



# Antenna Datasheet

**Product OC:** YEGT001BA

**Version:** 2.0

**Date:** 2023-11-09

**Status:** Released

**Product Name:** Passive GNSS L1 Antenna

**Key Features:**

Frequency Band: 1559-1606MHz

Dimensions: 50 mm × 16.4 mm

Efficiency: Up to 46.8 %

RoHS Compliant

IP53

# 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: In Free Space

## 1.1. Electrical

Electrical	
Frequency Range	1559–1606 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omnidirectional

Band	GPS L5	GALILEO	GPS L2	GLONASS	BEIDOU	BEIDOU	GPS L1	
	GALILEO E5a	GALILEO E5b	GPS L2 QZSS L2C	GLONASS G2	BEIDOU B3	BEIDOU B1I	GALILEO E1	GLONASS G1
Frequency (MHz)	BEIDOU B2a-B2I	BEIDOU B2b					BEIDOU B1C	
	QZSS L5						QZSS L1	
	IRNSS L5							
	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	1.8	1.7	1.4
Return Loss (dB)	-	-	-	-	-	-10.7	-11.9	-16.0
Efficiency (%)	-	-	-	-	-	44.8	44.3	46.0
Peak Gain (dBi)	-	-	-	-	-	1.0	1.1	1.3

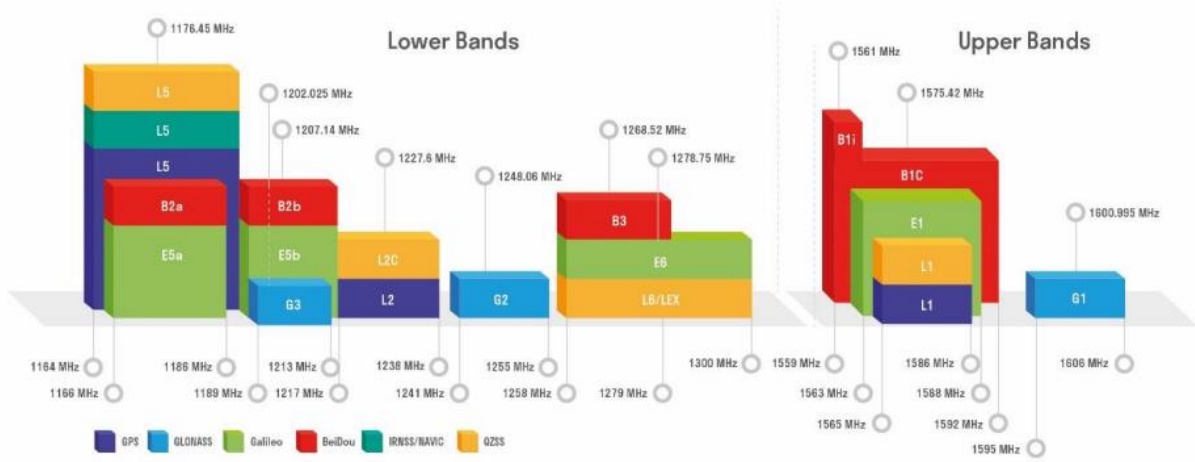
## 1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	50 mm × 16.4 mm
Casing Material & Color	TPEE & Black
Connector Type	SMA Male
Mounting Type	Terminal
Weight	Typ. 6 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP53
RoHS Compliant	Yes

