Specification

Part No.	:	**AA.166.A.301111**
Product Name	:	Ulysses Ultra Low Profile Magnetic Mount GPS/GLONASS/Galileo/BeiDou Antenna
Features	:	Dimensions: 37.8*40.4*10mm Cable: 3m RG-174 Connector: SMA(M) IP67 Rated Cable Length and Connector Customizable **RoHS & REACH Compliant**

1. Introduction

The Ulysses miniature ultra low profile (only 10mm in height) GNSS antenna is designed for applications which require high positioning accuracy by combining signals from GPS, GLONASS, Galileo and BeiDou systems. The tiny size of this antenna allows it to be used in very space restricted environments.

A high gain wide-band patch antenna on an integral ground delivers reliable performance. A fully IP67 waterproof rated and UV resistant enclosure allows use in outdoor environments. Mid 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 IATF16949 approved facility. Custom cables and connectors available on request. Contact your regional Taoglas customer support team for more information.

2. Specification

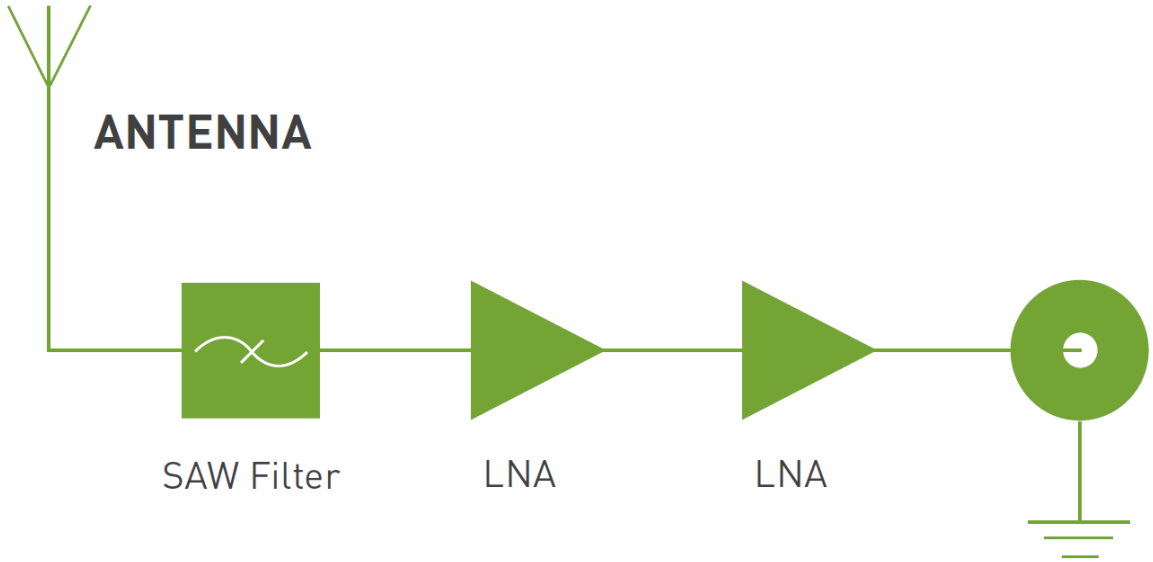
GPS-Galileo-GLONASS-BeiDou					
Center Frequency	Galileo E1	BeiDou	GPS	Galileo E2	GLONASS
	1559 MHz	1561 MHz	1575.42±1.023 MHz	1592 MHz	1602±5 MHz
Passive Antenna Efficiency (%)	46.13	51.33	34.56	49.74	44.55
Passive Antenna Average gain (dBi)	-3.36	-2.90	-4.61	-2.41	-3.51
Passive Antenna Peak gain	1.92	2.34	0.34	2.10	1.81
VSWR	<5				
Impedance	50Ω				
Axial Ratio	Galileo E1:28.94 Beidou:<27.29 GPS:<0.93 Galileo:< 7.76 GLONASS:< 16.15				
Polarization	RHCP				
	LNA and Filter Electrical Properties				
Center Frequency	BeiDou:1561±2.046 MHz GPS:1575.42±1.023 MHz GLONASS:1602±5 MHz Galileo:1575.5±MHz				
Pout 1dB gain Compression point	-6dBm Min. -2 dbm Typ. (1561MHz,1575.42MHz,1602MHz,1559MHz-1592MHz)				
Output Impedance	50 Ohm				
VSWR	< 5:1				
Return Loss	-3 dB Max.				
LNA Gain, Current Draw, and Noise Figure @GPS	Frequency (MHz)	Voltage	LNA Gain(Typ)	Noise Figure(Typ)	
	1559	3-5V	31.37	3.24	
	1561		31.31	3.16	
	1575.42		29.75	2.66	
	1591		31.21	3.00	
	1602		30.43	2.97	

MECHANICAL	
Antenna Dimensions	40.4 x 37.8 x 10mm
Housing Material	UV Resistant ABS
Cable	3m RG-174
Connector	SMA(M)
Magnet force	
ENVIRONMENTAL	
Operation Temperature	-40°C to 85°C
Storage Temperature	-40°C to 85°C
Humidity	Non-condensing 40°C 95% RH

