



Antenna Datasheet

Product OC: YE0021KA

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Date: 2024-01-15

Status: Released

Product Name: 4G Sucker Antenna

Key Features:

Frequency Band: 700–960 MHz, 1710–2170 MHz, 2300–2700 MHz

Dimensions: Φ 30 mm × 110 mm

Efficiency: Up to 46 % (FS)

RoHS and REACH Compliant

IP65

Overview

This Quectel external 4G antenna covers main 4G LTE bands and is compatible with 3G/2G/LPWA bands as well. The external antenna is barely influenced by the internal environment of devices, giving a much better performance in efficiency, radiation and gain whilst providing an optimized solution for a customer product. Quectel also offers flexible installation with custom cable length and connector options.

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1 Specification

Test Condition: On 300 mm × 300 mm metal plane & free space

1.1. Electrical

Electrical	
Frequency Range	700–960 MHz, 1710–2170 MHz, 2300–2700 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

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	MP	-	2.1	2.7	-	2.3	2.3	2.3	2.2	-	-	-
	FS	-	1.7	2.5	-	2.3	2.4	2.4	2.2	-	-	-
Max. Return Loss (dB)	MP	-	-9.2	-6.8	-	-7.9	-8.0	-8.0	-8.6	-	-	-
	FS	-	-11.7	-7.3	-	-8.0	-7.8	-7.8	-8.5	-	-	-
AVG Eff. (%)	MP	-	38.0	31.1	-	30.6	22.8	24.0	25.6	-	-	-
	FS	-	29.5	41.9	-	34.0	19.4	20.9	22.9	-	-	-
AVG Gain (dB)	MP	-	-4.2	-5.1	-	-5.2	-6.4	-6.2	-5.9	-	-	-
	FS	-	-5.4	-3.8	-	-4.8	-7.1	-6.8	-6.4	-	-	-
Max. Peak	MP	-	-1.8	-2.1	-	0.4	0.3	0.6	1.3	-	-	-

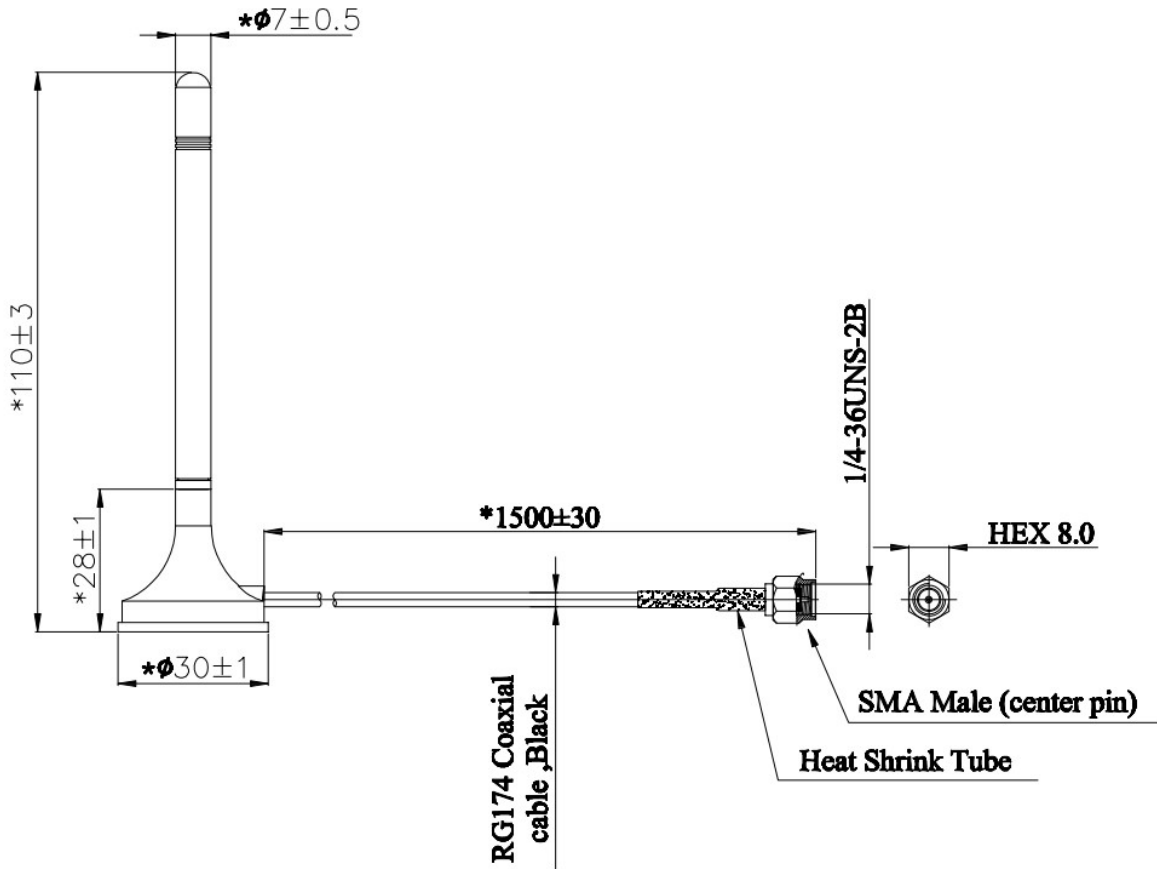
Gain (dBi)	FS	-	-0.7	1.0	-	0.8	-3.2	-2.1	-1.5	-	-	-
VSWR	MP		≤ 2.7									
	FS		≤ 2.5									
Return Loss	MP		≤ -6.8 dB									
	FS		≤ -7.3 dB									
Peak Gain	MP		≤ 1.3 dBi									
	FS		≤ 1.0 dBi									

- FS: Free Space
- MP: On 300 mm × 300 mm metal plane

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 30 mm × 110 mm
Material & Color	ABS & Black
Cable Type & Color & Length	RG 174 & Black & 1500 mm
Connector Type	SMA Male
Mounting Type	Magnet
Weight	Typ. 33.9 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP65
RoHS and REACH Compliant	Yes

