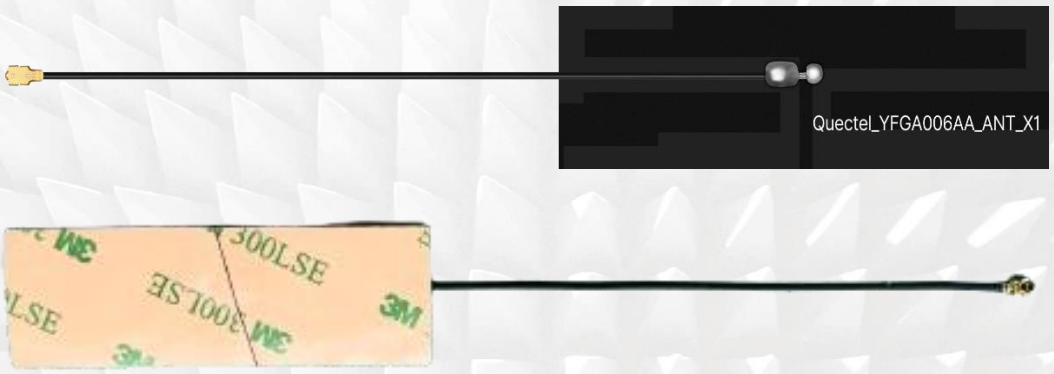


Antenna Datasheet

Product OC: YFGA006AA
Version: 3.0
Date: 2024-07-02
Status: Released

Product Name: GNSS Adhesive Mount FPC Passive Antenna
Key Features:
Frequency Band: 1164–1300 MHz, 1559–1606 MHz
Efficiency: Up to 74.2 %
Dimensions: 74.5 mm × 24.5 mm
RoHS and REACH Compliant

Overview

YFGA006AA is a GNSS FPC antenna measuring 74.5 mm × 24.5 mm. This GNSS antenna provides coverage from 1164–1300 MHz, 1559–1606 MHz. The antenna has a 143 mm-long cable, terminated with IPEX MHF 1 connector, and is available with customized cable lengths and connectors. This adhesive mount omni-directional antenna, ideal for applications where the antenna is required to be mounted inside, is easy to install thanks to its flexible material. It is compatible with Quectel's GNSS 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. YFGA006AA is designed as a linear polarized antenna, which has low VSWR for low power consumption applications. It is a perfect antenna product for customers that desire highest performance. This high-efficiency, high-gain omni-directional antenna is ideally suited for Telematics, Fleet Management, Positioning.

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

1 Specification

Test Condition: Stick on 3 mm ABS board

1.1. Electrical

Electrical	
Frequency Range	1164–1300 MHz, 1559–1606 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

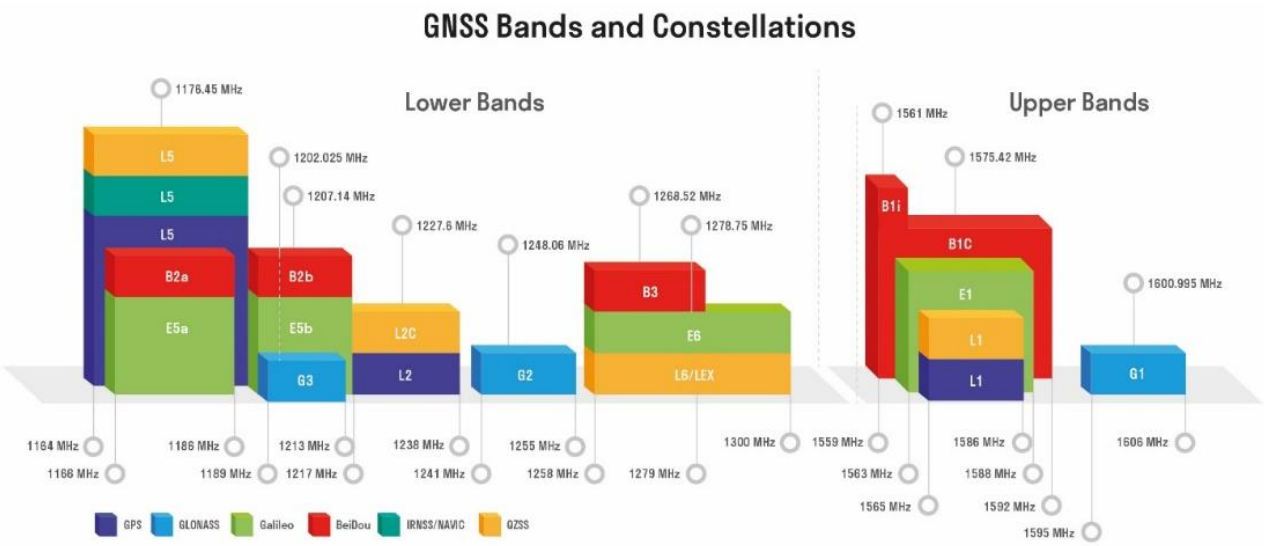
Band / Frequency (MHz)	GPS L5 GALILEO E5a DBS B2a-B2I QZSS L5 IRNSS L5	GALILEO E5b DBS B2b	GPS L2 QZSS L2C	GLONASS G2	DBS B3	GALILEO E6 QZSS L6	DBS B1I	GPS L1 GALILEO E1 DBS B1C QZSS L1	GLONASS G1
	1176	1207	1227	1248	1268	1278	1561	1575	1602
VSWR	2.1	2.0	1.9	1.7	1.4	1.3	2.1	2.1	2.2
Return Loss (dB)	-9.2	-9.4	-9.9	-11.4	-15.0	-17.5	-9.2	-9.1	-8.5
Efficiency (%)	43.9	42.2	43.0	47.0	51.1	54.4	75.9	73.4	70.1
Peak Gain (dBi)	2.1	1.8	1.7	2.7	3.4	3.7	2.5	2.4	2.5
VSWR					≤ 2.3				
Return Loss					≤ -8.3 dB				
Peak Gain					≤ 3.9 dBi				

