



Antenna Datasheet

Product OC: YEGB000Q1C

Version: 1.5

Date: 2025-10-27

Status: Released

Product Name: GNSS Multiple Mount Low Profile Active External Antenna

Key Features:

Frequency Band: 1559–1606 MHz

Dimensions: 46 mm × 36 mm × 15.8 mm

Total LNA Gain: 17 ±3 dB

RoHS and REACH Compliant

IP 67

Compatible with ECE-R118 cables under demand

Overview

The Quectel YEGB000Q1C is a versatile, ruggedized external active GNSS antenna designed for demanding outdoor and vehicular applications. It operates in the L1 frequency band (1559–1606 MHz) and features a low-profile, environmentally sealed design.

Key Features:

Dimensions: 46 mm × 36 mm × 15.8 mm

Total LNA Gain: 17 ±3 dB (at 3V, including cable loss)

Noise Figure: ≤ 1.5 dB

Peak Gain: Up to 1.66 dBi (at 1575 MHz)

Radiation Efficiency: Up to 74% (at 1575 MHz)

Polarization: RHCP (Right-Hand Circular Polarization)

Ingress Protection: IP67 (Dust and water resistant)

Supported GNSS Systems: GPS: L1, GLONASS: G1, Galileo: E1, BDS: B1I, B1C, QZSS: L1

Electrical & Environmental Specifications:

Operating Voltage: 1.8–3.3 V

Current Consumption: 8.5 ±2 mA

Operating Temperature: -40 °C to +85 °C

RoHS & REACH Compliant: Yes

Housing Ratings: UL 94 V-0 (Flame), UL 746c f1 (UV Resistant)

Mechanical & Connection Details:

Connector: SMA Male (Standard; waterproof FAKRA available on request)

Cable: RG174, 3000 mm length, black

Mounting Type: Magnetic & Adhesive

Weight: Typ. 54.6 g

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	1559–1606 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	-	-	-	-	-	3.58	1.28	1.18
Return Loss (dB)	-	-	-	-	-	-5	-18.9	-21.8
Efficiency (%)	-	-	-	-	-	48.7	74	71
Peak Gain (dBi)	-	-	-	-	-	-0.53	1.66	1.12

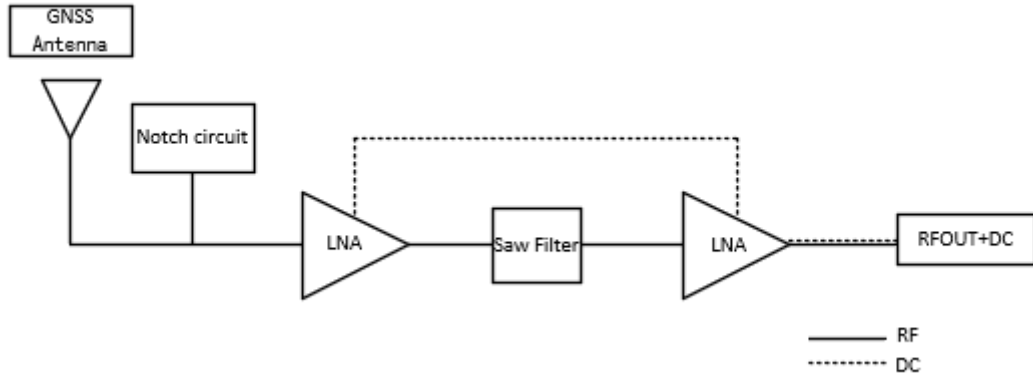
LNA Electrical	
LNA Gain	21 ±3 dB (PCBA) @ 3V 20 ±3 dB (PCBA) @ 1.8V
Total LNA Gain	17 ±3 dB (With cable loss) @ 3V 16 ±3 dB (With cable loss) @ 1.8V
Noise Figure	≤ 1.5 dB
Output VSWR	< 2.0
Filter Out-of-Band Attenuation	37 dB f0 ±100 MHz f0 (1580 MHz)
Working Voltage	1.8–3.3 V
Working Current	8.5 ±2 mA
Impedance	50 Ω

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	46 mm × 36 mm × 15.8 mm
Material & Color	PC & Black
Cable Type & Length	RG174 Black & 3000 mm
Connector Type	SMA Male (The current state of the SMA connector is not waterproof. If a waterproof connector is required, it can be customized, such as a waterproof FAKRA connector.)
Mounting Type	Magnet & Adhesive
Weight	Typ. 54.6 g

Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP67
RoHS & REACH Compliant	Yes
Housing Flame Rating	UL 94 V-0
Housing UV Resistant	UL 746c f1

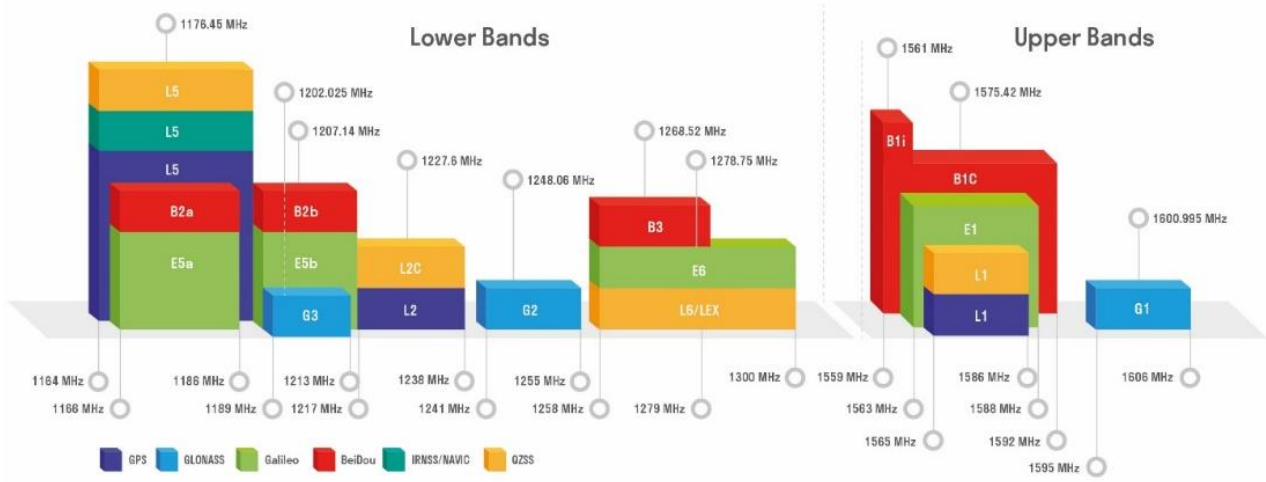
1.3. Block Diagram (Active Antenna)