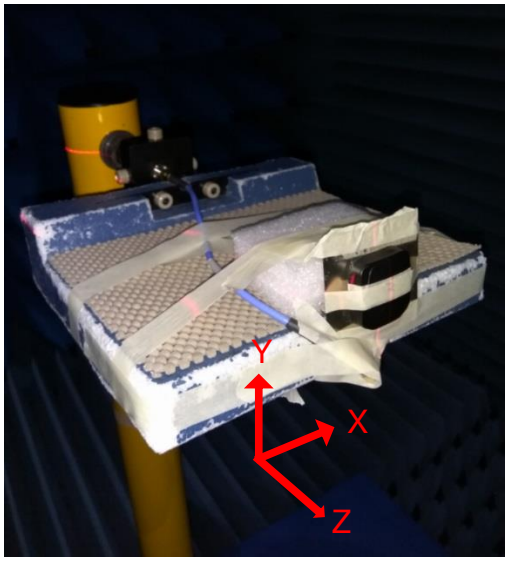
3. Antenna Characteristics

3.1 GPS-GLONASS-GALILEO-BEIDOU Antenna

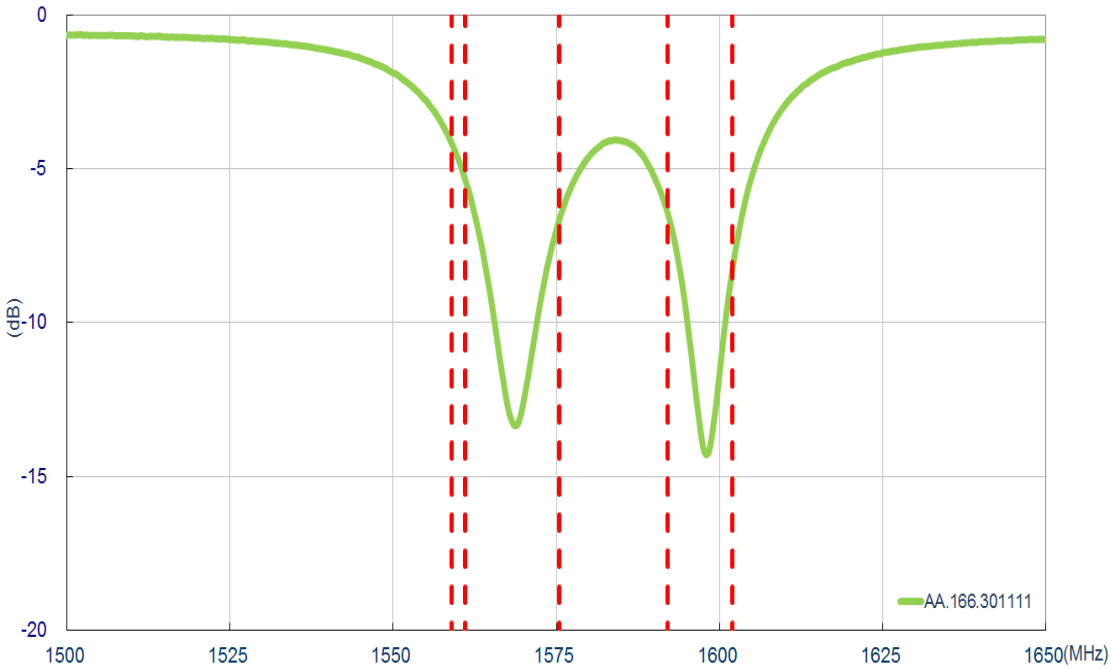
3.1.1 Block Diagram (Active antenna)



