Antenna Datasheet

Product OC: YEMX425J1A
Version: 2.1
Date: 2025-09-19
Status: Released

Product Name: 5G 4in1 Multiple Mount Combo External Antenna
Key Features:
Frequency Band: 410–470 MHz, 617–2690 MHz, 3300–6000 MHz
Dimensions: 186 mm × 176 mm × 150 mm
Efficiency: Up to 72.4 % (4G/5G-4)
RoHS and REACH Compliant
IP67

Overview

This ultra-wide-band 5G/4G antenna box provides broad coverage from 410–6000 MHz whilst backward-compatible to support 3G/2G networks as well at Cat-M and NB-IoT. The antenna is designed for ease of integration with connection via 4 various cable lengths from 500–5000 mm, terminated with SMA connectors. This pole/wall/suction mount omni-directional antenna is easy to install with maximum durability with its IP67 ASA enclosure. It is compatible with Quectel’s RM520x Series modules. Quectel provides comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs.

Contents

1 Specification

Test Condition: Free Space

1.1. Electrical

Electrical	
Frequency Range	410–470 MHz, 617–2690 MHz, 3300–6000 MHz
Radiation Pattern	Omni-directional
Polarization	Linear
Impedance	50 Ω
Isolation	≤ -7.9 dB
Max Input Power	30 W

1.1.1. 4G/5G-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)	610–700	700–810	820–960	1420–1520	1700–2170	2300–2400	2400–2500	2500–2690	3300–4200	4400–5000	5150–5850
Max. VSWR		3.2	2.7	2.5	2.2	2.6	1.6	1.8	2.2	2.2	1.7	1.8
Max. Return Loss (dB)		-5.6	-6.6	-7.4	-8.5	-7.2	-13.2	-11.3	-8.7	-8.4	-11.5	-11.0
AVG Eff. (%)		49.4	63.0	57.4	51.6	58.0	64.5	54.4	54.1	61.7	62.0	60.1
AVG AVG Gain (dB)		-3.1	-2.0	-2.5	-2.9	-2.4	-1.9	-2.6	-2.7	-2.1	-2.1	-2.2
Max. Peak Gain (dBi)		3.4	6.0	6.9	3.9	4.4	3.9	4.4	4.0	3.6	4.1	3.1

VSWR	≤ 3.2
Return Loss	≤ -5.6 dB
Peak Gain	≤ 6.9 dBi

Electrical – Detail

Band / SPEC	Band	B87/B88	B31/B72/B73
	Freq. (MHz)	410–430 MHz	450–470 MHz
Max. VSWR		3.8	3.3
Max. Return Loss (dB)		-4.7	-5.4
AVG Eff. (%)		34.6	37.4
AVG AVG Gain (dB)		-4.6	-4.4
Max. Peak Gain (dBi)		-0.4	0.5

VSWR	≤ 3.8
Return Loss	≤ -4.7 dB
Peak Gain	≤ 0.5 dBi

Electrical – Detail

Band / SPEC	Band	L5	L1
	Freq. (MHz)	1166–1187 MHz	1559–1609 MHz
Max. VSWR		1.6	1.5
Max. Return Loss (dB)		-12.9	-14.3
AVG Eff. (%)		29.8	34.6
AVG AVG Gain (dB)		-5.3	-4.6
Max. Peak Gain (dBi)		0.8	1.3

VSWR	≤ 1.6

Return Loss	≤ -12.9 dB
Peak Gain	≤ 1.3 dBi

1.1.2. 4G/5G-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)	610–700	700–810	820–960	1420–1520	1700–2170	2300–2400	2400–2500	2500–2690	3300–4200	4400–5000	5150–5850
Max. VSWR		4.8	4.3	2.1	3.5	2.5	1.1	1.1	1.7	2.9	1.6	2.0
Max. Return Loss (dB)		-3.6	-4.1	-9.2	-5.2	-7.4	-25.1	-25.1	-11.8	-6.2	-12.5	-9.5
AVG Eff. (%)		26.5	36.6	53.8	44.6	56.6	68.7	61.3	57.0	58.1	62.0	61.3
AVG AVG Gain (dB)		-5.8	-4.4	-2.7	-3.6	-2.5	-1.6	-2.1	-2.4	-2.4	-2.1	-2.1
Max. Peak Gain (dBi)		-0.7	1.2	3.1	2.8	5.1	4.5	5.2	6.4	5.7	5.9	3.7

VSWR	≤ 4.8
Return Loss	≤ -3.6 dB
Peak Gain	≤ 6.4 dBi

Electrical – Detail

Band / SPEC	Band	B87/B88	B31/B72/B73
	Freq. (MHz)	410–430 MHz	450–470 MHz
Max. VSWR		5.4	2.6
Max. Return Loss (dB)		-3.3	-7.1
AVG Eff. (%)		30.5	44.5
AVG AVG Gain (dB)		-5.2	-3.5
Max. Peak Gain (dBi)		0.6	1.2

VSWR	≤ 5.4
Return Loss	≤ -3.3 dB
Peak Gain	≤ 1.2 dBi

Electrical – Detail

Band / SPEC	Band	L5	L1
	Freq. (MHz)	**1166–1187 MHz**	**1559–1609 MHz**
Max. VSWR		1.7	1.7
Max. Return Loss (dB)		-11.3	-12.0
AVG Eff. (%)		27.7	31.5
AVG AVG Gain (dB)		-5.6	-5.0
Max. Peak Gain (dBi)		-0.9	0.8

VSWR	≤ 1.7
Return Loss	≤ -11.3 dB
Peak Gain	≤ 0.8 dBi

1.1.3. 4G/5G-3

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)	**610–700**	**700–810**	**820–960**	**1420–1520**	**1700–2170**	**2300–2400**	**2400–2500**	**2500–2690**	**3300–4200**	**4400–5000**	**5150–5850**
Max. VSWR		4.5	3.5	2.6	2.4	2.4	1.5	1.5	2.0	2.6	1.8	1.7
Max. Return Loss (dB)		-3.9	-5.2	-6.9	-7.8	-7.6	-13.8	-13.7	-9.8	-7.1	-10.6	-12.0
AVG Eff. (%)		31.7	55.1	57.4	47.0	55.0	65.9	62.9	54.9	58.7	57.6	60.2
AVG AVG Gain (dB)		-5.3	-2.6	-2.4	-3.3	-2.6	-1.8	-2.0	-2.6	-2.3	-2.4	-2.2

Max. Peak Gain (dBi)	1.8	3.3	2.6	2.8	4.1	2.8	4.5	5.6	4.7	5.7	5.6
VSWR	≤ 4.5										
Return Loss	≤ -3.9 dB										
Peak Gain	≤ 5.7 dBi										

Electrical – Detail

Band / **SPEC**	**Band**	**B87/B88**	**B31/B72/B73**
	Freq. (MHz)	**410–430 MHz**	**450–470 MHz**
Max. VSWR		5.7	2.0
Max. Return Loss (dB)		-3.1	-9.4
AVG Eff. (%)		29.4	32.5
AVG AVG Gain (dB)		-5.5	-4.9
Max. Peak Gain (dBi)		0.0	-1.4
VSWR	≤ 5.7		
Return Loss	≤ -3.1 dB		
Peak Gain	≤ 0 dBi		

Electrical – Detail

Band / **SPEC**	**Band**	**L5**	**L1**
	Freq. (MHz)	**1166–1187 MHz**	**1559–1609 MHz**
Max. VSWR		2.3	1.9
Max. Return Loss (dB)		-8.3	-10.2
AVG Eff. (%)		30.2	28.1
AVG AVG Gain (dB)		-5.2	-5.5
Max. Peak Gain		0.1	-0.4

(dBi)		
VSWR	≤ 2.3	
Return Loss	≤ -8.3 dB	
Peak Gain	≤ 0.1 dBi	

1.1.4. 4G/5G-4

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)	610–700	700–810	820–960	1420–1520	1700–2170	2300–2400	2400–2500	2500–2690	3300–4200	4400–5000	5150–5850
Max. VSWR		6.1	4.0	2.8	2.2	2.3	1.6	1.8	2.3	2.0	1.8	2.0
Max. Return Loss (dB)		-2.9	-4.4	-6.5	-8.7	-7.9	-13.2	-11.0	-8.0	-9.7	-10.8	-9.5
AVG Eff. (%)		30.5	56.3	60.4	51.7	59.0	66.7	58.9	56.7	66.3	60.2	53.4
AVG AVG Gain (dB)		-5.3	-2.5	-2.2	-2.9	-2.3	-1.8	-2.3	-2.5	-1.8	-2.2	-2.7
Max. Peak Gain (dBi)		-0.1	3.6	3.2	2.8	5.7	3.6	4.0	3.8	4.2	5.3	4.1
VSWR		≤ 6.1										
Return Loss		≤ -2.9 dB										
Peak Gain		≤ 5.7 dBi										

Electrical – Detail

Band / SPEC	Band	B87/B88	B31/B72/B73
	Freq. (MHz)	410–430 MHz	450–470 MHz
Max. VSWR		3.4	5.2
Max. Return Loss (dB)		-5.2	-3.4
AVG Eff. (%)		34.4	26.4

AVG AVG Gain (dB)	-4.7	-5.8
Max. Peak Gain (dBi)	0.7	-1.6
VSWR	≤ 5.2	
Return Loss	≤ -3.4 dB	
Peak Gain	≤ 0.7 dBi	

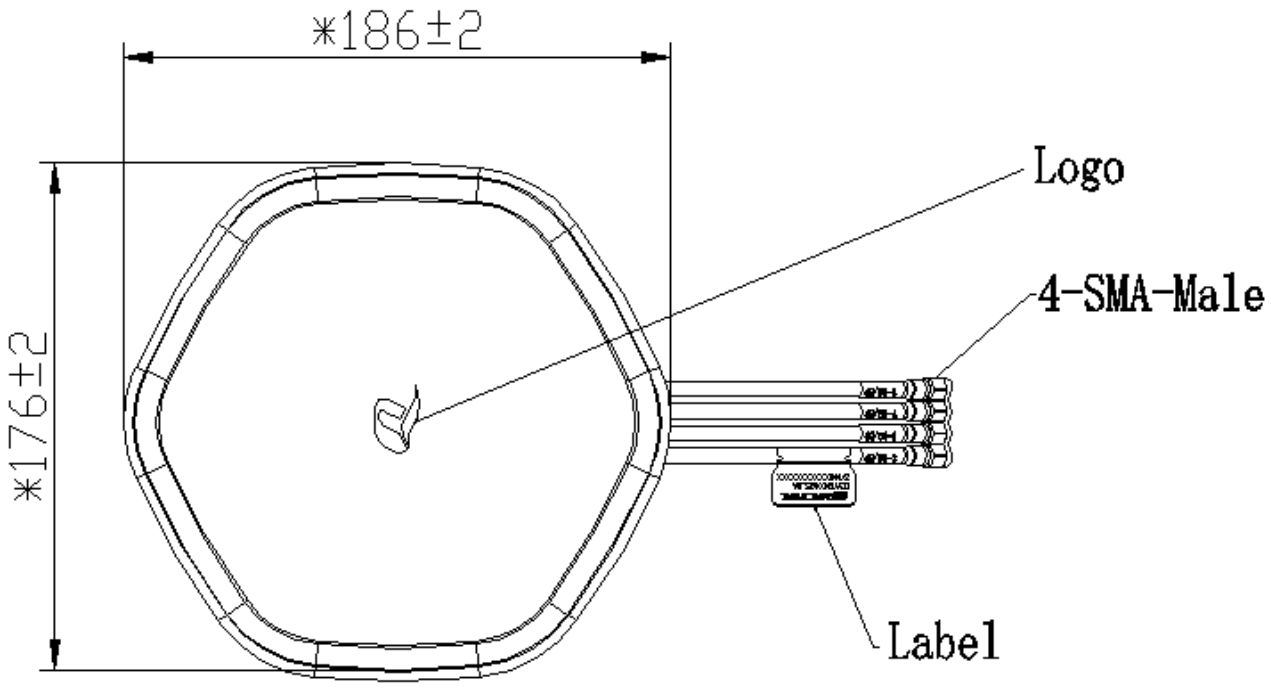
Electrical – Detail

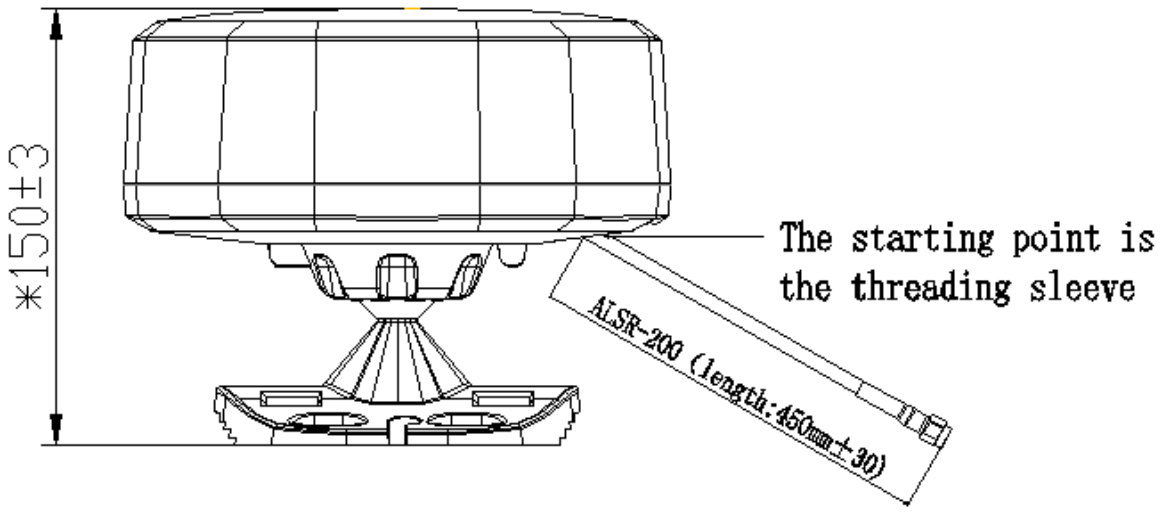
Band / SPEC	**Band**	**L5**	**L1**
	Freq. (MHz)	**1166–1187 MHz**	**1559–1609 MHz**
Max. VSWR		2.3	2.5
Max. Return Loss (dB)		-8.0	-7.5
AVG Eff. (%)		32.7	24.2
AVG AVG Gain (dB)		-4.9	-6.2
Max. Peak Gain (dBi)		0.6	-0.4
VSWR		≤ 2.5	
Return Loss		≤ -7.5 dB	
Peak Gain		≤ 0.6 dBi	

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	186 mm × 176 mm × 150 mm
Antenna Material & Color	ASA
Cable Type & Color & Length	ALSR200 & Black & 450 mm
Connector Type	SMA Male
Weight	Typ. 650 g
Mounting Type	pole/ wall/ suction cup
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP67
RoHS & REACH Compliant	Yes
Housing UV Resistant	UL 746c f1

2 Drawing

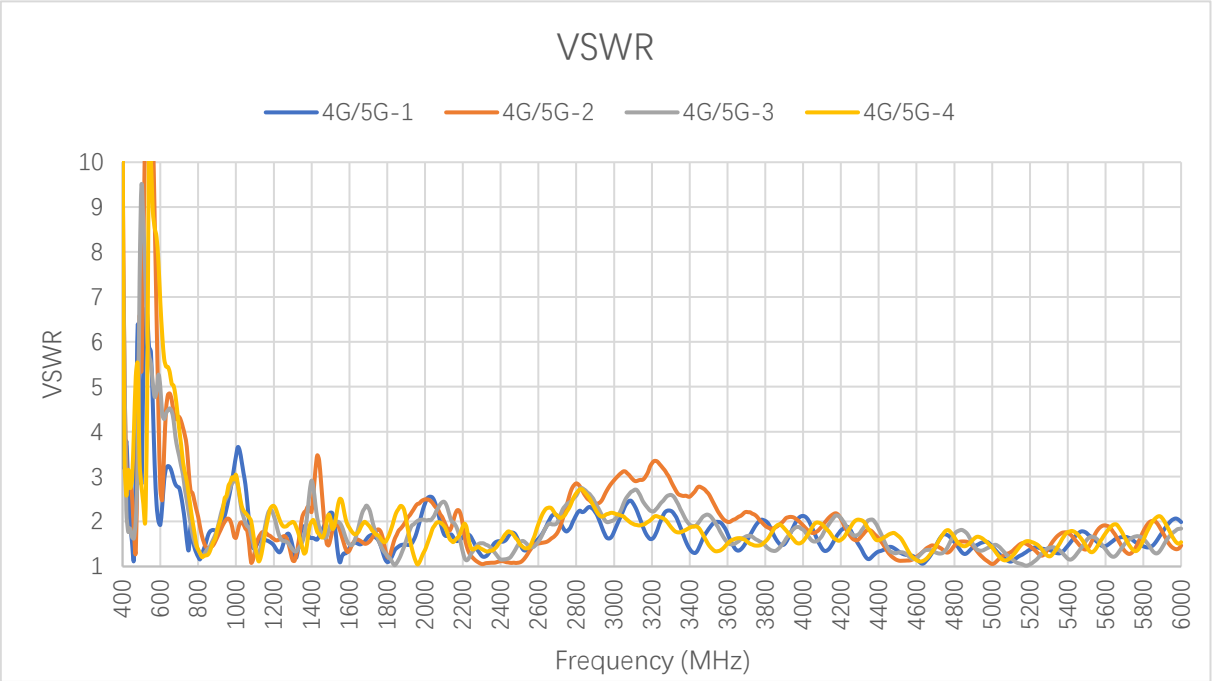

*186±2
*176±2
Logo
4-SMA-Male
Label


*150±3
The starting point is
the threading sleeve
ALSR-200 (length:450mm±30)

3 Detailed Performance

3.1. S-Parameter Test

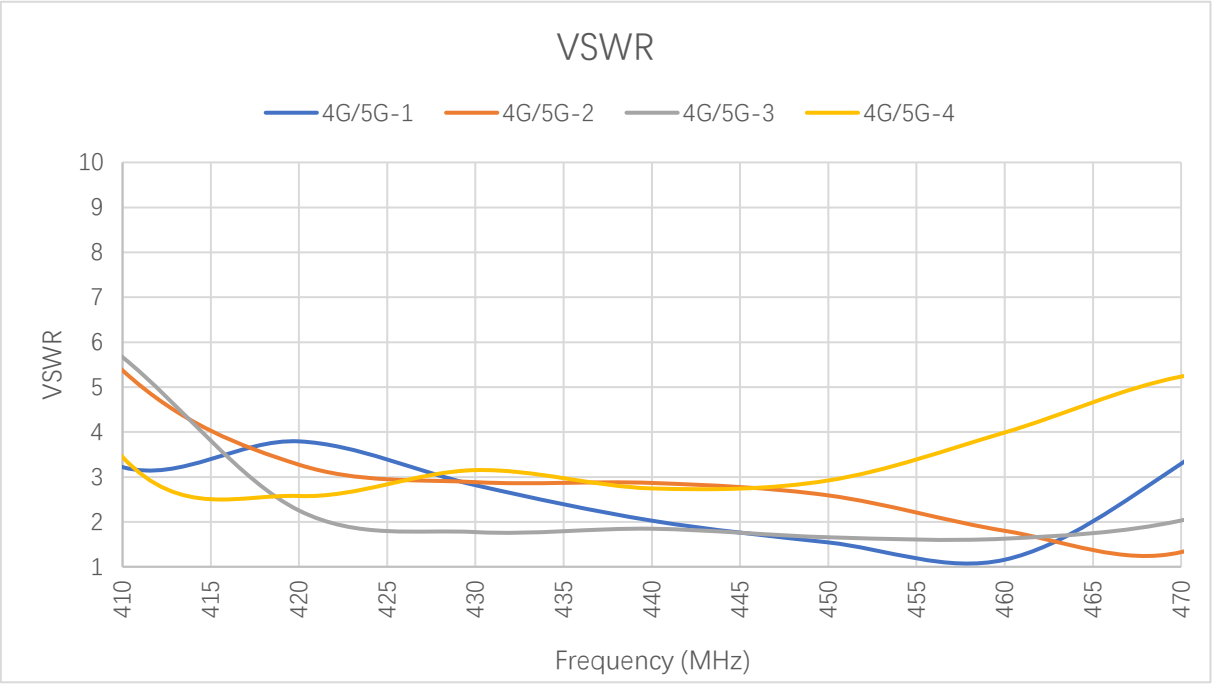
3.1.1. VSWR



VSWR

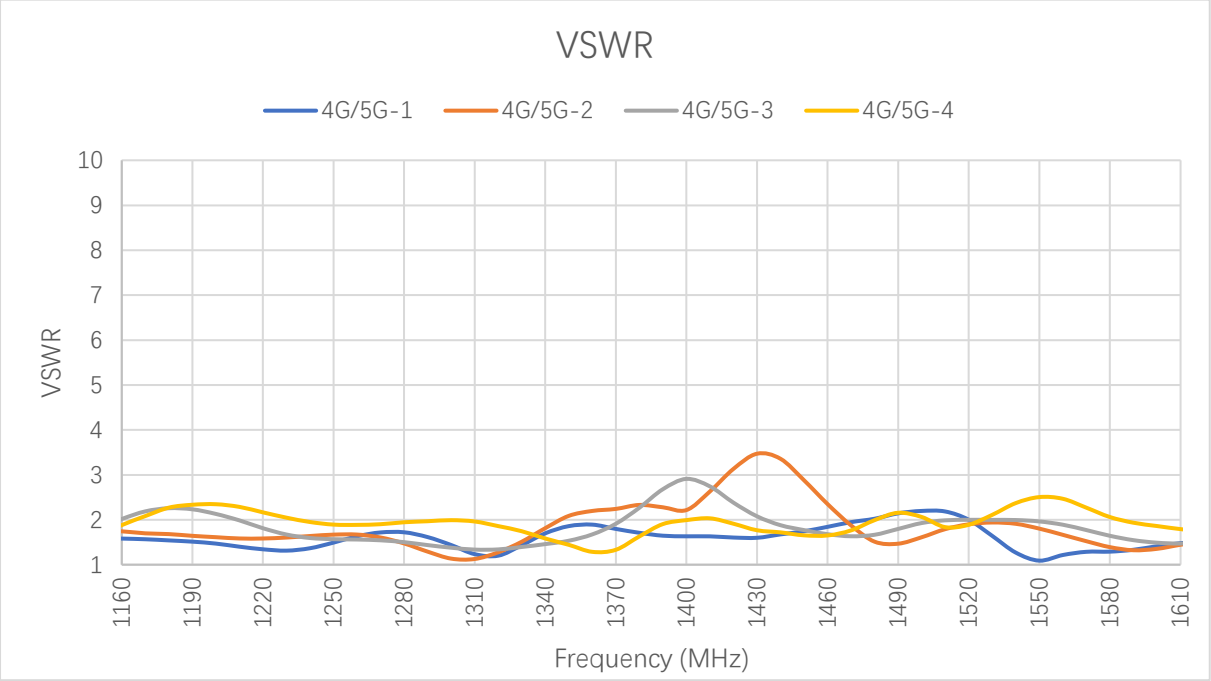
Frequency (MHz)	410	450	600	630	710	830	900	960	1440	1710	1740
4G/5G-1	3.2	1.5	1.9	3.2	2.6	1.4	1.8	2.5	1.7	1.7	1.6
4G/5G-2	5.4	2.6	2.7	4.5	4.2	1.5	1.6	2.1	3.4	1.6	1.8
4G/5G-3	5.7	1.7	5.0	4.4	3.2	1.3	1.8	2.6	1.9	2.2	1.7
4G/5G-4	3.4	2.9	6.9	5.5	3.7	1.2	1.8	2.8	1.7	1.9	1.7
Frequency (MHz)	**1880**	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**

4G/5G-1	1.5	1.7	1.7	1.4	1.7	1.6	1.7	1.4	1.4	1.7	2.0
4G/5G-2	1.9	2.3	1.9	1.1	1.1	1.5	2.0	1.5	1.1	1.4	1.5
4G/5G-3	1.3	2.0	2.0	1.4	1.2	1.6	1.5	1.3	1.5	1.6	1.8
4G/5G-4	2.3	1.1	1.6	1.4	1.8	1.9	1.5	1.4	1.4	1.4	1.5



