



# Antenna Datasheet

**Product OC:** YFOA004AA

**Version:** 2.2

**Date:** 2024-06-28

**Status:** Released

**Product Name:** FPC Antenna

**Key Features:**

Frequency Band: 410–470 MHz

Dimensions: 100 mm × 20 mm

Efficiency: Up to 53.86 %

RoHS and REACH Compliant

# Overview

Quectel provides a range of antenna products that support the ISM radio band. These antennas are mounted inside the device to minimize the interference of the device's internal environment, with the antenna performance and This ensures a better efficiency, gain and omni-directional radiation, offering a superior user experience. Quectel also offers flexible installation with custom cable length and connector options.

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# 1 Specification

Test Condition: Stick to ABS on 130 mm × 130 mm EVB

## 1.1. Electrical

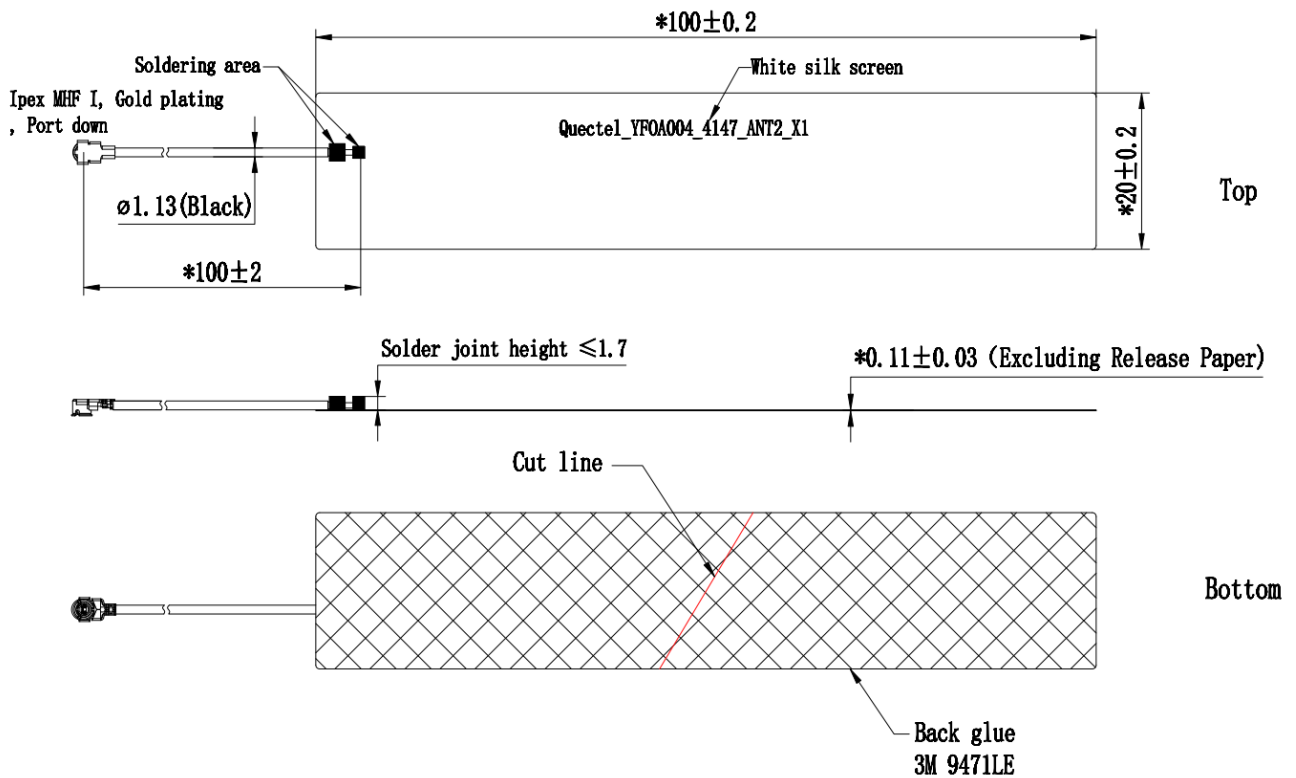
Electrical	
Frequency Range	410–470 MHz
Impedance	50 $\Omega$
Polarization	Linear
Radiation Pattern	Omni-directional

