

Antenna Datasheet

Product OC: YEMA004AA
Version: 2.1
Date: 2025-03-06
Status: Released

Product Name: 4G & Wi-Fi 2in1 Screw Mount Combo External Antenna
Key Features:
Frequency Band: 4G: 698–960 MHz, 1710 MHz–2690 MHz
Wi-Fi & BT: 2400 MHz–2500 MHz
Dimensions: Φ 81 mm × 14.5 mm
Efficiency: Up to 48.9 %
RoHS Compliant
IP66

Overview

To meet customers’ requirements for the high performance, high integration, and integrated appearance of their products, Quectel provides a combined antenna box series. The antenna box can integrate a variety of antennas, such as 5G, 4G, GNSS, Wi-Fi antennas, to achieve communication functions of 5G MIMO, 4G, GNSS, and Wi-Fi. These antenna boxes can be mounted on the surface of devices via screw, adhesive or other methods, supports multiple connector types and cable lengths. It is a more flexible and reliable high-performance antenna solution for outdoor applications.

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1 Specification

Test Condition: In Free Space

1.1. Electrical

Electrical Specifications		
Frequency Range	**4G**	698–960 MHz, 1710–2690 MHz
	Wi-Fi	2400–2500 MHz
Radiation Pattern		Omni-directional
Polarization		Linear
Impedance		50 Ω
Isolation		≤ -14.8 dB

1.1.1. 4G

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		-	2.0	2.1	-	2.2	1.9	1.8	1.8	-	-	-
Max. Return Loss (dB)		-	-9.5	-8.8	-	-8.7	-10.0	-11.2	-10.6	-	-	-
AVG Eff. (%)		-	36.8	44.6	-	39.5	40.6	46.9	43.9	-	-	-
AVG AVG Gain (dB)		-	-4.4	-3.5	-	-4.0	-3.9	-3.3	-3.6	-	-	-
Max. Peak Gain (dBi)		-	2.2	1.6	-	1.2	0.9	1.9	2.8	-	-	-
VSWR		≤ 2.2										
Return Loss		≤ -8.7 dB										
Peak Gain		≤ 2.8 dBi										

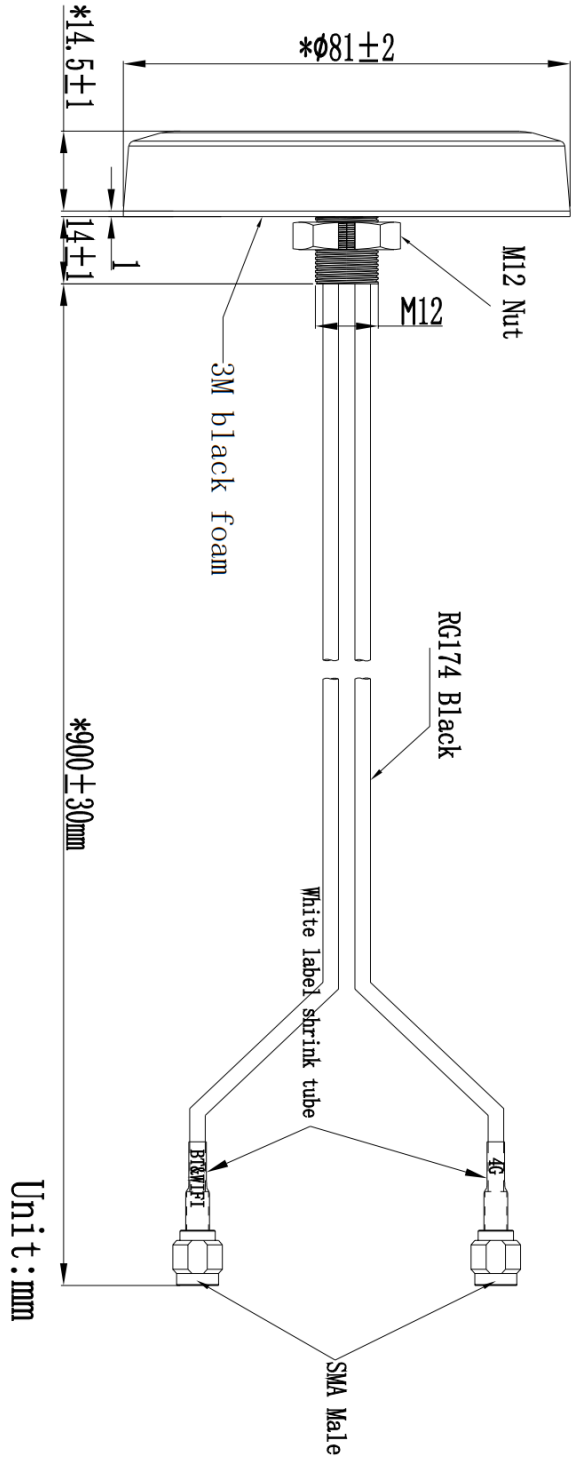
1.1.2. Wi-Fi

Band / Specification	Band	Wi-Fi 2G	Wi-Fi 5G	Wi-Fi 7G
	Freq. (MHz)	2400 – 2500	5150 – 5850	5925 – 7125
Max. VSWR		1.6	-	-
Max. Return Loss (dB)		-12.9	-	-
AVG Eff. (%)		40.6	-	-
AVG AVG Gain (dB)		-3.9	-	-
Max. Peak Gain (dBi)		2.6	-	-
VSWR		≤ 1.6		
Return Loss		≤ -12.9 dB		
Peak Gain		≤ 2.6 dBi		

1.2. Mechanical & Environmental

Mechanical		
Antenna Dimensions		Φ 81 mm × 14.5 mm
Casing Material & Color		ABS + PC & Black
Cable Type & Color & Length	**4G**	RG174 & Black & 900 mm
	Wi-Fi	RG174 & Black & 900 mm
Connector Type		SMA Male
Mounting Type		Screw
Weight		Typ. 72.7 g
Environmental		
Operation Temperature		-40 °C to +85 °C
Storage Temperature		-40 °C to +85 °C
Ingress Protection (IP) Rating		IP66
RoHS Compliant		Yes

