Specification

Part No.	:	**A.41.A.301111**
Description	:	Hercules GEN II - Straight Screw mount GPS-GLONASS-GALILEO-BeiDou 3m SMA(M) RG-174
Features	:	2 Stage High Gain LNA (28dB) GPS/GLONASS/GALILEO/BeiDou fully supported Heavy duty permanent mount 3m RG174 with SMA(M) connector Height 29mm Diameter 49mm Cable and connectors are customizable **RoHS & REACH Compliant**

1. Introduction

The A.41 Hercules, a high gain GPS-GLONASS-Galileo-BeiDou antenna with a UV resistant and robust enclosure, is the latest generation of Hercules GNSS antennas, capable of receiving signals from the next generation receivers for all the main operating global satellite navigation systems in operation today. It helps to deliver much improved location accuracy and quicker re-acquisition time over older systems and antennas.

Focusing on the heavy duty automotive, industrial, and agricultural markets, A.41 provides a dust-tight, waterproof antenna by a one-piece CNC machined nickel-steel base plate and threads, enabling A.41 to be the ideal antenna in the urban canyons of cities in factory and field environment. It is often used such on city bus, agricultural and industrial vehicles and heavy equipment.

This high gain GPS-GLONASS-Galileo-BeiDou antenna, utlilizing a 2 stage LNA, uses a unique front end SAW filter topology which reduces the possibility of LNA compression and burn-out from other nearby radio transmitters. This front end SAW filter will smooth your device certification by reducing possibility of radiated spurious emission test failures.

Its durable UV resistant PC housing is resistant to vandalism and direct attack. At only 29mm high it complies with the latest EU directives for height restrictions, whilst also enabling covert operation with a diameter of 49mm.

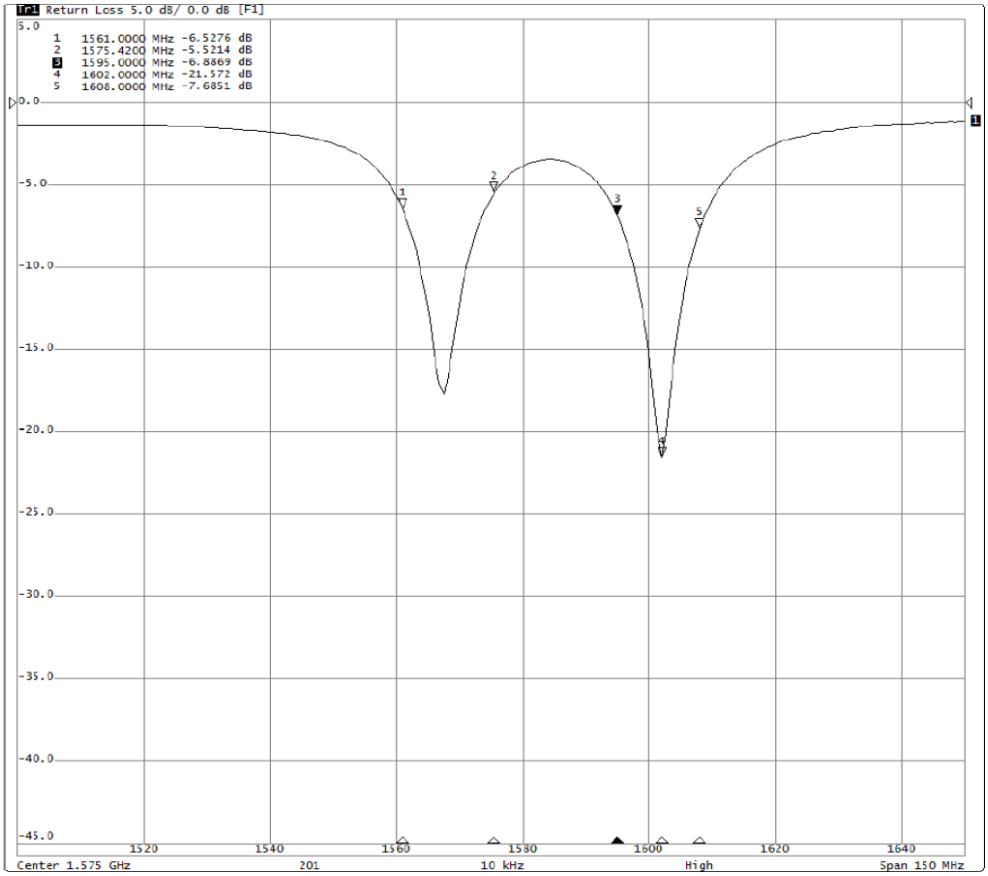
Cable lengths, types, and connectors are fully customizable. Contact your regional Taoglas sales office for support.

2. Specification

ELECTRICAL GPS/GLONASS/GALILEO/BeiDou	
Ceramic Antenna Specification	
Frequency (MHz)	1561.098± 2.046 MHz 1575.42 ± 1.023 MHz 1602± 5 MHz
Impedance (Ohm)	50Ω
Antenna Passive Gain	1561MHz: -4dBi @zenith 1575.42MHZ: -2.5dBi Typ. @zenith 1602MHZ: -0.5dBi Typ. @zenith
VSWR	2.0 max
LNA Circuits Specification	
Out Band Rejection	1584 ± 50MHz 13dB Min 1584 ±100MHz 20dB Min
Input Voltage(V)	Min:1.8V Typ:3.0V Max:5.5V
LNA Total Gain	28dB typical at 3.0V
Current consumption(mA)	10mA typical at 3.0V
Noise figure	2.8dB typical
MECHANICAL	
Dimensions	Φ49mm, Height 29mm
Cable type	RG-174
Cable length	3 meters
Casing	PC
Connector	SMA Male
Weight	157g
Recommended Torque	24.5N-m
Max. Torque	29.4N·m
ENVIRONMENTAL	
Temperature Range	-40°C to 85°C
Thermal Shock	100 cycles -40°C to +80°C
Shock (drop test)	1m drop on concrete 6 axes
Humidity	Non-condensing 65°C 95% RH

