Antenna Datasheet

Product OC: YECM001L1AH
Version: 1.1
Date: 2025-04-22
Status: Released

Product Name: 5G Magnetic Mount Whip Monopole External Antenna
Key Features:
Frequency Band: 600–6000 MHz
Dimensions: Φ 30 mm × 82.2 mm
Efficiency: Up to 64.5 % (MP)
RoHS and REACH Compliant
IP67

Overview

The YECM001L1AH is a 5G external antenna measuring Φ30 × 82.2 mm. This ultra-wide-band 5G antenna provides broad coverage from 600–6000 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 available with connection via cable lengths from 300–5,000 mm, terminated with SMA Male (Center pin) connector. This low profile, magnetic 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 rated and ASA 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 YECM001L1AH is designed as a monopole antenna, which offers 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 high-speed video, real-time streaming, high-capacity MIMO networks and public transportation. It is suitable for outdoor and indoor applications due to its robust UV resistant ASA enclosure, which meets UL 746C f1.

Typical applications include:

- High speed video
- Real-time streaming
- High-capacity MIMO networks
- Public transportation

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.

Contents

1 Specification

Test Condition: Free Space & On 300 mm × 300 mm Metal Plane

1.1. Electrical

Electrical	
Frequency Range	600–6000 MHz
Impedance	50 Ω
Polarization	Linear
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	FS	4.1	3.7	3.2	2.3	2.1	2.0	2.0	1.9	1.4	1.4	1.6
	MP	2.7	3.4	3.8	2.1	2.1	1.5	1.8	2.4	1.6	1.4	1.6
Max. Return Loss (dB)	FS	-4.3	-4.9	-5.5	-7.9	-9.0	-9.4	-9.6	-9.9	-14.8	-15.6	-12.6
	MP	-6.8	-5.2	-4.6	-8.8	-9.0	-13.4	-10.5	-7.7	-12.6	-15.1	-12.7
AVG Eff. (%)	FS	37.1	47.3	49.5	50.9	53.9	50.2	46.6	46.9	45.5	41.1	32.0
	MP	39.9	44.8	49.8	53.7	53.6	58.2	52.6	45.6	42.0	46.0	33.6
AVG AVG Gain (dB)	FS	-4.3	-3.3	-3.1	-2.9	-2.7	-3.0	-3.3	-3.3	-3.4	-3.9	-5.0
	MP	-4.0	-3.5	-3.0	-2.7	-2.7	-2.4	-2.8	-3.4	-3.8	-3.4	-4.7
Max. Peak Gain (dBi)	FS	1.7	1.7	1.3	2.0	4.3	3.3	3.1	2.4	5.7	4.0	2.7
	MP	2.5	1.3	2.3	2.9	3.7	4.4	3.2	1.9	4.2	6.5	3.5

VSWR	**FS**	≤ 4.1
	MP	≤ 3.8
Return Loss	**FS**	≤ -4.3 dB
	MP	≤ -4.6 dB
Peak Gain	**FS**	≤ 5.7 dBi
	MP	≤ 6.5 dBi

- **FS: In Free Space**
- **MP: On 300 mm × 300 mm Metal Plane**

1.2. Supported Bands

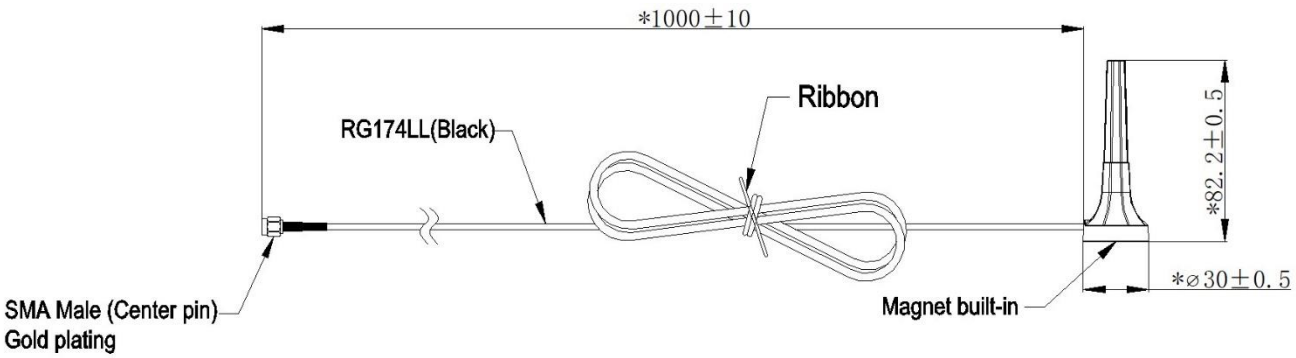
5G NR/LTE/LTE-Advanced/WCDMA/HSPA/HSPA+/GPRS/GSM/NB-IoT					
Band	**Frequency (MHz)**	**Uplink (MHz)**	**Downlink (MHz)**	**FS**	**MP**
1	2100	1920–1980	2110–2170	√	√
2	1900	1850–1910	1930–1990	√	√
3	1800	1710–1785	1805–1880	√	√
4	1700	1710–1755	2110–2155	√	√
5	850	824–849	869–894	√	√
7	2600	2500–2570	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	√	√

5G NR/LTE/LTE-Advanced/WCDMA/HSPA/HSPA+/GPRS/GSM/NB-IoT					
Band	**Frequency (MHz)**	**Uplink (MHz)**	**Downlink (MHz)**	**FS**	**MP**
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		√	√

1.3. Mechanical & Environmental

Mechanical		
Antenna Dimensions		Φ 30 mm × 82.2 mm
Material & Color		ASA & Black
Cable Type & Color & Length		RG174LL & Black & 1000 mm
Connector Type		SMA Male (Center pin)
Weight		Typ. 26.8 g
Mounting Type	**YECM001L1AH**	Magnetic
	YECA001L1AH	Adhesive
Magnetic Pull Force		1.1 kgf
Environmental		
Operation Temperature		-40 °C to +85 °C
Storage Temperature		-40 °C to +85 °C
Ingress Protection (IP) Rating		IP67
Housing UV Resistant		UL 746C f1
RoHS and REACH Compliant		Yes

