YIC

GPS/GLONASS/BEIDOU External Antenna

ATGGB90108-N

Datasheet

www.yic.com.tw

Revision History

Date	Reversion	Description
2023/10/23	1.0	First Draft, Based on YIC

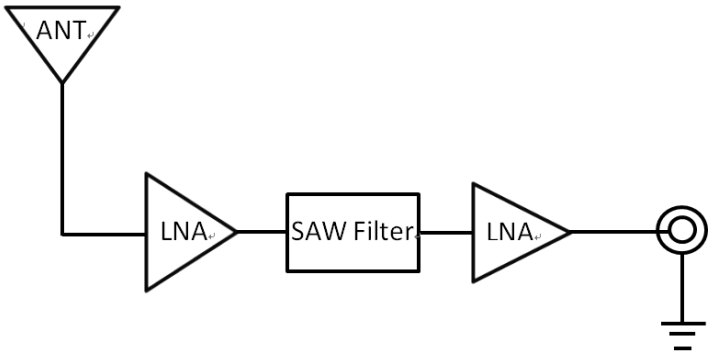
1. Product Information

1.1 Product Description

GPS/GLONASS/BEIDOU/Galileo/QZSS External Active Antenna with Low Noise Amplifier, it's ideal for high accuracy marine and outdoor application.

2. System block diagram

This antenna system consists of two functional blocks, the LNA portion and the patch antenna



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3. Overall Performance (Antenna Element & Cable)

3.1 ELECTRICAL SPECIFICATIONS

Input Voltage	Min:1.8 V	Typ: 3.0V	Max:5.5V

3.2 CABLE & CONNECTOR

RF Cable	RF Coaxial Cable,ψ4.9± 0.2mm, Total cable L= 1.5M+/- 30 mm
RF Connector	N TYPE(M)

3.3 ENVIRONMENTAL CONDITIONS

Operation Temperature	-40℃ to + 85℃
Storage Temperature	-40℃ to + 105℃
Relative Humidity	40% to 95%

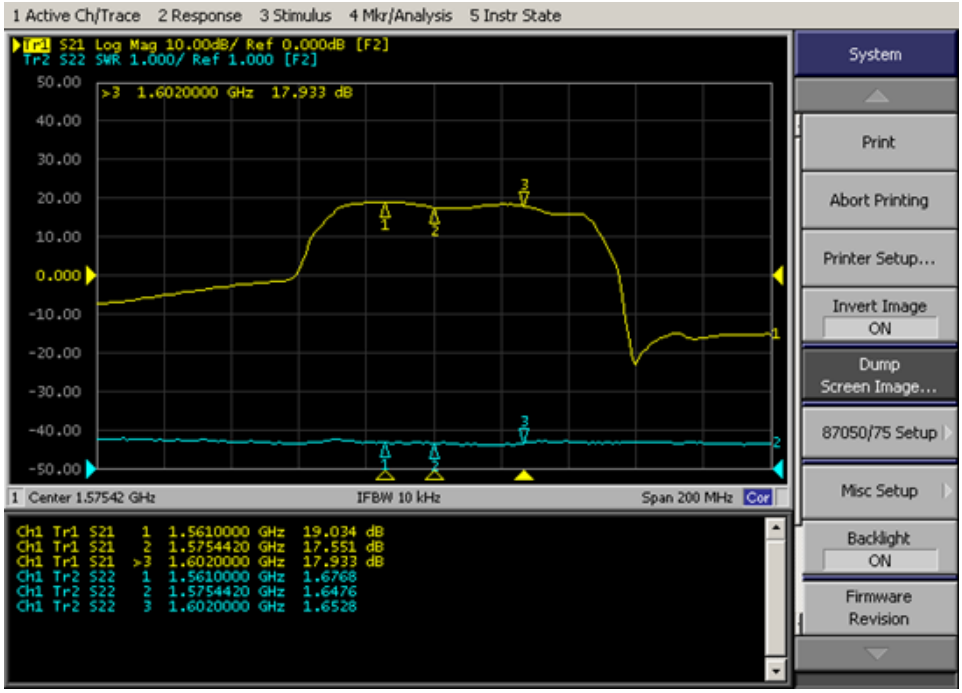
4. ANTENNA SPECIFICATIONS

Antenna Dimensions	35mm*35mm*3mm
Frequency Range	1559~1610 MHz.
Gain	1561MHz: 2.5 dBic Typ. @zenith
	1575.42MHz: 2.0 dBic Typ. @zenith
	1602MHz: 4.0 dBic Typ. @zenith
Polarization	RHCP

