Antenna Datasheet

Product OC: YECT101W7AH
Version: 1.0
Date: 2025-02-05
Status: Released

Product Name: 5G Terminal Mount External Monopole Antenna
Key Features:
Frequency Band: 600–960 MHz, 1400–2690 MHz, 3300–6000 MHz
Dimensions: Φ 40.6 mm × 78 mm
Efficiency: Up to 89.2 %
RoHS and REACH Compliant
IP67
IP69K
IK10

Overview

The YECT101W7AH is an 5G external antenna measuring Φ 40.6 mm × 78 mm. This ultra-wide-band ISM antenna provides coverage the 5G/4G/3G/2G networks as well at LPWA, Cat-M, NB IoT, ZigBee, ISM, Wi-Fi/BT. The antenna is terminated with N 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 IP67 & IP69K and IK10 rated, ASA enclosure. It is compatible with Quectel's 5G Series modules.

The YECT101W7AH is designed as a monopole antenna, which needs to be mounted on a ground plane to offer high efficiency in all working bands. It can adopt waterproof, dustproof, and anti-drop design, with IP67 and IP69K waterproof and dustproof ratings, and IK10 impact protection (IK) rating, this design can maximize the protection of the antenna from natural environmental damage such as water droplets, dust and falls. We also provide a housing UV resistant of UL 746c f1, which can allow the YECT000WXA to be used in outdoor environments for a long time and remain intact even in harsh environments, thereby extending its service life for providing a more flexible and reliable high-performance antenna solution for products in external application environments.

Typical Applications Include:

- Smart Buildings: Climate control, access control, security, irrigation
- Transport (Busses, Utility & Public Safety)
- Agricultural machinery
- Mining Vehicles & Machinery communications, telemetry and automation
- Industrial factory automation
- Warehouses & Logistic systems

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 300 mm × 300 mm metal plane

1.1. Electrical

Electrical	
Frequency Range	600–960MHz, 1400–2690 MHz, 3300–6000 MHz
Impedance	50 Ω
Polarization	Vertical
Radiation Pattern	Omni-directional

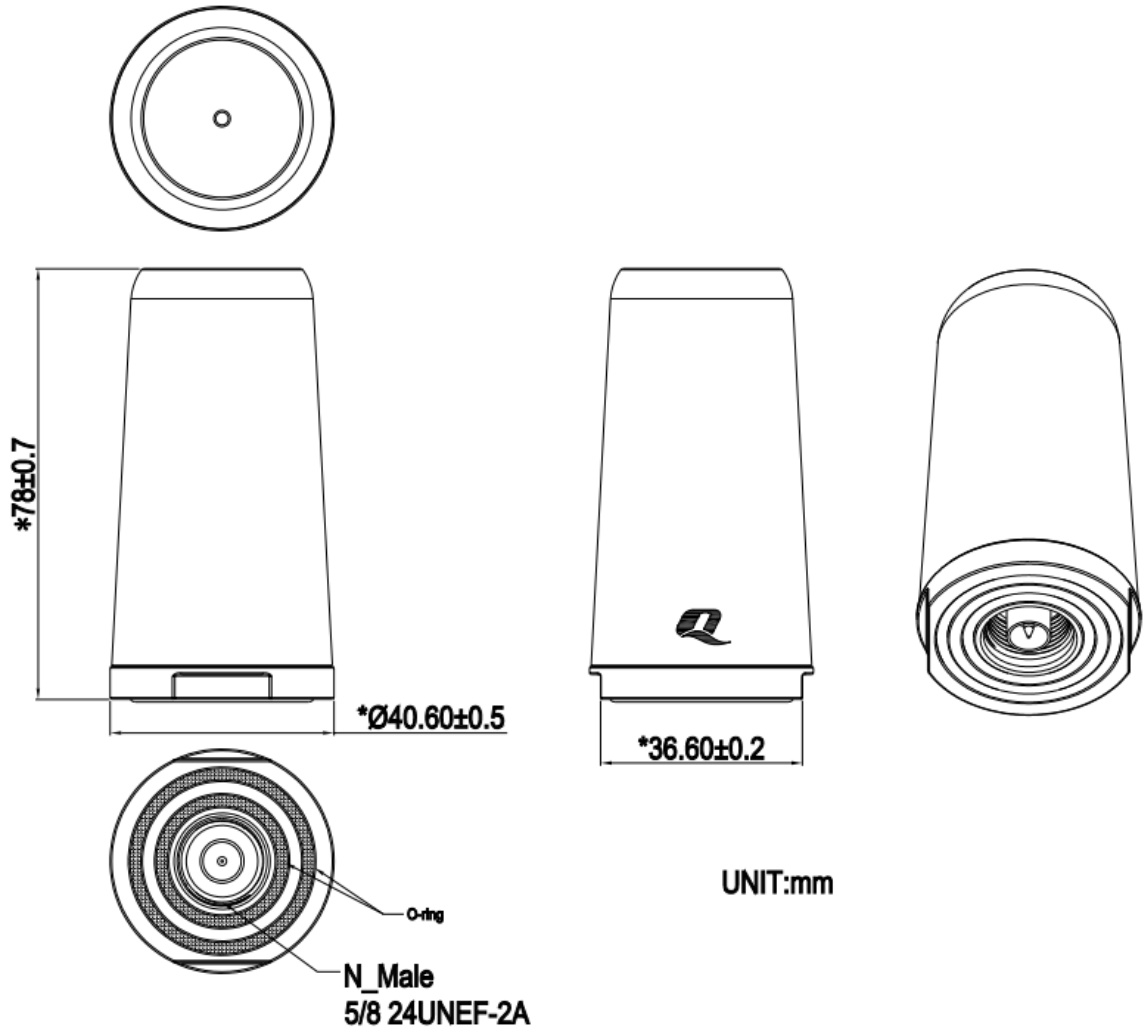
Electrical – Detail

Band / 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		9.8	3.6	1.4	1.9	1.8	1.1	1.2	1.2	2.5	2.6	1.8
Max. Return Loss (dB)		-1.8	-5.0	-16.1	-10.0	-10.8	-24.8	-20.9	-19.8	-7.3	-6.9	-10.8
AVG Eff. (%)		39.3	71.8	85.0	77.8	78.8	82.0	81.1	79.1	65.8	65.6	60.7
AVG AVG Gain (dB)		-4.3	-1.5	-0.7	-1.1	-1.0	-0.9	-0.9	-1.0	-1.8	-1.8	-2.2
Max. Peak Gain (dBi)		1.0	2.4	3.2	3.7	4.4	3.4	3.0	3.3	4.8	8.3	8.0
VSWR		≤ 9.8										
Return Loss		≤ -1.8 dB										
Peak Gain		≤ 8.3 dBi										

