



# Antenna Datasheet

**Product OC:** YE0029FA

**Version:** 2.1

**Date:** 2023-07-21

**Status:** Released

**Product Name:** 4G Sucker Antenna

**Key Features:**

Frequency Band: 700–2700 MHz

Dimensions:  $\Phi$  30 mm  $\times$  88 mm

Efficiency: Up to 80.3 % (MP)

RoHS Compliant

IP67

# 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	700–2700 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	-	5.0	2.7	-	2.1	3.0	3.1	2.7	-	-	-
	FS	-	4.2	3.9	-	2.5	3.7	3.6	3.4	-	-	-
Max. Return Loss (dB)	MP	-	-3.5	-6.8	-	-8.8	-6.0	-5.9	-6.8	-	-	-
	FS	-	-4.2	-4.6	-	-7.5	-4.8	-5.0	-5.3	-	-	-
AVG Eff. (%)	MP	-	50.9	76.8	-	63.0	39.9	41.4	46.2	-	-	-
	FS	-	37.5	41.7	-	60.6	34.1	32.2	31.5	-	-	-
AVG Gain (dB)	MP	-	-3.0	-1.1	-	-2.0	-4.0	-3.8	-3.4	-	-	-
	FS	-	-4.3	-3.9	-	-2.2	-4.7	-4.9	-5.0	-	-	-

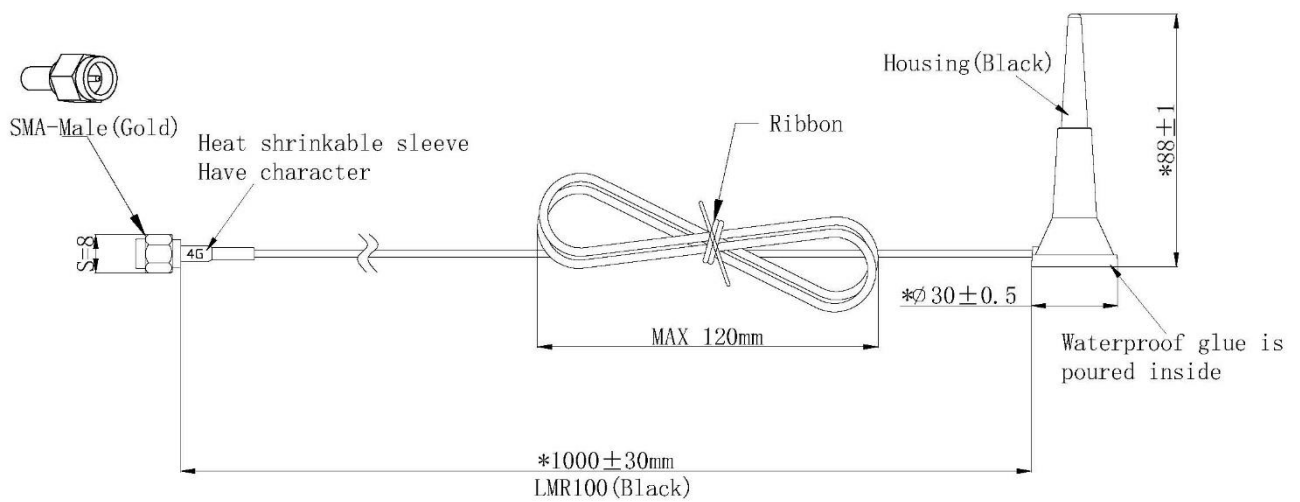
Max. Peak Gain (dBi)	MP	-	2.5	3.0		2.5	-0.2	2.0	4.1	-	-	-
	FS	-	2.2	1.3		1.6	-1.0	-0.5	-0.3	-	-	-
VSWR			MP			$\leq 5.0$						
			FS			$\leq 4.2$						
Return Loss			MP			$\leq -3.5$ dB						
			FS			$\leq -4.2$ dB						
Peak Gain			MP			$\leq 4.1$ dBi						
			FS			$\leq 2.2$ dBi						

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

## 1.2. Mechanical, Environmental & Storage

Mechanical	
Antenna Dimensions	Φ 30 × 88 mm
Material & Color	ABS & Black
Cable Type & Color & Length	LMR 100 & Black & 1000 mm
Connector Type	SMA Male
Mounting Type	Magnet
Weight	Typ. 33.8 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP67
RoHS Compliant	Yes

