



TAOGLAS®



Datasheet

Bolt with Integrated Lightning Induced Surge Protection

Part No:
A.93.A.101111

Description:

High-Gain, High-Rejection Active GPS Timing Antenna
With Integrated Lightning Induced Surge Protection

Features:

28 dB LNA Gain
Rejection > 80 dB Between 10 - 1400 MHz
> 60 dB Between 1820 - 3500 MHz
Ceramic Patch Antenna Element
Permanent Mount, IP67 Rated Enclosure
Wide Input voltage +1.9V to +12V
Lightning Induced Surge Protection IEC 61000-4-5 (Class 4)
Cable: 1m RG-174
Connector: SMA(M)
RoHS & Reach Compliant

1. Introduction	3
2. Specifications	4
3. Test Setup	5
4. Antenna Characteristics	6
5. 2D Radiation Patterns	9
6. Mechanical Drawing	10
7. Packaging	11
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Changelog	12

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1. Introduction



The Bolt Series A.93.A is a best in class high rejection timing antenna featuring high gain, excellent out-of-band rejection and integrated protection against lightning induced surges. It comes in a compact external permanent mount enclosure that is IP67 rated and UV resistant. The A.93.A has greater than 28 dB LNA gain and excellent out-of-band rejection, characteristics that make it ideal for GPS/GLONASS/BeiDou timing applications where the antenna will be placed near transmitters, such as cellular, Wi-Fi, Bluetooth, etc.

The integrated filters feature outstanding rejection across all non-GNSS frequencies to prevent overdriving or damaging the GNSS receiver from nearby transmitters. At the commonly used LTE frequencies between 700MHz-1000MHz, the A.93 provides greater than 80 dB of rejection and between 1820MHz-3500MHz, it has greater than 60 dB of rejection.

Even with the superb out of band rejection, the A.93 maintains a very low noise figure of less than 2.2 dB. This low noise figure minimizes overall signal quality degradation typically caused by losses in transmission lines. The A.93 includes integrated protection against lightning induced surges (IEC 61000-4-5, Class 4), thus removing the need for expensive external solutions.

Different cable and connector assembly options are available, please contact your regional Taoglas Customer Support Team for more information or advice on integrating with your device.

2. Specifications

Embedded Ceramic Patch Antenna Specifications *			
Band	BeiDou	GPS/Galileo	GLONASS
Frequency	1561 MHz	1575.42 MHz	1602 MHz
Efficiency (%)	81.6	80.1	88.5
Average Gain (dBi)	-0.88	-0.96	-0.53
Peak Gain (dBi)	4.49	4.84	5.09
Impedance	50Ω		
Polarization	RHCP		
LNA Specification			
Gain (dB)	28 dB Typical		
NF (dB)	<2.2 dB Typical		
Input Voltage	+1.9 to +12 VDC		
Power Consumption	< 9 mA		
Mechanical			
Enclosure Material	UV Protected ASA		
Enclosure Dimensions	Diameter: 94.3mm x 25.4mm		
Connector	SMA(M)		
Cable	1 Meter RG-174		
Weight	233 g		
Environmental			
Operation Temperature	-40°C to 85°C		
Storage Temperature	-40°C to 85°C		
Humidity	Non-condensing 65°C 95% RH		
Ingress Protection	IP67		
Lightning Induced Surge Protection	IEC 61000-4-5 (Class 4) 4kV		

