



Antenna Datasheet

Product OC: YFMA201E3AM

Version: 1.0

Date: 2026-03-18

Status: Released

Product Name: 5G & GNSS 2in1 Adhesive Mount FPC + Cable Combo
Embedded Antenna

Key Features:

Frequency Band: 5G: 600–960 MHz & 1400–6000 MHz

GNSS: 1559–1610 MHz

Dimensions: 120.85 mm × 20.4 mm

Efficiency: Up to 74.3 % (5G)

RoHS and REACH Compliant

Overview

YFMA201E3AM is a 5G & GNSS 2in1 combo antenna measuring 120.85 mm × 20.4 mm. This ultra-wide-band combo antenna provides broad coverage from 1559–1610 MHz, 600–960 MHz, 1400–6000 MHz whilst offering backward-compatibility to support 4G/3G and 2G networks as well as LTE Cat-M and narrowband IoT (NB-IoT). The antenna is available with connection via 2 cable lengths from 100 mm, terminated with IPEX MHF 1 connectors. This adhesive mount omni-directional antenna, ideal for applications where the antenna is required to be mounted inside, is easy to install thanks to its rigid material. It is compatible with Quectel's 5G & GNSS Series modules. It has been tested with ABS board.

YFMA201E3AM has 1 × 5G LMH antenna and 1 × GNSS antenna. It allows high efficiency, stable signal transmission and reception for GNSS from 1559–1610 MHz, and 5G band from 600–960 MHz & 1400–6000 MHz. In the meantime, this product also offers high isolation between antennas to avoid self-interference. All in all, this unique product is designed to provide stable and high-speed data connection to 5G & GNSS applications.

- **Typical applications include:**

- ✓ Smart Car
- ✓ Wearable Watch
- ✓ Tracking Device
- ✓ Robot
- ✓ Smart Factory

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

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1 Specification

Test Condition: Tested on ABS board with dimensions 250 mm × 200 mm × 2 mm

1.1. Electrical

Electrical Specifications		
Frequency Range	5G	600–960 MHz, 1400–6000 MHz
	GNSS	1559–1610 MHz
Radiation Pattern	5G	Omni-directional
	GNSS	Omni-directional
Polarization	5G	Linear
	GNSS	Linear
Impedance		50 Ω
Isolation	5G & GNSS	≤ -18.3 dB

1.1.1. 5G

Electrical – Detail												
SPEC	Band	B71	B12 /B13 /B28	B5 /B8 /B26	n74 /n75 /n76	B1 /B2 /B3	B40	Wi-Fi 2G	B38 /B41	B42 /B48 /n77	n79	Wi-Fi 5G
	Freq. (MHz)	600– 700	700– 810	820– 960	1420– 1520	1700– 2170	2300– 2400	2400– 2500	2500– 2690	3300– 4200	4400– 5000	5150– 5850
Max. VSWR		7.7	4.3	5.3	1.8	2.9	2.8	2.5	2.2	2.9	2.4	2.1
Max. Return Loss (dB)		-2.3	-4.2	-3.3	-10.7	-6.3	-6.6	-7.3	-8.4	-6.3	-7.8	-9.2
AVG Eff. (%)		26.1	48.1	54.1	70.2	50.7	57.2	59.1	63.8	51.7	55.7	58.9
AVG AVG Gain (dB)		-5.9	-3.3	-2.8	-1.5	-3.0	-2.4	-2.3	-2.0	-2.9	-2.5	-2.3
Max. Peak Gain (dBi)		-0.6 (600)	2.3 (810)	2.4 (820)	2.3 (1450)	3.2 (2170)	3.2 (2400)	3.6 (2440)	3.6 (2610)	4.9 (3980)	5.3 (4430)	7.3 (5290)
VSWR		≤ 7.7										
Return Loss		≤ -2.3 dB										
Peak Gain		≤ 7.3 dBi										

1.1.2. GNSS

Band Frequency (MHz)	GPS L5 GALILEO E5a BDS B2a-B2I QZSS L5 IRNSS L5	GALILEO E5b BDS B2b	GPS L2 QZSS L2C	GLONAS S G2	BDS B3	BDS B1I	GPS L1 GALILEO E1 BDS B1C QZSS L1	GLONAS S G1
	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	1.7	1.7	1.7
Return Loss (dB)	-	-	-	-	-	-11.9	-11.8	-12.1
Efficiency (%)	-	-	-	-	-	41.6	41.7	43.1
Peak Gain (dBi)	-	-	-	-	-	2.4	2.5	3.1

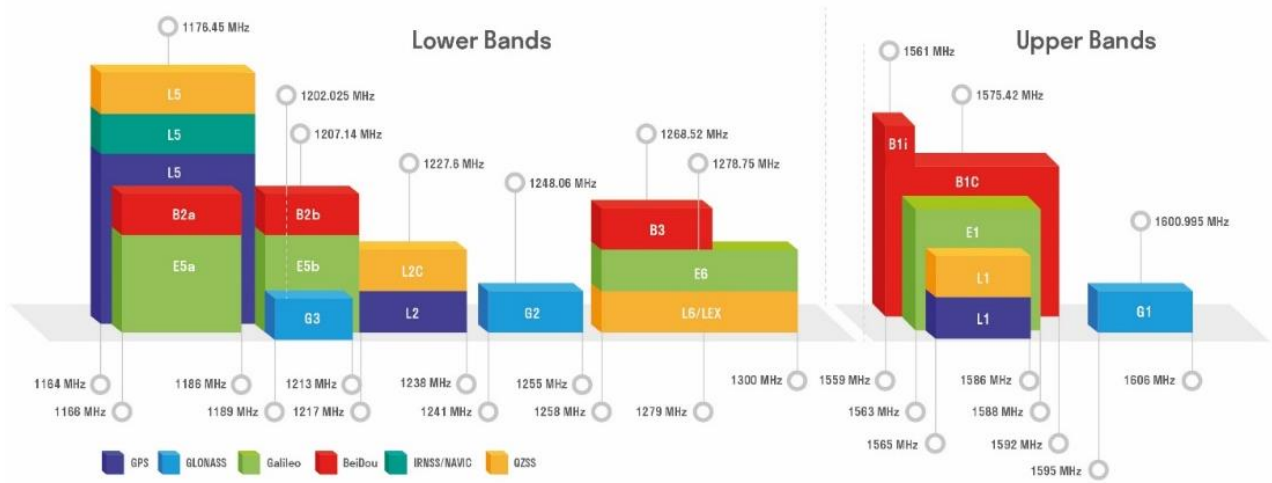
1.2. Mechanical & Environmental

Mechanical		
Antenna Dimensions		120.85 mm × 20.4 mm
Antenna Material & Color		FPC & Black
Cable Type & Color & Length	5G	Φ 1.13 & Black & 100 mm
	GNSS	Φ 1.13 & Black & 100 mm
Connector Type		IPEX MHF 1
Weight		Typ. 1.85 g
Mounting Type		Adhesive
Environmental		
Operation Temperature		-40 °C to +85 °C
Storage Temperature		-40 °C to +85 °C
RoHS & REACH Compliant		Yes

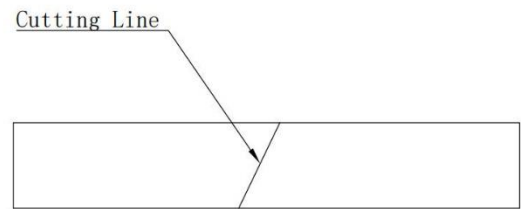
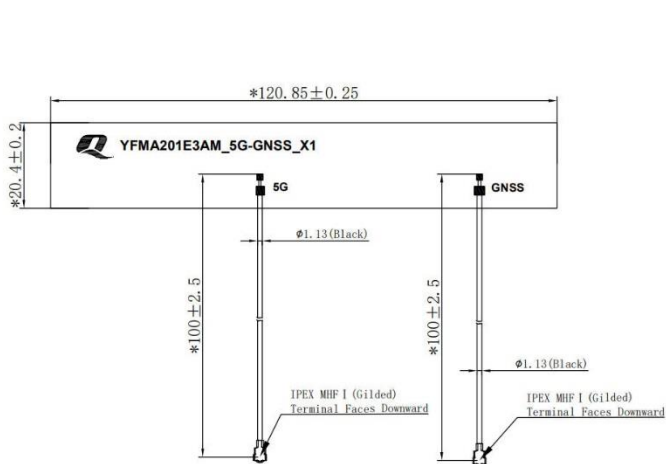
1.3. Supported GNSS Frequency Bands

GNSS Frequency Bands (MHz)					
GPS	L1 Centre 1575.42 (1565–1586)	L2 Centre 1227.6 (1217–1238)	L5 Centre 1176.45 (1164–1189)		
	√	-	√		
GLONASS	G1-L10C-L10F Centre 1601 (1595–1606)	G2-L20C-L20F Centre 1248.06 (1241–1255)	G3-L30C Centre 1202.025 (1189–1213)		
	√	-	-		
GALILEO	E1 Centre 1575.42 (1563–1588)	E5a Centre 1176.45 (1166–1187)	E5b Centre 1207.14 (1197–1218)	E6 Centre 1278.75 (1258–1300)	
	√	√	-	-	
BDS	B1I Centre 1561.098 (1559–1564)	B1C (BDS-3) Centre 1575.42 (1559–1592)	B2a Centre 1176.45 (1166–1187)	B2b-B2I Centre 1207.14 (1197–1217)	B3 Centre 1268.52 (1258–1279)
	√	√	√	-	-
QZSS	L1 Centre 1575.42 (1573–1578)	L2C Centre 1227.6 (1226–1229)	L5 Centre 1176.45 (1166–1187)	L6 Centre 1278.75 (1257–1300)	
	√	-	√	-	
IRNSS	L5 Centre 1176.45 (1164–1189)				
	√				

