

Antenna Datasheet

Product OC: YF0011KA

Version: 2.2

Date: 2024-06-07

Status: Released

Product Name: Wi-Fi FPC Antenna

Key Features:

Frequency band: 2400–2500 MHz, 5150–5850 MHz

Peak efficiency: 85.93 % (ABS)

Dimensions: 38.9 mm × 9 mm

RoHS and REACH Compliant

Overview

Quectel Wi-Fi antenna covers 2.4 GHz and 5 GHz dual-bands, fully satisfying customers' requirements for Wi-Fi 5 and Wi-Fi 6. There are various antenna types, including built-in FPC/PCB antenna, ceramic patch antenna, and other external antennas of different shapes or sizes. The antenna performance meets the customers' demands for efficiency, gain, and radiation and ensures the superior experience of the customers' products in use.

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1 Specification

Test Condition: Free Space & Stick on 2 mm Thick ABS Board

1.1. Electrical

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

Specification	Band	Band	Wi-Fi 2G	Wi-Fi 5G	Wi-Fi 7G
		Freq. (MHz)	2400 - 2500	5150 - 5850	5925 - 7125
Max. VSWR	FS		3.8	1.7	-
	ABS		1.6	1.7	-
Max. Return Loss (dB)	FS		-4.6	-11.5	-
	ABS		-12.3	-11.3	-
AVG Eff. (%)	FS		53.0	69.1	-
	ABS		78.9	63.8	-
AVG Gain (dB)	FS		-2.8	-1.6	-
	ABS		-1.0	-2.0	-
Max. Peak Gain (dBi)	FS		0.3	2.4	-
	ABS		3.3	3.3	-
VSWR	FS		≤ 3.8		

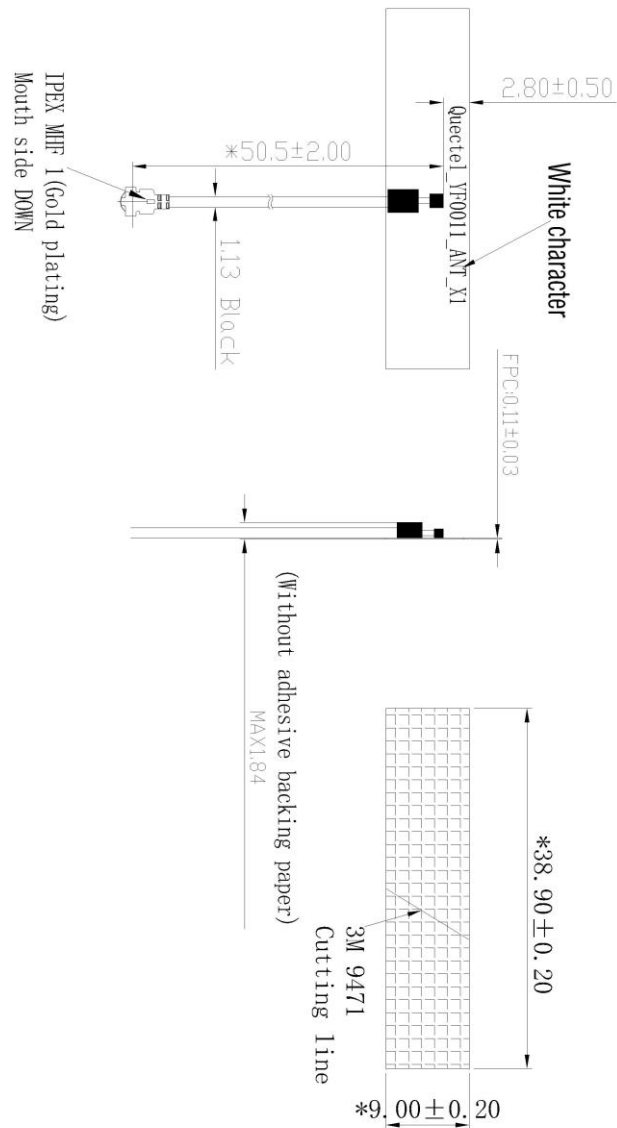
	ABS	≤ 1.7
Return Loss	FS	≤ -4.6 dB
	ABS	≤ -11.3 dB
Peak Gain	FS	≤ 2.4 dBi
	ABS	≤ 3.3 dBi

