Antenna Datasheet

Product OC: YF0026AA
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: 80.26 % (ABS)
Dimensions: 28.9 mm × 11 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**	9.3	2.7	2.0
	ABS	2.1	2.2	1.6
Max. Return Loss (dB)	**FS**	-1.9	-6.8	-9.4
	ABS	-9.0	-8.6	-13.1
AVG Eff. (%)	**FS**	10.3	50.6	61.4
	ABS	77.6	68.7	60.7
AVG Gain (dB)	**FS**	-9.9	-3.0	-2.1
	ABS	-1.1	-1.6	-2.2
Max. Peak Gain (dBi)	**FS**	-6.6	1.3	2.5
	ABS	2.1	5.3	6.9
VSWR	**FS**	≤ 9.3		
	ABS	≤ 2.2		

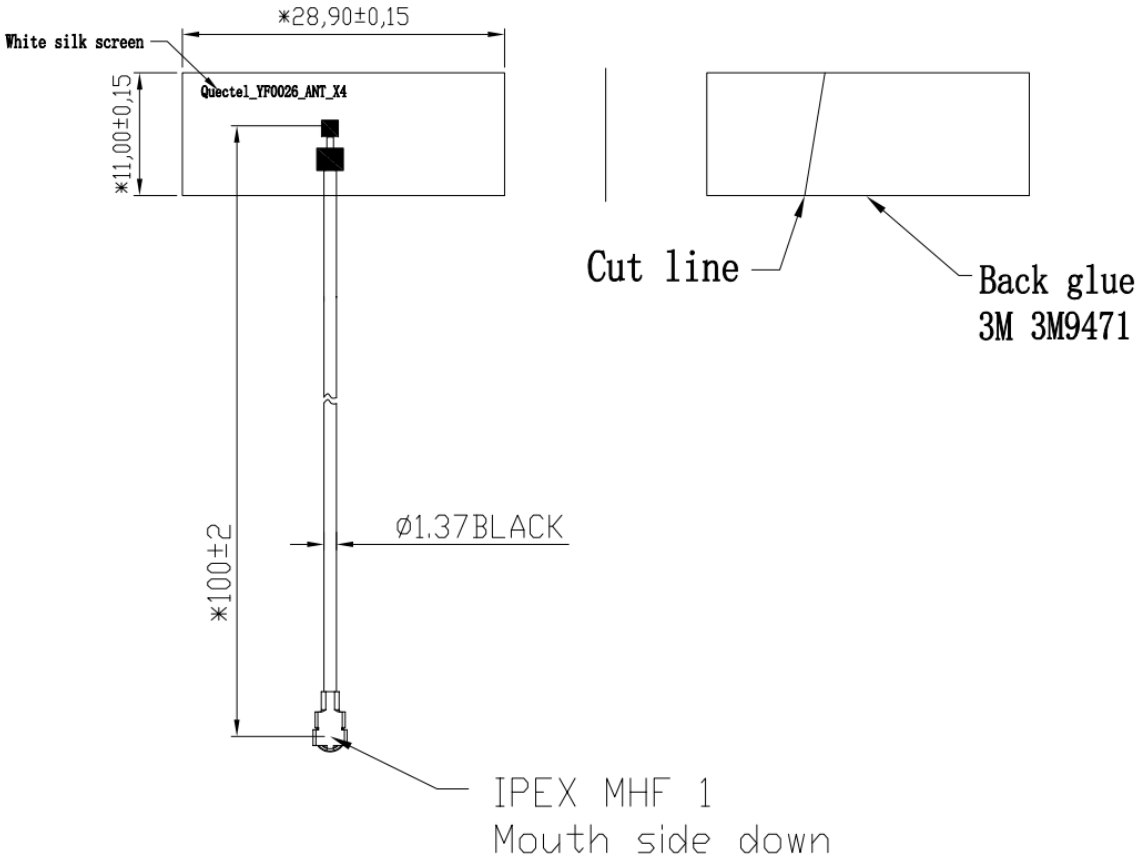
Return Loss	**FS**	≤ -1.9 dB
	ABS	≤ -8.6 dB
Peak Gain	**FS**	≤ 2.5 dBi
	ABS	≤ 6.9 dBi

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

1.2. Mechanical & Environmental

Mechanical	
Antenna Size	28.9 mm × 11 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

