

A photograph of a Quectel YFGA005AA antenna assembly. It consists of a black flexible printed circuit (FPC) strip with two gold-plated SMA connectors at the ends. The FPC is mounted on a small, rectangular, brown cardboard-like substrate. The entire assembly is set against a background of white, pyramid-shaped acoustic foam. A black rectangular label with white text is positioned above the antenna.

Quectel\_YFGA005AA\_ANT\_X1

# Antenna Datasheet

**Product OC:** YFGA005AA

**Version:** 3.0

**Date:** 2024-07-02

**Status:** Released

**Product Name:** GNSS Adhesive Mount FPC Passive Antenna

**Key Features:**

Frequency Band: 1559–1606 MHz

Efficiency: Up to 66.9 %

Dimensions: 61.15 mm × 11.24 mm

RoHS and REACH Compliant

# Overview

YFGA005AA is a GNSS FPC antenna measuring 61.15 mm × 11.24 mm. This GNSS antenna provides coverage from 1559–1606 MHz. The antenna has a 100.5 mm-long cable, terminated with IPEX MHF 1 connector, and is available with customized cable lengths and connectors. Ideal for applications where the antenna is required to be mounted inside, this adhesive mount omni-directional antenna 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. YFGA005AA 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.

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# 1 Specification

Test Condition: Stick on 3 mm thick ABS board

## 1.1. Electrical

Electrical	
Frequency Range	1559–1606 MHz
Impedance	50 $\Omega$
Polarization	Linear
Radiation Pattern	Omni-directional

Frequency (MHz)	Band	GPS L5 GALILEO E5a BDS B2a- B2I QZSS L5 IRNSS L5	GALILEO E5b BDS B2b	GPS L2 QZSS L2C	GLONASS G2	BDS B3	BDS B1I	GPS L1 GALILEO E1 BDS B1C QZSS L1	GLONASS G1
		1176	1207	1227	1248	1268	1561	1575	1602
VSWR		-	-	-	-	-	1.2	1.1	1.4
Return Loss (dB)		-	-	-	-	-	-21.5	-23.5	-14.8
Efficiency (%)		-	-	-	-	-	66.6	65.2	60.8
Peak Gain (dBi)		-	-	-	-	-	2.9	3.0	2.6
VSWR					$\leq 1.6$				
Return Loss					$\leq -13.4$ dB				
Peak Gain					$\leq 3.0$ dBi				

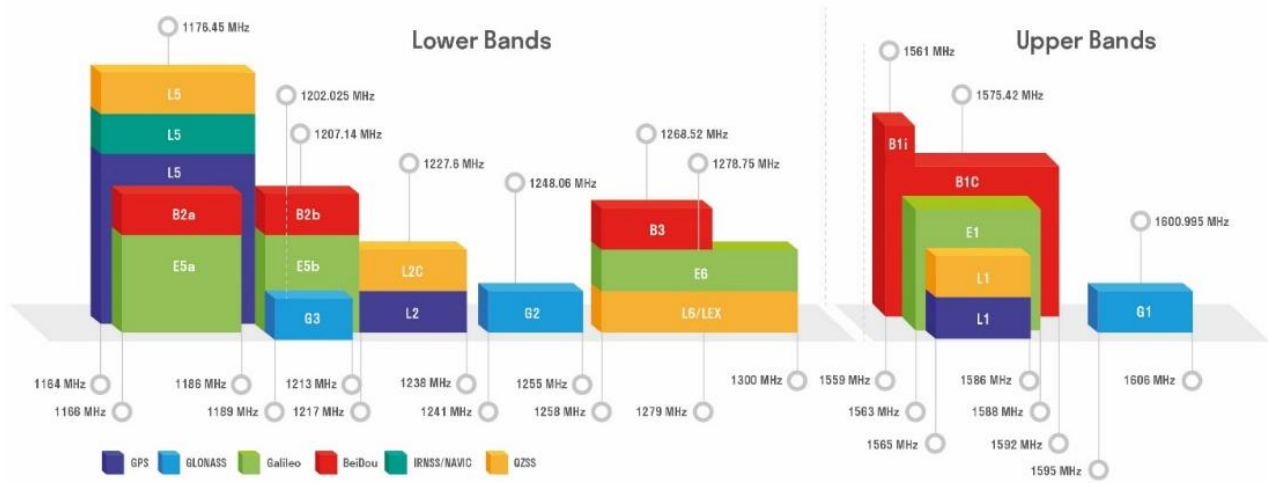
## 1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	61.15 mm × 11.24 mm
Material & Color	FPC & Black
Cable Type & Length	Φ 1.13 & Black & 100.5 mm
Connector Type	IPEX MHF 1
Mounting Type	Adhesive
Weight	Typ. 0.6 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS & REACH Compliant	Yes

