

# Antenna Datasheet

**Product OC:** YF0029CA

**Version:** 1.0

**Date:** 2023-05-29

**Status:** Released

**Product Name:** Wi-Fi FPC Antenna

**Key Features:**

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

Peak efficiency: 76.48% (ABS)

Dimensions: 29.98 mm × 30.85 mm

RoHS 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.

# Contents

<b>Overview</b> .....	<b>1</b>
<b>Contents</b> .....	<b>2</b>
<b>1 Specification</b> .....	<b>3</b>
1.1. Electrical.....	3
1.2. Mechanical, Environmental & Storage.....	4
<b>2 Drawing</b> .....	<b>5</b>
<b>3 Detailed Performance</b> .....	<b>6</b>
3.1. S-Parameter Test.....	6
3.1.1. VSWR.....	6
3.1.2. Return Loss.....	7
3.2. Radiation Performance Test.....	8
3.2.1. Efficiency.....	8
3.2.2. Average Gain.....	9
3.2.3. Peak Gain.....	10
3.2.4. 3D & 2D Radiation Pattern.....	11
<b>4 Packaging</b> .....	<b>13</b>
<b>Contact US</b> .....	<b>15</b>
<b>Legal Notices</b> .....	<b>16</b>
<b>Revision History</b> .....	<b>18</b>

# 1 Specification

Test Condition: Stick on 2 mm thick ABS Board

## 1.1. Electrical

Electrical	
Frequency Range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Impedance	50 $\Omega$
Polarization	Linear
Radiation Pattern	Omni-directional

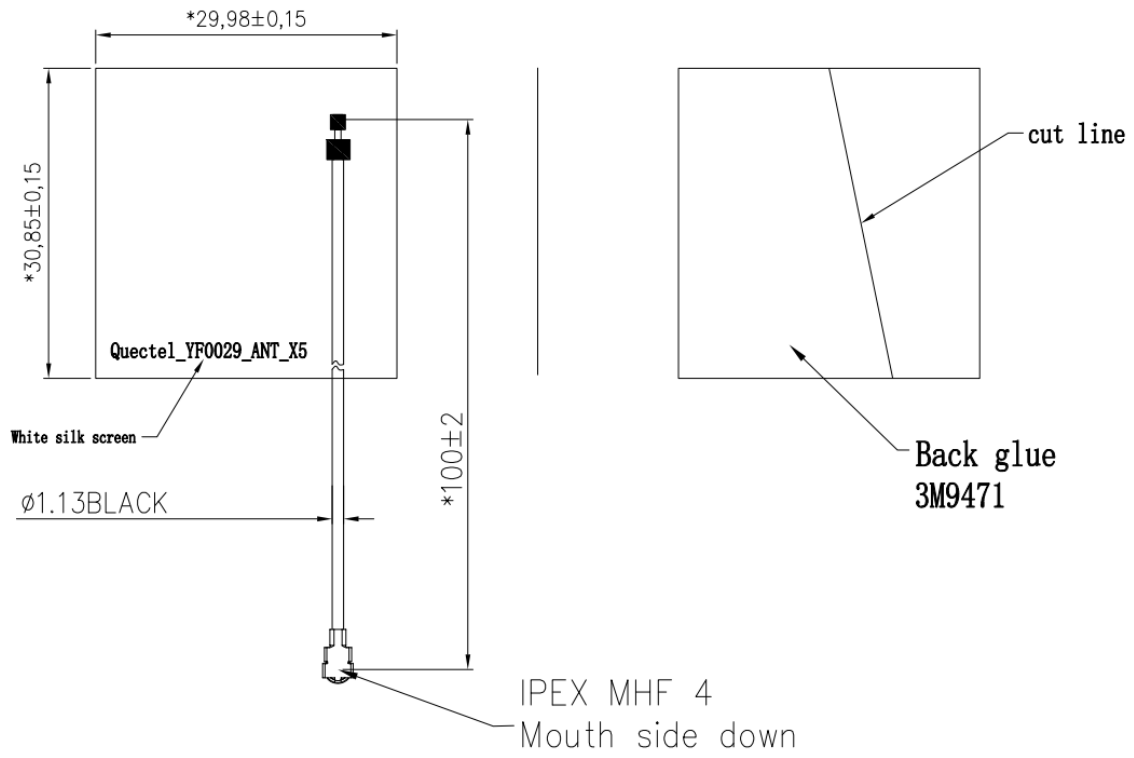
Specification	Band	Band	Wi-Fi 2G	Wi-Fi 5G	Wi-Fi 7G
		Freq. (MHz)	2400 - 2500	5150 - 5850	5925 - 7125
Max. VSWR	ABS		2.1	3.6	3.0
Max. Return Loss (dB)	ABS		-9.0	-5.0	-6.1
AVG Eff. (%)	ABS		66.5	60.9	56.1
AVG AVG Gain (dB)	ABS		-1.8	-2.2	-2.5
Max. Peak Gain (dBi)	ABS		1.9	5.7	6.7
VSWR	ABS		$\leq 3.6$		
Return Loss	ABS		$\leq -5.0$ dB		
Peak Gain	ABS		$\leq 6.7$ dBi		