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 40.6 mm × 78 mm
Material & Color	ASA & Black
Connector Type	N Male
Weight	Typ. 180 g
Mounting Type	Screw
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP67 (After Installation) IP69K (After Installation)
Impact Protection (IK) Rating	IK10
RoHS & REACH Compliant	Yes
Housing UV Resistant	UL 746c f1

2 Drawing

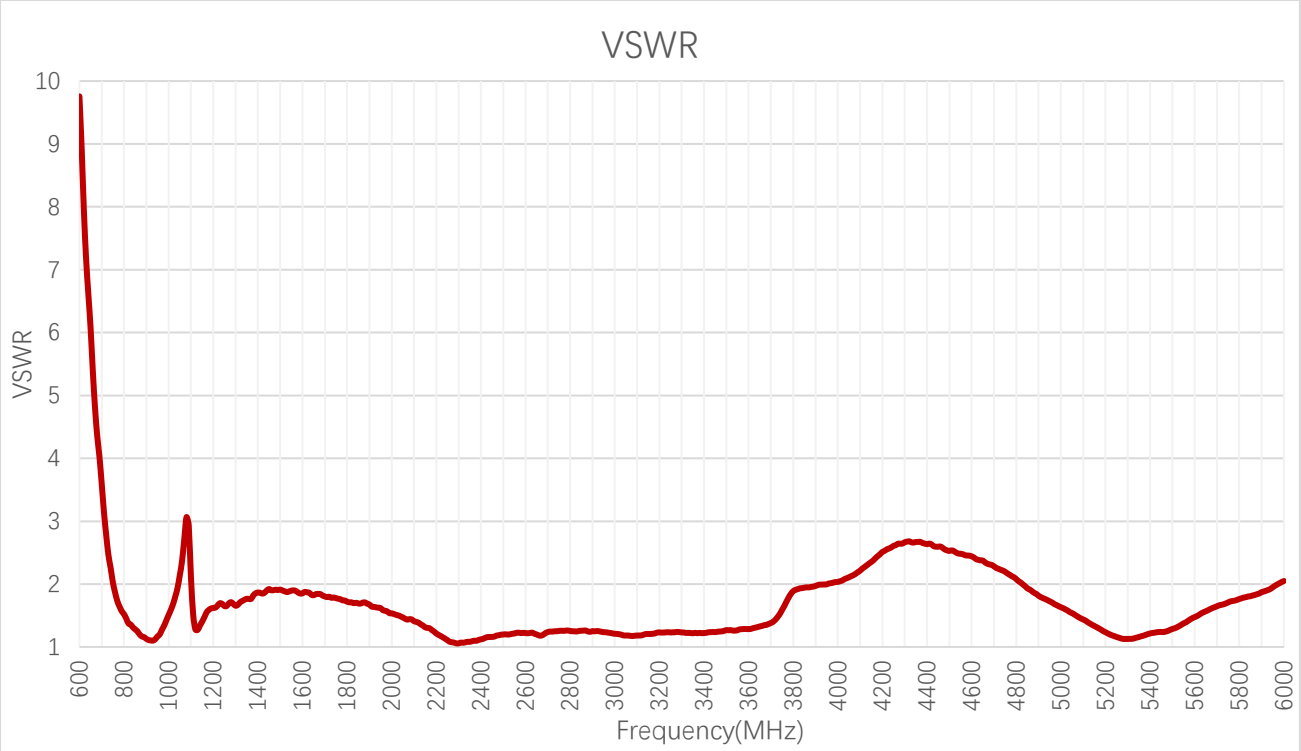


Caution: If you find the silicon seal ring dropping out of the groove when opening the package, it's a normal phenomenon due to its special structure design. Please assemble the silicon seal ring into groove before you assemble antenna on the device, thanks!

3 Detailed Performance

3.1. S-Parameter Test

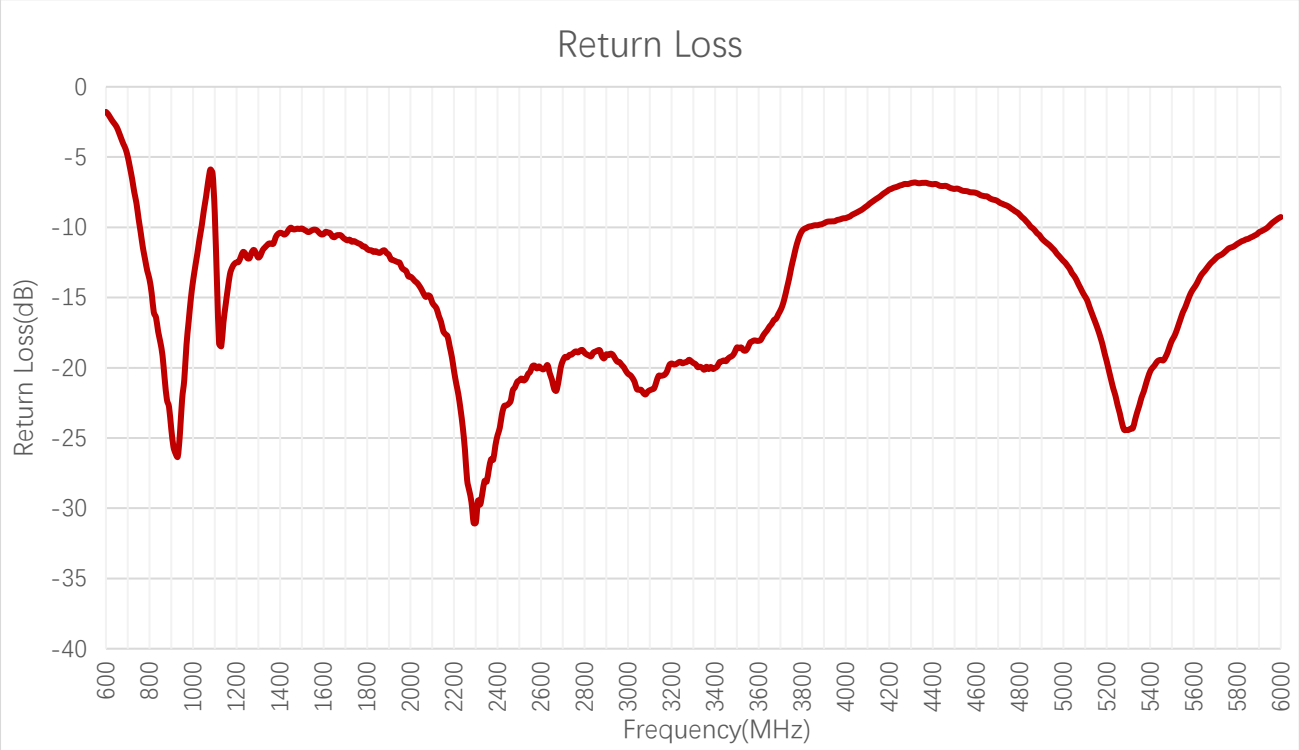
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	9.8	7.2	3.1	1.4	1.1	1.2	1.9	1.8	1.8	1.7
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
VSWR	1.6	1.3	1.1	1.2	1.2	1.3	2.3	1.6	1.3	2.0

