



Antenna Datasheet

Product OC: YEBT002W1AM

Version: 1.0

Date: 2024-06-03

Status: Preliminary

Product Name: WIFI Terminal Mount External Dipole Antenna

Key Features:

Frequency Band: 2400–2500 MHz & 5150–5850 MHz & 5925–7125 MHz

Dimensions: 135 × 15.6 × 13 mm

Efficiency: Up to 73.5%

RoHS Compliant

Overview

The YEBT002W1AM is a WIFI external antenna measuring 135 × 15.6 × 13 mm. This ultra-wide-band WIFI antenna provides broad coverage from 2400–2500 MHz & 5150–5850 MHz & 5925–7125 MHz. The antenna is terminated with RP SMA Male connectors, also supports N male, TNC male, Fakra male connectors. This low profile, terminal mount omni-directional antenna, ideal for applications where the antenna is required to be discrete, is easy to install with maximum durability assured thanks to its PC+ABS enclosure. It is compatible with Quectel's WIFI modules.

The antenna is designed as dipole type to work with various GND plane sizes or in free space for ease of integration with a hinged RP SMA Male connector to achieve the optimum position. Hinged structure helps to avoid other antennas or objects by rotating to different directions when mounted on terminals. This omni-directional antenna is ideally suited for Wi-Fi, WLAN, Zigbee, Bluetooth, and 802.11a/b/g/n/ac applications, WiFi application points and routers, offering great performance with its high gain and efficiency.

Typical applications include:

- Wi-Fi, WLAN, Zigbee, Bluetooth, and 802.11a/b/g/n/ac applications
- WiFi application points and routers

Quectel provides comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs. We have regional R & D centers to offer quick response to meet your requirements. Please contact our sales & FAEs if you have any requests.

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1 Specification

Test Condition: Free Space & 130 × 70 mm EVB

1.1. Electrical

| Electrical | |
|-------------------|---|
| Frequency Range | 2400–2500 MHz & 5150–5850 MHz & 5925–7125 MHz |
| Impedance | 50 Ω |
| 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 | FS | | 1.6 | 2.3 | 3.3 |
| | EVB | | 1.6 | 2.4 | 3.8 |
| Max. Return Loss (dB) | FS | | -13.0 | -8.3 | -5.4 |
| | EVB | | -12.2 | -7.8 | -4.7 |
| AVG Eff. (%) | FS | | 50.8 | 61.8 | 47.8 |
| | EVB | | 54.7 | 64.1 | 51.7 |
| AVG Gain (dB) | FS | | -2.9 | -2.1 | -3.2 |
| | EVB | | -2.6 | -1.9 | -2.9 |
| Max. Peak Gain (dBi) | FS | | 2.9 | 3.0 | 4.3 |
| | EVB | | 2.1 | 4.1 | 3.6 |
| VSWR | FS | | ≤ 3.3 | | |

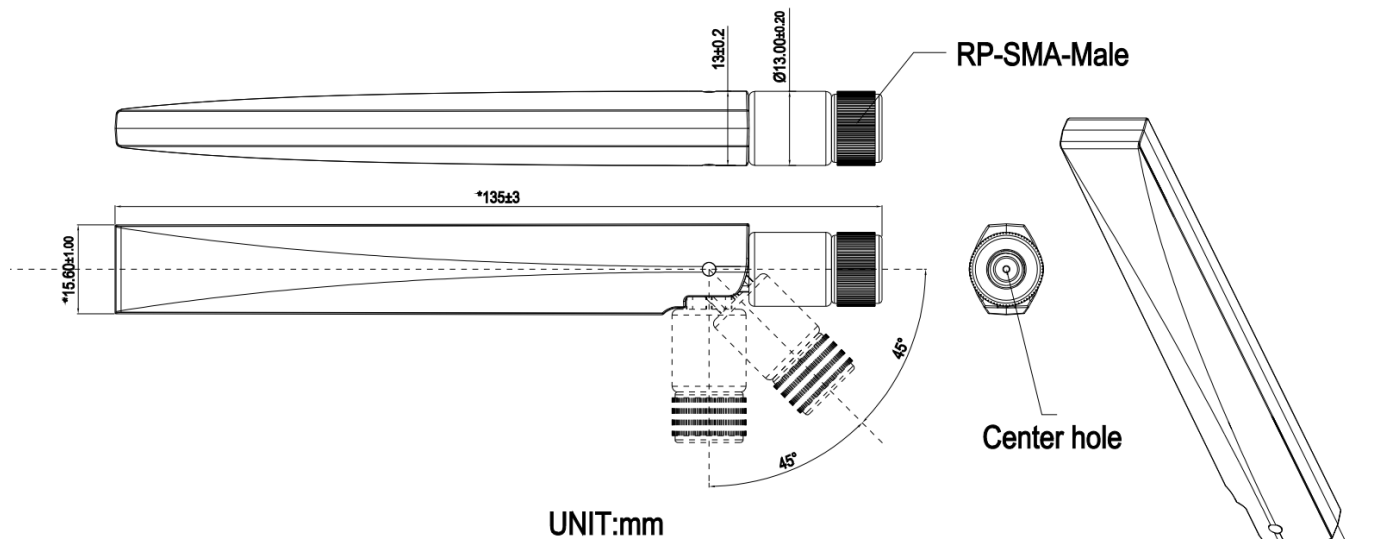
| | | |
|--------------------|------------|----------------|
| | EVB | ≤ 3.8 |
| Return Loss | FS | ≤ -5.4 dB |
| | EVB | ≤ -4.7 dB |
| Peak Gain | FS | ≤ 4.3 dBi |
| | EVB | ≤ 4.1 dBi |

