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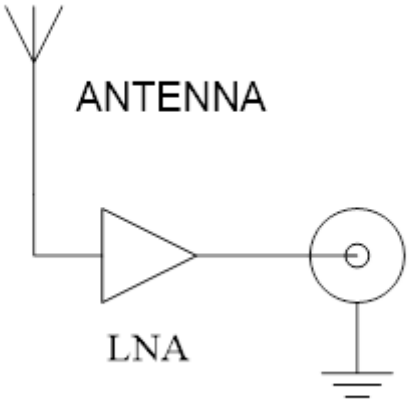
sales@golledge.com
www.golledge.com

Golledge Electronics Ltd
Eaglewood Park, ILMINSTER
Somerset, TA19 9DQ, UK

Antenna with low noise amplifier 1558-1610MHz **Model: GBNBA-104H**
Part No: MP11490 **Rev. No: 2**

1. SYSTEM:

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



2. GENERAL:

2.1 Environmental Conditions

2.1.1	Operation Temperature	-40°C to +85°C
2.1.2	Storage Temperature	-40°C to +105°C
2.1.3	Relative Humidity	40% to 95%

2.2 Electrical Specifications

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

2.3 Cable & Connector

2.3.1	RF Cable	RF Coaxial Cable, Ø1.13 ±0.1mm, (Color: GRAY) L = 69 ±2mm
2.3.2	RF Connector	I-PEX 20278-112R-13

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3. ANTENNA:

3.1	Antenna Dimensions	25mm x 25mm x 4mm
3.2	Frequency Range	1561.098 ±2.046MHz 1575.42 ±1.023MHz 1602 ±5MHz.
3.3	GAIN	1561MHz: -1dBi Typ. @zenith 1575.42MHZ:-2.5dBi Typ. @zenith 1602MHZ:-1.5 dBi Typ. @zenith
3.4	Polarization	RHCP

4. LNA:

4.1	Frequency Range		1558~1610MHz.	
4.2	Output Impedance		50Ω	
4.3	Outer Band Attenuation		1584 ±50MHz 13dB Min 1584 ±100MHz 20dB Min	
4.4	Pout at 1dB Gain Compression point		-6dBm Min. -2dBm Typ.	
4.5	Output VSWR		2.0 Max	
4.6	LNA Gain, Power Consumption and Noise Figure			
	Voltage	LNA Gain(Typ.)	Power Consumption(mA) Typ.	Noise Figure(Typ.)
	Min 1.8V	22dB	5mA	3.0dB
	Typ. 3.0V	28dB	10mA	2.8dB
	Max 5.5V	31dB	23mA	3.0dB

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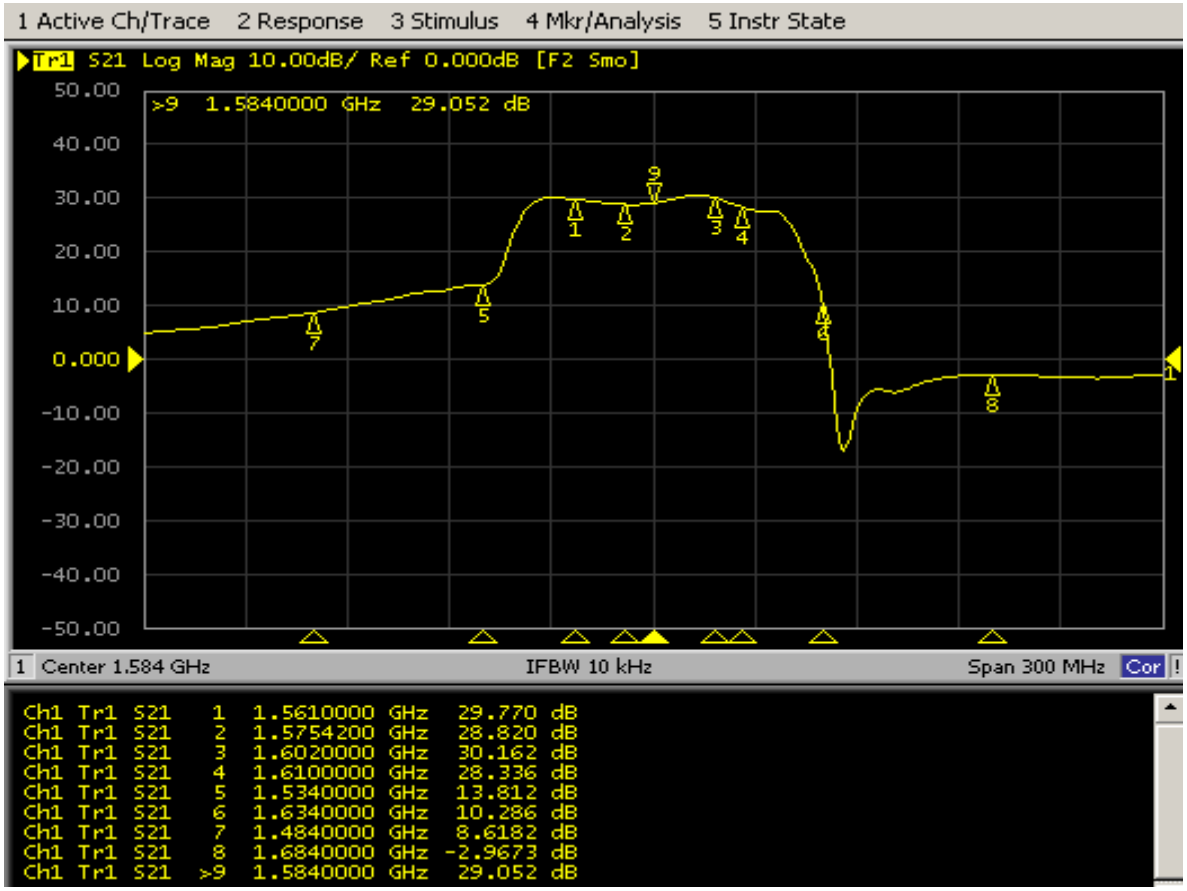
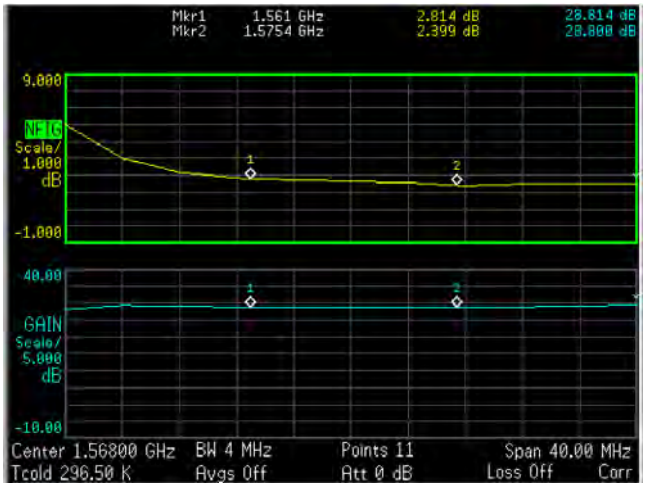
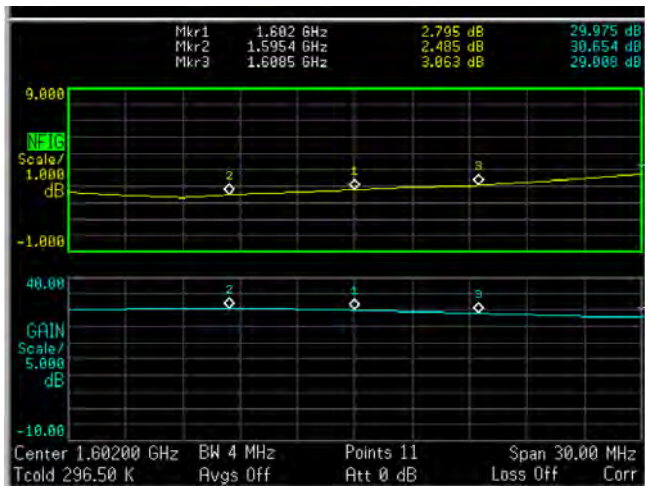
Part No: MP11490 **Rev. No: 2**