3. Antenna Characteristics

3.1. Return Loss

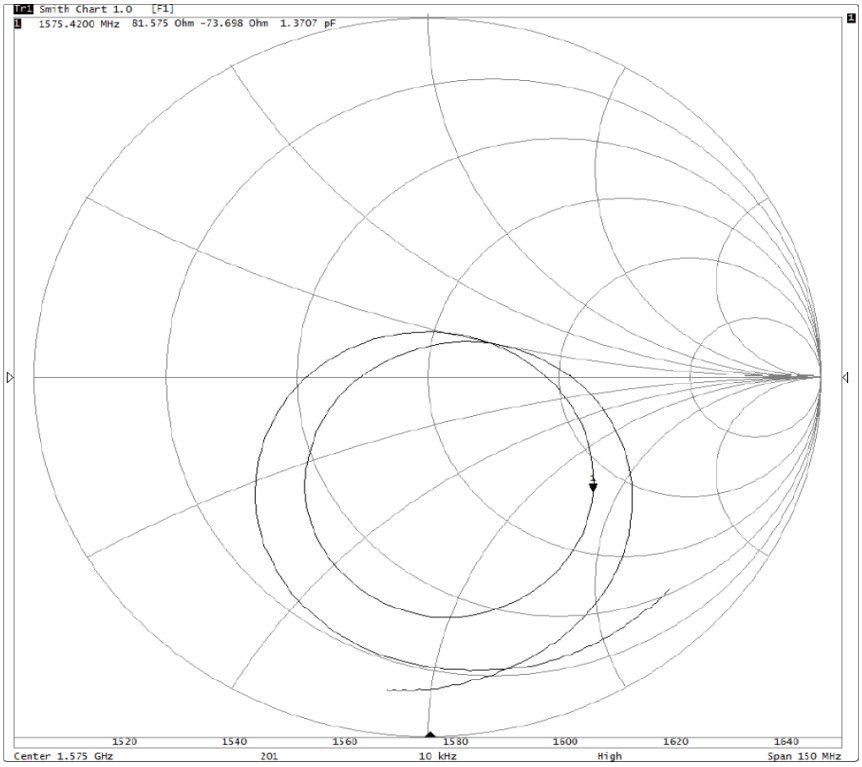


1561MHz: -6.52dB

1575.42MHz: -5.52dB

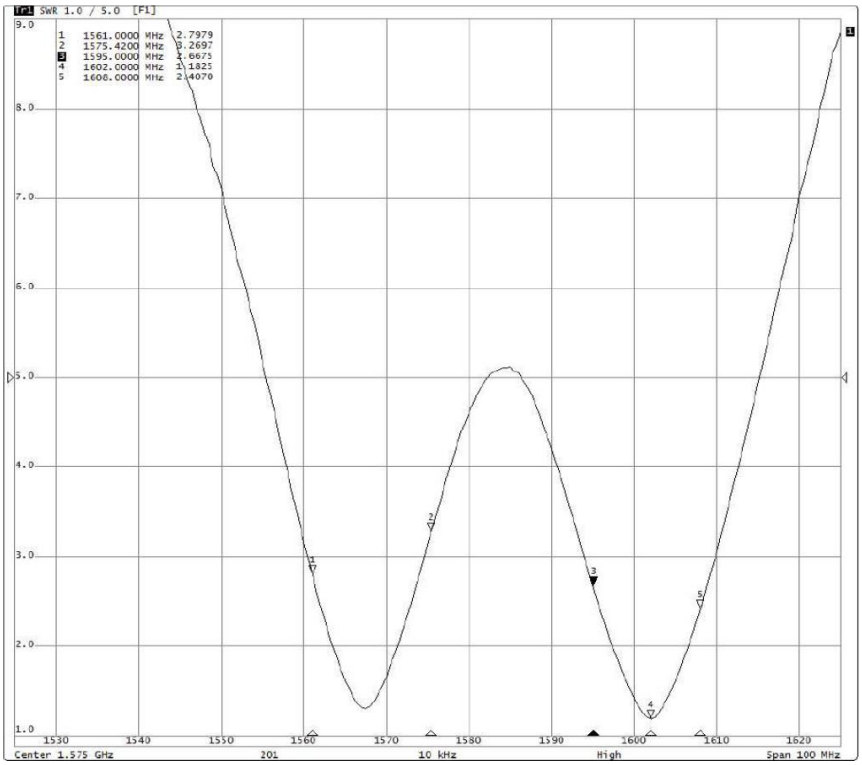
1602.6MHz: -21.57dB

3.2. Smith Chart – Impedance



Impedance: 81.57-j0.73 Ohm

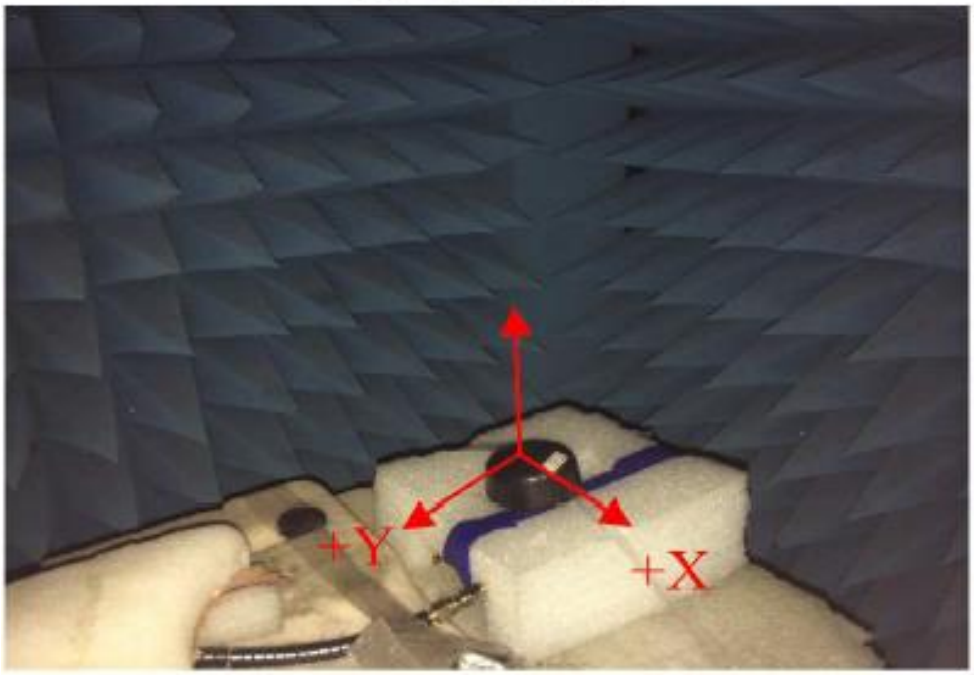
3.3. VSWR



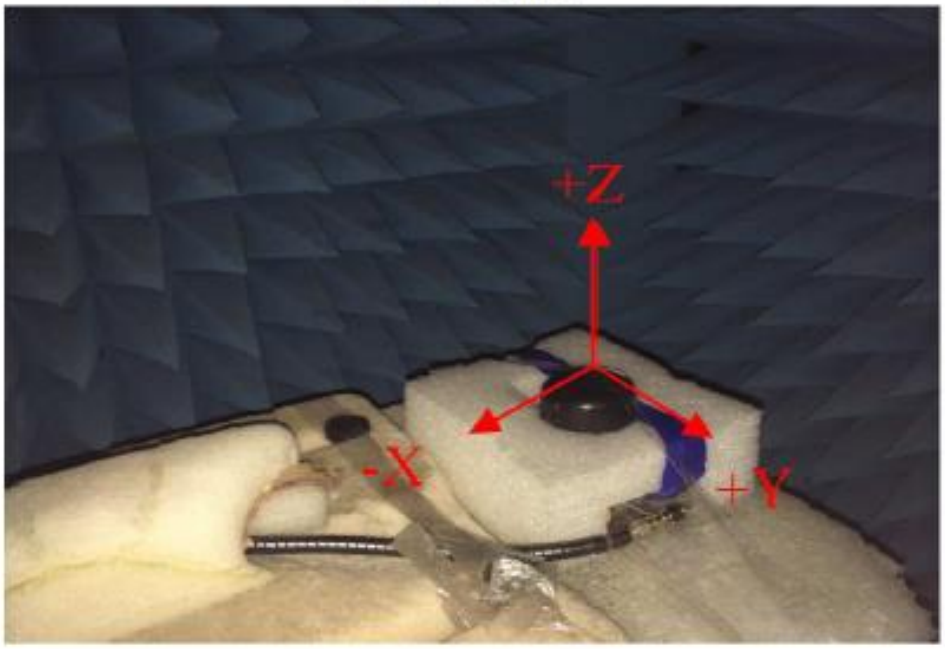
2.79@1561MHz
3.26@1575.42MHz
1.18@1602MHz

