

# L1 Antennas



## Features

Rugged and compact

Wide input voltage range

Standard mounting systems

## Benefits

Ensures portability and reliability in a variety of applications and conditions

Provides compatibility with virtually all GPS receivers on the market

Offers quick and secure installation

**NovAtel's L1 antennas deliver exceptional performance in the most demanding conditions.**

### GPS-701

The GPS-701 is a rugged, lightweight antenna designed for superior L1 performance in a variety of applications. It incorporates NovAtel's patented Pinwheel™ technology to provide superior multipath rejection equivalent to that offered by a combined choke ring and antenna solution. However, at just 480 grams and with a diameter of 185 millimeters, the GPS-701 is significantly smaller, lighter, and more economical than a choke ring antenna. Built to withstand severe weather and hostile environments, the antenna is waterproof to IEC 60529 IPX7 and meets the MIL-STD-810F specification for vibration and salt spray. The GPS-701 also features a highly stable phase center that remains constant as the azimuth and elevation of satellites change, offering flexibility in antenna placement and installation.

### GPS-521

The GPS-521 is a compact and lightweight L1 antenna ideal for mobile applications such as automotive use or handheld operations. The rugged radome, combined with a diameter of 56 millimeters and a weight of 85 grams, results in a highly portable antenna able to withstand a variety of conditions. The GPS-521 also features easy installation with single hole mounting with a threaded connector and nut.

### GPS-511

The GPS-511 offers optimal L1 performance for airborne and high dynamic applications. Along with a low profile, the GPS-511 is just 89 millimeters in diameter, weighs 145 grams, and is environmentally sealed to protect against harsh weather. The antenna features a four hole mounting system to ensure secure installation and is designed to meet DO-160C standards.



**Precise thinking**

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## Receiver Compatibility

All antennas listed on this page are designed for use with NovAtel's OEM4-based receivers or other equivalent high-precision GPS receivers.

### GPS-701

For more specifications on the GPS-701, see the GPS-700 Series product sheet.

#### Performance

##### 3 dB Pass Band

L1 1575 -15/+30 MHz (typical)

##### Out-of-Band Rejection ( $f_c = L1$ )

$f_c$  -30/+50 MHz 30 dBc (typical)

$f_c$  -40/+80 MHz 50 dBc (typical)

**LNA Gain 27 dB (typical)**

##### Gain at Zenith (90°)

L1 +5 dBic (minimum)

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

L1 13 dB

**Noise Figure  $\leq 2.0$  dB (typical)**

**VSWR  $\leq 2.0 : 1$**

**Nominal Impedance 50  $\Omega$**

#### Physical & Electrical

##### Size

Diameter<sup>1</sup> 185 mm

Height 69 mm

**Weight 480 g**

##### Power

Input Voltage +4.5 to +18 VDC

Current Consumption 25 mA (typical)

**Operating Temperature -40°C to +85°C**

<sup>1</sup> Not including tape measure tab. Full diameter with tape measure tab is 195 mm.

### GPS-521

#### Performance

##### 3 dB Pass Band

L1 1575  $\pm$  2 MHz (typical)

##### Out-of-Band Rejection

1625 MHz 22 dBc (typical)

**LNA Gain 26  $\pm$  3 dB (typical)**

##### Gain at Zenith (90°)

L1 -1.0 dBic (minimum)

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

L1 6.5 dB

**VSWR  $\leq 2.0 : 1$**

**Nominal Impedance 50  $\Omega$**

#### Physical & Electrical

##### Size

Diameter 56 mm

Height 17 mm

**Weight 85 g**

##### Power

Input Voltage +4.0 to +24 VDC

Current Consumption 25 mA (maximum)

**Operating Temperature -55°C to +85°C**

**Regulatory FCC Class B, CE**

### GPS-511

#### Performance

##### 3 dB Pass Band

L1 1575  $\pm$  2 MHz (typical)

##### Out-of-Band Rejection

1625 MHz 35 dBc (typical)

**LNA Gain 26  $\pm$  3 dB (typical)**

##### Gain at Zenith (90°)

L1 -1.0 dBic (minimum)

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

L1 6.5 dB

**VSWR  $\leq 2.0 : 1$**

**Nominal Impedance 50  $\Omega$**

#### Physical & Electrical

##### Size

Diameter 89 mm

Height 15 mm

**Weight 145 g**

##### Power

Input Voltage +4.0 to +24 VDC

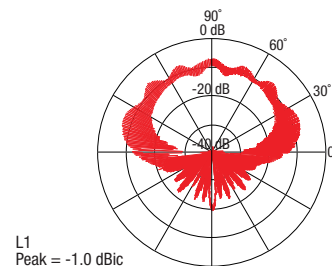
Current Consumption 25 mA (maximum)

**Operating Temperature -55°C to +85°C**

**Regulatory FCC Class B, CE**

### GPS-521 and GPS-511 Elevation Gain Pattern

The plot to the right represents the typical axial ratio gain pattern for the L1 frequency. The plot applies to the GPS-521 and GPS-511 antennas.



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