Antenna Datasheet

Product OC: YEGM070N1AC
Version: 1.0
Date: 2025-12-04
Status: Released

Product Name: BDS B1I & B1C & B2a Magnetic Mount Low Profile Active External Antenna

Key Features:

Frequency Band: 1166–1187 MHz,1559–1592 MHz
Dimensions: 65mm × 65 mm × 23.1 mm
LNA Gain: 17 ±3 dB
RoHS Compliant

Overview

The Quectel YEGM070N1AC is a low-profile, magnetic mount active GNSS antenna engineered for high-precision BDS Navigation Satellite System applications. Supporting B1I, B1C, and B2a frequency bands (1166–1187 MHz & 1559–1592 MHz), it delivers reliable positioning performance in challenging environments.

- **Key Features & Specifications**

✓ Multi-Band Support: Comprehensive BDS coverage across B1I, B1C, and B2a frequencies.
✓ Enhanced Signal Reception: Integrated LNA with 17±3 dB gain and ≤1.5 dB noise figure.
✓ Optimized Performance: High radiation efficiency up to 71.4 % and excellent VSWR as low as 1.08.
✓ Robust Construction: Compact 65 mm × 65 mm × 23.1 mm housing with PC+ABS material.
✓ Flexible Installation: Magnetic suction mount with 2-meter RG174 cable and SMA Male connector.
✓ Environmental Resilience: Operating temperature range of -40 °C to +85 °C.
✓ Regulatory Compliance: Meets RoHS environmental standards.

Performance Excellence

The antenna demonstrates outstanding RF characteristics with peak gains up to 3.85 dBi and directional radiation patterns. Its active design ensures superior signal acquisition and tracking capability, making it ideal for automotive, industrial, and precision navigation applications requiring dependable BDS connectivity.

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: Free Space

1.1. Electrical

Electrical	
Frequency Range	1166–1187 MHz, 1559–1592 MHz
Impedance	50 Ω
Polarization	RHCP
Radiation Pattern	Directional

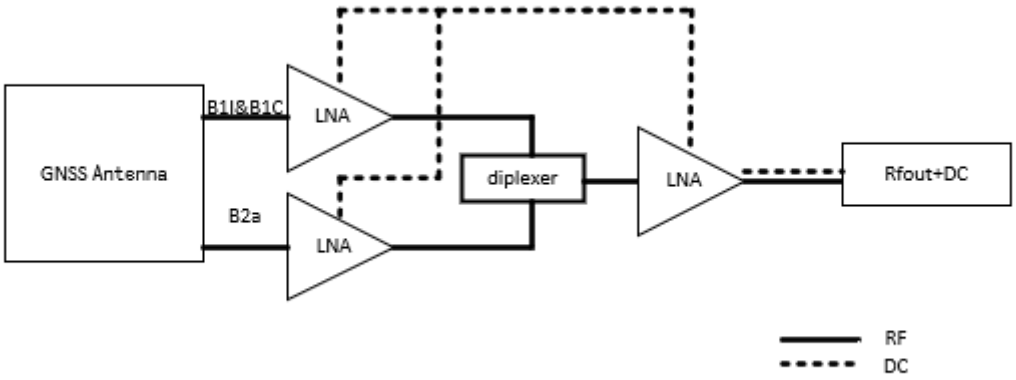
Band / Frequency (MHz)	BDS B2a-B2I	BDS B1I	BDS B1C
	1176	**1561**	**1575**
VSWR	1.08	1.24	1.31
Return Loss (dB)	-28.5	-18.2	-19
Efficiency (%)	68.1	71	71.4
Peak Gain (dBi)	2.06	3.85	3.85

LNA Electrical	
LNA Gain	17 ±3 dB @ 3 V 16 ±3 dB @ 1.8 V
Noise Figure	≤ 1.5 dB
Output VSWR	< 2.0
Filter Out-of-Band Attenuation	30 dB f0 ±100 MHz f0 (1176 MHz, 1568 MHz)
Working Voltage	1.8-3.3 V
Working Current	15.5 ±4 mA @ 3 V 14.5 ±4 mA @ 1.8 V
Impedance	50 Ω

