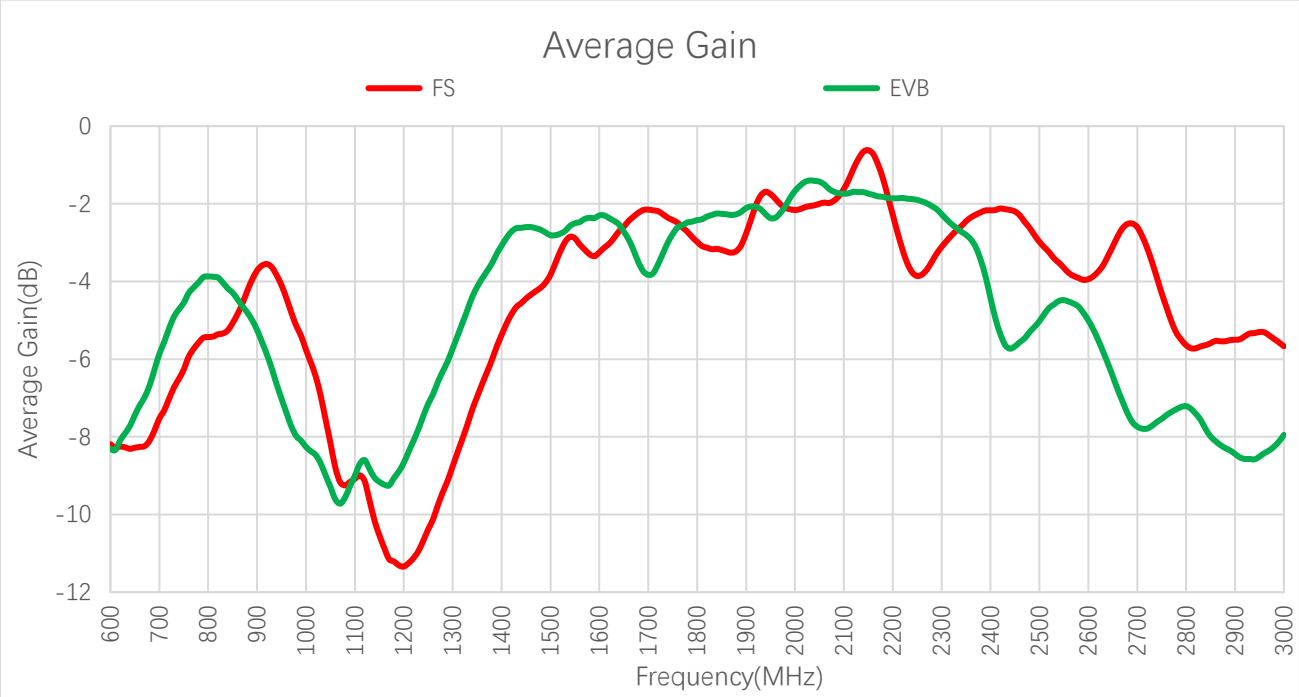
3.2.1. Efficiency



Frequency (%)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	FS	15.2	14.9	18.5	29.2	42.5	36.1	35.0	60.6	58.1	47.6
	EVB	14.8	16.2	27.8	39.5	29.8	18.3	54.7	41.8	50.1	59.2
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Efficiency (%)	FS	66.9	85.9	56.8	60.2	40.4	66.9	-	-	-	-
	EVB	57.9	67.5	52.5	27.1	31.6	17.3	-	-	-	-

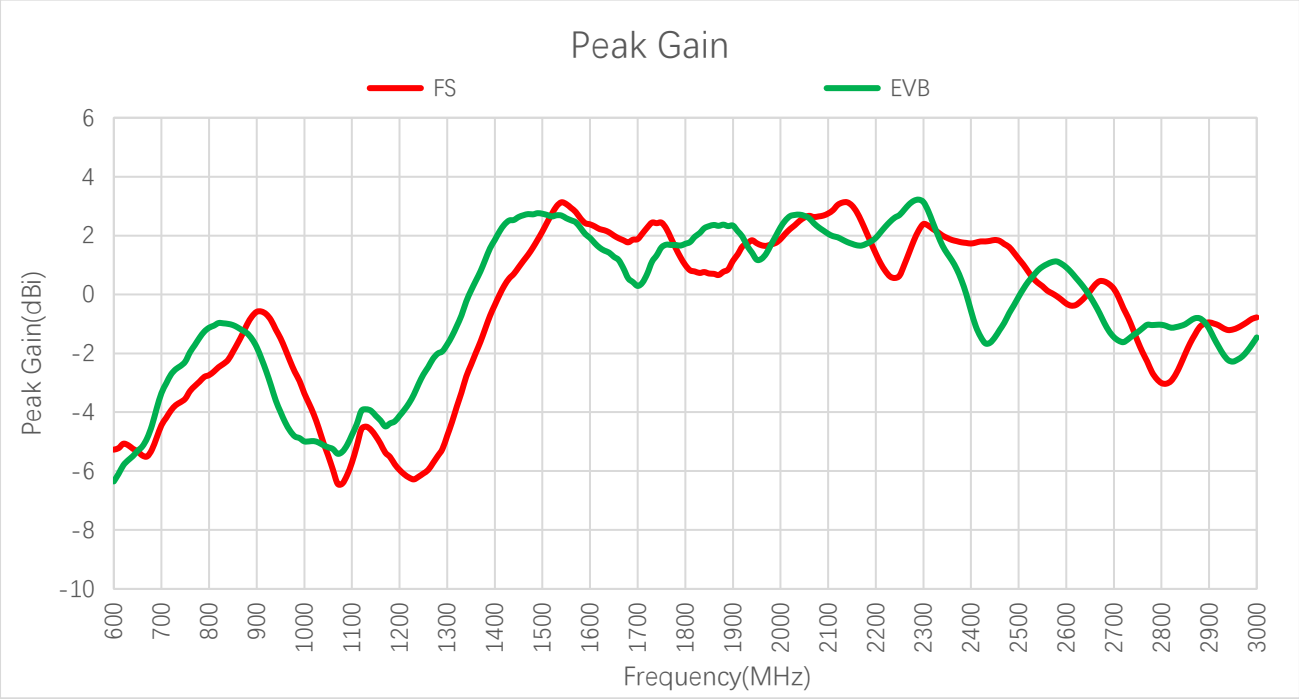
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	FS	-8.2	-8.3	-7.3	-5.3	-3.7	-4.4	-4.6	-2.2	-2.4	-3.2
	EVB	-8.3	-7.9	-5.6	-4.0	-5.3	-7.4	-2.6	-3.8	-3.0	-2.3
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Average Gain (dB)	FS	-1.8	-0.7	-2.5	-2.2	-3.9	-1.8	-	-	-	-
	EVB	-2.8	-4.9	-2.6	-3.7	-7.8	-7.7	-	-	-	-

