



Antenna Datasheet

Product OC: YEWN004AA

Version: 2.1

Date: 2023-12-05

Status: Released

Product Name: Wi-Fi + Wi-Fi 2IN1 Combo Antenna

Key Features: Wi-Fi + Wi-Fi

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

Wi-Fi 2: 2400–2500 MHz; 5150–5850 MHz

Dimensions: Φ 46 mm $\times$ 15 mm

Efficiency: Up to 65 %

RoHS Compliant

IP66

Overview

To meet customers' requirements for the high performance, high integration, and integrated appearance of their products, Quectel provides a combined internal antenna series. The internal antenna series 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 internal antenna series can be mounted inside the devices, supports multiple connector types and cable lengths. It is a more flexible and reliable high-performance antenna solution for the applications need internal antennas.

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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	≤ -9.7 dB

1.1.1. Wi-Fis

SPEC	Band	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	-	-	-	-	-	-	-	1.7	-	-	-	2.7
	MP	-	-	-	-	-	-	-	2.0	-	-	-	2.2
Max Return Loss (dB)	FS	-	-	-	-	-	-	-	-11.6	-	-	-	-6.9
	MP	-	-	-	-	-	-	-	-9.3	-	-	-	-8.4
AVG Eff. (%)	FS	-	-	-	-	-	-	-	60.8	-	-	-	54.5
	MP	-	-	-	-	-	-	-	51.9	-	-	-	53.7
AVG AVG Gain (dB)	FS	-	-	-	-	-	-	-	-2.2	-	-	-	-2.6
	MP	-	-	-	-	-	-	-	-3.3	-	-	-	-2.7

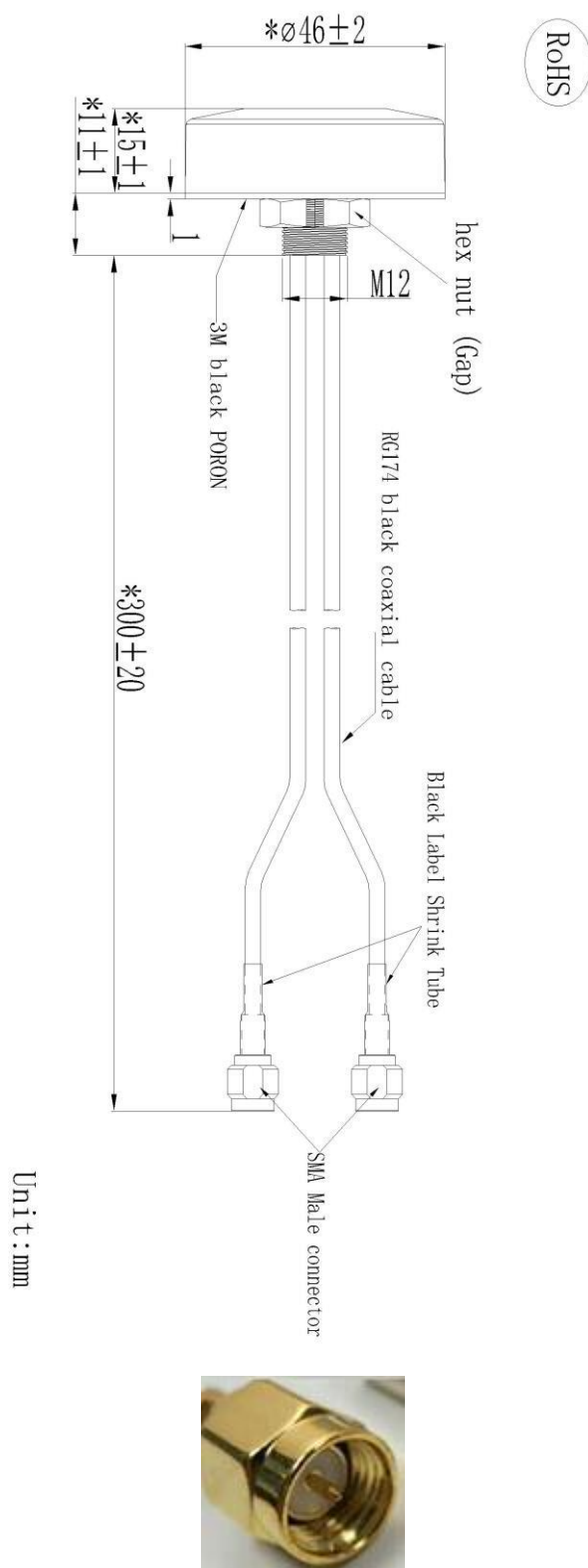
Max Peak Gain (dBi)	FS	-	-	-	-	-	-	4.0	-	-	-	2.9
	MP	-	-	-	-	-	-	4.2	-	-	-	5.1
VSWR	FS	≤ 2.7										
	MP	≤ 2.2										
Return Loss	FS	≤ -6.9 dB										
	MP	≤ -8.4 dB										
Peak Gain	FS	≤ 4.0 dBi										
	MP	≤ 5.1 dBi										

- Wi-Fis: 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 × 15 mm
Casing Material & Color	ABS+PC & Black
Cable Type & Color & Length	RG174 & Black & 300 mm
Connector Type	SMA Male
Mounting Type	Screw
Weight	Typ. 31.3 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP66
RoHS Compliant	Yes