*Measured in Free Space

3. Test Setup

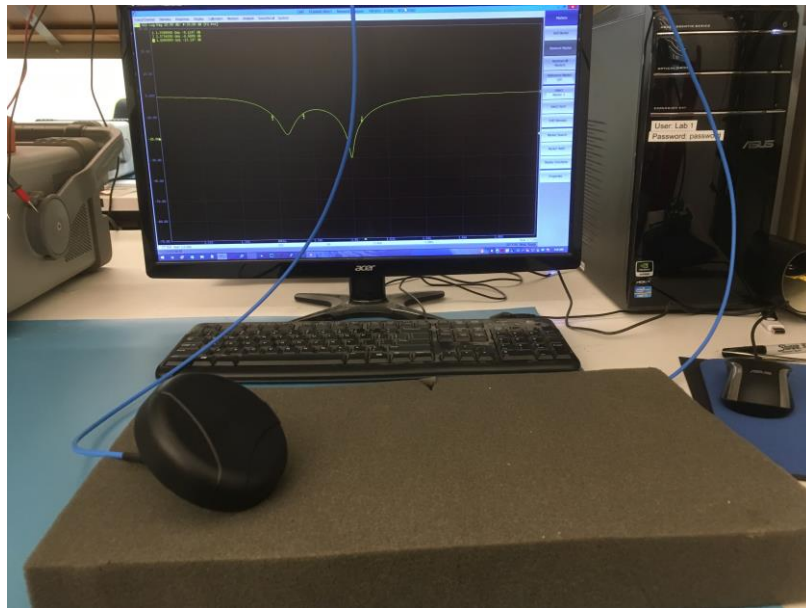


Figure 1. Return Loss measurement of the A.93 ceramic patch element

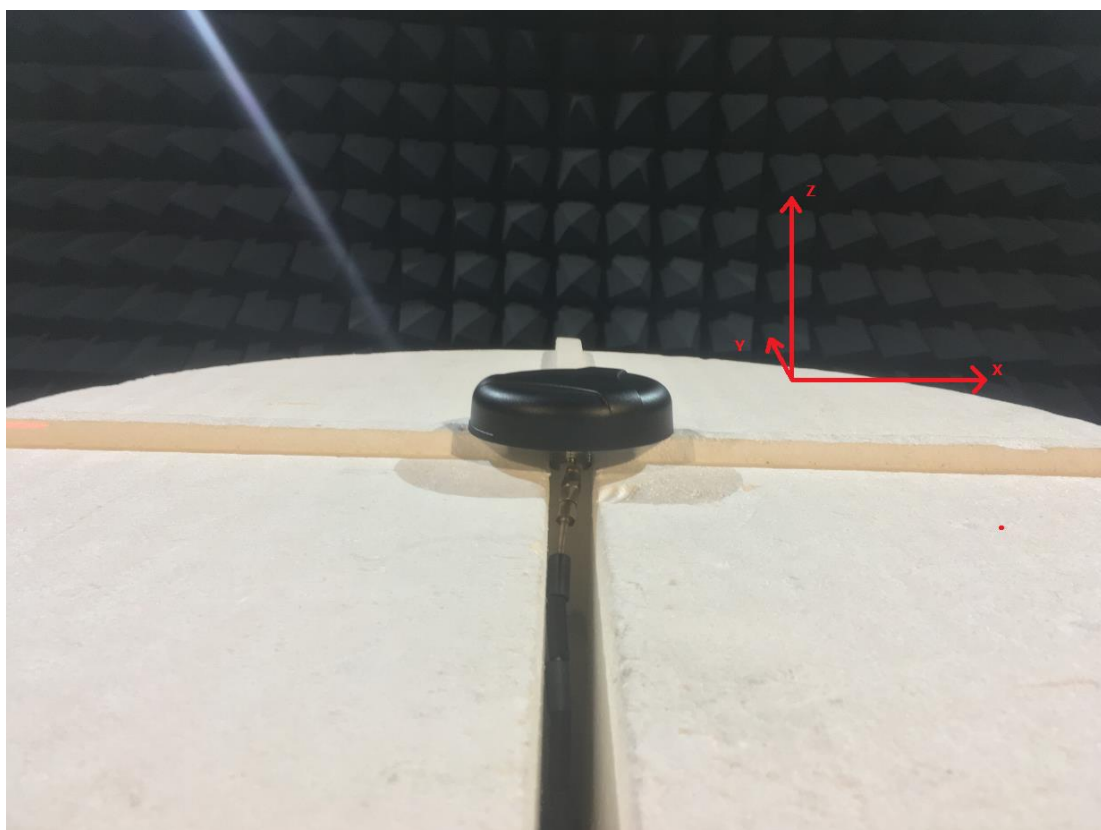
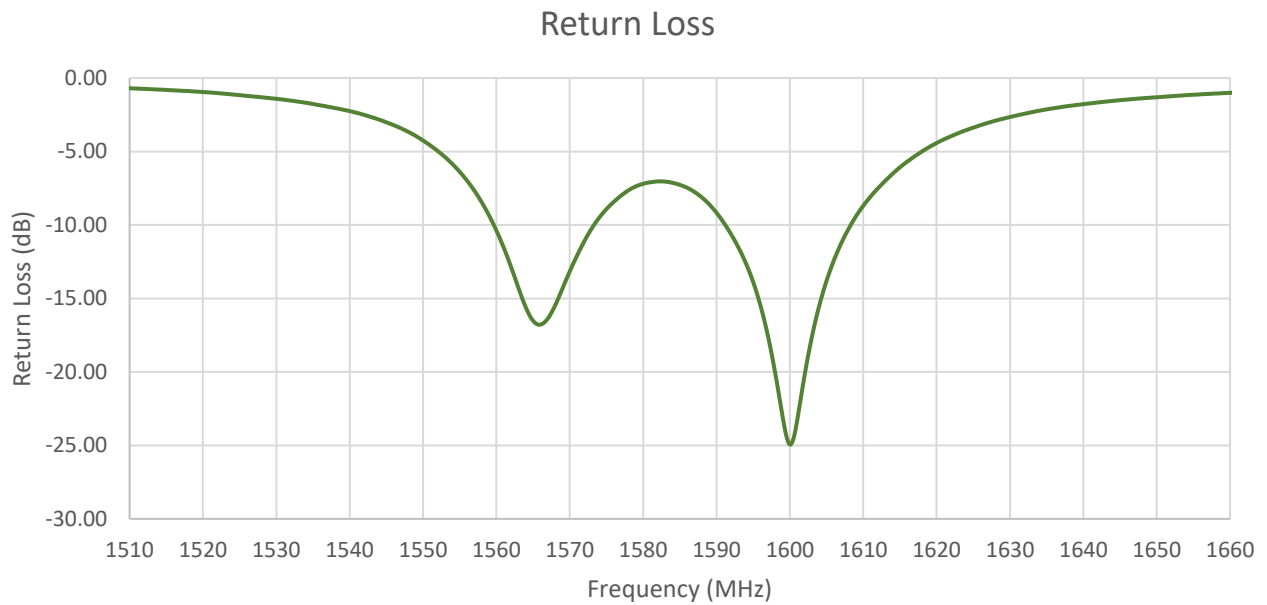


