



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

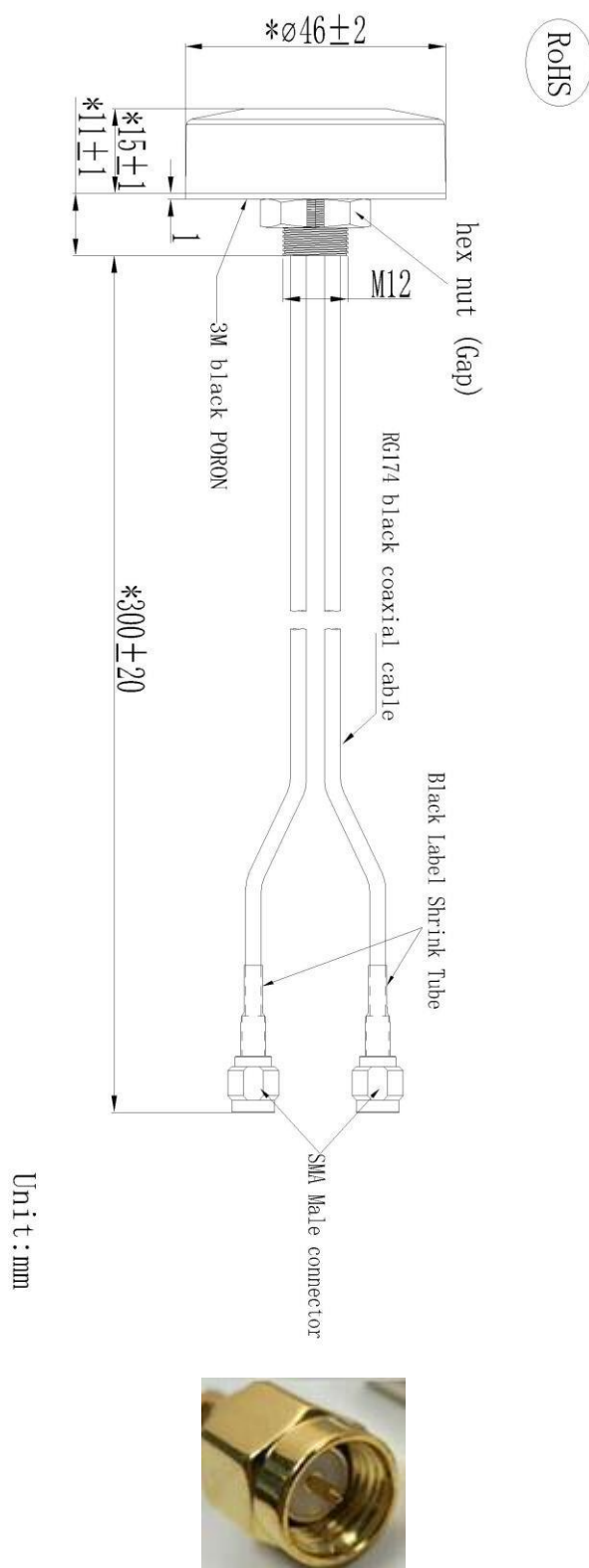
Max Peak Gain (dBi)	FS	-	-	-	-	-	-	4.0	-	-	-	2.9
	MP	-	-	-	-	-	-	4.2	-	-	-	5.1
VSWR	FS	≤ 2.7										
	MP	≤ 2.2										
Return Loss	FS	≤ -6.9 dB										
	MP	≤ -8.4 dB										
Peak Gain	FS	≤ 4.0 dBi										
	MP	≤ 5.1 dBi										

- Wi-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 × 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

