



Antenna Datasheet

Product OC: YENM001L1AH

Version: 1.1

Date: 2024-10-11

Status: Released

Product Name: ISM Magnetic Mount External Monopole Antenna

Key Features:

Frequency Band: 433–435 MHz, 450–470 MHz

Dimensions: Φ 30 mm $\times$ 82.2 mm

Efficiency: Up to 40.1 %

RoHS and REACH Compliant

IP67

Overview

YENM001L1AH is an ISM external antenna measuring Φ 30 × 82.2 mm. This ISM antenna provides coverage from 433–435 MHz, 450–470 MHz. The antenna is available with connection via cable lengths from 300–5,000 mm, terminated with SMA Male (Center pin) connector. Ideal for applications where the antenna is required to be discrete, this low profile, magnetic mount omni-directional antenna is easy to install with maximum durability assured thanks to its IP67 rated and ASA enclosure. It is compatible with Quectel's ISM Series modules.

It allows constant and reliable transmission and reception due to its omni-directional gain across all frequency bands. YENM001L1AH is designed as a monopole antenna, which offers high efficiency in all working bands. It is a perfect antenna product for customers that desire highest performance. This high-efficiency, high-gain omni-directional antenna is ideally suited for security alerts, wireless data-transmission, automated manufacturing, and many other IoT devices. It is suitable for outdoor and indoor applications due to its robust UV resistant ASA enclosure, which meets UL 746C f1.

Typical applications include:

- Security Alerts
- Wireless Data-transmission
- Automated Manufacturing
- Industrial IoT

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: Free Space & On 300 mm × 300 mm Metal Plane

1.1. Electrical

Electrical	
Frequency Range	433–435 MHz, 450–470 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical - Detail					
Specification	Band	Band	B88	EU433	B31
		Freq. (MHz)	412– 427	433– 435	450– 470
Max. VSWR	FS		-	3.4	3.1
	MP		-	2.6	2.7
Max. Return Loss (dB)	FS		-	-5.2	-5.8
	MP		-	-7.2	-6.7
AVG Eff. (%)	FS		-	27.2	37.4
	MP		-	34.4	39.6
AVG Gain (dB)	FS		-	-5.6	-4.6
	MP		-	-4.3	-4.0
Max. Peak Gain (dBi)	FS		-	0.3	1.7
	MP		-	3.0	2.9
VSWR	FS		≤ 3.4		

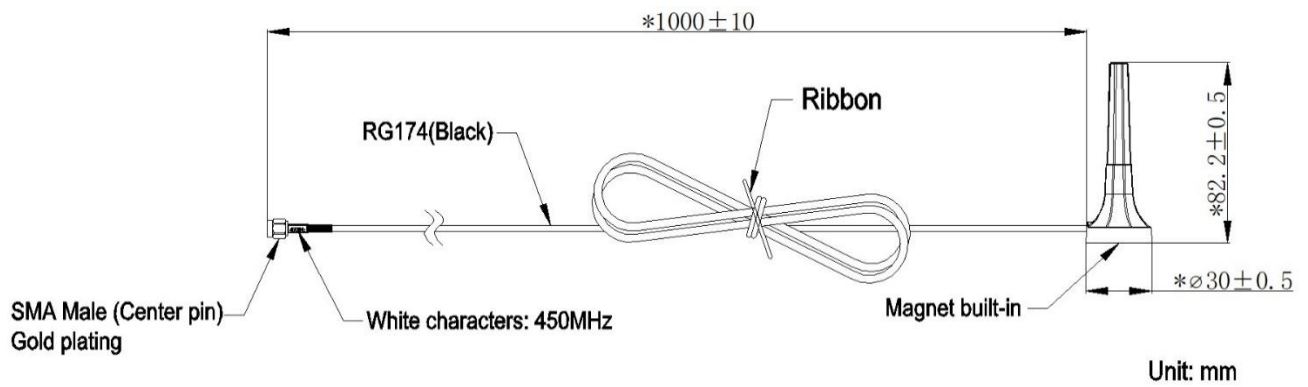
	MP	≤ 2.7
Return Loss	FS	≤ -5.2 dB
	MP	≤ -6.7 dB
Peak Gain	FS	≤ 1.7 dBi
	MP	≤ 3.0 dBi