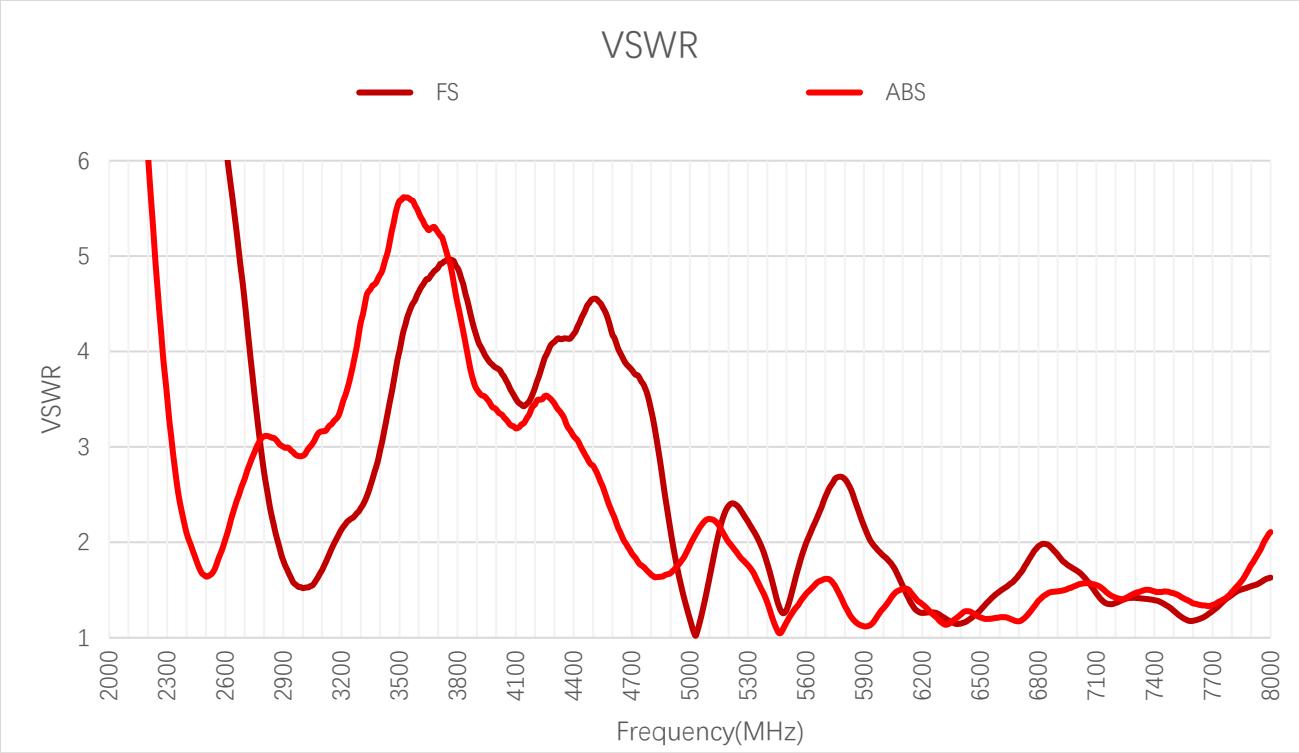
2 Drawing


*28,90±0,15
White silk screen
Quectel_YF0026_ANT_X4
*11,00±0,15
Cut line
Back glue
3M 3M9471
Ø1.37BLACK
*100±2
IPEX MHF 1
Mouth side down

