

VSS6037L



TALLYSMAN®

A CALIAN® COMPANY

When precision matters.®

VSS6037L VeroStar™ Surface-Mount Full GNSS Precision Antenna + L-band

Frequency Coverage: GPS/QZSS-L1/L2/L5, QZSS-L6, GLONASS-G1/G2/G3, Galileo-E1/E5a/E5b/E6, BeiDou-B1/B2/B2a/B3, NavIC-L5
+ L-band correction services

The patent-pending VSS6037L antenna employs Tallysman'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/B2/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 and crafted 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, such as:
 - 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
- Superior low-elevation L-band correction reception
- 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
- IP67, 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 Tallysman: With global headquarters and manufacturing in Ottawa, Canada, Tallysman is a leading manufacturer of high-precision antennas and components for Global Navigation Satellite System (GNSS) applications. Tallysman'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.tallysman.com

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Frequency Coverage: GPS/QZSS-L1/L2/L5, QZSS-L6, GLONASS-G1/G2/G3, Galileo-E1/E5a/E5b/E6, BeiDou-B1/B2/B2a/B3, NavIC-L5 + L-band correction services

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 |
| | B2 | 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 correction services | | 4.0 | < 1.0 |
| Satellite Communications | | | |
| Iridium | | - | - |
| Globalstar | | - | - |
| Other | | | |
| Axial Ratio at 10° | 5.0 dB max. | Efficiency | > 70% |
| Phase Centre Variation | ± 2 mm typ. (no azi.) | G/T @10°C (L-band c.s.) | ≥ -25.4 dB/K |

Mechanicals

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

Environmental

| | |
|-------------------------|--|
| Operating Temperature | -45 °C to +85 °C |
| Storage Temperature | -55 °C to +95 °C |
| Mechanical Vibration | MIL-STD-810E - Test method 514.5 |
| Shock and Drop | MIL-STD-810G - Test method 516.6 |
| Salt Fog | MIL-STD-810G - Test method 509.6 |
| Low Pressure - Altitude | MIL-STD-810F - Test method 500.5 |
| IP Rating (housing) | IP67 |
| 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 3.0 VDC and 25°C

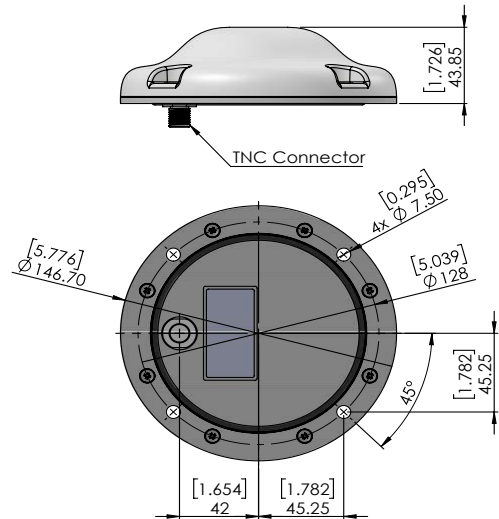
| Frequency Bandwith | Out-of-Band Rejection |
|-----------------------------|-----------------------|
| Lower Band | 1160 - 1300 MHz |
| L-band corrections services | 1539 - 1559 MHz |
| Upper Band | 1559 - 1606 MHz |

≥ 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

≥ 80 dB @ ≤ 1450 MHz
 ≥ 50 dB @ ≤ 1480 MHz
 ≥ 35 dB @ ≤ 1500 MHz
 ≥ 60 dB @ ≥ 1650 MHz
 ≥ 75 dB @ ≥ 1700 MHz

| | |
|------------------------|---|
| Architecture | Pre-filter → LNA stage 1 → filter → LNA stage 2 |
| Gain | 37 dB min. |
| Noise Figure | 1.8 dB typ. @ 25 °C |
| 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 |
| Group Delay Variation | < 10 ns |

Mechanical Diagram



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/>