



# Antenna Datasheet

**Product OC:** YE0010AA

**Version:** 2.1

**Date:** 2023-01-15

**Status:** Released

**Product Name:** 4G External Antenna

**Key Features:**

Frequency Band: 698–2700 MHz

Dimensions: 152 mm × 18 mm × 11.1 mm

Efficiency: Up to 79.5 %

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

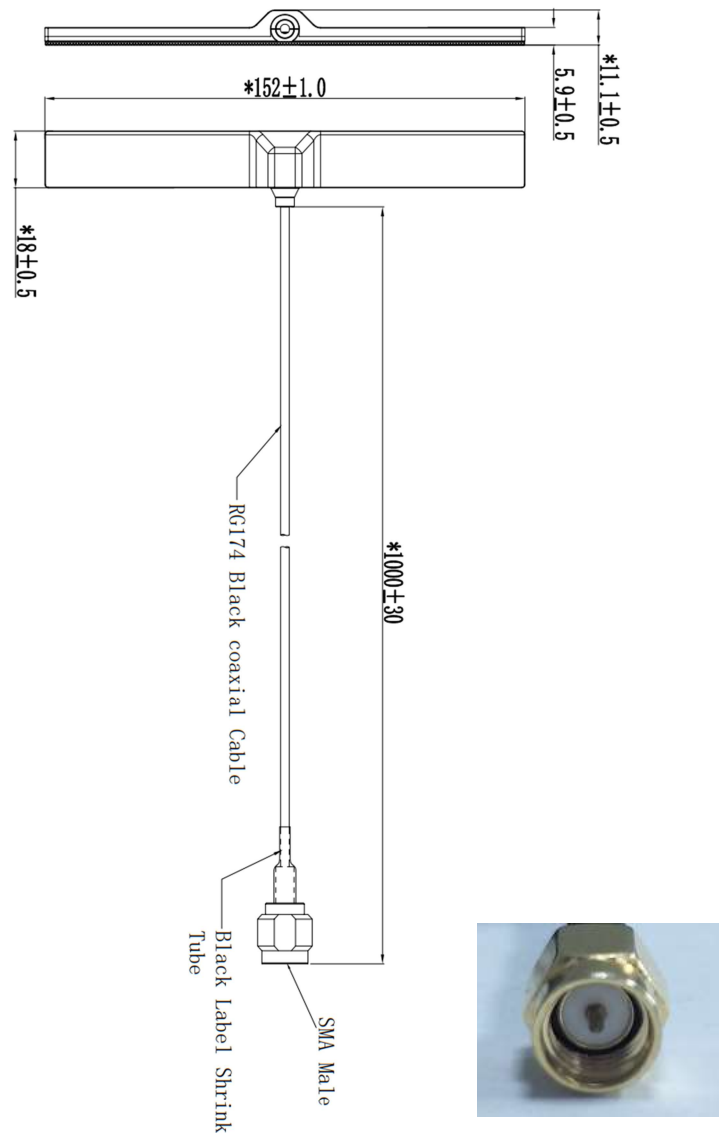
Electrical	
Frequency Range	698–2700 MHz
Impedance	50 $\Omega$
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical - Detail													
SPEC	Band	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		3.9	2.1	2.6	-	2.5	2.2	1.8	1.6	-	-	-	
Max. Return Loss(dB)		-4.5	-8.8	-7.0	-	-7.4	-8.3	-10.5	-12.5	-	-	-	
AVG Eff. (%)		50.1	70.3	41.0	-	48.9	44.0	49.3	50.5	-	-	-	
AVG Gain (dB)		-3.1	-1.5	-4.0	-	-3.1	-3.6	-3.1	-3.0	-	-	-	
Max. Peak Gain (dBi)		2.2	2.0	1.5	-	2.4	1.5	2.1	2.7	-	-	-	
VSWR		≤ 3.9											
Return Loss		≤ -4.5 dB											
Peak Gain		≤ 2.7 dBi											

## 1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	152 mm × 18 mm × 11.1 mm
Material & Color	PC + ABS & Black
Cable Type & Color & Length	RG174 & Black & 1000 mm
Connector Type	SMA Male
Mounting Type	Adhesive
Weight	Typ. 29.8 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP66
RoHS Compliant	Yes