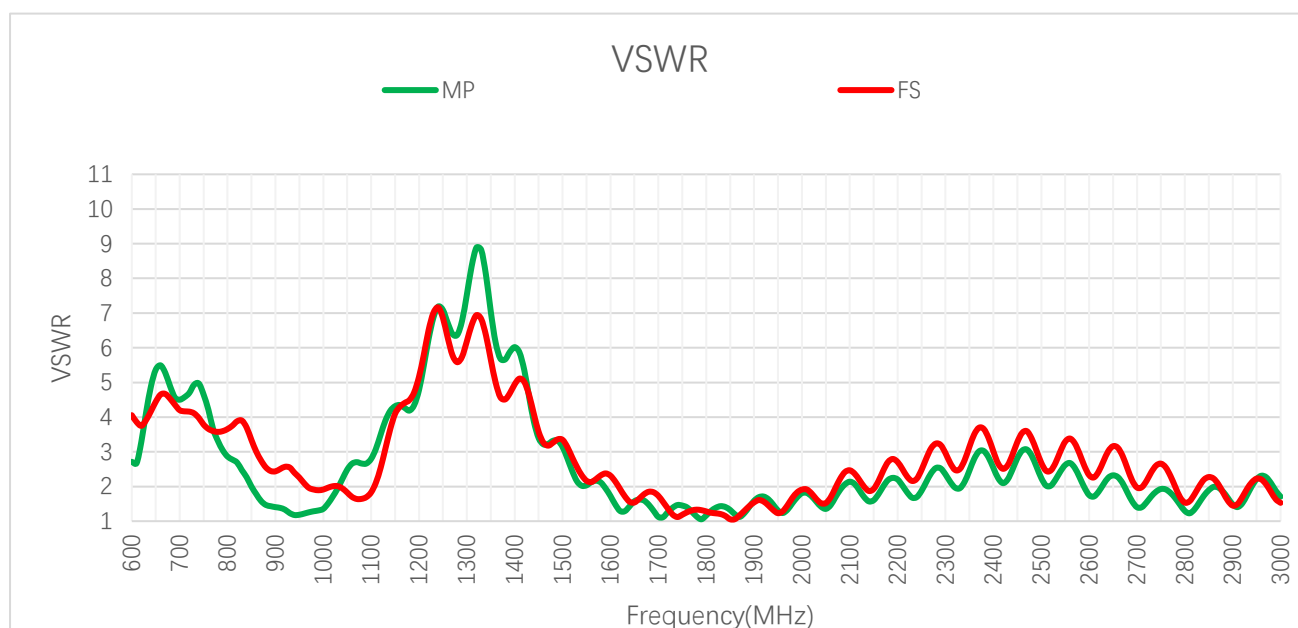
## 2 Drawing



# 3 Detailed Performance

## 3.1. S-Parameter Test

### 3.1.1. VSWR

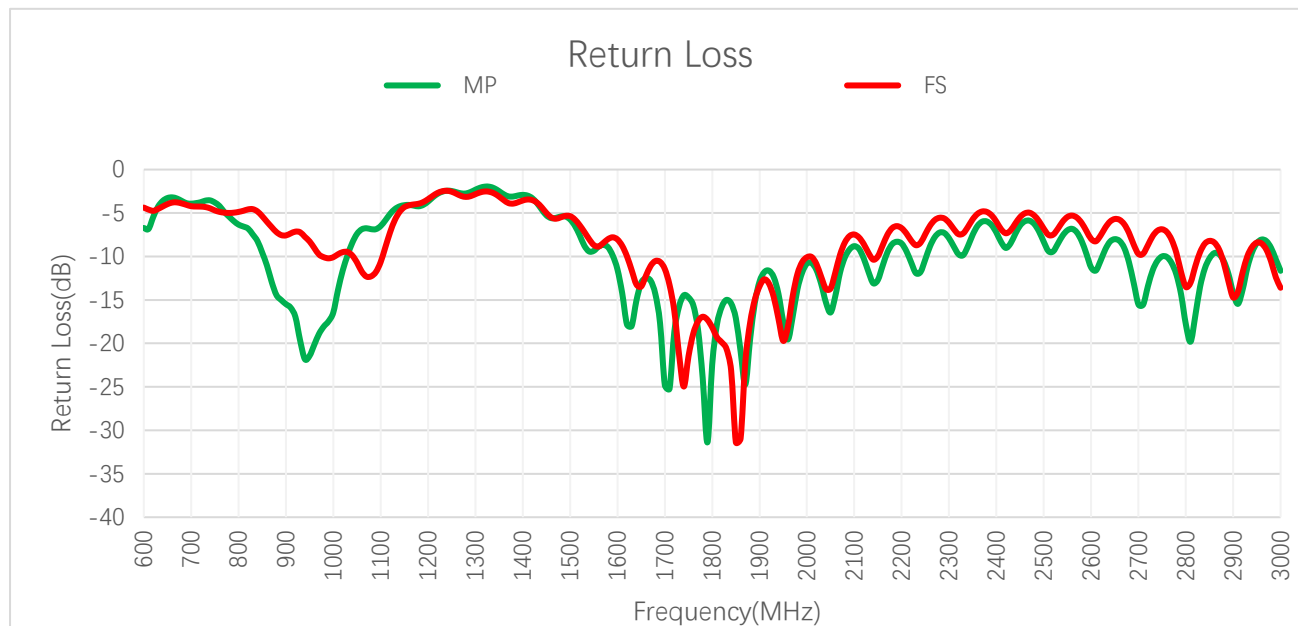


**VSWR**

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
VSWR	MP	-	-	4.6	2.5	1.4	1.2	-	1.1	1.5	1.2
	FS	-	-	4.2	3.9	2.4	2.1	-	1.6	1.1	1.3
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
VSWR	MP	1.3	1.6	2.5	2.8	1.8	1.6	-	-	-	-
	FS	1.2	1.9	3.1	3.3	2.3	2.2	-	-	-	-



### 3.1.2. Return Loss

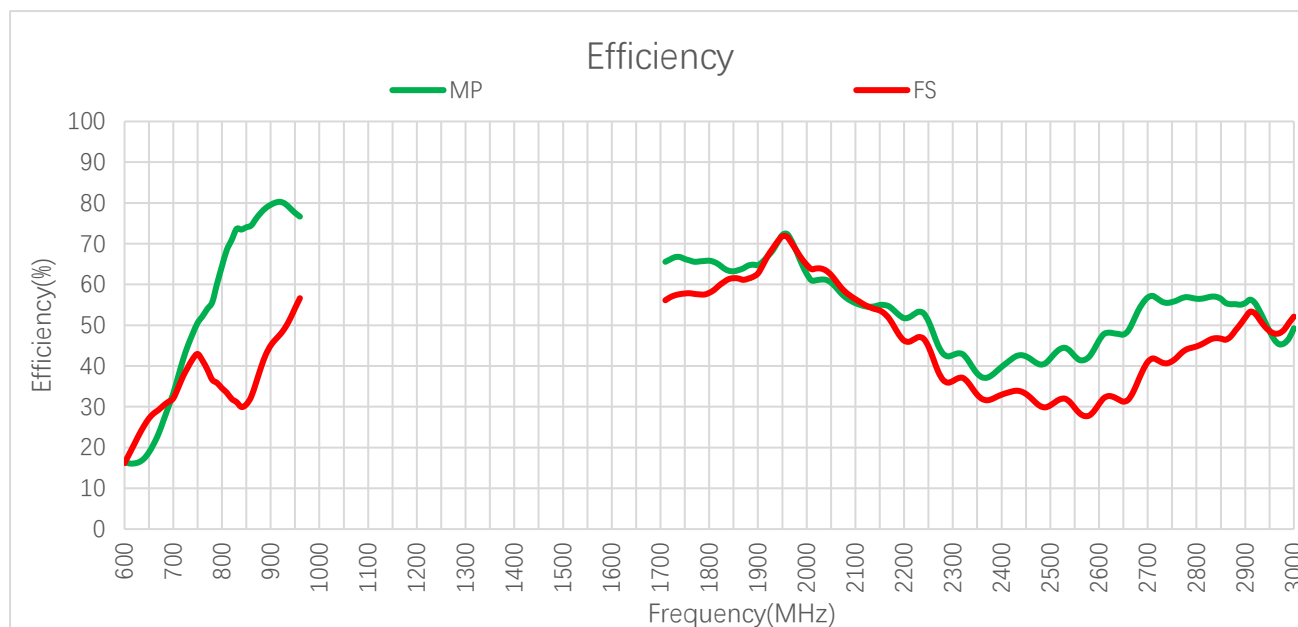


Return Loss (dB)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	MP	-	-	-3.9	-7.5	-15.5	-20.1	-	-25.2	-14.5	-19.6
	FS	-	-	-4.3	-4.6	-7.6	-9.0	-	-13.3	-25.0	-17.7
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Return Loss (dB)	MP	-17.5	-13.1	-7.5	-6.4	-11.3	-13.1	-	-	-	-
	FS	-19.7	-10.4	-5.7	-5.5	-8.0	-8.6	-	-	-	-

## 3.2. Radiation Performance Test

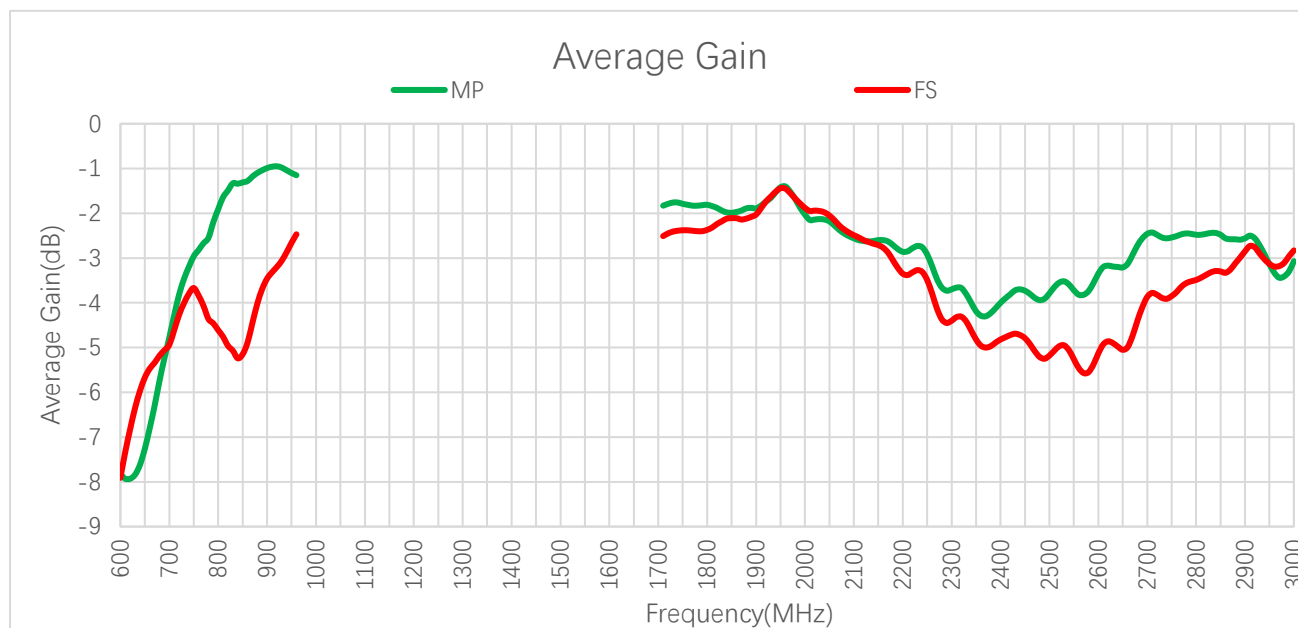
### 3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	MP	-	-	37.3	73.6	79.5	76.7	-	65.6	66.7	64.7
	FS	-	-	34.6	31.2	45.0	56.6	-	56.1	57.6	61.4
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Efficiency (%)	MP	72.1	54.7	38.2	42.4	46.3	55.5	-	-	-	-
	FS	71.8	54.0	33.0	33.2	30.7	38.9	-	-	-	-

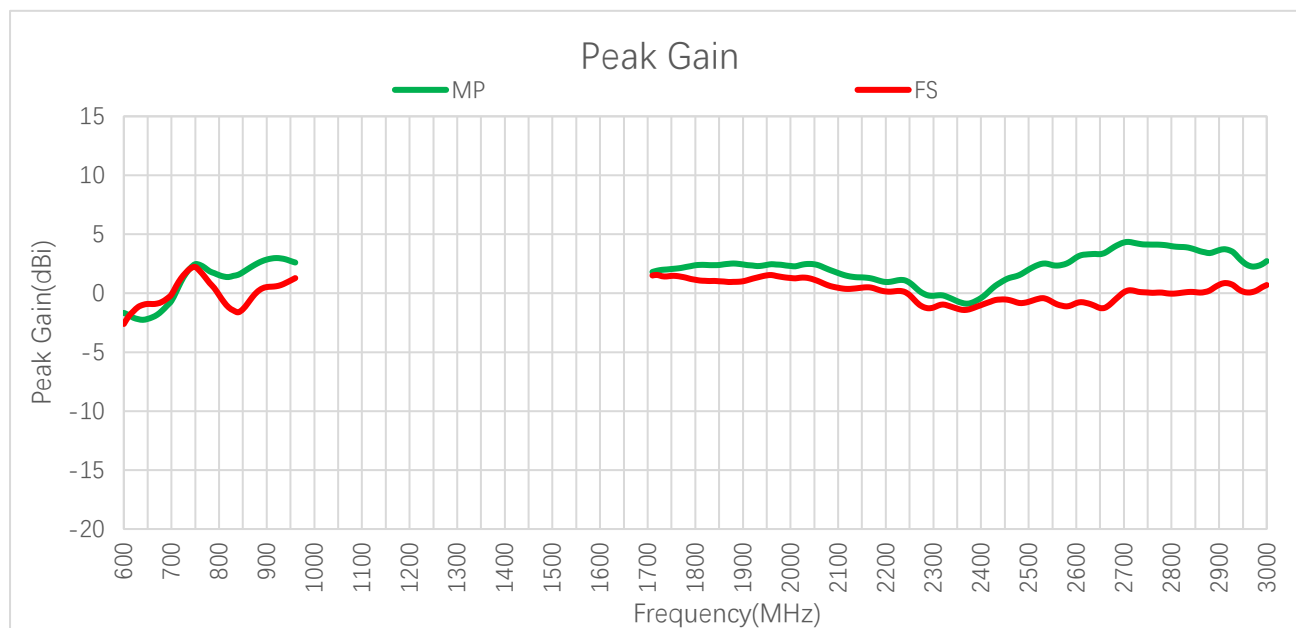
### 3.2.2. Average Gain



**Average Gain (dB)**

Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	MP	-	-	-4.3	-1.3	-1.0	-1.2	-	-1.8	-1.8	-1.9
	FS	-	-	-4.6	-5.1	-3.5	-2.5	-	-2.5	-2.4	-2.1
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Average Gain (dB)	MP	-1.4	-2.6	-4.2	-3.7	-3.4	-2.6	-	-	-	-
	FS	-1.4	-2.7	-4.8	-4.8	-5.1	-4.1	-	-	-	-

### 3.2.3. Peak Gain



**Peak Gain (dBi)**

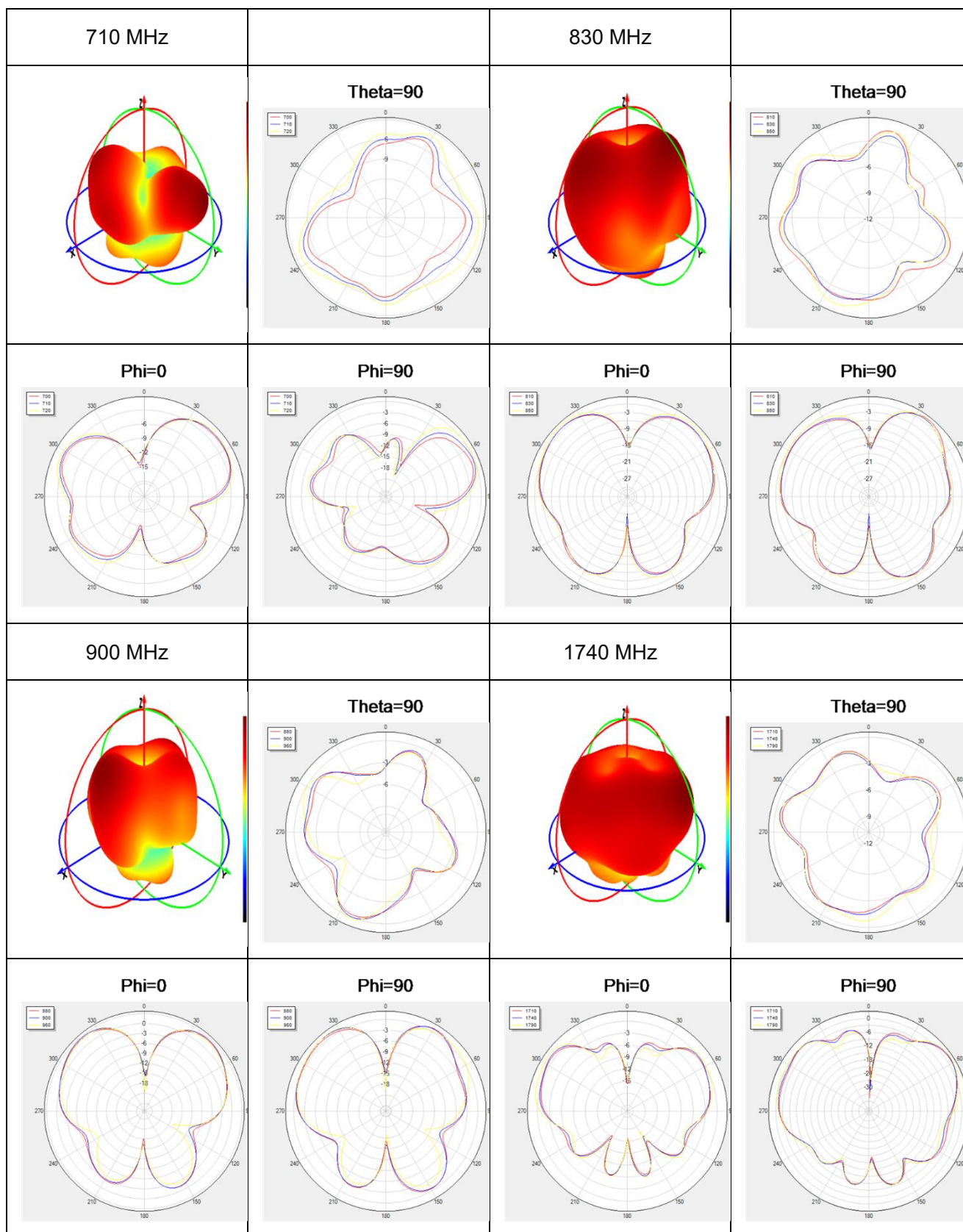
Frequency (MHz)		600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	MP	-	-	0.1	1.5	2.9	2.6	-	1.8	2.0	2.5
	FS	-	-	0.6	-1.5	0.5	1.3	-	1.5	1.4	1.0
Frequency (MHz)		1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Peak Gain (dBi)	MP	2.4	1.4	-0.7	1.1	3.0	4.1	-	-	-	-
	FS	1.5	0.4	-1.3	-0.5	-0.8	-0.3	-	-	-	-

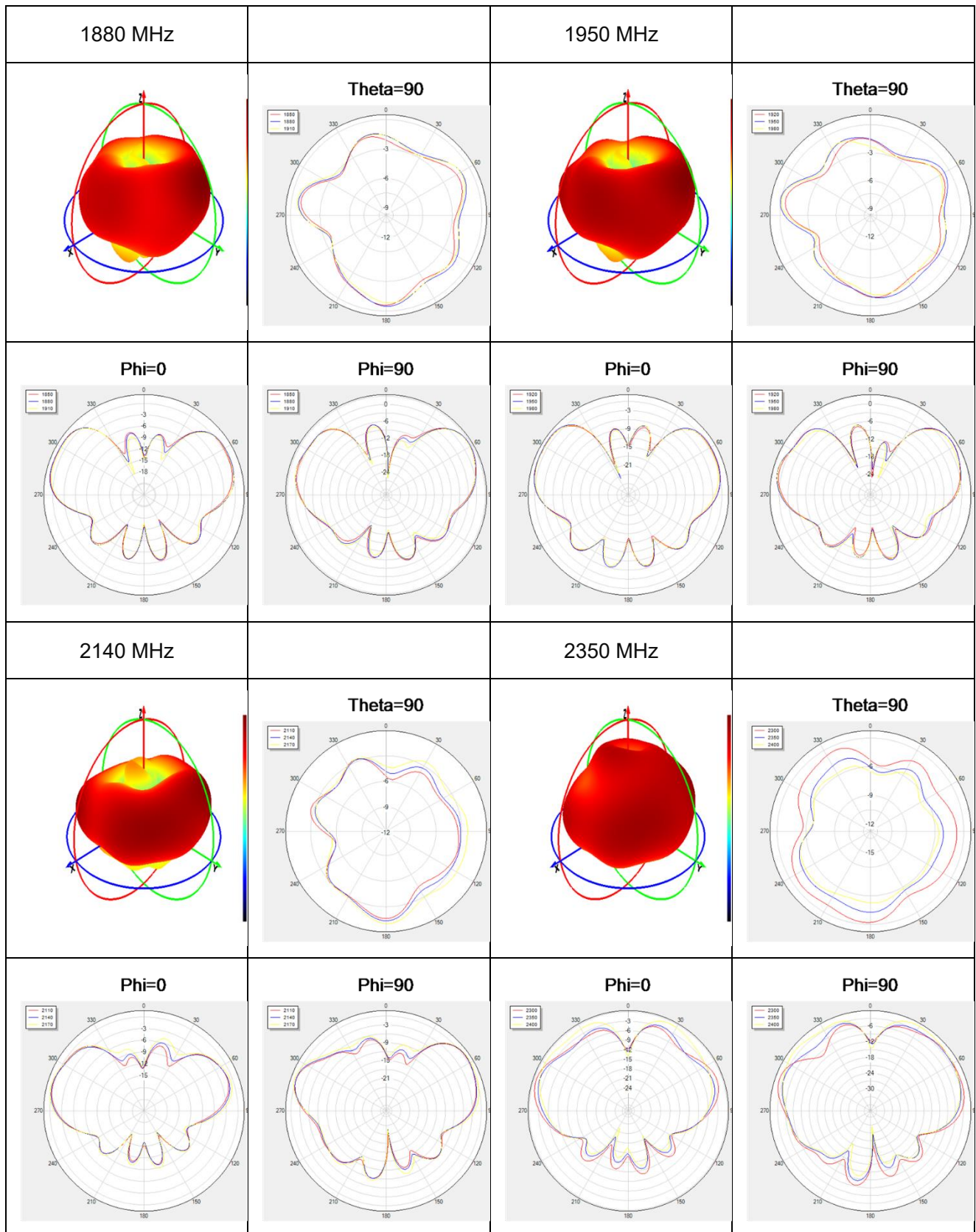
### 3.2.4. 3D & 2D Radiation Pattern

#### 3.2.4.1. Test Condition: On $300 \times 300$ mm metal plane

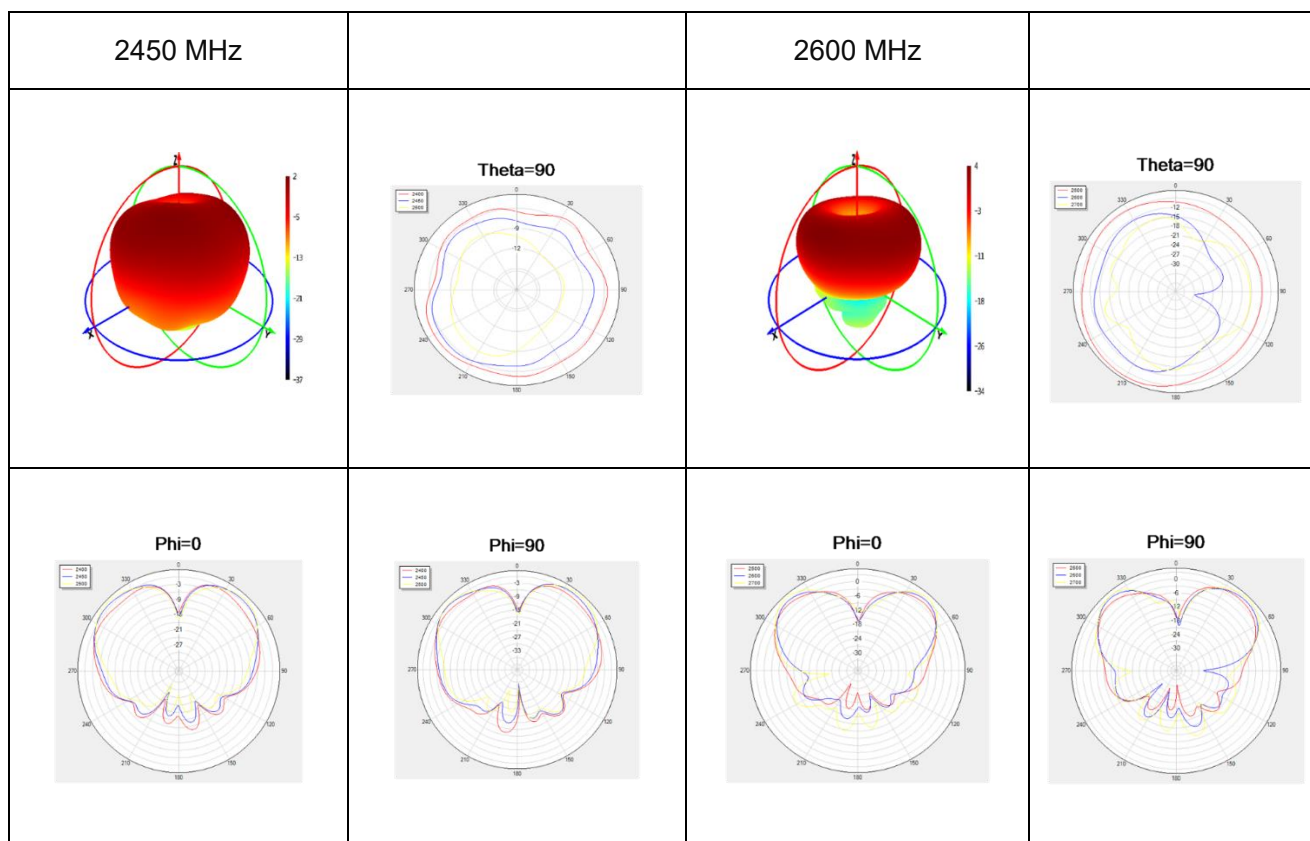
- Test Chamber: GL-S-1









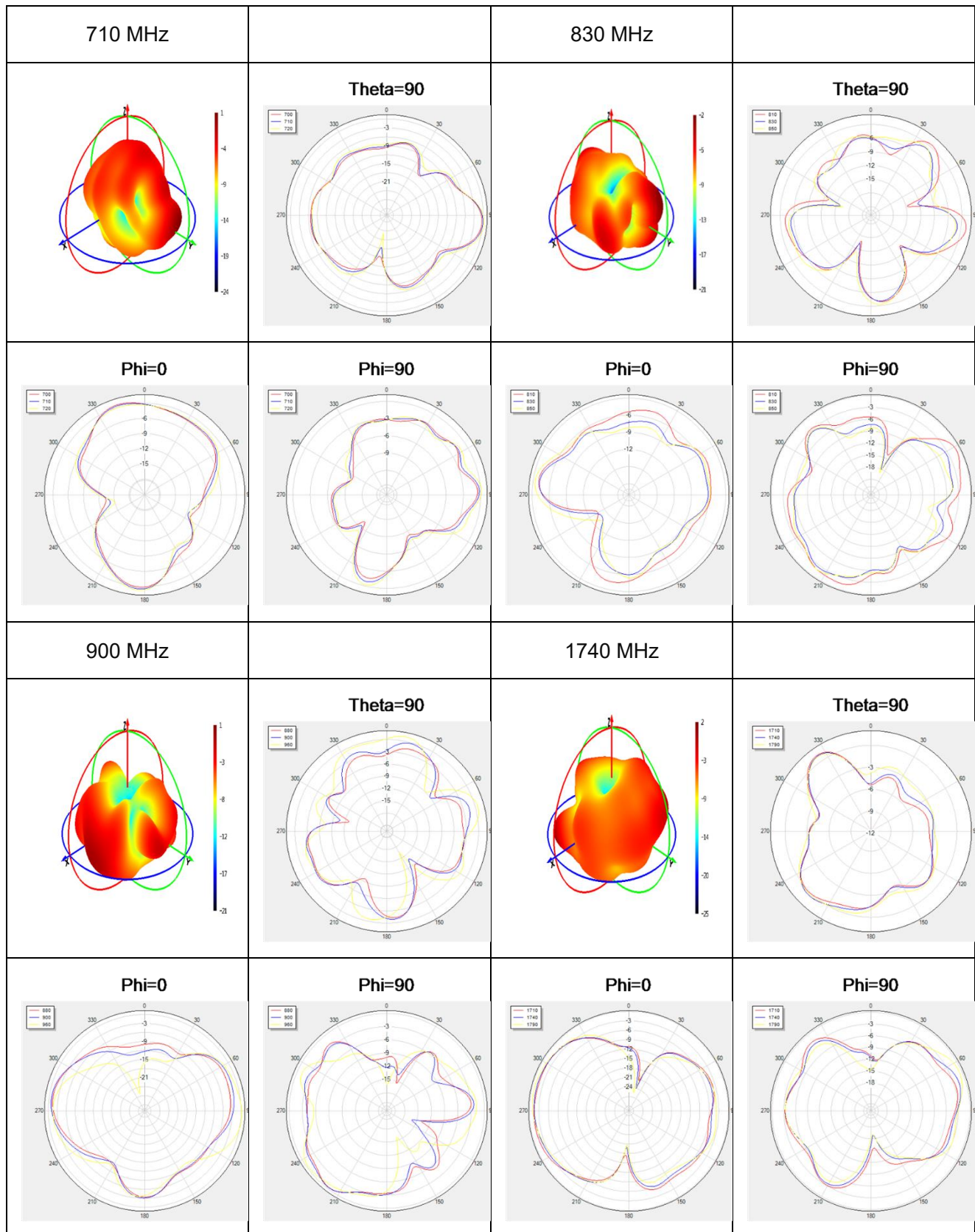


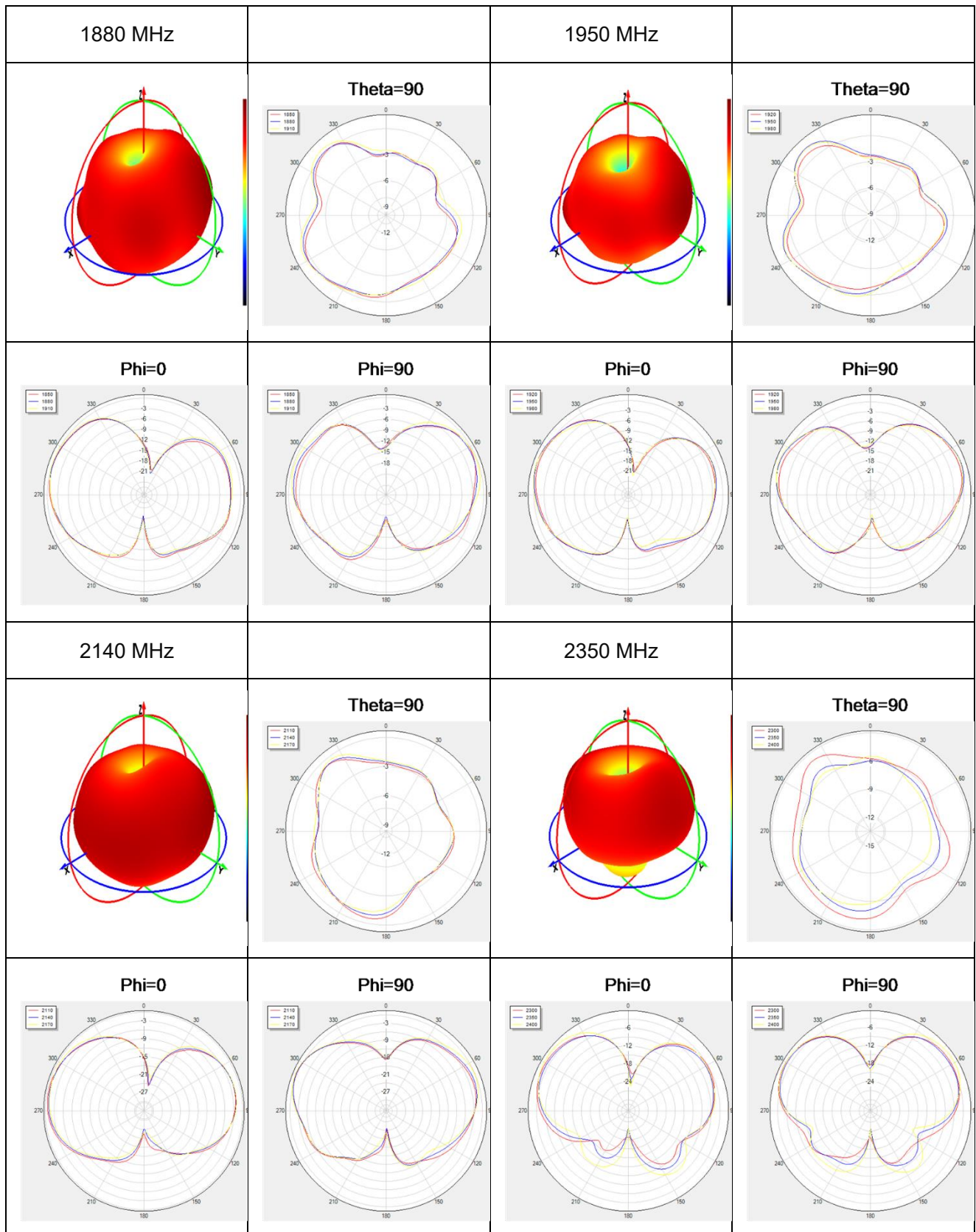


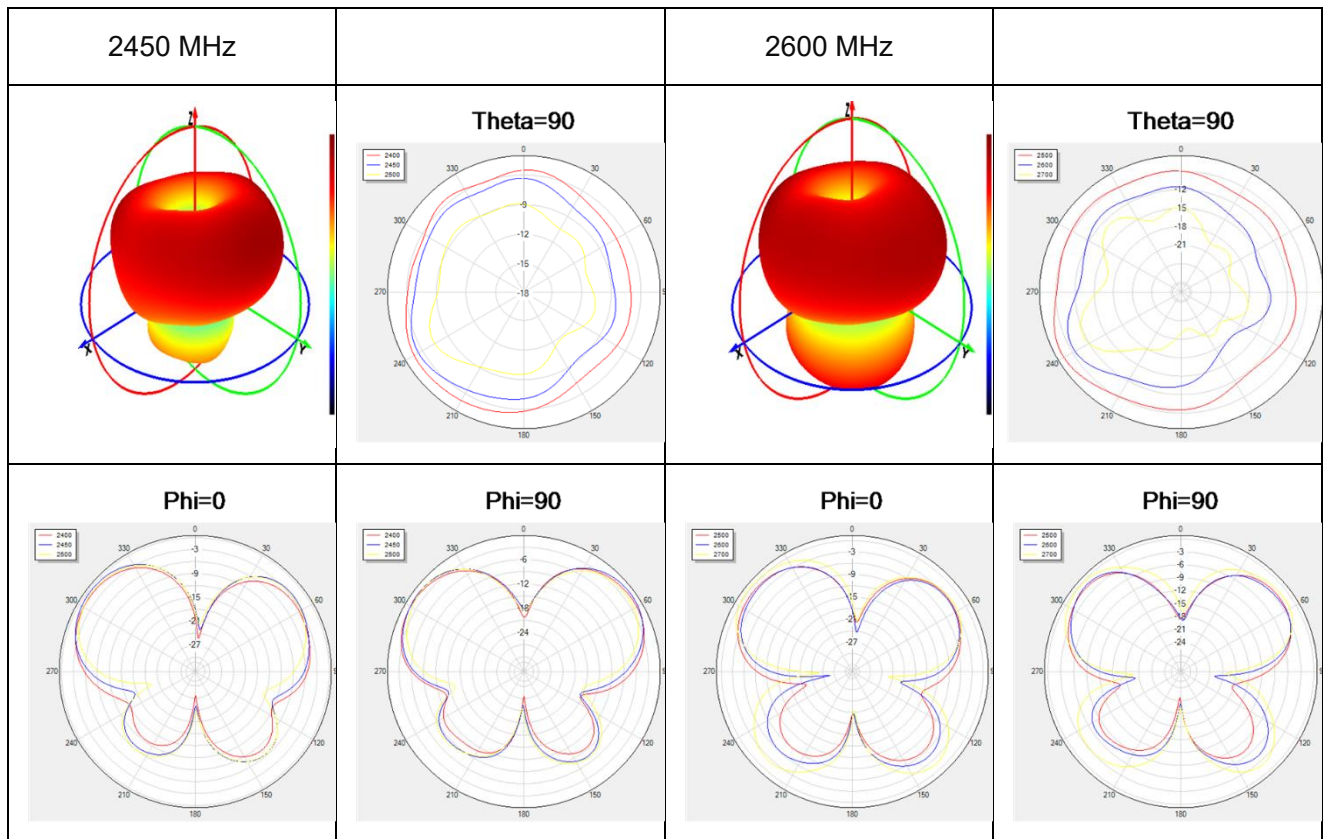
**3.2.4.1. Test Condition: Free Space**

- Test Chamber: GL-S-1





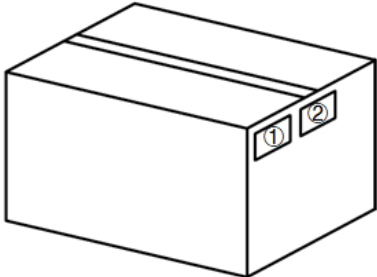
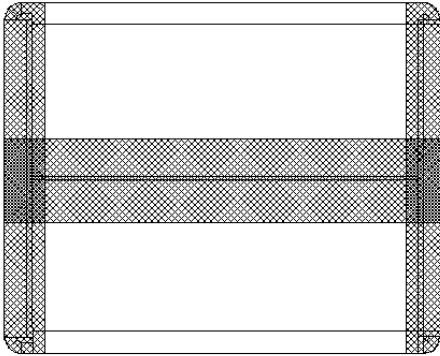






## 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 pc antenna product in a PE bag
		20 pcs antenna products in a big PE bag
3		<p>(10 pcs PE bags per carton box) (200 pcs antennas per carton box)</p> <p><u>Carton Size:</u> <u>L × W × H = 405 mm × 293 mm × 185 mm</u></p>

4		<p><b>Position for Attaching Labels</b></p> <p>① Carton Label</p> <p>② Quality Label</p>
5		<p><b>Sealing Cartons</b></p> <p>“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
-	2022-06-08	Kenny YIN/ Riona HAN	Creation of the document
1.0	2022-06-08	Kenny YIN/ Riona HAN	First official release
2.0	2023-05-12	Mikael ZHONG/ Lucky FENG/ David LIU/ Aria CHU	Updated all data and datasheet template.
2.1	2023-07-21	Toby Wang	Updated drawing In Chapter 4.



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