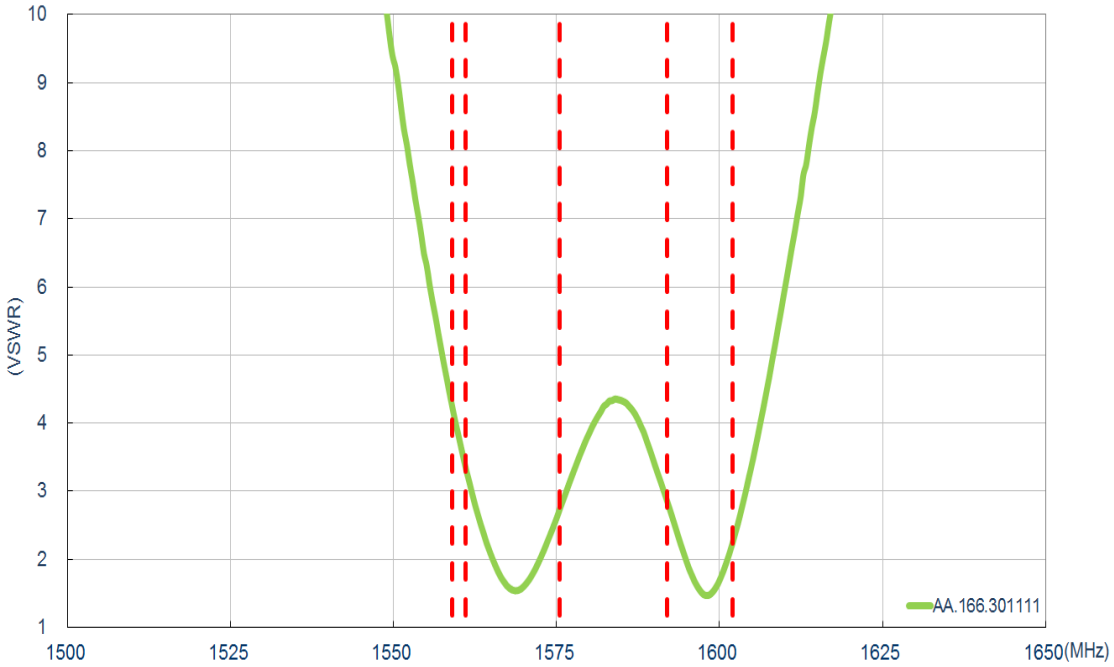
3.1.2 Test Setup



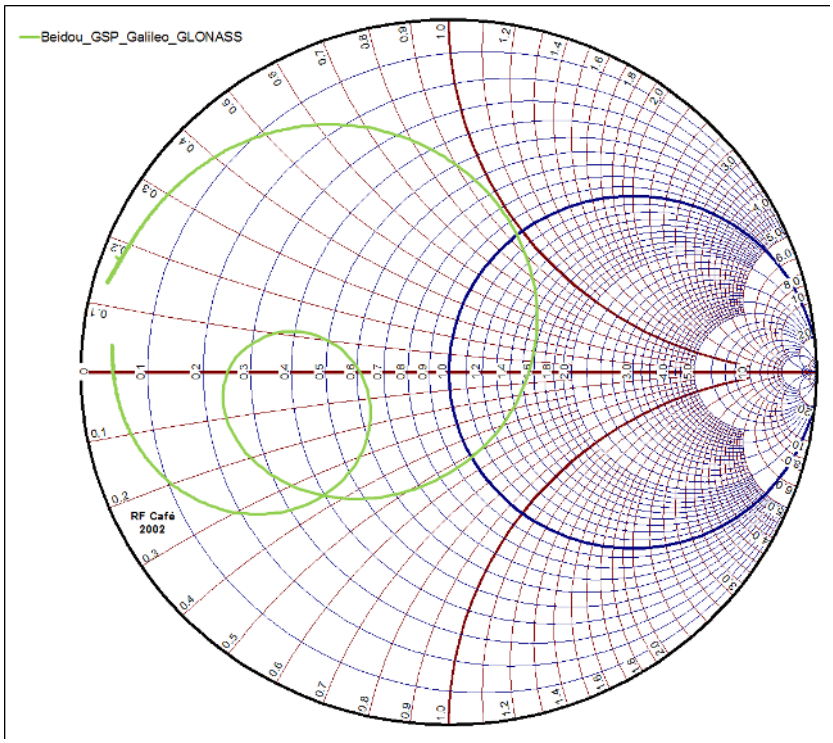
3.1.3 Return Loss (Passive antenna)



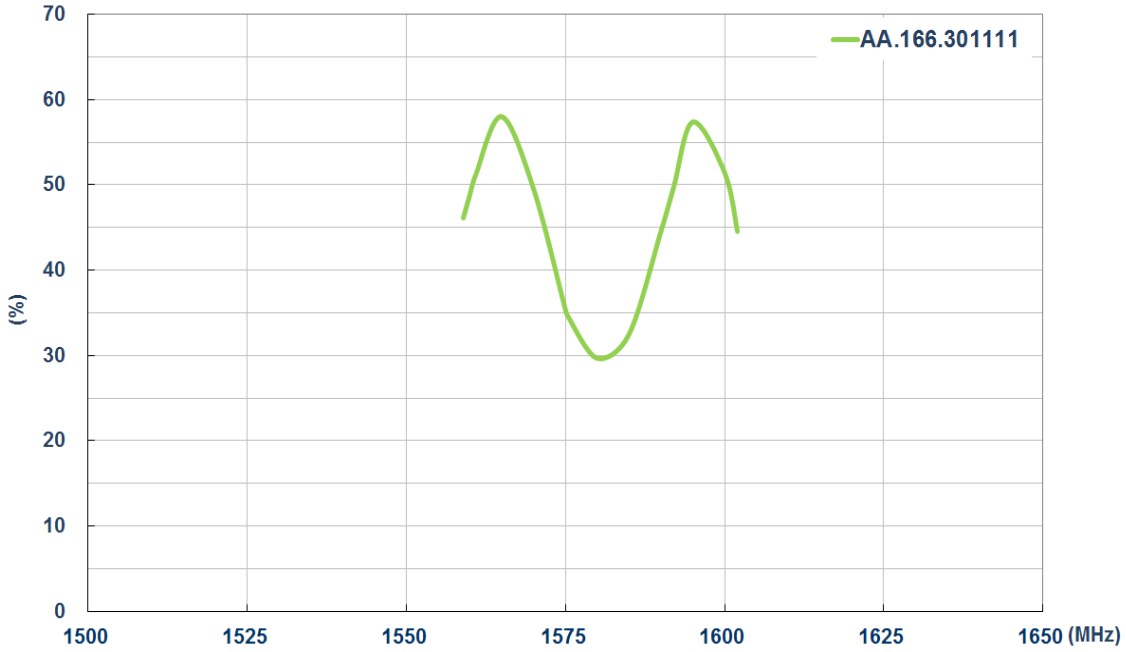
3.1.4 VSWR (Passive antenna)



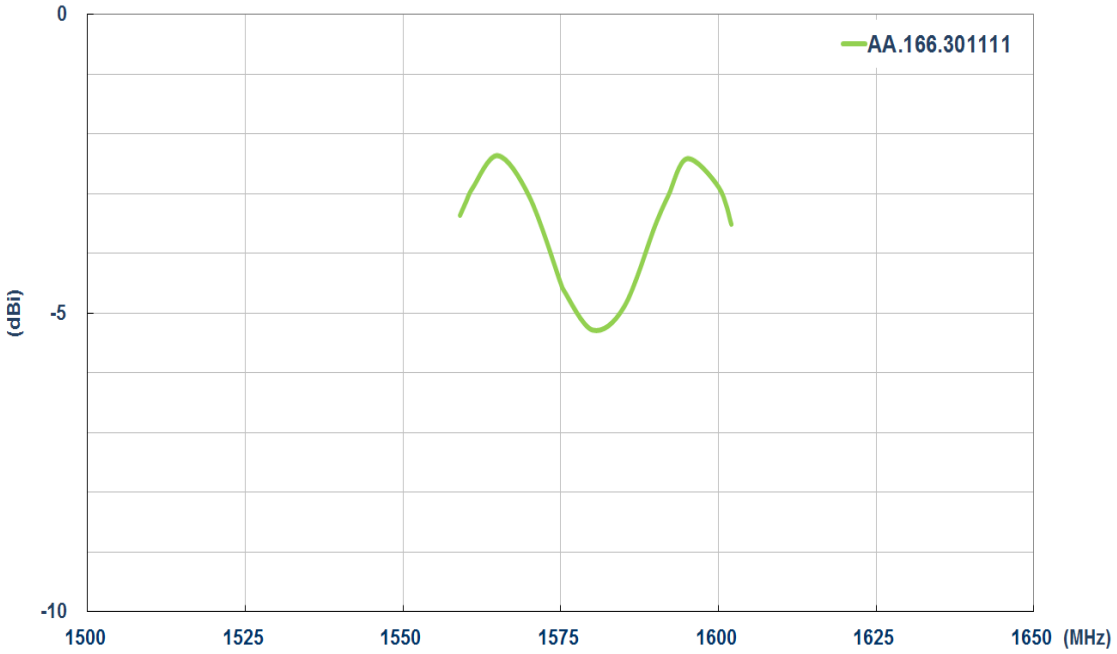
3.1.5 Smith Chart (Passive antenna)



