



Antenna Datasheet

Product OC: YB0010AA

Version: 3.0

Date: 2023-05-11

Status: Released

Product Name: 4G External Antenna

Key Features:

Frequency Band: 698–2700 MHz

Dimensions: Φ 84 × 81.5 × 15.5 mm

Efficiency: Up to 44.94 %

RoHS Compliant

IP66

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

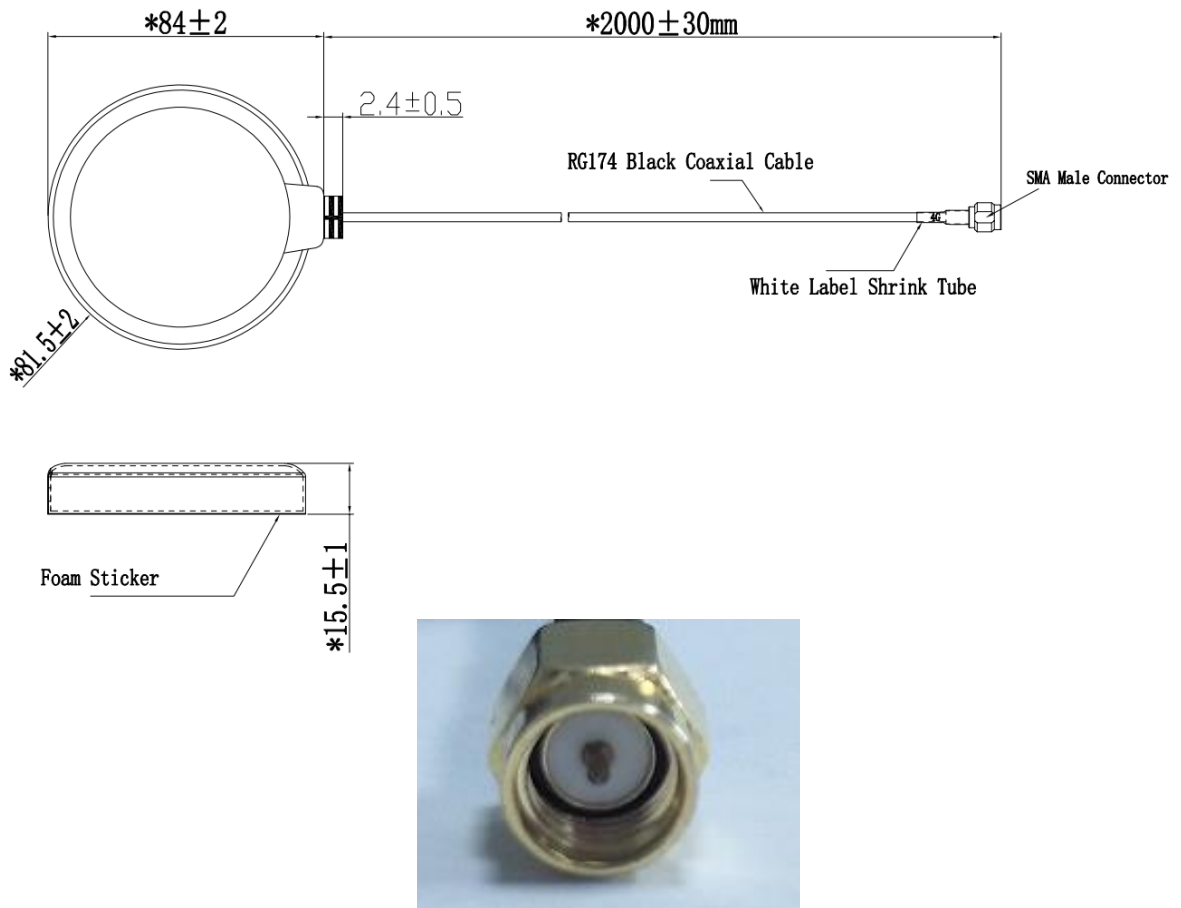
Electrical	
Frequency Range	698–2700 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

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	-	1.9	1.6	-	1.8	1.6	1.6	1.5	-	-	-	-
Max. Return Loss (dB)	-	-10.1	-13.0	-	-11.2	-12.3	-12.8	-13.8	-	-	-	-
AVG Eff. (%)	-	28.0	36.3	-	27.3	24.9	27.0	25.7	-	-	-	-
AVG Gain (dB)	-	-5.6	-4.5	-	-5.6	-6.0	-5.7	-5.9	-	-	-	-
Max. Peak Gain (dBi)	-	-0.8	-0.1	-	0.0	-1.0	-1.2	-1.5	-	-	-	-
VSWR	≤ 1.9											
Return Loss	≤ -10.1 dB											
Peak Gain	≤ 0.0 dBi											

