



# Antenna Datasheet

**Product OC:** YEBT002W1AM

**Version:** 2.1

**Date:** 2024-11-07

**Status:** Released

**Product Name:** Wi-Fi Terminal Mount External Dipole Antenna

**Key Features:**

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

Dimensions: 135 mm × 15.6 mm × 13 mm

Efficiency: Up to 72.4 %

RoHS Compliant

Compatible with FAKRA, TNC and N-Type connectors

# Overview

YEBT002W1AM is a Wi-Fi external antenna measuring 135 mm × 15.6 mm × 13 mm. This ultra-wide-band Wi-Fi antenna provides broad coverage from 2400–2500 MHz & 5150–5850 MHz & 5925–7125 MHz. The antenna is terminated with RP SMA Male connector, also supports N male, TNC male, Fakra male connectors. Ideal for applications where the antenna is required to be discrete, this low profile, terminal mount omni-directional antenna is easy to install with maximum durability assured thanks to its PC+ABS enclosure. It is compatible with Quectel's Wi-Fi 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
- Wi-Fi 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 mm × 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 6G
		Freq. (MHz)	2400–2500	5150–5850	5925–7125
Max. VSWR	FS		1.9	2.1	1.7
	EVB		1.9	1.8	2.5
Max. Return Loss (dB)	FS		-10.0	-9.1	-11.9
	EVB		-10.0	-11.0	-7.3
AVG Eff. (%)	FS		51.5	53.7	51.8
	EVB		66.3	60.0	46.4
AVG Gain (dB)	FS		-2.9	-2.7	-2.9
	EVB		-1.8	-2.3	-3.4
Max. Peak Gain (dBi)	FS		2.1	4.4	4.8
	EVB		3.3	3.9	3.7
VSWR	FS		≤ 2.1		

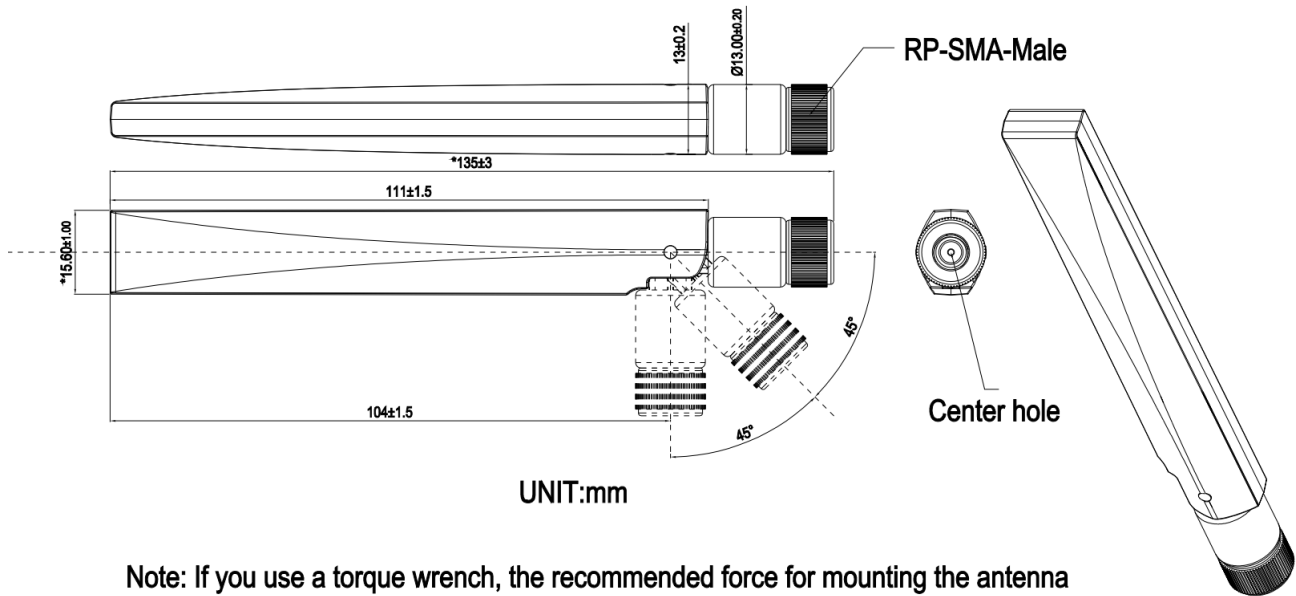
	<b>EVB</b>	$\leq 2.5$
<b>Return Loss</b>	<b>FS</b>	$\leq -9.1$ dB
	<b>EVB</b>	$\leq -7.3$ dB
<b>Peak Gain</b>	<b>FS</b>	$\leq 4.8$ dBi
	<b>EVB</b>	$\leq 3.9$ dBi

- FS: Free Space.
- EVB: On 130 mm × 70 mm EVB.

