



Topside View

Underside View

Ulysses

AA.162.301111

Specification

Part No.	AA.162.301111
Product Name	Ulysses Ultra-Low Profile Miniature Magnet Mounted GPS-GLONASS Antenna
Feature	1575MHz – 1610MHz 40mm*38mm*10mm 1.8-5.5V 3m RG174 SMA(M) IP67 Rated Custom cables and connectors available RoHS Compliant

1. Introduction

The Ulysses miniature super low profile (only 10mm in height) GNSS antenna is designed for applications which require high positioning accuracy by combining signals from GPS and GLONASS systems. A high gain wide-band patch antenna on an integral ground delivers reliable

performance. Fully IP67 waterproof rating allows use in outdoors environments. Front end SAW filter configuration eliminates potential LNA burn-out from nearby out of band radiated power bursts from other antennas that may be co-located nearby.

The antenna is manufactured to strict first tier Automotive quality controlled manufacturing process in TS16949 approved facility.

2. Specification

Electrical

Centre Frequency	1574~1610MHz		
Antenna Gain	26 ± 3dBic @ Zenith @ 1575.42MHz 27 ± 3dBic @ Zenith @ 1602MHz		
VSWR	2.0 max.		
Impedance	50Ω		
Outer Band Attenuation	1592±140MHz 15dB Min		
Pout at 1dB Gain Compression Point	-6dBm Min. -2dBm Typ.		
DC input	1.8V (min.)	3.0V (typ.)	5.5V (max.)
LNA Gain	22dB	28dB	31dB
Noise Figure	2.6dB	2.6dB	2.9dB
Power Consumption	5mA	10mA	23mA

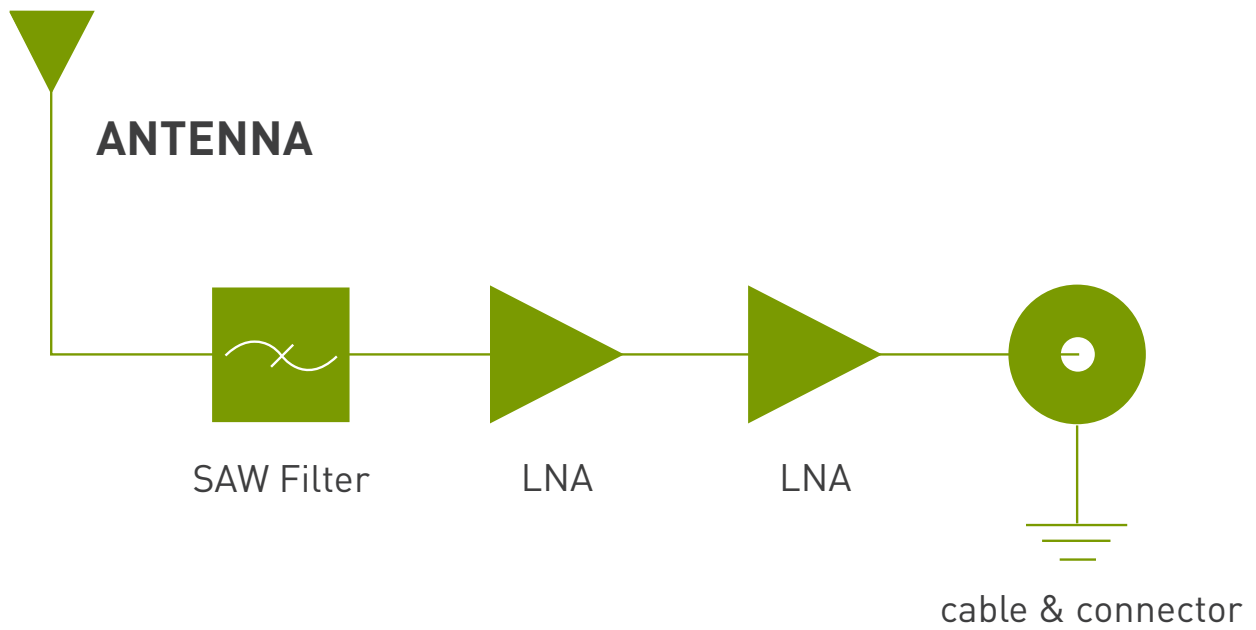
Mechanical

Antenna Dimensions	37.8 x 40.4 x 10mm
Housing Material	UV Resistant ABS
Cable	3M RG174 (fully customizable)
Connector	SMA(M) (fully customizable)