5. LNA SPECIFICATIONS

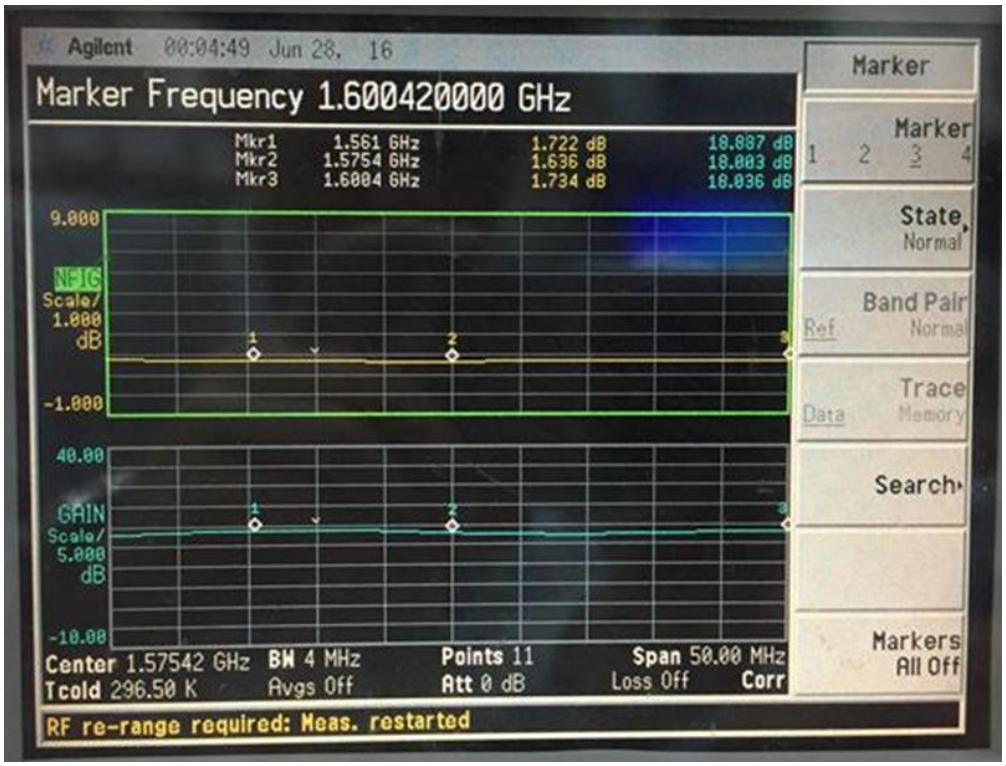
Frequency Range	1559~1610 MHz.		
Output Impedance	50Ω		
Output VSWR	2.0 Max		
LNA Gain, Power Consumption and Noise Figure			
Voltage	LNA Gain(Typ)	Power Consumption(mA) Typ	Noise Figure(Typ)
Min 1.8V	10dB	5mA	1.7dB
Typ 3.0V	15dB	10mA	1.7dB
Max 5.5V	20dB	23mA	1.9dB

LNA Gain and VSWR:



LNA Gain and VSWR @3.0V

LNA Noise Figure:



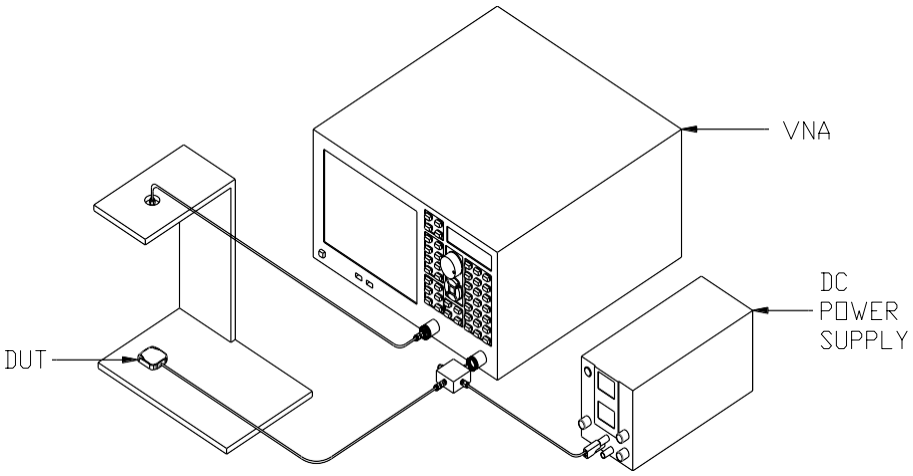
LNA Noise Figure @3.0V

6. TOTAL TEST SPECIFICATIONS (Through Antenna, LNA, Cable and Connector)

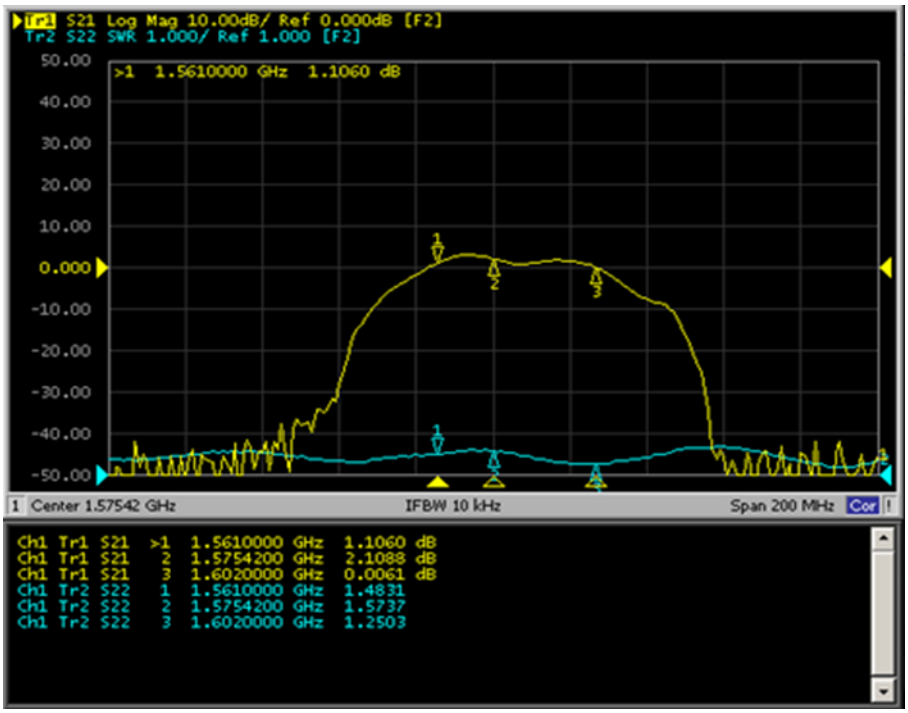
Frequency Range	1559~1610 MHz
Radiation Gain Test	1561.098MHz: S21> -4 dB
	1575.42MHz: S21> -3 dB
	1602MHz: S21> -5 dB
Output VSWR	1561.098MHz: S22< 2.0
	1575.42MHz: S22< 2.0
	1602MHz: S22< 2.0
Output Impedance	50Ω

