



Antenna Datasheet

Product OC: YEMA004AA

Version: 2.0

Date: 2023-08-26

Status: Released

Product Name: 4G + Wi-Fi & BT Combo Antenna

Key Features:

Frequency Band: 4G: 698–960 MHz, 1710 MHz–2690 MHz

Wi-Fi & BT: 2400 MHz–2500 MHz

Dimensions: Φ 81 × 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												
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											

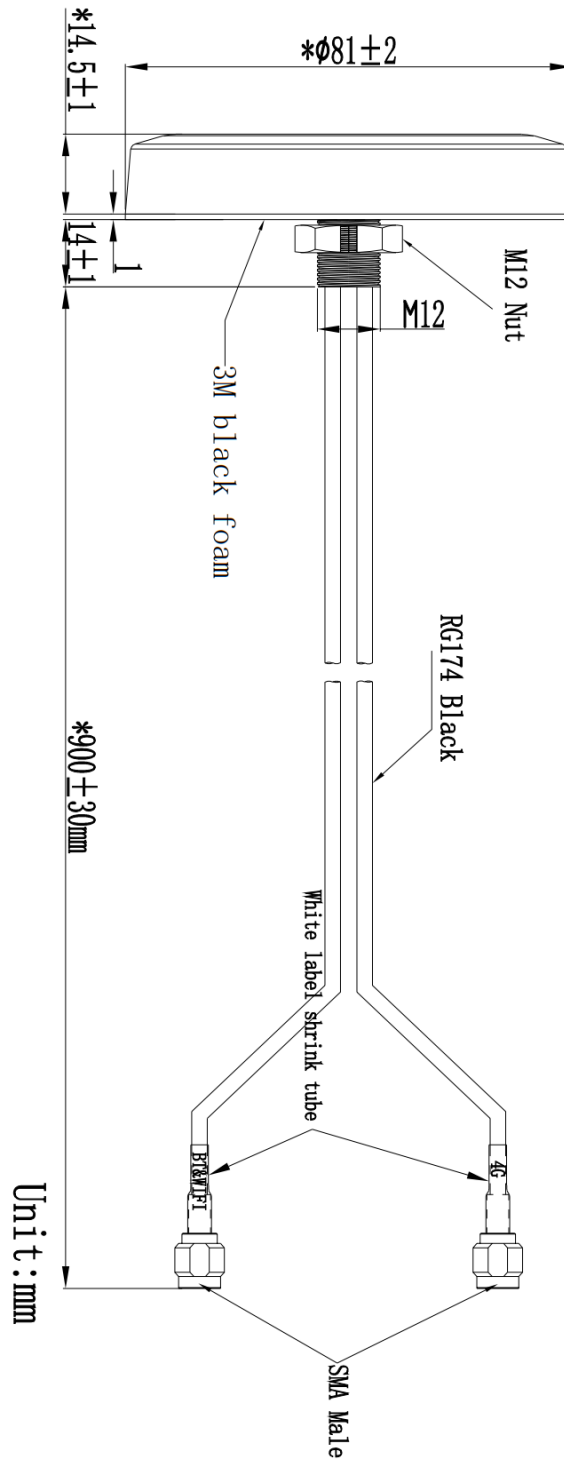
1.1.2. Wi-Fi

Specification	Band	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 × 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