Specification \ Band	Band	
	410- 470	860 - 930
Max. VSWR	4.4	-
Max. Return Loss (dB)	-4.0	-
AVG Eff. (%)	48.8	-
AVG AVG Gain (dB)	-3.1	-
Max. Peak Gain (dBi)	0.2	-
VSWR	$\leq 4.4$	
Return Loss	$\leq -4.0$ dB	
Peak Gain	$\leq 0.2$ dBi	

## 1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	100 mm × 20 mm
Material & Color	FPC & Black
Cable Type & Color & Length	Φ 1.13 & Black & 100 mm
Connector Type	IPEX MHF 1
Mounting Type	Adhesive
Weight	Typ. 1.0 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS & REACH Compliant	Yes

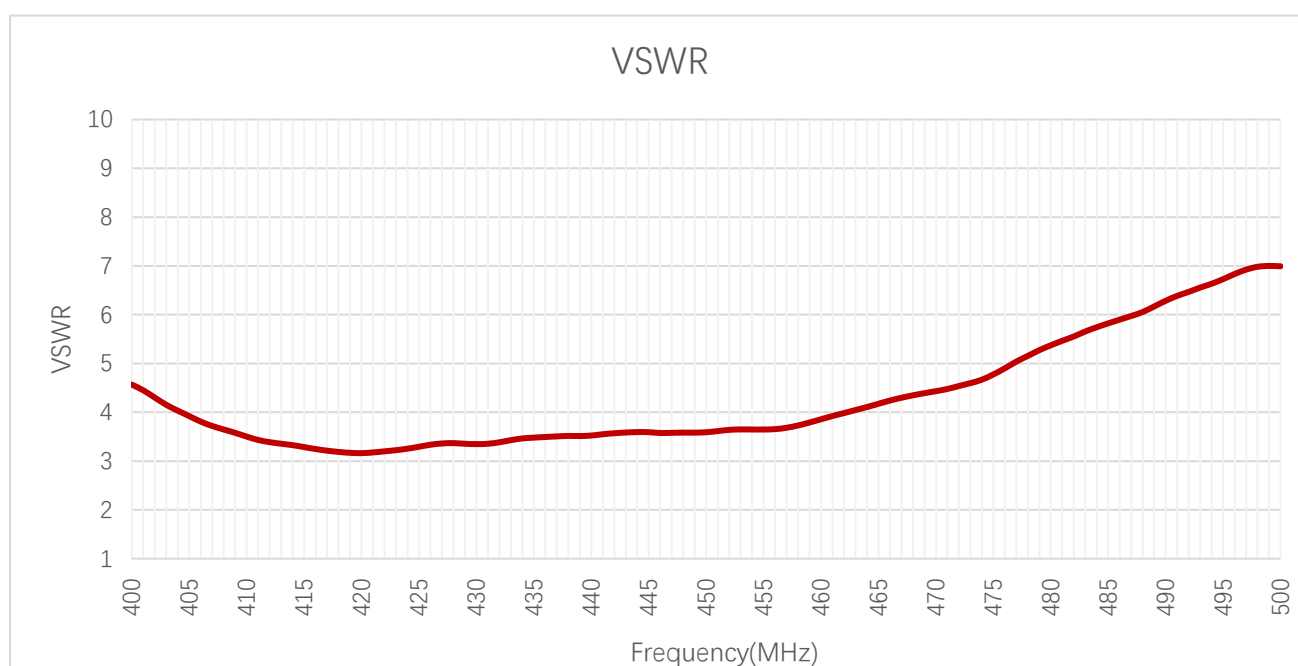
## 2 Drawing



## 3 Detailed Performance

### 3.1. S-Parameter Test

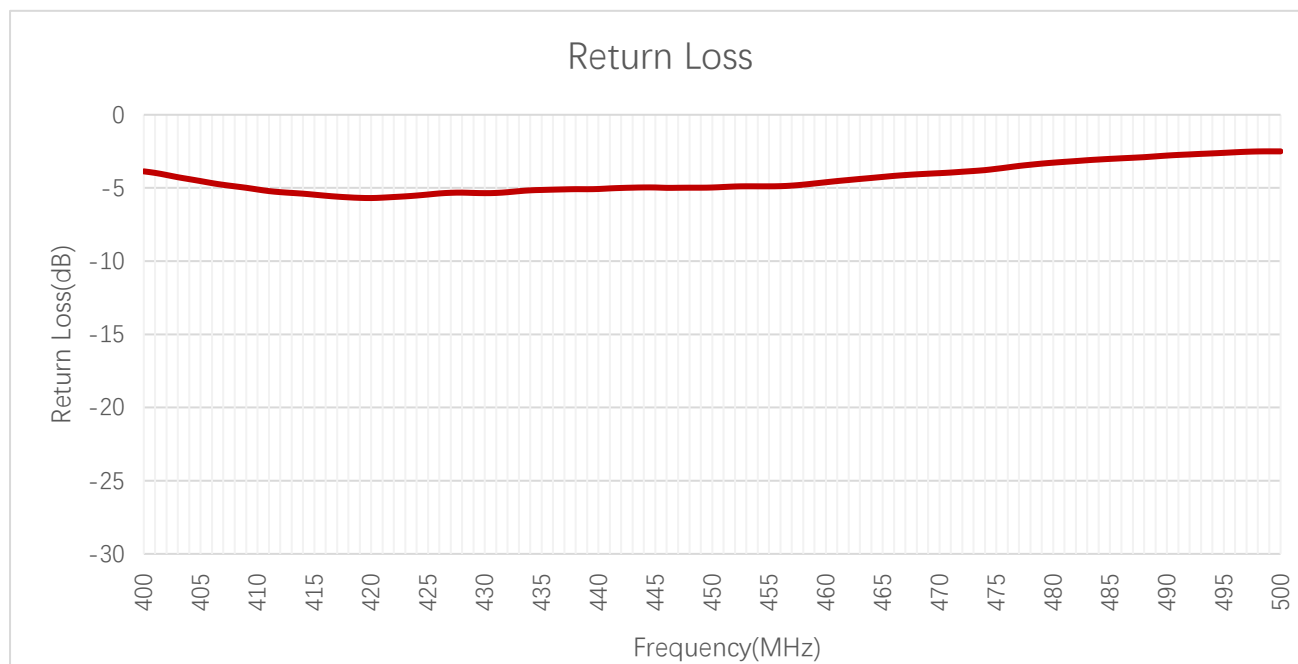
#### 3.1.1. VSWR



**VSWR**

Frequency (MHz)	410	420	430	440	450	460	470	490	500	510
VSWR	3.5	3.5	3.2	3.3	3.5	3.6	3.9	-	-	-