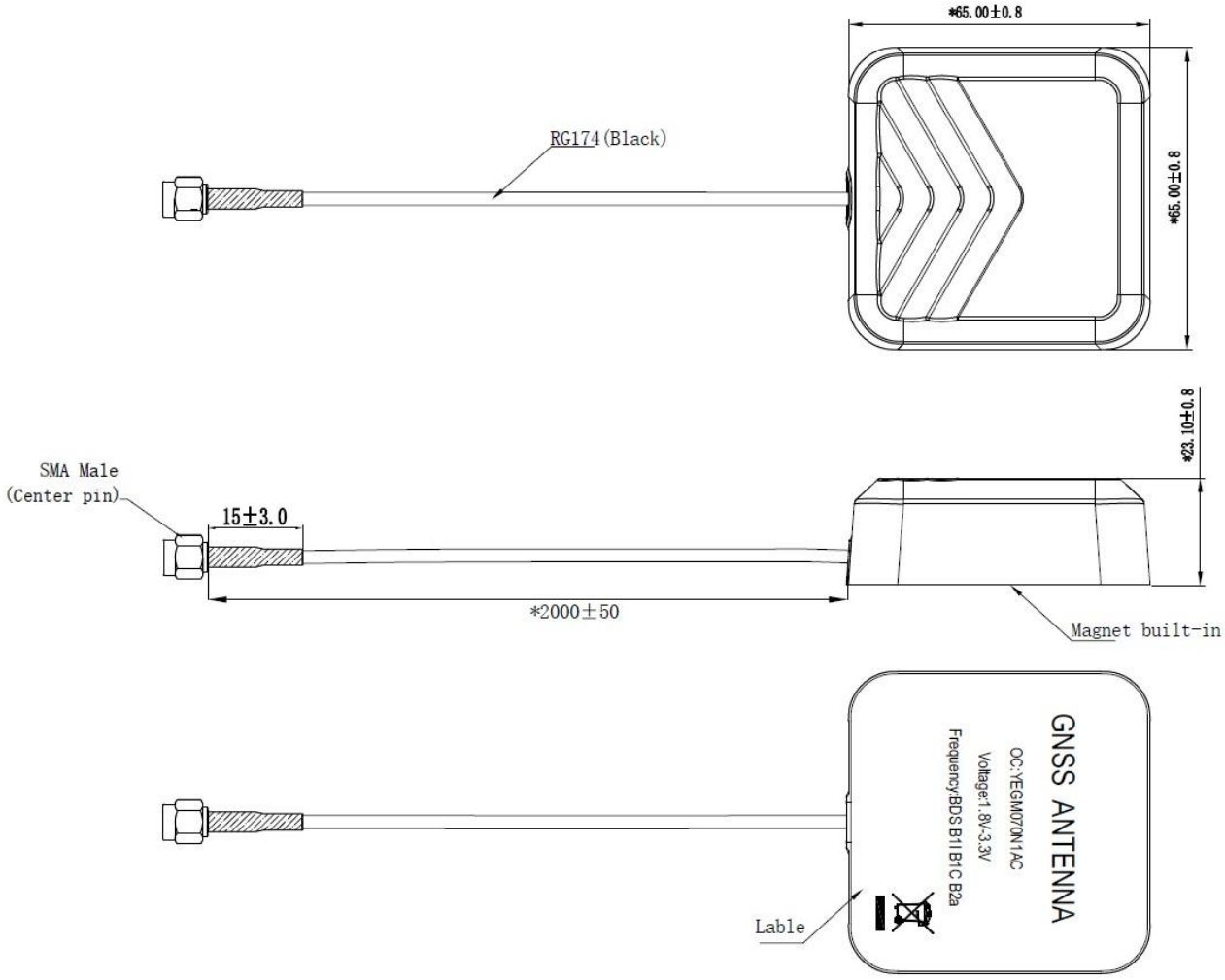
1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	65 mm × 65 mm × 23.1 mm
Material & Color	PC+ABS & Black
Cable Type & Length	RG174 Black & 2000 mm
Connector Type	SMA Male
Mounting Type	Magnetic suction
Weight	Typ. 93.4 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS Compliant	Yes