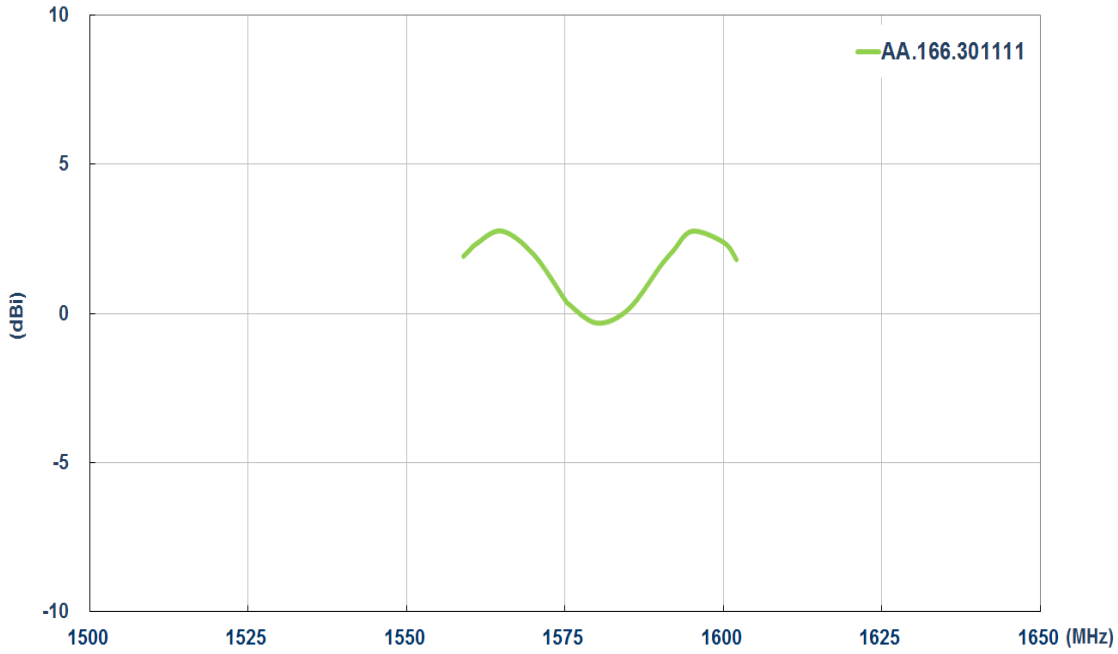
3.1.6 Efficiency (Passive antenna)



3.1.7 Average Gain (Passive antenna)



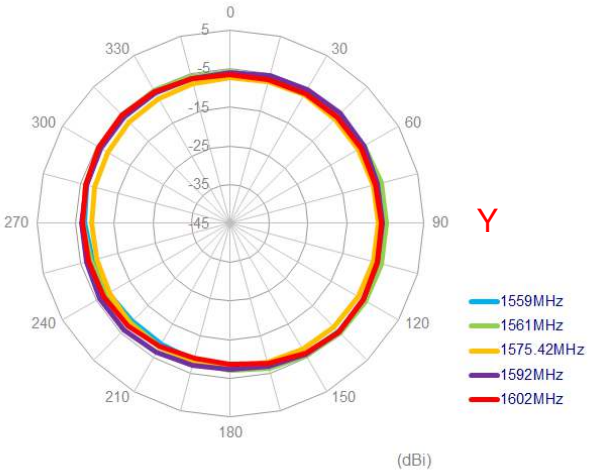
3.1.8 Peak Gain (Passive antenna)



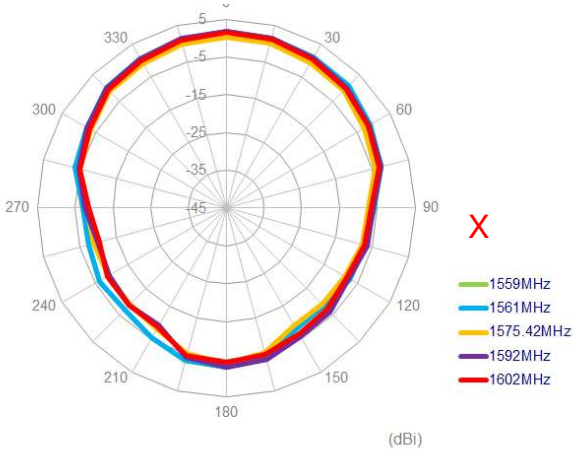
.1.9 Antenna Radiation Pattern (Passive antenna)

