

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

Center Frequency	GPS-Galileo-GLONASS-BeiDou						
Frequency 1559 MHz 1561 MHz 15/3.42±1.02 1592 MHz 1602±5 MHz Passive Antenna Efficiency (%) Passive Antenna 46.13 51.33 34.56 49.74 44.55 Passive Antenna Average gain (dBi) Passive Antenna Pask gain VSWR STAND SWR STAND SWR	Center	Galileo E1	BeiDou		Galileo E2	GLONASS	
Efficiency (%) Passive Antenna Average gain (dBi) Passive Antenna Average gain (dBi) Passive Antenna Peak gain VSWR Impedance Galileo E1:28.94 Beidou:<27.29 GPS:<0.93 Galileo:<7.76 GLONASS:<16.15 Polarization LNA and Filter Electrical Properties BeiDou:1561±2.046 MHz GPS:1575.42±1.023 MHz Galileo:1575.5±MHz Pout 1dB gain Compression point Output Impedance VSWR Return Loss Frequency (MHz) LNA Gain, Tiber Frequency (MHz) Voltage Frequency LNA Gain, Tiber Current Draw, and Noise Figure @GPS 1591 1.92 2.34 3.4.61 -2.41 -3.51 -		1559 MHz	1561 MHz		1592 MHz	1602±5 MHz	
Average gain (dBi) Passive Antenna Peak gain VSWR Impedance Galileo E1:28.94 Beidou: <27.29 Axial Ratio Center Frequency Frequency Pout 1dB gain Compression point Output Impedance Output Impedance VSWR Cetter VSWR Compression Point Cutha file Compression Point Coutput	Efficiency (%)	46.13	51.33	34.56	49.74	44.55	
Peak gain VSWR S S S S S S S S S	Average gain (dBi)	-3.36	-2.90	-4.61	-2.41	-3.51	
Timpedance SOΩ		1.92	2.34	0.34	2.10	1.81	
Axial Ratio Galileo E1:28.94 Beidou:<27.29 GPS:<0.93 Galileo:< 7.76 GLONASS:< 16.15 RHCP	VSWR	<5					
Beidou:<27.29 GPS:<0.93 Galileo:< 7.76 GLONASS:< 16.15 RHCP	Impedance	50Ω					
LNA and Filter Electrical Properties	Axial Ratio	Beidou:<27.29 GPS:<0.93 Galileo:< 7.76					
BeiDou:1561±2.046 MHz	Polarization	RHCP					
Center Frequency GPS:1575.42±1.023 MHz GLONASS:1602±5 MHz Galileo:1575.5±MHz Pout 1dB gain Compression point -6dBm Min2 dbm Typ. (1561MHz,1575.42MHz,1602MHz,1559MHz-1592MHz) Output Impedance VSWR 50 Ohm VSWR < 5:1 Return Loss -3 dB Max. Frequency (MHz) Voltage LNA Gain(Typ) Noise Figure(Typ) LNA Gain, Current Draw, and Noise 1559 31.37 3.24 Current Draw, and Noise 1575.42 3-5V 29.75 2.66 Figure @GPS 1591 31.21 3.00		LNA and Filter Electrical Properties					
Center Frequency GLONASS:1602±5 MHz Galileo:1575.5±MHz		BeiDou:1561±2.046 MHz					
Frequency GLONASS:1602±5 MHz	Center	GPS:1575.42±1.023 MHz					
Pout 1dB gain Compression point Output Impedance VSWR Return Loss Frequency (MHz) LNA Gain, Current Draw, and Noise Figure @GPS -6dBm Min2 dbm Typ. (1561MHz,1575.42MHz,1602MHz,1559MHz- 1592MHz) 50 Ohm -5:1 -3 dB Max. Voltage LNA Gain(Typ) Noise Figure(Typ) 1561 31.37 3.24 31.31 3.16 31.66 31.31 3.16 31.31 3.16 31.31 3.16 31.31 3.16 31.31 3.16 31.31 3.16					1602±5 MHz		
-6dBm Min2 dbm Typ. (1561MHz,1575.42MHz,1602MHz,1559MHz- 1592MHz) Output		Galileo:1575.5±MHz					
Compression point Output Impedance VSWR VSWR < 5:1 Return Loss -3 dB Max. Frequency (MHz) Voltage LNA Gain(Typ) Noise Figure(Typ) LNA Gain, 1559 31.37 3.24 Current Draw, and Noise 1575.42 3-5V 29.75 2.66 Figure @GPS 1591 31.21 3.00	Pout 1dB gain						
Point 50 Ohm Output Impedance 50 Ohm VSWR < 5:1	Compression						
Impedance VSWR VS	point	1592MHZ)					
VSWR < 5:1 Return Loss -3 dB Max. Frequency (MHz) Voltage LNA Gain(Typ) Noise Figure(Typ) LNA Gain, 1559 31.37 3.24 Current Draw, 1561 31.31 3.16 and Noise 1575.42 3-5V 29.75 2.66 Figure @GPS 1591 31.21 3.00		50 Ohm					
Frequency (MHz) Voltage LNA Gain(Typ) Noise Figure(Typ) LNA Gain, 1559 31.37 3.24 Current Draw, 1561 31.31 3.16 and Noise 1575.42 3-5V 29.75 2.66 Figure @GPS 1591 31.21 3.00							
LNA Gain, 1559 31.37 3.24 Current Draw, 1561 31.31 3.16 and Noise 1575.42 3-5V 29.75 2.66 Figure @GPS 1591 31.21 3.00	Return Loss	-3 dB Max.					
Current Draw, 1561 31.31 3.16 and Noise 1575.42 3-5V 29.75 2.66 Figure @GPS 1591 31.21 3.00		Frequency (M	Hz) Volta	age LNA (Gain(Typ)	Noise Figure(Typ)	
and Noise 1575.42 3-5V 29.75 2.66 Figure @GPS 1591 31.21 3.00	LNA Gain,	1559		3	1.37	3.24	
Figure @GPS 1591 31.21 3.00		1561		3	1.31	3.16	
51,21	and Noise	1575.42	3-5	5V 2	9.75	2.66	
1602 30.43 2.97	Figure @GPS	1591		3	1.21	3.00	
		1602		3	0.43	2.97	