2 Drawing

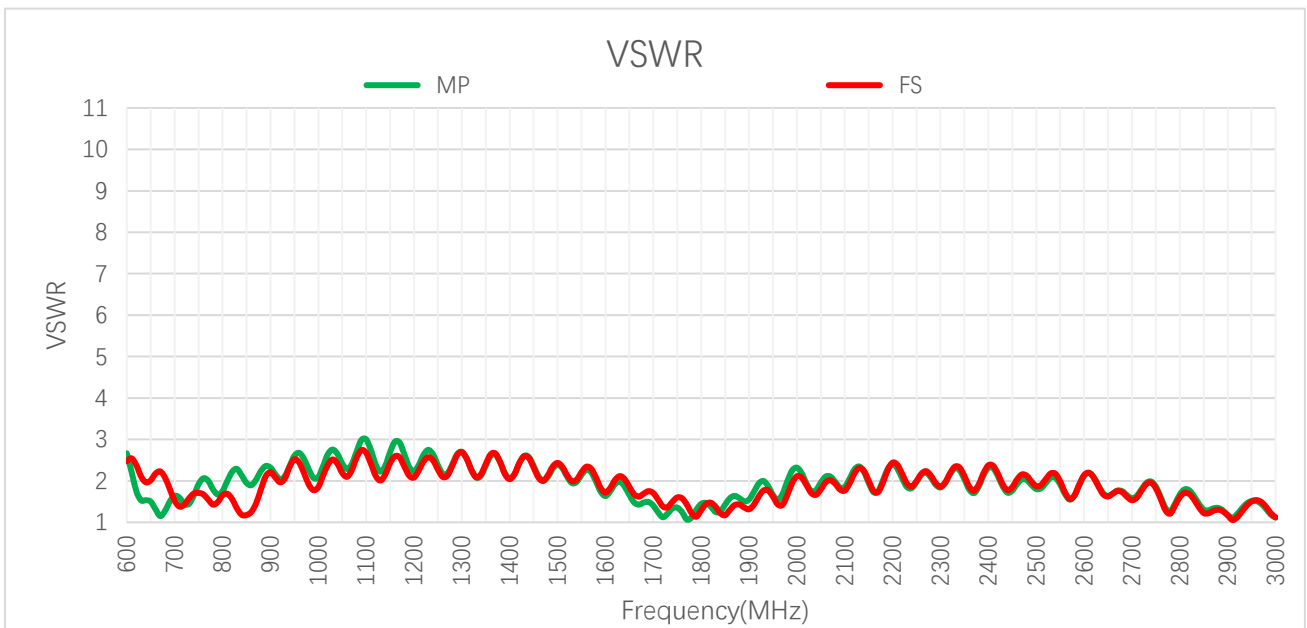


SMA Male
(center pin)

3 Detailed Performance

3.1. S-Parameter Test

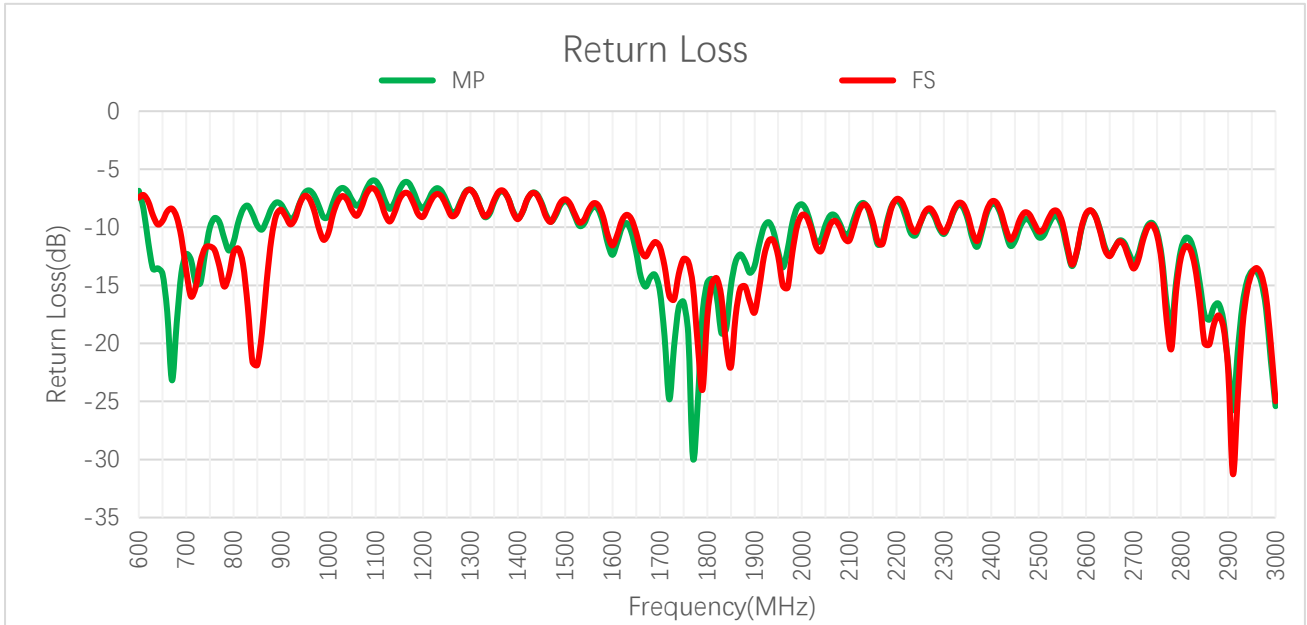
3.1.1. VSWR



VSWR

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
VSWR	MP	-	-	1.6	2.3	2.3	2.7	-	1.2	1.3	1.6
	FS	-	-	1.4	1.3	2.2	2.4	-	1.5	1.5	1.4
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
VSWR	MP	1.7	2.2	2.0	1.8	2.1	1.7	-	-	-	-
	FS	1.6	2.2	2.1	1.8	2.1	1.6	-	-	-	-