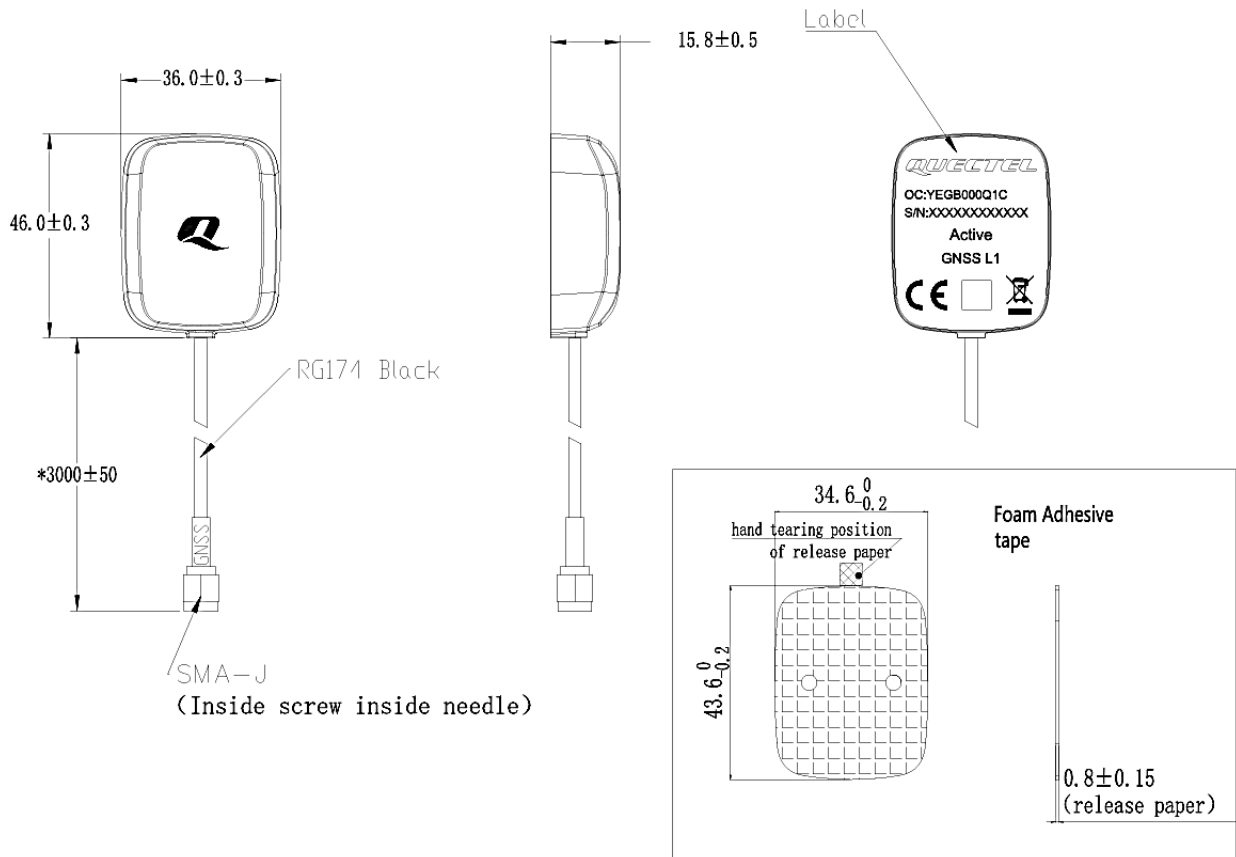
1.4. Supported GNSS Frequency Bands

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

GNSS Bands and Constellations



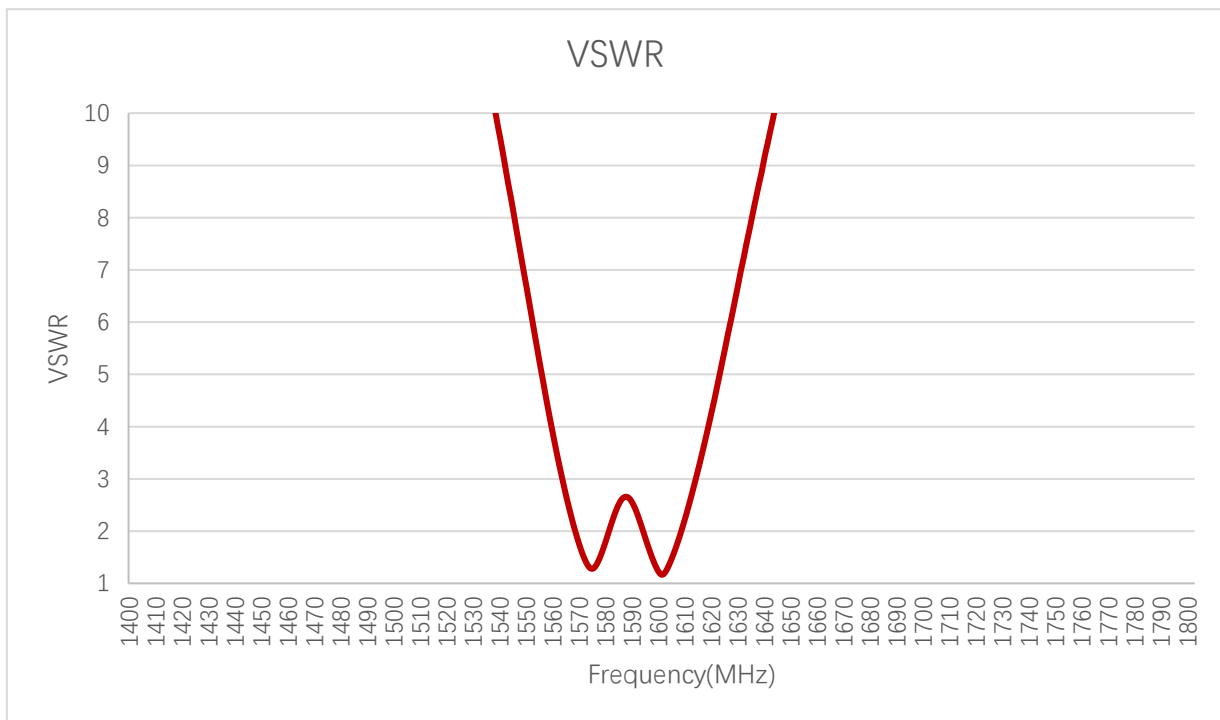
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