2 Drawing

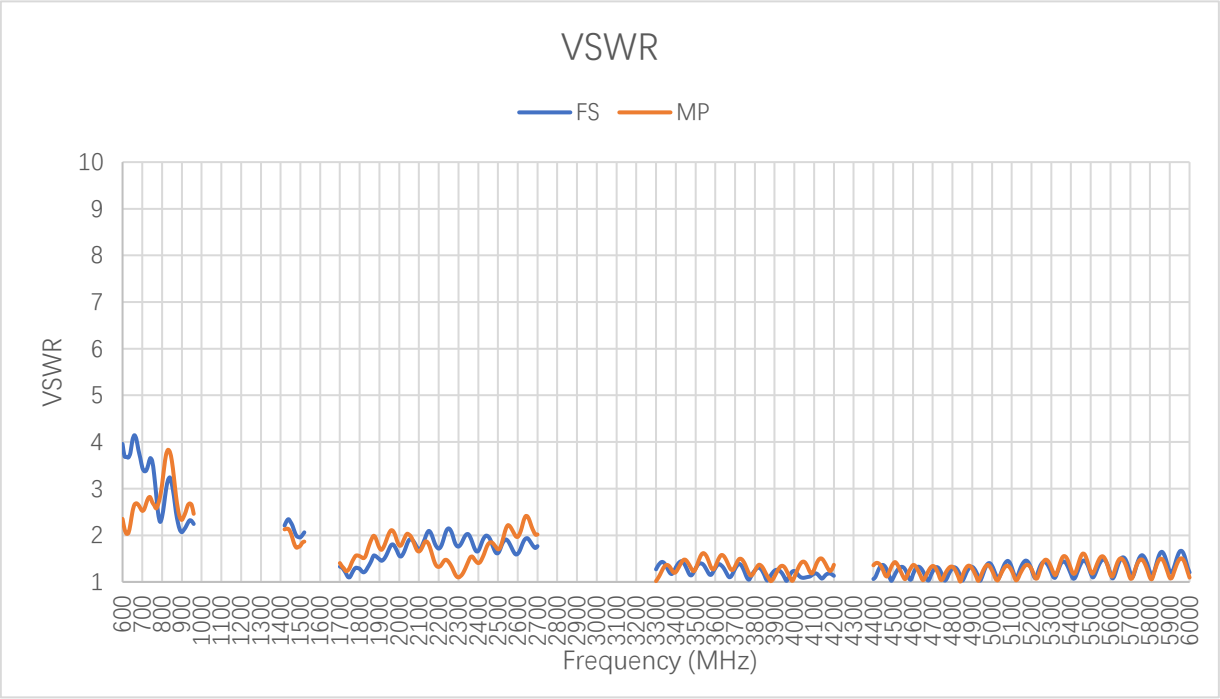


Unit: mm

3 Detailed Performance

3.1. S-Parameter Test

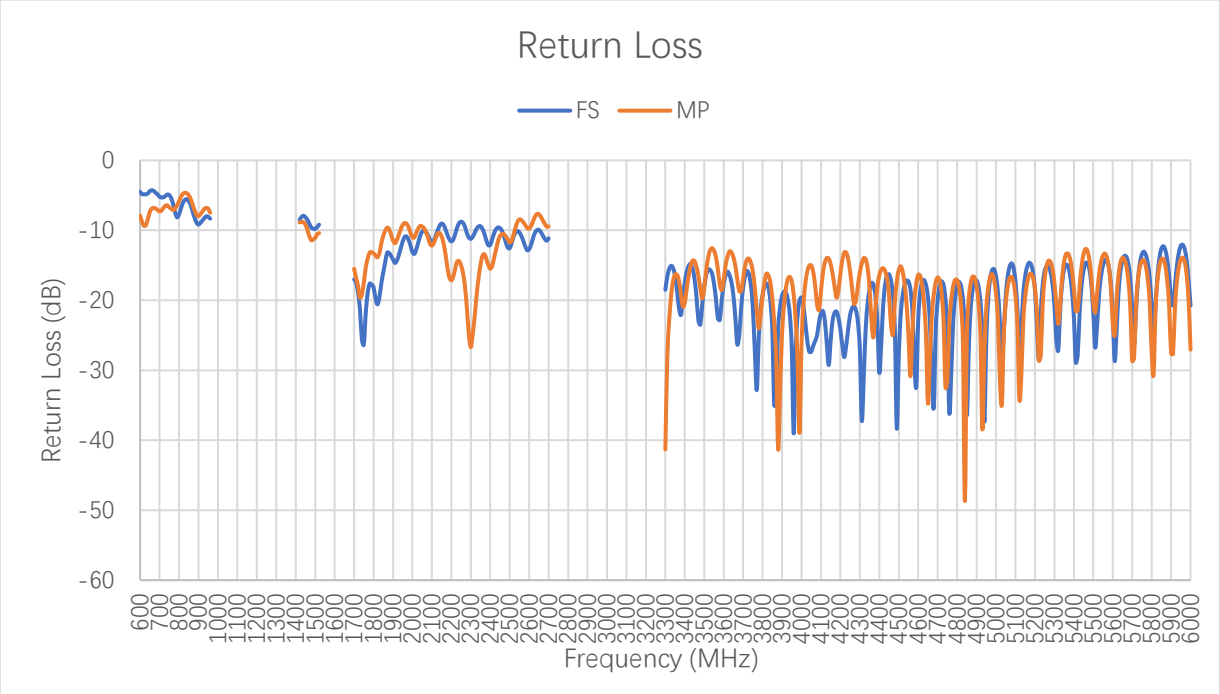
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	4.0	3.7	3.4	3.2	2.1	2.2	2.3	1.3	1.1	1.6
MP	2.4	2.1	2.6	3.8	2.3	2.5	2.1	1.3	1.2	2.0
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
FS	1.7	2.0	2.0	2.0	1.6	1.3	1.2	1.3	1.2	1.2
MP	2.1	1.9	1.4	1.8	2.0	1.3	1.3	1.2	1.2	1.1

3.1.2. Return Loss

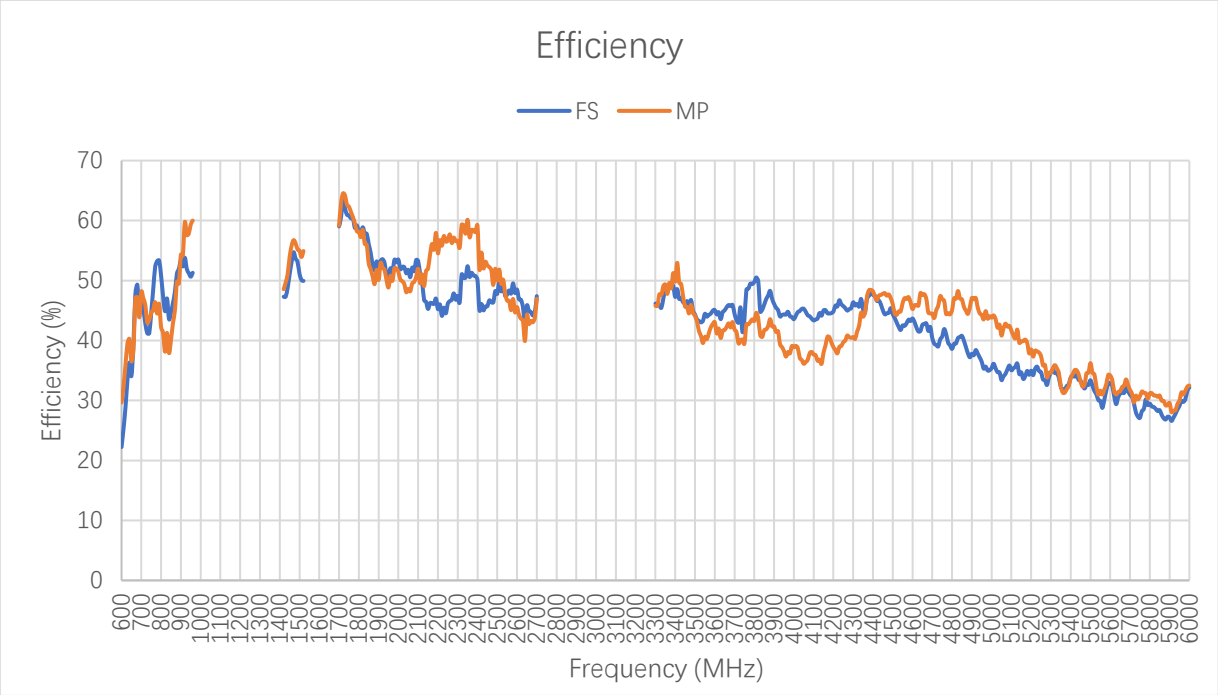


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-4.5	-4.9	-5.3	-5.6	-9.2	-8.3	-7.9	-17.4	-25.6	-13.2
MP	-7.9	-9.3	-7.2	-4.6	-8.0	-7.5	-8.8	-16.8	-19.2	-9.8
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
FS	-11.6	-9.3	-9.4	-9.7	-12.7	-17.8	-20.0	-16.6	-21.8	-20.8
MP	-9.2	-10.4	-14.9	-10.8	-9.7	-17.0	-16.7	-19.1	-20.3	-27.1

3.2. Radiation Performance Test

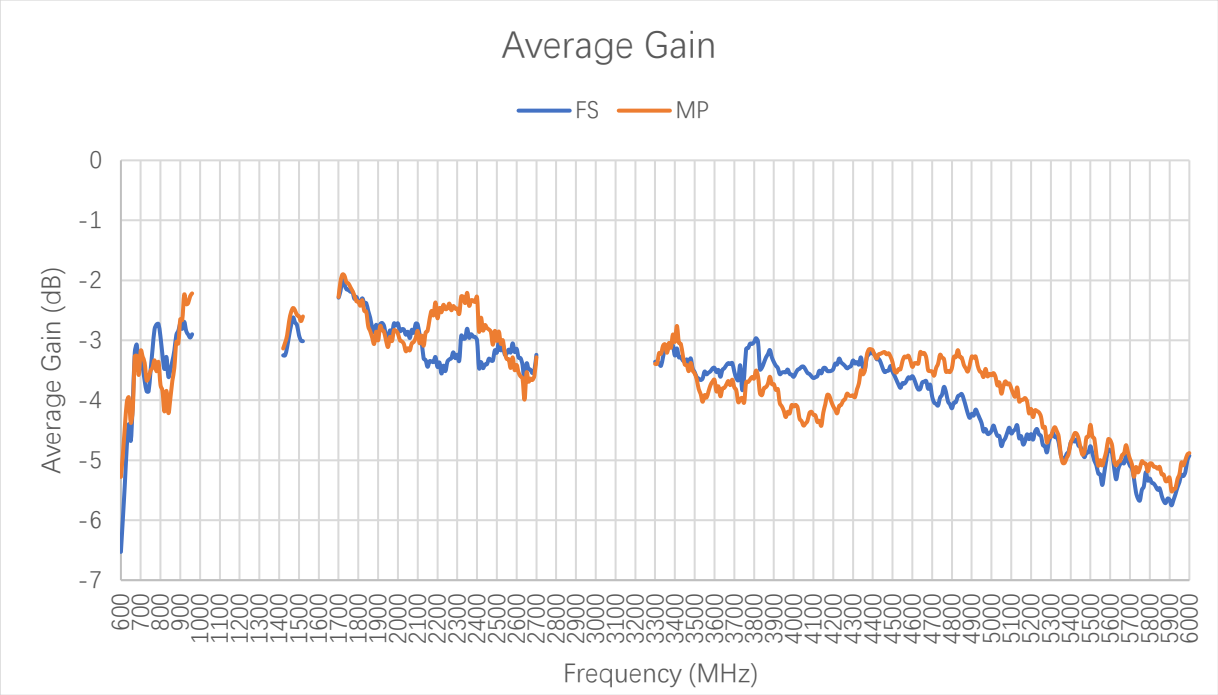
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	22.2	33.5	45.3	47.0	53.3	51.3	51.0	60.6	61.0	51.7
MP	29.7	39.5	47.0	41.3	54.3	60.0	53.9	62.9	62.6	49.4
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
FS	50.8	46.5	52.4	45.7	48.5	45.1	40.4	35.4	33.4	32.2
MP	48.8	51.6	60.1	52.5	45.6	43.1	44.4	43.8	36.2	32.5