3.1.2. Return Loss

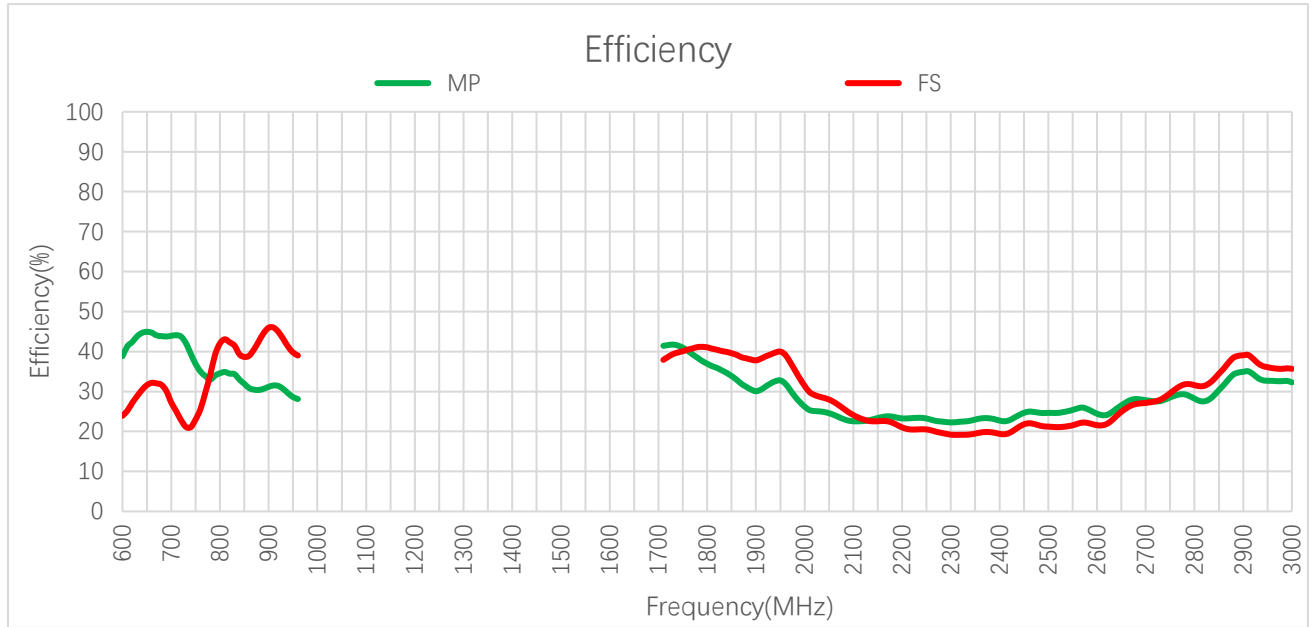


Return Loss (dB)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	MP	-	-	-12.8	-8.1	-8.0	-6.8	-	-19.4	-16.9	-12.9
	FS	-	-	-15.9	-16.8	-8.5	-7.5	-	-13.3	-14.0	-15.1
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Return Loss (dB)	MP	-12.1	-8.4	-9.3	-11.2	-8.9	-12.2	-	-	-	-
	FS	-12.5	-8.3	-8.9	-10.5	-8.8	-12.6	-	-	-	-

3.2. Radiation Performance Test

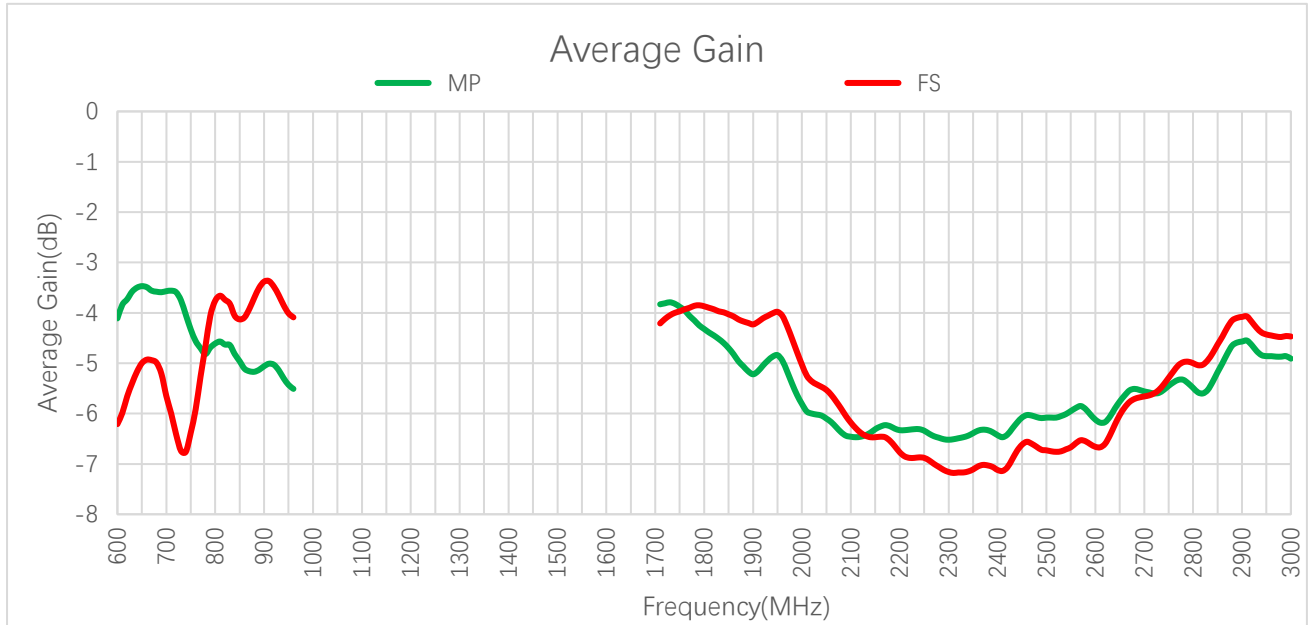
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	MP	-	-	44.1	34.3	31.2	28.1	-	41.4	41.5	31.2
	FS	-	-	25.1	41.5	46.0	39.0	-	37.9	39.8	38.3
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Efficiency (%)	MP	32.8	23.0	23.0	24.7	24.4	28.0	-	-	-	-
	FS	40.0	22.5	19.5	21.8	21.6	27.0	-	-	-	-

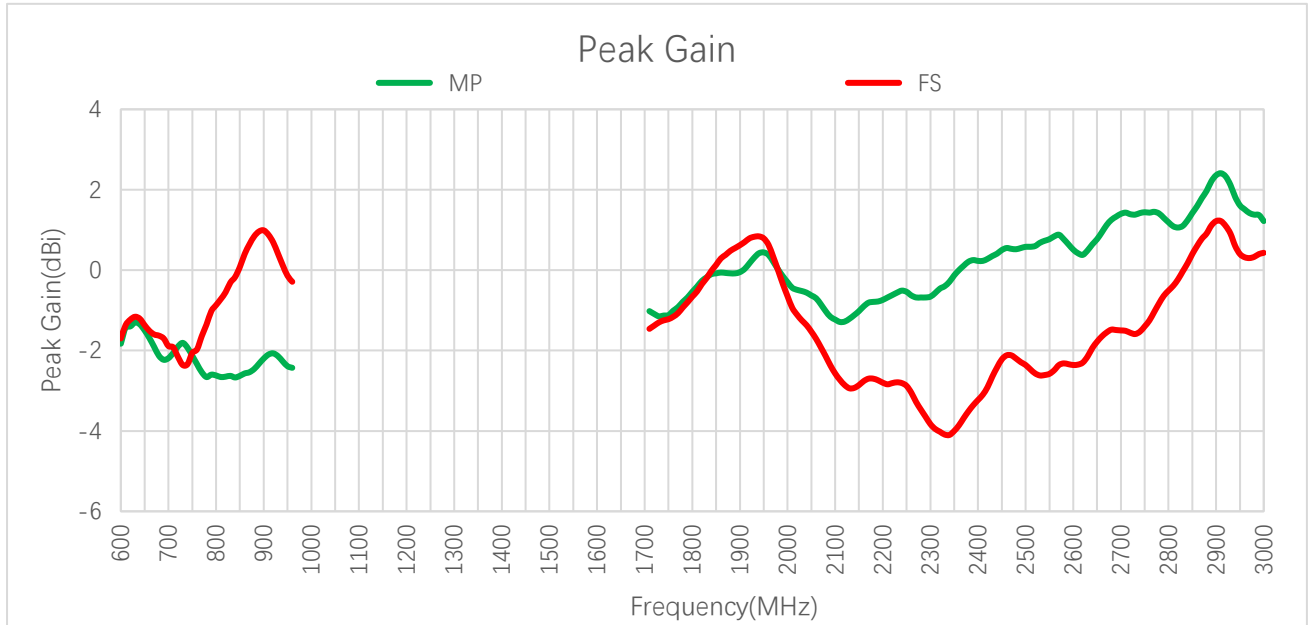
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	MP	-	-	-3.6	-4.6	-5.1	-5.5	-	-3.8	-3.8	-5.1
	FS	-	-	-6.0	-3.8	-3.4	-4.1	-	-4.2	-4.0	-4.2
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Average Gain (dB)	MP	-4.8	-6.4	-6.4	-6.1	-6.1	-5.5	-	-	-	-
	FS	-4.0	-6.5	-7.1	-6.6	-6.7	-5.7	-	-	-	-

3.2.3. Peak Gain



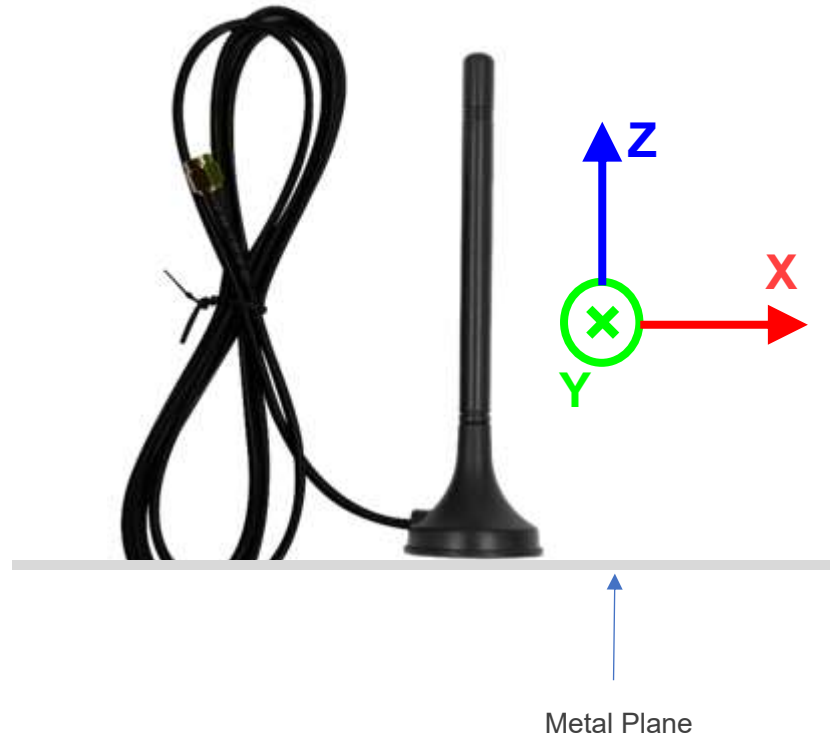
Peak Gain (dBi)

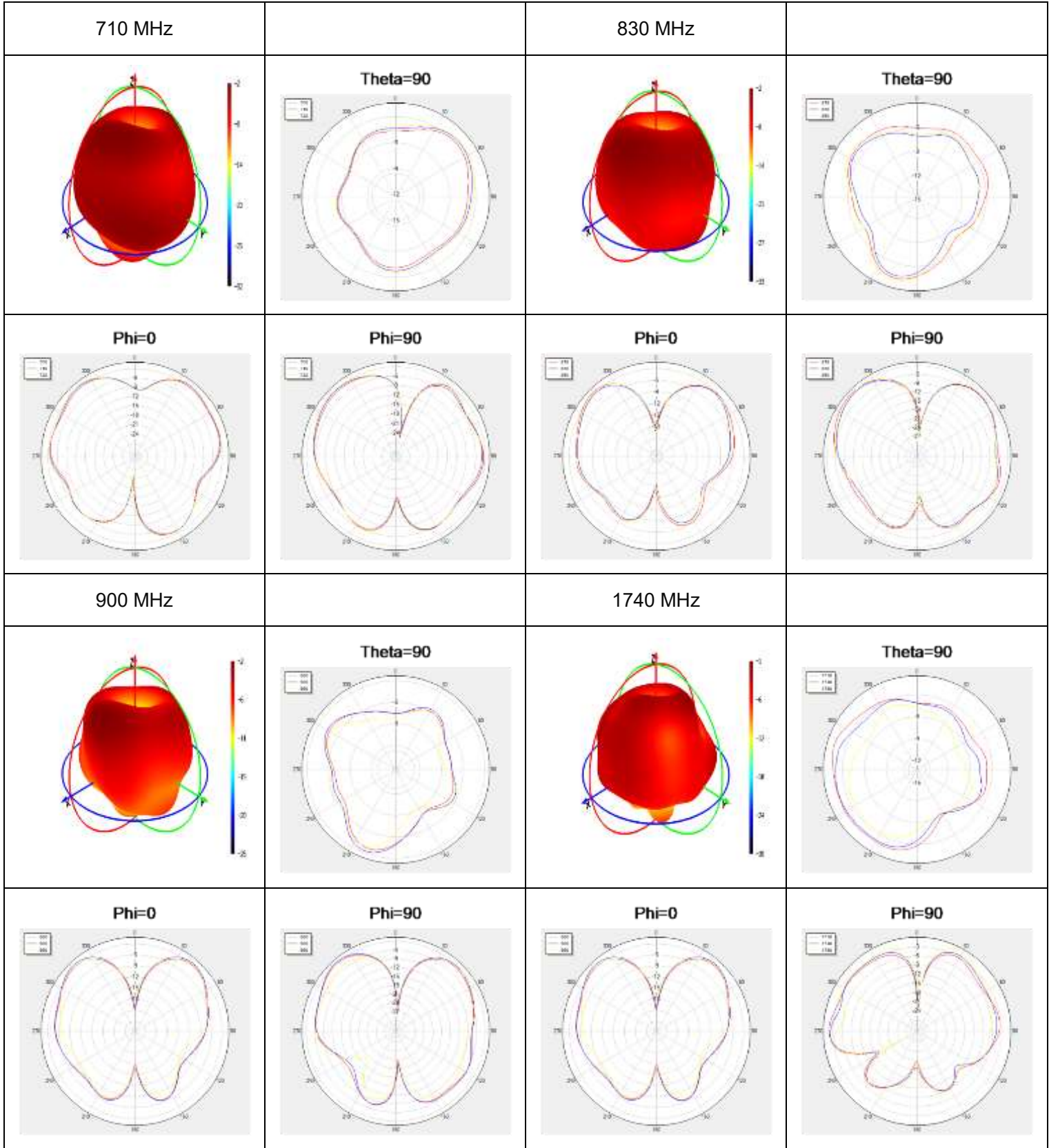
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	MP	-	-	-2.1	-2.6	-2.2	-2.4	-	-1.0	-1.1	-0.1
	FS	-	-	-1.9	-0.3	1.0	-0.3	-	-1.5	-1.3	0.5
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Peak Gain (dBi)	MP	0.4	-1.1	-0.1	0.5	0.5	1.3	-	-	-	-
	FS	0.8	-2.9	-4.0	-2.2	-2.4	-1.5	-	-	-	-

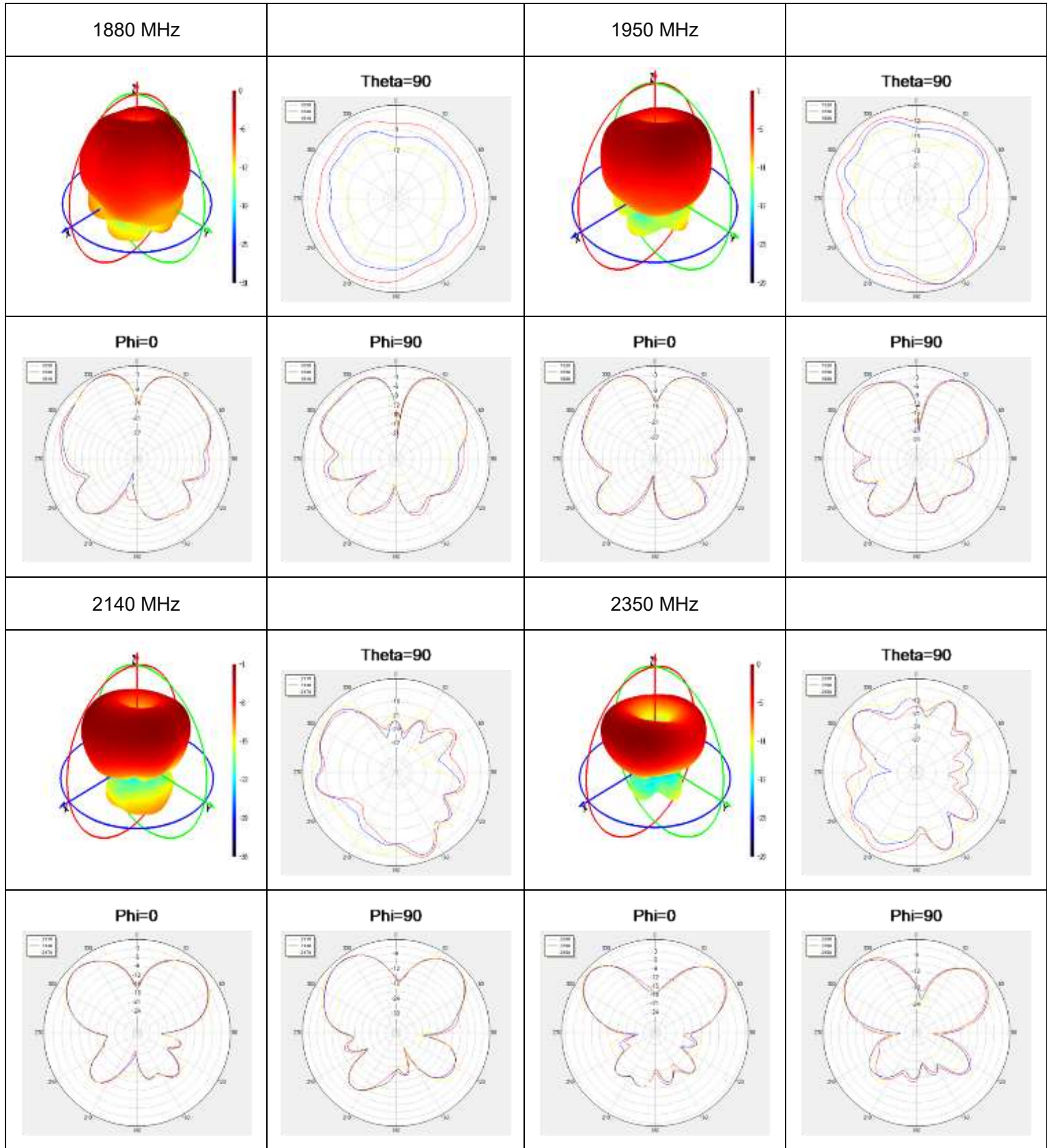
3.2.4. 3D & 2D Radiation Pattern

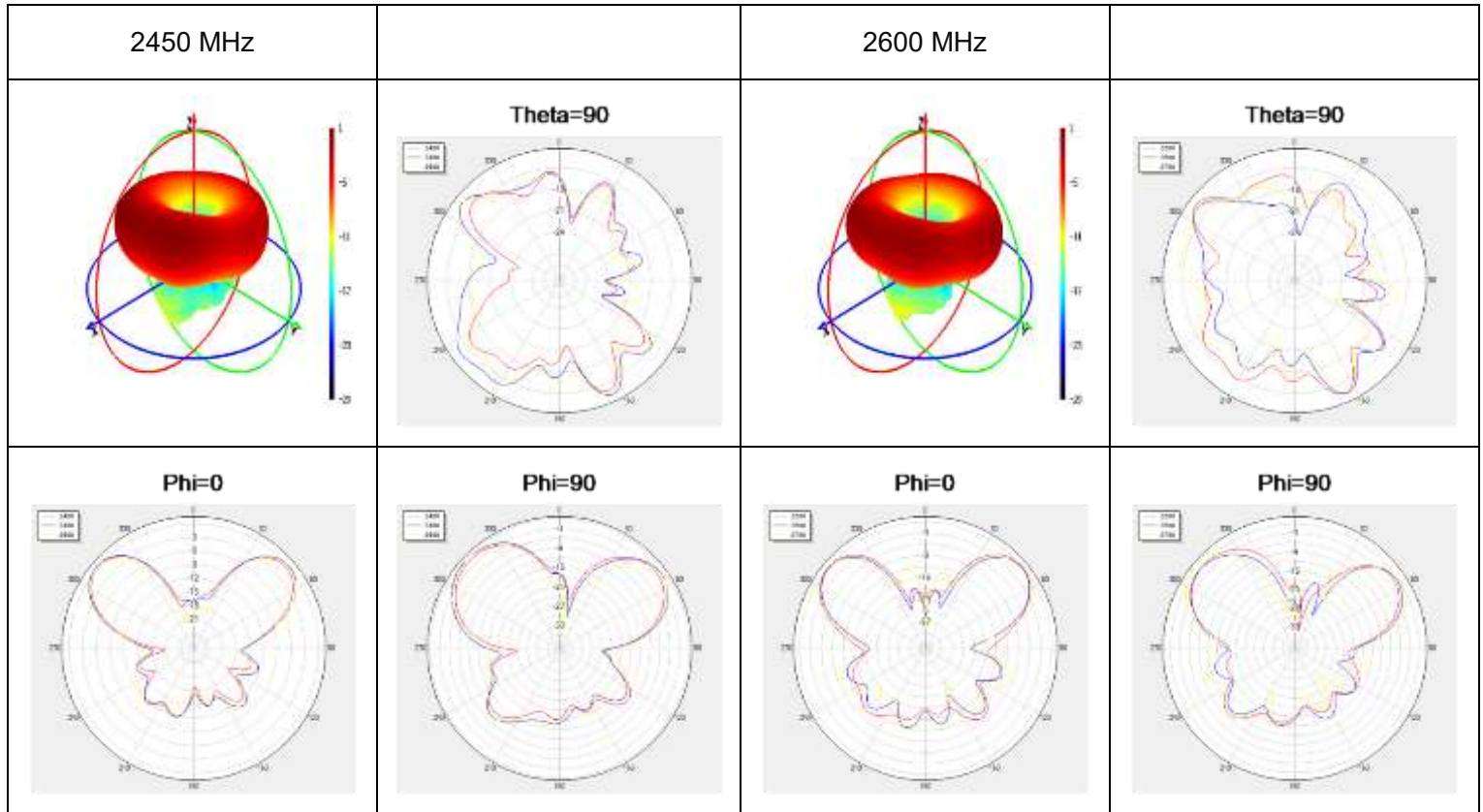
3.2.4.1. Test Condition: On 300 mm × 300 mm Metal Plane

