



Antenna Datasheet

Product OC: YEGN005W1CH

Version: 1.0

Date: 2025-06-04

Product Name: Active GNSS Antenna (GPS L1/L2/L5, BDS B1/B2/B3, GLONASS G1/G2/G3, Galileo E1/E5a/E5b/E6, L-Band)

Key Features:

Frequency Band: 1164–1300 MHz, 1525–1606 MHz

Dimensions: Φ 44 × 56.48 mm

Screw Mount

SMA Male Connector

RoHS & REACH Compliant

IP67

Contents

Contents	1
1 Specification	2
1.1. Electrical.....	2
1.2. Mechanical & Environmental	3
1.3. Block Diagram (Active Antenna)	4
1.4. Supported GNSS Frequency Bands.....	5
2 Drawing	7
3 Detailed Performance	8
3.1. S-Parameter Test	8
3.1.1. VSWR.....	8
3.1.2. Return Loss	9
3.1.3. GNSS LNA Gain.....	10
3.1.4. Noise Figure	11
3.2. Radiation Performance Test.....	12
3.2.1. Efficiency	12
3.2.2. Peak Gain.....	13
3.2.3. Axial Ratio	14
3.2.4. 2D RHCP and LHCP Gain	15
3.2.5. 3D & 2D Radiation Pattern.....	17
Contact Us	21
Legal Notices	22
Revision History	24

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

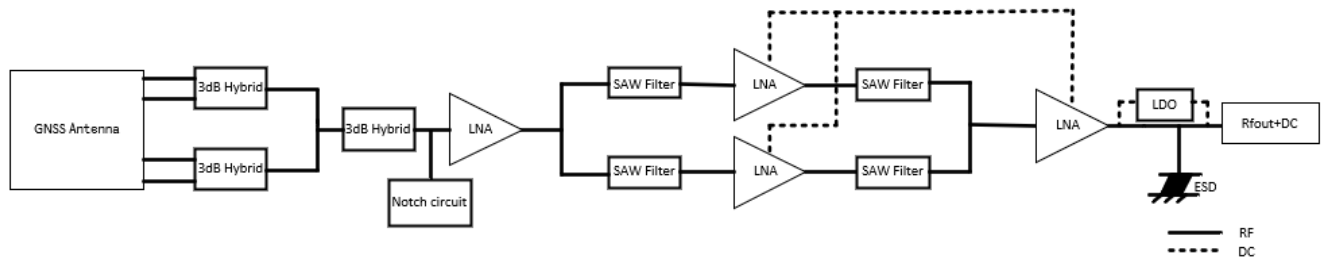
Band Frequency (MHz)	GPS L5 GALILEO E5a BDS B2a- B2I QZSS L5 IRNSS L5	GALILEO E5b BDS B2b	GPS L2 QZSS L2C	GLONASS G2	BDS B3	GALILEO E6 QZSS L6	L-Band	BDS B1I	GPS L1 GALILEO E1 BDS B1C QZSS L1	GLONASS G1
	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
VSWR	1.46	1.29	1.27	1.31	1.35	1.36	1.05	1.08	1.13	1.25
Return Loss (dB)	-14	-17.5	-18.3	-17.4	-16.5	-16.2	-30.4	-28.2	-23.8	-18.8
Efficiency (%)	41	44.2	61.3	55.9	43.9	36.6	39.1	58.2	52.2	35.5
Peak Gain (dBi)	1.01	1.05	2.14	1.83	0.81	0.15	-0.47	1.96	1.64	-0.11
Axial Ratio (dB)	0.45	0.38	0.25	0.12	0.06	0.04	0.51	0.89	0.94	1.05
PCV (mm)	0.96	1.19	1.08	0.9	0.72	0.6	0.92	0.51	0.72	1.54
PCO (mm)	± 4									

LNA Electrical	
LNA Gain	35 ±3 dB
Noise Figure	≤ 1.5 dB
Output VSWR	< 2.0
Filter Out-of-Band Attenuation	≥ 60dB f0&f1 ±100 MHz f0 (1164 MHz, 1300 MHz) f1 (1525 MHz, 1609 MHz)
Working Voltage	3–12 V
Working Current	21 ±4 mA
Impedance	50 Ω

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	Φ 44 × 56.48 mm
Material	PC ECL9330& Black
Connector Type	SMA Male
Mounting Type	Screw
Weight	Typ. 40 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

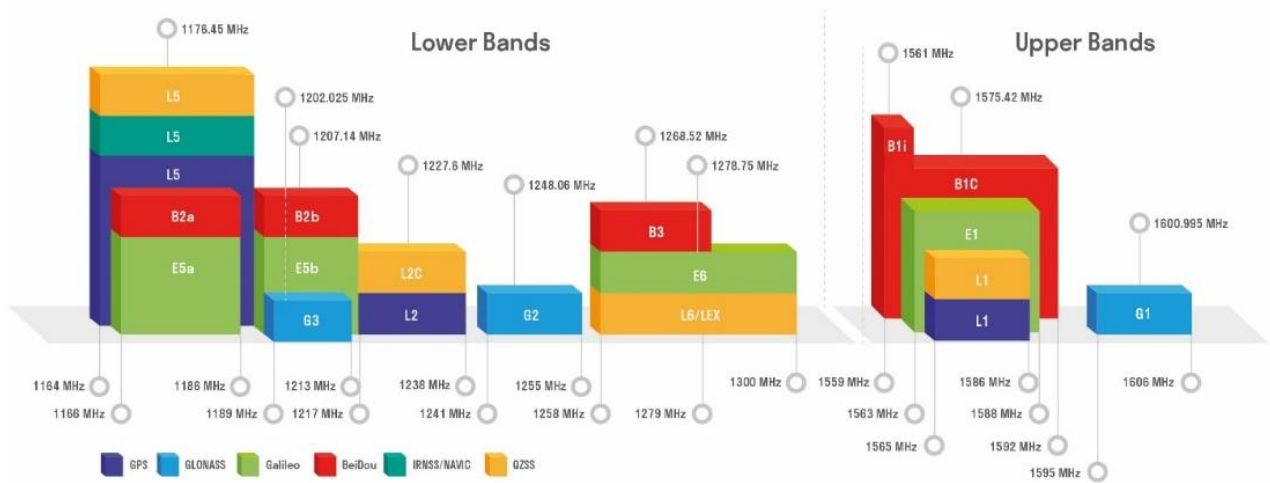
1.3. Block Diagram (Active Antenna)