4. Antenna Radiation Pattern

XZ-Plane

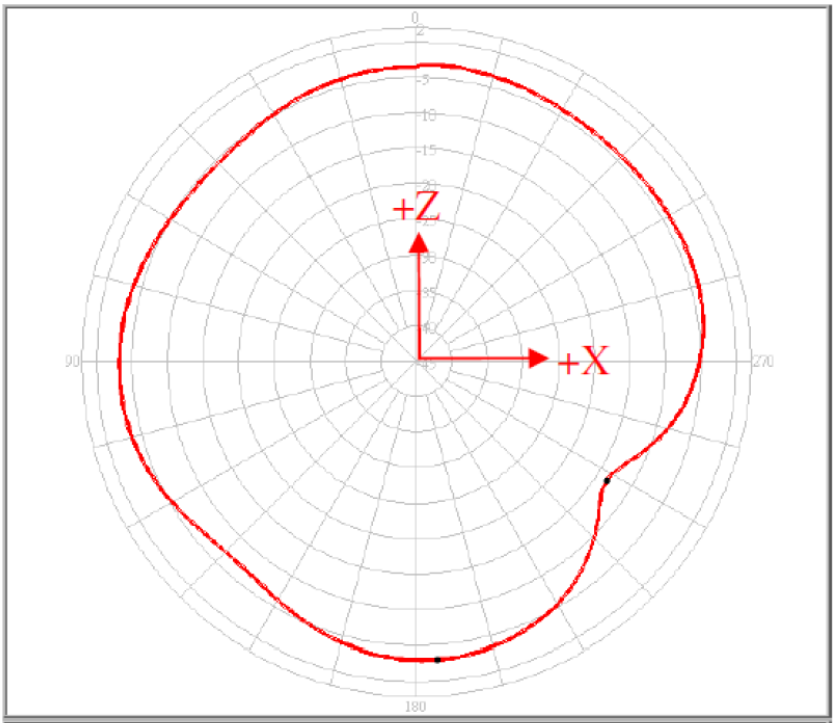


YZ-Plane



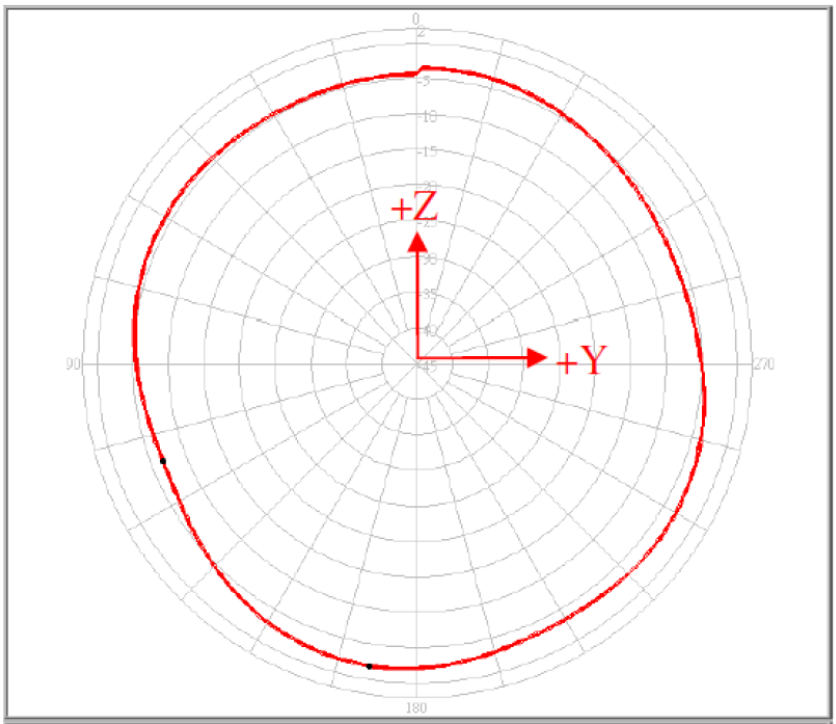
4.1. 1561MHz

XZ-Plane



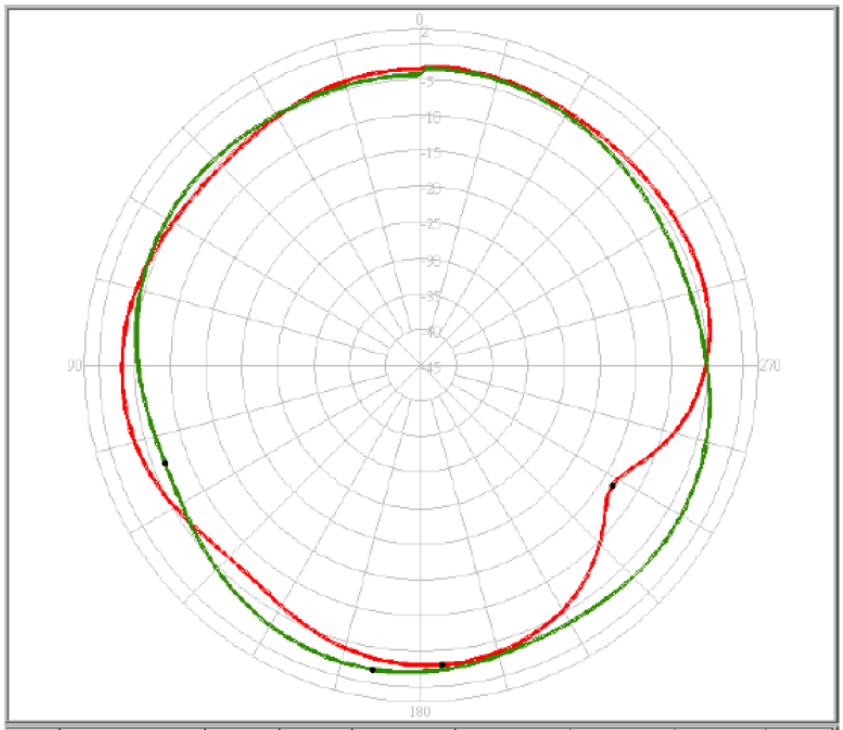
Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AGGBP.25C	XZ	1561.00	-3.05 / 184.00	-13.38 / 238.00	-4.76	V+H	2014/5/7

YZ-Plane



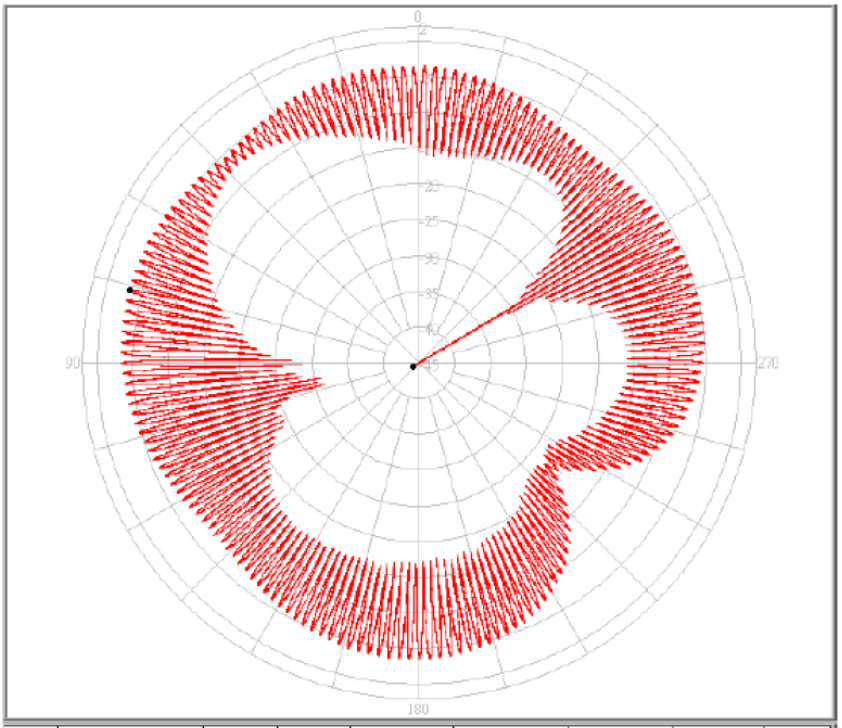
Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AGGBP.25C	YZ	1561.00	-1.96 / 171.00	-6.76 / 111.00	-4.15	V+H	2014/5/7

Gain Pattern Value



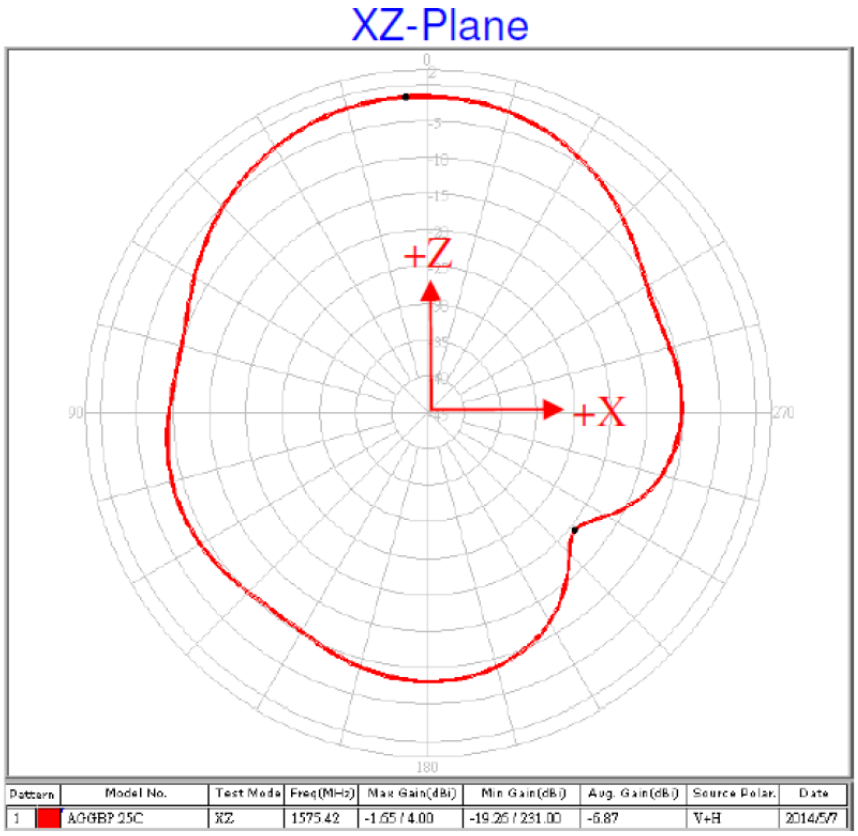
Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AGGBP.25C	XZ	1561.00	-3.05 / 184.00	-13.38 / 238.00	-4.76	V+H	2014/5/7
2	AGGBP.25C	YZ	1561.00	-1.95 / 171.00	-6.76 / 111.00	-4.15	V+H	2014/5/7

