Antenna Datasheet

Product OC: YEMD301L1A
Version: 2.0
Date: 2025-02-06
Status: Released

Product Name: 4G & GNSS 3in1 Magnet & Adhesive & Screw Mount Combo Antenna

Key Features:

Frequency Band: 4G: 600–960 MHz, 1710–2690 MHz;
GNSS: 1559–1606 MHz
Dimensions: 109.28 mm × 89 mm × 25.8 mm
Efficiency: Up to 77 %
GNSS LNA Gain: 18 ±3 dB
RoHS & REACH & POPS Compliant
IP67

Overview

YEMD301L1A is a 4G & GNSS 3in1 combo antenna measuring 109.28 × 89 × 25.8 mm. This ultra-wide-band 4G & GNSS antenna provides broad coverage from1559–1606 MHz, 600–960 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 magnet & adhesive & 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.

YEMD301L1A 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. YEMD301L1A 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 300 mm × 300 mm Metal Plane

1.1. Electrical

Electrical Specifications			
Frequency Range	**LTE-1**	600–960 MHz, 1710–2690 MHz	
	LTE-2	600–960 MHz, 1710–2690 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	≤ -14.9 dB
		MP	≤ -13.4 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	4.2	3.5	4.9		1.8	2.1	3.2	3.5	-	-	-
	MP	4.1	2.5	6.2		2.4	2.0	2.0	3.7	-	-	-
Max. Return Loss (dB)	FS	-4.2	-5.1	-3.6	-	-10.5	-8.8	-5.7	-5.2	-	-	-
	MP	-4.4	-7.2	-2.8	-	-7.6	-9.7	-9.5	-4.8	-	-	-
AVG Eff. (%)	FS	32.3	53.9	46.5	-	57.4	46.0	34.2	27.1	-	-	-
	MP	34.5	58.8	36.1	-	48.8	35.8	35.2	30.2	-	-	-
AVG AVG Gain (dB)	FS	-5.0	-2.7	-3.5	-	-2.4	-3.4	-4.7	-5.7	-	-	-
	MP	-5.0	-2.3	-4.6	-	-3.2	-4.5	-4.5	-5.3	-	-	-
Max. Peak Gain (dBi)	FS	2.3	2.2	2.3	-	3.9	1.4	0.1	0.1	-	-	-
	MP	1.6	2.2	2.7	-	5.6	2.4	2.5	2.3	-	-	-

VSWR	FS	≤ 4.9
	MP	≤ 6.2
Return Loss	FS	≤ -3.6 dB
	MP	≤ -2.8 dB
Gain	FS	≤ 3.9 dBi
	MP	≤ 5.6 dBi

- FS: Free Space
- MP: On 300 mm × 300 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	4.7	3.3	4.5	-	1.8	2.3	3.1	3.6	-	-	-
	MP	3.2	2.5	5.6	-	2.0	2.3	2.1	3.5	-	-	-
Max. Return Loss (dB)	FS	-3.8	-5.4	-3.9	-	-11.1	-7.9	-5.7	-5.0	-	-	-
	MP	-5.5	-7.4	-3.2	-	-9.3	-8.3	-9.2	-5.2	-	-	-
AVG Eff. (%)	FS	33.8	62.2	43.1	-	57.1	47.0	35.7	32.4	-	-	-
	MP	28.4	53.4	46.9	-	55.0	37.1	37.4	35.9	-	-	-
AVG AVG Gain (dB)	FS	-5.2	-2.1	-4.0	-	-2.4	-3.3	-4.5	-4.9	-	-	-
	MP	-5.5	-3.1	-3.8	-	-2.6	-4.3	-4.3	-4.5	-	-	-
Max. Peak Gain (dBi)	FS	5.3	5.3	2.0	-	5.2	2.0	1.0	0.4	-	-	-
	MP	1.1	4.6	4.5	-	4.6	2.3	3.7	3.8	-	-	-

VSWR	FS	≤ 4.7
	MP	≤ 5.6
Return Loss	FS	≤ -3.8 dB
	MP	≤ -3.2 dB
Gain	FS	≤ 5.3 dBi
	MP	≤4.6 dBi

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

1.1.3. GNSS

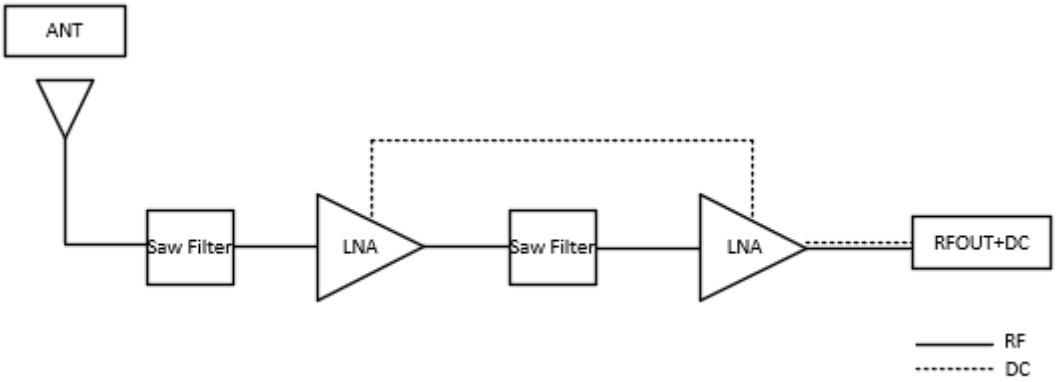
Band / Frequency (MHz)	GPS L5 GALILEO E5a BDS B2a-B2I QZSS L5 IRNSS L5	GALILEO E5b BDS B2b	GPS L2 QZSS L2C	GLONASS G2	BDS B3	BDS B1I	GPS L1 GALILEO E1 BDS B1C QZSS L1	GLONASS G1
	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	4.73	1.63	1.54
Return Loss (dB)	-	-	-	-	-	-3.7	-12.3	-13.2
Efficiency (%)	-	-	-	-	-	42	79	76
Peak Gain (dBi)	-	-	-	-	-	-0.91	1.95	2.18

LNA Electrical	
LNA Gain	18 ±3 dB
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	2.7–3.3 V
Working Current	8.3 ±1.5 mA @ 3 V
Impedance	50 Ω

1.2. Mechanical & Environmental

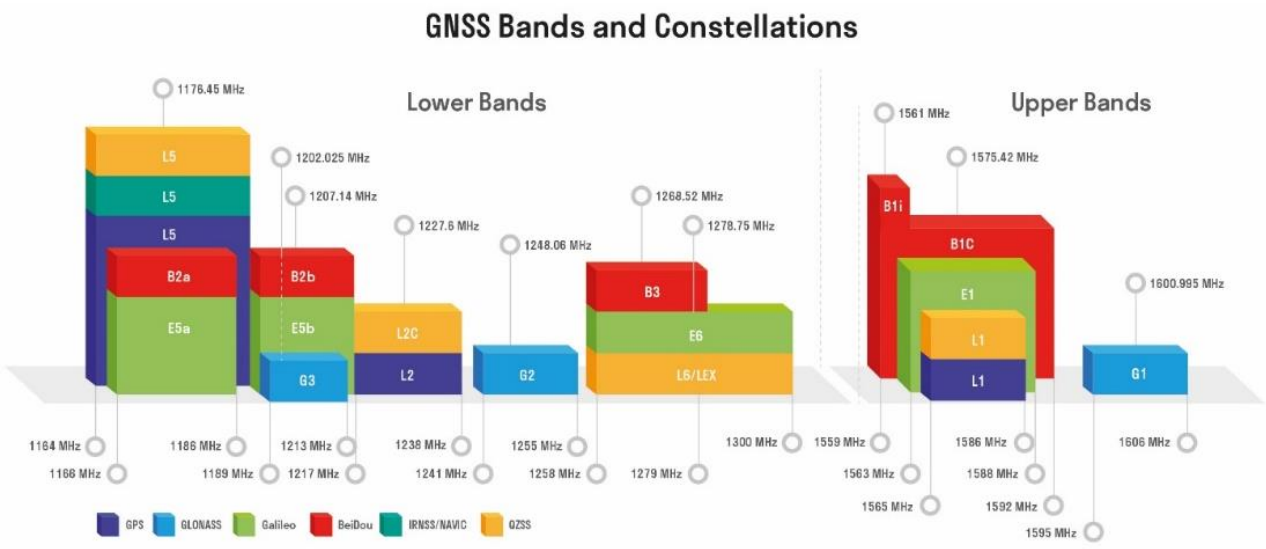
Mechanical		
Antenna Dimensions		109.28 mm × 89 mm × 25.8 mm
Antenna Material & Color		PC & Black
Cable Type & Color & Length	**LTE-1**	ALS302 & Black & 1025 ±25 mm
	LTE-2	ALS302 & Black & 1025 ±25 mm
	GNSS	RG174 & Black & 1025 ±25 mm
Connector Type	**LTE-1**	SMA Male (The current state of the SMA connector 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. 145 g
Mounting Type		Magnet & Adhesive & Screw
Environmental		
Storage Temperature		-40 °C to +85 °C
Operation Temperature		-40 °C to +85 °C
Ingress Protection (IP) Rating		IP67
RoHS & REACH & POPS Compliant		Yes
Housing Flame Rating		UL 94 V-0
Housing UV Resistant		UL 746c f1

1.3. Block Diagram (Active Antenna)

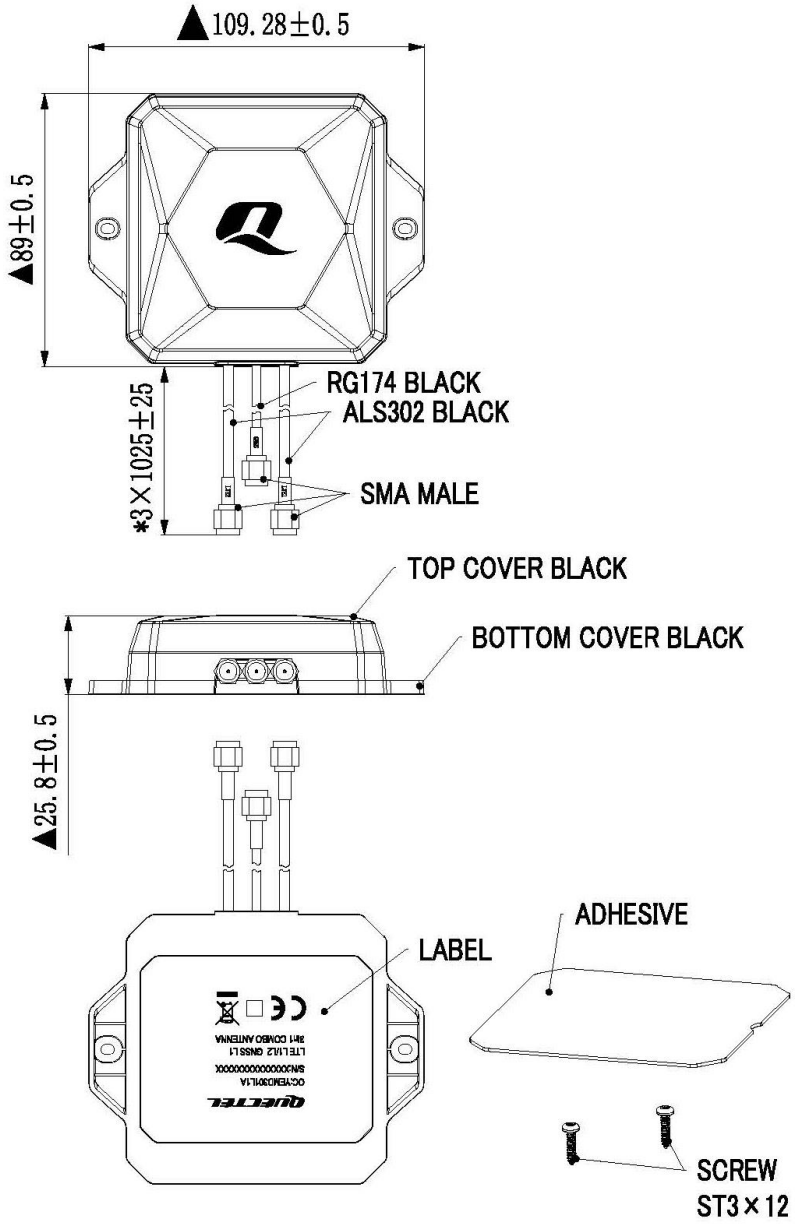


1.4. Supported GNSS Frequency Bands

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

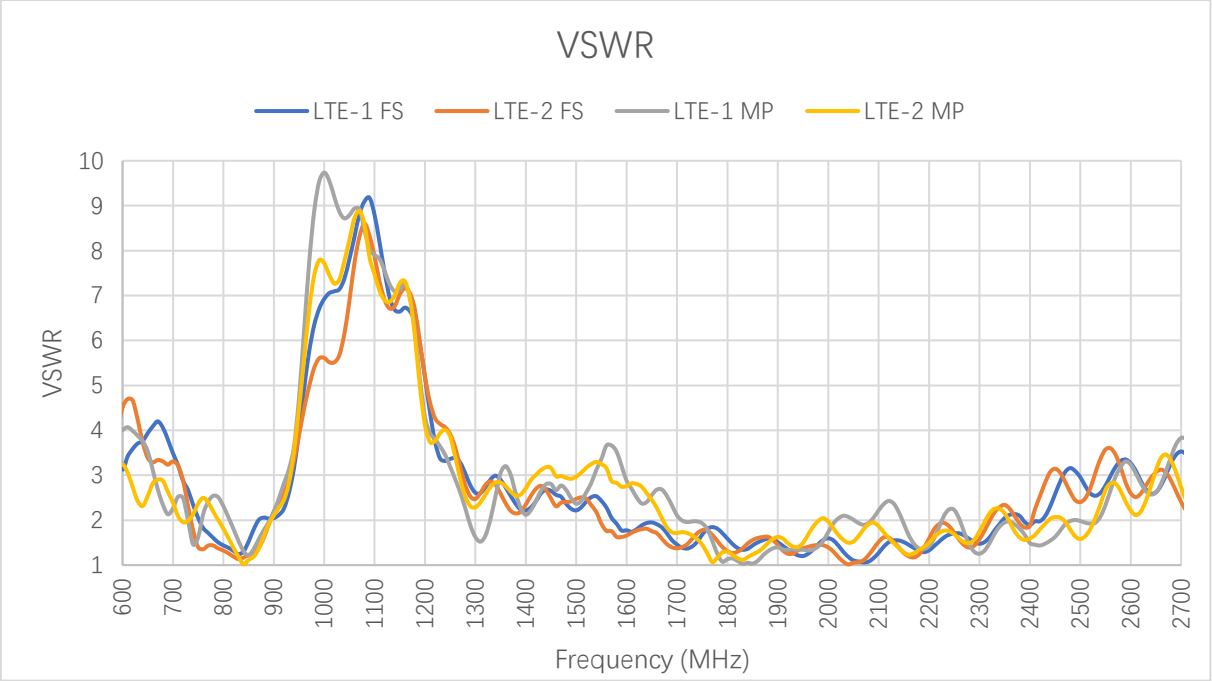
2 Drawing


109.28±0.5
89±0.5
RG174 BLACK
ALS302 BLACK
SMA MALE
*3×1025±25
TOP COVER BLACK
BOTTOM COVER BLACK
25.8±0.5
LABEL
ADHESIVE
SCREW
ST3×12