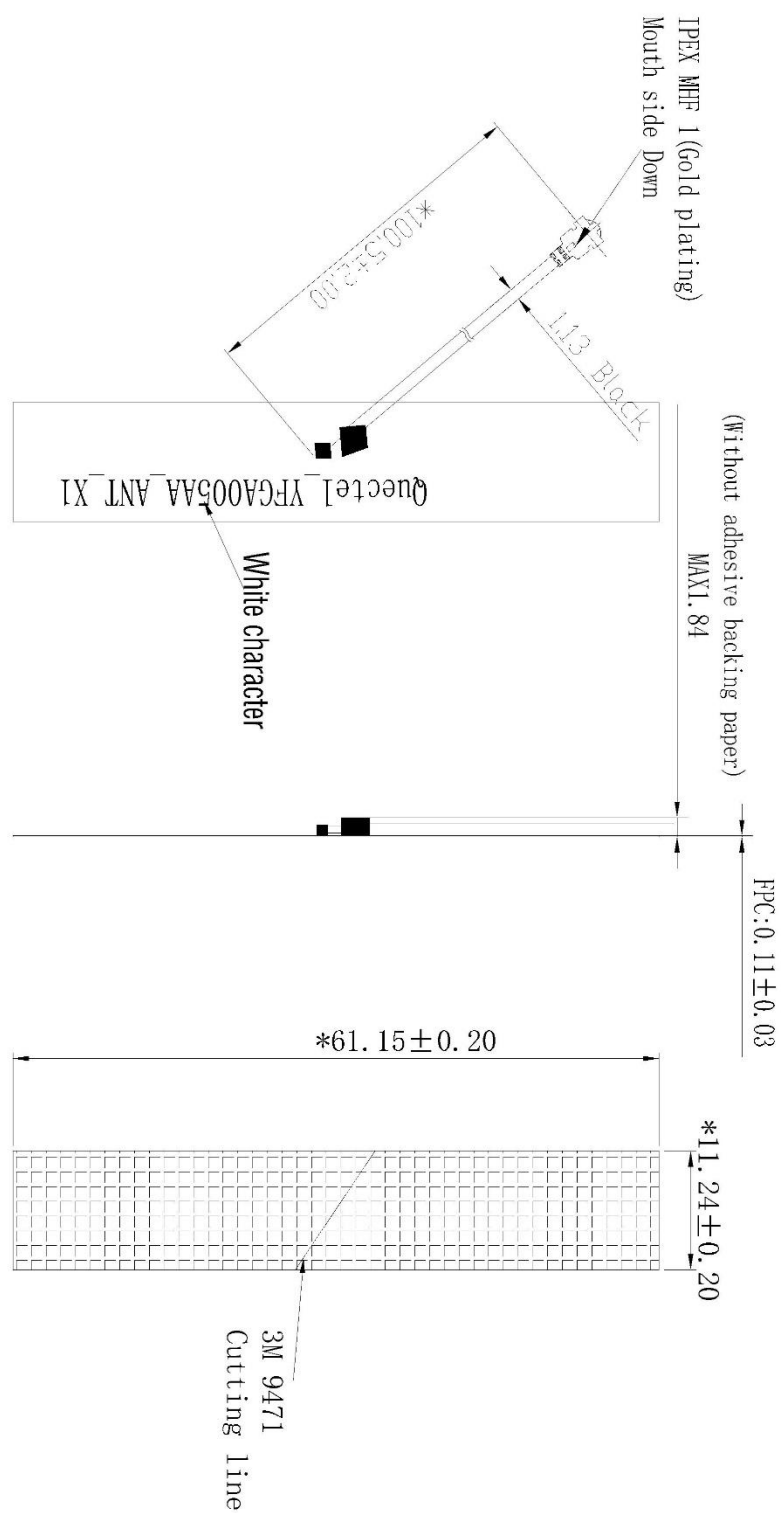
### 1.3. Supported GNSS Frequency Bands

GNSS Frequency Bands (MHz)					
<b>GPS</b>	<b>L1</b> Centre 1575.42 (1565–1586)	<b>L2</b> Centre 1227.6 (1217–1238)	<b>L5</b> Centre 1176.45 (1164–1189)		
	√	-	-		
<b>GLONASS</b>	<b>G1-L10C-L10F</b> Centre 1601 (1595–1606)	<b>G2-L20C-L20F</b> Centre 1248.06 (1241–1255)	<b>G3-L30C</b> Centre 1202.025 (1189–1213)		
	√	-	-		
<b>GALILEO</b>	<b>E1</b> Centre 1575.42 (1563–1588)	<b>E5a</b> Centre 1176.45 (1166–1187)	<b>E5b</b> Centre 1207.14 (1197–1218)	<b>E6</b> Centre 1278.75 (1258–1300)	
	√	-	-	-	
<b>BDS</b>	<b>B1I</b> Centre 1561.098 (1559–1564)	<b>B1C (BDS-3)</b> Centre 1575.42 (1559–1592)	<b>B2a</b> Centre 1176.45 (1166–1187)	<b>B2b-B2I</b> Centre 1207.14 (1197–1217)	<b>B3</b> Centre 1268.52 (1258–1279)
	√	√	-	-	-
<b>QZSS</b>	<b>L1</b> Centre 1575.42 (1573–1578)	<b>L2C</b> Centre 1227.6 (1226–1229)	<b>L5</b> Centre 1176.45 (1166–1187)	<b>L6</b> Centre 1278.75 (1257–1300)	
	√	-	-	-	
<b>IRNSS</b>	<b>L5</b> Centre 1176.45 (1164–1189)				
	-				

