



Antenna Datasheet

Product OC: Y0YKL00A1CA

Version: 1.0

Date: 2023-07-03

Status: Preliminary

Product Name: WIFI FPC Antenna

Key Features:

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

Peak efficiency: 68.02%

Dimensions: 28.46 × 22.99 mm

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: Assembled in test device

1.1. Electrical

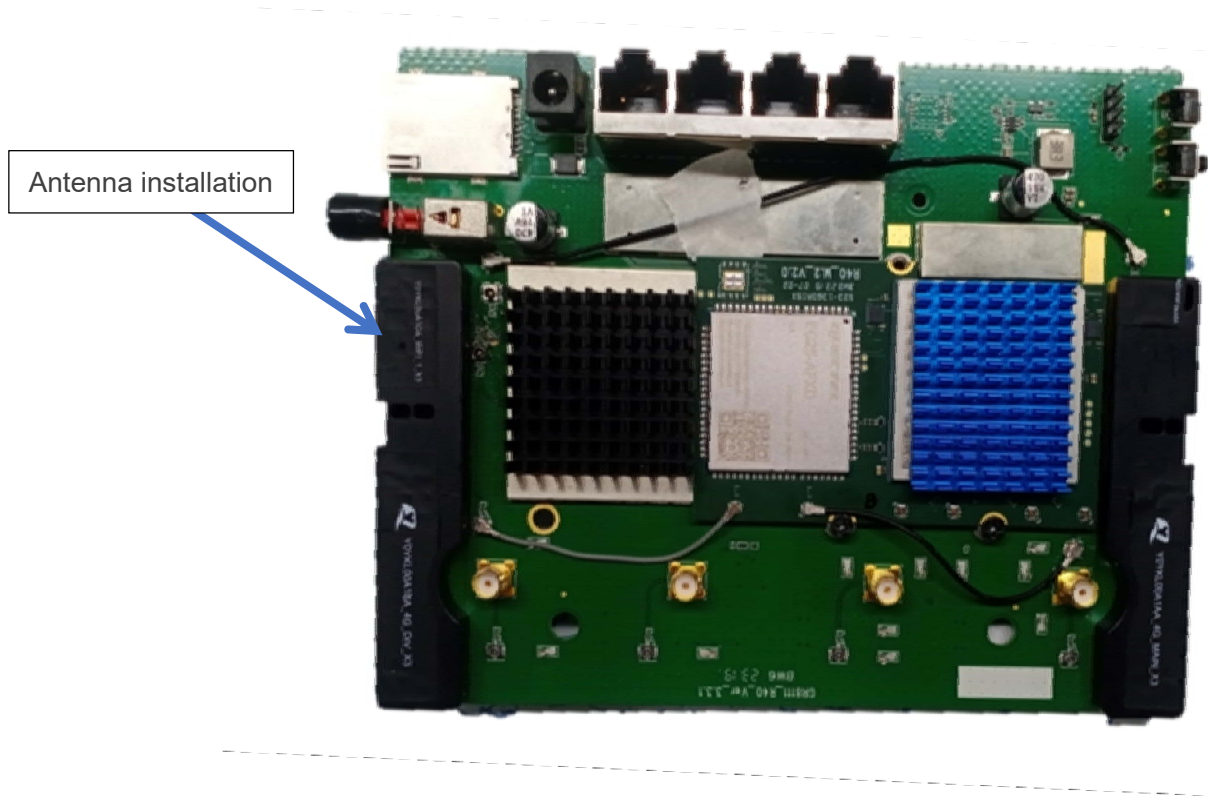
Electrical	
Frequency Range	2400-2500 MHz, 5150-5850 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Specification	Band	Band	WIFI 2G	WIFI 5G	WIFI 7G
		Freq. (MHz)	2400 - 2500	5150 - 5850	5925 - 7125
Max. VSWR			1.9	3.4	-
Max. Return Loss (dB)			-10.3	-5.3	-
AVG Eff. (%)			58.1	41.8	-
AVG AVG Gain (dB)			-2.8	-4.0	-
Max. Peak Gain (dBi)			3.33	1.86	-
VSWR			≤ 3.4		
Return Loss			≤ -5.3 dB		