1.2. Mechanical & Environmental

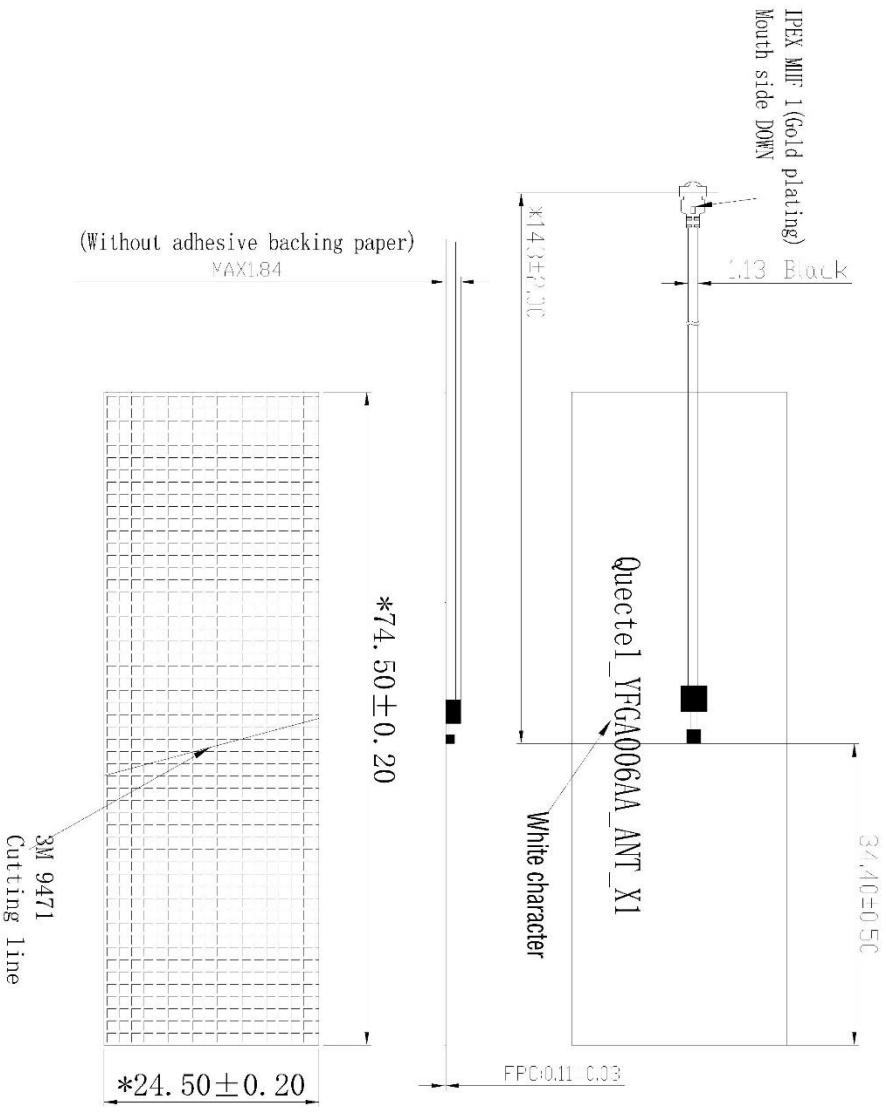
Mechanical	
Antenna Dimensions	74.5 mm × 24.5 mm
Material & Color	FPC & Black
Cable Type & Length	Φ 1.13 Black & 143.0 mm
Connector Type	IPEX MHF 1
Mounting Type	Adhesive
Weight	Typ. 1.0 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS & REACH Compliant	Yes