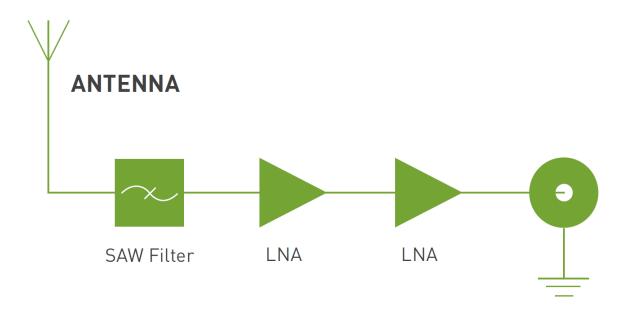
MECHANICAL				
Antenna Dimensions	40.4 x 37.8 x 10mm			
Housing Material	UV Resistant ABS			
Cable	3m RG-174			
Connector	SMA(M)			
Magnet force				
ENVIRONMENTAL				
Operation Temperature	-40°C to 85°C			
Storage Temperature	-40°C to 85°C			
Humidity	Non-condensing 40°C 95% RH			



3. Antenna Characteristics

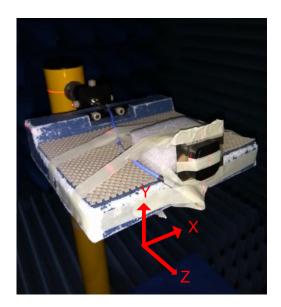
3.1 GPS-GLONASS-GALILEO-BEIDOU Antenna

3.1.1 Block Diagram (Active antenna)

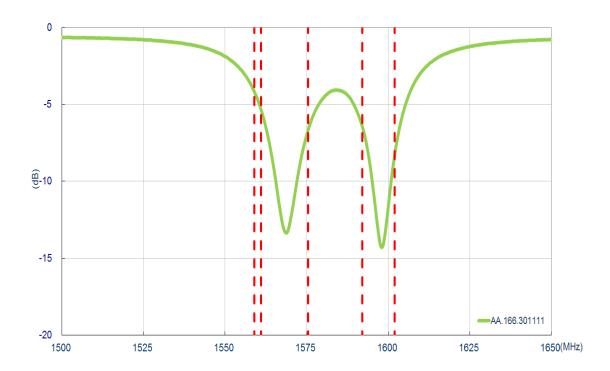




