



Antenna Datasheet

Product OC: YF0023AA-0RLTCA0A

Version: 1.0

Date: 2024-04-23

Status: Preliminary

Product Name: Wi-Fi FPC Antenna

Key Features:

Frequency band: 2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz

Peak efficiency: 80.08 % (FS)

Dimensions: 22.9 × 11.7 mm

RoHS and REACH Compliant

Overview

Quectel Wi-Fi antenna covers 2.4 GHz, 5 GHz, and up to 7 GHz bands, fully satisfying customers' requirements for Wi-Fi 5, Wi-Fi 6, and Wi-Fi 6E/Wi-Fi 7. 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, 5925–7125 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		6.1	2.8	1.4
	ABS		3.3	1.4	1.5
Max. Return Loss (dB)	FS		-2.9	-6.6	-15.0
	ABS		-5.4	-16.1	-13.5
AVG Eff. (%)	FS		30.1	54.7	67.5
	ABS		53.6	65.5	59.6
AVG Gain (dB)	FS		-5.2	-2.7	-1.7
	ABS		-2.7	-1.8	-2.3
Max. Peak Gain (dBi)	FS		0.2	2.9	4.2
	ABS		2.7	4.3	6.3
VSWR	FS		≤ 6.1		
	ABS		≤ 3.3		

Return Loss	FS	≤ -2.9 dB
	ABS	≤ -5.4 dB
Peak Gain	FS	≤ 4.2 dBi
	ABS	≤ 6.3 dBi

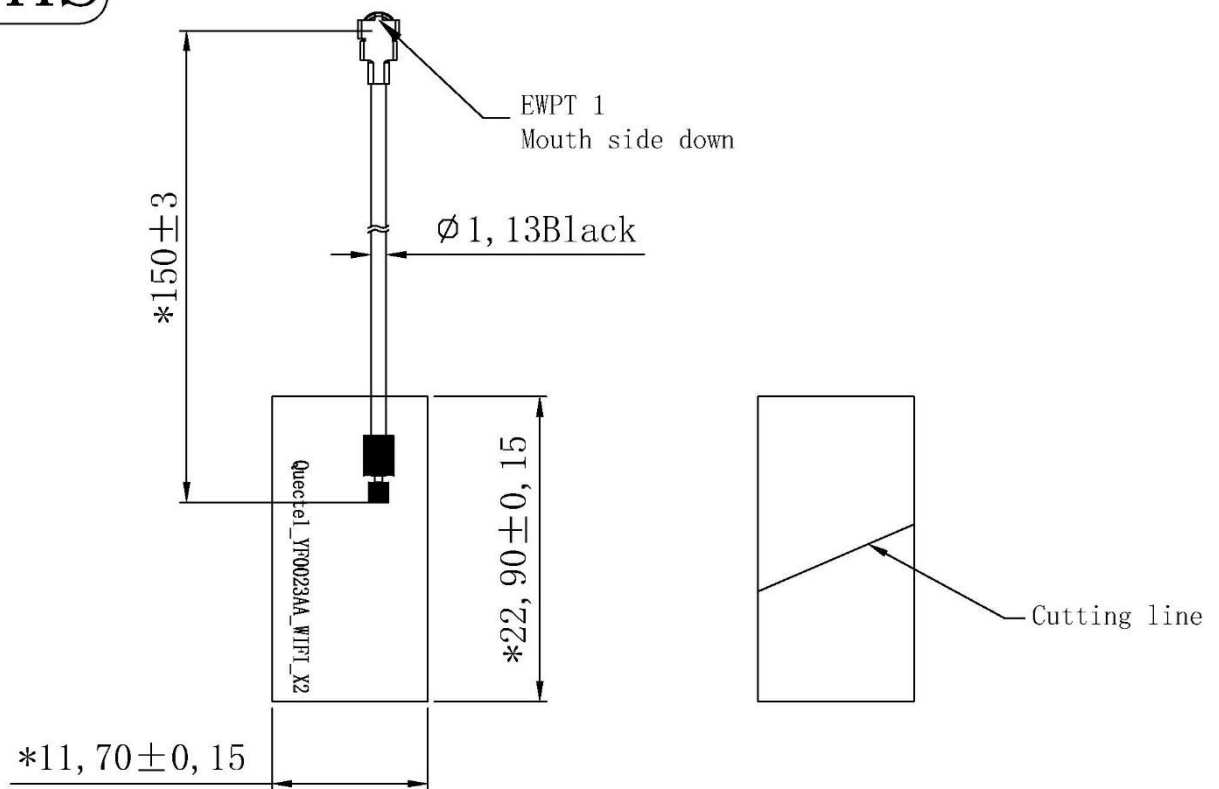
- FS: Free Space
- ABS: Stick on 2 mm Thick ABS Board