## 1.2. Mechanical & Environmental

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

## 2 Drawing

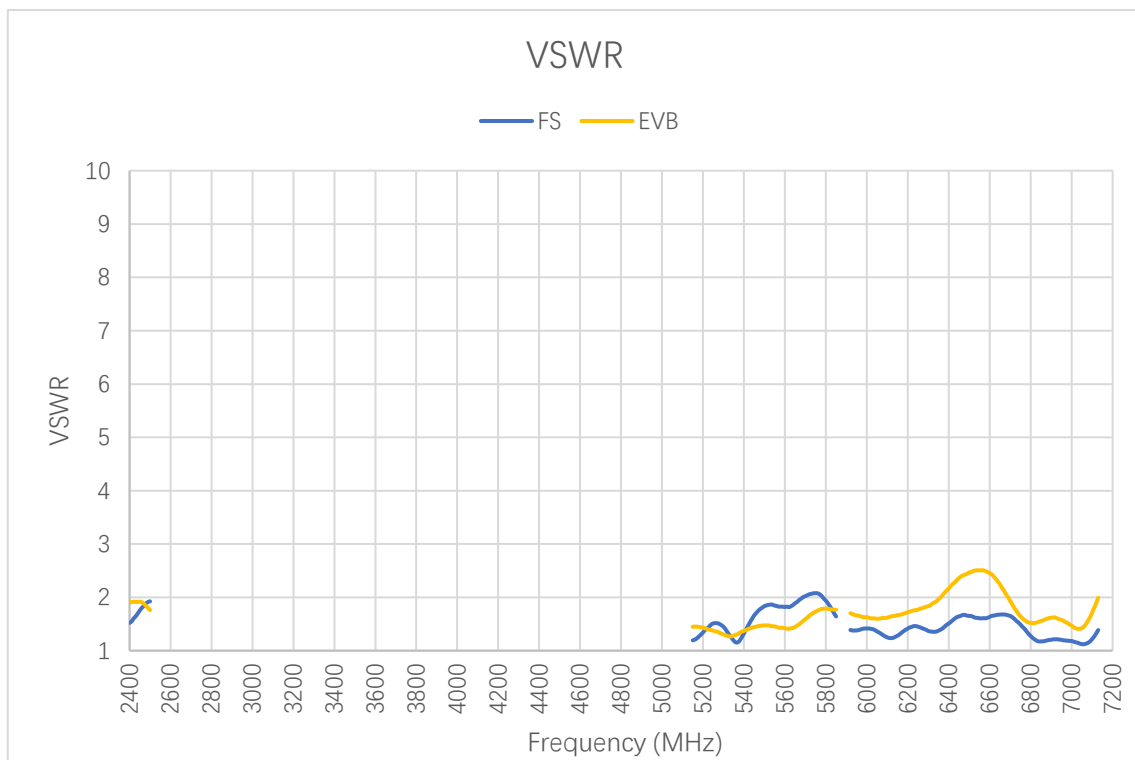


Note: If you use a torque wrench, the recommended force for mounting the antenna is 0.9Nm and the maximum torque to prevent antenna damage is 1.17Nm.