7. Radiation Test Setup And Measurement

7.1 GPS/GLONASS/BEIDOU Radiation Test Setup And Measurement



7.2 Typical GPS/GLONASS/ BEIDOU Radiation Measurement Graphics.@3.0V

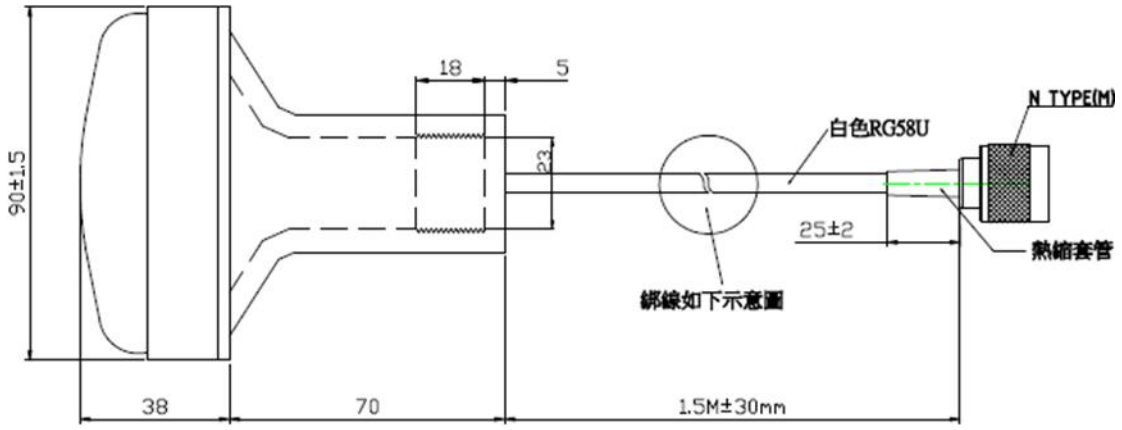


8. CAUTIONS

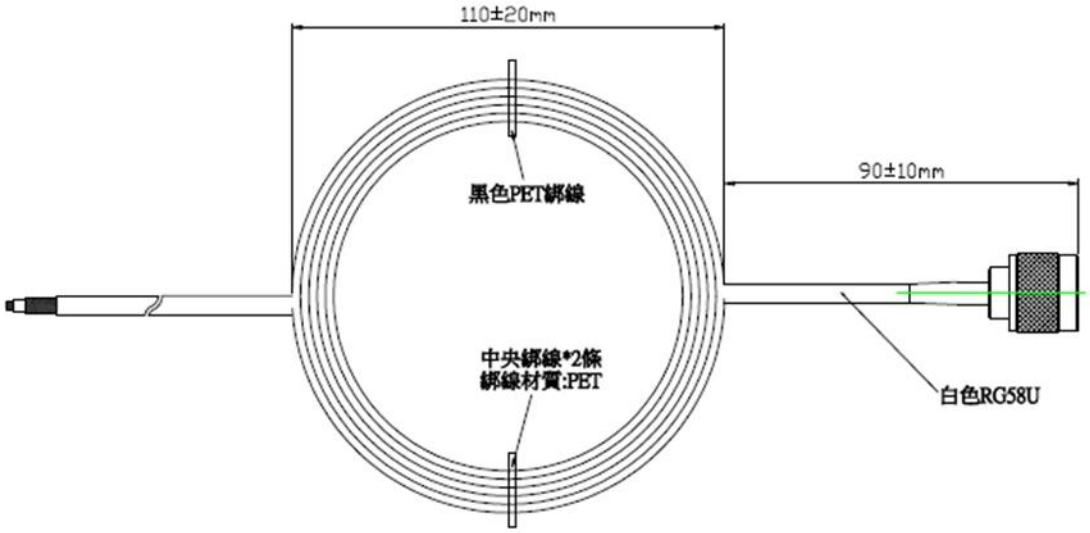
GPS/GLONASS/BEIDOU is a satellite-based navigation system. In an unobstructed clear view of the sky, that are works anywhere in the world, 24 hours a day.

GPS/GLONASS/BEIDOU is developed and operated by the government of United States. Under the policy of the government, the degradation in accuracy shall occur without prior warnings, and sometimes satellites don't transmit signal due to adjustment, test, and orbital revision.