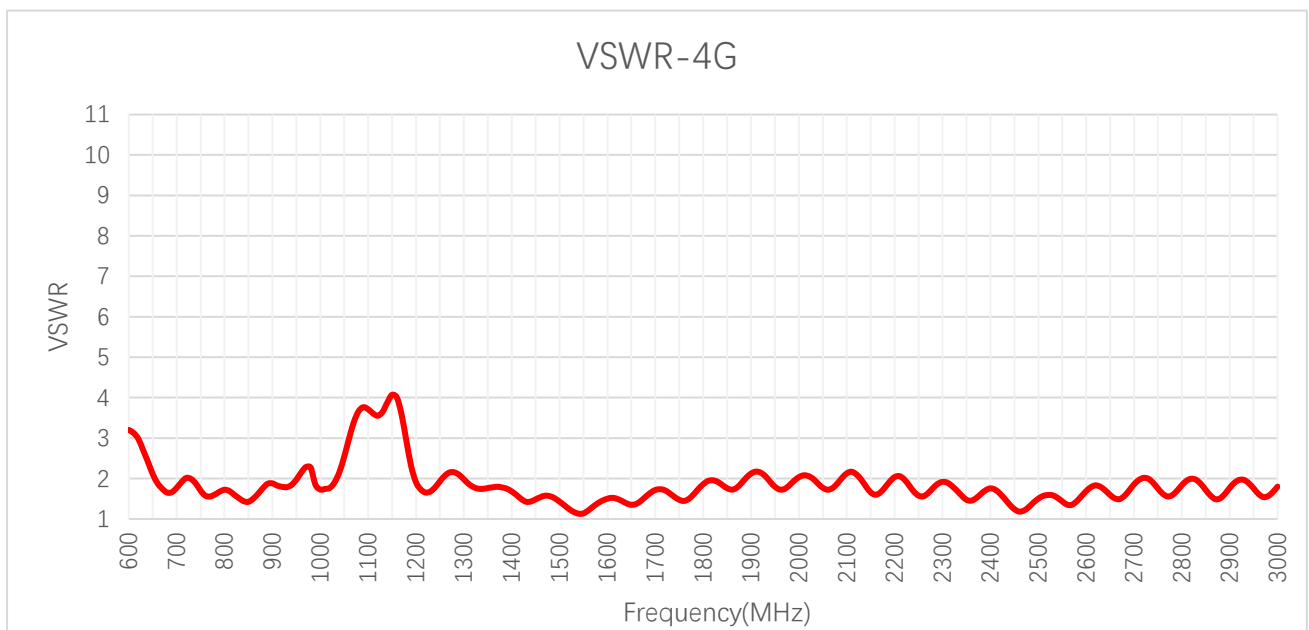
2 Drawing



3 Detailed Performance

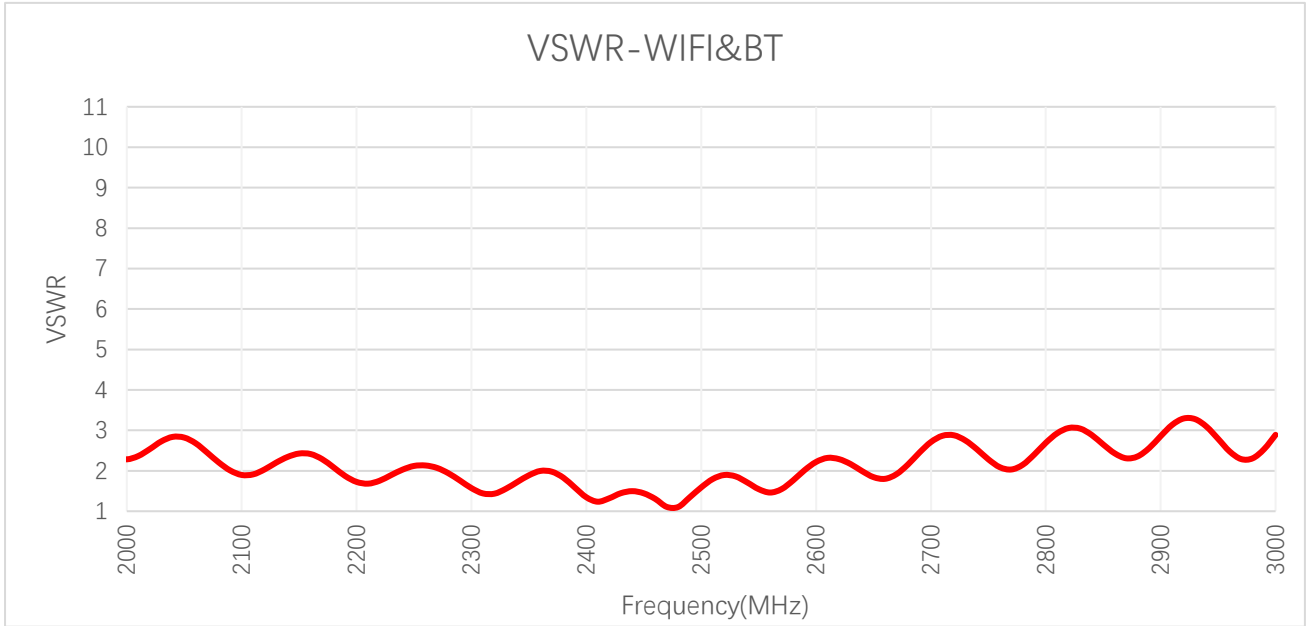
3.1. S-Parameter Test

3.1.1. VSWR



VSWR - 4G

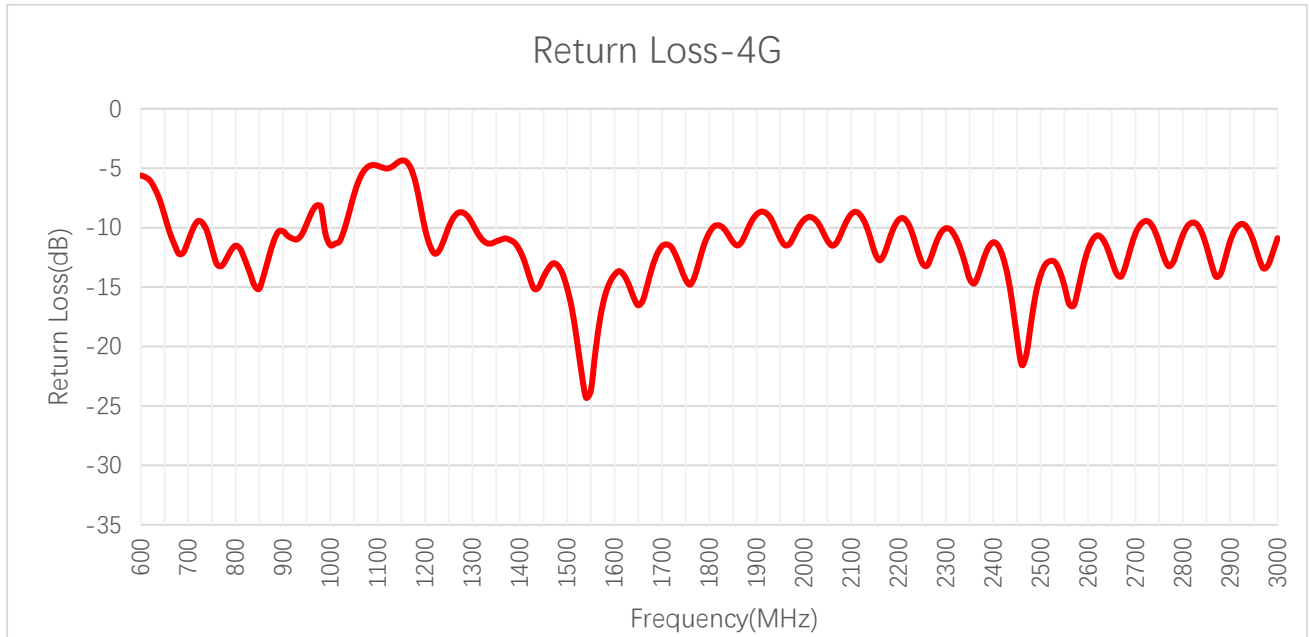
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR			1.9	1.5	1.9	2.1		1.7	1.5	1.9
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
VSWR	1.8	1.8	1.5	1.2	1.7	1.7		-		



VSWR - Wi-Fi & BT

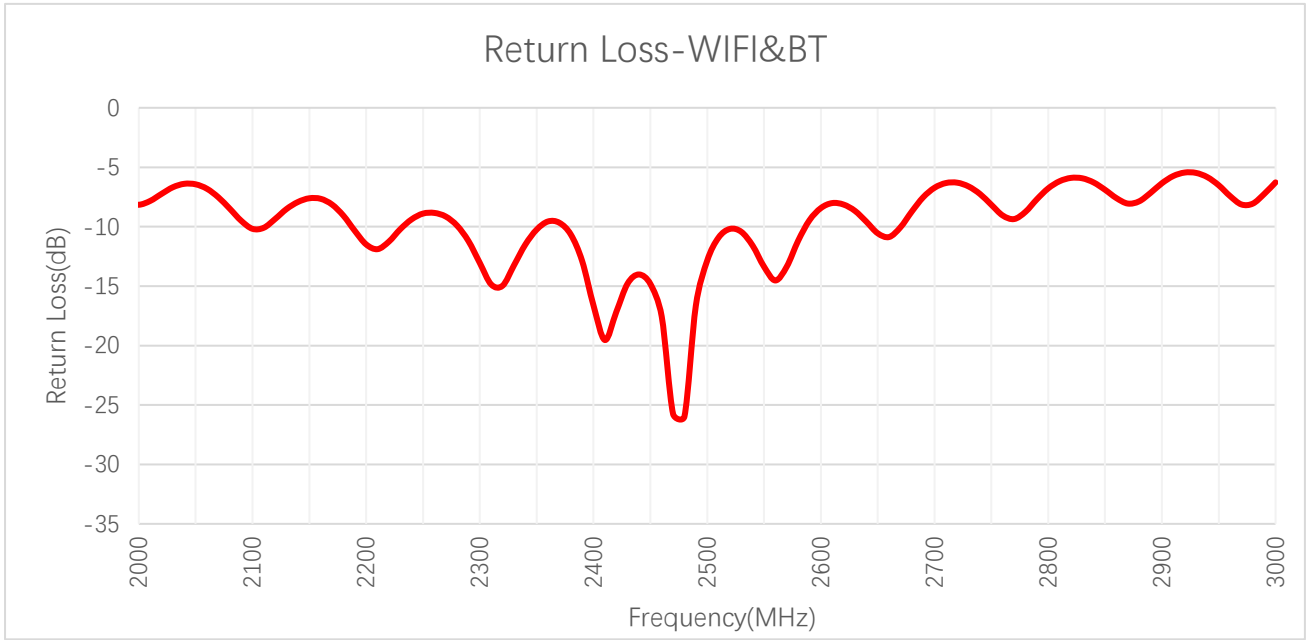
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
VSWR	1.3	1.4	1.6	-	-	-	-	-	-	-

