



# Antenna Datasheet

**Product OC:** YECT007AA

**Version:** 3.1

**Date:** 2023-12-05

**Status:** Released

**Product Name:** External 4G Antenna

**Key Features:**

Frequency Band: 700–2690 MHz

Dimensions:  $\Phi$  20 mm  $\times$  300 mm

Efficiency: Up to 93 %

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: Free Space

## 1.1. Electrical

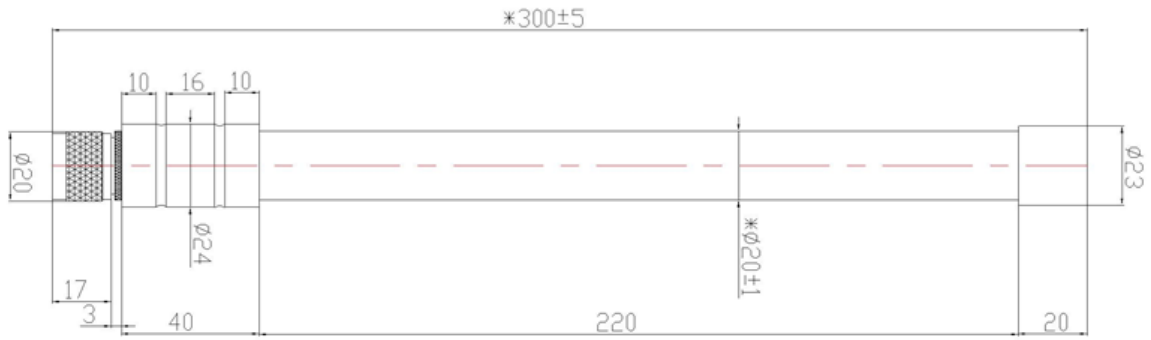
Electrical	
Frequency Range	700–2690 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

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	FS	-	2.0	2.9	-	1.8	1.2	1.2	1.7	-	-	-
Max. Return Loss (dB)	FS	-	-9.7	-6.1	-	-11.1	-19.6	-19.2	-11.6	-	-	-
AVG Eff. (%)	FS	-	51.6	46.5	-	80.7	84.5	86.9	73.7	-	-	-
AVG Gain (dB)	FS	-	-2.9	-3.3	-	-1.0	-0.7	-0.6	-1.3	-	-	-
Max. Peak Gain (dBi)	FS	-	0.1	1.3	-	0.9	1.4	1.9	1.9	-	-	-
VSWR	FS		≤ 2.9									
Return Loss	FS		≤ -6.1 dB									
Peak Gain	FS		≤ 1.9 dBi									

## 1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 20 mm × 300 mm
Material & Color	Glass Fiber Reinforced Plastics & Gray
Connector Type	N Male
Mounting Type	Pole Mount
Weight	Typ. 146.2 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



