VC6050

TALLYSMAN®

When **precision** matters.®

VC6050 High Precision Full GNSS Spectrum Choke Ring Antenna

Frequency Coverage: **L1/L2/L5/G1/G2/G3/E1/E5/E6/B1/B2/B3 + L-Band**

Overview

The patented VeraChoke 6050 antenna is a full GNSS spectrum 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 (<0.3 dB at zenith, <3 dB typ. at horizon). It has an exceptional front to back ratios, high efficiency (>80%), a tight PCV, and near constant PCO for all azimuth and elevation angles, over all in-band frequencies.

The VC6050 provides high receive gain over the full GNSS spectrum: Low GNSS band (1164 MHz to 1300 MHz), L-band correction services (1525 MHz to 1559 MHz) and High GNSS band (1559 MHz to 1610 MHz).

It has a robust pre-filtered LNA, with high IP3 to minimize de-sensing from high-level outof-band signals, including 700MHz LTE, while still providing a low noise figure.

The antenna is compatible with both large and small SCIGN radomes.



Applications

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

Features

- Low axial ratios from horizon to horizon
- Geo ++ Calibrated
- Very tight Phase Center Variation (<1mm)
- Low current (45mA)
- Invariant performance from: +2.7 to 24 VDC

Benefits

- Consistent performance across all frequencies
- Extreme precision
- Excellent multipath rejection
- IP67, REACH, and RoHS compliant

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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Revision: 1.2

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Antenna

Technology Wideband Quadrature RHCP Element

		Gain dBic typ. at Zenith	Axial Ratio dB at Zenith
GNSS			
GPS / QZSS	L1	8	0.2
	L2	8	0.3
	L5	8	0.3
GLONASS	G1	8	0.3
	G2	8	0.3
	G3	8	0.3
Galileo	E1	8	0.2
	E5A	8	0.3
	E5B	8	0.3
	E6	8	0.3
BeiDou	B1	8	0.2
	B2	8	0.3
	B2a	8	0.3
	B3	8	0.3
IRNSS / NavIC	L5	8	0.3
QZSS	L6	8	0.3
L-Band Services (1525 MHz - 1559 MHZ)		8	0.3
Satellite Communications			
Iridium		-	-
Globalstar		-	-
Other			
Axial Ratio at 10°	2 - 3.5 dB	Efficiency	>80%
Phase Center Var.	≤ 1 mm		

Mechanicals

Size	Small Radome: 378mm D x 150.8mm H SCIGN Radome: 378mm D x 255.6mm H
Weight	5.4 kg
Mount	5/8”x 11 TPI female
Radome	SCIGN Compatible

Environmental

Operating Temperature	-40°C to +85°C
Storage Temperature	-
Vibration	MIL-STD-810E - Method 514.5
Shock	-
Salt Fog	MIL-STD-810G - Method 509.6
IP Rating	IP67 Housing
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

Warranty:

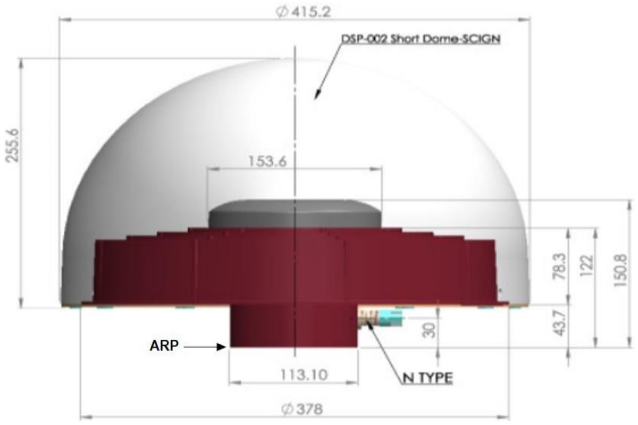
Parts and Labour	One year (Extended warranty available)

Low Noise Amplifier (LNA) - Measured at 3V and 25°C

Frequency Bandwith		Out of Band Rejection	
		Upper Band	Lower Band
1525-1606 MHz	1165-1300 MHz	=1400MHz 16dB =1430MHz 23dB =1462MHz 30dB <1480MHz >20dB >1690MHz >40dB =1710MHz 77dB >1710MHz >60dB =1835MHz 67dB	<800MHz >60dB <900MHz >45dB <1000MHz >20dB

Architecture	Pre-filtered
Gain	50 dB
Noise Figure	2.0dB typ. at 25°C
VSWR	<1.5:1 max
Supply Voltage Range	+2.7 to 24VDC nominal
Supply Current	<45mA (50dB gain)
ESD Circuit Protection	15 Kv air discharge
P 1dB Output	+12 dBm
Group Delay	<10 ns

Mechanical Diagram



Ordering Information

Part Number **33-VC6050-zz-dd**

zz = Connector: 01 = TNC (f) connector 14 = N-Type connector
dd = SCIGN radome: blank = no SCIGN radome 01 = with short SCIGN radome