3.1.2. Return Loss



Return Loss (dB) - 4G

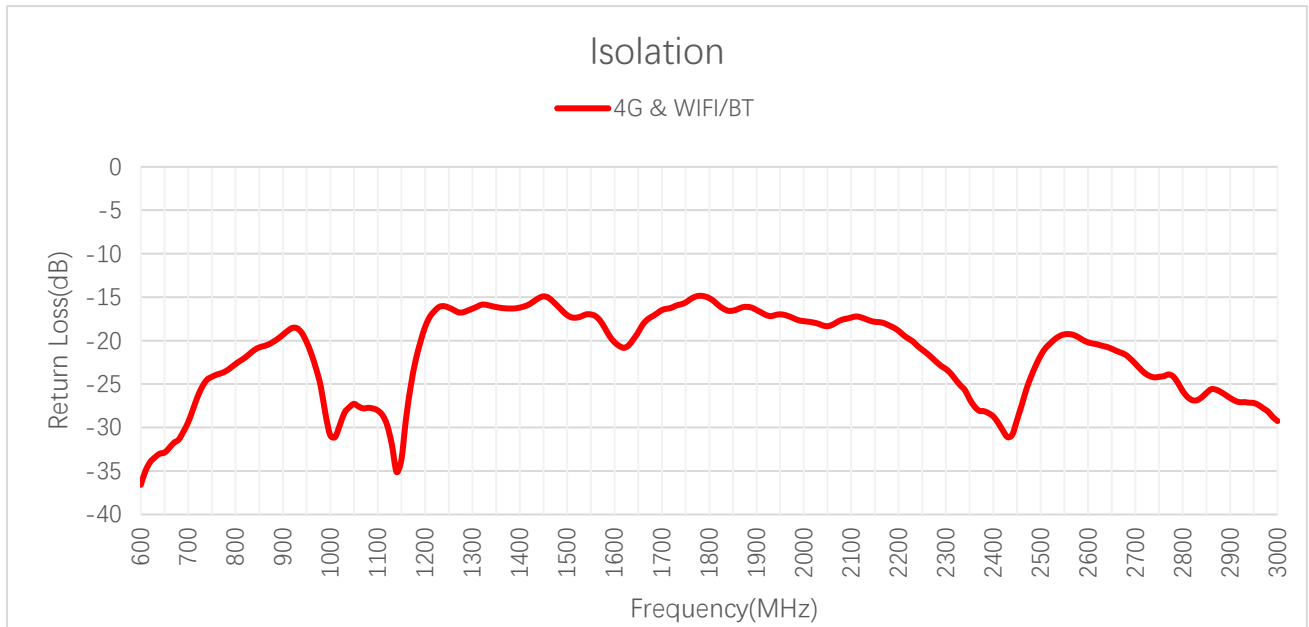
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-	-	-10.1	-13.8	-10.3	-8.8	-	-11.4	-13.4	-10.2
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Return Loss (dB)	-10.9	-10.8	-14.3	-19.3	-11.8	-11.7	-	-	-	-



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

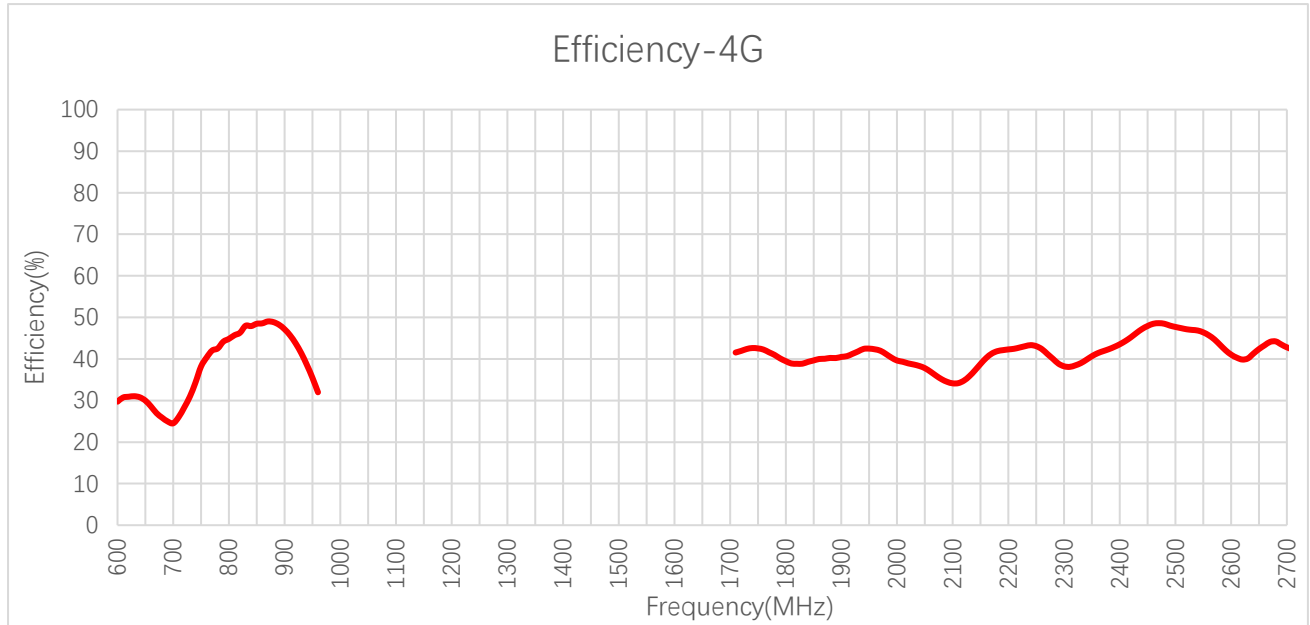


Max Isolation (dB)

