



# Antenna Datasheet

**Product OC:** YE0019AA

**Version:** 3.0

**Date:** 2023-09-15

**Status:** Released

**Product Name:** ISM Antenna

**Key Features:**

Frequency Band: 450–470 MHz

Dimensions:  $\Phi$  10 mm  $\times$  109 mm

Efficiency: Up to 67.5 % (Straight)

RoHS Compliant

# Overview

Quectel provides a range of antenna products that support the ISM radio band. These antennas are mounted outside 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: On 130 mm × 130 mm EVB

## 1.1. Electrical

Electrical	
Frequency Range	450–470 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Specification \ Band			
		450- 470	860 - 930
Max. VSWR	Straight	2.9	-
	Bent	7.6	-
Max. Return Loss (dB)	Straight	-6.3	-
	Bent	-2.3	-
AVG Eff. (%)	Straight	56.0	-
	Bent	30.2	-
AVG AVG Gain (dB)	Straight	-2.6	-
	Bent	-5.3	-
Max. Peak Gain (dBi)	Straight	0.5	-
	Bent	-1.1	-
VSWR	Straight	≤ 2.9	

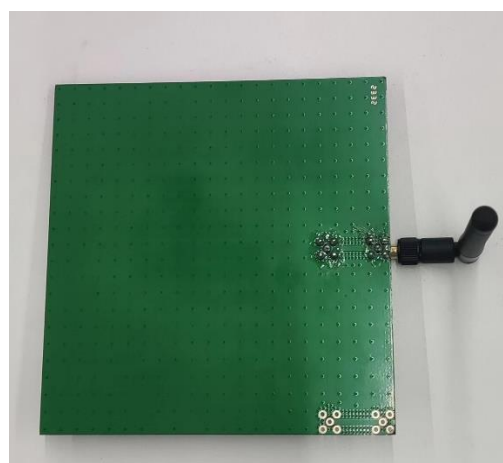
	<b>Bent</b>	$\leq 7.6$
<b>Return Loss</b>	<b>Straight</b>	$\leq -6.3$ dB
	<b>Bent</b>	$\leq -2.3$ dB
<b>Peak Gain</b>	<b>Straight</b>	$\leq 0.5$ dBi
	<b>Bent</b>	$\leq -1.1$ dBi

Note:

Straight



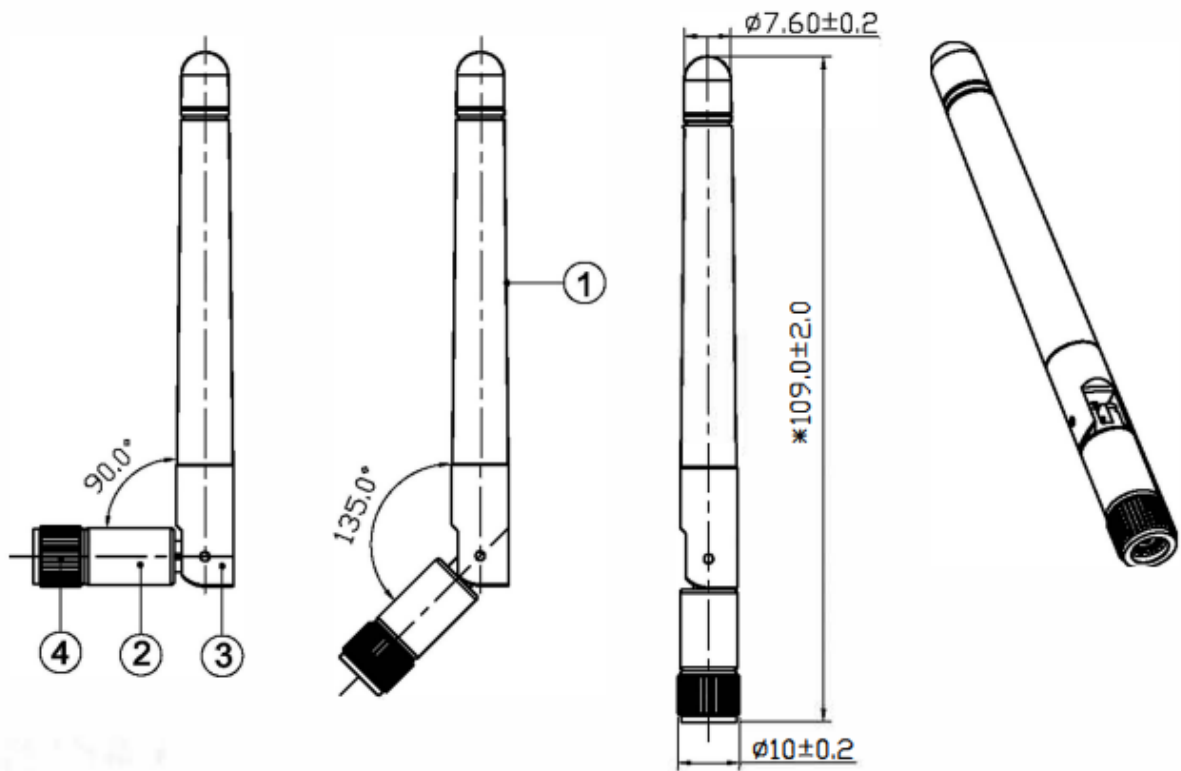
Bent



## 1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 10 mm × 109 mm
Casing Material & Color	TPEE & Black
Connector Type	SMA Male
Mounting Type	Terminal
Weight	Typ.9 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS Compliant	Yes

## 2 Drawing

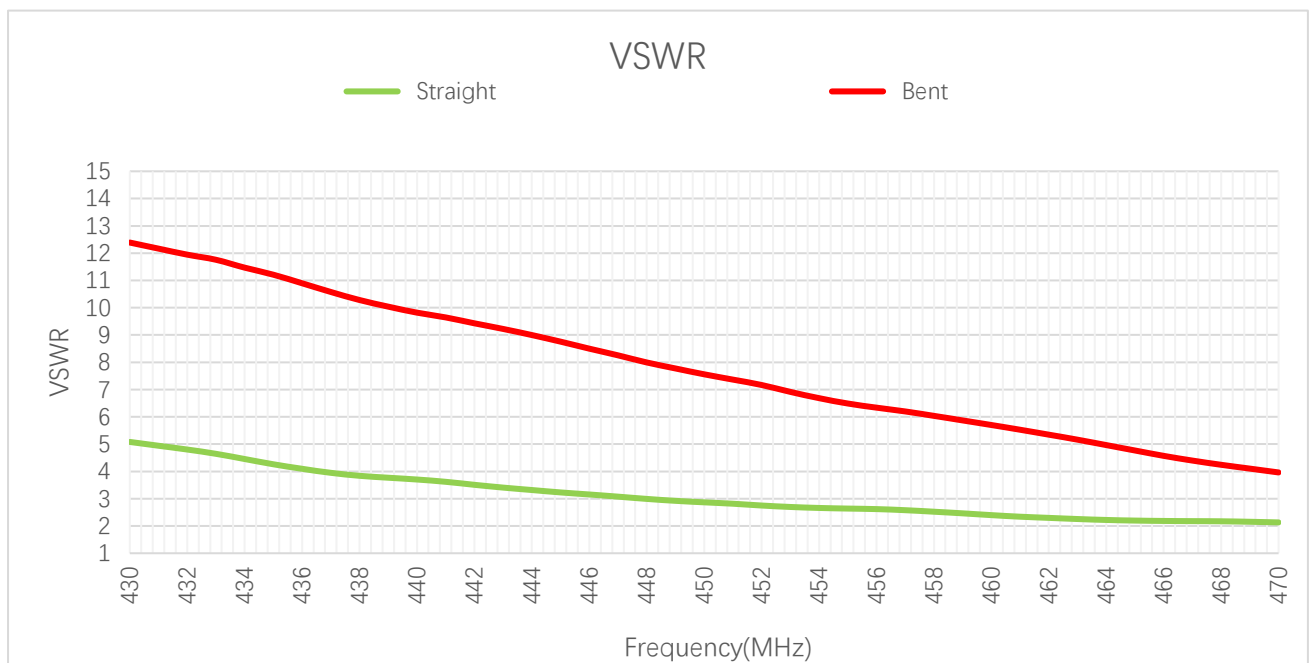


SN	Component Name	Specification	Color	Quantity
1	Noumenon	TPEE	Black	1
2	Upper Firmware	PC+PBT	Black	1
3	Lower Firmware	PC+PBT	Black	1
4	SMA	SMA-Male	Black	1