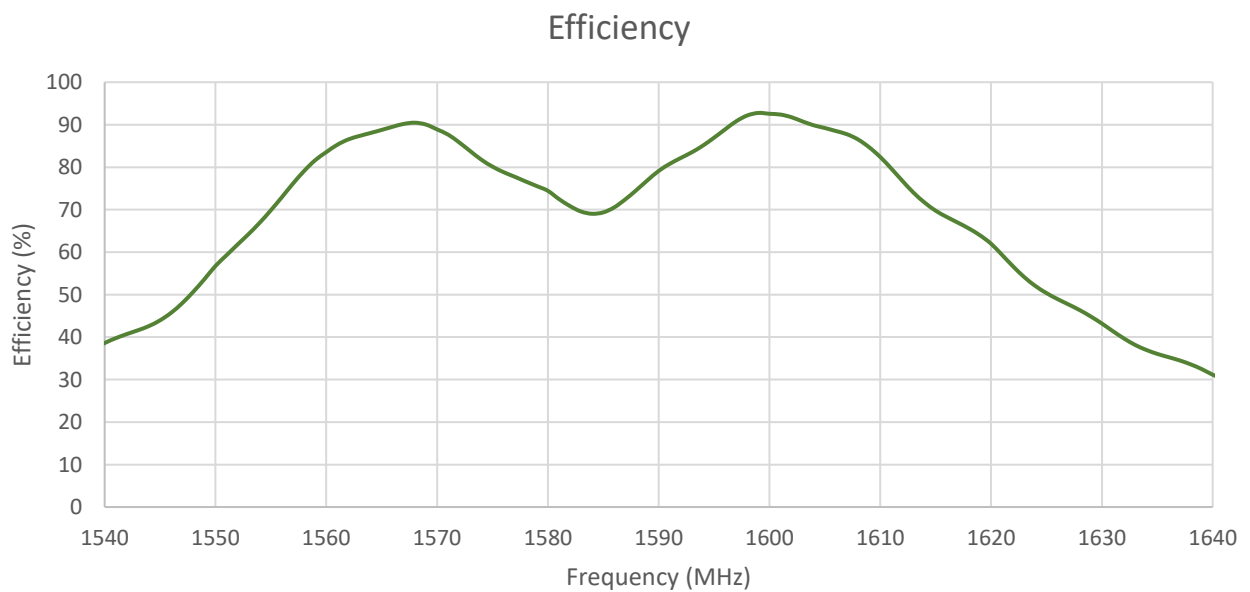
Figure 2. Peak gain, efficiency, and radiation pattern test setup