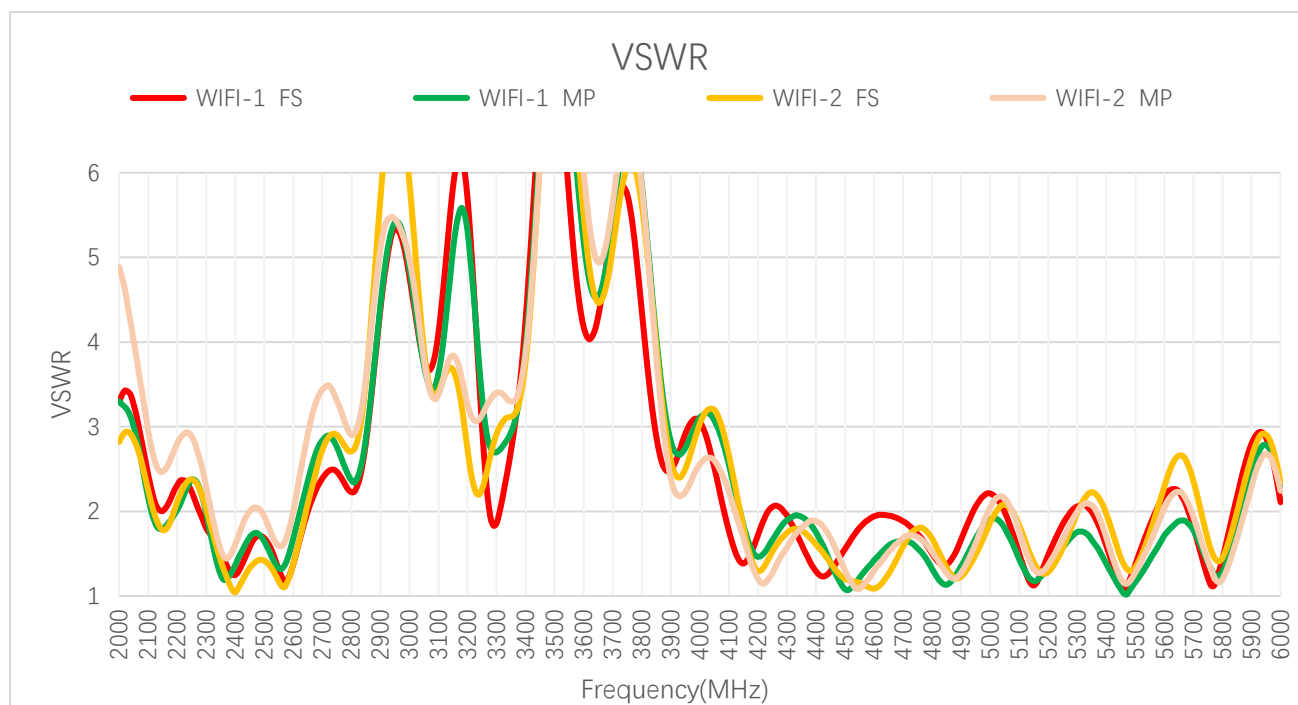
2 Drawing



3 Detail Performance

3.1. S-Parameter Test

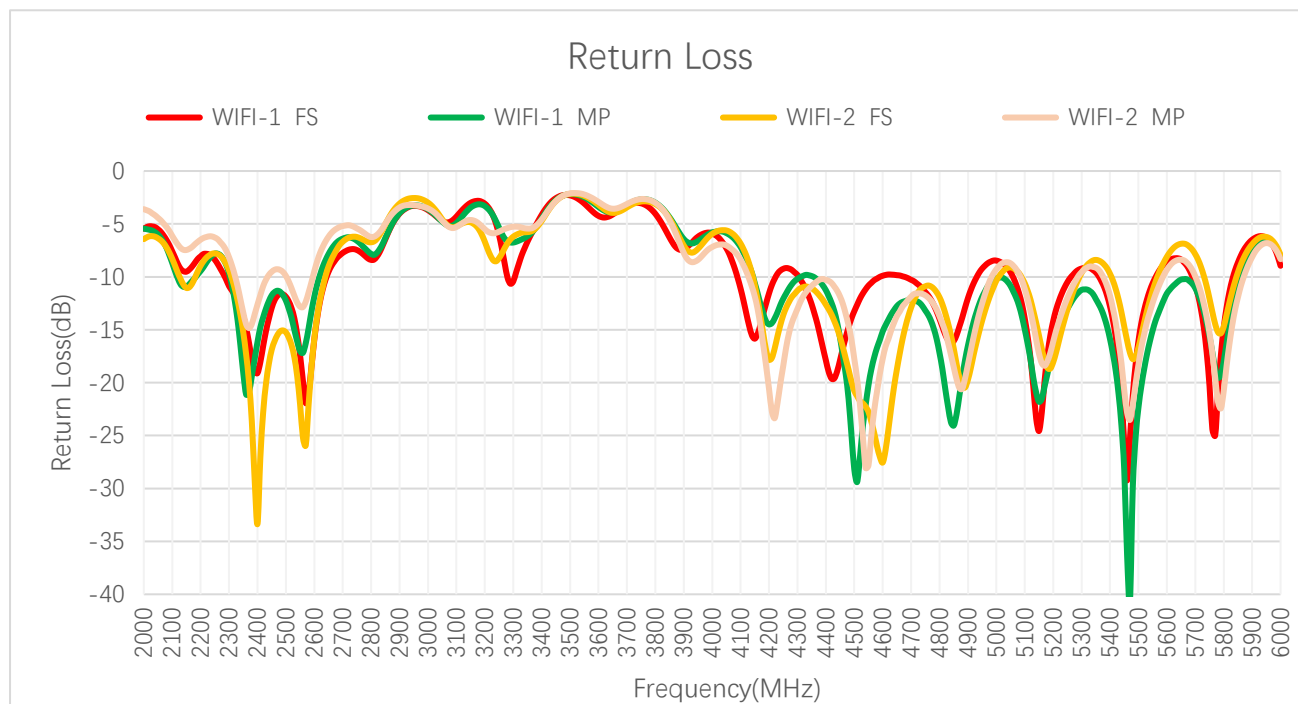
3.1.1. VSWR



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

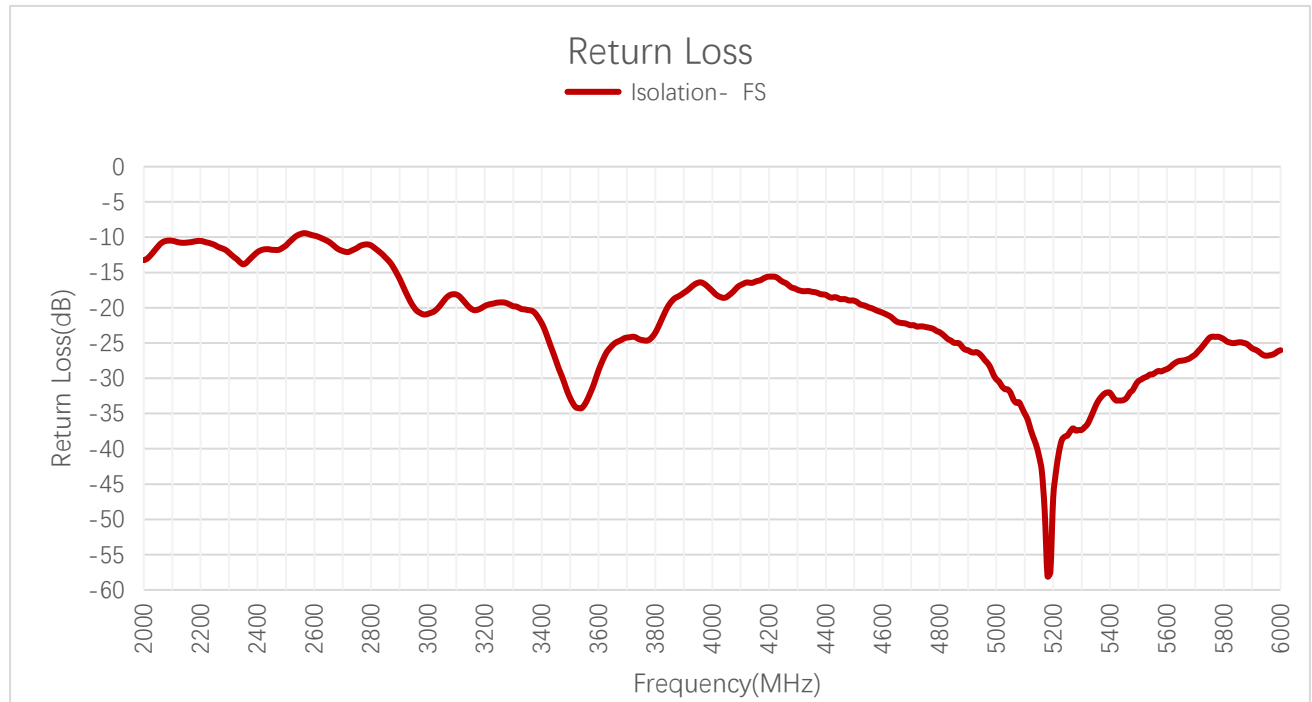


Return Loss (dB)

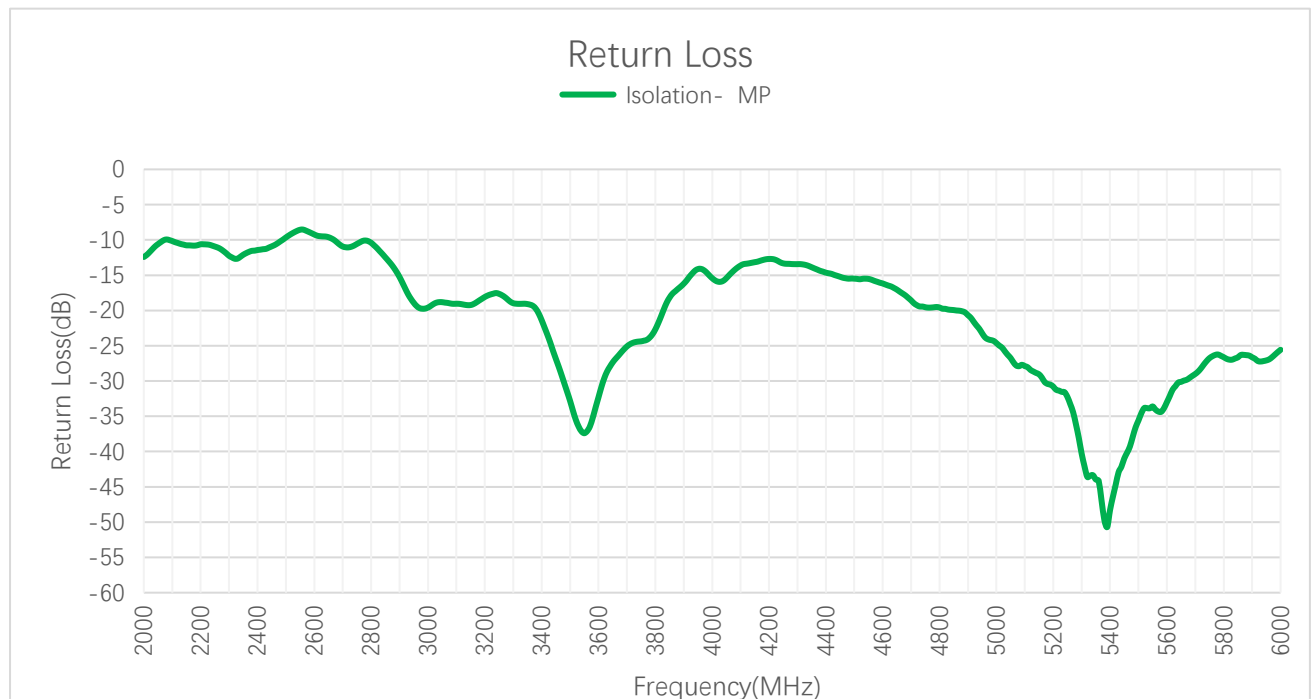
Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	-19.1	-12.9	-11.9	-24.6	-16.1	-8.6
	MP	-16.2	-11.8	-12.2	-21.8	-22.3	-11.0
Wi-Fi 2	FS	-33.4	-16.9	-15.2	-15.6	-16.7	-9.6
	MP	-12.6	-9.5	-9.9	-17.3	-18.3	-11.9

