



Antenna Datasheet

Product OC: YECT001W1BM

Version: 1.1

Date: 2024-10-17

Status: Released

Product Name: 5G Terminal Mount Rubber Monopole External Antenna

Key Features:

Frequency band: 700–960 MHz, 1710–2690 MHz, 3300–6000 MHz

Efficiency: Up to 68.9 %

Dimensions: Φ 9 mm $\times$ 54.9 mm

RoHS & REACH Compliant

IP53

Overview

The YECT001W1BM is a 5G rubber antenna measuring Φ 9× 54.9 mm. This ultra-wide-band 5G antenna provides broad coverage from 700–960 MHz, 1710–2690 MHz, 3300–6000 MHz whilst offering backward-compatibility to support 4G/3G and 2G networks as well as LTE Cat-M and narrowband IoT (NB-IoT). The antenna is terminated with SMA Male connector. This low profile, terminal mount omni-directional antenna, ideal for applications where the antenna is required to be discrete, is easy to install with maximum durability assured thanks to its TPE enclosure. It is compatible with Quectel's 5G Series modules.

It allows constant and reliable transmission and reception due to its omni-directional gain across all frequency bands. The YECT001W1BM is designed as a monopole antenna, which needs to be mounted on a ground plane to offer high efficiency in all working bands. It is a perfect antenna product for customers that desire highest performance. This high-efficiency, high-gain omni-directional antenna is ideally suited for IoT sensors, public safety and security, fleet management, smart home automation.

Typical applications include:

- IoT Sensors
- Public Safety and Security
- Fleet Management
- Smart Home Automation

Quectel provides comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs. We have regional R & D centers to offer quick response to meet your requirements. Please contact our sales & FAEs if you have any requests.

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1 Specification

Test Condition: On 130 × 70 mm EVB

1.1 Electrical

Electrical	
Frequency Range	700–960 MHz, 1710–2690 MHz, 3300–6000 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

SPEC	Band	B71	B12 /B13 /B28	B5 /B8 /B26	n74 /n75 /n76	B1 /B2 /B3	B40	Wi-Fi 2G	B38 /B41	B42 /B48 /n77	n79	Wi-Fi 5G
	Freq. (MHz)	600– 700	700– 810	820– 960	1420– 1520	1700– 2170	2300– 2400	2400– 2500	2500– 2690	3300– 4200	4400– 5000	5150– 5850
Max. VSWR		-	7.9	2.4	-	3.8	2.2	1.9	1.9	4.9	2.3	2.9
Max. Return Loss (dB)		-	-2.2	-7.8	-	-4.7	-8.5	-10.3	-10.2	-3.6	-7.9	-6.3
AVG Eff. (%)		-	48.4	61.2	-	47.4	64.3	65.4	64.8	48.1	56.8	48.5
AVG AVG Gain (dB)		-	-3.3	-2.2	-	-3.3	-1.9	-1.8	-1.9	-3.3	-2.5	-3.2
Max. Peak Gain (dBi) Frequency (MHz)		-	1.3 (810)	2.5 (900)	-	0.8 (2130)	1.4 (2390)	1.4 (2490)	1.6 (2630)	2.6 (3570)	2.8 (4990)	2.1 (5470)
VSWR		≤ 7.9										
Return Loss		≤ -2.2 dB										
Peak Gain		≤ 2.8 dBi										

Gain – Detail			
	Band	Freq. (MHz)	Max peak Gain (dBi)
FDD < 3 dBi	B1	1920–1980	-0.1
	B3/n3	1710–1785	0.0
	B8	880–915	2.5
	B18	815–830	1.3
	B19	830–845	1.3
	B26	814–849	1.3
	B28/n28	703–748	-0.7
	n77/n78	3400–4100	2.6
	n79	4500–4900	2.5
TDD < 4 dBi	B39	1888–1920	-0.1
	B41/n41 (Disable HPUE)	2496–2690	1.6
	B42	3400–3600	2.6

1.2 Supported Bands

5G NR/LTE/LTE-Advanced/WCDMA/HSPA/HSPA+/GPRS/GSM/NB-IoT				
Band	Frequency (MHz)	Uplink (MHz)	Downlink (MHz)	Covered
1	2100	1920–1980	2110–2170	√
2	1900	1850–1910	1930–1990	√
3	1800	1710–1785	1805–1880	√
4	1700	1710–1755	2110–2155	√
5	850	824–849	869–894	√
7	2600	2500–2570	2620–2690	√
8	900	880–915	925–960	√
9	1800	1749.9–1784.9	1844.9–1879.9	√
11	1500	1427.9–1447.9	1475.9–1495.9	-
12	700	699–716	729–746	√
13	700	777–787	746–756	√
14	700	788–798	758–768	√
17	700	704–716	734–746	√
18	850	815–830	860–875	√
19	850	830–845	875–890	√
20	800	832–862	791–821	√
21	1500	1447.9–1462.9	1495.9–1510.9	-
22	3500	3410–3490	3510–3590	√
23	2100	2000–2020	2180–2200	√
24	1600	1626.5–1660.5	1525–1559	-
25	1900	1850–1915	1930–1995	√
26	850	814–849	859–894	√

28	700	703–748	758–803	√
31	450	452.5–457.5	462.5–467.5	-
34	2100	2010–2025		√
38	2600	2570–2620		√
39	1900	1880–1920		√
40	2300	2300–2400		√
41	2500	2496–2690		√
42	3500	3400–3600		√
48	3500	3550–3700		√
66	1700	1710–1780	2110–2200	√
71	600	663–698	617–652	-
74	1500	1427–1470	1475–1518	-
77	3500	3300–4200		√
78	3500	3300–3800		√
79	4500	4400–5000		√