## GNSS Bands and Constellations



## 2 Drawing

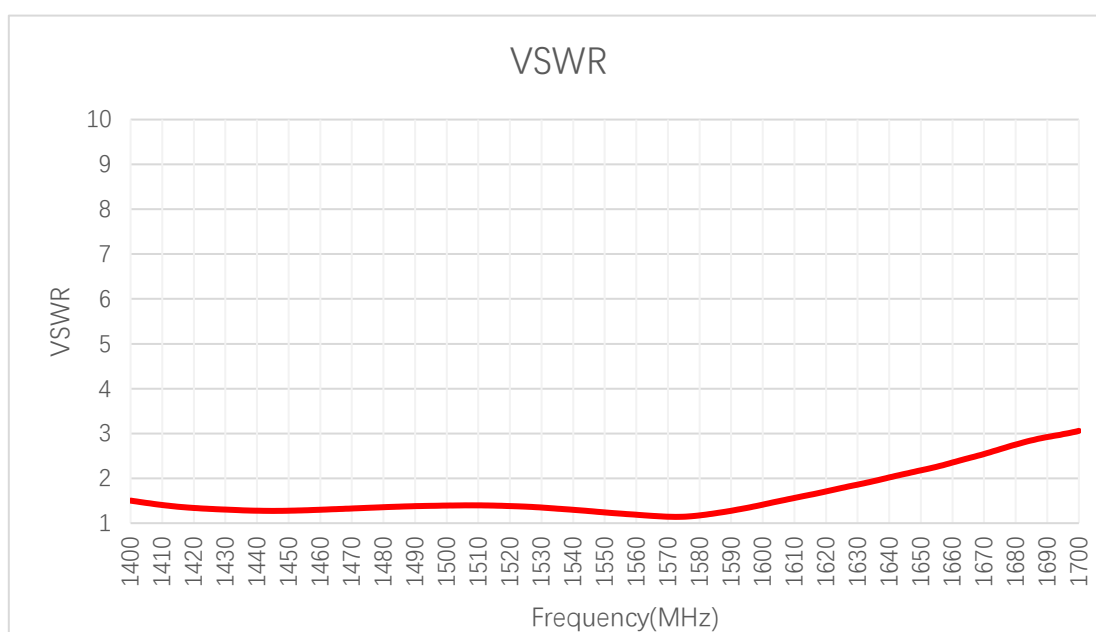




## 3 Detailed Performance

### 3.1. S-Parameter Test

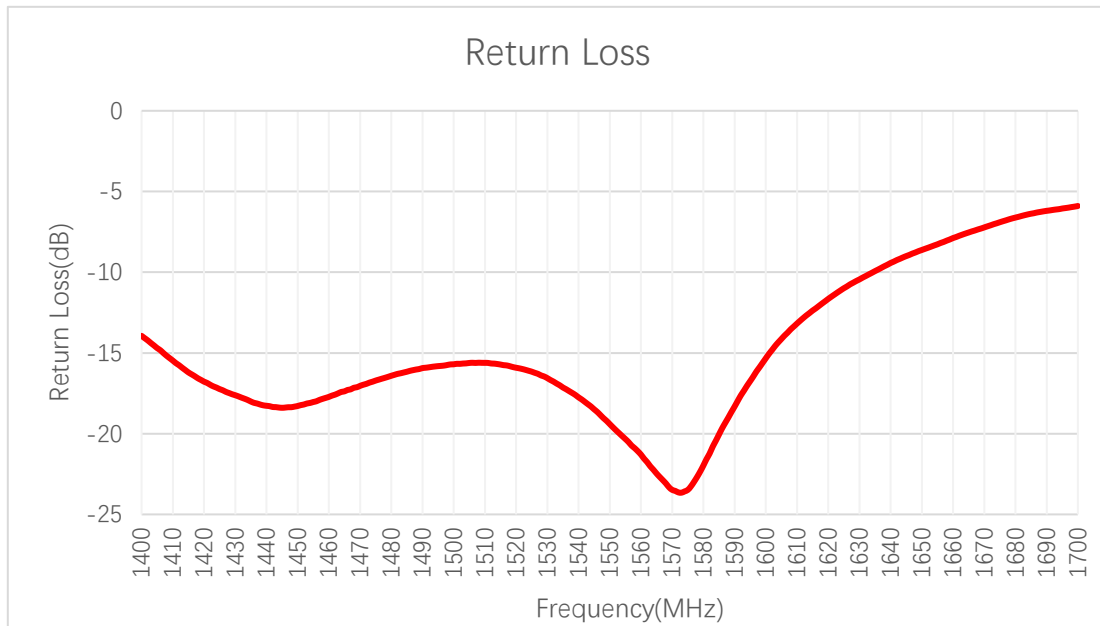
