



Antenna Datasheet

Product OC: Y0YKL00A0AA

Version: 1.0

Date: 2023-07-05

Status: Preliminary

Product Name: 4G External Antenna

Key Features:

Frequency Band: 600-960 MHz, 1710-2690 MHz, 3300-3700 MHz

Dimensions: Φ 13* 221 * 27.1 mm

Efficiency: Up to 76.89%

RoHS Compliant

IP67

Overview

This Quectel external 4G antenna covers main 4G LTE bands and is compatible with 3G/2G/LPWA bands as well. The external antenna is barely influenced by the internal environment of devices, giving a much better performance in efficiency, radiation and gain whilst providing an optimized solution for a customer product. Quectel also offers flexible installation with custom cable length and connector options.

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1 Specification

Test Condition: Free space

1.1. Electrical

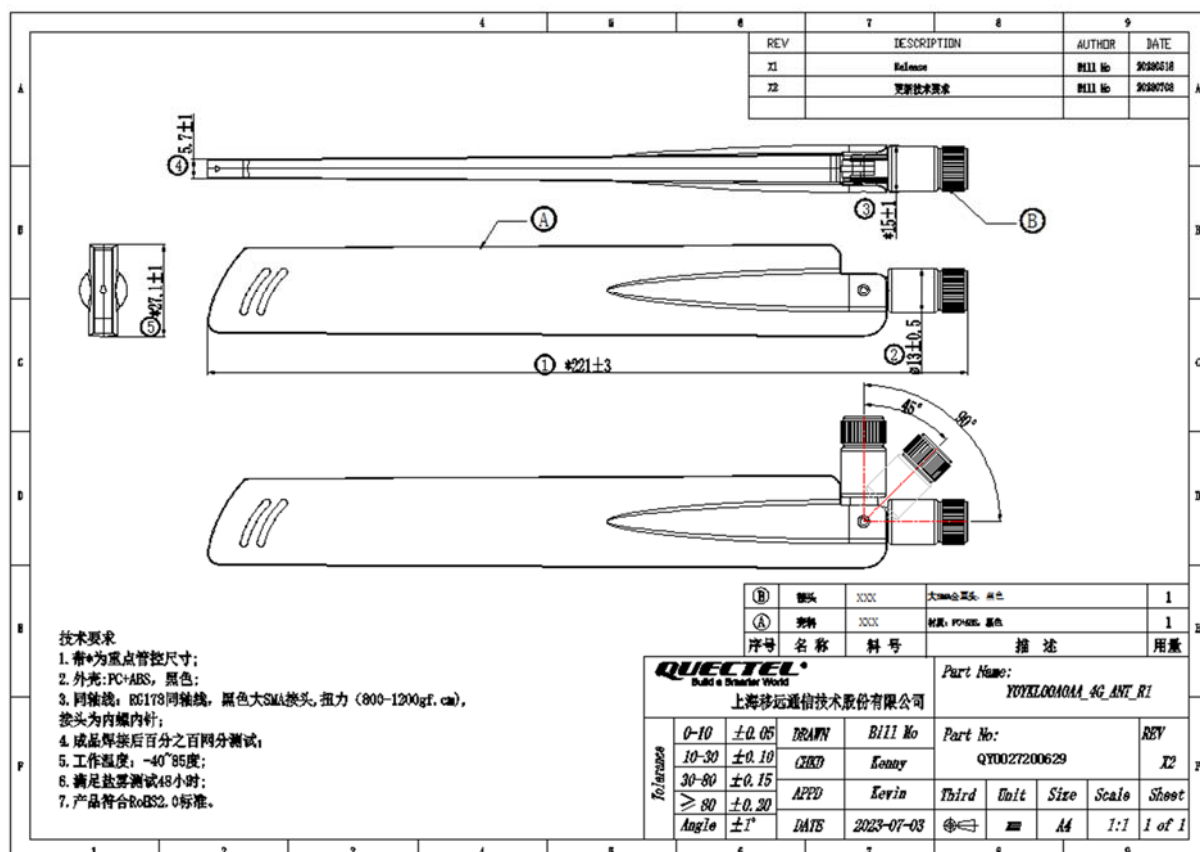
Electrical	
Frequency Range	600-960 MHz, 1710-2690 MHz, 3300-3700 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical - Detail												
SPEC	Band	600– 700	700– 810	820– 960	1420– 1520	1700– 2170	2300– 2400	2400– 2500	2500– 2690	3300– 3700	4400– 5000	5150– 5850
	Freq. (MHz)											
Max. VSWR		2.1	1.7	3.5	-	2.8	2.6	2.6	2.2	1.9	-	-
Max. Return Loss (dB)		-9.1	-11.8	-5.1	-	-6.5	-7.0	-7.2	-8.4	-10.2	-	-
AVG Eff. (%)		34.5	37.7	47.1	-	64.5	60.3	61.2	71.0	71.8	-	-
AVG AVG Gain (dB)		-4.6	-4.2	-3.3	-	-1.9	-2.2	-2.1	-1.5	-1.4	-	-
Max. Peak Gain (dBi)		-0.6	-0.1	0.5	-	3.3	2.7	3.2	3.0	3.9	-	-
VSWR						≤ 3.5						
Return Loss						≤ -5.1 dB						
Gain						≤ 3.9 dBi						