3.1.2. Return Loss

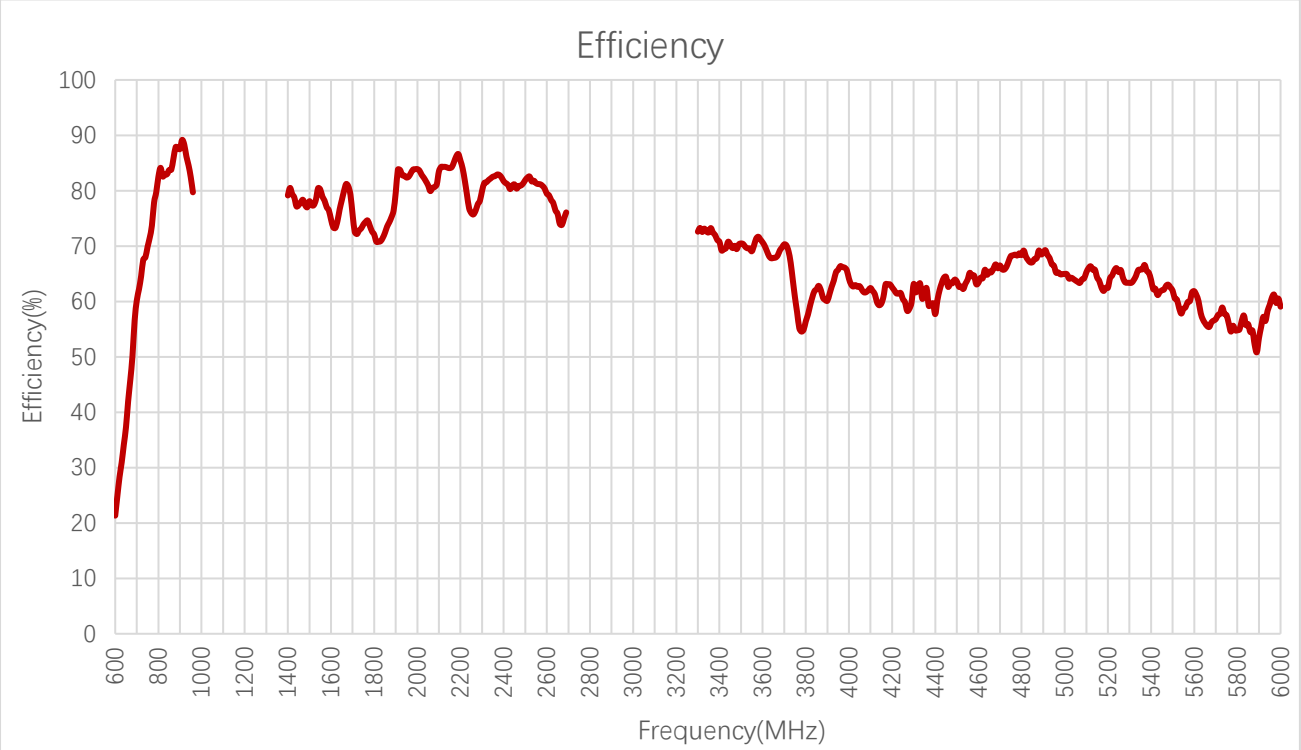


Return Loss (dB)

Frequency (MHz)	**600**	**630**	**710**	**830**	**900**	**960**	**1440**	**1710**	**1740**	**1880**
Return Loss (dB)	-1.8	-2.4	-5.7	-16.4	-24.3	-20.8	-10.2	-10.9	-11.0	-11.6
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
Return Loss (dB)	-12.5	-16.7	-28.1	-22.6	-20.0	-18.1	-8.2	-12.4	-18.0	-9.3

3.2. Radiation Performance Test

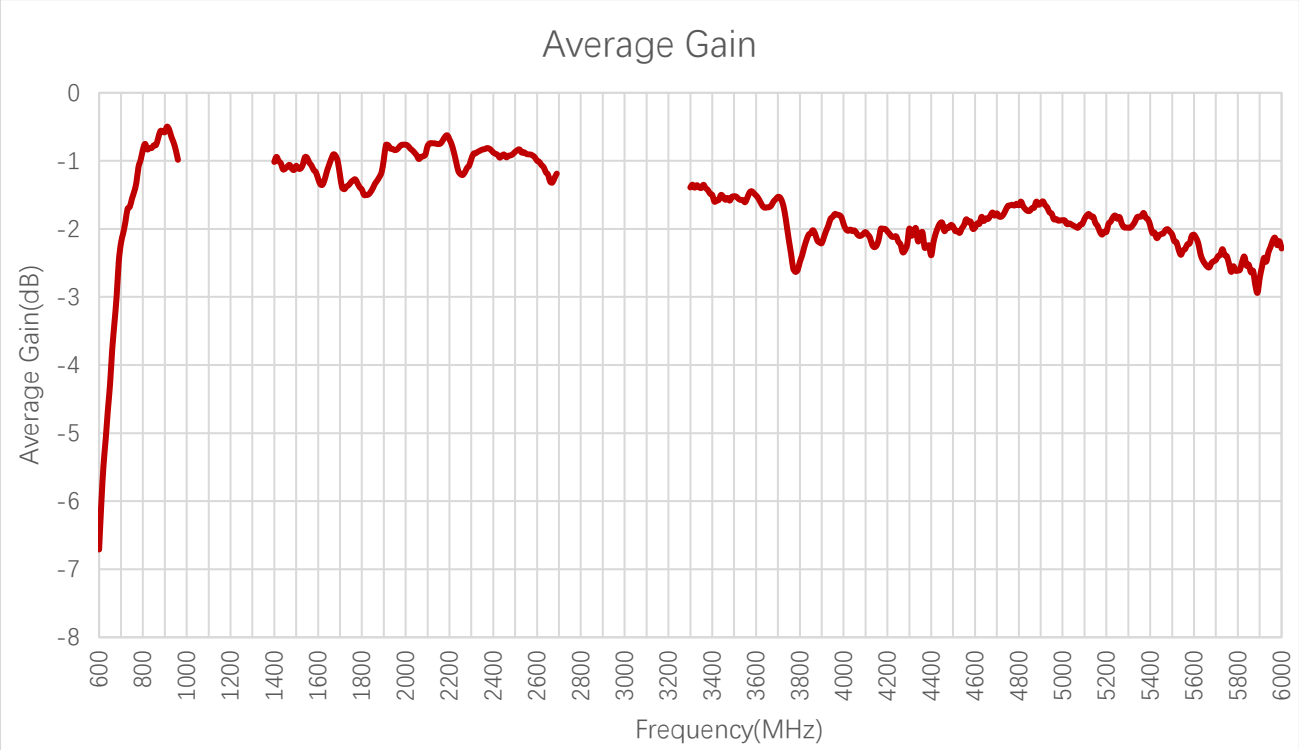
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	**600**	**630**	**710**	**830**	**900**	**960**	**1440**	**1710**	**1740**	**1880**
Efficiency (%)	21.3	30.9	62.2	83.0	87.5	79.7	77.2	72.6	73.2	75.2
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
Efficiency (%)	82.4	84.2	82.5	81.2	79.5	70.7	66.5	65.0	62.0	59.1