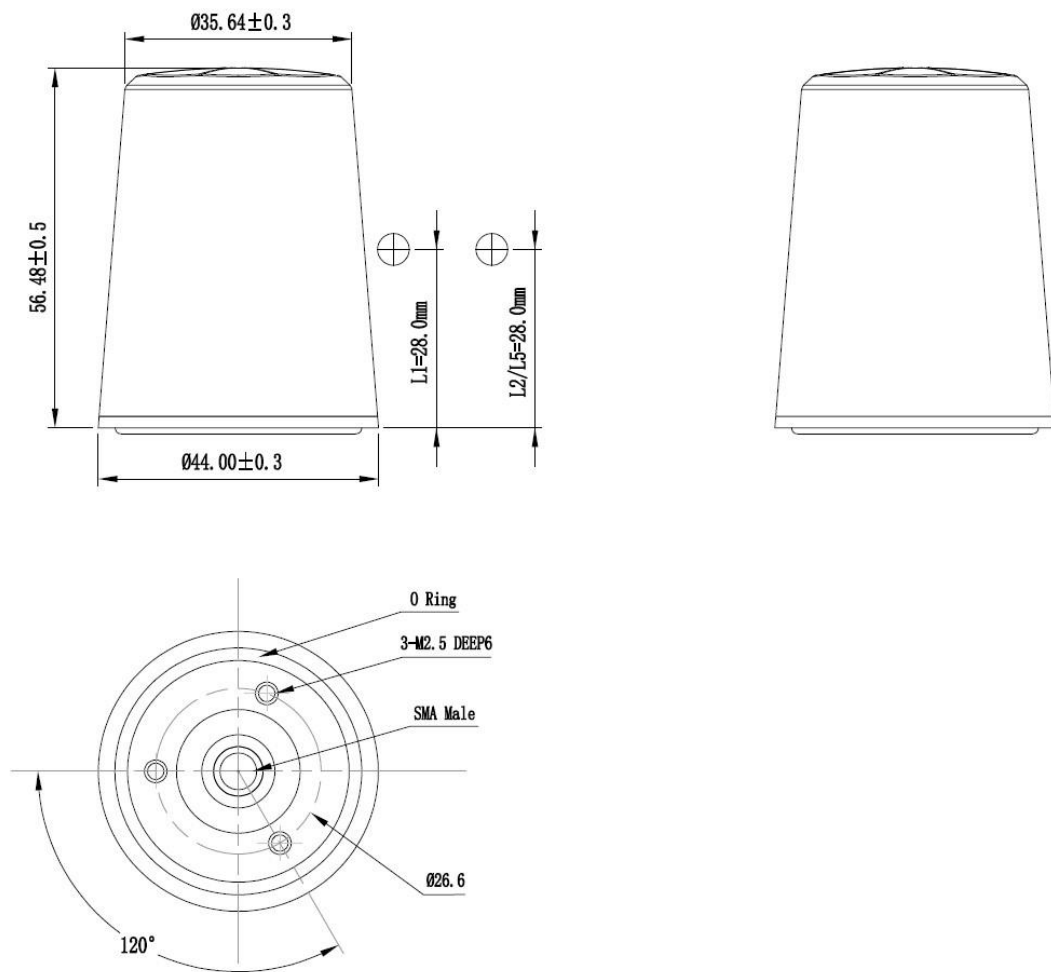
1.4. Supported GNSS Frequency Bands

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 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)				
	√				
L-BAND Services	1525–1559				
	√				

GNSS Bands and Constellations



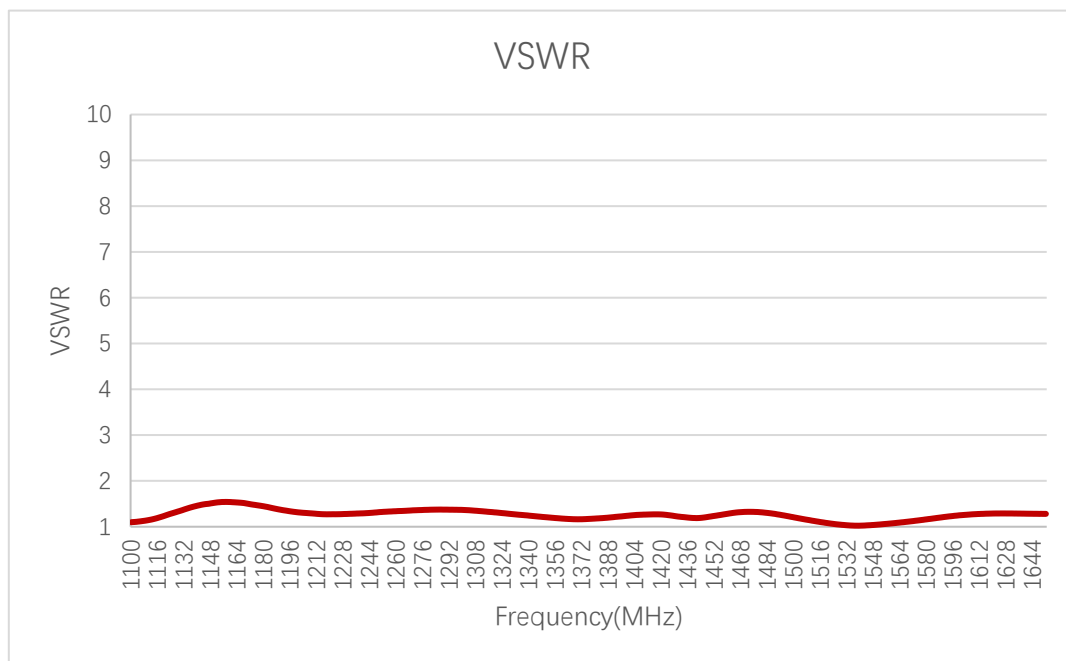
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