Environmental

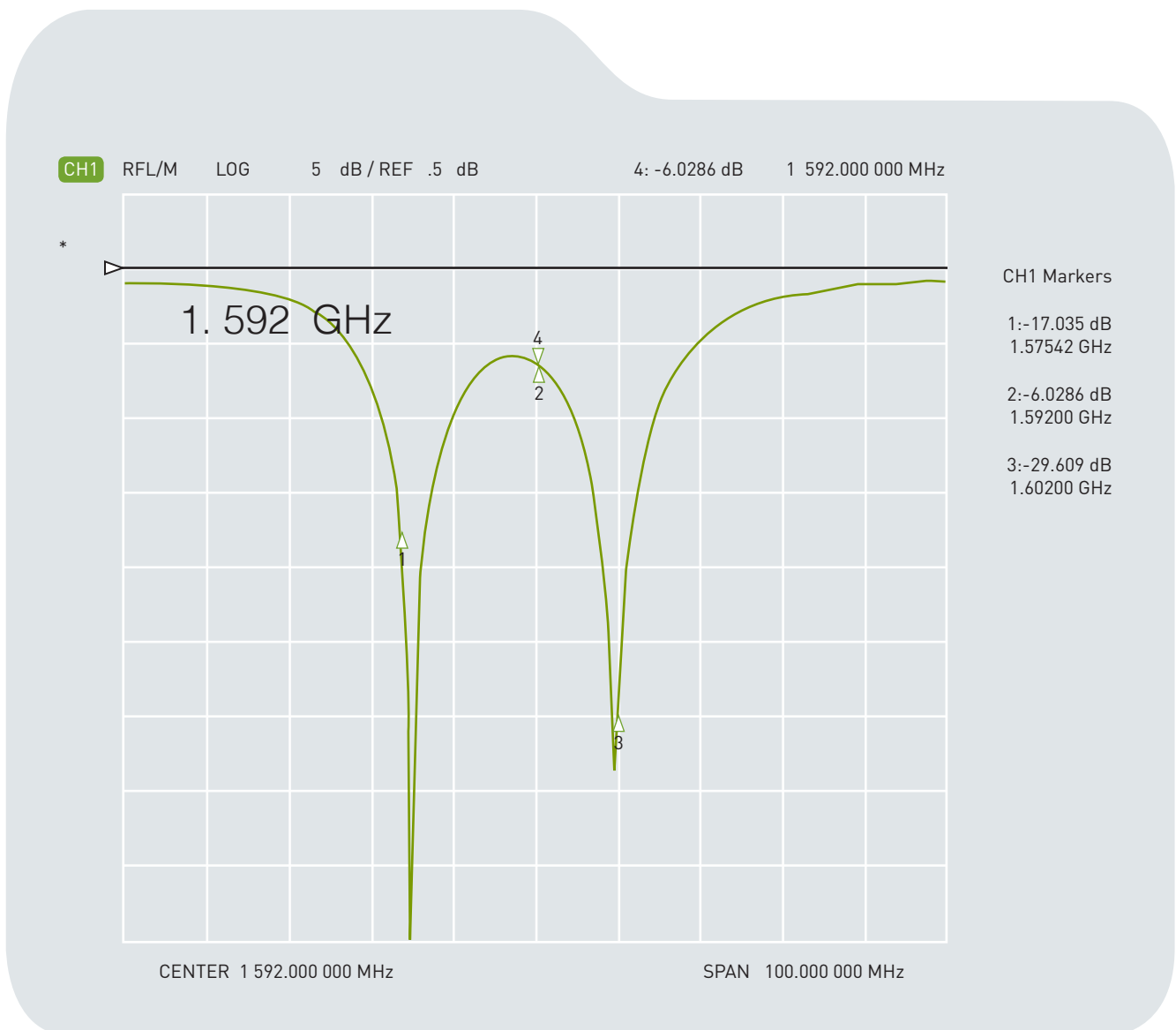
Operation Temperature	-40°C to 85°C
Storage Temperature	-40°C to 105°C
Relative Humidity	40% to 95%

