

Antenna Datasheet

Antenna Services

Product OC: V1831-297-A-01

Version: 1.0

Date: 2025-11-13

Status: Released



Product Name: Full bands GNSS Antenna

Key Features:

Covered GPS L1/L2/L5, BD B1/B2/B3, GLONASS G1/G2/G3

GALILEO E1/E5/E6, QZSS L1/L2/L5/L6, IRNSS L5

LNA Gain: 40dB

Dimension Φ 165mm $\times$ 68.8 mm

Connector: TNC Female

IP Rating: IP67



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1 Product Description

This VLG GNSS antenna adopts a diversity of forms to guarantee the most suitable polarization type. VLG positioning products support single-band or multi-band operation modes to meet various high-precision positioning requirements of customers' products. VLG also provides both passive and active antennas to satisfy the customer demand for high gain. Such antenna supports different installation or connection methods such as pin mount, surface mount, magnetic mount, internal cable, and external FAKRA. Customized connector type and cable length are provided according to requirements.

We provide comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs.

2 Product Features

- GNSS
- High efficiency
- Excellent performance



3 Product Specifications

3.1 Electrical

Electrical Specifications

Nominal Frequency	GPS L1/L2/L5, BD B1/B2/B3, GLONASS G1/G2/G3 GALILEO E1/E5/E6, QZSS L1/L2/L5/L6, IRNSS L5
VSWR	≤ 2.0
Efficiency	$\geq 70\%$
Gain	≥ 5.0 dBi
Polarization Type	RHCP
Axial Ratio	≤ 3 dB
Impedance	50 Ω

LNA Electrical Properties

Center Frequency	GPS L1/L2/L5, BD B1/B2/B3, GLONASS G1/G2/G3 GALILEO E1/E5/E6, QZSS L1/L2/L5/L6, IRNSS L5
Gain	40 $\pm$ 2 dB
VSWR	≤ 2.0
Noise Figure	≤ 2.5 dB (25 $\pm$ 5 ° C)
Voltage	3.3–18 V
Current	≤ 45 mA
Impedance	50 Ω

3.2 Mechanical & Environment

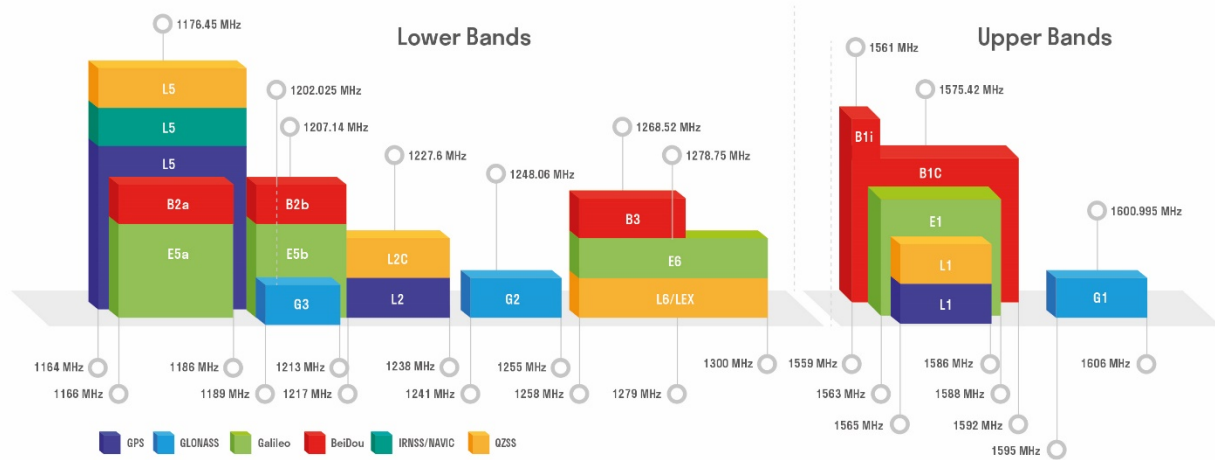
Mechanical Specifications

Antenna Size	φ 165mm × 68.8 mm
Casing Material & Color	Plastic (white on top and black on bottom)
Connector Type	TNC Female
Working Temperature	-40° C to +85° C
Storage Temperature	-40° C to +85° C
IP Rating	IP67
Weight	0.48kg
RoHS & REACH Compliant	ROHS

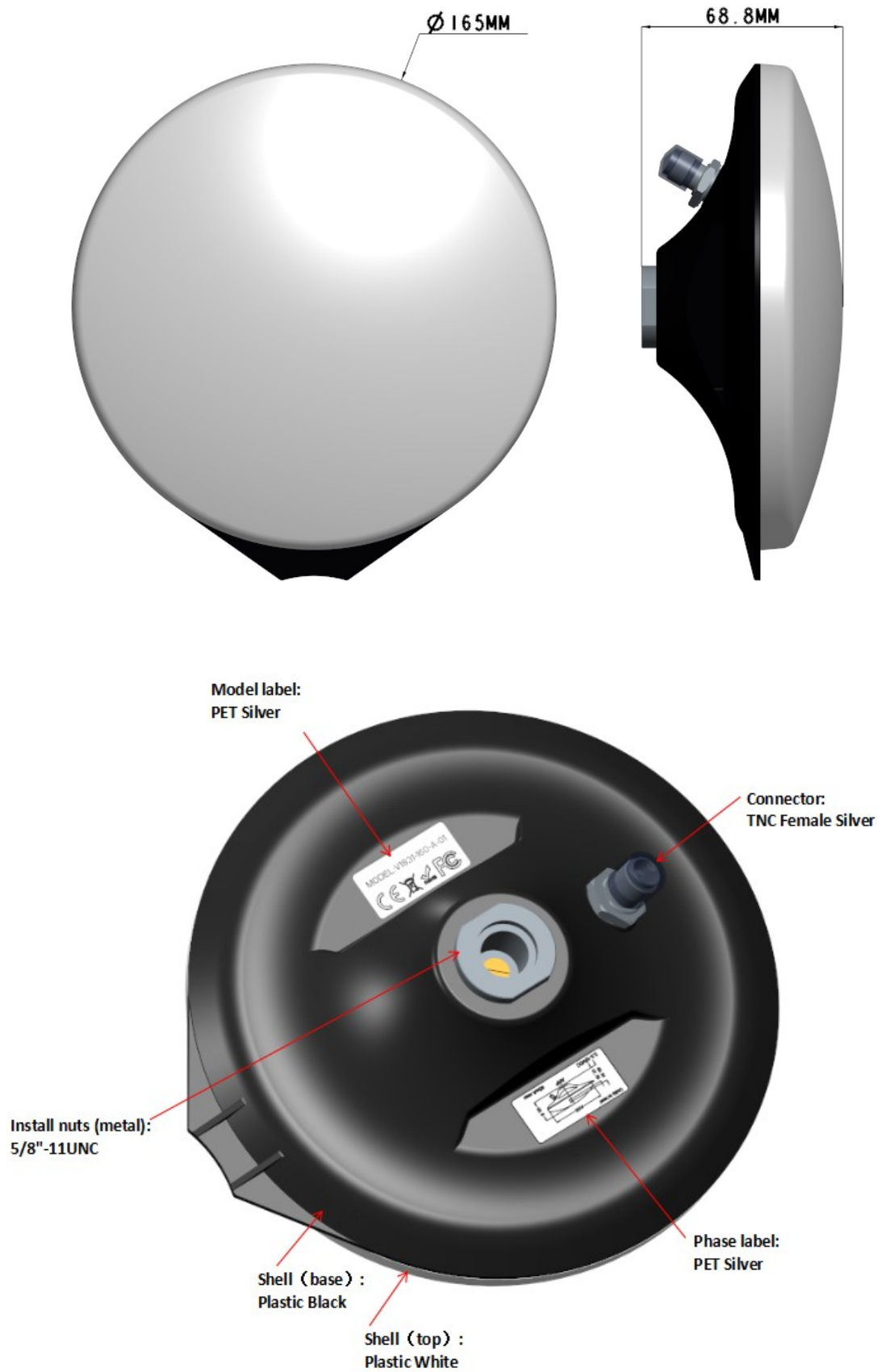
3.3 Supported Bands

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)	
	•	•	•	•	
BEIDOU	B1I Centre 1561.098 (1559–1564)	B1C (BeiDou-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