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



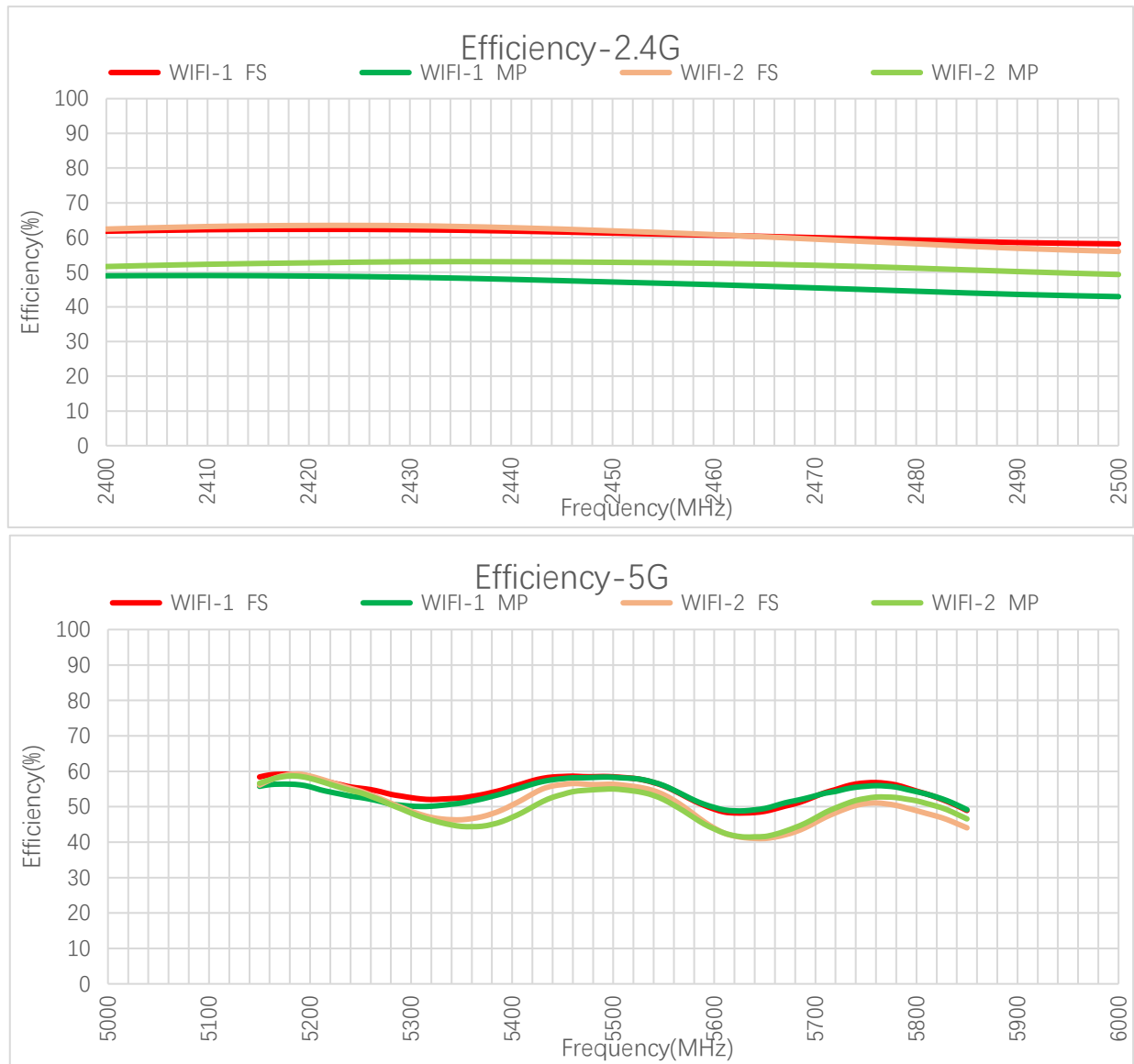
Max Isolation (dB)

	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

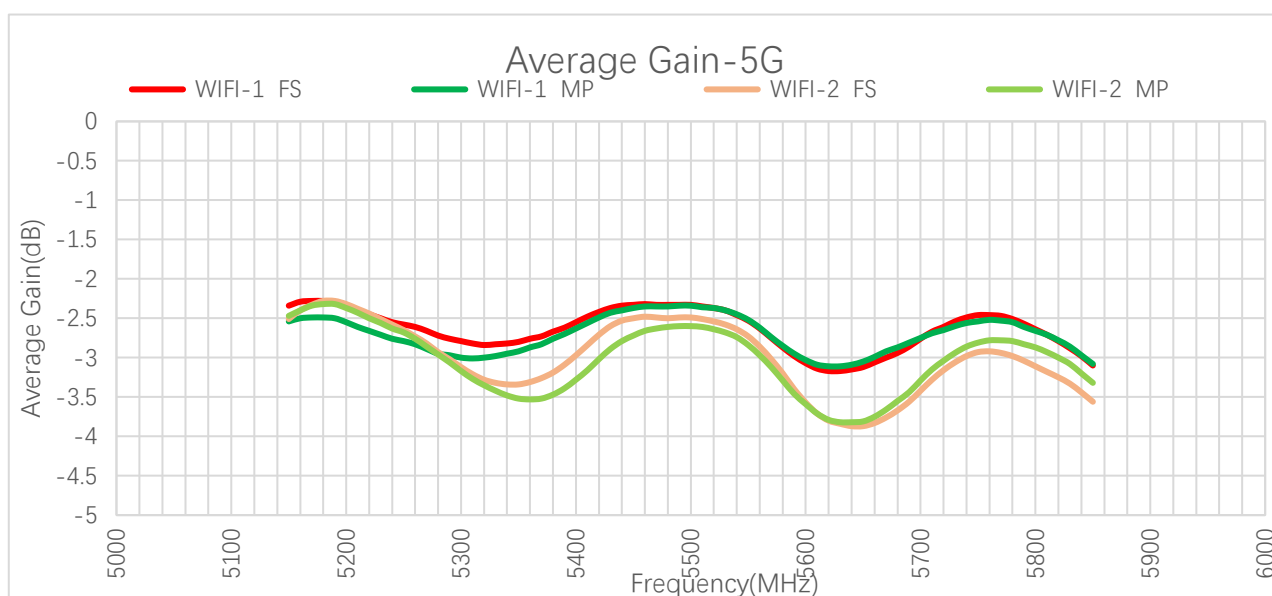
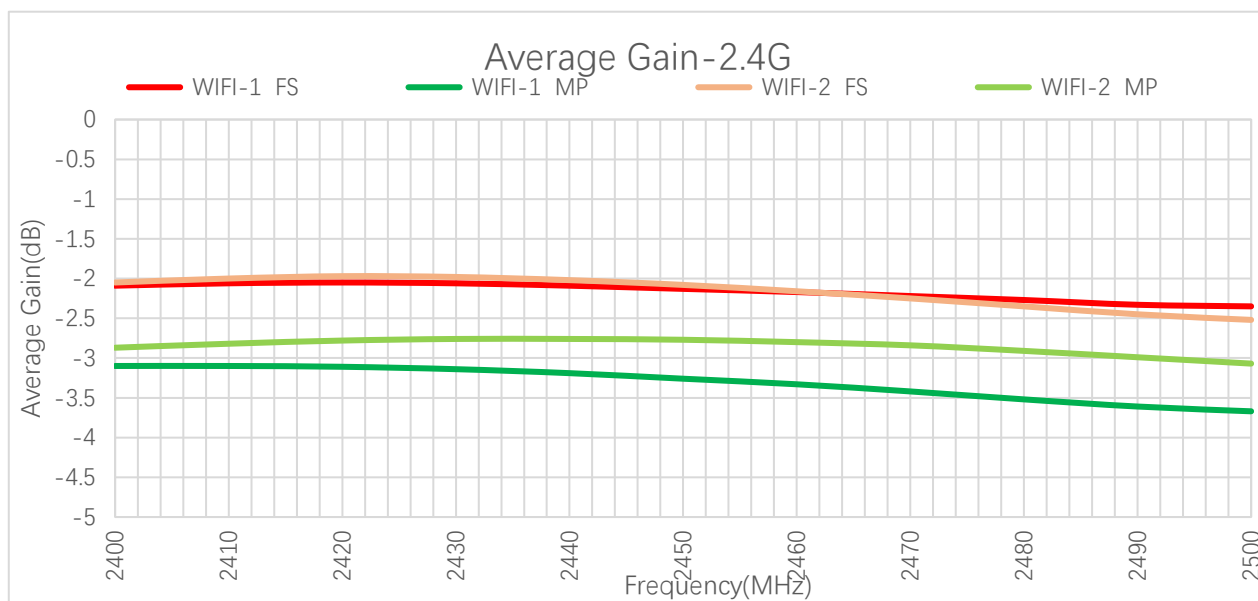
3.2.1. Efficiency



Efficiency (%)

