

# VSP6037L

## VSP6037L VeroStar<sup>™</sup> 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 corrections

### Overview

The patent-pending VSP6037L antenna employs Tallysman's unique VeroStar<sup>™</sup> 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 embedded VeroStar<sup>™</sup> VSP6037L is designed for high-accuracy positioning while being robust and reliable.

With an exceptionally low roll-off from zenith to the horizon, the VeroStar<sup>™</sup> 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<sup>™</sup> to deliver a  $\pm 2$  mm phase centre variation (PCV), making it ideal for high-precision applications, such as autonomous vehicle navigation (land, sea, and air), smart survey devices, and maritime positioning.

The VeroStar<sup>™</sup> 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 housed antenna, featuring an integrated rubber bumper to absorb routine impacts, 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<sup>™</sup> 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 embedded precision applications, such as:
  - Autonomous vehicle navigation (land, sea, air)
  - Deformation monitoring stations
  - Marine navigation
  - Land survey rover
  - RTK/PPP systems
  - Reference networks

### Features

- Tight phase centre variation ( $\pm 2$  mm typ.)
- Low axial ratios from zenith to horizon
- Low roll-off from zenith to the horizon
- Superior low-elevation corrections 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
- IEC 60945, IEC 61108, IP69K, REACH, and RoHS compliant

### Benefits

- Consistent performance across all bands
- Excellent low elevation GNSS tracking
- 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](http://www.tallysman.com)

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## Antenna

Technology		Full GNSS frequency crossed dipoles	
		Gain	Axial Ratio
		dBic typ. at Zenith	dB at Zenith
<b>GNSS</b>			
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 Services (1525 MHz - 1559 MHz)		4.0	< 1.0
<b>Satellite Communications</b>			
Iridium	-	-	-
Globalstar	-	-	-
<b>Other</b>			
Axial Ratio at 10°	5.0 dB max.	Efficiency	> 70%
PC Variation	± 2 mm typ. (no azi.)		

## Mechanicals

Size	161.8 mm (dia.) x 75.5 mm (h.)
Weight	500 g
Radome	EXL9330 plastic
Mount	5/8"-11 TPI or 1"-14 TPI
Available Connectors	TNC (female)

## Environmental

Operating Temperature	-45 °C to +85 °C
Storage Temperature	-55 °C to +95 °C
Vibration	MIL-STD-810E - Test method 514.4
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:

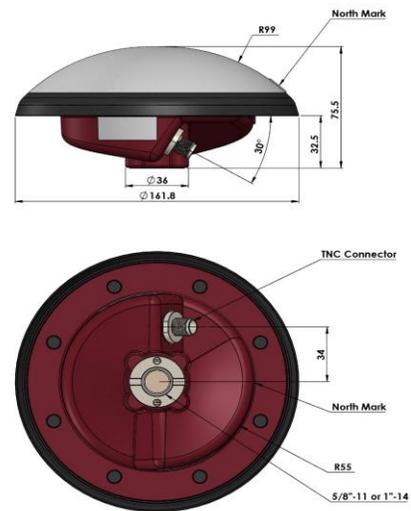
Parts and Labour	3-year standard warranty
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## Low Noise Amplifier (LNA) - Measured at 3V and 25°C

Frequency Bandwith		Out of Band Rejection	
		Upper Band	Lower Band
1545 - 1606 MHz	1164 - 1300 MHz	≥ 80 dB @ ≤ 1450 MHz ≥ 50 dB @ ≤ 1480 MHz ≥ 35 dB @ ≤ 1500 MHz ≥ 60 dB @ ≥ 1650 MHz ≥ 75 dB @ ≥ 1700 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

Architecture	Pre-filter → LNA stage 1 → filter → LNA stage 2
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
Group Delay	< 10 ns
PCO	-

## Mechanical Diagram



## Ordering Information

Part Number **33-VSP6037L-zz**  
 where zz = mounting type: 58 = 5/8"-11 TPI | 01 = 1"-14 TPI

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