



# Antenna Datasheet

**Product OC:** YEBT038WFA

**Version:** 1.1

**Date:** 2023-11-23

**Status:** Preliminary

**Product Name:** External WIFI Antenna

**Key Features:**

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

Peak efficiency: 56.74 %

Dimensions:  $\Phi$ 13mm \* 195mm

RoHS Compliant

# Overview

Quectel Wi-Fi antenna covers 2.4 GHz and 5 GHz dual-bands, fully satisfying customers' requirements for Wi-Fi 5 and Wi-Fi 6. 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.

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# 1 Specification

Test Condition: Free Space

## 1.1. Electrical

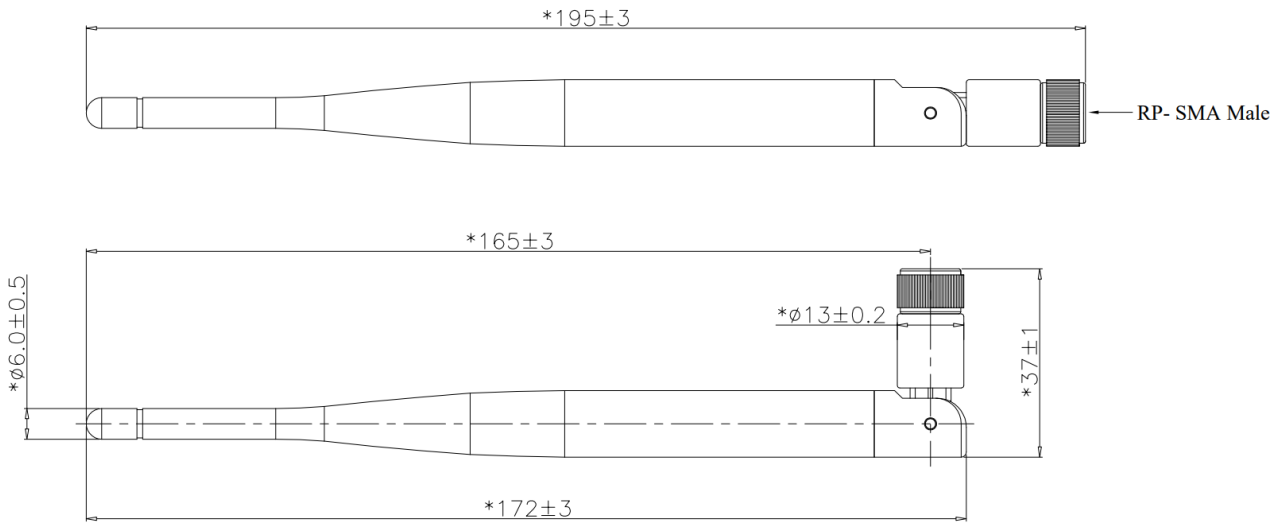
Electrical	
Frequency Range	2400–2500 MHz, 5150–5850 MHz
Impedance	50 $\Omega$
Polarization	Linear
Radiation Pattern	Omni-directional
Antenna Type	Dipole

Band Specification	Band	Wi-Fi 5G				
	Freq. (MHz)	2400 - 2500	5150 - 5250	5250 - 5350	5470 - 5725	5725 - 5850
Max. VSWR		1.4	2.7	2.7	2.6	2.4
Max. Return Loss (dB)		-14.8	-6.8	-6.7	-7.2	-7.6
AVG Eff. (%)		50.8	36.1	34.1	34.0	35.7
AVG AVG Gain (dB)		-3.0	-4.4	-4.7	-4.7	-4.5
Max. Peak Gain (dBi)		-0.1 (2470MHz)	-0.9 (5170MHz)	-1.4 (5250MHz)	-0.3 (5710MHz)	0.4 (5845MHz)
VSWR		$\leq 2.7$				
Return Loss		$\leq -6.7$ dB				
Peak Gain		$\leq 0.4$ dBi				