3.2.3. Peak Gain



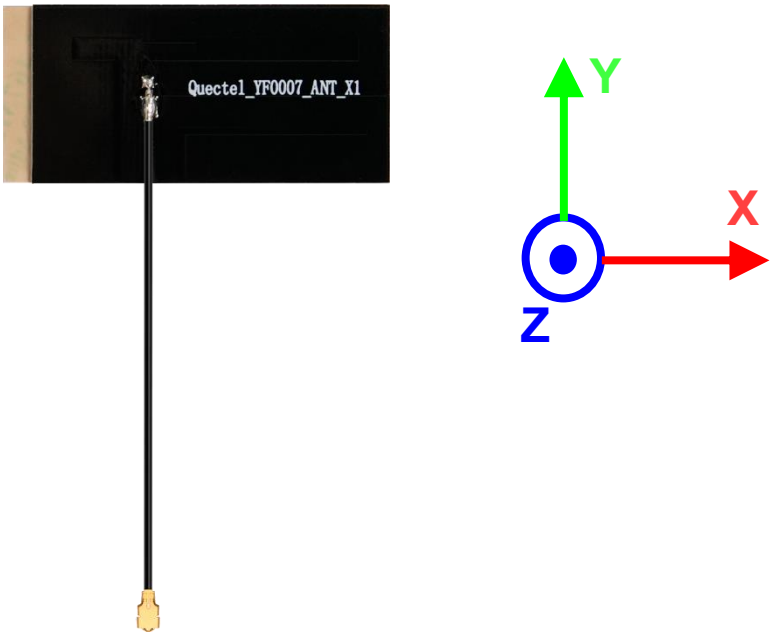
Peak Gain (dBi)

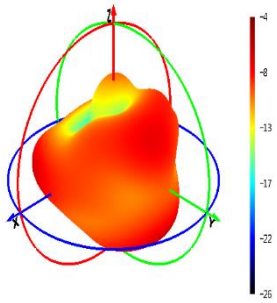
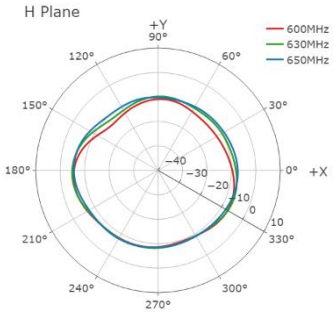
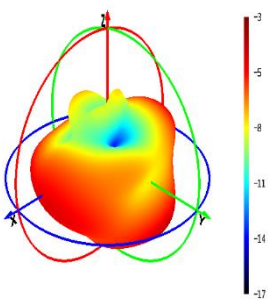
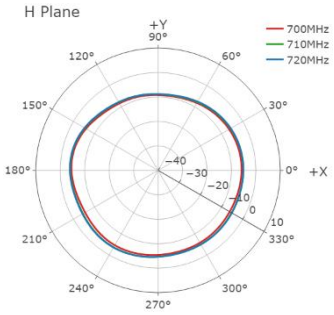
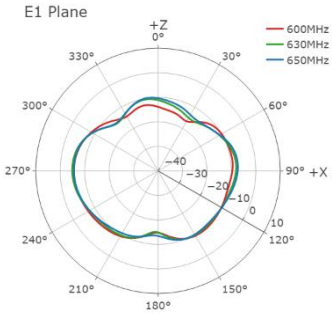
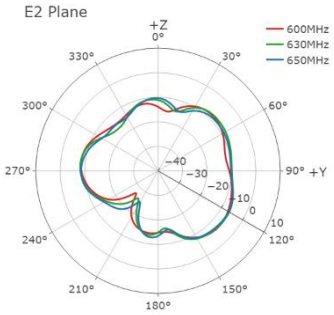
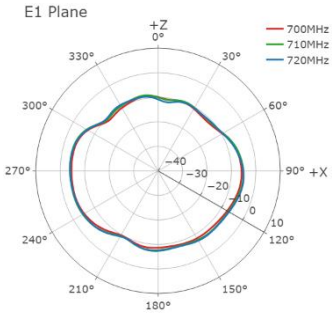
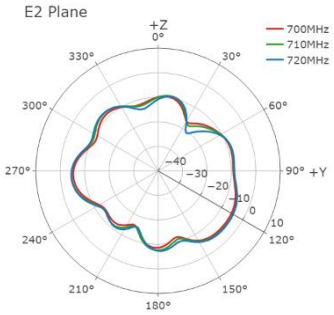
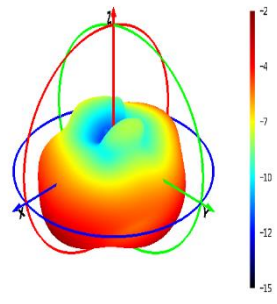
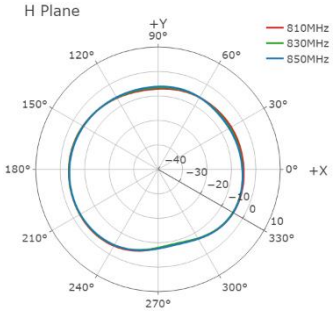
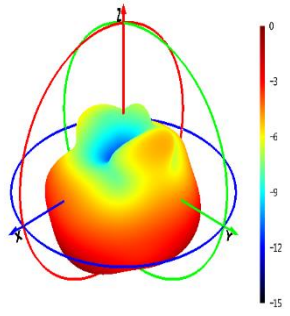
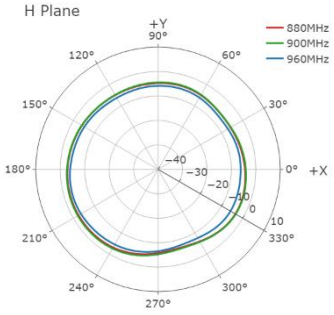
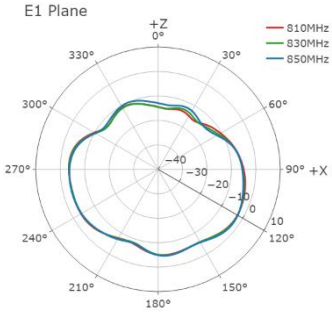
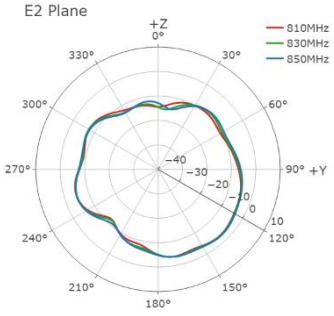
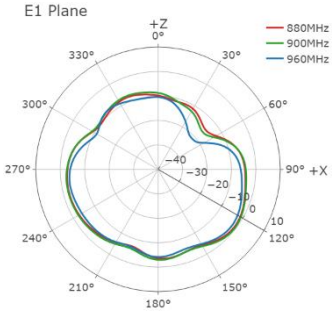
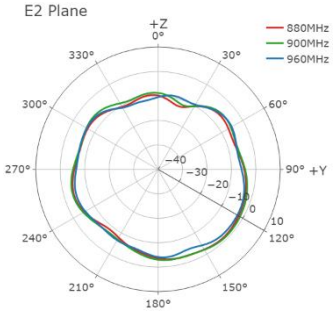
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	FS	-5.3	-5.1	-4.2	-2.4	-0.6	-1.9	0.7	2.1	2.4	0.8
	EVB	-6.4	-5.6	-3.0	-1.0	-1.8	-4.4	2.5	0.4	1.3	2.4
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Peak Gain (dBi)	FS	1.7	3.1	1.9	1.9	-0.3	1.7	-	-	-	-
	EVB	1.2	1.8	1.4	-1.5	0.9	-1.3	-	-	-	-

