



Antenna Datasheet

Product OC: YECW058L1AM

Version: 1.0

Date: 2025-09-26

Status: Preliminary

Product Name: ISM Screw Mount External Dipole Antenna

Key Features:

Frequency Band: 400–470 MHz

Dimensions: 223.18 mm × 74.09 mm × 76.50 mm

Efficiency: Up to 66.5 % (FS)

RoHS and REACH Compliant

Overview

YECW058L1AM is an ISM external antenna measuring 223.18 mm × 74.09 mm × 76.50 mm. This antenna provides broad coverage from 400–470 MHz. The antenna is terminated with SMA Male connector. This low profile, screw mount omni-directional antenna, ideal for applications where the antenna is required to be discrete, is easy to install with maximum durability assured thanks to its PC + ABS enclosure. It is compatible with Quectel's ISM Series modules.

The YECW058L1AM is designed as dipole type to work with various GND plane sizes or in free space for ease of integration with a SMA Male connector to achieve the optimum position. This omni-directional antenna is ideally suited for Gateways & Routers, Smart Metering, Vending Machines, Industrial IoT, Smart Home, Connected Enterprise, offering great performance with its high gain and efficiency.

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

Contents

Overview.....	1
Contents.....	2
1 Specification.....	3
1.1. Electrical.....	3
1.2. Mechanical & Environmental	4
2 Drawing	5
3 Detailed Performance	6
3.1. S-Parameter Test	6
3.1.1. VSWR.....	6
3.1.2. Return Loss	7
3.2. Radiation Performance Test.....	8
3.2.1. Efficiency	8
3.2.2. Average Gain	9
3.2.3. Peak Gain.....	10
3.2.4. 3D & 2D Radiation Pattern.....	11
3.2.4.1. Test Condition: In Free Space	11
3.2.4.2. Test Condition: On 500 mm × 500 mm Metal Plane	13
Contact Us.....	15
Legal Notices	16
Revision History	18

1 Specification

Test Condition: In Free Space & On 500 mm × 500 mm Metal Plane

1.1. Electrical

Electrical	
Frequency Range	400–470 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Electrical – Detail									
SPEC	Band	Band	B88	EU433	B31	LoRa	B12	B5	B1
	Freq. (MHz)						/B13 /B28	/B8 /B26	/B2 /B3
			412– 427	433– 435	450– 470	470– 510	700– 810	820– 960	1700– 2170
Max VSWR	FS		2.5	2.4	1.5	-	-	-	-
	MP		4.5	4.3	3.2	-	-	-	-
Max Return Loss (dB)	FS		-7.3	-7.8	-13.4	-	-	-	-
	MP		-3.9	-4.1	-5.7	-	-	-	-
AVG Eff. (%)	FS		39.8	47.7	65.0	-	-	-	-
	MP		16.9	18.2	41.0	-	-	-	-
AVG Gain (dB)	FS		-4.0	-3.2	-1.9	-	-	-	-
	MP		-7.7	-7.4	-3.9	-	-	-	-
Max Peak Gain (dBi)	FS		-1.4	-0.3	2.1	-	-	-	-
	MP		-3.1	-3.2	1.7	-	-	-	-

VSWR	FS	≤ 2.5
	MP	≤ 4.5
Return Loss	FS	≤ -7.3 dB
	MP	≤ -3.9 dB
Peak Gain	FS	≤ 2.1 dBi
	MP	≤ 1.7 dBi

Note:

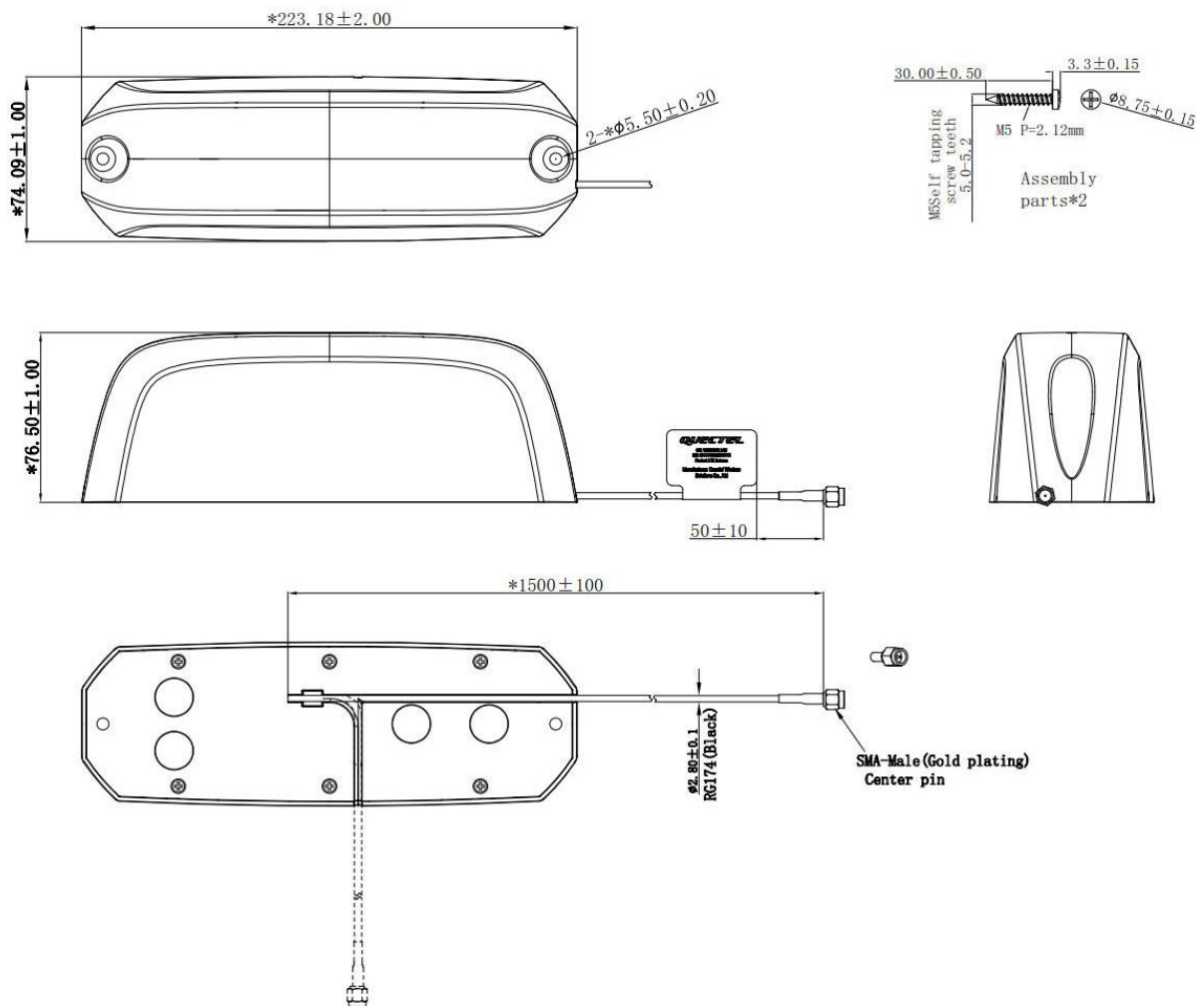
FS: In Free Space

MP: On 500 mm × 500 mm Metal Plane

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	223.18 mm × 74.09 mm × 76.50 mm
Material & Color	PC + ABS & Black
Cable Type & Color & Length	RG174 & Black & 1500 mm
Connector Type	SMA Male
Mounting Type	Screw
Weight	Typ. 224 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS & REACH Compliant	Yes

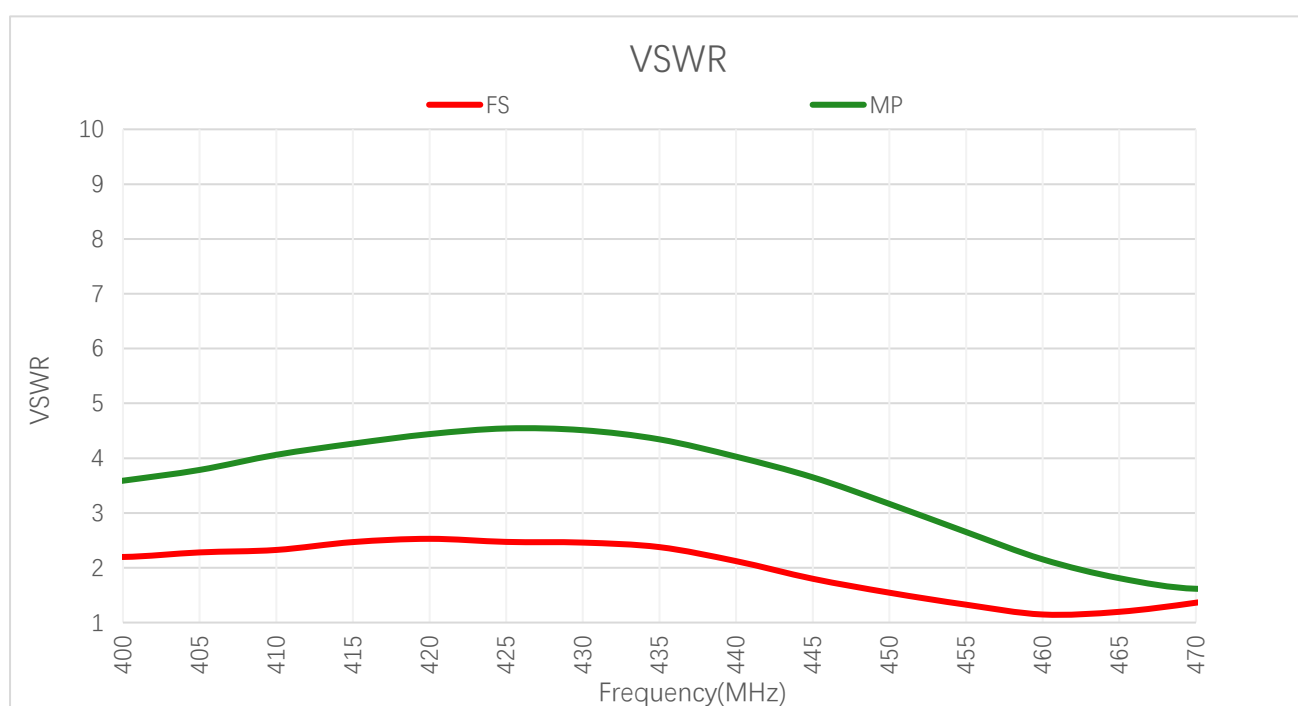
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

