



GPS-302L-A

USER GUIDE

GM-14915161

Rev 3

February 2019

The GPS-302L-A is an active antenna designed to operate at the GPS L1 and L2 frequencies, 1575.42 and 1227.60 MHz, GLONASS L1 1592.95 – 1610.38 MHz frequencies and across the L-Band from 1525 to 1560 MHz. This guide provides the information needed to install and use the antenna.

ADDITIONAL EQUIPMENT REQUIRED

- A device with an antenna input port that both receives the RF signal and provides 3.8 to 6.0 VDC to the antenna is required to set up the GPS-302L-A. (NovAtel GNSS receivers provide the necessary power through their antenna RF connectors.)
- Coaxial cable with a male TNC connector

INSTALLING THE ANTENNA



The integrator of this antenna is responsible for ensuring antenna installation meets all the overall integrated system requirements.



Refer to Section 307 of www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2043.13-2B.pdf for information about antenna bonding in aircraft applications.

Both the input DC power and the output RF signal flow over a single coaxial cable connected to the antenna's TNC female connector.

The antenna is attached to a surface by means of an ARINC-743 Bolt Pattern.

Four screws pass through the housing of the antenna.

Install the antenna as follows:

1. Place the o-ring into the groove on the antenna base (o-ring supplied).



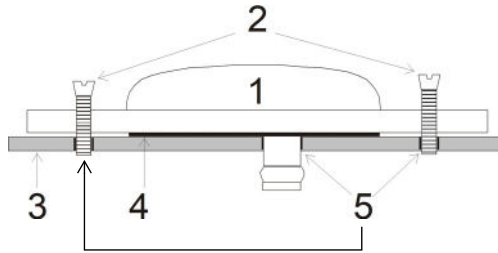
User-supplied o-ring grease can be used to hold the o-ring in the groove during installation.

2. Drill the mounting holes and the connector hole on the surface. Refer to the *Mechanical Drawings* section of this guide for details on the ARINC-743 mounting pattern.



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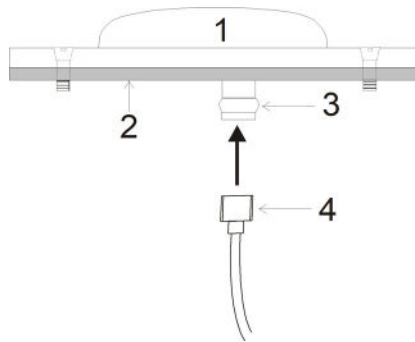
- Attach the antenna to the surface using the four mounting screws supplied. The o-ring will compress and create a seal between the surface and the antenna.



Ref. # Description

- 1 Antenna
- 2 Countersink screws
- 3 Mounting surface
- 4 O-ring
- 5 Drilled mounting holes

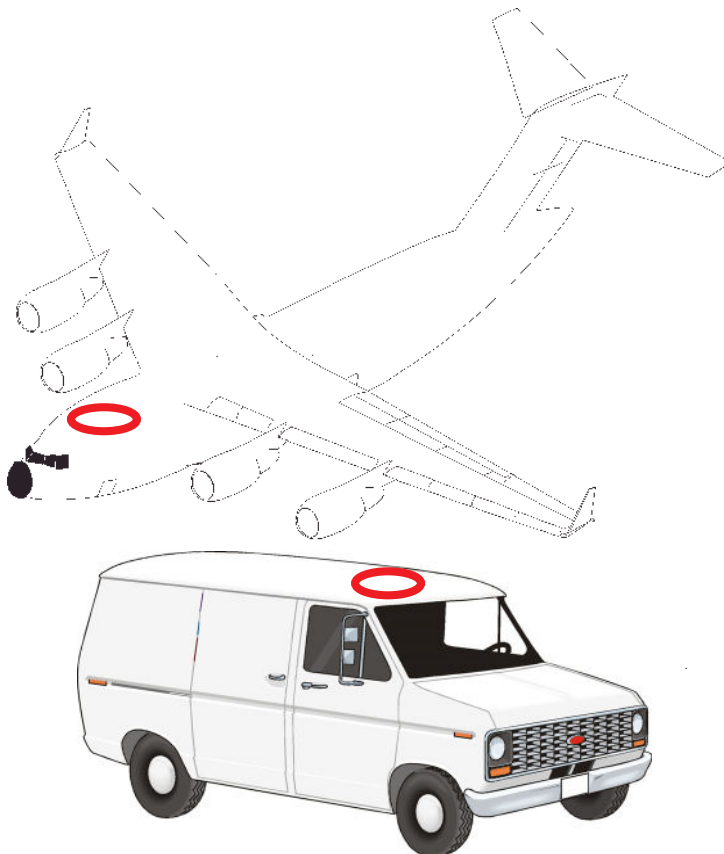
- Remove the dust cap from the antenna's TNC connector.
- Attach the male TNC connector of the coaxial cable to the antenna's TNC connector.