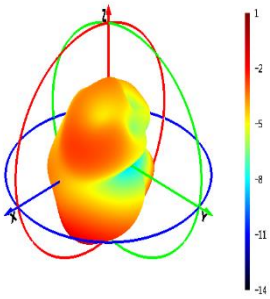
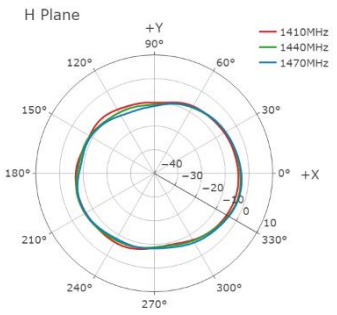
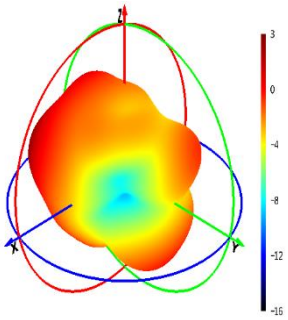
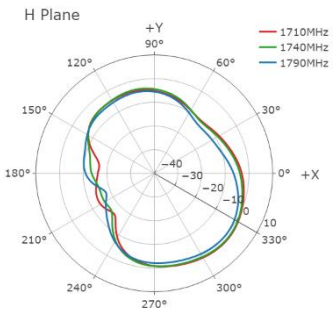
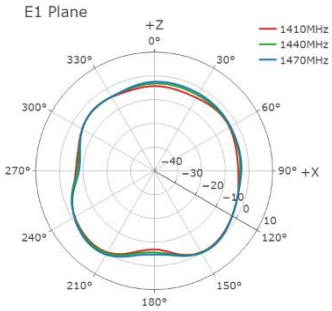
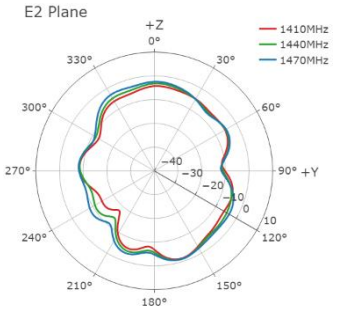
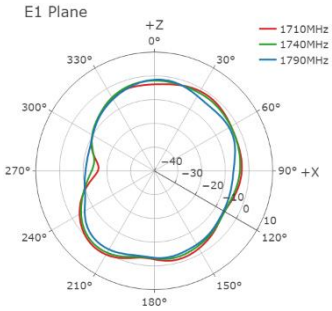
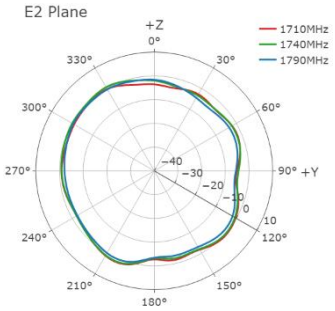
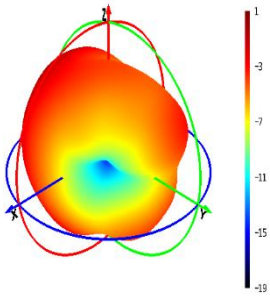
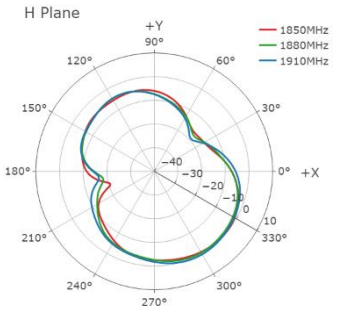
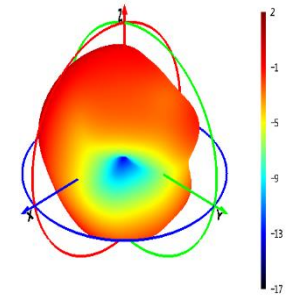
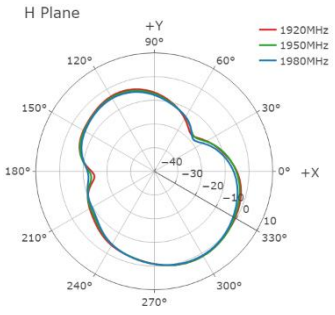
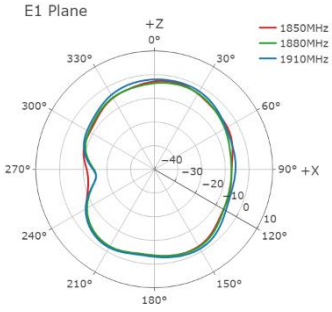
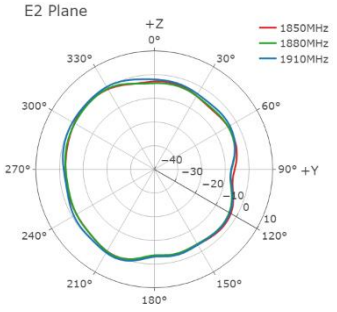
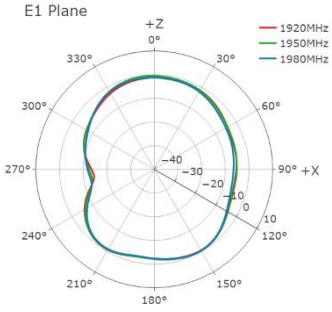
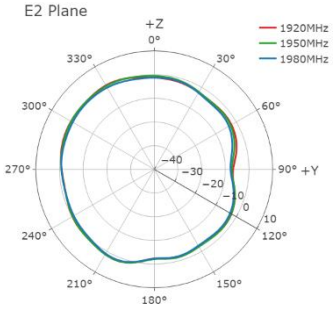
3.2.4. 3D & 2D Radiation Pattern