GNSS Bands and Constellations



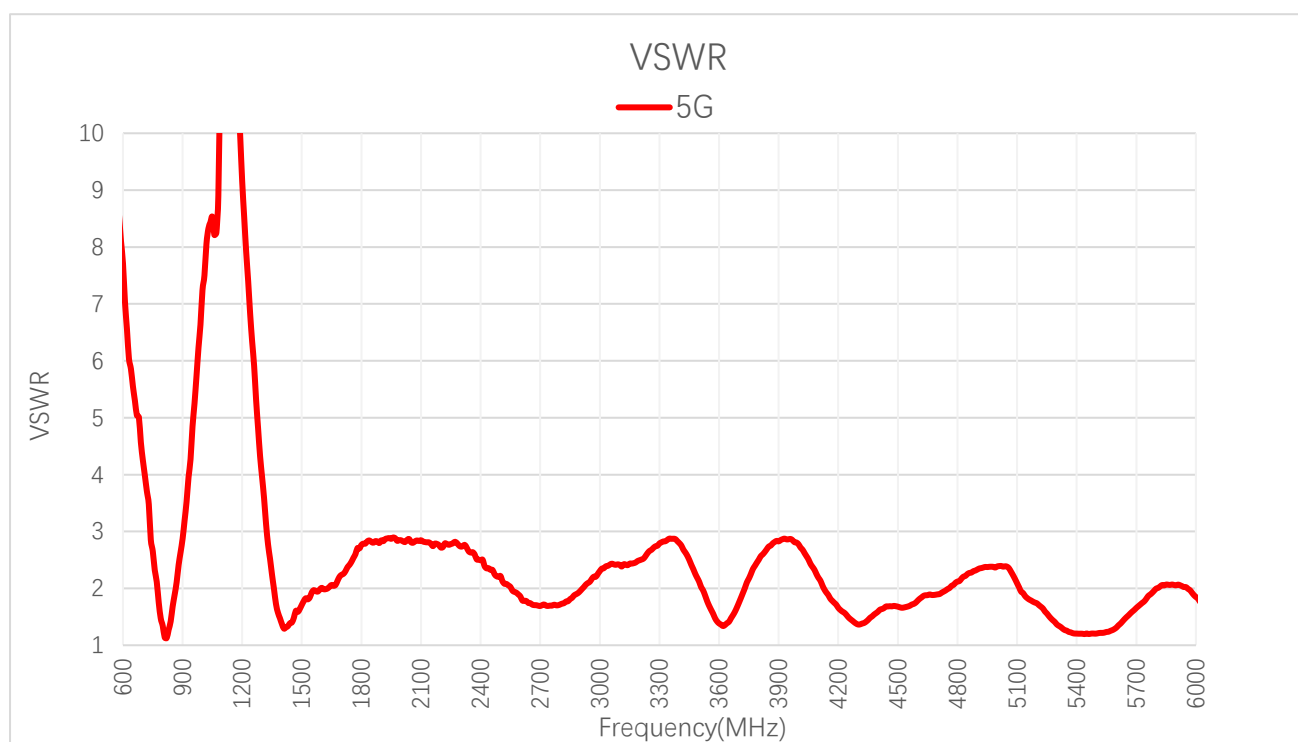
2 Drawing



3 Detailed Performance

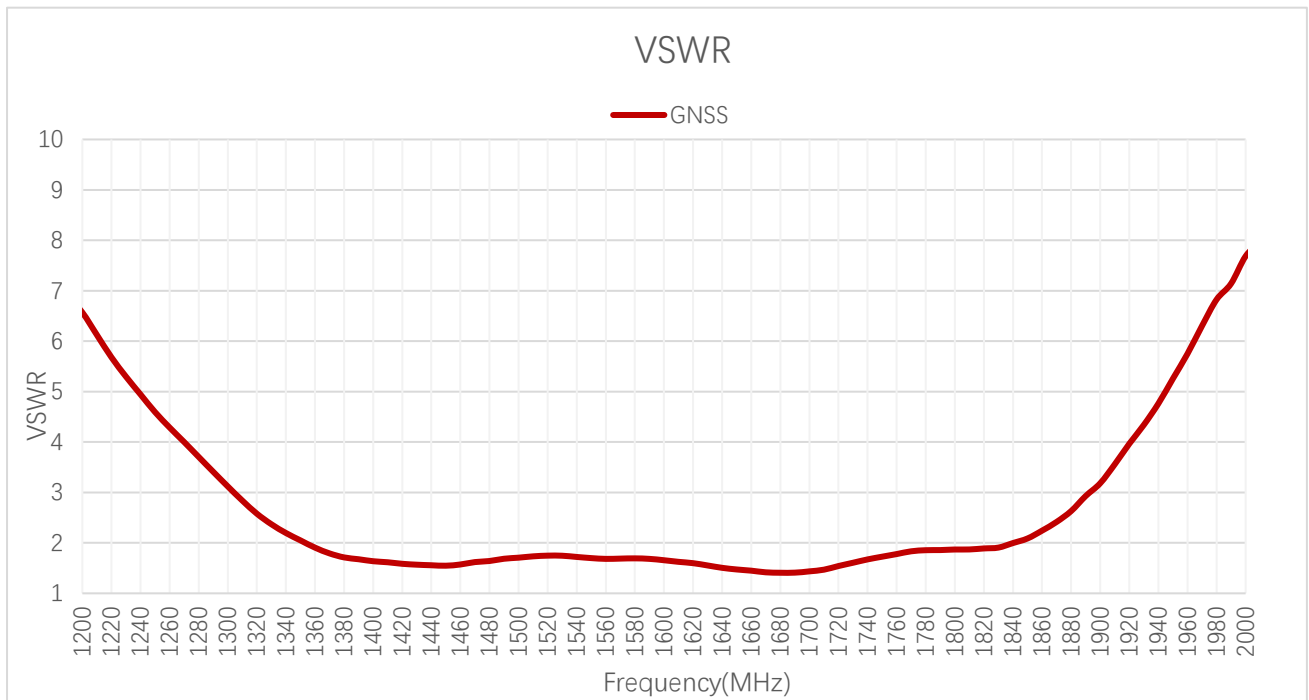
3.1. S-Parameter Test

3.1.1. VSWR



VSWR – 5G

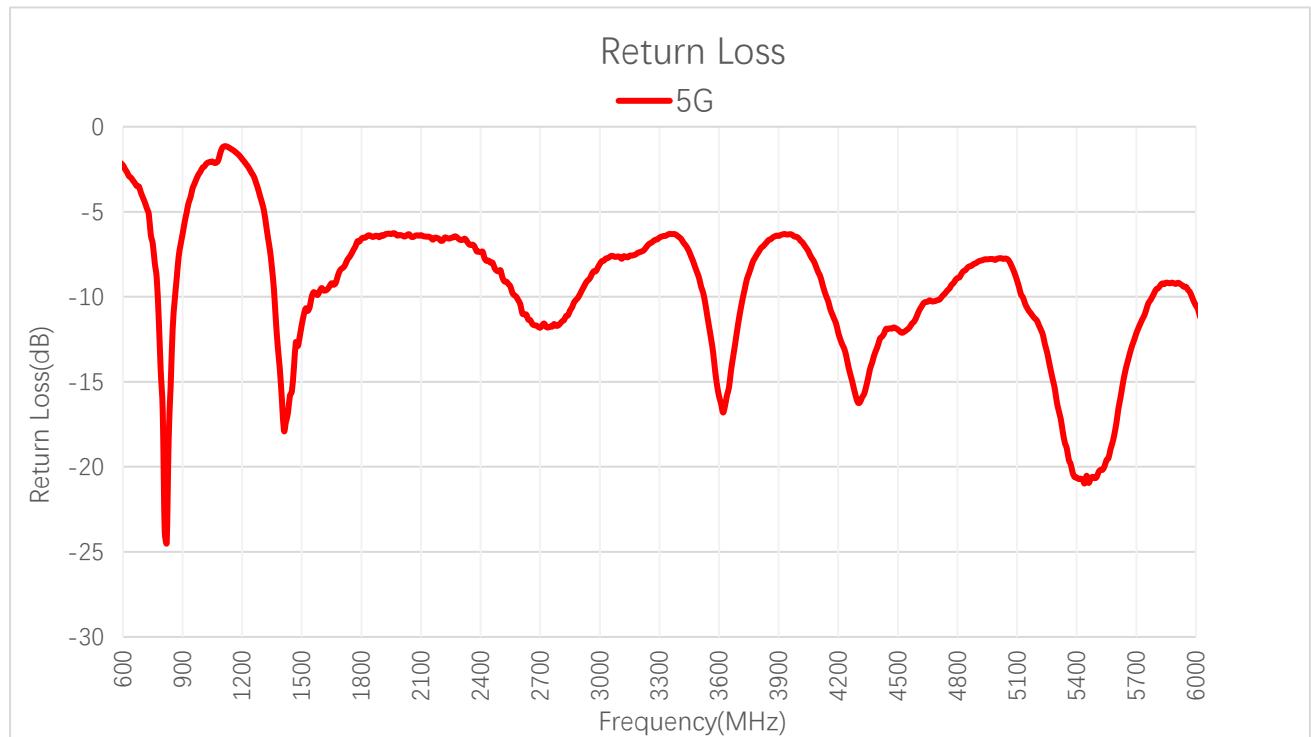
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	7.7	6.0	4.0	1.3	2.9	5.3	1.4	2.3	2.4	2.8
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
VSWR	2.9	2.8	2.6	2.3	1.9	1.4	1.9	2.4	1.2	1.8



VSWR – GNSS

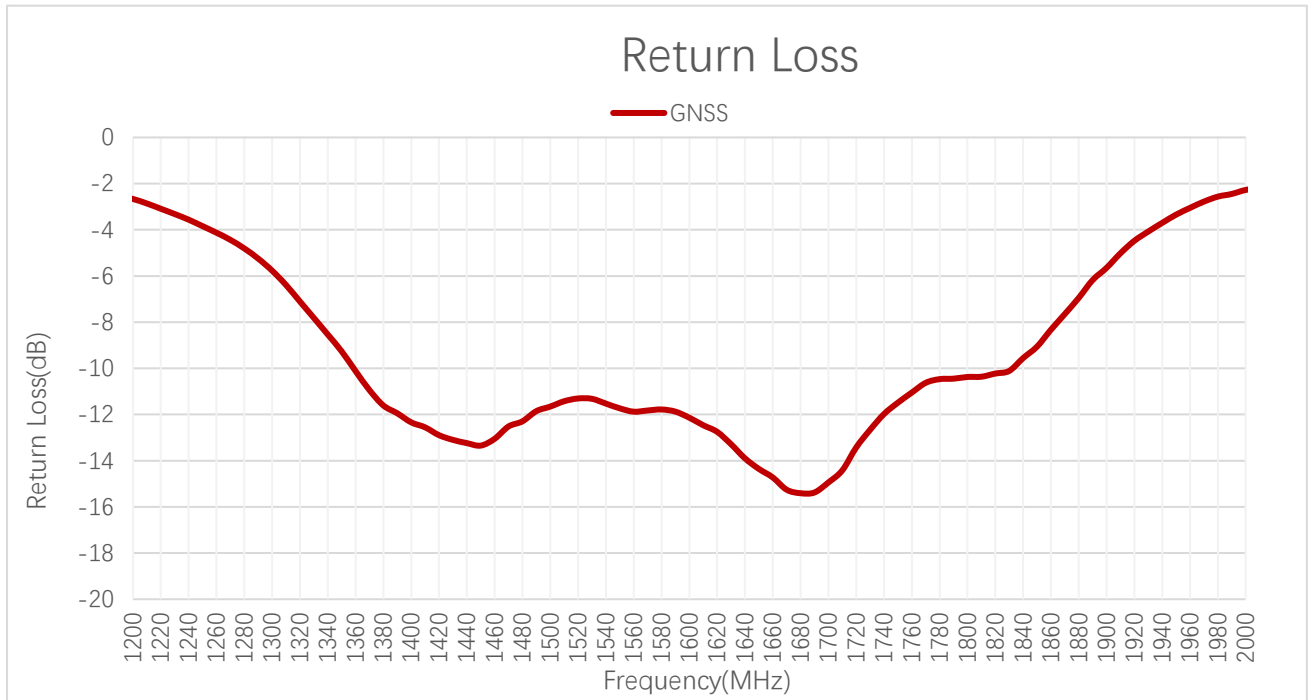
Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	1.7	1.7	1.7