Axial Ratio Pattern （Spin Dipole Method）

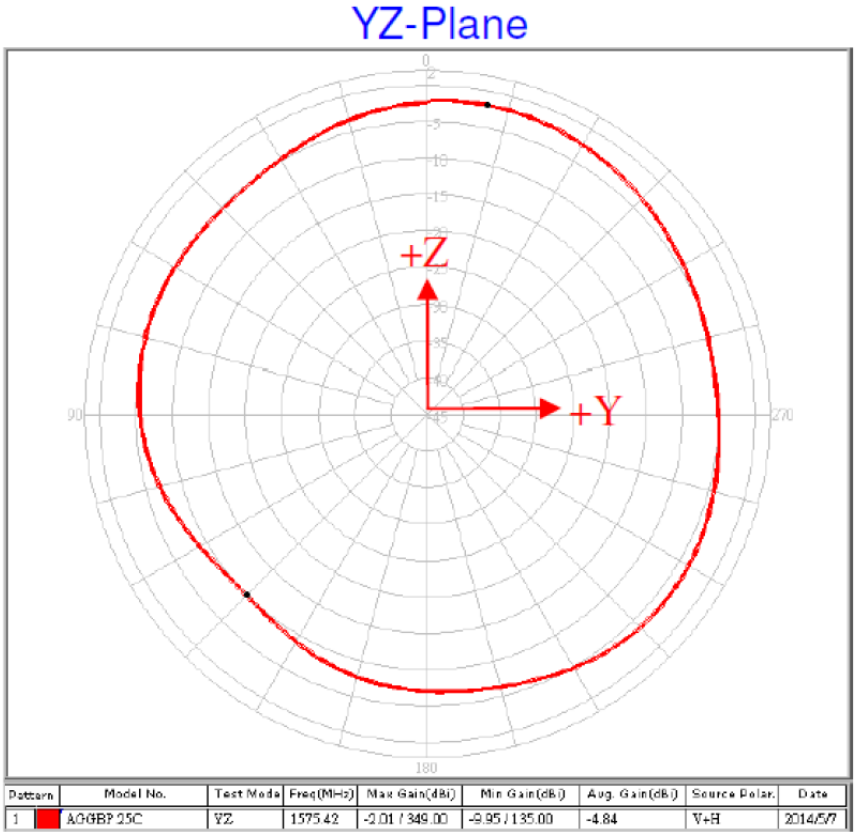


Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AGGBP.25C	Axial-Ratio	1561.00	-3.44 / 76.01	-46.00 / 300.84	-8.04	CP	2014/5/6

4.2. 1575.42MHz

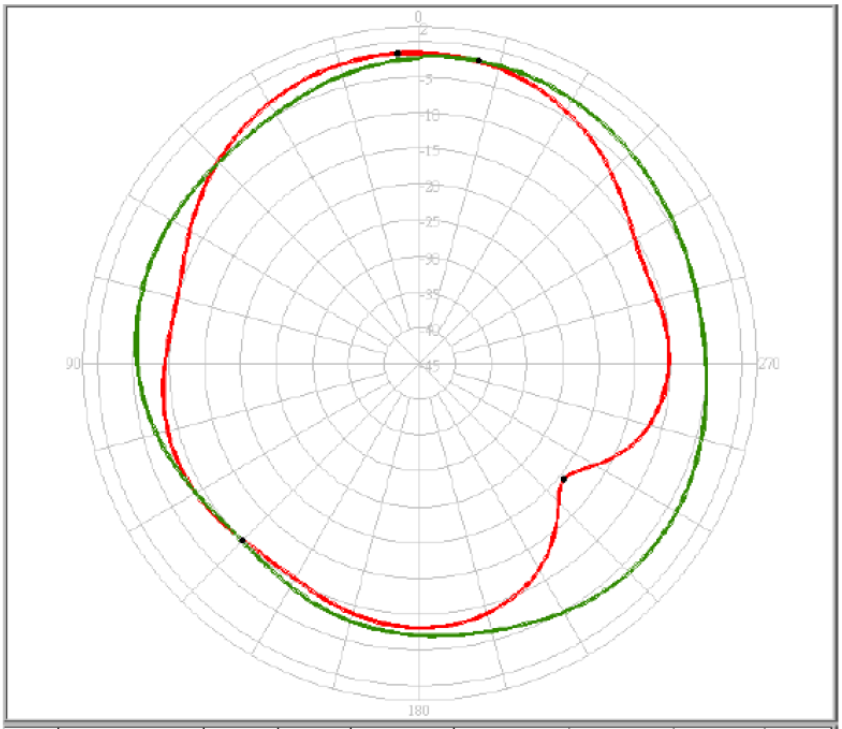


Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AGHBP.25C	XZ	1575.42	-1.65 / 4.00	-19.26 / 231.00	-6.87	V+H	2014/5/7



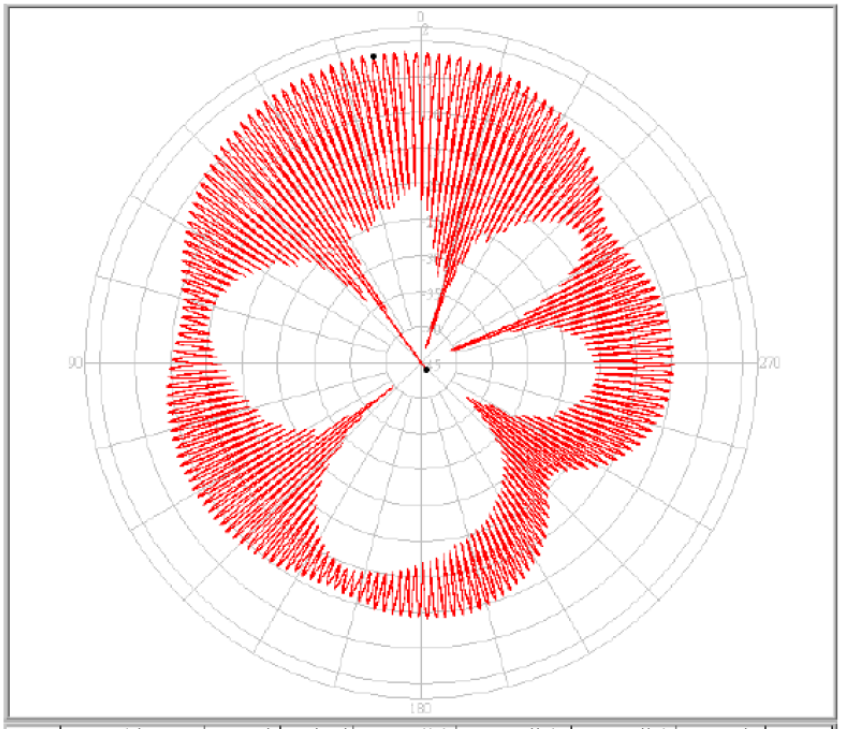
Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AGHBP.25C	YZ	1575.42	-2.01 / 349.00	-9.95 / 135.00	-4.84	V+H	2014/5/7