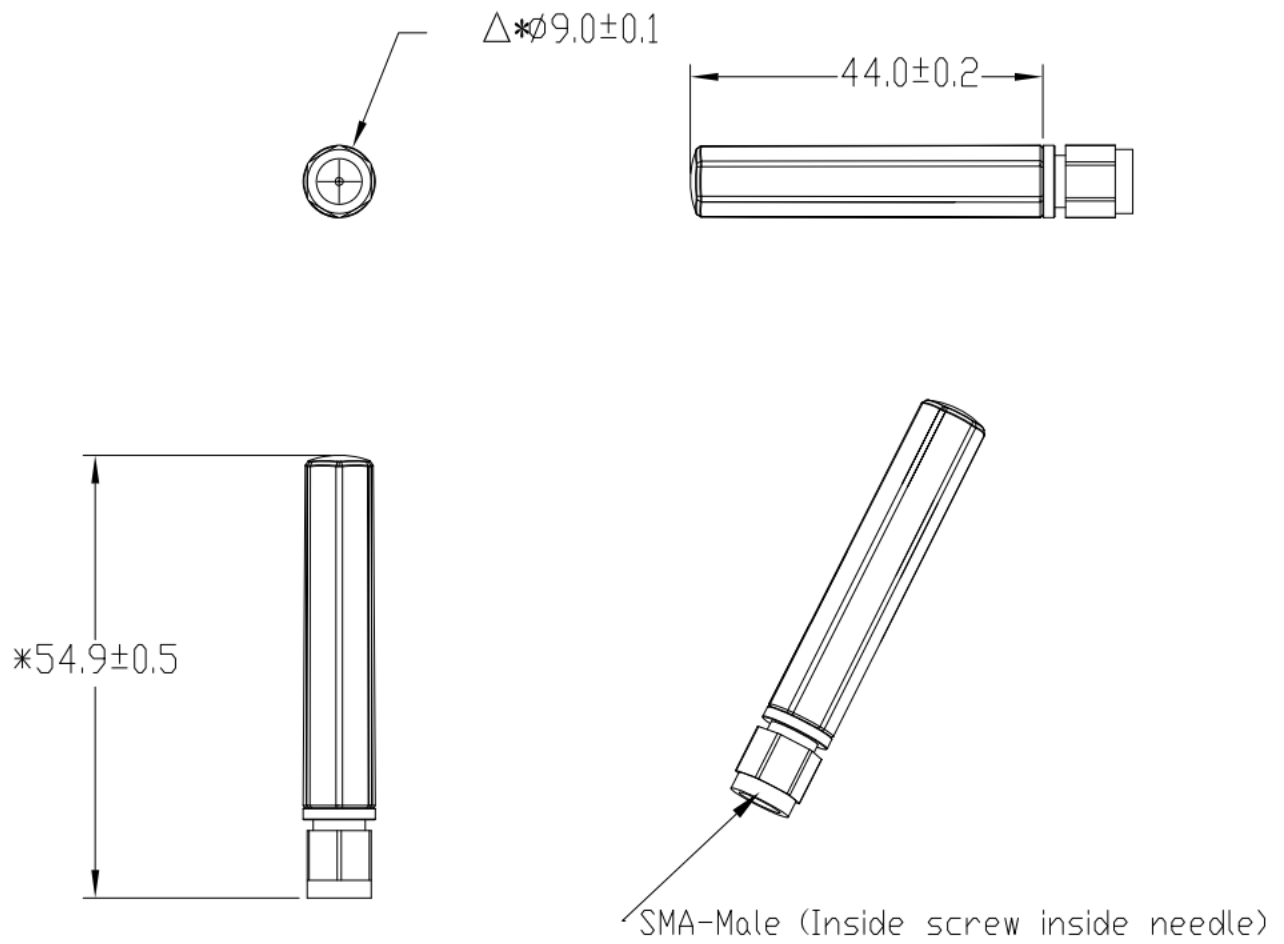
Note:

- Covered √ means efficiency > 20 %.

1.3 Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 9 mm × 54.9 mm
Material & Color	TPE & Black
Connector Type	SMA Male
Mounting Type	Terminal
Weight	Typ. 5.1 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP53
RoHS and REACH Compliant	Yes

