



# 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:  $\Phi$  81 mm  $\times$  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 $\Omega$	
Isolation	$\leq -14.8$ 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											

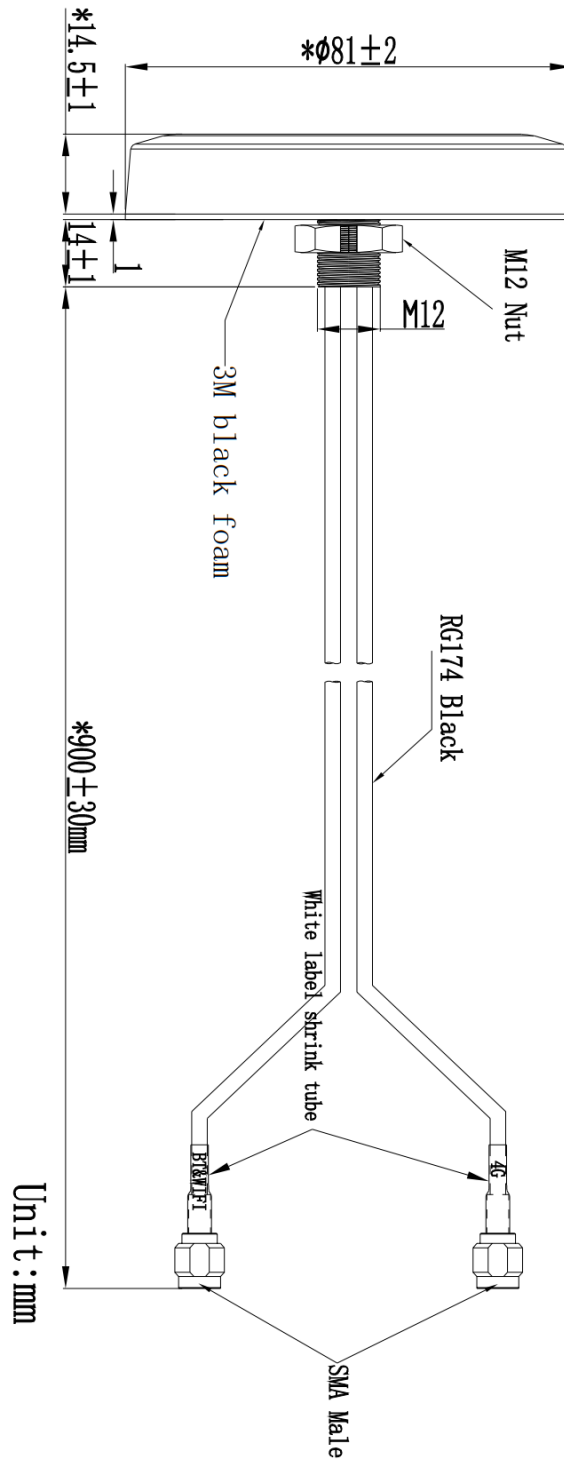
**1.1.2. Wi-Fi**

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 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