9. OUTLINE



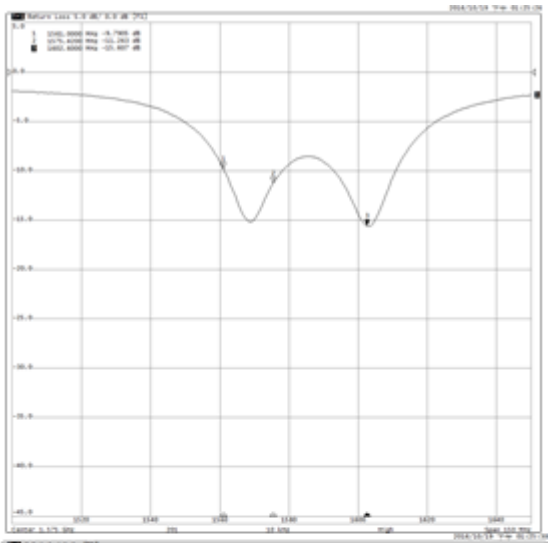
註:未標示公差為±1.5

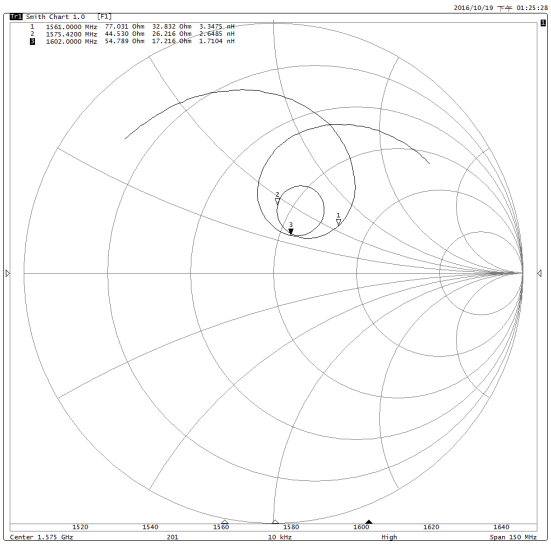


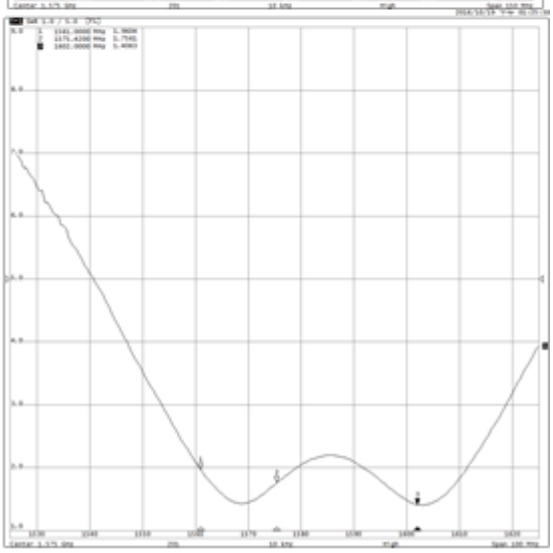
綁線示意圖

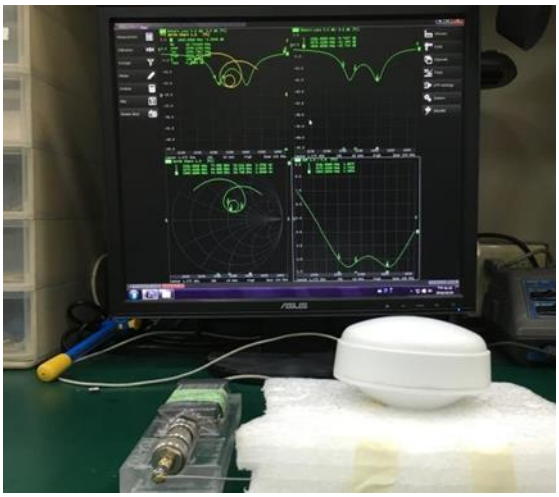
Unit:mm

10. DA35 in Housing S11 Return Loss & Smith Chart Measure



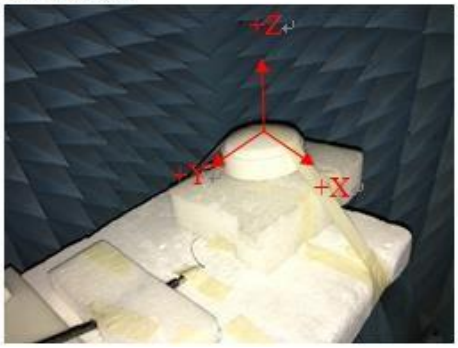




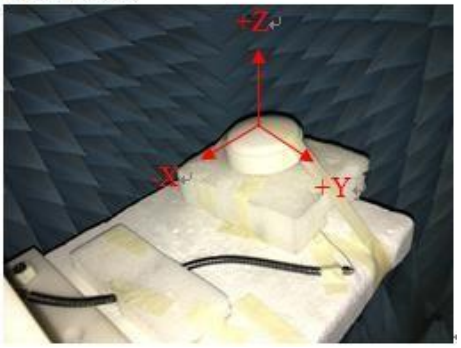


	Return Loss	Impedance	VSWR
1561 MHz	-9.79 dB	77.03 +j32.83Ohm	1.96
1575.42 MHz	-11.26 dB	44.53 +j26.21Ohm	1.73
1602.6 MHz	-15.60 dB	54.78 +j17.21Ohm	1.40