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			

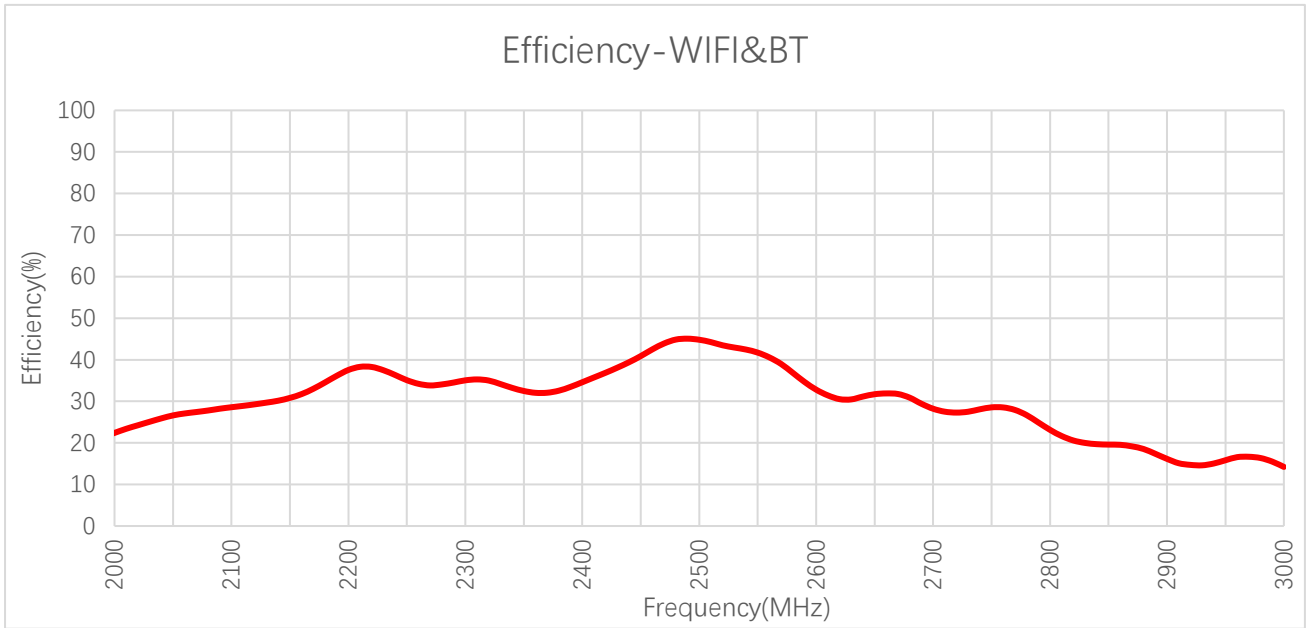
3.2. Radiation Performance Test

3.2.1. Efficiency



Efficiency (%) - 4G

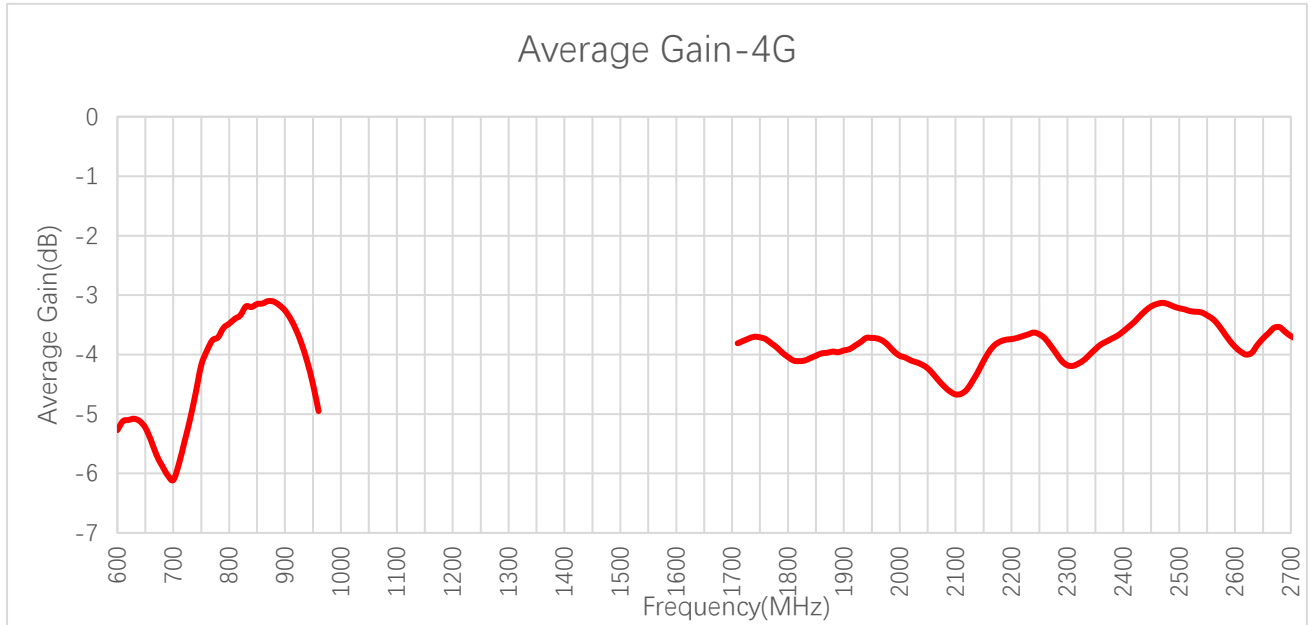
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	-	-	26.1	48.0	47.2	32.0	-	41.6	42.6	40.3
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Efficiency (%)	42.5	37.3	40.7	47.9	41.0	43.5	-	-	-	-