1.2. Mechanical, Environmental & Storage

Mechanical	
Antenna Dimensions	Φ 84 × 81.5 × 15.5 mm
Material & Color	PC + ABS & Black
Cable Type & Color & Length	RG 174 & Black & 2000 mm
Connector Type	SMA Male
Mounting Type	Magnet
Weight	Typ. 64.4 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP66
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

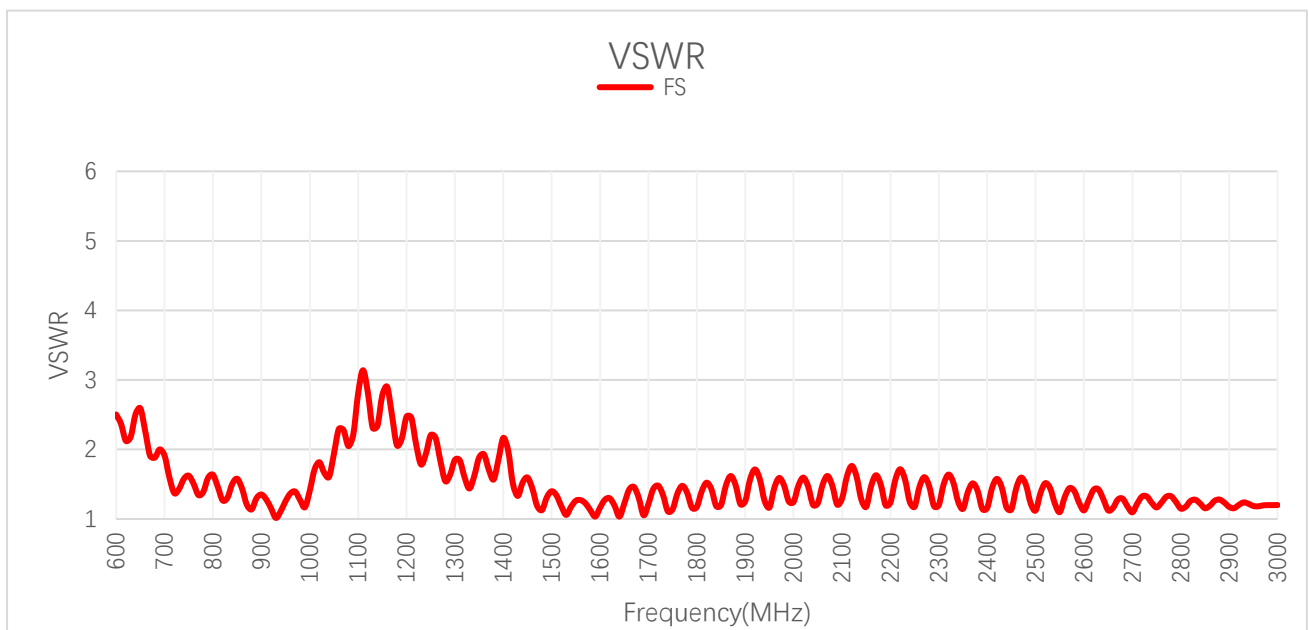
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

