



Antenna Datasheet

Product OC: YF0022DA

Version: 2.0

Date: 2023-11-20

Status: Released

Product Name: 4G PCB Antenna

Key Features:

Frequency Band: 600–960 MHz, 1710–2690 MHz

Dimensions: 40 × 15 × 0.8 mm

Efficiency: Up to 72.3 %

RoHS and REACH Compliant

Overview

This Quectel embedded 4G PCB antenna covers main 4G LTE bands and is compatible with 3G/2G/LPWA bands. Featuring high efficiency and gain, it is an ideal antenna for a smooth and stable connection with high-efficiency data transmission even under the influence of the device's internal structure. Ground plane independent, it's designed to be mounted directly to the underside of either a plastic or non-metallic enclosure. Ease of integration with a cable and connector which can be customized to meet your product design and RF module.

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1 Specification

Test Condition: Stick to ABS board on 130 × 130 mm EVB board

1.1. Electrical

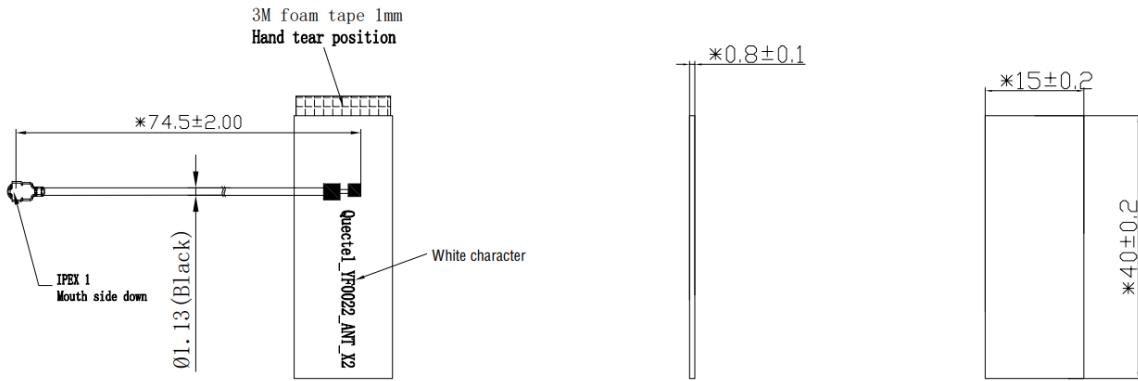
Electrical	
Frequency Range	700–960 MHz, 1710–2690 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

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		5.5	5.7	4.1	-	3.0	2.1	1.5	1.9	-	-	-
Max. Return Loss (dB)		-3.2	-3.1	-4.4	-	-6.1	-8.8	-14.0	-10.3	-	-	-
AVG Eff. (%)		13.0	19.7	28.0	-	47.3	62.1	67.4	71.0	-	-	-
AVG AVG Gain (dB)		-8.9	-7.1	-5.6	-	-3.3	-2.1	-1.7	-1.5	-	-	-
Max. Peak Gain (dBi)		-5.3	-2.9	-1.2	-	0.8	2.6	2.2	2.4	-	-	-
VSWR		≤ 5.7										
Return Loss		≤ -3.1 dB										
Peak Gain		≤ 2.6 dBi										

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	40 × 15 × 0.8 mm
Material & Color	PCB & Black
Cable Type & Color & Length	Φ 1.13 & Black & 74.5 mm
Connector Type	IPEX MHF 1
Mounting Type	Adhesive
Weight	Typ. 1.6 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS and REACH Compliant	Yes

