

## 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 ✓



## 1. Introduction

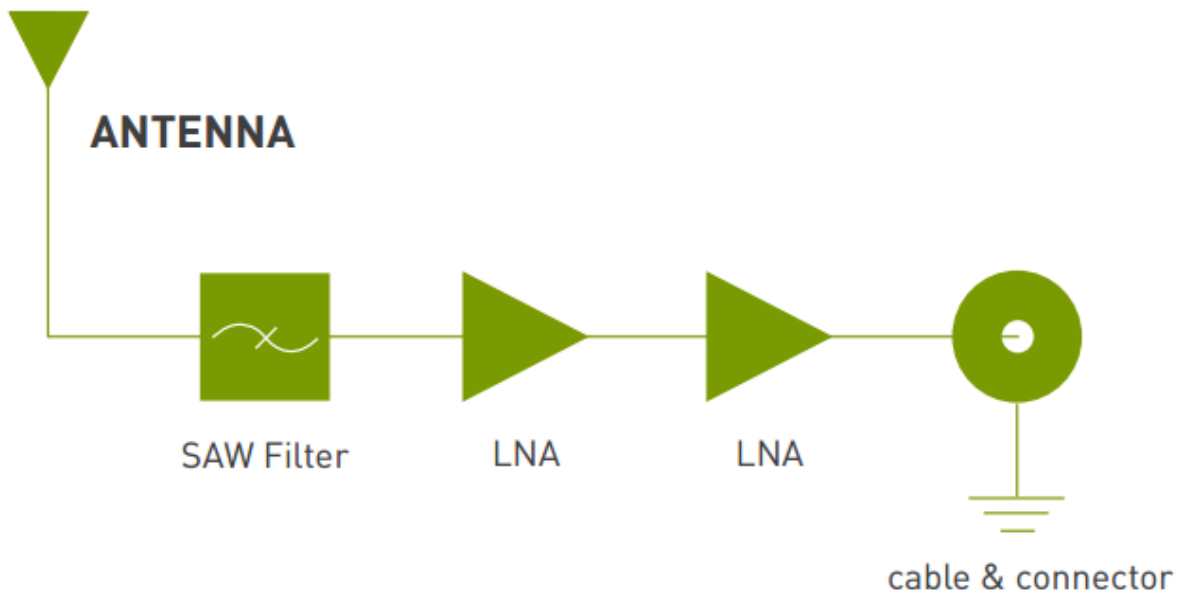
The Ulysses miniature super low profile (only 10mm in height) GNSS antenna is designed for applications which require high positioning accuracy by combining signals from GPS and GLONASS systems. A high gain wide-band patch antenna on an integral ground delivers reliable performance. Fully IP67 waterproof 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

