Antenna Datasheet

Product OC: YEGN010L1AM
Version: 1.0
Date: 2026-01-09
Status: Released

Product Name: GNSS Screw Mount Low Profile Active External Antenna
Key Features:
Frequency Band: 1164–1300 MHz, 1525–1606 MHz
Dimensions: 89.3 mm × 86.3 mm × 35.4 mm
RoHS & REACH Compliant
IP67
LNA Gain: 38 ±4 dB

Overview

The YEGN010L1AM is a rugged, low-profile active external GNSS antenna engineered for high-precision multi-constellation positioning in demanding environments. Supporting triple-band operation across 1164–1300 MHz and 1525–1606 MHz (L1/L2/L5/L6), it is compatible with GPS, GLONASS, Galileo, BDS, QZSS, and IRNSS systems, ensuring reliable signal acquisition and centimeter-level accuracy.

Featuring a compact screw-mount design measuring 89.3 mm × 86.3 mm × 35.4 mm and a robust IP67-rated housing, the antenna is built to withstand harsh outdoor, industrial, and automotive conditions. Its integrated low-noise amplifier (LNA) delivers the gain of 38 ±4 dB with an ultra-low noise figure of ≤ 2.5 dB, significantly enhancing weak signal reception in challenging environments such as urban canyons or remote areas.

The antenna utilizes right-hand circular polarization (RHCP) with a directional radiation pattern and offers excellent axial ratio performance for improved multipath rejection. It operates from a 3–5 V power supply with low current consumption, making it suitable for both vehicle and portable applications.
Compliant with RoHS, REACH, and UL safety standards, the YEGN010L1AM is an ideal solution for autonomous vehicles, precision agriculture, marine navigation, industrial IoT, and surveying systems where reliability, durability, and high performance are critical.

- **Key Specification Snapshot:**

✓ Model: YEGN010L1AM
✓ Type: Active External, Screw Mount
✓ Frequency: 1164–1300 MHz, 1525–1606 MHz (L1/L2/L5/L6)
✓ Dimensions: 89.3 mm × 86.3 mm × 35.4 mm
✓ LNA Gain: 38 ±4 dB
✓ Noise Figure: ≤ 2.5 dB
✓ Polarization: RHCP
✓ IP Rating: IP67
✓ Operating Temp: -40 °C to +85 °C
✓ Connector: SMA Male (with 1m RG174 cable)

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	1164–1300 MHz, 1525–1606 MHz
Impedance	50 Ω
Polarization	RHCP
Radiation Pattern	Directional

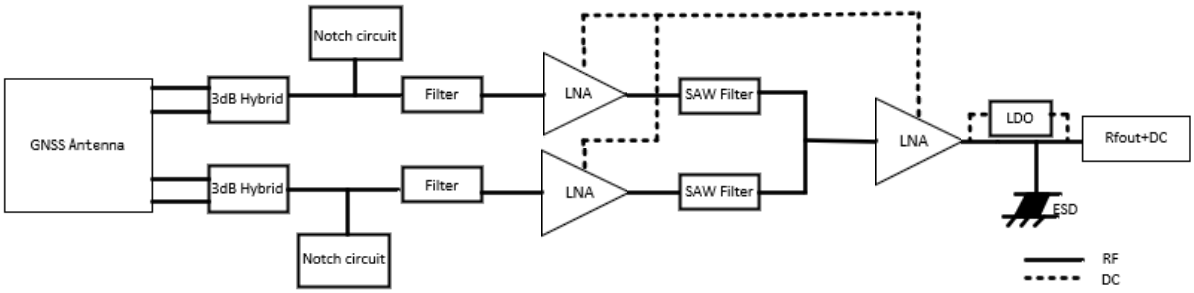
Band / Frequency (MHz)	GPS L5 GALILEO E5a BDS B2a-B2I QZSS L5 IRNSS L5	GALILEO E5b BDS B2b	GPS L2 QZSS L2C	GLONASS G2	BDS B3	GALILEO E6 QZSS L6	L-Band	BDS B1I	GPS L1 GALILEO E1 BDS B1C QZSS L1	GLONASS G1
	1176	**1207**	**1227**	**1248**	**1268**	**1278**	**1525**	**1561**	**1575**	**1602**
VSWR	1.17	1.78	1.75	1.39	1.16	1.11	1.05	1.03	1.05	1.11
Return Loss (dB)	-21.6	-10.9	-11.1	-15.5	-22.1	-24.8	-30.2	-33.8	-30.4	-25.7
Efficiency (%)	53.4	82	68.5	47.8	34.2	28.4	43.1	65.6	62.5	42.8
Peak Gain (dBi)	2.88	4.75	3.89	2.06	0.49	-0.3	2.4	4.55	4.4	2.88
Axial Ratio (dB)	2.4	1.73	1.59	1.67	1.66	1.62	1.15	0.66	0.49	0.5

LNA Electrical	
LNA Gain	38 ±4 dB
Noise Figure	≤ 2.5 dB
Output VSWR	< 2.0
Filter Out-of-Band Attenuation	≥ 60 dB f0 & f1 ±100 MHz f0 (1164 MHz, 1300 MHz) f1 (1525 MHz, 1609 MHz)
Working Voltage	3–5 V
Working Current	19.6 ±4 mA
Impedance	50 Ω

1.2. Mechanical & Environmental

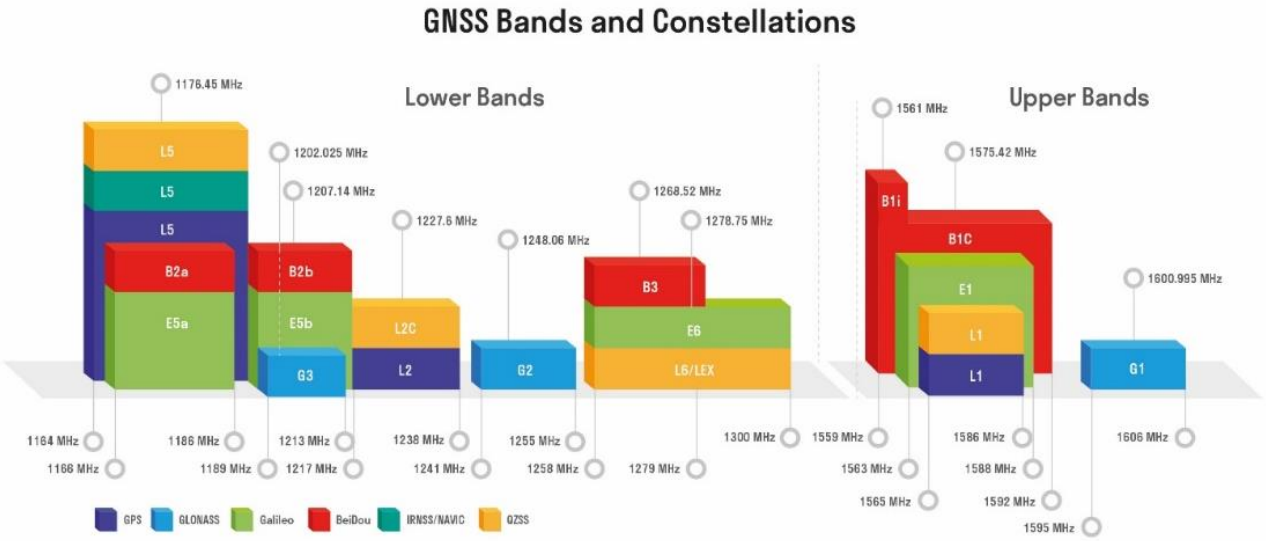
Mechanical	
Antenna Dimensions	89.3 mm × 86.3 mm × 35.4 mm
Material & Color	PC & Black
Cable Type & Color & Length	RG174 & Black & 1000 mm
Connector Type	SMA Male (The current state of the SMA connector is not waterproof. If a waterproof connector is required, it can be customized.)
Mounting Type	Screw
Weight	Typ. 273.85 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS & REACH Compliant	Yes
Ingress Protection (IP) Rating	IP67
Housing Flame Rating	UL 94 V-0
Housing UV Resistant	UL 746c f1