Gain Pattern Value



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AGGBP.25C	XZ	1575.42	-1.65 / 4.00	-19.26 / 231.00	-6.87	V+H	2014/5/7
2	AGGBP.25C	YZ	1575.42	-2.01 / 349.00	-9.95 / 135.00	-4.84	V+H	2014/5/7

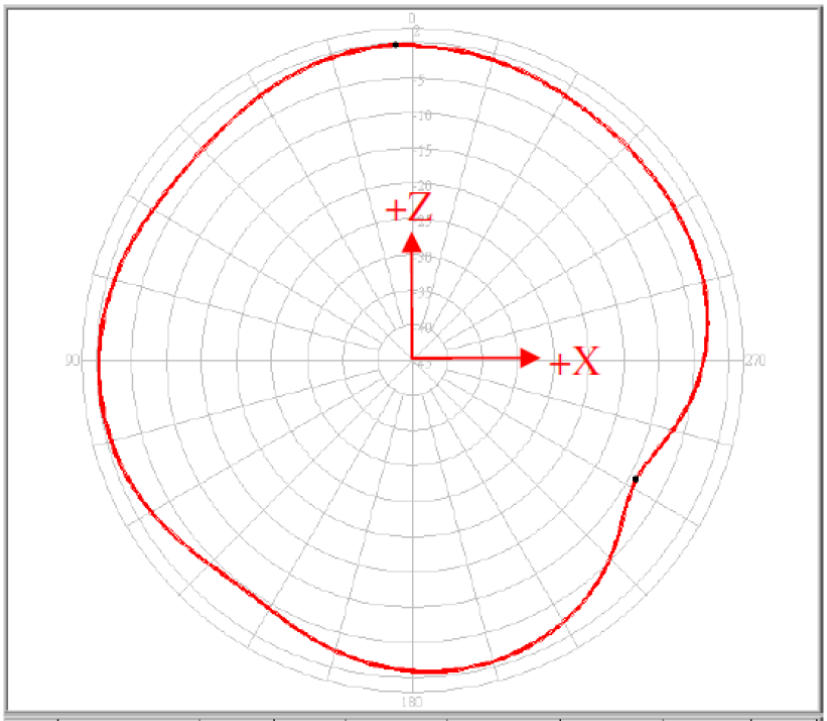
Axial Ratio Pattern （Spin Dipole Method）



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AGGBP.25C	Axial-Ratio	1575.42	-1.56 / 8.92	-46.21 / 35.90	-9.92	CP	2014/5/7

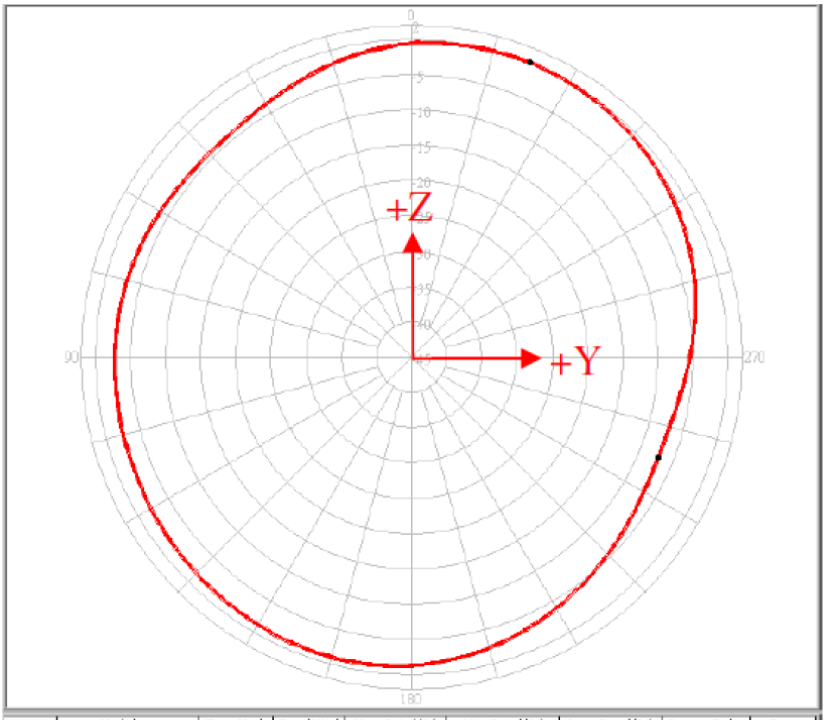
4.3 1602.6MHz

XZ-Plane



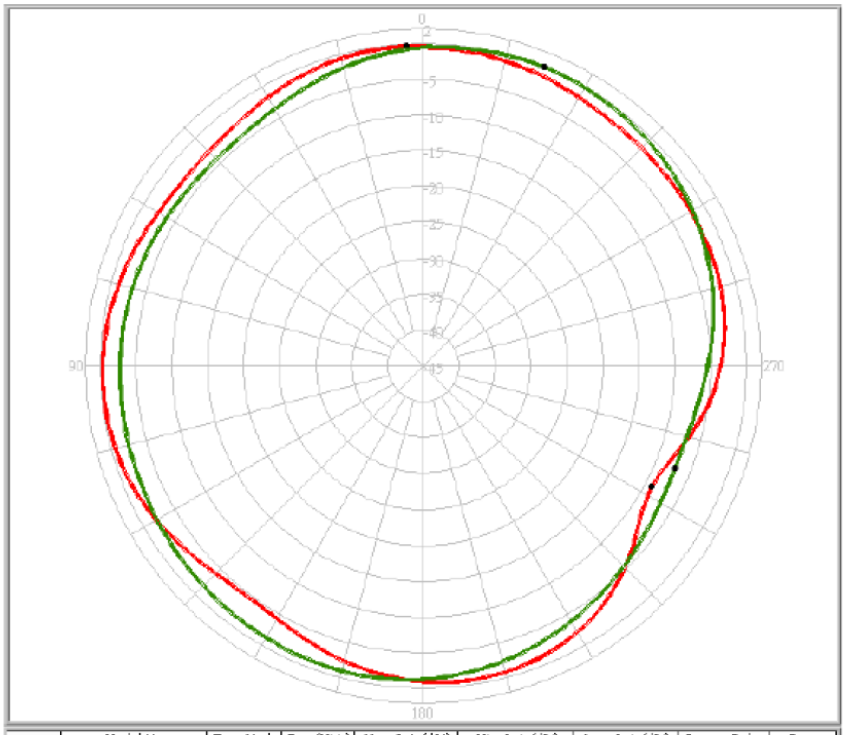
Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AOGBP.25C	XZ	1602.60	-0.36 / 3.00	-9.03 / 242.00	-2.17	V+H	2014/5/7