- **FS:** In Free Space
- **MP:** On 300 mm × 300 mm Metal Plane

1.2. Mechanical & Environmental

Mechanical		
Antenna Dimensions		Φ 30 mm × 82.2 mm
Material & Color		ASA & Black
Cable Type & Color & Length		RG174 & Black & 1000 mm
Connector Type		SMA Male (Center pin)
Weight		Typ. 25.3 g
Mounting Type	YENM001L1AH	Magnetic
	YENA001L1AH	Adhesive
Magnetic Pull Force		1.1 kgf
Environmental		
Operation Temperature		-40 °C to +85 °C
Storage Temperature		-40 °C to +85 °C
Ingress Protection (IP) Rating		IP67
Housing UV Resistant		UL 746C f1
RoHS and REACH Compliant		Yes

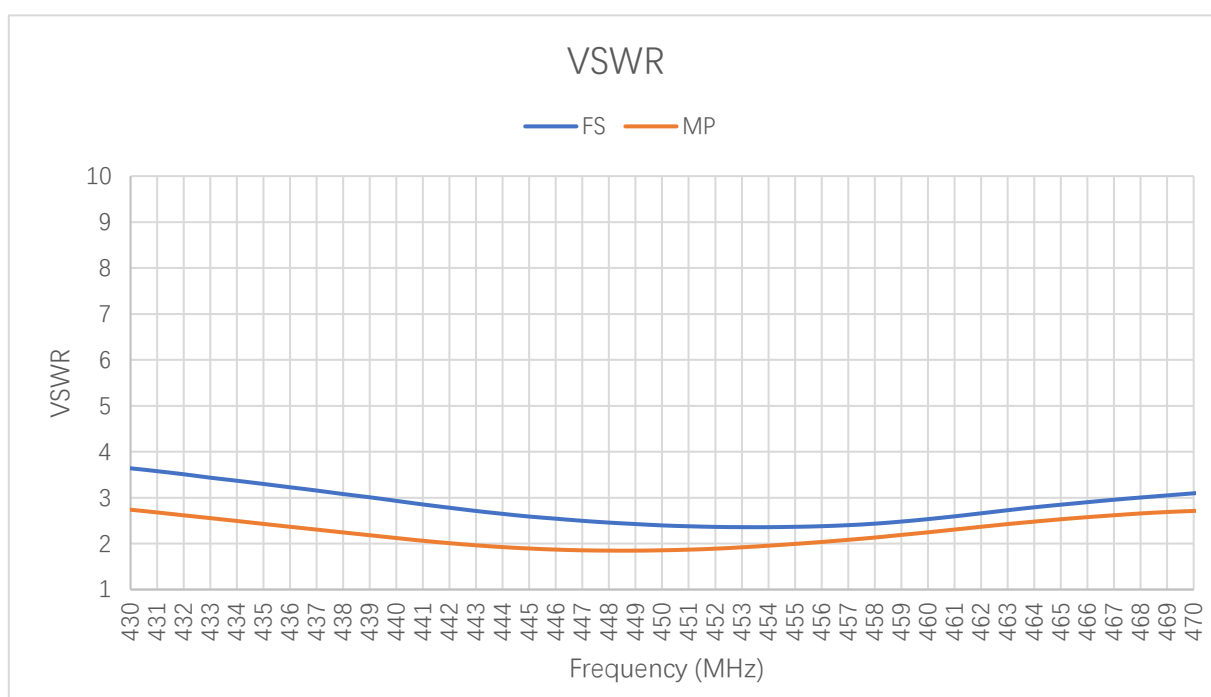
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