2D Radiation pattern

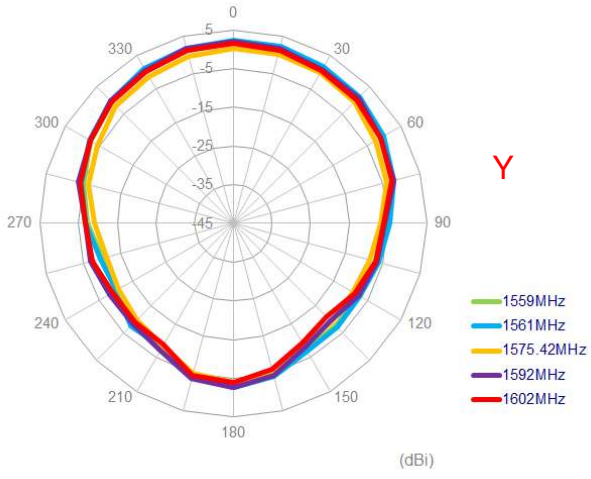
X



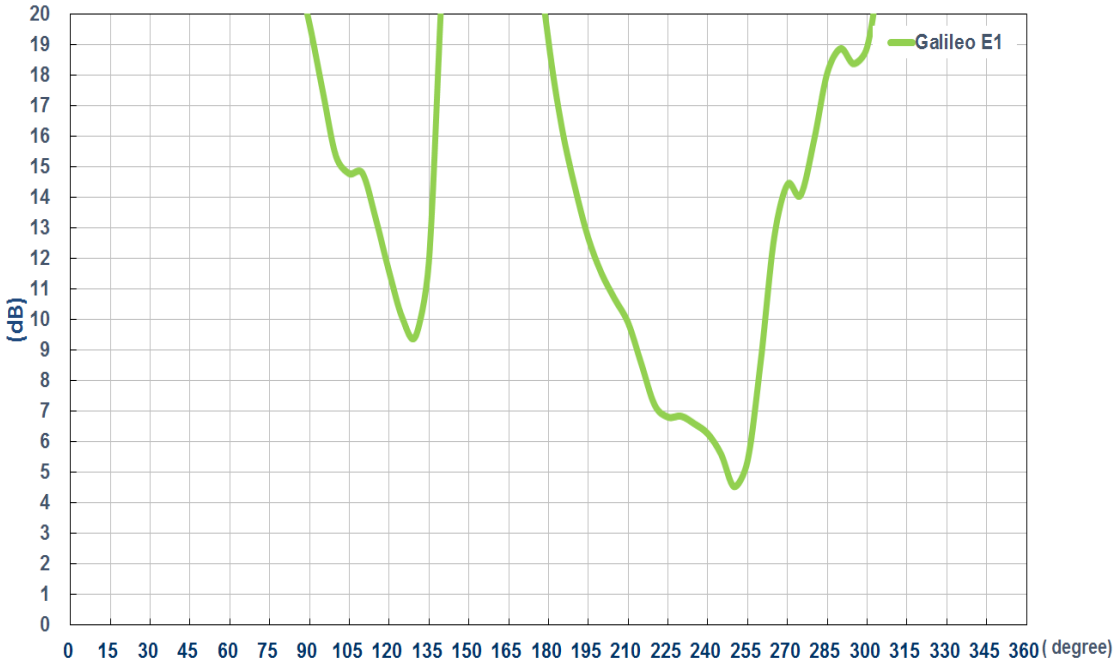
Z

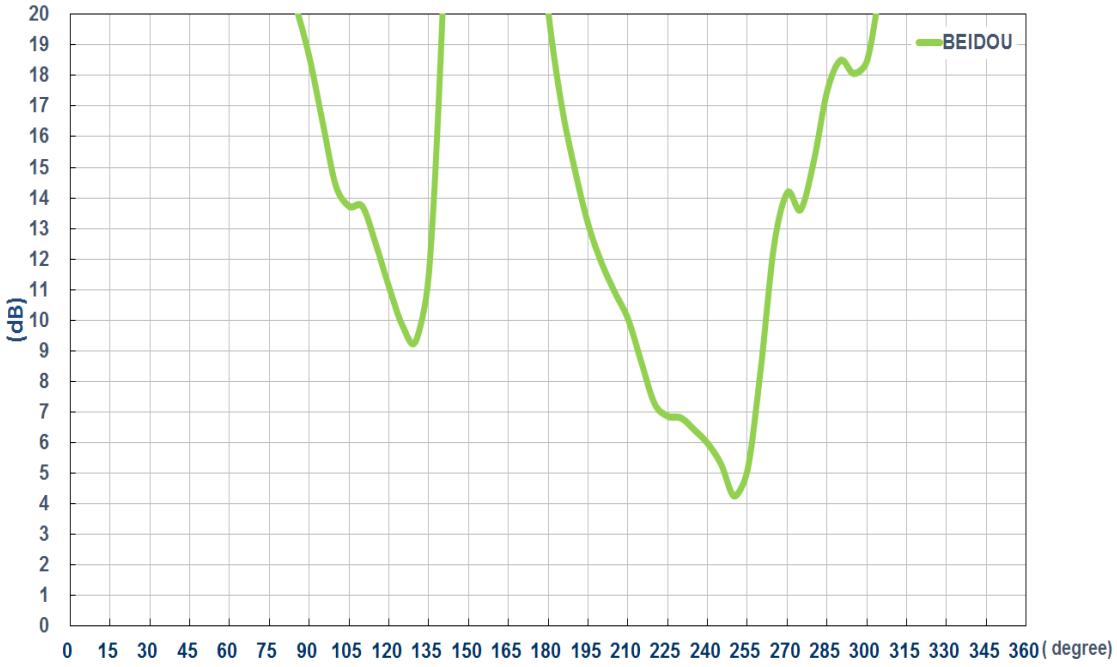