# 3 Detailed Performance

## 3.1. S-Parameter Test

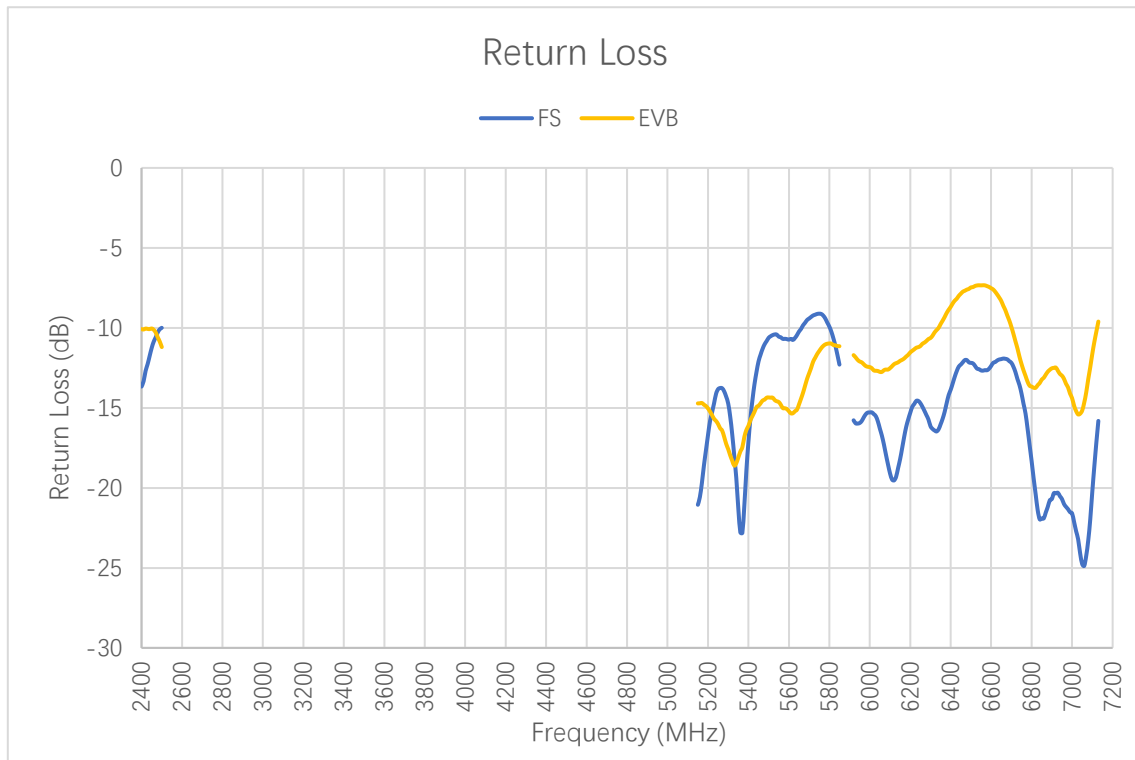
### 3.1.1. VSWR



**VSWR**

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	1.5	1.8	1.9	1.2	1.8	1.6	1.4	1.4	1.6	1.3
EVB	1.9	1.9	1.8	1.5	1.5	1.8	1.7	1.9	1.8	1.9