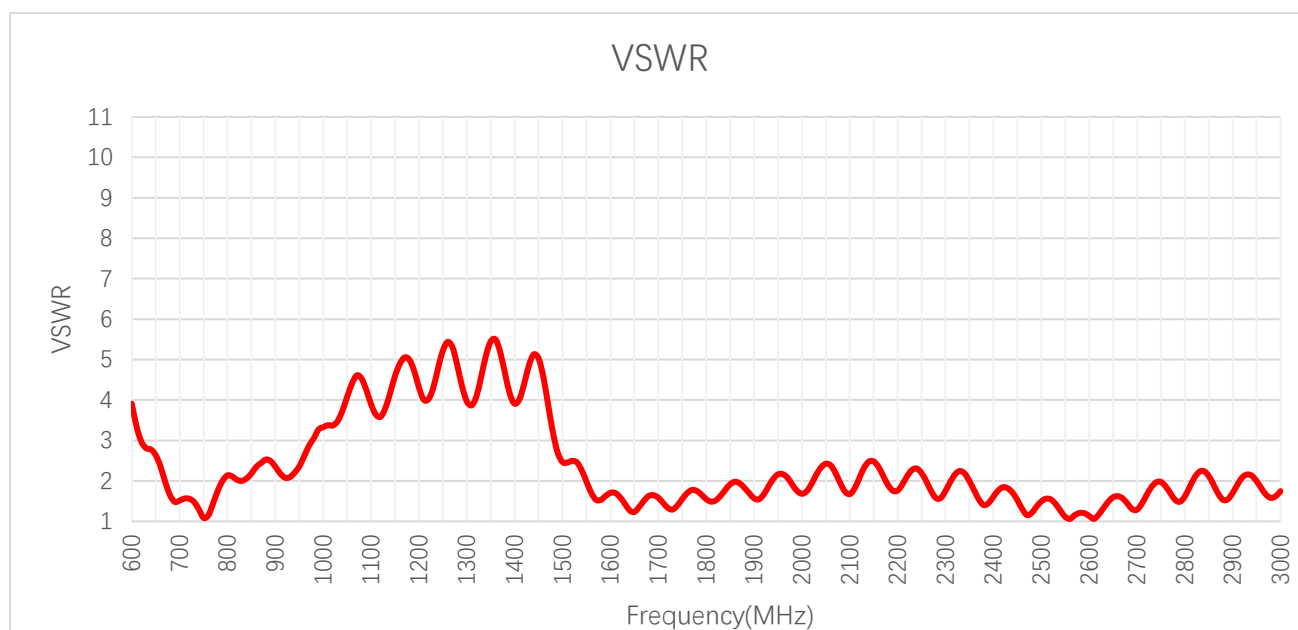
## 2 Drawing



# 3 Detailed Performance

## 3.1. S-Parameter Test

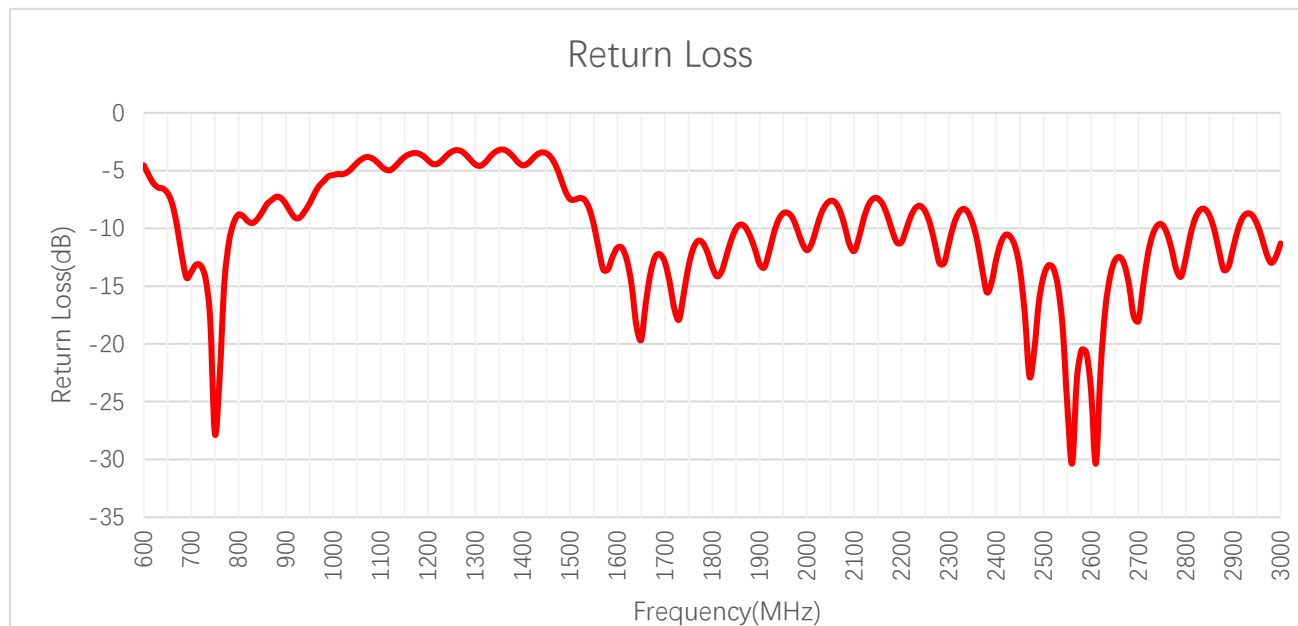
### 3.1.1. VSWR



**VSWR**

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	3.9	2.8	1.6	2.0	2.4	2.6	-	1.5	1.4	1.8
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
