Antenna Datasheet

Product OC: YEMN105J1AM
Version: 1.0
Date: 2025-11-07
Status: Preliminary

Product Name: 4G Screw Mount Low Profile Monopole External Antenna
Key Features:
Frequency Band: 698–960 MHz, 1710–2690 MHz
Dimensions: Φ 46 mm × 16 mm
Efficiency: Up to 65 % (FS)
RoHS Compliant
IP67

Overview

YEMN105J1AM is a 4G external antenna measuring Φ 46 mm × 15 mm. This ultra-wide-band 4G antenna provides broad coverage from 698–960 MHz & 1710–2690 MHz whilst offering backward-compatibility to support 3G and 2G networks as well as LTE Cat-M and narrowband IoT (NB-IoT). The antenna is terminated with SMA Male connector. Ideal for applications where the antenna is required to be discrete, this low profile, terminal mount omni-directional antenna is easy to install with maximum durability assured thanks to its IP67 rated, ABS enclosure.

The antenna is designed as monopole type to work with various GND plane sizes or in free space for ease of integration with a SMA Male connector to achieve the optimum position. Flexible cable linkage enables terminal-mounted antennas to dynamically evade obstructions through multi-axis steering. This omni-directional antenna is ideally suited for Gateways & Routers, Smart Metering, Vending Machines, Industrial IoT, Smart Home, Connected Enterprise, offering great performance with its high gain and efficiency.

Typical applications include:

- Gateways & Routers
- Smart Metering
- Vending Machines
- Industrial IoT
- Smart Home
- Connected Enterprise

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: In Free Space & 300 mm × 300 mm Metal Plane

1.1. Electrical

Electrical	
Frequency Range	698–960 MHz, 1710–2690 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional
Antenna Type	Monopole

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	-	3.2	3.0	-	3.3	3.0	3.0	3.2	-	-	-
	MP	-	5.2	4.2	-	7.8	6.6	7.0	6.2	-	-	-
Max. Return Loss (dB)	FS	-	-5.7	-6.0	-	-5.5	-6.0	-6.0	-5.7	-	-	-
	MP	-	-3.4	-4.2	-	-2.2	-2.7	-2.5	-2.8	-	-	-
AVG Eff. (%)	FS	-	30.0	44.5	-	54.7	51.2	45.6	49.3	-	-	-
	MP	-	23.1	31.3	-	18.1	15.4	17.3	26.9	-	-	-
AVG AVG	FS	-	-5.3	-3.5	-	-2.7	-2.9	-3.4	-3.1	-	-	-

Gain (dB)	**MP**	-	-6.5	-5.1	-	-7.5	-8.2	-7.7	-5.7	-	-	-
Max. Peak Gain (dBi)	**FS**	-	-0.1 (810)	1.5 (890)	-	3.6 (2170)	4.3 (2310)	4.1 (2400)	5.0 (2590)	-	-	-
	MP	-	1.3 (810)	2.7 (890)	-	2.7 (1760)	-1.7 (2310)	-0.2 (2500)	2.7 (2610)	-	-	-

VSWR	**FS**	≤ 3.3
	MP	≤ 7.8
Return Loss	**FS**	≤ -5.5 dB
	MP	≤ -2.2 dB
Peak Gain	**FS**	≤ 5.0 dBi
	MP	≤ 2.7 dBi

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

1.2. Supported Bands

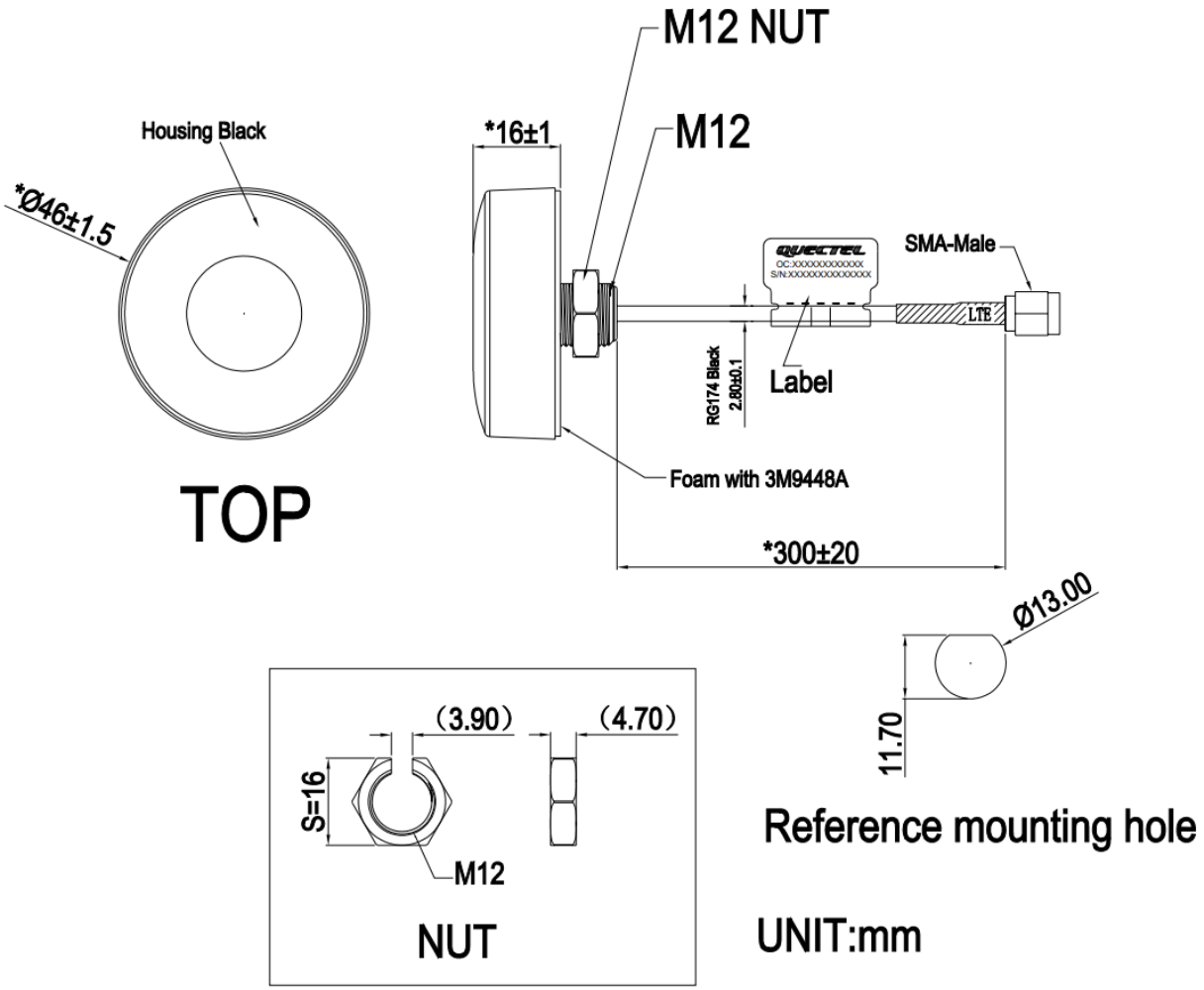
5G NR/ LTE/ LTE-Advanced/ WCDMA/ HSPA/ HSPA+/ GPRS/ GSM/ NB-IoT							
Band	**Frequency (MHz)**	**Uplink (MHz)**	**Downlink (MHz)**	**FS**	**MP**	**Max Peak Gain (dBi) FS**	**Max Peak Gain (dBi) MP**
1	2100	1920–1980	2110–2170	√	√	3.6	-0.5
2	1900	1850–1910	1930–1990	√	√	3.2	1.4
3	1800	1710–1785	1805–1880	√	√	3.4	2.7
4	1700	1710–1755	2110–2155	√	√	2.6	2.6
5	850	824–849	869–894	√	√	1.5	2.7
7	2600	2500–2570	2620–2690	√	√	4.7	2.7
8	900	880–915	925–960	√	√	1.5	2.7
9	1800	1749.9–1784.9	1844.9–1879.9	√	√	3.2	2.7
11	1500	1427.9–1447.9	1475.9–1495.9	-	-	-	-
12	700	699–716	729–746	√	√	-3.0	-2.0
13	700	777–787	746–756	√	√	-1.0	0.0
14	700	788–798	758–768	√	√	-0.9	0.4
17	700	704–716	734–746	√	√	-3.0	-2.0
18	850	815–830	860–875	√	√	0.6	2.2
19	850	830–845	875–890	√	√	1.5	2.7
20	800	832–862	791–821	√	√	0.5	2.0
21	1500	1447.9–1462.9	1495.9–1510.9	-	-	-	-
22	3500	3410–3490	3510–3590	-	-	-	-
23	2100	2000–2020	2180–2200	√	√	3.7	-0.8
24	1600	1626.5–1660.5	1525–1559	-	-	-	-
25	1900	1850–1915	1930–1995	√	√	3.2	1.4

5G NR/ LTE/ LTE-Advanced/ WCDMA/ HSPA/ HSPA+/ GPRS/ GSM/ NB-IoT							
Band	**Frequency (MHz)**	**Uplink (MHz)**	**Downlink (MHz)**	**FS**	**MP**	**Max Peak Gain (dBi) FS**	**Max Peak Gain (dBi) MP**
26	850	814–849	859–894	√	√	1.5	2.7
28	700	703–748	758–803	√	√	-0.4	0.9
31	450	452.5–457.5	462.5–467.5	-	-	-	-
34	2100	2010–2025		√	√	3.0	-0.8
38	2600	2570–2620		√	√	5.0	2.7
39	1900	1880–1920		√	√	3.1	0.4
40	2300	2300–2400		√	√	4.3	-1.7
41	2500	2496–2690		√	√	5.0	2.7
42	3500	3400–3600		-	-	-	-
48	3500	3550–3700		-	-	-	-
66	1700	1710–1780	2110–2200	√	√	3.7	2.7
71	600	663–698	617–652	√	√	-2.0	-2.4
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 46 mm × 16 mm
Casing Material & Color	ABS & Black
Cable Type & Color & Length	RG174 & Black & 300 mm
Connector Type	SMA Male
Mounting Type	Screw
Weight	Typ. 24 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP67
RoHS Compliant	Yes

