Antenna Datasheet

Product OC: YECW058L1BM
Version: 1.0
Date: 2025-09-26
Status: Preliminary

Product Name: 4G Screw Mount External Dipole Antenna
Key Features:
Frequency Band: 790–960 MHz, 1710–2690 MHz
Dimensions: 223.18 mm × 74.09 mm × 76.50 mm
Efficiency: Up to 60.0 % (FS)
RoHS and REACH Compliant

Overview

YECW058L1BM is a 4G external antenna measuring 223.18 mm × 74.09 mm × 76.50 mm. This ultra-wide-band 4G antenna provides broad coverage from 790–960 MHz & 1710–2690 MHz whilst offering backward-compatibility to support 3G and 2G networks as well as LTE Cat-M and narrowband IoT (NB-IoT). The antenna is terminated with SMA Male connector. Ideal for applications where the antenna is required to be discrete, this low profile, terminal mount omni-directional antenna is easy to install with maximum durability assured thanks to its PC + ABS enclosure.

The YECW0581BM is designed as dipole type to work with various GND plane sizes or in free space for ease of integration with a SMA Male connector to achieve the optimum position. This omni-directional antenna is ideally suited for Gateways & Routers, Smart Metering, Vending Machines, Industrial IoT, Smart Home, Connected Enterprise, offering great performance with its high gain and efficiency.

Typical applications include:

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

Quectel provides comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs. We have regional R & D centers to offer quick response to meet your requirements. Please contact our sales & FAEs if you have any requests.

Contents

1 Specification

Test Condition: In Free Space & On 500 mm × 500 mm Metal Plane

1.1. Electrical

Electrical	
Frequency Range	790–960 MHz, 1710-2690 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical – Detail

Band / SPEC	Band	B71	B20	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	790–820	820–960	1420–1520	1700–2170	2300–2400	2400–2500	2500–2690	3300–4200	4400–5000	5150–5850
Max. VSWR	FS	-	1.1	1.8	-	1.6	1.9	1.9	1.8	-	-	-
	MP	-	1.7	2.2	-	1.6	1.9	1.9	2.0	-	-	-
Max. Return Loss (dB)	FS	-	-24.9	-11.1	-	-12.3	-10.0	-10.4	-10.8	-	-	-
	MP	-	-12.0	-8.3	-	-12.2	-10.3	-10.1	-9.7	-	-	-
AVG Eff. (%)	FS	-	59.6	54.7	-	46.3	36.3	35.1	36.3	-	-	-
	MP	-	56.4	48.4	-	46.0	37.9	34.9	35.1	-	-	-
AVG AVG Gain (dB)	FS	-	-2.3	-2.6	-	-3.3	-4.4	-4.5	-4.4	-	-	-
	MP	-	-2.5	-3.2	-	-3.4	-4.2	-4.6	-4.6	-	-	-

Max. Peak Gain (dBi)	**FS**	-	1.0	1.5	-	2.9	1.2	1.2	2.7	-	-	-
	MP	-	5.6	5.3	-	7.1	6.5	6.1	4.7	-	-	-

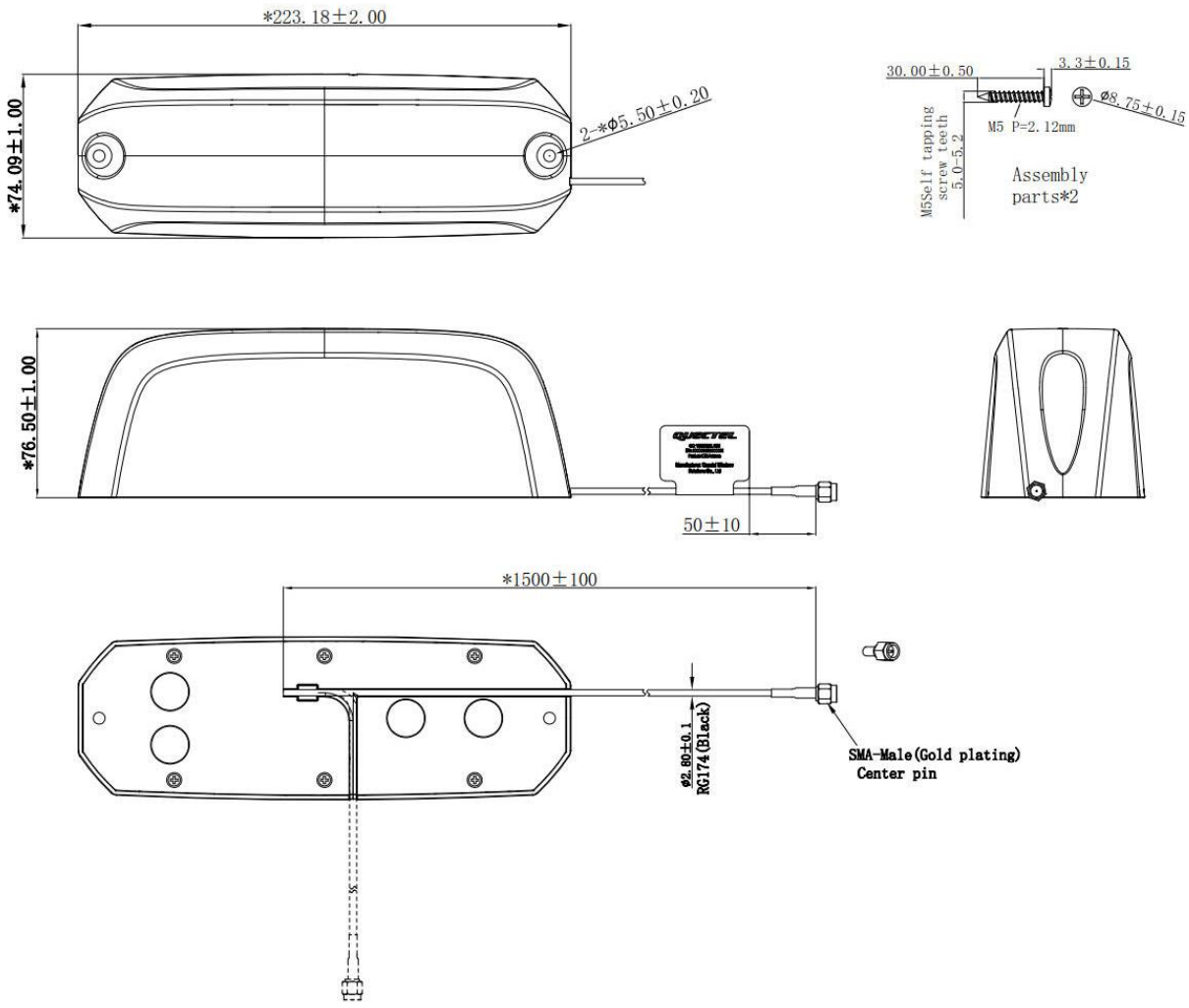
VSWR	**FS**	≤ 1.9
	MP	≤ 2.2
Return Loss	**FS**	≤ -10.0 dB
	MP	≤ -8.3 dB
Peak Gain	**FS**	≤ 2.9 dBi
	MP	≤ 7.1 dBi

Note:
FS: In Free Space
MP: On 500 mm × 500 mm Metal Plane

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	223.18 mm × 74.09 mm × 76.50 mm
Material & Color	PC + ABS & Black
Cable Type & Color & Length	RG174 & Black & 1500 mm
Connector Type	SMA Male
Mounting Type	Screw
Weight	Typ. 224 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS & REACH Compliant	Yes