1.2. Mechanical, Environmental & Storage

Mechanical	
Antenna Dimensions	Φ 13 * 221 * 27.1 mm
Casing Material & Color	PC+ABS & Black
Connector Type	SMA Male
Mounting Type	Terminal
Weight	Typ. 34.8 g
Environmental	
Operation Temperature	-40 °C to +85 °C
RoHS 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

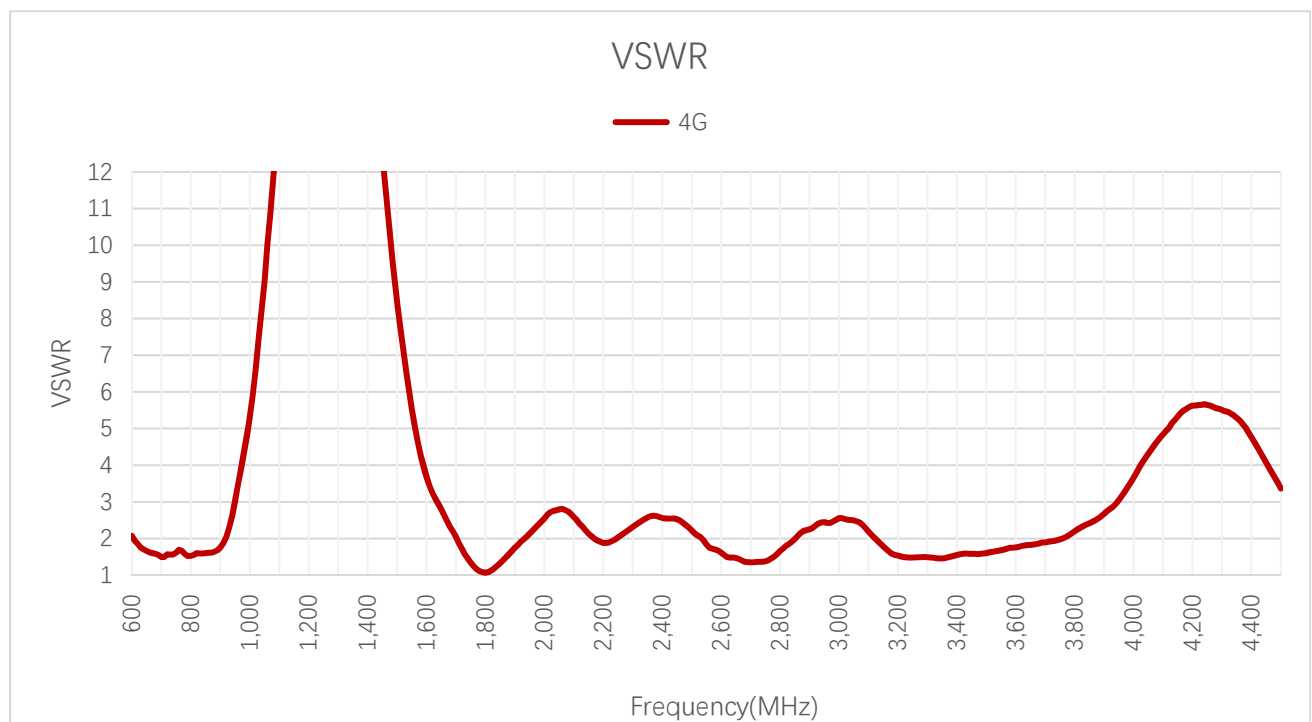
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