4. Antenna Characteristics

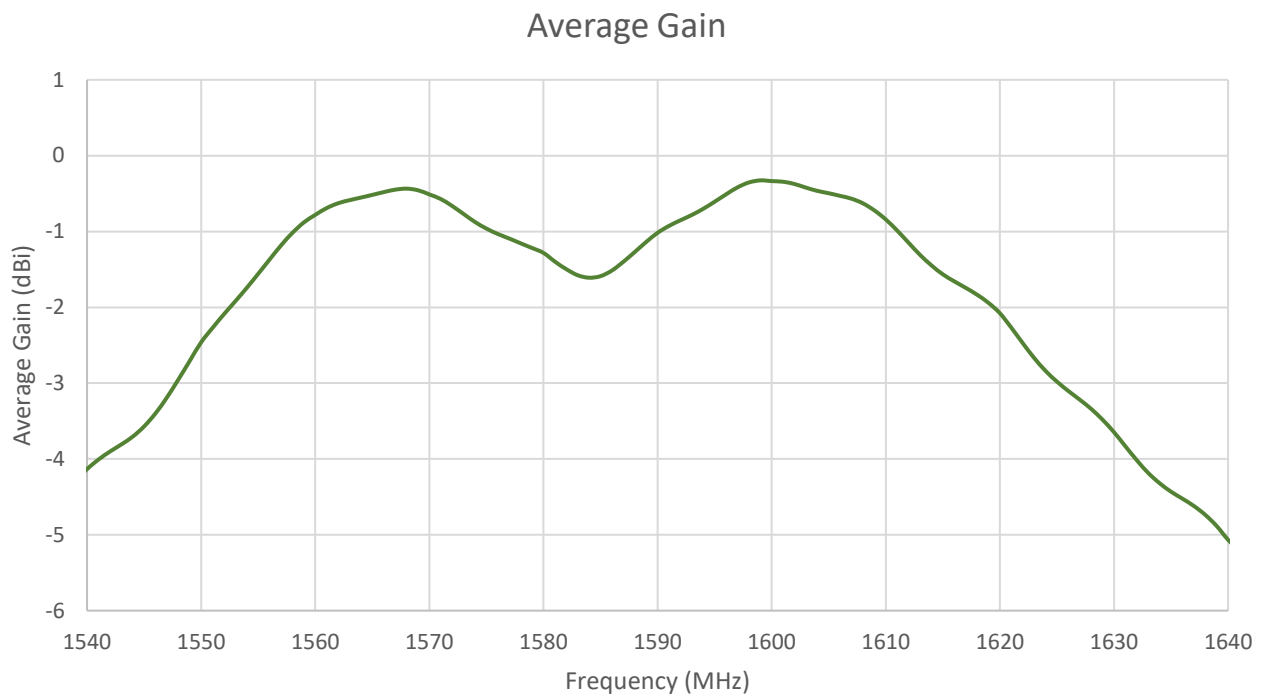
4.1 Return Loss



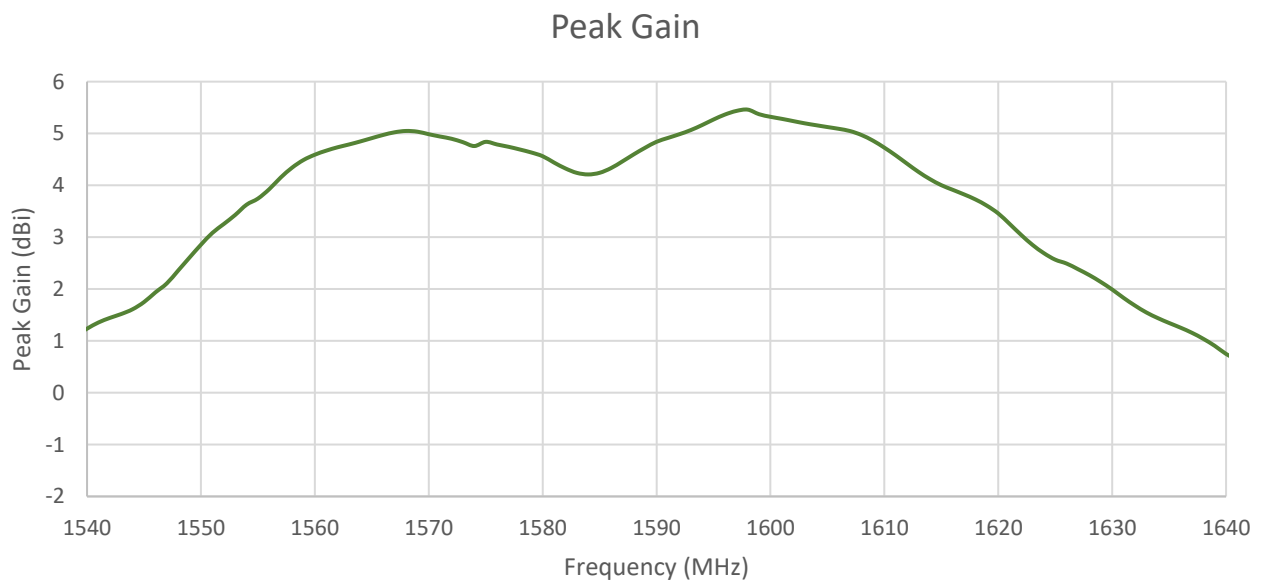