1.3. Block Diagram (Active Antenna)



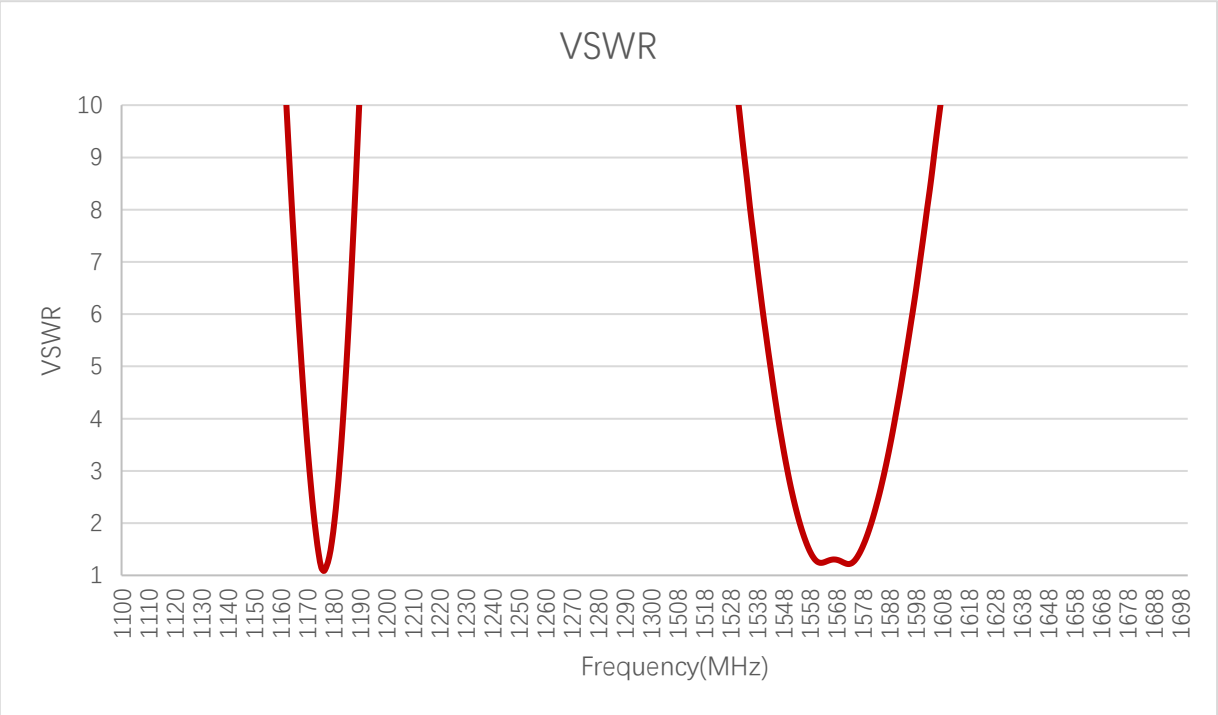
2 Drawing


*65.00±0.8
RG174 (Black)
*65.00±0.8
*23.10±0.8
SMA Male
(Center pin)
15±3.0
*2000±50
Magnet built-in
GNSS ANTENNA
OC:YEGM070N1AC
Voltage:1.8V-3.3V
Frequency:BDS B1I B1C B2a
Lable

