



Antenna Datasheet

Product OC: YEBT038W1A

Version: 0.1

Date: 2024-04-11

Status: Preliminary

Product Name: External Wi-Fi/BT Antenna

Key Features:

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

Peak efficiency: 52.37 %

Dimensions: Φ 13 mm $\times$ 195 mm

RoHS Compliant

Overview

Quectel Wi-Fi/BT antenna covers 2.4 GHz, 5 GHz, and up to 7 GHz bands, fully satisfying customers' requirements for BT, Wi-Fi 5, Wi-Fi 6, and Wi-Fi 6E/Wi-Fi 7. There are various antenna types, including built-in FPC/PCB antenna, ceramic patch antenna, and other external antennas of different shapes or sizes. The antenna performance meets the customers' demands for efficiency, gain, and radiation and ensures the superior experience of the customers' products in use.

Contents

Overview.....	1
Contents	2
1 Specification.....	3
1.1. Electrical.....	3
1.2. Mechanical & Environmental	4
2 Drawing	5
3 Detailed Performance	6
3.1. S-Parameter Test	6
3.1.1. VSWR.....	6
3.1.2. Return Loss	7
3.2. Radiation Performance Test.....	8
3.2.1. Efficiency	8
3.2.2. Average Gain	9
3.2.3. Peak Gain.....	10
3.2.4. 3D & 2D Radiation Pattern.....	11
3.2.4.1. Test Condition: Free Space	11
4 Packaging	14
Contact Us.....	16
Legal Notices	17
Revision History	19

1 Specification

Test Condition: Free Space

1.1. Electrical

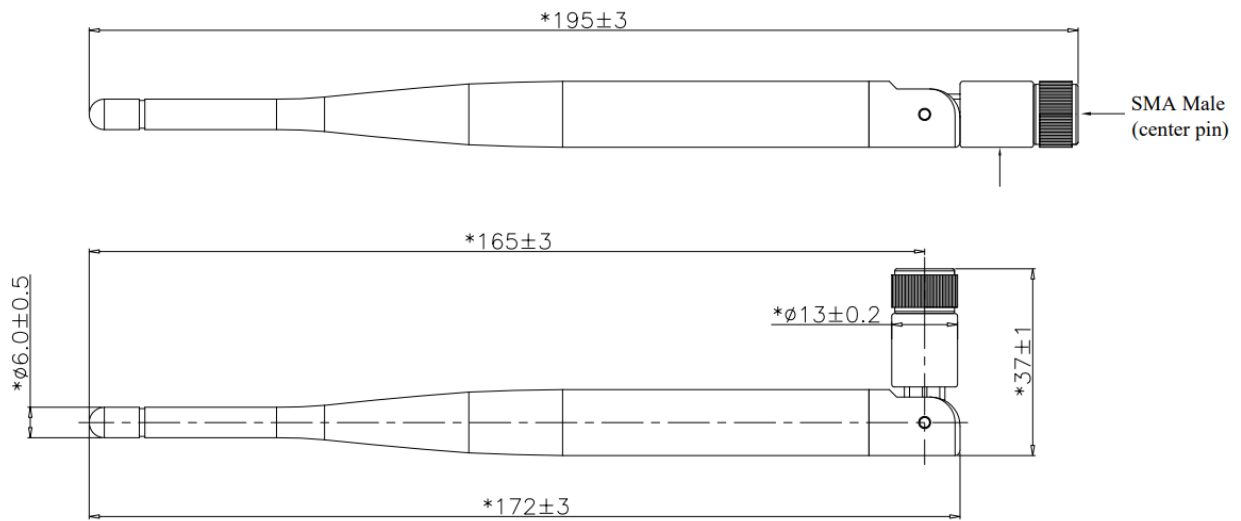
Electrical	
Frequency Range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Specification \ Band	Wi-Fi 2G BT	Wi-Fi 5G				Wi-Fi 7G
	2400 - 2500	5150 - 5250	5250 - 5350	5470 - 5725	5725 - 5850	5925 - 7125
Max. VSWR	2.3	3.1	3.3	3.2	2.9	2.6
Max. Return Loss (dB)	-8.3	-5.7	-5.4	-5.6	-6.2	-7.1
AVG Eff. (%)	44.1	42.2	41.5	36.0	33.0	33.0
AVG Gain (dB)	-3.6	-3.7	-3.8	-4.4	-4.8	-4.8
Max. Peak Gain (dBi)	0.3 (2500MHz)	-0.2 (5220MHz)	-0.4 (5320MHz)	-0.6 (5475MHz)	-0.7 (5820MHz)	1.0 (6785MHz)
VSWR	≤ 3.3					
Return Loss	≤ -5.4 dB					
Peak Gain	≤ 1.0 dBi					