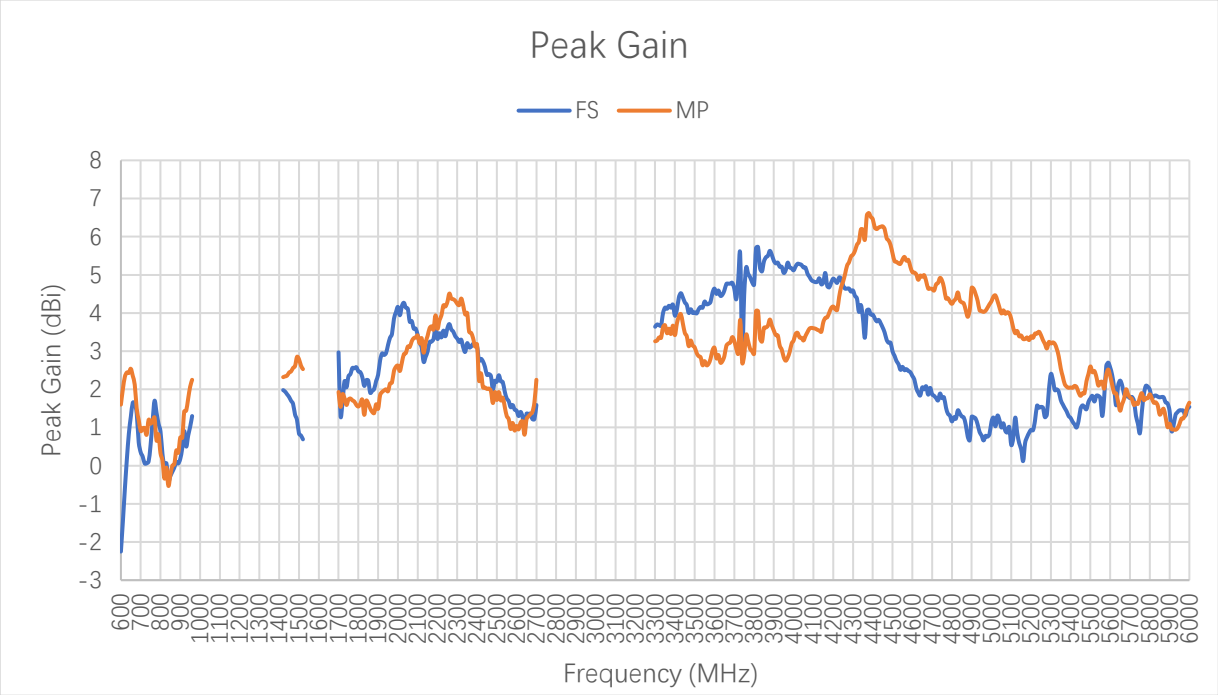
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-6.5	-4.8	-3.4	-3.3	-2.7	-2.9	-2.9	-2.2	-2.1	-2.9
MP	-5.3	-4.0	-3.3	-3.8	-2.7	-2.2	-2.7	-2.0	-2.0	-3.1
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
FS	-2.9	-3.3	-2.8	-3.4	-3.1	-3.5	-3.9	-4.5	-4.8	-4.9
MP	-3.1	-2.9	-2.2	-2.8	-3.4	-3.7	-3.5	-3.6	-4.4	-4.9

3.2.3. Peak Gain



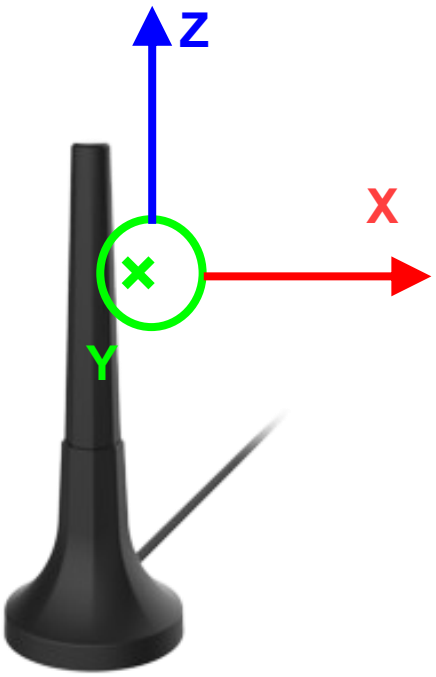
Peak Gain (dBi)

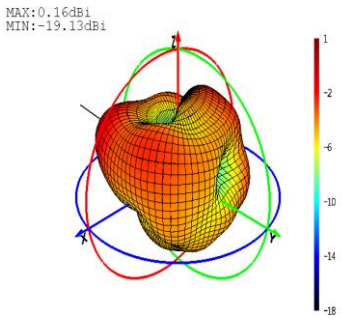
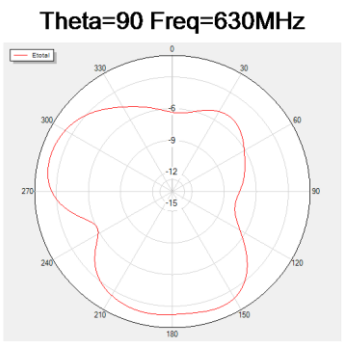
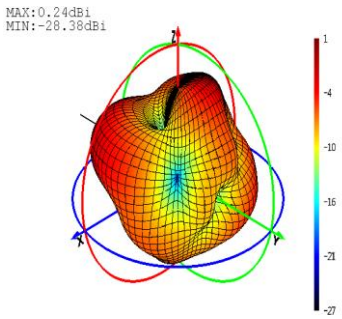
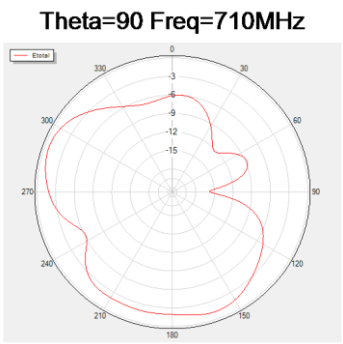
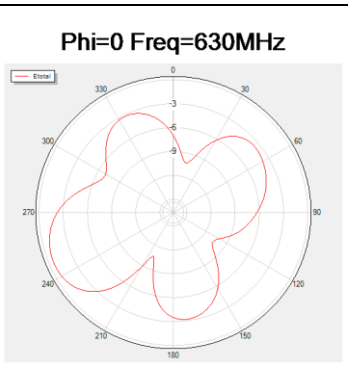
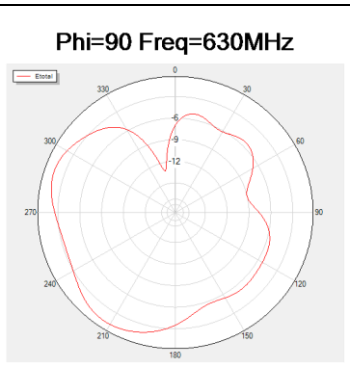
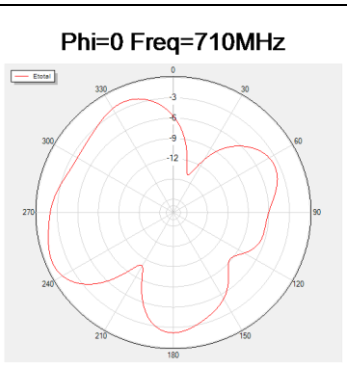
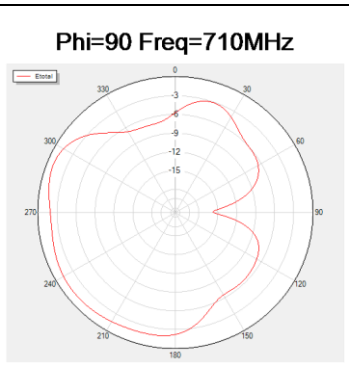
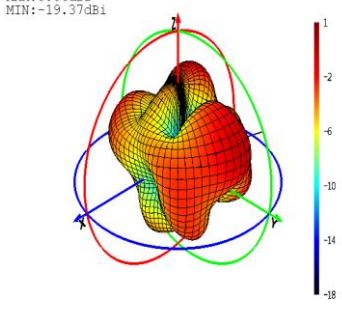
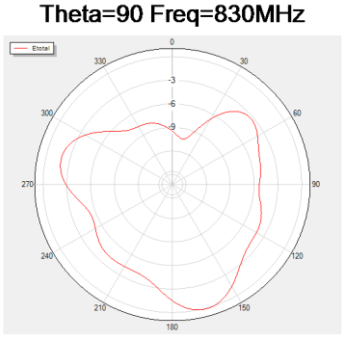
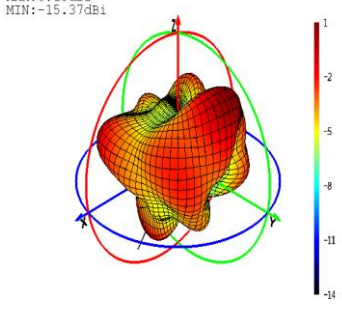
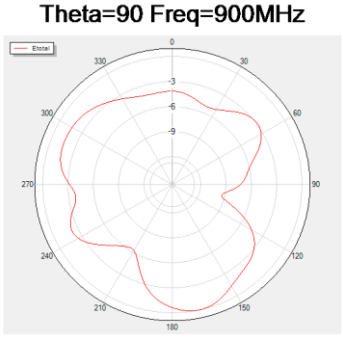
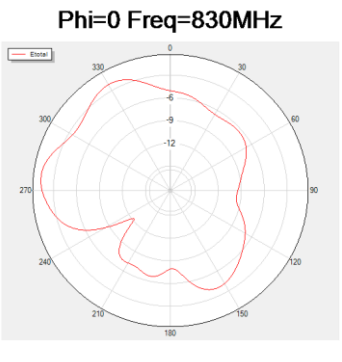
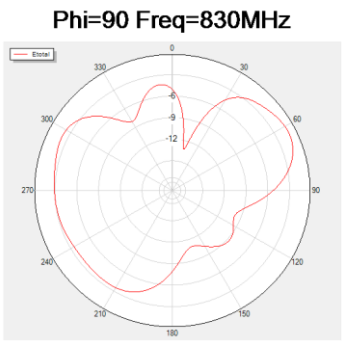
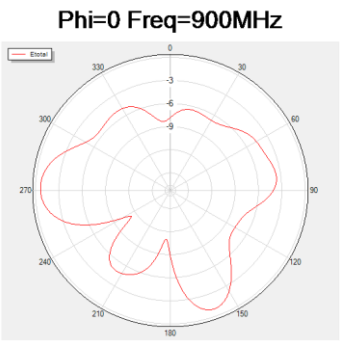
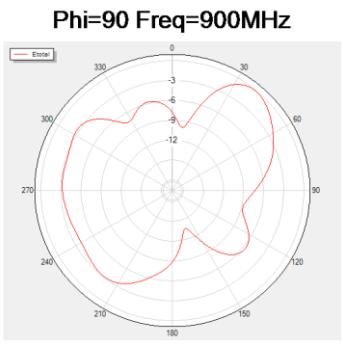
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-2.3	0.2	0.2	0.1	0.2	1.3	1.8	1.3	2.1	2.0
MP	1.6	2.4	1.0	-0.1	0.7	2.3	2.4	1.5	1.6	1.4
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
FS	3.2	2.9	3.2	2.4	1.4	4.6	1.9	1.2	1.8	1.5
MP	2.0	3.2	4.0	2.0	1.0	3.1	4.6	4.3	2.6	1.7