### 3.1.2. Return Loss



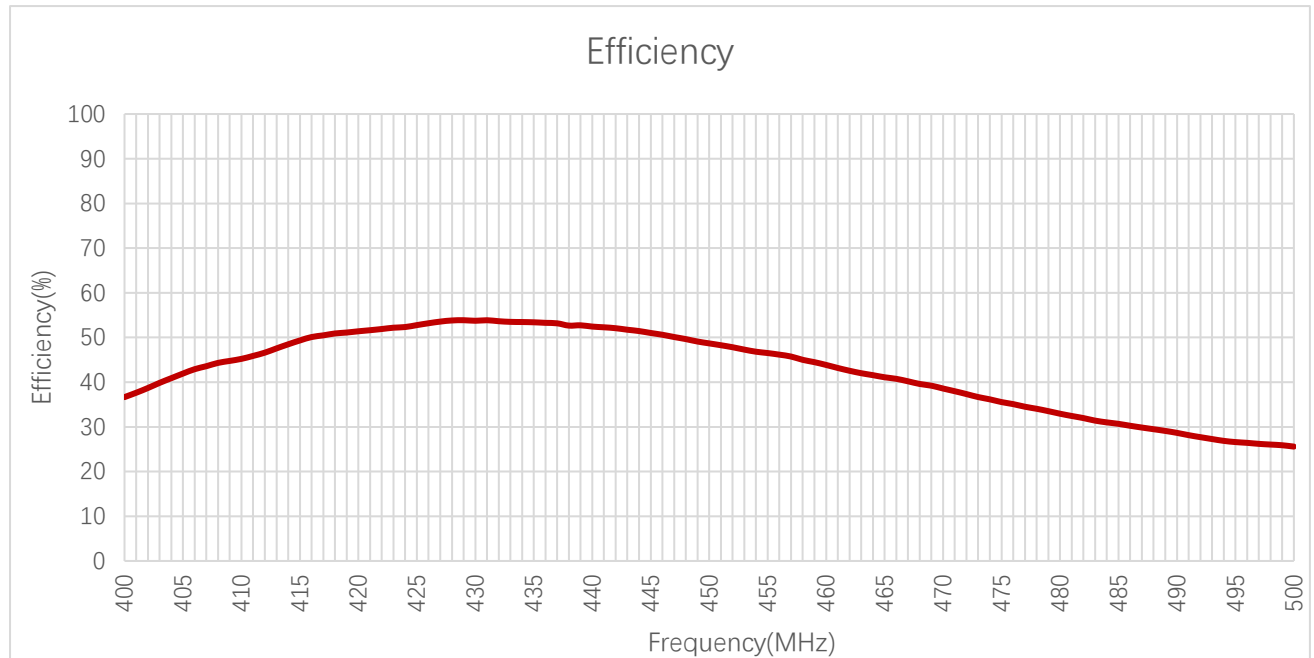
**Return Loss (dB)**

Frequency (MHz)	410	420	430	440	450	460	470	490	500	510
Return Loss (dB)	-5.1	-5.1	-5.7	-5.4	-5.1	-5.0	-4.6	-	-	-



