Antenna Datasheet

Product OC: YBY00A0KA
Version: 2.0
Date: 2023-04-27
Status: Released

Product Name: External 5G Antenna
Key Features:
Frequency Band: 700–5000 MHz
Dimensions: Φ 20 × 300 mm
Efficiency: Up to 87 %
RoHS Compliant
IP65

Overview

This Quectel external 5G antenna covers 5G NR Sub-6 GHz frequency bands and is compatible with 4G/3G/2G/LPWA bands. Featuring high efficiency and gain, it is an ideal omni-directional antenna solution to ensure high-speed data transmission, which can be widely used in a diversity of wireless communication devices such as AP, routers, outdoor equipment, real-time monitoring equipment, and many more. The antenna is designed to work with any ground plane size or in free space for ease of integration. Quectel also offers flexible installation with custom cable length and connector options.

Contents

1 Specification

Test Condition: Free Space

Electrical	
Frequency Range	700–5000 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical - Detail

Band / 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	-	2.3	3.6	-	2.3	1.3	1.3	1.2	2.4	2.0	-
Max. Return Loss (dB)	FS	-	-7.9	-5.0	-	-8.3	-16.8	-17.8	-21.2	-7.7	-9.8	-
AVG Eff. (%)	FS	-	74.5	58.8	-	73.2	78.4	79.5	72.2	74.6	71.8	-
AVG Gain (dB)	FS	-	-1.3	-2.3	-	-1.4	-1.1	-1.0	-1.4	-1.3	-1.5	-
Max. Peak Gain (dBi)	FS	-	0.6	0.6	-	1.0	1.8	2.4	3.5	5.3	3.9	-

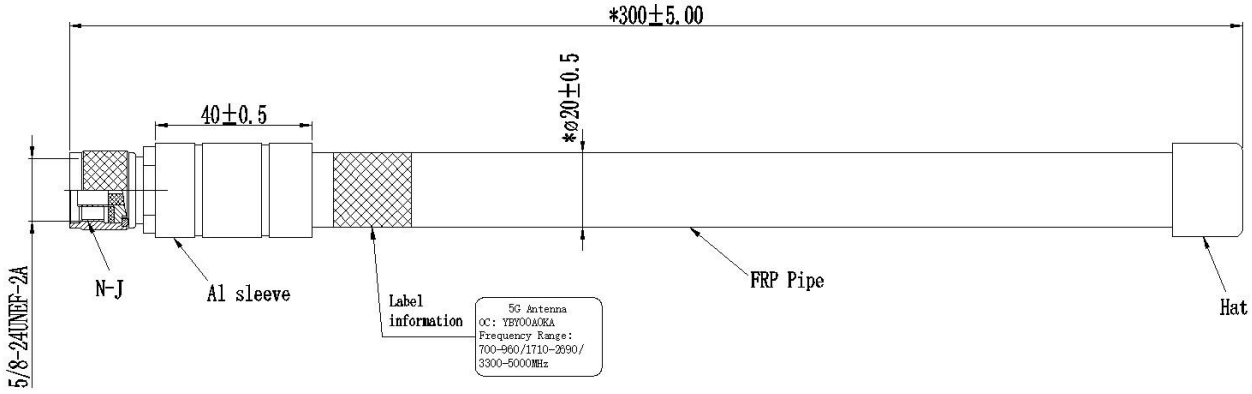
VSWR	**FS**	≤ 3.6
Return Loss	**FS**	≤ 5.0 dB
Peak Gain	**FS**	≤ 5.3 dBi

1.1. Mechanical, Environmental & Storage

Mechanical	
Antenna Dimensions	Φ 29 × 300 mm
Material & Color	FRP & Black
Connector Type	N Male
Mounting Type	Terminal
Weight	Typ. 127.5 g
Environmental	
Operation Temperature	-20 °C to +75 °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