- FS: Free Space
- ABS: Stick on 2 mm Thick ABS Board

1.2. Mechanical & Environmental

Mechanical	
Antenna Size	38.9 mm × 9 mm
Antenna Material & Color	FPC & Black
Cable Type & Color & Length	Φ 1.13 & Black & 50.5 mm
Connector Type	IPEX MHF 1
Mounting Type	Adhesive
Antenna Weight	Typ. 0.36 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS and REACH Compliant	Yes

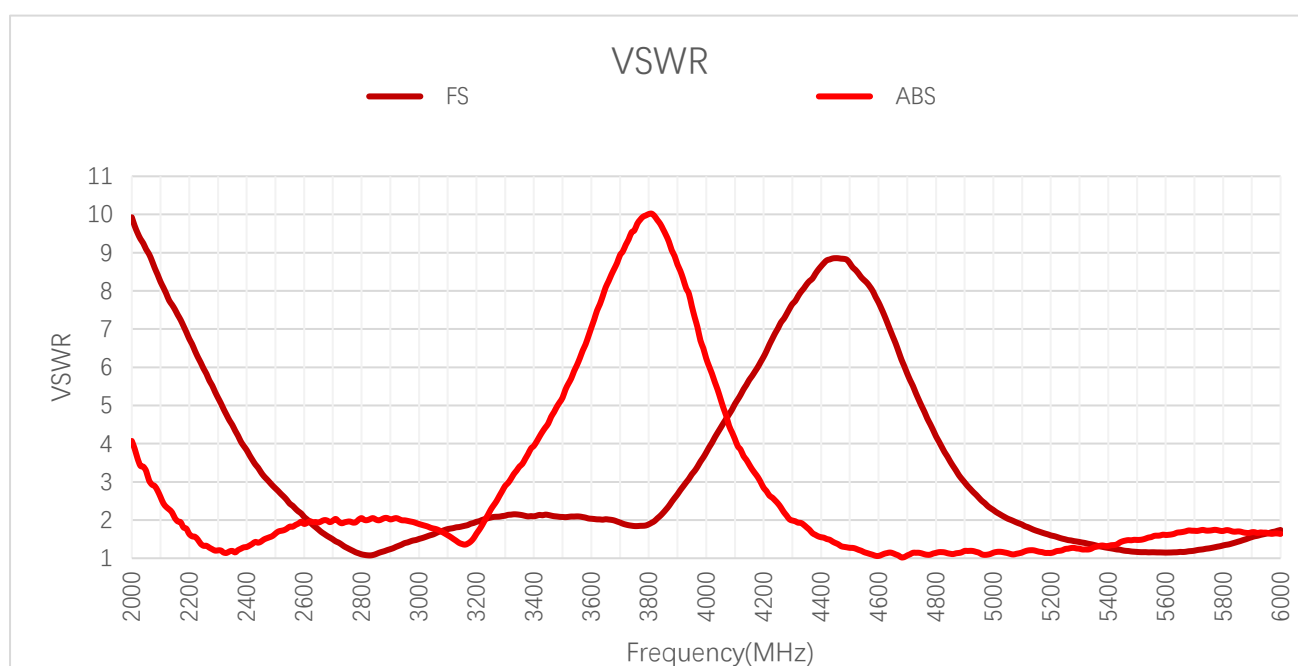
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

