Antenna Datasheet

Product OC: YEBT001WFBM
Version: 1.1
Date: 2024-10-17
Status: Released

Product Name: Wi-Fi & V2X Terminal Mount Rubber Monopole Antenna
Key Features:
Frequency Band: Wi-Fi: 2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz;
V2X: 5850–5925 MHz
Dimensions: Φ 9 mm × 54.9 mm
Efficiency: Up to 74.8 %
RoHS & REACH Compliant
IP53

Overview

YEBT001WFBM is a Wi-Fi & V2X rubber antenna measuring Φ 9 × 54.9 mm. This ultra-wide-band antenna provides broad coverage from 2400–2500 MHz, 5150–7125 MHz. The antenna is terminated with RP-SMA 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 TPE enclosure. It is compatible with Quectel's Wi-Fi and V2X Series modules.

It allows constant and reliable transmission and reception due to its omni-directional gain across all frequency bands. YEBT001WFBM is designed as a monopole antenna, which needs to be mounted on a ground plane to offer high efficiency in all working bands. It is a perfect antenna product for customers that desire highest performance. This high-efficiency, high-gain omni-directional antenna is ideally suited for gateways and routers, IoT Sensors, public safety and security, point of sales terminals, smart home automation, robotics / autonomous, V2X mesh networks system.

Typical applications include:

- Gateways and Routers
- IoT Sensors
- Public Safety and Security
- Point of Sales Terminals
- Smart Home Automation
- Robotics / Autonomous
- V2X mesh networks system

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: On 130 mm × 70 mm EVB

1.1. Electrical

Electrical		
Frequency Range	**Wi-Fi**	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
	V2X	5850–5925 MHz
Impedance		50 Ω
Polarization		Linear
Radiation Pattern		Omni-directional

1.1.1. Wi-Fi

Band / Specification	Band	Wi-Fi 2G	Wi-Fi 5G	Wi-Fi 6G
	Freq. (MHz)	**2400–2500**	**5150–5850**	**5925–7125**
Max. VSWR		1.8	1.9	2.4
Max. Return Loss (dB)		-11.1	-10.1	-7.7
AVG Eff. (%)		37.4	60.7	62.5
AVG AVG Gain (dB)		-4.3	-2.2	-2.1
Max. Peak Gain (dBi)		2.5	3.2	4.3
VSWR		≤ 2.4		
Return Loss		≤ -7.7 dB		
Peak Gain		≤ 4.3 dBi		

