Antenna Datasheet

Product OC: YEMN310L1AM
Version: 1.1
Date: 2025-10-14
Status: Released

Product Name: 4G & GNSS 3in1 Screw Mount Combo External Antenna
Key Features:
Frequency Band: 4G: 700–960 MHz, 1700–2690 MHz;
GNSS: 1559–1606 MHz
Dimensions: 89.3 mm × 86.3 mm × 35.4 mm
Efficiency: Up to 52 % (FS)
GNSS LNA Gain: 18 ±3 dB
RoHS & REACH Compliant
IP67

Overview

YEMN310L1AM is a 4G & GNSS 3in1 combo antenna measuring 89.3 mm × 86.3 mm × 35.4 mm. This ultra-wide-band 4G & GNSS antenna provides broad coverage from1559–1606 MHz, 700–960 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). Ideal for applications where the antenna is required to be discrete, the antenna is available screw mount omni-directional antenna. It is easy to install with maximum durability assured and suitable for use in harsh outdoor environments thanks to its IP67 rated, UV-resistant and UL 94 V-0 Flame Rating enclosure. It is compatible with Quectel's RM520x Series modules.

YEMN310L1AM has 2 × 4G LMH antennas and 1 × GNSS L1 antenna. It allows high efficiency, stable signal transmission and reception for active GNSS from 1559–1606 MHz, and 4G bands from 700–960 MHz, 1710–2690 MHz. In the meantime, this product also offers high isolation between antennas to avoid self-interference. All in all, this unique product is designed to provide stable and high-speed data connection to 4G & GNSS applications. YEMN310L1AM can be used in harsh environments thanks to its robust UV resistant (UL 746c f1) and flame resistant (UL 94 V-0) enclosure.

Typical applications include:

- Public safety
- HD Video Streaming
- Utilities and Smart Cities
- Fleet Management
- Automotive vehicle tracking

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 500 mm × 500 mm Metal Plane

1.1. Electrical

Electrical Specifications			
Frequency Range	**LTE-1**	700–960 MHz, 1700–2690 MHz	
	LTE-2	700–960 MHz, 1700–2690 MHz	
	GNSS	1559–1606 MHz	
Radiation Pattern	**LTE-1**	Omni-directional	
	LTE-2	Omni-directional	
	GNSS	Directional	
Polarization	**LTE-1**	Linear	
	LTE-2	Linear	
	GNSS	RHCP	
Impedance		50 Ω	
Isolation	**LTE-1-LTE-2**	FS	≤ -9.4 dB
		MP	≤ -9.0 dB
	LTE-1-GNSS	FS	≤ -17.2 dB
		MP	≤ -17.9 dB
	LTE-2-GNSS	FS	≤ -15.3 dB
		MP	≤ -19.9 dB

1.1.1. LTE-1

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	-	3.3	2.2	-	2.2	1.8	1.5	1.4	-	-	-
	MP	-	4.9	3.3	-	3.1	1.6	1.3	1.3	-	-	-
Max. Return Loss (dB)	FS	-	-5.5	-8.6	-	-8.7	-11.2	-14.3	-15.0	-	-	-
	MP	-	-3.6	-5.4	-	-5.8	-12.6	-19.0	-17.0	-	-	-
AVG Eff. (%)	FS	-	34.1	50.1	-	46.4	49.4	48.1	46.2	-	-	-
	MP	-	36.8	43.6	-	37.6	50.3	47.4	42.8	-	-	-
AVG AVG Gain (dB)	FS	-	-4.7	-3.0	-	-3.3	-3.1	-3.2	-3.4	-	-	-
	MP	-	-4.4	-3.6	-	-4.3	-3.0	-3.2	-3.7	-	-	-
Max. Peak Gain (dBi)	FS	-	-0.6 (810)	2.4 (960)	-	3.8 (1840)	3.4 (2320)	3.0 (2400)	5.1 (2690)	-	-	-
	MP	-	0.3 (810)	2.0 (890)	-	4.0 (2120)	4.5 (2310)	4.1 (2400)	2.3 (2510)	-	-	-

VSWR	FS	≤ 3.3
	MP	≤ 4.9
Return Loss	FS	≤ -5.5 dB
	MP	≤ -3.6 dB
Gain	FS	≤ 5.1 dBi
	MP	≤ 4.5 dBi

- FS: Free Space
- MP: On 500 mm × 500 mm Metal Plane

1.1.2. LTE-2

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	-	3.4	2.3	-	2.3	1.3	1.3	1.5	-	-	-
	MP	-	4.3	3.4	-	3.7	1.6	1.5	1.6	-	-	-
Max. Return Loss (dB)	FS	-	-5.2	-8.0	-	-7.9	-17.1	-17.5	-14.4	-	-	-
	MP	-	-4.1	-5.2	-	-4.8	-13.3	-13.8	-12.4	-	-	-
AVG Eff. (%)	FS	-	31.6	48.4	-	39.3	45.3	44.2	42.7	-	-	-
	MP	-	30.4	40.4	-	34.2	49.4	45.5	39.9	-	-	-
AVG AVG Gain (dB)	FS	-	-5.0	-3.2	-	-4.1	-3.4	-3.6	-3.7	-	-	-
	MP	-	-5.2	-3.9	-	-4.7	-3.1	-3.4	-4.0	-	-	-
Max. Peak Gain (dBi)	FS	-	-0.4 (810)	1.9 (900)	-	2.8 (1700)	2.9 (2400)	3.3 (2470)	3.3 (2510)	-	-	-
	MP	-	0.4 (810)	2.2 (880)	-	4.0 (2170)	4.5 (2310)	4.4 (2400)	2.0 (2510)	-	-	-

VSWR	FS	≤ 3.4
	MP	≤ 4.3
Return Loss	FS	≤ -5.2 dB
	MP	≤ -4.1 dB
Gain	FS	≤ 3.3 dBi
	MP	≤ 4.5 dBi

- FS: Free Space
- MP: On 500 mm × 500 mm Metal Plane

1.1.3. GNSS

Band / Frequency (MHz)	GPS L5 GALILEO E5a BDS B2a-B2I QZSS L5 IRNSS L5	GALILEO E5b BDS B2b	GPS L2 QZSS L2C	GLONASS G2	BDS B3	BDS B1I	GPS L1 GALILEO E1 BDS B1C QZSS L1	GLONASS G1
	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	4.83	1.69	1.47
Return Loss (dB)	-	-	-	-	-	-3.6	-11.7	-14.2
Efficiency (%)	-	-	-	-	-	26.7	61.6	62.5
Peak Gain (dBi)	-	-	-	-	-	-2.76	0.61	1.57

LNA Electrical	
LNA Gain	18 ±3 dB @ 3V 17 ±3 dB @ 1.8V
Noise Figure	≤ 2.5 dB
Output VSWR	< 2.0
Input VSWR	< 2.0
Filter Out-of-Band Attenuation	60 dB f0 ±100 MHz f0 (1580 MHz)
Working Voltage	1.8–3.3 V
Working Current	8.3 ±1.5 mA
Impedance	50 Ω

1.2. Supported Bands

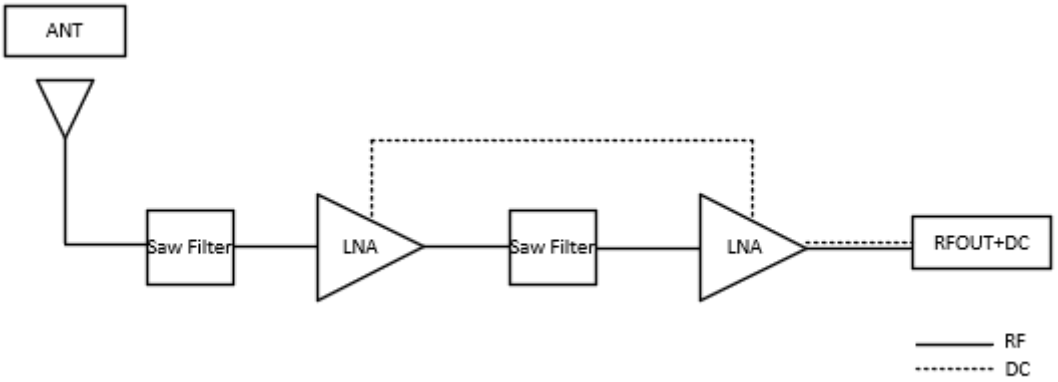
5G NR / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / GPRS / GSM / NB-IoT					
Band	**Frequency (MHz)**	**Uplink (MHz)**	**Downlink (MHz)**	**LTE 1**	**LTE 2**
1	2100	1920–1980	2110–2170	√	√
2	1900	1850–1910	1930–1990	√	√
3	1800	1710–1785	1805–1880	√	√
4	1700	1710–1755	2110–2155	√	√
5	850	824–849	869–894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

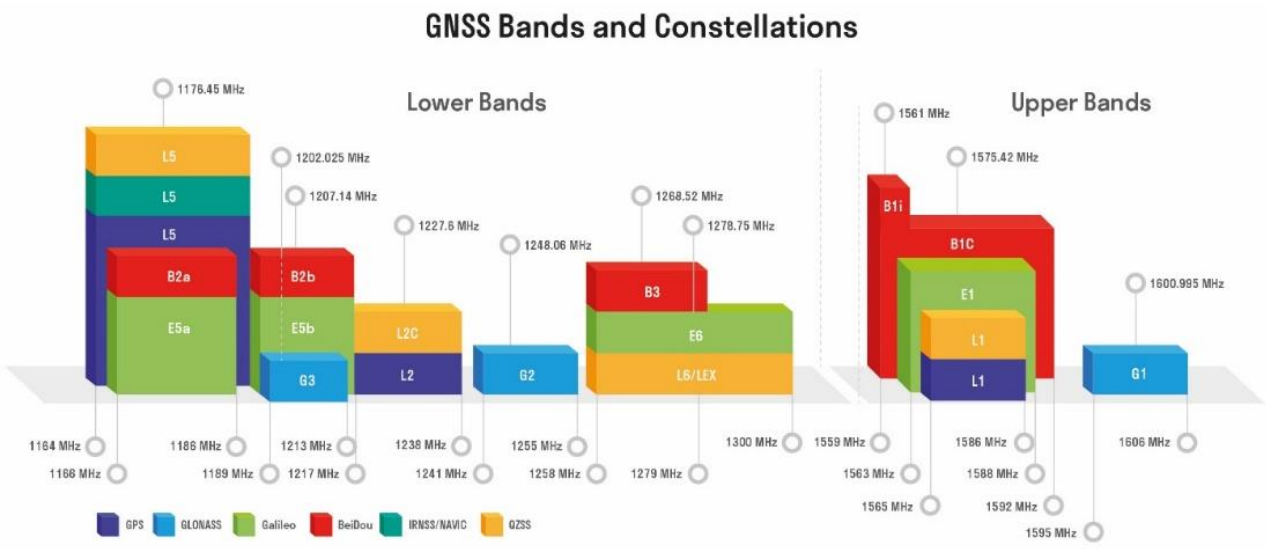
Mechanical		
Antenna Dimensions		89.3 mm × 86.3 mm × 35.4 mm
Antenna Material & Color		PC & Black
Cable Type & Color & Length	**LTE-1**	ALS302 & Black & 1000mm
	LTE-2	ALS302 & Black & 1000mm
	GNSS	RG174 & Black & 1000mm
Connector Type	**LTE-1**	SMA Male (The current state of the SMA connector is not waterproof. If a waterproof connector is required, it can be customized.)
	LTE-2	SMA Male (The current state of the SMA connector is not waterproof. If a waterproof connector is required, it can be customized.)
	GNSS	SMA Male (The current state of the SMA connector is not waterproof. If a waterproof connector is required, it can be customized.)
Weight		Typ. 256 g
Mounting Type		Screw
Environmental		
Storage Temperature		-40 °C to +85 °C
Operation Temperature		-40 °C to +85 °C
Ingress Protection (IP) Rating		IP67
RoHS & REACH Compliant		Yes
Housing Flame Rating		UL 94 V-0
Housing UV Resistant		UL 746c f1

1.4. Block Diagram (Active Antenna)

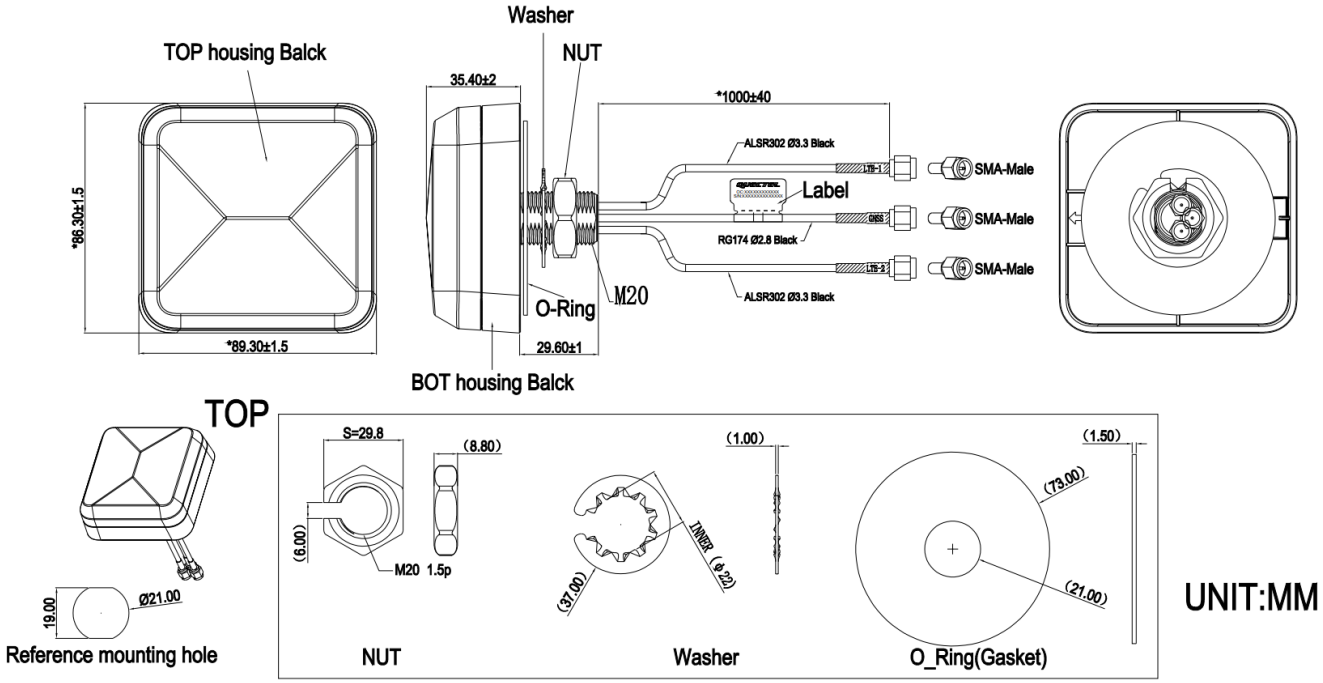


1.5. Supported GNSS Frequency Bands

GNSS Frequency Bands (MHz)					
GPS	**L1** Centre 1575.42 (1565–1586)	**L2** Centre 1227.6 (1217–1238)	**L5** Centre 1176.45 (1164–1189)		
	√	-	-		
GLONASS	**G1-L1OC-L1OF** Centre 1601 (1595–1606)	**G2-L2OC-L2OF** Centre 1248.06 (1241–1255)	**G3-L3OC** Centre 1202.025 (1189–1213)		
	√	-	-		
GALILEO	**E1** Centre 1575.42 (1563–1588)	**E5a** Centre 1176.45 (1166–1187)	**E5b** Centre 1207.14 (1197–1218)	**E6** Centre 1278.75 (1258–1300)	
	√	-	-	-	
BDS	**B1I** Centre 1561.098 (1559–1564)	**B1C (BDS-3)** Centre 1575.42 (1559–1592)	**B2a-B2I** Centre 1176.45 (1166–1187)	**B2b** Centre 1207.14 (1197–1217)	**B3** Centre 1268.52 (1258–1279)
	√	√	-	-	-
QZSS	**L1** Centre 1575.42 (1573–1578)	**L2C** Centre 1227.6 (1226–1229)	**L5** Centre 1176.45 (1166–1187)	**L6** Centre 1278.75 (1257–1300)	
	√	-	-	-	
IRNSS	**L5** Centre 1176.45 (1164–1189)				
	-				


GNSS Bands and Constellations
Lower Bands
Upper Bands
1176.45 MHz
1202.025 MHz
1207.14 MHz
1227.6 MHz
1248.06 MHz
1268.52 MHz
1278.75 MHz
L5
L5
L5
B2a
E5a
B2b
E5b
G3
L2C
L2
G2
B3
E6
L6/LEX
1561 MHz
1575.42 MHz
1600.995 MHz
B1i
B1C
E1
L1
L1
G1
1164 MHz
1168 MHz
1186 MHz
1189 MHz
1213 MHz
1217 MHz
1238 MHz
1241 MHz
1255 MHz
1258 MHz
1279 MHz
1300 MHz
1559 MHz
1563 MHz
1565 MHz
1586 MHz
1588 MHz
1592 MHz
1595 MHz
1606 MHz
GPS
GLONASS
Galileo
BeiDou
IRNSS/NAVIC
QZSS

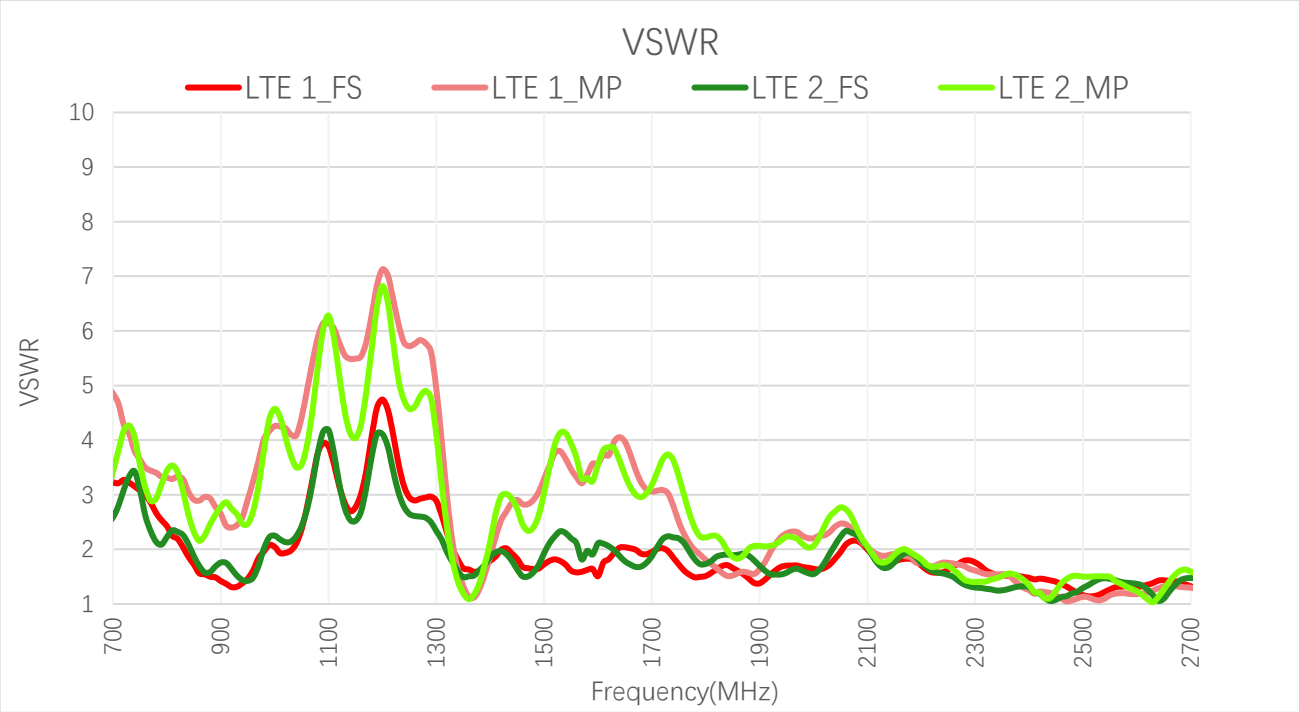
2 Drawing


Washer
TOP housing Balck
NUT
35.40±2
*1000±40
ALSR302 Ø3.3 Black
SMA-Male
Label
SMA-Male
RG174 Ø2.8 Black
SMA-Male
*86.30±1.5
O-Ring
M20
ALSR302 Ø3.3 Black
*89.30±1.5
29.60±1
BOT housing Balck
TOP
S=29.8
(8.80)
(6.00)
M20 1.5p
(1.00)
INNER (Ø.22)
(1.50)
(73.00)
(37.00)
(21.00)
19.00
Ø21.00
Reference mounting hole
NUT
Washer
O_Ring(Gasket)
UNIT:MM