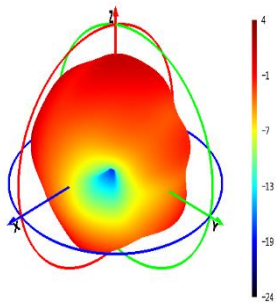
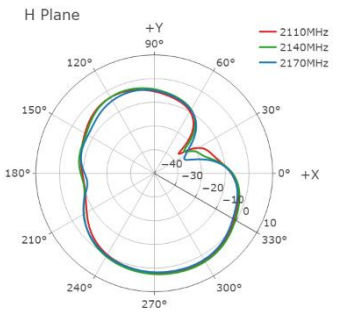
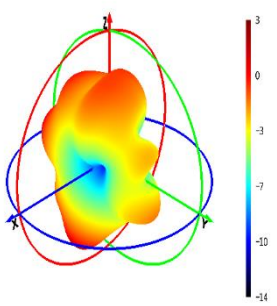
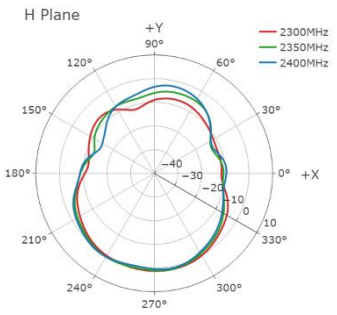
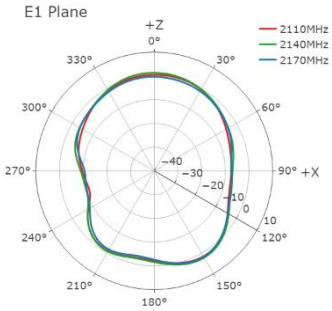
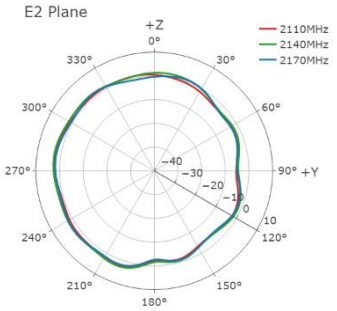
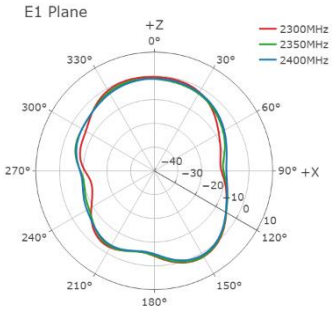
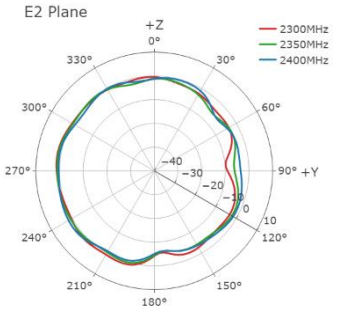
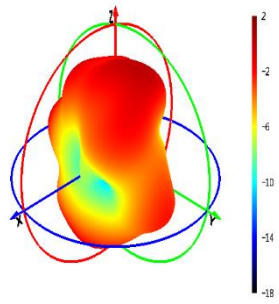
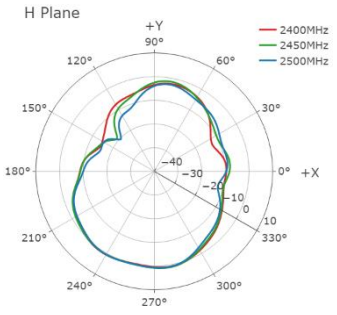
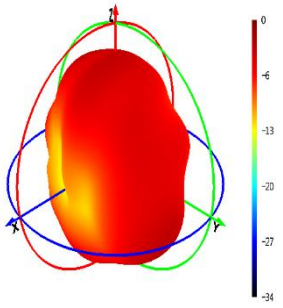
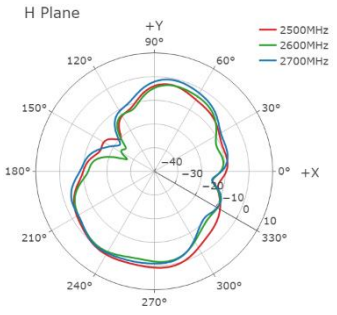
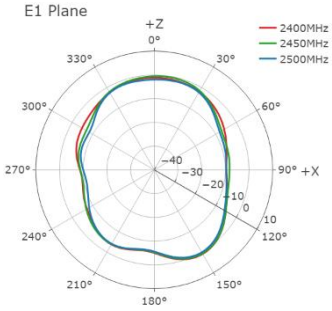
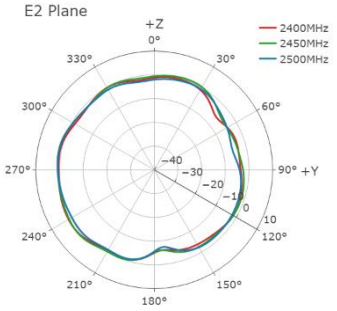
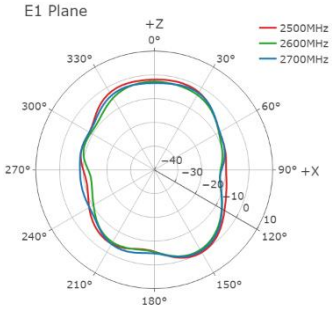
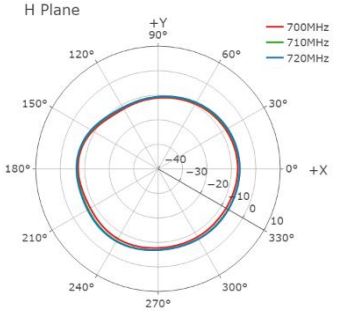
3.2.4.1. Test Condition: In Free Space