VSWR	2.2	2.5	2.0	1.5	1.1	1.3	-	-	-	-

### 3.1.2. Return Loss



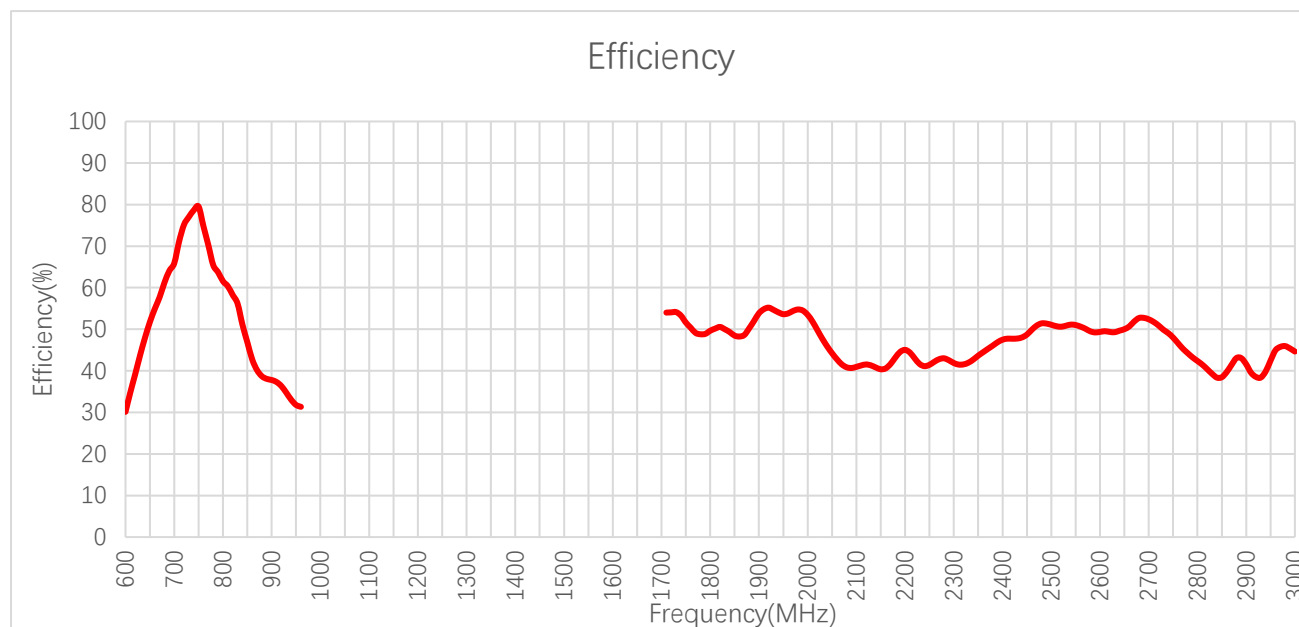
**Return Loss (dB)**

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-4.5	-6.5	-13.2	-9.5	-7.9	-7.0	-	-14.6	-15.7	-10.7
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Return Loss (dB)	-8.7	-7.4	-9.6	-13.6	-24.0	-17.6	-	-	-	-