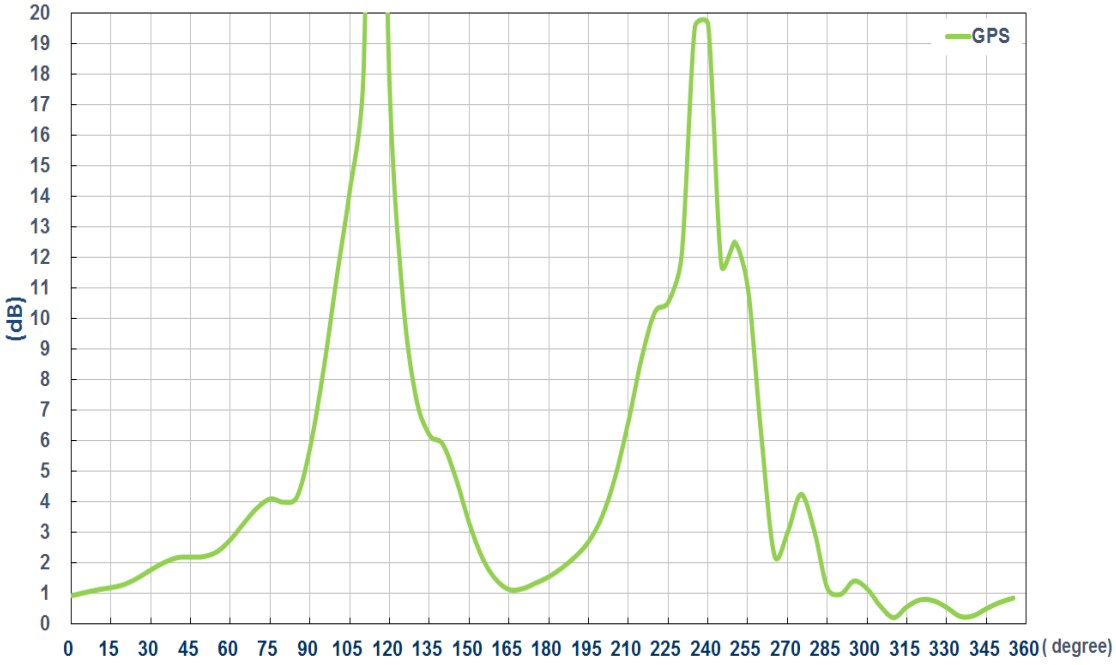
Z

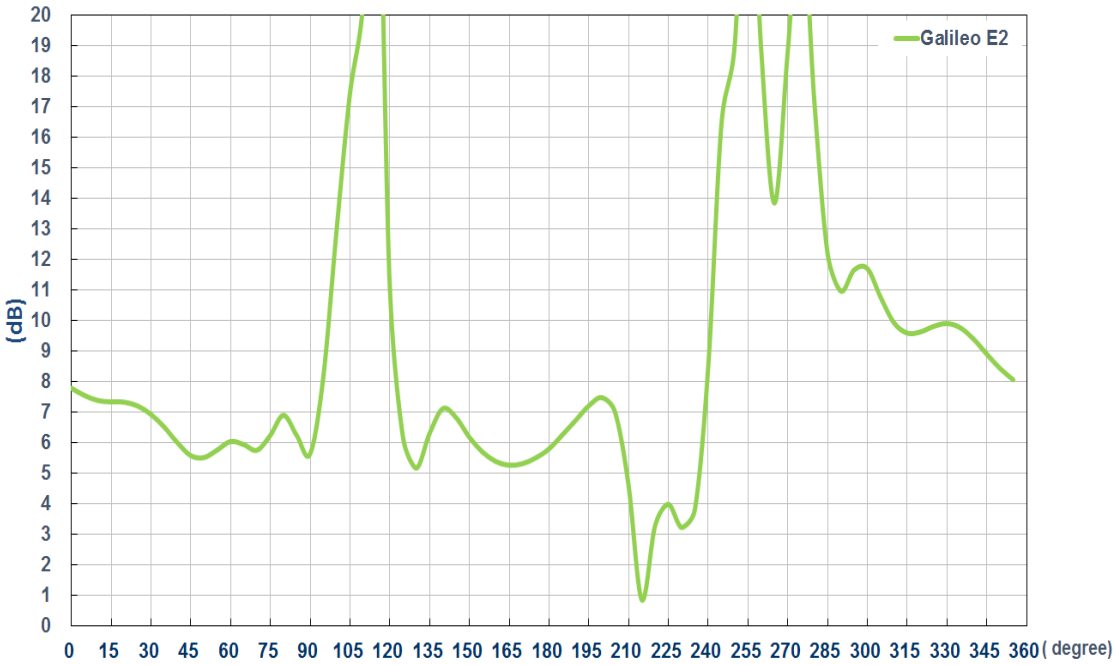


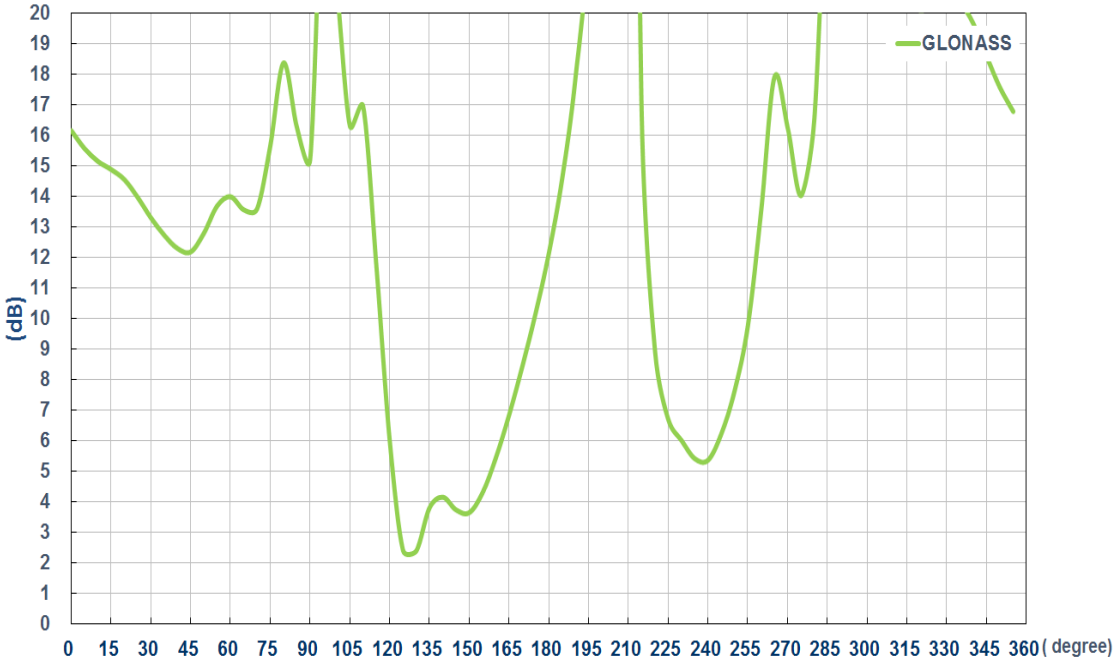
3.1.10 Axial Ratio Pattern (Passive antenna)