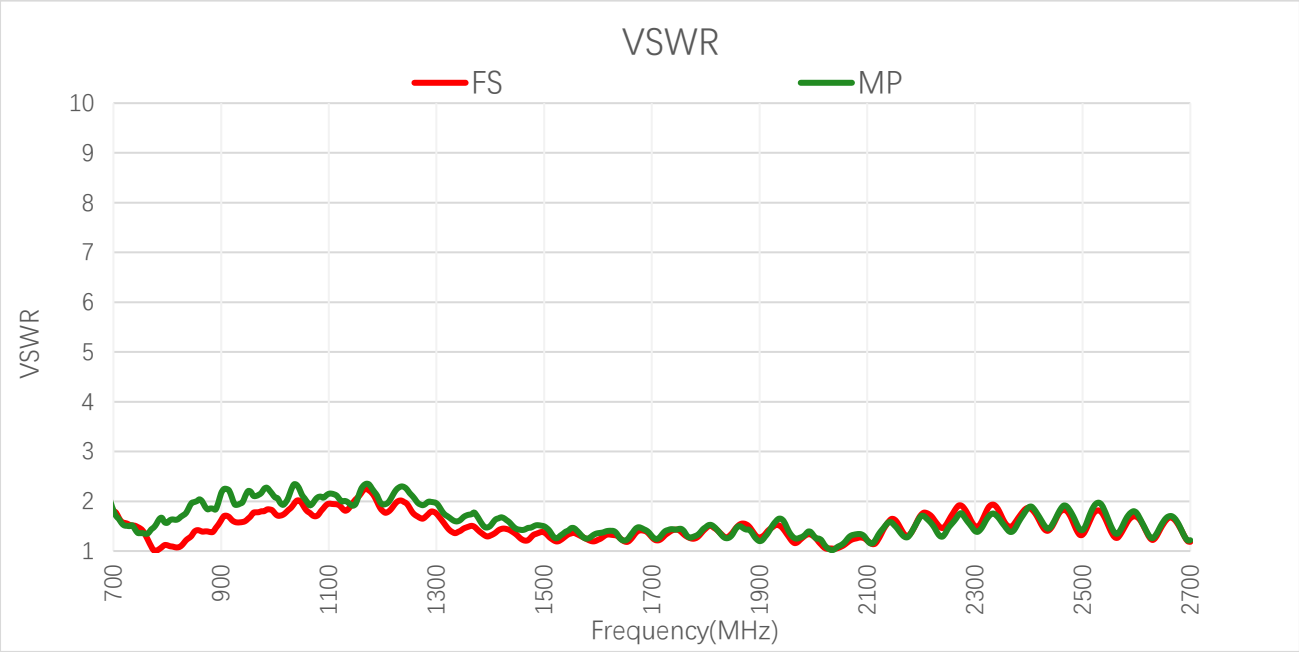
2 Drawing


*223.18±2.00
*74.09±1.00
2-*φ5.50±0.20
30.00±0.50
3.3±0.15
ø8.75±0.15
M5 P=2.12mm
M5Self tapping screw teeth 5.0-5.2
Assembly parts*2
*76.50±1.00
50±10
*1500±100
ø2.60±0.1 RG174(Black)
SMA-Male(Gold plating) Center pin

3 Detailed Performance

3.1. S-Parameter Test

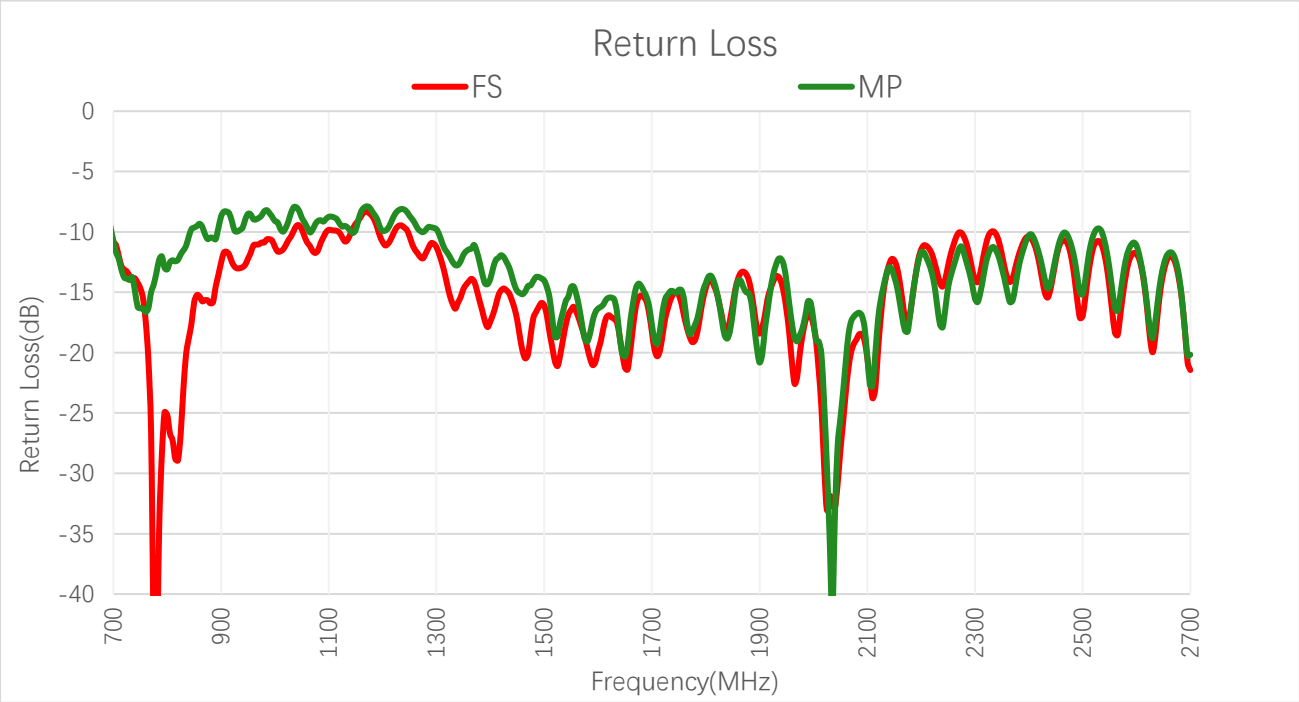
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	-	1.2	1.6	1.8	-	1.2	1.4	1.5
MP	-	-	-	1.7	2.2	2.1	-	1.2	1.4	1.4
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	1.4	1.6	1.7	1.6	1.7	1.3	-	-	-	-
MP	1.5	1.6	1.6	1.7	1.8	1.3	-	-	-	-