4. Drawing

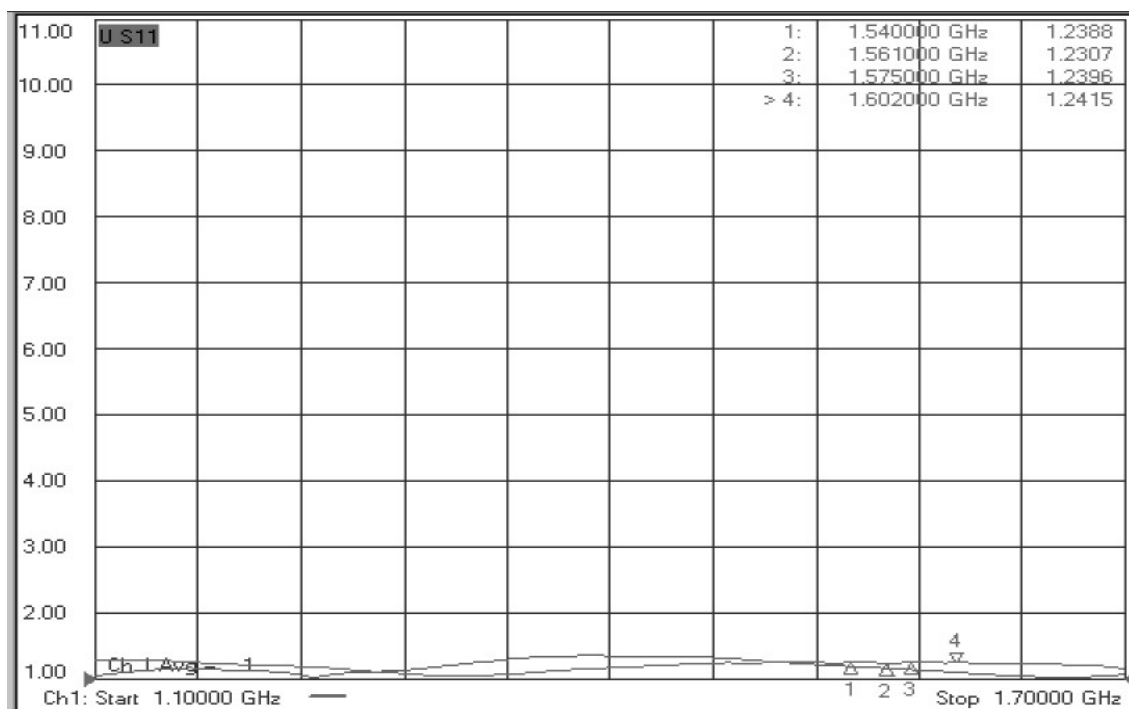
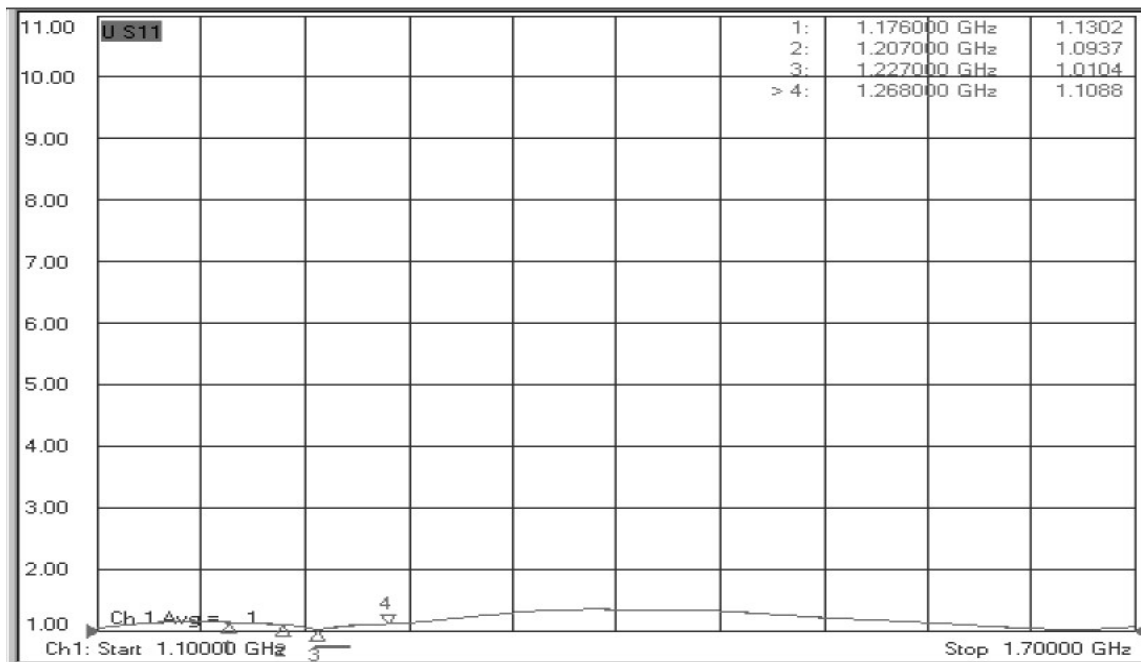