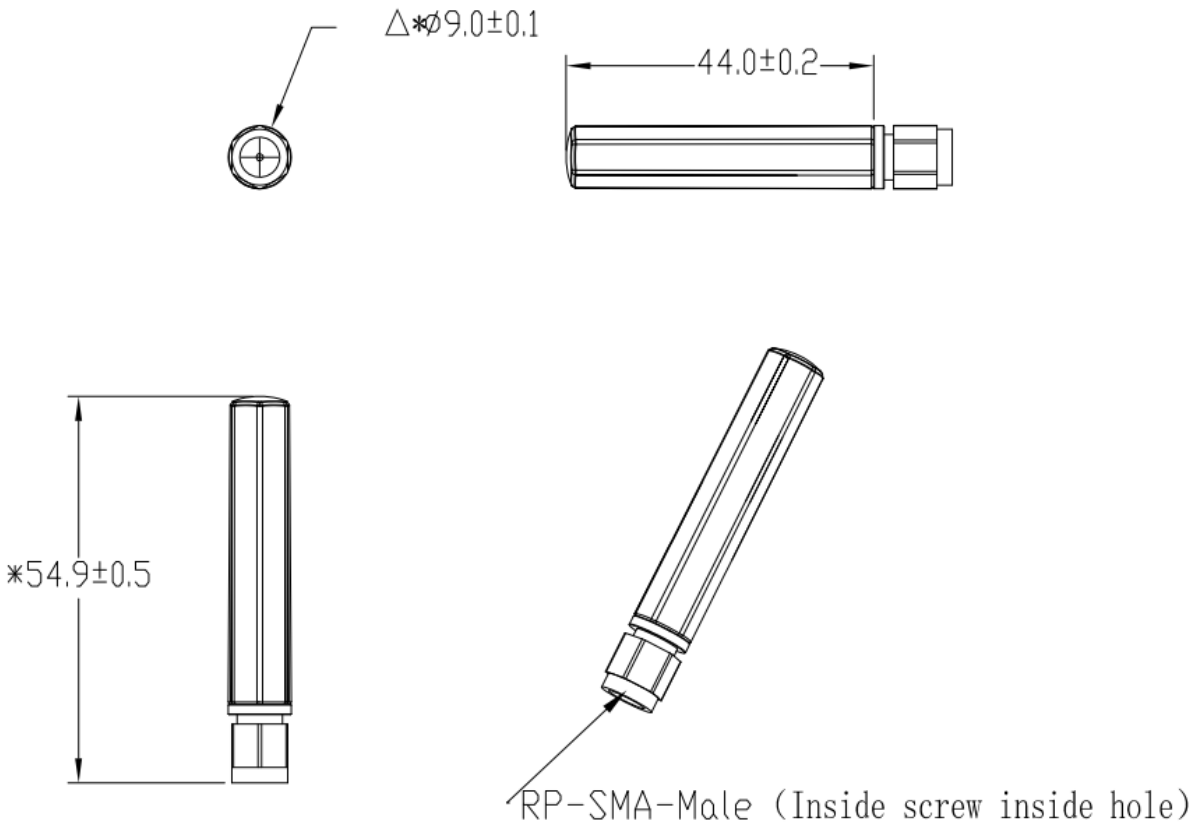
1.1.2. V2X

Band / Specification	Band	V2X
	Freq. (MHz)	5850–5925
Max. VSWR		1.9
Max. Return Loss(dB)		-10.4
AVG Eff. (%)		58.4
AVG AVG Gain (dB)		-2.3
Max. Peak Gain (dBi)		2.9
VSWR		≤ 1.9
Return Loss		≤ -10.4 dB
Peak Gain		≤ 2.9 dBi

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 9 mm × 54.9 mm
Casing Material & Color	TPE & Black
Connector Type	RP-SMA Male
Mounting Type	Terminal
Weight	Typ. 5.1 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP53
RoHS & REACH Compliant	Yes

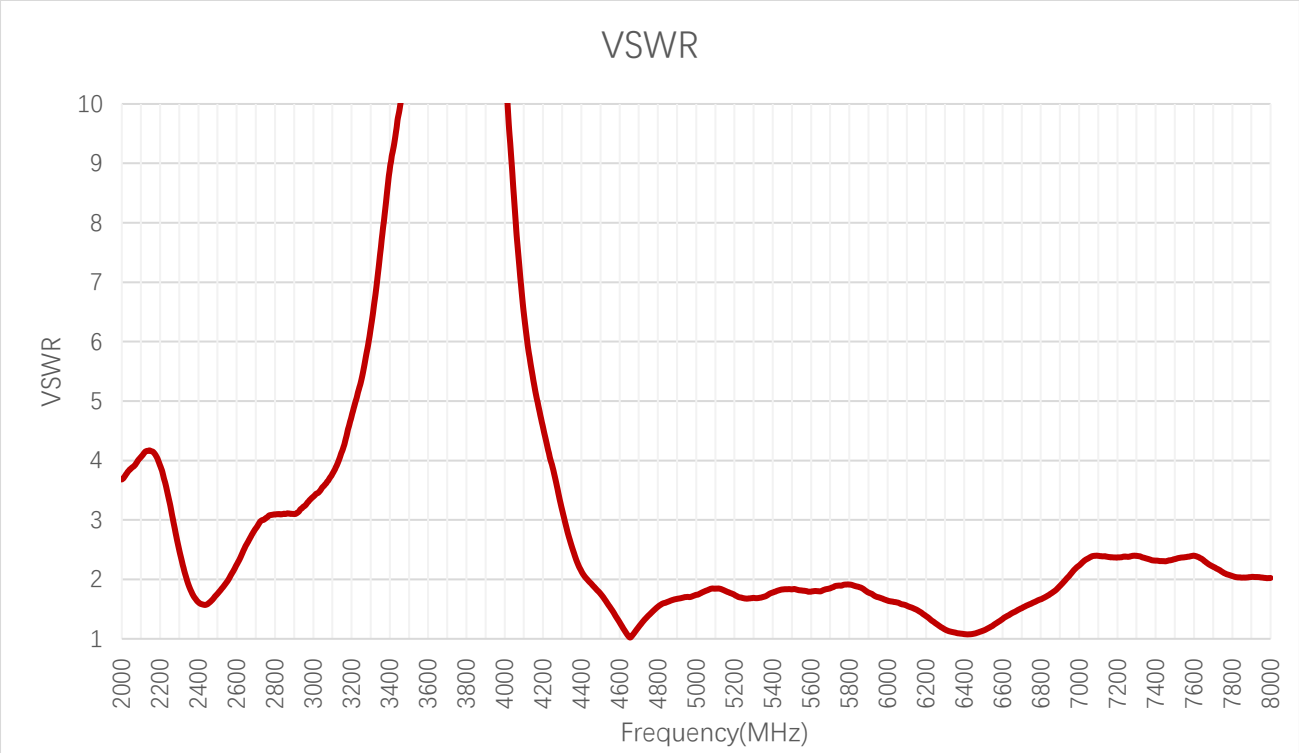
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