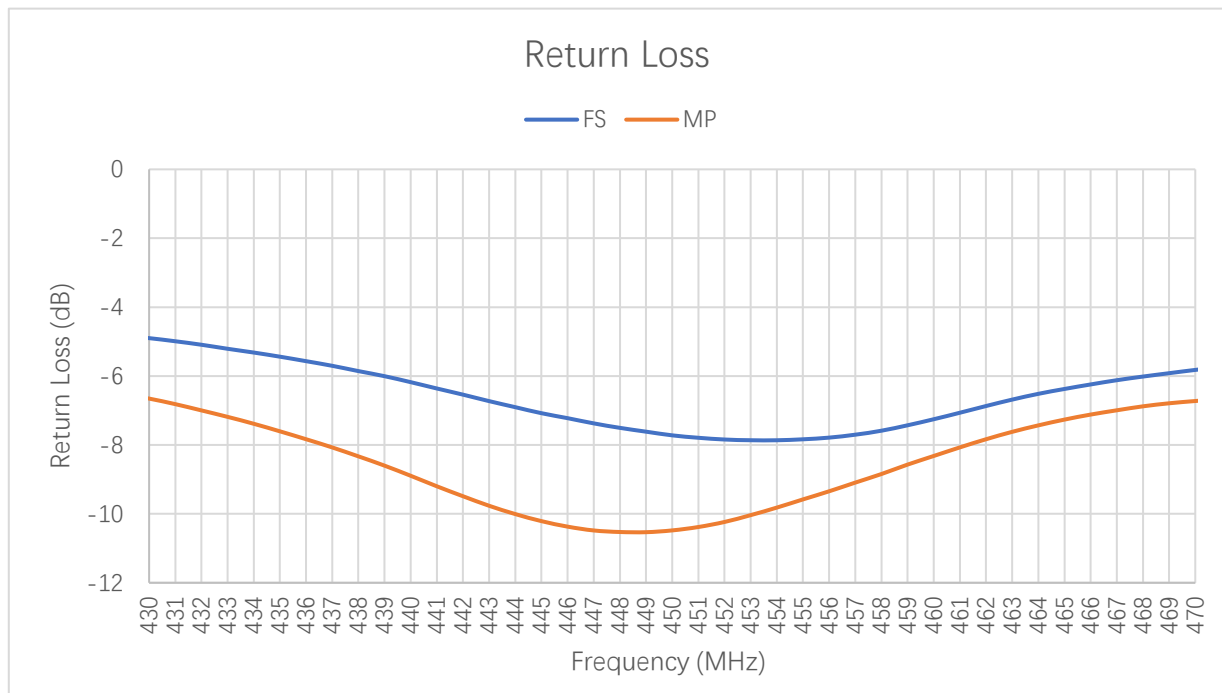
3.1.1. VSWR



VSWR

Frequency (MHz)	433	435	450	455	460	465	470
FS	3.4	3.3	2.4	2.4	2.5	2.8	3.1
MP	2.6	2.4	1.9	2.0	2.2	2.5	2.7