- ABS: Stick on 2 mm thick ABS Board

## 1.2. Mechanical, Environmental & Storage

Mechanical	
Antenna Size	29.98 × 30.85 mm
Antenna Material & Color	FPC & Black
Cable Type & Color & Length	Φ1.13 & Black & 100 mm
Connector Type	IPEX MHF IV
Mounting Type	Adhesive
Antenna Weight	Typ. 0.45g
Environmental	
Operation Temperature	-40 °C to +85 °C
RoHS Compliant	Yes
Storage	
Storage Temperature	18–27 °C
Humidity	30–80 % RH
Storage Place	Away from corrosive gas and direct sunlight
Packaging	Antennas should be stored in unopened sealed manufacturer's plastic packaging

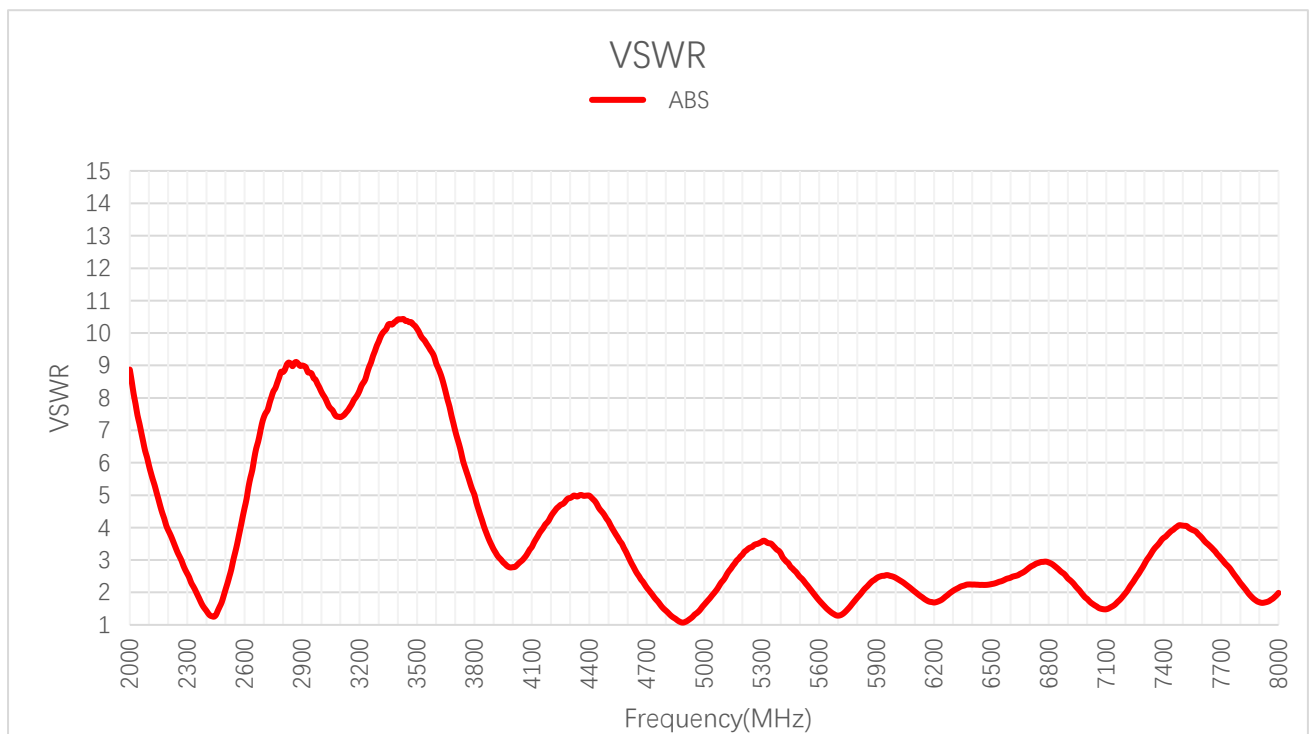
# 2 Drawing



# 3 Detailed Performance

## 3.1. S-Parameter Test

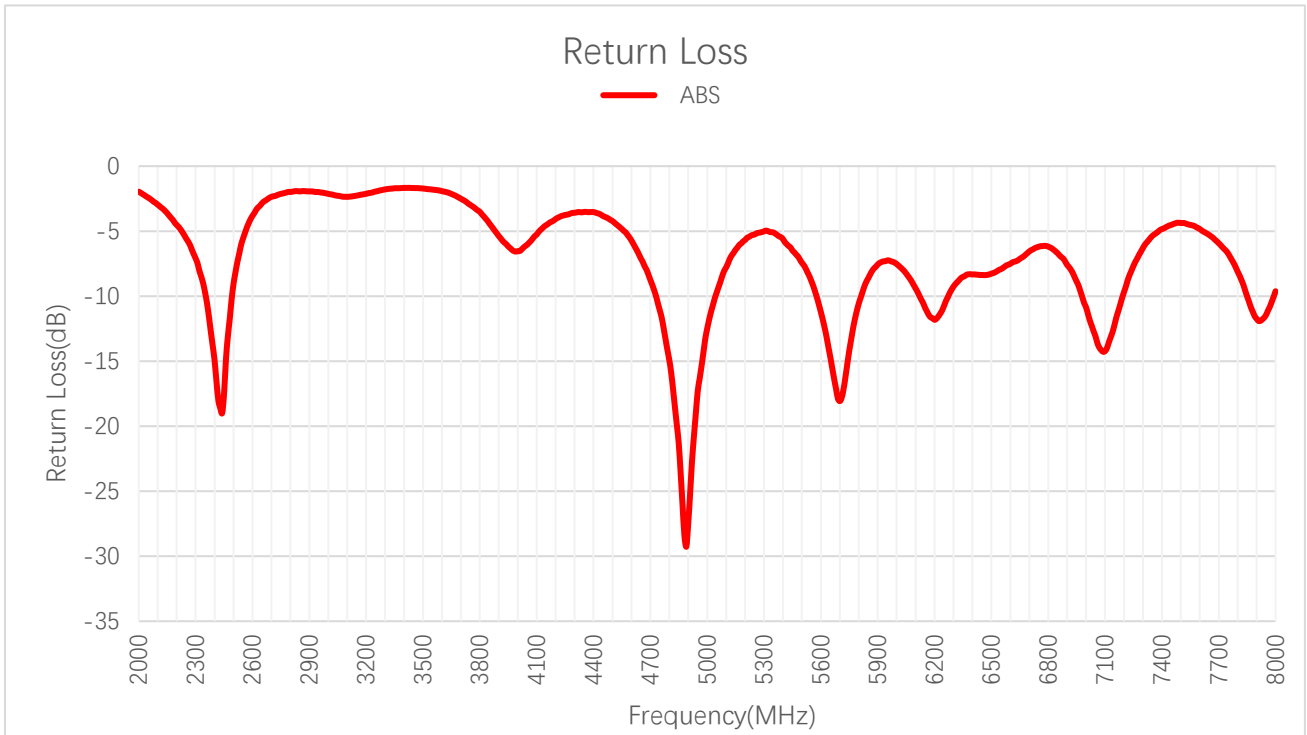
### 3.1.1. VSWR



**VSWR**

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6520	7120
ABS	1.4	1.3	2.1	2.8	2.5	2.2	2.5	2.3	1.5

