Antenna Datasheet

Product OC: Y0CJK00A0BA
Version: 1.0
Date: 2023-09-25
Status: Preliminary

Product Name: WIFI FPC Antenna
Key Features:
Frequency Band: 2400-2500 MHz, 5100–7120MHz
Dimensions: 24.20 * 15.50 * 0.13 mm
Efficiency: Up to 63.81%
RoHS Compliant

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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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Contents

Overview **1**

Contents **2**

1 Specification **3**
- 1.1. Electrical 3
- 1.2. Mechanical & Environmental 4
- 1.3. Antenna Assembly 5

2 Drawing **6**

3 Detailed Performance **7**
- 3.1. S-Parameter Test 7
  - 3.1.1. VSWR 7
  - 3.1.2. Return Loss 8
- 3.2. OTA Test Data 9
- 3.3. Radiation Performance Test 10
  - 3.3.1. Efficiency 10
  - 3.3.2. Average Gain 11
  - 3.3.3. Peak Gain 12
  - 3.3.4. 3D & 2D Radiation Pattern 13

4 Packaging **17**

Contact Us **19**

Legal Notices **20**

Revision History **22**

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1 Specification

Test Condition: Assembled in test device

1.1. Electrical

Electrical	
Frequency Range	2400-2500 MHz, 5100–7120MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical - Detail

Band / SPEC	Band	B71	B12	B5 /B8 /B26	N74 /N75 /N76	B1 /B2 /B3	B40	Wi-Fi 2G	B38 /B41	B42 /B48 /N77	N79	Wi-Fi 5G	Wi-Fi 6E
	Freq. (MHz)	600–700	700–750	820–960	1420–1520	1700–2170	2300–2400	2400–2500	2500–2690	3300–4200	4400–5000	5150–5850	6000–7120
Max. VSWR		-	-	-	-	-	-	1.2	-	-	-	1.6	2.7
Max. Return Loss (dB)		-	-	-	-	-	-	-22.3	-	-	-	-13.3	-6.8
AVG Eff. (%)		-	-	-	-	-	-	42.1	-	-	-	60.4	50.5
AVG AVG Gain (dB)		-	-	-	-	-	-	-3.8	-	-	-	-2.2	-3.0
Max. Peak Gain (dBi)		-	-	-	-	-	-	1.5	-	-	-	3.5	3.9
VSWR		≤ 2.7											
Return Loss		≤ -6.8 dB											
Peak Gain		≤ 4.0 dBi											

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1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	24.20 * 15.50 * 0.13 mm
Material & Color	FPC & Black
Weight	Typ.0.16g
Cable Type & Color & Length	Φ0.81 & Grey & 35 mm
Connector Type	RF 4
Mounting Type	Adhesive
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS Compliant	Yes

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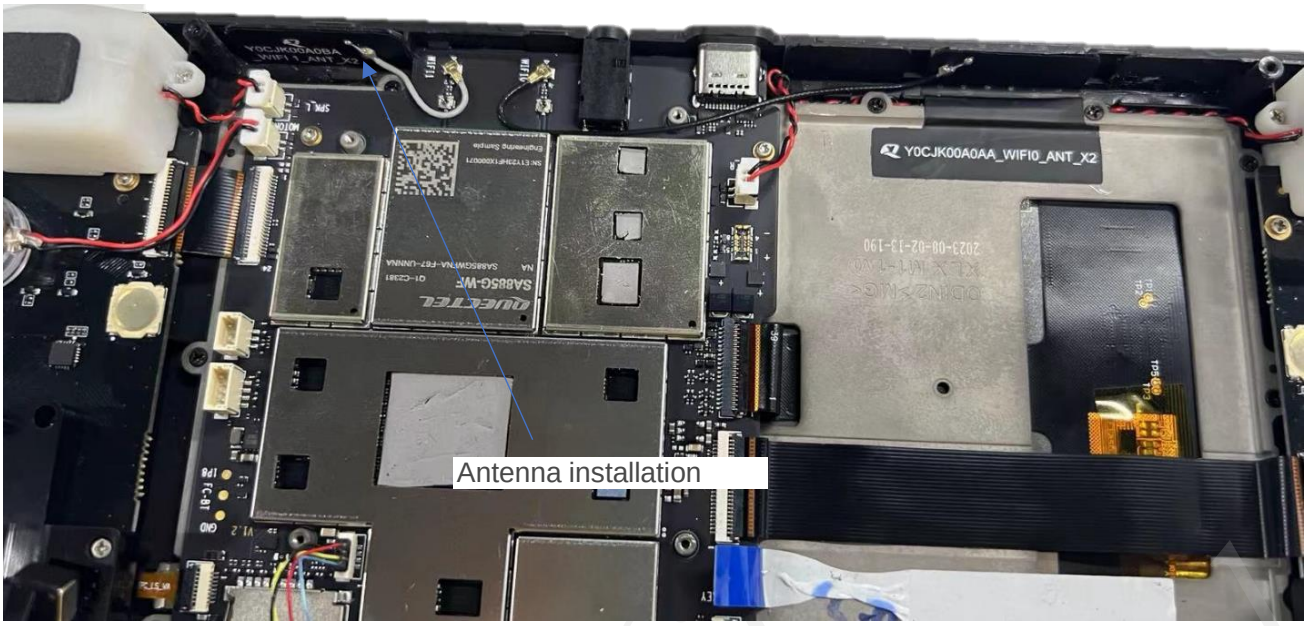
1.3. Antenna Assembly