LNA Gain and Out Band Rejection @3.0V





LNA Noise Figure @3.0V

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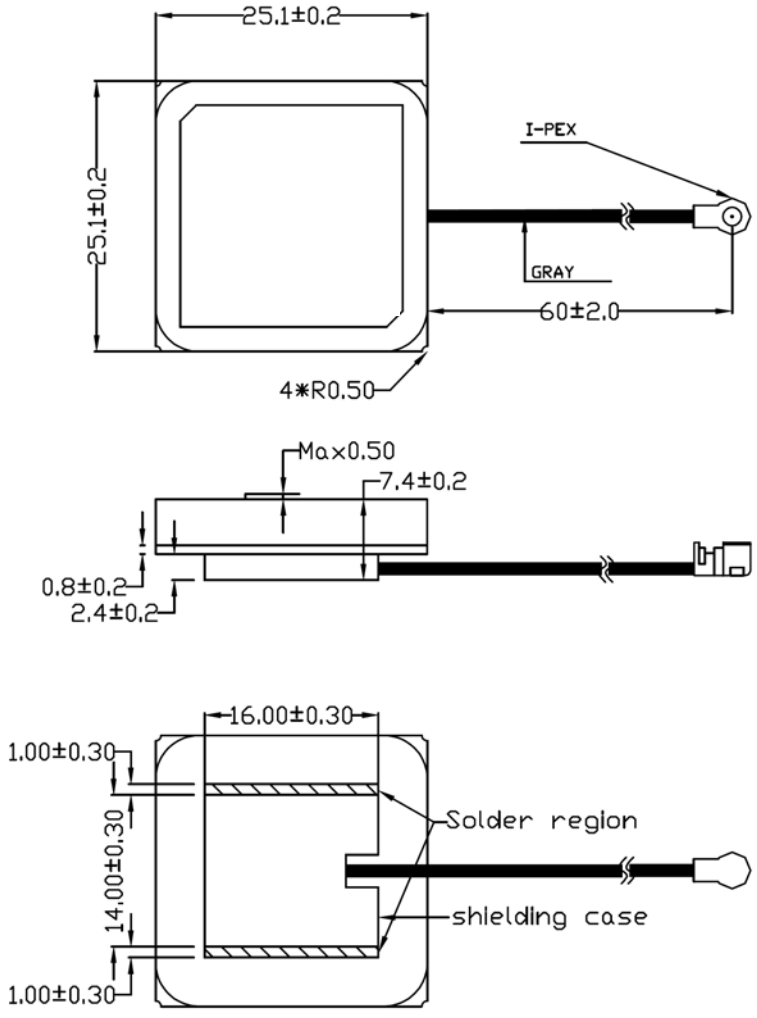
5. TOTAL SPECIFICATIONS (THROUGH ANTENNA, LNA):

5.1	Frequency Range	1574~1610MHz.
5.2	Gain	At 90° 1561MHz: 27±3dBi 1575.42MHz: 25.5±3dBi 1602MHz: 26.5±3dBi
5.3	Output Impedance	50Ω

6. OUTLINE:



unit:mm

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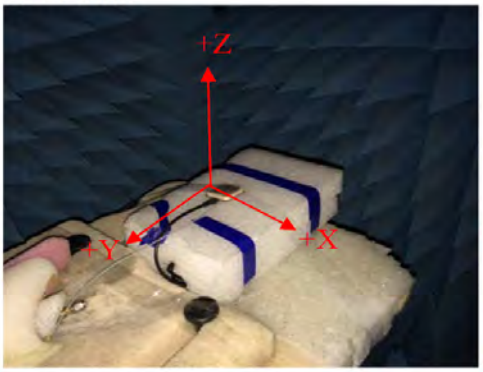
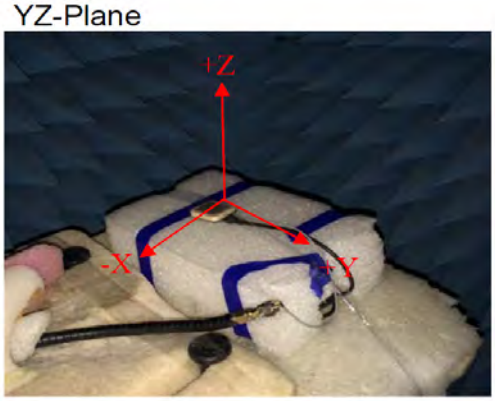
7. RADIATION PATTERNS:

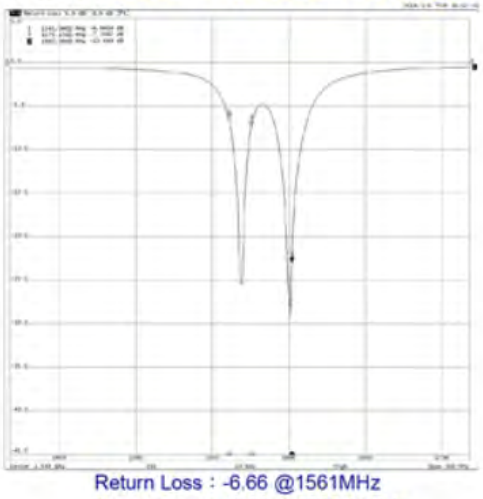
XZ-Plane



YZ-Plane

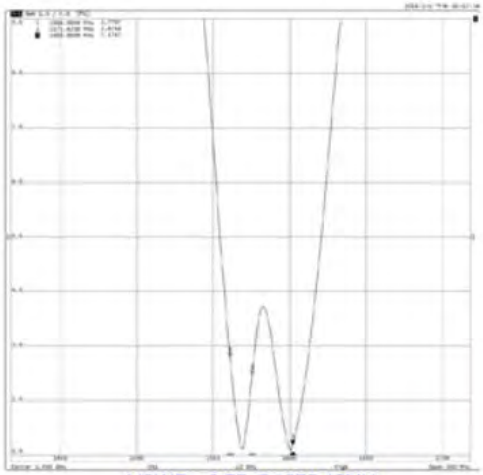


DA25 In GGB-1、GGB-2 Housing S11 Return Loss & Smith Chart Measure

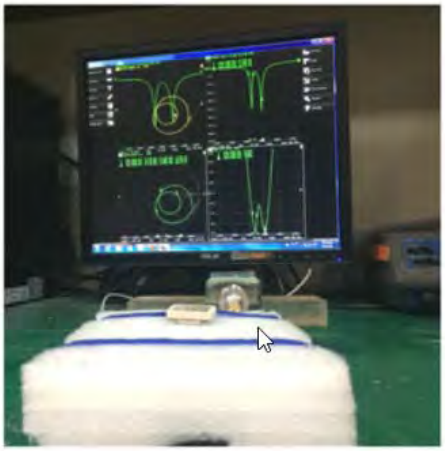


Return Loss : -6.66 @1561MHz
Return Loss : -7.39 @1575.42MHz
Return Loss : -23.04 @1602MHz

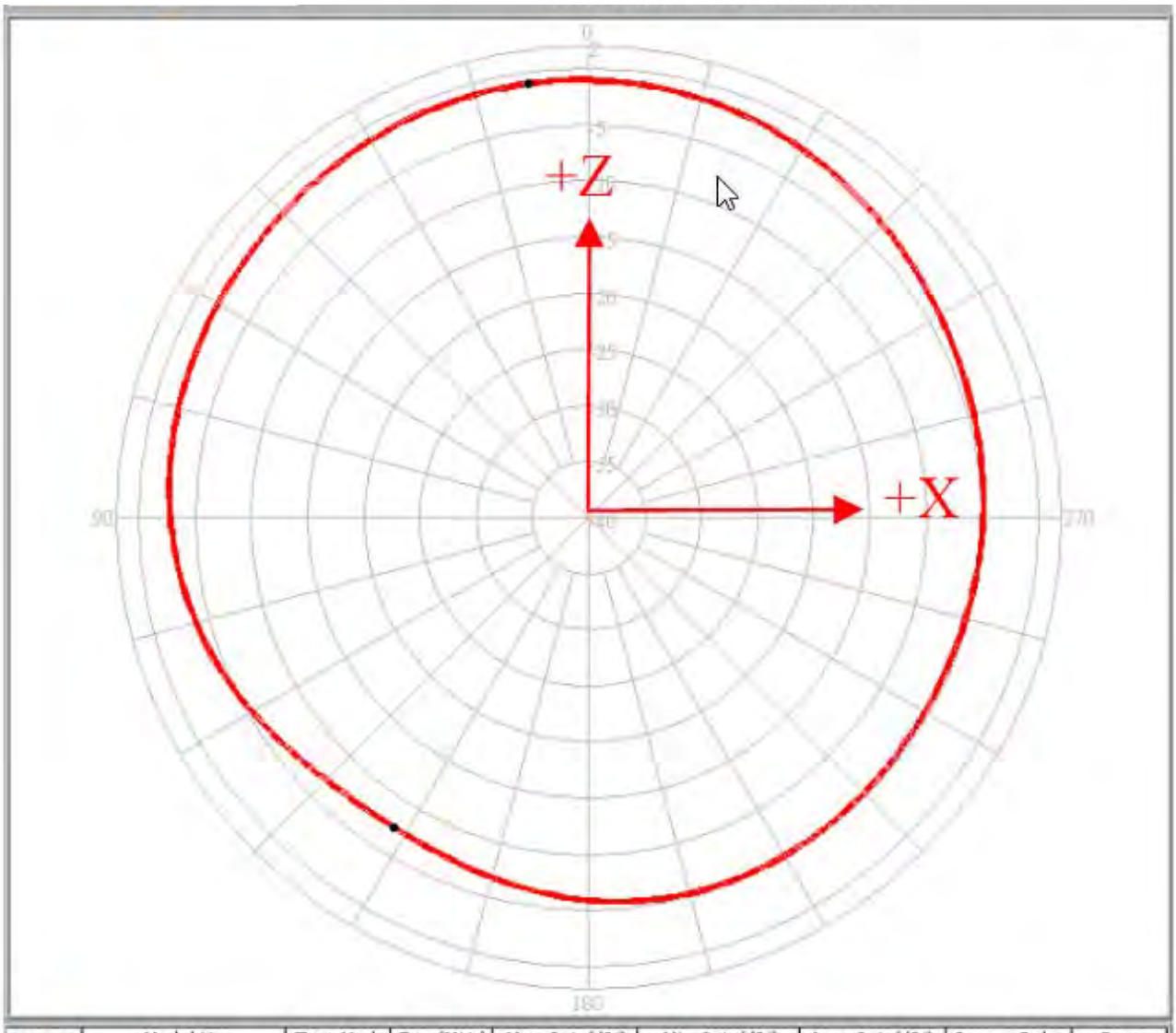
Impedance : 27.21 - j31.87 Ohm
Impedance : 123.83 - j 2.3- Ohm
Impedance : 50.12 + j7.80 Ohm



VSWR : 2.77 @1575.42MHz
VSWR : 2.47 @1575.42MHz
VSWR : 1.17 @1575.42MHz



8. ANTENNA PATTERN MEASUREMENT:



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	北斗+GPS+Glonass	XZ	1561.00	-0.99 / 8.00	-7.45 / 148.00	-3.52	V+H	2014/3/7