# 3 Detailed Performance

## 3.1. S-Parameter Test

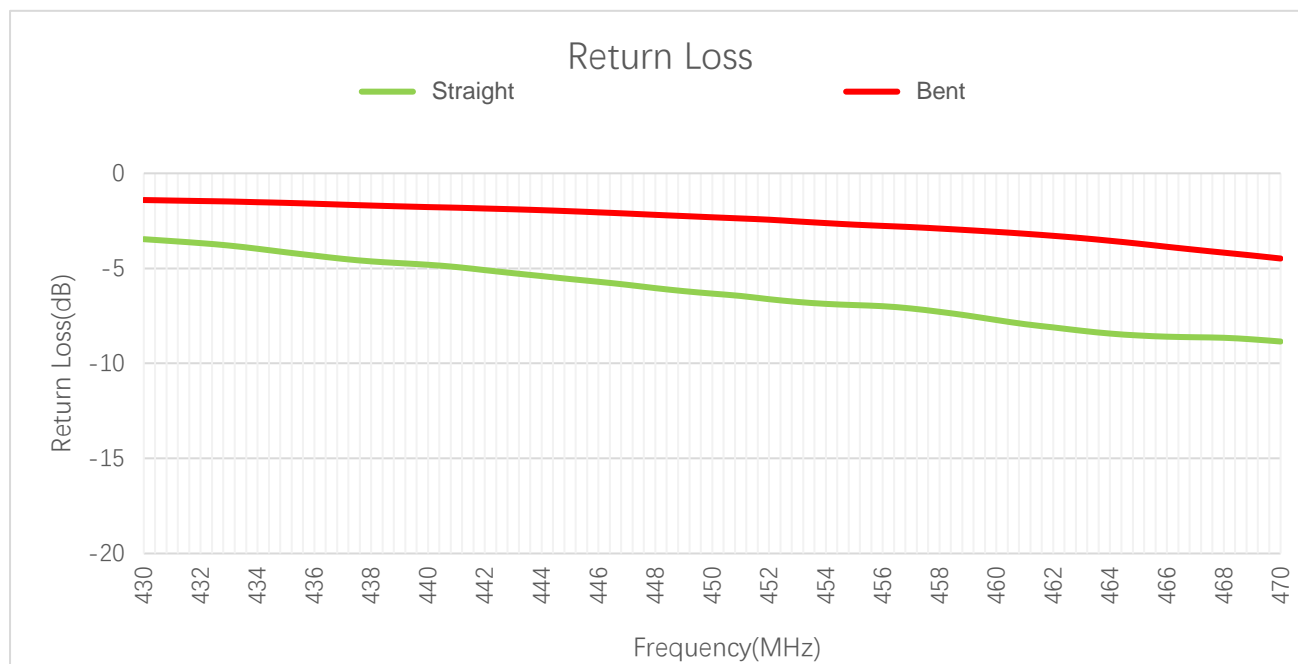
### 3.1.1. VSWR



**VSWR**

Frequency (MHz)	433	450	460	470	860	865	870	900	915	930
<b>Straight</b>	-	2.9	2.4	2.1	-	-	-	-	-	-
<b>Bent</b>	-	7.6	5.7	4.0	-	-	-	-	-	-