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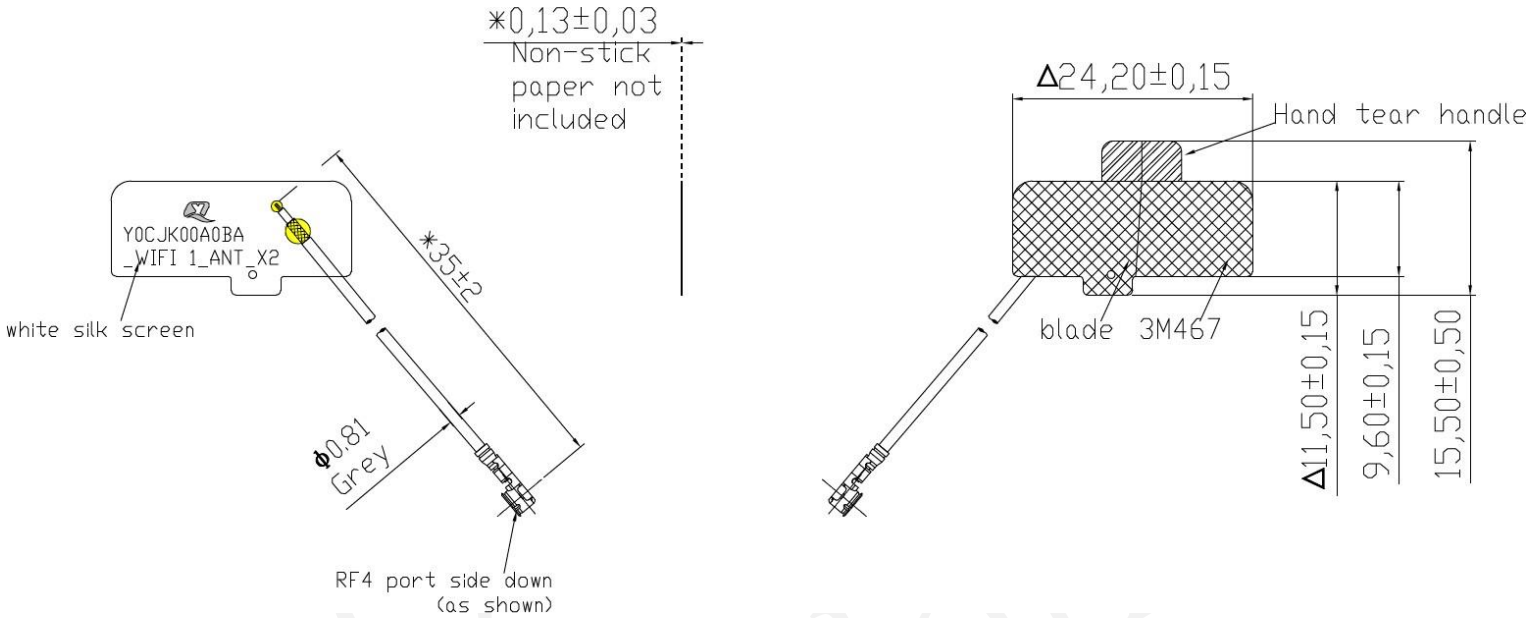
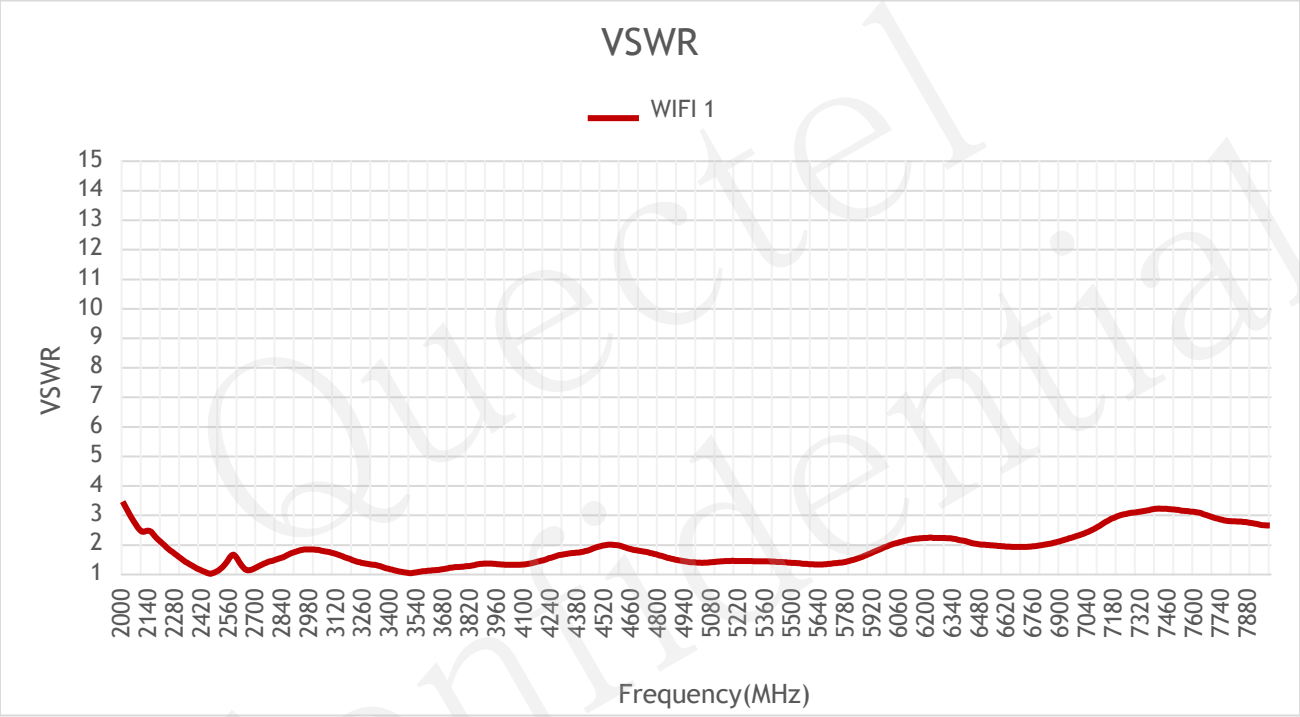
2 Drawing