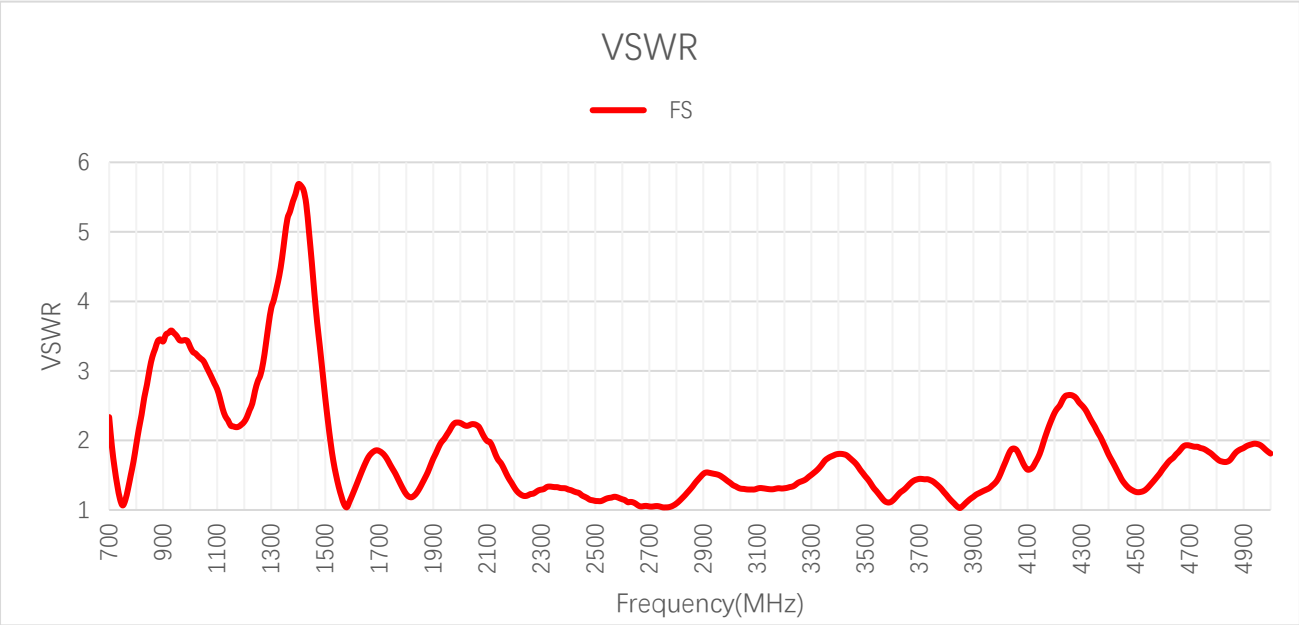
2 Drawing


*300±5.00
40±0.5
*ø20±0.5
N-J
Al sleeve
Label information
5G Antenna
OC: YBY00A0KA
Frequency Range:
700-960/1710-2690/
3300-5000MHz
FRP Pipe
Hat
5/8-24UNEF-2A

3 Detailed Performance

3.1. S-Parameter Test

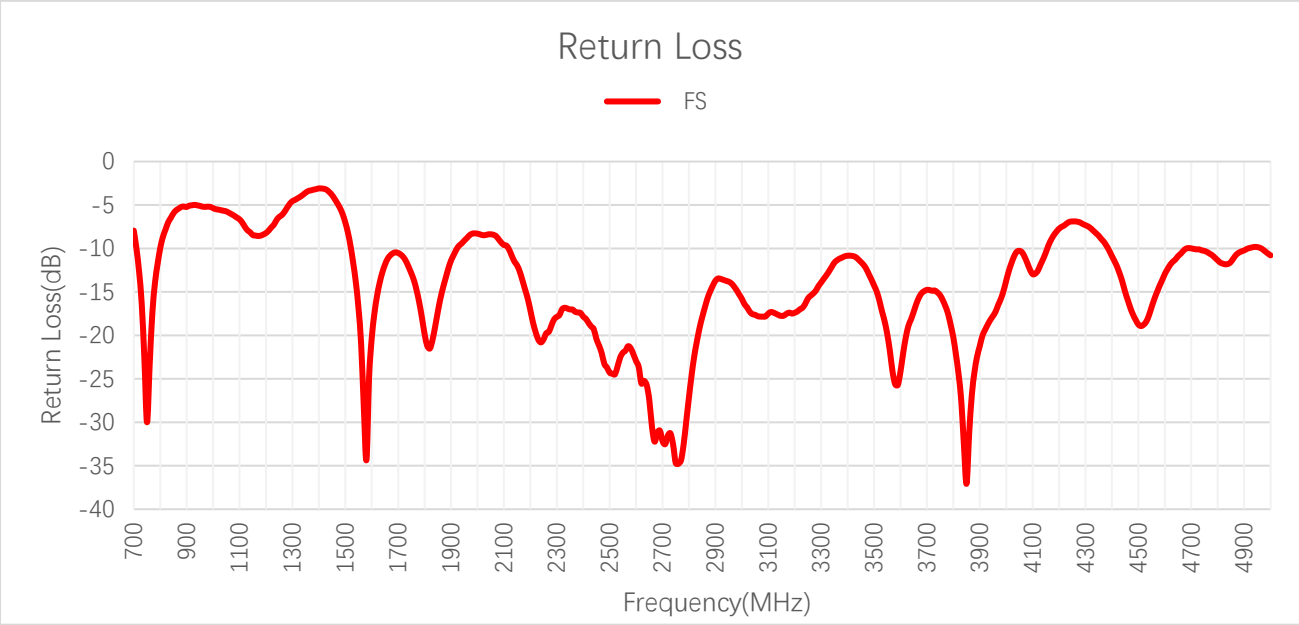
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	-	-	1.9	2.6	3.4	3.4	-	1.8	1.7	1.5
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
VSWR	2.1	1.7	1.3	1.2	1.2	1.1	1.9	1.8	-	-

