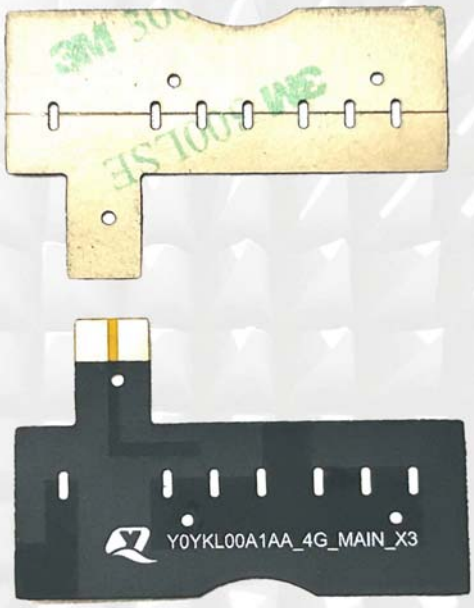


Antenna Datasheet

Product OC: Y0YKL00A1AA
Version: 1.0
Date: 2023-07-03
Status: Preliminary

Product Name: 4G FPC Antenna
Key Features:
Frequency Band: 617-960 MHz, 1710-2690 MHz
Dimensions: 47.77 × 29.68 mm
Efficiency: Up to 61.15%
RoHS and REACH Compliant

Overview

This Quectel embedded 4G FPC antenna covers main 4G LTE bands and is compatible with 3G/2G/LPWA bands. Featuring high efficiency and gain, it is an ideal antenna for a smooth and stable connection with high-efficiency data transmission even under the influence of the device's internal structure. Ground plane independent, it's designed to be mounted directly to the underside of either a plastic or non-metallic enclosure. Ease of integration with a cable and connector which can be customized to meet your product design and RF module.

Contents

1 Specification

Test Condition: Assembled in test device

1.1. Electrical

Electrical	
Frequency Range	617-960 MHz, 1710-2690 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical - Detail

Band / SPEC	Band / Freq. (MHz)	617–700	700–810	820–960	1420–1520	1700–2170	2300–2400	2400–2500	2500–2690	3300–4200	4400–5000	5150–5850
Max. VSWR		9.1	4.0	6.9	-	3.9	2.3	2.1	2.7	-	-	-
Max. Return Loss (dB)		-1.9	-4.5	-2.5	-	-4.6	-8.3	-9.0	-6.7	-	-	-
AVG Eff. (%)		23.9	50.4	37.5	-	46.4	54.5	52.7	49.1	-	-	-
AVG Gain (dB)		-7.0	-3.1	-4.5	-	-3.4	-2.6	-2.8	-3.1	-	-	-
Max. Peak Gain (dBi)		0.2	3.8	3.5	-	2.3	3.6	3.6	3.5	-	-	-
VSWR		≤ 9.1										
Return Loss		≤ -1.9 dB										
Gain		≤ 3.8 dBi										

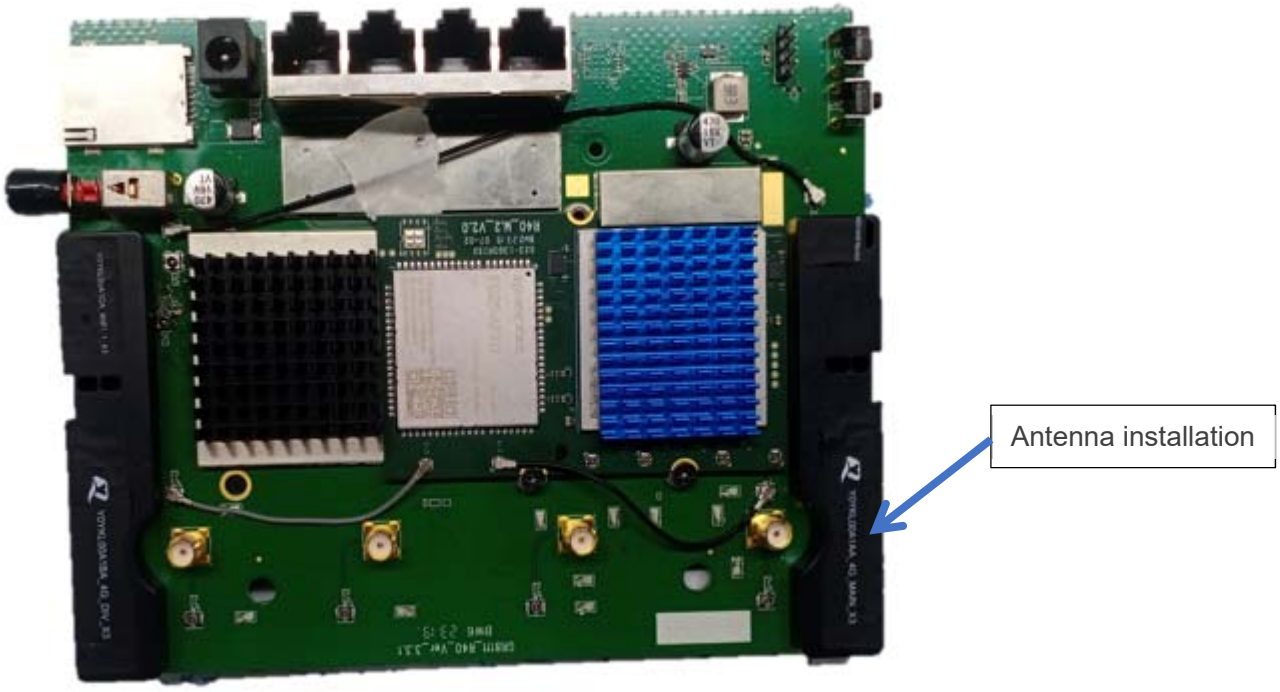
1.2. Mechanical, Environmental & Storage

Mechanical	
Antenna Dimensions	47.77 × 29.68 mm
Material & Color	FPC & Black
Mounting Type	Adhesive
Weight	Typ. 0.2g
Environmental	
Operation Temperature	-40 °C to +85 °C
RoHS & REACH Compliant	Yes