3 Detailed Performance

3.1. S-Parameter Test

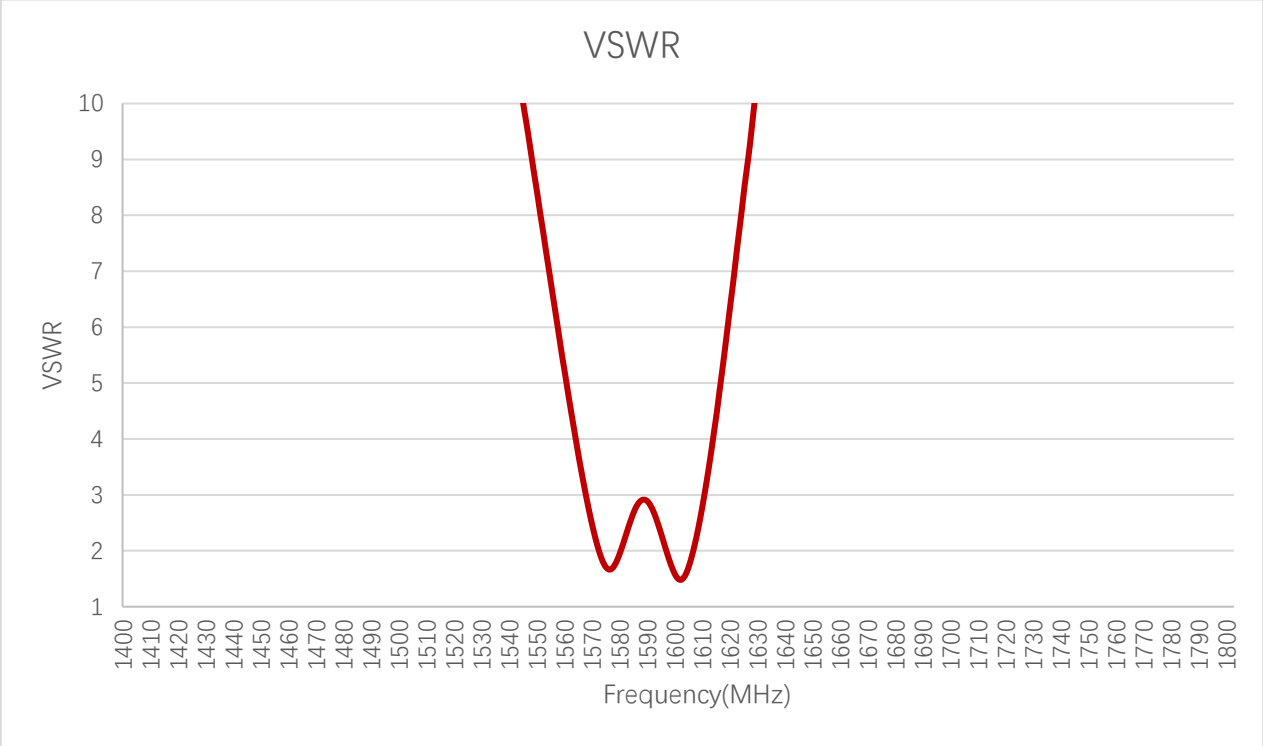
3.1.1. VSWR



VSWR – LTE

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
LTE-1	FS	-	-	3.2	2.0	1.4	1.6	-	2.0	1.8	1.5
	MP	-	-	4.7	3.3	2.6	3.2	-	3.1	2.8	1.6
LTE-2	FS	-	-	2.8	2.3	1.8	1.5	-	2.0	2.2	1.9
	MP	-	-	3.8	3.1	2.8	2.7	-	3.4	3.6	2.0

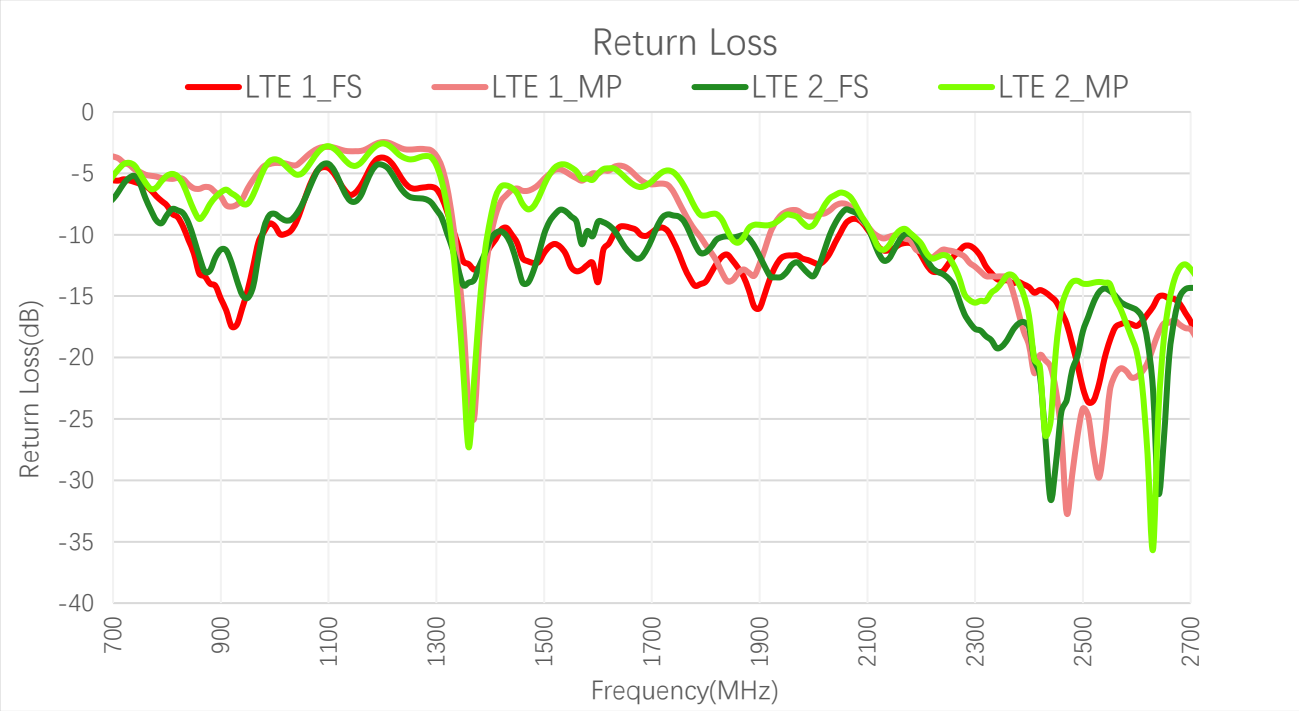
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
LTE-1	FS	1.7	1.8	1.5	1.4	1.3	1.4	-	-	-	-
	MP	2.3	1.9	1.5	1.2	1.2	1.3	-	-	-	-
LTE-2	FS	1.6	1.7	1.3	1.1	1.4	1.5	-	-	-	-
	MP	2.2	1.8	1.5	1.2	1.2	1.6	-	-	-	-



VSWR – GNSS

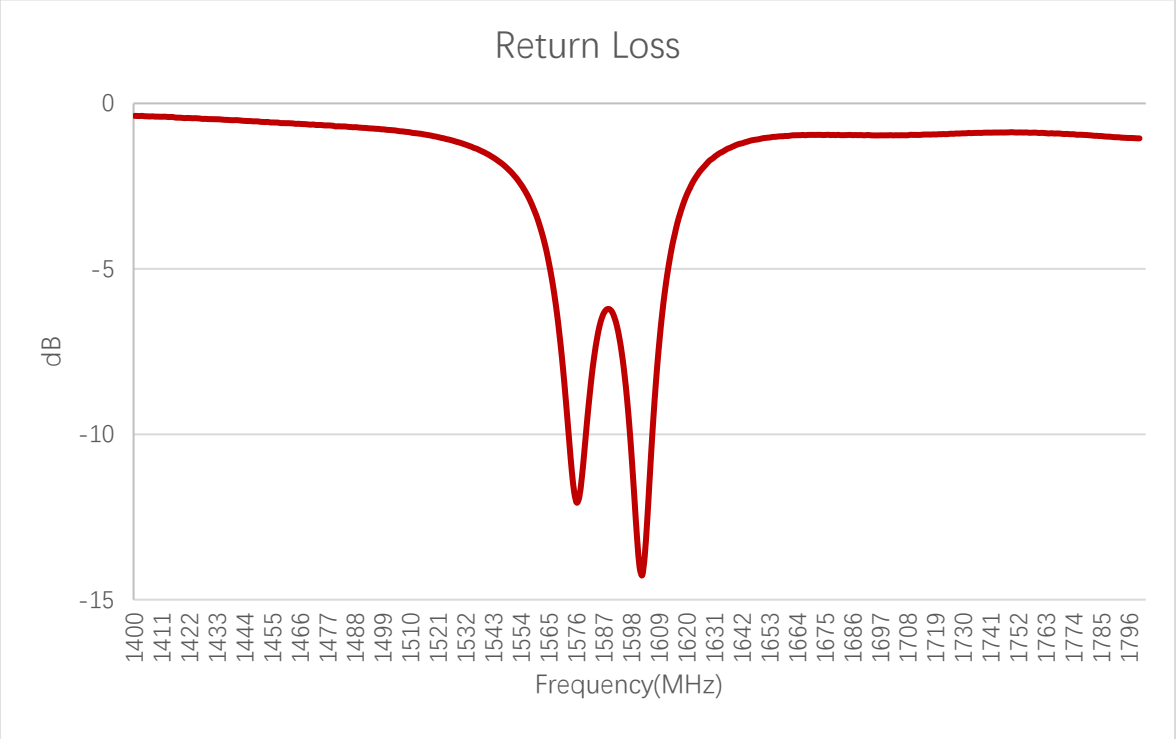
Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	4.83	1.69	1.47

3.1.2. Return Loss



Return Loss (dB) – LTE

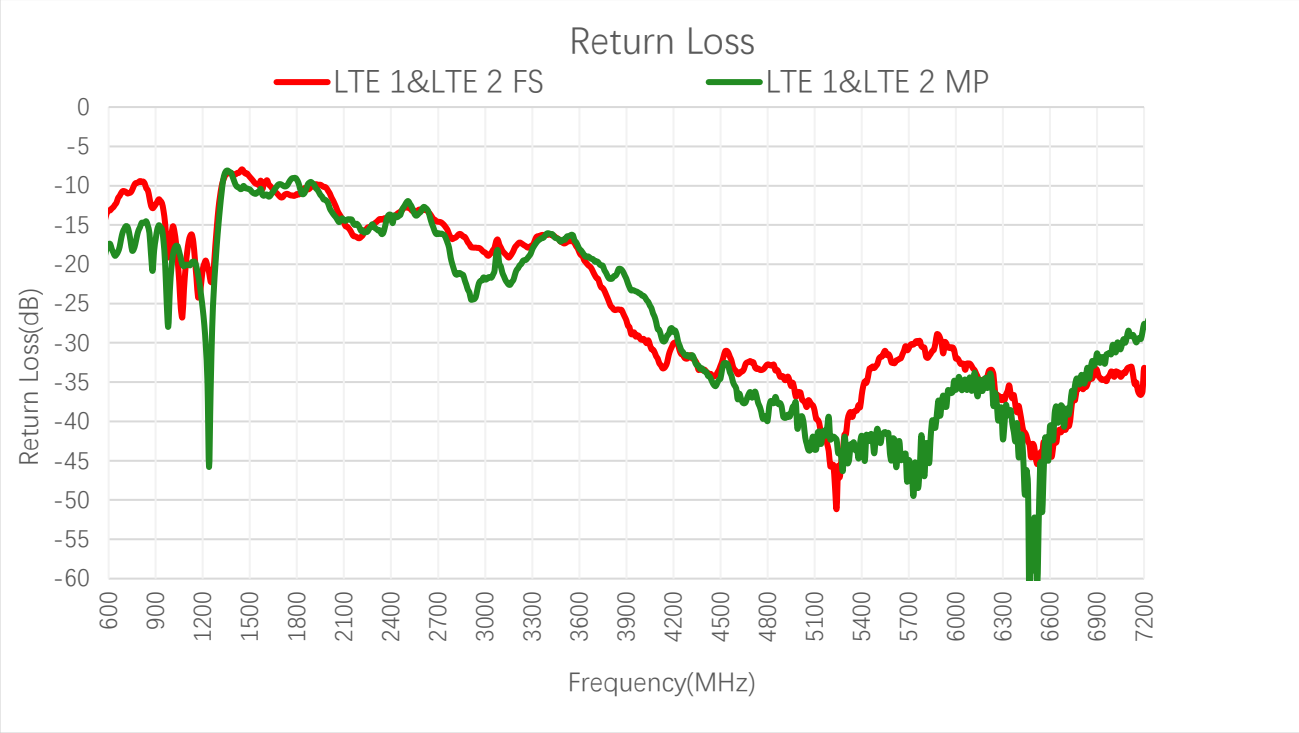
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
LTE-1	FS	-	-	-5.6	-9.3	-15.2	-12.6	-	-9.5	-10.5	-14.5
	MP	-	-	-3.8	-5.5	-6.9	-5.5	-	-5.9	-6.5	-13.1
LTE-2	FS	-	-	-6.5	-8.3	-11.2	-14.2	-	-9.3	-8.4	-10.3
	MP	-	-	-4.7	-5.9	-6.5	-6.8	-	-5.2	-4.9	-9.5
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE-1	FS	-11.7	-11.3	-13.7	-15.4	-17.4	-16.4	-	-	-	-
	MP	-8.1	-10.2	-13.4	-22.7	-21.5	-17.6	-	-	-	-
LTE-2	FS	-13.1	-12.0	-19.1	-28.6	-16.2	-14.4	-	-	-	-
	MP	-8.4	-10.9	-13.9	-19.4	-19.6	-12.4	-	-	-	-



Return Loss (dB) – GNSS

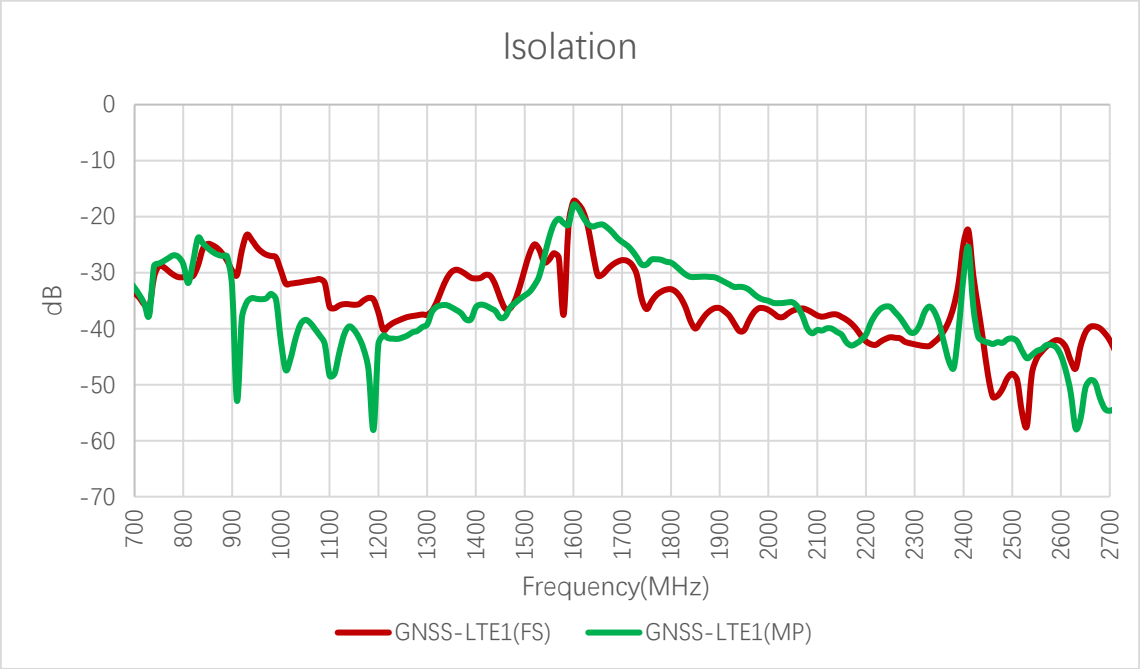
Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Return Loss (dB)	-	-	-	-	-	-3.6	-11.7	-14.2

3.1.3. Isolation



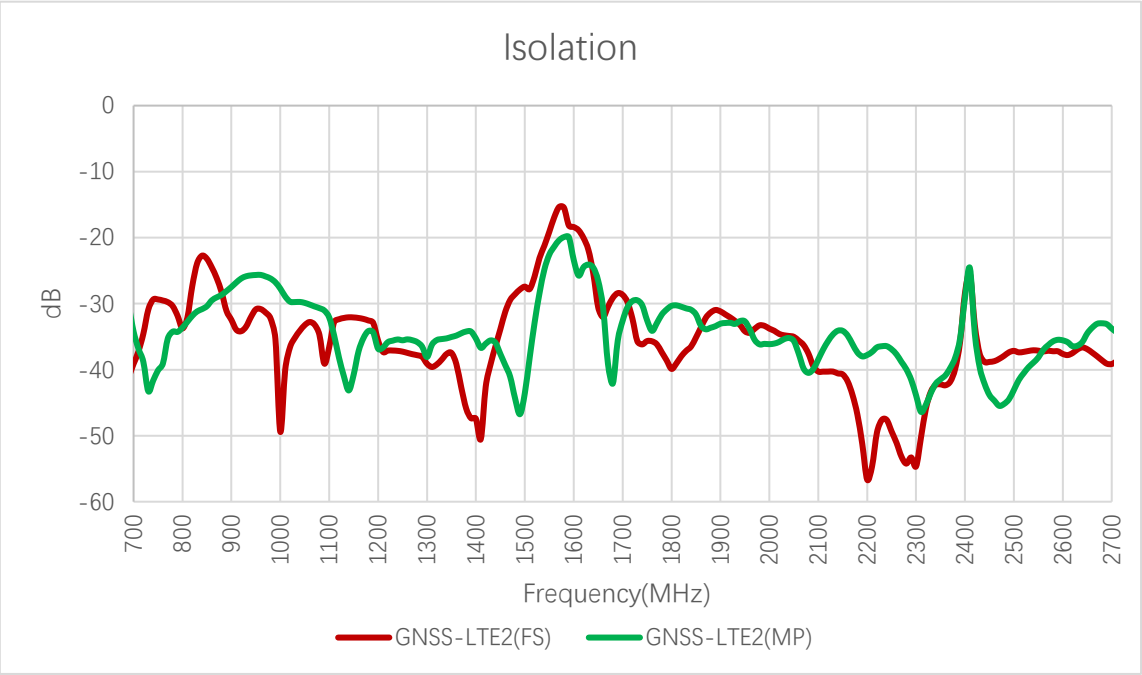
Max Isolation (dB)

Band		B71	B12/ B13/ B28	B5/ B8/ B26	n74/ n75/ n76	B1/ B2/ B3	B40	Wi-Fi 2G	B38/ B41	B42/ B48/ n77	BDS B1I	GPS L1
Freq. (MHz)		600–700	700–810	820–960	1420–1520	1700–2170	2300–2400	2400–2500	2500–2690	3300–4200	1559–1564	1565–1586
LTE-1 & LTE-2	FS	-	-9.4	-9.5	-	-9.8	-14.1	-12.6	-12.8	-	-9.9	-9.4
	MP	-	-14.7	-14.5	-	-9.0	-13.7	-12.1	-12.0	-	-10.8	-10.4



Max Isolation (dB)

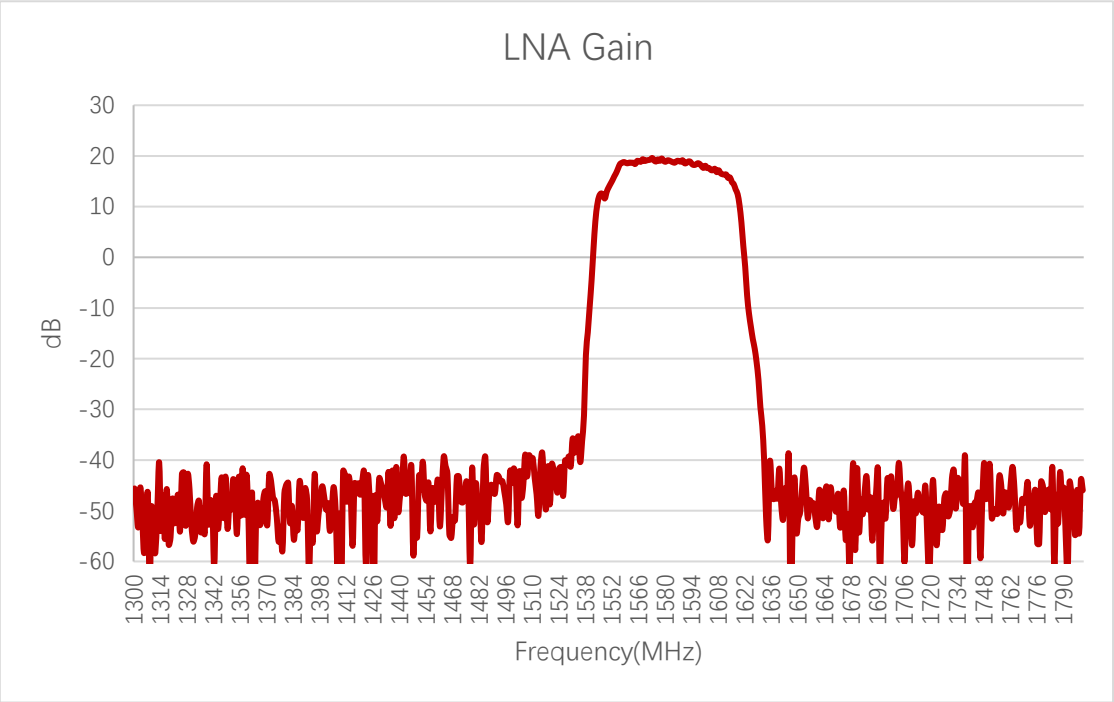
Band		B71	B12/ B13/ B28	B5/ B8/ B26	n74/ n75/ n76	B1/ B2/ B3	B40	Wi-Fi 2G	B38/ B41	B42/ B48/ n77	GNSS L1
Freq. (MHz)		600–700	700–810	820–960	1420–1520	1700–2170	2300–2400	2400–2500	2500–2690	3300–4200	1559-1606
LTE-1 & GNSS	FS	-	-28.7	-23.2	-	-27.8	-24.8	-22.4	-39.5	-	-17.2
	MP	-	-27.1	-23.8	-	-25.1	-30.7	-254	-41.7	-	-17.9



