

The patented *VeraPhase*TM 6000 antenna Series is a full GNSS | Constellation antenna that provides the lowest axial ratios (horizon to horizon, over all azimuths) across all GNSS frequencies (<0.5dB at zenith, <2 dB at horizon). It provides exceptional front to back ratios, high efficiency (>70%), a tight PCV (\pm 1mm), and near constant PCO for all azimuth and elevation angles, over all in-band frequencies. The performance of the VeraPhaseTM rivals any geodetic / reference antennas including choke ring antennas but is lighter, smaller, and more economical.

The VP6000 provides high receive gain over the full GNSS spectrum: Low GNSS band (1164MHz to 1300MHz) L-band correction services (1525MHz to 1559MHz) and High GNSS band (1559MHz to 1610 MHz). It is available with a number of robust pre-filtered LNA variants, each with high IP3 to minimize de-sensing from high-level out-of-band signals, including 700MHz LTE, while still providing a noise figure of less than 2.2dB.

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

For reference station installations the VP6000 is available with a conical radome to discourage birds and to shed ice and snow, and a robust, precise monument mount is also available.

The VP6000 is also available with a robust rubber bumper for field use.

Applications

• Survey

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- RTK / PPP systems
- Custom OEM Products

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Features

- Axial ratio: 2 dB max from horizon to horizon
- Very Tight Phase Center Variation (<1mm)
- Invariant performance from: +2.7 to 24 VDC
- Space in housing for integrated L1/L2 receivers RTK or other OEM system.



When **precision** matters...

VeraPhase 6000 Dimensions (mm)

- GNSS Reference Stations
- High Precision GNSS systems

Benefits

- Broadest tracking elevation (0° 180°)
- Extreme precision
- Excellent multipath rejection
- Great signal to noise ratio
- IP67, REACH, and RoHS compliant
- Reduce time to market

Contact NavtechGPS for product details. www.NavtechGPS.com +1-703-256-8900 • 800-628-0885 • info@navtechgps.com

VeraPhase[™] 6000 – High Precision Full GNSS Constellation Antenna

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

Antenna

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Antenna Gain Efficiencv Axial Ratio, over full bandwidth Practical tracking elevation Phase Centre Variation Phase Centre Offset

5 dBic to 7 dBic (all Frequency Bands) >70% < 0.5 dB at zenith, 2dB max at horizon 0° - 180° ± 1 mm across all frequencies (see graphs on following pages) ± 1 mm across all frequencies

35 dB, 50 dB or pre-filtered 15dB OEM pre-amp

1164 - 1300 MHz plus 1559 - 1610 MHz plus 1525 - 1559 MHz,

2.2dB typ. at 25°C with pre-filter 1.5dB typ. at 25°C no pre-filter

Capacity to include L1/L2 receiver or RTK or other OEM applications.

3dB max over operational temperature range

1.5 dB over frequency range

+2.7 to 24VDC nominal

(see graph on following pages)

+11 dBm

<1.5:1 max.

<40 mA

<5 ns

Electrical

Available LNA Configurations Gain Variation with Temperature. LNA Gain Flatness P1dB Output Bandwidth LNA Noise Figure VSWR (at LNA output) Supply Voltage Range Supply Current Out of Band Rejection Group Delay variation Other:

Mechanicals & Environmental

Mechanical Size	See drawing on page 1
Antenna Reference Plane (ARP)	Metal Antenna Base
North Orientation Indicator	Mark on radome above connector
Operating Temperature Range	-40°C to +85°C
Weight	<670 g
Mounting Thread	5/8"x 11 TPI female
Environmental	IP67, RoHS and REACH compliant
Shock	Vertical axis: 50 G, other axes: 30 G
Vibration	3 axis, sweep = 15 min, 10 to 200 Hz sweep: 3 G

Ordering Information:

VeraPhase 6000R with 50 dB LNA, Conical radome, VeraPhase 6000S with 35dN LNA, flat white radome, and bumper VeraPhase 6000B with 35 dB LNA. flat white radome

33-605000-aa-00-01 33-603501-aa-00-11 33-603500-aa-00-11

Where aa is connector type (01 – TNC, 14 – N-Type)

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VeraPhase™ 6000 – High Precision Full GNSS Constellation Antenna

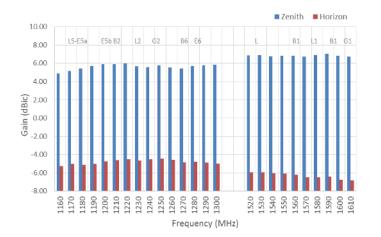
Antenna radiating performances

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0 0 Right and Left CP Magnitude in dB on 60 Phi Cuts Right and Left CP Magnitude in dB on 60 Phi Cuts -5 -5 **RH** Polarization **RH** Polarization -10 -15 -15 G2 L1 -20 -20 -25 -25 LH Polarization LH Polarization -30 -30 -35 -35 -40 -40 45 -100 -50 100 150 -150 50 -150 -100 -50 0 50 Θ (degrees) Θ (degrees)

Normalized radiation patterns





■ 0 deg Elevation ■ 10 deg Elevation ■ 30 deg Elevation ■ 90 deg Elevation 3.00 2.50 Max of axial ratio (dB) 15-FSa E5b B2 62 86 B1 B1 61 2.00 1.50 1.00 0.50 0.00 1170 1230 1240 1250 1260 1530 1540 1550 1560 1570 1580 1190 1200 1210 1220 180 1280 1290 300 520 1590 600 Frequency (MHz)

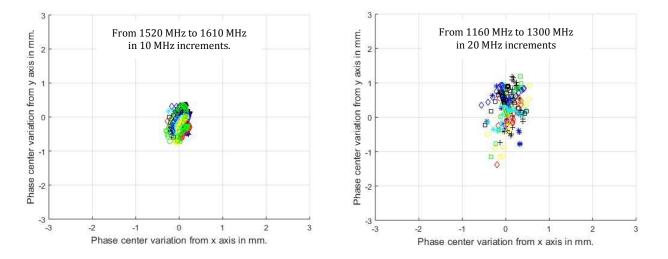
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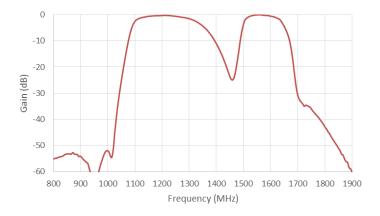


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Phase center variation

LNA – Out of band rejection



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