### 3.1.2. Return Loss



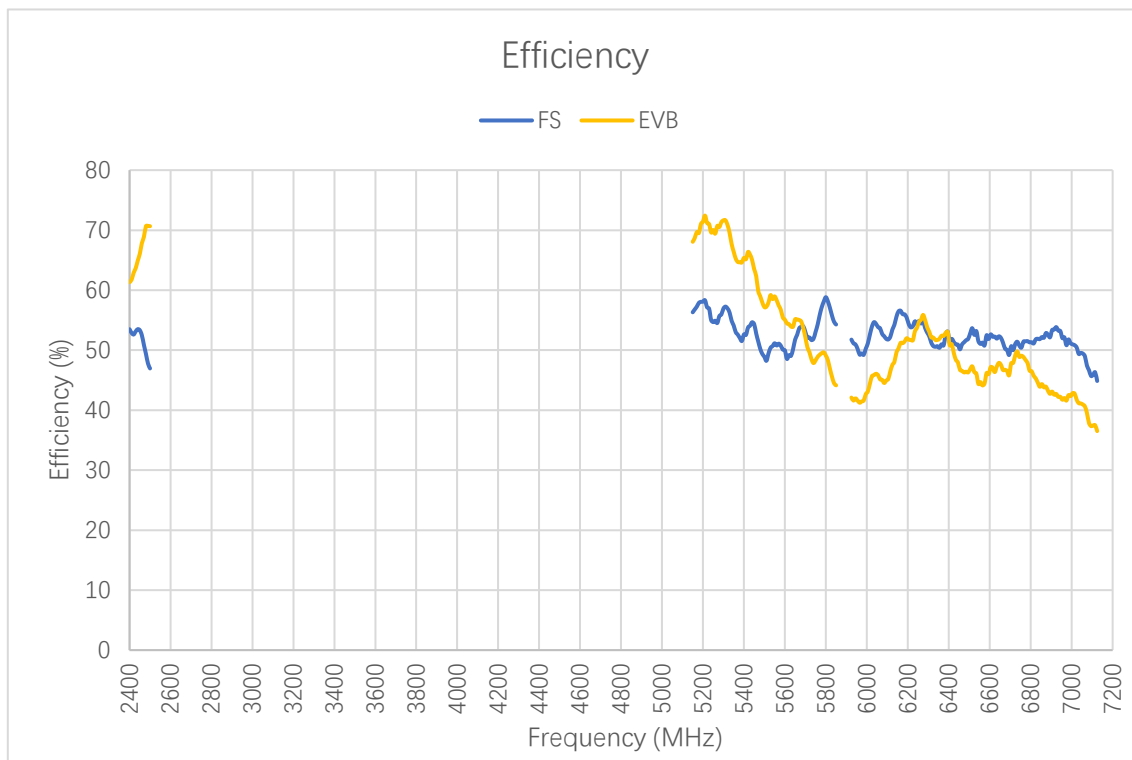
**Return Loss (dB)**

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	-13.7	-11.3	-10.0	-21.1	-10.6	-12.3	-15.8	-16.4	-12.8	-17.2
EVB	-10.1	-10.0	-11.2	-14.7	-14.3	-11.1	-11.7	-10.3	-10.8	-10.2



## 3.2. Radiation Performance Test

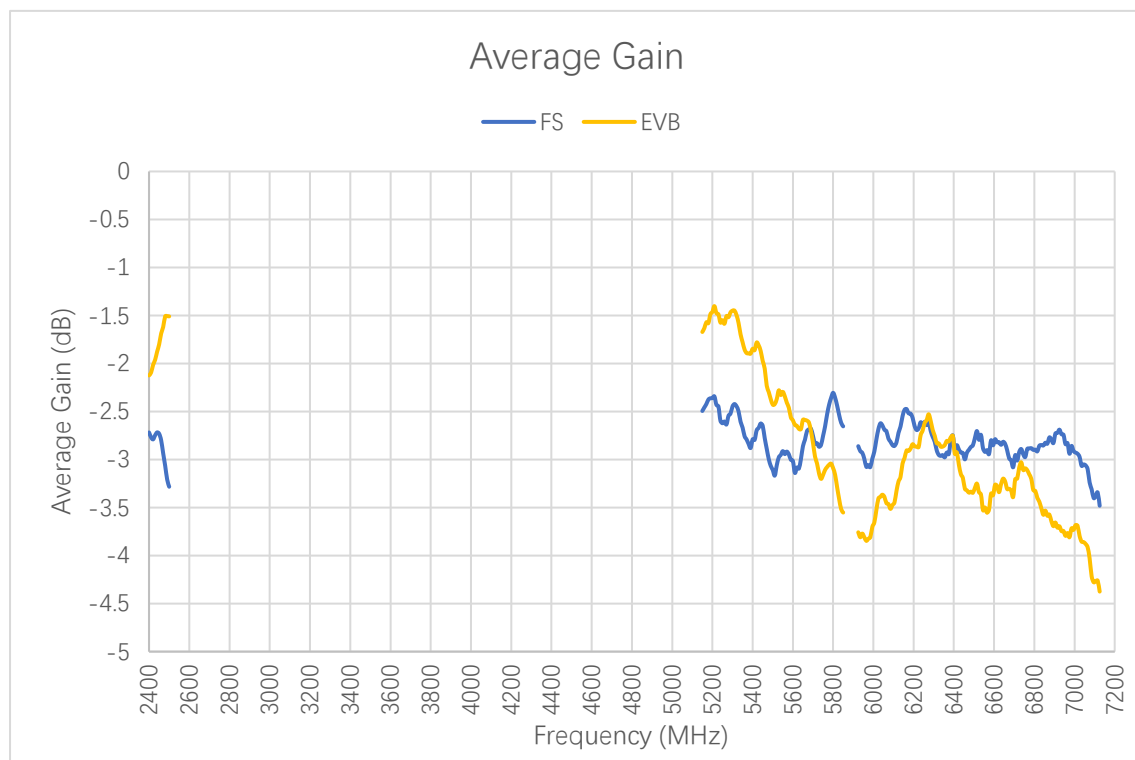
### 3.2.1. Efficiency



**Efficiency (%)**

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
<b>FS</b>	53.5	53.3	47.0	56.3	48.9	54.3	51.8	50.7	51.0	44.9
<b>EVB</b>	61.3	66.1	70.7	68.1	57.2	44.1	42.1	52.1	49.2	36.5