3 Detailed Performance

3.1. S-Parameter Test

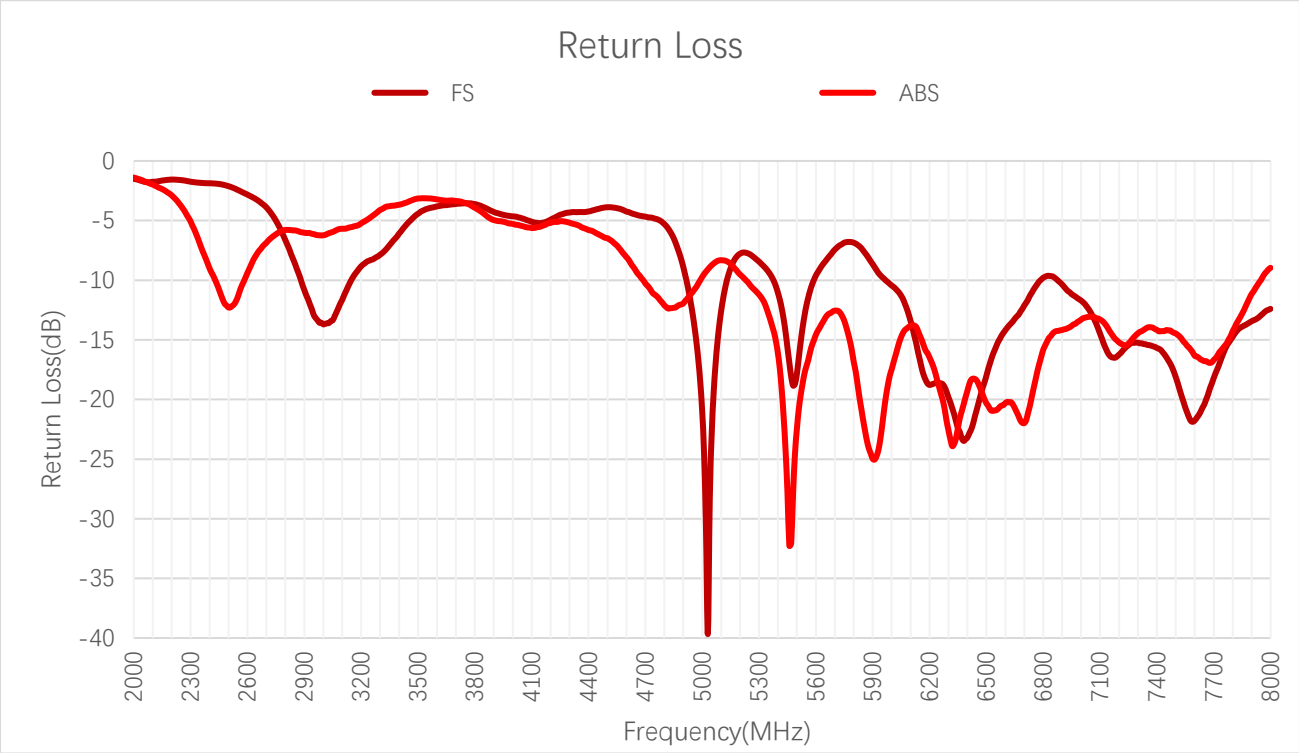
3.1.1. VSWR



VSWR

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6520	7120
FS	9.3	9.0	8.2	2.1	1.3	2.5	2.1	1.3	1.4
ABS	2.1	1.8	1.6	2.2	1.2	1.2	1.1	1.2	1.5

3.1.2. Return Loss

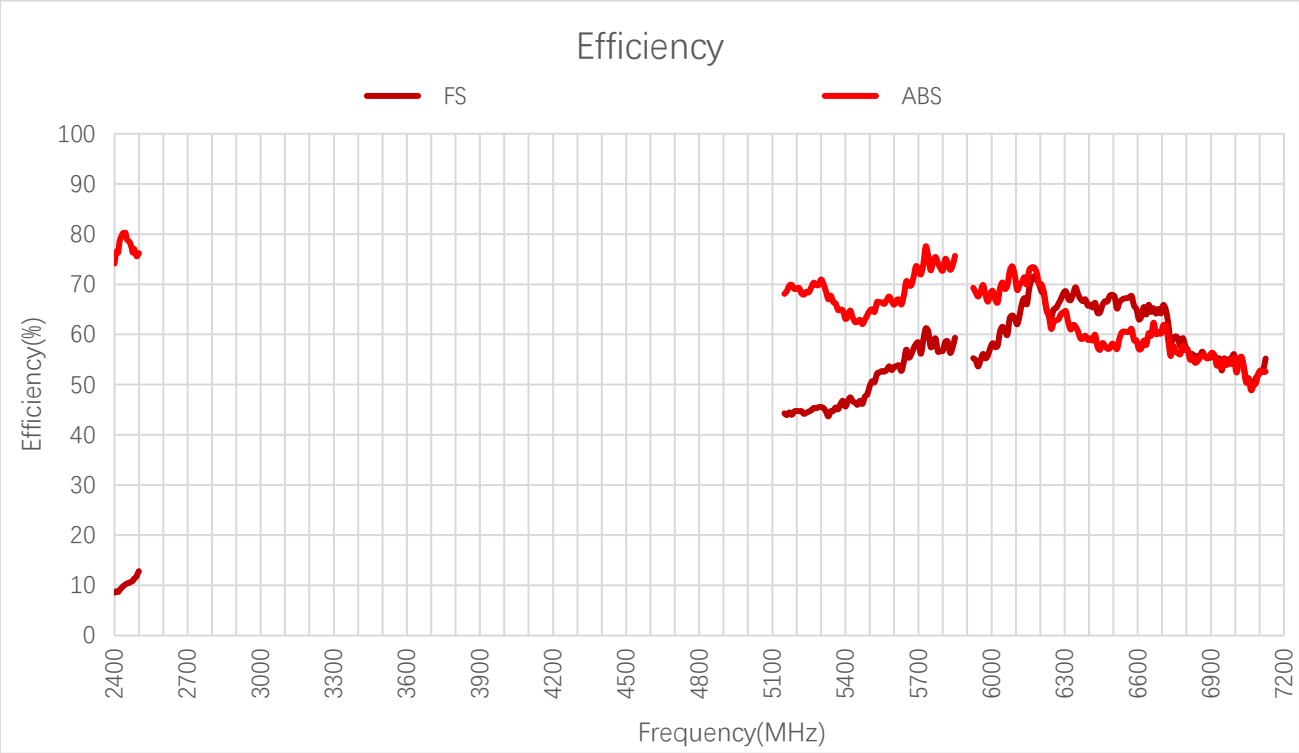


Return Loss (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6520	7120
FS	-1.9	-1.9	-2.1	-9.0	-17.8	-7.5	-9.1	-16.9	-15.3
ABS	-9.0	-10.8	-12.3	-8.6	-22.4	-21.8	-24.8	-20.8	-13.5