3.1.2. Return Loss

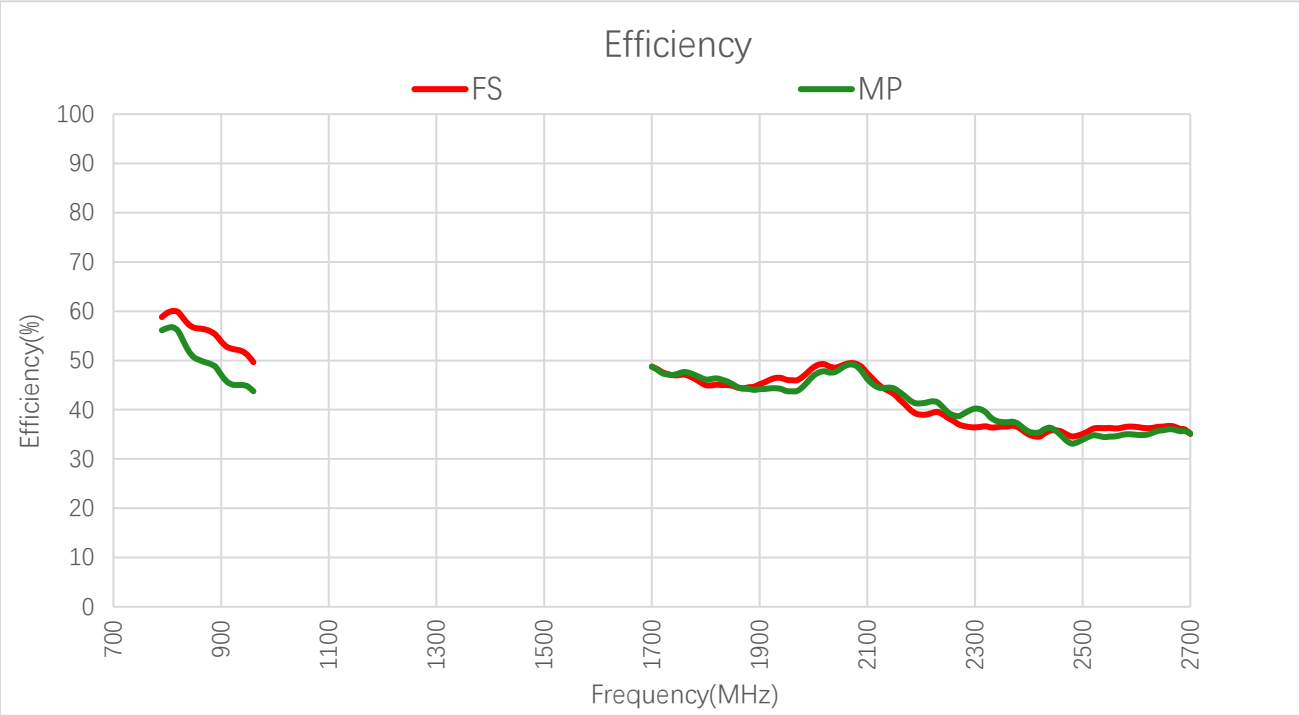


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	-	-23.0	-12.5	-11.1	-	-20.3	-15.2	-14.0
MP	-	-	-	-11.5	-8.7	-8.9	-	-19.3	-14.9	-15.1
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	-16.5	-12.8	-11.9	-12.4	-11.8	-18.2	-	-	-	-
MP	-14.1	-13.0	-13.0	-12.1	-11.1	-18.2	-	-	-	-

3.2. Radiation Performance Test

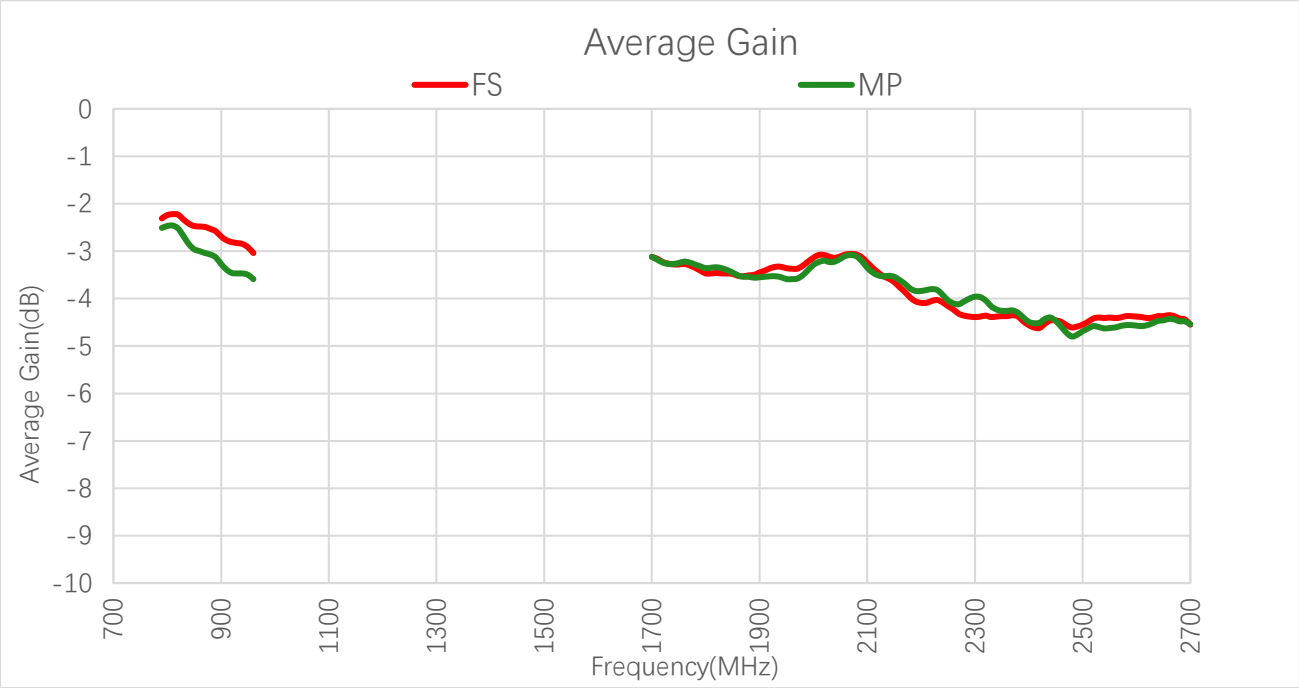
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	-	58.5	53.9	49.6	-	48.3	47.0	44.6
MP	-	-	-	53.9	47.1	43.7	-	48.1	47.1	44.2
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	46.1	43.8	36.6	35.8	36.5	36.0	-	-	-	-
MP	43.8	44.5	37.5	35.7	34.9	35.7	-	-	-	-

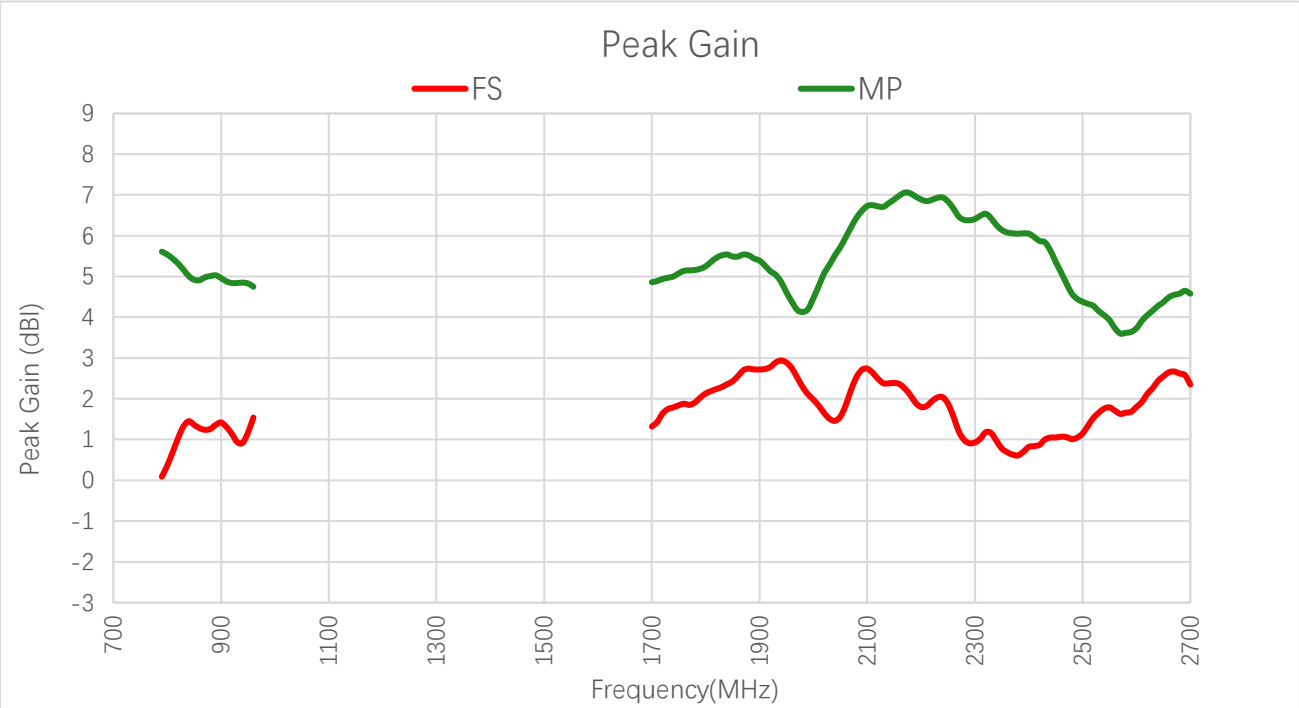
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	-	-2.3	-2.7	-3.0	-	-3.2	-3.3	-3.5
MP	-	-	-	-2.7	-3.3	-3.6	-	-3.2	-3.3	-3.5
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	-3.4	-3.6	-4.4	-4.5	-4.4	-4.4	-	-	-	-
MP	-3.6	-3.5	-4.3	-4.5	-4.6	-4.5	-	-	-	-