**3.1.2. Return Loss**



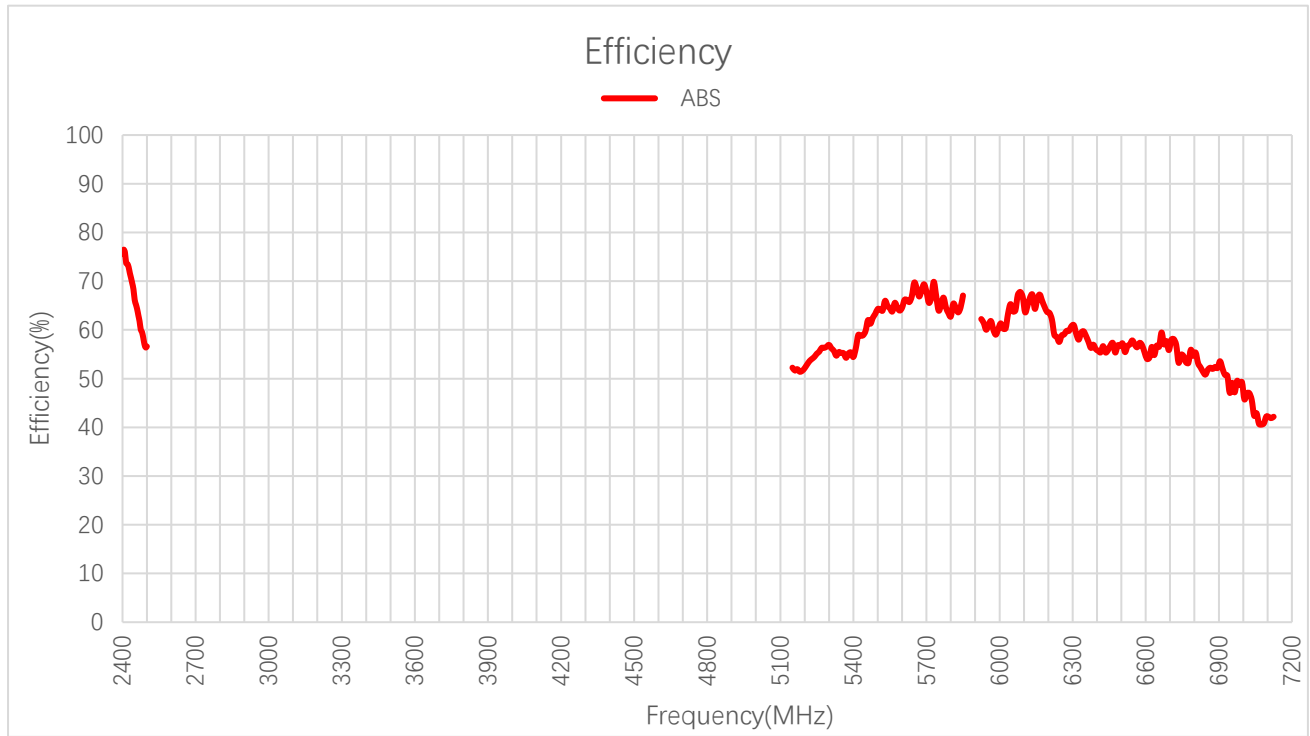
**Return Loss (dB)**

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6520	7120
ABS	-14.9	-17.5	-9.0	-6.4	-7.4	-8.6	-7.4	-8.2	-13.6



