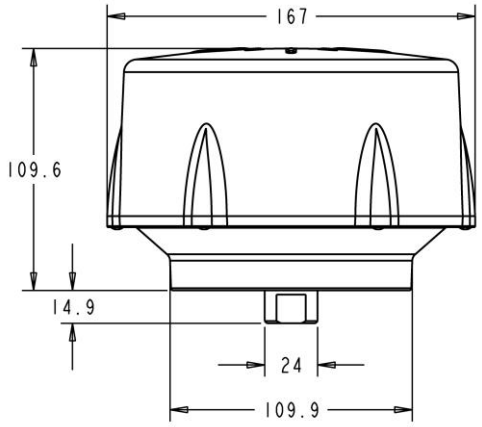
VeraPhase® 6100Antenna
High Precision Full GNSS Spectrum Antenna

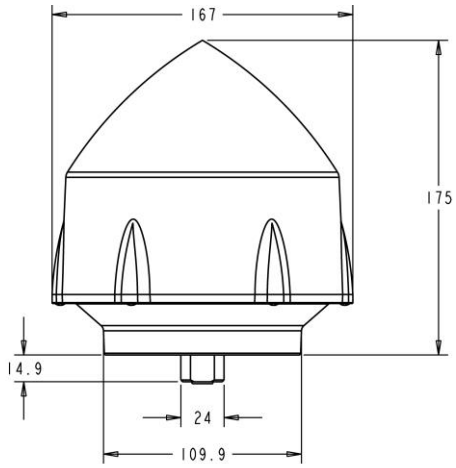
The patented *VeraPhase*® 6100 antenna is a full GNSSspectrum antenna. It has consistent performance (gain, axial ratio, PCV, and PCO) across the full bandwidth of the antenna. It provides the lowest axial ratios (horizon to horizon, over all azimuths) across all GNSS frequencies (<0.5dB at zenith, <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 performance of the VeraPhase® rivals any geodetic / reference antennas including choke ring antennas but is lighter, smaller, more economical, and requires less power.

The VP6100 provides high receive gain over the full GNSS spectrum: Low GNSS band (1164MHz to 1300MHz) and High GNSS band (1559MHz to 1610 MHz). It has a robust pre-filtered LNA, with high IP3 to minimize de-sensing from high-level out-of-band signals, including 700MHz LTE, Ligado® while still providing a noise figure of less than 3.0dB.

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 6100 Dimensions (mm)



Applications

- Survey
- High Precision GNSS systems
- Custom OEM Products
- RTK / PPP systems
- Reference Networks
- Monitoring Stations

Features

- Low axial ratios from horizon to horizon
- Very Tight Phase Center Variation (<1mm)
- Low current (35mA)
- Invariant performance from: +2.7 to 24 VDC
- Space in housing for integrated PPP, RTK

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

VeraPhase® 6100 – High Precision Full GNSS Constellation Antenna

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 mm across all frequencies (see graphs on following pages)
Phase Centre Offset (RMS)	± 0.2 mm across all frequencies
IGS model available	Yes
NGS model available	Yes

Electrical

Available LNA Configurations	35 dB, 50 dB or 15dB OEM	
Gain Variation with Temperature.	3dB max over operational temperature range	
LNA Gain Flatness	1.5 dB over frequency range	
P1dB Output	+12 dBm	
Bandwidth	1164 – 1300 MHz plus 1559 – 1610 MHz	
LNA Noise Figure	2.5dB @L2 and 3dB @L1 typ. at 25°C	
VSWR (at LNA output)	<1.5:1 max.	
Supply Voltage Range	+2.7 to 24VDC nominal	
Supply Current	<35mA (35dB gain) <45 mA (50dB gain)	
Out of Band Rejection	<800MHz	>55dB
	<900MHz	40dB
	<1090MHz	30dB
	<1536MHz	50dB
	>1640MHz	40dB
	>1690MHz	60dB
	>1710MHz	>60dB
Group Delay variation	1164MHz – 1300MHz	7 ns (max)
	1559MHz – 1610MHz	15 ns (max)

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,

Ordering Information:

VeraPhase 6100 with 35 dB LNA, flat white radome	33-613500-xx-00-11
VeraPhase 6100 with 50 dB LNA, flat white radome	33-615000-xx-00-11
VeraPhase 6100 with 35dB LNA, conical white radome	33-613500-xx-00-01
VeraPhase 6100 with 50dB LNA, conical white radome	33-615000-xx-00-01