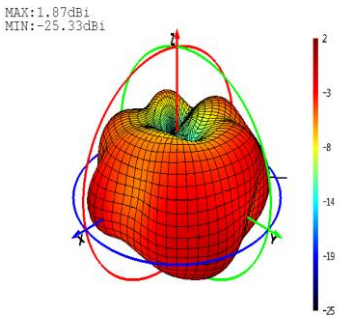
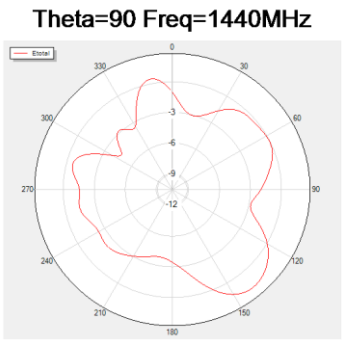
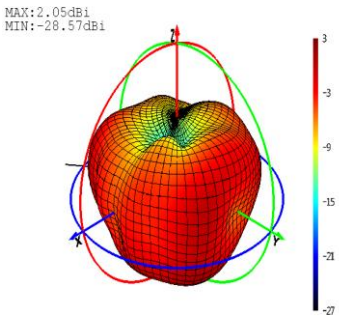
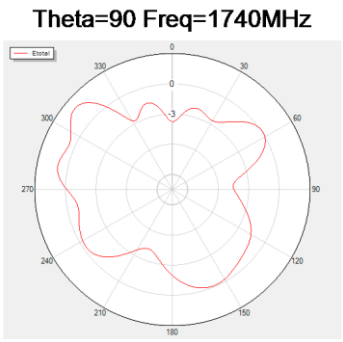
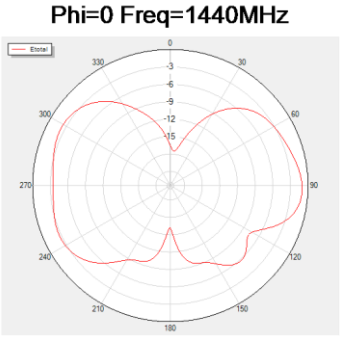
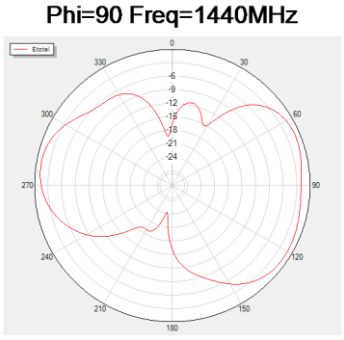
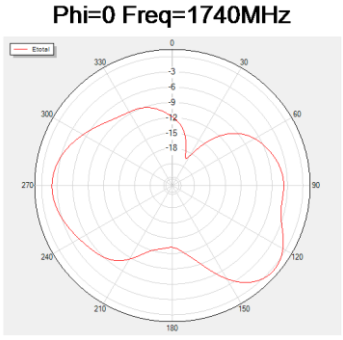
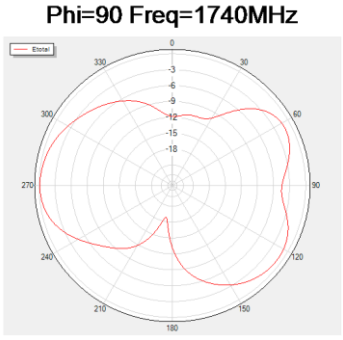
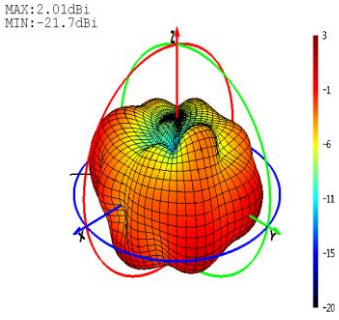
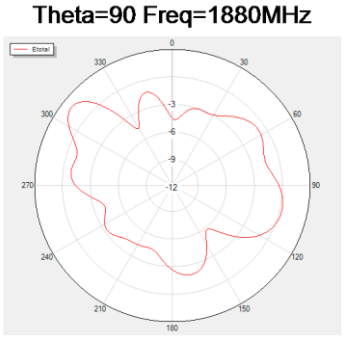
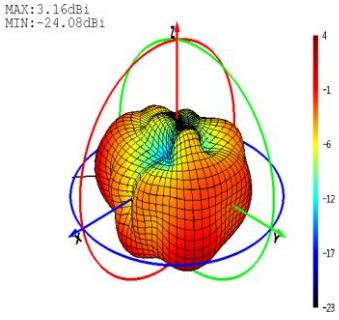
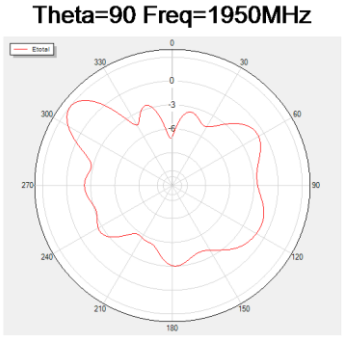
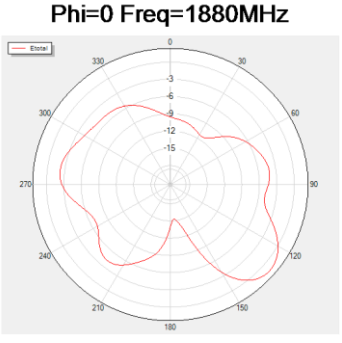
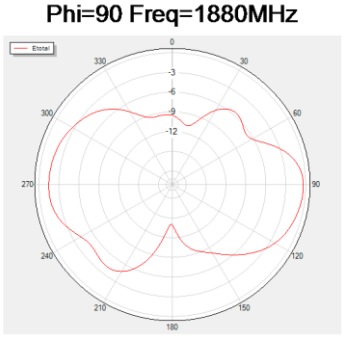
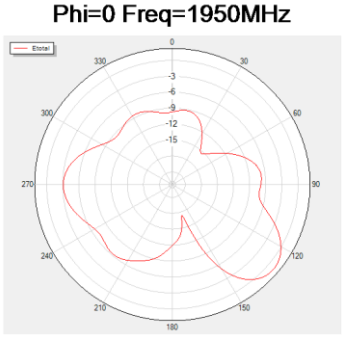
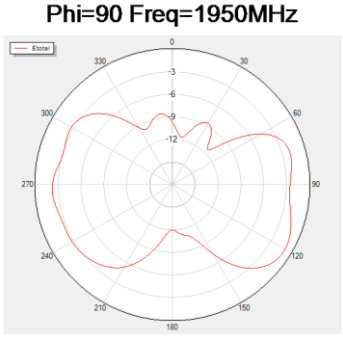
3.2.4. 3D & 2D Radiation Pattern

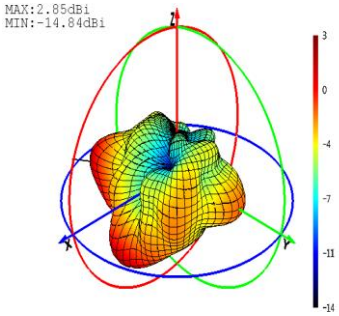
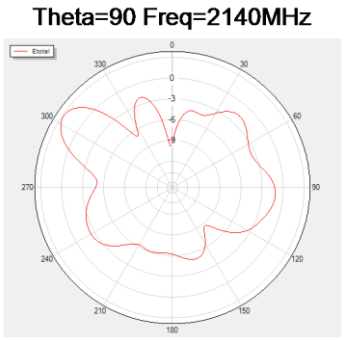
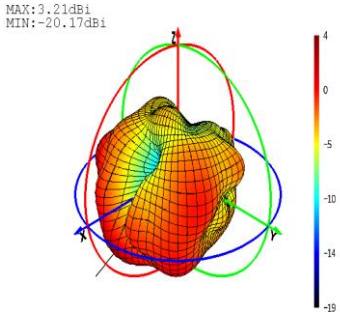
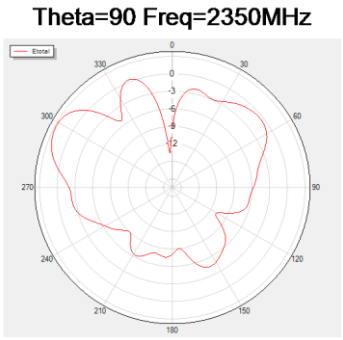
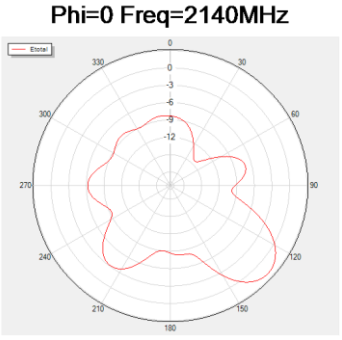
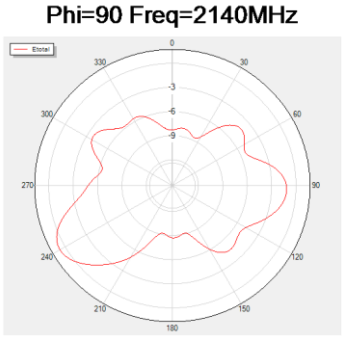
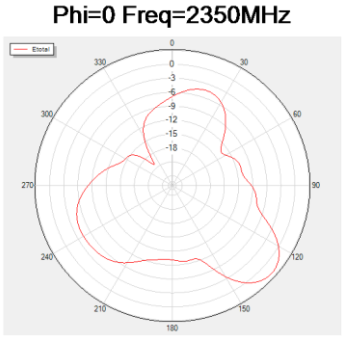
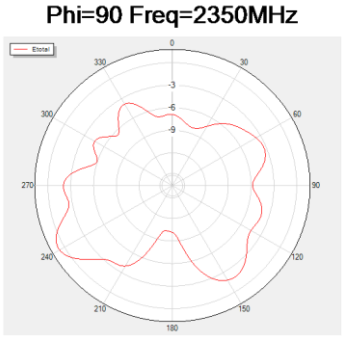
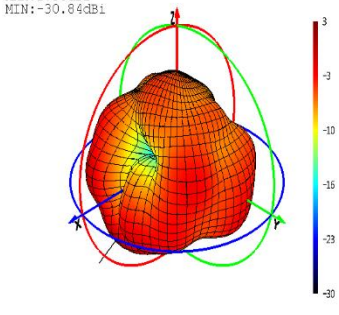
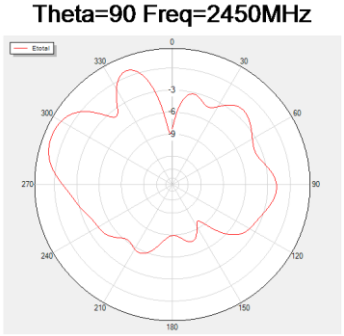
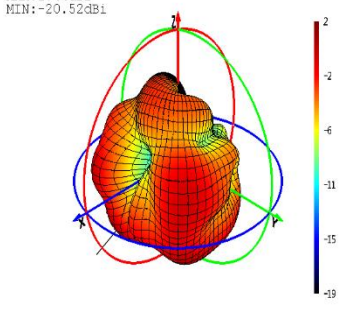
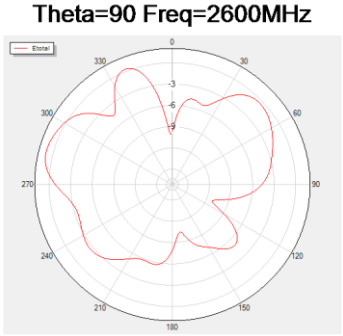
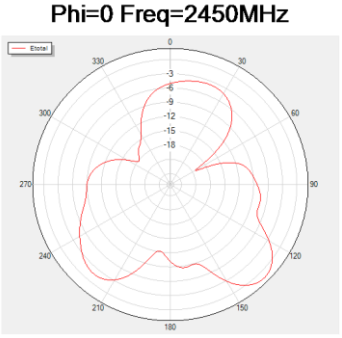
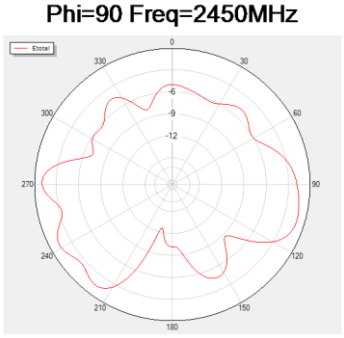
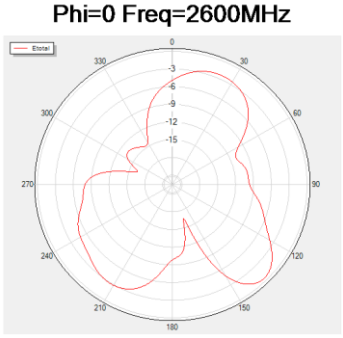
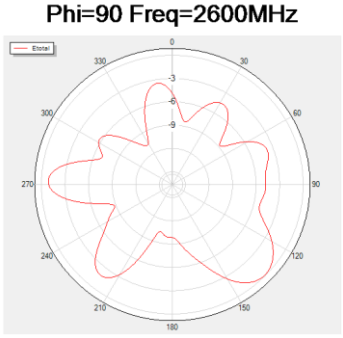
3.2.4.1. Test Condition: Free Space