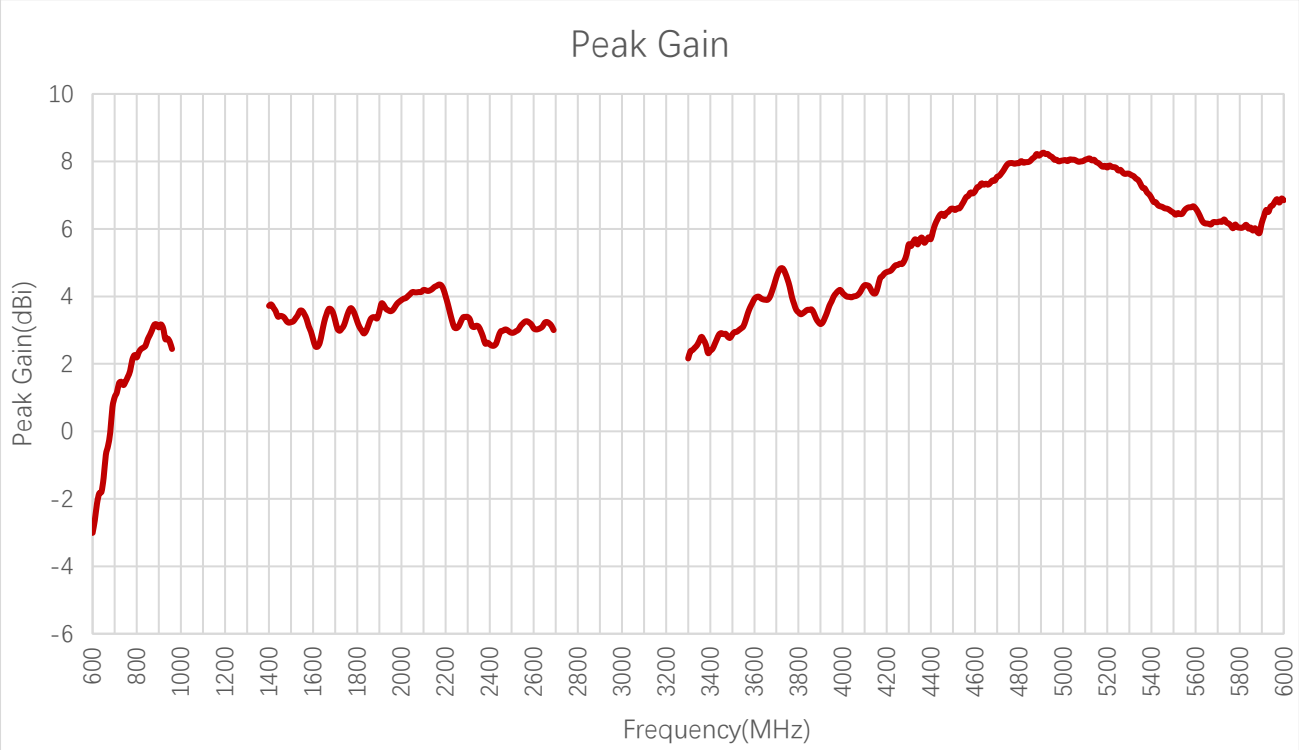
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-6.7	-5.1	-2.1	-0.8	-0.6	-1.0	-1.1	-1.4	-1.4	-1.2
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
Average Gain (dB)	-0.8	-0.7	-0.8	-0.9	-1.0	-1.5	-1.8	-1.9	-2.1	-2.3