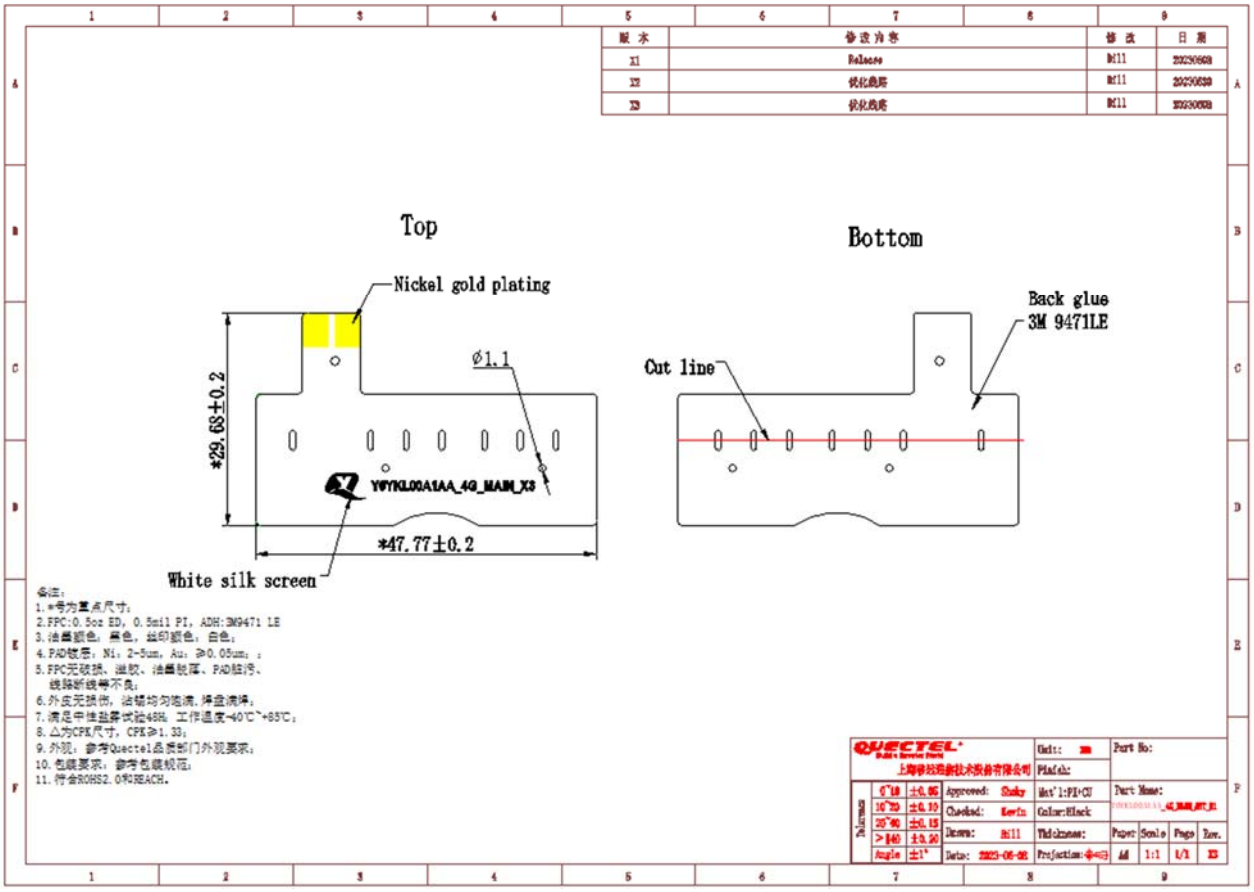
Storage	
Storage Temperature	18°C -27°C
Humidity	30%-80%RH
Storage Place	Away from corrosive gas and direct sunlight
Packaging	Antennas should be stored in unopened sealed manufacturer's plastic packaging

1.3. Antenna Assembly

`



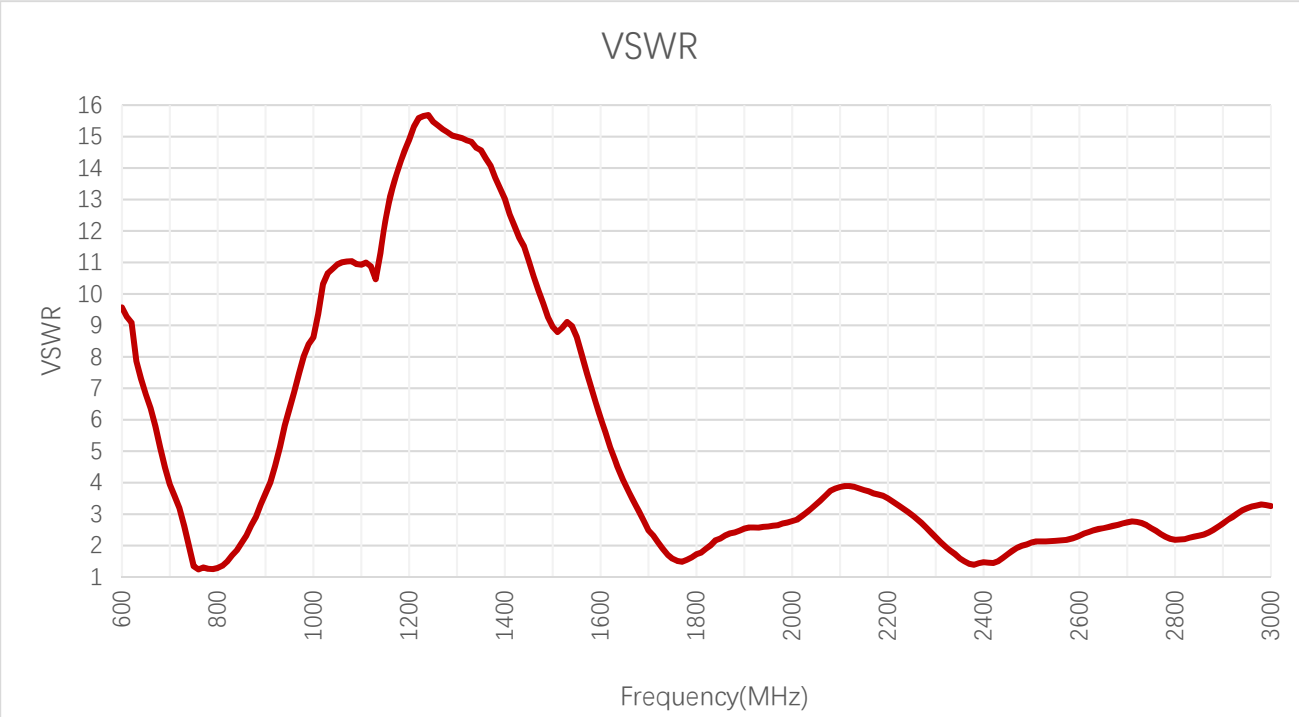
2 Drawing


Top
Bottom
Nickel gold plating
Back glue
3M 9471LE
Cut line
Ø1.1
*29.63±0.2
*47.77±0.2
White silk screen
Y0YKL00A1AA_4G_MAIN_X3