XZ-Plane@1561MHz

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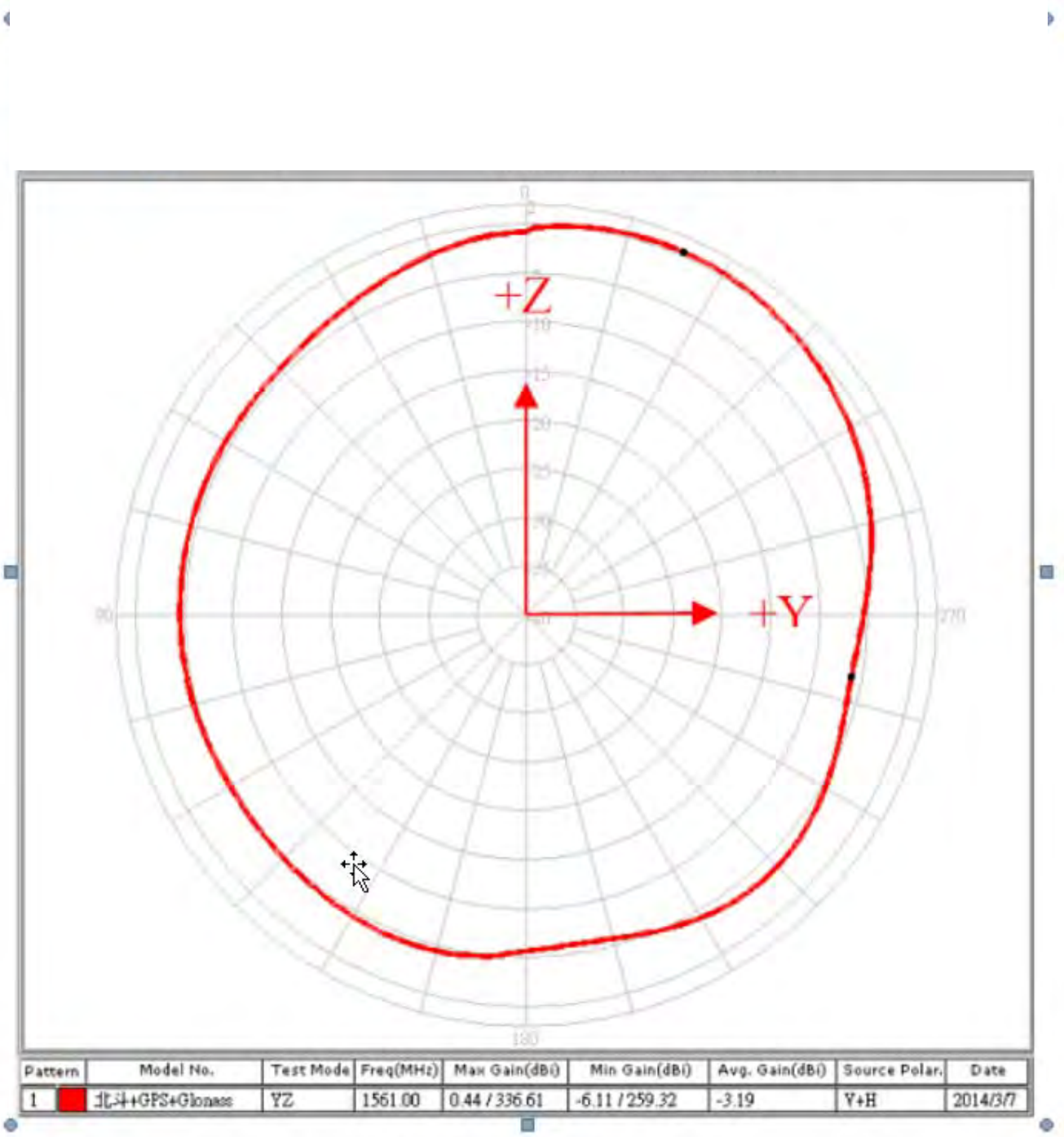

YZ-Plane@1561MHz

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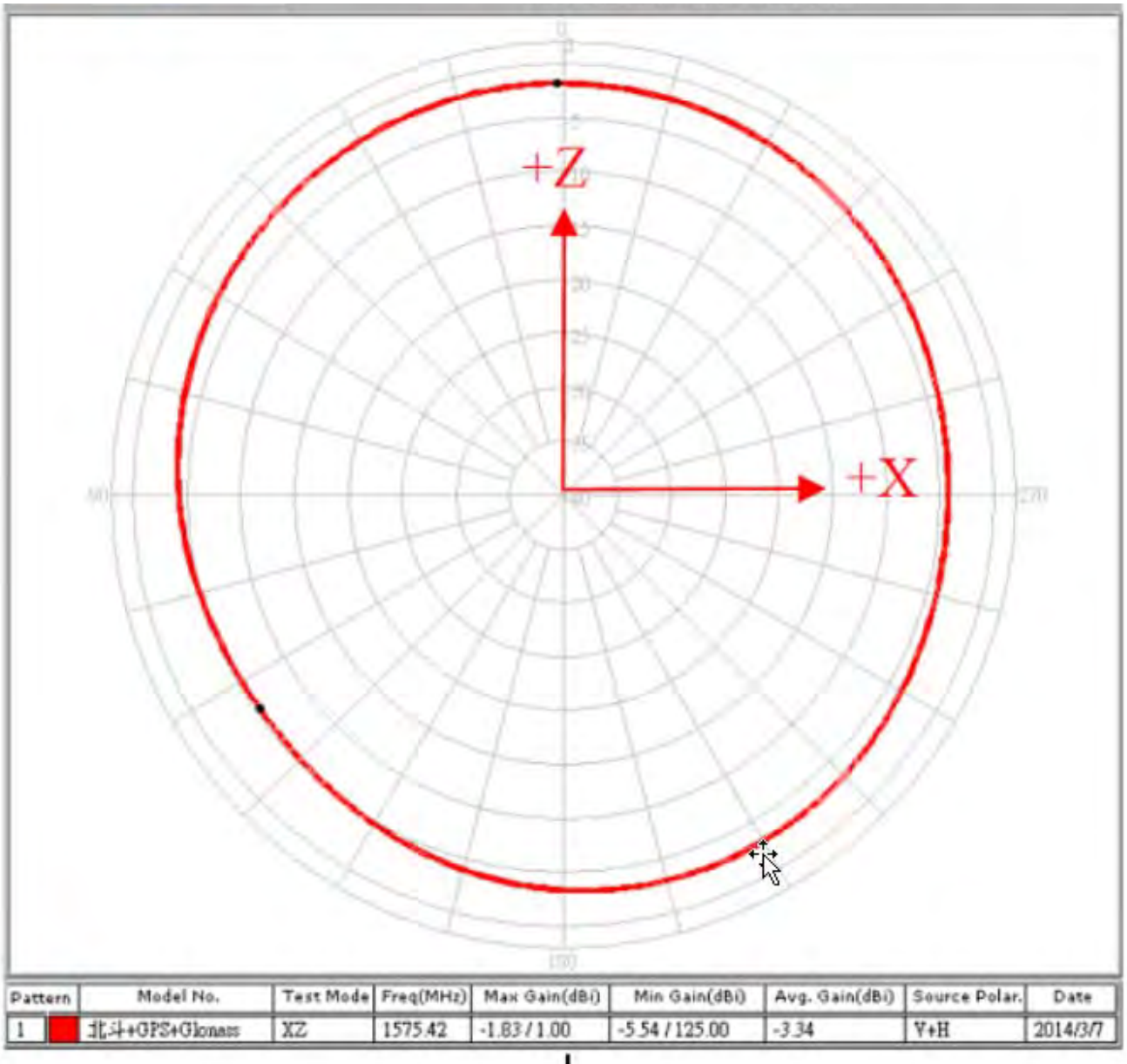