3.1.1. VSWR



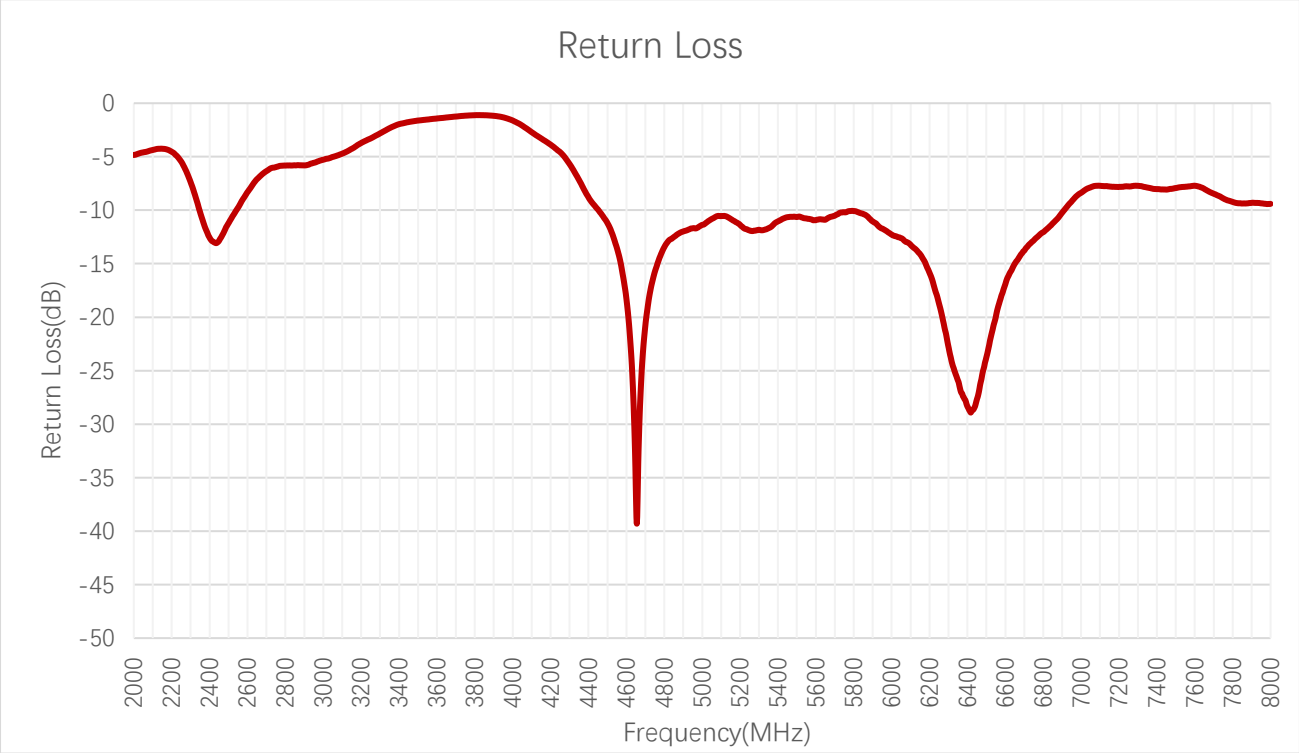
VSWR – Wi-Fi

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
VSWR	1.6	1.6	1.8	1.8	1.8	1.9	1.7	1.1	1.6	2.4