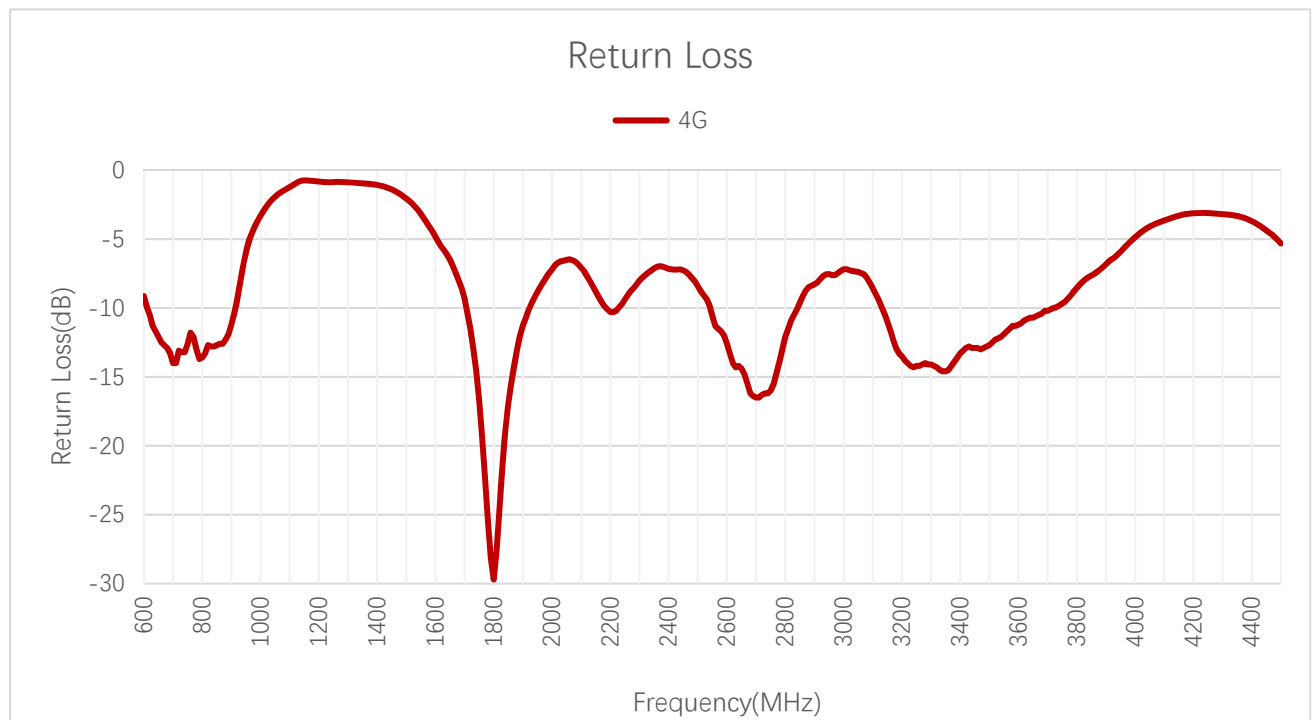
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	700	830	900	960	1440	1710	1740	1880
VSWR	2.1	1.7	1.5	1.6	1.8	3.5	-	1.9	1.5	1.6
Frequency (MHz)	1950	2140	2350	2450	2600	2690	3300	3700	5500	6000
VSWR	2.1	2.2	2.6	2.5	1.6	1.4	1.5	1.9	-	-

3.1.2. Return Loss

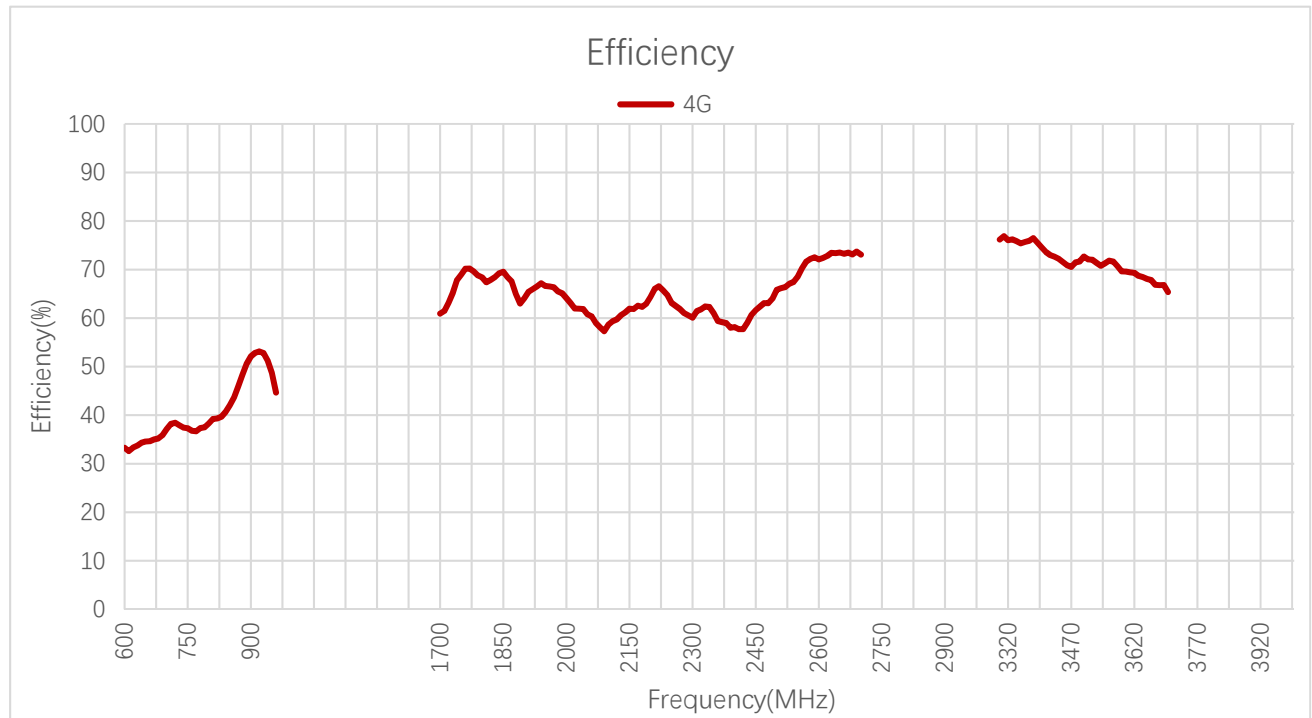


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-9.1	-11.3	-14.0	-12.8	-11.2	-5.1	-	-10.4	-14.6	-13.0
Frequency (MHz)	1950	2140	2350	2450	2600	2690	3300	3700	5500	6000
Return Loss (dB)	-8.8	-8.4	-7.1	-7.3	-12.6	-16.4	-14.1	-10.2	-	-