4.2 Efficiency



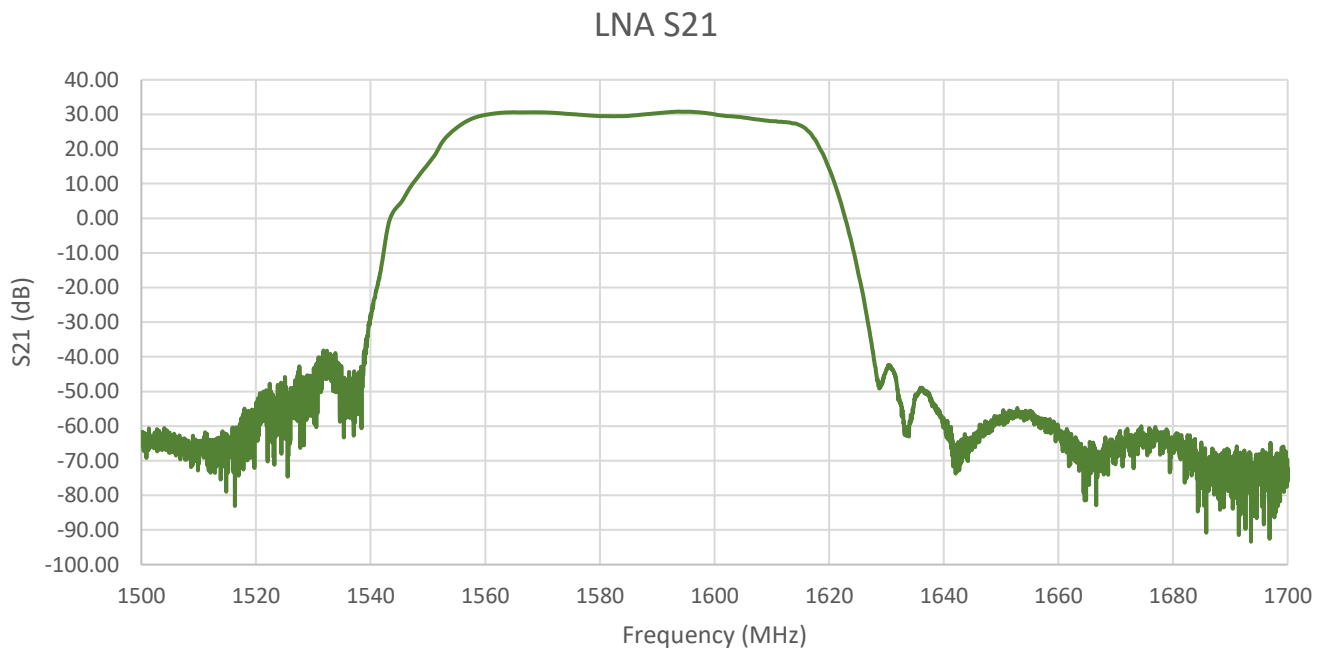
4.3 Average Gain



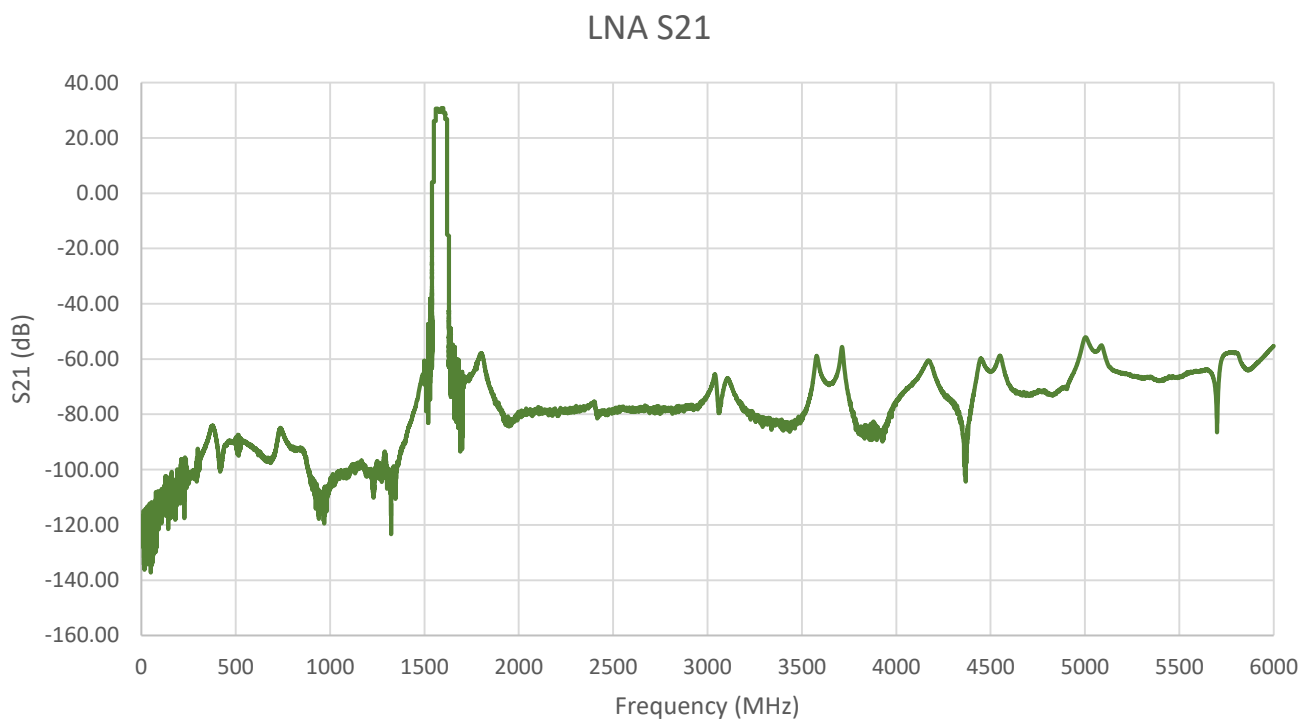
