

The image shows two antenna assemblies against a white, textured background. The assembly on the right is taller and has a black rectangular label at the top with the text "Quectel_YFCA002_ANT_X1". The assembly on the left is shorter and has a gold-colored connector at the top.

Quectel_YFCA002_ANT_X1

Antenna Datasheet

Product OC: YFCA002HA

Version: 2.4

Date: 2025-07-28

Status: Released

Product Name: 4G Adhesive Mount FPC + Cable Monopole Embedded
Antenna

Key Features:

Frequency Band: 698–960 MHz; 1710–2690 MHz

Dimensions: 30 mm × 20 mm

Efficiency: Up to 77 %

RoHS and REACH Compliant

Overview

YFCA002HA is a 4G FPC antenna measuring 30 mm × 20 mm. This 4G antenna provides coverage from 698–960 MHz; 1710-2690 MHz. The antenna has an 86.5 mm-long cable, terminated with IPEX MHF 1 connector, and is available with customized cable lengths and connectors. Ideal for applications where the antenna is required to be mounted inside, this adhesive mount omni-directional antenna is easy to install thanks to its flexible material. It is compatible with Quectel's 4G Series modules. It has been tested with ABS board.

It allows constant and reliable transmission and reception due to its omni-directional gain across all frequency bands. YFCA002HA is designed as a monopole antenna, which is ground dependent to offer high efficiency in many different mounting scenarios. It is a perfect antenna product for customers that desire highest performance. This high-efficiency, high-gain omni-directional antenna is ideally suited for smart metering, remote monitoring, vehicle tracking and telematics, and many other IoT devices.

Quectel provides comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs. We have regional R & D centers to offer quick response to meet your requirements. Please contact our sales & FAEs if you have any requests.

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1 Specification

Test Condition: Stick 3 mm thick ABS board to 130 mm × 130 mm EVB board

1.1. Electrical

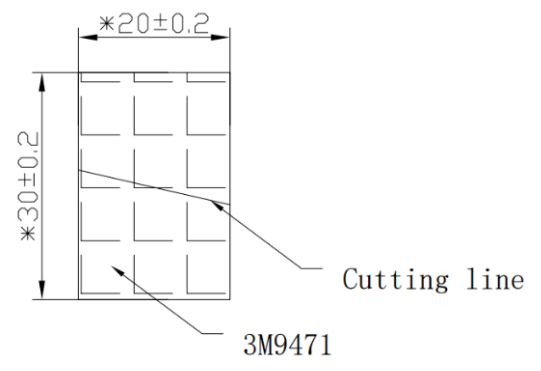
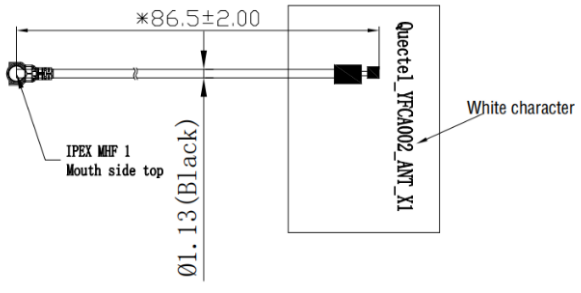
Electrical	
Frequency Range	698–960 MHz; 1710–2690 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

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
	Band	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	-	-	-	7.8	7.7	-	3.4	2.4	2.8	2.8	-	-	-
Max. Return Loss (dB)	-	-	-	-2.2	-2.3	-	-5.2	-7.9	-6.4	-6.4	-	-	-
AVG Eff. (%)	-	-	-	20.1	32.0	-	63.5	58.5	54.6	56.8	-	-	-
AVG AVG Gain (dB)	-	-	-	-7.0	-5.1	-	-2.1	-2.3	-2.6	-2.5	-	-	-
Max. Peak Gain (dBi)	-	-	-	-2.1	1.7	-	3.1	2.0	2.9	3.7	-	-	-
VSWR	≤ 7.8												
Return Loss	≤ -2.2 dB												
Peak Gain	≤ 3.7 dBi												

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	30 mm × 20 mm
Antenna Material & Color	FPC & Black
Cable Type & Color & Length	Φ 1.13 & Black & 86.5 mm
Connector Type	IPEX MHF 1
Mounting Type	Adhesive
Antenna Weight	Typ. 0.6 g
Environmental	
Operation Temperature	-40 °C to +95 °C
Storage Temperature	-40 °C to +95 °C
RoHS and REACH Compliant	Yes