3.2. Radiation Performance Test

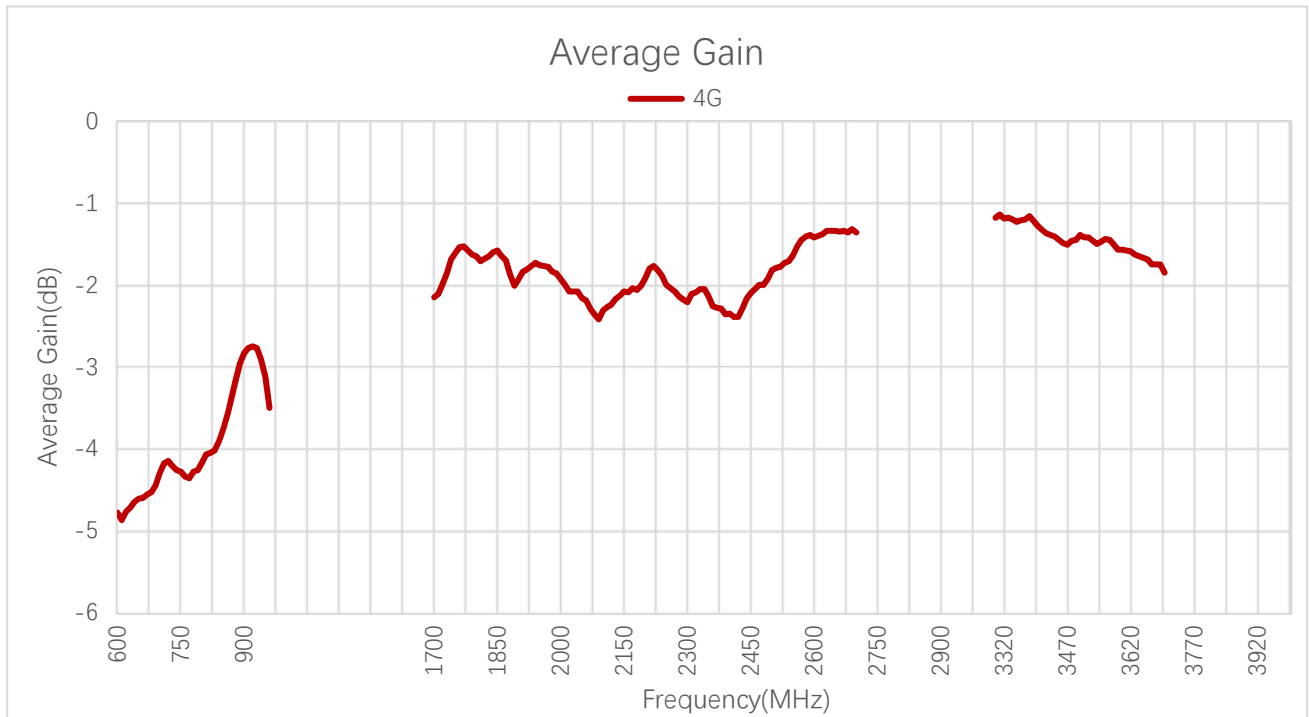
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	33.3	33.7	38.2	39.7	52.1	44.7	-	61.5	67.8	65.0
Frequency (MHz)	1950	2140	2350	2450	2600	2690	3300	3700	5500	6000
Efficiency (%)	66.6	61.2	61.0	61.6	72.1	73.7	76.2	65.4	-	-

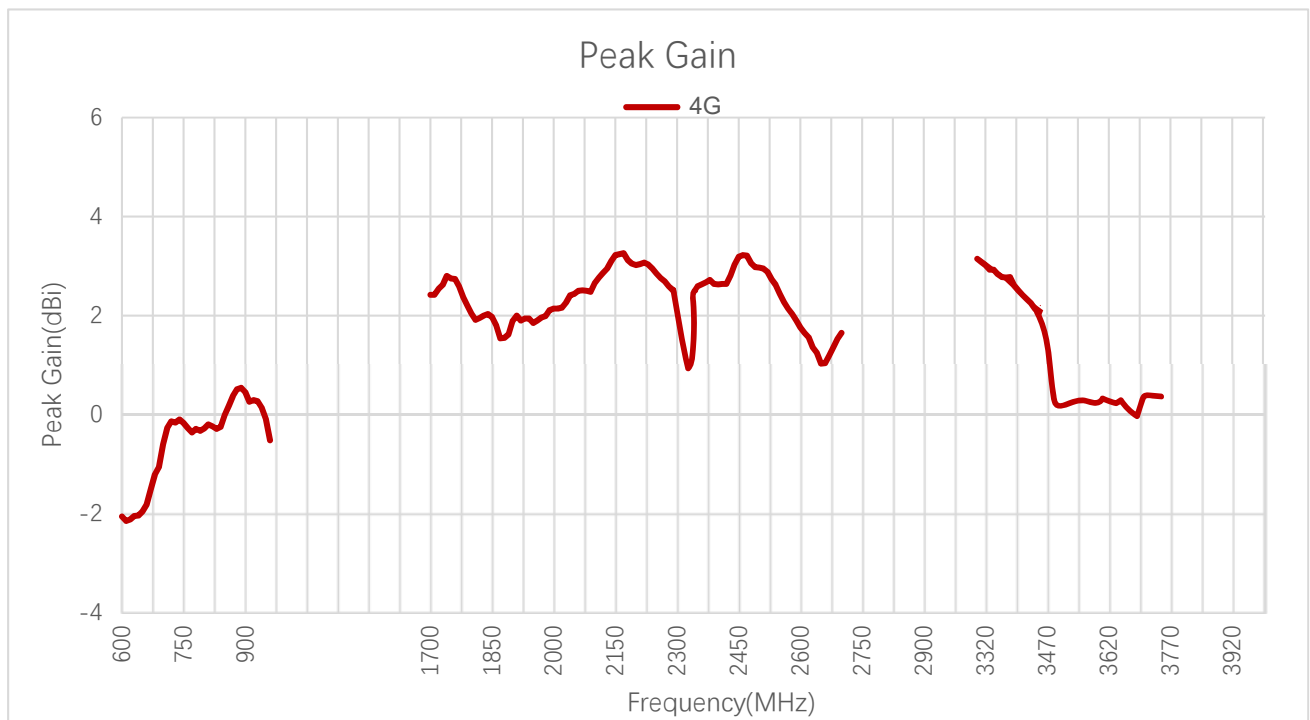
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-4.8	-4.7	-4.2	-4.0	-2.8	-3.5	-	-2.1	-1.7	-1.9
Frequency (MHz)	1950	2140	2350	2450	2600	2690	3300	3700	5500	6000
Average Gain (dB)	-1.8	-2.1	-2.1	-2.1	-1.4	-1.3	-1.2	-1.9	-	-