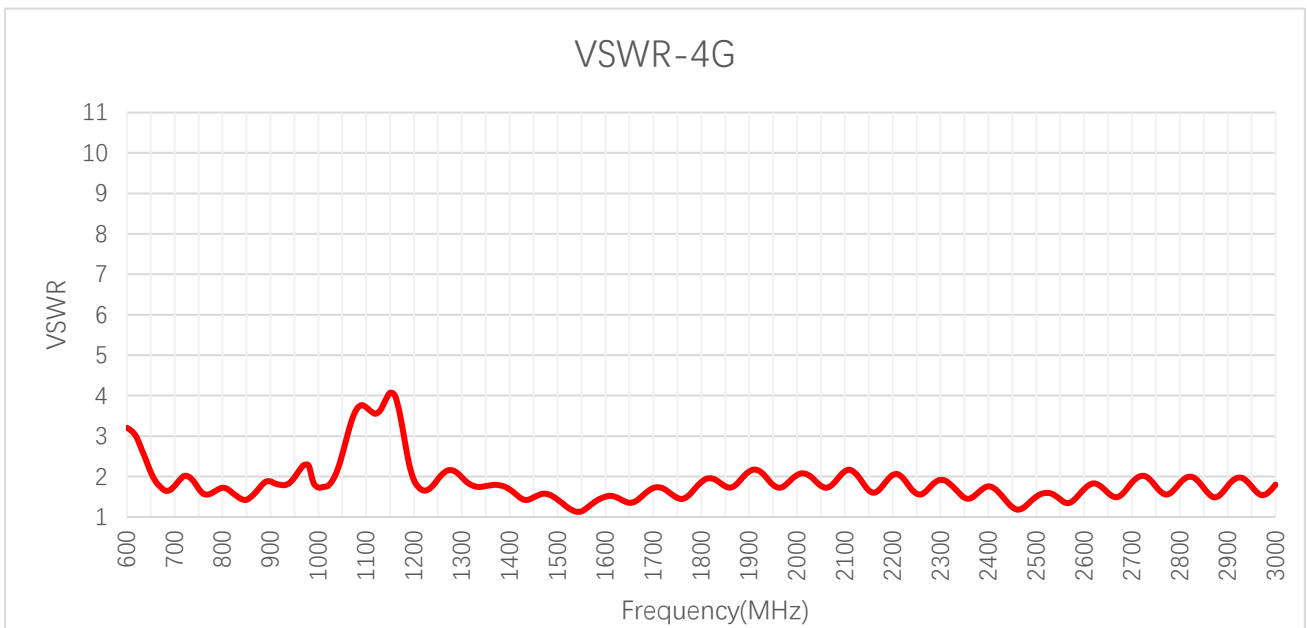
# 2 Drawing



# 3 Detailed Performance

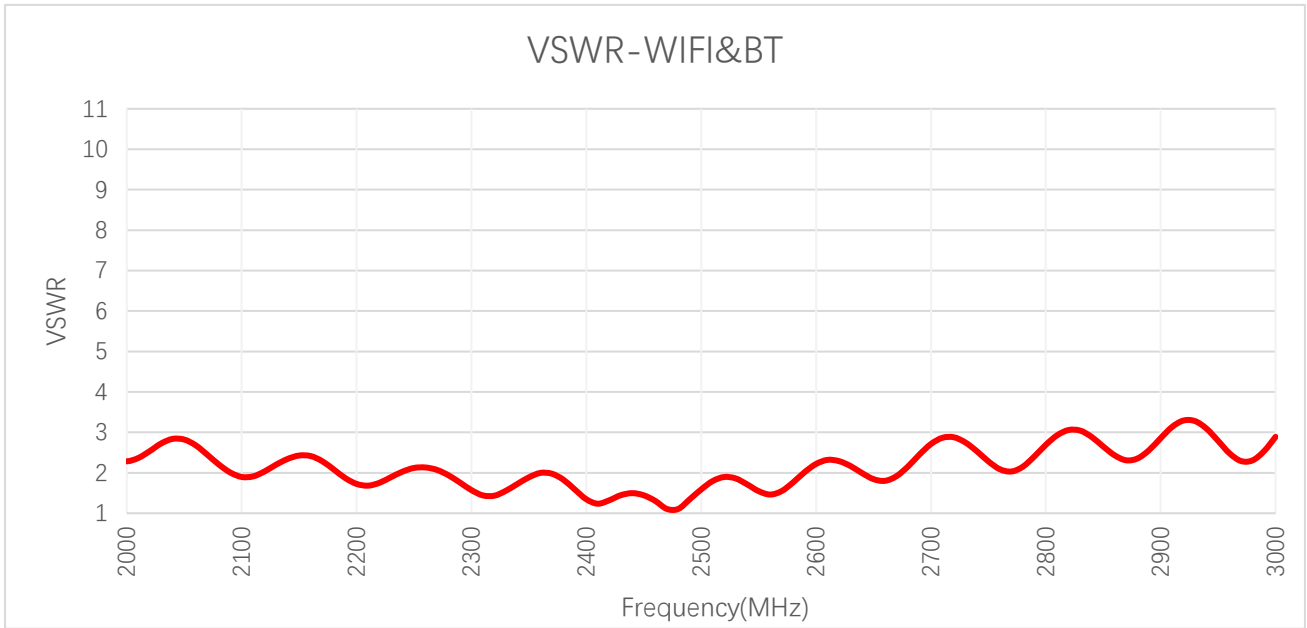
## 3.1. S-Parameter Test

### 3.1.1. VSWR



**VSWR – 4G**

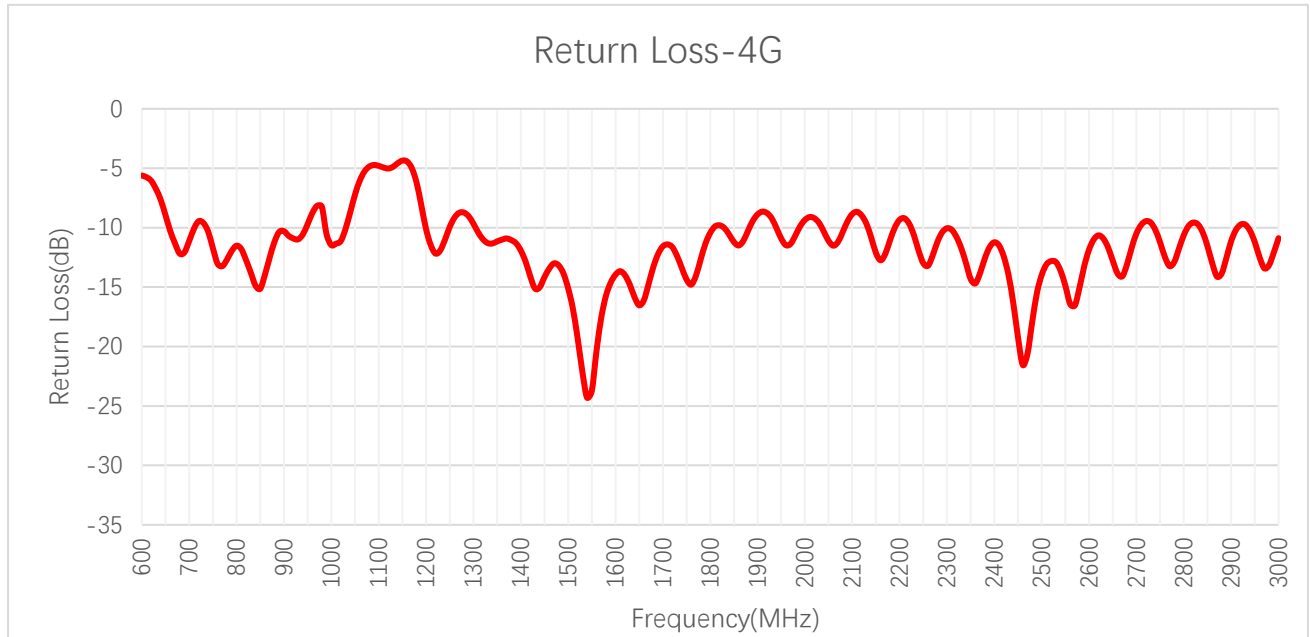
<b>Frequency (MHz)</b>	<b>600</b>	<b>630</b>	<b>710</b>	<b>830</b>	<b>900</b>	<b>960</b>	<b>1440</b>	<b>1710</b>	<b>1740</b>	<b>1880</b>
<b>VSWR</b>			1.9	1.5	1.9	2.1		1.7	1.5	1.9
<b>Frequency (MHz)</b>	<b>1950</b>	<b>2140</b>	<b>2350</b>	<b>2450</b>	<b>2600</b>	<b>2690</b>	<b>4700</b>	<b>5000</b>	<b>5500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



**VSWR – Wi-Fi & BT**

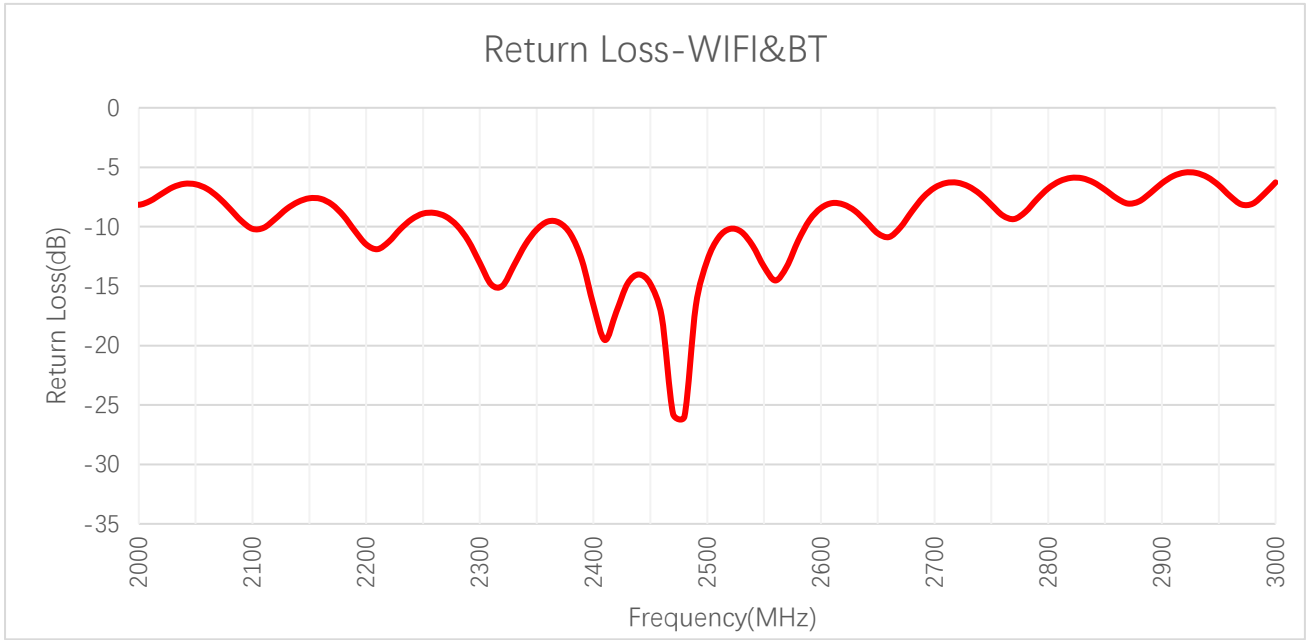
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
VSWR	1.3	1.4	1.6	-	-	-	-	-	-	-