#### 3.1.1. VSWR



**VSWR**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	1.2	1.1	1.4

### 3.1.2. Return Loss

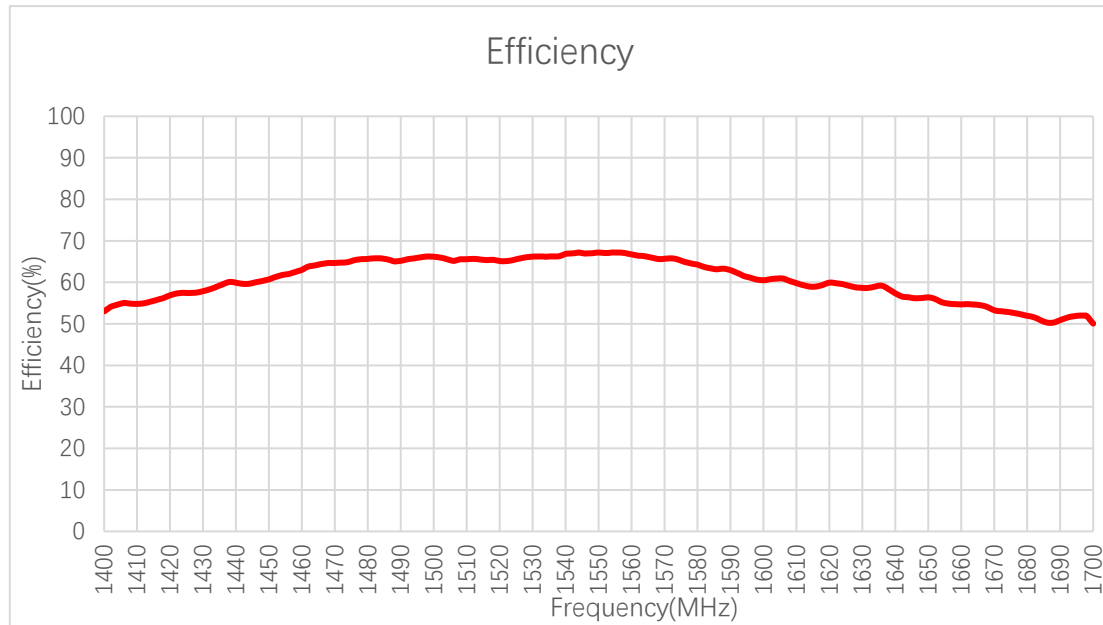


**Return Loss (dB)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Return