- **FS:** Free Space.
- **EVB:** On 130 x 70 mm EVB.

1.2. Mechanical & Environmental

| Mechanical | |
|-----------------------|--------------------|
| Antenna Dimensions | 135 × 15.6 × 13 mm |
| Material & Color | PC+ABS & Black |
| Connector Type | RP SMA Male |
| Mounting Type | Terminal |
| Weight | Typ. 16 g |
| Environmental | |
| Operation Temperature | -40 °C to +85 °C |
| Storage Temperature | -40 °C to +85 °C |
| RoHS Compliant | Yes |

2 Drawing

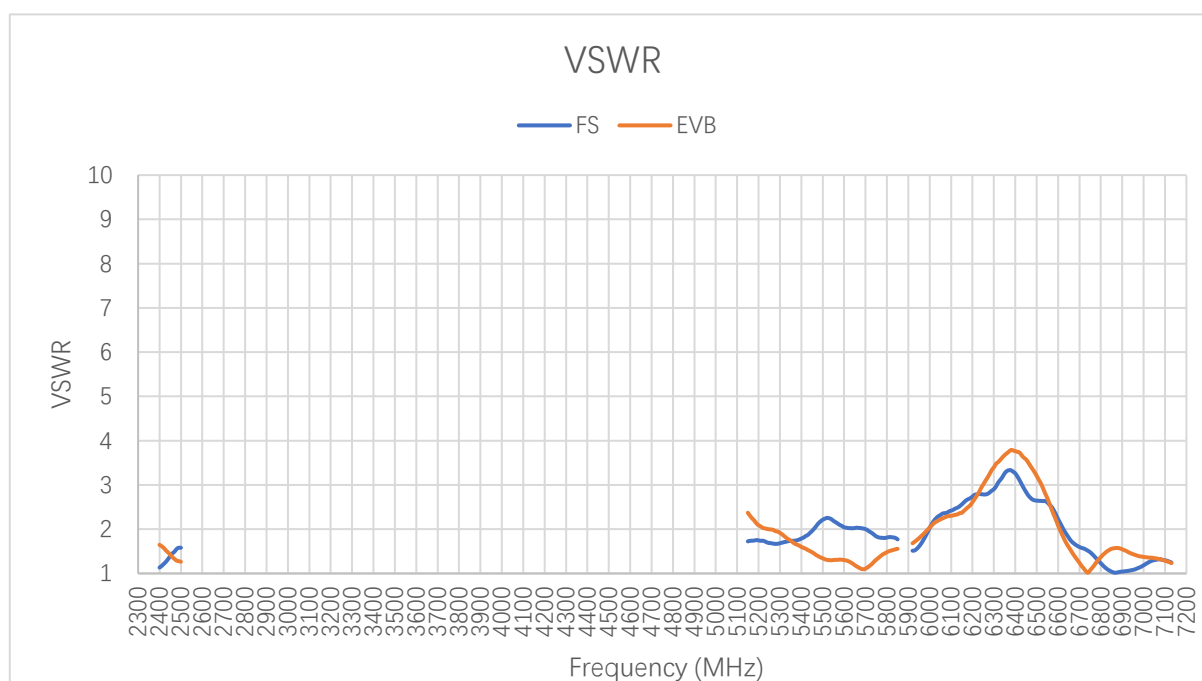


Note: If you use a torque wrench, the recommended force for mounting the antenna is 0.9Nm and the maximum torque to prevent antenna damage is 1.17Nm.