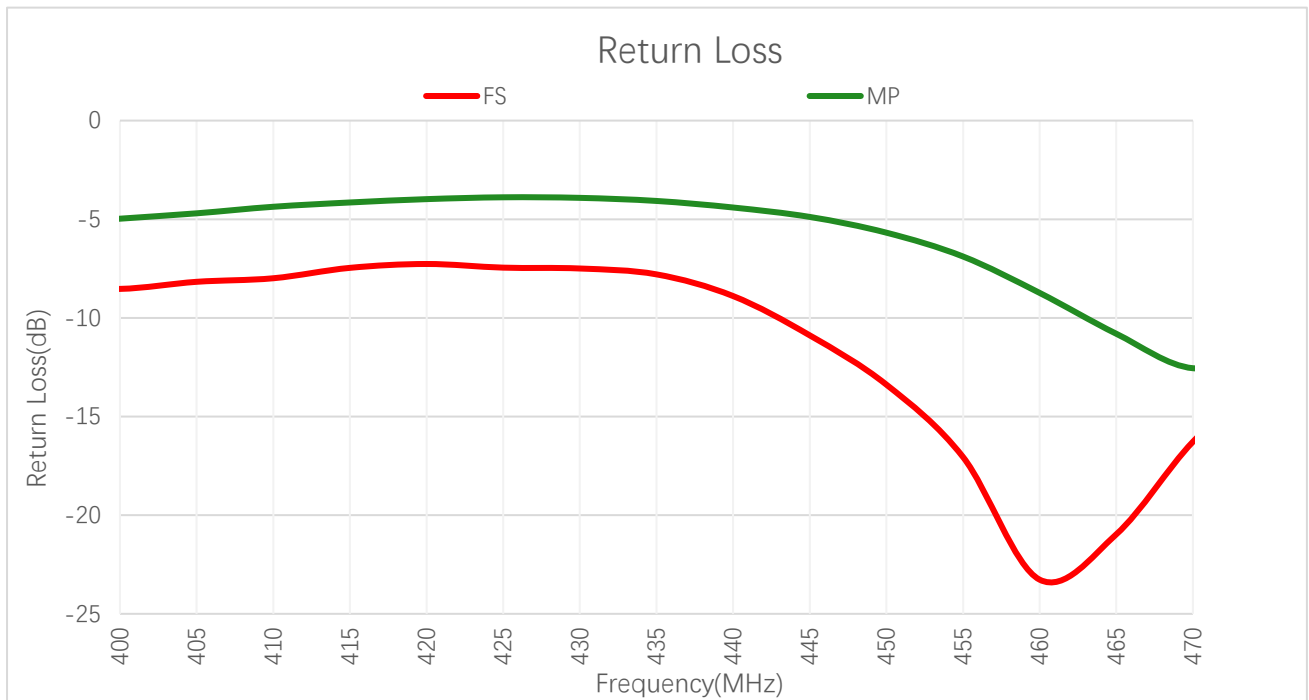
3.1.1. VSWR



VSWR

Frequency (MHz)	410	420	430	433	440	450	460	470
FS	2.3	2.5	2.5	2.4	2.1	1.5	1.1	1.4
MP	4.1	4.4	4.5	4.3	4.0	3.2	2.2	1.6

3.1.2. Return Loss



Return Loss (dB)

Frequency (MHz)	410	420	430	433	440	450	460	470
FS	-8.0	-7.3	-7.5	-7.8	-8.9	-13.4	-23.3	-16.3
MP	-4.4	-4.0	-3.9	-4.1	-4.4	-5.7	-8.7	-12.6