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

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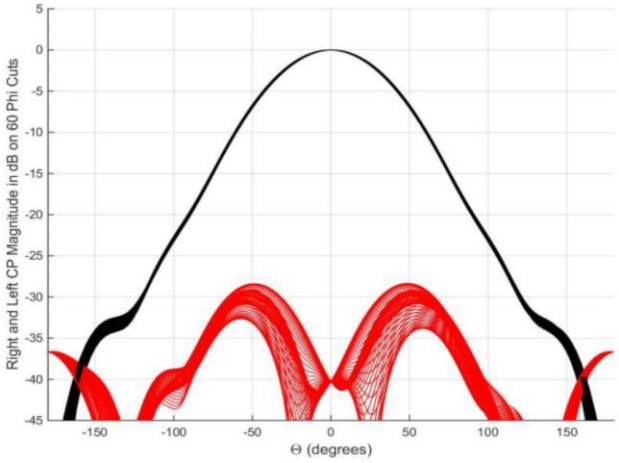
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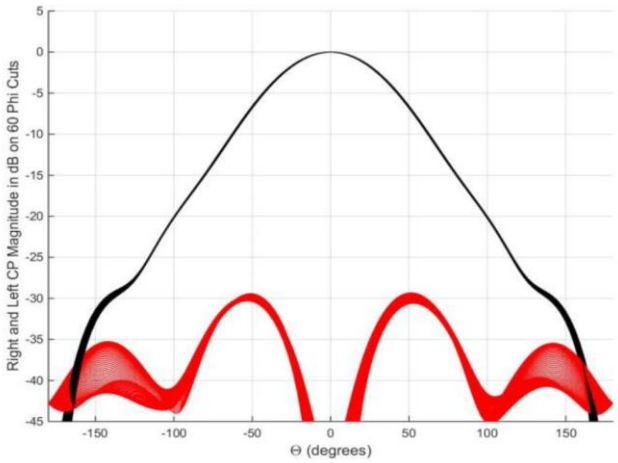
Antenna Radiating Performances

Normalized Radiation Patterns

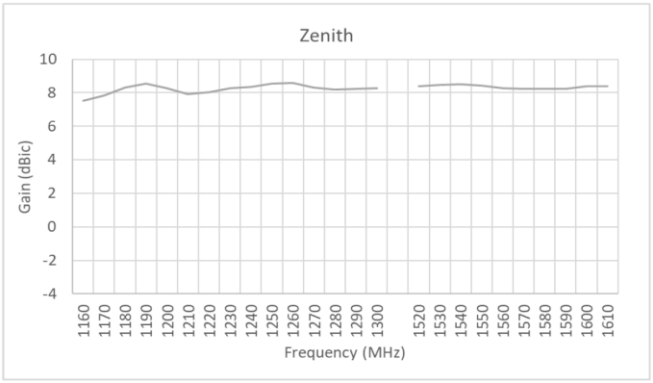
L1

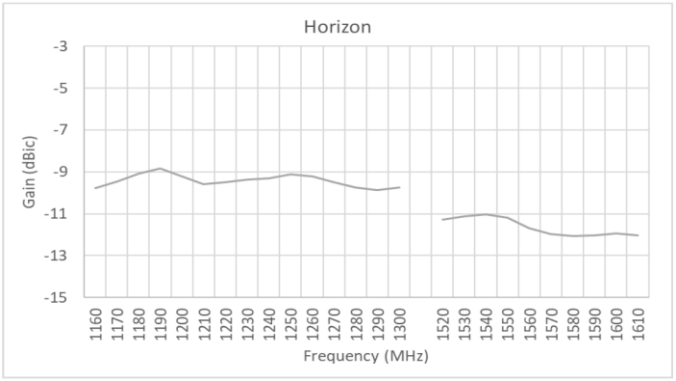


L2



Gain





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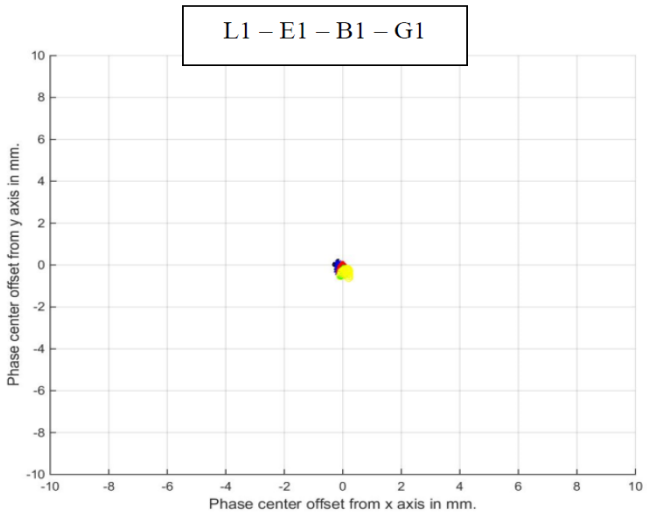
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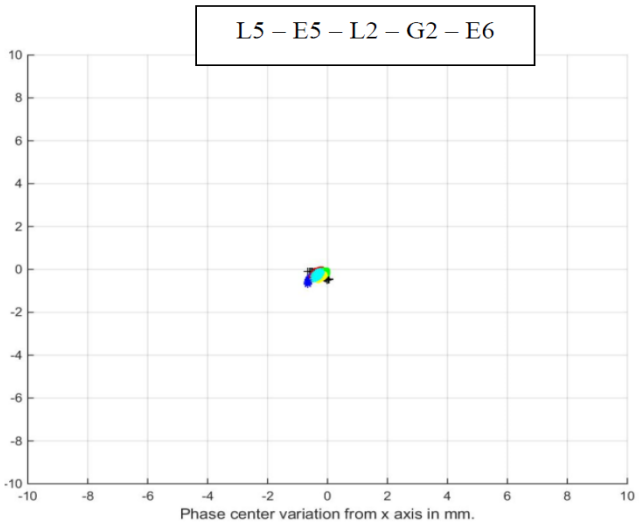
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Phase Center Variation





Axial Ratio (dB)

Elevation	L5 - E5a	E5b - B2 - G3	L2 - G2	B3	E6	L1 - E1 - B1	G1
Zenith	0.3	0.3	0.3	0.3	0.3	0.2	0.3
30°	2	1.8	1.8	1.8	2	2	2.5
10°	2.5	2.25	2	2	2	3	3.5

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