### 3.1.2. Return Loss

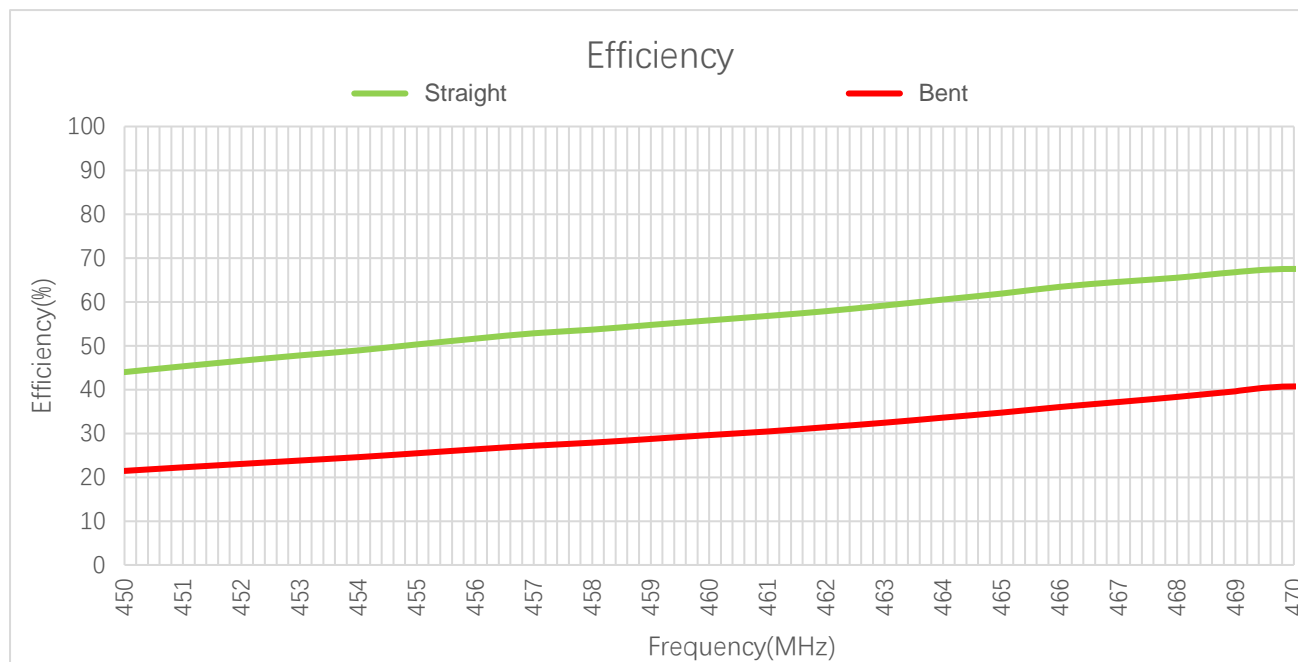


**Return Loss (dB)**

Frequency (MHz)	433	450	460	470	860	865	870	900	915	930
<b>Straight</b>	-	-6.3	-7.7	-8.8	-	-	-	-	-	-
<b>Bent</b>	-	-2.3	-3.1	-4.5	-	-	-	-	-	-