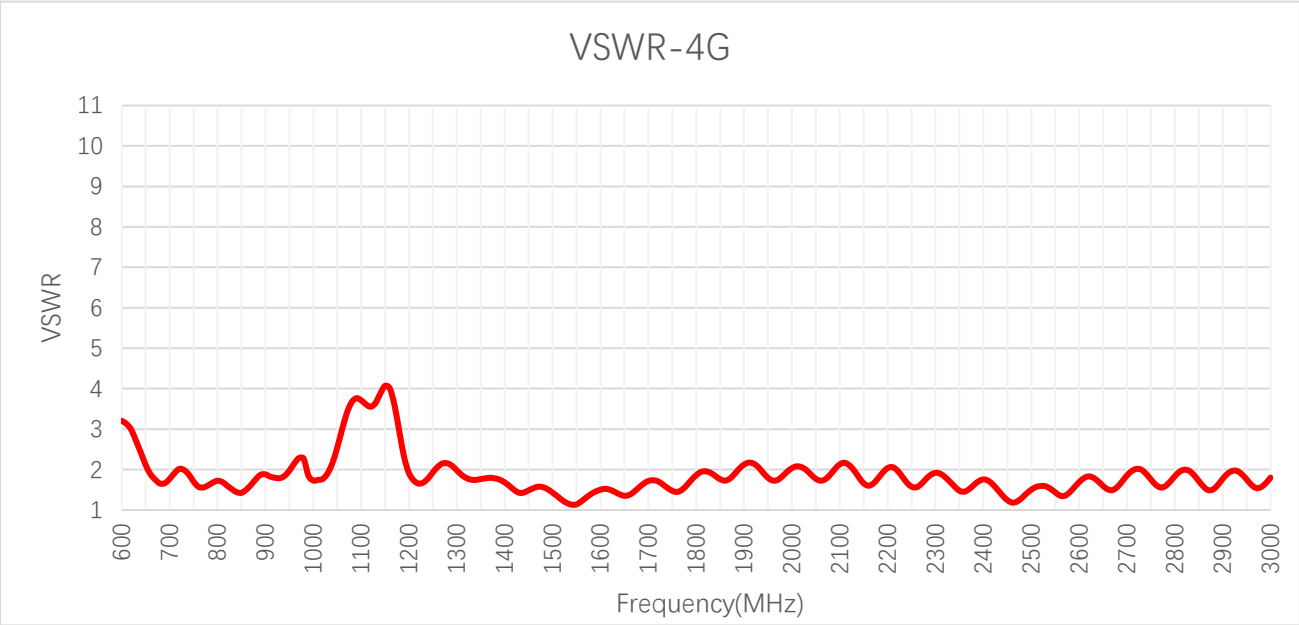
2 Drawing


*14.5±1
*Φ81±2
14±1
1
M12 Nut
M12
3M black foam
RG174 Black
*900±30mm
White label shrink tube
BT&WIFI
4G
SMA Male
Unit:mm

3 Detailed Performance

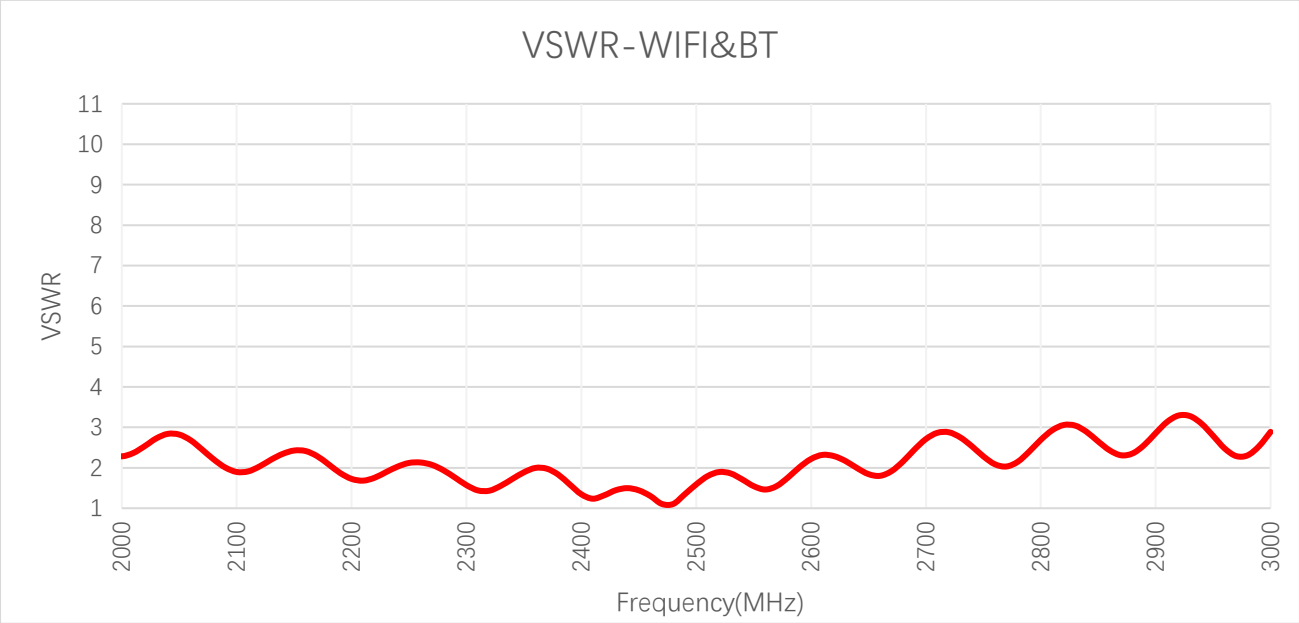
3.1. S-Parameter Test

3.1.1. VSWR



VSWR – 4G

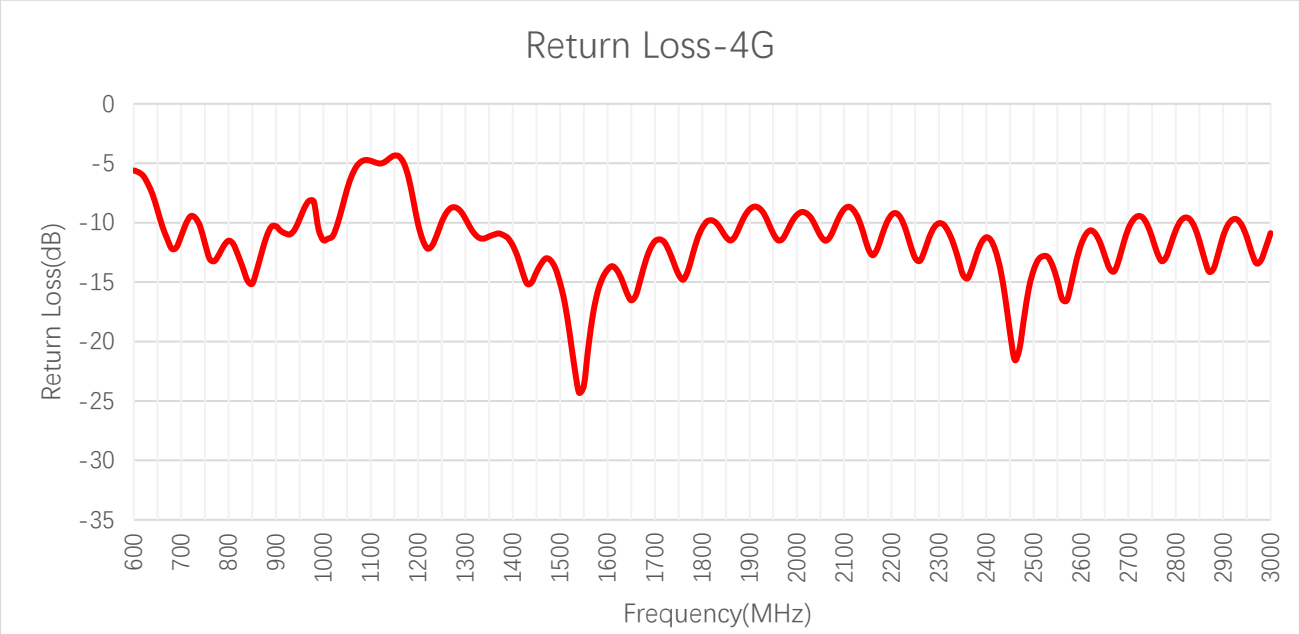
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR			1.9	1.5	1.9	2.1		1.7	1.5	1.9
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
VSWR	1.8	1.8	1.5	1.2	1.7	1.7		-		