3.2.3. Peak Gain

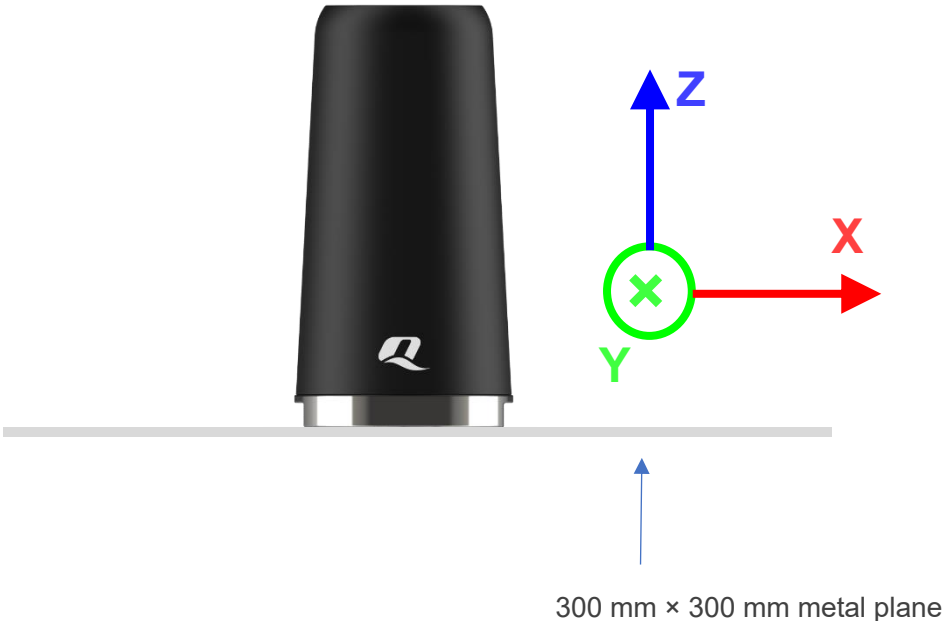


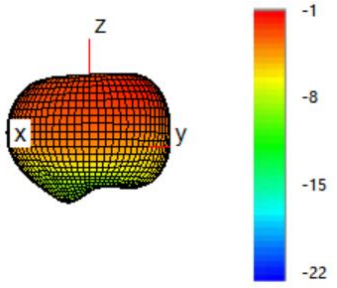
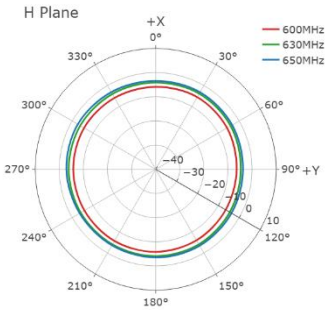
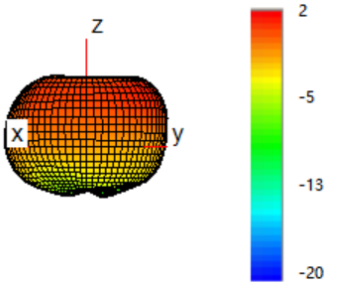
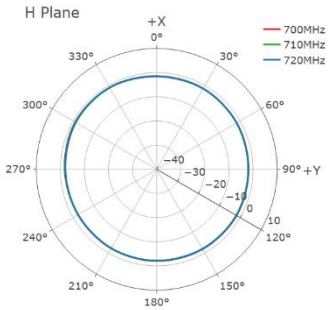
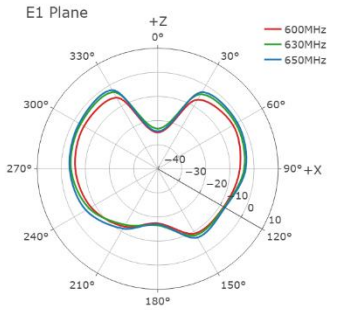
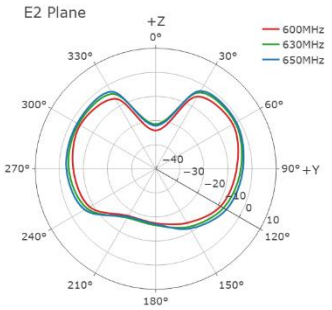
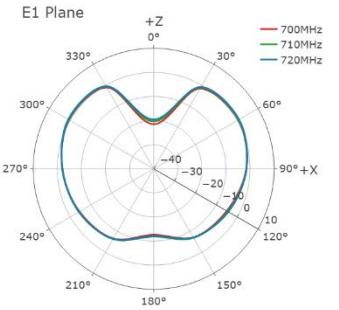
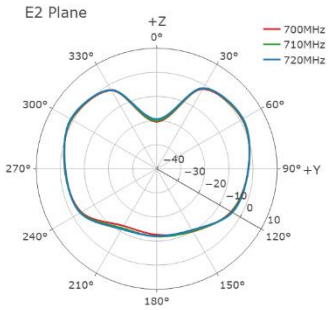
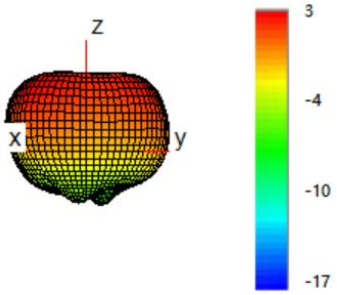
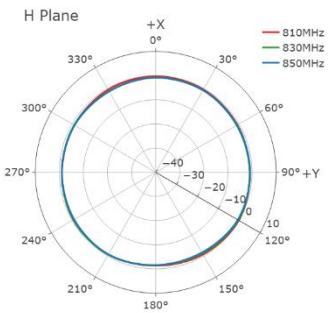
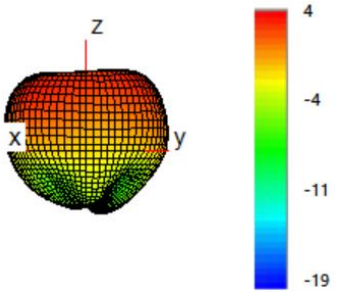
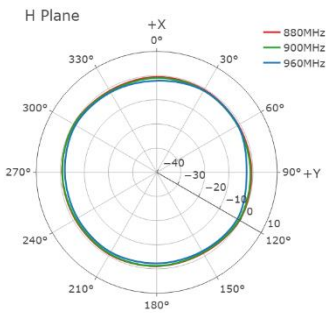
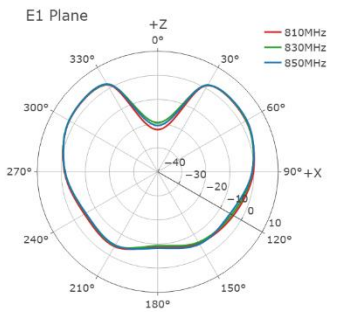
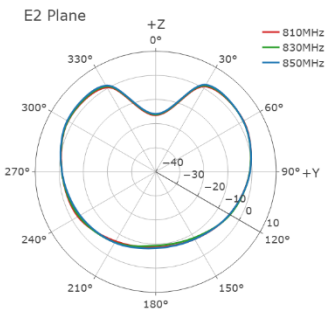
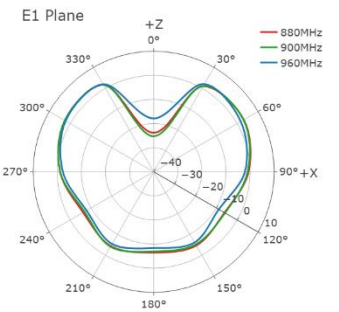
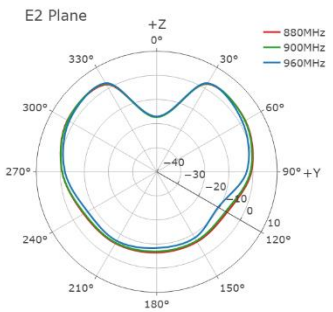
Peak Gain (dBi)