VSWR

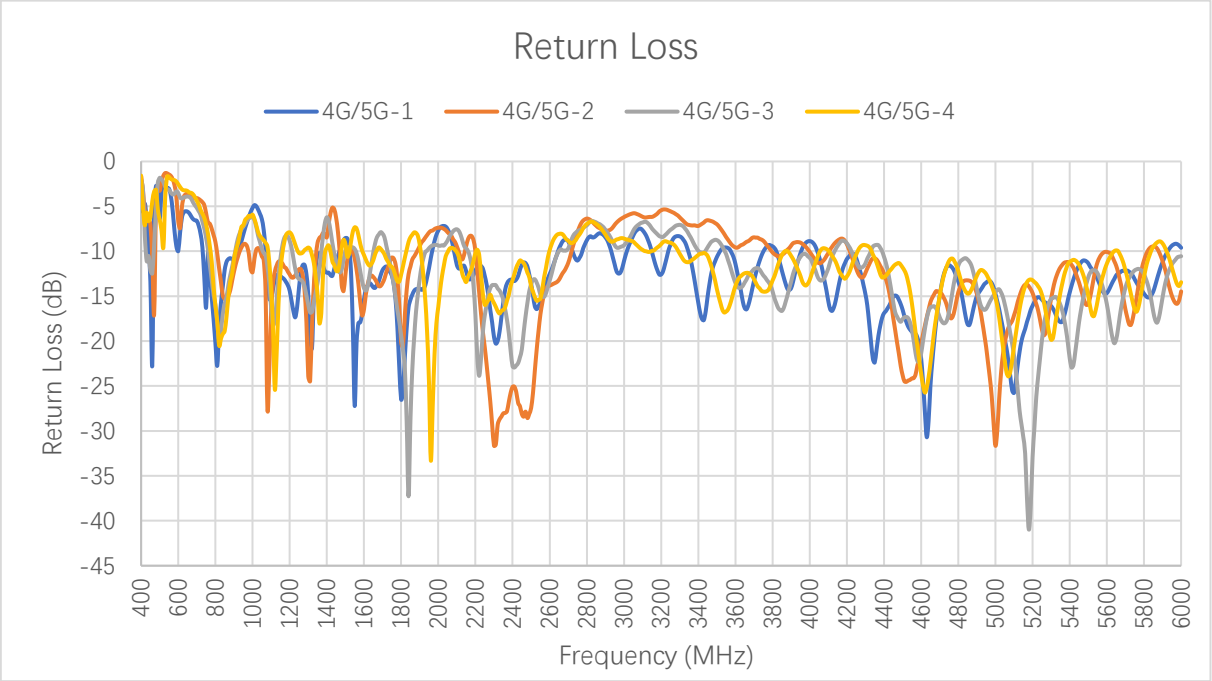
Frequency (MHz)	**410**	**420**	**430**	**440**	**450**	**460**	**470**
4G/5G-1	3.2	3.8	2.8	2.0	1.5	1.2	3.3
4G/5G-2	5.4	3.3	2.9	2.9	2.6	1.8	1.3
4G/5G-3	5.7	2.3	1.8	1.8	1.7	1.6	2.0
4G/5G-4	3.4	2.6	3.2	2.7	2.9	4.0	5.2



VSWR

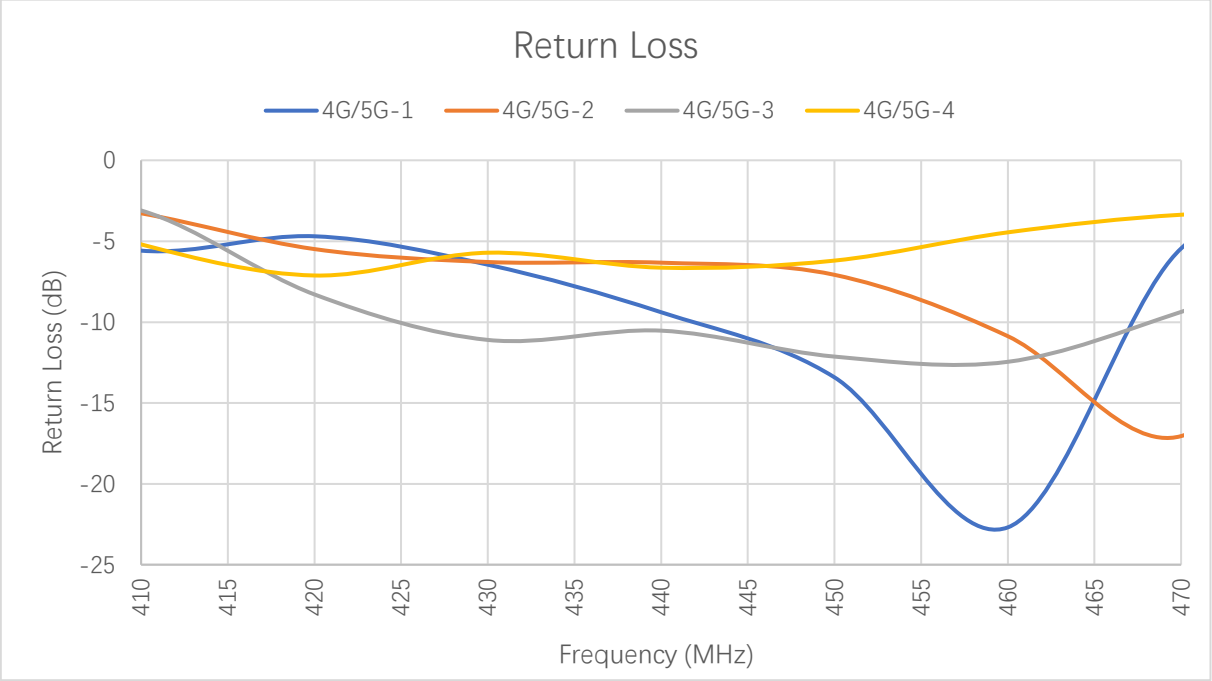
Frequency (MHz)	1166	1175	1187	1559	1575	1609
4G/5G-1	1.6	1.6	1.5	1.2	1.3	1.5
4G/5G-2	1.7	1.7	1.6	1.7	1.5	1.4
4G/5G-3	2.0	2.2	2.2	1.9	1.8	1.5
4G/5G-4	1.9	2.1	2.3	2.5	2.3	1.8

3.1.2. Return Loss



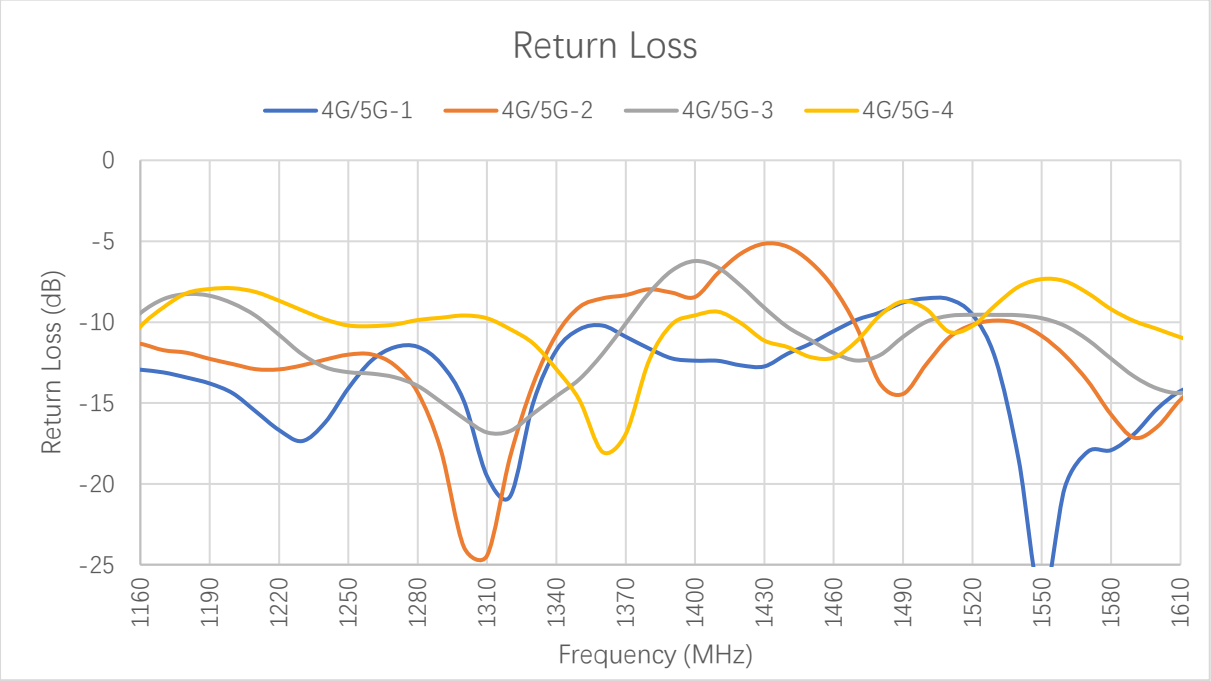
Return Loss (dB)

Frequency (MHz)	410	450	600	630	710	830	900	960	1440	1710	1740
4G/5G-1	-5.6	-13.4	-10.0	-5.6	-7.2	-15.7	-11.0	-7.4	-12.0	-11.8	-12.3
4G/5G-2	-3.3	-7.1	-6.7	-3.9	-4.2	-13.4	-12.3	-9.2	-5.3	-13.1	-11.1
4G/5G-3	-3.1	-12.1	-3.5	-4.0	-5.5	-18.8	-10.7	-6.9	-10.3	-8.4	-11.4
4G/5G-4	-5.2	-6.2	-2.5	-3.2	-4.8	-19.7	-10.9	-6.5	-11.5	-10.3	-11.6
Frequency (MHz)	**1880**	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
4G/5G-1	-14.2	-11.9	-11.6	-15.7	-11.5	-12.5	-11.4	-15.0	-14.7	-11.3	-9.6
4G/5G-2	-10.2	-7.9	-10.3	-28.0	-28.1	-13.8	-9.6	-14.6	-31.7	-15.9	-14.5
4G/5G-3	-16.8	-9.7	-9.5	-15.4	-20.9	-13.3	-13.5	-17.4	-14.6	-12.9	-10.6
4G/5G-4	-8.0	-24.6	-13.1	-16.5	-11.1	-9.9	-13.9	-15.0	-15.1	-15.0	-13.5



Return Loss (dB)

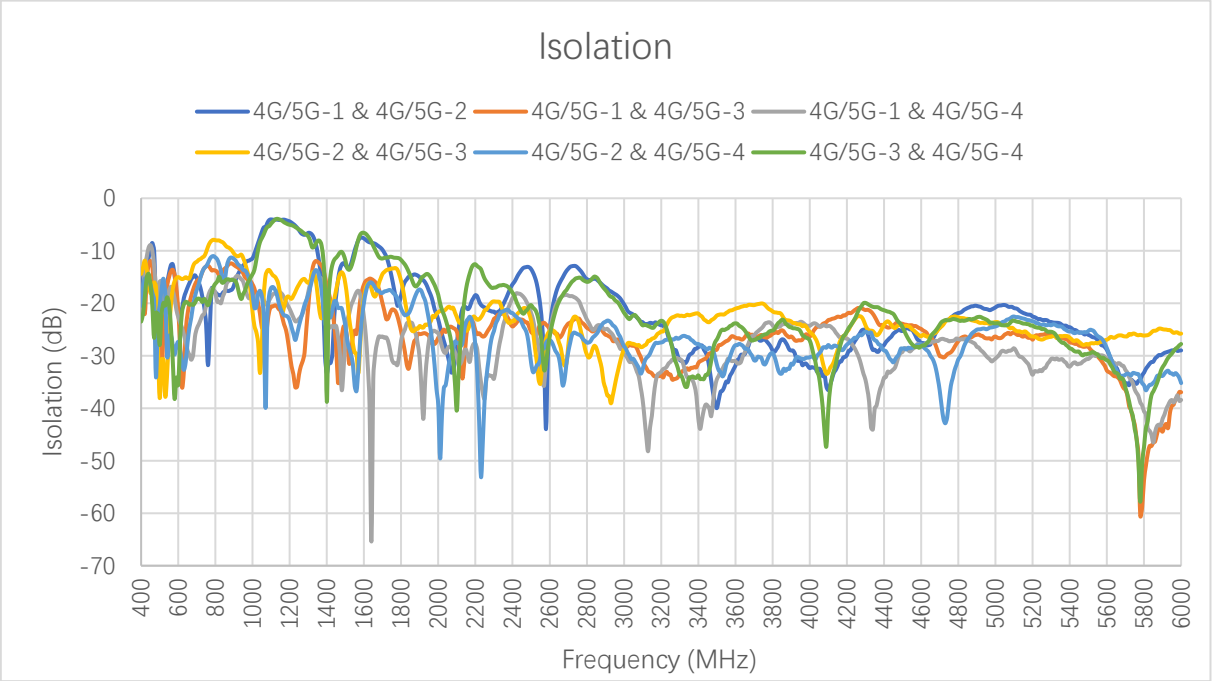
Frequency (MHz)	410	420	430	440	450	460	470
4G/5G-1	-5.6	-4.7	-6.4	-9.4	-13.4	-22.7	-5.4
4G/5G-2	-3.3	-5.5	-6.3	-6.3	-7.1	-10.9	-17.0
4G/5G-3	-3.1	-8.3	-11.1	-10.5	-12.1	-12.5	-9.4
4G/5G-4	-5.2	-7.1	-5.7	-6.6	-6.2	-4.4	-3.4

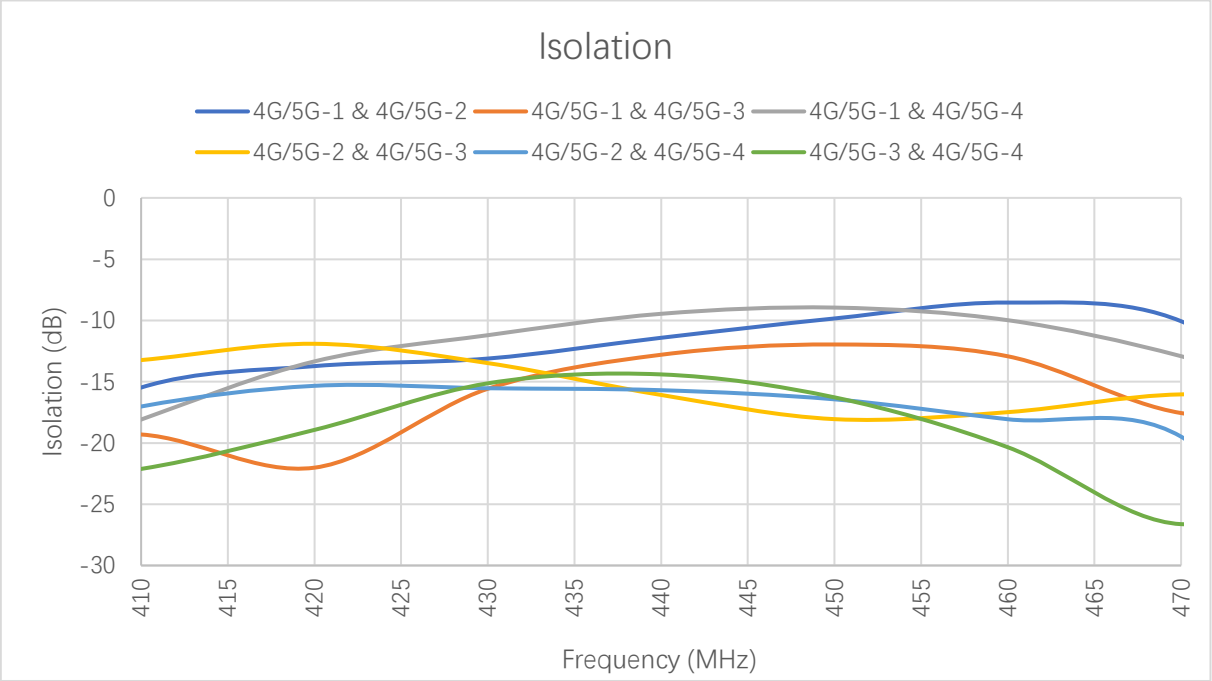


Return Loss (dB)

Frequency (MHz)	1166	1175	1187	1559	1575	1609
4G/5G-1	-12.9	-13.1	-13.8	-20.2	-18.0	-14.3
4G/5G-2	-11.3	-11.7	-12.3	-12.0	-13.7	-14.8
4G/5G-3	-9.4	-8.6	-8.4	-10.2	-11.1	-14.4
4G/5G-4	-10.3	-9.1	-8.0	-7.5	-8.2	-10.9

3.1.3. Isolation



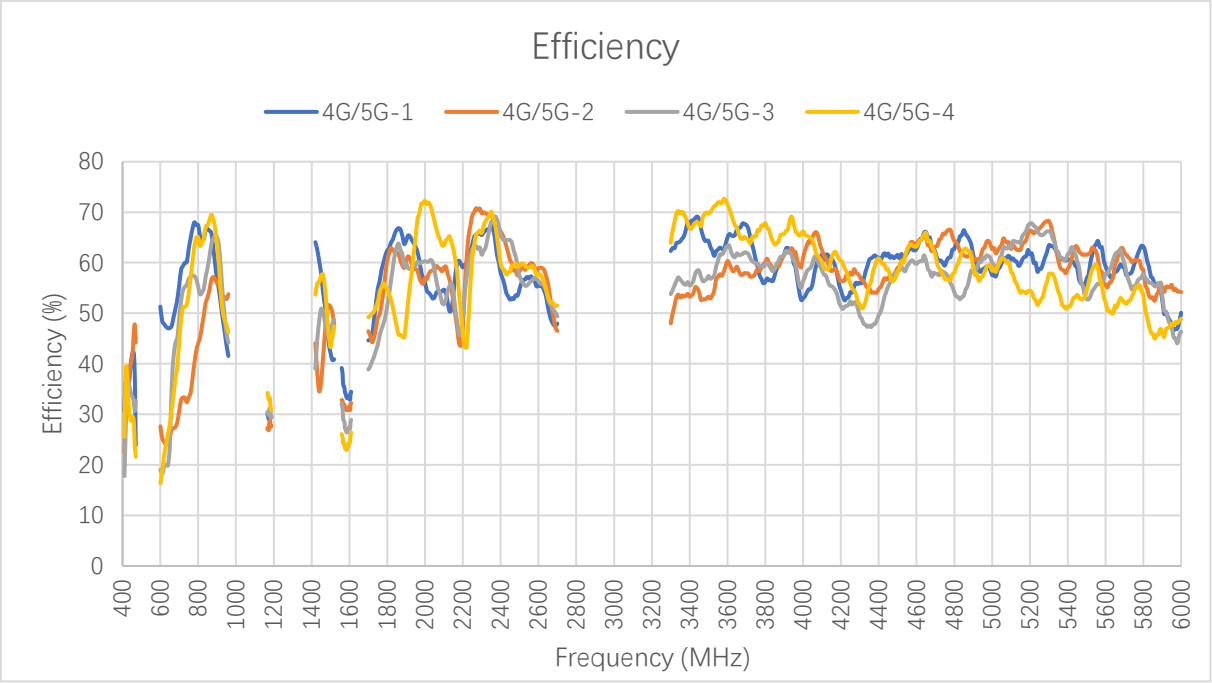


Max Isolation (dB)

Band	B31/ B88	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)	**410–470**	**600–700**	**700–810**	**820–960**	**1420–1520**	**1700–2170**	**2300–2400**	**2400–2500**	**2500–2690**	**3300–4200**	**4400–5000**	**5150–5850**
4G/5G-1 & 4G/5G-2	-8.5	-14.7	-15.3	-12.4	-12.4	-10.4	-16.4	-13.1	-13.5	-26.4	-20.5	-21.9
4G/5G-1 & 4G/5G-3	-12.0	-15.8	-12.9	-12.4	-19.5	-21.3	-21.9	-23.1	-23.7	-22.1	-23.7	-25.7
4G/5G-1 & 4G/5G-4	-8.9	-23.7	-17.3	-14.8	-22.1	-23.6	-19.0	-18.1	-18.4	-23.5	-26.7	-29.7
4G/5G-2 & 4G/5G-3	-11.9	-12.1	-7.9	-8.1	-14.1	-13.3	-19.7	-20.9	-23.3	-20.1	-22.5	-25.3
4G/5G-2 & 4G/5G-4	-15.3	-17.4	-11.0	-11.3	-19.7	-17.4	-21.3	-21.9	-27.0	-26.2	-24.4	-22.9
4G/5G-3 & 4G/5G-4	-14.4	-19.3	-15.9	-15.0	-10.2	-11.2	-16.5	-18.0	-17.5	-23.2	-21.3	-23.9

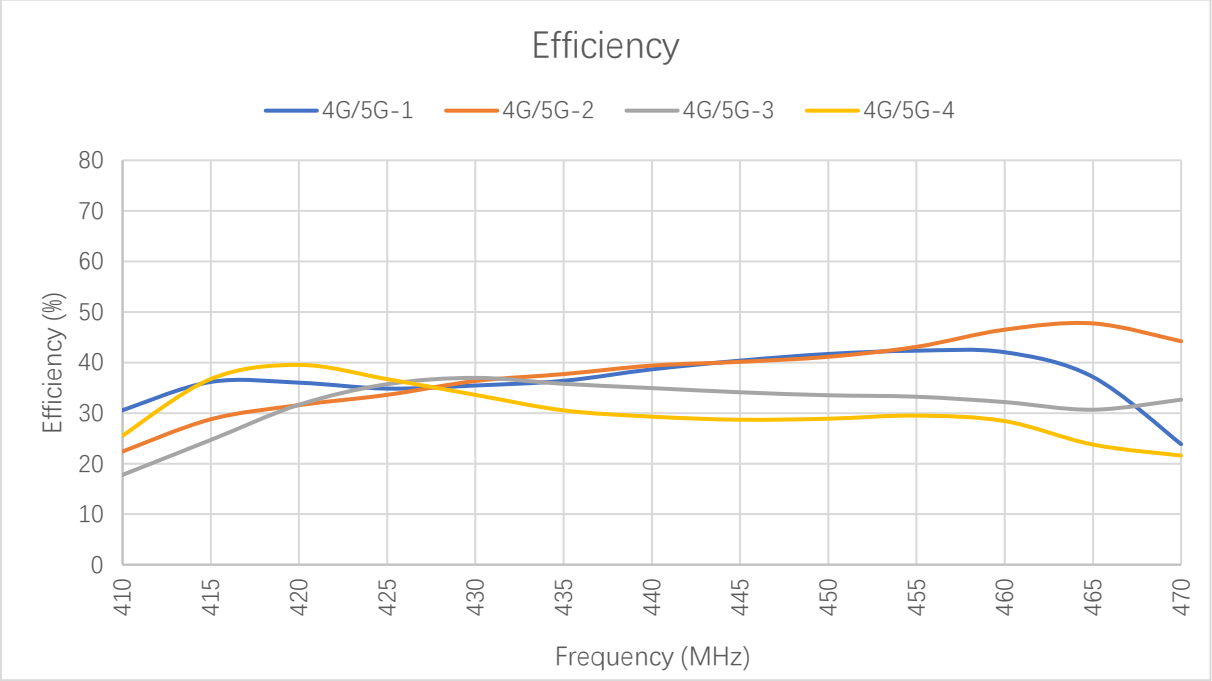
3.2. Radiation Performance Test

3.2.1. Efficiency



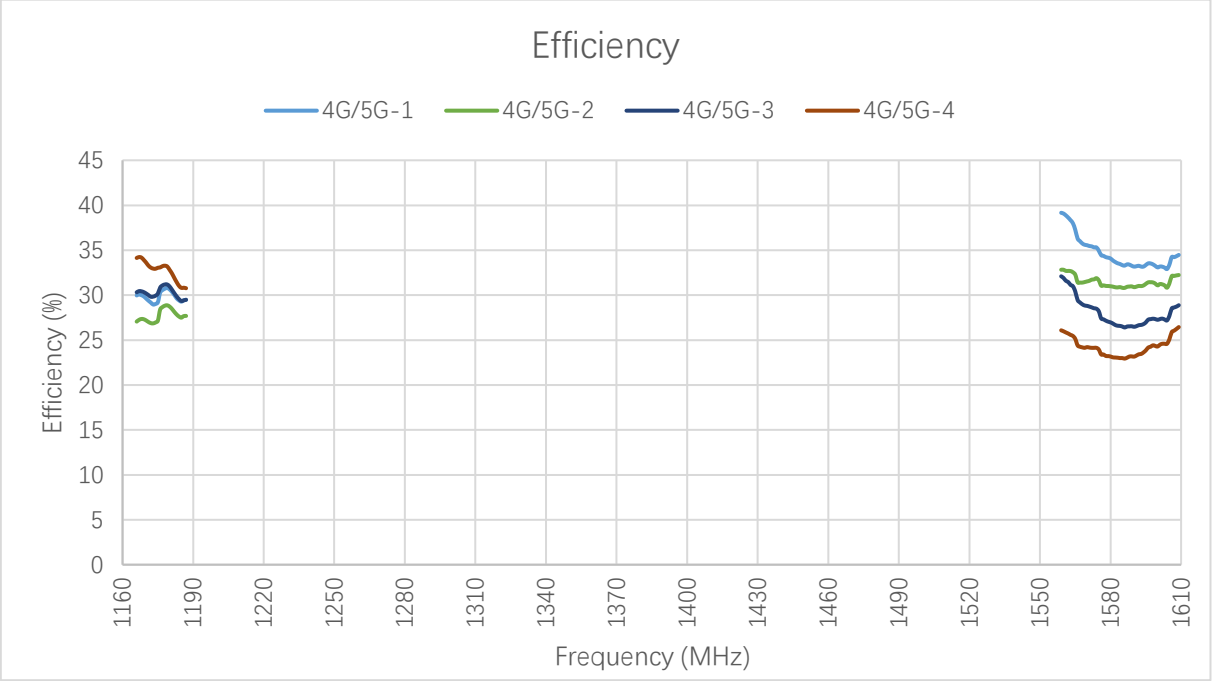
Efficiency (%)