3.1.2. Return Loss

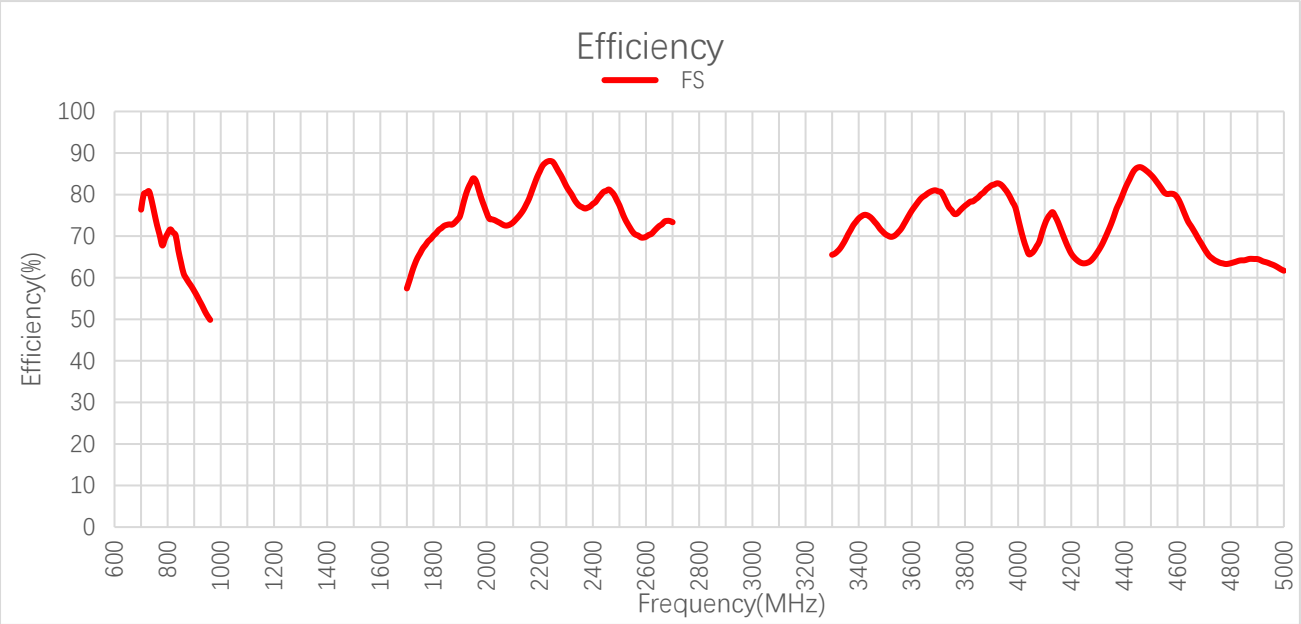


Return Loss (dB)

Frequency (MHz)	**600**	**630**	**710**	**830**	**900**	**960**	**1440**	**1710**	**1740**	**1880**
Return Loss (dB)	-	-	-10.0	-7.0	-5.2	-5.2	-	-10.7	-12.2	-13.4
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
Return Loss (dB)	-9.1	-11.5	-17.0	-20.4	-23.0	-24.2	-10.0	-10.8	-	-

3.2. Radiation Performance Test

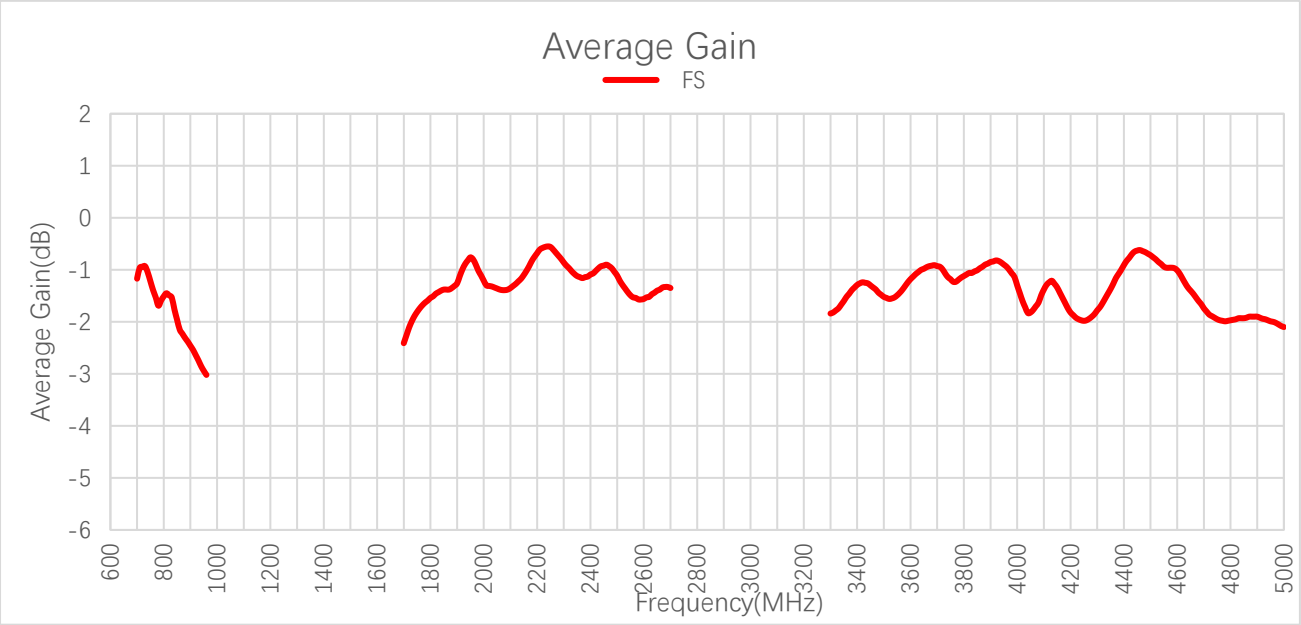
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	-	-	80.1	70.2	56.8	49.9	-	59.4	64.8	73.3
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
Efficiency (%)	83.9	76.5	77.3	80.9	69.9	76.1	67.1	61.7	-	-

