



Antenna Datasheet

Product OC: YF0026LA

Version: 2.0

Date: 2024-01-18

Status: Released

Product Name: Wi-Fi FPC Antenna

Key Features:

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

Dimensions: 28.9 mm × 11 mm

Efficiency: Up to 80.08 %

RoHS Compliant

Overview

Quectel Wi-Fi antenna covers 2.4 GHz, 5 GHz, and up to 7 GHz bands, fully satisfying customers' requirements for 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.

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1 Specification

Test Condition: On 1 mm FR4

1.1. Electrical

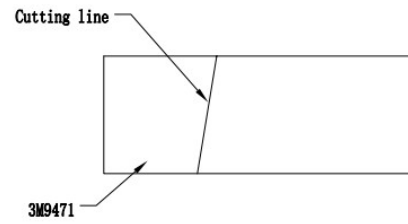
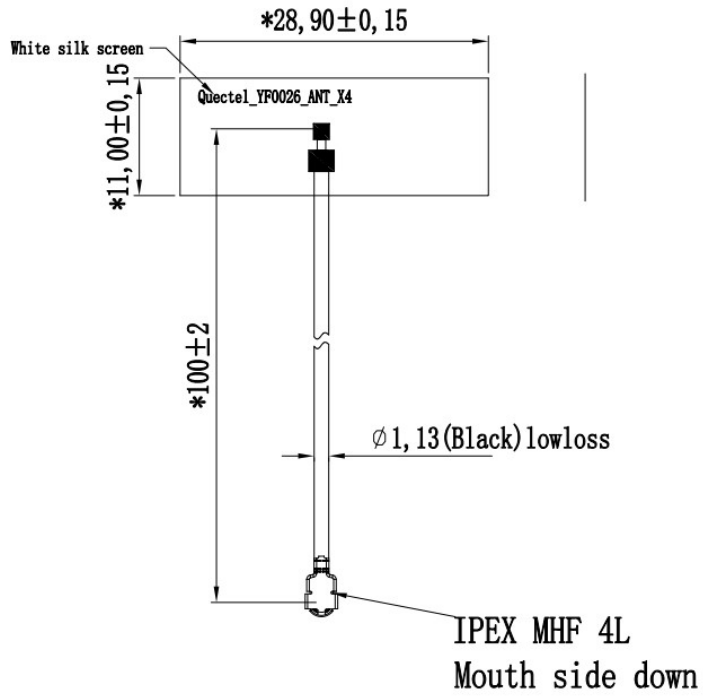
Electrical	
Frequency Range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Specification \ Band	Wi-Fi 2G	Wi-Fi 5G	Wi-Fi 7G
	2400 - 2500	5150 - 5850	5925 - 7125
Max. VSWR	1.8	2.3	1.9
Max. Return Loss (dB)	-11.2	-8.0	-10.4
AVG Eff. (%)	78.3	59.7	60.9
AVG Gain (dB)	-1.1	-2.3	-2.2
Max. Peak Gain (dBi)	2.5	4.2	5.2
VSWR	≤ 2.3		
Return Loss	≤ -8 dB		
Peak Gain	≤ 5.2 dBi		

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	28.9 mm × 11 mm
Material & Color	FPC & Black
Cable Type & Color & Length	Φ 1.13 & Black & 100 mm
Connector Type	IPEX MHF 4L
Mounting Type	Adhesive
Weight	Typ. 0.5 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS Compliant	Yes

