

# Antenna Datasheet

**Product OC:** Y4RYM0MA0BA

**Version:** 1.0

**Date:** 2024-11-18

**Status:** Preliminary

**Product Name:** Wi-Fi Adhesive Mount FPC Monopole Antenna

**Key Features:**

Frequency band: 2400–2500 MHz, 5150–5850 MHz

Peak efficiency: 61.9 % (ABS)

Dimensions: 22.9 × 11.7 mm

RoHS and REACH Compliant

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# 1 Specification

Test Condition: Stick to 3 mm thick ABS board & Stick to 3 mm thick ABS board on 130 mm × 130 mm EVB

## 1.1. Electrical

| Electrical        |                              |
|-------------------|------------------------------|
| Frequency Range   | 2400–2500 MHz, 5150–5850 MHz |
| Impedance         | 50 $\Omega$                  |
| Polarization      | Linear                       |
| Radiation Pattern | Omni-directional             |

| Specification         | Band | Band        | Wi-Fi 2G      | Wi-Fi 5G      |
|-----------------------|------|-------------|---------------|---------------|
|                       |      | Freq. (MHz) | 2400–2500     | 5150–5850     |
| Max. VSWR             | ABS  |             | 2.5           | 1.5           |
|                       | EVB  |             | 2.5           | 2.0           |
| Max. Return Loss (dB) | ABS  |             | -7.3          | -14.4         |
|                       | EVB  |             | -7.3          | -9.7          |
| AVG Eff. (%)          | ABS  |             | 56.8          | 56.9          |
|                       | EVB  |             | 56.6          | 54.5          |
| AVG Gain (dB)         | ABS  |             | -2.5          | -2.5          |
|                       | EVB  |             | -2.5          | -2.6          |
| Max. Peak Gain (dBi)  | ABS  |             | 2.1<br>(2430) | 3.1<br>(5380) |
|                       | EVB  |             | 1.7<br>(2460) | 3.2<br>(5540) |

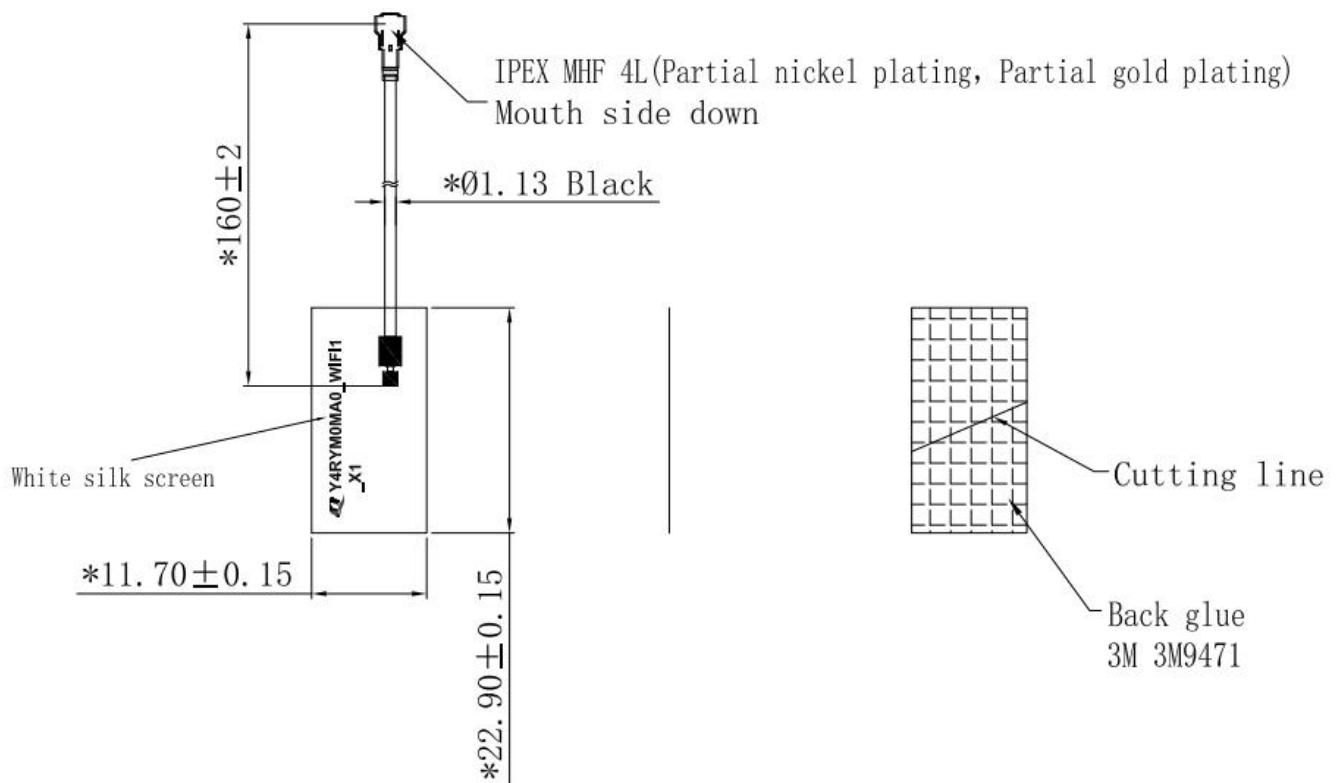
|             |     |                |
|-------------|-----|----------------|
| VSWR        | ABS | $\leq 2.5$     |
|             | EVB | $\leq 2.5$     |
| Return Loss | ABS | $\leq -7.3$ dB |
|             | EVB | $\leq -7.3$ dB |
| Peak Gain   | ABS | $\leq 3.1$ dBi |
|             | EVB | $\leq 3.2$ dBi |