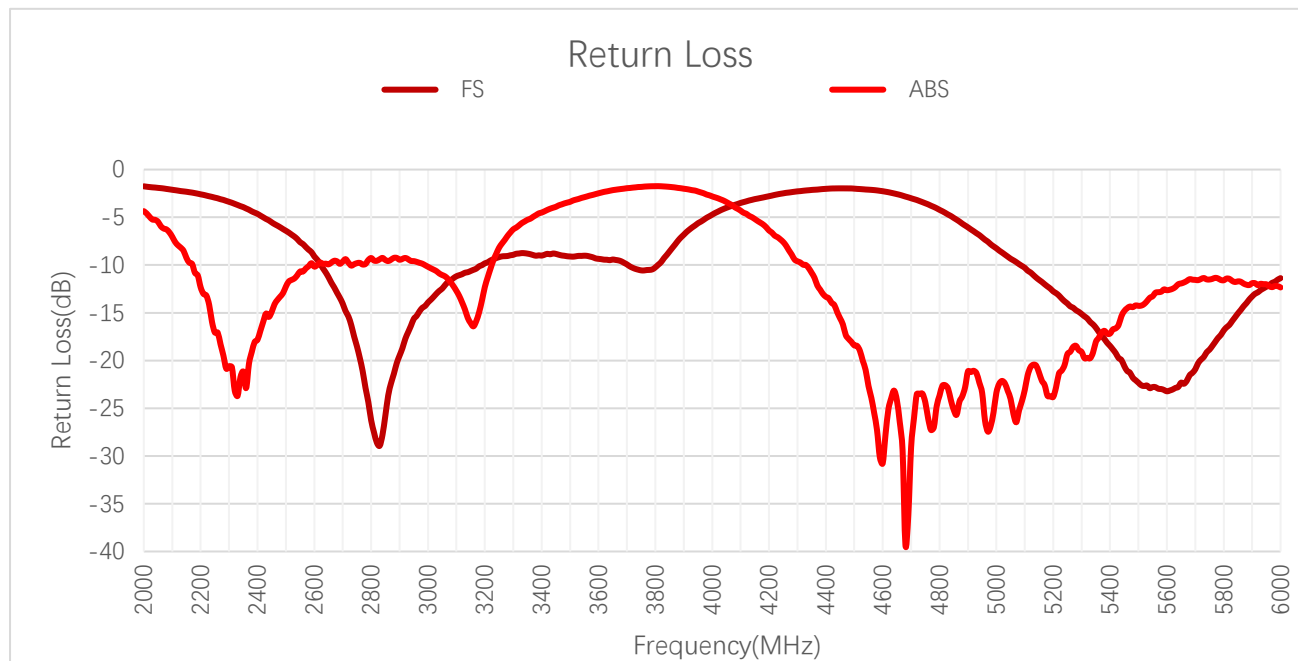
3.1.1. VSWR



VSWR

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	3.8	3.2	2.8	1.7	1.2	1.4	-	-	-	-
ABS	1.3	1.4	1.6	1.2	1.5	1.7				

