



# Antenna Datasheet

**Product OC:** YFGA035E3BM

**Version:** 1.2

**Date:** 2025-07-21

**Status:** Released

**Product Name:** GNSS L1 Buckle Mount Ceramic Patch + Cable Passive  
Embedded Antenna

**Key Features:**

Frequency Band: 1559–1586 MHz

Dimensions: 35 mm × 35 mm × 7.9 mm

Peak Gain: 1.21 dBi

RoHS and REACH Compliant

# Overview

The YFGA035E3BM is a high-performance GNSS L1 buckle mount ceramic patch + cable passive embedded antenna from Quectel, designed for reliable satellite navigation. Operating in the 1559–1586 MHz frequency band, it supports key GNSS constellations including GPS L1, GALILEO E1, BDS B1C, and QZSS L1, ensuring versatile compatibility.

With a compact size of 35 mm × 35 mm × 7.9 mm and a lightweight design (typically 23.2 g), it's ideal for space-constrained applications. Boasting a peak gain of 1.21 dBi and high efficiency (81.5 % at 1561 MHz), it delivers strong signal reception.

Featuring 50  $\Omega$  impedance, RHCP polarization, and a directional radiation pattern, it ensures stable performance. The antenna includes a 100 mm black RF cable ( $\Phi$  1.13 mm) with an IPEX MHF1 connector and uses a buckle mounting type for easy installation.

RoHS and REACH compliant, it operates in -40 °C to +85 °C, making it suitable for various environments. Packaged in pearl cotton trays (20 per tray, 80 per carton), it offers convenient handling and storage.

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: Free Space

## 1.1. Electrical

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

Band Frequency (MHz)	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	-	-	-	-	-	1.21	1.19	-
Return Loss (dB)	-	-	-	-	-	-19.9	-21.3	-
Efficiency (%)	-	-	-	-	-	81.5	75.2	-
Peak Gain (dBi)	-	-	-	-	-	1.21	1.07	-

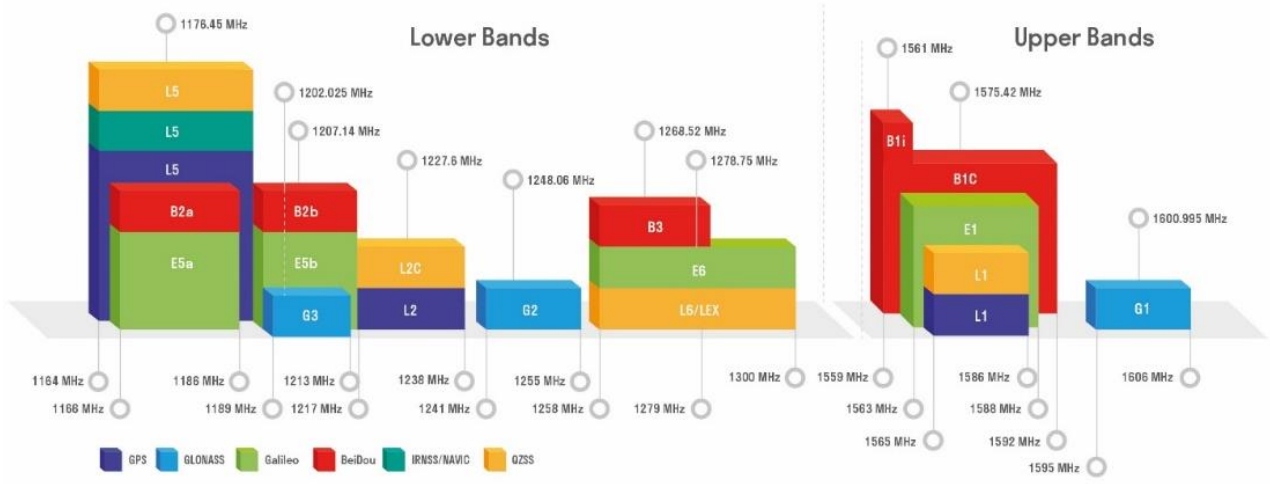
## 1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	35 mm × 35 mm × 7.9 mm
Material & Color	PCBA + Ceramic + RF Cable
Cable Type & Length	Φ 1.13 mm & Black & 100 mm
Connector Type	IPEX MHF1
Mounting Type	Buckle
Weight	Typ. 23.2 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS & REACH Compliant	Yes

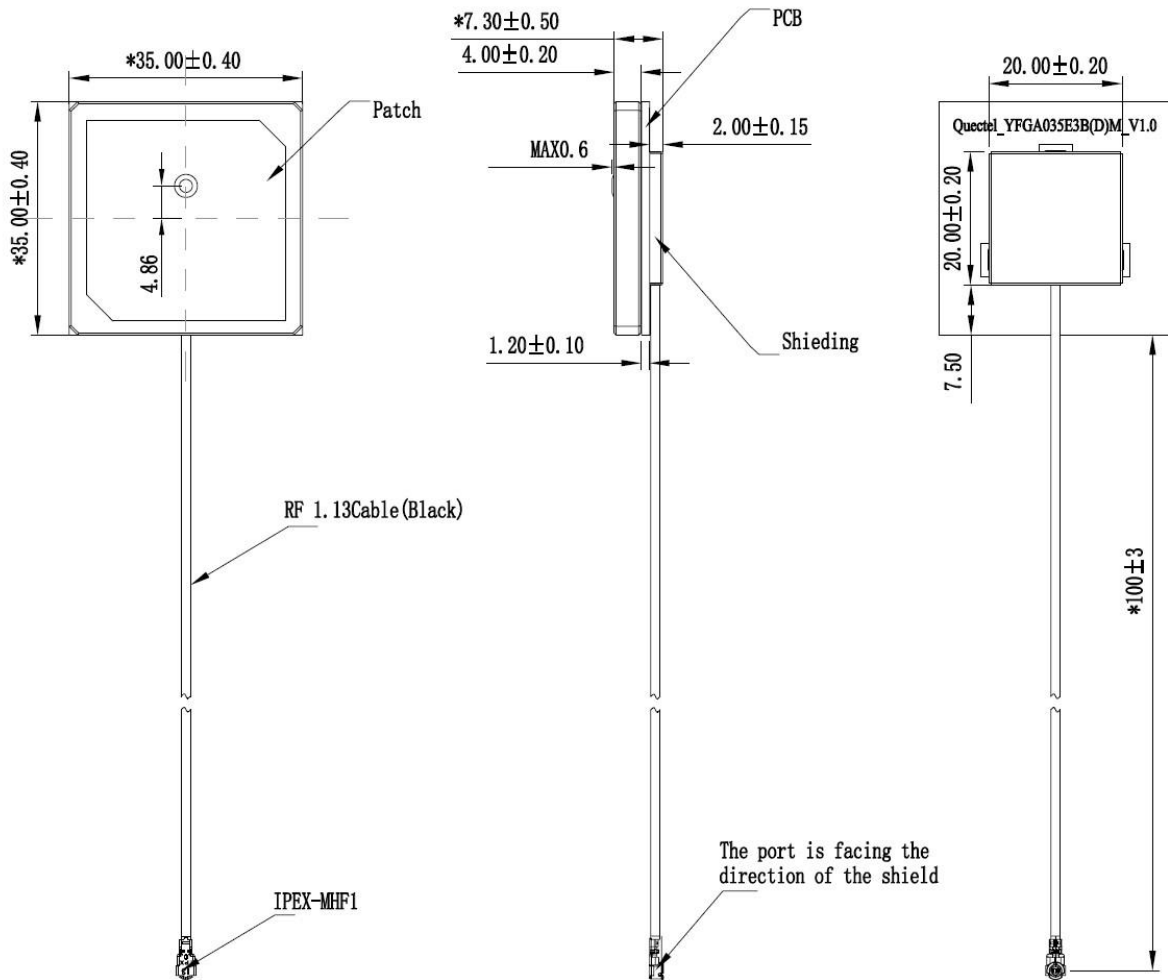
### 1.3. Supported GNSS Frequency Bands

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-B2I</b> Centre 1176.45 (1166–1187)	<b>B2b</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



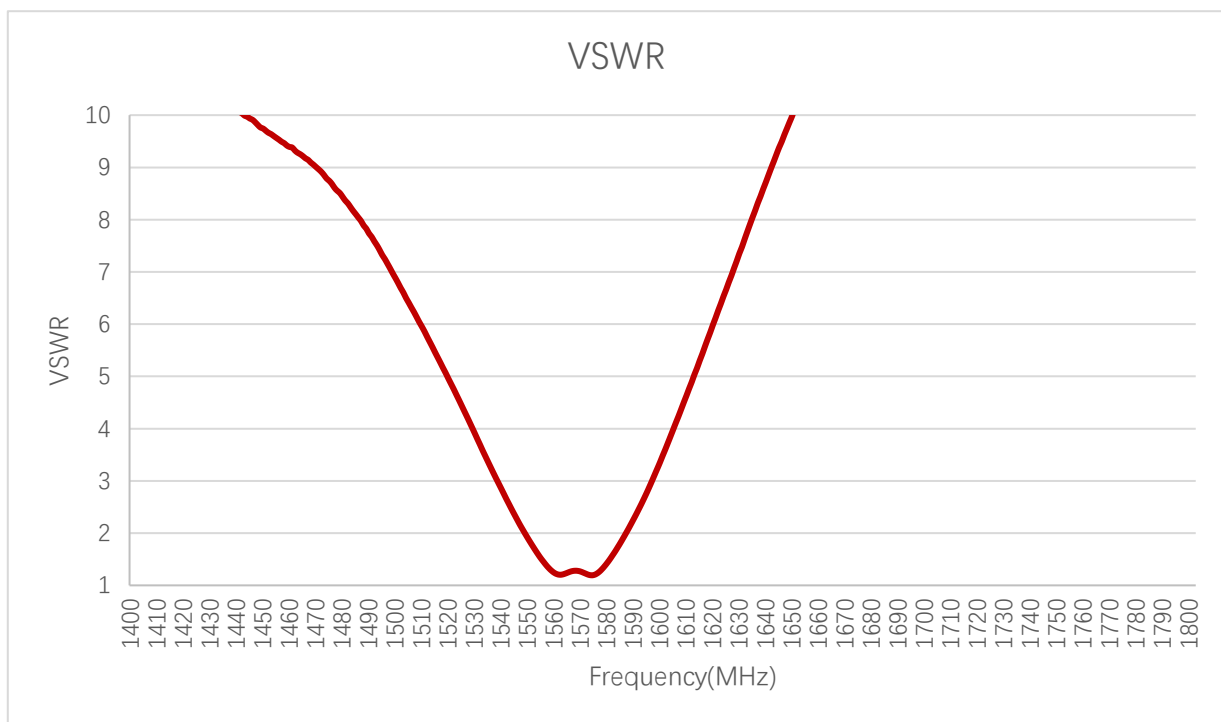
# 2 Drawing



# 3 Detailed Performance

## 3.1. S-Parameter Test

### 3.1.1. VSWR



**VSWR**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	1.21	1.19	-

**3.1.2. Return Loss**

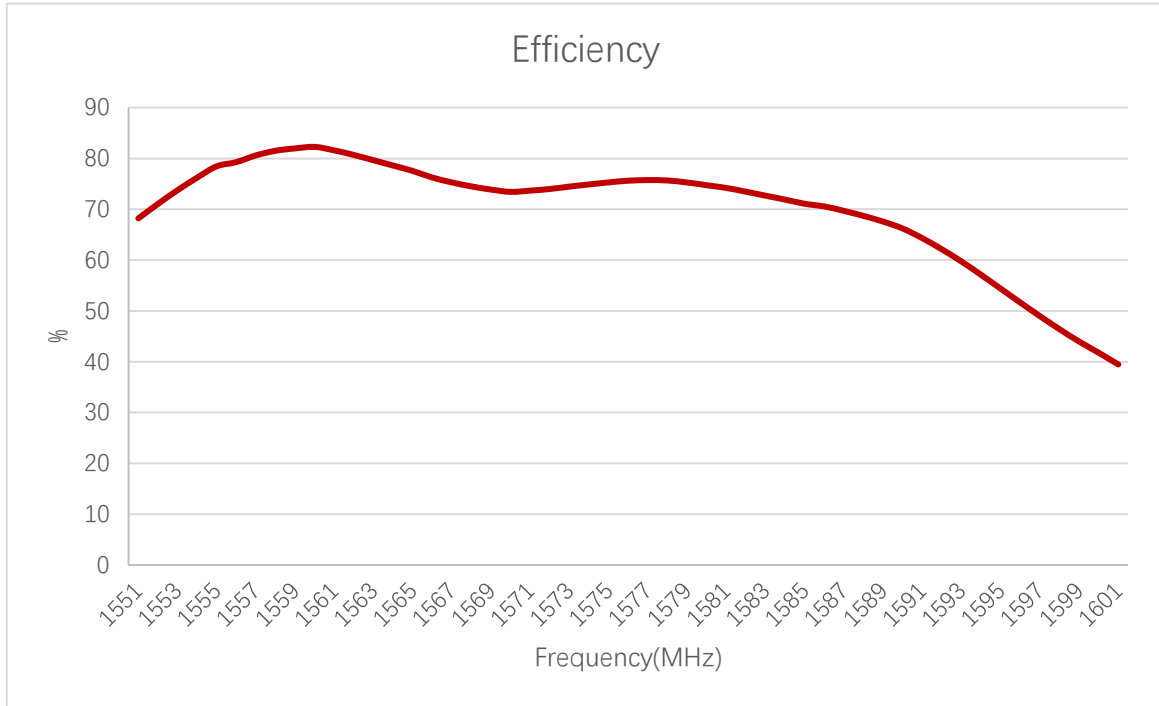


**Return Loss (dB)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Return Loss (dB)	-	-	-	-	-	-19.9	-21.3	-

### 3.2. Radiation Performance Test

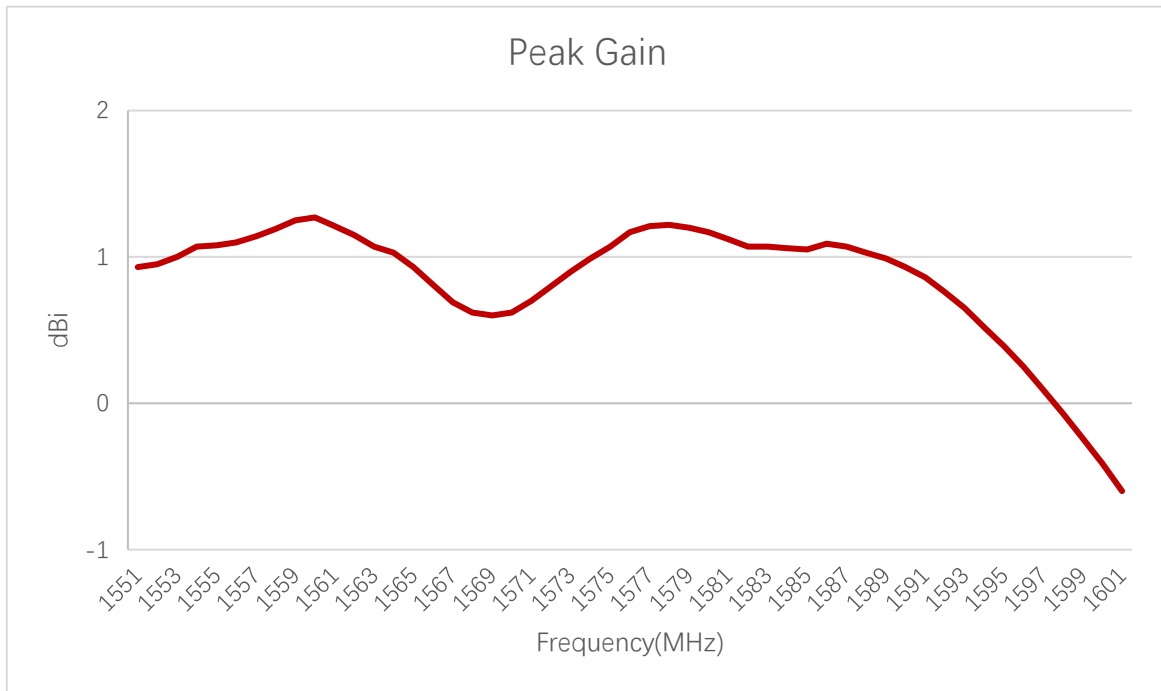
#### 3.2.1. Efficiency



**Efficiency (%)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Efficiency (%)	-	-	-	-	-	81.5	75.2	-

**3.2.2. Peak Gain**

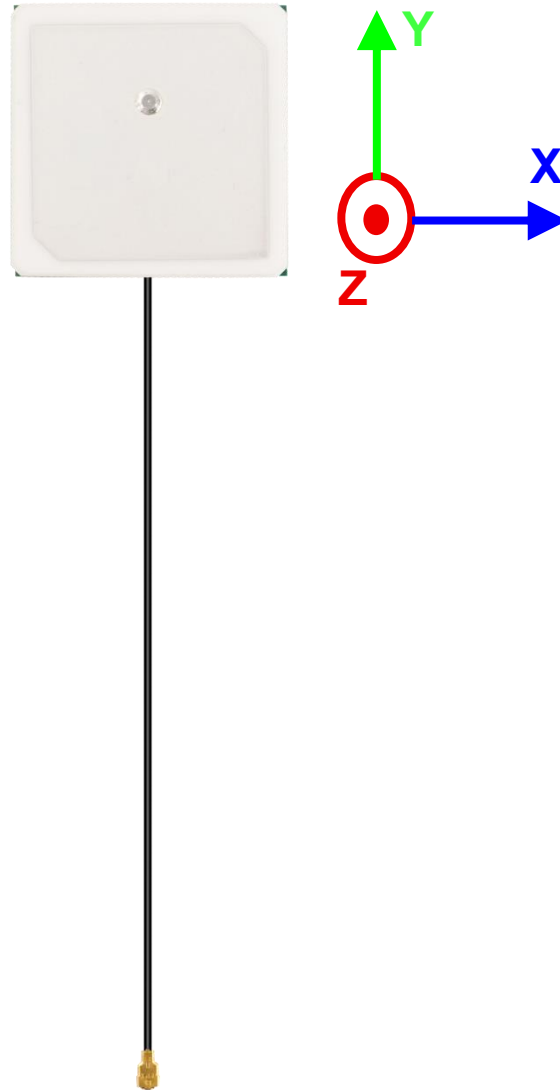


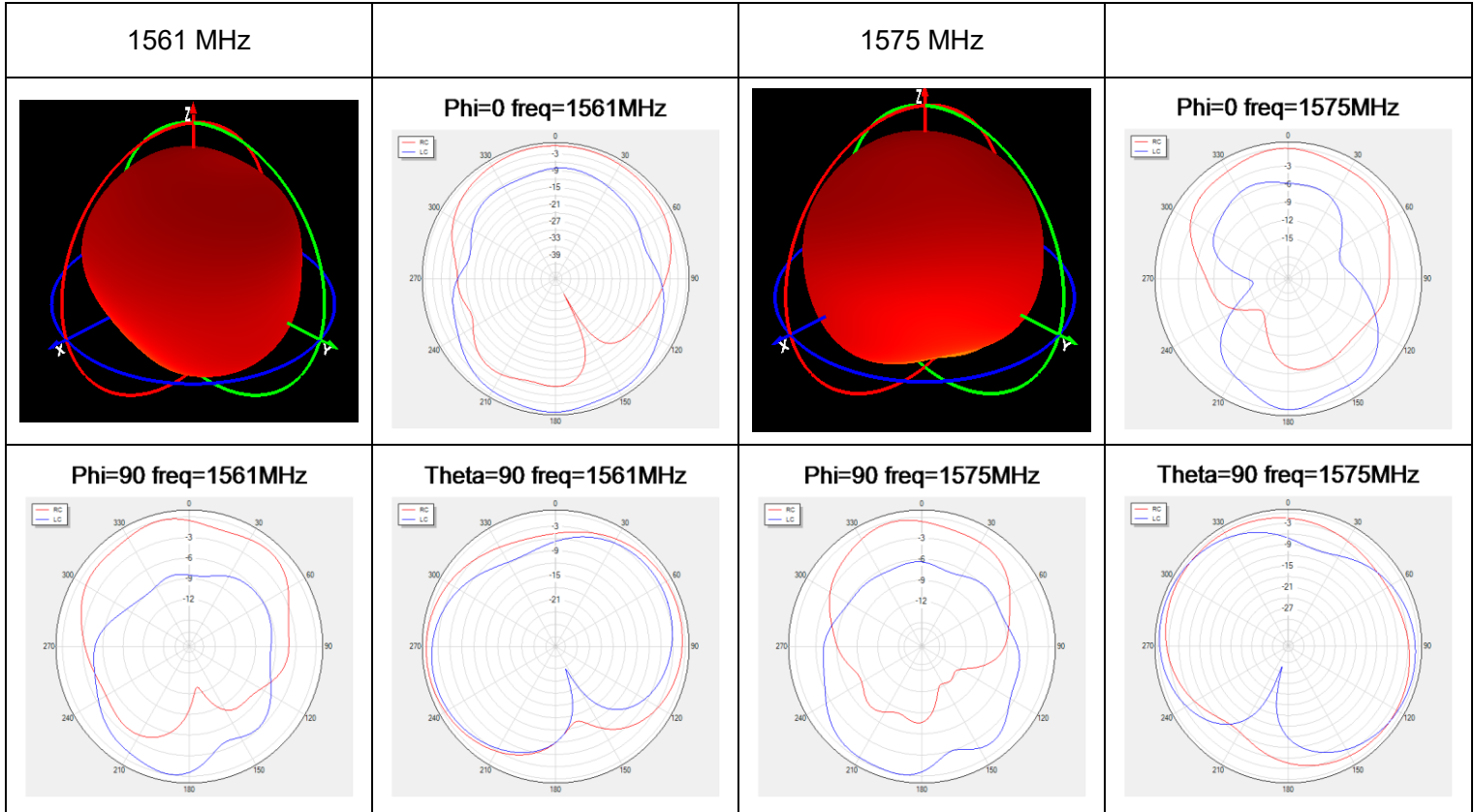
**Peak Gain (dBi)**

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Peak Gain (dBi)	-	-	-	-	-	1.21	1.07	-

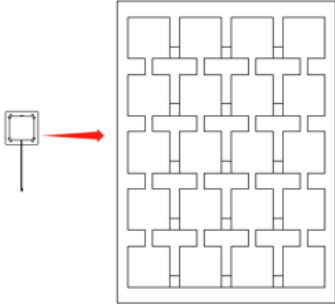
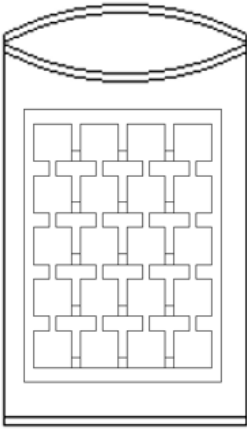
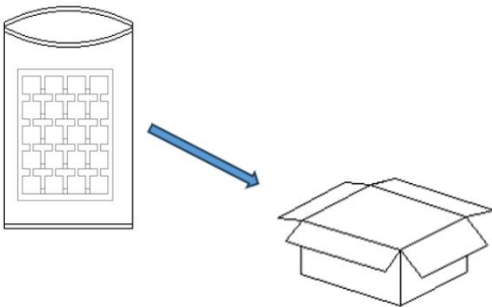
### 3.2.3. 3D & 2D Radiation Pattern

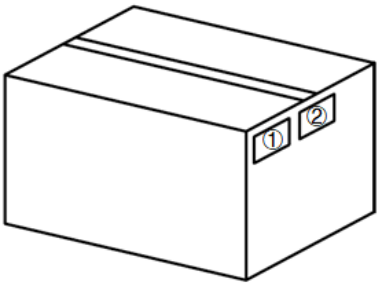
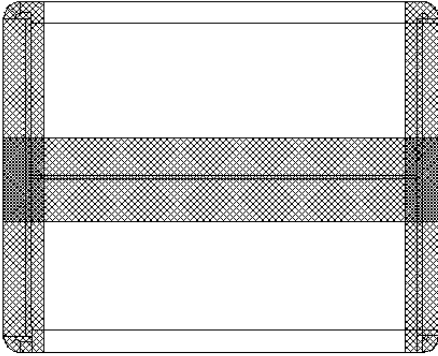
- Test Condition: Free Space
- Test Chamber: SH-SY-16M





# 4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		(20 Antennas / Pearl Cotton Tray)
2		The pearl cotton tray is vacuumed in a vacuum bag.
3		(4 Pearl Cotton Trays / Carton Box) (80 Antennas / Carton Box)  <u>Carton Size:</u> <u>L × W × H = 405 × 293 × 185 mm</u>

4	 A 3D perspective drawing of a rectangular carton. On the front face, there are two small rectangular labels. The left label is marked with a circled '1' and the right label is marked with a circled '2'.	<b>Position for Attaching Labels</b> ① Carton Label ② Quality Label
5	 A 2D perspective drawing of an H-shaped sealing carton. The structure consists of two vertical side rails and two horizontal top and bottom rails, forming an open frame. The entire structure is filled with a cross-hatched pattern, representing the sealing material.	<b>Sealing Cartons</b> H-shaped sealing cartons

# 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
-	2024-04-19	Junsen LI/ Mike GUO/ David LIU/ Rainey LIAO	Creation of the document
1.0	2024-04-19	Junsen LI/ Mike GUO/ David LIU/ Rainey LIAO	First official release
1.1	2024-11-19	Mike GUO	Deleted adhesive mounting type of antenna (Chapter 1.2).
1.2	2025-07-21	Aria CHU	<ol style="list-style-type: none"><li>Updated the antenna image (Cover page).</li><li>Updated the overview.</li></ol>

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