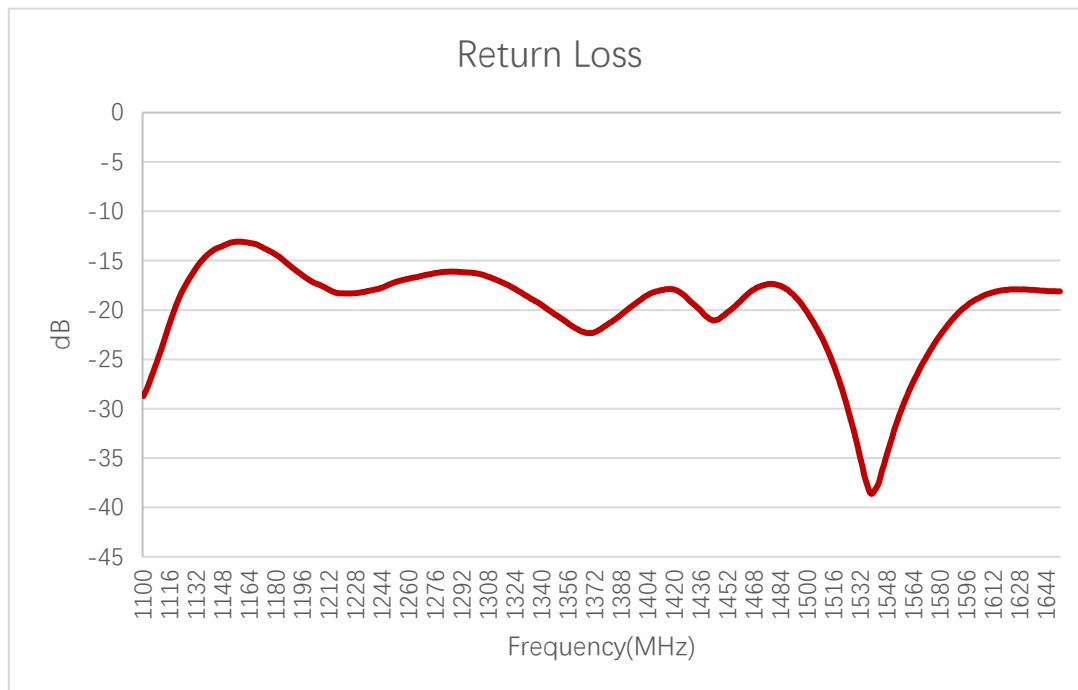
3.1.1. VSWR



VSWR

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
VSWR	1.46	1.29	1.27	1.31	1.35	1.36	1.05	1.08	1.13	1.25

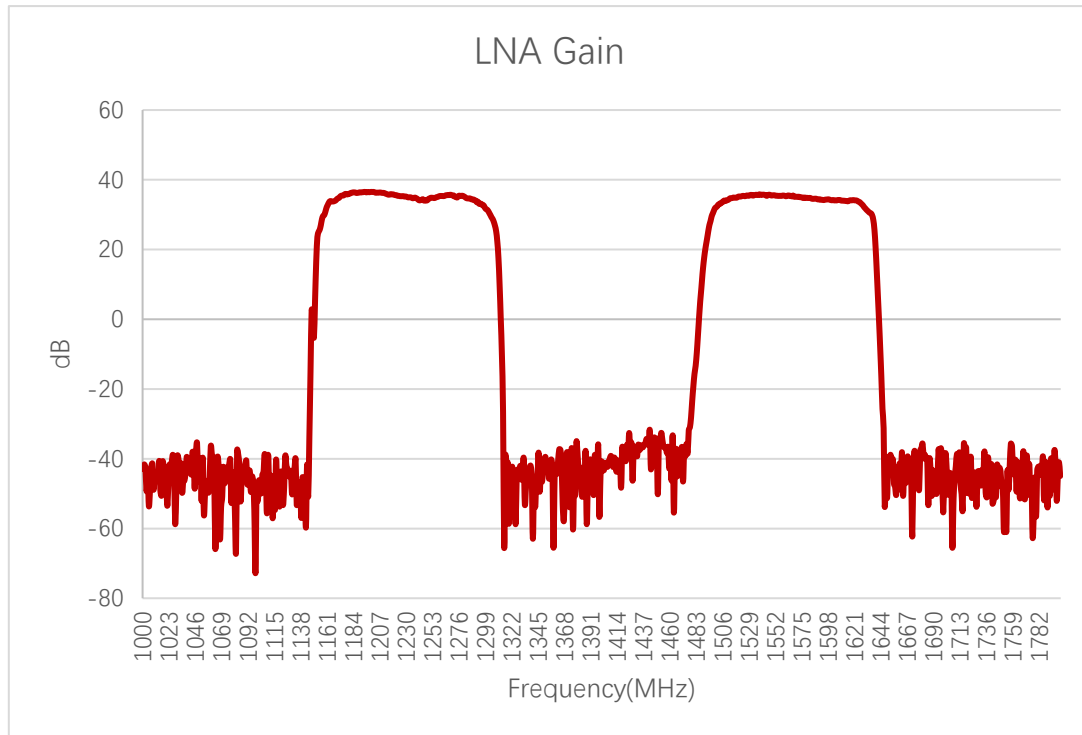
3.1.2. Return Loss



Return Loss (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
Return Loss (dB)	-14	-17.5	-18.3	-17.4	-16.5	-16.2	-30.4	-28.2	-23.8	-18.8

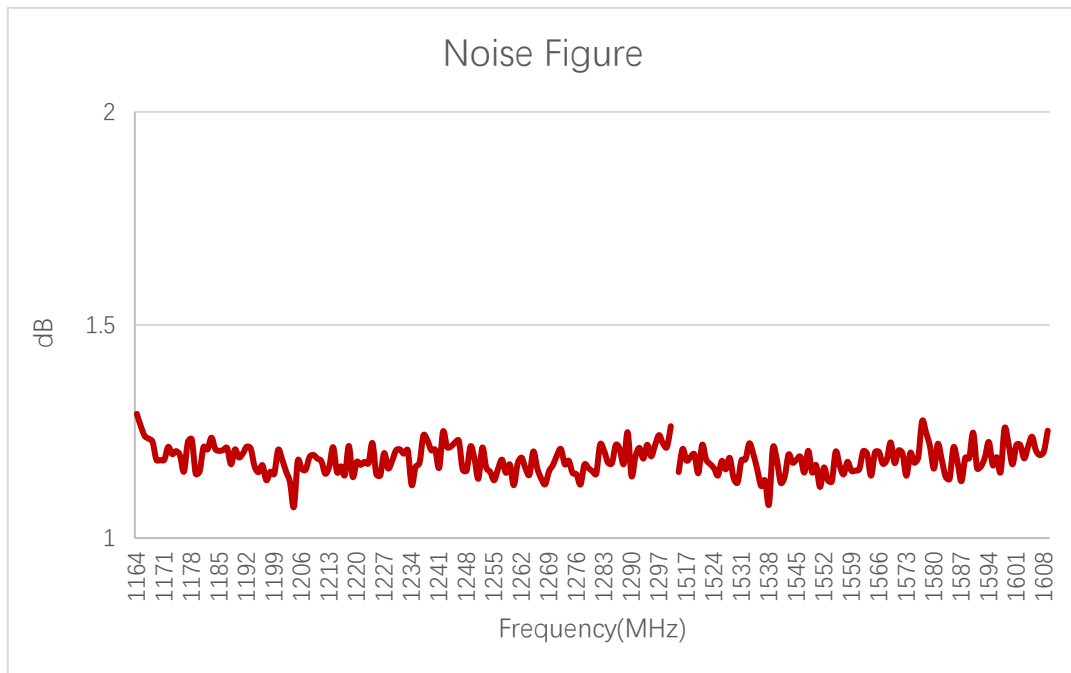
3.1.3. GNSS LNA Gain



LNA Gain (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
LNA Gain (dB)	35.8	36.3	35.3	34	35.7	35.4	35.2	35.2	34.8	34.2