Max Isolation (dB)

Band		B71	B12/ B13/ B28	B5/ B8/ B26	n74/ n75/ n76	B1/ B2/ B3	B40	Wi-Fi 2G	B38/ B41	B42/ B48/ n77	GNSS L1
Freq. (MHz)		600–700	700–810	820–960	1420–1520	1700–2170	2300–2400	2400–2500	2500–2690	3300–4200	1559-1606
LTE-2 & GNSS	FS	-	-29.3	-22.7	-	-28.6	-28.3	-25.4	-36.6	-	-15.3
	MP	-	-32.7	-25.6	-	-29.4	-29	-24.6	-32.9	-	-19.9

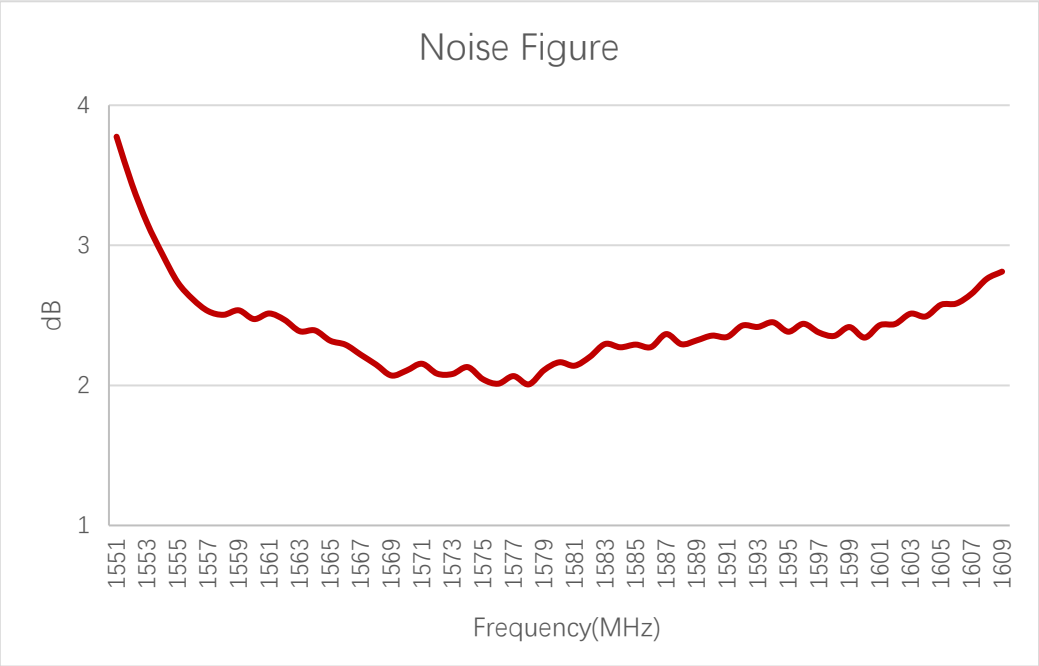
3.1.4. GNSS LNA Gain



LNA Gain (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
LNA Gain (dB)	-	-	-	-	-	18.7	18.8	17.5

3.1.5. GNSS Noise Figure

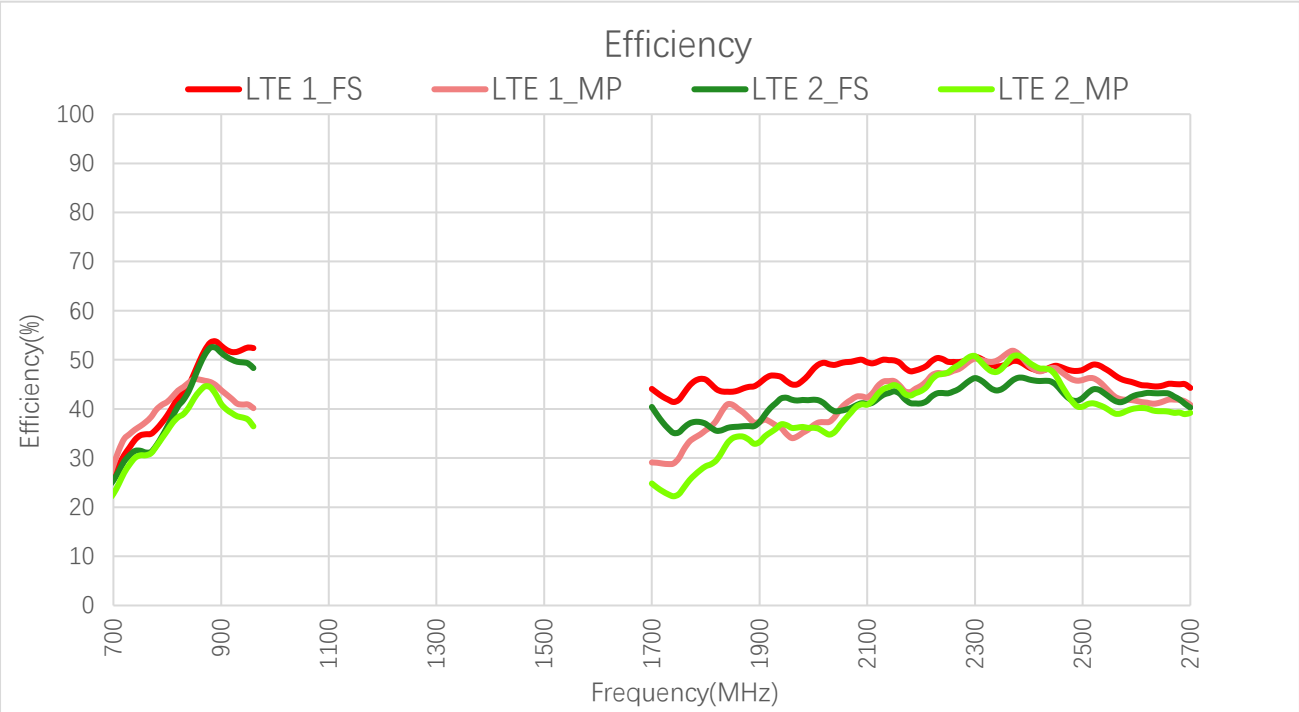


Noise Figure (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Noise Figure (dB)	-	-	-	-	-	2.5	2.04	2.43

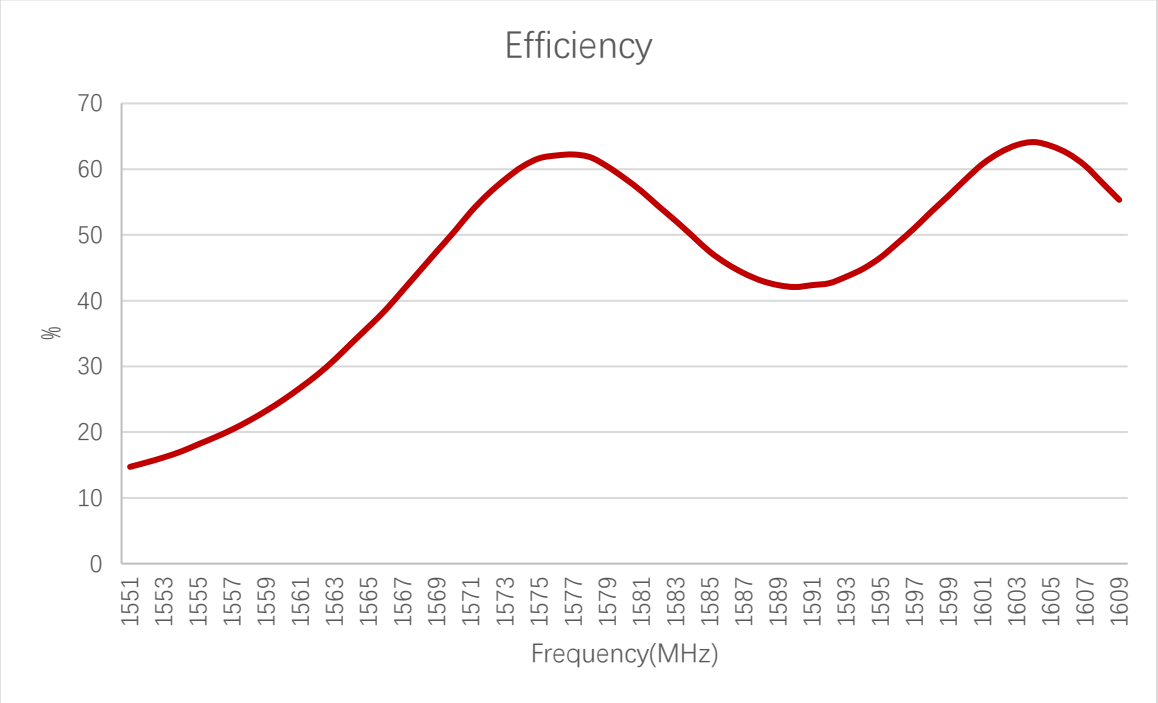
3.2. Radiation Performance Test

3.2.1. Efficiency



Efficiency (%) – LTE

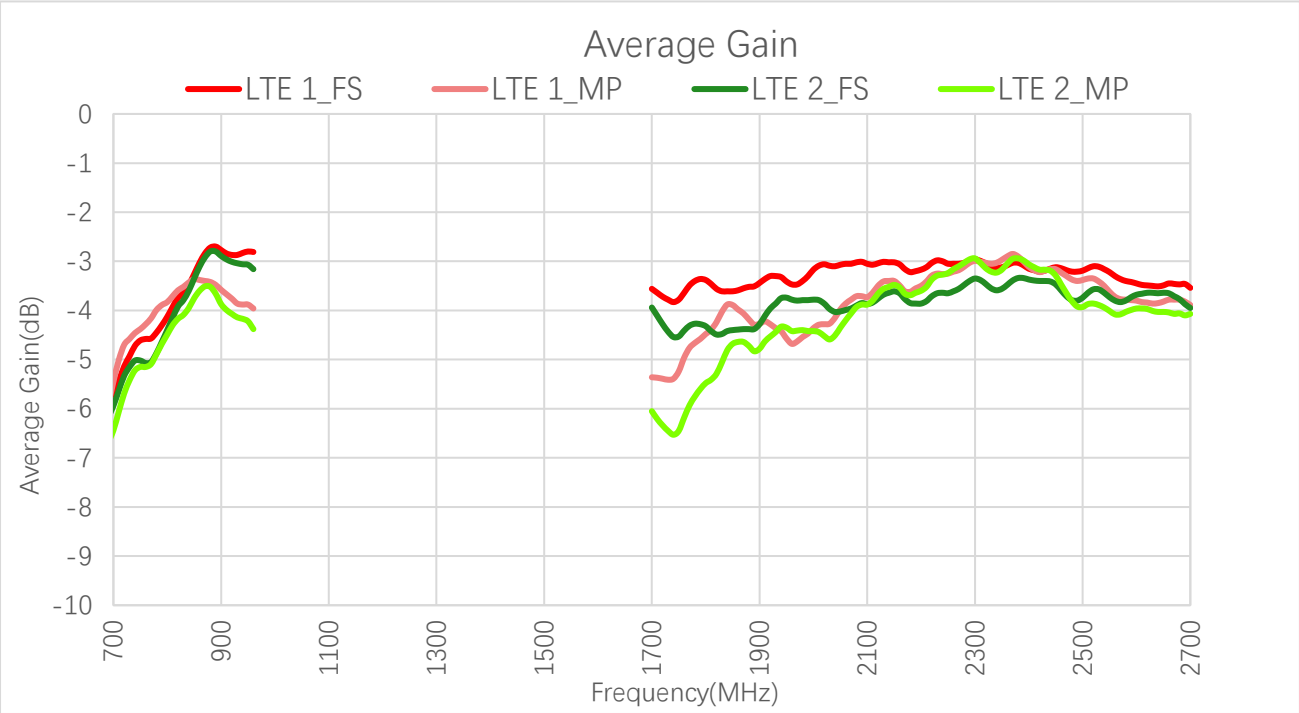
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
LTE-1	FS	-	-	28.6	43.3	52.9	52.4	-	43.3	41.4	44.5
	MP	-	-	31.6	44.5	43.8	40.2	-	29.1	28.9	38.2
LTE-2	FS	-	-	27.3	41.8	51.5	48.3	-	38.8	35.1	36.5
	MP	-	-	24.8	39.0	41.0	36.5	-	24.0	22.2	33.8
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE-1	FS	45.7	49.9	48.8	48.8	45.2	45.1	-	-	-	-
	MP	34.9	45.7	50.5	48.3	41.6	41.5	-	-	-	-
LTE-2	FS	42.3	43.2	44.0	45.0	42.9	41.1	-	-	-	-
	MP	36.7	44.5	48.2	46.8	40.2	38.9	-	-	-	-



Efficiency (%) – GNSS

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Efficiency (%)	-	-	-	-	-	26.7	61.6	62.5

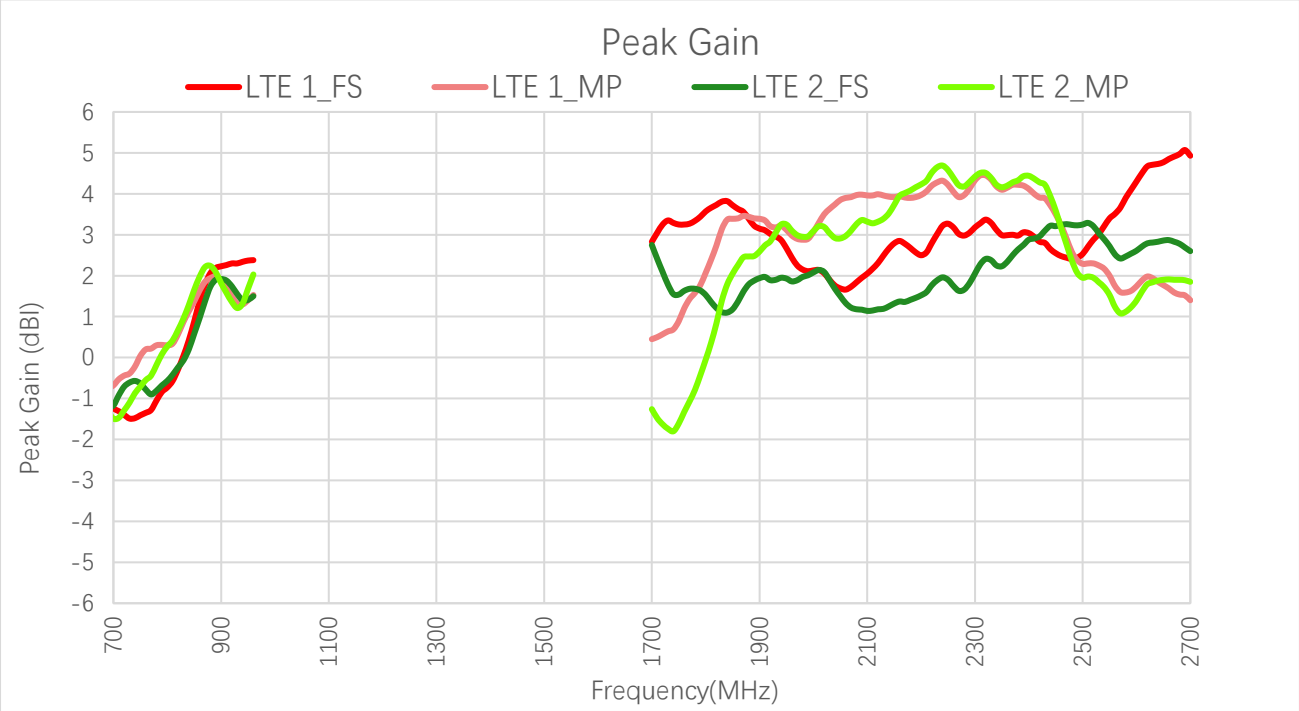
3.2.2. Average Gain



Average Gain (dB) – LTE

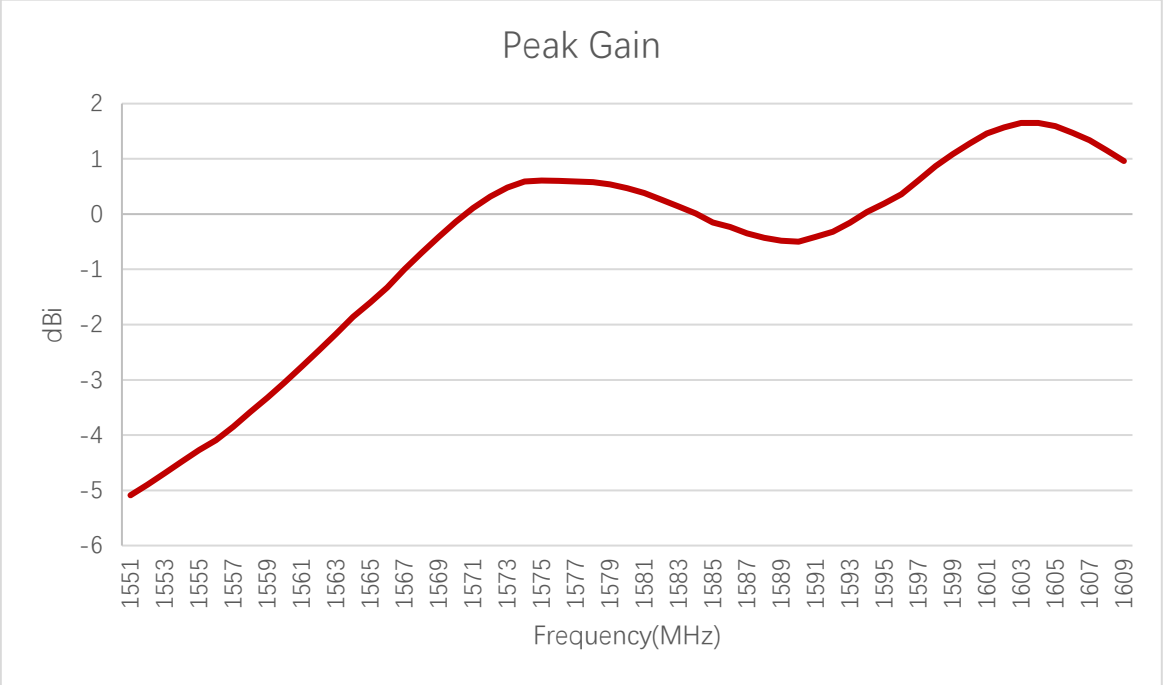
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
LTE-1	FS	-	-	-5.4	-3.6	-2.8	-2.8	-	-3.6	-3.8	-3.5
	MP	-	-	-5.0	-3.5	-3.6	-4.0	-	-5.4	-5.4	-4.2
LTE-2	FS	-	-	-5.6	-3.8	-2.9	-3.2	-	-4.1	-4.5	-4.4
	MP	-	-	-6.1	-4.1	-3.9	-4.4	-	-6.2	-6.5	-4.7
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE-1	FS	-3.4	-3.0	-3.1	-3.1	-3.5	-3.5	-	-	-	-
	MP	-4.6	-3.4	-3.0	-3.2	-3.8	-3.8	-	-	-	-
LTE-2	FS	-3.7	-3.6	-3.6	-3.5	-3.7	-3.9	-	-	-	-
	MP	-4.4	-3.5	-3.2	-3.3	-4.0	-4.1	-	-	-	-

3.2.3. Peak Gain



Peak Gain (dBi) – LTE

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
LTE-1	FS	-	-	-1.3	0.0	2.2	2.4	-	3.1	3.3	3.4
	MP	-	-	-0.5	0.9	1.9	1.5	-	0.5	0.7	3.4
LTE-2	FS	-	-	-0.9	-0.1	1.9	1.5	-	2.4	1.6	1.8
	MP	-	-	-1.5	1.0	1.8	2.0	-	-1.5	-1.8	2.5
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE-1	FS	2.7	2.7	3.0	2.6	4.3	5.1	-	-	-	-
	MP	3.1	3.9	4.1	3.5	1.7	1.5	-	-	-	-
LTE-2	FS	1.9	1.3	2.2	3.2	2.6	2.7	-	-	-	-
	MP	3.3	3.5	4.2	3.6	1.4	1.9	-	-	-	-