VSWR – Wi-Fi & BT

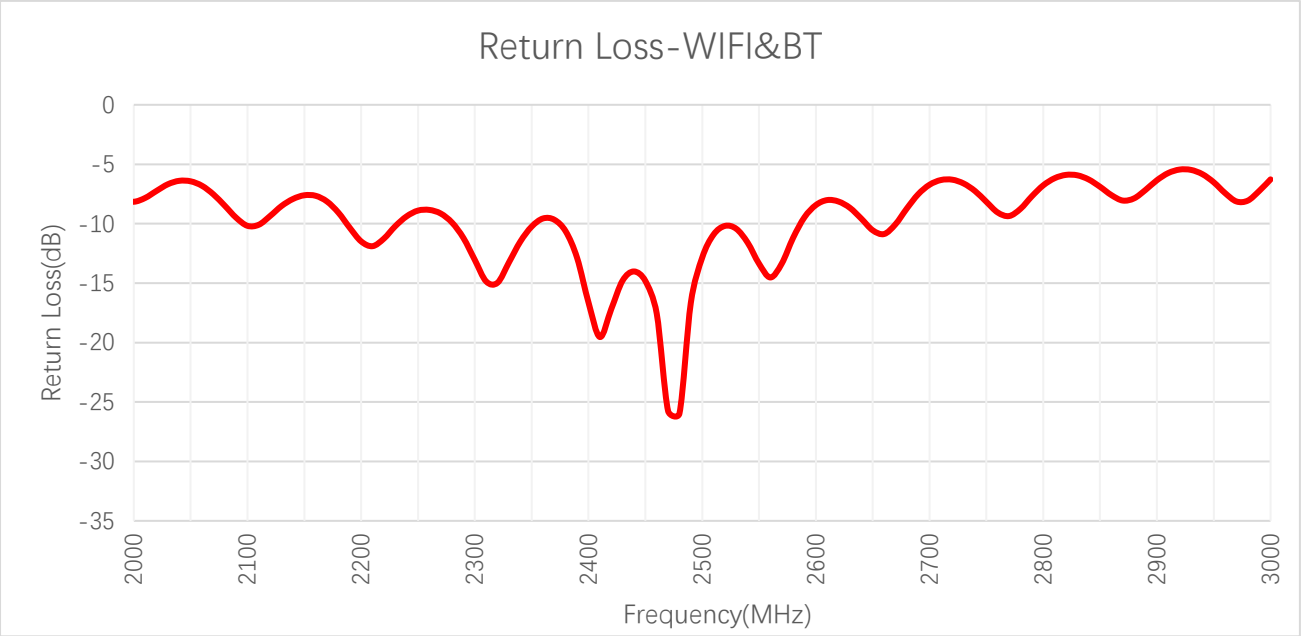
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
VSWR	1.3	1.4	1.6	-	-	-	-	-	-	-

3.1.2. Return Loss



Return Loss (dB) – 4G

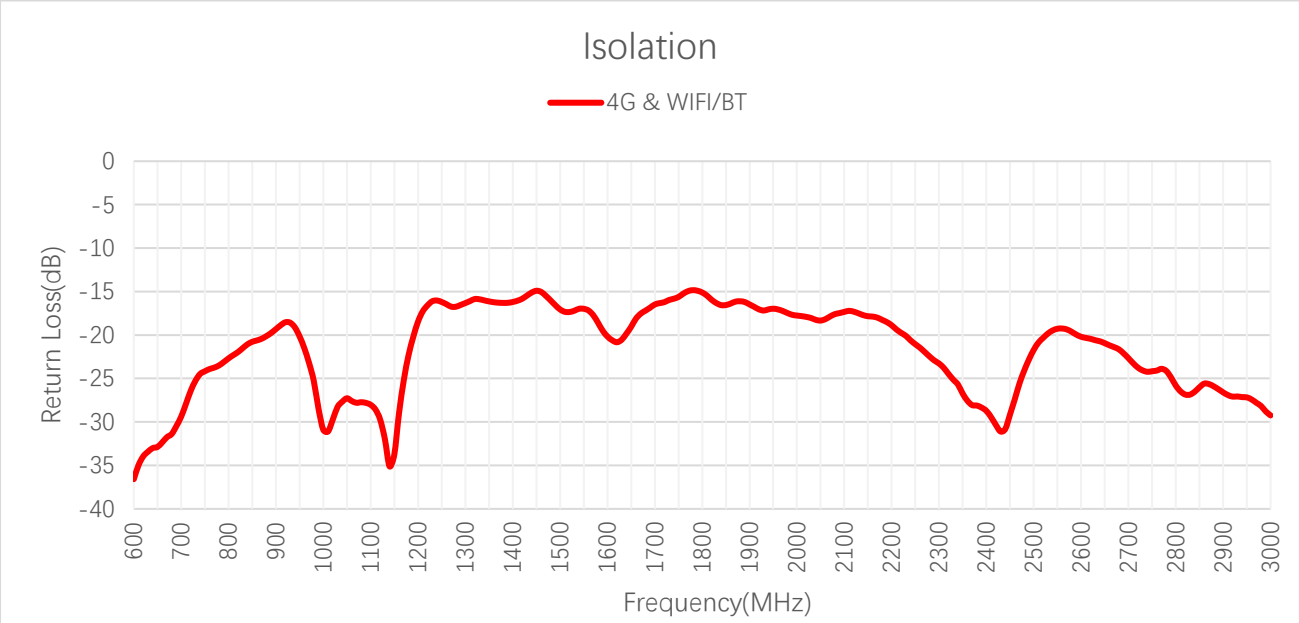
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-	-	-10.1	-13.8	-10.3	-8.8	-	-11.4	-13.4	-10.2
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Return Loss (dB)	-10.9	-10.8	-14.3	-19.3	-11.8	-11.7	-	-	-	-



Return Loss – Wi-Fi & BT

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Return Loss	-16.6	-14.8	-12.9	-	-	-	-	-	-	-