5. Overall Performance

5.1. Test Environment

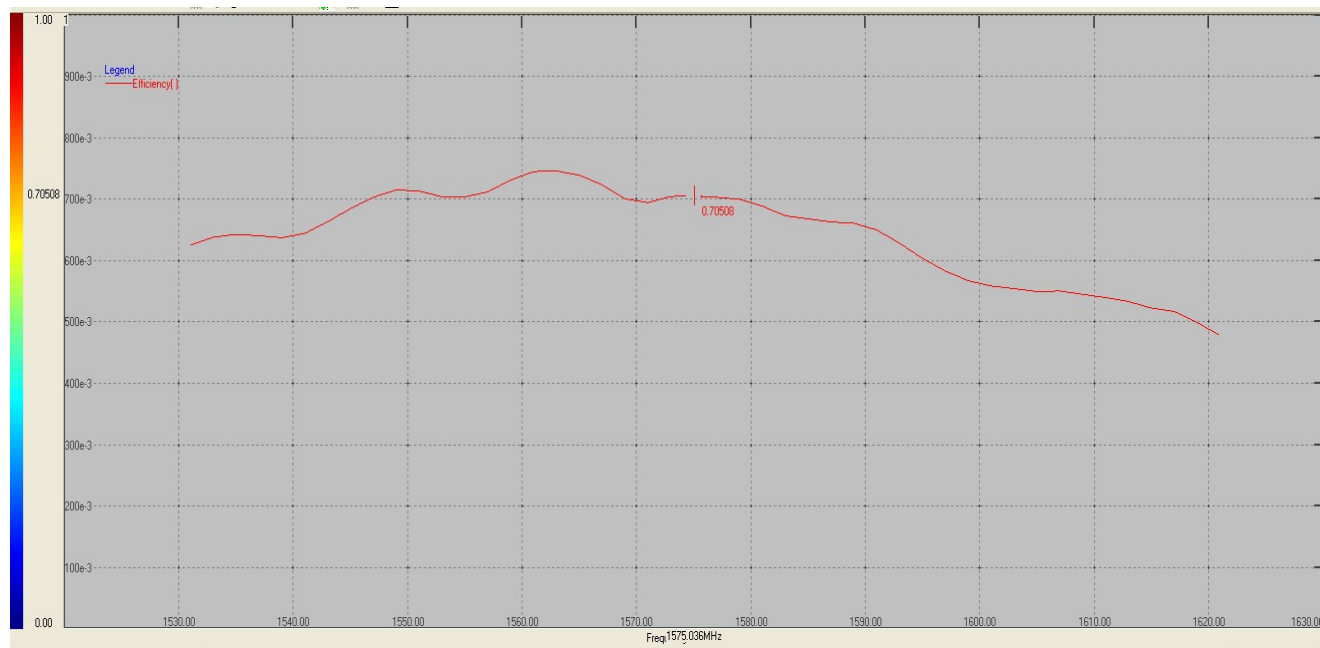
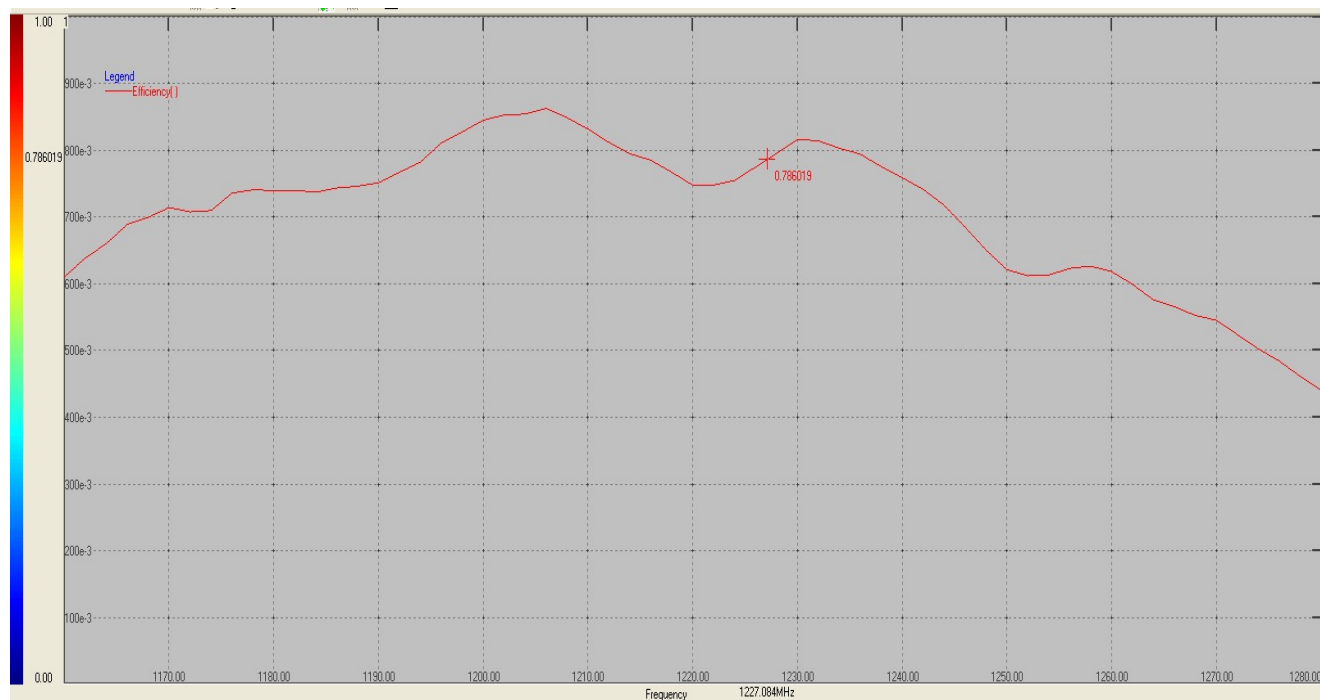


5.2. VSWR



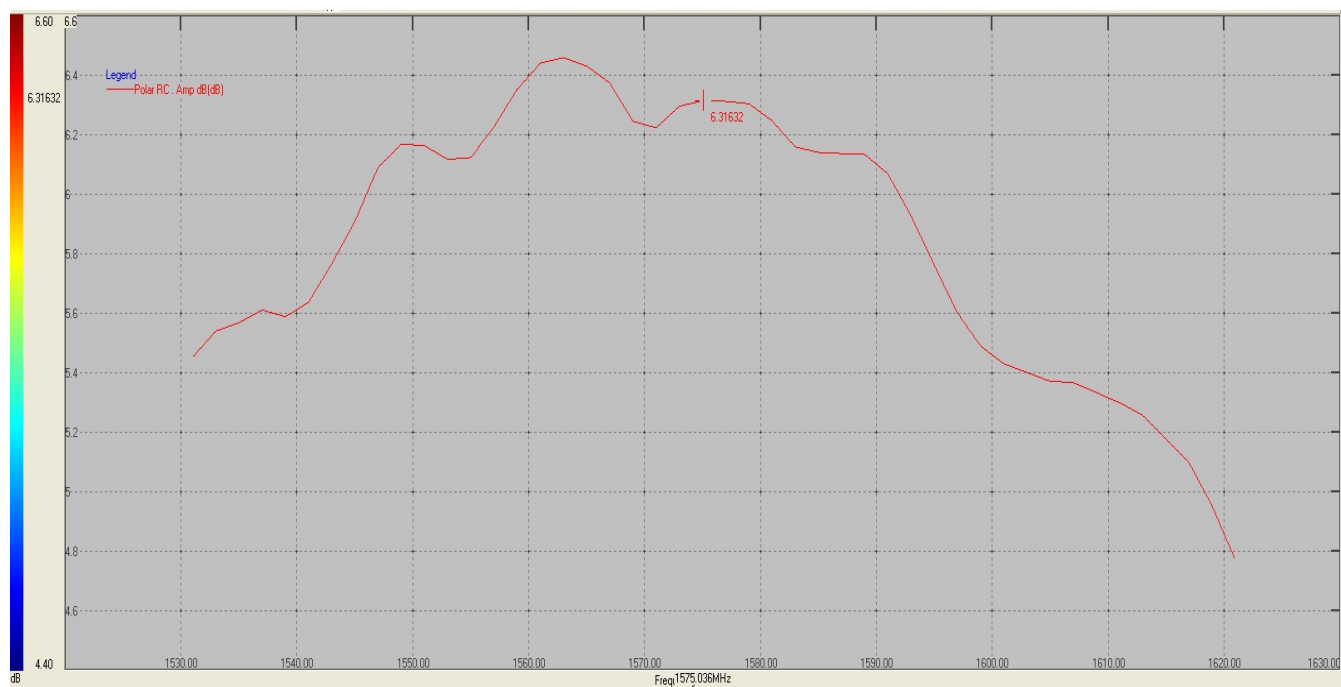
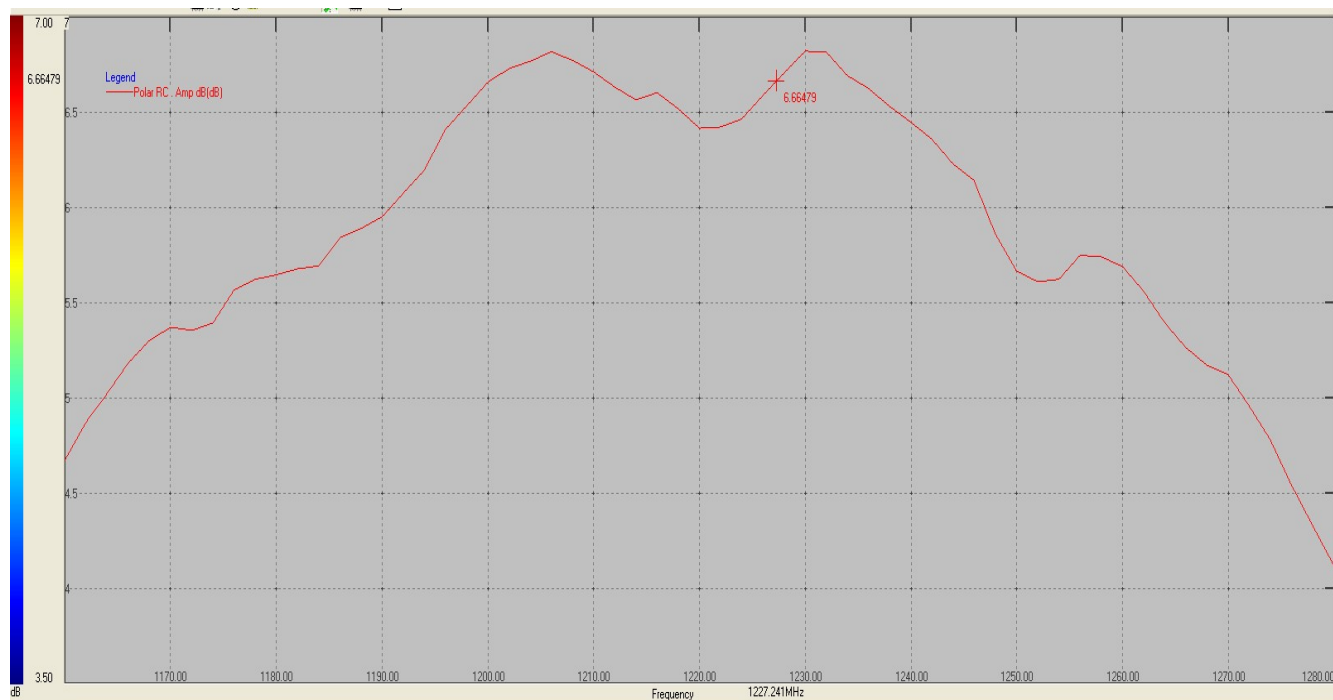
Frequency (MHz)	1176	1207	1227	1268	1561	1575	1602
VSWR	1.13	1.09	1.01	1.10	1.23	1.23	1.24