2 Drawing

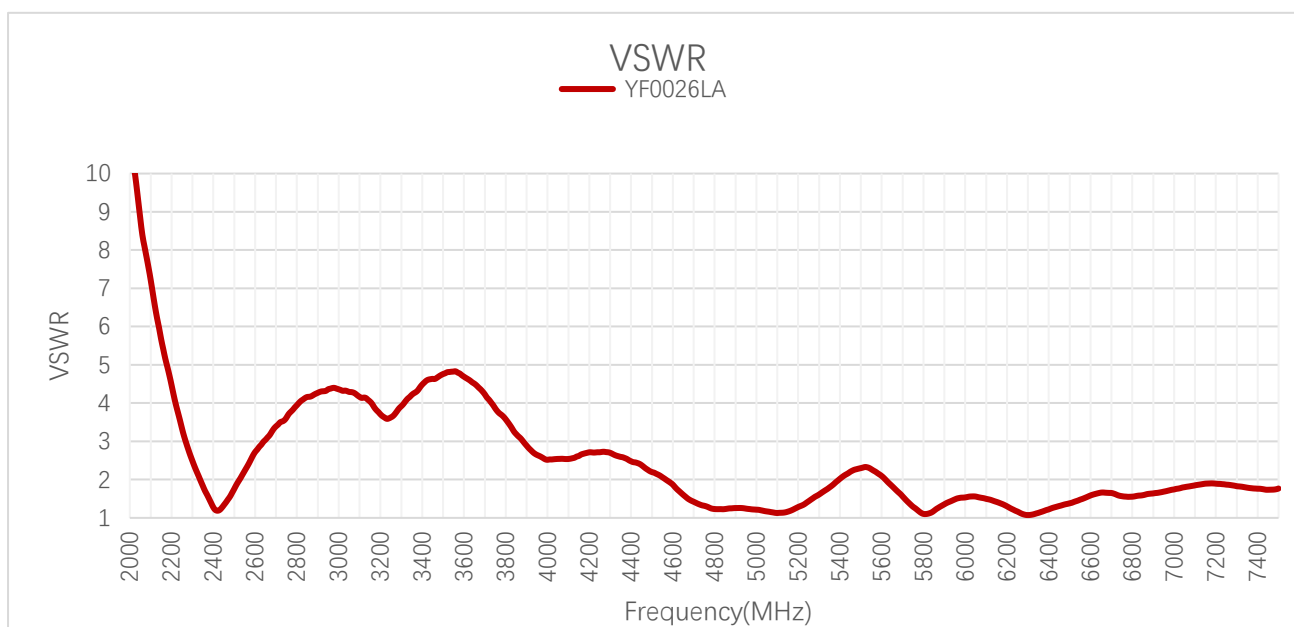


3 Detailed Performance

- Quectel Wireless Solutions (Changzhou) Co., Ltd.
Address: No.8 Nanhu West Road, Wujin District, Changzhou City, Jiangsu Province, China 213100.

3.1. S-Parameter Test

3.1.1. VSWR

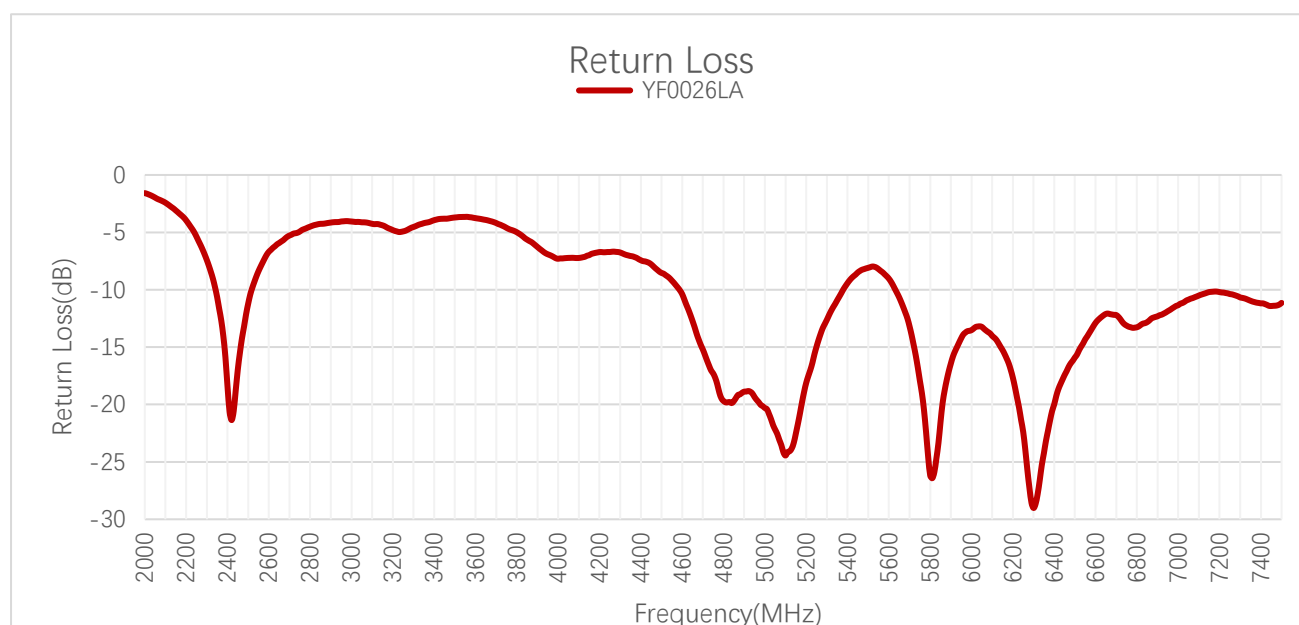


VSWR

Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490
VSWR	1.27	1.21	1.19	1.21	1.26	1.33	1.40	1.48	1.56	1.66
Frequency (MHz)	2500	5150	5200	5250	5300	5350	5400	5450	5500	5550
VSWR	1.76	1.16	1.28	1.43	1.61	1.80	2.02	2.21	2.30	2.27
Frequency (MHz)	5600	5650	5700	5750	5800	5850	5900	5950	6000	6050
VSWR	2.09	1.83	1.56	1.29	1.10	1.18	1.36	1.48	1.53	1.56

Frequency (MHz)	6100	6150	6200	6250	6300	6350	6400	6450	6500	6550
VSWR	1.50	1.42	1.30	1.16	1.07	1.13	1.22	1.31	1.38	1.48
Frequency (MHz)	6600	6650	6700	6750	6800	6850	6900	6950	7000	7050
VSWR	1.59	1.66	1.65	1.57	1.55	1.59	1.64	1.69	1.74	1.80
Frequency (MHz)	7100	7150								
VSWR	1.85	1.89								

3.1.2. Return Loss

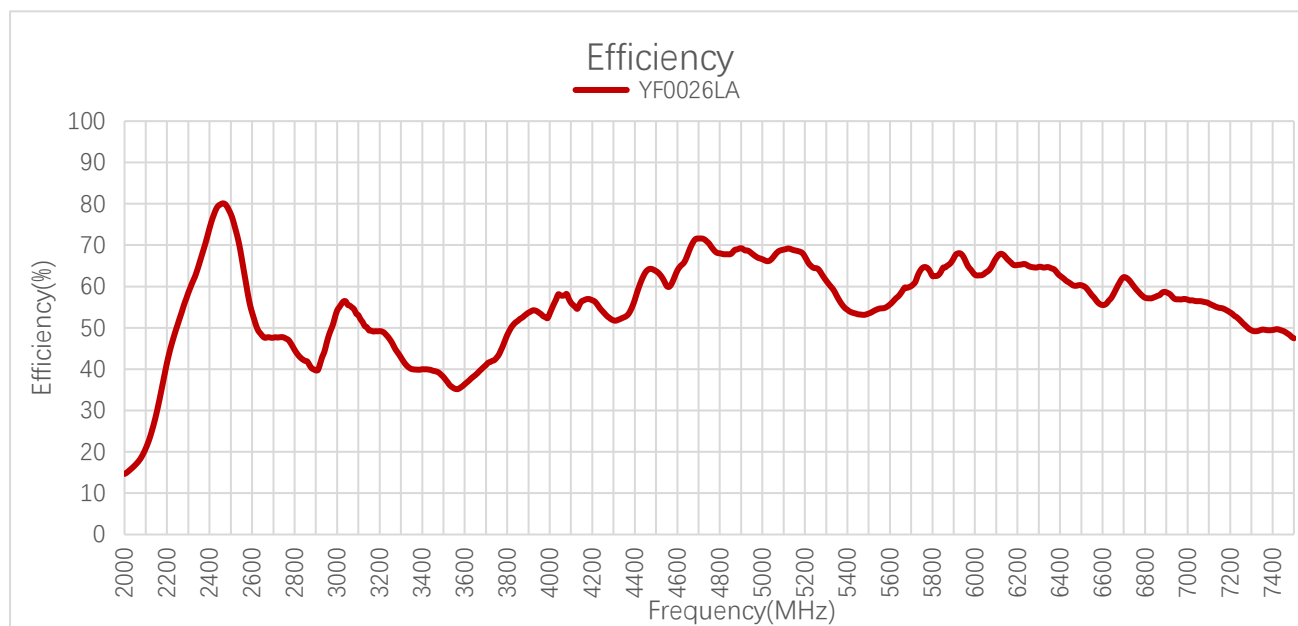


Return Loss (dB)										
Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490
Return Loss (dB)	-18.39	-20.63	-21.36	-20.58	-18.75	-16.96	-15.51	-14.25	-13.23	-12.14
Frequency (MHz)	2500	5150	5200	5250	5300	5350	5400	5450	5500	5550
Return Loss (dB)	-11.23	-22.53	-18.12	-14.97	-12.62	-10.92	-9.42	-8.49	-8.09	-8.20
Frequency (MHz)	5600	5650	5700	5750	5800	5850	5900	5950	6000	6050

Return Loss (dB)	-9.03	-10.67	-13.18	-17.93	-26.18	-21.53	-16.42	-14.23	-13.52	-13.24
Frequency (MHz)	6100	6150	6200	6250	6300	6350	6400	6450	6500	6550
Return Loss (dB)	-14.02	-15.25	-17.67	-22.40	-29.02	-24.26	-19.99	-17.44	-15.91	-14.32
Frequency (MHz)	6600	6650	6700	6750	6800	6850	6900	6950	7000	7050
Return Loss (dB)	-12.89	-12.11	-12.20	-13.12	-13.27	-12.82	-12.31	-11.87	-11.35	-10.86
Frequency (MHz)	7100	7150								
Return Loss (dB)	-10.51	-10.20								

3.2. Radiation Performance Test

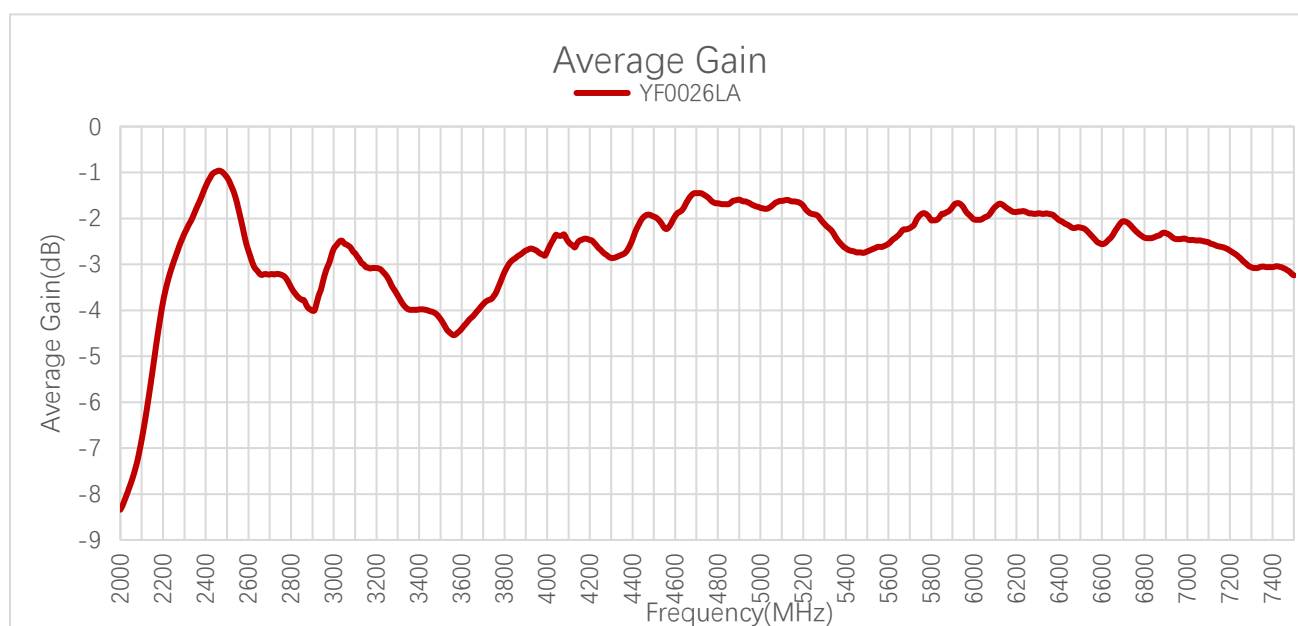
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490
Efficiency (%)	74.1	75.87	77.32	78.63	79.46	79.8	80.08	80.02	79.51	78.57
Frequency (MHz)	2500	5150	5200	5250	5300	5350	5400	5450	5500	5550
Efficiency (%)	77.51	68.76	67.23	64.44	61.42	57.71	54.36	53.27	53.46	54.64
Frequency (MHz)	5600	5650	5700	5750	5800	5850	5900	5950	6000	6050
Efficiency (%)	55.64	58.28	60.09	64.34	62.53	64.54	66.83	66.78	62.83	63.35
Frequency (MHz)	6100	6150	6200	6250	6300	6350	6400	6450	6500	6550
Efficiency (%)	66.86	66.74	65.21	65	64.73	64.61	62.59	60.68	60.3	57.88
Frequency (MHz)	6600	6650	6700	6750	6800	6850	6900	6950	7000	7050
Efficiency (%)	55.52	58	62.25	59.85	57.27	57.53	58.58	56.9	56.82	56.45
Frequency (MHz)	7100	7150								
Efficiency (%)	55.91	54.82								

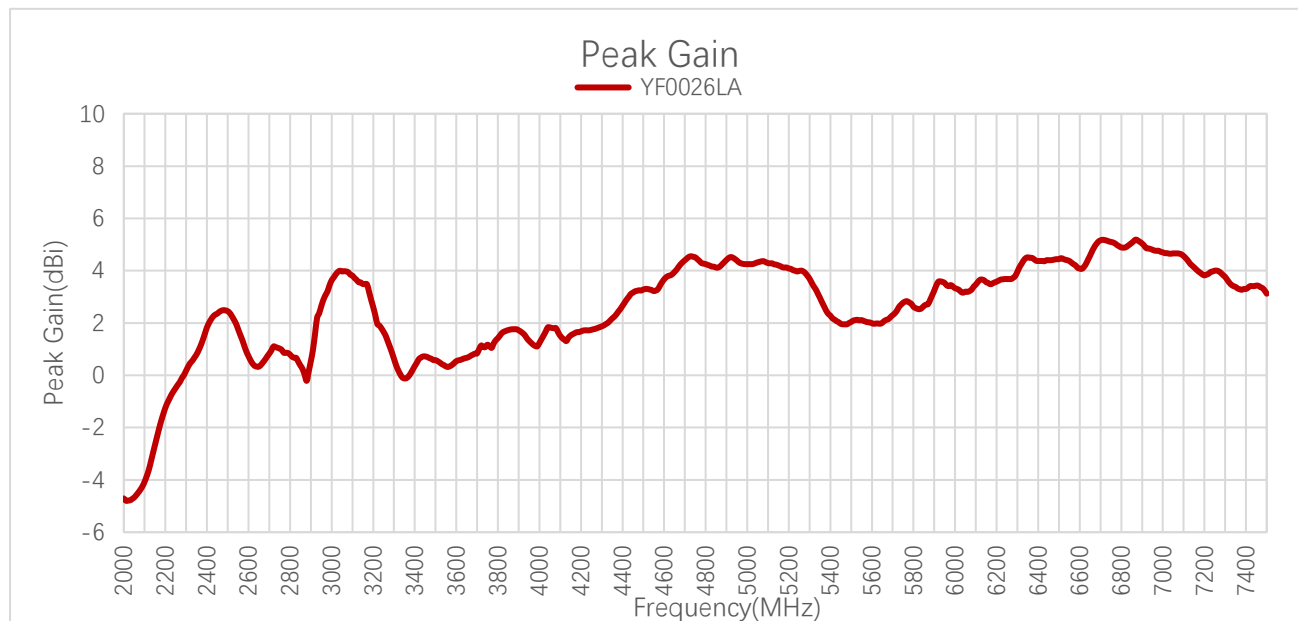
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490
Average Gain (dB)	-1.3	-1.2	-1.12	-1.04	-1	-0.98	-0.96	-0.97	-1	-1.05
Frequency (MHz)	2500	5150	5200	5250	5300	5350	5400	5450	5500	5550
Average Gain (dB)	-1.11	-1.63	-1.72	-1.91	-2.12	-2.39	-2.65	-2.74	-2.72	-2.62
Frequency (MHz)	5600	5650	5700	5750	5800	5850	5900	5950	6000	6050
Average Gain (dB)	-2.55	-2.35	-2.21	-1.92	-2.04	-1.9	-1.75	-1.75	-2.02	-1.98
Frequency (MHz)	6100	6150	6200	6250	6300	6350	6400	6450	6500	6550
Average Gain (dB)	-1.75	-1.76	-1.86	-1.87	-1.89	-1.9	-2.04	-2.17	-2.2	-2.37
Frequency (MHz)	6600	6650	6700	6750	6800	6850	6900	6950	7000	7050
Average Gain (dB)	-2.56	-2.37	-2.06	-2.23	-2.42	-2.4	-2.32	-2.45	-2.46	-2.48
Frequency (MHz)	7100	7150								
Average Gain (dB)	-2.52	-2.61								

3.2.3. Peak Gain



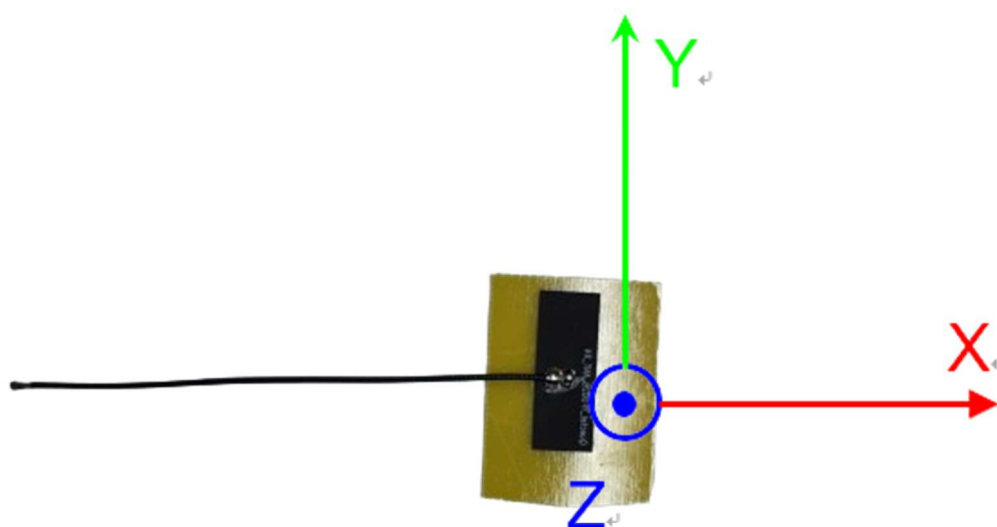
Peak Gain (dBi)

Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490
Peak Gain (dBi)	1.83	2	2.14	2.25	2.32	2.36	2.43	2.47	2.49	2.48
Frequency (MHz)	2500	5150	5200	5250	5300	5350	5400	5450	5500	5550
Peak Gain (dBi)	2.45	4.2	4.08	3.99	3.69	2.96	2.28	1.97	2.04	2.11
Frequency (MHz)	5600	5650	5700	5750	5800	5850	5900	5950	6000	6050
Peak Gain (dBi)	1.99	2.01	2.3	2.77	2.62	2.65	3.24	3.53	3.33	3.2
Frequency (MHz)	6100	6150	6200	6250	6300	6350	6400	6450	6500	6550
Peak Gain (dBi)	3.47	3.56	3.58	3.68	3.96	4.51	4.37	4.4	4.44	4.37
Frequency (MHz)	6600	6650	6700	6750	6800	6850	6900	6950	7000	7050
Peak Gain (dBi)	4.08	4.58	5.16	5.1	4.89	5.06	5.04	4.8	4.7	4.66

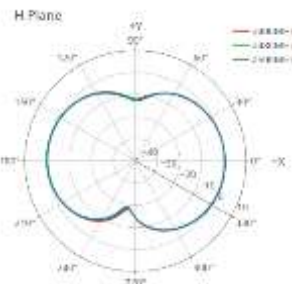
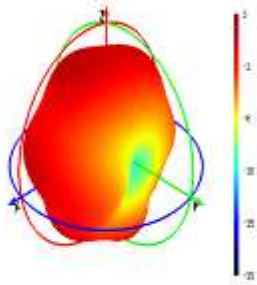
Frequency (MHz)	7100	7150								
Peak Gain (dBi)	4.56	4.13								

3.2.4. 3D & 2D Radiation Pattern

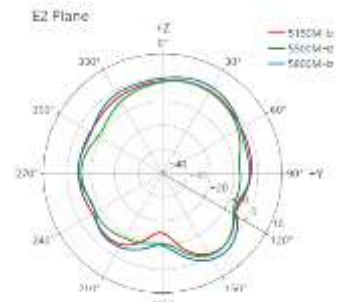
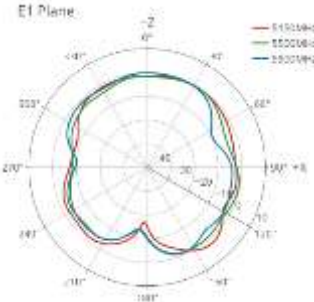
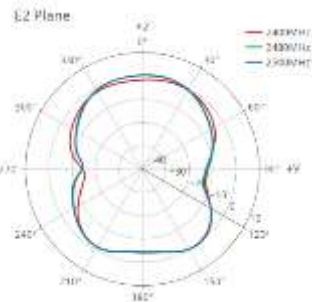
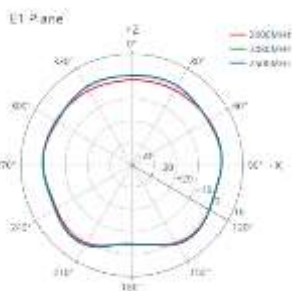
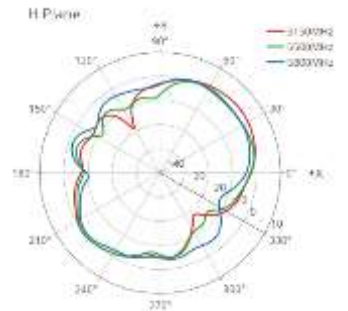
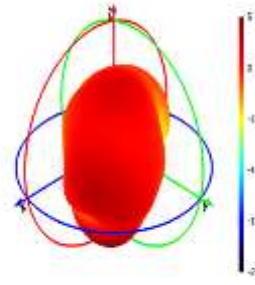
- Test Condition: On 1 mm FR4
- Test Chamber: GL-S-1



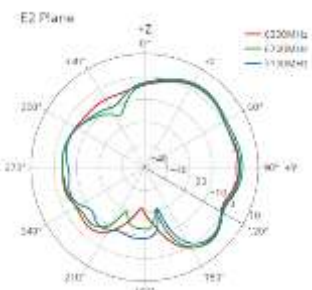
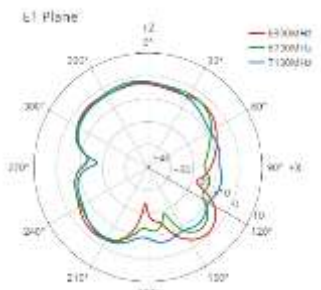
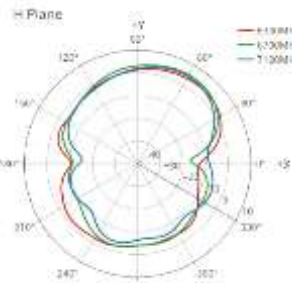
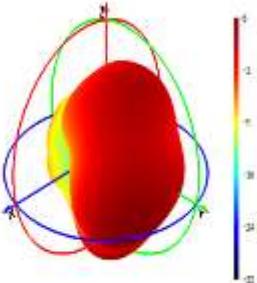
2480 MHz



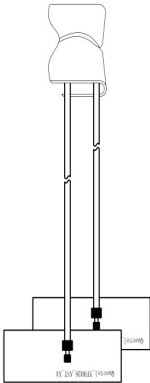
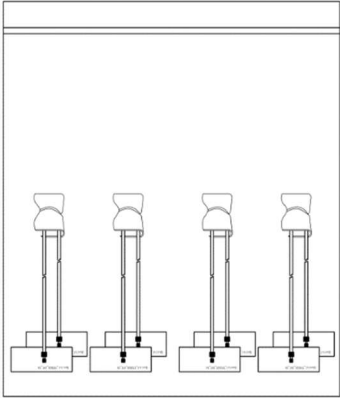
5150 MHz

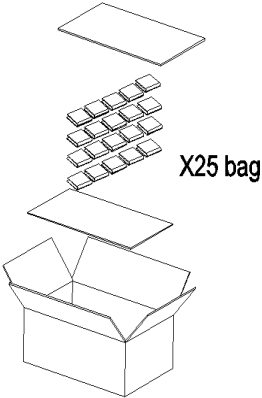
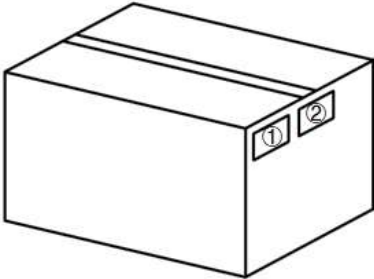
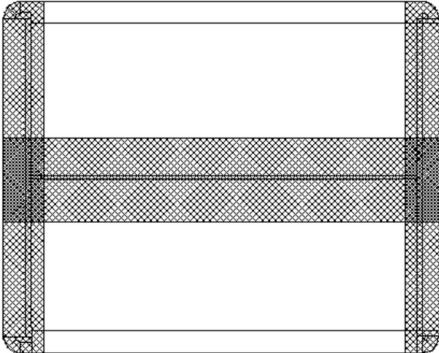


6700 MHz



4 Packaging

Step	Packaging Picture / 2D Picture	Description
1	 50PCS/bale	50 products in a bundle
2	 200PCS/bag	200 pcs antenna products in a PE bag. (200 PCS / PE Bag)

3		(25 PE Bags / Carton Box) (5000 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 = 390 × 275 × 300 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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Email: info@quectel.com

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

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Revision History

Version	Date	Author	Note
-	2022-08-18	Sly LIU/ Lucky FENG	Creation of the document
1.0	2023-01-15	Sly LIU/ Lucky FENG	First official release
2.0	2024-01-18	Sly LIU/ Lucky FENG/ David LIU/ Rainey LIAO	Numerous changes were made to this document. It should be read in its entirety.



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