3.1.2. Return Loss

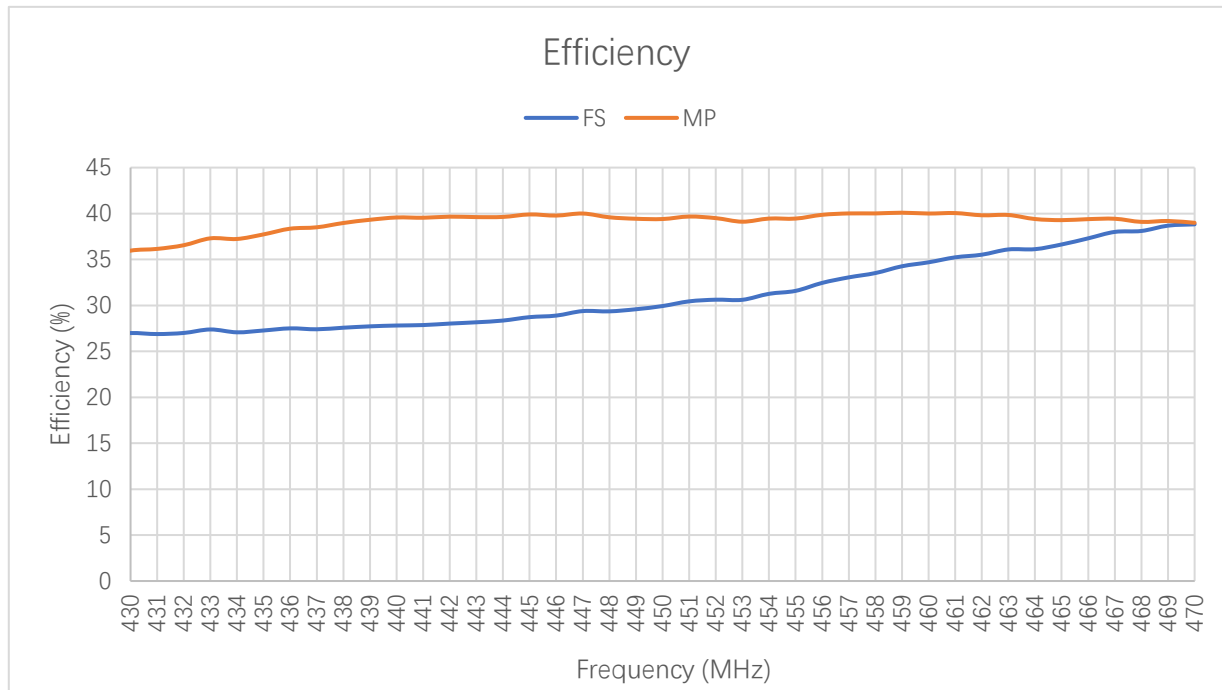


Return Loss(dB)

Frequency (MHz)	433	435	450	455	460	465	470
FS	-5.2	-5.4	-7.7	-7.8	-7.3	-6.4	-5.8
MP	-7.2	-7.6	-10.5	-9.6	-8.3	-7.3	-6.7

3.2. Radiation Performance Test

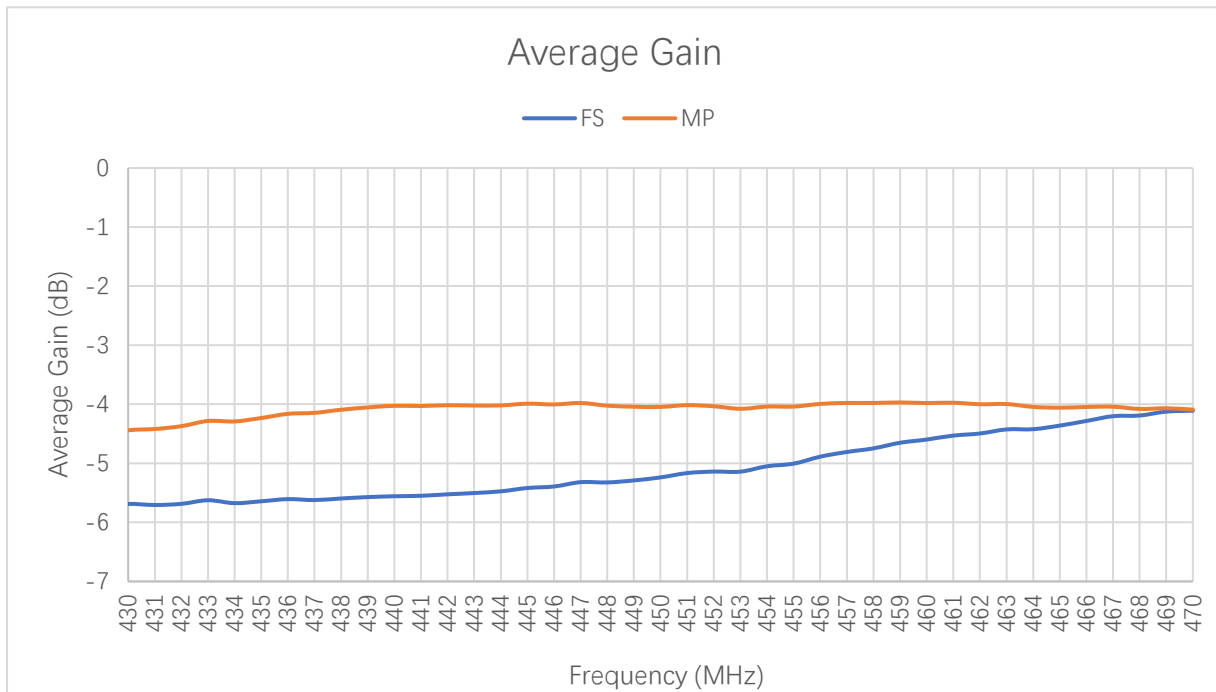
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	433	435	450	455	460	465	470
FS	27.4	27.3	29.9	31.6	34.7	36.6	38.8
MP	37.3	37.7	39.4	39.5	40.0	39.3	39.0