3.1.4. Noise Figure

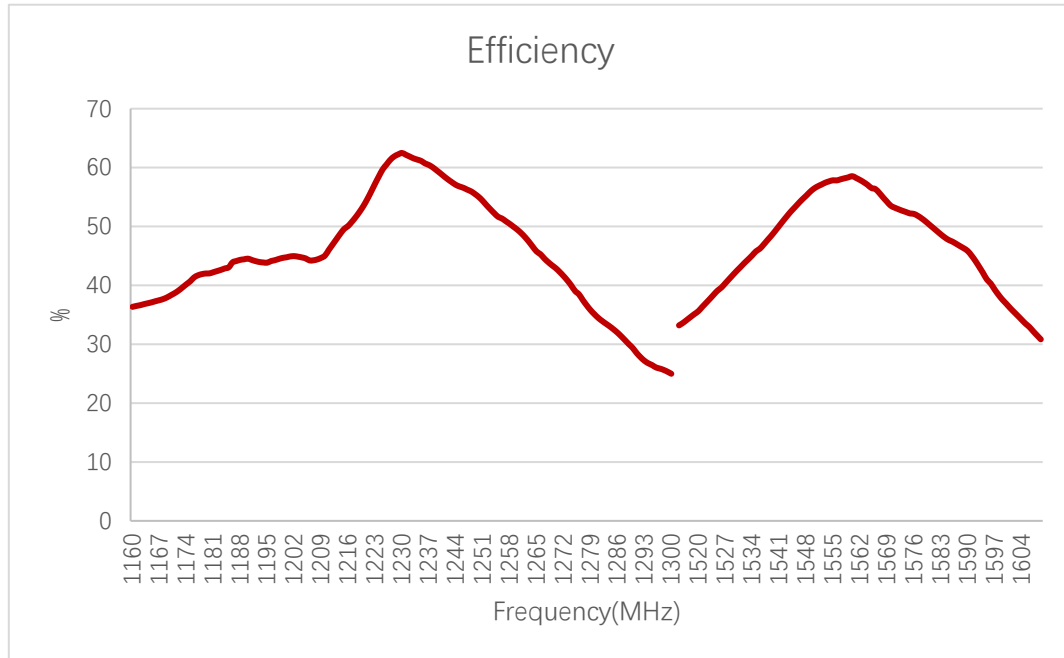


Noise Figure (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
Noise Figure (dB)	1.15	1.16	1.19	1.15	1.12	1.17	1.14	1.16	1.17	1.2

3.2. Radiation Performance Test

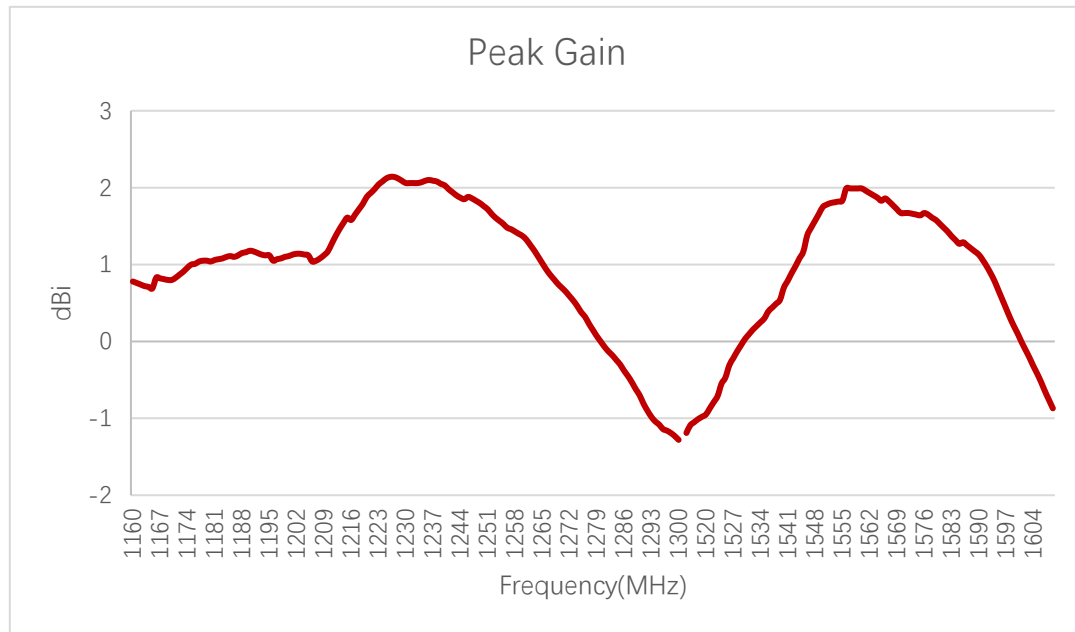
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
Efficiency (%)	41	44.2	61.3	55.9	43.9	36.6	39.1	58.2	52.2	35.5

