



Antenna Datasheet

Product OC: YF0027AA

Version: 2.1

Date: 2023-12-05

Status: Released

Product Name: Wi-Fi FPC Antenna

Key Features:

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

Peak efficiency: 80.4 % (ABS)

Dimensions: 38 mm × 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	6.6	3.0	1.9
	ABS	1.6	1.7	2.5
Max. Return Loss (dB)	FS	-2.6	-6.1	-10.3
	ABS	-13.3	-11.3	-7.5
AVG Eff. (%)	FS	25.7	56.5	65.2
	ABS	80.4	67.4	60.9
AVG Gain (dB)	FS	-5.9	-6.4	-1.9
	ABS	-0.9	-1.1	-2.2
Max. Peak Gain (dBi)	FS	-1.2	-2.2	3.6
	ABS	2.7	2.0	6.4
VSWR	FS	≤ 6.6		
	ABS	≤ 1.7		

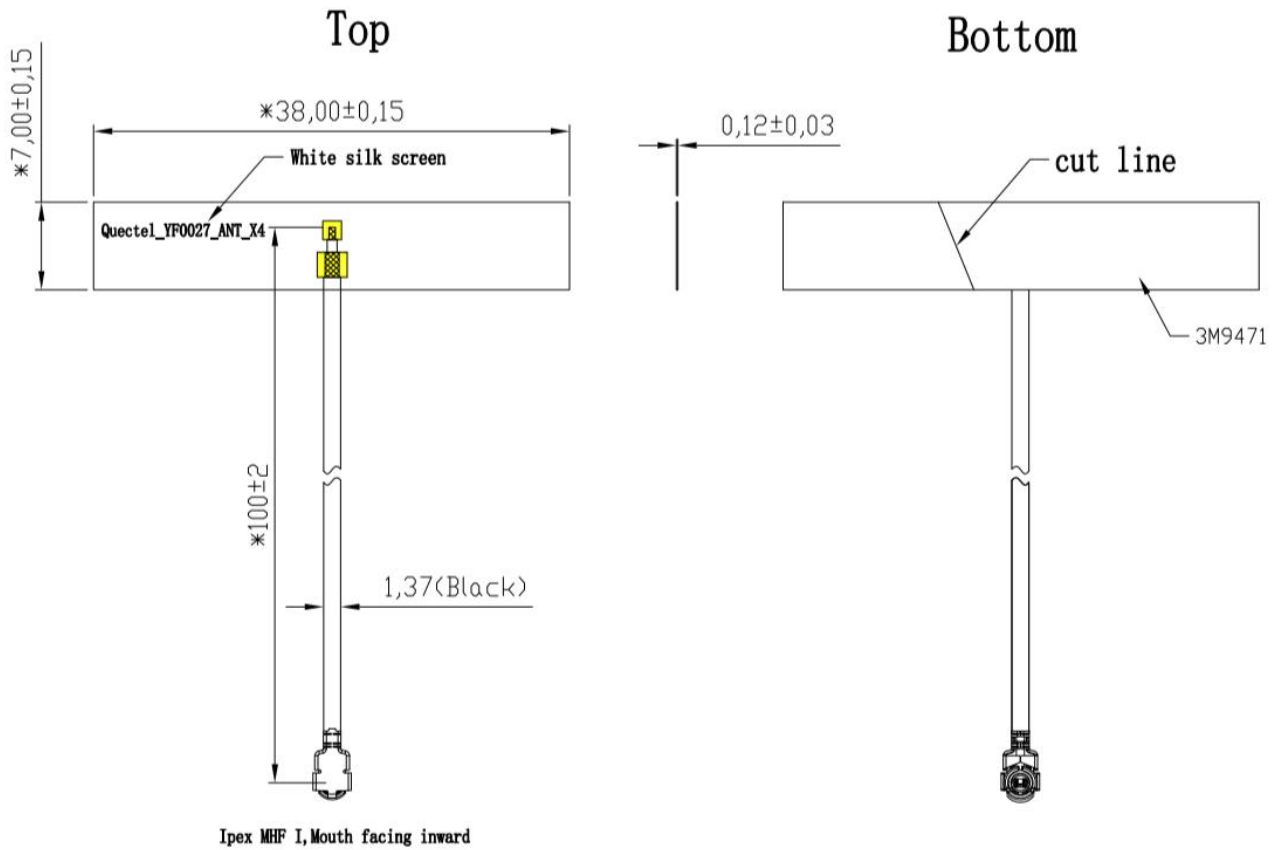
Return Loss	FS	≤ -2.6 dB
	ABS	≤ -7.5 dB
Peak Gain	FS	≤ 3.6 dBi
	ABS	≤ 6.4 dBi

