



APARC1807A-SG3



18.0 x 18.0 x 7.6 mm
RoHS/RoHS II Compliant
MSL = N/A: Not Applicable

Features

- Compact Multiband GNSS patch antenna
- GPS/GLONASS/BEIDOU support
- Active antenna with integrated LNA
- Low VSWR across bands
- RHCP polarization
- GND plane included with cable and IPEX connector

Applications

- GPS/GLONASS/Galileo/Beidou applications
- IoT
- M2M
- Remote technology monitoring
- Geofencing
- Surveying and mapping systems
- Logistics

Electrical Specifications

Parameters	BeiDou	GPS	GLONASS	Units	Notes
Operating Frequency	1561.098 ± 2.046	1575.420 ± 1.023	1602.000 ± 8.000	MHz	
VSWR	2.0				Max.
Gain	-6.5	-6.5	-6.0	dBi	Typ. @ Zenith
Impedance	50			Ω	
Polarization	RHCP				

LNA

Parameters	BeiDou	GPS	GLONASS	Units	Notes
Operating Frequency	1561.098 ± 2.046	1575.420 ± 1.023	1602.000 ± 8.000	MHz	
VSWR	2.0				Max.
Gain	28 ± 3	29 ± 3	27 ± 3	dB	Typ. 25°C ± 5 °C
Noise Figure	2.4	2.4	2.7		
Impedance	50			Ω	

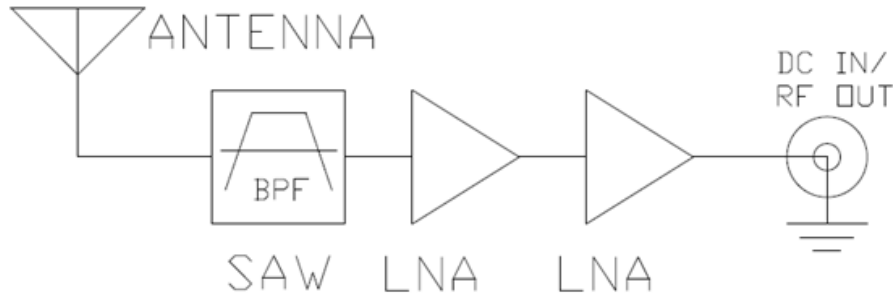


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System Set-up (Through Antenna, LNA, Cable, Connector)



Parameters	BeiDou	GPS	GLONASS	Units	Notes
Operating Frequency	1561.098 ± 2.046	1575.420 ± 1.023	1602.000 ± 8.000	MHz	
VSWR		2.0			Max.
Gain	21.5	22.5	21	dB	Typ. @ 90°
Impedance		50		Ω	
Input Voltage (DC)		1.8		V	Min.
		3.0			Typ.
		5.5			Max.

Mechanical Specification

Parameters	Description	Units	Notes
RF Cable	Ø1.13 ± 0.1, L = 68 ± 2	mm	Color : Gray
RF Connector	I-PEX		

Environmental Specification

Parameters	Description
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +90°C
Relative Humidity	40% to 95%

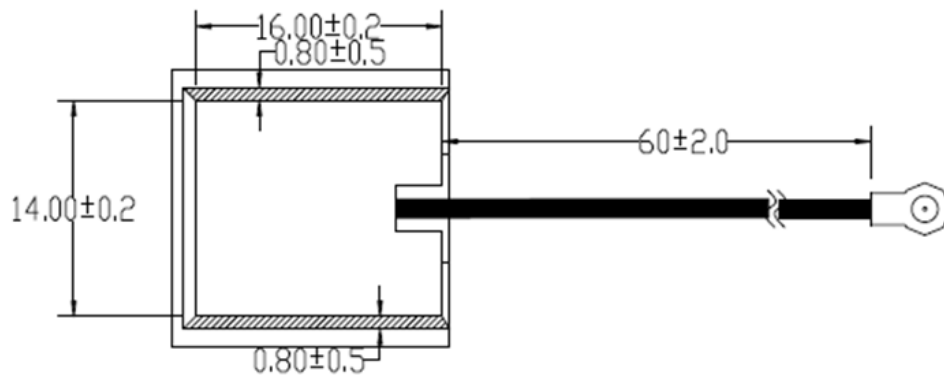
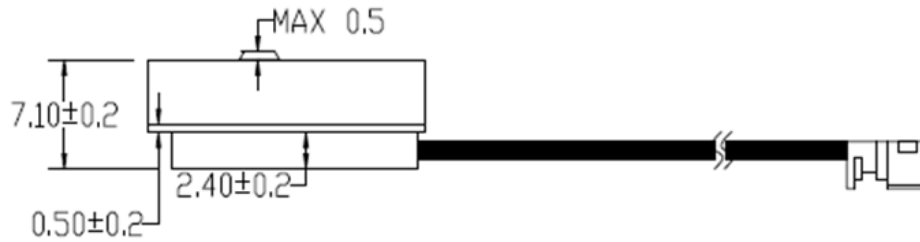
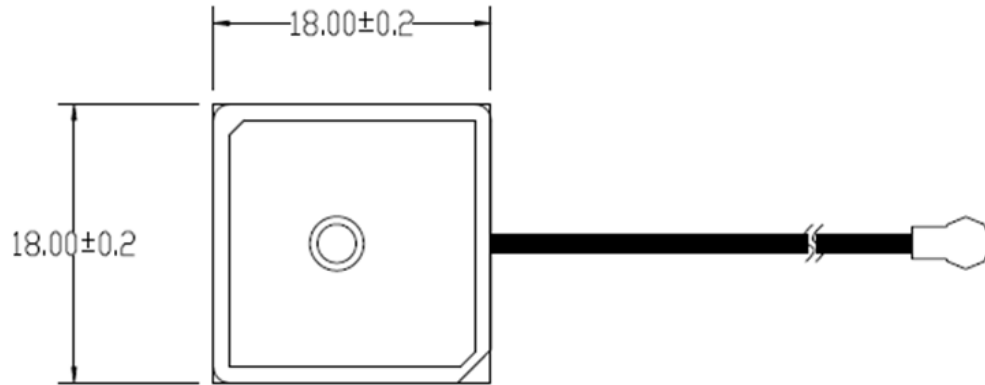