## 1.2. Mechanical, Environmental

Mechanical	
Antenna Dimensions	Φ13 * 195mm
Material & Color	PC+PBT & Black
Connector Type	RP SMA Male
Mounting Type	Terminal
Weight	Typ.18g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS Compliant	Yes

# 2 Drawing

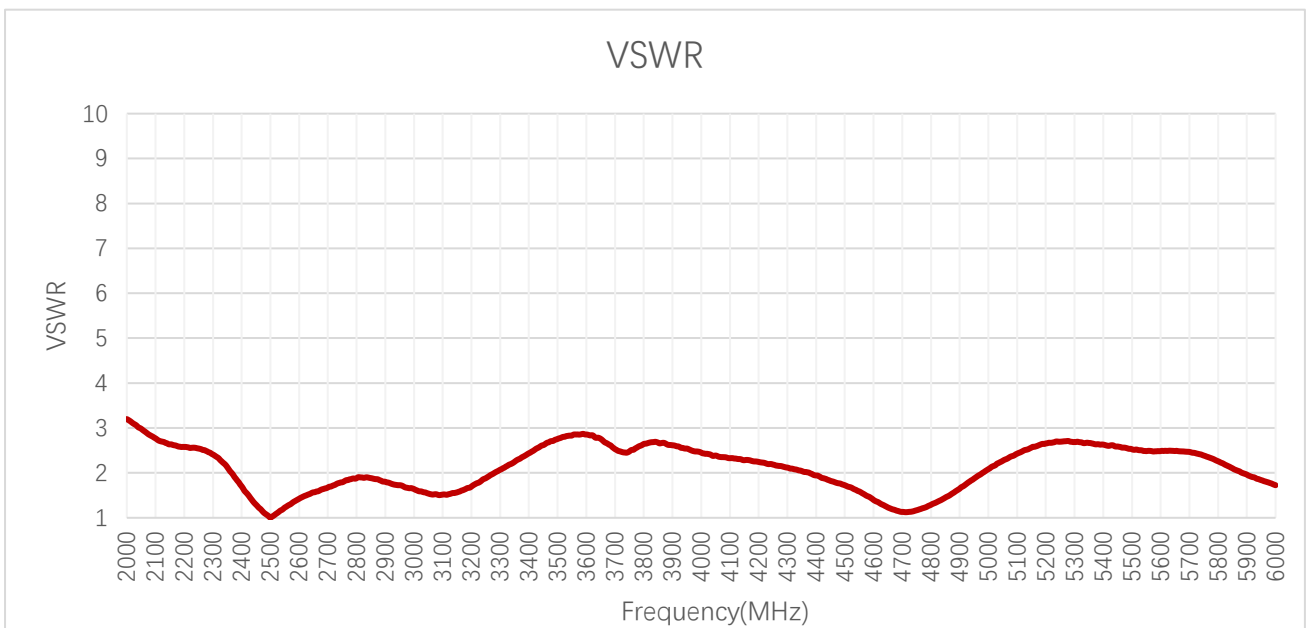