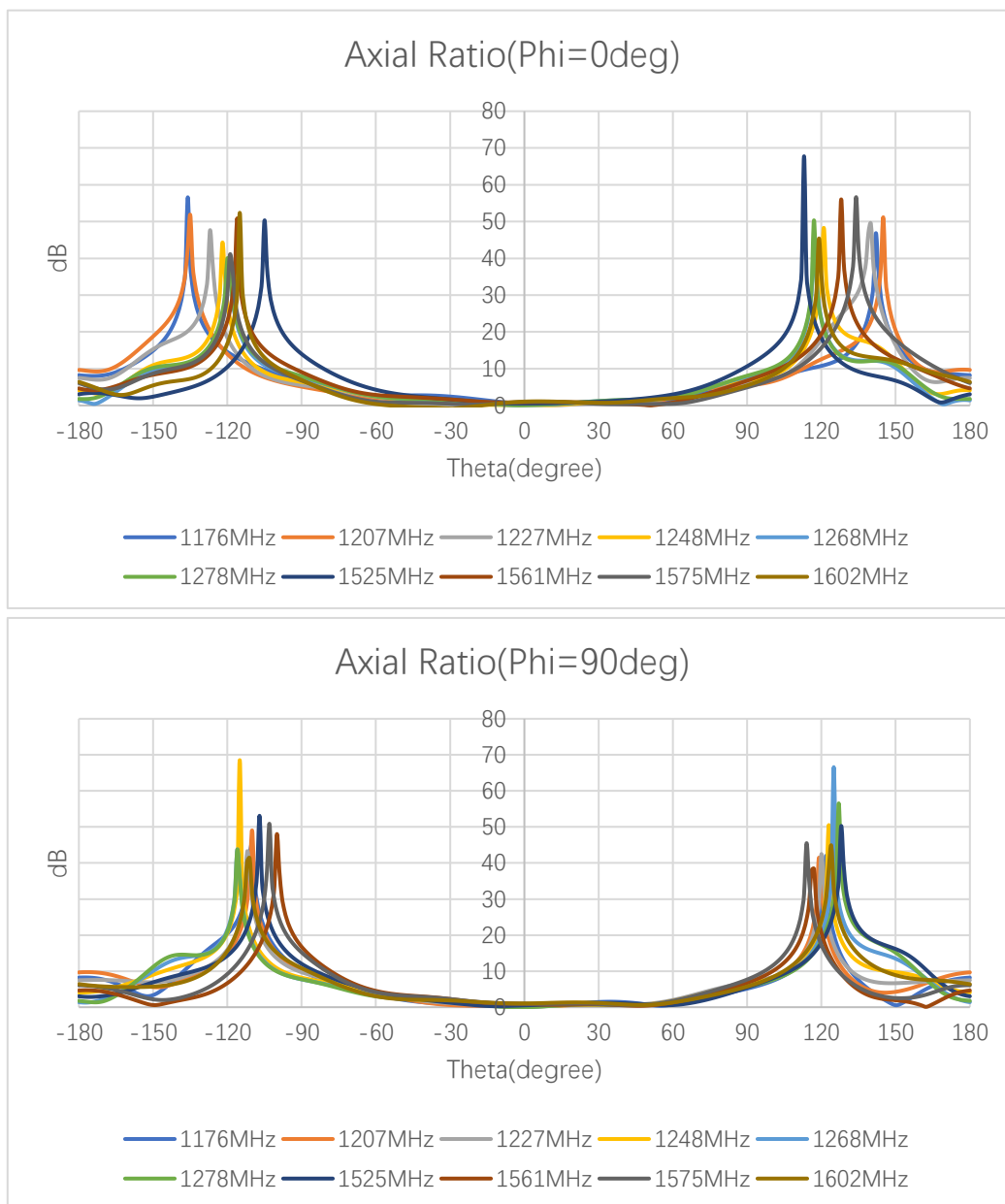
3.2.2. Peak Gain



Peak Gain (dBi)

Frequency (MHz)	1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
Peak Gain (dBi)	1.01	1.05	2.14	1.83	0.81	0.15	-0.47	1.96	1.64	-0.11

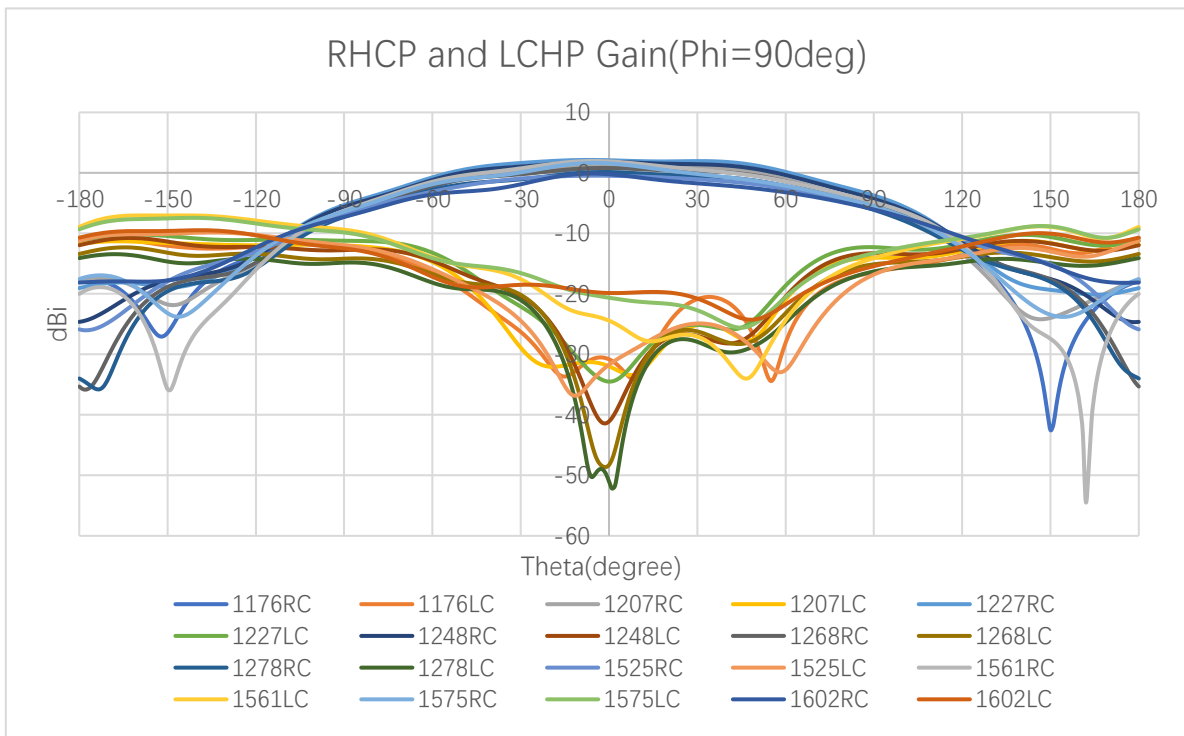
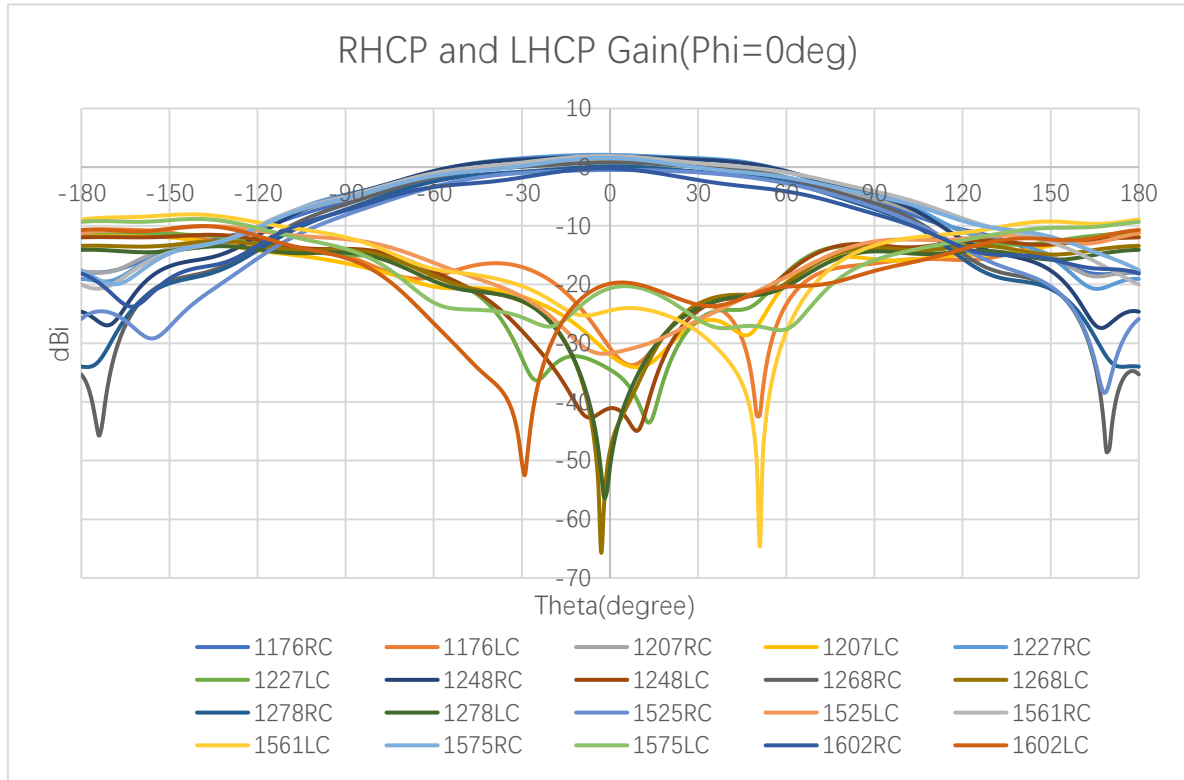
3.2.3. Axial Ratio