3.2. Radiation Performance Test

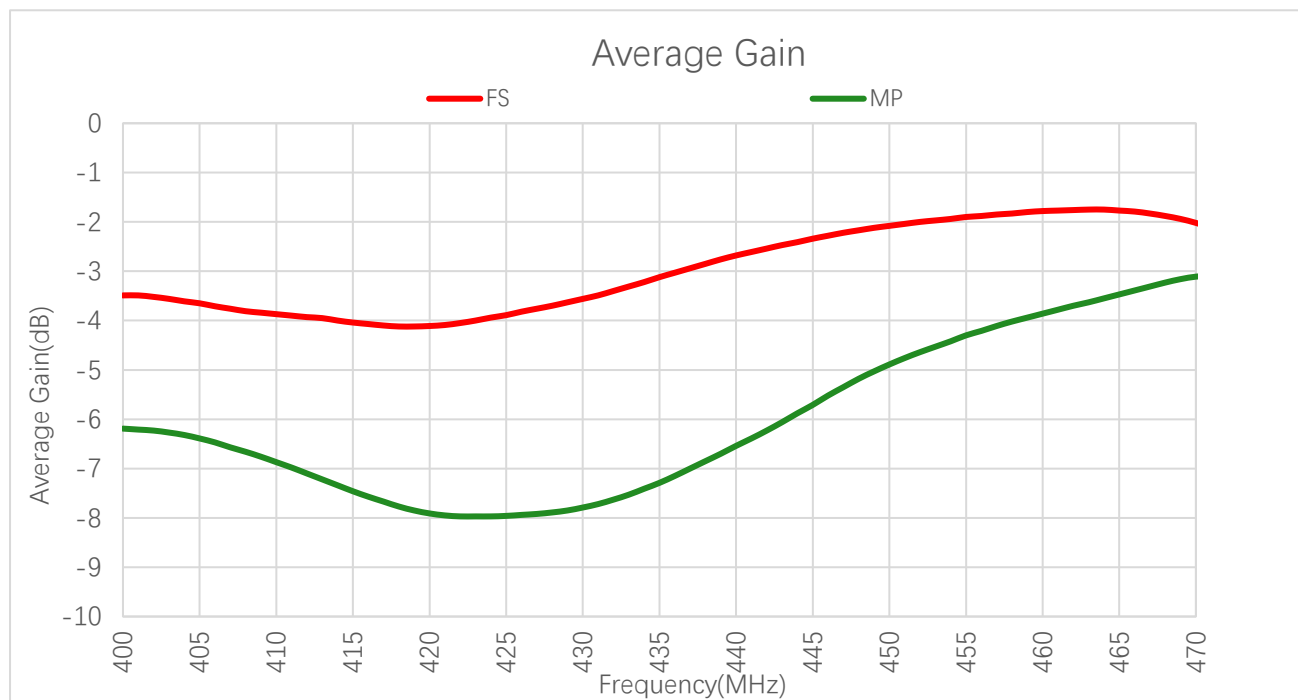
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	410	420	430	433	440	450	460	470
FS	41.0	38.8	44.0	46.6	53.9	61.9	66.3	62.8
MP	20.6	16.2	16.6	17.7	22.2	32.4	41.1	48.9

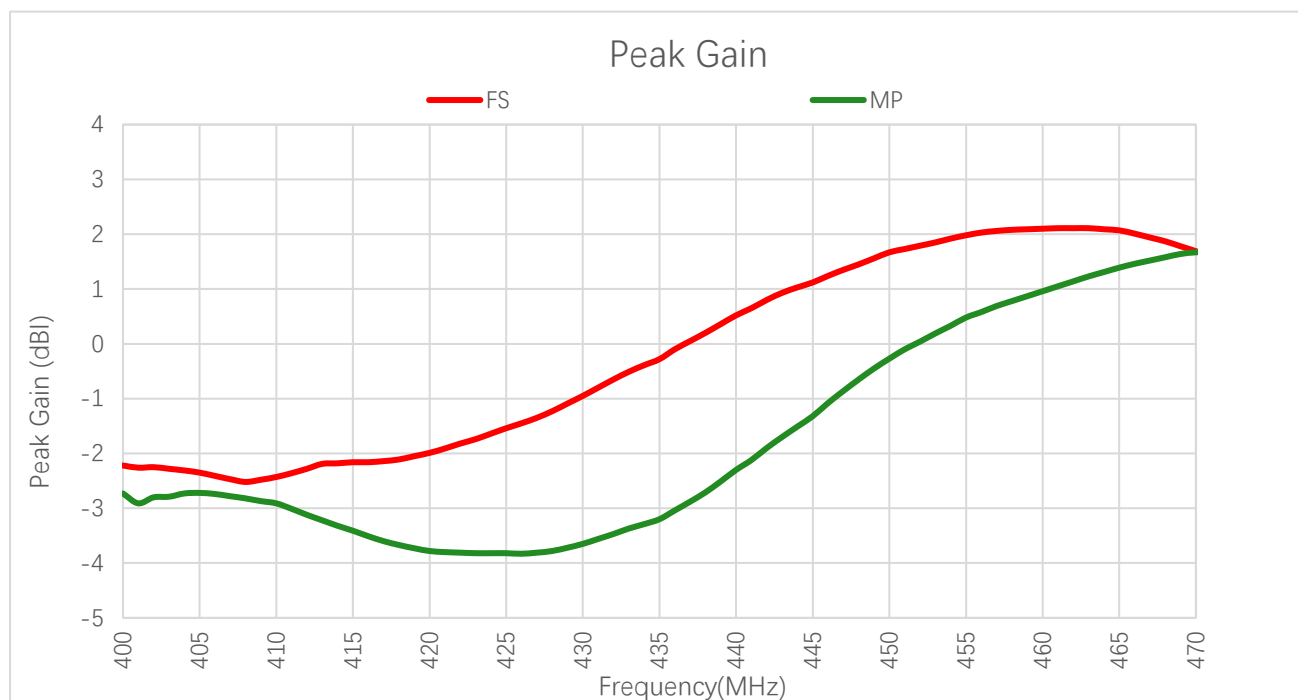
3.2.2. Average Gain



Average Gain (dB)