3.2. Radiation Performance Test

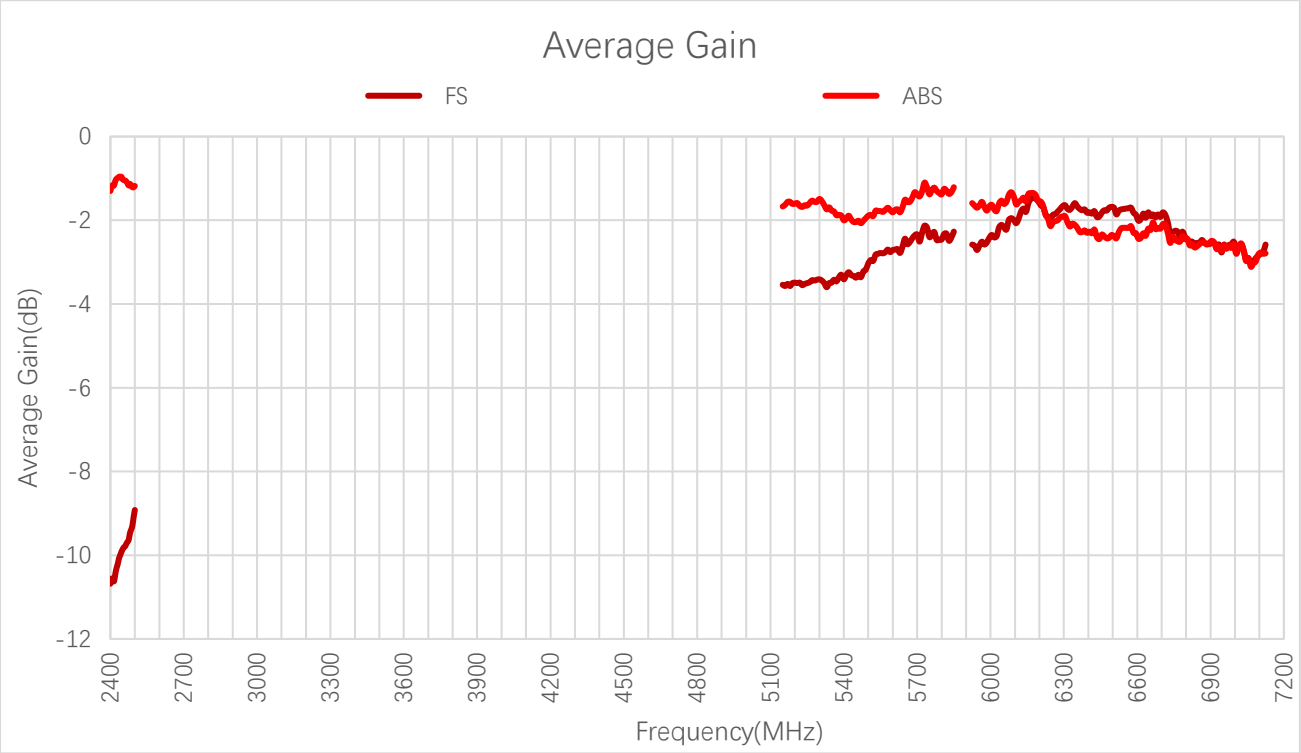
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6525	7125
FS	8.6	10.3	12.8	44.3	49.8	59.3	55.3	66.5	55.2
ABS	74.1	79.1	76.2	68.1	64.7	75.7	69.3	59.2	52.6