XZ-Plane@1575.42MHz

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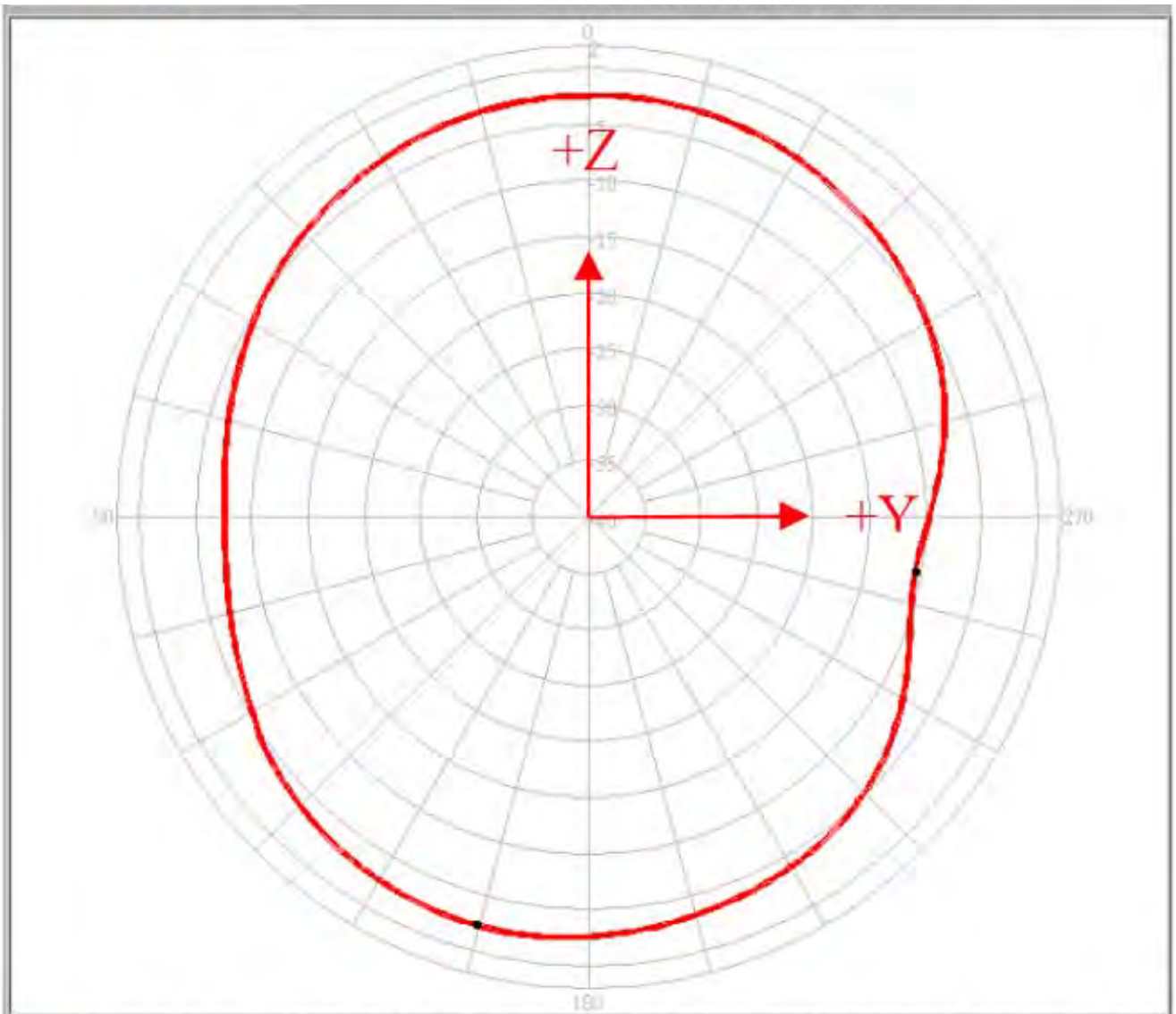

Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	北斗+GPS+Glonass	YZ	1575.42	-2.28 / 164.75	-10.53 / 260.34	-4.40	V+H	2014/3/7

YZ-Plane@1575.42MHz

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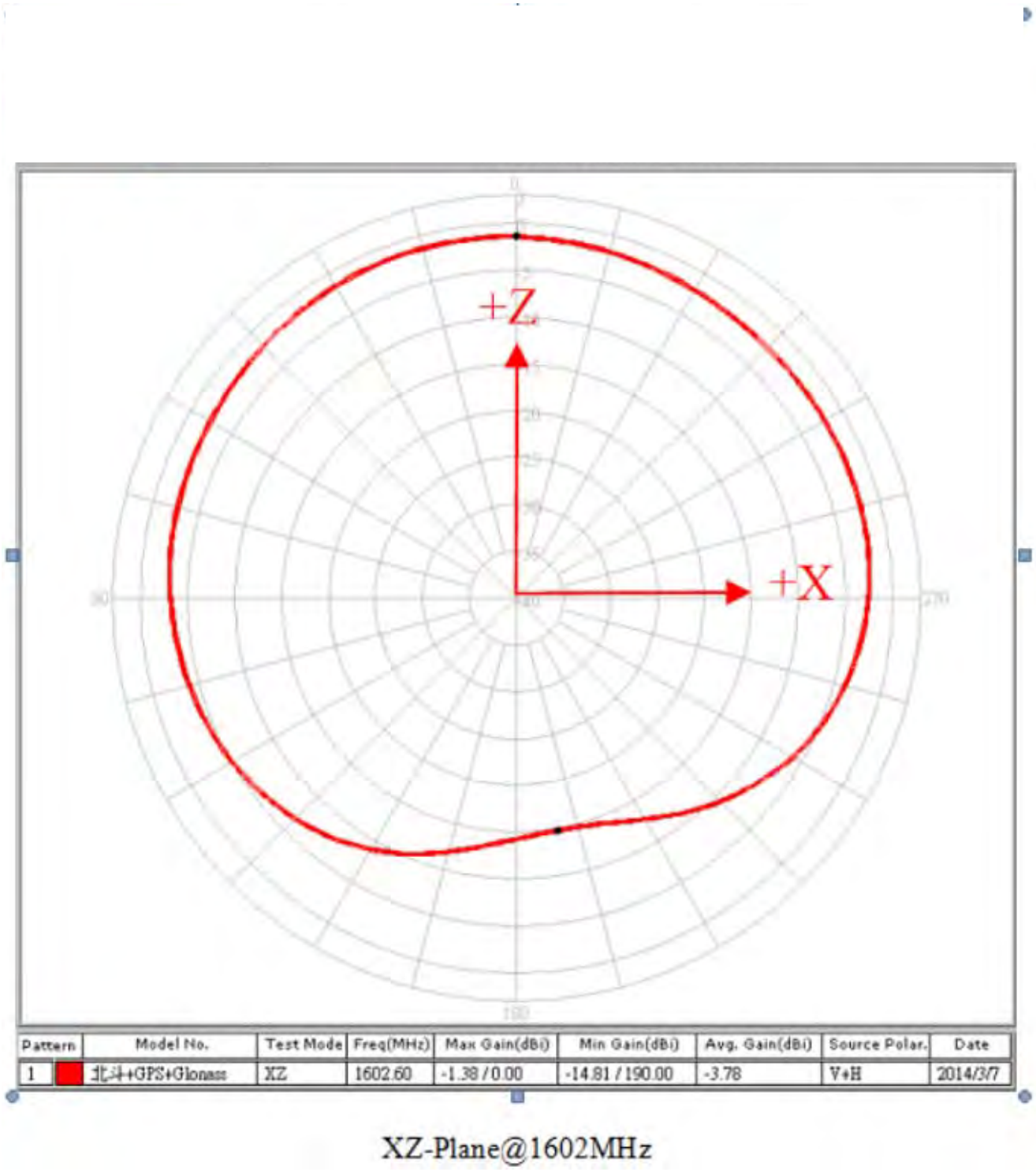