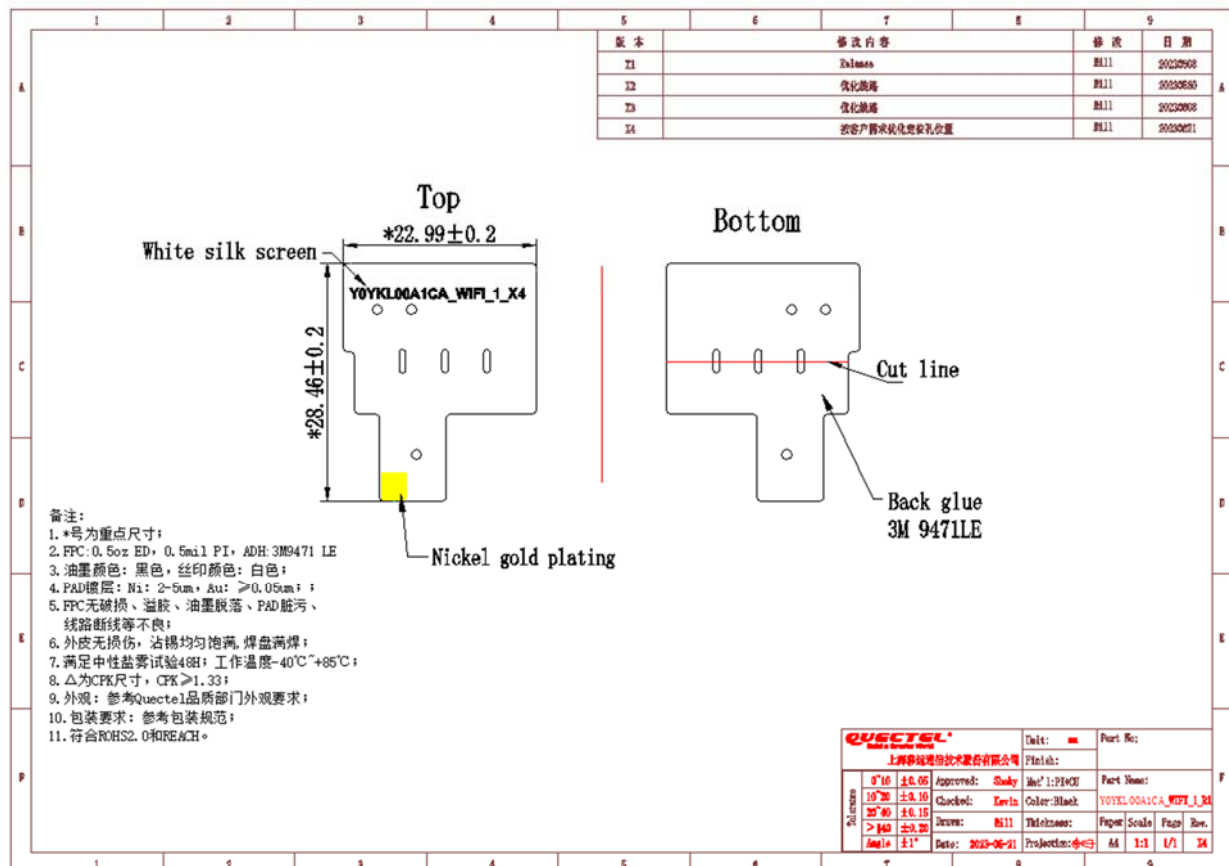
1.2. Mechanical, Environmental & Storage

Mechanical	
Antenna Dimensions	28.46 × 22.99 mm
Material & Color	FPC & Black
Mounting Type	Adhesive
Weight	Typ. 0.1 g
Environmental	
Operation Temperature	-40 °C to +85 °C
RoHS & REACH Compliant	Yes
Storage	
Storage Temperature	18°C -27°C
Humidity	30%-80%RH
Storage Place	Away from corrosive gas and direct sunlight
Packing	Antennas should be stored in unopened sealed manufacturer's plastic packaging

1.3. Antenna Assembly



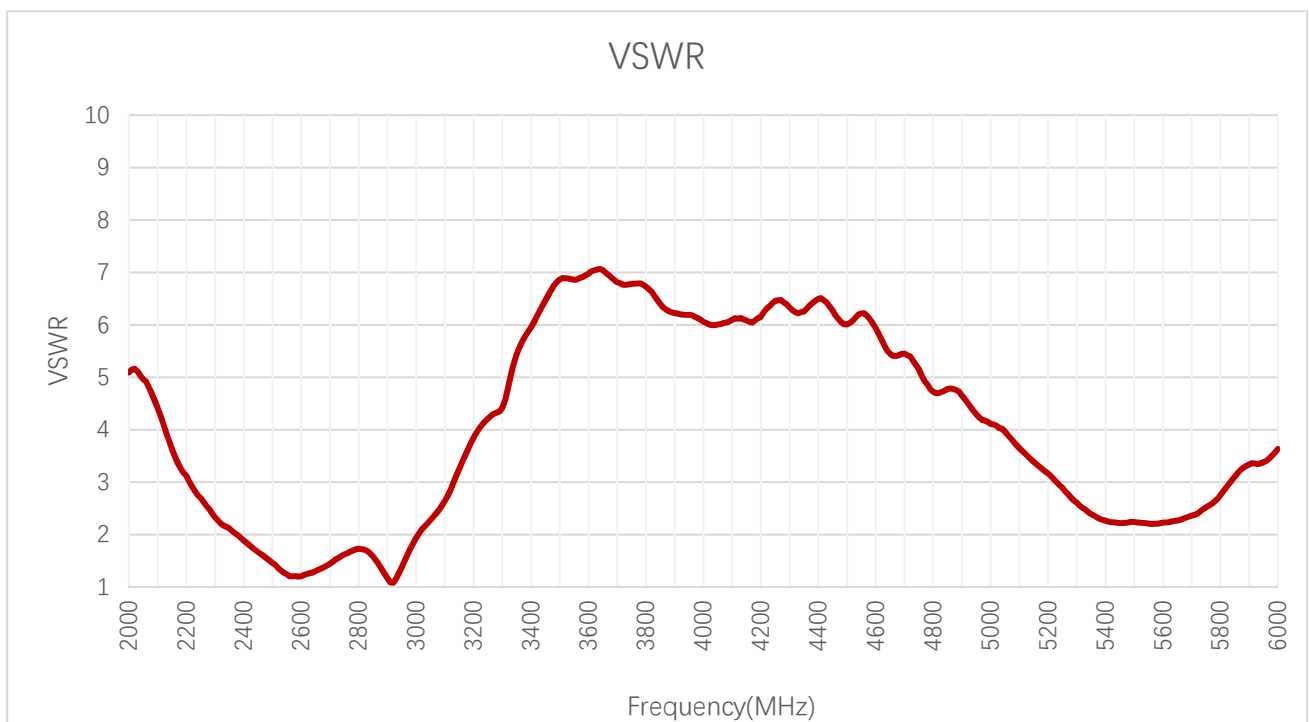
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

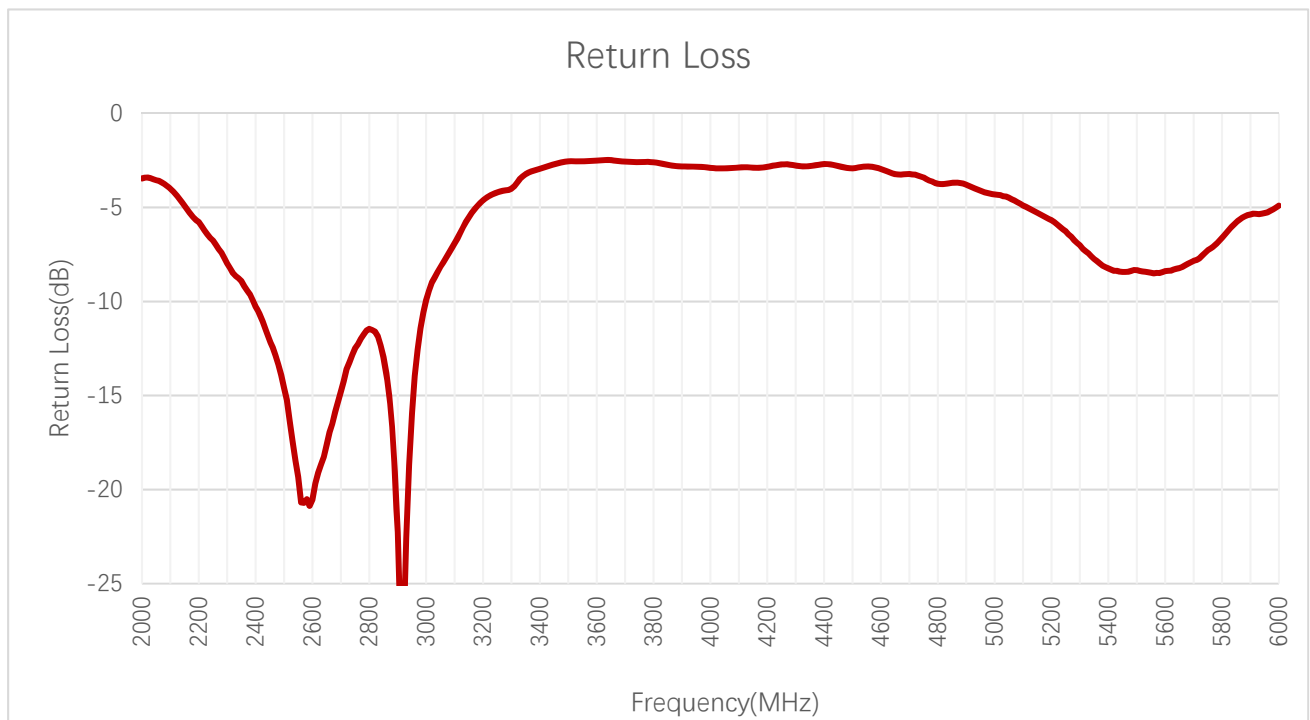
3.1.1. VSWR



VSWR

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6520	7120
VSWR	1.9	1.7	1.5	3.4	2.2	3.1	-	-	-

3.1.2. Return Loss

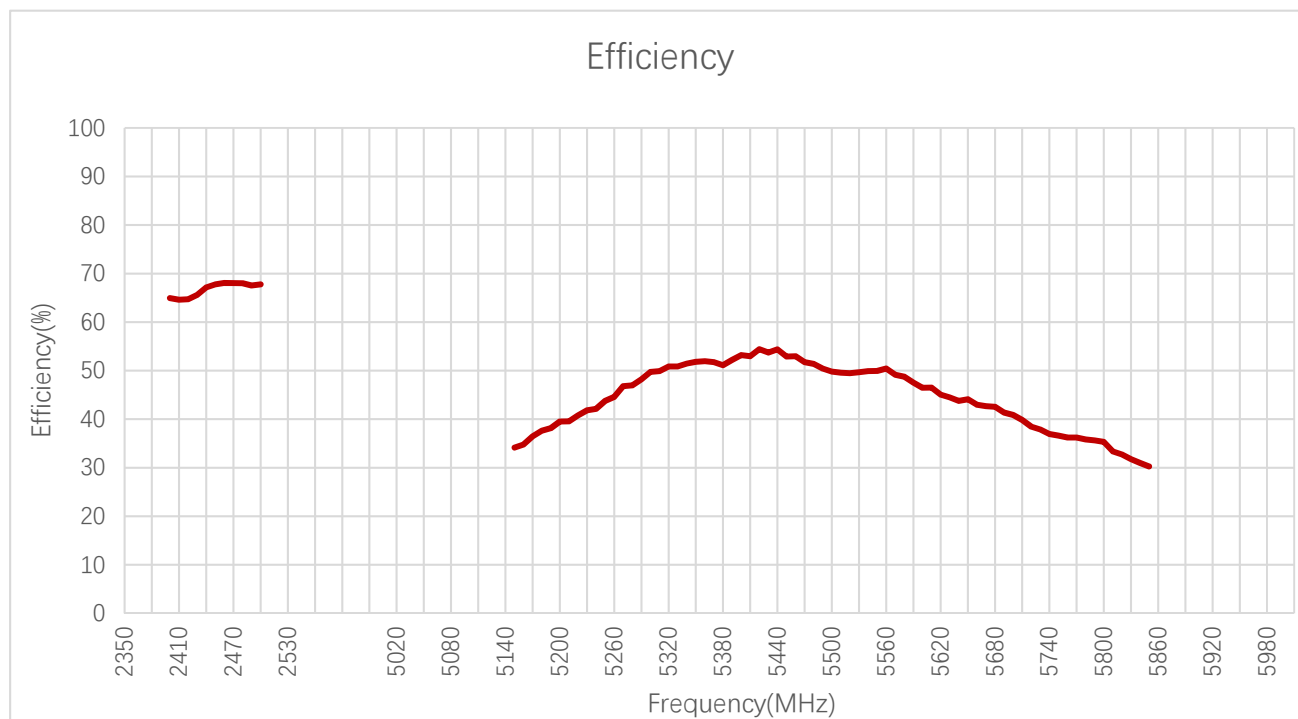


Return Loss (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5920	6520	7120
Return Loss (dB)	-10.3	-12.1	-14.6	-5.3	-8.5	-5.8	-	-	-

3.2. Radiation Performance Test

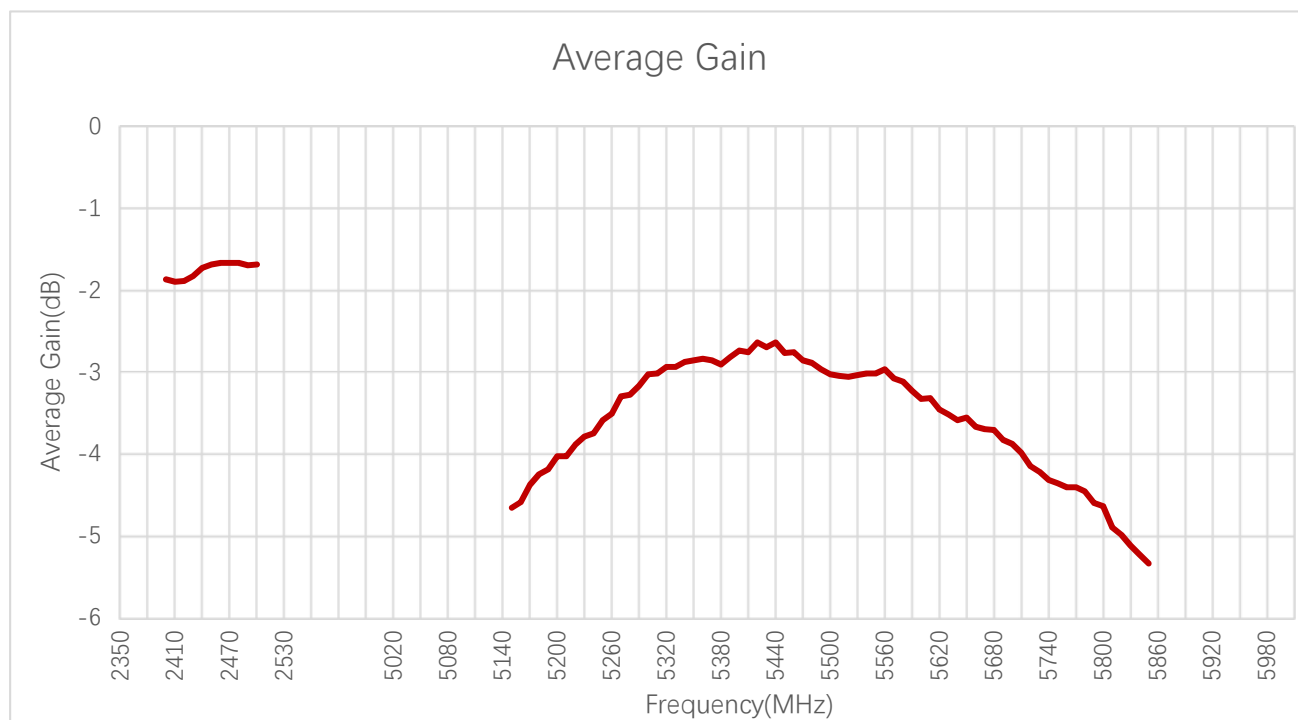
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6525	7125
Efficiency (%)	64.9	67.8	67.8	34.2	49.9	30.3	-	-	-

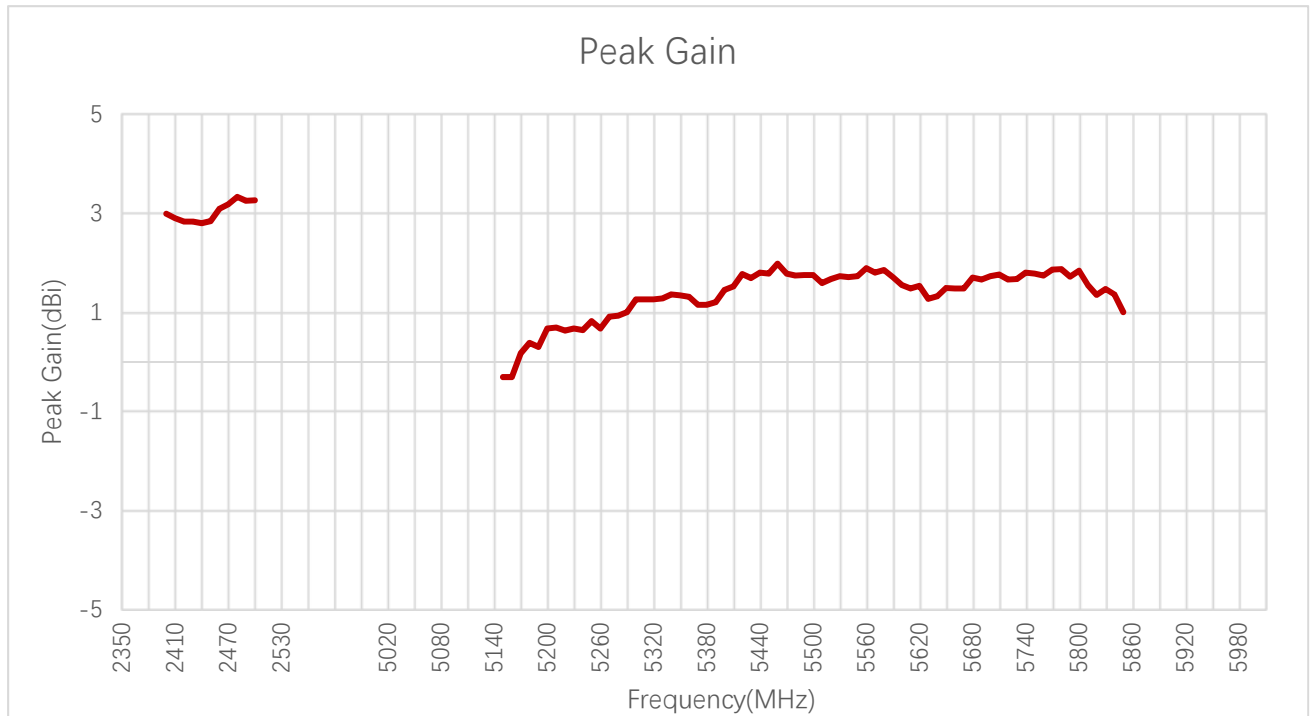
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6525	7125
Average Gain (dB)	-1.9	-1.7	-1.7	-4.7	-3.0	-5.3	-	-	-

3.2.3. Peak Gain

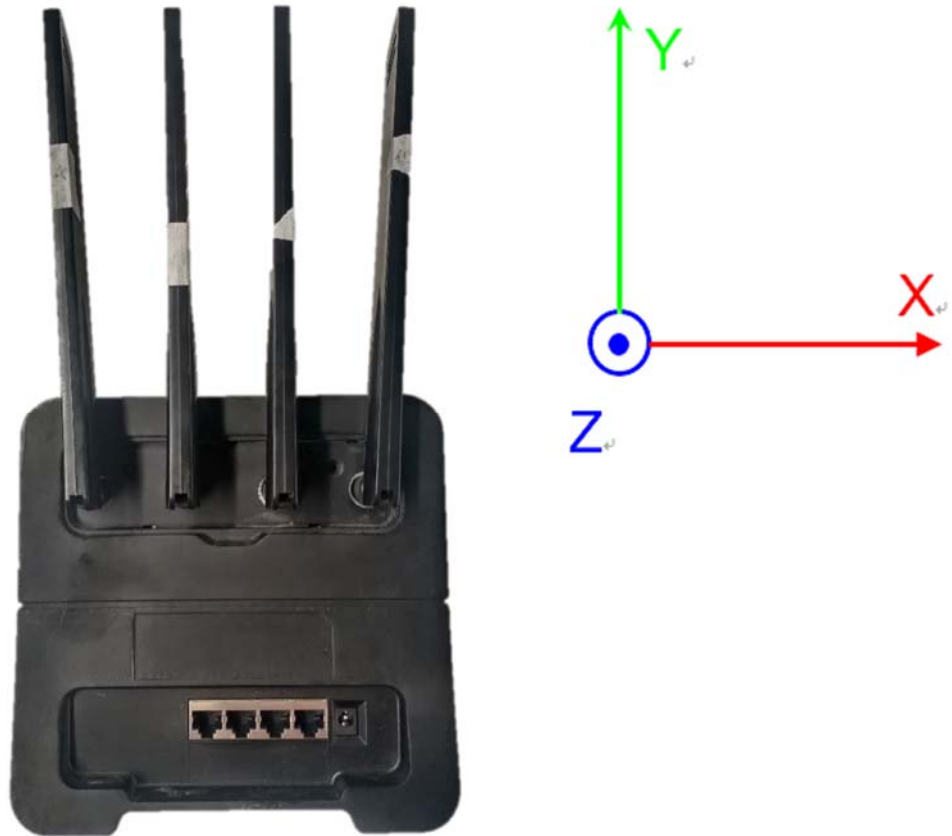


Peak Gain (dBi)

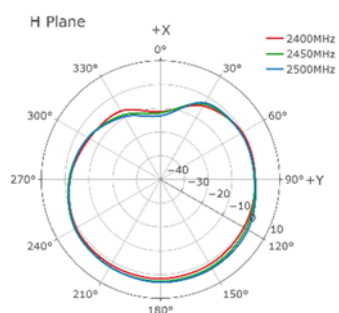
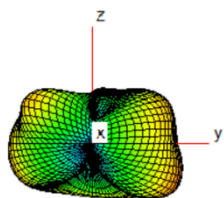
Frequency (MHz)	Efficiency (dB)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Efficiency (dB)	Gain (dBi)	Efficiency (%)
2380	-1.7	3.24	67.64	5220	-3.89	0.63	40.79
2390	-1.82	3.06	65.79	5230	-3.79	0.67	41.82
2400	-1.87	2.99	64.94	5240	-3.75	0.64	42.13
2410	-1.9	2.9	64.6	5250	-3.59	0.82	43.77
2420	-1.89	2.83	64.72	5260	-3.51	0.67	44.6
2430	-1.83	2.83	65.6	5270	-3.3	0.91	46.8
2440	-1.73	2.8	67.15	5280	-3.28	0.93	46.98
2450	-1.69	2.84	67.79	5700	-3.88	1.73	40.88
2460	-1.67	3.09	68.06	5710	-3.99	1.76	39.86
2470	-1.67	3.18	68.05	5720	-4.15	1.66	38.47
2480	-1.67	3.33	68.01	5730	-4.22	1.67	37.86
2490	-1.7	3.25	67.56	5740	-4.32	1.8	36.95
2500	-1.69	3.26	67.78	5750	-4.36	1.78	36.62
2510	-1.75	3.23	66.86	5760	-4.41	1.74	36.24
2520	-1.8	3.17	66.07	5770	-4.41	1.86	36.22
2530	-1.84	3	65.46	5780	-4.46	1.87	35.82
2540	-1.87	2.7	65.01	5790	-4.6	1.72	35.64
2550	-1.89	2.26	64.65	5800	-4.64	1.84	35.32
5120	-5.09	-0.84	30.96	5810	-4.9	1.55	33.35
5130	-4.96	-0.55	31.91	5820	-4.99	1.35	32.73
5140	-4.95	-0.73	31.97	5830	-5.12	1.47	31.78
5150	-4.66	-0.31	34.16	5840	-5.23	1.36	30.98
5160	-4.59	-0.31	34.78	5850	-5.34	1	30.27
5170	-4.38	0.17	36.47	5860	-5.48	1.07	28.3
5180	-4.25	0.38	37.62	5870	-5.48	0.97	28.29
5190	-4.19	0.3	38.12	5880	-5.59	0.83	27.59
5200	-4.03	0.67	39.51	5890	-5.61	0.73	27.47
5210	-4.03	0.69	39.57	5900	-5.6	0.96	27.55

3.2.4. 3D & 2D Radiation Pattern

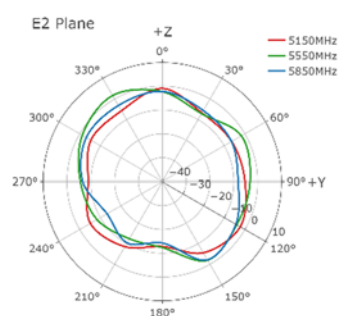
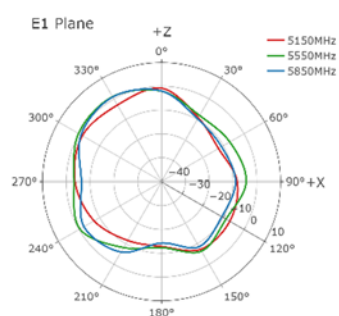
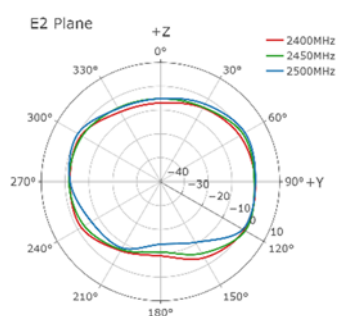
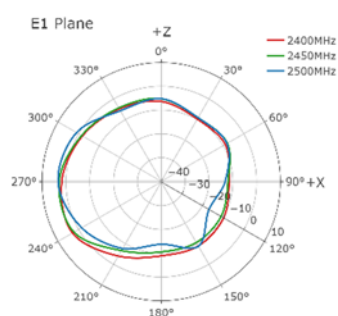
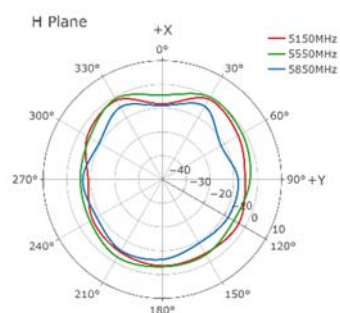
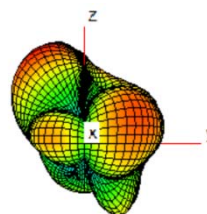
- Test Condition: Assembled in test device
- Test Chamber: HF-G-1



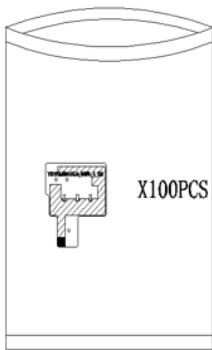
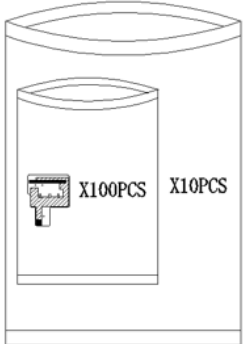
2450MHz

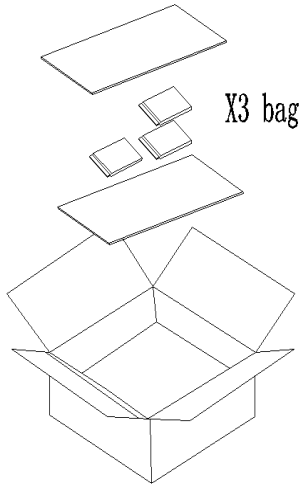
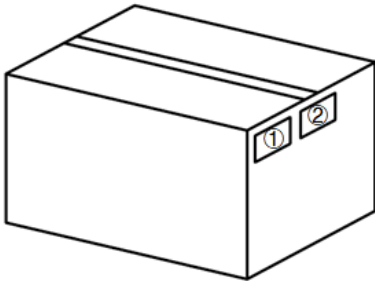
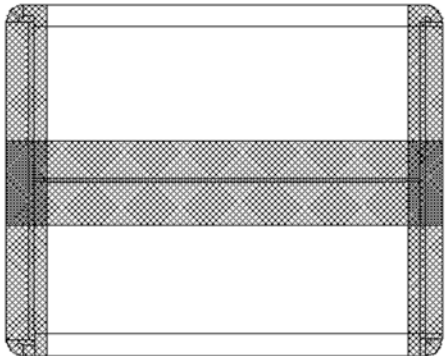


5500MHz



4 Packaging

Step	Packaging picture / 2D picture	Description
1	 100PCS/bag	100 pcs Antenna products in a small PE bags; (100 pcs Antenna / Per Small PE Bag)
2	 1000PCS/bag	1000 pcs Antenna products in a big PE bags; (1000 pcs Antenna / Per Big PE Bag)

3		3 Big PE Bags / Per Carton Box (3000 pcs Antenna / Per Carton Box) Estimated quantity <u>Carton Size: L*W*H=290*210*100mm</u>
4		Position for Attaching Labels--- ① Carton Label ② Quality Label
5		Sealing Cartons--- “工” type sealing cartons
6	Initial packaging plan, the final packaging method is subject to the physical supply	

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

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Revision History

Version	Date	Author	Note
-	2023-07-03	Owen Deng Bill Mo David Liu Bunny Zhang	Creation of the document
1.0	2023-07-03	Owen Deng Bill Mo David Liu Bunny Zhang	First official release



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