Antenna Datasheet

Product OC: YE0011BA
Version: 2.0
Date: 2023-04-27
Status: Released

Product Name: 4G External Antenna
Key Features:
Frequency Band: 700–960 MHz, 1710–2170 MHz
Dimensions: Φ 10.5 × 50 × 16.4 mm
Efficiency: Up to 79.95 %
RoHS Compliant
IP53

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.

Contents

1 Specification

Test Condition: On 130 × 130 mm EVB

1.1. Electrical

Electrical	
Frequency Range	700–960 MHz, 1710–2170 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

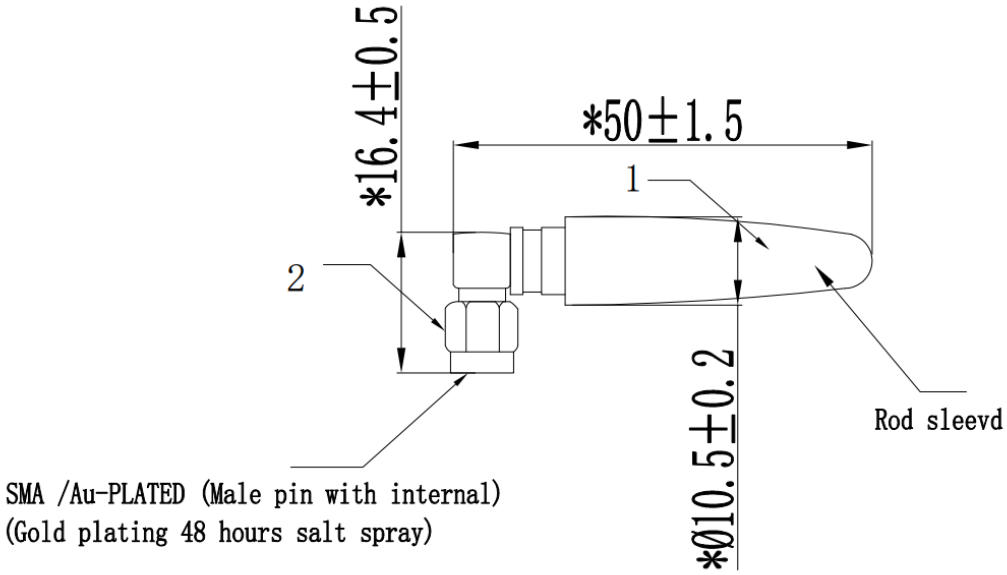
Electrical - Detail												
Band / SPEC	**Band**	**B71**	**B12 /B13 /B28**	**B5 /B8 /B26**	**N74 /N75 /N76**	**B1 /B2 /B3**	**B40**	**Wi-Fi 2G**	**B38 /B41**	**B42 /B48 /N77**	**N79**	**Wi-Fi 5G**
	Freq. (MHz)	**600–700**	**700–810**	**820–960**	**1420–1520**	**1700–2170**	**2300–2400**	**2400–2500**	**2500–2690**	**3300–4200**	**4400–5000**	**5150–5850**
Max. VSWR		-	3.5	9.3	-	3.1	-	-	-	-	-	-
Max. Return Loss (dB)		-	-5.1	-1.9	-	-5.7	-	-	-	-	-	-
AVG Eff. (%)		-	71.6	50.9	-	61.3	-	-	-	-	-	-
AVG Gain (dB)		-	-1.5	-3.1	-	-2.1	-	-	-	-	-	-
Max. Peak Gain (dBi)		-	2.7	2.6	-	1.5	-	-	-	-	-	-
VSWR		≤ 9.3										
Return Loss		≤ -1.9 dB										
Peak Gain		≤ 2.7 dBi										

1.2. Mechanical, Environmental & Storage

Mechanical	
Antenna Dimensions	Φ 10.5 × 50 × 16.4 mm
Casing Material & Color	TPEE & Black
Connector Type	SMA Male
Mounting Type	Terminal
Weight	Typ. 6 g
Environmental	
Operation Temperature	-40 °C to +85 °C
RoHS Compliant	Yes
IP Rating	IP53

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.

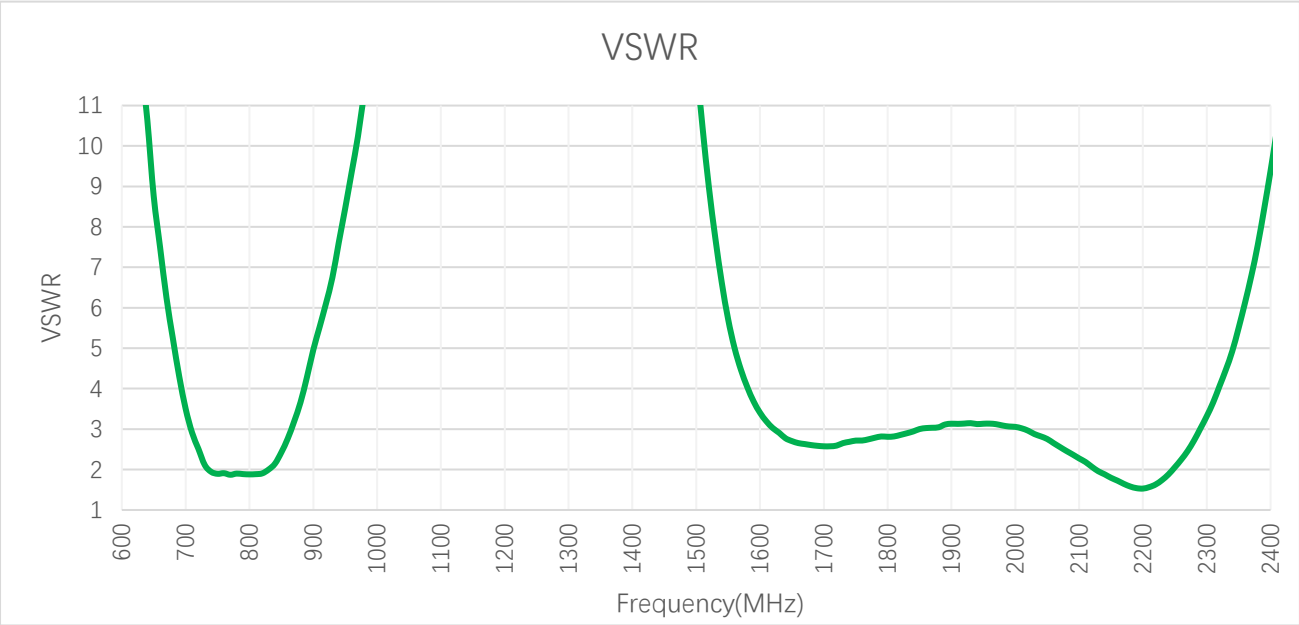
2 Drawing


*16.4±0.5
*50±1.5
1
2
*Ø10.5±0.2
Rod sleevd
SMA /Au-PLATED (Male pin with internal)
(Gold plating 48 hours salt spray)

3 Detailed Performance

3.1. S-Parameter Test

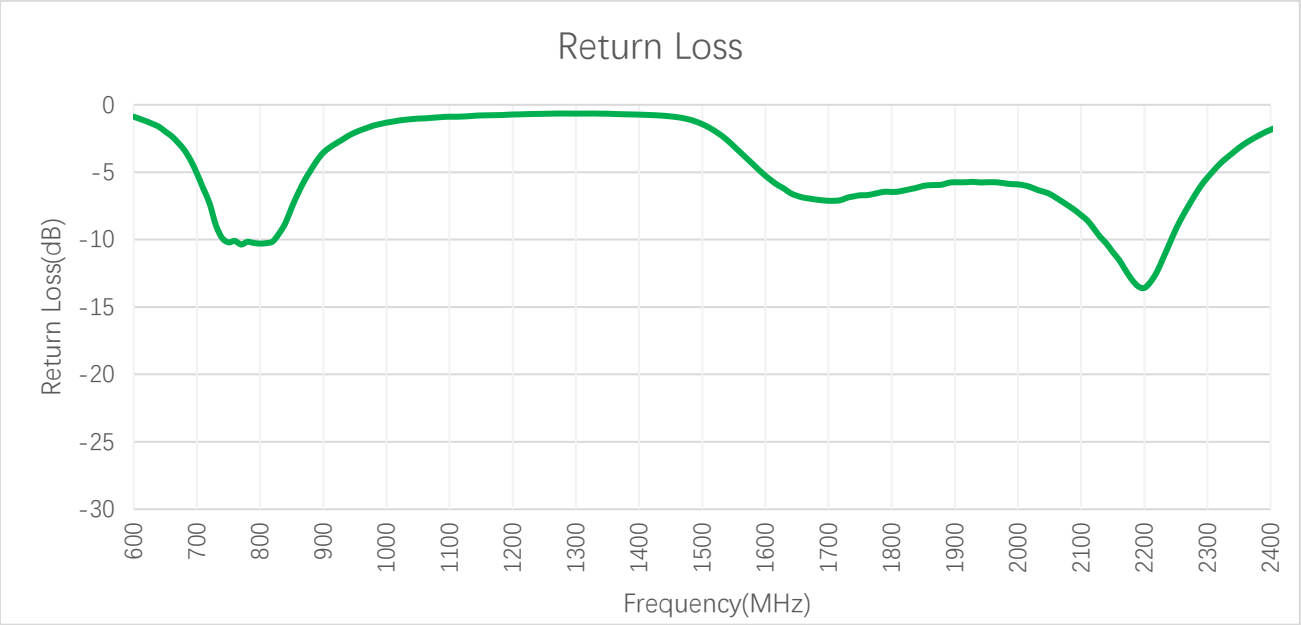
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	-	-	2.9	2.0	5.0	9.3	-	2.6	2.7	3.0
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4000	4700	5500	6000
VSWR	3.1	1.9	-	-	-	-	-	-	-	-

3.1.2. Return Loss

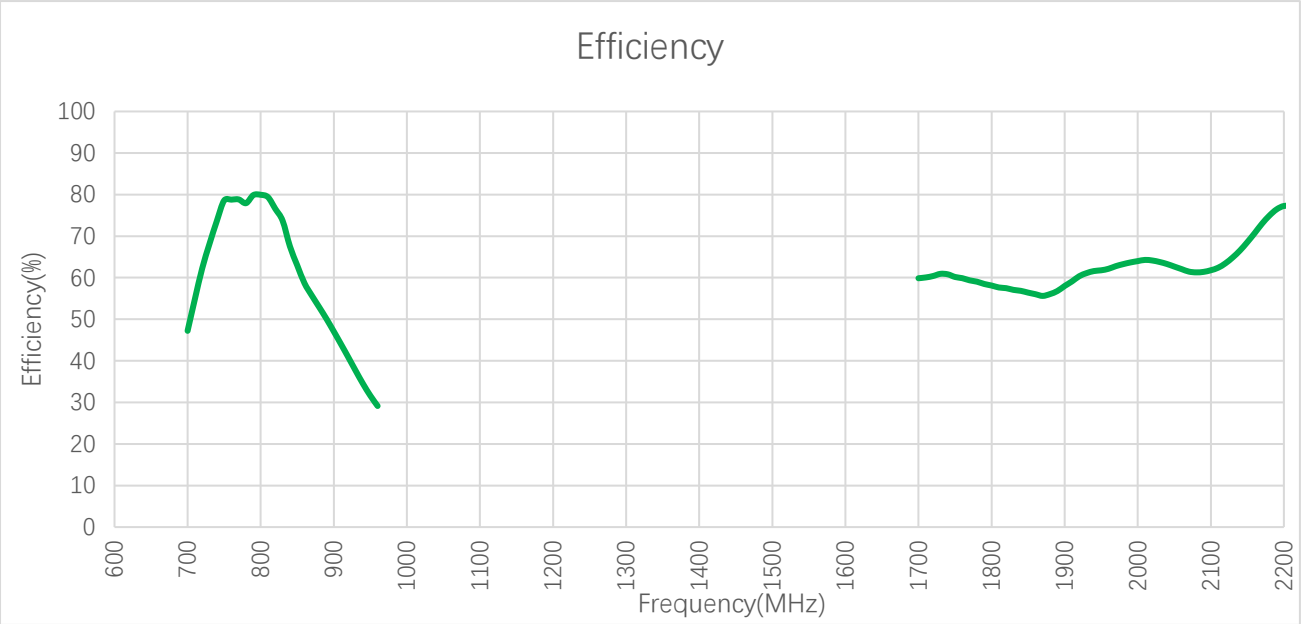


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-	-	-6.2	-9.5	-3.6	-1.9	-	-7.1	-6.8	-5.9
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4000**	**4700**	**5500**	**6000**
Return Loss (dB)	-5.7	-10.3	-	-	-	-	-	-	-	-

3.2. Radiation Performance Test

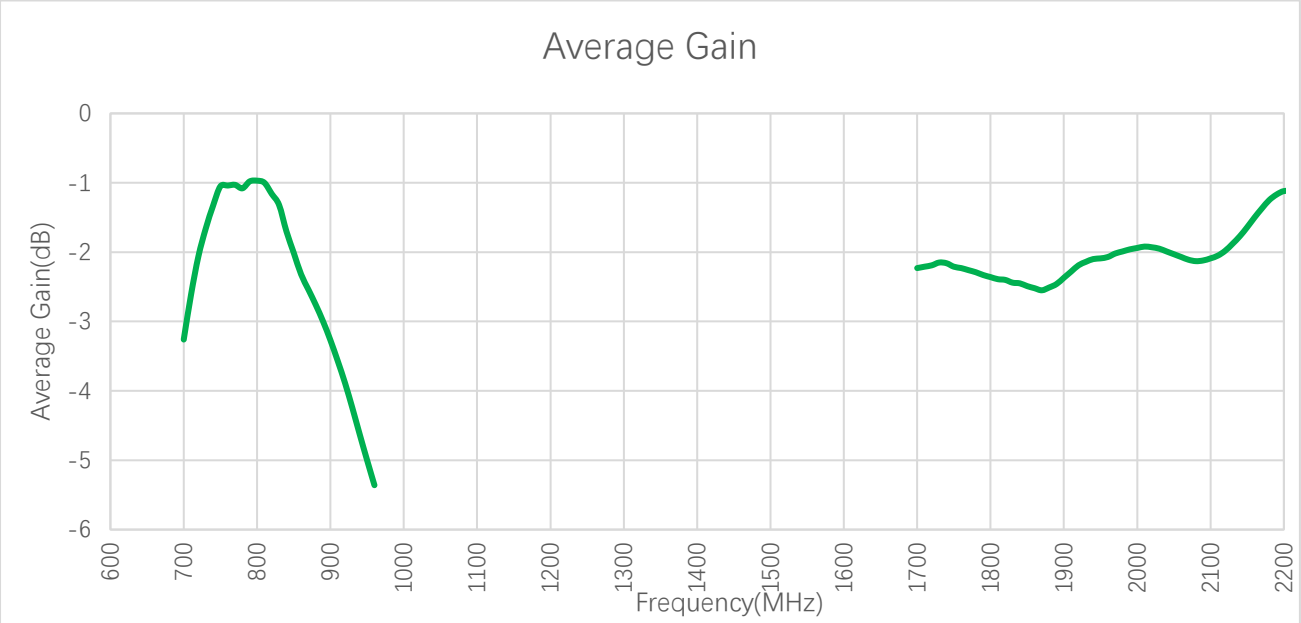
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	-	-	54.9	73.7	47.1	29.1	-	60.1	60.8	56.1
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4000**	**4700**	**5500**	**6000**
Efficiency (%)	61.8	66.6	-	-	-	-	-	-	-	-

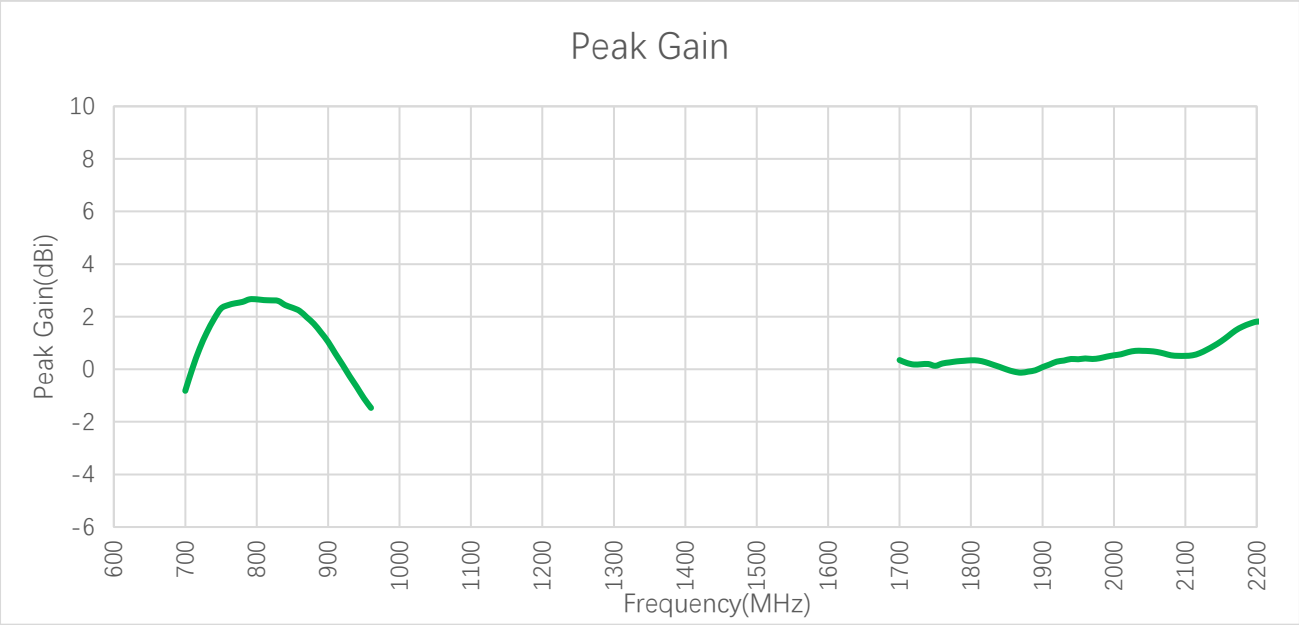
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-	-	-2.6	-1.3	-3.3	-5.4	-	-2.2	-2.2	-2.5
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4000**	**4700**	**5500**	**6000**
Average Gain (dB)	-2.1	-1.8	-	-	-	-	-	-	-	-

3.2.3. Peak Gain



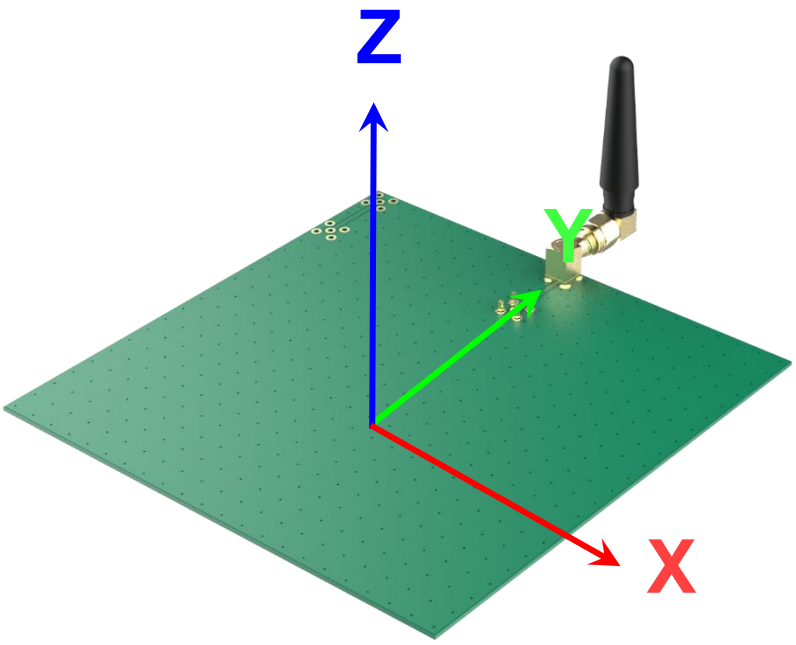
Peak Gain (dBi)

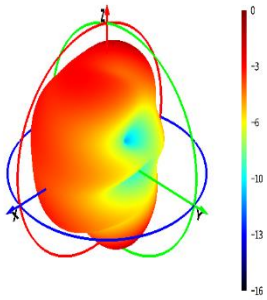
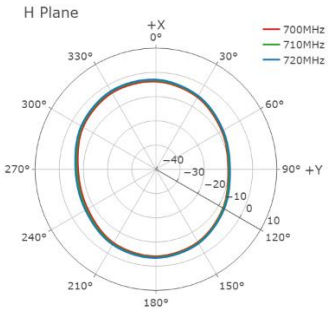
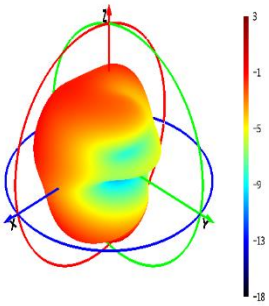
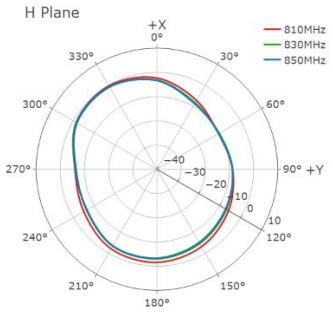
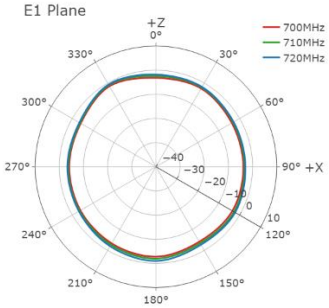
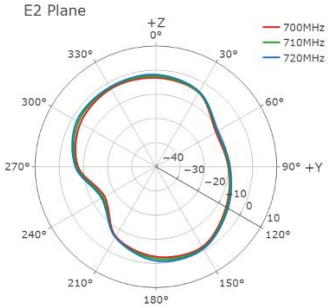
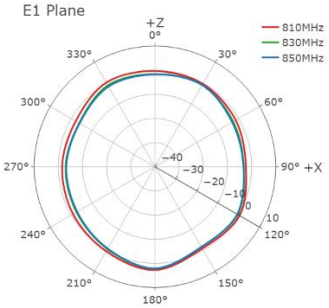
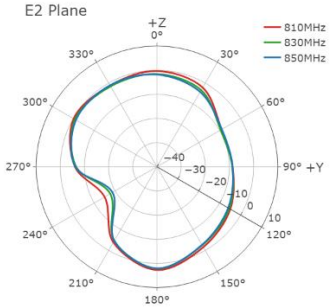
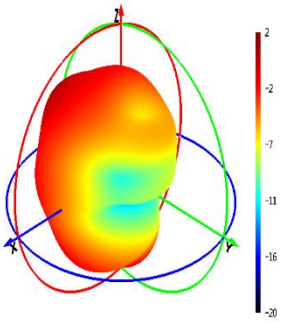
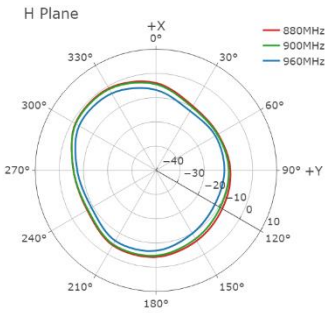
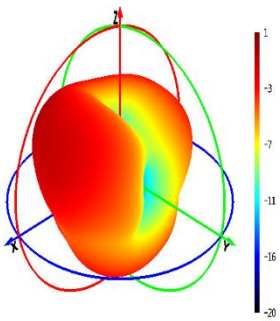
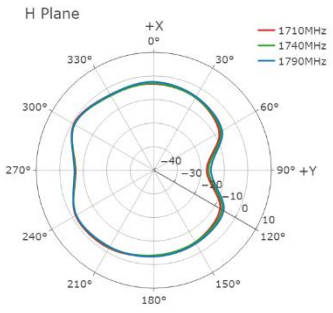
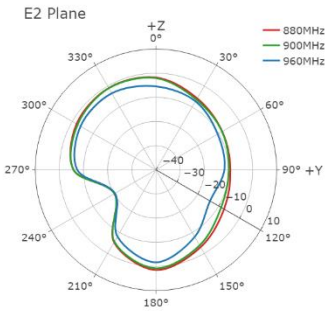
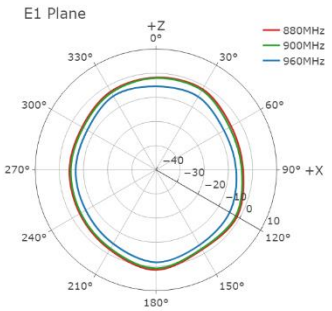
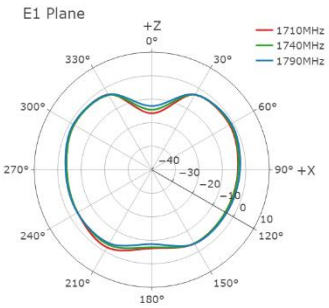
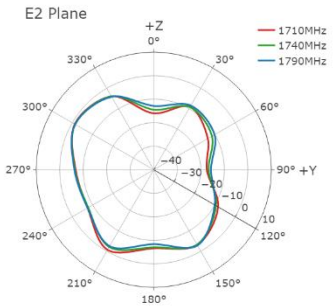
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	-	-	0.0	2.6	1.0	-1.5	-	0.2	0.2	-0.1
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**3600**	**4000**	**4700**	**5500**	**6000**
Peak Gain (dBi)	0.4	0.9	-	-	-	-	-	-	-	-

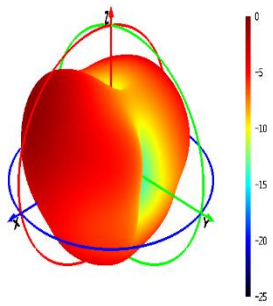
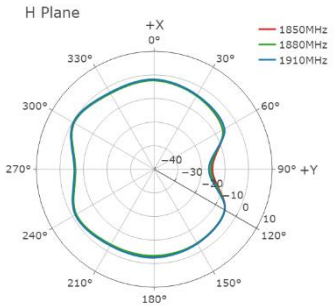
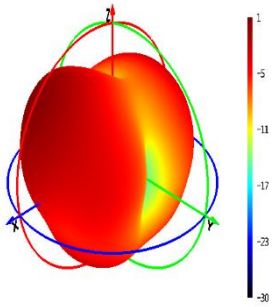
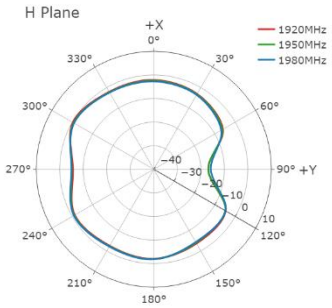
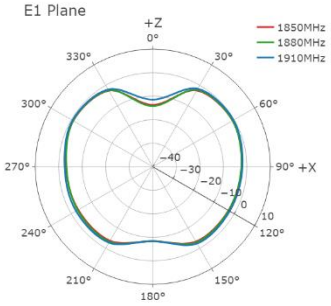
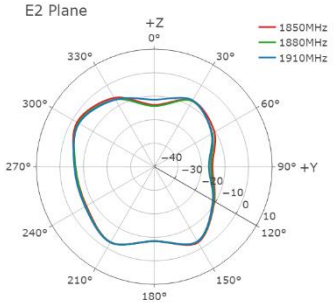
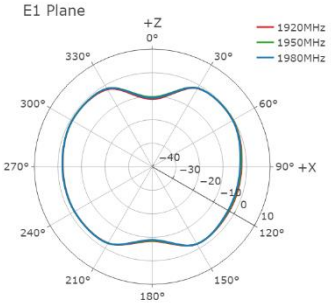
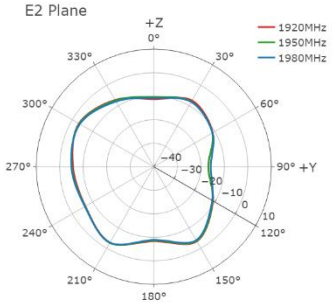
3.2.4. 3D & 2D Radiation Pattern

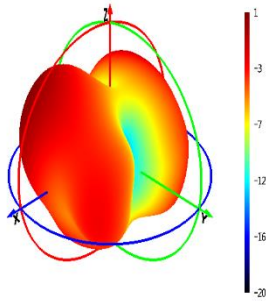
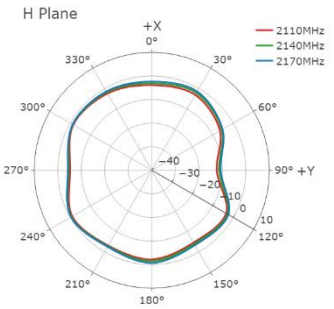
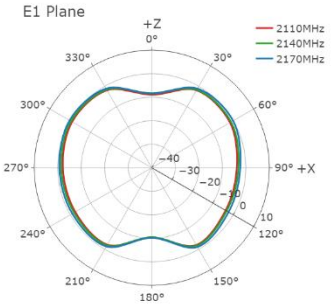
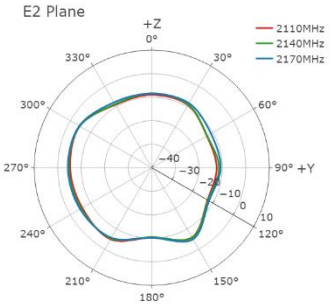
3.2.4.1. Test Condition: On 130 × 130 mm EVB

- Test Chamber: GL-S-1

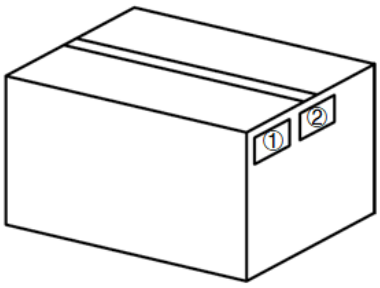


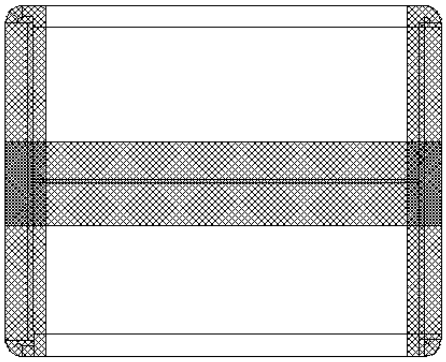
710 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

1880 MHz		1950 MHz	
			
			

2140 MHz	
	
	

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		200 pcs antenna products in a PE bag; (200 pcs antennas per PE bag)
2		(9 PE bags per carton box) (1800 pcs antennas per carton box) Carton Size: L × W × H = 405 × 293 × 185 mm
3		**Position for Attaching Labels** ① Carton Label ② Quality Label

4		**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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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
-	2022-06-08	Ezail TAN	Creation of the document
1.0	2022-06-29	Ezail TAN	First official release
1.1	2022-09-09	Ezail TAN	Update test data.
1.2	2022-10-17	Aria CHU	Updated the IP rating.
2.0	2023-04-27	Joyful HUANG/ Lucky FENG/ David LIU/ Aria CHU	Updated all data and datasheet template.

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