Efficiency (%) - Wi-Fi & BT

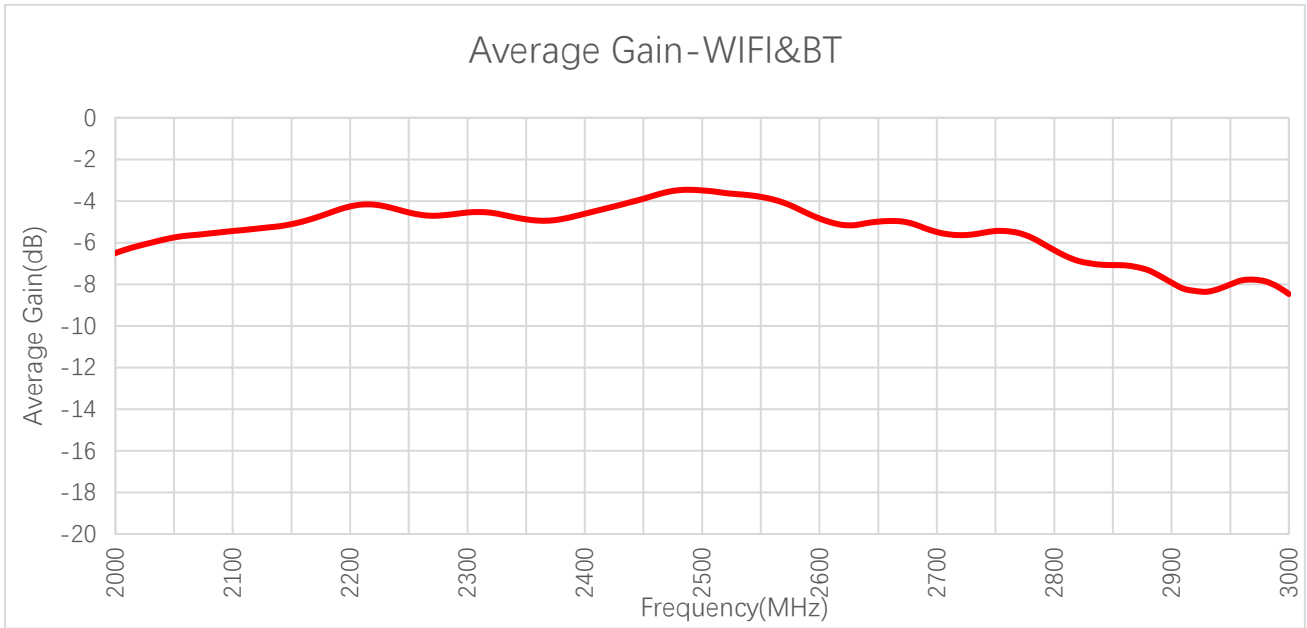
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Efficiency (%)	34.6	40.9	44.8	-	-	-	-	-	-	-

3.2.2. Average Gain



Average Gain (dB) - 4G

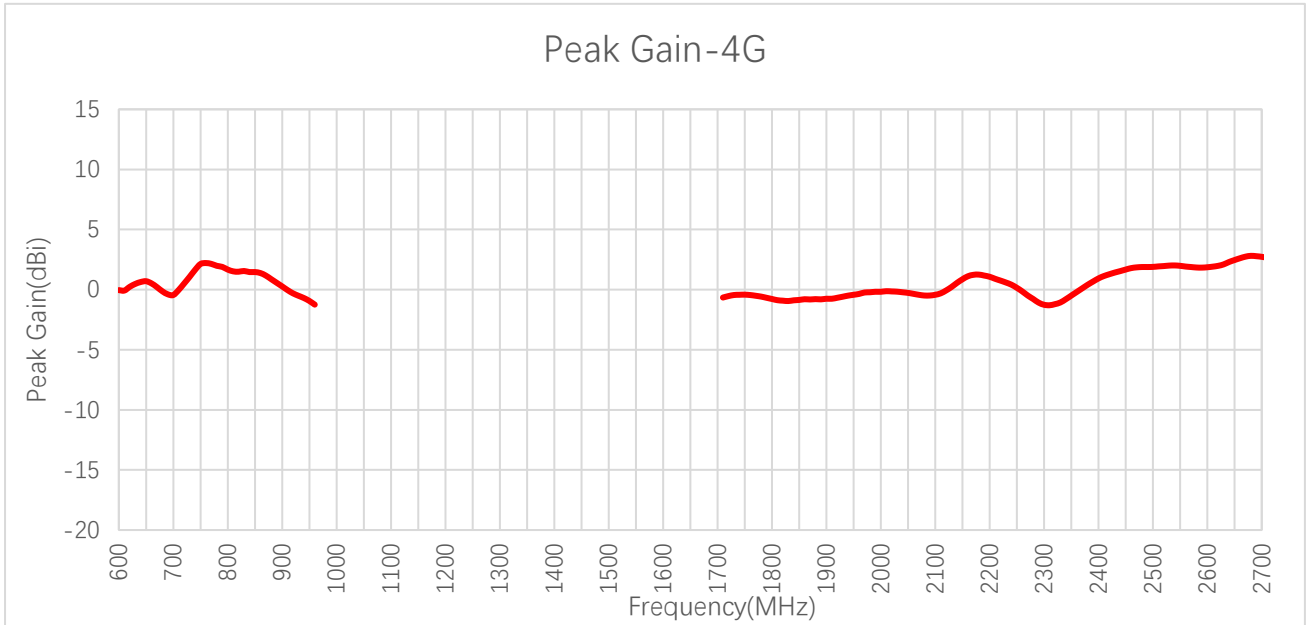
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-	-	-5.8	-3.2	-3.3	-5.0	-	-3.8	-3.7	-4.0
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Average Gain (dB)	-3.7	-4.3	-3.9	-3.2	-3.9	-3.6	-	-	-	-