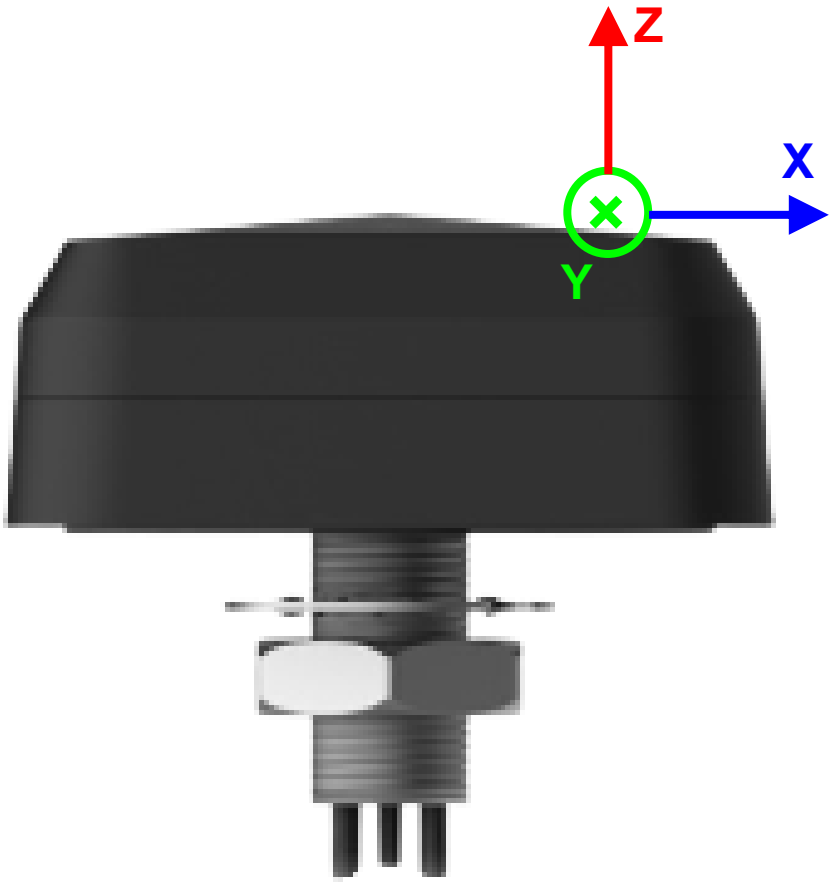


Peak Gain (dBi) – GNSS

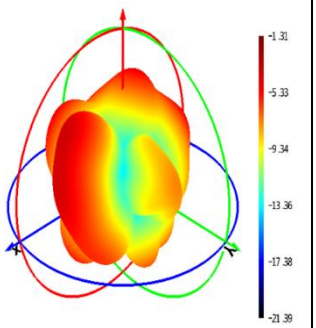
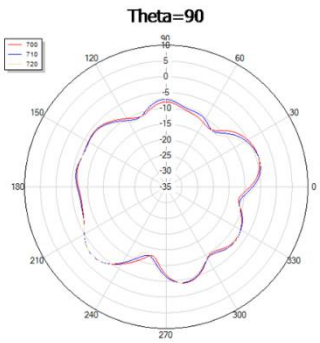
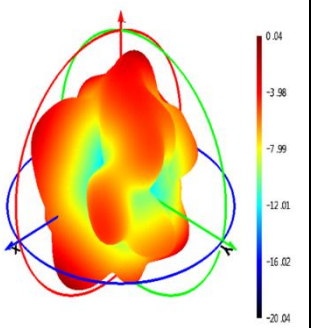
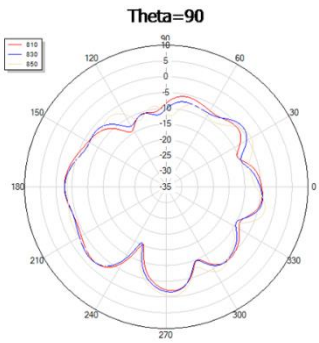
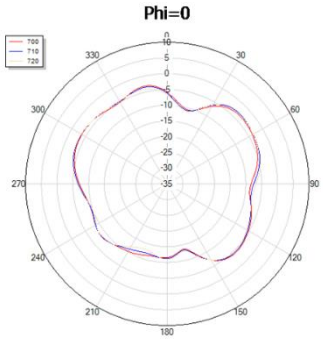
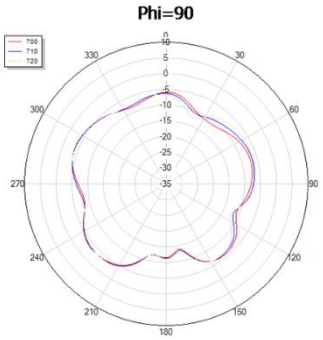
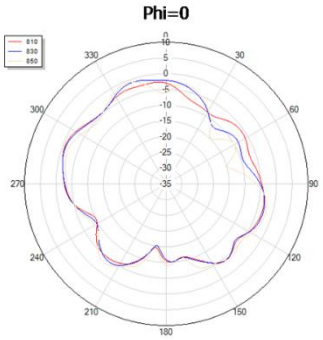
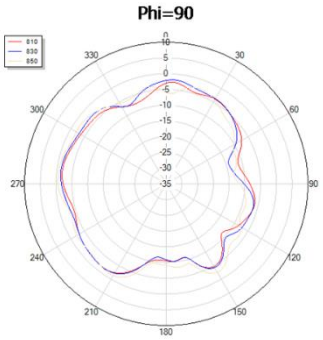
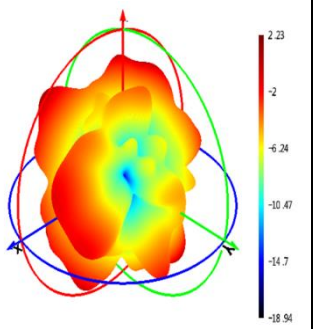
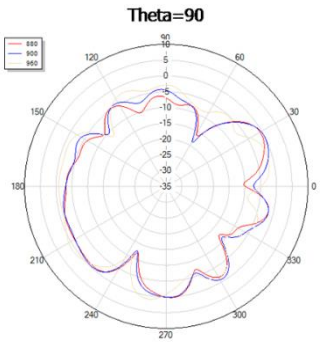
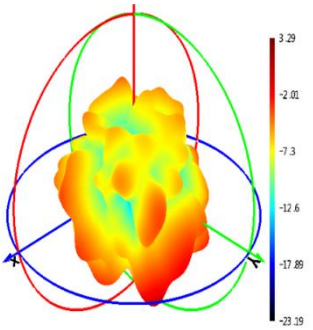
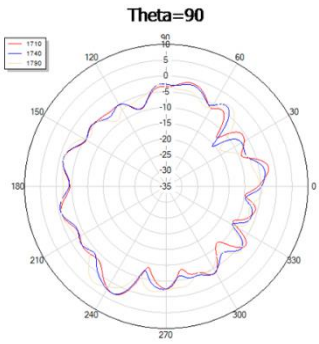
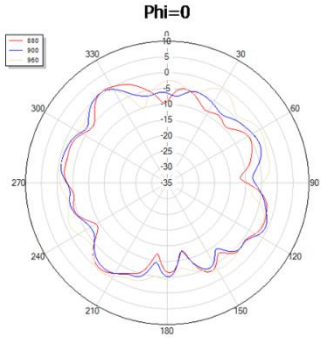
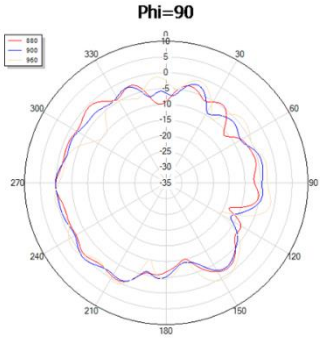
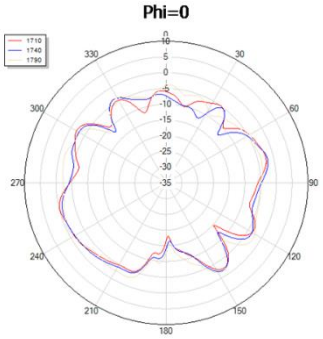
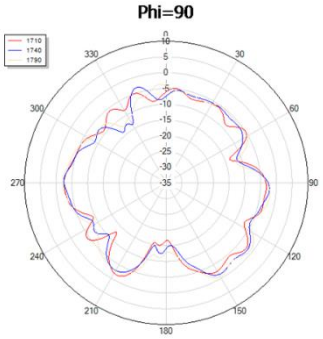
Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Peak Gain (dBi)	-	-	-	-	-	-2.76	0.61	1.57

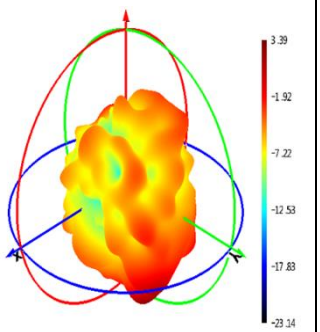
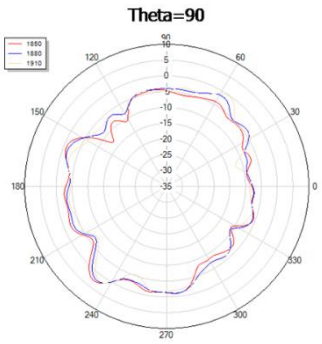
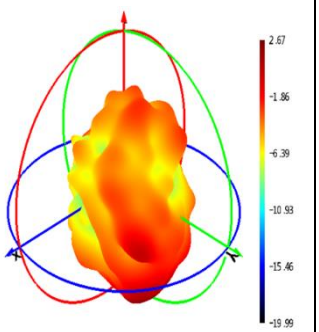
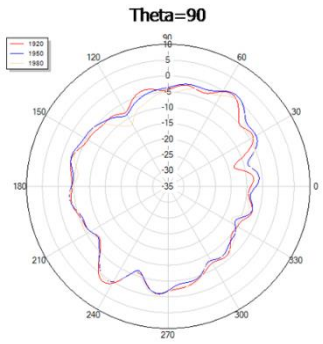
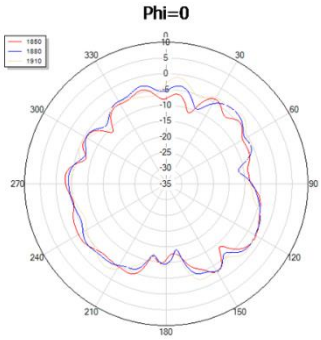
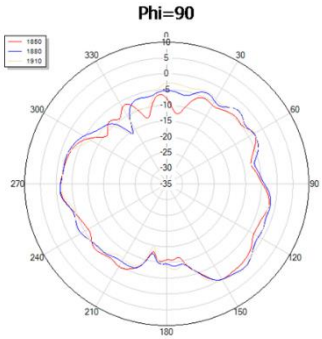
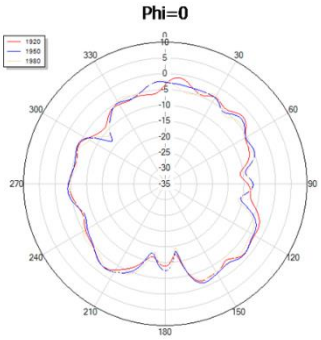
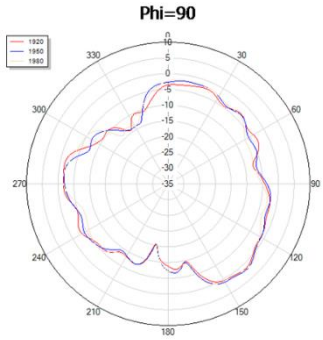
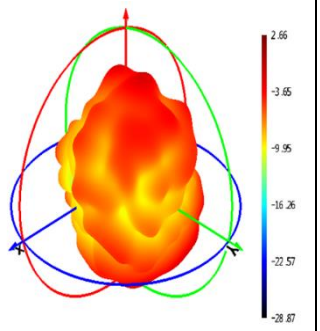
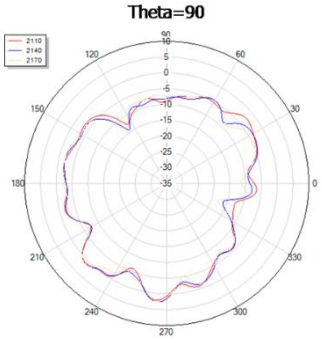
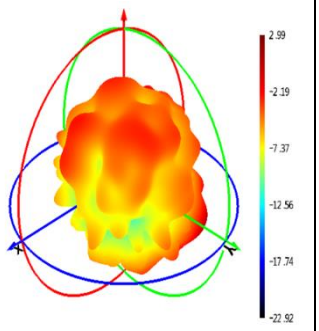
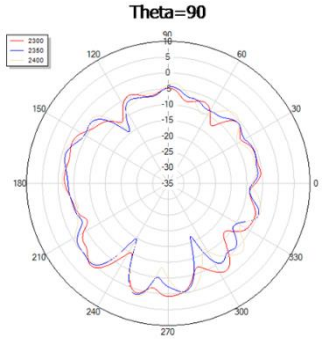
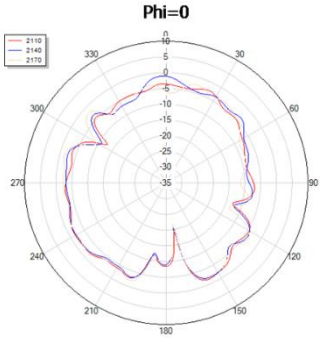
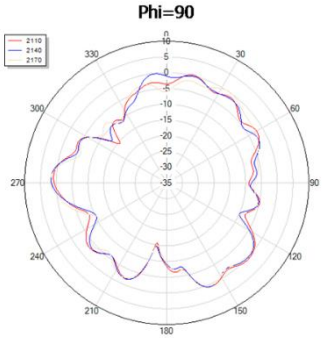
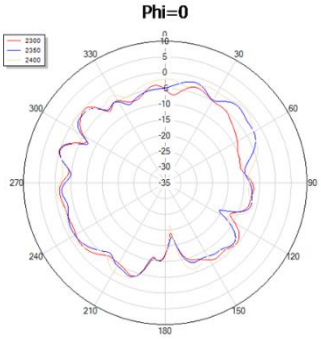
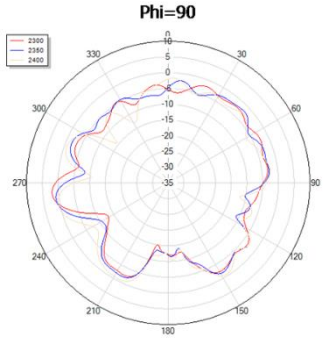
3.2.4. 3D & 2D Radiation Pattern

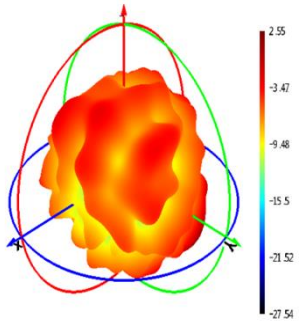
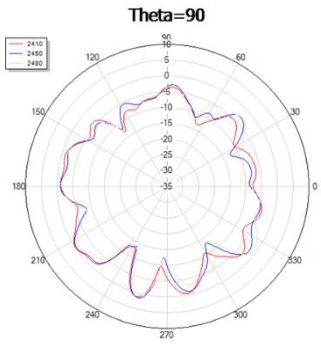
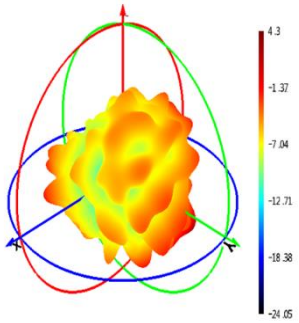
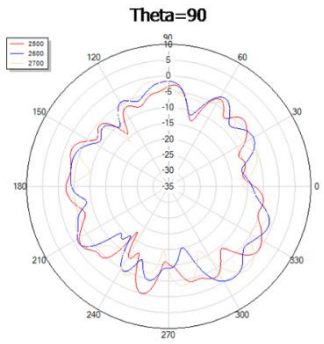
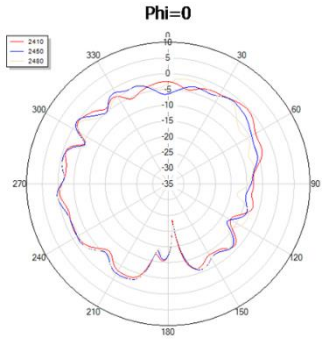
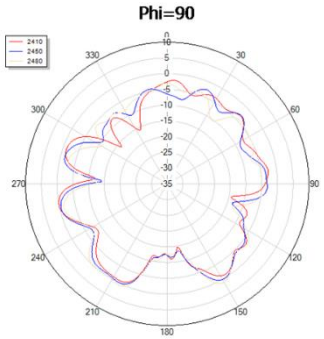
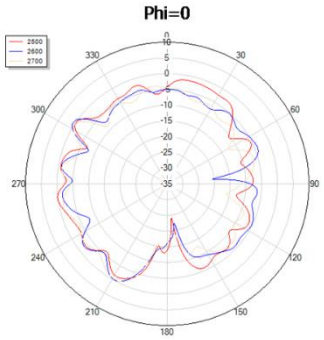
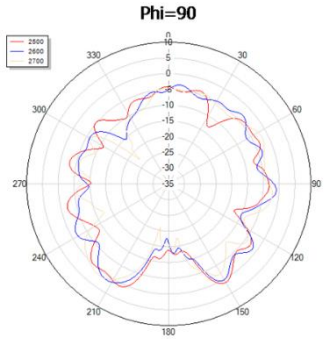
- Test Condition: Free space
- Test Chamber: HF-S-1 (LTE); SH-SY-16 (GNSS)



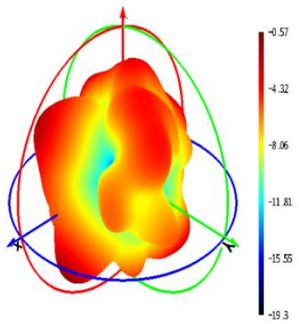
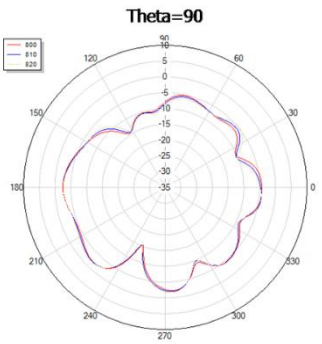
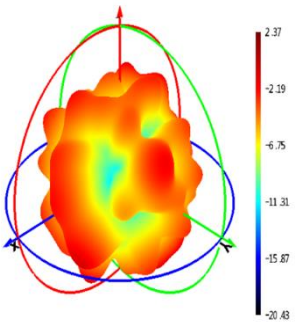
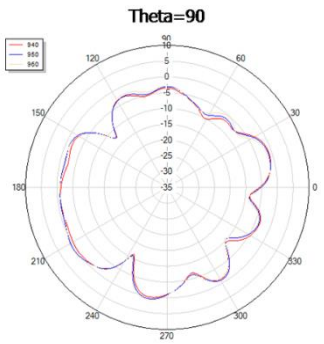
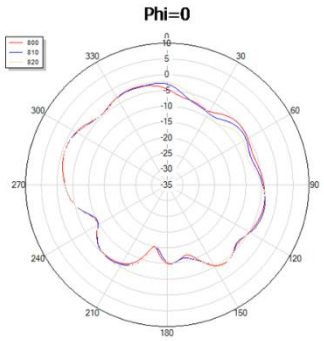
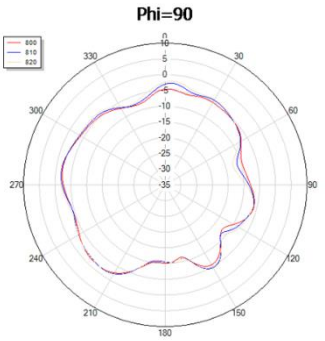
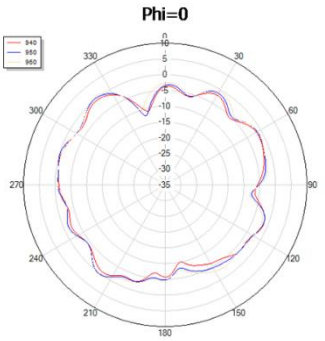
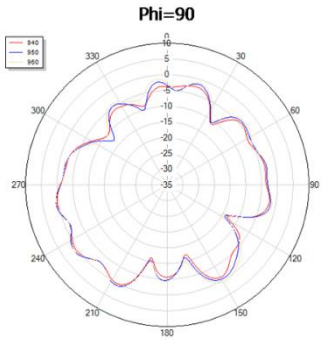
- **LTE-1**