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Product Dimensions



unit: mm

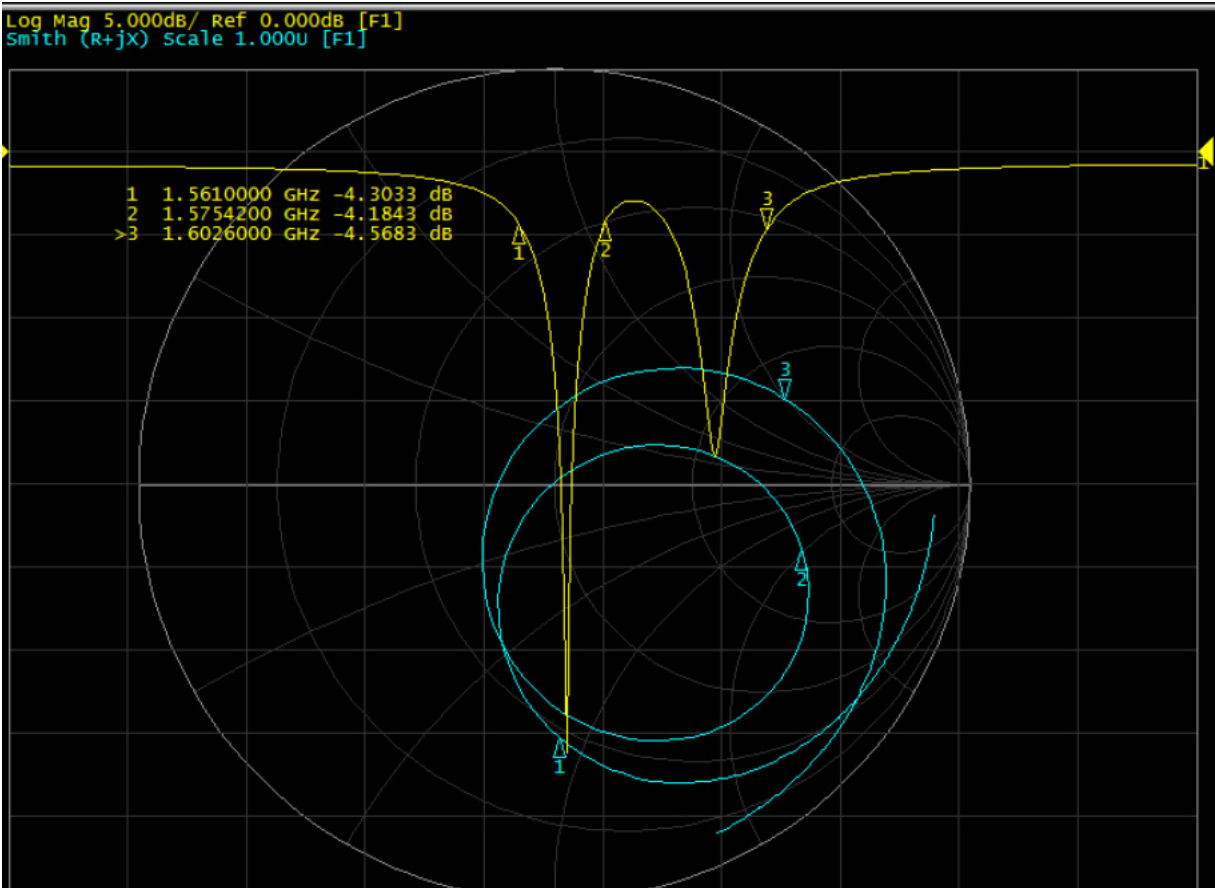


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Return Loss and Impedance Characteristics - Antenna



Frequency (MHz)	Return Loss (dB)
1561.00	-4.30
1575.42	-4.18
1602.60	-4.56

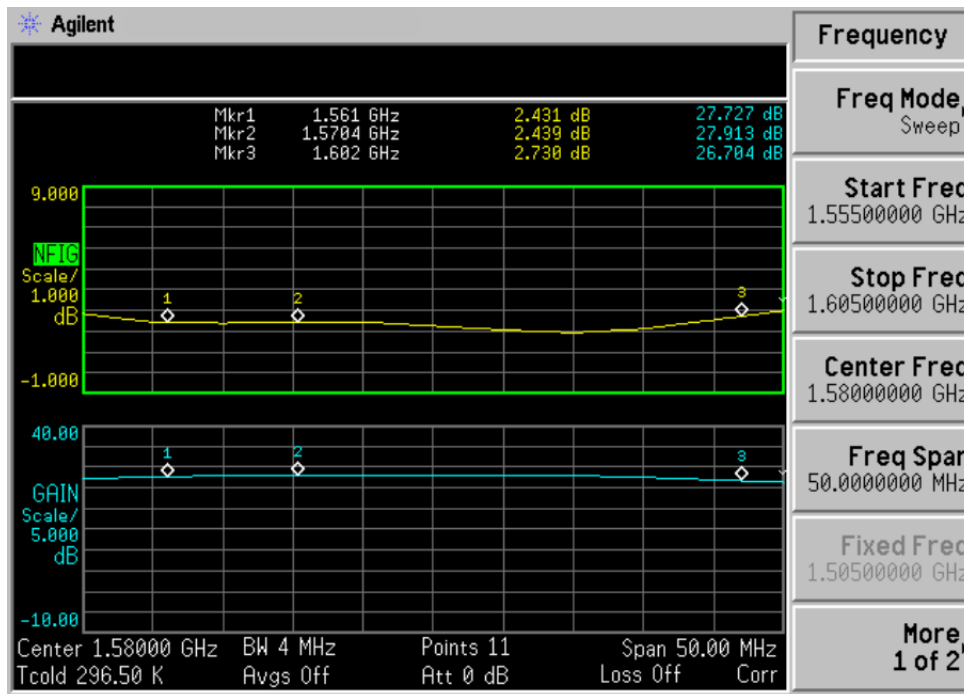
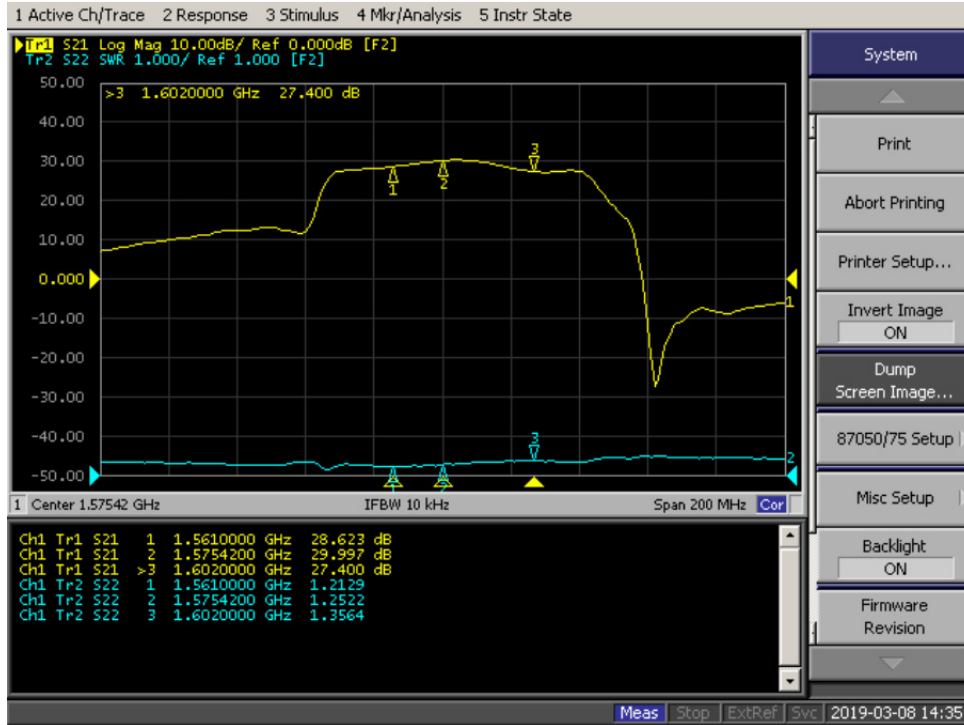