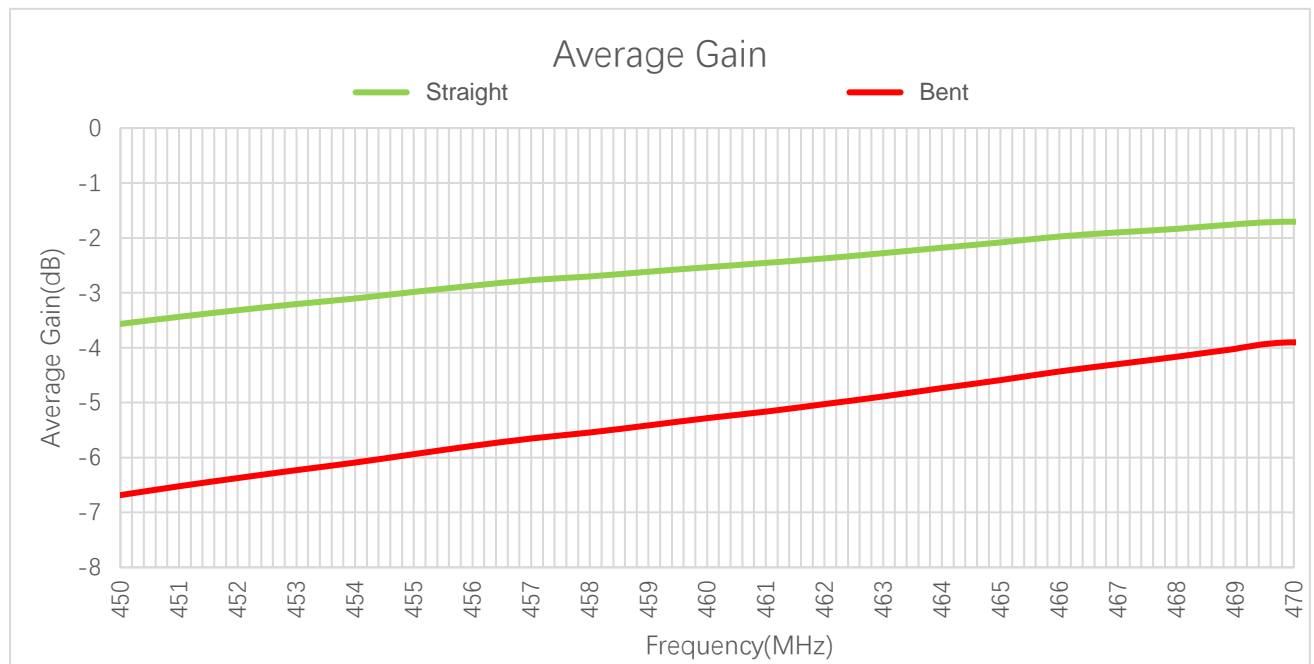
## 3.2. Radiation Performance Test

### 3.2.1. Efficiency



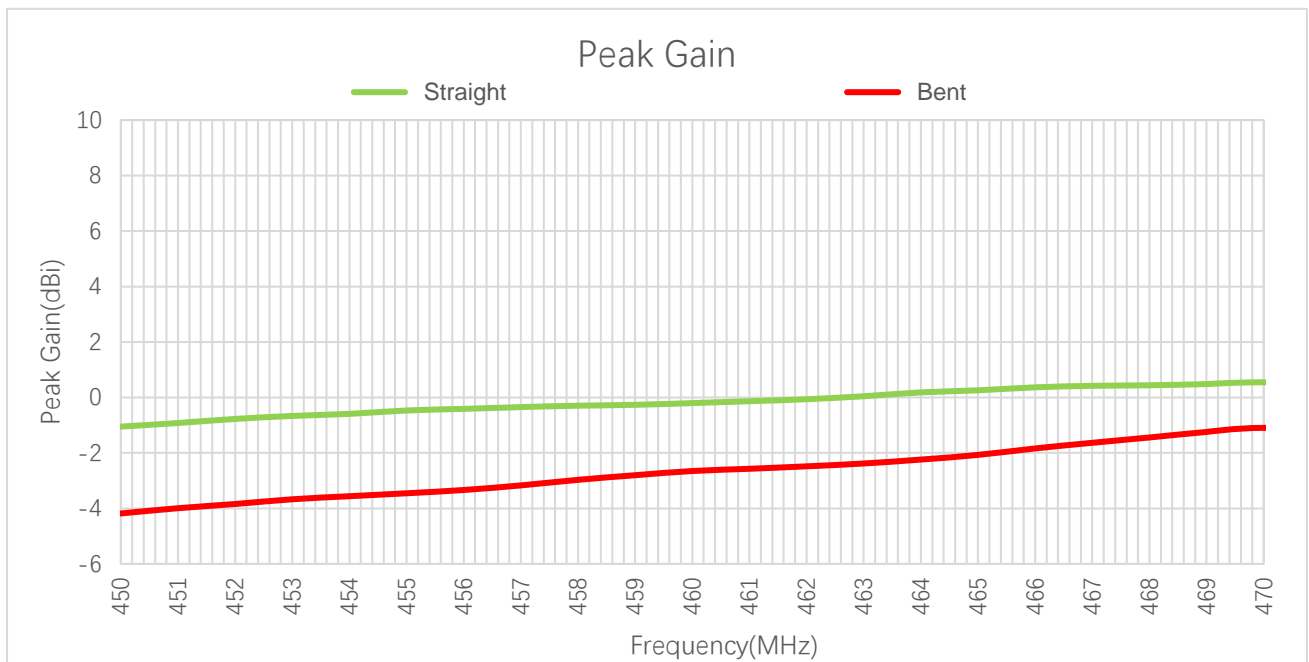
Efficiency (%)										
Frequency (MHz)	433	450	460	470	860	865	870	900	915	930
Straight	-	44.0	55.8	67.5	-	-	-	-	-	-
Bent	-	21.5	29.6	40.7	-	-	--		-	-