YZ-Plane



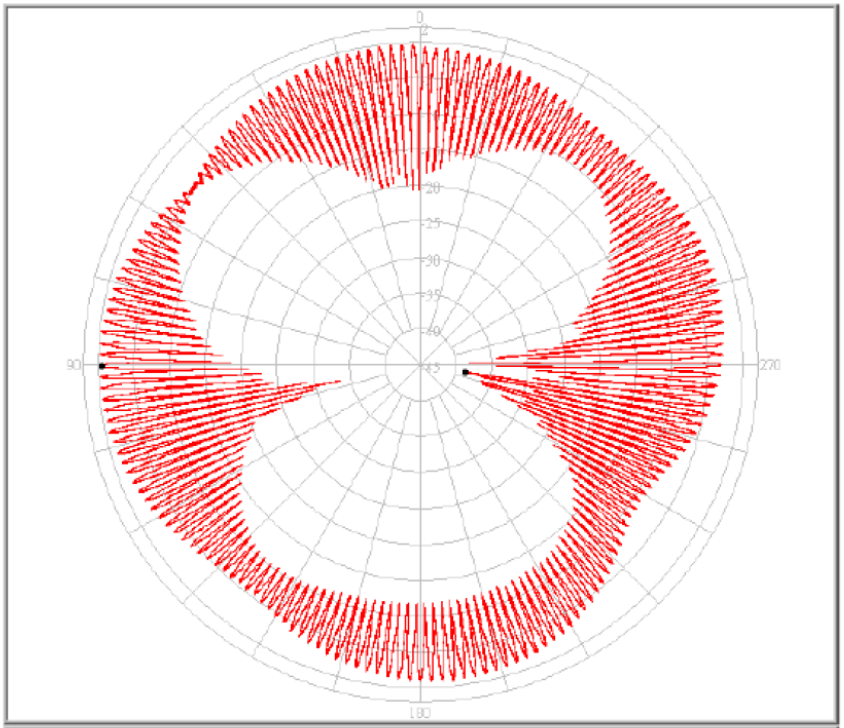
Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AOGBP.25C	YZ	1602.60	-0.09 / 338.00	-7.21 / 248.00	-2.45	V+H	2014/5/7

Gain Pattern Value



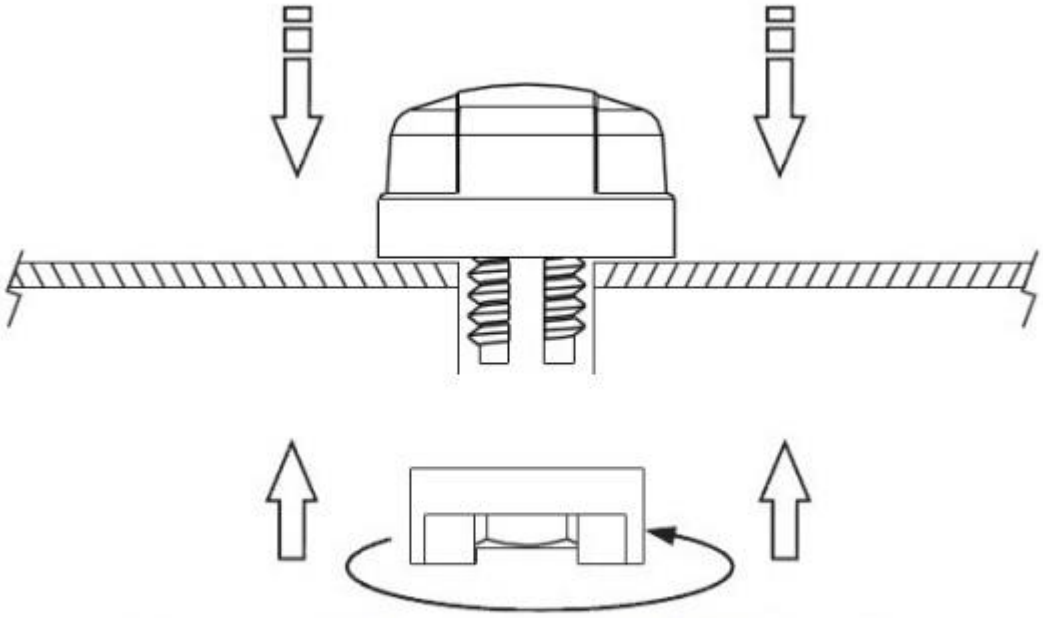
Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AGGBP.25C	XZ	1602.60	-0.36 / 3.00	-9.03 / 242.00	-2.17	V+H	2014/5/7
2	AGGBP.25C	YZ	1602.60	-0.09 / 338.00	-7.21 / 248.00	-2.45	V+H	2014/5/7

