Antenna Datasheet

Product OC: YECA000M1A
Version: 1.3
Date: 2024-11-01
Status: Released

Product Name: 4G External Antenna
Key Features:
Frequency Band: 700–960 MHz & 1710–2690 MHz
Dimensions: Φ 99.98 mm × 17.46 mm
Efficiency: Up to 52 % (FS)
RoHS and REACH Compliant
IP68, IP69K, IK10
Pressure load:1500 lbs MAX

Overview

The YECA000M1A antenna is a self-developed Quectel design that delivers exceptional performance and stability, making it suitable for the challenging environments found in municipal road applications. This antenna features a paste-on installation method, allowing for easy attachment to roads, sidewalks, or manholes. Its robust, non-reflective, and low-profile design ensures consistent and reliable operation in diverse settings.

Operating within the 4G LTE frequency bands, the YECA000M1A provides high-speed and stable signal transmission. It comes with an integrated SMA-M direct mount connector for seamless connectivity with other communication devices. To meet customer demands, the YECA000M1A 4G antenna also offers customizable cable and connector options.

The YECA000M1A 4G antenna is instrumental in smart city initiatives and is widely applied in intelligent transportation, monitoring, and security systems, making it an ideal choice for 4G communications. This weather-resistant, paste-on marking antenna ensures a stable and reliable wireless connection in various environments. For installation ease, it is recommended to use durable adhesive solutions like 3M VHB 4955 to securely attach the antenna to its intended location.

Contents

1 Specification

Test Condition: In Free Space

1.1. Electrical

Electrical	
Frequency Range	700–960 MHz & 1710–2690 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	**FS**	-	2.1	4.2	-	2.6	2.9	2.7	2.8	-	-	-
Max. Return Loss (dB)	**FS**	-	-9.1	-4.2	-	-7.0	-6.3	-6.7	-6.5	-	-	-
AVG Eff. (%)	**FS**	-	49.4	31.7	-	33.7	27.8	28.5	26.1	-	-	-
AVG Gain (dB)	**FS**	-	-3.1	-5.3	-	-4.7	-5.6	-5.5	-5.8	-	-	-
Max. Peak Gain (dBi)	**FS**	-	2.9	2.6	-	1.8	-1.0	-0.7	-1.5	-	-	-