Frequency (MHz)	410	450	600	630	710	830	900	960	1440	1710	1740
4G/5G-1	30.6	41.7	51.3	47.4	58.7	64.8	56.7	41.5	60.3	44.8	51.8
4G/5G-2	22.4	41.1	27.6	24.0	32.9	49.7	55.9	53.8	34.5	45.6	46.9
4G/5G-3	17.8	33.5	19.0	20.0	52.5	54.8	65.0	44.2	48.4	39.5	42.6
4G/5G-4	25.5	28.9	16.4	24.0	49.0	64.9	63.5	46.2	56.1	49.5	51.3
Frequency (MHz)	**1880**	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
4G/5G-1	65.3	63.2	50.7	67.4	52.7	55.5	65.0	62.1	57.5	56.9	50.1
4G/5G-2	59.5	58.7	54.6	69.7	60.5	58.9	60.3	63.2	62.7	61.6	54.2
4G/5G-3	61.7	59.5	55.9	68.0	64.5	56.4	63.3	57.8	60.0	52.8	46.3
4G/5G-4	45.4	64.9	64.0	70.1	58.2	57.7	71.5	61.6	58.4	54.5	48.9



Efficiency (%)

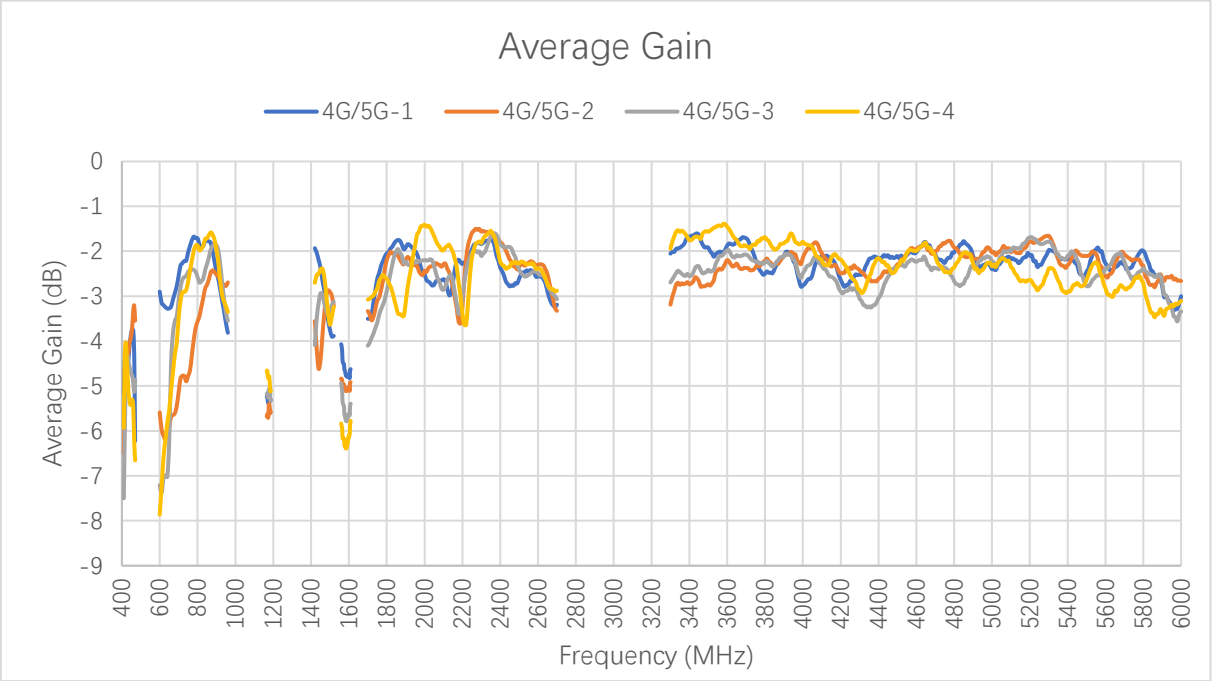
Frequency (MHz)	410	420	430	440	450	460	470
4G/5G-1	30.6	36.0	35.5	38.7	41.7	42.0	23.9
4G/5G-2	22.4	31.6	36.4	39.4	41.1	46.5	44.2
4G/5G-3	17.8	31.7	37.0	35.0	33.5	32.2	32.7
4G/5G-4	25.5	39.5	33.6	29.3	28.9	28.4	21.6



Efficiency (%)

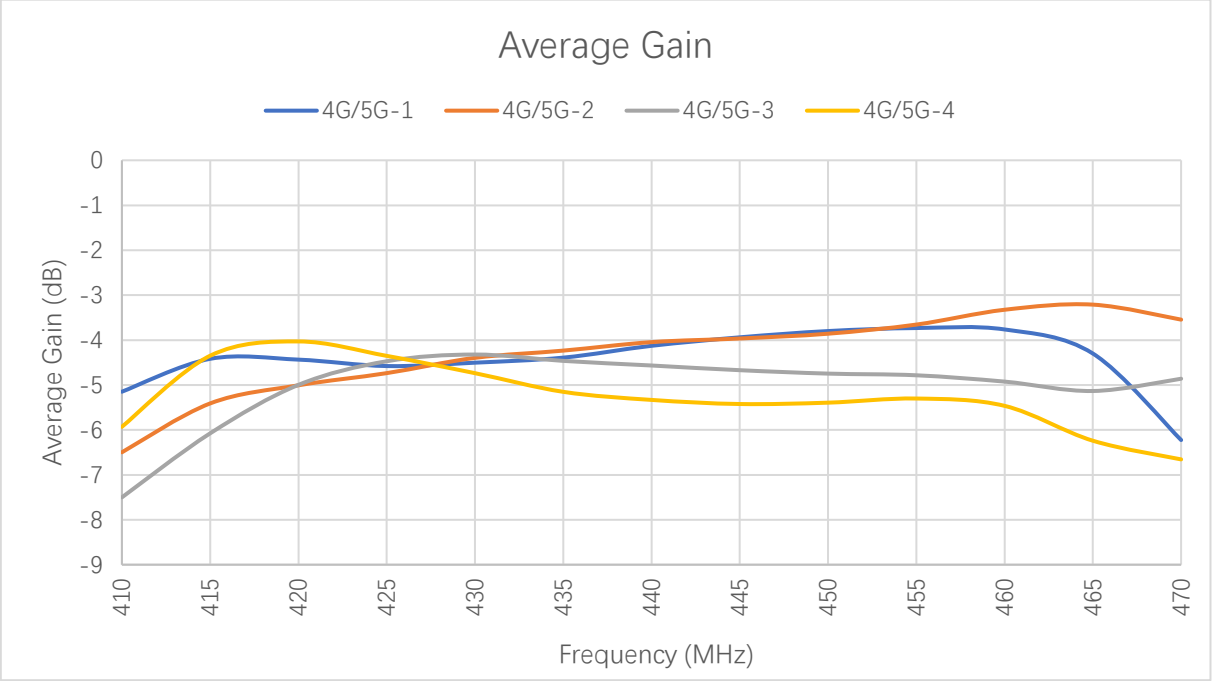
Frequency (MHz)	1166	1175	1187	1559	1575	1609
4G/5G-1	30.0	29.2	29.5	39.2	35.0	34.5
4G/5G-2	27.1	27.2	27.7	32.8	31.7	32.2
4G/5G-3	30.3	30.2	29.5	32.1	28.2	28.9
4G/5G-4	34.1	33.1	30.8	26.1	24.0	26.5

3.2.2. Average Gain



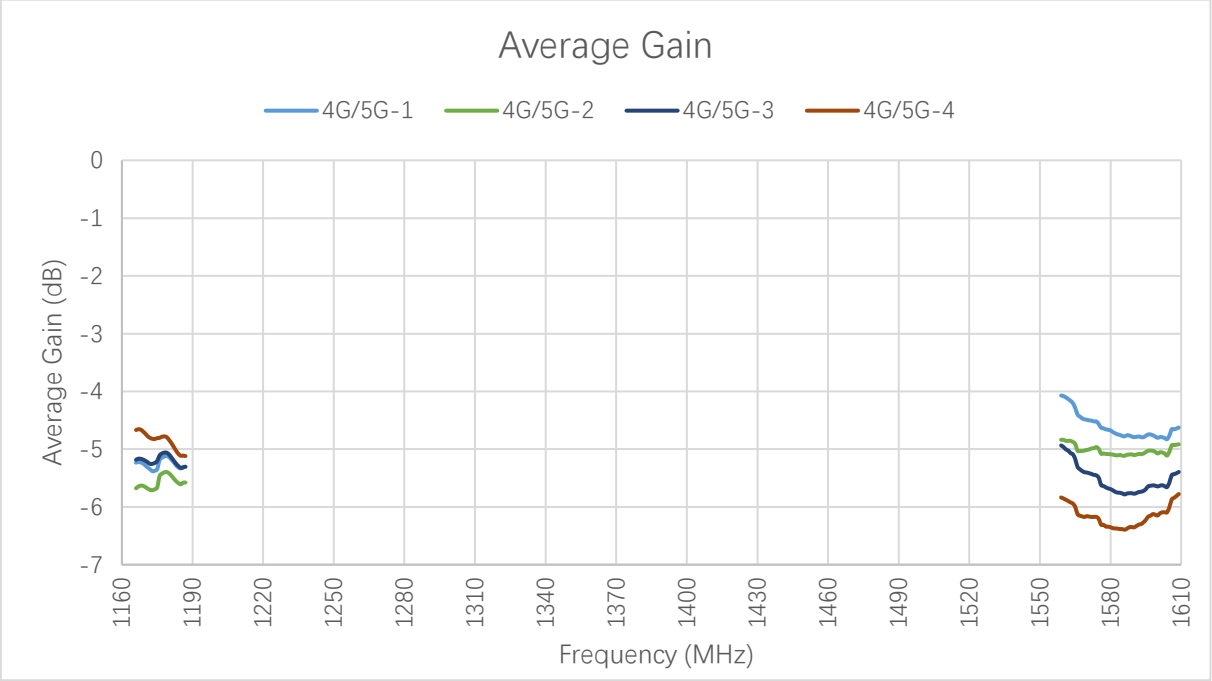
Average Gain (dB)

Frequency (MHz)	410	450	600	630	710	830	900	960	1440	1710	1740
4G/5G-1	-5.1	-3.8	-2.9	-3.2	-2.3	-1.9	-2.5	-3.8	-2.2	-3.5	-2.9
4G/5G-2	-6.5	-3.9	-5.6	-6.2	-4.8	-3.0	-2.5	-2.7	-4.6	-3.4	-3.3
4G/5G-3	-7.5	-4.7	-7.2	-7.0	-2.8	-2.6	-1.9	-3.5	-3.2	-4.0	-3.7
4G/5G-4	-5.9	-5.4	-7.9	-6.2	-3.1	-1.9	-2.0	-3.4	-2.5	-3.1	-2.9
Frequency (MHz)	**1880**	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
4G/5G-1	-1.8	-2.0	-3.0	-1.7	-2.8	-2.6	-1.9	-2.1	-2.4	-2.5	-3.0
4G/5G-2	-2.3	-2.3	-2.6	-1.6	-2.2	-2.3	-2.2	-2.0	-2.0	-2.1	-2.7
4G/5G-3	-2.1	-2.3	-2.5	-1.7	-1.9	-2.5	-2.0	-2.4	-2.2	-2.8	-3.3
4G/5G-4	-3.4	-1.9	-1.9	-1.5	-2.3	-2.4	-1.5	-2.1	-2.3	-2.6	-3.1



Average Gain (dB)

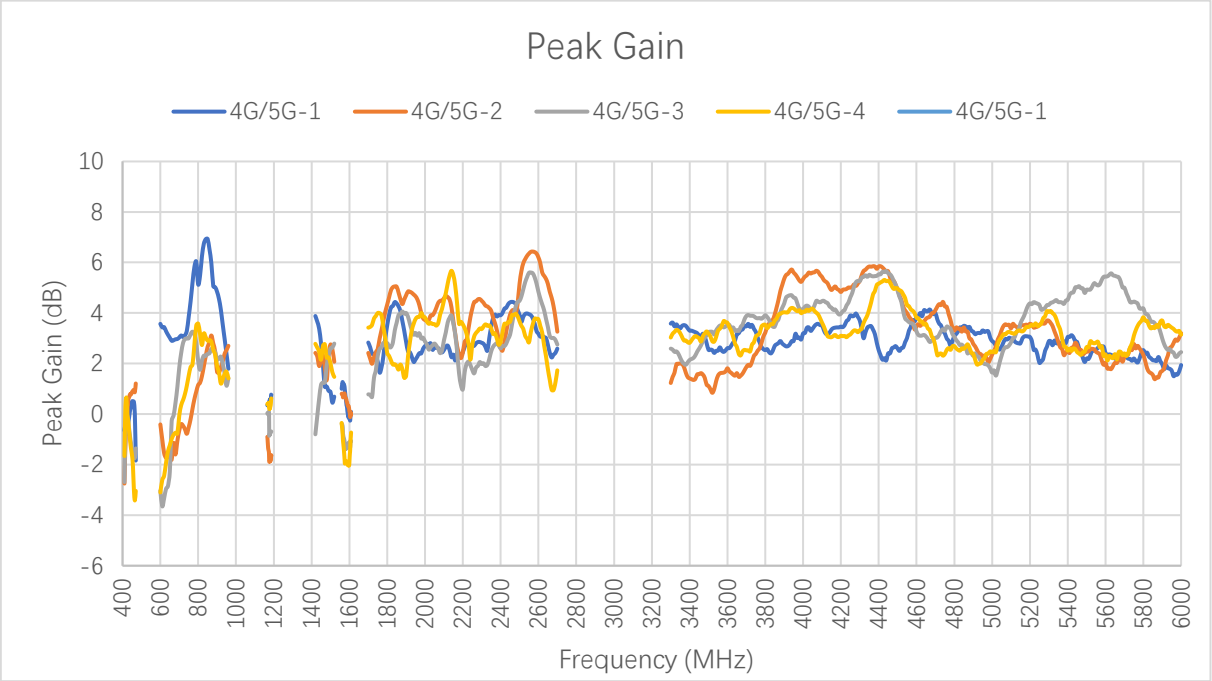
Frequency (MHz)	410	420	430	440	450	460	470
4G/5G-1	-5.1	-4.4	-4.5	-4.1	-3.8	-3.8	-6.2
4G/5G-2	-6.5	-5.0	-4.4	-4.0	-3.9	-3.3	-3.5
4G/5G-3	-7.5	-5.0	-4.3	-4.6	-4.7	-4.9	-4.9
4G/5G-4	-5.9	-4.0	-4.7	-5.3	-5.4	-5.5	-6.7



Average Gain (dB)

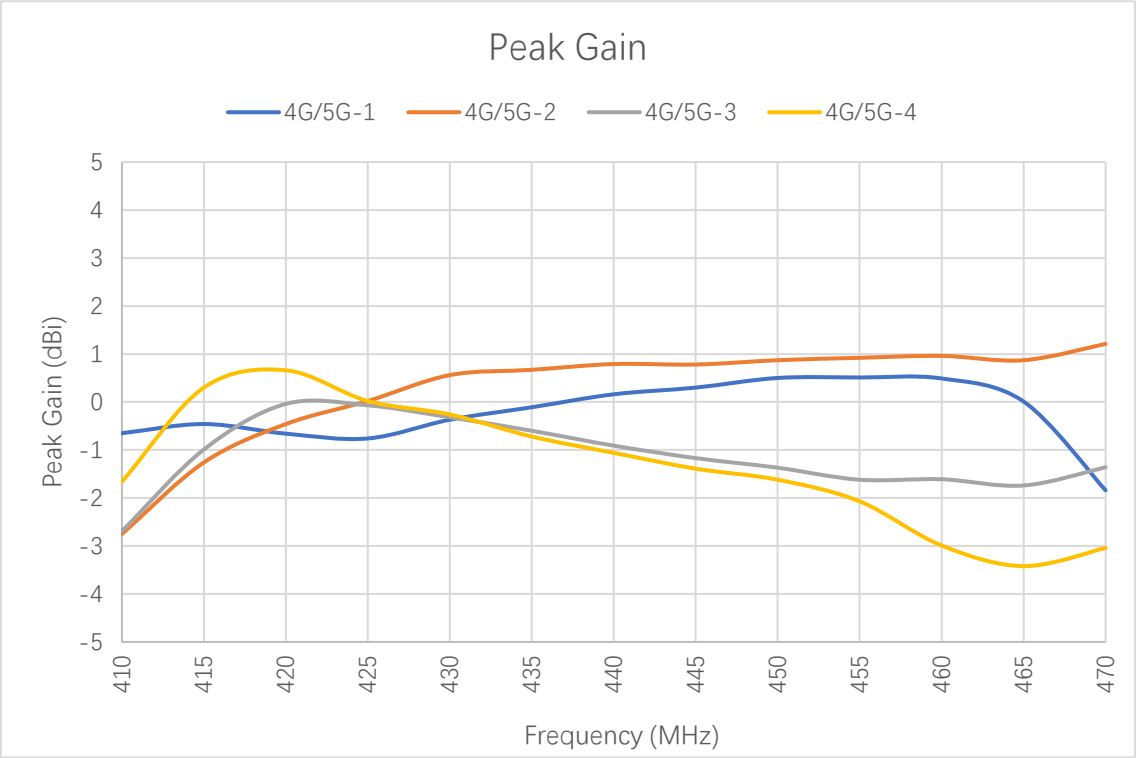
Frequency (MHz)	1166	1175	1187	1559	1575	1609
4G/5G-1	-5.2	-5.3	-5.3	-4.1	-4.6	-4.6
4G/5G-2	-5.7	-5.7	-5.6	-4.8	-5.0	-4.9
4G/5G-3	-5.2	-5.2	-5.3	-4.9	-5.5	-5.4
4G/5G-4	-4.7	-4.8	-5.1	-5.8	-6.2	-5.8

3.2.3. Peak Gain



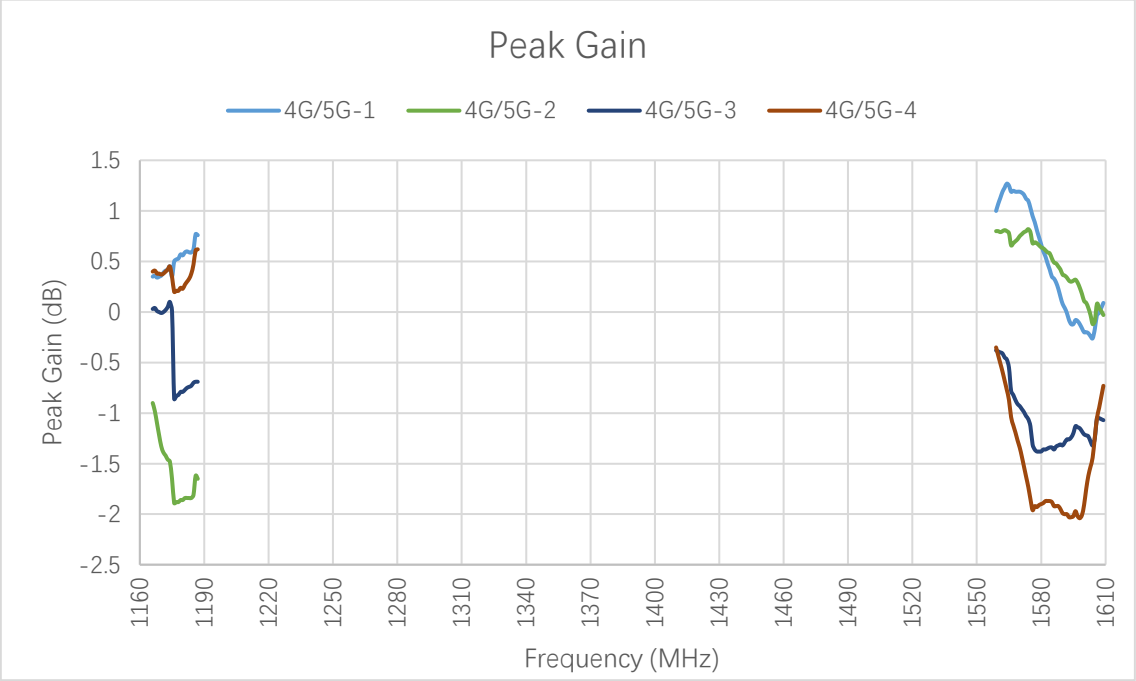
Peak Gain (dBi)

Frequency (MHz)	410	450	600	630	710	830	900	960	1440	1710	1740
4G/5G-1	-0.7	0.5	3.6	3.3	3.1	6.7	4.8	1.8	3.4	2.6	2.3
4G/5G-2	-2.8	0.9	-0.4	-1.7	-0.4	1.9	1.7	2.7	1.9	2.2	2.5
4G/5G-3	-2.7	-1.4	-3.0	-3.0	2.4	2.3	2.2	1.4	0.6	0.8	1.7
4G/5G-4	-1.7	-1.6	-3.1	-1.9	0.4	3.2	1.9	1.4	2.5	3.5	3.9
Frequency (MHz)	**1880**	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
4G/5G-1	3.7	2.2	2.3	3.5	4.4	3.2	2.6	4.0	2.9	2.2	1.9
4G/5G-2	4.4	4.7	4.2	4.1	3.9	6.2	1.8	4.1	2.4	2.5	3.2
4G/5G-3	4.1	3.2	3.9	2.5	3.1	4.8	3.5	3.0	1.6	4.9	2.5
4G/5G-4	1.8	3.8	5.7	3.4	3.7	3.8	3.6	2.7	2.5	2.7	3.1



Peak Gain (dBi)

Frequency (MHz)	410	420	430	440	450	460	470
4G/5G-1	-0.7	-0.7	-0.4	0.2	0.5	0.5	-1.8
4G/5G-2	-2.8	-0.5	0.6	0.8	0.9	1.0	1.2
4G/5G-3	-2.7	0.0	-0.3	-0.9	-1.4	-1.6	-1.4
4G/5G-4	-1.7	0.7	-0.3	-1.1	-1.6	-3.0	-3.0

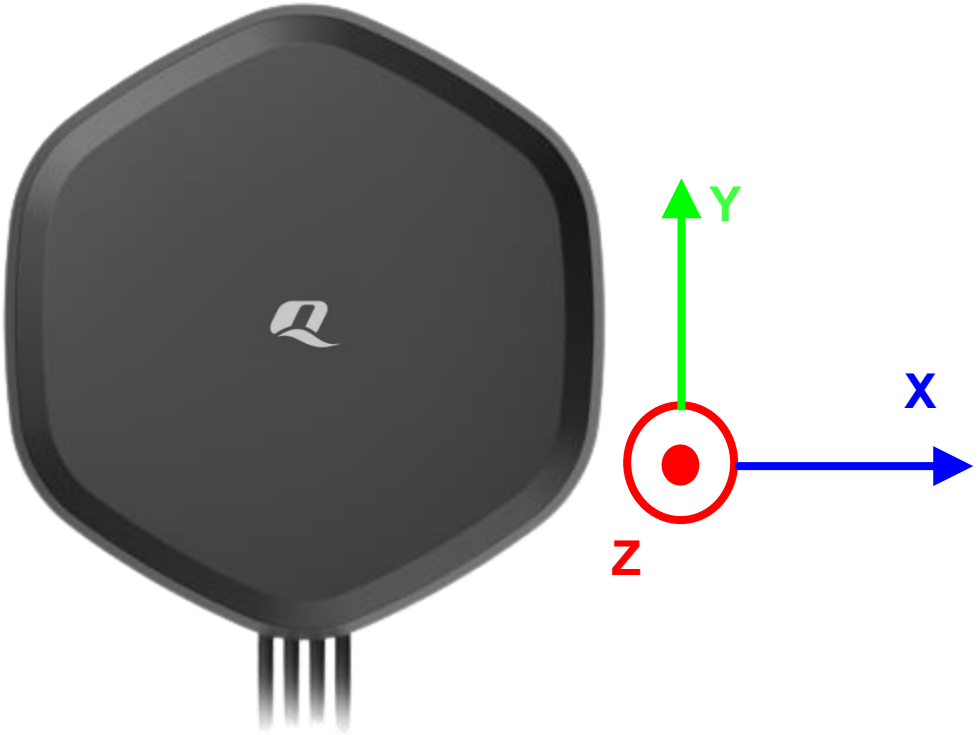


Peak Gain (dBi)

