

Antenna Datasheet

Product OC: Y0YRX00A1BA

Version: 1.0

Date: 2023-08-14

Status: Preliminary

Product Name: BT FPC Antenna

Key Features:

Frequency Band: 2400–2400 MHz

Dimensions: 35*7 mm

Efficiency: Up to 25.4%

RoHS and REACH Compliant

Overview

Wi-Fi 2.4G/Zigbee2.4G/Bluetooth Antenna

Quectel Wi-Fi 2.4G antenna covers 2.4 ~2.5GHz bands, fully satisfying customers' requirements for Wi-Fi/Zigbee/BT antennas. 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: Assembled in test device

1.1. Electrical

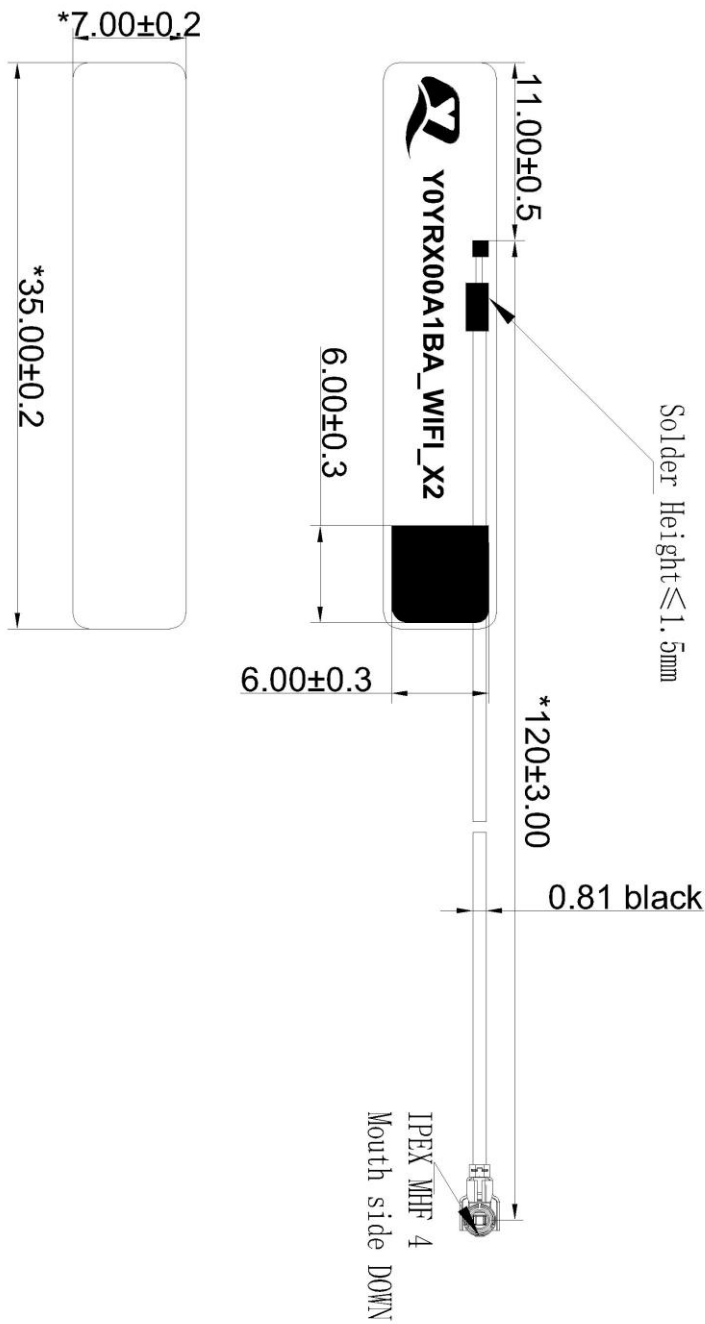
| Electrical | |
|-------------------|------------------|
| Frequency Range | 2400-2500MHz |
| Impedance | 50 Ω |
| Polarization | Linear |
| Radiation Pattern | Omni-directional |