## 3.2. Radiation Performance Test

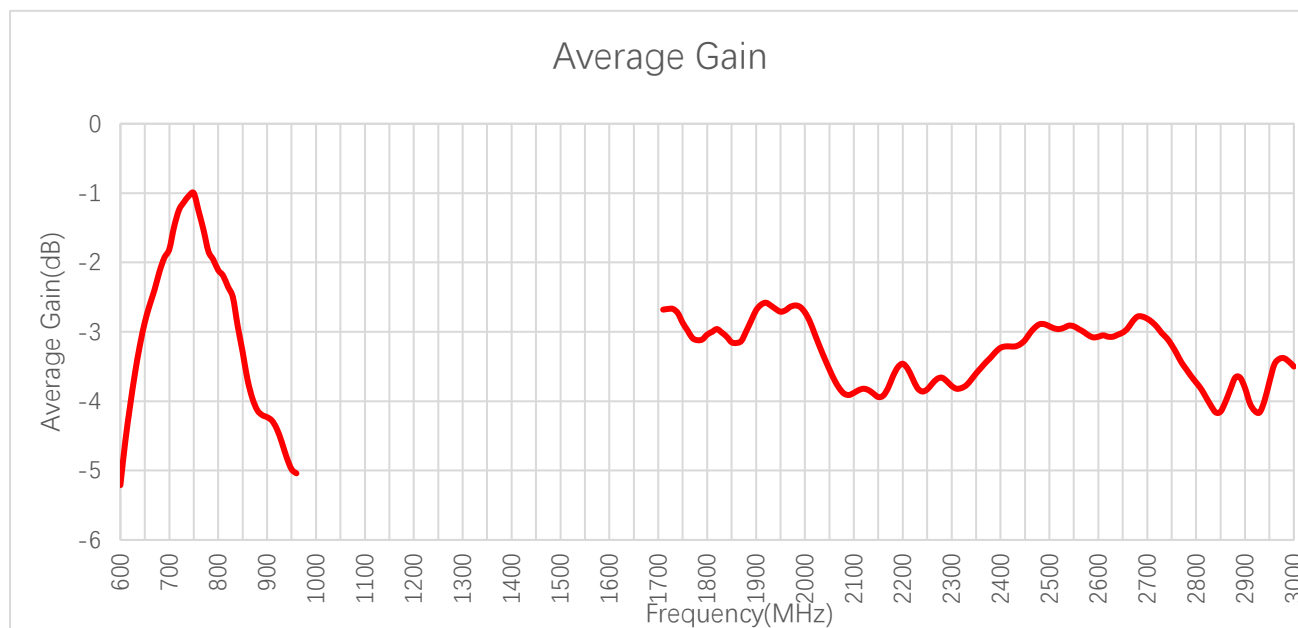
### 3.2.1. Efficiency



**Efficiency (%)**

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	30.1	43.8	71.1	56.2	37.8	31.3	-	54.0	53.3	50.2
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Efficiency (%)	53.6	40.8	43.7	48.7	49.4	52.7	-	-	-	-