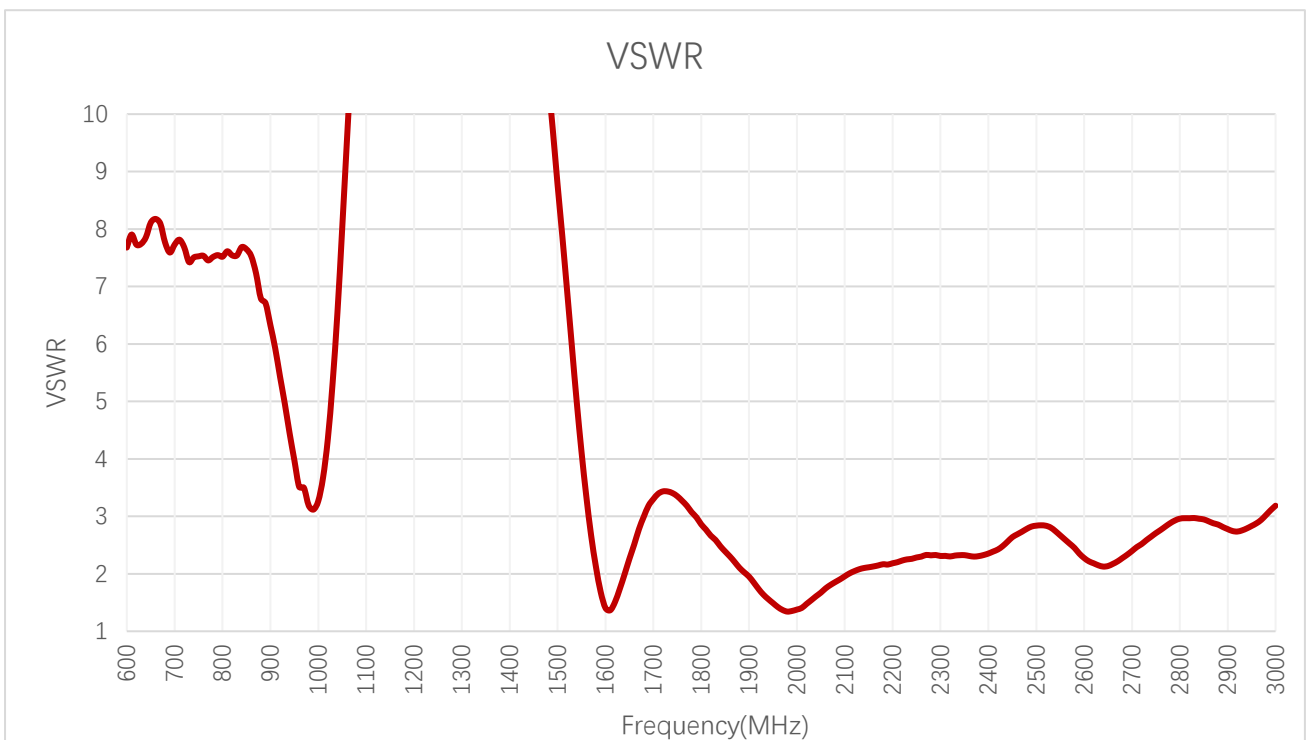
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

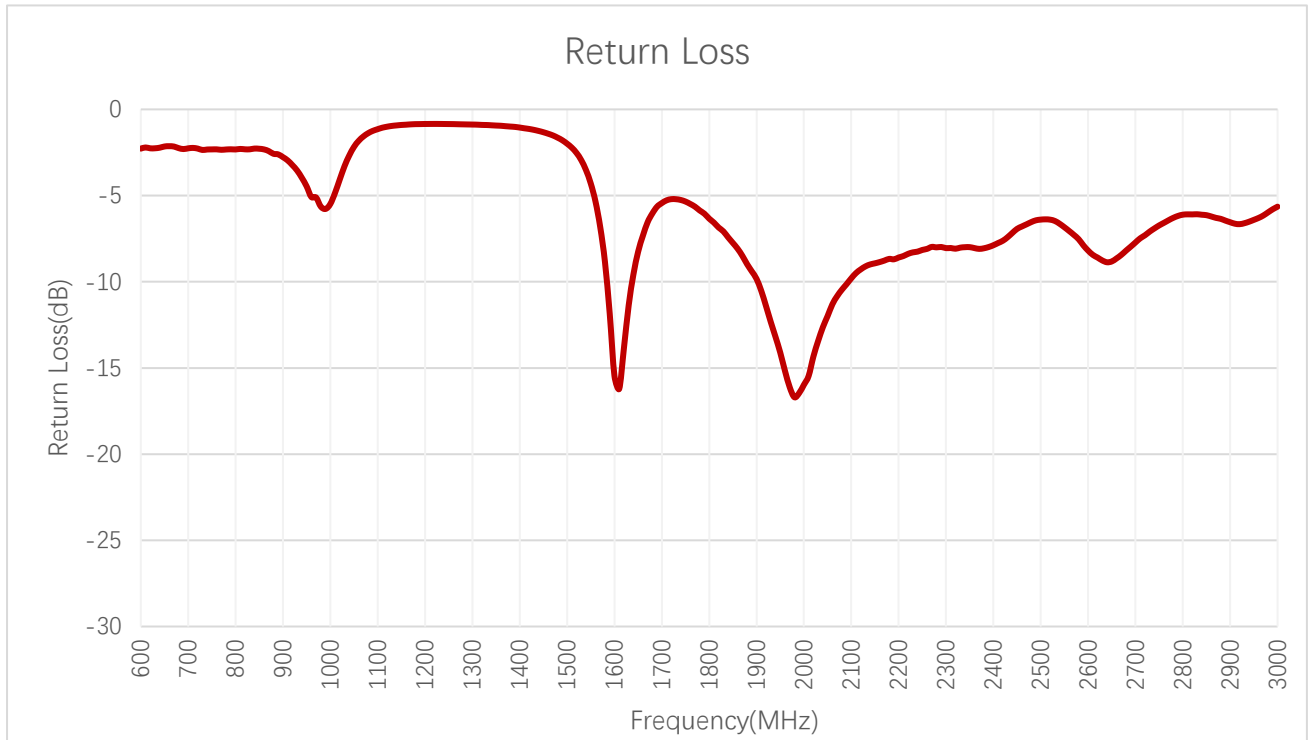
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	-	-	7.8	7.5	6.3	3.5	-	3.4	3.4	2.1
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
VSWR	1.5	2.1	2.3	2.6	2.3	2.3	-	-	-	-