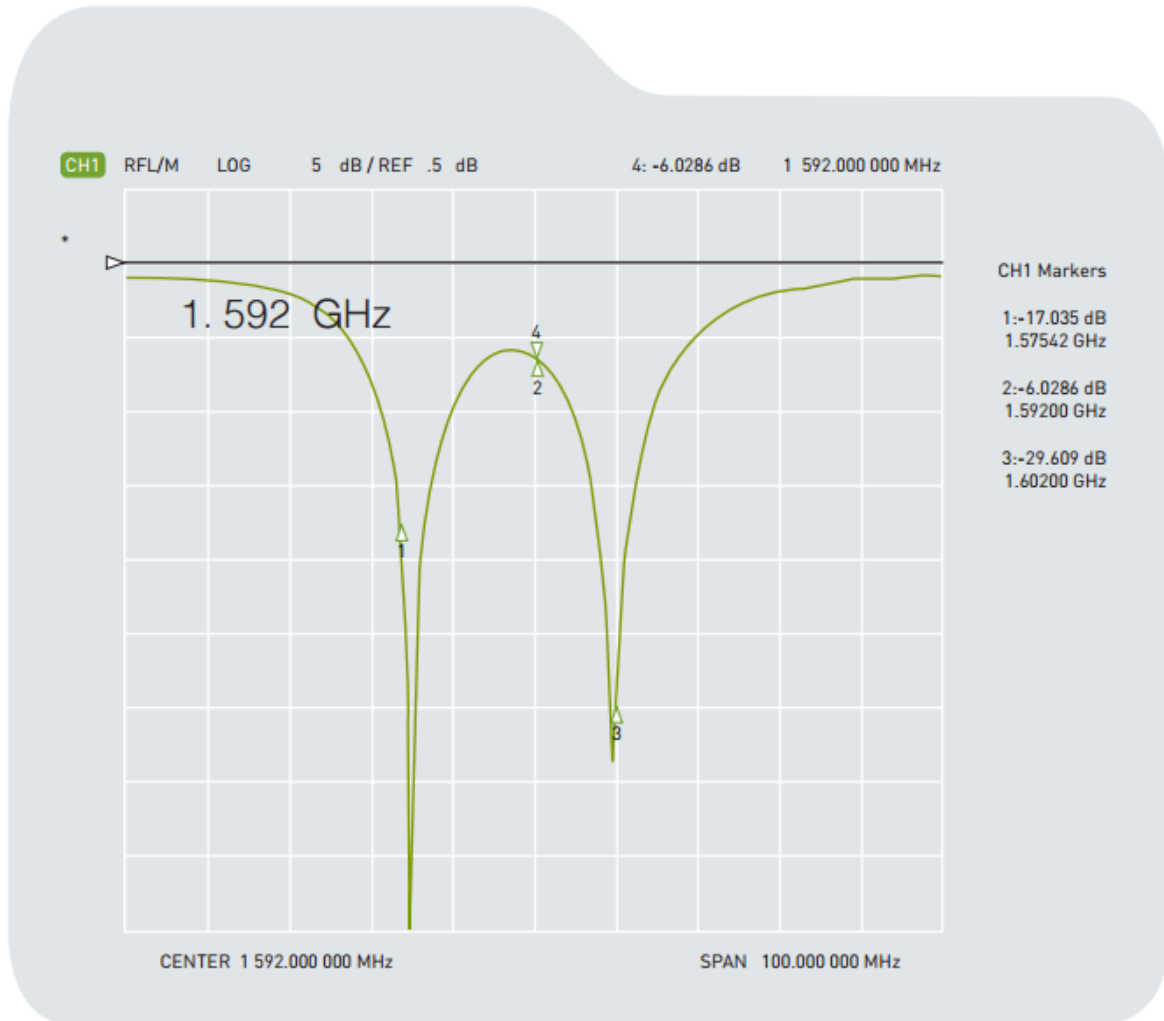
ELECTRICAL			
Centre Frequency	1574~1610MHz		
Antenna Gain	26±3dBic @ zenith @ 1575.42MHz 27±3dBic @ zenith @ 1602MHz		
VSWR	2.0 max.		
Impedance	50Ω		
Outer Band Attenuation	1592±140MHz 15dB Min		
Pout at 1dB Gain Compression Point	-6dBm Min. -2dBm Typ.		
DC input	1.8V (min.)	3.0V (typ.)	5.5V (max.)
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 85°C		
Relative Humidity	40% to 95%		

