



# Antenna Datasheet

**Product OC:** YCGO006AA

**Version:** 2.1

**Date:** 2023-12-05

**Status:** Released

**Product Name:** Passive GNSS L1 Antenna

**Key Features:**

Frequency Band: 1559–1586 MHz

Dimensions: 18 mm × 18 mm × 6.3 mm

Efficiency: Up to 51.2 %

RoHS and REACH Compliant

# Overview

This Quectel GNSS antenna adopts a diversity of forms to guarantee the most suitable polarization type. Quectel's positioning products support single-band or multi-band operation modes to meet various high-precision positioning requirements of customers' products. Quectel also provides both passive and active antennas to satisfy the customer demand for high gain. Such antenna supports different installation or connection methods such as pin mount, surface mount, magnetic mount, internal cable, and external SMA. Customized connector type and cable length are provided according to requirements.

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# 1 Specification

Test Condition: test on a 40 mm × 40 mm PCB

## 1.1. Electrical

Electrical	
Frequency Range	1559–1586 MHz
Impedance	50 Ω
Polarization	RHCP
Radiation Pattern	Directional

<div> <div>Band</div> <div>Frequency (MHz)</div> </div>	GPS L5 GALILEO E5a BEIDOU B2a-B2I QZSS L5 IRNSS L5	GALILEO E5b BEIDOU B2b	GPS L2 QZSS L2C	GLONASS G2	BEIDOU B3	BEIDOU B1I	GPS L1 GALILEO E1 BEIDOU B1C QZSS L1	GLONASS G1
	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	1.8	1.4	-
Return Loss (dB)	-	-	-	-	-	-11.0	-16.1	-
Efficiency (%)	-	-	-	-	-	43.9	51.2	-
Peak Gain (dBi)	-	-	-	-	-	0.4	1.4	-

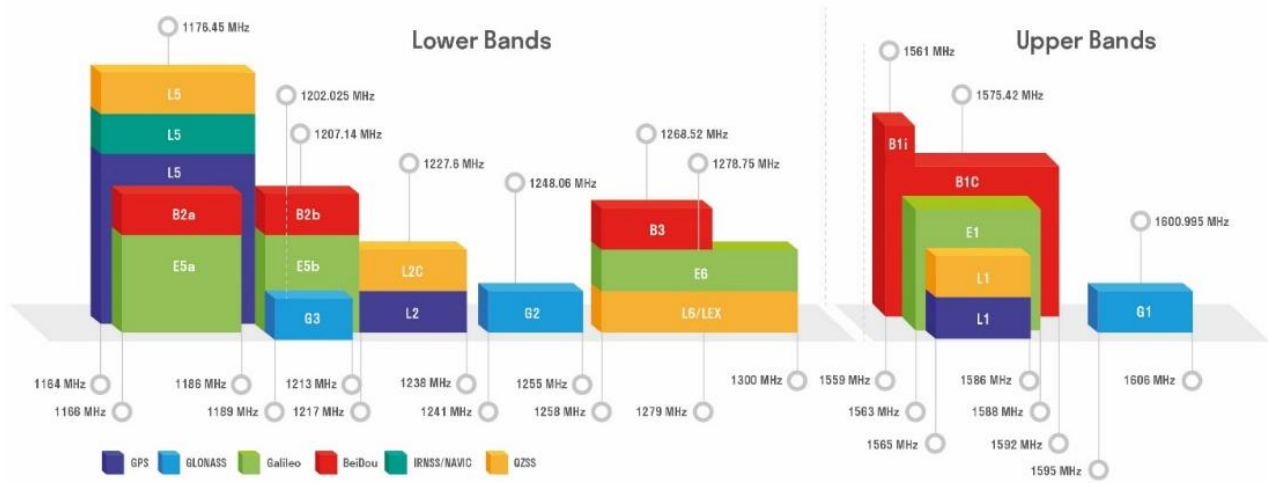
## 1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	18 mm × 18 mm × 6.3 mm
Material	PCB + Ceramic
Cable Type & Length	Φ 1.13 & Black & 50 mm
Connector Type	IPEX MHF 1
Mounting Type	Buckle
Weight	Typ. 7.5 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS and REACH Compliant	Yes