3 Detailed Performance

3.1. S-Parameter Test

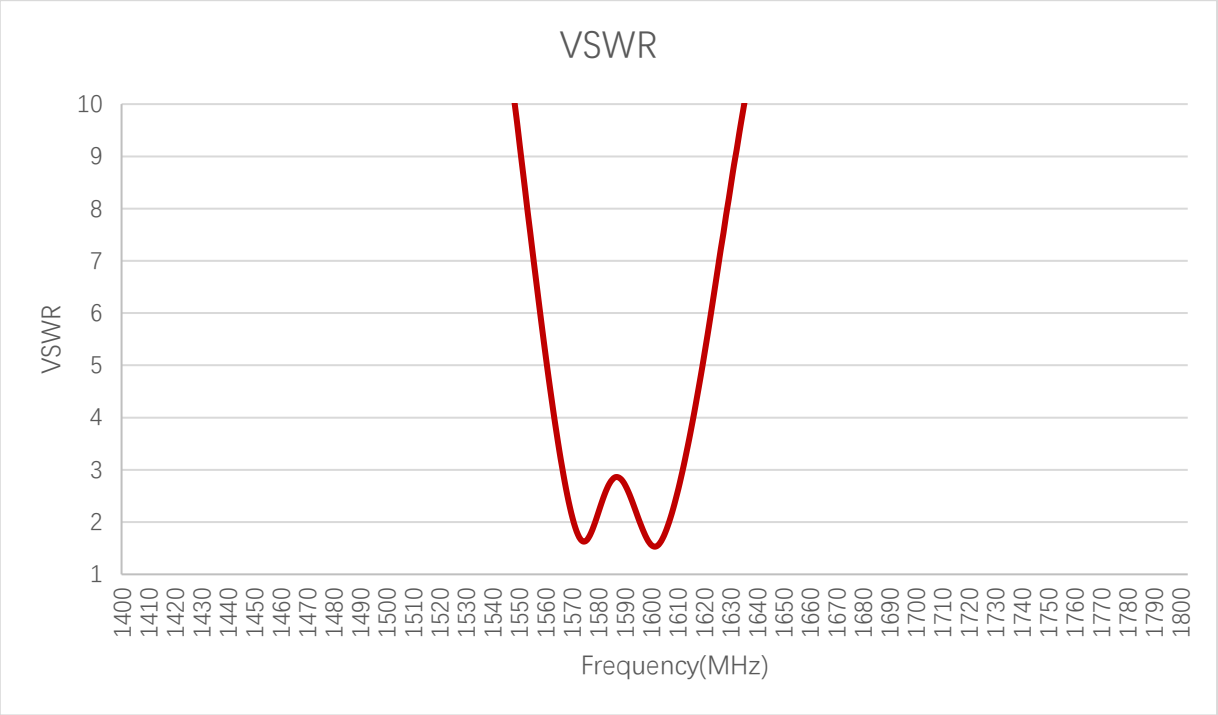
3.1.1. VSWR



VSWR – LTE

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
LTE-1	FS	3.1	3.7	3.2	1.2	2.0	4.9	2.7	1.4	1.5	1.6
	MP	4.0	3.9	2.5	1.5	2.2	6.2	2.8	2.0	2.0	1.3
LTE-2	FS	4.5	4.2	3.2	1.1	2.2	4.5	2.7	1.4	1.7	1.6
	MP	3.2	2.4	2.1	1.2	2.1	5.6	3.2	1.7	1.6	1.5
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE-1	FS	1.2	1.5	2.1	2.6	3.3	3.5	-	-	-	-

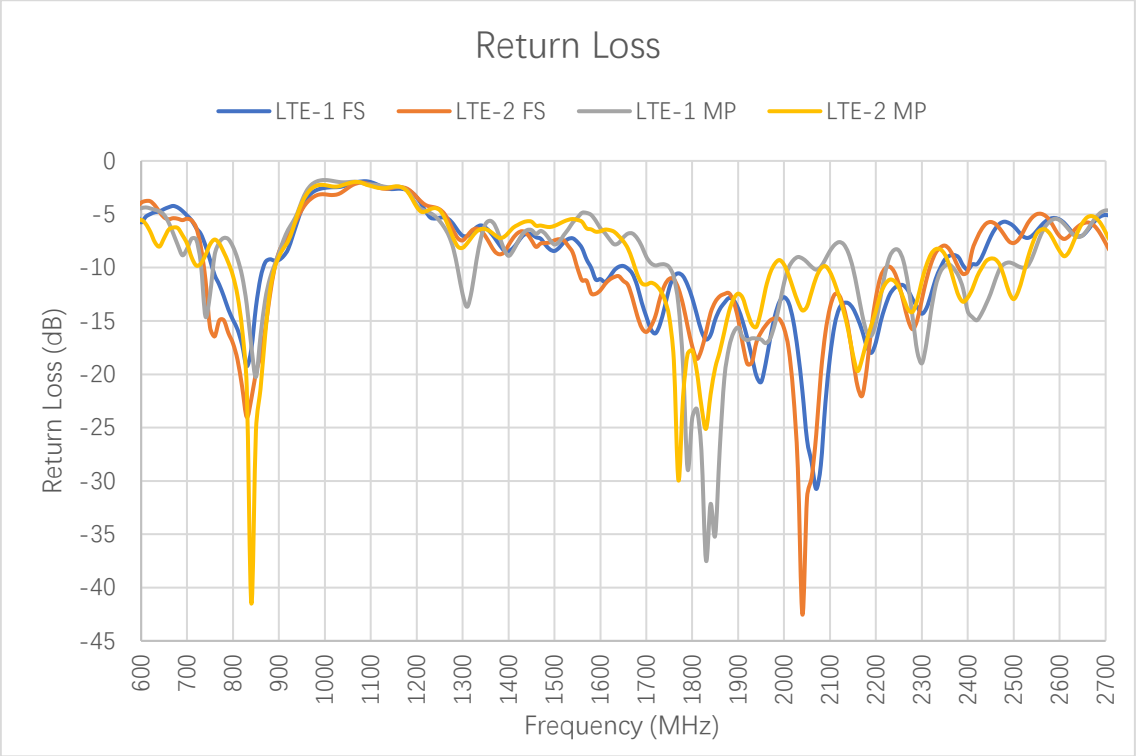
	MP	1.3	2.2	1.9	1.6	3.2	3.7	-	-	-	-
LTE-2	**FS**	1.4	1.4	2.3	3.1	2.6	2.6	-	-	-	-
	MP	1.5	1.4	2.1	2.1	2.2	3.1	-	-	-	-



VSWR – GNSS

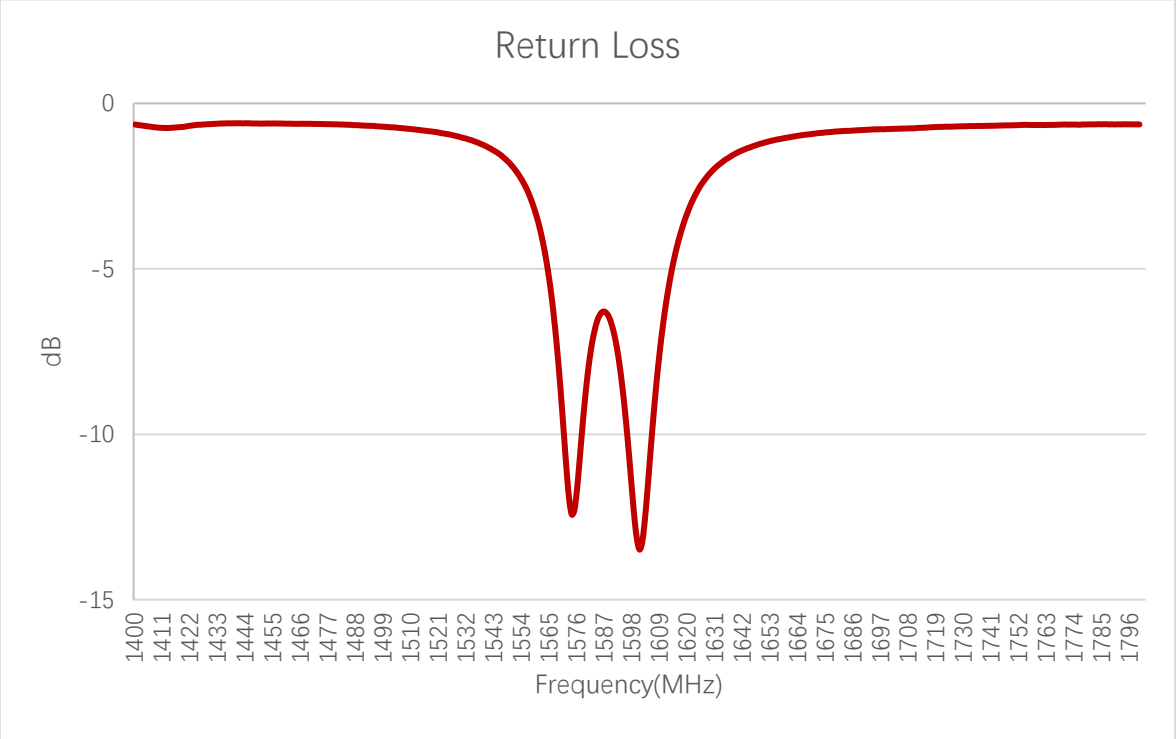
Frequency (MHz)	**1176**	**1207**	**1227**	**1248**	**1268**	**1561**	**1575**	**1602**
VSWR	-	-	-	-	-	4.73	1.63	1.54

3.1.2. Return Loss



Return Loss (dB) – LTE

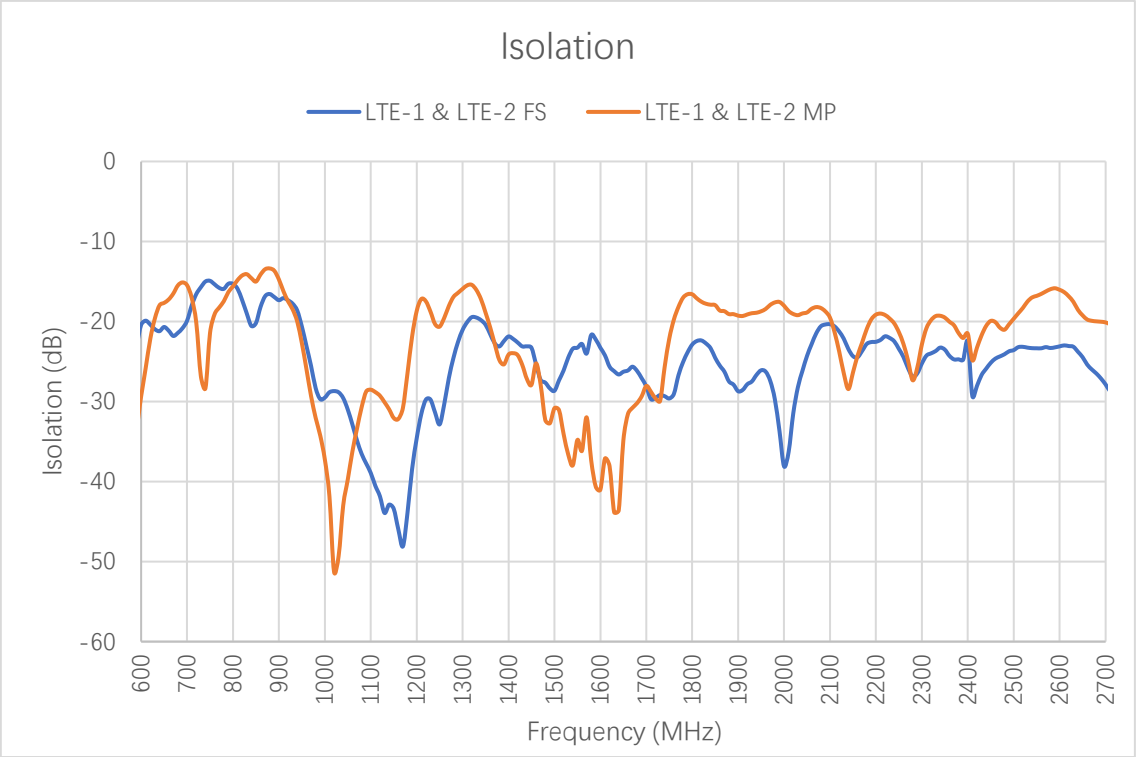
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
LTE-1	FS	-5.8	-4.8	-5.6	-19.2	-9.3	-3.6	-6.8	-15.8	-13.7	-12.9
	MP	-4.4	-4.6	-7.3	-13.5	-8.6	-2.8	-6.5	-9.6	-9.7	-17.5
LTE-2	FS	-3.9	-4.2	-5.6	-24.0	-8.6	-3.9	-6.8	-15.5	-11.7	-12.4
	MP	-5.5	-7.6	-9.0	-21.3	-9.0	-3.2	-5.7	-11.4	-13.0	-14.1
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE-1	FS	-20.7	-13.3	-9.3	-7.1	-5.5	-5.2	-	-	-	-
	MP	-16.7	-8.6	-9.8	-12.4	-5.6	-4.8	-	-	-	-
LTE-2	FS	-16.1	-15.7	-7.9	-5.7	-7.0	-6.9	-	-	-	-
	MP	-14.0	-15.9	-8.8	-9.2	-8.4	-5.9	-	-	-	-



Return Loss(dB) – GNSS

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Return Loss (dB)	-	-	-	-	-	-3.7	-12.3	-13.2

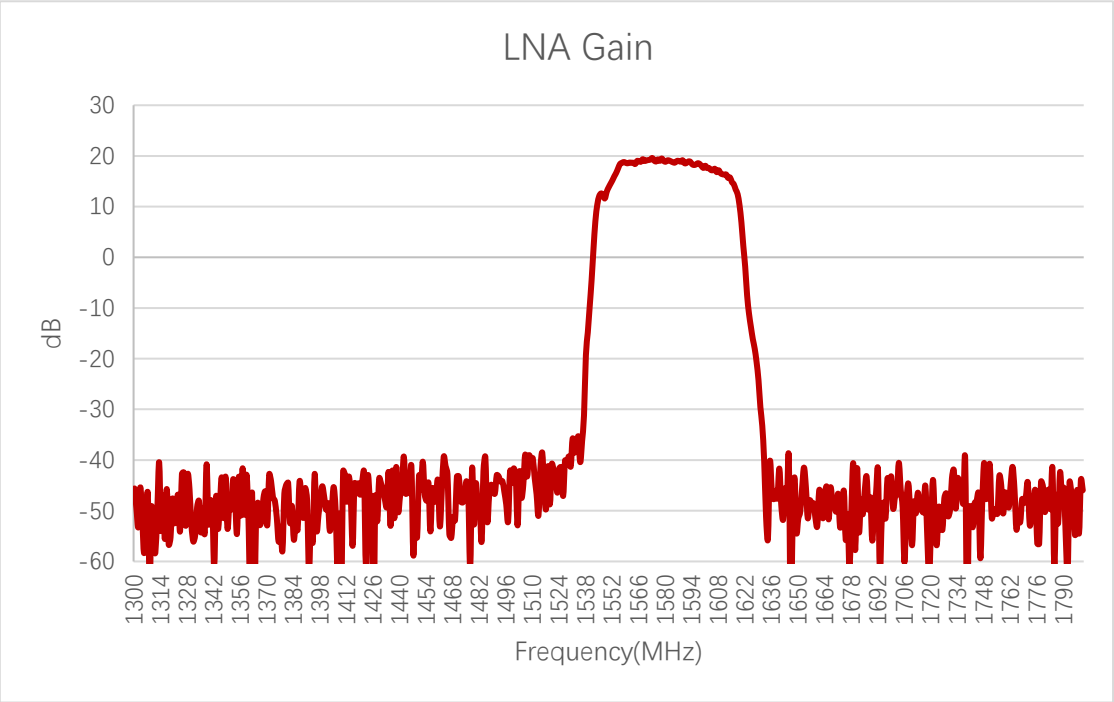
3.1.3. Isolation



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	-19.9	-14.9	-16.6	-22.6	-20.3	-22.5	-22.5	-23.0	-	-	-
	MP	-15.1	-14.8	-13.4	-24.2	-16.6	-19.3	-19.6	-15.8	-	-	-