Frequency (MHz)	410	420	430	433	440	450	460	470
FS	-3.9	-4.1	-3.6	-3.3	-2.7	-2.1	-1.8	-2.0
MP	-6.9	-7.9	-7.8	-7.5	-6.5	-4.9	-3.9	-3.1

3.2.3. Peak Gain



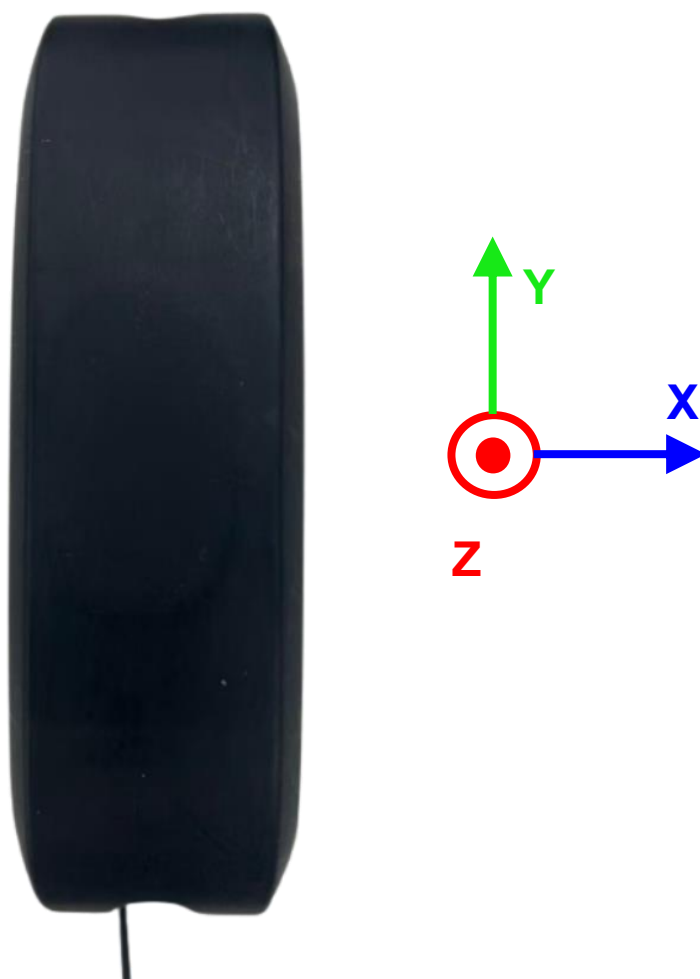
Peak Gain (dBi)

Frequency (MHz)	410	420	430	433	440	450	460	470
FS	-2.4	-2.0	-1.0	-0.5	0.5	1.7	2.1	1.7
MP	-2.9	-3.8	-3.7	-3.4	-2.3	-0.3	1.0	1.7

