



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

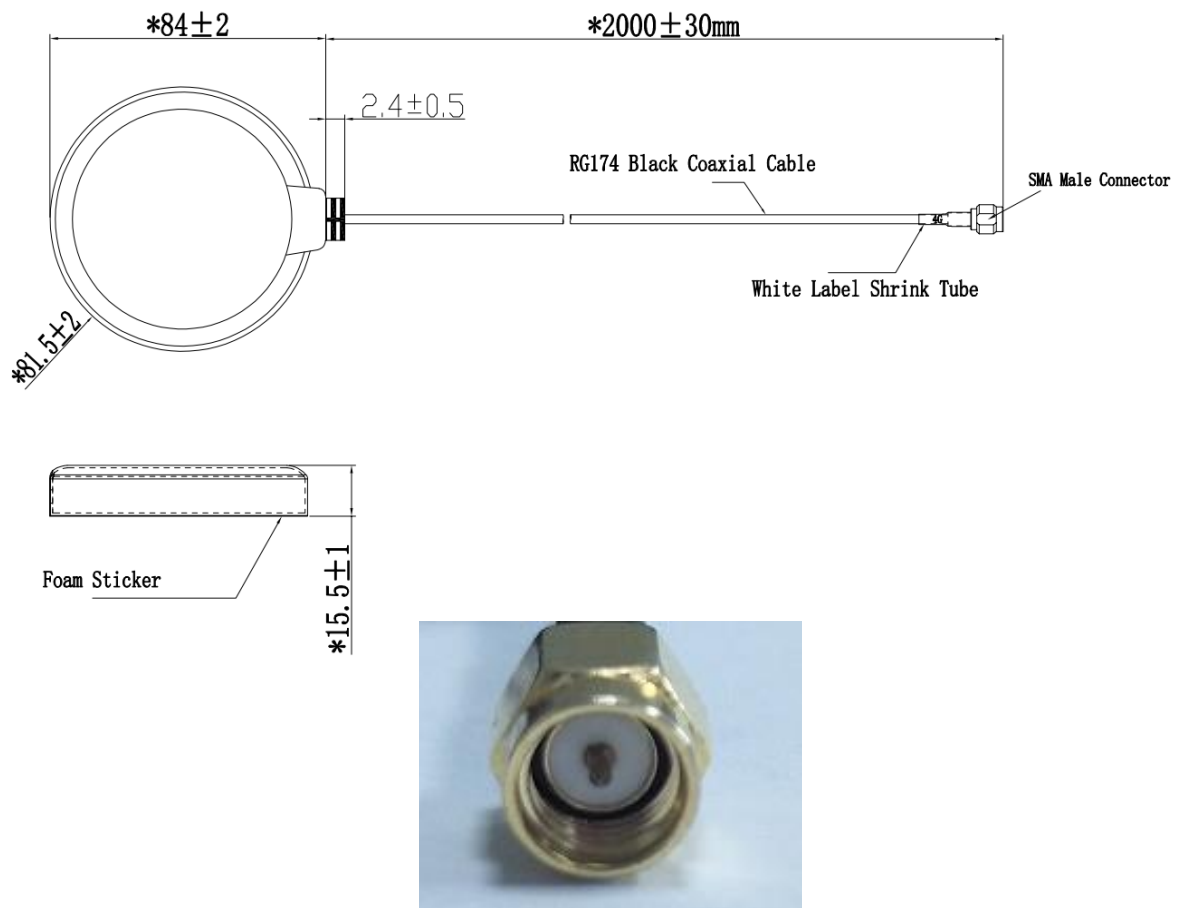
Electrical	
Frequency Range	698–2700 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