3.1.2 Test Setup

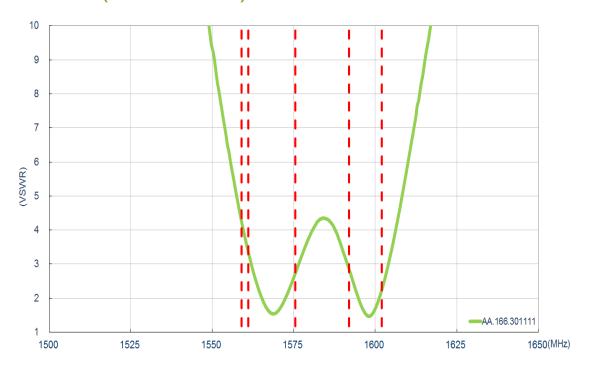


3.1.3 Return Loss (Passive antenna)

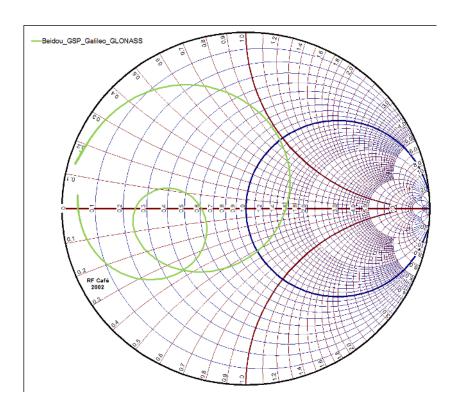




3.1.4 VSWR (Passive antenna)

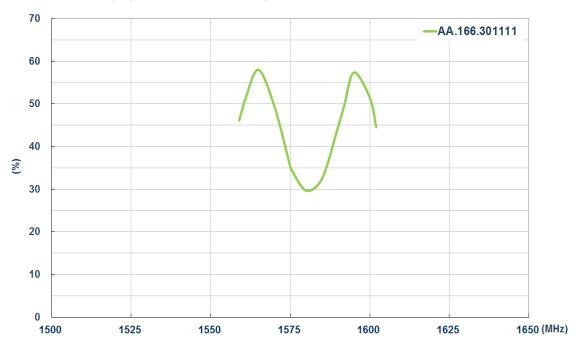


3.1.5 Smith Chart (Passive antenna)

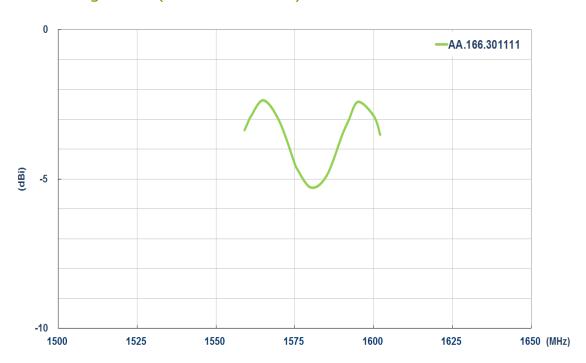




3.1.6 Efficiency (Passive antenna)

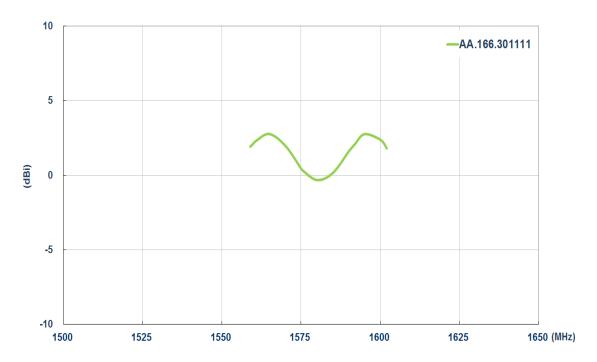


3.1.7 Average Gain (Passive antenna)



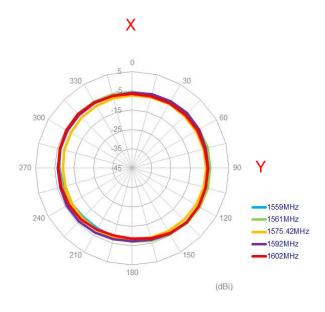


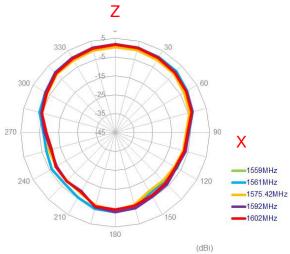
3.1.8 Peak Gain (Passive antenna)