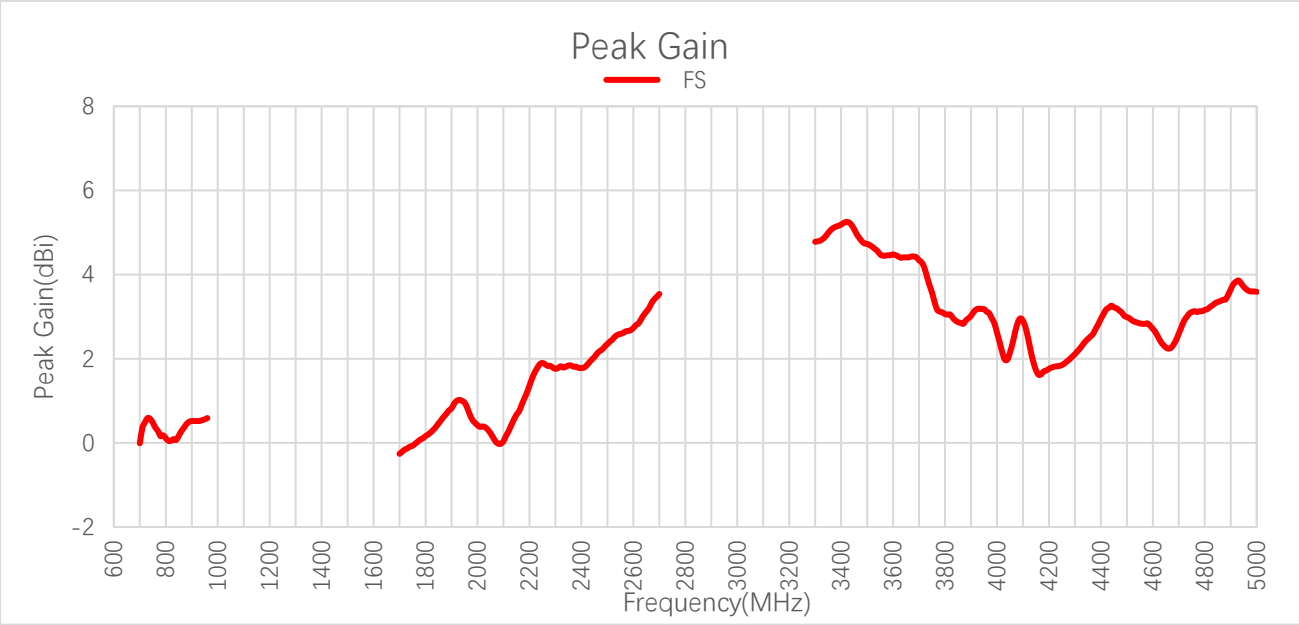
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-	-	-1.0	-1.5	-2.5	-3.0	-	-2.3	-1.9	-1.4
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4700**	**5000**	**5500**	**6000**
Average Gain (dB)	-0.8	-1.2	-1.1	-0.9	-1.6	-1.2	-1.7	-2.1	-	-

3.2.3. Peak Gain



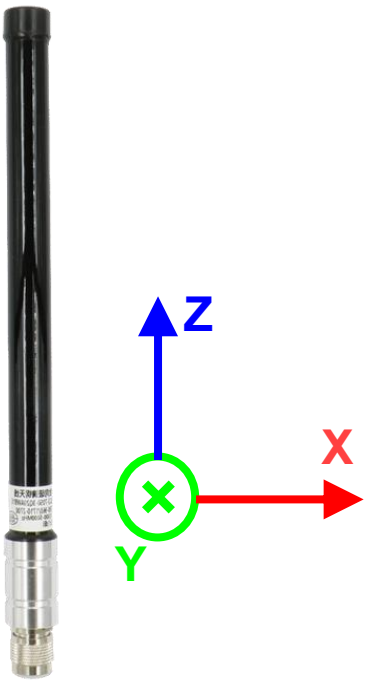
Peak Gain (dBi)