1.2. Mechanical, Environmental

Mechanical	
Antenna Size	22.9 × 11.7 mm
Antenna Material & Color	FPC & Black
Cable Type & Color & Length	Φ 1.13 & Black & 150 mm
Connector Type	RF I
Mounting Type	Adhesive
Antenna Weight	Typ. 0.6 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS and REACH Compliant	Yes

2 Drawing

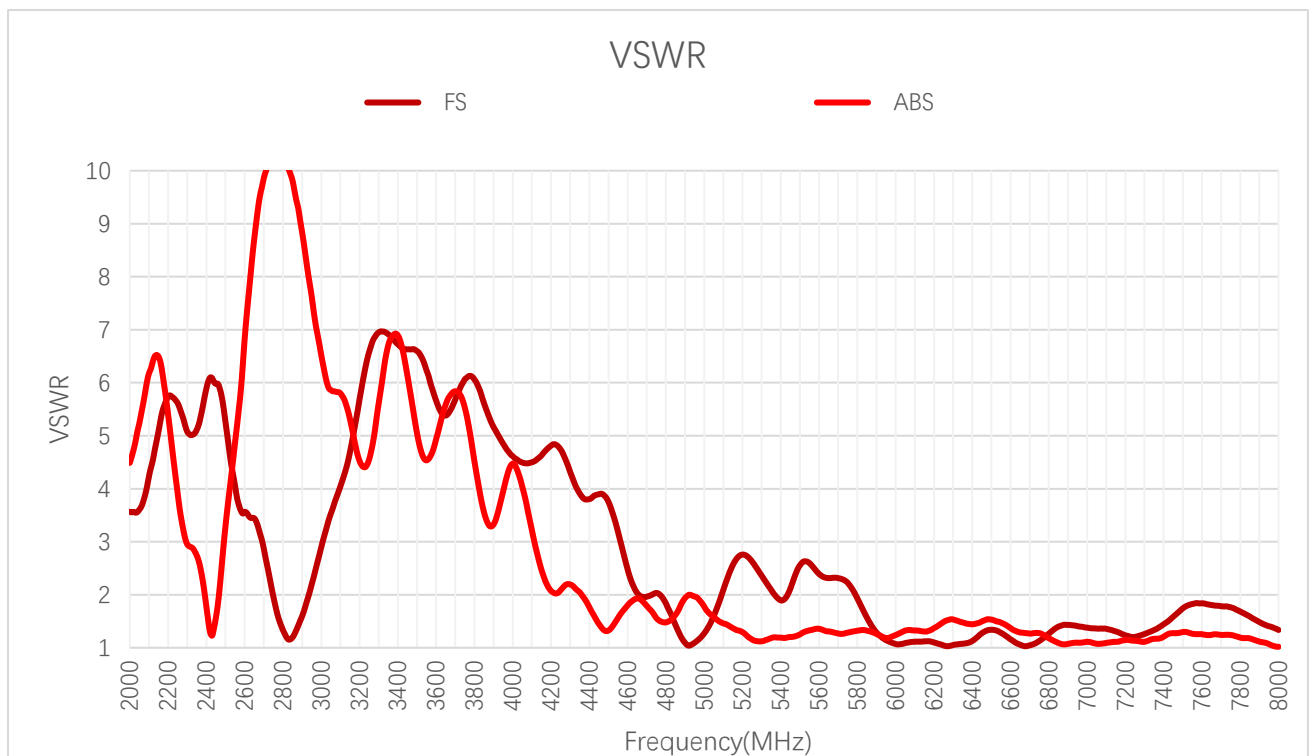
ROHS



3 Detailed Performance

3.1. S-Parameter Test

3.1.1. VSWR



VSWR

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6520	7120
FS	5.9	6.0	5.2	2.6	2.6	1.6	1.2	1.3	1.3
ABS	1.8	1.6	3.3	1.4	1.3	1.3	1.2	1.5	1.1