# 3 Detailed Performance

- 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

## 3.1. S-Parameter Test

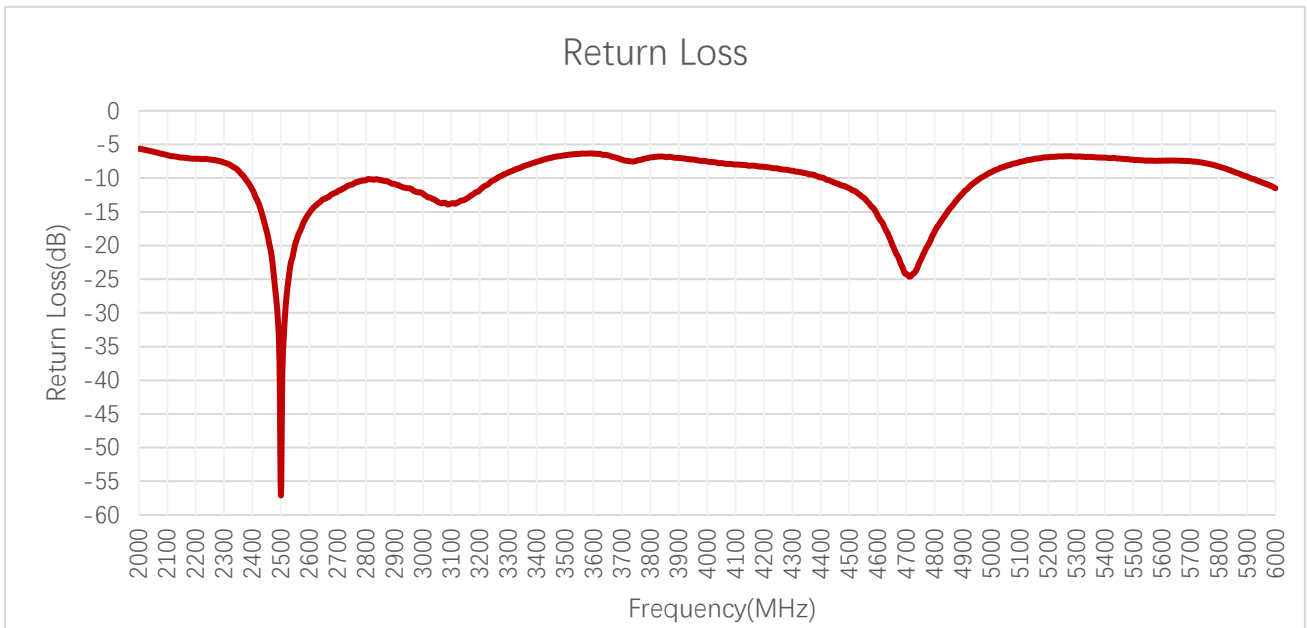
### 3.1.1. VSWR



**VSWR**

Frequency (MHz)	2400	2500	5150	5250	5350	5470	5725	5850
VSWR	1.7	1.0	2.6	2.7	2.7	2.6	2.4	2.1