3.1.3. Isolation

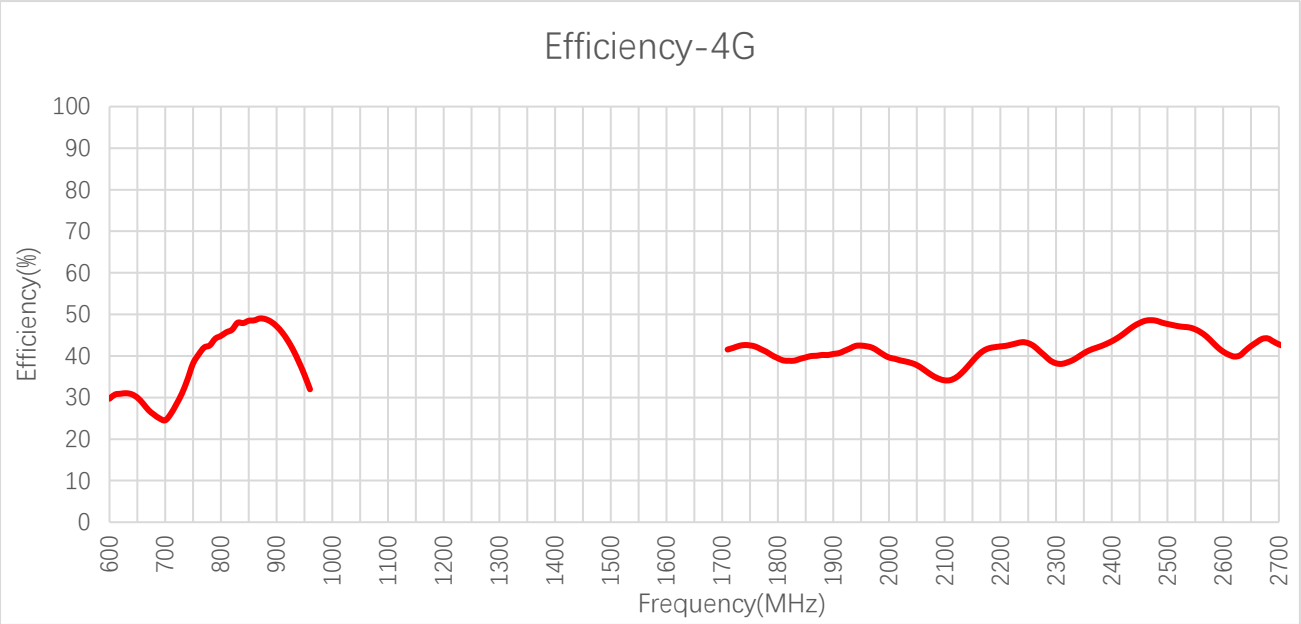


Max Isolation (dB)

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
Isolation (dB)		-22.3	-18.5		-14.8	-23.3	-21.7	-19.2			

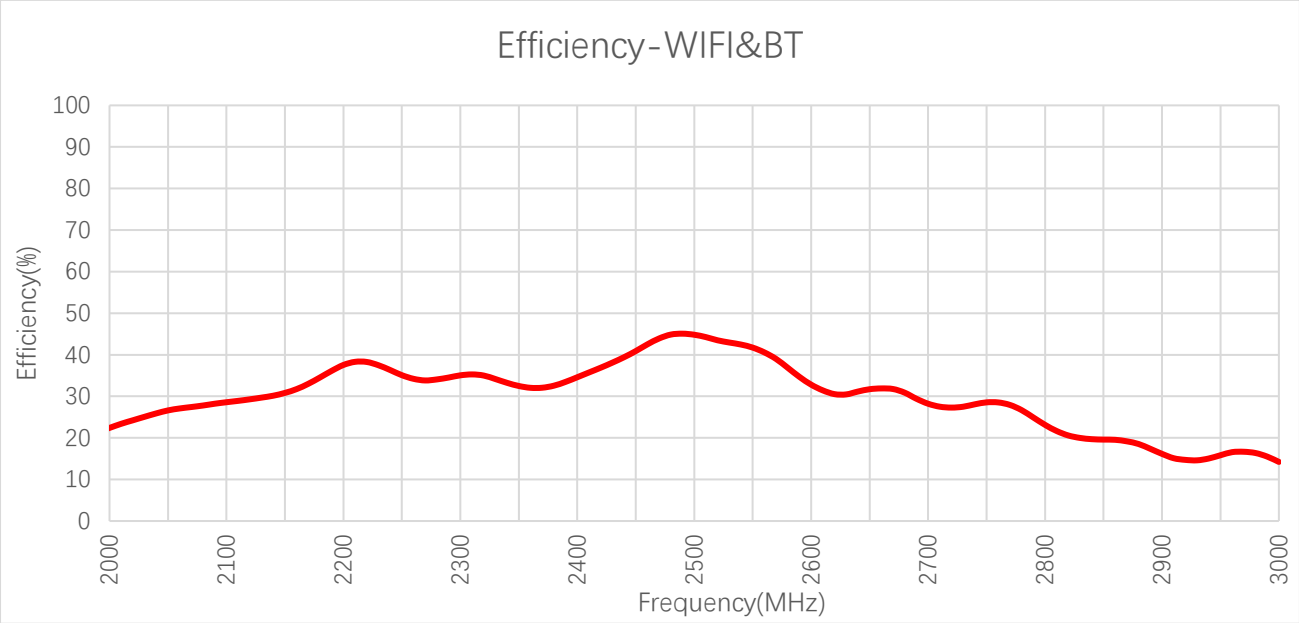
3.2. Radiation Performance Test

3.2.1. Efficiency



Efficiency (%) - 4G

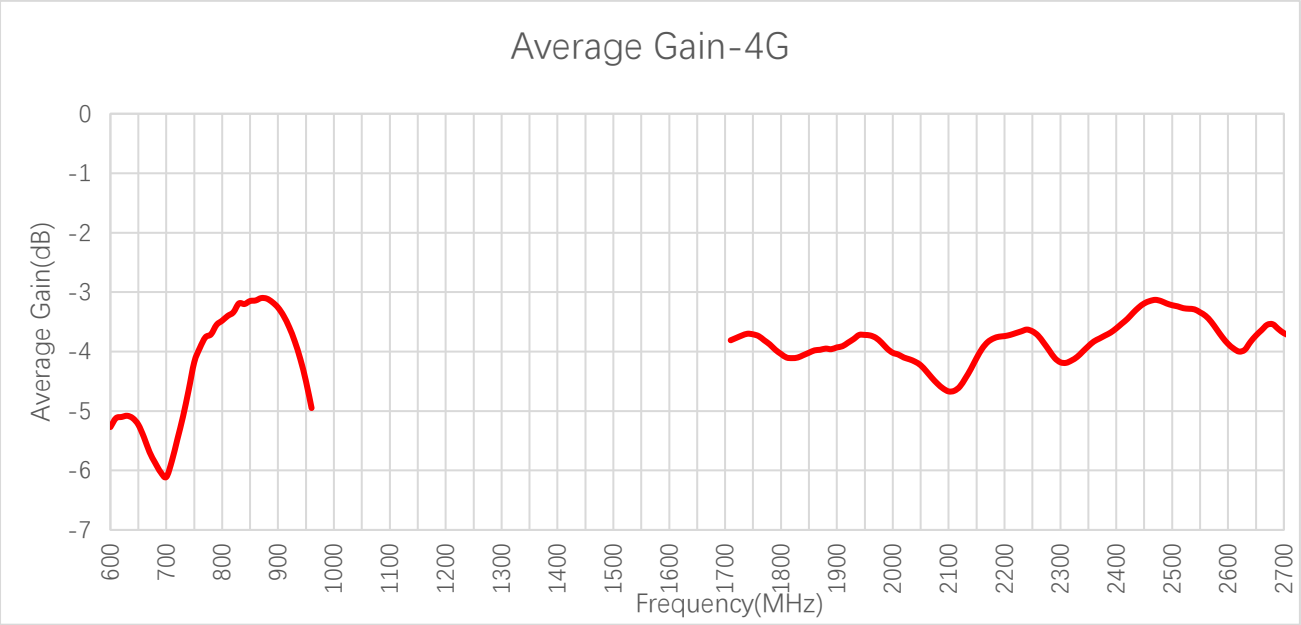
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	-	-	26.1	48.0	47.2	32.0	-	41.6	42.6	40.3
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Efficiency (%)	42.5	37.3	40.7	47.9	41.0	43.5	-	-	-	-



