



# Antenna Datasheet

**Product OC:** YECN000W1A

**Version:** 1.0

**Date:** 2023-05-31

**Status:** Released

**Product Name:** 4G Rod Antenna

**Key Features:**

Frequency Band: 700–2700 MHz

Dimensions: 47.30 × 16.50 × 7.80 mm

Efficiency: Up to 70 %

RoHS Compliant

IP53

# Overview

This Quectel embedded 4G FPC/PCB antenna covers main 4G LTE bands and is compatible with 3G/2G/LPWA bands. Featuring high efficiency and gain, it is an ideal antenna for a smooth and stable connection with high-efficiency data transmission even under the influence of the device's internal structure. Ground plane independent, it's designed to be mounted directly to the underside of either a plastic or non-metallic enclosure. Ease of integration with a cable and connector which can be customized to meet your product design and RF module.

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# 1 Specification

Test Condition: Assembled in test device

## 1.1. Electrical

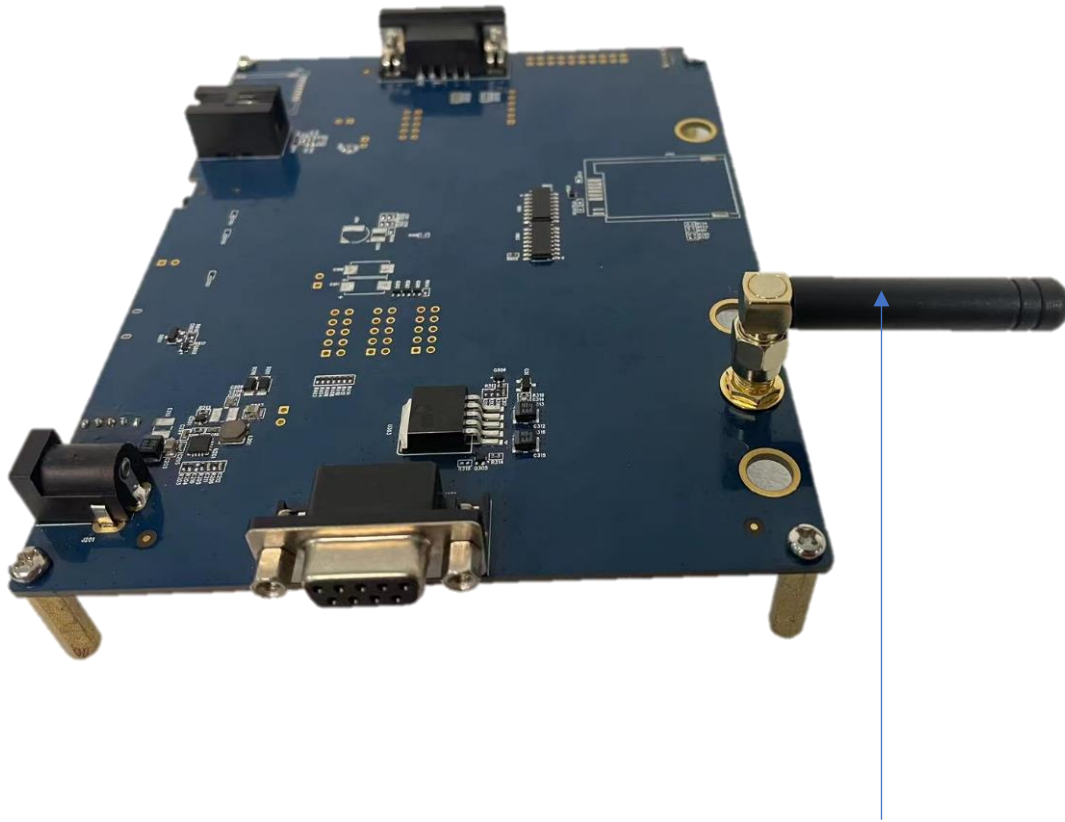
| Electrical        |                            |
|-------------------|----------------------------|
| Frequency Range   | 700–860 MHz, 1710–2700 MHz |
| Impedance         | 50 $\Omega$                |
| Polarization      | Linear                     |
| Radiation Pattern | Omni-directional           |

| Electrical - Detail   |                |             |                     |             |                     |               |               |               |               |                     |               |               |
|-----------------------|----------------|-------------|---------------------|-------------|---------------------|---------------|---------------|---------------|---------------|---------------------|---------------|---------------|
| SPEC                  | Band           | B71         | B12<br>/B13<br>/B28 | B5          | N74<br>/N75<br>/N76 | B3            | B40           | Wi-Fi<br>2G   | B38<br>/B41   | B42<br>/B48<br>/N77 | N79           | Wi-Fi<br>5G   |
|                       | Freq.<br>(MHz) | 600–<br>700 | 700–<br>810         | 820–<br>894 | 1420–<br>1520       | 1700–<br>1880 | 2300–<br>2400 | 2400–<br>2500 | 2500–<br>2690 | 3300–<br>4200       | 4400–<br>5000 | 5150–<br>5850 |
| Max. VSWR             |                | -           | 3.9                 | -           | -                   | 4.7           | -             | 1.6           | -             | -                   | -             | -             |
| Max. Return Loss (dB) |                | -           | -4.6                | -           | -                   | -3.8          | -             | -12.8         | -             | -                   | -             | -             |
| AVG Eff. (%)          |                | -           | 60                  | -           | -                   | 61            | -             | 66            | -             | -                   | -             | -             |
| AVG Gain (dB)         |                | -           | -2.2                | -           | -                   | -2.2          | -             | -1.8          | -             | -                   | -             | -             |
| Max. Peak Gain (dBi)  |                | -           | 2.15                | -           | -                   | 3.1           | -             | 3.8           | -             | -                   | -             | -             |
| VSWR                  |                |             |                     |             |                     | ≤ 4.7         |               |               |               |                     |               |               |
| Return Loss           |                |             |                     |             |                     | ≤ -3.8 dB     |               |               |               |                     |               |               |
| Peak Gain             |                |             |                     |             |                     | ≤ 3.8 dBi     |               |               |               |                     |               |               |