3.2.3. Peak Gain



Peak Gain (dBi)

Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)
600	-2.06	33.28	730	-0.16	37.9	860	0.18	43.69
610	-2.15	32.6	740	-0.1	37.46	870	0.38	45.96
620	-2.12	33.33	750	-0.17	37.32	880	0.51	48.32
630	-2.05	33.72	760	-0.27	36.8	890	0.54	50.56
640	-2.04	34.31	770	-0.36	36.67	900	0.45	52.13
650	-1.96	34.59	780	-0.29	37.35	910	0.26	52.85
660	-1.82	34.65	790	-0.33	37.5	920	0.29	53.15
670	-1.51	35.02	800	-0.28	38.29	930	0.27	52.82
680	-1.21	35.2	810	-0.2	39.21	940	0.14	51.22
690	-1.06	35.89	820	-0.24	39.33	950	-0.09	48.72
700	-0.6	37.14	830	-0.29	39.67	960	-0.52	44.66
710	-0.27	38.2	840	-0.25	40.67	970	-0.81	42.01
720	-0.14	38.44	850	-0.01	42.03	980	-1.28	38.83

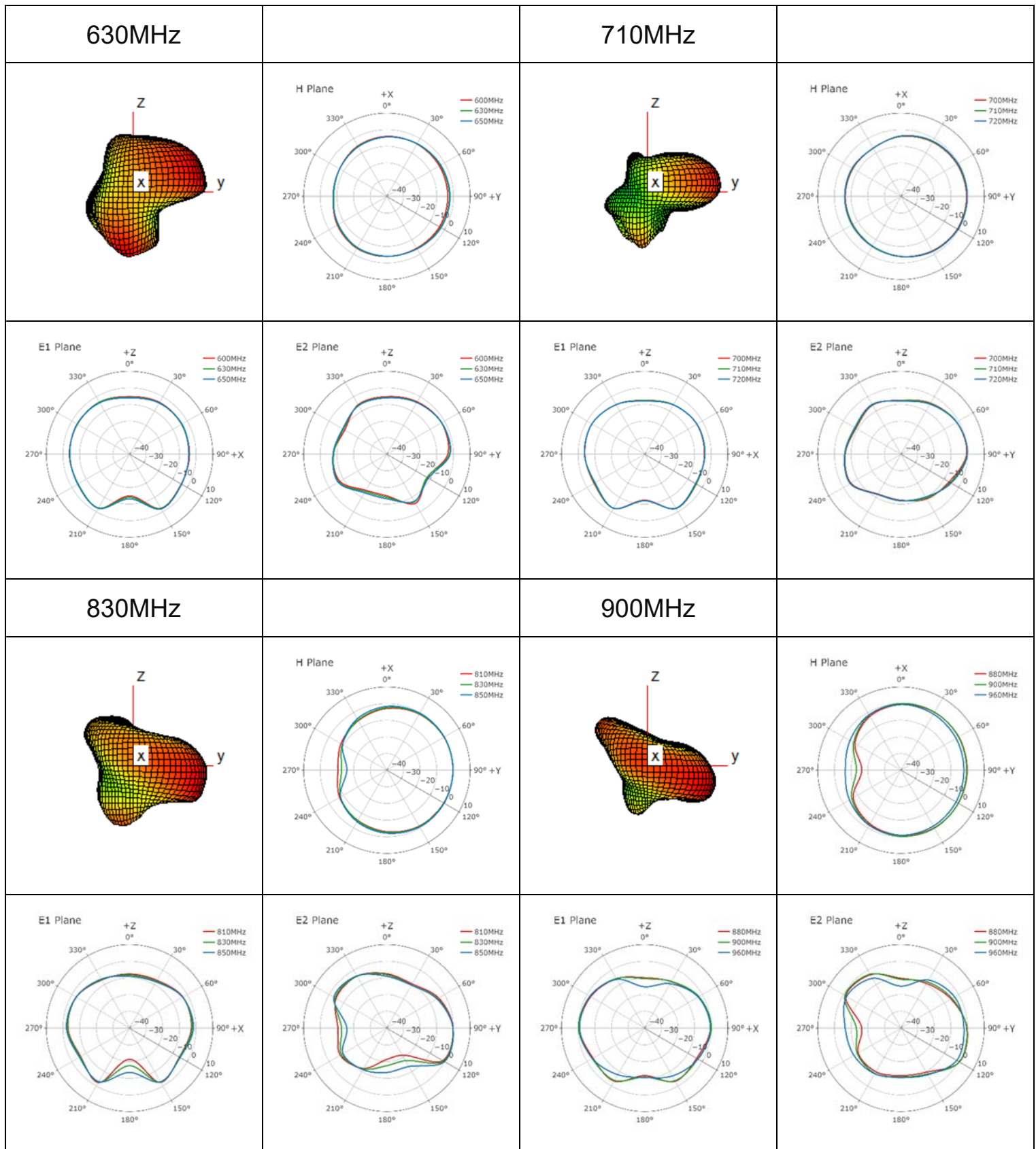
Peak Gain (dBi)