### 3. Antenna Block Diagram



## 4. Antenna S11 Property

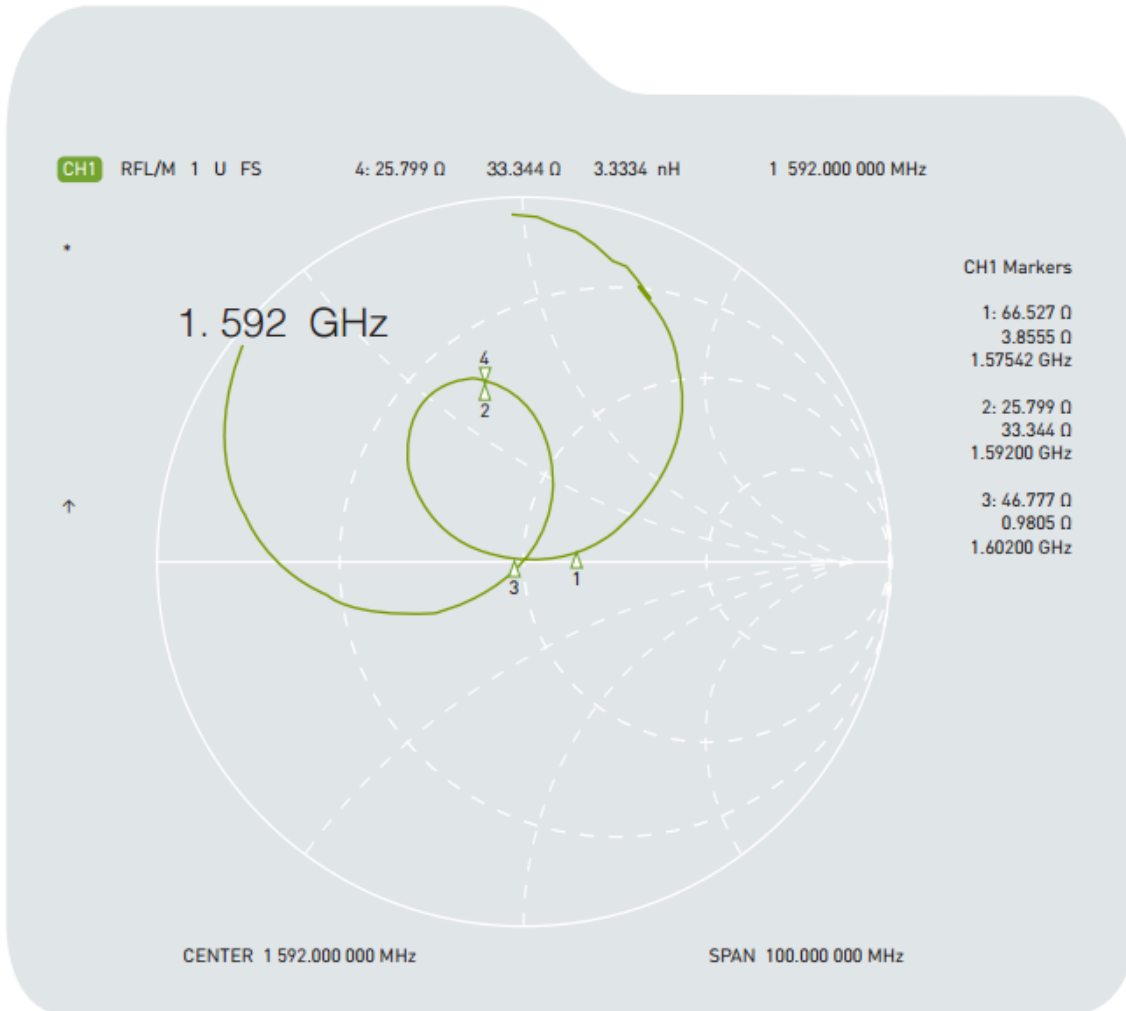