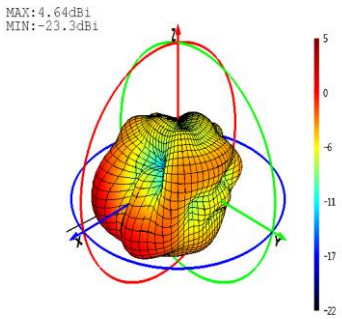
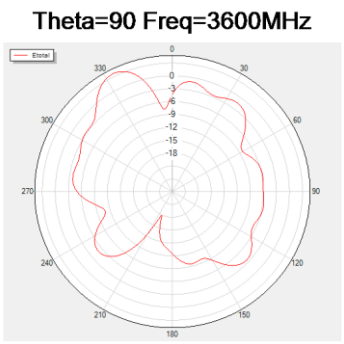
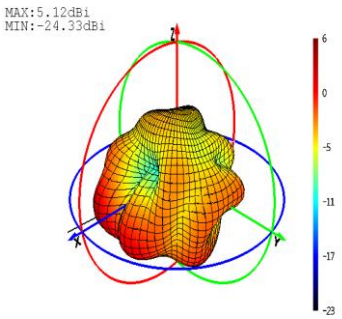
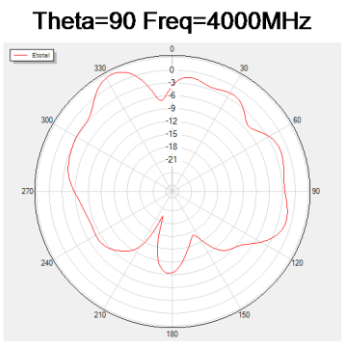
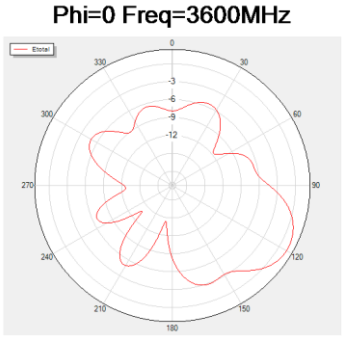
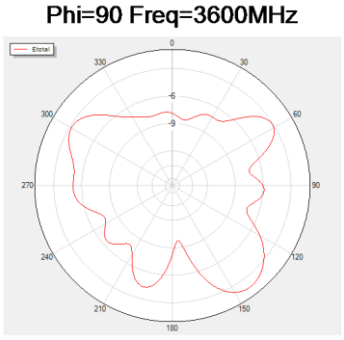
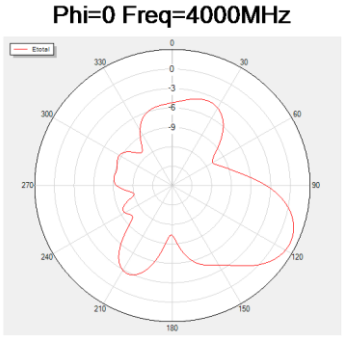
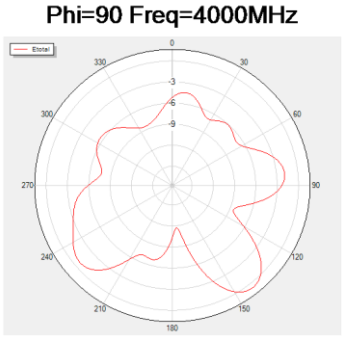
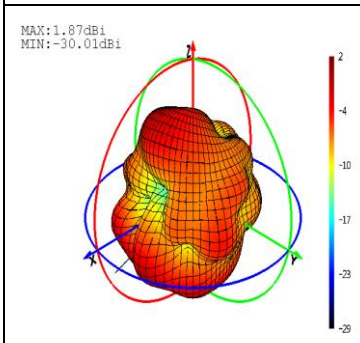
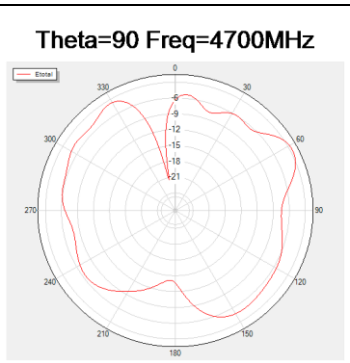
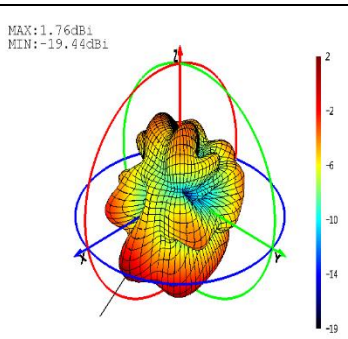
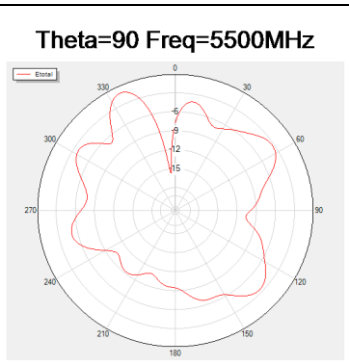
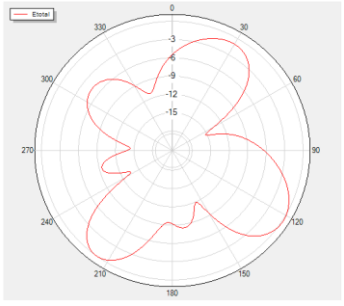
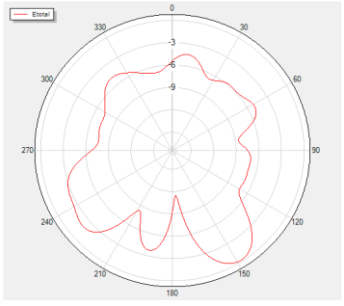
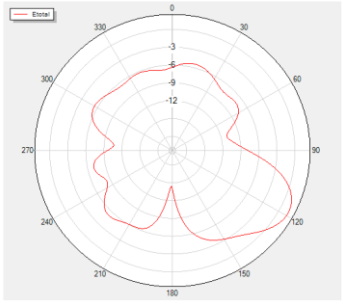
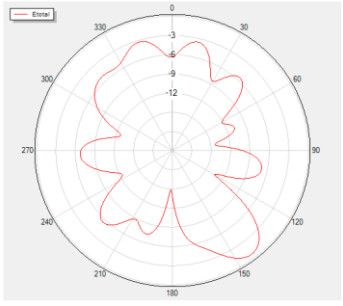
- Test Chamber: FS-S-1