4.4 Peak Gain



4.5 In-Band LNA S21

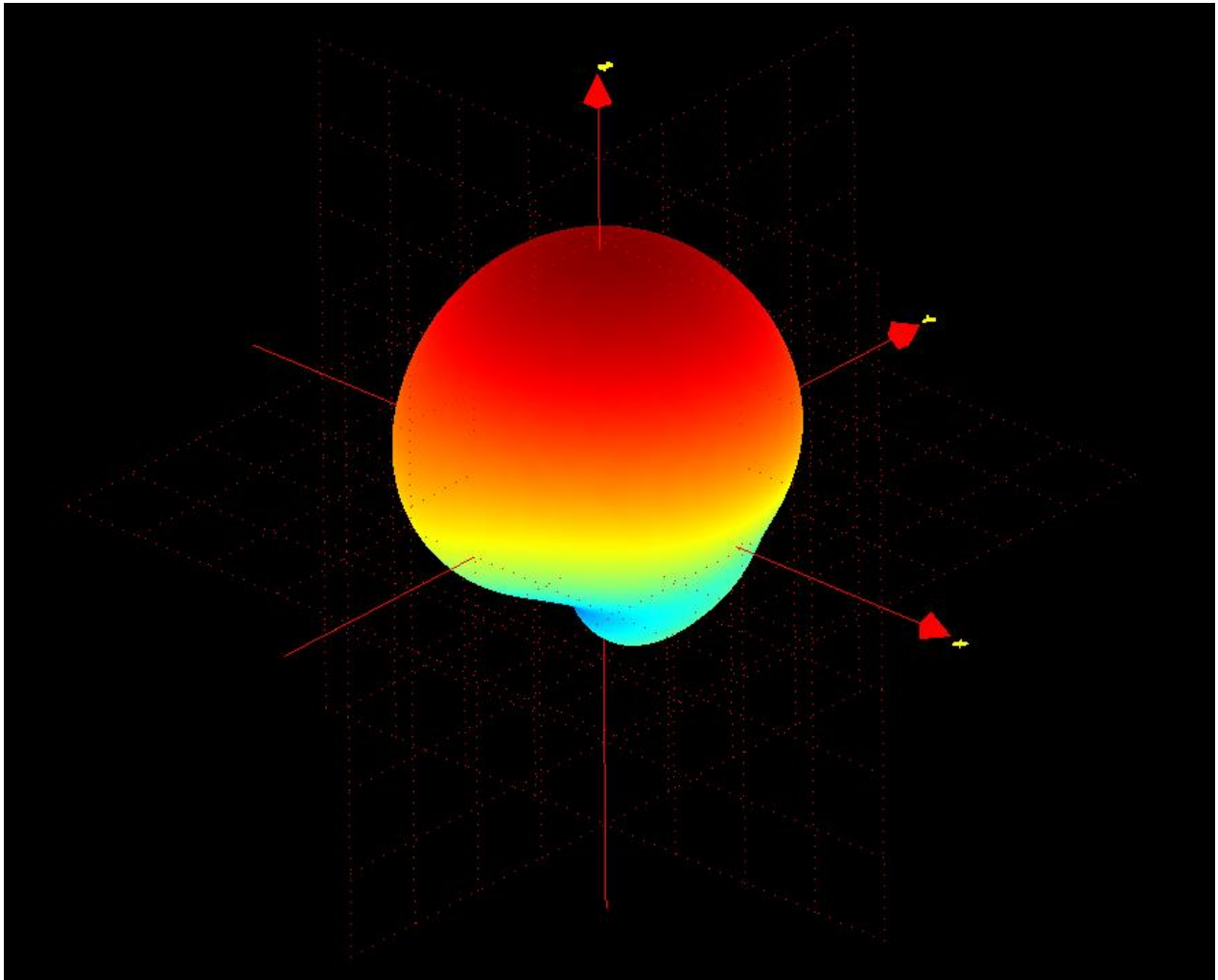


4.6 Wideband LNA S21