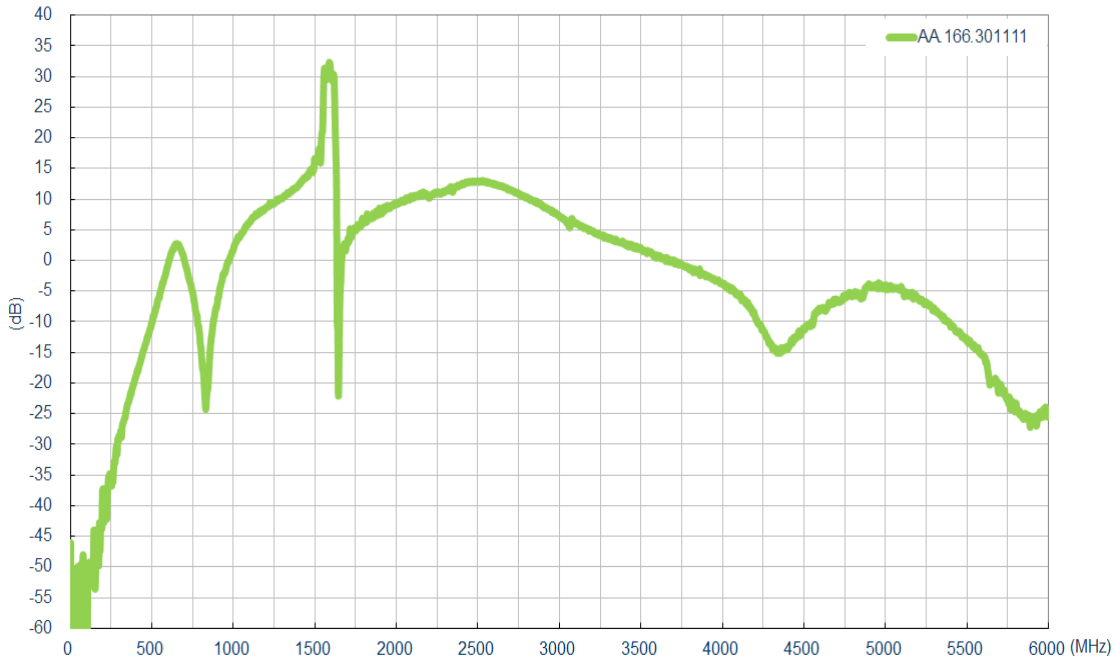



GPS
(dB)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
0 15 30 45 60 75 90 105 120 135 150 165 180 195 210 225 240 255 270 285 300 315 330 345 360 (degree)

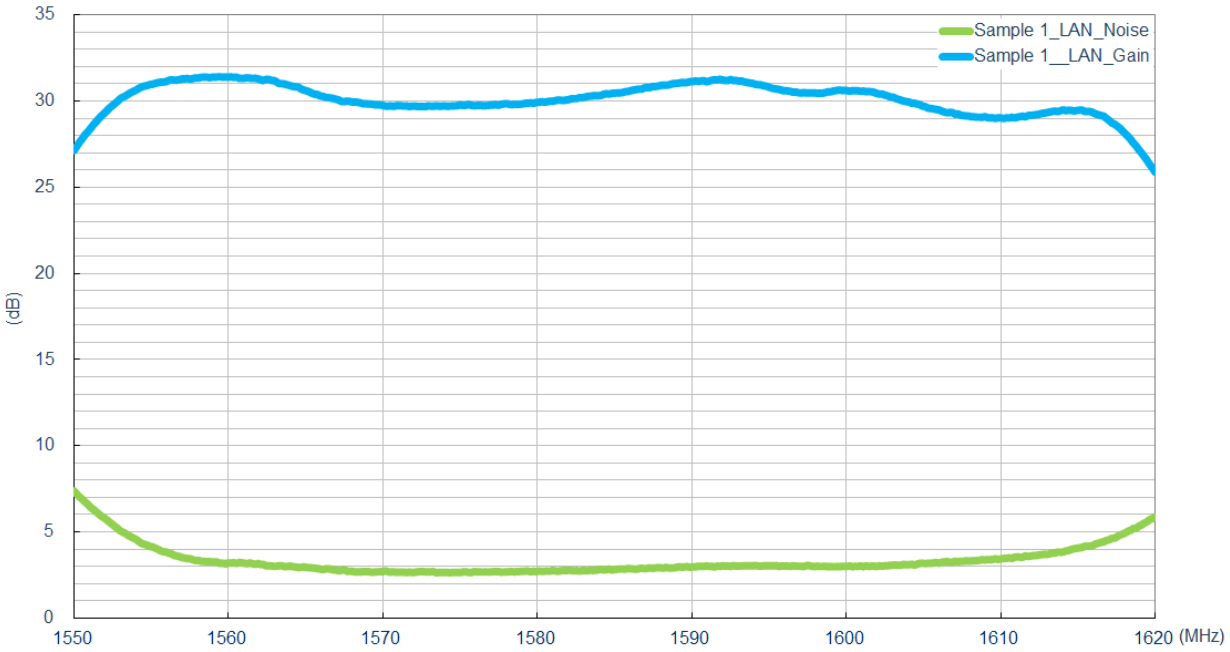

Galileo E2
(dB)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
0 15 30 45 60 75 90 105 120 135 150 165 180 195 210 225 240 255 270 285 300 315 330 345 360 (degree)