Average Gain (dB) - Wi-Fi & BT

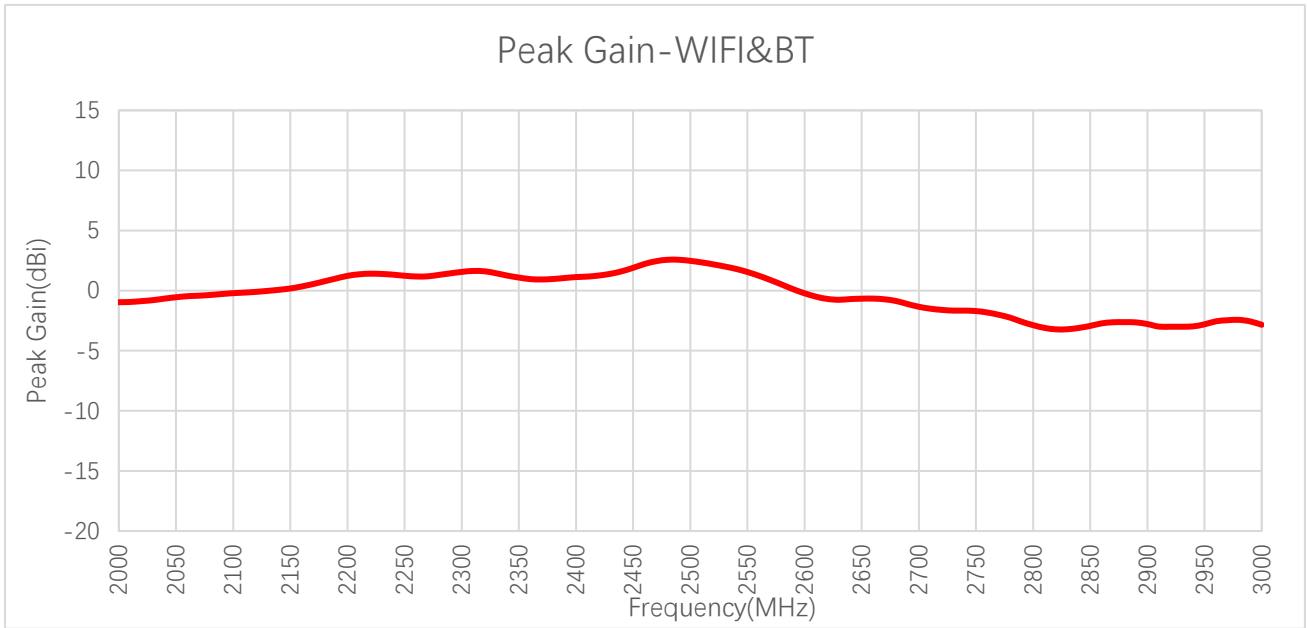
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Average Gain (dB)	-4.6	-3.9	-3.5	-	-	-	-	-	-	-

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	-	-	-	-

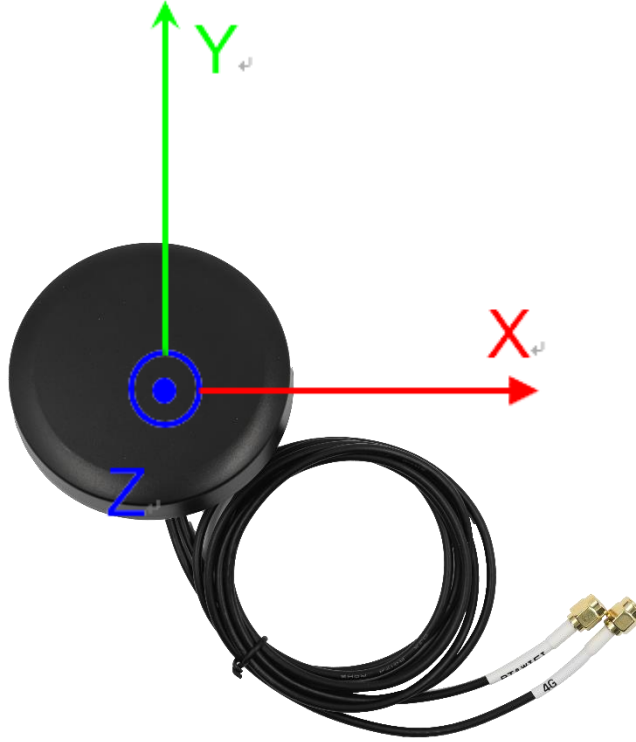


Peak Gain (dB) - Wi-Fi & BT

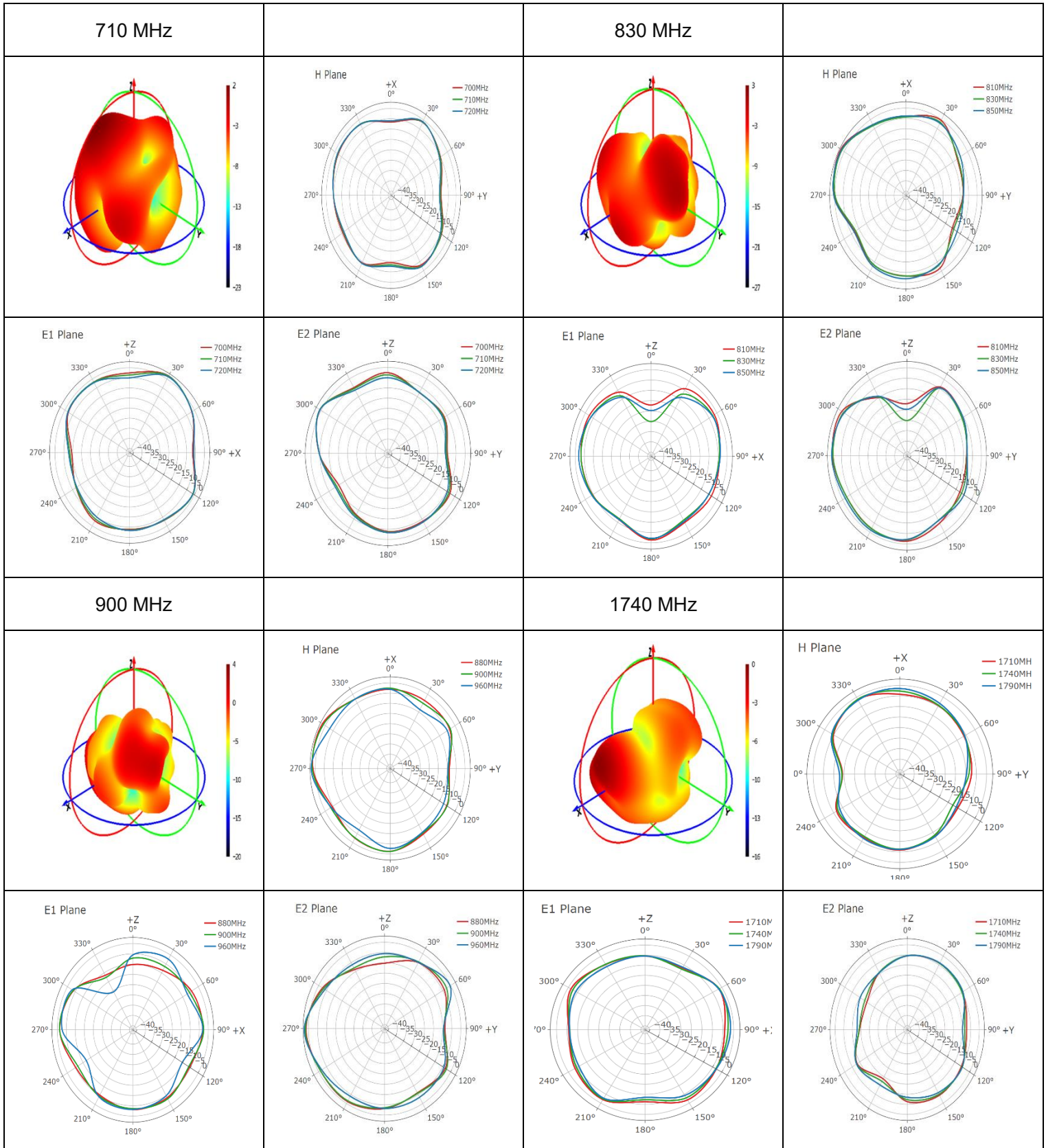
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Peak Gain (dB)	1.1	1.9	2.5	-	-	-	-	-	-	-