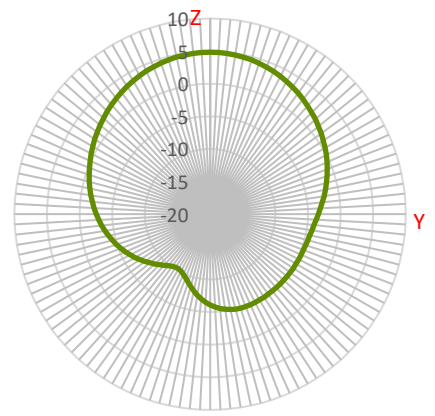
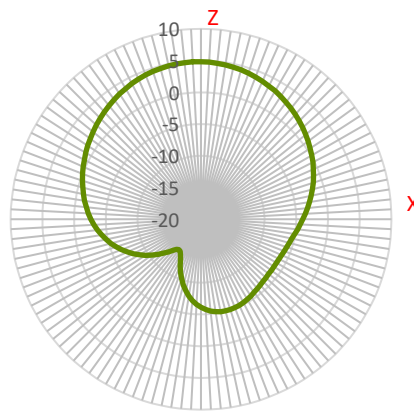
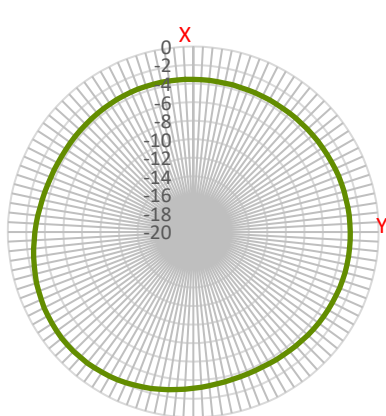