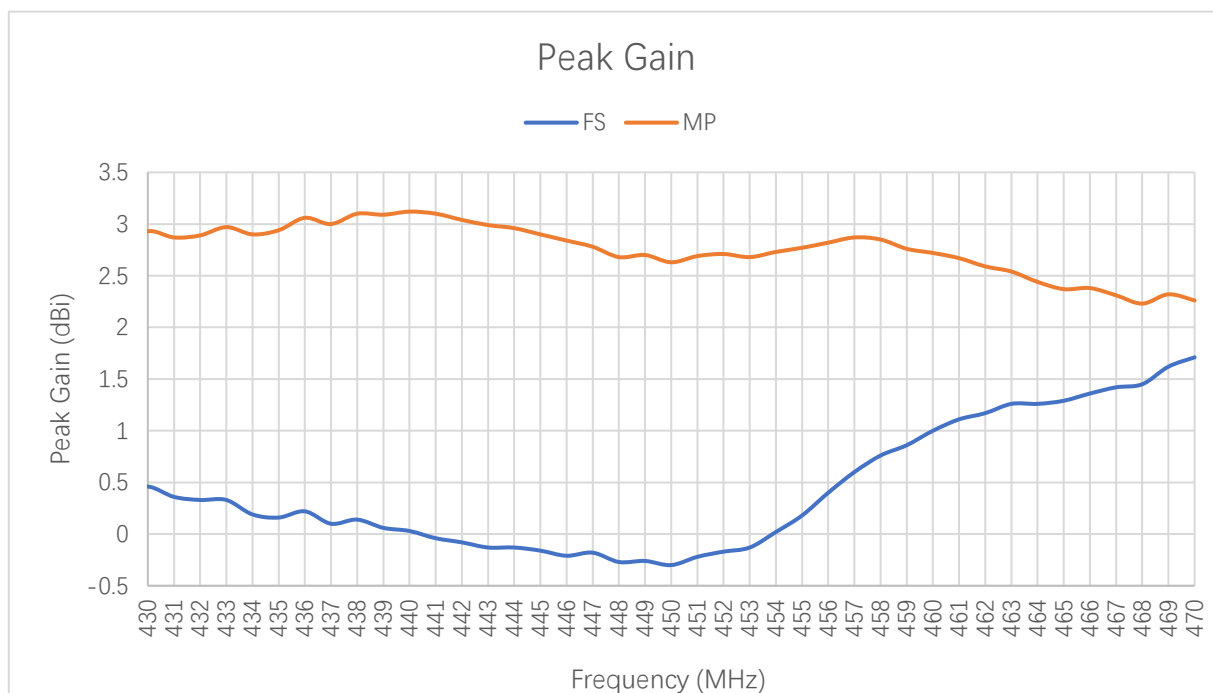
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	433	435	450	455	460	465	470
FS	-5.6	-5.6	-5.2	-5.0	-4.6	-4.4	-4.1
MP	-4.3	-4.2	-4.0	-4.0	-4.0	-4.1	-4.1

3.2.3. Peak Gain



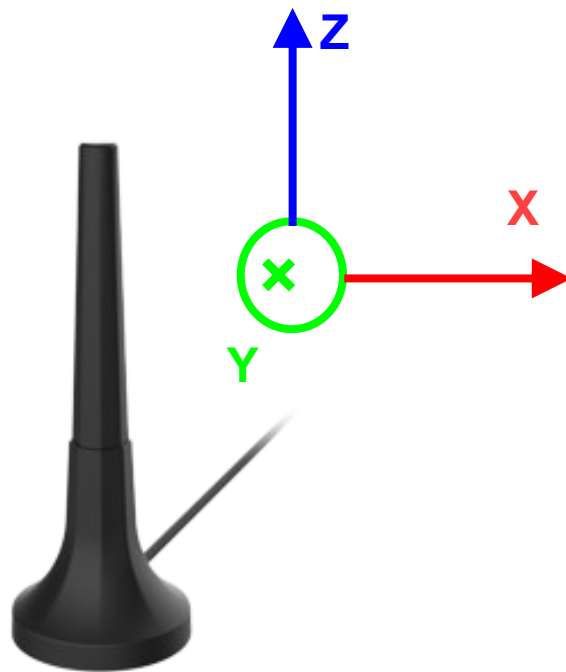
Peak Gain (dBi)