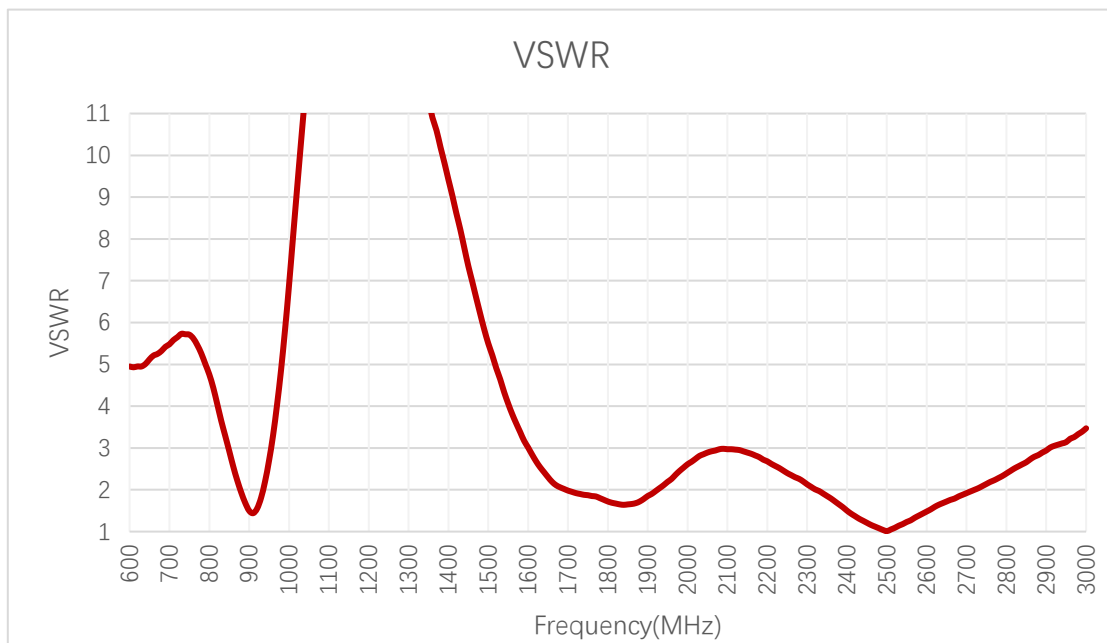
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

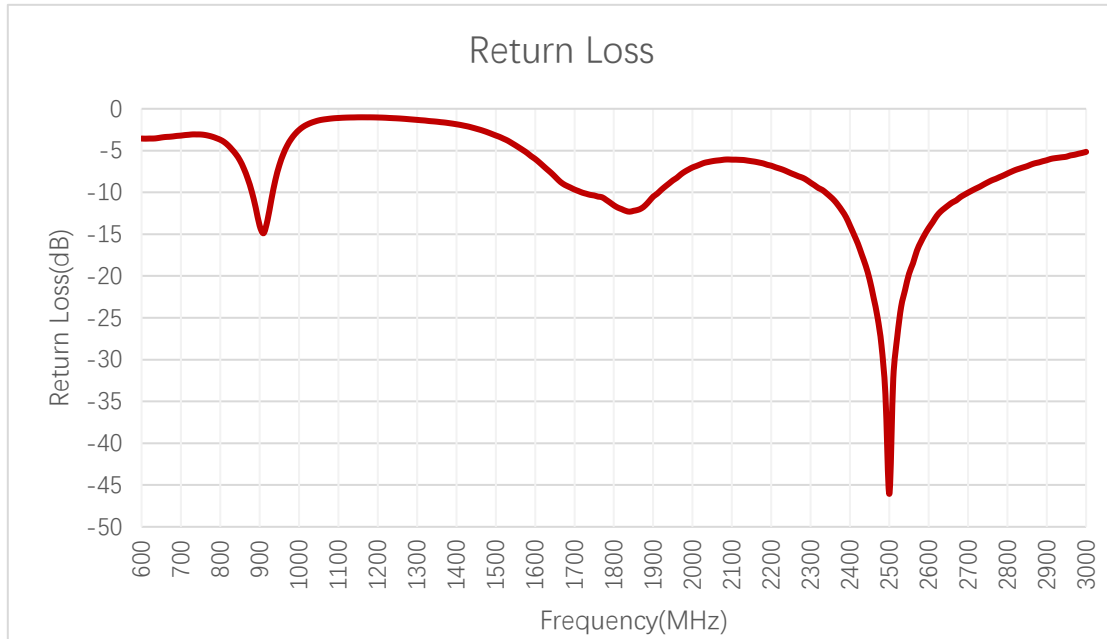
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	5.0	5.0	5.6	3.7	1.5	3.3	-	2.0	1.9	1.7
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
VSWR	2.2	2.9	1.9	1.2	1.5	1.9	-	-	-	-