5. Radiation Patterns

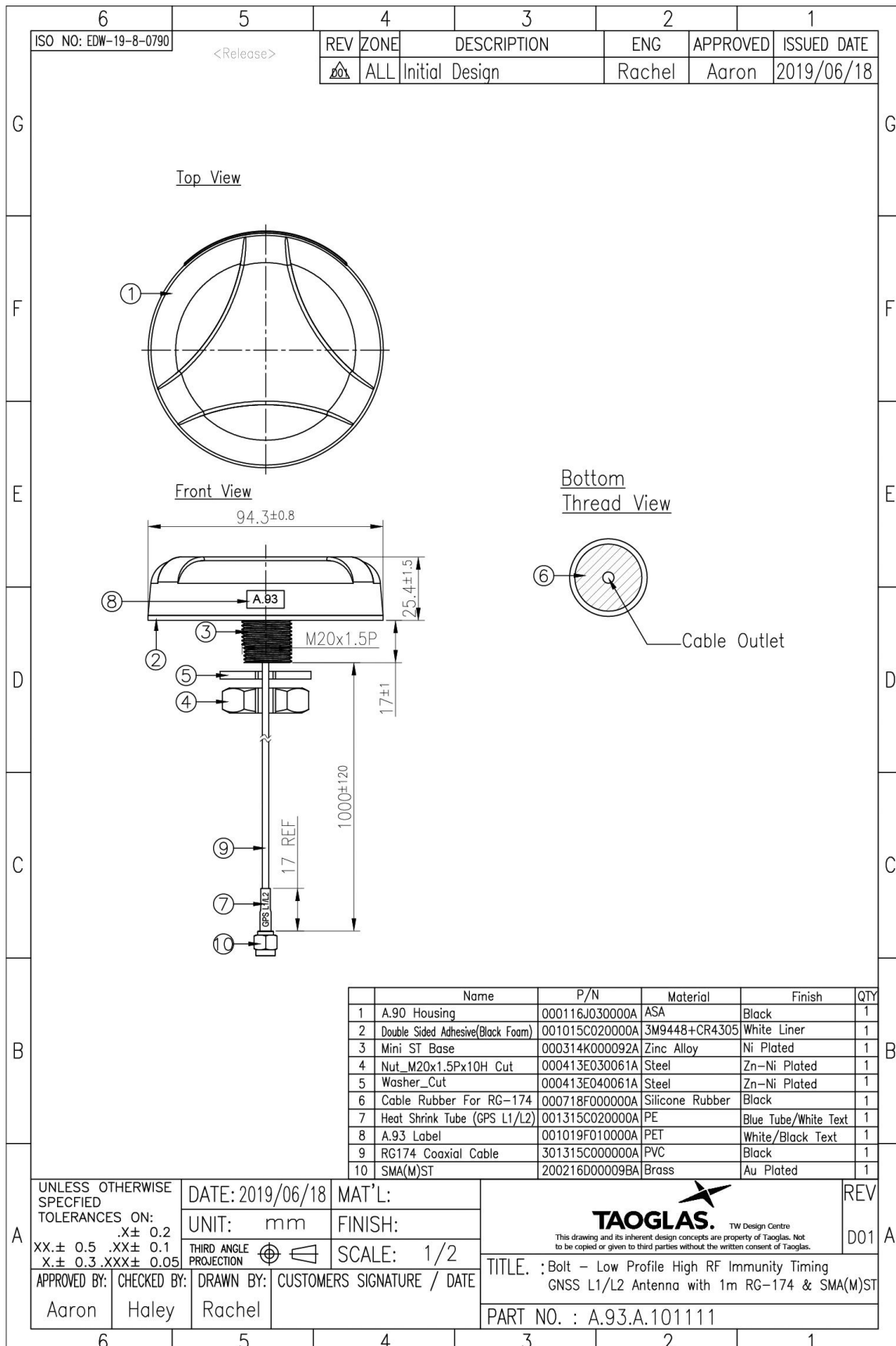
1575.42MHz



XY Plane XZ Plane YZ Plane

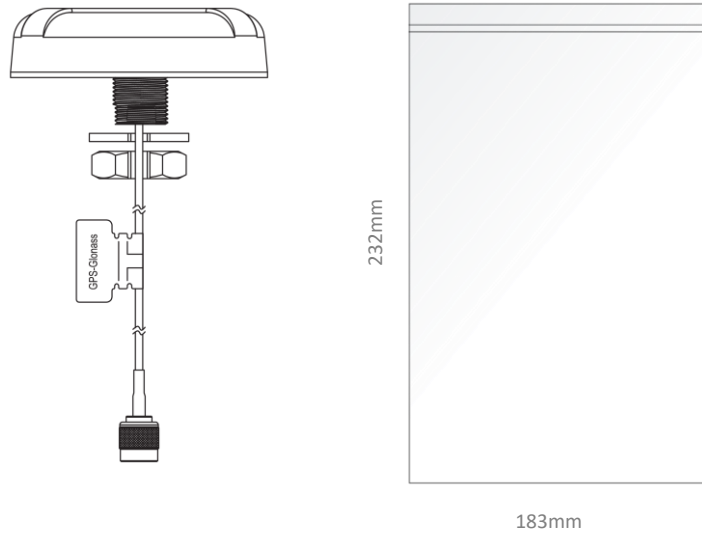


6. Mechanical Drawing (Units: mm)

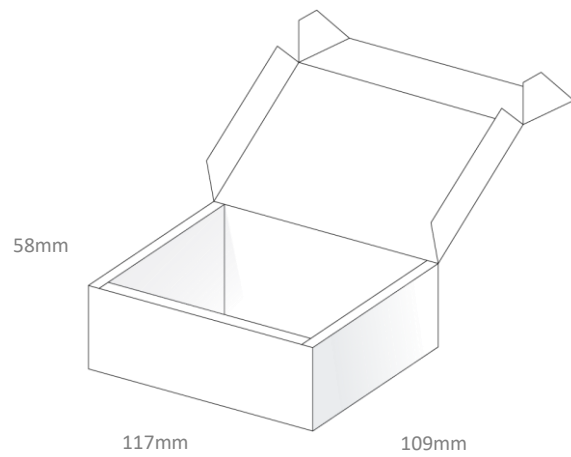


7. Packaging

1pc A.93.A.101111 per PE Bag
 Dimensions: 232*183mm
 Weight: 250g



1pc A.93.A.101111 per Carton
 Inner Carton Dimensions: 117*109*58mm
 Weight: 310g



Changelog for the datasheet

SPE-19-8-096-A – A.93.A.101111

Revision: A (Current Version)

Date:	2018-03-27
Changes:	Original Release
Changes Made by:	David Connolly / Jon Campbell

Previous Revisions



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