



Antenna Datasheet

Product OC: YECT000WBA

Version: 1.2

Date: 2024-01-24

Status: Released

Product Name: 5G External Antenna

Key Features:

Frequency Band: 600–960 MHz, 1400–2690 MHz, 3300–6000 MHz

Dimensions: Φ 40.6 mm $\times$ 104 mm

Efficiency: Up to 98.5 %

RoHS and REACH Compliant

IP67

IP69K

IK10

Overview

This Quectel external 5G antenna covers 5G NR Sub-6 GHz frequency bands and is compatible with 4G/3G/2G/LPWA bands. Featuring high efficiency and gain, it is an ideal omni-directional antenna solution to ensure high-speed data transmission, which can be widely used in a diversity of wireless communication devices such as AP, routers, outdoor equipment, real-time monitoring equipment, and many more. The antenna is designed to work with any ground plane size or in free space for ease of integration. Quectel also offers flexible installation with custom cable length and connector options.

Contents

Overview.....	1
Contents	2
1 Specification.....	3
1.1. Electrical.....	3
1.2. Mechanical & Environmental	4
2 Drawing	5
3 Detailed Performance	7
3.1. S-Parameter Test	7
3.1.1. VSWR.....	7
3.1.2. Return Loss	8
3.2. Radiation Performance Test.....	9
3.2.1. Efficiency	9
3.2.2. Average Gain	10
3.2.3. Peak Gain.....	11
3.2.4. 3D & 2D Radiation Pattern.....	12
4 Packaging	17
Contact Us.....	19
Legal Notices	20
Revision History	22

1 Specification

Test Condition: On 300 mm × 300 mm metal plane

1.1. Electrical

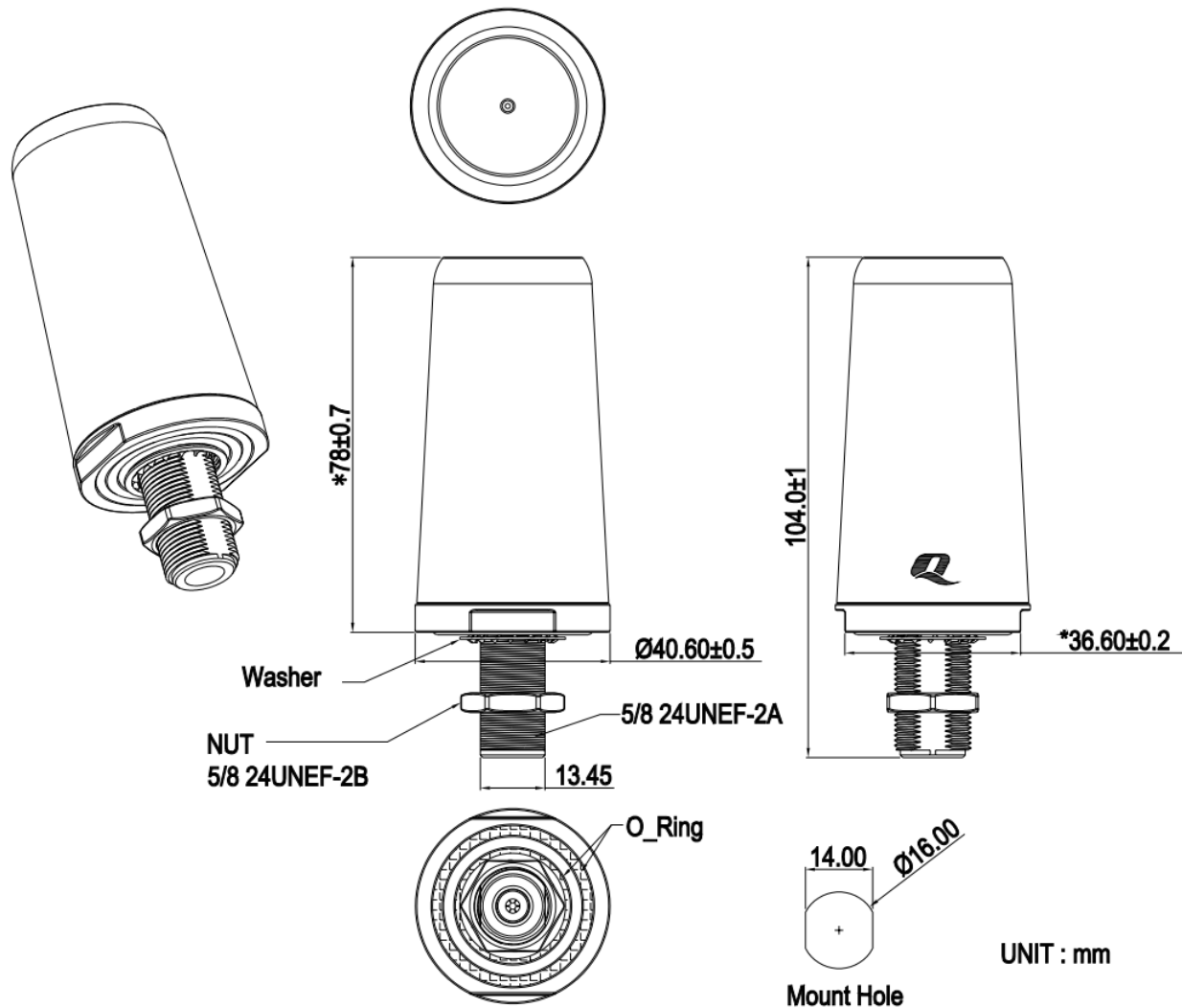
Electrical	
Frequency Range	600–960MHz, 1400–2690 MHz, 3300–6000 MHz
Impedance	50 Ω
Polarization	Vertical
Radiation Pattern	Omni-directional