Efficiency (%) – Wi-Fi & BT

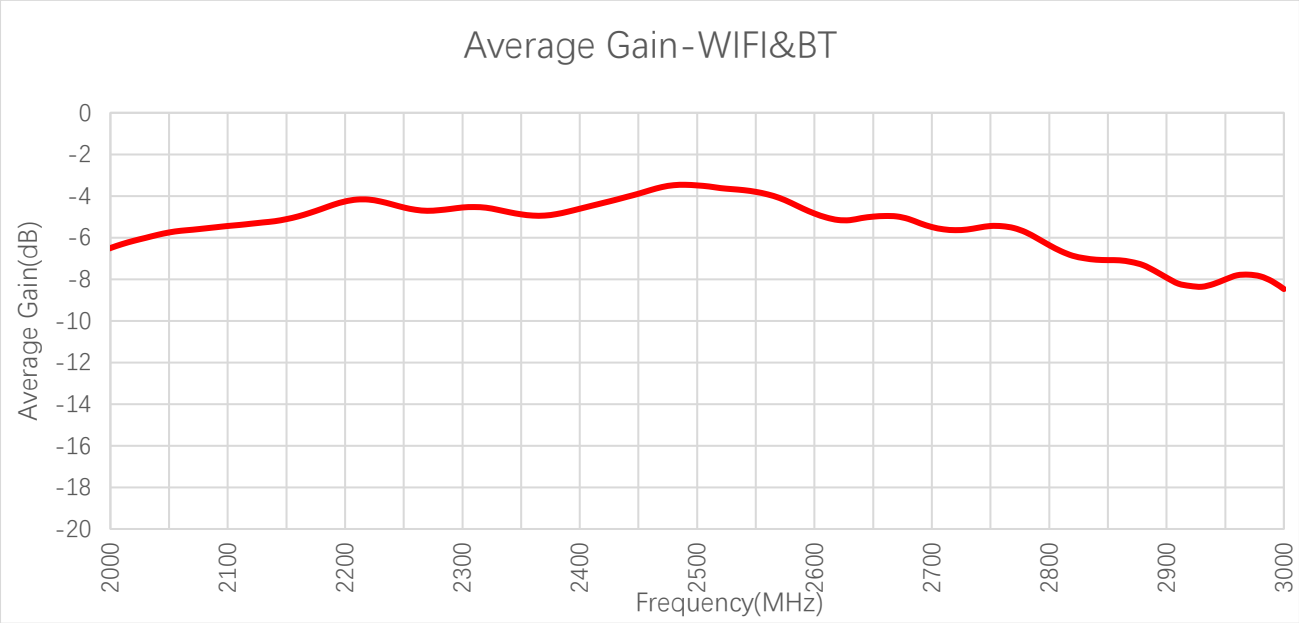
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Efficiency (%)	34.6	40.9	44.8	-	-	-	-	-	-	-

3.2.2. Average Gain



Average Gain (dB) – 4G

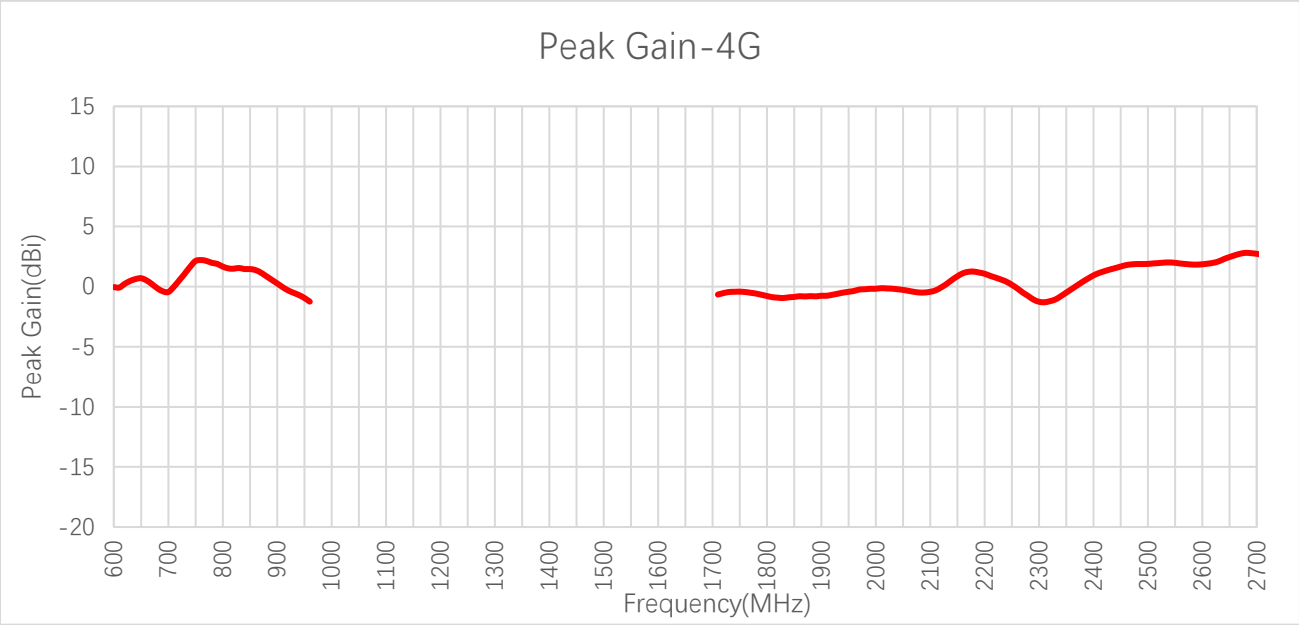
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-	-	-5.8	-3.2	-3.3	-5.0	-	-3.8	-3.7	-4.0
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Average Gain (dB)	-3.7	-4.3	-3.9	-3.2	-3.9	-3.6	-	-	-	-



Average Gain (dB) – Wi-Fi & BT

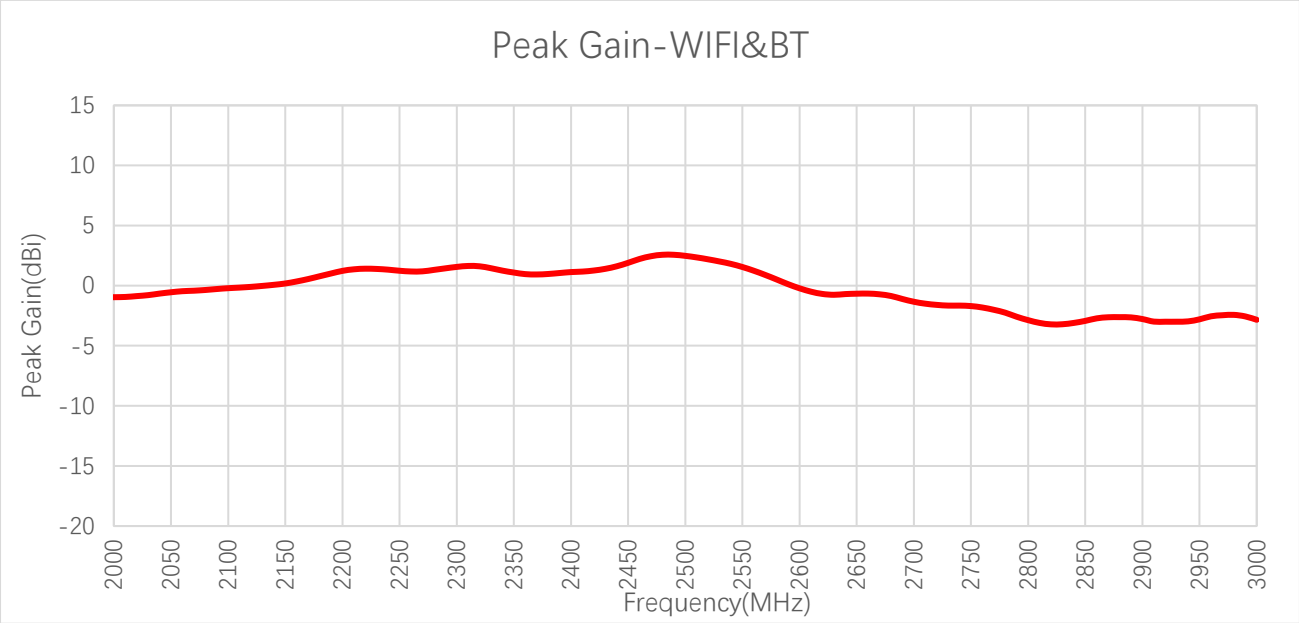
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Average Gain (dB)	-4.6	-3.9	-3.5	-	-	-	-	-	-	-