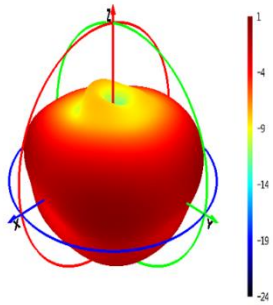
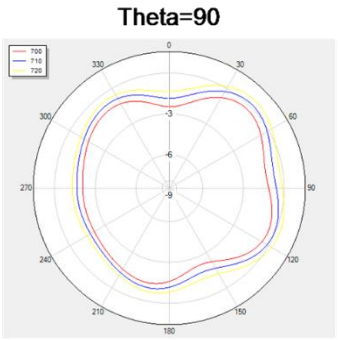
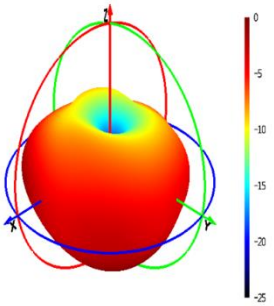
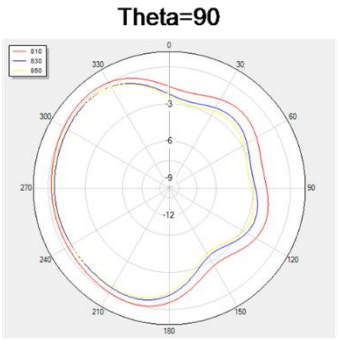
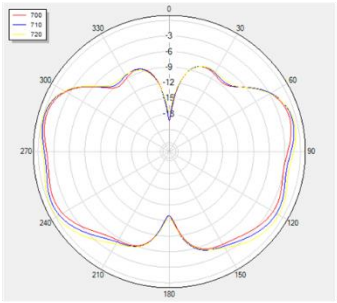
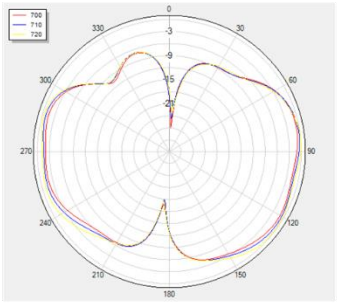
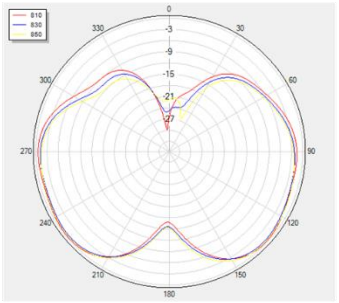
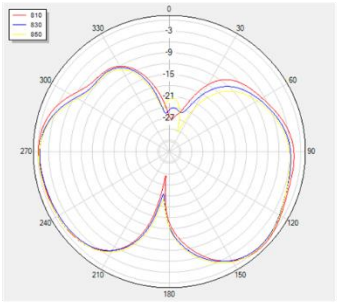
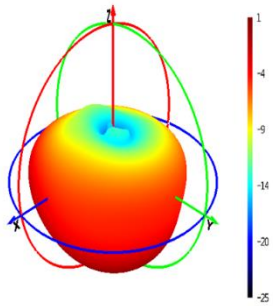
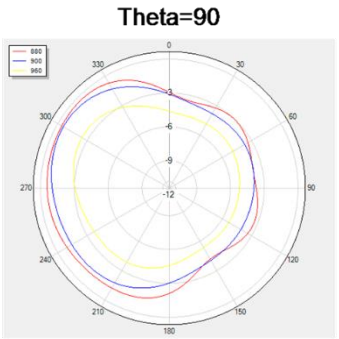
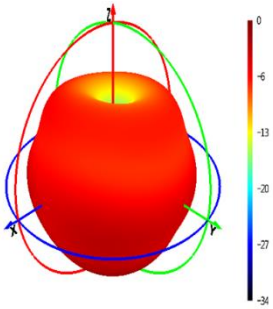
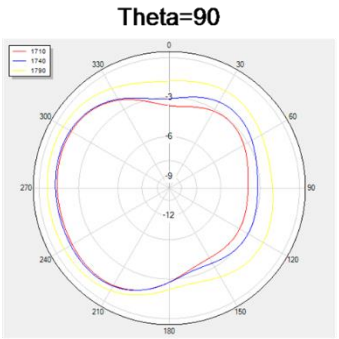
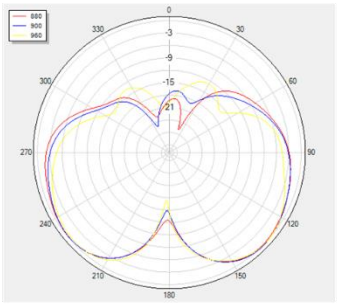
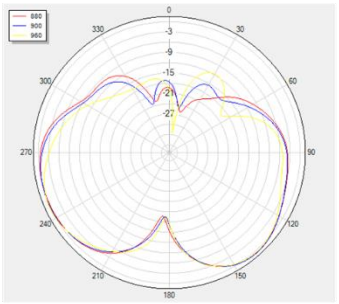
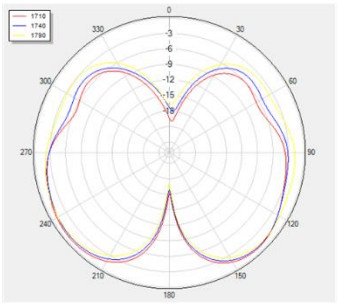
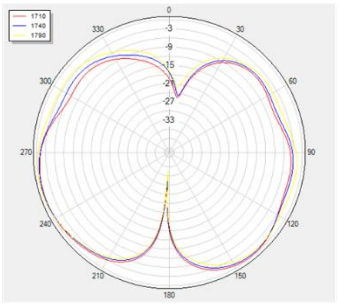
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	-	-	0.4	0.1	0.5	0.6	-	-0.2	-0.1	0.7
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600/ 2690**	**4700**	**5000**	**5500**	**6000**
Peak Gain (dBi)	1.0	0.6	1.8	2.0	2.7	4.5	2.6	3.6	-	-