3.2.3. Peak Gain



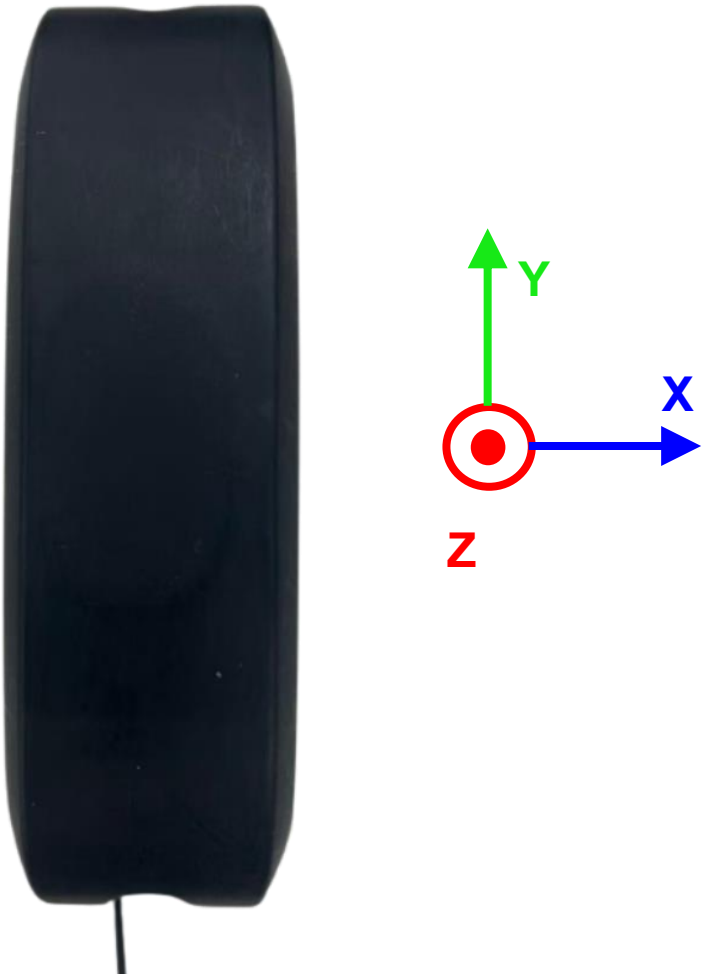
Peak Gain (dBi)

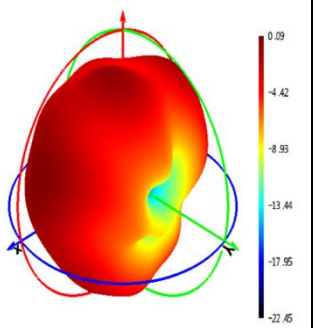
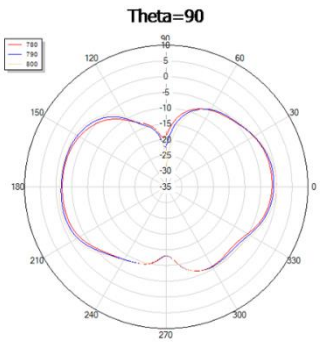
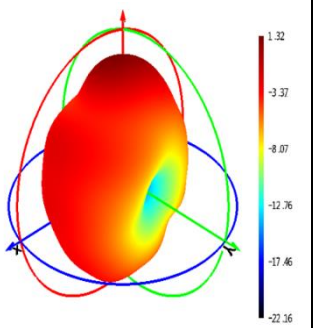
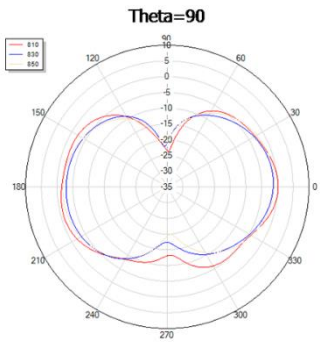
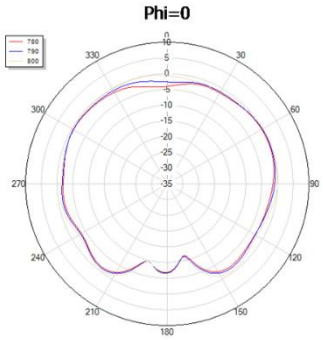
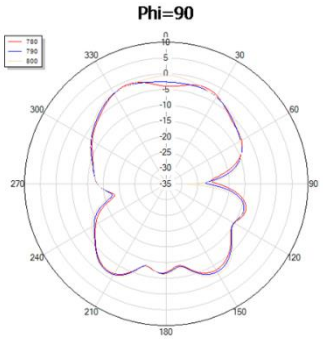
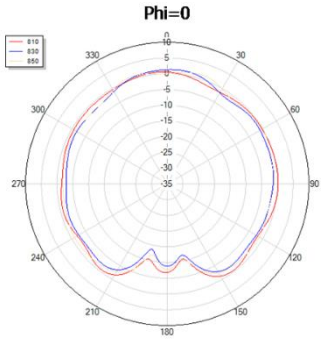
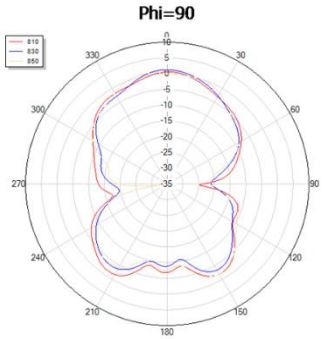
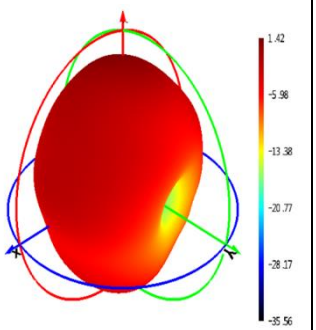
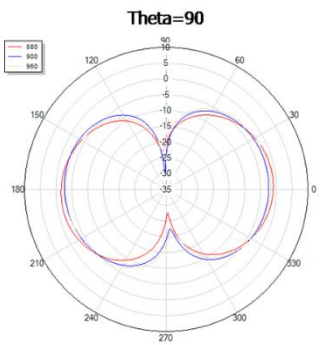
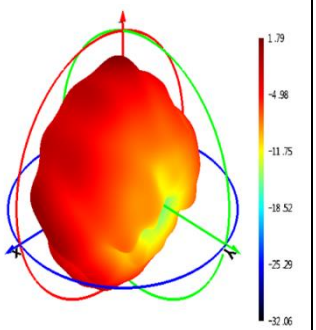
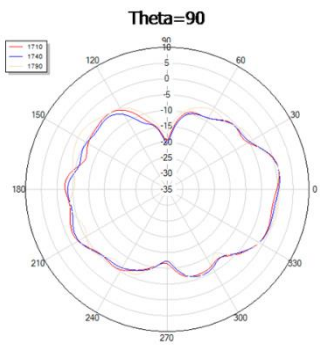
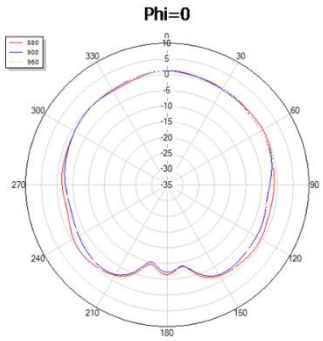
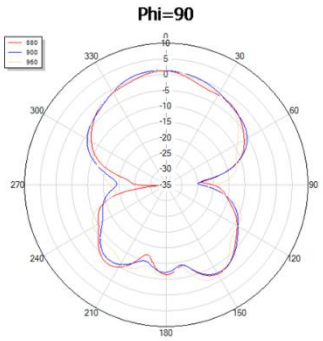
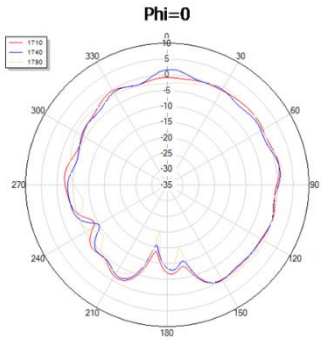
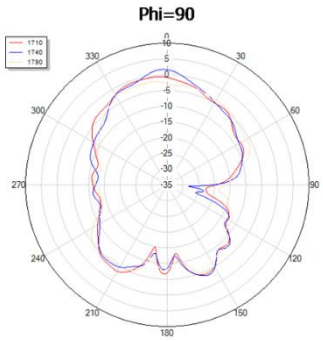
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
FS	-	-	-	1.3	1.4	1.5	-	1.4	1.8	2.7
MP	-	-	-	5.2	5.0	4.8	-	4.9	5.0	5.5
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
FS	2.9	2.4	0.8	1.1	1.8	2.6	-	-	-	-
MP	4.6	6.8	6.1	5.4	3.7	4.7	-	-	-	-