Axial Ratio (dB)

Frequency (MHz)		1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
Axial Ratio (dB)	$\Phi = 0^\circ$ $\Theta = 0^\circ$	0.45	0.38	0.25	0.12	0.06	0.04	0.51	0.89	0.94	1.05
	$\Phi = 90^\circ$ $\Theta = 0^\circ$	0.45	0.38	0.25	0.12	0.06	0.04	0.51	0.89	0.94	1.05

3.2.4. 2D RHCP and LHCP Gain

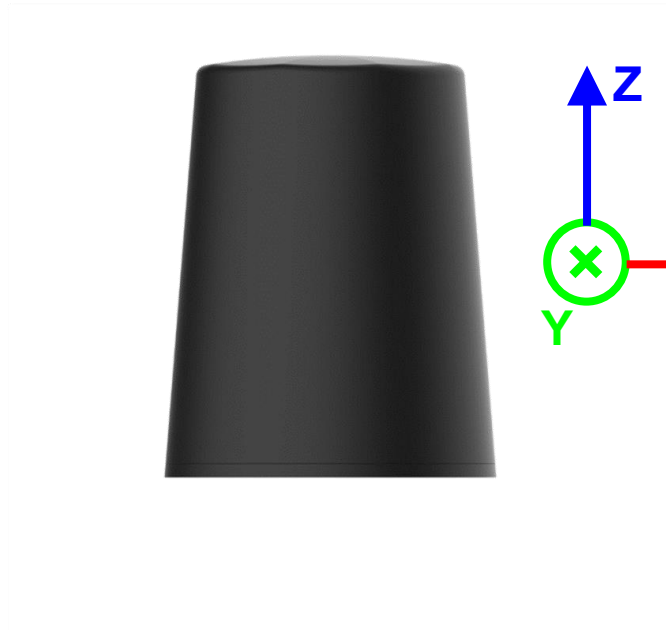


2D RHCP and LHCP Gain (dBi)

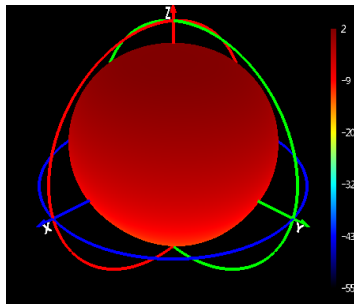
Frequency (MHz)		1176	1207	1227	1248	1268	1278	1525	1561	1575	1602
RC Gain (dBi)	Phi = 0 (deg) Theta = 0 (deg)	0.92	1.03	2.08	1.82	0.8	-0.48	0.24	1.9	1.57	-0.23
	Phi = 90 (deg) Theta = 0 (deg)	0.92	1.03	2.08	1.82	0.8	-0.48	0.24	1.9	1.57	-0.23
LC Gain (dBi)	Phi = 0 (deg) Theta = 0 (deg)	-30.8	-32	-34.5	-41	-48	-31.7	-26.2	-24	-20.6	-19.8
	Phi = 90 (deg) Theta = 0 (deg)	-30.8	-32	-34.5	-41	-48	-31.7	-26.2	-24	-20.6	-19.8

3.2.5. 3D & 2D Radiation Pattern

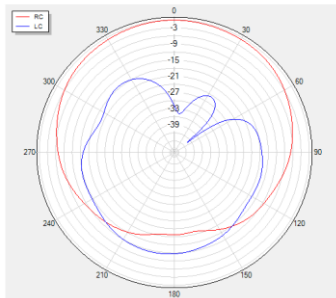
- Test Condition: Free Space
- Test Chamber: SH-SY-16M