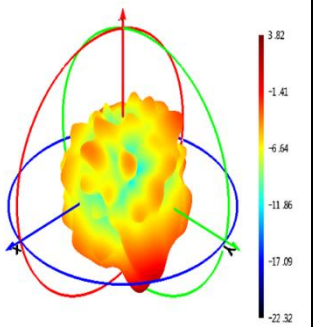
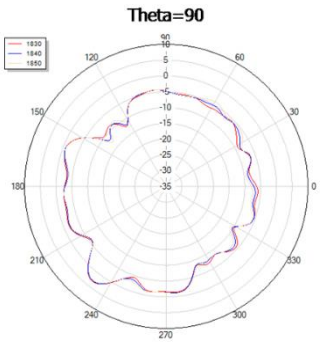
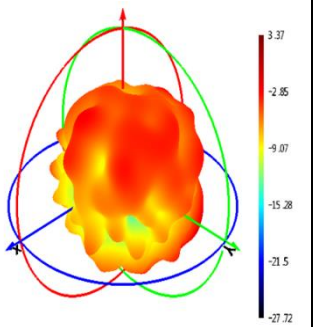
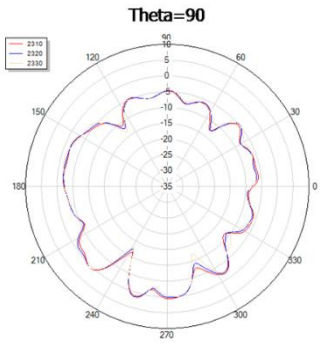
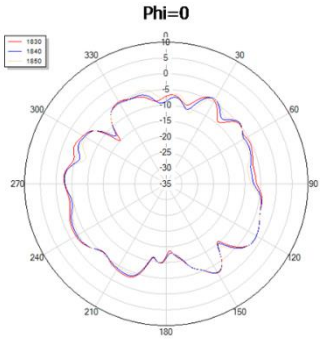
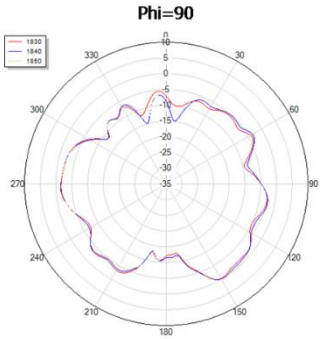
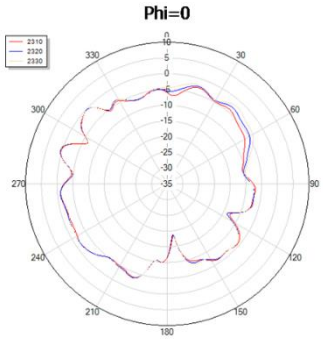
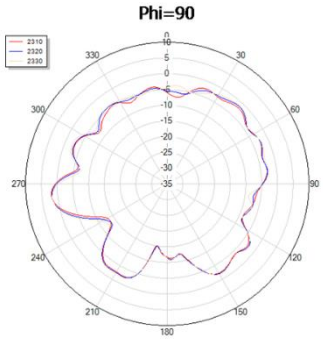
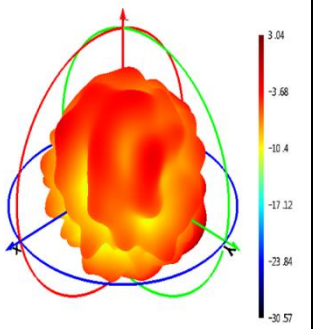
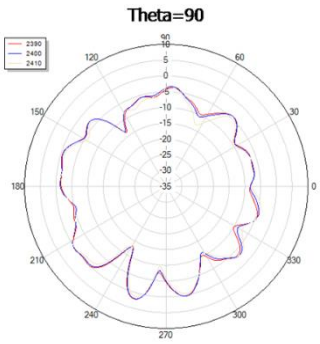
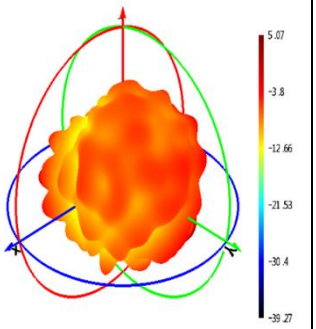
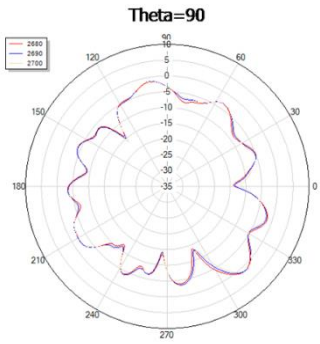
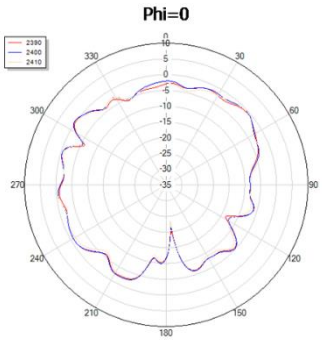
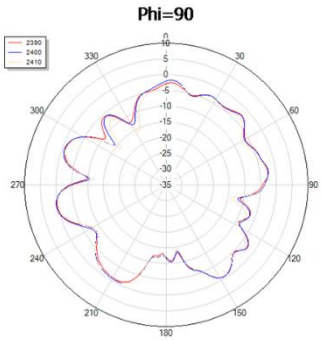
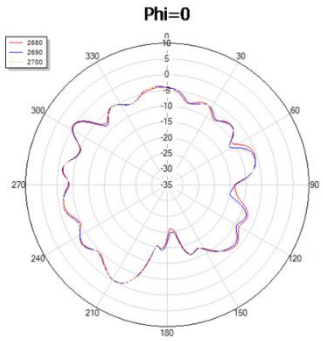
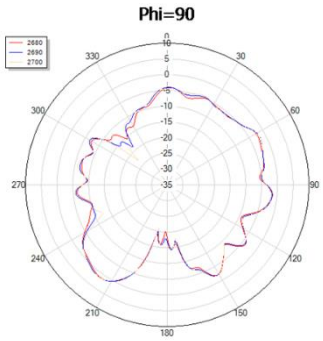
710 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

1880 MHz		1950 MHz	
			
			
2140 MHz		**2350 MHz**	
			
			

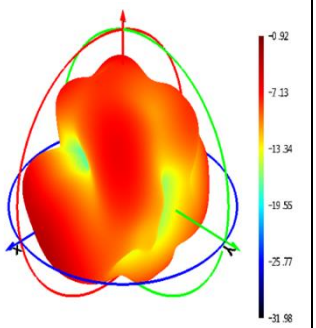
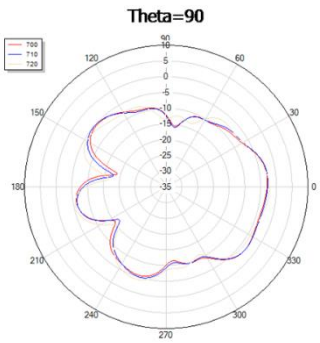
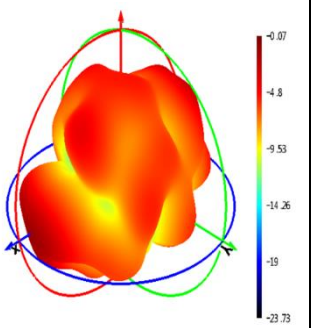
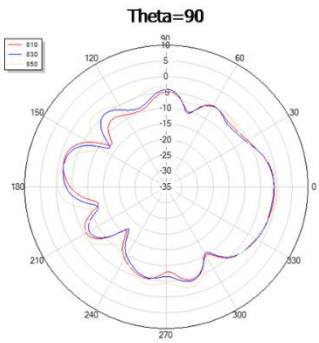
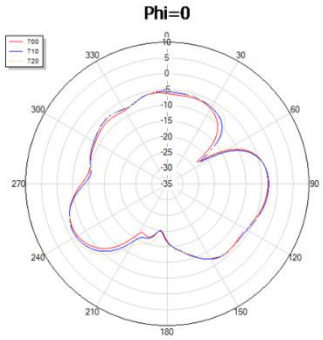
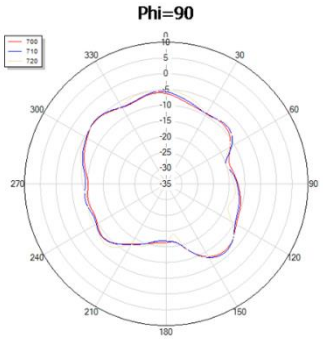
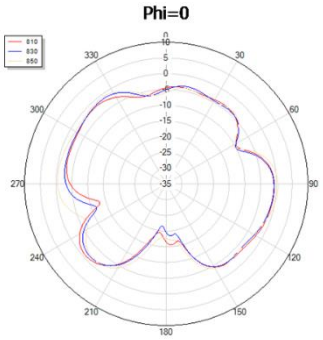
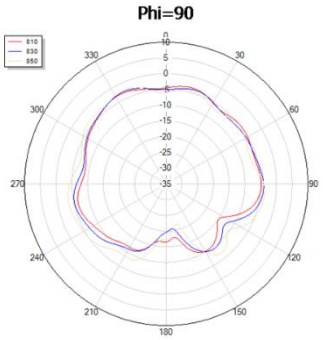
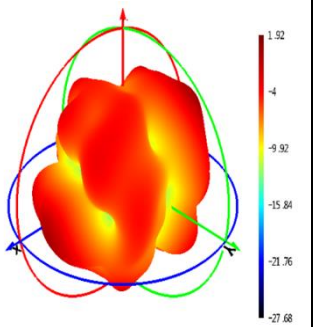
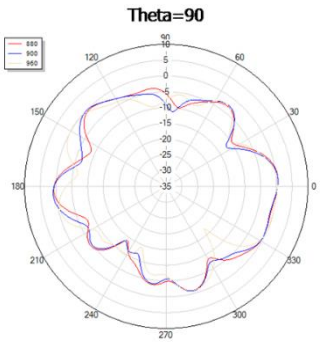
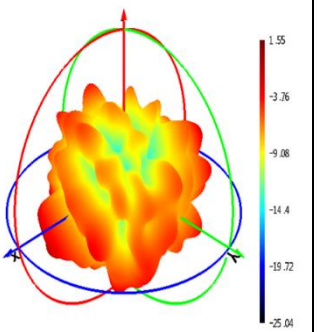
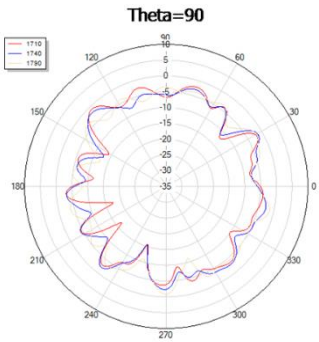
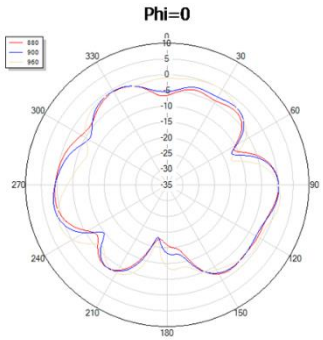
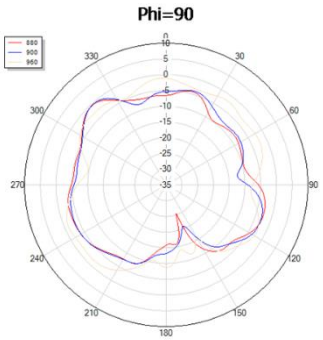
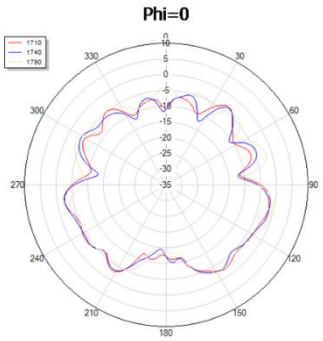
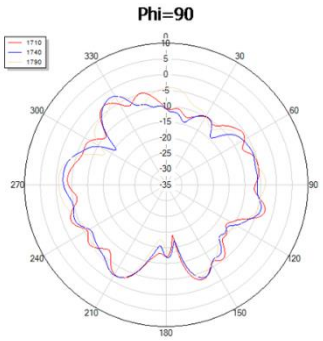
2450 MHz		2600 MHz	
			
			

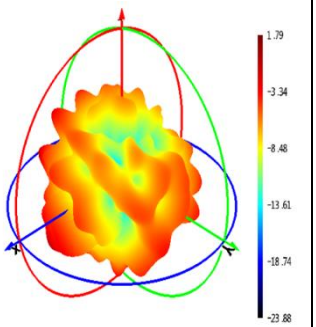
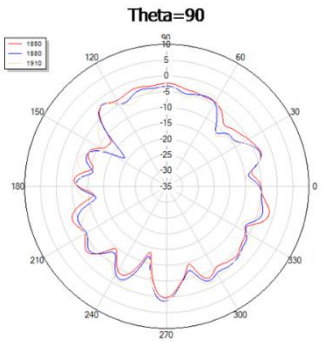
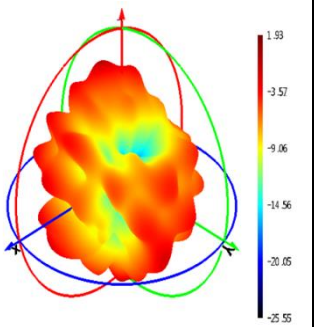
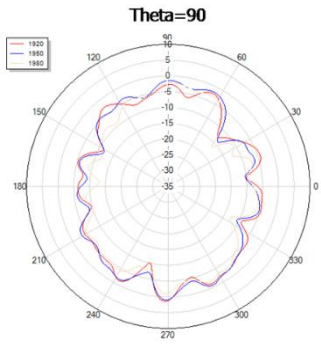
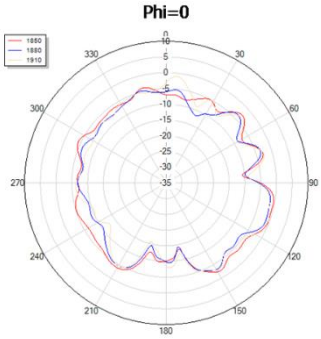
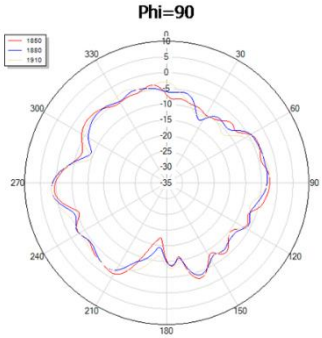
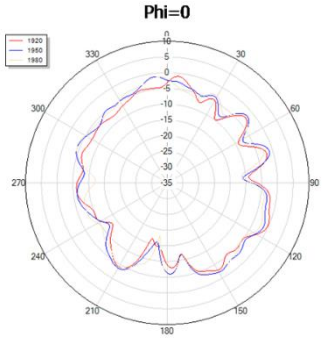
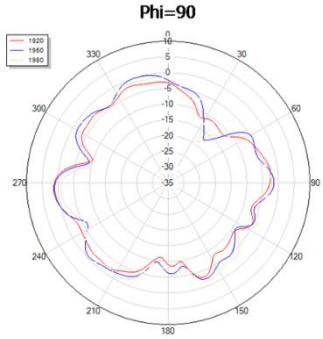
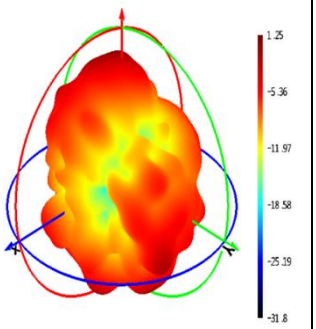
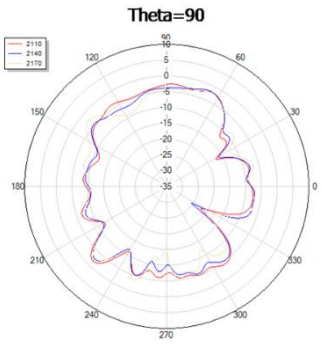
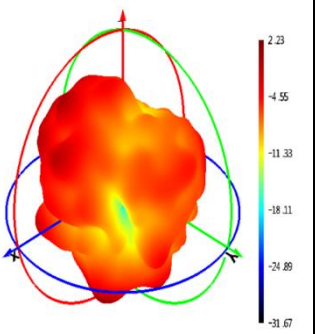
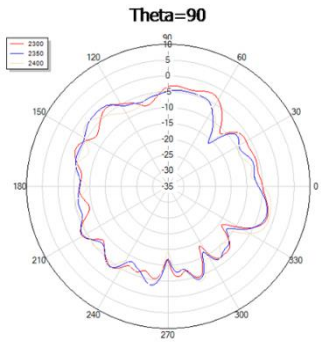
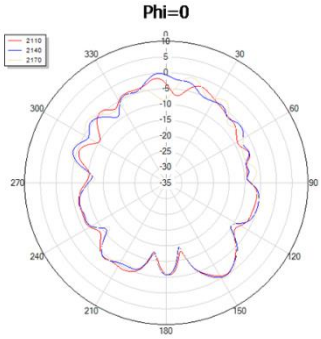
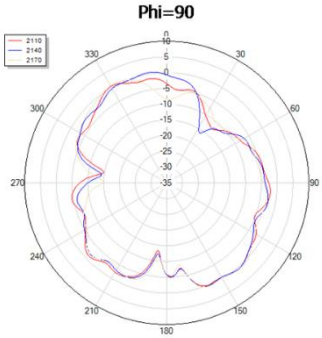
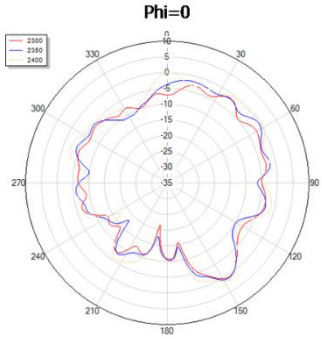
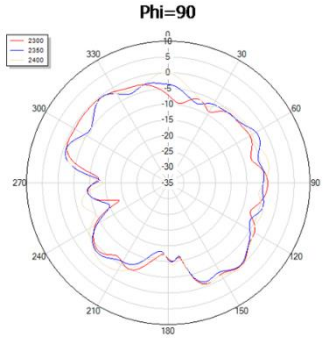
- **LTE-1 Max Peak Gain**

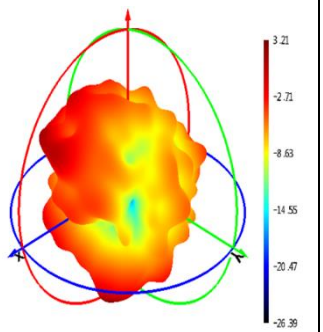
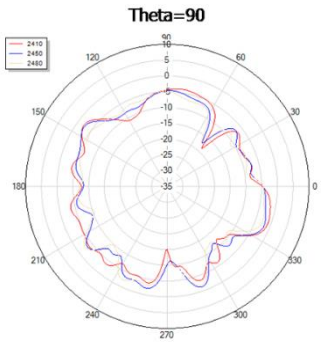
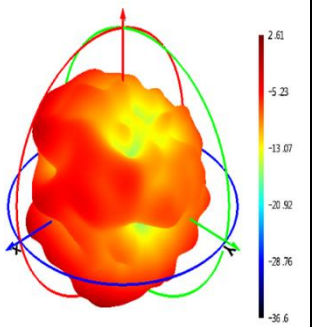
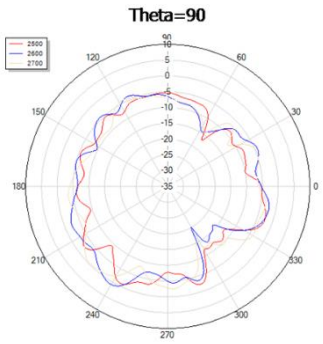
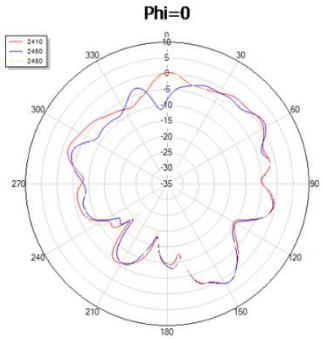
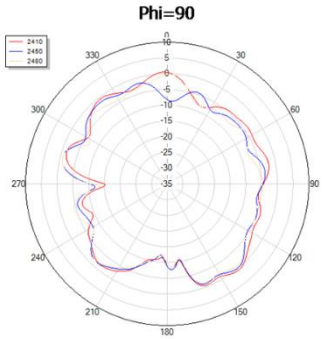
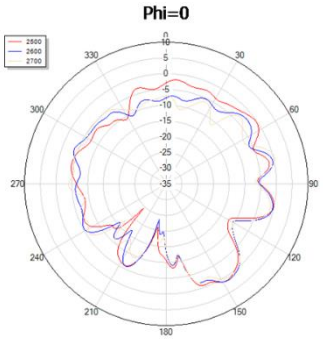
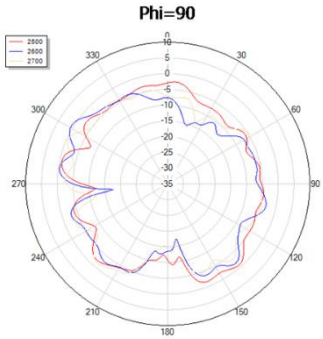
810 MHz		960 MHz	
			
			

1840 MHz		2320 MHz	
			
			
2400 MHz		**2690 MHz**	
			
			

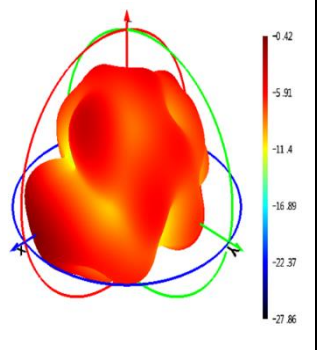
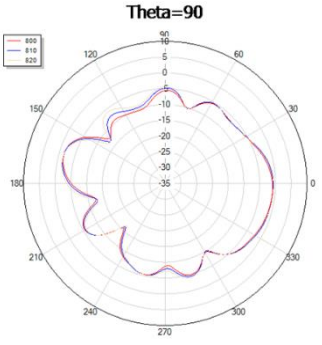
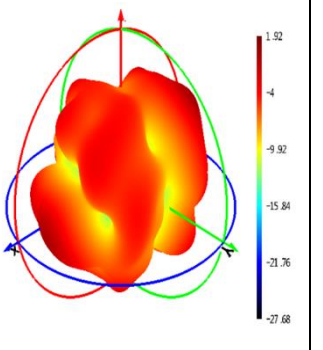
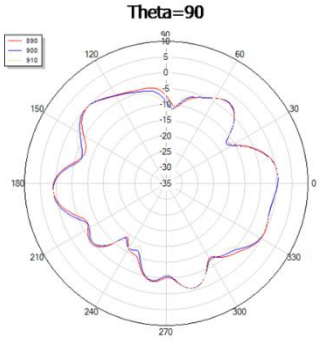
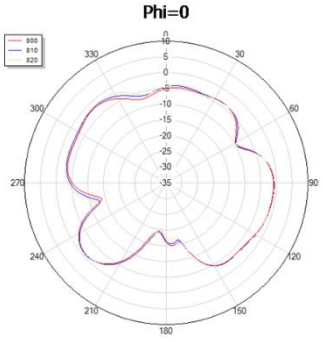
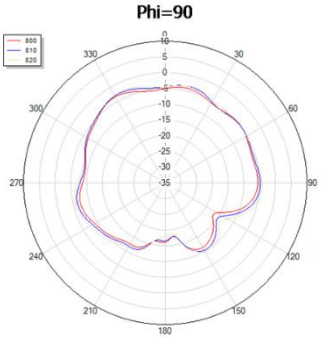
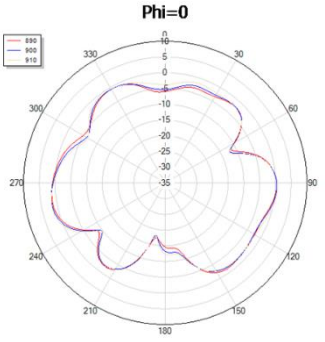
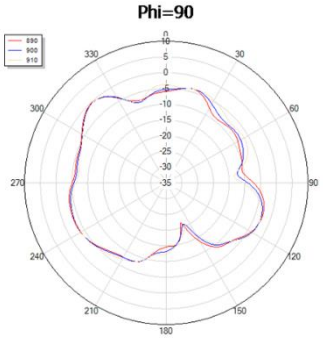
- **LTE-2**

