

# OEM-GNSS-503

High-performance antenna module  
for OEM integrators

## Patented technology

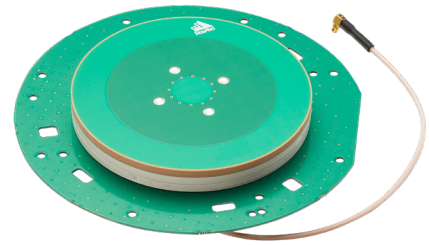
The VEXXIS GNSS-500 series antennas provide outstanding circularly polarized, symmetric radiation patterns with superior multipath rejection performance. This is achieved with a patented, multi-point feeding network which provides uniquely low loss and frequency independent amplitude/phase balance. Strictly balancing signals and sequentially feeding the GNSS antenna at multiple points is the key to achieving remarkable performance.

## Designed for integration

The OEM-GNSS-503 antenna module provides VEXXIS antenna technology in an easy to integrate assembly ideal for use in ground vehicle applications such as agriculture, machine control and mobile mapping. The OEM-GNSS-503 offers maximum flexibility when creating high performance antenna and smart antenna products using your own industrial design.

## Proven ruggedness and reliability

When integrated into a properly designed enclosure, the GNSS-500 series sub-assemblies have been shown to endure over 1000 hours of intense vibration testing to earn a MIL-STD-810G rating.



## Features

- Supports multi-frequency GPS, GLONASS, Galileo, BeiDou, QZSS and IRNSS/NavIC signal reception
- L-Band capable, supporting correction services such as TerraStar
- Multi-point antenna feed provides stable phase centre and enhanced multipath rejection
- Designed for high quality performance when used with STEADYLINE technology from Hexagon | NovAtel
- Compact, lightweight assembly with single DC/RF cable eases integration into various enclosures and applications

## Performance

### Signal Received

GPS	L1, L2, L5
GLONASS	G1, G2, G3
Galileo	E1, E5a/b, E6
BeiDou	B1, B2, B3
QZSS	L1, L2, L5, L6
IRNSS/NavIC	L5
L-Band	

### Pass Band (typical)

Upper passband	1577.5 ± 32.5 MHz
Lower passband	1232.0 ± 68.0 MHz

### Out-of-Band Rejection (typical)

Band edges ± 50 MHz	15 dB
Band edges ± 100 MHz	25 dB

### LNA Gain (typical)

Upper passband	34 dB
Lower passband	38 dB

### Gain at Zenith (90°)

L1/B1/E1/G1/L-Band	+4.0 dBic (minimum)
L2/G2	+4.0 dBic (minimum)
G3/E5/B2	+3.5 dBic (minimum)
L5	+2.5 dBic (minimum)
L6/E6/B3	+1.0 dBic (minimum)

### Gain Roll-Off (Zenith to Horizon)

Upper passband	12 dB (typical)
Lower passband	13 dB (typical)

**Phase Centre Stability** <5.0 mm

**Noise Figure** 2.5 dB (typical)

**VSWR** ≤2.0 (typical)

### L1-L2 Differential Propagation Delay

7 ns (maximum)

**Group Delay Ripple** <15 ns

**Nominal Impedance** 50 Ω

## Physical and Electrical

**Dimensions** 127 mm D × 24.5 mm H

**Weight** 134 g

### Cable and Connector

20.0 cm RG178 with right-angle MCX  
27.8 cm RG178 with right-angle MMCX

### Power

Input voltage +3.3 to +18.0 VDC  
Current 20 mA (typical)

## Environmental

### Temperature

Operating -40°C to +85°C  
Storage -55°C to +85°C

**Humidity** 95% non-condensing

### Vibration (operating)<sup>1</sup>

Random MIL-STD-810G (CH1), 514.7 (15 g)  
Annex E, Procedure 1, Category 24

**Shock** MIL-STD-810G (CH1), 516.7 (40 g)  
Procedure 1

**Bump** IEC 68-2-27 Ea (25 g)

## Compliance<sup>2</sup>

Designed to meet FCC, ISED, CE

1. These results were met with the OEM-GNSS-503 in a NovAtel enclosure.

2. Integrator needs to determine their own certifications based on product needs.

## Contact Hexagon | NovAtel

sales.nov.ap@hexagon.com 1-800-NOVATEL (U.S. and Canada) or 403-295-4900 | China: 0086-21-68882300 | Europe: 44-1993-848-736 | SE Asia and Australia: 61-400-883-601.  
For the most recent details of this product: novatel.com

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