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 13 mm × 195 mm
Material & Color	TPEE & Black
Connector Type	SMA Male
Mounting Type	Terminal
Weight	Typ. 18 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS Compliant	Yes

2 Drawing

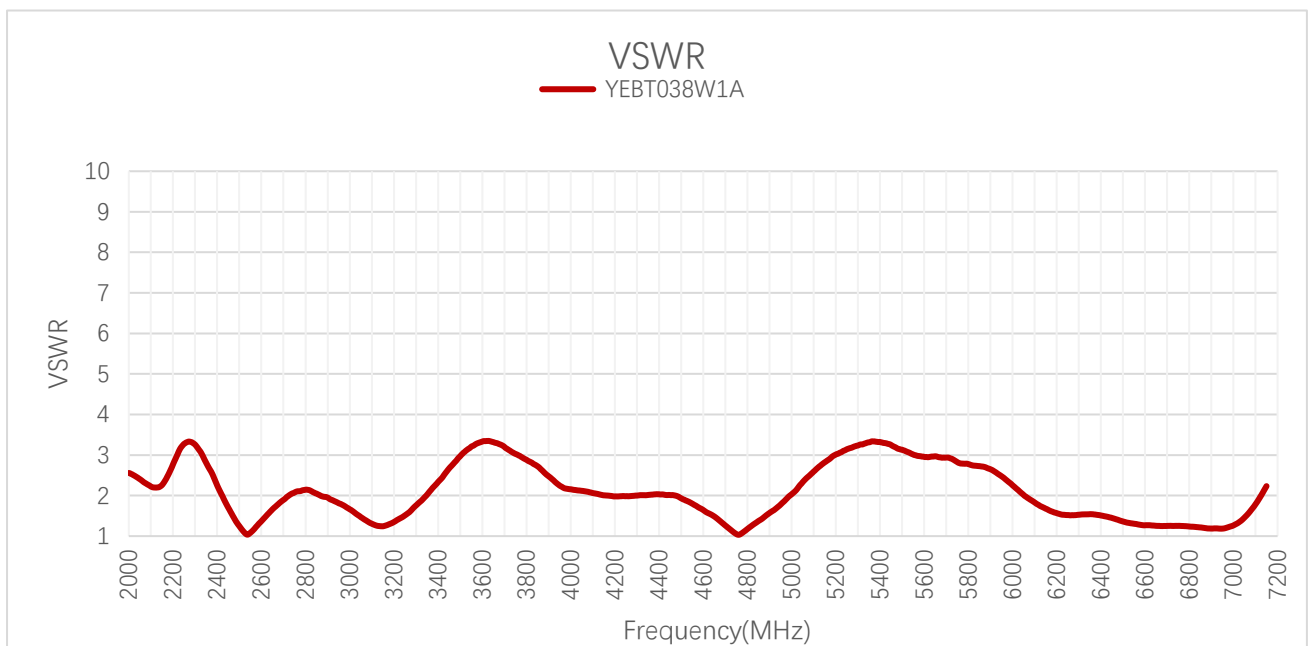


3 Detailed Performance

- Network Analyzer: Keysight E5071C (Device number: QTB6331E; Calibration date: 2022-06-24)
- Chamber: OTA RayZone 2800 GTS (Device number: QTA0709; Calibration date: 2023-07-14)
- Testing Software: Libra
- Manufacturer: Quectel Wireless Solutions (Changzhou) Co., Ltd.
Address: No.8 Nanhu West Road, Wujin District, Changzhou City, Jiangsu Province, China

