



a time and place...  
for everything

# Wi-Sys Communications Inc.

## WS1551QF – Lband + GPS L1 Quadrifilar Helical Antenna

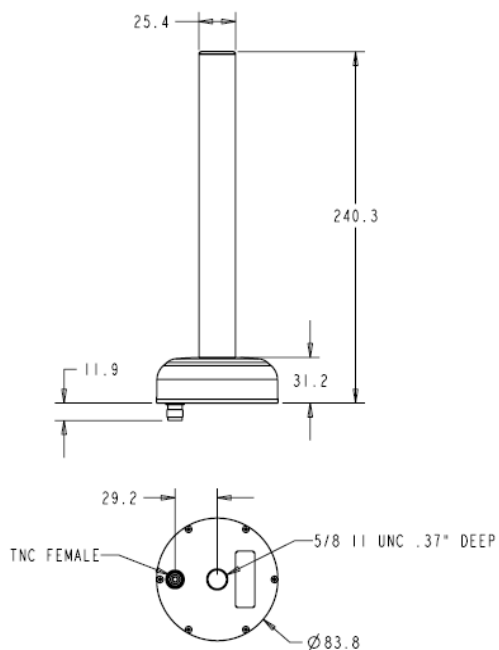
### Applications:

- ◆ High Latitude / Low Elevation Telematics
- ◆ SBAS & DGPS
- ◆ Precision Ag, Survey & Construction
- ◆ Military, Law Enforcement & Public Safety
- ◆ Marine and Fleet Telematics



The WS1551QF is an active right hand circularly polarized quadrifilar helical antenna. It provides an omni-directional, cardoid radiation pattern, with peak gain optimized at elevation angles between 0° and 40°. The WS1551QF is a high performance wideband antenna, covering both the L-band downlink frequency band (1525 to 1560 MHz) and the GPS (L1) frequency band (1574 to 1576 MHz). It features a precisely tuned quadrifilar antenna element, 15KV ESD circuit protection, a high gain two-stage low noise amplifier (LNA) and a ceramic filter. As well it is housed in a weather proof, industrial grade enclosure with a bulkhead TNC Jack connector. At high latitudes, where the elevation angle to satellites is 30° or less, the WS1551QF antenna provides a significant performance advantage over the more commonly used patch antennas.

### WS1550QF dimensions (mm)



### Features:

- ◆ Dual-band receive antenna:  
Lband - 1525 to 1560 MHz  
GPS (L1) - 1574 to 1576MHz
- ◆ Patented very low noise LNA: 1dB
- ◆ High gain LNA: 27dB
- ◆ Low current: 10 mA (max)
- ◆ 15KV ESD circuit protection
- ◆ Weatherproof housing: IP67
- ◆ Mounting: Standard 5/8 pole thread
- ◆ RoHS compliant

### Ordering Information:

**WS1551QF:** Lband + GPS (L1)  
Quadrifilar Helical Antenna



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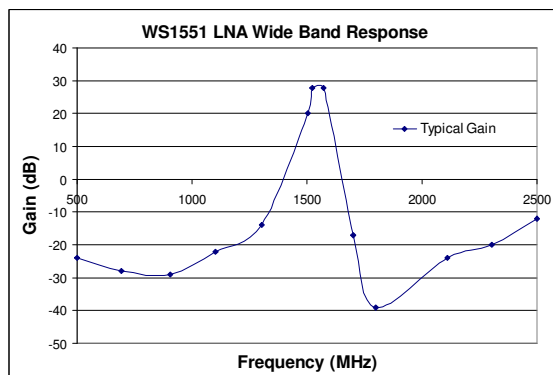
### Specifications:

#### Antenna

- ◆ Frequency Passband: 1525 to 1576 MHz
- ◆ Gain of element: +4.5 dBic (typ.) @ 35° Elevation  
-2.5 dBic (typ.) @ Zenith
- ◆ Polarization: RHCP
- ◆ Radiation Pattern: Omni-directional (cardoid)
- ◆ Axial Ratio: 3dB (max.)
- ◆ G/T: -15.5dB/K @30° (off Satellite)

#### LNA

- ◆ Frequency Passband: 1525 to 1576 MHz
- ◆ Gain: Lband 27dB, L1 26dB (typ.)
- ◆ Gain bandwidth: 1dB (typ.) 1529 to 1560 MHz  
2dB (typ.) 1525 to 1576 MHz
- ◆ Noise Figure: 1 dB (typ.)
- ◆ Out-of-Band Rejection: 500MHz – 1200MHz >45dB  
1200MHz – 1450MHz >27dB  
1650MHz – 1800MHz >30dB  
800MHz – 2100MHz >50dB
- ◆ Return Loss: > 16dB
- ◆ Impedance: 50 Ω
- ◆ Operating Voltage: 3 to 15 VDC
- ◆ Current: 10 mA @ 5.5VDC (typ.)



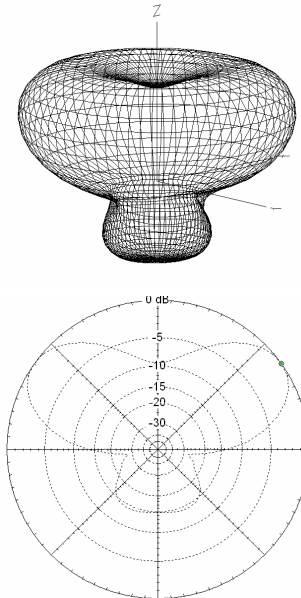
#### Environmental

- ◆ Temperature: -40 to +85° C
- ◆ Weatherproof: IP67
- ◆ Vibration: 5 to 20 Hz: 0.05g<sup>2</sup>/Hz  
20 to 150 Hz: -3dB/octave
- ◆ Shock: Vertical axis 50G, other axes 30G
- ◆ RoHs Compliant

#### Mechanical

- ◆ Dimensions: 83.8 mm dia x 266.7 mm  
(3.5 inch dia x 10.5 inch)
- ◆ Weight: 454g (16oz)
- ◆ Mounting: 5/8 in – 11UNC (BSW)
- ◆ Housing: Body - white plastic  
Base - black anodized aluminum
- ◆ Connector: TNC jack (female)

#### Radiation Pattern @ 1450 MHz



### Wi-Sys Communications Inc.

31B Richardson Side Road  
Ottawa, ON K2K 0A1 Canada  
Tel 613.254.7386 Fax 613.254.7388  
sales@wi-sys.com www.wi-sys.com