Frequency (MHz)	433	435	450	455	460	465	470
FS	0.3	0.2	-0.3	0.2	1.0	1.3	1.7
MP	3.0	2.9	2.6	2.8	2.7	2.4	2.3

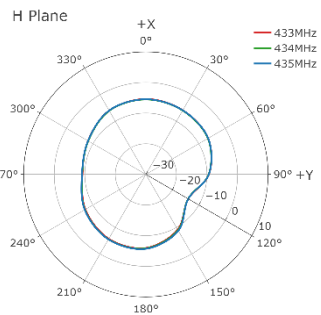
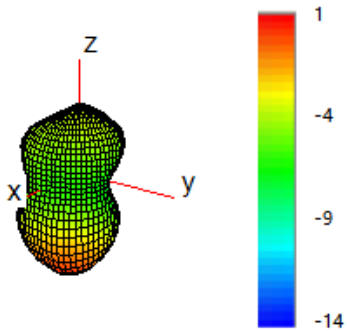
3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Condition: Free Space

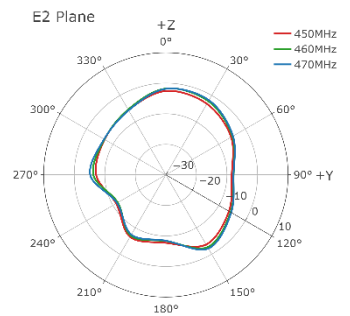
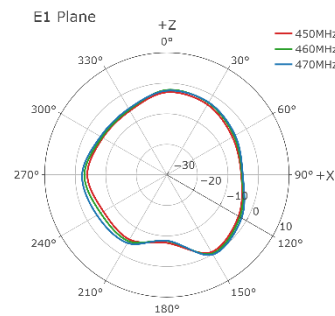
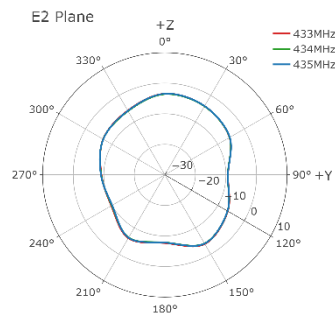
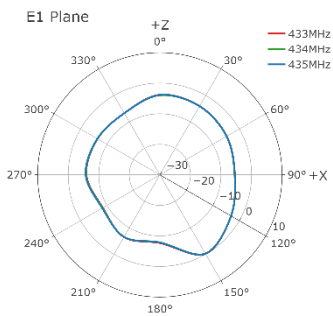
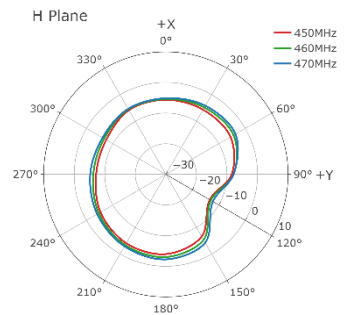
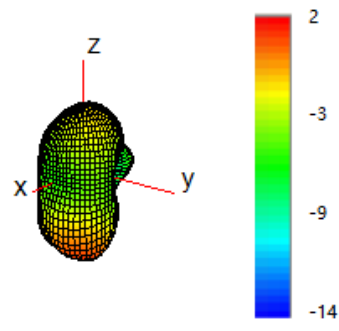
- Test Chamber: FS-G-1