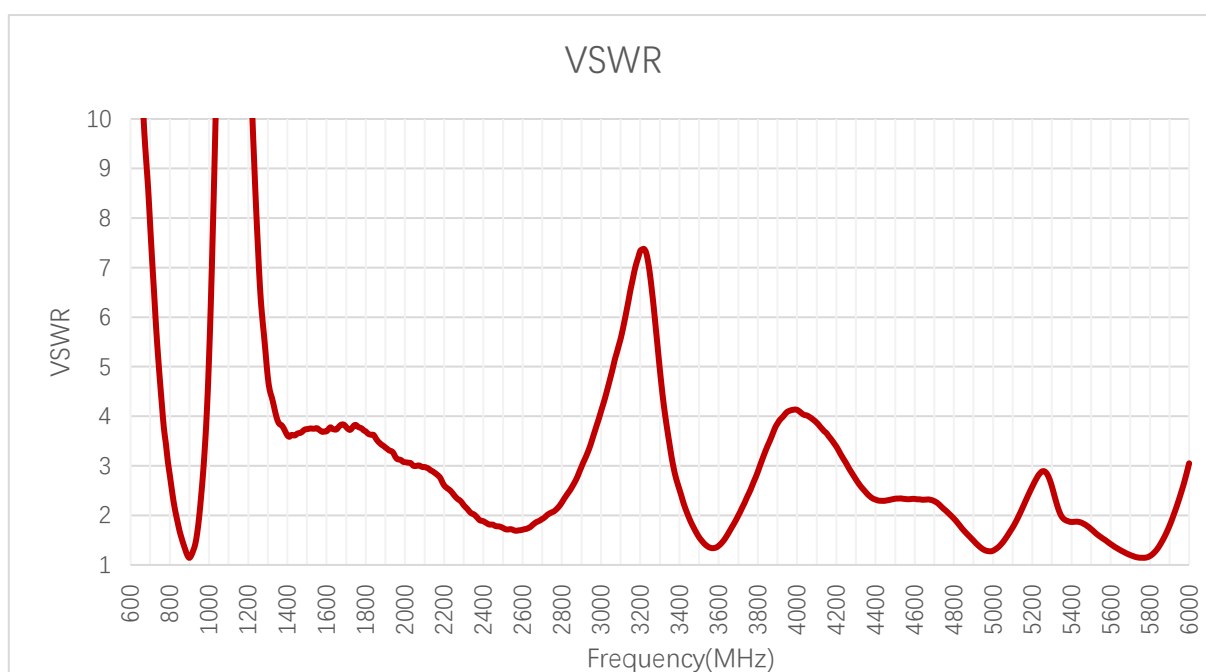
2 Drawing



3 Detailed Performance

3.1. Radiation Performance Test

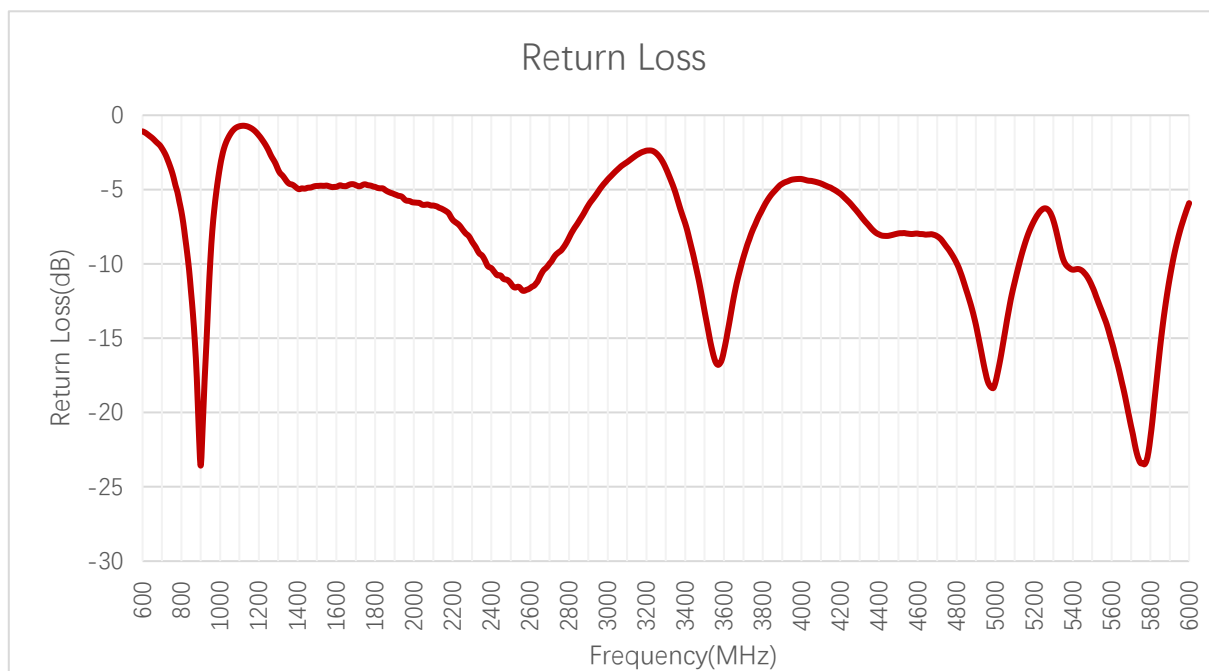
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	-	-	7.2	2.1	1.1	2.4	-	3.7	3.8	3.4
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
VSWR	3.2	2.9	2.0	1.8	1.7	1.4	2.3	1.3	1.7	3.1

3.1.2. Return Loss

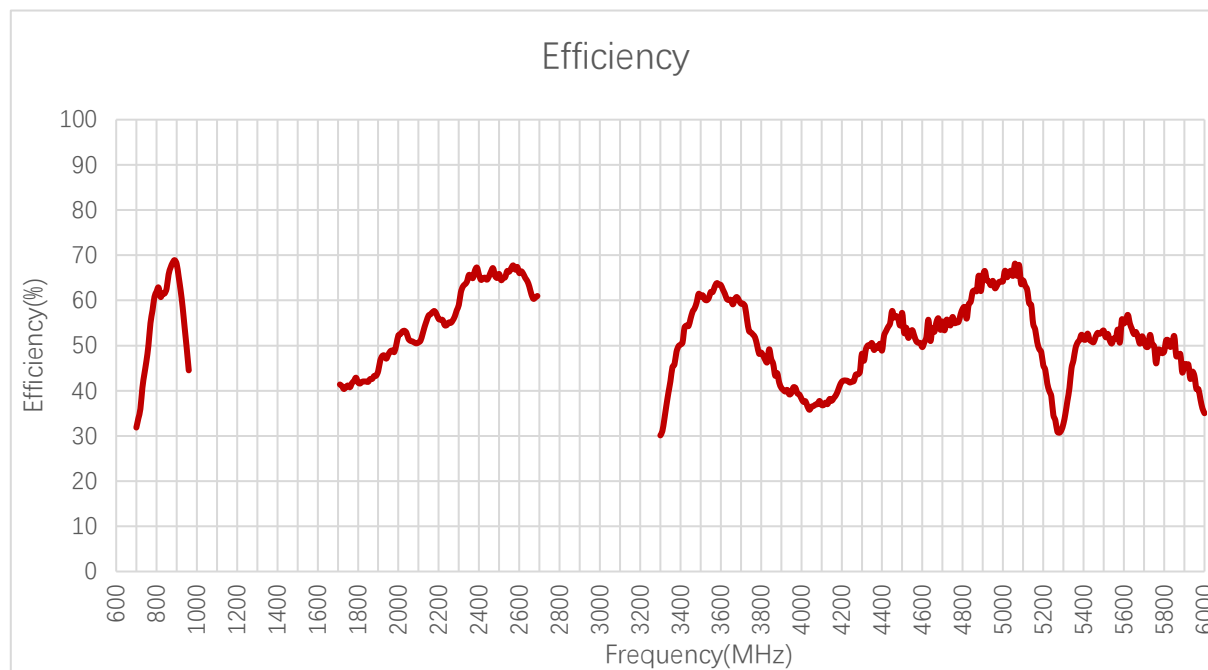


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-	-	-2.4	-9.3	-23.6	-7.8	-	-4.8	-4.7	-5.2
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
Return Loss (dB)	-5.6	-6.3	-9.4	-10.8	-11.6	-15.8	-8.1	-18.0	-11.5	-5.9

3.2. Radiation Performance Test

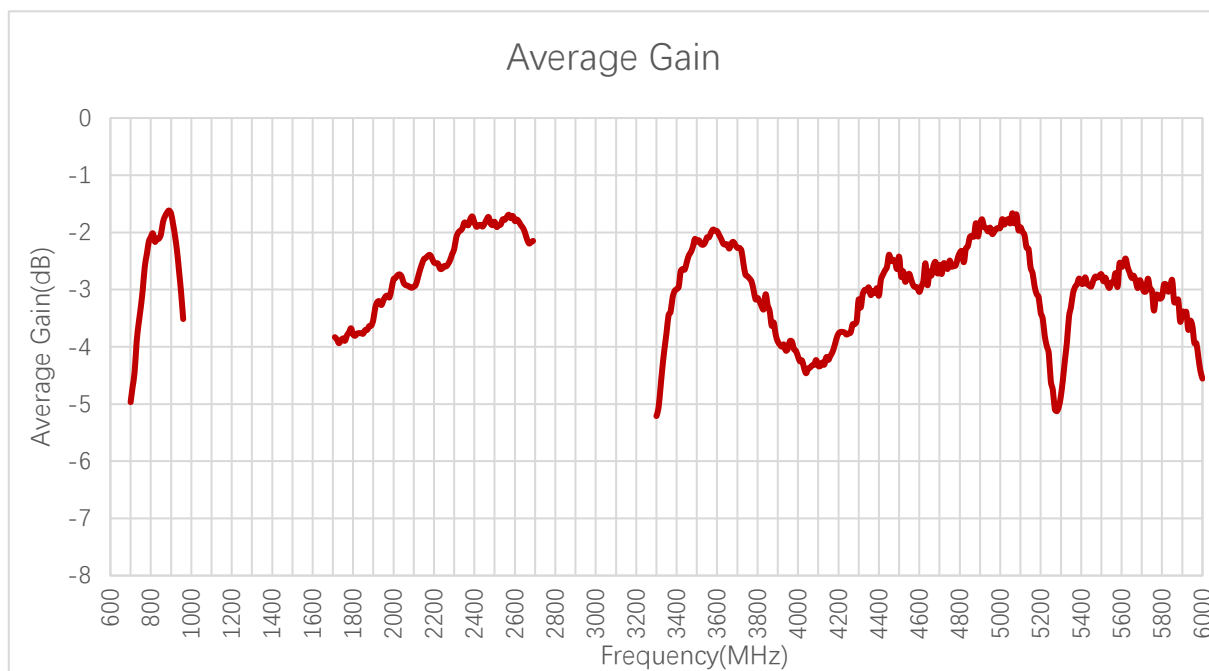
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	-	-	33.9	61.5	68.1	44.5	-	41.4	40.8	43.3
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
Efficiency (%)	48.0	55.5	65.6	65.3	66.1	63.4	55.3	64.2	53.3	35.0