Axial Ratio Pattern （Spin Dipole Method）



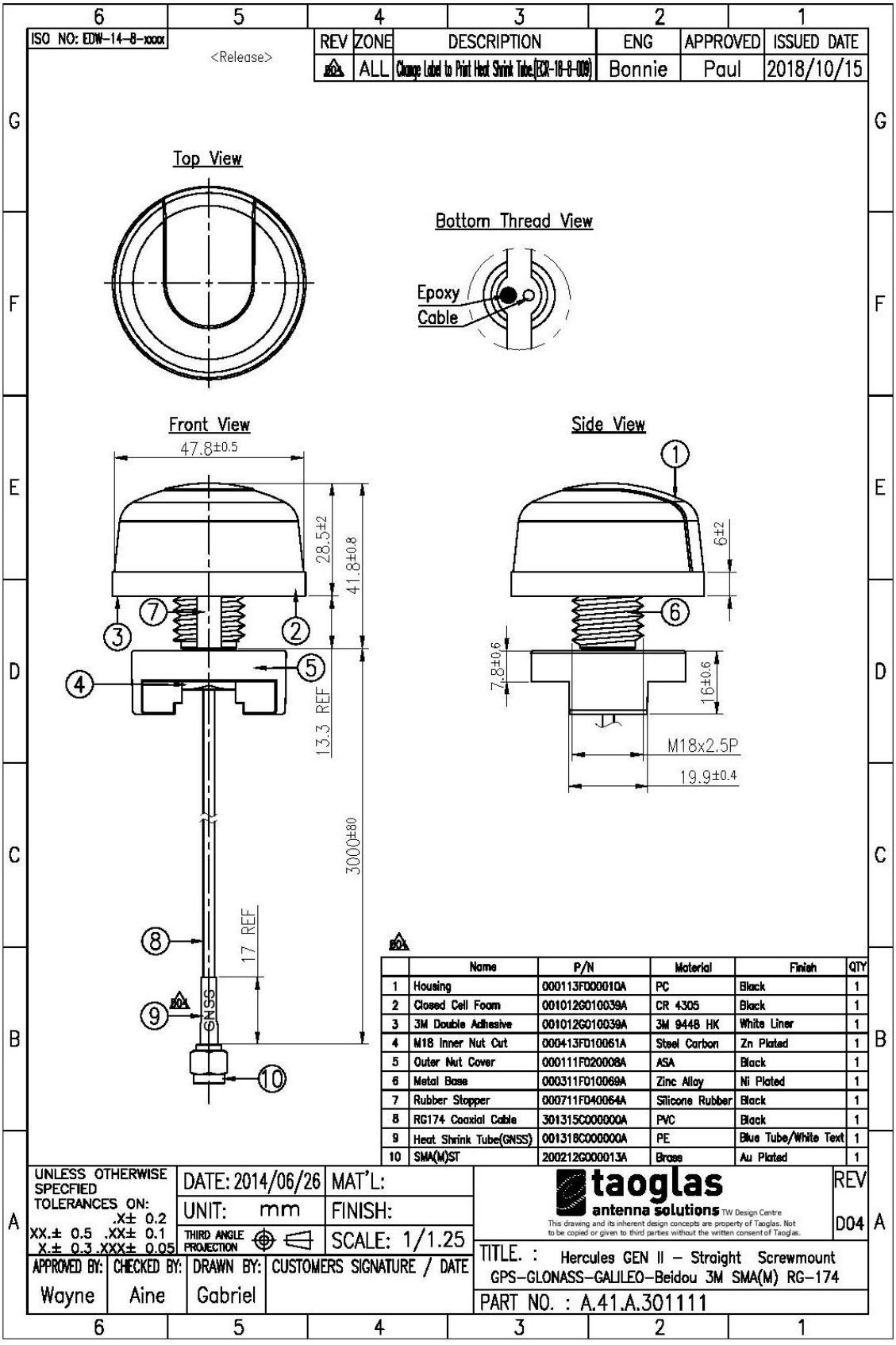
Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AGGBP.25C	Axial-Ratio	1602.00	-0.49 / 90.15	-38.67 / 261.03	-5.23	CP	2014/5/7

5. Installation



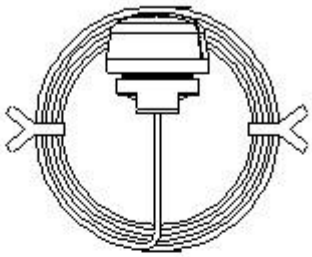
Recommended torque for Mounting is 24.5N·m
Maximum torque for mounting is 29.4N·m

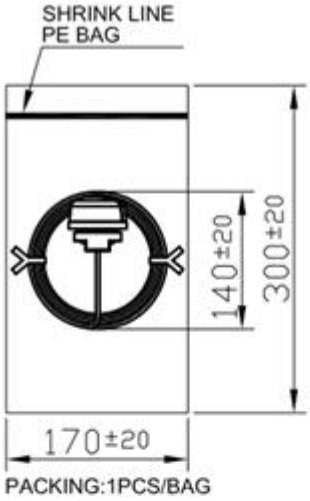
6. Drawing


ISO NO: EDW-14-8-xxxx
<Release>
REV ZONE DESCRIPTION ENG APPROVED ISSUED DATE
A ALL Change Label to Print Heat Shrink Tube.(ECR-18-8-008) Bonnie Paul 2018/10/15
Top View
Bottom Thread View
Epoxy
Cable
Front View
Side View
47.8±0.5
28.5±2
41.8±0.8
13.3 REF
3000±80
17 REF
GNSS
6±2
7.8±0.6
16±0.6
M18x2.5P
19.9±0.4
1 Housing 000113F000010A PC Black 1
2 Closed Cell Foam 001012G010039A CR 4305 Black 1
3 3M Double Adhesive 001012G010039A 3M 9448 HK White Liner 1
4 M18 Inner Nut Cut 000413F010061A Steel Carbon Zn Plated 1
5 Outer Nut Cover 000111F020008A ASA Black 1
6 Metal Base 000311F010069A Zinc Alloy Ni Plated 1
7 Rubber Stopper 000711F040064A Silicone Rubber Black 1
8 RG174 Coaxial Cable 301315C000000A PVC Black 1
9 Heat Shrink Tube(GNSS) 001318C000000A PE Blue Tube/White Text 1
10 SMA(M)ST 200212G000013A Brass Au Plated 1
UNLESS OTHERWISE SPECIFIED TOLERANCES ON: .X± 0.2 XX.± 0.5 .XX± 0.1 X.± 0.3 .XXX± 0.05
DATE: 2014/06/26
UNIT: mm
THIRD ANGLE PROJECTION
MAT'L:
FINISH:
SCALE: 1/1.25
taoglas antenna solutions TW Design Centre
This drawing and its inherent design concepts are property of Taoglas. Not to be copied or given to third parties without the written consent of Taoglas.
REV D04
APPROVED BY: Wayne
CHECKED BY: Aine
DRAWN BY: Gabriel
CUSTOMERS SIGNATURE / DATE
TITLE. : Hercules GEN II – Straight Screwmount GPS-GLONASS-GALILEO-Beidou 3M SMA(M) RG-174
PART NO. : A.41.A.301111

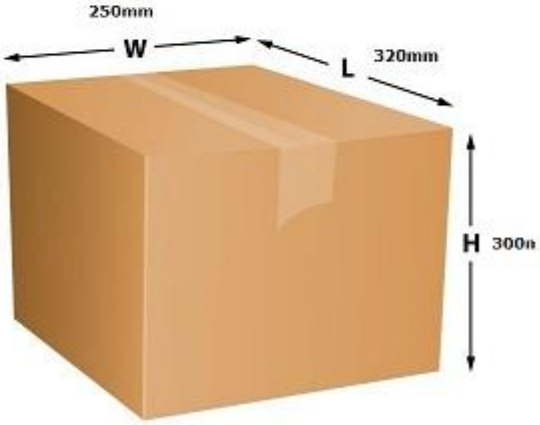
7. Packaging

1 piece A.41 per PE Bag
157g





50 pieces per Carton
Weight 8.1kg



60 Cartons per pallet
Pallet Dims: 110*110*15cm
3000 pcs per pallet