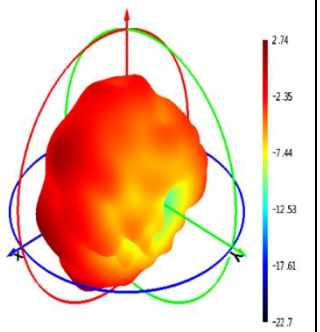
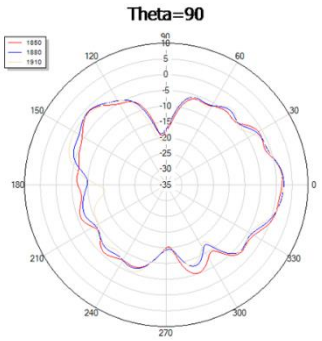
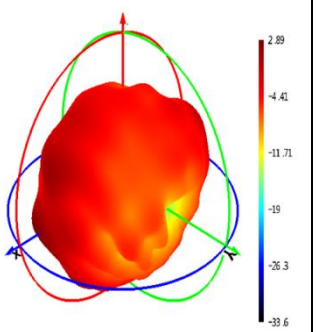
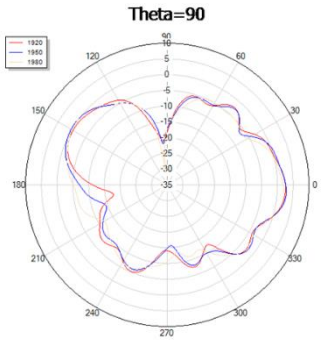
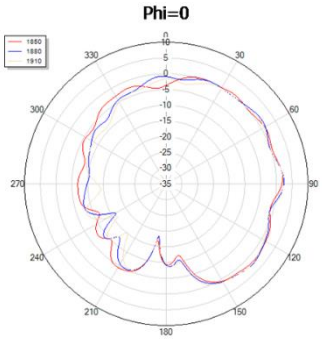
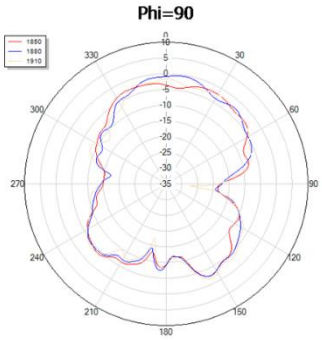
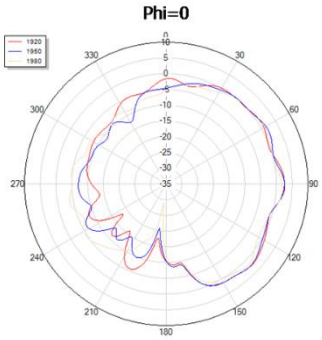
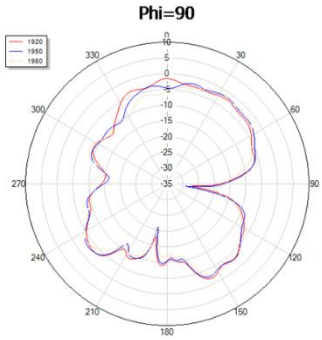
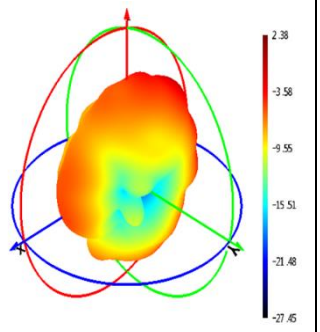
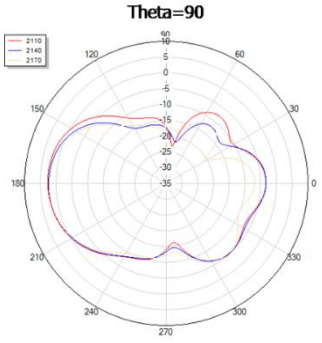
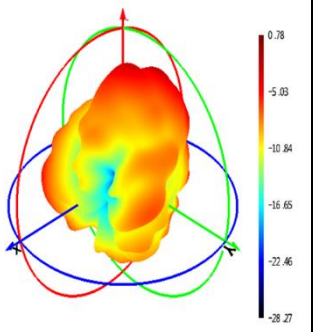
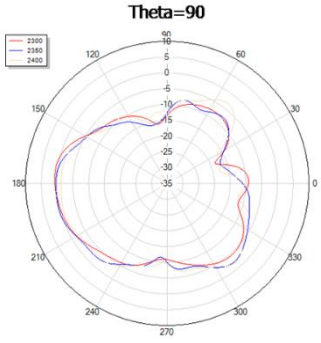
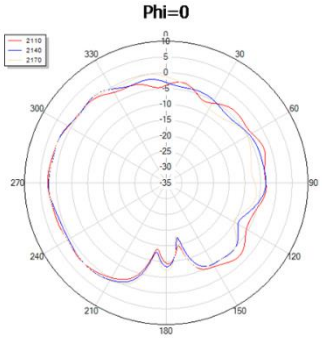
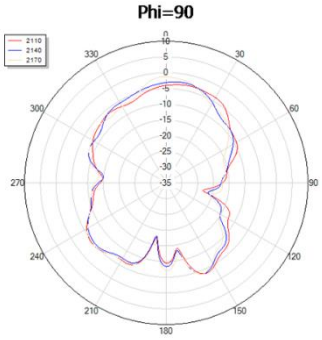
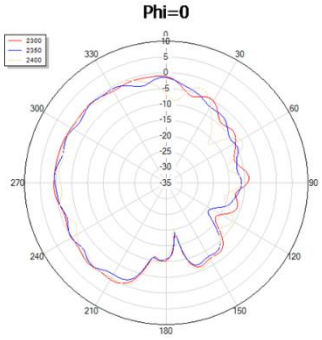
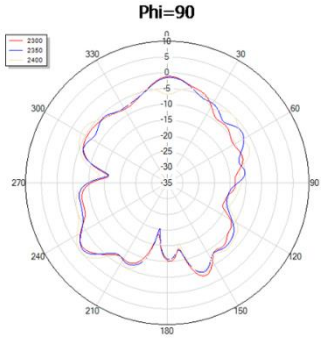
3.2.4. 3D & 2D Radiation Pattern

