



Antenna Datasheet

Product OC: YECN022AA

Version: 2.0

Date: 2025-12-22

Status: Released

Product Name: 4G Magnetic Mount Whip Monopole External Antenna

Key Features:

Frequency Band: 700–960 MHz, 1710–2690 MHz

Dimensions: Φ 30 mm $\times$ 110 mm

Efficiency: Up to 38.4 %

RoHS Compliant

IP65

Overview

The YECN022AA is a 4G external antenna measuring Φ 30 mm × 110 mm. This ultra-wide-band 4G antenna provides broad coverage from 700–960 MHz, 1710–2690 MHz. The antenna is available with connection via cable lengths from 3,000 mm, terminated with SMA (Male pin with internal thread) connector. This low profile, magnetic mount omni-directional antenna, ideal for applications where the antenna is required to be discrete, is easy to install with maximum durability assured thanks to its IP65 rated ABS enclosure. It is compatible with Quectel 's 4G Series modules.

It allows constant and reliable transmission and reception due to its omni-directional gain across all frequency bands. The YECN022AA is designed as a monopole antenna, which offers high efficiency in all working bands. It is a perfect antenna product for customers that desire highest performance. This high-efficiency, high-gain omni-directional antenna is ideally suited for IoT sensors, public safety and security, fleet management, smart home automation.

Typical applications include:

- IoT Sensors
- Public Safety and Security
- Fleet Management
- Smart Home Automation

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: On 300 mm × 300 mm Metal Plane

1.1. Electrical

Electrical	
Frequency Range	700–960 MHz, 1710–2690 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional
Antenna Type	Monopole

Electrical – Detail												
Band	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
SPEC	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	-	-	2.4	2.4	-	2.1	2.1	1.8	2.0	-	-	-
Max. Return Loss (dB)	-	-	-7.6	-7.8	-	-8.9	-9.1	-10.9	-9.5	-	-	-
AVG Eff. (%)	-	-	28.6	23.5	-	21.9	13.4	13.3	13.9	-	-	-
AVG AVG Gain (dB)	-	-	-5.5	-6.3	-	-6.8	-8.7	-8.8	-8.6	-	-	-
Max. Peak Gain (dBi)	-	-	-1.2 (700)	-2.0 (860)	-	0.5 (1930)	-1.0 (2400)	-0.7 (2410)	-0.5 (2670)	-	-	-
VSWR	≤ 2.4											
Return Loss	≤ -7.6 dB											
Peak Gain	≤ 0.5 dBi											

1.2. Supported Bands

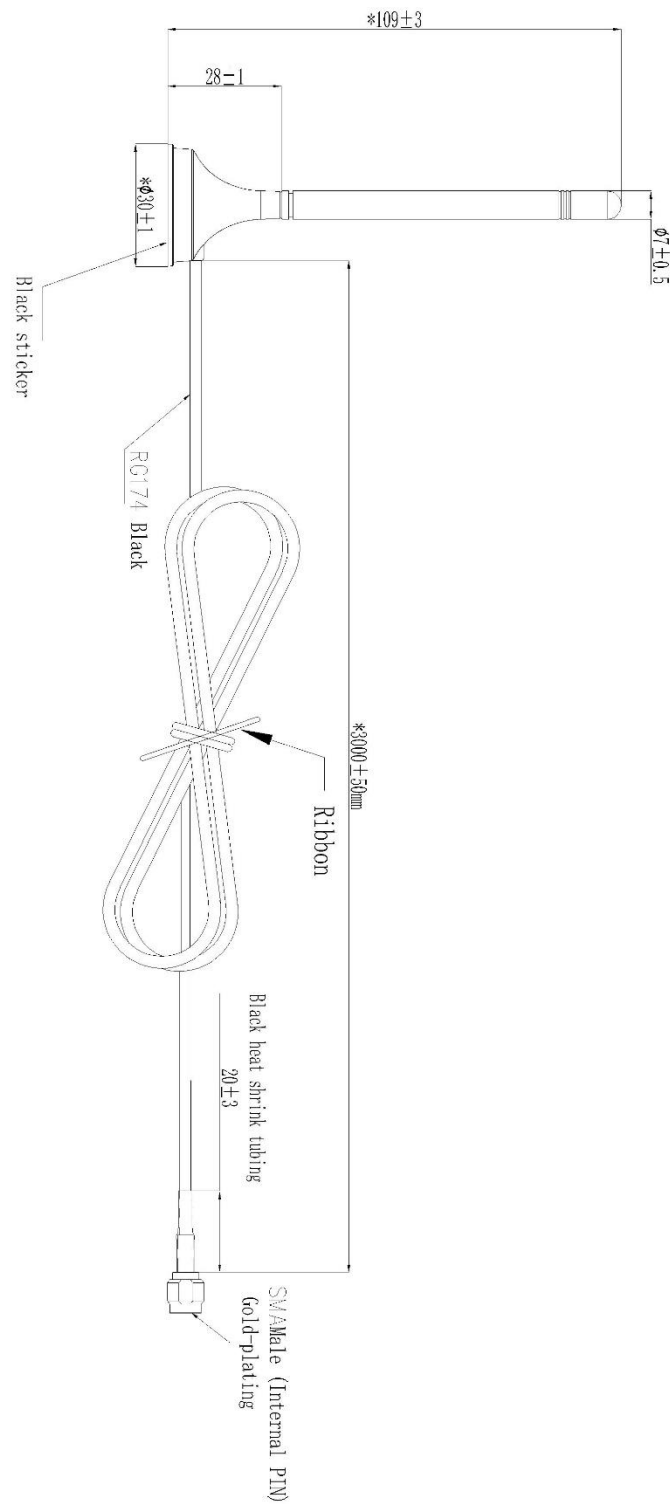
5G NR / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / GPRS / GSM / NB-IoT					
Band	Frequency (MHz)	Uplink (MHz)	Downlink (MHz)	Covered	Max Peak Gain (dBi)
1	2100	1920–1980	2110–2170	√	0.5
2	1900	1850–1910	1930–1990	√	0.5
3	1800	1710–1785	1805–1880	√	0.0
4	1700	1710–1755	2110–2155	√	0.5
5	850	824–849	869–894	√	-2.0
7	2600	2500–2570	2620–2690	√	-0.5
8	900	880–915	925–960	√	-2.4
9	1800	1749.9-1784.9	1844.9-1879.9	√	0.0
11	1500	1427.9-1447.9	1475.9-1495.9	-	-
12	700	699–716	729–746	√	-1.2
13	700	777–787	746–756	√	-1.9
14	700	788–798	758–768	√	-1.9
17	700	704–716	734–746	√	-2.1
18	850	815–830	860–875	√	-2.0
19	850	830–845	875–890	√	-2.0
20	800	832–862	791–821	√	-2.0
21	1500	1447.9-1462.9	1495.9-1510.9	-	-
22	3500	3410–3490	3510–3590	-	-
23	2100	2000–2020	2180–2200	√	-0.44
24	1600	1626.5–1660.5	1525–1559	-	-
25	1900	1850–1915	1930–1995	√	0.5
26	850	814–849	859–894	√	-2.0

28	700	703–748	758–803	√	-1.9
31	450	452.5–457.5	462.5–467.5	-	-
34	2100	2010–2025		√	-1.0
38	2600	2570–2620		√	-1.0
39	1900	1880–1920		√	0.2
40	2300	2300–2400		√	-1.0
41	2500	2496–2690		√	-0.5
42	3500	3400–3600		-	-
48	3500	3550–3700		-	-
66	1700	1710–1780	2110–2200	√	0.5
71	600	663–698	617–652	-	-0.3
74	1500	1427–1470	1475–1518	-	-
77	3500	3300–4200		-	-
78	3500	3300–3800		-	-
79	4500	4400–5000		-	-

1.3. Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 30 mm × 110 mm
Material & Color	ABS & Black
Cable Type & Color & Length	RG174 & Black & 3000 mm
Connector Type	SMA (Male pin with internal thread)
Weight	Typ. 48.9 g
Mounting Type	Magnet
Environmental	
Operation Temperature	-20 °C to +60 °C
Storage Temperature	-20 °C to +60 °C
Ingress Protection (IP) Rating	IP65
RoHS Compliant	Yes

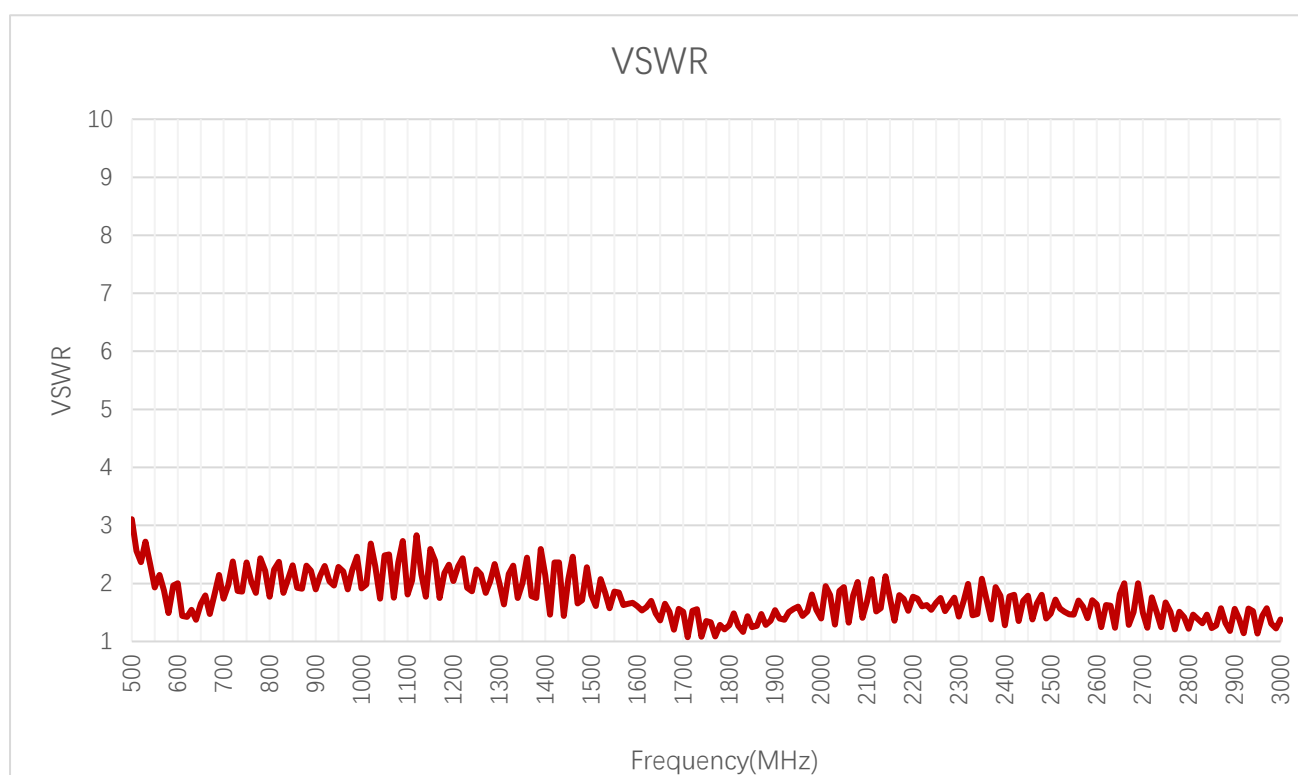
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

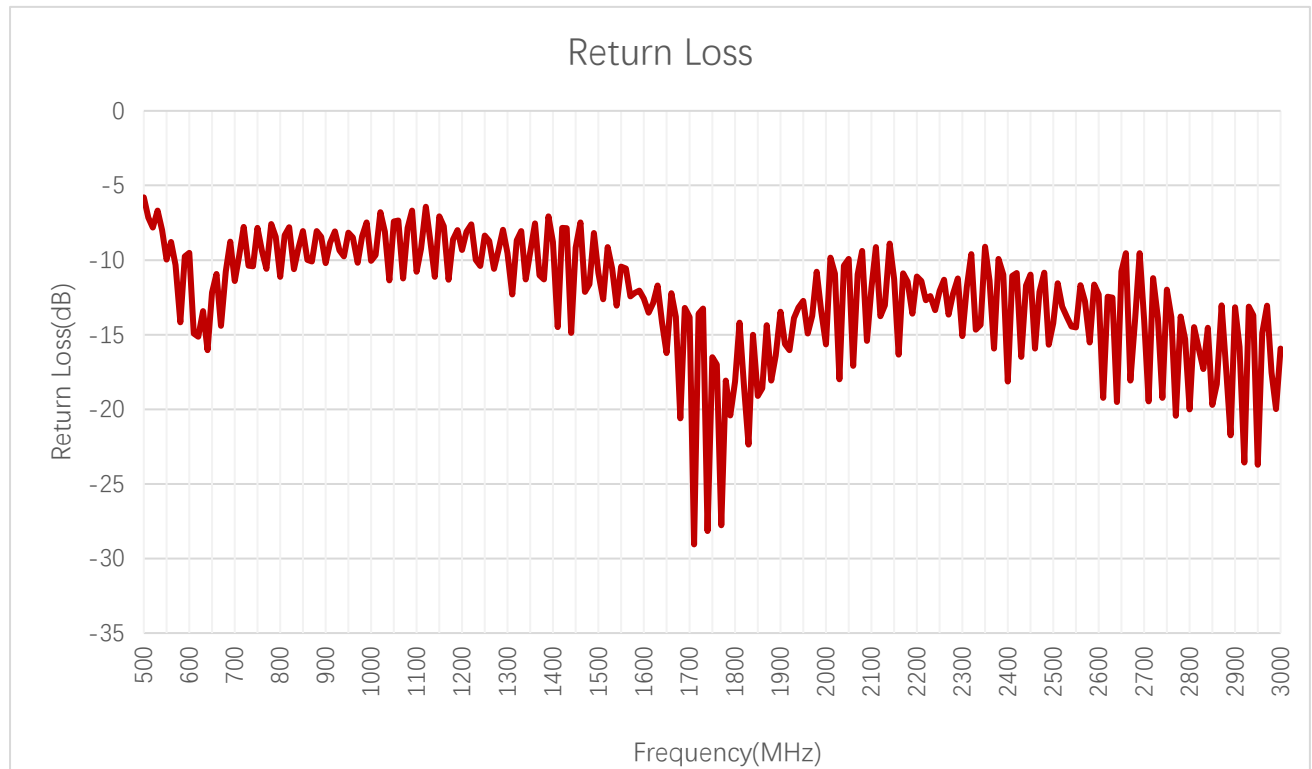
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	-	-	2.0	1.8	1.9	2.2	-	1.1	1.1	1.3
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
VSWR	1.6	2.1	2.1	1.8	1.6	2.0	-	-	-	-

3.1.2. Return Loss

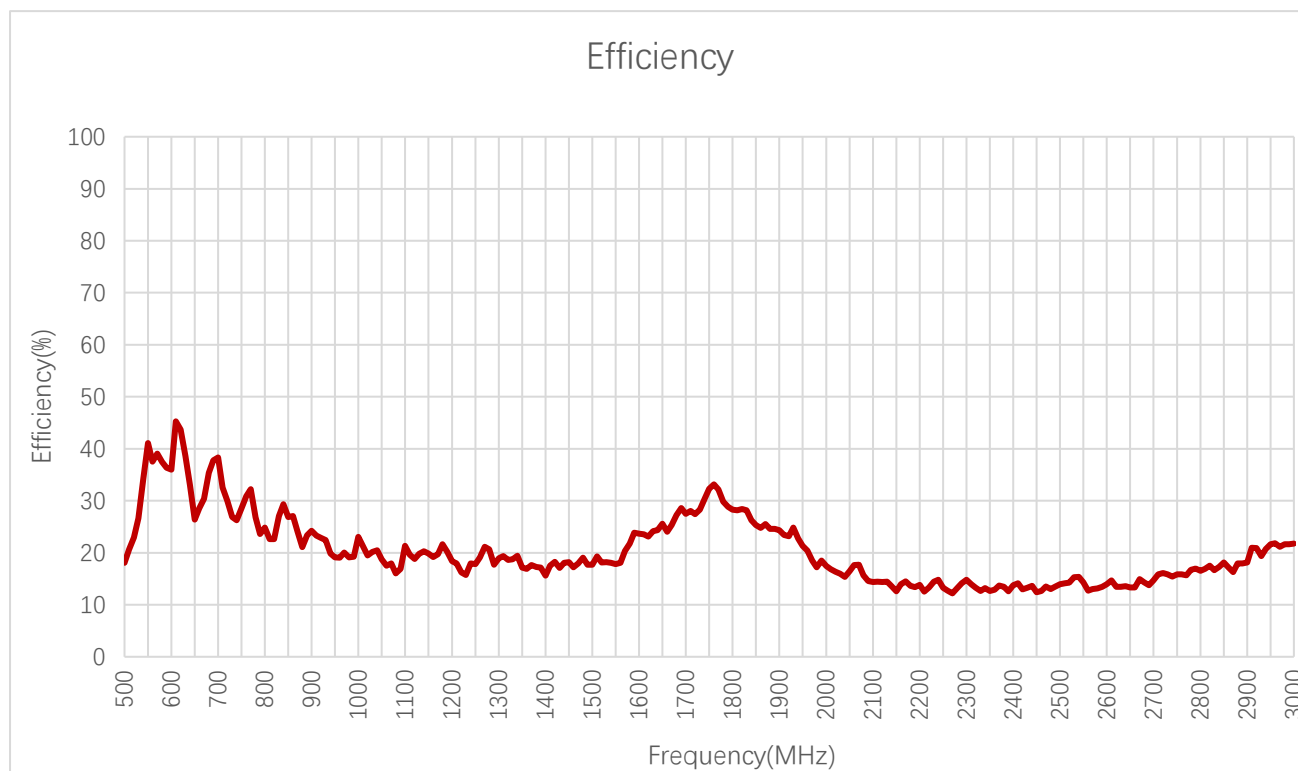


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-	-	-9.7	-10.6	-10.2	-8.5	-	-29.1	-28.2	-18.1
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Return Loss (dB)	-12.7	-8.9	-9.1	-11.0	-12.3	-9.5	-	-	-	-

3.2. Radiation Performance Test

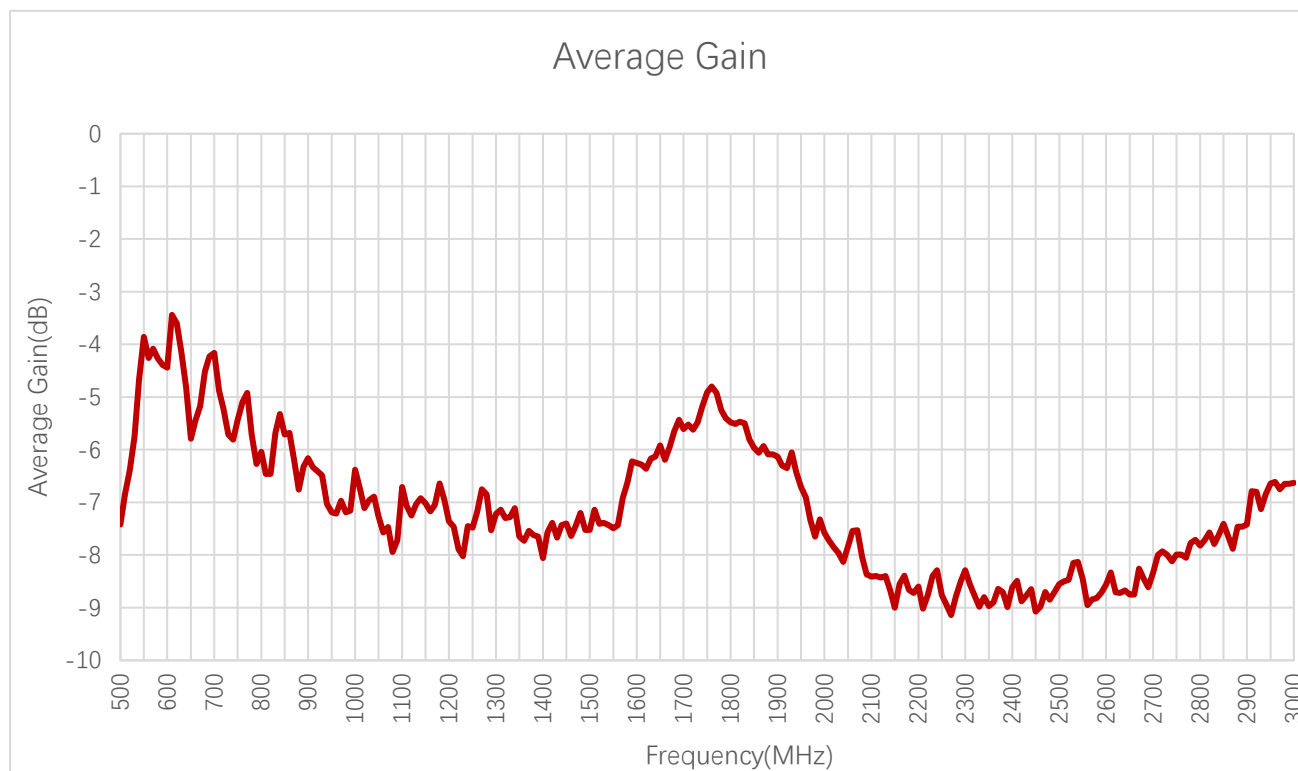
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	-	-	32.5	27.0	24.2	19.0	-	28.1	30.4	24.6
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Efficiency (%)	21.3	13.6	12.7	12.4	13.9	13.8	-	-	-	-

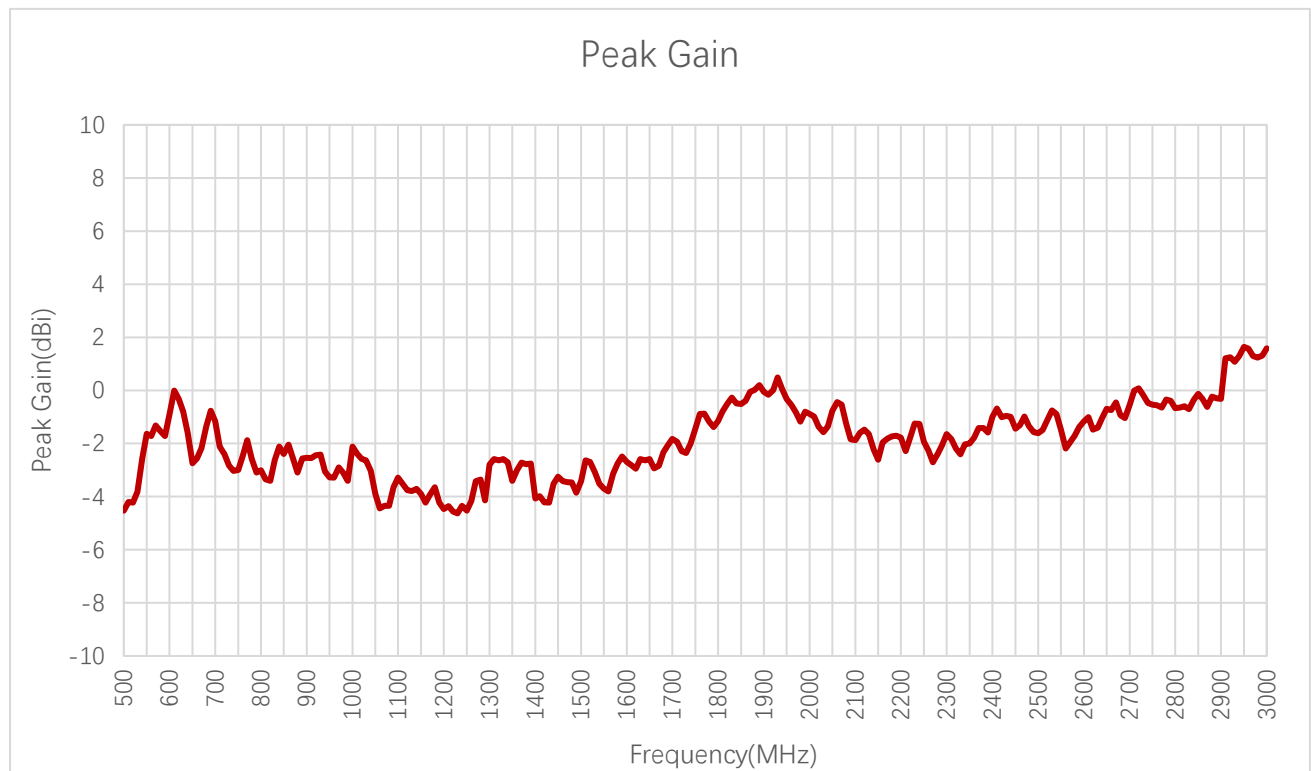
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-	-	-4.9	-5.7	-6.2	-7.2	-	-5.5	-5.2	-6.1
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Average Gain (dB)	-6.7	-8.7	-9.0	-9.1	-8.6	-8.6	-	-	-	-

3.2.3. Peak Gain

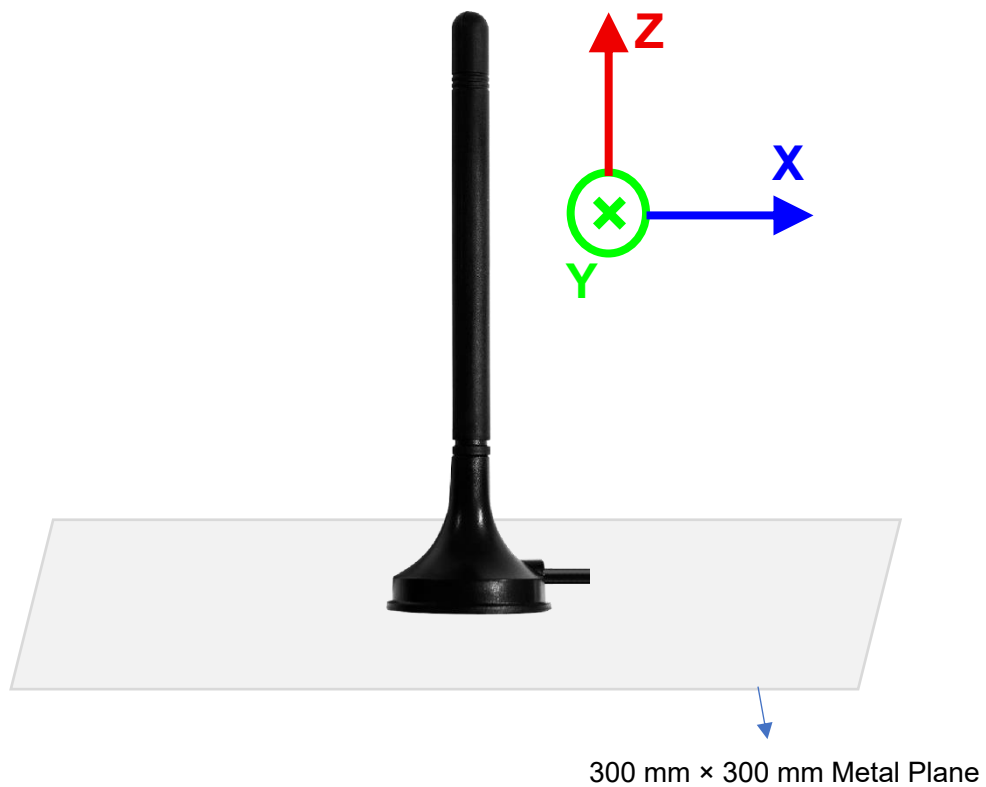


Peak Gain (dBi)

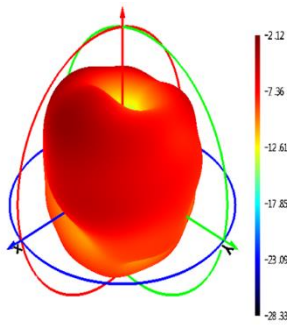
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	-	-	-2.1	-2.6	-2.5	-3.3	-	-1.9	-2.0	0.0
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Peak Gain (dBi)	-0.3	-2.2	-2.0	-1.4	-1.2	-1.0	-	-	-	-

3.2.4. 3D & 2D Radiation Pattern

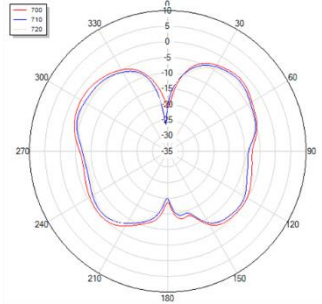
- Test Condition: On 300 mm × 300 mm Metal Plane
- Test Chamber: HF-S-1



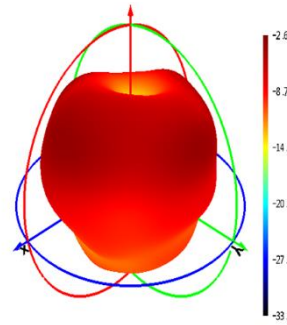
710 MHz



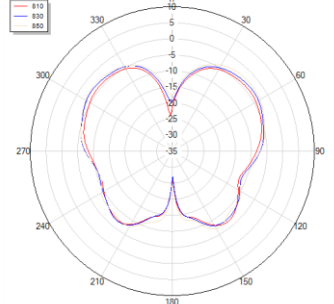
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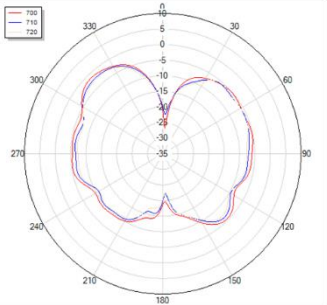
830 MHz



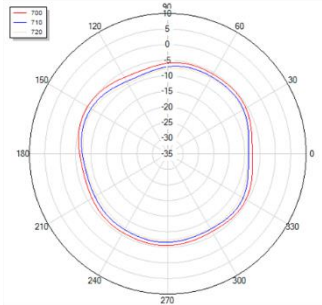
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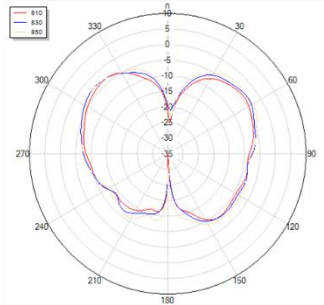
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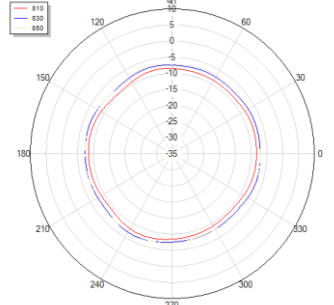
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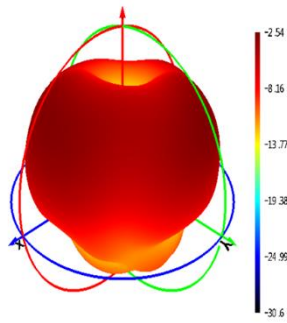
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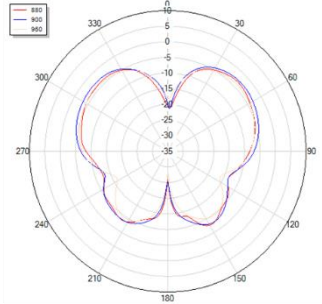
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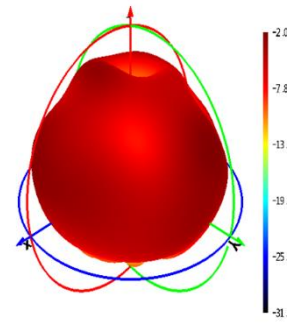
900 MHz



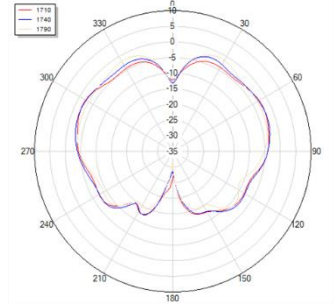
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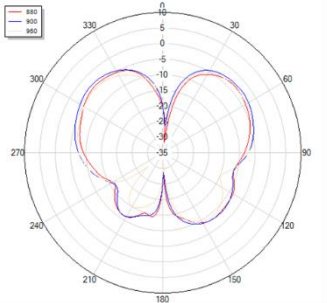
1740 MHz



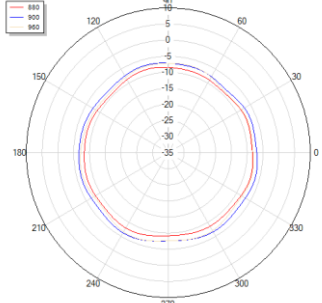
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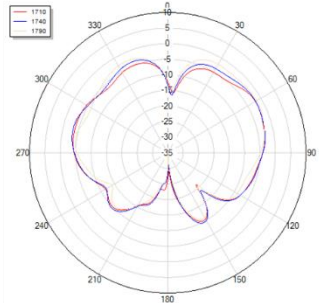
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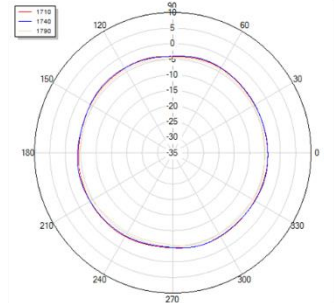
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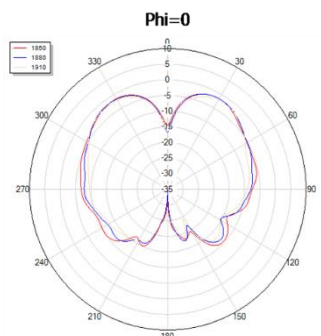
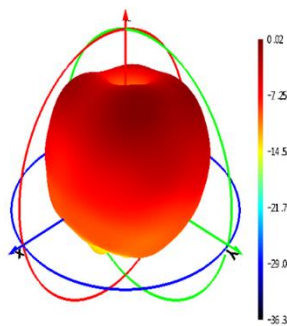
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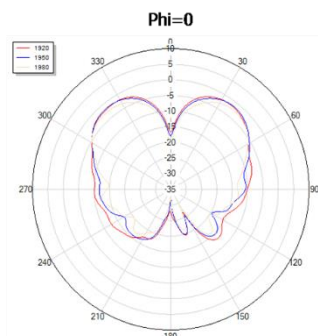
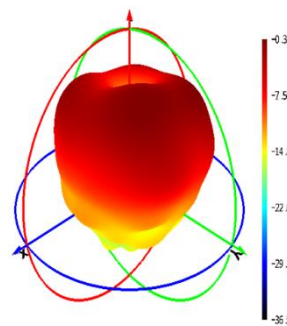
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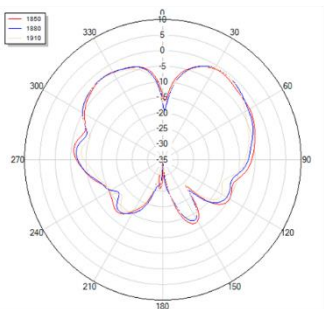
1880 MHz



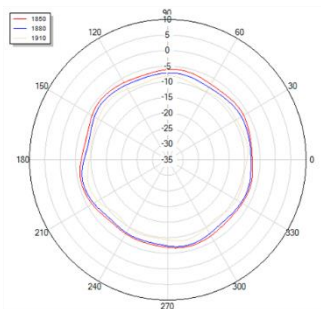
1950 MHz



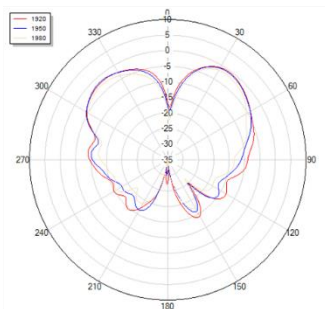
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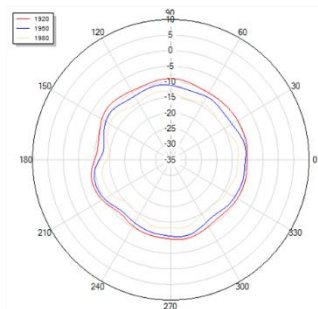
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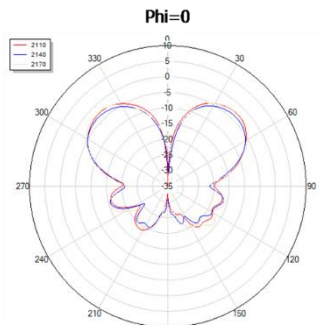
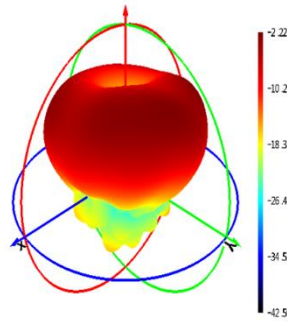
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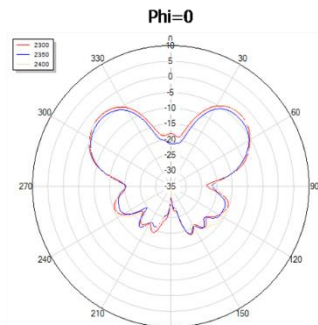
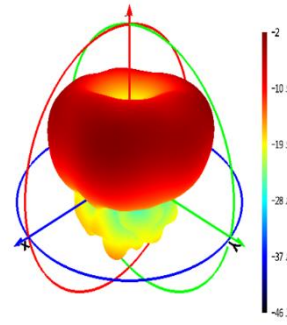
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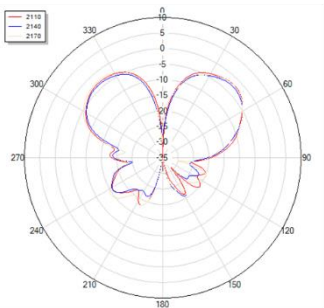
2140 MHz



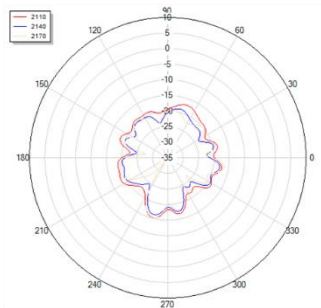
2350 MHz



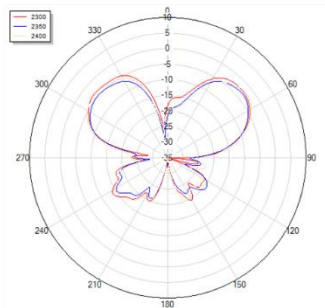
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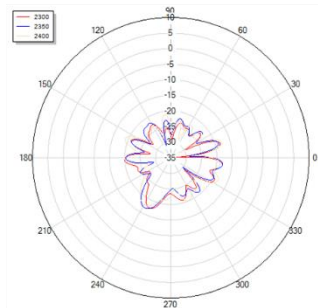
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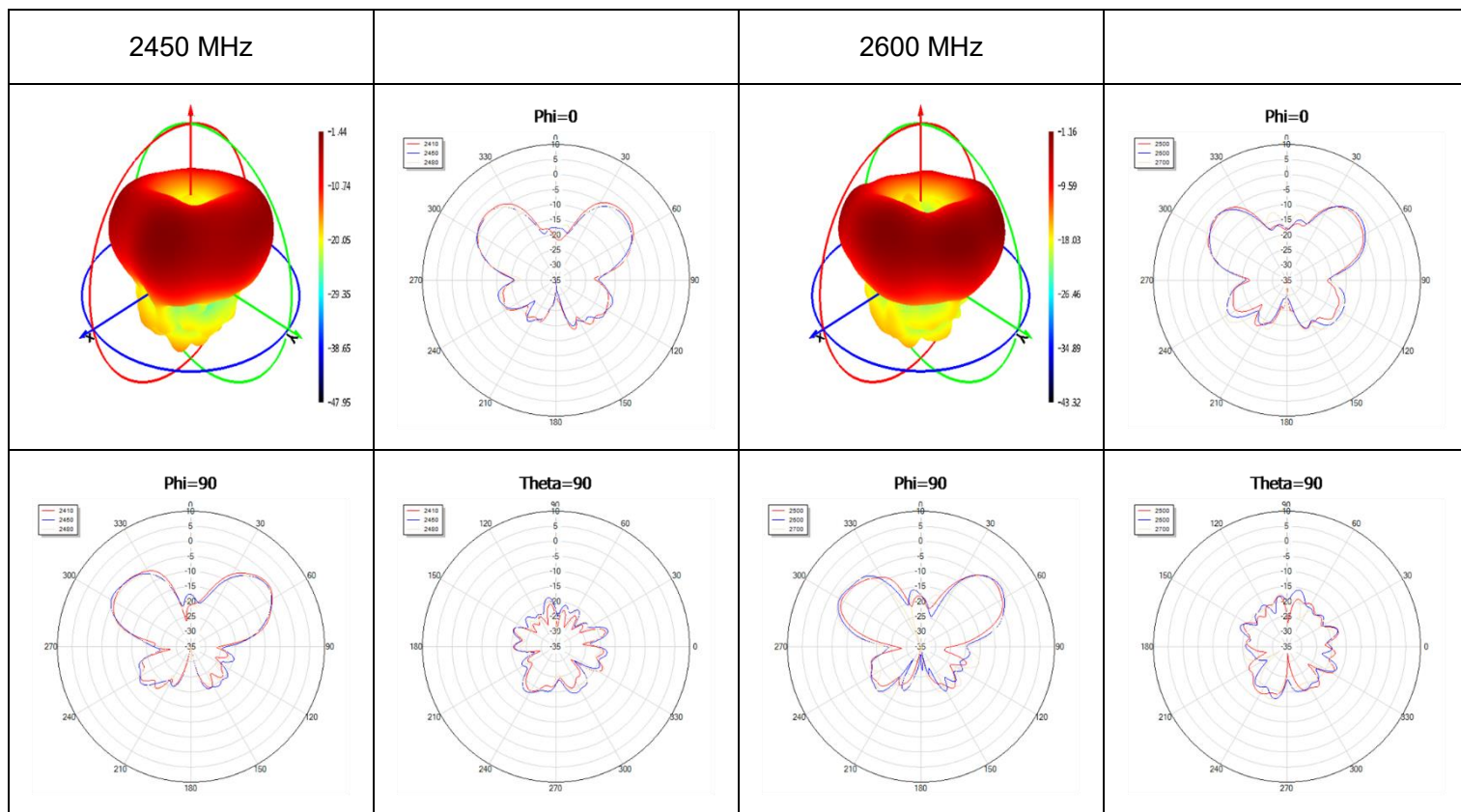


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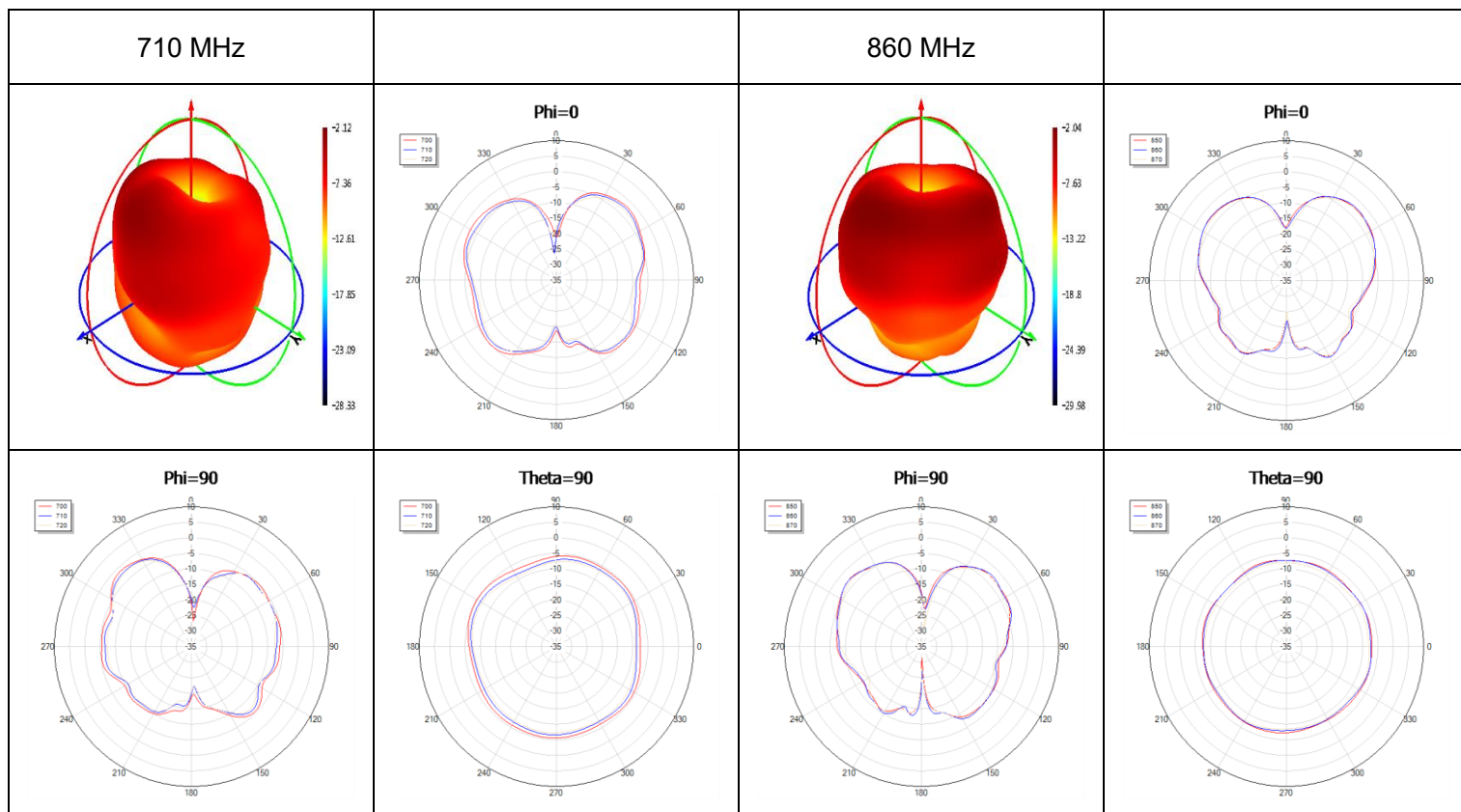


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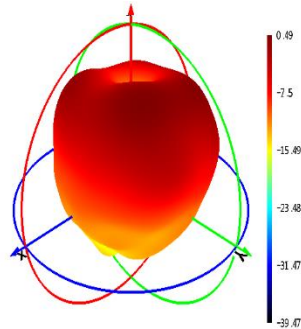




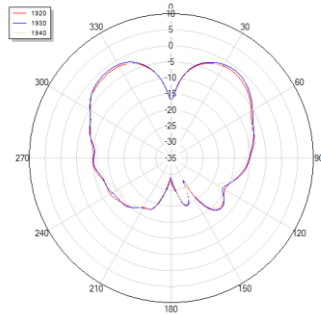
● **Max Peak Gain**



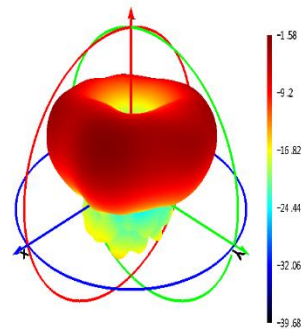
1930 MHz



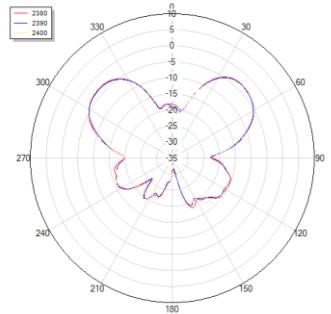
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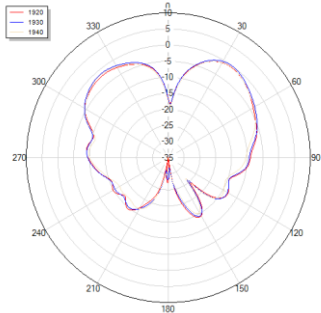
2400 MHz



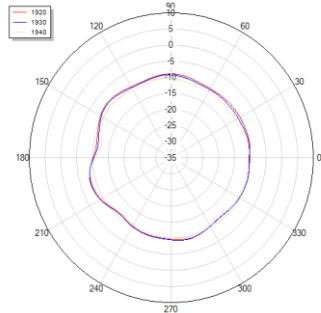
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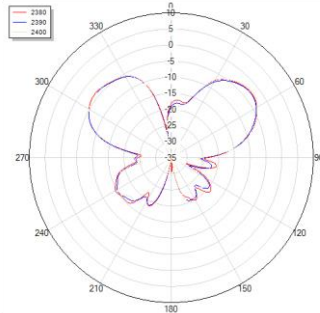
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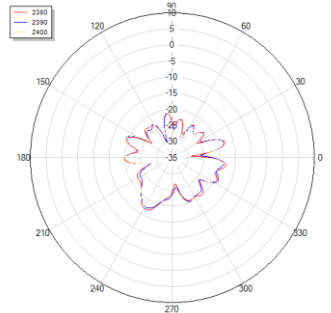
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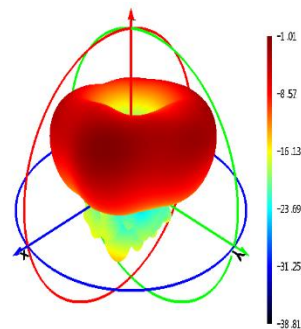
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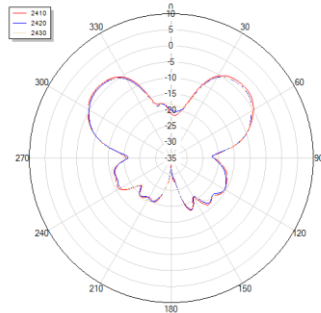
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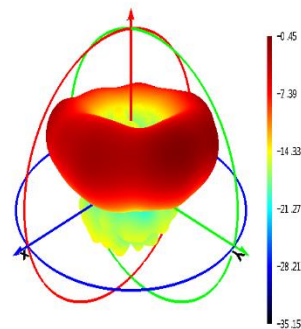
2410 MHz



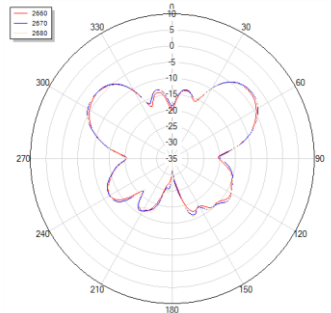
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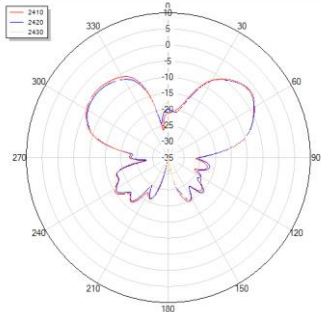
2670 MHz



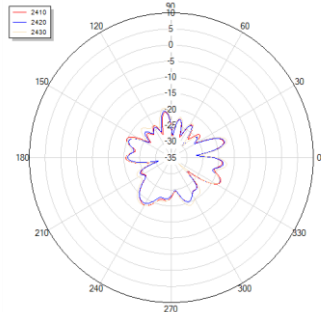
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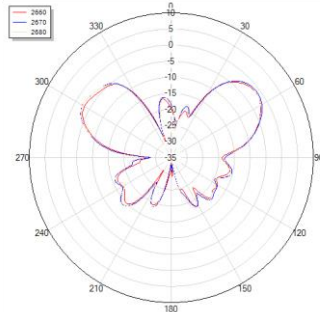
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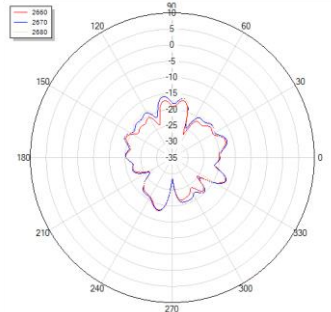
Theta=90



Phi=90

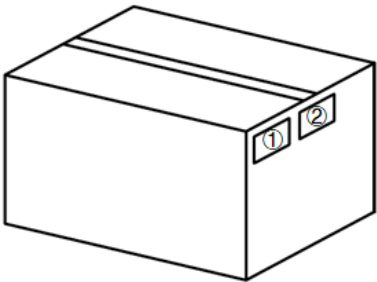
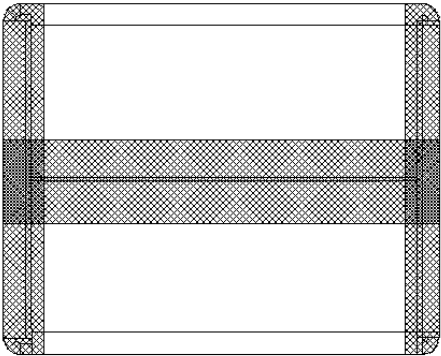


Theta=90



4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		Whole antenna product in a small PE bag. (1 Antenna / Small PE Bag)
2		20 antenna products in a big PE bag. (20 Antennas / Big PE Bag)
3		(10 Big PE Bags / Carton Box) (200 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 = 370 × 370 × 295 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
-	2022-07-10	Andy Miao/ Joye Wang	Creation of the document
1.0	2022-07-10	Andy Miao/ Joye Wang	First official release
1.1	2025-06-20	Riva Ren/ Aria Chu	1. Added the storage temperature (Chapter 3). 2. Added the packaging (Chapter 6).
2.0	2025-12-22	Omid Ji/ Joye Wang/ Strong Qiang/ Rainey Liao	Numerous changes were made to this document. It should be read in its entirety.



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