3.1. S-Parameter Test

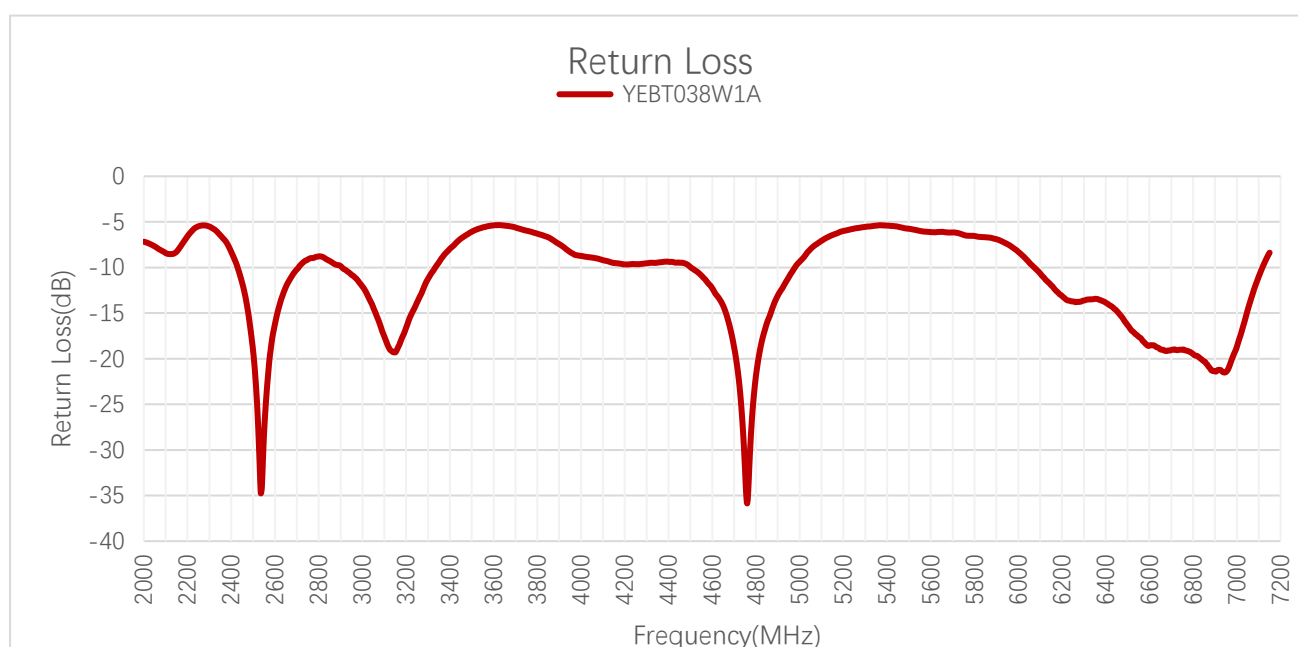
3.1.1. VSWR



VSWR

Frequency (MHz)	2400	2500	5150	5250	5350	5470	5725	5850
VSWR	2.3	1.2	2.8	3.1	3.3	3.2	2.9	2.7
Frequency (MHz)	5925	6325	6725	7125				
VSWR	2.6	1.5	1.3	2.0				

3.1.2. Return Loss

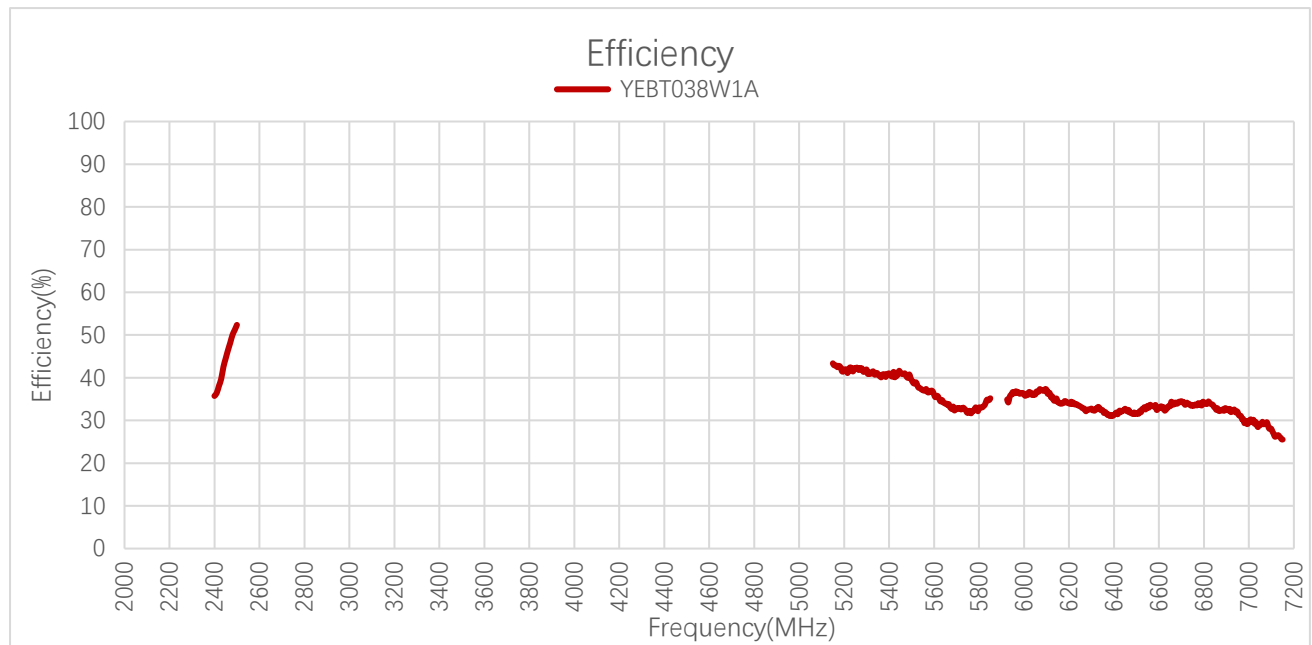


Return Loss (dB)