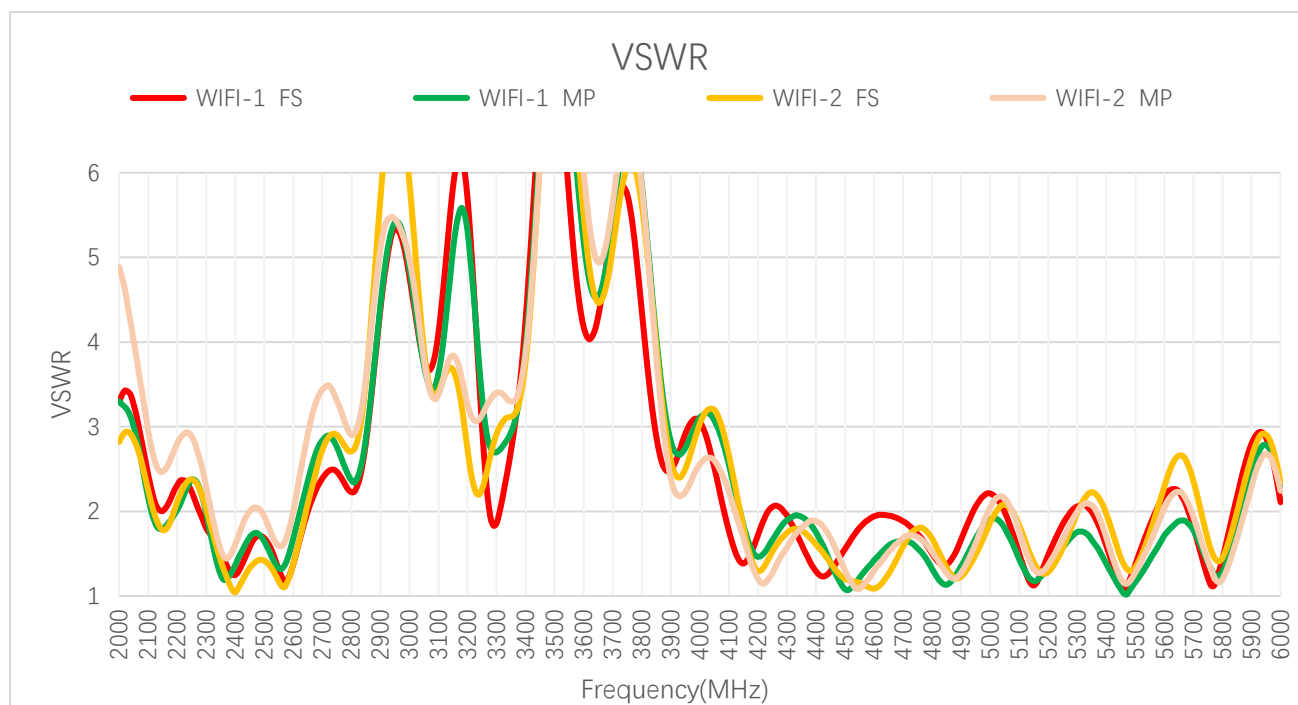
2 Drawing



3 Detail Performance

3.1. S-Parameter Test

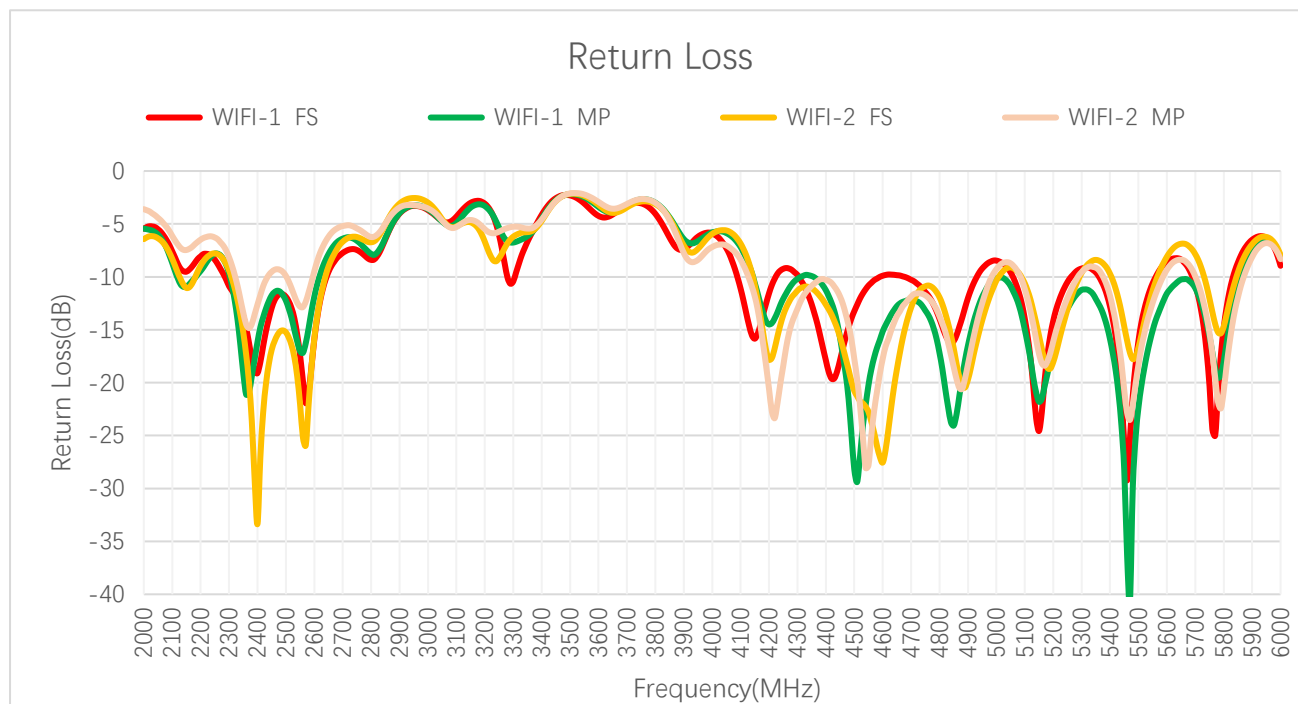
3.1.1. VSWR



VSWR

Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	1.2	1.6	1.7	1.1	1.4	2.2
	MP	1.4	1.7	1.6	1.2	1.2	1.8
Wi-Fi 2	FS	1.0	1.3	1.4	1.4	1.3	2.0
	MP	1.6	2.0	1.9	1.3	1.3	1.7

3.1.2. Return Loss

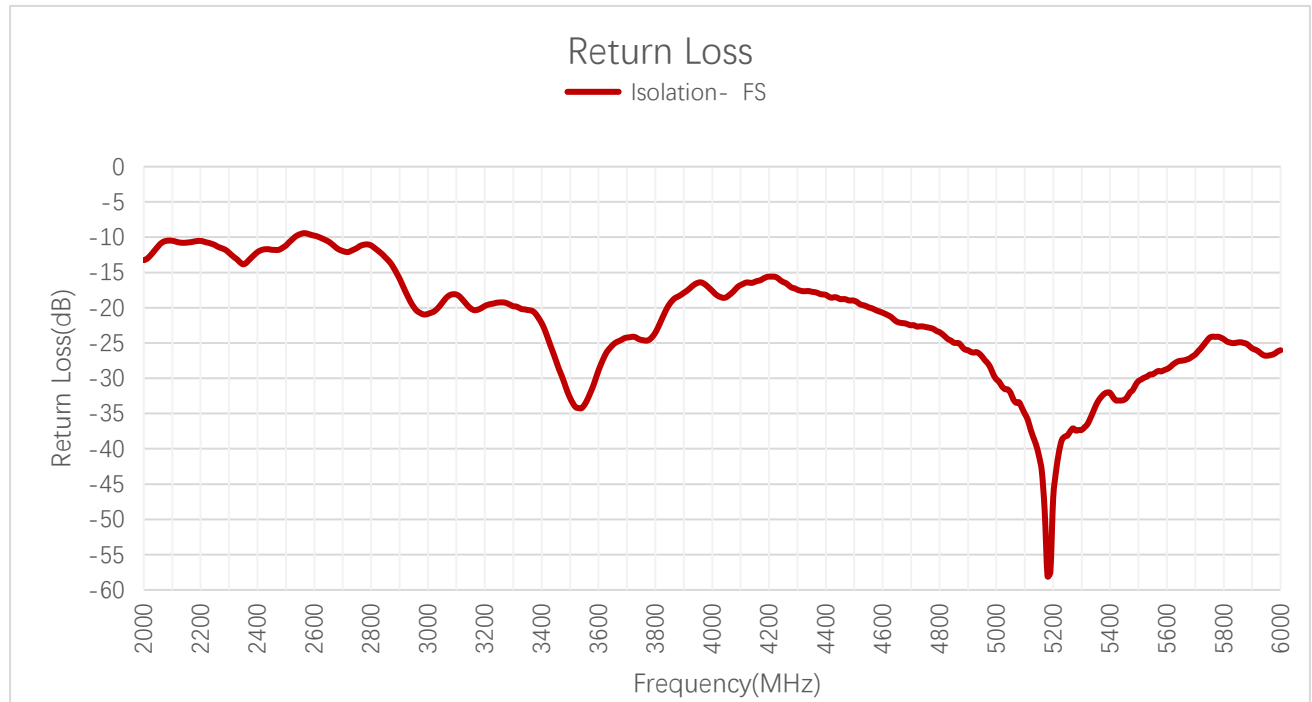


Return Loss (dB)

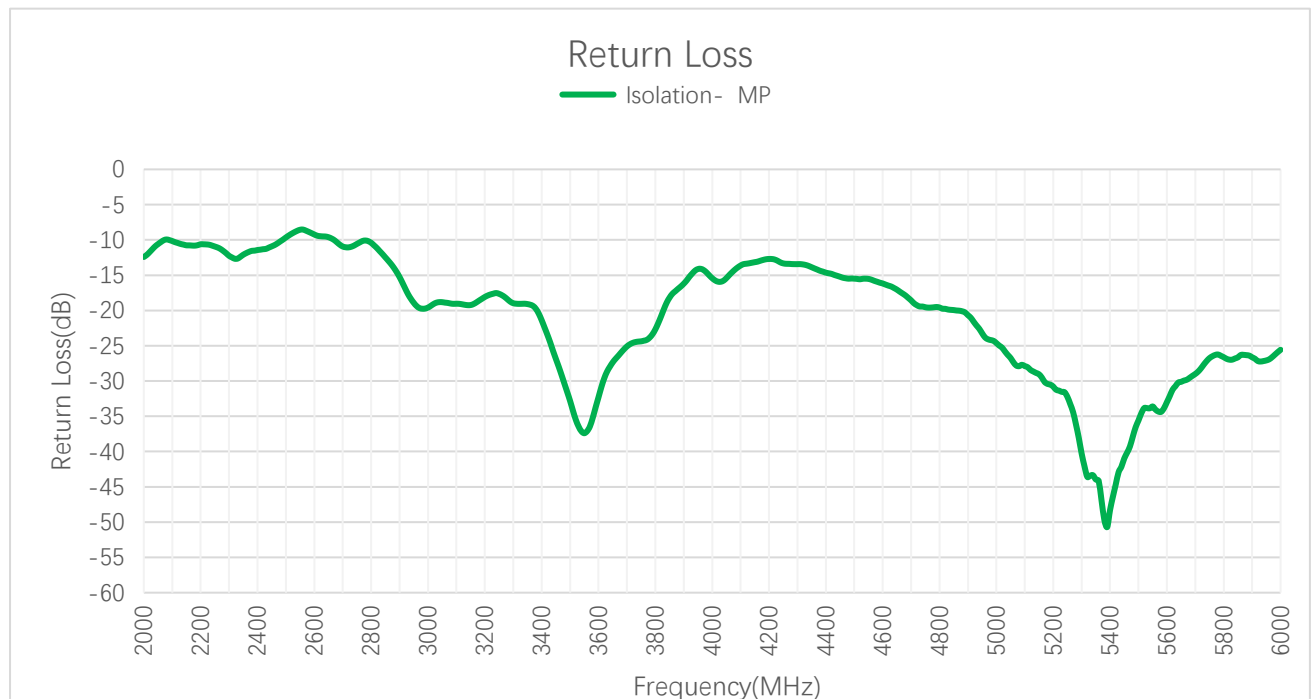
Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	-19.1	-12.9	-11.9	-24.6	-16.1	-8.6
	MP	-16.2	-11.8	-12.2	-21.8	-22.3	-11.0
Wi-Fi 2	FS	-33.4	-16.9	-15.2	-15.6	-16.7	-9.6
	MP	-12.6	-9.5	-9.9	-17.3	-18.3	-11.9