### 4.1 Return Loss



#### Return Loss

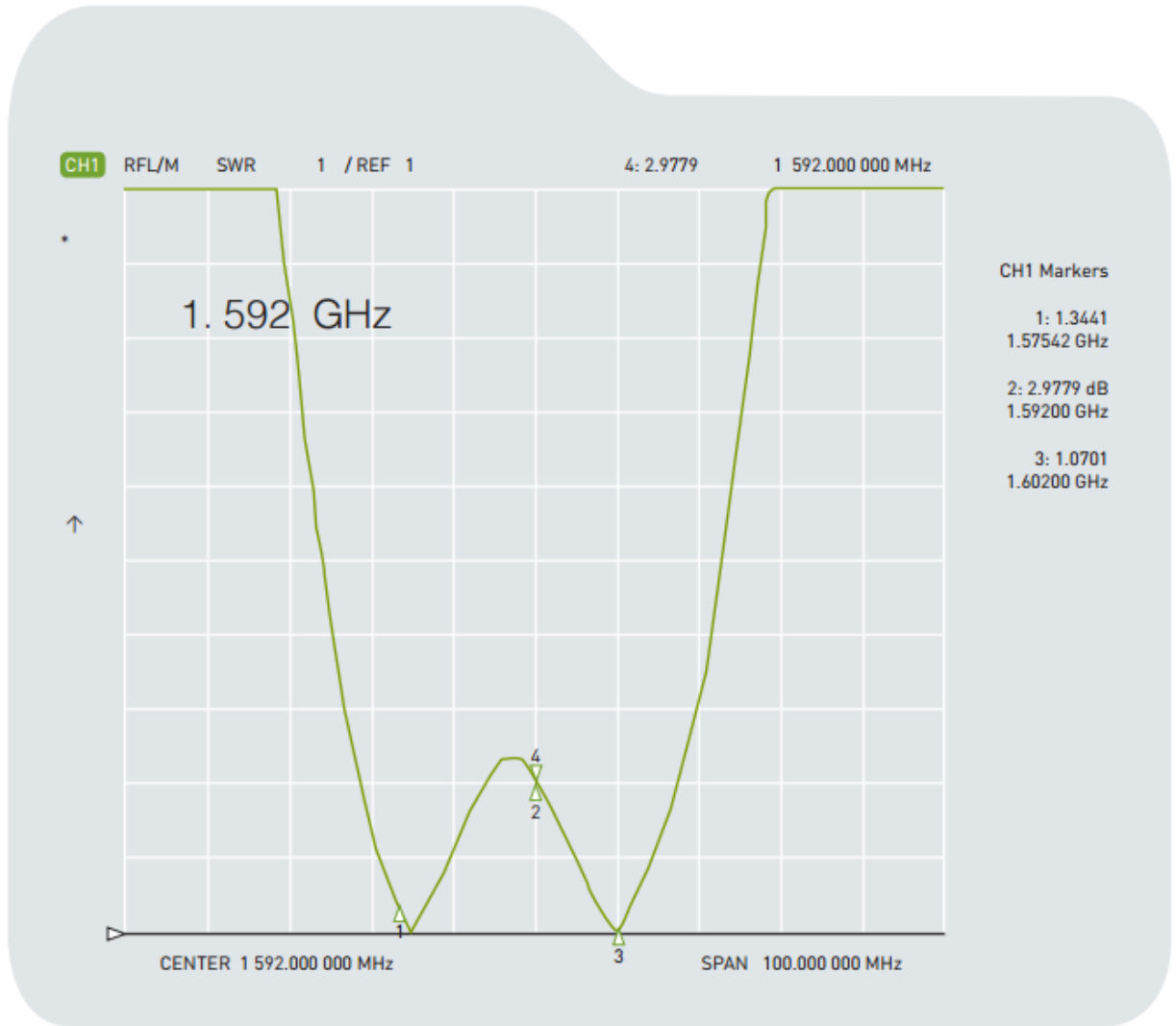
-17.03 dB @ 1575MHz  
-29.60 dB @ 1602MHz