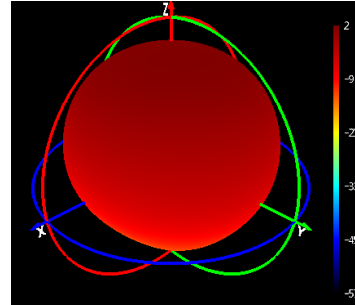
1176 MHz



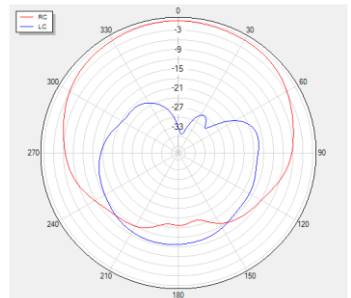
Phi=0 freq=1176MHz



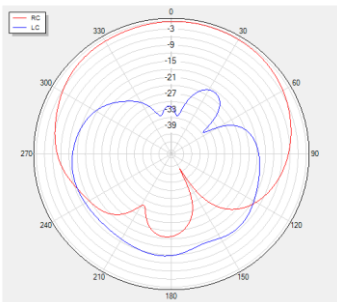
1207 MHz



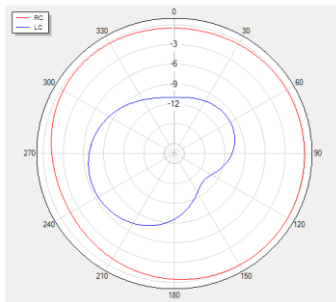
Phi=0 freq=1207MHz



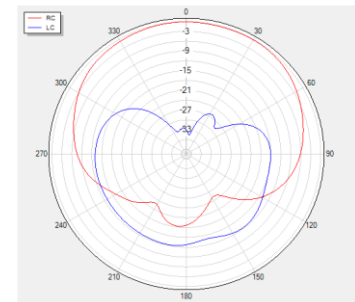
Phi=90 freq=1176MHz



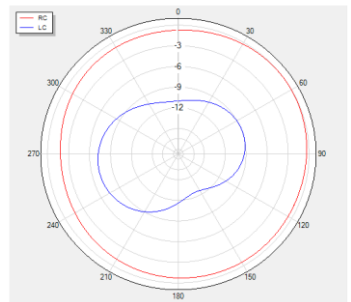
Theta=90 freq=1176MHz



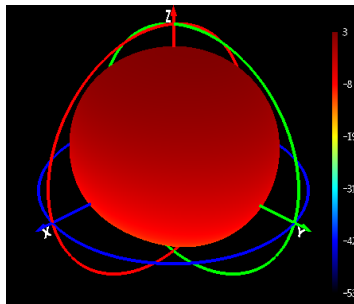
Phi=90 freq=1207MHz



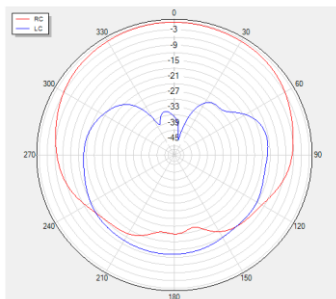
Theta=90 freq=1207MHz



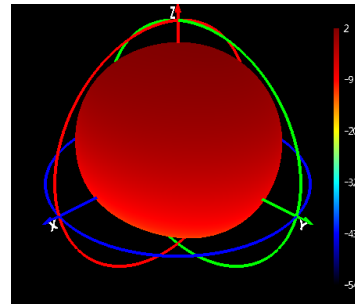
1227 MHz



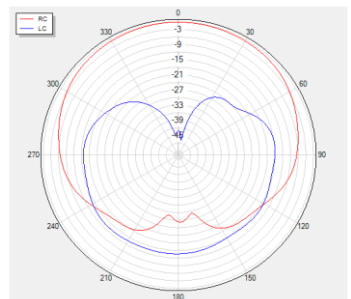
Phi=0 freq=1227MHz



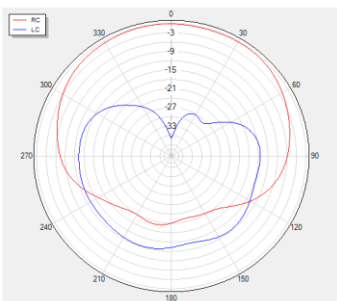
1248 MHz



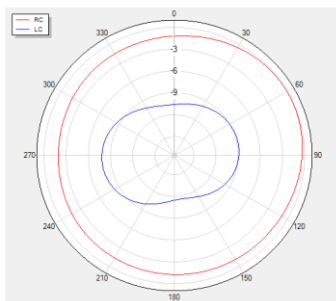
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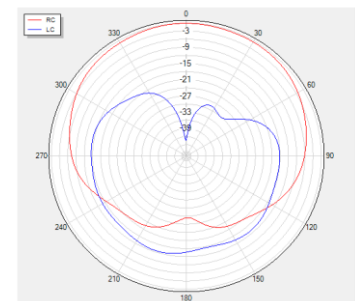
Phi=90 freq=1227MHz



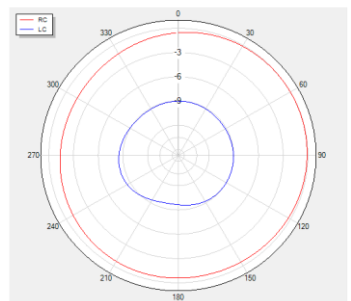
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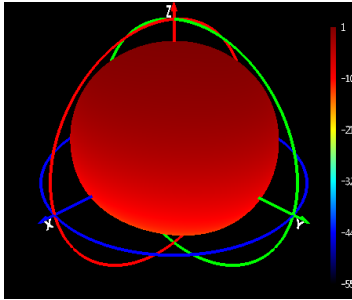
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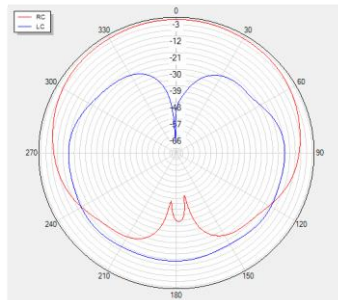
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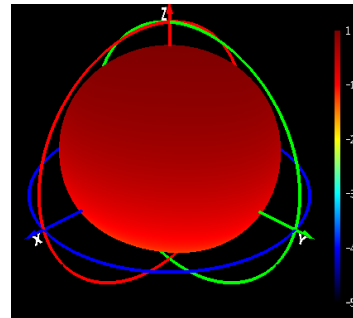
1268 MHz



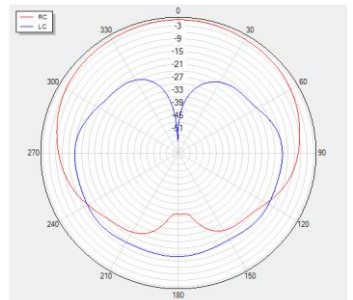
Phi=0 freq=1268MHz



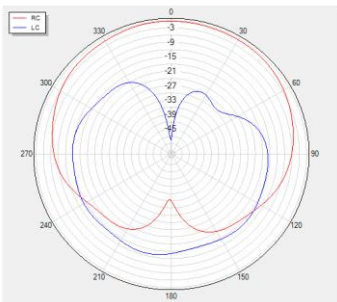
1278 MHz



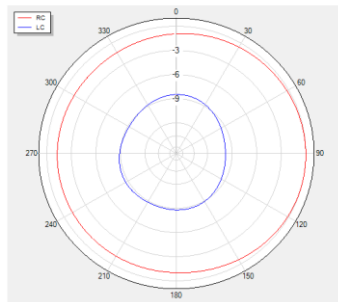
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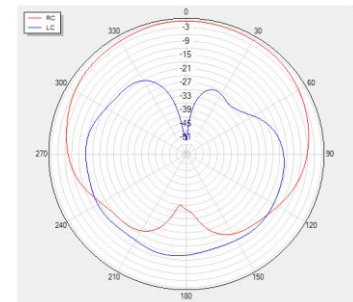
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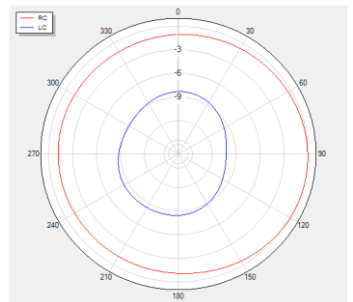
Theta=90 freq=1268MHz