- Test Chamber: GL-S-1



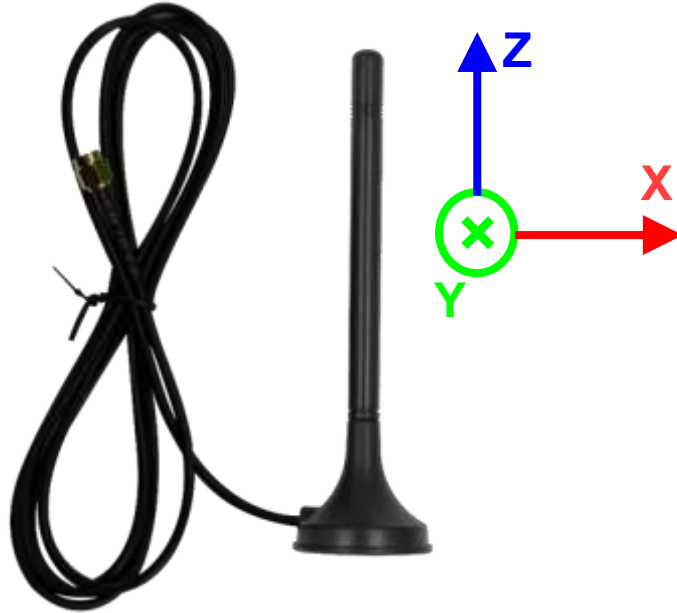


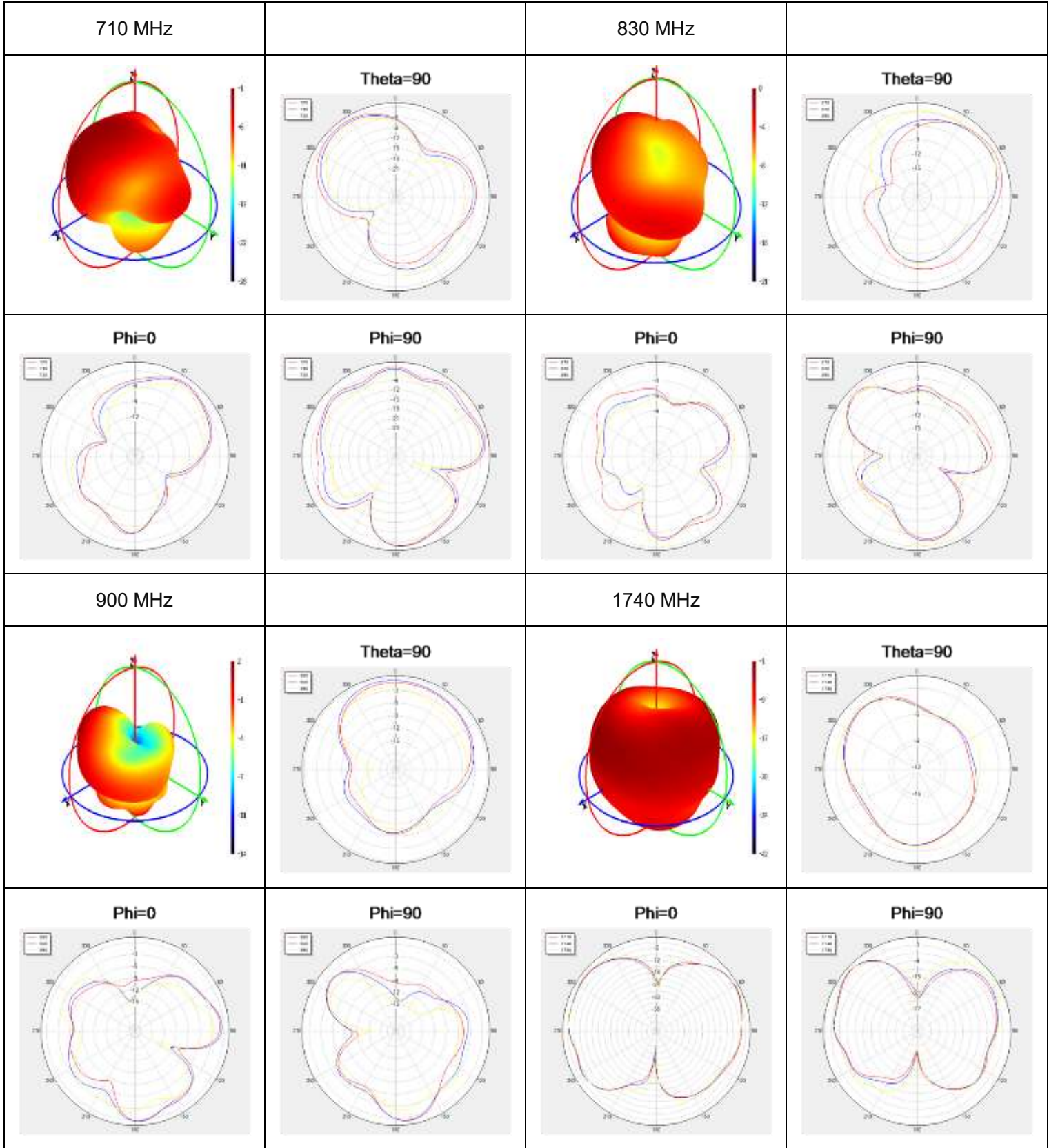


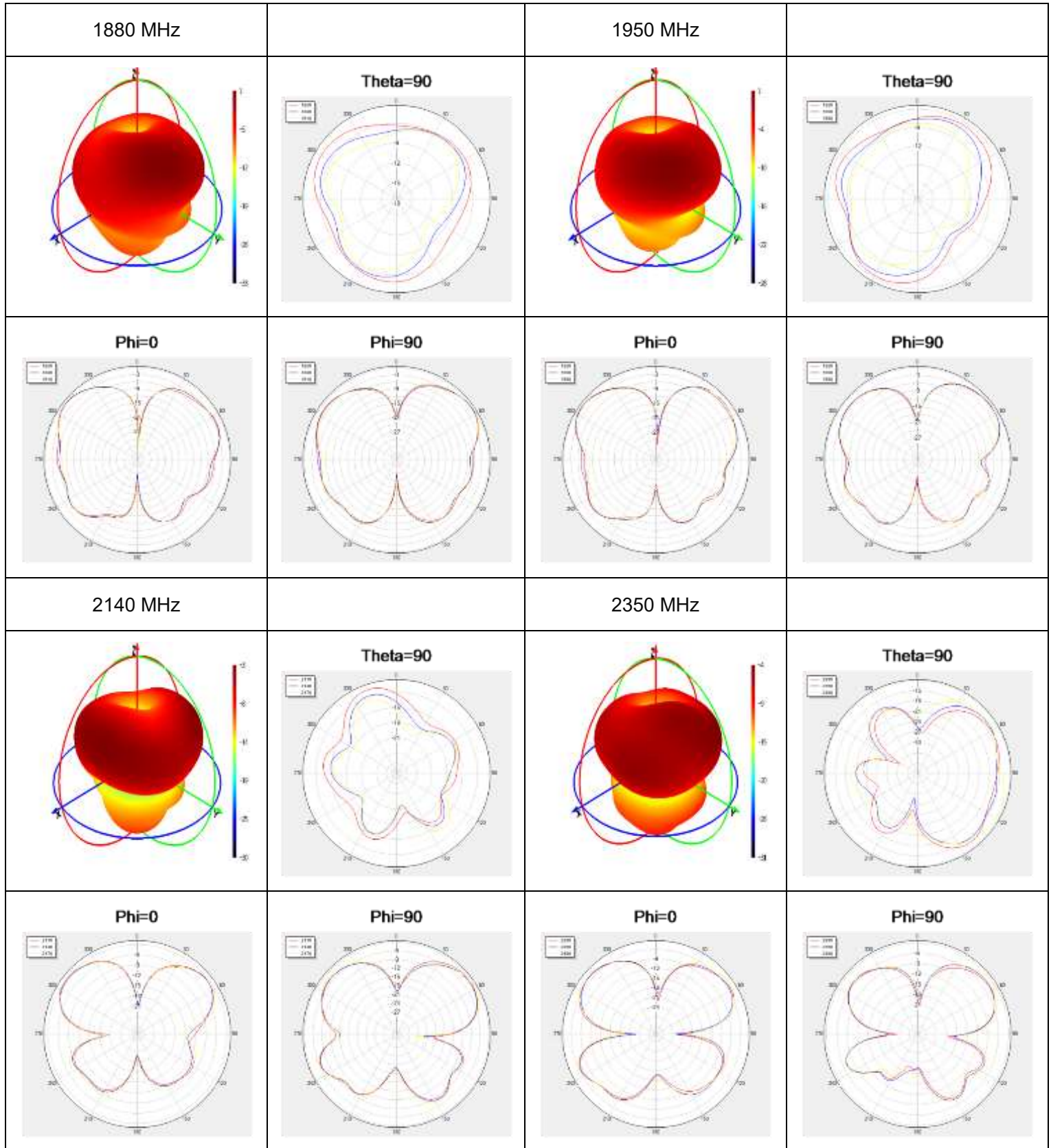


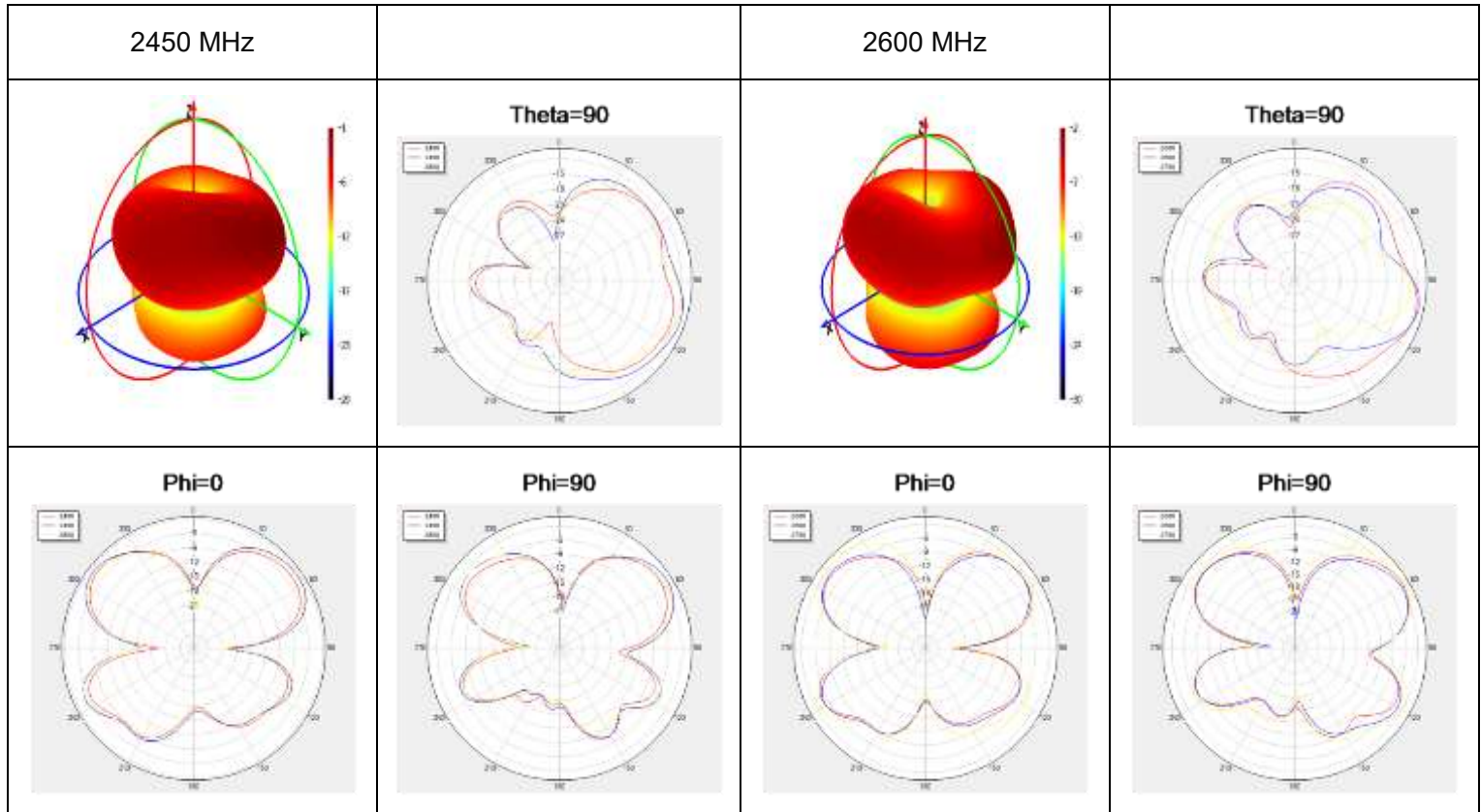
3.2.4.2. Test Condition: Free Space

- Test Chamber: GL-S-1

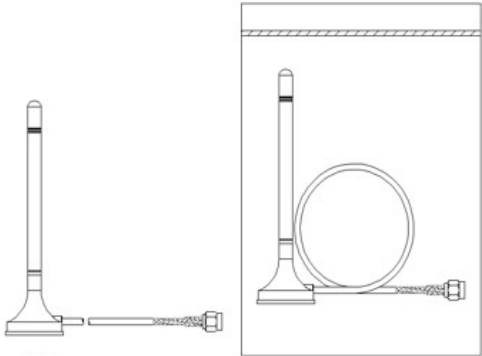
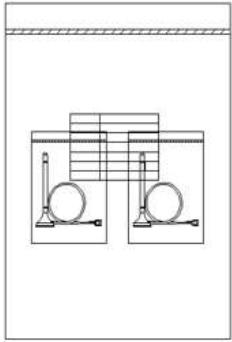


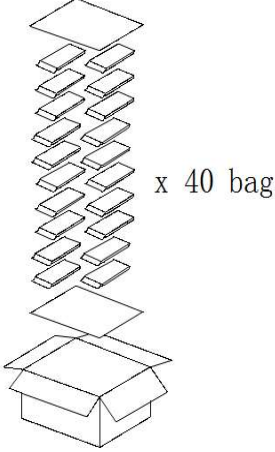
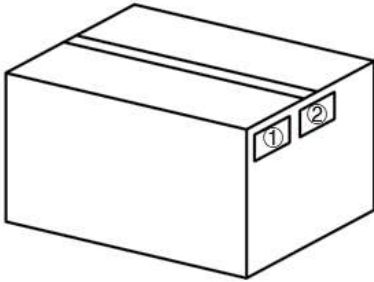
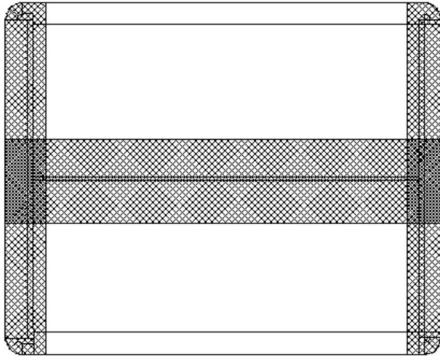






4 Packaging

Step	Packaging Picture / 2D Picture	Description
1	 <p>The diagram illustrates the packaging of a single antenna. On the left, a 2D line drawing shows the antenna product, which consists of a vertical antenna element with a mounting base and a horizontal