VSWR – V2X

Frequency (MHz)	5860	5880	5900
VSWR	1.9	1.8	1.8

3.1.2. Return Loss



Return Loss (dB) – Wi-Fi

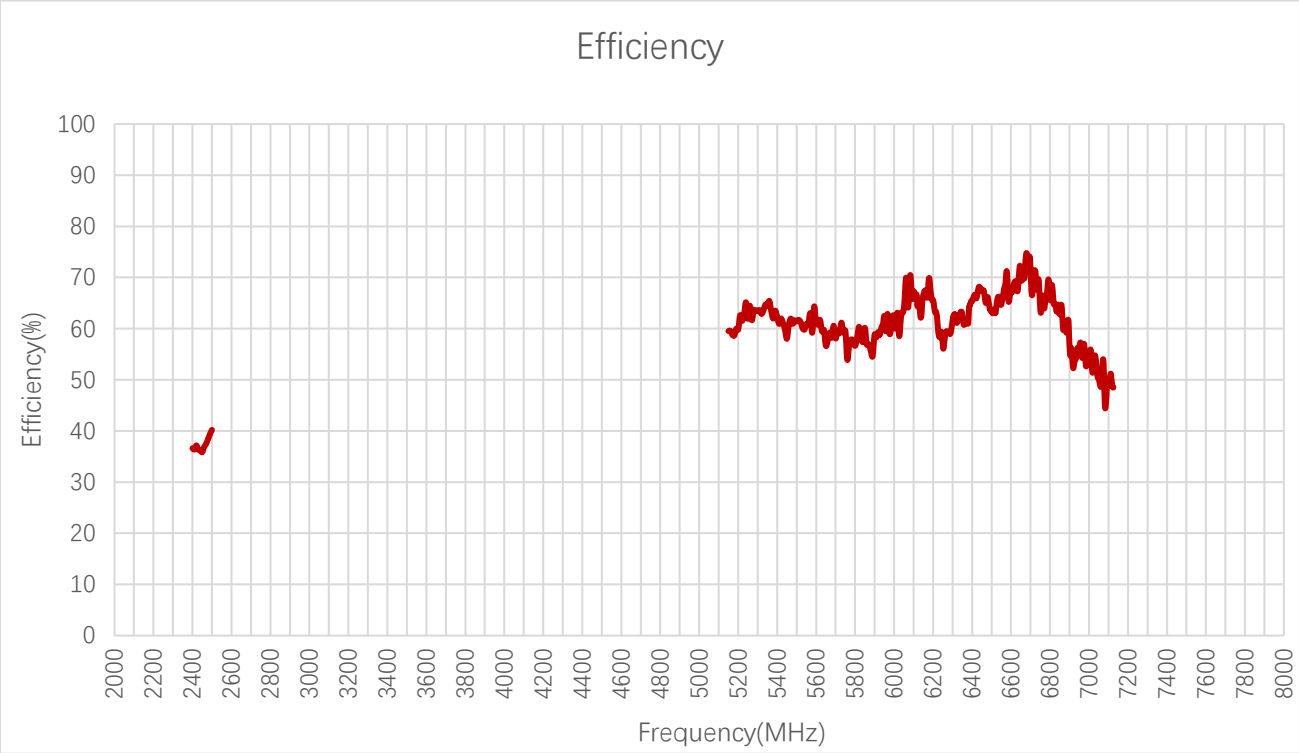
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Return Loss (dB)	-12.6	-12.9	-11.1	-10.8	-10.6	-10.4	-11.4	-24.8	-13.2	-7.7