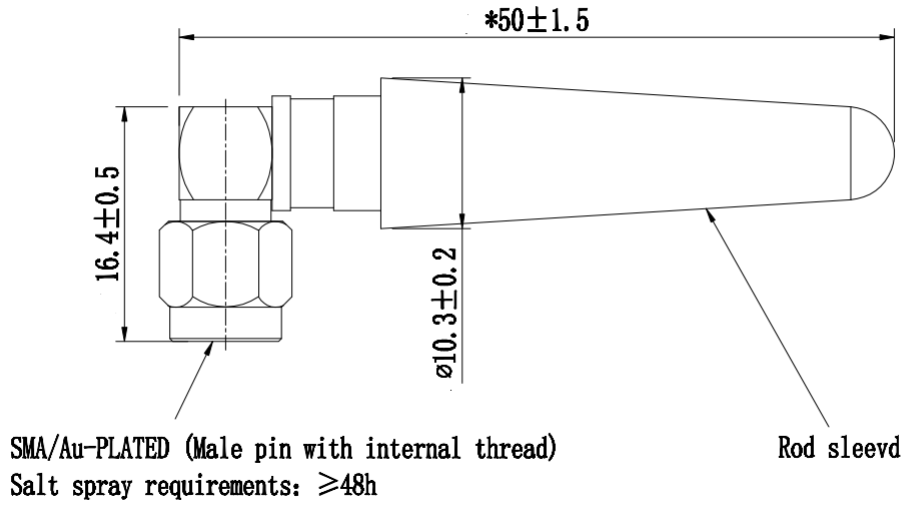
### 1.3. Supported GNSS Frequency Bands

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

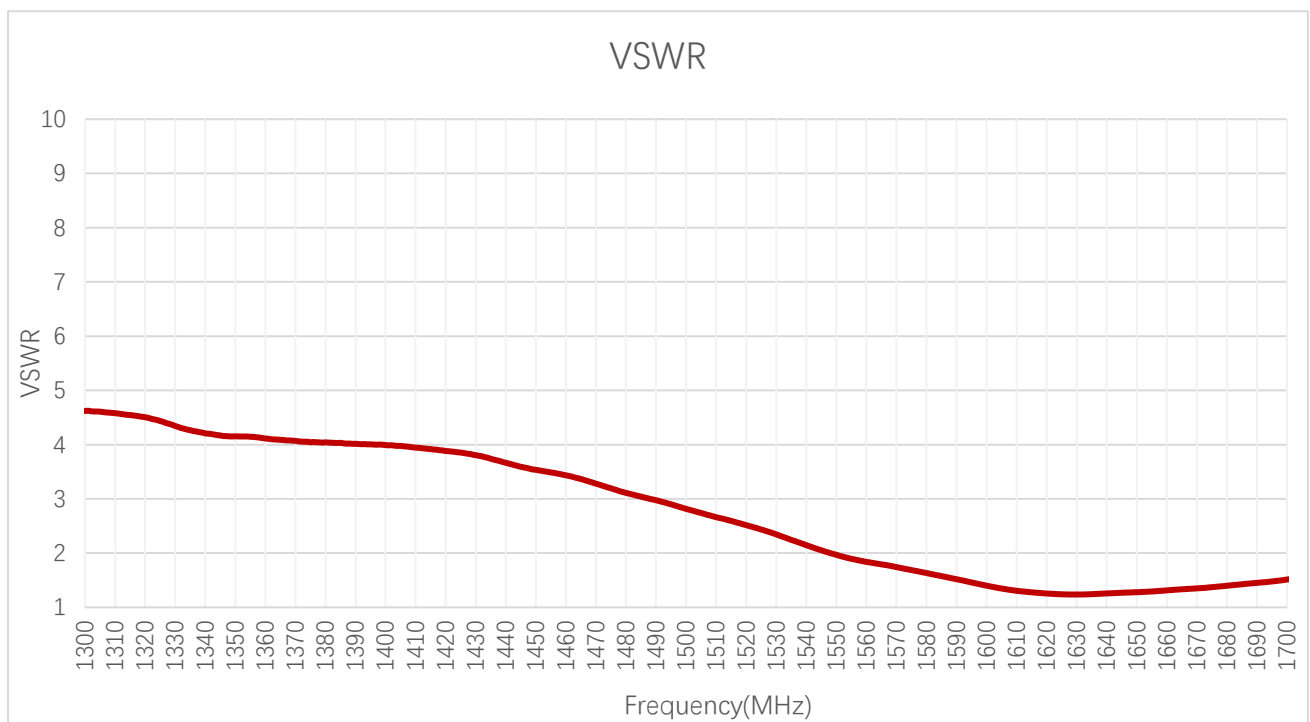




# 3 Detailed Performance

## 3.1. S-Parameter Test

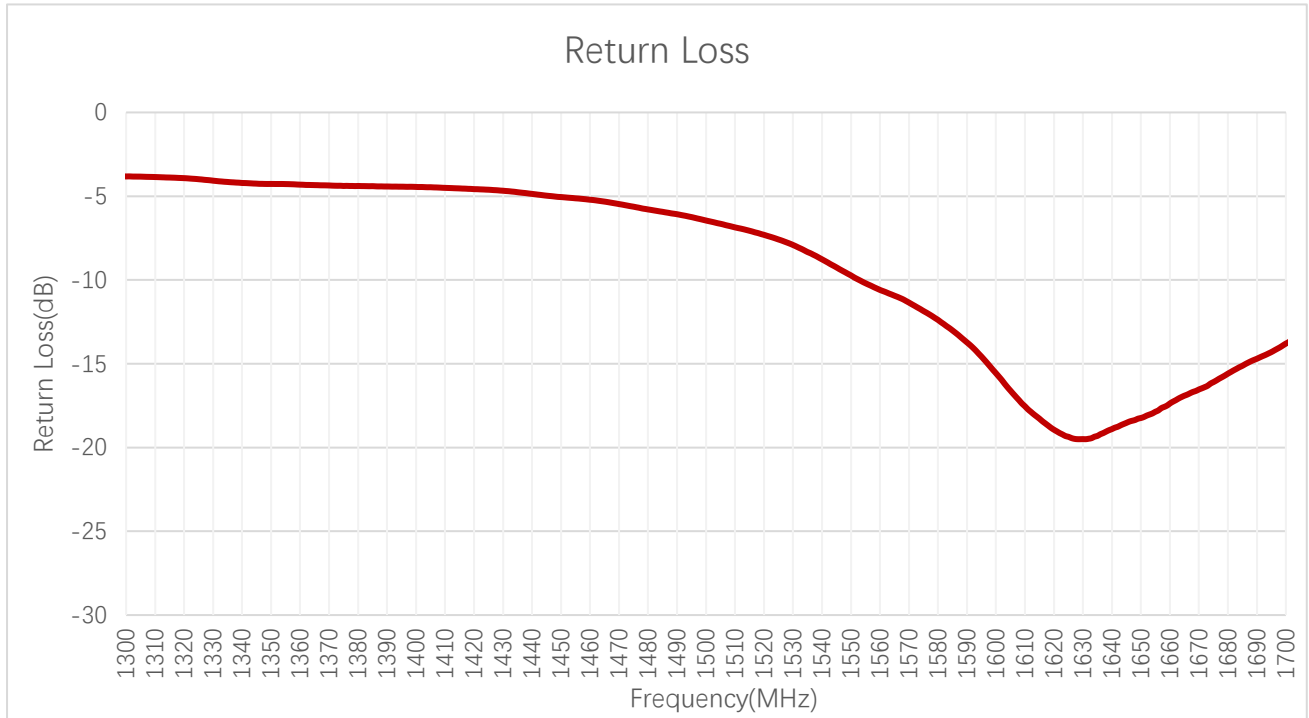
### 3.1.1. VSWR



**VSWR**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	1.8	