**3.1.2. Return Loss**



**Return Loss (dB) – 4G**

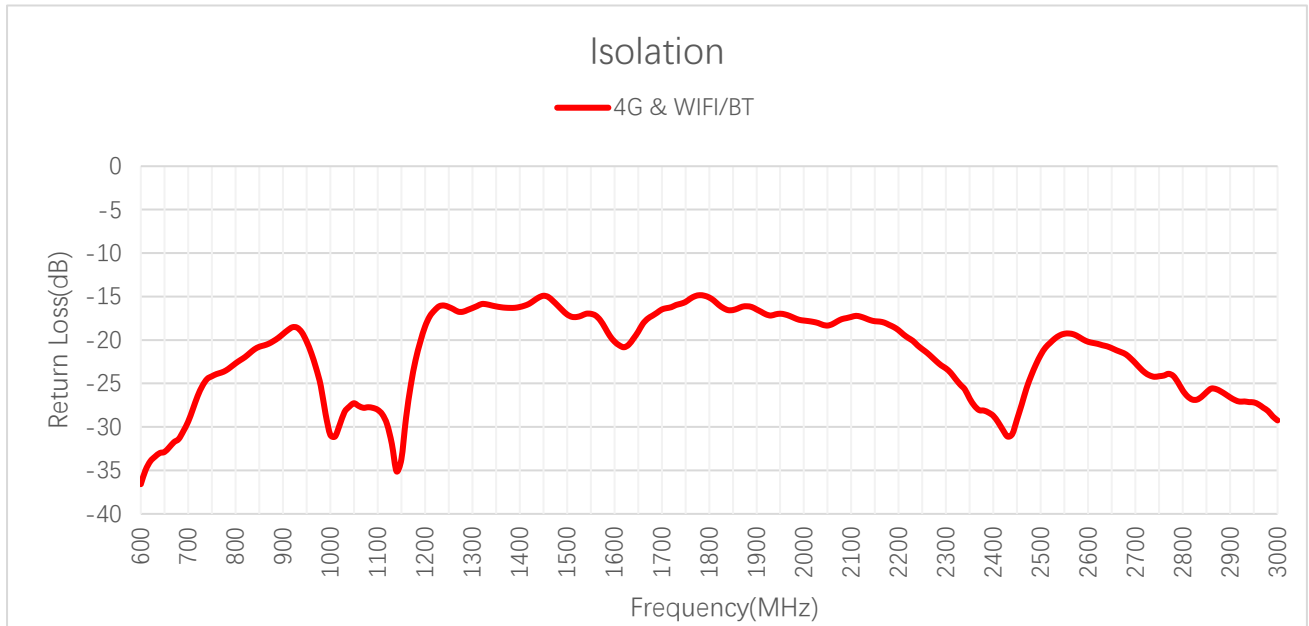
<b>Frequency (MHz)</b>	<b>600</b>	<b>630</b>	<b>710</b>	<b>830</b>	<b>900</b>	<b>960</b>	<b>1440</b>	<b>1710</b>	<b>1740</b>	<b>1880</b>
<b>Return Loss (dB)</b>	-	-	-10.1	-13.8	-10.3	-8.8	-	-11.4	-13.4	-10.2
<b>Frequency (MHz)</b>	<b>1950</b>	<b>2140</b>	<b>2350</b>	<b>2450</b>	<b>2600</b>	<b>2690</b>	<b>4700</b>	<b>5000</b>	<b>5500</b>	<b>6000</b>
<b>Return Loss (dB)</b>	-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**