3 Detailed Performance

3.1. S-Parameter Test

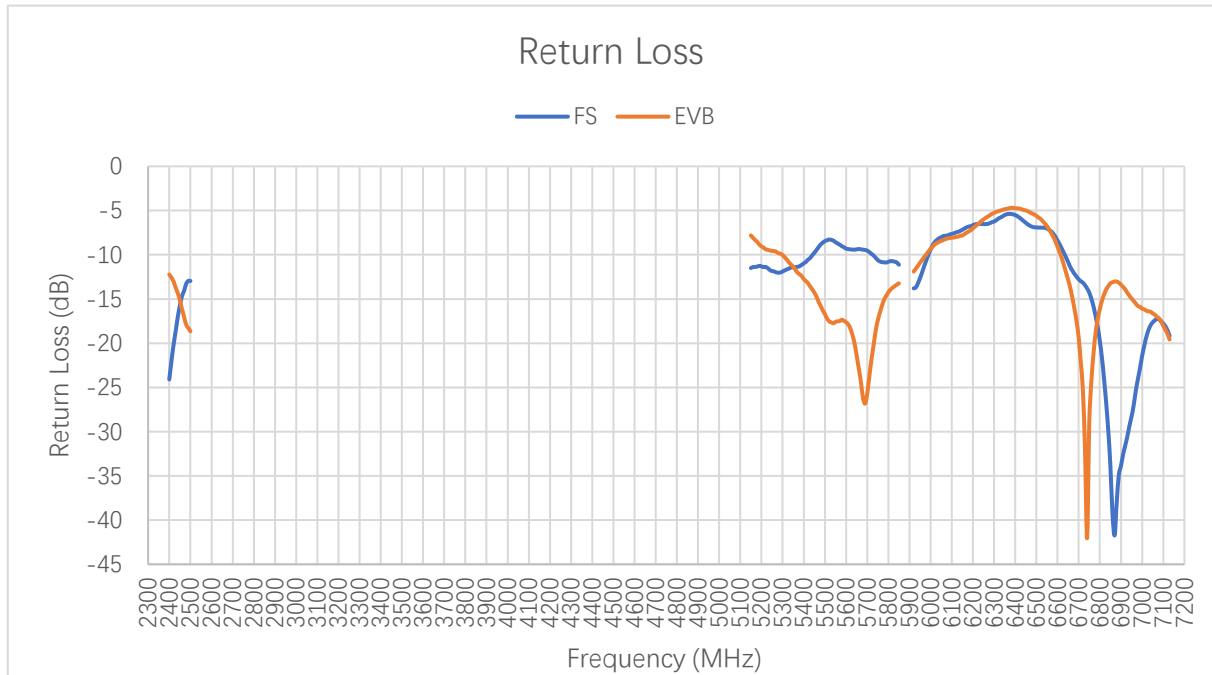
3.1.1. VSWR



VSWR

| Frequency (MHz) | 2400 | 2450 | 2500 | 5150 | 5500 | 5850 | 5925 | 6325 | 6725 | 7125 |
|-----------------|------|------|------|------|------|------|------|------|------|------|
| FS | 1.1 | 1.4 | 1.6 | 1.7 | 2.2 | 1.8 | 1.5 | 2.6 | 1.5 | 1.2 |
| EVB | 1.6 | 1.4 | 1.3 | 2.4 | 1.3 | 1.6 | 1.7 | 2.9 | 1.1 | 1.2 |