| Electrical - Detail | | | | | | | | | | | | |
|-----------------------|-------------|---------|---------------|---------|---------------|------------|-----------|-----------|-----------|---------------|-----------|-----------|
| SPEC | Band | B71 | B12 /B13 /B28 | Lora | N74 /N75 /N76 | B1 /B2 /B3 | B40 | Wi-Fi 2G | B38 /B41 | B42 /B48 /N77 | N79 | Wi-Fi 5G |
| | Freq. (MHz) | 600–700 | 700–810 | 820–960 | 1420–1520 | 1700–2170 | 2300–2400 | 2400–2500 | 2500–2690 | 3300–4200 | 4400–5000 | 5150–5850 |
| Max. VSWR | - | - | - | - | - | - | - | 5.5 | - | - | - | - |
| Max. Return Loss (dB) | - | - | - | - | - | - | - | -3.2 | - | - | - | - |
| AVG Eff. (%) | - | - | - | - | - | - | - | 16.3 | - | - | - | - |
| AVG Gain (dB) | - | - | - | - | - | - | - | -8.1 | - | - | - | - |
| Max. Peak Gain (dBi) | - | - | - | - | - | - | - | 0.5 | - | - | - | - |
| VSWR | | | | | | | | ≤5.5 | | | | |
| Return Loss | | | | | | | | ≤-3.2 dB | | | | |
| Gain | | | | | | | | ≤0.5 dBi | | | | |

1.2. Mechanical, Environmental & Storage

| Mechanical | |
|-----------------------------|--|
| Antenna Dimensions | 35 *7 mm |
| Material & Color | FPC & Black |
| Cable Type & Color & Length | Φ0.81 & Black & 120mm |
| Connector Type | IPEX MHF 4 |
| Weight | Typ. / |
| Mounting Type | Adhesive |
| Environmental | |
| Operation Temperature | -40 °C to +85 °C |
| RoHS & REACH Compliant | Yes |
| Storage | |
| Storage Temperature | -40 °C to +85 °C |
| Humidity | Less than 75% RH |
| Storage Place | Away from corrosive gas and direct sunlight |
| Packaging | Antennas should be stored in unopened sealed manufacturer's plastic packaging. |