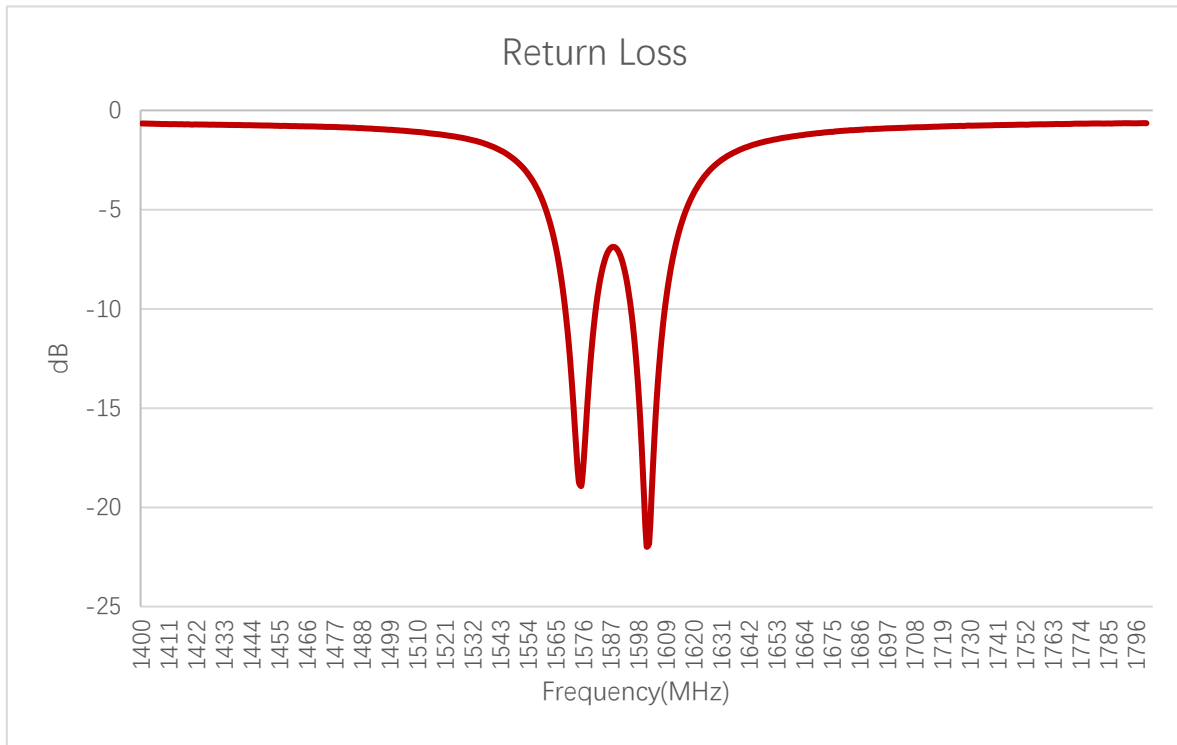
3.1.1. VSWR



VSWR

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	3.58	1.28	1.18

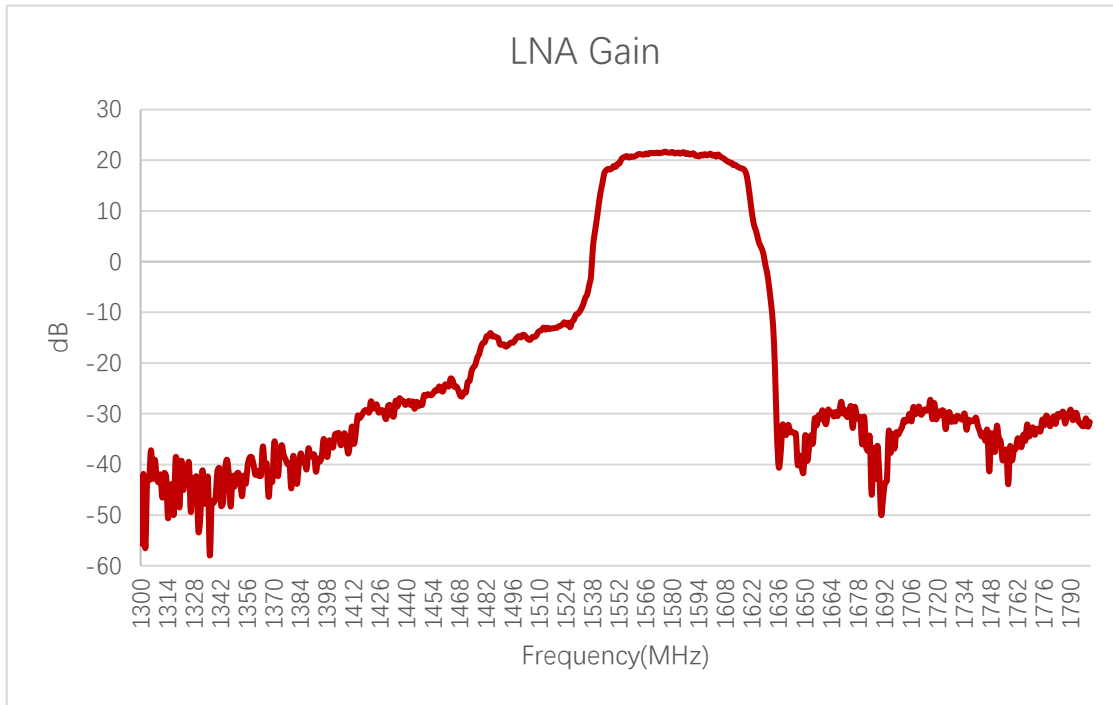
3.1.2. Return Loss



Return Loss (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Return Loss (dB)	-	-	-	-	-	-5	-18.9	-21.8

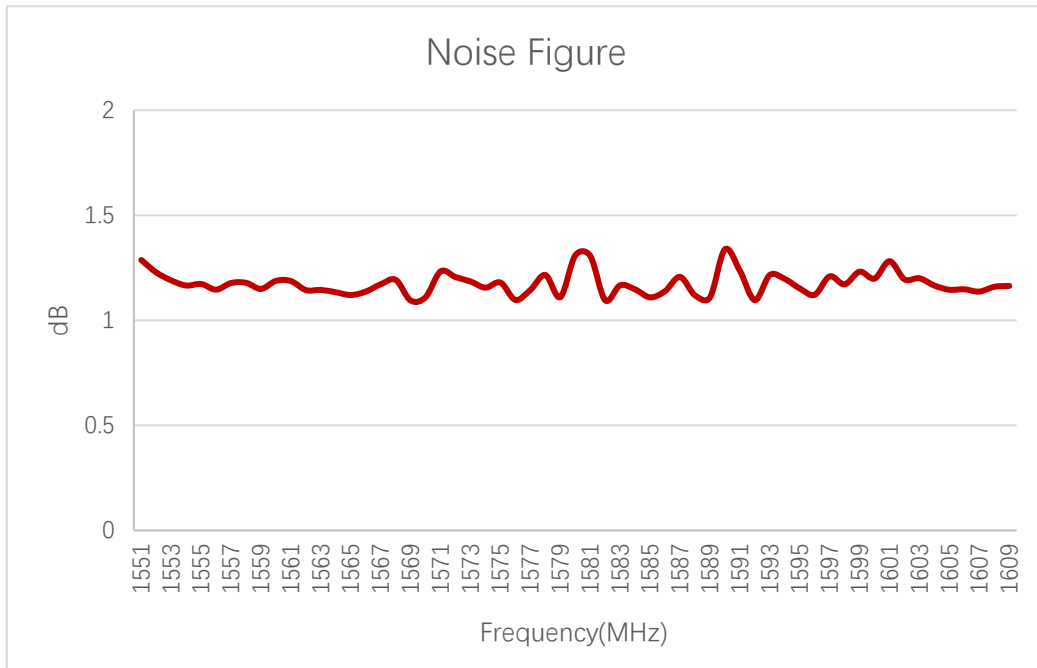
3.1.3. LNA Gain



LNA Gain (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
LNA Gain (dB)	-	-	-	-	-	20.9	21.5	21