433 MHz

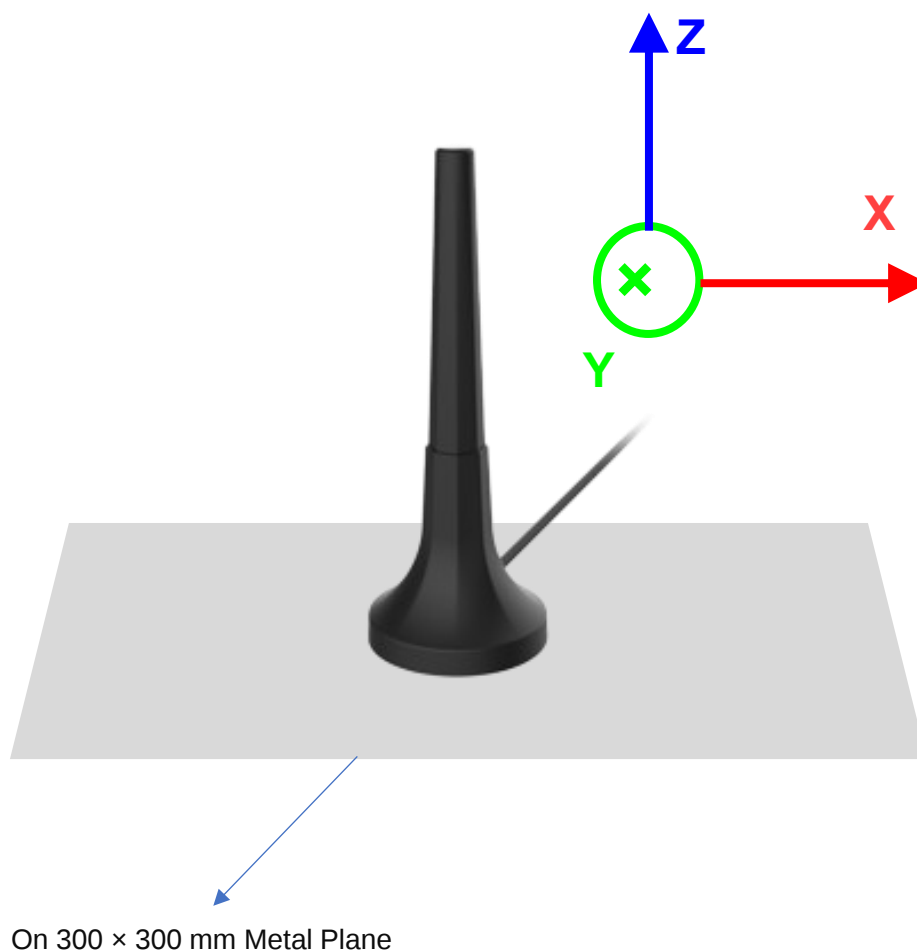


460 MHz

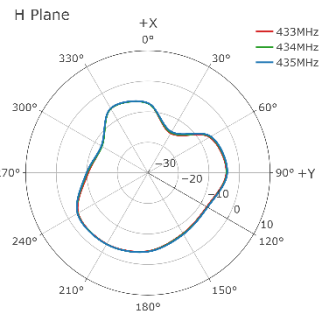
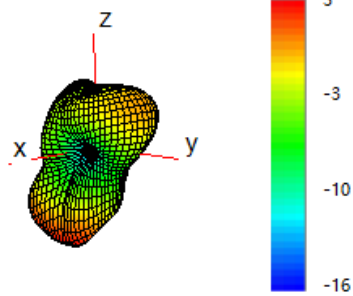