**3.1.2. Return Loss**



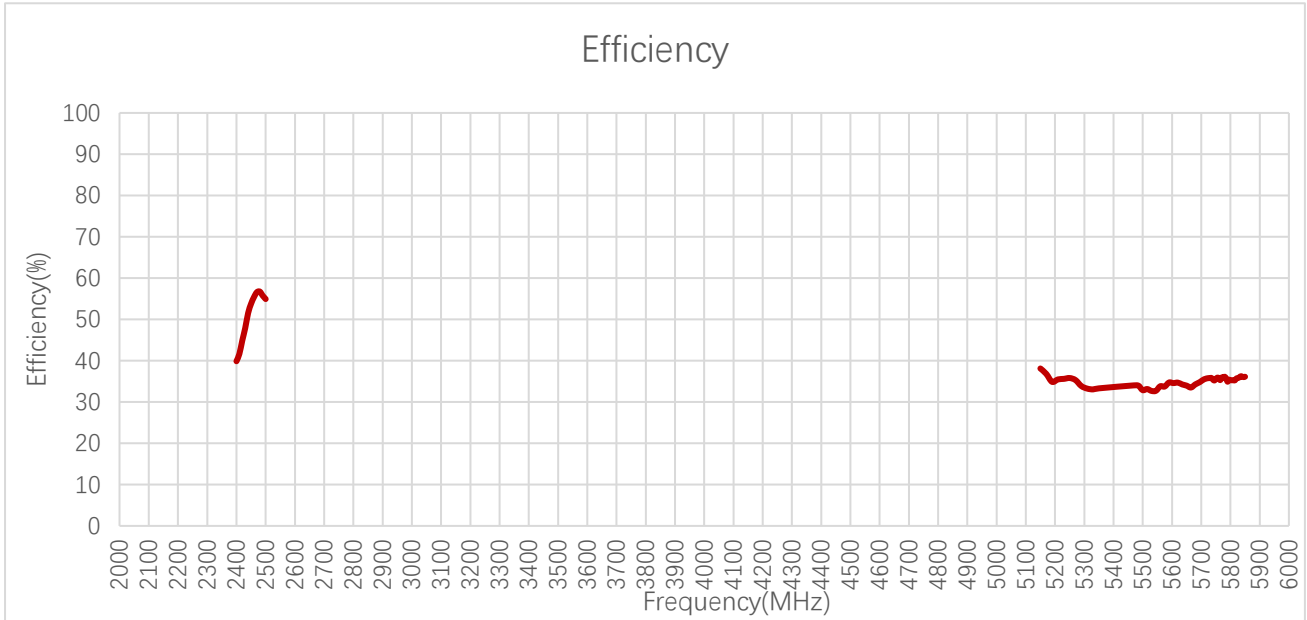
**Return Loss (dB)**

Frequency (MHz)	2400	2500	5150	5250	5350	5470	5725	5850
Return Loss (dB)	-11.7	-57.1	-7.2	-6.8	-6.9	-7.2	-7.6	-9.0



### 3.2. Radiation Performance Test

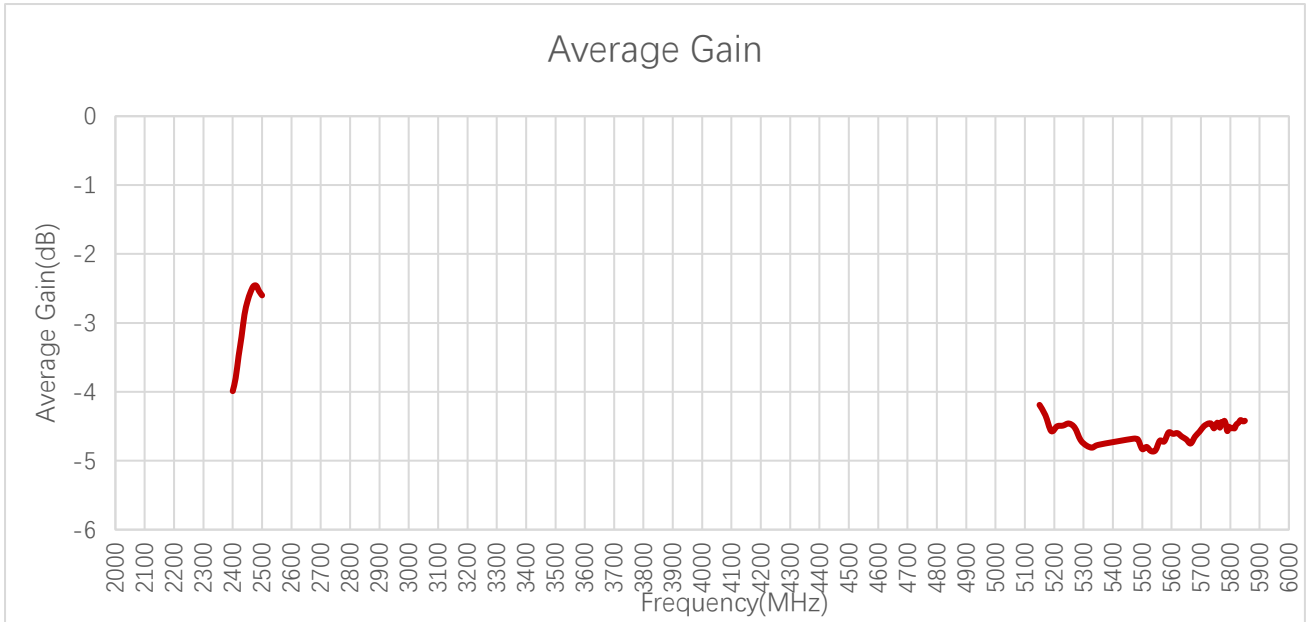
#### 3.2.1. Efficiency



**Efficiency (%)**

Frequency (MHz)	2400	2500	5150	5250	5350	5470	5725	5850
Efficiency (%)	39.9	54.9	38.1	38.8	33.3	34.0	35.8	36.1