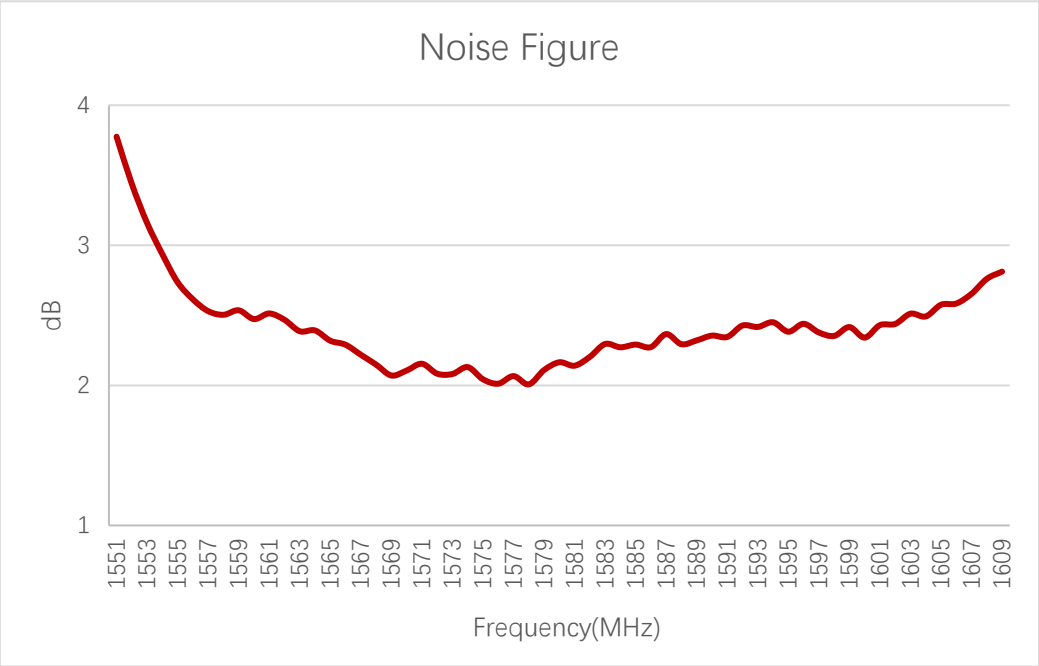
3.1.4. GNSS LNA Gain



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

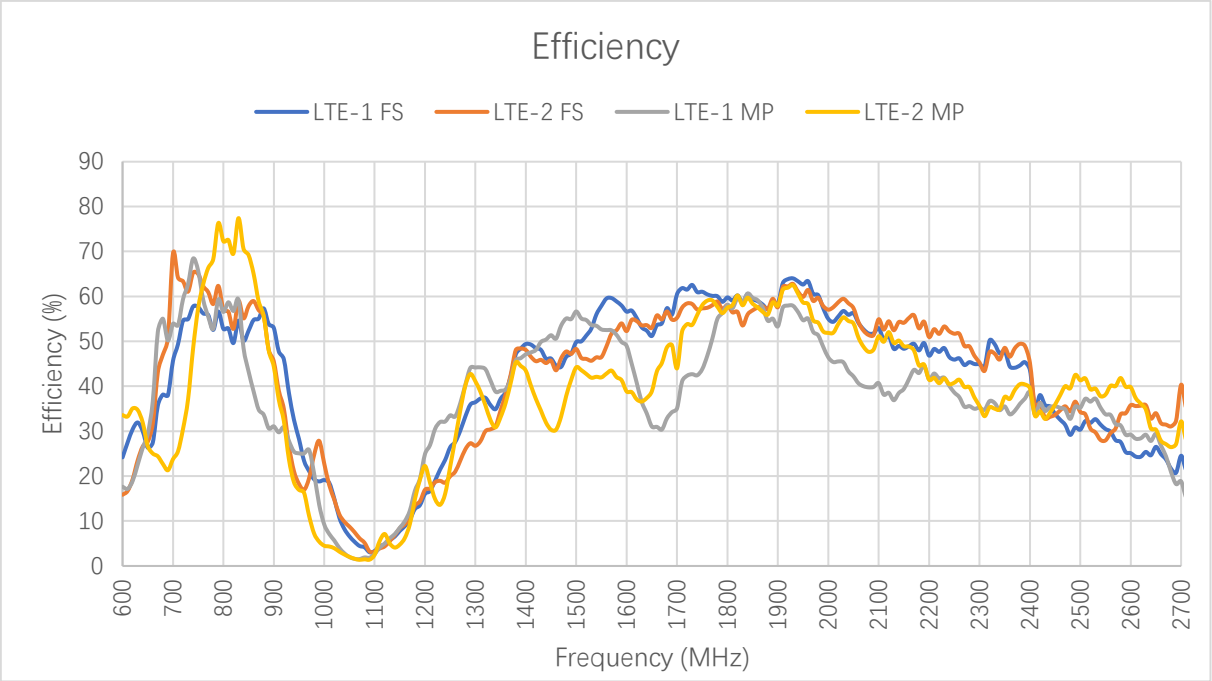


Noise Figure (dB)

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

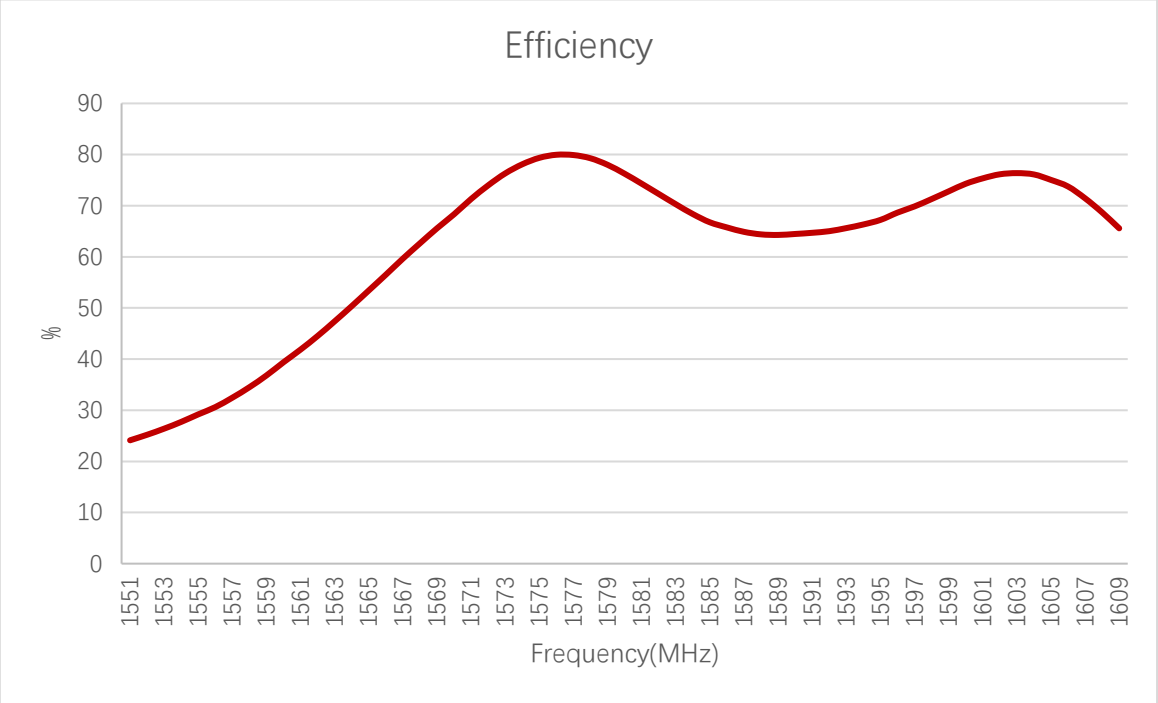
3.2. Radiation Performance Test

3.2.1. Efficiency



Efficiency (%) – LTE

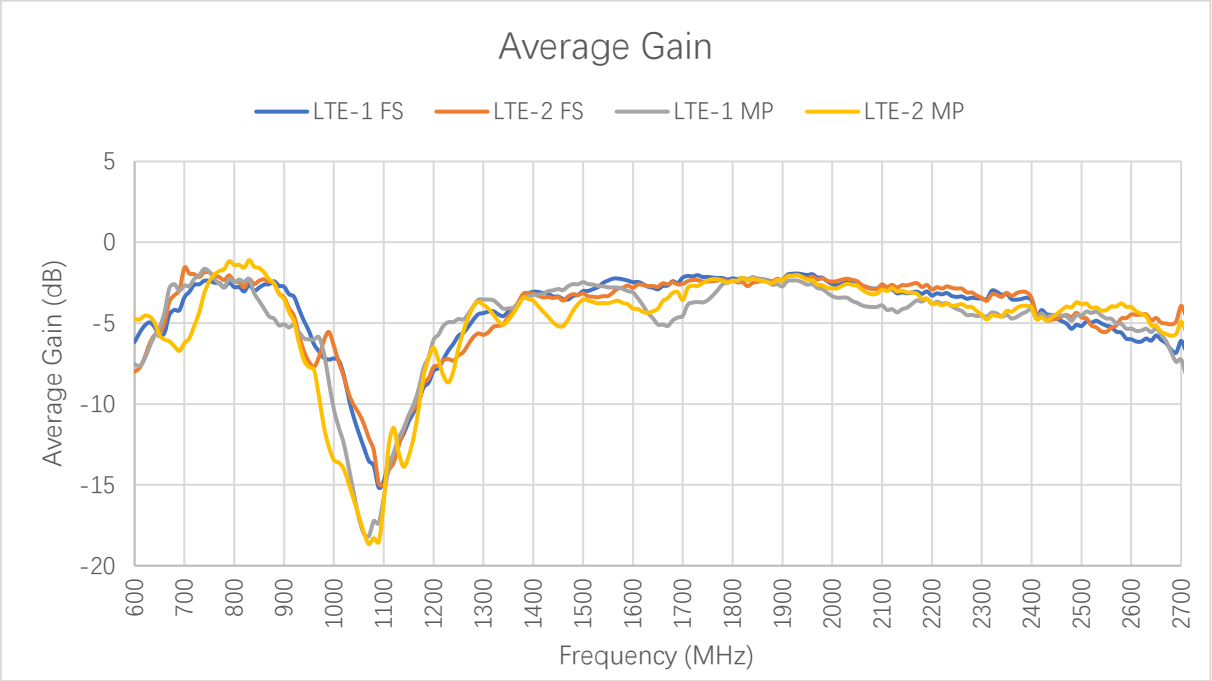
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
LTE-1	FS	24.2	31.9	49.3	54.6	53.0	23.4	-	61.8	61.0	57.1
	MP	17.6	22.5	53.6	59.3	31.1	25.0	-	41.1	42.4	54.6
LTE-2	FS	15.8	23.5	64.2	59.0	45.6	16.9	-	57.5	57.1	57.2
	MP	33.6	34.7	25.5	77.4	44.4	16.3	-	52.2	55.9	56.0
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE-1	FS	62.6	49.0	47.8	33.8	25.1	20.8	-	-	-	-
	MP	54.7	38.5	35.5	35.5	29.2	18.2	-	-	-	-
LTE-2	FS	59.9	54.3	48.6	33.6	35.8	32.3	-	-	-	-
	MP	58.6	50.2	37.6	35.9	39.8	27.2	-	-	-	-



Efficiency (%) – GNSS

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Efficiency (%)	-	-	-	-	-	42	79	76

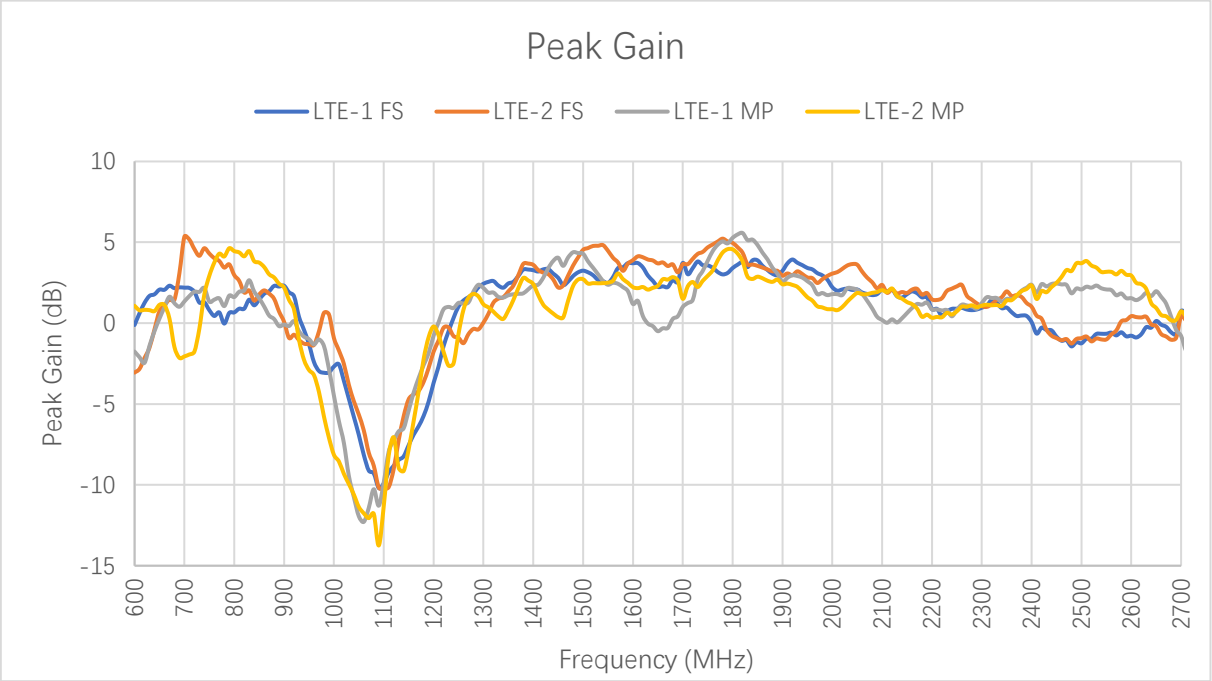
3.2.2. Average Gain



Average Gain (dB) – LTE

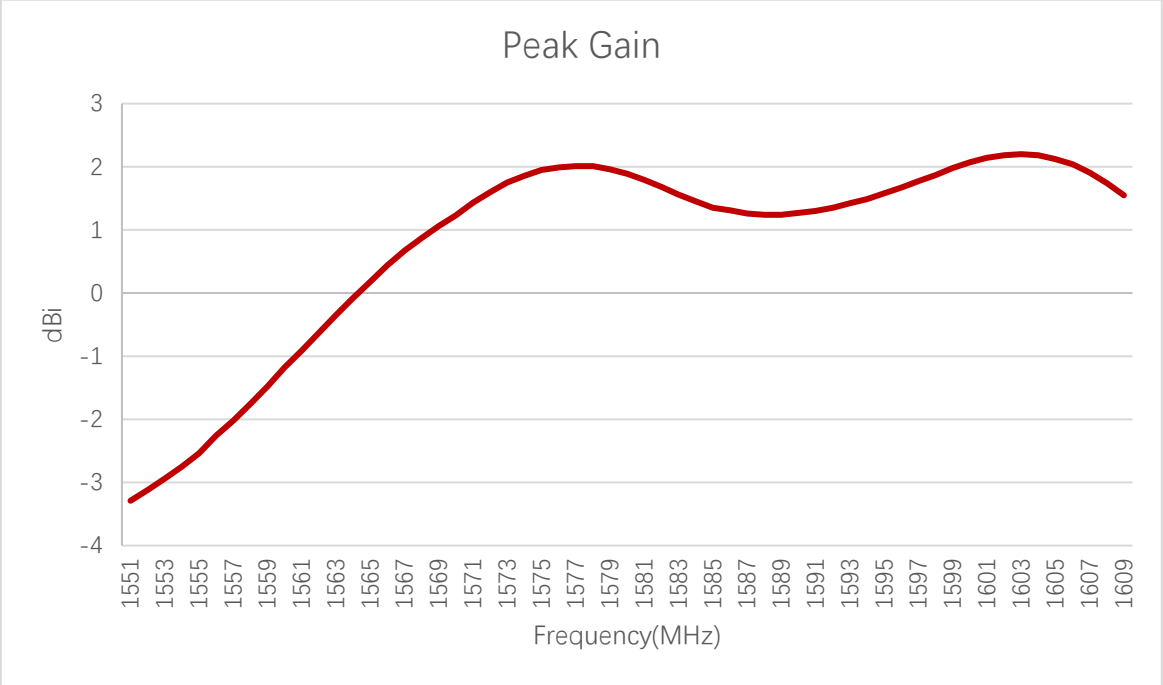
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
LTE-1	FS	-6.2	-5.0	-3.1	-2.6	-2.8	-6.3	-	-2.1	-2.1	-2.4
	MP	-7.5	-6.5	-2.7	-2.3	-5.1	-6.0	-	-3.9	-3.7	-2.6
LTE-2	FS	-8.0	-6.3	-1.9	-2.3	-3.4	-7.7	-	-2.4	-2.4	-2.4
	MP	-4.7	-4.6	-5.9	-1.1	-3.5	-7.9	-	-2.8	-2.5	-2.5
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE-1	FS	-2.0	-3.1	-3.2	-4.7	-6.0	-6.8	-	-	-	-
	MP	-2.6	-4.1	-4.5	-4.5	-5.3	-7.4	-	-	-	-
LTE-2	FS	-2.2	-2.7	-3.1	-4.7	-4.5	-4.9	-	-	-	-
	MP	-2.3	-3.0	-4.2	-4.4	-4.0	-5.7	-	-	-	-