3.1.2. Return Loss

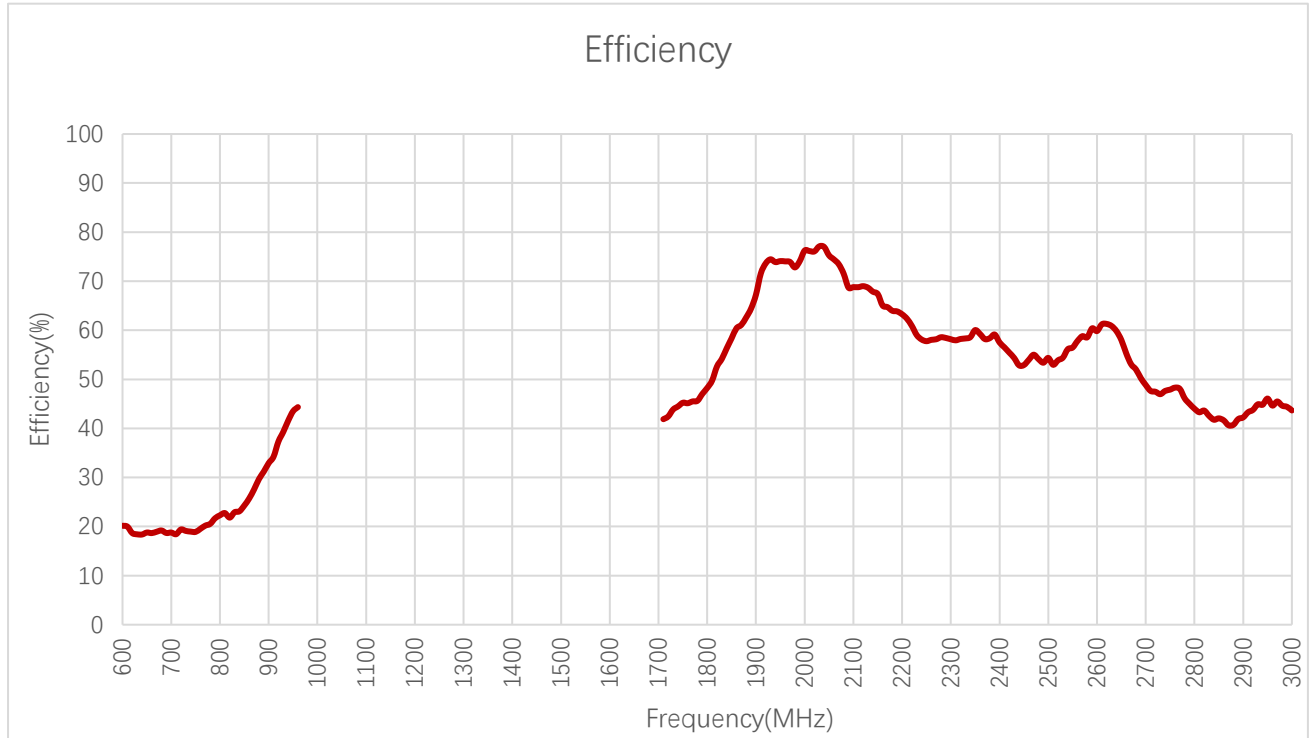


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-	-	-2.2	-2.3	-2.8	-5.1	-	-5.3	-5.3	-9.0
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Return Loss (dB)	-14.1	-9.0	-8.0	-6.9	-8.2	-8.0	-	-	-	-