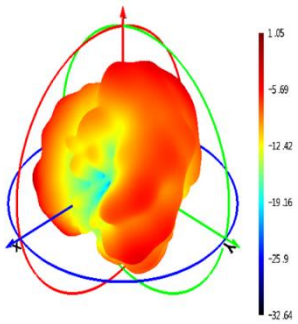
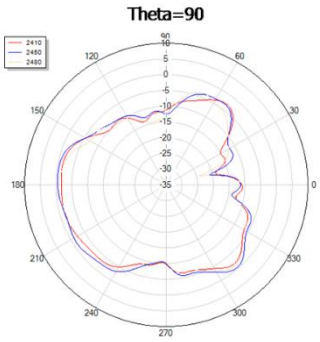
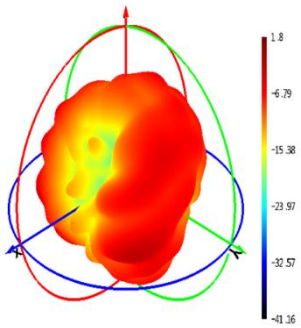
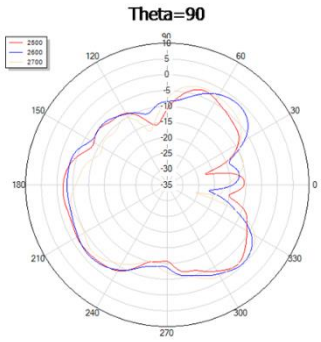
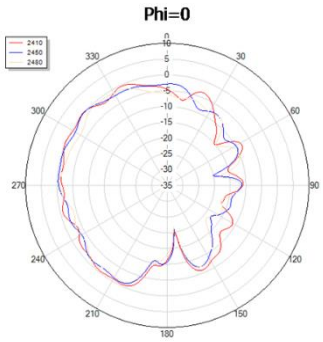
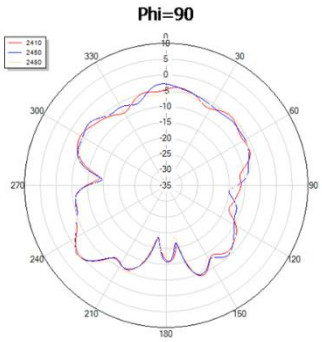
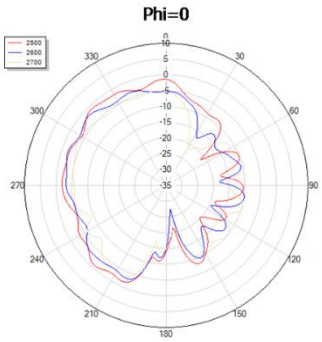
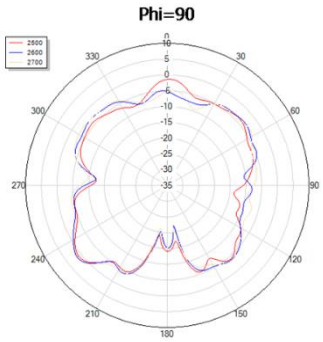
3.2.4.1. Test Condition: **In Free Space**

- Test Chamber: HF-S-1



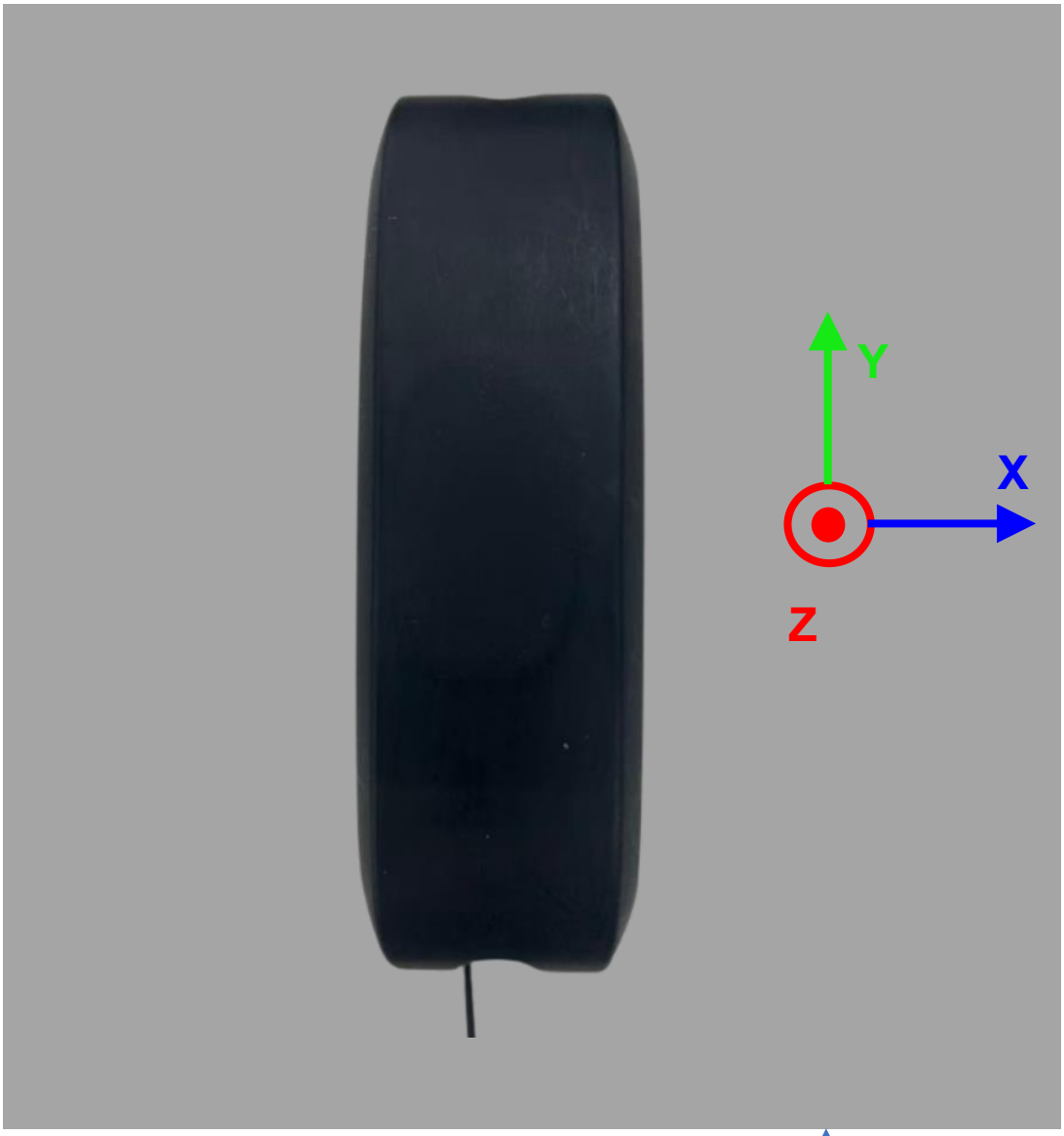
790 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