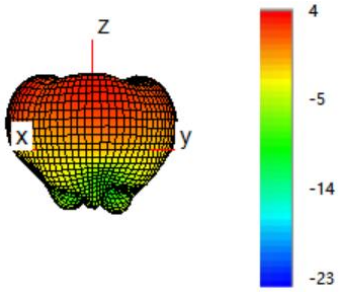
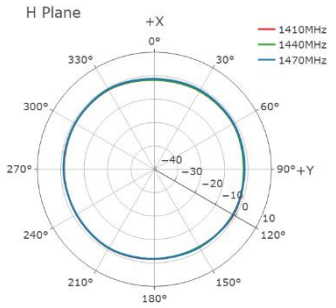
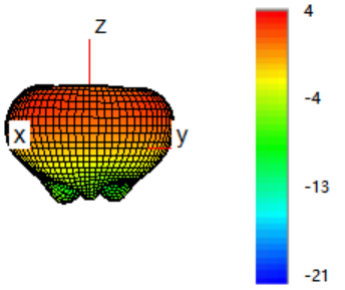
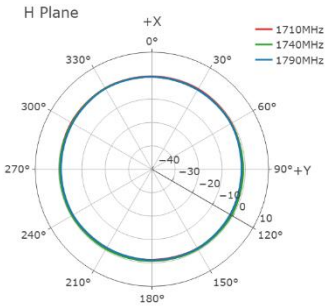
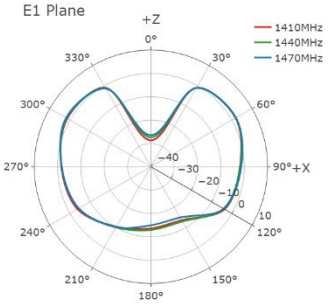
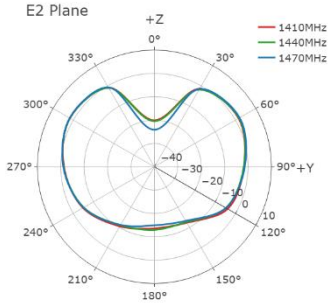
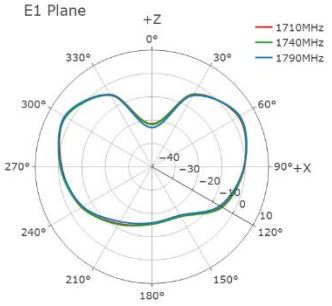
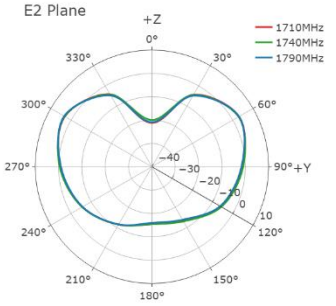
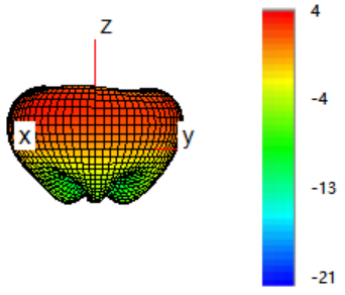
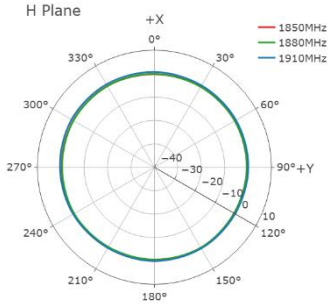
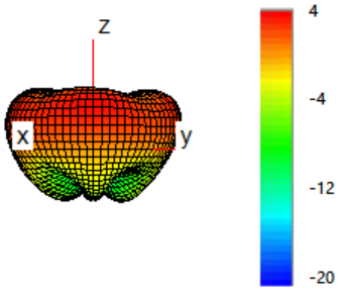
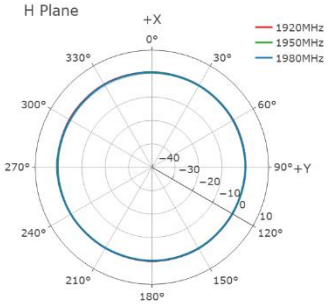
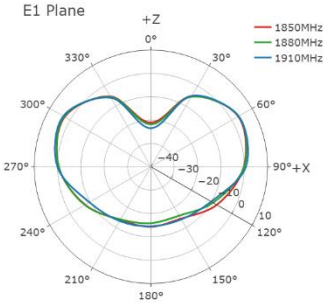
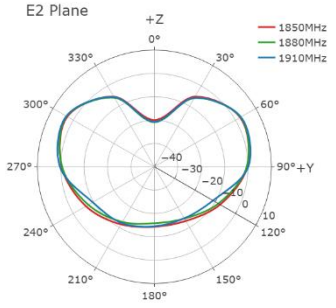
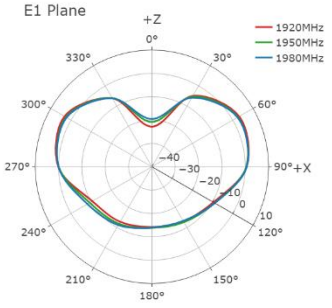
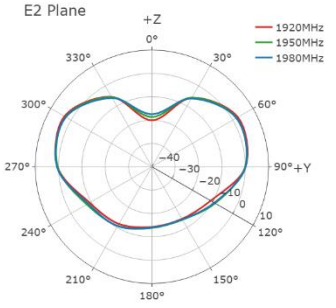
Frequency (MHz)	**600**	**630**	**710**	**830**	**900**	**960**	**1440**	**1710**	**1740**	**1880**
Peak Gain (dBi)	-3.0	-1.8	1.2	2.5	3.1	2.4	3.4	3.0	3.2	3.4
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
Peak Gain (dBi)	3.6	4.2	3.1	3.0	3.1	3.9	7.5	8.0	6.5	6.9