3.1.2. Return Loss



Return Loss (dB) – 5G

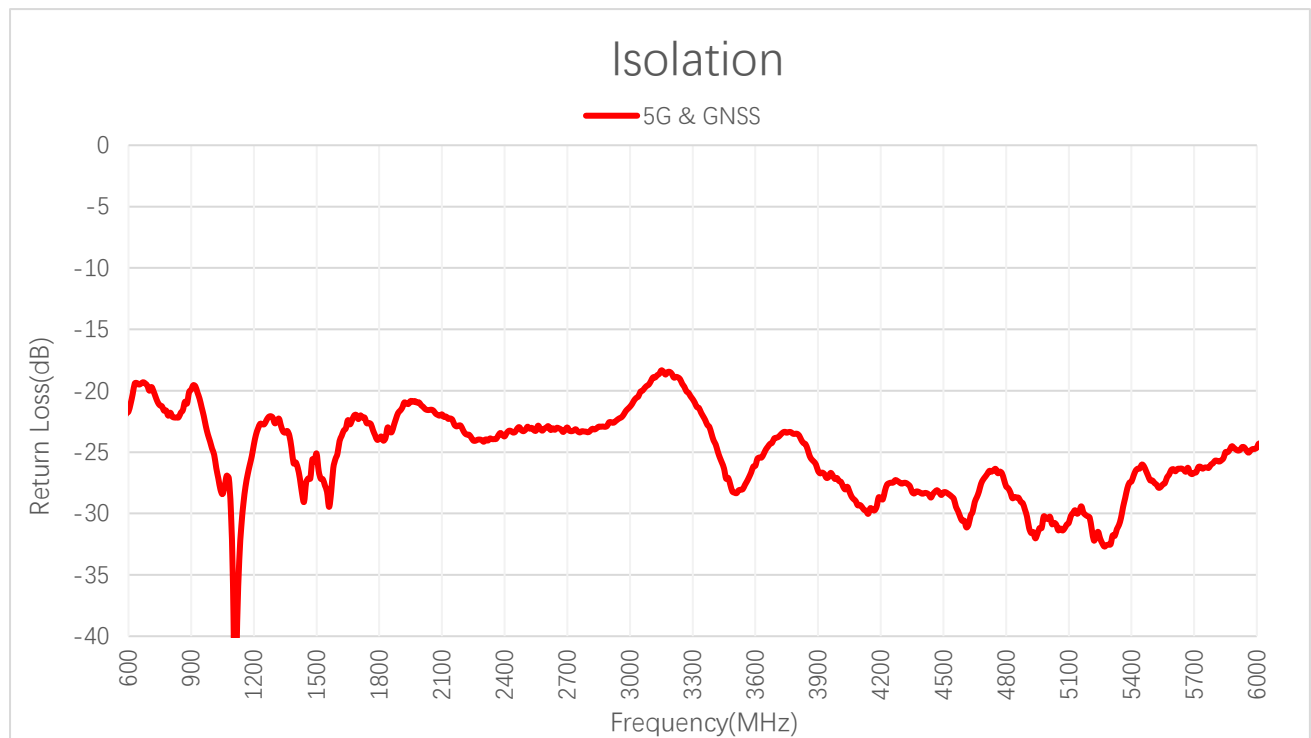
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-2.3	-2.9	-4.4	-18.4	-6.3	-3.3	-15.8	-8.3	-7.7	-6.4
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
Return Loss (dB)	-6.3	-6.5	-7.0	-8.0	-10.5	-15.9	-10.2	-7.8	-20.6	-10.5



Return Loss (dB) – GNSS

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Return Loss (dB)	-	-	-	-	-	-11.9	-11.8	-12.1

3.1.3. Isolation

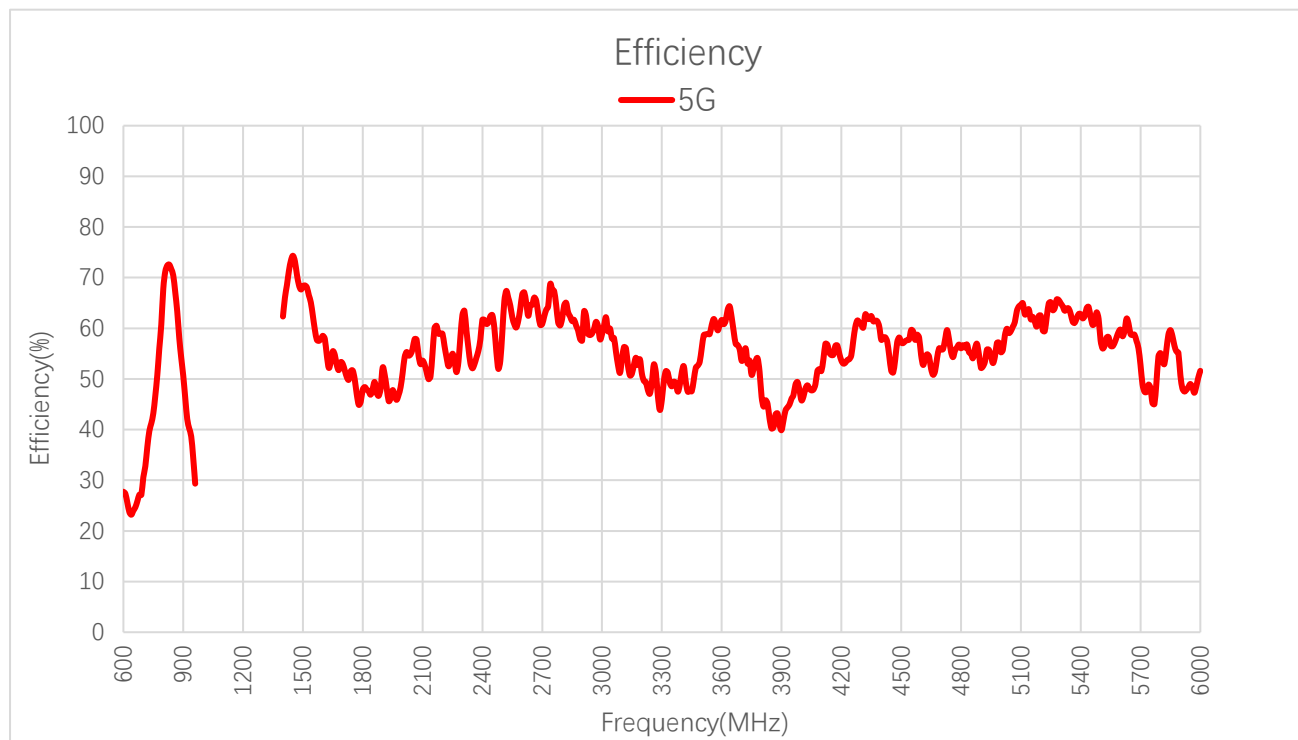


Max Isolation (dB)

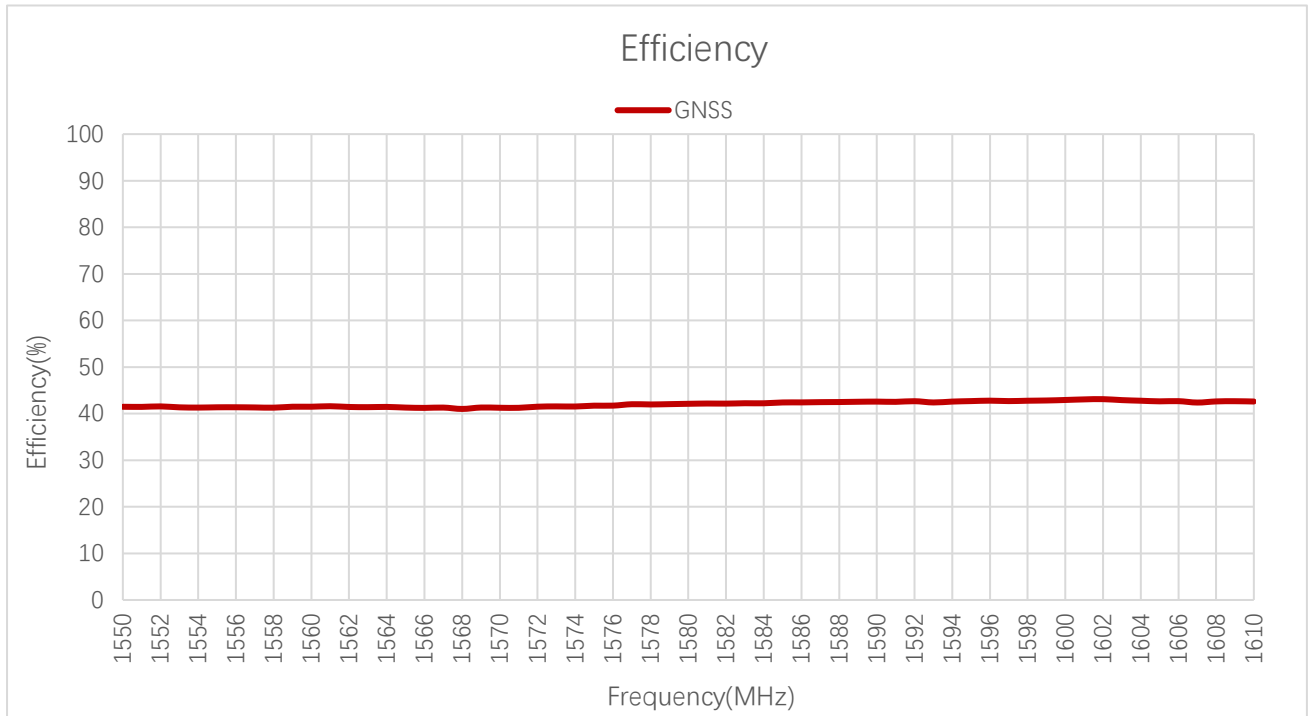
Band	B71	B12/ B13/ B28	B5/ B8/ B26	n74/ n75/ n76	B1/ B2/ B3	B40	Wi-Fi 2G	B38/ B41	B42 /B48 /n77	n79	Wi-Fi 5G
Freq. (MHz)	600– 700	700– 810	820– 960	1420– 1520	1700– 2170	2300– 2400	2400– 2500	2500– 2690	3300– 4200	4400– 5000	5150– 5850
5G & GNSS	-19.3	-19.7	-19.6	-25.1	-20.8	-23.4	-23.0	-22.8	-20.7	-26.4	-24.5

3.2. Radiation Performance Test

3.2.1. Efficiency



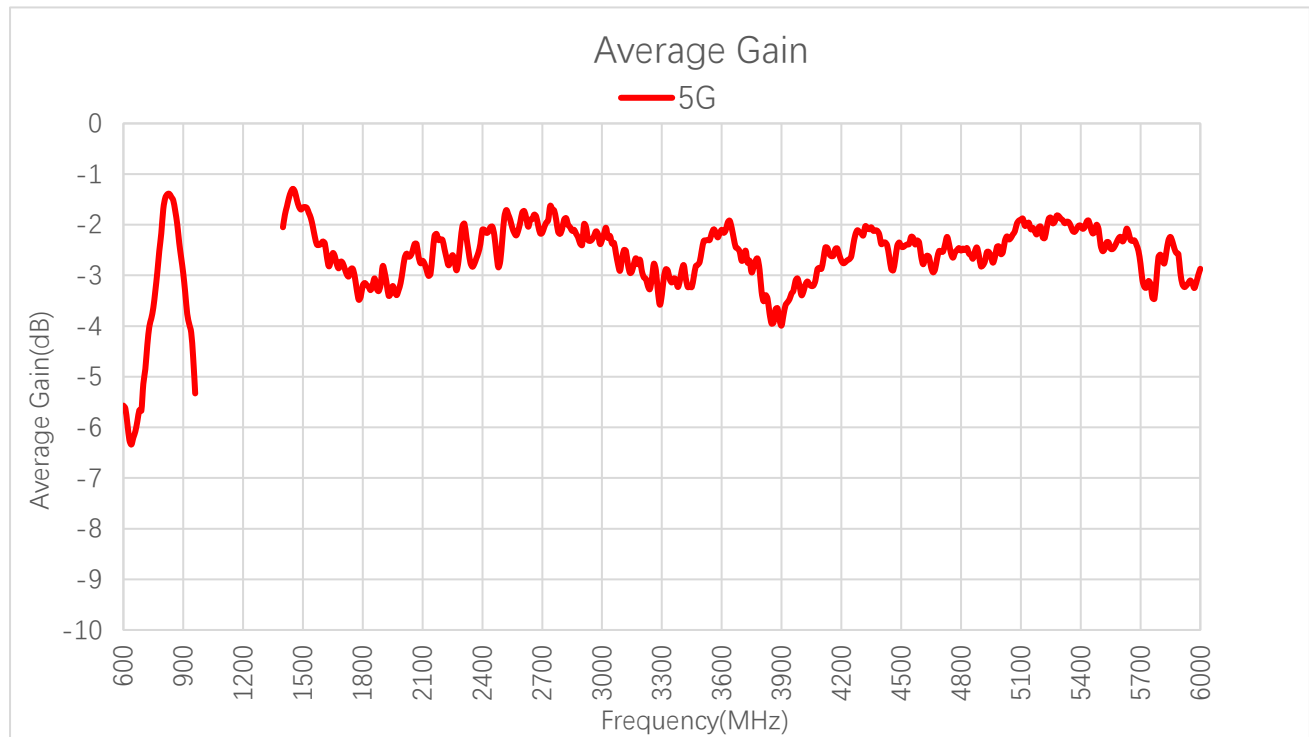
Efficiency (%) – 5G										
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	27.7	23.7	32.8	72.6	50.6	29.3	73.4	51.7	51.5	46.7
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
Efficiency (%)	47.8	50.5	52.1	62.6	66.7	61.7	55.8	55.3	57.6	51.6



Efficiency (%) – GNSS

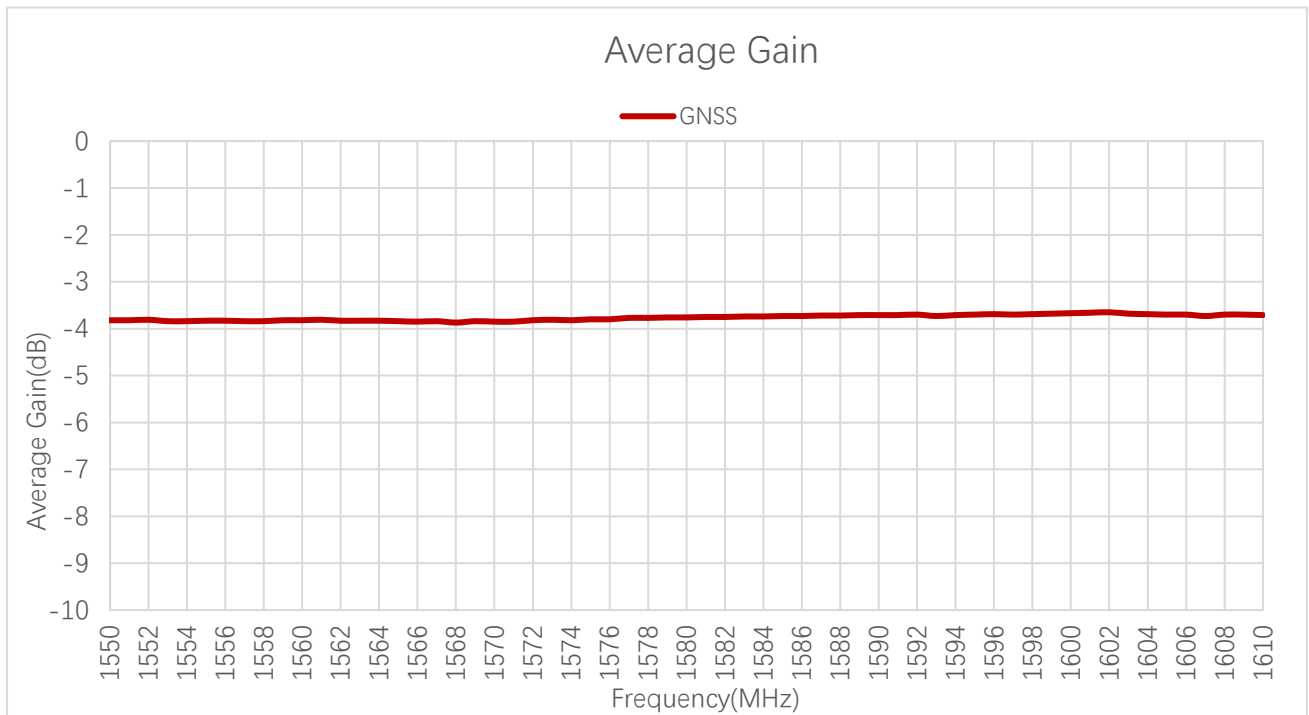
Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Efficiency (%)	-	-	-	-	-	41.6	41.7	43.1

3.2.2. Average Gain



Average Gain (dB) – 5G

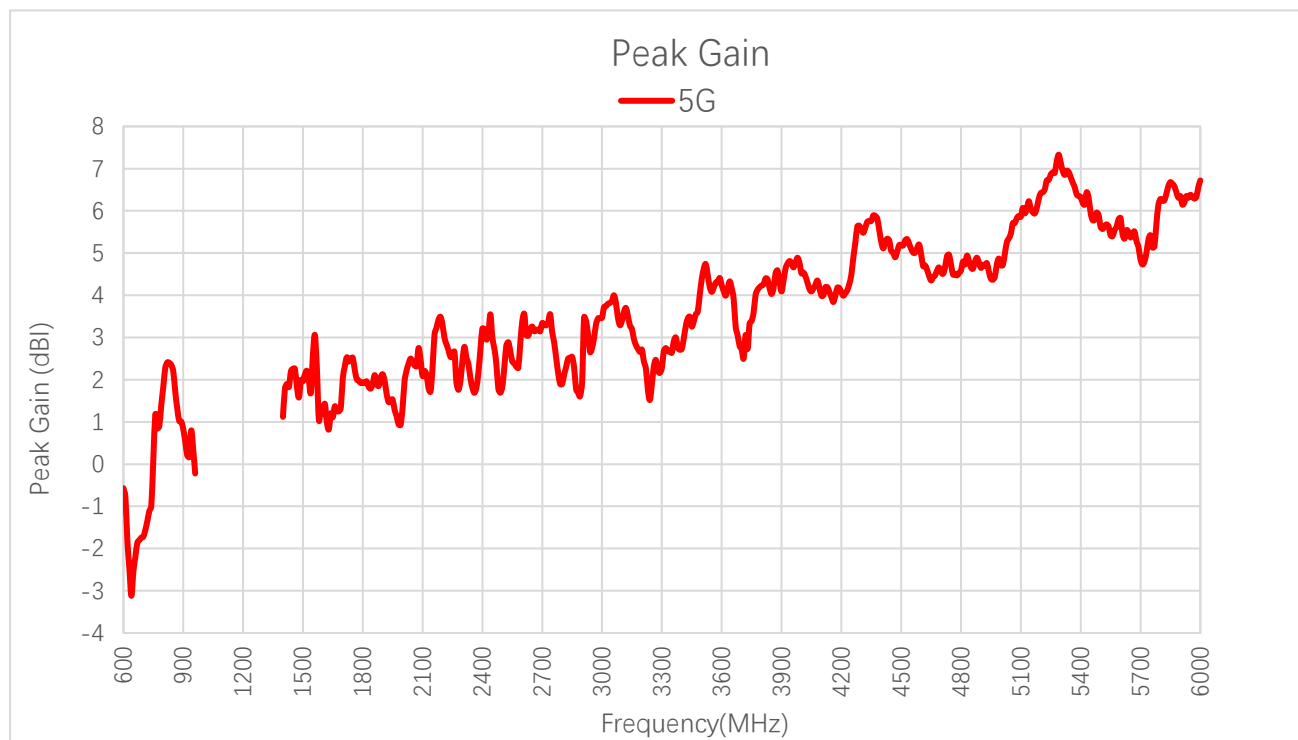
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-5.6	-6.3	-4.9	-1.4	-3.0	-5.3	-1.4	-2.9	-2.9	-3.3
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
Average Gain (dB)	-3.2	-3.0	-2.8	-2.0	-1.8	-2.1	-2.5	-2.6	-2.4	-2.9

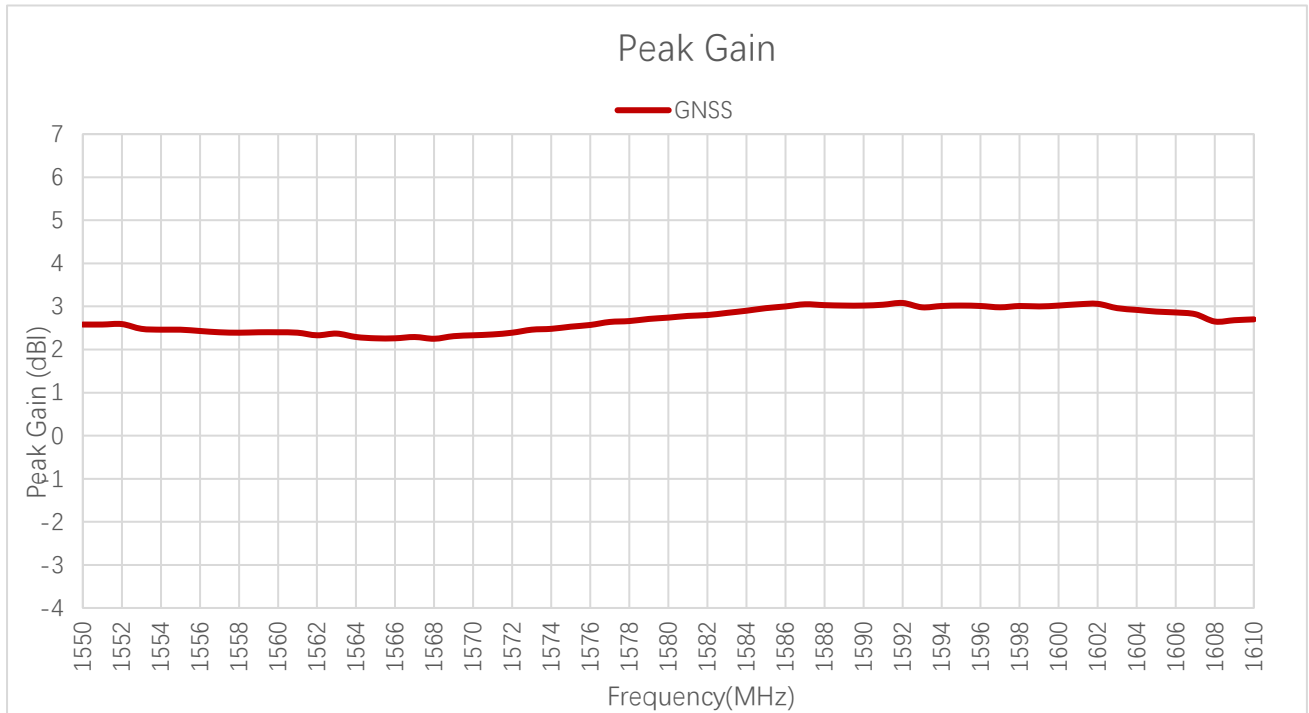


Average Gain (dB) – GNSS

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Average Gain (dB)	-	-	-	-	-	-3.8	-3.8	-3.7

3.2.3. Peak Gain



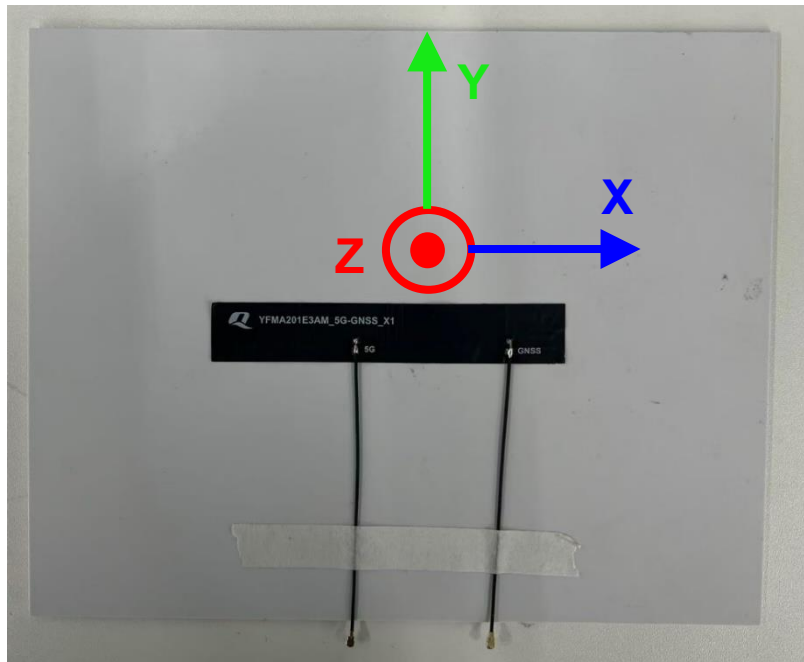


Peak Gain (dBi) – GNSS

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Peak Gain (dBi)	-	-	-	-	-	2.4	2.5	3.1

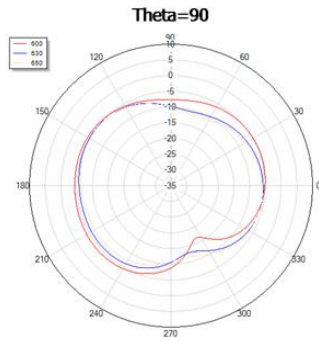
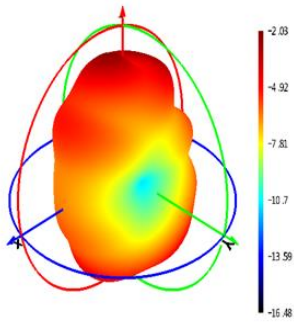
3.2.4. 3D & 2D Radiation Pattern

- Test Condition: Tested on ABS board with dimensions 250 mm × 200 mm × 2 mm
- Test Chamber: HF-S-1

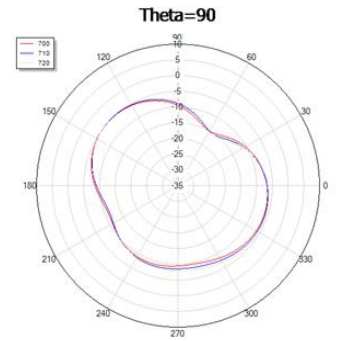
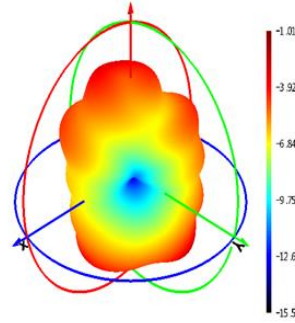


● **5G**

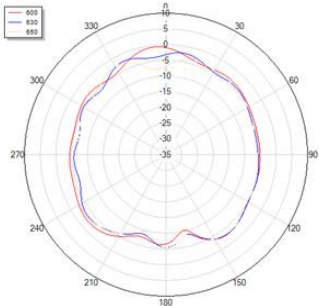
630 MHz



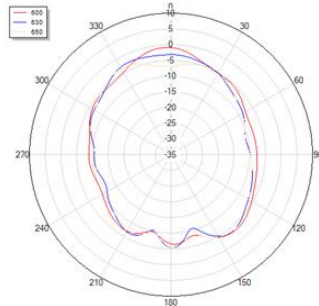
710 MHz



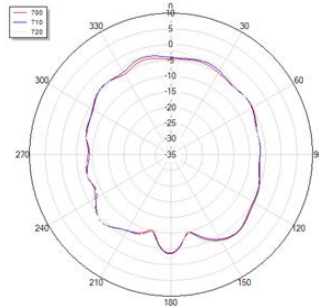
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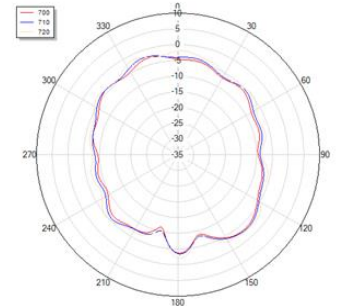
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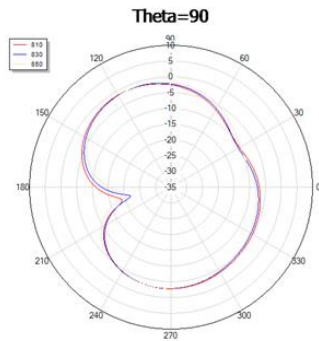
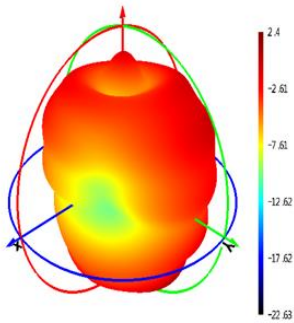
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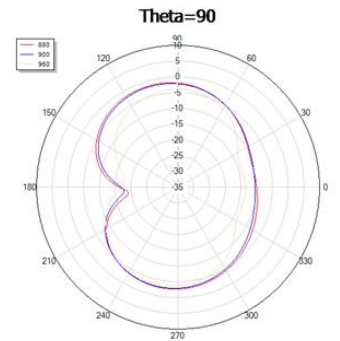
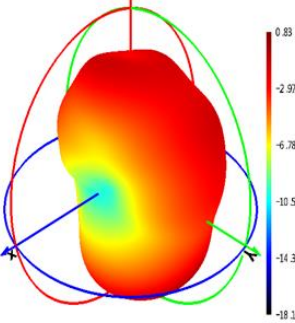
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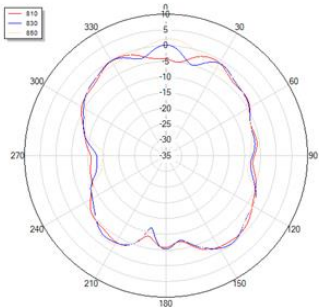
830 MHz



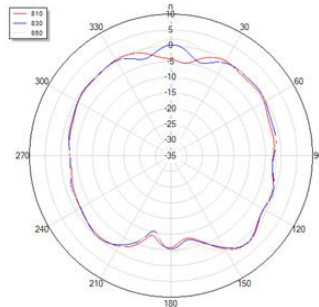
900 MHz



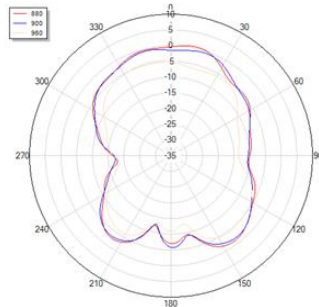
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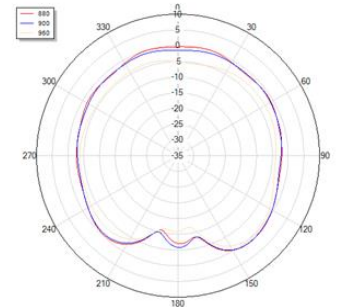
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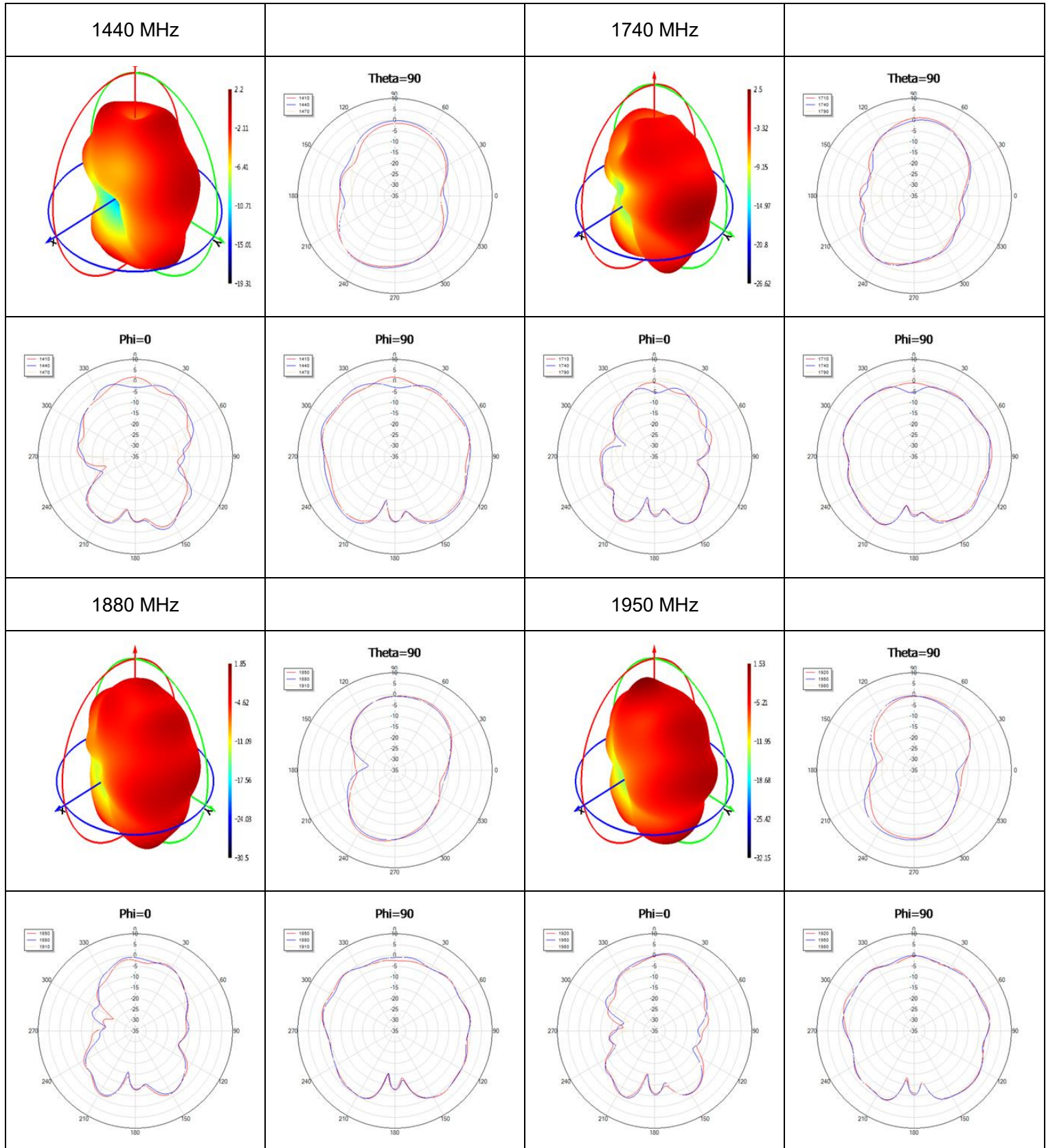


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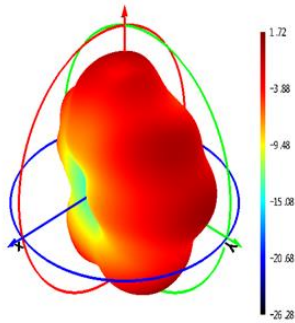


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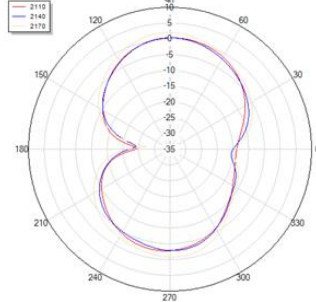




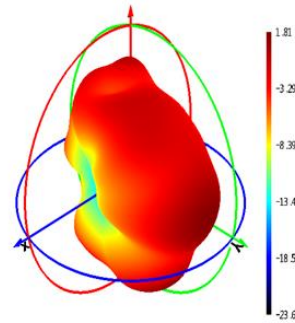
2140 MHz



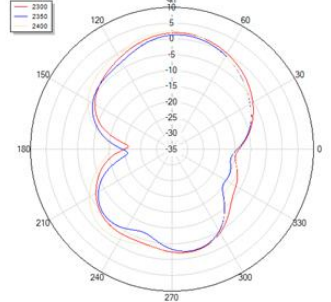
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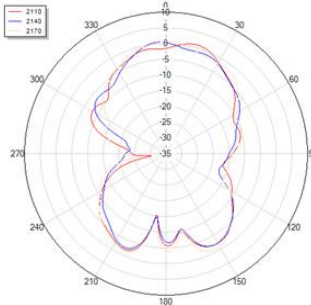
2350 MHz



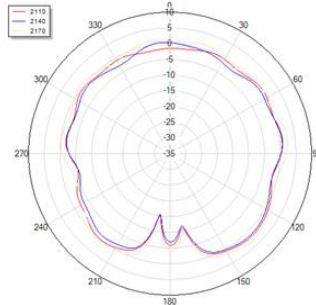
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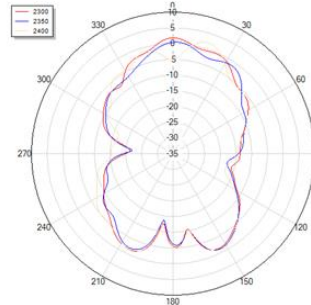
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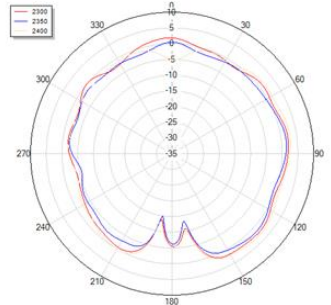
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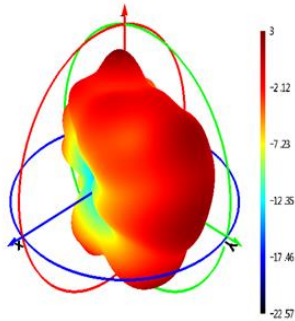
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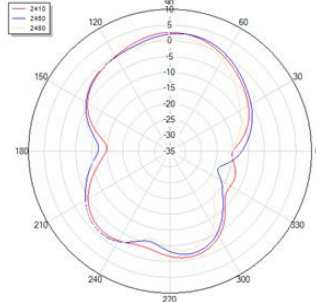
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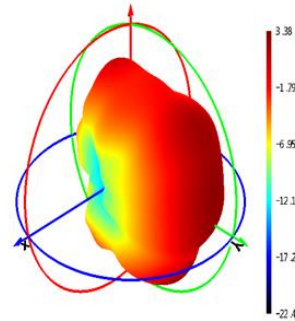
2450 MHz



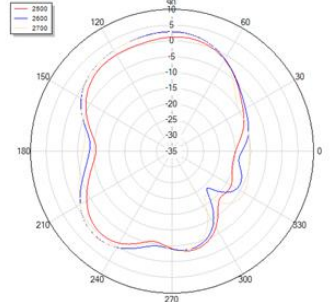
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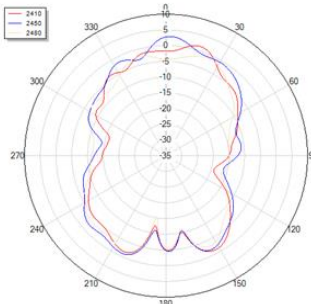
2600 MHz



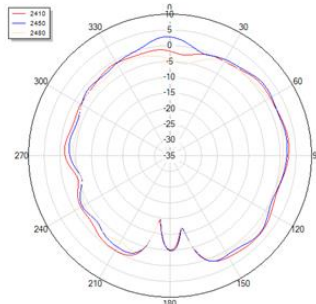
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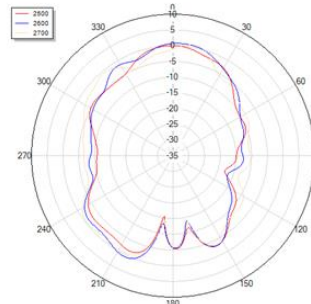
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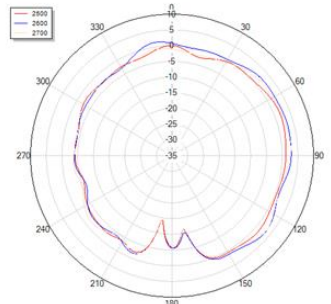
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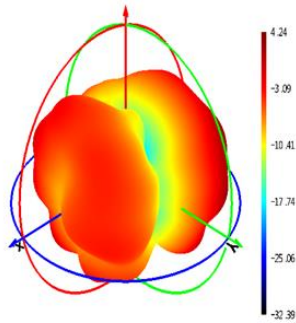
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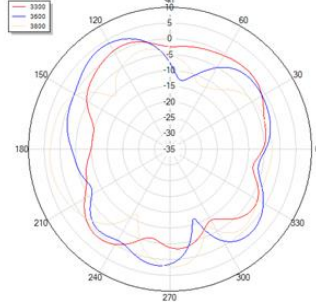
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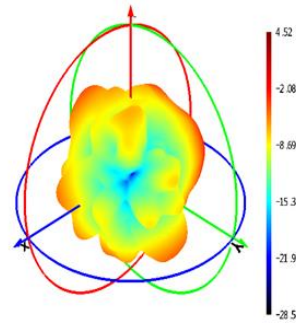
3600 MHz



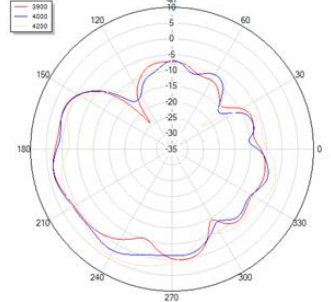
Theta=90



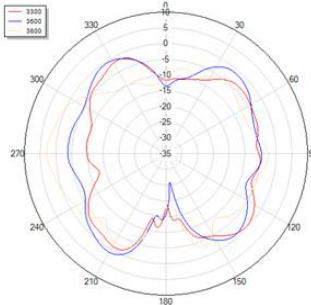
4000 MHz



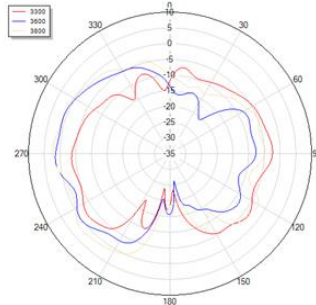
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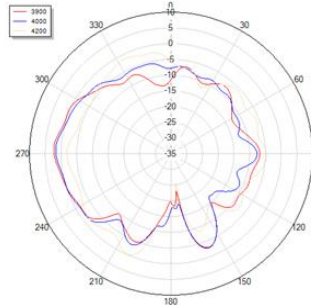
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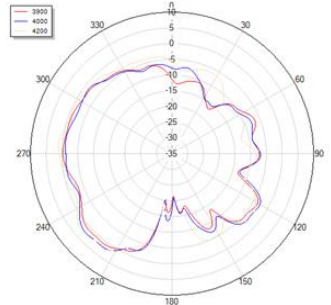
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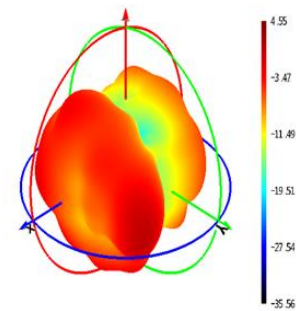
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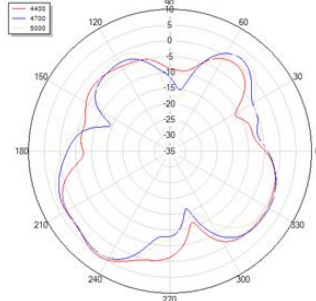
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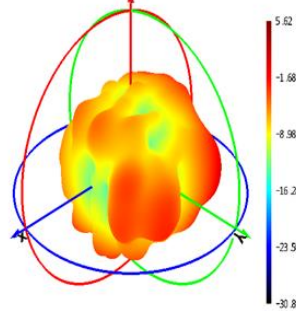
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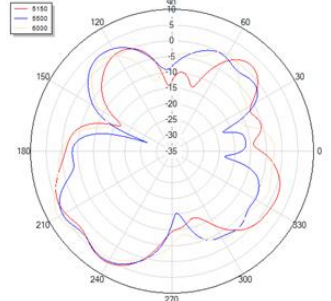
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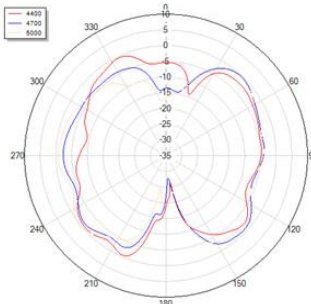
5500 MHz



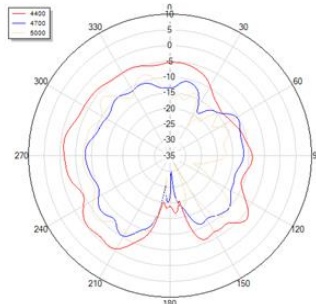
Theta=90



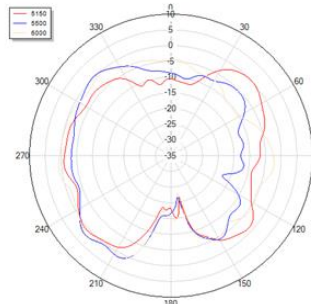
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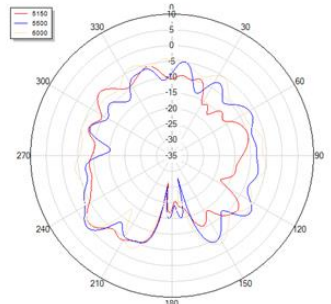
Phi=90