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

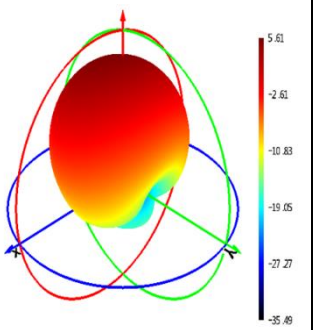
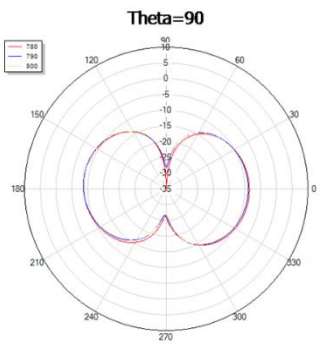
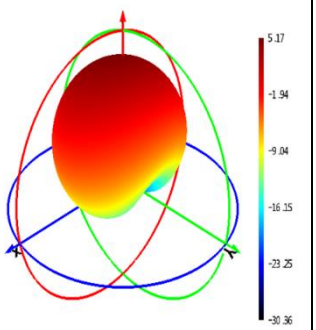
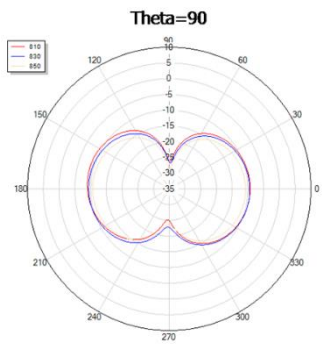
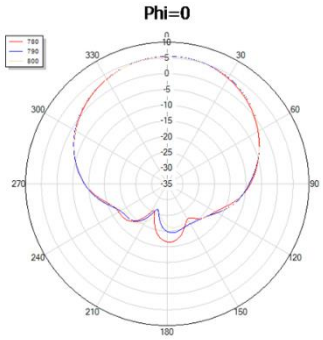
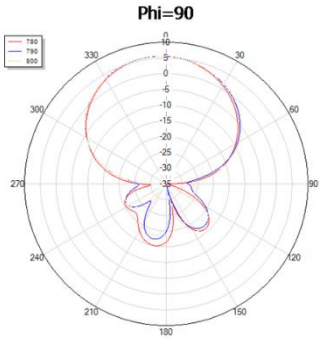
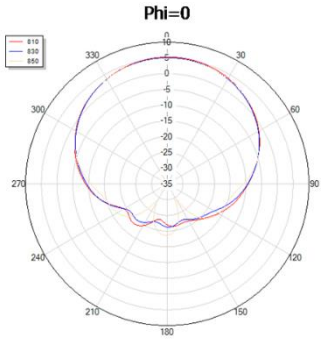
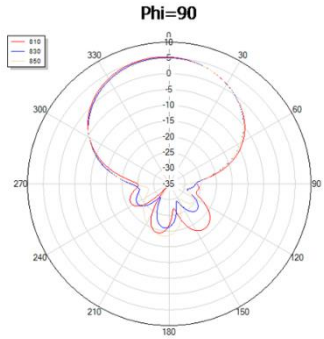
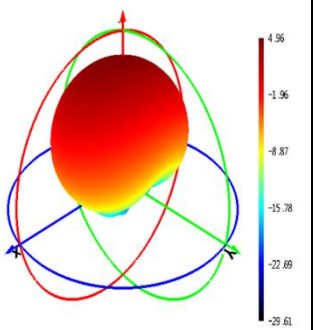
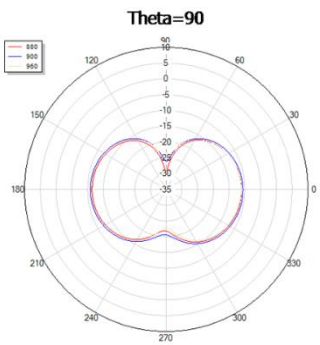
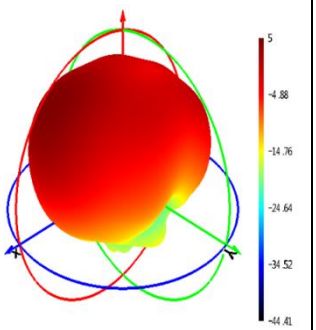
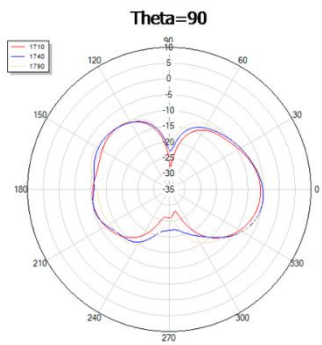
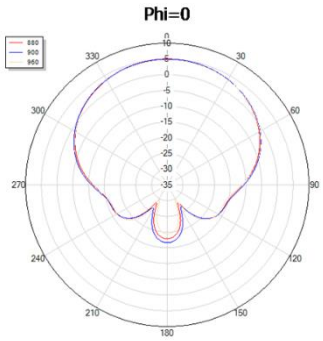
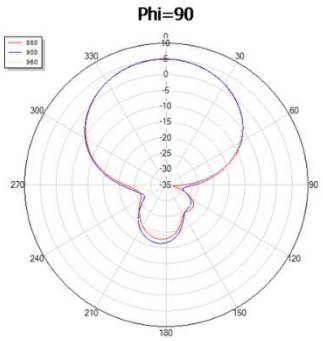
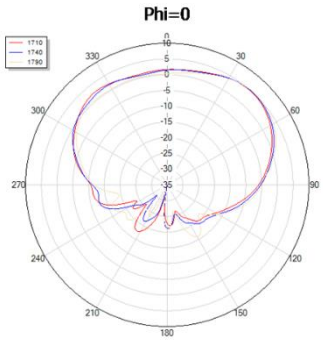
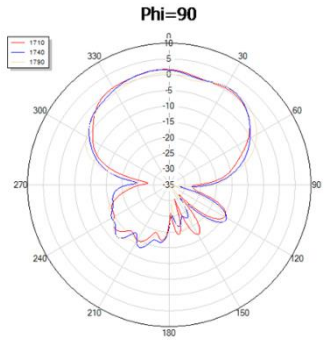
2450 MHz		2600 MHz	
			
			