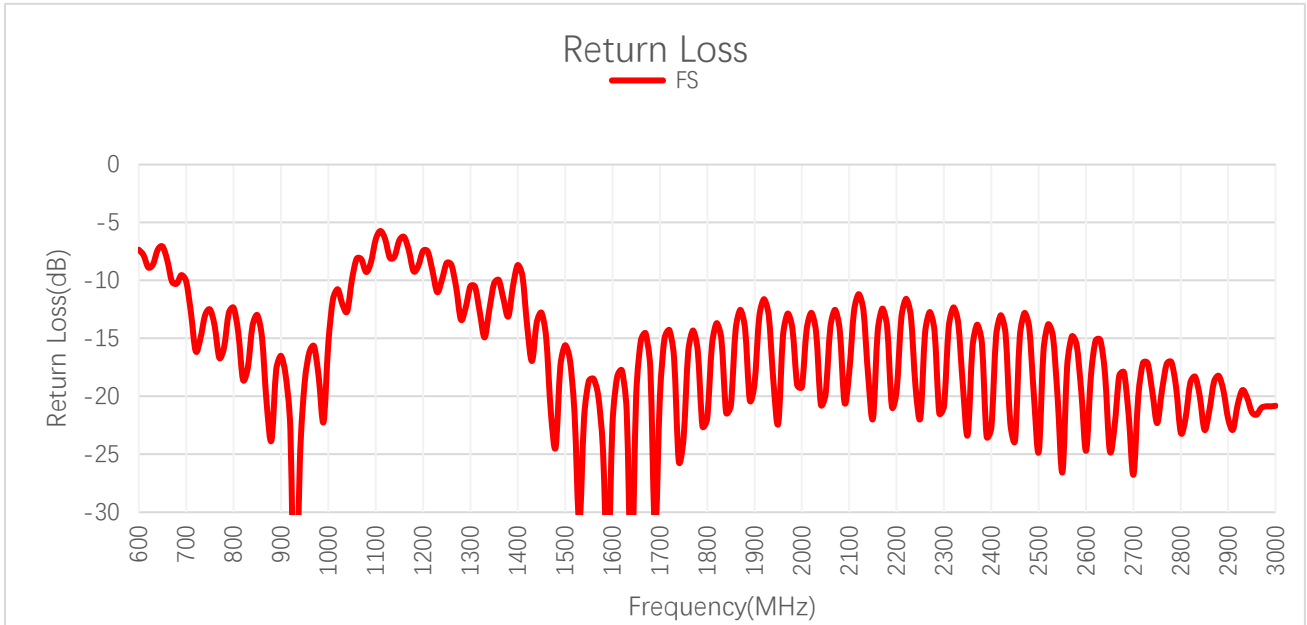
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	-	-	1.6	1.3	1.4	1.4	-	1.4	1.1	1.5
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
VSWR	1.2	1.3	1.1	1.1	1.1	1.2	-	-	-	-

3.1.2. Return Loss

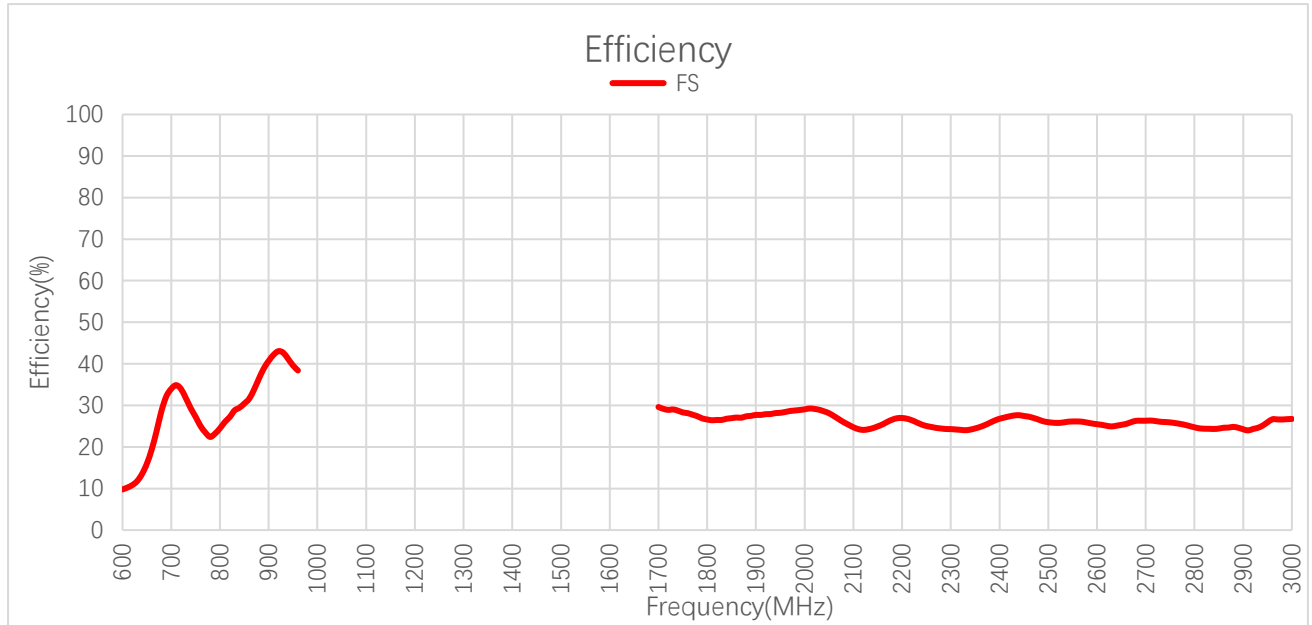


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-	-	-12.8	-17.6	-16.5	-16.2	-	-15.0	-25.6	-14.2
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Return Loss (dB)	-22.4	-18.3	-23.3	-23.8	-24.7	-21.7	-	-	-	-