VSWR	**FS**	≤ 4.2
Return Loss	**FS**	≤ -4.2 dB

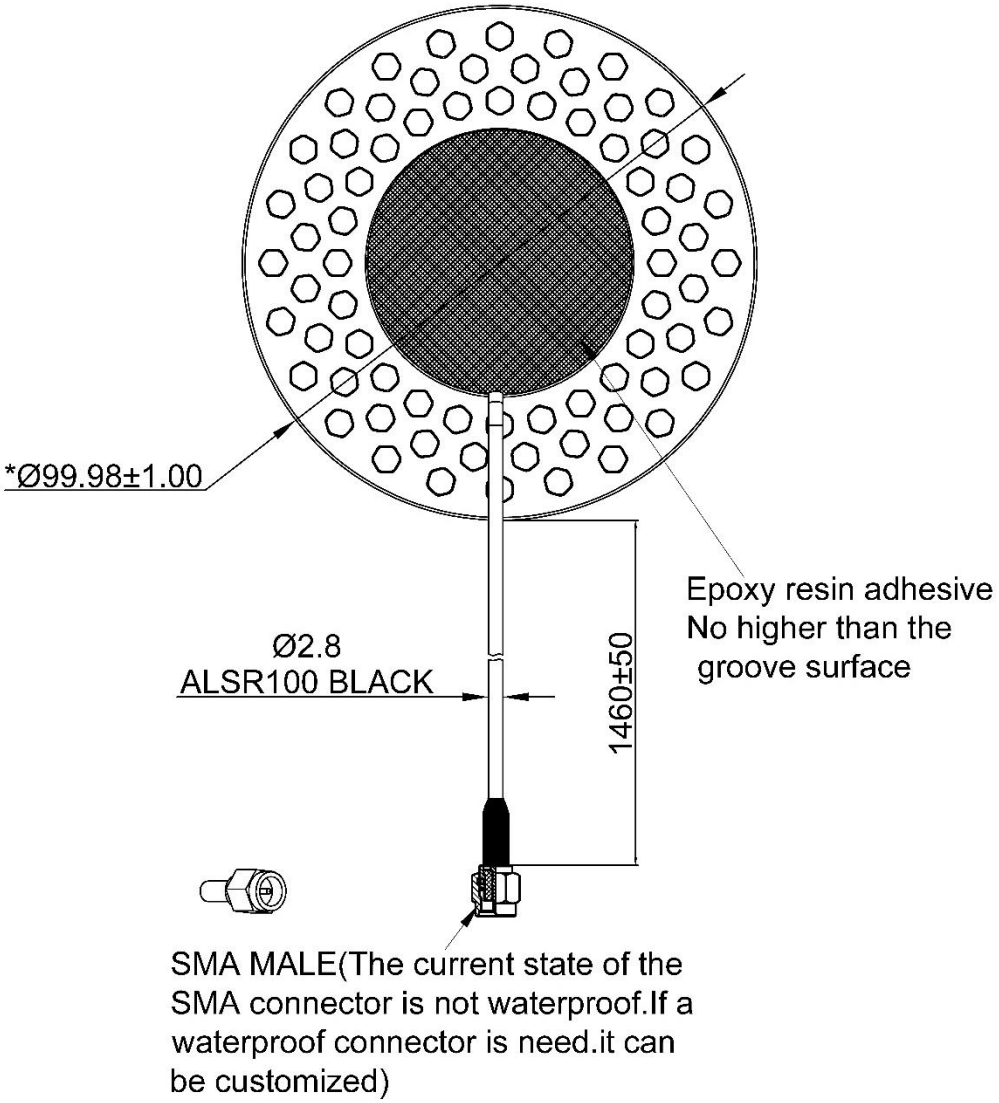
Peak Gain	**FS**	≤ 2.9 dBi

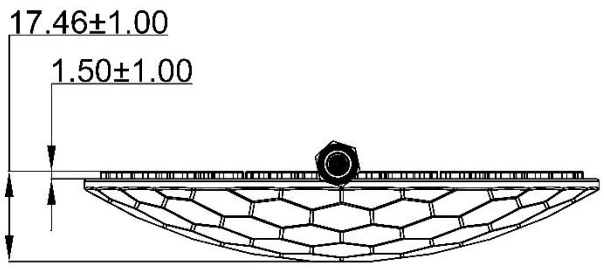
- **FS: In Free Space**

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 99.98 mm × 17.46 mm
Casing Material & Color	ASA & Grey
Cable Type & Color & Length	ALSR 100 & Black & 1460 mm
Connector Type	SMA Male
Mounting Type	Adhesive
Weight	Typ. 101.5 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP68 (water depth 2 m for 1 hour), IP69K
Impact Protection (IK) Rating	IK10
RoHS & REACH Compliant	Yes
Housing UV Resistant	UL 746c f1

2 Drawing

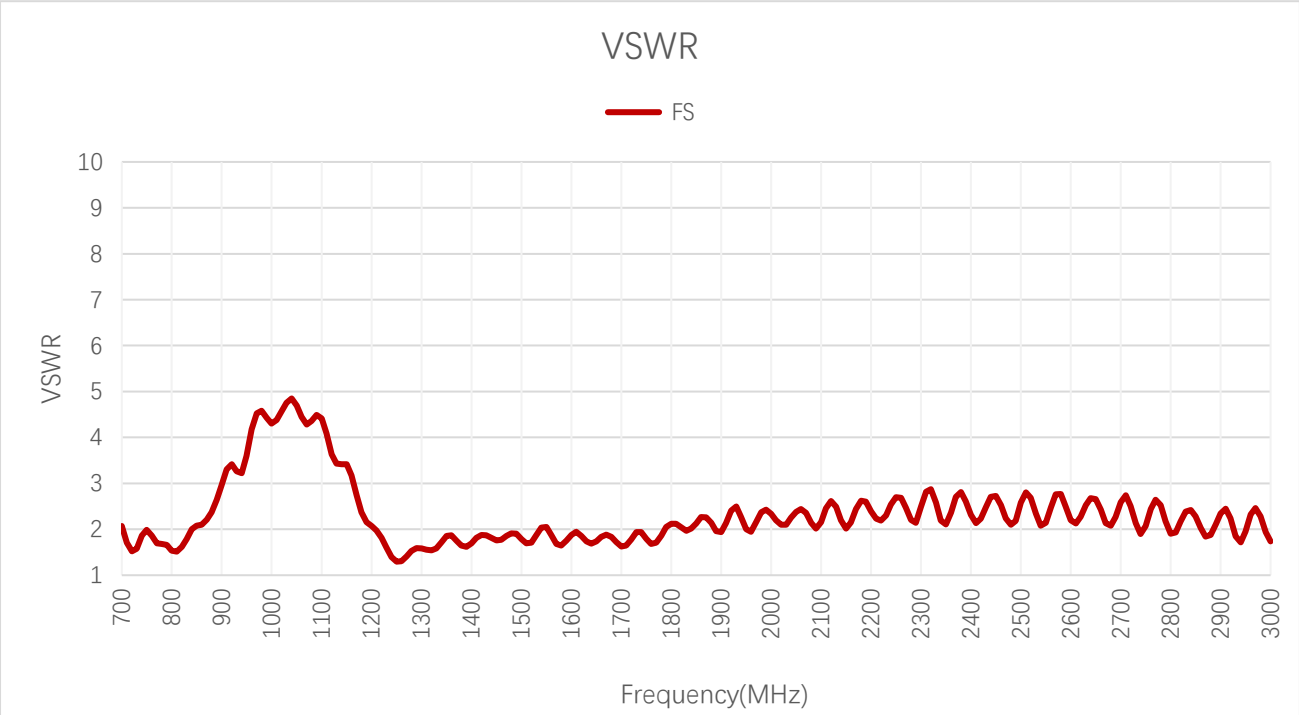

*Ø99.98±1.00
Epoxy resin adhesive
No higher than the
groove surface
Ø2.8
ALSR100 BLACK
1460±50
SMA MALE(The current state of the
SMA connector is not waterproof.If a
waterproof connector is need.it can
be customized)