### 3.2. Radiation Performance Test

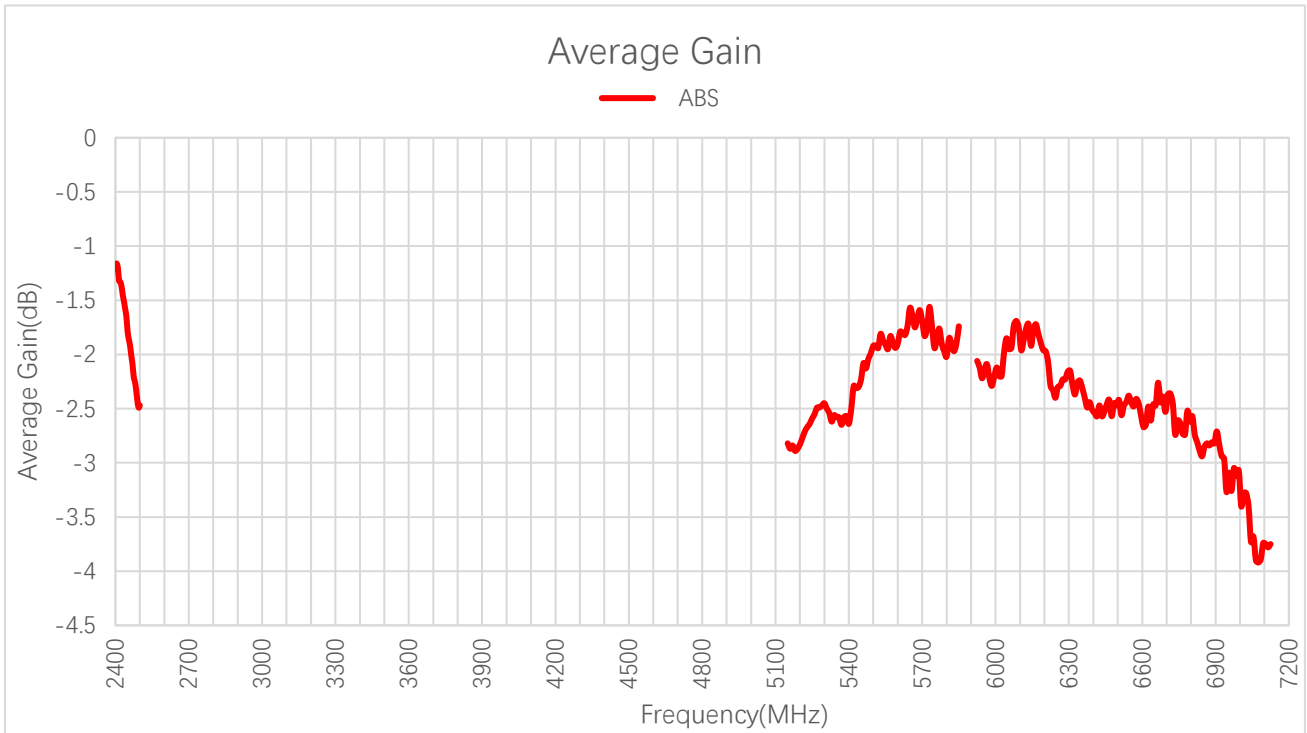
#### 3.2.1. Efficiency



**Efficiency (%)**

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6525	7125
ABS	75.7	66.2	56.6	52.3	64.3	67.1	62.2	56.7	42.2

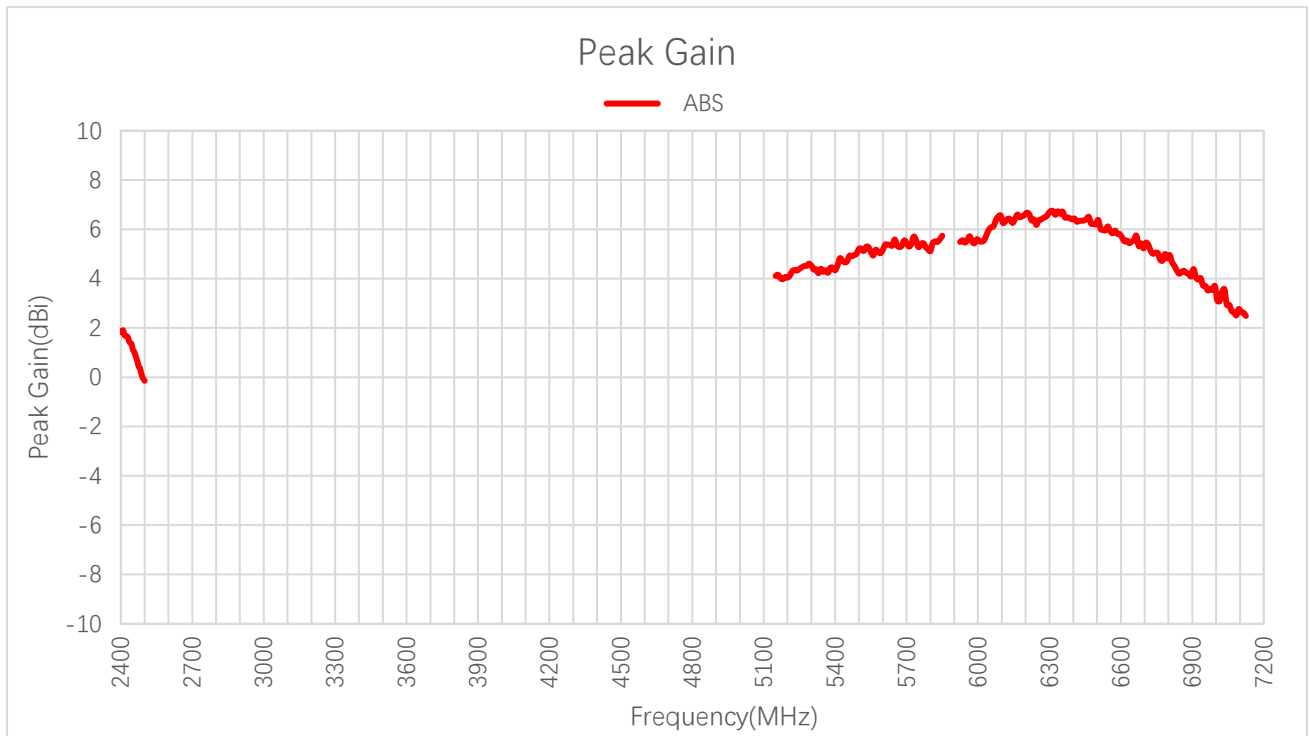
**3.2.2. Average Gain**



**Average Gain (dB)**

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6525	7125
<b>ABS</b>	-1.2	-1.8	-2.5	-2.8	-1.9	-1.7	-2.1	-2.5	-3.8