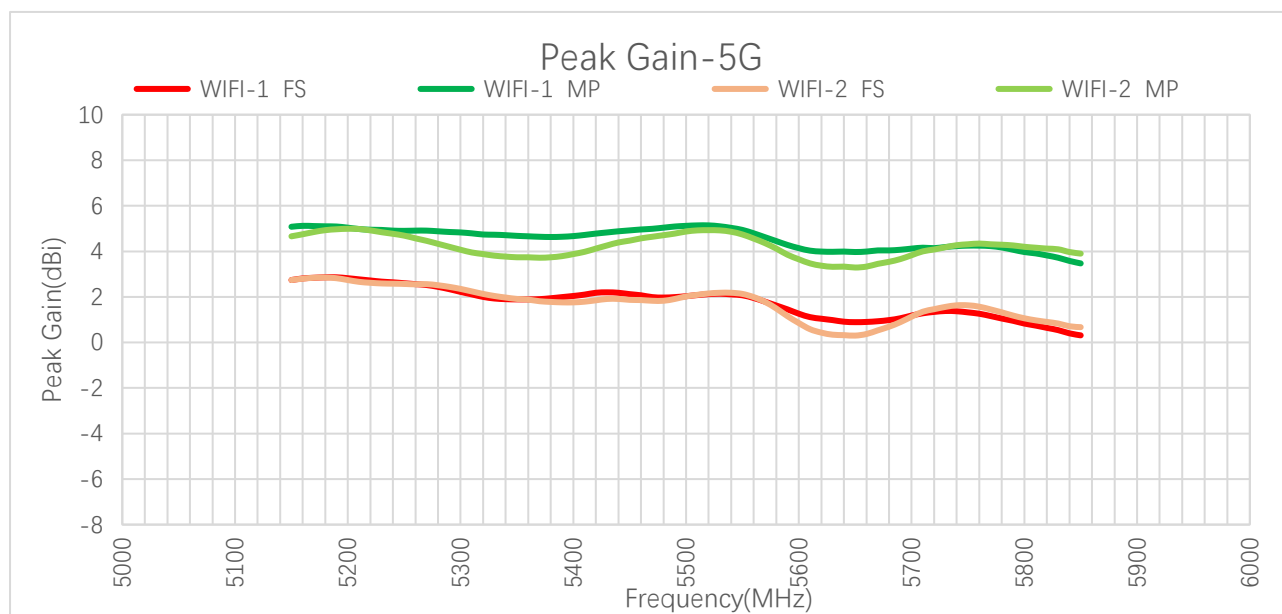
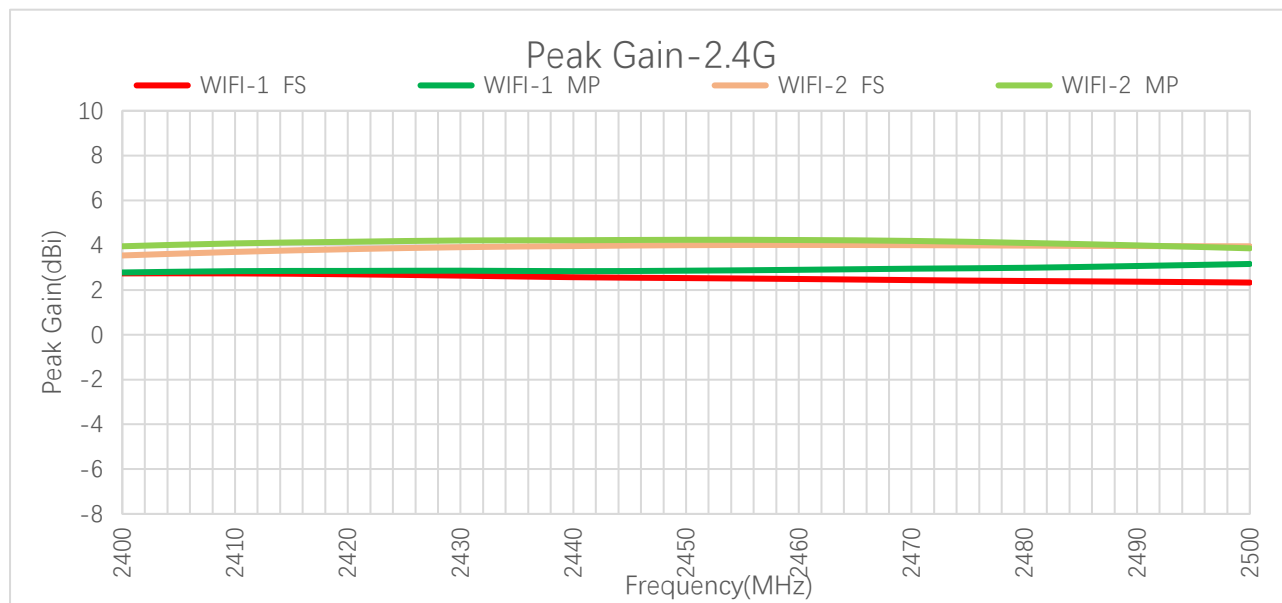
Frequency (MHz)		2400	2450	2500	5150	5500	5850
Wi-Fi 1	FS	61.8	61.3	58.2	58.4	58.4	48.9
	MP	49.0	47.2	43.0	55.8	58.3	49.2
Wi-Fi 2	FS	62.4	61.9	56.0	56.1	56.3	44.0
	MP	51.6	52.8	49.3	56.6	55.0	46.6

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



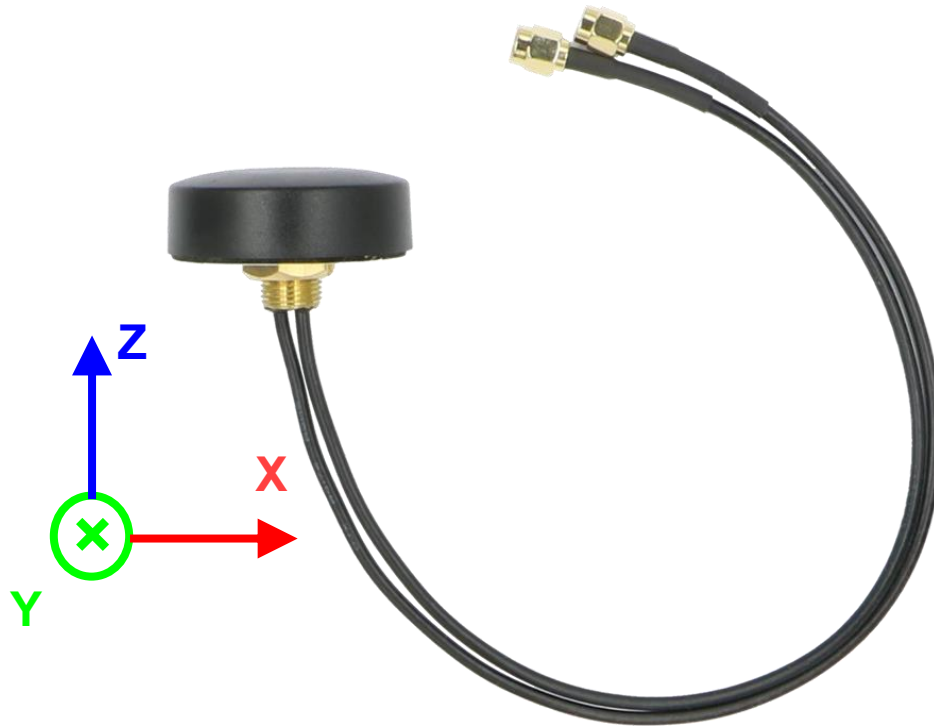
Peak Gain (dBi)