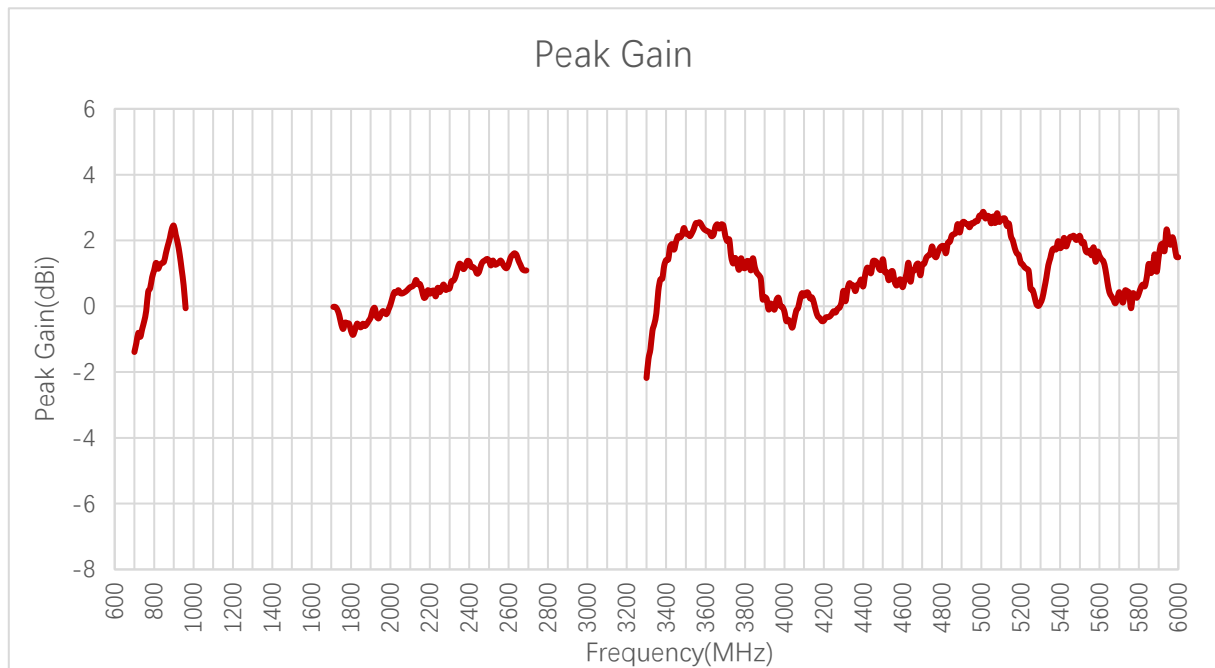
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-	-	-4.7	-2.1	-1.7	-3.5	-	-3.8	-3.9	-3.6
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
Average Gain (dB)	-3.2	-2.6	-1.8	-1.8	-1.8	-2.0	-2.6	-1.9	-2.7	-4.6

3.2.3. Peak Gain



Peak Gain (dBi)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	-	-	-1.1	1.3	2.5	-0.1	-	0.0	-0.3	-0.5

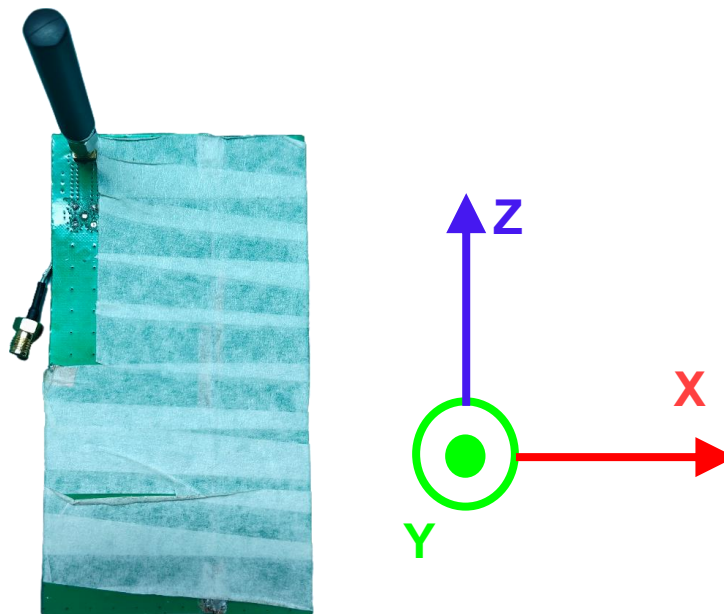
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
Peak Gain (dBi)	-0.3	0.7	1.3	1.1	1.3	2.3	1.3	2.8	2.1	1.5

Max Peak Gain (dBi)

Band	B71	B12 /B13 /B28	B5 /B8 /B26	n74 /n75 /n76	B1 /B2 /B3	B40	Wi-Fi 2G	B38 /B41	B42 /B48 /n77	n79	Wi-Fi 5G
Frequency (MHz)	-	810	900	-	2130	2390	2490	2630	3570	4990	5470
Peak Gain (dBi)	-	1.3	2.5	-	0.8	1.4	1.4	1.6	2.6	2.8	2.1

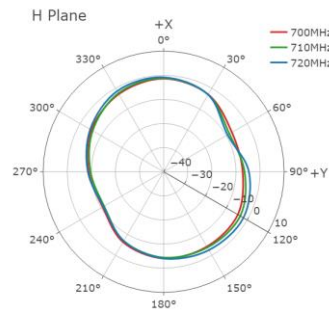
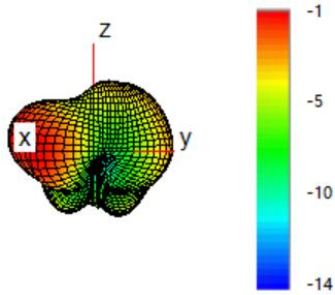
3.2.4. 3D & 2D Radiation Pattern