3.2.3. Peak Gain



Peak Gain (dBi) - 4G

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	-	-	-0.1	1.6	0.3	-1.3	-	-0.7	-0.4	-0.8
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Peak Gain (dBi)	-0.4	0.6	-0.5	1.7	1.9	2.8	-	-	-	-

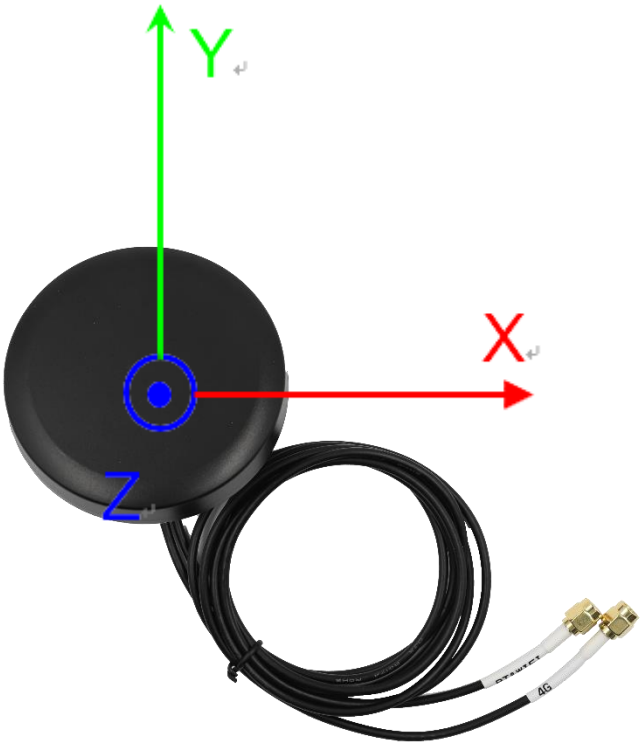


Peak Gain (dB) – Wi-Fi & BT

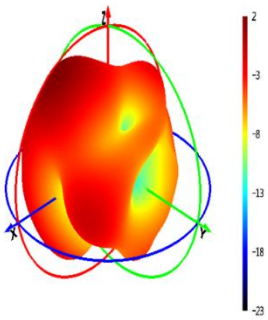
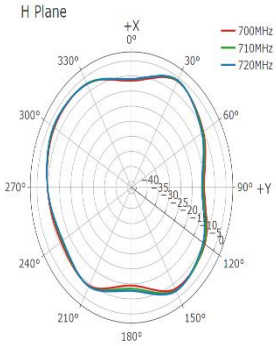
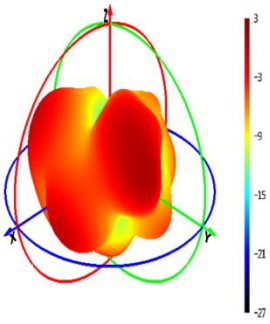
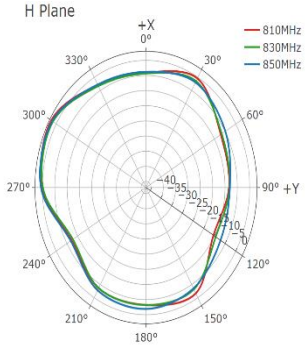
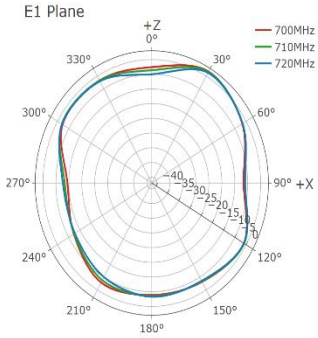
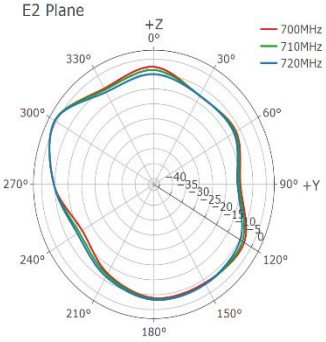
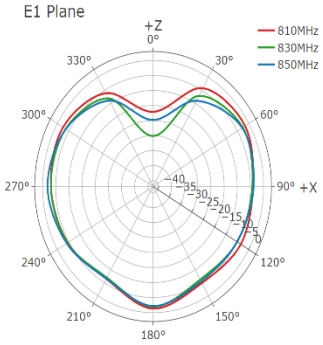
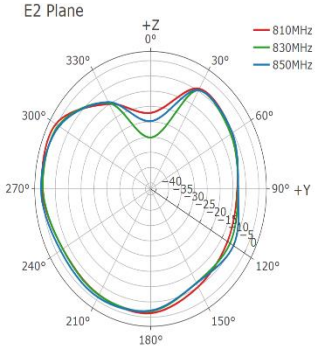
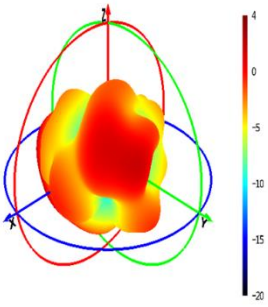
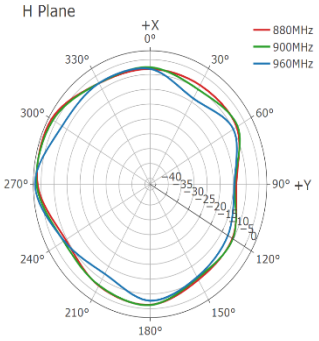
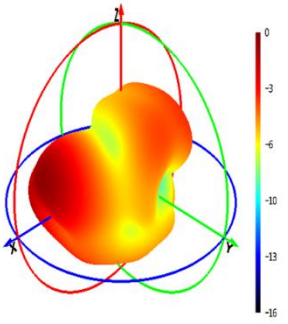
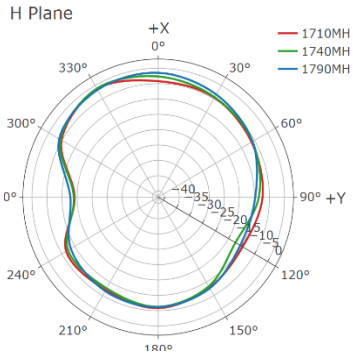
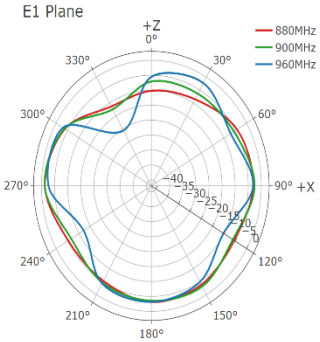
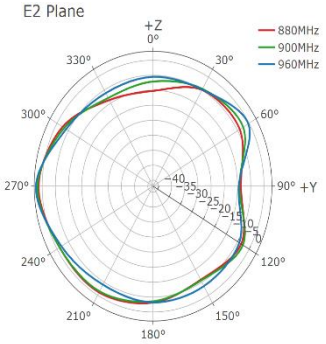
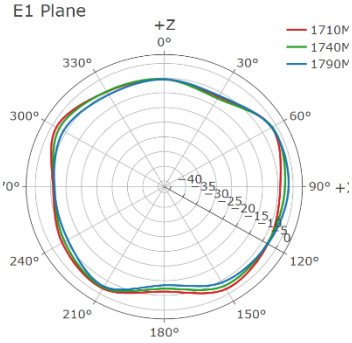
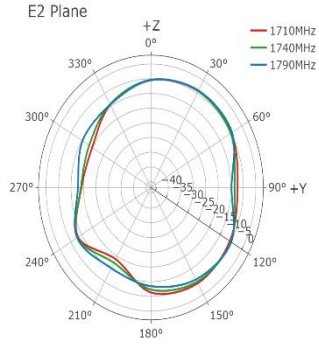
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Peak Gain (dB)	1.1	1.9	2.5	-	-	-	-	-	-	-