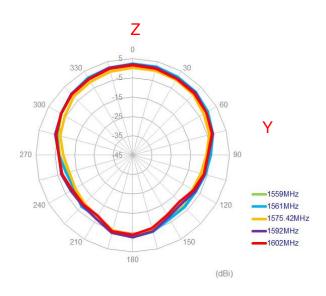




.1.9 Antenna Radiation Pattern (Passive antenna)2D Radiation pattern

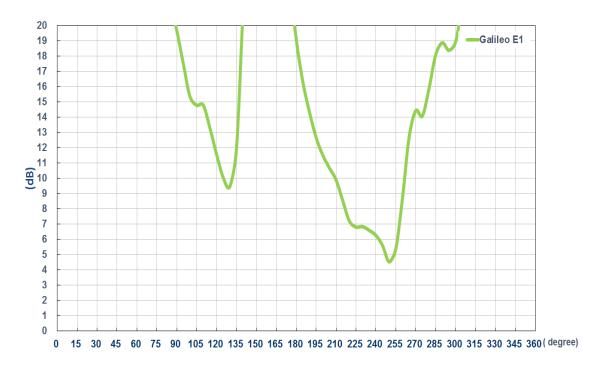


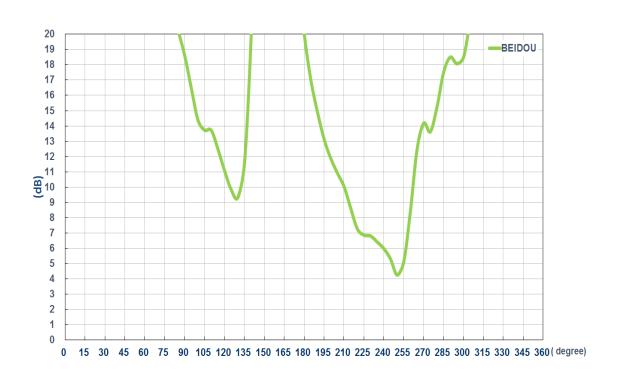




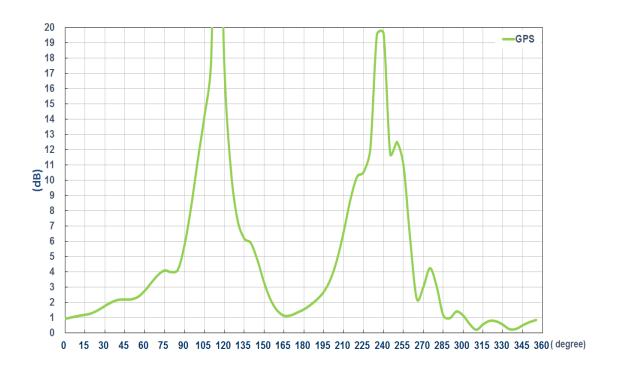


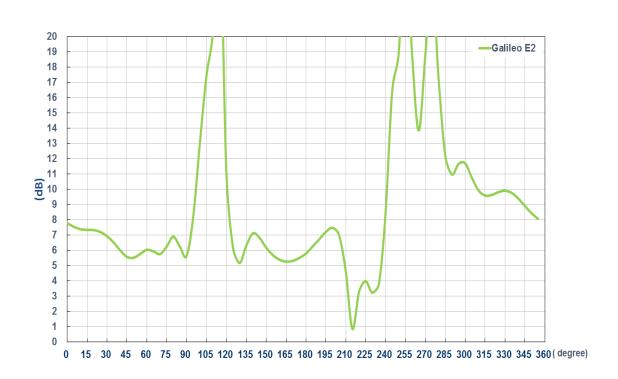
3.1.10 Axial Ratio Pattern (Passive antenna)