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

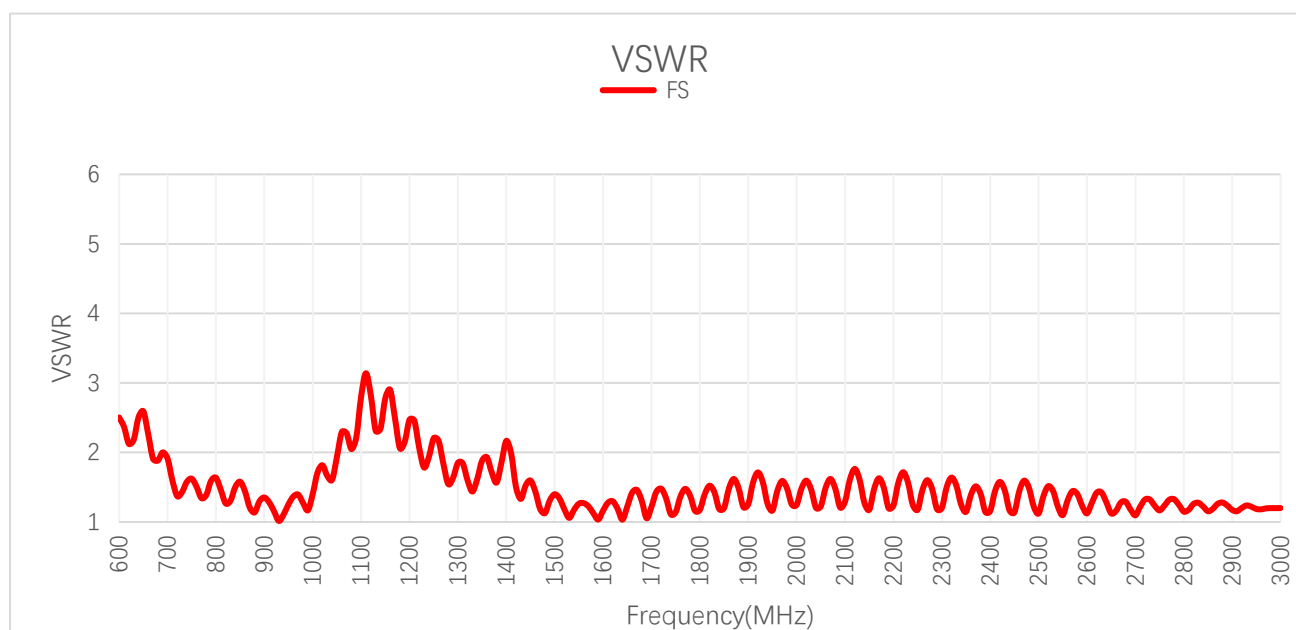
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