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



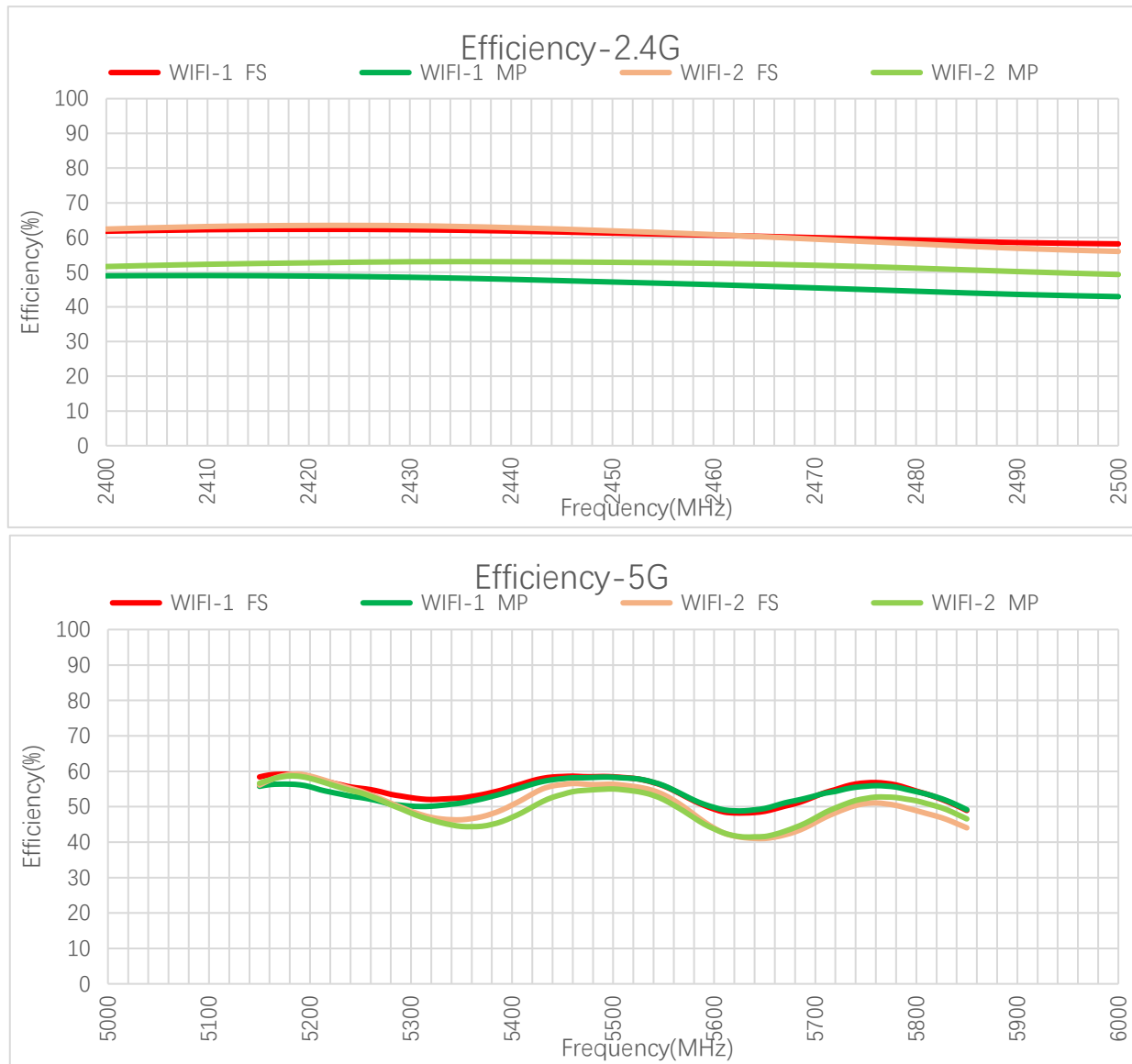
Max Isolation (dB)

	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
Wi-Fi 1	FS	-	-	-	-	-	-	-11.2	-	-	-	-24.1
	MP	-	-	-	-	-	-	-9.7	-	-	-	-26.8
Wi-Fi 2	FS	-	-	-	-	-	-	-11.2	-	-	-	-24.1
	MP	-	-	-	-	-	-	-9.7	-	-	-	-26.8

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

3.2. Radiation Performance Test

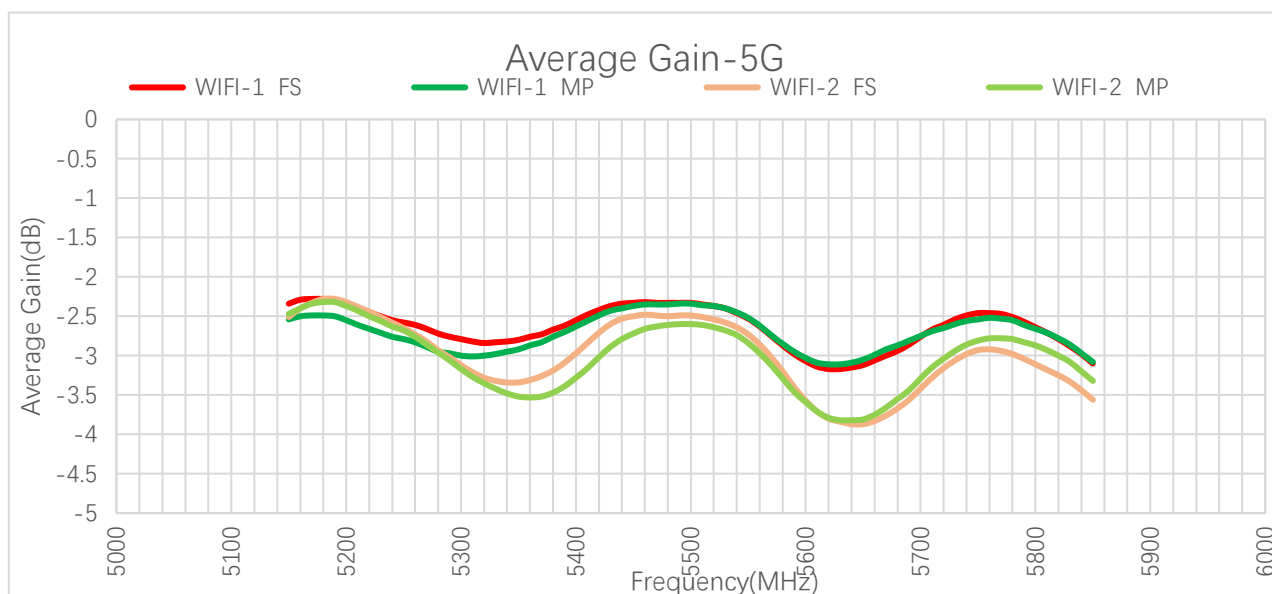
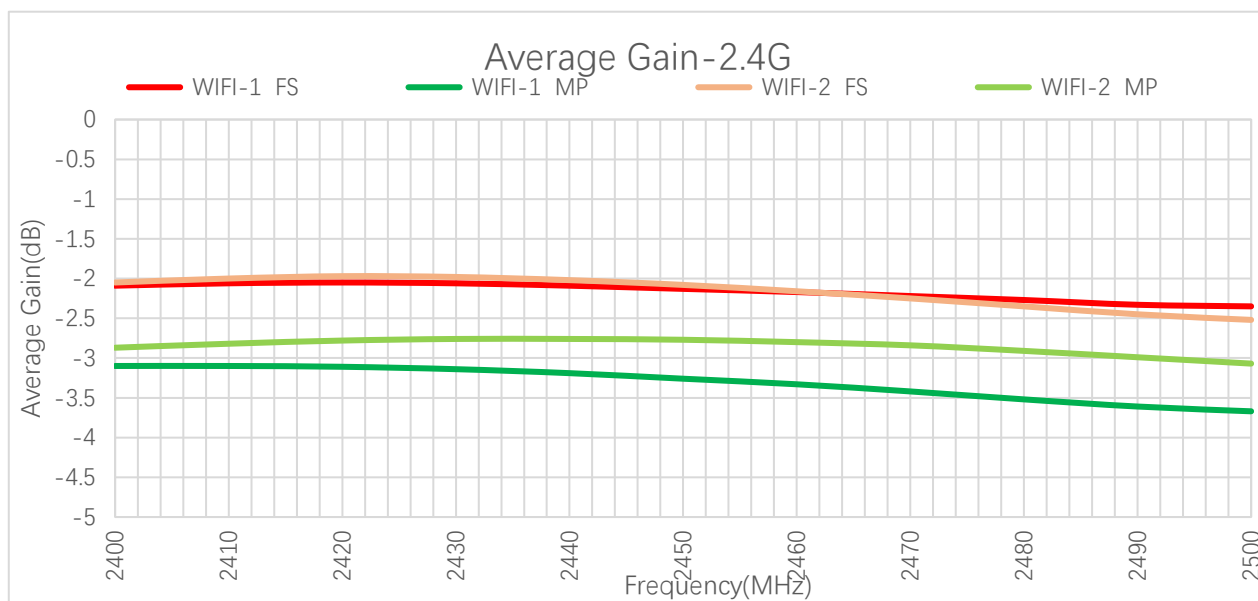
3.2.1. Efficiency