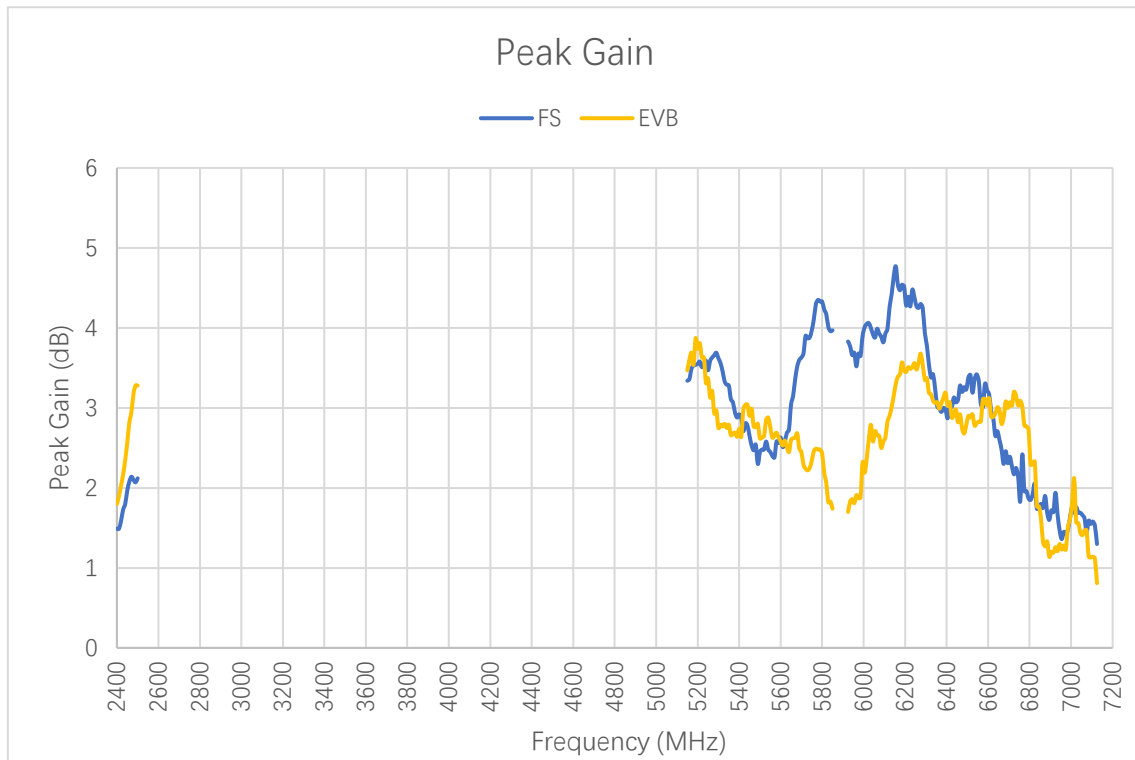
### 3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	-2.7	-2.7	-3.3	-2.5	-3.1	-2.7	-2.9	-3.0	-2.9	-3.5
EVB	-2.1	-1.8	-1.5	-1.7	-2.4	-3.6	-3.8	-2.8	-3.1	-4.4