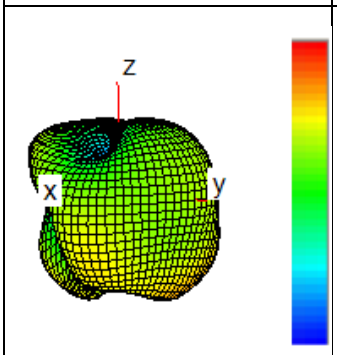
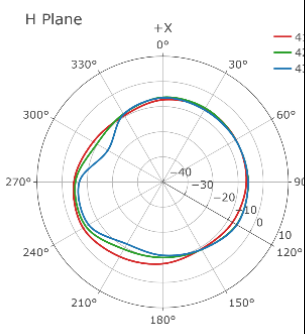
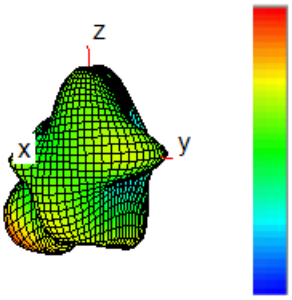
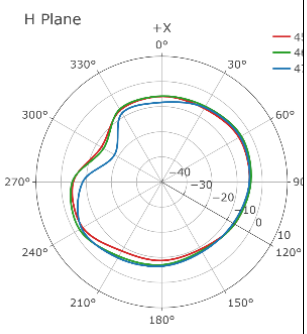
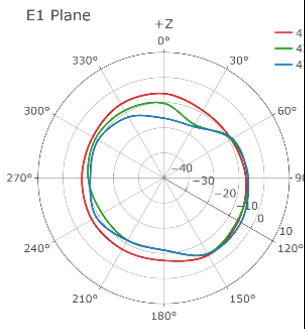
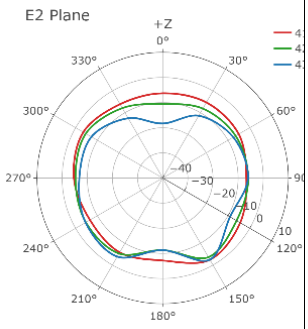
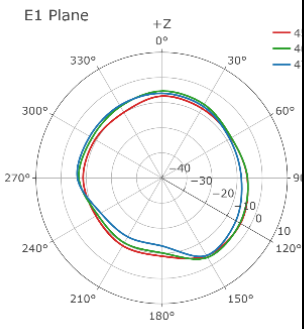
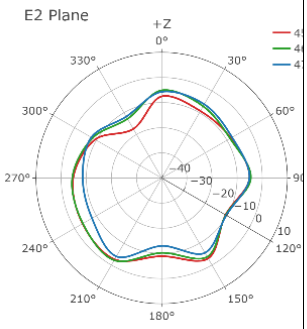
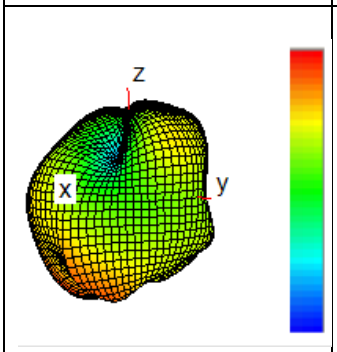
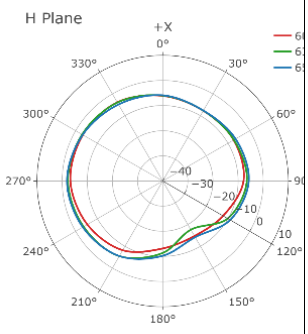
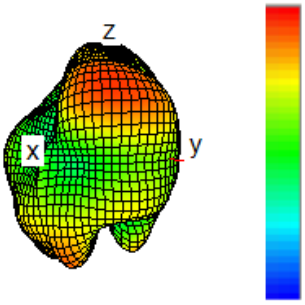
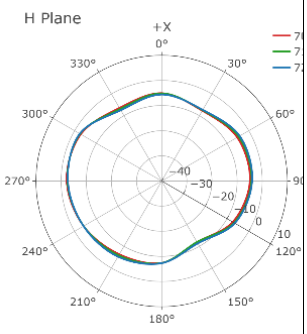
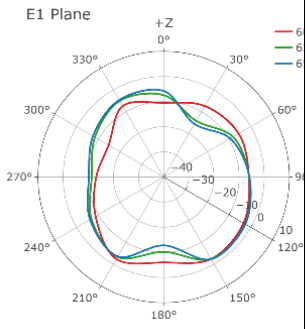
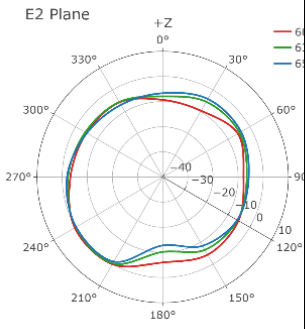
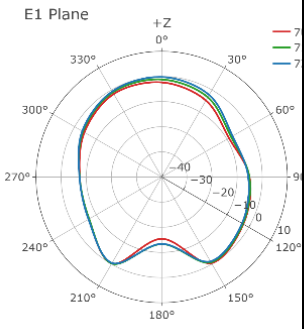
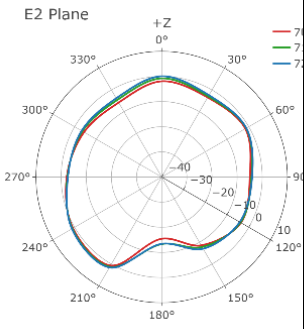
Frequency (MHz)	1166	1175	1187	1559	1575	1609
4G/5G-1	0.4	0.4	0.8	1.0	1.0	0.1
4G/5G-2	-0.9	-1.7	-1.7	0.8	0.8	0.0
4G/5G-3	0.0	0.0	-0.7	-0.4	-1.1	-1.1
4G/5G-4	0.4	0.4	0.6	-0.4	-1.9	-0.7

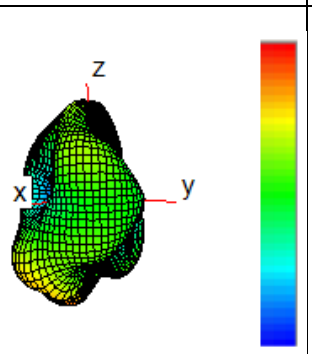
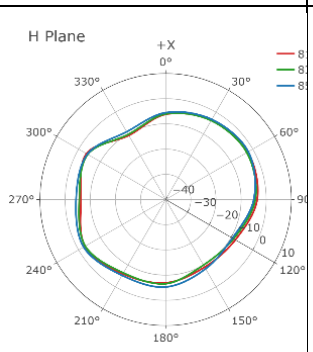
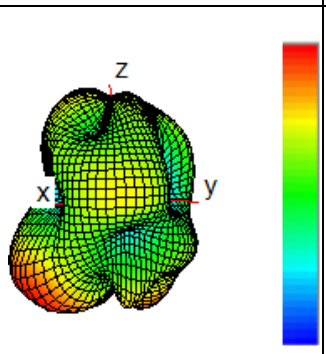
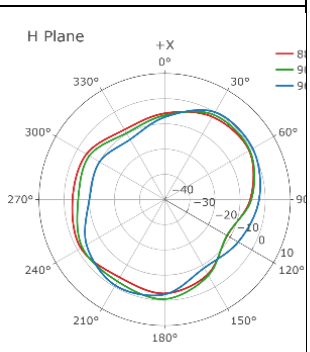
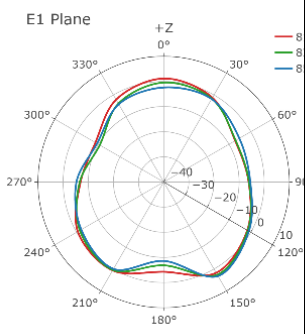
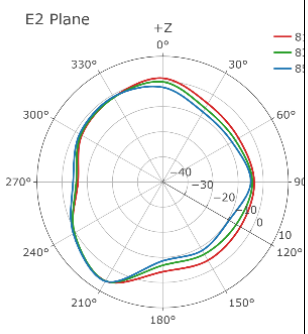
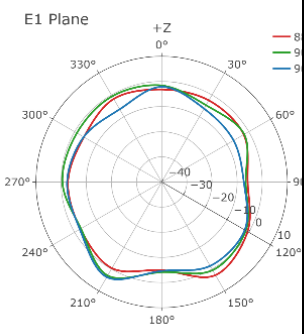
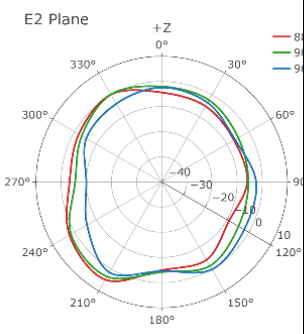
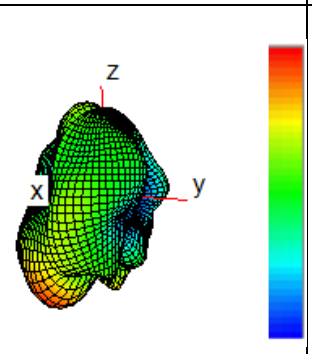
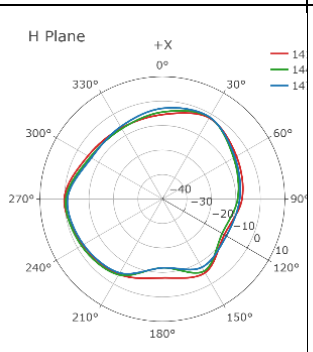
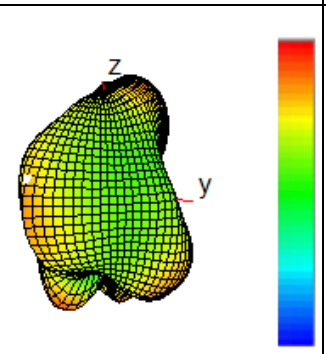
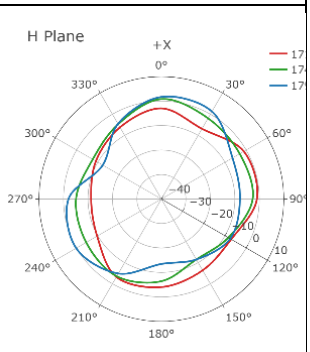
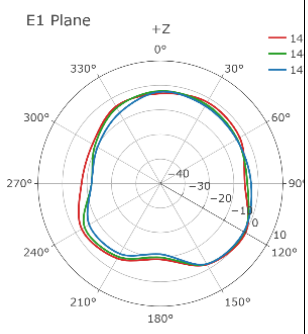
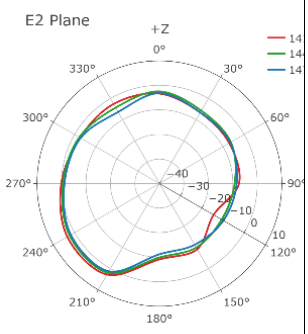
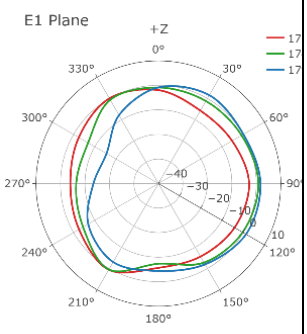
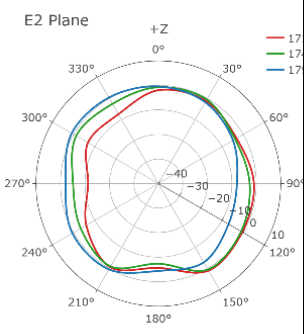
3.2.4. 3D & 2D Radiation Pattern

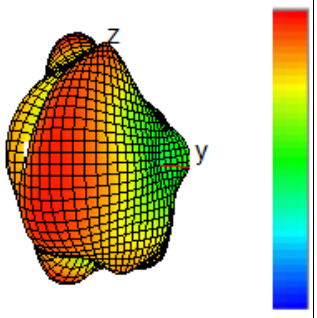
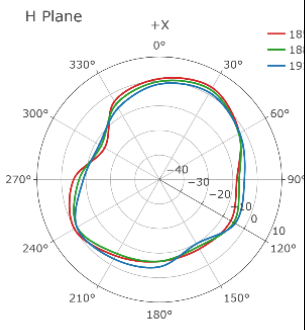
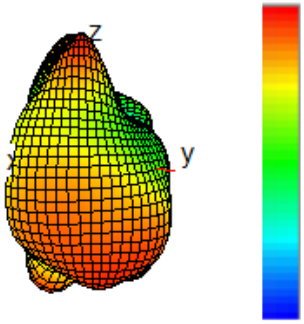
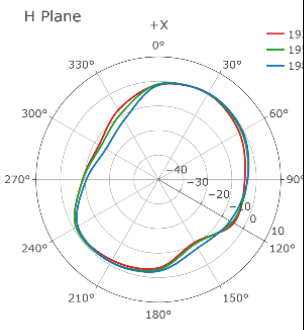
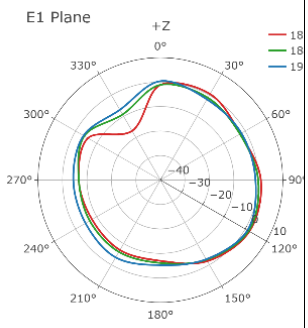
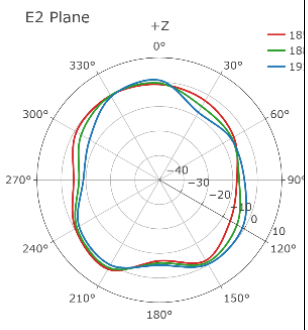
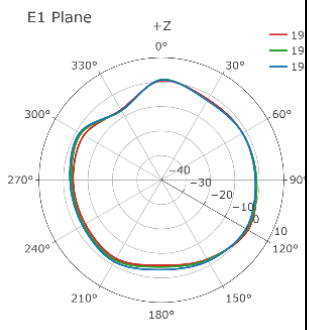
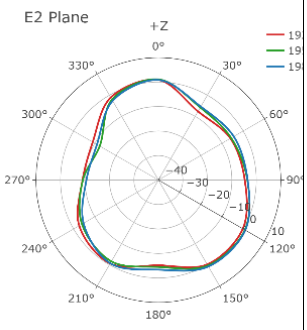
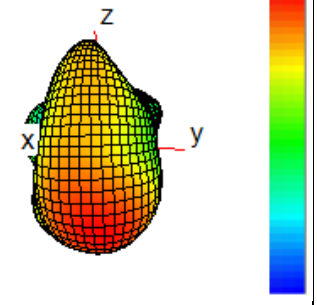
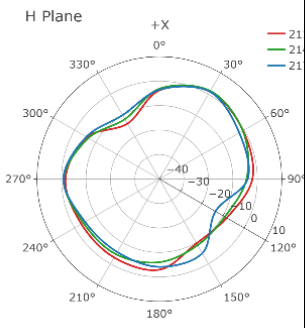
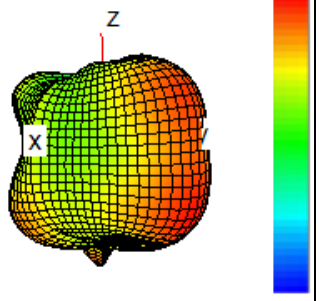
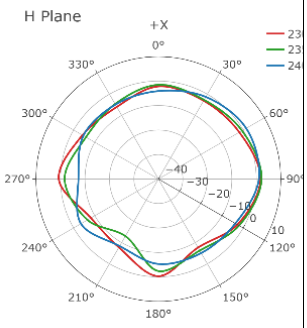
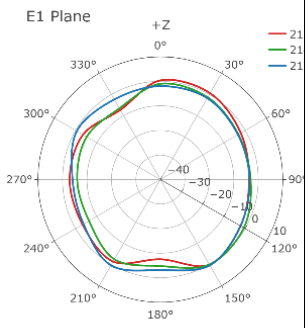
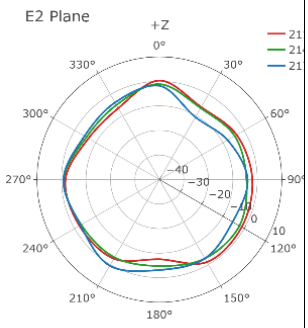
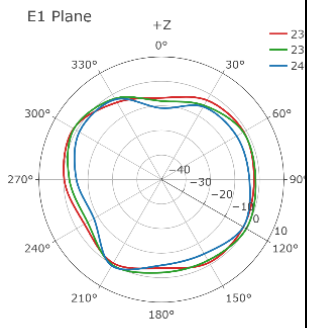
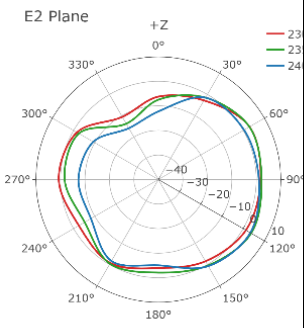
- Test Status: Free space
- Test Chamber: FS-G-1

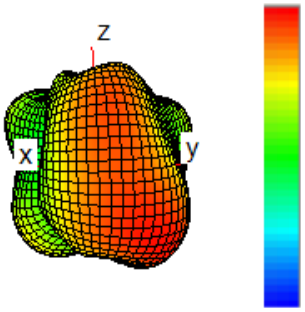
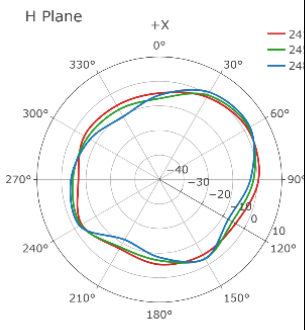
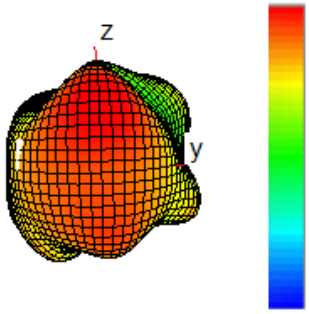
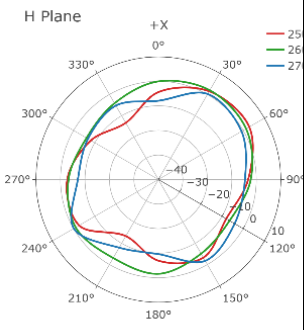
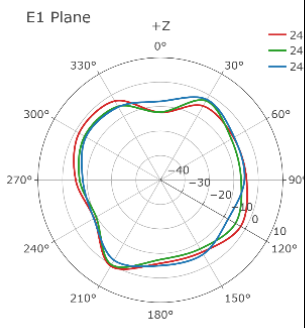
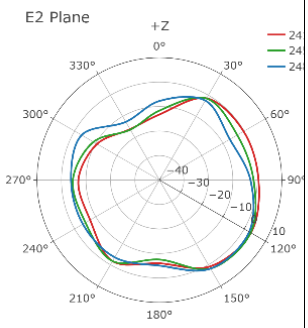
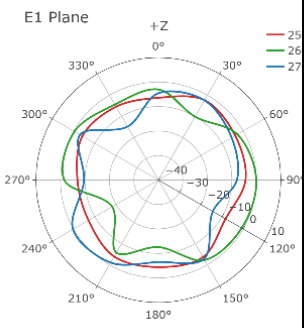
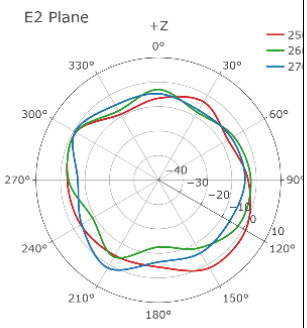
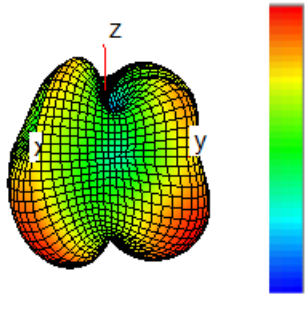
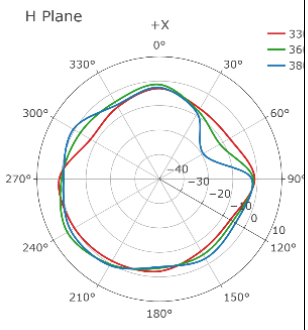
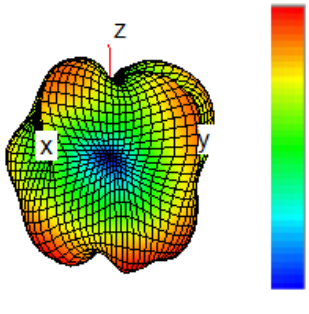
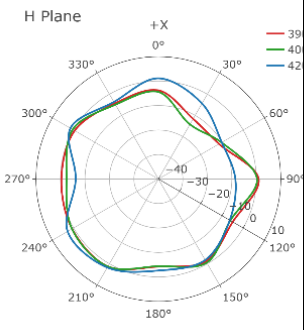
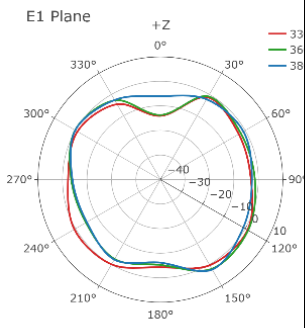
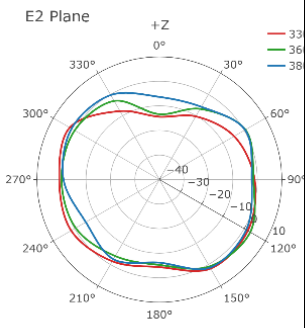
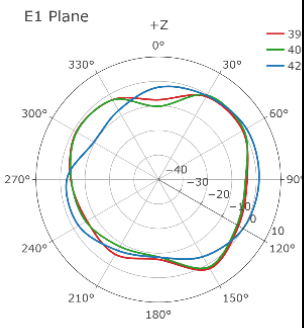
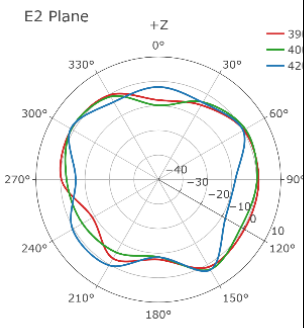