3.2.3. Peak Gain



Peak Gain (dBi) – LTE

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
LTE-1	FS	-0.1	1.7	2.2	1.5	2.3	-2.4	3.1	3.0	3.6	3.1
	MP	-1.8	-1.4	1.7	2.7	-0.1	-1.3	3.8	1.2	3.2	3.4
LTE-2	FS	-3.1	-1.5	5.2	2.0	0.1	-1.4	2.7	3.6	4.4	3.2
	MP	1.1	0.8	-1.9	4.5	2.2	-3.2	0.6	2.3	2.6	2.6
Frequency (MHz)		**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
LTE-1	FS	3.4	1.6	1.0	-0.8	-0.8	-0.7	-	-	-	-
	MP	2.6	0.3	1.5	2.5	1.5	-0.4	-	-	-	-
LTE-2	FS	2.8	1.9	2.0	-0.9	0.4	-0.9	-	-	-	-
	MP	1.6	1.5	1.4	2.5	2.9	0.2	-	-	-	-

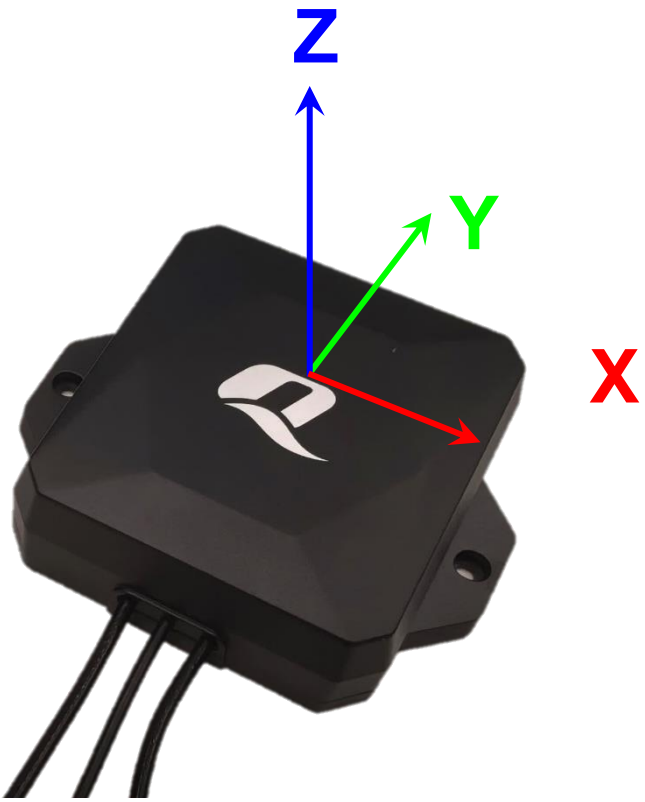


Peak Gain (dBi) – GNSS

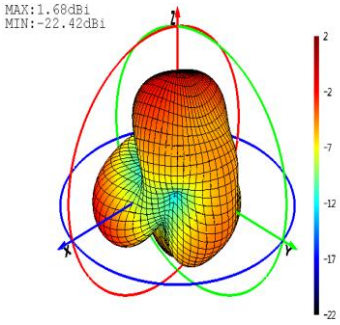
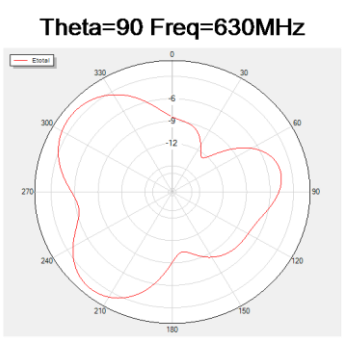
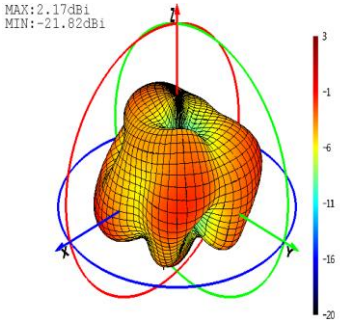
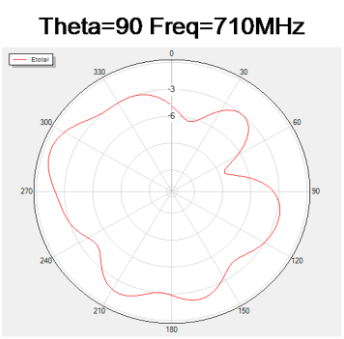
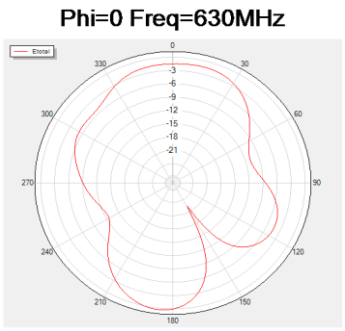
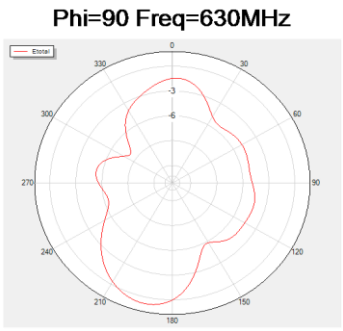
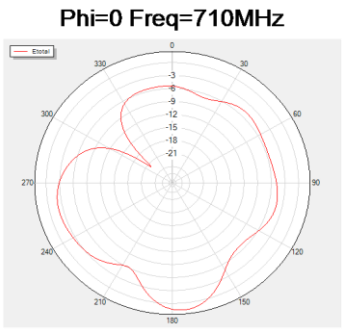
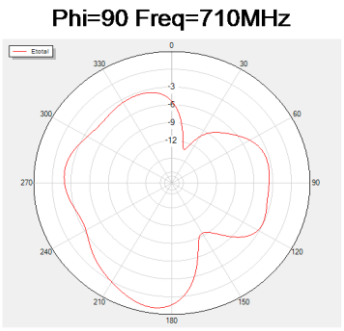
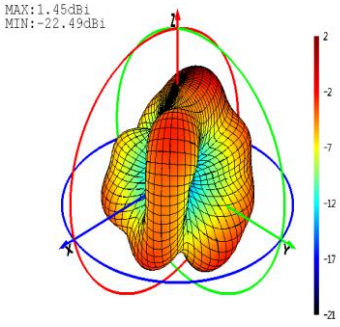
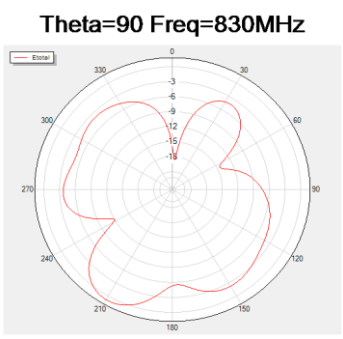
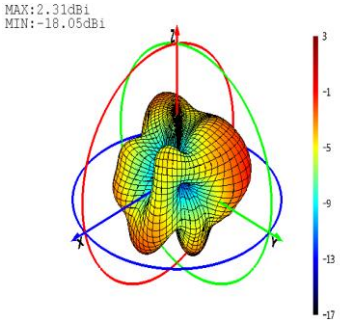
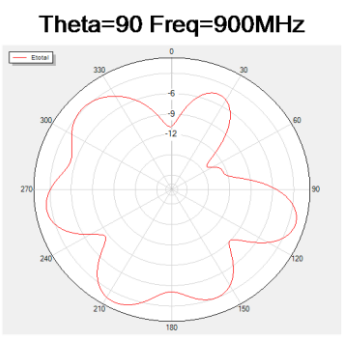
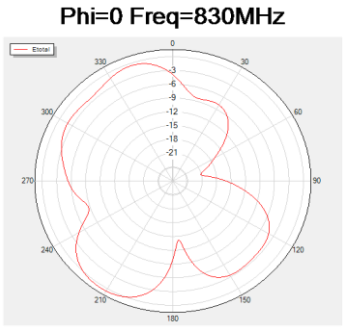
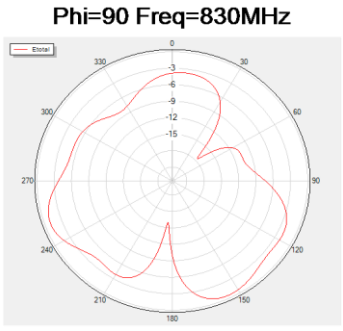
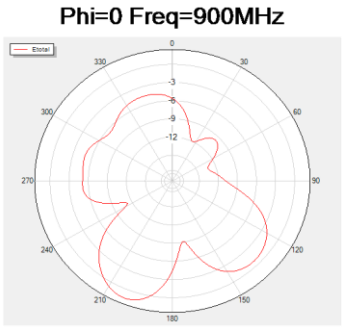
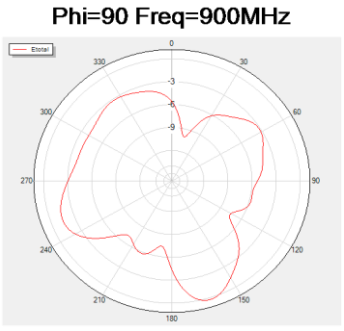
Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Peak Gain (dBi)	-	-	-	-	-	-0.91	1.95	2.18

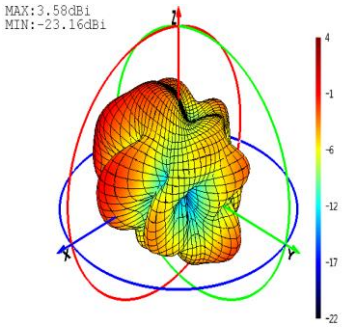
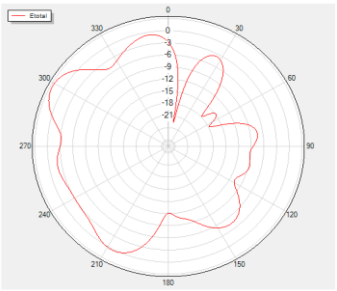
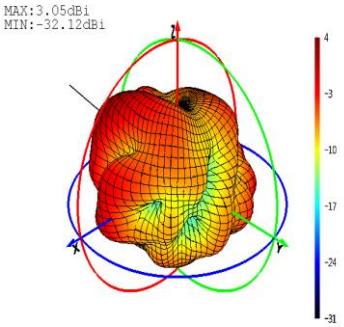
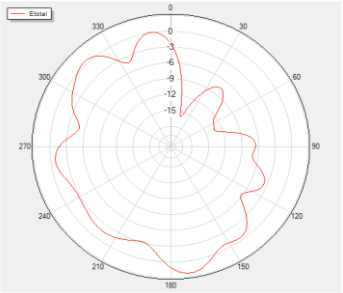
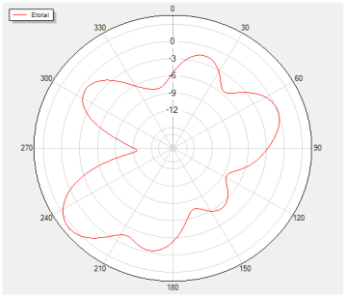
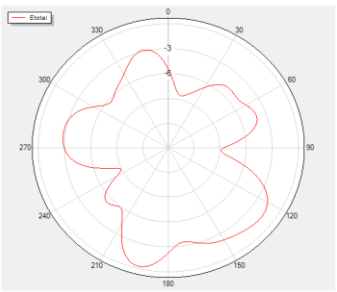
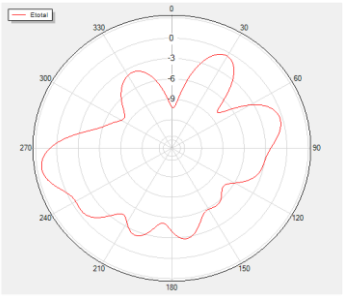
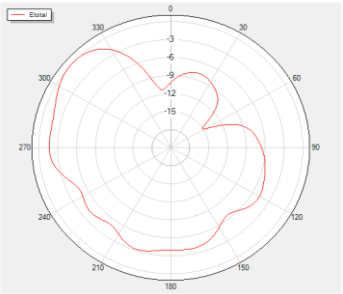
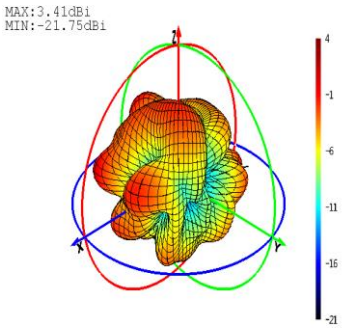
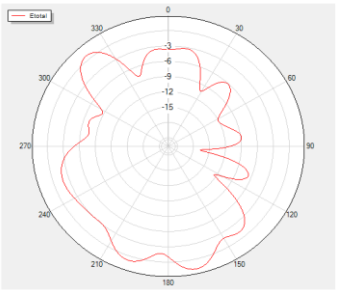
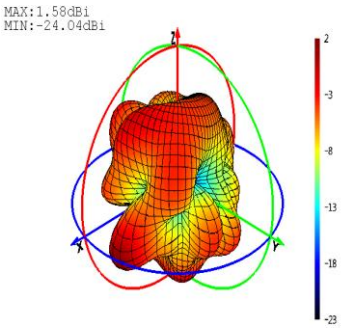
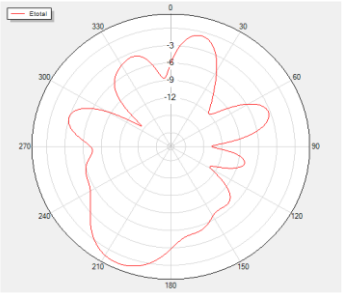
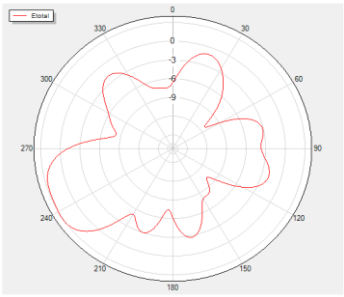
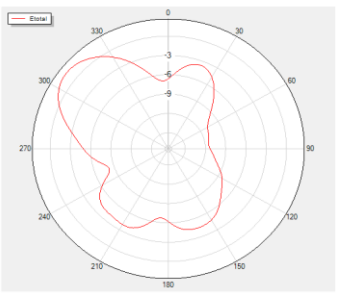
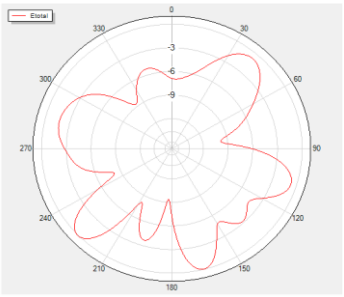
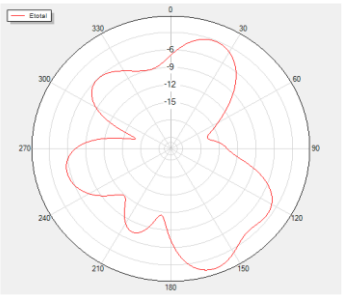
3.2.4. 3D & 2D Radiation Pattern

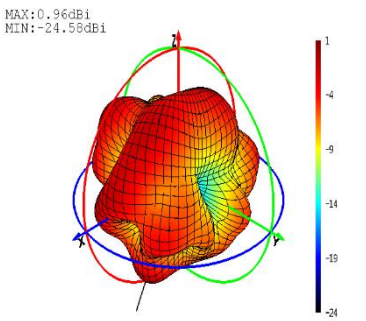
- Test Condition: Free space
- Test Chamber: FS-S-1 (LTE); SH-SY-16 (GNSS)



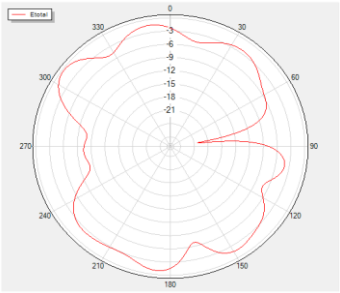
- **LTE-1**

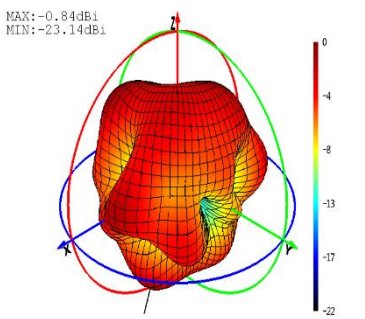
630 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			
1740 MHz		1880 MHz	