- Test Chamber: GL-S-1



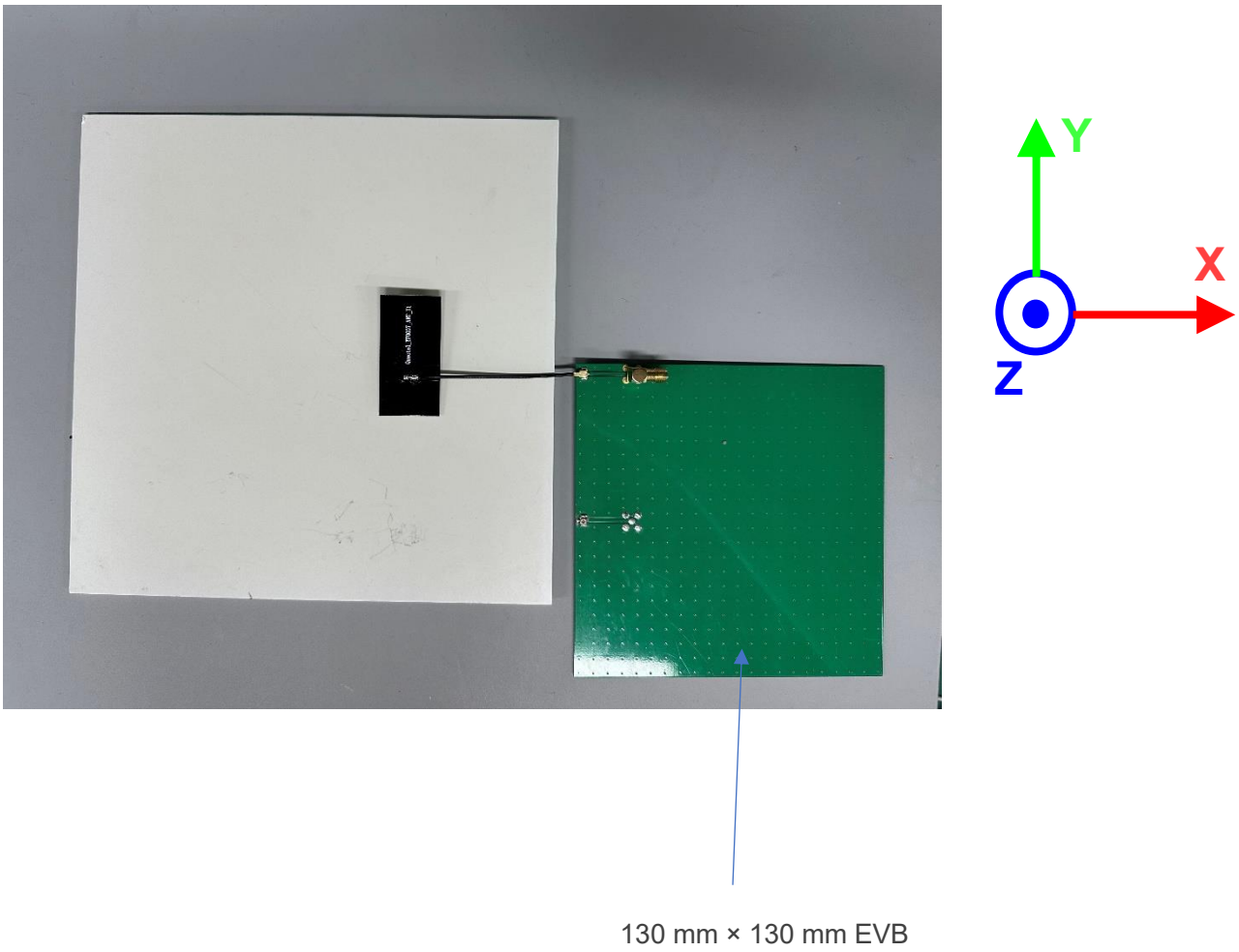
630 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			