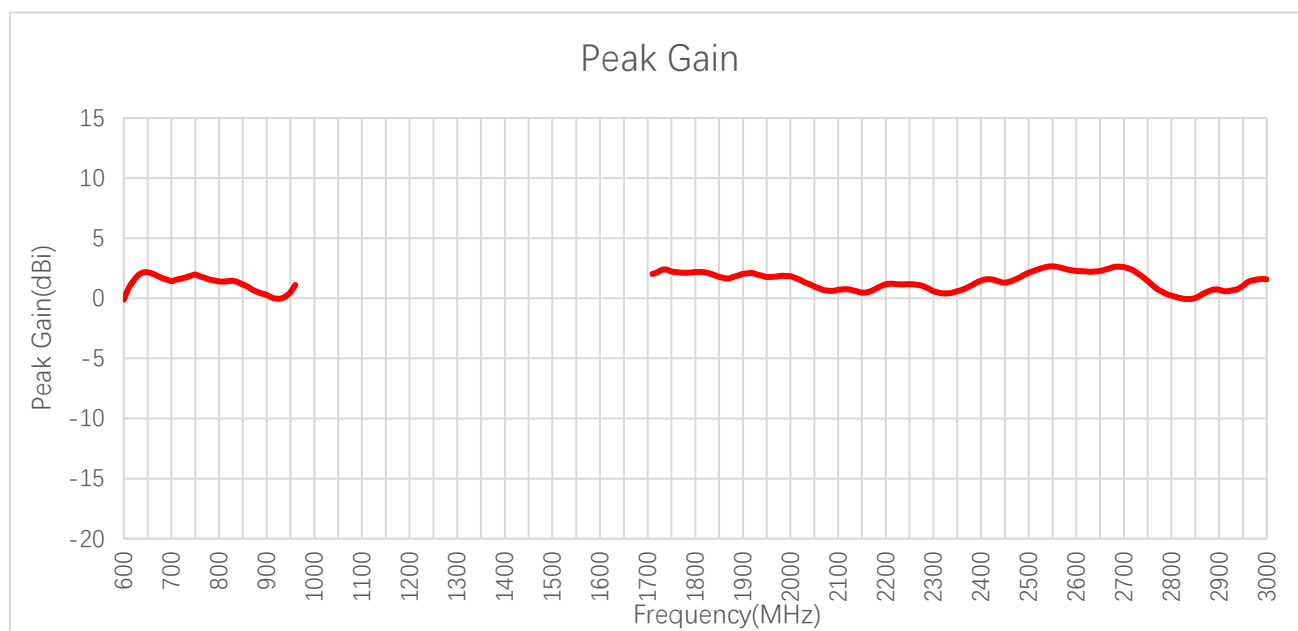
### 3.2.2. Average Gain



**Average Gain (dB)**

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-5.2	-3.6	-1.5	-2.5	-4.2	-5.0	-	-2.7	-2.7	-3.0
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Average Gain (dB)	-2.7	-3.9	-3.6	-3.1	-3.1	-2.8	-	-	-	-

### 3.2.3. Peak Gain



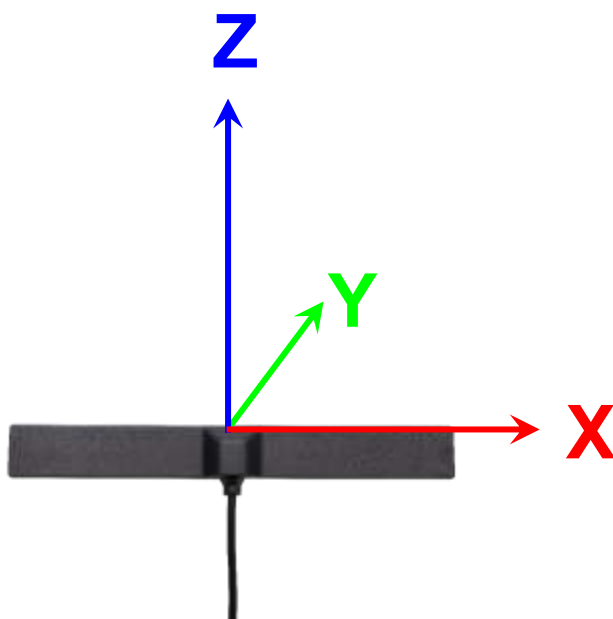
**Peak Gain (dBi)**

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	-0.1	1.9	1.5	1.5	0.3	1.1	-	2.0	2.4	1.8
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Peak Gain (dBi)	1.8	0.6	0.6	1.3	2.3	2.6	-	-	-	-