Loss (dB)	-	-	-	-	-	-21.5	-23.5	-14.8

## 3.2. Radiation Performance Test

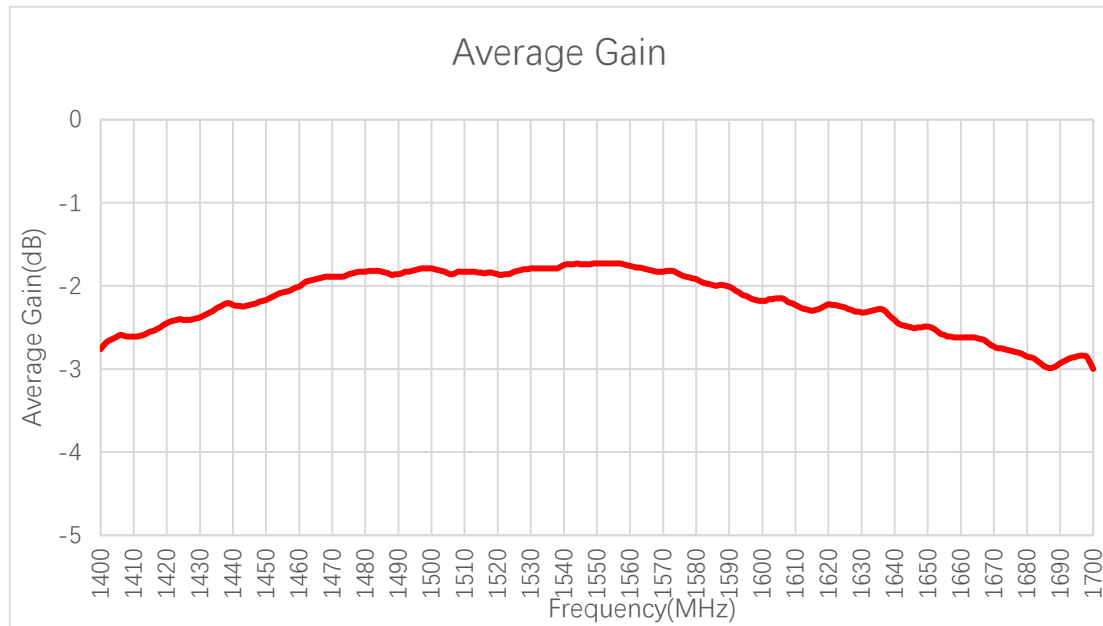
### 3.2.1. Efficiency



**Efficiency (%)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Efficiency (%)	-	-	-	-	-	66.6	65.2	60.8

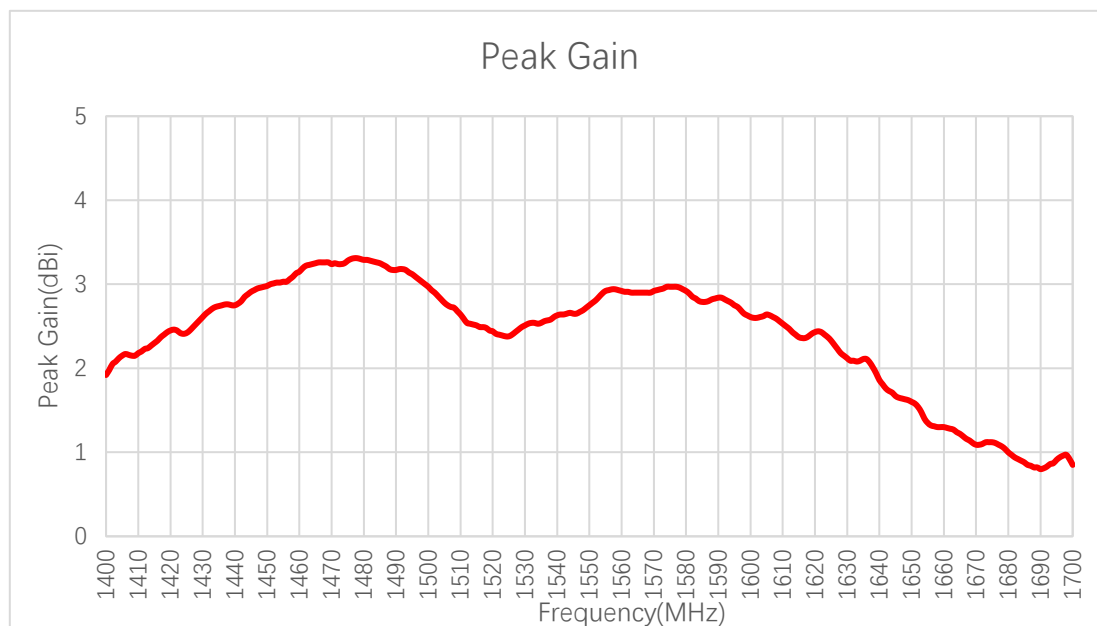
### 3.2.2. Average Gain



**Average Gain (dB)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Average Gain (dBi)	-	-	-	-	-	-1.8	-1.9	-2.2