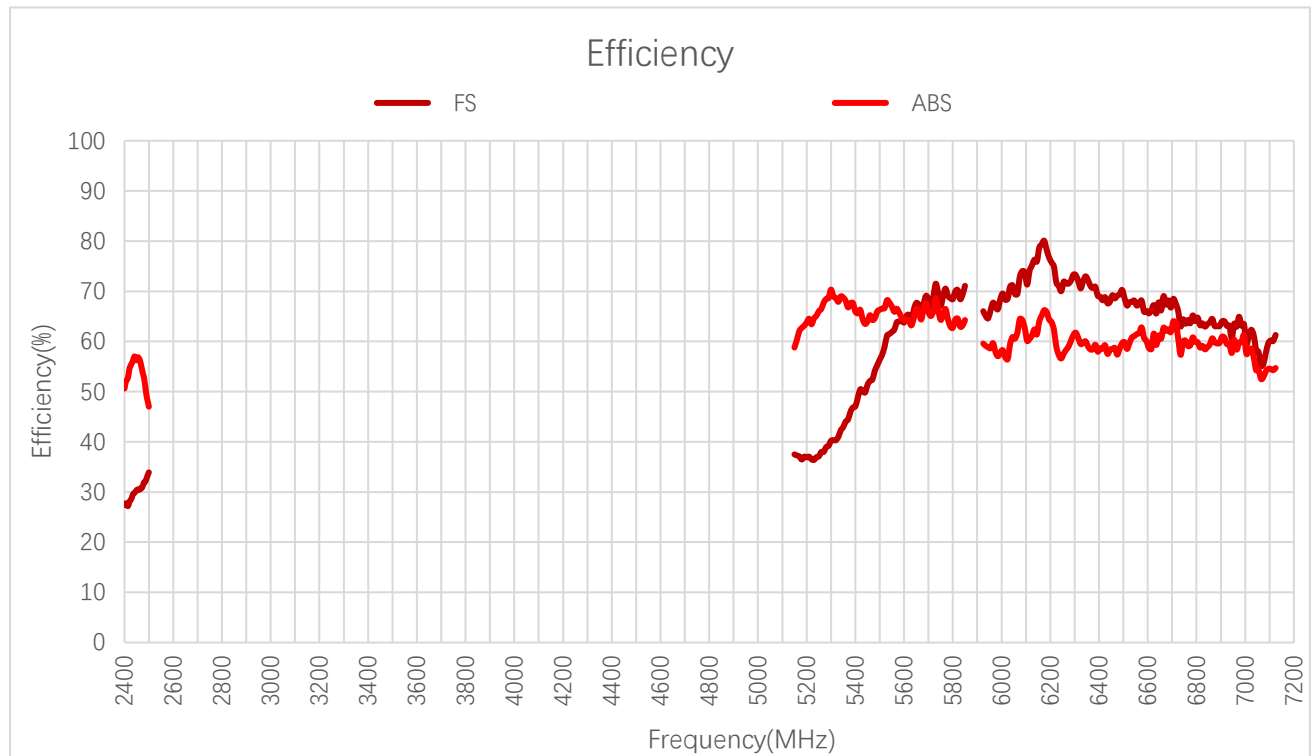
3.1.2. Return Loss



Return Loss (dB)									
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6520	7120
FS	-3.0	-2.9	-3.4	-7.2	-7.2	-13.1	-20.1	-17.0	-16.7
ABS	-11.1	-13.0	-5.4	-16.1	-19.1	-17.2	-19.8	-13.9	-26.3