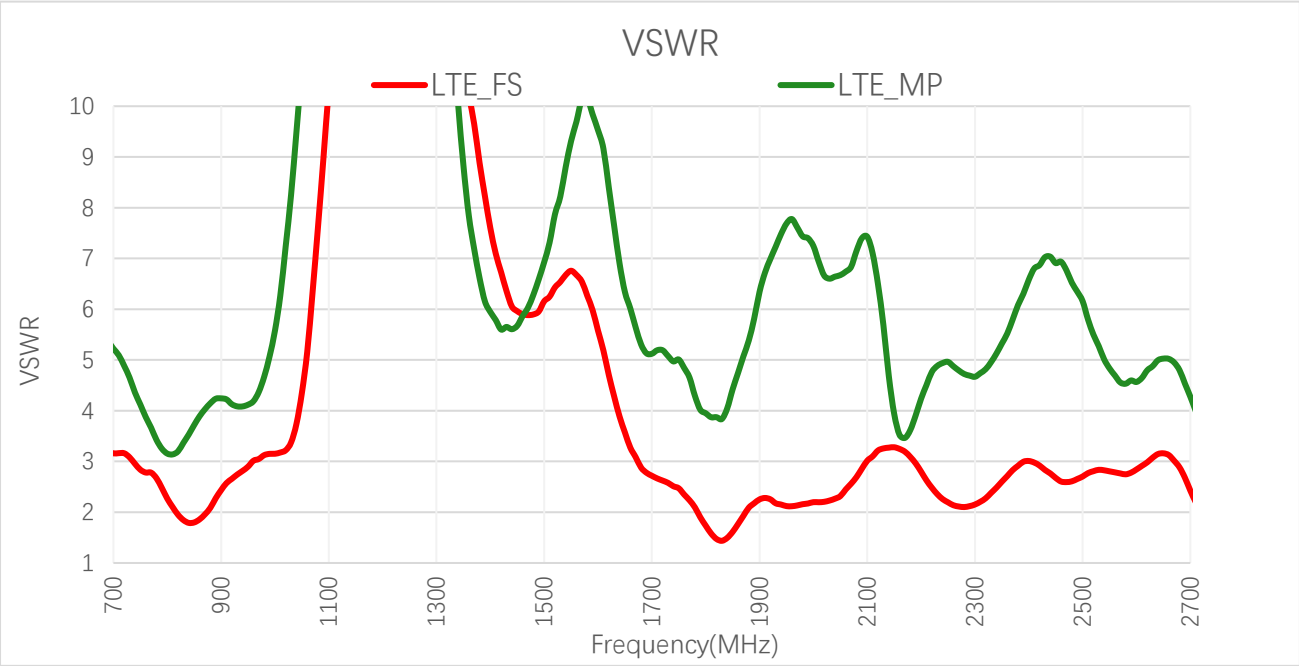
2 Drawing


M12 NUT
M12
*16±1
Housing Black
*Ø46±1.5
SMA-Male
LTE
Label
RG174 Black
2.80±0.1
Foam with 3M9448A
*300±20
TOP
Ø13.00
11.70
(3.90)
(4.70)
S=16
M12
NUT
Reference mounting hole
UNIT:mm

3 Detailed Performance

3.1. S-Parameter Test

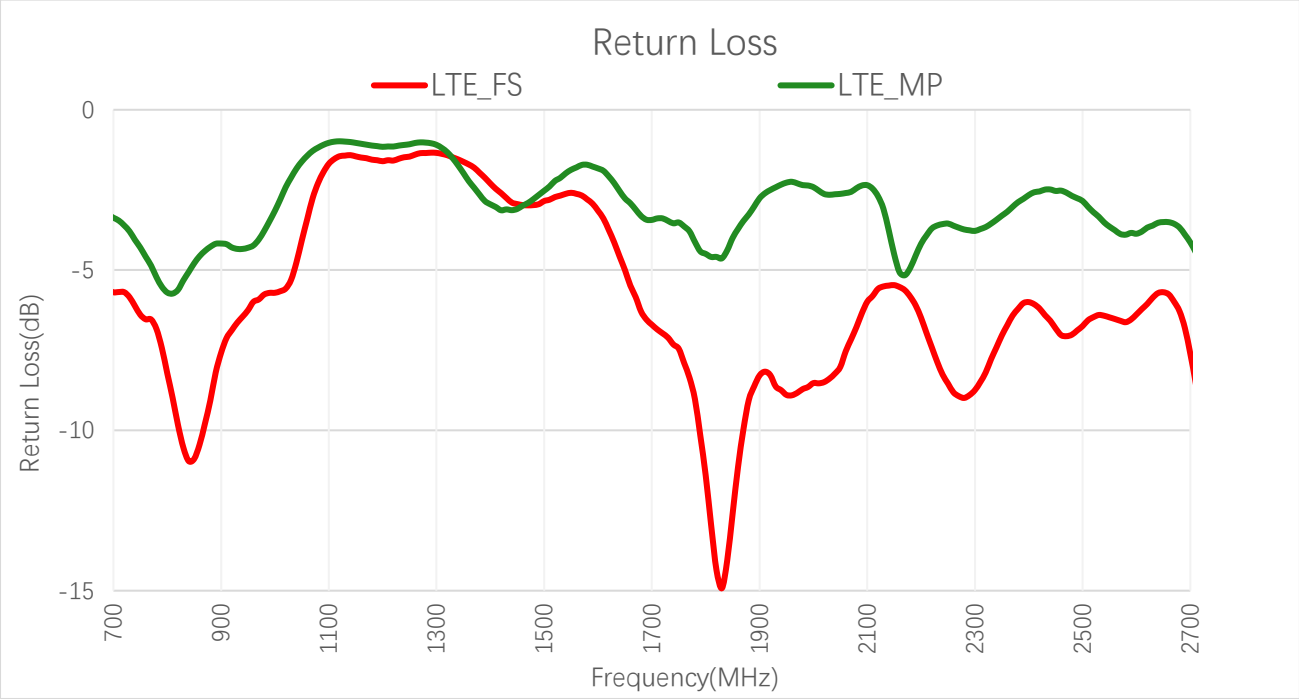
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	3.2	1.8	2.4	3.0	-	2.7	2.5	2.1
MP	-	-	5.1	3.4	4.2	4.2	-	5.2	5.0	5.4
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	2.1	3.3	2.6	2.7	2.8	2.7	-	-	-	-
MP	7.7	4.7	5.3	6.9	4.6	4.5	-	-	-	-

3.1.2. Return Loss

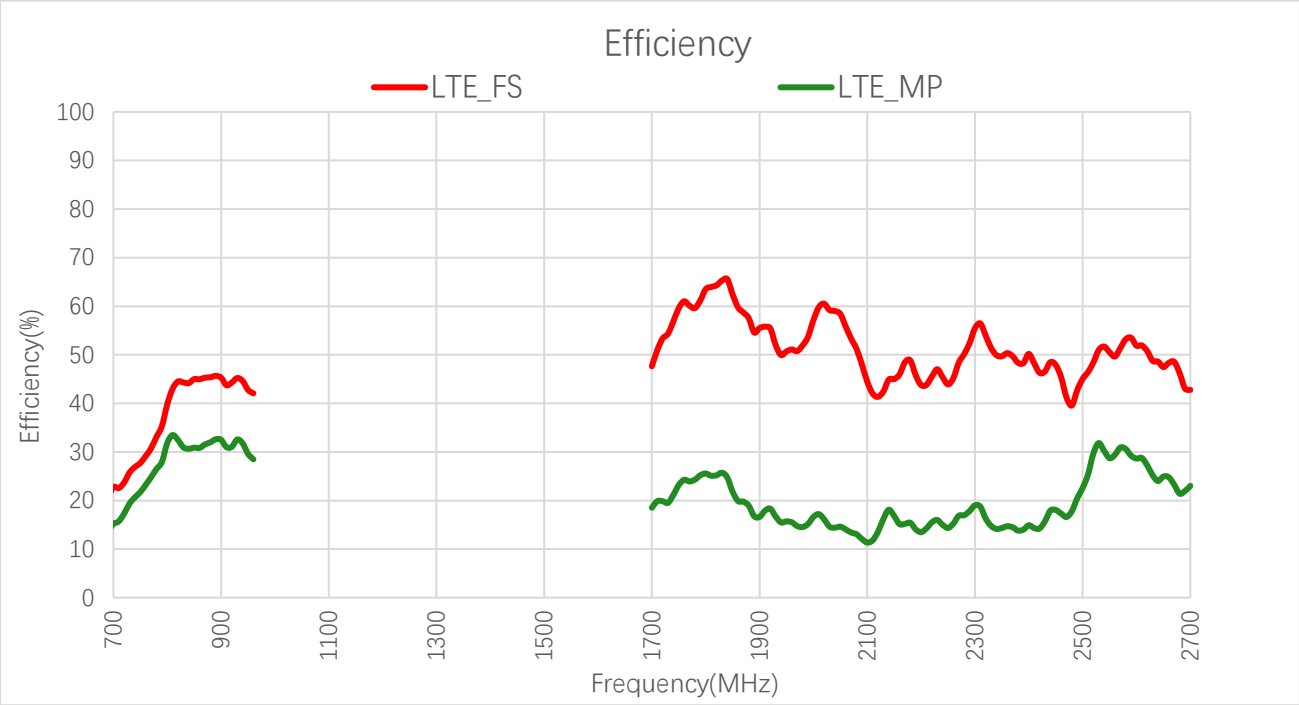


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	-5.7	-10.5	-7.6	-6.0	-	-6.9	-7.3	-9.1
MP	-	-	-3.5	-5.3	-4.2	-4.2	-	-3.4	-3.5	-3.3
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	-8.9	-5.5	-7.0	-6.8	-6.4	-6.8	-	-	-	-
MP	-2.3	-3.8	-3.3	-2.5	-3.9	-3.9	-	-	-	-