1.3. Block Diagram (Active Antenna)

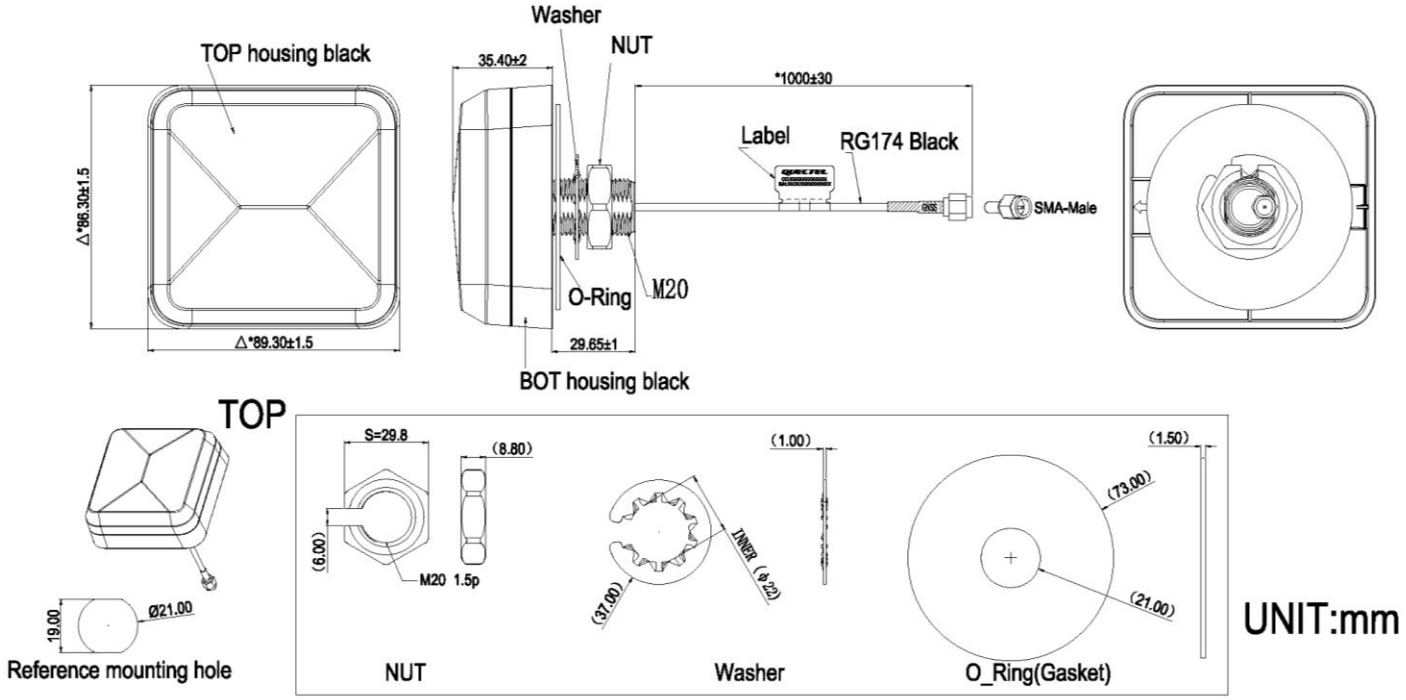


1.4. Supported GNSS Frequency Bands

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-L1OC-L1OF** Centre 1601 (1595–1606)	**G2-L2OC-L2OF** Centre 1248.06 (1241–1255)	**G3-L3OC** 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** Centre 1176.45 (1166–1187)	**B2b-B2I** 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
Lower Bands
Upper Bands
1176.45 MHz
L5
L5
L5
B2a
E5a
1202.025 MHz
1207.14 MHz
B2b
E5b
G3
1227.6 MHz
L2C
L2
1248.06 MHz
G2
1268.52 MHz
1278.75 MHz
B3
E6
L6/LEX
1561 MHz
1575.42 MHz
B1i
B1C
E1
L1
L1
1600.995 MHz
G1
1164 MHz
1168 MHz
1186 MHz
1189 MHz
1213 MHz
1217 MHz
1238 MHz
1241 MHz
1255 MHz
1258 MHz
1279 MHz
1300 MHz
1559 MHz
1563 MHz
1565 MHz
1586 MHz
1588 MHz
1592 MHz
1595 MHz
1606 MHz
GPS
GLONASS
Galileo
BeiDou
IRNSS/NAVIC
QZSS

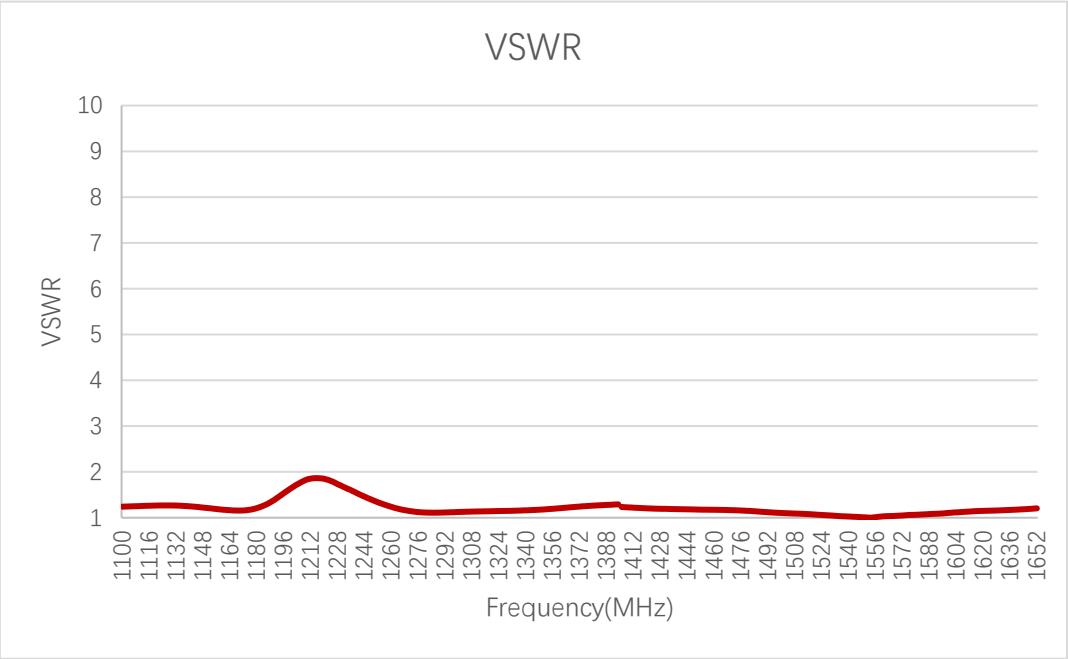
2 Drawing


Washer
NUT
TOP housing black
35.40±2
*1000±30
Label
RG174 Black
SMA-Male
△*86.30±1.5
△*89.30±1.5
O-Ring
M20
29.65±1
BOT housing black
TOP
S=29.8
(8.80)
(6.00)
M20 1.5p
(1.00)
INNER (ø22)
(37.00)
(1.50)
(73.00)
(21.00)
19.00
Ø21.00
Reference mounting hole
NUT
Washer
O_Ring(Gasket)
UNIT:mm