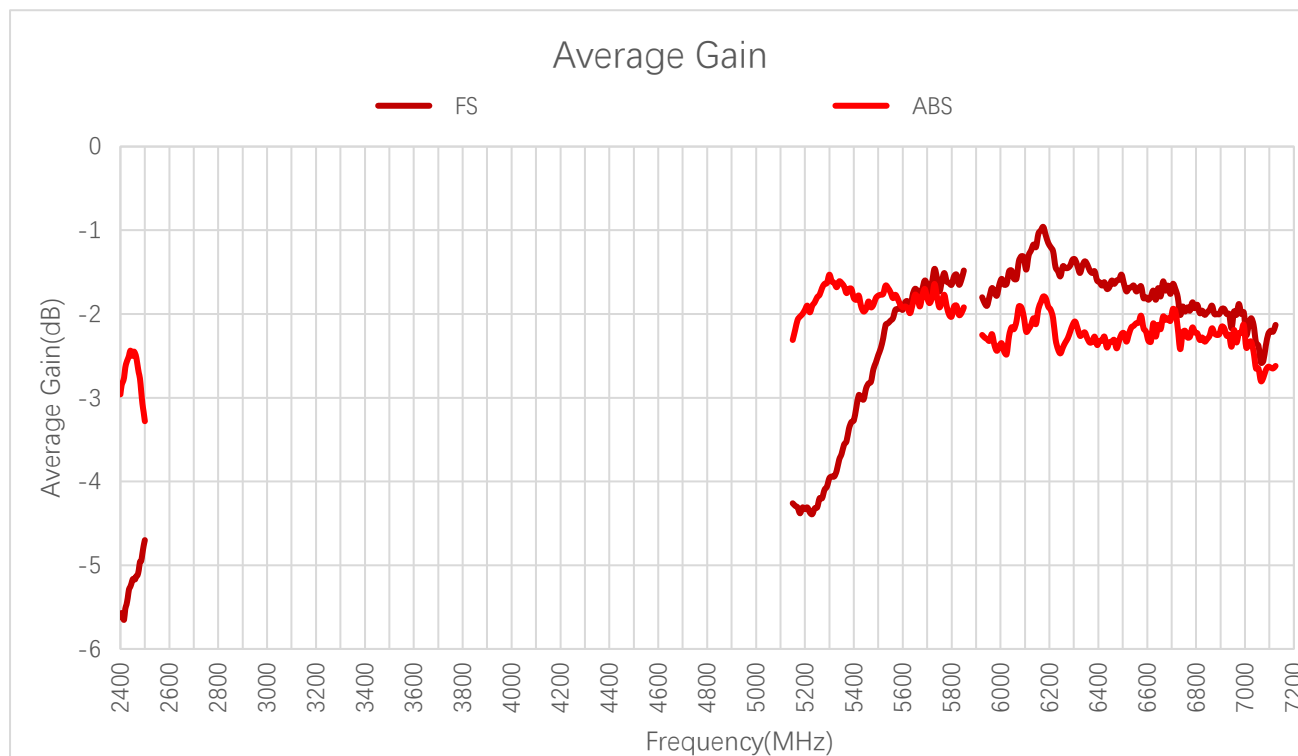
3.2. Radiation Performance Test

3.2.1. Efficiency



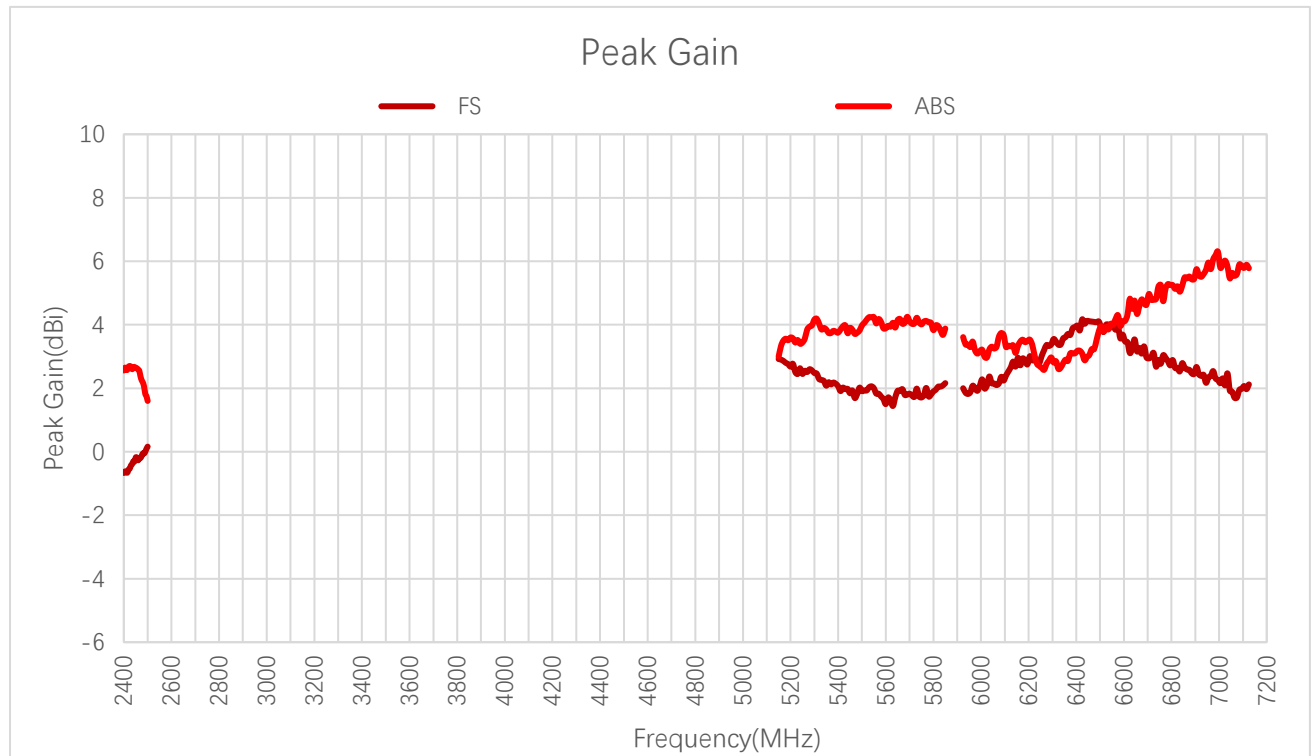
Efficiency (%)									
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6525	7125
FS	27.5	30.4	33.9	37.5	56.4	71.1	66.0	67.8	61.3
ABS	50.6	56.3	47.0	58.8	66.3	64.3	59.6	59.7	54.7