*0,13±0,03
Non-stick
paper not
included
Y0CJK00A0BA
_WIFI 1_ANT_X2
white silk screen
*35±2
ϕ0,81
Grey
RF4 port side down
(as shown)
Δ24,20±0,15
Hand tear handle
blade
3M467
Δ11,50±0,15
9,60±0,15
15,50±0,50

3 Detailed Performance

3.1. S-Parameter Test

3.1.1. VSWR



VSWR

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5930	6330	6730	7120
VSWR	1.2	1.0	1.1	1.4	1.4	1.6	1.8	2.2	1.9	2.7

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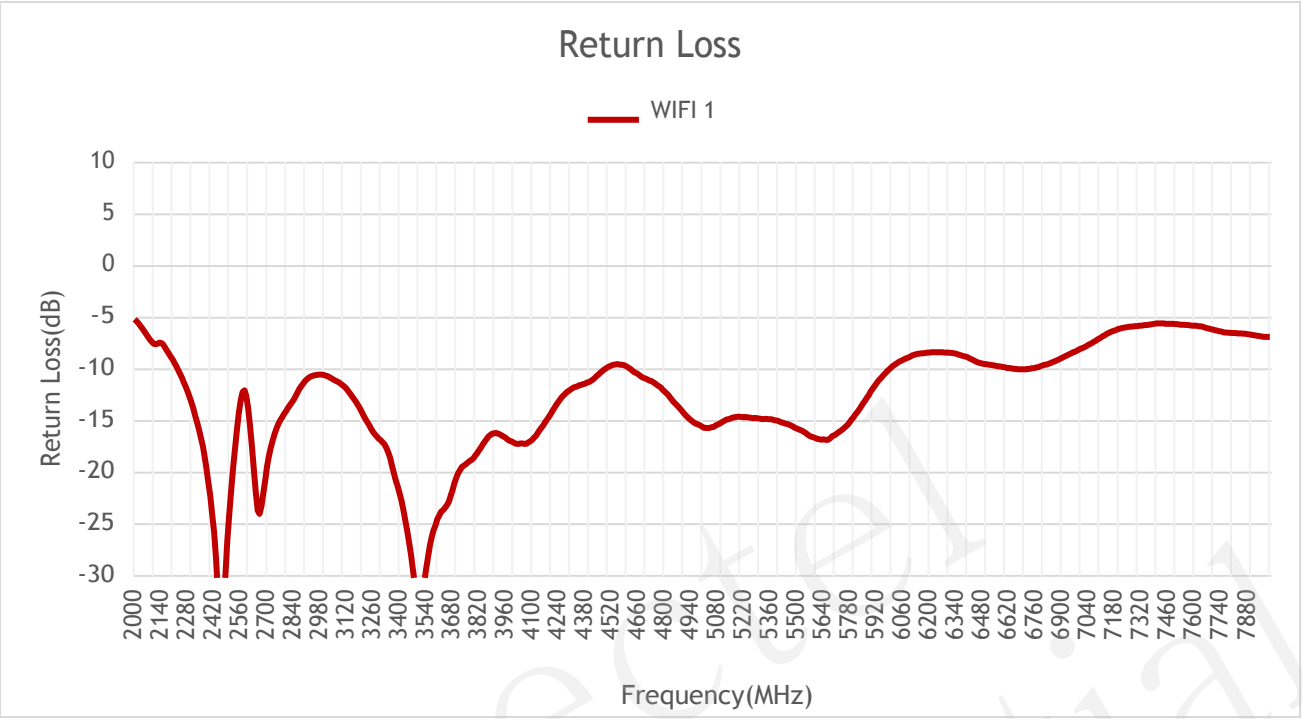
3.1.2. Return Loss



Return Loss (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5930	6330	6730	7120
Return Loss (dB)	-22.3	-37.0	-24.2	-14.7	-15.7	-13.3	-11.1	-8.4	-9.9	-6.8

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3.2. OTA Test Data

Band		Channel	TRP (dBm)	Band	Channel	TIS (dBm)
WIFI	B (11M)	1	14.55	B (11M)	1	-84
		6	14.15		6	-84.02
		11	14.13		11	-85.14
	G (6M)	1	15	G (54M)	1	-74.89
		6	14.92		6	-73.9
		11	15.35		11	-73.95
	N (MCS0)	1	14.77	N (MCS7)	1	-70.58
		6	15.56		6	-70.2
		11	16.38		11	-69.88
	A (6M)	36	17.52	A (54M)	36	-75.61
		100	15.49		100	-74.63
		165	15.67		165	-75.06
	AN (MCS0)	36	17.59	AN (MCS7)	36	-72.8
		100	17.16		100	-71.32
		165	17.85		165	-71.02

