



42G1215A-XT-1-2 and 42G1215A-XT-1-3

ANTENNA GUIDE

OM-20000154

Rev 1

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The 42G1215A-XT-1-3 and 42G1215A-XT-1-2 are active antennas designed to operate at the GPS L1 and L2 frequencies, 1575.42 and 1227.60 MHz and across the L-Band from 1525 to 1560 MHz. The antennas are aircraft certified for navigation. 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 2.5 to 24.0 VDC to the antenna is required to set up the 42G1215A-XT-1-3 and 42G1215A-XT-1-2. (NovAtel GPS receivers provide the necessary power through their antenna RF connectors.)
- Coaxial cable with a male TNC connector

INSTALLING THE ANTENNA

Both the input DC power and the output RF signal flow over a single coaxial cable connected to the unit'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:

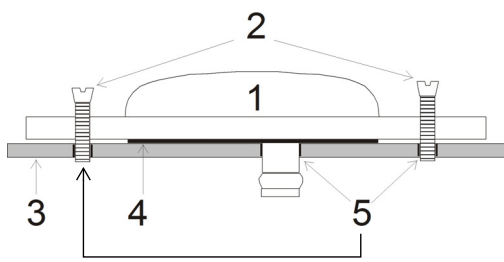
1. Place the o-ring into the groove on the antenna base (o-ring supplied).



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

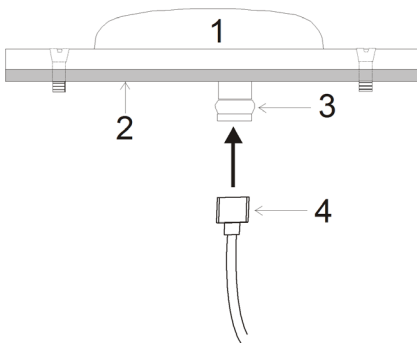
2. Pre-drill the mounting holes and the connector hole on the surface. Refer to the Mechanical Drawings section of this guide for details on the ARINC-743 mounting pattern.

3. 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	Pre-drilled mounting holes

4. Remove the dust cap from the antenna's TNC connector.
5. 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 GPS receivers provide the necessary power through their antenna RF connectors.



The graphic above shows examples of where the 42G1215A-XT-1-3 and 42G1215A-XT-1-2 antenna may be located on an aircraft or vehicle (not to scale).

ANTENNA CARE

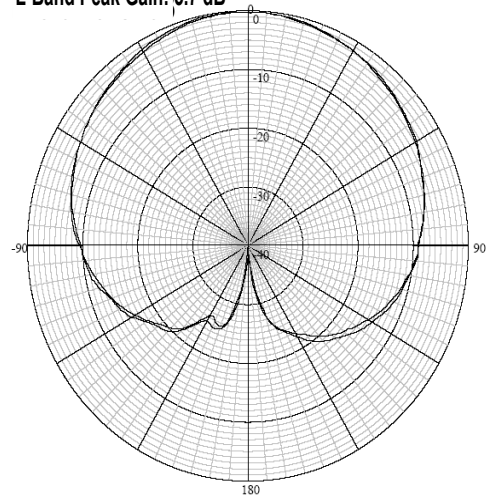
The 42G1215A-XT-1-3 and 42G1215A-XT-1-2 are designed to withstand the elements, including rain, snow and dust. However, to ensure your antenna performs optimally, keep the radome clean and brush off any ice and snow. In addition, ensure the TNC connector remains clean and dry and replace the dust cap when a cable is not connected.

SPECIFICATIONS

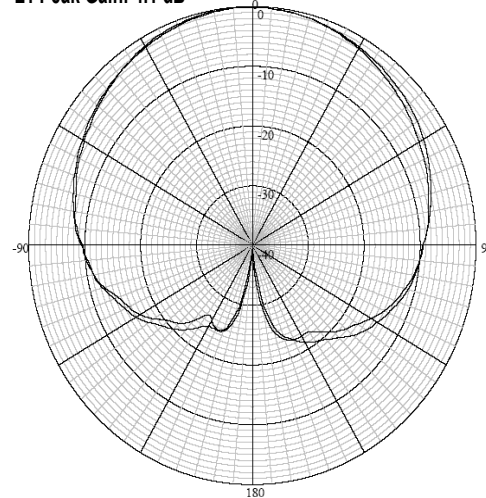
<i>RF</i>	
3 dB pass band (typical)	L1:1575.42 ±12 MHz L2:1227.60 ±12 MHz LB:1542.50 ±17.5 MHz
Out-of-band rejection	> 40 dBc
Gain at zenith ($\theta = 90^\circ$) (min)	L1:+4.1 dBic, L2:+3.9 dBic, LB: +5.7 dBic
Gain roll-off (zenith to horizon)	L1/LB: +8 dB, L2:+8 dB
LNA gain	42G1215A-XT-1-2: 33 dB ±3 42G1215A-XT-1-3: 40 dB ±3
Polarization	Right-hand circular
Noise figure (typical)	1.9 dB
Nominal impedance	50 Ω
VSWR	< 1.5 : 1
<i>POWER</i>	
Input voltage	2.5 - 24.0 VDC
Current	< 35 mA
<i>PHYSICAL</i>	
Size	Width 76.20 mm (3.000") Length 119.38 mm (4.700") Height 20.00 mm (0.788")
Weight	191 g (6.8 oz.)
<i>ENVIRONMENTAL</i>	
Maximum altitude	21,336 m (70,000 ft.)
Operating temperature	-55°C to +85°C (-67°F to
Storage temperature	-55°C to +85°C (-67°F to
Designed to meet these standards	RTCA DO-160D, RTCA DO-228, MIL-C-5541, MIL-E-5400, MIL-I-45208A, MIL-STD-810 and SAE J1455