3 Detailed Performance

3.1. S-Parameter Test

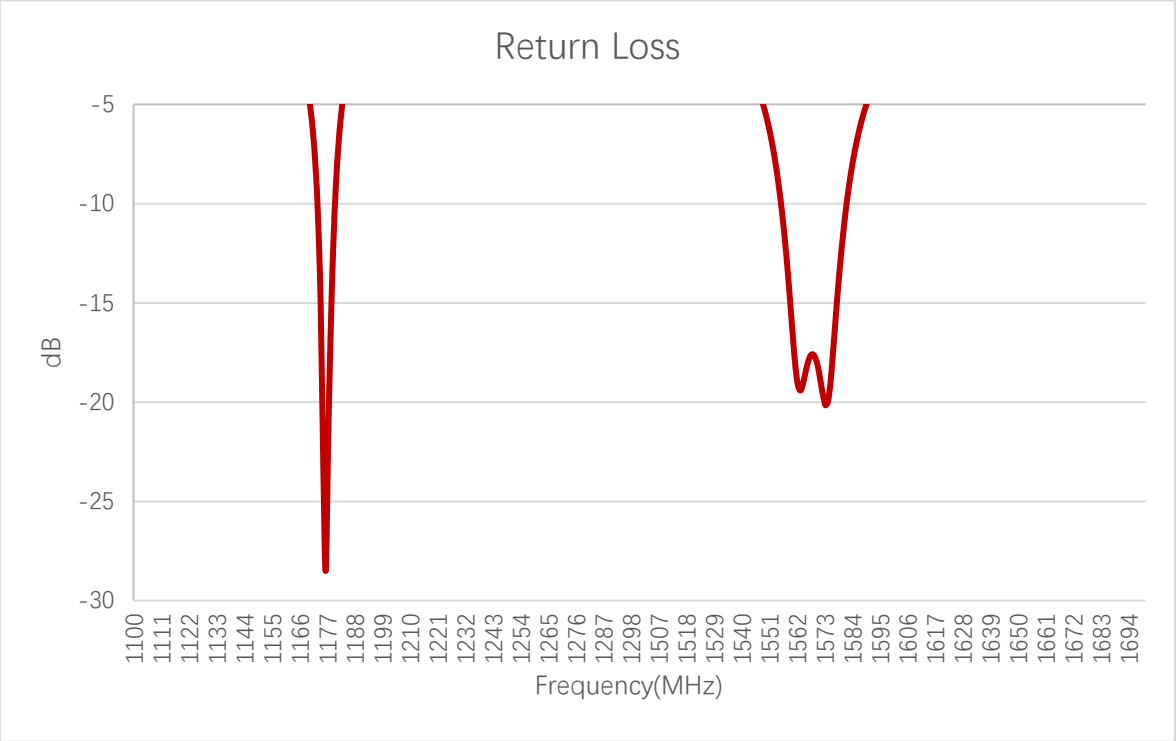
3.1.1. VSWR



VSWR

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	1.08	-	-	-	-	1.24	1.31	-

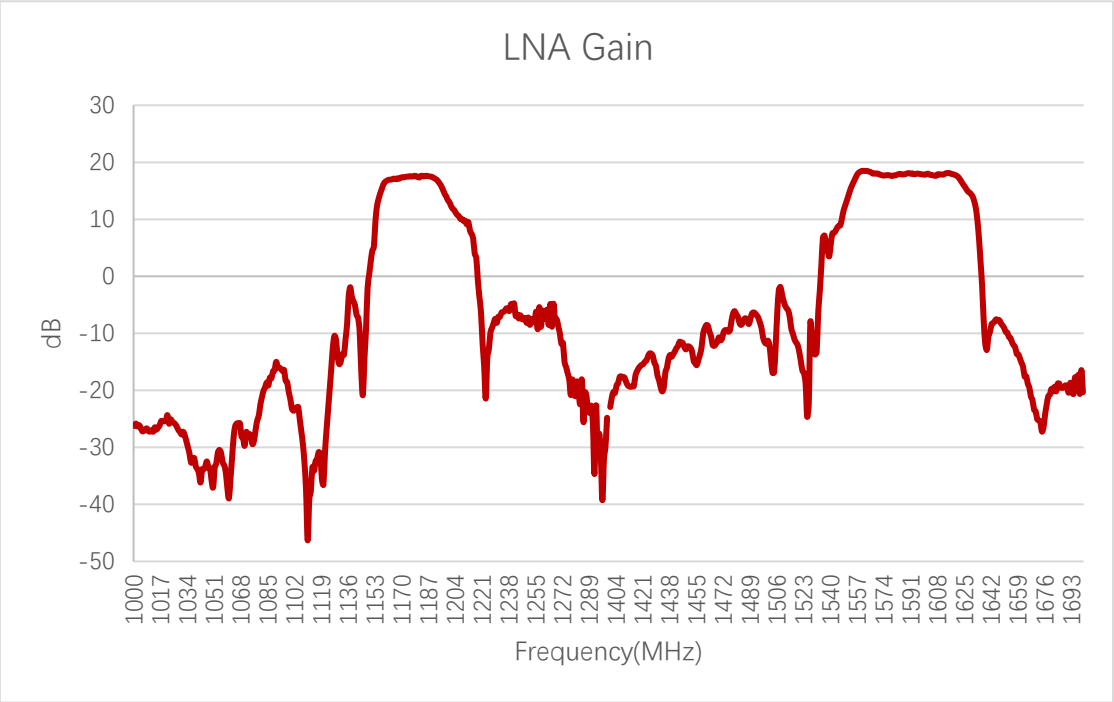
3.1.2. Return Loss



Return Loss (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Return Loss (dB)	-28.5	-	-	-	-	-18.2	-19	-