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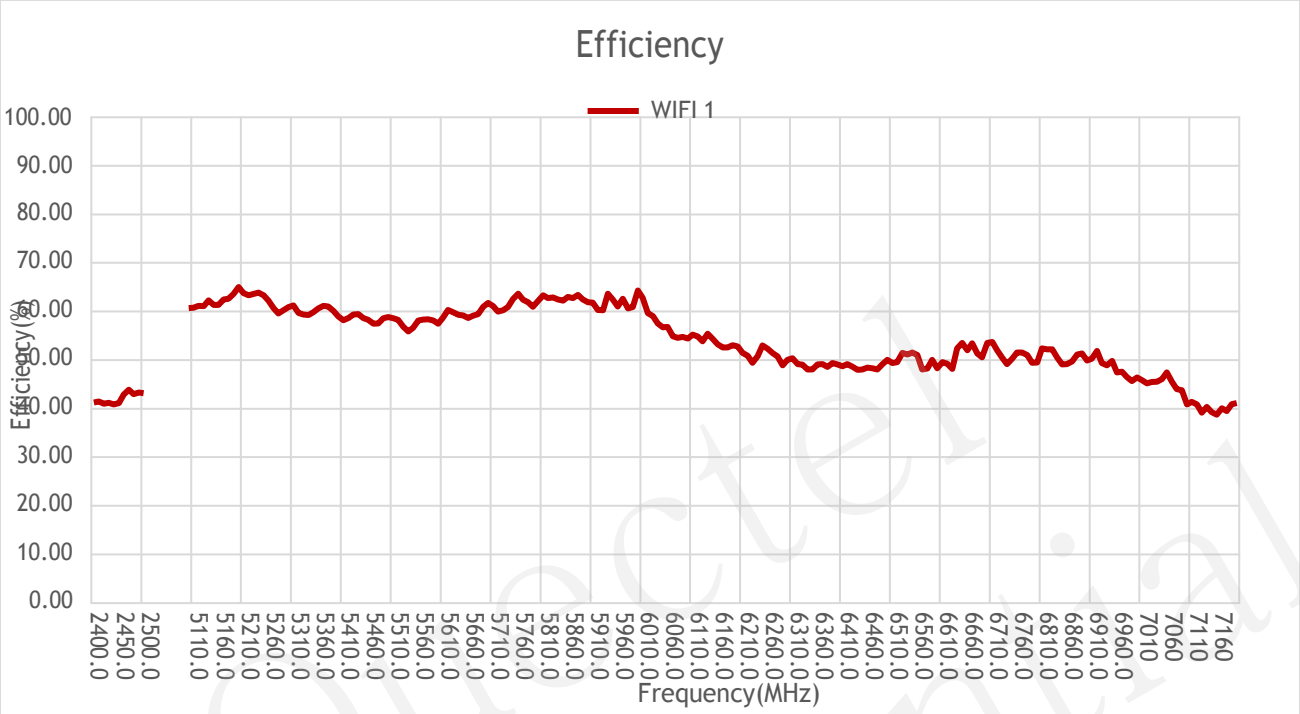
3.3. Radiation Performance Test

3.3.1. Efficiency



Efficiency (%)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5930	6330	6730	7120
Efficiency (%)	41.3	41.2	43.2	61.4	58.9	62.2	60.3	49.0	50.5	40.9

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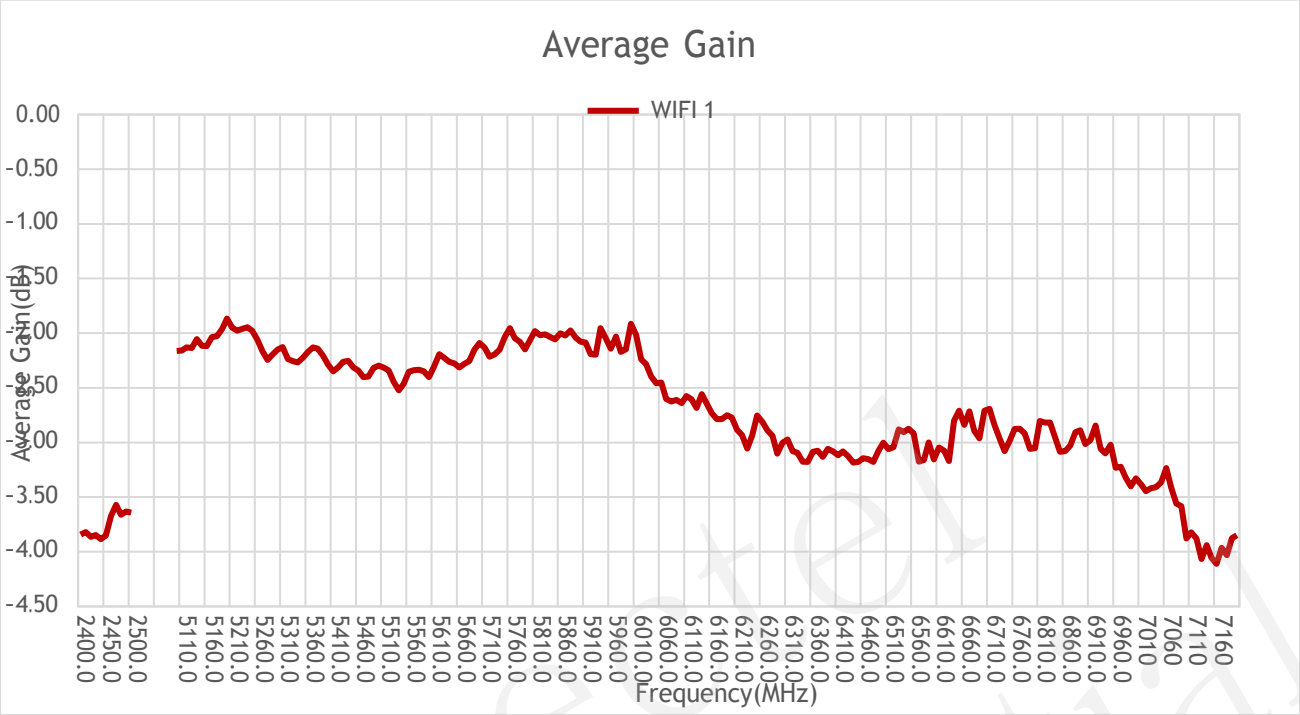
3.3.2. Average Gain



Average Gain (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5930	6330	6730	7120
Average Gain (dB)	-3.8	-3.9	-3.6	-2.1	-2.3	-2.1	-2.2	-3.1	-3.0	-3.9