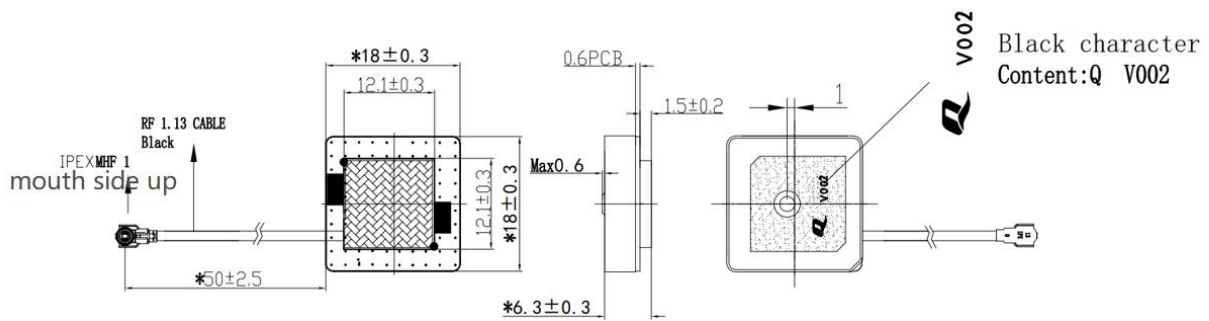
### 1.3. Supported GNSS Frequency Bands

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>BEIDOU</b>	<b>B1I</b> Centre 1561.098 (1559–1564)	<b>B1C (BeiDou-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