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

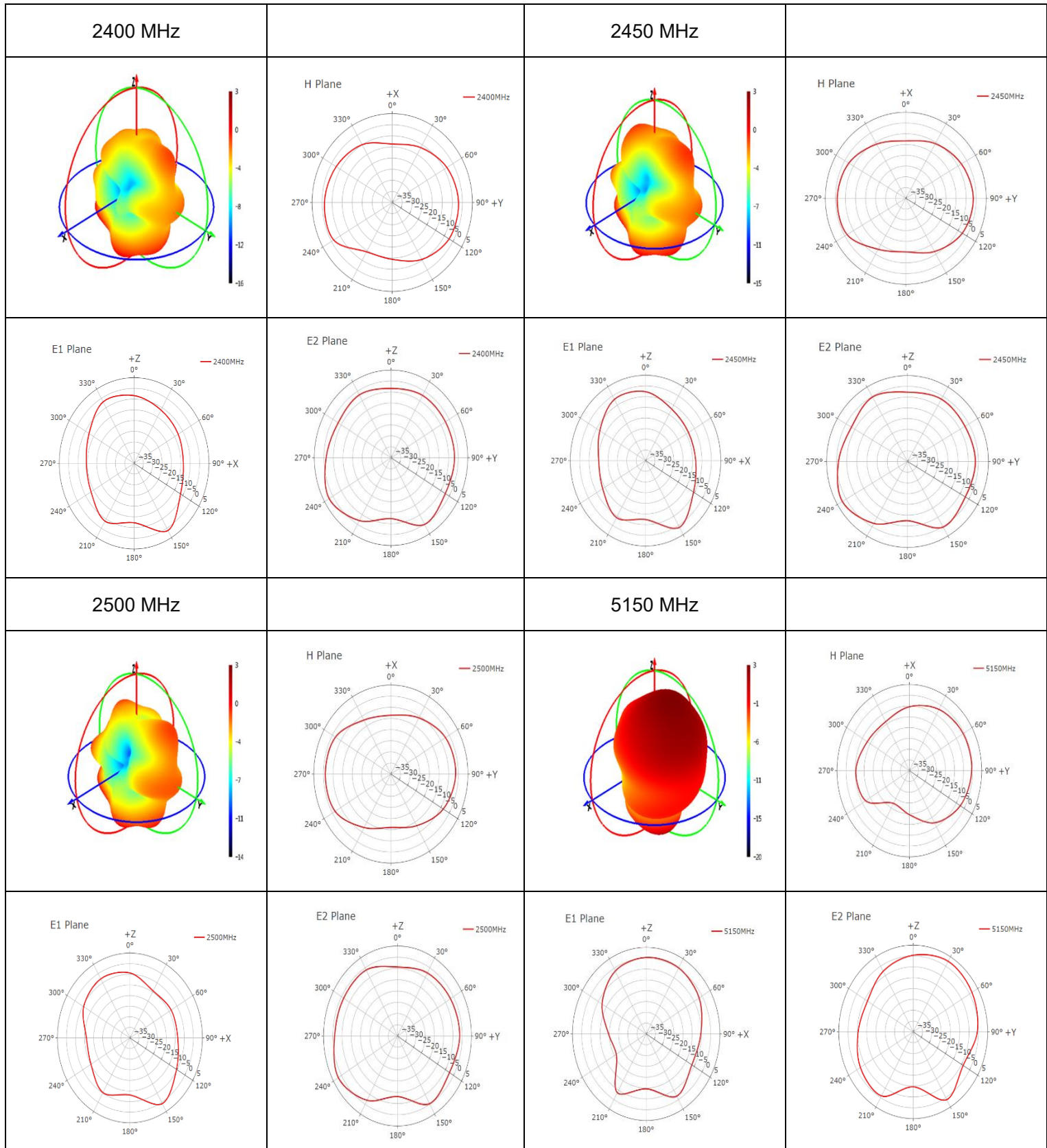
3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Status: In Free Space