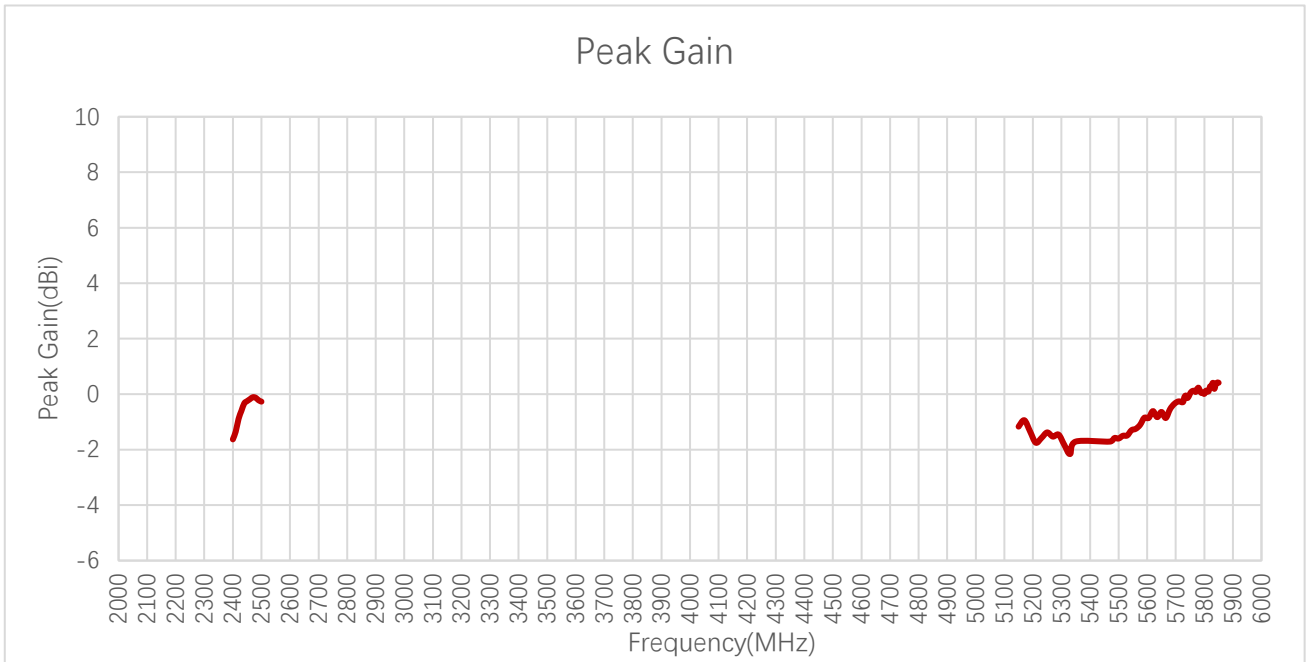
**3.2.2. Average Gain**



**Average Gain (dB)**

Frequency (MHz)	2400	2500	5150	5250	5350	5470	5725	5850
Average Gain (dB)	-4.0	-2.6	-4.2	-4.5	-4.8	-4.7	-4.5	-4.4