### 3.2.3. Peak Gain



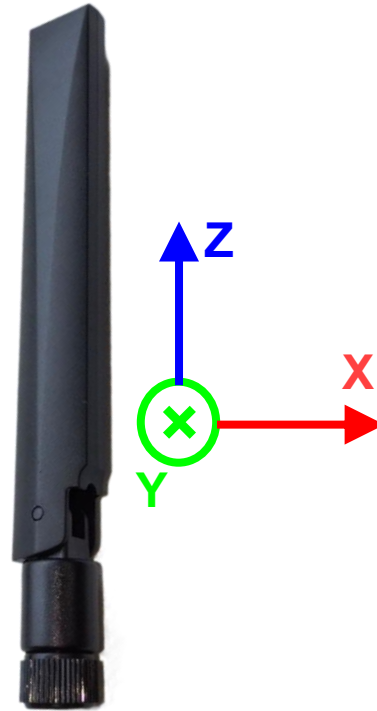
**Peak Gain (dBi)**

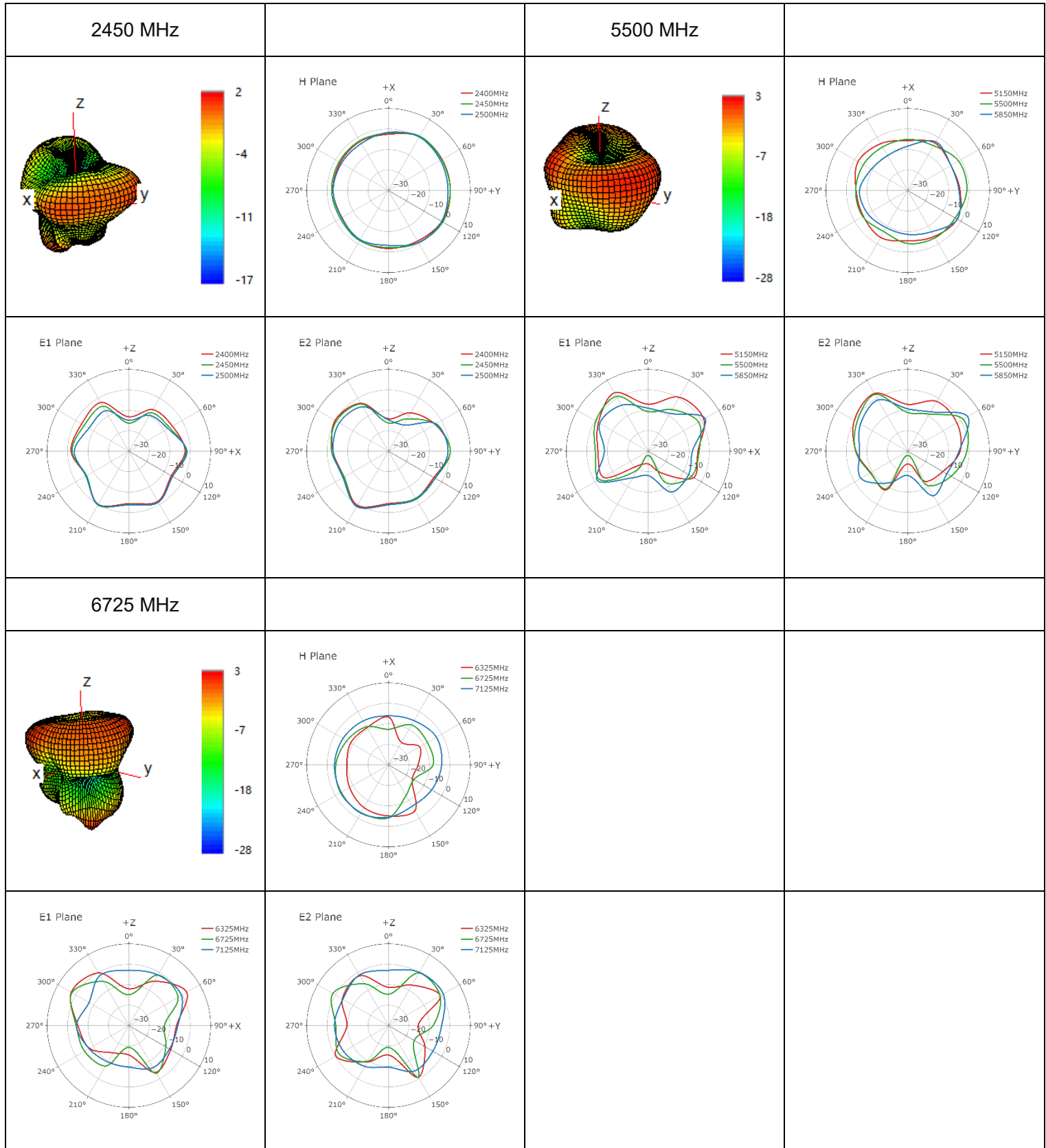
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
FS	1.5	2.0	2.1	3.3	2.5	4.0	3.8	3.4	2.2	1.3
EVB	1.8	2.6	3.3	3.5	2.6	1.7	1.7	3.2	3.2	0.8