Phi=0

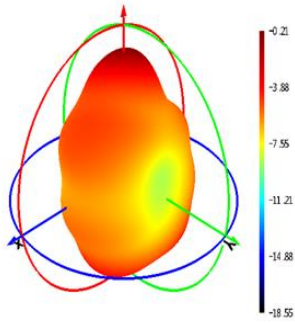


Phi=90

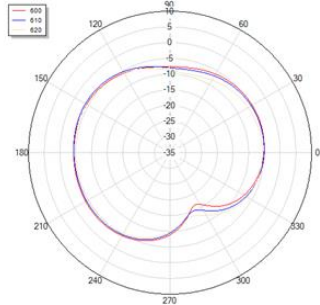


● **5G Max Peak Gain**

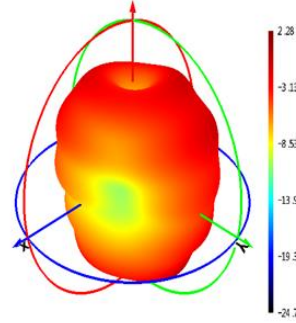
600 MHz



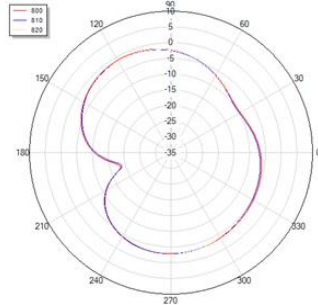
Theta=90



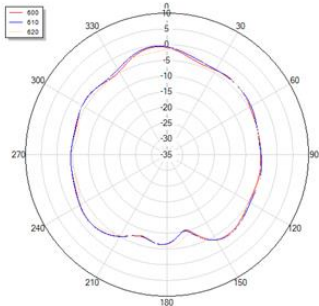
810 MHz



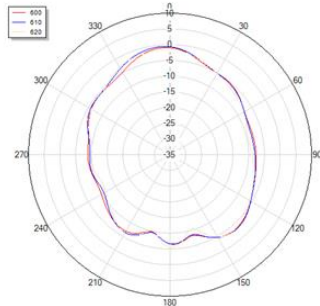
Theta=90



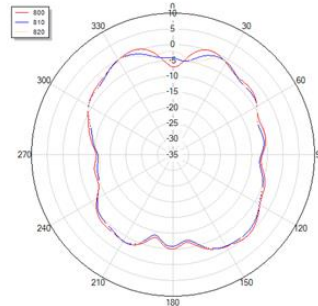
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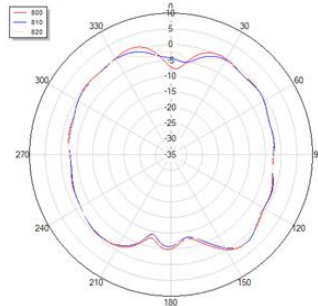
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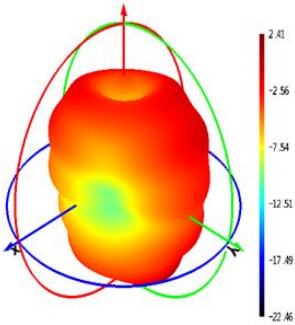
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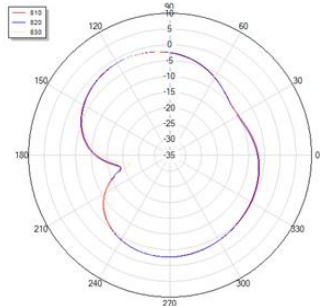
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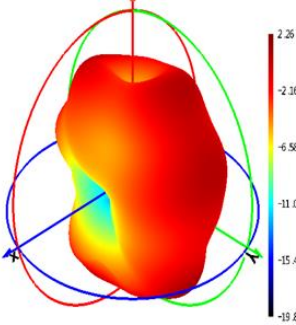
820 MHz



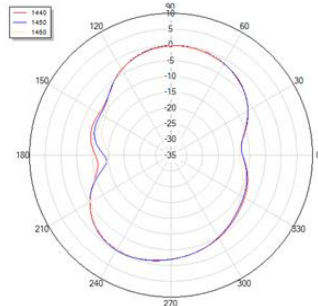
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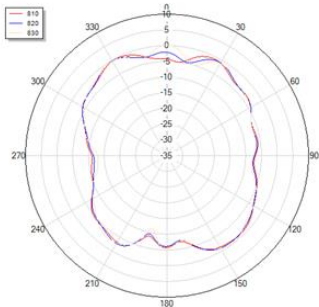
1450 MHz



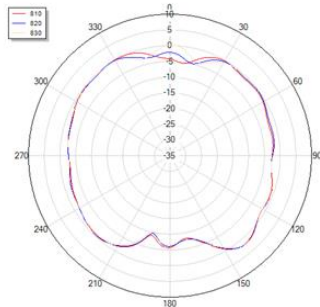
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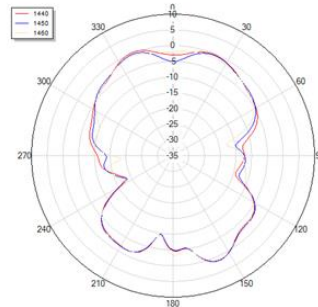
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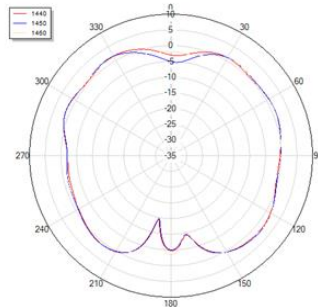
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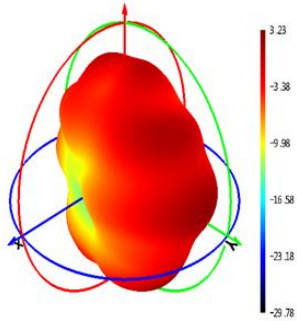
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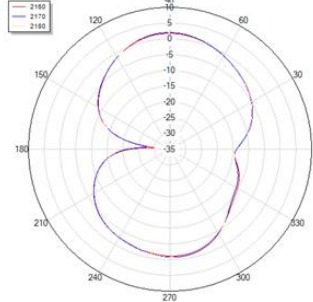
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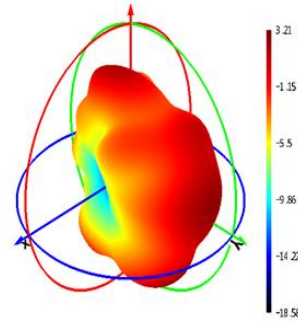
2170 MHz



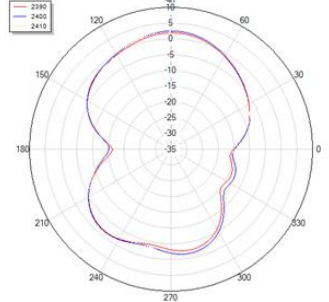
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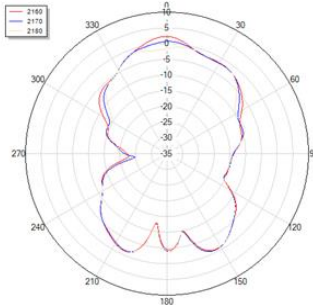
2400 MHz



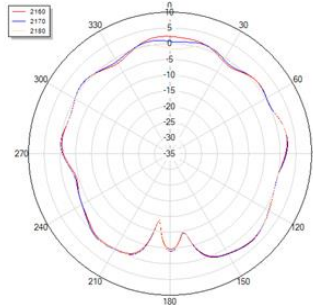
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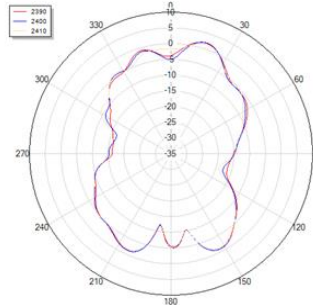
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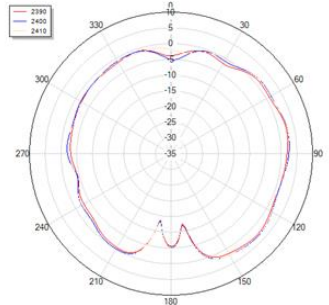
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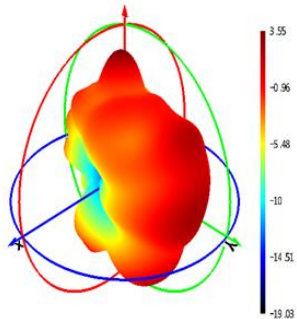
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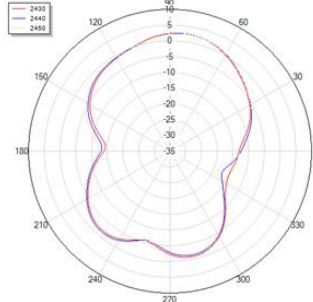
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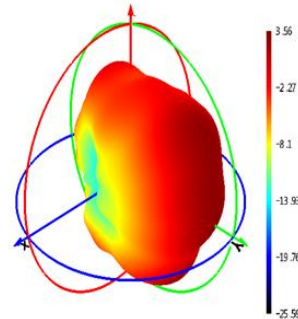
2440 MHz



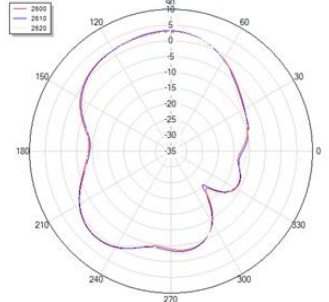
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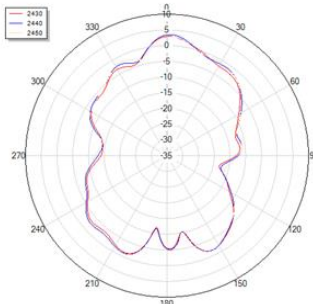
2610 MHz



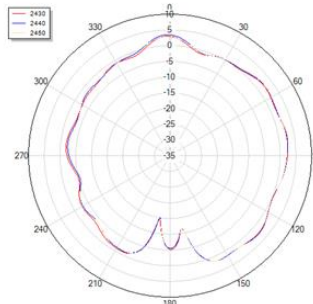
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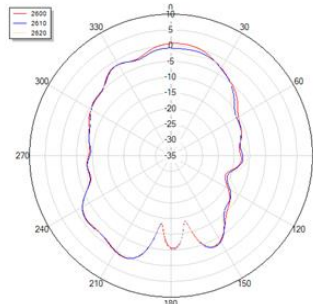
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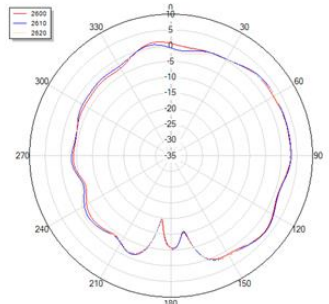
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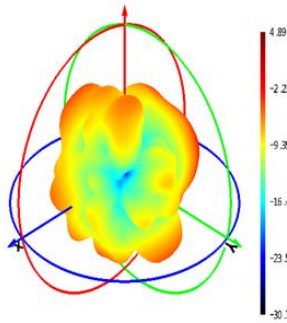
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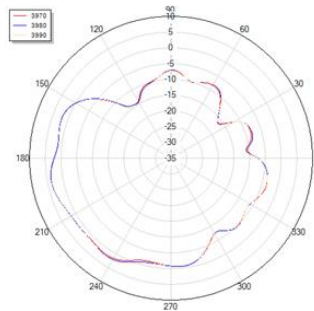
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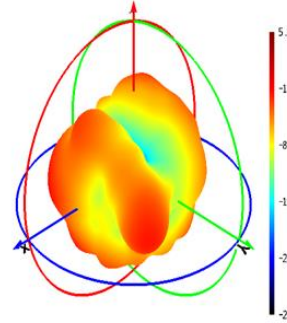
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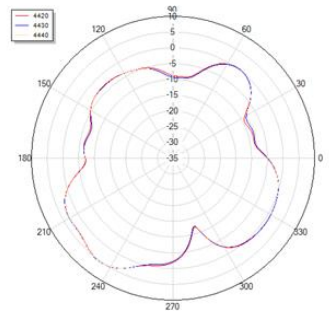
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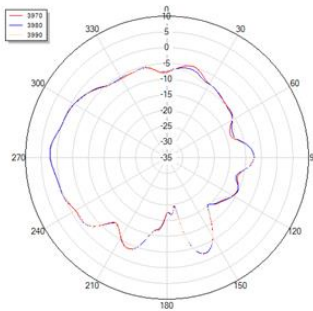
4430 MHz