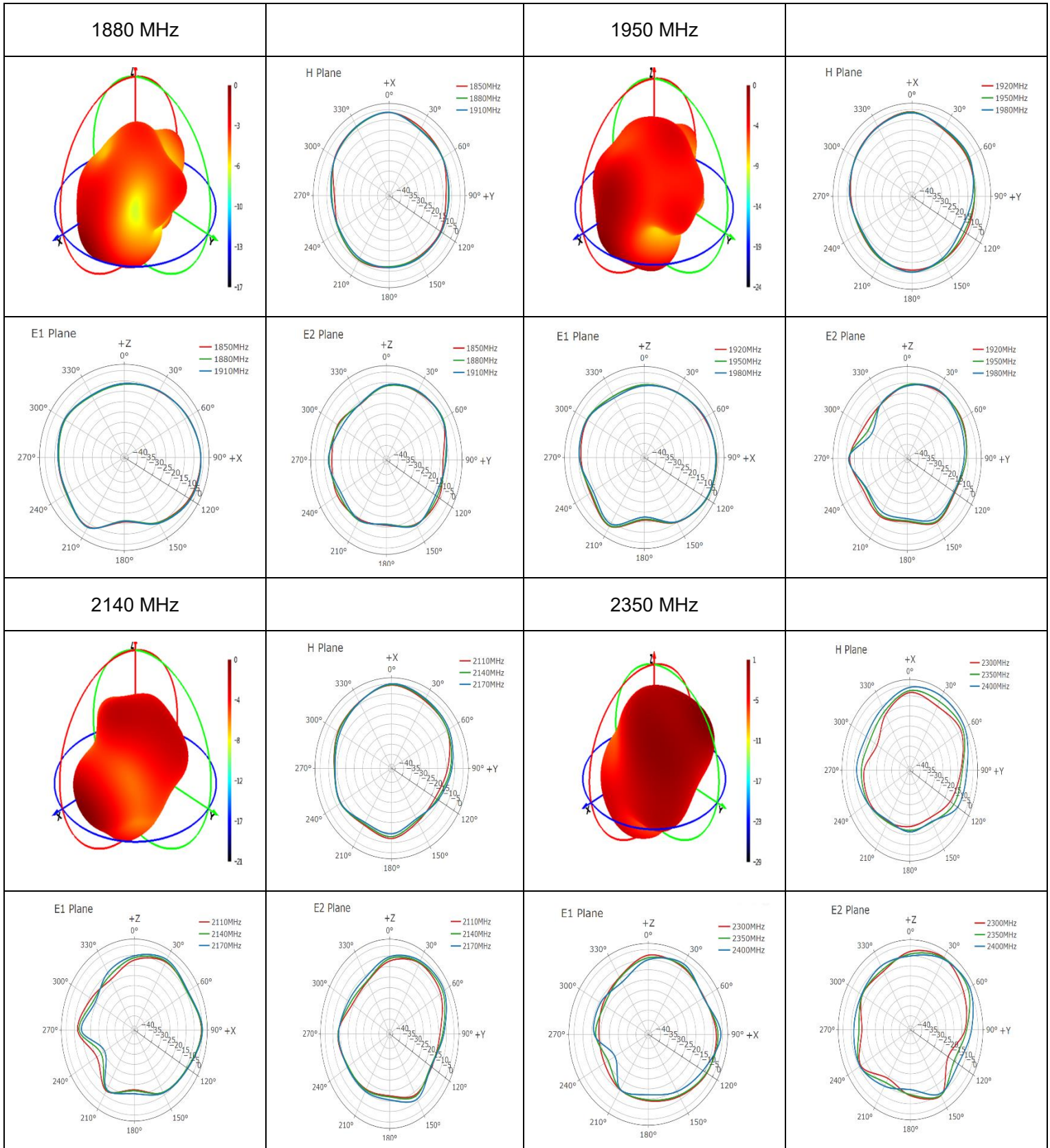
3.2.4. 3D & 2D Radiation Pattern

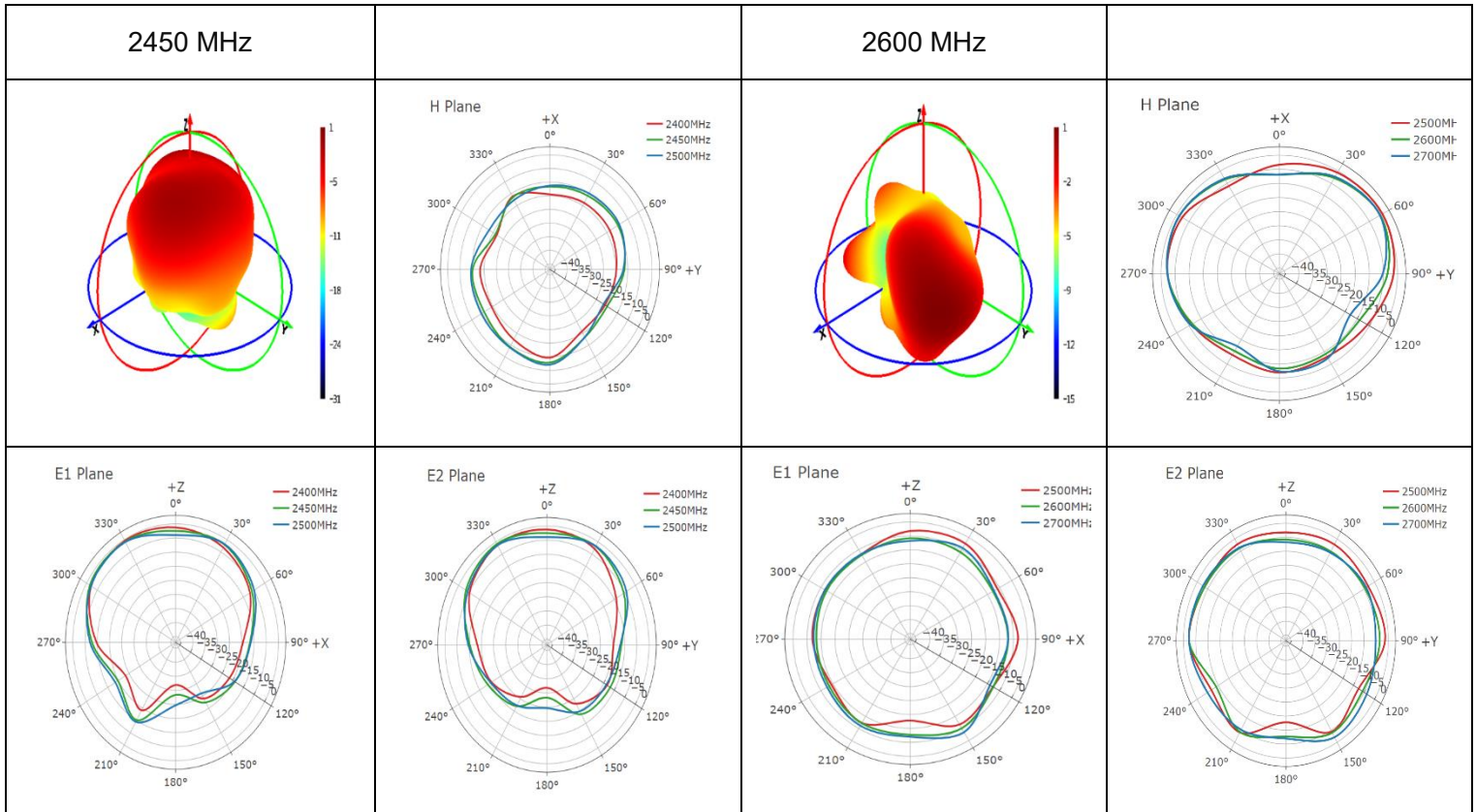
- Test Status: In Free Space
- Test Chamber: GL-S-1