ELEVATION GAIN PATTERNS

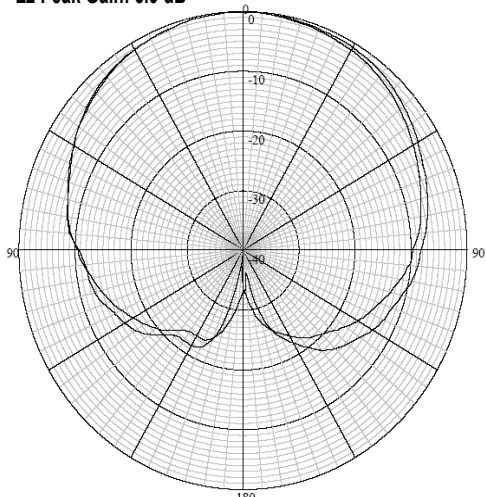
L-Band Peak Gain: 5.7 dB



L1 Peak Gain: 4.1 dB



L2 Peak Gain: 3.9 dB



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Technical drawing of the rear view of a circular component. The drawing shows a central circular hole with a diameter of 2.600 inches (66.04 mm). The outer diameter of the component is 4.700 inches (119.38 mm). There are four mounting holes, each with a diameter of 0.201 inches (5.11 mm) and a depth of 0.385 inches (9.78 mm). The mounting holes are spaced 4x.800 inches (20.32 mm) apart. The component has a thickness of 3.000 inches (76.20 mm). The drawing also shows a central hole with a diameter of 2.600 inches (66.04 mm). The mounting holes are spaced 4x.800 inches (20.32 mm) apart. The component has a thickness of 3.000 inches (76.20 mm). The drawing also shows a central hole with a diameter of 2.600 inches (66.04 mm). The mounting holes are spaced 4x.800 inches (20.32 mm) apart. The component has a thickness of 3.000 inches (76.20 mm).

PHASE CENTRE

Please refer to the Mechanical Drawings before reading this section.

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

For relative offset numbers and phase centre 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.

WARRANTY POLICY

NovAtel Inc. warrants that its Global Positioning System (GPS) products are free from defects in materials and workmanship, subject to the conditions set forth below, for the following periods of time:

GPSAntenna™ Modules:	One (1) Year from date of sale
Cables and Accessories:	Ninety (90) Days from date of sale

Date of sale shall mean the date of the invoice to the original customer for the product. NovAtel's responsibility respecting this warranty is limited solely to product repair at an authorized NovAtel location only. Determination of repair will be made by NovAtel personnel or by technical personnel expressly authorized by NovAtel for this purpose.

The foregoing warranties do not extend to

(i) nonconformities, defects or errors in the products due to accident, abuse, misuse or negligent use of the products or use in other than a normal and customary manner, environmental conditions not conforming to NovAtel's specifications, or failure to follow prescribed installation, operating and maintenance procedures, (ii) defects, errors or nonconformities in the products due to modifications, alterations, additions or changes not made in accordance with NovAtel's specifications or authorized by NovAtel, (iii) normal wear and tear, (iv) damage caused by force of nature or act of any third person, (v) shipping damage; or (vi) service or repair of product by the dealer without prior written consent from NovAtel.

In addition, the foregoing warranties shall not apply to products designated by NovAtel as beta site test samples, experimental, developmental, preproduction, sample, incomplete or out of specification products or to returned products if the original identification marks have been removed or altered.

The warranties and remedies are exclusive and all other warranties, express or implied, written or oral, including the implied warranties of merchantability or fitness for any particular purpose are excluded.

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There are no user-serviceable parts in the GPSAntenna and no maintenance is required. If the unit is faulty, replace with another unit and return the faulty unit to NovAtel Inc. You must obtain a RETURN MATERIAL AUTHORIZATION (RMA) number by calling NovAtel Customer Service at 1-800-NOVATEL (U.S. and Canada only) or 403-295-4500 before shipping any product to NovAtel or a dealer. Once you have obtained an RMA number, you will be advised of proper shipping procedures to return any defective product. When returning any product to NovAtel, please return the defective product in the original packaging to avoid damage.

****** Before shipping any material to NovAtel or our Dealer, obtain a Return Material Authorization (RMA) number from the point of purchase. You may also visit our web site (<http://www.novatel.com>) and select *Support | Repair Request* from the side menu.

Questions or Comments

If you have any questions or comments, please contact NovAtel Customer Support using one of methods provided below.

E-mail: support@novatel.com

Web: www.novatel.com

Phone: 1-800-NOVATEL (International) or 403-295-4500 (U.S. & Canada)

Fax: 403-295-4501



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