## 4.2 Impedance



**Impedance :**  
 66.52 +j3.85 Ohm@ 1575MHz  
 46.77 +j0.98 Ohm@ 1602MHz

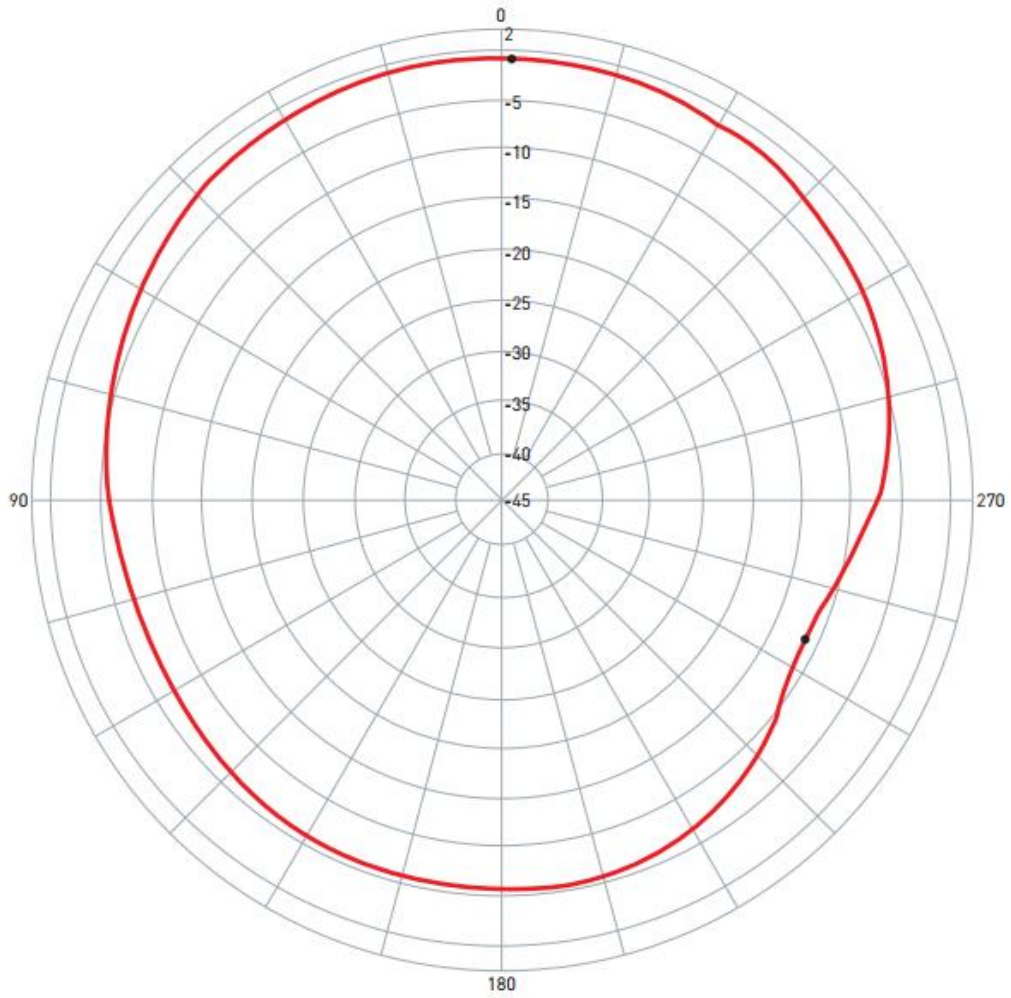
### 4.3 VSWR



**VSWR**  
 1.34 @ 1575MHz  
 1.07 @ 1602MHz

# 5. Radiation Patterns

1575.42MHz XZ Plane

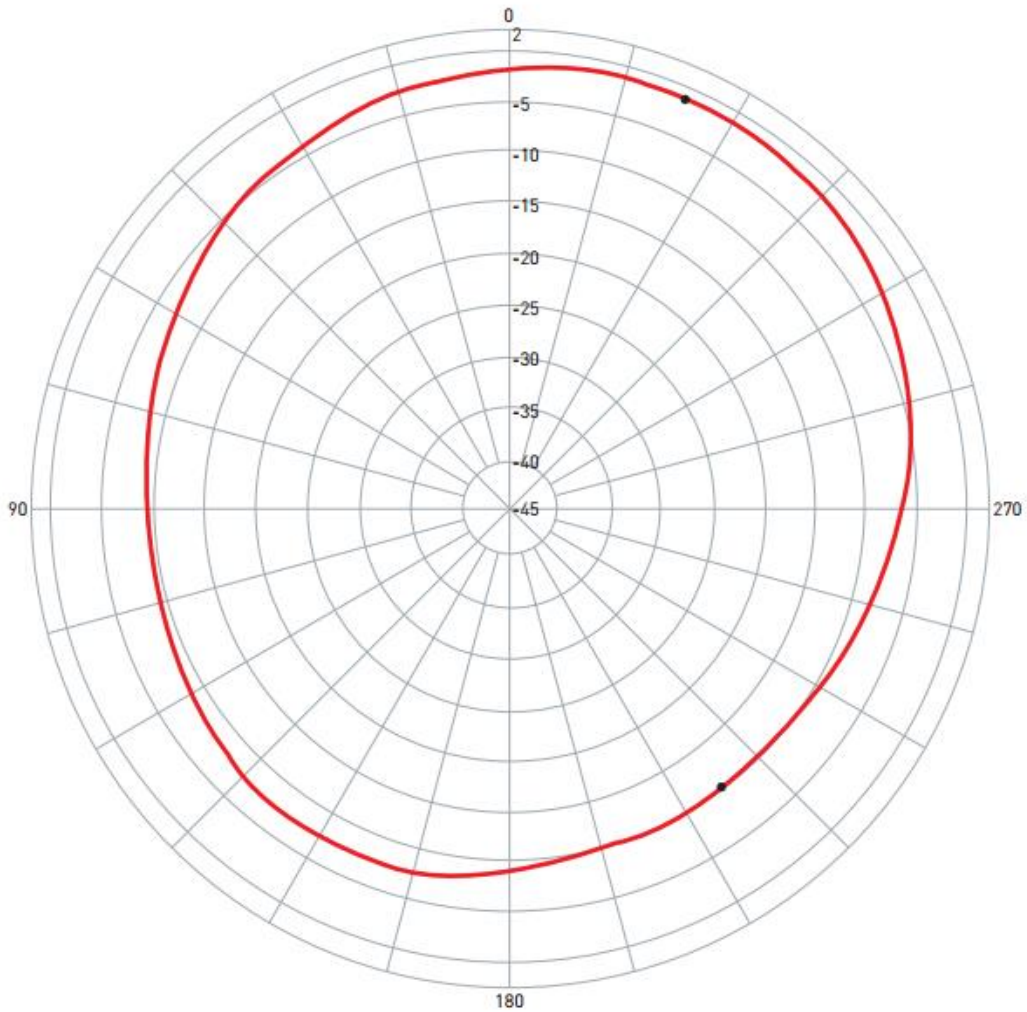


Pattern	Model No.	Test Mode	Freq (MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.
1 	AA.162.301111	XZ	1575.42	-0.69 / 359.00	-11.62 / 245.00	-4.12	V+H



# 1575.42MHz YZ Plane

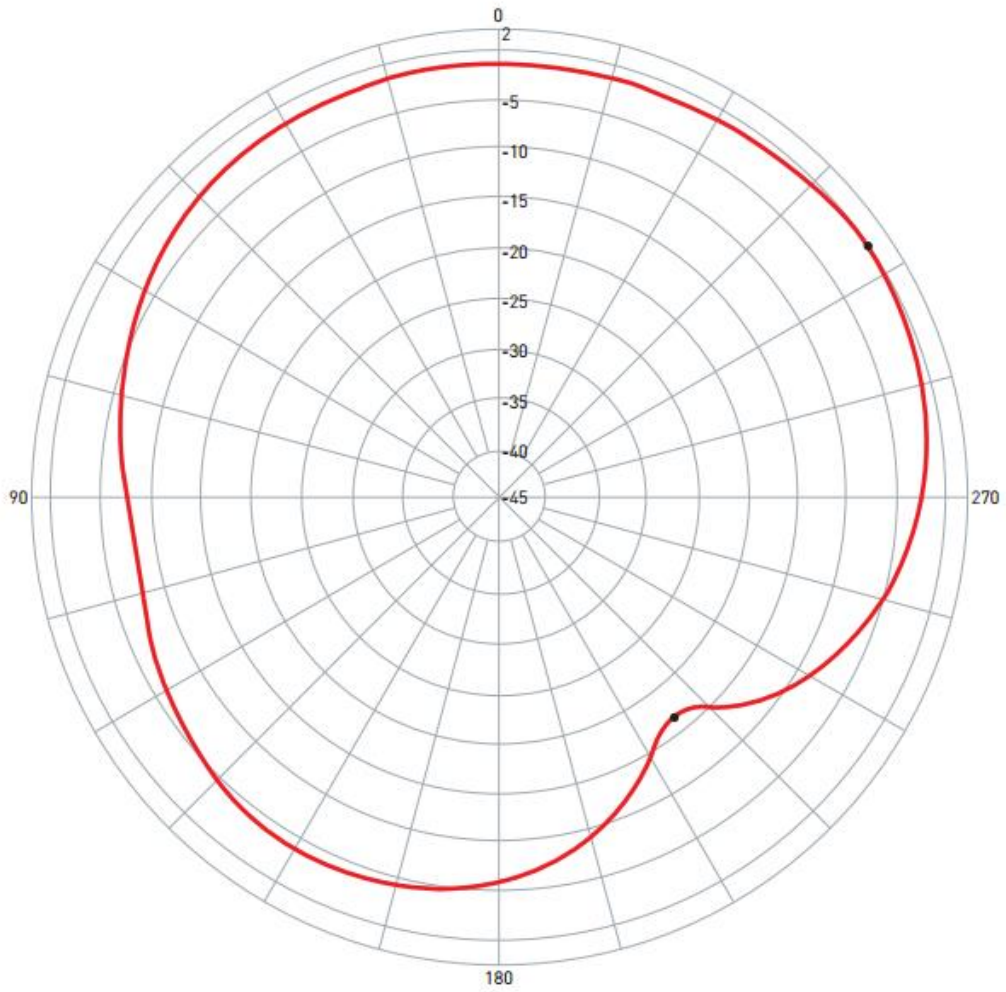
1575.42MHz YZ Plane



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

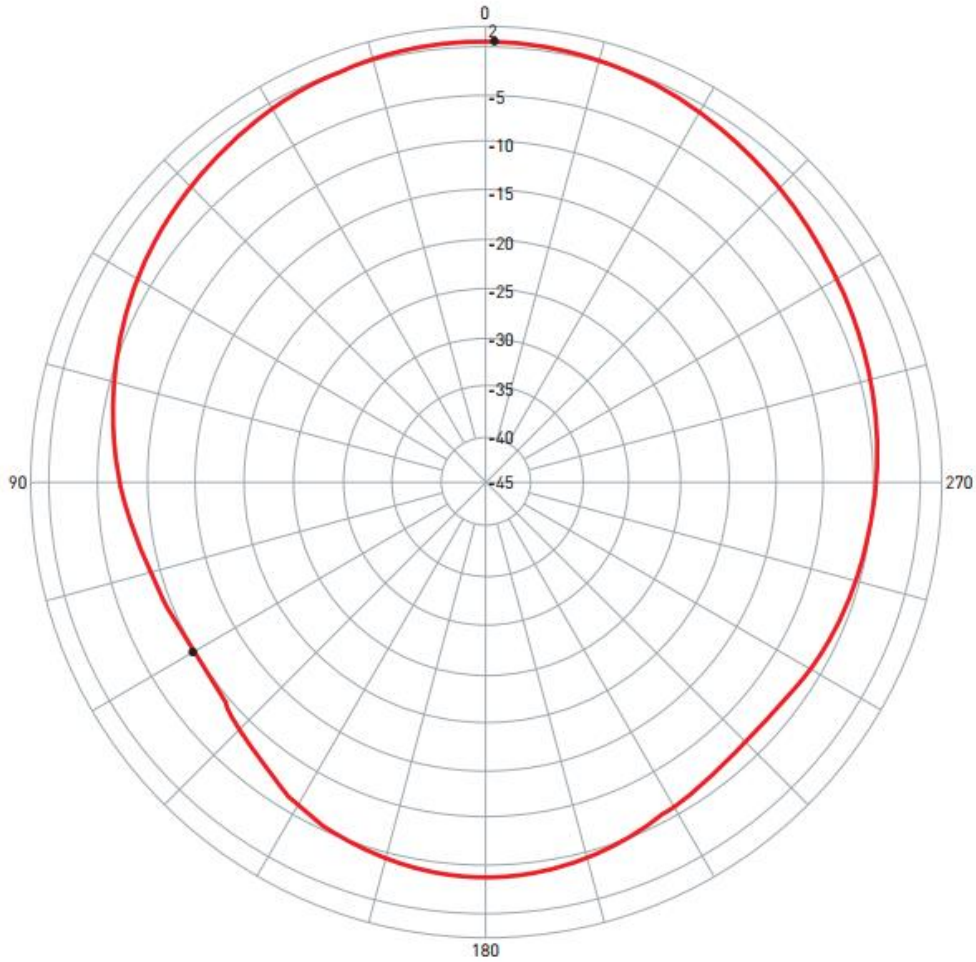
1602MHz XZ Plane



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