1.3. Supported GNSS Frequency Bands

GNSS Frequency Bands (MHz)					
GPS	**L1** Centre 1575.42 (1565–1586)	**L2** Centre 1227.6 (1217–1238)	**L5** Centre 1176.45 (1164–1189)		
	√	√	√		
GLONASS	**G1-L1OC-L1OF** Centre 1601 (1595–1606)	**G2-L2OC-L2OF** Centre 1248.06 (1241–1255)	**G3-L3OC** Centre 1202.025 (1189–1213)		
	√	√	√		
GALILEO	**E1** Centre 1575.42 (1563–1588)	**E5a** Centre 1176.45 (1166–1187)	**E5b** Centre 1207.14 (1197–1218)	**E6** Centre 1278.75 (1258–1300)	
	√	√	√	√	
DBS	**B1I** Centre 1561.098 (1559–1564)	**B1C (DBS-3)** Centre 1575.42 (1559–1592)	**B2b** Centre 1176.45 (1166–1187)	**B2a-B2I** Centre 1207.14 (1197–1217)	**B3** Centre 1268.52 (1258–1279)
	√	√	√	√	√
QZSS	**L1** Centre 1575.42 (1573–1578)	**L2C** Centre 1227.6 (1226–1229)	**L5** Centre 1176.45 (1166–1187)	**L6** Centre 1278.75 (1257–1300)	
	√	√	√	√	
IRNSS	**L5** Centre 1176.45 (1164–1189)				
	√				


GNSS Bands and Constellations
Lower Bands
Upper Bands
1176.45 MHz
L5
L5
L5
B2a
E5a
1202.025 MHz
1207.14 MHz
B2b
E5b
G3
1227.6 MHz
L2C
L2
1248.06 MHz
G2
1268.52 MHz
1278.75 MHz
B3
E6
L6/LEX
1561 MHz
1575.42 MHz
B1i
B1C
E1
L1
L1
1600.995 MHz
G1
1164 MHz
1168 MHz
1186 MHz
1189 MHz
1213 MHz
1217 MHz
1238 MHz
1241 MHz
1255 MHz
1258 MHz
1279 MHz
1300 MHz
1559 MHz
1563 MHz
1565 MHz
1586 MHz
1588 MHz
1592 MHz
1595 MHz
1606 MHz
GPS
GLONASS
Galileo
BeiDou
IRNSS/NAVIC
QZSS