Return Loss (dB) – V2X

Frequency (MHz)	5860	5880	5900
Return Loss (dB)	-10.5	-10.7	-11.0

3.2. Radiation Performance Test

3.2.1. Efficiency



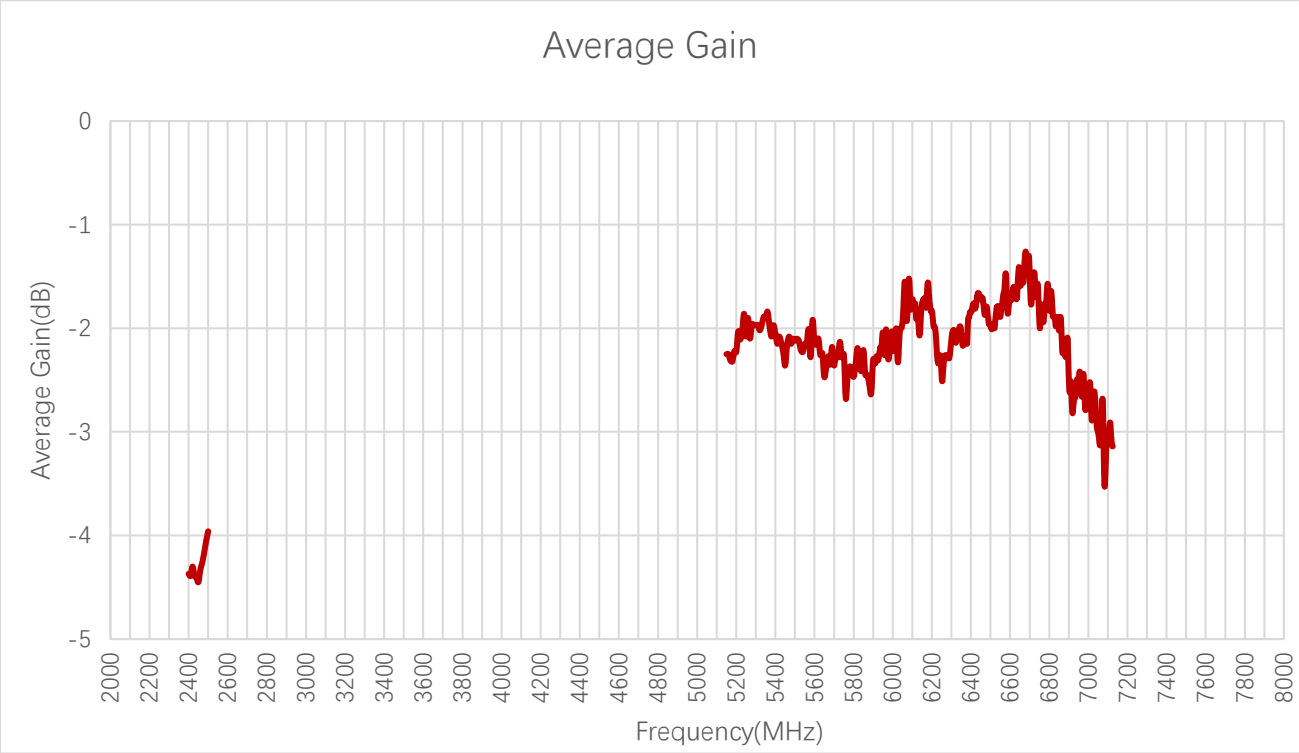
Efficiency (%) – Wi-Fi

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Efficiency (%)	36.6	35.9	40.2	59.5	61.4	60.2	58.9	61.5	71.3	48.5

