The ANT-C2GA-TW-N is an active antenna designed to operate at the GPS L1 and L2 frequencies, 1575.42 and 1227.60 MHz. This guide provides the basic information you need to install and begin using your new antenna.

**ADDITIONAL EQUIPMENT REQUIRED**

The equipment listed below is required to set up the ANT-C2GA-TW-N:

- A mount, such as a range pole, tribrach, or tripod, with a 5/8” x 11 thread
- Coaxial cable with a male TNC connector
- A device with an antenna input port that both receives the RF signal and provides 2.5 - 24.0 VDC to the antenna (All NovAtel GPS receivers provide the necessary power through their antenna RF connectors.)

**SITE SELECTION GUIDELINES**

Before installing the antenna, select a site that as closely as possible meets the following conditions for optimal performance:

- An unobstructed line-of-sight from horizon to horizon and at all bearings and elevation angles
- As far as possible from reflective objects, especially those that are above the antenna and any water bodies, which can be a strong source of multipath reflections
- If obstructions and reflective surfaces are within 30 m, ensure the site is as high as possible. Otherwise, mount the antenna as low as possible.
- For base station locations, ensure the antenna is in a low-multipath location, close to the ground and away from reflective objects.

**INSTALLING THE ANTENNA**

Both the input DC power and the output RF signal flow over a single coaxial cable that is connected to the unit’s TNC female connector.

The antenna baseplate features an internal thread that accepts a 5/8” x 11 threaded bolt. This allows the antenna to be used on a tripod.

**Caution:** Overtightening a bolt into the base may damage the base.

After a site has been selected, install the antenna as follows.

1. Verify that the thread on the mount does not extend more than 1/2” (12 mm) to ensure the thread is not damaged when the mount is inserted. If it extends further than 1/2” (12 mm), add two jam nuts to shorten the exposed thread, ensuring the nuts are well-tightened.

2. Align the mount thread with the internal thread on the bottom of the antenna and rotate the antenna clockwise until it is securely screwed to the mount.

3. Remove the dust cap from the antenna’s TNC connector.

4. Attach the male TNC connector of the coaxial cable to the antenna’s TNC connector.

5. Attach the other end of the coaxial cable to the antenna input port of the receiving device, which must provide power as detailed in the SPECIFICATIONS section of this guide. All NovAtel GPS receivers provide the necessary power through their antenna RF connectors.

**ANTENNA CARE**

The ANT-C2GA-TW-N 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**

**MECHANICAL DRAWINGS**

- **RF**
  - 3 dB pass band (typical)
    - L1: 1575.42 ±13 MHz
    - L2: 1227.60 ±13 MHz
  - Out-of-band rejection (typical)
    - > 40 dB
  - Gain at zenith (I = 90°) (min)
    - L1: 7.77 dB
    - L2: 4.77 dB
  - Gain roll-off (zenith to horizon)
    - L1: 15.72 dB
    - L2: 18 dB
- **Polarization** Right-hand circular
- **Noise figure (typical)** 3.0 dB
- **Nominal impedance** 50 Ω
- **Dimensions in inches followed by [mm]**
  - L1/L2 LNA gain (typical)
    - 31/33 dB
  - **VSWR** 1.5 : 1

**PHYSICAL**

- **Output voltage** 2.5 - 24.0 VDC
- **Input current** 35 mA
- **Diameter** 308 mm (12.12”)
- **Weight** 4.1 kg (9.0 lbs)

**ENVIRONMENTAL**

- **Temperature**
  - Operating: -55°C to +85°C (-67°F to +185°F)
  - Storage: -55°C to +85°C (-67°F to +185°F)
- **Humidity**
  - Operating: 10% to 90% RH non-condensing
  - Storage: 10% to 90% RH non-condensing
- **RF**
  - Input frequency: 1.5 GHz (433.92 MHz)
  - Output frequency: 2.5 GHz (995.42 MHz)
- **Power**
  - Output power: 100 mW

**RF 2.5 GHz Module**

- **Gain at zenith** (L1: 1575.42 MHz, L2: 1227.60 MHz)
  - L1: 31 dB
  - L2: 33 dB
- **3 dB pass band**
  - L1: 1575.42 ±13 MHz
  - L2: 1227.60 ±13 MHz
- **Out-of-band rejection**
  - > 40 dB
- **Gain at zenith (I = 90°) (min)**
  - L1: 7.77 dB
  - L2: 4.77 dB
- **Gain roll-off (zenith to horizon)**
  - L1: 15.72 dB
  - L2: 18 dB
- **Polarization** Right-hand circular
- **Noise figure (typical)** 3.0 dB
- **Nominal impedance** 50 Ω
- **Dimensions in inches followed by [mm]**
  - L1/L2 LNA gain (typical)
    - 31/33 dB
  - **VSWR** 1.5 : 1

**PHASE CENTER**

Please refer to the Mechanical Drawings before reading this section.

**WARRANTY POLICY**

NovAtel 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
  - Cables and Accessories: Ninety (90) Days

**Date of sale shall mean the date of the invoice to the original customer for the product.**

NovAtel, at its own discretion, may inspect any product returned to a NovAtel authorized dealer or Distributor for warranty service or inspection, and if NovAtel determines the product is not defective, NovAtel may charge the customer for the costs of performing such inspection and/or repairs. If a product is returned for inspection or repair and is found not to be defective, NovAtel reserves the right to ship such product to the original customer, freight prepaid.

NovAtel’s obligations under this Warranty are limited to the repair, replacement, or refund of the purchase price of any defective product at its own discretion, subject to the following conditions:

1. NovAtel shall not be liable for any loss, damage or expense arising directly or indirectly out of the purchase, installation, operation, use or licensing or products or services. In no event shall NovAtel be liable for special, indirect, incidental or consequential damages of any kind or nature due to any cause.

2. NovAtel does not guarantee the availability of any replacement parts. NovAtel is not responsible for, and does not make any warranty or guarantee regarding, the availability of replacement parts.

3. NovAtel's responsibility respecting this warranty is limited solely to product repair at an authorized NovAtel location. Determination of repair will be made by NovAtel personnel or its technical personnel expressly authorized by NovAtel for this purpose.

4. 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, operation and maintenance procedures, (ii) defects, errors or nonconformities in the products caused by 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 acts of nature or act of any third person, (v) shipping damage, or (vi) repair or replacement of product by the dealer without prior written consent from NovAtel.

5. In addition, the following 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.

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

**WEEE NOTICE**

If you purchased your ANT-C2GA-TW-N in Europe, please return it to your dealer or supplier at the end of its life. The objectives of the EU’s environment policy, in particular, are to preserve, protect and improve the quality of the environment, protect human health and utilize 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 recognised by their wheeled bin label.

**QUESTIONS OR COMMENTS**

If you have any questions or comments regarding your antenna, please contact NovAtel Customer Service using one of methods provided below.

- **Email:** support@novatel.ca
- **Web:** www.novatel.com
- **Phone:** 1-800-NOVATEL (U.S. & Canada)
  - 403-295-4900 (International)
- **Fax:** 403-295-4901

In Canada, please contact Novatel's local office at 1-800-NOVATEL (U.S. & Canada) or 403-295-4900.

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