- Test Condition: On 130 mm × 70 mm EVB
- Test Chamber: GL-G-1

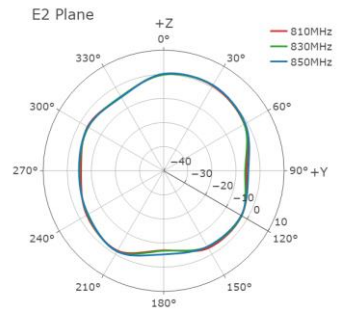
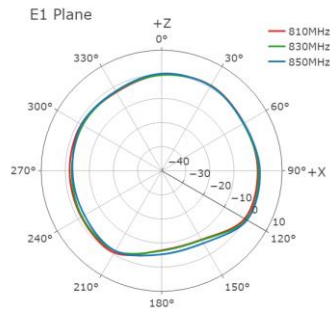
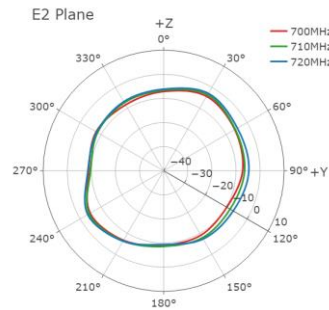
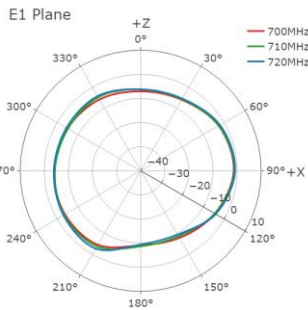
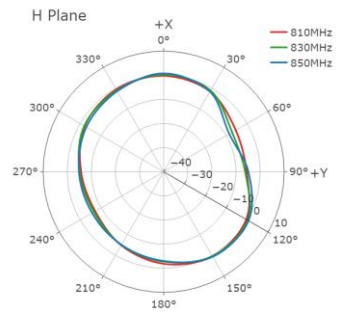
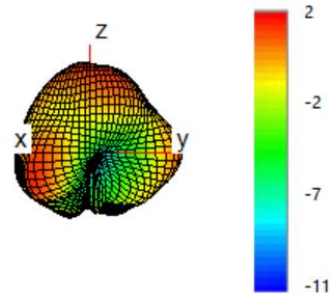


- On 130 mm × 70 mm EVB

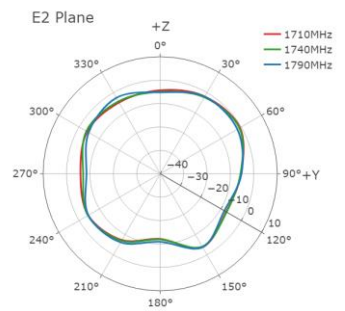
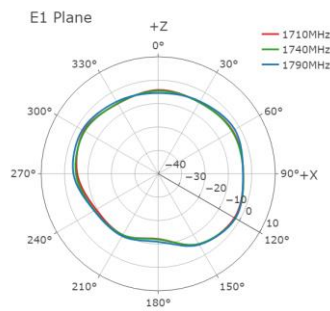
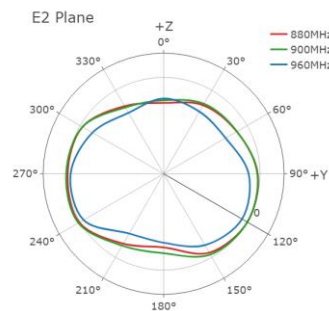
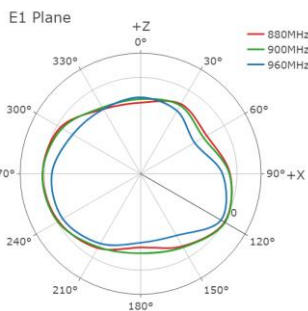
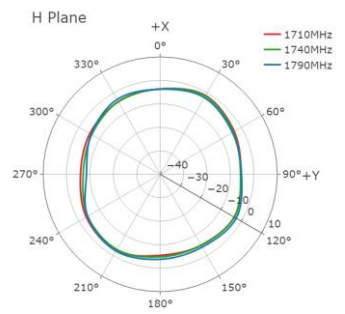
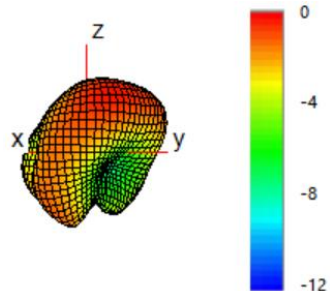
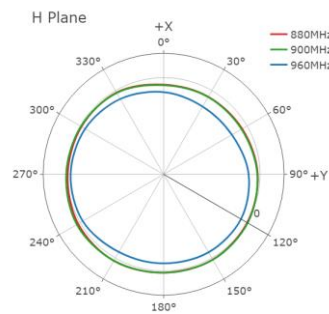
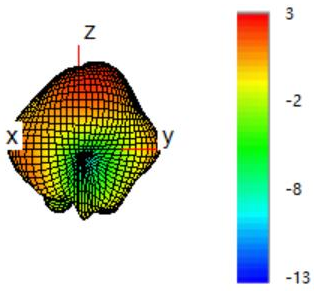
710 MHz