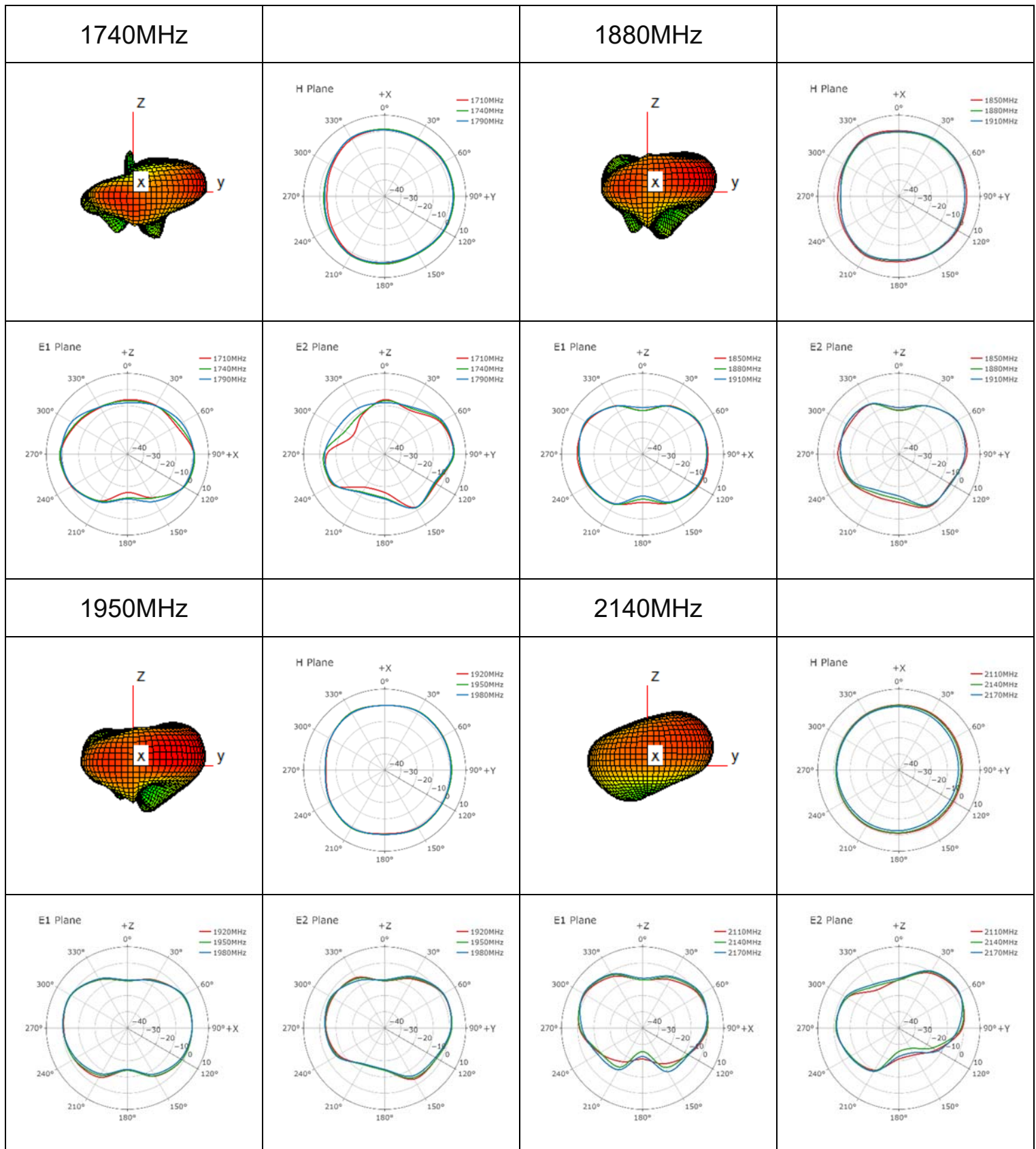
Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)
1700	2.42	60.91	2340	2.52	62.32	3380	2.8	76.49
1710	2.42	61.49	2350	2.59	61.03	3390	2.63	75.54
1720	2.54	63.17	2360	2.63	59.41	3400	2.53	74.54
1730	2.62	65.16	2370	2.67	59.18	3410	2.44	73.62
1740	2.8	67.8	2380	2.72	58.97	3420	2.36	72.99
1750	2.75	68.95	2390	2.64	58.02	3430	2.28	72.66
1760	2.74	70.17	2400	2.63	58.16	3440	2.16	72.22
1770	2.59	70.23	2410	2.64	57.72	3450	2.07	71.56
1780	2.37	69.58	2420	2.64	57.73	3460	2.2	70.9
1790	2.2	68.77	2430	2.81	59.03	3470	1.5	70.56
1800	2.04	68.36	2440	3.03	60.66	3480	1.41	71.46
1810	1.91	67.39	2450	3.19	61.64	3490	0.81	71.66
1820	1.95	67.87	2460	3.22	62.38	3500	0.35	72.69
1830	2	68.45	2470	3.21	63.09	3510	0.21	72.1
1840	2.03	69.23	2480	3.06	63.07	3520	0.25	72.03
1850	1.97	69.55	2490	2.98	64.06	3530	0.11	71.42
1860	1.8	68.43	2500	2.97	65.83	3540	0.07	70.79
1870	1.54	67.54	2510	2.95	66.16	3550	0.02	71.27
1880	1.55	64.97	2520	2.88	66.39	3560	0.29	71.83
1890	1.62	62.99	2530	2.73	67.07	3570	0.25	71.62