3.1.2. Return Loss

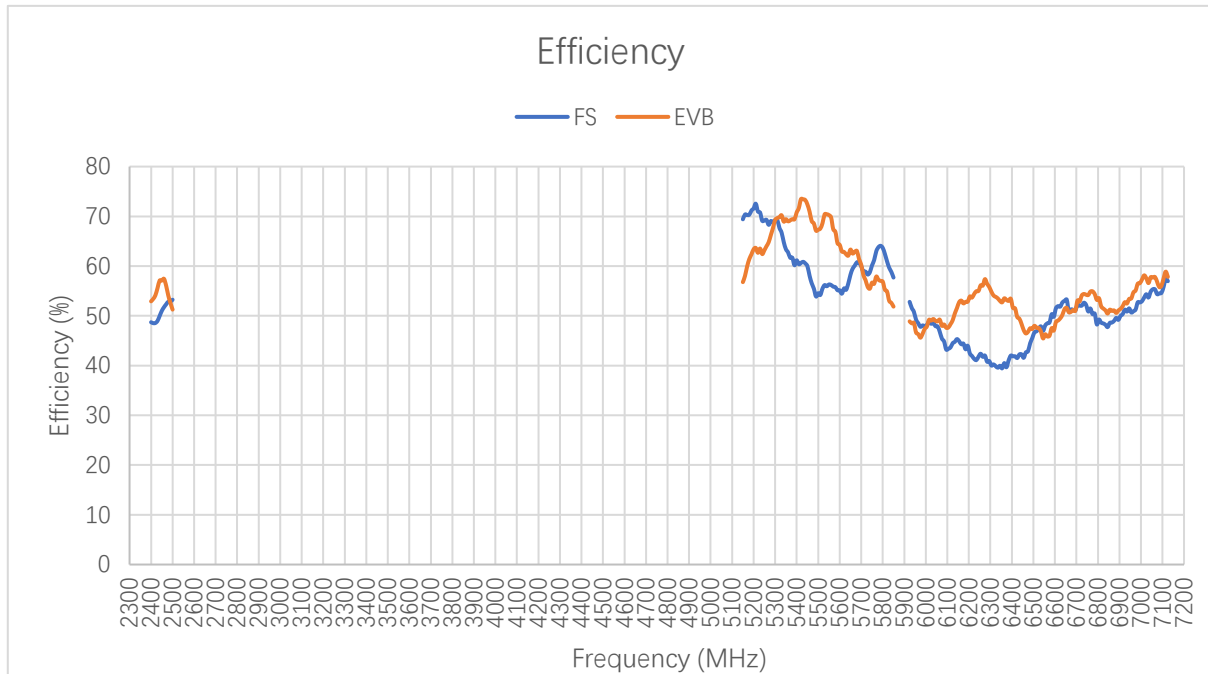


Return Loss(dB)

| Frequency (MHz) | 2400 | 2450 | 2500 | 5150 | 5500 | 5850 | 5925 | 6325 | 6725 | 7125 |
|-----------------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|
| FS | -24.1 | -15.7 | -13.0 | -11.5 | -8.5 | -11.1 | -13.8 | -6.9 | -13.4 | -19.2 |
| EVB | -12.2 | -15.1 | -18.7 | -7.8 | -16.7 | -13.2 | -11.9 | -6.2 | -32.1 | -19.6 |

3.2. Radiation Performance Test

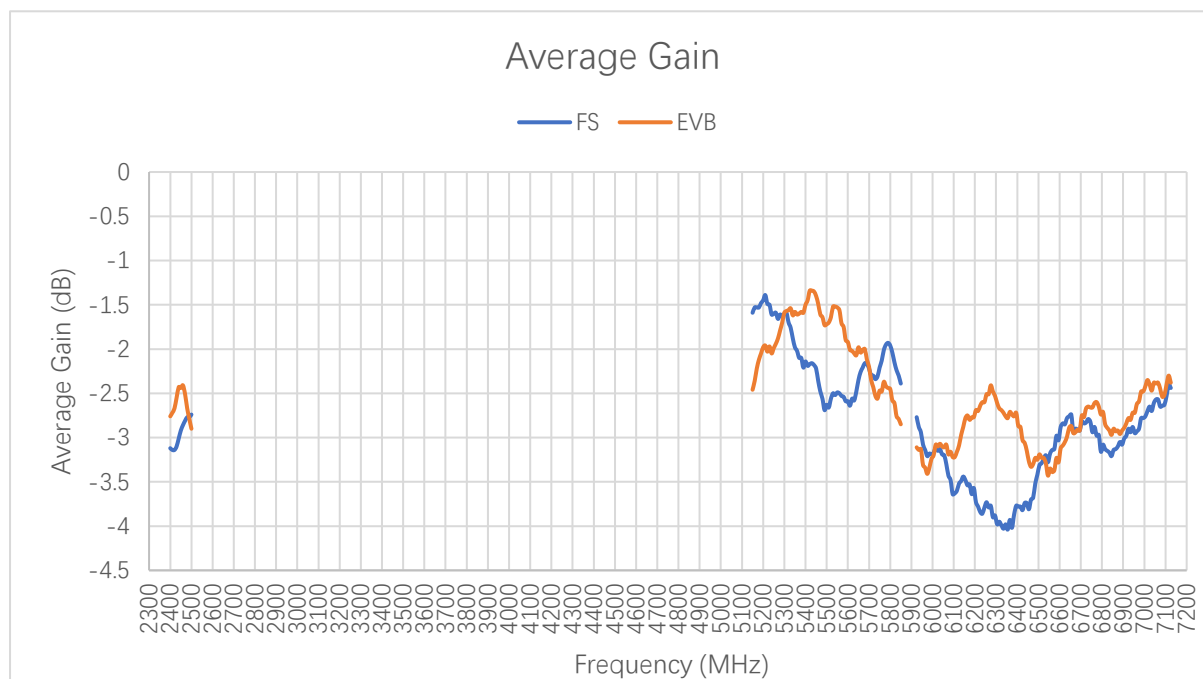
3.2.1. Efficiency



Efficiency (%)

| Frequency (MHz) | 2400 | 2450 | 2500 | 5150 | 5500 | 5850 | 5925 | 6325 | 6725 | 7125 |
|-----------------|------|------|------|------|------|------|------|------|------|------|
| FS | 48.7 | 51.0 | 53.2 | 69.4 | 54.6 | 57.7 | 52.8 | 47.4 | 52.1 | 57.0 |
| EVB | 52.9 | 57.1 | 51.3 | 56.8 | 67.3 | 51.9 | 48.9 | 47.6 | 54.1 | 57.8 |