3 Detailed Performance

3.1. S-Parameter Test

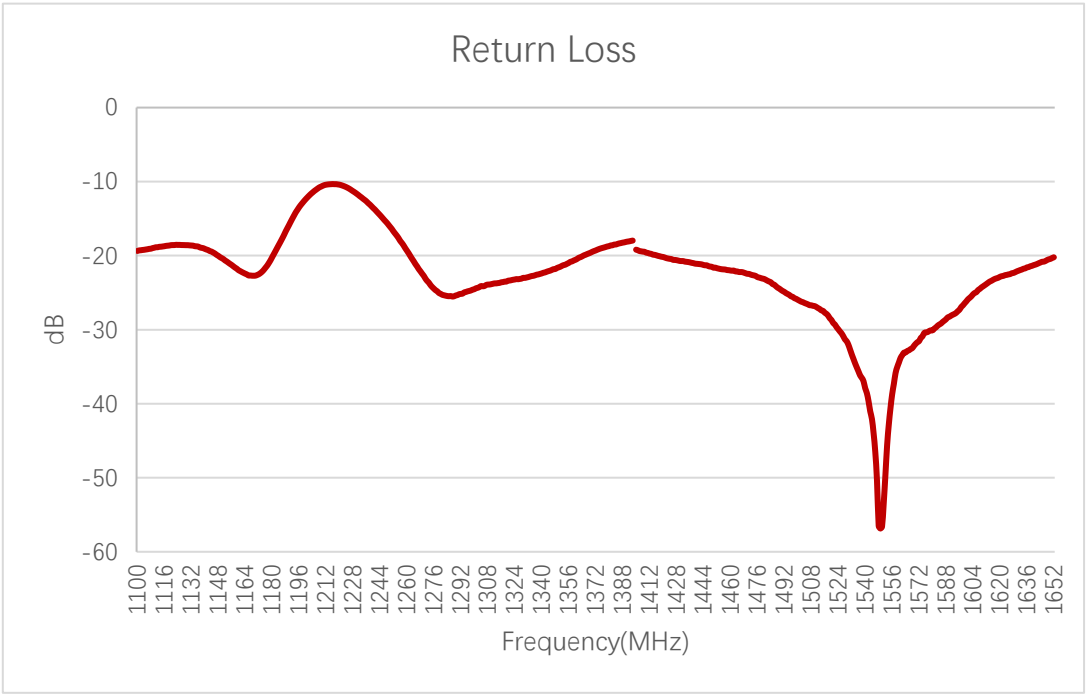
3.1.1. VSWR



VSWR

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
VSWR	1.17	1.78	1.75	1.39	1.16	1.11	1.05	1.03	1.05	1.11

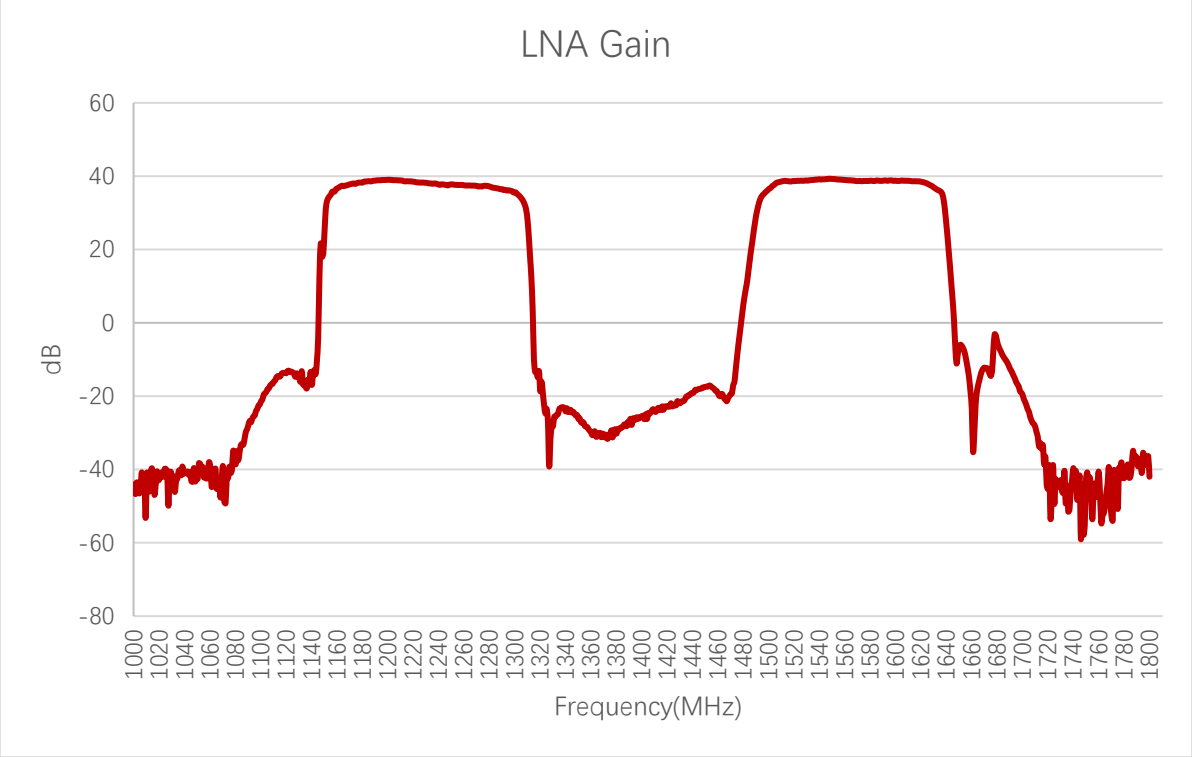
3.1.2. Return Loss



Return Loss (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
Return Loss (dB)	-21.6	-10.9	-11.1	-15.5	-22.1	-24.8	-30.2	-33.8	-30.4	-25.7