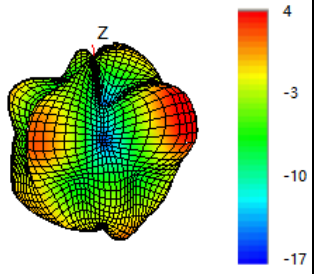
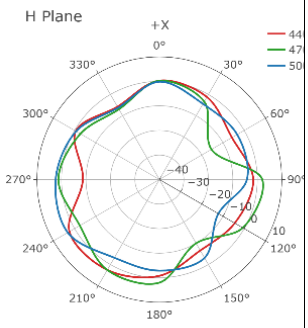
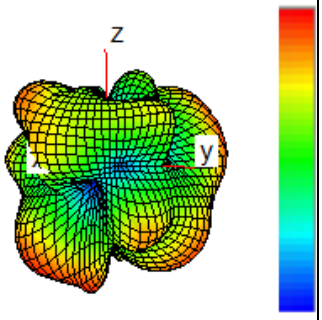
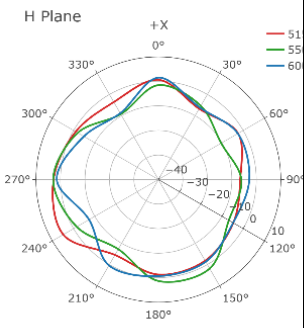
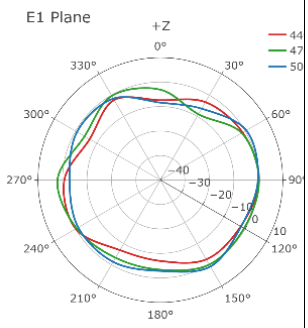
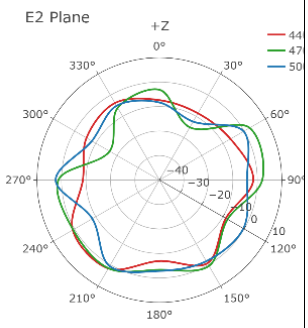
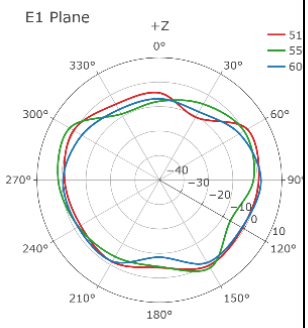
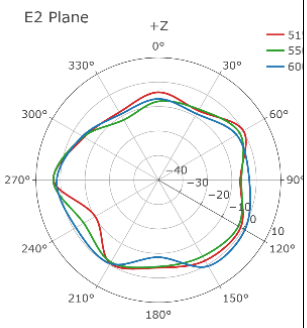
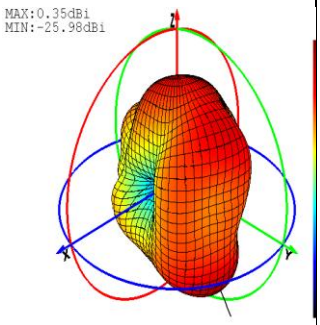
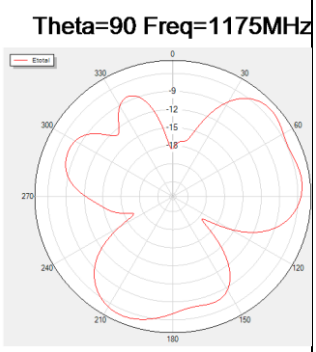
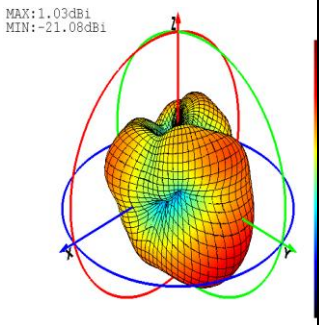
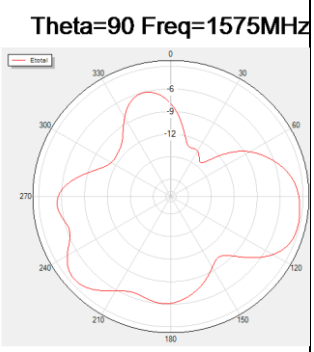
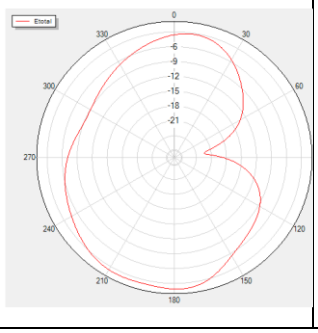
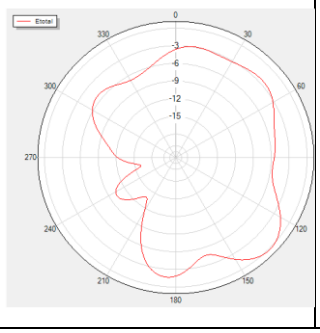
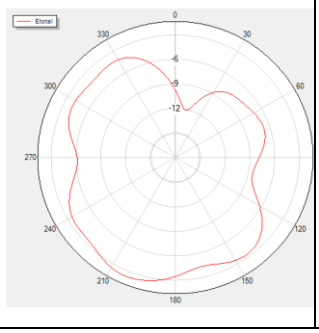
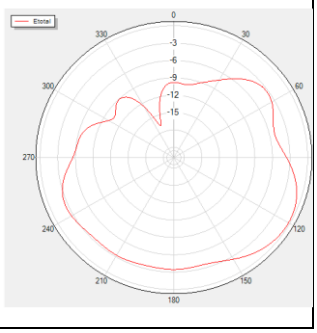
- **4G/5G-1**

420 MHz		460 MHz	
			
			
630 MHz		**710 MHz**	
			
			

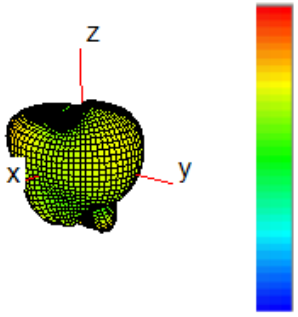
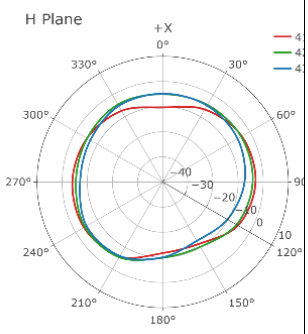
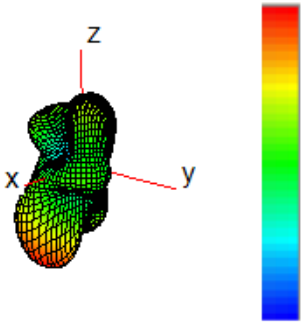
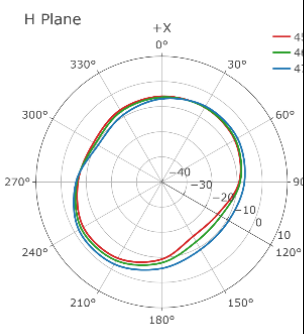
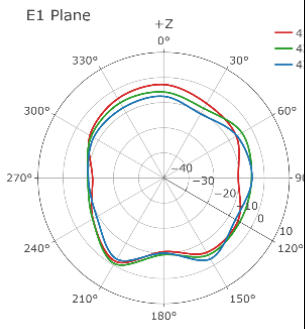
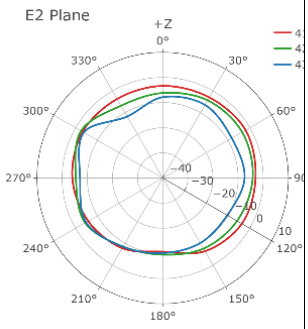
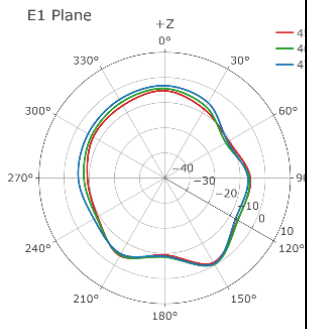
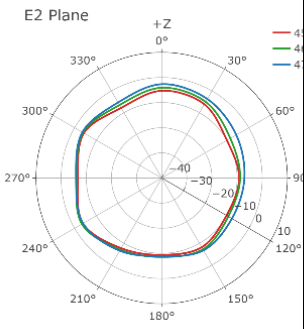
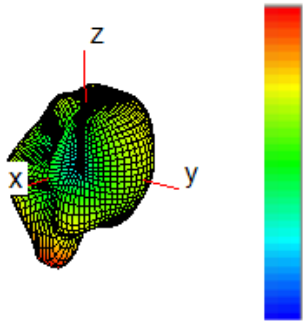
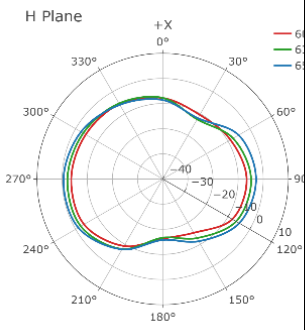
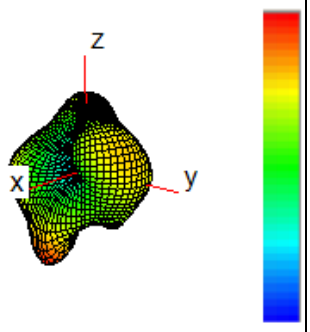
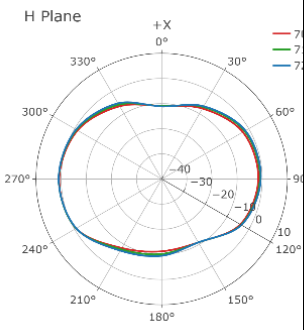
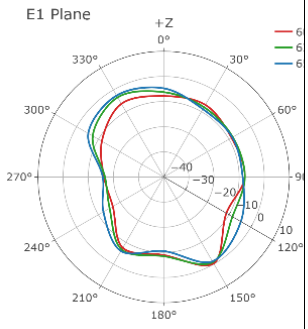
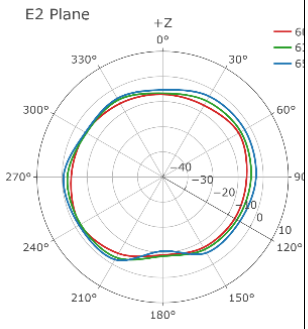
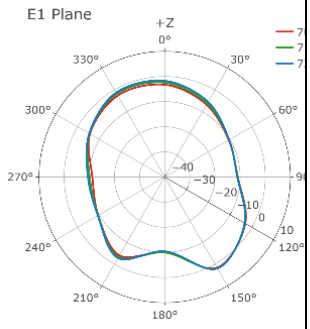
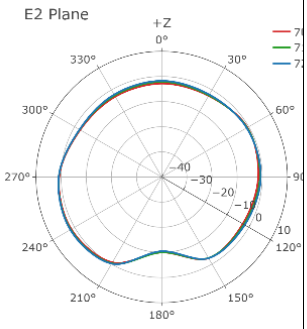
830 MHz		900 MHz	
			
			
1440 MHz		**1740 MHz**	
			
			

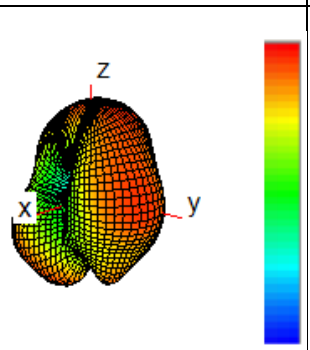
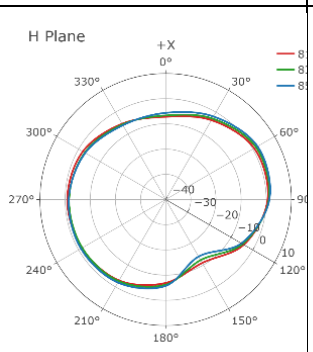
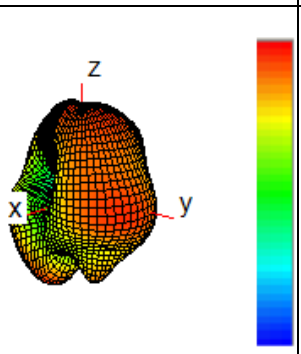
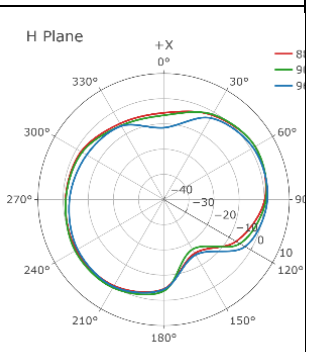
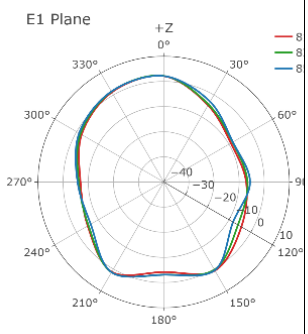
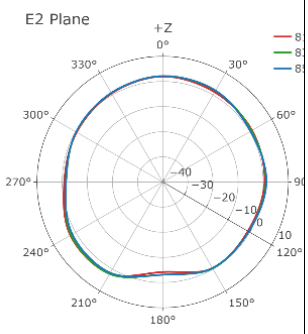
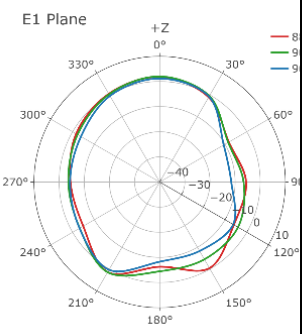
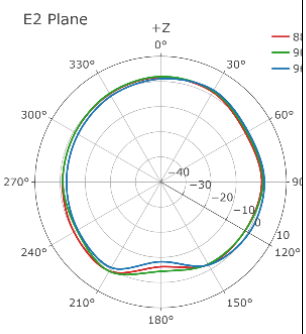
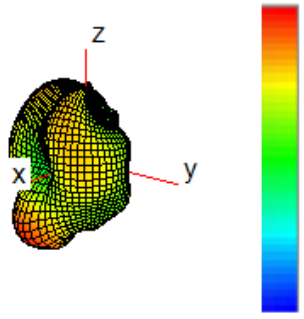
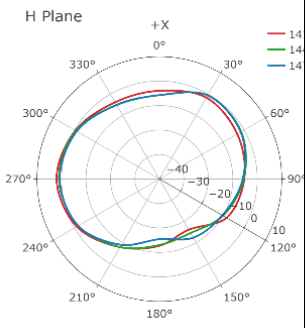
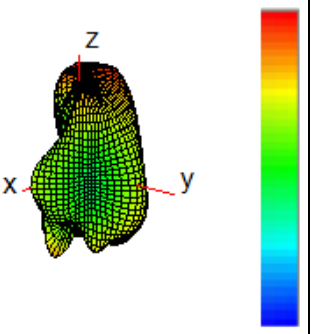
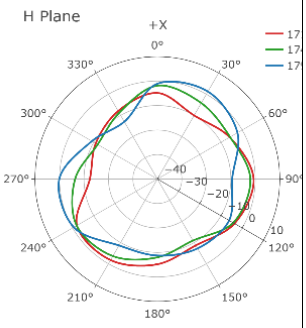
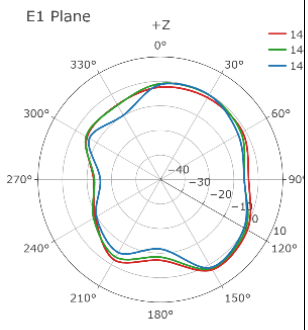
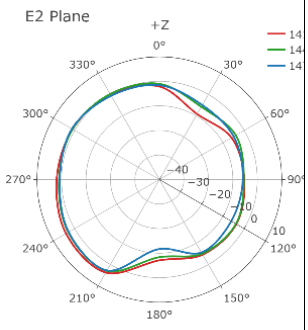
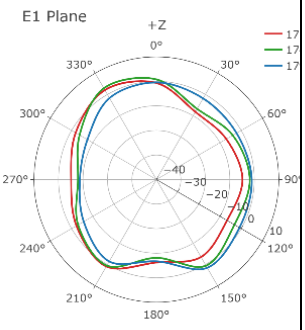
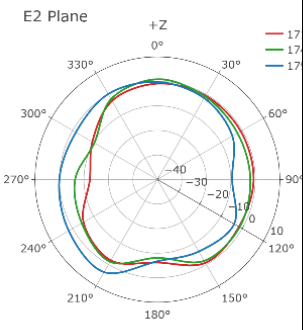
1880 MHz		1950 MHz	
			
			
2140 MHz		**2350 MHz**	
			
			

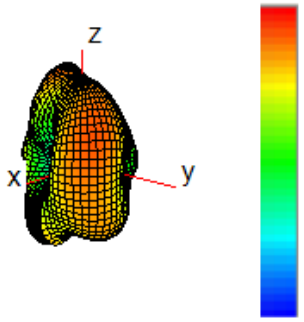
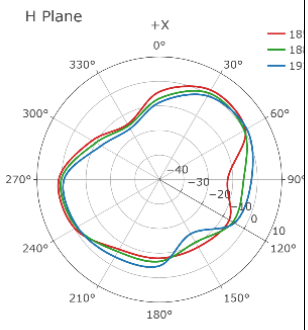
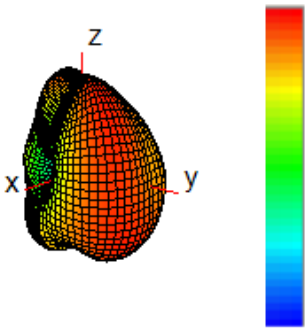
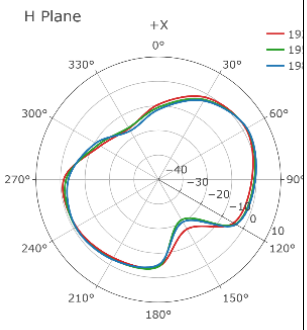
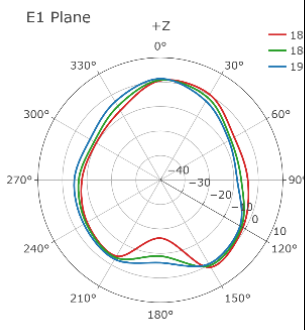
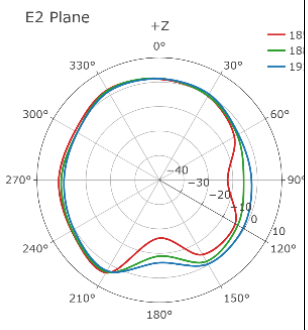
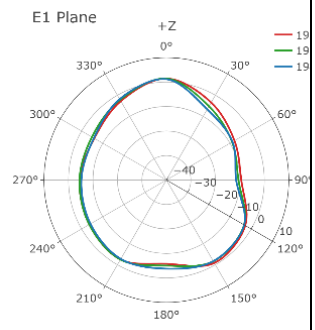
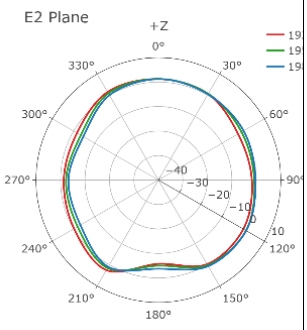
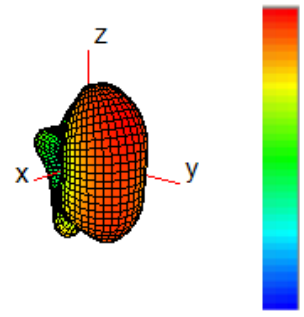
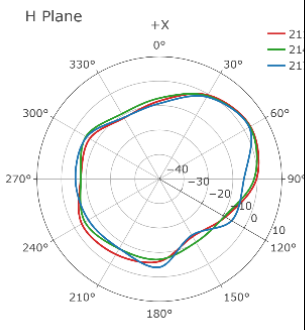
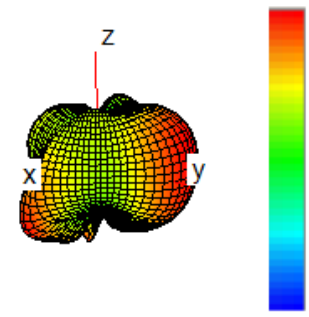
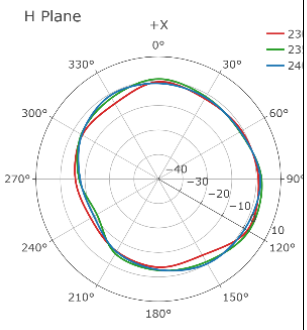
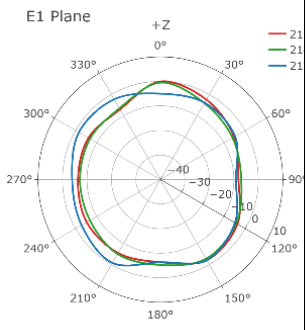
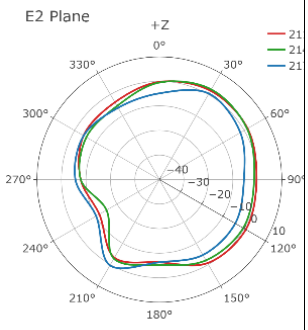
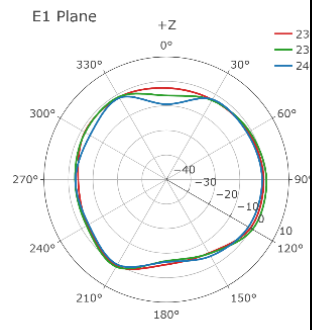
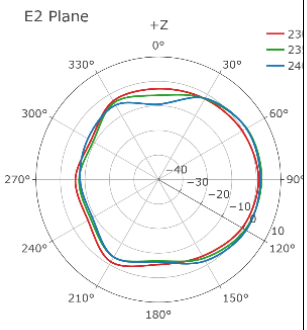
2450 MHz		2600 MHz	
			
			
3600 MHz		4000 MHz	
			
			

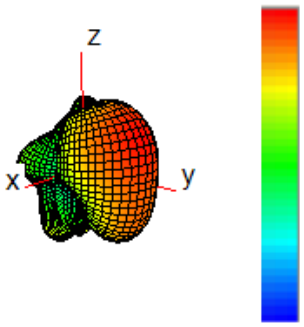
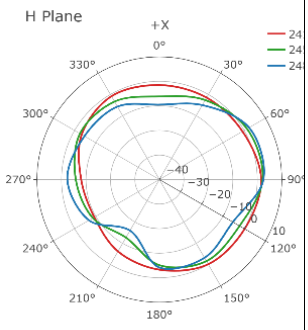
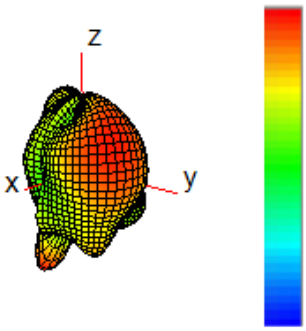
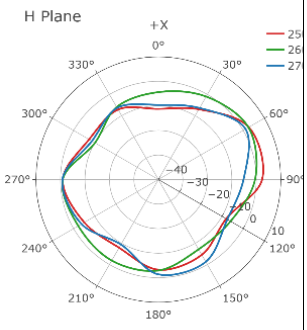
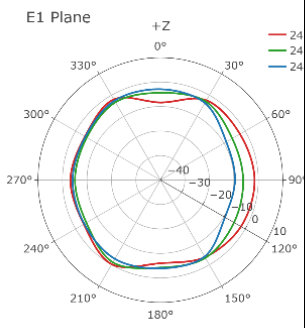
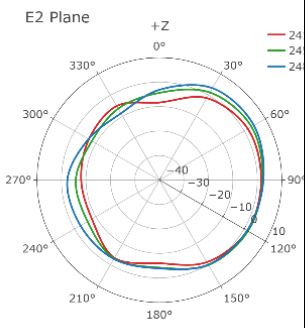
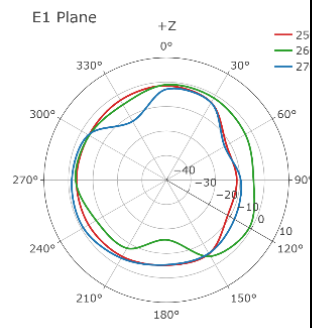
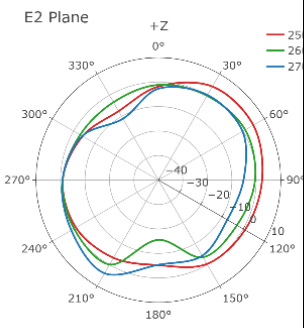
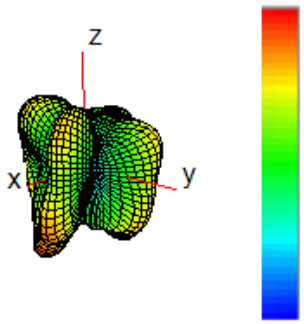
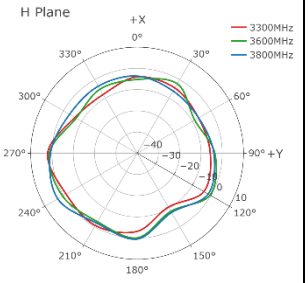
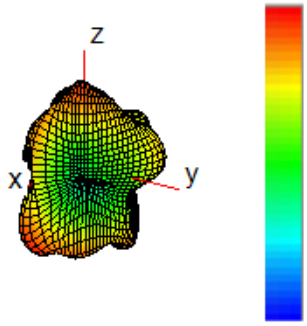
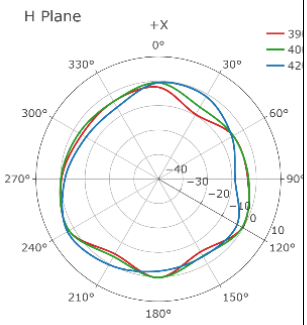
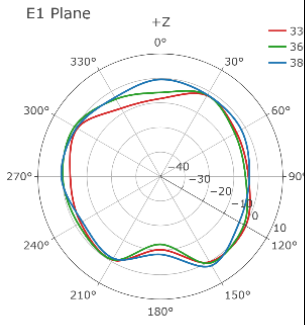
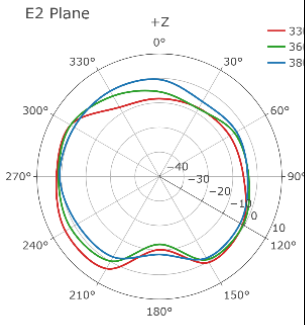
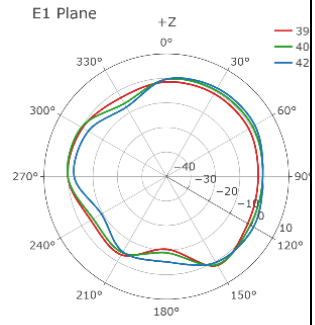
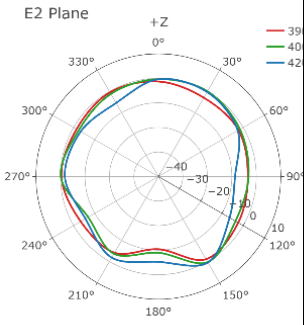
4700 MHz		5500 MHz	
			
			
1175 MHz		1575 MHz	
			
			

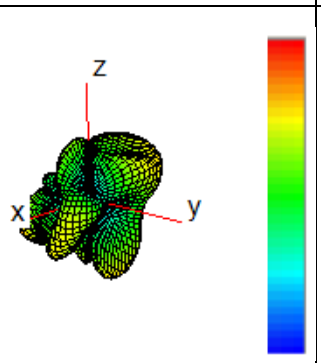
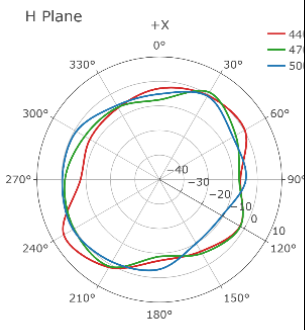
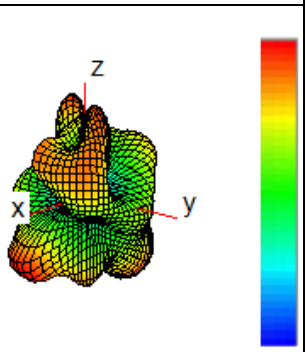
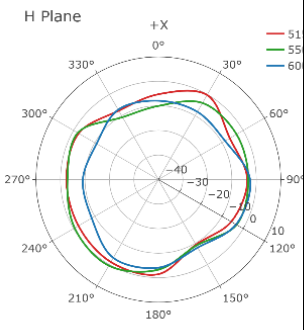
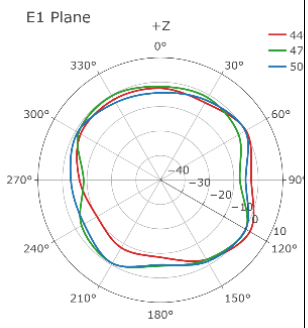
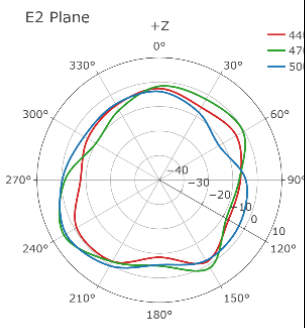
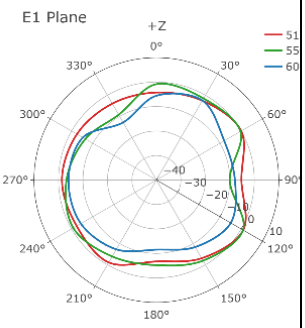
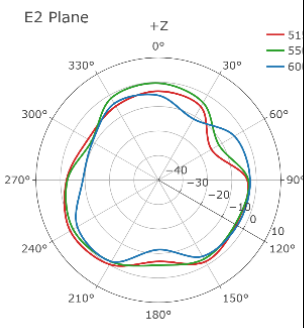
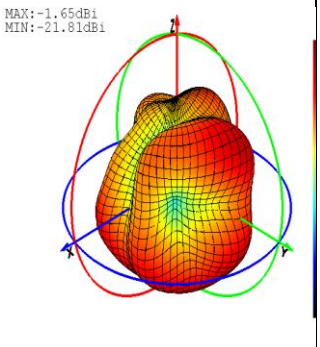
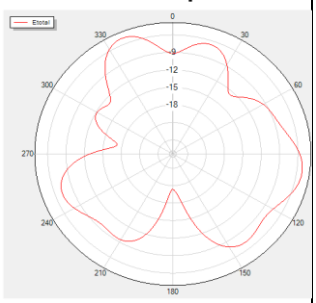
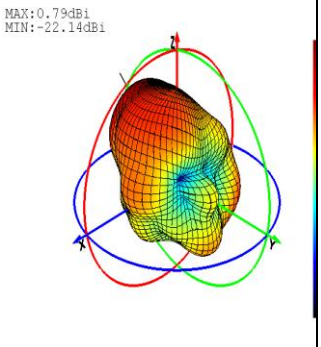
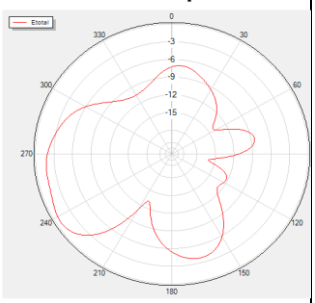
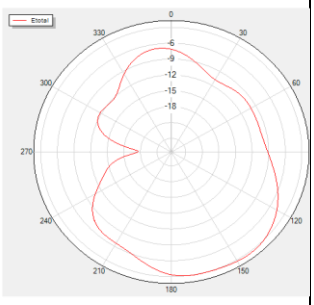
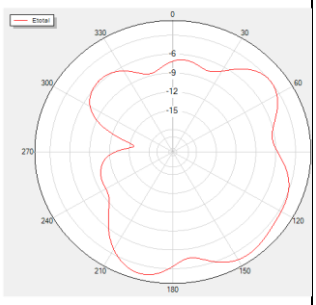
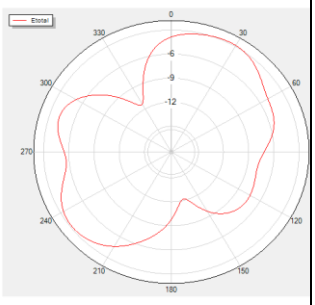
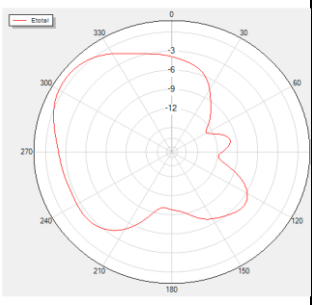
- **4G/5G-2**

420 MHz		460 MHz	
			
			
630 MHz		**710 MHz**	
			
			

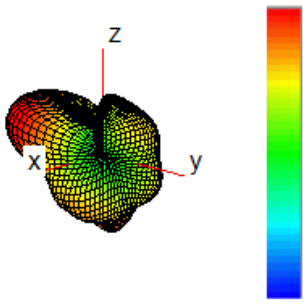
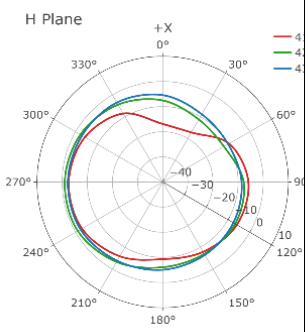
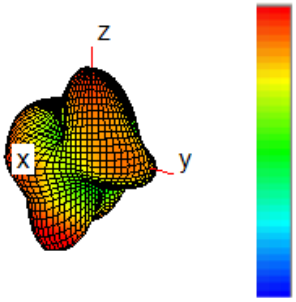
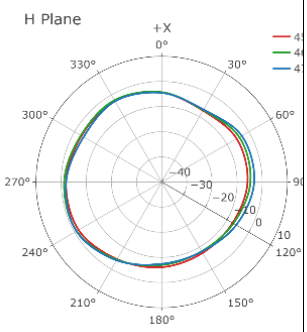
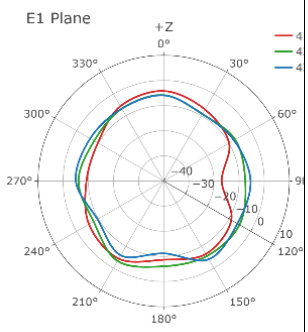
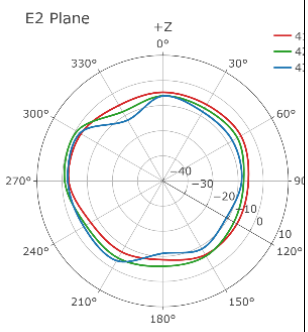
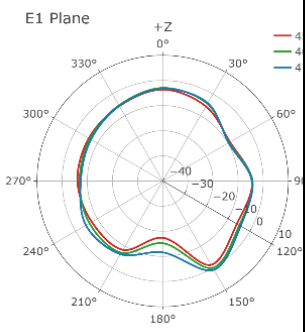
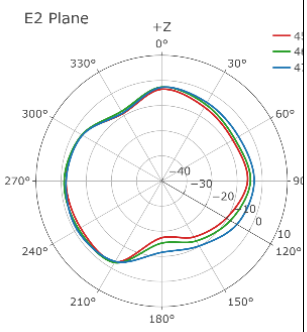
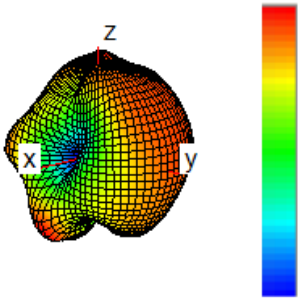
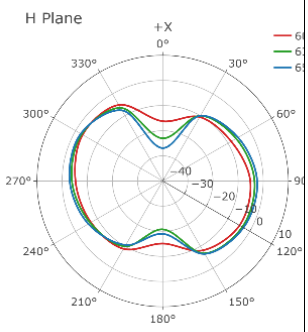
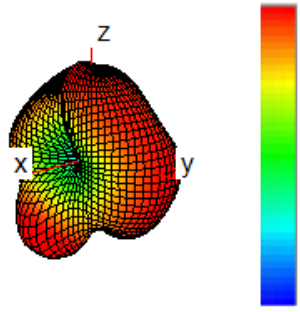
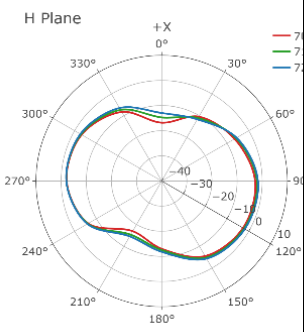
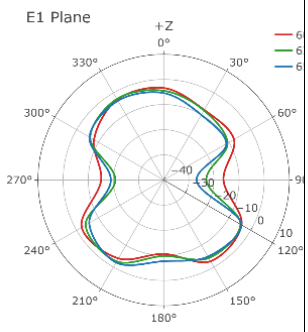
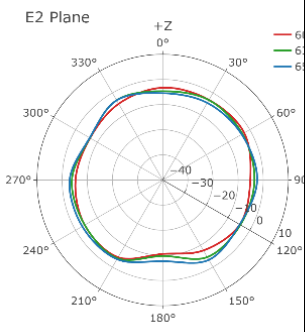
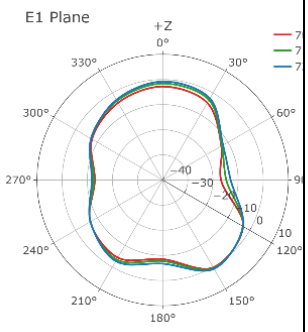
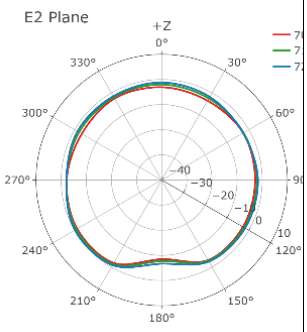
830 MHz		900 MHz	
			
			
1440 MHz		**1740 MHz**	
			
			

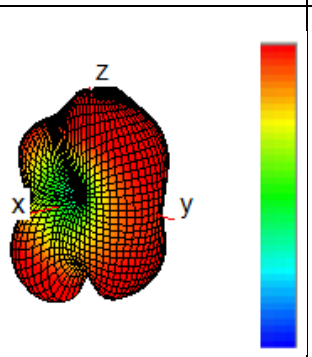
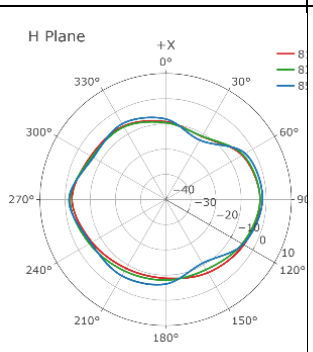
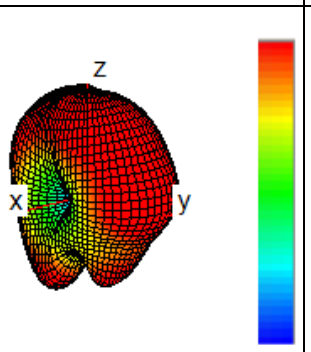
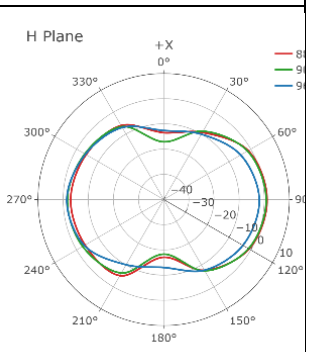
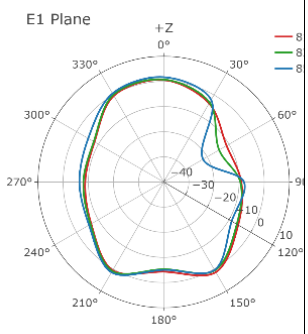
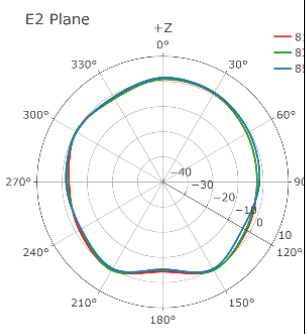
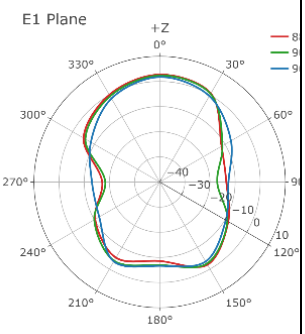
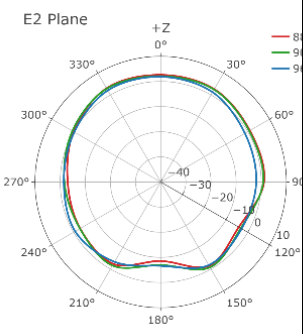
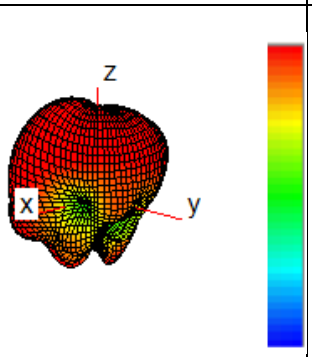
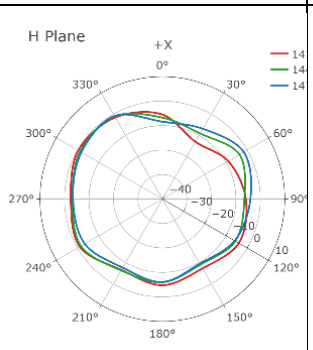
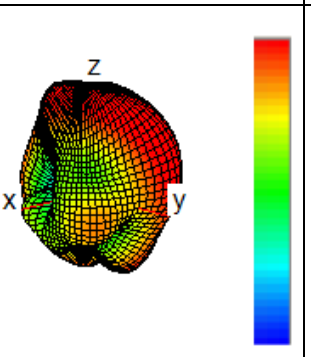
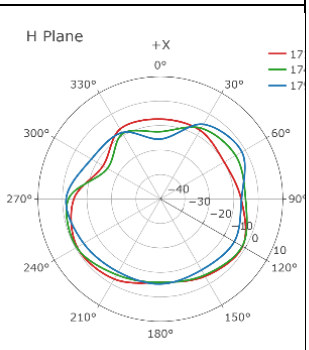
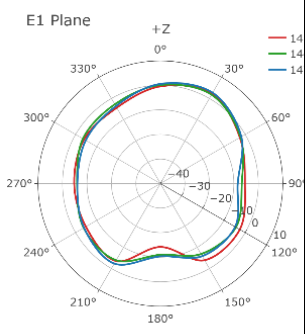
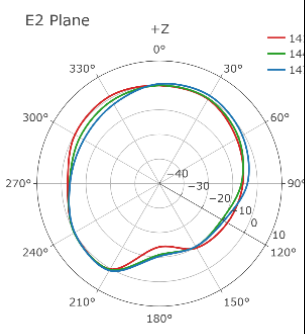
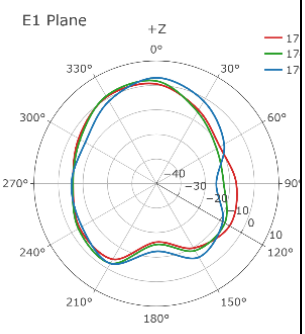
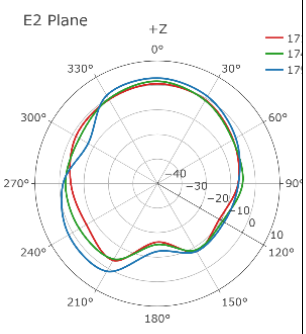
1880 MHz		1950 MHz	
			
			
2140 MHz		**2350 MHz**	
			
			

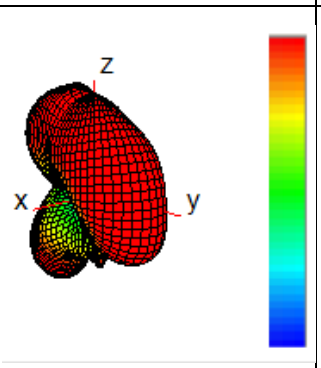
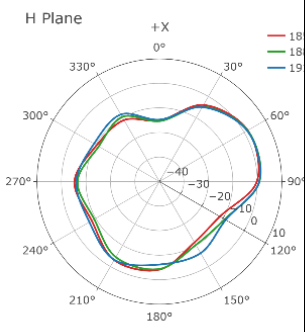
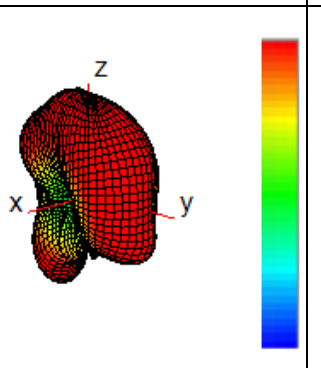
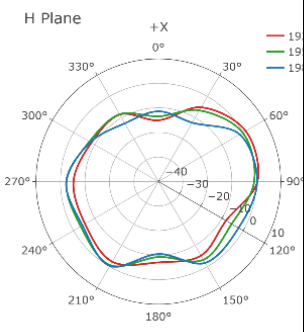
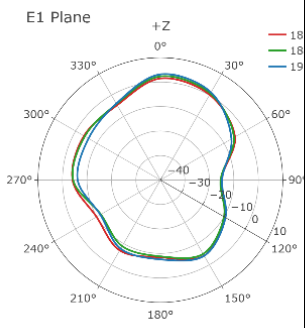
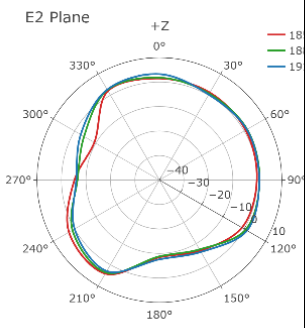
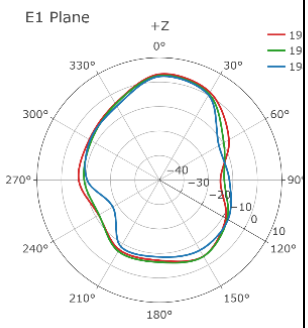
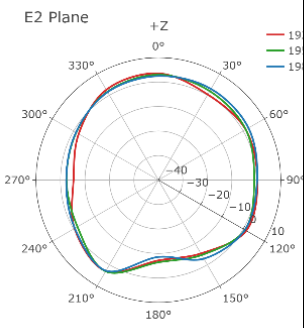
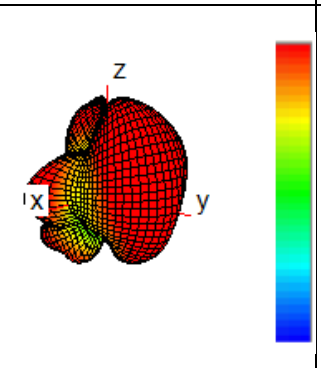
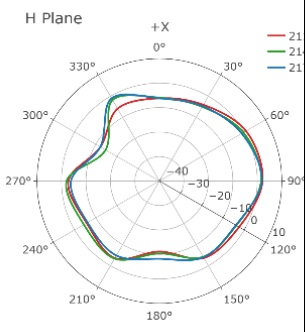
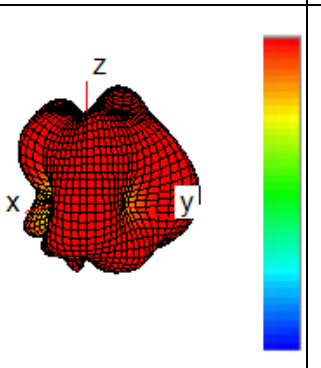
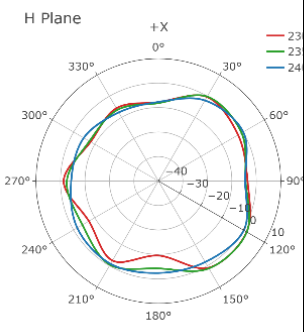
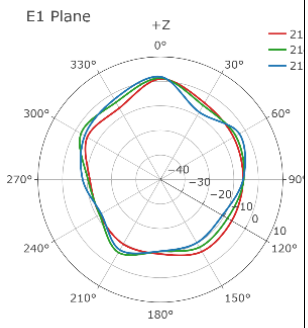
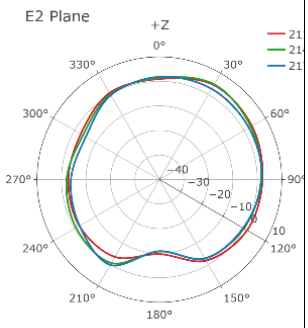
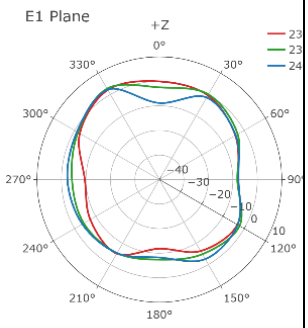
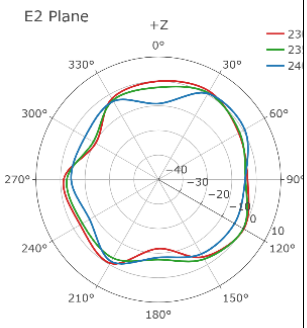
2450 MHz		2600 MHz	
			
			
3600 MHz		**4000 MHz**	
			
			