**3.2.3. Peak Gain**



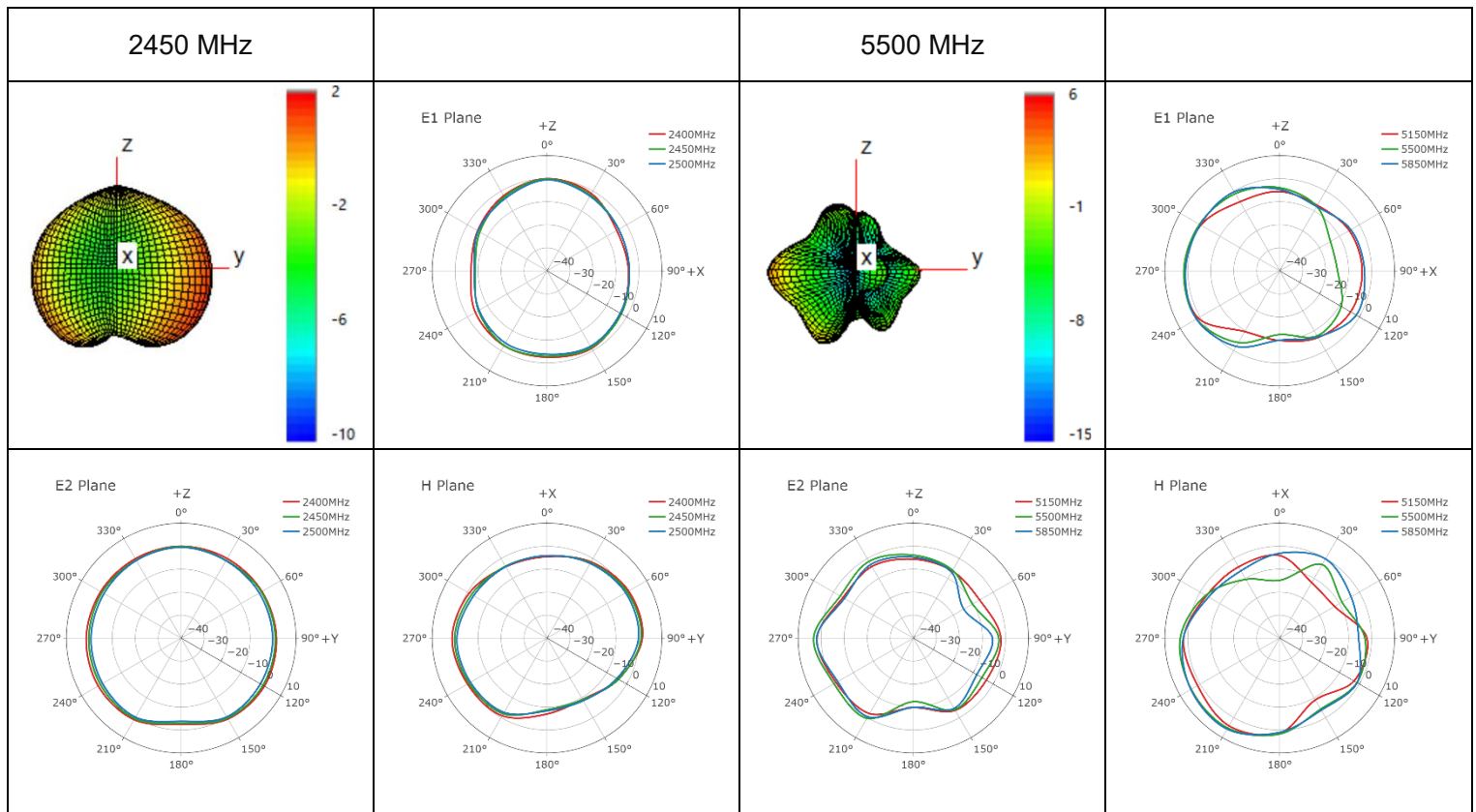
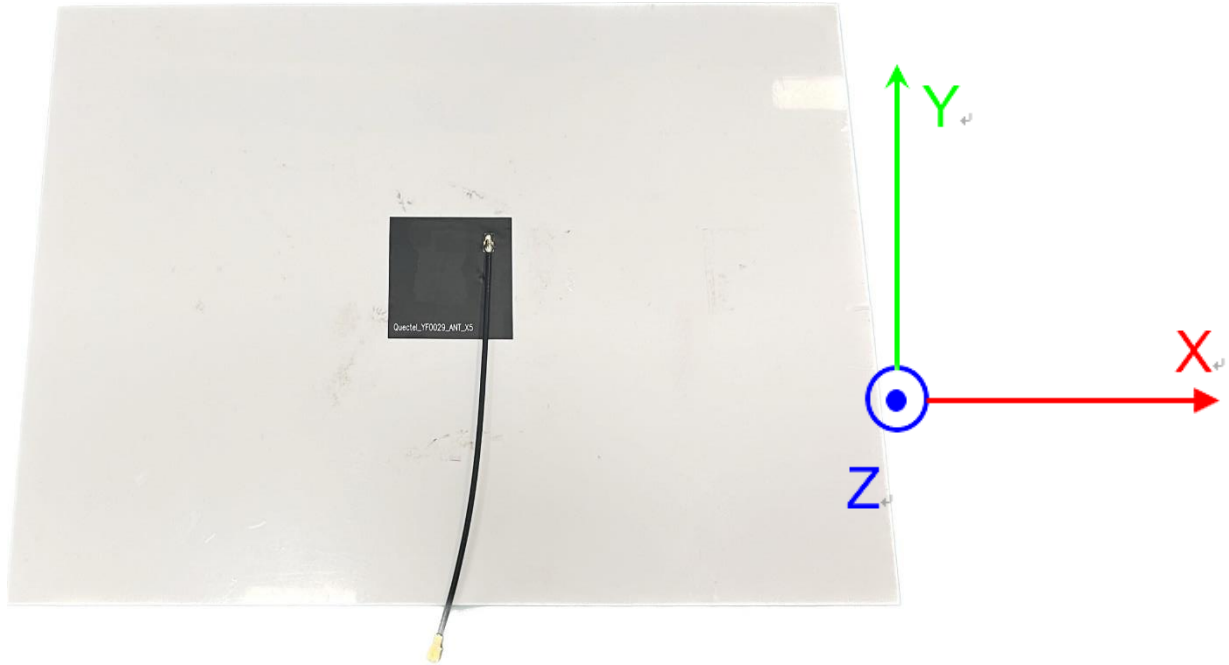
**Peak Gain (dBi)**