## 1.2. Mechanical, Environmental & Storage

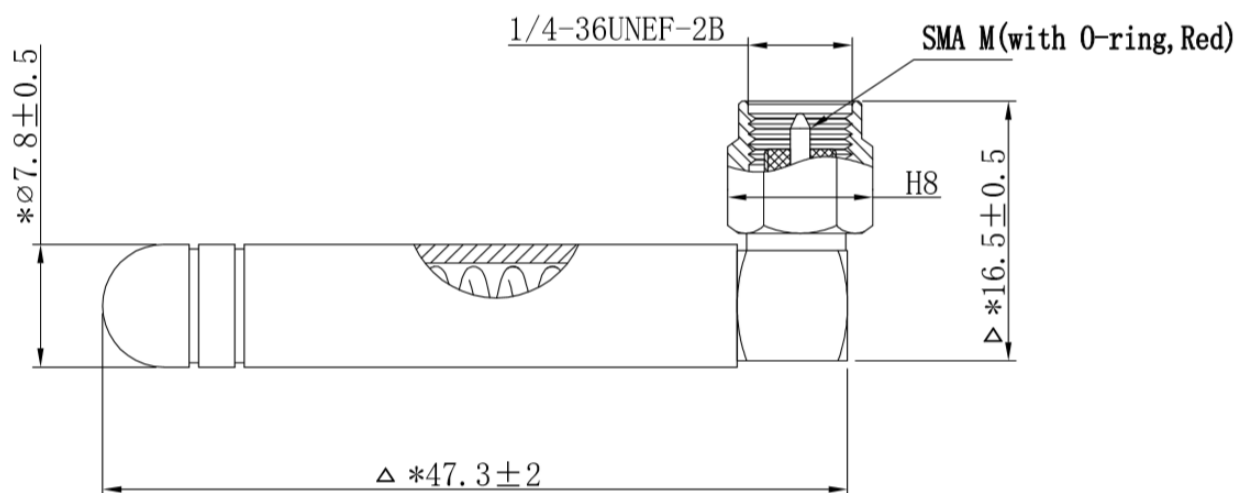
| Mechanical                |                                                                                |
|---------------------------|--------------------------------------------------------------------------------|
| Antenna Dimensions        | 47.30 × 16.50 × 7.80 mm                                                        |
| Casing Material & Color   | TPEE & Black                                                                   |
| Connector Type            | SMA Male                                                                       |
| Mounting Type             | Terminal                                                                       |
| Weight                    | Typ. 6.50 g                                                                    |
| Environmental             |                                                                                |
| Operation Temperature     | -40 °C to +85 °C                                                               |
| Ingress Protection Rating | IP53                                                                           |
| RoHS Compliant            | Yes                                                                            |
| Storage                   |                                                                                |
| Storage Temperature       | 18 °C –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. |