3.2. Radiation Performance Test

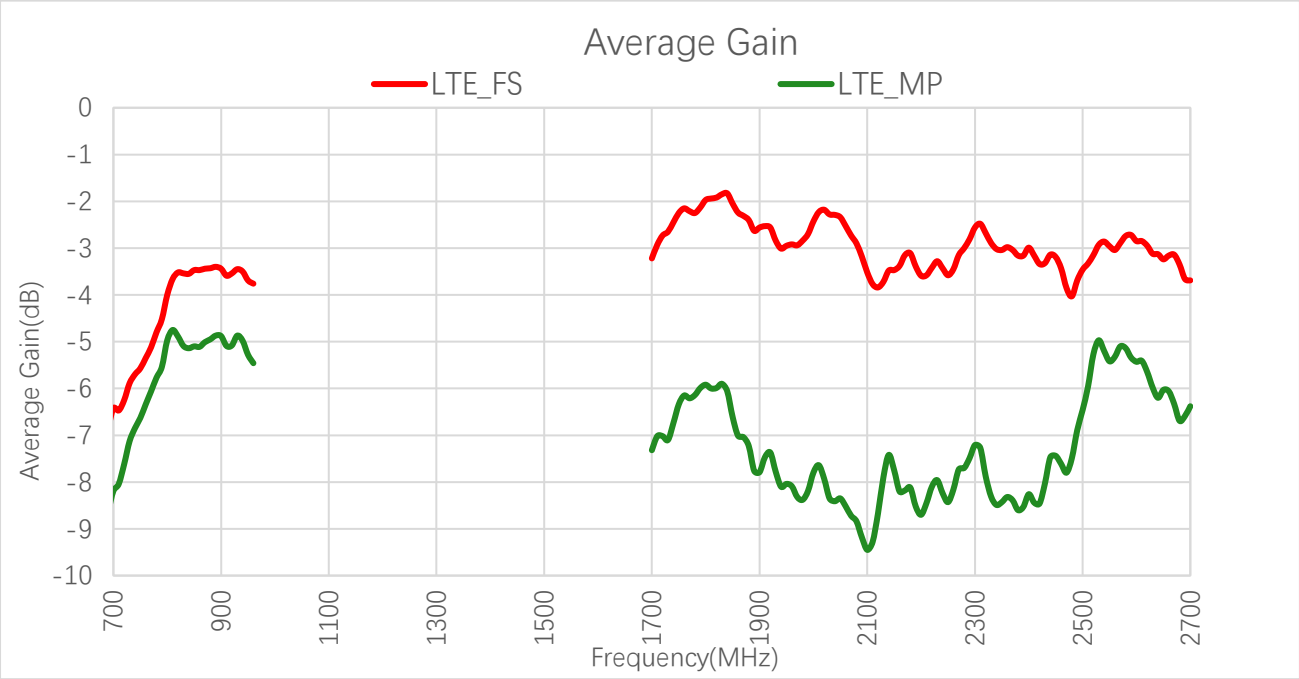
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	22.6	44.3	45.3	42.1	-	50.9	56.9	57.5
MP	-	-	15.7	30.9	32.5	28.5	-	19.9	21.2	18.9
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	50.7	44.9	49.7	47.9	51.9	43.1	-	-	-	-
MP	15.7	18.1	14.4	18.1	28.6	22.0	-	-	-	-

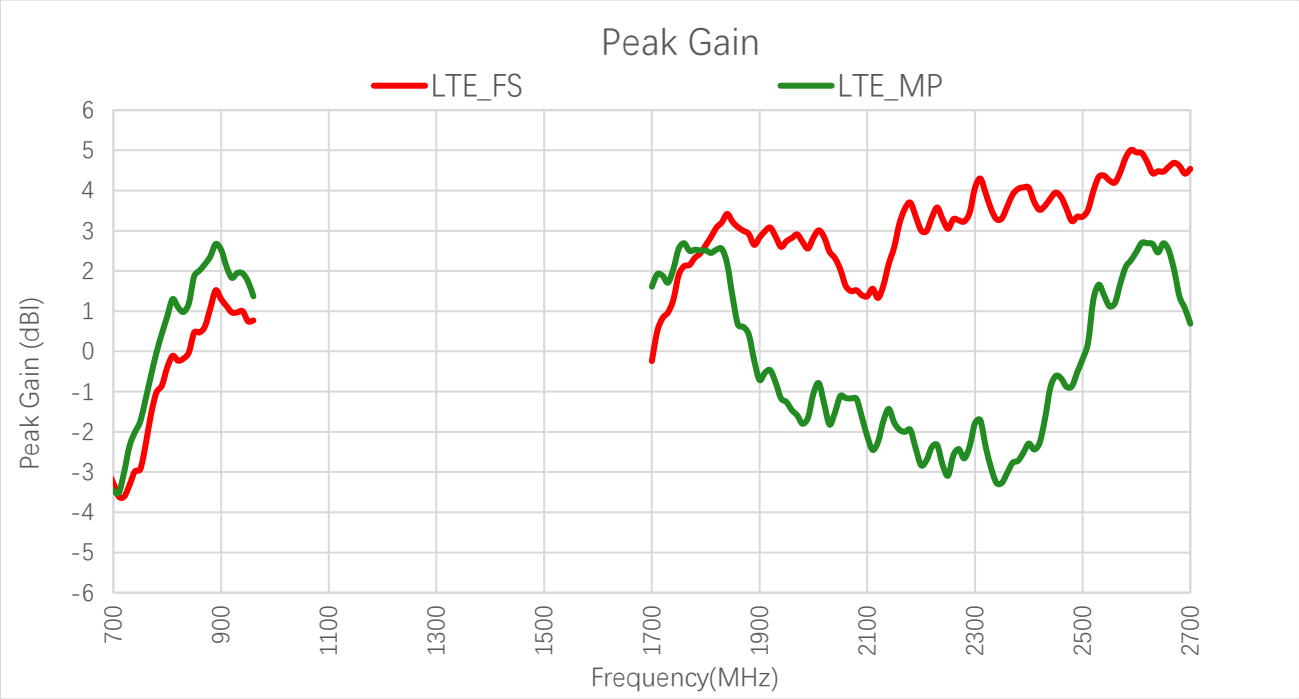
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	-6.5	-3.5	-3.4	-3.8	-	-2.9	-2.5	-2.4
MP	-	-	-8.0	-5.1	-4.9	-5.5	-	-7.0	-6.7	-7.2
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	-3.0	-3.5	-3.0	-3.2	-2.9	-3.7	-	-	-	-
MP	-8.0	-7.4	-8.4	-7.4	-5.4	-6.6	-	-	-	-

3.2.3. Peak Gain



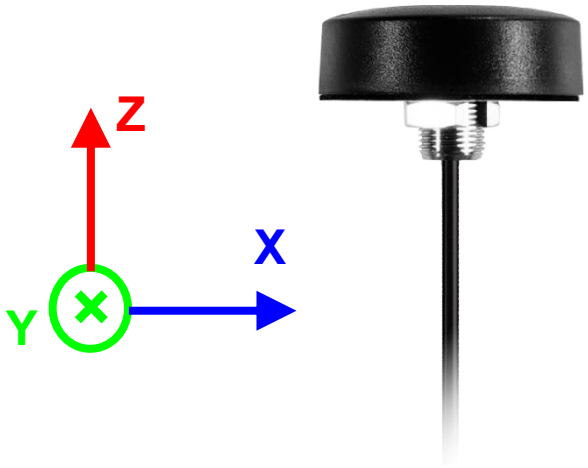
Peak Gain (dBi)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	-3.6	-0.2	1.3	0.8	-	0.5	1.3	2.9
MP	-	-	-3.5	1.0	2.5	1.4	-	1.9	2.1	0.4
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	2.7	2.2	3.3	4.0	5.0	4.4	-	-	-	-
MP	-1.3	-1.4	-3.3	-0.6	2.5	1.1	-	-	-	-