- **ABS:** Stick to 3 mm thick ABS board
- **EVB:** Stick to 3 mm thick ABS board on 130 mm × 130 mm EVB

## 1.2. Mechanical & Environmental

| Mechanical                  |                         |
|-----------------------------|-------------------------|
| Antenna Size                | 22.9 × 11.7 mm          |
| Antenna Material & Color    | FPC & Black             |
| Cable Type & Color & Length | Φ 1.13 & Black & 160 mm |
| Connector Type              | IPEX MHF 4L             |
| Mounting Type               | Adhesive                |
| Antenna Weight              | Typ. 0.48 g             |
| Environmental               |                         |
| Operation Temperature       | -20 °C to +85 °C        |
| Storage Temperature         | -20 °C to +85 °C        |
| RoHS and REACH Compliant    | Yes                     |

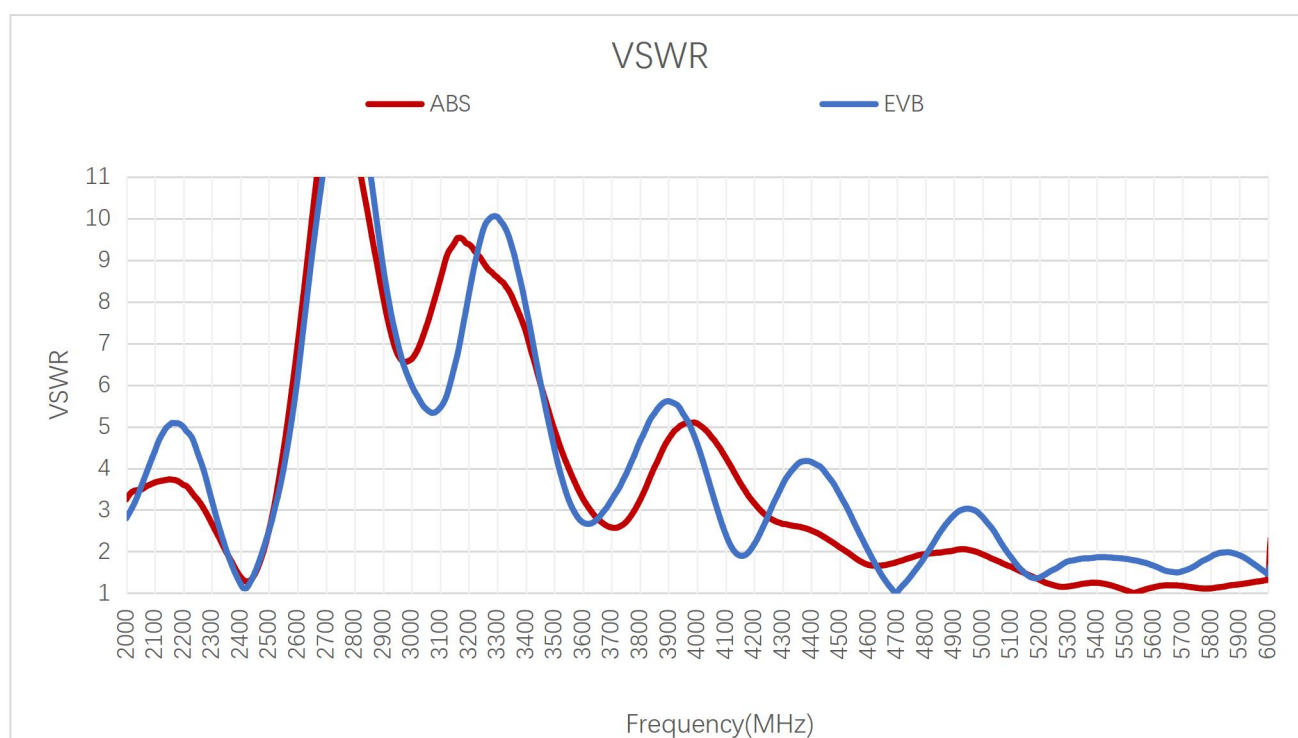
## 2 Drawing



# 3 Detailed Performance

## 3.1. S-Parameter Test

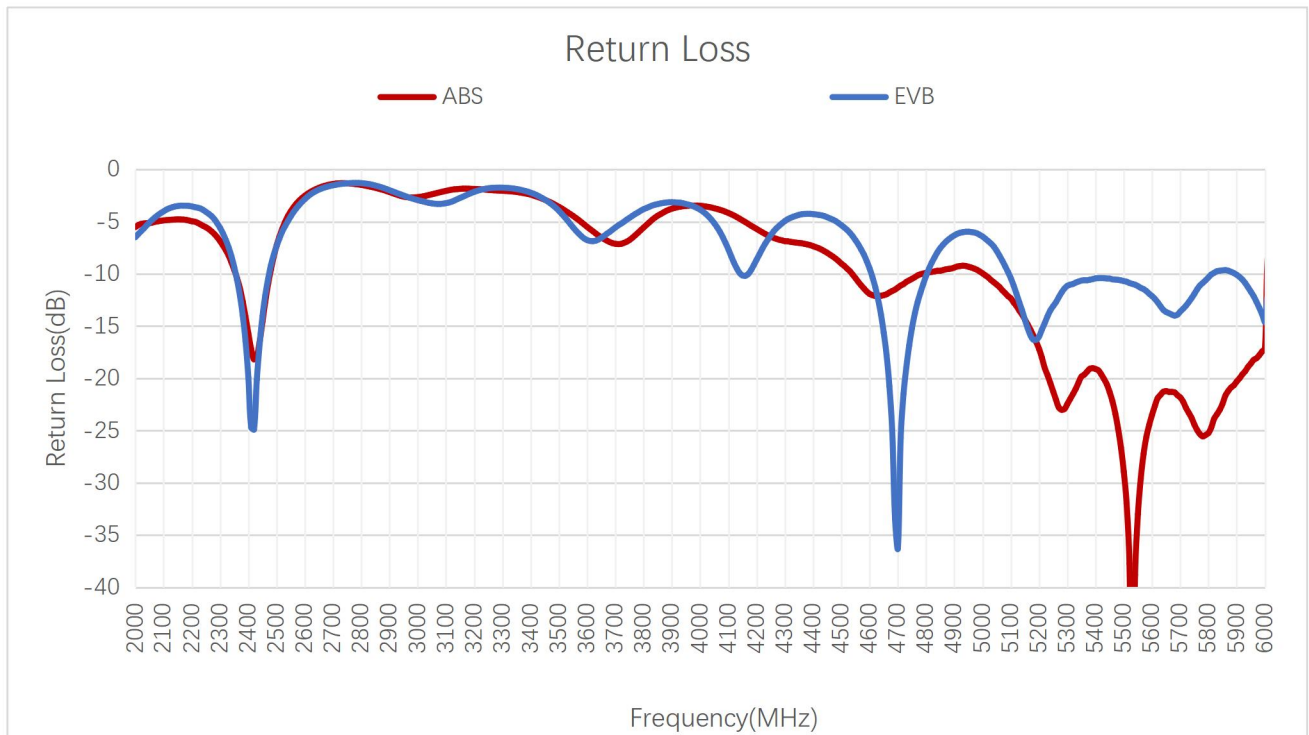
### 3.1.1. VSWR



**VSWR**

| Frequency (MHz) | 2400 | 2450 | 2500 | 5150 | 5500 | 5850 |
|-----------------|------|------|------|------|------|------|
| <b>ABS</b>      | 1.4  | 1.5  | 2.5  | 1.5  | 1.1  | 1.2  |
| <b>EVB</b>      | 1.2  | 1.5  | 2.5  | 1.5  | 1.8  | 2    |

### 3.1.2. Return Loss



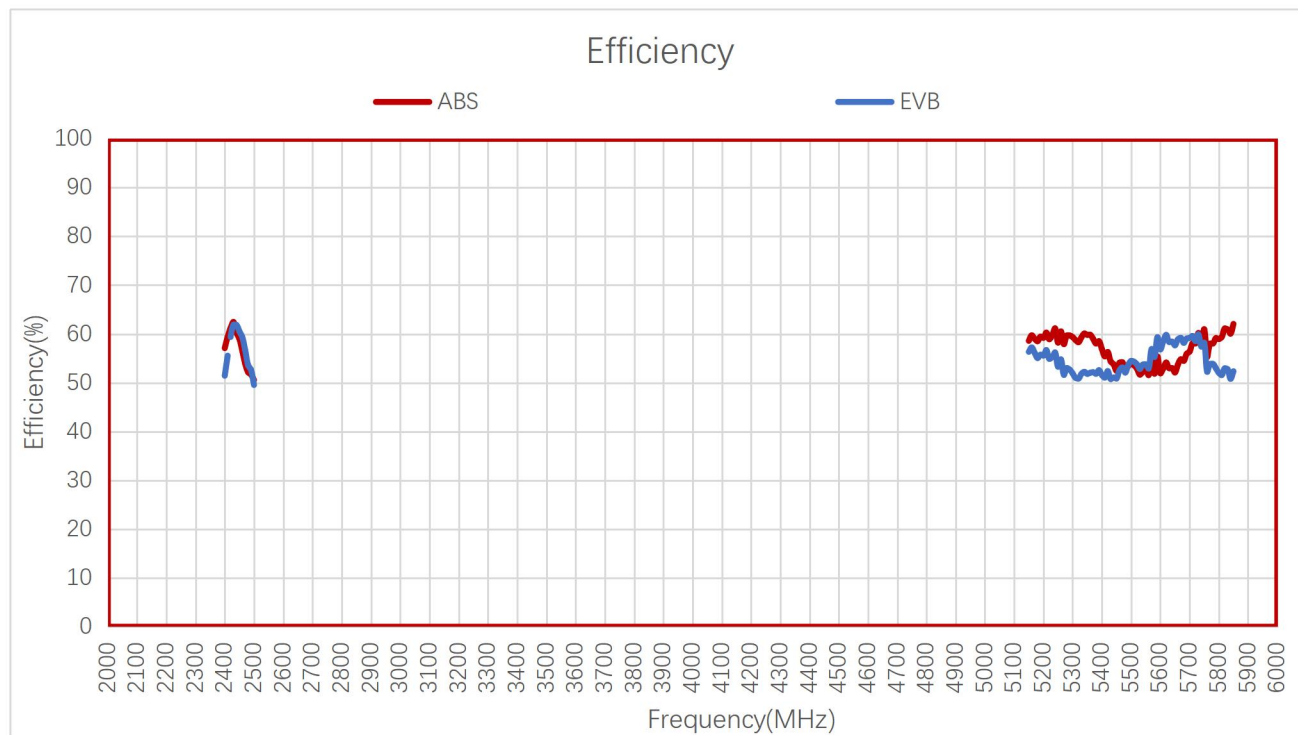
**Return Loss (dB)**

| Frequency (MHz) | 2400  | 2450  | 2500 | 5150  | 5500  | 5850  |
|-----------------|-------|-------|------|-------|-------|-------|
| <b>ABS</b>      | -15.7 | -14.6 | -7.3 | -14.4 | -28.9 | -22.4 |
| <b>EVB</b>      | -19.9 | -14.1 | -7.3 | -14.4 | -10.7 | -9.7  |