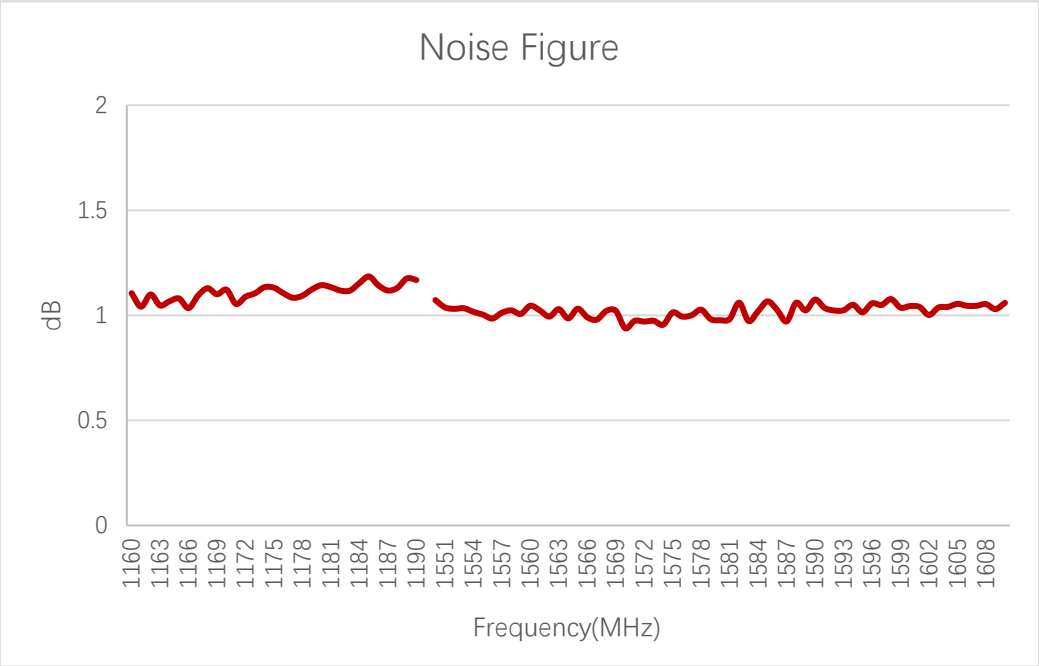
3.1.3. LNA Gain



LNA Gain (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
LNA Gain (dB)	17.5	-	-	-	-	18.4	17.7	-

3.1.4. Noise Figure

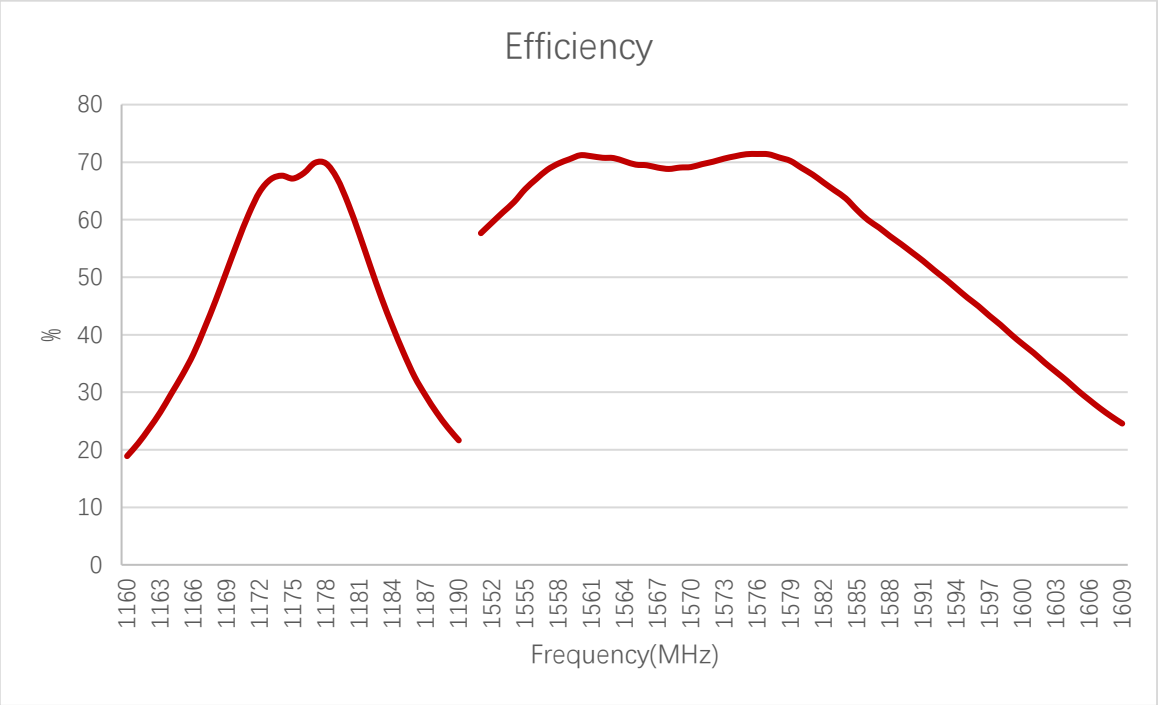


Noise Figure (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Noise Figure (dB)	1.1	-	-	-	-	1.02	1.01	-