**3.2.3. Peak Gain**



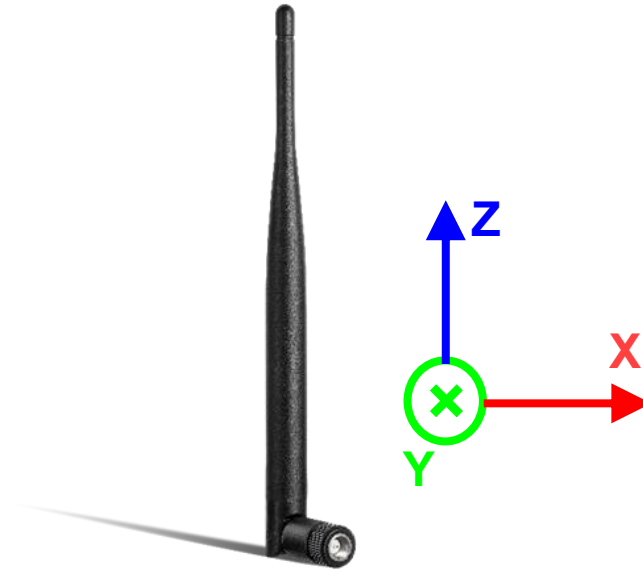
**Peak Gain (dBi)**

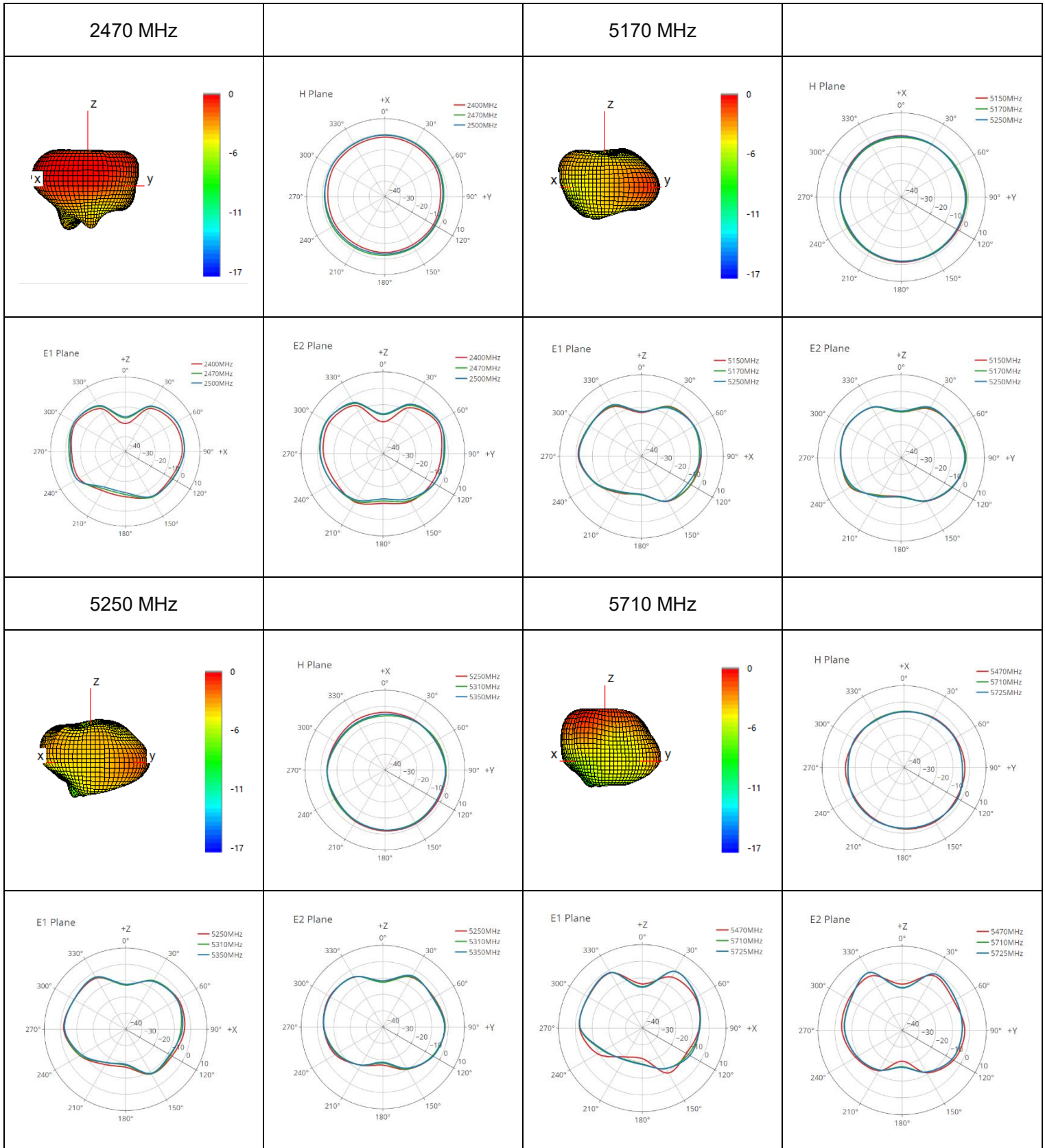
<b>Frequency (MHz)</b>	<b>2400</b>	<b>2470</b>	<b>2500</b>	<b>5150</b>	<b>5170</b>	<b>5250</b>	<b>5350</b>	<b>5470</b>
<b>Peak Gain (dBi)</b>	-1.6	-0.1	-0.3	-1.2	-0.9	-1.4	-1.7	-1.7
<b>Frequency (MHz)</b>	<b>5710</b>	<b>5725</b>	<b>5845</b>	<b>5850</b>				
<b>Peak Gain (dBi)</b>	-0.3	-0.3	0.4	0.4				