3. Antenna Block Diagram



4. Antenna S11 Property

4.1 Return Loss

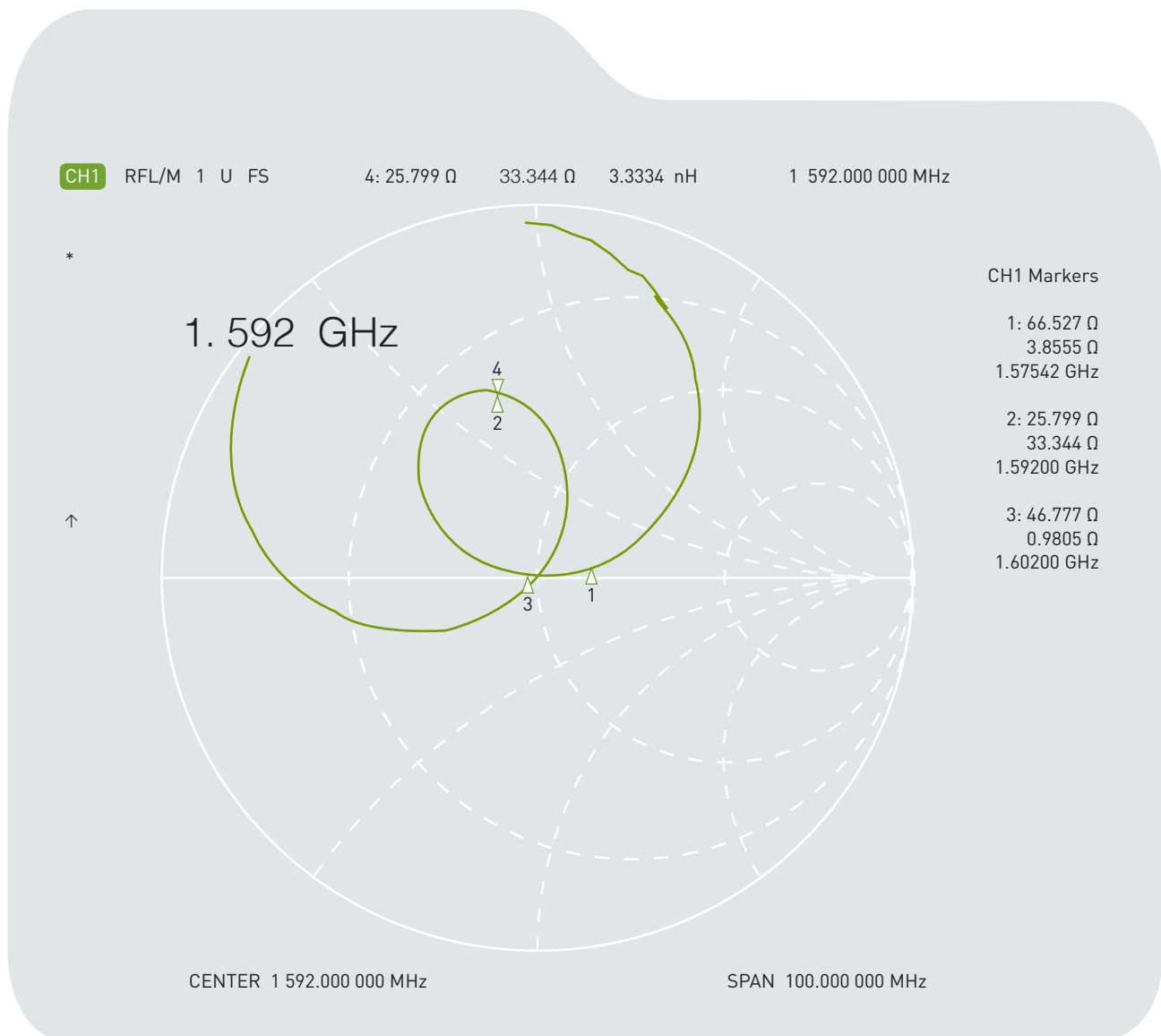


Return Loss

-17.03 dB @ 1575MHz

-29.60 dB @ 1602MHz

4.2 Impedance

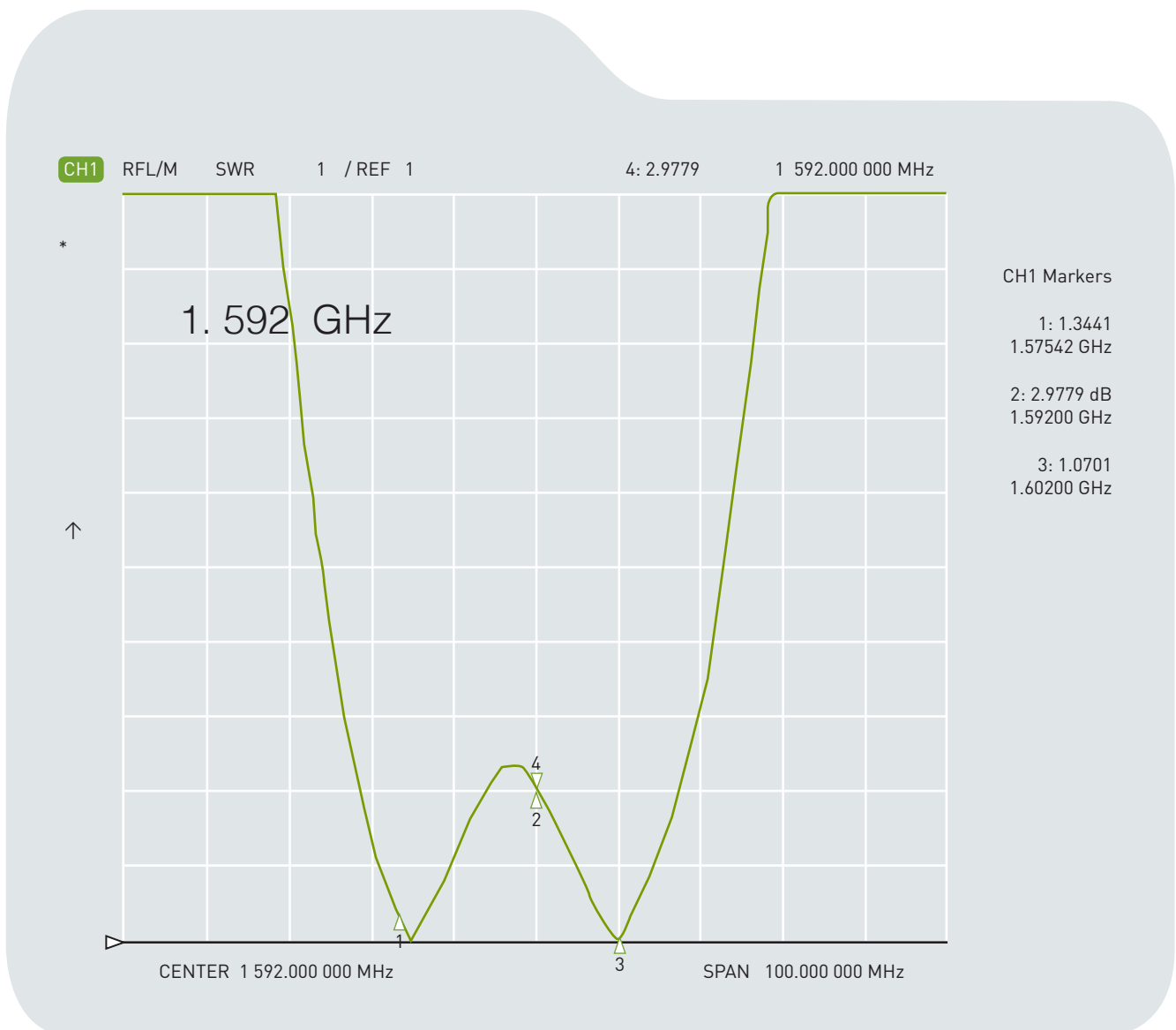


Impedance :