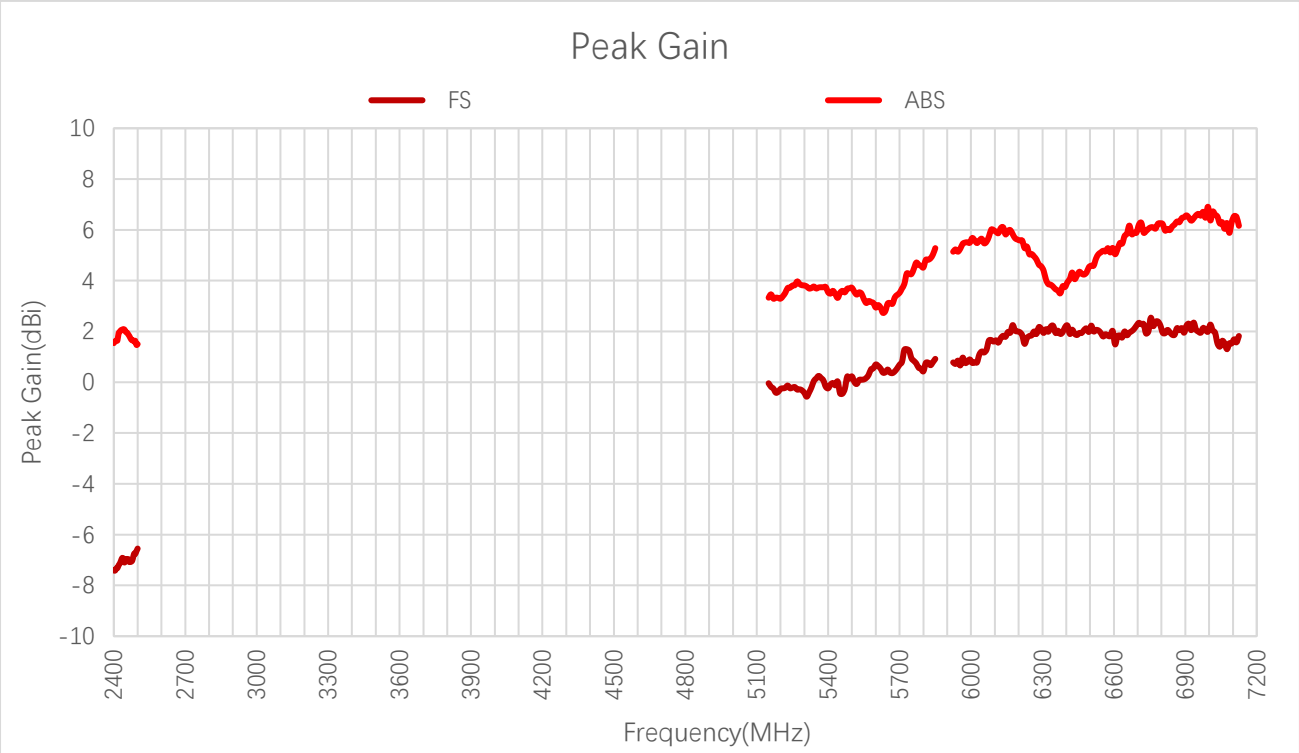
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6525	7125
FS	-10.7	-9.9	-8.9	-3.5	-3.0	-2.3	-2.6	-1.8	-2.6
ABS	-1.3	-1.0	-1.2	-1.7	-1.9	-1.2	-1.6	-2.3	-2.8

3.2.3. Peak Gain



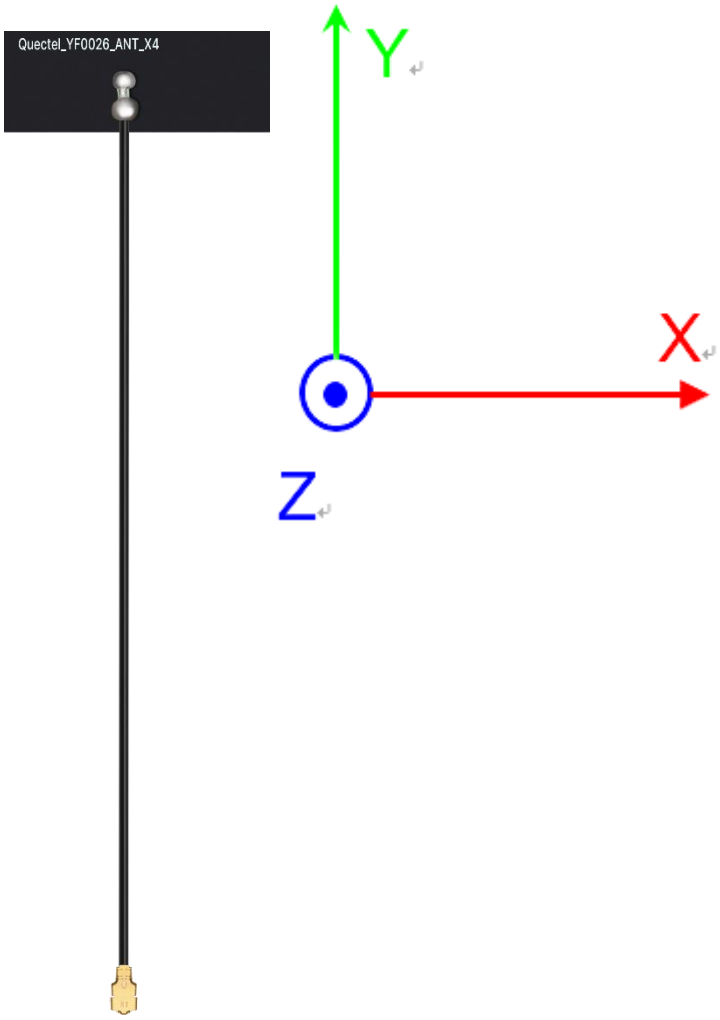
Peak Gain (dBi)