## 3.2. Radiation Performance Test

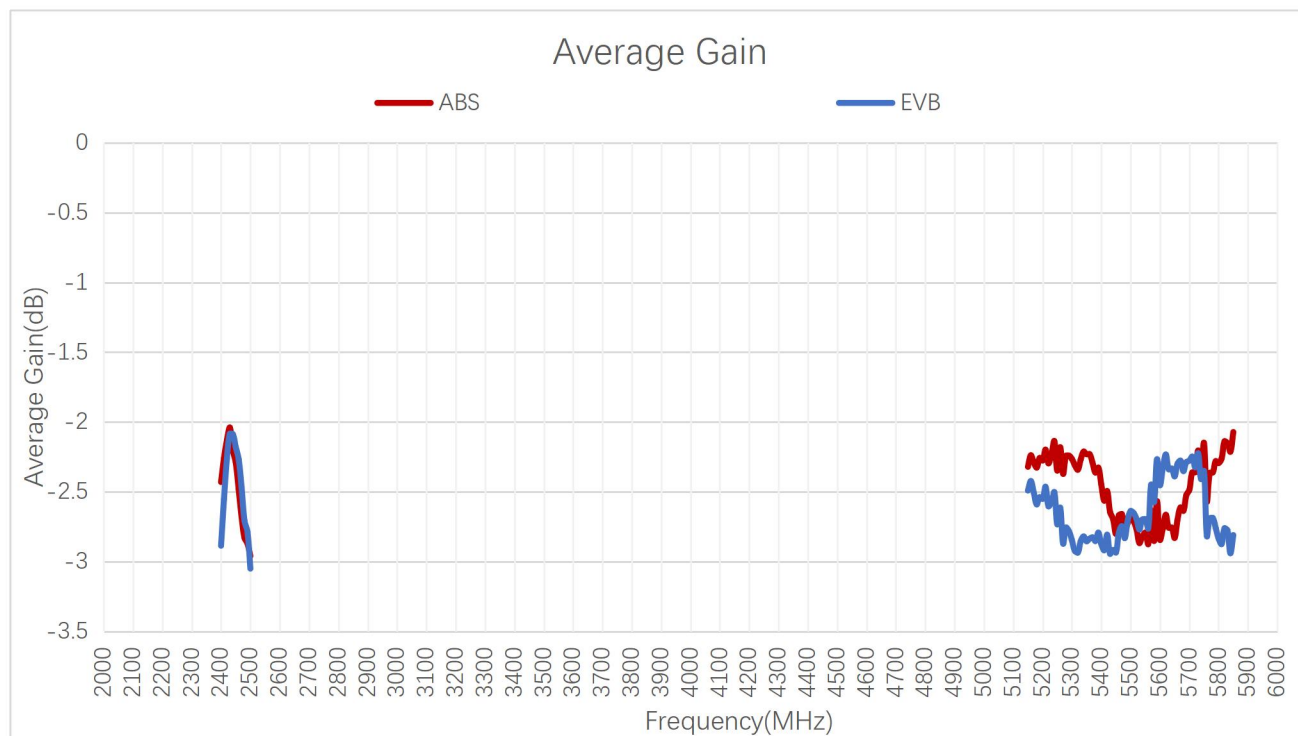
### 3.2.1. Efficiency



**Return Loss (dB)**

| Frequency (MHz) | 2400 | 2450 | 2500 | 5150 | 5500 | 5850 |
|-----------------|------|------|------|------|------|------|
| <b>ABS</b>      | 57.1 | 59   | 50.6 | 58.6 | 53.9 | 62.1 |
| <b>EVB</b>      | 51.5 | 60.6 | 49.6 | 56.4 | 54.5 | 52.4 |