### 3.2.2. Average Gain



Average Gain (dB)										
Frequency (MHz)	433	450	460	470	860	865	870	900	915	930
Straight	-	-3.6	-2.5	-1.7	-	-	-	-	-	-
Bent	-	-6.7	-5.3	-3.9	-	-	-	-	-	-

### 3.2.3. Peak Gain



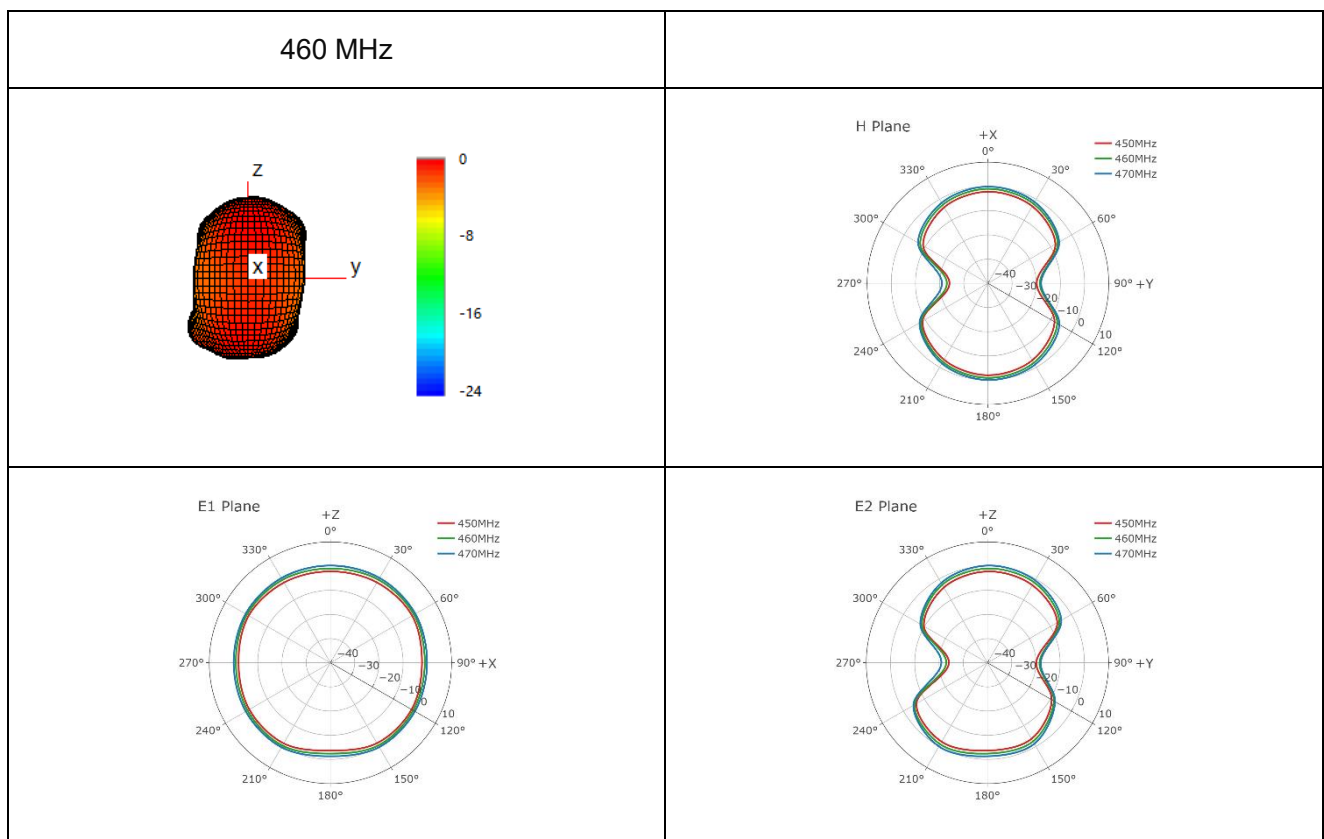
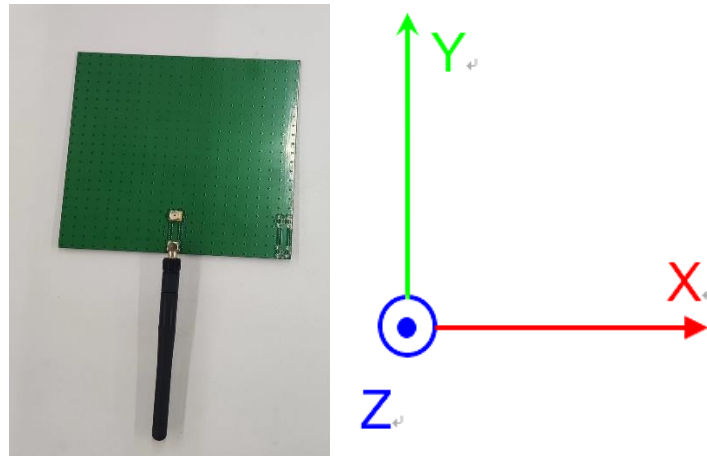
**Peak Gain (dBi)**

Frequency (MHz)	433	450	460	470	860	865	870	900	915	930
<b>Straight</b>	-	-1.0	-0.2	0.5	-	-	-	-	-	-
<b>Bent</b>	-	-4.2	-2.7	-1.1	-	-	-	-	-	-

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

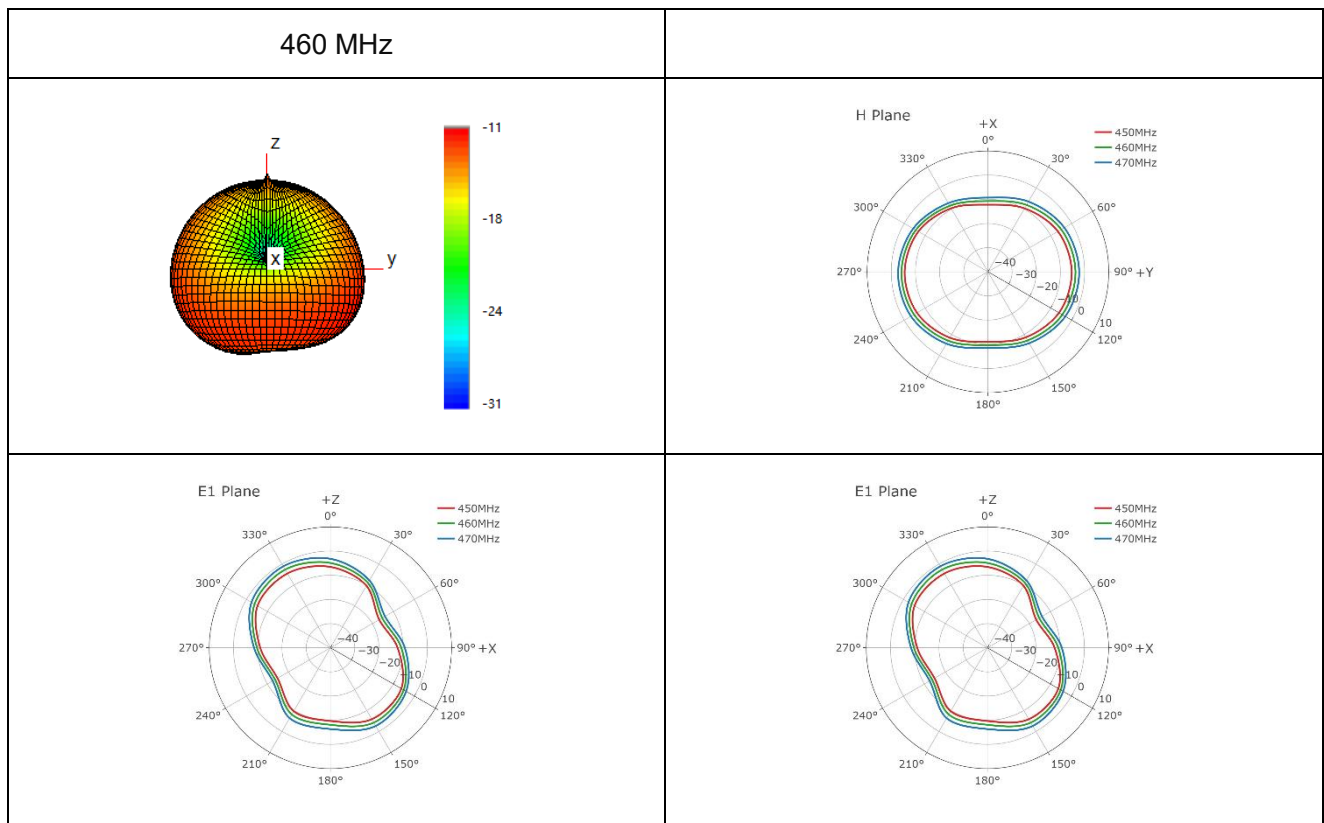
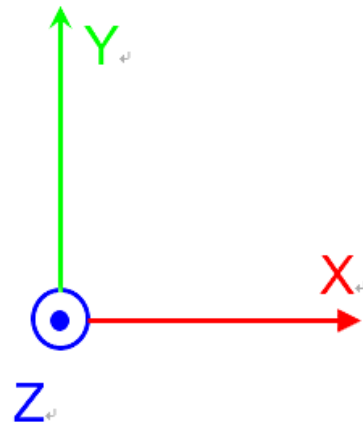
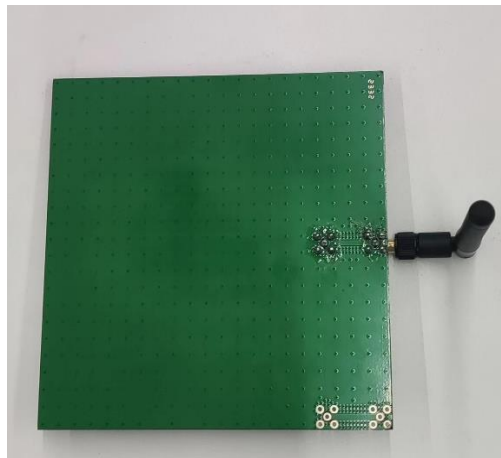
#### 3.2.4.1. Test Condition: On 130 mm × 130 mm EVB - Straight

- Test Chamber: HF-G-1




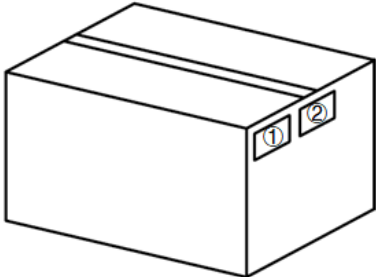
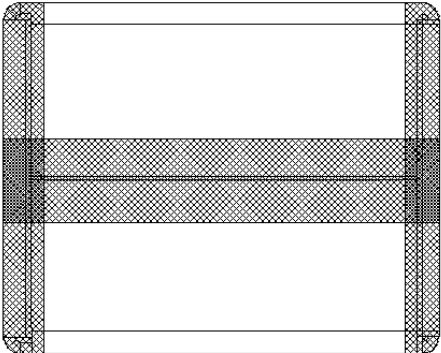
### 3.2.4.2. Test Condition: On 130 mm x 130 mm EVB - Bent

- Test Chamber: HF-G-1



## 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		100 pcs antenna products in a big PE bag; (100 pcs antennas per big PE bag)
2		(10 big PE bags per carton box) (1000 pcs antennas per carton box) <u>Carton Size:</u> <u>L × W × H = 300 × 250 × 200 mm</u>

3		Put a bubble bag on the top of the product.
4		<b>Position for Attaching Labels</b> ① Carton Label ② Quality Label
5		<b>Sealing Cartons</b> “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:

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**Or our local offices. For more information, please visit:**

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## Revision History

Version	Date	Author	Note
1.0	2023-08-13	Kenny YIN	Initial
1.1	2022-12-15	Kenny YIN	Updated the antenna image (Chapter 2).
1.2	2021-01-27	Kenny YIN	Added IP rating description (Chapter 3).
2.0	2021-06-09	Aria CHU	Updated all test data in this datasheet.
2.1	2021-12-03	Aria CHU	Updated the product description (Chapter 1).
3.0	2023-09-15	Aria CHU/ Lucky FENG/ David LIU	Updated all test data in this datasheet.



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