



# Antenna Datasheet

**Product OC:** YEMN205J1AM

**Version:** 1.0

**Date:** 2025-08-15

**Status:** Released

**Product Name:** Wi-Fi 2in1 Screw Mount Combo Antenna

**Key Features:**

Frequency Band: Wi-Fi 1: 2400–2500 MHz; 5150–5850 MHz

Wi-Fi 2: 2400–2500 MHz; 5150–5850 MHz

Dimensions:  $\Phi$  46 mm  $\times$  15 mm

Efficiency: Up to 65 % (FS)

RoHS Compliant

IP66

# Overview

The YEMN205J1AM is a Wi-Fi 2in1 combo antenna measuring  $\Phi$  46 mm  $\times$  15 mm. This ultra-wide-band Wi-Fi antenna provides broad coverage from 2400–2500 MHz; 5150–5850 MHz. The antenna is available with connection via 2 cable lengths from 300 mm, terminated with SMA Male connectors. This low profile, screw mount omni-directional antenna, ideal for applications where the antenna is required to be discrete, is easy to install with maximum durability assured thanks to its IP66 enclosure. It is compatible with Quectel's Wi-Fi series modules.

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.

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# 1 Specification

Test Condition: In Free Space & 300 mm × 300 mm Metal Plane

## 1.1. Electrical

Electrical Specifications	
Frequency Range	2400–2500 MHz, 5150–5850 MHz
Radiation Pattern	Omni-directional
Polarization	Linear
Impedance	50 Ω
Isolation	≤ -11.2 dB

### 1.1.1. Wi-Fis

Specification	Band	Band	Wi-Fi 2G	Wi-Fi 5G	Wi-Fi 6G
		Freq. (MHz)	2400–2500	5150–5850	5925–7125
Max. VSWR	FS		1.3	2.3	-
	MP		1.8	2.3	-
Max. Return Loss (dB)	FS		-17.3	-8.0	-
	MP		-11.2	-8.2	-
AVG Eff. (%)	FS		60.4	53.2	-
	MP		54.5	55.8	-
AVG AVG Gain (dB)	FS		-2.3	-3.0	-
	MP		-2.6	-2.7	-

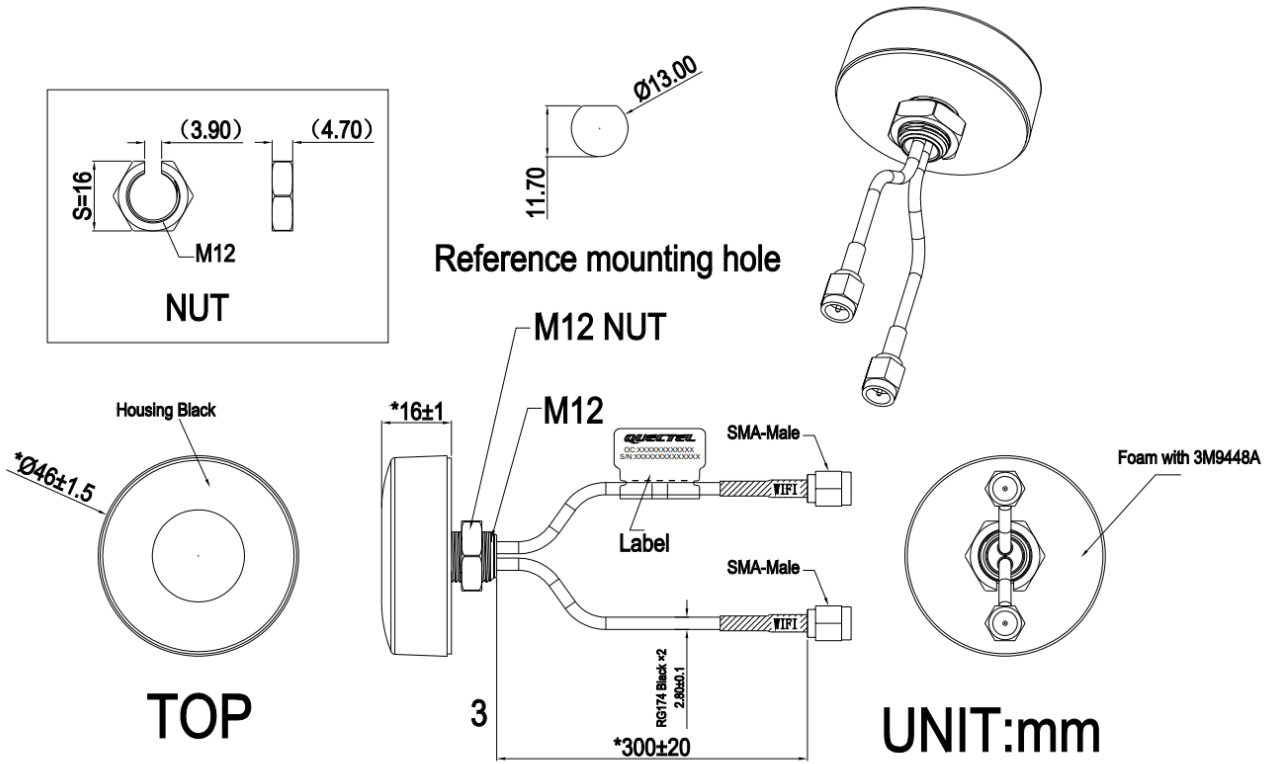
<b>Max. Peak Gain (dBi)</b>	<b>FS</b>	4.7	2.9	-
	<b>MP</b>	4.4	5.9	-
<b>VSWR</b>	<b>FS</b>	≤ 2.3		
	<b>MP</b>	≤ 2.3		
<b>Return Loss</b>	<b>FS</b>	≤ -8 dB		
	<b>MP</b>	≤ -8.2 dB		
<b>Peak Gain</b>	<b>FS</b>	≤ 4.7 dBi		
	<b>MP</b>	≤ 5.9 dBi		

- Wi-Fi: Wi-Fi 1 & Wi-Fi 2 Antennas
- FS: In Free Space
- MP: On 300 mm × 300 mm Metal Plane

## 1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 46 mm × 16 mm
Casing Material & Color	ABS & Black
Cable Type & Color & Length	RG174 & Black & 300 mm
Connector Type	SMA Male
Mounting Type	Screw
Weight	Typ. 33 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP66
RoHS Compliant	Yes