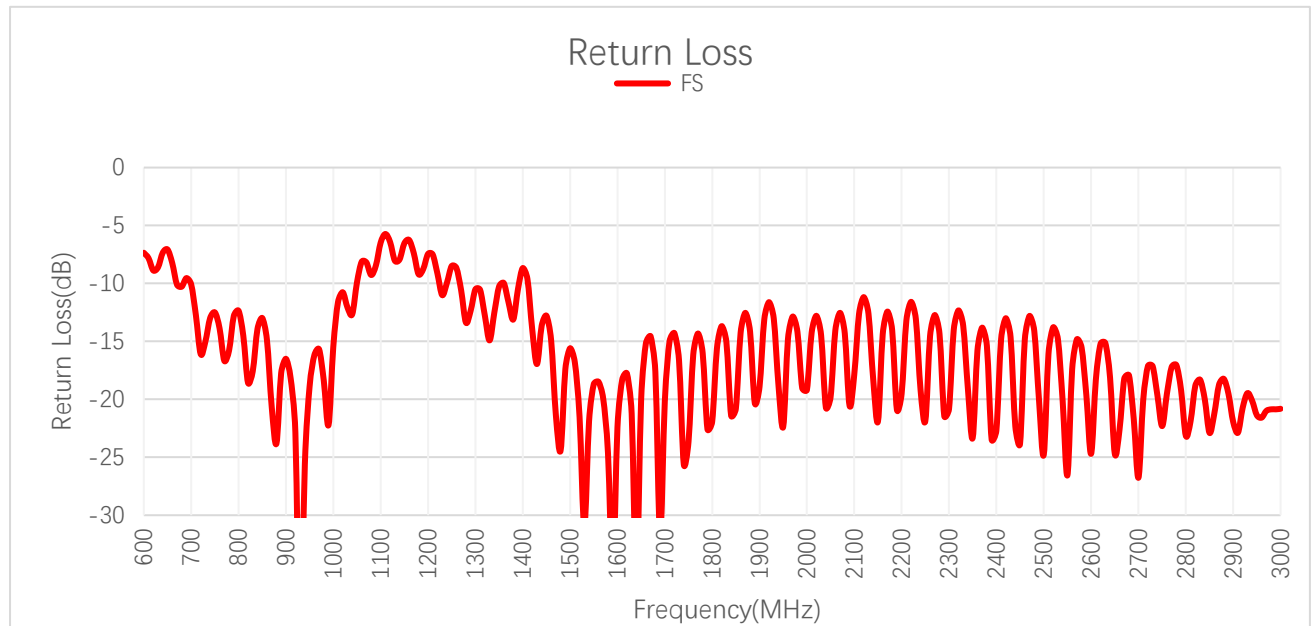
3.1.1. VSWR



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

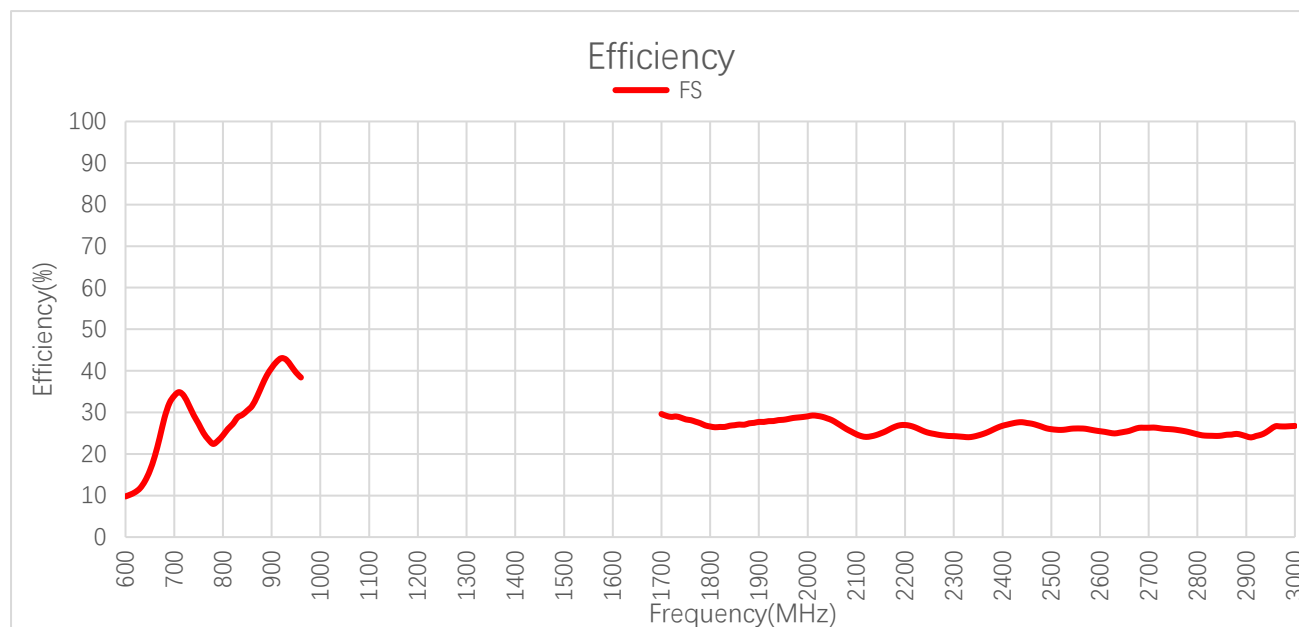


Return Loss (dB)