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		10.7	3.3	1.6	1.5	1.8	1.2	1.2	1.4	2.5	3.3	2.4
Max. Return Loss (dB)		-1.6	-5.5	-12.7	-14.0	-11.2	-20.6	-22.9	-15.6	-7.5	-5.4	-7.9
AVG Eff. (%)		42.1	76.7	88.6	82.7	88.2	93.6	93.3	89.5	83.8	66.4	76.9
AVG AVG Gain (dB)		-4.0	-1.2	-0.5	-0.8	-0.6	-0.3	-0.3	-0.5	-0.8	-1.8	-1.1
Max. Peak Gain (dBi)		0.3	1.7	2.8	3.0	3.3	3.9	4.6	5.1	6.7	8.2	8.3
VSWR						≤ 10.7						
Return Loss						≤ -1.6 dB						
Peak Gain						≤ 8.3 dBi						

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	40.6 mm × 104 mm
Material & Color	ASA & Black
Connector Type	N Female
Weight	Typ. 194.2 g
Mounting Type	Screw
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP67 (After Installation) IP69K (After Installation)
Impact Protection (IK) Rating	IK10
RoHS & REACH Compliant	Yes
Housing UV Resistant	UL 746c f1

2 Drawing



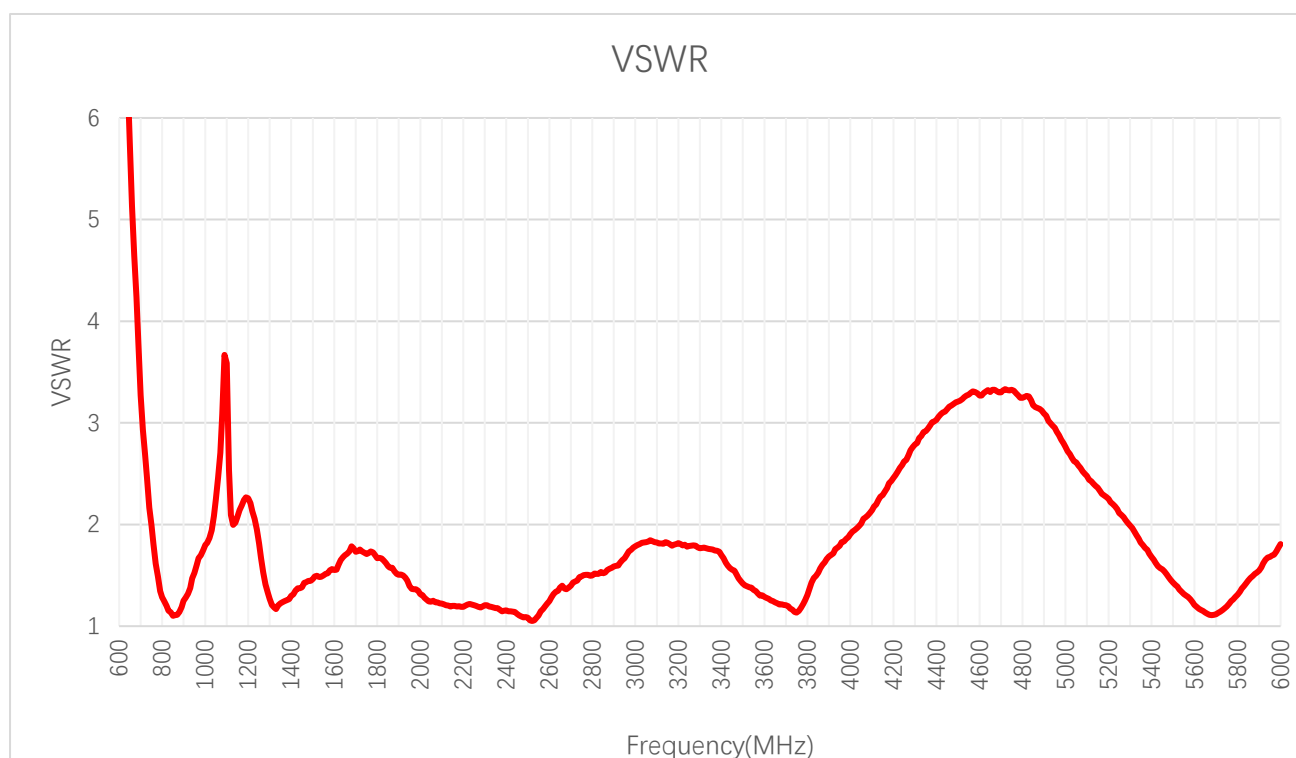
Caution: If you find the silicon seal ring dropping out of the groove when opening the package, it's a normal phenomenon due to its special structure design. Please assemble the silicon seal ring into groove before you assemble antenna on the device, thanks!