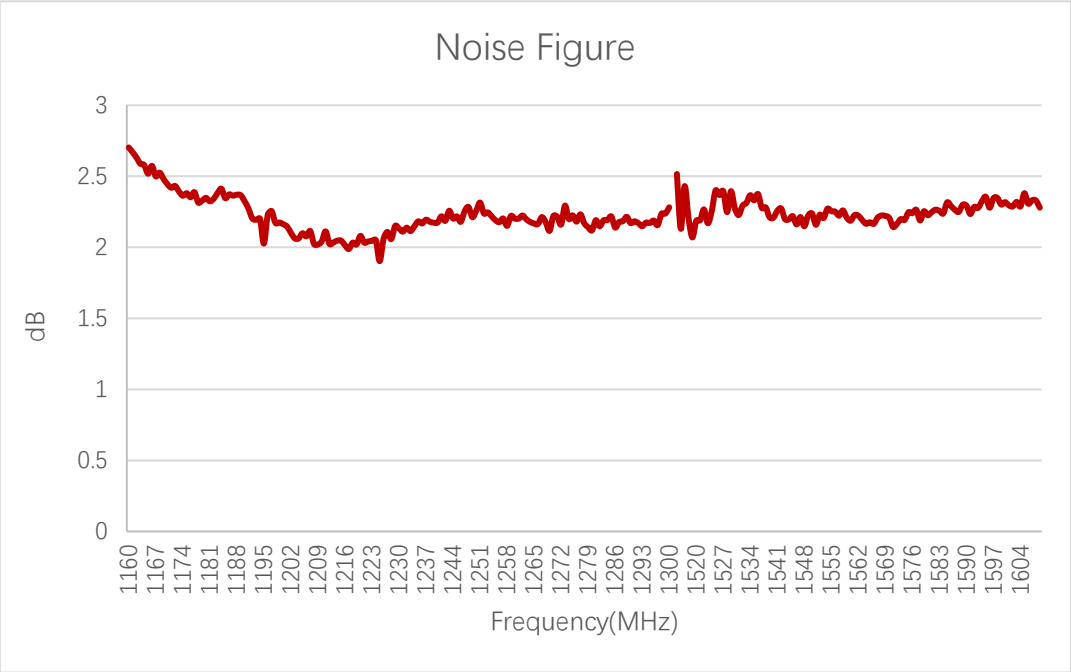
3.1.3. GNSS LNA Gain



LNA Gain (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
LNA Gain (dB)	38.1	38.8	38.2	37.5	37.4	37.3	38.7	38.9	38.6	38.7

3.1.4. Noise Figure

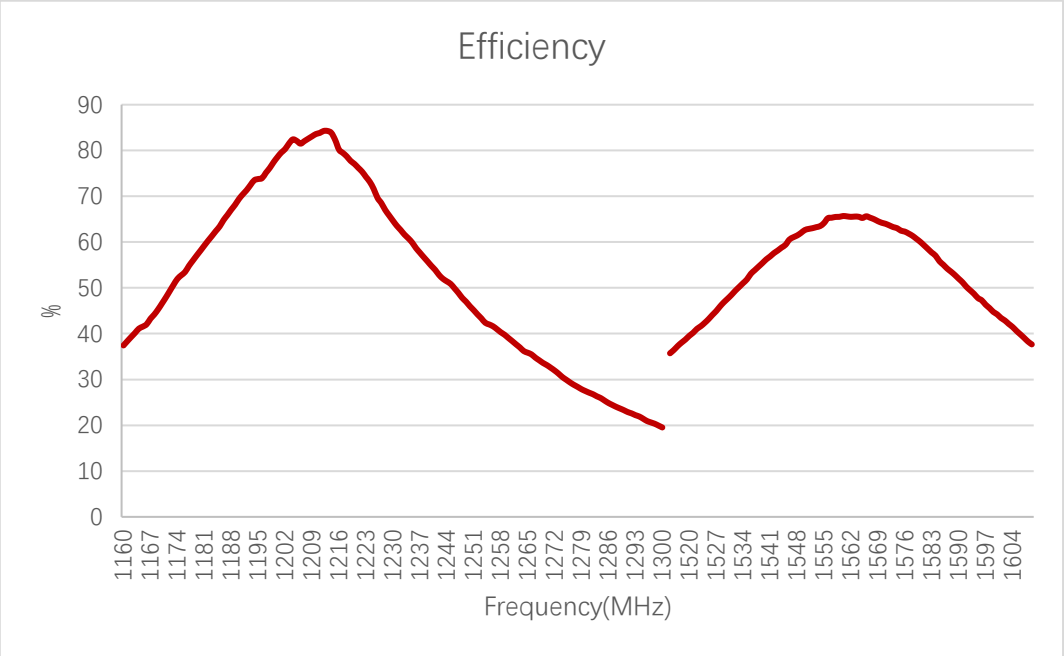


Noise Figure (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
Noise Figure (dB)	2.35	2.11	2.1	2.28	2.17	2.16	2.39	2.22	2.24	2.28

3.2. Radiation Performance Test

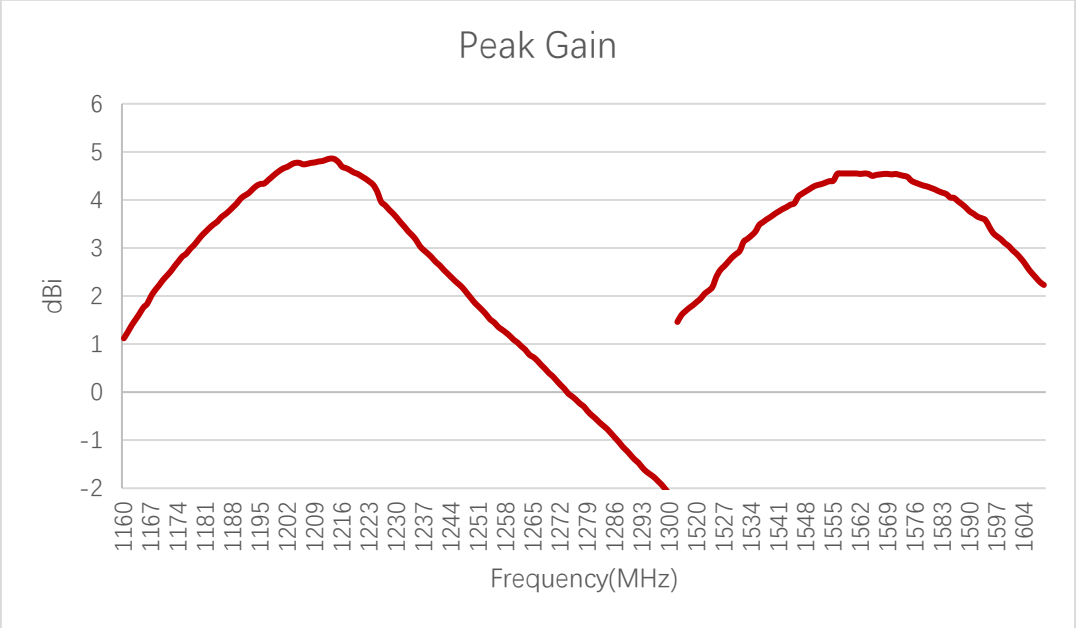
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
Efficiency (%)	53.4	82	68.5	47.8	34.2	28.4	43.1	65.6	62.5	42.8