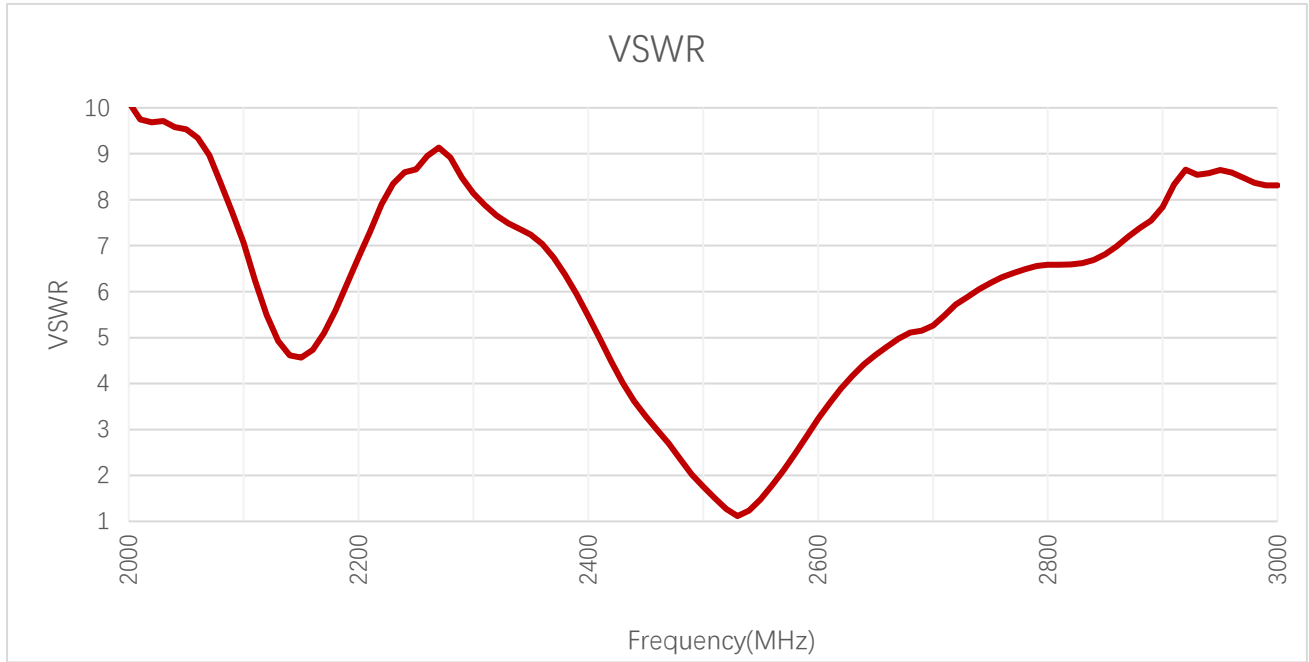
2 Drawing



Detailed Performance

2.1. S-Parameter Test

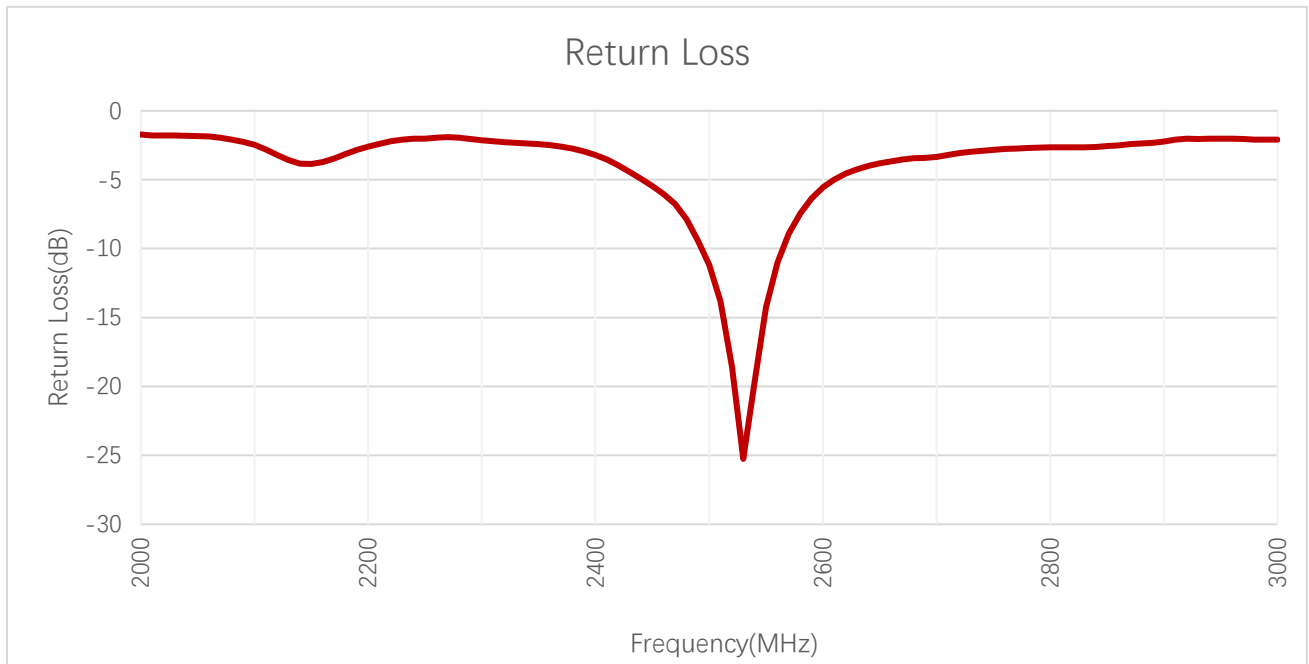
2.1.1. VSWR



VSWR

| | | | | | | | | | | |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Frequency (MHz) | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
| VSWR | - | - | - | - | - | - | - | - | - | - |
| Frequency (MHz) | 1950 | 2140 | 2400 | 2450 | 2500 | 3600 | 4700 | 5000 | 5500 | 6000 |
| VSWR | - | - | 5.5 | 3.3 | 1.8 | - | - | - | - | - |