Efficiency (%) – V2X

Frequency (MHz)	5860	5880	5900
Efficiency (%)	56.9	55.7	58.9

3.2.2. Average Gain



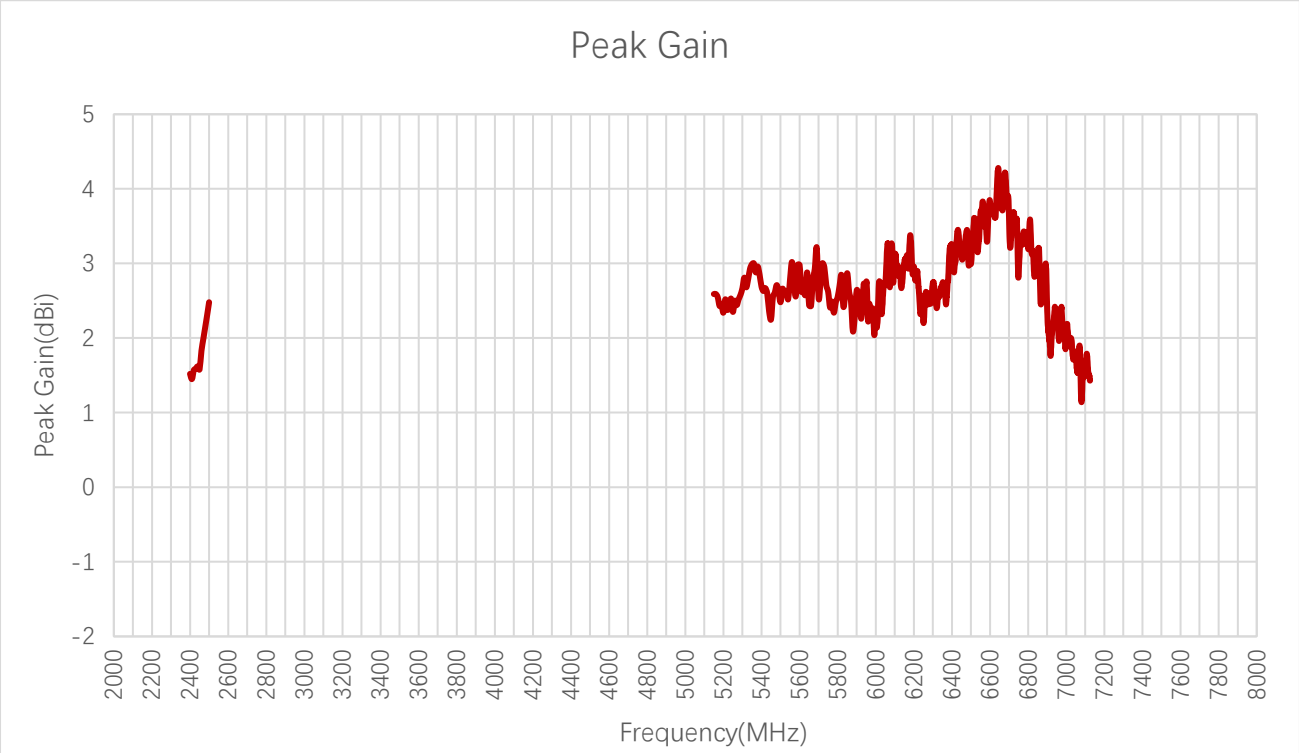
Average Gain (dB) – Wi-Fi

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Average Gain (dB)	-4.4	-4.5	-4.0	-2.3	-2.1	-2.2	-2.3	-2.1	-1.5	-3.1

Average Gain (dB) – V2X

Frequency (MHz)	5860	5880	5900
Average Gain (dB)	-2.5	-2.5	-2.3

3.2.3. Peak Gain



Peak Gain (dBi) – Wi-Fi

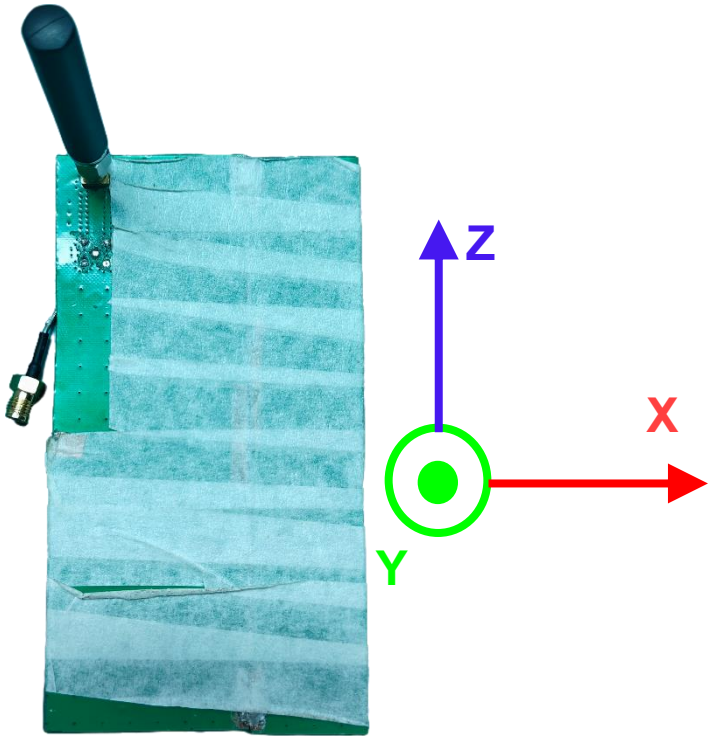
Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Peak Gain (dBi)	1.5	1.6	2.5	2.6	2.5	2.9	2.3	2.5	3.7	1.4