Efficiency (%)

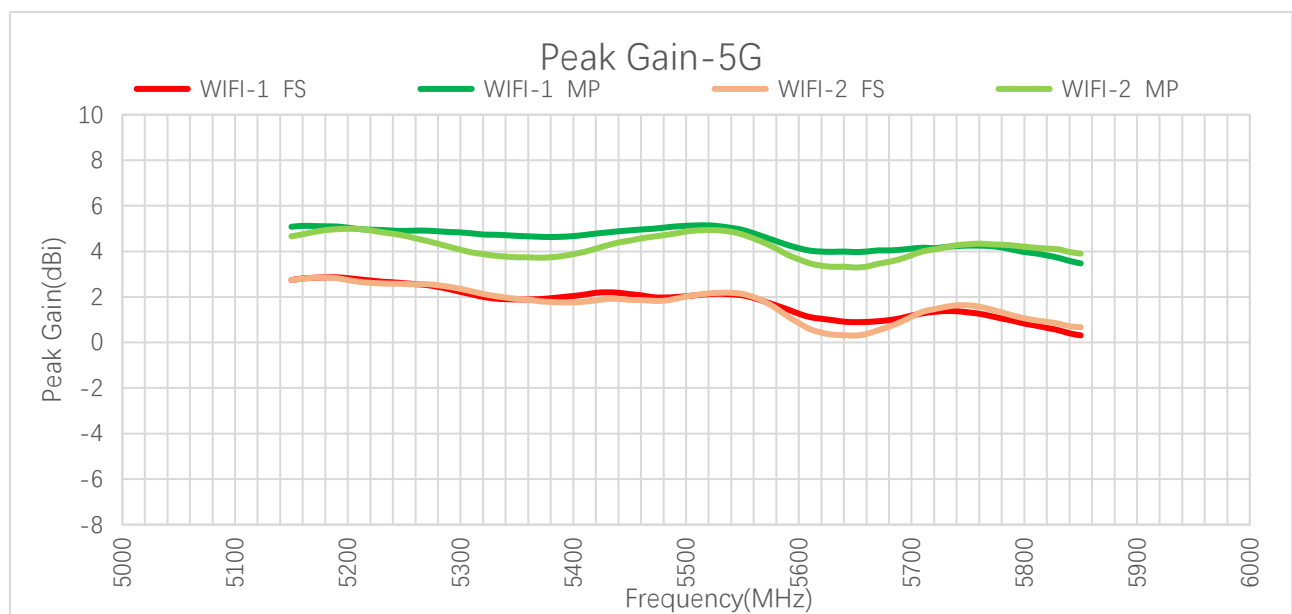
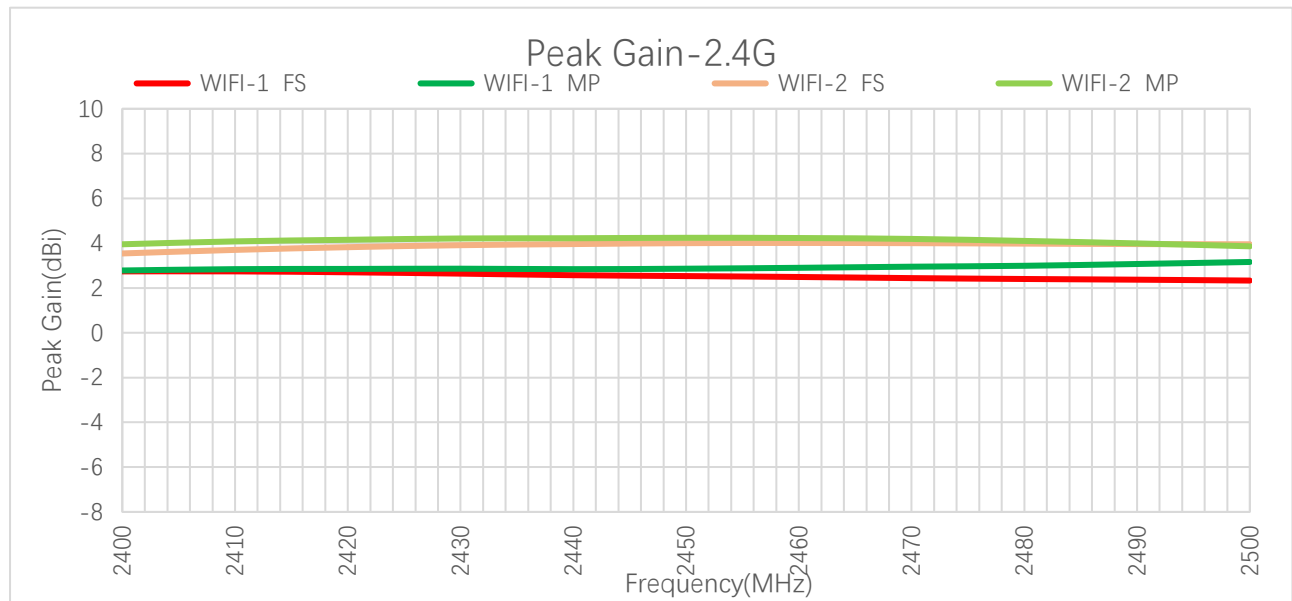
Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	61.8	61.3	58.2	58.4	58.4	48.9
	MP	49.0	47.2	43.0	55.8	58.3	49.2
Wi-Fi 2	FS	62.4	61.9	56.0	56.1	56.3	44.0
	MP	51.6	52.8	49.3	56.6	55.0	46.6

3.2.2. Average Gain



		Average Gain (dB)					
Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	-2.1	-2.1	-2.4	-2.3	-2.3	-3.1
	MP	-3.1	-3.3	-3.7	-2.5	-2.3	-3.1
Wi-Fi 2	FS	-2.1	-2.1	-2.5	-2.5	-2.5	-3.6
	MP	-2.9	-2.8	-3.1	-2.5	-2.6	-3.3

3.2.3. Peak Gain



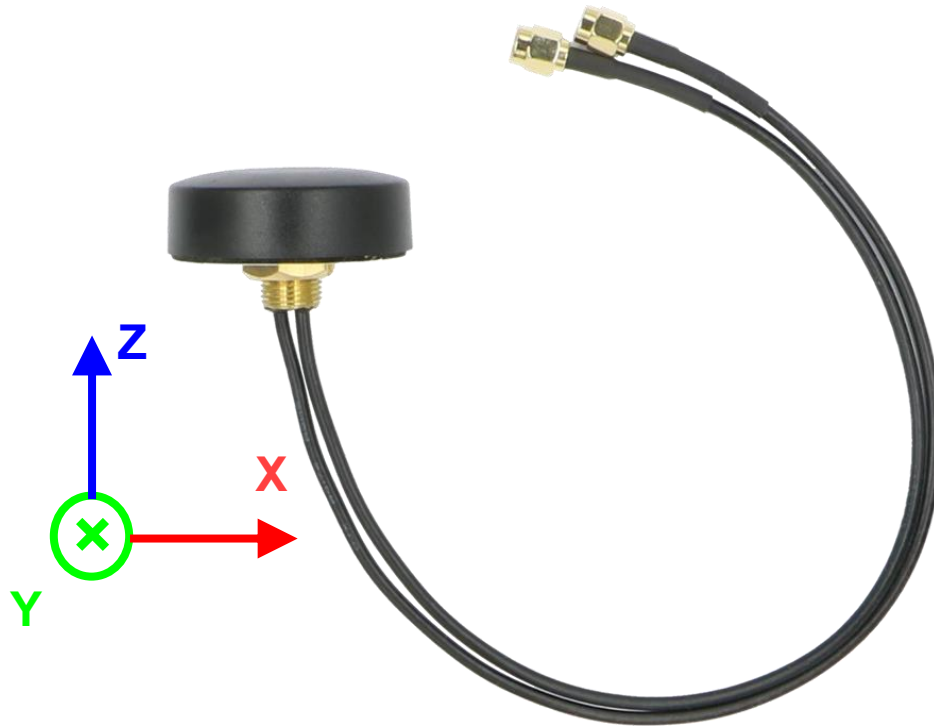
Peak Gain (dBi)

Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	2.7	2.5	2.3	2.7	2.0	0.3
	MP	2.8	2.9	3.2	5.1	5.1	3.5
Wi-Fi 2	FS	3.5	4.0	4.0	2.7	2.0	0.7
	MP	4.0	4.2	3.9	4.7	4.9	3.9

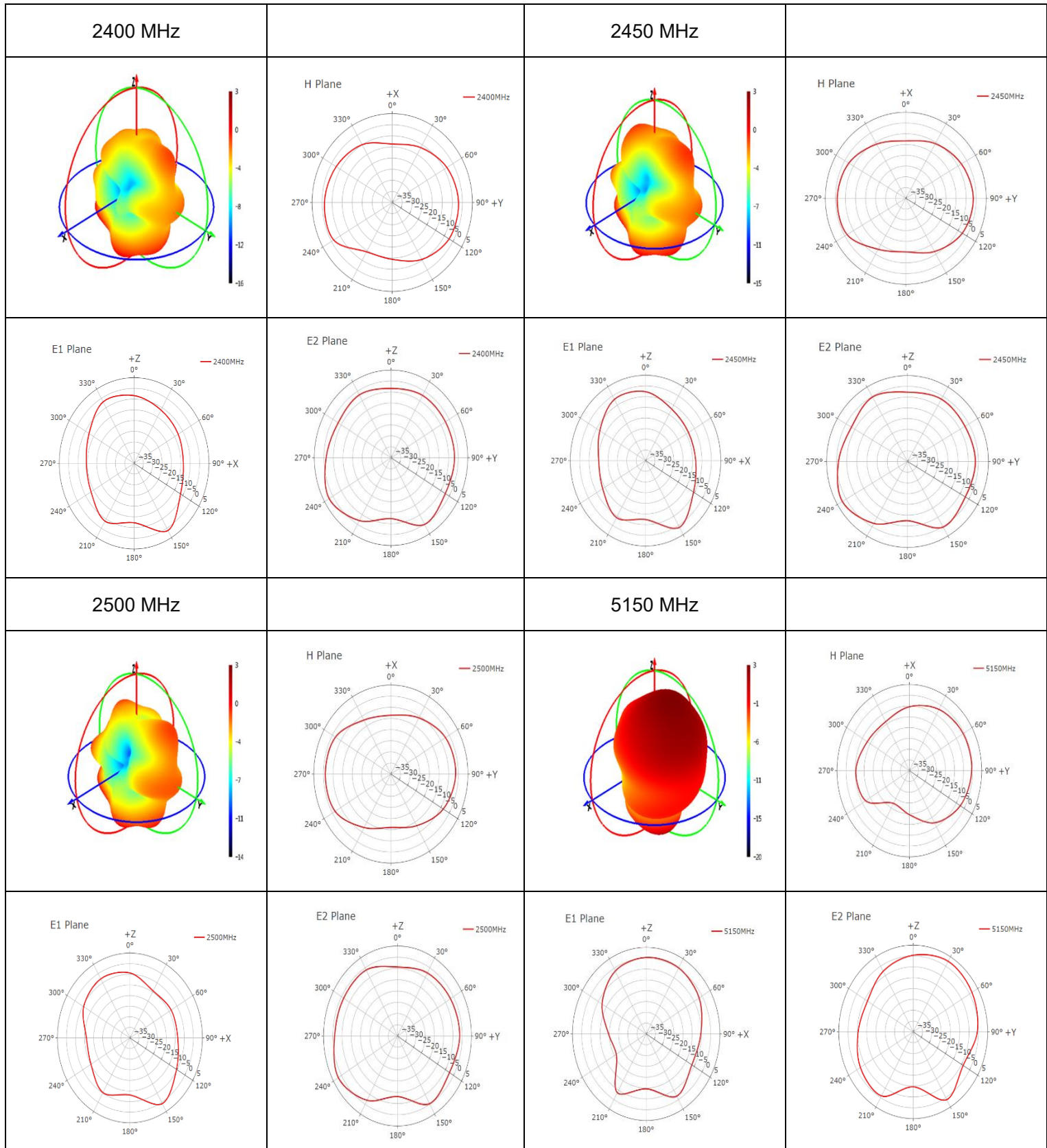
3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Status: In Free Space