2.1.2. Return Loss

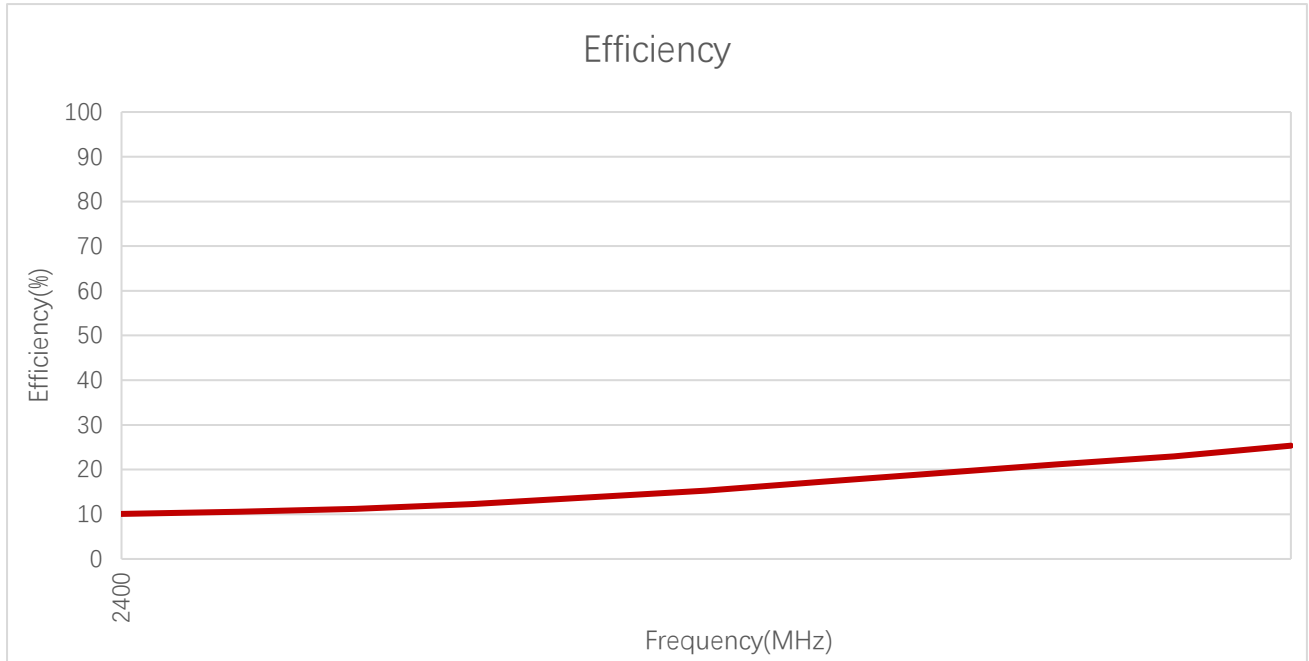


Return Loss (dB)

| | | | | | | | | | | |
|-------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Frequency (MHz) | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
| Return Loss (dB) | - | - | - | - | - | - | - | - | - | - |
| Frequency (MHz) | 1950 | 2140 | 2400 | 2450 | 2500 | 3600 | 4700 | 5000 | 5500 | 6000 |
| Return Loss (dB) | - | - | -3.2 | -5.5 | -11.2 | - | - | - | - | - |