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Gain and Noise Figure - LNA





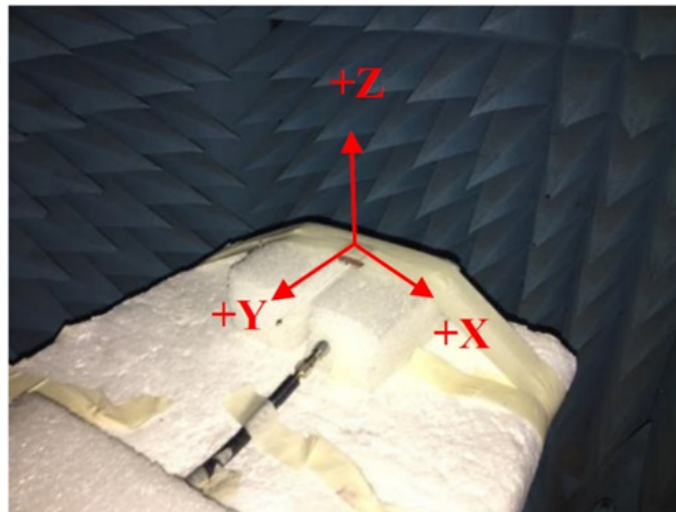
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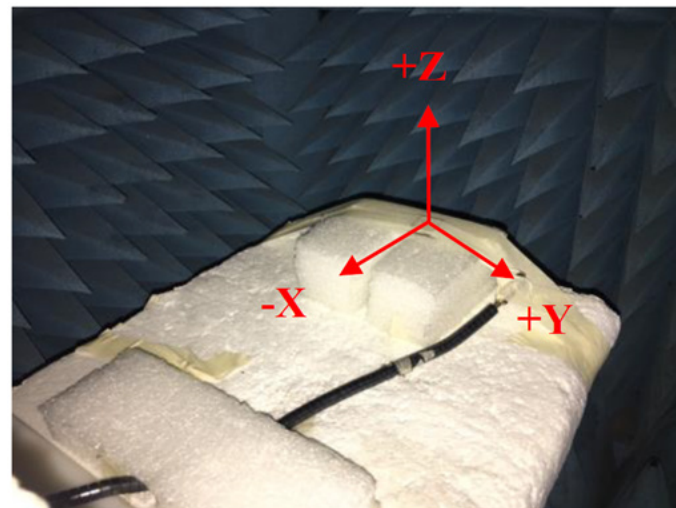
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Radiation Pattern