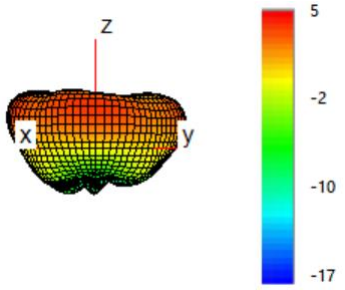
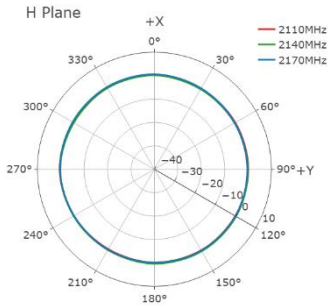
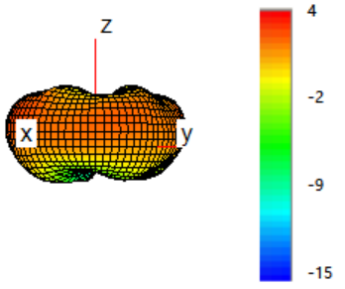
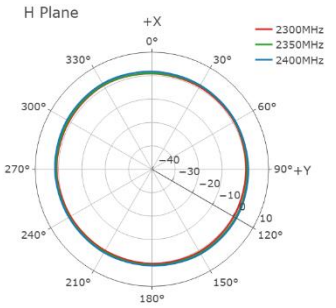
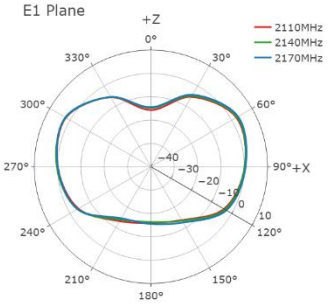
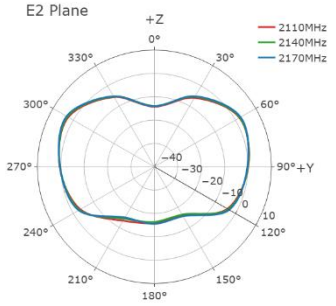
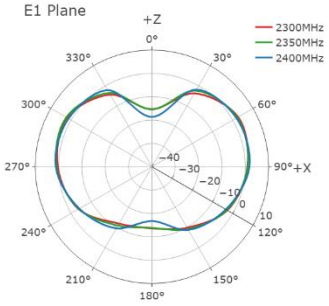
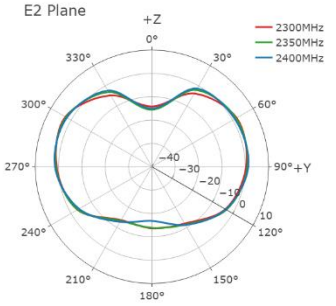
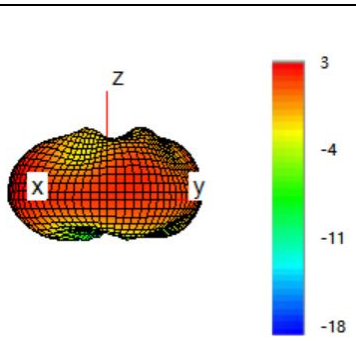
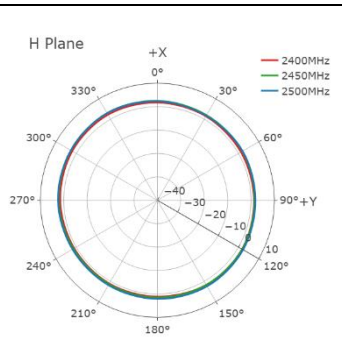
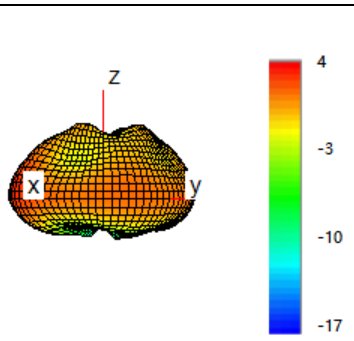
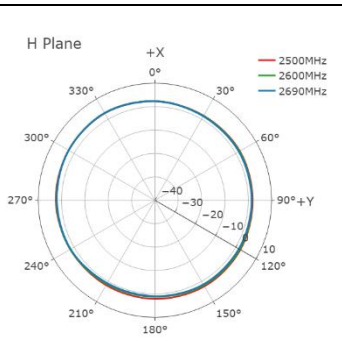
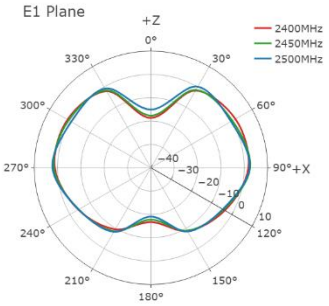
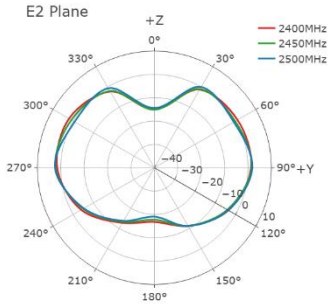
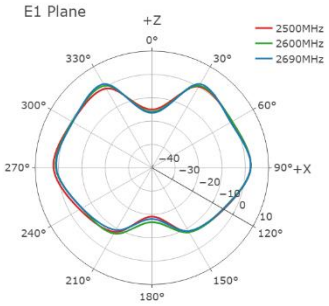
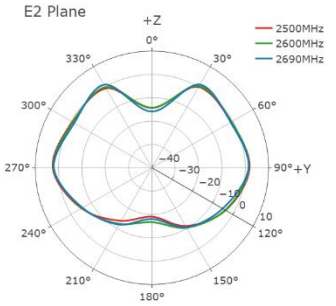
3.2.4. 3D & 2D Radiation Pattern