3.1.4. Noise Figure

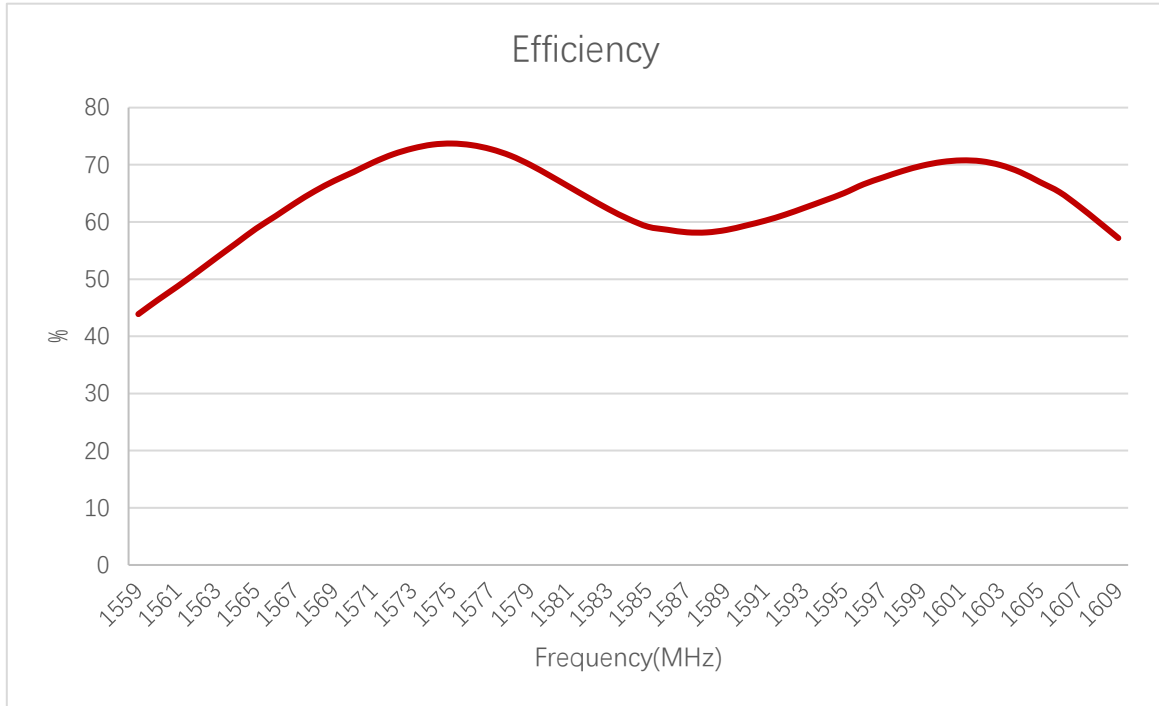


Noise Figure (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Noise Figure (dB)	-	-	-	-	-	1.18	1.18	1.19

3.2. Radiation Performance Test

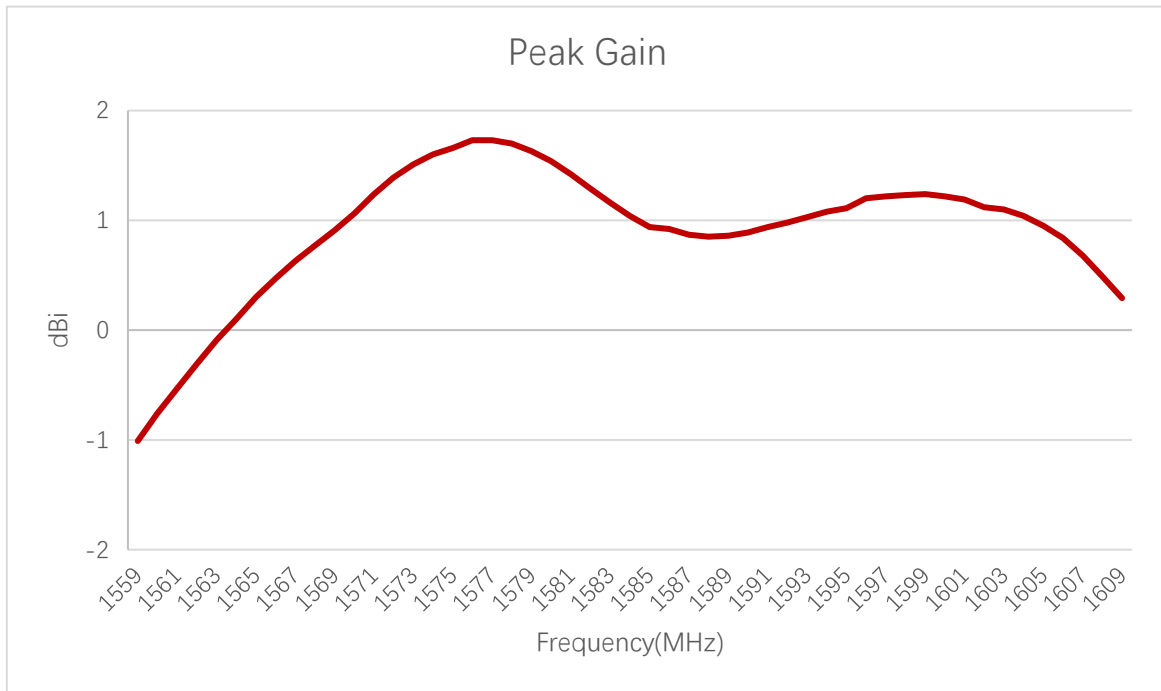
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Efficiency (%)	-	-	-	-	-	48.7	74	71