66.52 +j3.85 Ohm@ 1575MHz

46.77 +j0.98 Ohm@ 1602MHz

4.3 VSWR

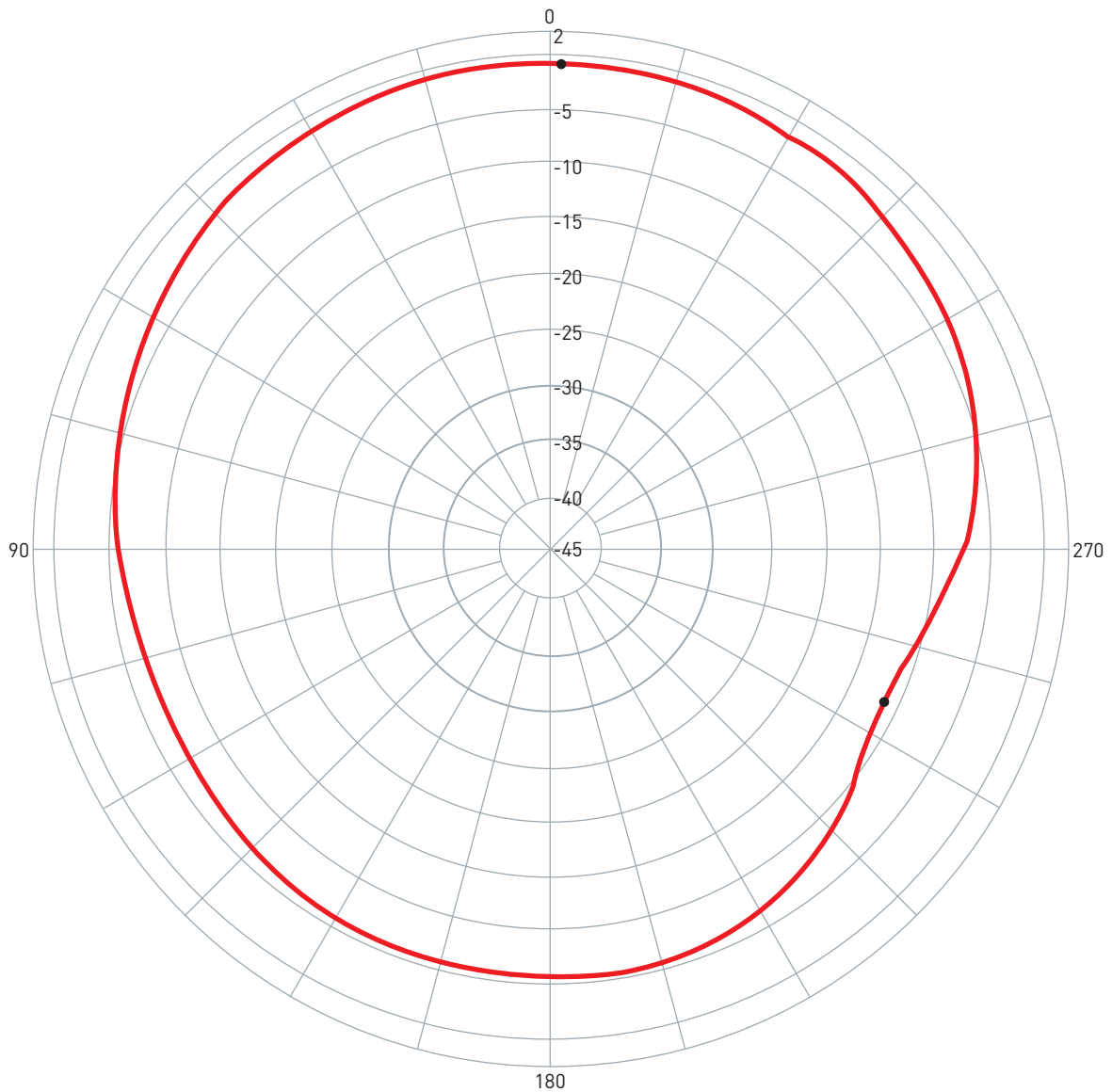


VSWR

1.34 @ 1575MHz
1.07 @ 1602MHz

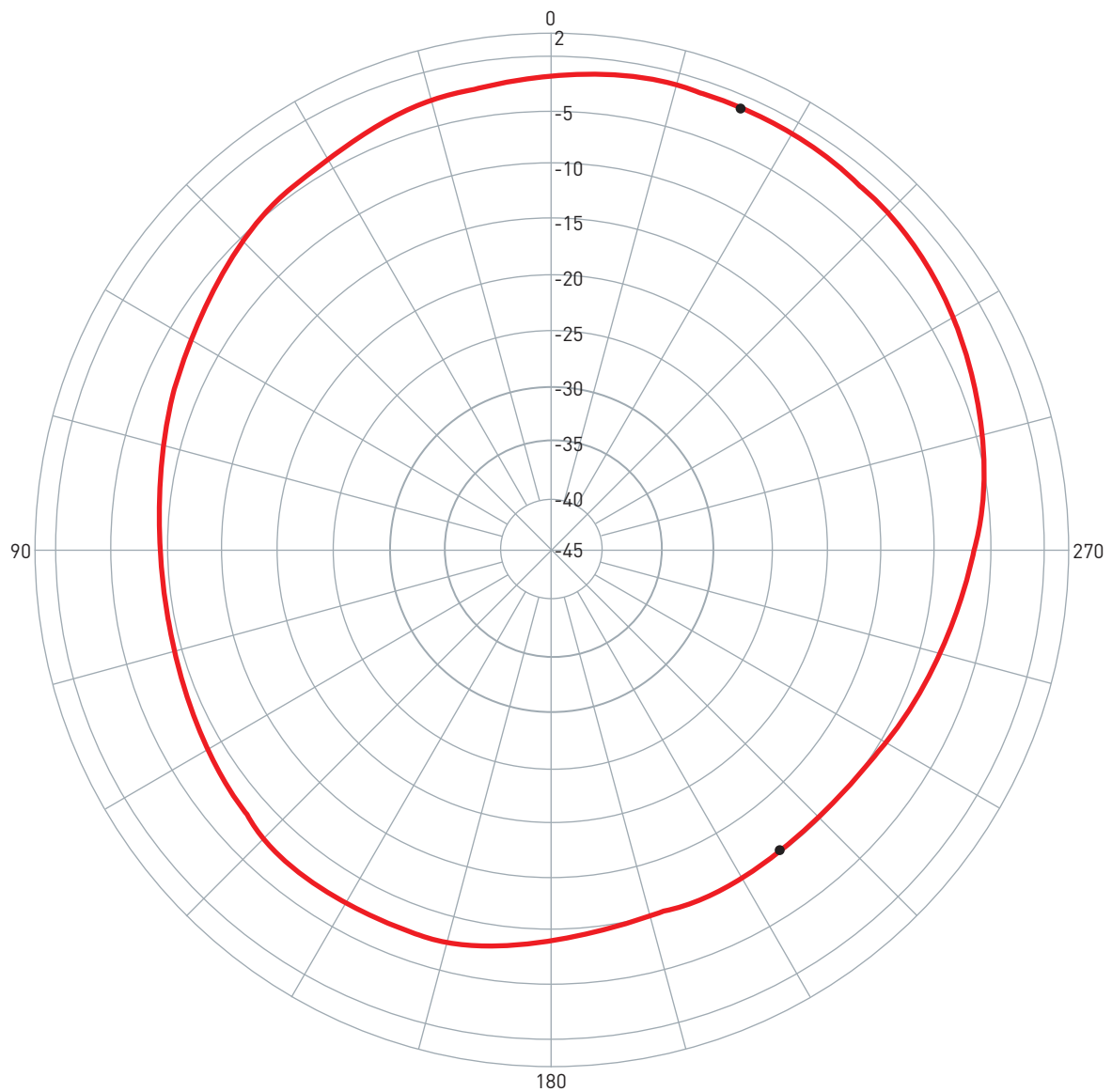
5. Radiation Patterns