Ref.# Description

- 1 Antenna screwed into place
- 2 Surface
- 3 TNC connector (male)
- 4 Coaxial cable (female)

6. Attach the other end of the coaxial cable to the antenna input port of the receiving device. The receiving device must be able to provide power as detailed in the *SPECIFICATIONS* section of this guide. All NovAtel GNSS receivers provide the necessary power through their antenna RF connectors.



The graphic above shows examples of where the GPS-302L-A antenna may be located on an aircraft or vehicle (not to scale).

ANTENNA CARE

The GPS-302L-A is designed to withstand the elements, including rain, snow and dust. However, to ensure your antenna performs optimally, keep the radome clean and brush off any ice and snow. In addition, ensure the TNC connector remains clean and dry and replace the dust cap when a cable is not connected.

SPECIFICATIONS

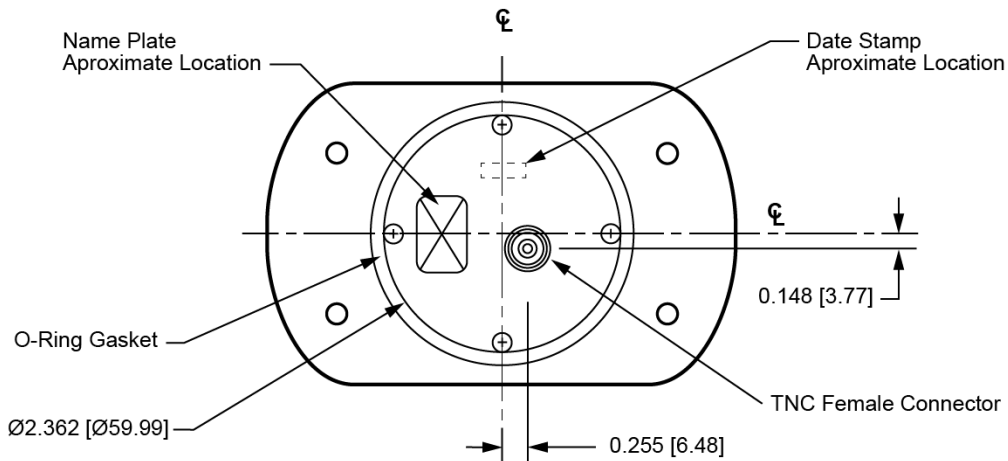
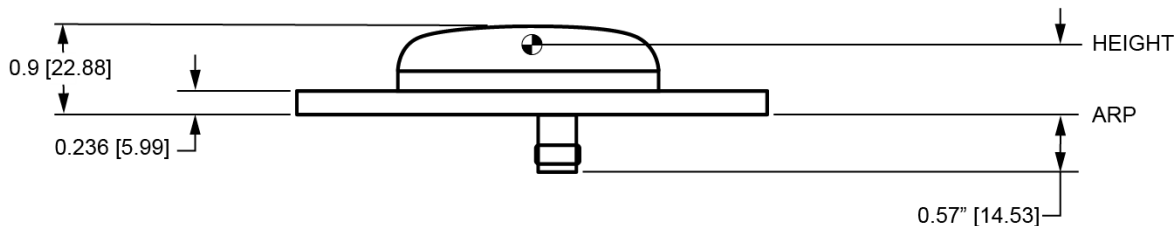
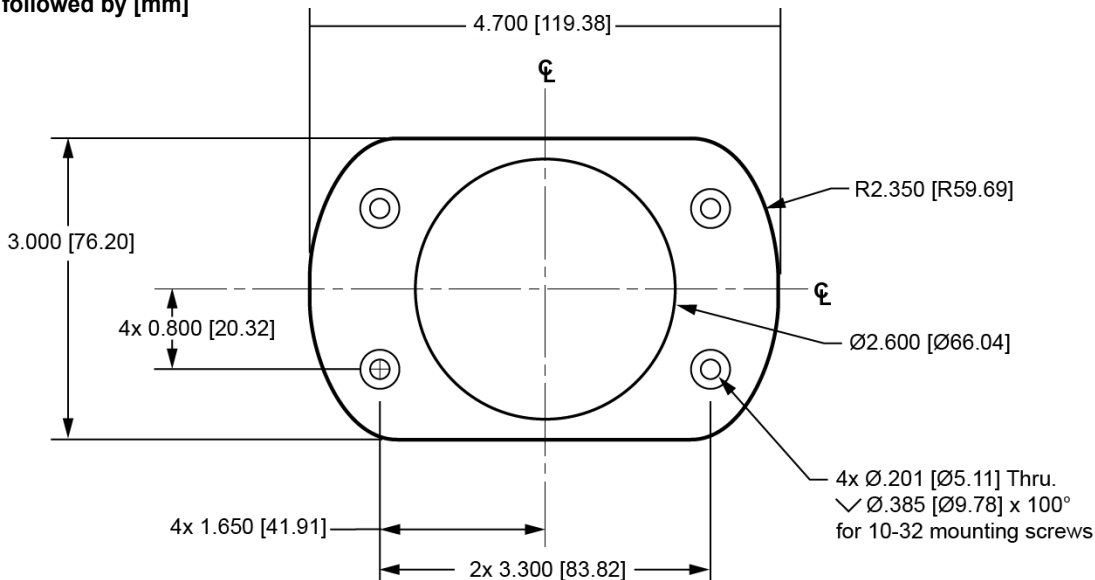
RF	
Operational band (typical)	L1: 1575.42 ±10 MHz L2: 1227.60 ±10 MHz LB: 1525 – 1560 MHz
Gain at zenith ($\theta = 90^\circ$) (min)	L1: +4.1 dBic L2: +3.9 dBic LB: +5.7 dBic
LNA gain (typical)	L1: 26 dB L2: 30 dB
Polarization	Right-hand circular
Noise figure (typical)	3 dB
Nominal impedance	50 Ω
VSWR	< 2.0 : 1
POWER	
Input voltage	3.8 – 6.0 VDC
Current (typical)	<60 mA
PHYSICAL	
Size	Width 76.20 mm (3.000") Length 119.38 mm (4.700") Height 22.86 mm (0.900")
Weight	224 g (7.9 oz.)
ENVIRONMENTAL	
Maximum altitude	21,336 m (70,000 ft.)
Operating temperature	-40°C to +85°C (-40°F to +185°F)
Storage temperature	-55°C to +85°C (-67°F to +185°F)
Designed to meet these standards	RTCA DO-160D, MIL-C-5541, MIL-E-5400, MIL-I-45208A and MIL-STD-810