3.2. Radiation Performance Test

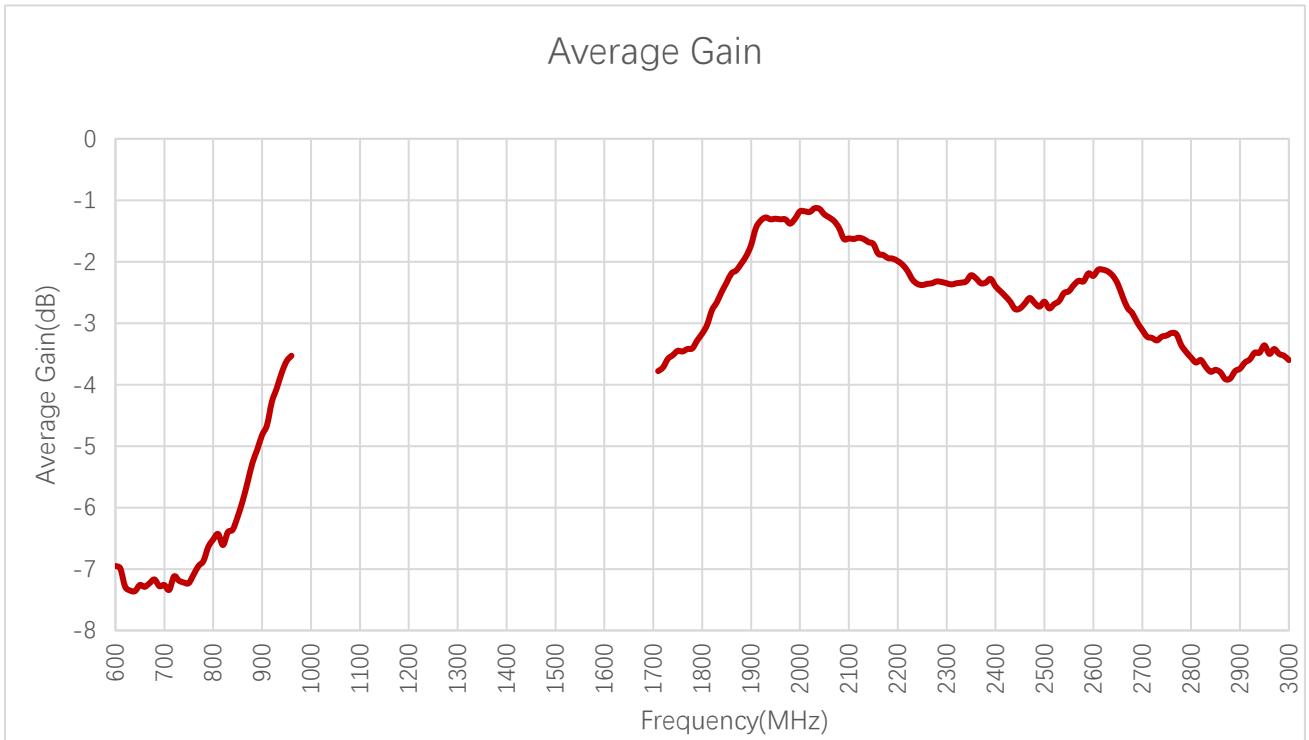
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	-	-	18.4	22.9	32.9	44.3	-	41.9	44.5	62.6
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Efficiency (%)	74.1	67.9	60.0	52.9	59.8	50.3	-	-	-	-

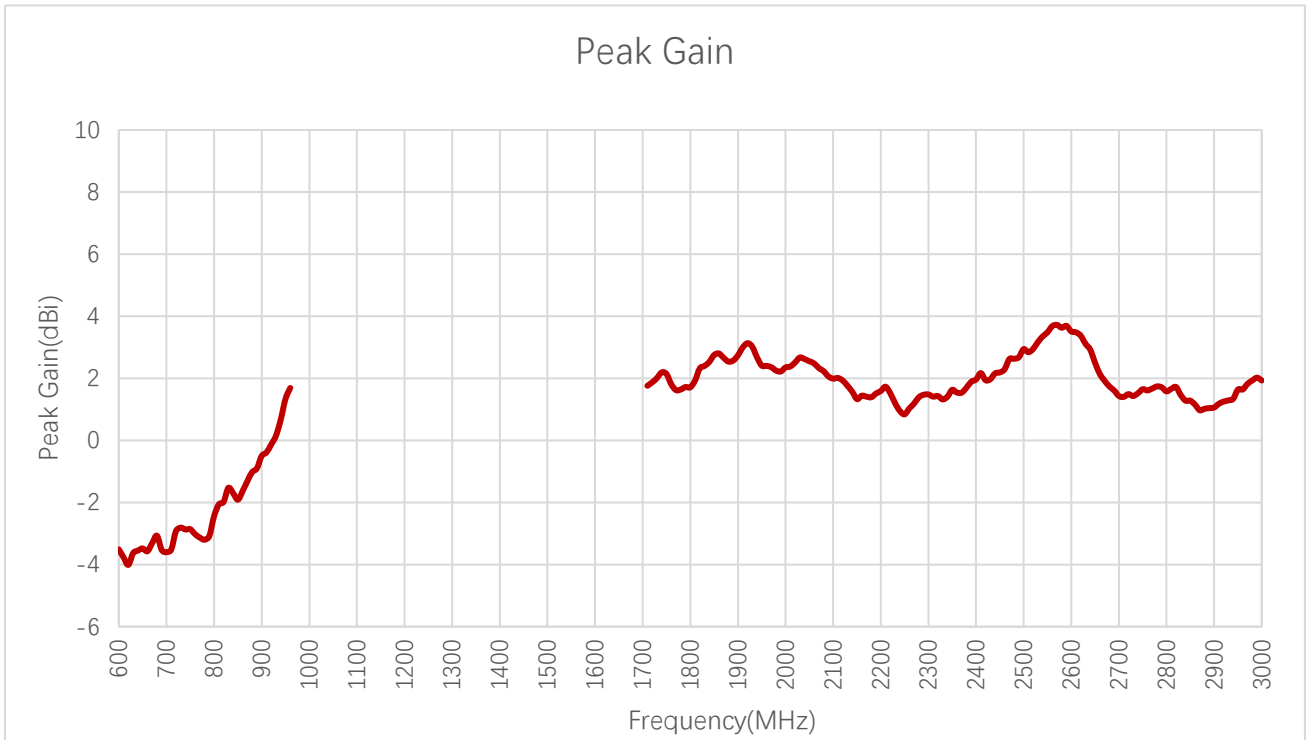
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-	-	-7.3	-6.4	-4.8	-3.5	-	-3.8	-3.5	-2.0
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Average Gain (dB)	-1.3	-1.7	-2.2	-2.8	-2.2	-3.0	-	-	-	-