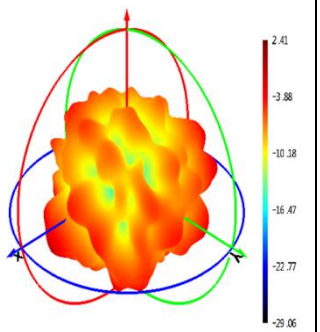
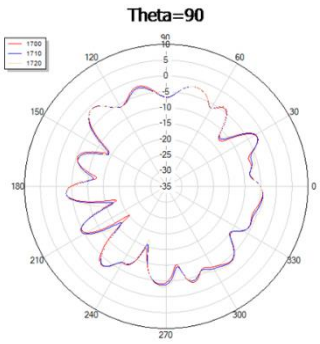
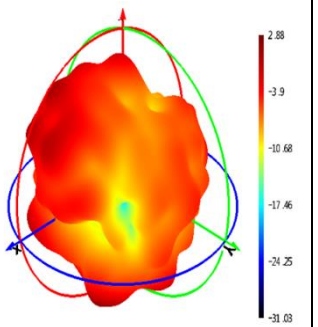
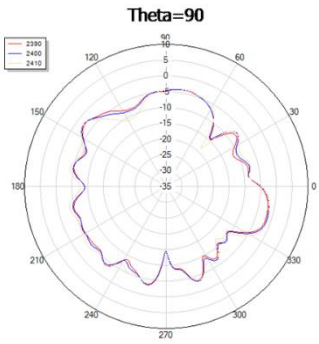
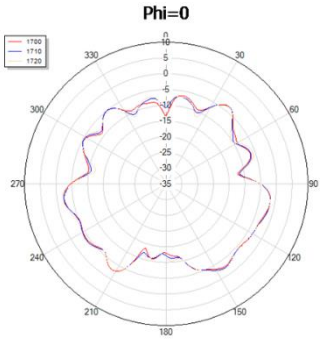
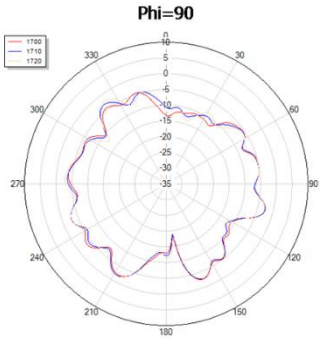
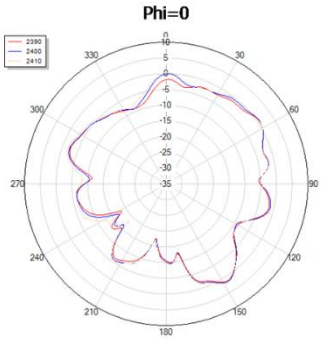
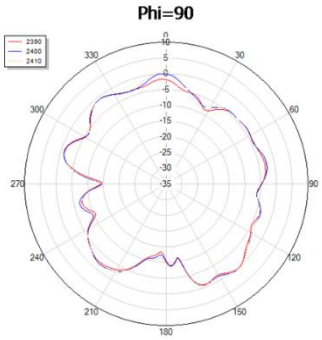
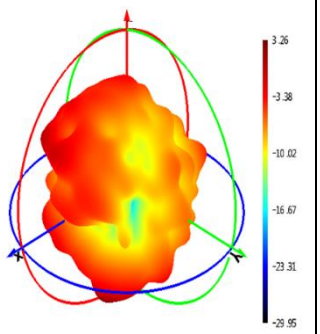
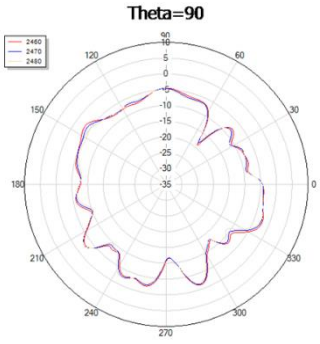
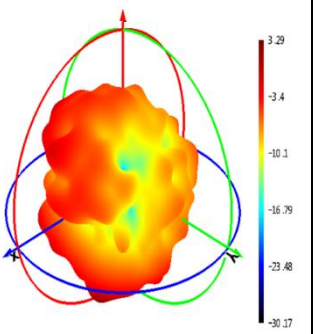
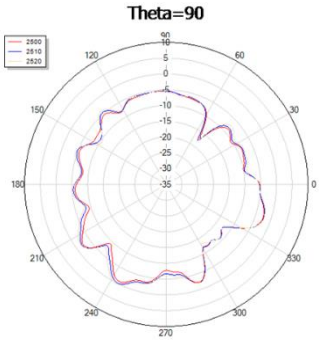
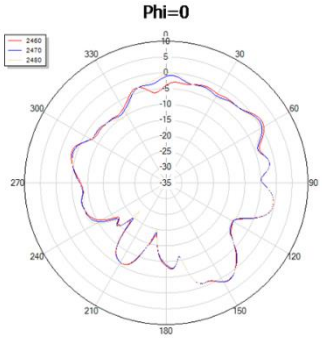
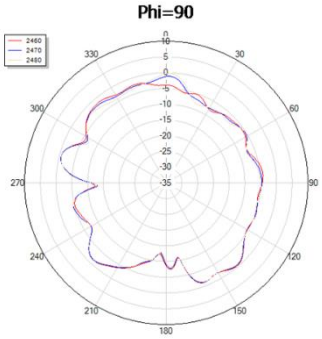
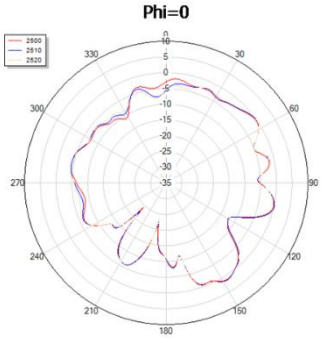
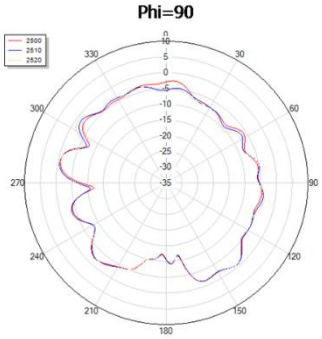
710 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

1880 MHz		1950 MHz	
			
			
2140 MHz		2350 MHz	
			
			

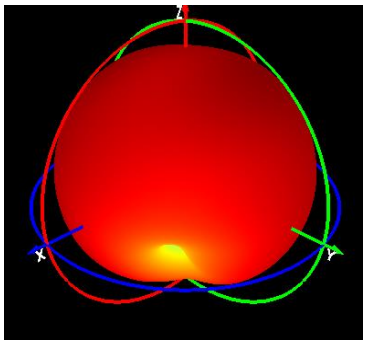
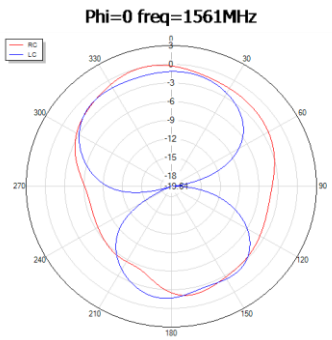
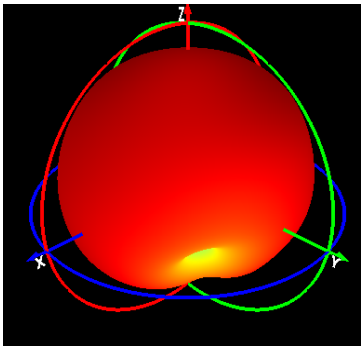
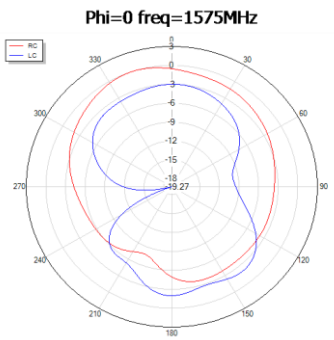
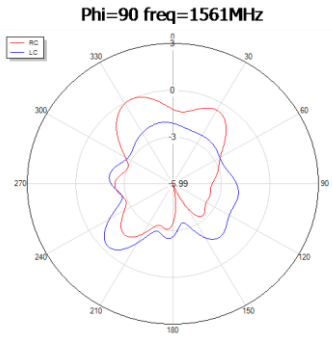
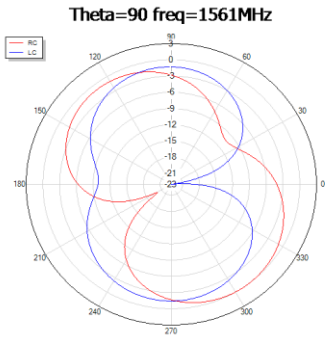
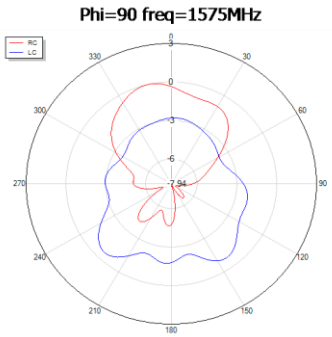
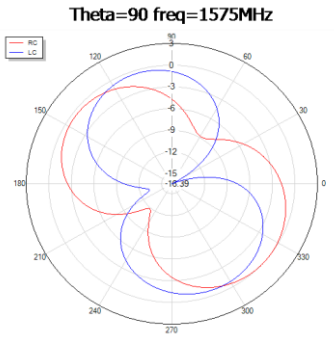
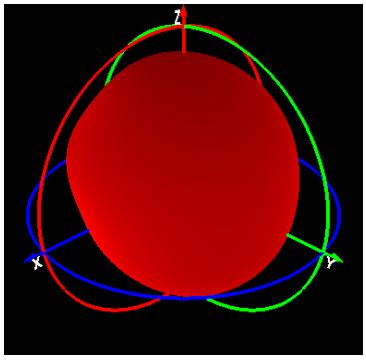
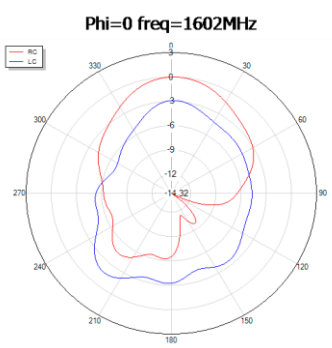
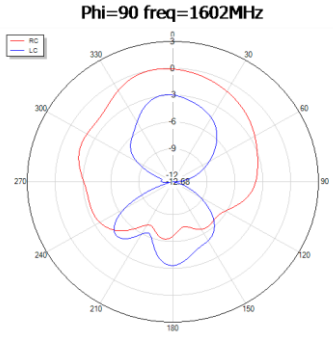
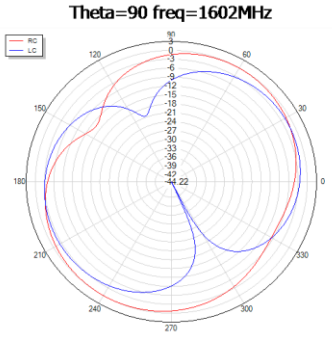
2450 MHz		2600 MHz	
			
			

- **LTE-2 Max Peak Gain**

810 MHz		900 MHz	
			
			

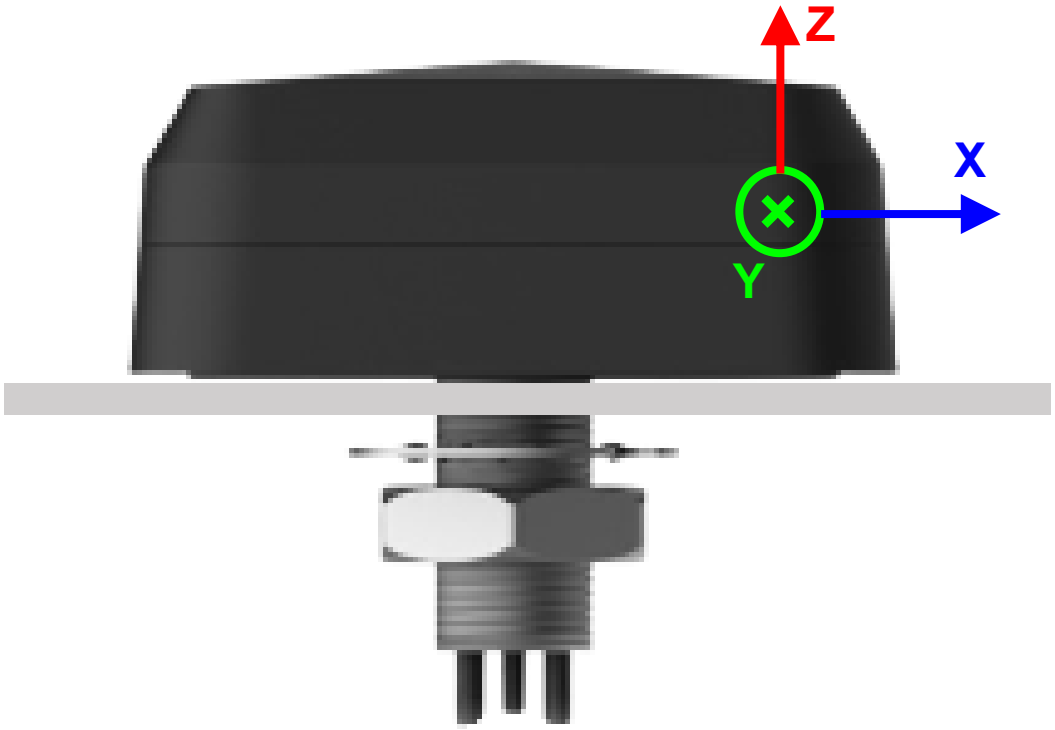
1700 MHz		2400 MHz	
			
			
2470 MHz		**2510 MHz**	
			
			

- **GNSS**

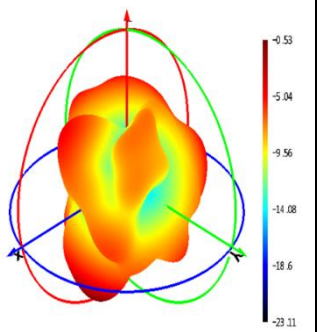
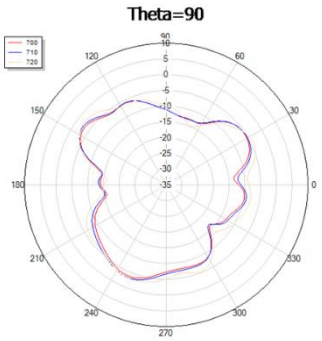
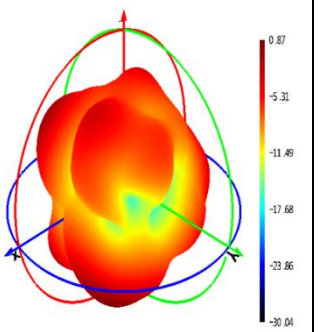
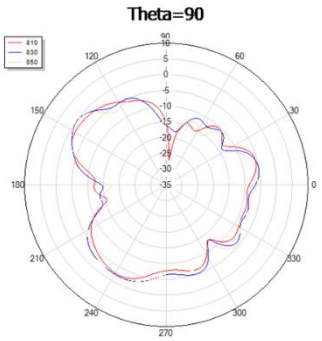
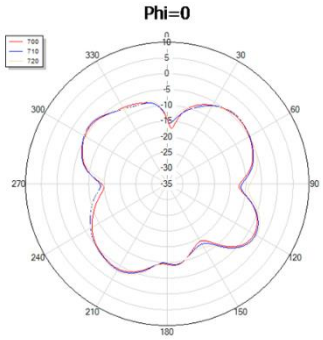
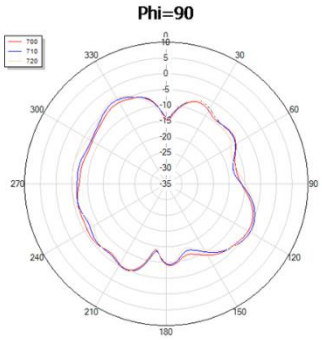
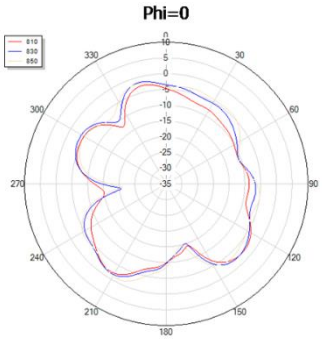
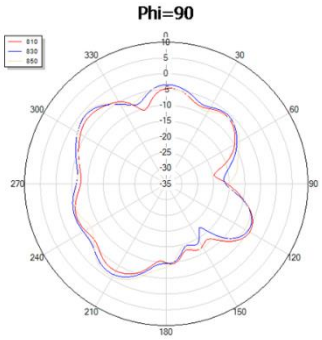
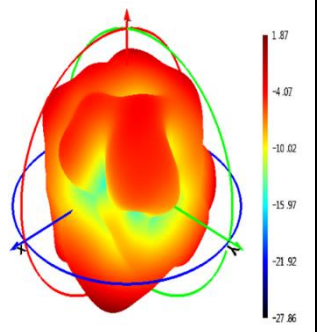
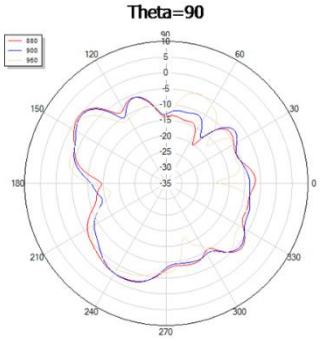
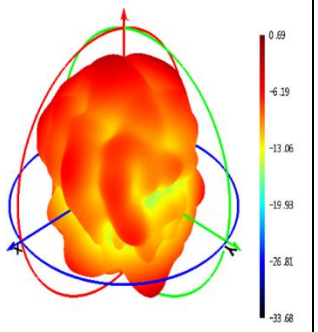
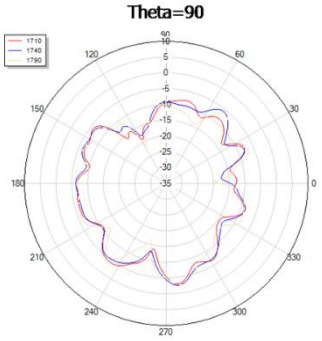
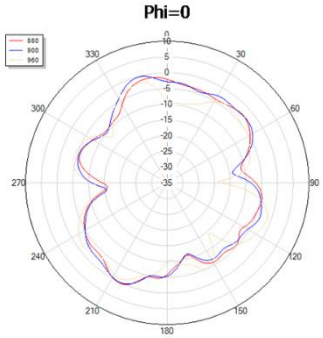
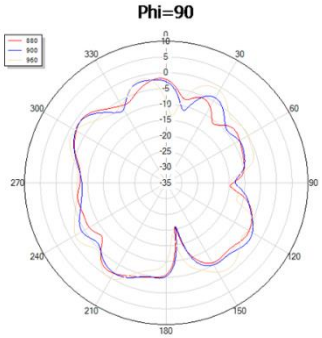
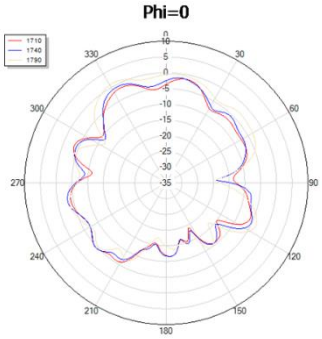
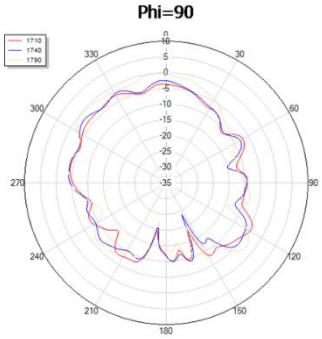
1561 MHz		1575 MHz	
			
			
1602 MHz			
			
			