3.2.2. Average Gain



Average Gain (dB)									
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6525	7125
FS	-5.6	-5.2	-4.7	-4.3	-2.5	-1.5	-1.8	-1.7	-2.1
ABS	-3.0	-2.5	-3.3	-2.3	-1.8	-1.9	-2.3	-2.2	-2.6

3.2.3. Peak Gain



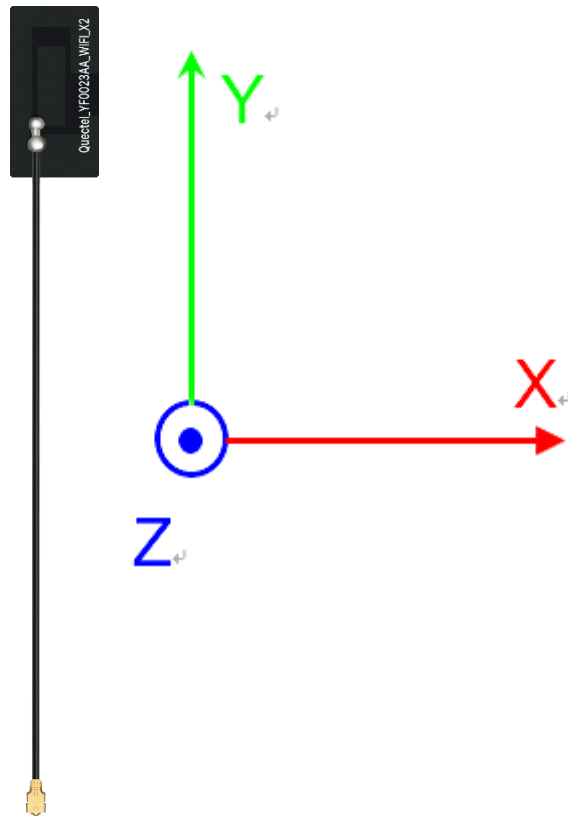
Peak Gain (dBi)