Peak Gain (dBi) – V2X

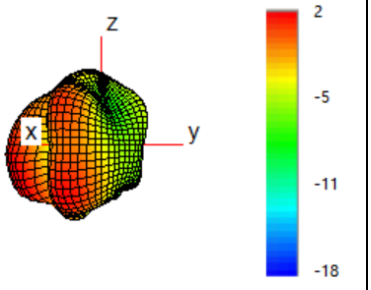
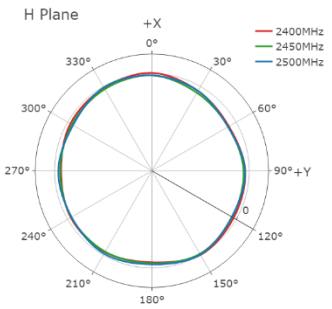
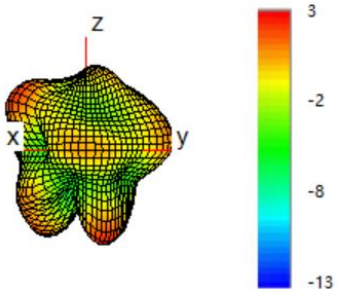
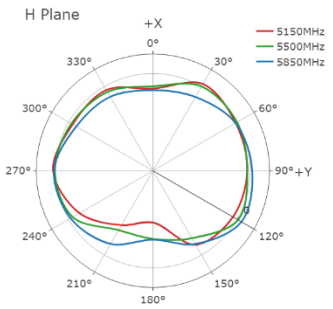
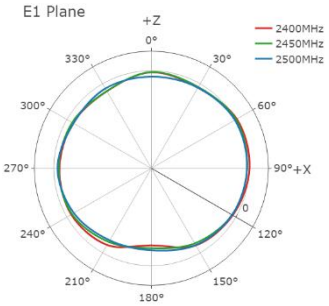
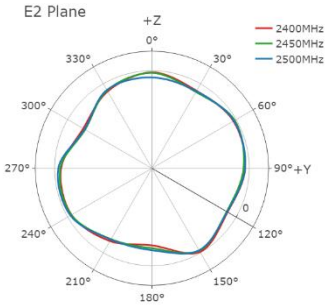
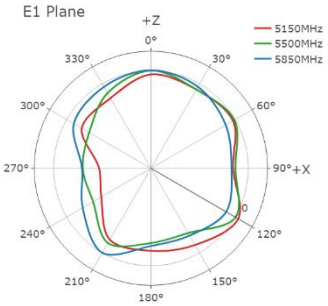
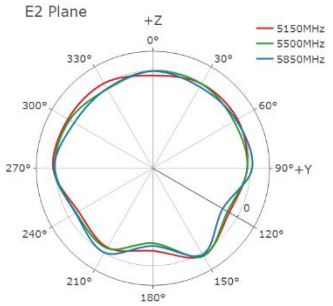
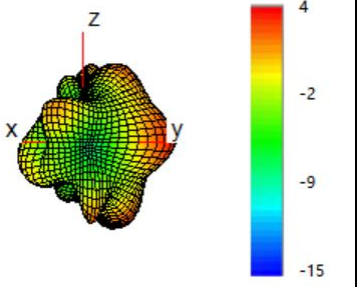
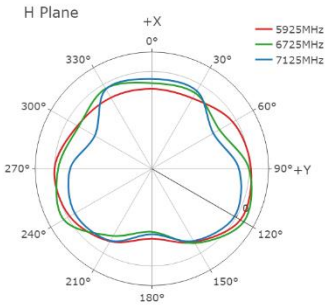
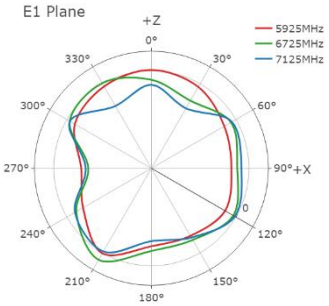
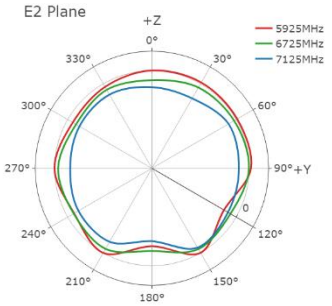
Frequency (MHz)	5860	5880	5900
Peak Gain (dBi)	2.6	2.1	2.6