3.1.2. Return Loss

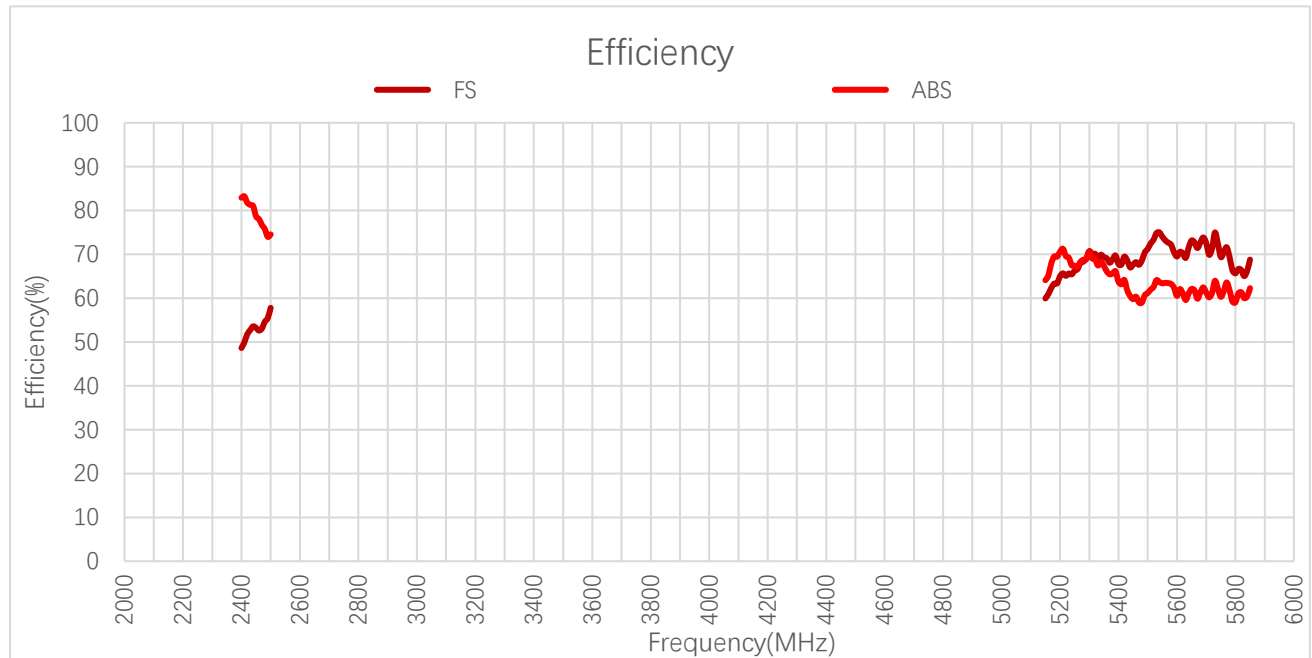


Return Loss (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	-4.6	-5.5	-6.4	-11.5	-22.3	-15.1	-	-	-	-
ABS	-17.8	-14.9	-12.3	-21.3	-14.3	-11.7				

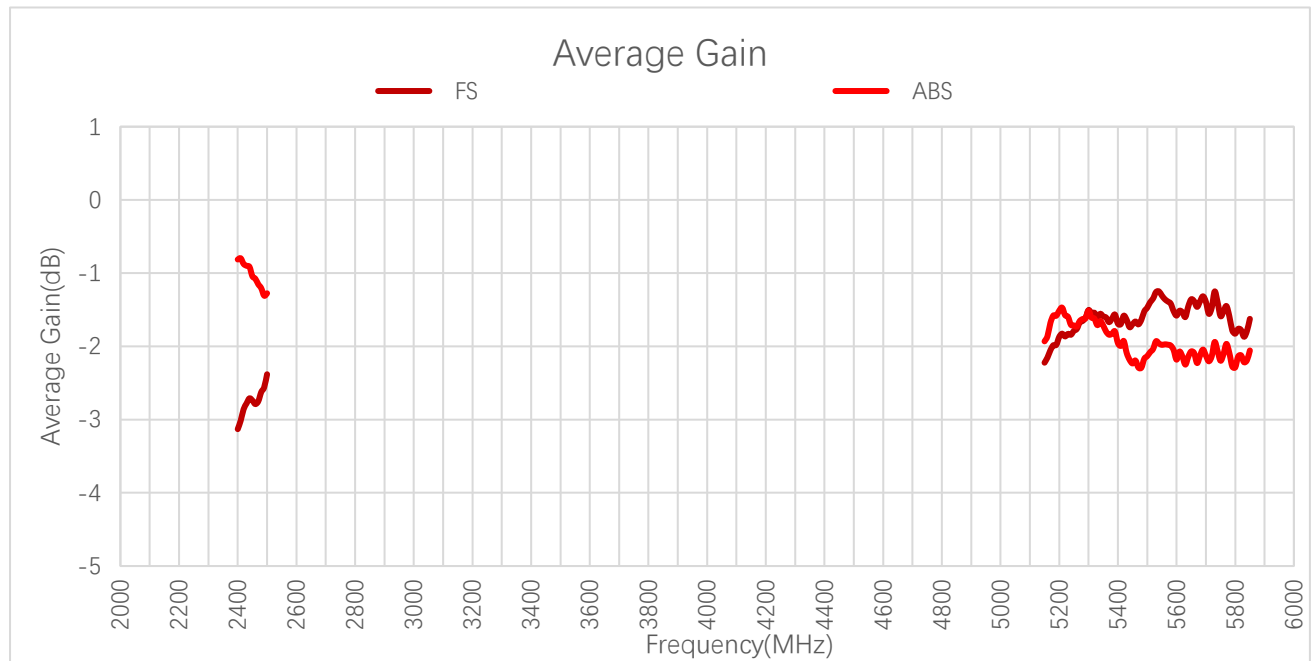
3.2. Radiation Performance Test

3.2.1. Efficiency



Efficiency (%)										
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	48.6	53.2	57.8	59.9	71.2	68.8	-	-	-	-
ABS	82.9	78.6	74.6	64.1	61.2	62.3				