1575.42MHz XZ Plane



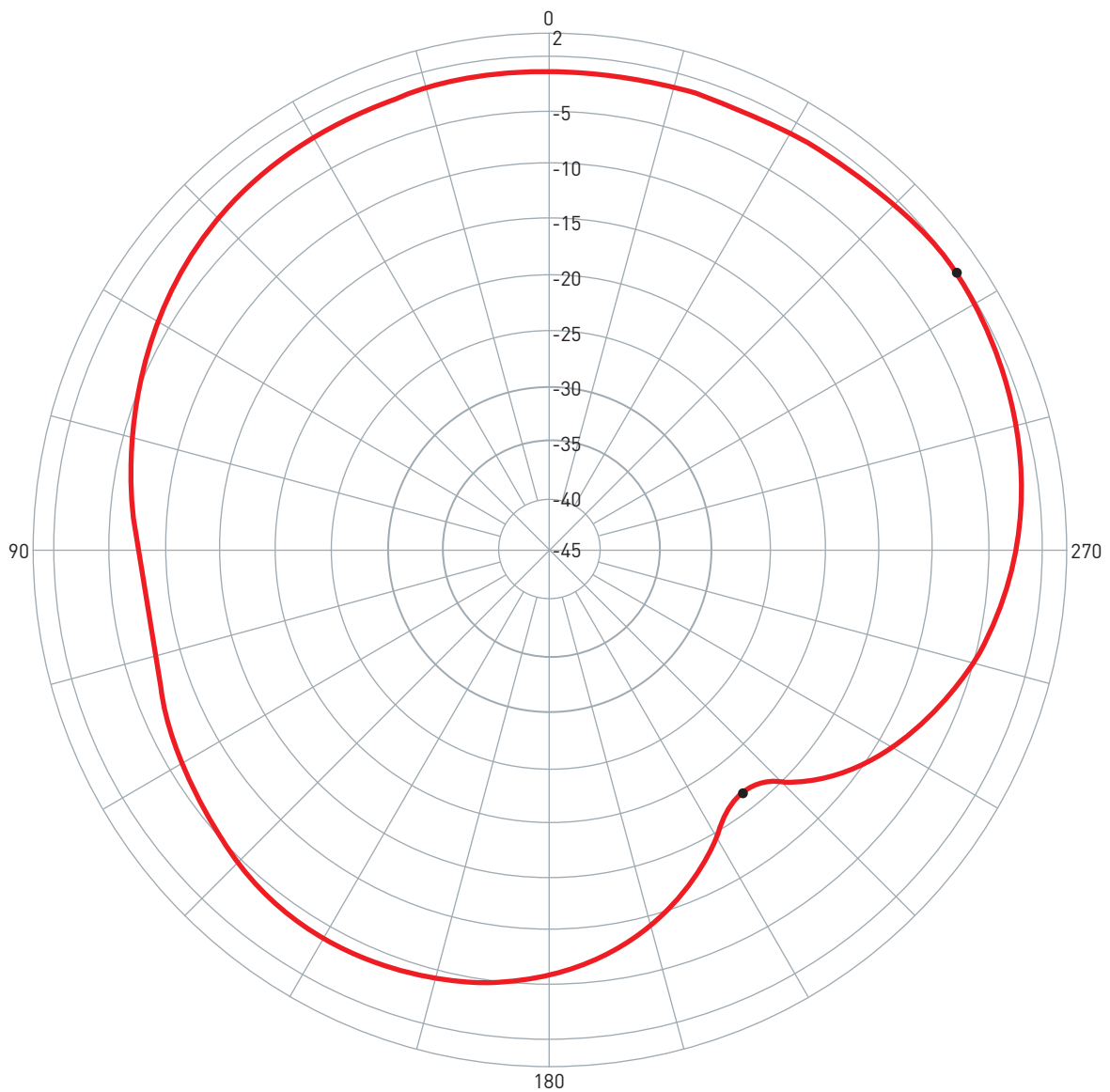
Pattern	Model No.	Test Mode	Freq (MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.
1 	AA.162.301111	XZ	1575.42	-0.69 / 359.00	-11.62 / 245.00	-4.12	V+H