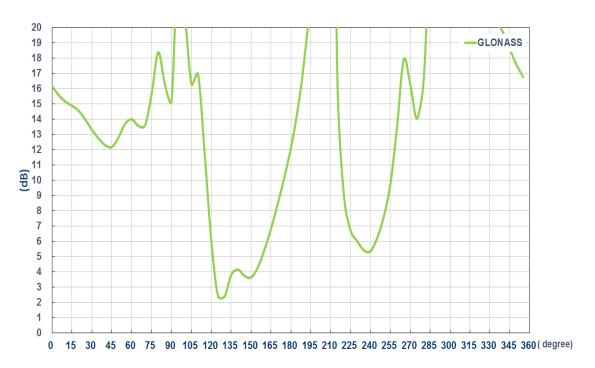




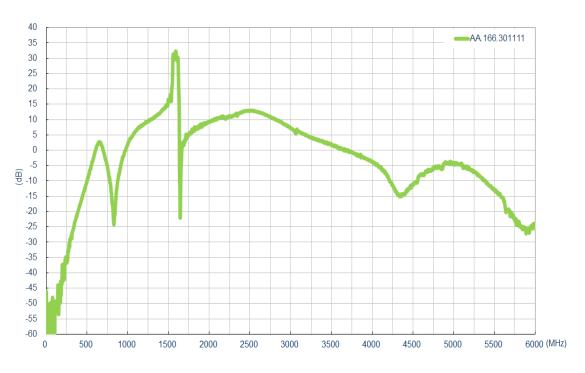






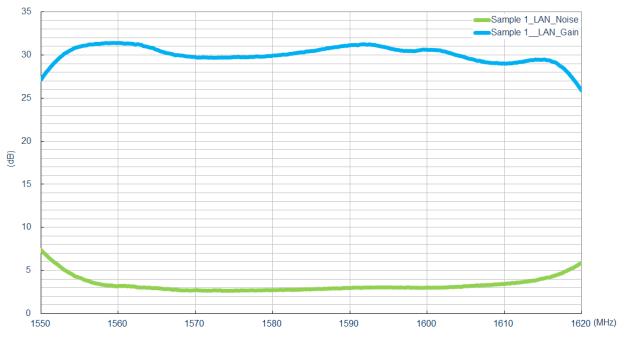


3.1.11 LNA Gain and Noise Figure (Active antenna)



LNA Gain@3.0V

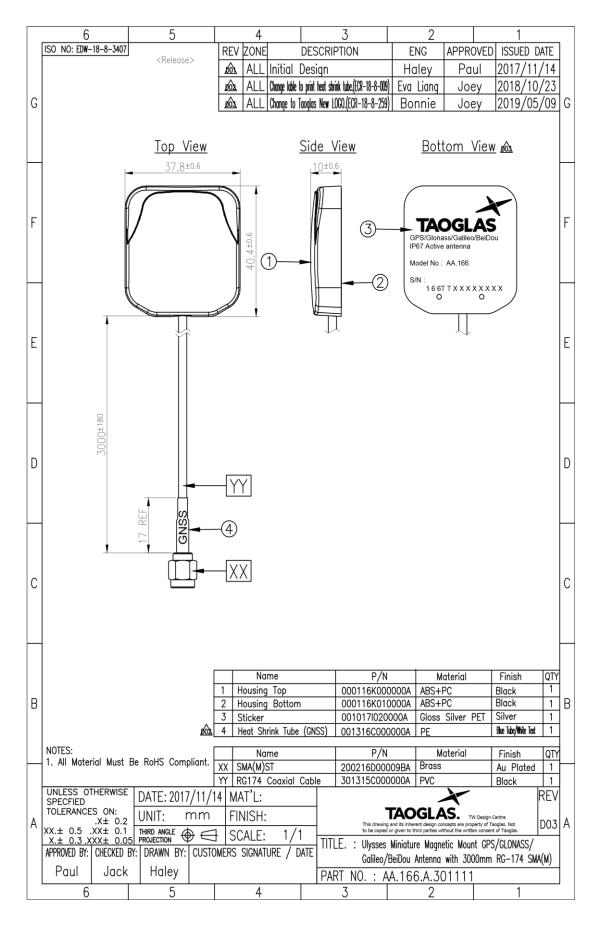




LNA Noise Figure @3.0V



4. Mechanical Drawing (Unit:mm)



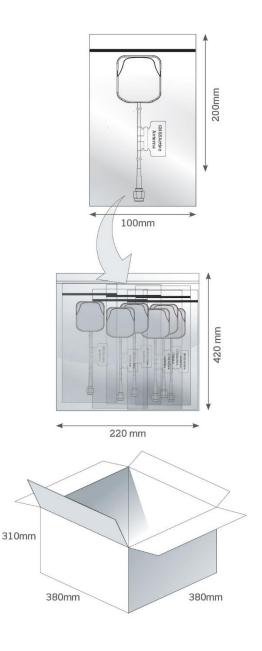


5. Packaging

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





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