cable with a connector. On the right, a 2D line drawing shows the antenna product and its cable neatly packed inside a small, rectangular PE bag with a zippered top.</p>	<p>1 pc antenna product in a small PE bag. (1 PC Antenna / Small PE Bag)</p>
2	 <p>50pcs/bag</p> <p>The diagram shows a large rectangular PE bag containing 50 antenna products. The products are arranged in two columns, with each antenna and its cable visible through the bag's material. Below the bag, the text '50pcs/bag' is written.</p>	<p>50 pcs antenna products in a big PE bag. (50 PCS Antennas / Big PE Bag)</p>

<p>3</p>	 <p>x 40 bag</p>	<p>(40 PE Bags / Carton Box) (2000 PCS Antennas / Carton Box)</p> <p><u>Carton Size:</u> <u>L × W × H = 440 × 300 × 350 mm</u></p>
<p>4</p>		<p>Position for Attaching Labels</p> <p>① Carton Label ② Quality Label</p>
<p>5</p>		<p>Sealing Cartons “工” type sealing cartons</p>

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

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Revision History

Version	Date	Author	Note
-	2022-06-24	Ezail TAN/ Jason LONG	Creation of the document
1.0	2022-06-24	Ezail TAN/ Jason LONG	First official release
2.0	2023-05-11	Black LI/ Lucky FENG/ David LIU/ Aria CHU	Updated all data and datasheet template.
2.1	2023-12-05	Lucky FENG/ Aria CHU	Added storage temperature and REACH compliant (Chapter 1.2).
2.2	2024-01-15	Lucky FENG	Updated the drawing (Chapter 2).

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