3 Detailed Performance

3.1. S-Parameter Test

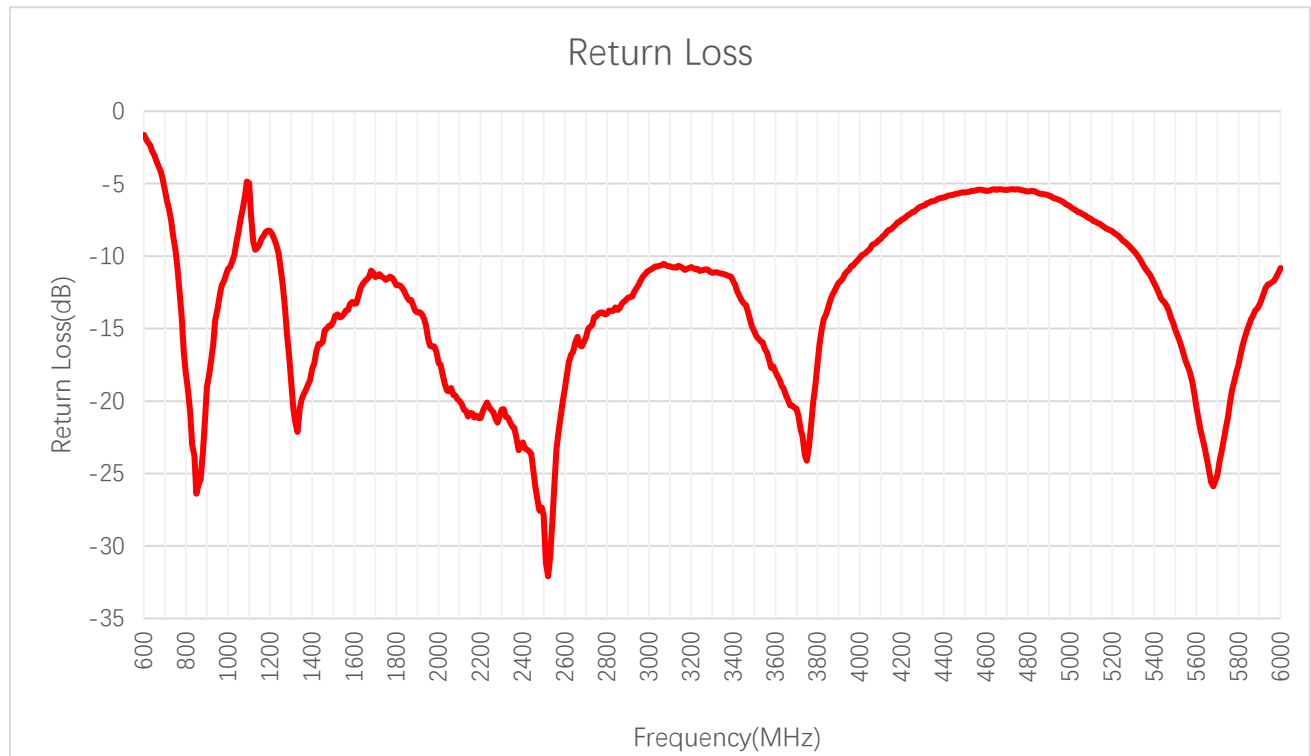
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	10.7	7.4	2.9	1.2	1.3	1.6	1.4	1.7	1.7	1.5
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
VSWR	1.4	1.2	1.2	1.1	1.2	1.3	3.3	2.8	1.4	1.8

3.1.2. Return Loss

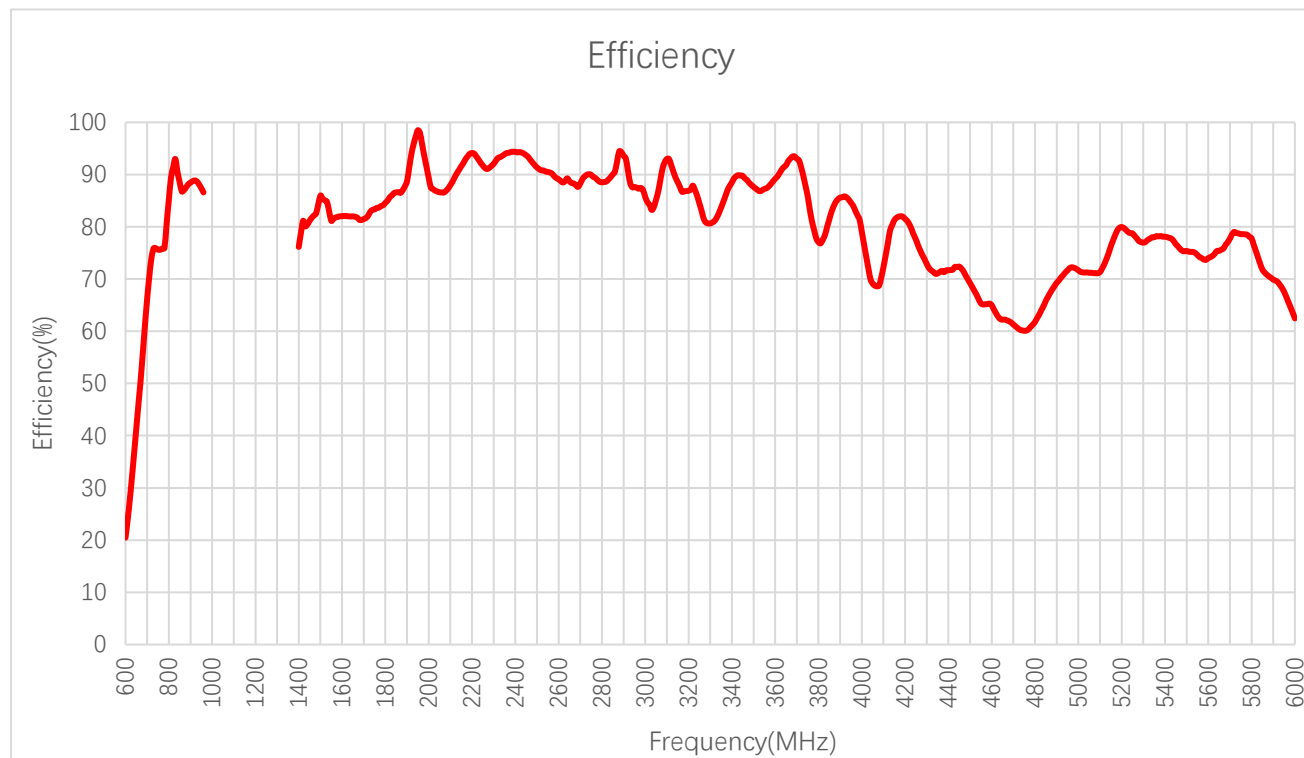


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-1.6	-2.4	-6.2	-23.0	-19.0	-12.7	-16.1	-11.4	-11.5	-13.4
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
Return Loss (dB)	-15.7	-21.1	-21.7	-24.8	-19.2	-18.0	-5.4	-6.6	-15.1	-10.8