XZ - Plane



YZ - Plane





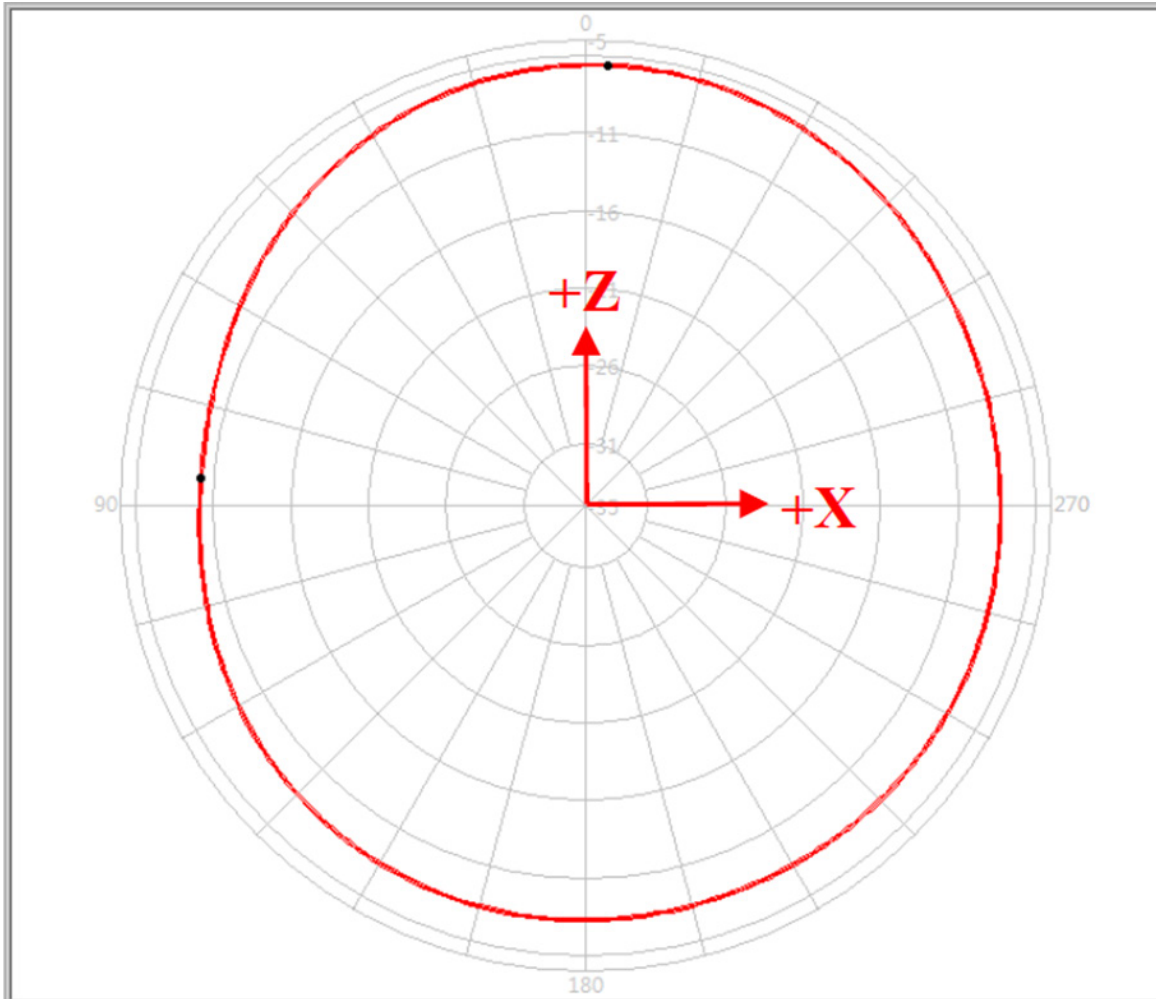
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Radiation Pattern

BeiDou : 1561 MHz
 XZ – Plane
 Gain : Peak = -6.59 dBi,
 Zenith = -6.61 dBi



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	V1	XZ	1561.00	-6.59 / 357.00	-10.14 / 86.00	-8.14	V+H	2019/3/1



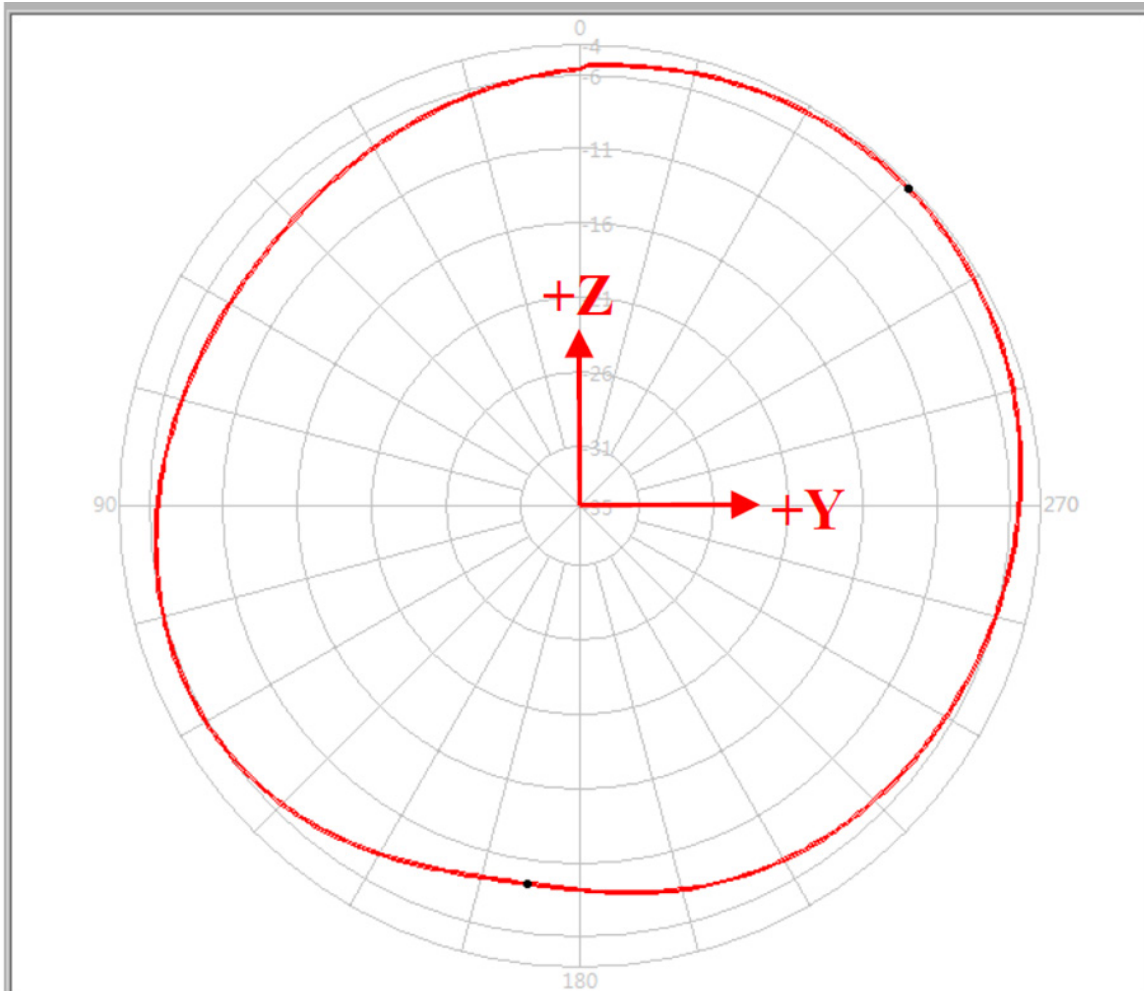
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Radiation Pattern

BeiDou : 1561 MHz
 YZ – Plane :
 Gain : Peak = -4.29 dBi,
 Zenith = -5.66 dBi



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	V1	YZ	1561.00	-4.29 / 314.00	-9.37 / 172.00	-6.34	V+H	2019/3/3