3 Detailed Performance

3.1. S-Parameter Test

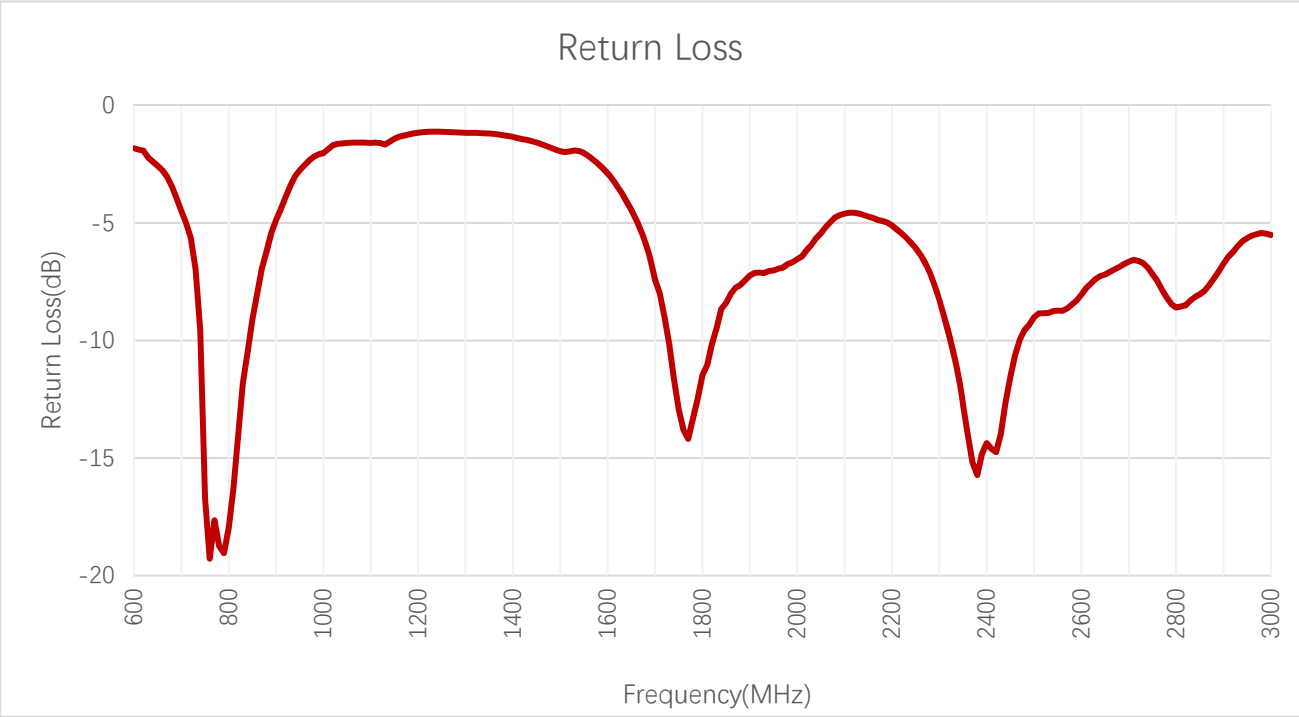
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	-	7.9	3.6	1.7	3.7	6.9	-	2.3	1.7	2.4
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
VSWR	2.6	3.8	1.6	1.7	2.3	-	-	-	-	-