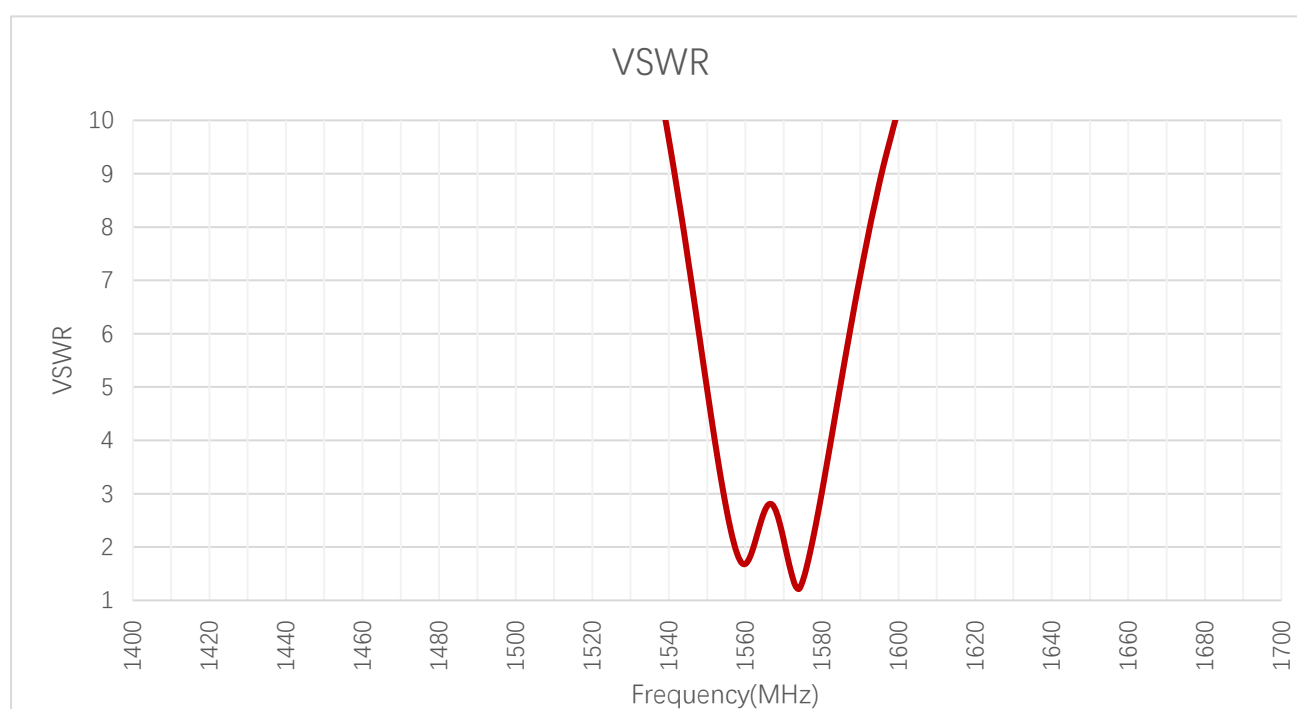




## 3 Detailed Performance

### 3.1. S-Parameter Test

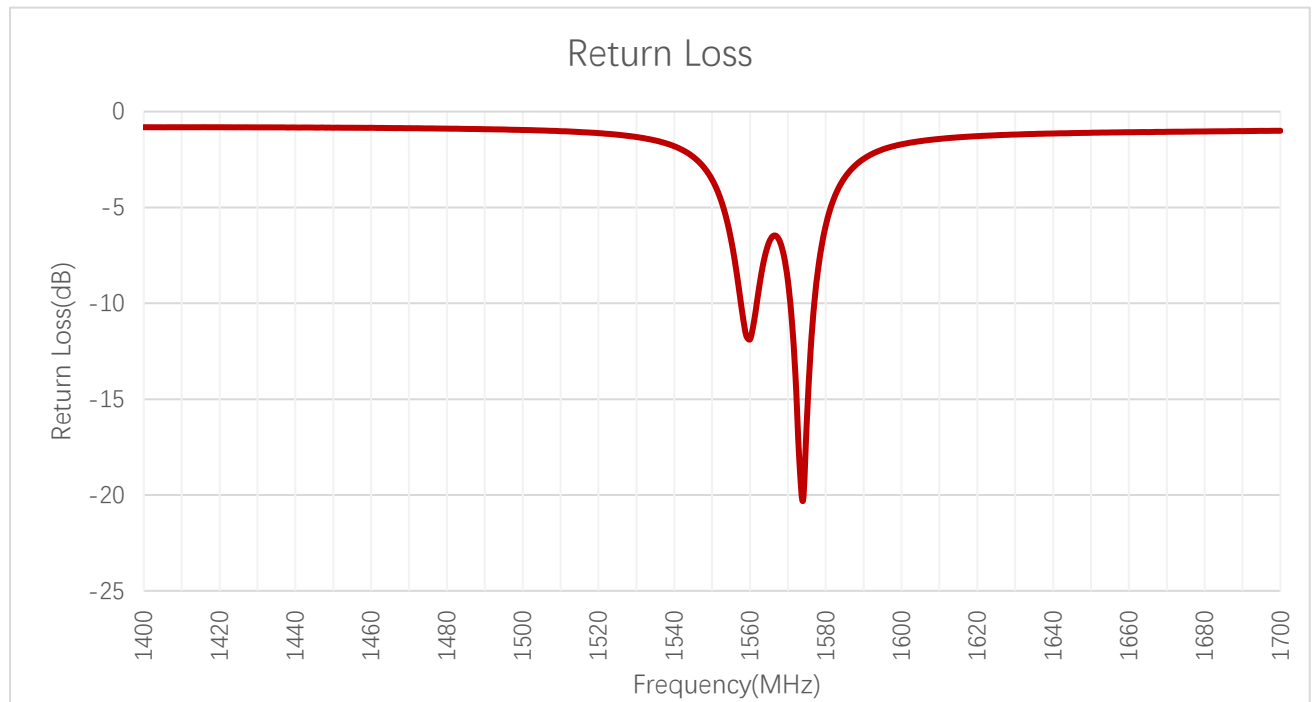
#### 3.1.1. VSWR



**VSWR**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	1.8	1.4	-

### 3.1.2. Return Loss

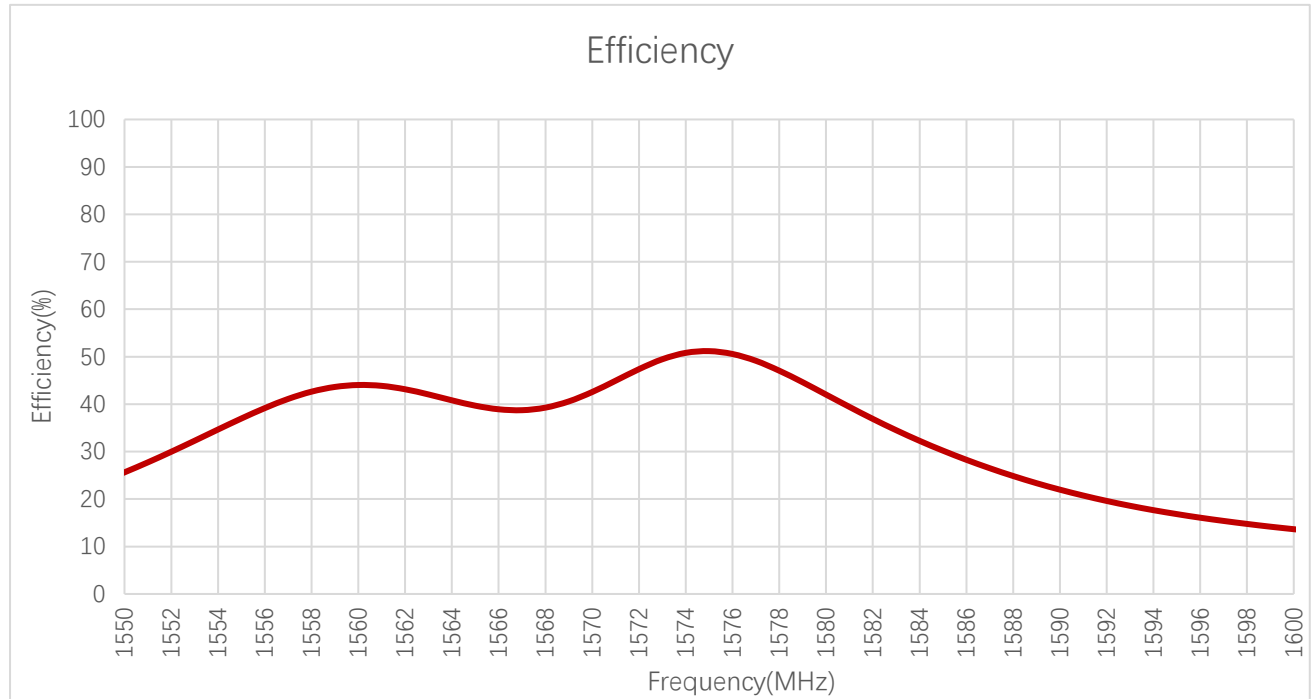


**Return Loss (dB)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Return Loss (dB)	-	-	-	-	-	-11.0	-16.1	-

## 3.2. Radiation Performance Test

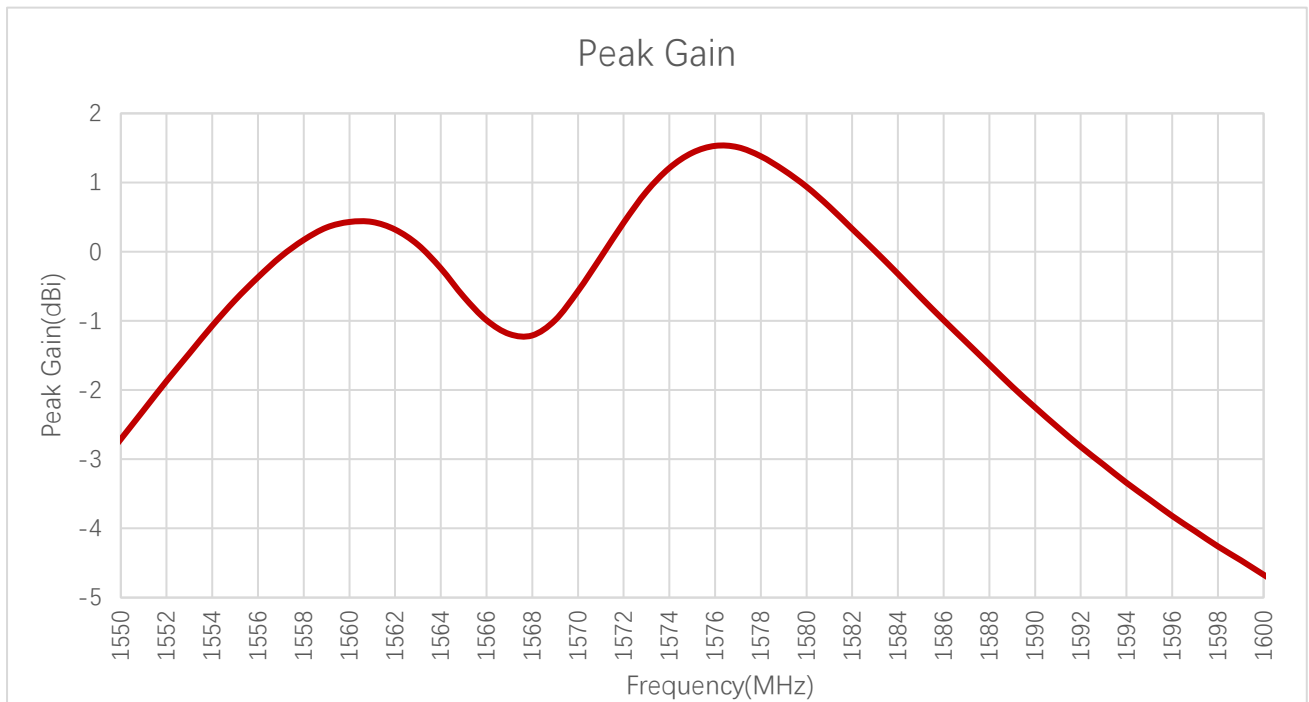