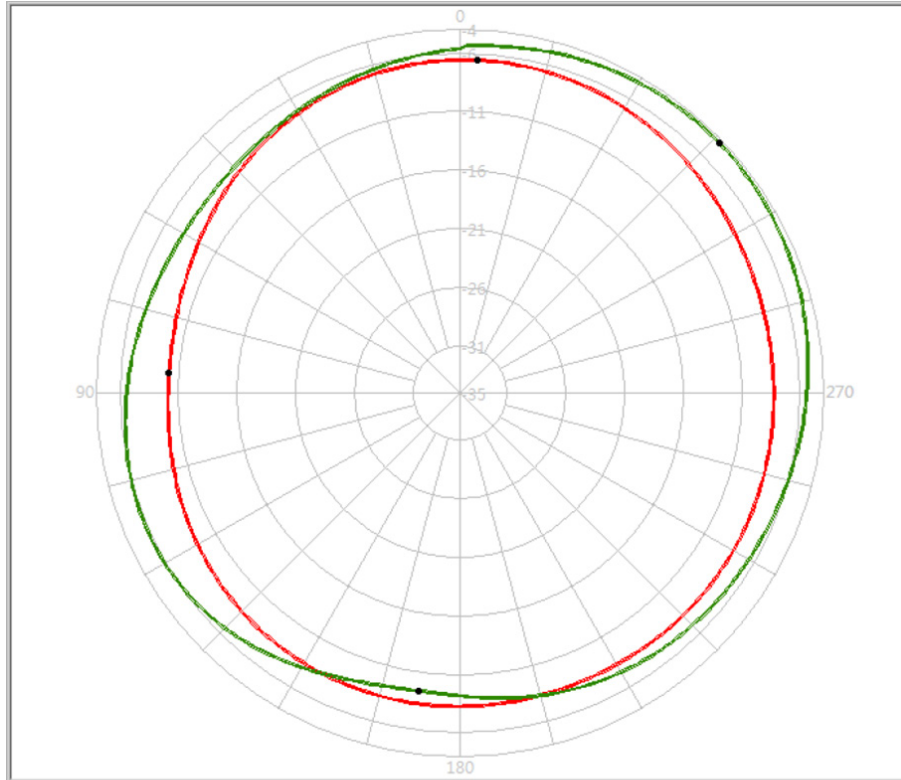


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Radiation Pattern



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	V1	XZ	1561.00	-6.59 / 357.00	-10.14 / 86.00	-8.14	V+H	2019/3/
2	V1	YZ	1561.00	-4.29 / 314.00	-9.37 / 172.00	-6.34	V+H	2019/3/

Angle	XZ - Plane (dBi)	YZ - Plane (dBi)
90°	-10.12	-6.58
75°	-9.99	-7.33
60°	-9.29	-7.81
45°	-8.34	-7.77
30°	-7.46	-7.24
15°	-6.87	-6.46
0°	-6.61	-5.66
345°	-6.66	-4.94
330°	-6.97	-4.48
315°	-7.45	-4.30
300°	-7.92	-4.42
285°	-8.21	-4.83
270°	-8.25	-5.44



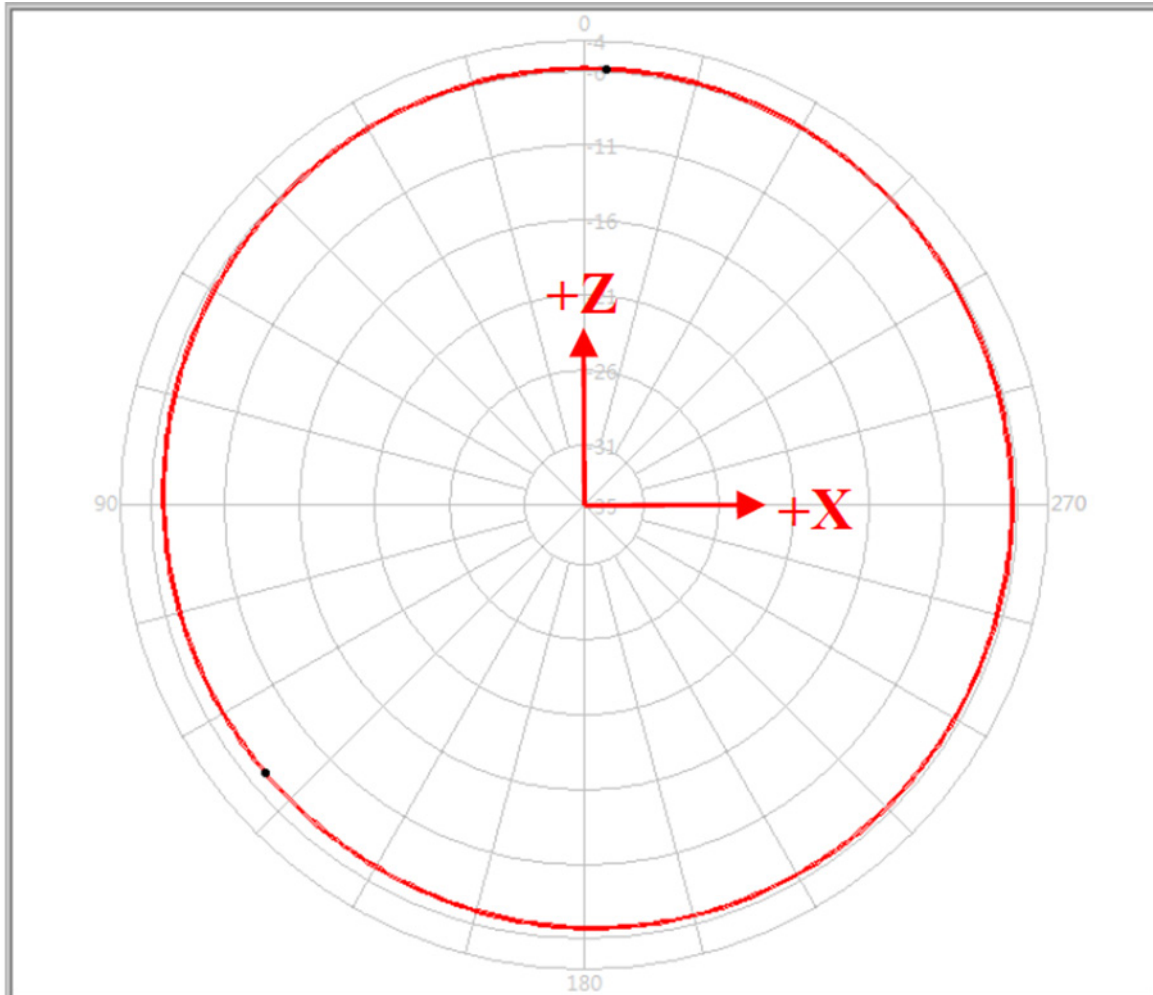
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Radiation Pattern