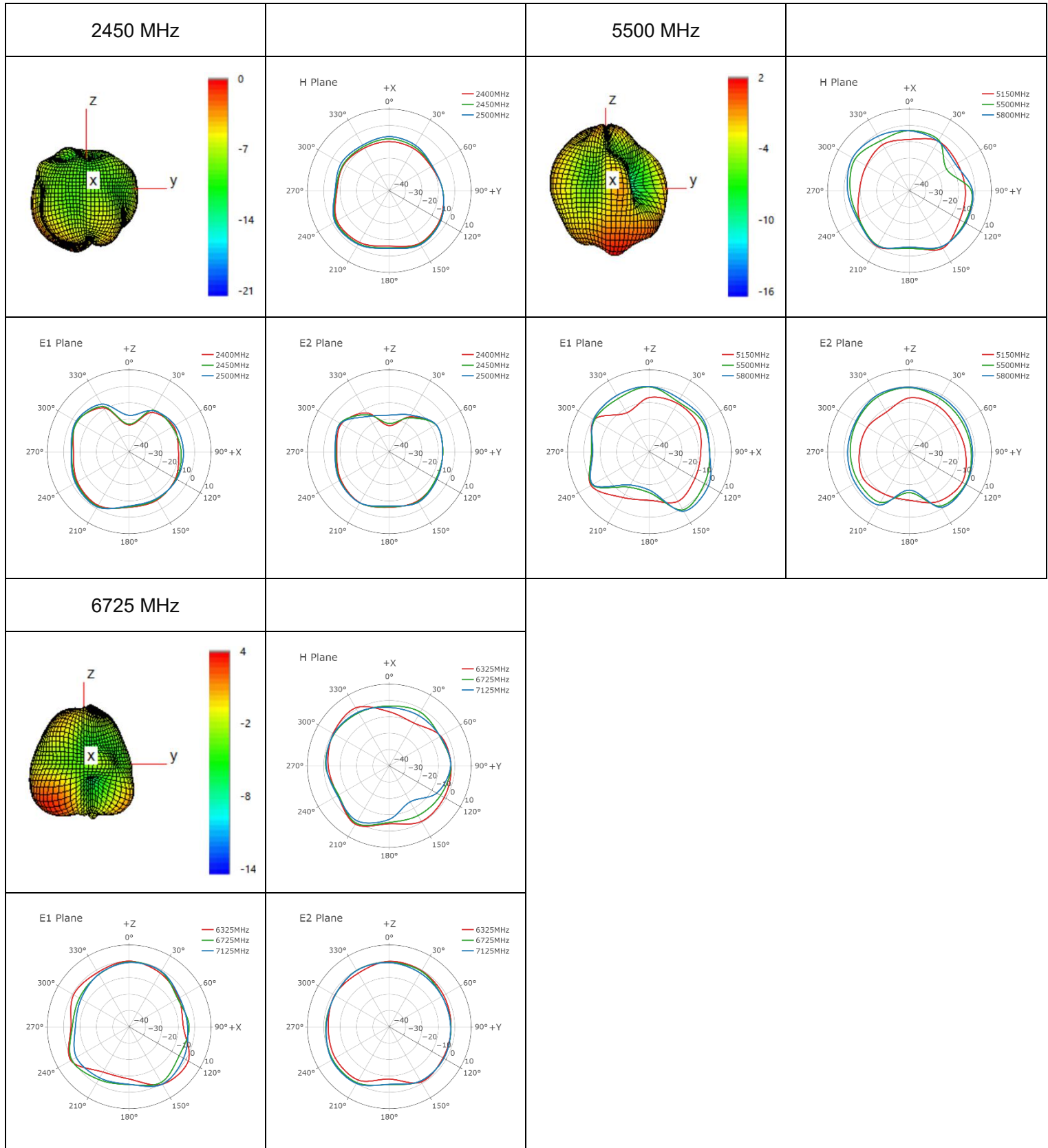
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6525	7125
FS	-0.7	-0.2	0.2	2.9	1.9	2.2	2.0	4.0	2.1
ABS	2.6	2.6	1.6	3.0	4.0	3.9	3.6	3.9	5.8