3.1.11 LNA Gain and Noise Figure (Active antenna)

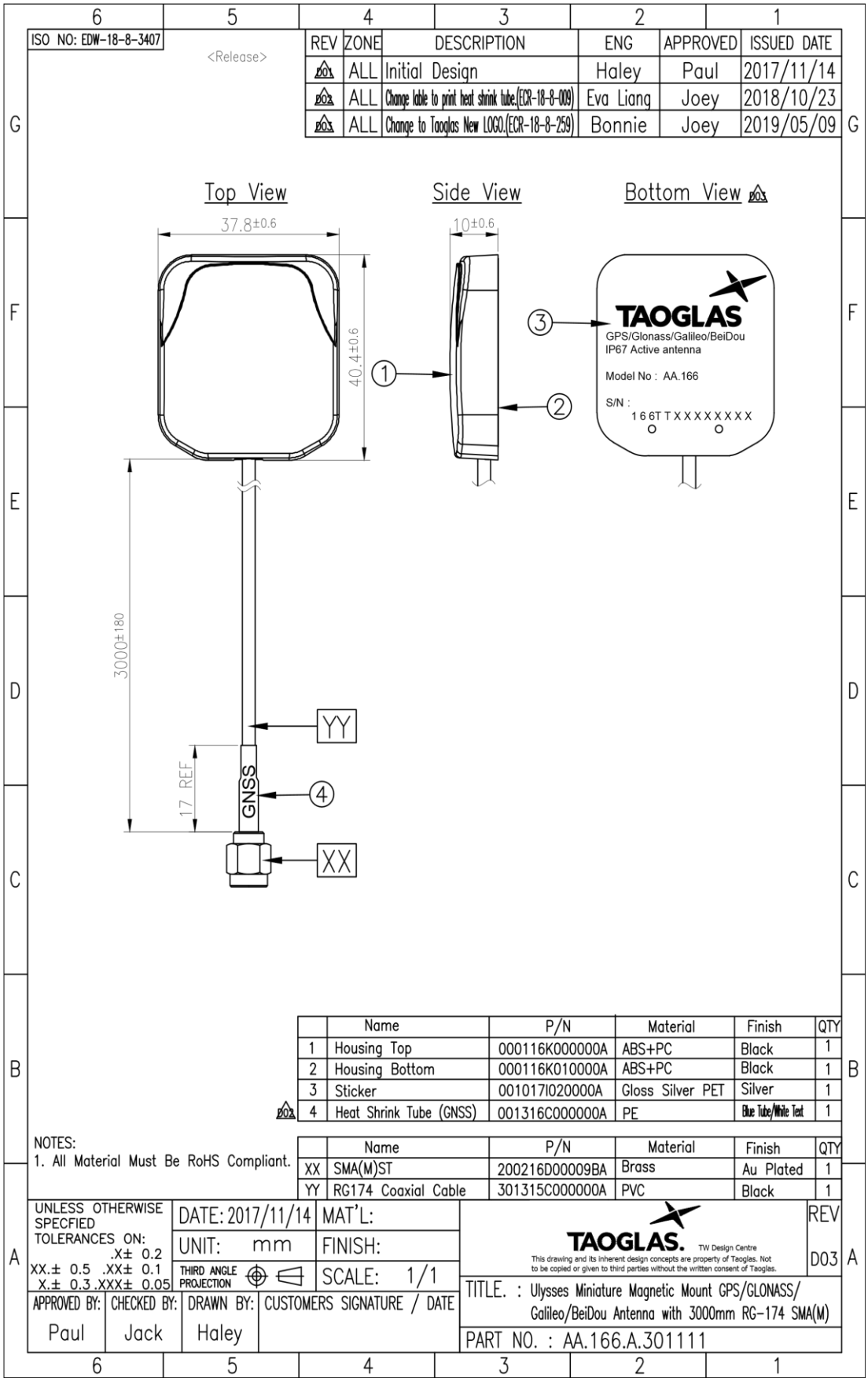


LNA Gain@3.0V



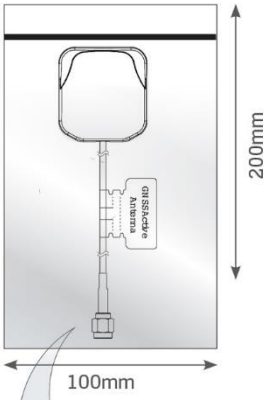
LNA Noise Figure @3.0V

4. Mechanical Drawing (Unit:mm)

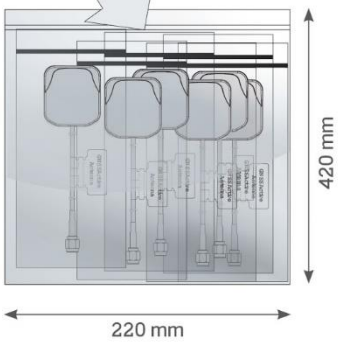


5. Packaging

1 pcs AA.166.A.301111 per PE bag
PE Bag Dimensions - 100 x 200mm
Weight - 65g



10 PE bags per large PE bags
10 pcs AA.166.A.301111 per large PE bags
Carton Dimensions - 420 x 220mm
Weight - 0.65kg



10 Large PE bags per carton
100 pcs AA.166.A.301111 per carton
Carton Dimensions - 380 x 380 x 310mm
Weight - 7.5kg