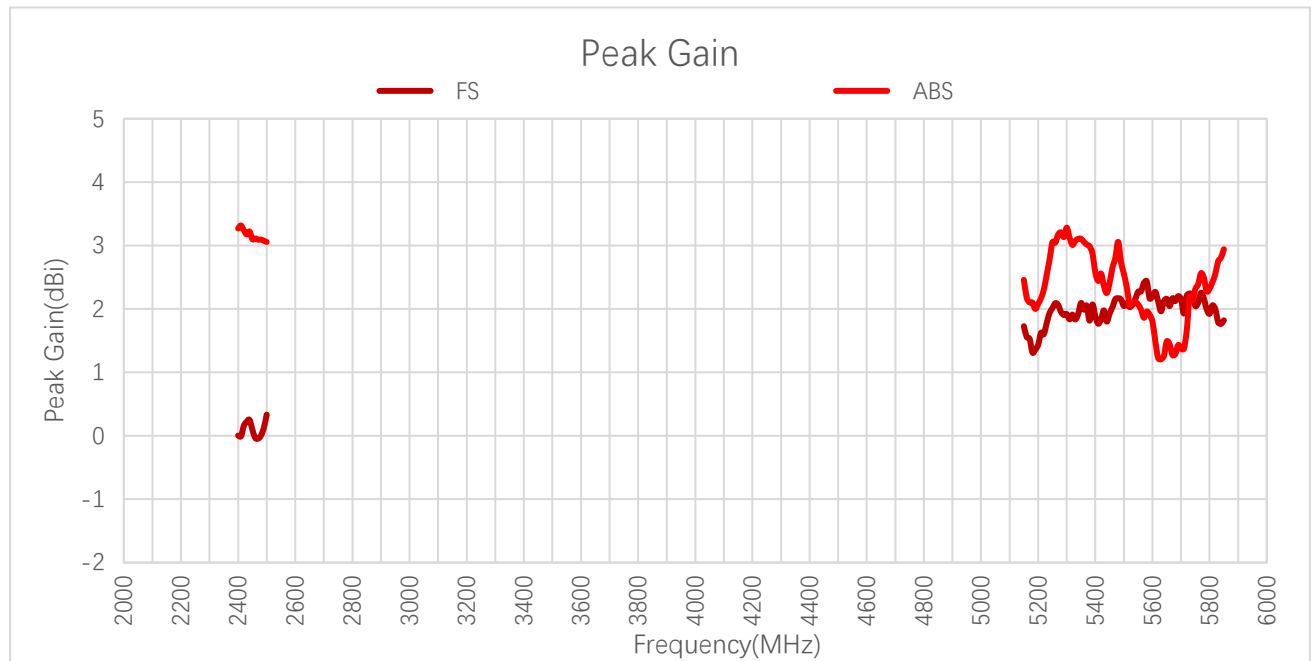
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	-3.1	-2.7	-2.4	-2.2	-1.5	-1.6	-	-	-	-
ABS	-0.8	-1.0	-1.3	-1.9	-2.1	-2.1				

3.2.3. Peak Gain



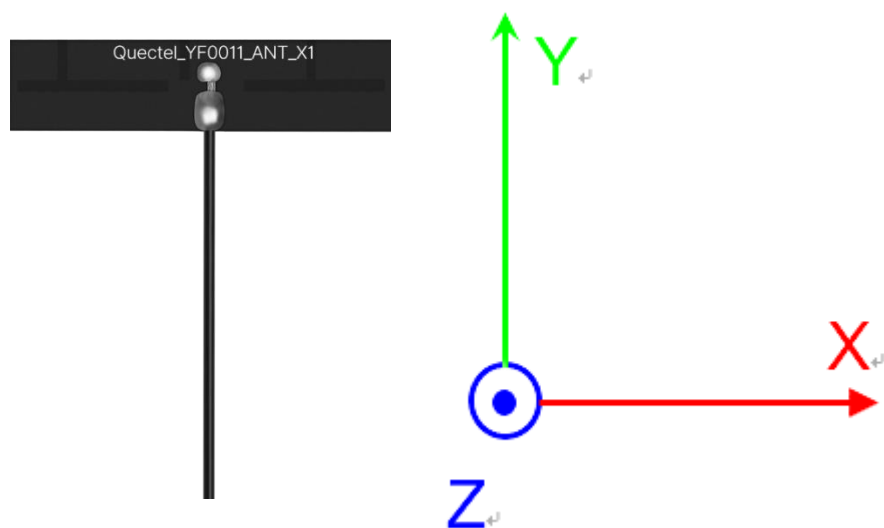
Peak Gain (dBi)