3.2.3. Peak Gain



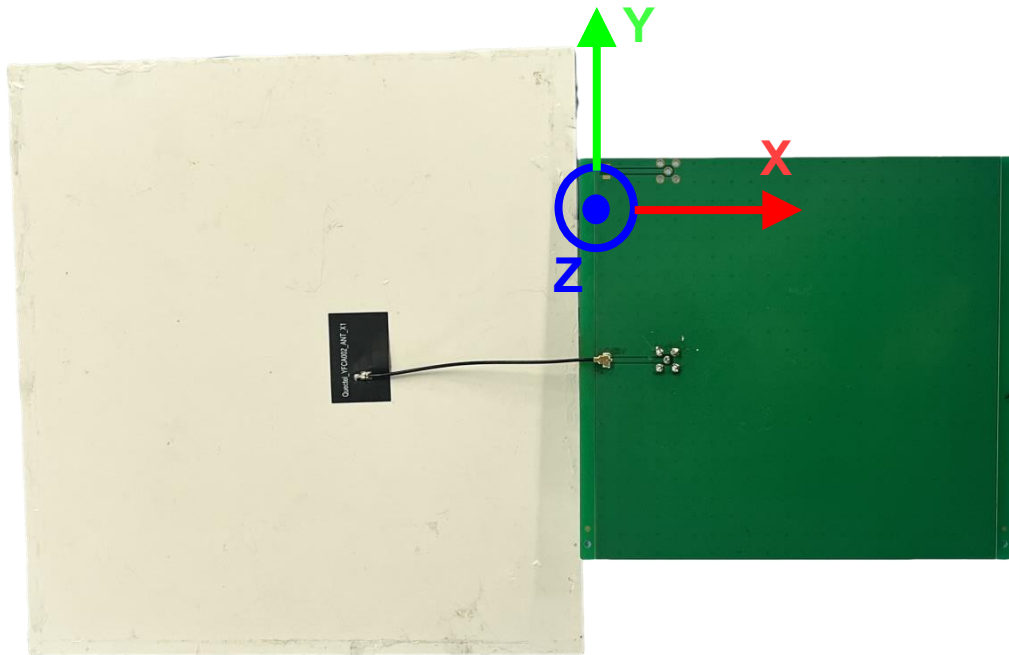
Peak Gain (dBi)