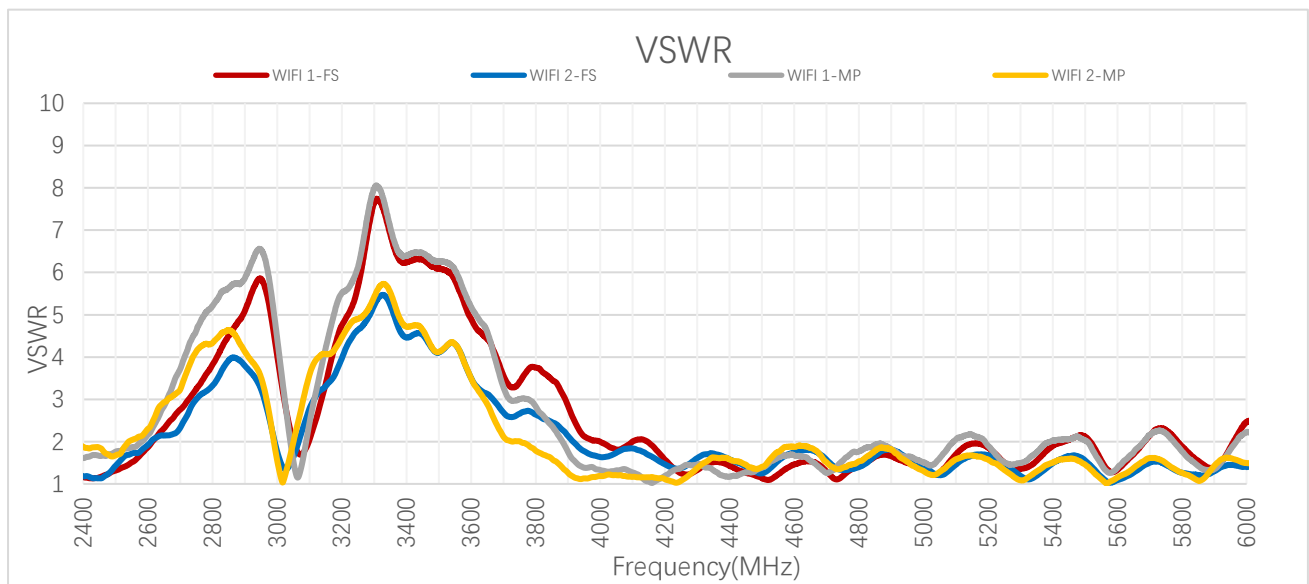
# 2 Drawing



# 3 Detail Performance

## 3.1. S-Parameter Test

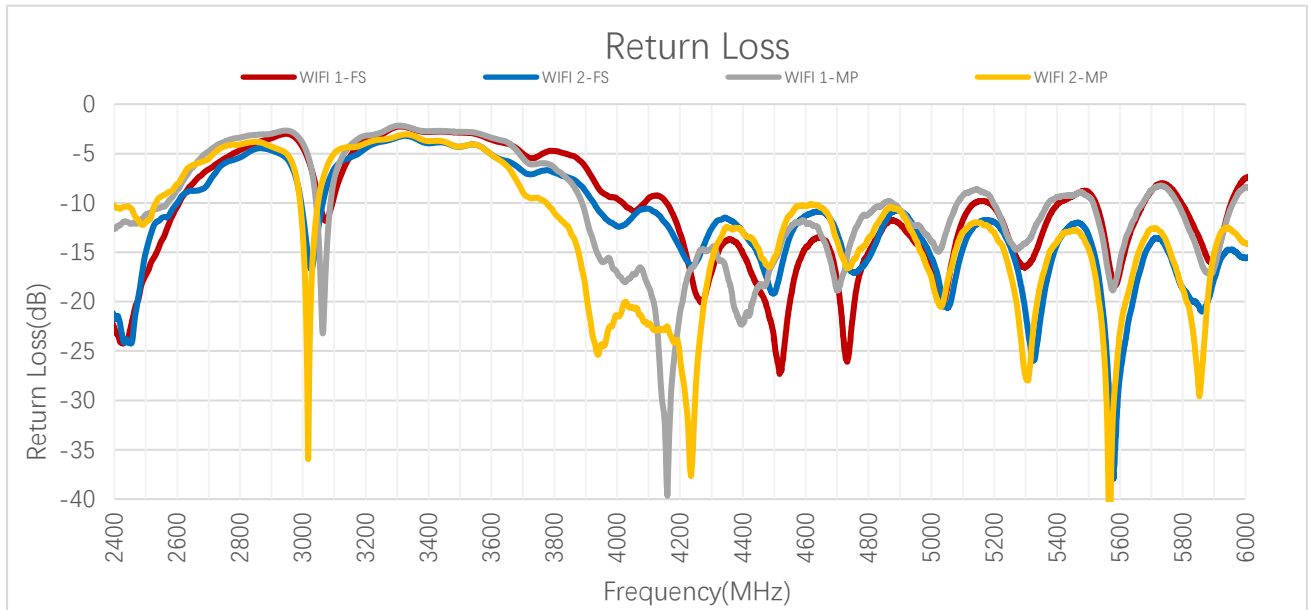
### 3.1.1. VSWR



**VSWR**

Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	1.2	1.2	1.3	1.9	2.1	1.5
	MP	1.6	1.7	1.8	2.2	2.0	1.4
Wi-Fi 2	FS	1.2	1.1	1.4	1.7	1.6	1.2
	MP	1.9	1.9	1.7	1.7	1.5	1.1

**3.1.2. Return Loss**

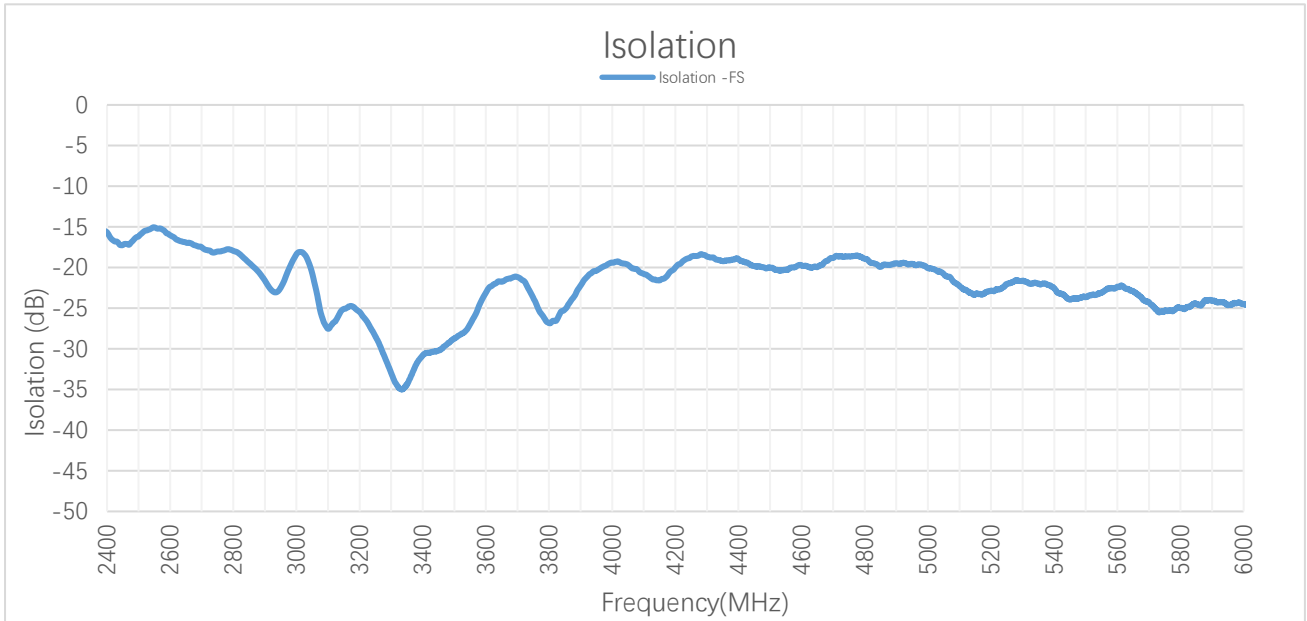


**Return Loss (dB)**

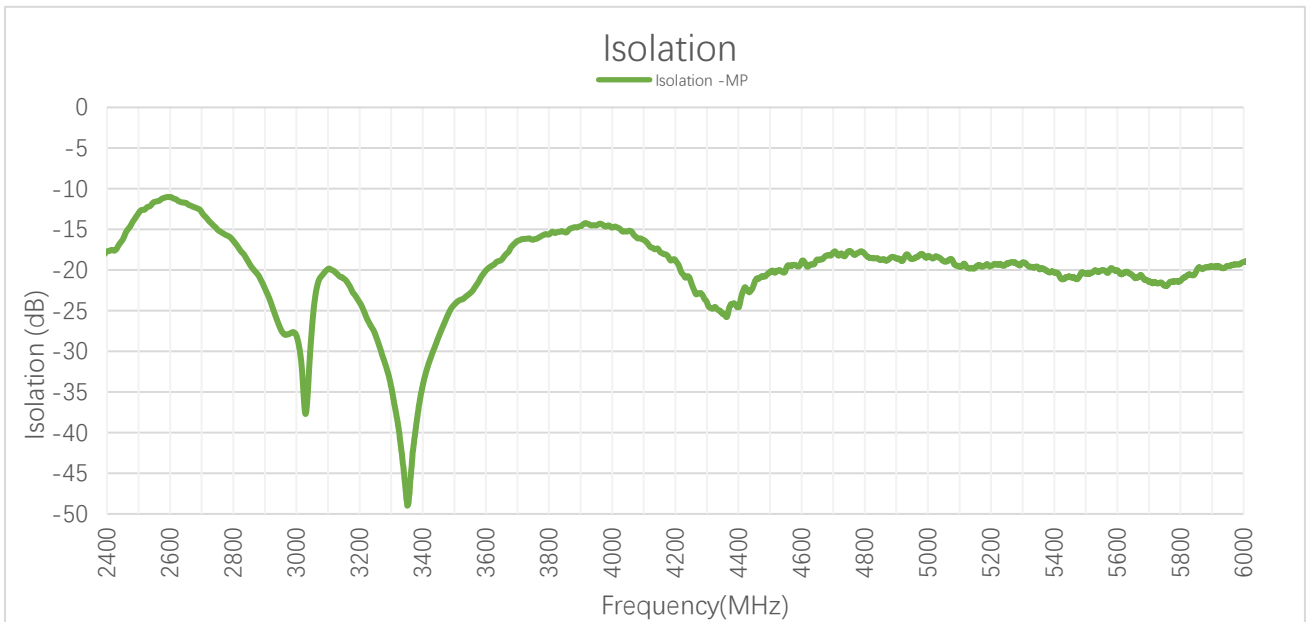
Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	-22.6	-22.8	-17.3	-9.9	-8.9	-13.4
	MP	-12.6	-12.1	-11.2	-8.7	-9.3	-15.2
Wi-Fi 2	FS	-21.6	-24.1	-15.0	-12.0	-13.3	-20.4
	MP	-10.3	-10.5	-12.0	-12.0	-14.6	-28.6