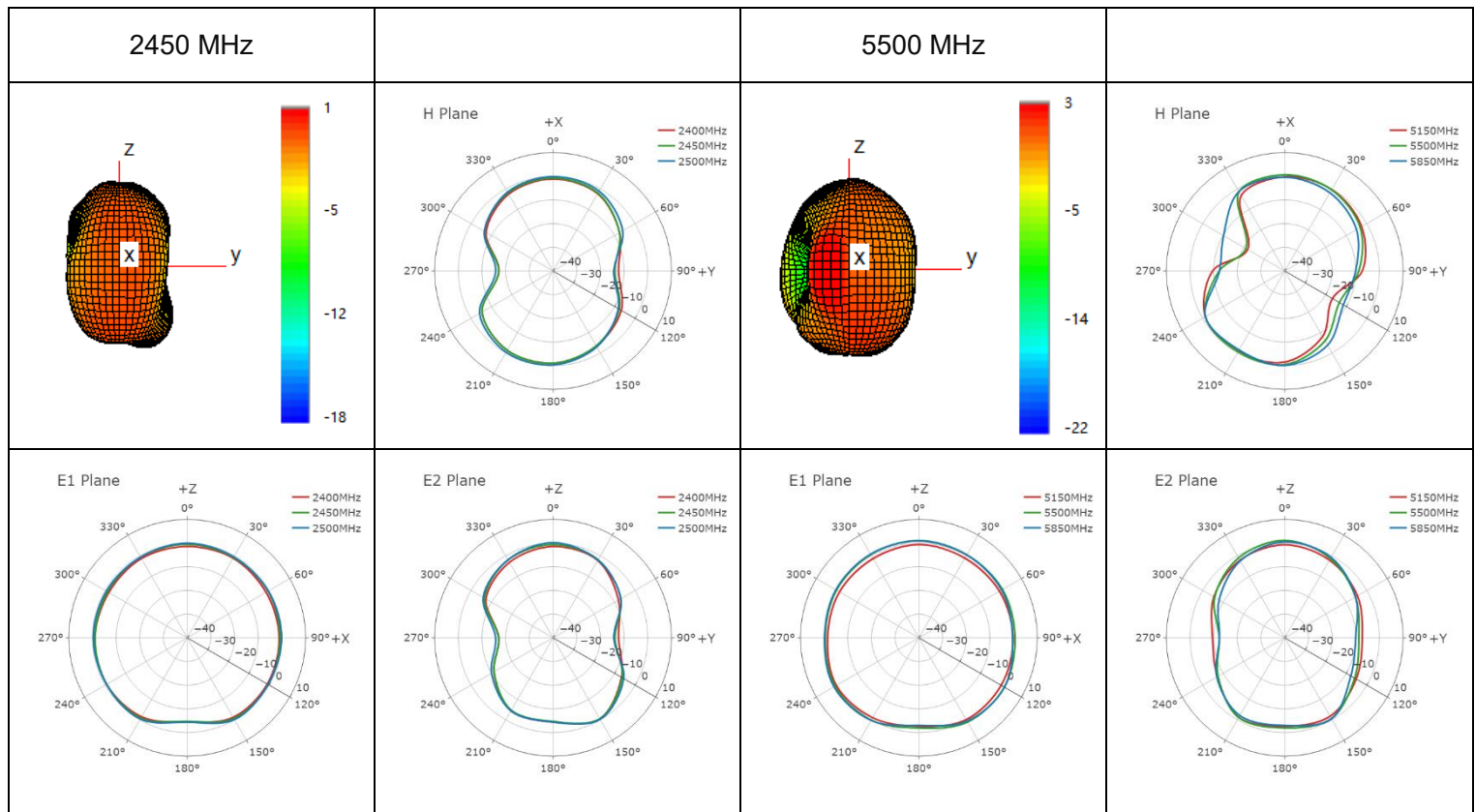
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	0.0	0.1	0.3	1.7	2.0	1.8	-	-	-	-
ABS	3.3	3.1	3.1	2.5	2.6	2.9				