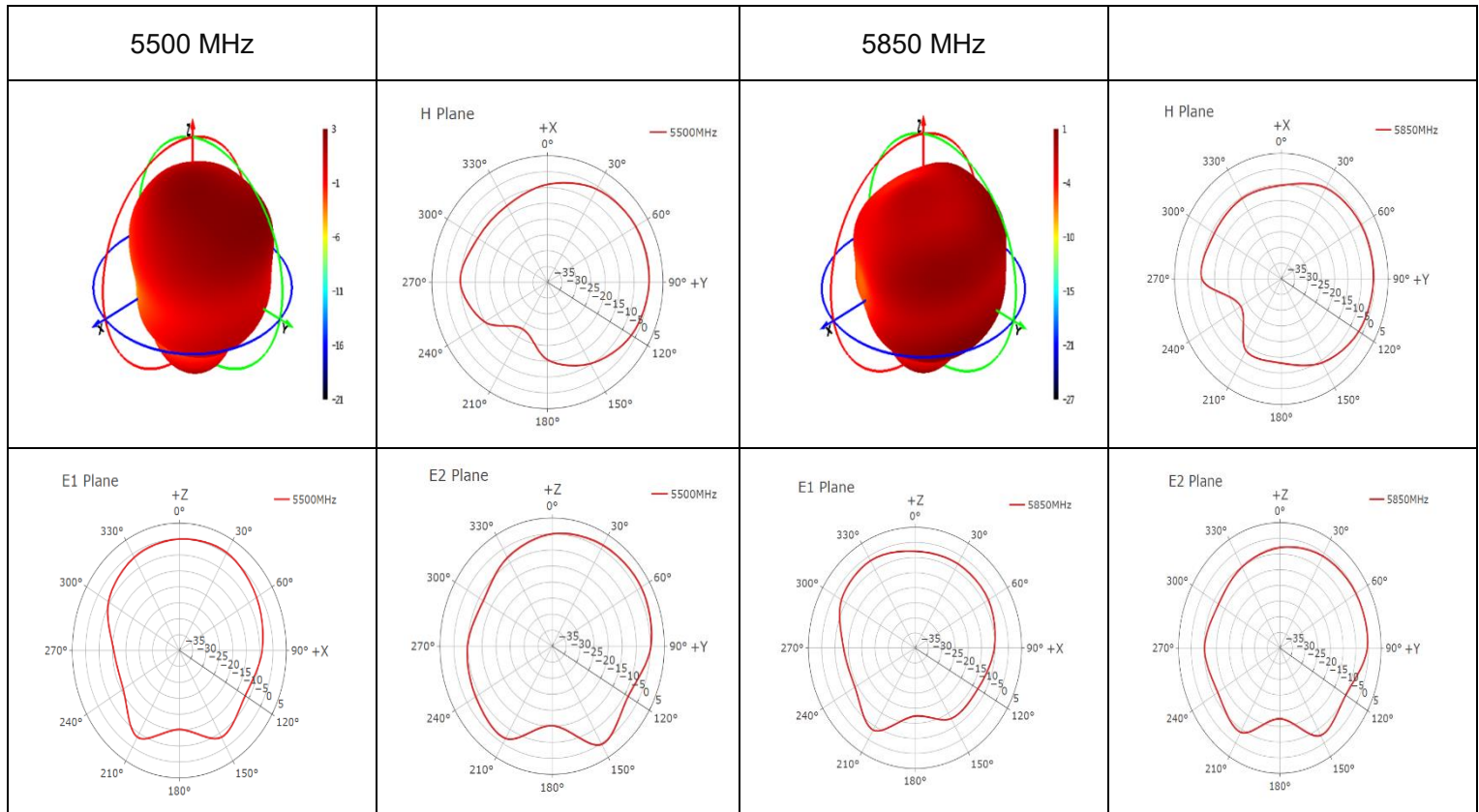
- Test Chamber: GL-S-1



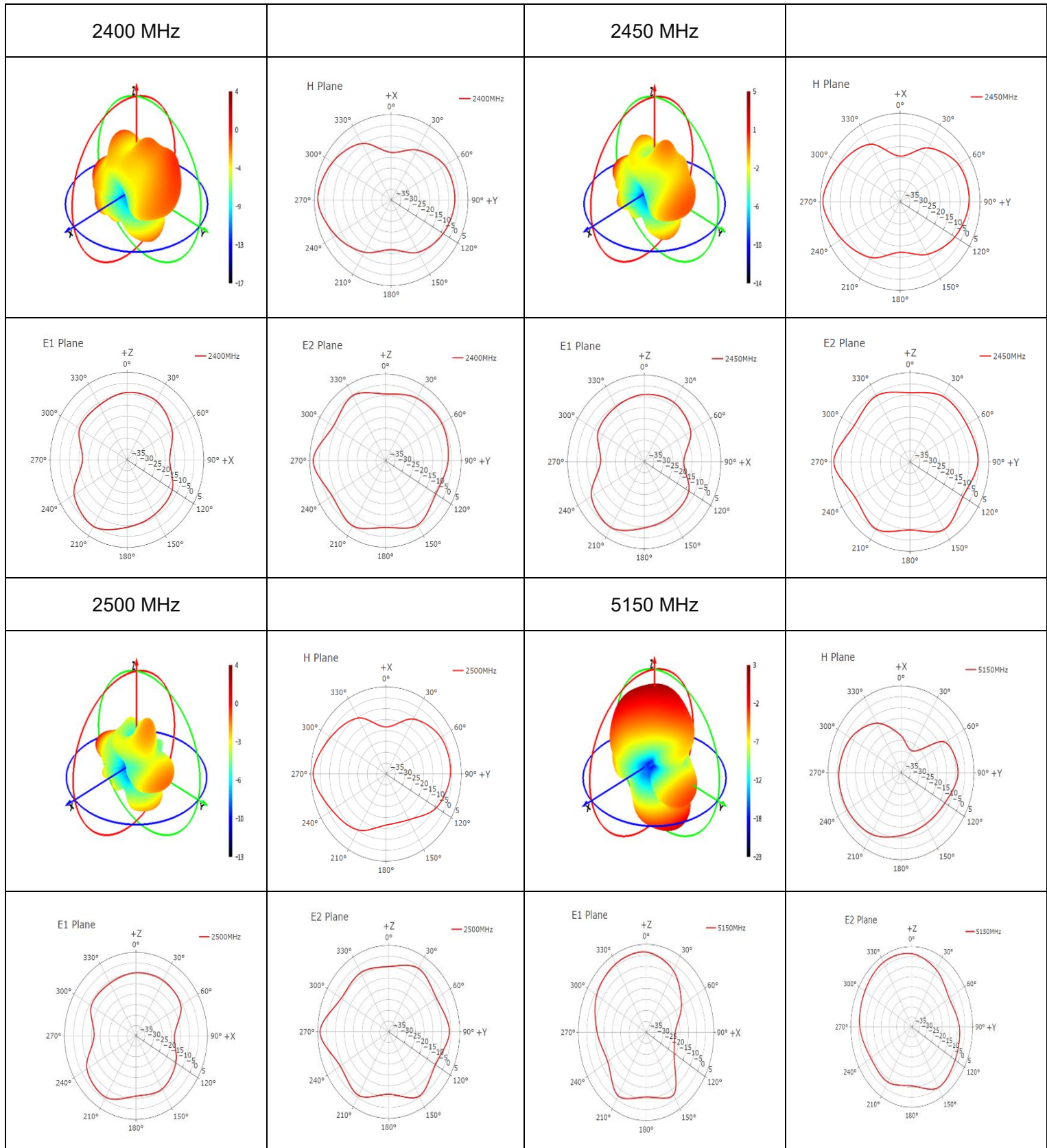
● **WI-FI 1-FS**



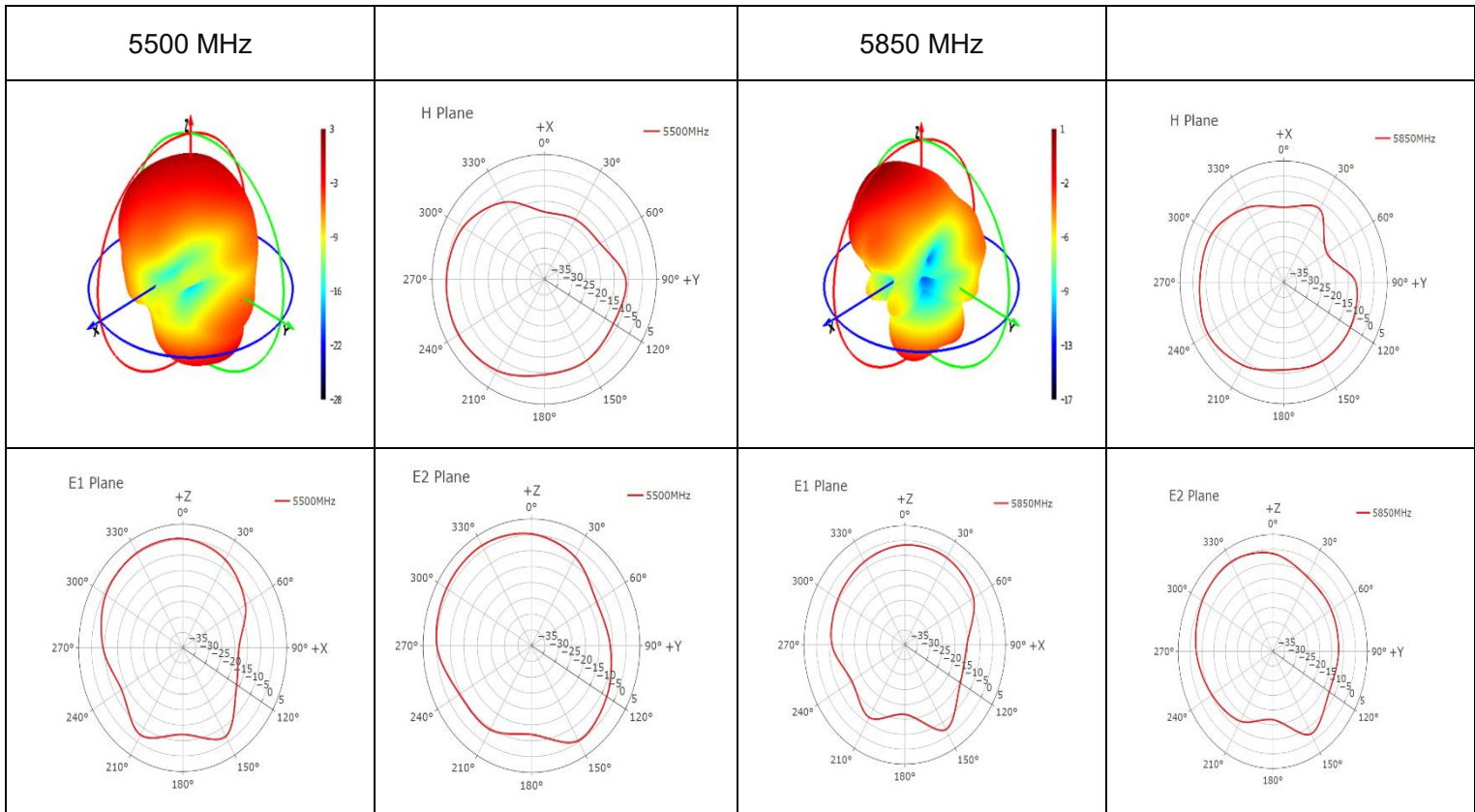
● **WI-FI 1-FS**



● **WI-FI 2-FS**

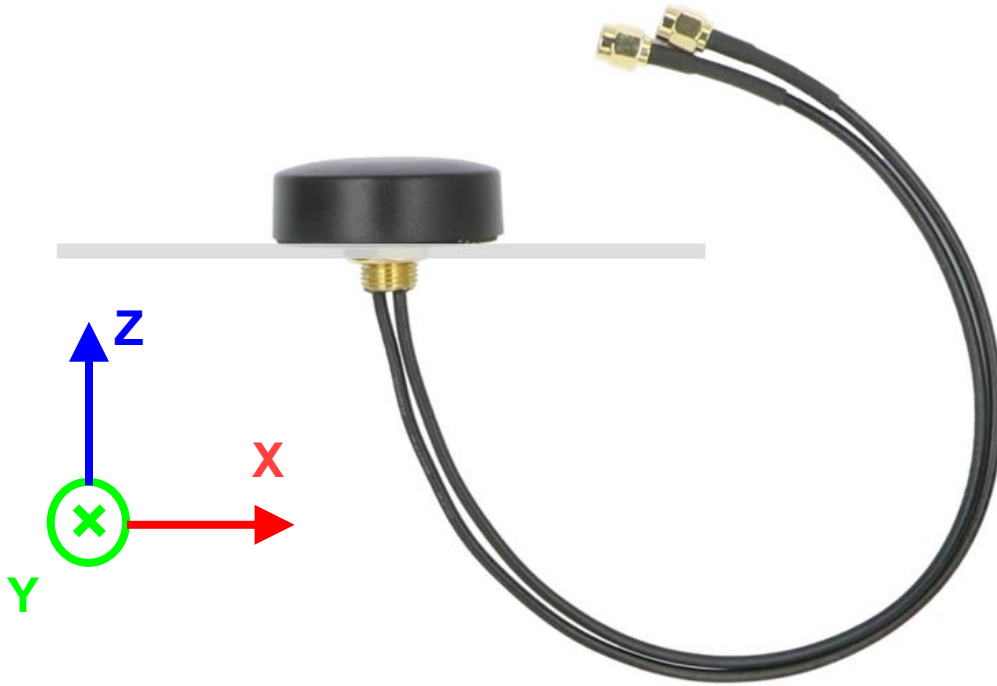


● **WI-FI 2-FS**

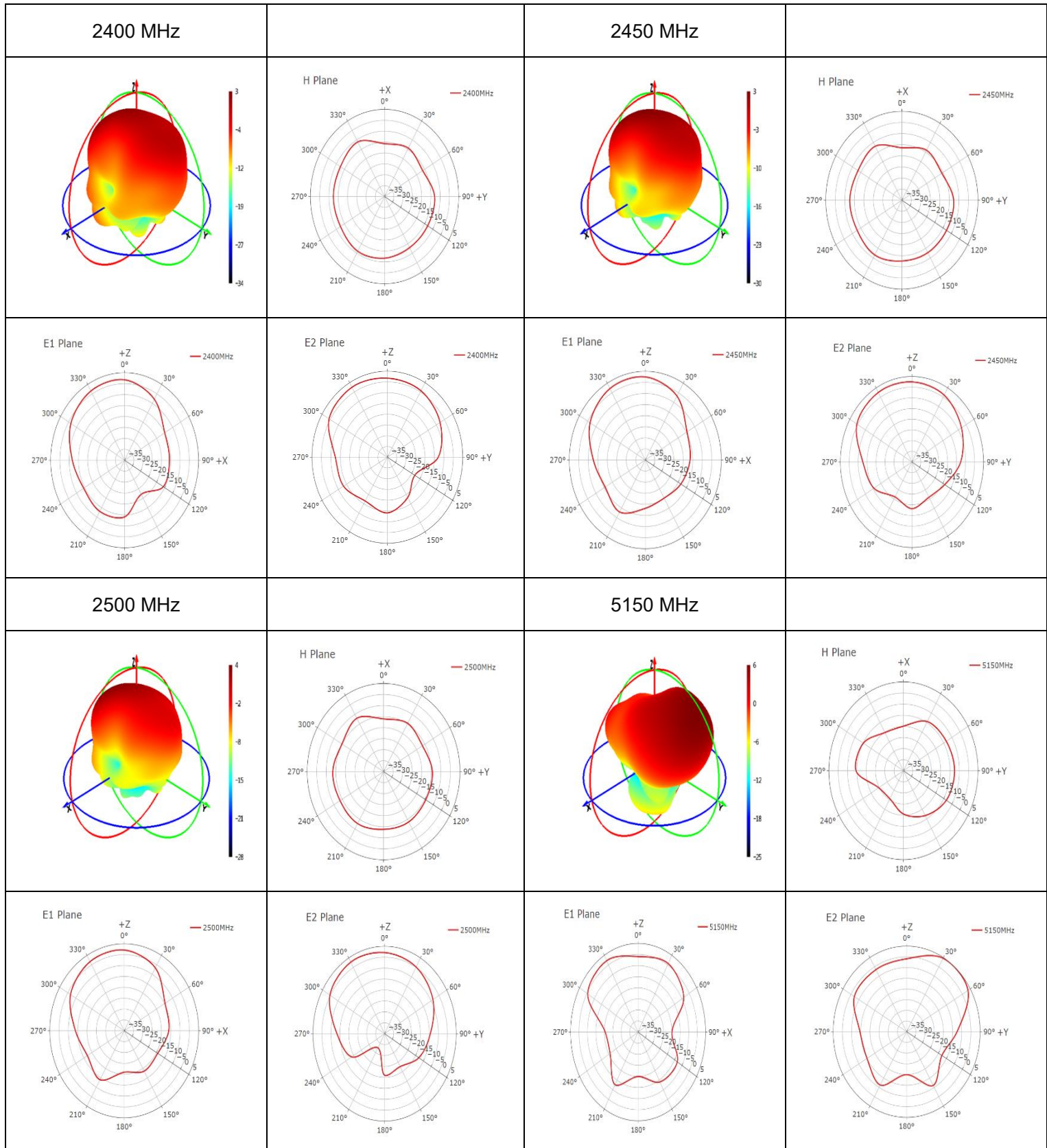


3.2.4.2 Test Status: On 300 mm × 300 mm Metal Plane