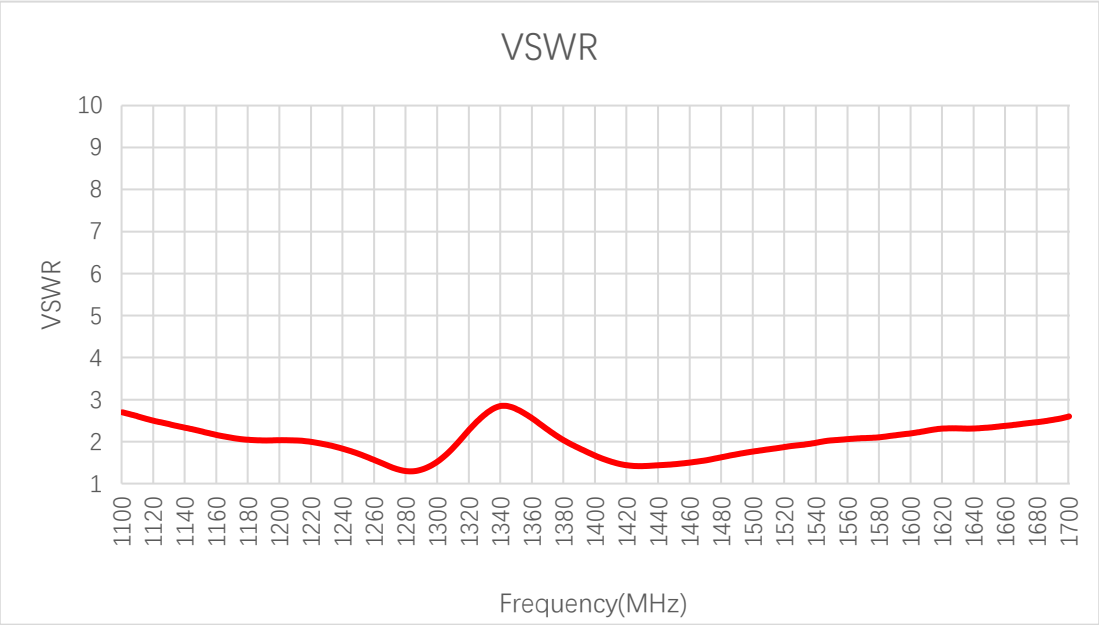
2 Drawing


IPEX MHF I(Gold plating)
Mouth side DOWN
(Without adhesive backing paper)
MAX1.84
1.13 Black
Quectel_YFGA006AA_ANT_X1
White character
3M 9471
Cutting line
*74.50±0.20
*24.50±0.20
FPC:0.11 0.03

3 Detailed Performance

3.1. S-Parameter Test

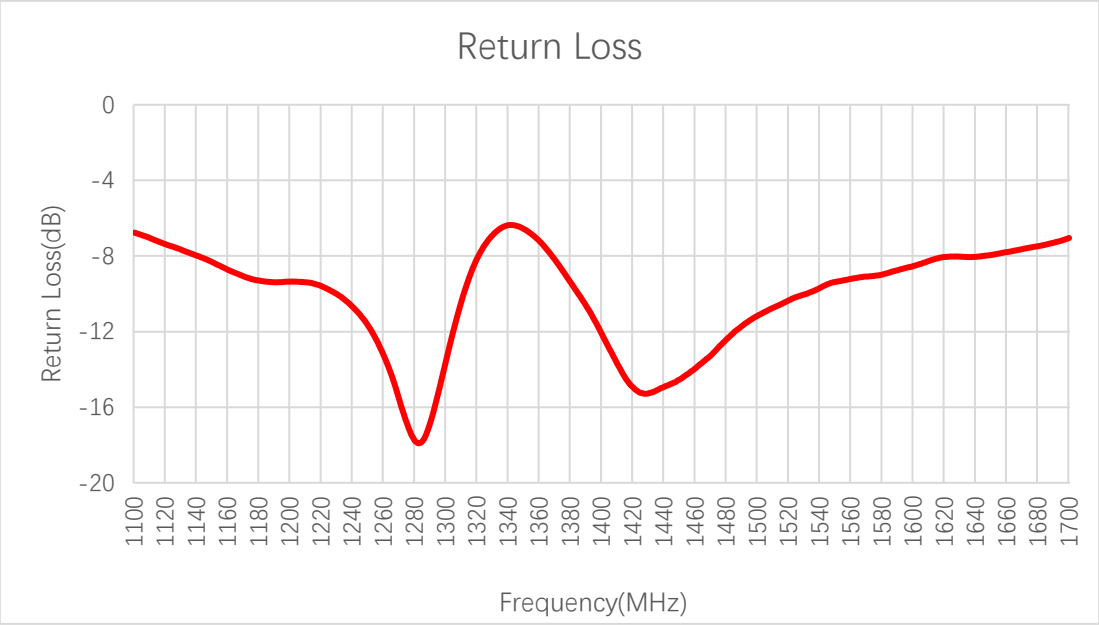
3.1.1. VSWR



VSWR

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1561	1575	1602
VSWR	2.1	2.0	1.9	1.7	1.4	1.3	2.1	2.1	2.2