1602MHz YZ Plane



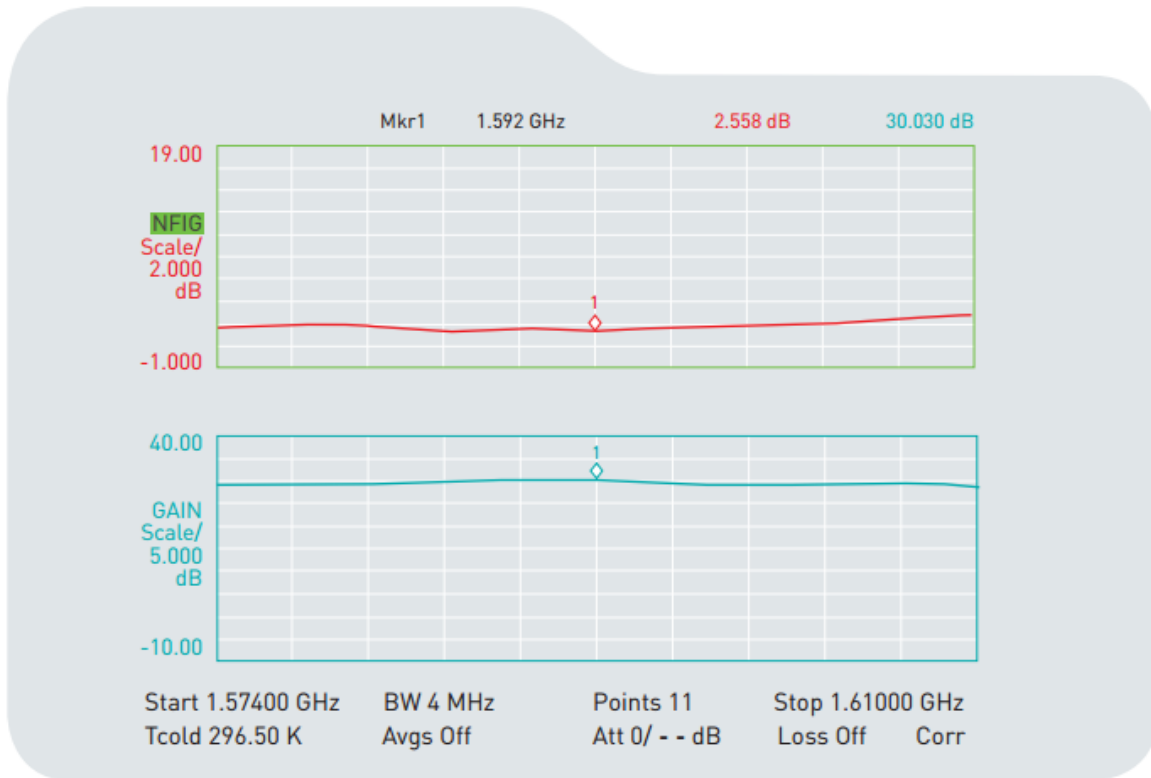
Pattern	Model No.	Test Mode	Freq (MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.
1 	AA.162.301111	YZ	1602.00	0.49 / 359.00	-10.13 / 120.00	-3.46	V+H