3.2. Radiation Performance Test

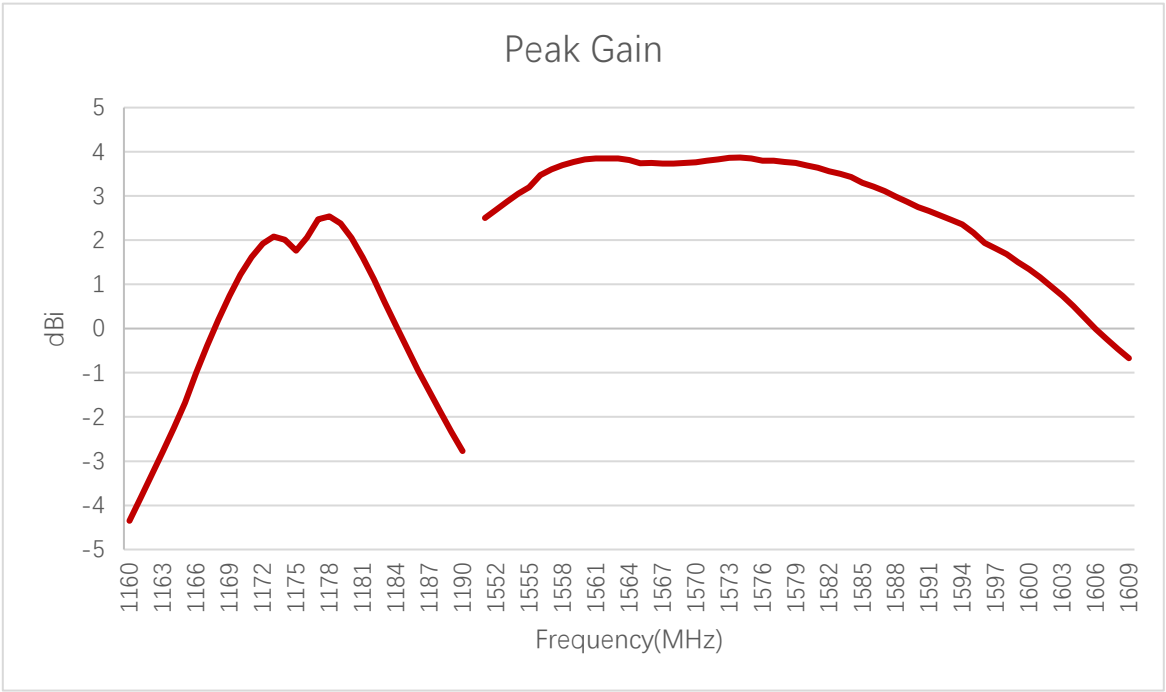
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Efficiency (%)	68.1	-	-	-	-	71	71.4	-