3.1.2. Return Loss

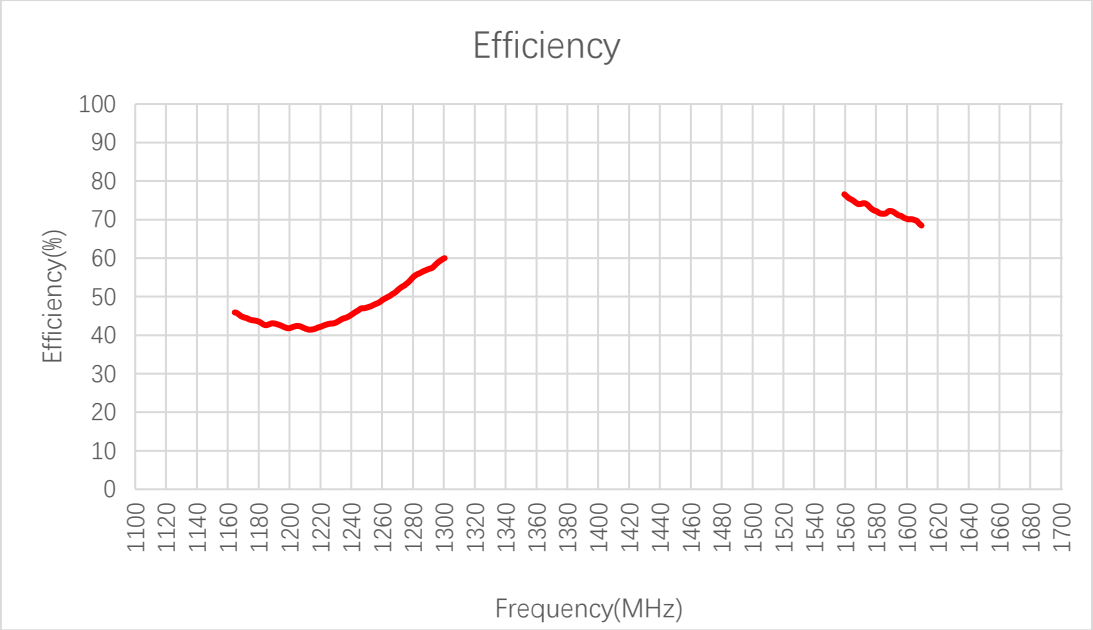


Return Loss(dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1561	1575	1602
Return Loss (dB)	-9.2	-9.4	-9.9	-11.4	-15.0	-17.5	-9.2	-9.1	-8.5

3.2. Radiation Performance Test

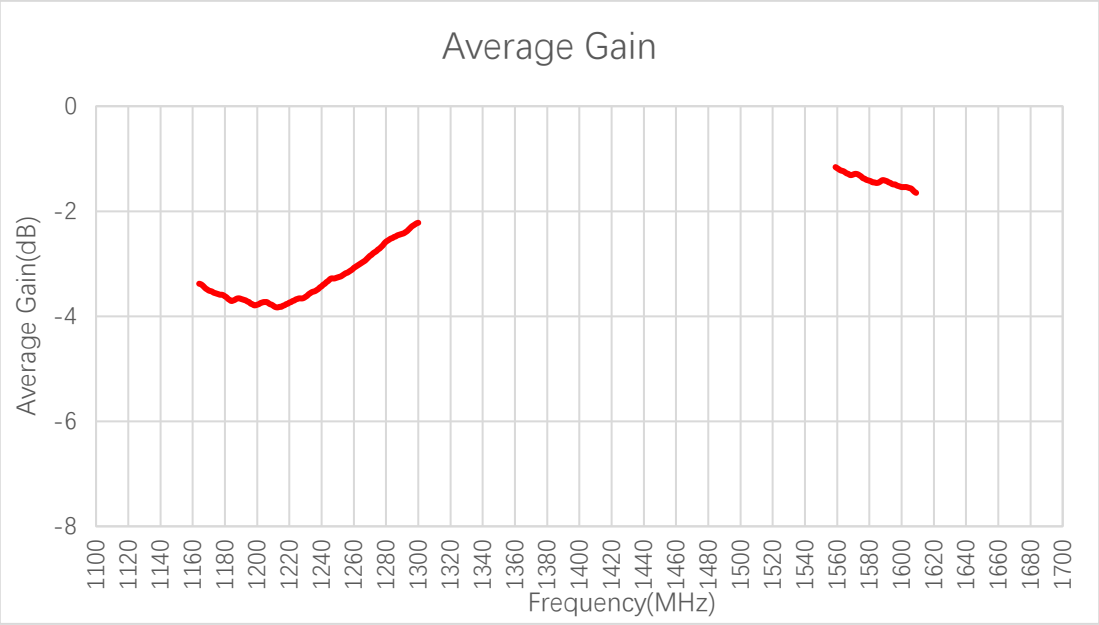
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1561	1575	1602
Efficiency (%)	43.9	42.2	43.0	47.0	51.1	54.4	75.9	73.4	70.1