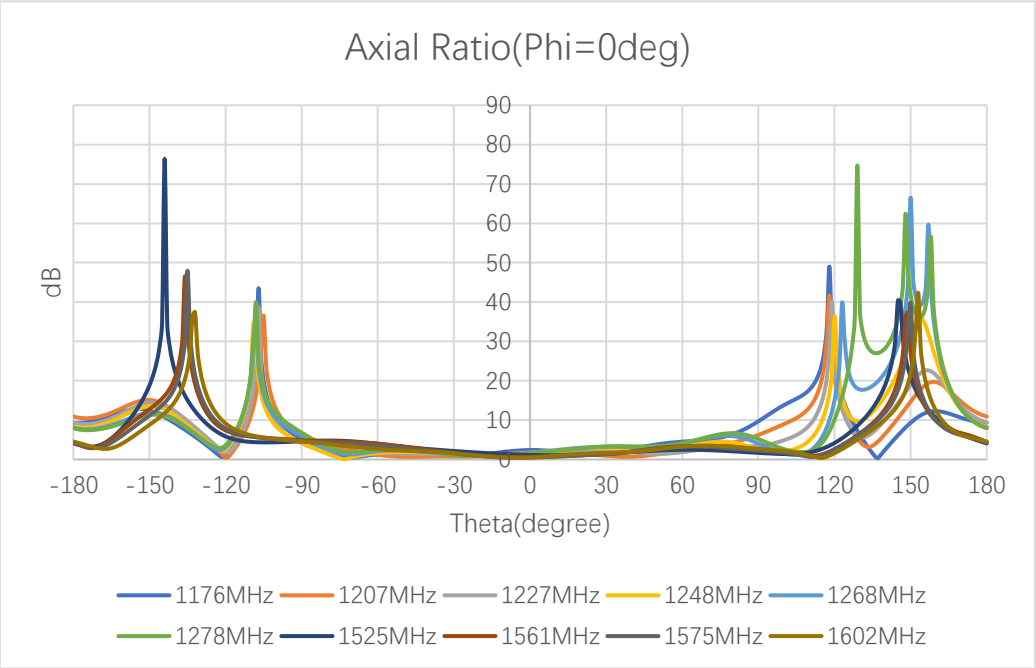
3.2.2. Peak Gain

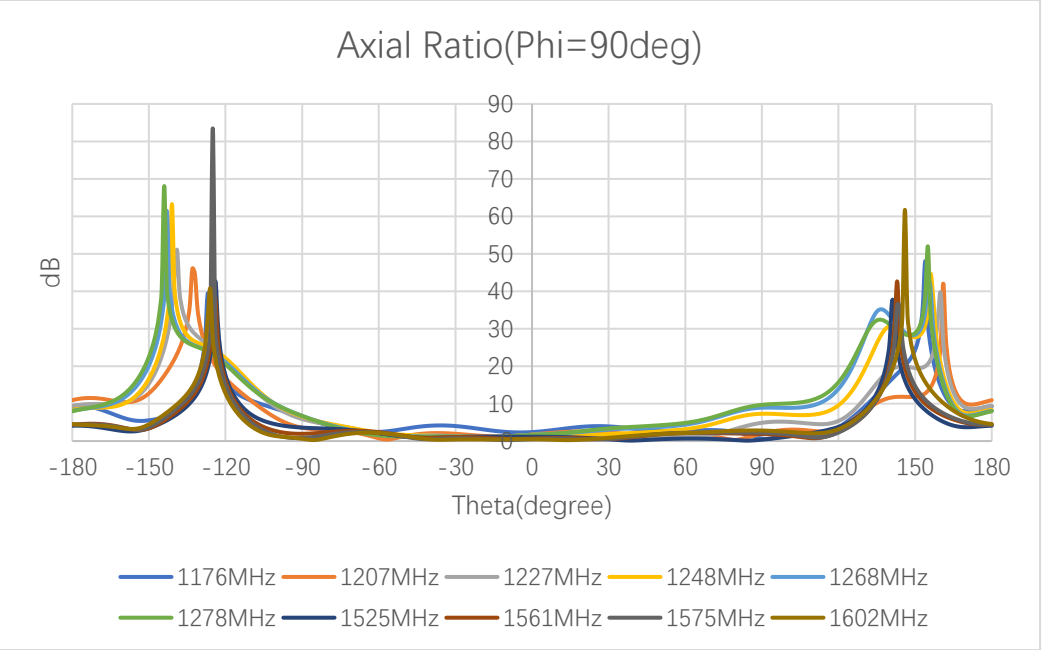


Peak Gain (dBi)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
Peak Gain (dBi)	2.88	4.75	3.89	2.06	0.49	-0.3	2.4	4.55	4.4	2.88