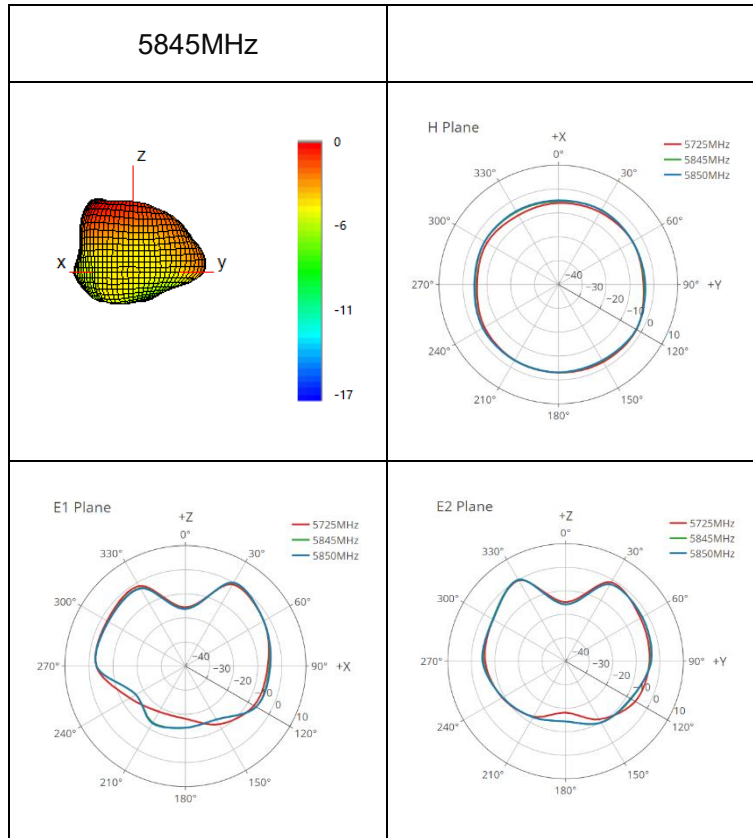
### 3.2.4. 3D & 2D Radiation Pattern

#### 3.2.4.1. Test Condition: Free Space

- Test Chamber: HF-G-1







## 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
-	2023-10-16	Sly LIU Lucky FENG Aria CHU	Creation of the document
1.0	2023-10-16	Sly LIU Lucky FENG Aria CHU	First official release
1.1	2023-11-23	Sly LIU	Updated 3D&2D radiation pattern

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