3.1.2. Return Loss

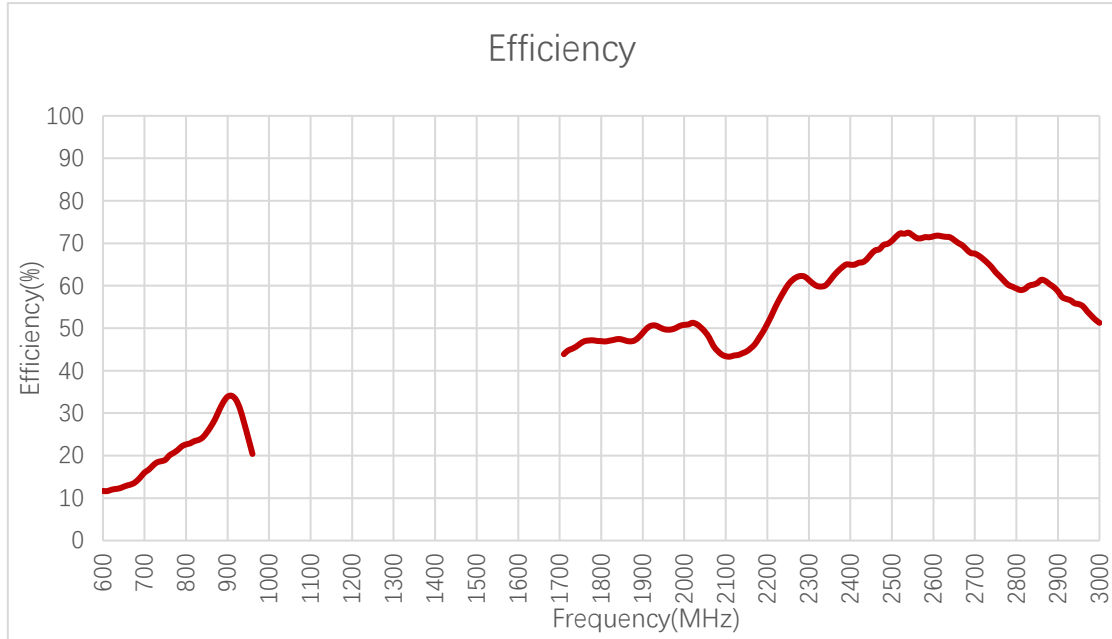


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-3.6	-3.6	-3.1	-4.9	-14.0	-5.4	-	-9.8	-10.3	-11.5
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Return Loss (dB)	-8.6	-6.2	-10.5	-20.4	-14.3	-10.3	-	-	-	-

3.2. Radiation Performance Test

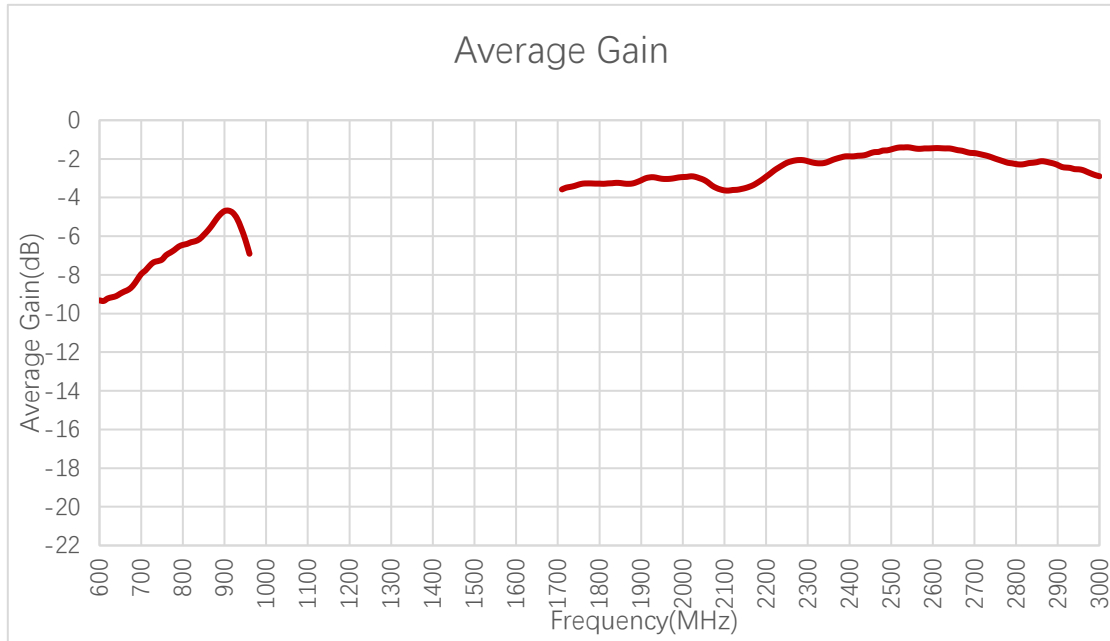
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	11.7	12.1	16.7	23.7	33.9	20.4	-	43.9	45.7	47.1
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Efficiency (%)	49.8	44.1	61.1	67.4	71.6	67.7	-	-	-	-