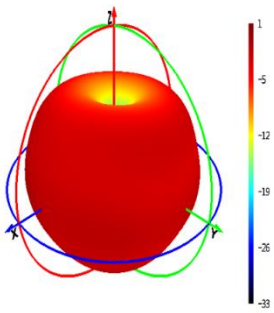
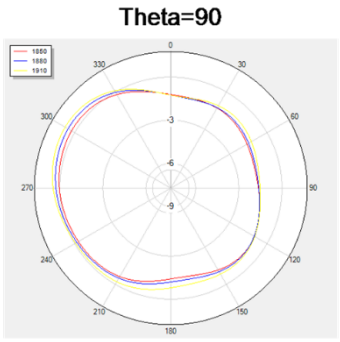
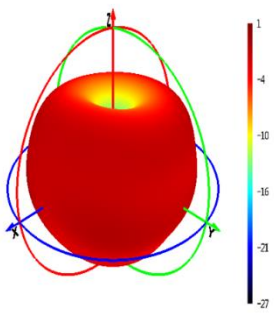
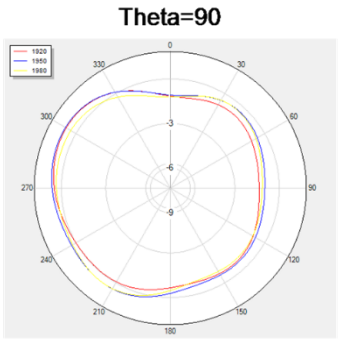
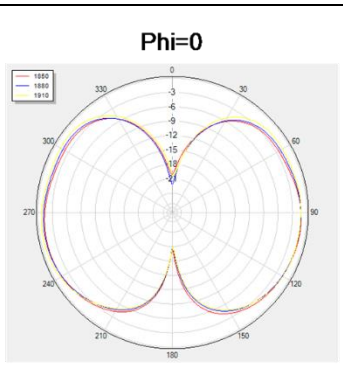
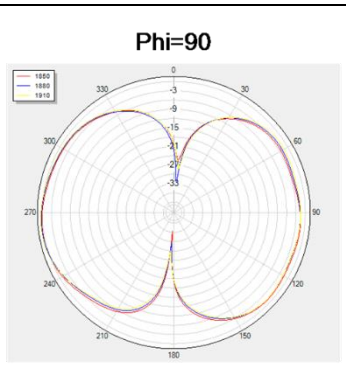
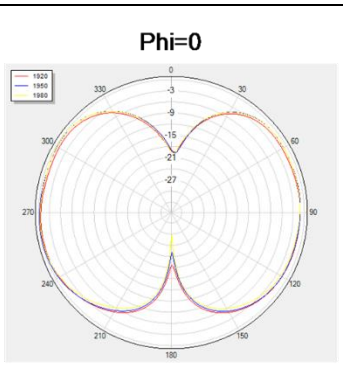
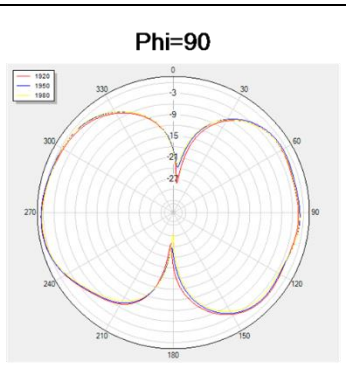
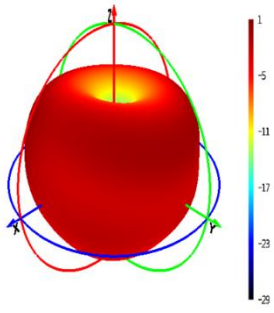
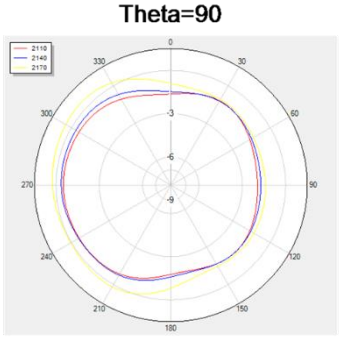
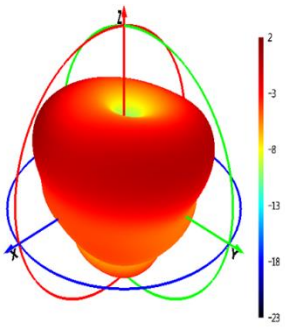
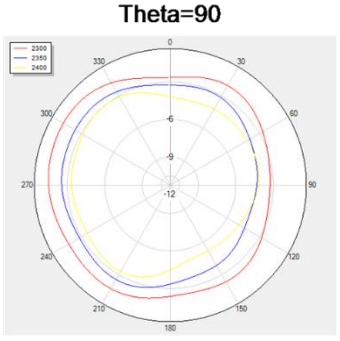
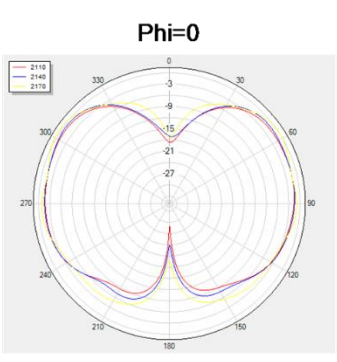
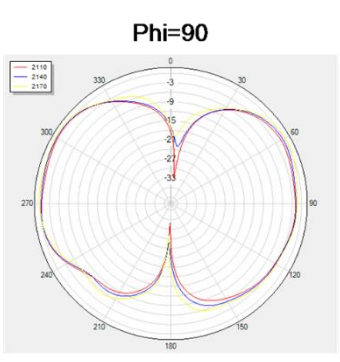
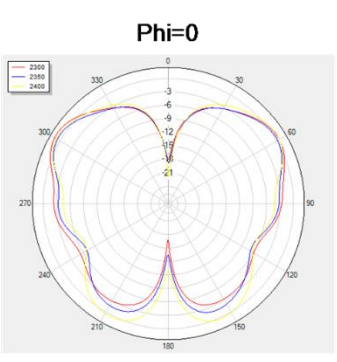
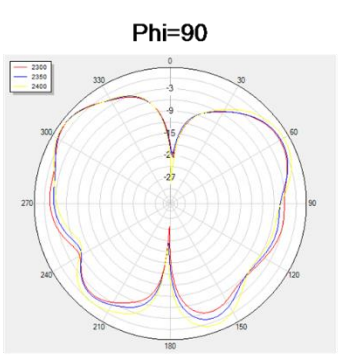
3.2.4. 3D & 2D Radiation Pattern