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

1.2. Mechanical & Environmental

Mechanical	
Antenna Size	38 mm × 7 mm
Antenna Material & Color	FPC & Black
Cable Type & Color & Length	Φ 1.37 & Black & 100 mm
Connector Type	IPEX MHF 1
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

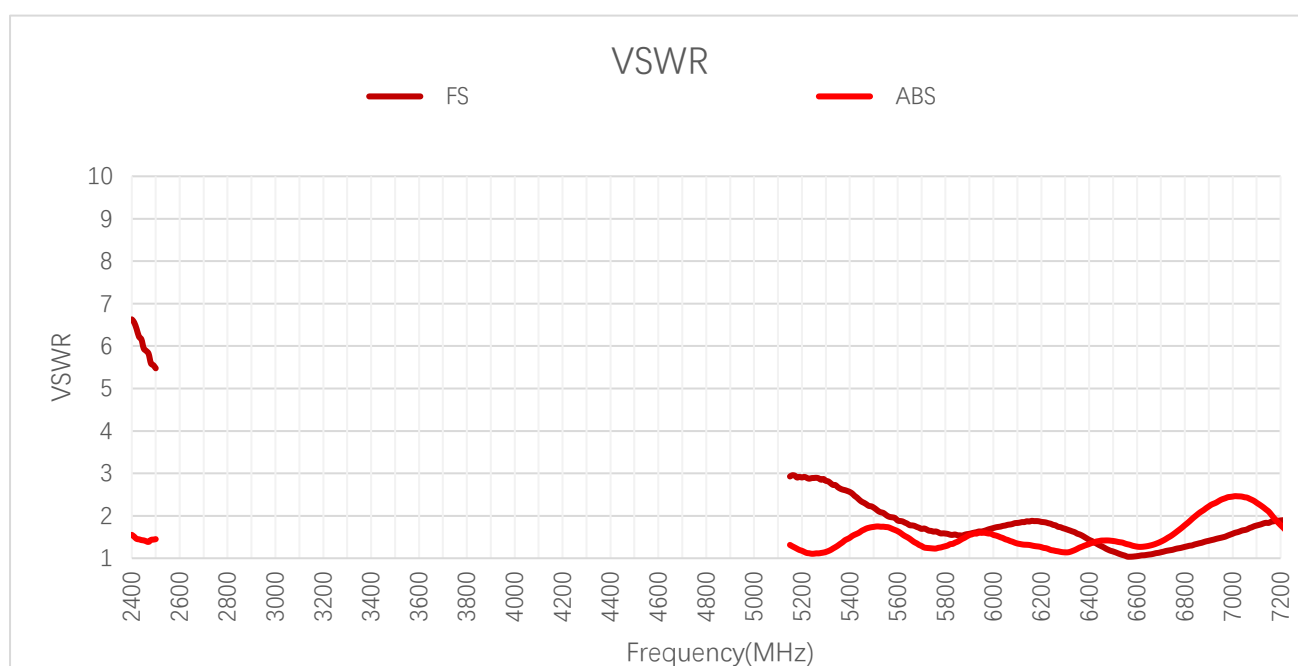
2 Drawing



3 Detailed Performance

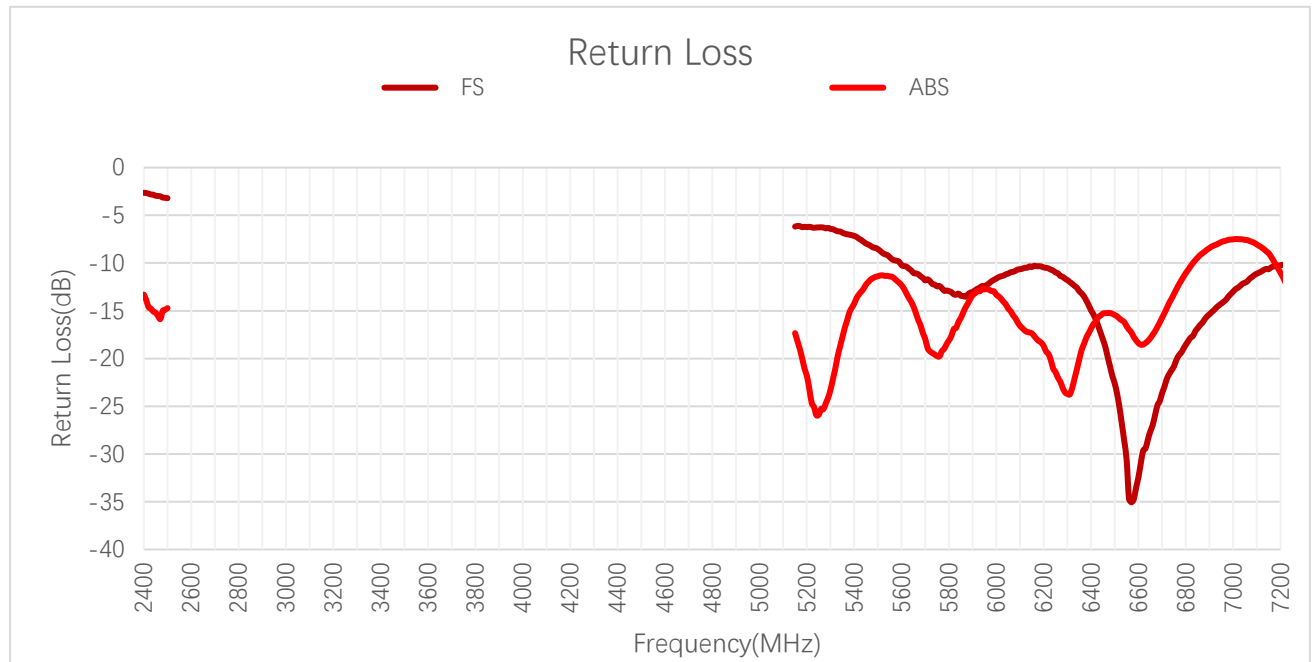
3.1. S-Parameter Test

3.1.1. VSWR