1.7	1.4

**3.1.2. Return Loss**

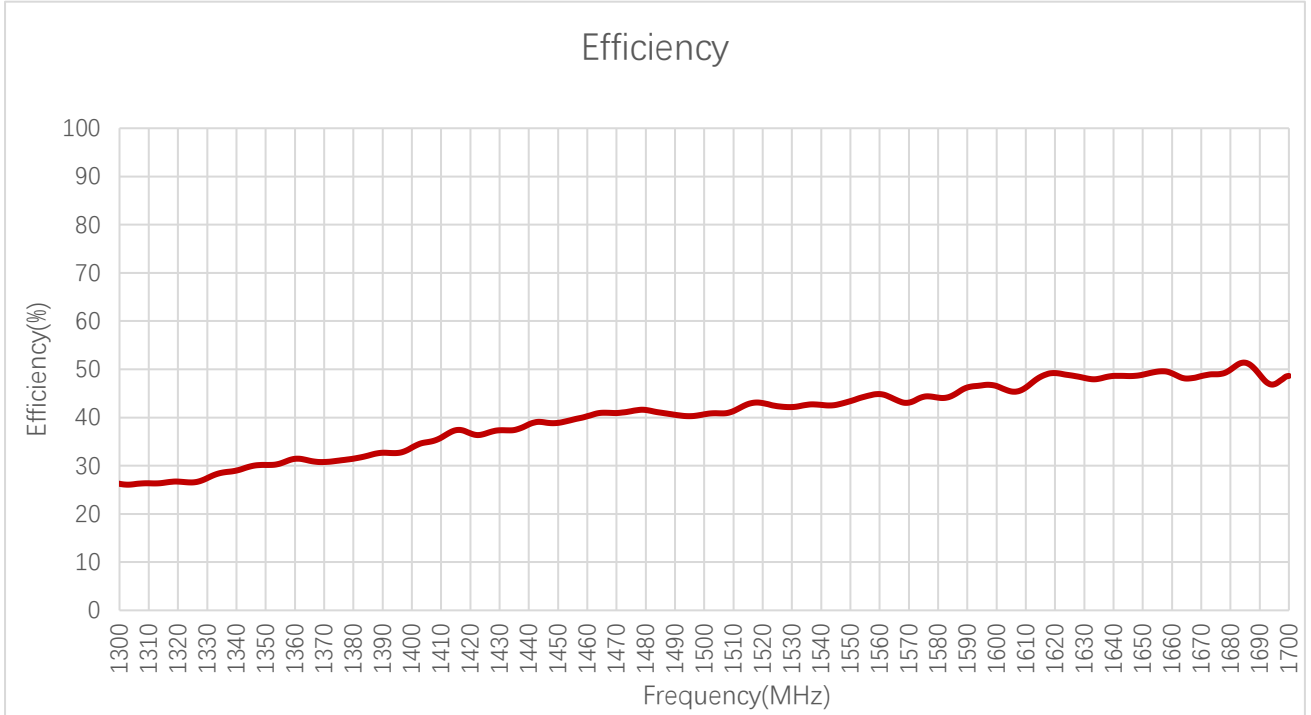


**Return Loss (dB)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Return Loss (dB)	-	-	-	-	-	-10.7	-11.9	-16.0

### 3.2. Radiation Performance Test

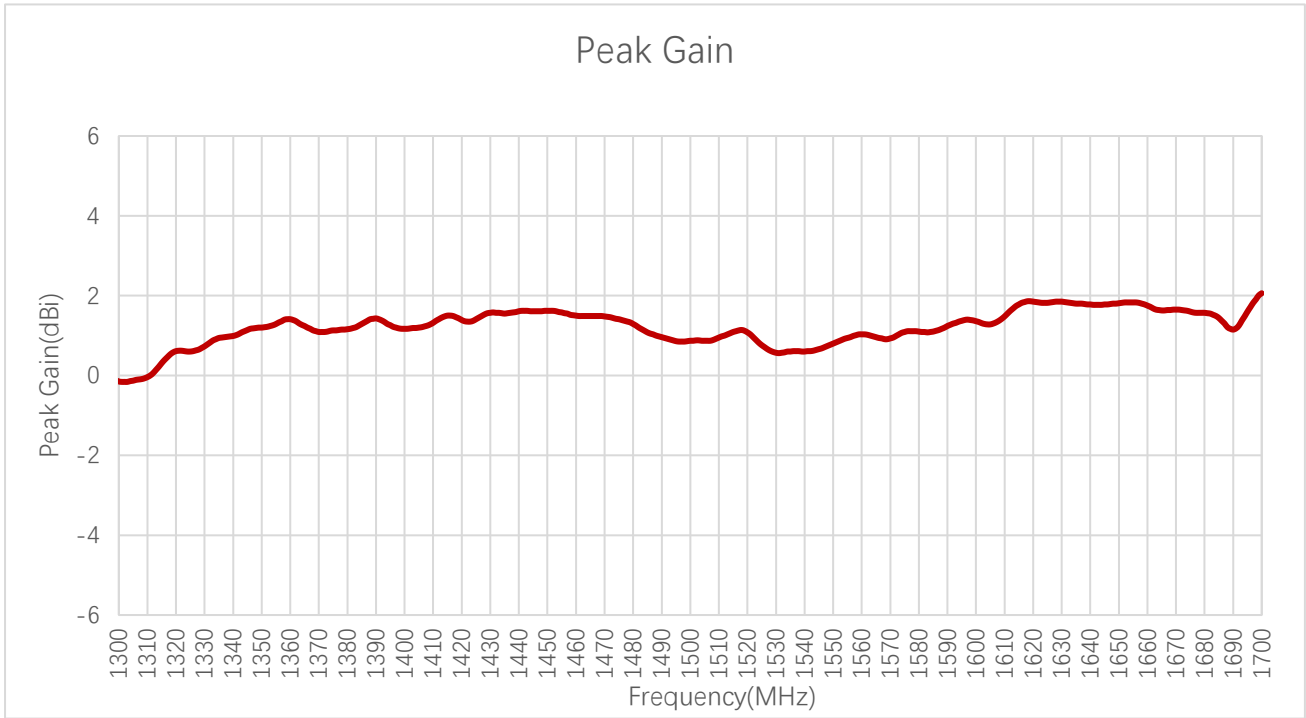
#### 3.2.1. Efficiency



**Efficiency (%)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Efficiency (%)	-	-	-	-	-	44.8	44.3	46.0

**3.2.2. Peak Gain**

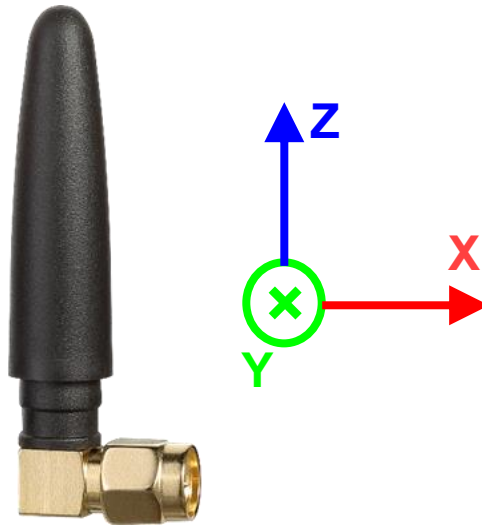


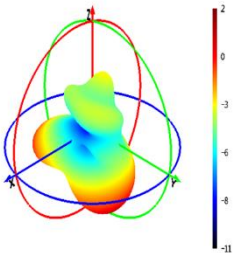
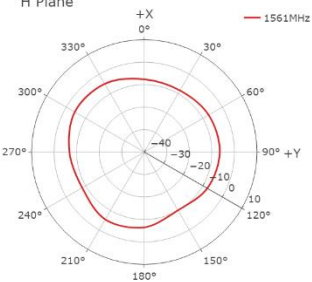
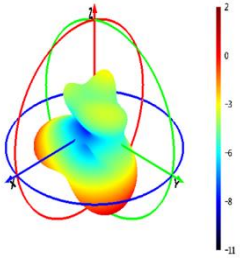
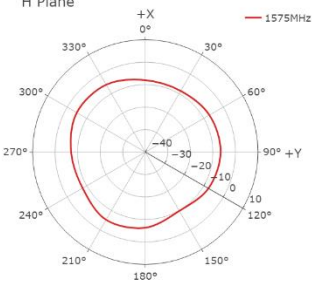
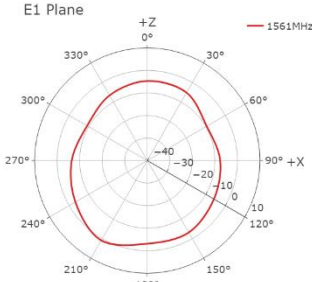
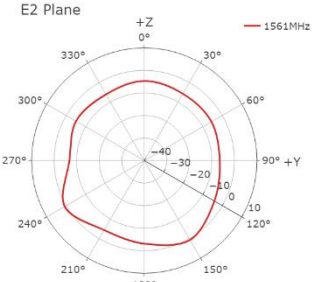