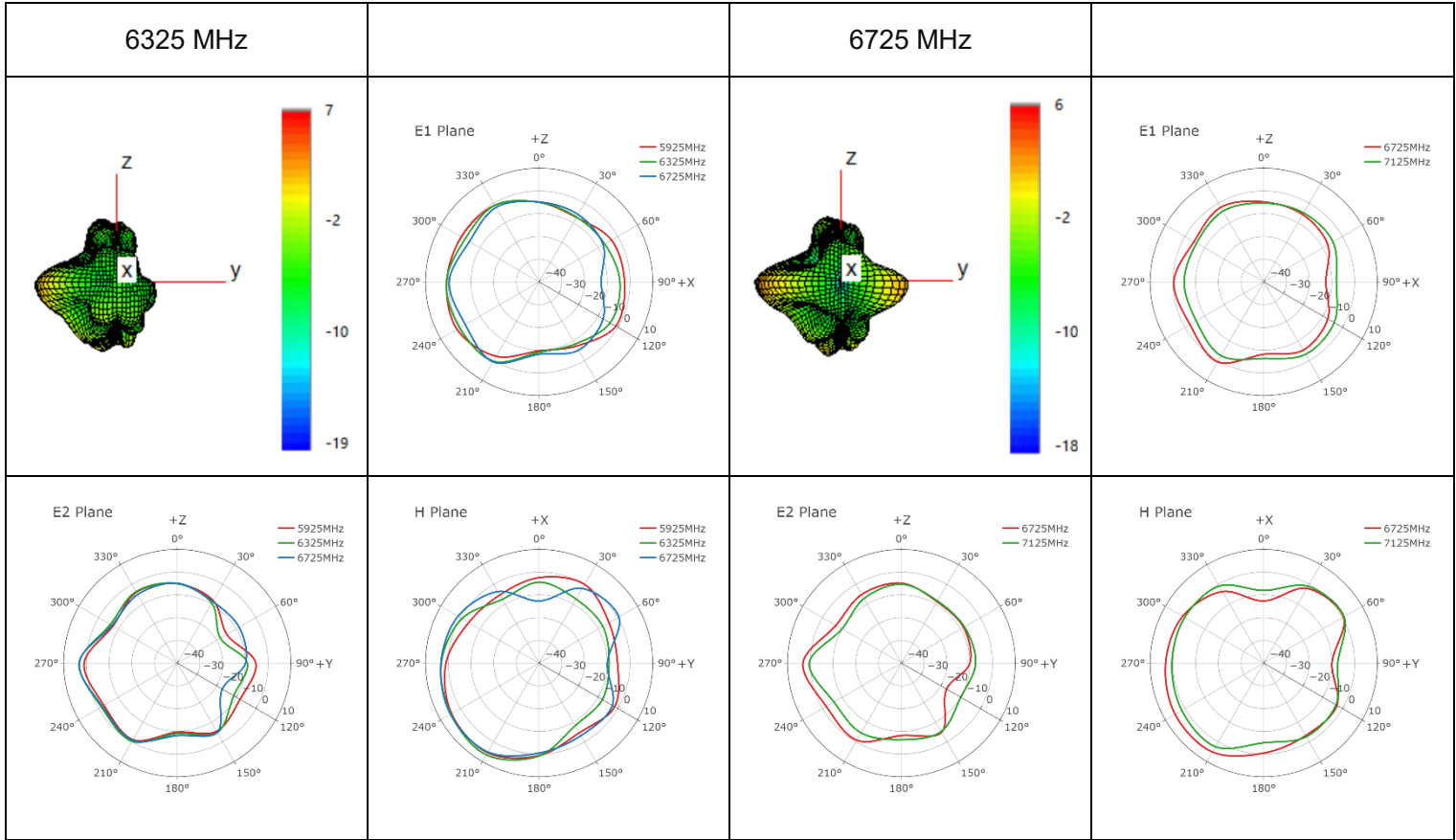
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6525	7125
ABS	1.8	1.1	-0.1	4.1	5.2	5.7	5.5	6.0	2.5