630 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			

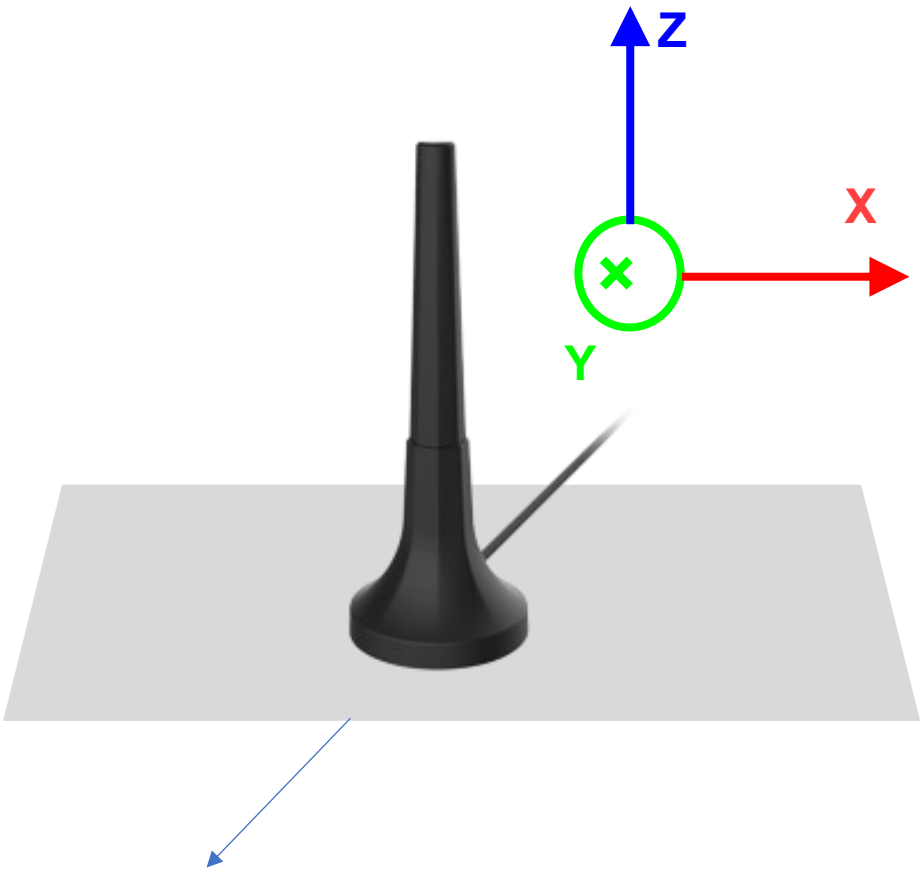
1440 MHz		1740 MHz	
			
			
1880 MHz		1950 MHz	
			
			

2140 MHz		2350 MHz	
			
			
2450 MHz		2600 MHz	
			
			

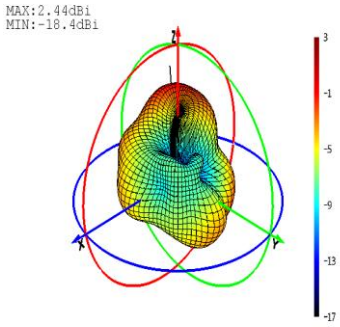
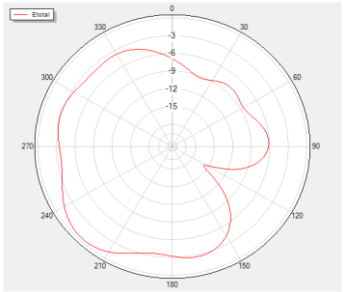
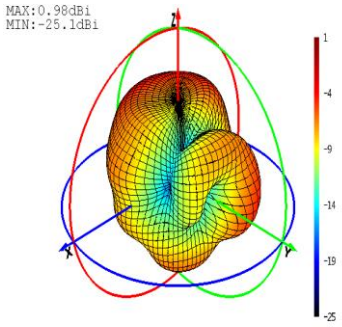
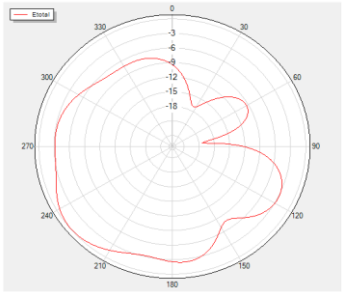
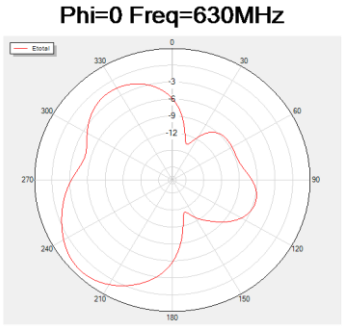
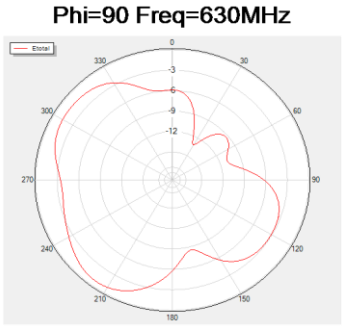
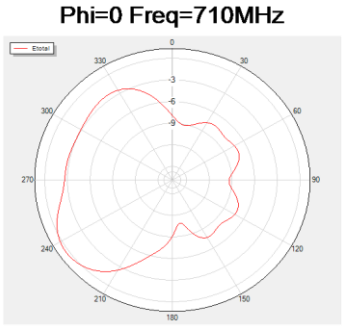
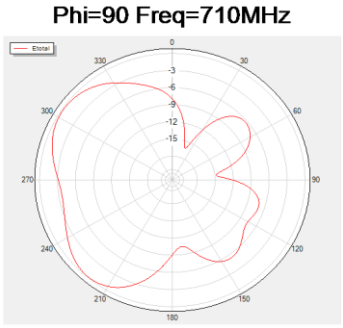
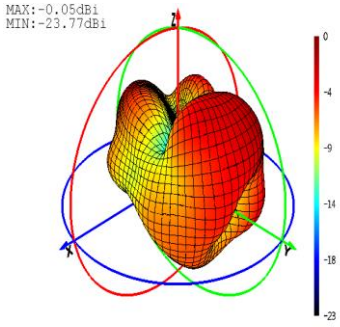
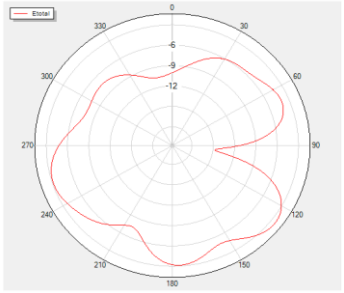
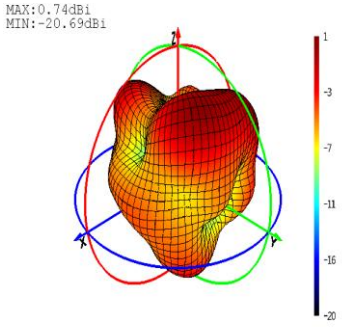
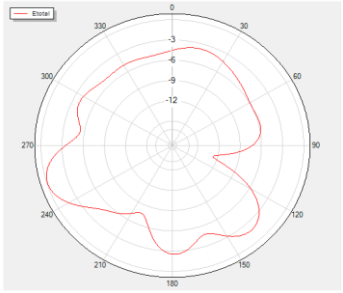
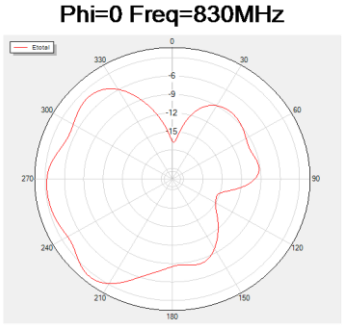
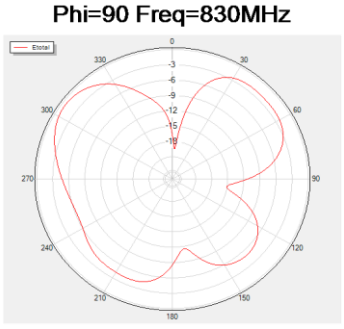
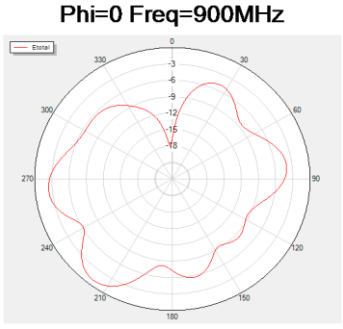
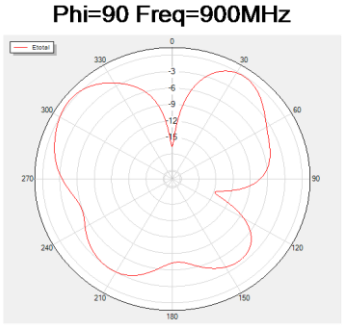
3600 MHz		4000 MHz	
			
			
4700 MHz		5500 MHz	
			
			