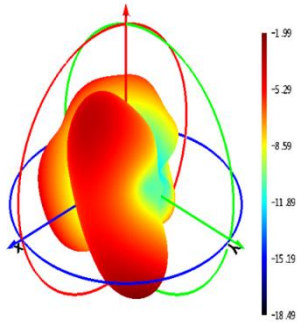
3.2.4. 3D & 2D Radiation Pattern

3.2.4.1. Test Condition: In Free Space

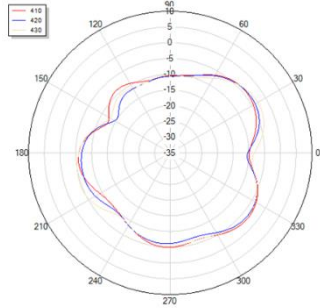
- Test Chamber: HF-S-1



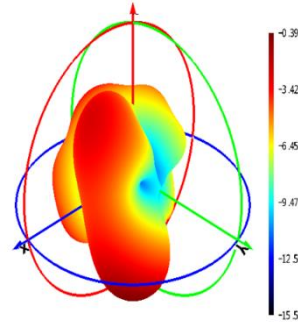
420 MHz



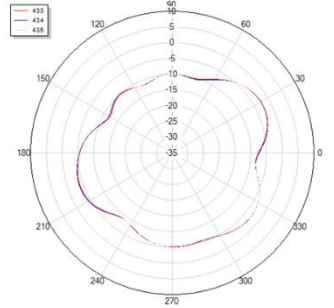
Theta=90



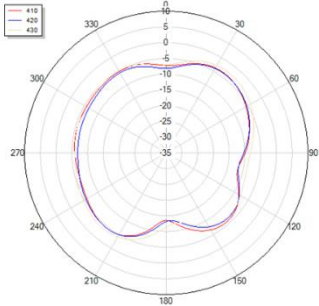
433 MHz



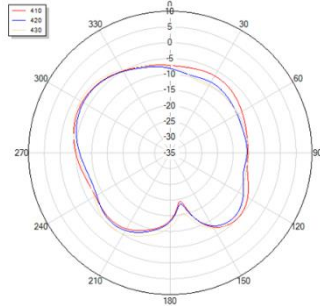
Theta=90



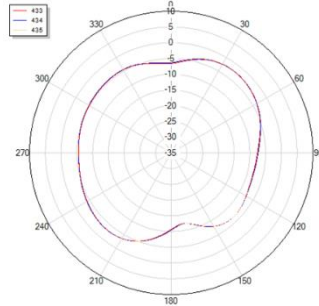
Phi=0



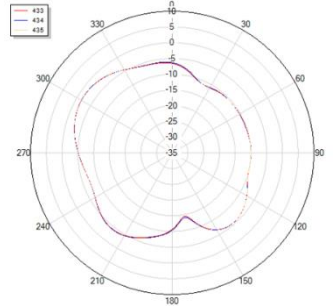
Phi=90



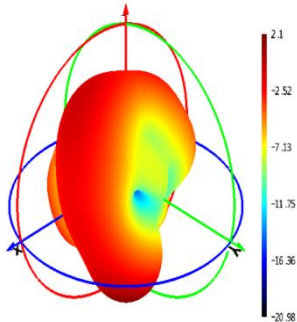
Phi=0



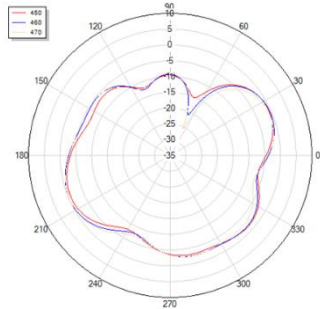
Phi=90



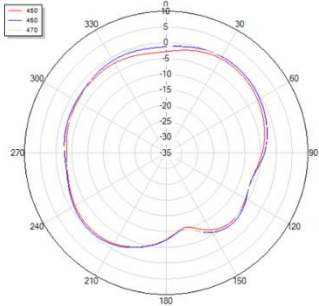
460 MHz



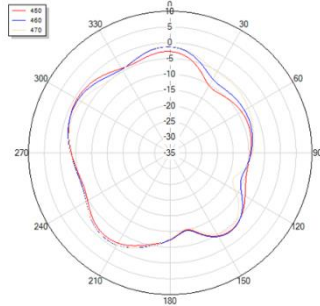
Theta=90



Phi=0

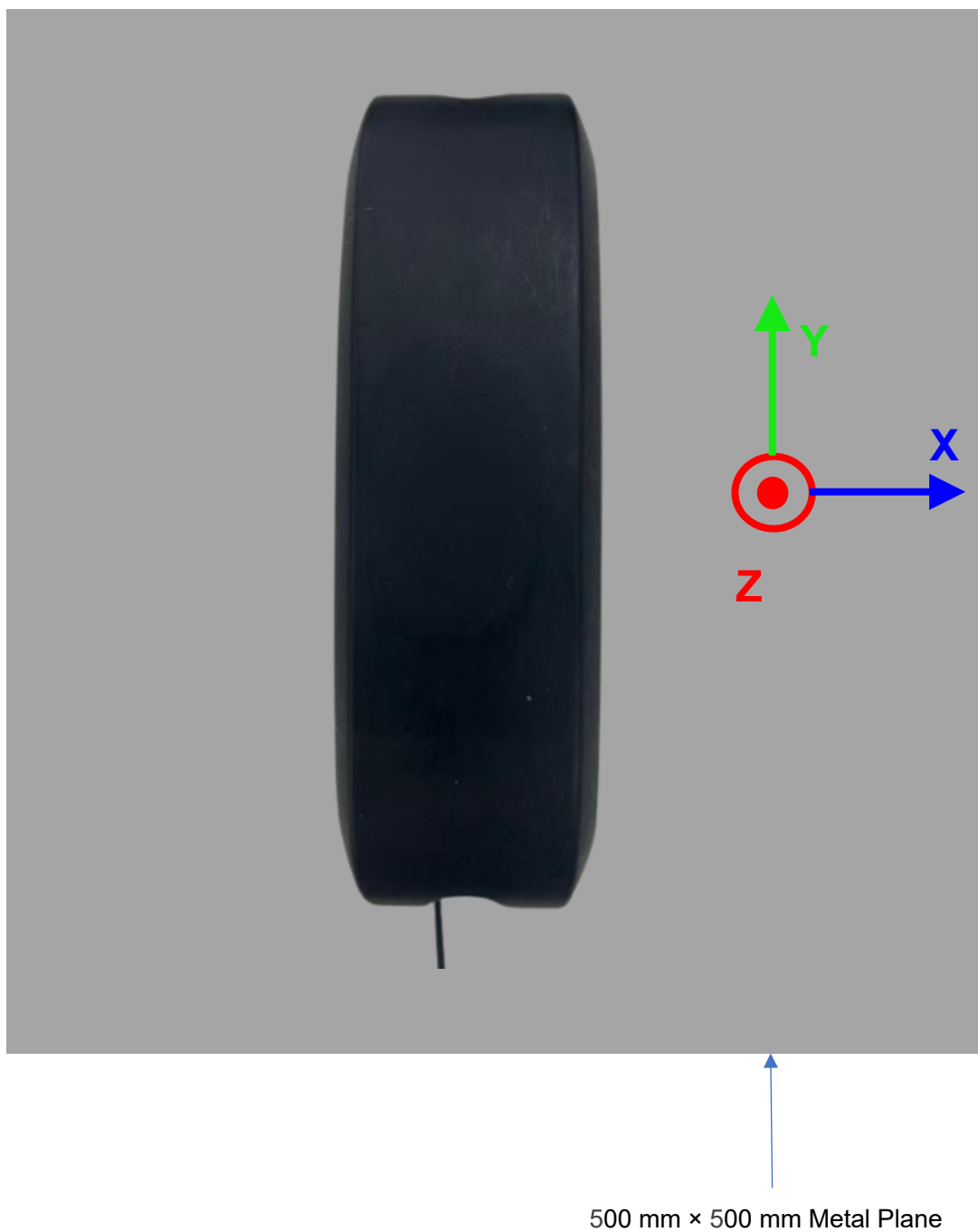


Phi=90

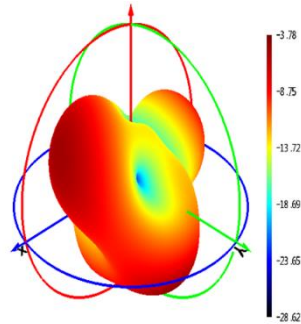


3.2.4.2. Test Condition: On 500 mm × 500 mm Metal Plane

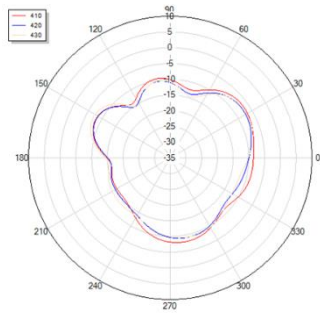
- Test Chamber: HF-S-1



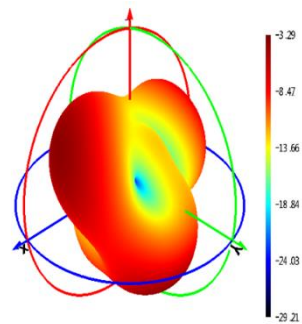
420 MHz



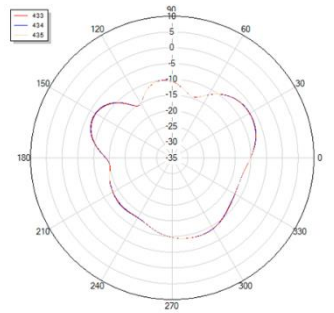
Theta=90



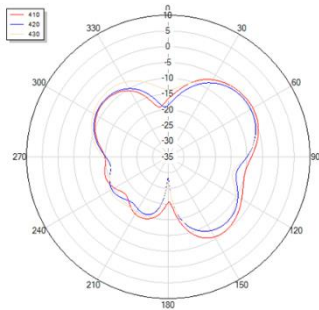
433 MHz



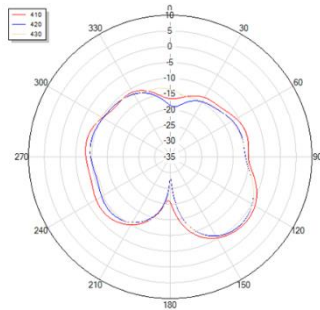
Theta=90



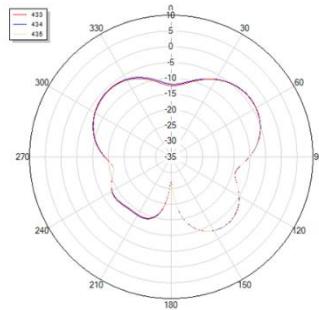
Phi=0



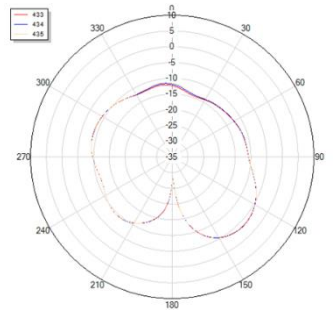
Phi=90



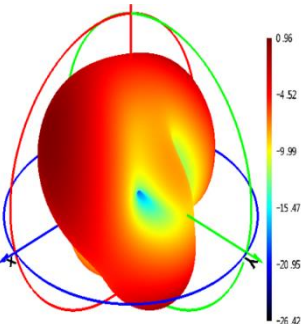
Phi=0



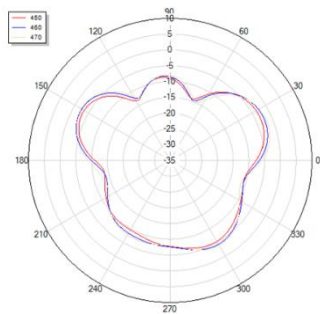
Phi=90



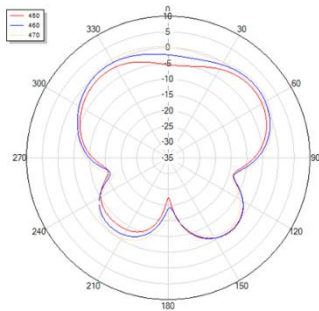
460 MHz



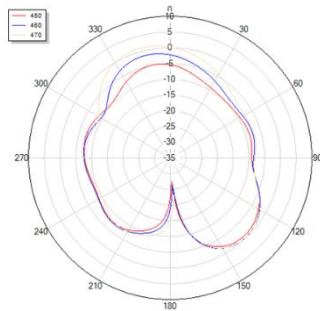
Theta=90



Phi=0



Phi=90



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:

Quectel Wireless Solutions Co., Ltd.

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

Tel: +86 21 5108 6236

Email: info@quectel.com

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

<http://www.quectel.com/support/sales.htm>.

For technical support, or to report documentation errors, please visit:

<http://www.quectel.com/support/technical.htm>.

Or email us at: support@quectel.com.

Legal Notices

We offer information as a service to you. The provided information is based on your requirements and we make every effort to ensure its quality. You agree that you are responsible for using independent analysis and evaluation in designing intended products, and we provide reference designs for illustrative purposes only. Before using any hardware, software