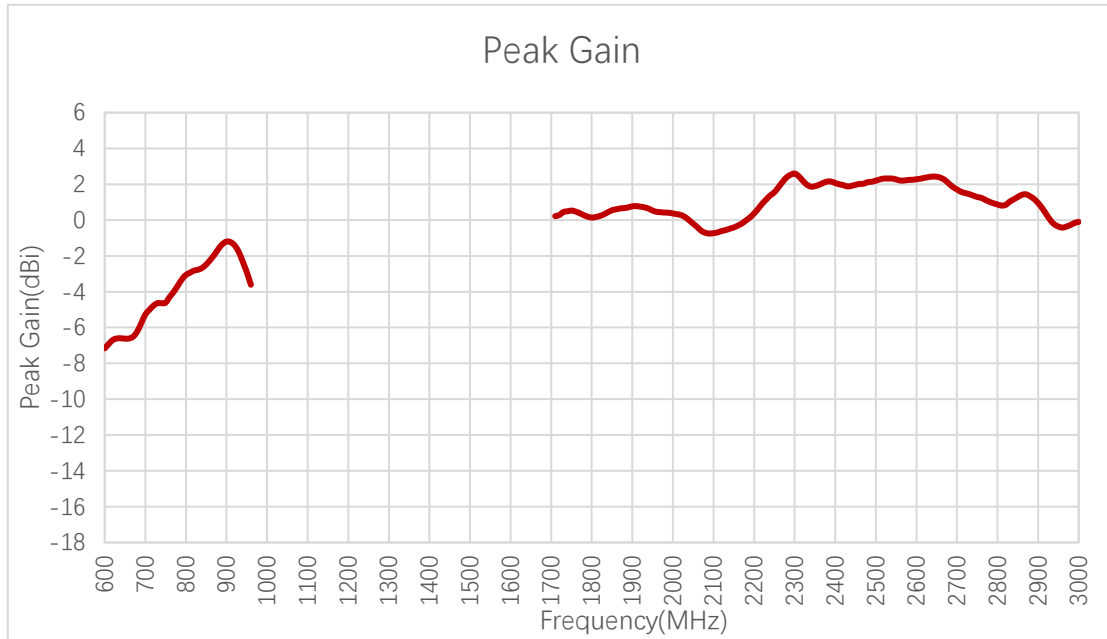
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-9.3	-9.2	-7.8	-6.3	-4.7	-6.9	-	-3.6	-3.4	-3.3
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Average Gain (dB)	-3.0	-3.6	-2.1	-1.7	-1.5	-1.7	-	-	-	-

3.2.3. Peak Gain

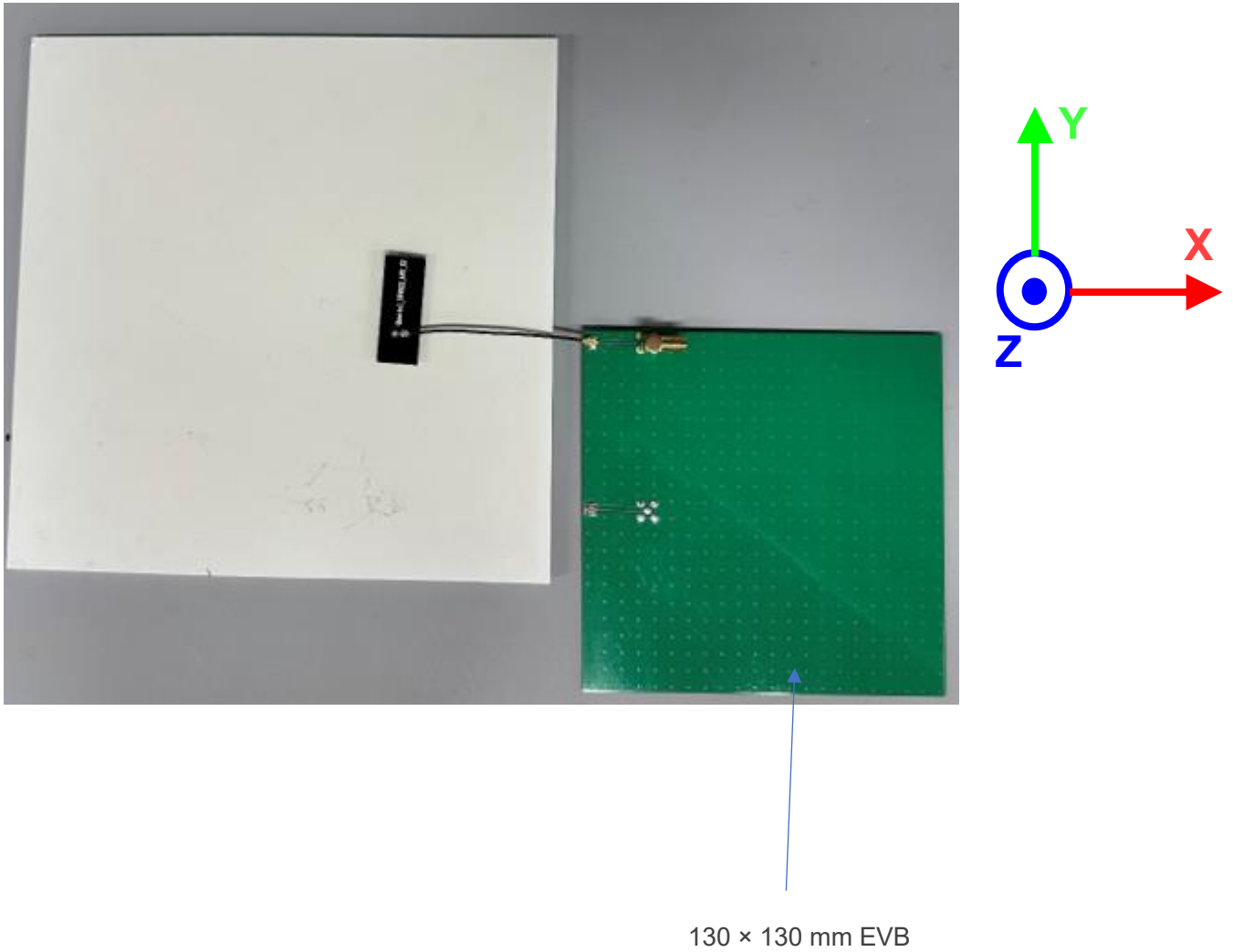


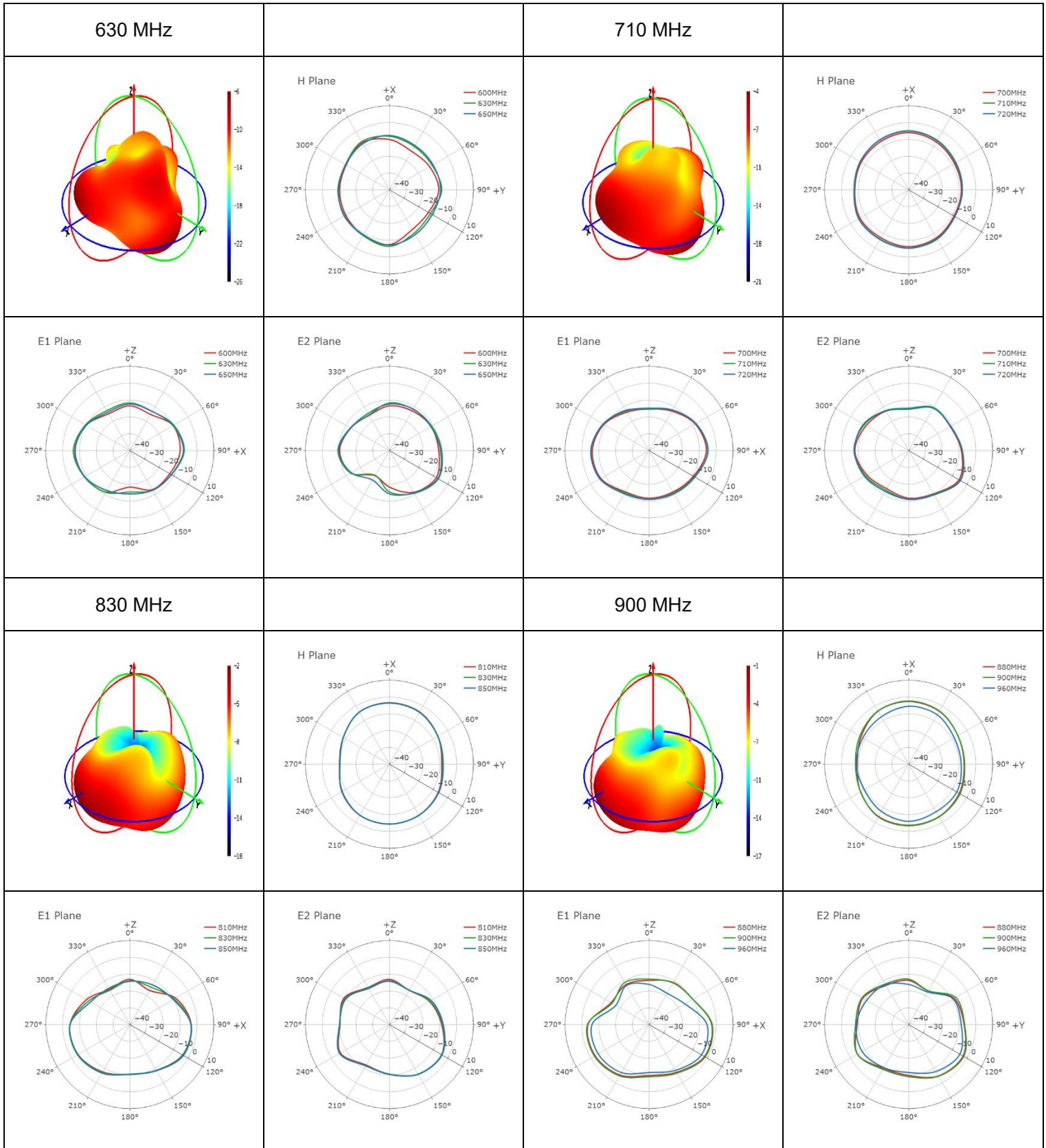
Peak Gain (dBi)

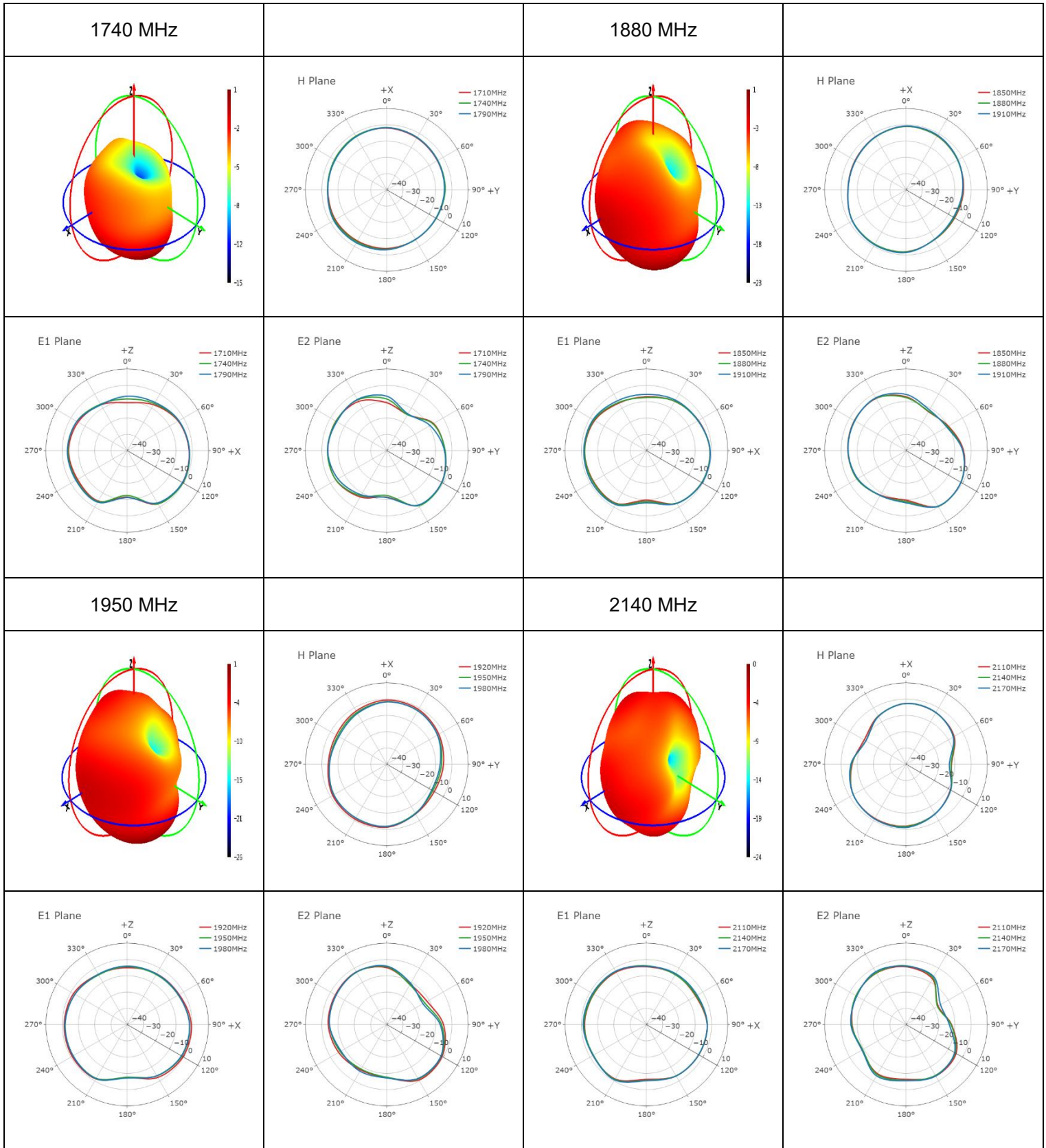
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	-7.2	-6.6	-5.0	-2.8	-1.2	-3.6	-	0.2	0.5	0.7
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Peak Gain (dBi)	0.5	-0.5	1.9	2.0	2.3	1.9	-	-	-	-

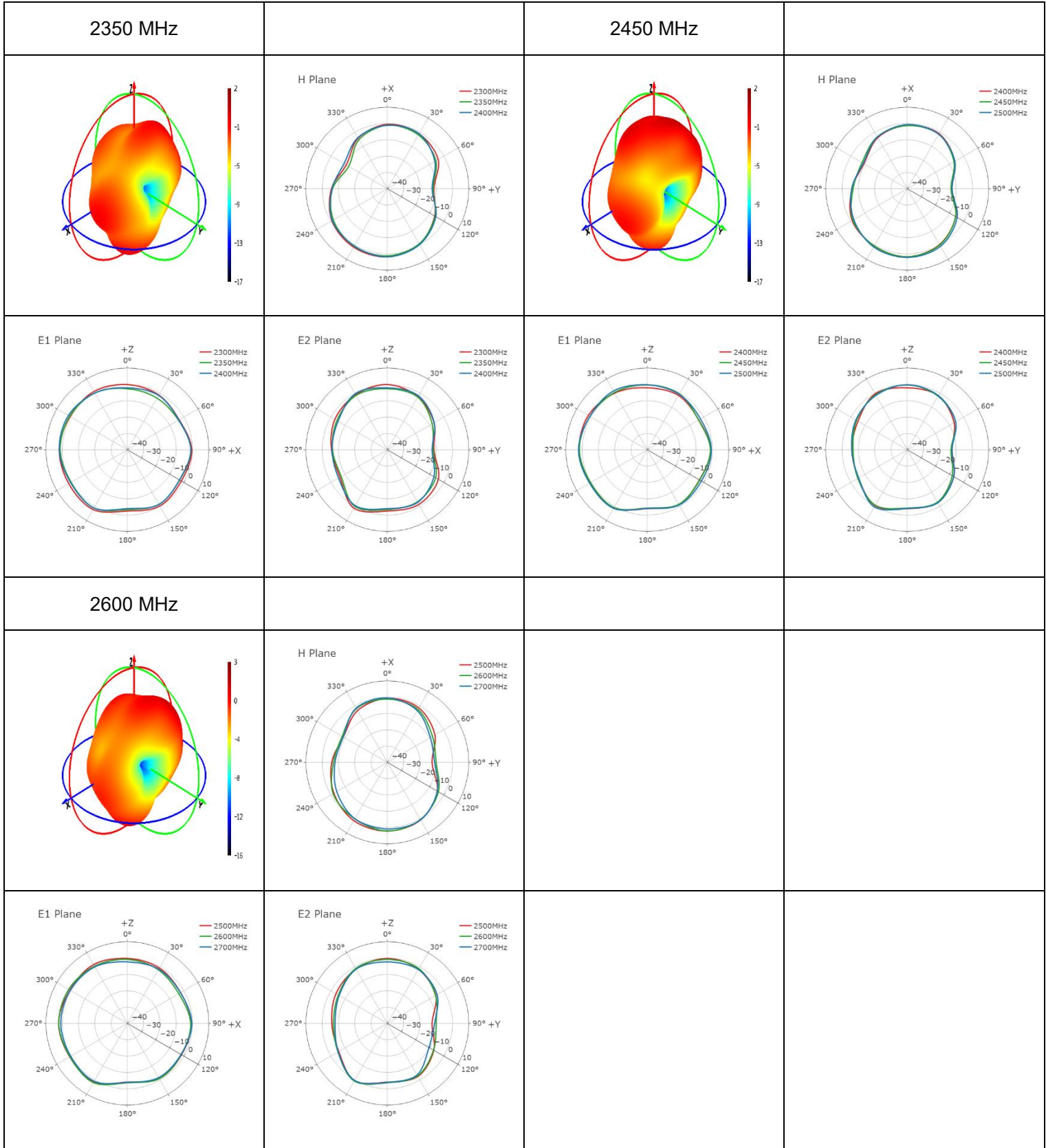
3.2.4. 3D & 2D Radiation Pattern

- Test Condition: Stick to ABS board on 130 × 130 mm EVB board
- Test Chamber: GL-S-1

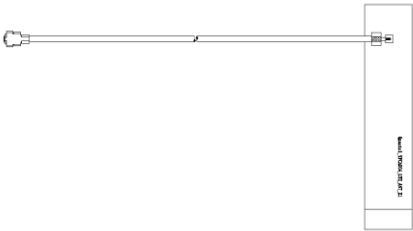
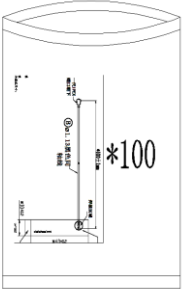
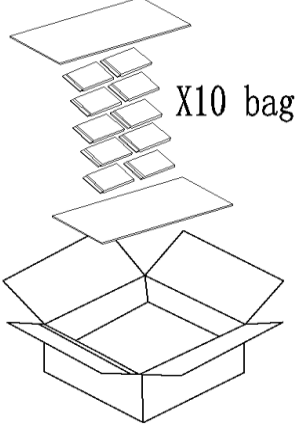


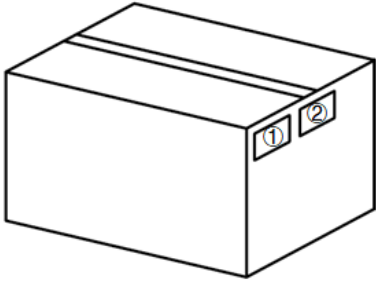
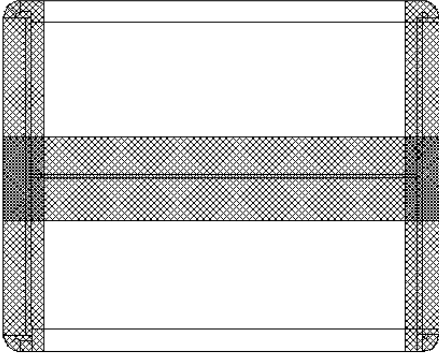






4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		Product drawing
2	 <p>100PCS/bag</p>	<p>100 pcs antenna products in a PE bag. (100 PCS/ PE Bag)</p> <p><u>PE Bag Size: L × W = 200 × 150 mm</u></p>
3	 <p>X10 bag</p>	<p>Place a clapboard at the bottom and top. (10 PE Bags / Carton Box) (1000 PCS Antennas / Carton Box) Estimated quantity Products that cannot fill the entire carton box are packed in a suitable size carton box.</p> <p><u>Carton Size:</u> <u>L × W × H = 290 × 210 × 100 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>
<p>6</p>	<p>The initial packaging method described above is for reference only, and the final actual packaging method shall be subject to the actual shipping packaging.</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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Revision History

Version	Date	Author	Note
-	2023-02-07	Richard LIU/ Joye WANG	Creation of the document
1.0	2023-02-07	Richard LIU/ Joye WANG	First official release
2.0	2023-09-07	Edwin XIAO/ Lucky FENG/ David LIU/ Aria CHU	Updated all test data in this datasheet.
2.1	2023-11-20	Edwin XIAO	Updated test data of the tables (Chapter 3).

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