3.2. Radiation Performance Test

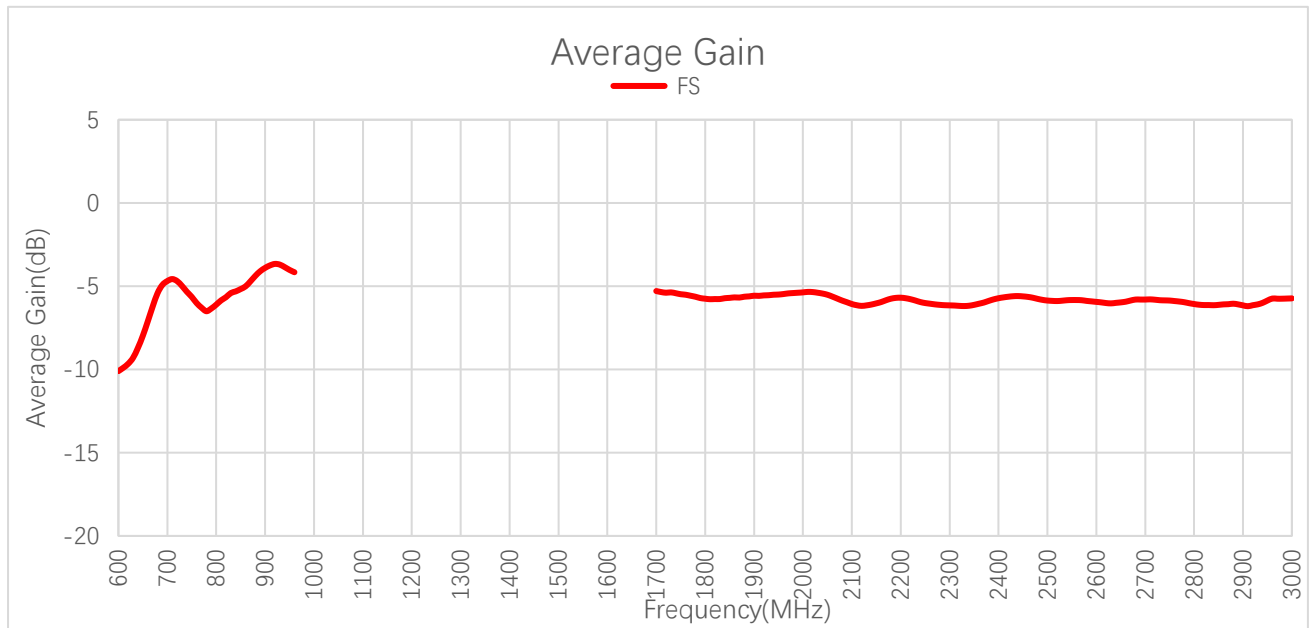
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	-	-	34.9	28.8	40.7	38.4	-	29.2	28.7	27.4
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Efficiency (%)	28.2	24.5	24.5	27.5	25.5	26.3	-	-	-	-