5.3. Efficiency



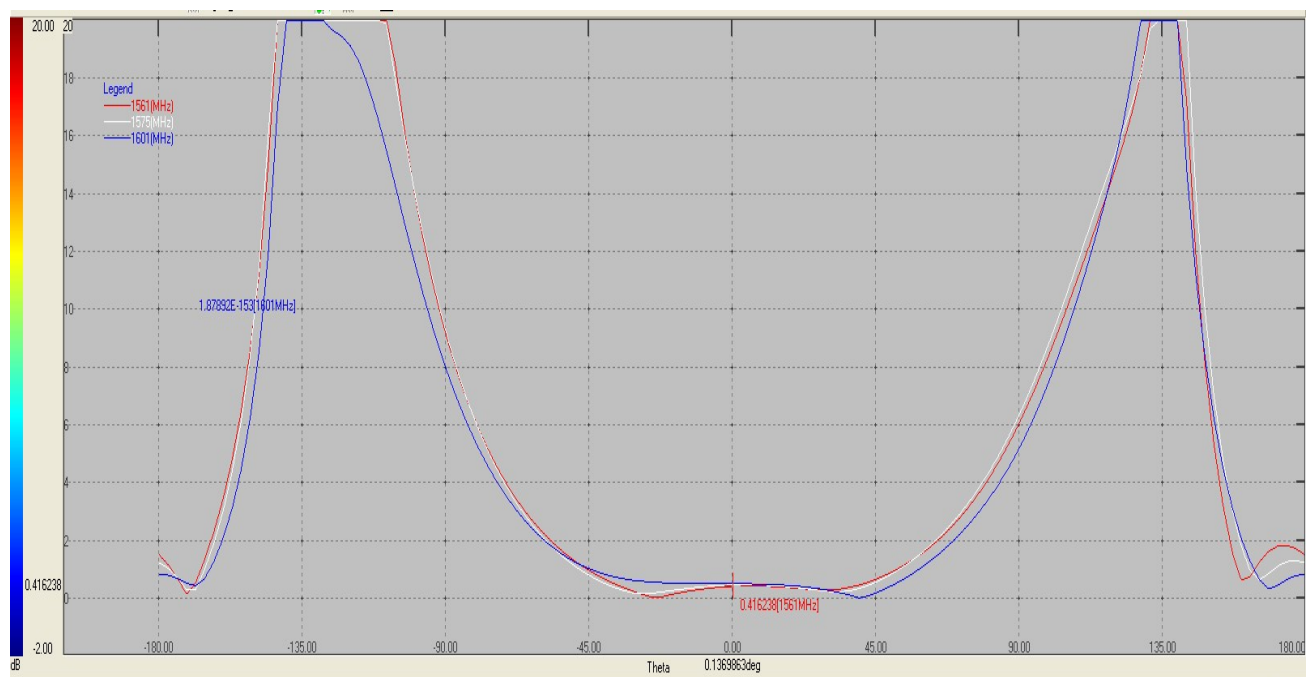
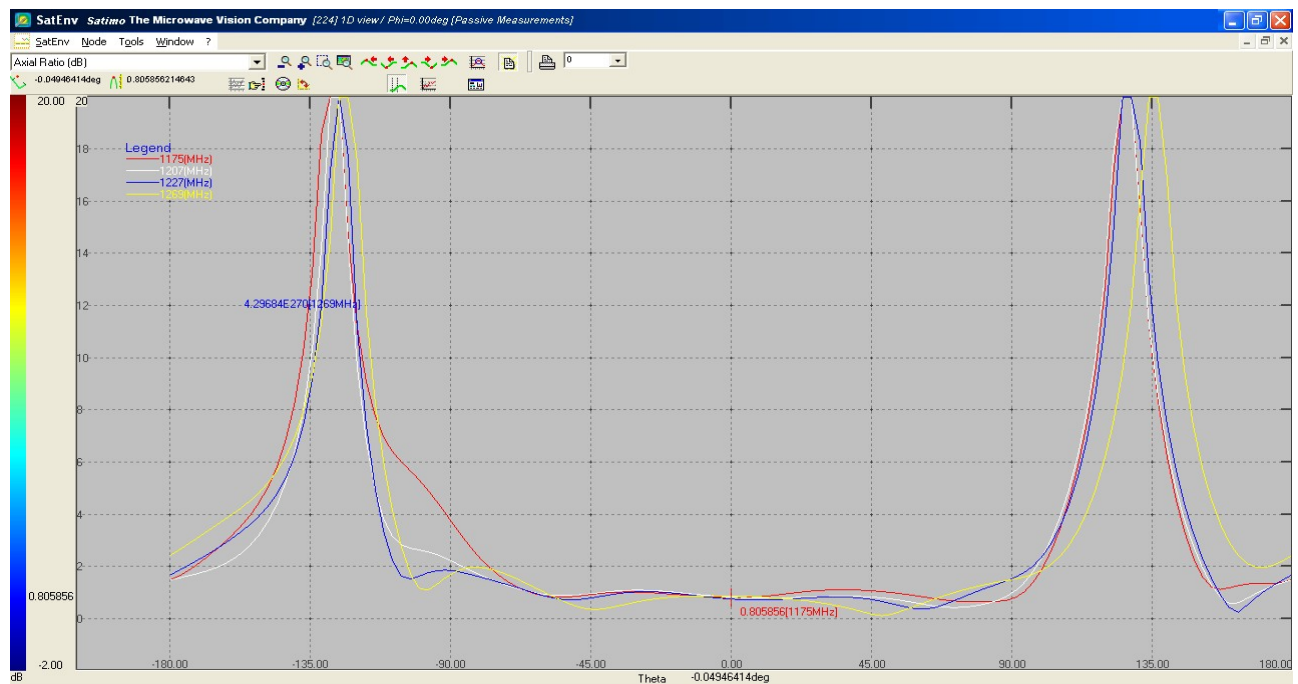
Frequency (MHz)	1176	1207	1227	1268	1561	1575	1602
Efficiency (%)	73.5	86.2	77.4	55.2	74.5	70.5	55.8

5.4. Gain



Frequency (MHz)	1176	1207	1227	1268	1561	1575	1602
Gain (dBi)	5.57	6.82	6.59	5.17	6.44	6.31	5.43