or service guided by this document, please read this notice carefully. Even though we employ commercially reasonable efforts to provide the best possible experience, you hereby acknowledge and agree that this document and related services hereunder are provided to you on an “as available” basis. We may revise or restate this document from time to time at our sole discretion without any prior notice to you.

Use and Disclosure Restrictions

License Agreements

Documents and information provided by us shall be kept confidential, unless specific permission is granted. They shall not be accessed or used for any purpose except as expressly provided herein.

Copyright

Our and third-party products hereunder may contain copyrighted material. Such copyrighted material shall not be copied, reproduced, distributed, merged, published, translated, or modified without prior written consent. We and the third party have exclusive rights over copyrighted material. No license shall be granted or conveyed under any patents, copyrights, trademarks, or service mark rights. To avoid ambiguities, purchasing in any form cannot be deemed as granting a license other than the normal non-exclusive, royalty-free license to use the material. We reserve the right to take legal action for noncompliance with abovementioned requirements, unauthorized use, or other illegal or malicious use of the material.

Trademarks

Except as otherwise set forth herein, nothing in this document shall be construed as conferring any rights to use any trademark, trade name or name, abbreviation, or counterfeit product thereof owned by Quectel or any third party in advertising, publicity, or other aspects.

Third-Party Rights

This document may refer to hardware, software and/or documentation owned by one or more third parties (“third-party materials”). Use of such third-party materials shall be governed by all restrictions and obligations applicable thereto.