3.2.4.2. Test Condition: On 300 mm × 300 mm Metal Plane

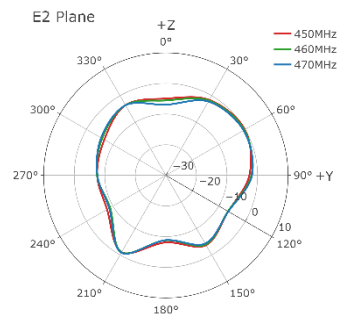
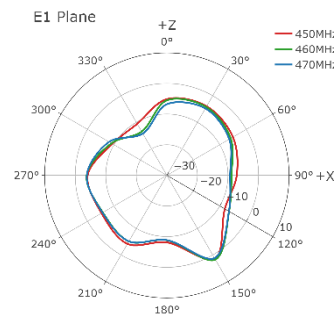
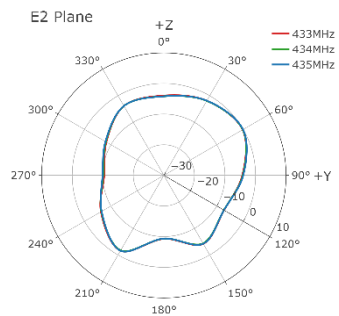
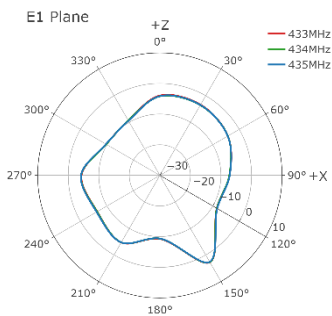
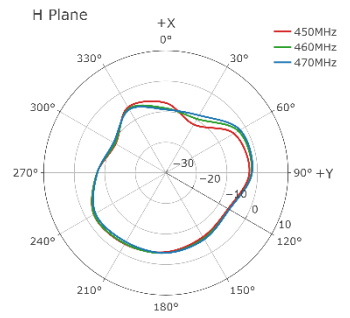
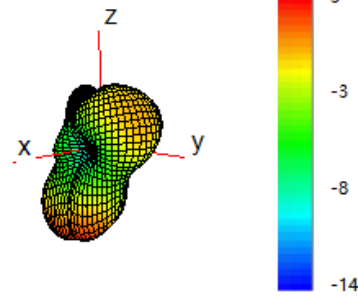
- Test Chamber: FS-G-1



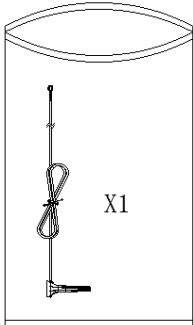
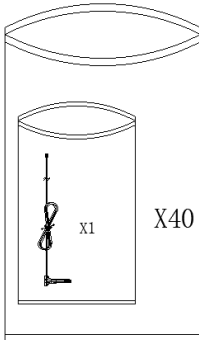
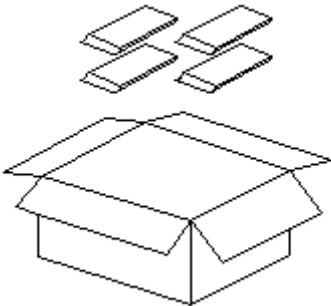
433 MHz

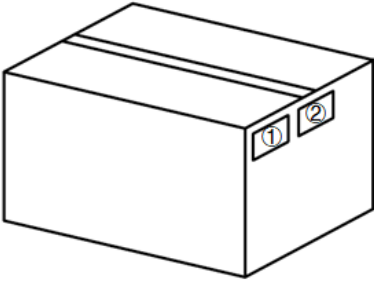
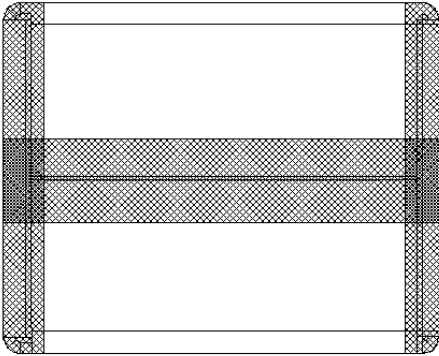


460 MHz



4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 pc antenna product in a small PE bag. (1 PC / Small PE Bag)
2		40 pcs antenna product in a big PE bag. (40 PCS / Big PE Bag)
3		(4 PE Bags / Carton Box) (160 PCS 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 = 370 × 370 × 295 mm</u>

4		Position for Attaching Labels ① Carton Label ② Quality Label
5		Sealing Cartons “I” type sealing cartons
Note	The initial packaging method described above is for reference only, and the final actual packaging method shall be subject to the actual shipping packaging.	

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
-	2024-07-13	Mordecai LIU/ Jason LONG/ David LIU/ Rainey LIAO	Creation of the document
1.0	2024-07-13	Mordecai LIU/ Jason LONG/ David LIU/ Rainey LIAO	First official release
1.1	2024-10-11	Jason LONG	Updated the antenna weight and magnetic pull force (Chapter 1.2).



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