3.1.2. Return Loss

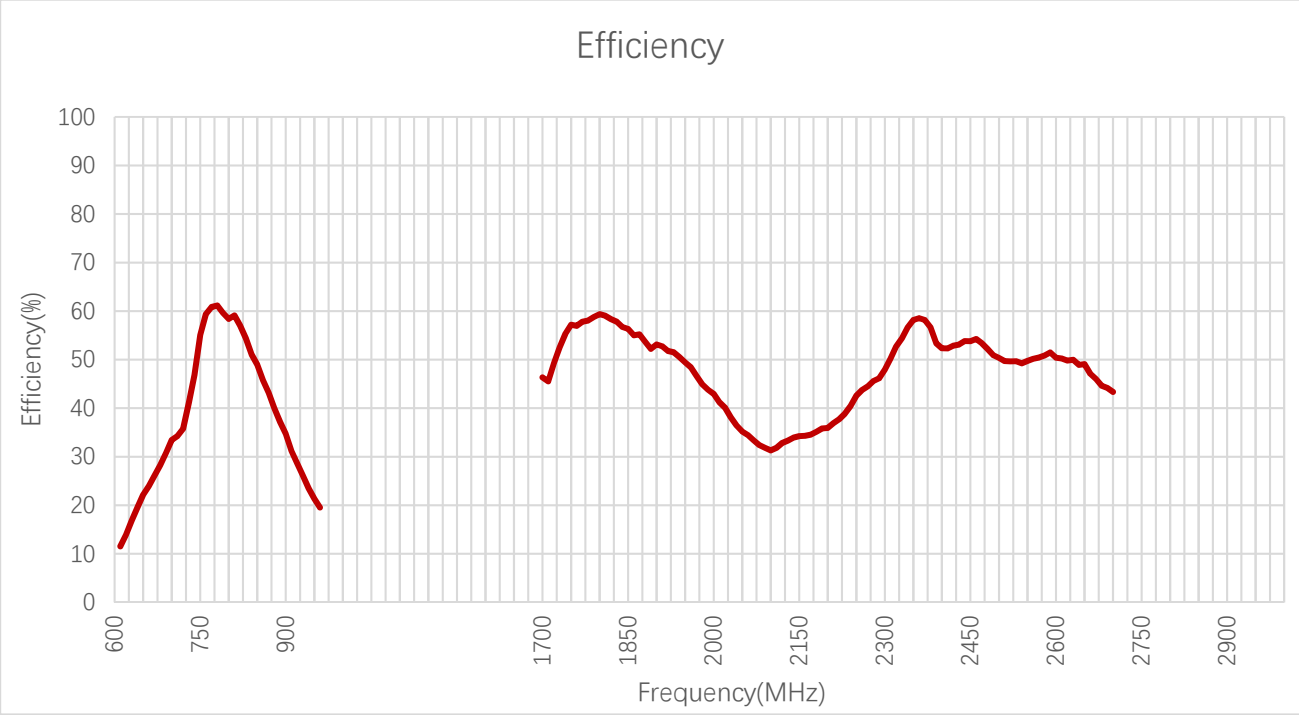


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-	-2.2	-5.0	-11.8	-4.9	-2.5	-	-8.0	-11.6	-7.6
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
Return Loss (dB)	-7.0	-4.7	-12.7	-11.5	-8.0	-	-	-	-	-

3.2. Radiation Performance Test

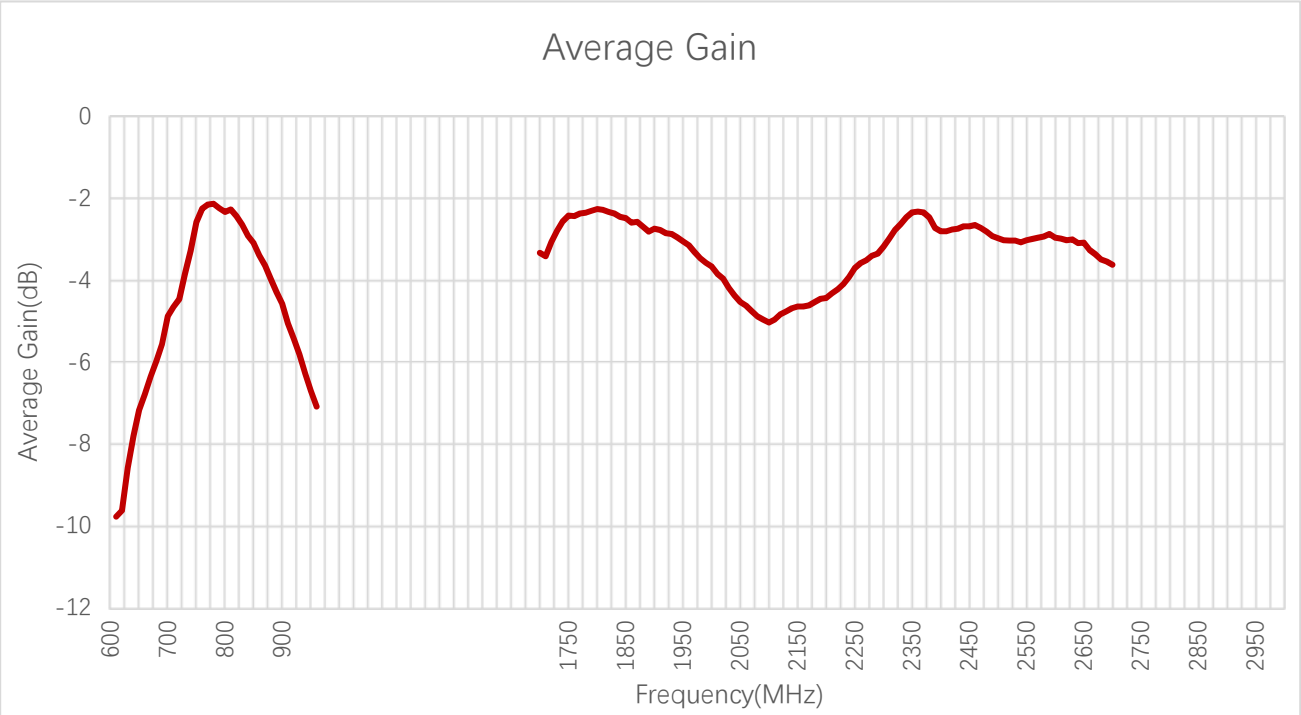
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	**600**	**630**	**710**	**830**	**900**	**960**	**1440**	**1710**	**1740**	**1880**
Efficiency (%)	-	16.8	34.2	54.4	34.7	19.6	-	45.5	55.3	53.7
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
Efficiency (%)	49.4	33.9	58.2	53.8	50.4	-	-	-	-	-