1575.42MHz YZ Plane



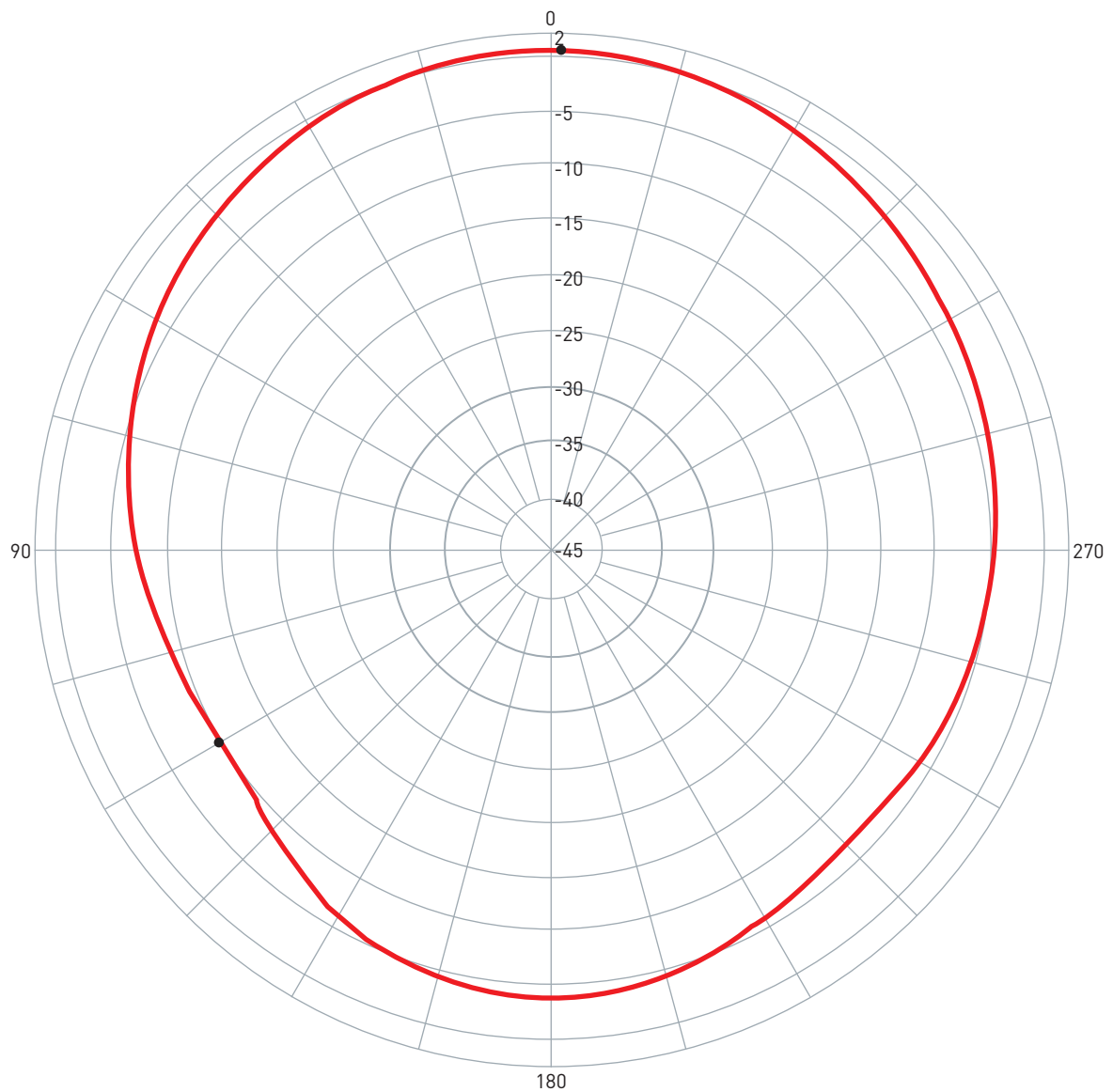
Pattern	Model No.	Test Mode	Freq (MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.
1 	AA.162.301111	YZ	1575.42	-1.15 / 337.00	-10.60 / 217.00	-5.28	V+H

1602MHz XZ Plane



Pattern	Model No.	Test Mode	Freq (MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.
1 	AA.162.301111	XZ	1602.00	-0.34 / 304.00	-16.71 / 218.00	-3.63	V+H

1602MHz YZ Plane

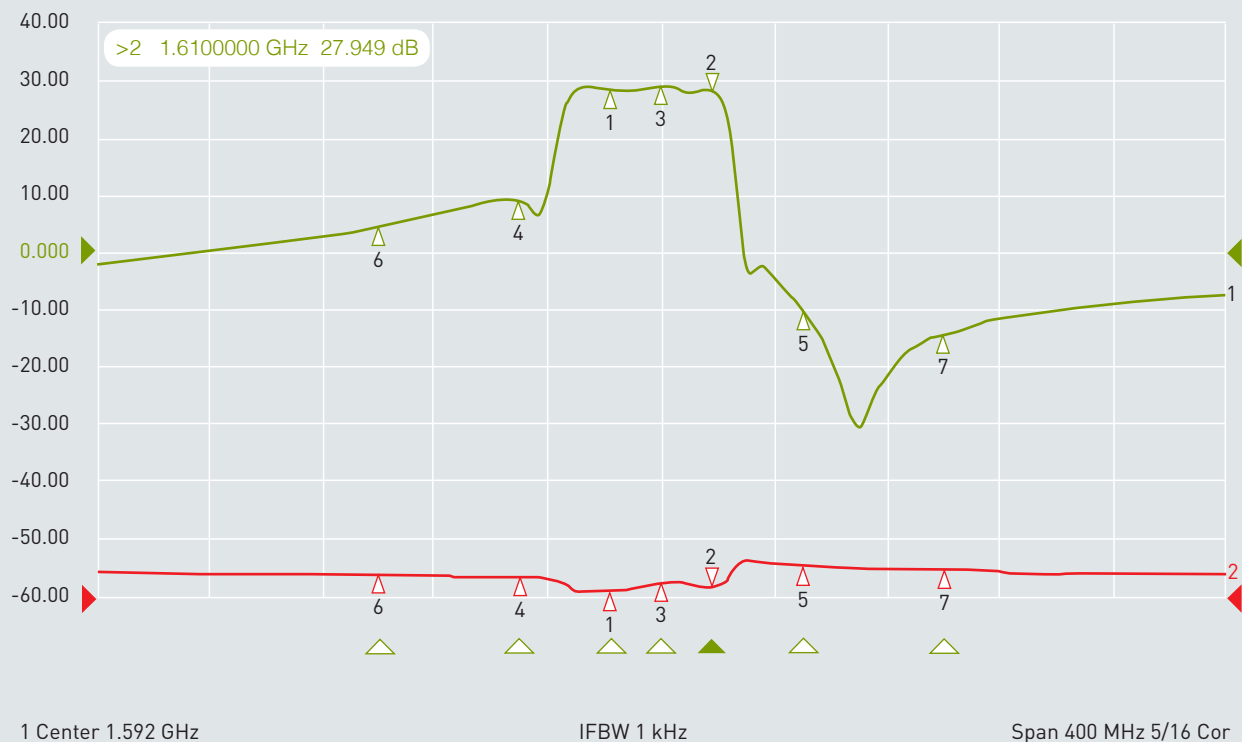


Pattern	Model No.	Test Mode	Freq (MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.
1 	AA.162.301111	YZ	1602.00	0.49 / 359.00	-10.13 / 120.00	-3.46	V+H