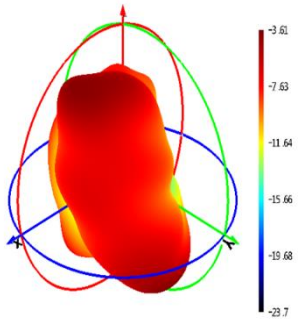
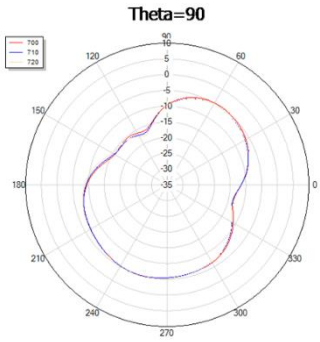
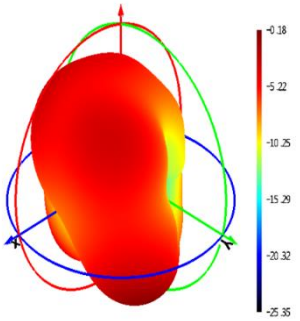
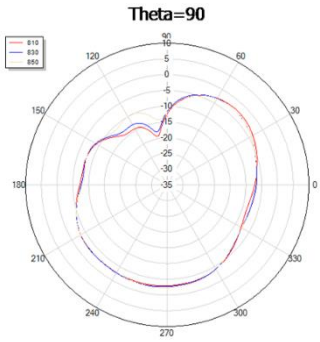
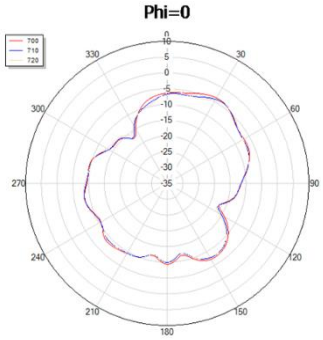
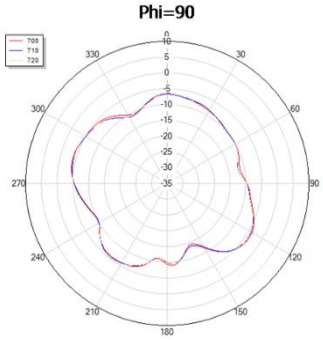
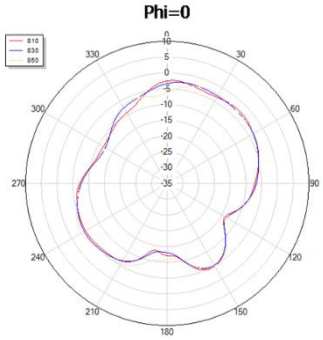
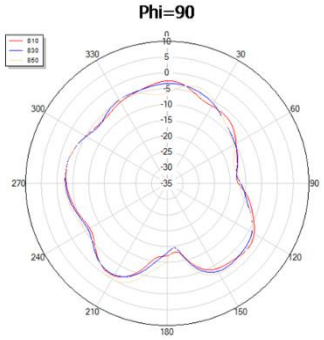
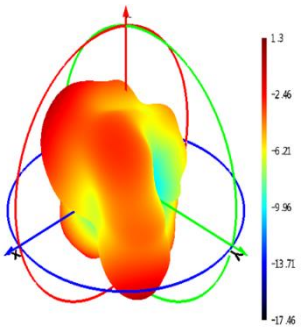
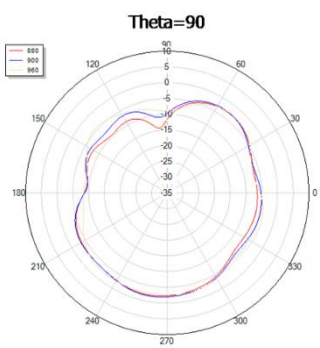
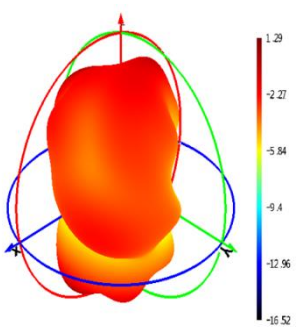
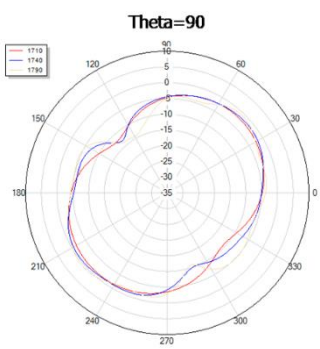
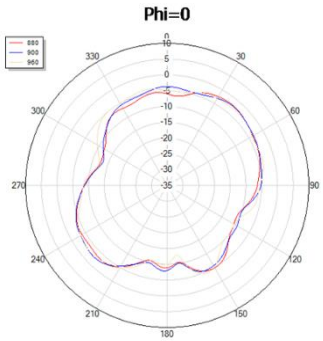
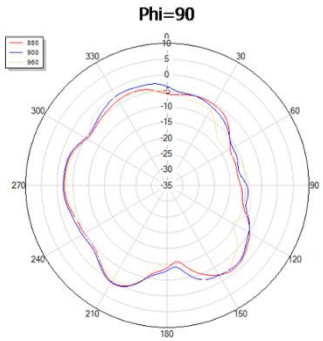
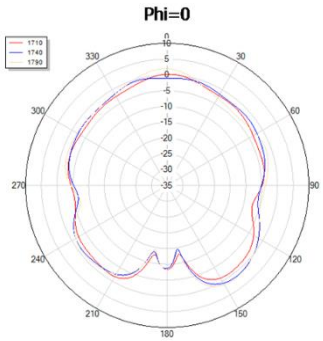
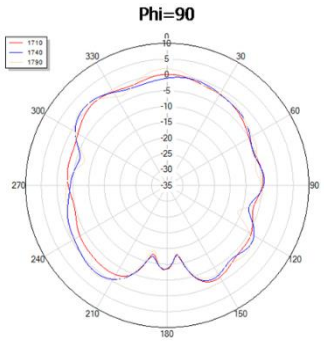
3.2.4. 3D & 2D Radiation Pattern

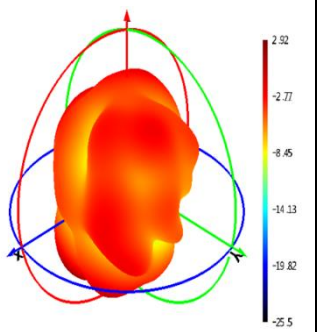
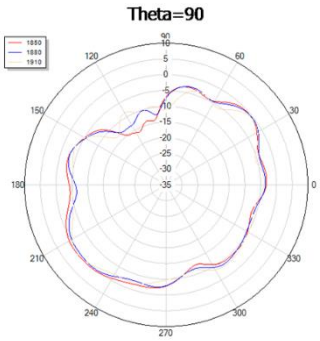
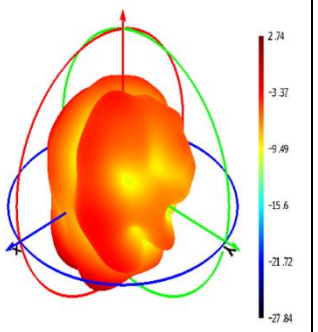
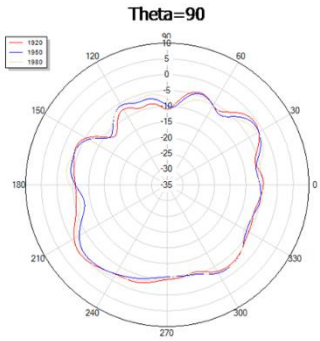
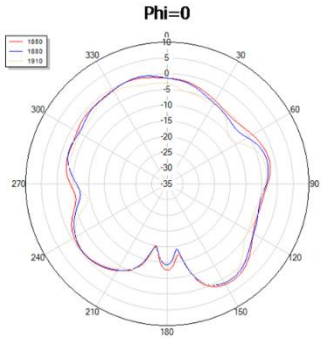
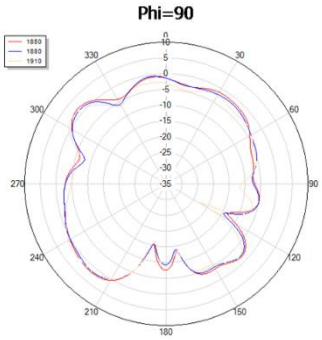
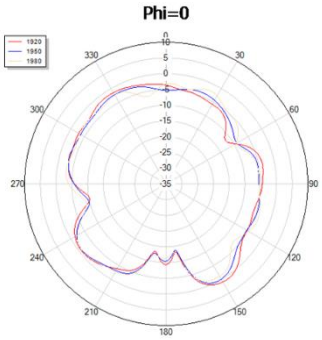
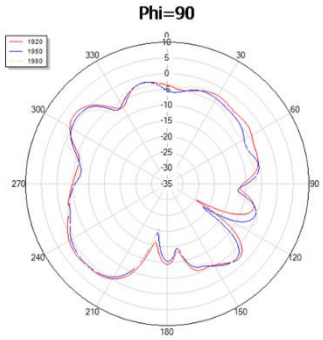
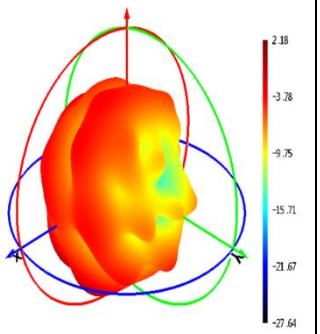
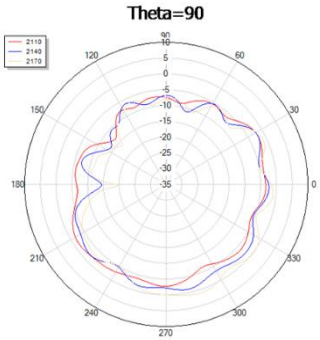
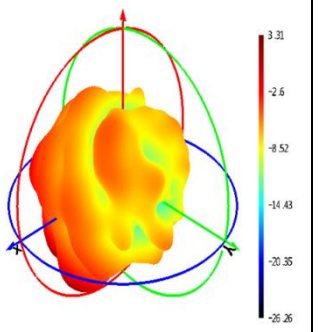
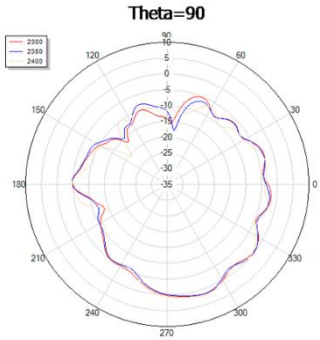
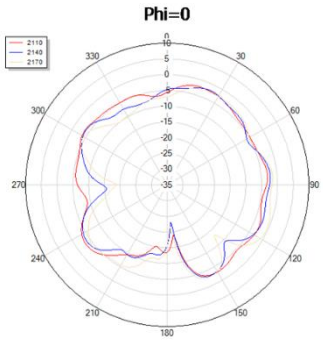
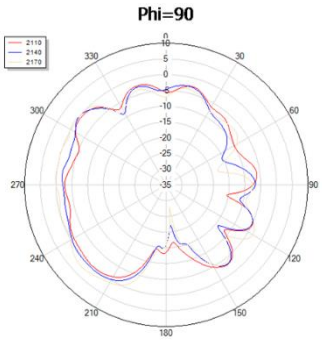
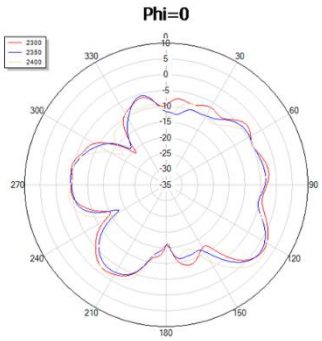
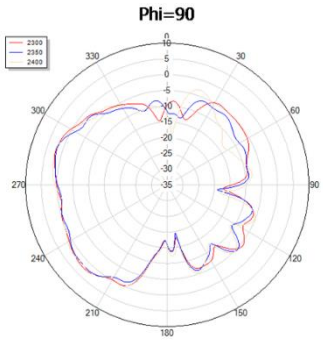
3.2.4.1. Test Condition: **In Free Space**