	Theta=90 Freq=1740MHz 		Theta=90 Freq=1880MHz 
Phi=0 Freq=1740MHz 	Phi=90 Freq=1740MHz 	Phi=0 Freq=1880MHz 	Phi=90 Freq=1880MHz 
1950 MHz		2140 MHz	
	Theta=90 Freq=1950MHz 		Theta=90 Freq=2140MHz 
Phi=0 Freq=1950MHz 	Phi=90 Freq=1950MHz 	Phi=0 Freq=2140MHz 	Phi=90 Freq=2140MHz 
2350 MHz		2450 MHz	

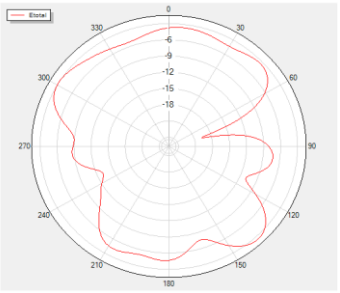


Theta=90 Freq=2350MHz

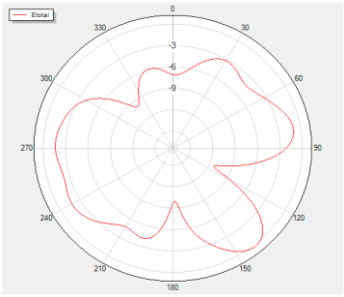




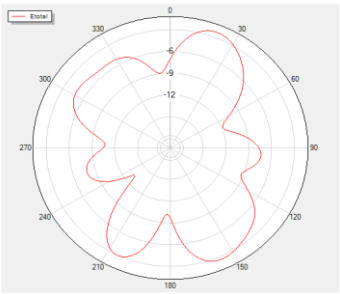
Theta=90 Freq=2450MHz



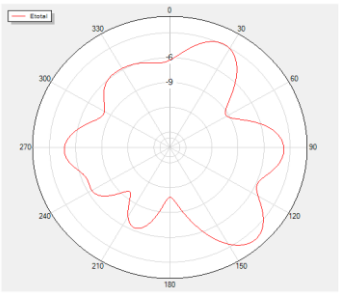
Phi=0 Freq=2350MHz



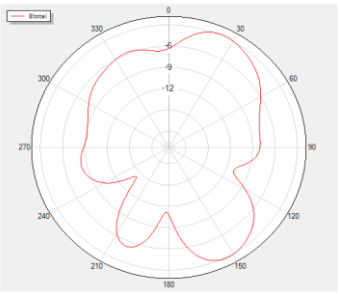
Phi=90 Freq=2350MHz



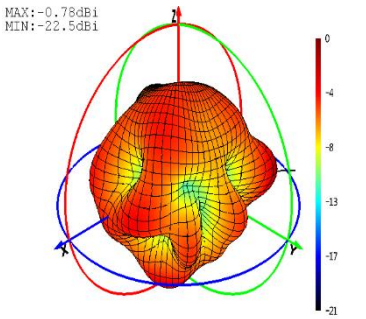
Phi=0 Freq=2450MHz



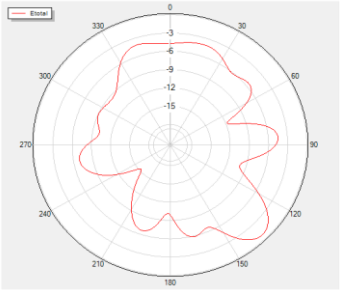
Phi=90 Freq=2450MHz



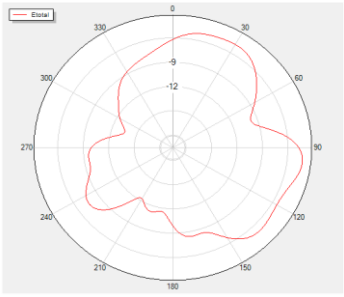
2600 MHz



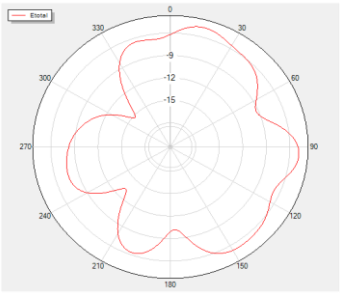
Theta=90 Freq=2600MHz



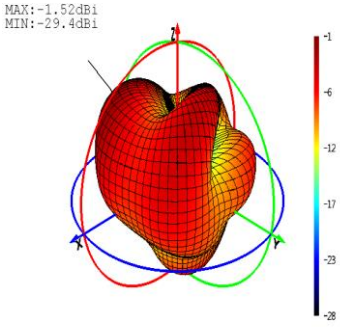
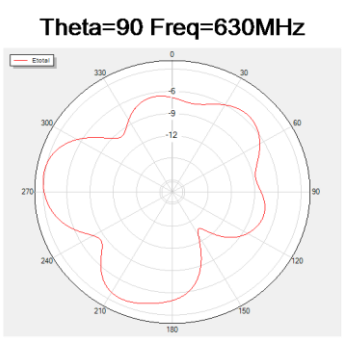
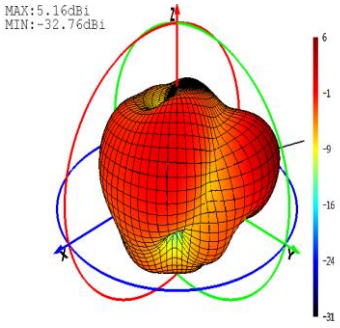
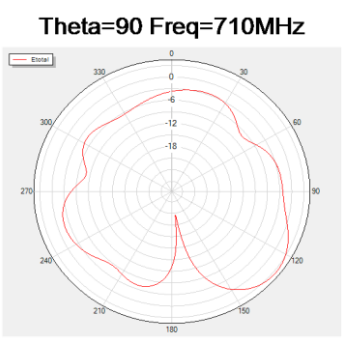
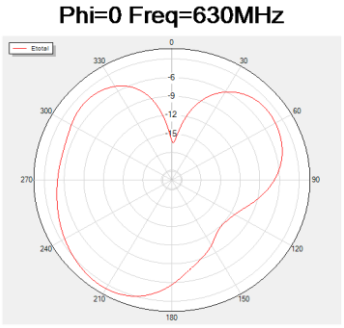
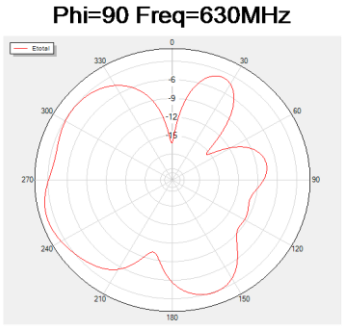
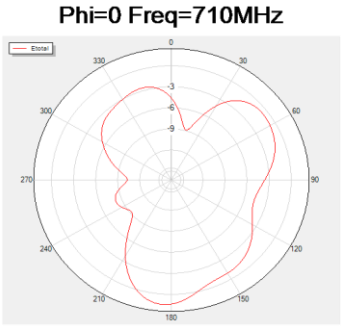
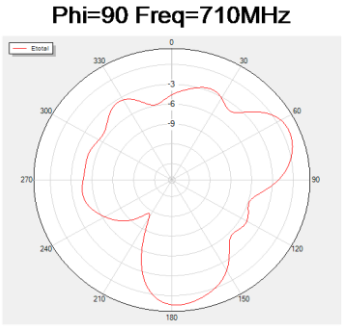
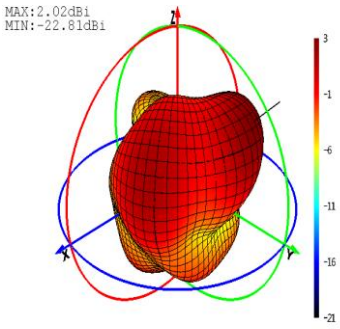
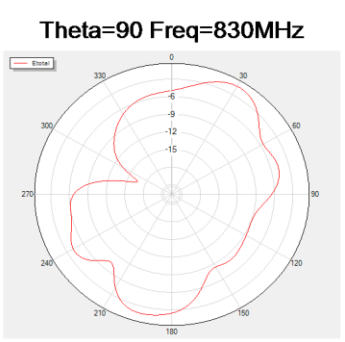
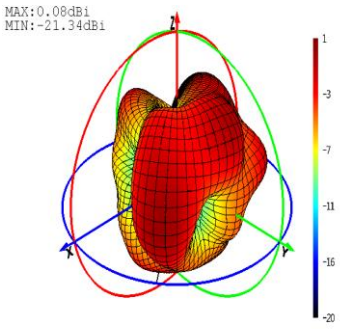
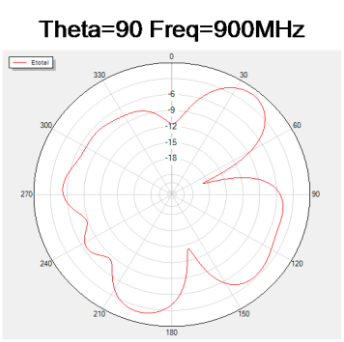
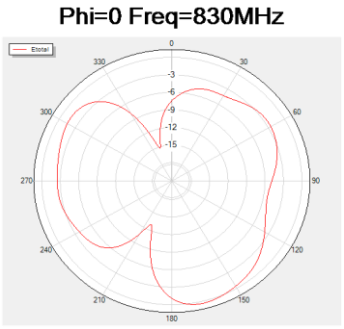
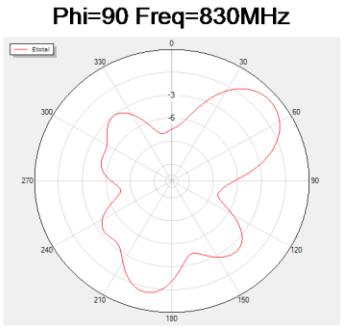
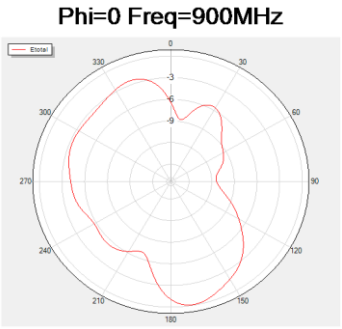
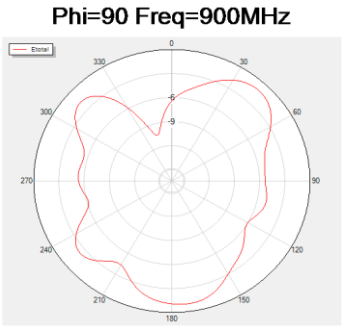
Phi=0 Freq=2600MHz

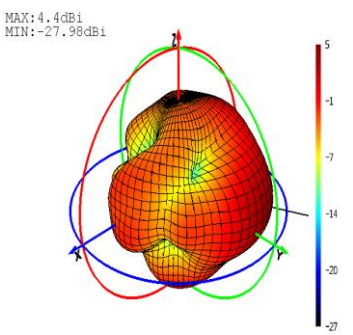
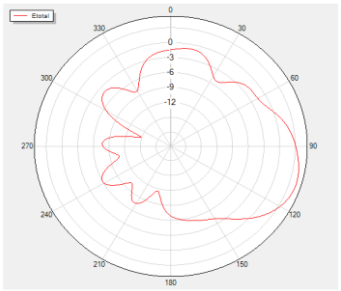
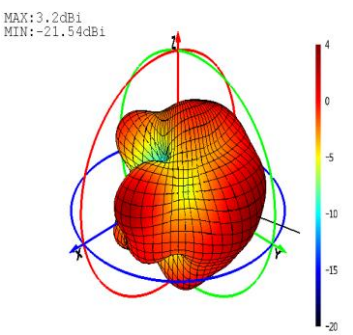
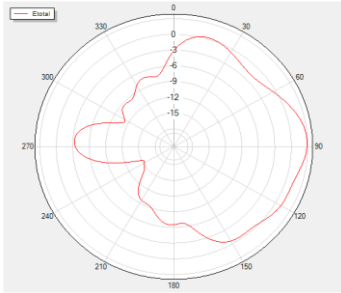
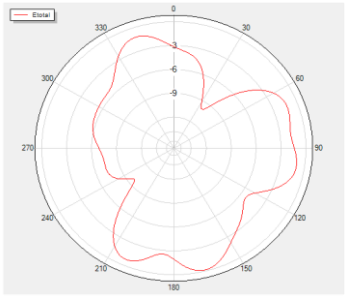
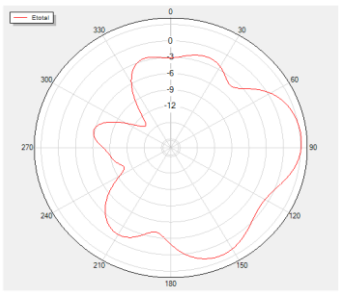
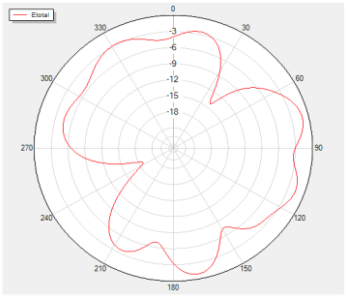
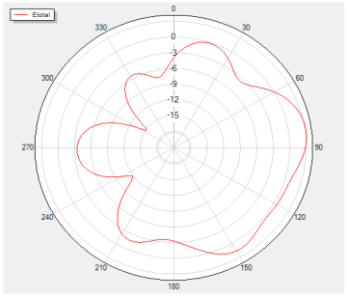
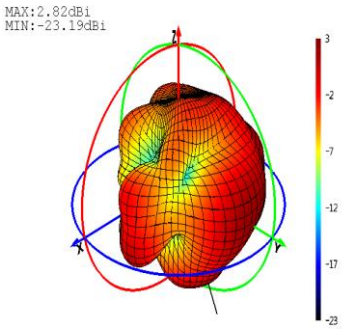
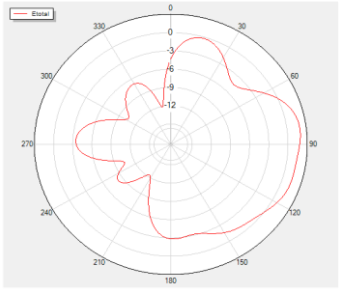
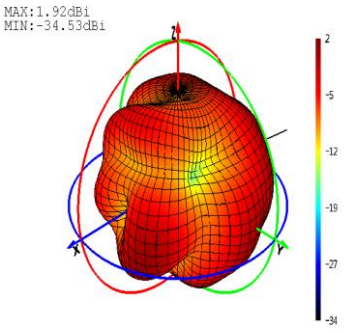
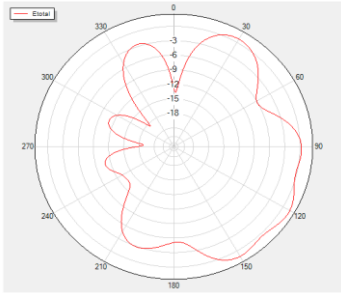
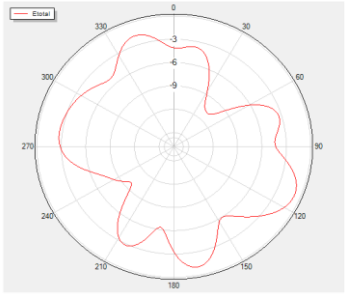
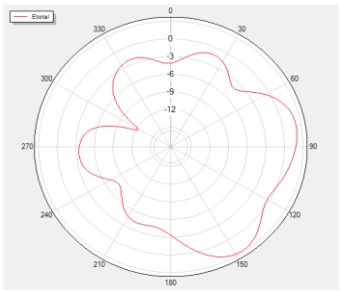
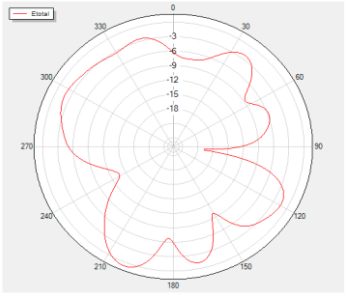
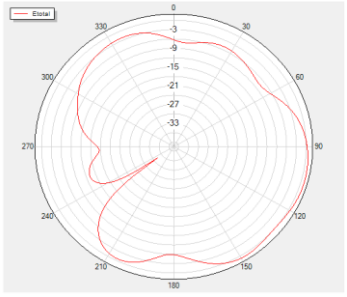