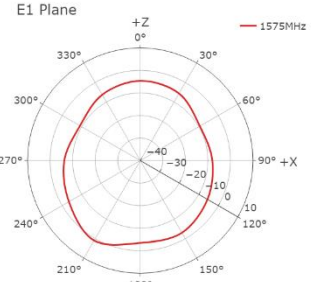
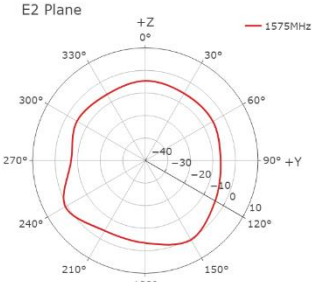
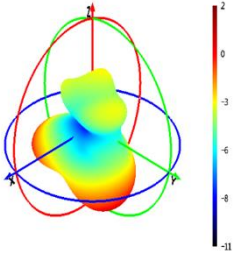
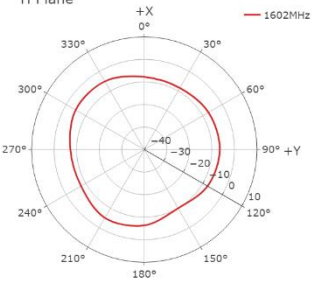
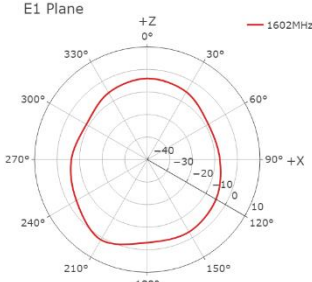
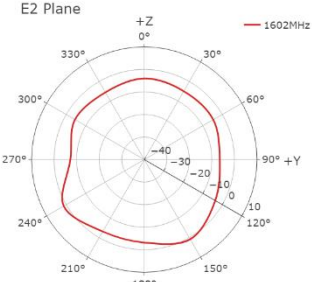
**Peak Gain (dBi)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Peak Gain (dBi)	-	-	-	-	-	1.0	1.1	1.3