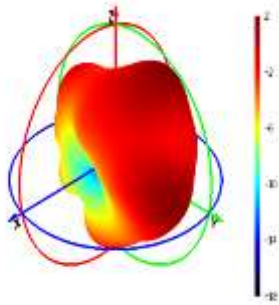
### 3.2.4. 3D & 2D Radiation Pattern

#### 3.2.4.1. Test Condition: Free Space

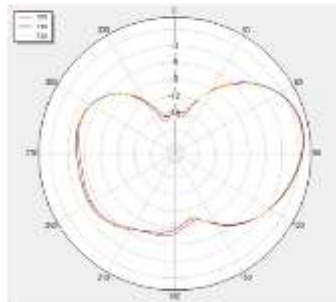
Test Chamber: GL-S-1



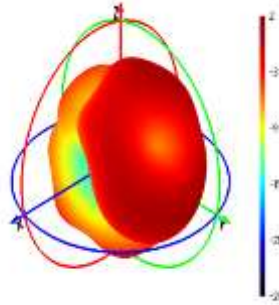
710 MHz



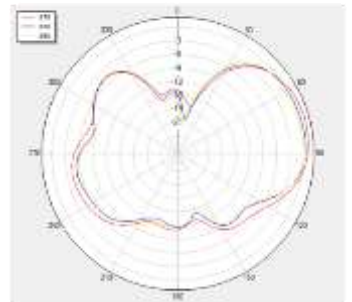
Theta=90



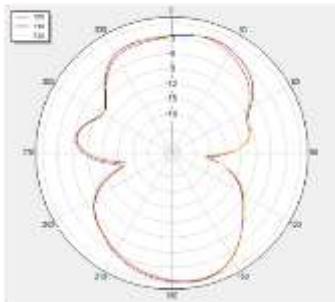
830 MHz



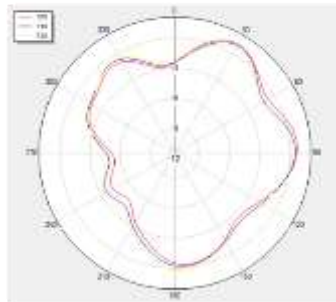
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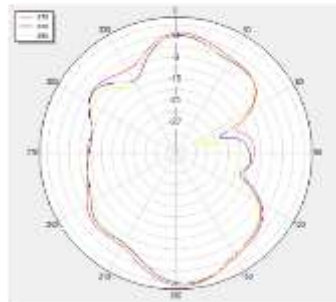
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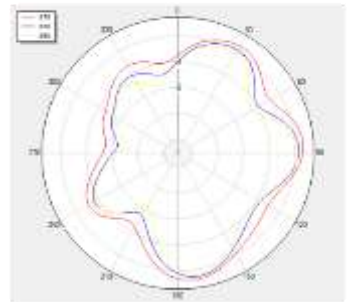
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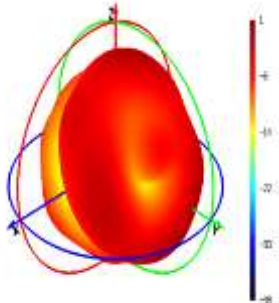
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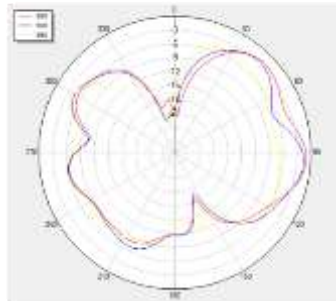
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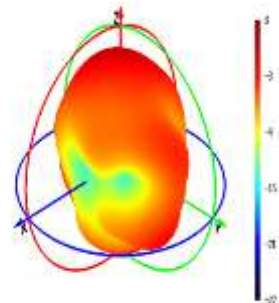
900 MHz



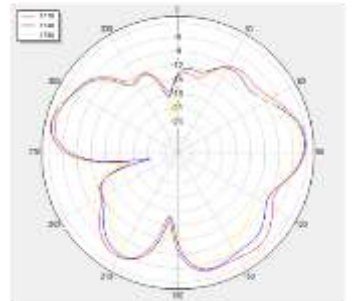
Theta=90



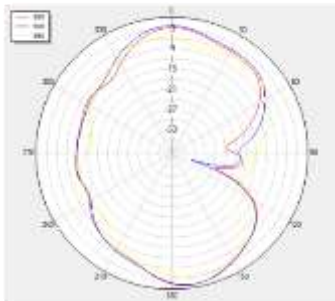
1740 MHz



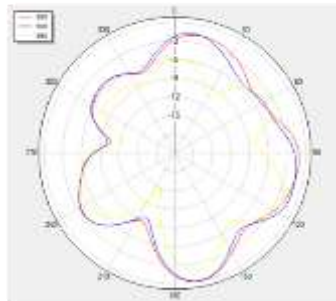
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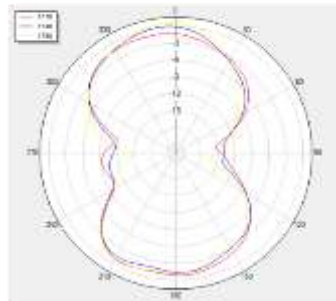
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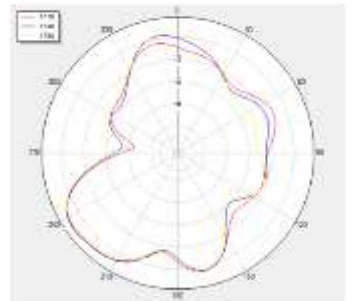
Phi=90