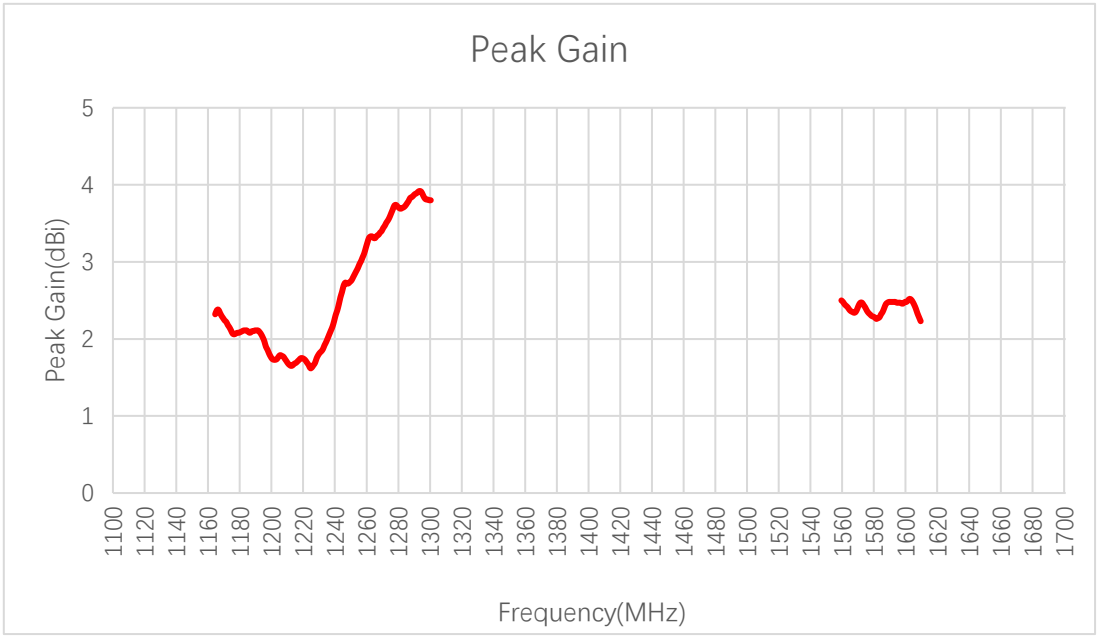
3.2.2. Average Gain



Average Gain(dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1561	1575	1602
Average Gain (dB)	-3.6	-3.8	-3.7	-3.3	-2.9	-2.7	-1.2	-1.3	-1.5