6. LNA Gain and Out Band Rejection @3.0V

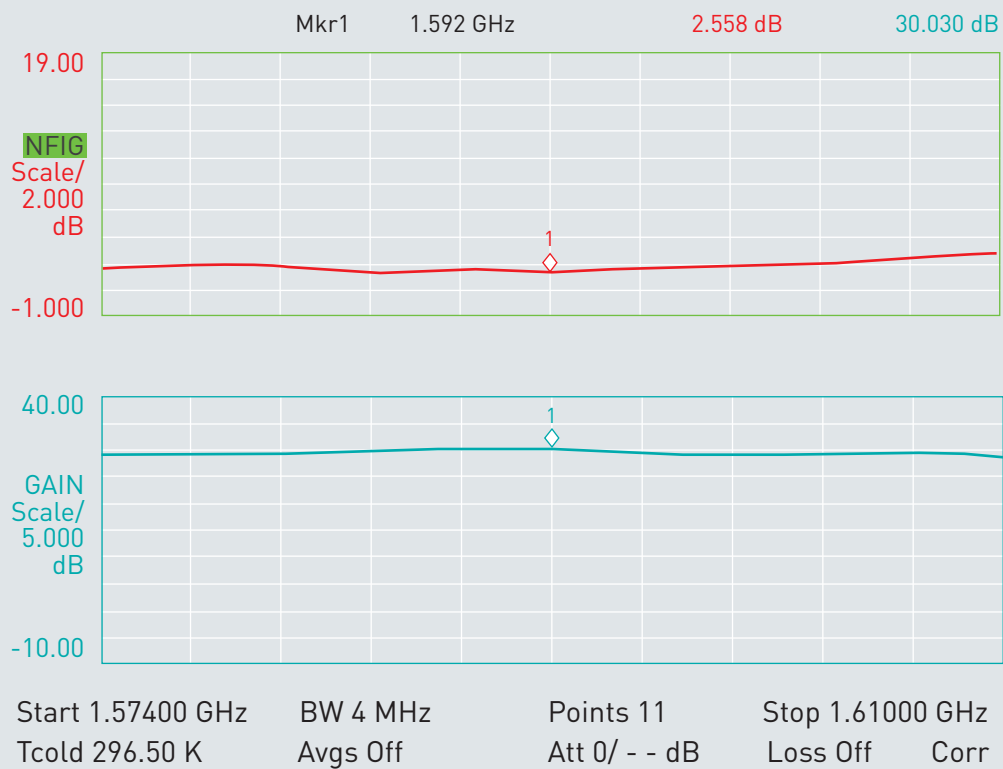
► Tr1 S21 Log Mag 10.00dB/ Ref 0.000dB [F2 Smo]

Tr2 S22 SWR 1.000 / Ref 1.000 [F2 Smo]