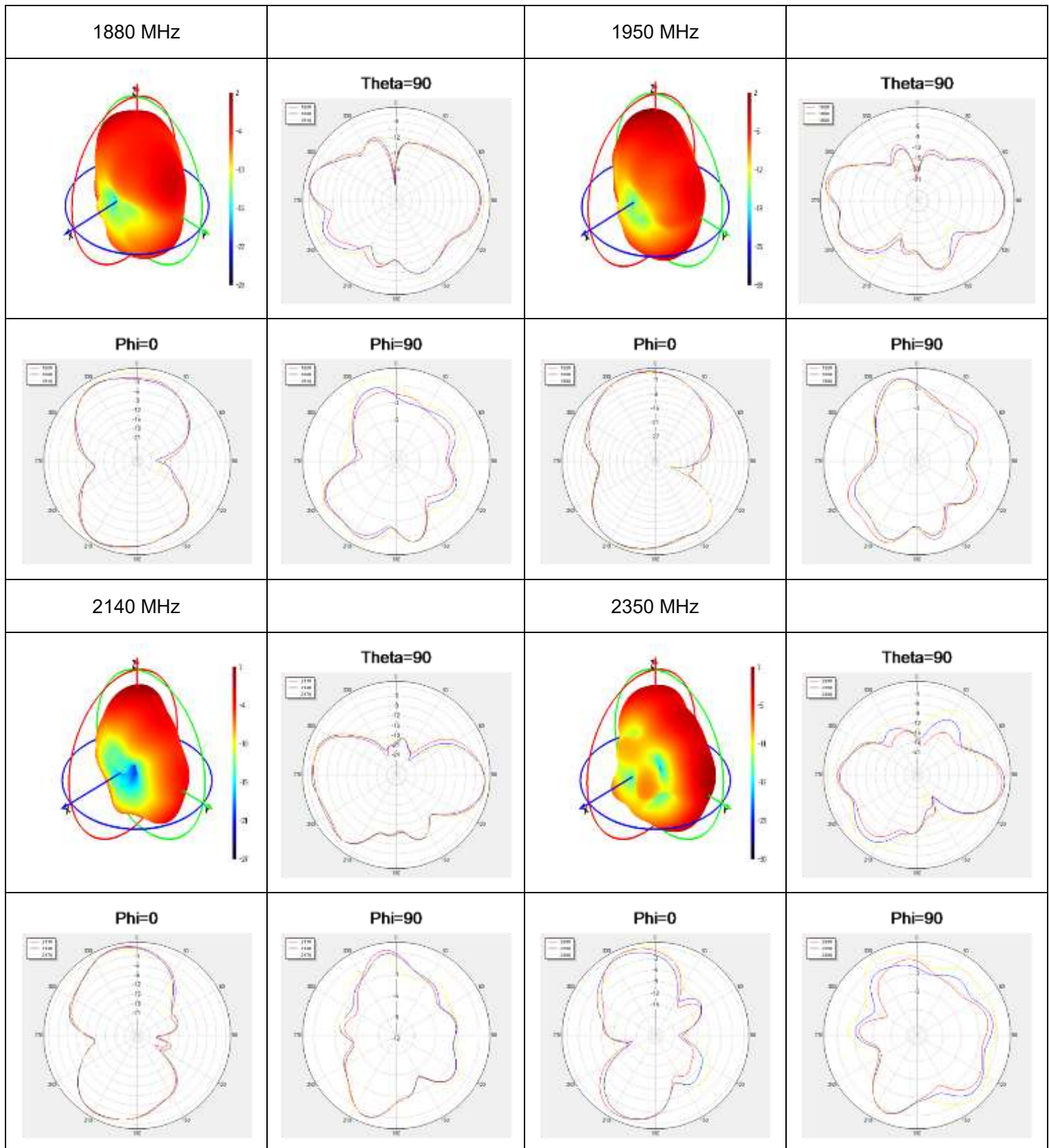


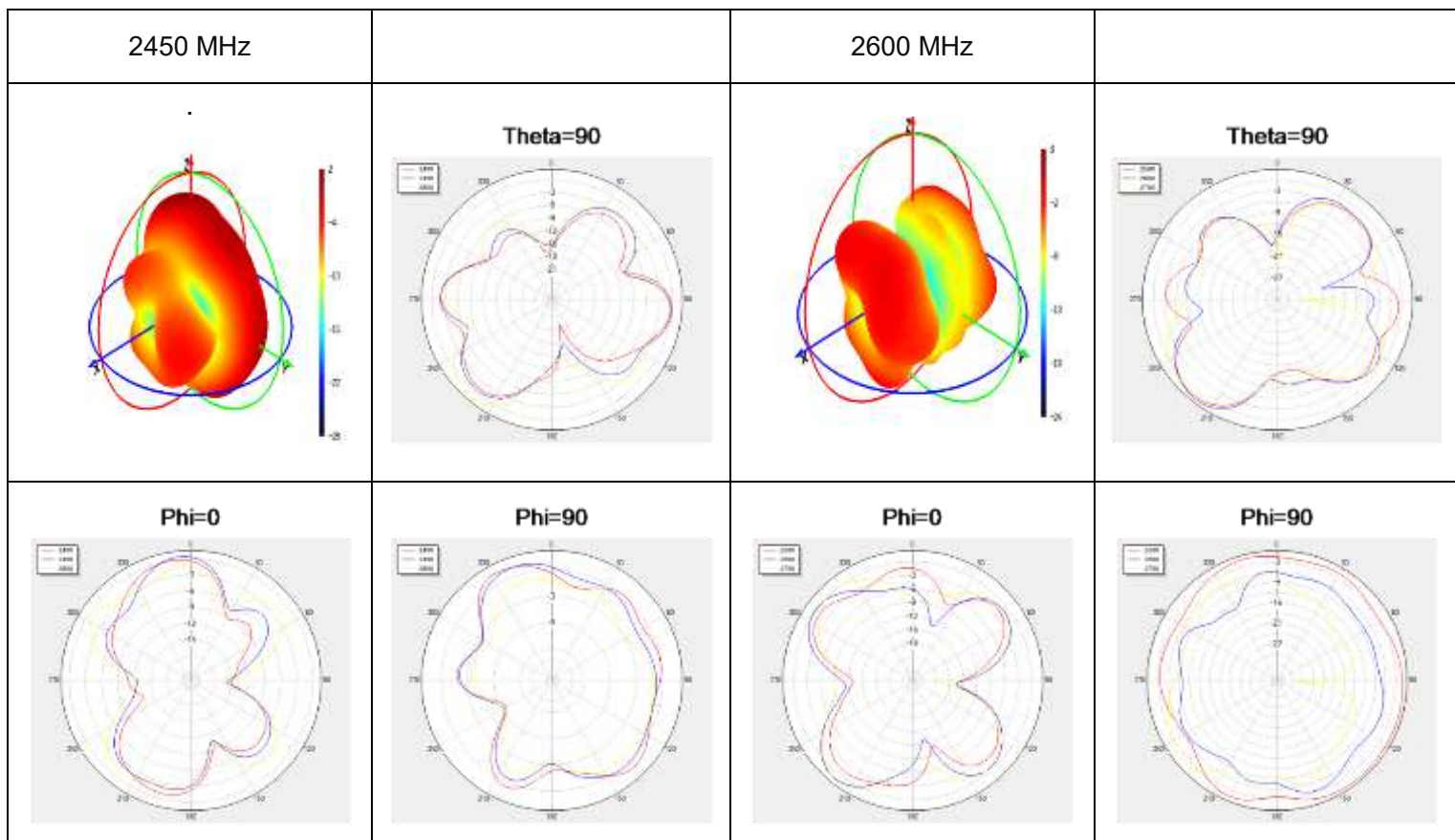
Phi=0



Phi=90





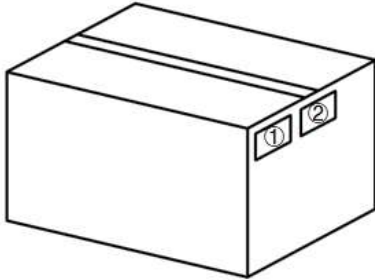
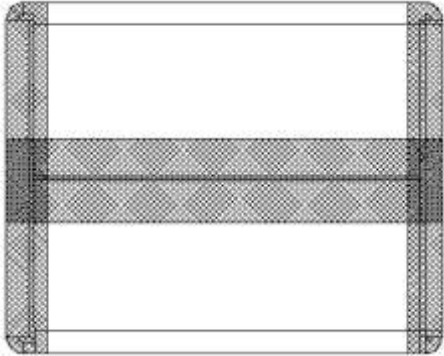




## 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 pc antenna product in a PE bag
2		20 pcs antenna products in a big PE bag.
3		<p>(8 PCS PE Bags / Carton Box) (160 PCS Antennas / Carton Box)</p> <p><u>Carton Size:</u> <u>L × W × H = 405 × 293 × 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>“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:

**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](mailto:info@quectel.com)

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# Revision History

Version	Date	Author	Note
1.0	2020-06-04	Kenny YIN	Initial
1.1	2020-12-11	Kenny YIN	Updated the antenna image (Chapter 2).
1.2	2021-01-27	Kenny YIN	Added IP rating description and installation method.
1.3	2021-07-25	Kenny YIN	<ol style="list-style-type: none"> <li>Updated working temperature (Chapter 3).</li> <li>Added detailed passive electrical specifications (Chapter 3).</li> </ol>
1.4	2021-12-01	Kenny YIN	Updated the product description (Chapter 1).
2.0	2023-05-11	Mikael ZHONG/ Lucky FENG/ David LIU/ Aria CHU	Updated all data and datasheet template.
2.1	2024-01-15	Lucky FENG	<ol style="list-style-type: none"> <li>Updated the antenna size and added storage temperature (Chapter 1.2).</li> <li>Updated the drawing (Chapter 2).</li> </ol>



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