XZ-Plane

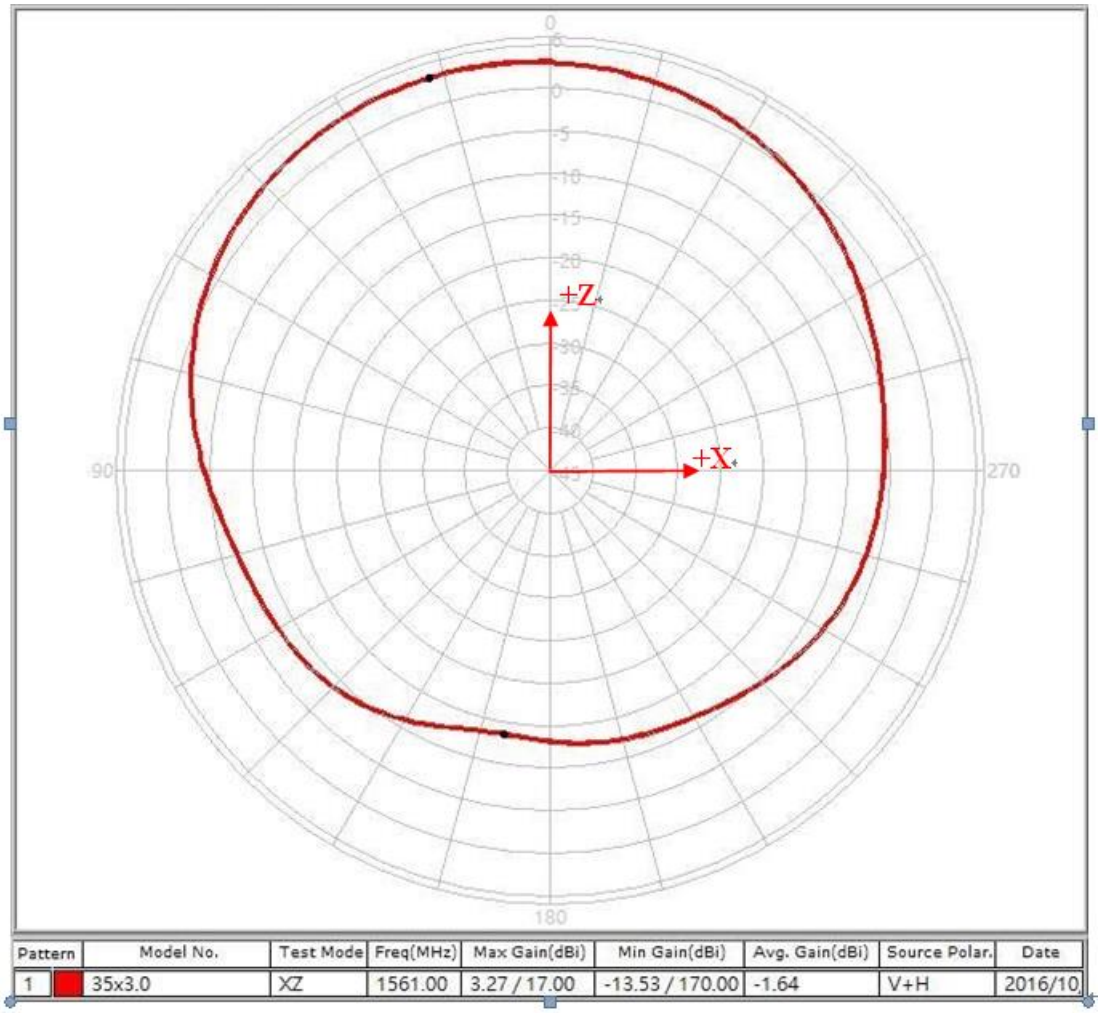


YZ-Plane



11. ANTENNA PATTERN

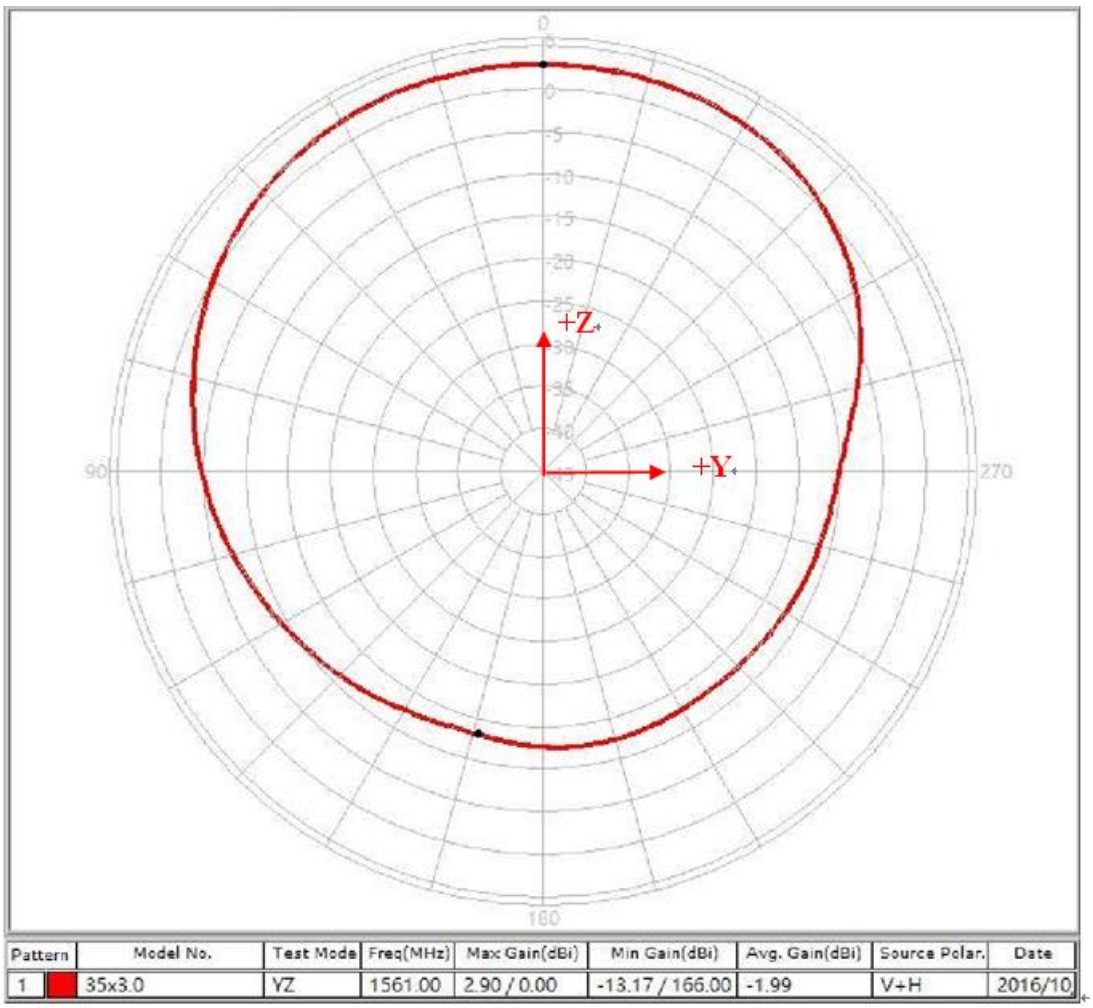
DA35 XZ-Plane 1561MHz



1575.42 MHz	Peak Gain	Zenith Gain
V+H	3.27	3.10

(dBic)

DA35 YZ-Plane 1561MHz