GPS : 1575.42 MHz
 XZ – Plane :
 Gain : Peak = -5.87 dBi,
 Zenith = -5.87 dBi



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	V1	XZ	1575.42	-5.87 / 357.00	-7.19 / 130.00	-6.46	V+H	2019/3/



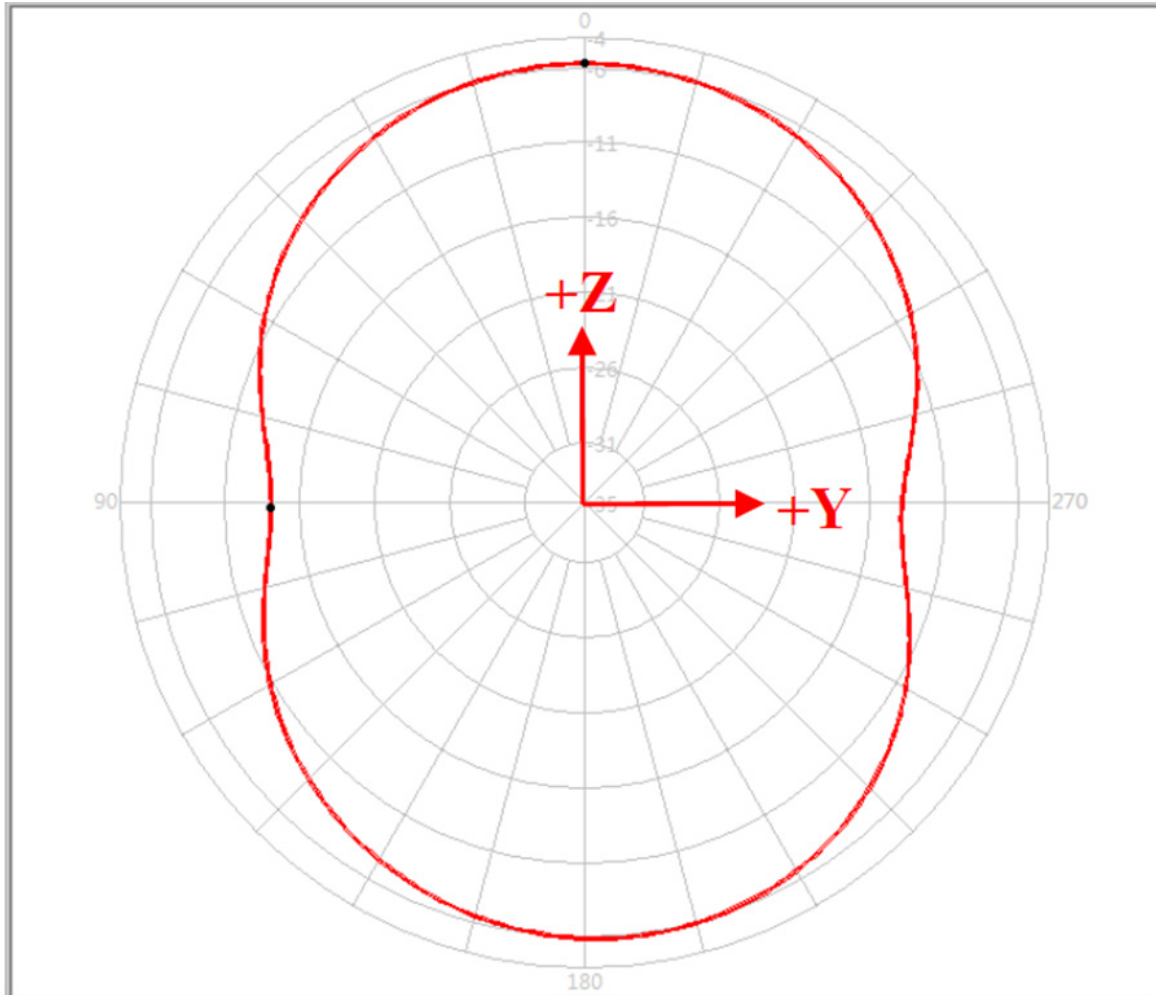
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Radiation Pattern

YZ – Plane :
Gain : Peak = -5.73 dBi,
Zenith = -5.73 dBi



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	V1	YZ	1575.42	-5.73 / 0.00	-14.08 / 91.00	-8.29	V+H	2019/3/