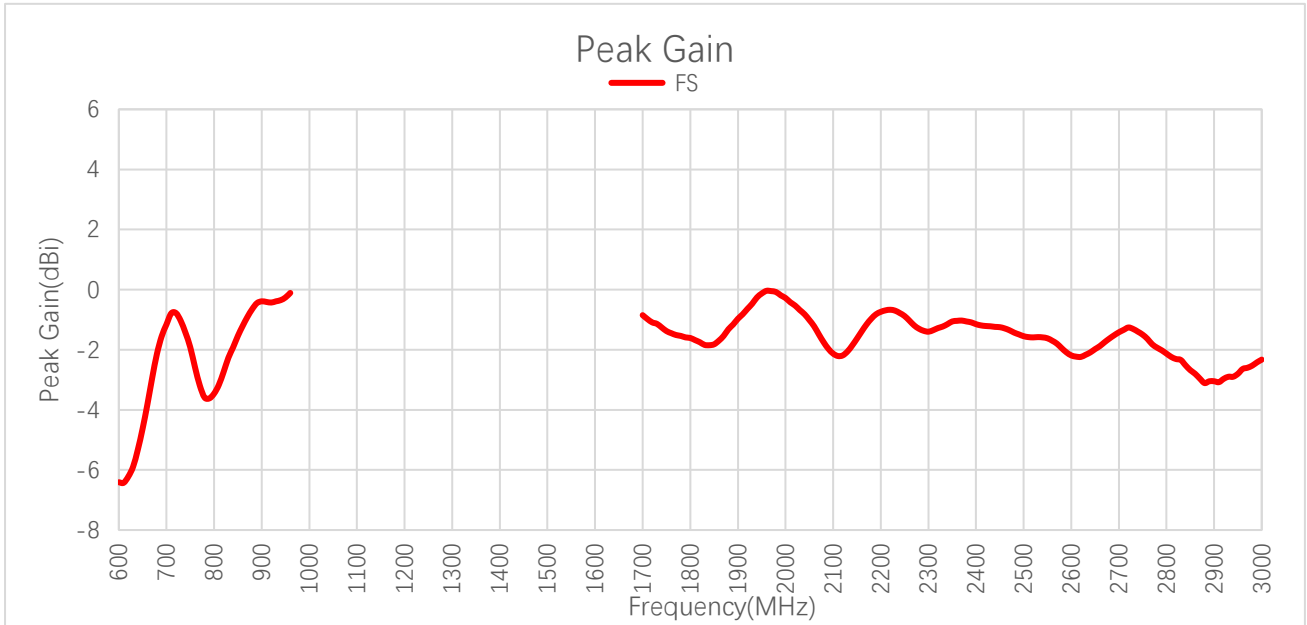
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-	-	-4.6	-5.4	-3.9	-4.2	-	-5.4	-5.4	-5.6
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Average Gain (dB)	-5.5	-6.1	-6.1	-5.6	-5.9	-5.8	-	-	-	-

3.2.3. Peak Gain



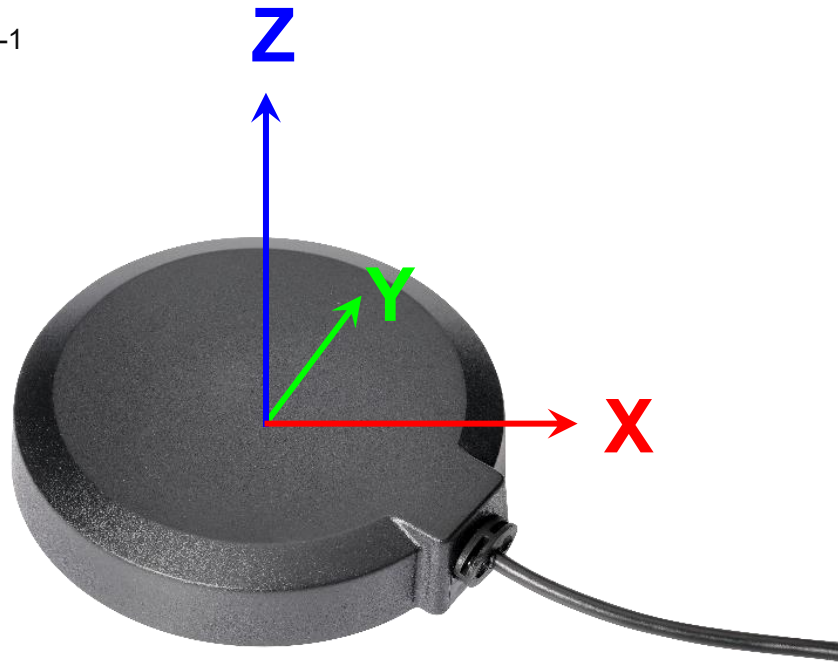
Peak Gain (dBi)