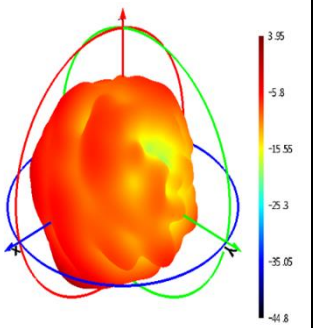
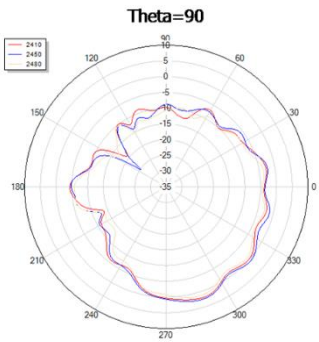
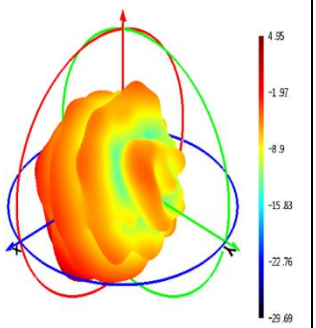
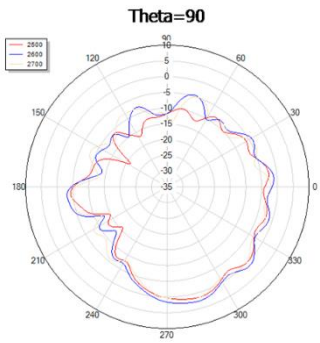
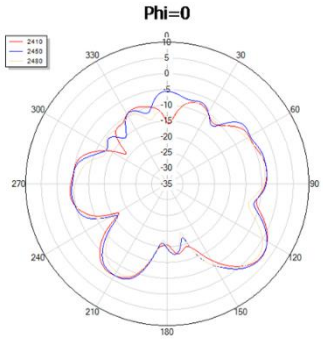
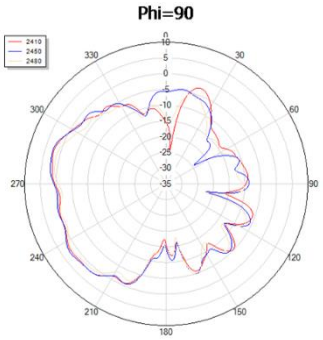
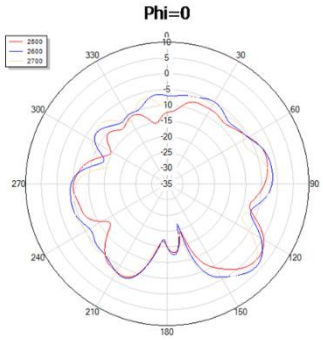
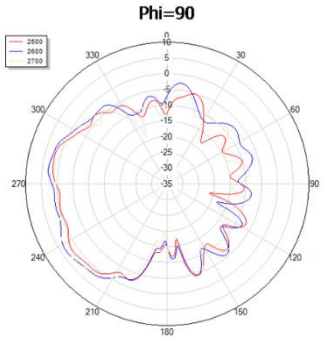
- Test Chamber: HF-S-1



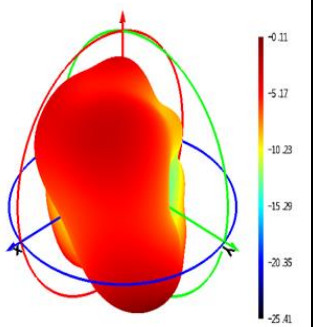
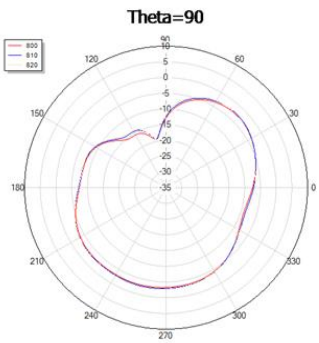
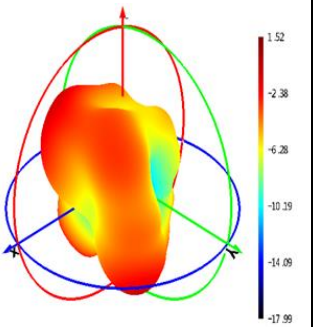
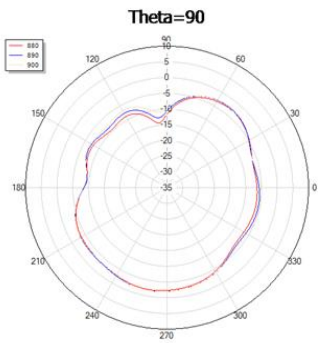
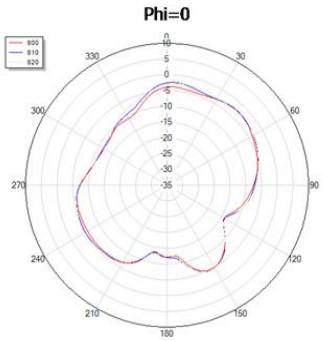
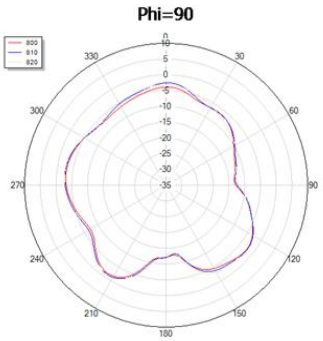
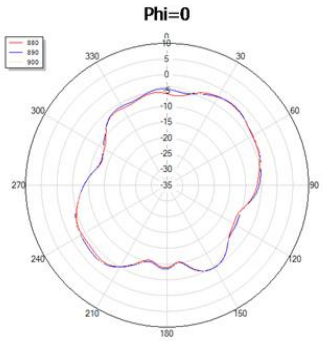
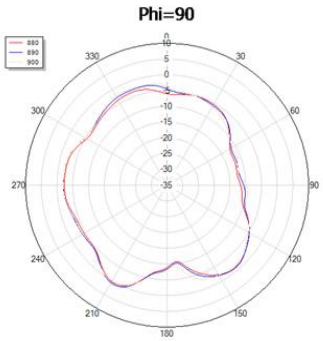
- **LTE**

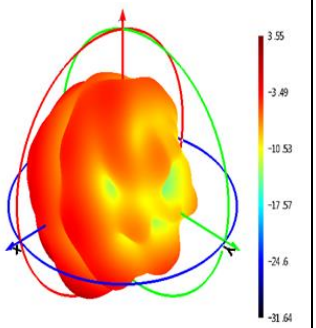
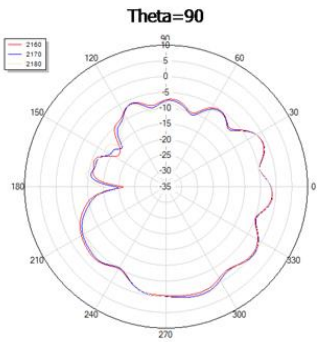
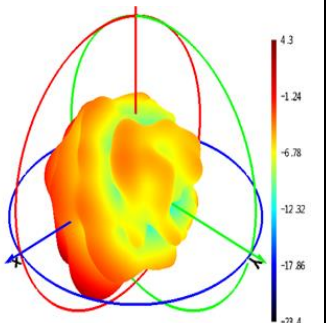
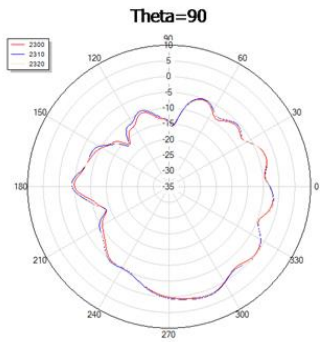
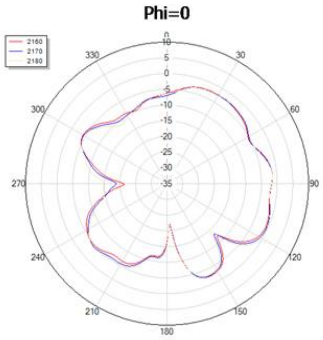
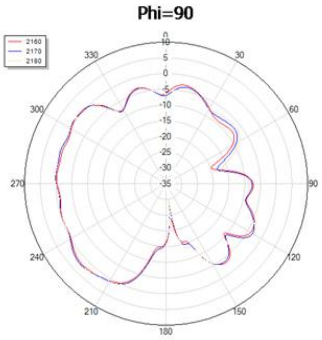
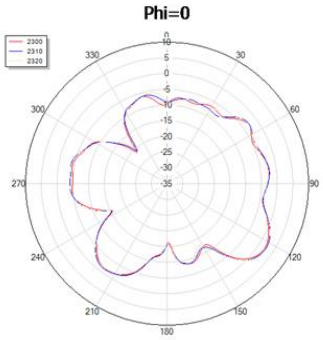
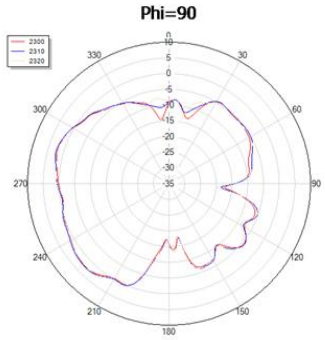
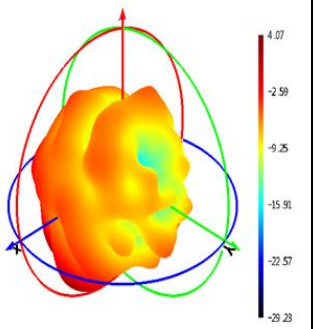
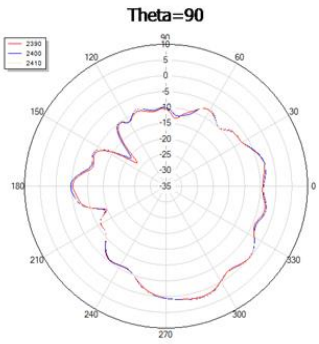
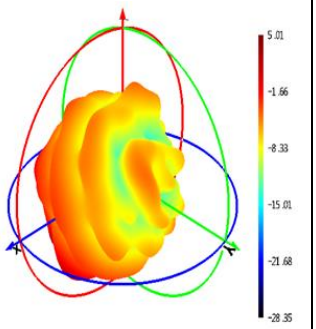
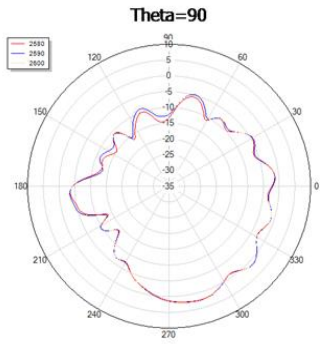
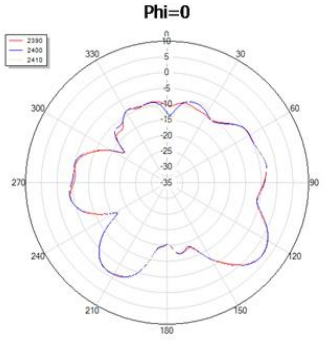
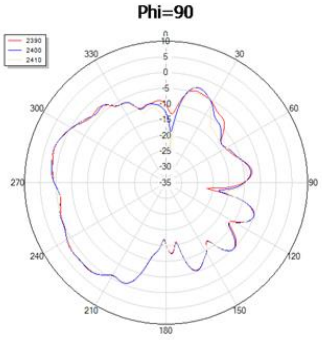
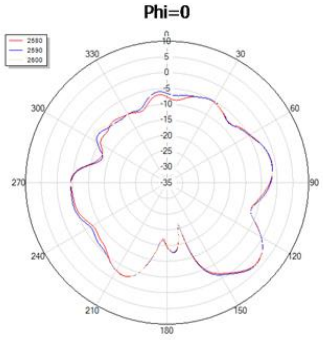
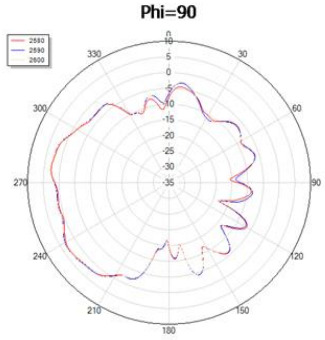
710 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