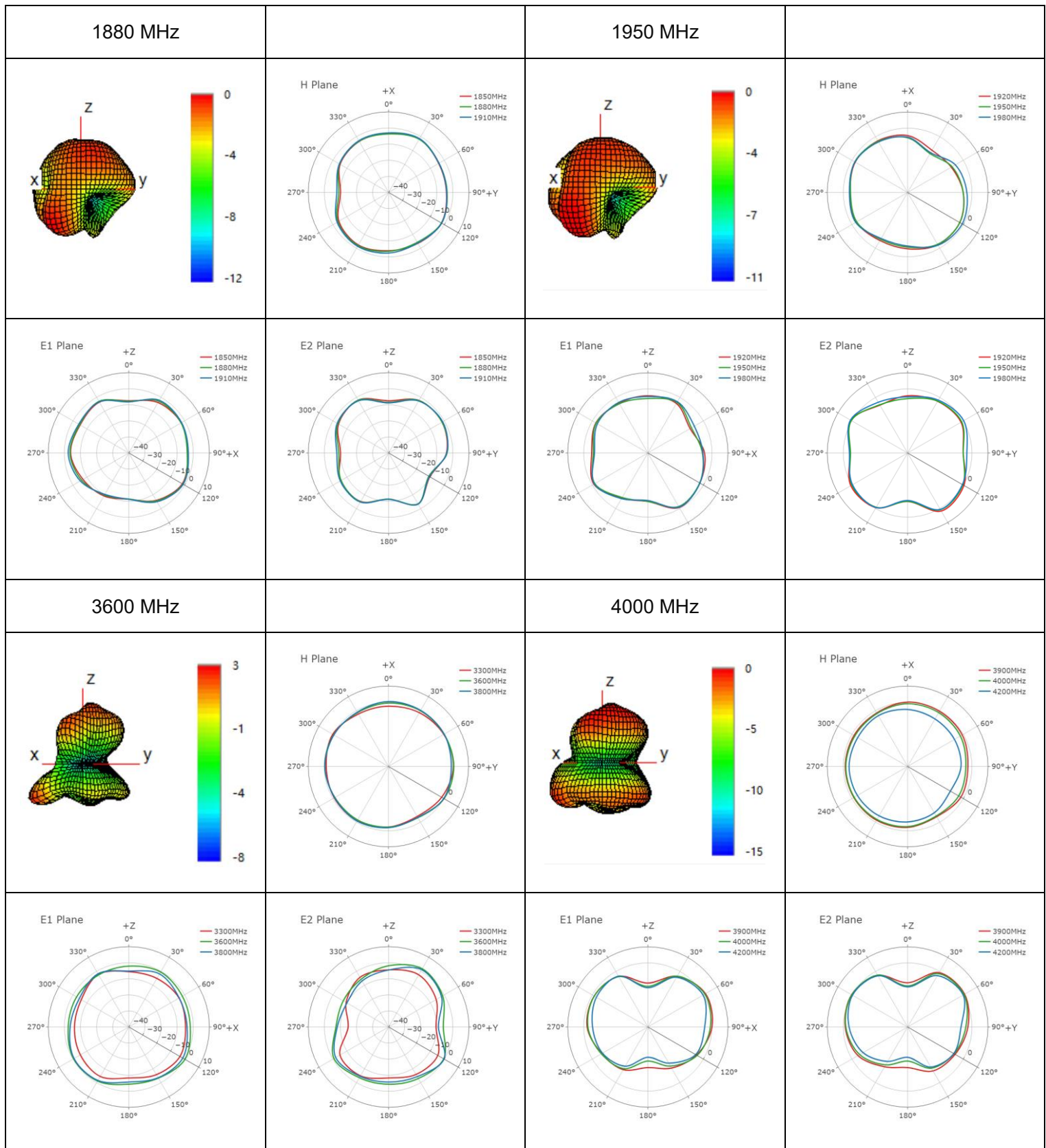


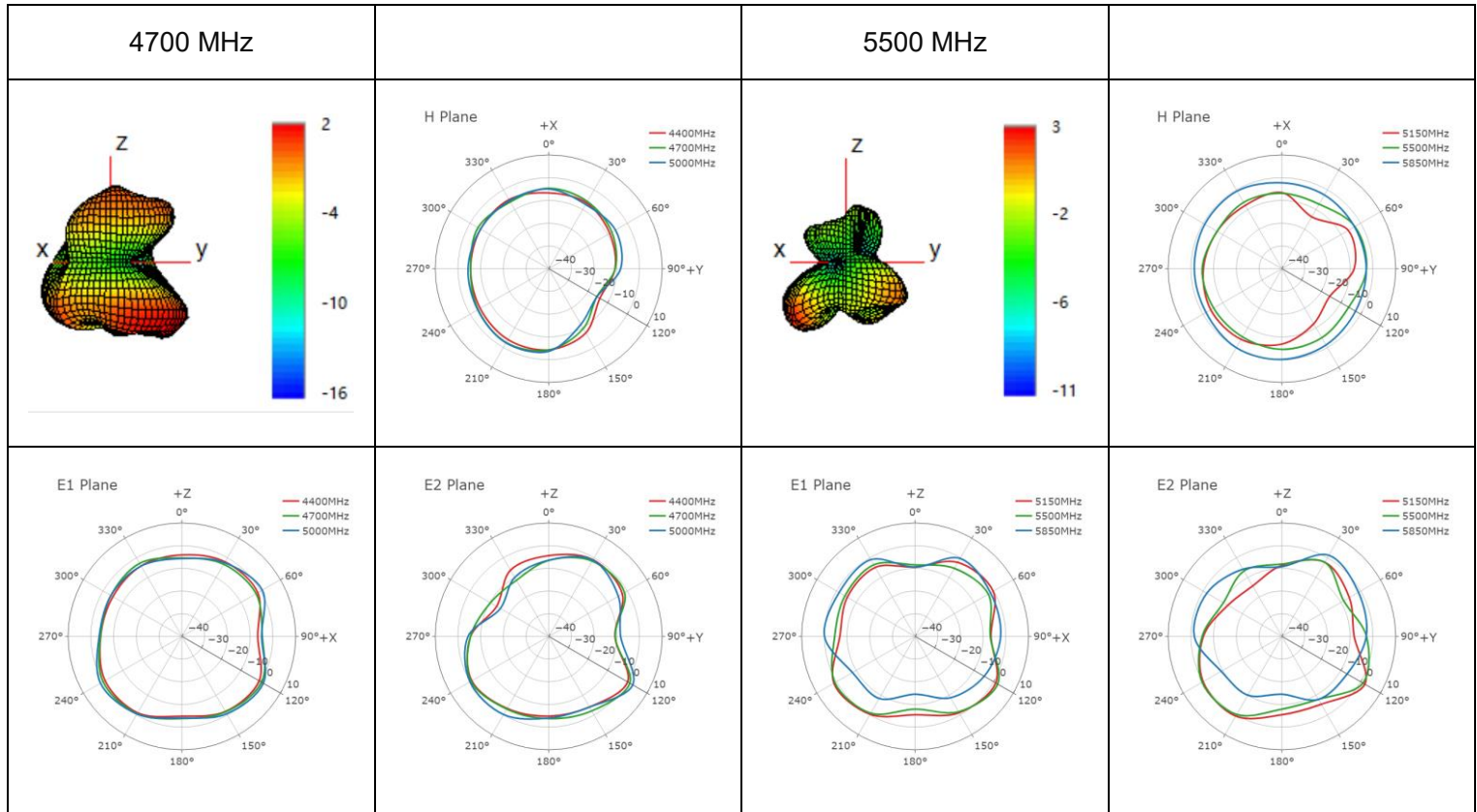
830 MHz



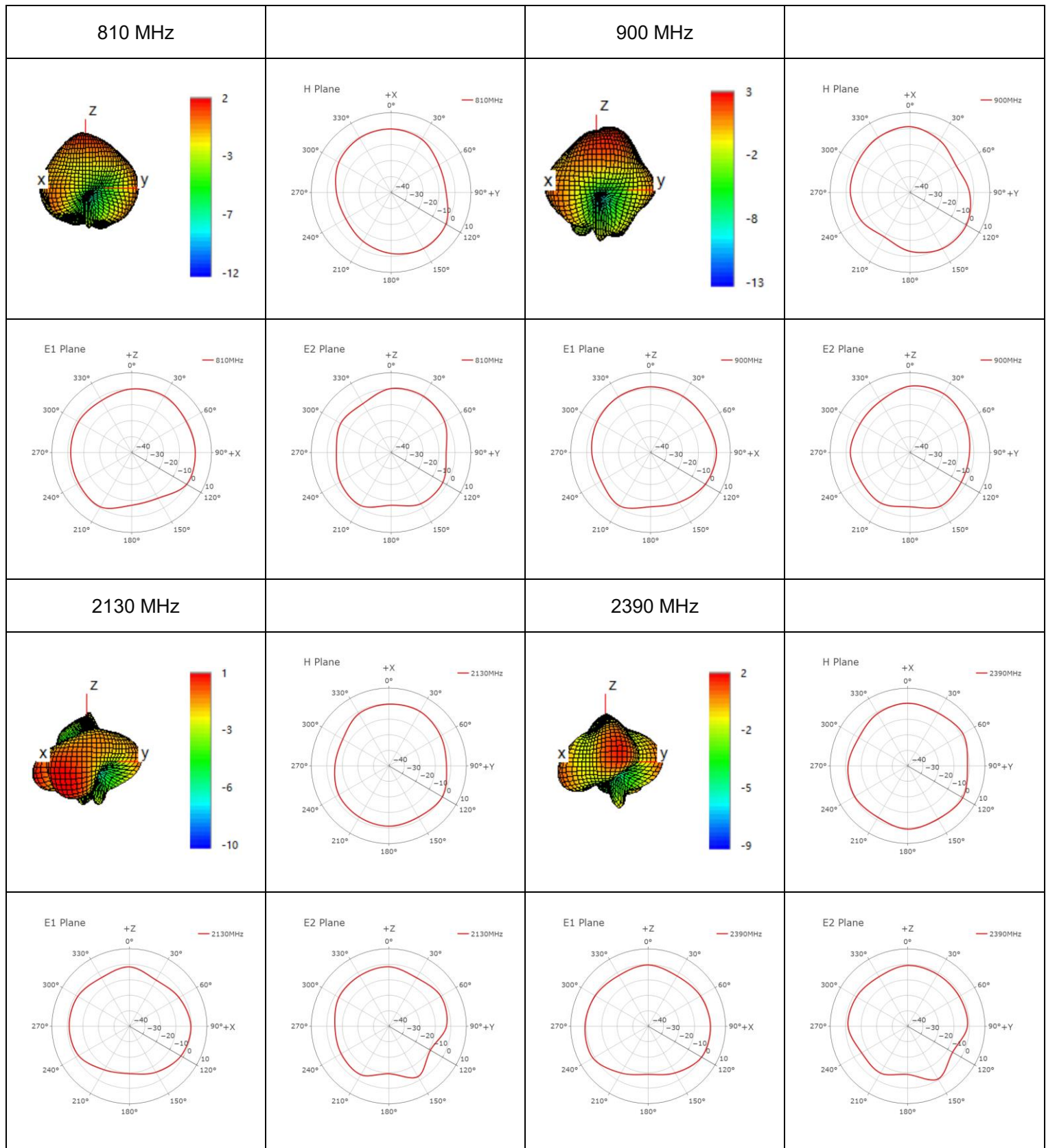
900 MHz



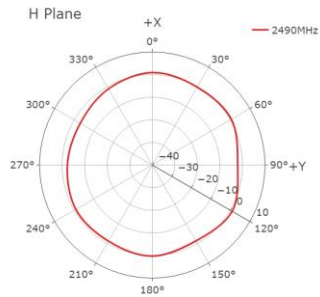
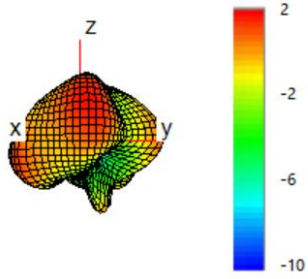




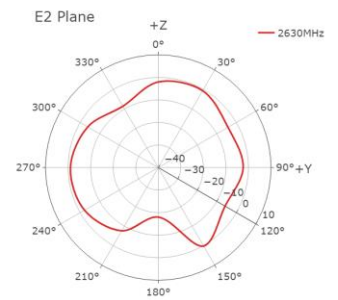
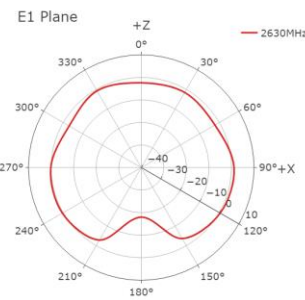
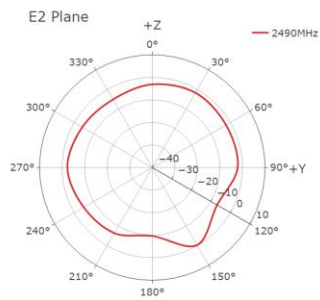
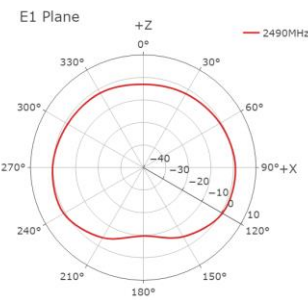
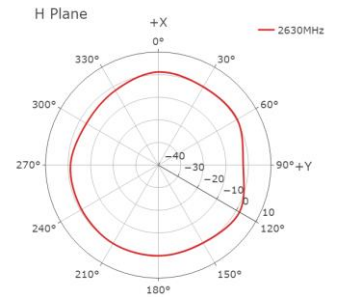