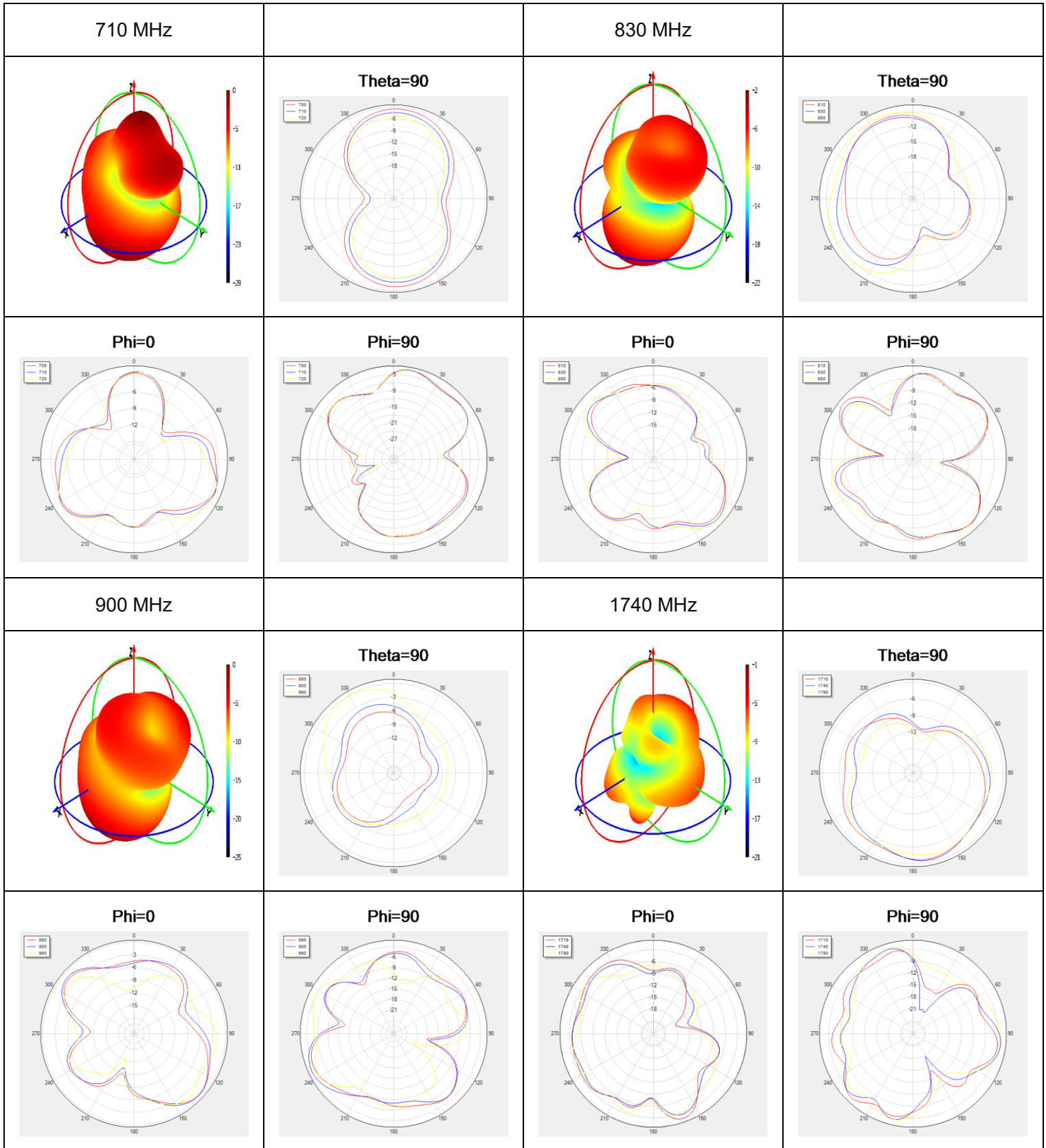
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	-	-	-0.8	-2.3	-0.4	-0.1	-	-1.0	-1.3	-1.3
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Peak Gain (dBi)	-0.1	-1.9	-1.1	-1.3	-2.2	-1.5	-	-	-	-