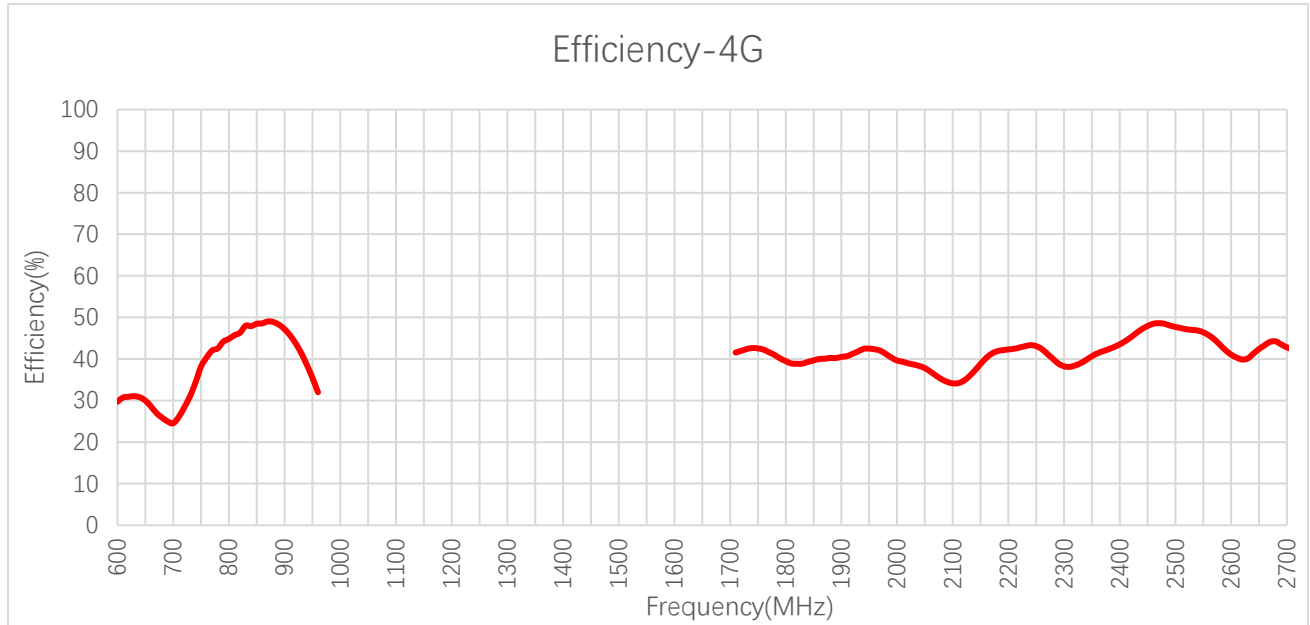


**Max Isolation (dB)**

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			

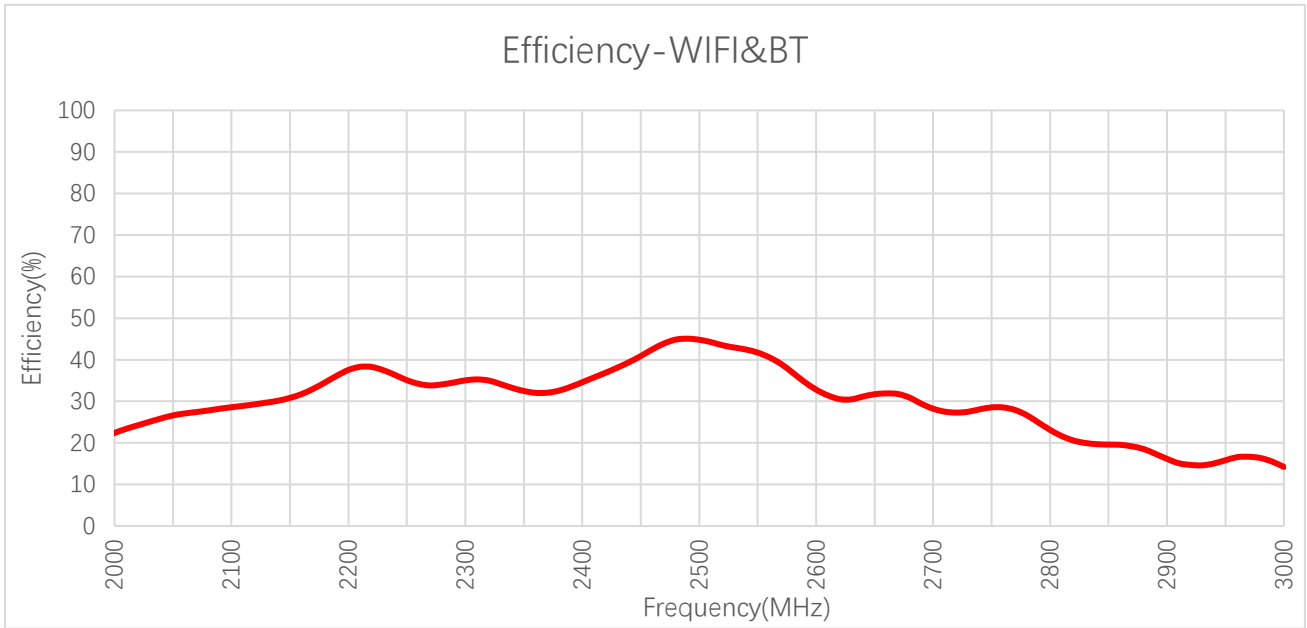
### 3.2. Radiation Performance Test

#### 3.2.1. Efficiency



**Efficiency (%) - 4G**

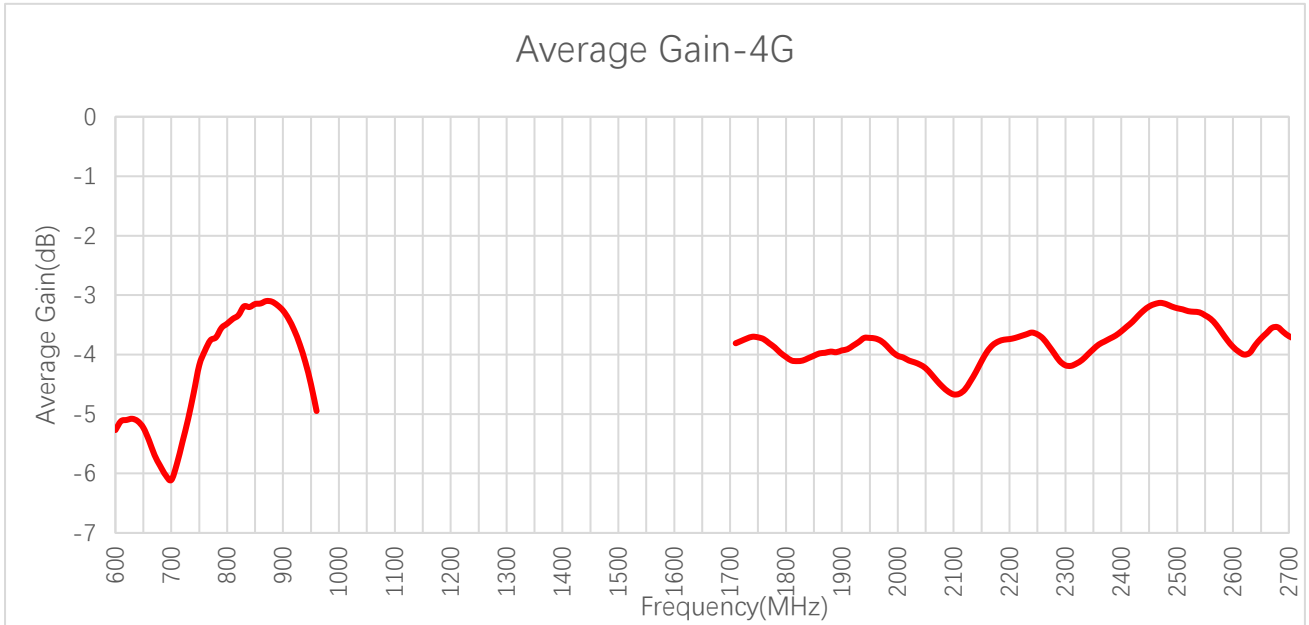
<b>Frequency (MHz)</b>	<b>600</b>	<b>630</b>	<b>710</b>	<b>830</b>	<b>900</b>	<b>960</b>	<b>1440</b>	<b>1710</b>	<b>1740</b>	<b>1880</b>
<b>Efficiency (%)</b>	-	-	26.1	48.0	47.2	32.0	-	41.6	42.6	40.3
<b>Frequency (MHz)</b>	<b>1950</b>	<b>2140</b>	<b>2350</b>	<b>2450</b>	<b>2600</b>	<b>2690</b>	<b>4700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