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MECHANICAL DRAWINGS

Dimensions are in inches followed by [mm]



PHASE CENTER

Please refer to the *Mechanical Drawings* before reading this section.


HEIGHT = Vertical phase center offset from antenna reference point or antenna reference plane (ARP), see the *MECHANICAL DRAWINGS* section of this guide.

For relative offset numbers and phase center variation (PCV) tables, please visit the U.S. National Geodetic Survey (NGS) website at www.ngs.noaa.gov/ANTCAL/. Look for ANTCOM ACC42G1215A_XT1.

Please check our website for updates to this manual at <http://www.novatel.ca/support/docupdates.htm> and the websites mentioned above.

If you need any further advice on this matter, please visit our website at www.novatel.com. Other methods of contacting Customer Service can be found on the last panel of this guide.

WEEE

If you purchased a GPS-302L-A antenna in Europe, return it to your dealer or supplier at the end of its life. The objectives of the European Community's environment policy are, in particular, to preserve, protect and improve the quality of the environment, protect human health and utilise natural resources prudently and rationally. Sustainable development advocates the reduction of wasteful consumption of natural resources and the prevention of pollution. Waste electrical and electronic equipment (WEEE) is a regulated area. Where the generation of waste cannot be avoided, it should be reused or recovered for its material or energy. WEEE products may be recognized by their wheeled bin label (.

See www.novatel.com/products/compliance/environmental-compliance/ for more information.

ROHS

The GPS-302L-A is compliant with the European Union (EU) Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU.

WARRANTY POLICY

NovAtel Inc. warrants that its Global Navigation Satellite System (GNSS) products are free from defects in materials and workmanship, subject to the conditions set forth on our web site:

www.novatel.com/products/warranty.

GNSS Antenna™ Modules:	One (1) Year
Cables and Accessories:	Ninety (90) Days

RETURN INSTRUCTIONS

To return products, refer to the instructions found under the Return Policy Tab on the warranty page:

www.novatel.com/products/warranty.

QUESTIONS OR COMMENTS

If you have any questions or comments, please log a support request with NovAtel Customer Support using one of the following methods:

Log a Case and Search Knowledge:

Website: www.novatel.com/support

Log a Case, Search Knowledge and View Your Case History: (login access required)

Web Portal: <https://novatelsupport.force.com/community/login>

E-mail:

support@novatel.com

Telephone:

U.S. and Canada: 1-800-NOVATEL (1-800-668-2835)

International: +1-403-295-4900



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