3.2.3. Peak Gain

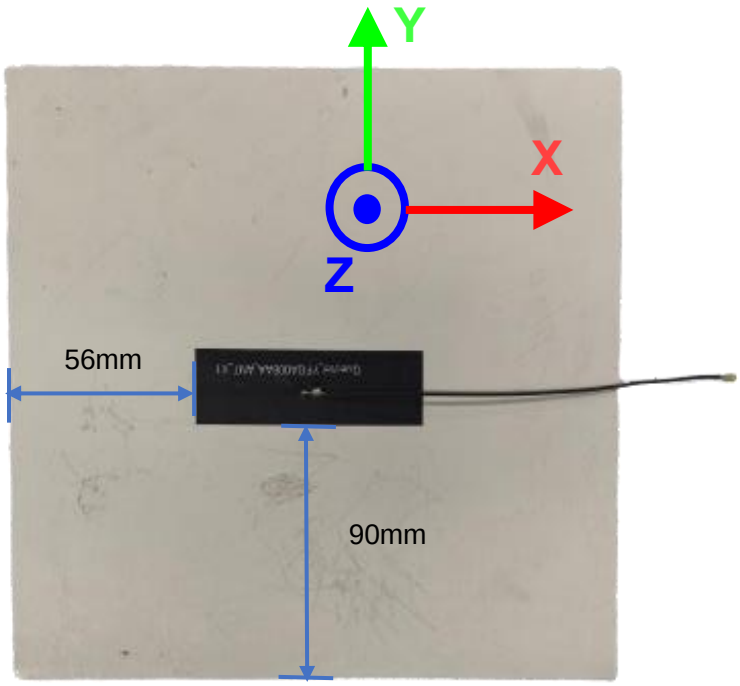


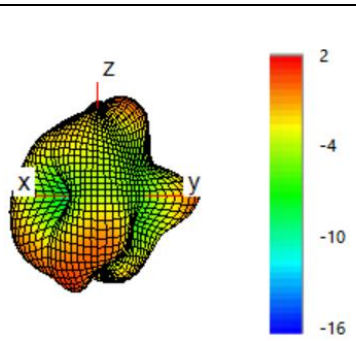
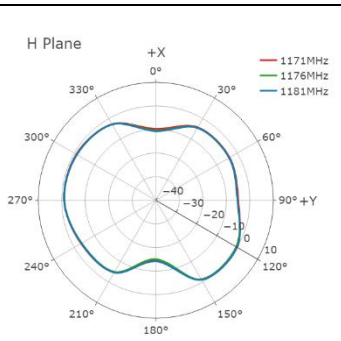
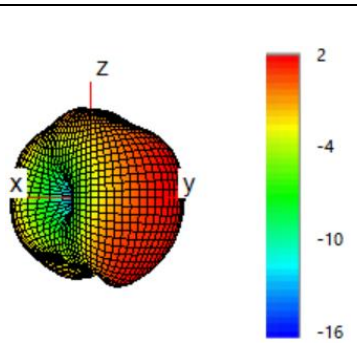
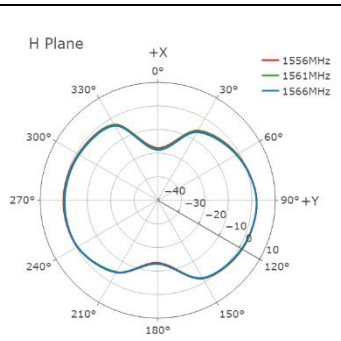
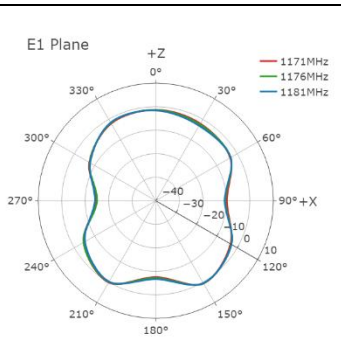
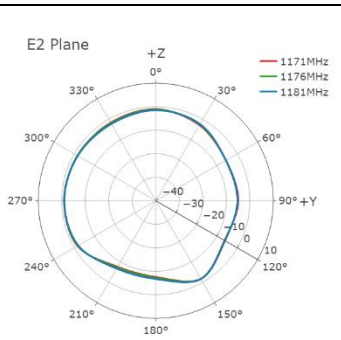
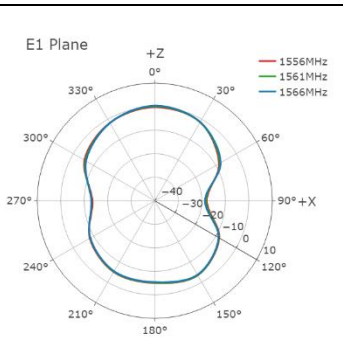
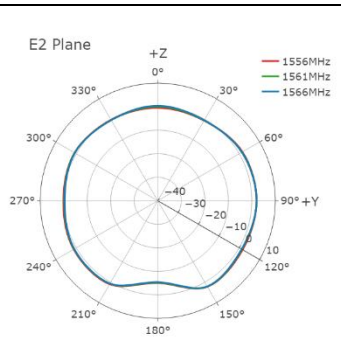
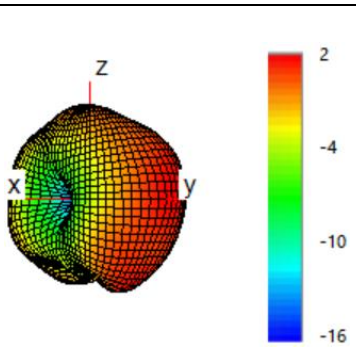
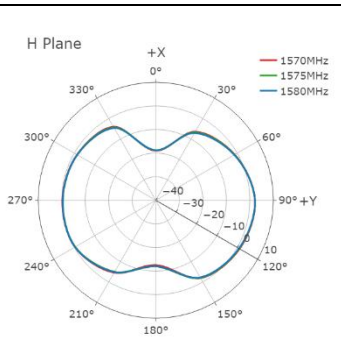
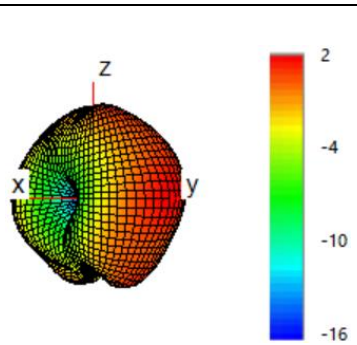
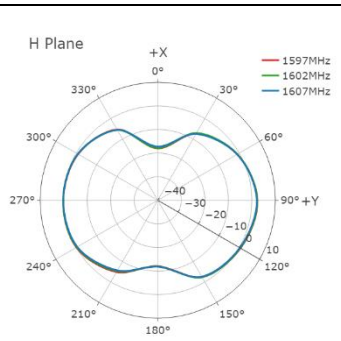
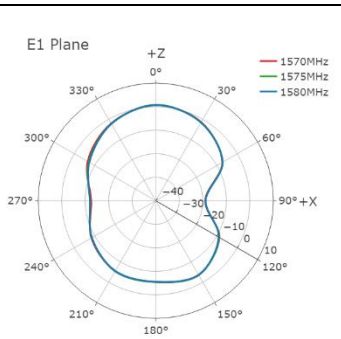
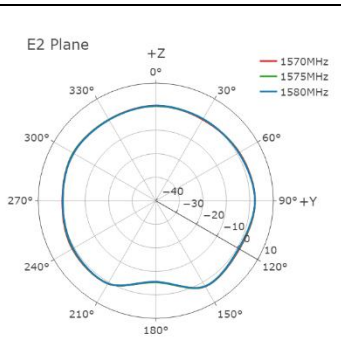
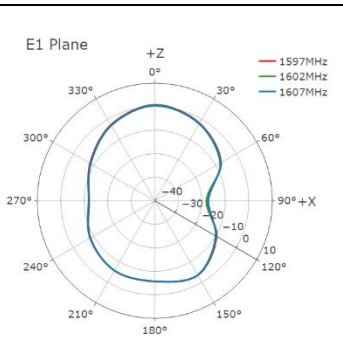
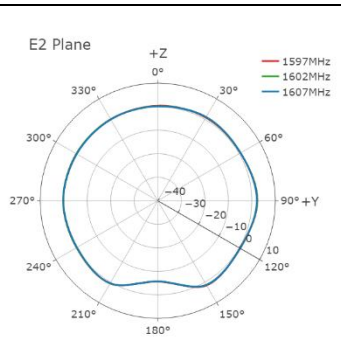
Peak Gain(dBi)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1561	1575	1602
Peak Gain (dBi)	2.1	1.8	1.7	2.7	3.4	3.7	2.5	2.4	2.5