**Efficiency (%) – Wi-Fi & BT**

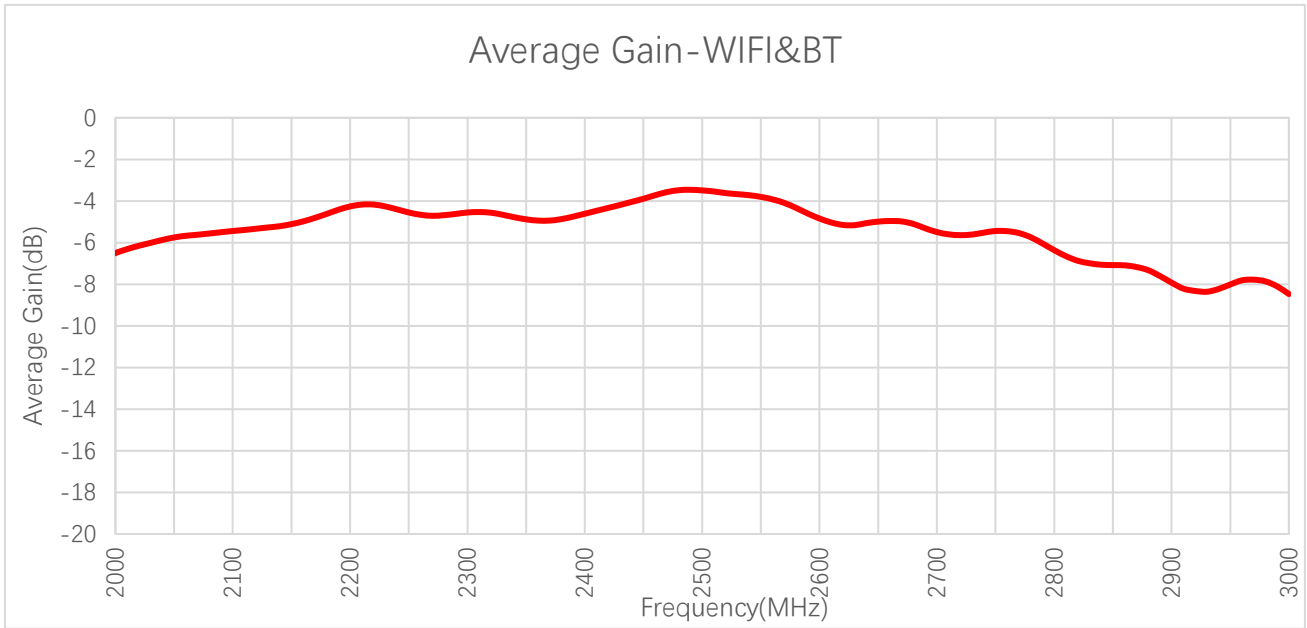
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Efficiency (%)	34.6	40.9	44.8	-	-	-	-	-	-	-

**3.2.2. Average Gain**



**Average Gain (dB) – 4G**

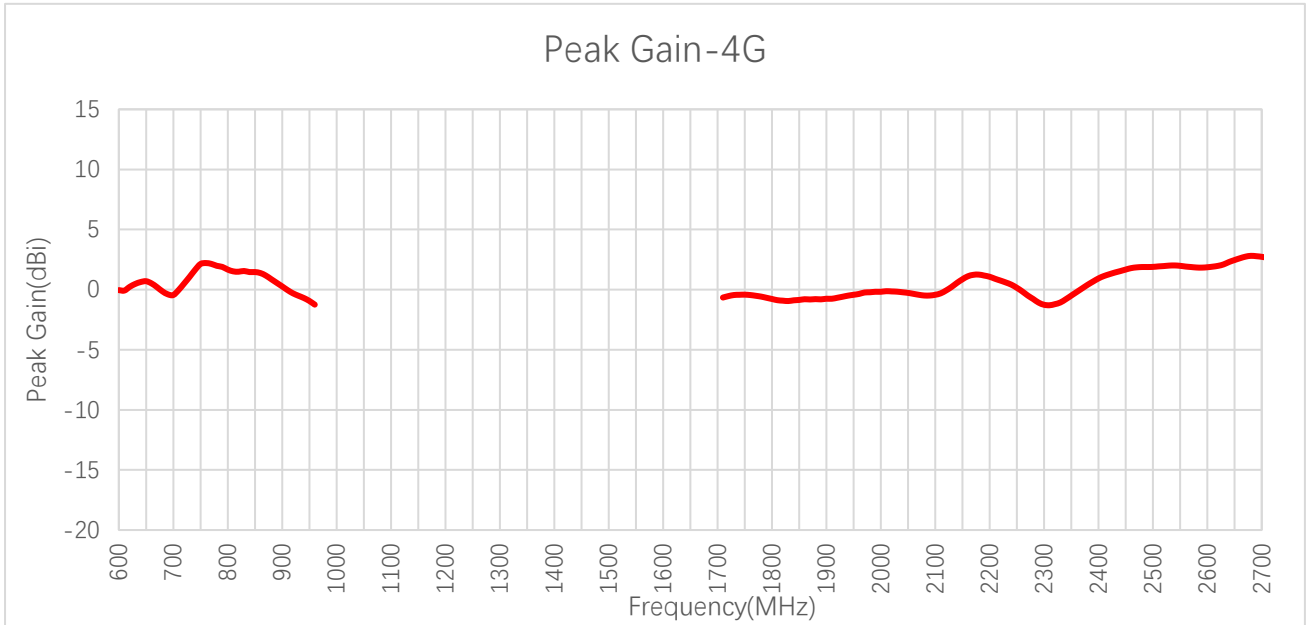
<b>Frequency (MHz)</b>	<b>600</b>	<b>630</b>	<b>710</b>	<b>830</b>	<b>900</b>	<b>960</b>	<b>1440</b>	<b>1710</b>	<b>1740</b>	<b>1880</b>
<b>Average Gain (dB)</b>	-	-	-5.8	-3.2	-3.3	-5.0	-	-3.8	-3.7	-4.0
<b>Frequency (MHz)</b>	<b>1950</b>	<b>2140</b>	<b>2350</b>	<b>2450</b>	<b>2600</b>	<b>2690</b>	<b>4700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