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	-	-	-	-

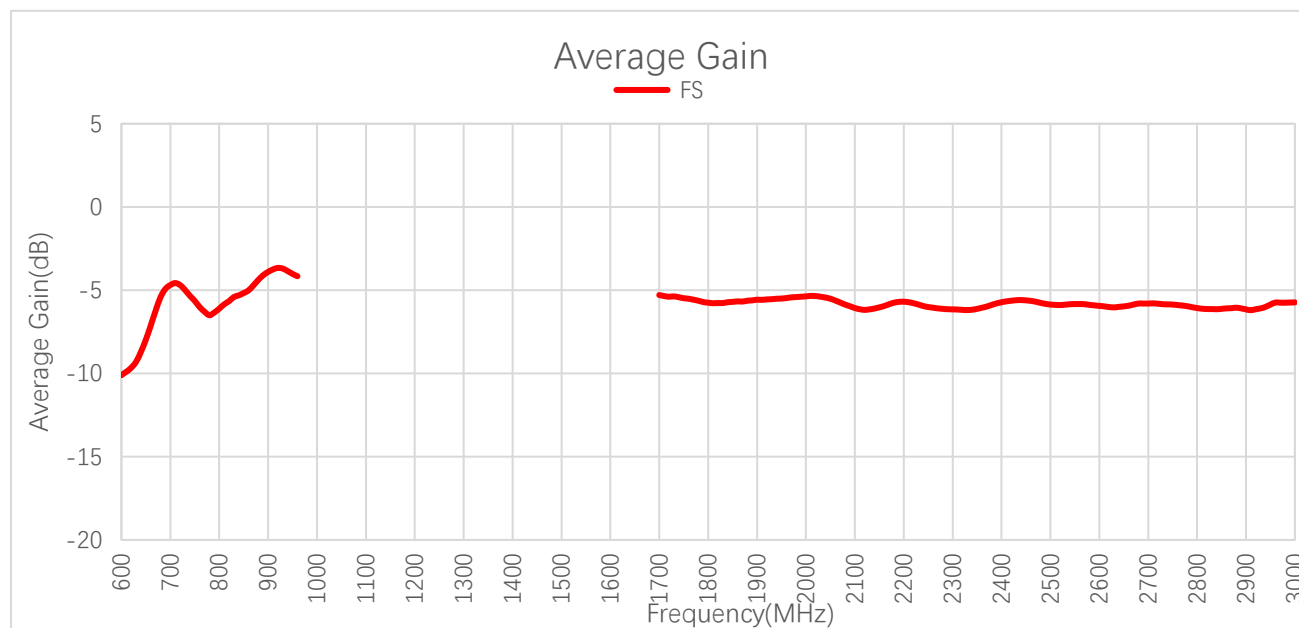
3.2. Radiation Performance Test

3.2.1. Efficiency



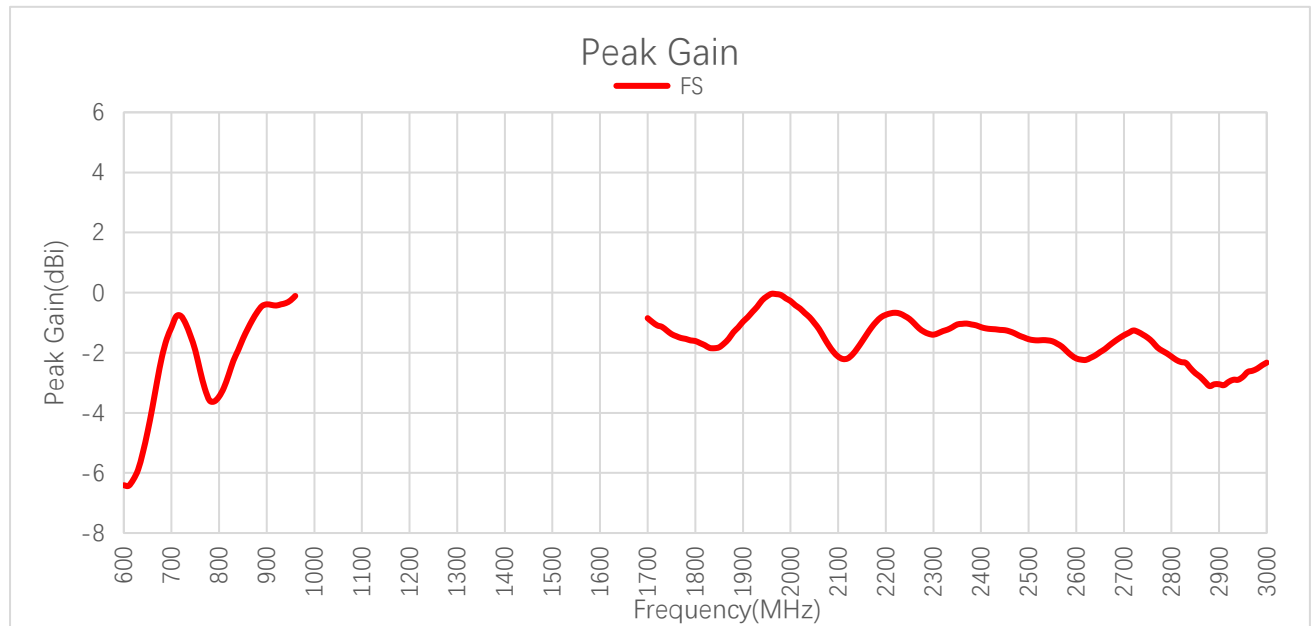
Efficiency (%)										
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	-	-	34.9	28.8	40.7	38.4	-	29.2	28.7	27.4
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Efficiency (%)	28.2	24.5	24.5	27.5	25.5	26.3	-	-	-	-