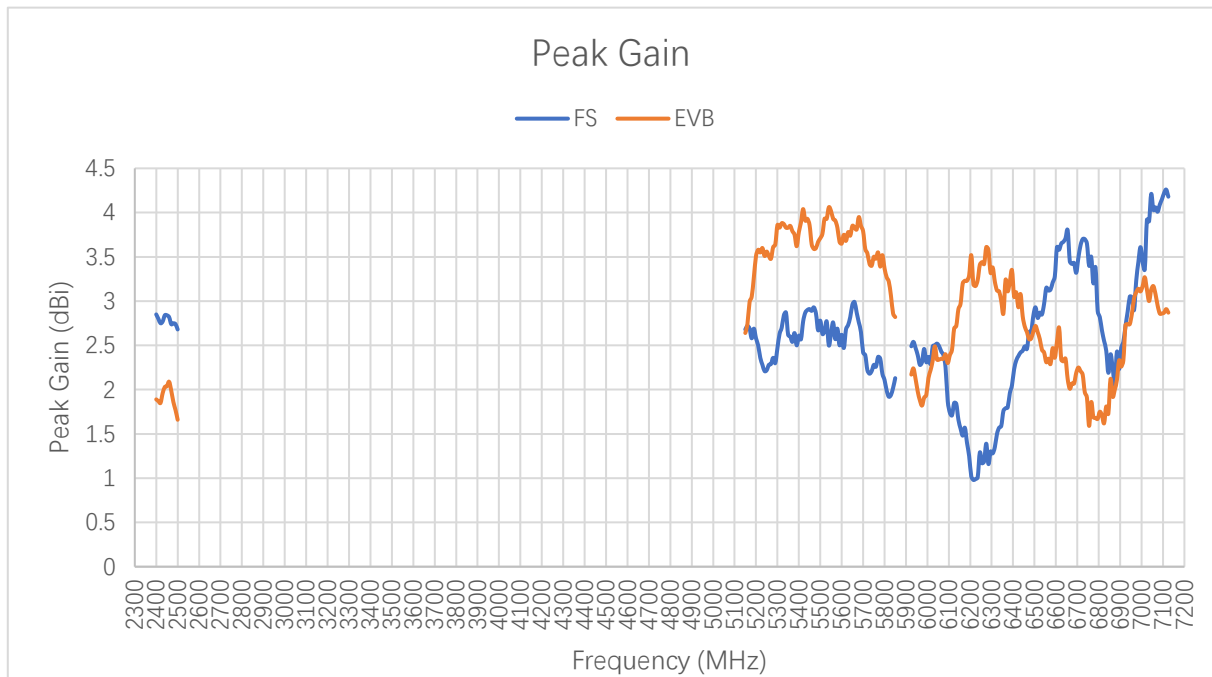
3.2.2. Average Gain



Average Gain (dB)

| Frequency (MHz) | 2400 | 2450 | 2500 | 5150 | 5500 | 5850 | 5925 | 6325 | 6725 | 7125 |
|-----------------|------|------|------|------|------|------|------|------|------|------|
| FS | -3.1 | -2.9 | -2.7 | -1.6 | -2.6 | -2.4 | -2.8 | -3.2 | -2.8 | -2.4 |
| EVB | -2.8 | -2.4 | -2.9 | -2.5 | -1.7 | -2.9 | -3.1 | -3.2 | -2.7 | -2.4 |