### 3.1.3. Isolation

#### 3.1.3.1. Test Status: In Free Space



#### 3.1.3.2. Test Status: On 300 mm × 300 mm Metal Plane



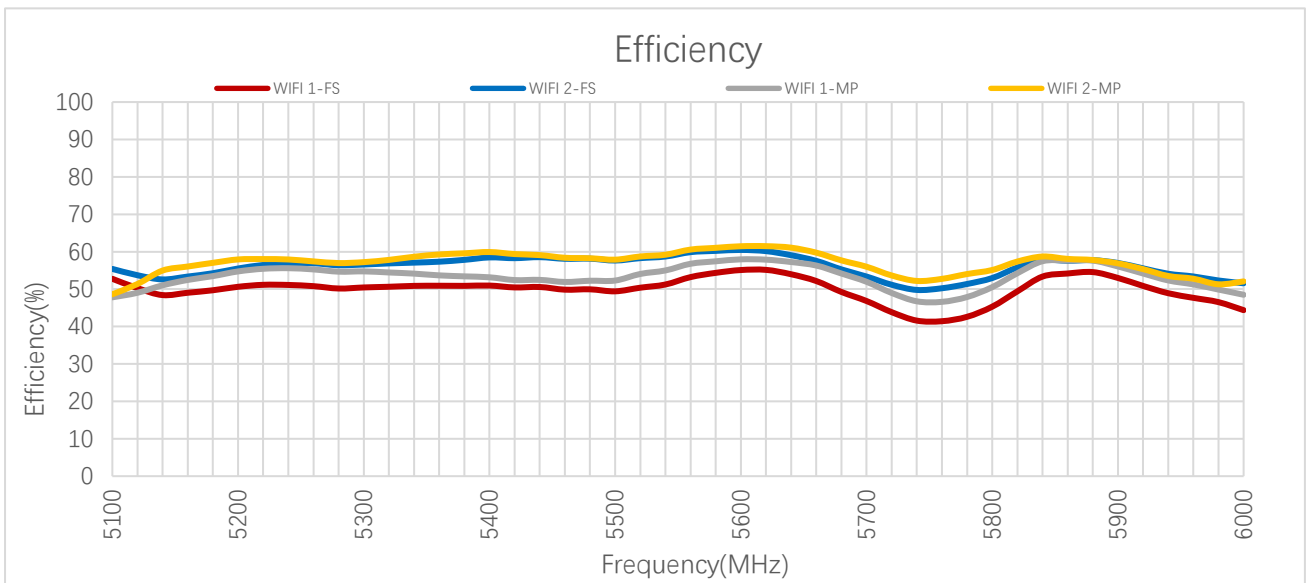
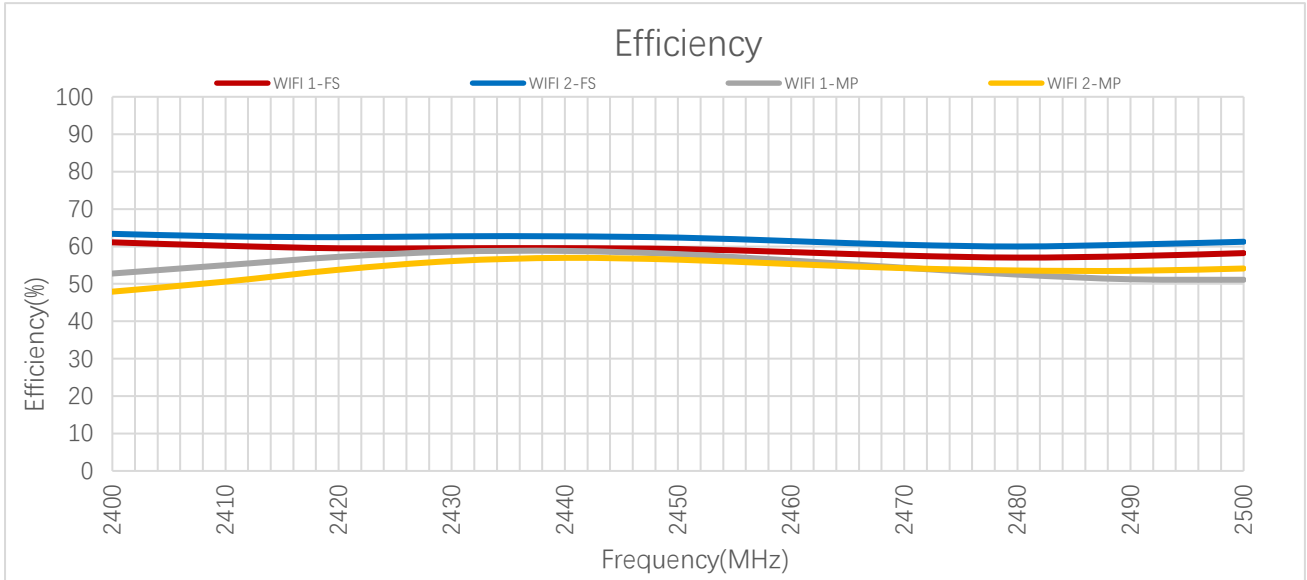
**Max Isolation (dB)**

Frequency (MHz)		2400–2450	5150–5850	5925–7125
Wi-Fi 1	FS	-15.0	-21.2	-
	MP	-11.2	-18.1	-
Wi-Fi 2	FS	-15.0	-21.2	-
	MP	-11.2	-18.1	-

- FS: In Free Space
- MP: On 300 mm × 300 mm Metal Plane

### 3.2. Radiation Performance Test

#### 3.2.1. Efficiency

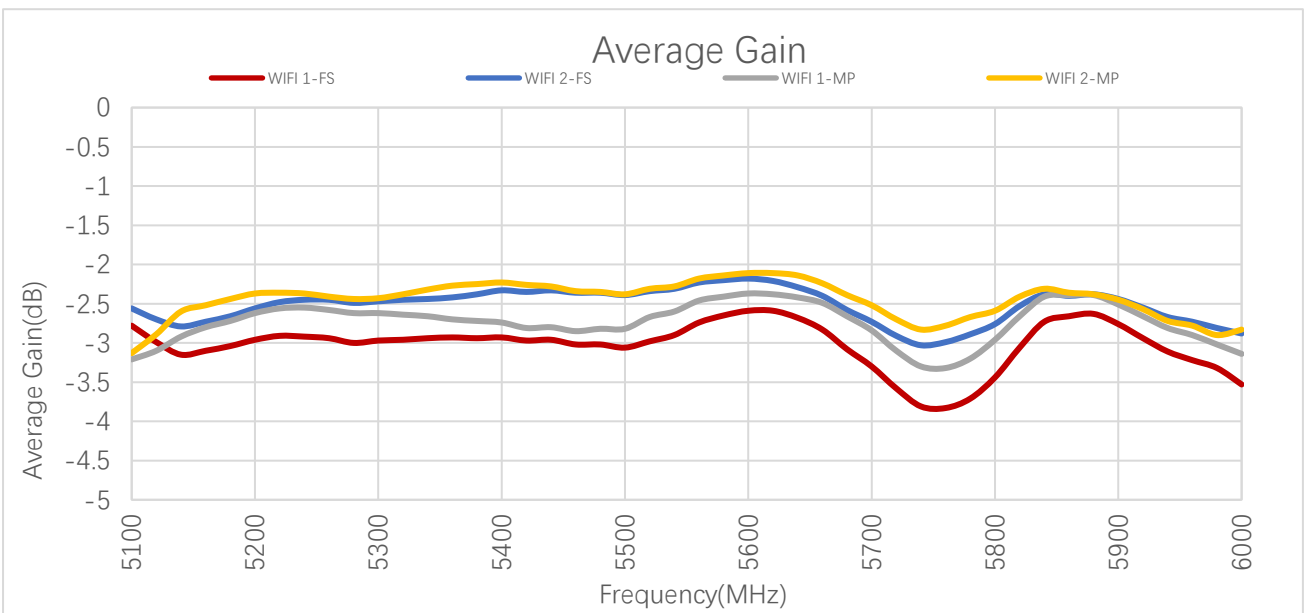
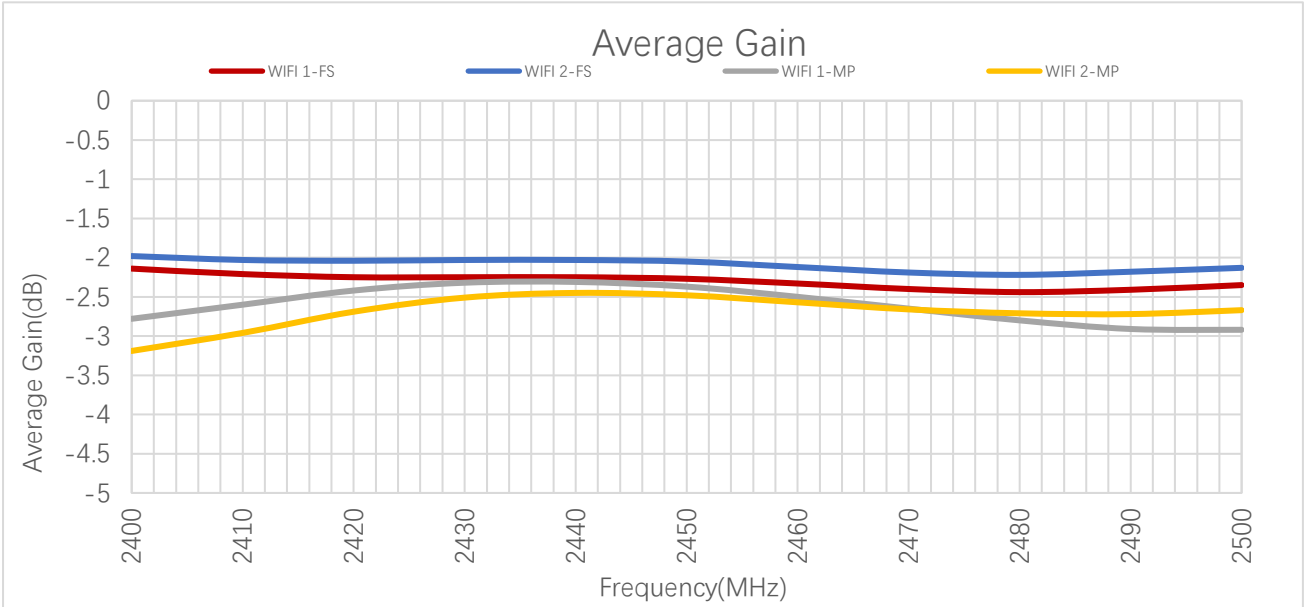