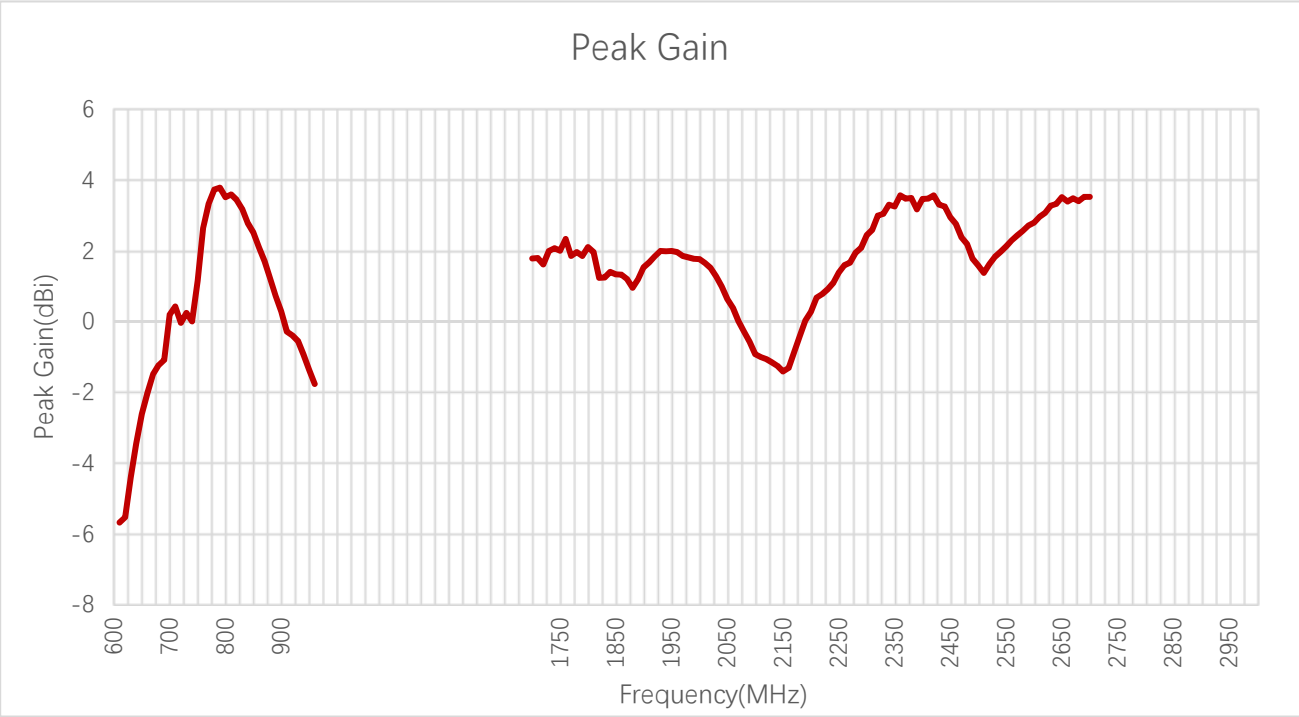
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-	-8.6	-4.7	-2.7	-4.6	-7.1	-	-3.4	-2.6	-2.7
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
Average Gain (dB)	-3.1	-4.7	-2.4	-2.7	-3.0	-	-	-	-	-

3.2.3. Peak Gain

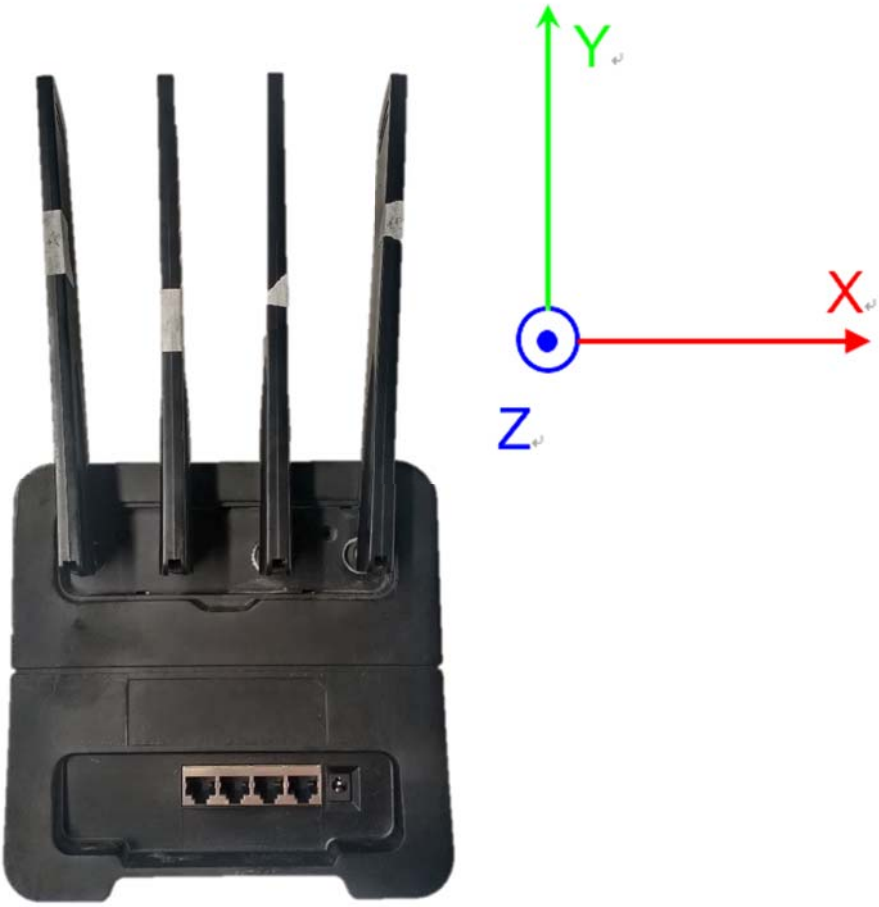


Peak Gain (dBi)

Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)
600	-5.77	10.26	1720	1.62	49.3	2350	3.26	58.19
610	-5.68	11.53	1730	2	52.52	2360	3.57	58.54
620	-5.53	13.89	1740	2.08	55.3	2370	3.48	58.19
630	-4.4	16.82	1750	2.01	57.21	2380	3.5	56.67
640	-3.45	19.58	1760	2.34	56.98	2390	3.18	53.38
650	-2.61	22.13	1770	1.86	57.83	2400	3.47	52.34
660	-2.02	23.95	1780	1.97	58.06	2410	3.48	52.3
670	-1.49	26.14	1790	1.86	58.79	2420	3.57	52.86
680	-1.23	28.24	1800	2.11	59.36	2430	3.31	53.1
690	-1.08	30.75	1810	1.97	59.03	2440	3.26	53.84
700	0.2	33.44	1820	1.24	58.35	2450	2.95	53.8
710	0.43	34.23	1830	1.25	57.81	2460	2.76	54.26
720	-0.03	35.77	1840	1.41	56.73	2470	2.38	53.36
730	0.25	41.14	1850	1.34	56.35	2480	2.19	52.21
740	0.01	46.85	1860	1.33	55.01	2490	1.78	50.92
750	1.16	55.1	1870	1.21	55.21	2500	1.59	50.37
760	2.65	59.38	1880	0.96	53.68	2510	1.38	49.72
770	3.34	60.85	1890	1.2	52.21	2520	1.63	49.64
780	3.74	61.15	1900	1.54	53.13	2530	1.84	49.67
790	3.79	59.62	1910	1.68	52.74	2540	1.98	49.24
800	3.52	58.37	1920	1.85	51.8	2550	2.13	49.75
810	3.6	59.12	1930	2	51.52	2560	2.3	50.17
820	3.45	57.04	1940	1.99	50.53	2570	2.44	50.44
830	3.19	54.39	1950	2	49.43	2580	2.57	50.87
840	2.79	51.05	1960	1.97	48.43	2590	2.72	51.48
850	2.52	49	1970	1.86	46.6	2600	2.8	50.41
860	2.1	45.74	1980	1.82	44.94	2610	2.97	50.24
870	1.71	43.19	1990	1.78	43.8	2620	3.08	49.8
880	1.23	39.97	2000	1.77	42.96	2630	3.28	49.97
890	0.73	37.15	2010	1.66	41.24	2640	3.33	48.93
900	0.29	34.73	2020	1.52	40.07	2650	3.52	49.07
910	-0.28	31.19	2030	1.28	38.15	2660	3.4	47.1
920	-0.39	28.64	2040	0.99	36.47	2670	3.49	46.01
930	-0.55	26.18	2050	0.64	35.19	2680	3.41	44.64
940	-0.93	23.5	2260	1.6	43.74	2690	3.53	44.18
950	-1.36	21.31	2270	1.67	44.51	2700	3.53	43.36
960	-1.76	19.55	2280	1.95	45.6	2710	3.62	43.69
970	-2.04	18.43	2290	2.09	46.15	2720	3.66	43.54
980	-2.65	16.85	2300	2.45	47.96	2730	3.55	43.2
990	-3.12	15.84	2310	2.6	50.2	2740	3.6	43.95
1000	-3.46	15.97	2320	3	52.74	2750	3.77	45.06
1700	1.79	46.34	2330	3.05	54.44	2760	3.83	46.06
1710	1.8	45.52	2340	3.31	56.64	2770	3.89	47.09

3.2.4. 3D & 2D Radiation Pattern

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



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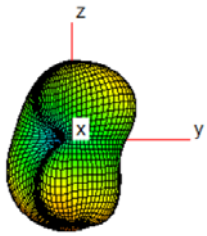	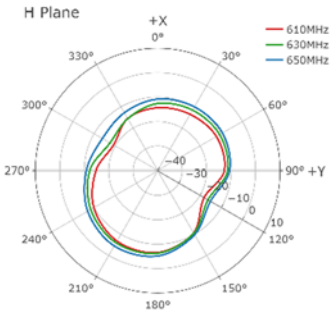	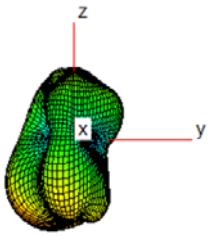	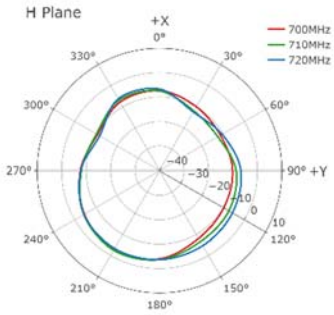
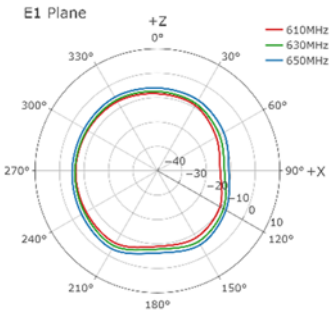	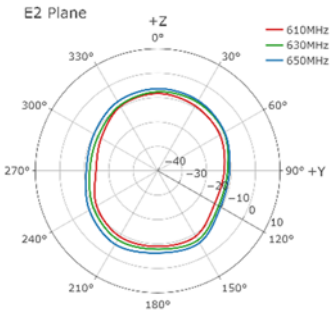	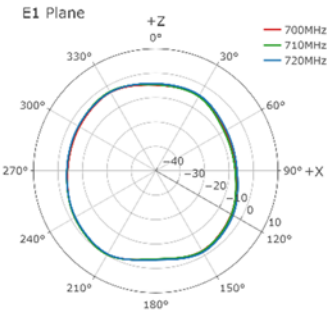	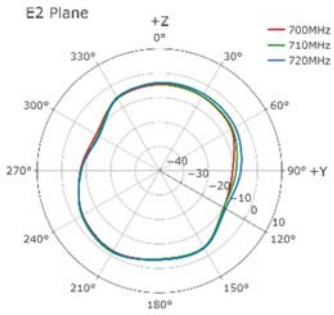
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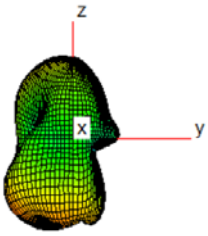
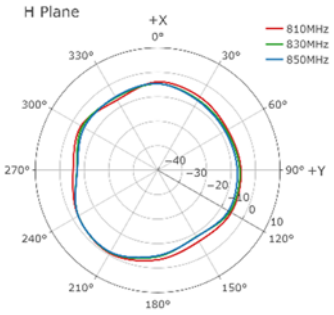
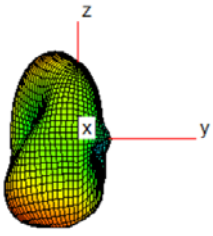
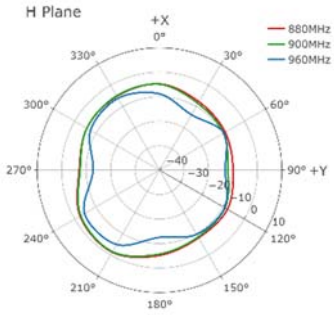
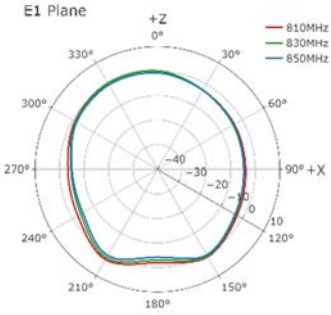
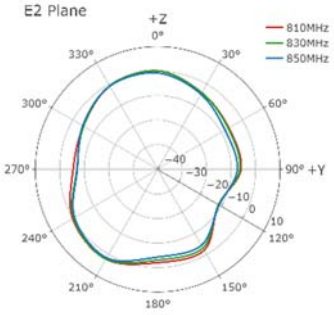
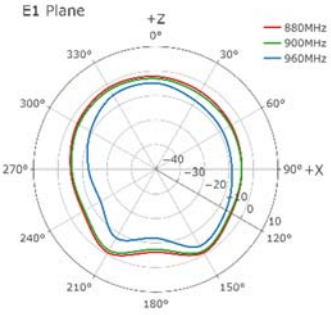
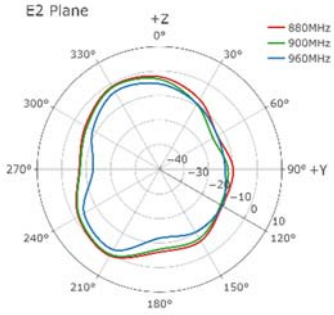
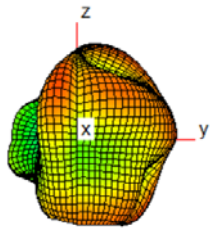
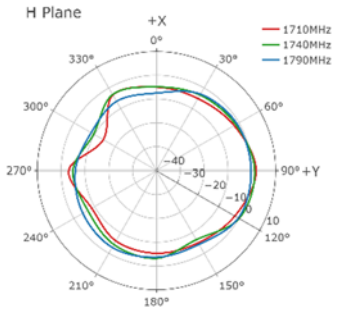
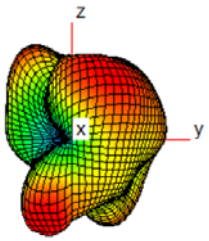
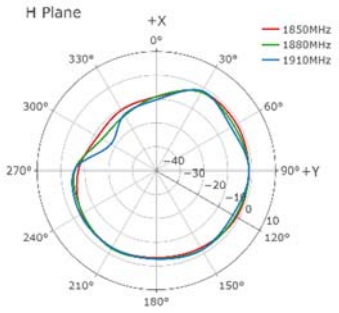
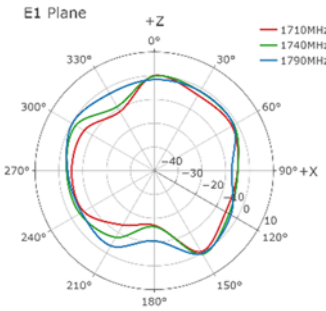
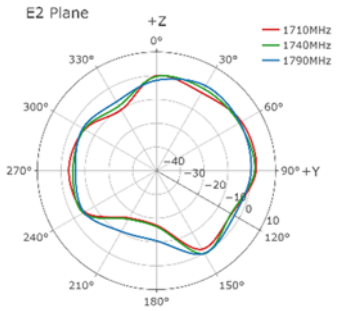
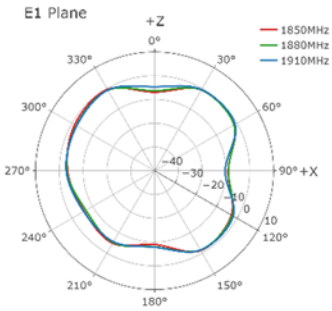
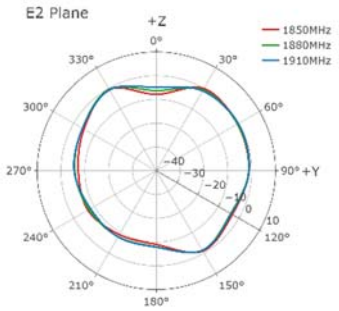
			