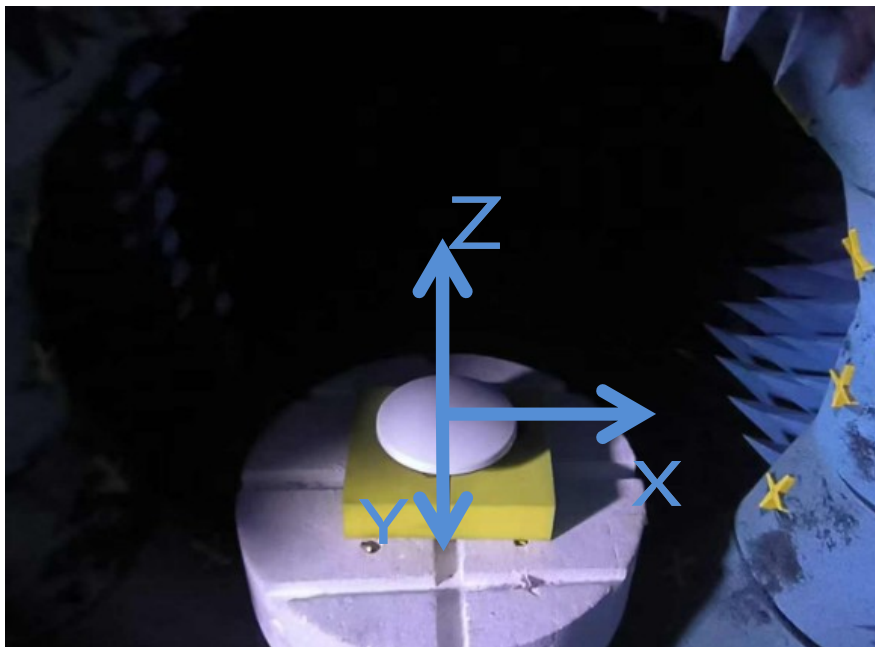
5.5. Axial Ratio



Frequency (MHz)	1176	1207	1227	1268	1561	1575	1602
Axial Ratio (dB)	0.81	0.82	0.75	0.87	0.42	0.47	0.51

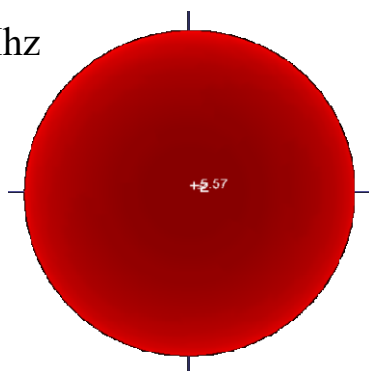
5.6. 3D & 2D Radiation Pattern

5.6.1 Test Environment

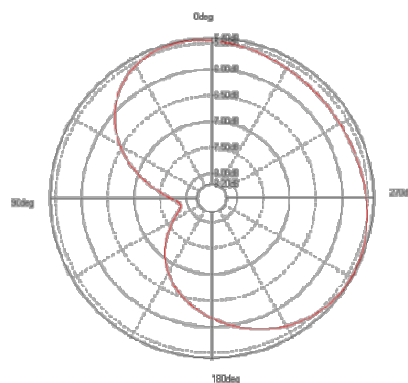


5.6.2 Test Result

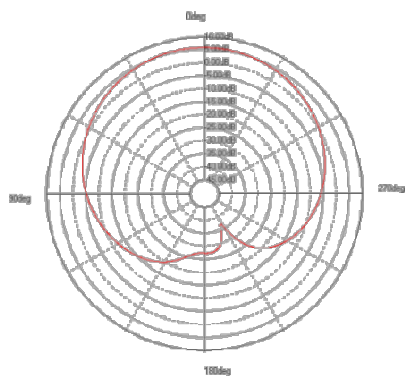
1176Mhz



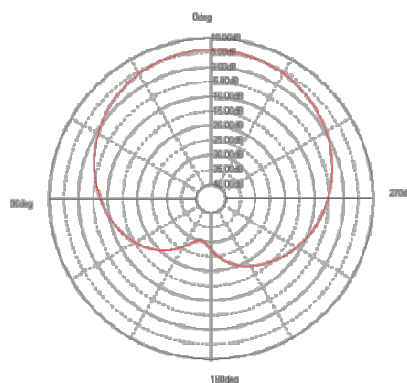
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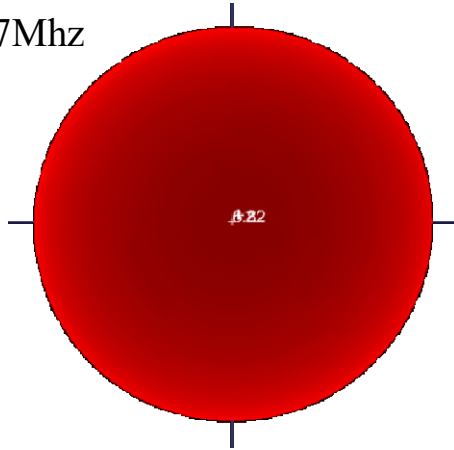
E1



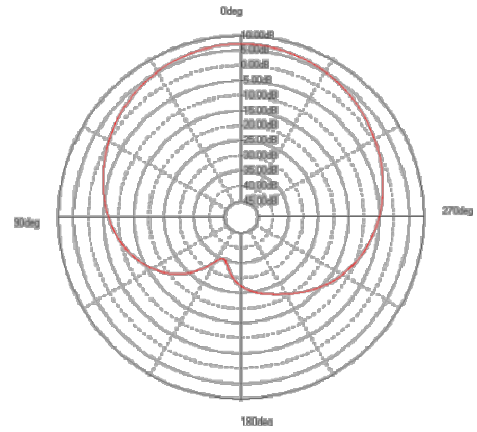
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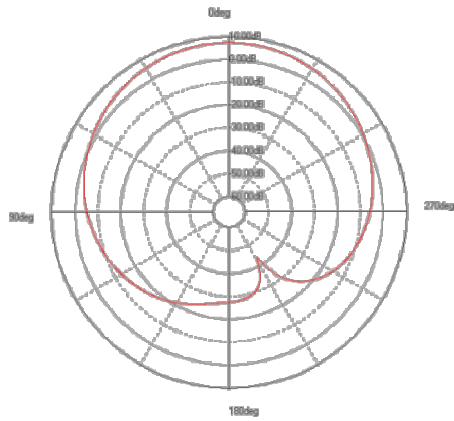
1207Mhz