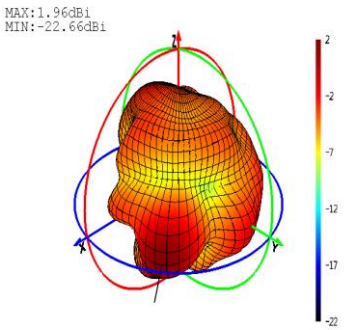
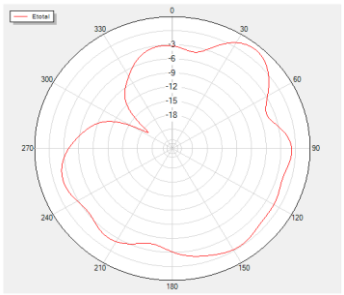
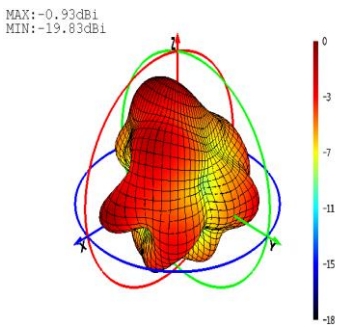
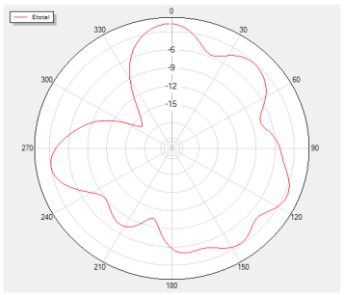
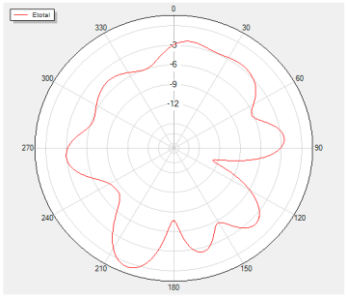
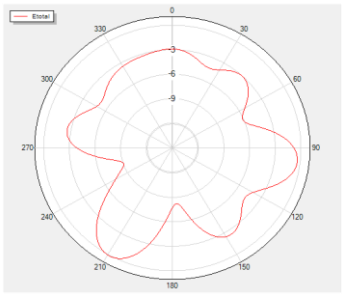
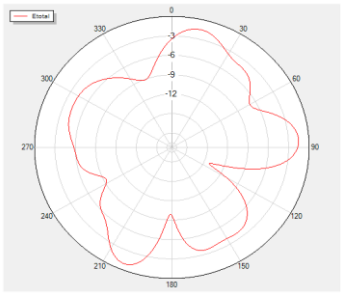
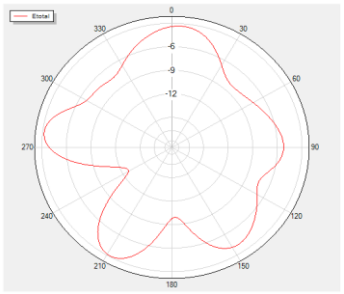
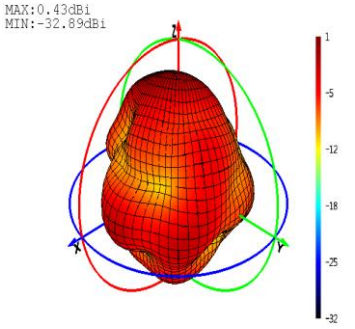
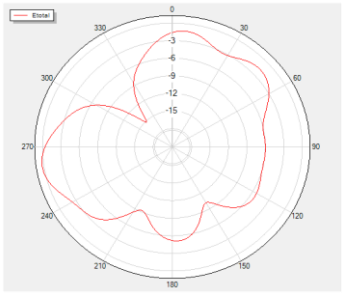
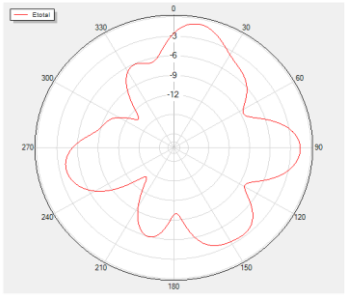
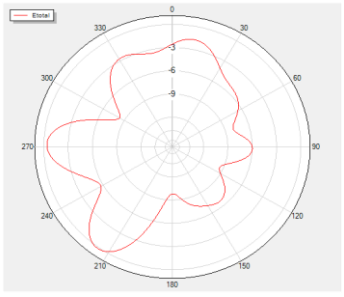
Phi=90 Freq=2600MHz



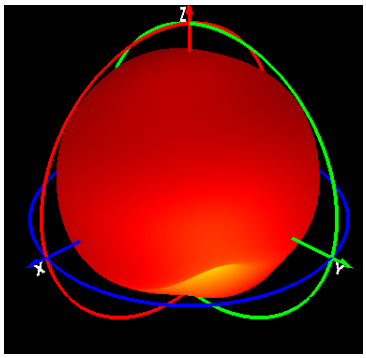
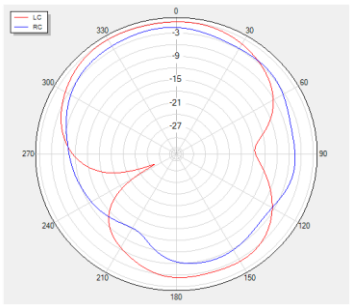
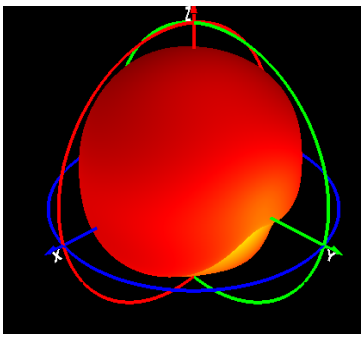
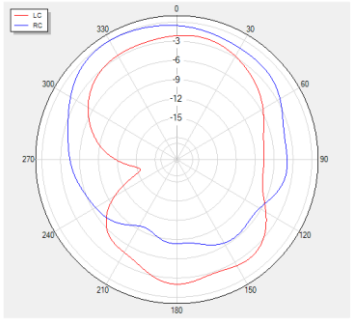
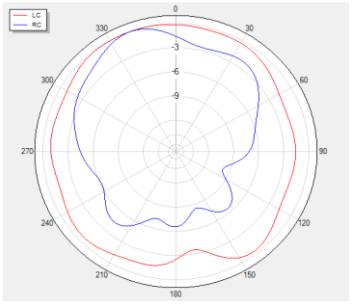
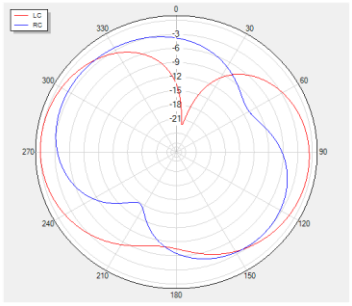
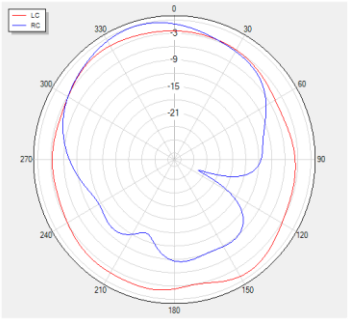
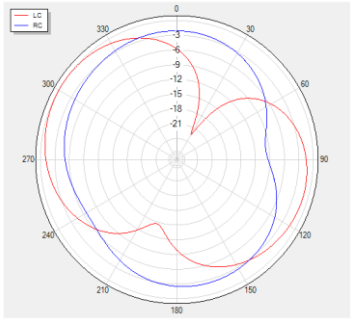
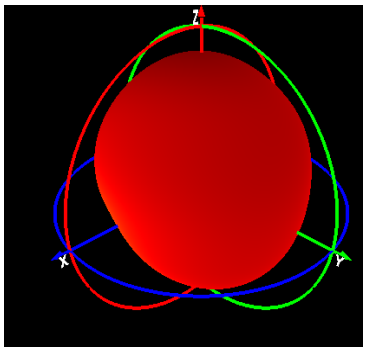
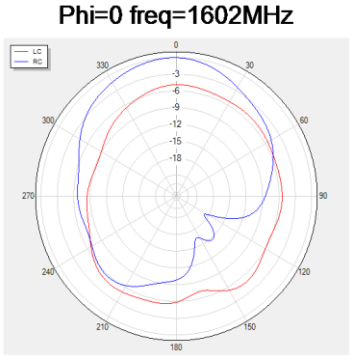
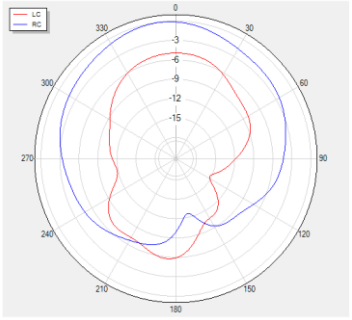
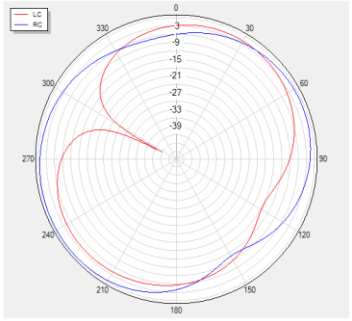
- **LTE-2**

630 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			
1740 MHz		1880 MHz	

	Theta=90 Freq=1740MHz 		Theta=90 Freq=1880MHz 
Phi=0 Freq=1740MHz 	Phi=90 Freq=1740MHz 	Phi=0 Freq=1880MHz 	Phi=90 Freq=1880MHz 
1950 MHz		2140 MHz	
	Theta=90 Freq=1950MHz 		Theta=90 Freq=2140MHz 
Phi=0 Freq=1950MHz 	Phi=90 Freq=1950MHz 	Phi=0 Freq=2140MHz 	Phi=90 Freq=2140MHz 
2350 MHz		2450 MHz	

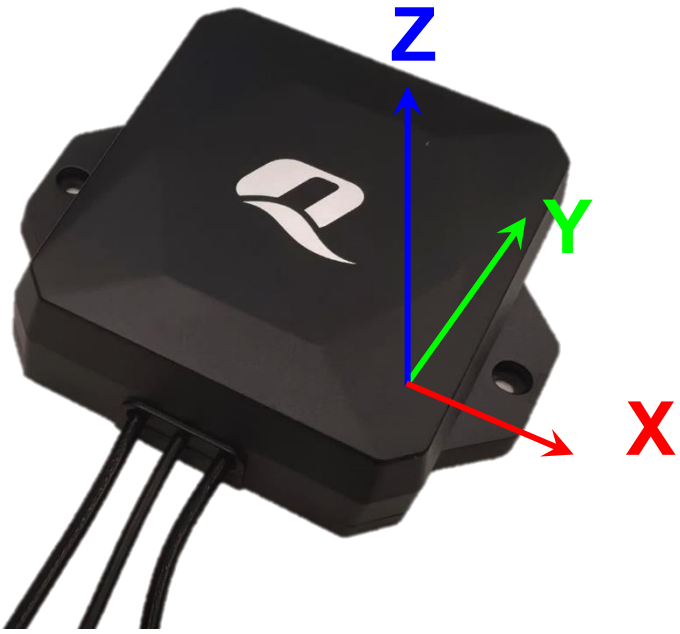
	Theta=90 Freq=2350MHz 		Theta=90 Freq=2450MHz 
Phi=0 Freq=2350MHz 	Phi=90 Freq=2350MHz 	Phi=0 Freq=2450MHz 	Phi=90 Freq=2450MHz 
2600 MHz			
	Theta=90 Freq=2600MHz 		
Phi=0 Freq=2600MHz 	Phi=90 Freq=2600MHz 		

- **GNSS**

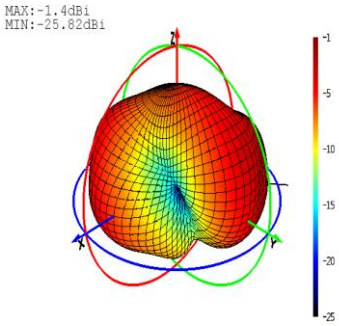
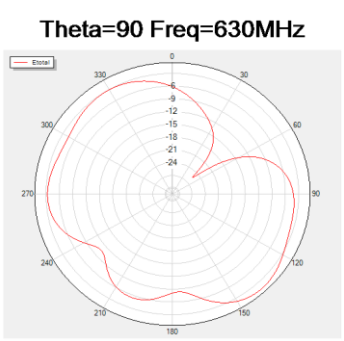
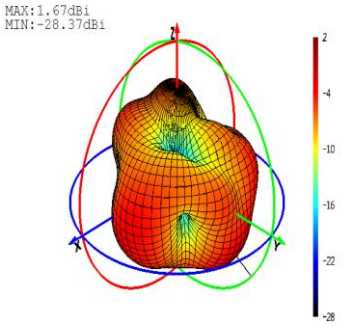
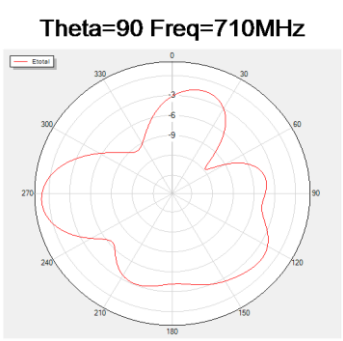
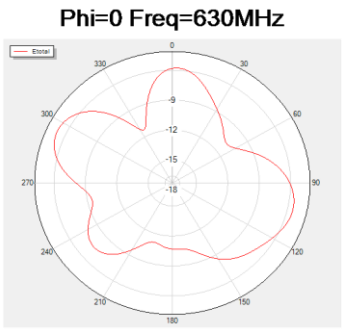
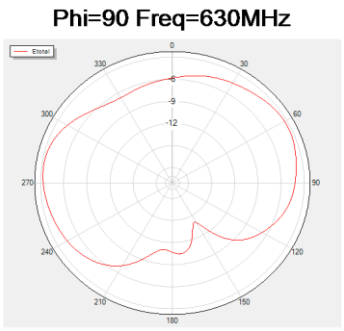
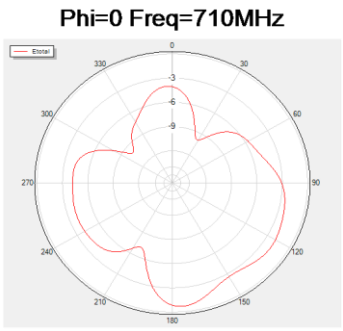
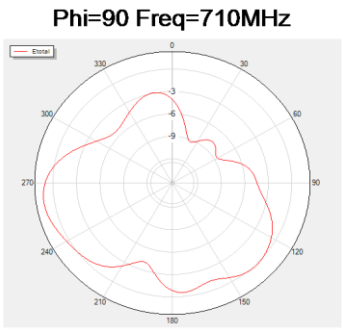
1561 MHz		1575 MHz	
	 Phi=0 freq=1561MHz		 Phi=0 freq=1575MHz
 Phi=90 freq=1561MHz	 Theta=90 freq=1561MHz	 Phi=90 freq=1575MHz	 Theta=90 freq=1575MHz
1602 MHz			
	 Phi=0 freq=1602MHz		
 Phi=90 freq=1602MHz	 Theta=90 freq=1602MHz		

3.2.5. 3D & 2D Radiation Pattern

- Test Condition: On 300 mm × 300 mm Metal Plane
- Test Chamber: FS-S-1(LTE)