17.46±1.00
1.50±1.00

3 Detailed Performance

3.1. S-Parameter Test

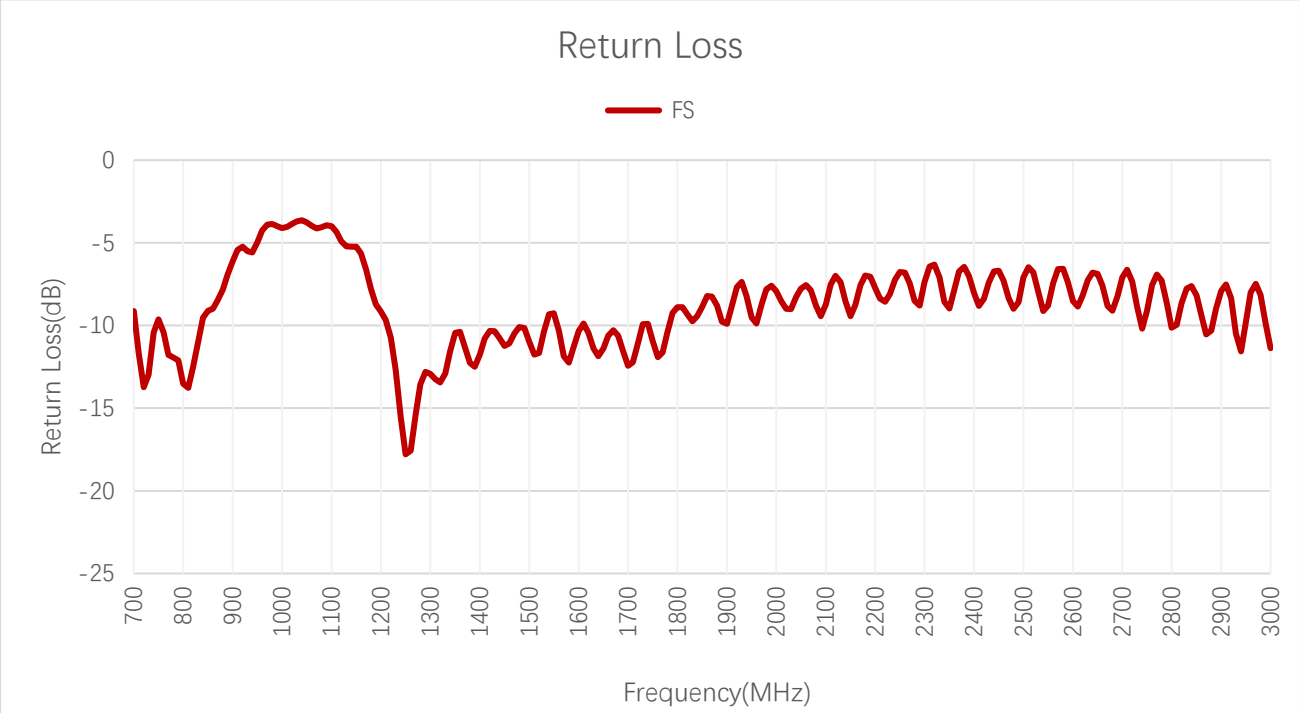
3.1.1. VSWR



VSWR

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
VSWR	-	-	1.7	1.8	3.0	4.2	-	1.6	1.9	2.1
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
VSWR	2.0	2.2	2.1	2.7	2.2	-	-	-	-	-