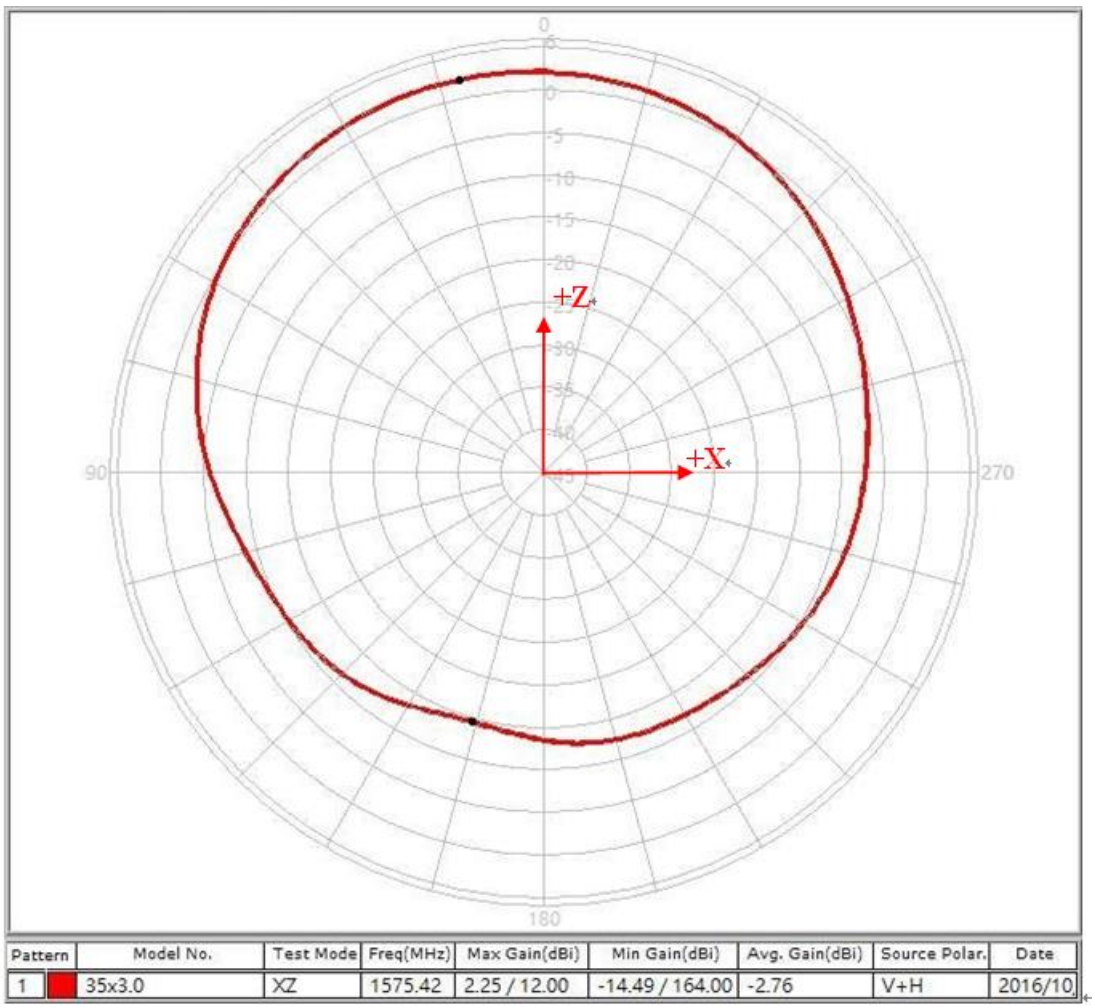


Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	35x3.0	YZ	1561.00	2.90 / 0.00	-13.17 / 166.00	-1.99	V+H	2016/10

1575.42 MHz	Peak Gain	Zenith Gain
V+H	2.9	2.9

(dBic)