1900	1.89	64.09	2540	2.62	67.45	3580	0.24	70.69
1910	2	65.41	2550	2.44	68.55	3590	0.12	69.63
1920	1.9	65.97	2560	2.27	70.3	3600	0.23	69.6
1930	1.94	66.51	2570	2.14	71.62	3610	0.28	69.44
1940	1.94	67.2	2580	2.03	72.2	3620	0.26	69.33
1950	1.85	66.61	2590	1.9	72.54	3630	0.29	68.71
1960	1.9	66.53	2600	1.76	72.09	3640	0.26	68.44
1970	1.96	66.37	2610	1.65	72.39	3650	0.25	68.07
1980	1.99	65.5	2620	1.56	72.79	3660	0.24	67.83
1990	2.11	65.11	2630	1.36	73.45	3670	0.27	66.87
2000	2.14	64.12	2640	1.25	73.38	3680	0.27	66.78
2010	2.14	63.11	2650	1.03	73.53	3690	0.21	66.81
2020	2.16	61.96	2660	1.04	73.25	3700	0.21	65.36
2030	2.26	61.95	2670	1.19	73.49	3710	0.18	64.6
2040	2.41	61.89	2680	1.36	73.11	3720	0.19	63.44
2050	2.44	60.78	2690	1.53	73.72	3730	0.14	63.76
2260	2.76	62.49	2700	1.65	73.1	3740	0.13	63.45
2270	2.69	61.88	2710	1.63	72.14	3750	0.18	63.53
2280	2.59	61.03	2720	1.73	72.16	3760	3.7	63.73
2290	1.83	60.55	2730	1.84	72.38			
2300	1.0	60.08	2740	1.98	72.88			
2310	1.01	61.45	2750	2.12	73.16			
2320	1.05	61.81	3360	2.8	75.69			
2330	1.5	62.39	3370	2.79	75.93			