3.2. Radiation Performance Test

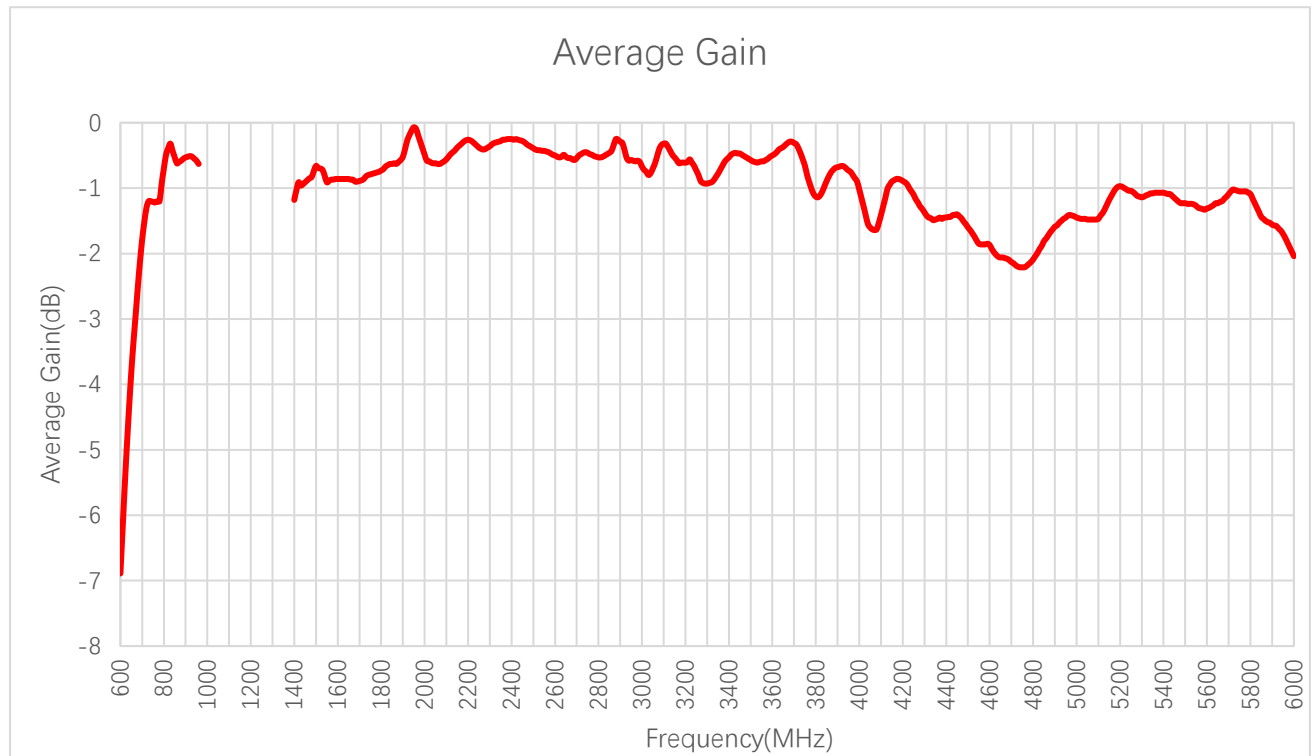
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	20.5	32.2	70.5	93.0	88.5	86.6	80.5	81.7	83.2	87.0
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
Efficiency (%)	98.5	90.9	93.9	93.7	89.1	89.2	61.3	71.7	75.4	62.5

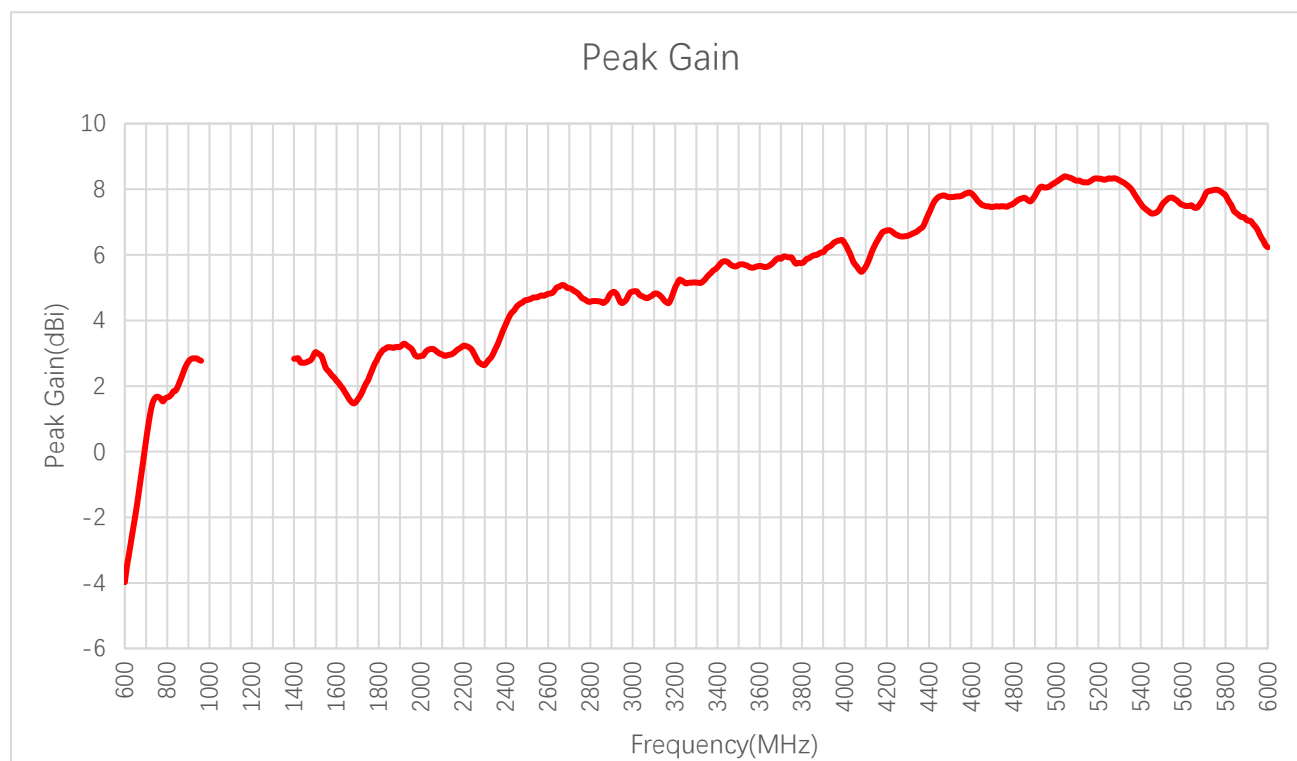
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-6.9	-4.9	-1.5	-0.3	-0.5	-0.6	-0.9	-0.9	-0.8	-0.6
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
Average Gain (dB)	-0.1	-0.4	-0.3	-0.3	-0.5	-0.5	-2.1	-1.5	-1.2	-2.0