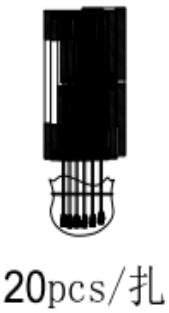
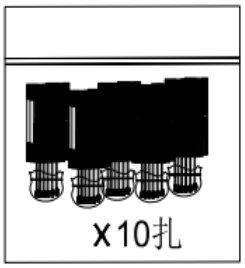
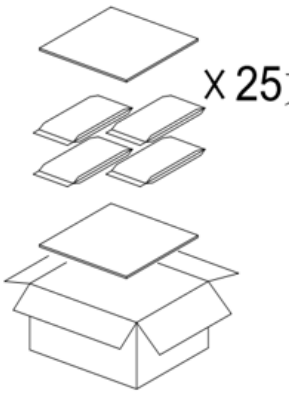
3.2.4. 3D & 2D Radiation Pattern

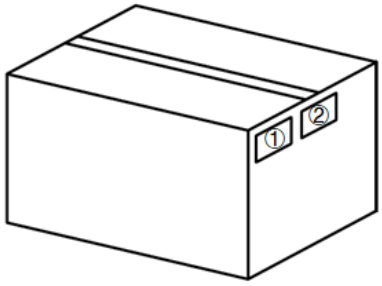
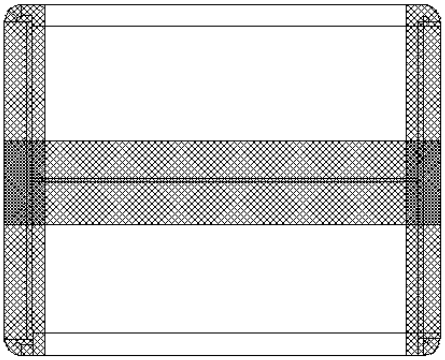
- Test Condition: Stick on 3 mm thick ABS board
- Test Chamber: GL-G-1



1176 MHz		1561 MHz	
			
			
1575 MHz		1602 MHz	
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		20 products in a bundle. The terminals are wrapped with pearl cotton.
2	 200pcs/10#袋	200 pcs antenna products in a big PE bag. (200 PCS / Big PE Bag)
3		(25 Big PE Bags / Carton Box) (5000 PCS Antennas / Carton Box) Estimated quantity Products that cannot fill the entire carton box are packed in a suitable size carton box. Carton Size: L × W × H = 340 × 260 × 140 mm

4		**Position for Attaching Labels** ① Carton Label ② Quality Label
5		**Sealing Cartons** "工" 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:

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:
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Revision History

Version	Date	Author	Note
-	2022-09-09	Knight HU/ Joye WANG	Creation of the document
1.0	2022-09-09	Knight HU/ Joye WANG	First official release
2.0	2023-07-15	Nico PAN/ Lucky FENG/ David LIU/ Aria CHU	Updated all test data in this datasheet.
2.1	2024-06-07	Joye WANG Nico PAN	Updated drawing (Chapter 2) and Add 1278MHz of data
3.0	2024-07-01	Zeline LIANG	Numerous changes were made to this document. It should be read in its entirety.

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