XZ-Plane@1602MHz

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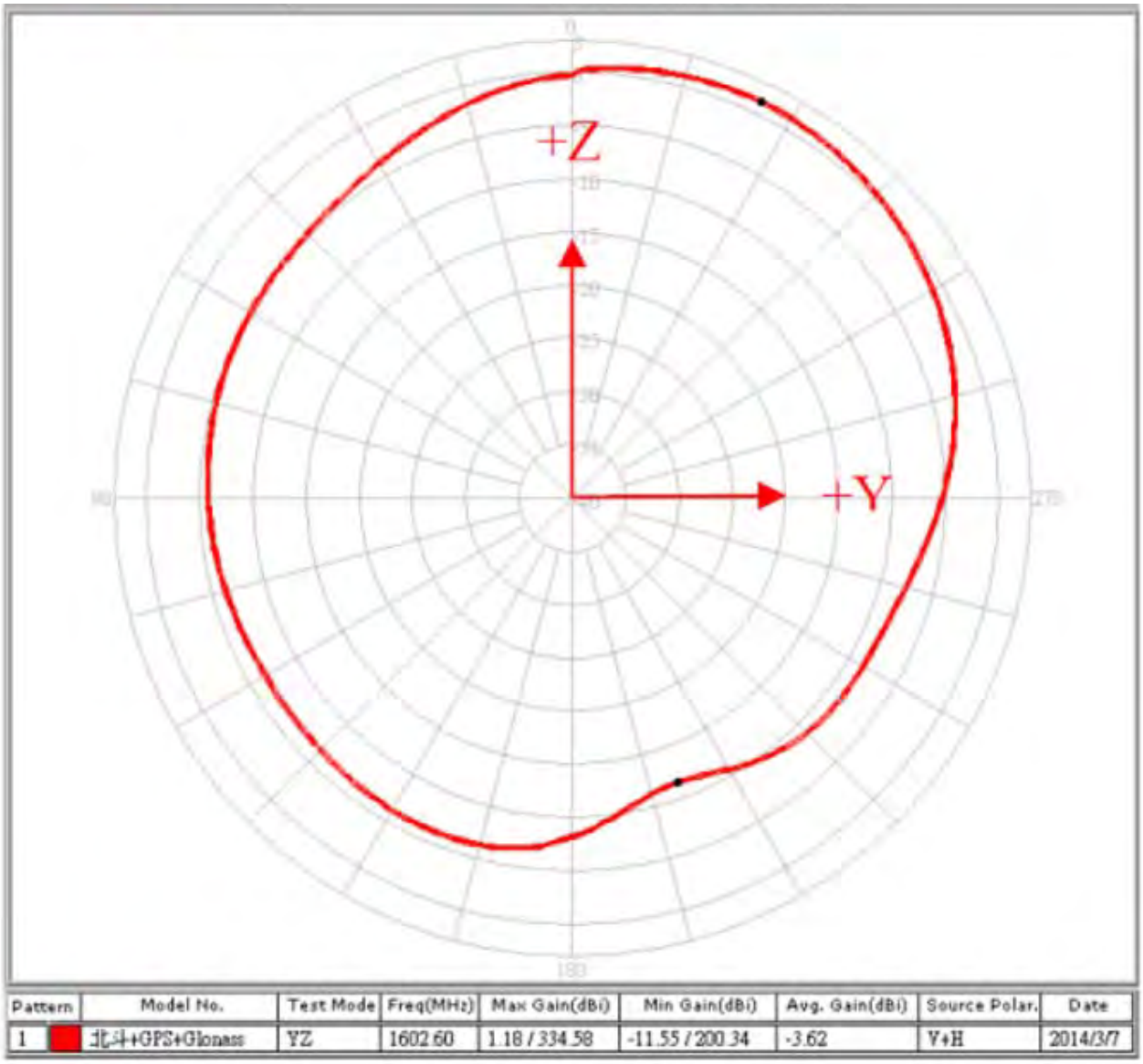

YZ-Plane@1602MHz

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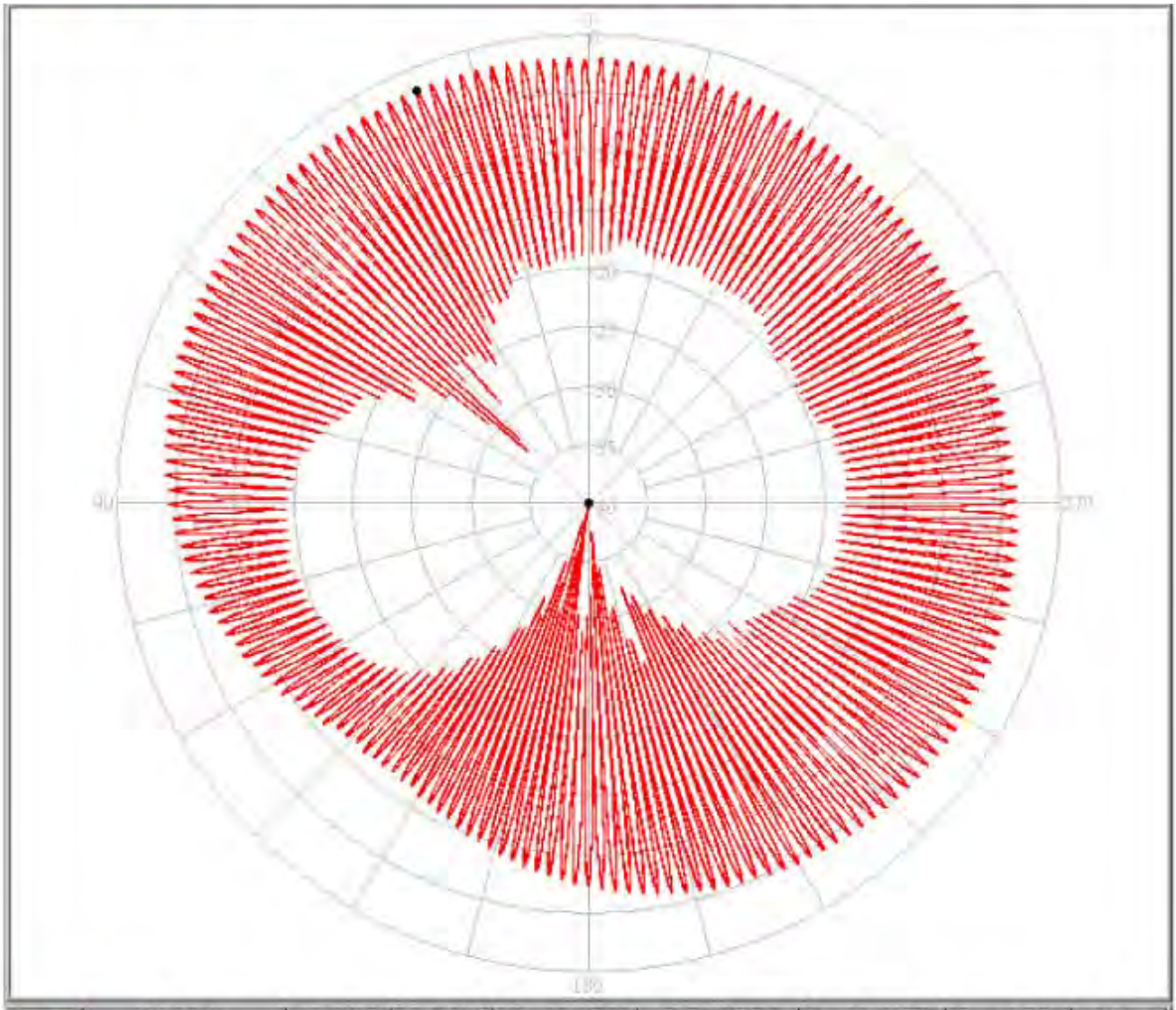

Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	北斗+GPS+Glonass	Axial-Ratio	1561.00	-1.98 / 22.54	-46.29 / 170.94	-7.17	CP	2014/3/6

Axial·Ratio@1561MHz¶

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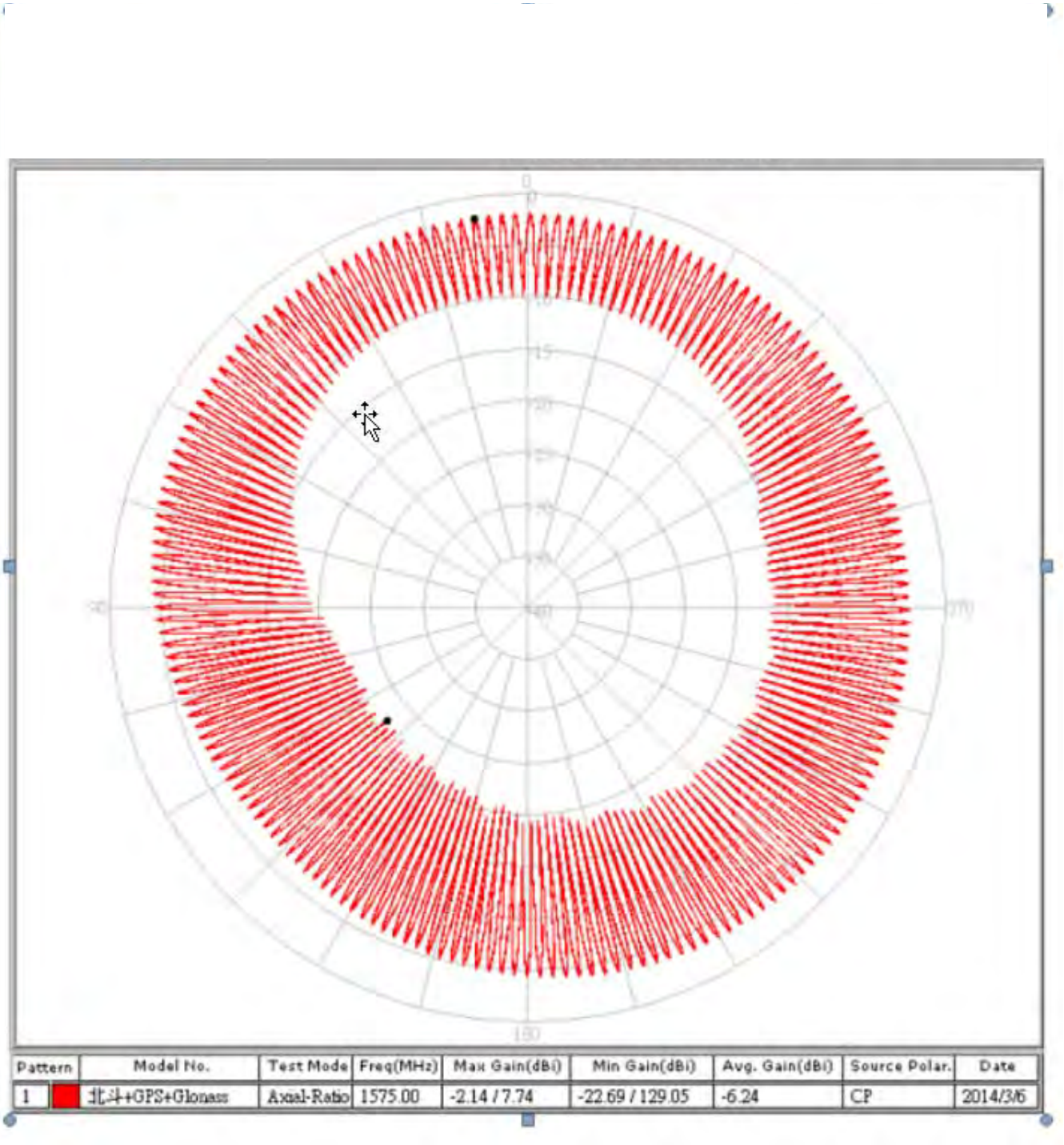

Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	北斗+GPS+Glonass	Axial-Ratio	1575.00	-2.14 / 7.74	-22.69 / 129.05	-6.24	CP	2014/3/6