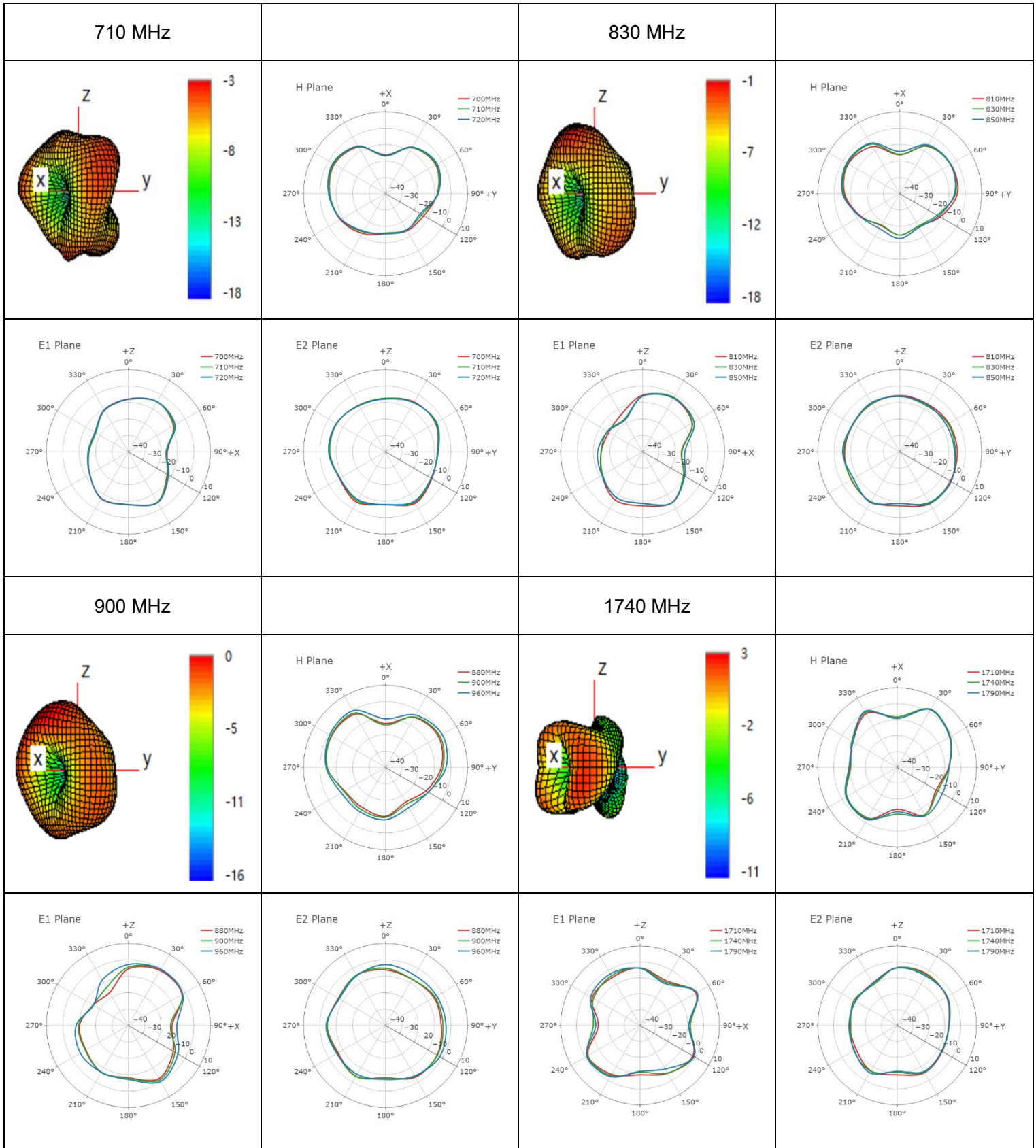
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	-	-	-3.5	-1.5	-0.5	1.7	-	1.8	2.2	2.5
Frequency (MHz)	1950	2140	2350	2450	2600	2690	4700	5000	5500	6000
Peak Gain (dBi)	2.4	1.6	1.6	2.2	3.5	1.6	-	-	-	-