3.2.3. Axial Ratio

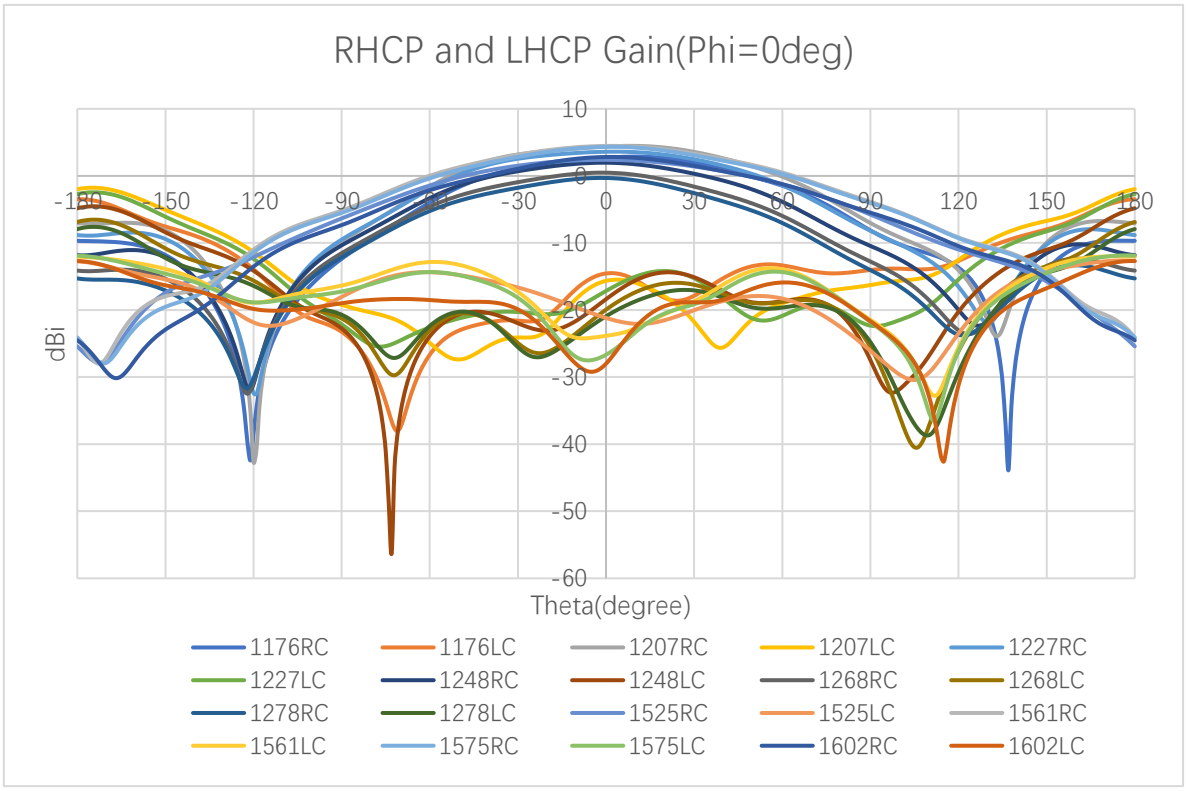


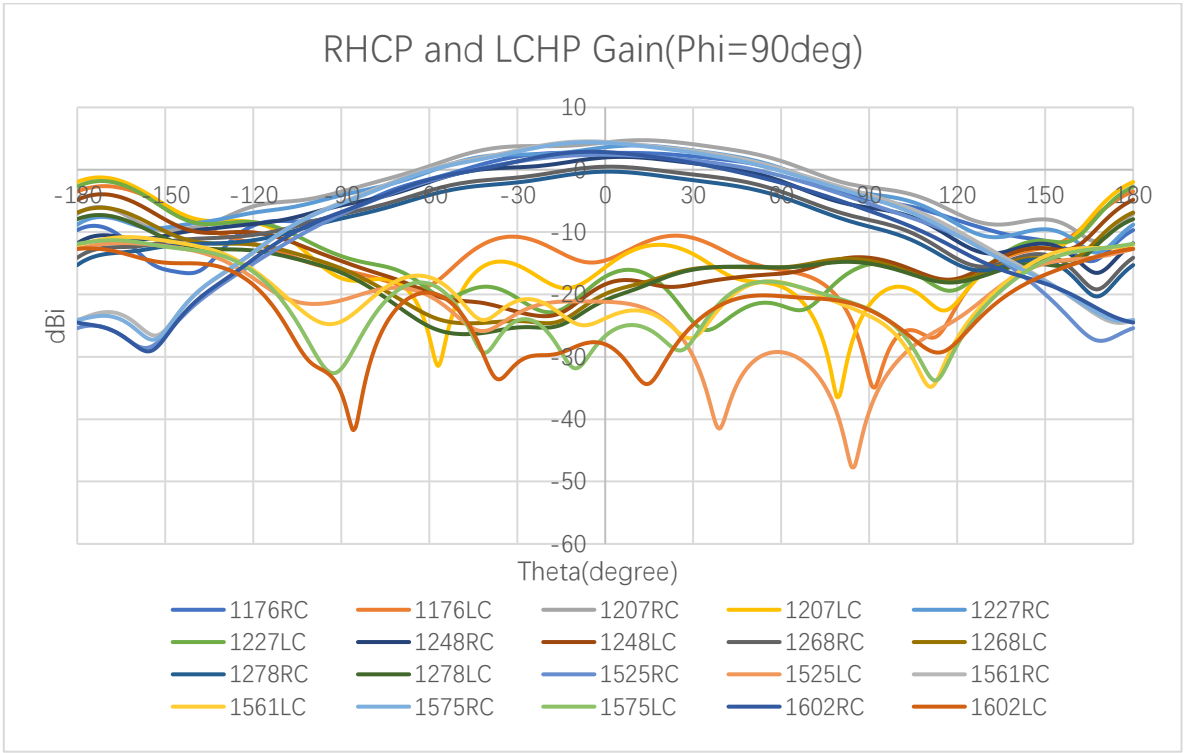


Axial Ratio (dB)

Frequency (MHz)		1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
Axial Ratio (dB)	Phi = 0 (deg) Theta = 0 (deg)	2.4	1.73	1.59	1.67	1.66	1.62	1.15	0.66	0.49	0.5
	Phi = 90 (deg) Theta = 0 (deg)	2.4	1.73	1.59	1.67	1.66	1.62	1.15	0.66	0.49	0.5