3.2.3. Peak Gain

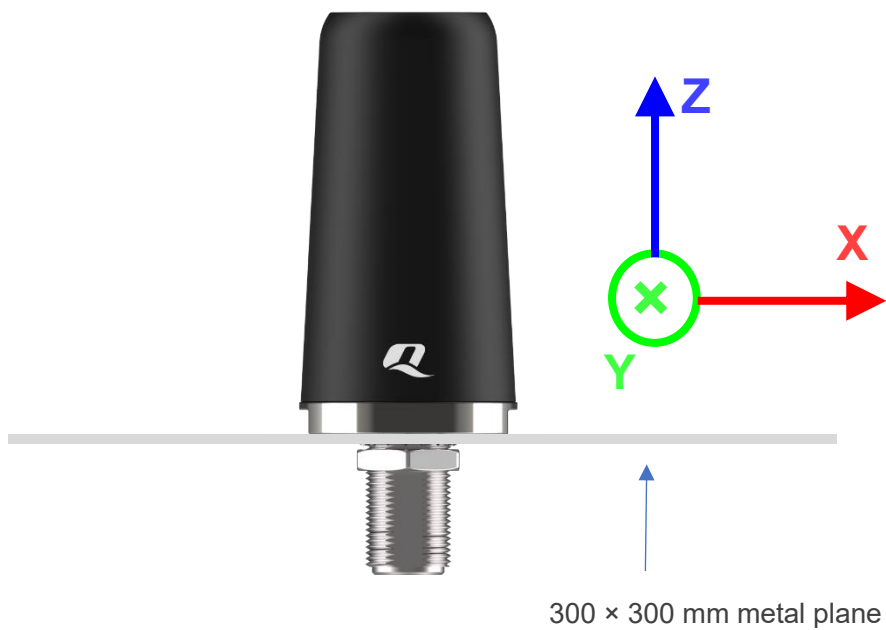


Peak Gain (dBi)

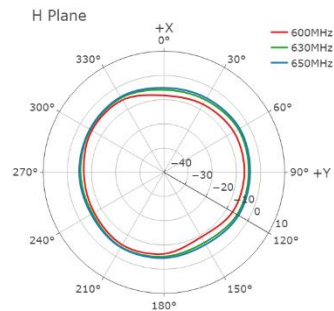
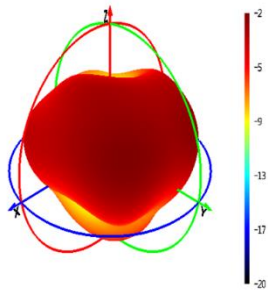
Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Peak Gain (dBi)	-4.0	-2.7	0.8	1.8	2.7	2.8	2.7	1.7	2.1	3.2
Frequency (MHz)	1950	2140	2350	2450	2600	3600	4700	5000	5500	6000
Peak Gain (dBi)	3.2	3.0	3.1	4.4	4.8	5.7	7.5	8.2	7.5	6.2

3.2.4. 3D & 2D Radiation Pattern

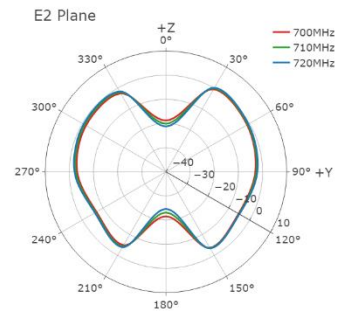
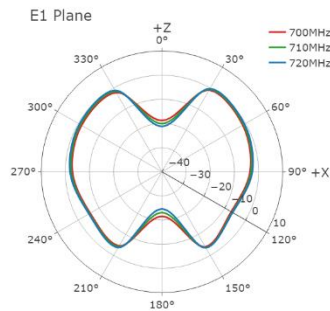
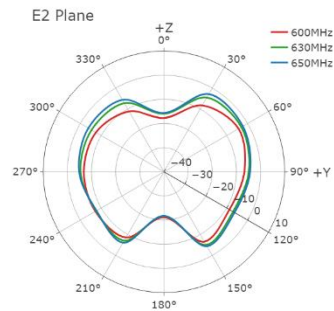
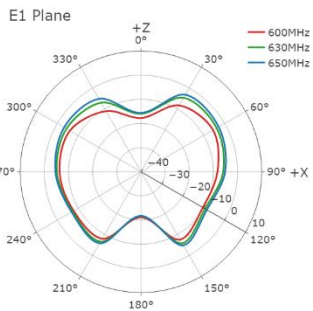
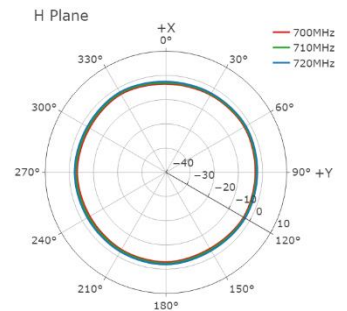
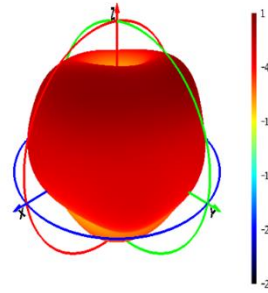
- Test Condition: On 300 mm × 300 mm metal plane
- Test Chamber: GL-S-1