2.2. Radiation Performance Test

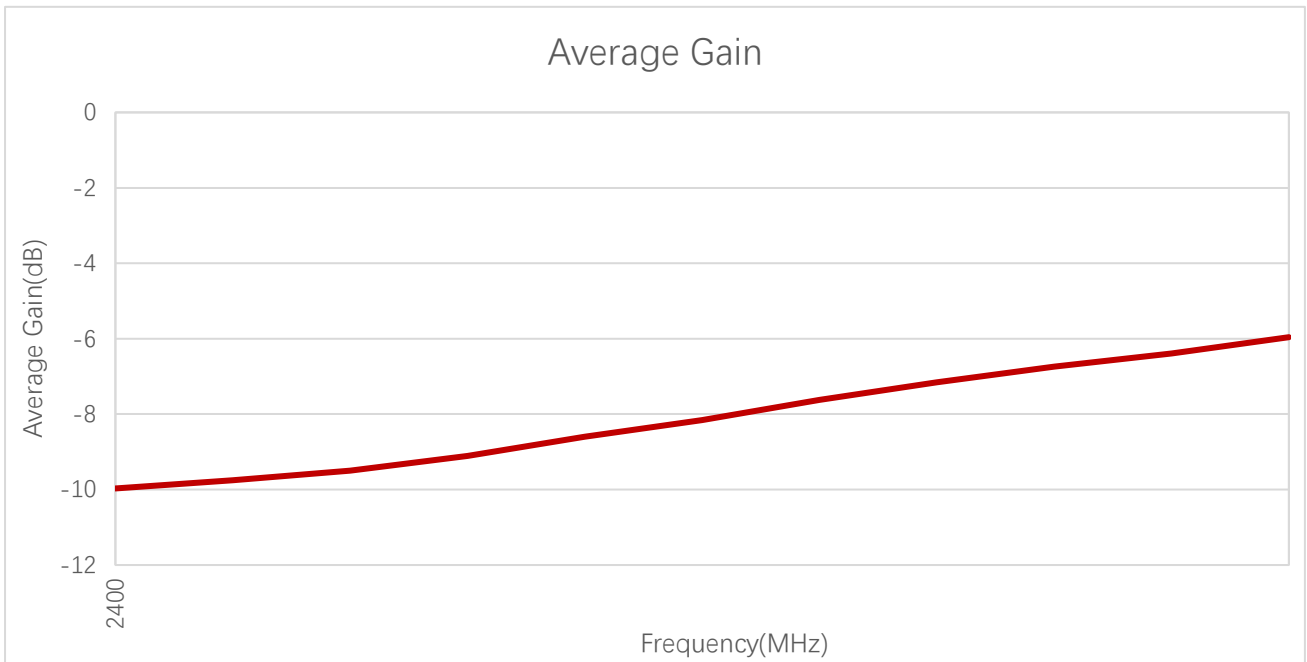
2.2.1. Efficiency



Efficiency (%)

| | | | | | | | | | | |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Frequency (MHz) | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
| Efficiency (%) | - | - | - | - | - | - | - | - | - | - |
| Frequency (MHz) | 1950 | 2140 | 2400 | 2450 | 2500 | 3600 | 4700 | 5000 | 5500 | 6000 |
| Efficiency (%) | - | - | 10.1 | 15.3 | 25.4 | - | - | - | - | - |