3.2.3. Peak Gain

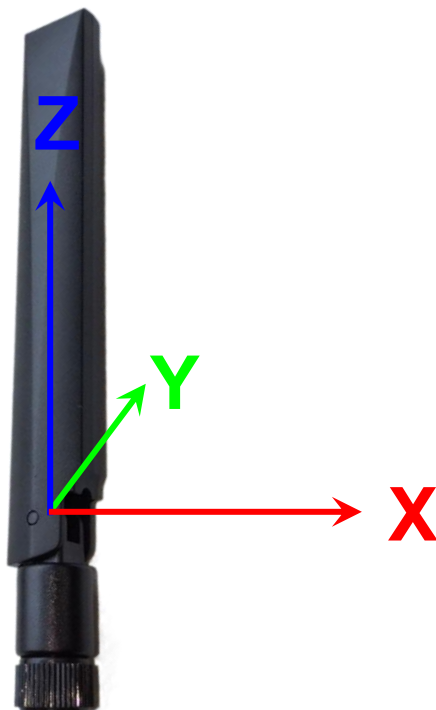


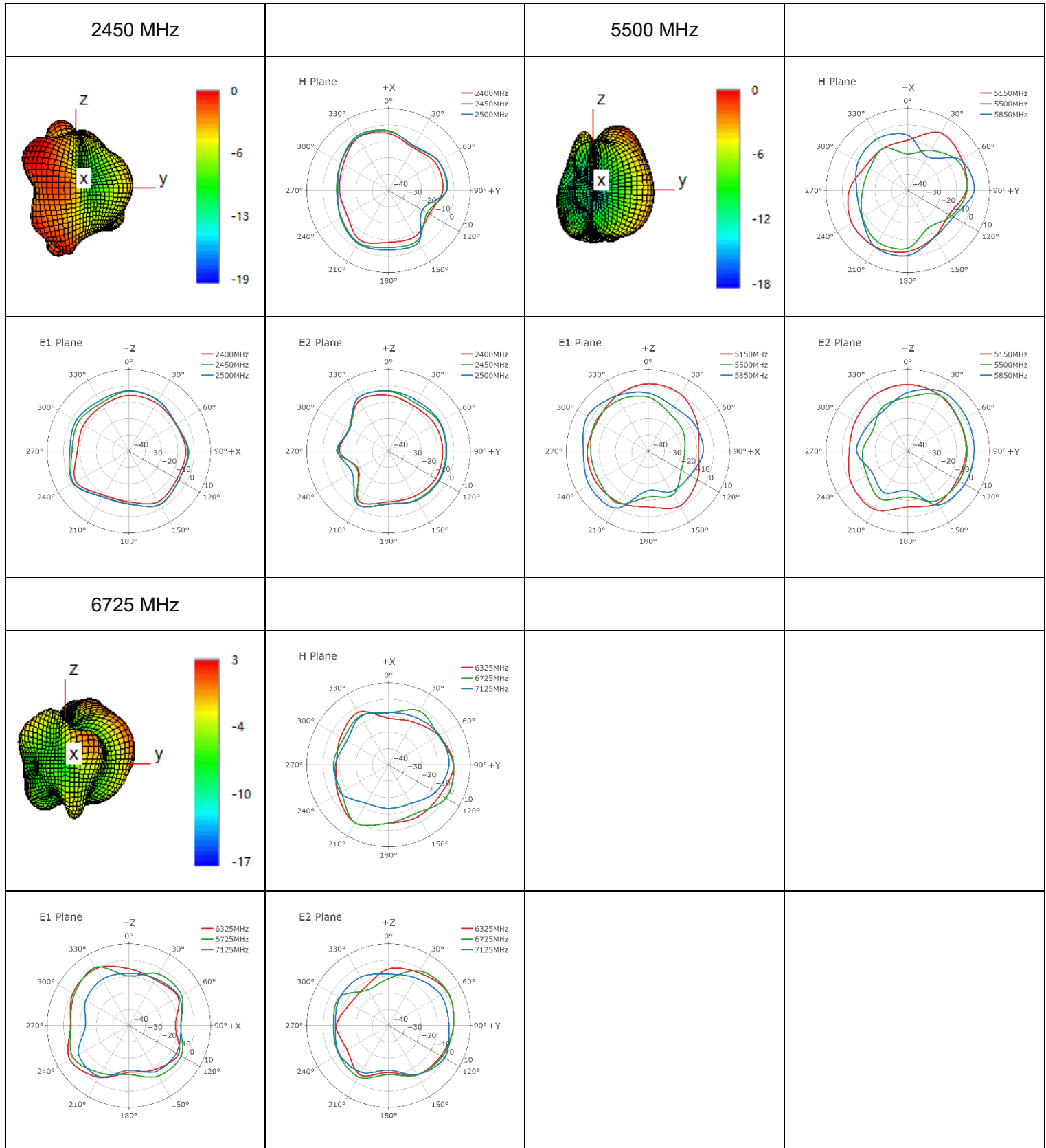
Peak Gain (dBi)

| Frequency (MHz) | 2400 | 2450 | 2500 | 5150 | 5500 | 5850 | 5925 | 6325 | 6725 | 7125 |
|-----------------|------|------|------|------|------|------|------|------|------|------|
| FS | 2.9 | 2.8 | 2.7 | 2.7 | 2.8 | 2.1 | 2.5 | 2.9 | 3.7 | 4.2 |
| EVB | 1.9 | 2.0 | 1.7 | 2.6 | 3.7 | 2.8 | 2.2 | 2.6 | 2.2 | 2.9 |