- **LTE-1**

630 MHz		710 MHz	
			
			
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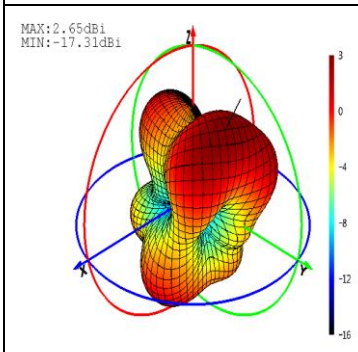
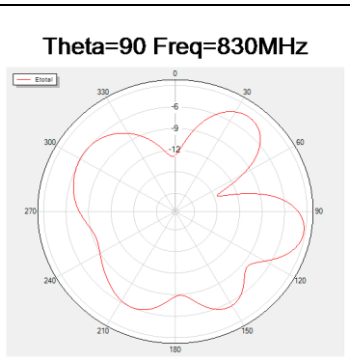
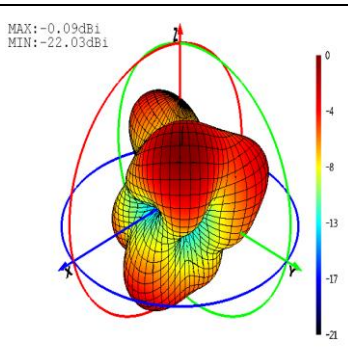
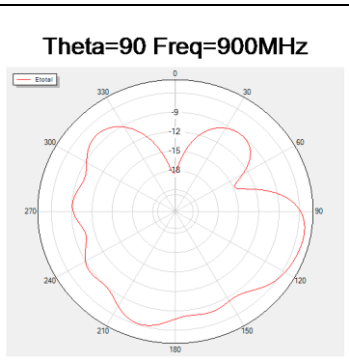
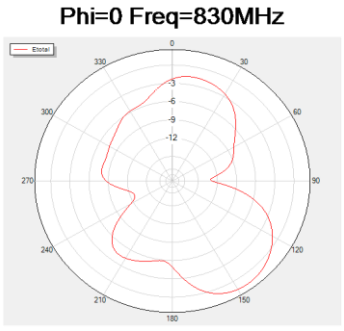
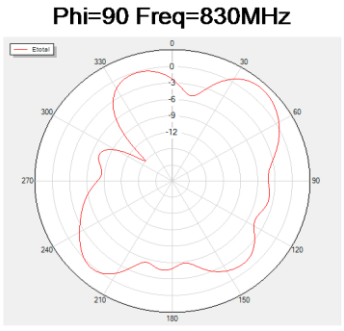
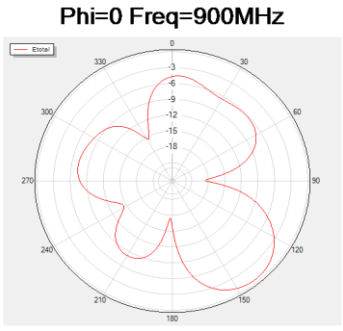
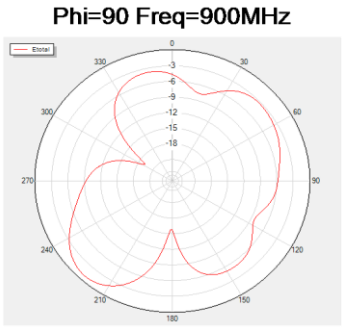
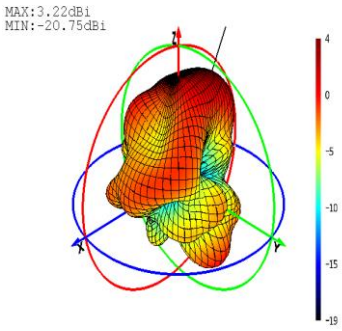
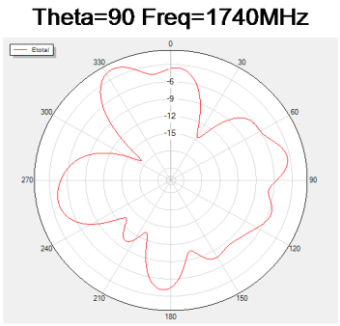
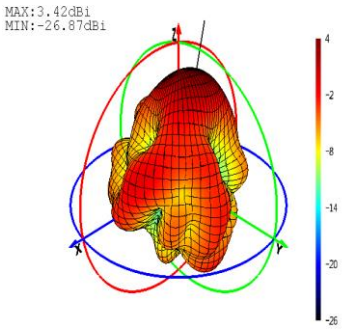
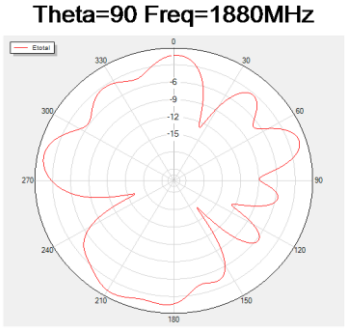
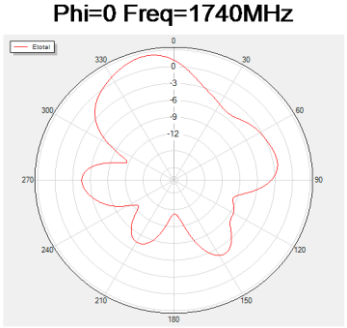
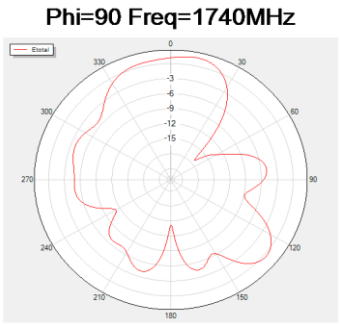
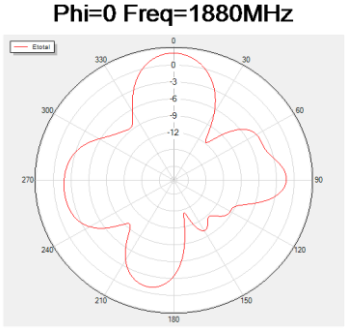
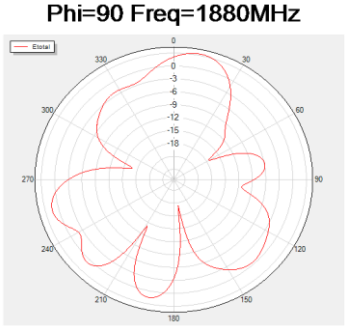
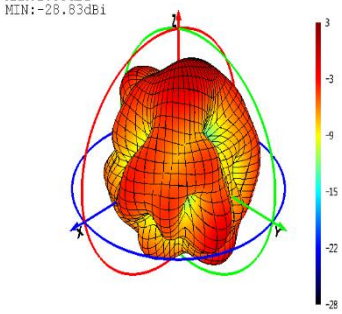
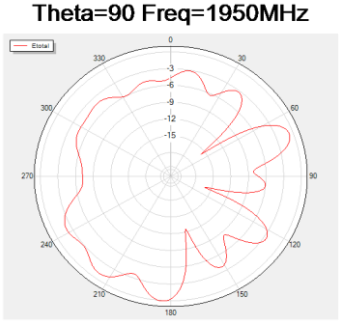
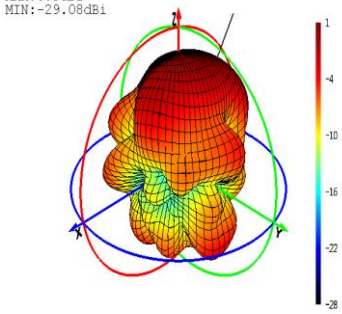
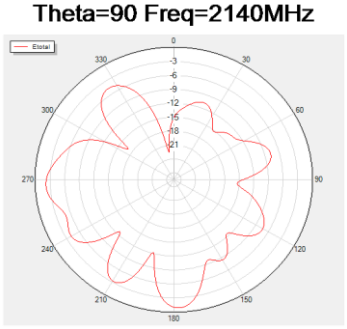
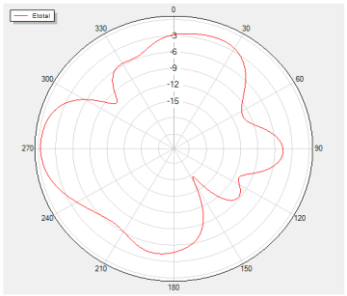
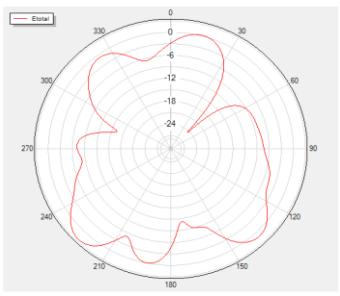
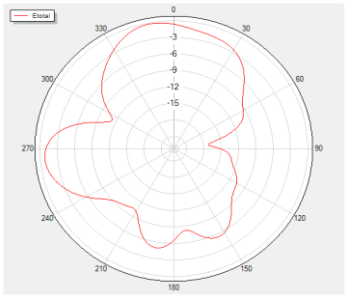
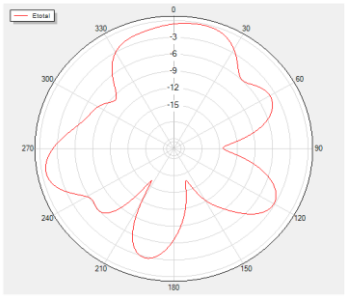
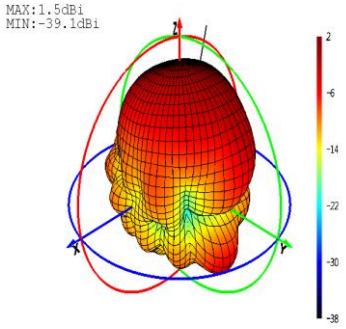
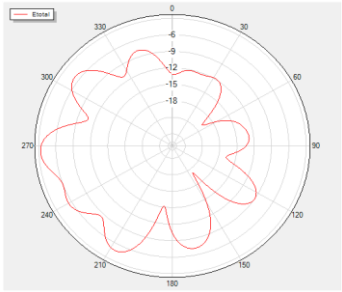
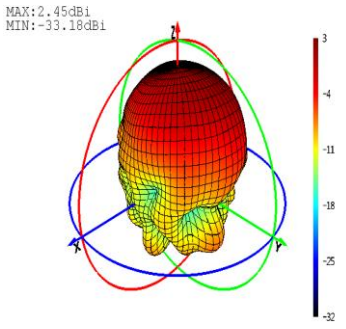
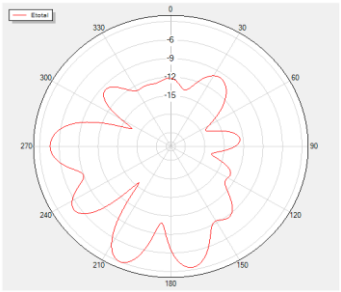
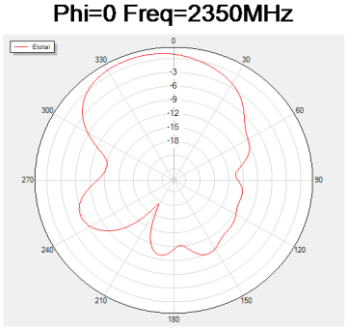
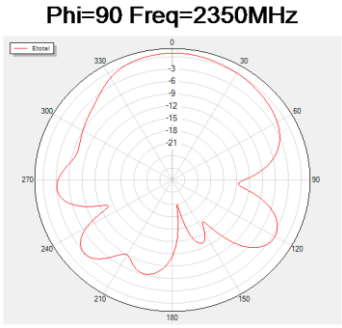
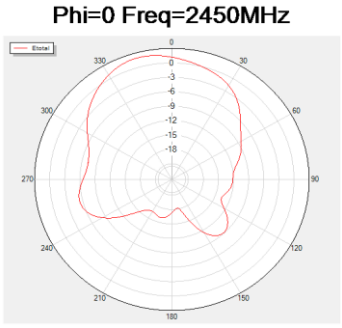
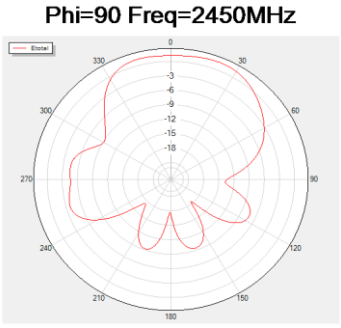
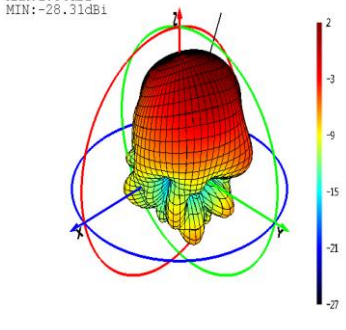
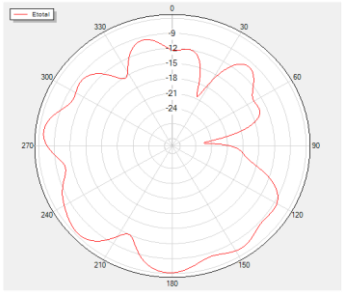
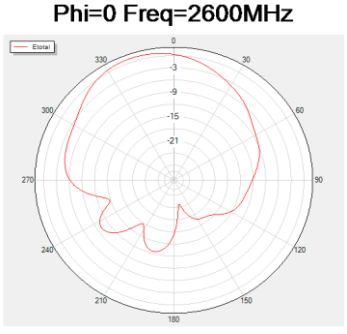
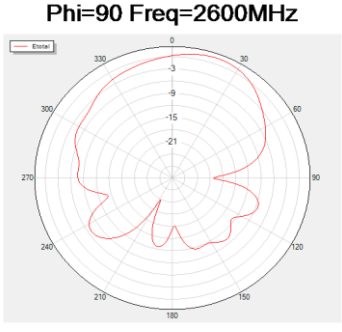
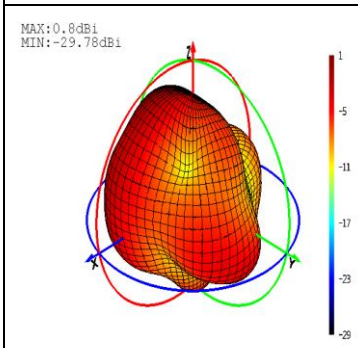
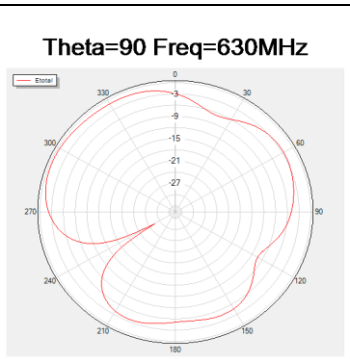
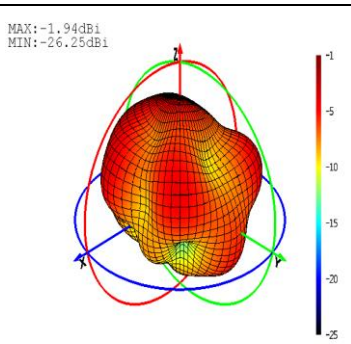
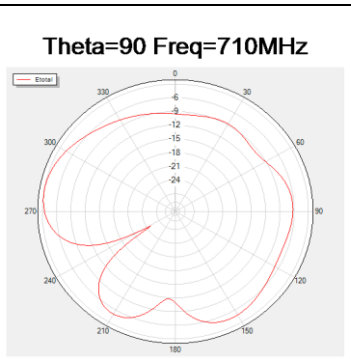
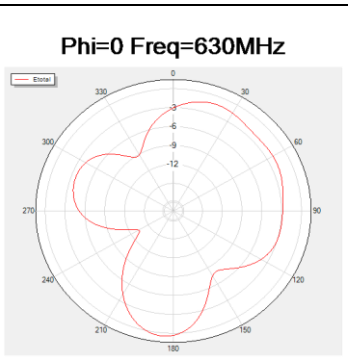
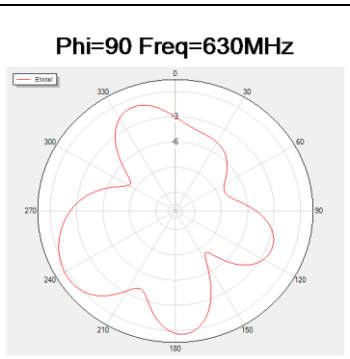
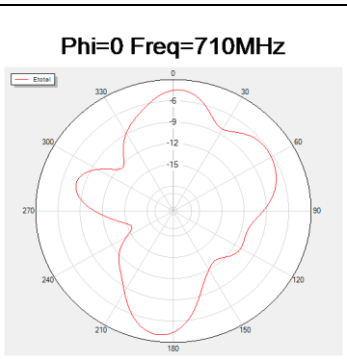
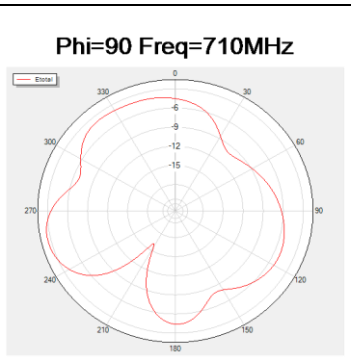
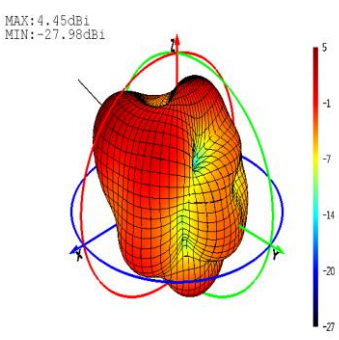
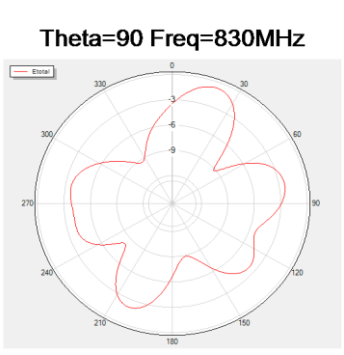
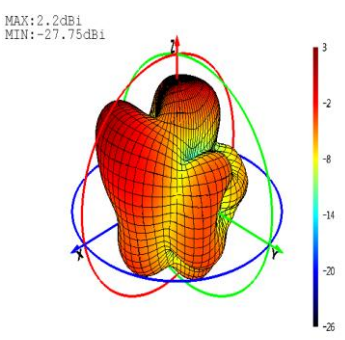
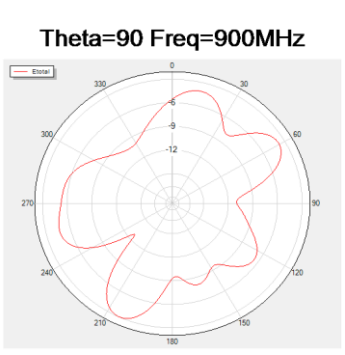
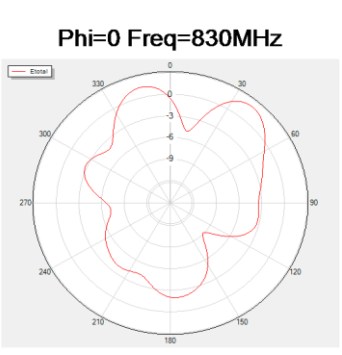
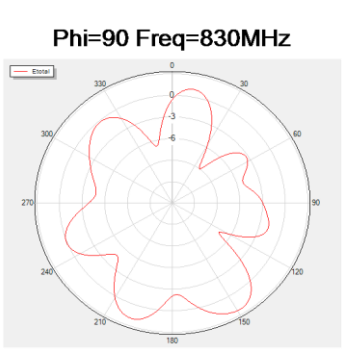
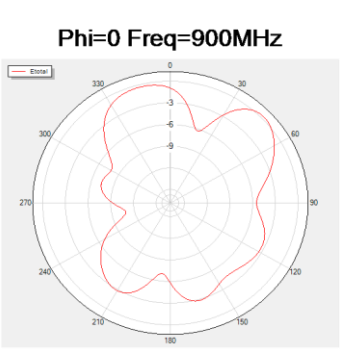
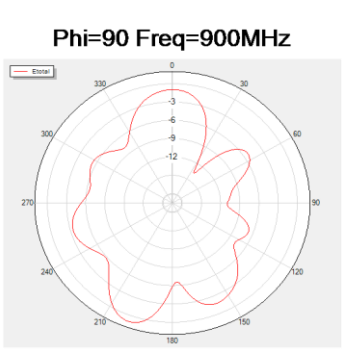
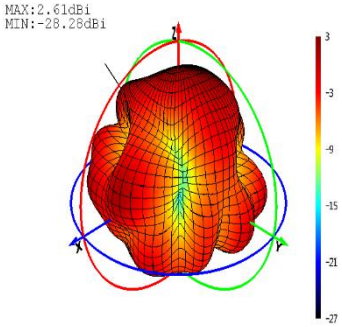
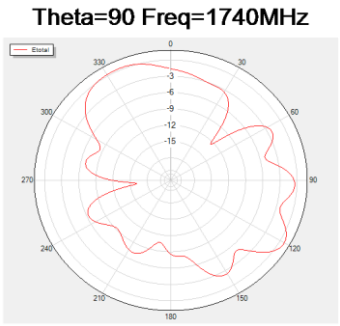
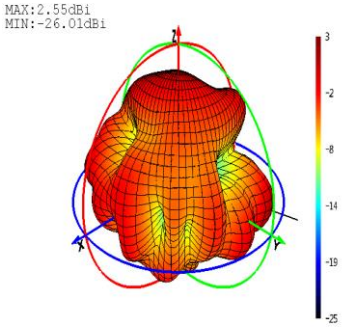
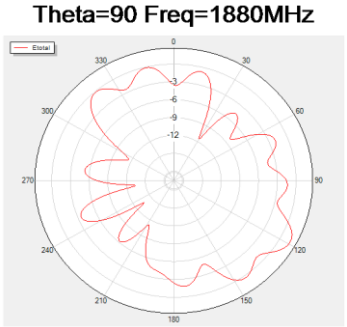
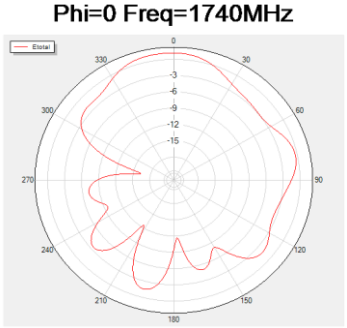
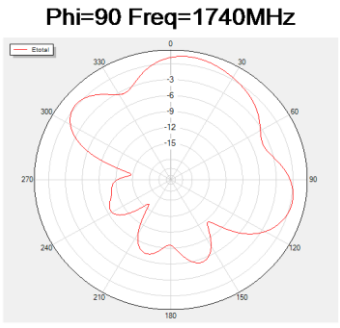
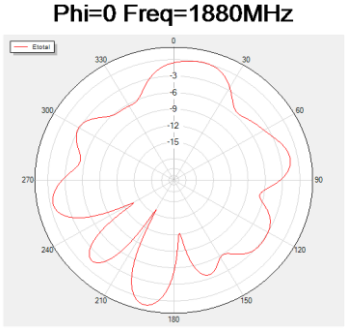
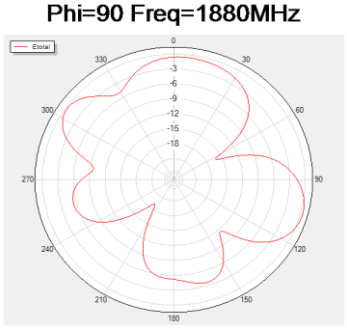
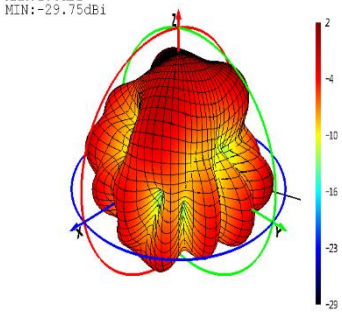
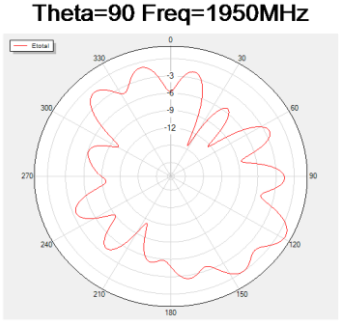
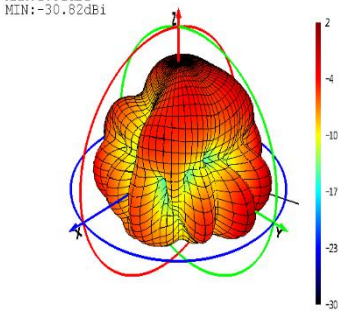
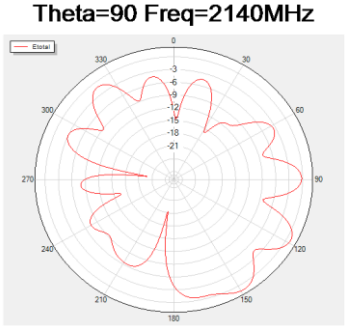
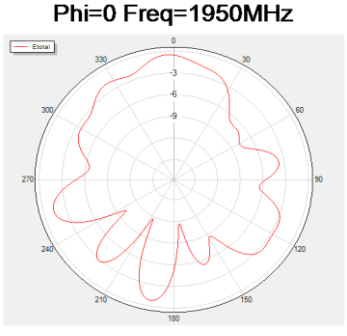
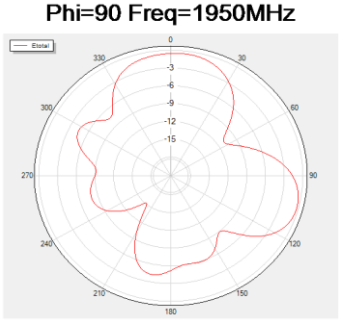
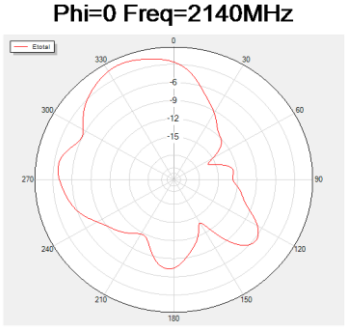
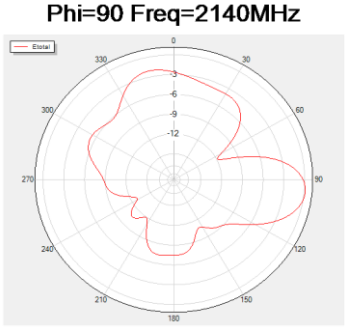
			