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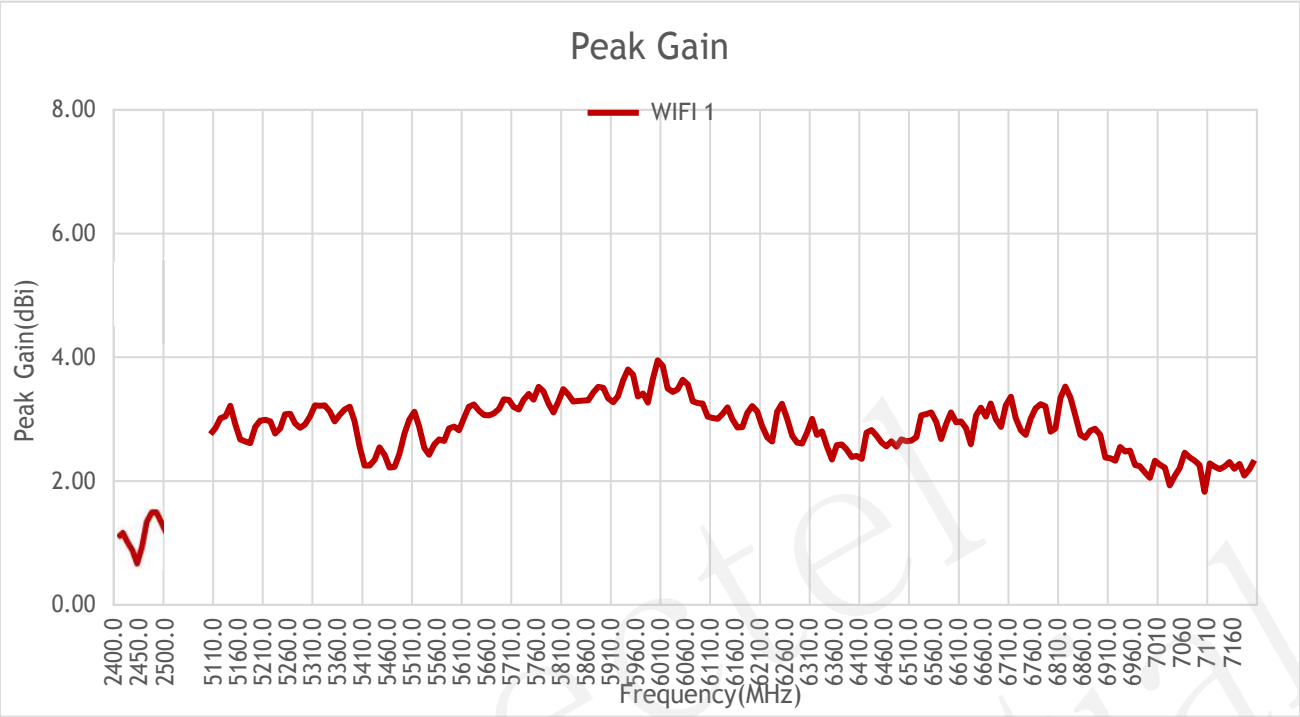
3.3.3. Peak Gain



Peak Gain (dBi)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5930	6330	6730	7120
Peak Gain (dBi)	1.1	0.6	1.2	2.9	3.0	3.3	3.6	2.8	2.8	2.2

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3.3.4. 3D & 2D Radiation Pattern

- Test Condition: Assembled in test device
- Test Chamber: SZ-S-1

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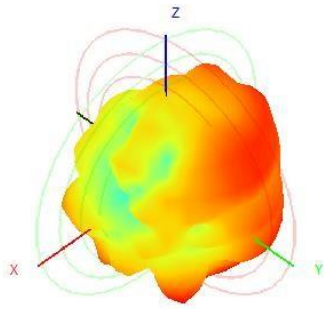
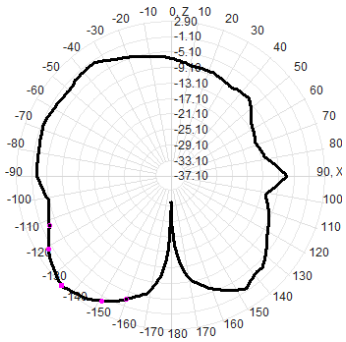
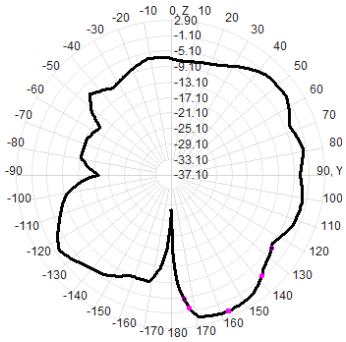
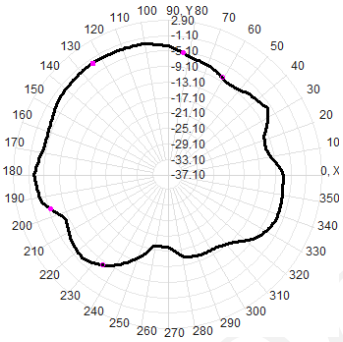
2400 MHz

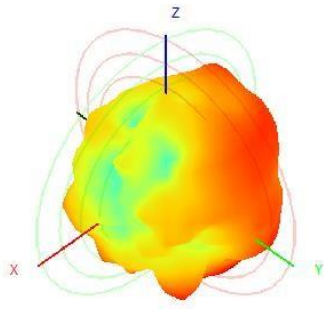


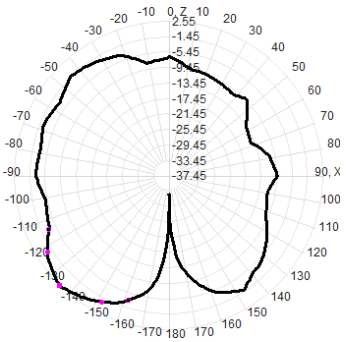


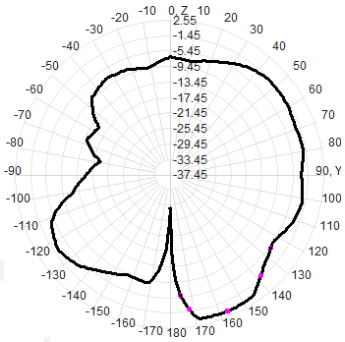


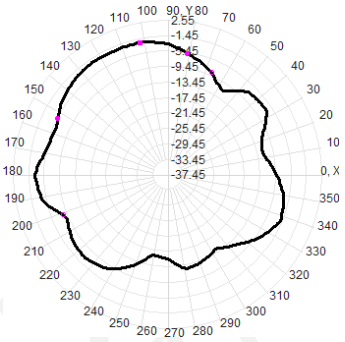


2450 MHz

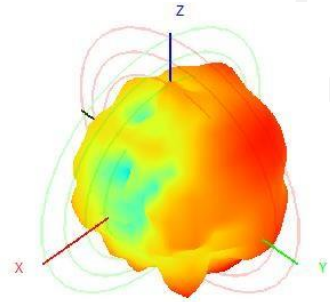


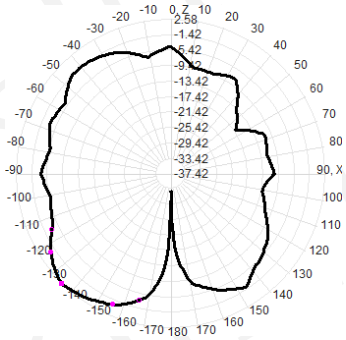


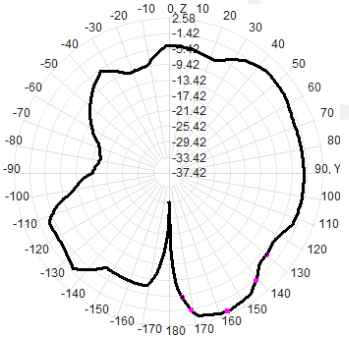


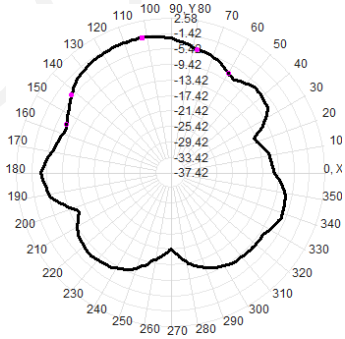


2500 MHz

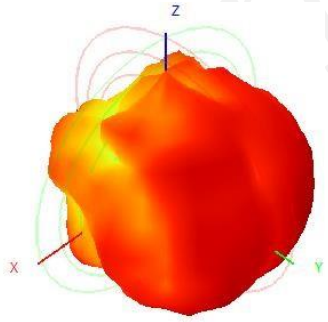


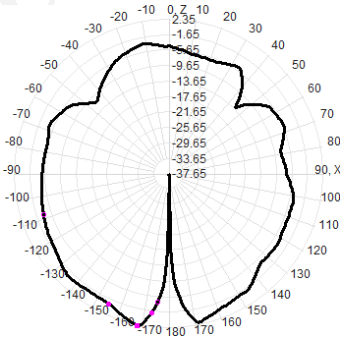


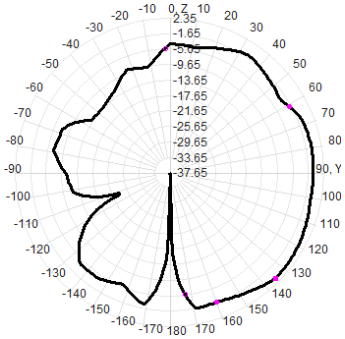


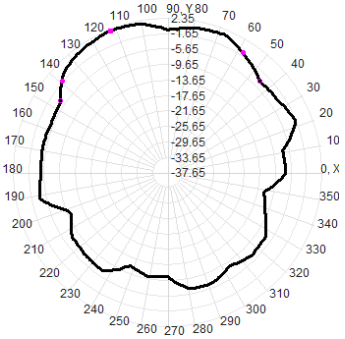


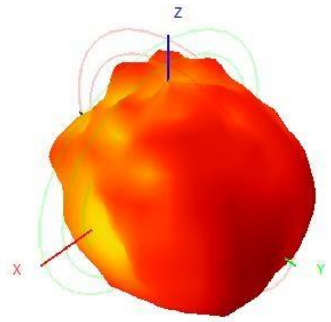
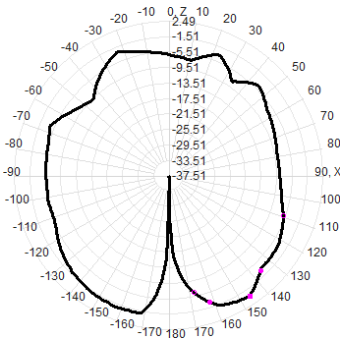
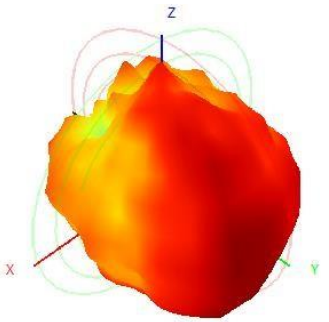
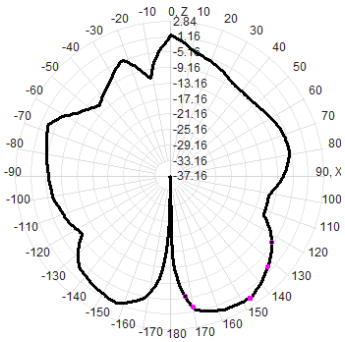
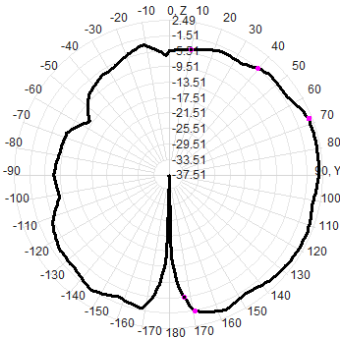
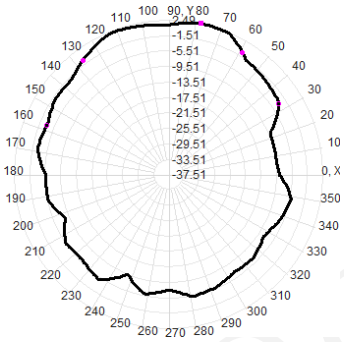
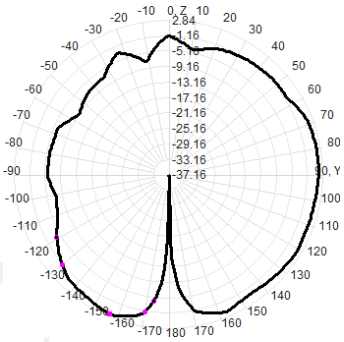
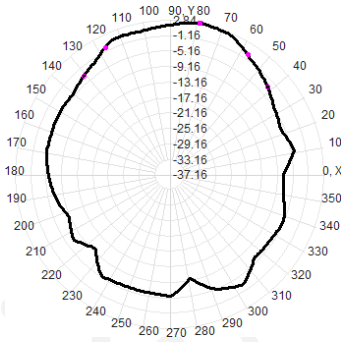
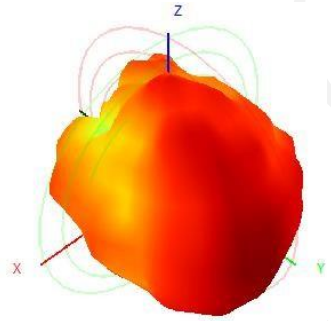
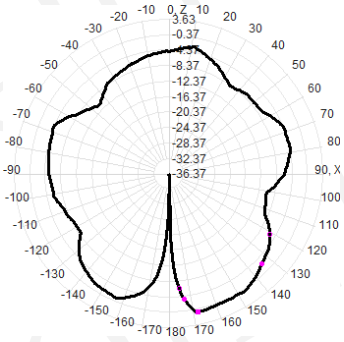
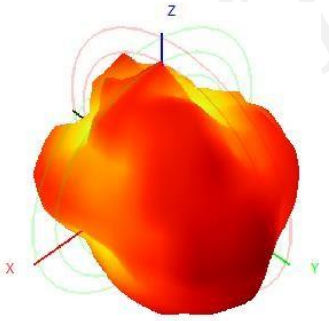
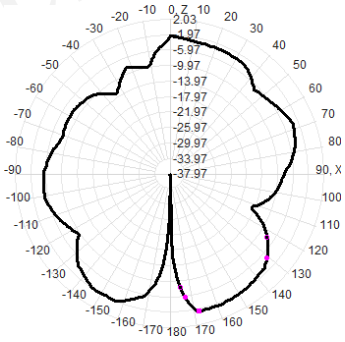
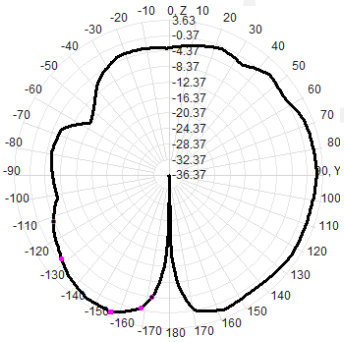
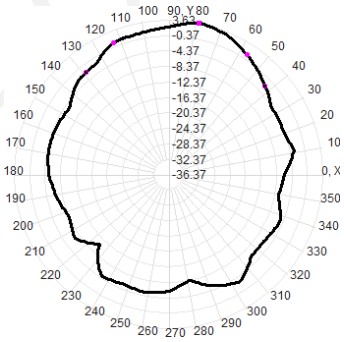
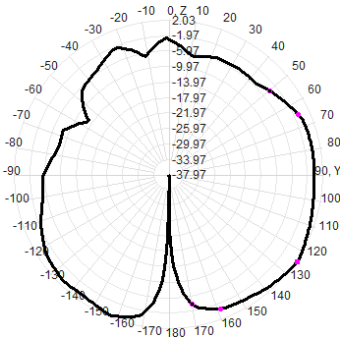
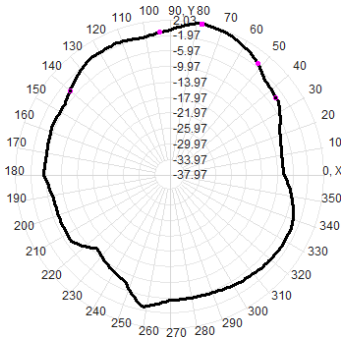
5150 MHz

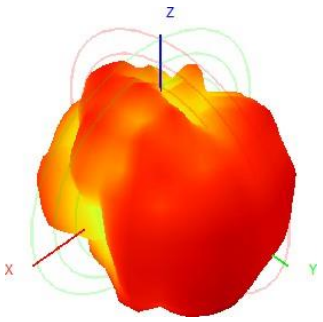
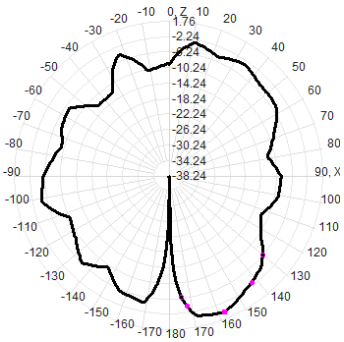
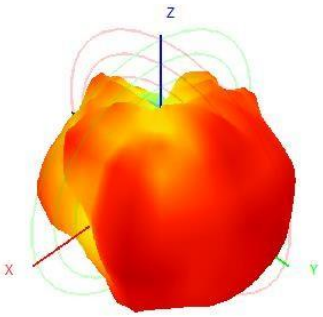
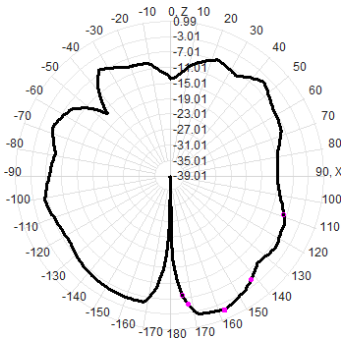
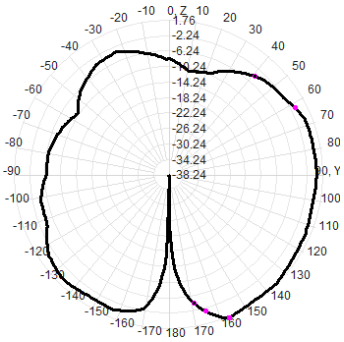
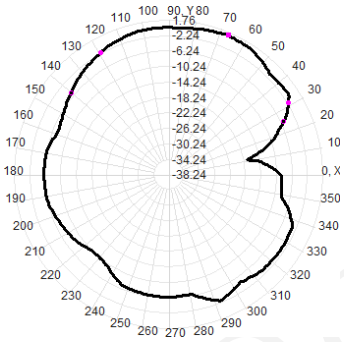
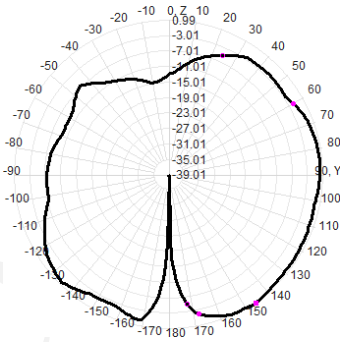
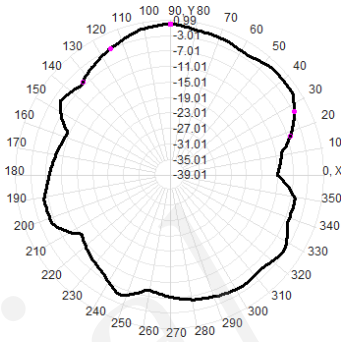








5500 MHz		5850 MHz	
			
			
5930 MHz		**6330 MHz**	
			
			

6730MHz		7120 MHz	
			
			

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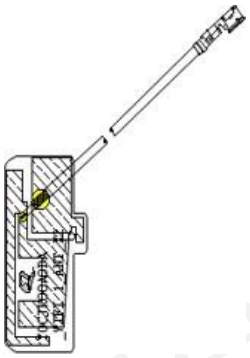
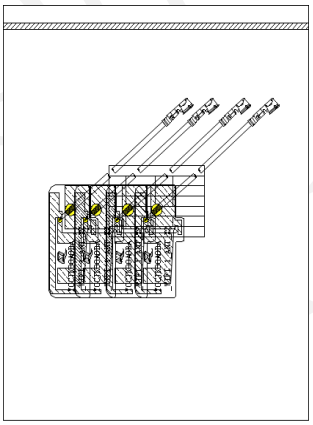
4 Packaging

Step	Packaging picture / 2D picture	Description
1		Product drawing
2	 200PCS/PE袋	200 pcs Antenna products in a PE bags; (200 pcs Antenna / Per PE Bag)

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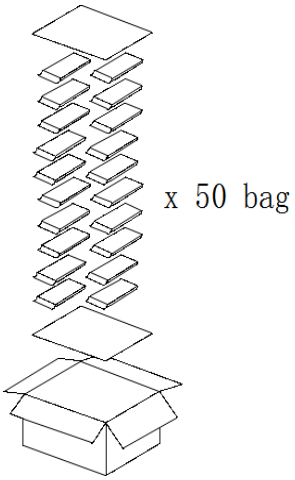
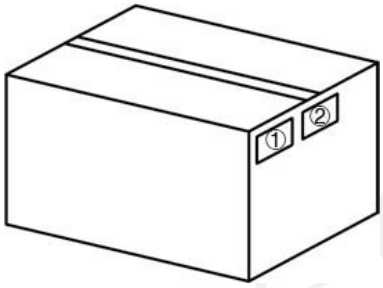
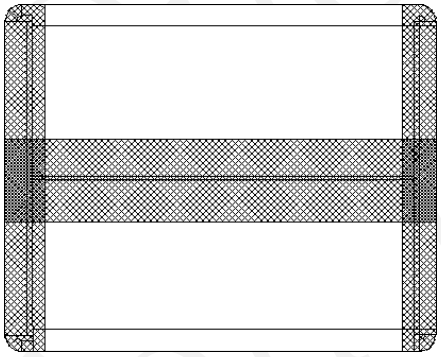
3		50 PE Bags / Per Carton Box (10000 pcs Antenna / Per Carton Box) Estimated quantity Unsatisfactory cases will be shipped in suitable cartons <u>Carton Size:L*W*H=325*325*200mm</u>
4		**Position for Attaching Labels---** ① Carton Label ② Quality Label
5		**Sealing Cartons---** “工” type sealing cartons
6	Initial packaging plan, the final packaging method is subject to the physical supply	

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Revision History

Version	Date	Author	Note
-	2023-09-25	Tony Dai Shea Li David Liu Vinnie Liu	Creation of the document
1.0	2023-09-25	Tony Dai Shea Li David Liu Vinnie Liu	First official release

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