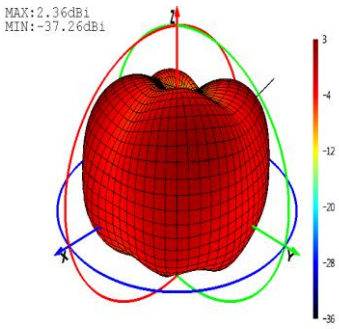
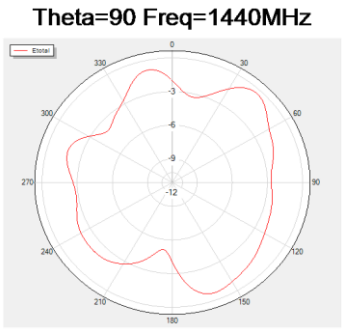
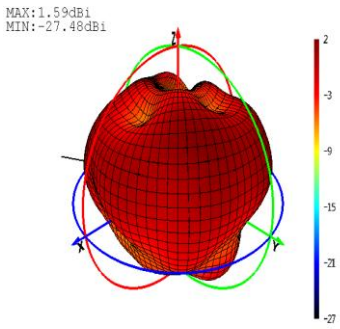
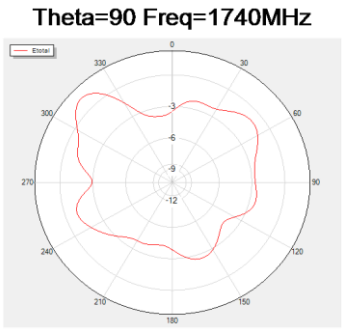
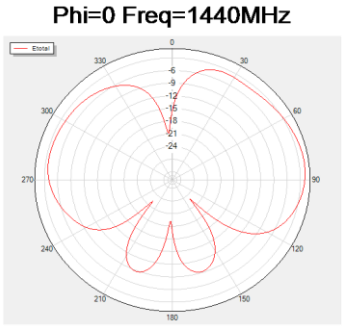
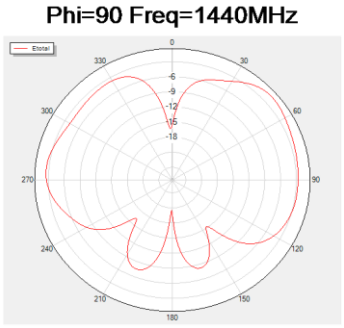
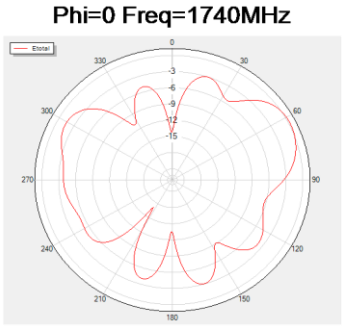
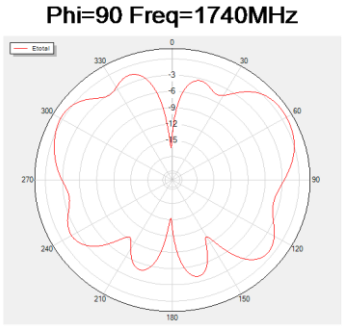
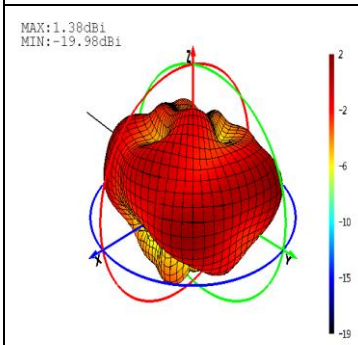
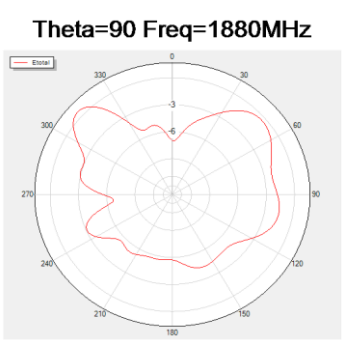
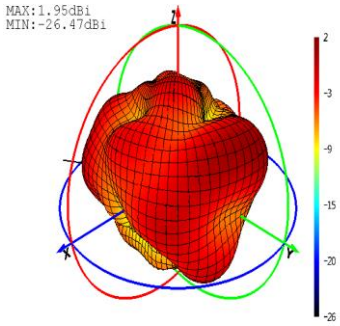
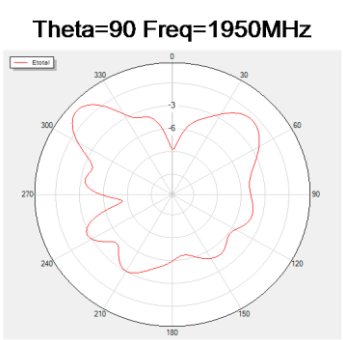
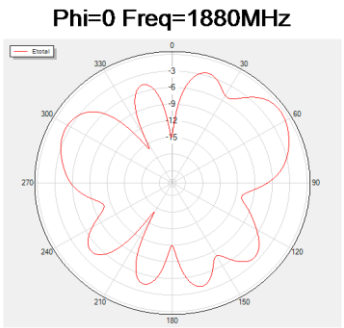
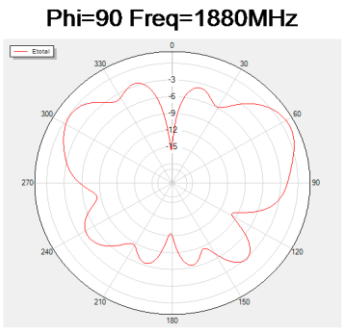
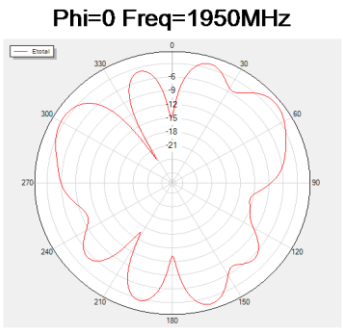
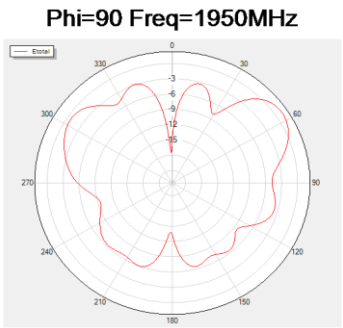
3.2.4.2. Test Condition: On 300 mm × 300 mm Metal Plane

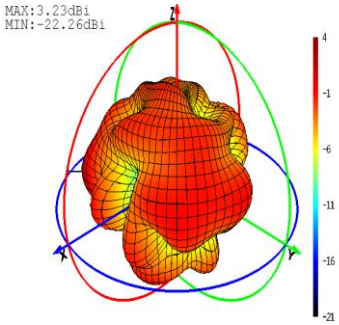
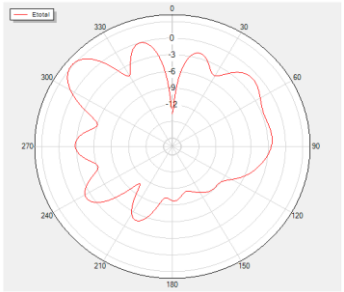
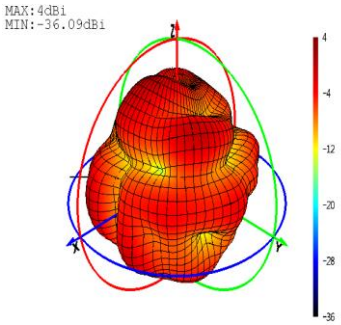
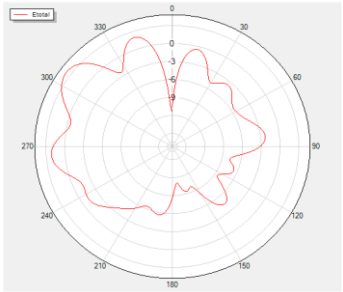
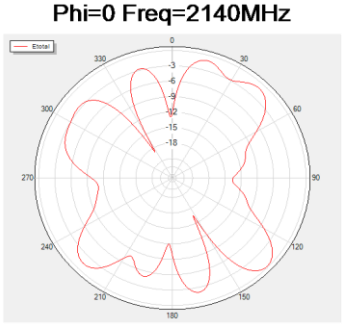
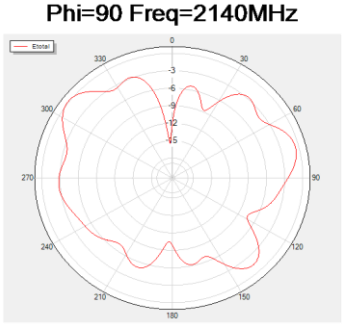
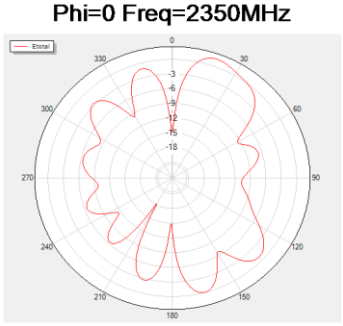
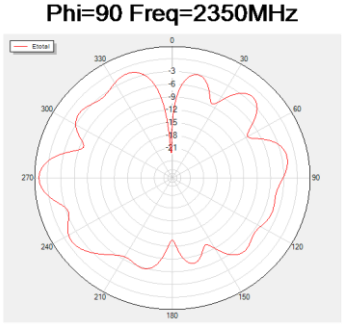
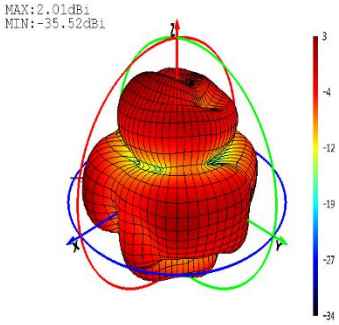
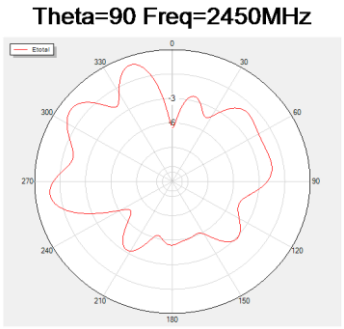
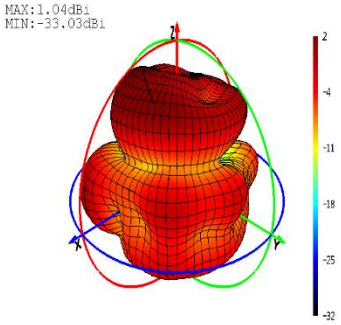
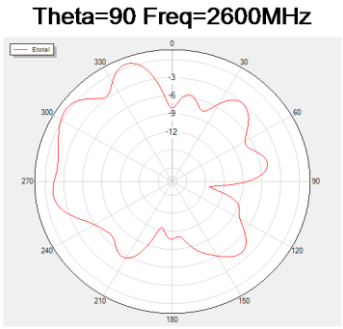
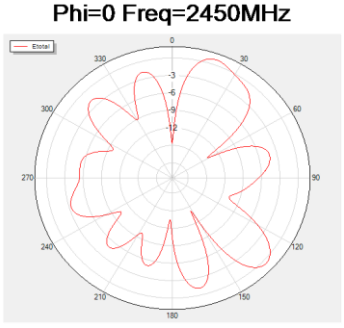
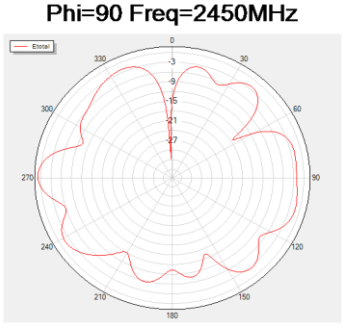
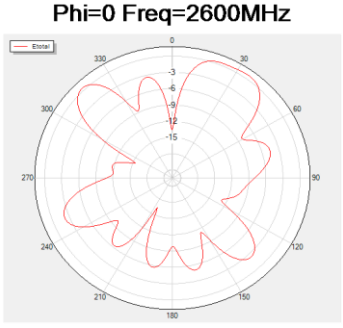
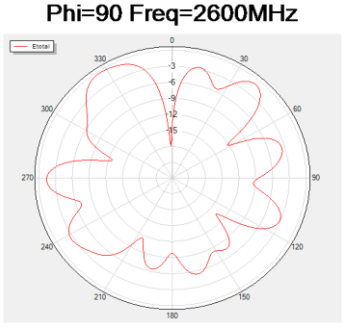
- Test Chamber: FS-S-1

