



# Antenna Datasheet

**Product OC:** YE0021KA

**Version:** 2.0

**Date:** 2023-05-11

**Status:** Released

**Product Name:** 4G Sucker Antenna

**Key Features:**

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

Dimensions:  $\Phi$  30 × 110 mm

Efficiency: Up to 46 % (FS)

RoHS 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 × 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 Gain (dBi)	MP	-	-1.8	-2.1	-	0.4	0.3	0.6	1.3	-	-	-
	FS	-	-0.7	1.0	-	0.8	-3.2	-2.1	-1.5	-	-	-

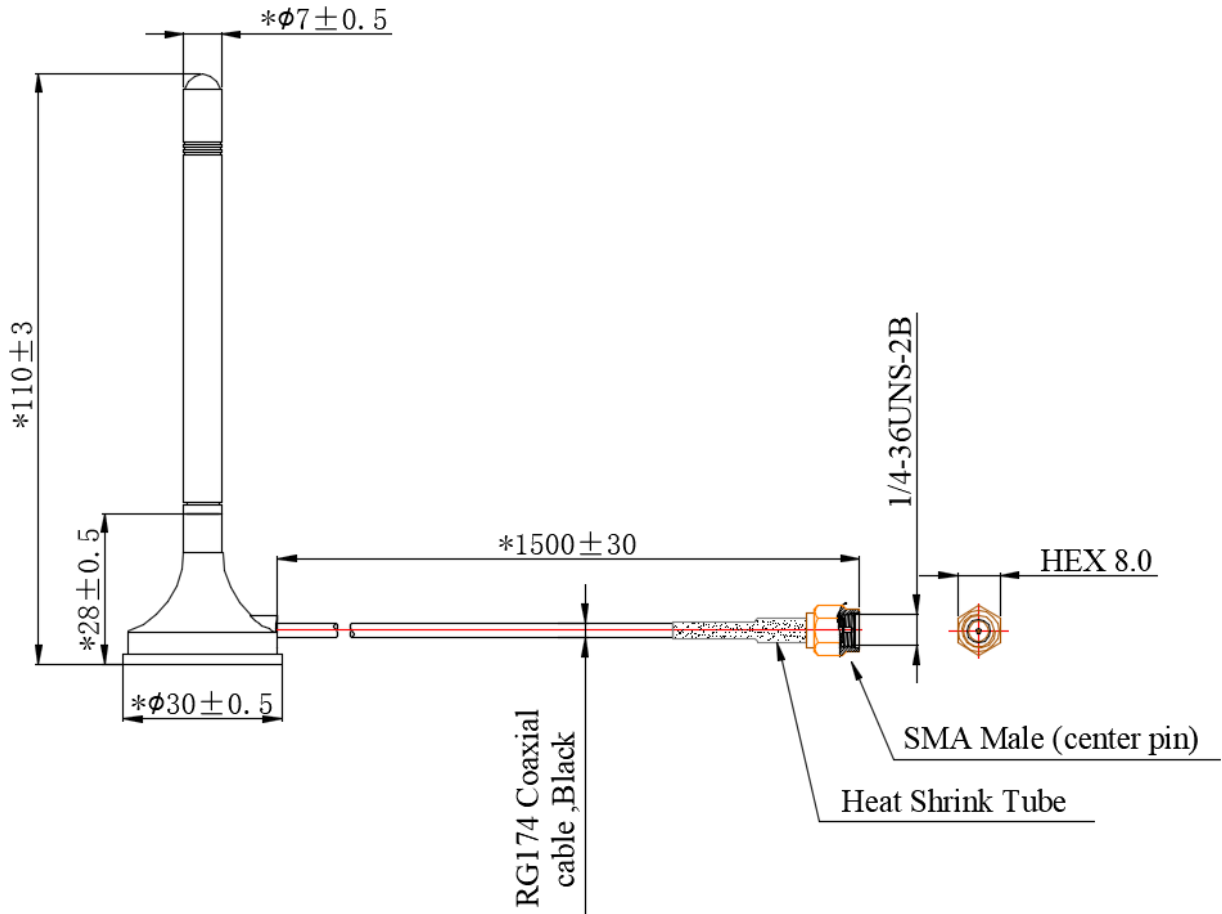
<b>VSWR</b>	<b>MP</b>	$\leq 2.7$
	<b>FS</b>	$\leq 2.5$
<b>Return Loss</b>	<b>MP</b>	$\leq -6.8$ dB
	<b>FS</b>	$\leq -7.3$ dB
<b>Peak Gain</b>	<b>MP</b>	$\leq 1.3$ dBi
	<b>FS</b>	$\leq 1.0$ dBi

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

## 1.2. Mechanical, Environmental & Storage

Mechanical	
Antenna Dimensions	Φ 30 × 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
Ingress Protection (IP) Rating	IP65
RoHS Compliant	Yes
Storage	
Storage Temperature	18 °C–27 °C
Humidity	30 %–80 % RH
Storage Place	Away from corrosive gas and direct sunlight
Packaging	Antennas should be stored in unopened sealed manufacturer's plastic packaging