We make no warranty or representation, either express or implied, regarding the third-party materials, including but not limited to any implied or statutory, warranties of merchantability or fitness for a particular purpose, quiet enjoyment, system integration, information accuracy, and non-infringement of any third-party intellectual property rights with regard to the licensed technology or use thereof. Nothing herein constitutes a representation or warranty by us to either develop, enhance, modify, distribute, market, sell, offer for sale, or otherwise maintain production of any our products or any other hardware, software, device, tool, information, or product. We moreover disclaim any and all warranties arising from the course of dealing or usage of trade.

Privacy Policy

To implement module functionality, certain device data are uploaded to Quectel's or third-party's servers, including carriers, chipset suppliers or customer-designated servers. Quectel, strictly abiding by the relevant laws and regulations, shall retain, use, disclose or otherwise process relevant data for the purpose of performing the service only or as permitted by applicable laws. Before data interaction with third parties, please be informed of their privacy and data security policy.

Disclaimer

- a) We acknowledge no liability for any injury or damage arising from the reliance upon the information.
- b) We shall bear no liability resulting from any inaccuracies or omissions, or from the use of the information contained herein.
- c) While we have made every effort to ensure that the functions and features under development are free from errors, it is possible that they could contain errors, inaccuracies, and omissions. Unless otherwise provided by valid agreement, we make no warranties of any kind, either implied or express, and exclude all liability for any loss or damage suffered in connection with the use of features and functions under development, to the maximum extent permitted by law, regardless of whether such loss or damage may have been foreseeable.
- d) We are not responsible for the accessibility, safety, accuracy, availability, legality, or completeness of information, advertising, commercial offers, products, services, and materials on third-party websites and third-party resources.

Copyright © Quectel Wireless Solutions Co., Ltd. 2025. All rights reserved.

Revision History

Version	Date	Author	Note
-	2025-09-26	Christopher Yao/ Toby Wang/ Zeline Liang	Creation of the document
1.0	2025-09-26	Christopher Yao/ Toby Wang/ Zeline Liang	First official release



www.quectel.com