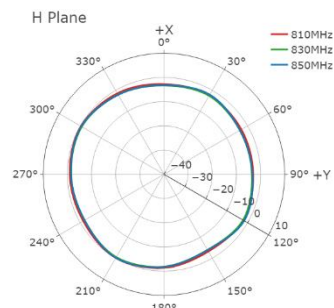
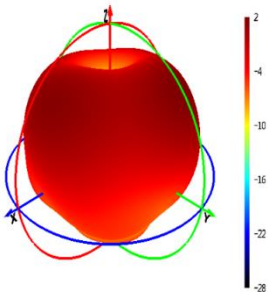
630 MHz



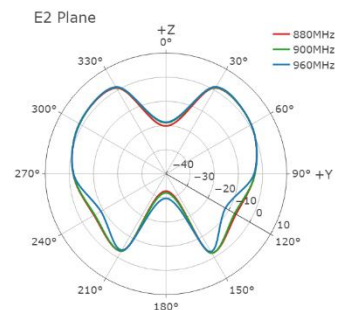
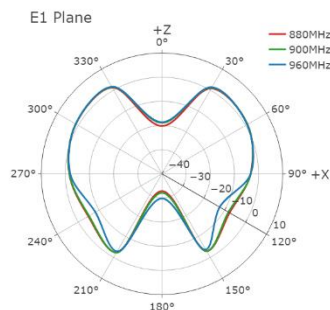
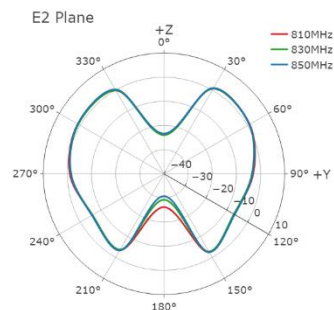
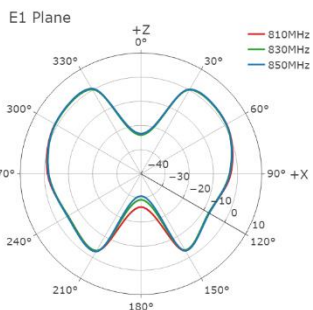
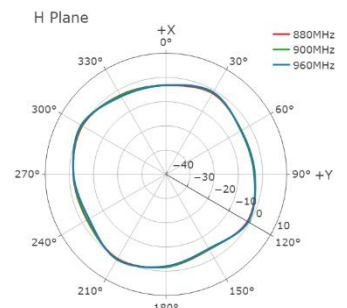
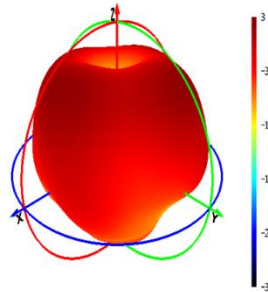
710 MHz