VSWR										
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6320	6720	7120
FS	6.6	5.9	5.5	2.9	2.2	1.5	1.6	1.7	1.2	1.8
ABS	1.6	1.4	1.4	1.3	1.7	1.4	1.6	1.2	1.5	2.2

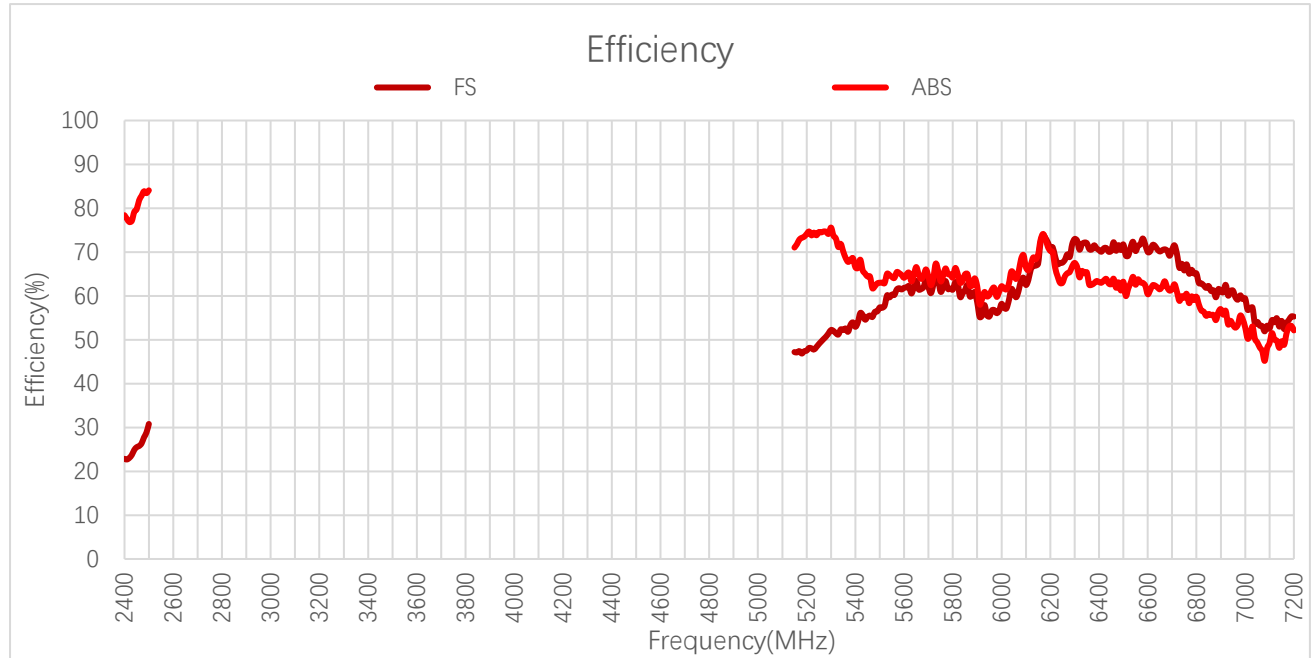
3.1.2. Return Loss



Return Loss										
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6320	6720	7120
FS	-2.6	-3.0	-3.2	-6.2	-8.6	-13.4	-12.7	-12.2	-22.1	-10.9
ABS	-13.3	-15.2	-14.7	-17.3	-11.4	-15.8	-12.9	-23.1	-14.7	-8.4

3.2. Radiation Performance Test

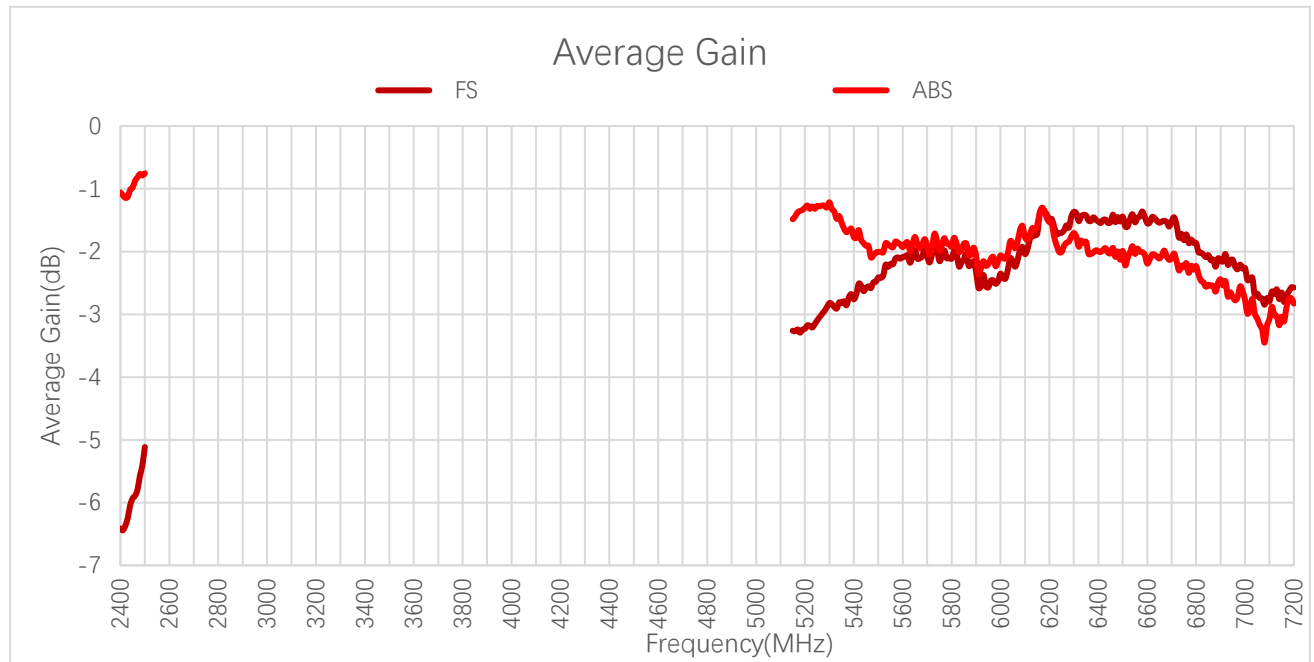
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6320	6720	7120
FS	22.8	25.5	30.8	47.2	57.4	61.4	55.5	70.5	69.6	54.0
ABS	78.4	79.8	84.1	71.0	63.0	64.9	59.3	64.2	60.9	50.0

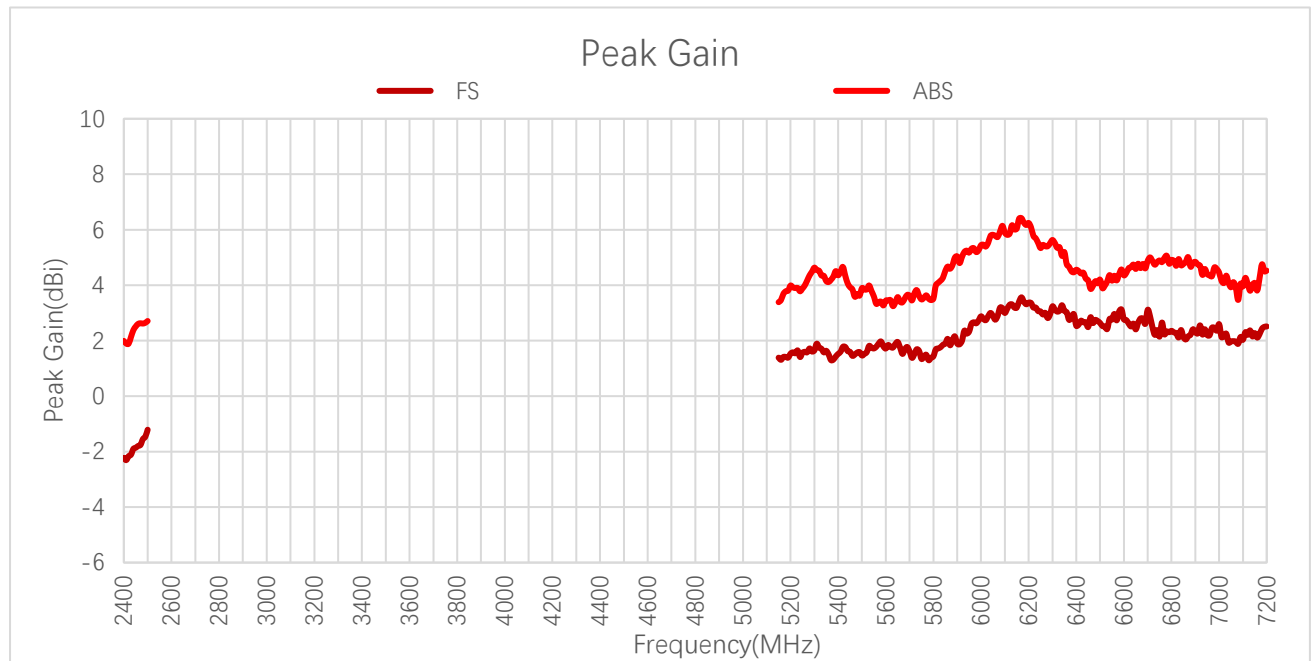
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6320	6720	7120
FS	-6.4	-5.9	-5.1	-3.3	-2.4	-2.1	-2.6	-1.5	-1.6	-2.7
ABS	-1.1	-1.0	-0.8	-1.5	-2.0	-1.9	-2.3	-1.9	-2.2	-3.0

3.2.3. Peak Gain

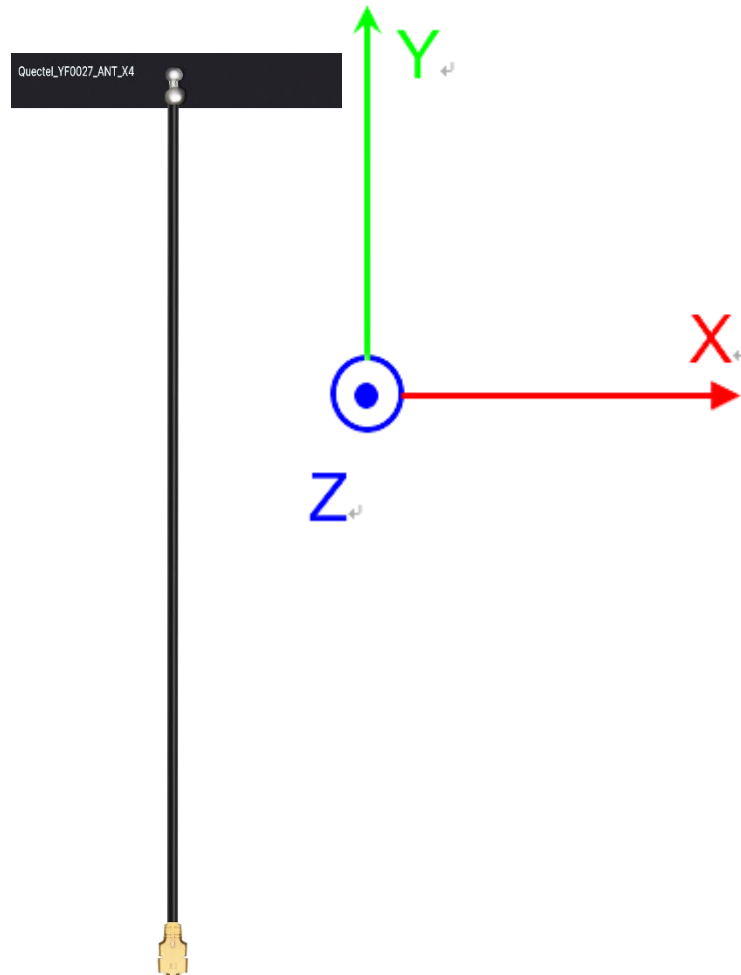


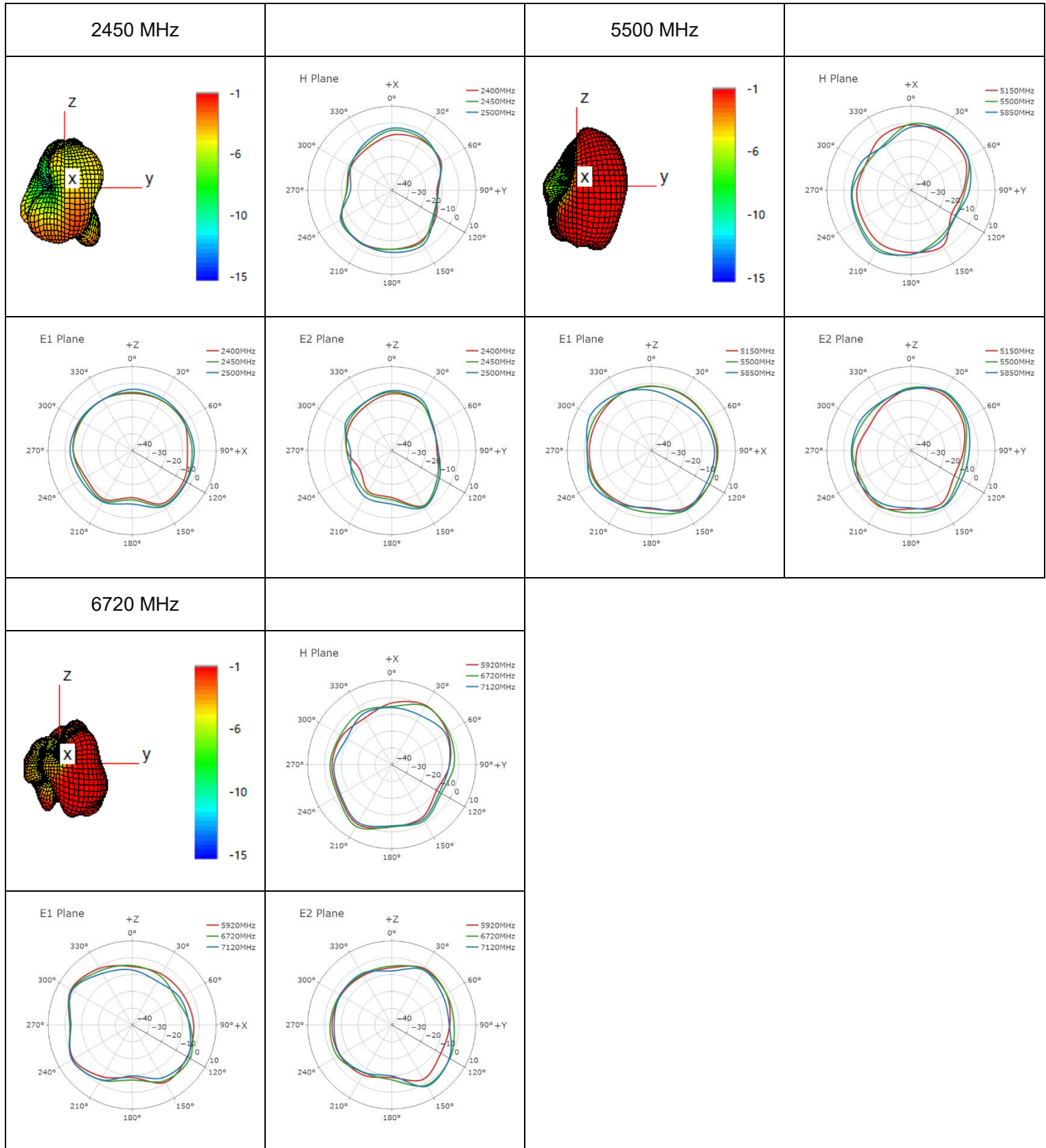
Peak Gain (dBi)										
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6320	6720	7120
FS	-2.2	-1.9	-1.2	1.4	1.5	1.9	2.0	3.0	2.5	2.2
ABS				2.0	3.9	4.5	5.0	5.3	4.9	4.0

3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Condition: Free Space

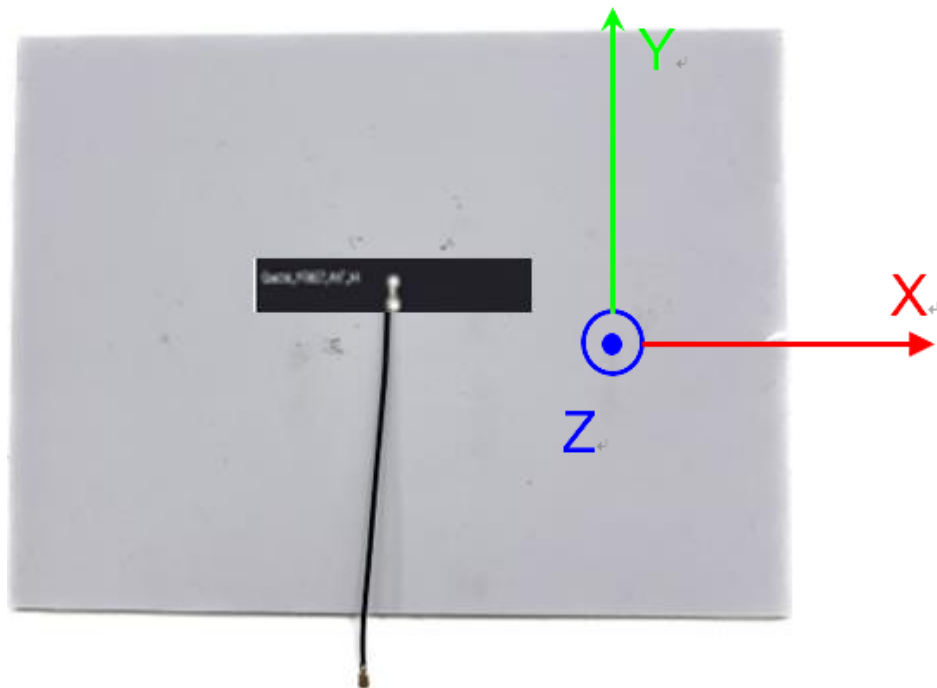
- Test Chamber: HF-G-1



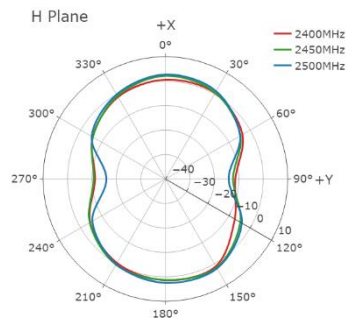
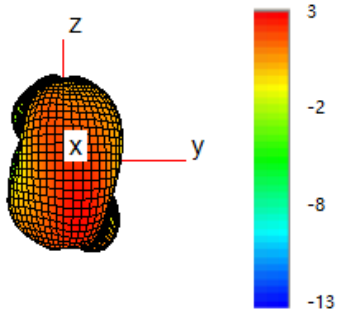


3.2.4.2. Test Condition: Stick on 2 mm Thick ABS Board

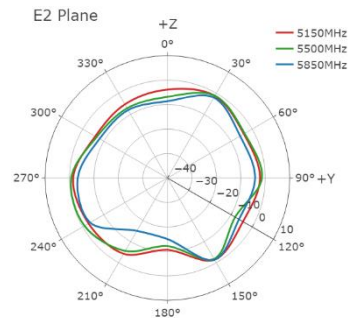
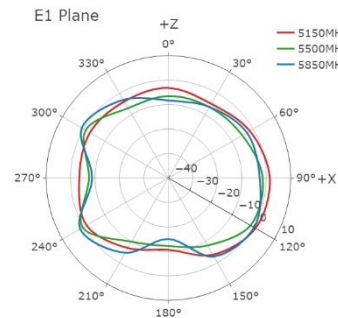
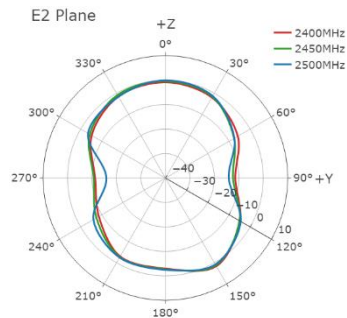
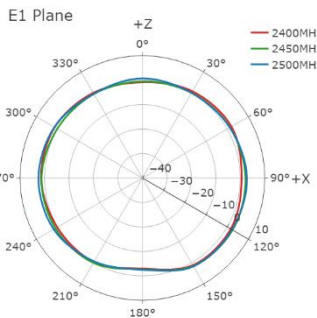
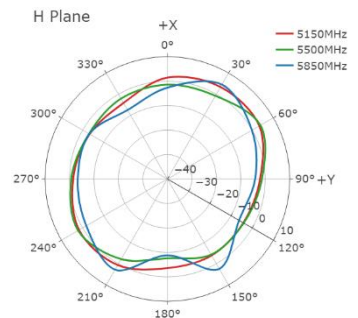
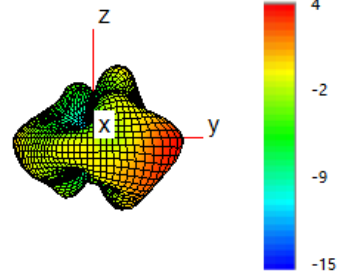
- Test Chamber: HF-G-1



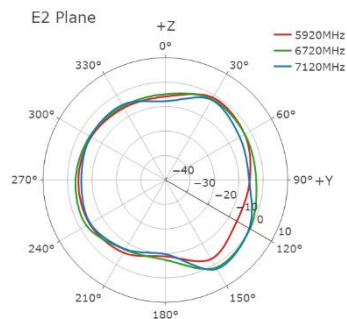
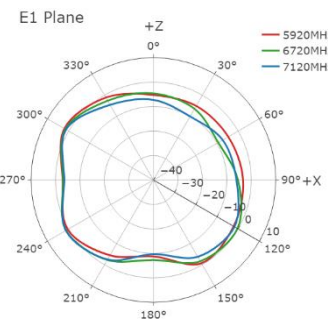
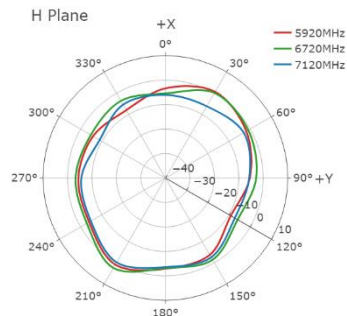
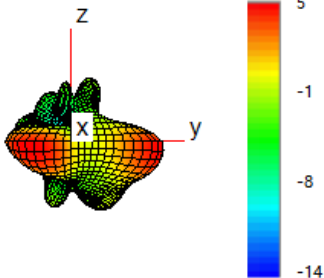
2450 MHz



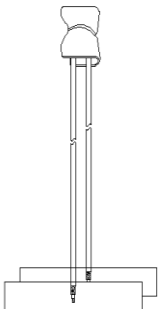
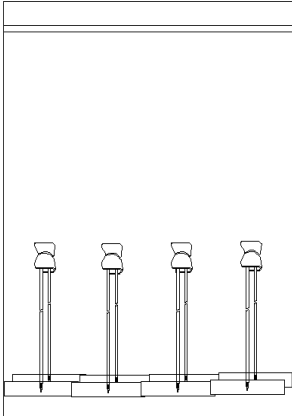
5500 MHz

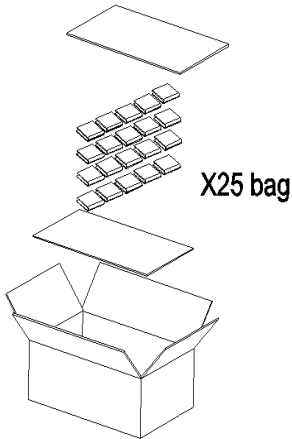
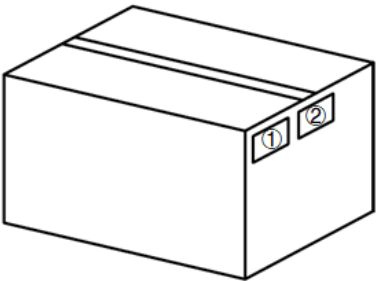
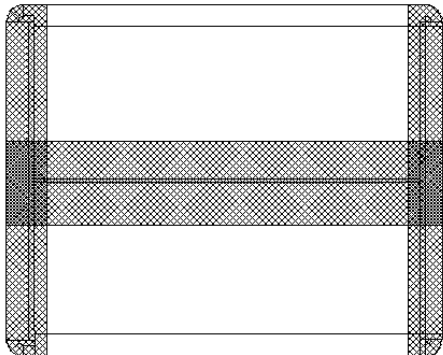


6720 MHz



4 Packaging

Step	Packaging Picture / 2D Picture	Description
1	 50PCS/bale	A bundle of 50 products
2	 200PCS/bag	200 pcs antenna products in a PE bag. <u>PE Bag Size: L × W = 300 × 200 mm</u>

3		Place a clapboard at the bottom and top. (25 PE bags per carton box) (5000 pcs antennas per carton box) <u>Carton Size:</u> <u>L × W × H = 370 × 295 × 150 mm</u>
4		Position for Attaching Labels ① Carton Label ② Quality Label
5		Sealing Cartons “I” 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
-	2021-04-01	Kenny YIN	Creation of the document
1.0	2021-04-01	Kenny YIN	First official release
1.1	2021-11-30	Kenny YIN	Updated the product description (Chapter 1).
2.0	2023-04-27	Aria CHU/ Lucky FENG/ David LIU	Updated all data and datasheet template.
2.1	2023-12-05	Lucky FENG/ Aria CHU	Added REACH compliant (Chapter 1.2).



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