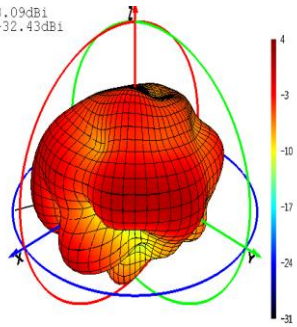
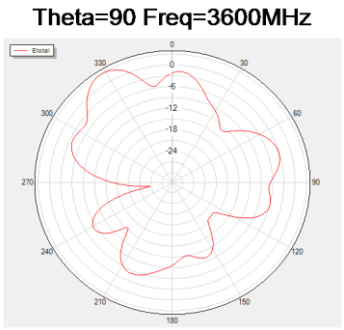
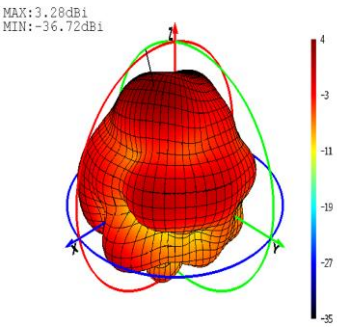
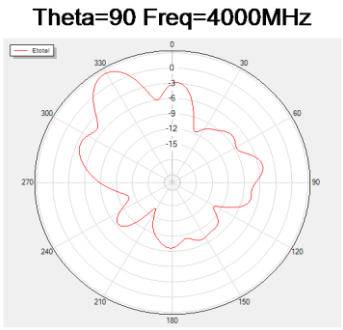
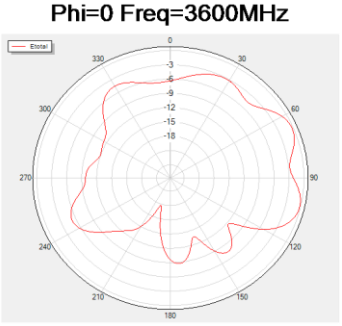
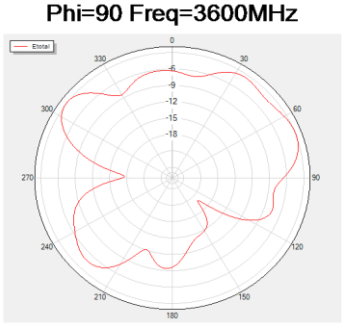
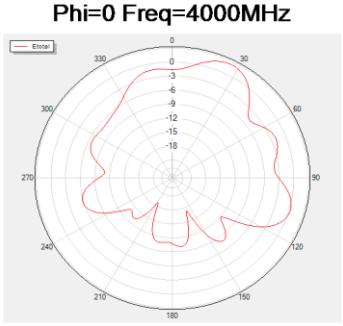
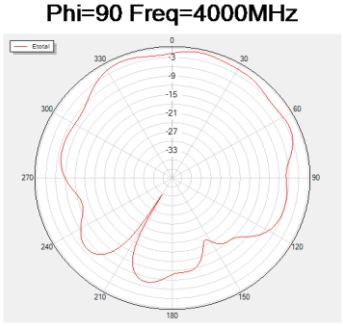
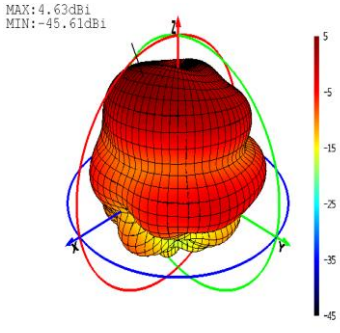
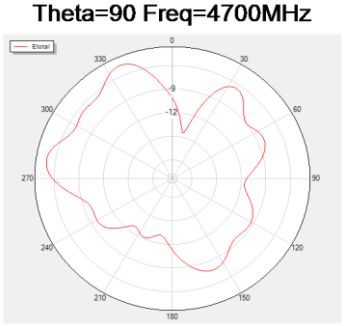
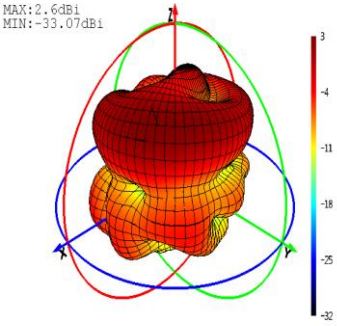
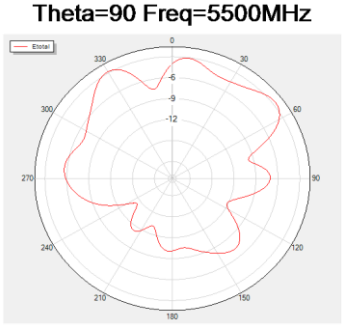
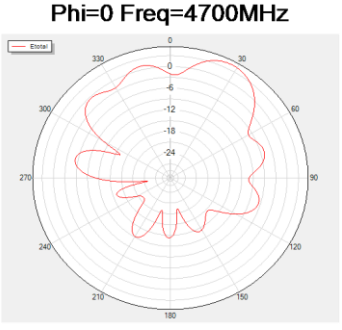
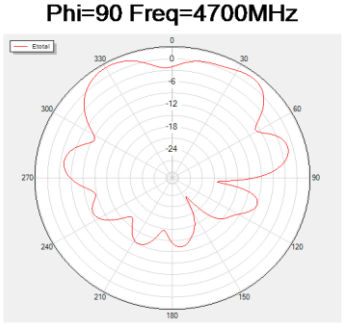
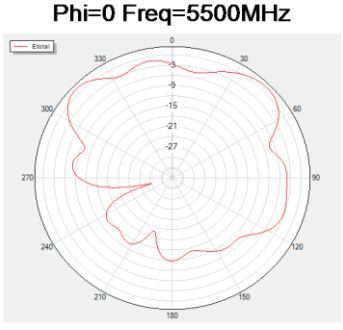
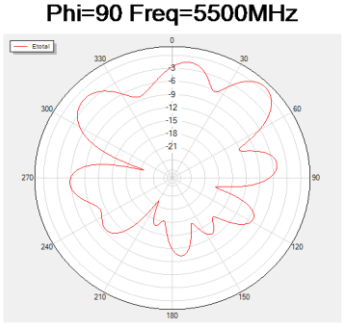


On 300 × 300 mm Metal Plane

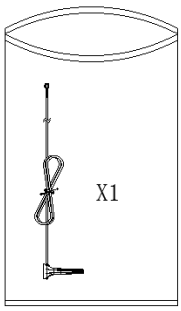
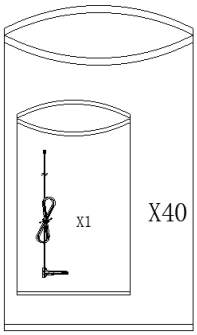
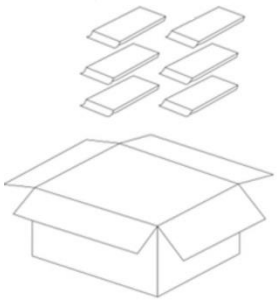
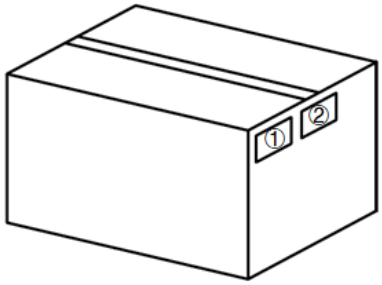
630 MHz		710 MHz	
			
			
830MHz		900 MHz	
			
			

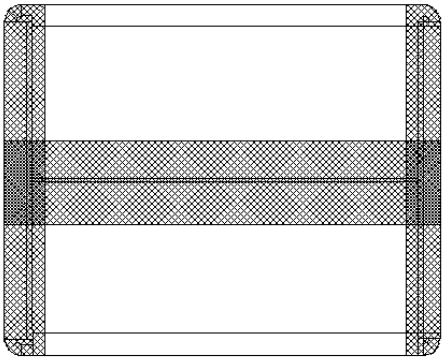
1440 MHz		1740 MHz	
			
			
1880 MHz		1950 MHz	
			
			

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		1 pc antenna product in a small PE bag. (1 PC Antenna / Small PE Bag)
2		40 pcs antenna products in a big PE bag. (40 PCS Antennas / Big PE Bag)
3		(6 Big PE Bags / Carton Box) (240 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 = 370 × 370 × 295 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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Tel: +86 21 5108 6236
Email: info@quectel.com

Or our local offices. For more information, please visit:
http://www.quectel.com/support/sales.htm.

For technical support, or to report documentation errors, please visit:
http://www.quectel.com/support/technical.htm.
Or email us at: support@quectel.com.

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Revision History

Version	Date	Author	Note
-	2024-07-13	Mordecai LIU/ Jason LONG/ David LIU/ Rainey LIAO	Creation of the document
1.0	2024-07-13	Mordecai LIU/ Jason LONG/ David LIU/ Rainey LIAO	First official release
1.1	2025-04-22	Riva REN/ Rainey LIAO/	1. Updated the antenna image (Cover Page). 2. Deleted the note about the efficiency (Chapter 1.2). 3. Updated the package (Chapter 4).

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