3.2.4. 3D & 2D Radiation Pattern

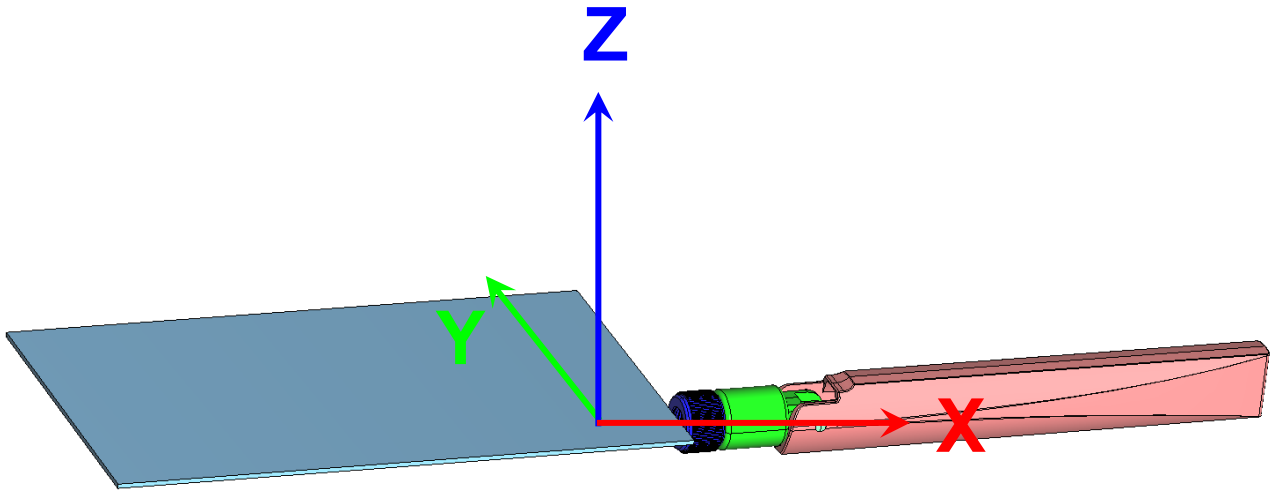
- Test Condition: Free Space
- Test Chamber: FS-G-1



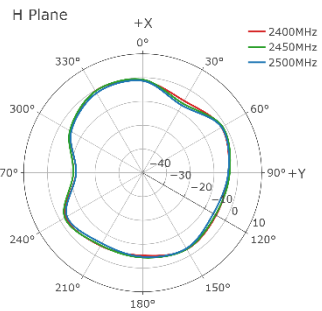
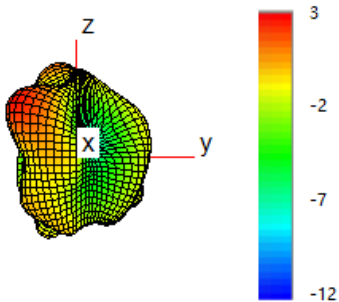


3.2.5. 3D & 2D Radiation Pattern

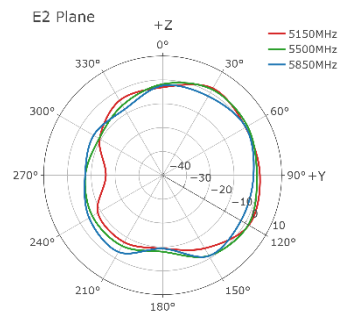
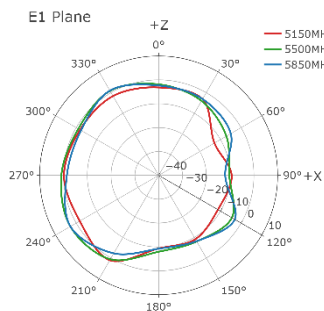
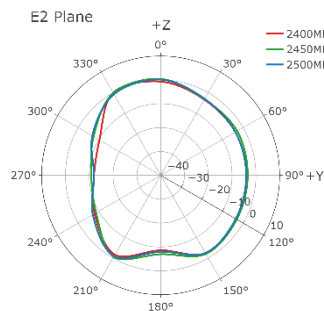
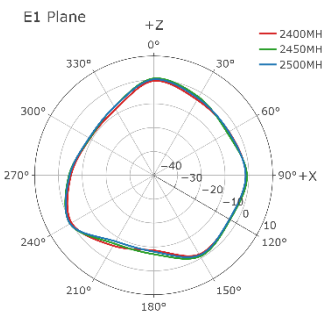
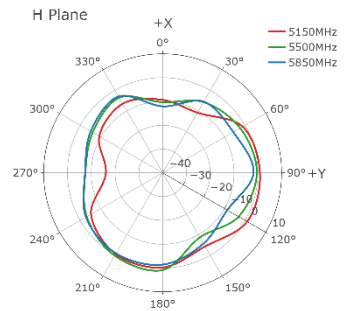
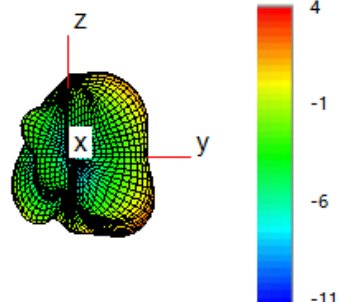
- Test Condition: On 130 x 70 mm EVB
- Test Chamber: FS-G-1