3.2.2. Peak Gain

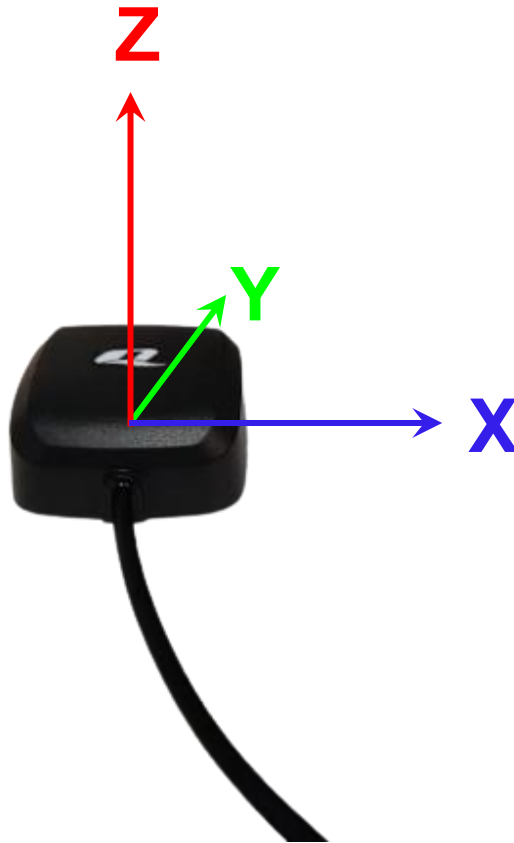


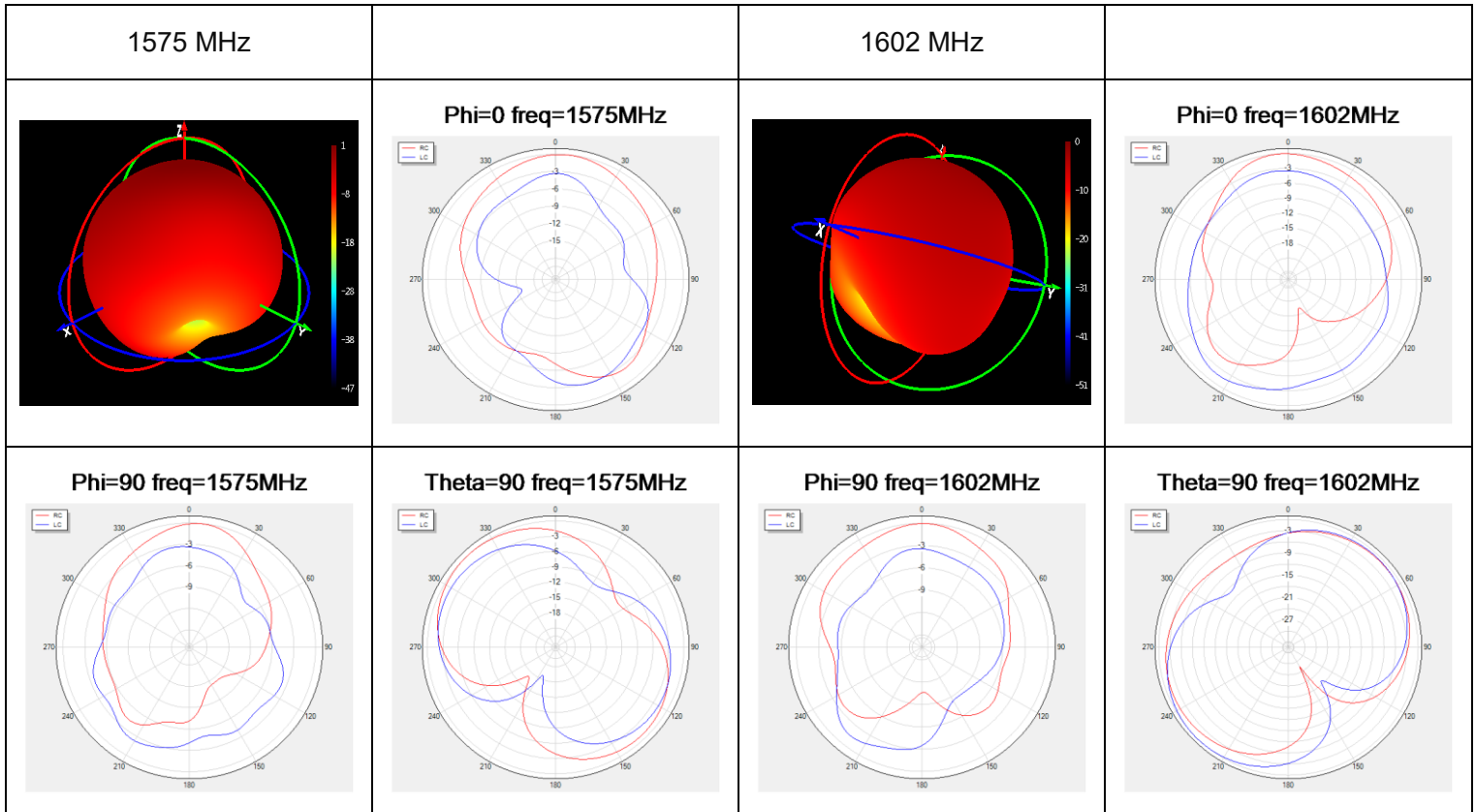
Peak Gain (dBi)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Peak Gain (dBi)	-	-	-	-	-	-0.53	1.66	1.12