3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Condition: Free Space

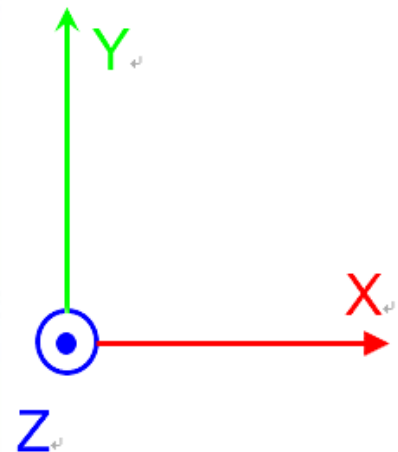
- Test Chamber: HF-G-1

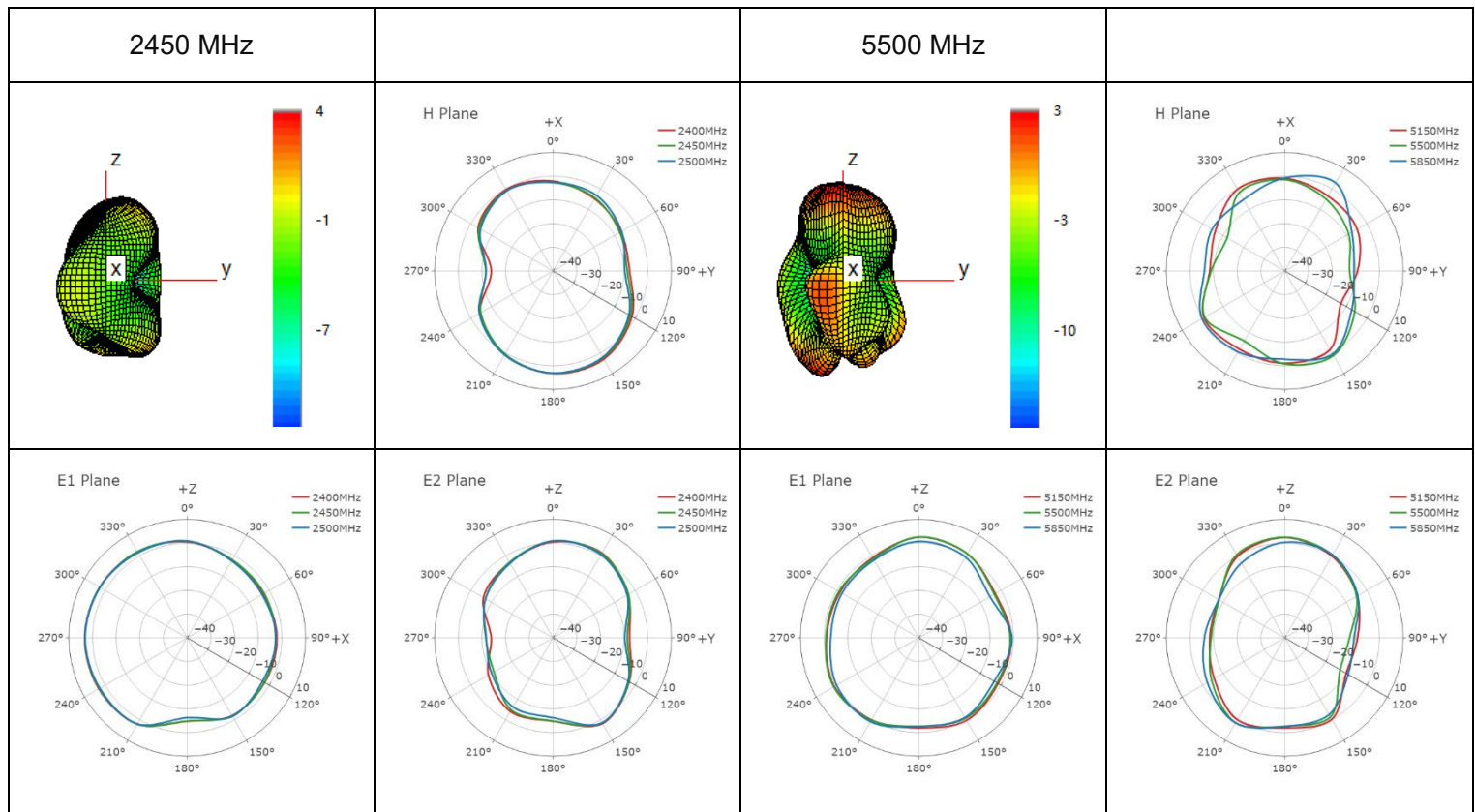




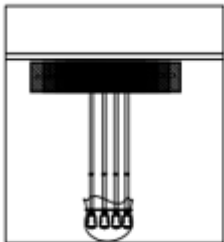
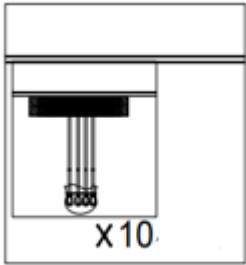
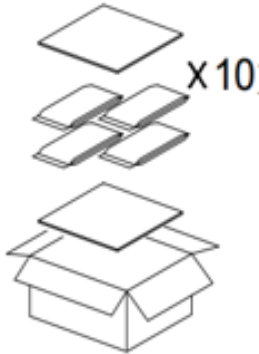
3.2.4.2. Test Condition: Stick on 2 mm Thick ABS Board

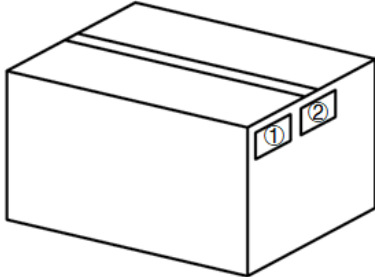
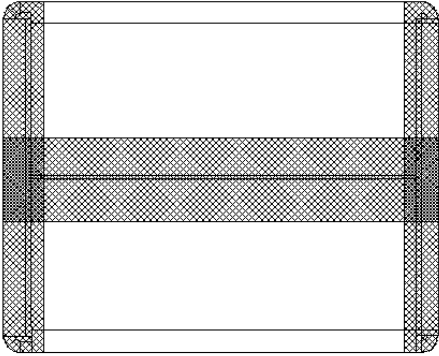
- Test Chamber: HF-G-1





4 Packaging

Step	Packaging Picture / 2D Picture	Description
1	 <p>50pcs/bag</p>	<p>50 pcs antenna products in a small PE bag. (50 PCS / Small PE Bag)</p> <p><u>PE Bag Size: L × W = 140 × 100 mm</u></p>
2	 <p>500pcs/bag</p>	<p>500 pcs antenna products in a big PE bag. (500 PCS / Big PE Bag)</p> <p><u>PE Bag Size: L × W = 345 × 240 mm</u></p>
3	 <p>x10</p>	<p>Place a clapboard at the bottom and top. (10 PE Bags / Carton Box) (5000 PCS Antennas / Carton Box)</p> <p><u>Carton Size:</u> <u>L × W × H = 340 × 260 × 140 mm</u></p>

4		<p>Position for Attaching Labels</p> <p>① Carton Label</p> <p>② Quality Label</p>
5		<p>Sealing Cartons</p> <p>“I” type sealing cartons</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
-	2022-07-25	Richard LIU/ Joye WANG	Creation of the document
1.0	2022-07-25	Richard LIU/ Joye WANG	First official release
2.0	2023-06-12	Aria CHU/ Lucky FENG/ David LIU	1. Updated all data and datasheet template. 2. Updated the antenna image.
2.1	2023-12-05	Lucky FENG/ Aria CHU	Added REACH compliant (Chapter 1.2).
2.2	2024-06-07	Joye WANG	Updated the drawing (Chapter 2).



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