Frequency (MHz)	2400	2500	5150	5250	5350	5470	5725	5850
Return Loss (dB)	-8.3	-19.1	-6.4	-5.7	-5.4	-5.6	-6.2	-6.7
Frequency (MHz)	5925	6325	6725	7125				
Return Loss (dB)	-7.1	-13.5	-19.1	-9.6				

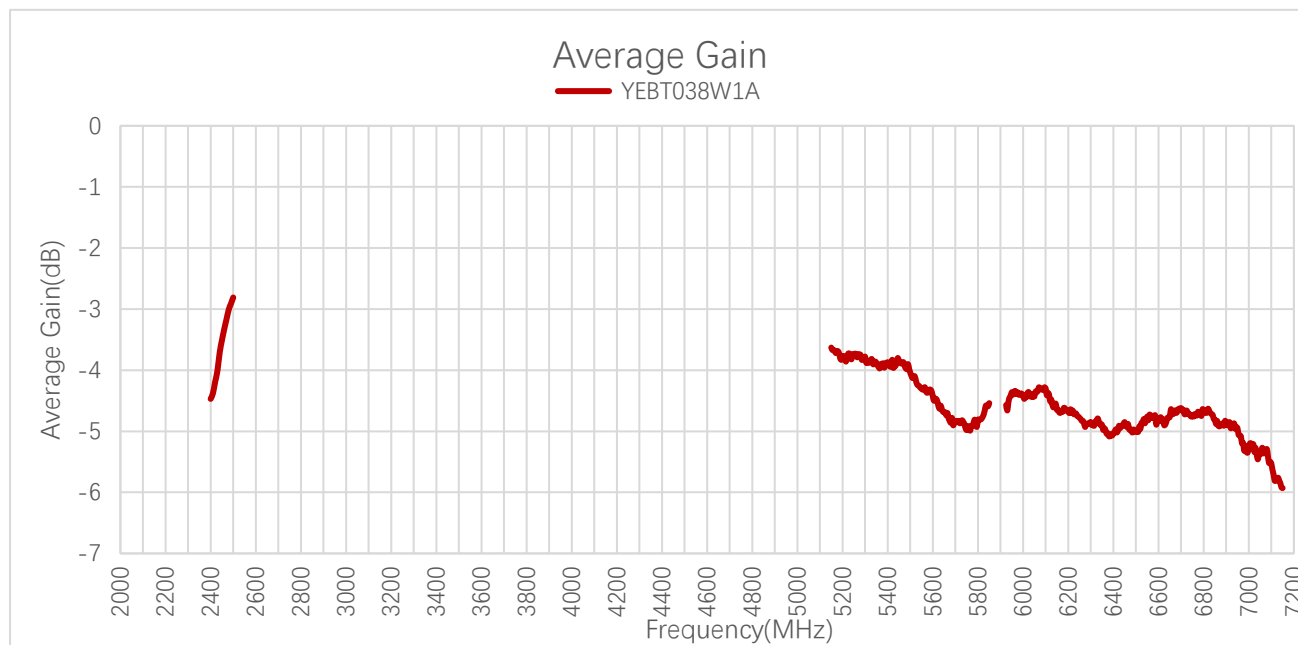
3.2. Radiation Performance Test

3.2.1. Efficiency



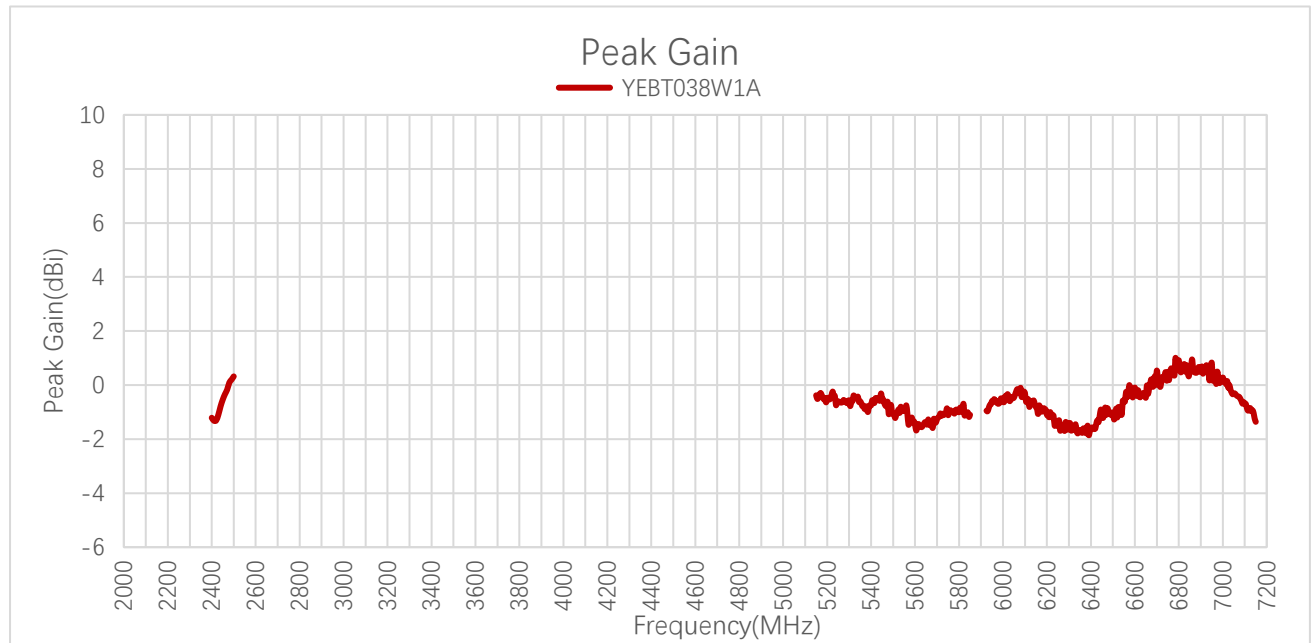
Efficiency (%)								
Frequency (MHz)	2400	2500	5150	5250	5350	5470	5725	5850
Efficiency (%)	35.7	52.4	43.4	42.0	40.9	41.0	32.8	35.2
Frequency (MHz)	5925	6325	6725	7125				
Efficiency (%)	34.9	32.7	34.2	26.4				