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



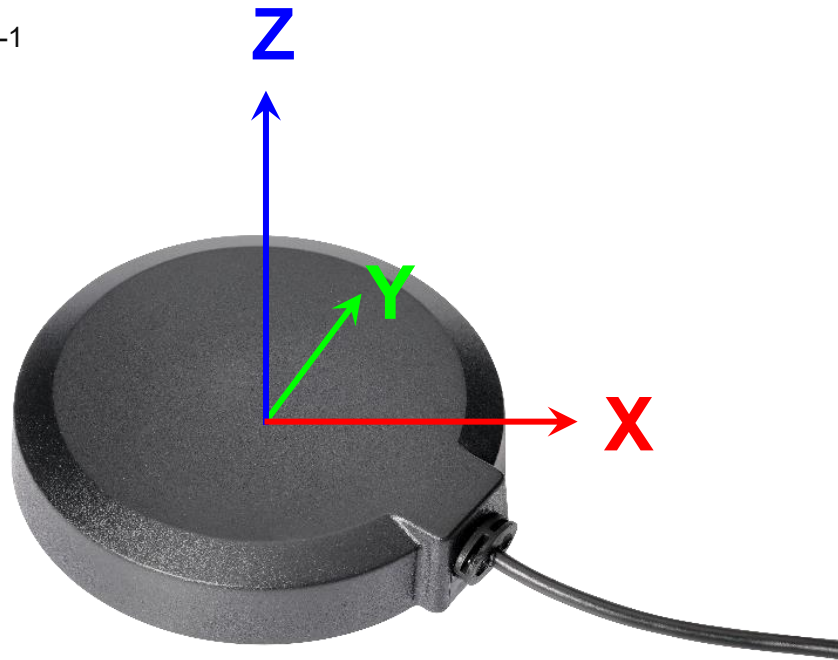
Peak Gain (dBi)

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	-	-	-	-

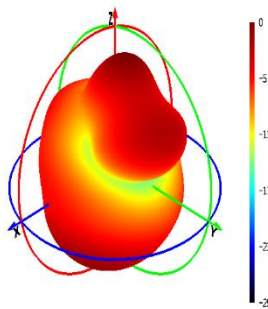
3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Condition: Free Space

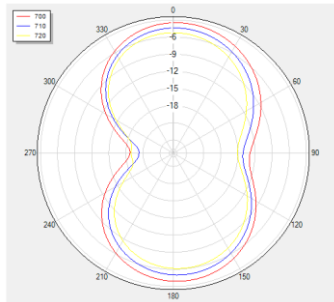
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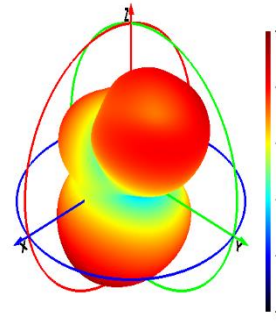
710 MHz



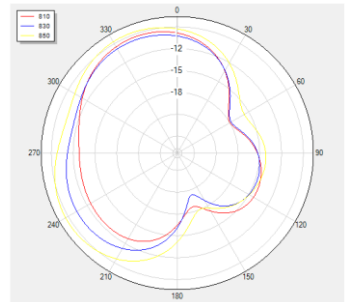
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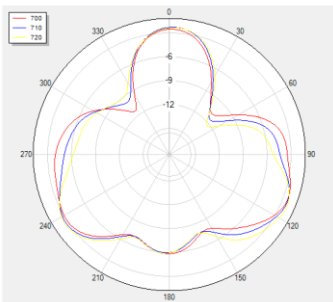
830 MHz