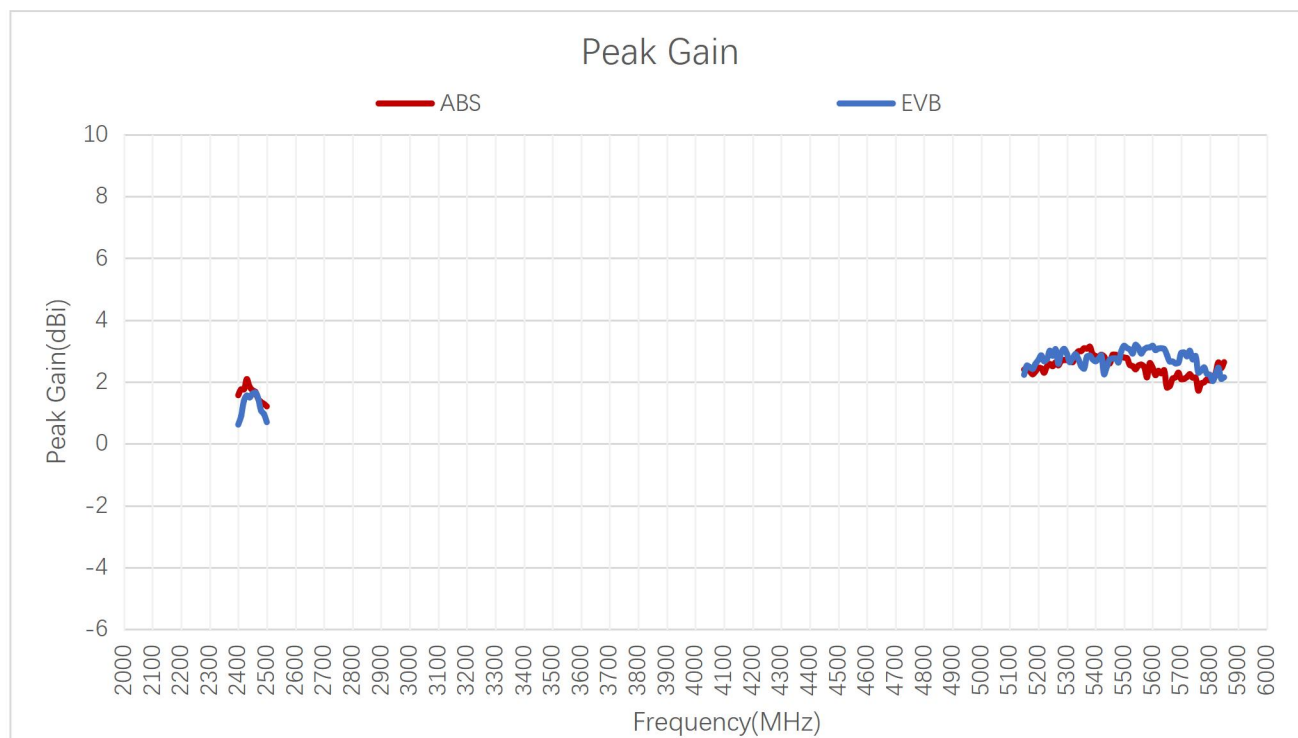
### 3.2.2. Average Gain



**Average Gain (dB)**

| Frequency (MHz) | 2400 | 2450 | 2500 | 5150 | 5500 | 5850 |
|-----------------|------|------|------|------|------|------|
| <b>ABS</b>      | -2.4 | -2.3 | -3   | -2.3 | -2.7 | -2.1 |
| <b>EVB</b>      | -2.9 | -2.2 | -3.1 | -2.5 | -2.6 | -2.8 |

### 3.2.3. Peak Gain



**Peak Gain (dBi)**

| Frequency (MHz) | 2400 | 2450 | 2500 | 5150 | 5500 | 5850 |
|-----------------|------|------|------|------|------|------|
| <b>ABS</b>      | 1.6  | 1.7  | 1.2  | 2.4  | 2.8  | 2.6  |
| <b>EVB</b>      | 0.6  | 1.6  | 0.7  | 2.2  | 3.2  | 2.2  |

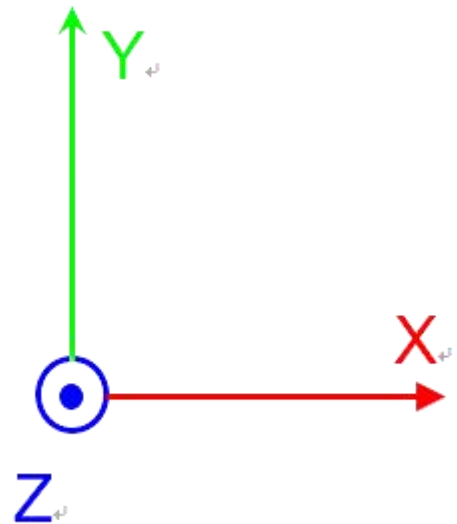
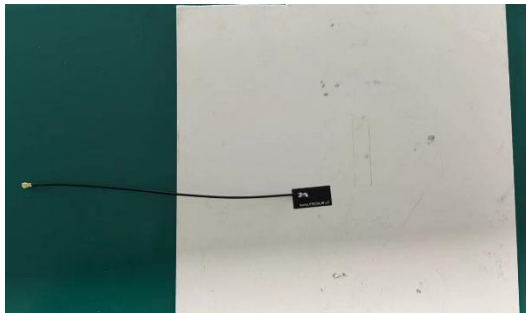
**Max Peak Gain (dBi)**

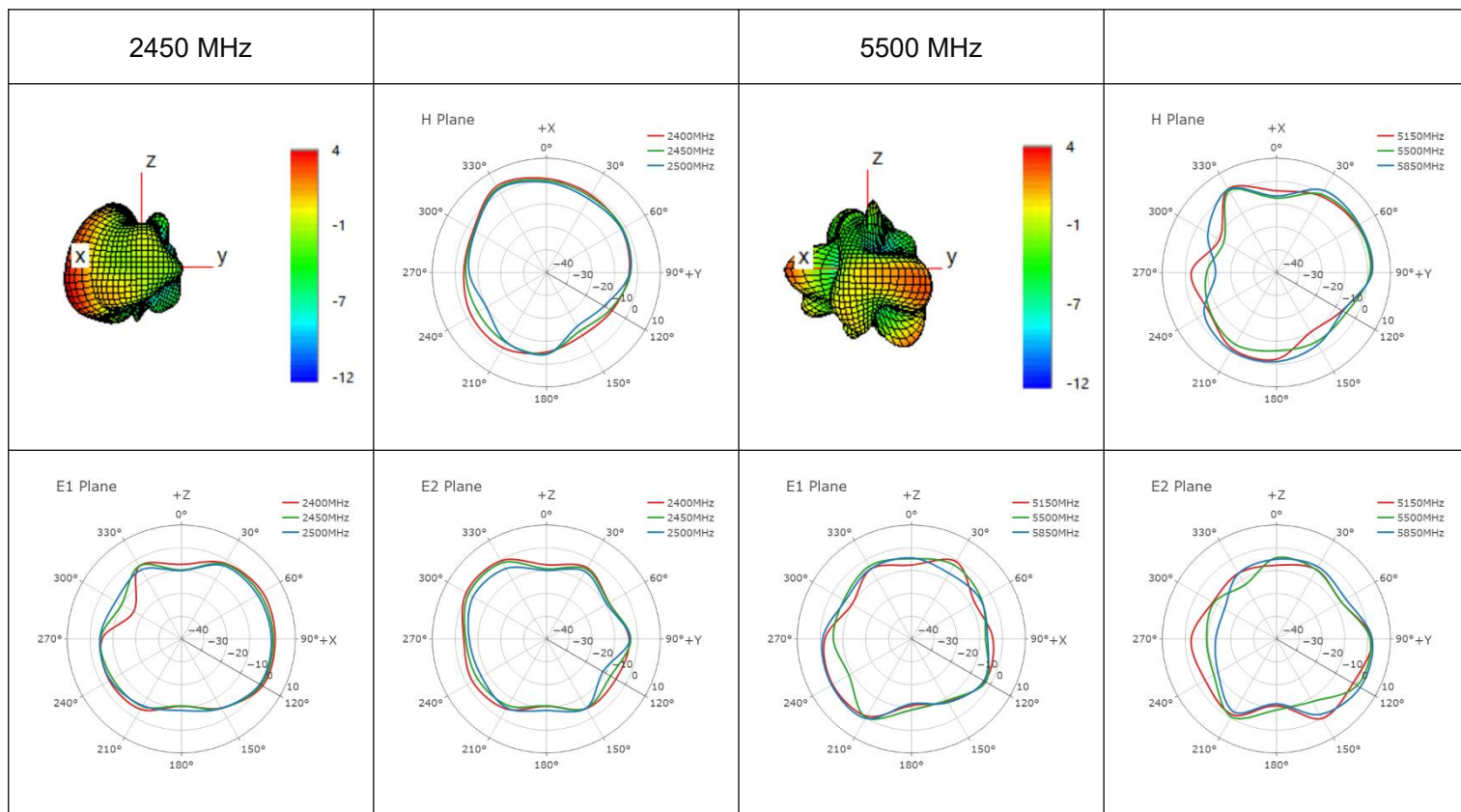
| Band                | Wi-Fi 2G<br>ABS | Wi-Fi 5G<br>ABS | Wi-Fi 2G<br>EVB | Wi-Fi 5G<br>EVB |
|---------------------|-----------------|-----------------|-----------------|-----------------|
| Frequency (MHz)     | 2430            | 5380            | 2460            | 5540            |
| Max Peak Gain (dBi) | 2.1             | 3.1             | 1.7             | 3.2             |

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

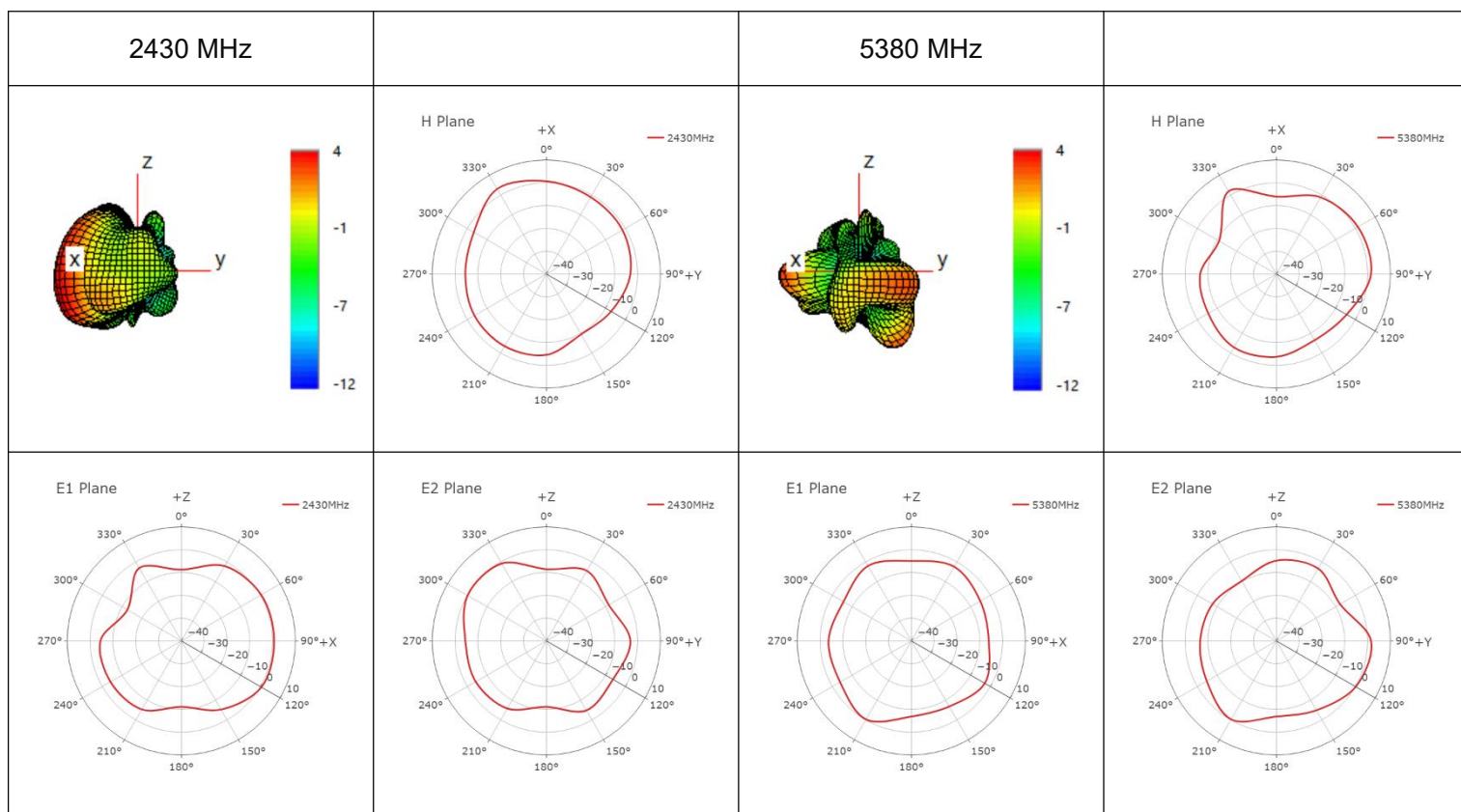
#### 3.2.4.1. Test Condition: Stick to 3 mm Thick ABS board

- Test Chamber: GL-G-1



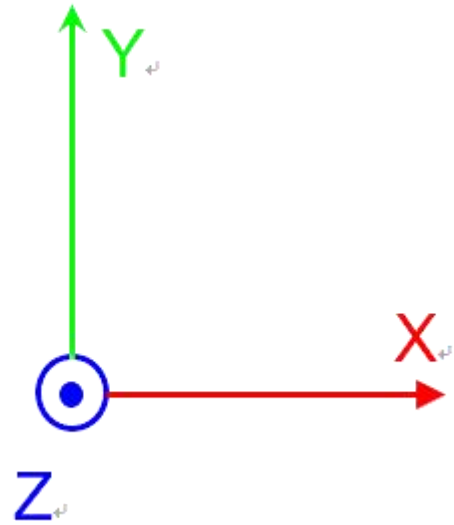
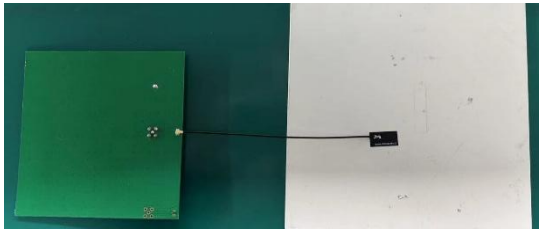


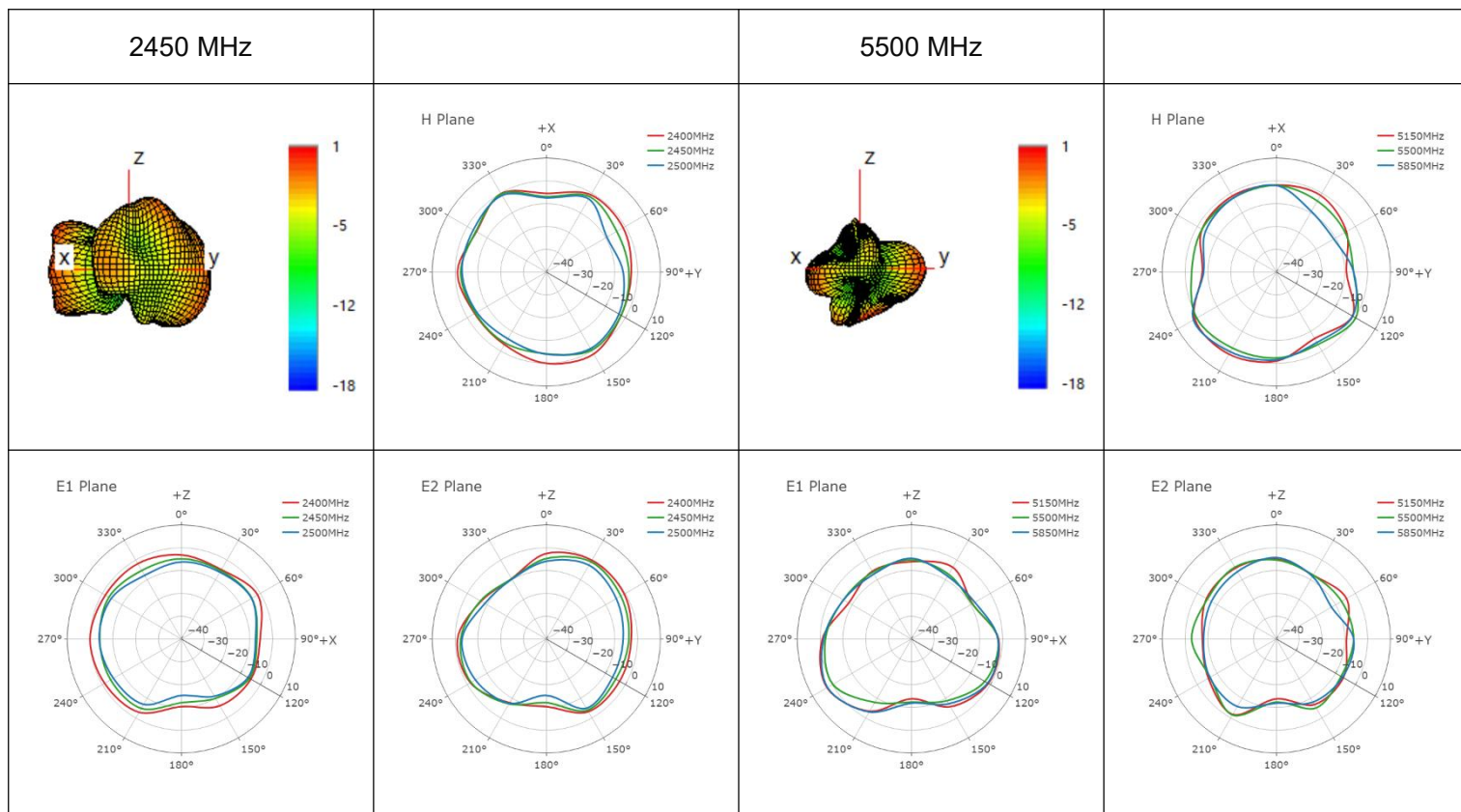
● **Max Peak Gain**



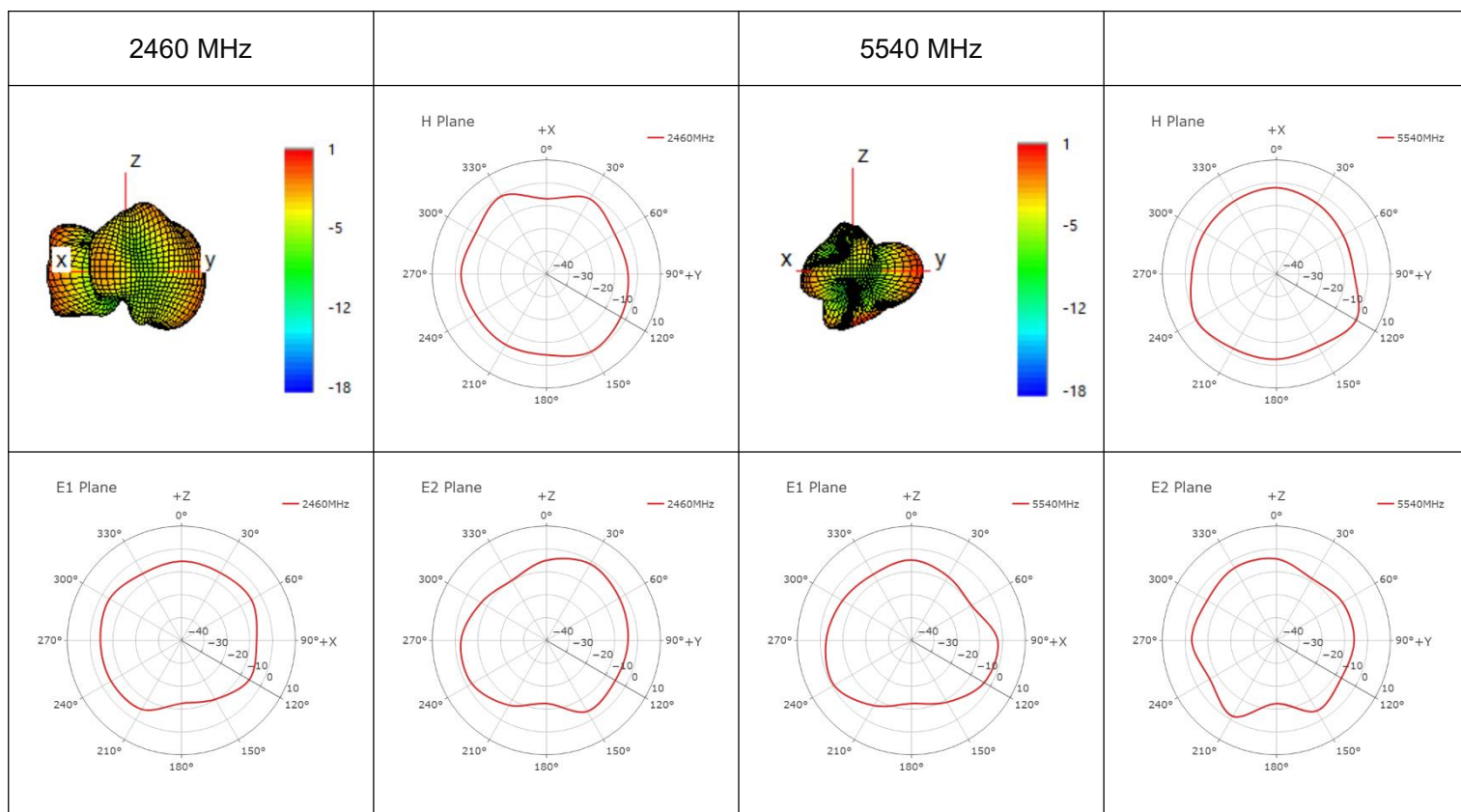
### 3.2.4.2. Test Condition: Stick to 3 mm Thick ABS board on 130 mm × 130 mm EVB

- Test Chamber: GL-G-1





● **Max Peak Gain**



# 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                     |
|---------|------------|--|--------------------------|
| -       | 2024-11-18 | Edwin XIAO/<br>Steven MO/<br>Rainey LIAO | Creation of the document |
| 1.0     | 2024-11-18 | Edwin XIAO/<br>Steven MO/<br>Rainey LIAO | First official release   |



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