3.2.4. 2D RHCP and LHCP Gain



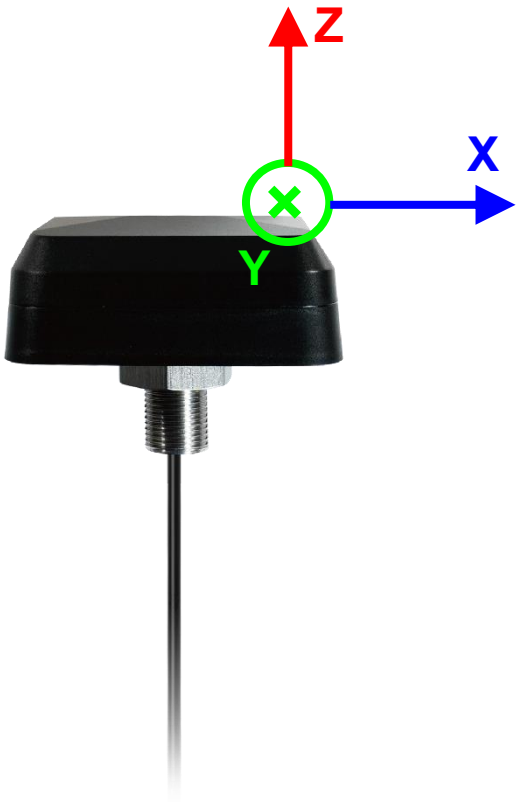


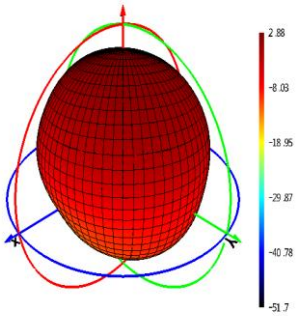
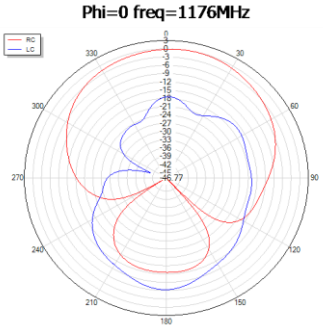
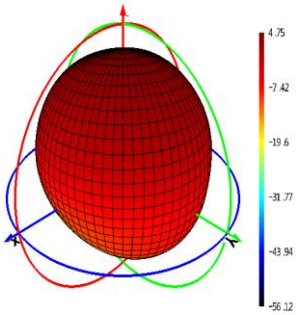
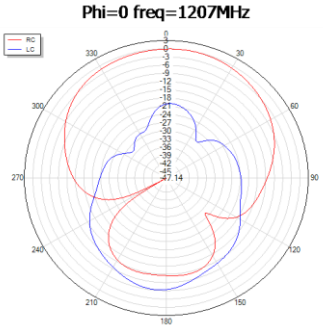
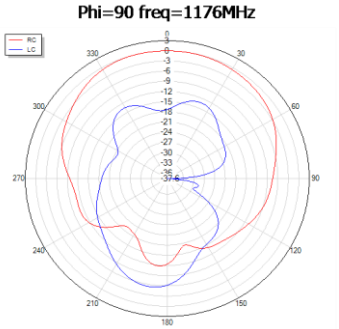
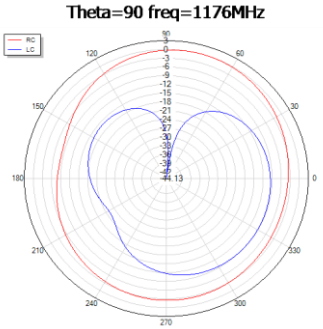
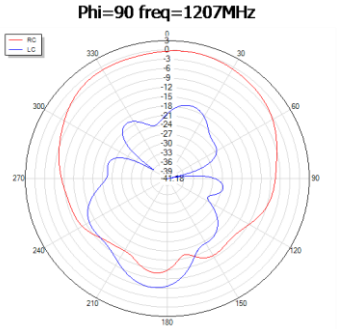
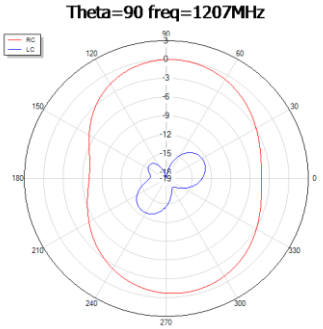
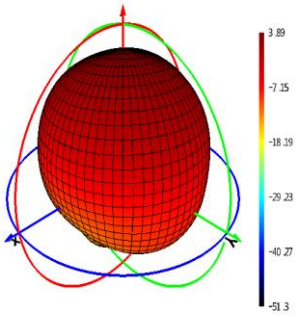
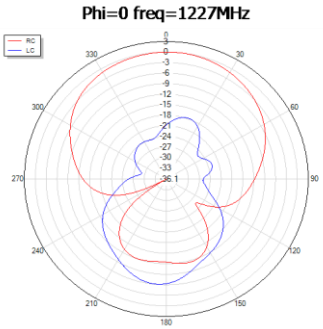
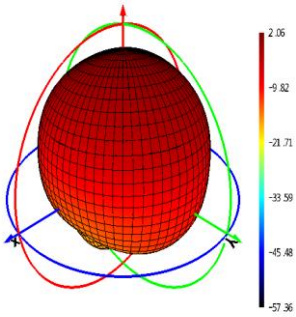
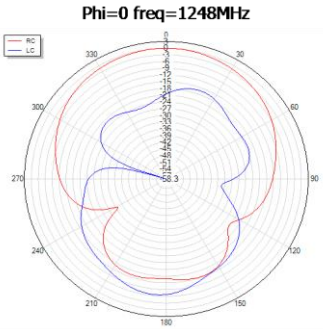
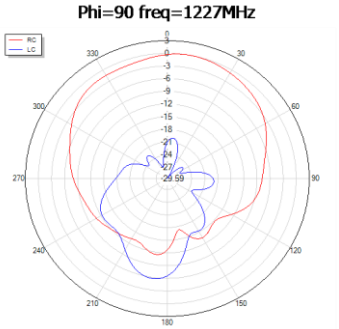
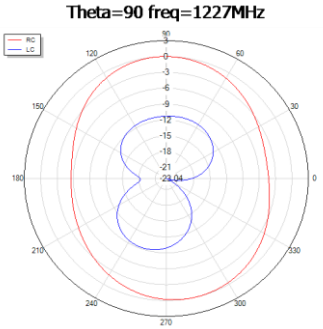
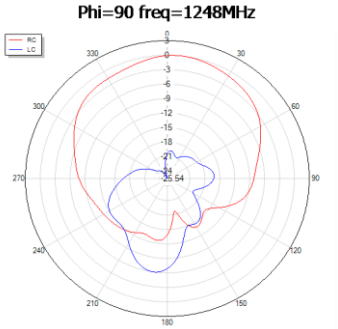
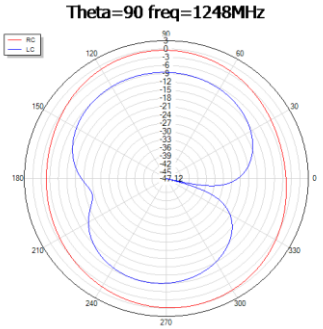
2D RHCP and LHCP Gain (dBi)

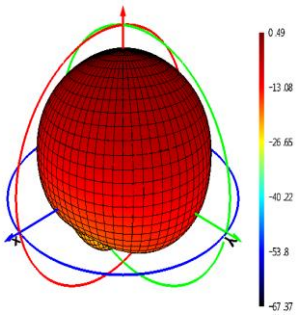
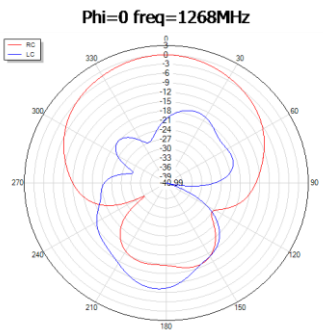
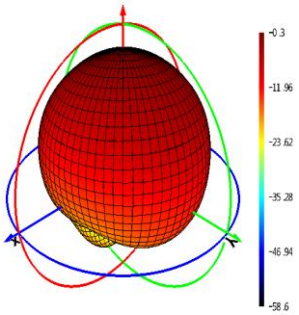
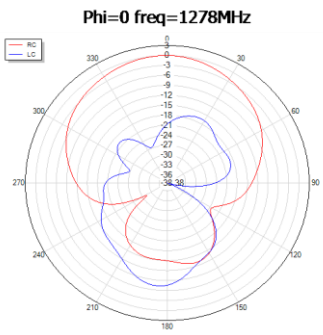
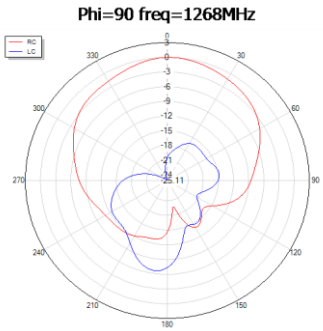
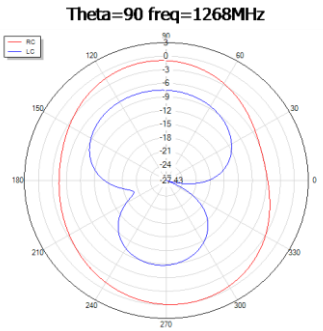
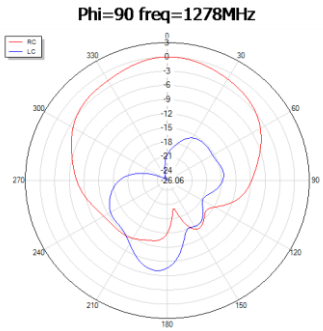
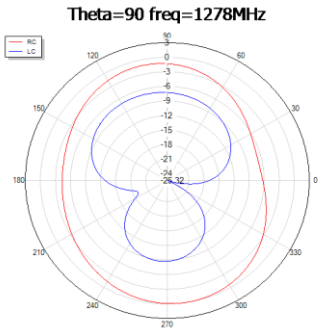
Frequency (MHz)		1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
RC Gain (dBi)	Phi = 0 (deg) Theta = 0 (deg)	2.7	4.38	3.6	1.97	0.48	-0.31	2.4	4.47	4.33	2.82
	Phi = 90 (deg) Theta = 0 (deg)	2.7	4.38	3.6	1.97	0.48	-0.31	2.4	4.47	4.33	2.82
LC Gain (dBi)	Phi = 0 (deg) Theta = 0 (deg)	-14.5	-15.6	-17.1	-18.3	-19.9	-20.9	-21.1	-23.8	-26.6	-28
	Phi = 90 (deg) Theta = 0 (deg)	-14.5	-15.6	-17.1	-18.3	-19.9	-20.9	-21.1	-23.8	-26.6	-28

3.2.5. 3D & 2D Radiation Pattern

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



1176 MHz		1207 MHz	
			
			
1227 MHz		1248 MHz	
			
			

1268 MHz		1278 MHz	
			
			
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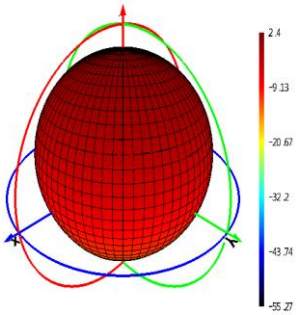	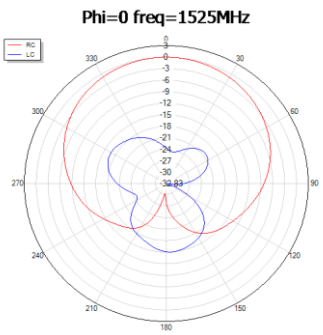	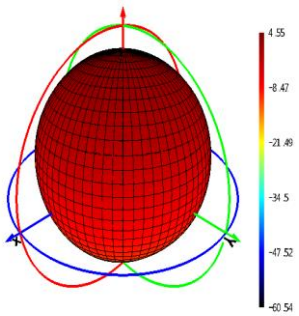	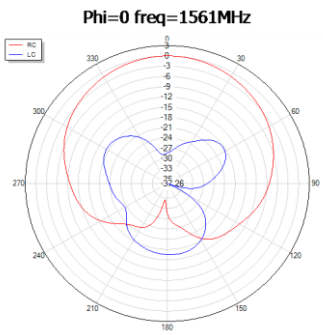
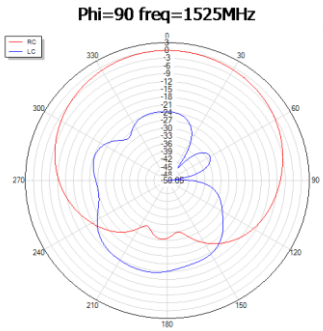	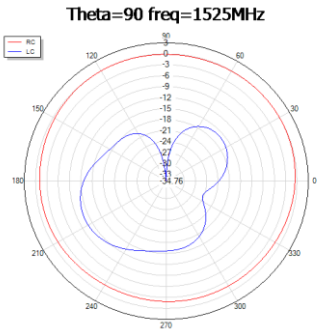	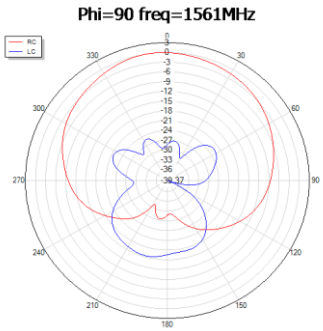	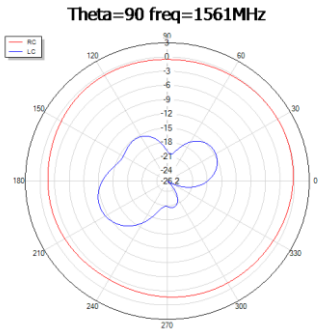

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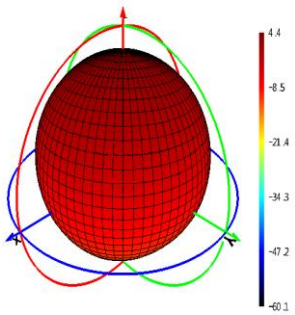
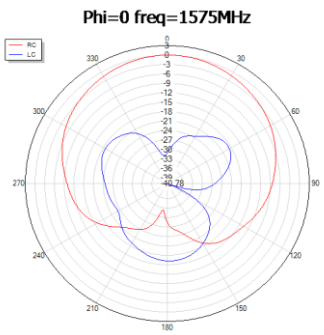
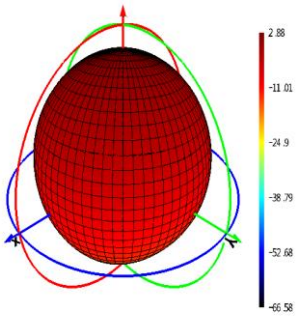
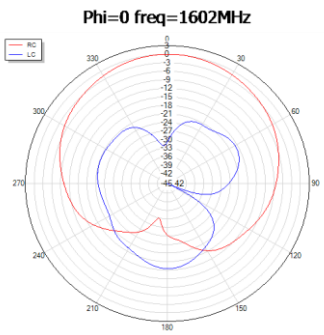
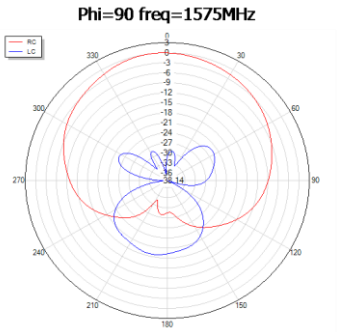
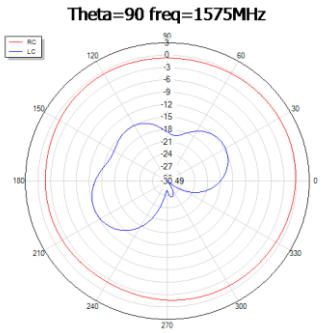
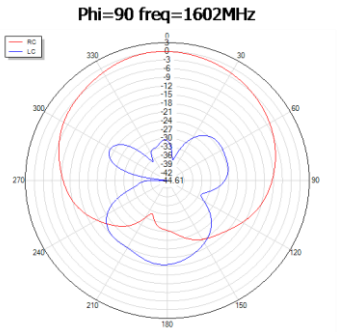
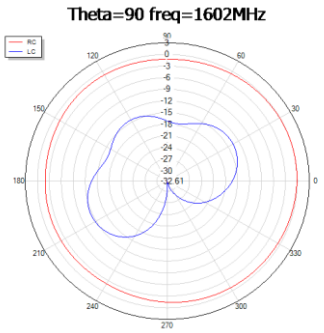
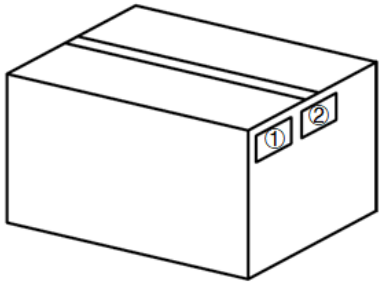
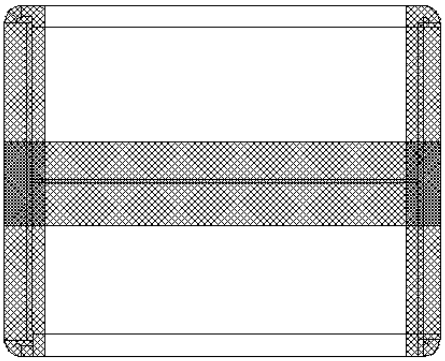
			
			

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		Put the product in a PE bag inside the inner box.
2		Top the product with the pearl cotton.
3		Inner box diagram Inner Box Size: L × W × H = 165× 165 × 135 mm
4		(18 Inner Boxes / Carton Box) (18 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 = 525 × 525 × 305 mm

5		**Position for Attaching Labels** ① Carton Label ② Quality Label
6		**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:

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Revision History

Version	Date	Author	Note
-	2026-01-09	Junsen Li/ Rojin Luo/ Strong Qiang/ Rainey Liao	Creation of the document
1.0	2026-01-09	Junsen Li/ Rojin Luo/ Strong Qiang/ Rainey Liao	First official release

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