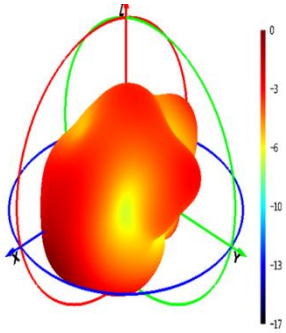
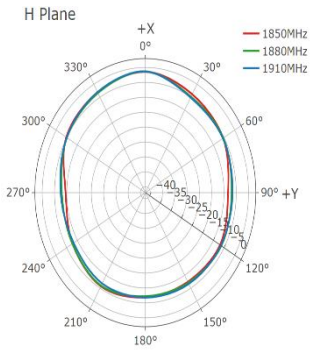
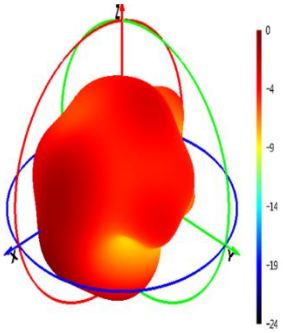
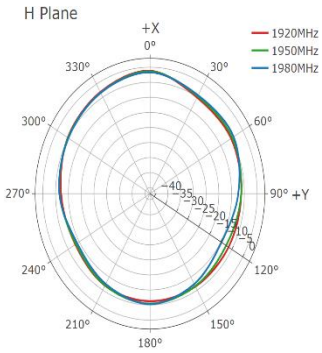
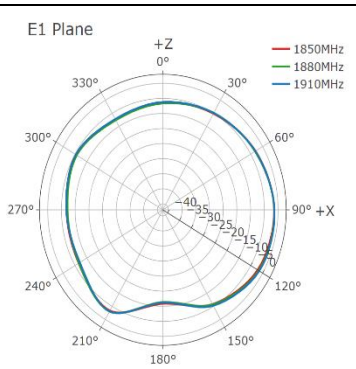
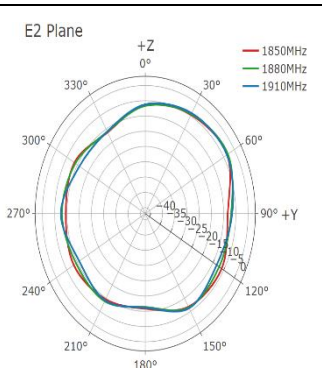
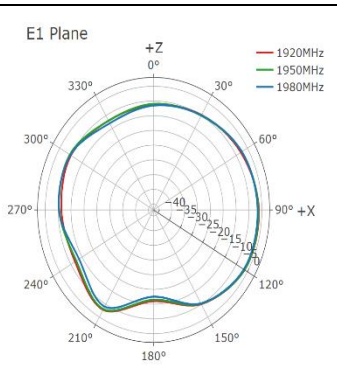
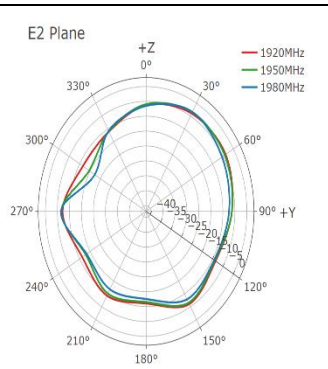
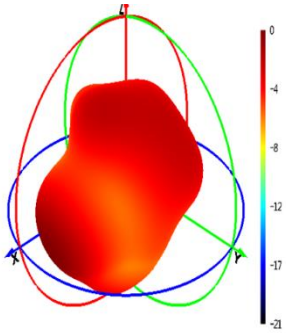
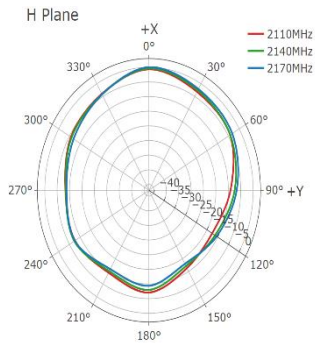
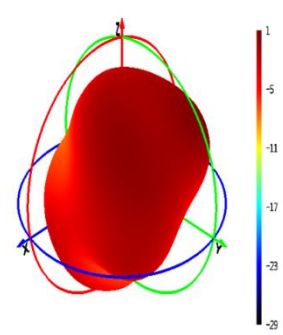
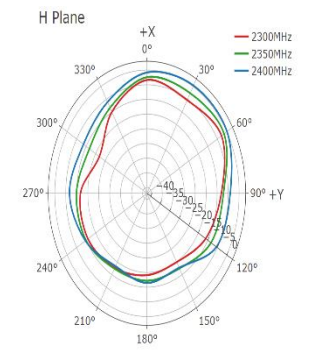
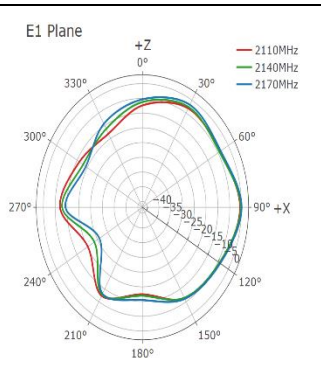
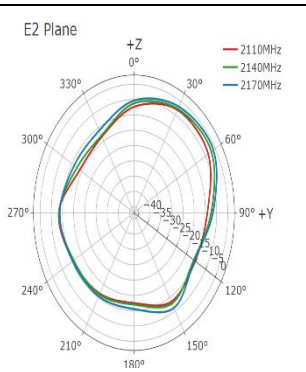
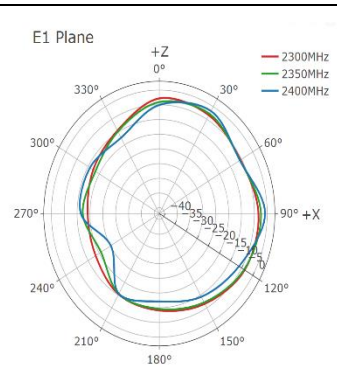
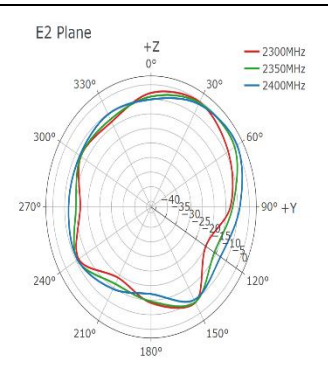
3.2.4. 3D & 2D Radiation Pattern