### 1.3. Antenna Assembly



YECN000W1A

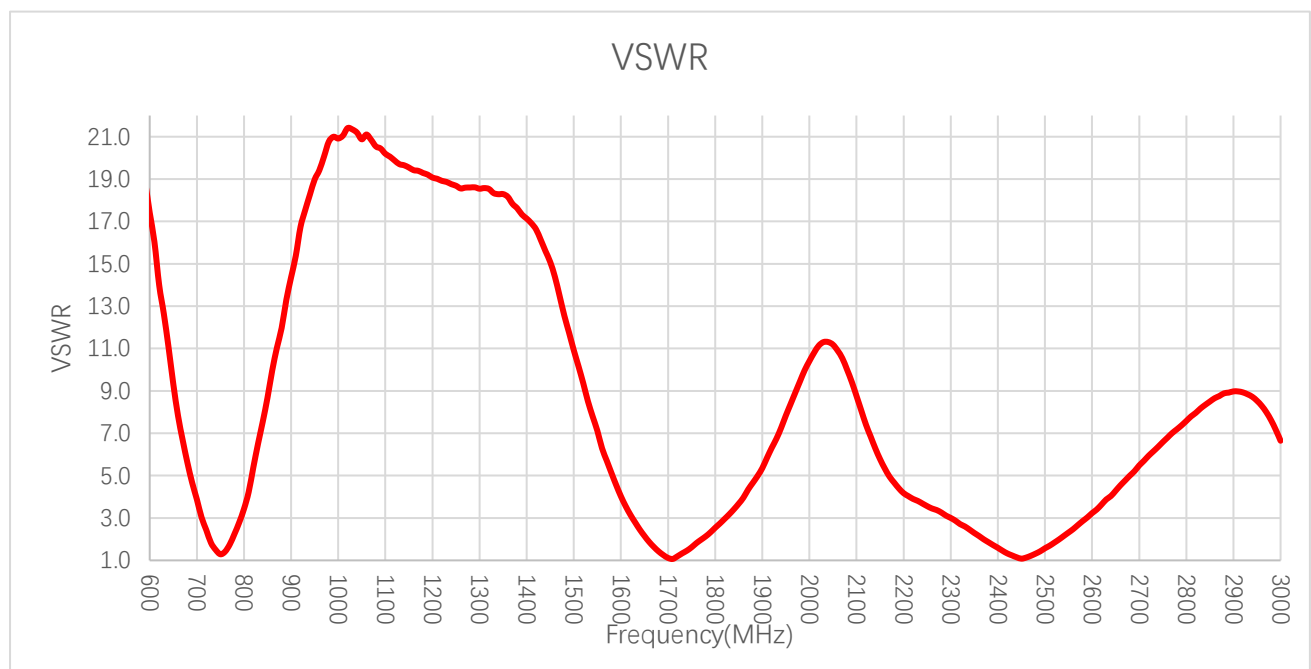
## 2 Drawing



## 3 Detailed Performance

### 3.1. S-Parameter Test

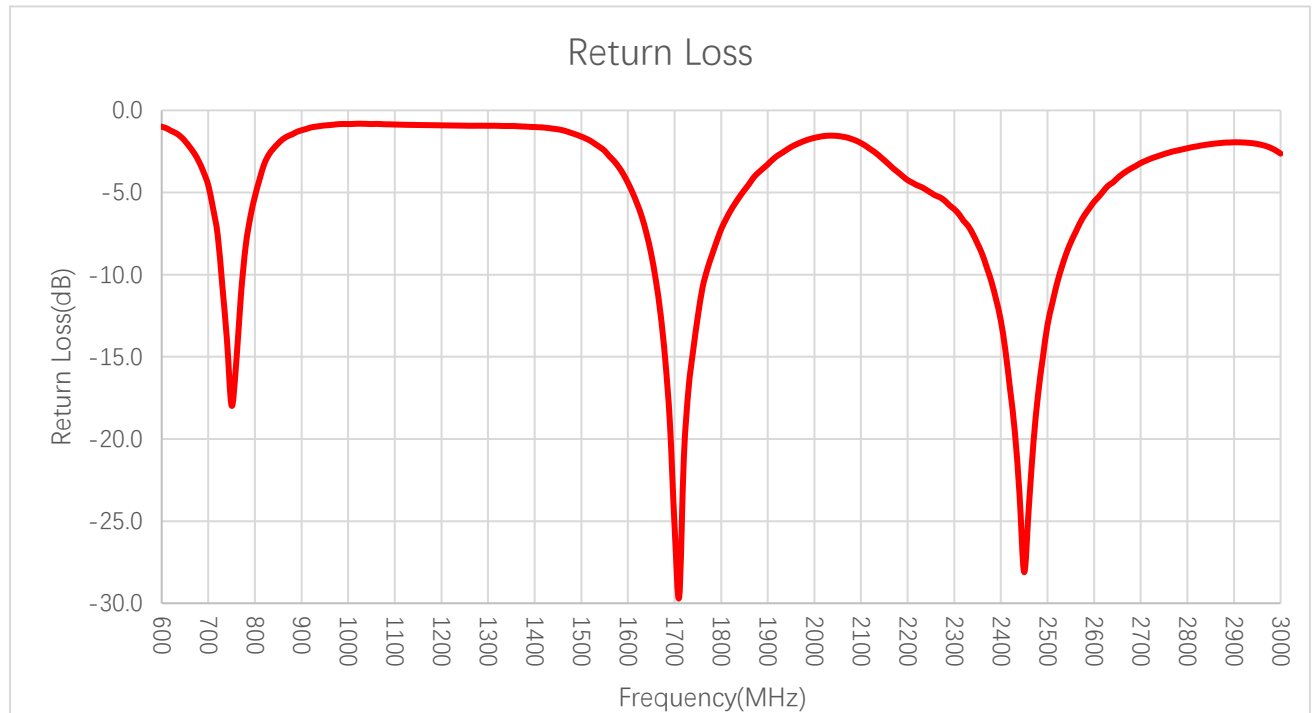
#### 3.1.1. VSWR



**VSWR**

| Frequency (MHz) | 600  | 630  | 710  | 830  | 900  | 960       | 1440 | 1710 | 1740 | 1880 |
|-----------------|------|------|------|------|------|-----------|------|------|------|------|
| VSWR            | -    | -    | 3.0  | 6.5  | -    | -         | -    | 1.1  | 1.5  | 4.7  |
| Frequency (MHz) | 1950 | 2140 | 2350 | 2450 | 2600 | 2690/3600 | 4700 | 5000 | 5500 | 6000 |
| VSWR            | -    | -    | 2.3  | 1.1  | 3.2  | -         | -    | -    | -    | -    |

### 3.1.2. Return Loss

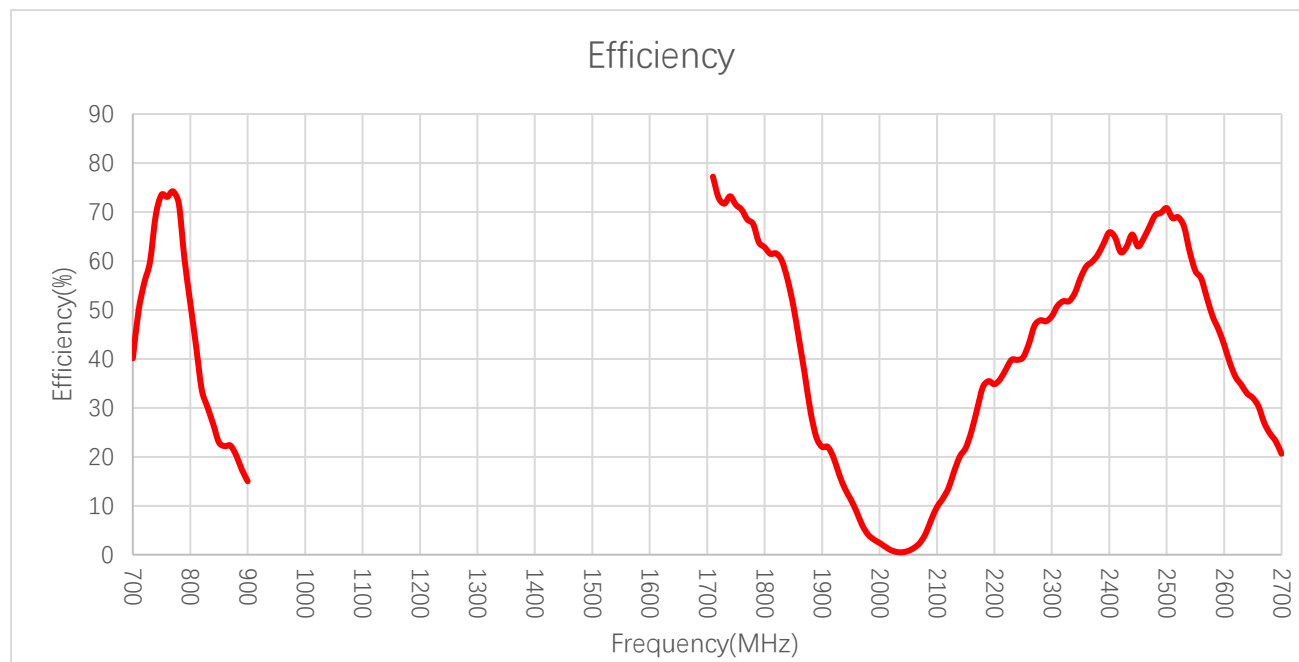


Return Loss (dB)

| Frequency (MHz)  | 600  | 630  | 710  | 830   | 900  | 960       | 1440 | 1710  | 1740  | 1880 |
|------------------|------|------|------|-------|------|-----------|------|-------|-------|------|
| Return Loss (dB) | -    | -    | -6.0 | -2.7  | -    | -         | -    | -29.6 | -14.6 | -3.8 |
| Frequency (MHz)  | 1950 | 2140 | 2350 | 2450  | 2600 | 3600/2690 | 4700 | 5000  | 5500  | 6000 |
| Return Loss (dB) | -    | -    | -8.1 | -28.1 | -5.6 | -         | -    | -     | -     | -    |

## 3.2. Radiation Performance Test

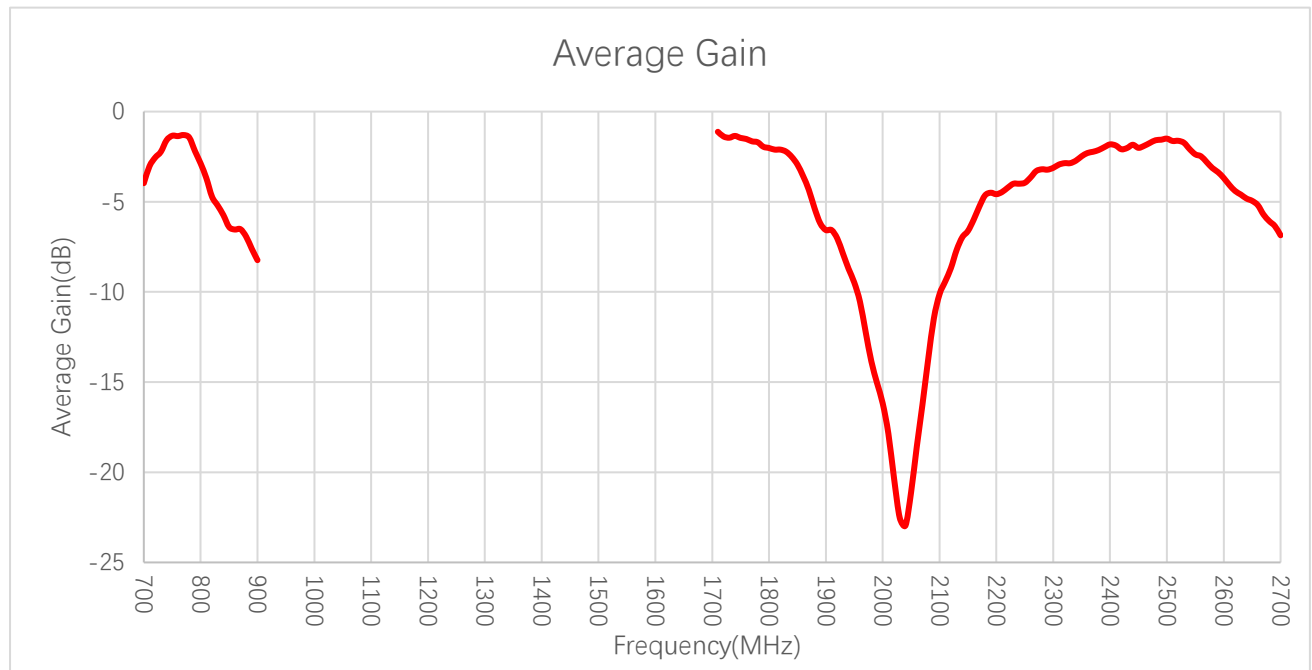
### 3.2.1. Efficiency



**Efficiency (%)**

| Frequency (MHz) | 600  | 630  | 710  | 830  | 900  | 960       | 1440 | 1710 | 1740 | 1880 |
|-----------------|------|------|------|------|------|-----------|------|------|------|------|
| Efficiency (%)  | -    | -    | 49.8 | 30.2 | -    | -         | -    | 77.2 | 73.2 | 29.2 |
| Frequency (MHz) | 1950 | 2140 | 2350 | 2450 | 2600 | 3600/2690 | 4700 | 5000 | 5500 | 6000 |
| Efficiency (%)  | -    | -    | 56.5 | 63.0 | 42.9 | -         | -    | -    | -    | -    |

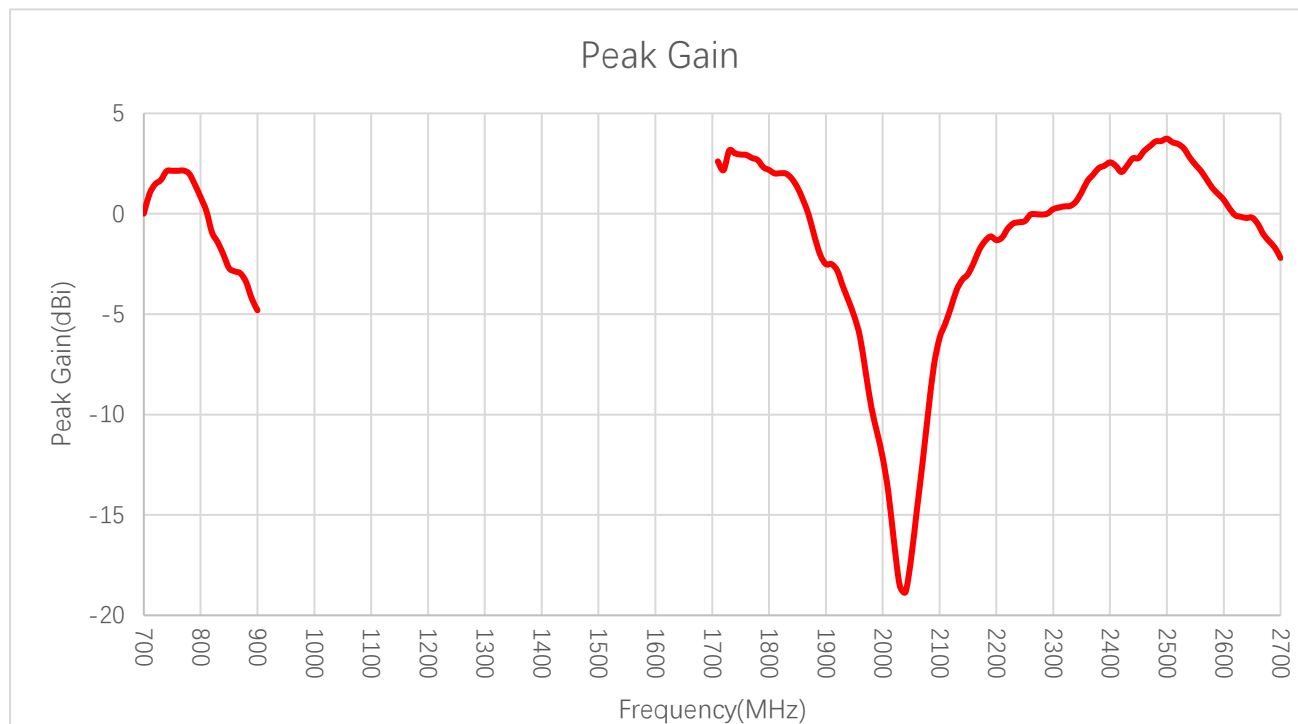
### 3.2.2. Average Gain



**Average Gain (dB)**

| Frequency (MHz)   | 600  | 630  | 710  | 830  | 900  | 960           | 1440 | 1710 | 1740 | 1880 |
|-------------------|------|------|------|------|------|---------------|------|------|------|------|
| Average Gain (dB) | -    | -    | -3.0 | -5.2 | -    | -             | -    | -1.1 | -1.4 | -5.4 |
| Frequency (MHz)   | 1950 | 2140 | 2350 | 2450 | 2600 | 3600/<br>2690 | 4700 | 5000 | 5500 | 6000 |
| Average Gain (dB) | -    | -    | -2.5 | -2.0 | -3.7 | -             | -    | -    | -    | -    |

### 3.2.3. Peak Gain

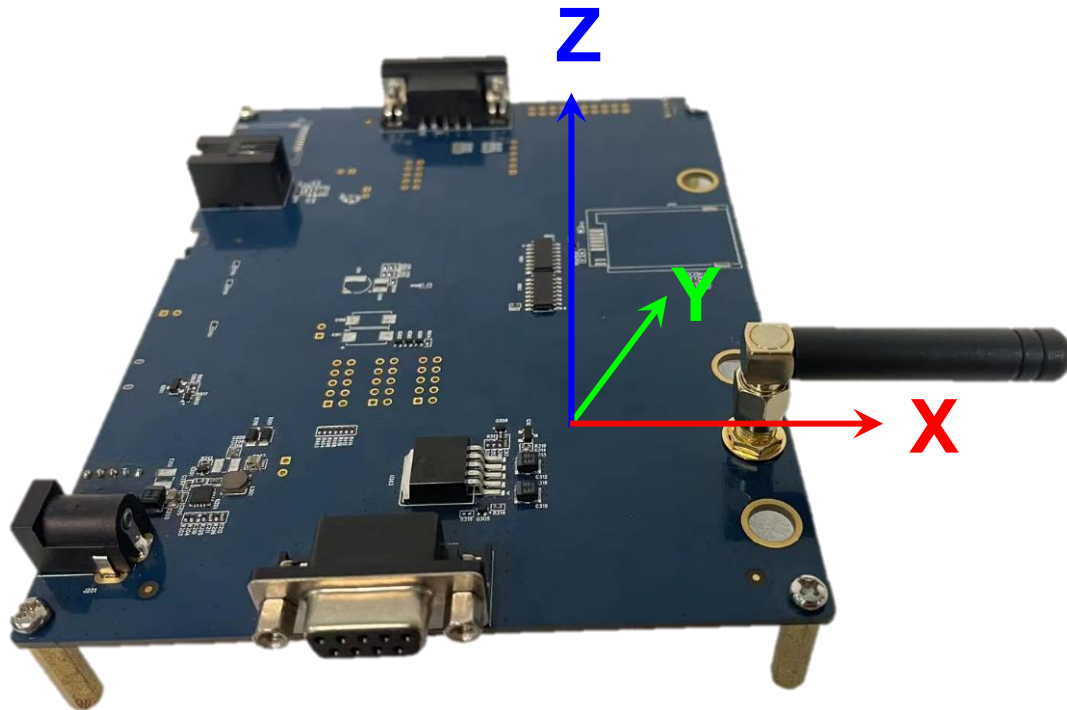


Peak Gain (dBi)

| Frequency (MHz) | 600  | 630  | 710  | 830  | 900  | 960       | 1440 | 1710 | 1740 | 1880 |
|-----------------|------|------|------|------|------|-----------|------|------|------|------|
| Peak Gain (dBi) | -    | -    | 1.0  | -1.4 | -    | -         | -    | 2.6  | 3.0  | -1.1 |
| Frequency (MHz) | 1950 | 2140 | 2350 | 2450 | 2600 | 3600/2690 | 4700 | 5000 | 5500 | 6000 |
| Peak Gain (dBi) | -    | -    | 1.1  | 2.8  | 0.7  | -         | -    | -    | -    | -    |

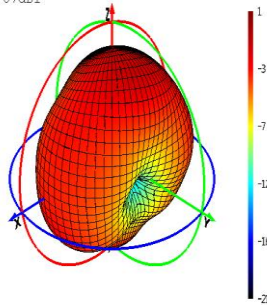
### 3.2.4. 3D & 2D Radiation Pattern

- Test Condition: Assembled in test device
- Test Chamber: SH-S1

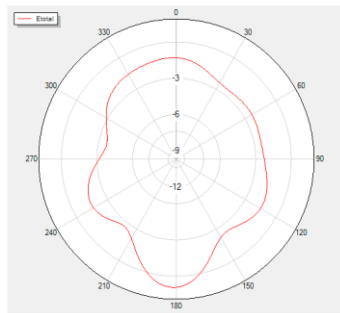


**710 MHz**

MAX:0.99dBi  
MIN:-21.07dBi

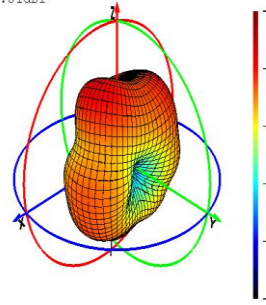


**Phi=0 Freq=710MHz**

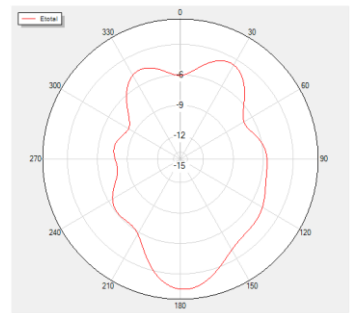


**830 MHz**

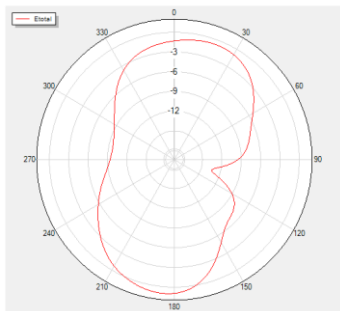
MAX:-1.42dBi  
MIN:-17.81dBi



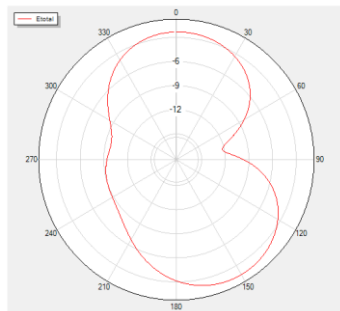
**Phi=0 Freq=830MHz**



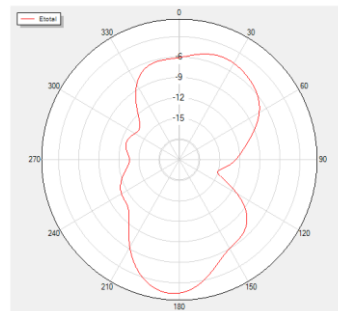
**Phi=90 Freq=710MHz**



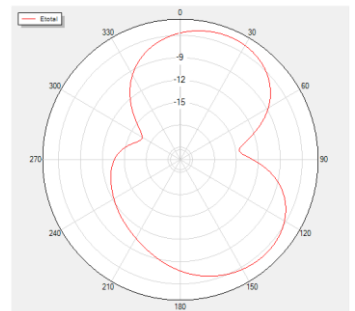
**Theta=90 Freq=710MHz**



**Phi=90 Freq=830MHz**

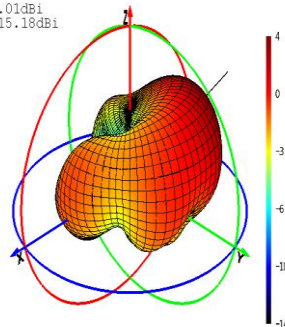


**Theta=90 Freq=830MHz**

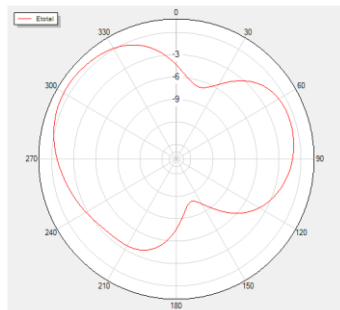


**1740 MHz**

MAX:3.01dBi  
MIN:-15.18dBi

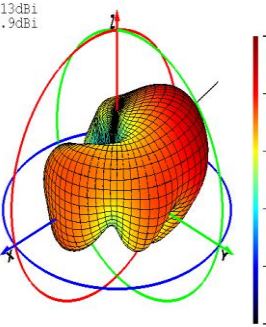


**Phi=0 Freq=1740MHz**

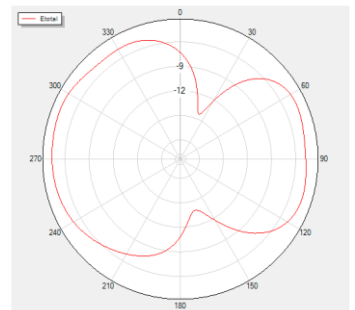


**1880 MHz**

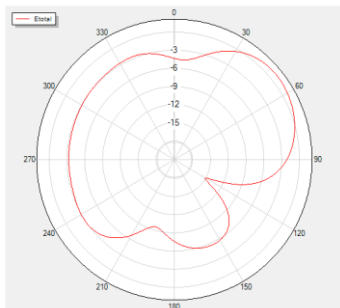
MAX:-1.13dBi  
MIN:-16.9dBi



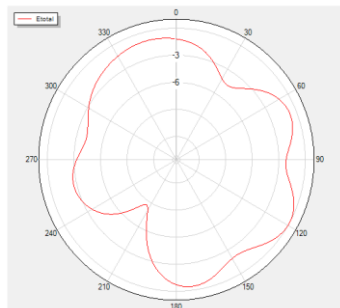
**Phi=0 Freq=1880MHz**



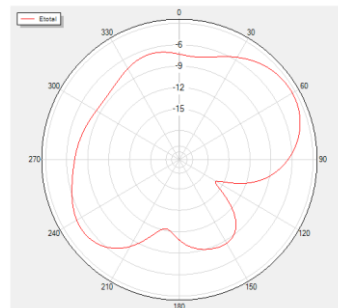
**Phi=90 Freq=1740MHz**



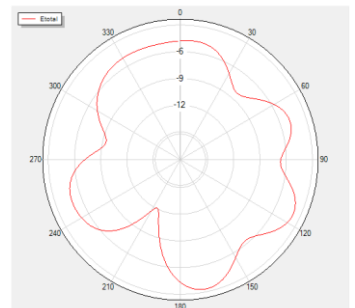
**Theta=90 Freq=1740MHz**



**Phi=90 Freq=1880MHz**

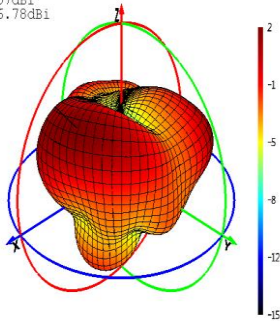


**Theta=90 Freq=1880MHz**

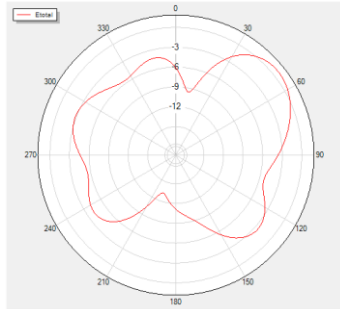


**2350 MHz**

MAX:1.07dBi  
MIN:-16.78dBi

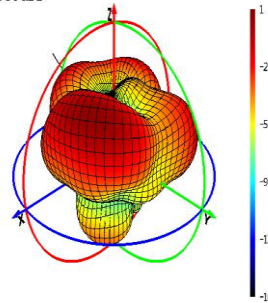


**Phi=0 Freq=2350MHz**

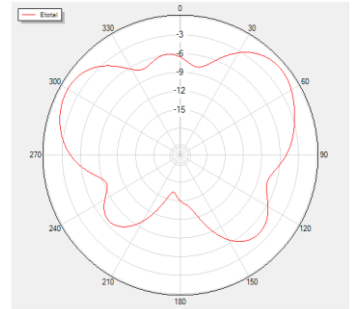


**2600 MHz**

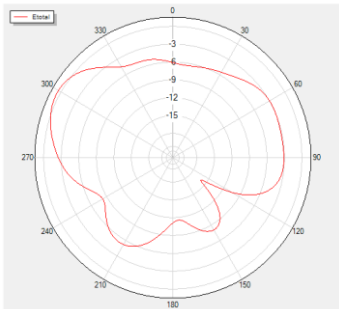
MAX:0.7dBi  
MIN:-16.39dBi



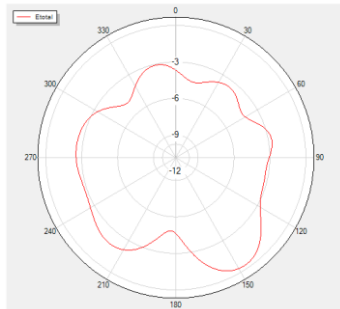
**Phi=0 Freq=2600MHz**



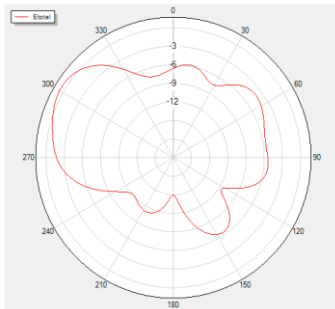
**Phi=90 Freq=2350MHz**



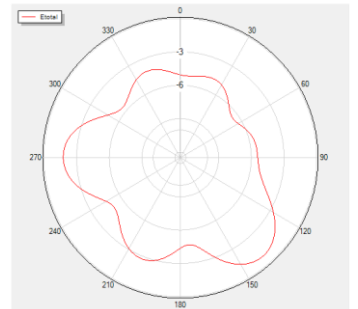
**Theta=90 Freq=2350MHz**



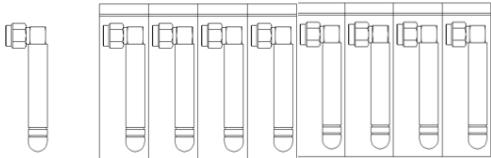
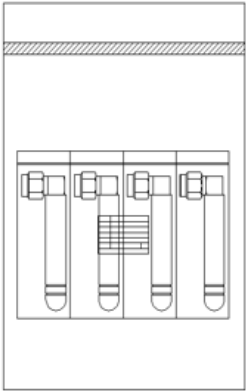
**Phi=90 Freq=2600MHz**

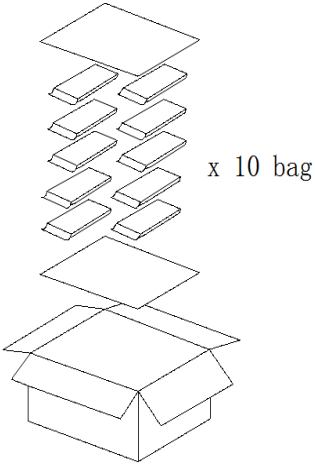
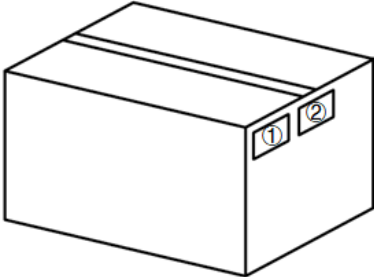
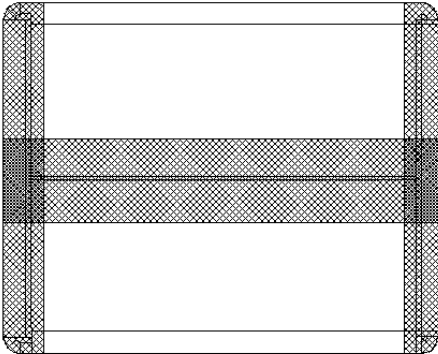


**Theta=90 Freq=2600MHz**



## 4 Packaging

| Step | Packaging Picture / 2D Picture                                                                       | Description                                                                     |
|------|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 1    |                     | Put the product in a one-piece bag;<br>Each one-piece bag contains 10 products. |
| 2    |  <p>50pcs/bag</p> | 50 pcs antenna products in a PE bag;<br>(50 pcs antennas per PE bag)            |

|   |                                                                                                   |                                                                                                                                               |
|---|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 3 |  <p>x 10 bag</p> | <p>(10 PE bags per carton box)<br/>(500 pcs antennas per carton box)</p> <p><u>Carton Size:</u><br/><u>L × W × H = 325 × 325 × 200 mm</u></p> |
| 4 |                 | <p><b>Position for Attaching Labels</b></p> <p>① Carton Label<br/>② Quality Label</p>                                                         |
| 5 |                | <p><b>Sealing Cartons</b><br/>“I” 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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## Revision History

| Version | Date       | Author                                              | Note                     |
|---------|------------|-----------------------------------------------------|--------------------------|
| -       | 2023-05-31 | Boris WANG/<br>Kenny YIN/<br>David LIU/<br>Aria CHU | Creation of the document |
| 1.0     | 2023-05-31 | Boris WANG/<br>Kenny YIN/<br>David LIU/<br>Aria CHU | First official release   |



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