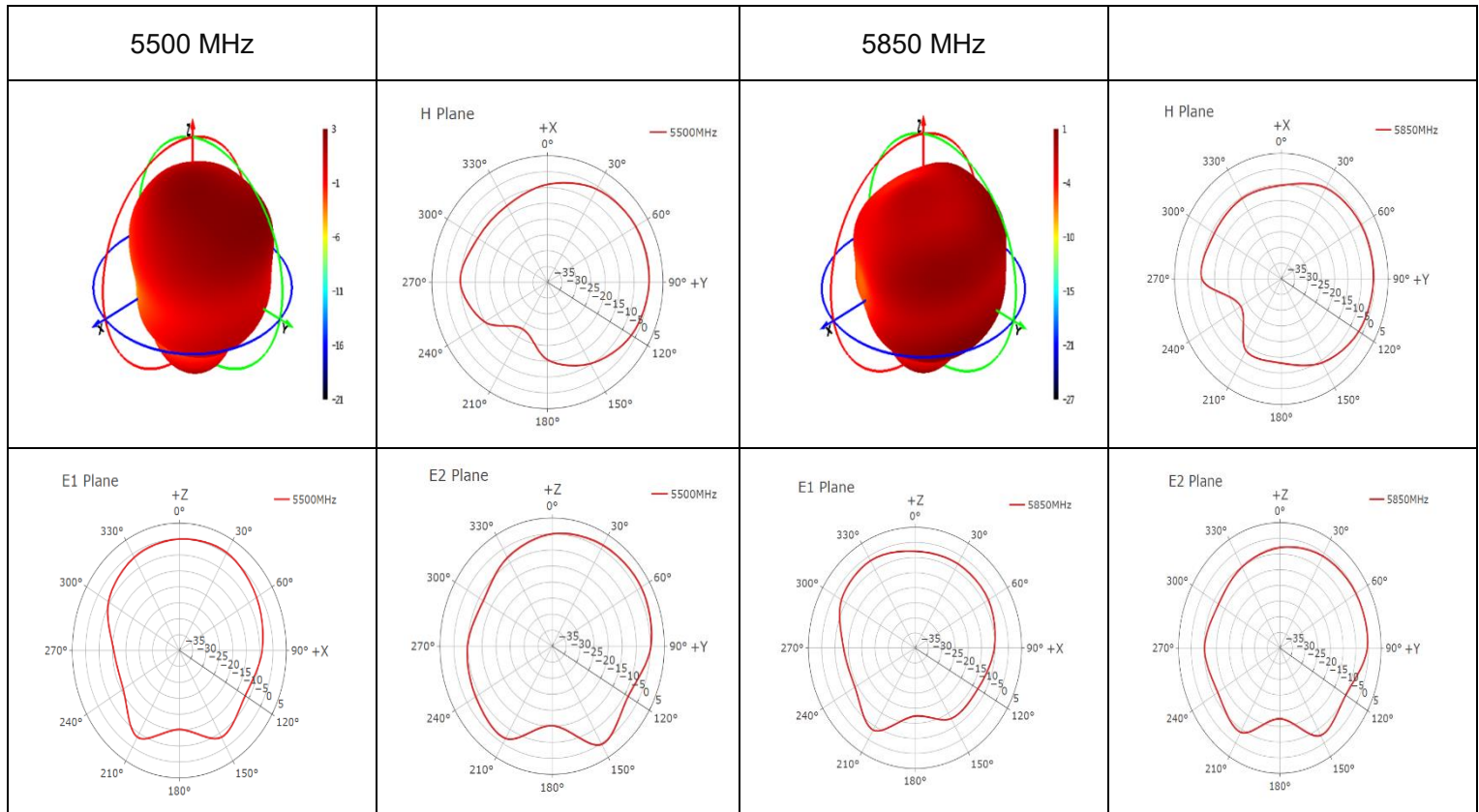
- Test Chamber: GL-S-1



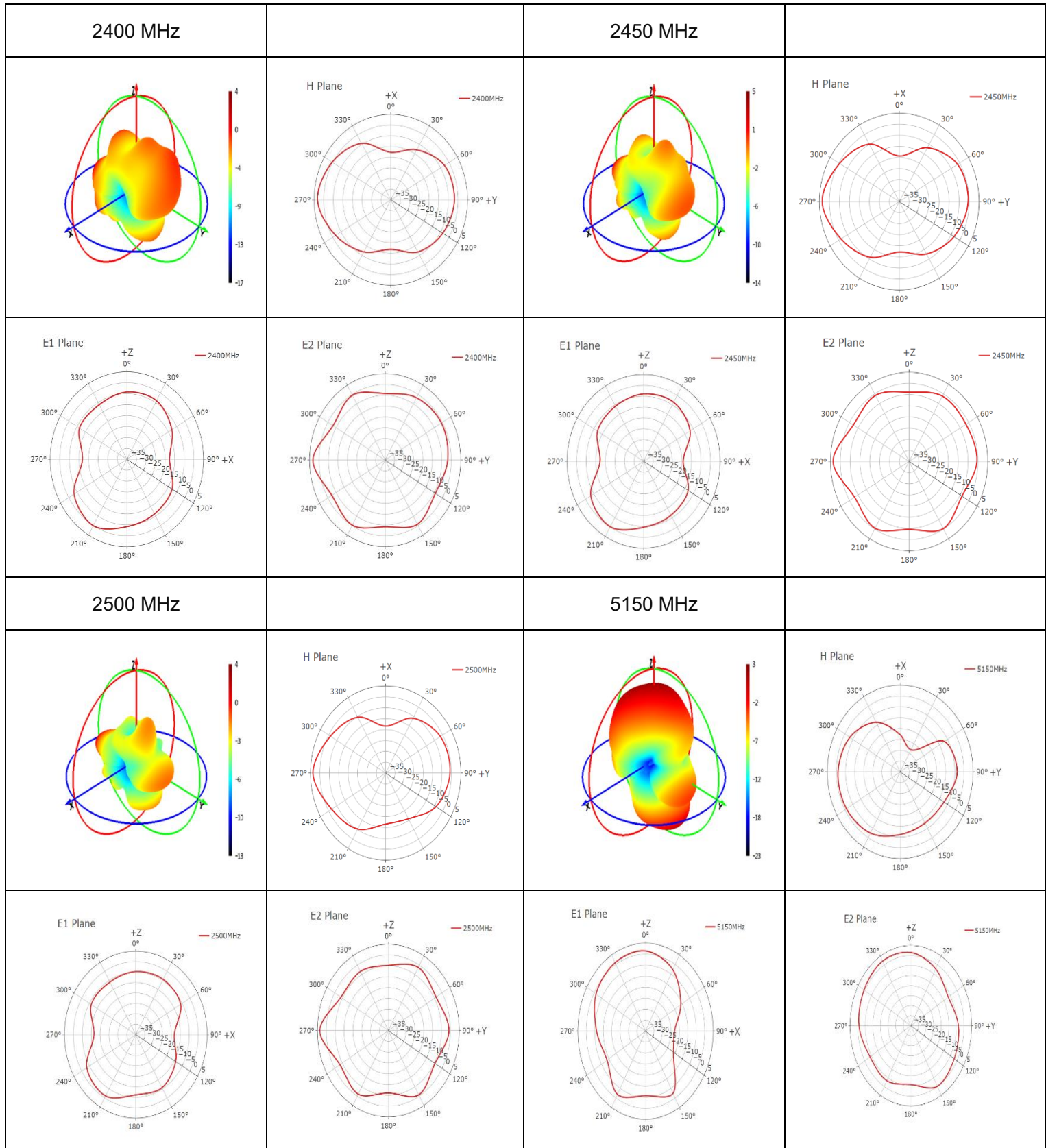
● **WI-FI 1-FS**



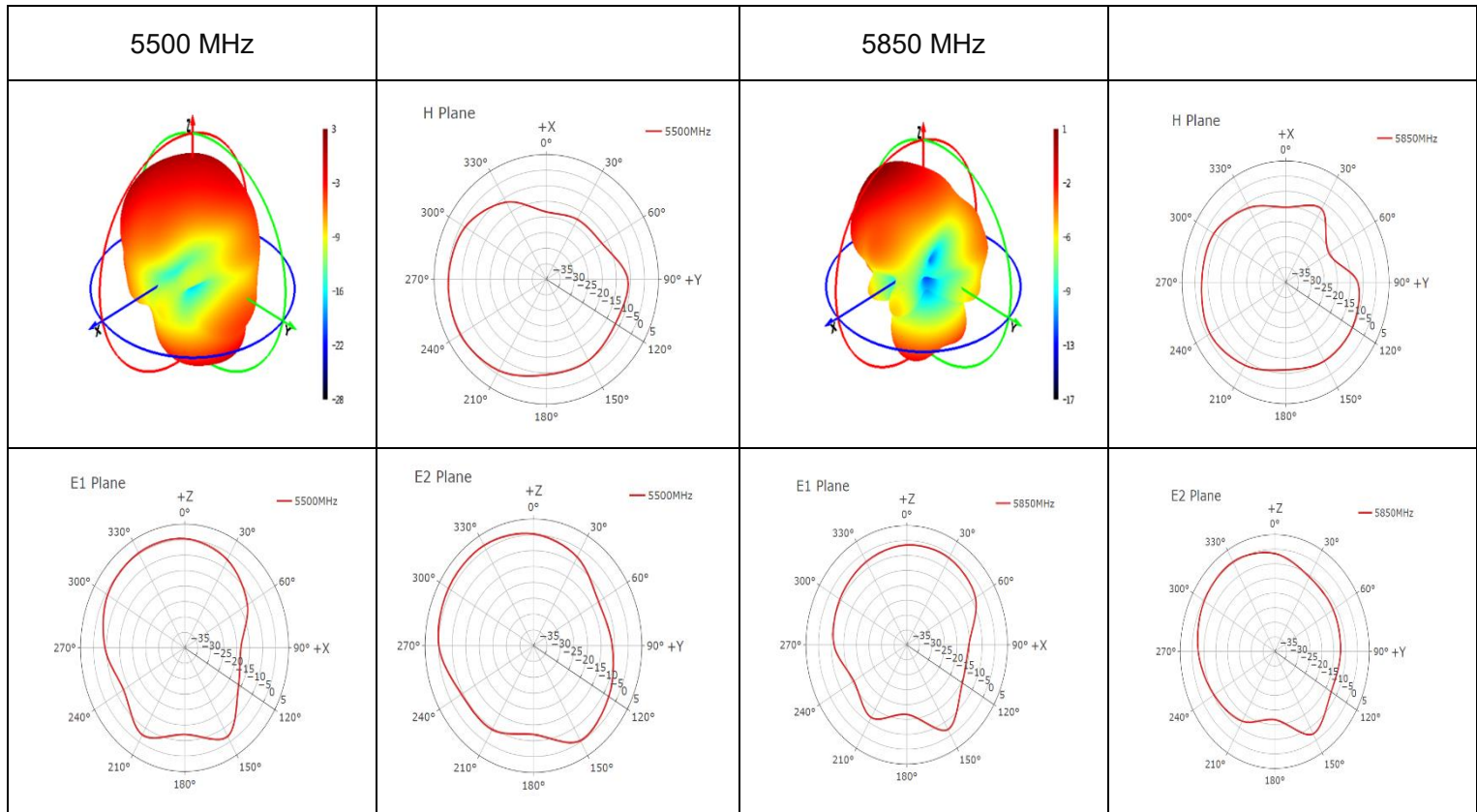
● **Wi-Fi 1-FS**



● **WI-FI 2-FS**

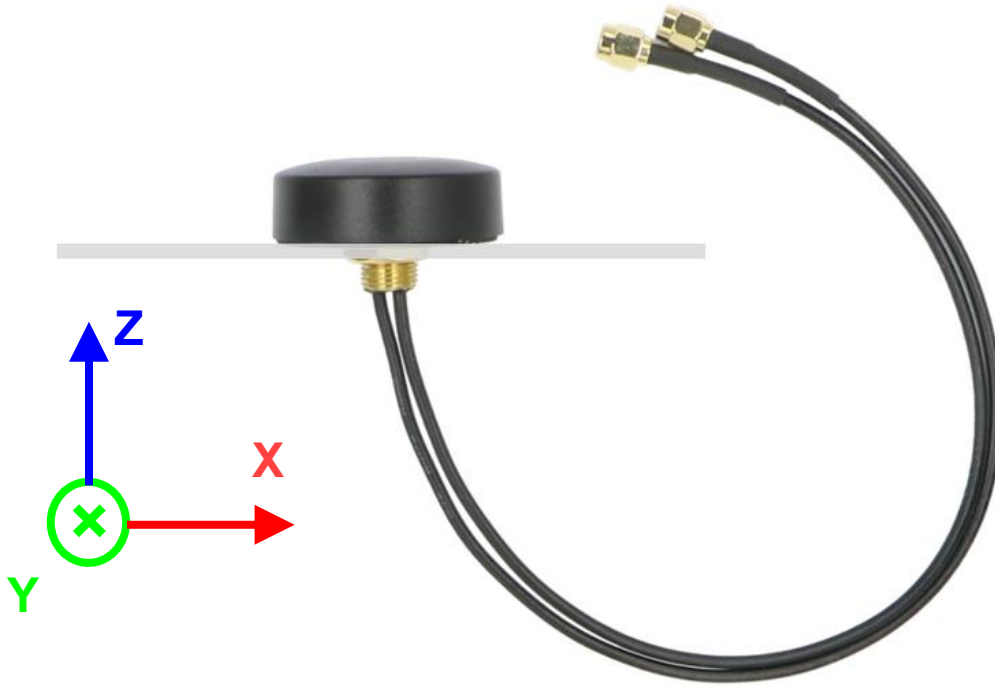


● **WI-FI 2-FS**

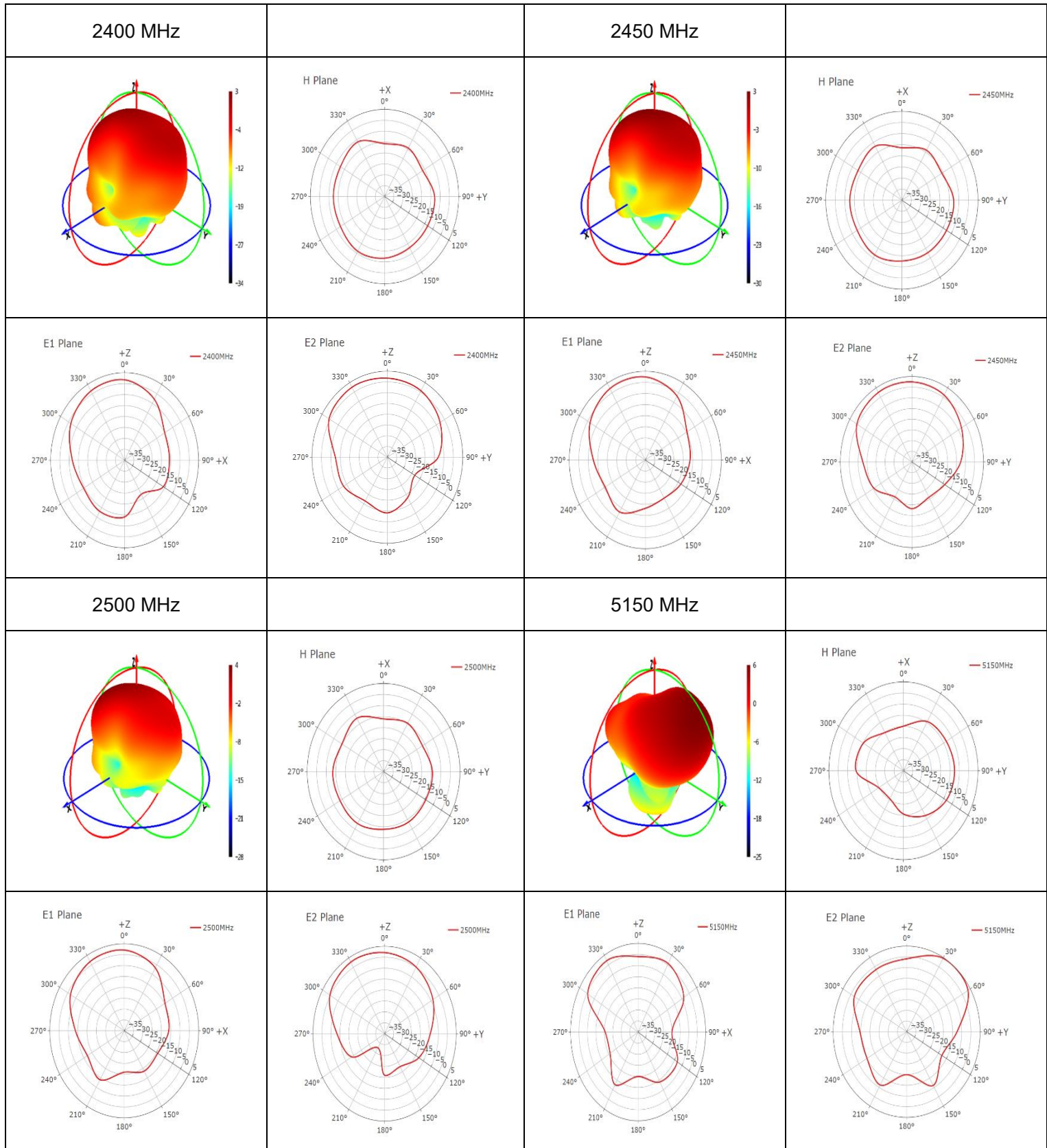


3.2.4.2 Test Status: On 300 mm × 300 mm Metal Plane

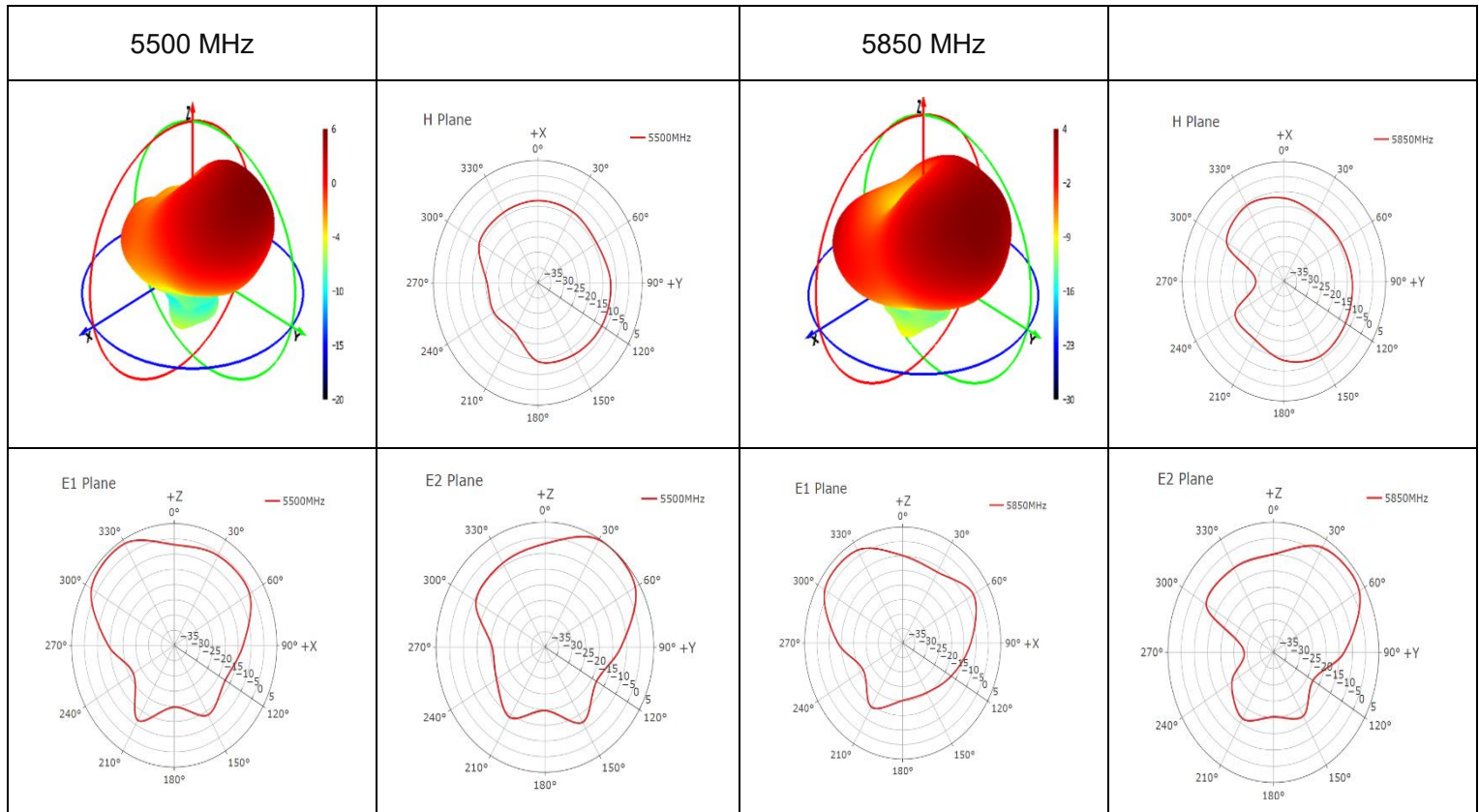
- Test Chamber: GL-S-1



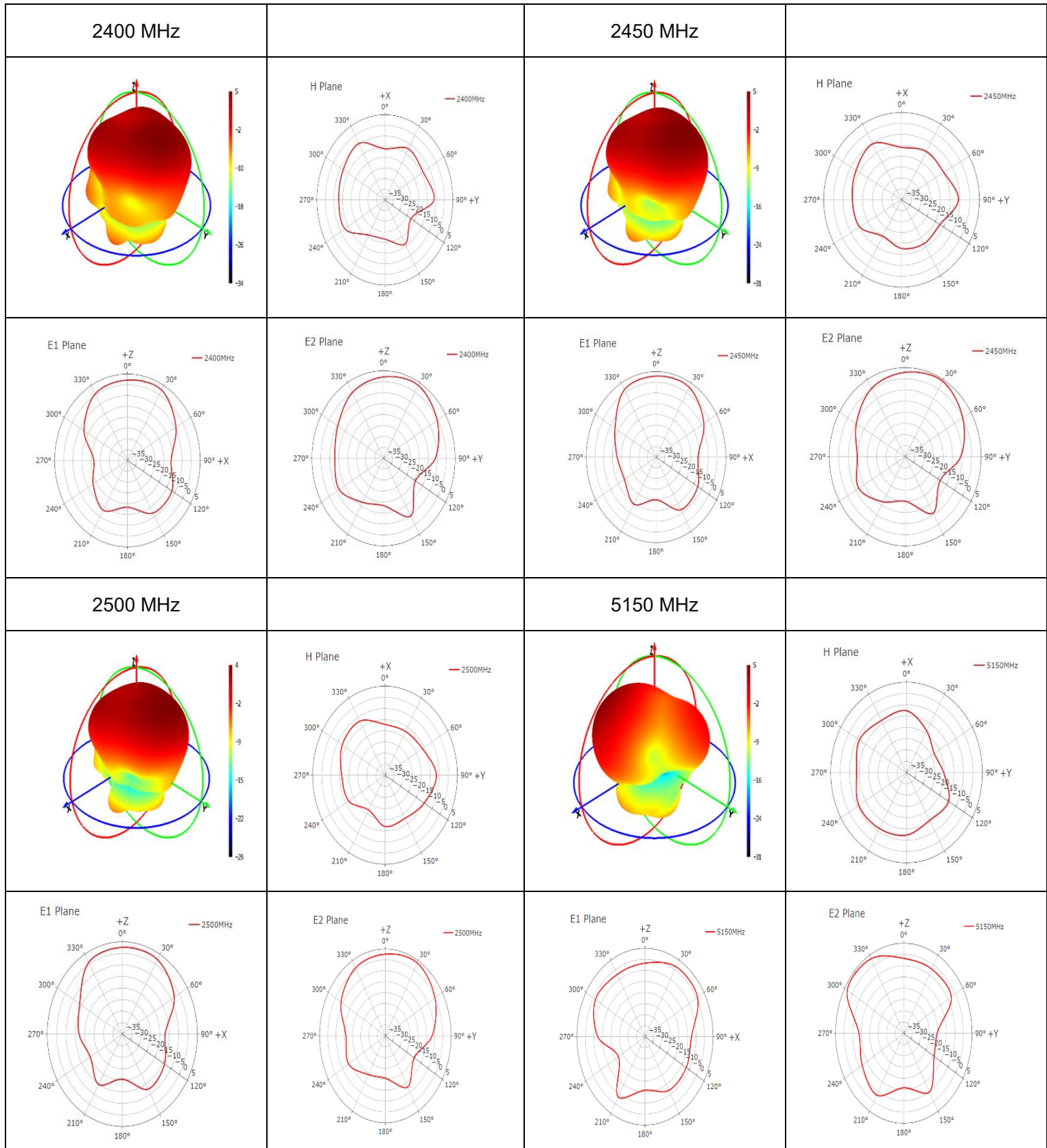
● **WI-FI 1-MP**



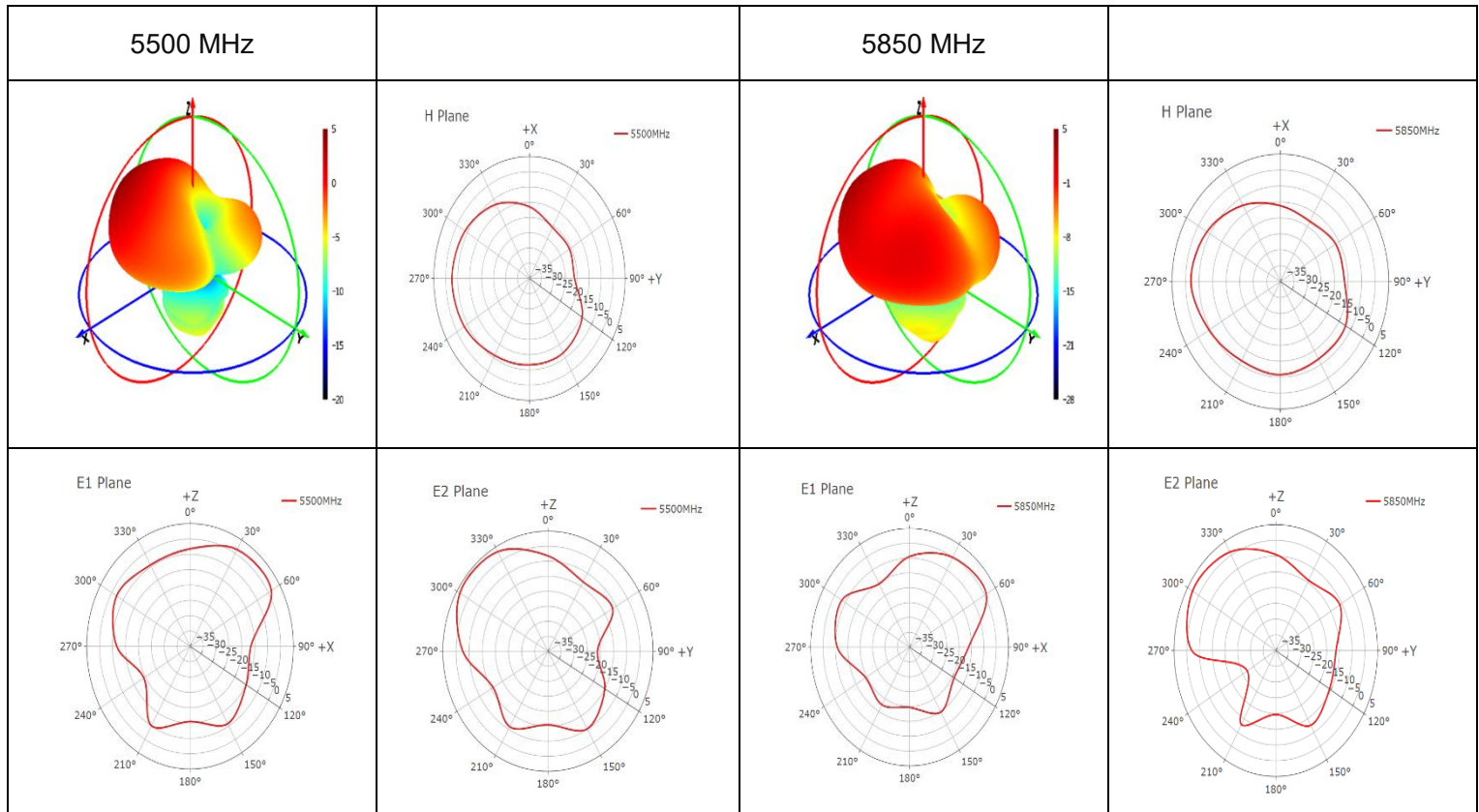
● **WI-FI 1-MP**



● **WI-FI 2-MP**

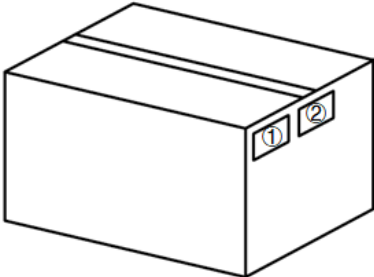