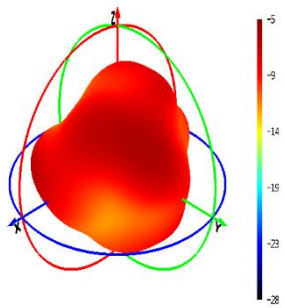
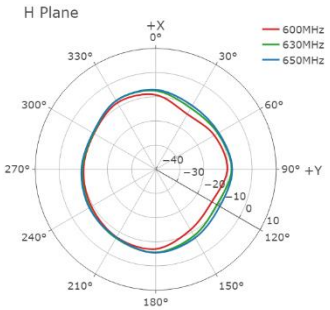
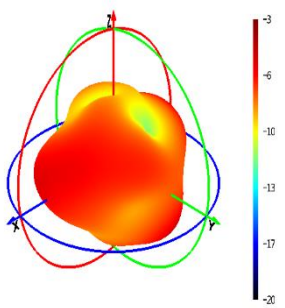
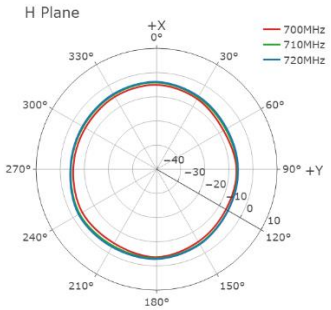
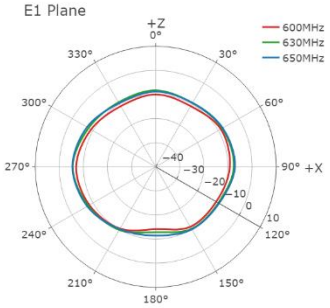
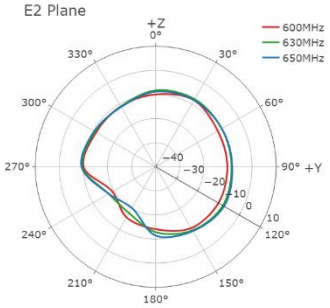
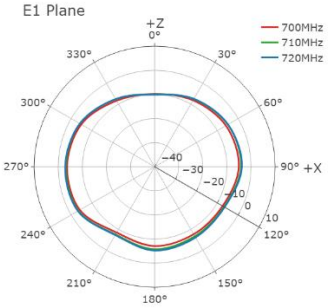
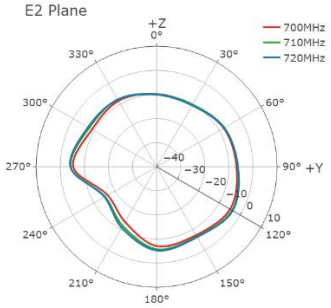
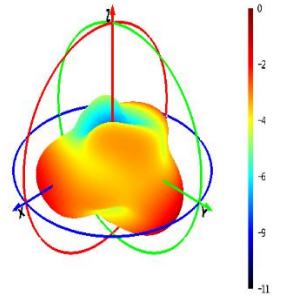
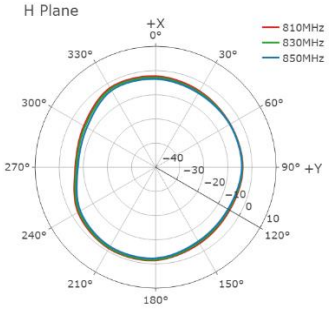
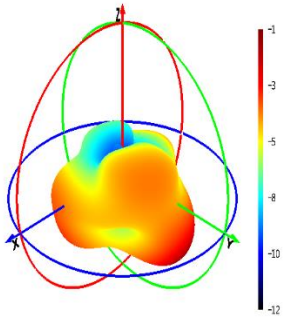
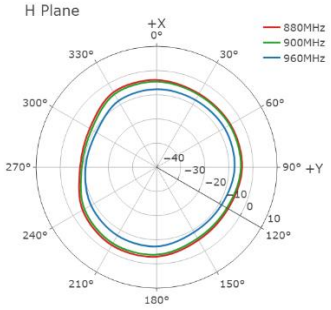
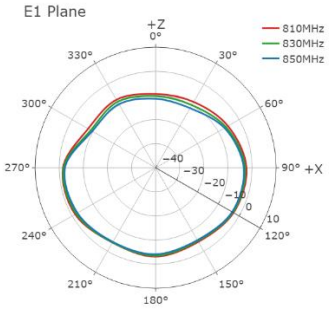
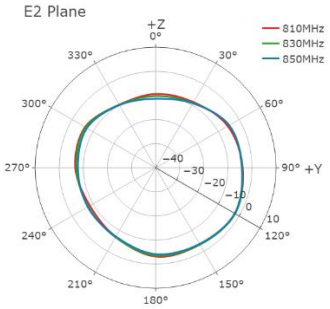
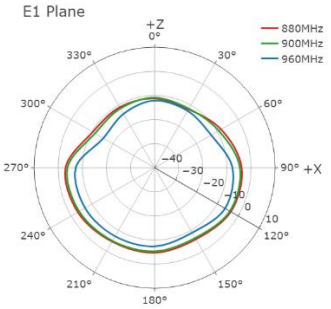
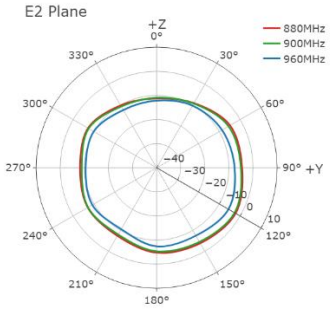
1440 MHz		1740 MHz	
			
			
1880 MHz		1950 MHz	
			
			