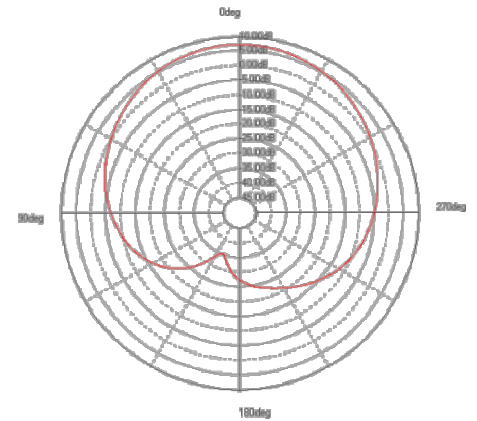
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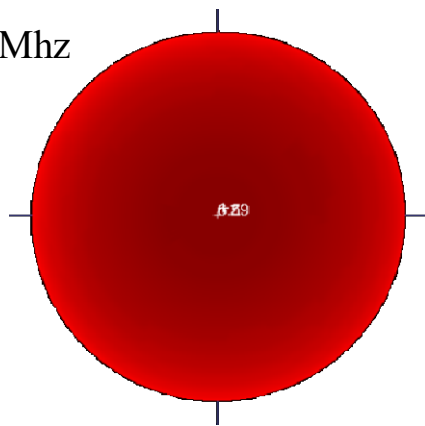
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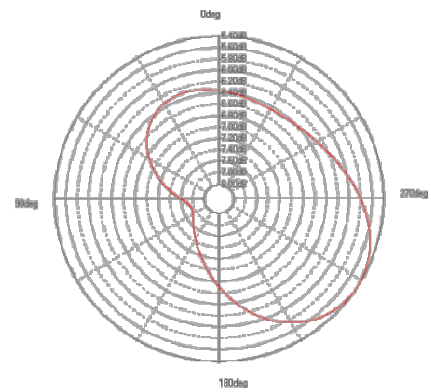
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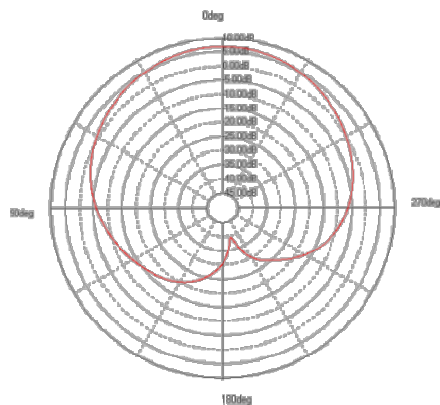
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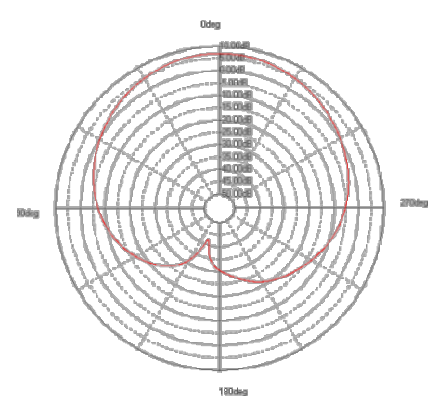
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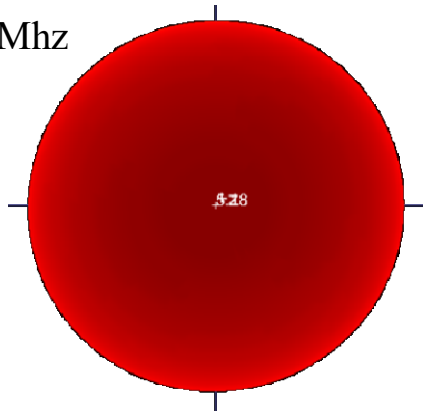
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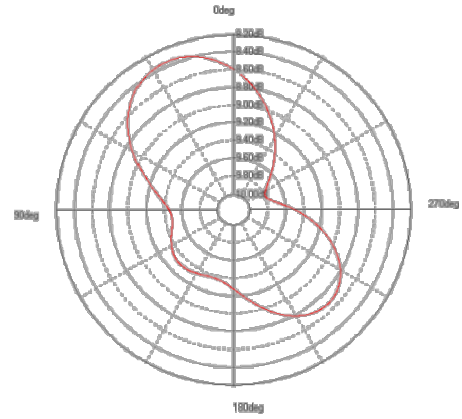
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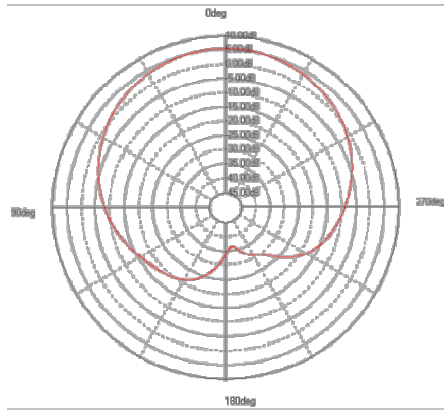
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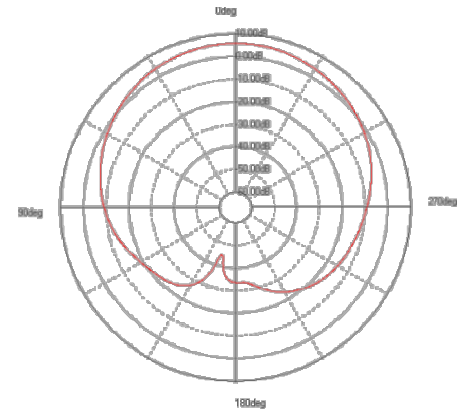
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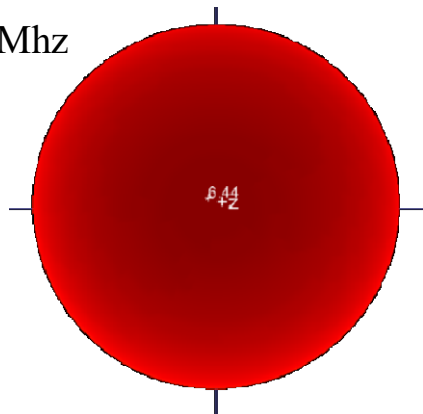
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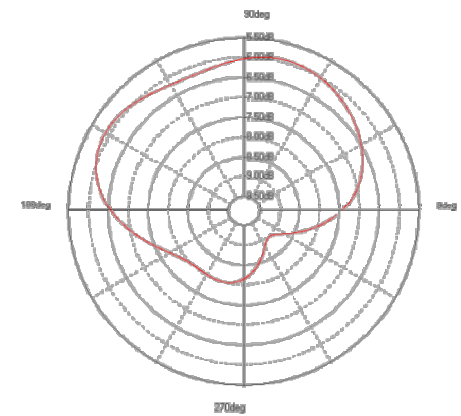
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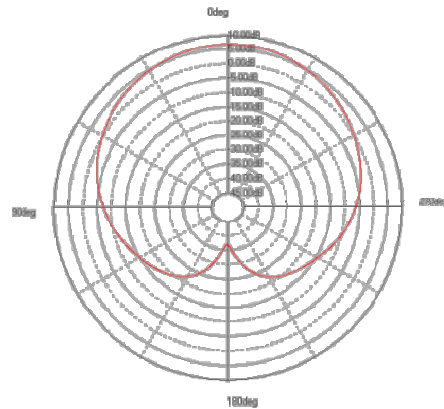
1561Mhz