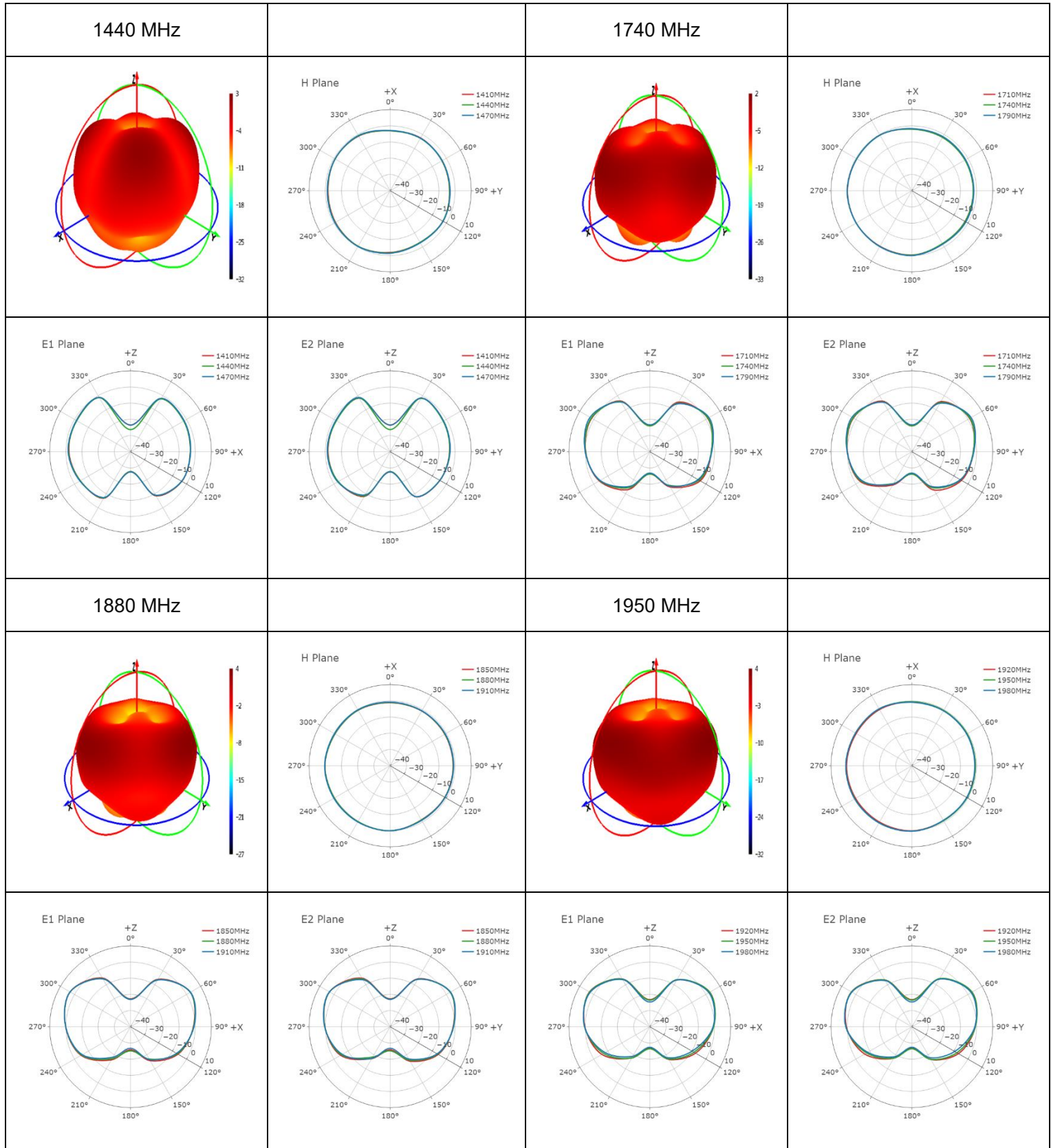


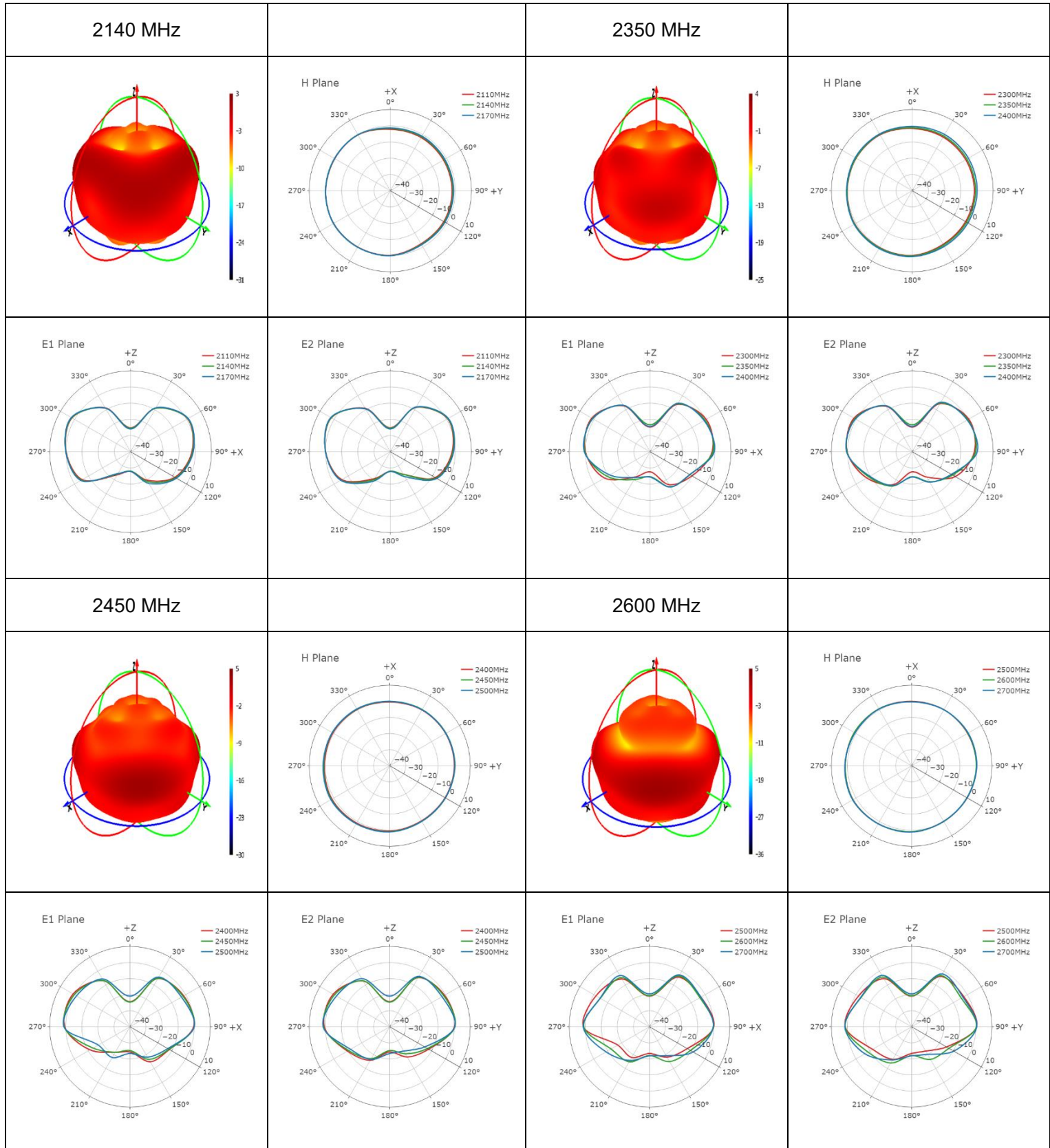
830 MHz

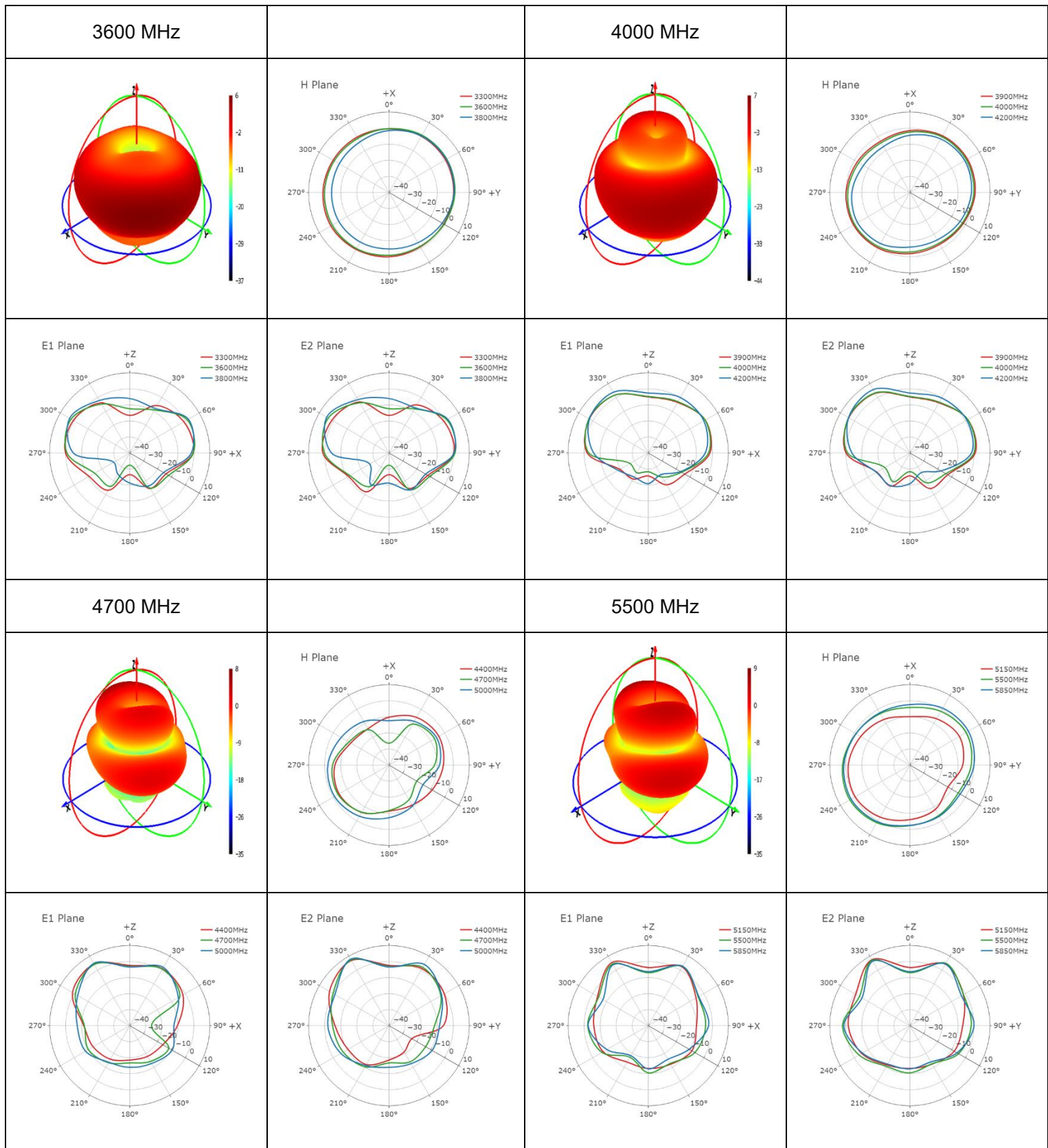


900 MHz

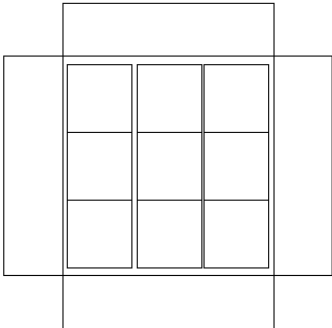


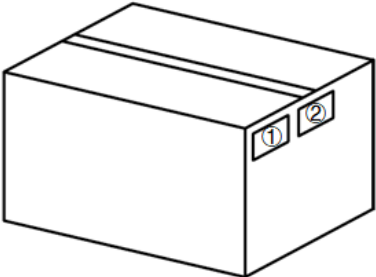
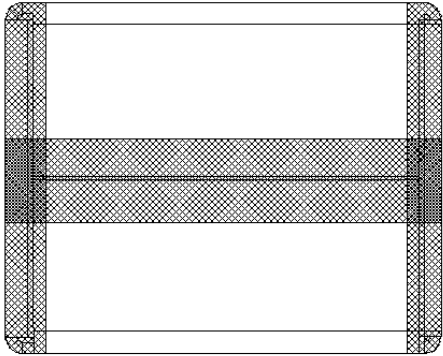






4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		Both the bottom and top of the product are wrapped with pearl cotton.
2		(1 PC Antenna / Inner Box)
3		(9 Inner Boxes / Carton Box) (9 PCS Antennas / Carton Box) <u>Carton Size:</u> <u>L × W × H = 300 × 250 × 200 mm</u>

4		Position for Attaching Labels ① Carton Label ② Quality Label
5		Sealing Cartons “⊥” 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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Email: info@quectel.com

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

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Revision History

Version	Date	Author	Note
-	2023-09-27	Sly LIU/ Lance SUN/ David LIU/ Aria CHU	Creation of the document
1.0	2023-09-27	Sly LIU/ Lance SUN/ David LIU/ Aria CHU	First official release
1.1	2023-12-18	Lance SUN/ Aria CHU	1. Added a caution (chapter 2). 2. Updated the drawing (Chapter 2). 3. Updated antenna photos (Chapter 3).
1.2	2024-01-24	Lance SUN/	Added Housing UV Resistant (Chapter 1.2)



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