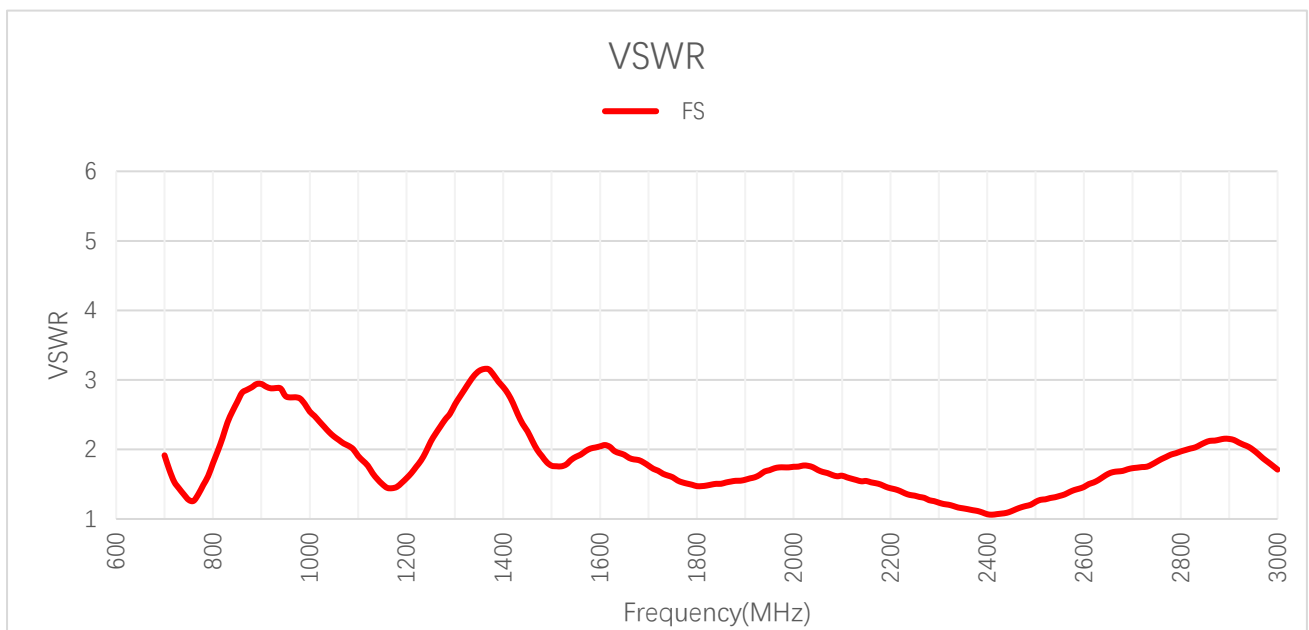
Unit: mm



# 3 Detailed Performance

## 3.1. S-Parameter Test

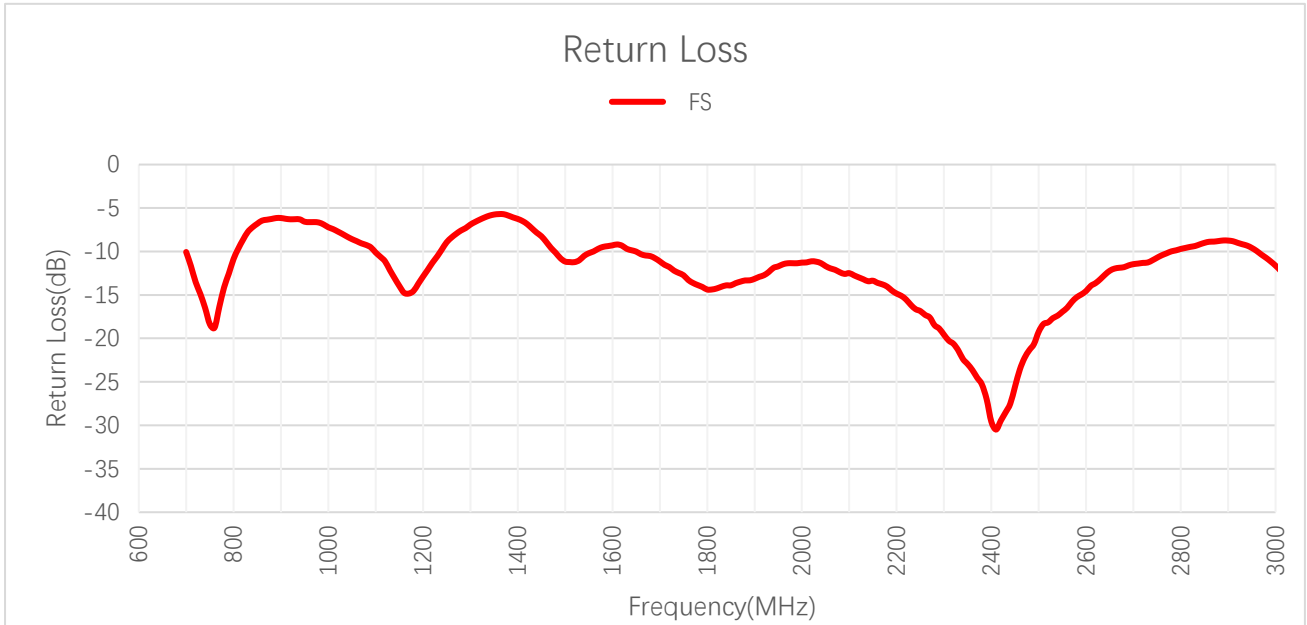
### 3.1.1. VSWR



**VSWR**

<b>Frequency (MHz)</b>	<b>600</b>	<b>630</b>	<b>710</b>	<b>830</b>	<b>900</b>	<b>960</b>	<b>1440</b>	<b>1710</b>	<b>1740</b>	<b>1880</b>
<b>VSWR</b>	-	-	1.7	2.4	2.9	2.7	-	1.7	1.6	1.5
<b>Frequency (MHz)</b>	<b>1950</b>	<b>2140</b>	<b>2350</b>	<b>2450</b>	<b>2600</b>	<b>2690</b>	<b>4700</b>	<b>5000</b>	<b>5500</b>	<b>6000</b>
<b>VSWR</b>	1.7	1.5	1.2	1.1	1.5	1.7	-	-	-	-