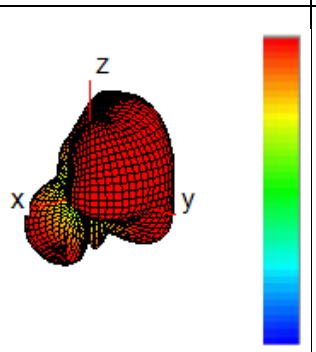
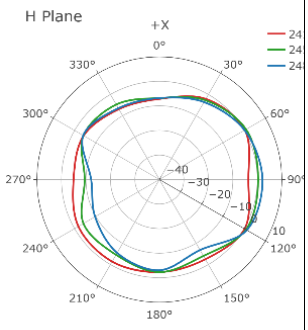
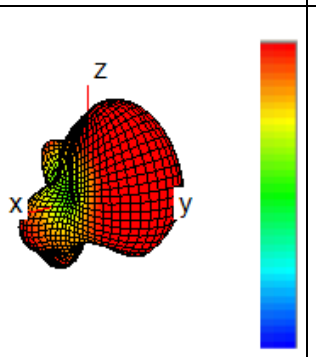
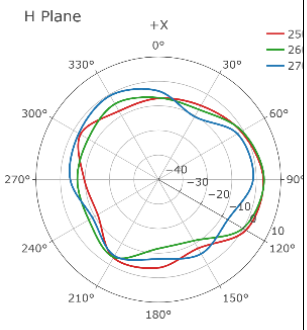
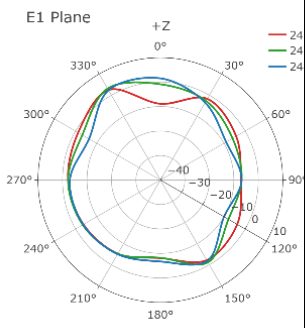
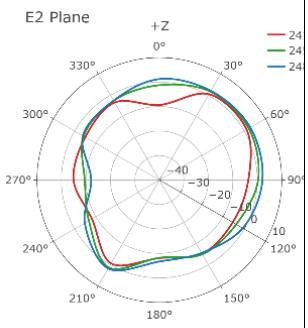
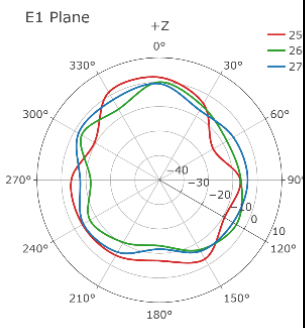
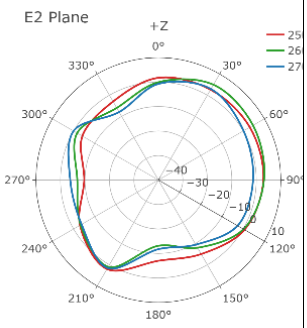
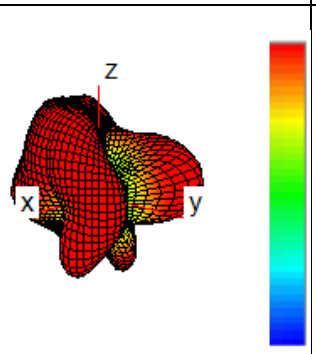
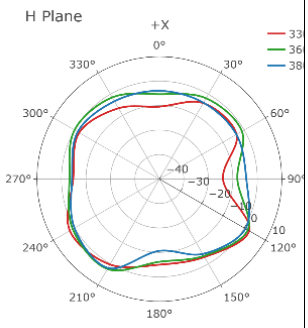
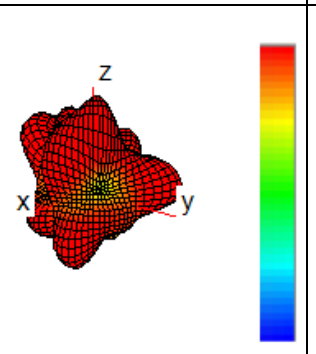
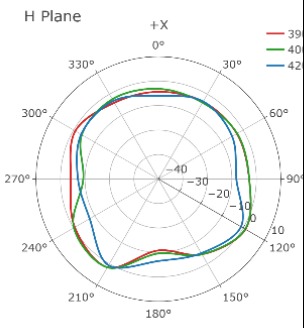
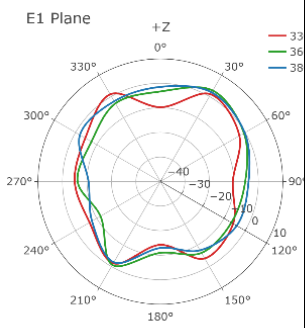
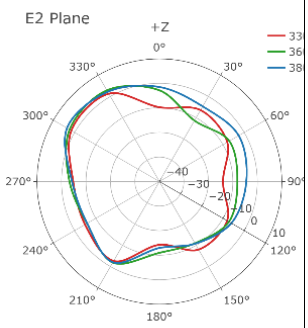
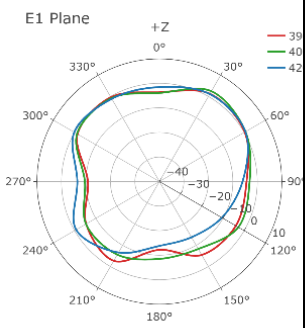
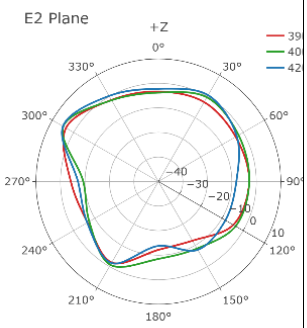
4700 MHz		5500 MHz	
			
			
1175 MHz		1575 MHz	
			
			

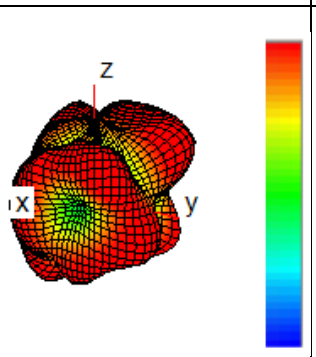
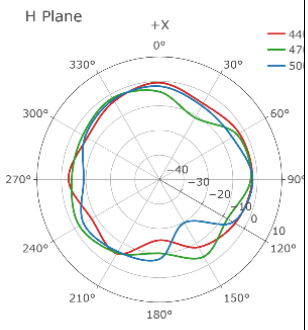
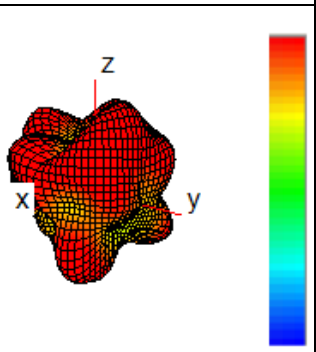
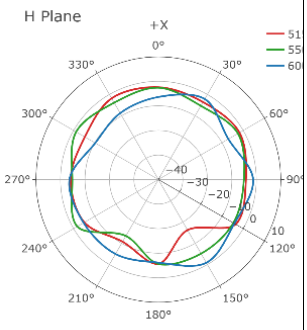
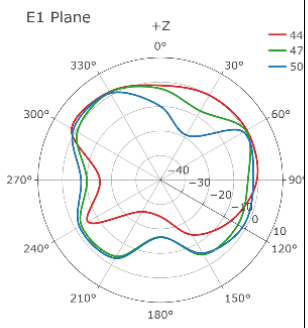
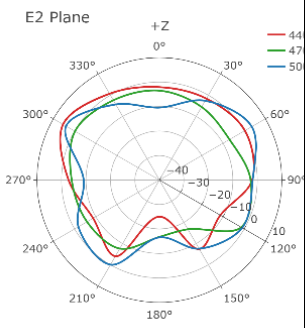
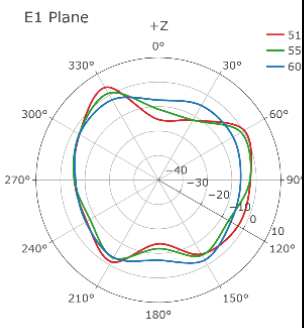
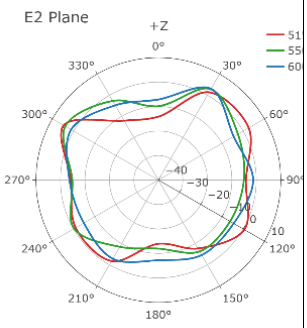
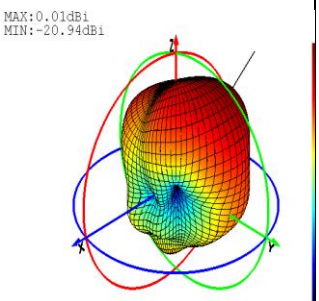
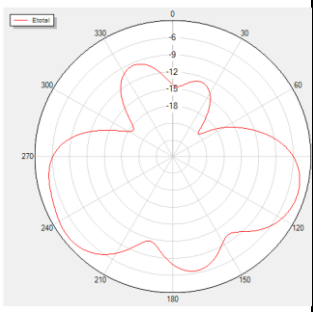
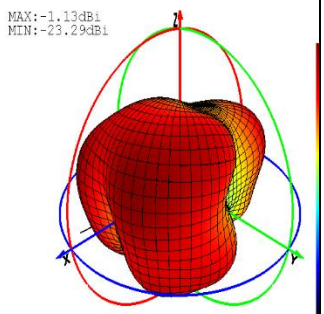
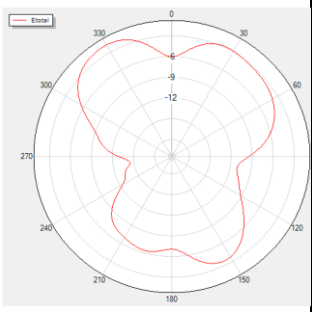
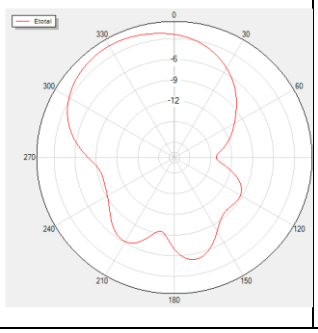
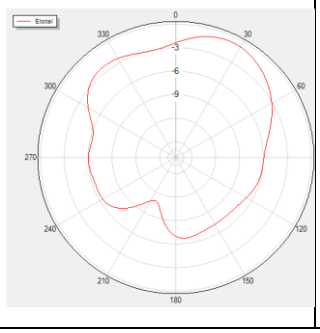
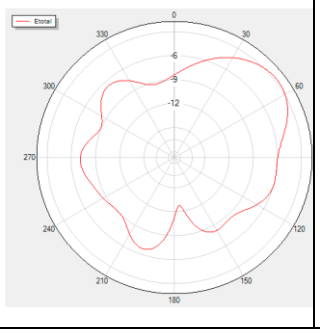
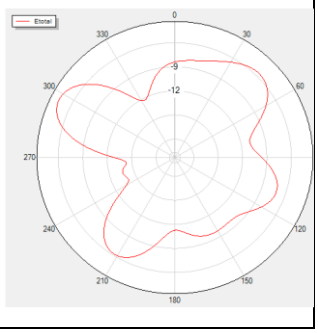
- **4G/5G-3**

420 MHz		460 MHz	
			
			
630 MHz		**710 MHz**	
			
			

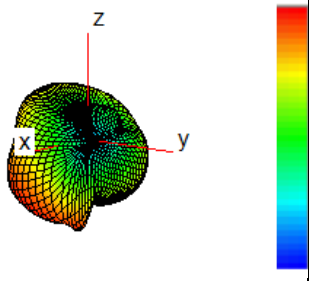
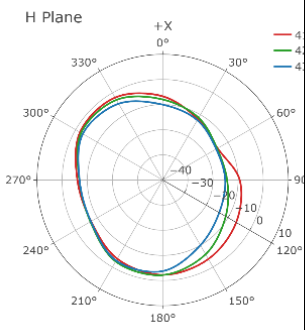
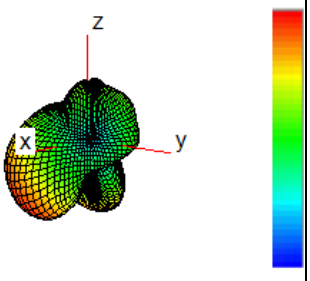
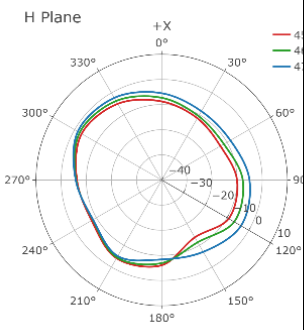
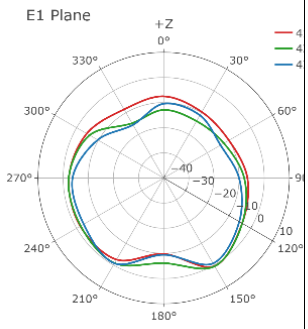
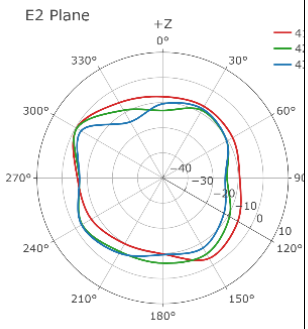
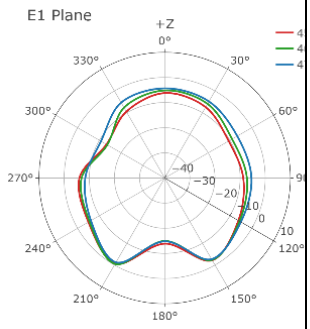
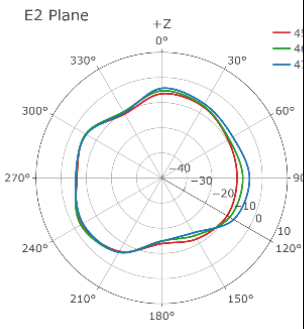
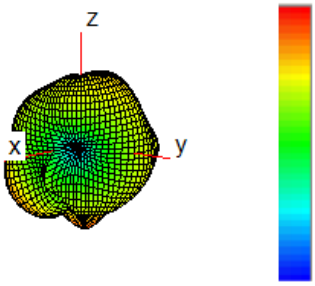
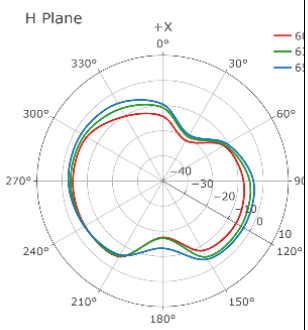
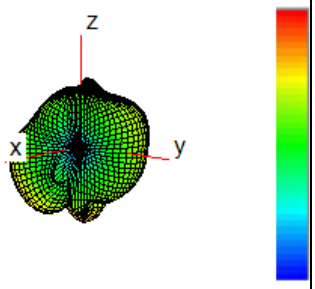
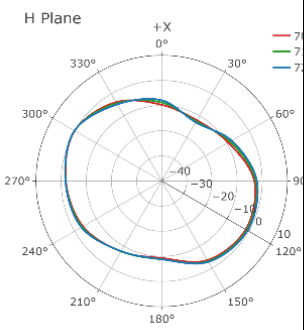
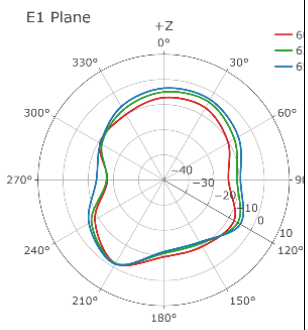
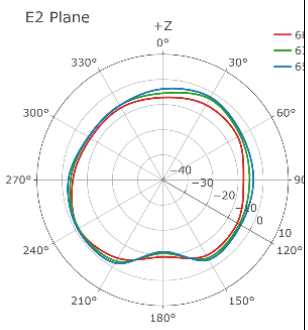
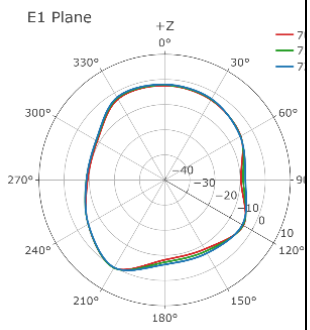
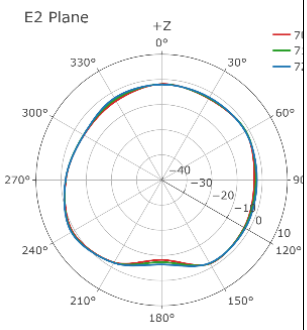
830 MHz		900 MHz	
			
			
1440 MHz		**1740 MHz**	
			
			

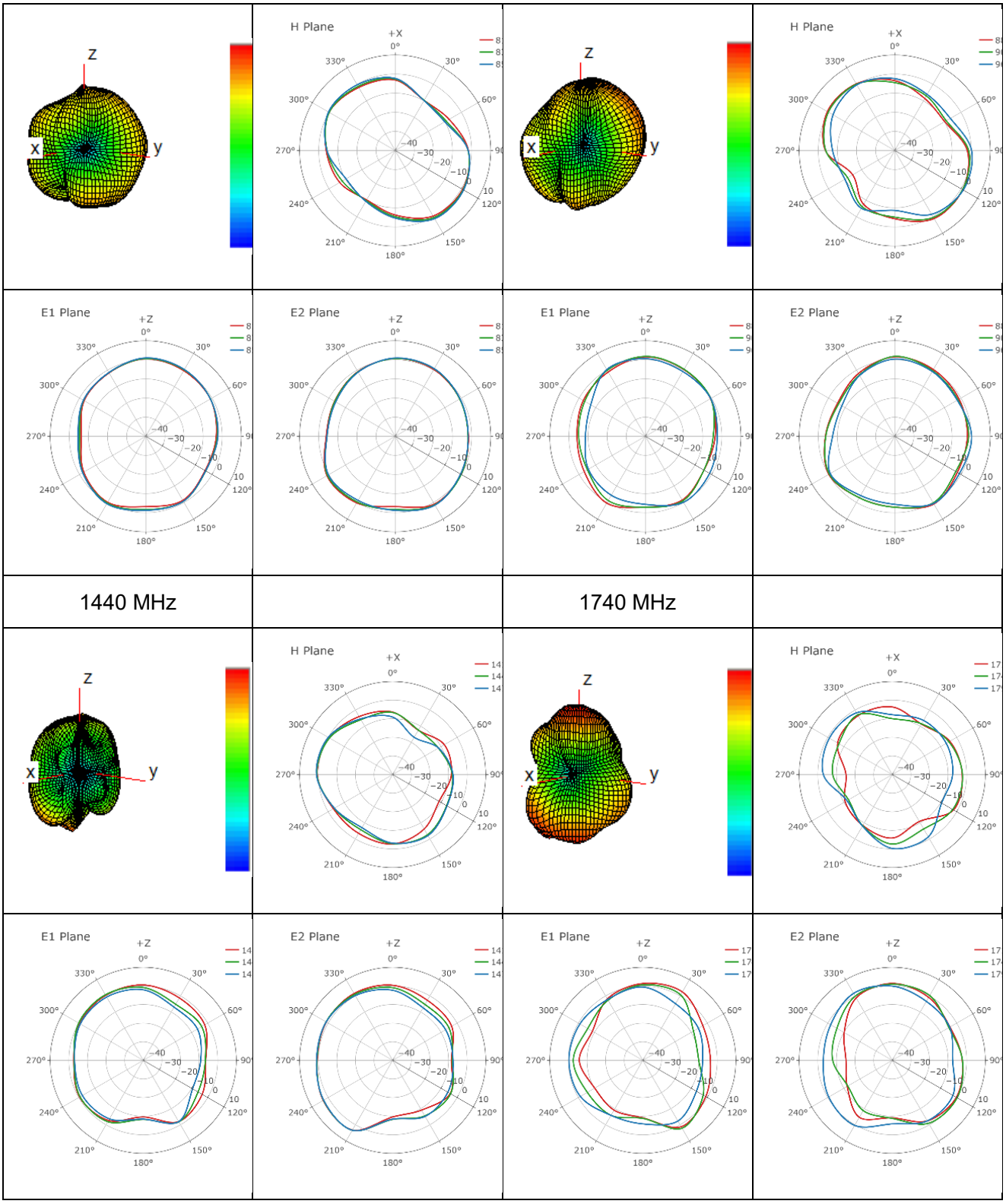
1880 MHz		1950 MHz	
			
			
2140 MHz		2350 MHz	
			
			

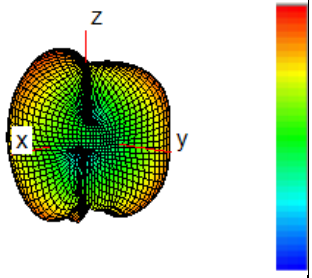
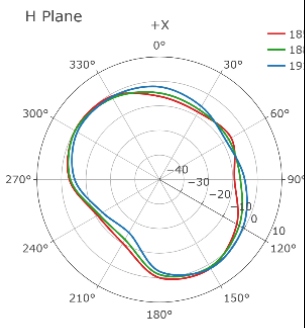
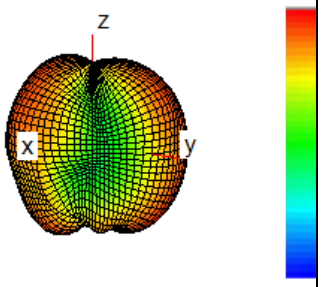
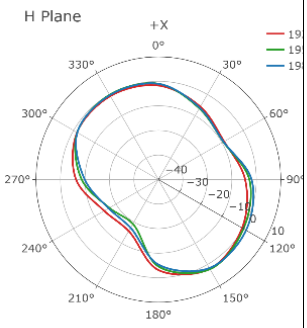
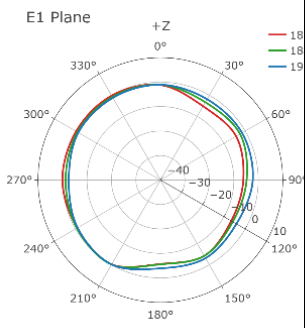
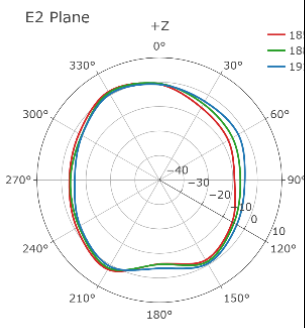
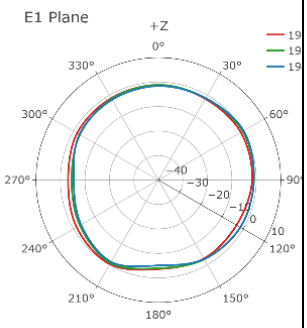
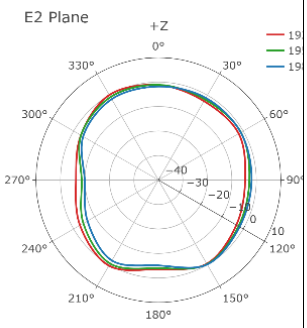
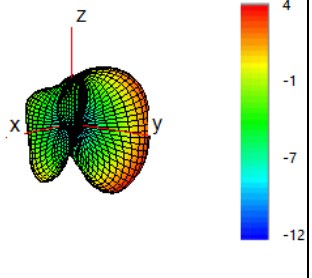
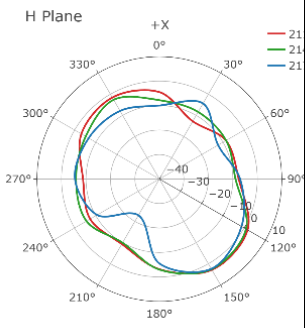
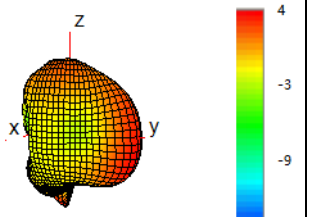
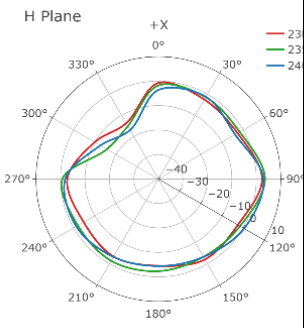
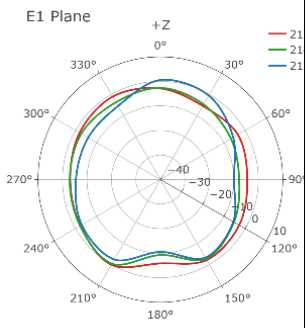
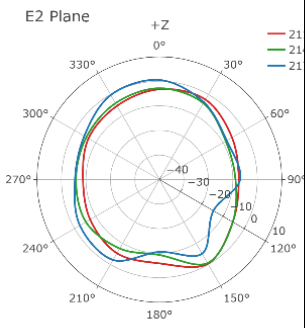
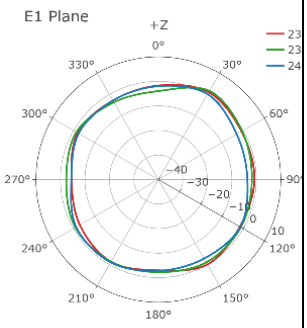
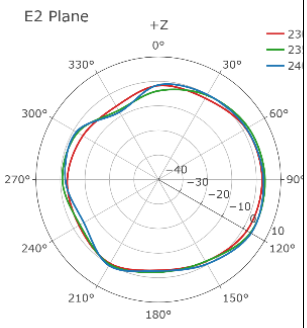
2450 MHz		2600 MHz	
			
			
3600 MHz		**4000 MHz**	
			
			