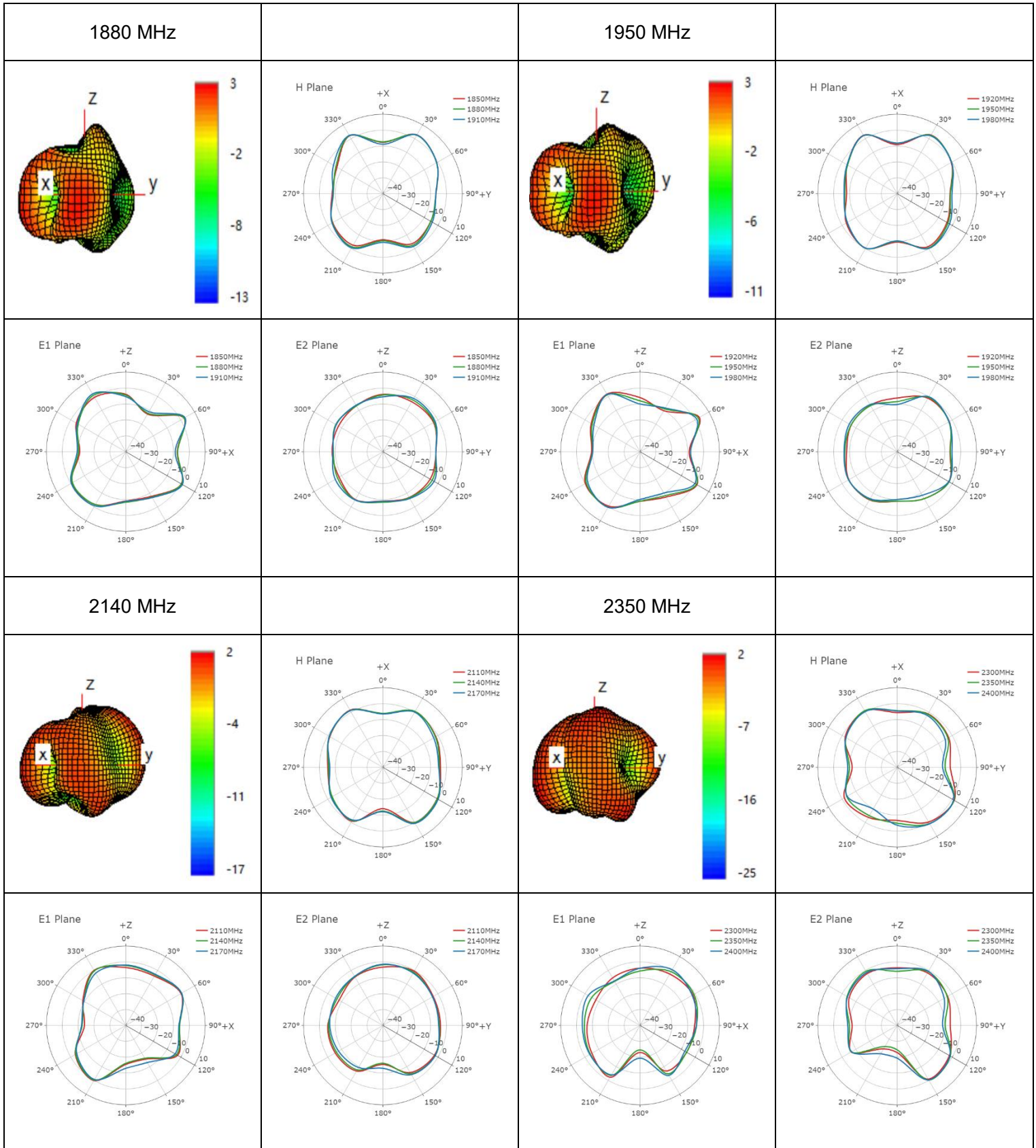
3.2.4. 3D & 2D Radiation Pattern

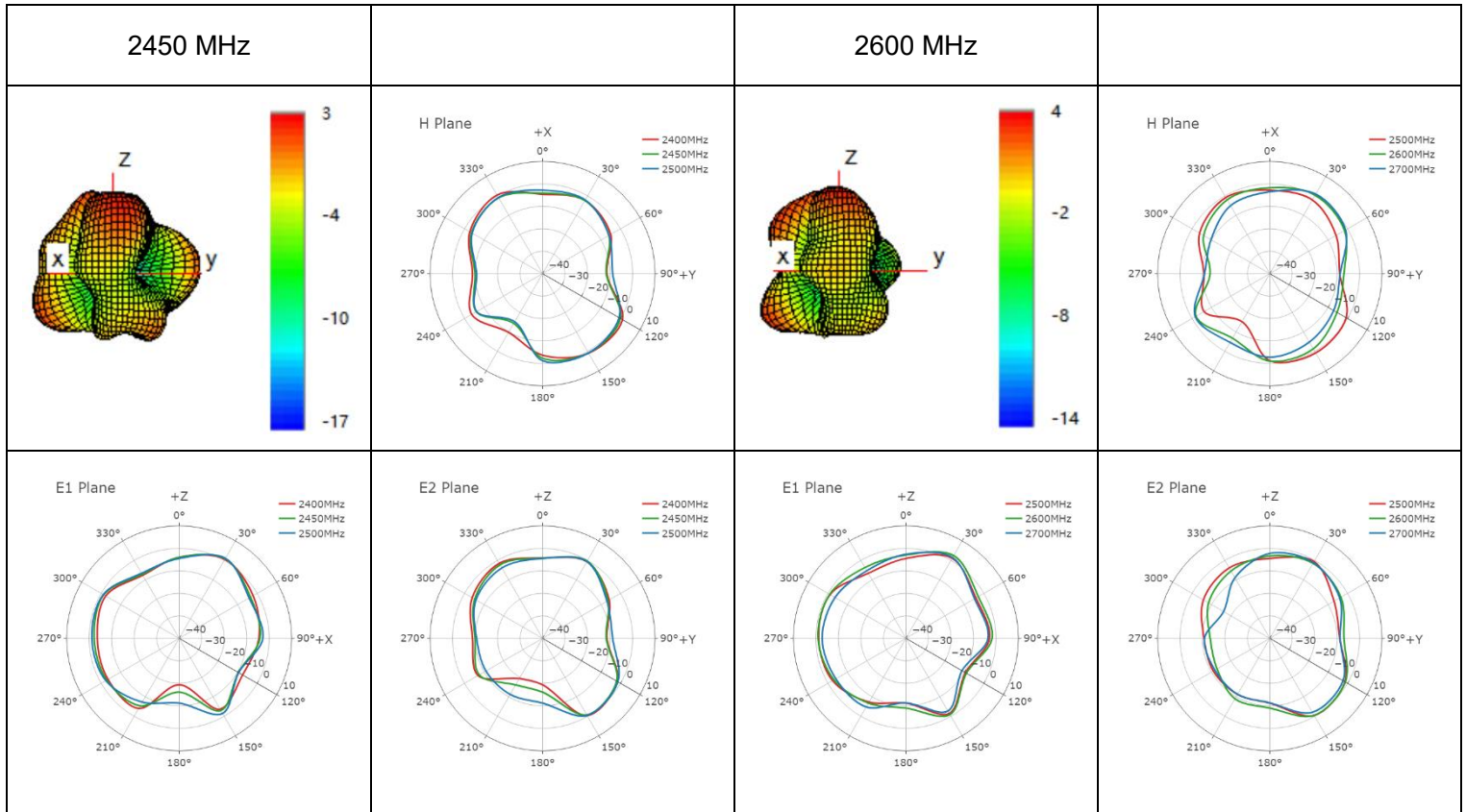
3.2.4.1. Test Condition: Stick 3 mm Thick ABS Board to 130 mm × 130 mm EVB Board

- Test Chamber: GL-G-1


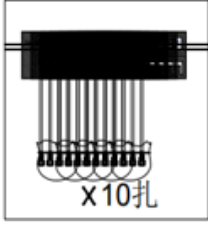
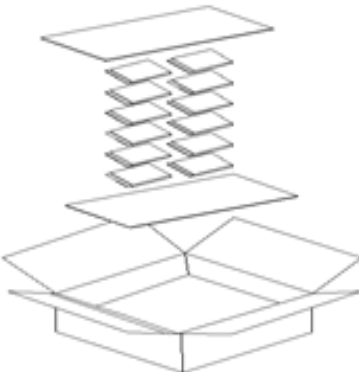


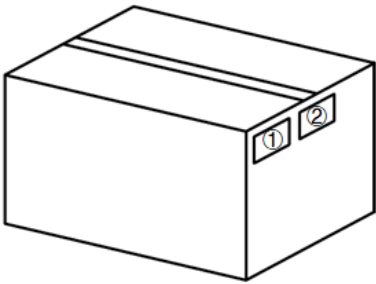
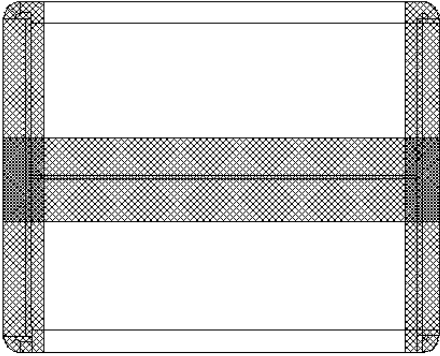






4 Packaging

Step	Packaging Picture/2D Picture	Description
1	 <p>20pcs/tie</p>	<p>The product terminals are wrapped with EPE foam. (20 Antennas / Tie)</p>
2	 <p>200pcs/bag</p>	<p>200 antenna products in a PE bag. (200 Antennas / PE Bag)</p>
3		<p>(30 PE Bags / Carton Box) (6000 Antennas / Carton Box) Estimated quantity Products that cannot fill the entire carton box are packed in a suitable size carton box. <u>Carton Size:</u> <u>L × W × H = 300 × 250 × 200 mm</u></p>

4	 A 3D perspective drawing of a rectangular carton. On the front face, there are two small rectangular labels. The left label is marked with a circled '1' and the right label is marked with a circled '2'.	<p>Position for Attaching Labels</p> <ul style="list-style-type: none">① Carton Label② Quality Label
5	 A 3D perspective drawing of a rectangular carton with a shaded, H-shaped structure on its front face, representing a sealing mechanism. The structure consists of two vertical bars and a horizontal bar connecting them.	<p>Sealing Cartons</p> <p>H-shaped 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:

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Or our local offices. For more information, please visit:

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Revision History

Version	Date	Author	Note
-	2022-07-25	Andy Miao/ Joye Wang	Creation of the document
1.0	2022-07-25	Andy Miao/ Joye Wang	First official release
1.1	2023-06-12	David Liu/ Vinnie Liu	Added the packaging information (Chapter 6).
1.2	2024-06-07	Joye Wang	Updated drawing (Chapter 5)
2.0	2024-07-24	Nico Pan/ Lucky Feng/ David Liu/ Rainey Liao	<ol style="list-style-type: none"> Numerous changes were made to this document. It should be read in its entirety. Updated the template.
2.1	2024-09-18	Rainey Liao	Updated the overview.
2.2	2025-03-11	Rainey Liao	Updated the starting frequency to 698 MHz (Homepage, Overview and Chapter 1.1).
2.3	2025-04-16	Rainey Liao	Updated the antenna image (Cover page).
2.4	2025-07-28	Lucky Feng	Updated the operation temperature (Chapter 1.2).

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