## 6. LNA Gain and Output Band Rejection @3.0V

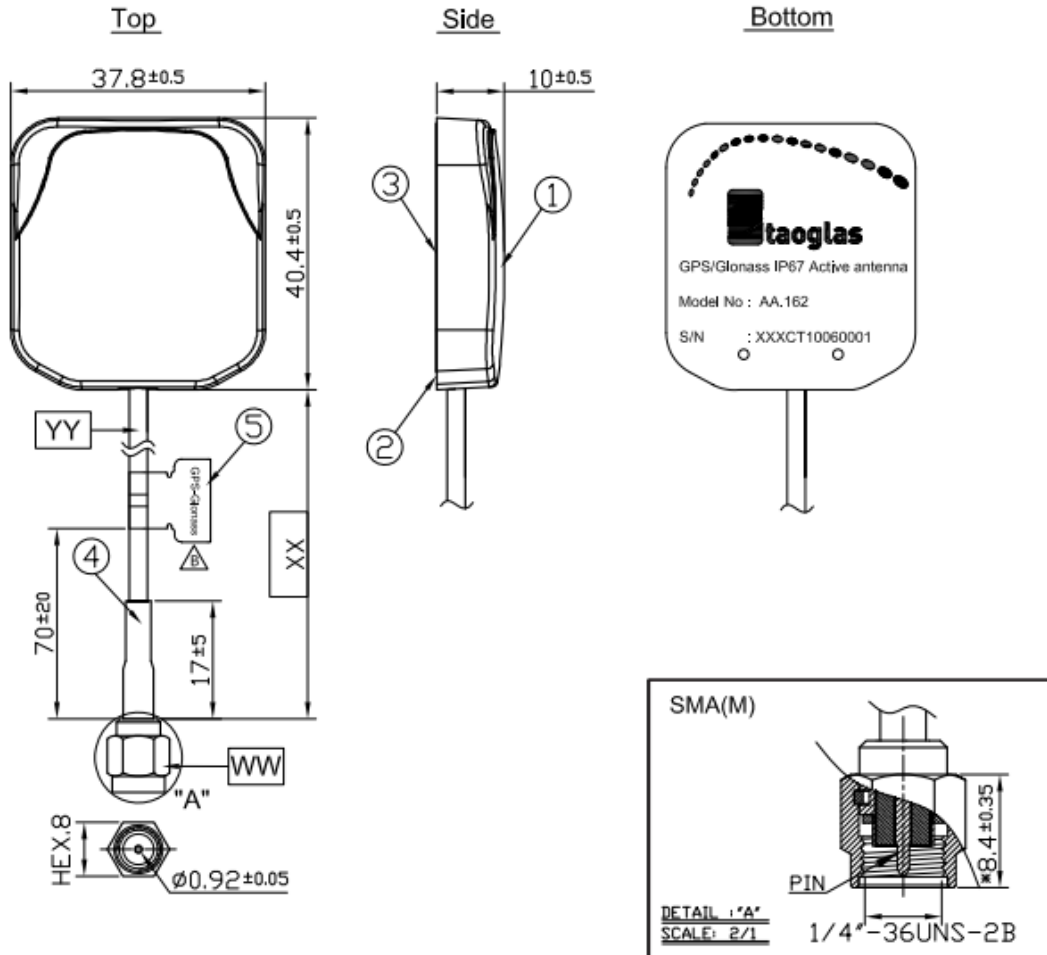


Ch1 Tr1 S21	1	1.5740000 GHz	28.186	dB
Ch1 Tr1 S21	>2	1.6100000 GHz	27.949	dB
Ch1 Tr1 S21	3	1.5920000 GHz	29.044	dB
Ch1 Tr1 S21	4	1.5420000 GHz	9.0245	dB
Ch1 Tr1 S21	5	1.6420000 GHz	-10.035	dB
Ch1 Tr1 S21	6	1.4920000 GHz	4.4105	dB
Ch1 Tr1 S21	7	1.6920000 GHz	-14.431	dB
Ch1 Tr2 S21	1	1.5740000 GHz	1.0816	
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	$3000 \pm 50$ mm		1
YY	Cable Type	RG174	Black	1

# 9.Packaging