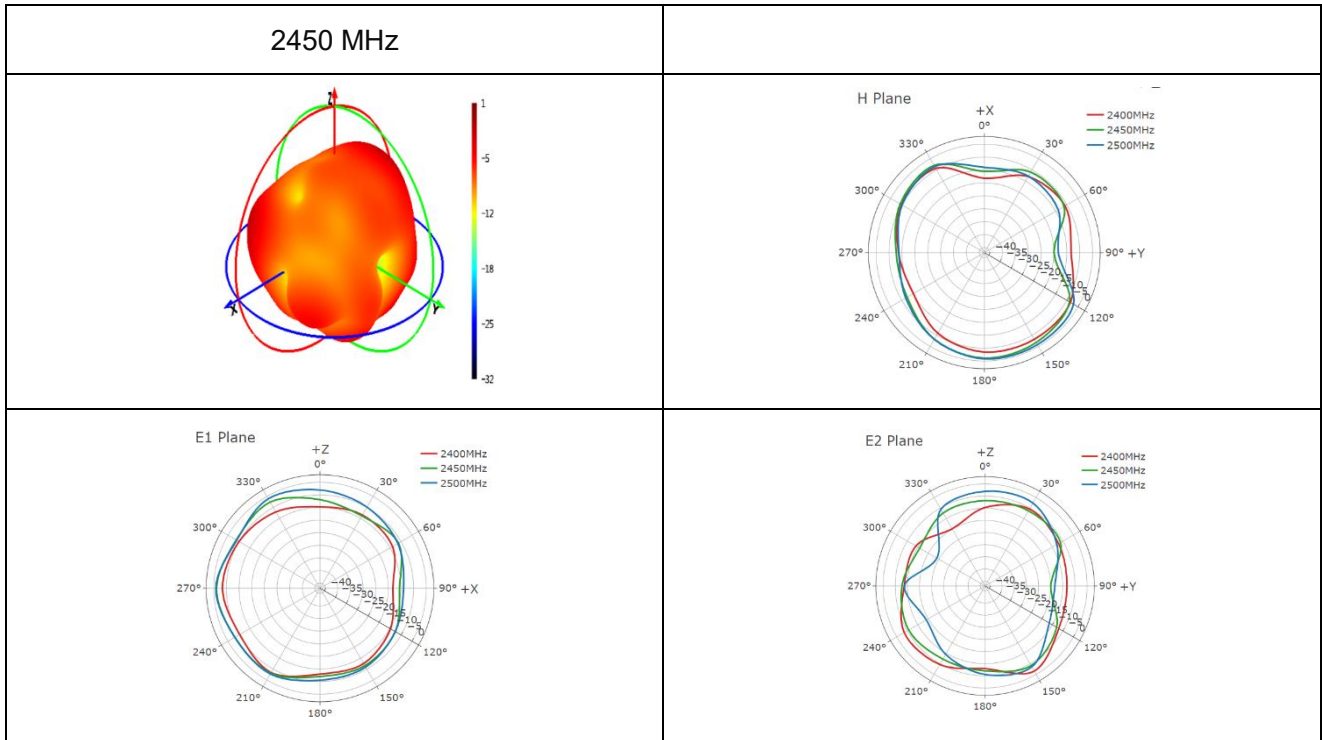
● **4G**









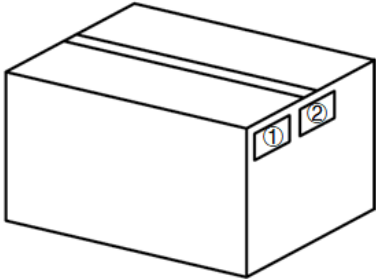
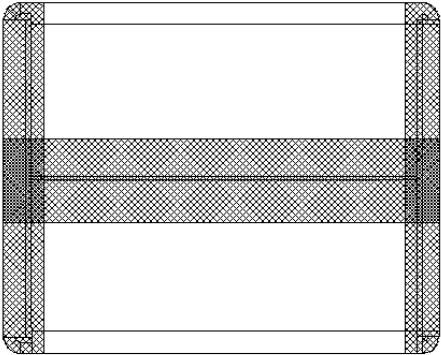


● **Wi-Fi**



4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		<p>1 pc antenna product in a small PE bag; (1 pc antenna per small PE bag)</p>
2		<p>20 pcs antenna products in a big PE bag; (20 pcs antennas per big PE Bag)</p>
3		<p>(8 big PE bags per carton box) (160 pcs antennas per carton box)</p> <p><u>Carton Size:</u> <u>L × W × H = 470 × 310 × 310 mm</u></p>

4		Put a cardboard on the top of the product
5		Position for Attaching Labels ① Carton Label ② Quality Label
6		Sealing Cartons “I” type 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:

Quectel Wireless Solutions Co., Ltd.

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

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
-	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.

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