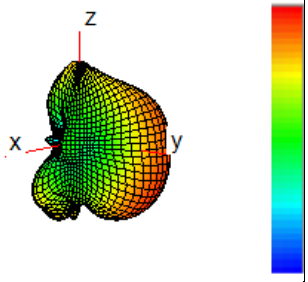
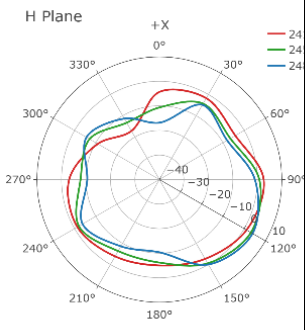
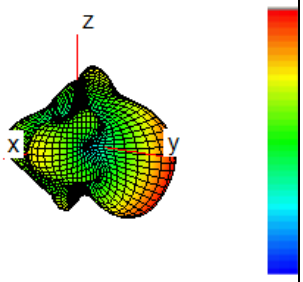
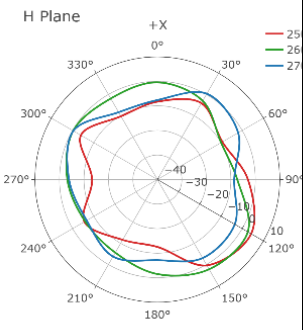
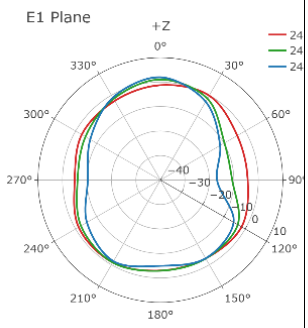
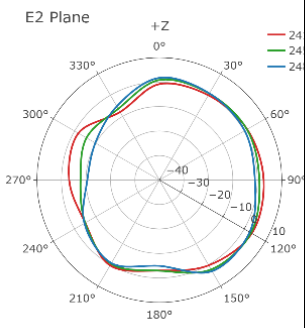
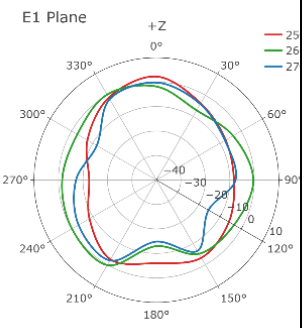
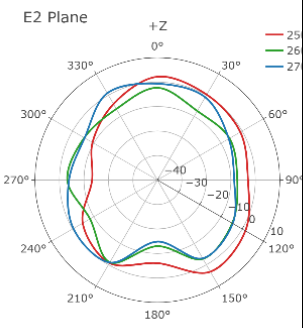
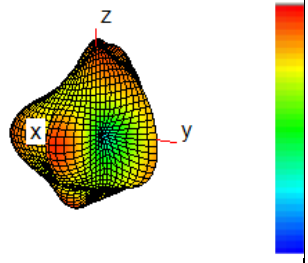
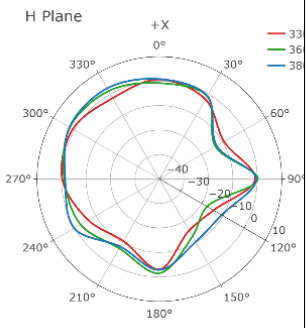
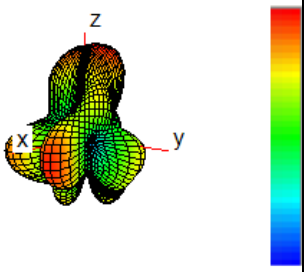
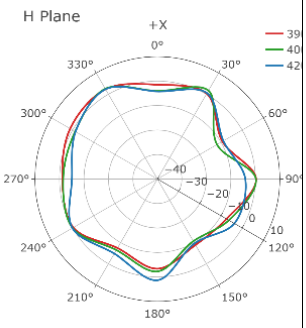
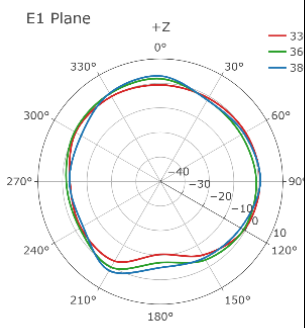
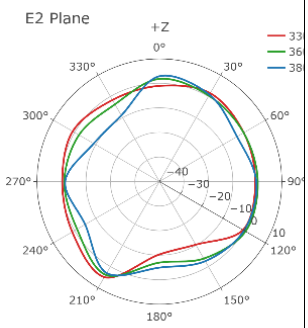
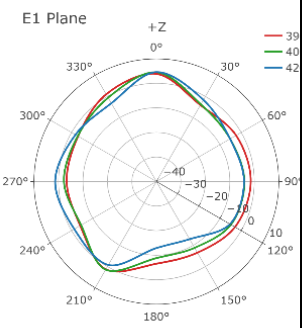
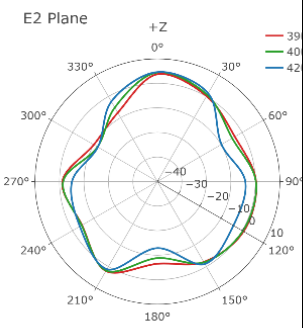
4700 MHz		5500 MHz	
			
			
1175 MHz		1575 MHz	
			
			

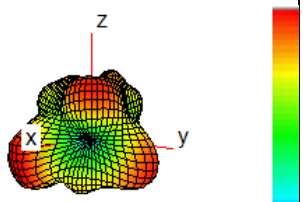
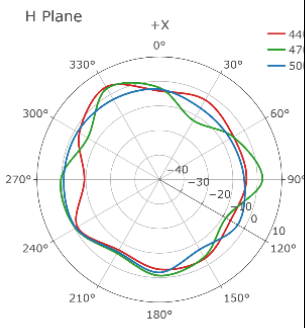
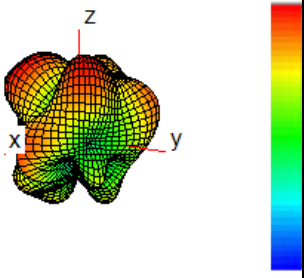
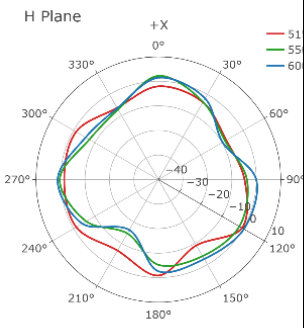
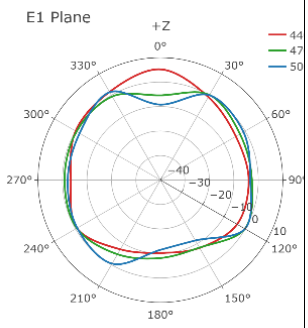
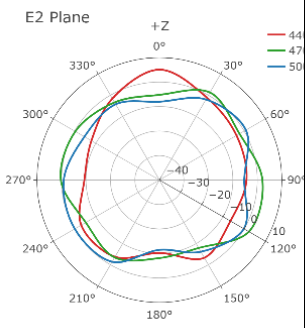
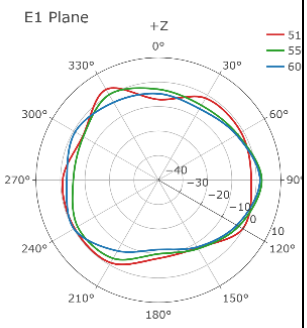
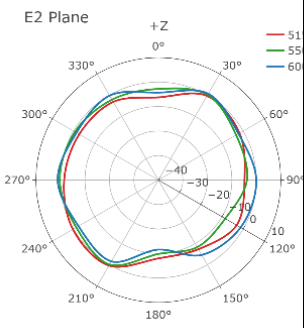
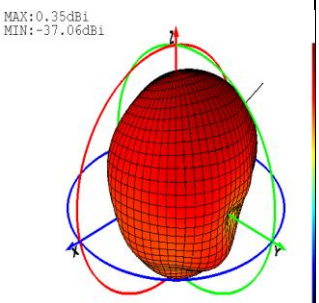
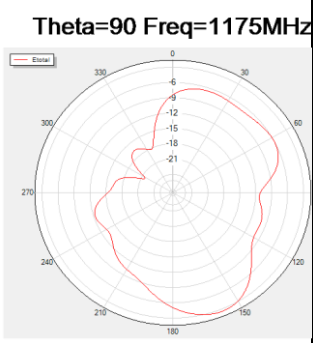
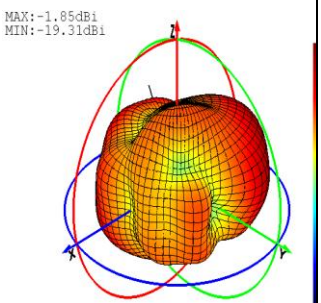
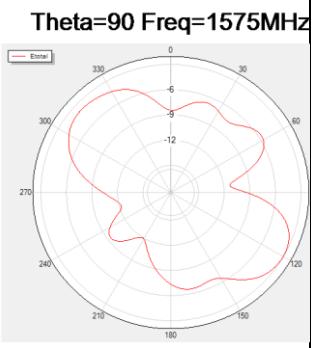
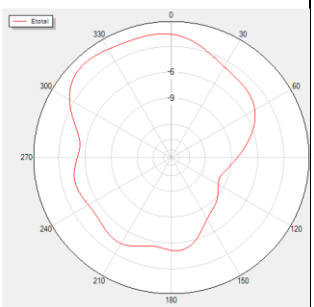
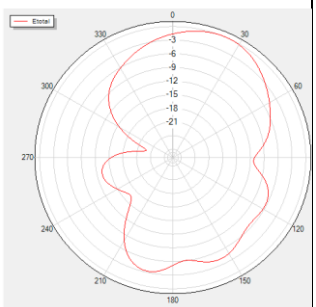
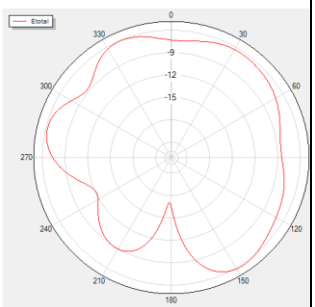
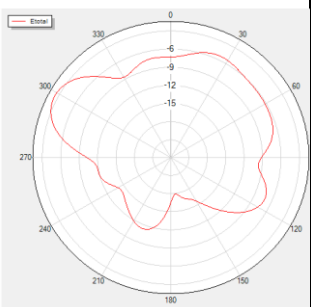
- **4G/5G-4**

420 MHz		460 MHz	
			
			
630 MHz		710 MHz	
			
			
830 MHz		900 MHz	


H Plane
E1 Plane
E2 Plane
1440 MHz
1740 MHz

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

2450 MHz		2600 MHz	
			
			
3600 MHz		**4000 MHz**	
			
			

4700 MHz		5500 MHz	
			
			
1175 MHz		1575 MHz	
			
			

3.3. GNSS Test Data (Open Sky)

Table 1: Static drifting test at normal temperature

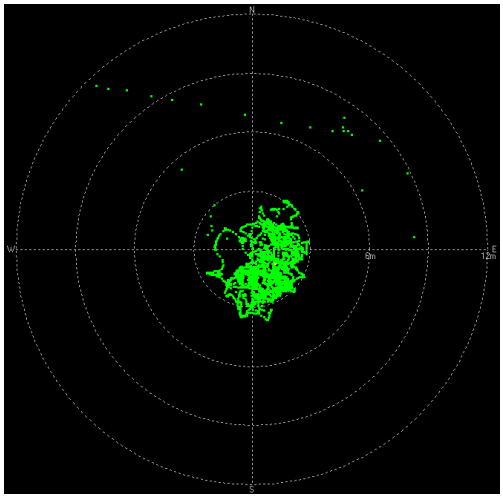
Test Module	CEP50(m)	Maximum(m)	Static Drifting Figure
RM520NGL-YEMX425J1A	1.7522	11.5223	

Table 2: GPS navigating performance

Test Module	GPS SV		GL SV		GA SV		BE SV	
	L1	L5	L1	L5	L1	L5	L1	L5
RM520N-GL	12	3	9	/	9	8	17	9

Table 3: L1 Average CN0

Test Module	GPS Cno		GL Cno		GA Cno		BE Cno	
	Top4 (dBHz)	Median (dBHz)	Top4 (dBHz)	Median (dBHz)	Top4 (dBHz)	Median (dBHz)	Top4 (dBHz)	Median (dBHz)
RM520N-GL	35.348		36.501		30.789		42.824	

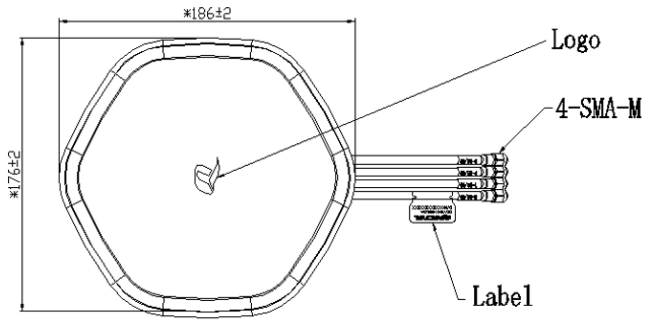
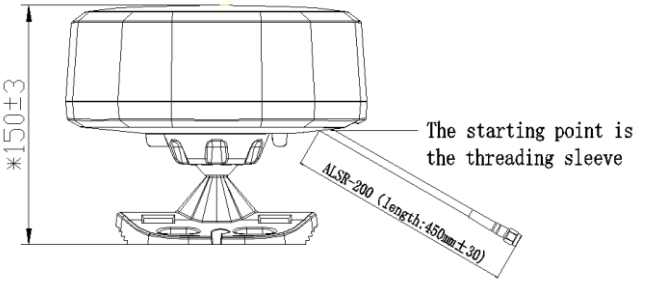
Table 4: L5 Average CN0

Test Module	GPS Cno		GL Cno		GA Cno		BE Cno	
	Top4 (dBHz)	Median (dBHz)	Top4 (dBHz)	Median (dBHz)	Top4 (dBHz)	Median (dBHz)	Top4 (dBHz)	Median (dBHz)
RM520N-GL	33.675		/		37.000		40.0	

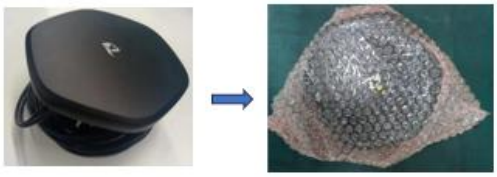
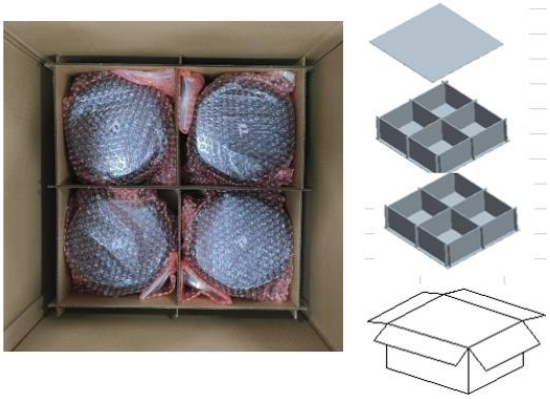
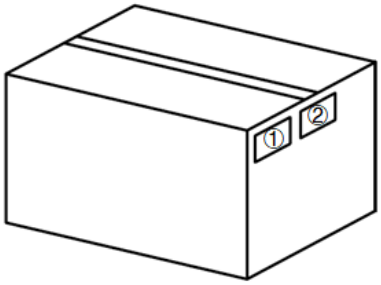
Table 5: TTFF Test

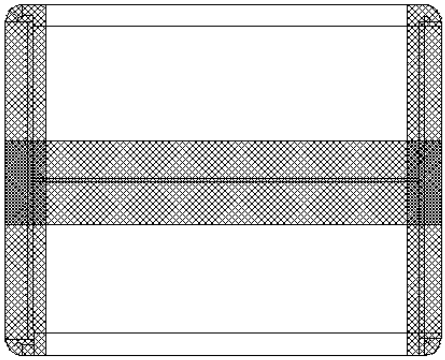
Test Module	Test Mode	Times	Time (s)
RM520N-GL	Hot start	100	1.55
	Warm start	100	24.32
	Cold start	100	34.15

Table 6: The correspondence between the module PORT and the antenna port is as follows

Module Port (RG520)	Antenna (YEMX425J1A)
	
	
0 (LMH1/4G Main)	4G/5G-1
1 (MH2/Mimo2)	4G/5G-2
2 (MH1/Mimo1)	4G/5G-3
3 (LMH2/4G Div)	4G/5G-4

4 Packaging

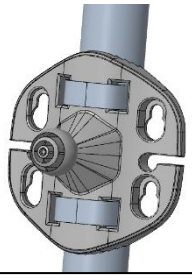
Step	Packaging Picture / 2D Picture	Description
1		1 antenna product in a bubble bag (1 Antenna / Bubble Bag)
2		put the accessories into the PE bag then put the PE bag into the bubble bag.
3		(4 Antennas / layer) (8 Antennas / Carton Box) Estimated quantity Products that cannot fill the entire carton box are packed in a suitable size carton box. Carton Size: L × W × H = 464 × 444 × 371 mm
4		**Position for Attaching Labels** ① Carton Label ② Quality Label

5		**Sealing Cartons** H-shaped sealing cartons
Note	The initial packaging method described above is for reference only, and the final actual packaging method shall be subject to the actual shipping packaging.	

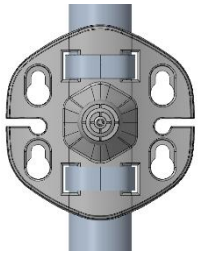
5 Installation

- The YEMX425J1A has the following three installation methods:

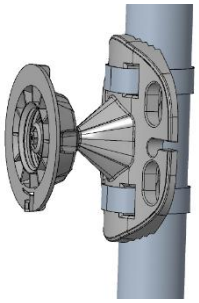
1. Pole mounting installation



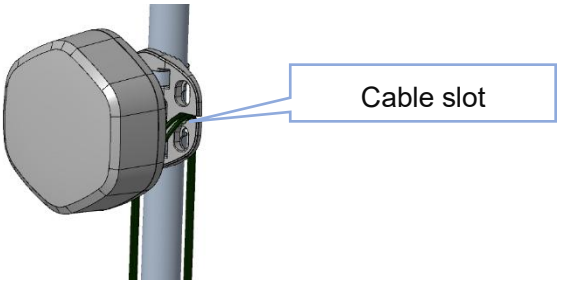
Step 1: Thread the metal clamp through the assembly holes of the pole and base, and pre-tighten the screws.



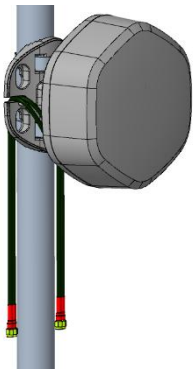
Step 2: Move the base to the desired position on the pole, lock the screws with a screwdriver, and secure the clamp.



Step 3: Insert the plastic nut into the baseball head.

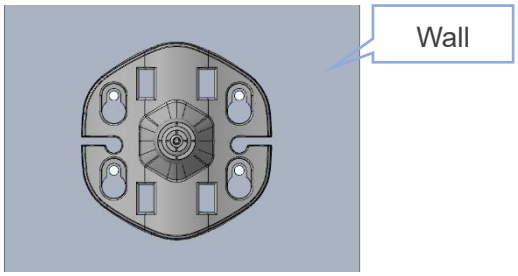


Step 4: Press the antenna body into the ball head base, adjust the antenna to the desired angle, tighten the nut, and place the cable into the corresponding cable slot.

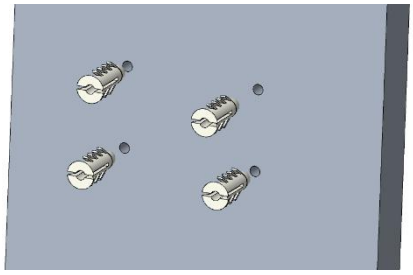


Step 5: Complete the installation.

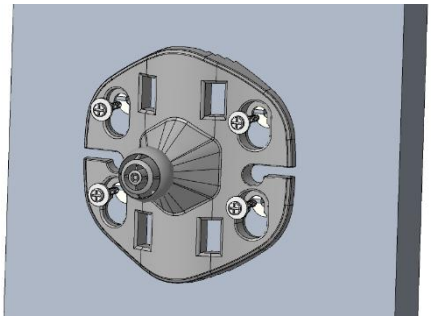
2. Wall mounting installation



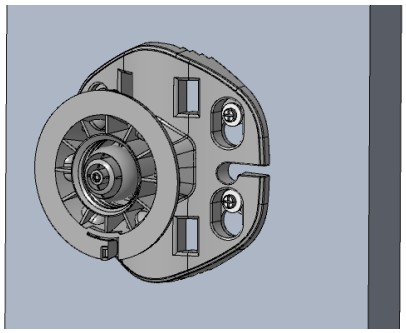
Step 1: Mark the appropriate positions on the wall with the four mounting holes on the base, and drill four holes with a diameter of 6 mm and a depth of 25 mm.



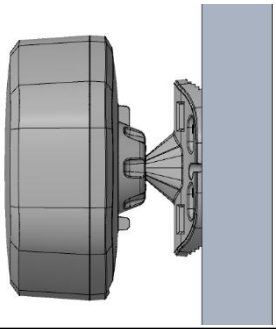
Step 2: Insert the expansion tubes into the four holes.



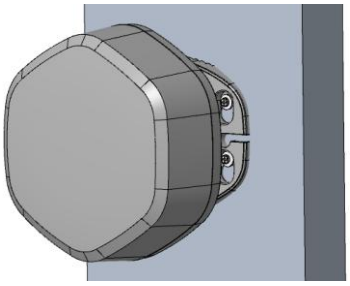
Step 3: Lock the base into the expansion tubes with screw components.



Step 4: Insert the plastic nut into the ball head base.

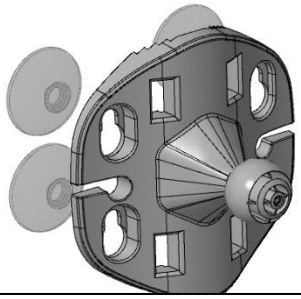


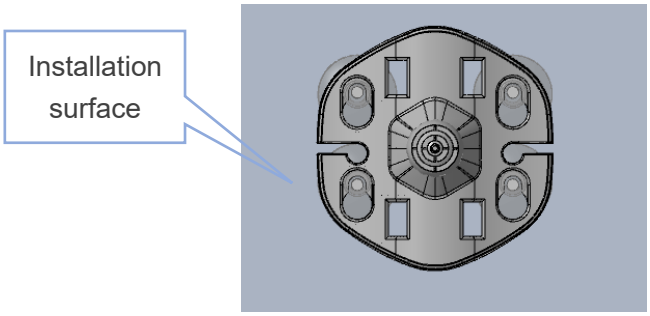
Step 5: Press the antenna body into the ball head base, adjust the antenna to the desired angle, and then tighten the nut.



Step 6: Complete the installation.

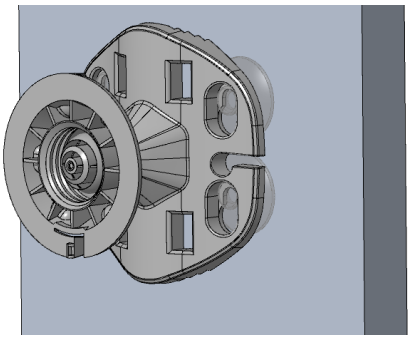
3. Suction cup mounting installation

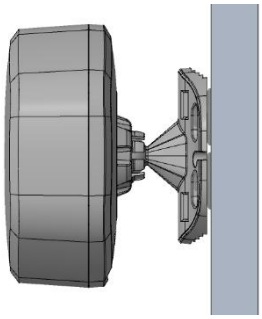




Step 1: Install the suction cup into the corresponding mounting holes around the base.
Attention: Check if the suction cup is deformed. If there is obvious deformation, soak the suction cup in warm water at around 60 degrees Celsius to eliminate the deformation and restore it to its normal state.

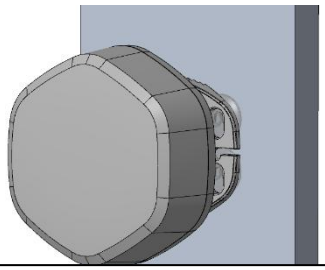
Step 2: Align the base with the safety installation surface, press the suction cup firmly to eliminate internal air, and fix the base.
Attention: The installation surface should be a smooth surface, such as a smooth glass surface, smooth mirror surface, or smooth ceramic tile. Before installation, the installation surface needs to be cleaned to ensure that there is no dust or other contaminants.





Step 3: Insert the plastic nut into the ball head base.

Step 4: Press the antenna body into the ball head base, adjust the antenna to the desired angle, and then tighten the nut.



Step 5: Complete the installation.

Installation Instructions			
Mark	Frequency (MHz)	Tube Color	Technology
4G/5G-1	410–6000 MHz	Red	5G/4G/3G/2G
4G/5G-2	410–6000 MHz	Red	5G/4G/3G/2G
4G/5G-3	410–6000 MHz	Red	5G/4G/3G/2G
4G/5G-4	410–6000 MHz	Red	5G/4G/3G/2G

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

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Revision History

Version	Date	Author	Note
-	2023-06-19	Mordecai Liu/ Hart Hu/ David Liu/ Bunny Zhang	Creation of the document
1.0	2023-06-19	Mordecai Liu/ Hart Hu/ David Liu/ Bunny Zhang	First official release
1.1	2024-01-30	Hart Hu/ Vinnie Liu	1. Added Housing UV Resistant (Chapter 1.2). 2. Updated the drawing (Chapter 2).
1.2	2024-03-28	Hart Hu/ Vinnie Liu	1. Updated the drawing (Chapter 2). 2. Added the installation method (Chapter 5).
1.3	2024-11-05	Bill Mo	1. Updated the overview. 2. Updated Chapter 2. 3. Deleted Chapter 5.
1.4	2024-12-31	Bill Mo	Added the installation methods (Chapter 5).
2.0	2025-07-01	Mordecai Liu/ Bill Mo/ Riva Ren/ Rainey Liao	Numerous changes were made to this document. It should be read in its entirety.
2.1	2025-09-19	Mordecai Liu/ Jason Long/ Strong Qiang	1. Added Max Input Power (Chapter 1.1). 2. Updated drawing (Chapter 2). 3. Updated packaging (Chapter 4).

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