### 3.2.3. Peak Gain

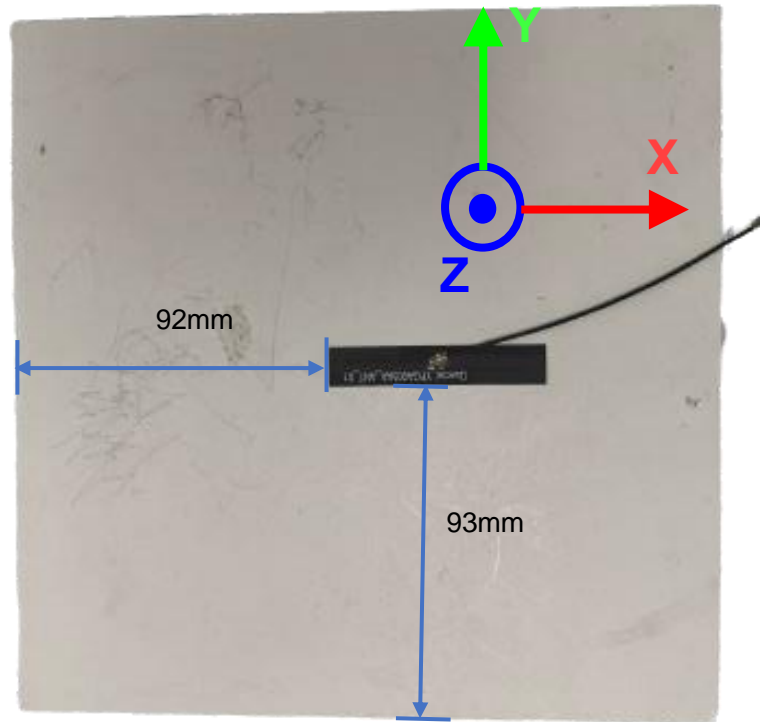


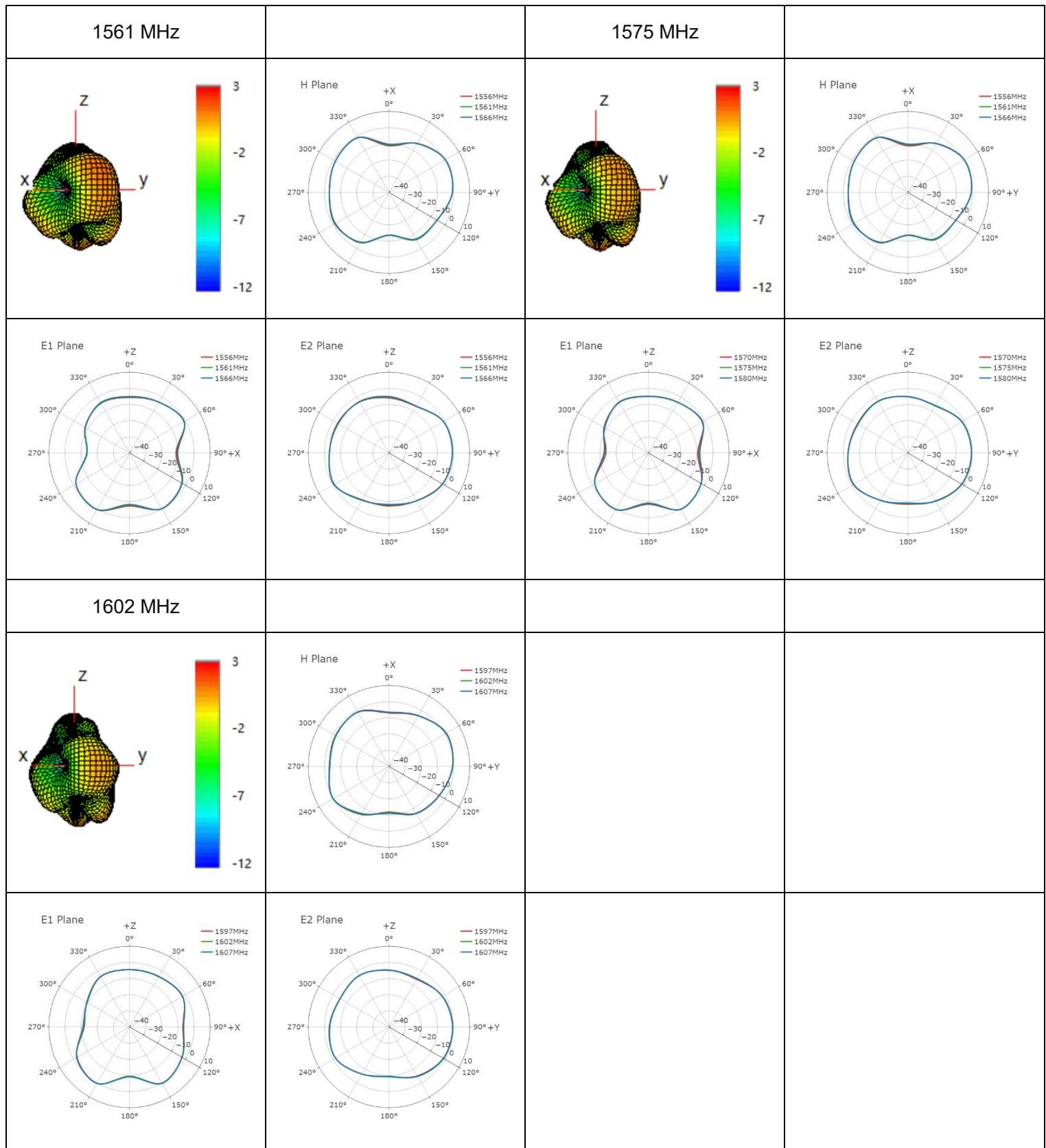
**Peak Gain (dBi)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Peak Gain (dBi)	-	-	-	-	-	2.9	3.0	2.6