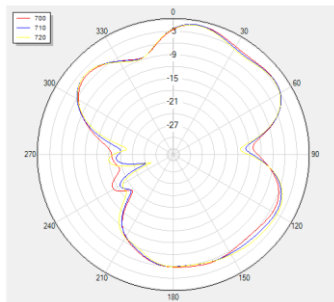
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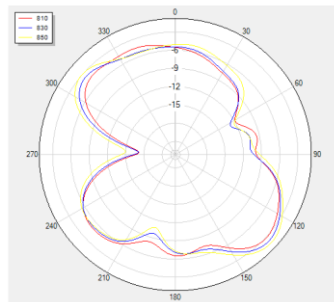
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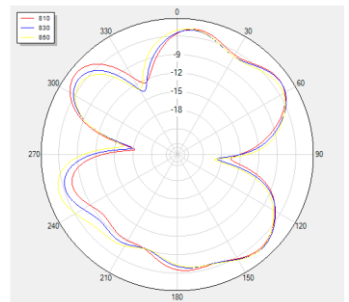
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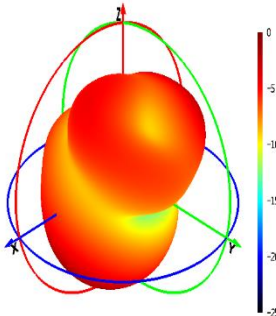
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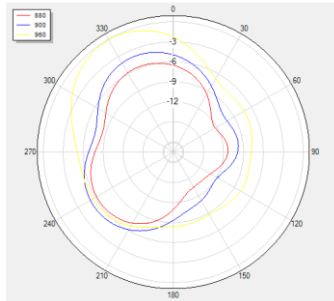
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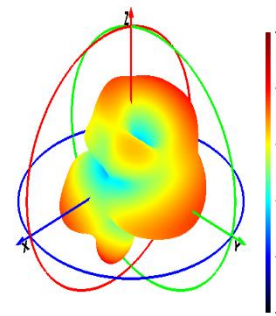
900 MHz



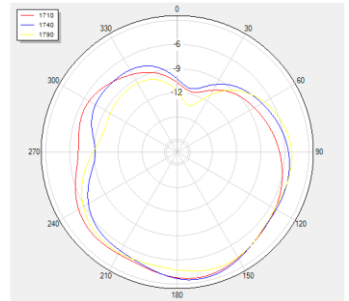
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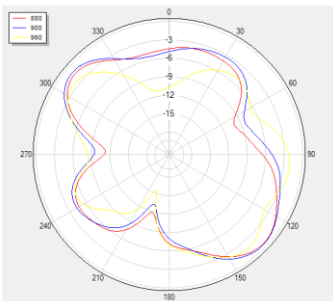
1740 MHz



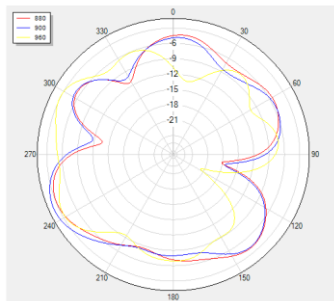
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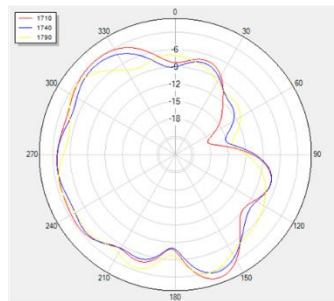
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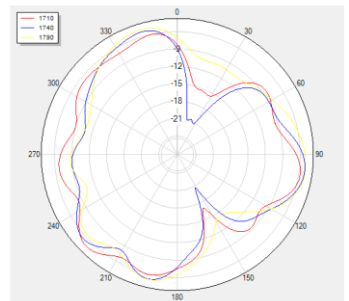
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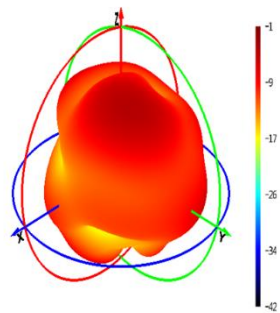
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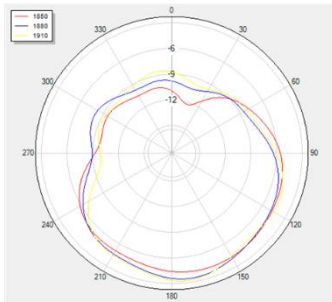
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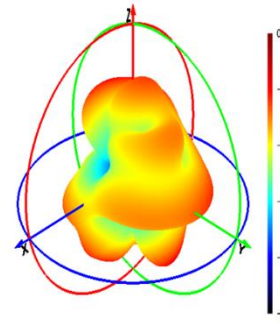
1880 MHz