## 3.2. Radiation Performance Test

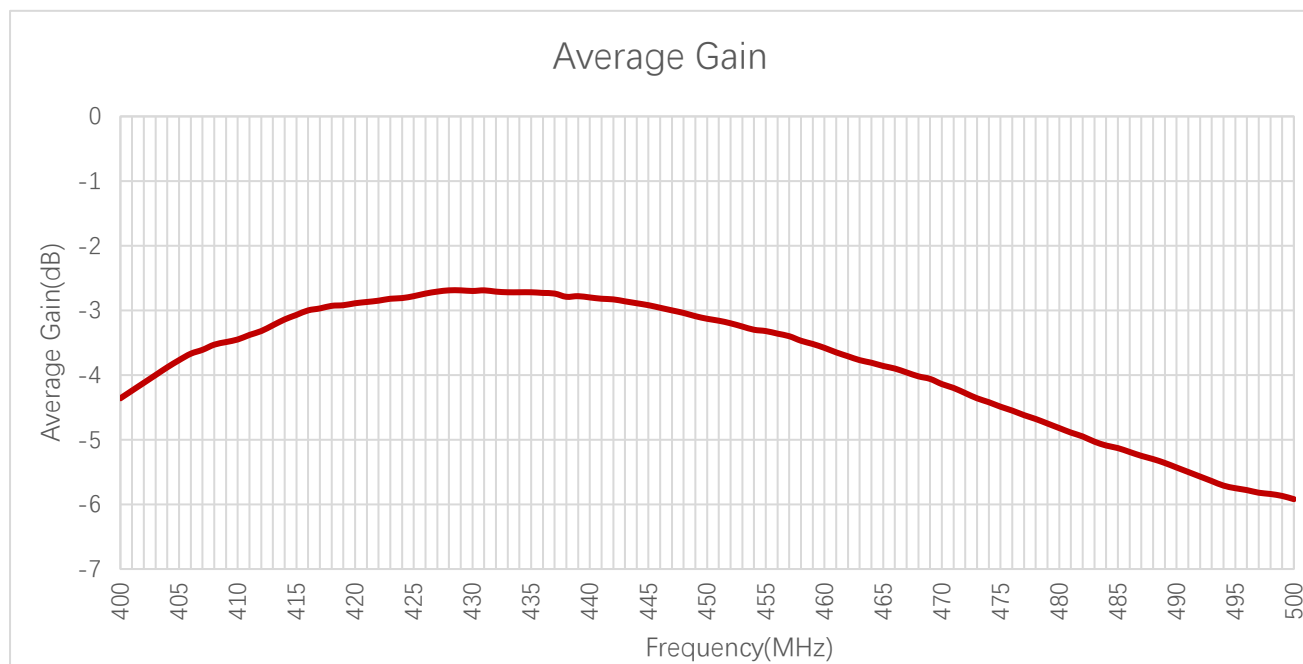
### 3.2.1. Efficiency



**Efficiency (%)**

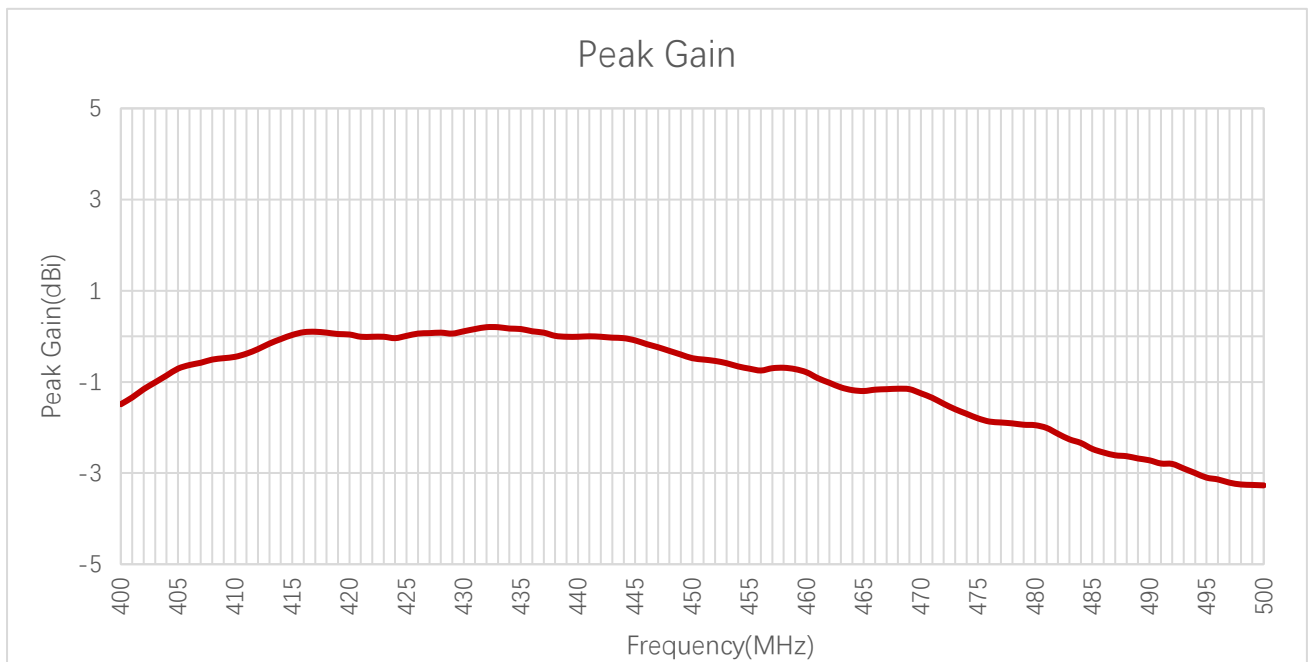
Frequency (MHz)	410	420	430	440	450	460	470	490	500	510
Efficiency (%)	45.2	45.2	51.4	53.7	52.4	48.7	43.9	-	-	-

### 3.2.2. Average Gain



Average Gain (dB)										
Frequency (MHz)	410	420	430	440	450	460	470	490	500	510
Average Gain (dB)	-3.5	-3.5	-2.9	-2.7	-2.8	-3.1	-3.6	-	-	-