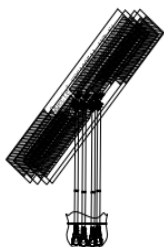
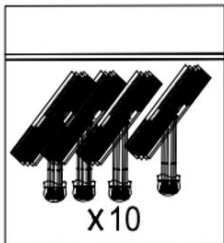
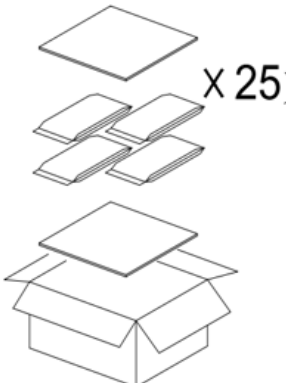
### 3.2.4. 3D & 2D Radiation Pattern

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

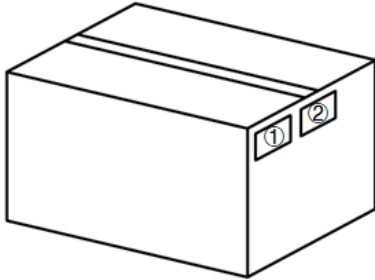
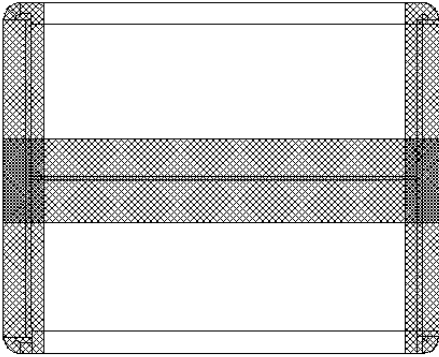




## 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1	 <p>20 PCS / Bundle</p>	Take 20 products as a bundle and the terminals are wrapped with pearl cotton.
2	 <p>200pcs/ bag</p>	200 pcs antenna products in a PE bag. (200 PCS / PE Bag)
3	 <p>x 25</p>	<p>(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. <u>Carton Size:</u> <u>L × W × H = 340 × 260 × 140 mm</u></p>



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

# 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
-	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	Rainey LIAO/ Lucky FENG/ David LIU/ Aria CHU	Numerous changes were made to this document. It should be read in its entirety.
2.1	2024-06-07	Joye WANG	Updated drawing (Chapter 2)
3.0	2024-07-02	Zeline LIANG	Numerous changes were made to this document. It should be read in its entirety.



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