**Average Gain (dB) – Wi-Fi & BT**

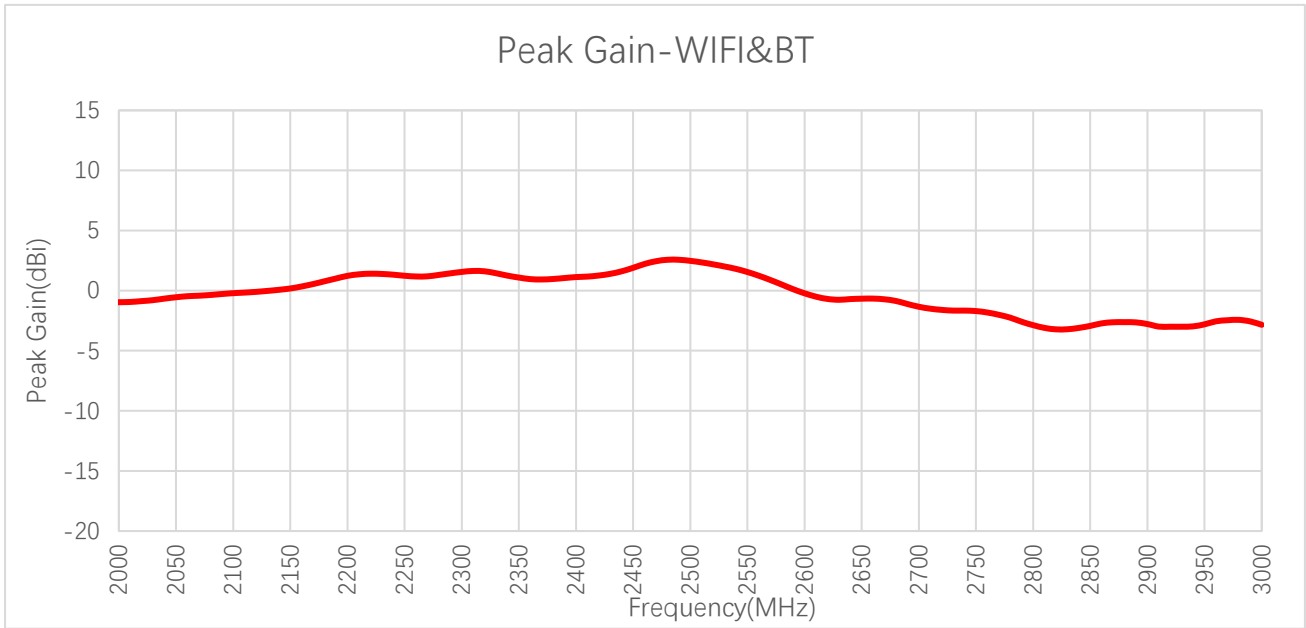
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Average Gain (dB)	-4.6	-3.9	-3.5	-	-	-	-	-	-	-

**3.2.3. Peak Gain**



**Peak Gain (dBi) - 4G**

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

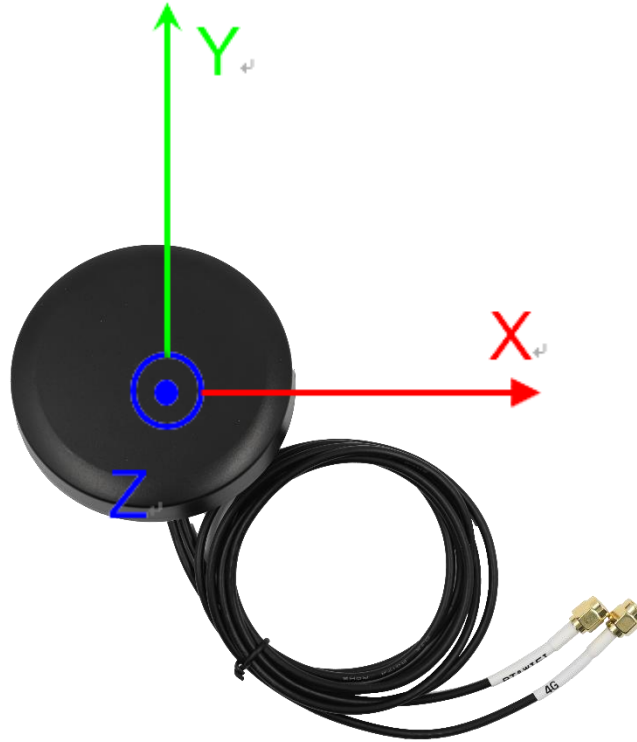


**Peak Gain (dB) – Wi-Fi & BT**

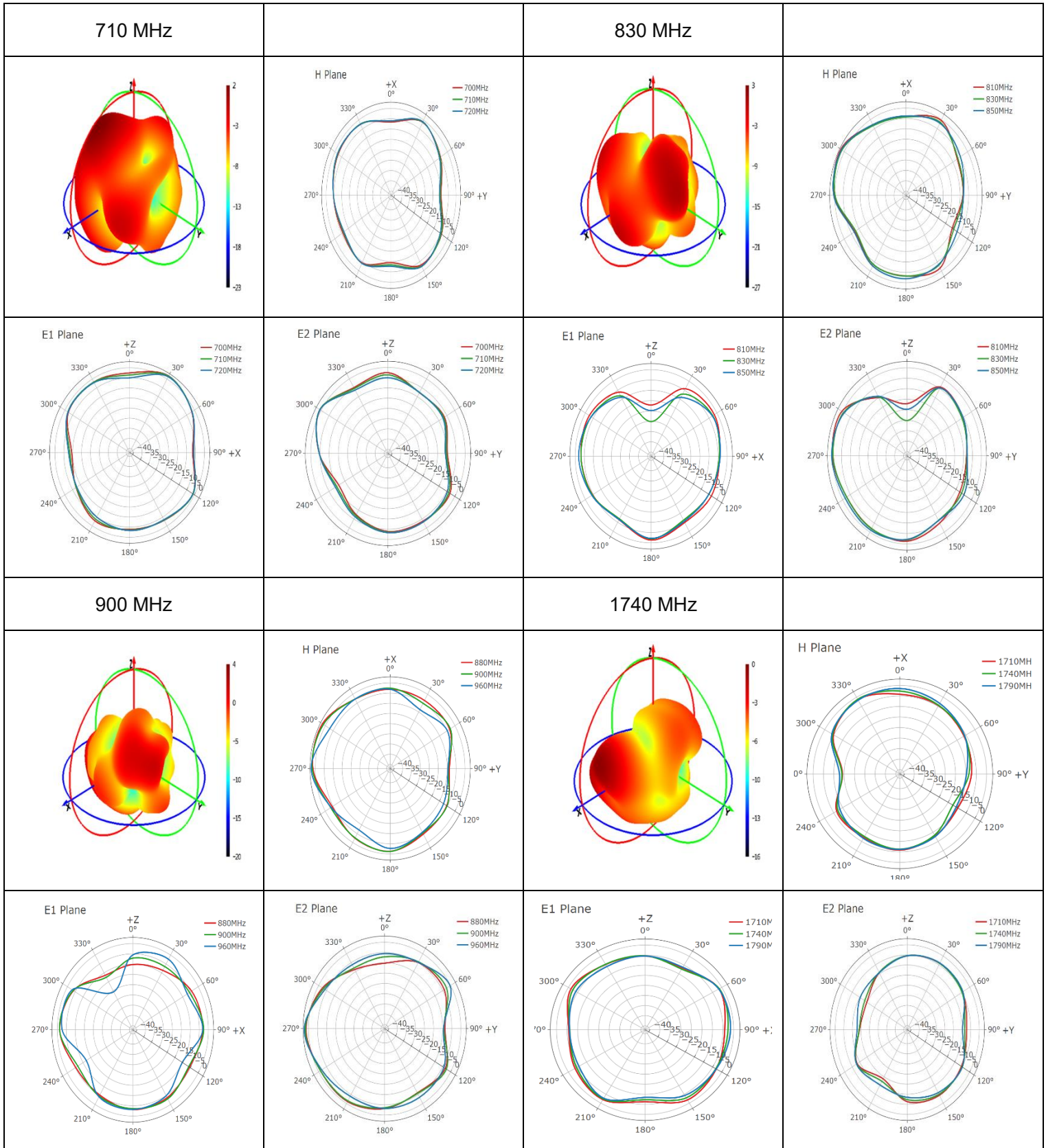
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Peak Gain (dB)	1.1	1.9	2.5	-	-	-	-	-	-	-