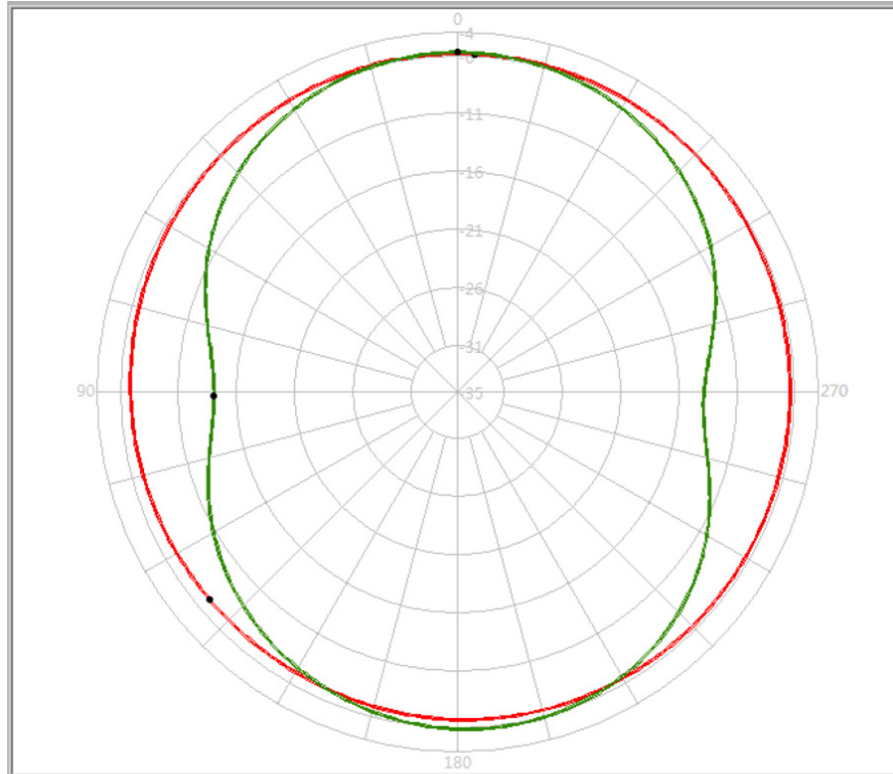


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Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	V1	XZ	1575.42	-5.87 / 357.00	-7.19 / 130.00	-6.46	V+H	2019/3/3
2	V1	YZ	1575.42	-5.73 / 0.00	-14.08 / 91.00	-8.29	V+H	2019/3/3

Angle	XZ - Plane (dBi)	YZ - Plane (dBi)
90°	-6.89	-14.08
75°	-6.68	-12.74
60°	-6.44	-10.32
45°	-6.22	-8.32
30°	-6.03	-6.89
15°	-5.91	-6.05
0°	-5.87	-5.73
345°	-5.89	-6.03
330°	-5.97	-6.79
315°	-6.09	-8.07
300°	-6.24	-9.87
285°	-6.35	-12.17
270°	-6.41	-13.82



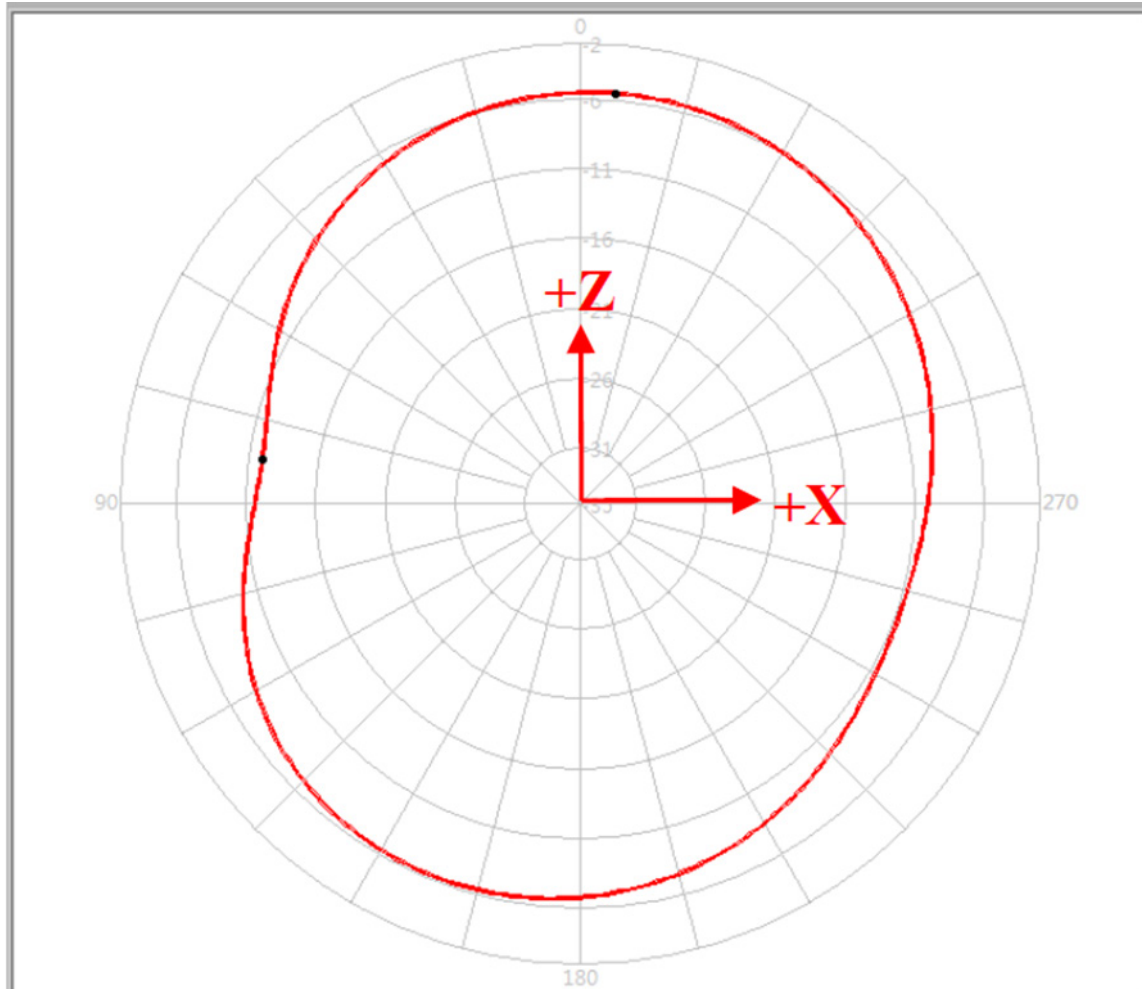
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Radiation Pattern

GLONASS : 1602.6 MHz
 XZ – Plane :
 Gain : Peak = -5.48 dBi,
 Zenith = -5.55 dBi



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	V1	XZ	1602.60	-5.48 / 355.00	-11.95 / 82.00	-7.78	V+H	2019/3/2