3.2.2. Peak Gain

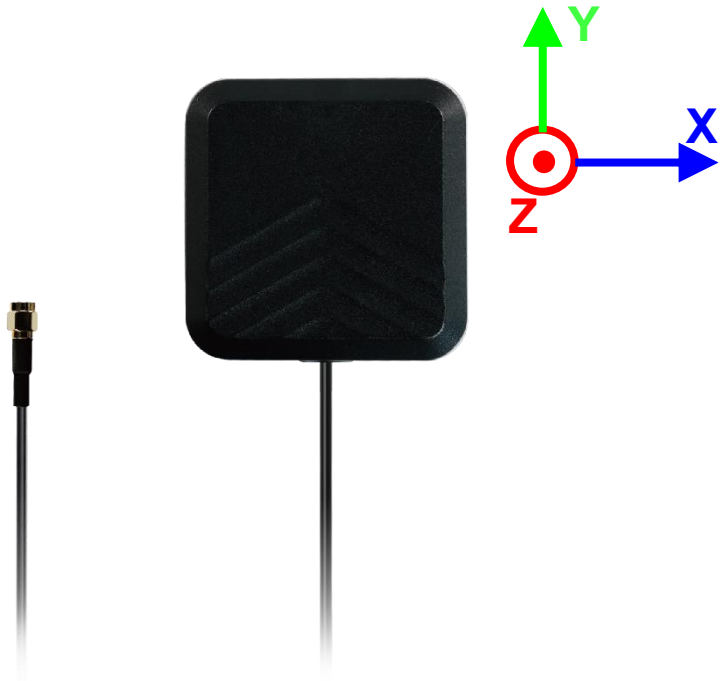


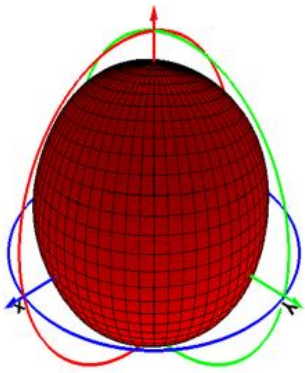
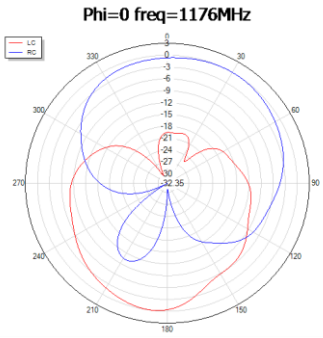
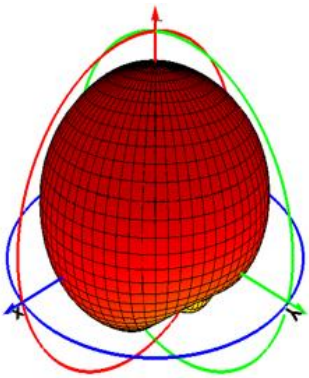
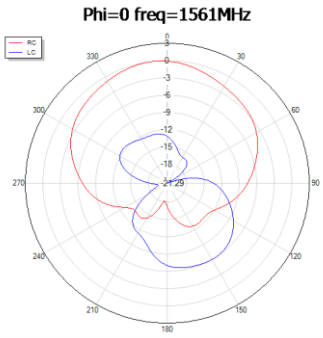
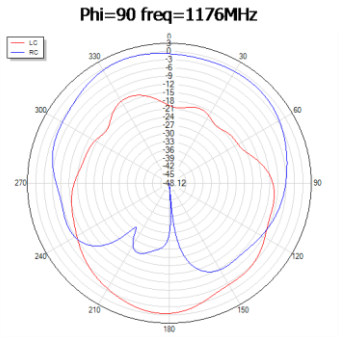
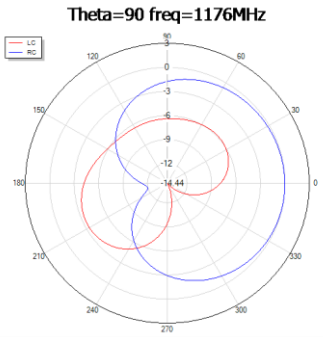
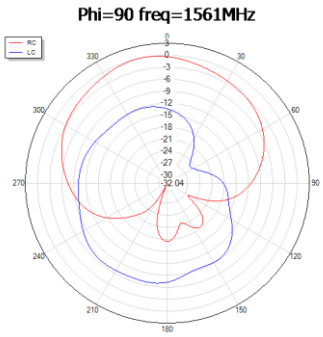
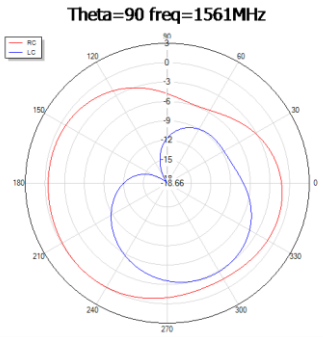
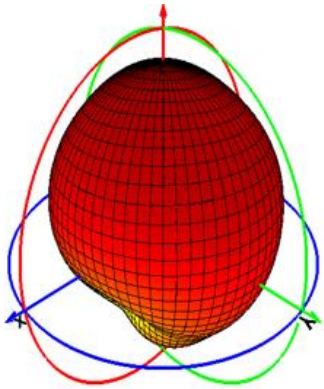
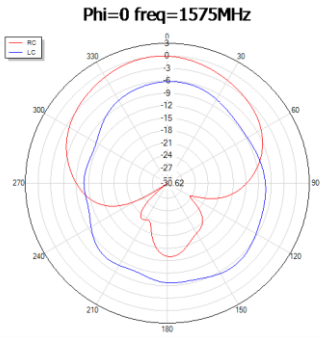
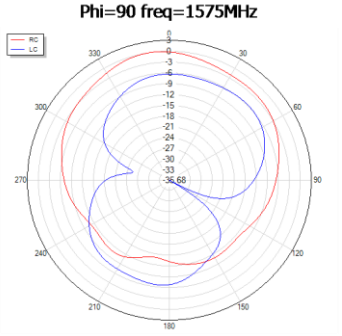
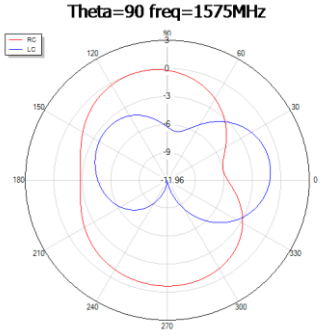
Peak Gain (dBi)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Peak Gain (dBi)	2.06	-	-	-	-	3.85	3.85	-