**3.1.2. Return Loss**



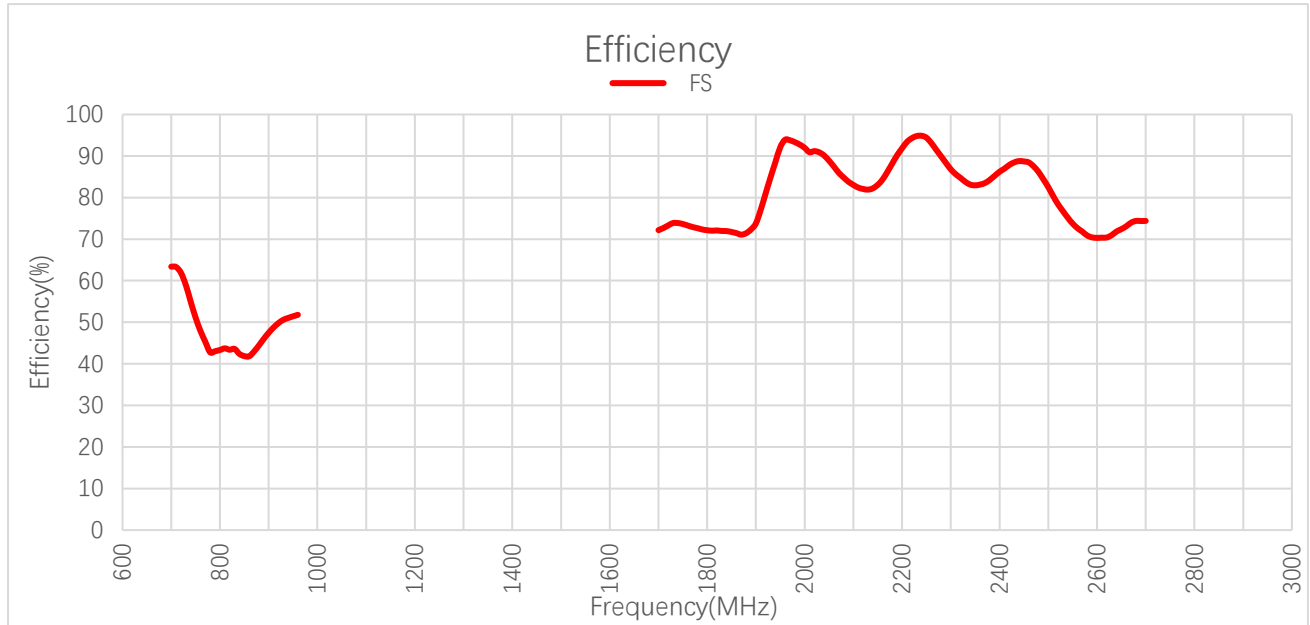
**Return Loss (dB)**

<b>Frequency (MHz)</b>	<b>600</b>	<b>630</b>	<b>710</b>	<b>830</b>	<b>900</b>	<b>960</b>	<b>1440</b>	<b>1710</b>	<b>1740</b>	<b>1880</b>
<b>Return Loss (dB)</b>	-	-	-11.7	-7.8	-6.1	-6.6	-	-11.5	-12.5	-13.3
<b>Frequency (MHz)</b>	<b>1950</b>	<b>2140</b>	<b>2350</b>	<b>2450</b>	<b>2600</b>	<b>2690</b>	<b>4700</b>	<b>5000</b>	<b>5500</b>	<b>6000</b>
<b>Return Loss (dB)</b>	-11.7	-13.4	-23.0	-25.5	-14.6	-11.6	-	-	-	-



### 3.2. Radiation Performance Test

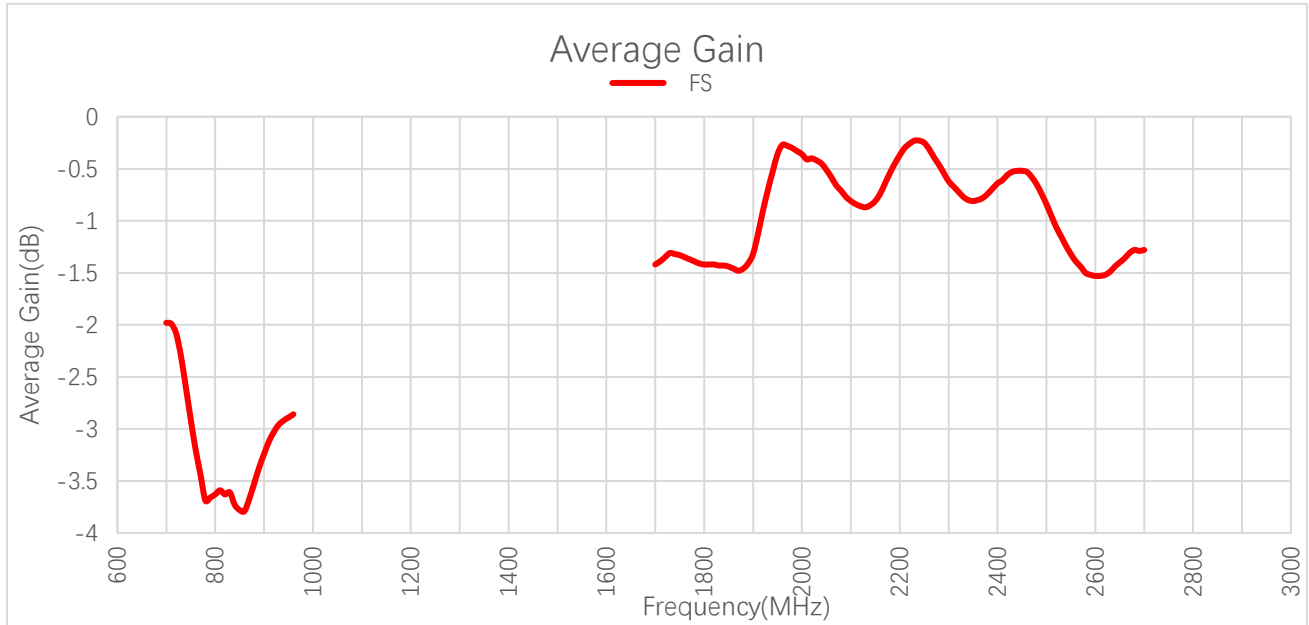
#### 3.2.1. Efficiency



**Efficiency (%)**

<b>Frequency (MHz)</b>	<b>600</b>	<b>630</b>	<b>710</b>	<b>830</b>	<b>900</b>	<b>960</b>	<b>1440</b>	<b>1710</b>	<b>1740</b>	<b>1880</b>
<b>Efficiency (%)</b>	-	-	63.3	43.6	47.5	51.8	-	72.7	73.9	71.4
<b>Frequency (MHz)</b>	<b>1950</b>	<b>2140</b>	<b>2350</b>	<b>2450</b>	<b>2600</b>	<b>2690</b>	<b>4700</b>	<b>5000</b>	<b>5500</b>	<b>6000</b>
<b>Efficiency (%)</b>	92.1	82.2	83.0	88.7	70.3	74.4	-	-	-	-

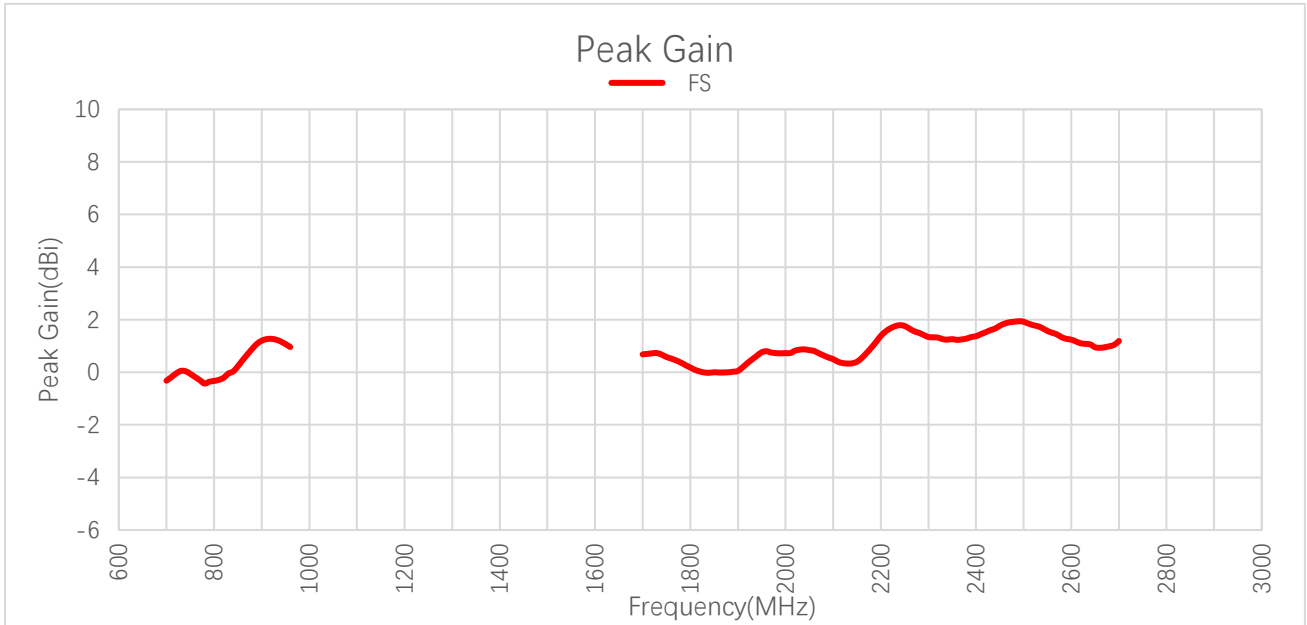
**3.2.2. Average Gain**



**Average Gain (dB)**

<b>Frequency (MHz)</b>	<b>600</b>	<b>630</b>	<b>710</b>	<b>830</b>	<b>900</b>	<b>960</b>	<b>1440</b>	<b>1710</b>	<b>1740</b>	<b>1880</b>
<b>Average Gain (dB)</b>	-	-	-2.0	-3.6	-3.2	-2.9	-	-1.4	-1.3	-1.5
<b>Frequency (MHz)</b>	<b>1950</b>	<b>2140</b>	<b>2350</b>	<b>2450</b>	<b>2600</b>	<b>2690</b>	<b>4700</b>	<b>5000</b>	<b>5500</b>	<b>6000</b>
<b>Average Gain (dB)</b>	-0.4	-0.9	-0.8	-0.5	-1.5	-1.3	-	-	-	-

**3.2.3. Peak Gain**



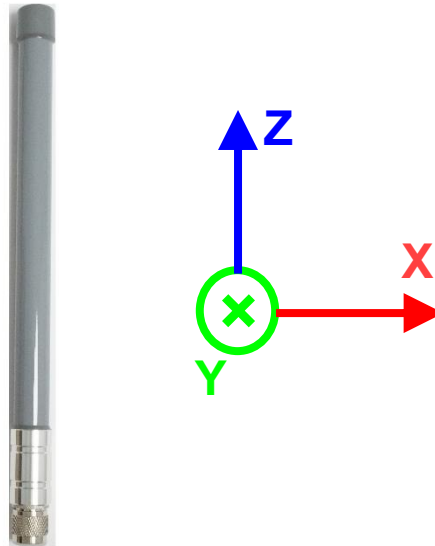
**Peak Gain (dBi)**

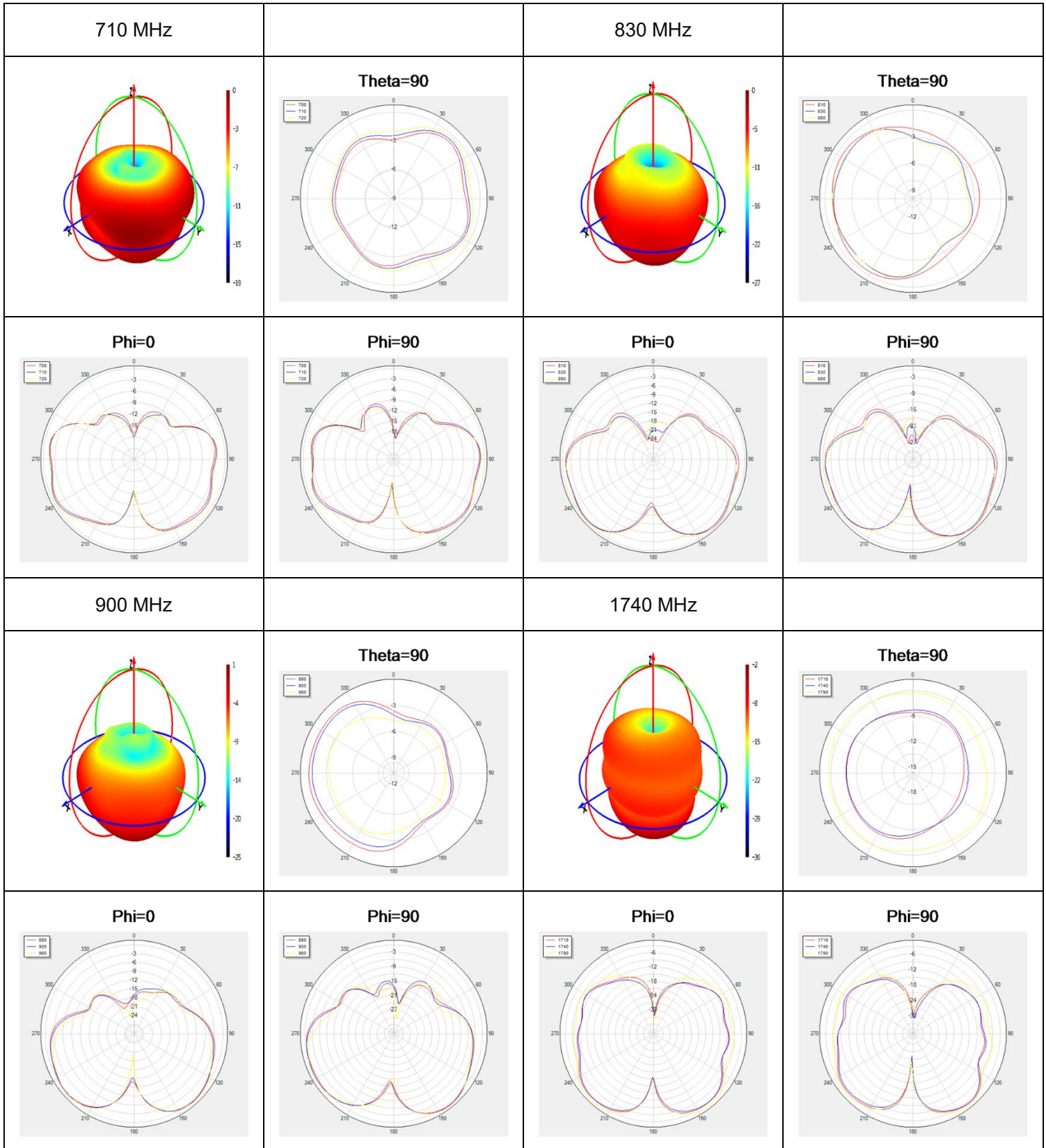
<b>Frequency (MHz)</b>	<b>600</b>	<b>630</b>	<b>710</b>	<b>830</b>	<b>900</b>	<b>960</b>	<b>1440</b>	<b>1710</b>	<b>1740</b>	<b>1880</b>
<b>Peak Gain (dBi)</b>	-	-	-0.2	-0.1	1.2	1.0	-	0.7	0.7	0.0
<b>Frequency (MHz)</b>	<b>1950</b>	<b>2140</b>	<b>2350</b>	<b>2450</b>	<b>2600</b>	<b>2690</b>	<b>4700</b>	<b>5000</b>	<b>5500</b>	<b>6000</b>
<b>Peak Gain (dBi)</b>	0.8	0.3	1.3	1.8	1.2	1.0	-	-	-	-

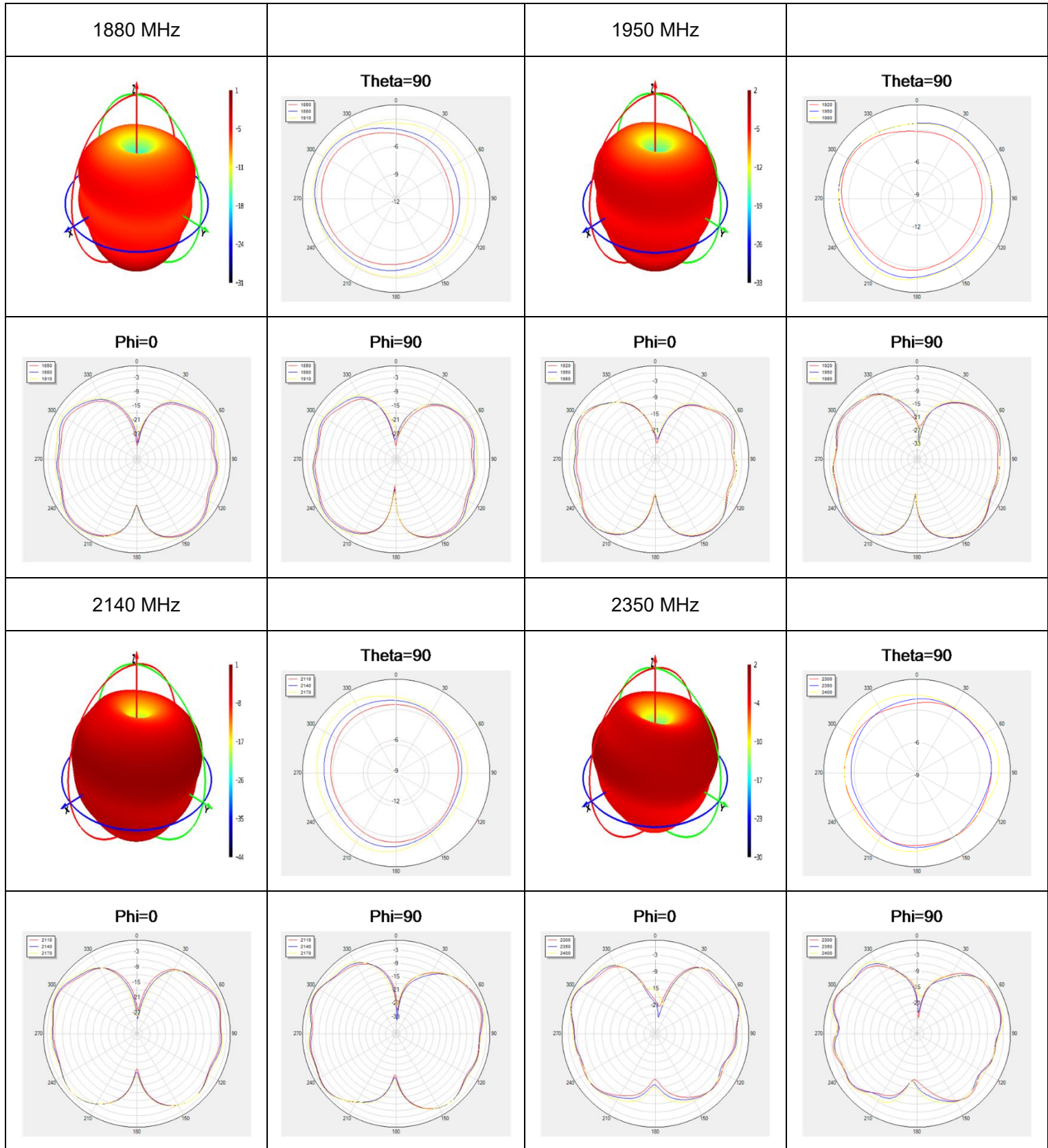
### 3.2.4. 3D & 2D Radiation Pattern

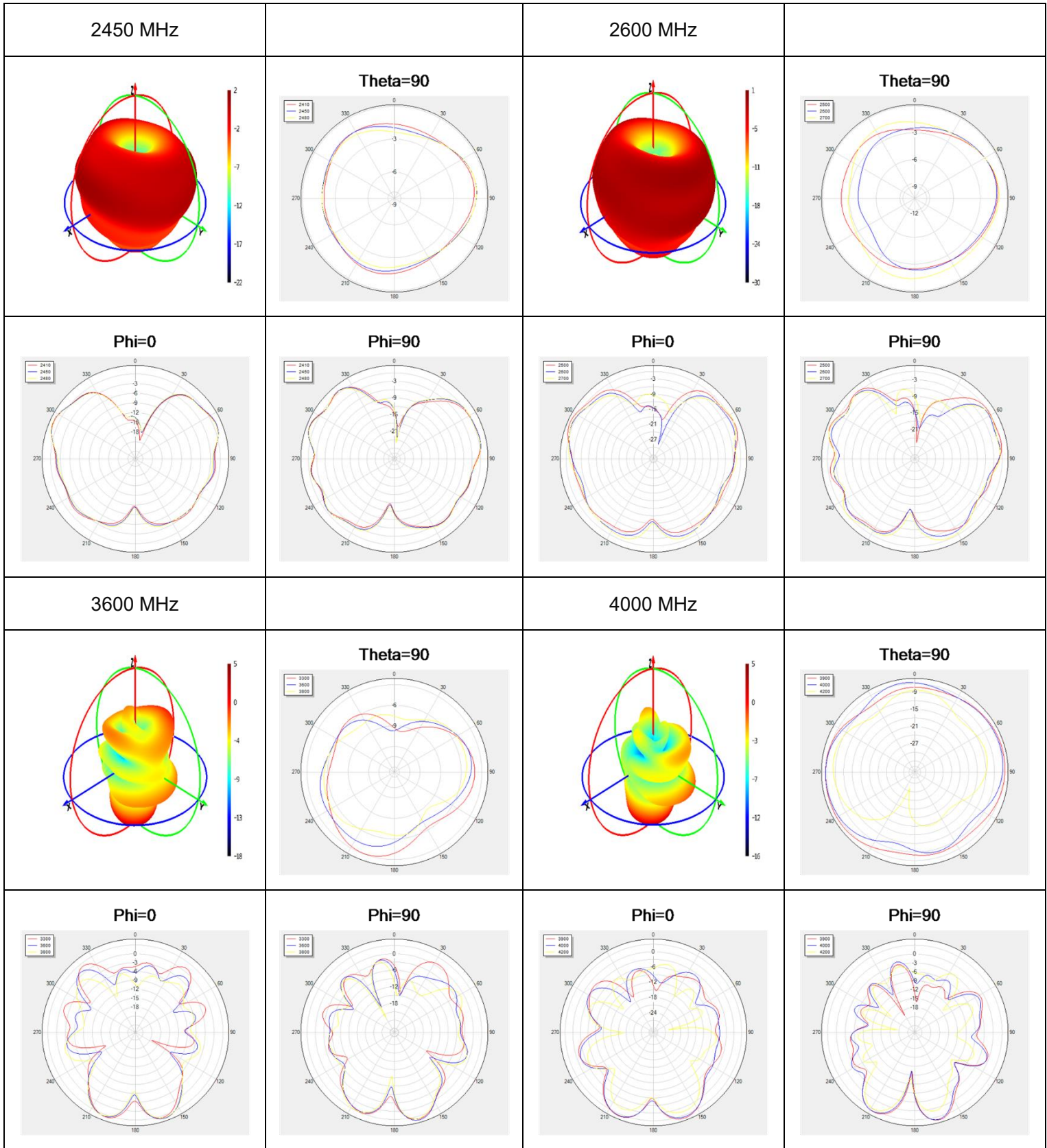
#### 3.2.4.1. Test Condition: Free Space