3.1.2. Return Loss

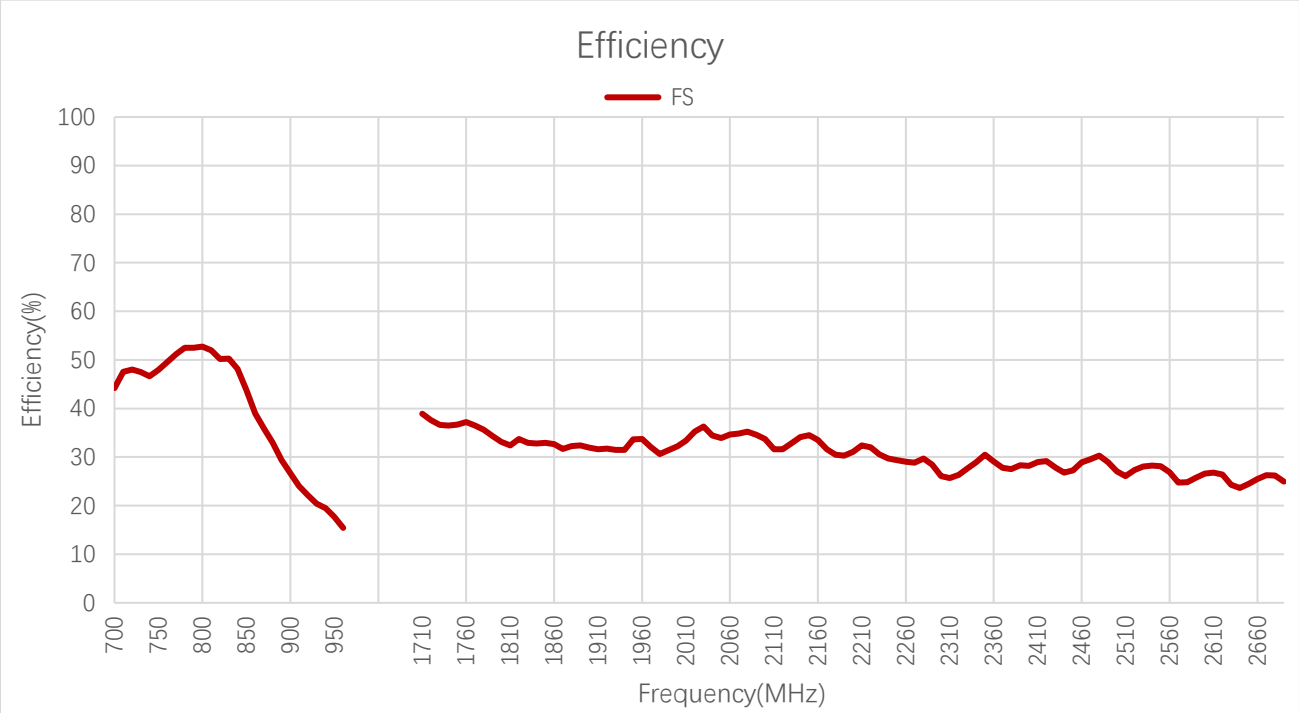


Return Loss (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Return Loss (dB)	-	-	-11.6	-11.0	-6.1	-4.2	-	-12.2	-9.9	-8.8
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Return Loss (dB)	-9.5	-8.5	-9.0	-6.7	-8.5	-	-	-	-	-

3.2. Radiation Performance Test

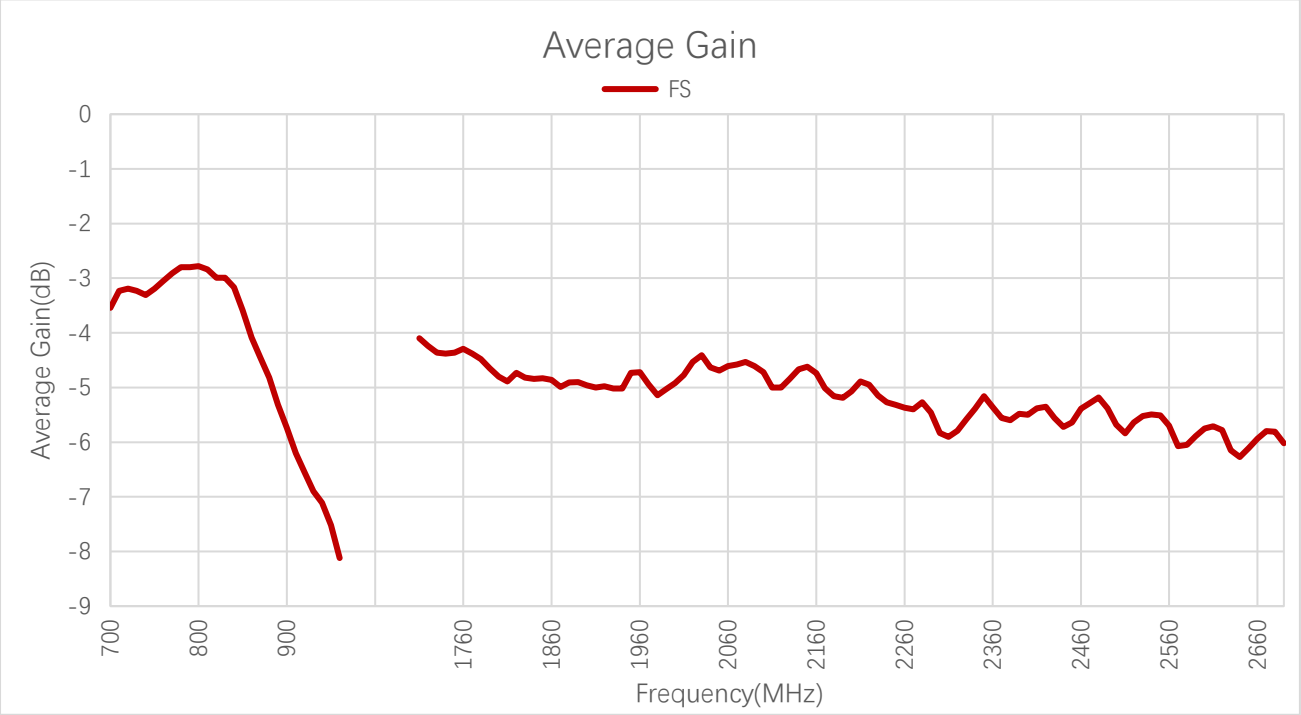
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Efficiency (%)	-	-	47.6	50.3	26.7	15.4	-	38.9	36.5	32.3
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Efficiency (%)	33.6	34.1	30.5	27.3	26.6	-	-	-	-	-

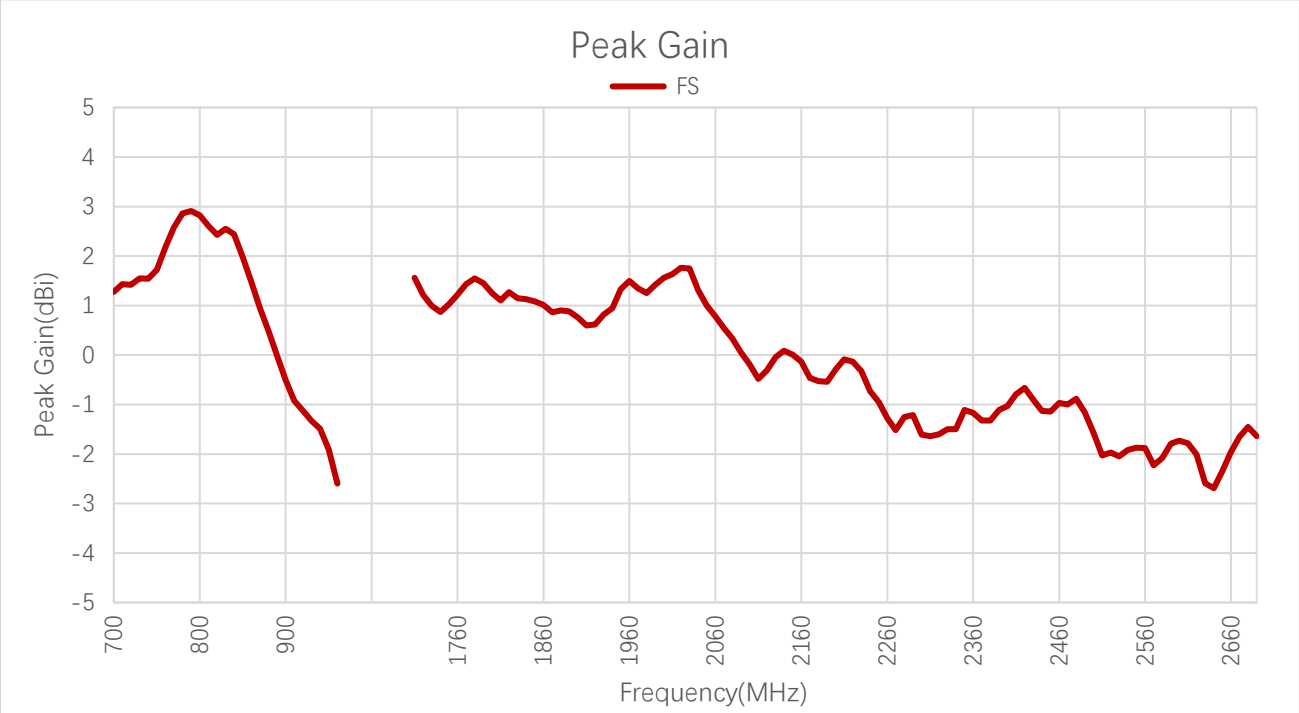
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	600	630	710	830	900	960	1440	1710	1740	1880
Average Gain (dB)	-	-	-3.2	-3.0	-5.7	-8.1	-	-4.1	-4.4	-4.9
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Average Gain (dB)	-4.7	-4.7	-5.2	-5.6	-5.8	-	-	-	-	-

3.2.3. Peak Gain



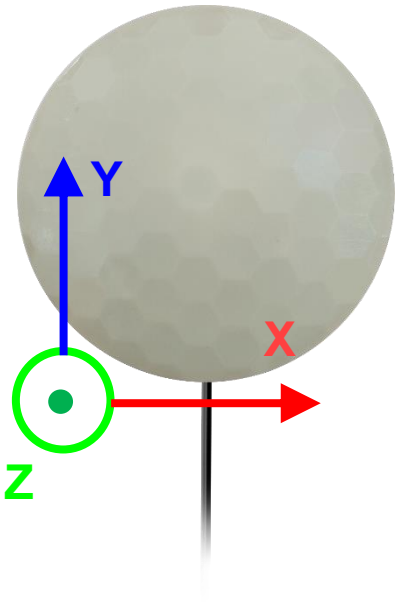
Peak Gain (dBi)

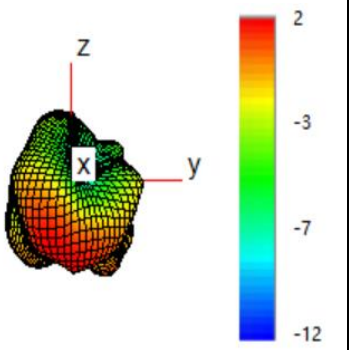
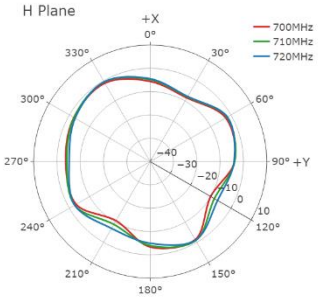
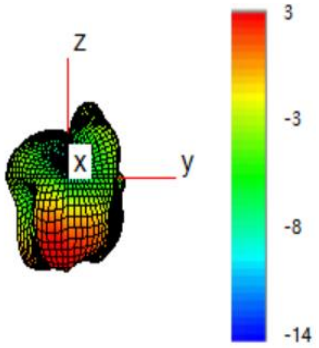
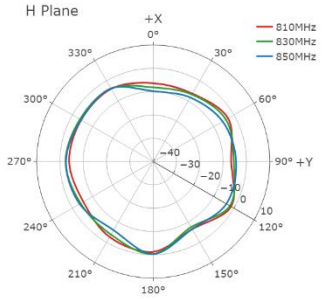
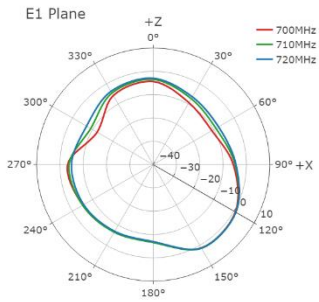
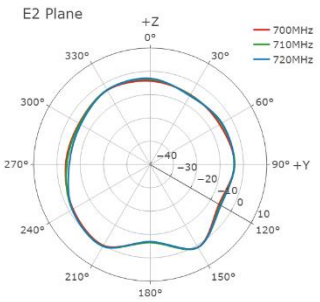
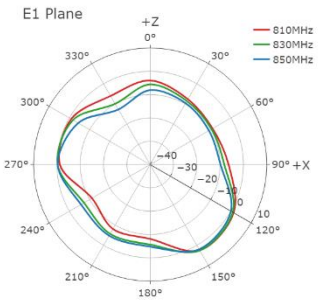
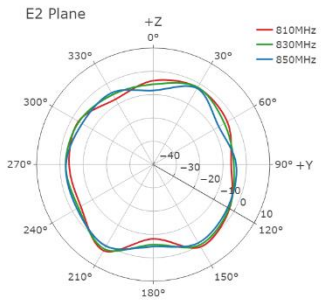
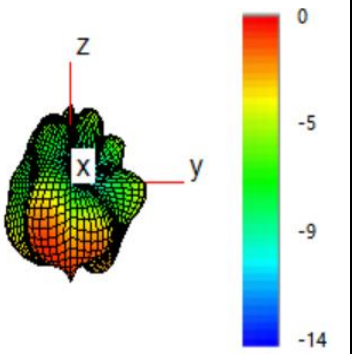
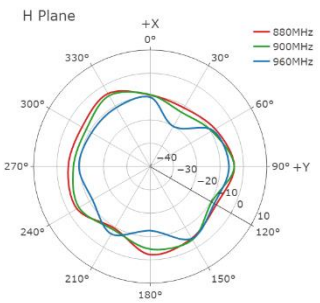
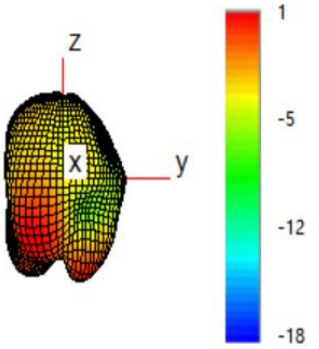
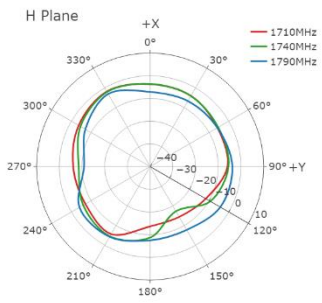
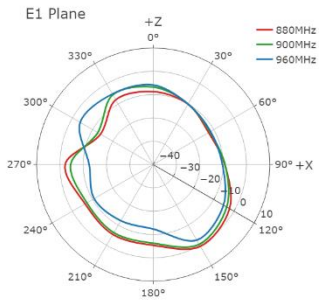
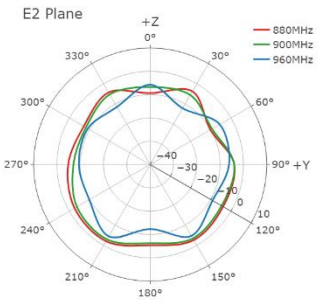
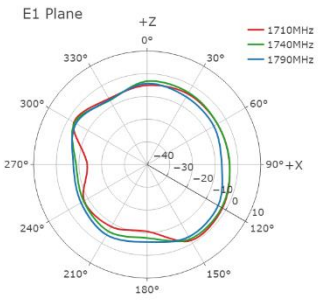
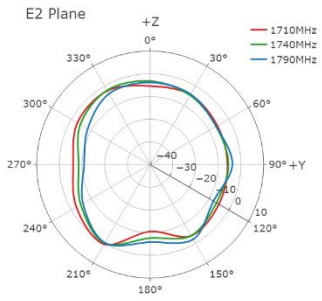
Frequency (MHz)	**600**	**630**	**710**	**830**	**900**	**960**	**1440**	**1710**	**1740**	**1880**
Peak Gain (dBi)	-	-	1.4	2.6	-0.5	-2.6	-	1.6	0.9	0.9
Frequency (MHz)	**1950**	**2140**	**2350**	**2450**	**2600**	**2690**	**4700**	**5000**	**5500**	**6000**
Peak Gain (dBi)	1.3	0.1	-1.1	-1.1	-1.7	-	-	-	-	-

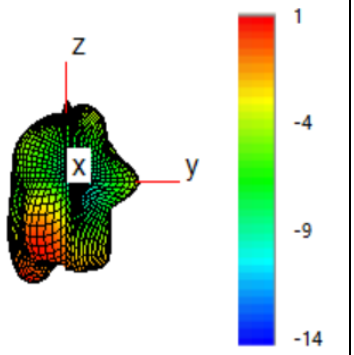
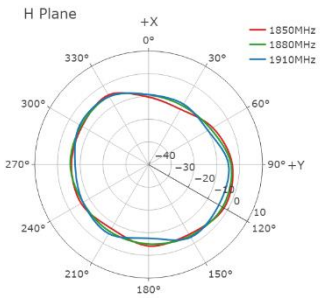
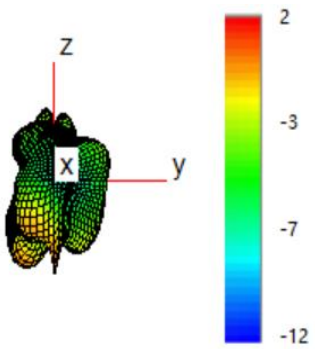
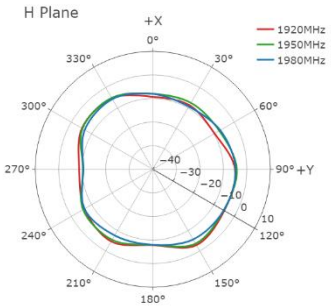
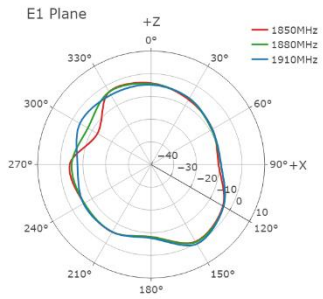
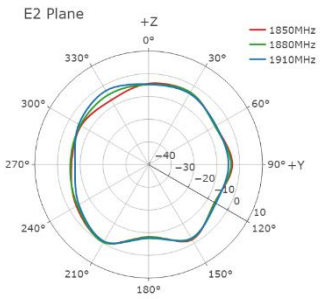
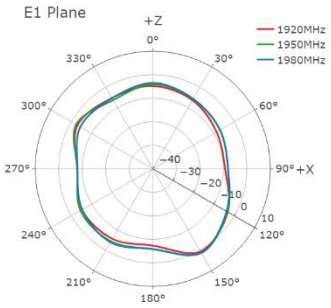
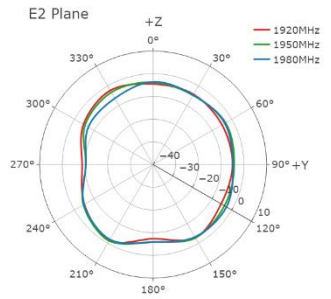
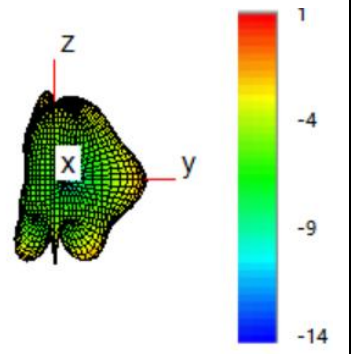
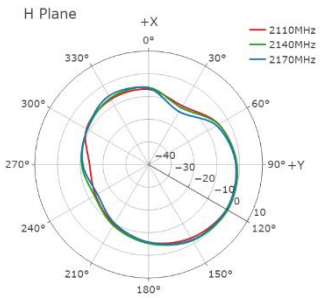
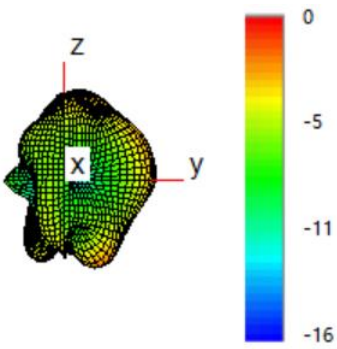
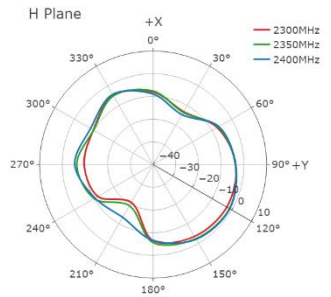
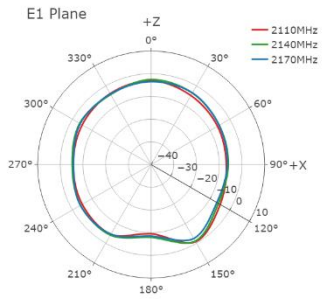
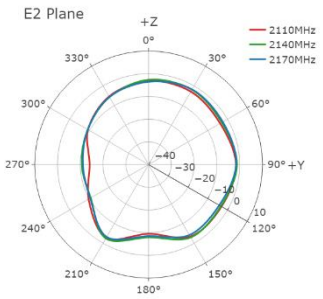
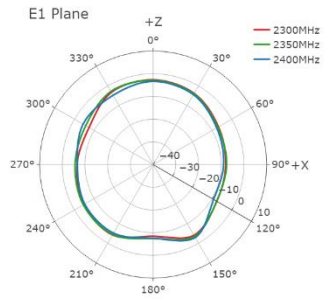
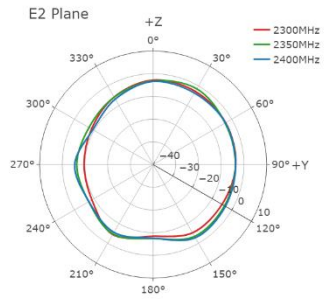
3.2.4. 3D & 2D Radiation Pattern

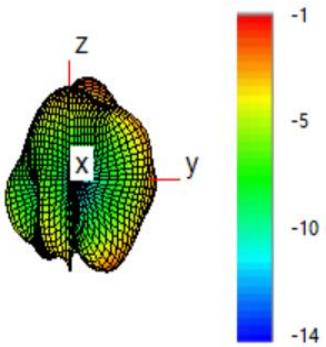
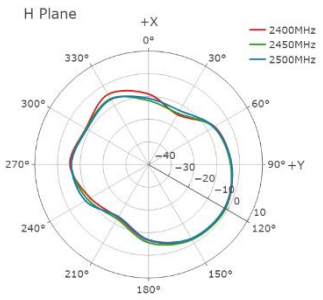
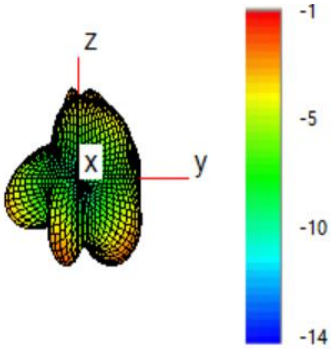
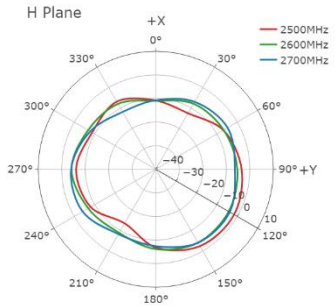
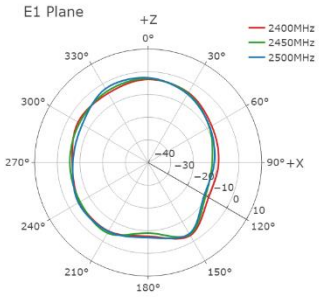
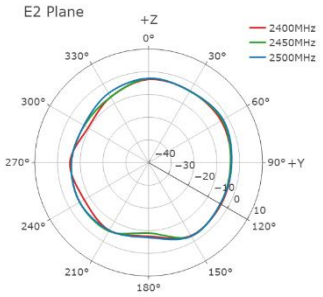
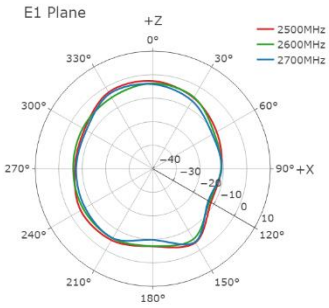
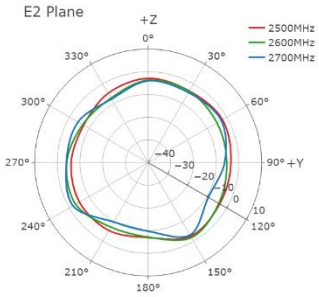
3.2.4.1. Test Condition: Free Space

- Test Chamber: GL-S-1

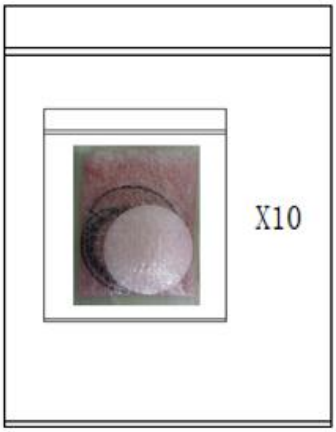


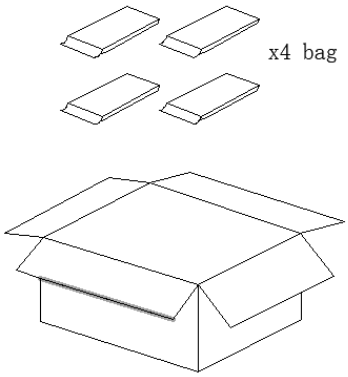
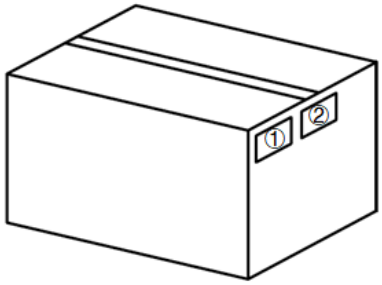
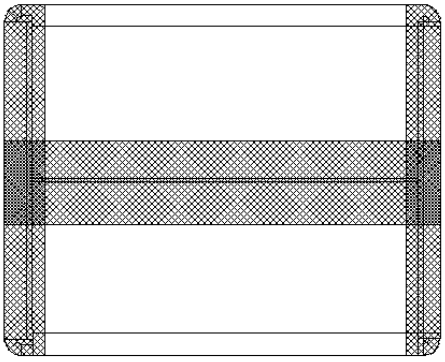
710 MHz		830 MHz	
			
			
900 MHz		1740 MHz	
			
			

1880 MHz		1950 MHz	
			
			
2140 MHz		2350 MHz	
			
			

2450 MHz		2600 MHz	
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		After covering the bubble bag, the product is put into the PE bag. 1 pc antenna product in a PE bag. (1 PC / PE Bag)
2		10 pcs PE bags in a big PE bag. (10 PCS / Big PE Bag)

3		(4 Big PE Bag / Carton Box) (40 PCS Antennas / Carton Box) Carton Size: L × W × H = 405 × 293 × 185 mm
4		**Position for Attaching Labels** ① Carton Label ② Quality Label
5		**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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Or our local offices. For more information, please visit:
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Revision History

Version	Date	Author	Note
-	2023-07-10	Andy YAN/ Toby WANG/ David LIU/ Vinnie LIU	Creation of the document
1.0	2023-07-10	Andy YAN/ Toby WANG/ David LIU/ Vinnie LIU	First official release
1.1	2023-12-05	Toby WANG/ Vinnie LIU	Updated casing color (Chapter 1.2).
1.2	2024-01-22	Toby WANG	Updated cable type to ALSR 100 (Chapters 1.2 and 2).
1.3	2024-11-02	Toby WANG	Added housing UV resistant (Chapter 1.2).

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