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

#### 3.2.4.1. Test Condition: Free Space

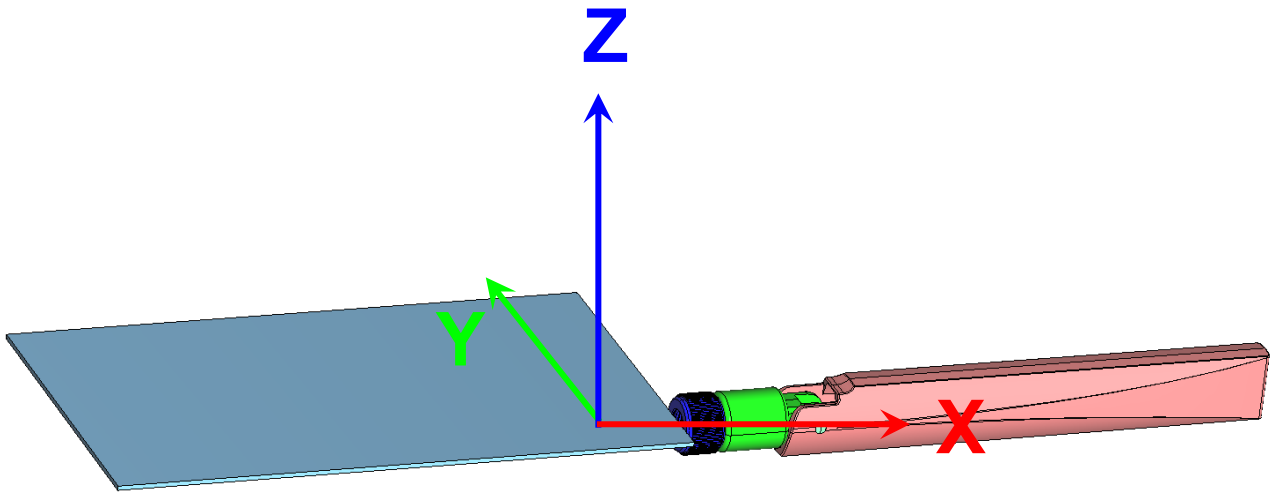
- Test Chamber: FS-G-1

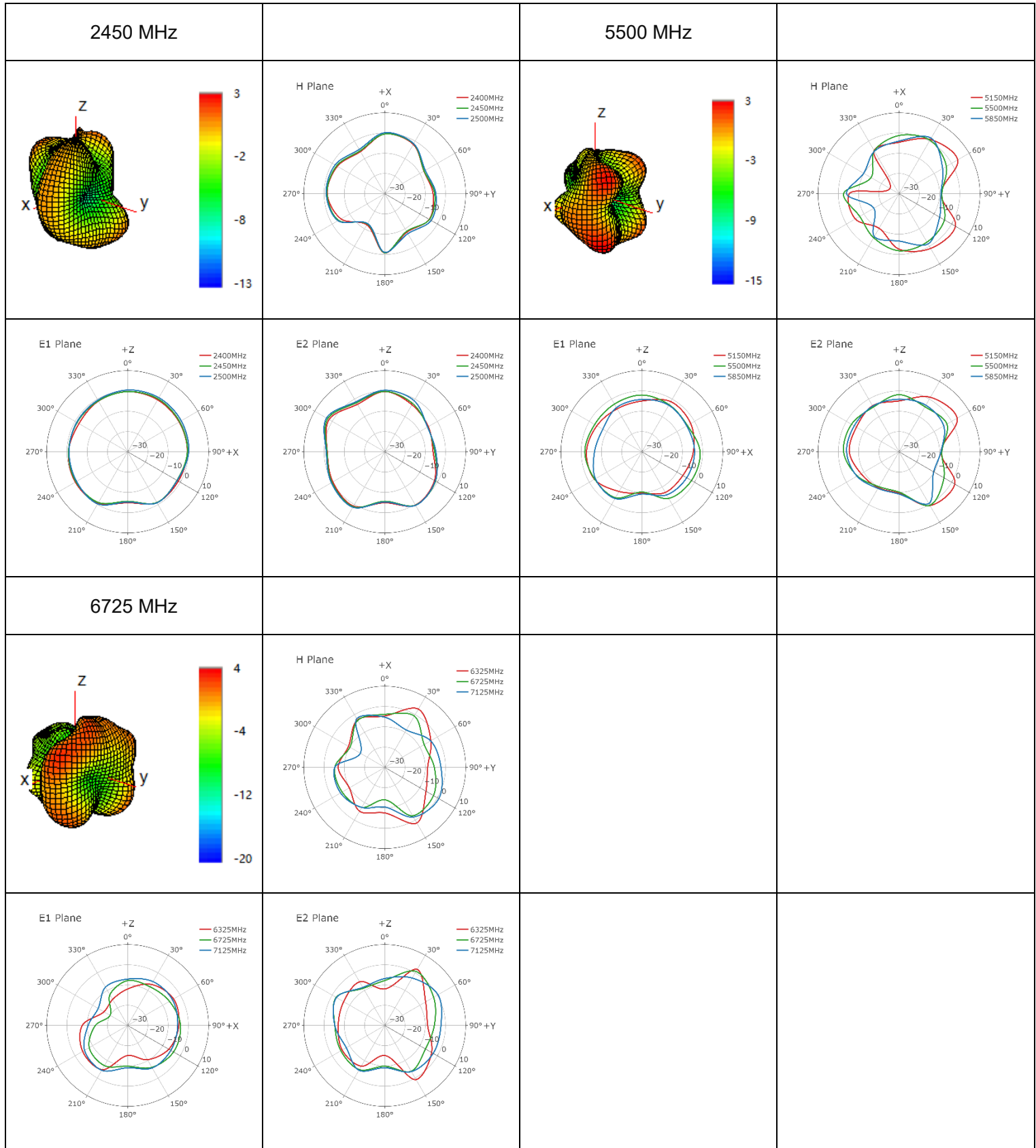




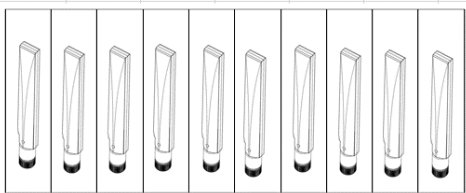
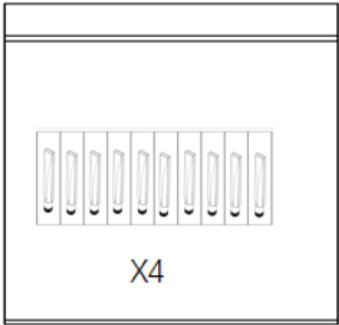
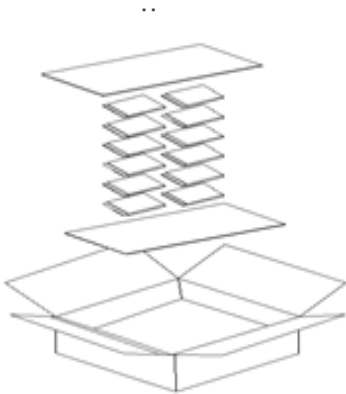
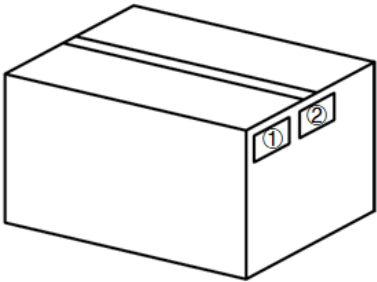
**3.2.4.2. Test Condition: On 130 mm × 70 mm EVB**

- Test Chamber: FS-G-1

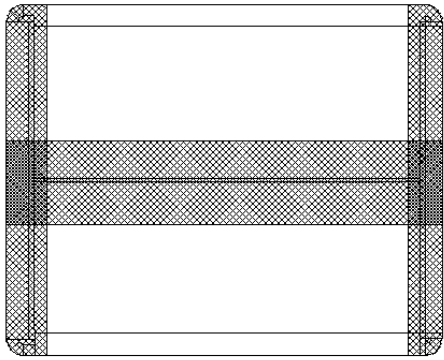




## 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		10 pcs antenna products in a one-piece bag. (10 PCS / One-piece Bag)
2		40 pcs antenna products in a PE bag. (40 PCS / PE Bag)
3		(8 PE Bags / Carton Box) (320 PCS Antennas / Carton Box) Estimated quantity Products that cannot fill the entire carton box are packed in a suitable size carton box. <u>Carton Size:</u> <u>L × W × H = 325 × 325 × 200 mm</u>
4		<b>Position for Attaching Labels</b> ① Carton Label ② Quality Label



5		<p><b>Sealing Cartons</b> H-shaped sealing cartons</p>
Note	<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
2.0	2024-09-03	Mordecai LIU	Numerous changes were made to this document. It should be read in its entirety.
2.1	2024-11-07	Lance SUN	Updated the drawing (Chapter 2).



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