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

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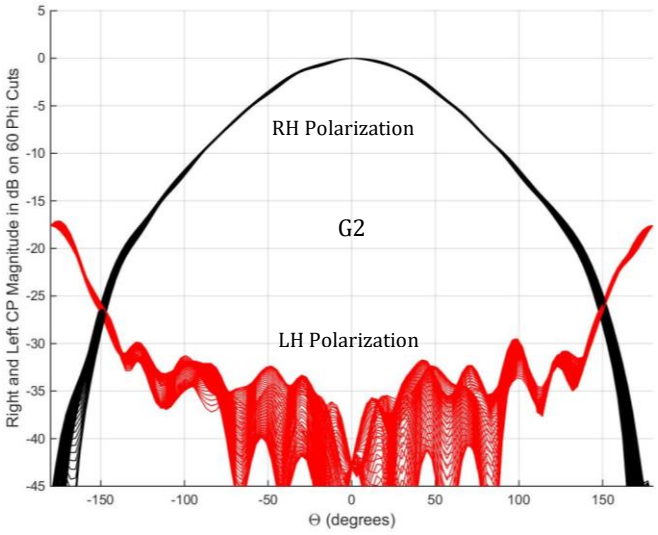
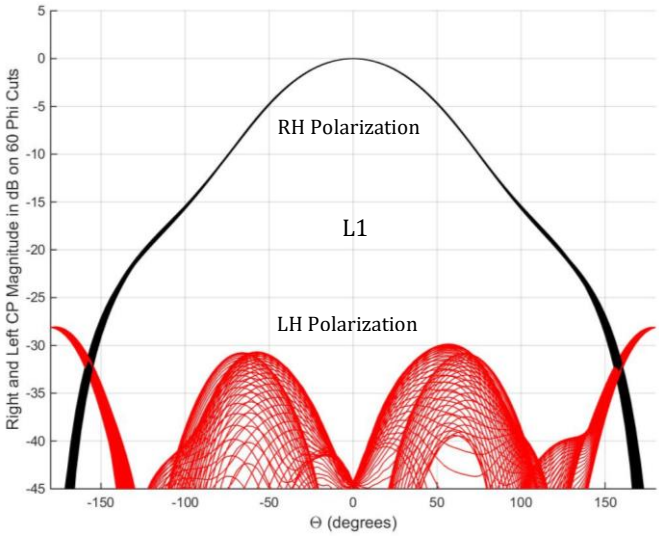
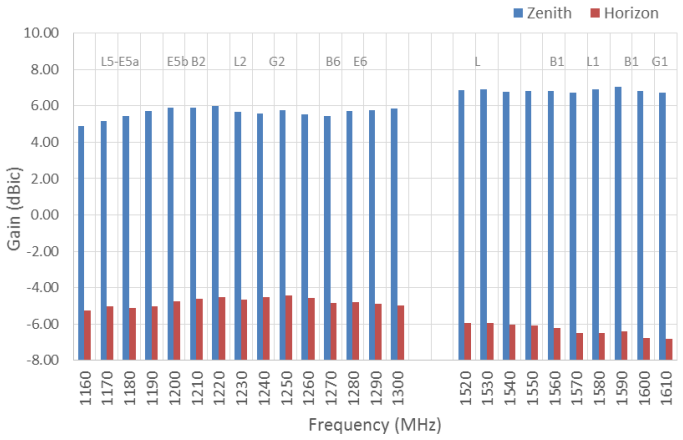
Antenna radiating performances

Normalized radiation patterns





Gain



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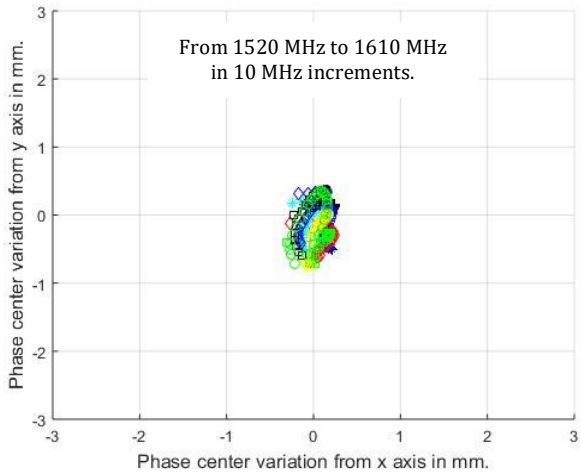
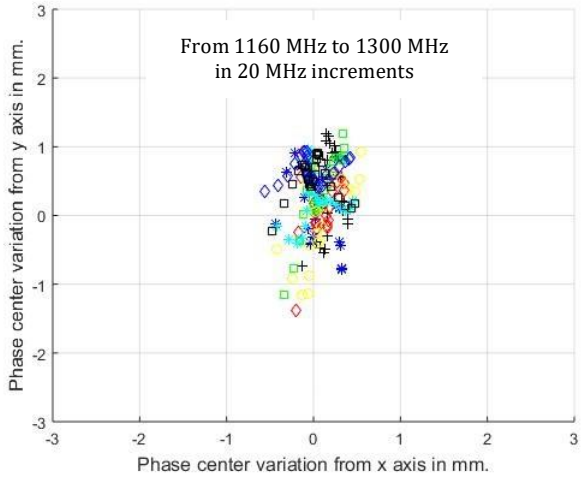
Phase center variation





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

Tallysman Wireless Inc
36 Steacie Drive
Ottawa ON K2K 2A9 Canada
Tel +1 613 591 3131 Fax 613 591 3121
sales@tallysman.com