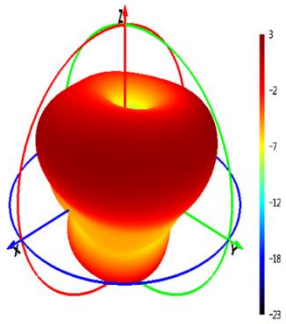
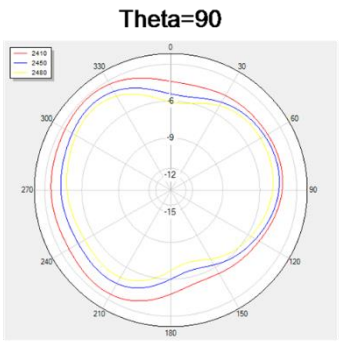
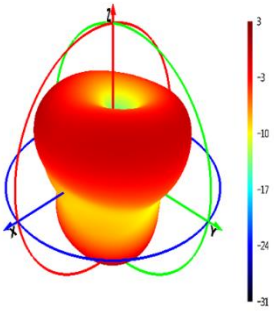
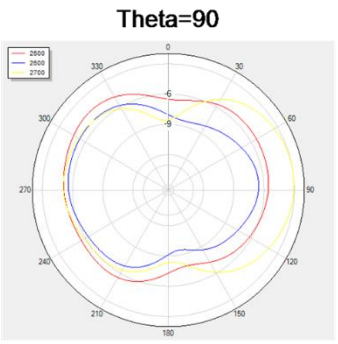
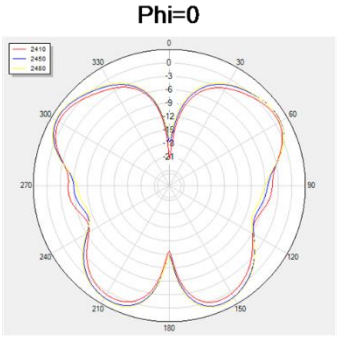
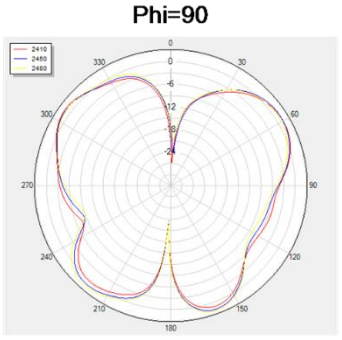
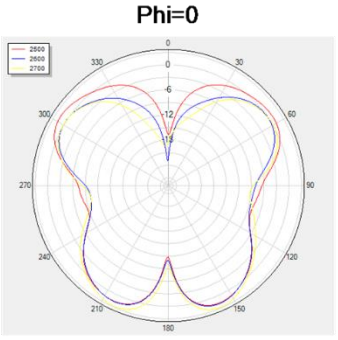
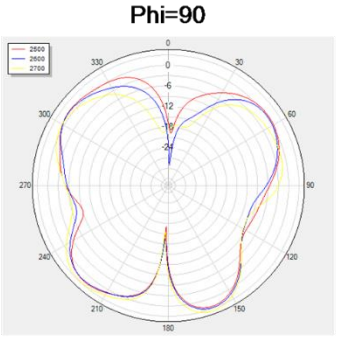
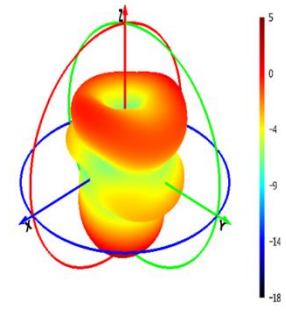
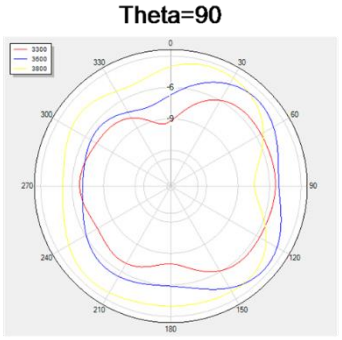
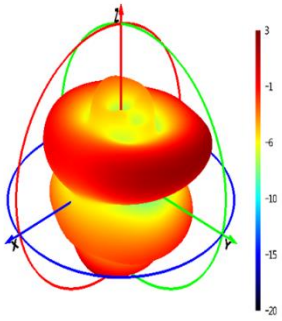
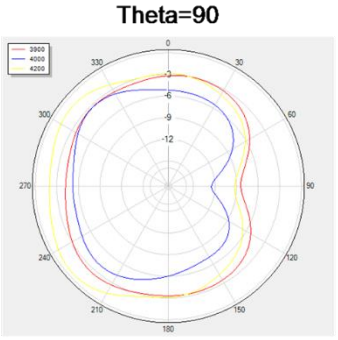
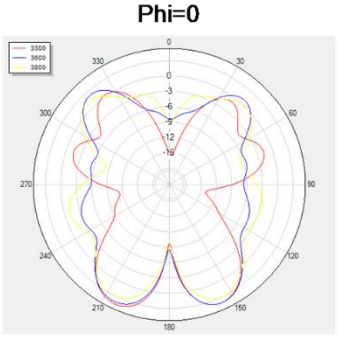
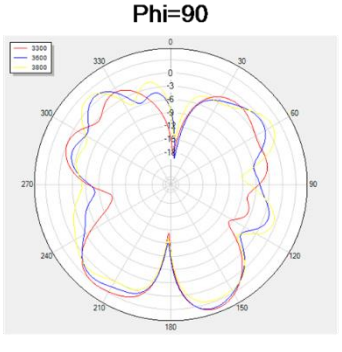
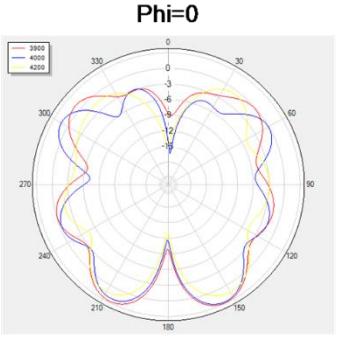
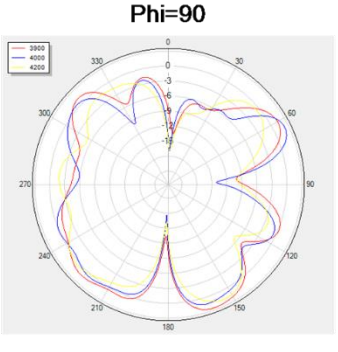
3.2.4.1. Test Condition: Free Space