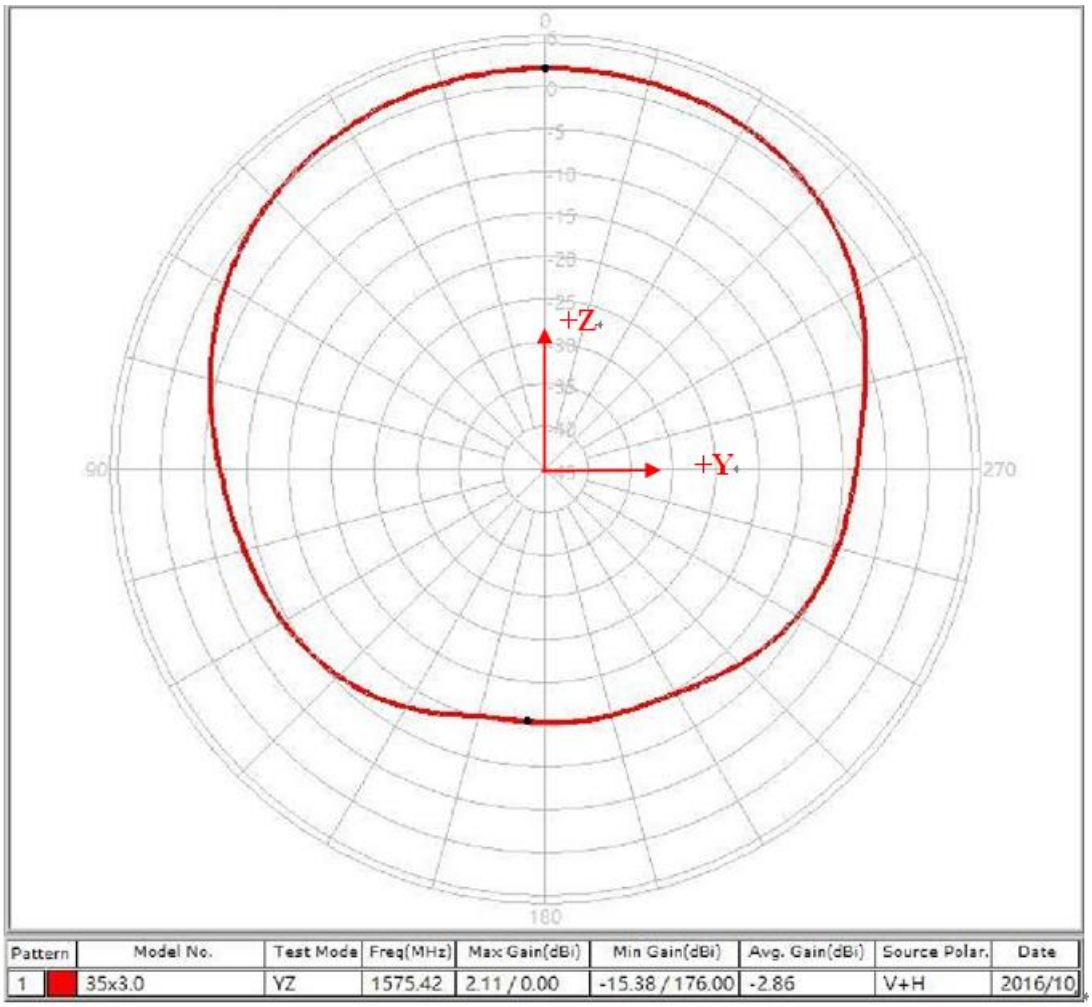
DA35 XZ-Plane 1575.42MHz



1575.42 MHz	Peak Gain	Zenith Gain
V+H	2.25	2.16

(dBic)