3.2.2. Average Gain



Average Gain (dB)								
Frequency (MHz)	2400	2500	5150	5250	5350	5470	5725	5850
Average Gain (dB)	-4.5	-2.8	-3.6	-3.8	-3.9	-3.9	-4.8	-4.5
Frequency (MHz)	5925	6325	6725	7125				
Average Gain (dB)	-4.6	-4.9	-4.7	-5.8				

3.2.3. Peak Gain

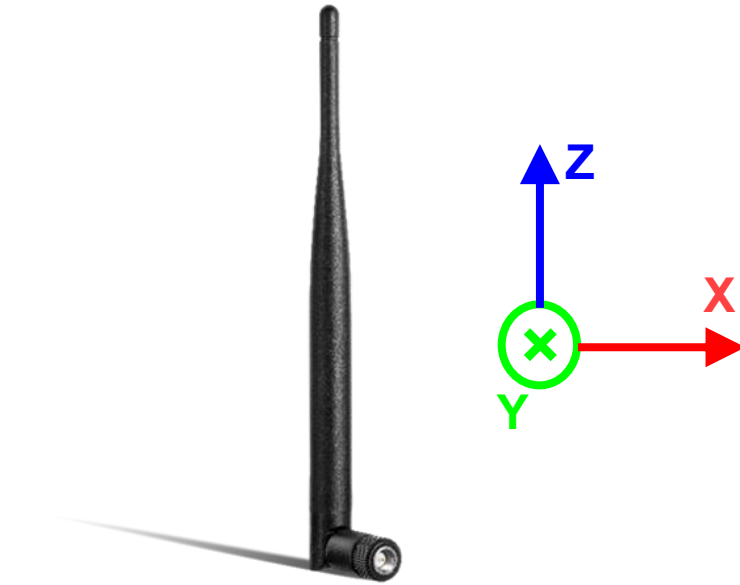


Peak Gain (dBi)									
Frequency (MHz)	2400	2500	5150	5220	5250	5320	5350	5470	5475
Peak Gain (dBi)	-1.2	0.3	-0.4	-0.2	-0.6	-0.4	-0.6	-0.8	-0.6
Frequency (MHz)	5725	5820	5850	5925	6325	6725	6785	7125	
Peak Gain (dBi)	-1.1	-0.7	-1.1	-1.0	-1.7	0.3	1.0	-0.9	