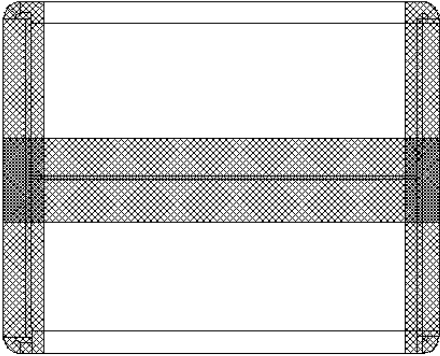


● **WI-FI 2-MP**



4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 pc antenna product in a PE bag. (1 PC Antenna / PE Bag)
2		20 pcs antenna products in a PE bag. (20 PCS Antennas / PE Bag)
3		Put a bubble bag on the top. (10 PE Bags / Carton Box) (200 PCS Antennas / Carton Box) <u>Carton Size:</u> <u>L × W × H = 450 × 240 × 290 mm</u>

4		Labeling ① Carton Label ② Quality Label
5		Sealing Cartons “工” 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:

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Or our local offices. For more information, please visit:

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Revision History

Version	Date	Author	Note
-	2021-08-19	Mordecai LIU/ Jason LONG	Creation of the document
1.0	2021-08-19	Mordecai LIU/ Jason LONG	First official release
1.1	2021-12-03	Mordecai LIU/ Jason LONG	Updated the product description (Chapter 1).
2.0	2023-08-26	Damon ZHANG/ Lucky FENG/ David LIU/ Aria CHU	1. Updated all data and datasheet template. 2. Updated mounting type and added antenna weight (Chapter 1.2).
2.1	2023-12-05	Lucky FENG/ Aria CHU	Deleted REACH Compliant (Chapter 1.2).



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