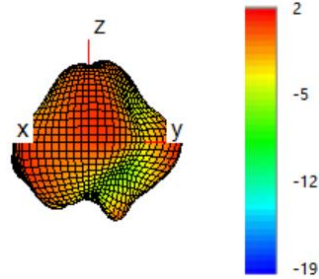
● **Max Peak Gain**



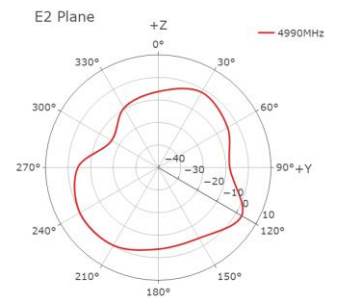
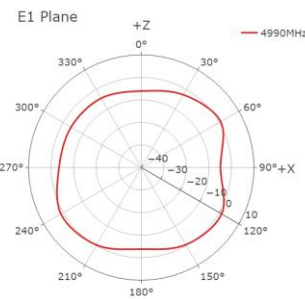
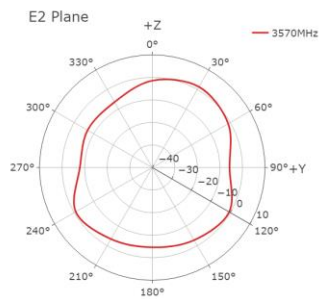
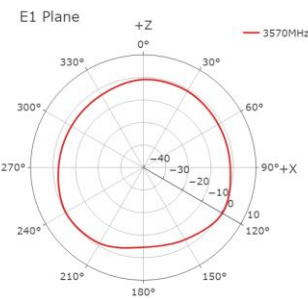
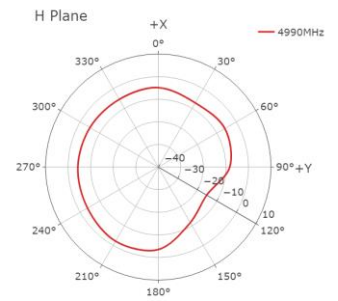
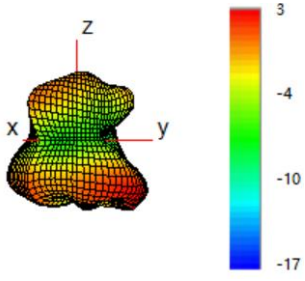
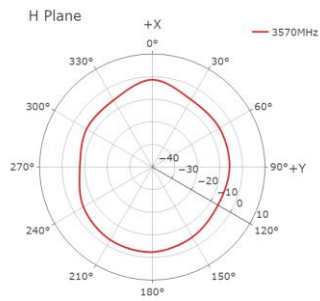
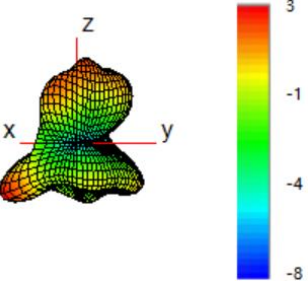
2490 MHz