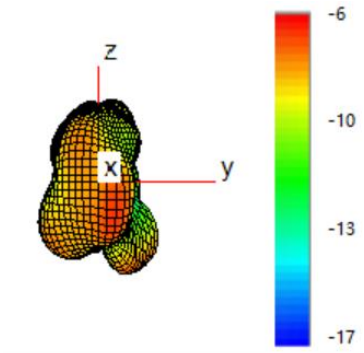
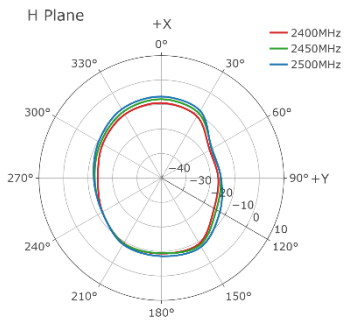
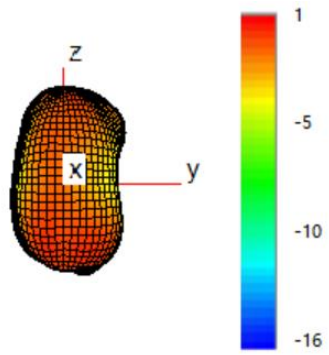
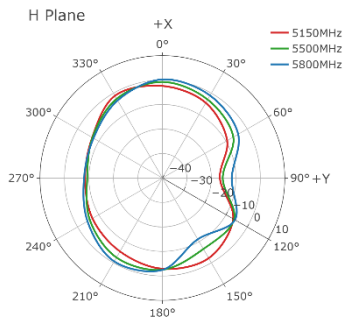
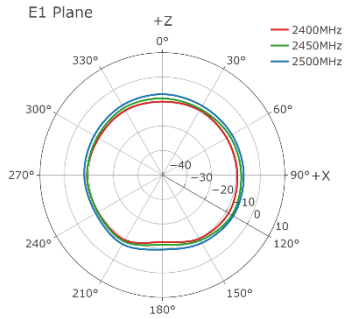
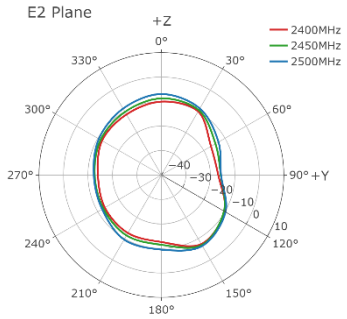
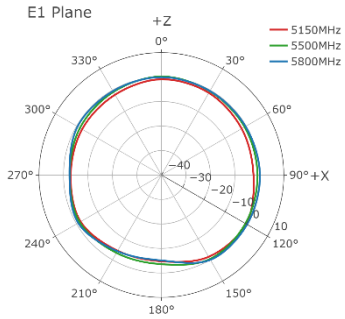
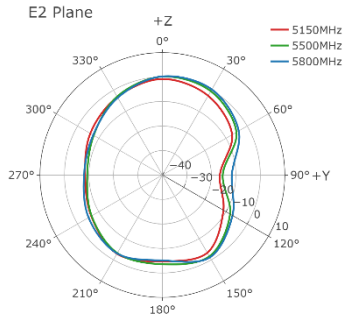
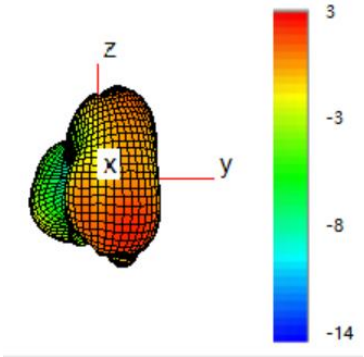
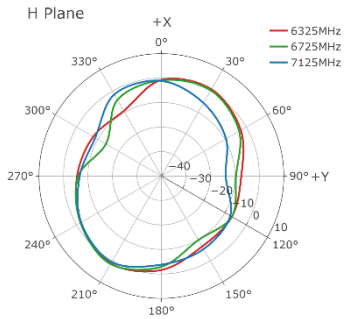
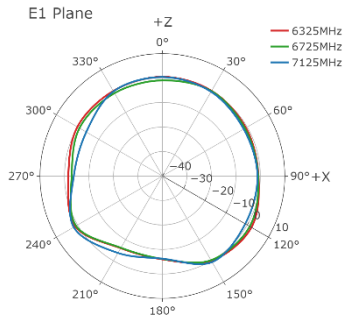
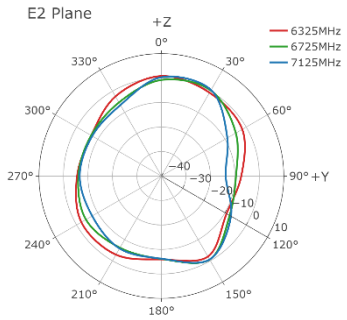
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6525	7125
FS	-7.4	-7.0	-6.6	0.0	0.2	0.9	0.8	2.1	1.8
ABS	1.5	2.0	1.5	3.3	3.7	5.3	5.1	4.9	6.2