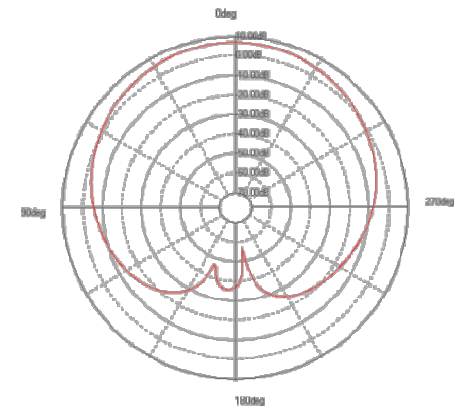
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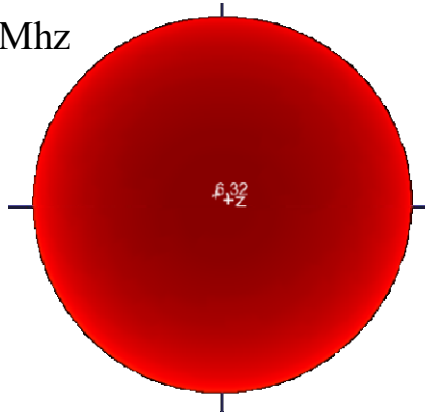
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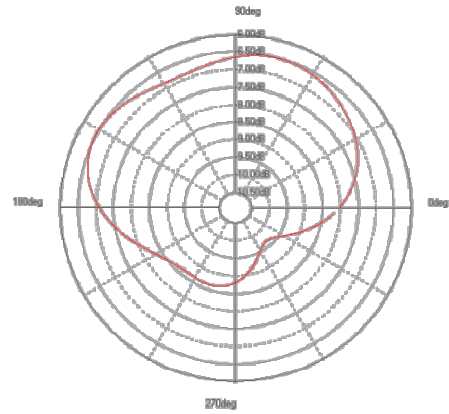
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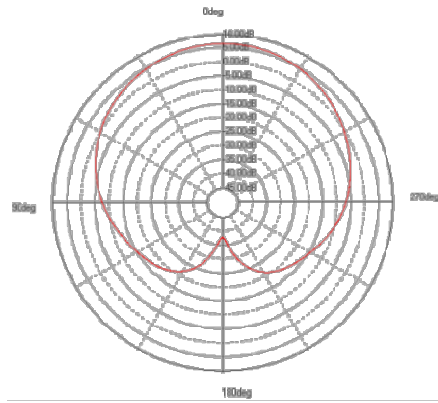
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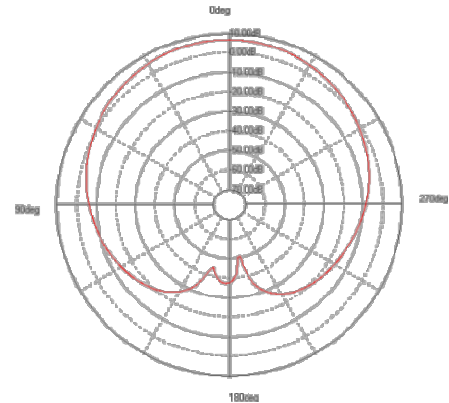
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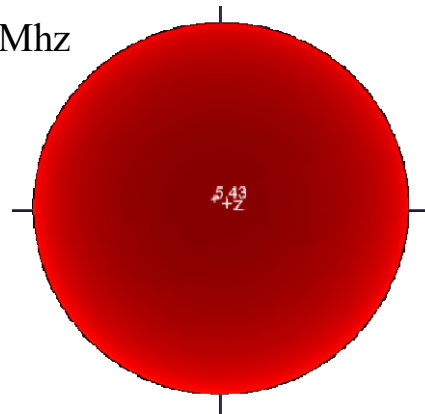
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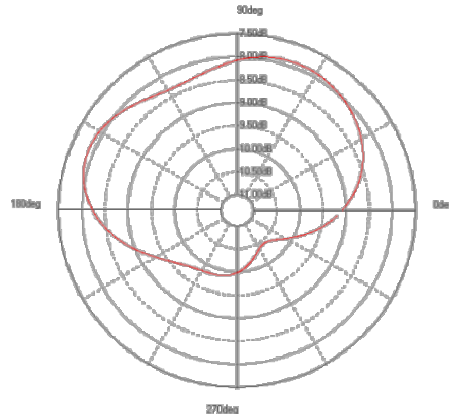
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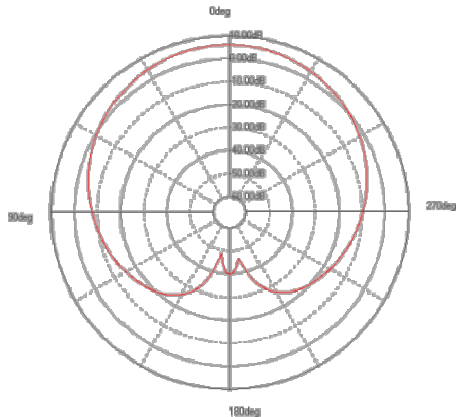
1602Mhz



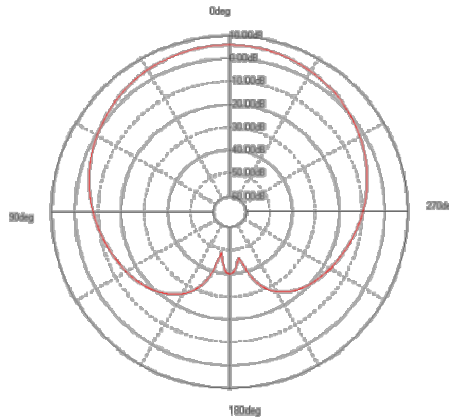
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E1

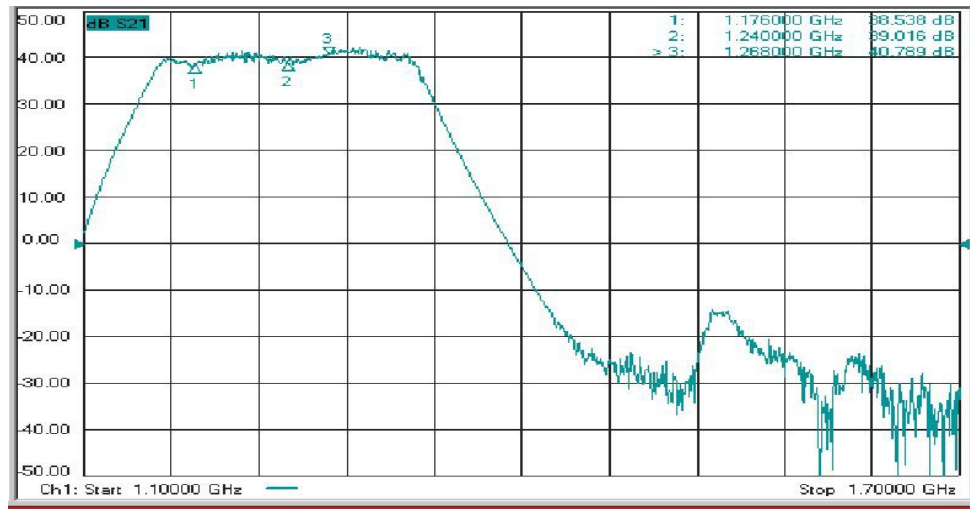


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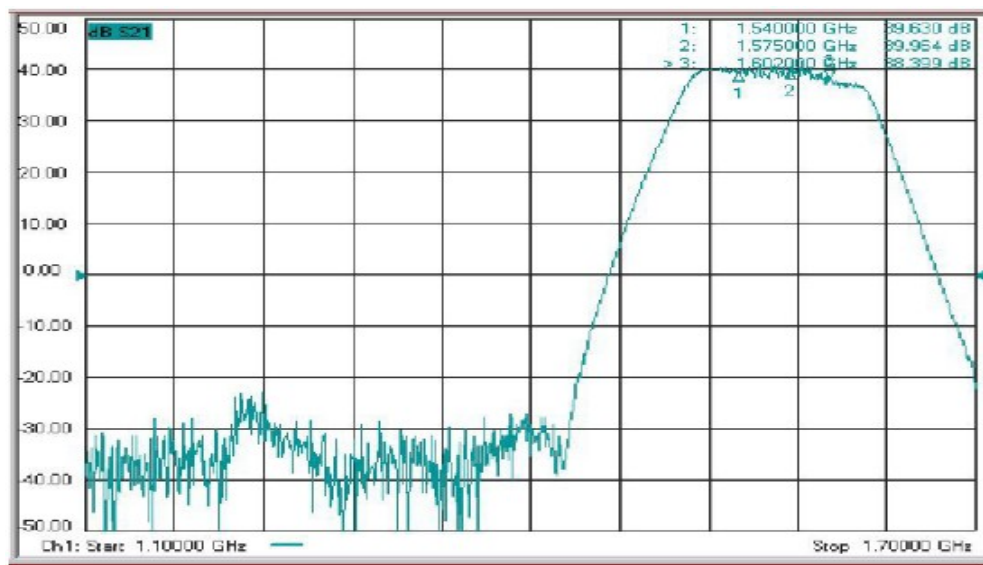