			

1740MHz		1880MHz	
			
			
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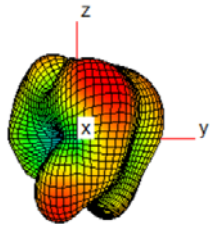	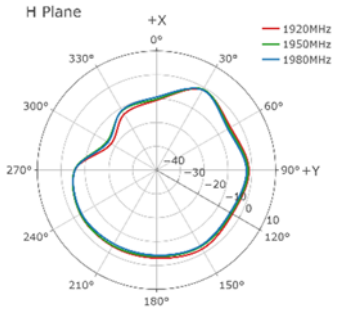	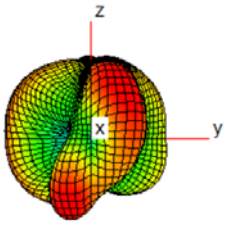	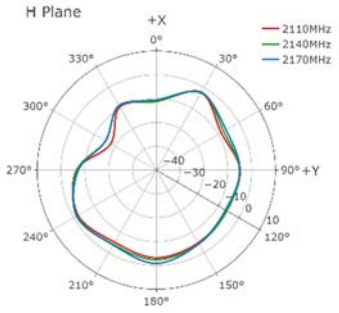
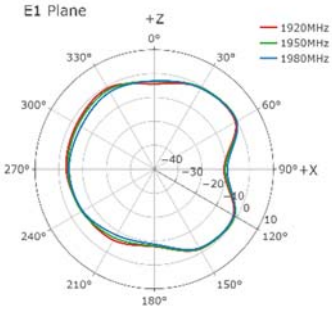	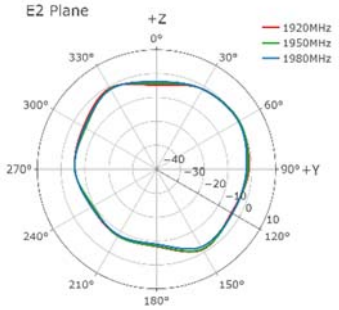	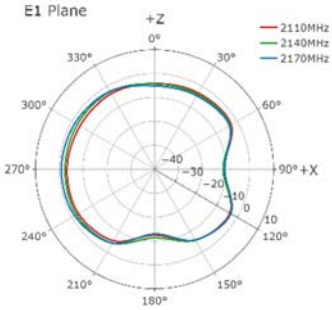	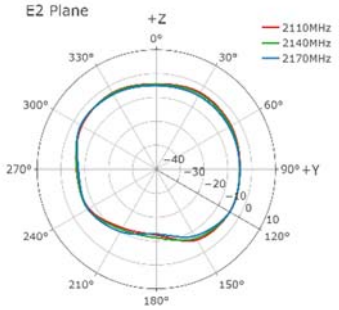

