

GPPVC6050 VeraChoke®

High-Precision Full GNSS Spectrum Choke Ring Antenna

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 correction services

The GPPVC6050 antenna is a rebranded version of the Tallysman VeraChoke® VC6050 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, < 3.0 dB typ. at horizon). It has an exceptional front to back ratio, high efficiency (> 80%), a tight PCV, and near constant PCO for all azimuth and elevation angles, over all in-band frequencies.

The GPPVC6050 provides a high receive gain over the full GNSS spectrum: Low GNSS band (1160 MHz to 1300 MHz), L-band correction services (1539 MHz to 1559 MHz) and High GNSS band (1559 MHz to 1606 MHz).

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

The antenna is compatible with Geo++ GPP1 radomes and 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 centre variation (<1.0mm)
- Low current (35 mA)
- Invariant performance from 2.7 to 24 VDC
- IP67, REACH, and RoHS compliant

Benefits

- Consistent performance across all frequencies
- Extreme precision
- Excellent multipath rejection



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Antenna

Technology		Wideband Quadrature RHCP Element	
		Gain	Axial Ratio
		dBic typ. at Zenith	dB at Zenith
GNSS			
GPS/QZSS	L1	8.0	0.2
	L2	8.0	0.3
	L3	8.0	0.3
GLONASS	G1	8.0	0.3
	G2	8.0	0.3
	G3	8.0	0.3
Galileo	E1	8.0	0.2
	E5a	8.0	0.3
	E5b	8.0	0.3
	E6	8.0	0.3
BeiDou	B1	8.0	0.2
	B2	8.0	0.3
	B2a	8.0	0.3
	B3	8.0	0.3
IRNSS / NavIC	L5	8.0	0.3
QZSS	L6	8.0	0.3

Satellite Communications

Iridium	-	-
Globalstar	-	-

Other

Axial Ratio at 10°	2.0 3 2.5dB	Efficiency	> 80%
Phase Centre Variation	< 1.0 mm		

Mechanicals

- **Mechanical Size:** GPP1 Radome: 374 mm (dia.) x 235 mm (h.)
- **Weight:** 0,90 Kg
- **Available Connectors:** type-N (female)
- **Radome / Enclosure:** GPP1 and SCIGN compatible
- **Mount:** 5/8" x 11 TPI (female)

Warranty

- **Parts and Labour:** 3-year standard warranty

Environmental

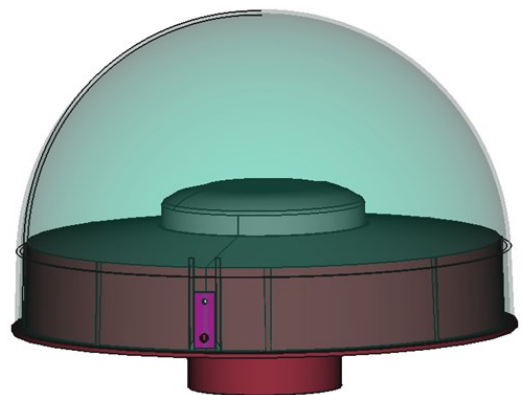
- **Operating Temperature:** -55 °C to +85 °C
- **Storage Temperature:** -55 °C to +95 °C
- **Mechanical Vibration:** MIL-STD-810E - Method 514.5
- **Shock and Drop:** -
- **Salt Fog:** MIL-STD-810G - Method 509.6
- **Low Pressure:** -
- **Altitude:** -
- **IP Rating (housing):** IP67 (housing)
- **Compliance:** IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

Low Noise Amplifier (Measured at 3.0 VDC and 25° C)

Frequency Bandwidth		Out-of-Band Rejection
Lower Band	1160 – 1300 MHz	> 60 dB @ < 800 MHz > 5 dB @ < 900 MHz > 20 dB @ < 1000 MHz
L-band corrections services	1539 – 1559 MHz	
Upper Band	1559 – 1606 MHz	16 dB @ 1400 MHz 23 dB @ 1430 MHz 30 dB @ 1462 MHz >20 dB @ < 1480 MHz >40 dB @ < 1690 MHz 77 dB @ 1710 MHz 60 dB @ > 1710 MHz 67 dB @ 1835 MHz

- **Architecture:** Pre-filter → LNA stage 1 → filter → LNA Stage 2
- **Gain:** 50 dB
- **Noise Figure:** 2.0 dB typ.
- **VSWR:** < 45 mA
- **Supply Voltage Range:** 2.7 to 24 VDC nominal
- **Supply Current:** < 45 mA
- **ESD Circuit Protection:** 15 kV air discharge
- **P 1dB Output:** +12 dBm
- **Group Delay Variation:** < 10 ns

Mechanical Diagram



Ordering Information

- **Part Number:** GPPVC6050

14 = type-N connector
Geo++ GPP1 Radome, Tall and regular Radomes available



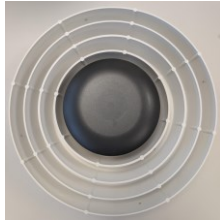
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Assembly Instructions

Scope of Delivery

- GNSS Antenna
- Radome
- Screw bag including 8 screws and 4 spacers

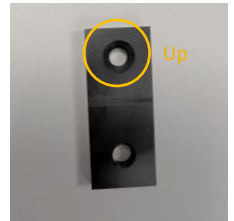


Step 1

Open the screw bag and remove spacers and screws.

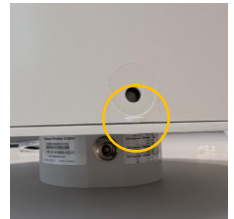
Step 2

Attach the four black spacers to the antenna using one screw each. The side **with the screw head recess** must **face upwards**.



Step 3

Rotate the radome to **face north**. The small north marking should be aligned with the extension of the antenna cable connection.



Step 4

Secure the radome firmly with the four white screws. Finally, check the installation for correct positioning and stability