**3.2.4. 3D & 2D Radiation Pattern**

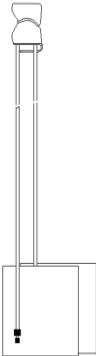
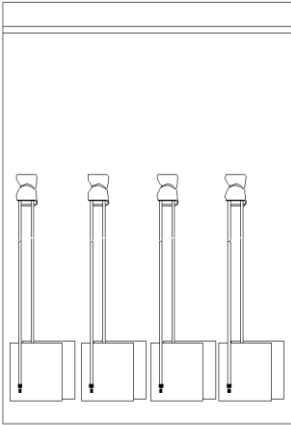
**Test Condition: Stick on 2mm thick ABS Board**

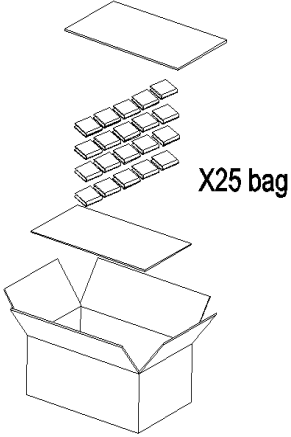
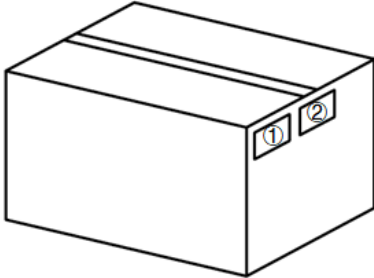
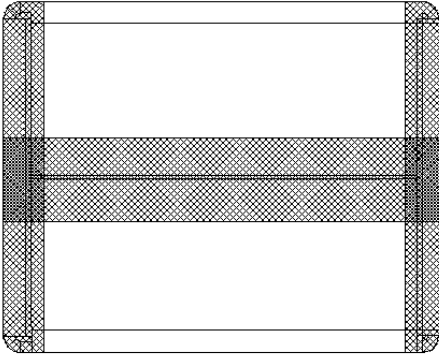
- Test Chamber: HF-G-1





# 4 Packaging

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

<p>3</p>		<p>Place a clapboard at the bottom and top. 25 PE Bags / Carton Box) (5000 PCS / Carton Box)</p> <p><u>Carton Size:</u> <u>L × W × H = 370 × 295 × 150 mm</u></p>
<p>4</p>		<p><b>Position for Attaching Labels</b></p> <p>① Carton Label ② Quality Label</p>
<p>5</p>		<p><b>Sealing Cartons</b> “工” 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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**Or our local offices. For more information, please visit:**

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# Revision History

Version	Date	Author	Note
-	2022-08-18	Sly LIU/ Lucky FENG	Creation of the document
1.0	2023-01-15	Sly LIU/ Lucky FENG	First official release
2.0	2023-05-29	Vinnie LIU/ Lucky FENG/ David LIU	Updated all test data.

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