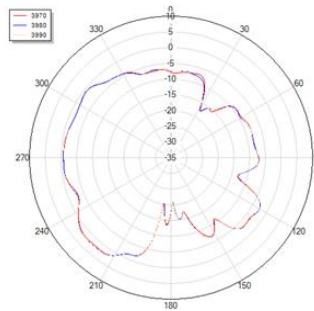
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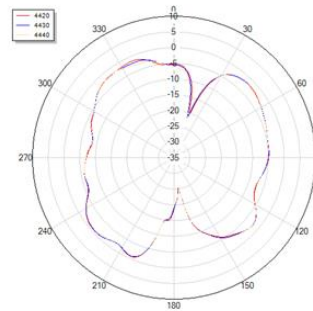
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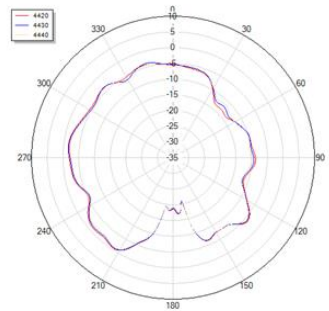
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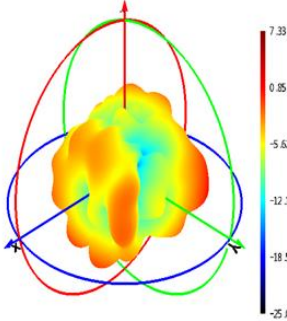
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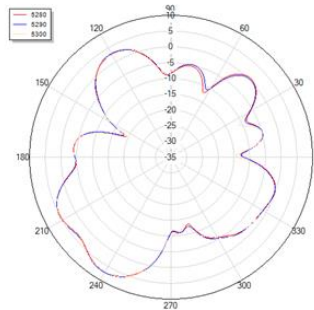
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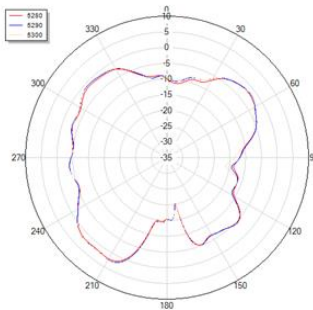
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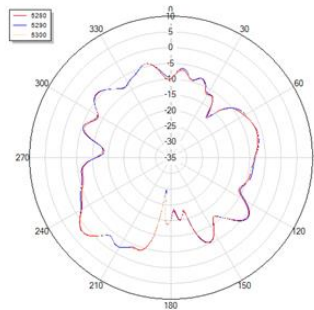
Theta=90



Phi=0

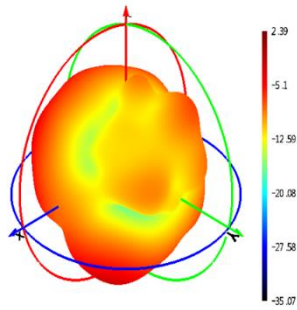


Phi=90

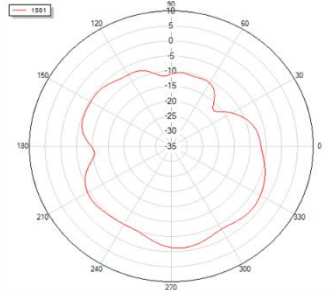


● **GNSS**

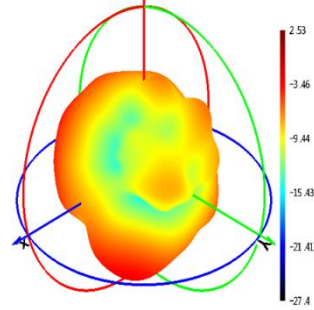
1561 MHz



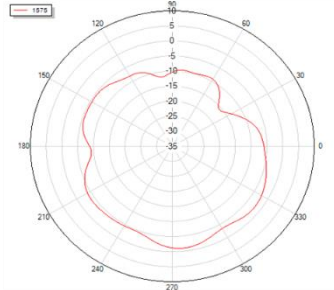
Theta=90 freq=1561MHz



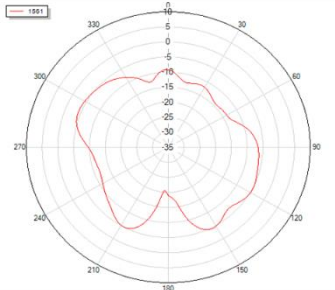
1575 MHz



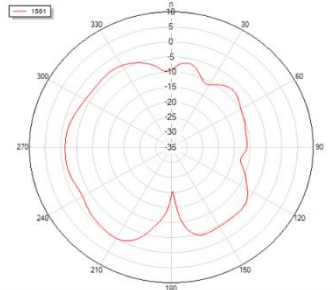
Theta=90 freq=1575MHz



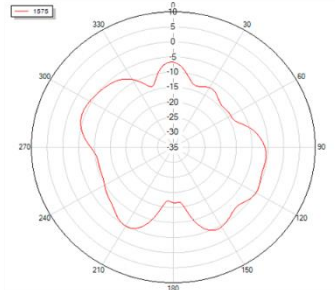
Phi=0 freq=1561MHz



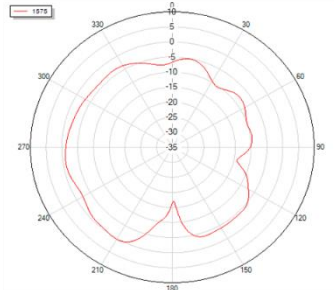
Phi=90 freq=1561MHz



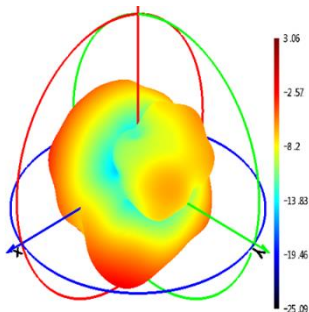
Phi=0 freq=1575MHz



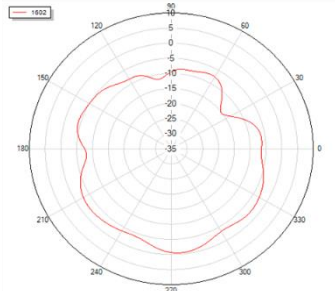
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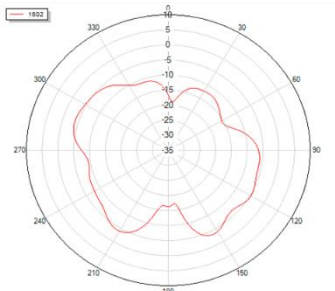
1602 MHz



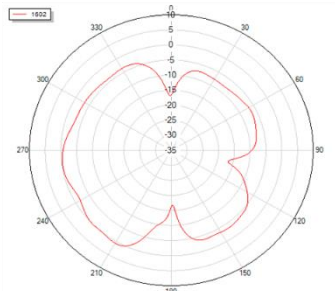
Theta=90 freq=1602MHz



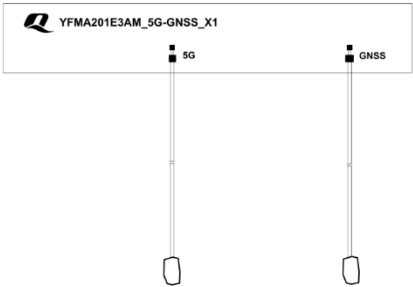
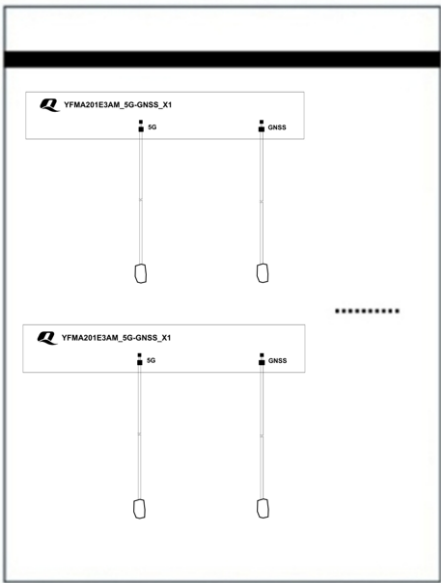
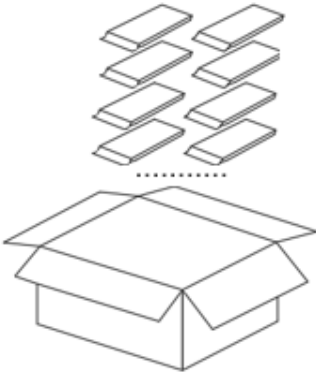
Phi=0 freq=1602MHz

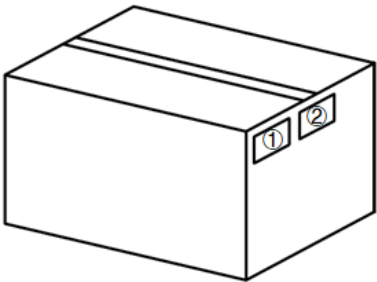
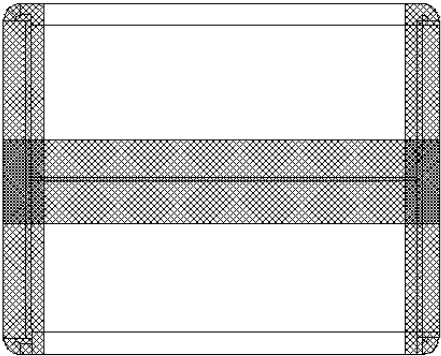


Phi=90 freq=1602MHz



4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		50 antenna products are wrapped with 2 EPE sheets. (50 Antennas / Tie)
2		100 antenna products in a PE bag. (100 Antennas / PE Bag)
3		(25 PE Bags / Carton Box) (2500 Antennas / Carton Box) Estimated quantity Products that cannot fill the entire carton box are packed in a suitable size carton box. <u>Carton Size:</u> <u>L × W × H = 300 × 250 × 200 mm</u>

4		Position for Attaching Labels ① Carton Label ② Quality Label
5		Sealing Cartons H-shaped sealing cartons
Note	The initial packaging method described above is for reference only, and the final actual packaging method shall be subject to the actual shipping packaging.	

Contact Us

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

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Revision History

Version	Date	Author	Note
-	2026-03-18	Christopher Yao/ Singh Wang/ Strong Qiang/ Rainey Liao	Creation of the document
1.0	2026-03-18	Christopher Yao/ Singh Wang/ Strong Qiang/ Rainey Liao	First official release



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