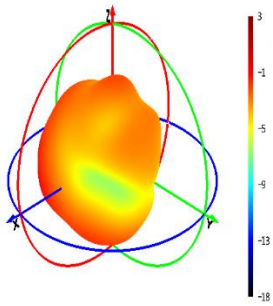
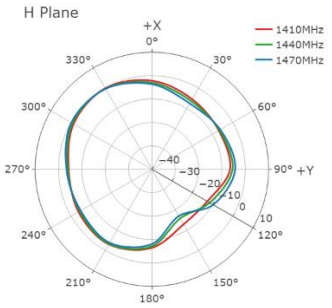
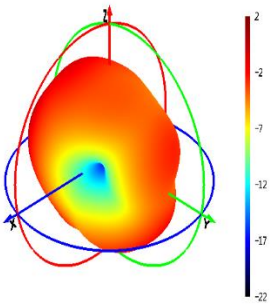
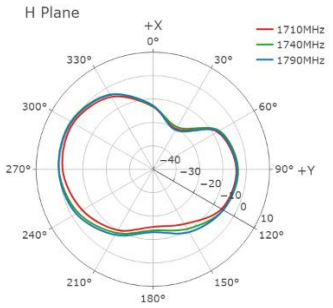
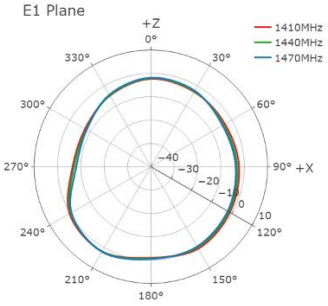
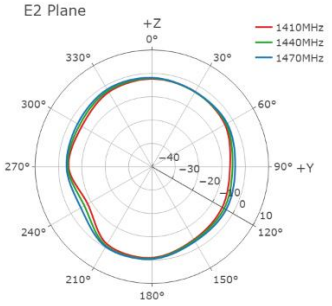
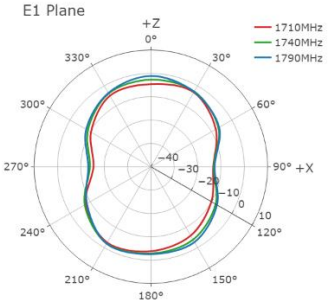
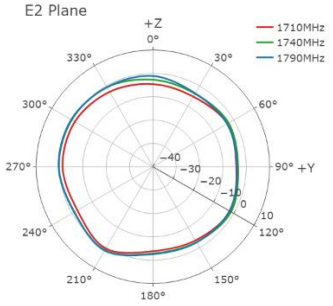
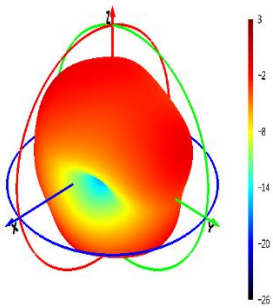
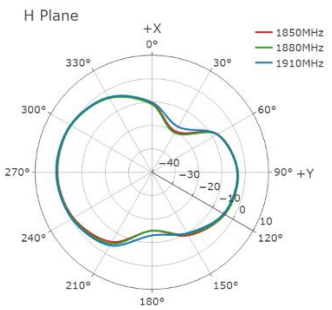
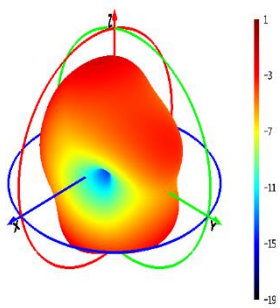
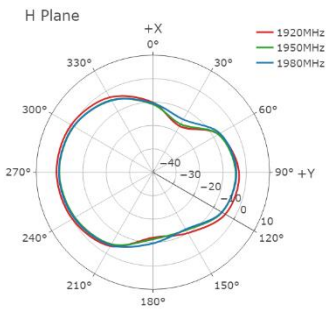
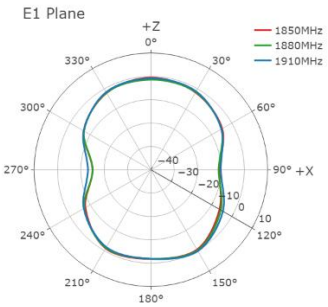
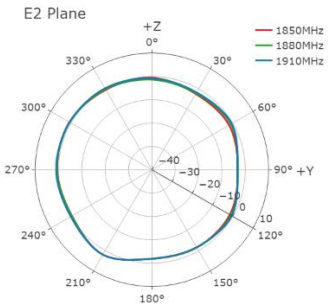
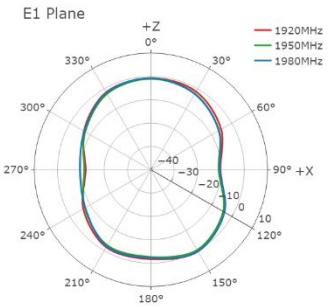
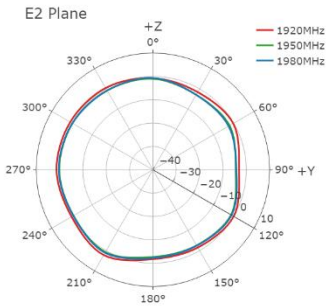
2140 MHz		2350 MHz	
			
			
2450 MHz		**2600 MHz**	
			
			