1880 MHz		1950 MHz	
			
			
2140 MHz		2350 MHz	
			
			

2450 MHz		2600 MHz	
			
			

- **LTE Max Peak Gain**

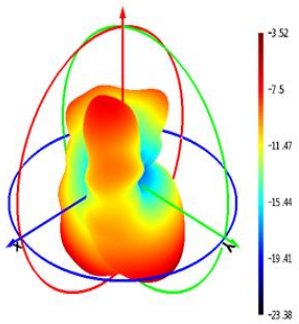
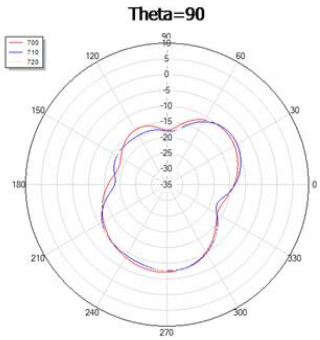
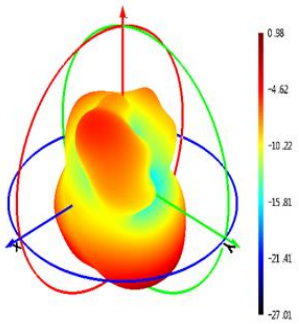
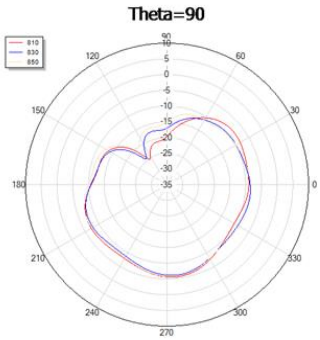
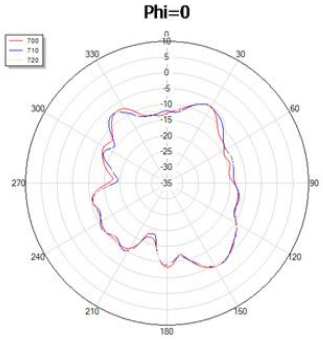
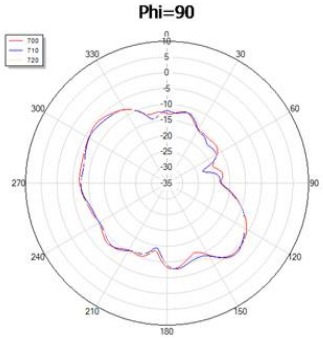
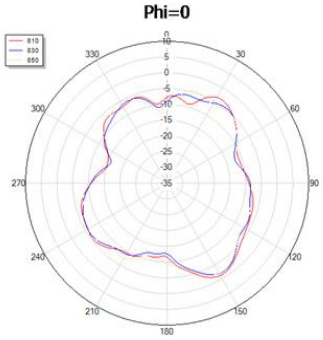
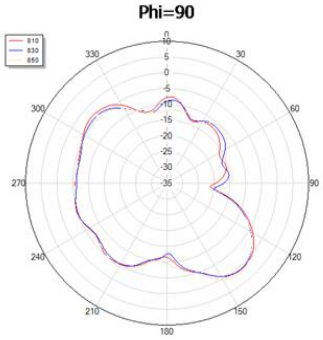
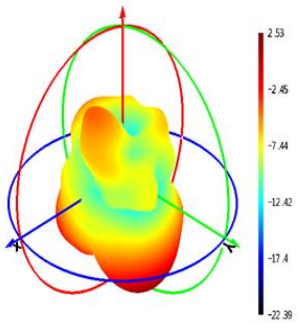
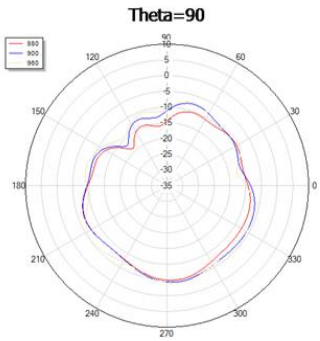
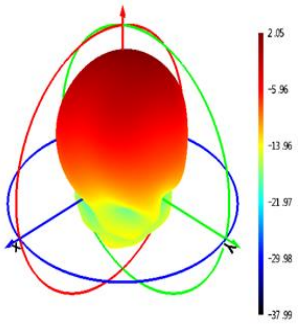
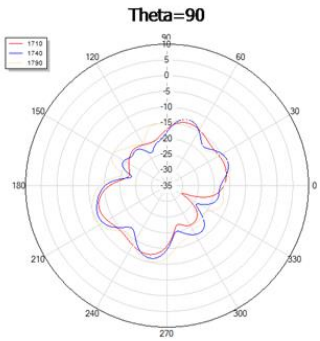
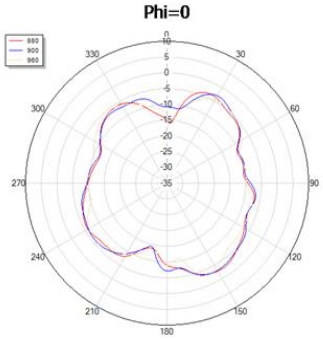
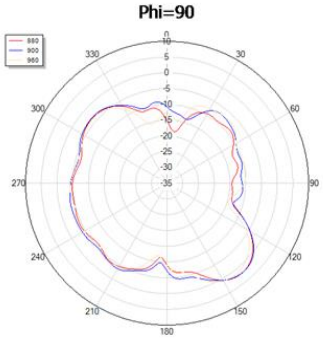
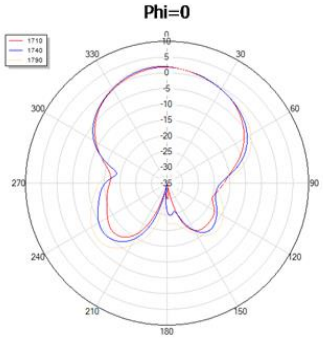
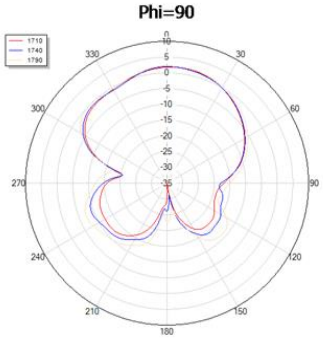
810 MHz		890 MHz	
			
			