### 3.2.1. Efficiency



**Efficiency (%)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Efficiency (%)	-	-	-	-	-	43.9	51.2	-

### 3.2.2. Peak Gain

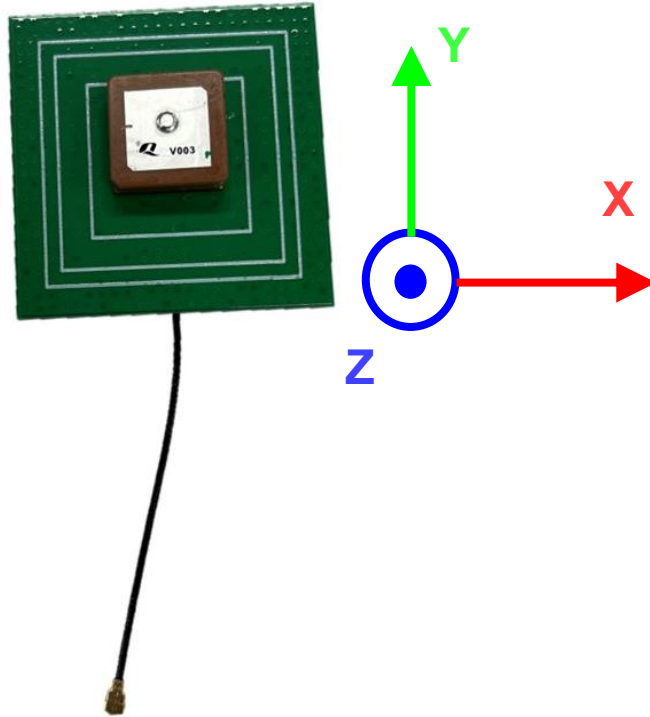


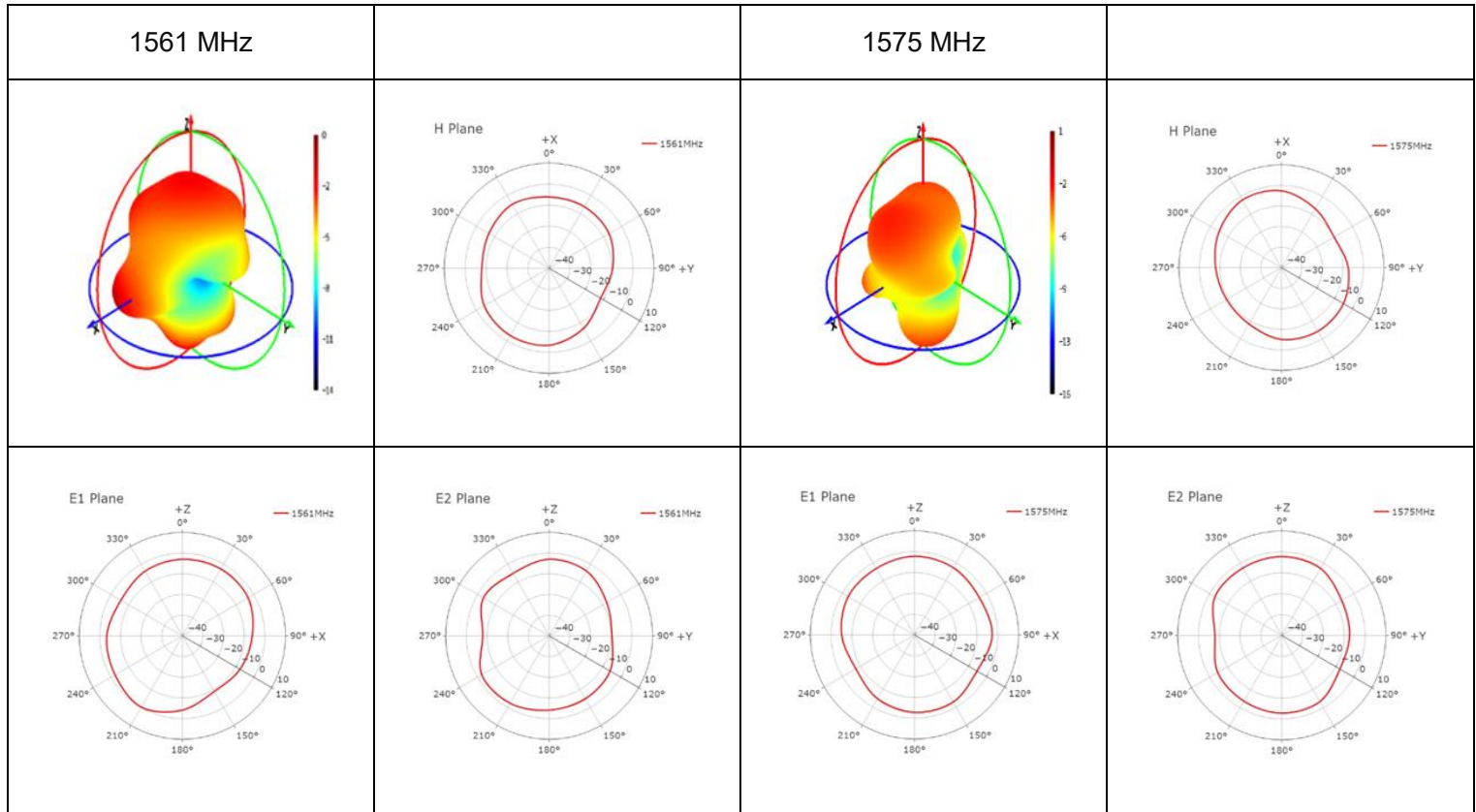
**Peak Gain (dBi)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Peak Gain (dBi)	-	-	-	-	-	0.4	1.4	-




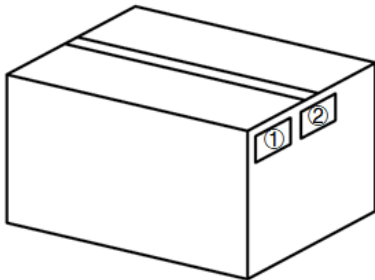
### 3.2.3. 3D & 2D Radiation Pattern

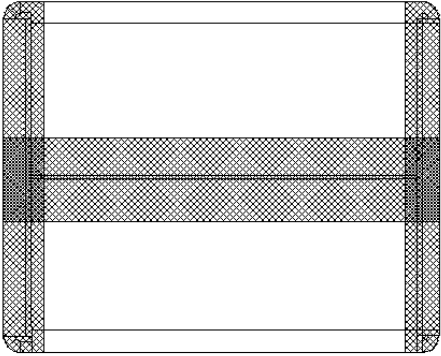
- Test Condition: test on a 40 mm × 40 mm PCB
- Test Chamber: GL-S-1





## 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		Vacuum 80 products in a pearl cotton tray; (80 pcs antennas per pearl cotton tray)
2	 	Put 5 pearl cotton trays inside the outer box and put bubble bags on the top. (400 pcs antennas per carton box)  <u>Carton Size:</u> <u>L × W × H = 405 × 293 × 185 mm</u>
3		<b>Position for Attaching Labels</b> ① Carton Label ② Quality Label

4		<p><b>Sealing Cartons</b> “工” type sealing cartons</p>
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# 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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## Revision History

Version	Date	Author	Note
-	2021-05-18	Kenny YIN/ Aria CHU	Creation of the document
1.0	2021-05-18	Kenny YIN/ Aria CHU	First official release
1.1	2021-12-05	Kenny YIN/ Aria CHU	Updated the product description (Chapter 1).
2.0	2023-08-26	Damon ZHANG/ Lucky FENG/ David LIU/ Aria CHU	Updated all test data in this datasheet.
2.1	2023-12-05	Lucky FENG/ Aria CHU	Added REACH compliant (Chapter 1.2).



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