### 3.2.3. Peak Gain

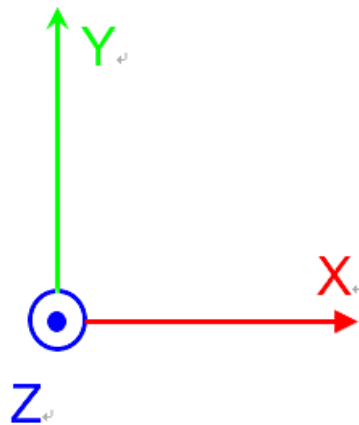
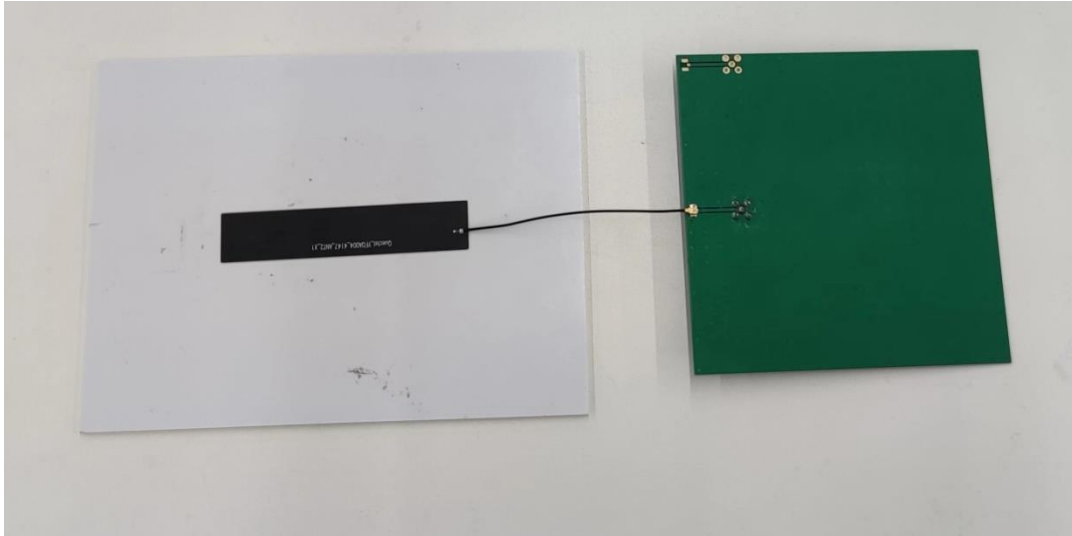


**Peak Gain (dBi)**

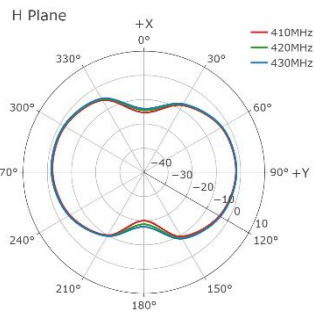
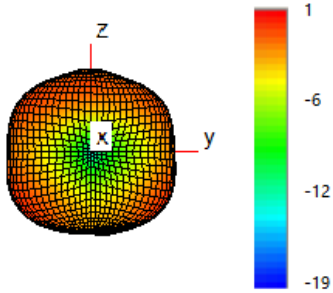
Frequency (MHz)	410	420	430	440	450	460	470	490	500	510
Peak Gain (dBi)	-0.5	-0.5	0.0	0.1	0.0	-0.5	-0.8	-	-	-