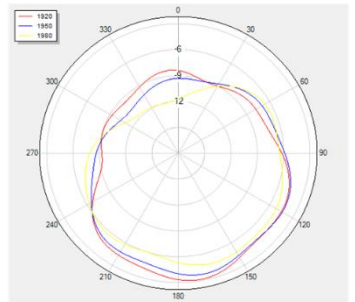
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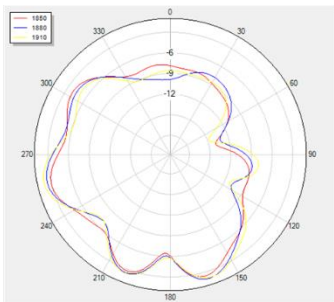
1950 MHz



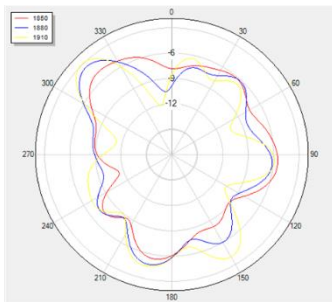
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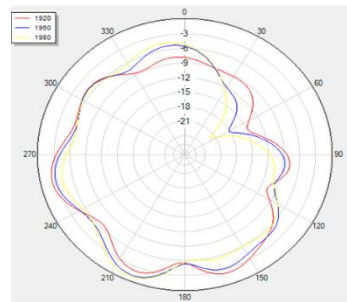
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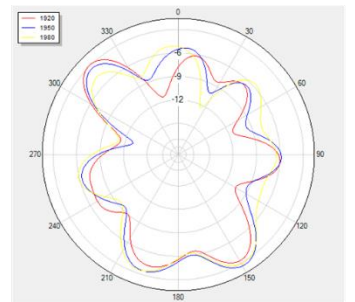
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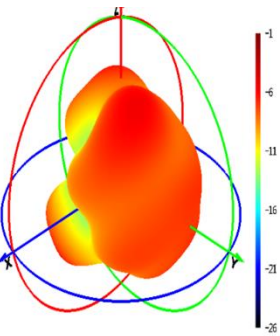
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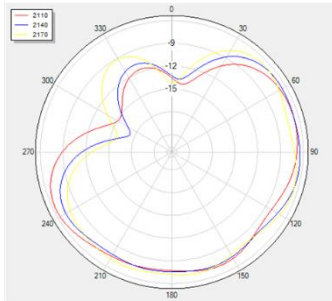
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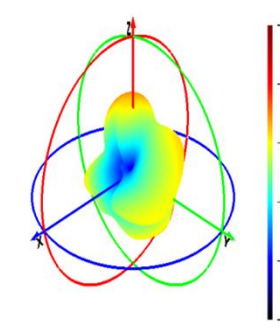
2140 MHz



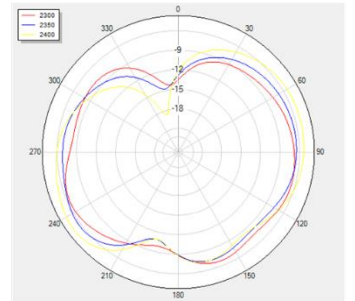
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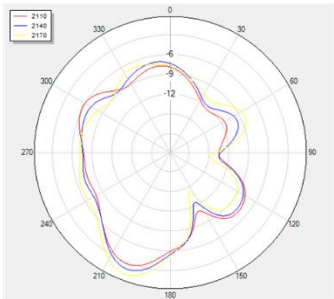
2350 MHz