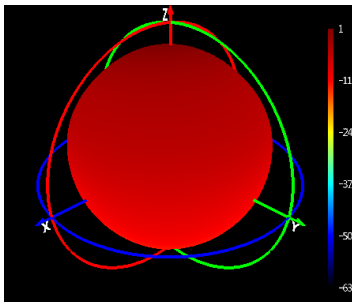
Phi=90 freq=1278MHz



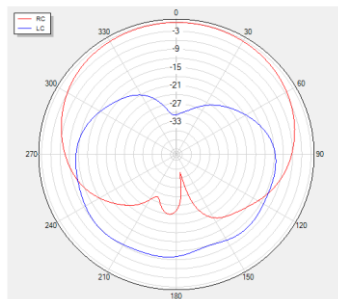
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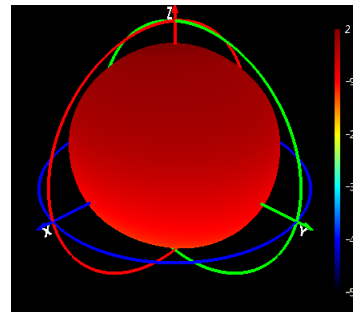
1525 MHz



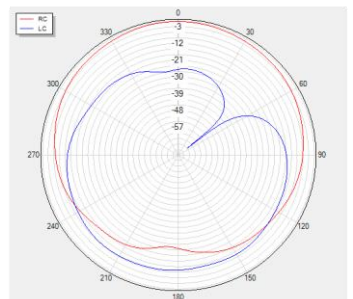
Phi=0 freq=1525MHz



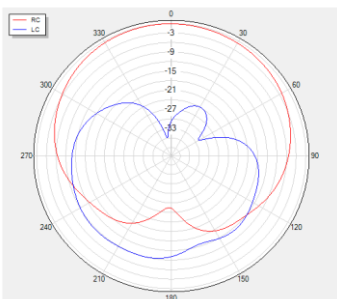
1561 MHz



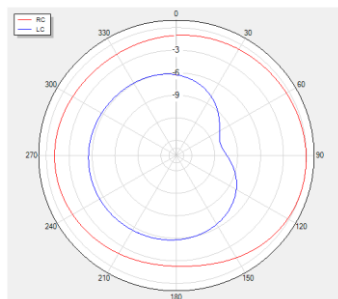
Phi=0 freq=1561MHz



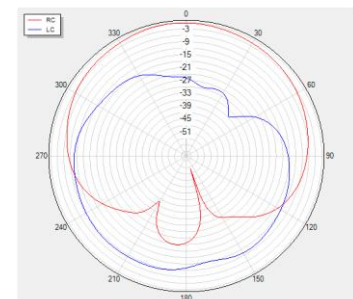
Phi=90 freq=1525MHz



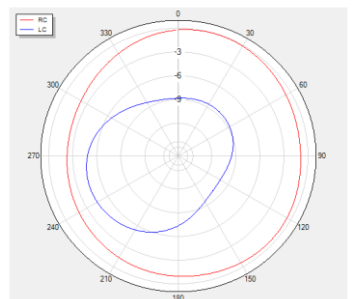
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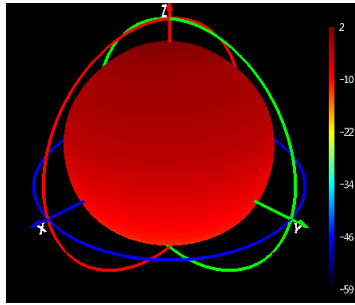
Phi=90 freq=1561MHz



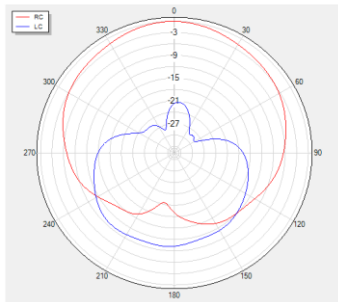
Theta=90 freq=1561MHz



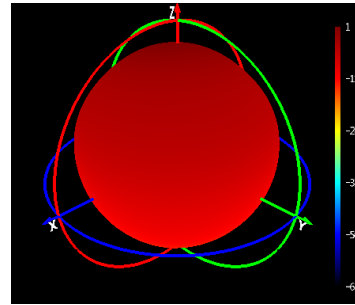
1575 MHz



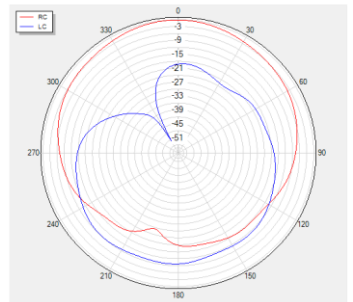
Phi=0 freq=1575MHz



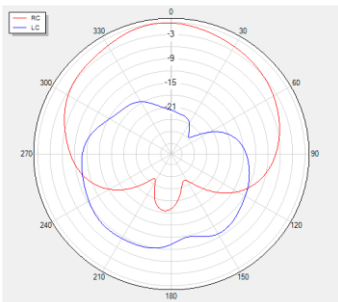
1602 MHz



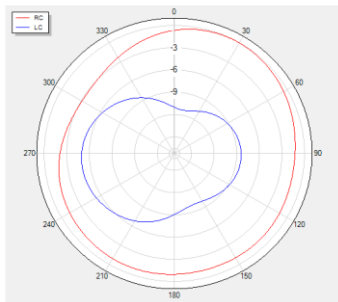
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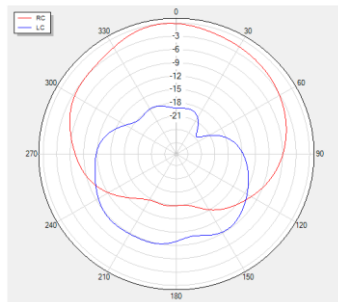
Phi=90 freq=1575MHz



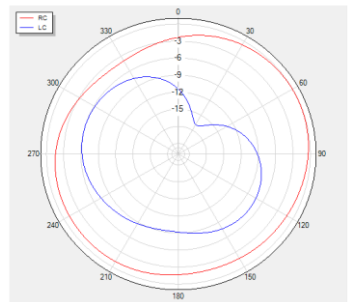
Theta=90 freq=1575MHz



Phi=90 freq=1602MHz



Theta=90 freq=1602MHz



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.

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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
-	2025-06-04	Junsen LI/ Mike GUO/ Rainey LIAO	Creation of the document
1.0	2025-06-04	Junsen LI/ Mike GUO/ Rainey LIAO	First official release



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