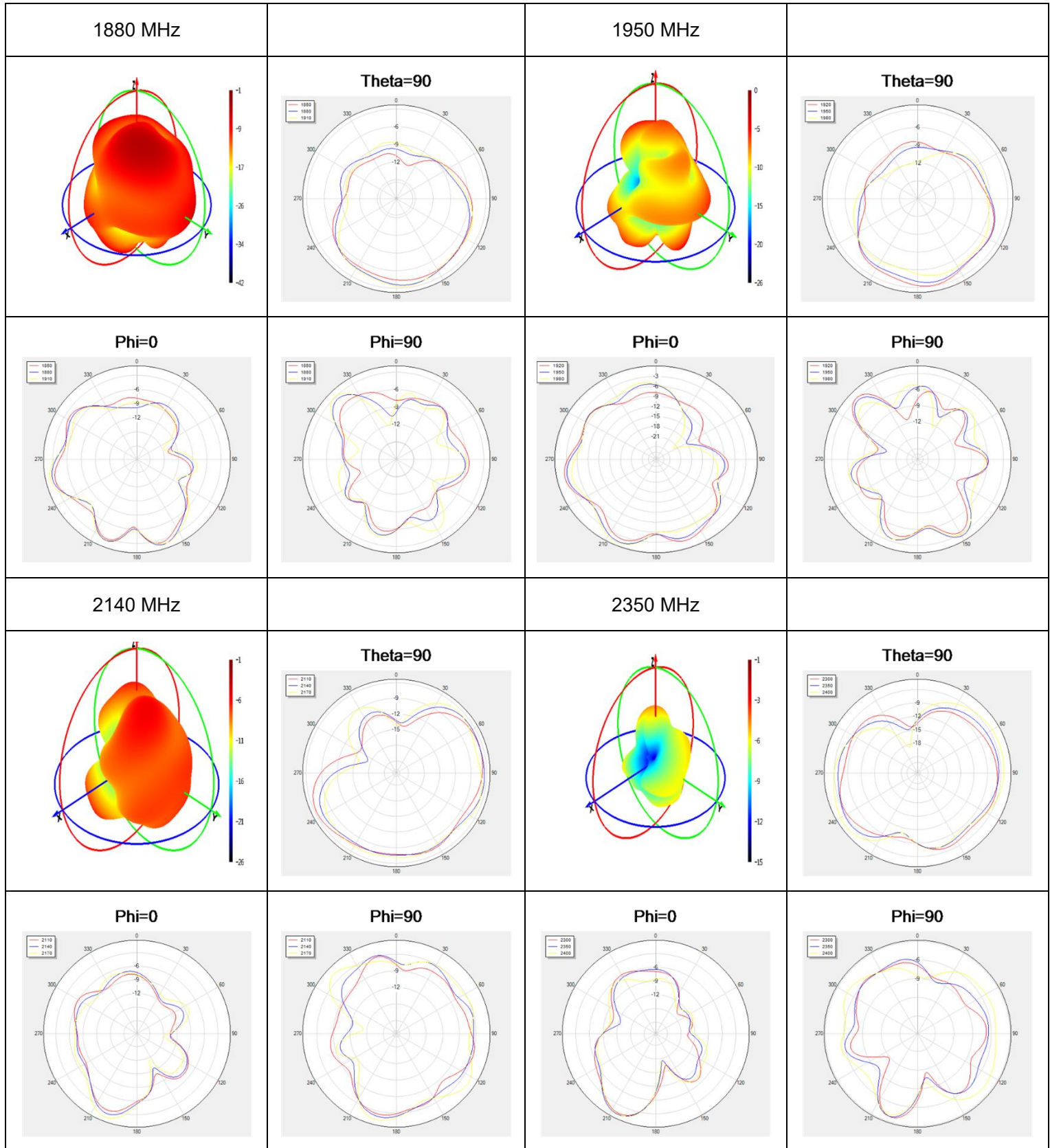
3.2.4. 3D & 2D Radiation Pattern

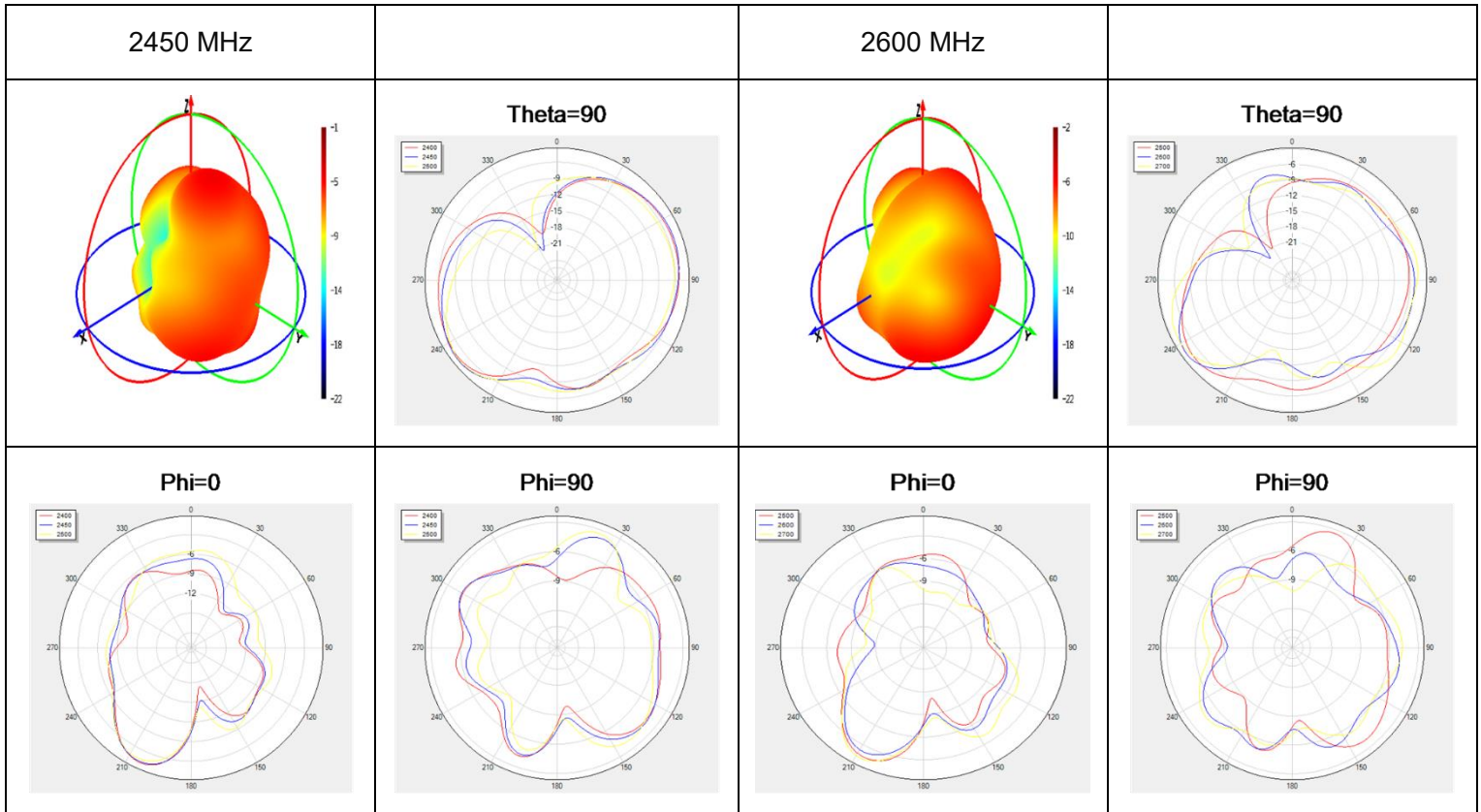
3.2.4.1. Test Condition: Free Space

- Test Chamber: GL-S-1




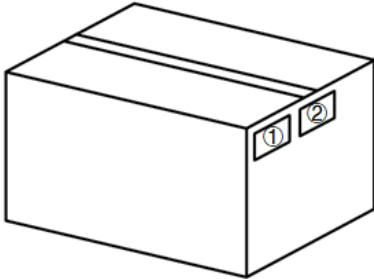
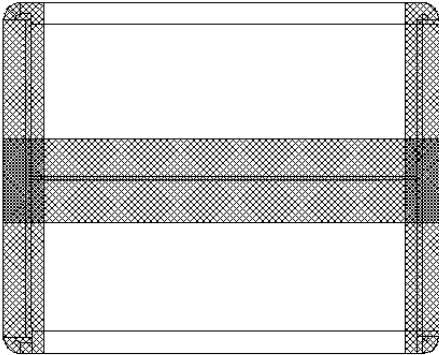






4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 pc antenna product in a PE bag
		25 pcs antenna products in a big PE bag

<p>3</p>		<p>(8 pcs PE bags per carton box) (200 pcs antennas per carton box)</p> <p><u>Carton Size:</u> <u>L × W × H = 370 × 370 × 295 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 “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
1.0	2020-06-28	Kenny YIN	Initial
1.1	2020-11-19	Kenny YIN	Added the mounting method (Chapter 3).
1.2	2020-12-11	Kenny YIN	Updated the antenna image in (Chapter 2).
1.3	2021-07-25	Kenny YIN	1. Updated working temperature (Chapter 3). 2. Added detailed passive electrical specifications (Chapter 3).
1.4	2021-10-25	Kenny YIN	1. Updated the antenna size (Chapter 3). 2. Updated the drawing (Chapter 5).
1.5	2021-12-01	Kenny YIN	Updated the product description (Chapter 1).
2.0	2022-03-10	Vinnie LIU	Updated the RF data (Chapter 4).
3.0	2023-02-24	Joyful HUANG/ Lucky FENG/ David LIU/ Aria CHU	Updated all data and datasheet template.

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