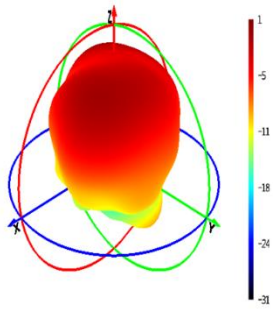
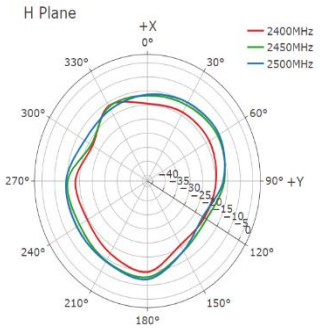
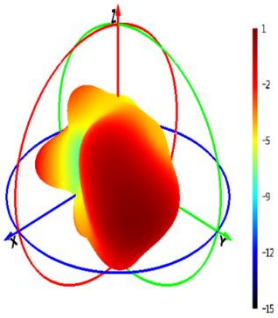
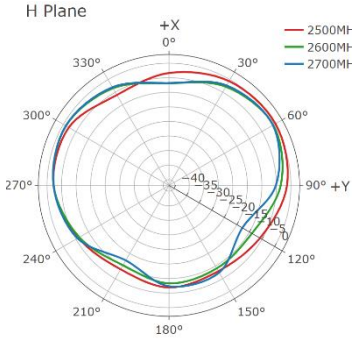
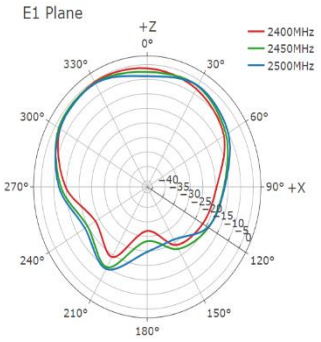
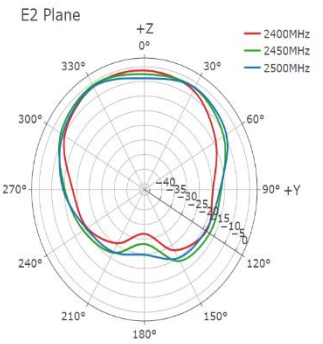
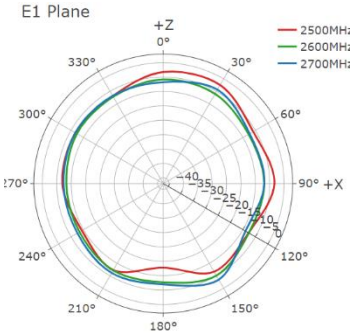
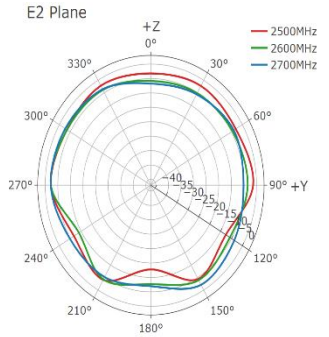
- Test Status: In Free Space
- Test Chamber: GL-S-1



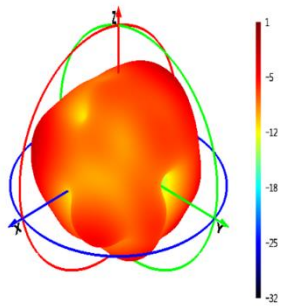
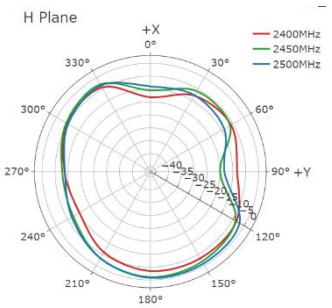
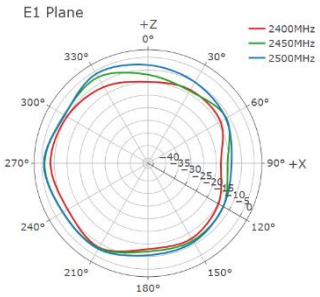
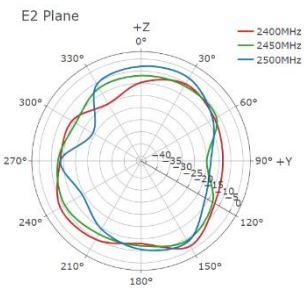
- **4G**

710 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

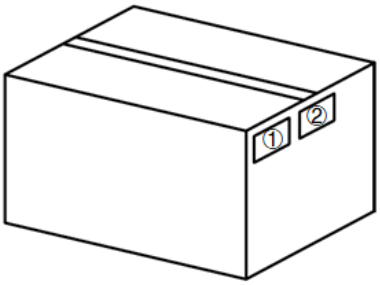
1880 MHz		1950 MHz	
			
			
2140 MHz		2350 MHz	
			
			

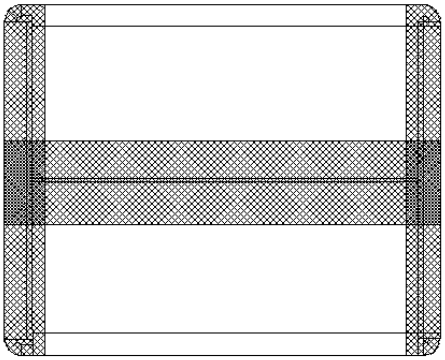
2450 MHz		2600 MHz	
			
			

- **Wi-Fi**

2450 MHz	
	
	

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 pc antenna product in a small PE bag. (1 PC Antenna / Small PE Bag)
2		18 pcs antenna products in a big PE bag. (18 PCS Antennas / Big PE Bag)
3	 	(8 Big PE Bags / Carton Box) (144 PCS Antennas / Carton Box) Carton Size: L × W × H = 470 × 310 × 310 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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Tel: +86 21 5108 6236
Email: info@quectel.com

Or our local offices. For more information, please visit:
http://www.quectel.com/support/sales.htm.

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Revision History

Version	Date	Author	Note
-	2021-08-20	Kenny YIN/ Riona HAN	Creation of the document
1.0	2021-08-20	Kenny YIN/ Riona HAN	First official release
1.1	2021-12-03	Kenny YIN/ Riona HAN	Updated the product description in (Chapter 1).
1.2	2023-08-04	Lance SUN	Updated the drawing (chapter 5).
2.0	2023-08-26	Mikael ZHONG/ Lucky FENG/ David LIU/ Aria CHU	Updated new template and all test data.
2.1	2025-03-06	Allow XU	Updated the packaging (Chapter 4).



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