

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
Cables and Accessories	Ninety (90) Days

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 WITHOUT PRIOR WRITTEN CONSENT FROM NOVATEL.

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There are no user-serviceable parts in the GPSAntenna and no maintenance is required. When the GPSCard status code indicates that 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 GPS Customer Service at 1-800-NOVATEL (North America only) or 403-295-4900 before shipping any product to NovAtel or 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 ESD and shipping damage.

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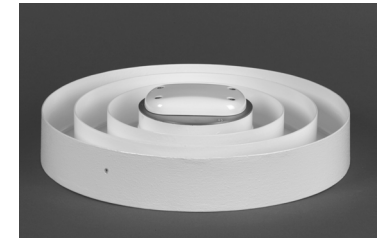
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NovAtel L1/L2 GPSAntenna™ Model 503

- User Information -



DESCRIPTION

The Model 503 GPSAntenna is intended for applications that demand high accuracy; for example, it is ideal for use at a DGPS reference station. The radome allows the antenna to be used in severe weather and hostile environments. The spike at the top of the radome is intended to keep birds from perching above the antenna. For alignment purposes, a “north” arrow is engraved on the bottom of the choke ring.

The Model 503 GPSAntenna is an active antenna designed to operate at the GPS L1 and L2 frequencies, 1575.42 and 1227.60 MHz. The microstrip receiving elements are coupled to filters and a low-noise amplifier (LNA). The unit is optimized to receive right-hand-circularly-polarized signals, and its radiation pattern is shaped to reduce signals arriving at low elevation angles. Furthermore, the performance of the choke ring is characterized by very smooth main beam tapering, pronounced pattern cutoff near horizon, and additional left-hand, circular-polarization discrimination. Together, these features decrease the errors associated with electromagnetic interference and multipath.

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 a permanent adaptor 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.

GPS Antenna Model 503 Technical Specifications

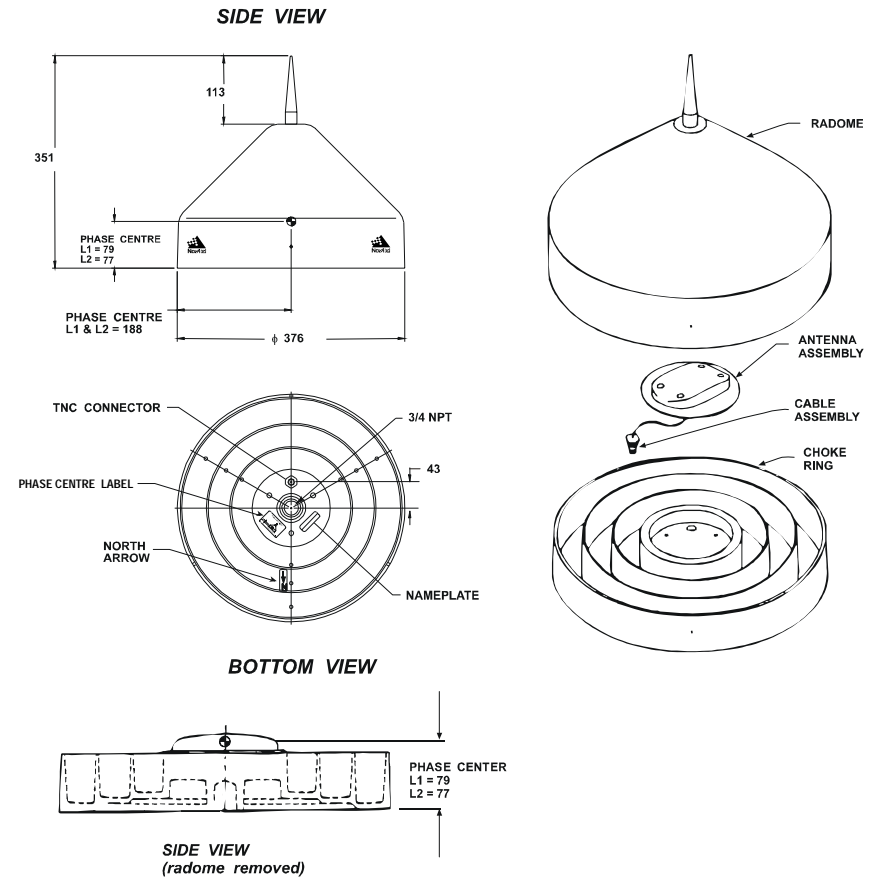
Mechanical Drawings

- ELECTRICAL -

3 dB pass band:	L1:	1575 ± 10 MHz
	L2:	1227 ± 10 MHz
Out-of-band rejection:	$f_c + 50$ MHz:	60 dB (L1), 50 dB (L2)
	$f_c - 50$ MHz:	25 dB (L1), 23 dB (L2)
	$f_c + 100$ MHz:	70 dB (L1), 70 dB (L2)
	$f_c - 100$ MHz:	45 dB (L1), 35 dB (L2)
Antenna elev. pattern:	$\theta = 90^\circ$:	+ 8.0 dBic (typical)
	$20^\circ \leq \theta < 90^\circ$:	- 3.5 dBic to 8.0 dBic (typical)
	$5^\circ \leq \theta < 20^\circ$:	- 8.5 dBic to -1.0 dBic (typical)
	$0^\circ \leq \theta < 5^\circ$:	- 9.5 dBic to -5.5 dBic (typical)
	$\theta = 0^\circ$:	- 9.5 dBic to -7.0 dBic (typical)
LNA gain:	26 ± 2 dB	
Polarization:	Right-hand circular	
Noise figure:	≤ 2.5 dB	
L1-L2 differential propagation delay:	≤ 10.0 nsec	
Axial ratio:	$\theta = 90^\circ$:	2.0 dB max. (L2), 5.0 dB max. (L1)
	$30^\circ \leq \theta < 90^\circ$:	4.0 dB max. (L2), 8.0 dB max. (L1)
	$15^\circ \leq \theta < 30^\circ$:	6.0 dB max. (L2), 10.0 dB max. (L1)
	$5^\circ \leq \theta < 15^\circ$:	7.0 dB max. (L2), 11.0 dB max. (L1)
	$0^\circ \leq \theta < 5^\circ$:	6.0 dB max. (L2), 11.0 dB max. (L1)
	(90° = zenith)	
Nominal impedance:	50 Ω	
VSWR:	≤ 2.0:1	
Power requirements:	≤ 50 mA @ + 4.25 to + 18.0 V DC	
	40 mA (typical) @ 5.0 V DC	
Power handling:	≤ 1 W	

- MECHANICAL & ENVIRONMENTAL -

Finish:	Weatherable polymer
Weight:	≤ 3.293 kg
Altitude:	≤ 6096 m (20,000')
Temperature:	-55 °C to +70 °C



Note: All dimensions in millimetres except for thread size.