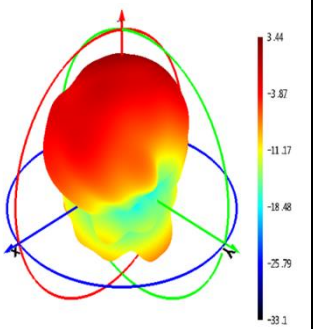
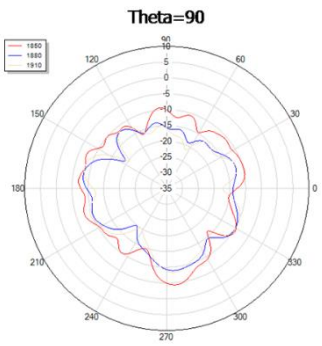
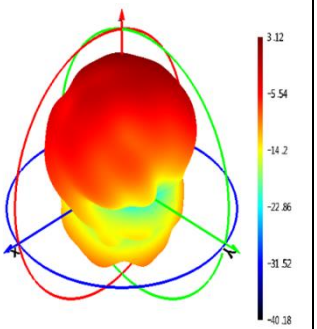
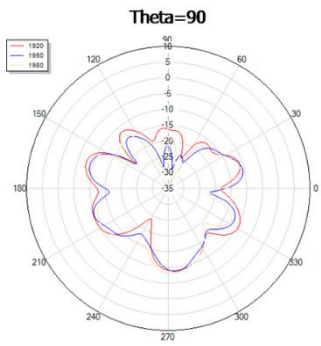
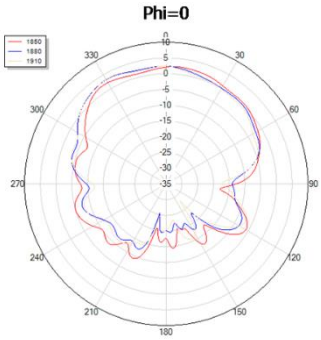
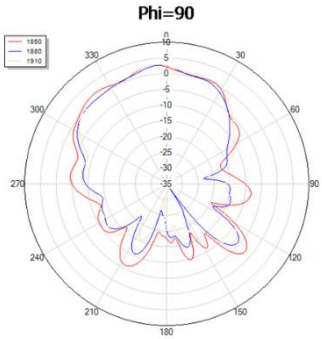
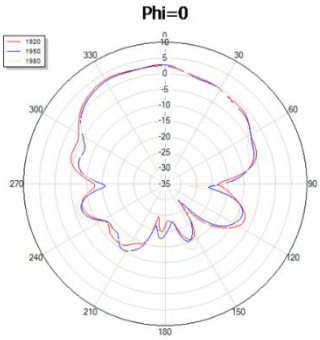
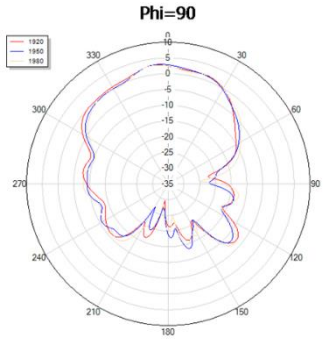
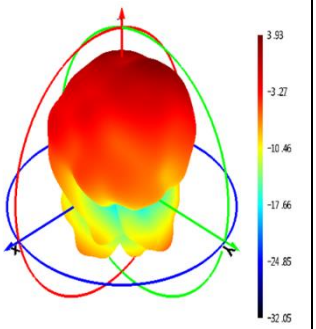
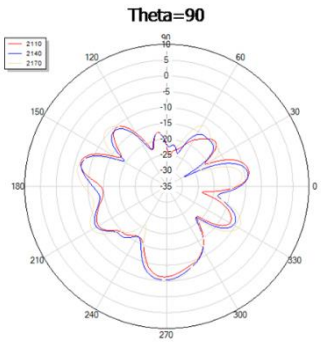
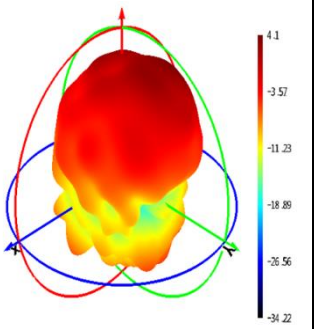
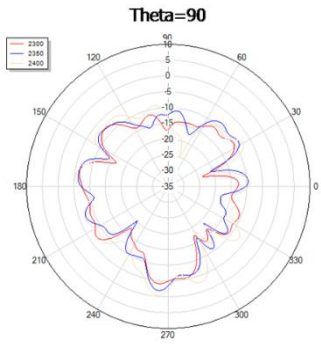
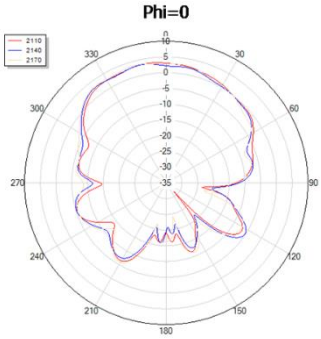
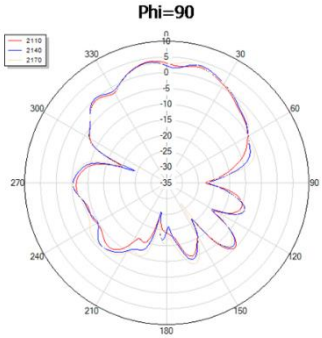
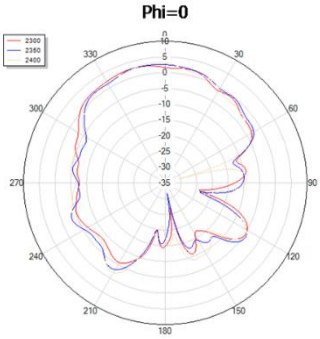
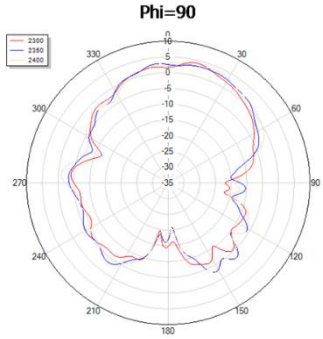
3.2.5. 3D & 2D Radiation Pattern

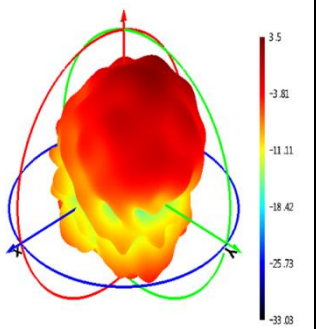
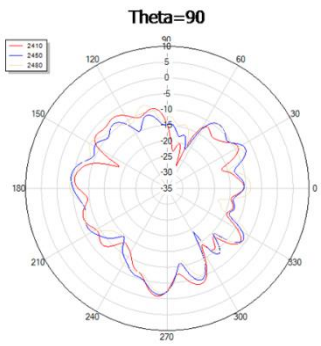
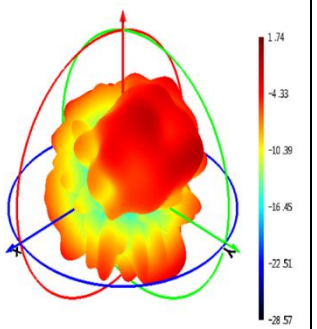
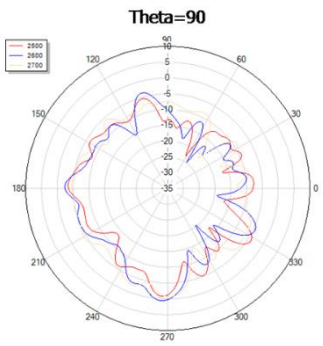
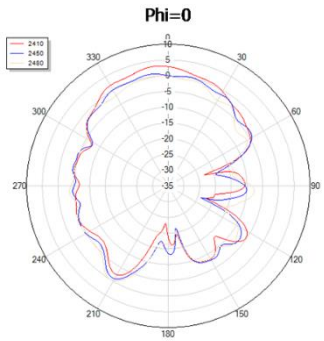
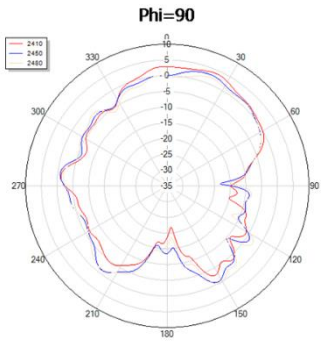
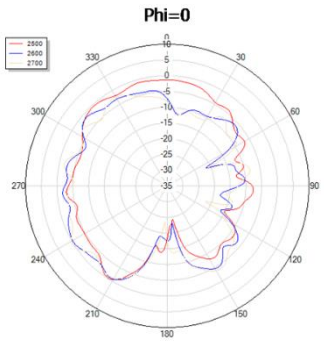
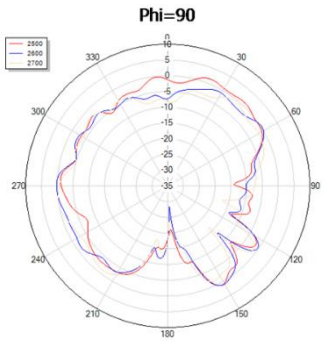
- Test Condition: On 500 mm × 500 mm Metal Plane
- Test Chamber: HF-S-1 (LTE)



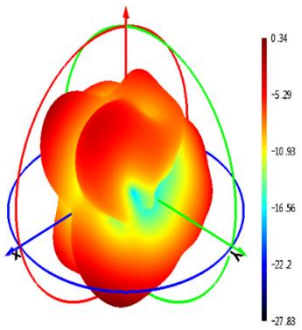
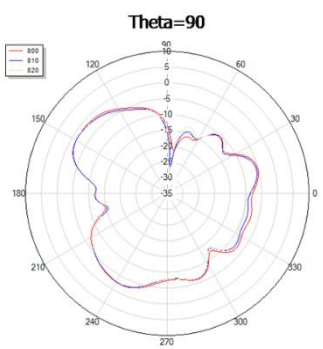
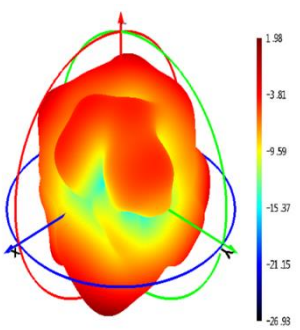
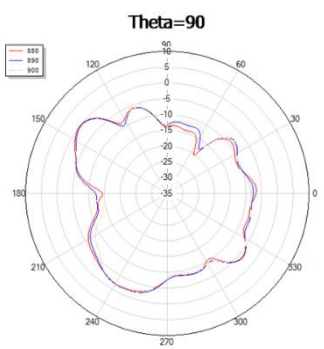
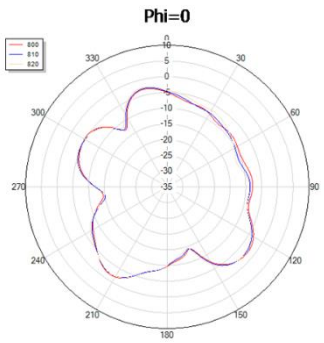
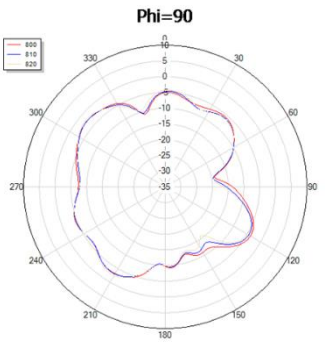
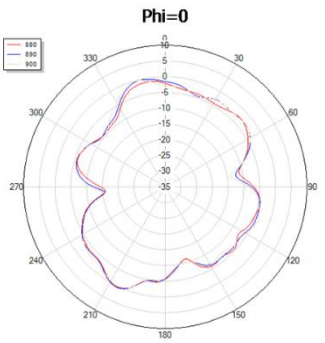
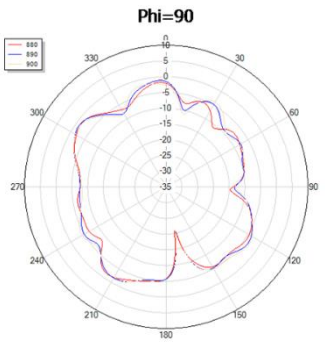
- **LTE-1**

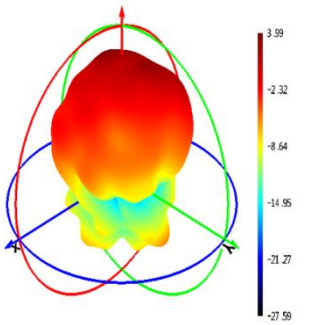
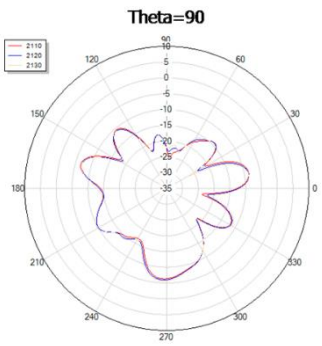
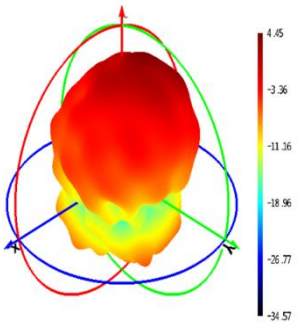
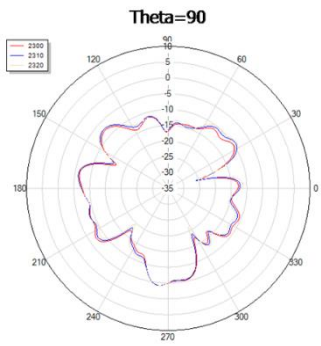
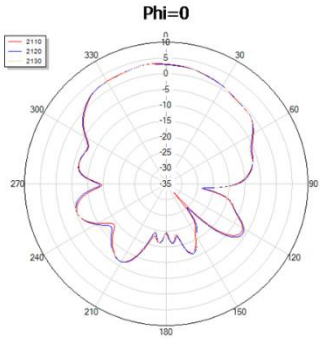
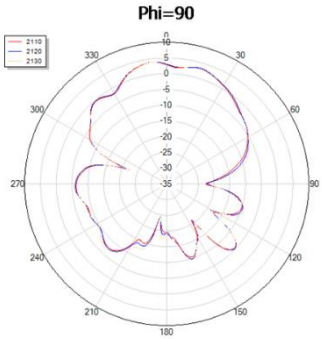
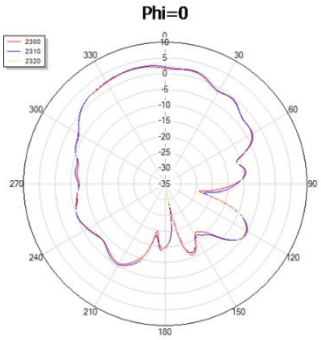
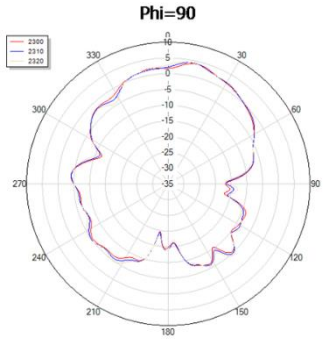
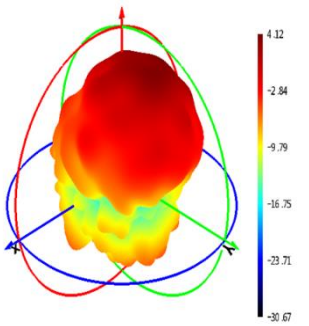
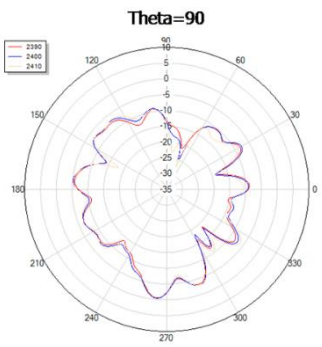
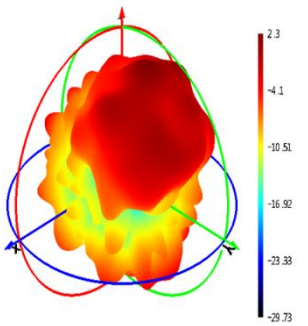
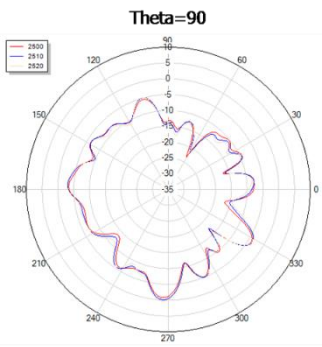
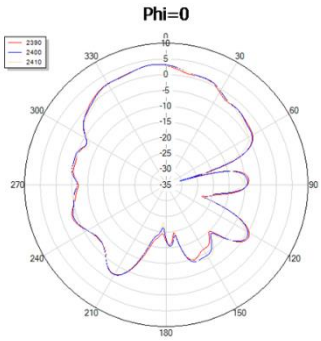
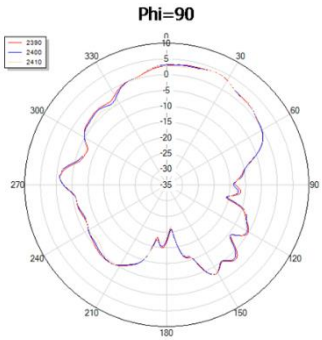
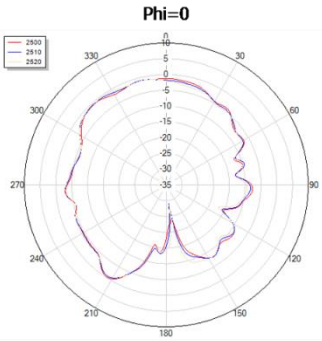
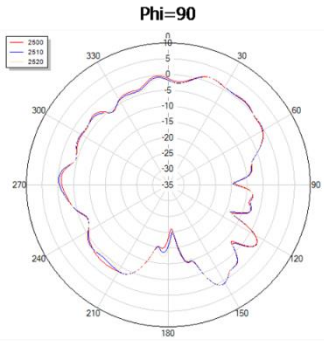
710 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

1880 MHz		1950 MHz	
			
			
2140 MHz		2350 MHz	
			
			

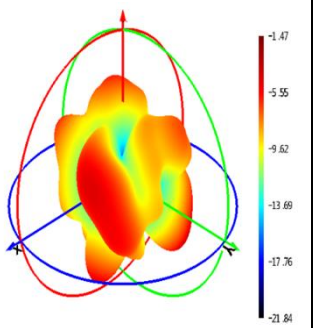
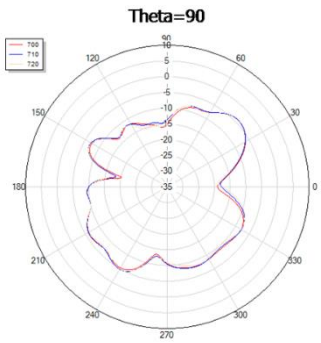
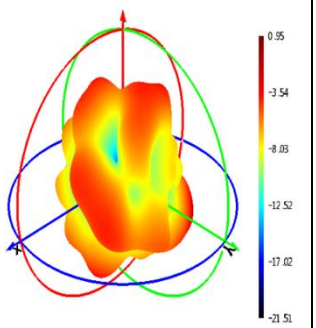
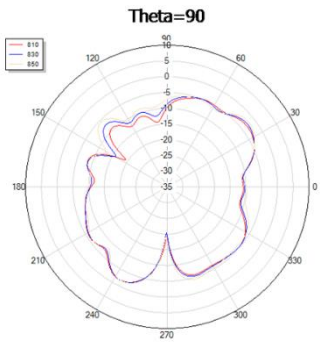
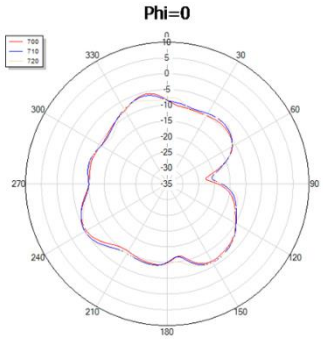
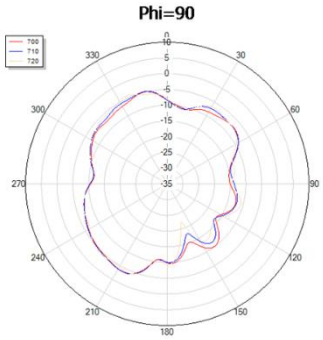
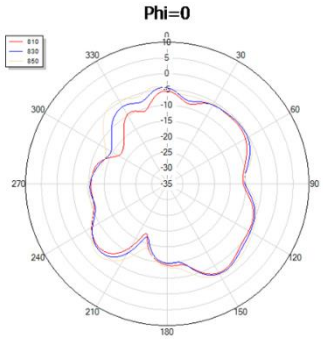
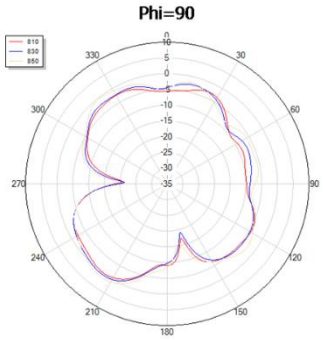
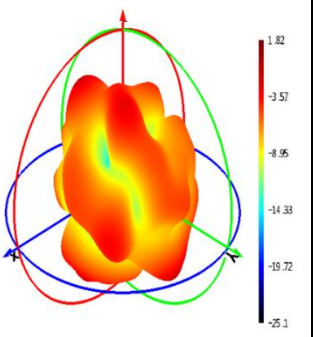
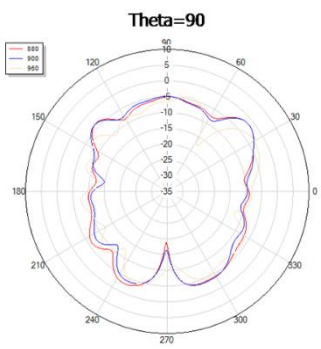
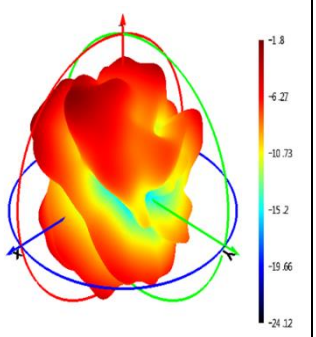
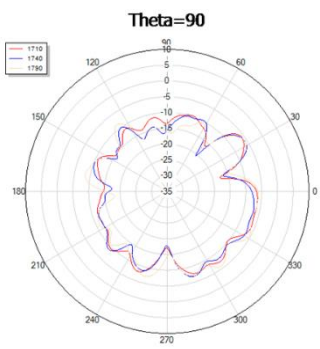
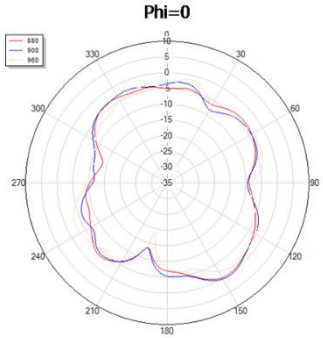
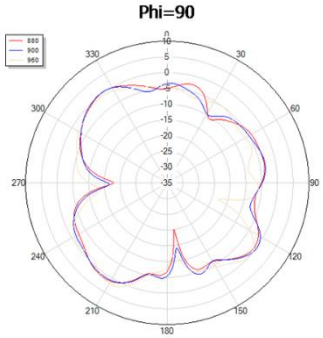
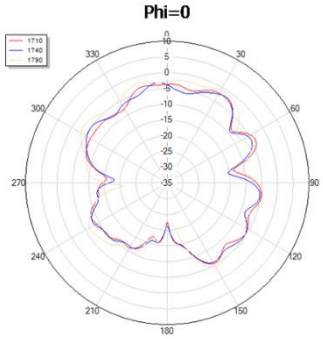
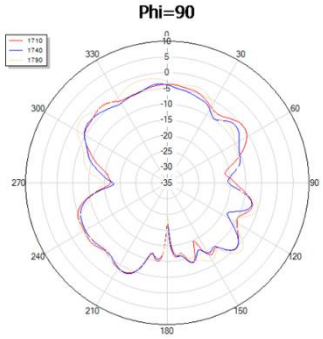
2450 MHz		2600 MHz	
			