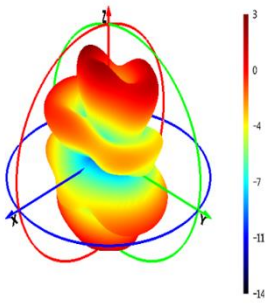
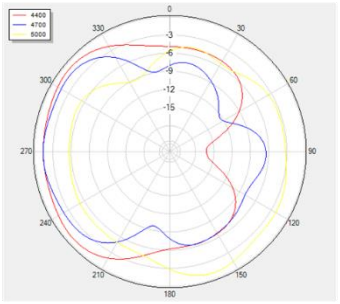
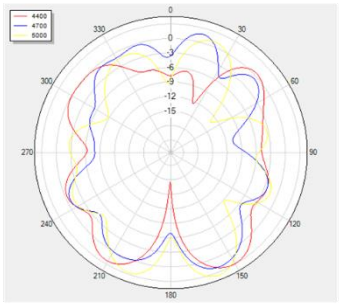
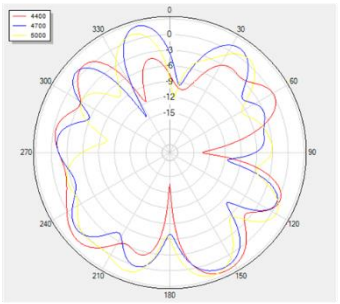
- Test Chamber: GL-S-1



710 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

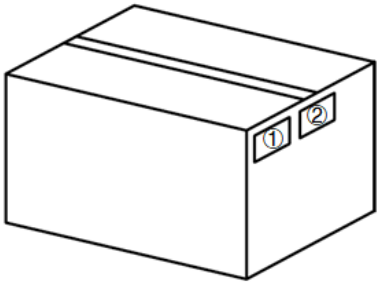
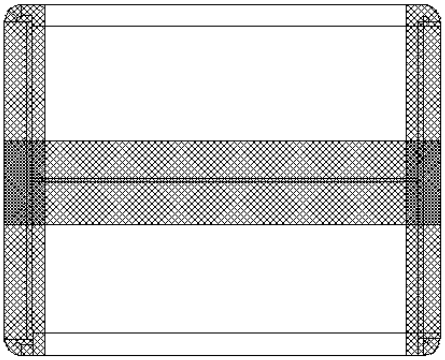
1880 MHz		1950 MHz	
			
			
2140 MHz		2350 MHz	
			
			

2450 MHz		2600 MHz	
			
			
3600 MHz		4000 MHz	
			
			

4700 MHz	
	Theta=90 
Phi=0 	Phi=90 

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 pc antenna product in a PE bag; (1 pc antenna per PE bag)
2		(50 pcs antennas per carton box) Carton Size: L × W × H = 360 × 350 × 240 mm
3		Top the product with pearl cotton

4		**Position for Attaching Labels** ① Carton Label ② Quality Label
5		**Sealing Cartons** "工" type sealing cartons

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
-	2021-08-19	Mordecai LIU/ Jason LONG	Creation of the document
1.0	2021-08-19	Mordecai LIU/ Jason LONG	First official release
1.1	2021-12-06	Mordecai LIU/ Jason LONG	Updated the product description (Chapter 1).
1.2	2022-05-11	Aria CHU	Added Chapter 6.
1.3	2023-03-27	Jason LONG	Updated the drawing (Chapter 5).
2.0	2023-04-27	Damon ZHANG/ Lucky FENG/ David LIU/ Aria CHU	Updated all data and datasheet template.

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