3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Condition: Free Space

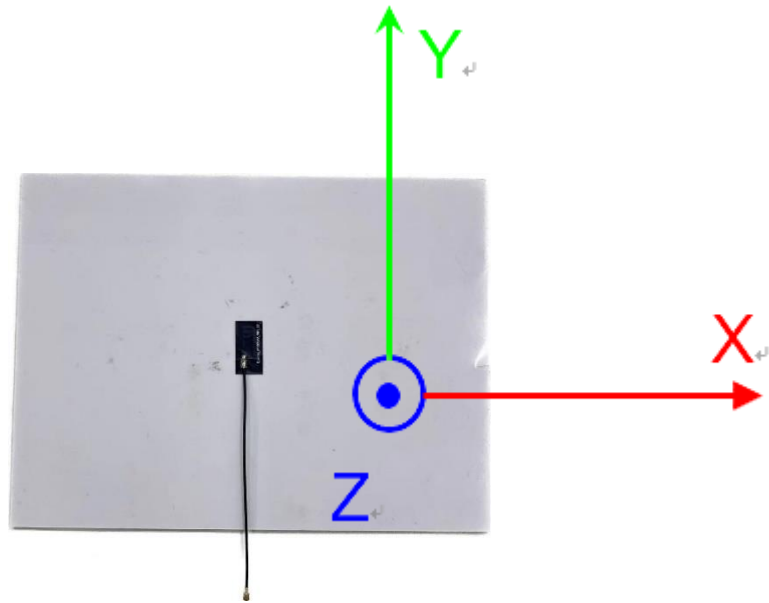
- Test Chamber: HF-G-1

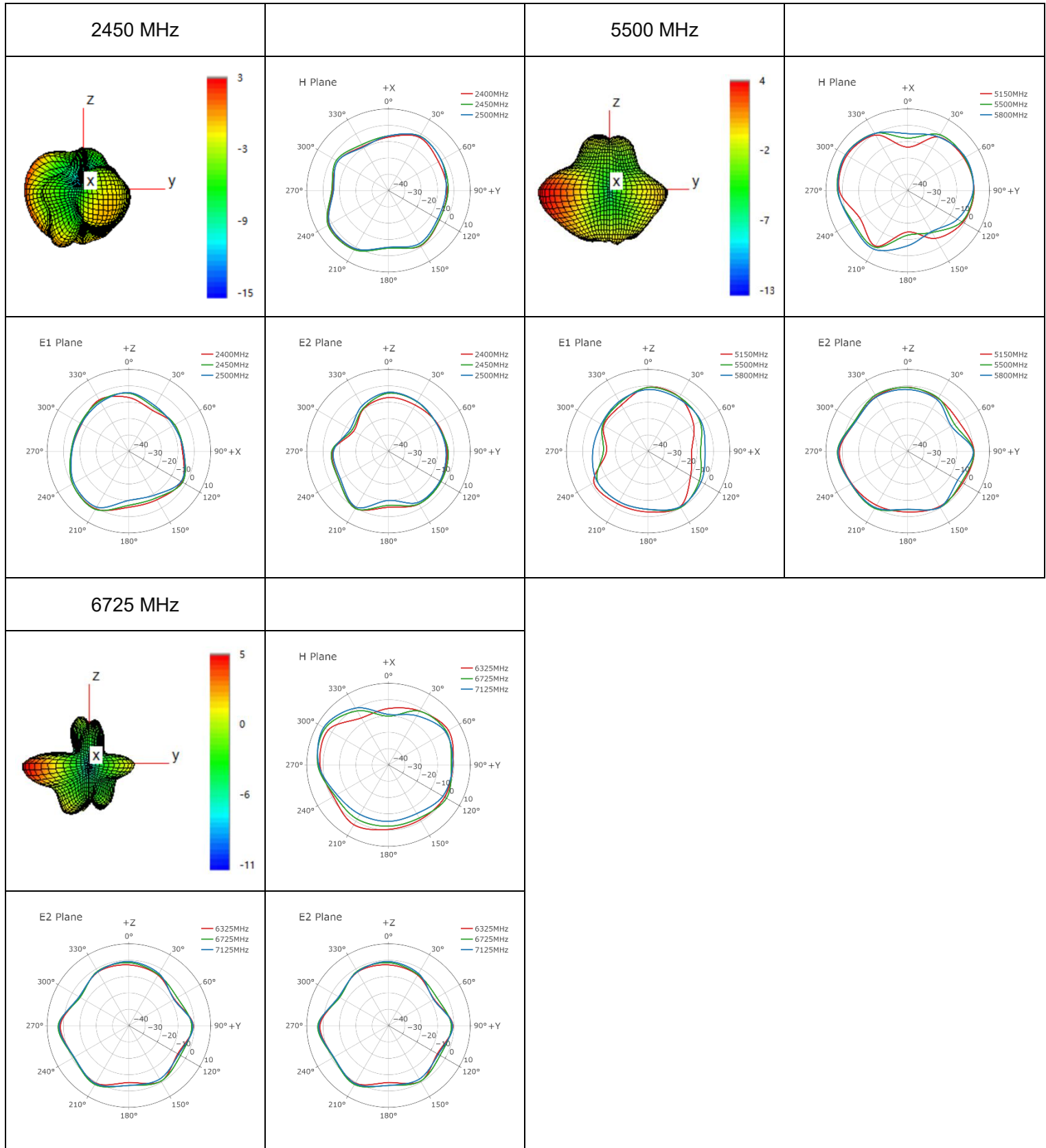




3.2.4.2. Test Condition: Stick on 2 mm Thick ABS Board

- Test Chamber: HF-G-1





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
-	2024-04-23	Aslan CHEN Bailey ZHANG Aria CHU	Creation of the document
1.0	2024-04-23	Aslan CHEN Bailey ZHANG Aria CHU	First official release



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