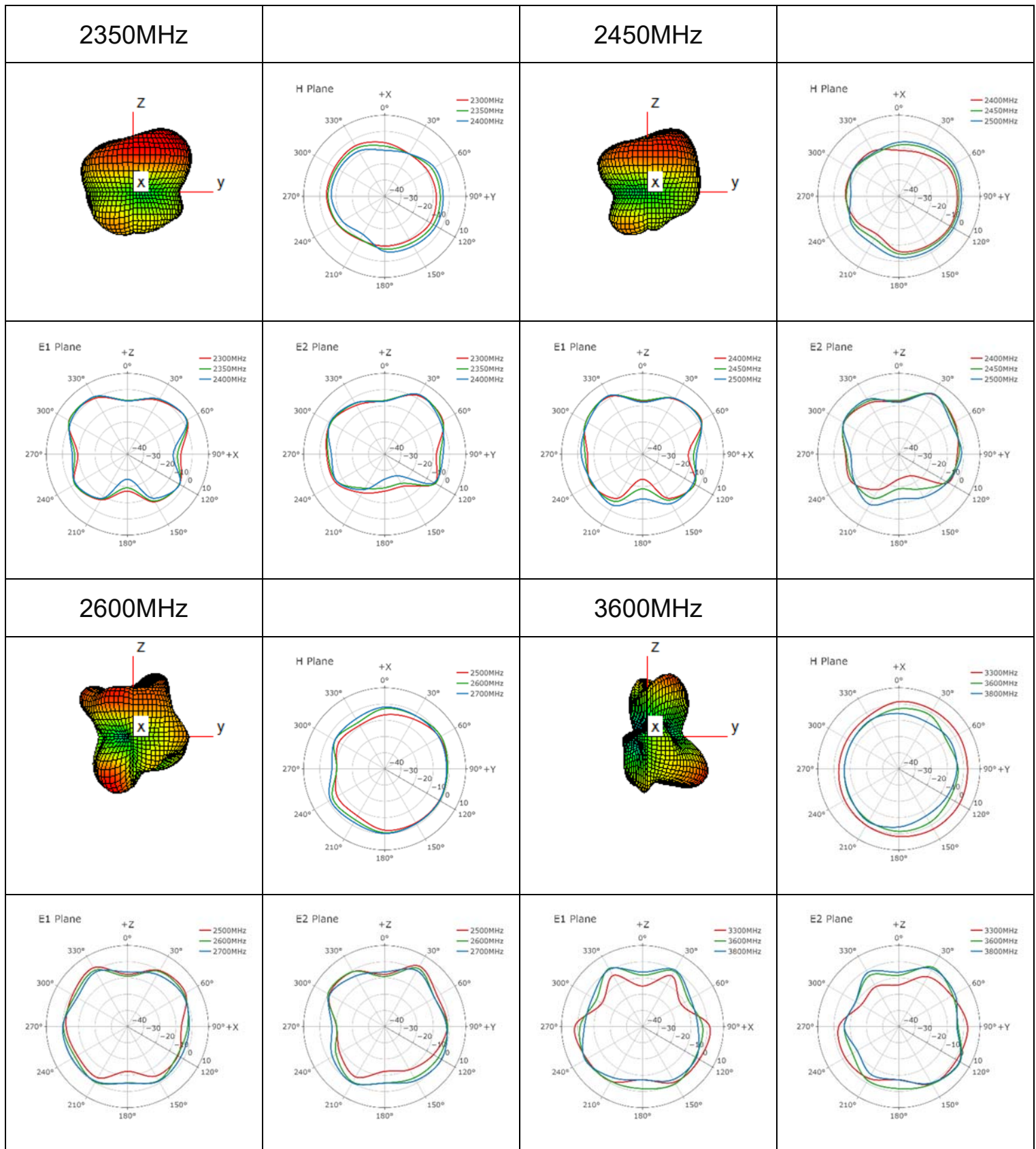
3.2.4. 3D & 2D Radiation Pattern

- Test Condition: Free space
- Test Chamber: FS-G-1

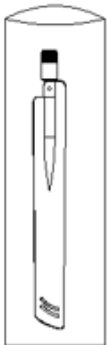
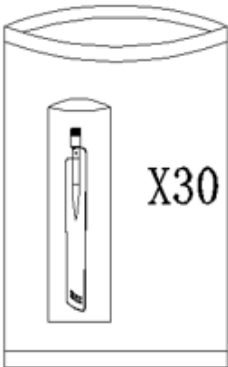


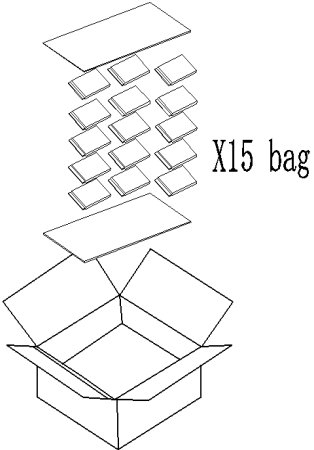
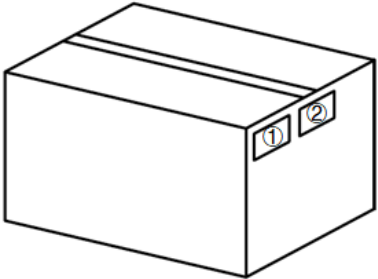
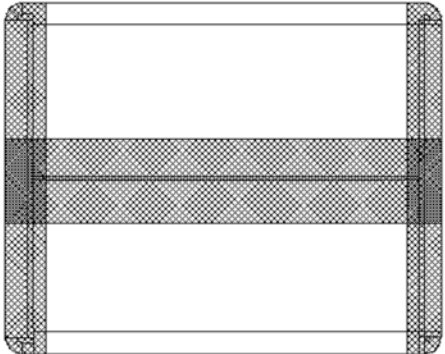






4 Packaging

Step	Packaging picture / 2D picture	Description
1	 1PCS/Bag	1 pcs Antenna products in a small PE bags; (1 pcs Antenna / Per Small PE Bag)
2	 30PCS/Bag	30 pcs Antenna products in a big PE bags; (30 pcs Antenna / Per Big PE Bag)

3		15 PE Bags / Per Carton Box (450 pcs Antenna / Per Carton Box) Estimated quantity <u>Carton Size: L*W*H=470*310*310mm</u>
4		Position for Attaching Labels--- ① Carton Label ② Quality Label
5		Sealing Cartons--- “工” type sealing cartons

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
-	2023-07-05	Owen Deng Bill Mo David Liu Bunny Zhang	Creation of the document
1.0	2023-07-05	Owen Deng Bill Mo David Liu Bunny Zhang	First official release



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