			

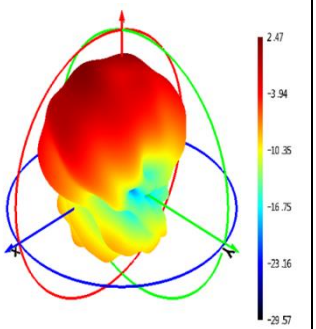
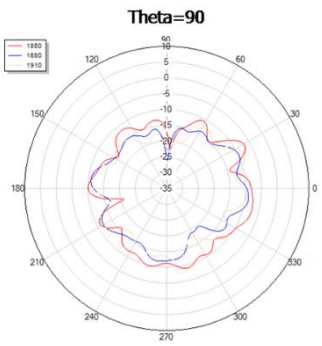
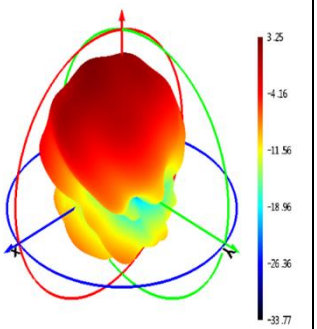
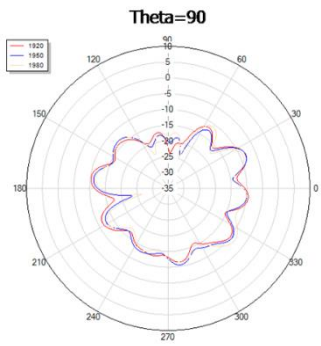
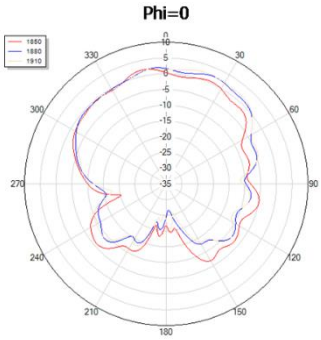
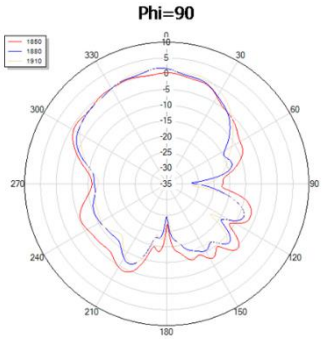
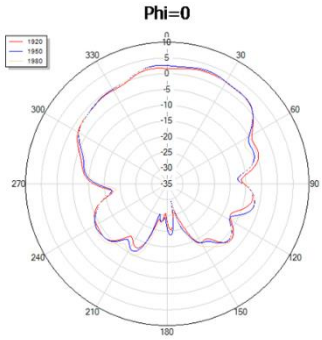
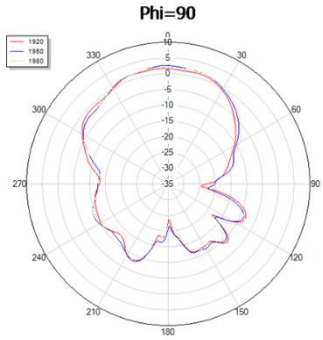
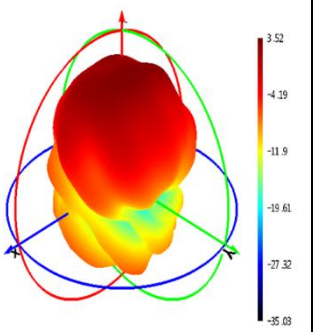
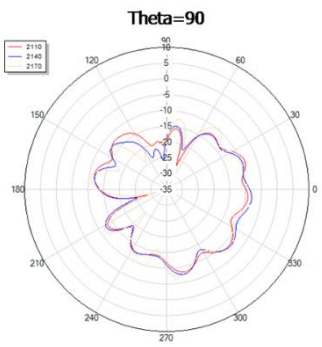
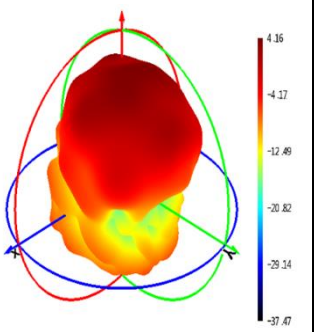
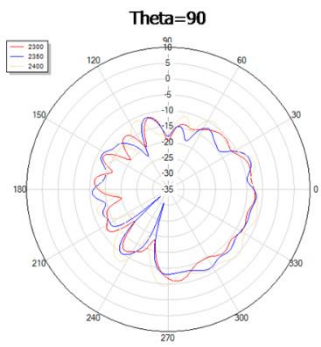
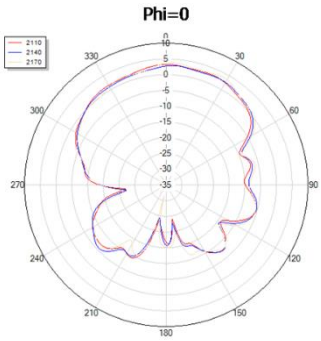
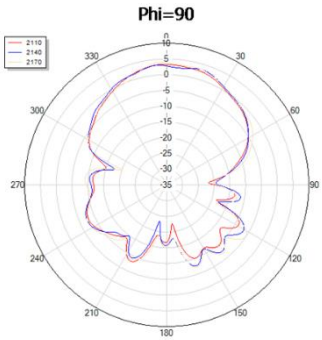
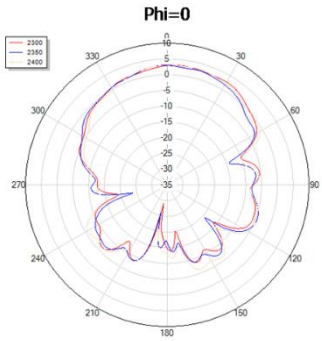
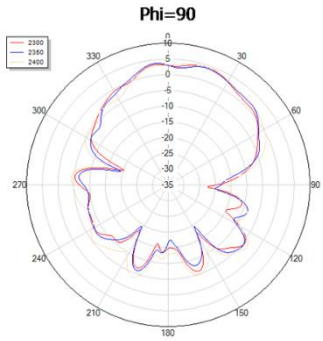
- **LTE-1 Max Peak Gain**

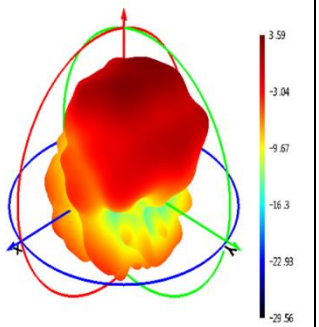
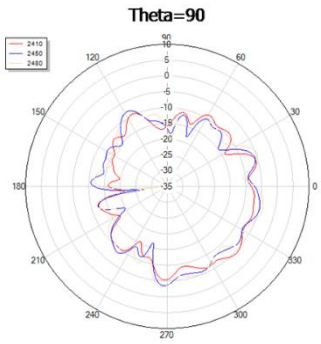
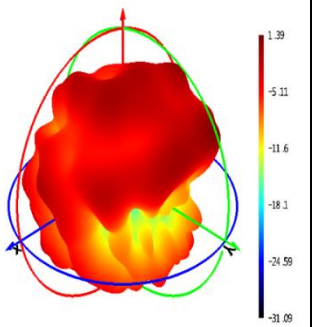
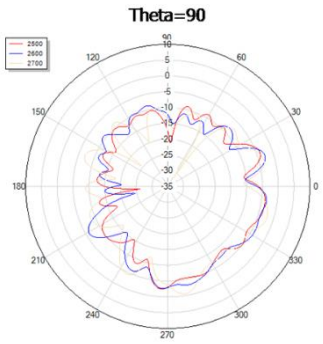
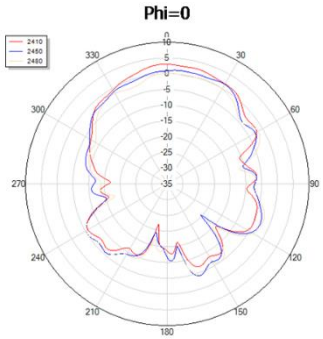
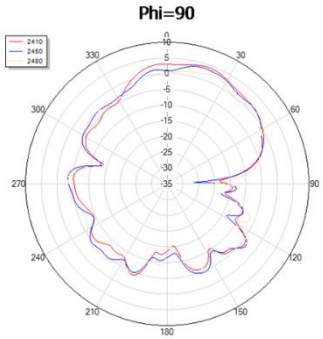
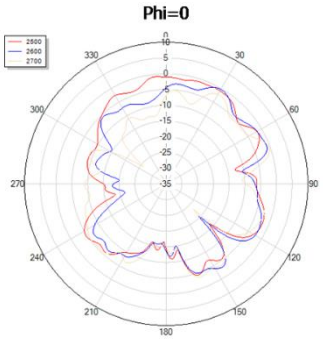
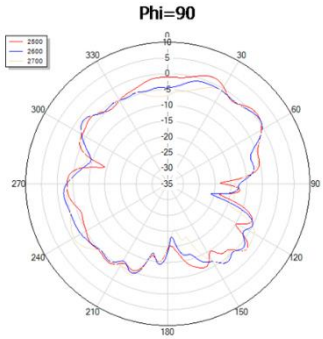
810 MHz		890 MHz	
			
			

2120 MHz		2310 MHz	
			
			
2400 MHz		2510 MHz	
			
			

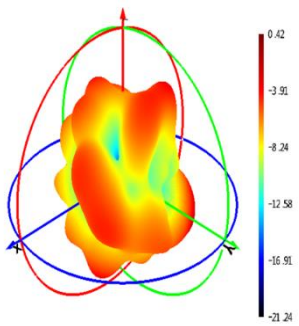
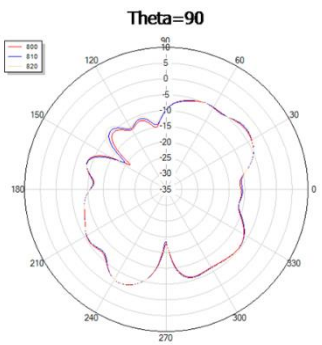
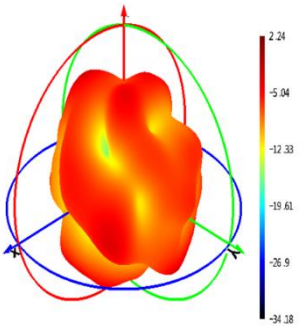
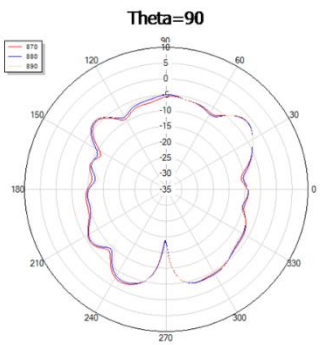
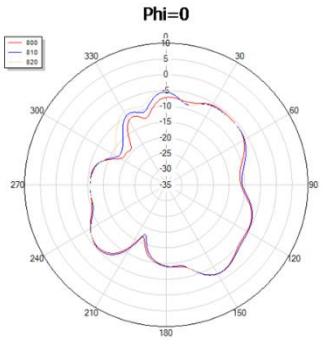
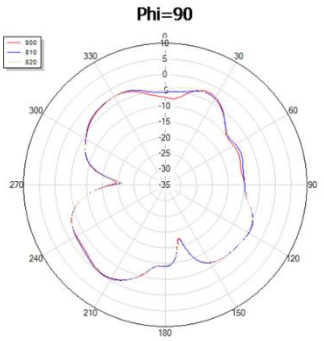
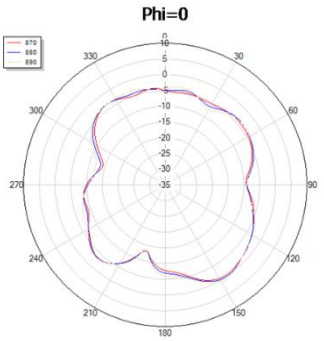
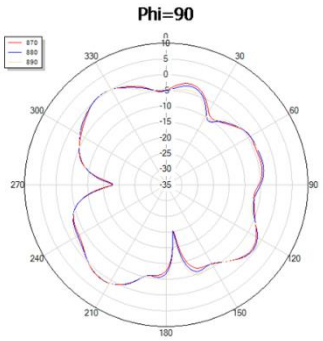
- **LTE-2**

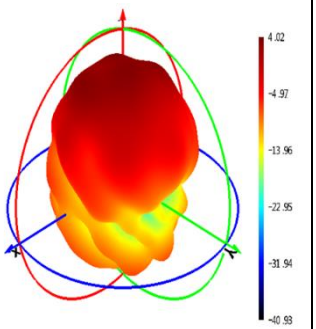
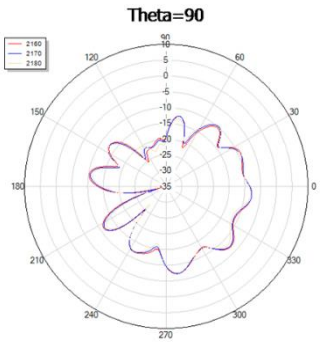
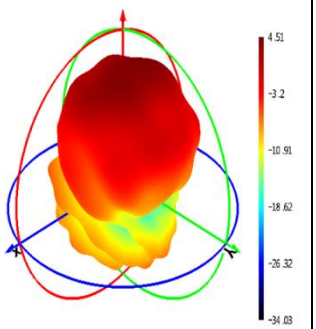
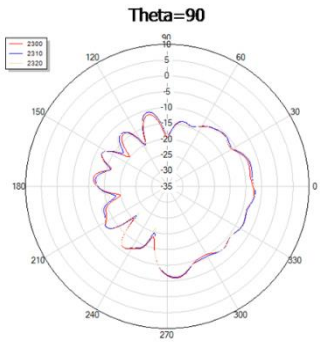
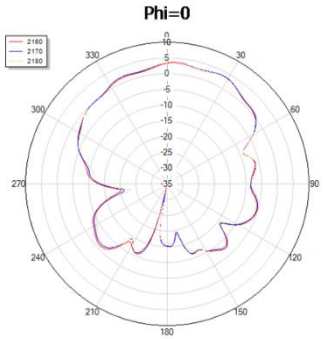
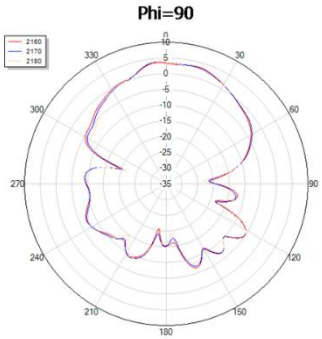
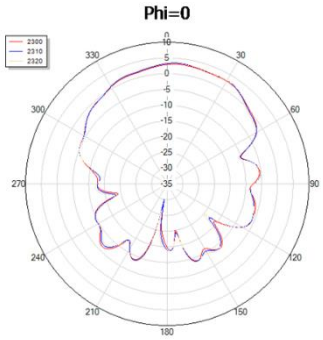
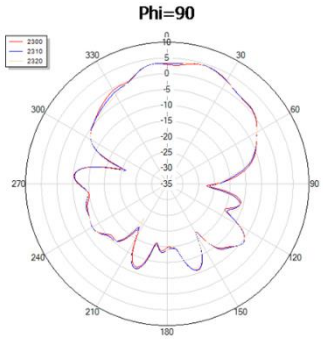
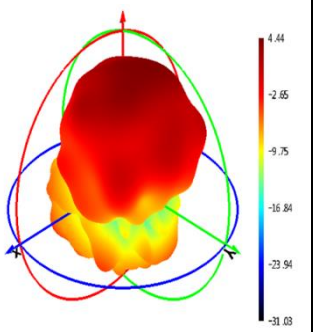
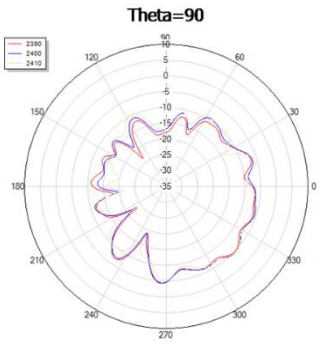
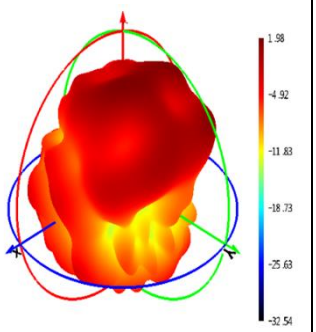
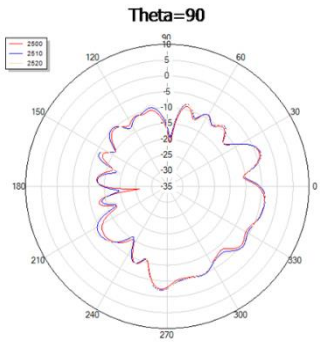
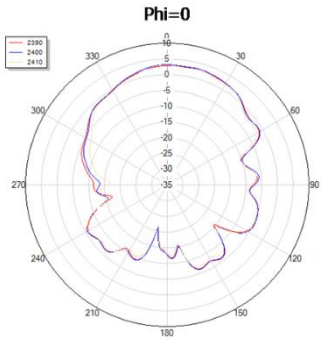
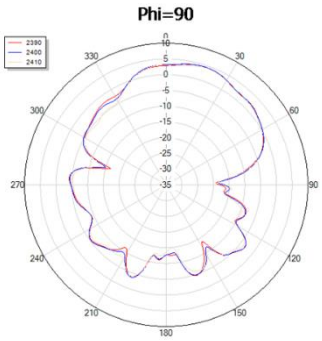
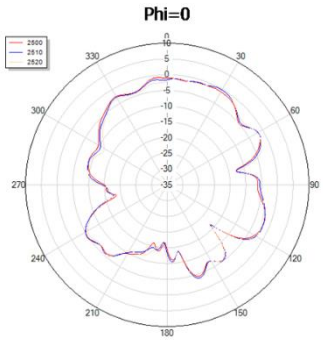
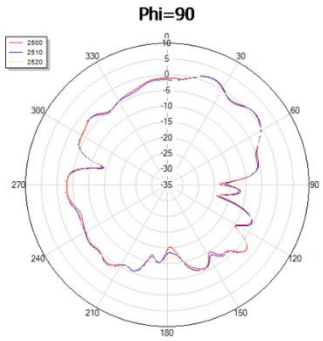
710 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

1880 MHz		1950 MHz	
			
			
2140 MHz		2350 MHz	
			
			

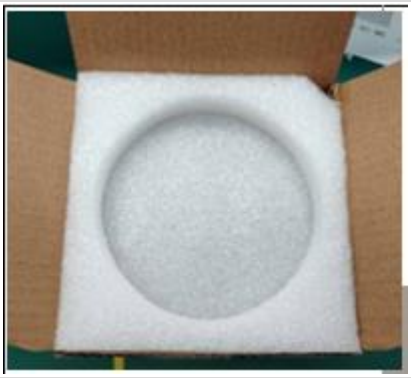
2450 MHz		2600 MHz	
			
			

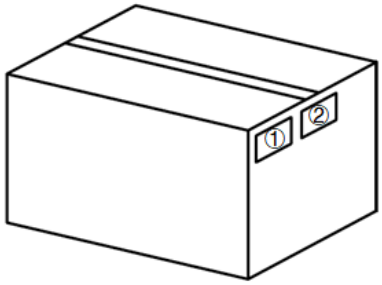
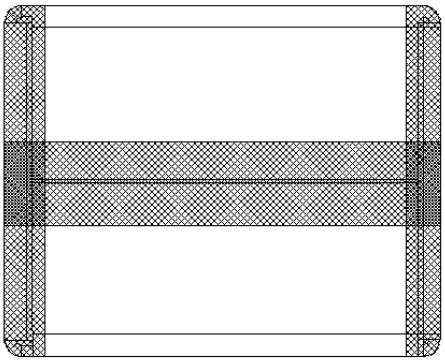
- **LTE-2 Max Peak Gain**

810 MHz		880 MHz	
			
			

2170 MHz		2310 MHz	
			
			
2400 MHz		2510 MHz	
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 antenna product in an inner box. (1 Antenna / Inner Box)
2		The top of the product is covered with pearl cotton.
3		(18 Inner Boxes / Carton Box) (18 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 = 525 × 525 × 305 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

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Revision History

Version	Date	Author	Note
-	2025-08-04	Christopher Yao/ Junsen Li/ Lance Sun/ Riva Ren/ Rainey Liao	Creation of the document
1.0	2025-08-04	Christopher Yao/ Junsen Li/ Lance Sun/ Riva Ren/ Rainey Liao	First official release
1.1	2025-10-14	Junsen Li	Added LNA gains according to different supply voltages (Chapter 1.1.3).

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