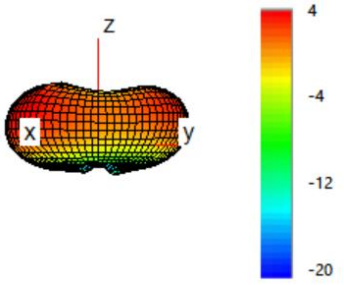
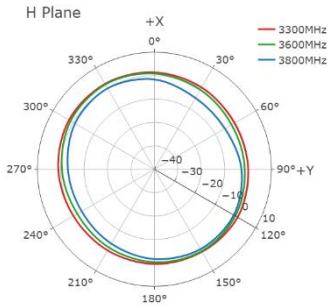
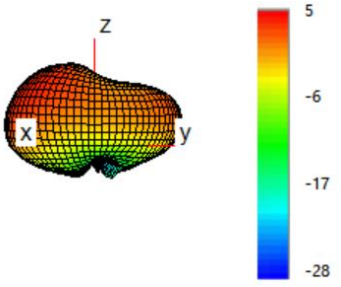
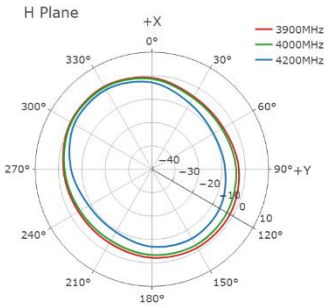
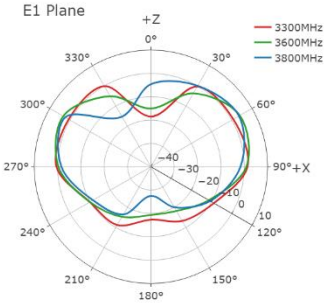
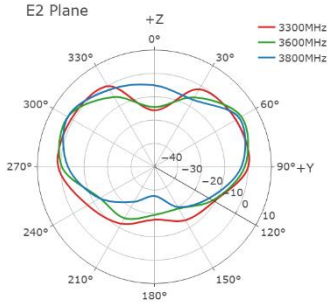
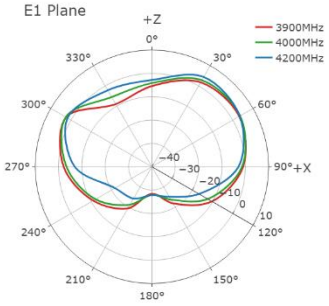
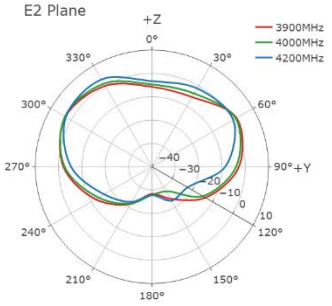
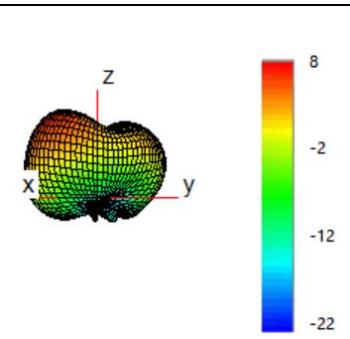
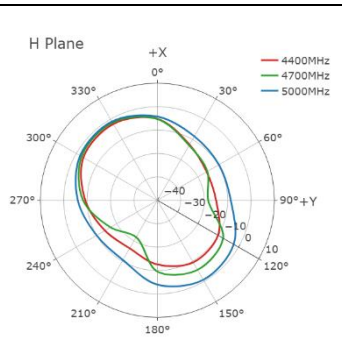
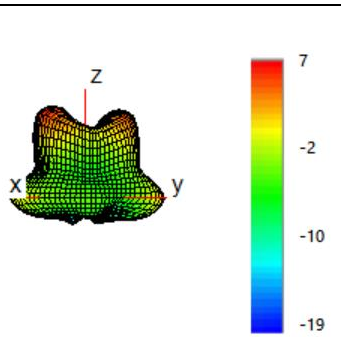
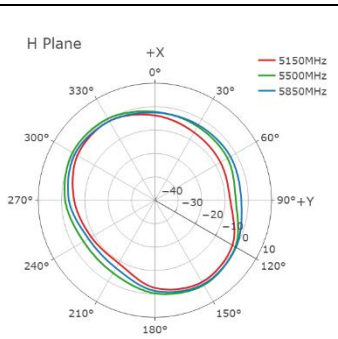
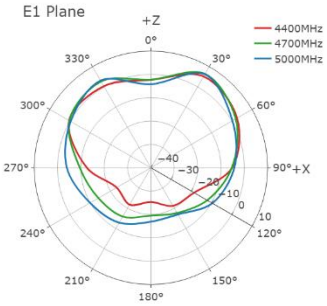
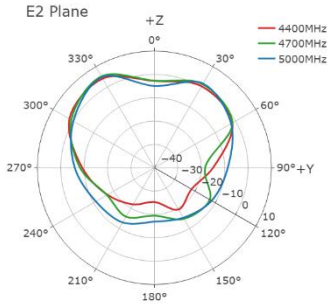
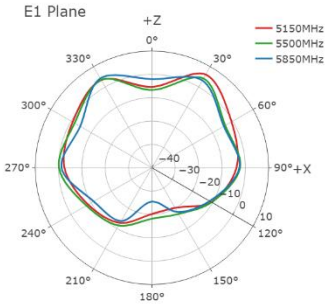
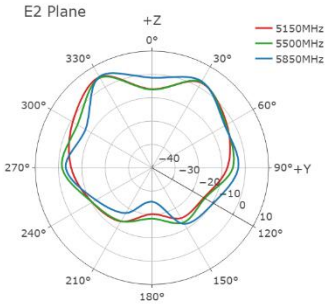
- Test Condition: On 300 mm × 300 mm metal plane
- Test Chamber: GL-G-1



630 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			

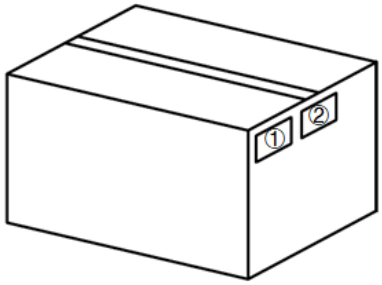
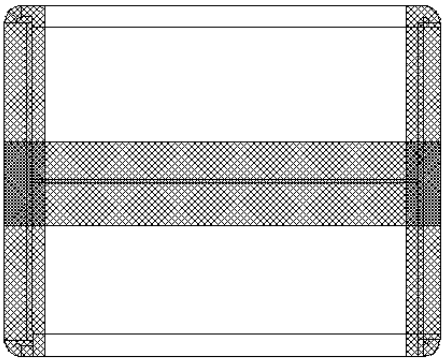
1440 MHz		1740 MHz	
			
			
1880 MHz		1950 MHz	
			
			

2140 MHz		2350 MHz	
			
			
2450 MHz		2600 MHz	
			
			

3600 MHz		4000 MHz	
			
			
4700 MHz		5500 MHz	
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		The pearl cotton liner is placed on the bottom and the top of the product.
2		1 pc antenna product in an inner box. (1 PC Antenna / Inner Box)
3		(9 Inner Boxes / Carton Box) (9 PCS Antennas / Carton Box) Estimated quantity Products that cannot fill the entire carton box are packed in a suitable size carton box. Carton Size: L × W × H = 300 × 250 × 200 mm

4		**Position for Attaching Labels** ① Carton Label ② Quality Label
5		**Sealing Cartons** H-shaped 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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Or our local offices. For more information, please visit:
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Revision History

Version	Date	Author	Note
-	2025-02-05	Mayes LI/ Lance SUN/ Riva REN/ Rainey LIAO	Creation of the document
1.0	2025-02-05	Mayes LI/ Lance SUN/ Riva REN/ Rainey LIAO	First official release

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