			

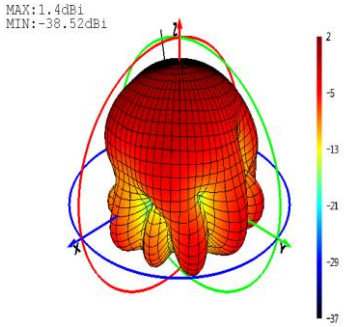
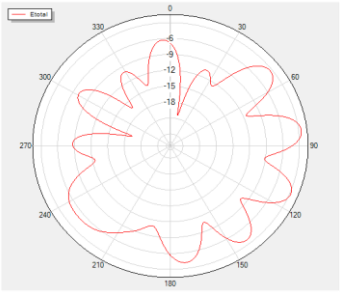
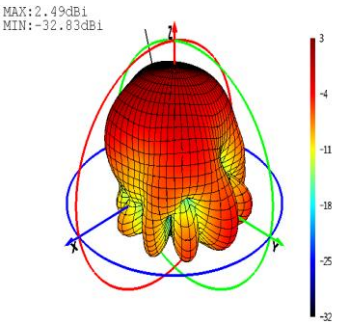
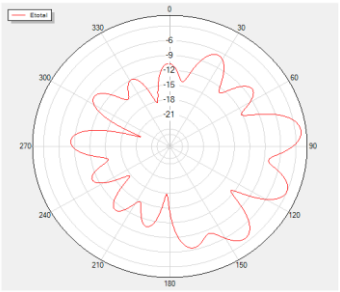
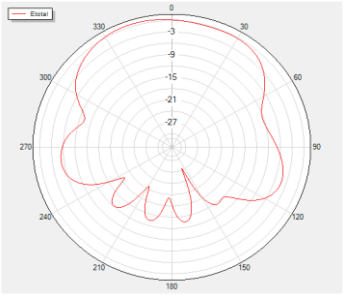
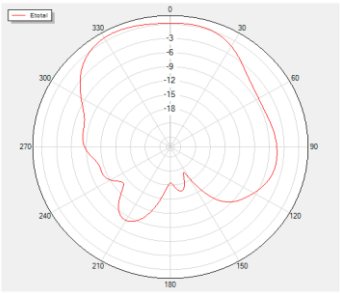
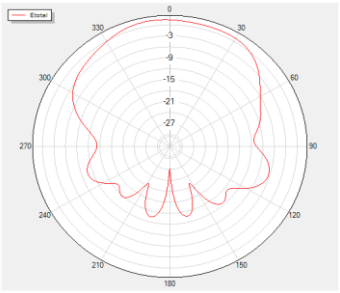
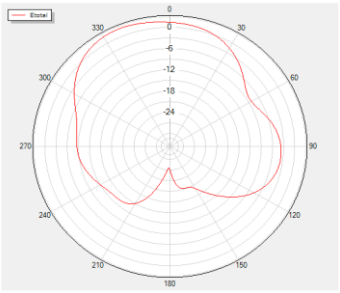
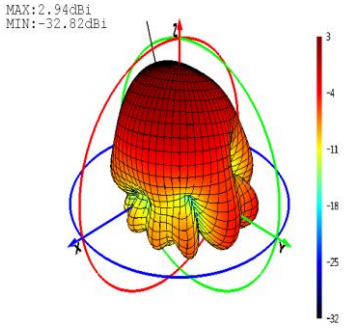
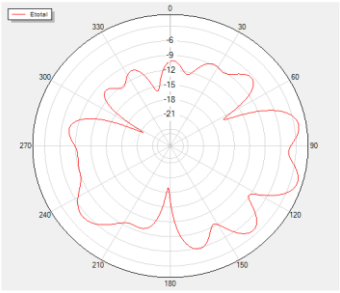
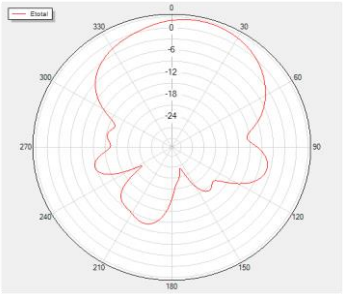
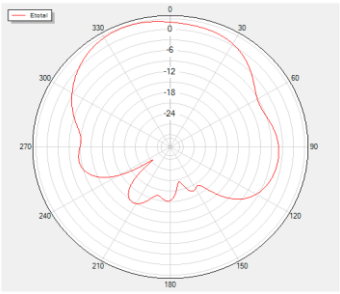
1740 MHz		1880 MHz	
			
			
1950 MHz		2140 MHz	
			
			

2350 MHz		2450 MHz	
			
			
2600 MHz			
			
			

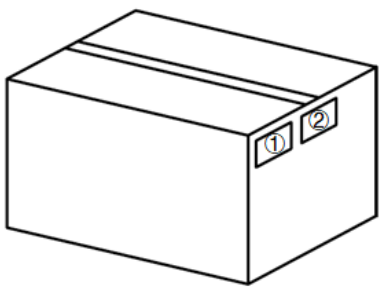
- **LTE-2**

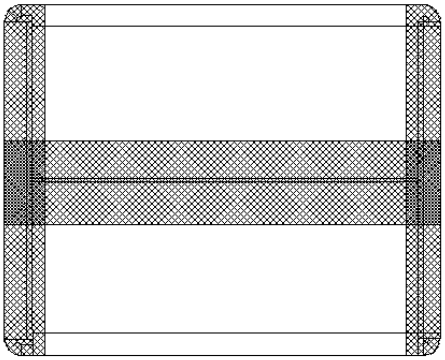
630 MHz		710 MHz	
			
			
830 MHz		900 MHz	
			
			

1740 MHz		1880 MHz	
			
			
1950 MHz		2140 MHz	
			
			

2350 MHz		2450 MHz	
	Theta=90 Freq=2350MHz 		Theta=90 Freq=2450MHz 
Phi=0 Freq=2350MHz 	Phi=90 Freq=2350MHz 	Phi=0 Freq=2450MHz 	Phi=90 Freq=2450MHz 
2600 MHz			
	Theta=90 Freq=2600MHz 		
Phi=0 Freq=2600MHz 	Phi=90 Freq=2600MHz 		

4 Packaging

Step	Packaging Picture/2D Picture	Description
1		1 pc antenna product in a PE bag. (1 PC / PE Bag)
2	 	5 pcs antenna products in an inner box. (5 PCS / Inner Box)
3		(6 Inner Boxes / Carton Box) (30 PCS Antennas / Carton Box) Carton Size: L × W × H = 600 × 404 × 164 mm
4		**Position for Attaching Labels** ① Carton Label ② Quality Label

5		**Sealing Cartons** H-shaped sealing cartons

Contact Us

At Quectel, our aim is to provide timely and comprehensive services to our customers. If you require any assistance, please contact our headquarters:

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Email: info@quectel.com

Or our local offices. For more information, please visit:
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Revision History

Version	Date	Author	Note
-	2024-06-05	Mordecai LIU/ Junsen LI/ Rojin LUO/ David LIU/ Rainey LIAO	Creation of the document
1.0	2024-06-05	Mordecai LIU/ Junsen LI/ Rojin LUO/ David LIU/ Rainey LIAO	First official release
1.1	2024-11-07	Junsen LI	1. Updated block diagram (Chapter 1.3). 2. Added 1561 MHz test data.
2.0	2025-02-06	Mordecai LIU	Numerous changes were made to this document. It should be read in its entirety.

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