3.2.3. 3D & 2D Radiation Pattern

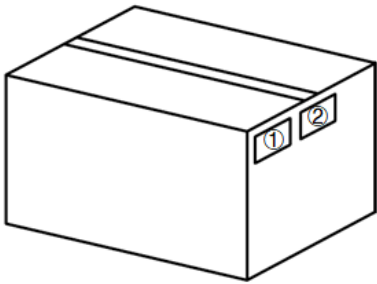
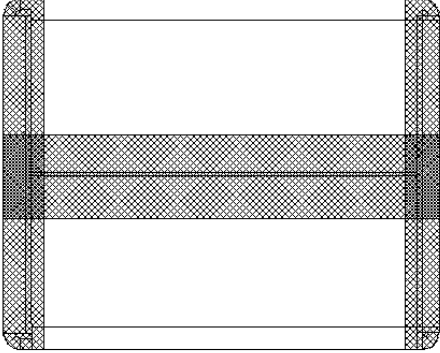
- Test Condition: Free Space
- Test Chamber: SH-SY-16M





4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		<p>1 antenna products in a small PE bag. (1 Antenna / Small PE Bag)</p>
2		<p>10 antenna products in a big PE bag. (10 Antennas / Big PE Bag)</p>
3		<p>(6 Big PE Bags / Carton Box) (60 Antennas / Carton Box) <u>Carton Size:</u> <u>L × W × H = 405 × 293 × 185 mm</u></p>

4	 A 3D perspective drawing of a rectangular cardboard box. 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'.	<p>Position for Attaching Labels</p> <ul style="list-style-type: none">① Carton Label② Quality Label
5	 A 3D perspective drawing of a rectangular carton with a mesh-like texture. It features a prominent H-shaped structure on the front face, consisting of two horizontal bars and two vertical bars, which likely serve as a sealing mechanism.	<p>Sealing Cartons</p> <p>H-shaped sealing cartons</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
-	2023-09-12	Junsen Li/ Steven Mo/ David Liu/ Vinnie Liu	Creation of the document
1.0	2023-09-12	Junsen Li/ Steven Mo/ David Liu/ Vinnie Liu	First official release
1.1	2024-01-25	Steven Mo/ David Liu/ Rainey Liao	<ol style="list-style-type: none"> Updated the product image. Added the description of SMA connector, Housing Flame Rating and Housing UV Resistant (Chapter 1.2). Updated the drawing (Chapter 2.1). Updated the packaging (Chapter 4).
1.2	2024-04-17	Steven Mo	Updated the drawing (Chapter 2).
1.3	2024-06-21	Junsen Li	Added total LNA Gain data (Home page & Chapter 1.1).
1.4	2025-04-09	Junsen Li/ Rainey Liao	<ol style="list-style-type: none"> Updated the antenna image (Cover page). Added 1561 MHz test data.
1.5	2025-10-27	Junsen Li/ Steven Mo	<ol style="list-style-type: none"> Updated the overview. Added LNA gains according to different supply voltages (Chapter 1.1). Updated the drawing (Chapter 2).

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