**Efficiency (%)**

Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	61.1	59.3	58.2	49.0	49.4	54.2
	MP	52.8	58.0	51.1	52.5	52.3	57.6
Wi-Fi 2	FS	63.4	62.4	61.3	53.4	57.6	57.6

<b>MP</b>	47.9	56.5	54.1	56.0	57.9	58.1
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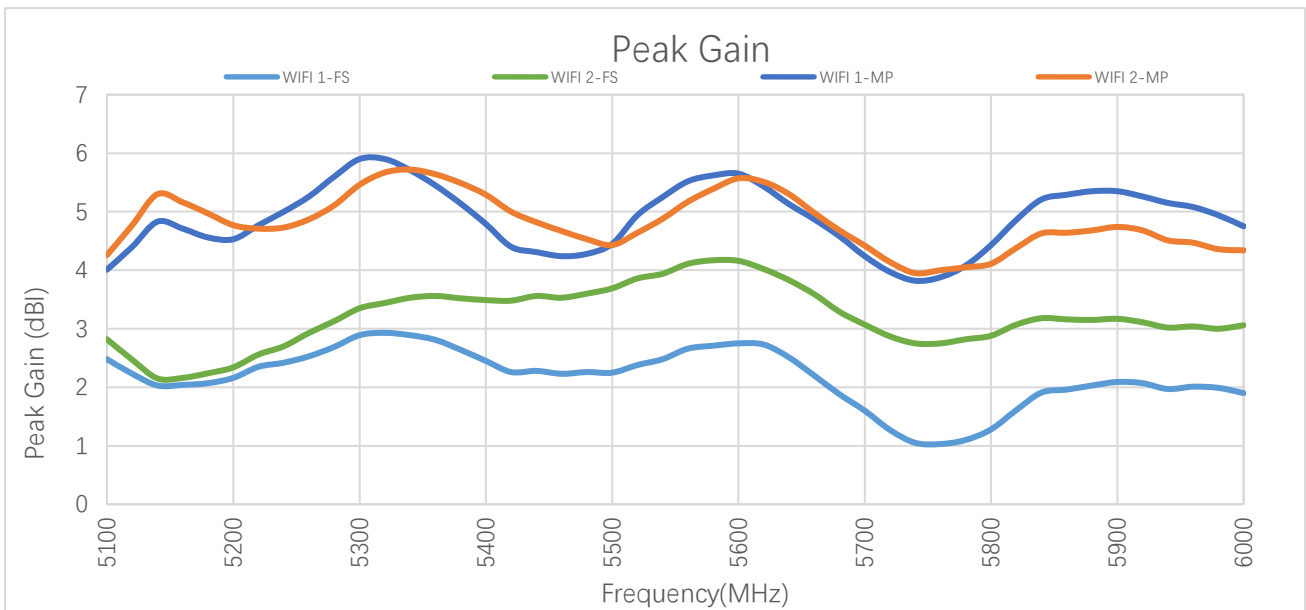
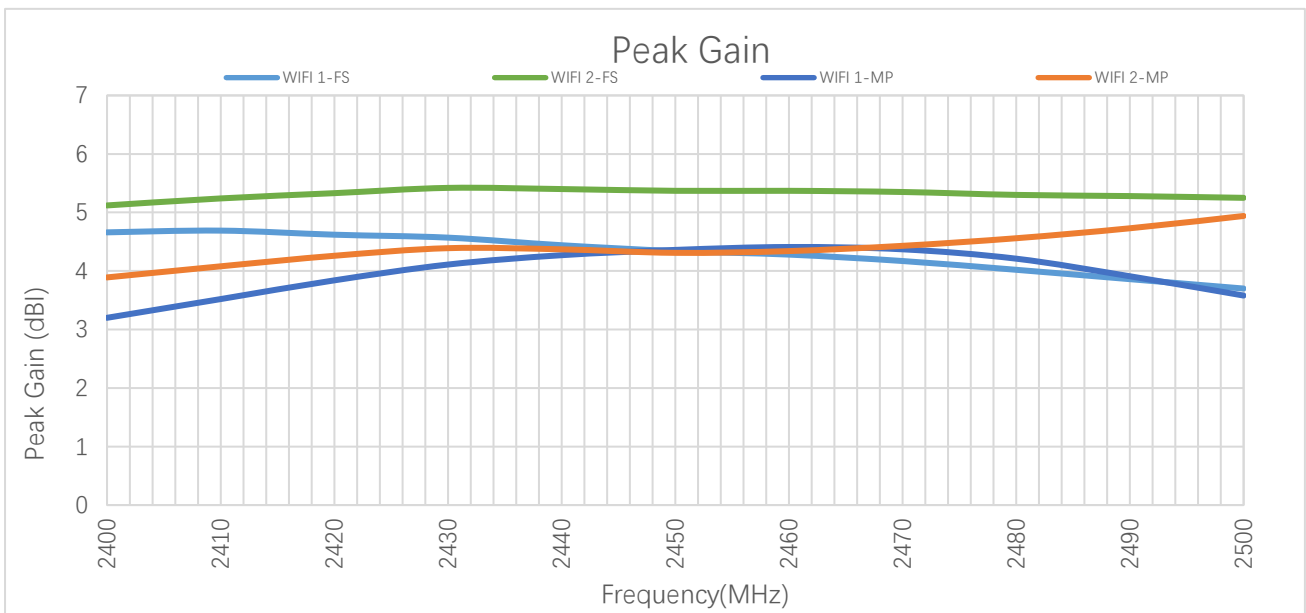
**3.2.2. Average Gain**



**Average Gain (dB)**

Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	-2.1	-2.3	-2.4	-3.1	-3.1	-2.7
	MP	-2.8	-2.4	-2.9	-2.8	-2.8	-2.4
Wi-Fi 2	FS	-2.0	-2.1	-2.1	-2.7	-2.4	-2.4
	MP	-3.2	-2.5	-2.7	-2.5	-2.4	-2.4

**3.2.3. Peak Gain**



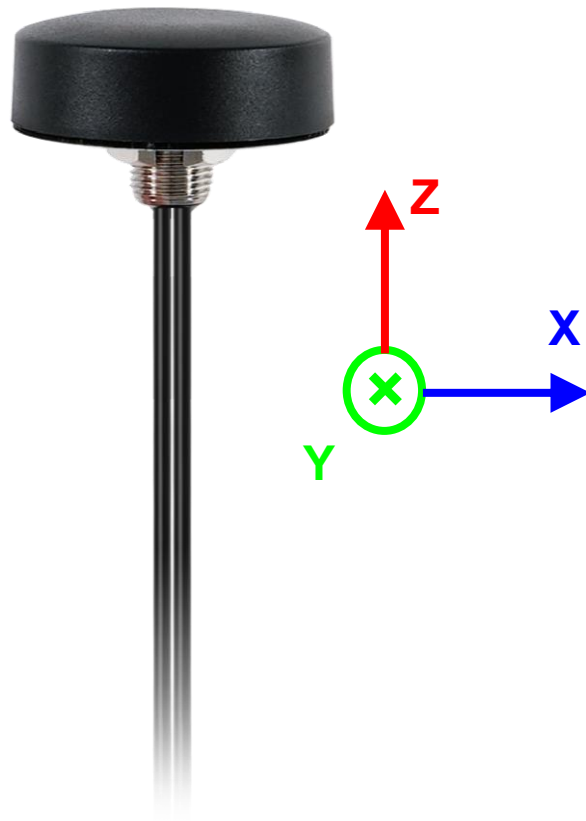
**Peak Gain (dBi)**

Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	4.7	4.3	3.7	2.0	2.3	2.0
	MP	3.2	4.4	3.6	4.7	4.5	5.3
Wi-Fi 2	FS	5.1	5.4	5.3	2.2	3.7	3.2
	MP	3.9	4.3	4.9	5.2	4.4	4.6