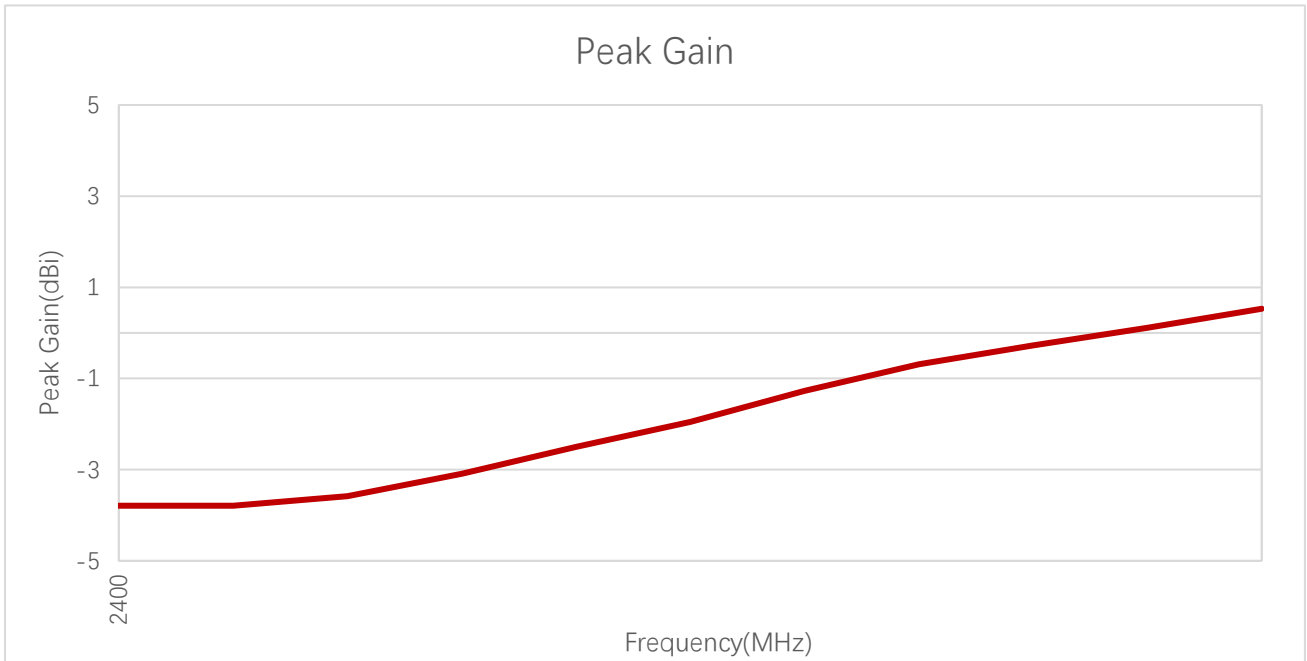
2.2.2. Average Gain



Average Gain (dB)

| | | | | | | | | | | |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Frequency (MHz) | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
| Average Gain (dB) | - | - | - | - | - | - | - | - | - | - |
| Frequency (MHz) | 1950 | 2140 | 2400 | 2450 | 2500 | 3600 | 4700 | 5000 | 5500 | 6000 |
| Average Gain (dB) | - | - | -10.0 | -8.2 | -6.0 | - | - | - | - | - |