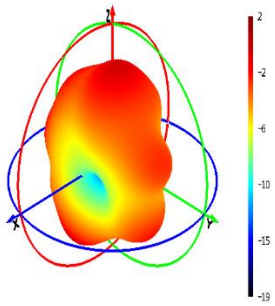
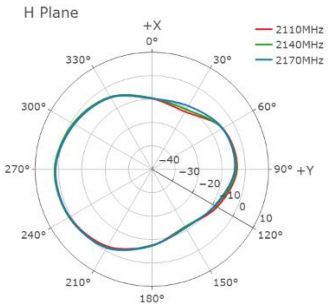
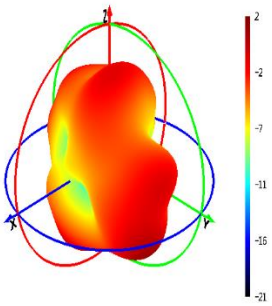
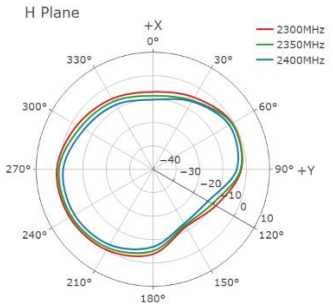
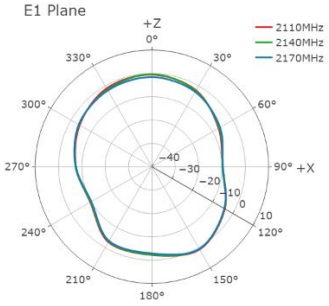
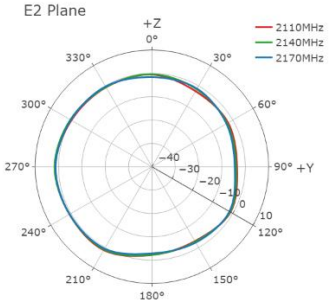
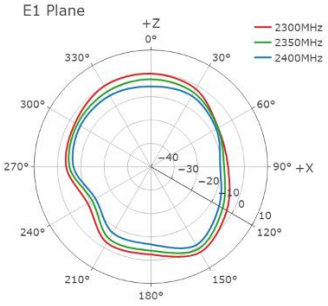
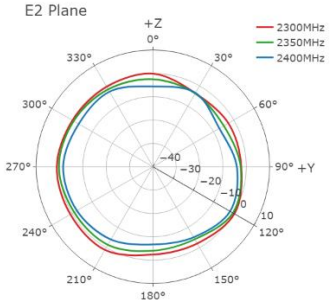
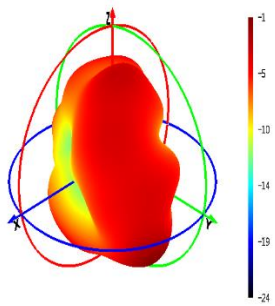
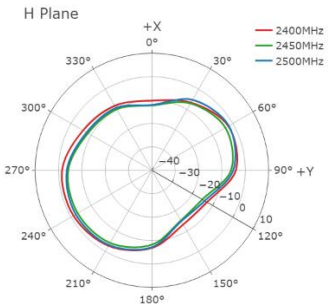
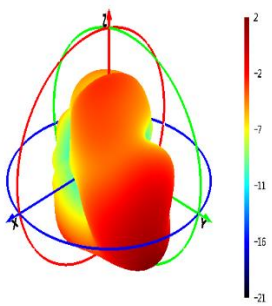
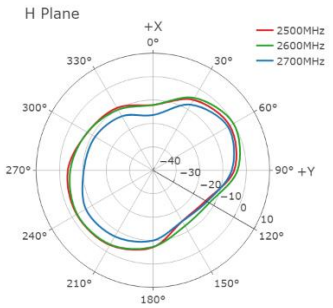
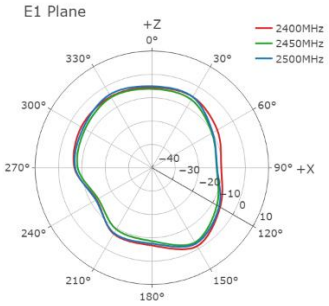
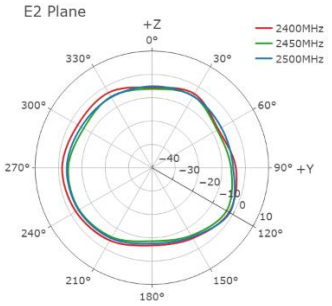
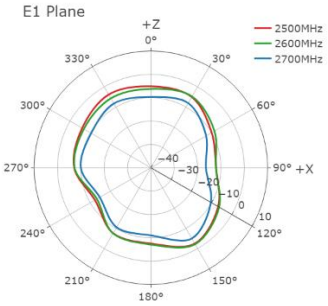
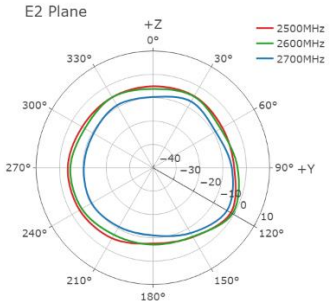
3.2.4.2. Test Condition: Stick to ABS Board on 130 mm × 130 mm EVB Board

- Test Chamber: GL-S-1

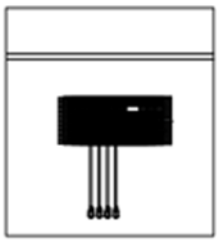
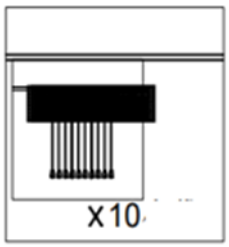
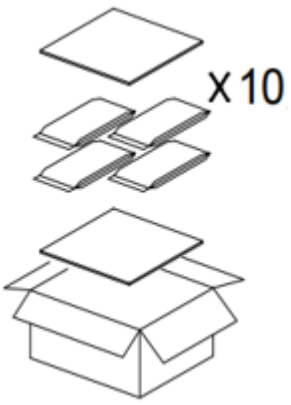


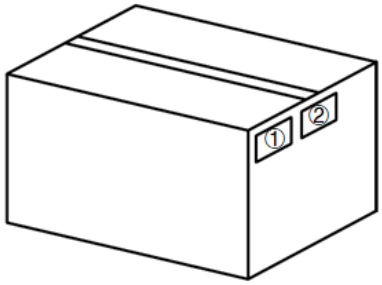
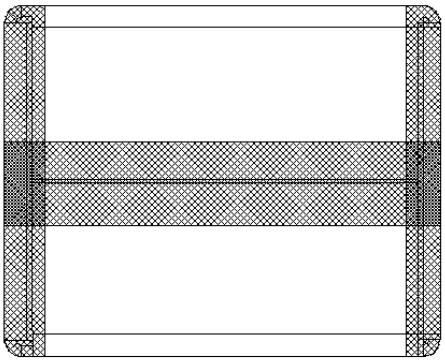
630 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			

1440 MHz		1740 MHz	
			
			
1880 MHz		1950 MHz	
			
			

2140 MHz		2350 MHz	
			
			
2450 MHz		**2600 MHz**	
			
			

4 Packaging

Step	Packaging Picture/2D Picture	Description
1	 20pcs/tie	The terminals of the product are wrapped with EPE foam. (20 PCS / Tie)
2	 200pcs/bag	200 pcs antenna products in a PE bag. (200 PCS Antennas / PE Bag)
3		(10 PE Bags / Carton Box) (2000 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 = 340 × 260 × 140 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
-	2021-07-25	Richard LIU/ Joye WANG	Creation of the document
1.0	2021-07-25	Richard LIU/ Joye WANG	First official release
1.1	2023-06-12	David LIU/ Vinnie LIU	Added the packaging information (Chapter 6).
2.0	2023-09-07	Rainey LIAO/ Lucky FENG/ David LIU/ Aria CHU	Updated all test data in this datasheet.
2.1	2023-12-05	Lucky FENG/ Aria CHU	Added REACH compliant (Chapter 1.2).
2.2	2025-04-24	Joye WANG/ Aria CHU	1. Updated the antenna dimensions. 2. Updated the antenna image (Cover page). 3. Updated the drawing (Chapter 2).

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