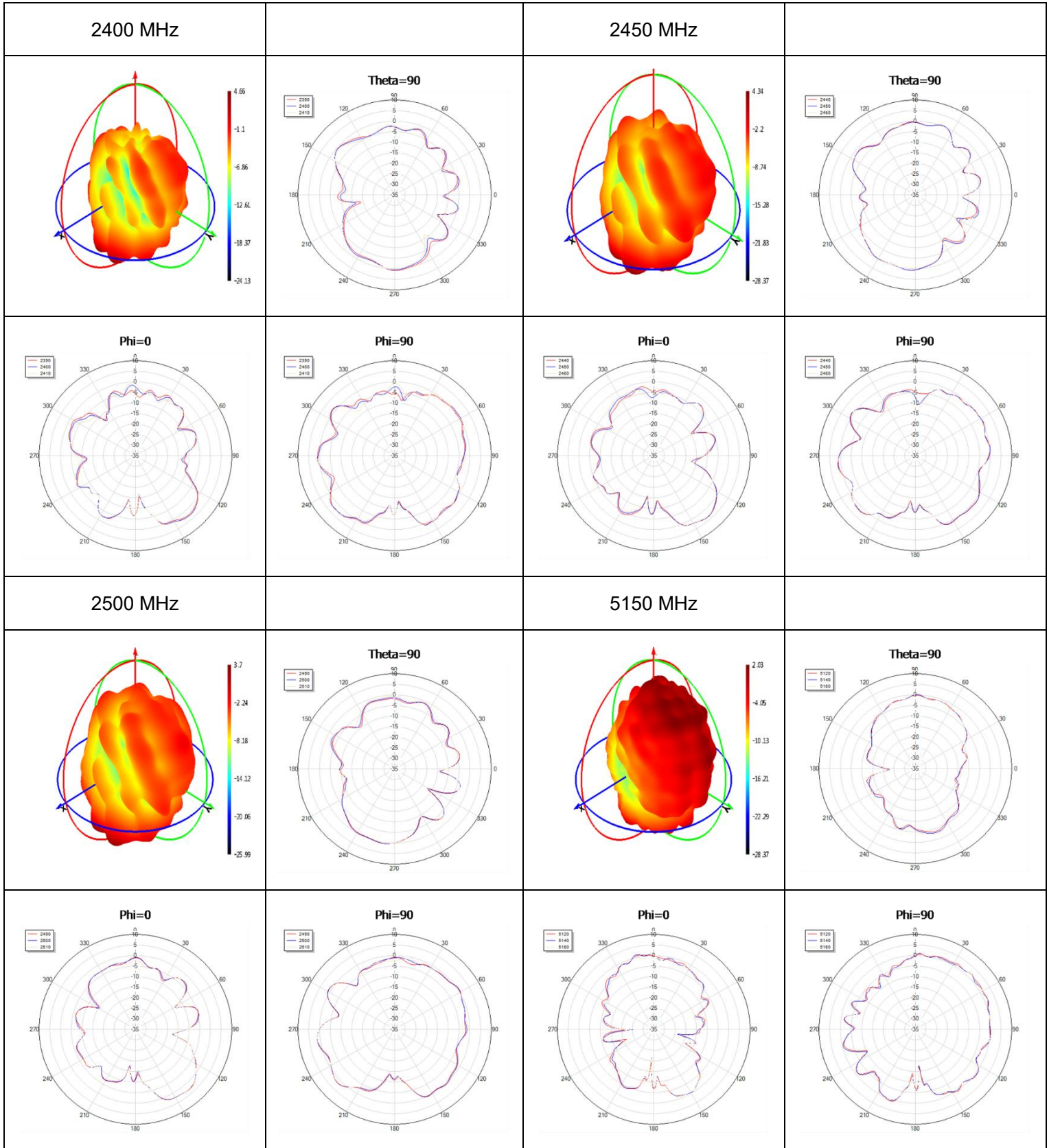
**3.2.4. 3D & 2D Radiation Pattern**

**3.2.4.1. Test Status: In Free Space**

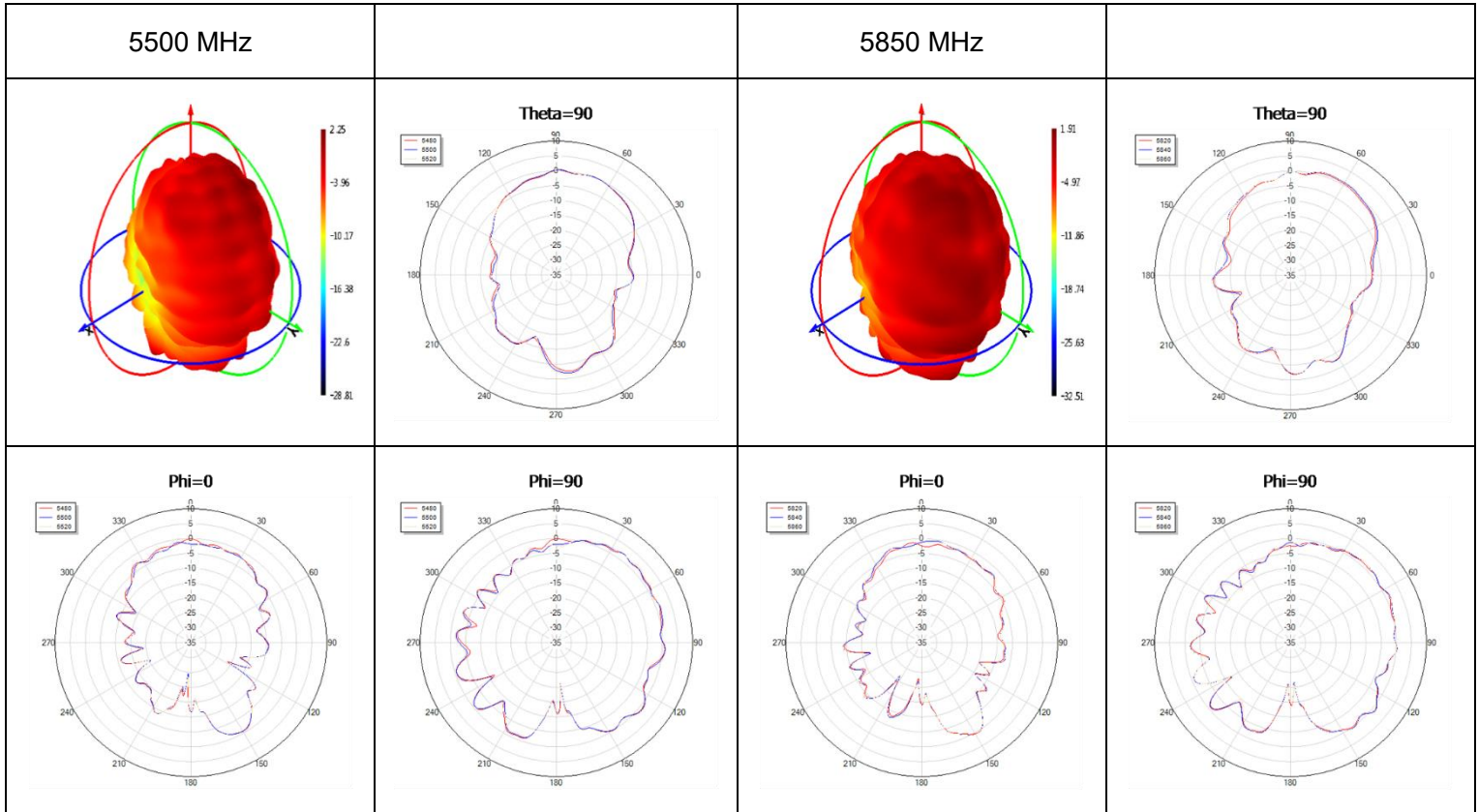
- Test Chamber: HF-S-1



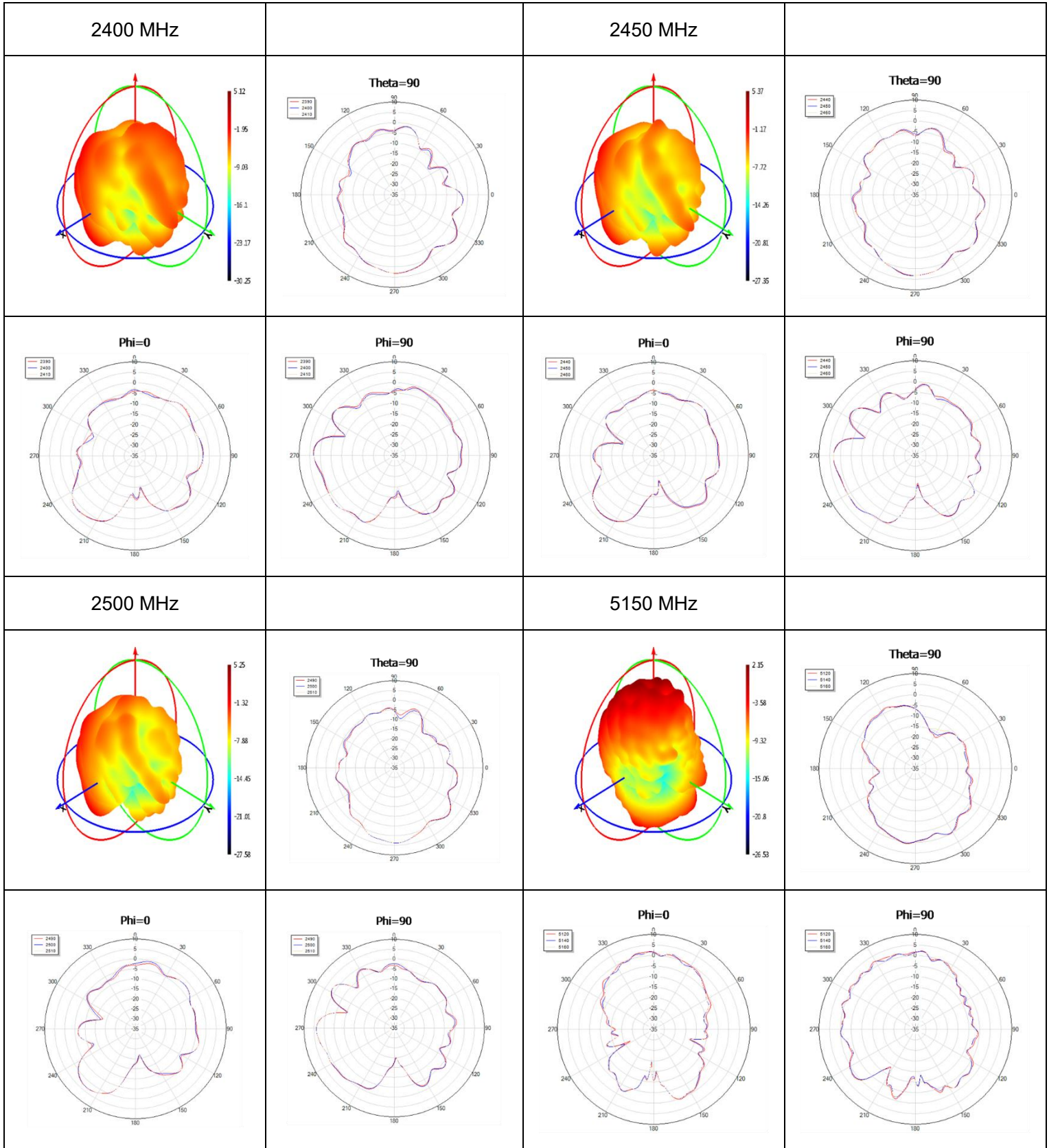
**● Wi-Fi 1 – FS**



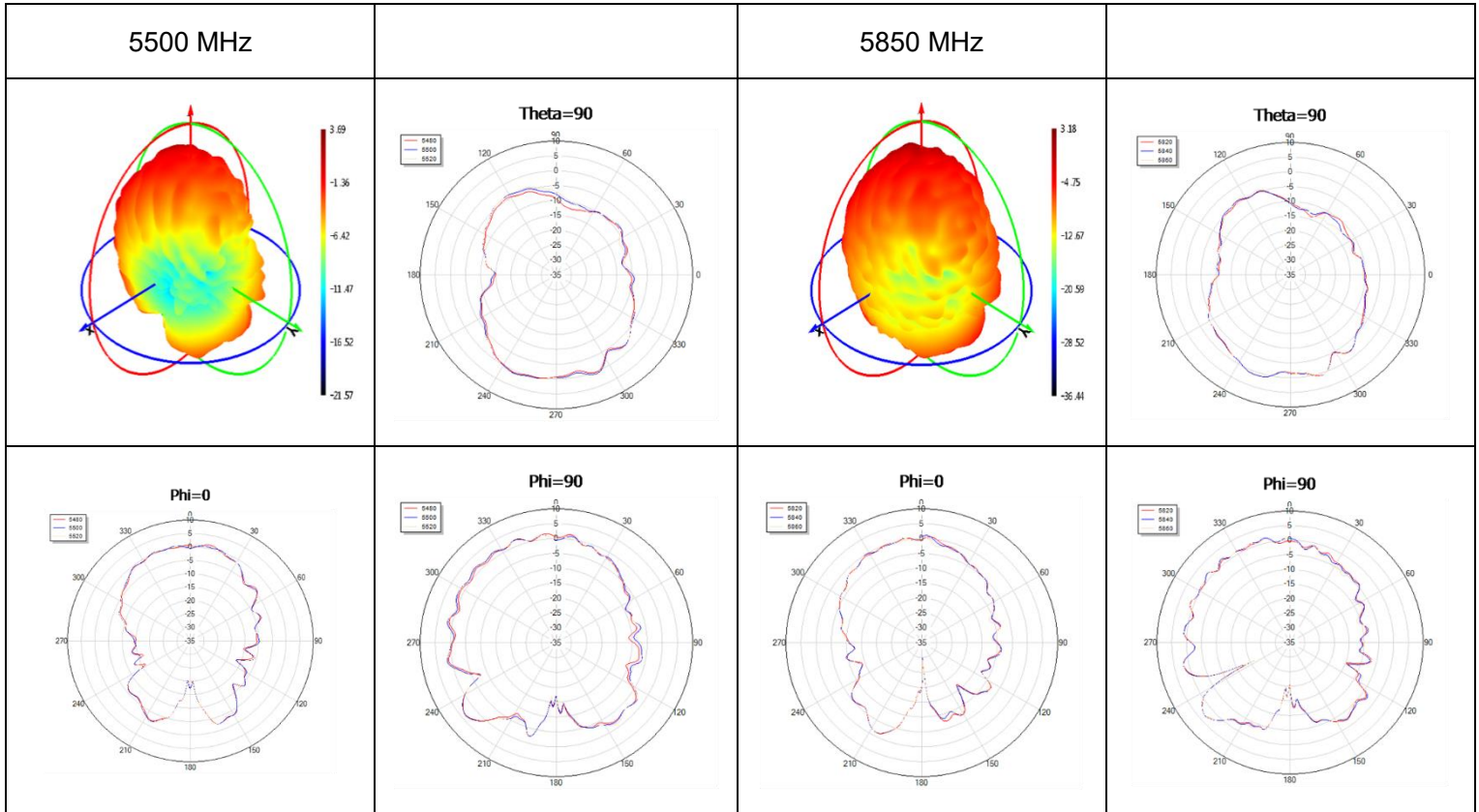
● **Wi-Fi 1 – FS**



● **WI-FI 2 - FS**

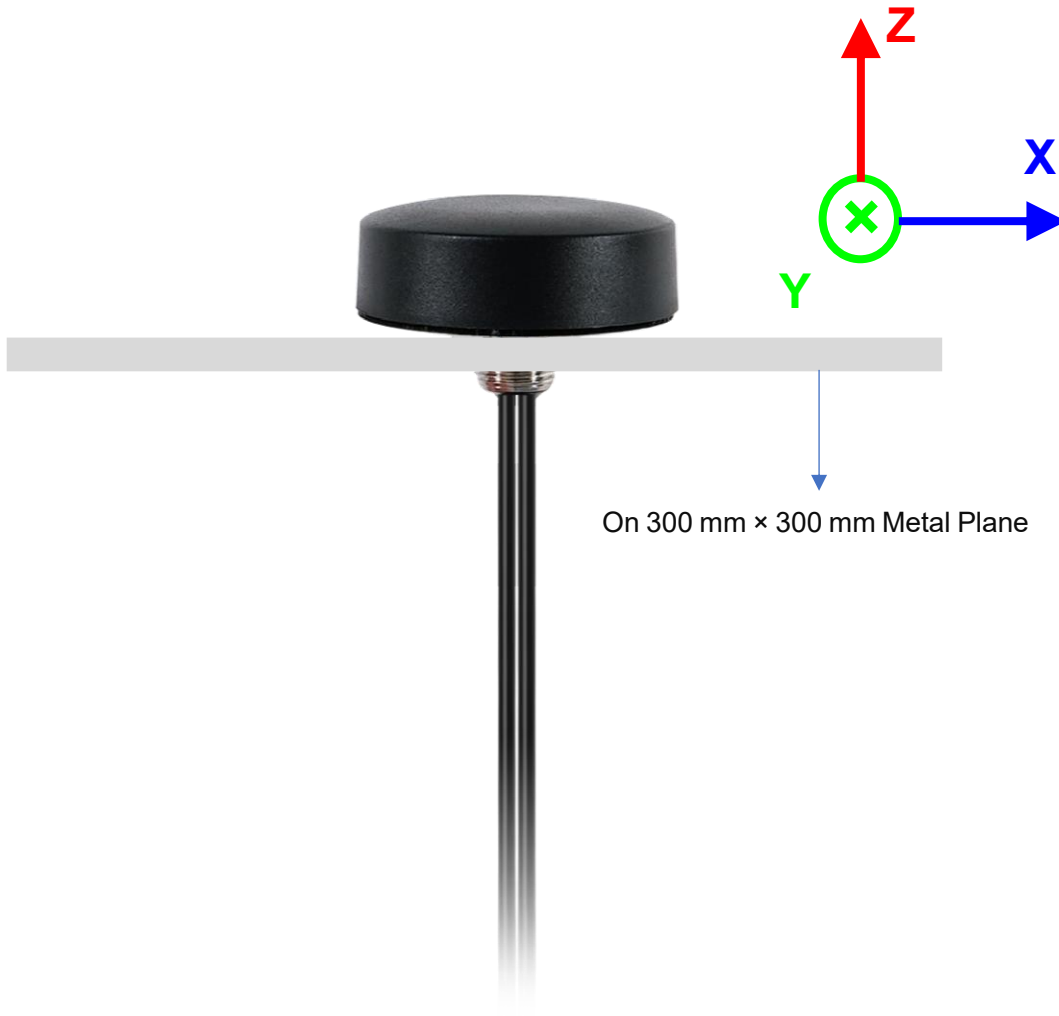


● **Wi-Fi 2 – FS**

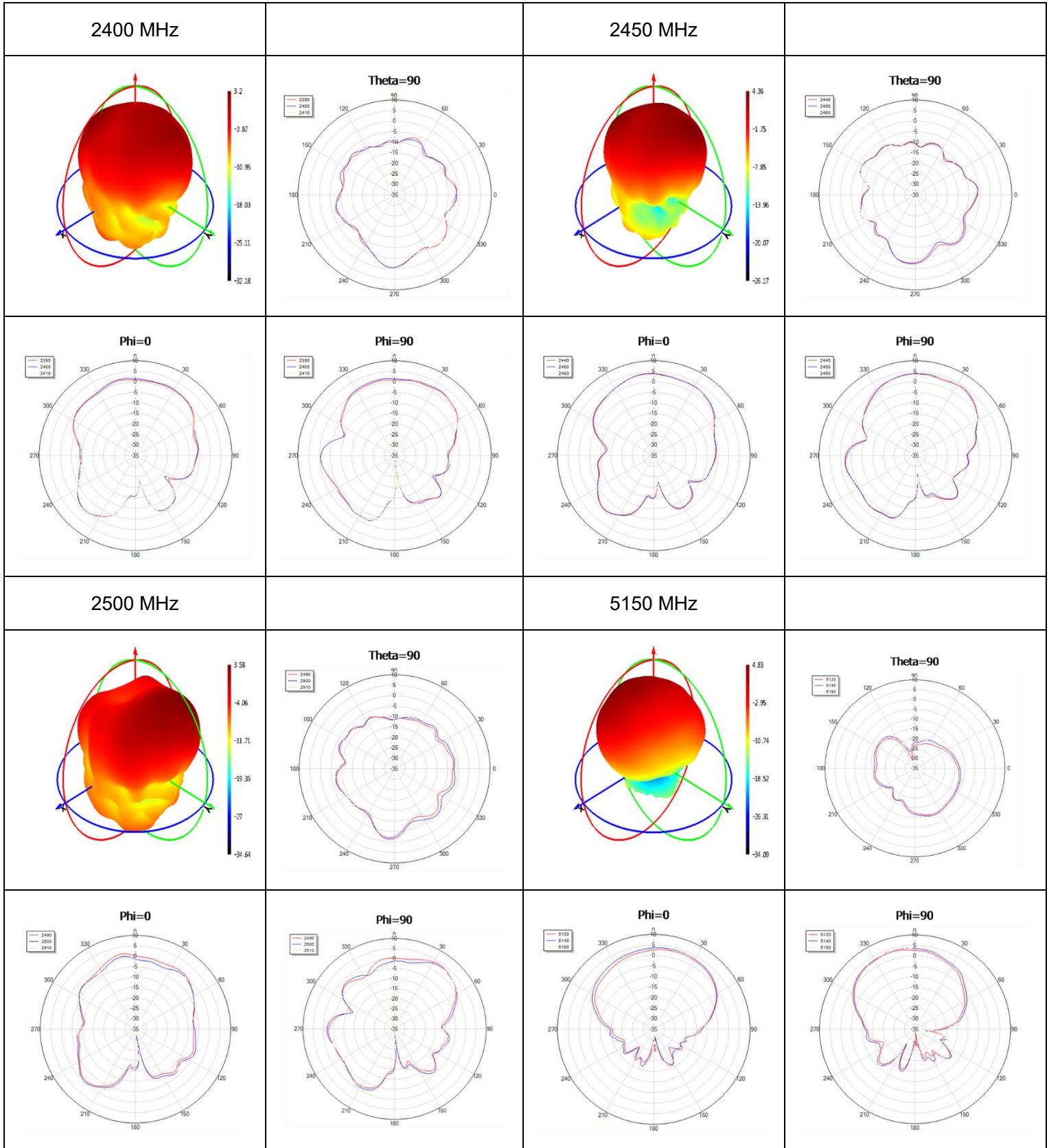


**3.2.4.2 Test Status: On 300 mm × 300 mm Metal Plane**

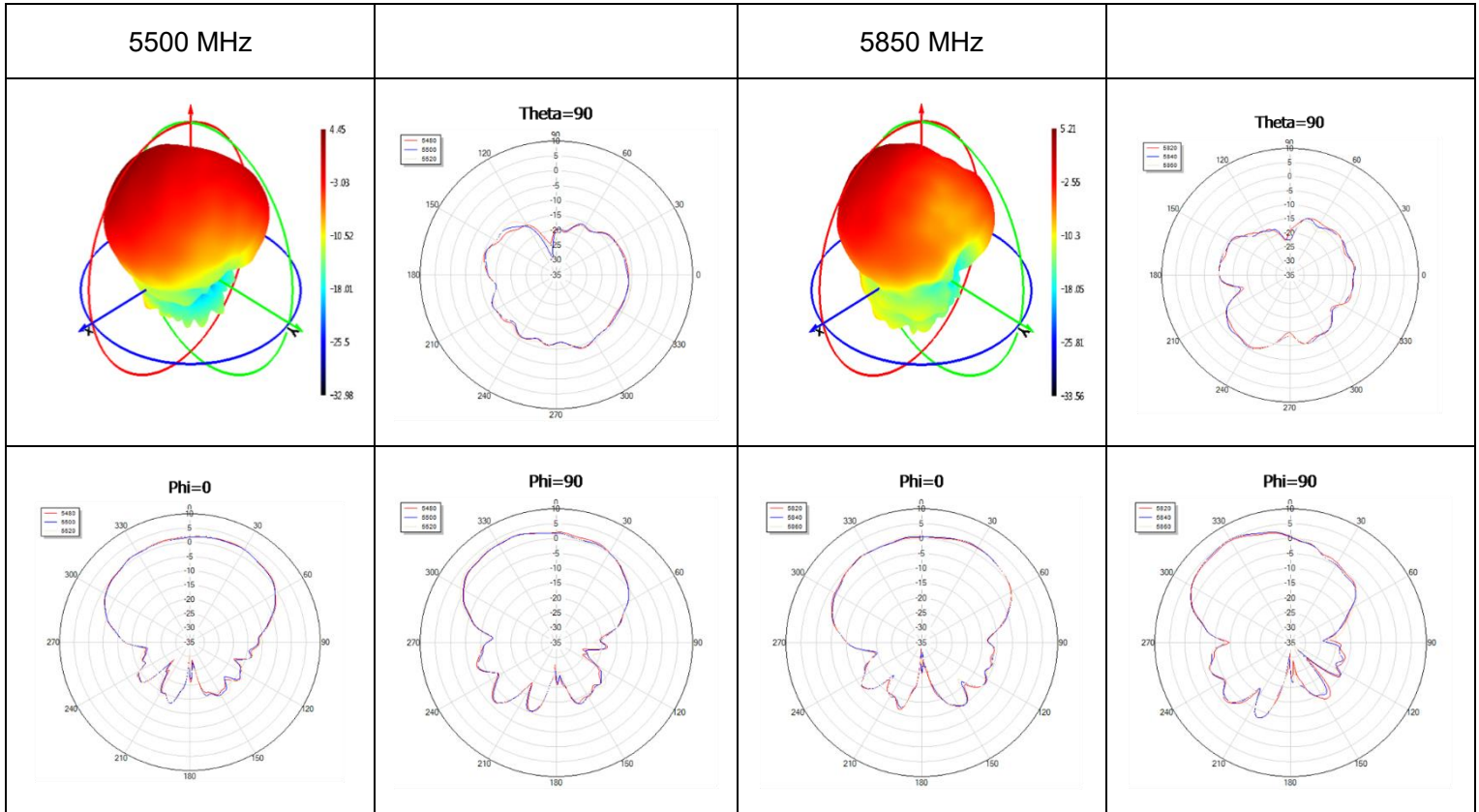
- Test Chamber: HF-S-1