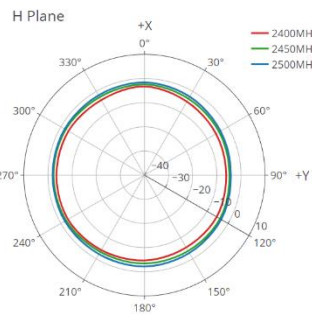
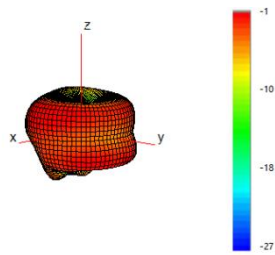
3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Condition: Free Space

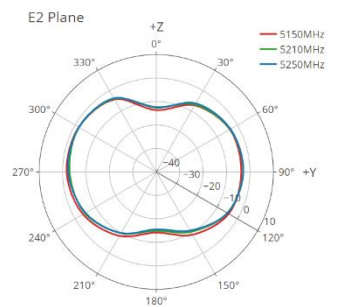
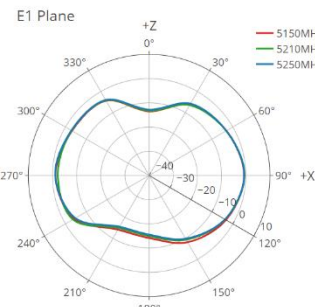
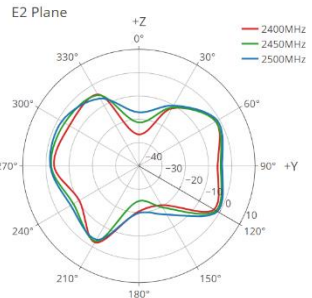
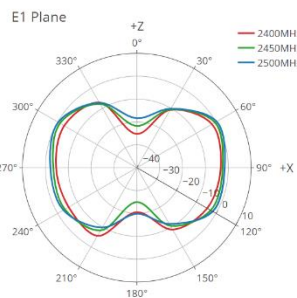
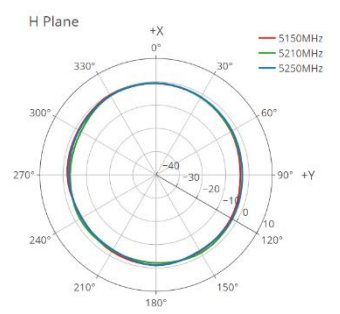
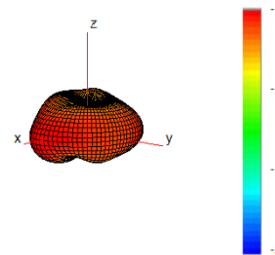
- Test Chamber: HF-G-1



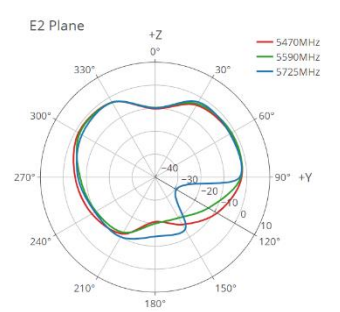
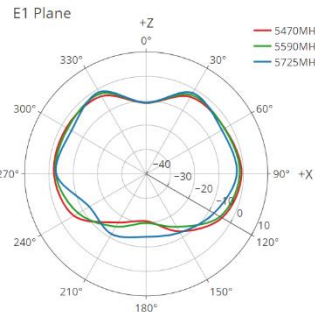
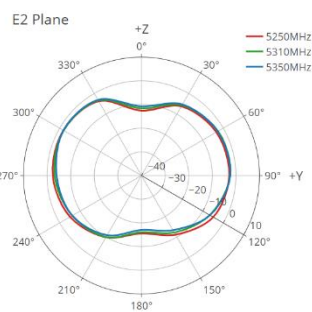
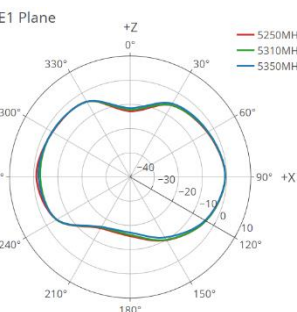
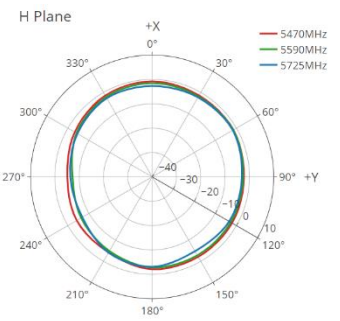
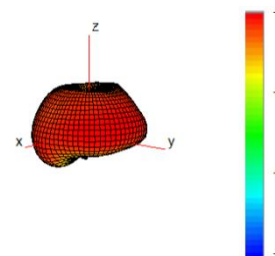
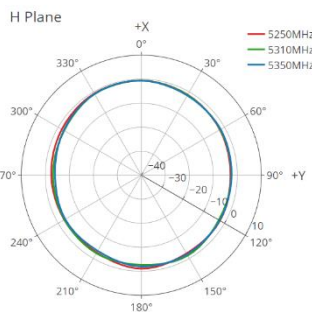
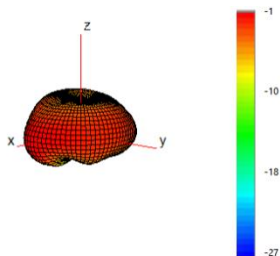
2450 MHz