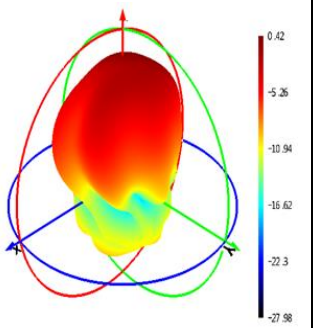
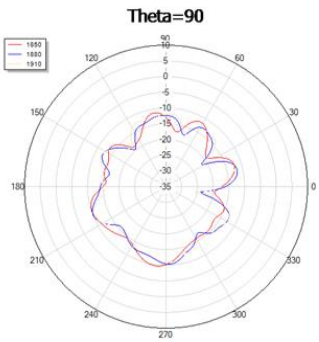
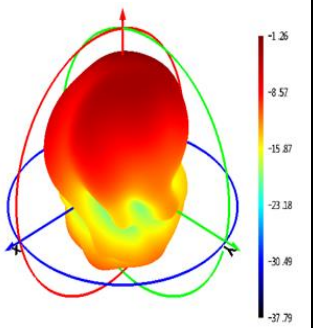
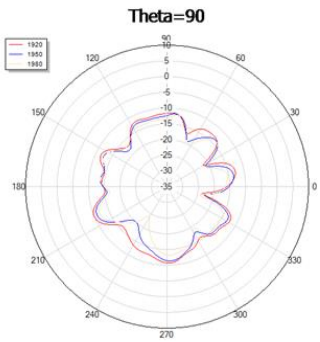
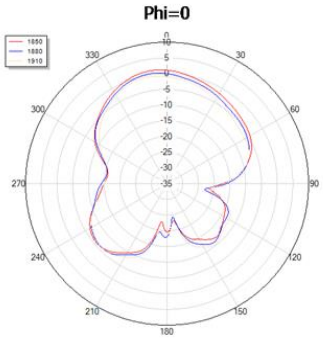
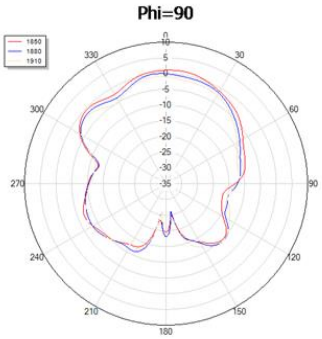
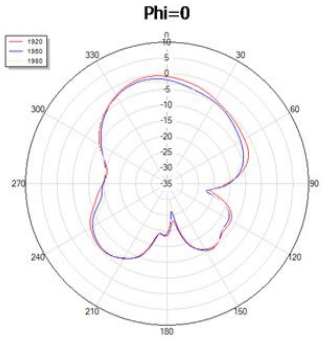
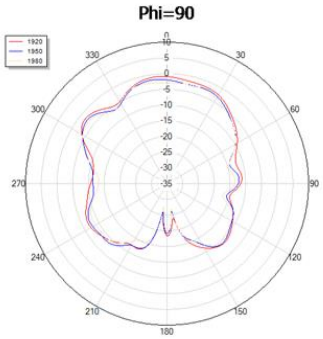
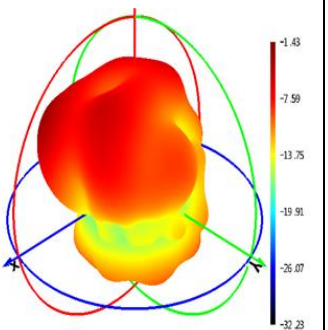
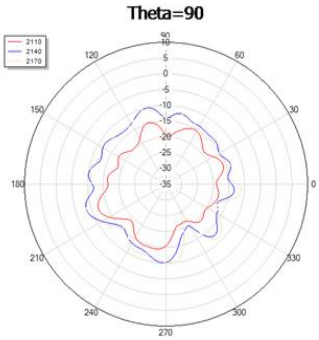
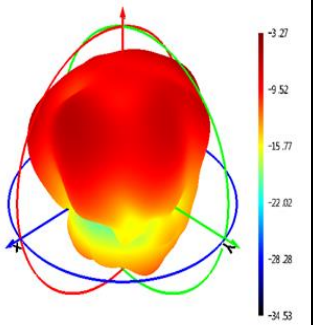
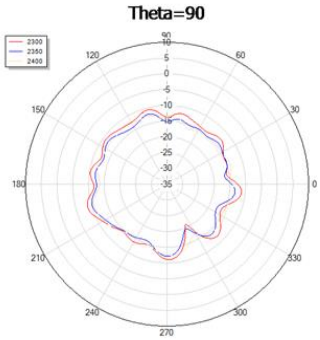
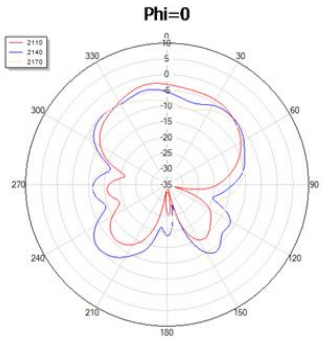
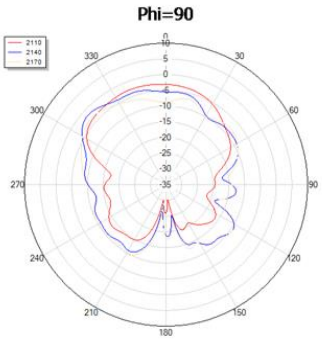
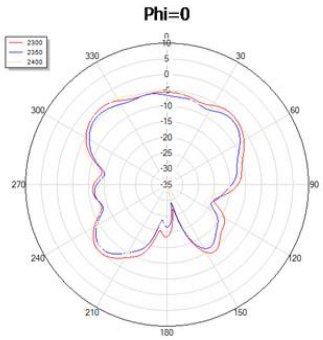
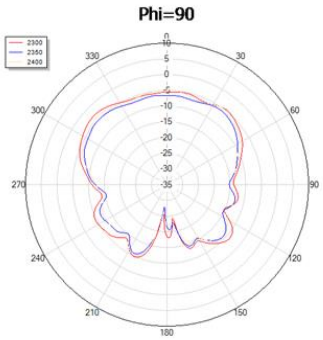
2170 MHz		2310 MHz	
			
			
2400 MHz		2590 MHz	
			
			

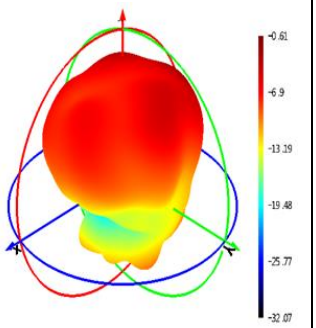
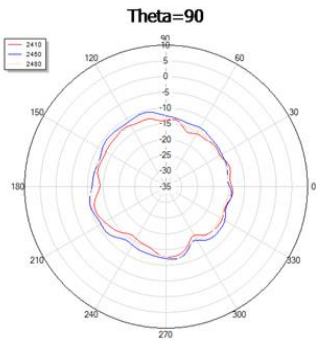
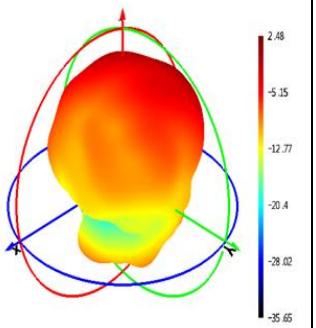
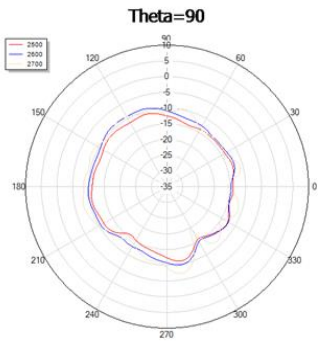
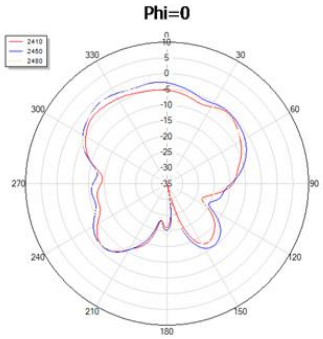
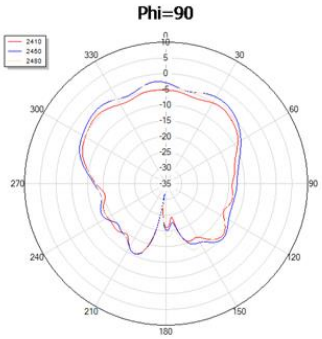
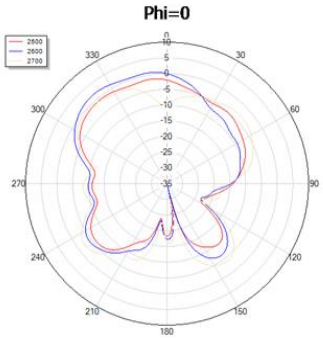
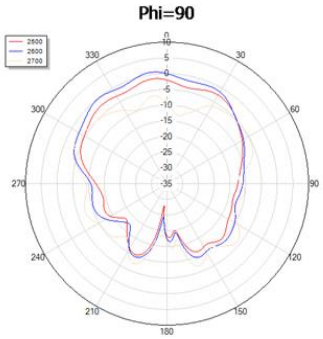
3.2.4.2. Test Condition: On 300 mm × 300 mm Metal Plane