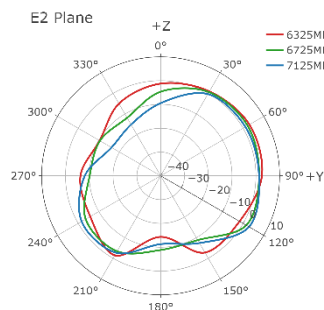
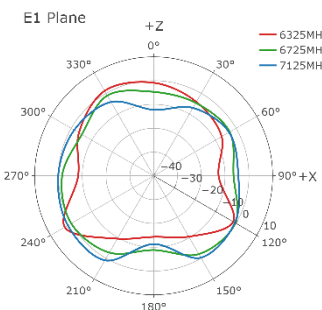
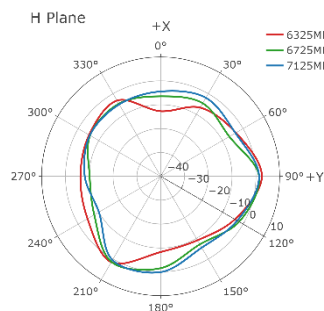
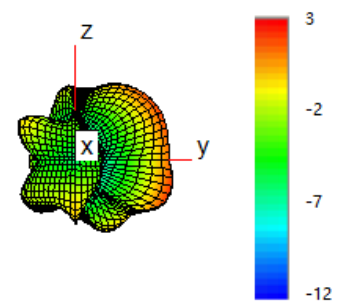
2450 MHz



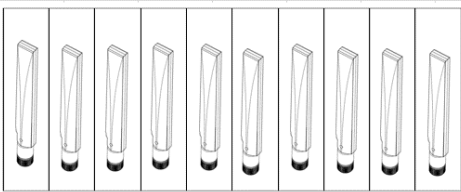
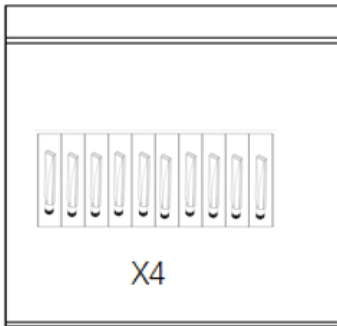
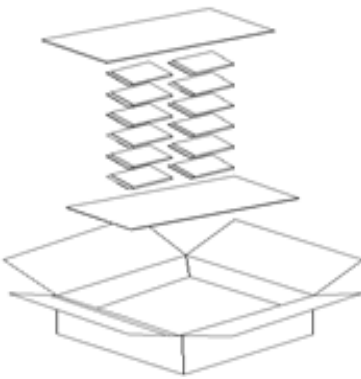
5500 MHz

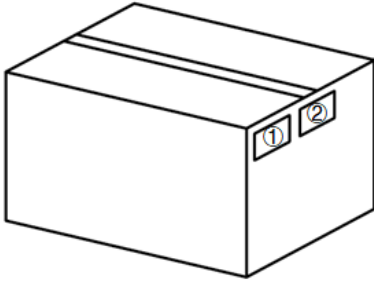
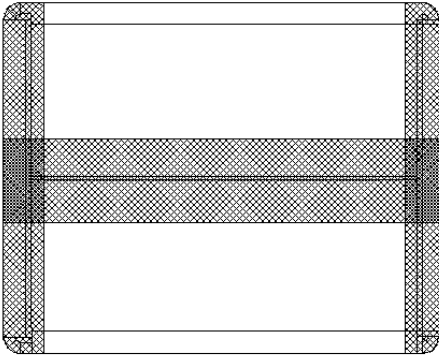


6725 MHz



4 Packaging

| Step | Packaging picture / 2D picture | Description |
|------|---|--|
| 1 |  | <p>10 pcs Antenna products in a One-piece bag</p> <p>10 pcs Antenna / Per One-piece bag</p> |
| 2 |  | <p>40 pcs Antenna products in a PE bags; (40 pcs Antenna / Per PE Bag)</p> |
| 3 |  | <p>16 PE Bags / Per Carton Box) (640 pcs Antenna / Per Carton Box) Estimated quantity Products that are not full will be packaged in suitable cardboard boxes <u>Carton Size:L*W*H=325*325*200mm</u></p> |

| | | |
|---|---|--|
| 4 |  | <p>Position for Attaching Labels---</p> <p>① Carton Label ② Quality Label</p> |
| 5 |  | <p>Sealing Cartons---</p> <p>“I” type sealing cartons</p> |
| 6 | <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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Revision History

| Version | Date | Author | Note |
|---------|------------|--|--------------------------|
| - | 2024-06-03 | Mordecai LIU/ Lance SUN/ David LIU/ Rainey LIAO | Creation of the document |
| 1.0 | 2024-06-03 | Mordecai LIU/ Lance SUN/ David LIU/ Rainey LIAO | First official release |



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