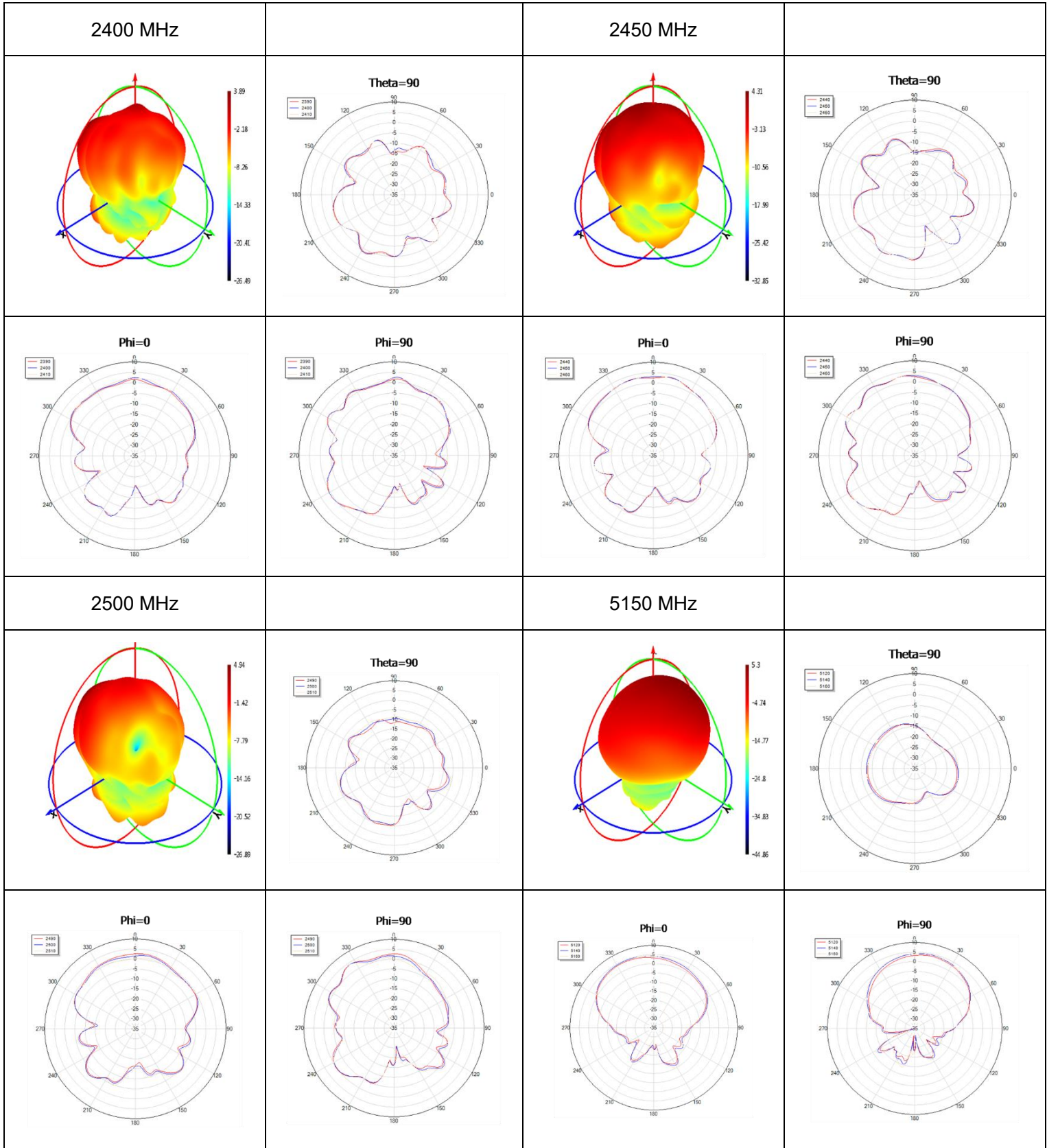
**● Wi-Fi 1 – MP**



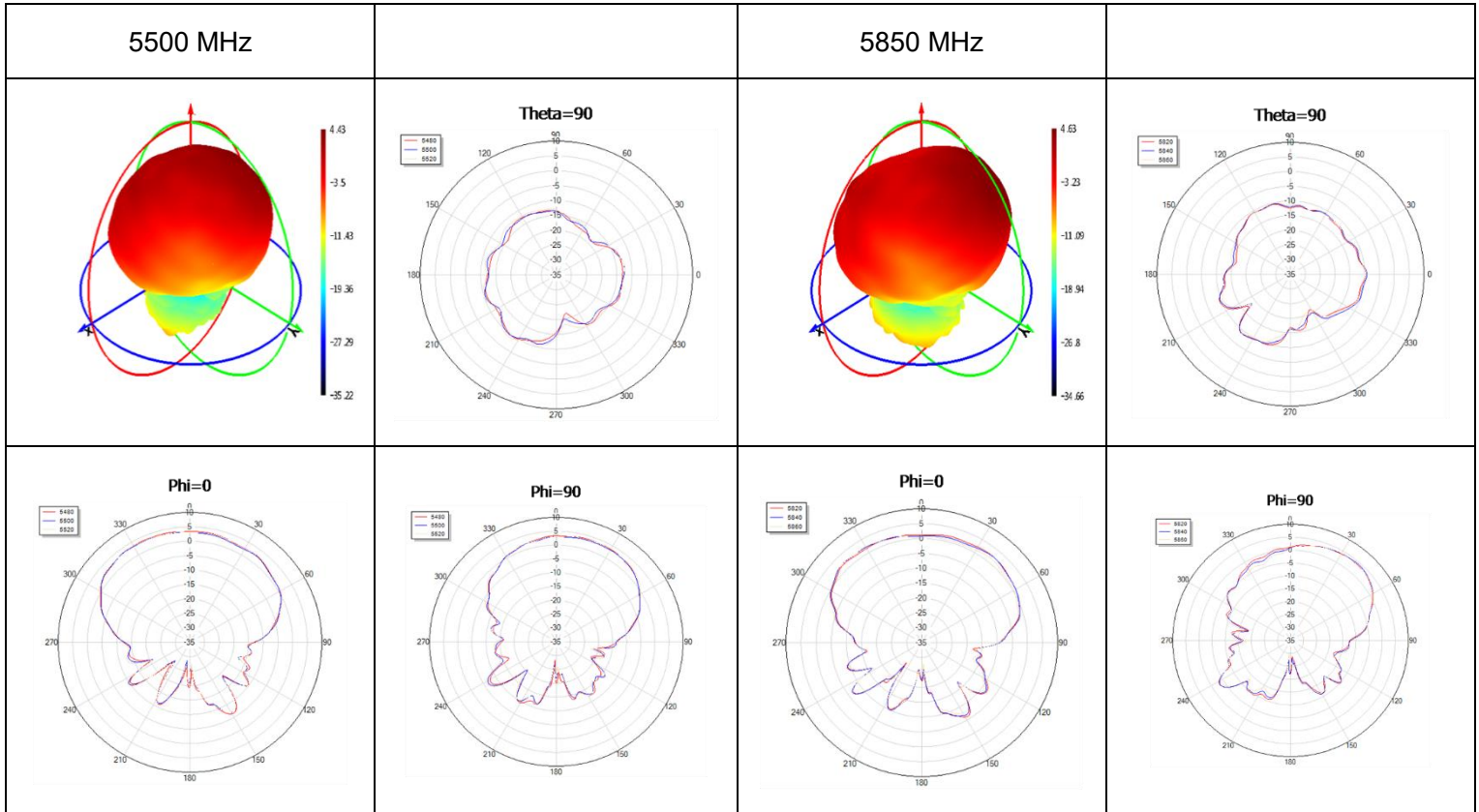
● **Wi-Fi 1 – MP**



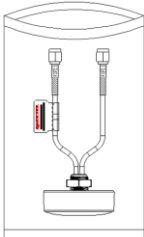
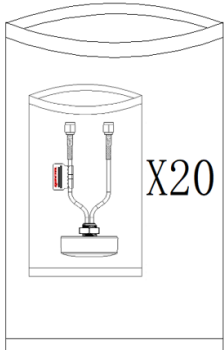
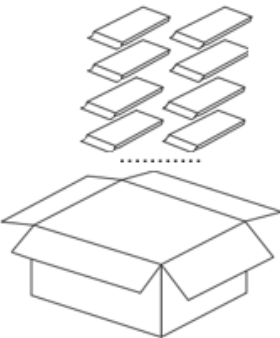
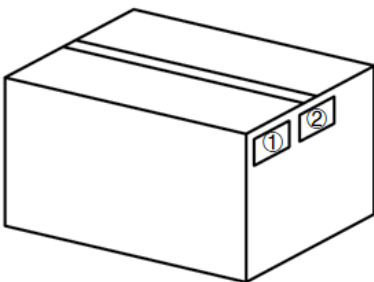
**● WI-FI 2 – MP**

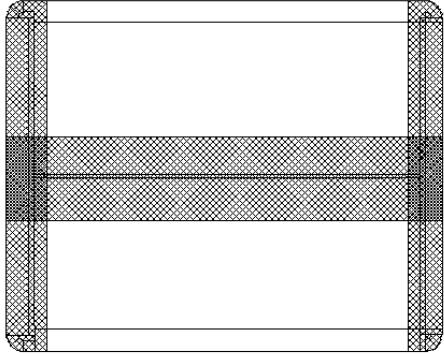


**● Wi-Fi 2 – MP**



# 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		<p>1 antenna product in a small PE bag. (1 Antenna / Small PE Bag)</p>
2		<p>20 antenna products in a big PE bag. (20 Antennas / Big PE Bag)</p>
3		<p>(14 Big PE Bags / Carton Box) (280 Antennas / Carton Box) Estimated quantity Products that cannot fill the entire carton box are packed in a suitable size carton box. <u>Carton Size:</u> <u>L × W × H = 470 × 430 × 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	 A technical drawing of an H-shaped sealing carton. It consists of a central rectangular frame with two horizontal bars crossing it, forming an 'H' shape. The entire structure is filled with a cross-hatched pattern, indicating it is a solid or reinforced material. The corners of the vertical bars are rounded.	<p><b>Sealing Cartons</b> H-shaped sealing cartons</p>
Note	<p>The initial packaging method described above is for reference only, and the final actual packaging method shall be subject to the actual shipping packaging.</p>	

# 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
-	2025-08-15	Nero Zhang/ Lance Sun/ Riva Ren/ Rainey Liao	Creation of the document
1.0	2025-08-15	Nero Zhang/ Lance Sun/ Riva Ren/ Rainey Liao	First official release

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