- Test Chamber: HF-S-1

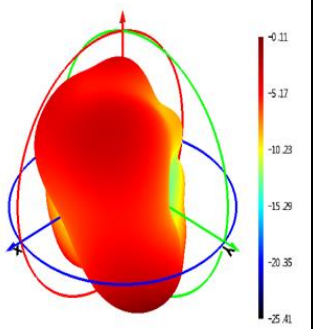
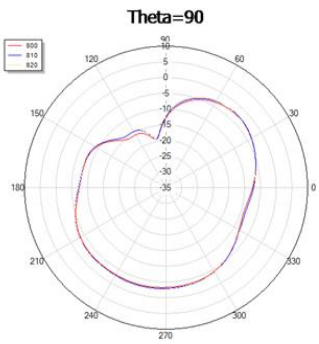
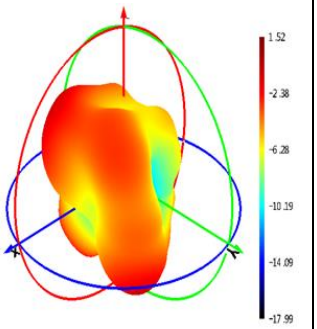
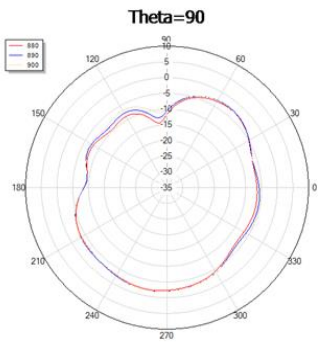
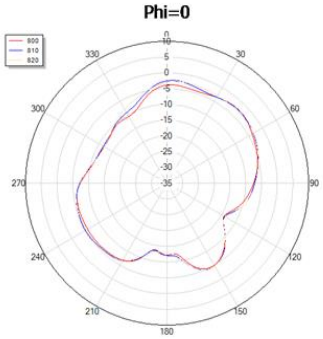
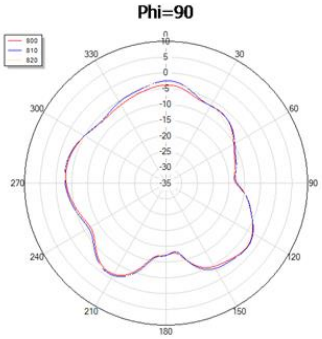
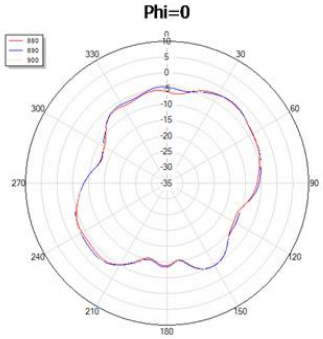
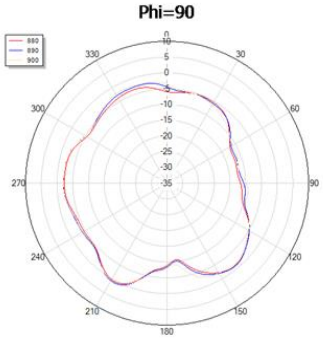
- **LTE**

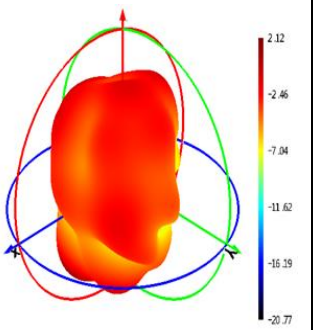
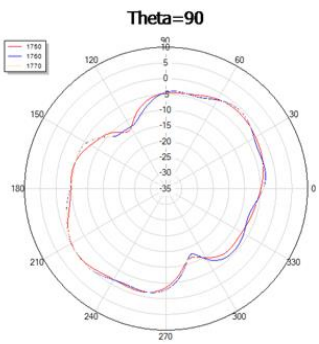
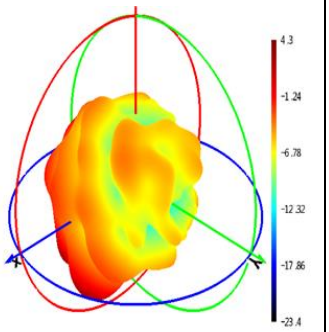
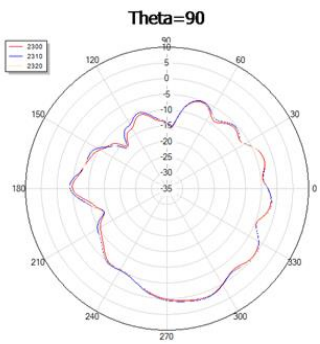
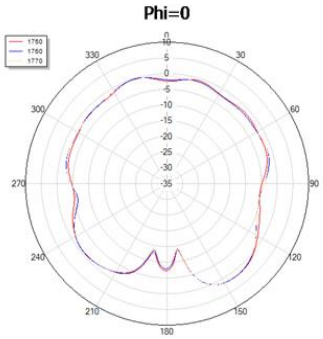
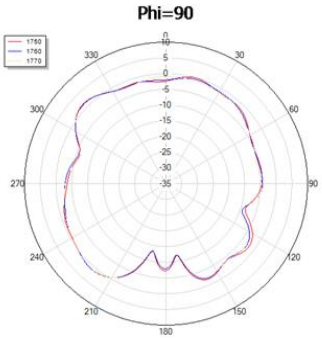
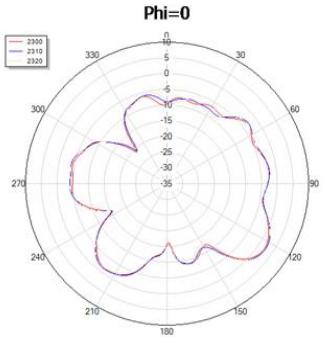
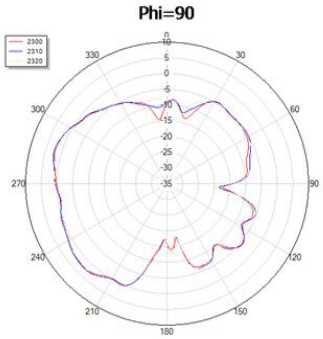
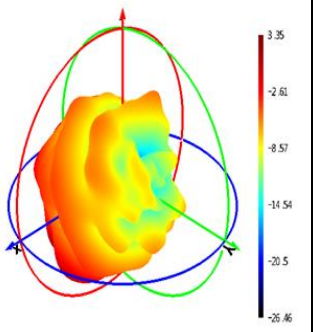
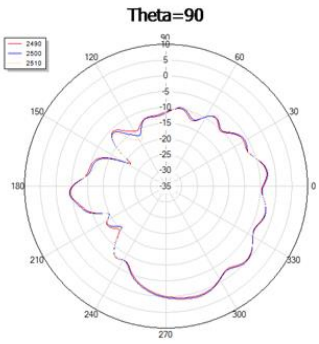
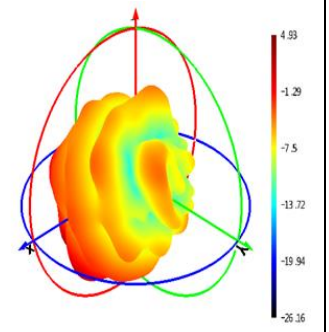
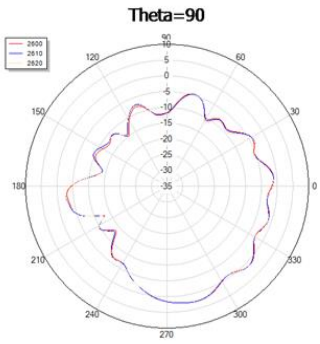
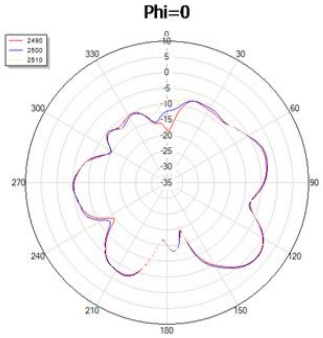
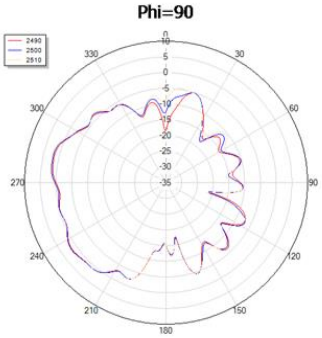
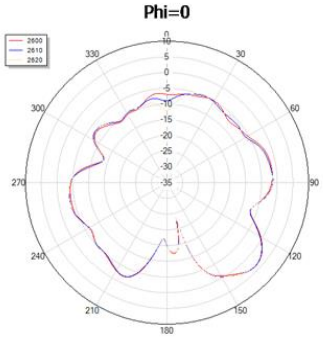
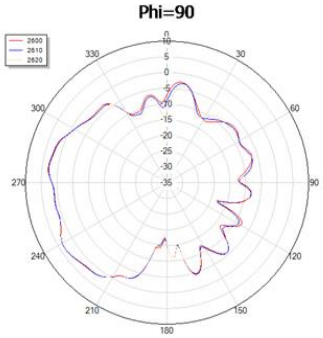
710 MHz		830 MHz	
			
			
900 MHz		**1740 MHz**	
			
			

1880 MHz		1950 MHz	
			
			
2140 MHz		2350 MHz	
			
			

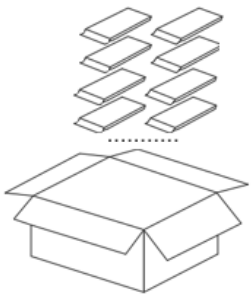
2450 MHz		2600 MHz	
			
			

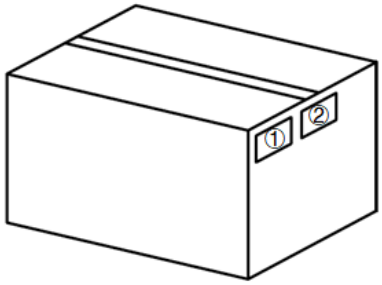
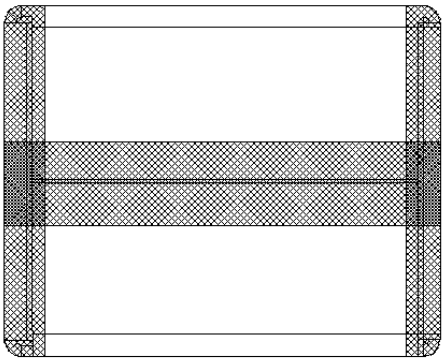
- **LTE Max Peak Gain**

810 MHz		890 MHz	
			
			

1760 MHz		2310 MHz	
			
			
2500 MHz		2610 MHz	
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		Whole antenna product in a small PE bag. (1 Antenna / Small PE Bag)
2		20 antenna products in a big PE bag. (20 Antennas / Big PE Bag)
3		(14 Big PE Bags / Carton Box) (280 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 = 470 × 430 × 310 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
-	2025-11-07	Christopher Yao/ Blake Xiang/ Strong Qiang/ Rainey Liao	Creation of the document
1.0	2025-11-07	Christopher Yao/ Blake Xiang/ Strong Qiang/ Rainey Liao	First official release

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