Axial Ratio@1575MHz

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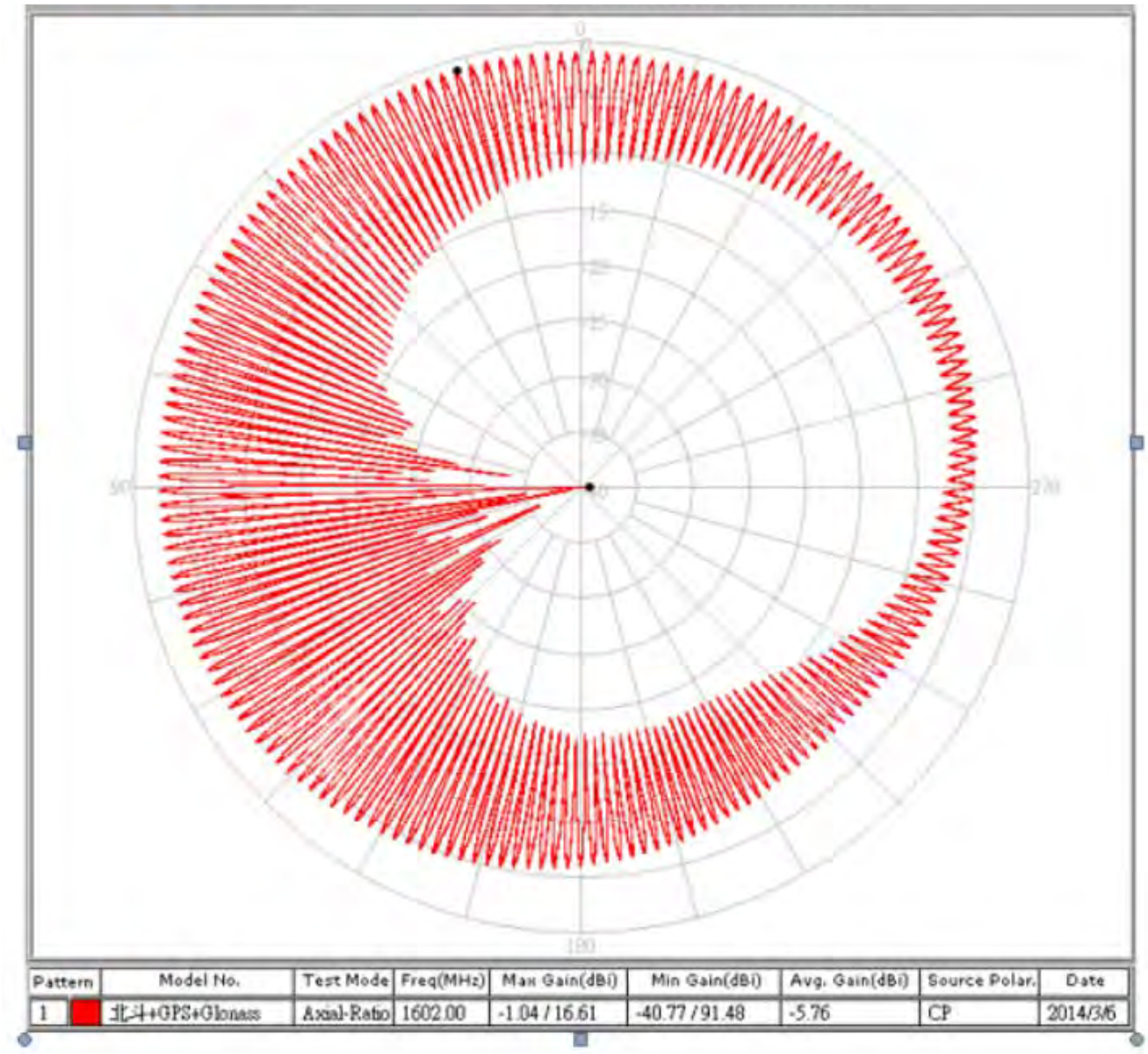
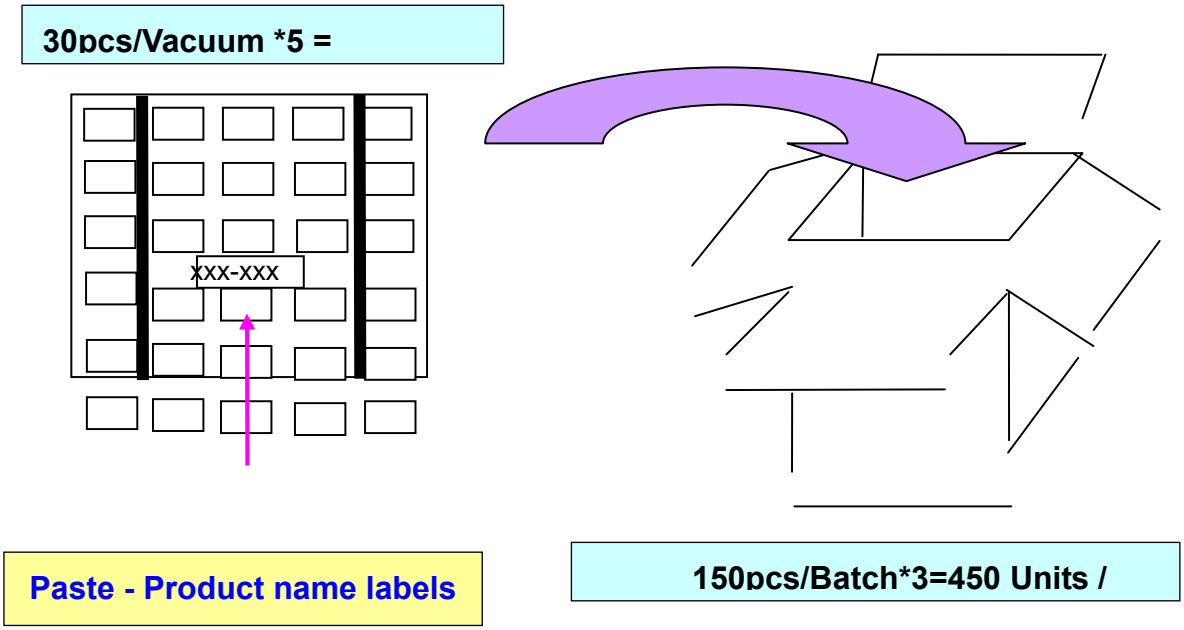


Axial Ratio@1602MHz

9. PACKAGE:

8.1 450 Units / Carton

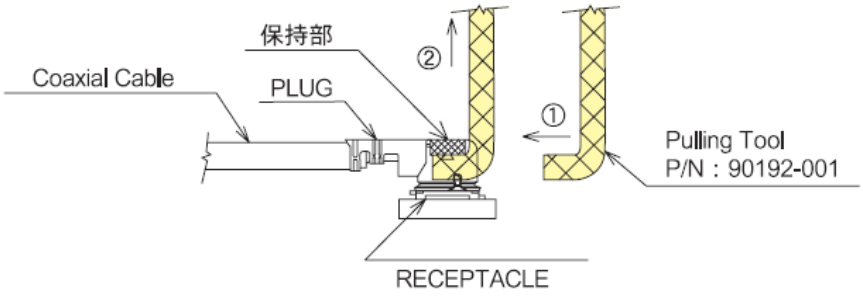


10. PLUGS USAGE PRECAUTIONS:

10.1 Mating / unmating

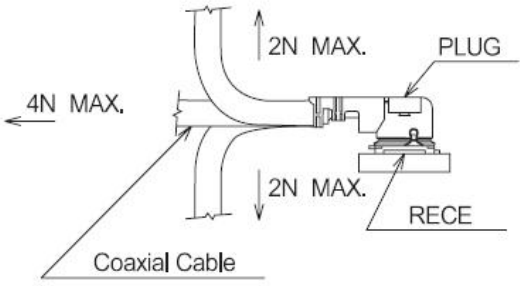
1. To disconnect connectors, insert the end portion of I-PEX under the connector flanges and pull off vertically, in the direction of the connector mating axis.

2. To mate the connectors, the mating axes of both connectors must be aligned and the connectors can be mated. The "click" will confirm fully mated connection. Do not attempt to insert on an extreme angle.



10.2 Pull forces on the cable after connectors are mated

After the connectors are mating, do not apply a load to the cable in excess of the values indicated in the diagram below.



11. TEST SETUP AND MEASUREMENT: