

VSS6037L

NavtechGPS
+1-703-256-8900 or 800-628-0885
info@NavtechGPS.com
www.NavtechGPS.com

CALIAN[®]
Confidence. Engineered.

VeroStar™ Multi-Constellation Full-Band Antenna

Frequency Coverage: GPS L1, L2, L5 | QZSS L6 | GALILEO E1, E5a, E5b, E6 | BEIDOU B1, B2a, B2b, B3 | GLONASS G1, G2, G3 | NavIC L5 + L-Band

The patent-pending VSS6037L antenna employs Calian's unique VeroStar™ technology, providing high gain over the full GNSS spectrum: GPS/QZSS-L1/L2/L5, QZSS-L6, GLONASS-G1/G2/G3, Galileo-E1/E5a/E5b/E6, BeiDou-B1/B2b/B2a/B3, and NavIC-L5, including the satellite-based augmentation system (SBAS) available in the region of operation [WAAS (North America), EGNOS (Europe), MSAS (Japan), or GAGAN (India)], as well as L-Band correction services.

The light and compact surface-mount VeroStar™ VSS6037L is designed for high-accuracy positioning while being robust and reliable.

With an exceptionally low roll-off from zenith to the horizon, the VeroStar™ antenna provides the best-in-class tracking of GNSS and L-Band correction signals from low elevation angles. In addition, the optimized axial ratio at all elevation angles results in excellent multipath rejection, thus enabling accurate and precise code and phase tracking of GNSS and L-Band correction signals.

A wide-band spherical antenna element enables the VeroStar™ to deliver a ± 2 mm phase centre variation (PCV), making it ideal for high-precision applications, such as autonomous vehicle navigation (land, sea, and air), machine control, and precision agriculture.

The VeroStar™ antenna features a robust pre-filter and high-IP3 LNA architecture, minimizing de-sensing from high-level out-of-band signals, including 700 MHz LTE, while still providing a noise figure of only 1.8 dB.

The surface-mount antenna has passed a battery of tests (water pressure, altitude, salt fog, shock, drop, and vibration) to ensure it can survive the rigours of day-to-day field use.

The unique features of the VeroStar™ antenna guarantee it can deliver high signal-to-noise ratio (SNR) and highly accurate and precise code and phase tracking of GNSS signals from all elevation angles in the most challenging environments.



Applications

- High-precision GNSS systems
- All surface-mount precision applications like:
 - Autonomous vehicle navigation (land, sea, air)
 - Marine navigation
 - RTK/PPP systems
 - Precision agriculture

Features

- Tight phase centre variation (± 2 mm typ.)
- Low axial ratios from zenith to horizon
- Low roll-off from zenith to the horizon
- High G/T at low elevation angles
- Invariant performance from 3.0 to 16 VDC
- Low current (50 mA)
- Low noise figure (1.8 dB)
- Light, compact, and robust design
- IP69K, REACH, and RoHS compliant

Benefits

- Consistent performance across all frequency bands
- Excellent GNSS tracking from low elevation angles
- Extreme accuracy and precision
- Excellent multipath rejection

About Calian: With global headquarters and manufacturing in Ottawa, Canada, Calian is a leading manufacturer of high-precision antennas and components for Global Navigation Satellite System (GNSS) applications. Calian's mission is to support the needs of a new generation of positioning systems by delivering unprecedented antenna precision at competitive prices. Learn more at www.calian.com

Revision: 33-VSS6037L

Contact us:
info@tallysman.com
T: +1 613 591-3131

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Antenna

Technology Full GNSS frequency crossed dipoles

| | | Gain | Axial Ratio |
|---------------------------------------|-----------------------|---------------------|--------------|
| | | dBic typ. at Zenith | dB at Zenith |
| GNSS | | | |
| GPS / QZSS | L1 | 4.0 | < 1.0 |
| | L2 | 4.5 | < 1.0 |
| | L5 | 4.0 | < 1.0 |
| GLONASS | G1 | 4.0 | < 1.0 |
| | G2 | 4.5 | < 1.0 |
| | G3 | 4.5 | < 1.0 |
| Galileo | E1 | 4.0 | < 1.0 |
| | E5A | 4.0 | < 1.0 |
| | E5B | 4.5 | < 1.0 |
| | E6 | 4.0 | < 1.0 |
| BeiDou | B1 | 4.0 | < 1.0 |
| | B2b | 4.5 | < 1.0 |
| | B2a | 4.0 | < 1.0 |
| | B3 | 4.0 | < 1.0 |
| IRNSS / NavIC | L5 | 4.0 | < 1.0 |
| QZSS | L6 | 4.0 | < 1.0 |
| L-Band Services (1525 MHz - 1559 MHz) | | 4.0 | < 1.0 |
| Satellite Communications | | | |
| Iridium | | - | - |
| Globalstar | | - | - |
| Other | | | |
| Axial Ratio at 10° | 5.0 dB max. | Efficiency | > 70% |
| PC Variation | ± 2 mm typ. (no azi.) | | |

Mechanicals

| | |
|----------------------|--------------------------------|
| Size | 146.7 mm (dia.) x 43.9 mm (h.) |
| Weight | 340 g |
| Radome | TNC (female) |
| Mount | EXL9330 plastic |
| Available Connectors | 4 x M6 screws |

Environmental

| | |
|-----------------------|--|
| Operating Temperature | -40 °C to +85 °C |
| Storage Temperature | -55 °C to +95 °C |
| Vibration | MIL-STD-810E - Test method 514.5 |
| Shock | MIL-STD-810G - Test method 516.6 |
| Salt Fog | MIL-STD-810G - Test method 509.6 |
| IP Rating | IP69K |
| Compliance | IPC-A-610, FCC Part 15, RED / CE Mark, RoHS, REACH |

Warranty

| | |
|------------------|--------------------------|
| Parts and Labour | 3-year standard warranty |
|------------------|--------------------------|

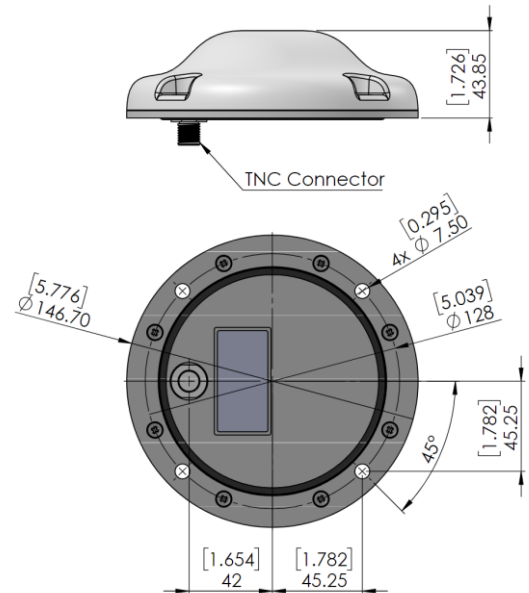
Low Noise Amplifier (LNA) - Measured at 3V and 25°C

| Frequency Bandwidth | Out of Band Rejection |
|---------------------|-----------------------|
| Lower Band | 1160 - 1300 MHz |
| L-band Corr. | 1539 - 1559 MHz |
| Upper Band | 1559 - 1606 MHz |

| Frequency Bandwidth | Out of Band Rejection |
|---------------------|--|
| Lower Band | ≥ 70 dB @ ≤ 500 MHz ≥ 45 dB @ ≤ 900 MHz ≥ 44 dB @ ≤ 1064 MHz ≥ 30 dB @ ≤ 1080 MHz ≥ 24 dB @ ≥ 1370 MHz ≥ 45 dB @ ≥ 1410 MHz ≥ 60 dB @ ≥ 1430 MHz |
| L-band Corr. | ≥ 80 dB @ ≤ 1450 MHz ≥ 50 dB @ ≤ 1480 MHz |
| Upper Band | ≥ 35 dB @ ≤ 1500 MHz ≥ 60 dB @ ≥ 1650 MHz ≥ 75 dB @ ≥ 1700 MHz |

| | |
|------------------------|--------------------------|
| Architecture | eXtended Filtering |
| Gain | 37 dB min. |
| Noise Figure | 1.8 dB typ. |
| VSWR | < 1.5:1 typ., 1.8:1 max. |
| Supply Voltage Range | 3.0 to 16 VDC nominal |
| Supply Current | 50 mA typ. |
| ESD Circuit Protection | 15 kV air discharge |
| P 1dB Output | + 6.0 dBm |

Mechanical Diagram - Units in 'mm' and [inches]



Ordering Information

Part Number **33-VSS6037L**

Please refer to our **Ordering Guide** to review available radomes and connectors at: <https://www.tallysman.com/resource/tallysman-ordering-guide/>



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