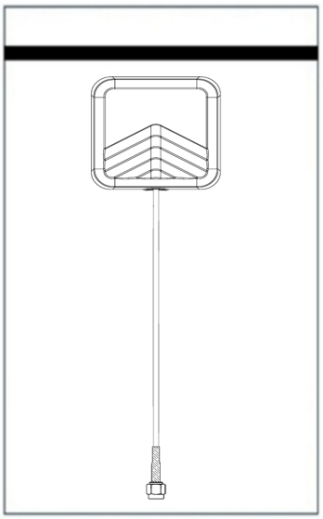
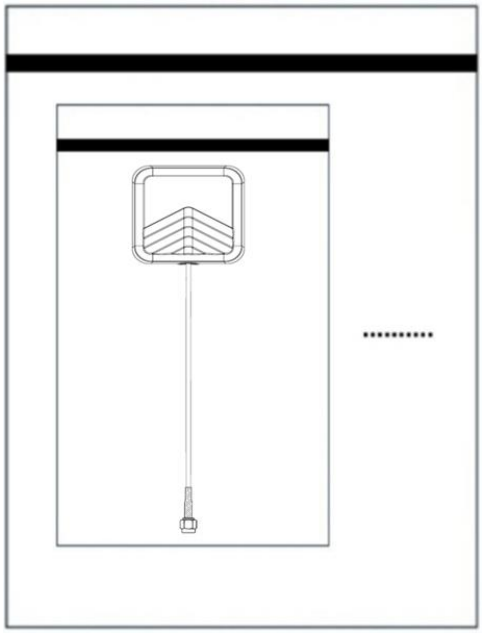
3.2.3. 3D & 2D Radiation Pattern

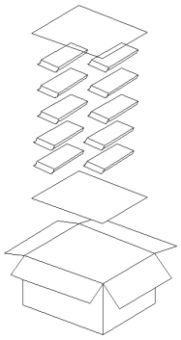
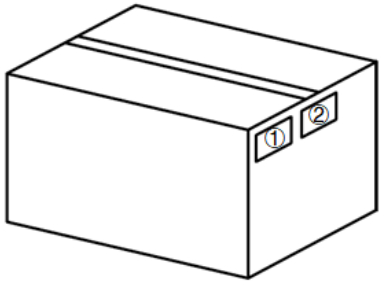
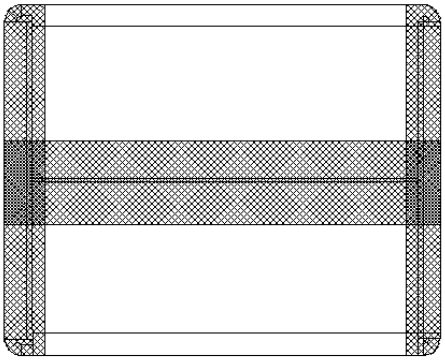
- Test Condition: Free Space
- Test Chamber: SH-SY-16M



1176 MHz		1561 MHz	
			
			
1575 MHz			
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 antenna product in a small PE Bag. (1 Antenna / Small PE Bag)
2		10 antenna products in a big PE bag. (10 Antennas / Big PE Bag)

3		(10 Big PE Bags / Carton Box) (100 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 = 370 ×370 × 295 mm
4		**Position for Attaching Labels** ① Carton Label ② Quality Label
5		**Sealing Cartons** H-shaped 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.
No. 8 Waipojing Road, Sijing Town, Songjiang District, Shanghai 201601, China
Tel: +86 21 5108 6236
Email: info@quectel.com

Or our local offices. For more information, please visit:
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Revision History

Version	Date	Author	Note
-	2025-12-04	Junsen Li/ Mike Guo/ Strong Qiang/ Rainey Liao	Creation of the document
1.0	2025-12-04	Junsen Li/ Mike Guo/ Strong Qiang/ Rainey Liao	First official release

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