2.2.3. Peak Gain

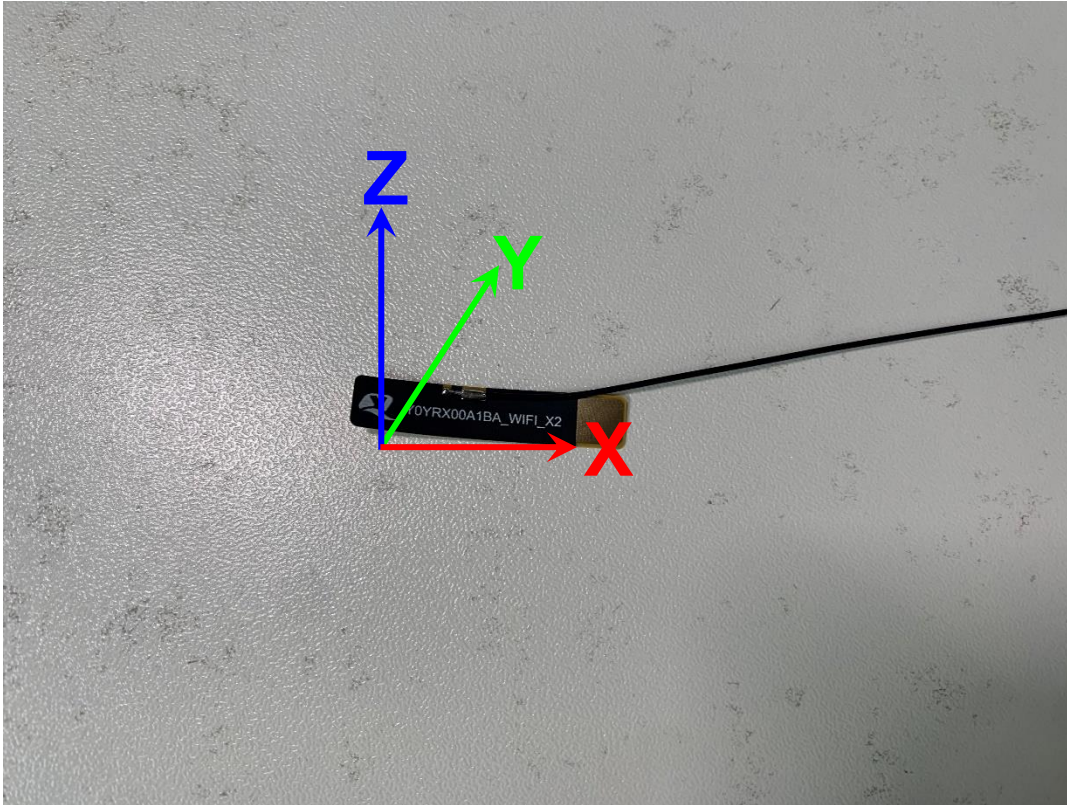


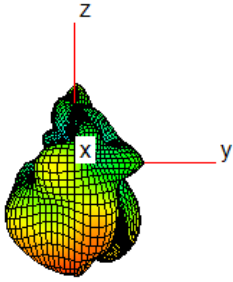
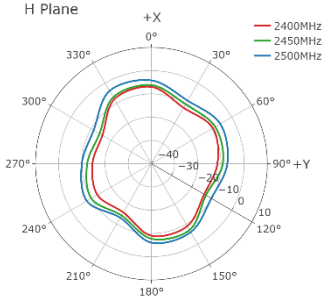
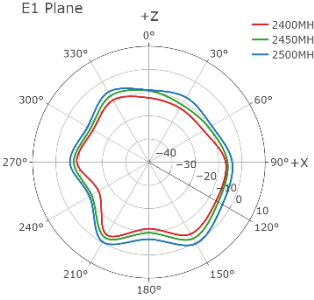
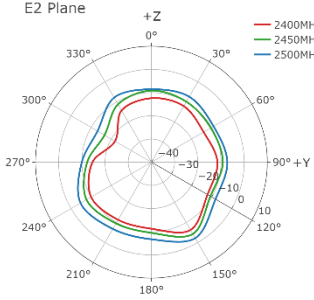
Peak Gain (dBi)

| | | | | | | | | | | |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Frequency (MHz) | 600 | 630 | 710 | 830 | 900 | 960 | 1440 | 1710 | 1740 | 1880 |
| Peak Gain (dBi) | - | - | - | - | - | - | - | - | - | - |
| Frequency (MHz) | 1950 | 2140 | 2400 | 2450 | 2500 | 3600 | 4700 | 5000 | 5500 | 6000 |
| Peak Gain (dBi) | - | - | -3.8 | -2.0 | 0.5 | - | - | - | - | - |

2.2.4. 3D & 2D Radiation Pattern

- Test Condition: Assembled in test device
- Test Chamber: HF-G-1



| | | | |
|--|---|--|--|
| <p>2450MHz</p> | | | |
|  | <p>H Plane</p>  | | |
| <p>E1 Plane</p>  | <p>E2 Plane</p>  | | |

3 Packaging

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

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Revision History

| Version | Date | Author | Note |
|---------|------------|-------------------------------------|--------------------------|
| - | 2023-08-04 | Aria CHU | Creation of the document |
| 1.0 | 2023-08-04 | Wilson BAO Lance Sun Aria CHU | First official release |

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