# 2 Drawing

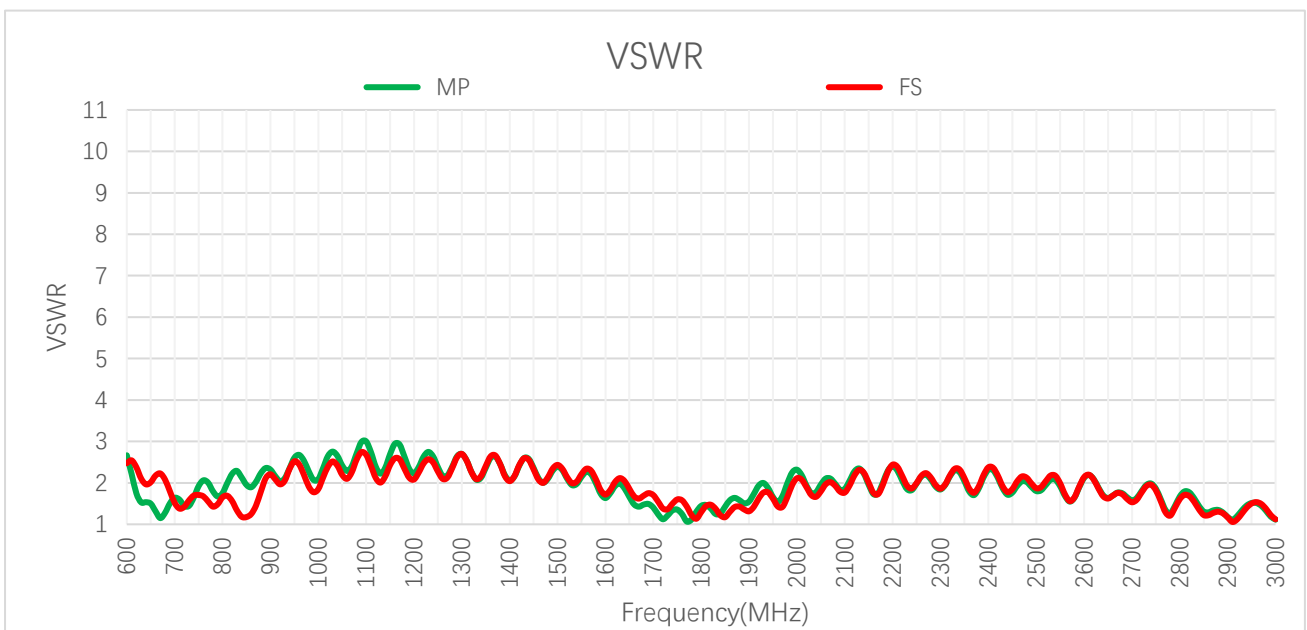


SMA Male  
(center pin)

# 3 Detailed Performance

## 3.1. S-Parameter Test

### 3.1.1. VSWR

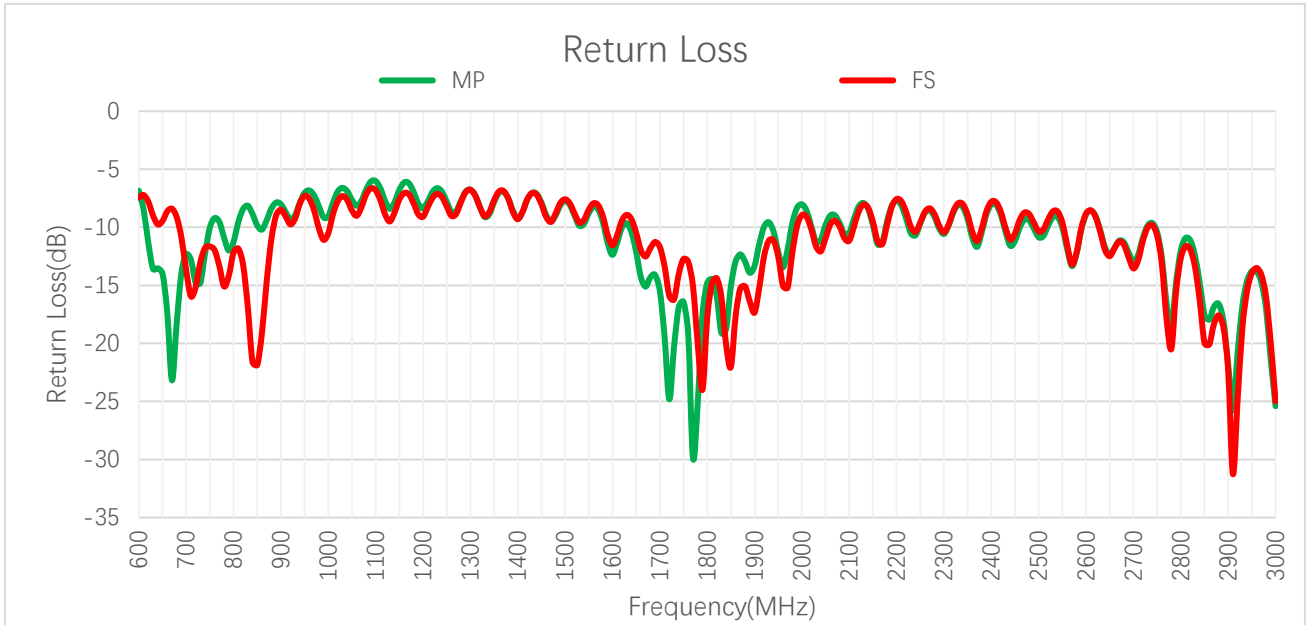


**VSWR**

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**

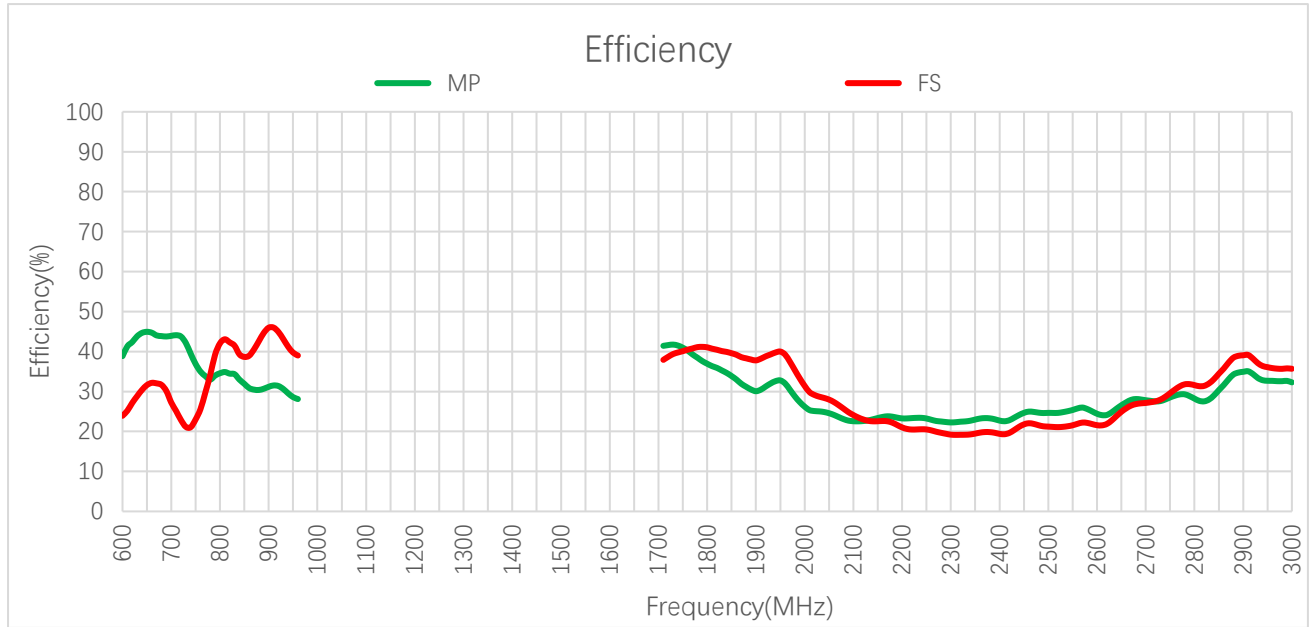


**Return Loss (dB)**

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

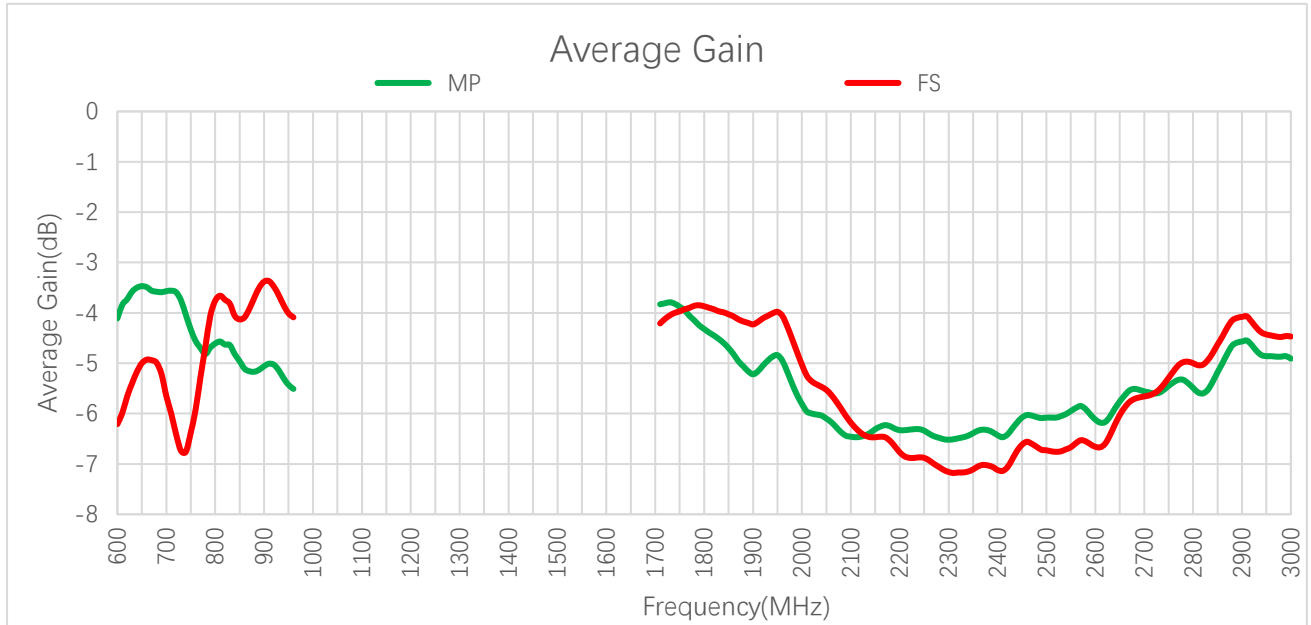
#### 3.2.1. Efficiency



**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	-	-	-	-

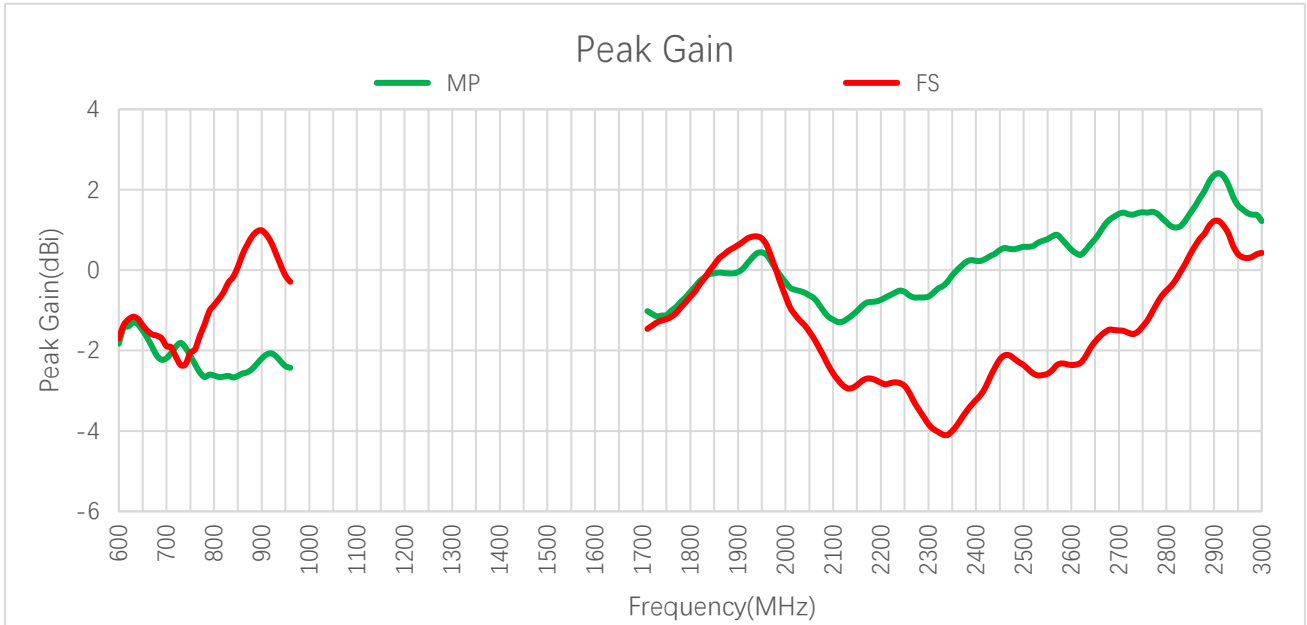
**3.2.2. Average Gain**



**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**



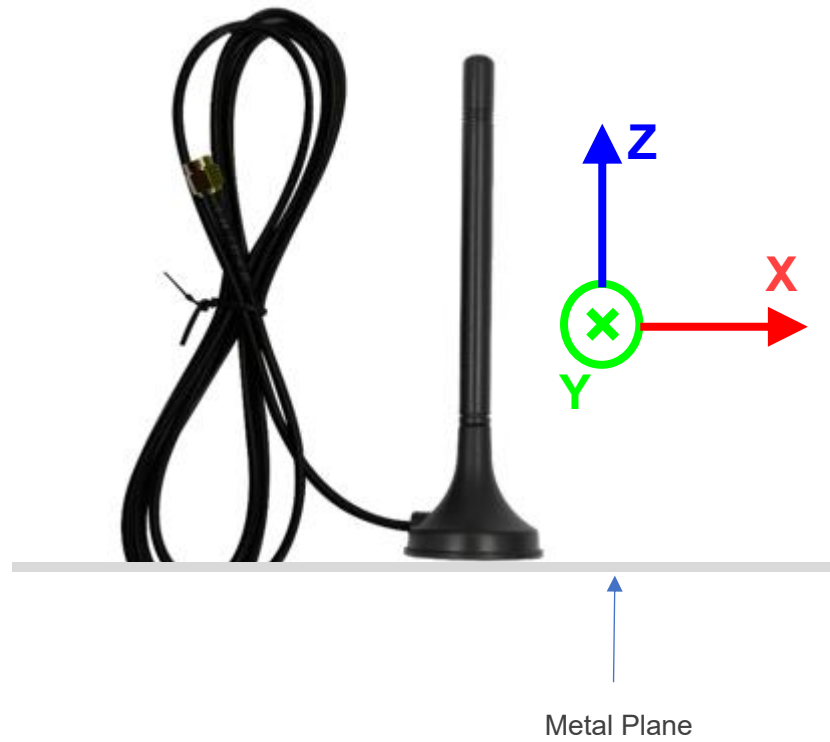
**Peak Gain (dBi)**

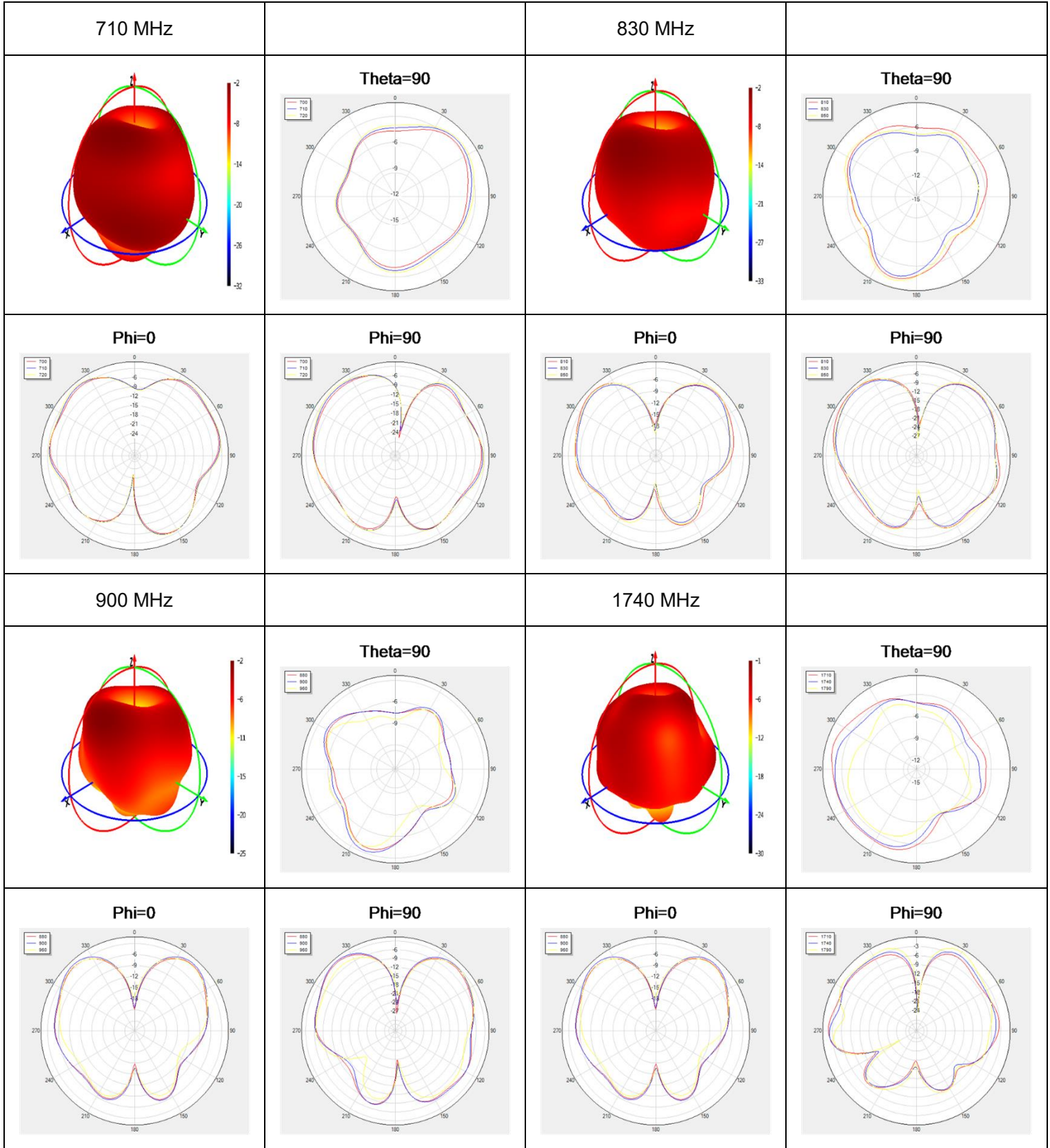
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	MP	-	-	-2.1	-2.6	-2.2	-2.4	-	-1.0	-1.1	-0.1
	FS	-	-	-1.9	-0.3	1.0	-0.3	-	-1.5	-1.3	0.5
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Peak Gain (dBi)	MP	0.4	-1.1	-0.1	0.5	0.5	1.3	-	-	-	-
	FS	0.8	-2.9	-4.0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

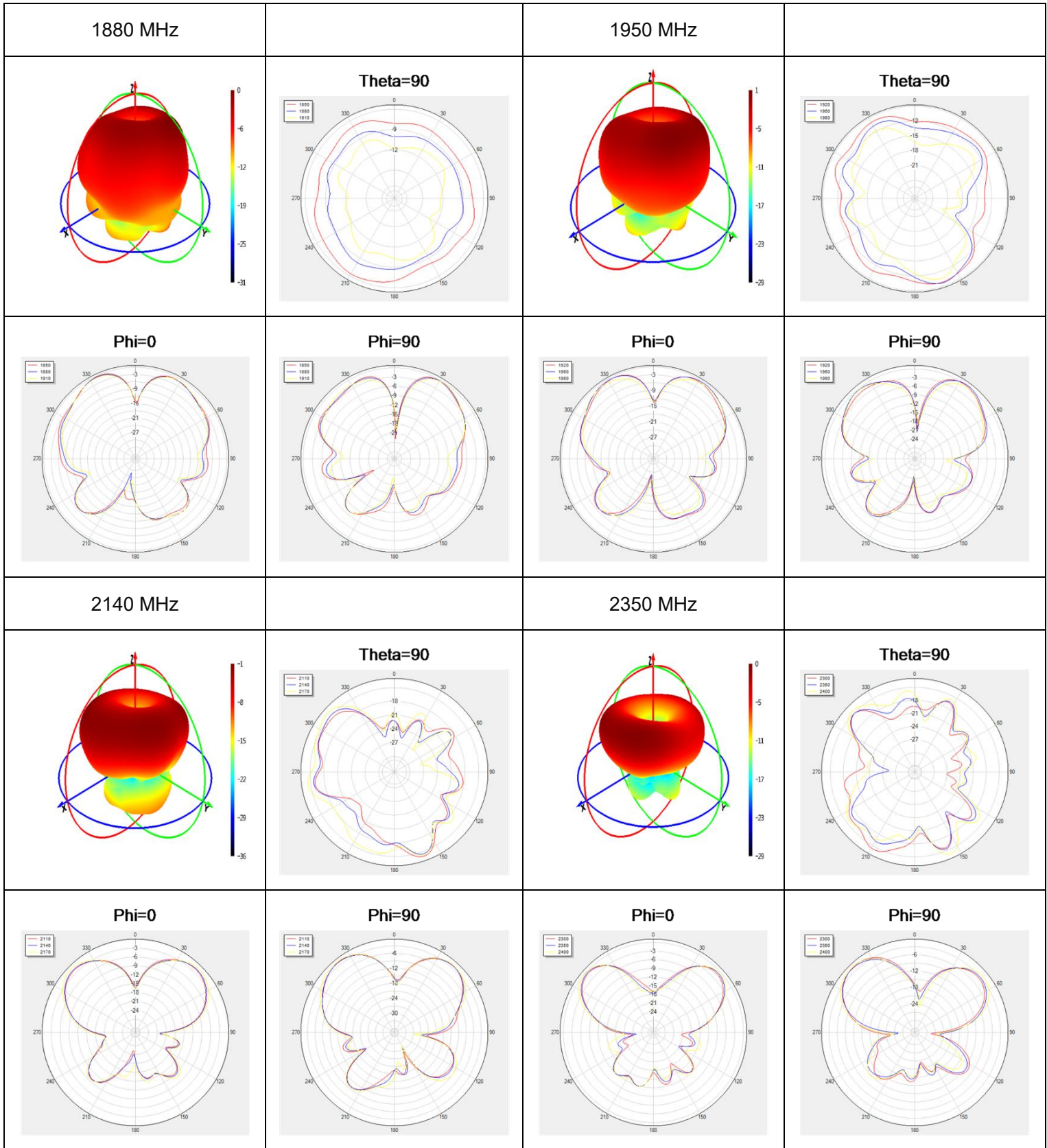
### 3.2.4. 3D & 2D Radiation Pattern

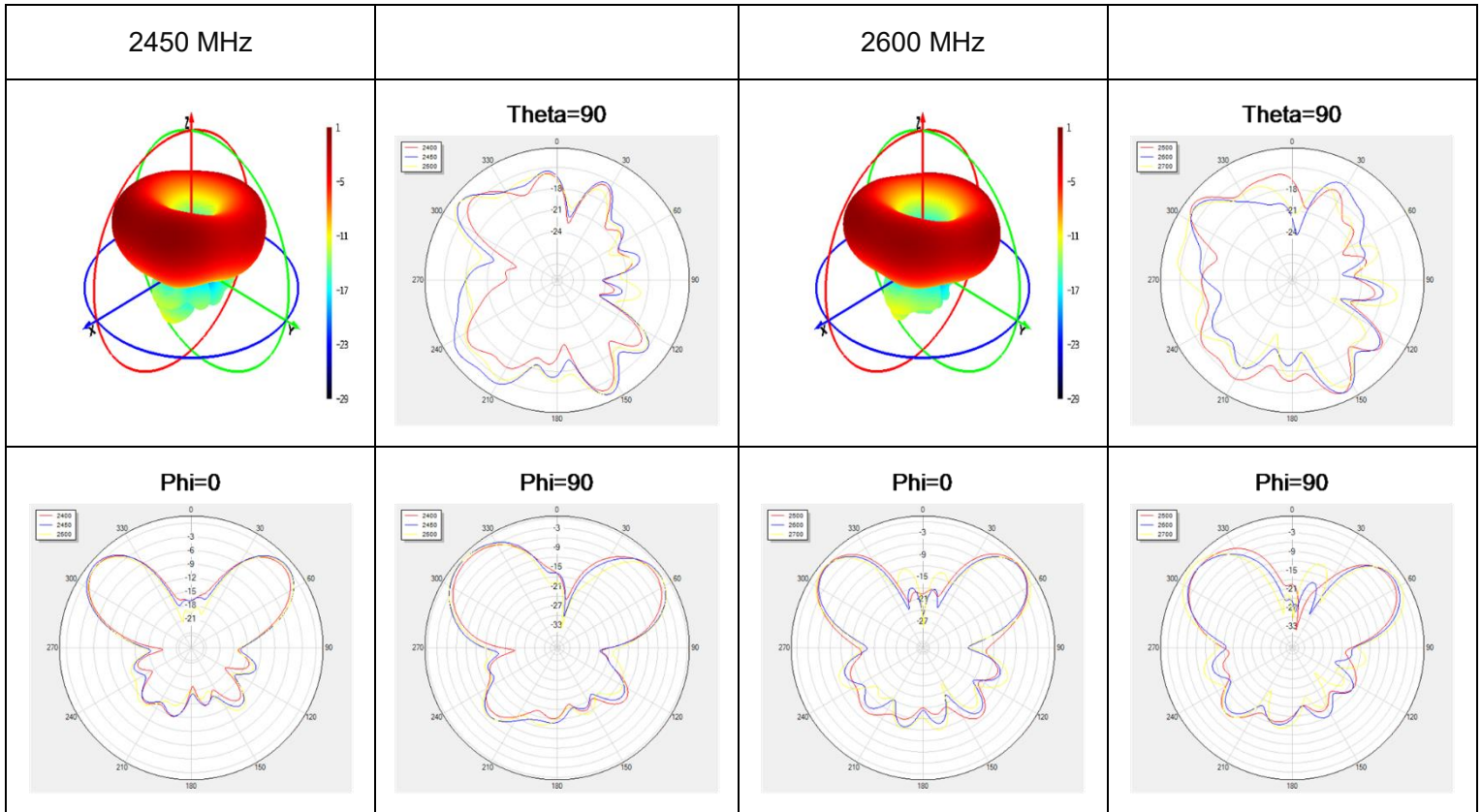
#### 3.2.4.1. Test Condition: On 300 × 300 mm Metal Plane

- Test Chamber: GL-S-1





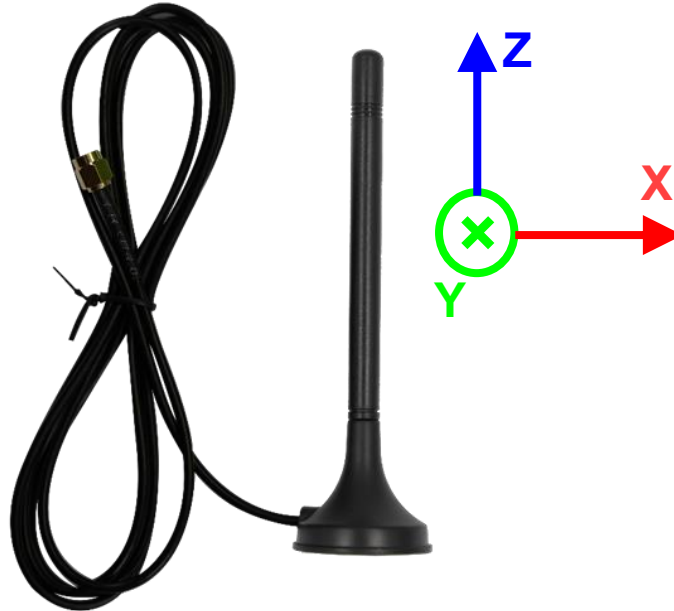


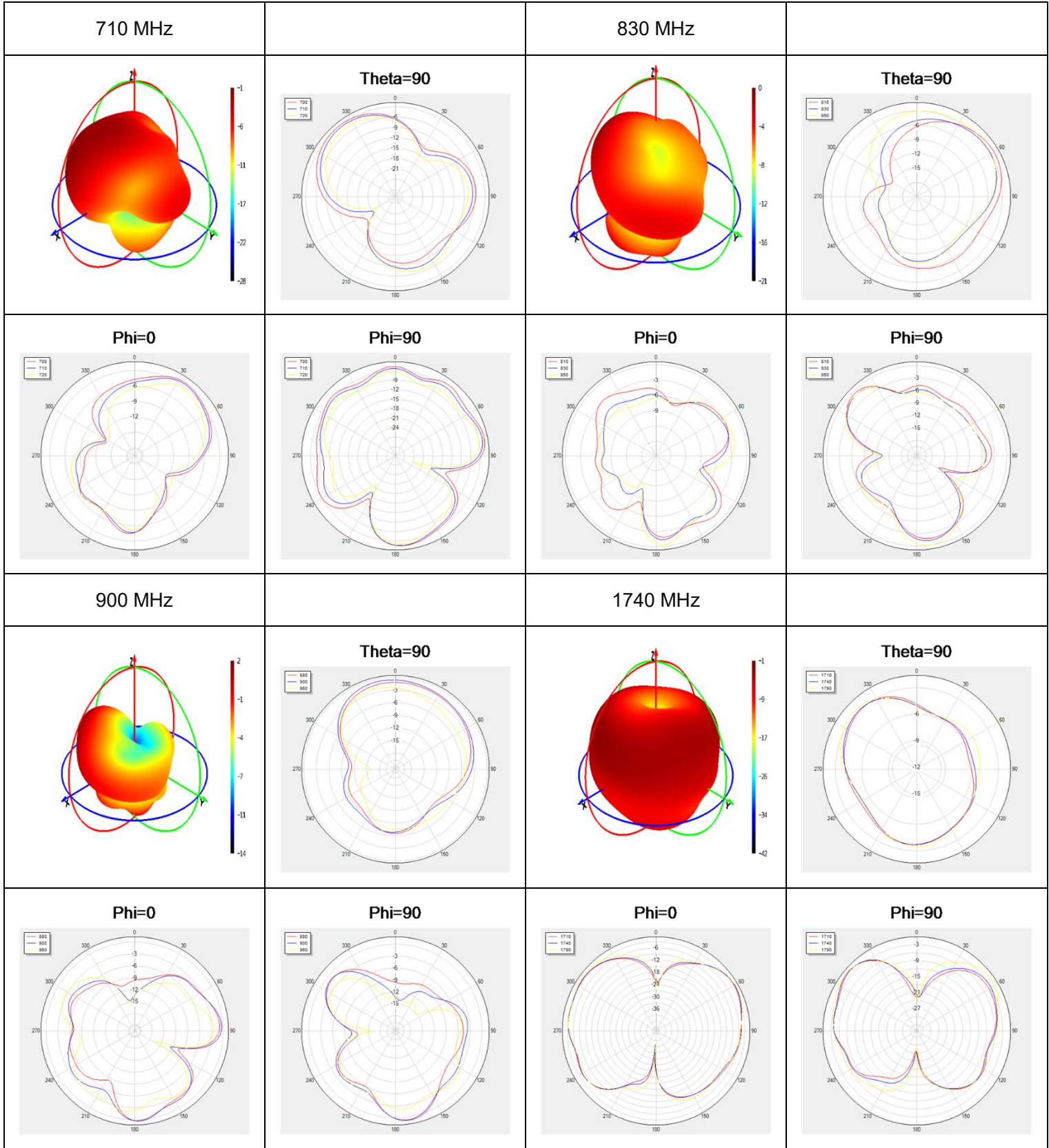




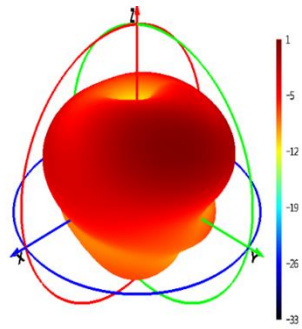
**3.2.4.2. Test Condition: Free Space**

- Test Chamber: GL-S-1

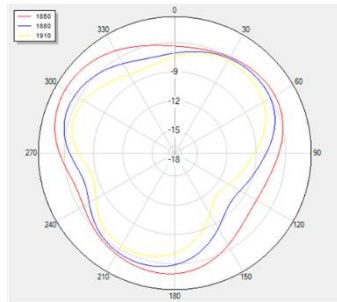




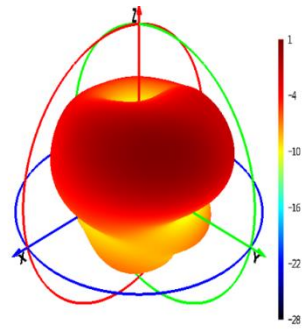
1880 MHz



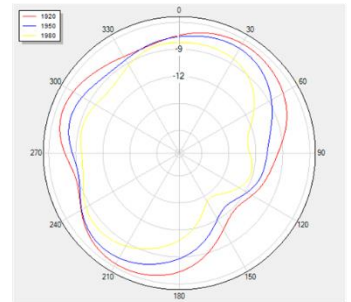
Theta=90



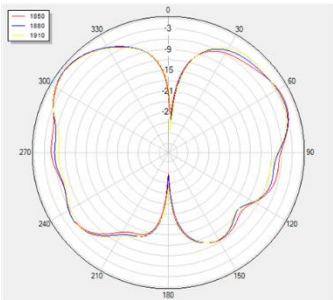
1950 MHz



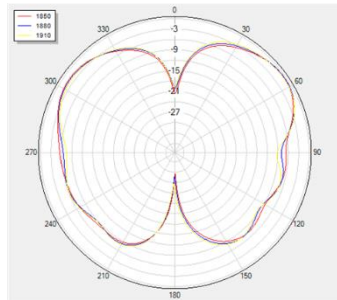
Theta=90



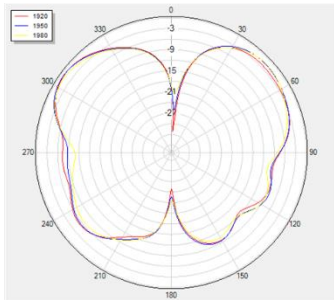
Phi=0



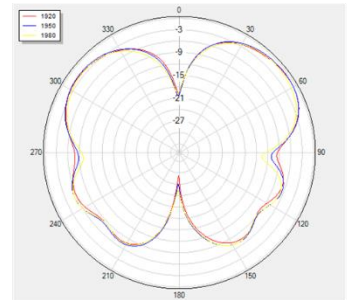
Phi=90



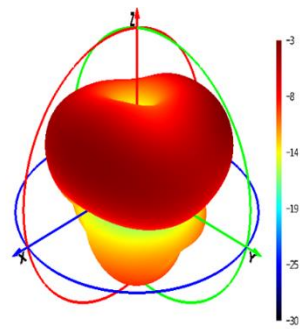
Phi=0



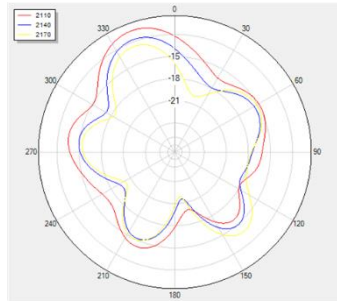
Phi=90



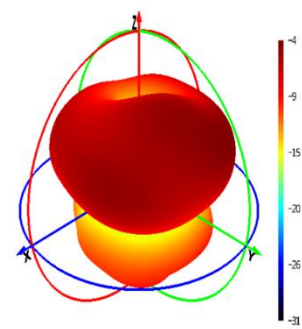
2140 MHz



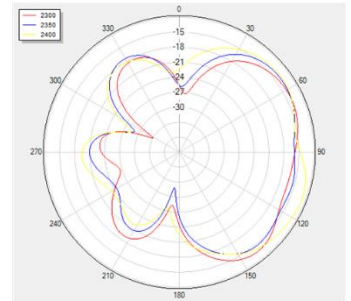
Theta=90



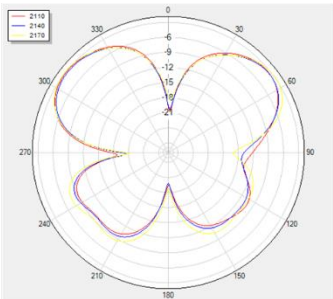
2350 MHz



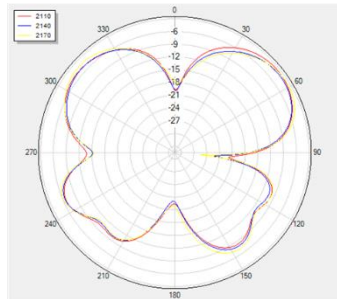
Theta=90



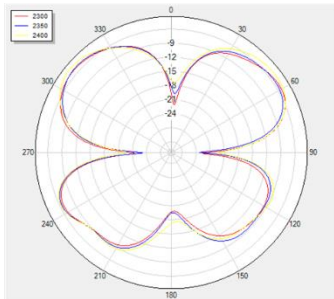
Phi=0



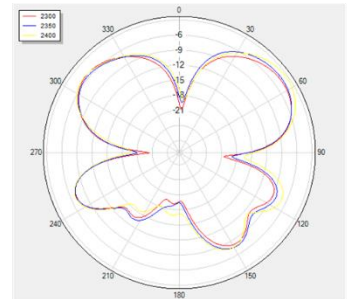
Phi=90

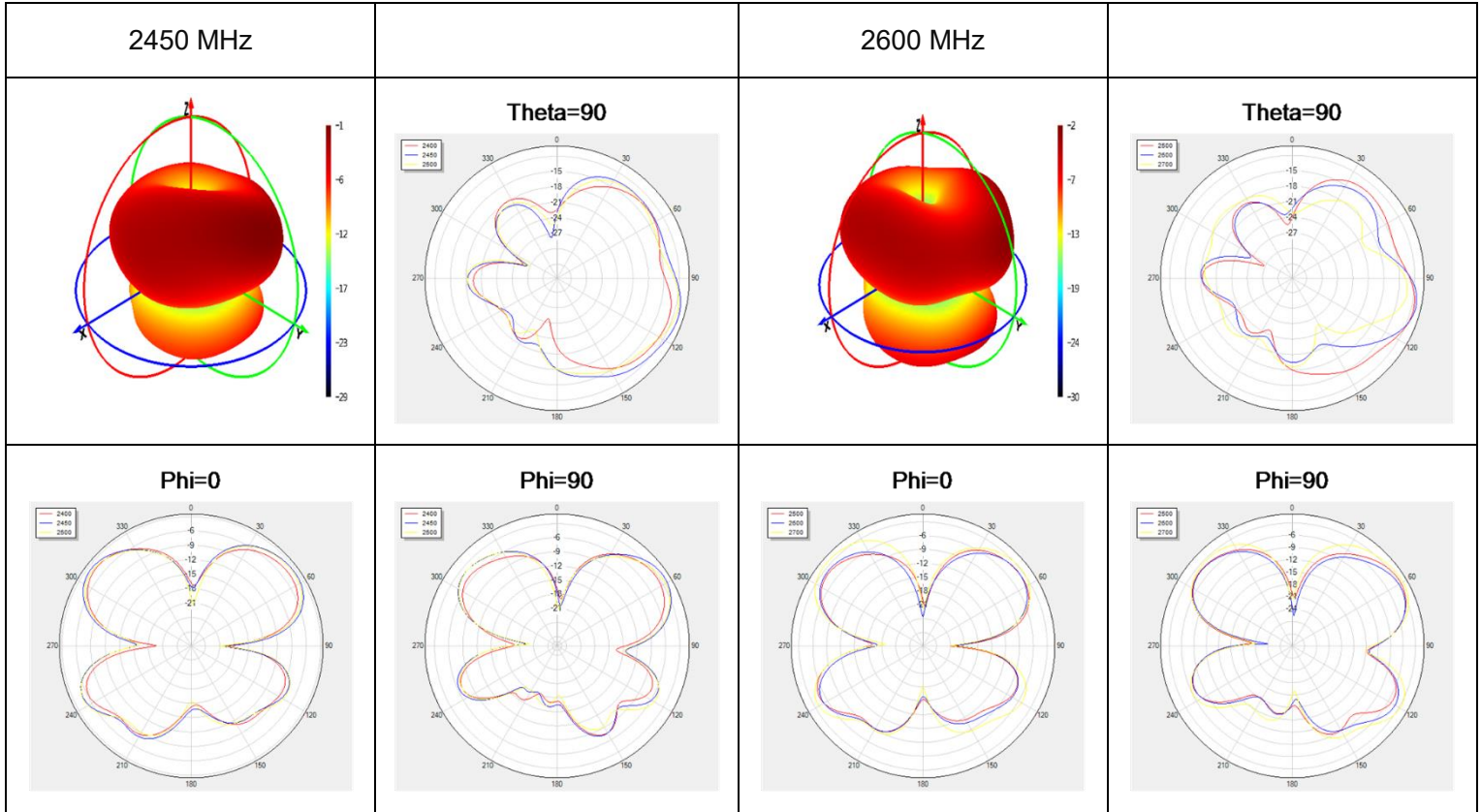


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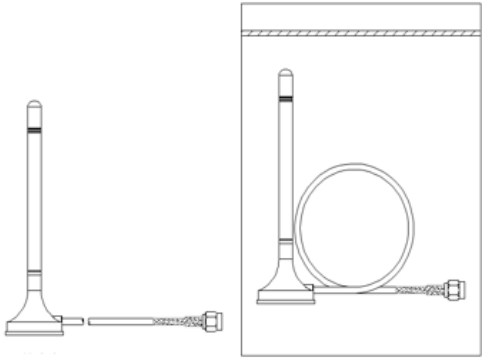
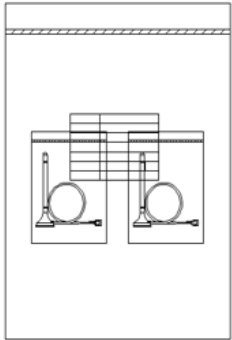


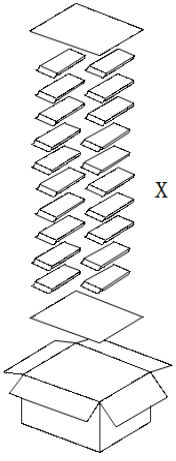
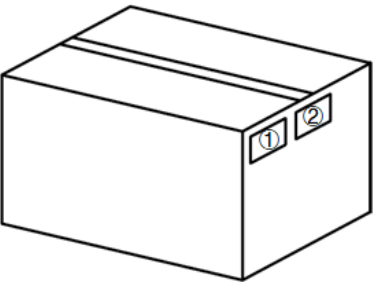
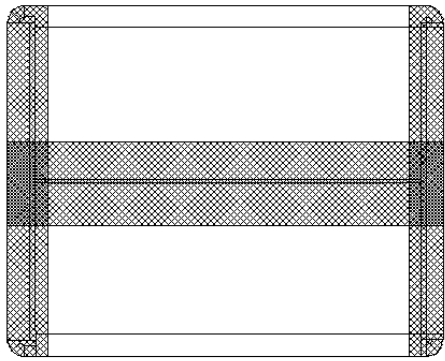
Phi=90





# 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 stem with a circular base and a horizontal cable with a connector. On the right, a 3D perspective view shows the antenna product placed inside a small, clear plastic PE bag with a zippered top.</p>	<p>1 pc antenna product in a small PE bag; (1 pc antenna per small PE bag)</p>
2	 <p>50pcs/bag</p> <p>The diagram shows a large, clear plastic PE bag containing 50 antenna products. The products are arranged in two columns, with each antenna having a circular base and a vertical stem. Below the bag, the text '50pcs/bag' is written.</p>	<p>50 pcs antenna products in a big PE bag; (50 pcs antennas per big PE bag)</p>

	 <p>x 40 bag</p>	<p>(40 PE bags per carton box) (2000 pcs antennas per carton box)</p> <p><u>Carton Size:</u> <u>L × W × H = 440 × 300 × 350 mm</u></p>
<p>3</p>		<p><b>Position for Attaching Labels</b></p> <p>① Carton Label ② Quality Label</p>
<p>4</p>		<p><b>Sealing Cartons</b> “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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# 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.

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