5.7. LNA

5.7.1 LNA Gain

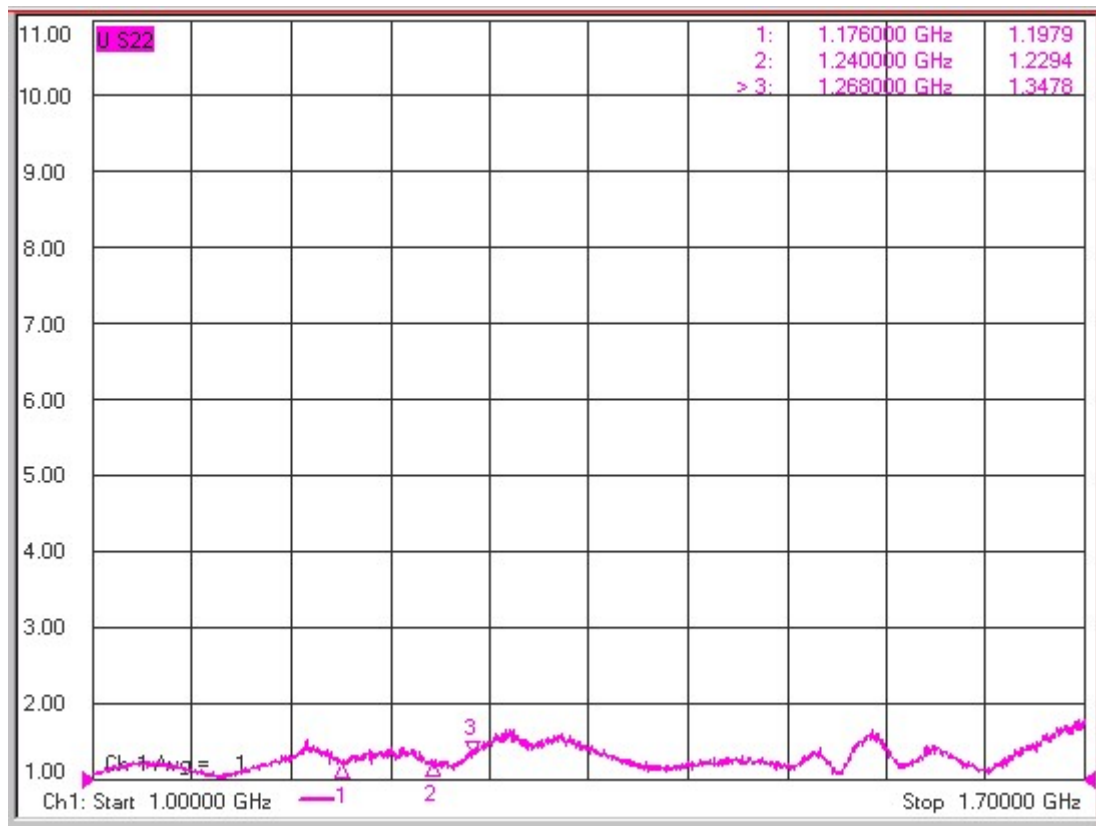


Frequency (MHz)	1176	1240	1268
Gain (dB)	38.5	39	40.7

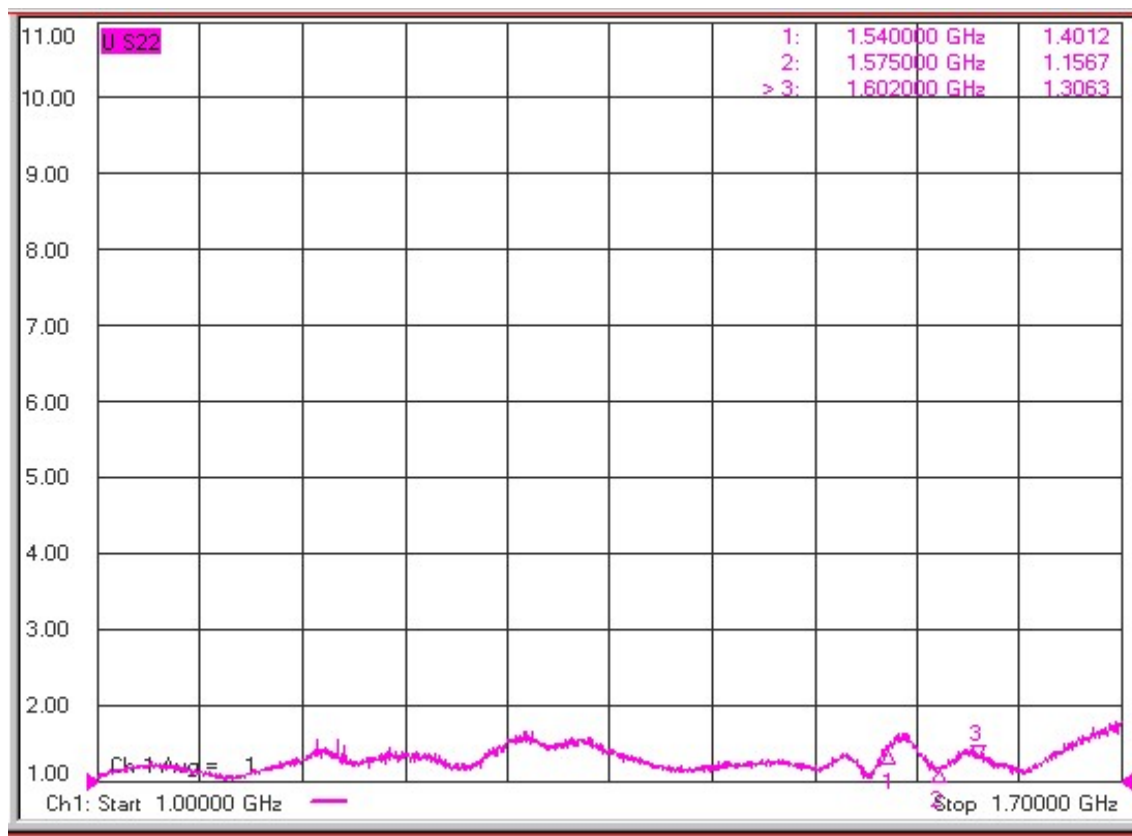


Frequency (MHz)	1540	1575	1602
Gain (dB)	39.6	39.9	38.3

5.7.2 LNA VSWR



Frequency (MHz)	1176	1240	1268
VSWR	1.19	1.22	1.34



Frequency (MHz)	1540	1575	1602
VSWR	1.40	1.15	1.30

6. Packaging

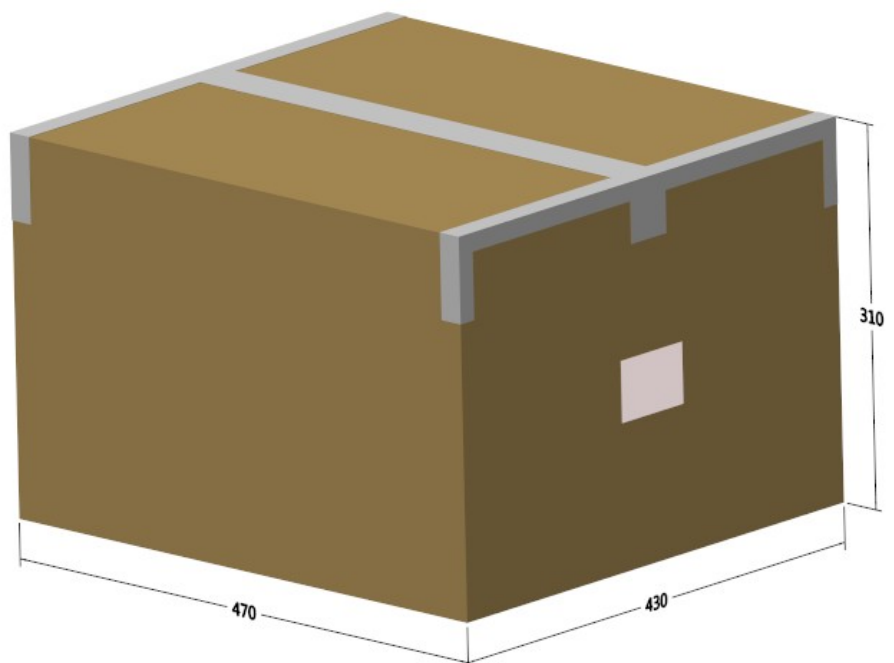
1. Pack in red bubble wrap.



2. 1PC/Inner Box



3. 12PCs/Carton



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8.Revision History

Version	Date	Author	Note
V1.0	2025.9.1	Yongxing Tang	Creation of the document
V1.0	2025.10.20	Yongxing Tang	First official release

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