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

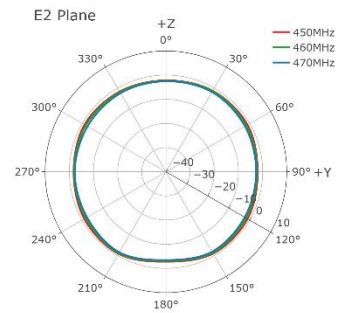
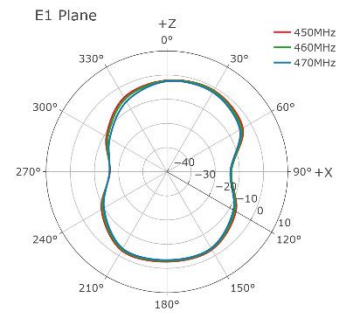
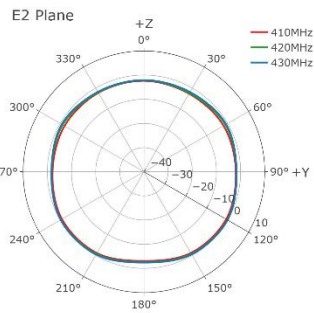
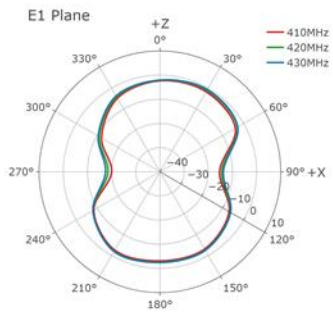
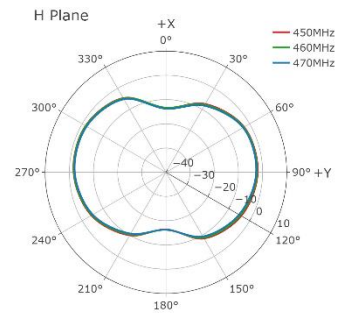
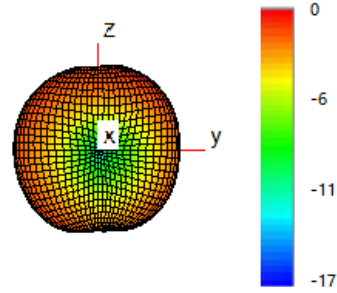
- Test Condition: Stick to ABS on 130 mm x 130 mm EVB
- Test Chamber: HF-G-1




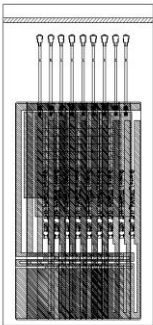
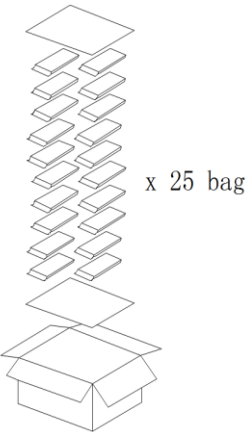
420 MHz

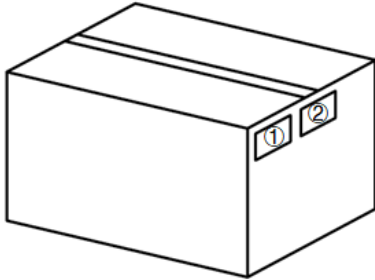
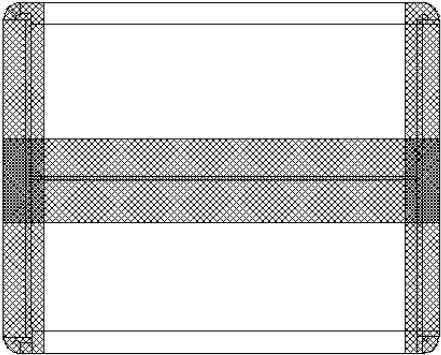


460 MHz



## 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		Product drawing
2		200 pcs antenna products in a big PE bag. (200 PCS / Big PE Bag)
3	 x 25 bag	(25 Big PE Bags / Carton Box) (5000 PCS Antennas / Carton Box) Estimated quantity Products that cannot fill the entire carton box are packed in a suitable size carton box. <u>Carton Size:</u> <u>L × W × H = 325 × 325 × 200 mm</u>

4		<p><b>Position for Attaching Labels</b></p> <p>① Carton Label</p> <p>② Quality Label</p>
5		<p><b>Sealing Cartons</b></p> <p>“Ⅰ” type sealing cartons</p>
Note	<p>The initial packaging method described above is for reference only, and the final actual packaging method shall be subject to the actual shipping packaging.</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
-	2022-04-26	Owen DENG/ Jason LONG	Creation of the document
1.0	2022-04-26	Owen DENG/ Jason LONG	First official release
2.0	2023-09-15	Aria CHU/ Lucky FENG/ David LIU	Updated all test data in this datasheet.
2.1	2024-04-02	Jason LONG	Updated the drawing (Chapter 2).
2.2	2024-06-28	Hart HU	Updated the 2D drawing (Chapter 2).



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