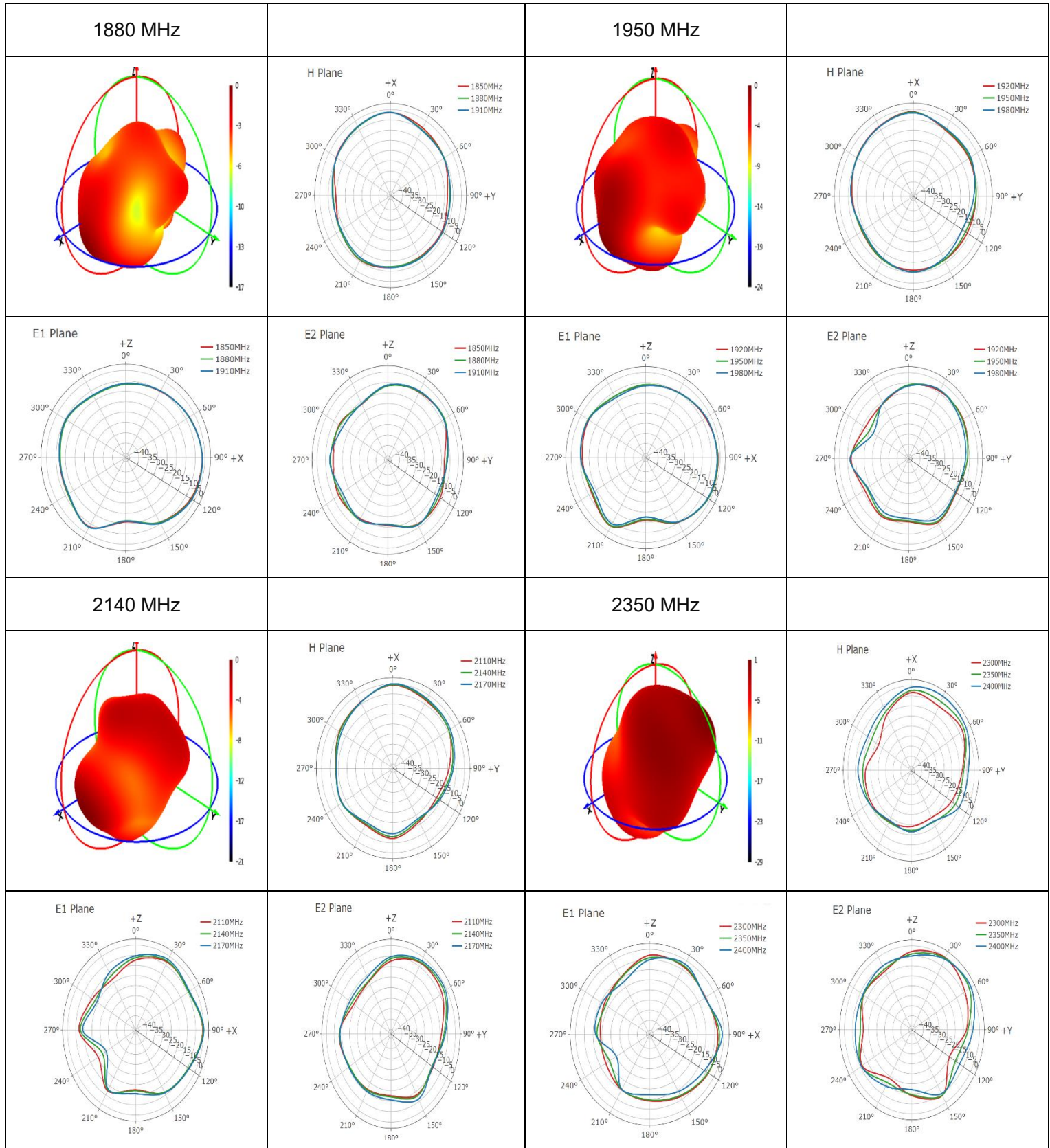
### 3.2.4. 3D & 2D Radiation Pattern

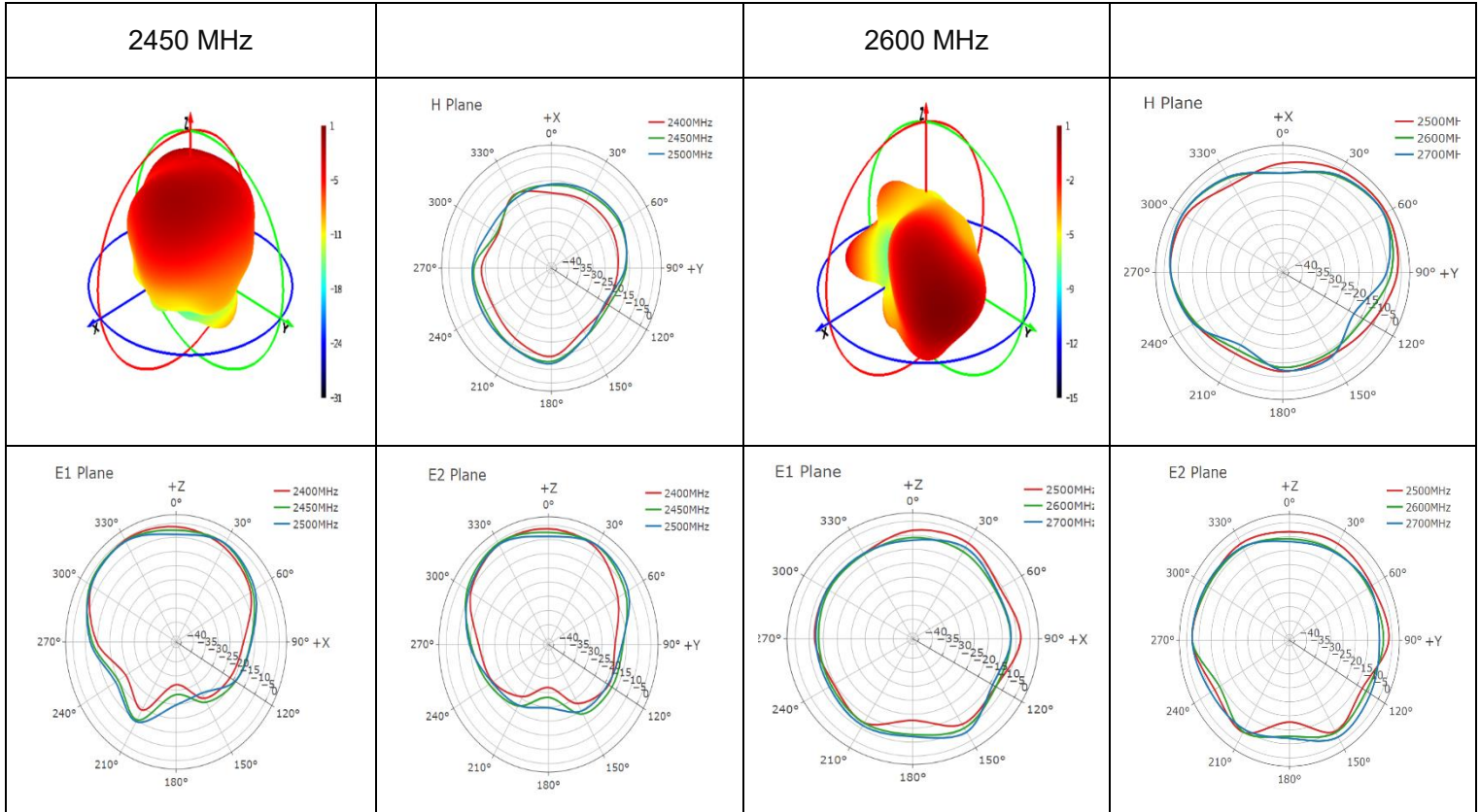
- Test Status: In Free Space
- Test Chamber: GL-S-1



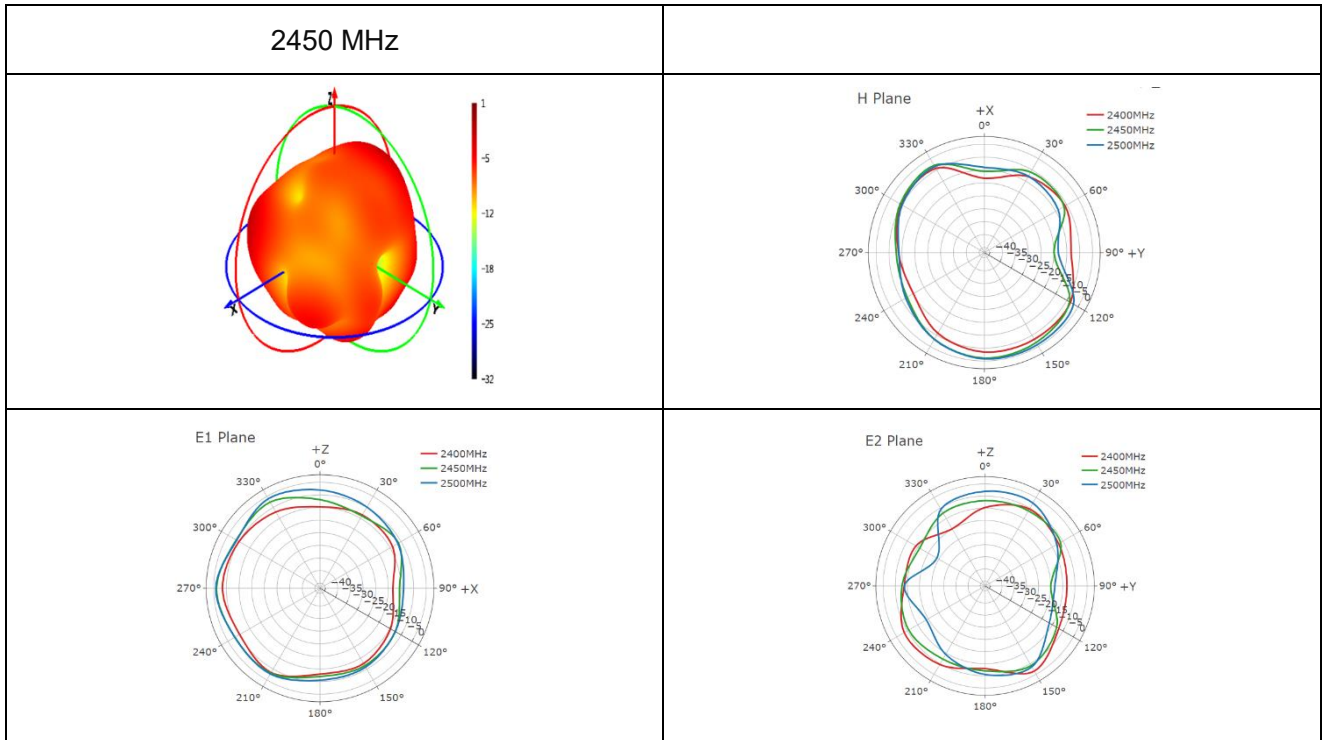
● 4G





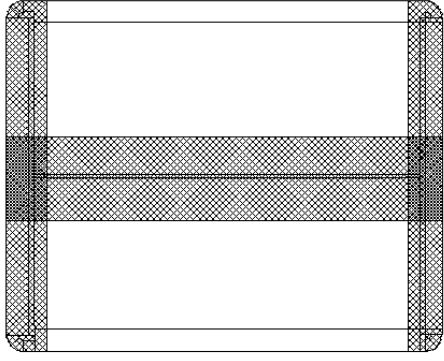


● **Wi-Fi**



# 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		<p>1 pc antenna product in a small PE bag. (1 PC Antenna / Small PE Bag)</p>
2		<p>18 pcs antenna products in a big PE bag. (18 PCS Antennas / Big PE Bag)</p>
3		<p>(8 Big PE Bags / Carton Box) (144 PCS Antennas / Carton Box) <u>Carton Size:</u> <u>L × W × H = 470 × 310 × 310 mm</u></p>
4		<p><b>Position for Attaching Labels</b></p> <ul style="list-style-type: none"> <li>① Carton Label</li> <li>② Quality Label</li> </ul>

5		<b>Sealing Cartons</b> 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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# 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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