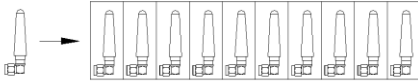
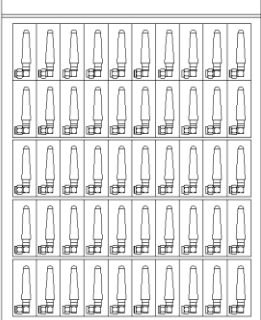
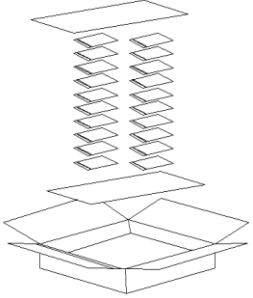
### 3.2.3. 3D & 2D Radiation Pattern

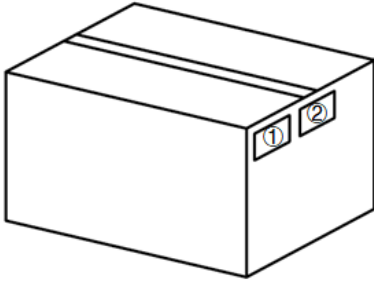
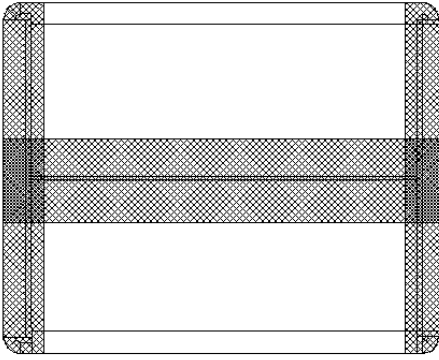
- Test Condition: In Free Space
- Test Chamber: GL-S-1



1561 MHz		1575 MHz	
	<p>H Plane</p> 		<p>H Plane</p> 
<p>E1 Plane</p> 	<p>E2 Plane</p> 	<p>E1 Plane</p> 	<p>E2 Plane</p> 
1602 MHz			
	<p>H Plane</p> 		
<p>E1 Plane</p> 	<p>E2 Plane</p> 		

# 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		<p>Put the product in a one-piece bag. (10 PCS Antennas / One-piece Bag)</p>
2		<p>50 pcs antenna products in a PE bag. (50 PCS Antennas / PE Bag)</p>
3		<p>(20 PE Bags / Carton Box) (1000 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 = 390 × 275 × 165 mm</u></p>

<p>4</p>		<p><b>Position for Attaching Labels</b></p> <p>① Carton Label ② Quality Label</p>
<p>5</p>		<p><b>Sealing Cartons</b></p> <p>“I” type sealing cartons</p>
<p>Note</p>	<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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# Revision History

Version	Date	Author	Note
-	2022-06-24	Ezail TAN/ Jason LONG	Creation of the document
1.0	2022-06-24	Ezail TAN/ Jason LONG	First official release
1.1	2022-09-27	Ezail TAN/ Jason LONG	<ol style="list-style-type: none"> <li>1. Updated working temperature. (Chapter 3).</li> <li>2. Updated test environment picture. (Chapter 4).</li> </ol>
1.2	2022-10-17	Aria CHU	Updated the IP rating.
2.0	2023-11-09	Black LI/ Lucky FENG/ David LIU/ Aria CHU	Numerous changes were made to this document. It should be read in its entirety.

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