3.2.4. 3D & 2D Radiation Pattern

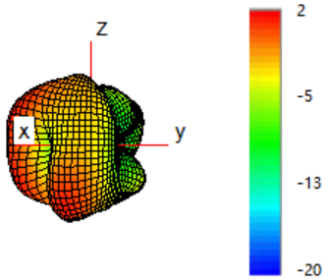
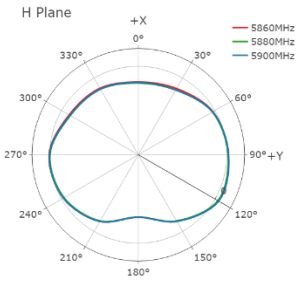
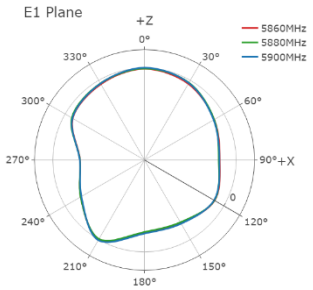
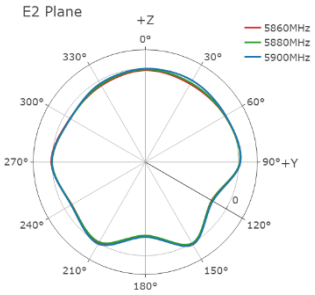
- Test Condition: On 130 mm × 70 mm EVB
- Test Chamber: GL–G–1



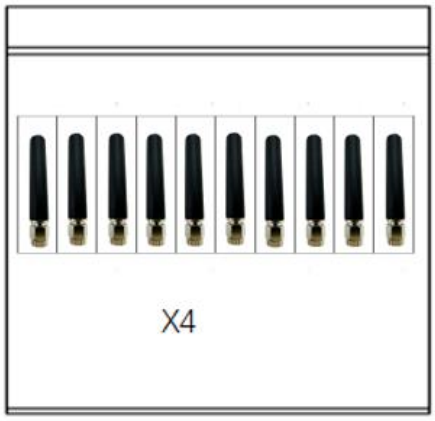
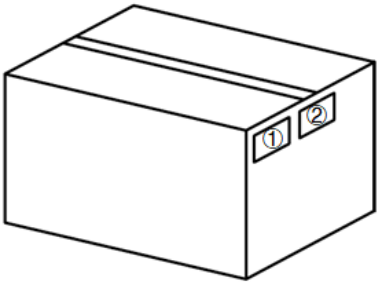
- **Wi-Fi**

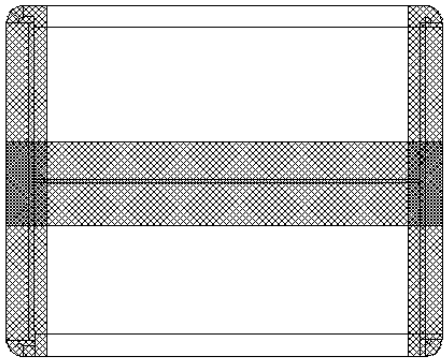
2450 MHz		5500 MHz	
			
			
6725 MHz			
			
			

- **V2X**

5880 MHz	
 Z X y 2 -5 -13 -20	 H Plane +X 0° 30° 60° 90°+Y 120° 150° 180° 210° 240° 270° 300° 330° 5860MHz 5880MHz 5900MHz
 E1 Plane +Z 0° 30° 60° 90°+X 120° 150° 180° 210° 240° 270° 300° 330° 5860MHz 5880MHz 5900MHz	 E2 Plane +Z 0° 30° 60° 90°+Y 120° 150° 180° 210° 240° 270° 300° 330° 5860MHz 5880MHz 5900MHz

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 Antennas / PE Bag)
4		**Position for Attaching Labels** ① Carton Label ② Quality Label

5		**Sealing Cartons** “工” type sealing cartons
Note	The initial packaging method described above is for reference only, and the final actual packaging method shall be subject to the actual shipping 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:

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Tel: +86 21 5108 6236
Email: info@quectel.com

Or our local offices. For more information, please visit:
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Revision History

Version	Date	Author	Note
-	2024-07-11	Black LI/ Steven MO/ David LIU/ Rainey LIAO	Creation of the document
1.0	2024-07-11	Black LI/ Steven MO/ David LIU/ Rainey LIAO	First official release
1.1	2024-10-17	Steven MO	Added Ingress Protection (IP) Rating (Chapter 1.2).

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