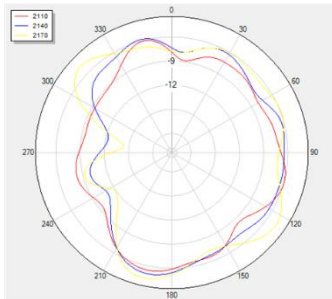
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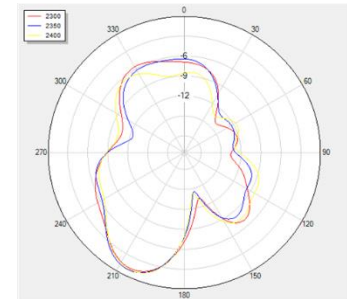
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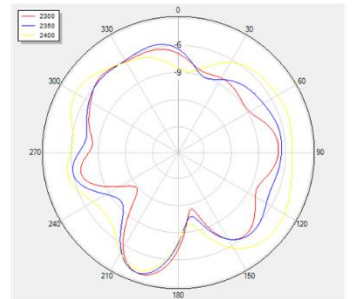
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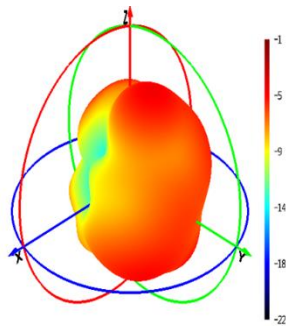
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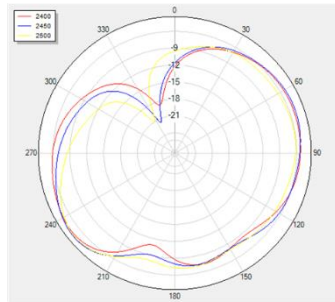
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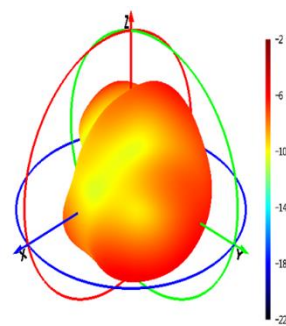
2450 MHz



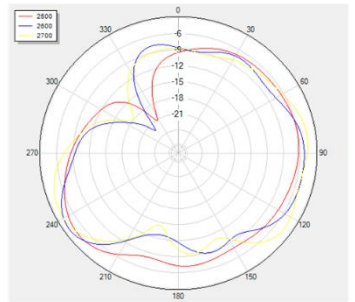
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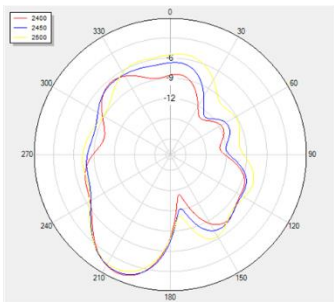
2600 MHz



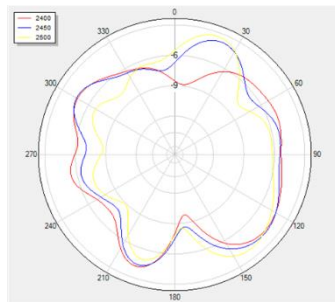
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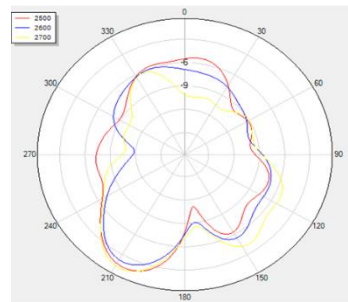
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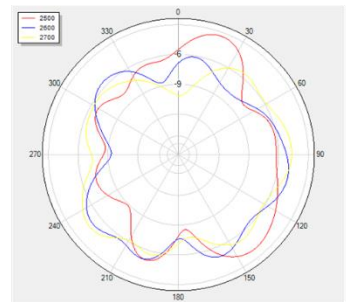
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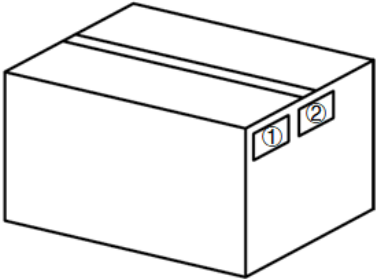
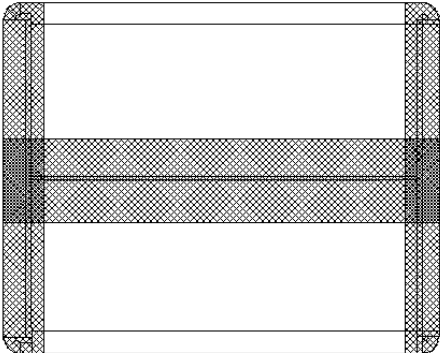


Phi=90



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

3		(8 pcs PE bags per carton box) (200 pcs antennas per carton box) <u>Carton Size:</u> <u>L × W × H = 370 × 370 × 295 mm</u>
4		Position for Attaching Labels ① Carton Label ② Quality Label
5		Sealing Cartons “I” 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:

Quectel Wireless Solutions Co., Ltd.

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

Tel: +86 21 5108 6236

Email: info@quectel.com

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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