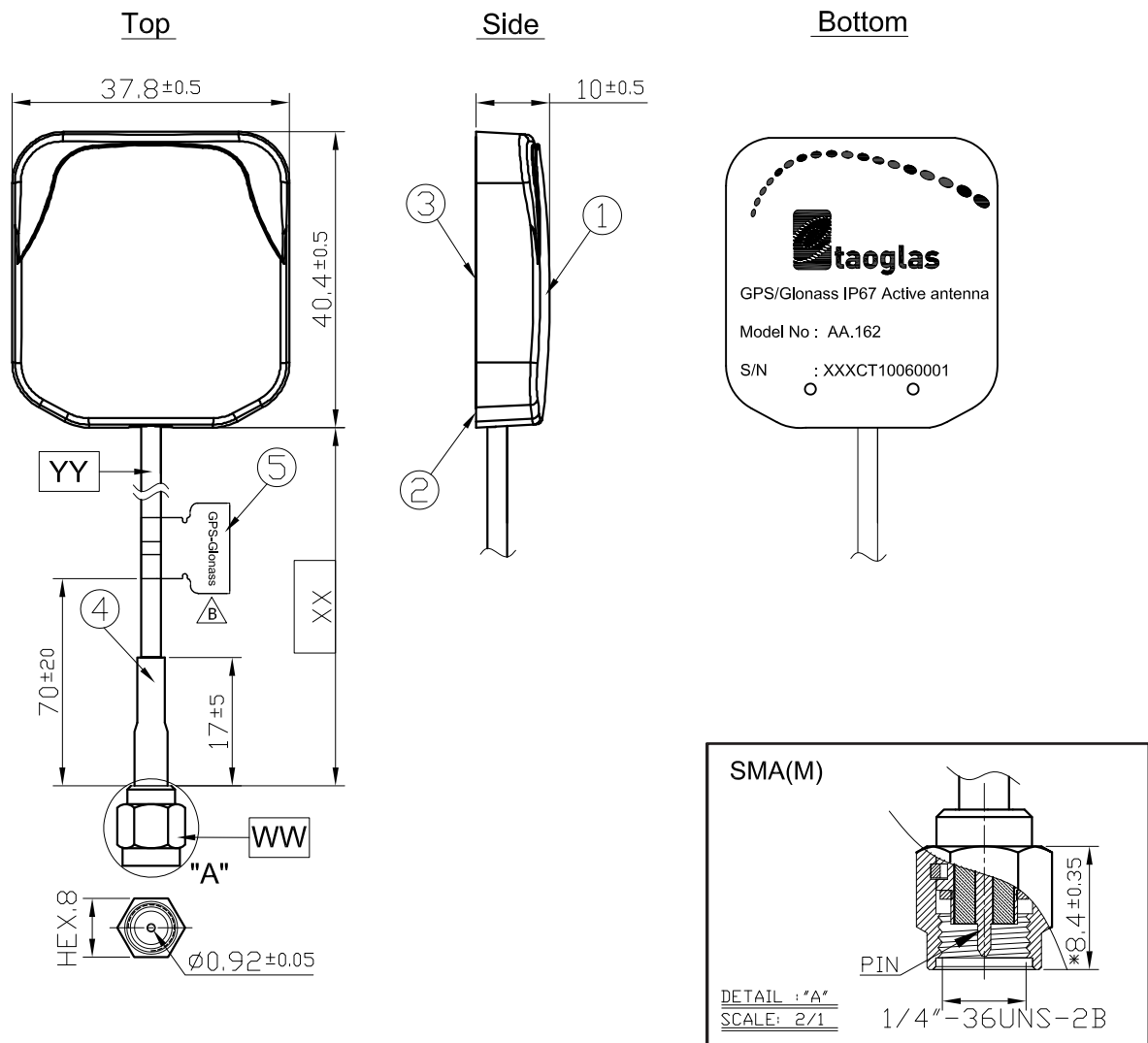


Ch1	Tr1	S21	1	1.5740000 GHz	28.186 dB
Ch1	Tr1	S21	>2	1.6100000 GHz	27.949 dB
Ch1	Tr1	S21	3	1.5920000 GHz	29.044 dB
Ch1	Tr1	S21	4	1.5420000 GHz	9.0245 dB
Ch1	Tr1	S21	5	1.6420000 GHz	-10.035 dB
Ch1	Tr1	S21	6	1.4920000 GHz	4.4105 dB
Ch1	Tr1	S21	7	1.6920000 GHz	-14.431 dB
Ch1	Tr2	S21	1	1.5740000 GHz	1.0816
Ch1	Tr2	S21	2	1.6100000 GHz	1.1855
Ch1	Tr2	S21	3	1.5920000 GHz	1.2488
Ch1	Tr2	S21	4	1.5420000 GHz	1.3486

7. LNA Noise Figure @3.0V



8. Drawing



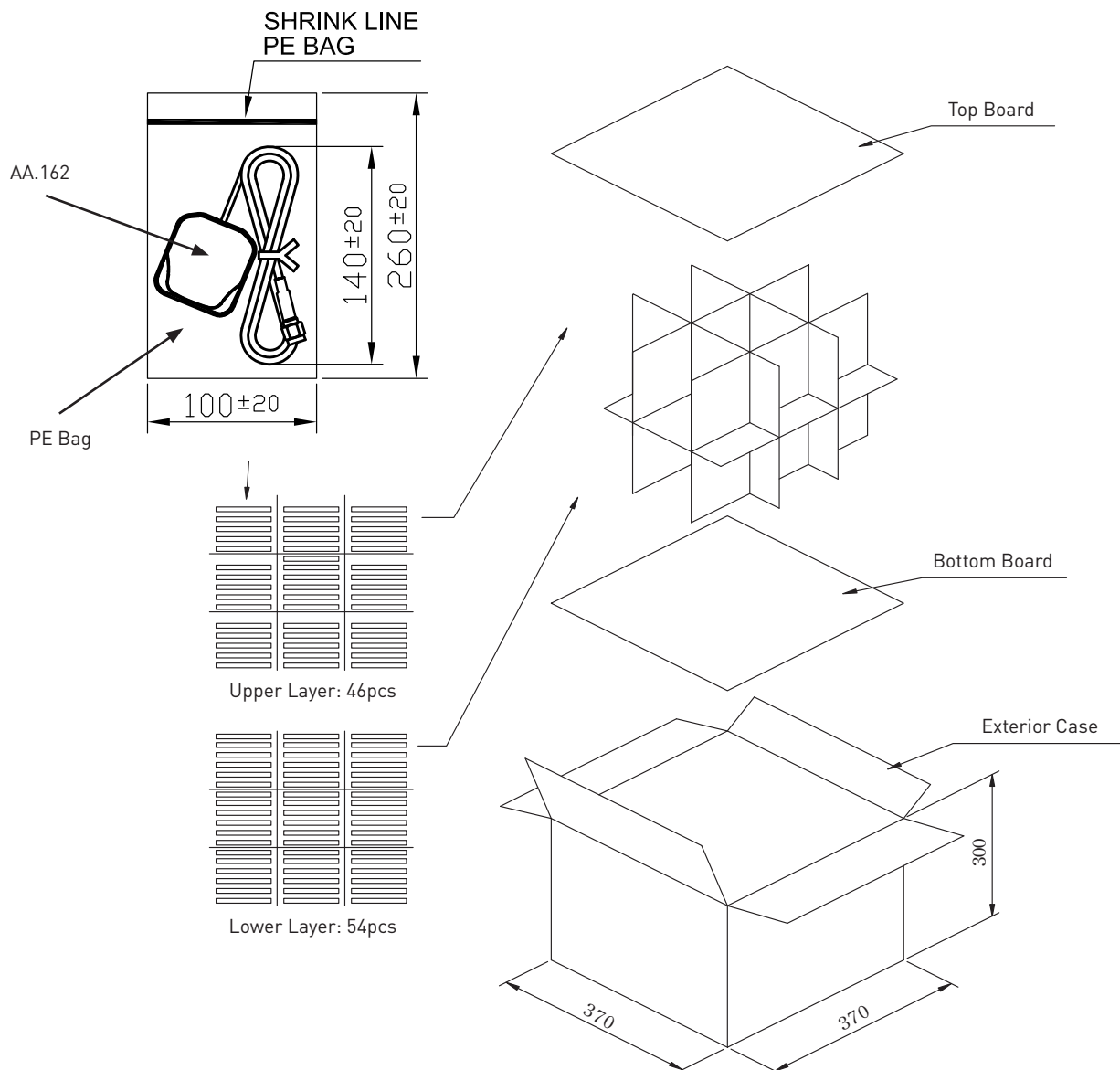
	Name	Material	Finish	QTY
1	AA.162 Antenna Housing Top	ABS	Black	1
2	AA.162 Antenna Housing Bottom	ABS	Black	1
3	AA.162 Sticker	Gloss Silver PET	Silver	1
4	Heat Shrink Tube	PE	Black	1
5	GPS-Glonass Label	Coated Paper	Orange	1

	Name	Material	Finish	QTY
WW	Connector Type	SMA(M) ST	Gold	1
XX	Cable Length	3000±50mm		1
YY	Cable Type	RG174	Black	1

9. Packaging

1pcs antenna per small PE bag

100pcs antennas per Box



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