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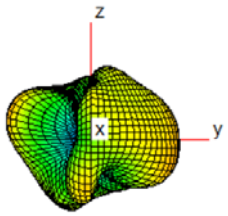
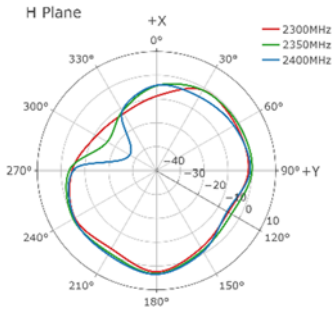
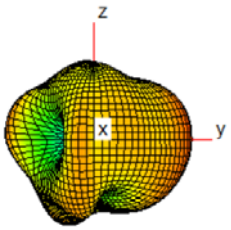
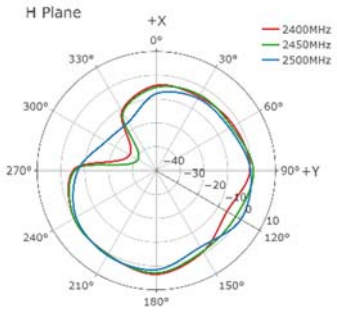
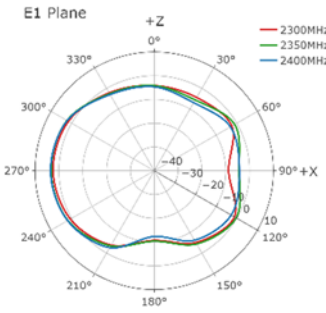
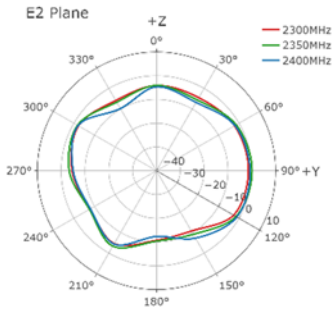
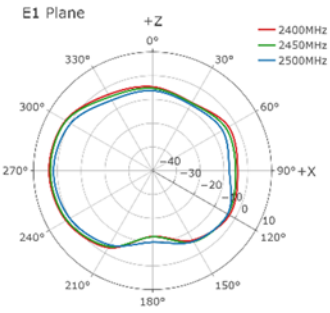
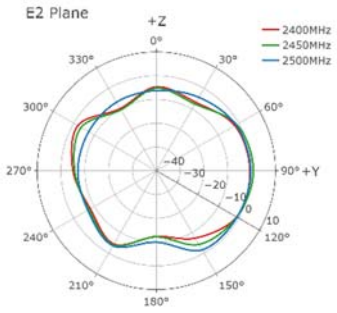
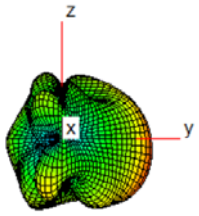
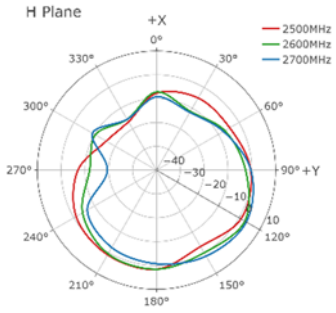
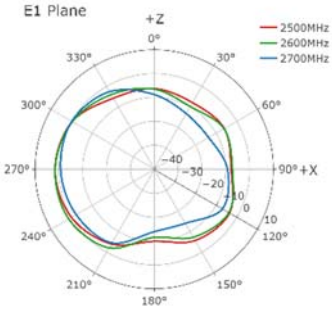
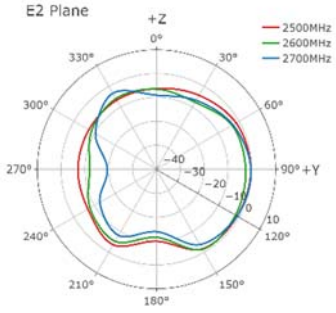
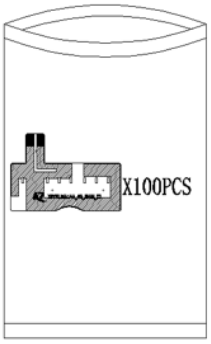
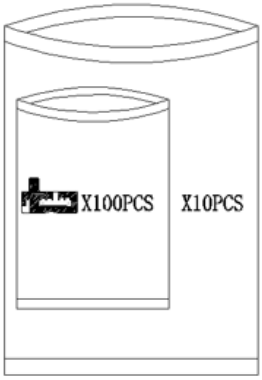
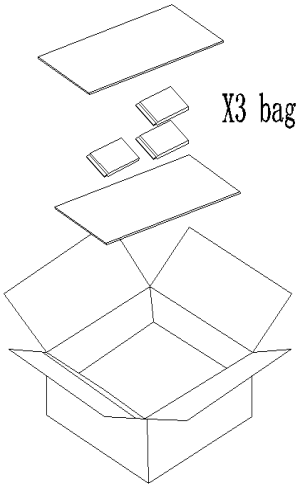
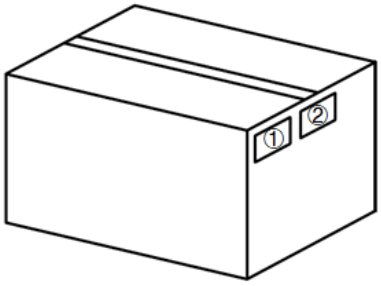
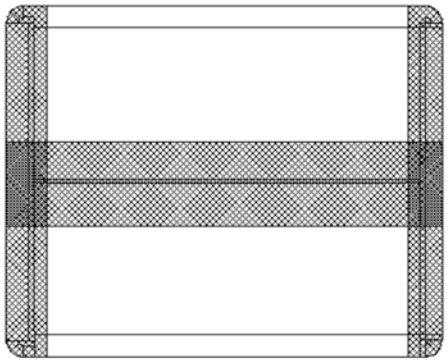
			
			
2600MHz			
			
			

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 Carton Size: L*W*H=290*210*100mm
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

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Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Tel: +86 21 5108 6236
Email: info@quectel.com

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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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