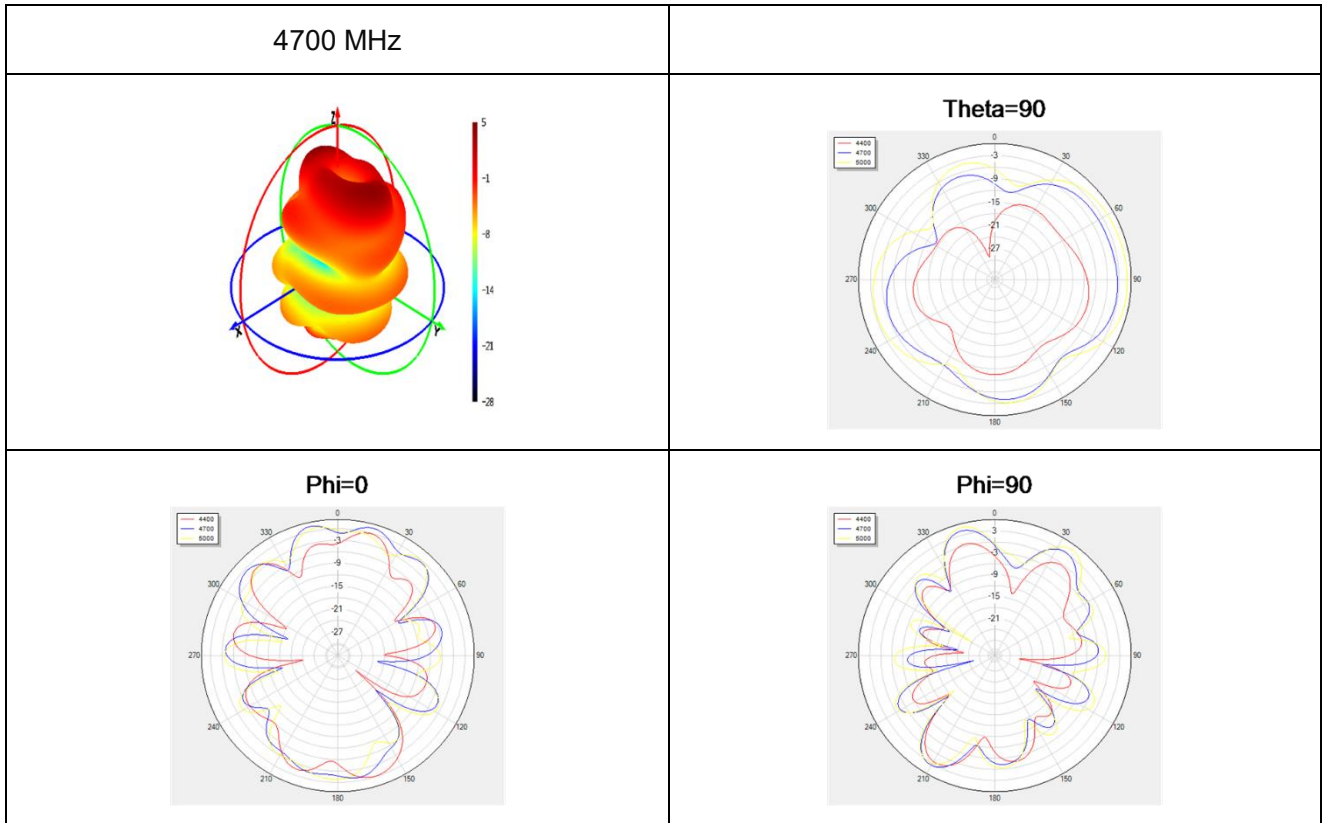
- Test Chamber: GL-S-1






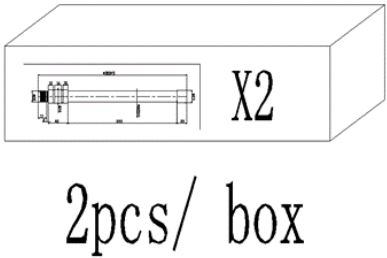
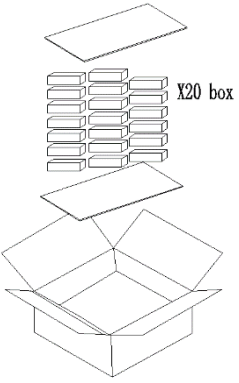


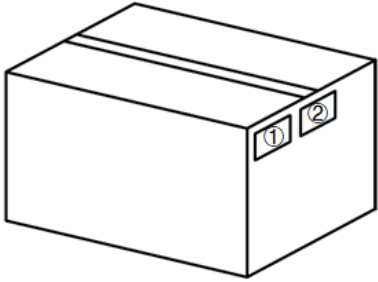
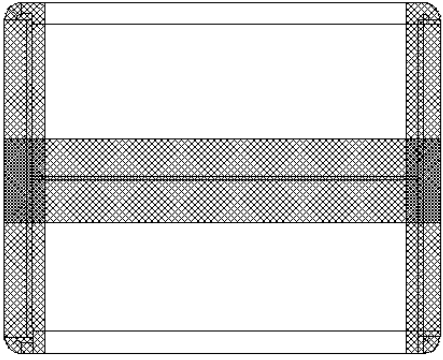






# 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		<p>1 pc antenna product in a bubble bag; (1 PC / Bubble Bag)</p>
2		<p>(2 PCS Antennas / Inner Box)</p>
3		<p>(20 Inner Boxes / Carton Box) (40 PCS Antennas / Carton Box)</p> <p><u>Carton Size:</u> <u>L × W × H = 360 × 200 × 360 mm</u></p>

4		<p><b>Position for Attaching Labels</b></p> <ul style="list-style-type: none"><li>① Carton Label</li><li>② Quality Label</li></ul>
5		<p><b>Sealing Cartons</b></p> <p>“I” 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
-	2021-09-22	Mordecai LIU/ Jason LONG	Creation of the document
1.0	2021-09-22	Mordecai LIU/ Jason LONG	First official release
2.0	2022-03-01	Mordecai LIU/ Jason LOG	Updated all test data in this datasheet.
2.1	2022-04-27	Mordecai LIU/ Jason LONG	Updated mounting type (Chapter 6).
2.2	2022-12-29	Jason LONG	Update the drawings in Chapter 6.
3.0	2023-05-17	Damon ZHANG/ Lucky FENG/ David LIU/ Aria CHU	Updated all data and datasheet template.
3.1	2023-12-05	Lucky FENG/ Aria CHU	Added storage temperature and REACH compliant (Chapter 1.1).

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