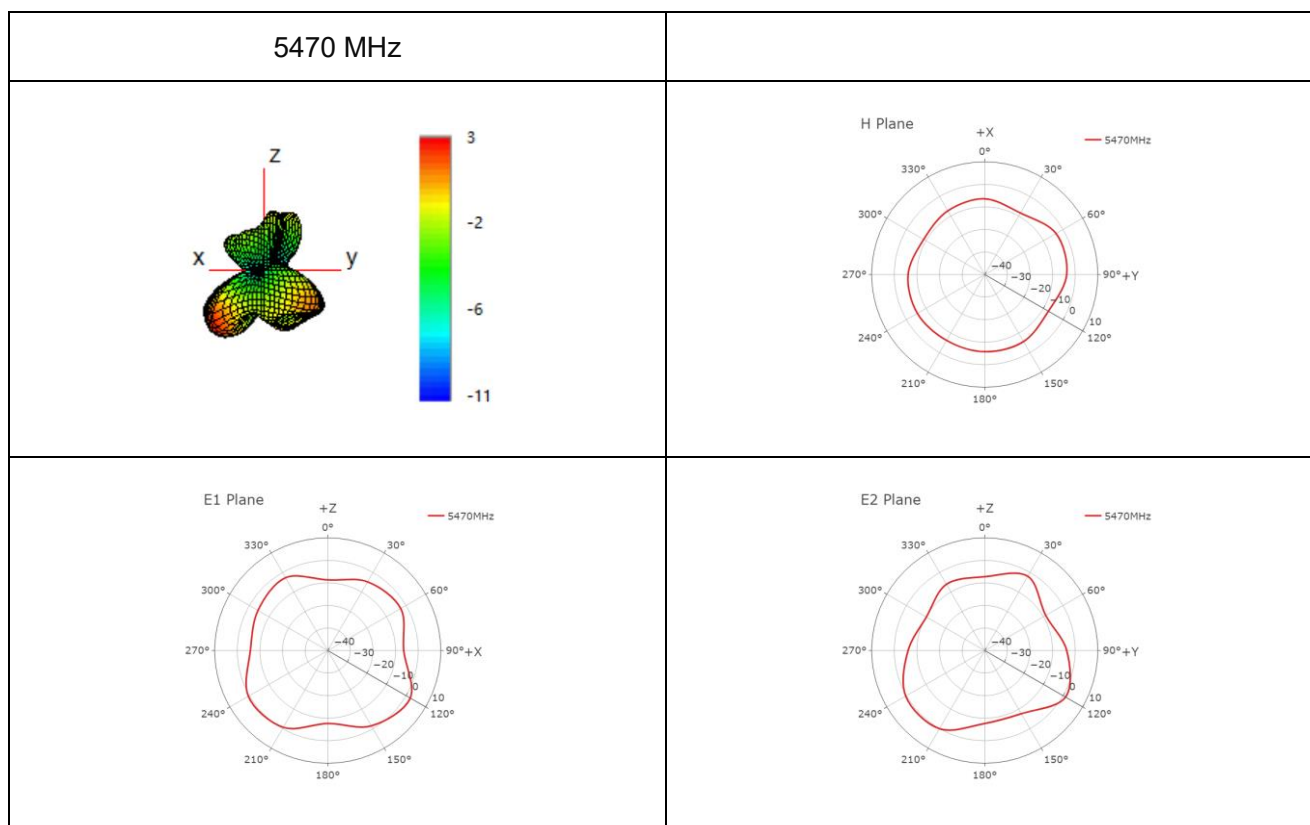


2630 MHz

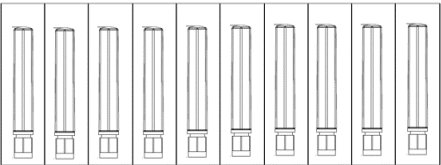
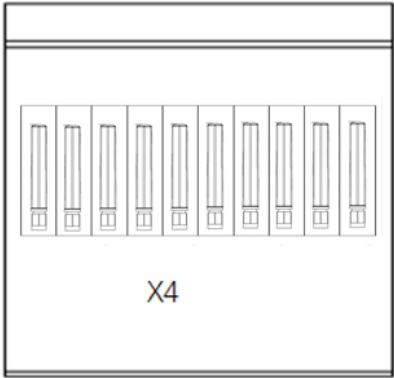
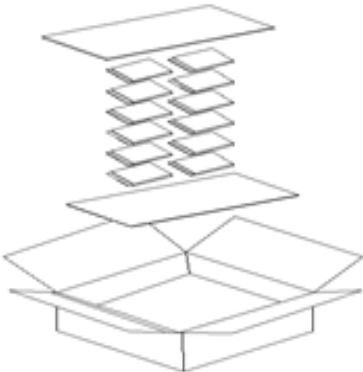


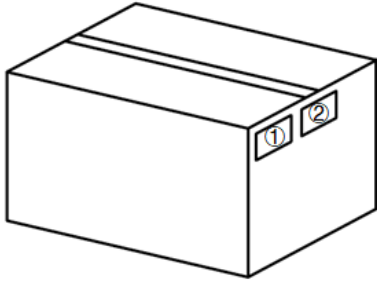
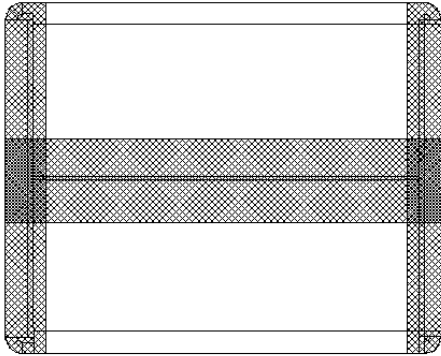
3570 MHz





4 Packaging

Step	Packaging Picture/2D Picture	Description
1		10 pcs antenna products in a one-piece bag. (10 PCS / One-piece Bag)
2		40 pcs antenna products in a PE bag. (40 PCS / PE Bag)
3		(25 PE Bags / Carton Box) (1000 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 = 405 × 293 × 185 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
-	2024-08-29	Mayes LI/ Steven MO/ David LIU/ Rainey LIAO	Creation of the document
1.0	2024-08-29	Mayes LI/ Steven MO/ David LIU/ Rainey LIAO	First official release
1.1	2024-10-17	Steven MO	Added Ingress Protection (IP) Rating (Chapter 1.2).



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