



VeraPhase® 6300 Antenna High Precision Triple Band GNSS Antenna

The patented *VeraPhase*® technology rivals, and in some aspects, surpasses the performance of choke ring technology but is lighter, smaller, and more economical.

The VP6300 antenna is capable of receiving GPS L1/L2/L5, GLONASS G1/G2/G3, BeiDou B1/B2, and Galileo E1/E5a+b (1164 – 1254MHz plus 1559-1610MHz). It has consistent performance (gain, axial ratio, PCV, and PCO) across the full bandwidth of the antenna. It provides the lowest axial ratios (horizon to horizon, over all azimuths) across all GNSS frequencies (<0.5dB at zenith, <2 dB typ. at horizon). It has an exceptional front to back ratios, high efficiency (>70%), a tight PCV, and near constant PCO for all azimuth and elevation angles, over all in-band frequencies.

The VP6300 provides high receive gain over the full GNSS spectrum. It has a robust pre-filtering to minimize de-sensing from high-level out-of-band signals such as 700MHz LTE and other cellular band signals, while still providing a noise figure of less than 2.5dB.

An uncommitted PCB is available within the base of the antenna for integration of a custom system board such as a PPP or RTK GNSS receiver or other applications.



VeraPhase 6300 Dimensions (mm)
Conical Radome also available

Applications

- Survey
- High Precision GNSS systems
- Custom OEM Products
- RTK / PPP systems

Features

- Low axial ratio from horizon to horizon
- Very Tight Phase Center Variation (<1.5mm)
- Invariant performance from: +2.7 to 24 VDC
- Space in housing for integrated PPP, RTK receiver or other OEM system.

Benefits

- Consistent performance across all frequencies
- Broadest tracking elevation (0° - 180°)
- Extreme precision
- Excellent multipath rejection
- IP67, REACH, and RoHS compliant
- Reduced time to market



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Specifications (Measured @ Vcc = 3V, and Temperature=25°C)

Antenna

Antenna Gain	5 dBic to 7 dBic (all Frequency Bands)
Efficiency	>70%
Axial Ratio, over full bandwidth	< 0.5 dB at zenith, (refer to table below for other elevations)
Phase Centre Variation	± 1.5 mm across all frequencies
Phase Centre Offset (RMS)	± 0.2 mm across all frequencies

Electrical

Available LNA Configurations	35 dB, 50dB, or 15dB OEM
Gain Variation with Temperature.	3dB max over operational temperature range
LNA Gain Flatness	1.5 dB over frequency range (typ)
P1dB Output	+12 dBm
Bandwidth	1164 – 1254 MHz plus 1559 – 1610 MHz
LNA Noise Figure	2.5dB typ. at 25°C
VSWR (at LNA output)	<1.5:1 max.
Supply Voltage Range	+2.7 to 24VDC nominal
Supply Current	<35mA (35dB), <45mA (50dB)
Out of Band Rejection (min)	<1010MHz 50dB >1410MHz 50dB <1485MHz 30dB >1685MHz 30dB
Group Delay variation	<8ns 1164-1254MHz <16ns 1559MHz – 1610MHz

Mechanicals & Environmental

Mechanical Size	See drawing on page 1
Antenna Reference Plane (ARP)	Bottom of 5/8" thread
North Orientation Indicator	Mark on radome above connector
Operating Temperature Range	-40°C to +85°C
Weight	<800g (flat radome), 820g (conical radome)
Mounting Thread	5/8"x 11 TPI female
Environmental	IP67, RoHS and REACH compliant
Shock	Vertical axis: 50 G, other axes: 30 G
Vibration	MIL STD 810D



Axial ratio (dB) (typical) - Flat Radome							
Elevation	L5 - E5a	E5b - B2 - G3	L2 - G2	B3	E6	L1 - E1 - B1	G1
90°	0.5	0.3	0.2	0.3	0.3	0.3	0.4
30°	1.5	1.5	1.3	1	1.5	1.2	1.2
10°	2	1.8	1.4	1.8	2.2	2	2.2

Axial ratio (dB) (typical) - Conical Radome							
Elevation	L5 - E5a	E5b - B2 - G3	L2 - G2	B3	E6	L1 - E1 - B1	G1
90°	0.5	0.4	0.2	0.3	0.3	0.3	0.4
30°	1.8	1.7	1.3	1.2	1.5	1.5	1.5
10°	2.2	1.8	1.5	2	2.5	2.5	2.8

Ordering Information:

VeraPhase 6300 with 35 dB LNA, flat white radome	33-633500-xx-00-11
VeraPhase 6300 with 35dB LNA, conical white radome	33-633500-xx-00-01
VeraPhase 6300 with 50dB LNA, flat white radome	33-635000-xx-00-11
VeraPhase 6300 with 50dB LNA, conical white radome	33-635000-xx-00-01

Where xx = 01 for TNC or 14 for N-Type

Tallysman Wireless Inc

36 Steacie Drive, Ottawa, ON K2K 2A9 Canada

Tel +1 613 591 3131 Fax +1 613 591 3121

sales@tallysman.com

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