3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Condition: Free Space

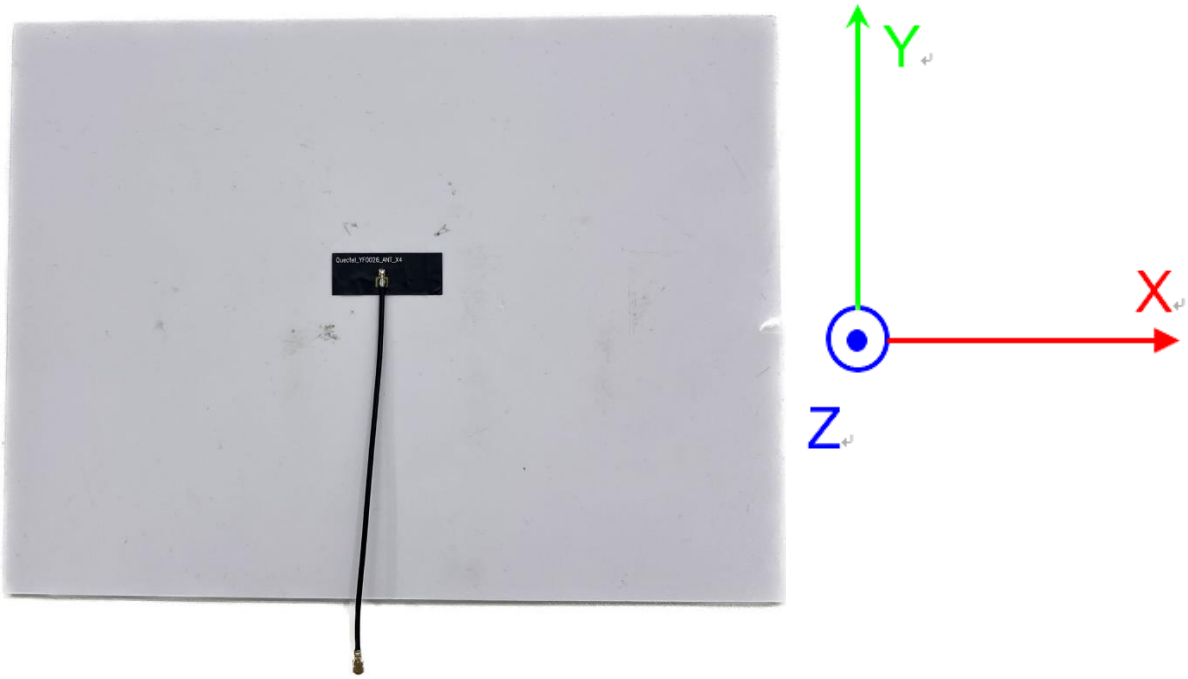
- Test Chamber: HF-G-

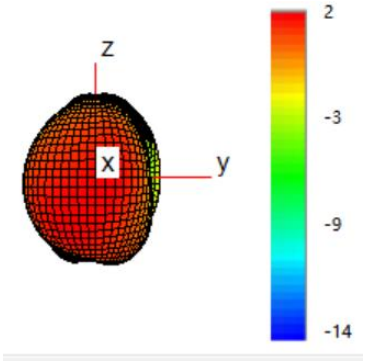
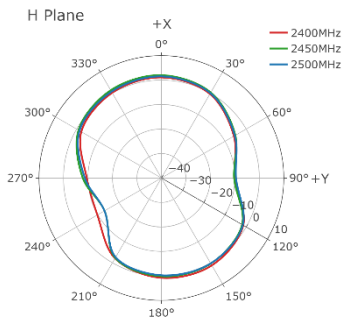
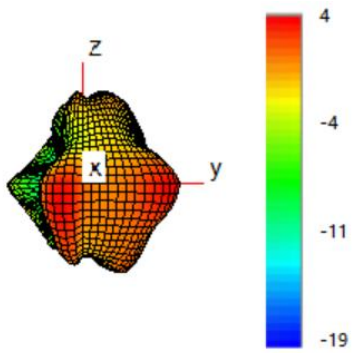
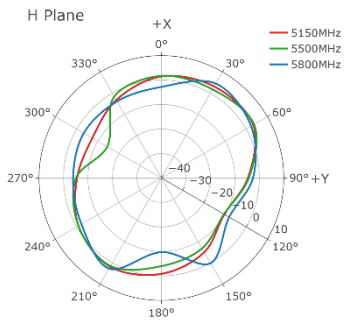
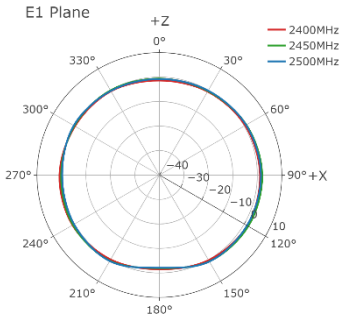
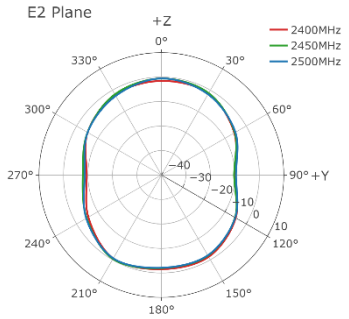
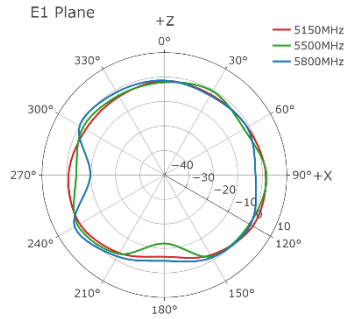
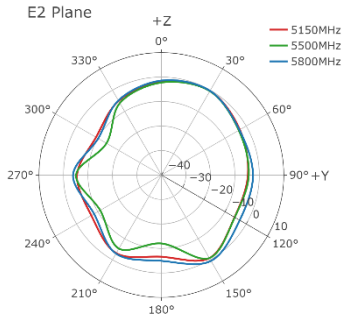
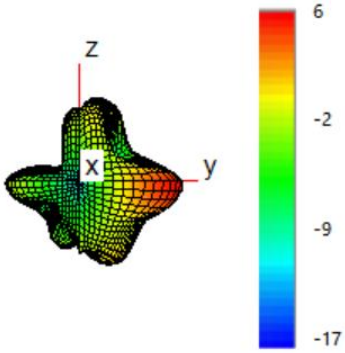
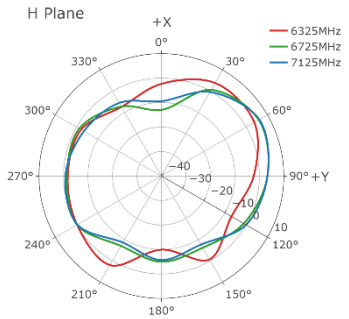
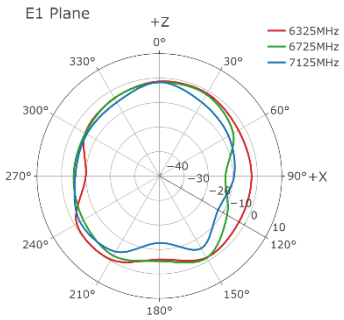
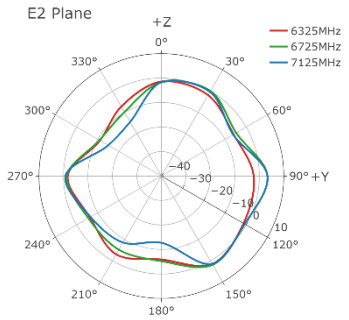


2450 MHz		5500 MHz	
			
			
6725 MHz			
			
			

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

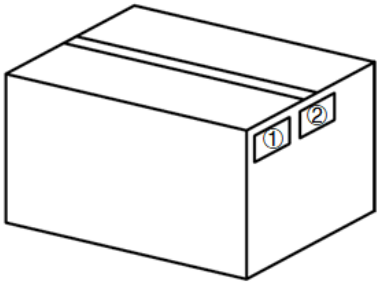
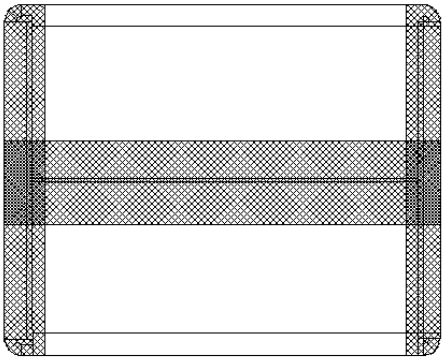
- Test Chamber: HF-G-1



2450 MHz		5500 MHz	
			
			
6725 MHz			
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		25 products in a bundle
2		100 pcs antenna products in a PE bag. (100 PCS Antennas / PE Bag)
3		(120 PE bags per carton box) (12000 PCS Antennas / Carton Box) <u>Carton Size:</u> <u>L × W × H = 300 × 250 × 200 mm</u>

4		**Position for Attaching Labels** 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:

Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Tel: +86 21 5108 6236
Email: info@quectel.com

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	2021-07-25	Kenny YIN	Updated working temperature (Chapter 3).
1.2	2021-11-30	Kenny YIN	Updated the product description (Chapter 1).
2.0	2023-04-27	Bunny ZHANG/ 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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