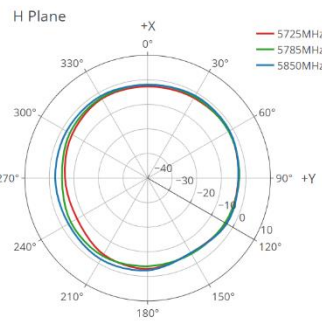
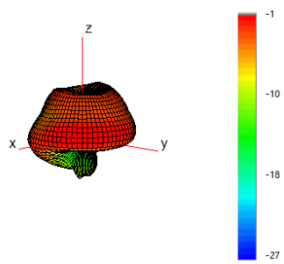
5210 MHz



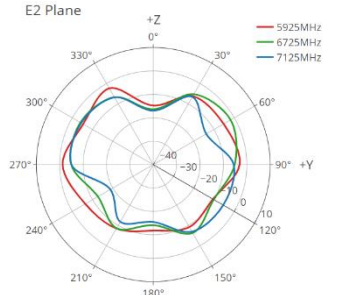
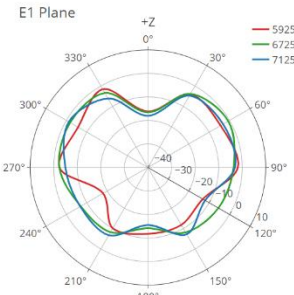
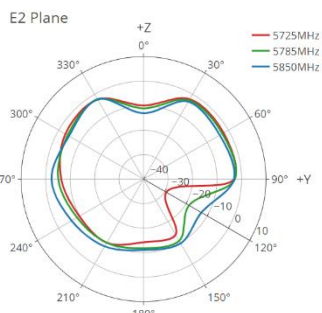
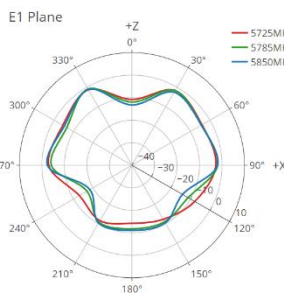
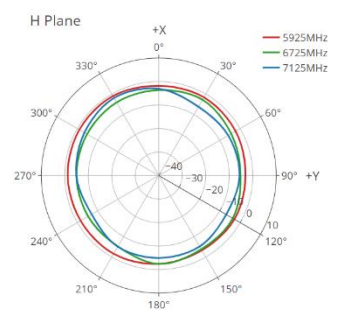
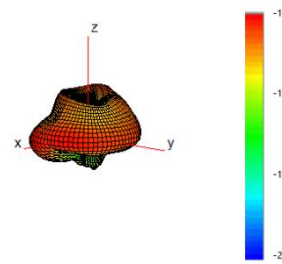
5310 MHz