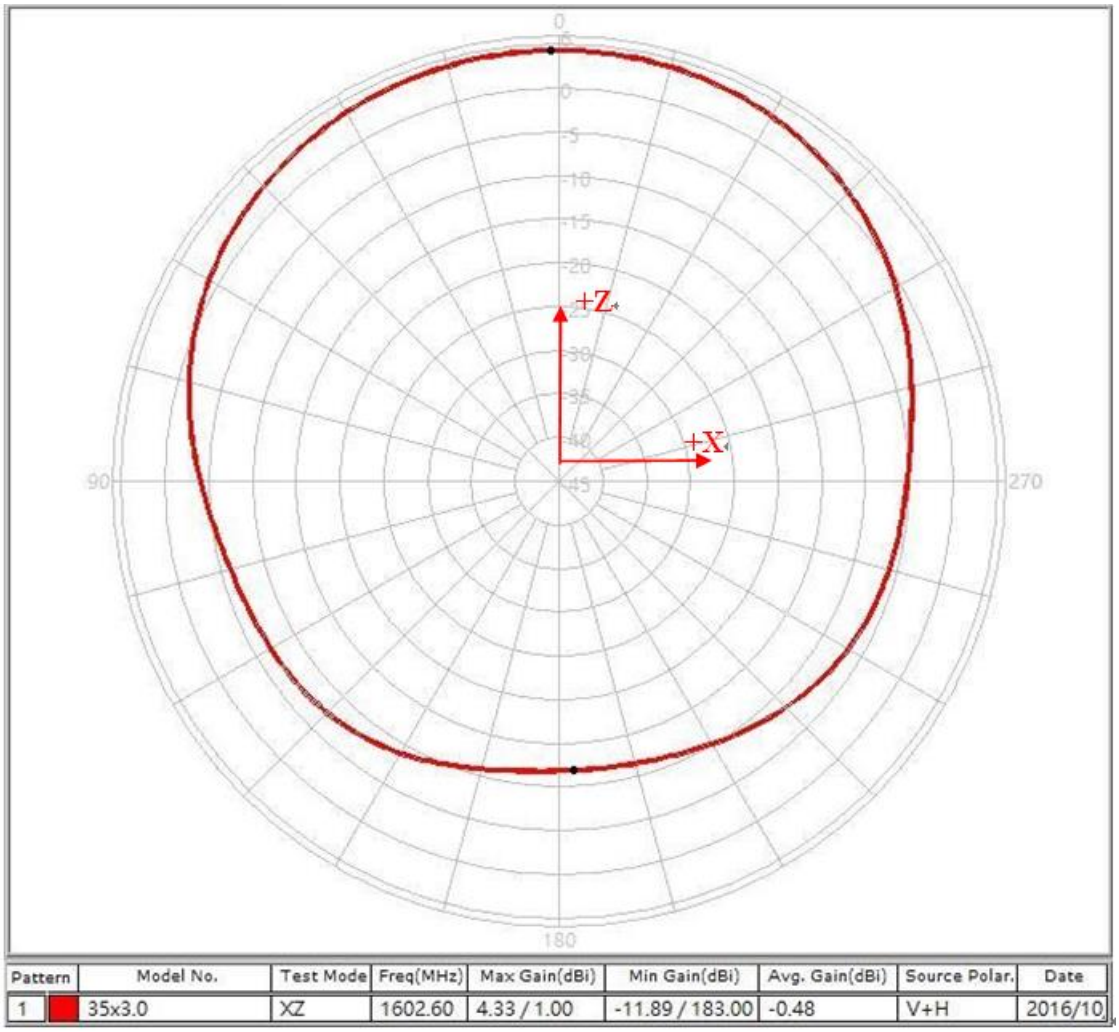
DA35 YZ-Plane 1575.42MHz



1575.42 MHz	Peak Gain	Zenith Gain
V+H	2.11	2.11

(dBic)

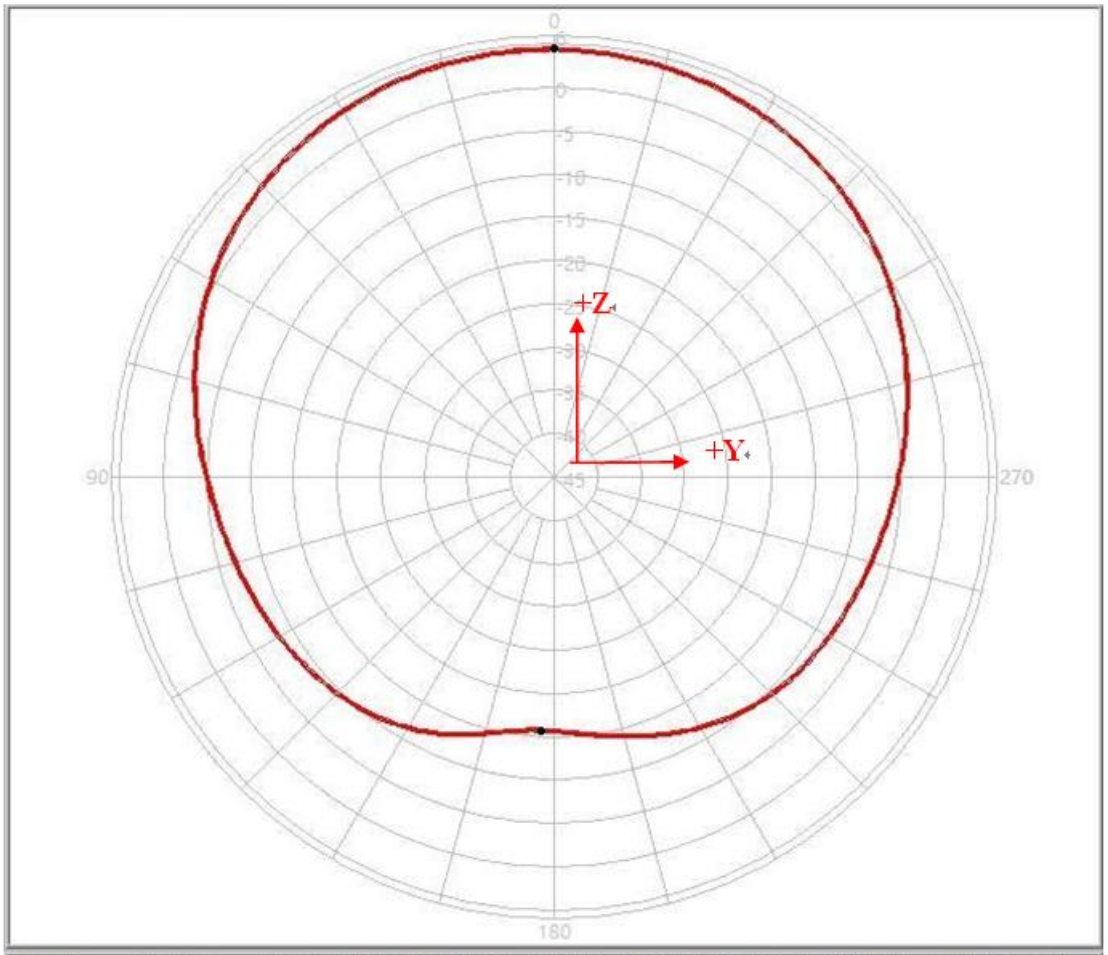
DA35 XZ-Plane 1602MHz



1602 MHz	Peak Gain	Zenith Gain
V+H	4.33	4.33

(dBic)

DA35 YZ-Plane 1602MHz



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	35x3.0	YZ	1602.60	4.43 / 0.00	-15.71 / 177.00	-0.67	V+H	2016/10

1602 MHz	Peak Gain	Zenith Gain
V+H	4.43	4.43

(dBic)