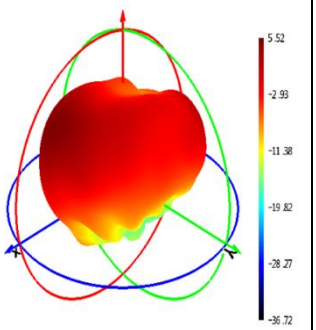
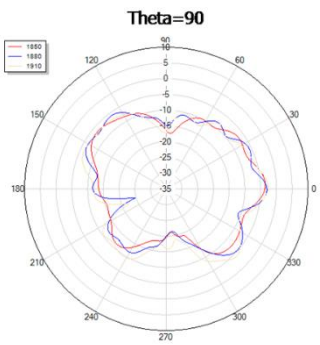
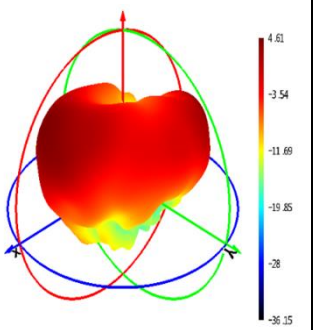
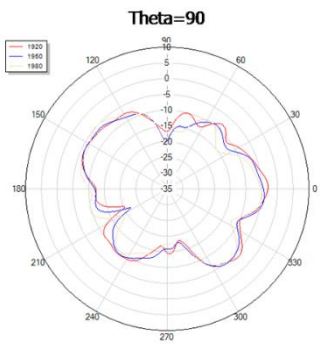
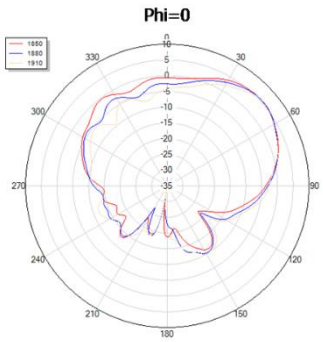
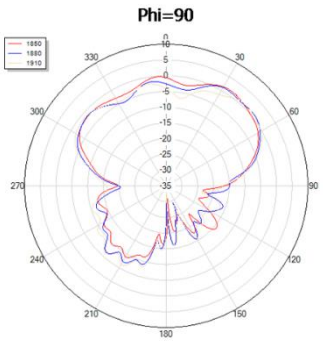
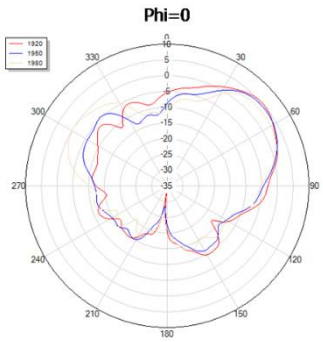
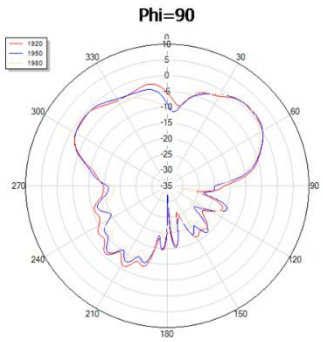
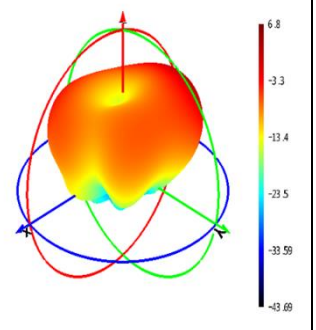
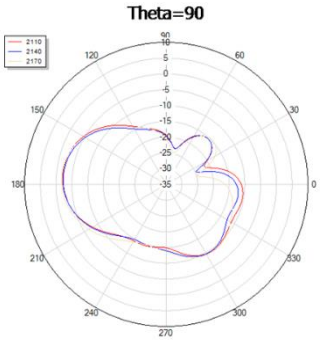
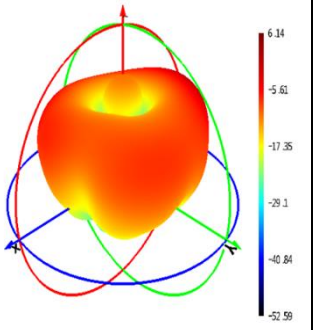
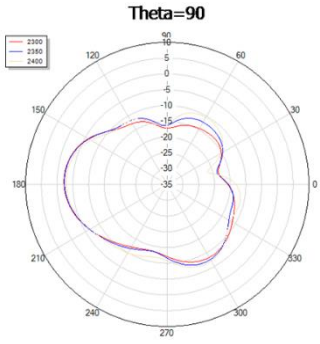
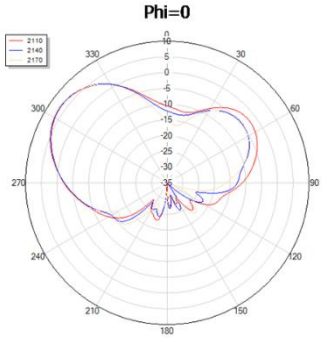
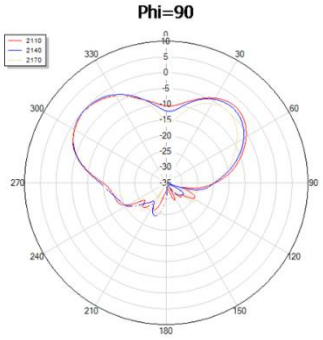
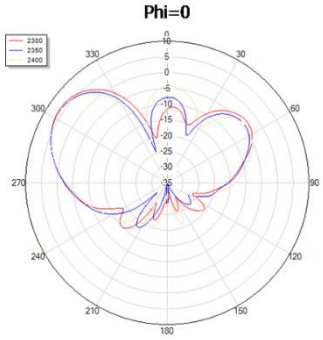
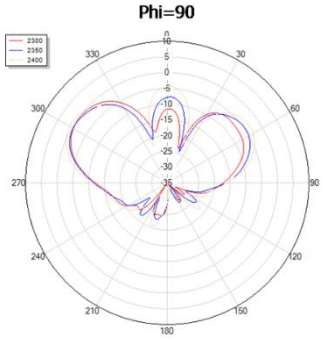
3.2.4.2. Test Condition: **On 500 mm × 500 mm Metal Plane**

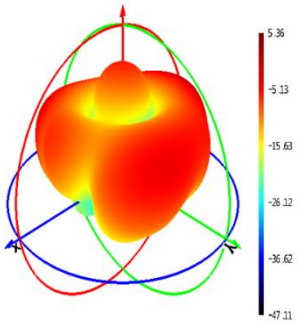
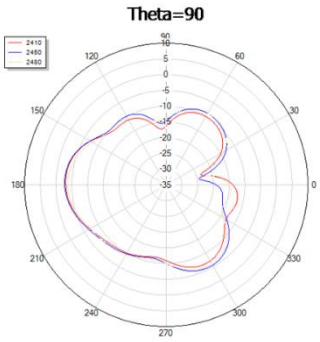
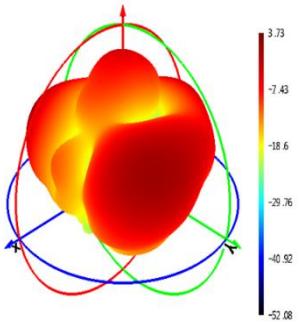
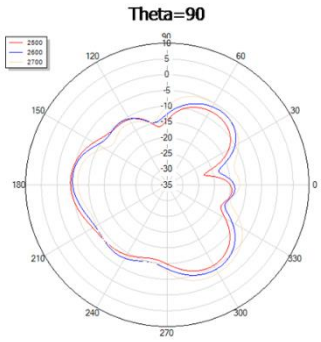
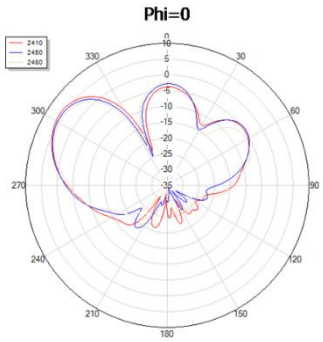
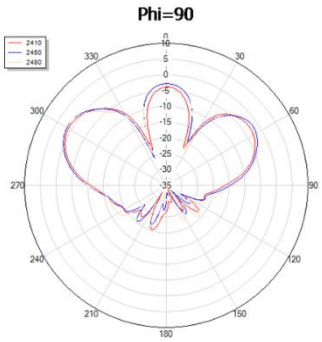
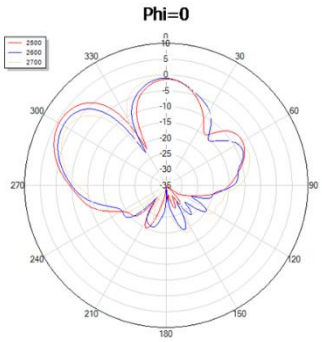
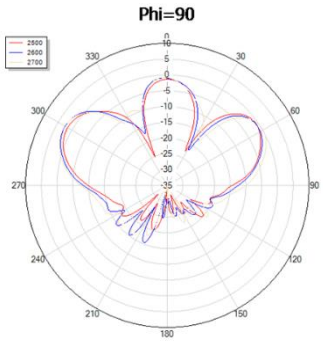
- Test Chamber: FS-S-1



500 mm × 500 mm Metal Plane

790 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

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

2450 MHz		2600 MHz	
			
			

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Email: info@quectel.com

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Revision History

Version	Date	Author	Note
-	2025-09-26	Christopher Yao/ Toby Wang/ Zeline Liang	Creation of the document
1.0	2025-09-26	Christopher Yao/ Toby Wang/ Zeline Liang	First official release

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