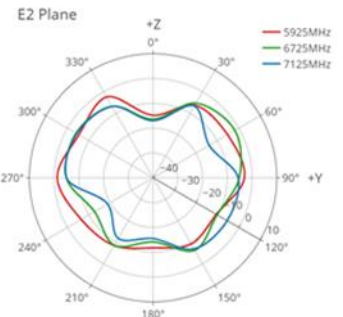
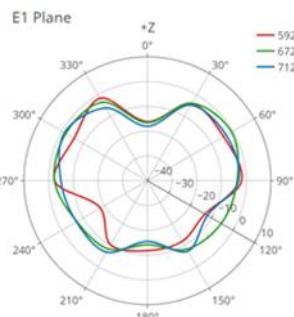
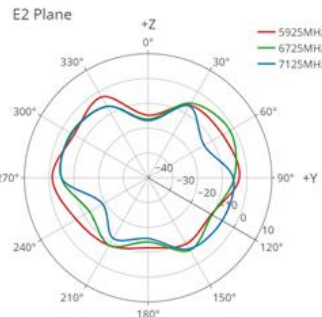
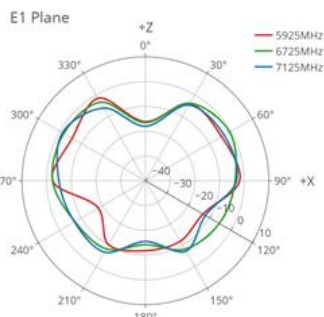
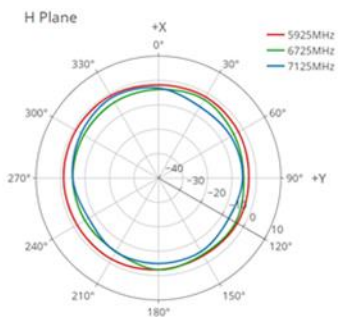
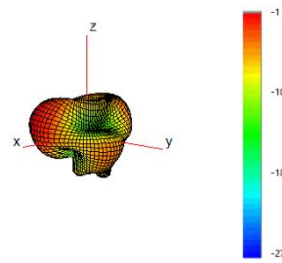
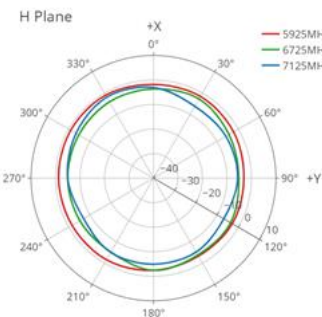
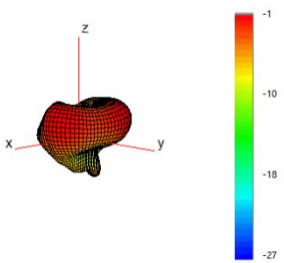
5785 MHz



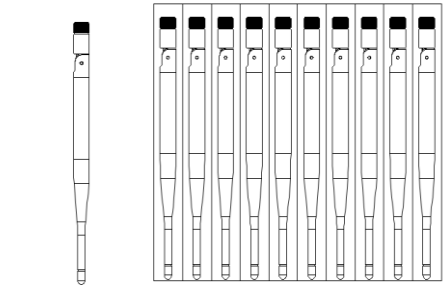
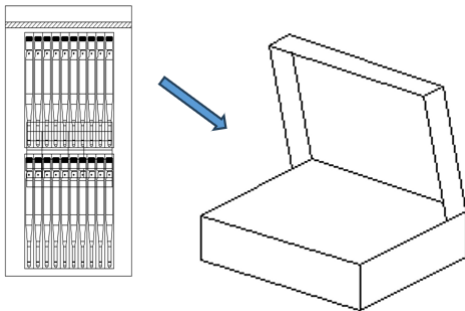
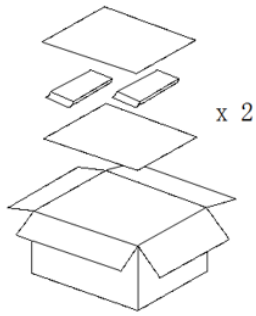
5925 MHz

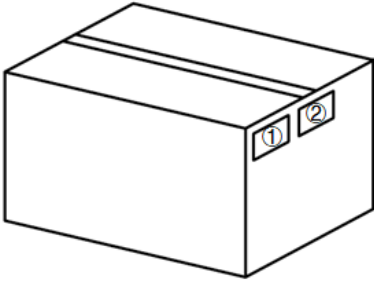
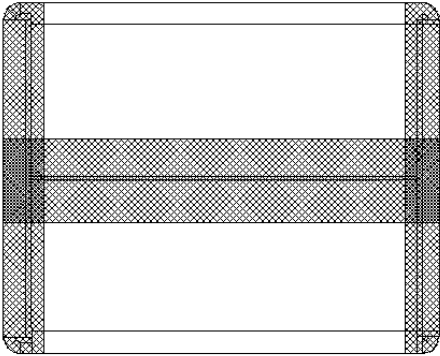


6725 MHz



4 Packaging

Step	Packaging Picture / 2D Picture	Description
1	 1 product 10 products / One-piece Bag	The product goes into a one-piece bag. (10 PCS Antennas / One-piece Bag)
2		40 pcs antenna products in a PE bag. 120 pcs antenna products in an inner box.
3	 x 2	(2 Inner Boxes / Carton Box) (240 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		Position for Attaching Labels ① Carton Label ② Quality Label
5		Sealing Cartons “I” 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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For technical support, or to report documentation errors, please visit:

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Revision History

Version	Date	Author	Note
-	2024-04-11	Aria CHU	Creation of the document
0.1	2024-04-11	Aria CHU	First official release



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