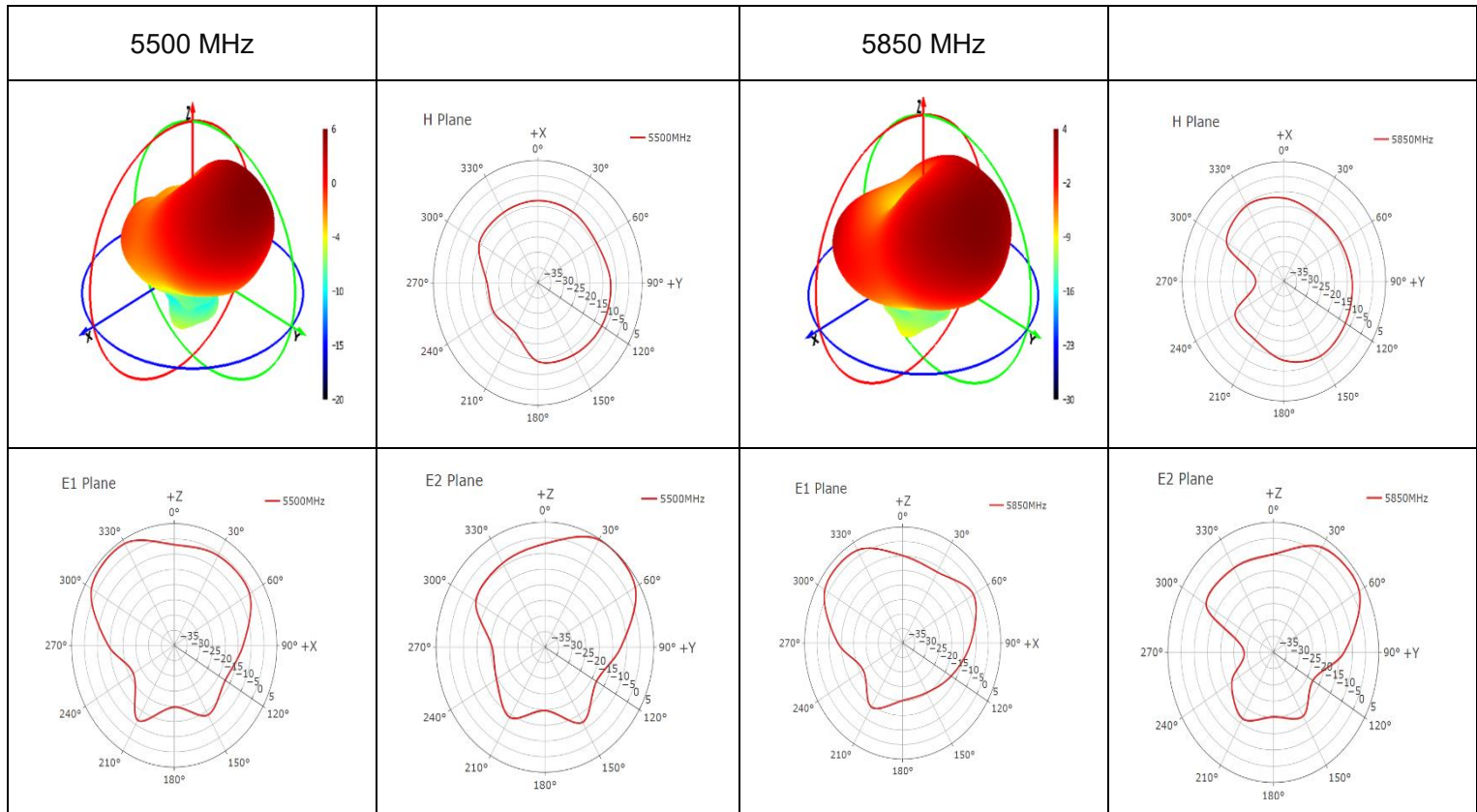
- Test Chamber: GL-S-1



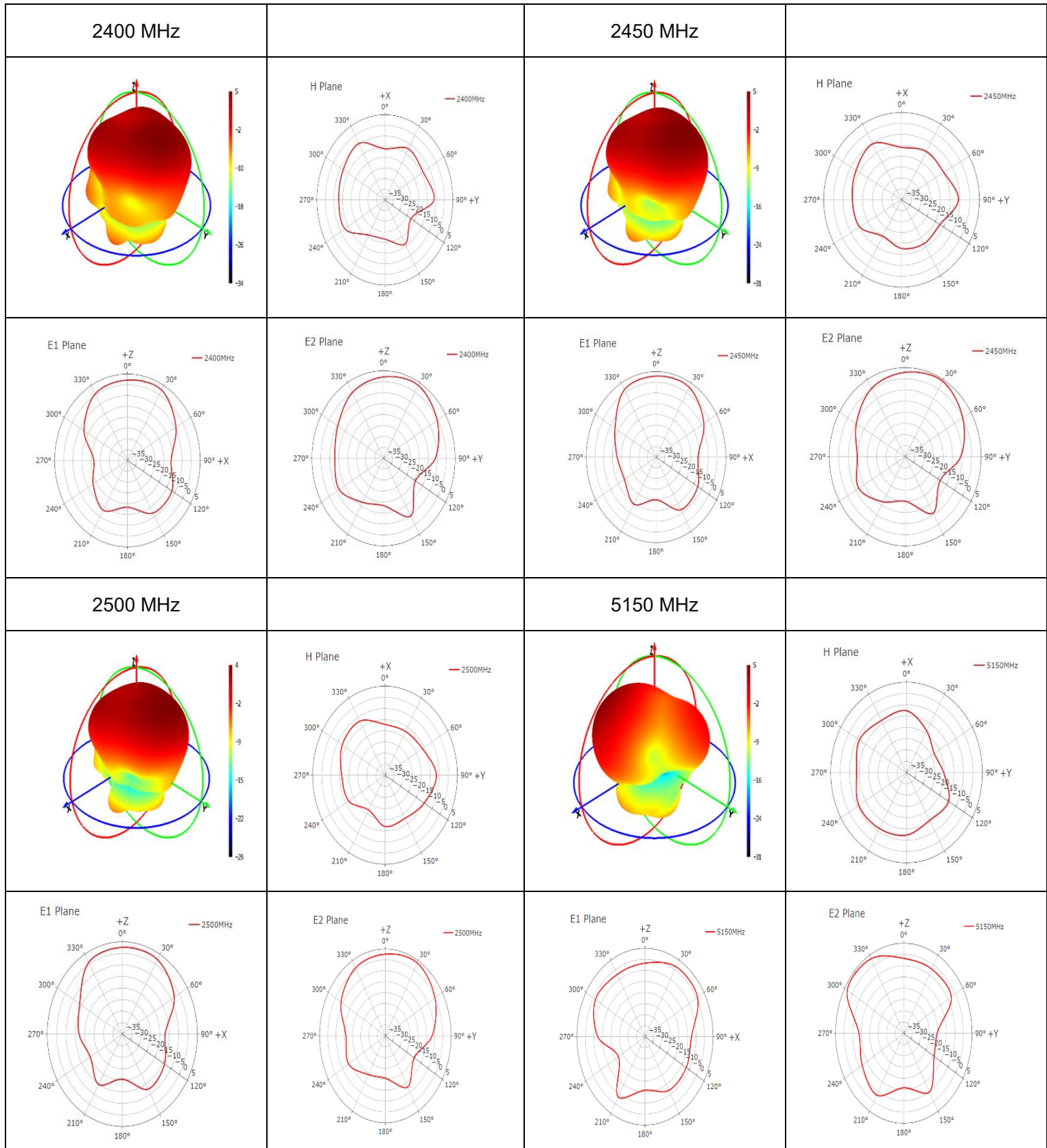
● **WI-FI 1-MP**



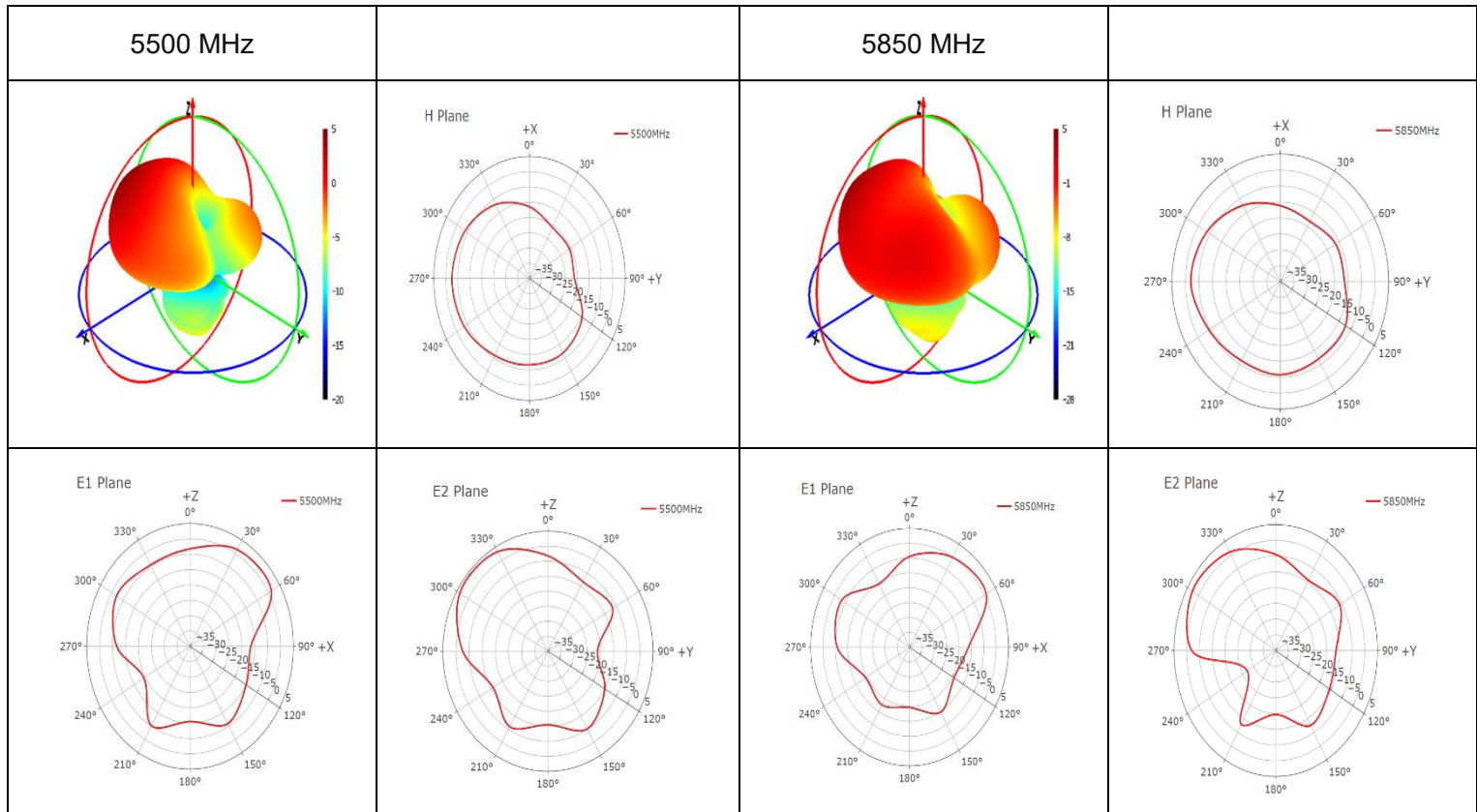
● **WI-FI 1-MP**



● **WI-FI 2-MP**

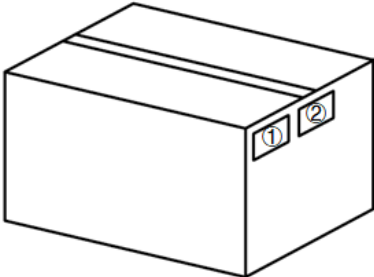
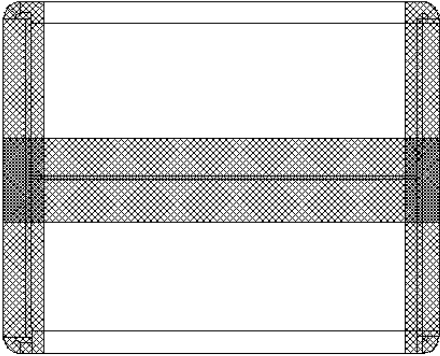


● **WI-FI 2-MP**



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 “⊥” 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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Email: info@quectel.com

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

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Revision History

Version	Date	Author	Note
-	2021-08-19	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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