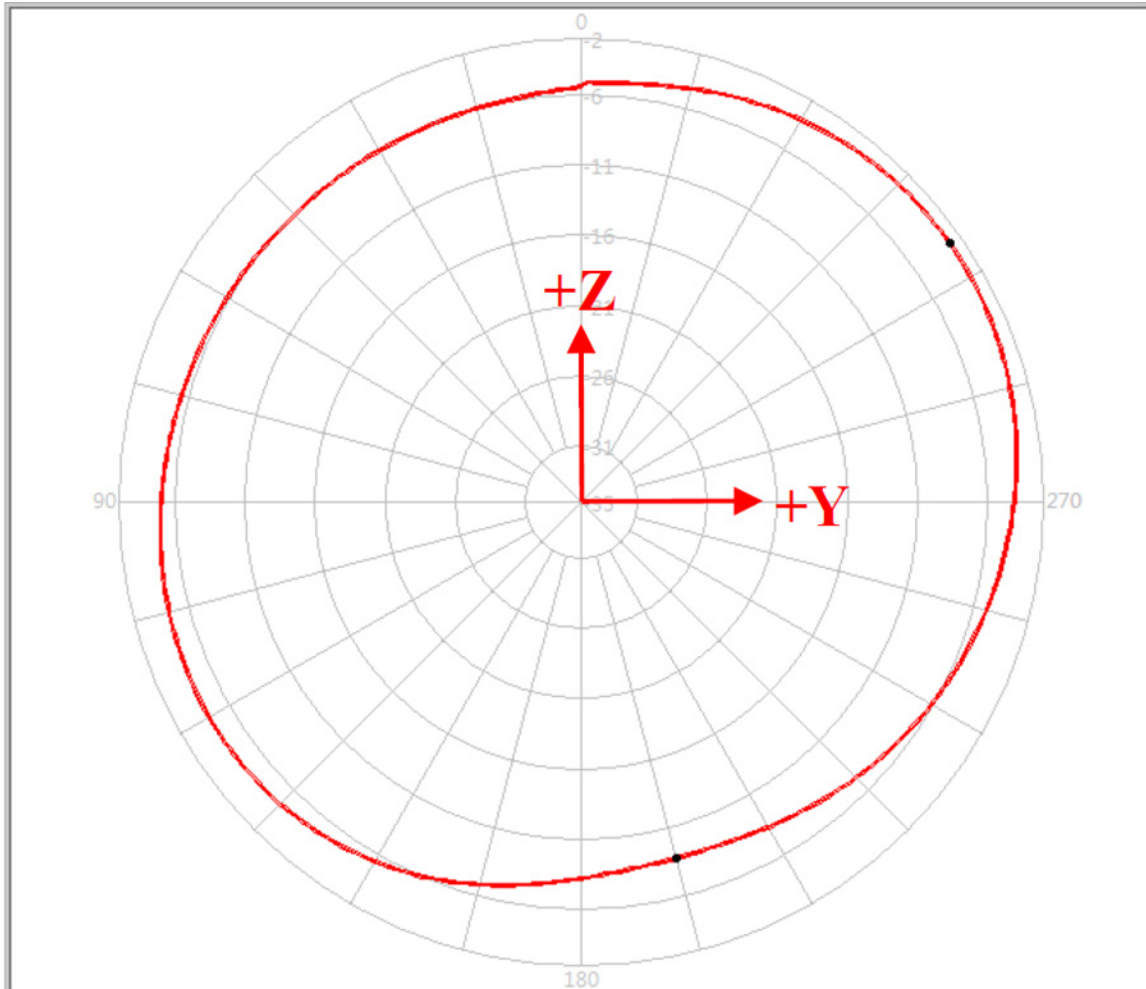
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Radiation Pattern

YZ – Plane :
Gain : Peak = -2.88 dBi,
Zenith = -5.42 dBi



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	V1	YZ	1602.60	-2.88 / 305.00	-8.76 / 195.00	-5.18	V+H	2019/3/7

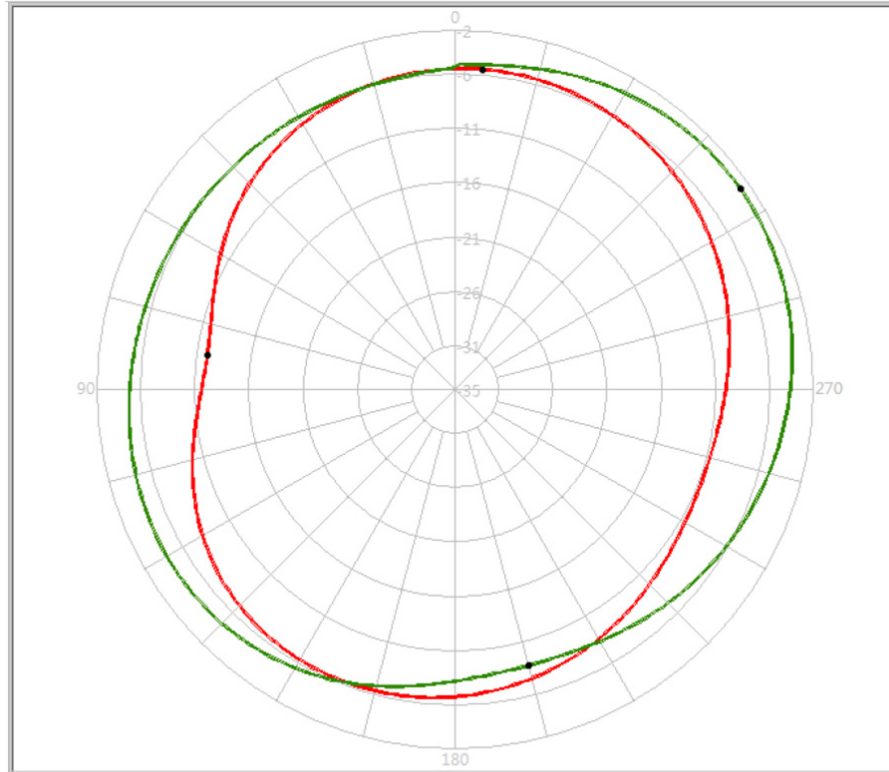


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Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	V1	XZ	1602.60	-5.48 / 355.00	-11.95 / 82.00	-7.78	V+H	2019/3/7
2	V1	YZ	1602.60	-2.88 / 305.00	-8.76 / 195.00	-5.18	V+H	2019/3/7

Angle	XZ - Plane (dBi)	YZ - Plane (dBi)
90°	-11.65	-5.01
75°	-11.69	-5.50
60°	-10.04	-5.83
45°	-8.24	-6.04
30°	-6.86	-6.13
15°	-5.96	-6.02
0°	-5.55	-5.42
345°	-5.55	-4.53
330°	-5.95	-3.60
315°	-6.69	-3.00
300°	-7.72	-2.91
285°	-8.92	-3.31
270°	-10.04	-4.08