

# Antenna Datasheet

**Product OC:** Y0REB0CA9FA

**Version:** 1.1

**Date:** 2025-04-15

**Product Name:** Wi-Fi & BT & GNSS Antenna

**Key Features:**

Frequency Band: 2400–2500 MHz, 5150–5850 MHz, 1565–1586 MHz

Dimensions: 66 mm × 21 mm × 0.75 mm

Efficiency: Up to 54.65% (Wi-Fi ANT)

RoHS and REACH Compliant

# Contents

|                                       |           |
|---------------------------------------|-----------|
| <b>Contents .....</b>                 | <b>1</b>  |
| <b>1 Specification.....</b>           | <b>2</b>  |
| 1.1. Electrical.....                  | 2         |
| 1.2. Mechanical & Environmental ..... | 2         |
| 1.3. Antenna Assembly .....           | 3         |
| <b>2 Drawing .....</b>                | <b>4</b>  |
| <b>3 Detailed Performance .....</b>   | <b>5</b>  |
| 3.1. S-Parameter Test .....           | 5         |
| 3.1.1. VSWR.....                      | 5         |
| 3.2. Radiation Performance Test.....  | 7         |
| 3.2.1. Efficiency & Peak Gain.....    | 7         |
| 3.2.2. 3D & 2D Radiation Pattern..... | 8         |
| <b>4 Packaging .....</b>              | <b>11</b> |
| <b>Contact Us.....</b>                | <b>13</b> |
| <b>Legal Notices .....</b>            | <b>14</b> |
| <b>Revision History .....</b>         | <b>16</b> |

# 1 Specification

Test Condition: Assembled in test device

## 1.1. Electrical

| Electrical        |                                             |
|-------------------|---------------------------------------------|
| Frequency Range   | 2400–2500 MHz, 5150–5850 MHz, 1565–1586 MHz |
| Antenna Type      | Wi-Fi & BT: PIFA; GPS: Dipole               |
| Impedance         | 50 $\Omega$                                 |
| Polarization      | Linear                                      |
| Radiation Pattern | Omni-directional                            |
| VSWR-WIFI         | $\leq 3.70$                                 |
| Peak Gain- WIFI   | 1.25 dBi                                    |
| VSWR-GNSS         | $\leq 1.71$                                 |
| Peak Gain-GNSS    | 2.05 dBi                                    |

## 1.2. Mechanical & Environmental

| Mechanical          |                                                           |
|---------------------|-----------------------------------------------------------|
| Antenna Dimensions  | 66 mm $\times$ 21 mm $\times$ 0.75 mm                     |
| Material & Color    | FR 4 & Green                                              |
| Cable Type & Length | $\Phi$ 1.13 White and 35 mm & $\Phi$ 0.81 Black and 33 mm |
| Connector Type      | RF 4                                                      |
| Weight              | Typ. 1.9 g                                                |
| Mounting Type       | Adhesive                                                  |

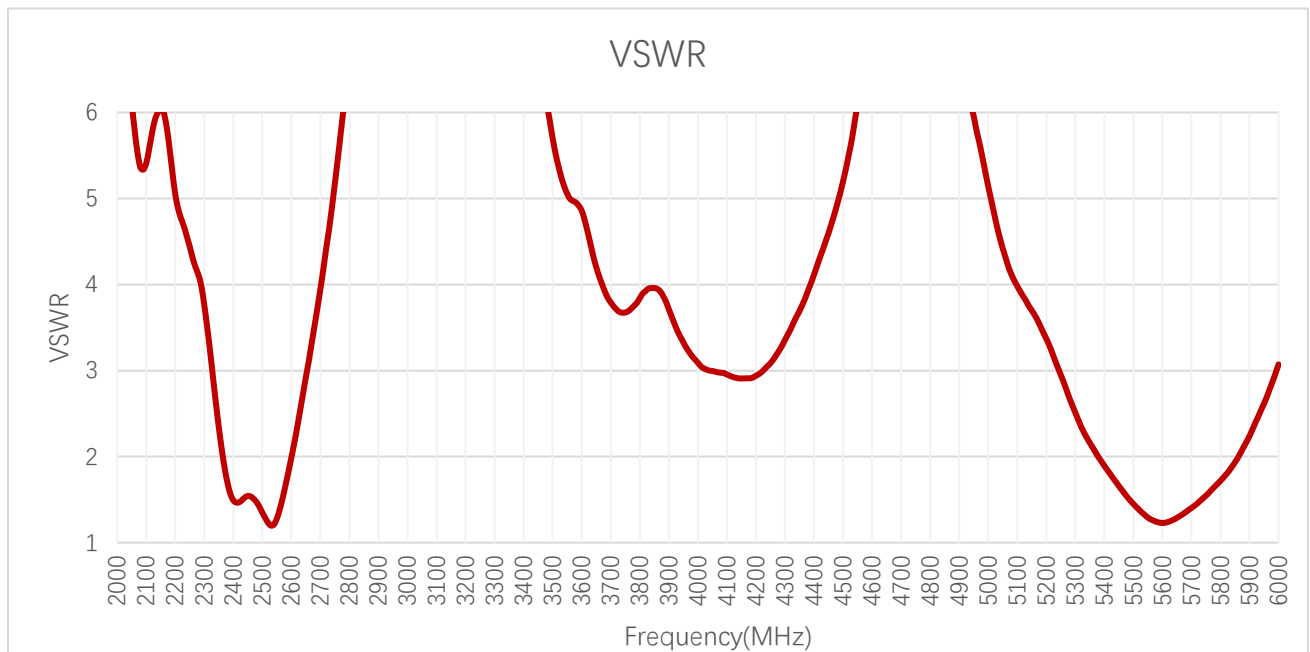
| Environmental          |                  |
|------------------------|------------------|
| Operation Temperature  | -40 °C to +85 °C |
| Storage Temperature    | -40 °C to +85 °C |
| RoHS & REACH Compliant | Yes              |

## 3 Detailed Performance

- Network Analyzer: Keysight E5071C (Device number: QTB6331E; Calibration date: 2023-12-27; Due date: 2025-06-26)
- Chamber: OTA RayZone 2800 GTS (Device number: QTA0709; Calibration date: 2024-07-14; Due date: 2025-07-13)
- Testing Software: Libra
- Product Name: Wi-Fi & BT & GNSS Antenna
- Test Engineer: *Weston Zhang*

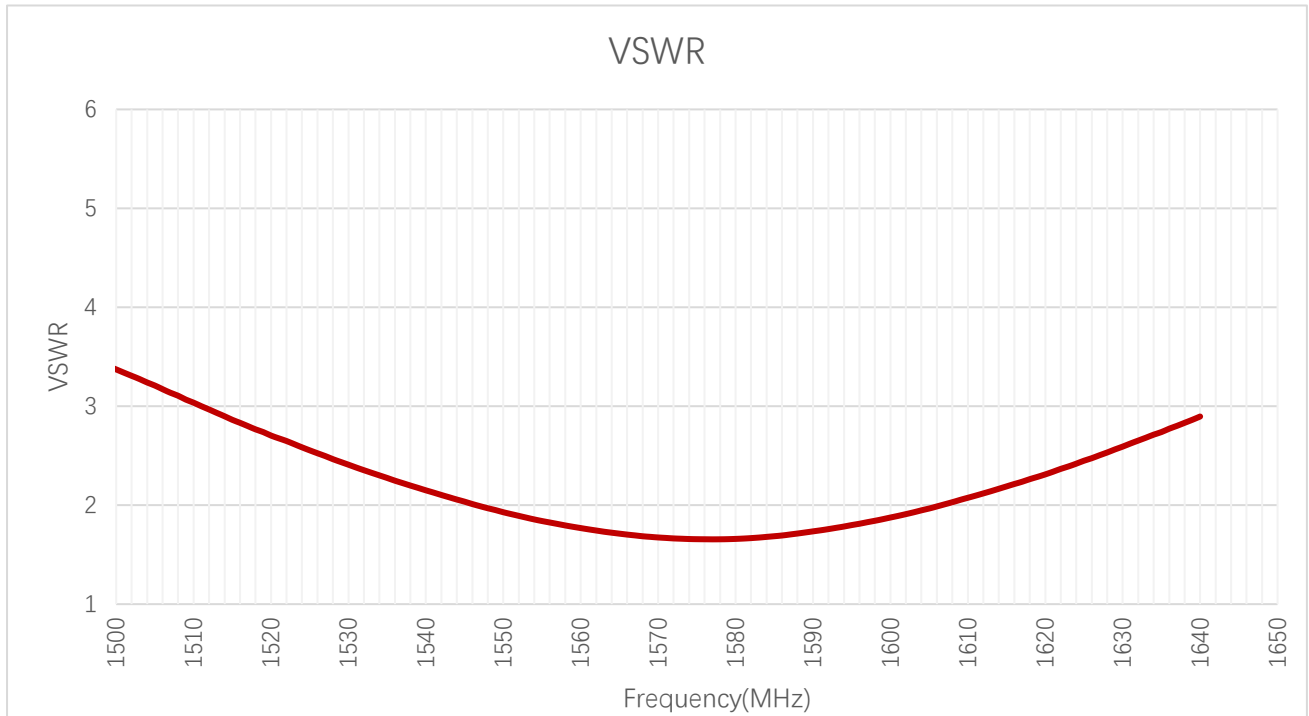
### 3.1. S-Parameter Test

#### 3.1.1. VSWR



VSWR – Wi-Fi

| Frequency (MHz) | 2400 | 2450 | 2500 | 5150 | 5250 | 5350 | 5450 | 5550 | 5650 | 5750 | 5850 |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|
| VSWR            | 1.49 | 1.54 | 1.35 | 3.70 | 2.95 | 2.16 | 1.66 | 1.45 | 1.29 | 1.55 | 1.93 |



**VSWR – GNSS**

| Frequency (MHz) | 1164 | 1176 | 1189 | 1565 | 1575 | 1586 |
|-----------------|------|------|------|------|------|------|
| <b>VSWR</b>     | -    | -    | -    | 1.71 | 1.66 | 1.69 |

## 3.2. Radiation Performance Test

### 3.2.1. Efficiency & Peak Gain

#### ● Wi-Fi ANT

| Frequency (MHz) | Peak Gain (dBi) | Efficiency (%) | Frequency (MHz) | Peak Gain (dBi) | Efficiency (%) |
|-----------------|-----------------|----------------|-----------------|-----------------|----------------|
| 2400            | -0.76           | 39.75          | 5150            | 0.62            | 29.84          |
| 2410            | -0.98           | 38.92          | 5200            | 1.06            | 33.25          |
| 2420            | -0.63           | 39.08          | 5250            | 1.25            | 35.37          |
| 2430            | -0.37           | 38.79          | 5300            | 1.19            | 37.80          |
| 2440            | -0.21           | 38.77          | 5350            | 1.07            | 41.77          |
| 2450            | -0.06           | 39.52          | 5400            | 0.91            | 43.66          |
| 2460            | 0.16            | 40.36          | 5450            | 0.62            | 43.70          |
| 2470            | 0.33            | 41.32          | 5500            | 0.85            | 48.16          |
| 2480            | 0.45            | 41.83          | 5550            | 0.61            | 50.07          |
| 2490            | 0.56            | 42.26          | 5600            | 0.81            | 52.15          |
| 2500            | 0.63            | 42.28          | 5650            | 0.52            | 49.61          |
| MAX             | 0.63            |                | 5700            | 0.92            | 50.99          |
|                 |                 |                | 5750            | 0.82            | 52.60          |
|                 |                 |                | 5800            | 0.32            | 50.13          |
|                 |                 |                | 5850            | 0.82            | 51.26          |
|                 |                 |                | MAX             | 1.25            |                |

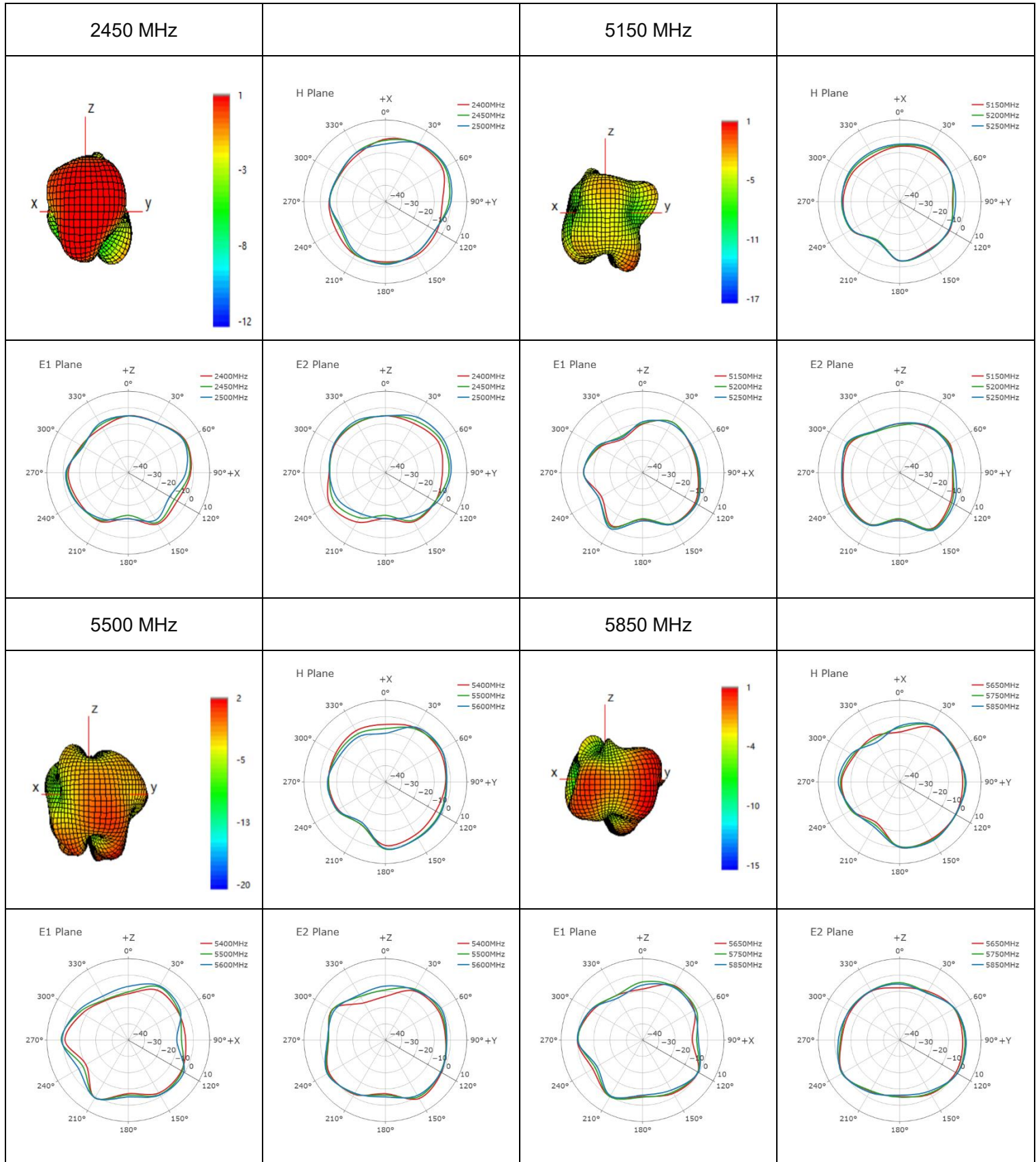
#### ● GPS ANT

| Frequency (MHz) | Peak Gain (dBi) | Efficiency (%) |
|-----------------|-----------------|----------------|
| 1565            | 2.02            | 49.14          |
| 1567            | 2.03            | 48.81          |
| 1569            | 2.04            | 48.62          |
| 1571            | 2.05            | 48.52          |
| 1573            | 2.05            | 48.33          |
| 1575            | 2.05            | 47.96          |
| 1577            | 2.05            | 47.59          |
| 1579            | 2.02            | 47.35          |
| 1581            | 2.00            | 47.02          |
| 1583            | 1.97            | 46.70          |
| 1585            | 1.95            | 46.52          |
| MAX             | 2.05            |                |

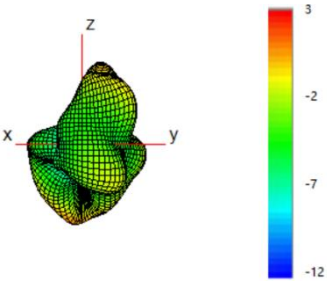
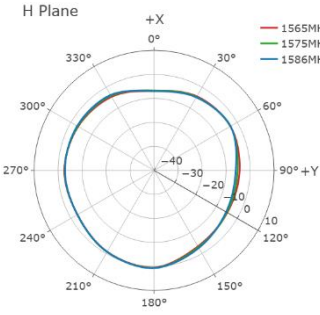
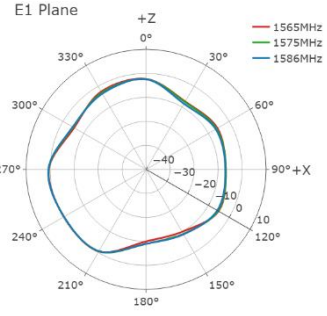
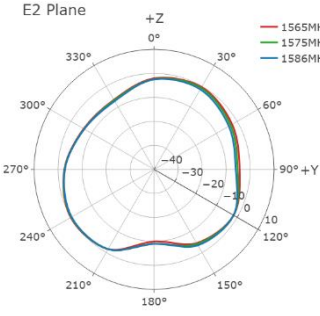
### 3.2.2. 3D & 2D Radiation Pattern

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

● **Wi-Fi ANT**



● GPS ANT

|                                                                                   |                                                                                    |  |  |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--|--|
| 1575 MHz                                                                          |                                                                                    |  |  |
|   |   |  |  |
|  |  |  |  |

# Contact Us

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## Revision History

| Version | Date       | Author                                                  | Note                     |
|---------|------------|---------------------------------------------------------|--------------------------|
| -       | 2025-04-02 | Weston ZHANG/<br>Steven MO/<br>Riva REN/<br>Rainey LIAO | Creation of the document |
| 1.0     | 2025-04-02 | Weston ZHANG/<br>Steven MO/<br>Riva REN/<br>Rainey LIAO | First official release   |
| 1.1     | 2025-04-15 | Weston ZHANG/<br>Steven MO/<br>Riva REN/<br>Rainey LIAO | Update the product name  |



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## 1.1 NFC Antenna

NFC Frequency Band : 13.553 - 13.567 MHz

Modulation Type : ASK

Supported Card Type : A / B

NFC Antenna Type : Loop Antenna

NFC Antenna size : 86.8 \* 104.78 mm