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Enabling Industrial IoT

Delta 61

Stubby Hinged Terminal Mount Active GPS L1 Helical Antenna

Key Features

- Supports GPS L1, Galileo E1, BeiDou B1C and QZSS L1 for reliable global coverage
- Hinged stubby terminal-mount design with SMA male connector, adjustable to 0°, 45° and 90° for optimised signal reception
- Top hemisphere RHCP Gain of 7 -12 dBi (typical) for strong GNSS signal reception
- Wide voltage range 1.4 to 3.6 V DC with very low power consumption for extended device life
- Compact 12.5 × 101 mm form factor ideal for handheld and mobile applications
- Lightweight 10 g construction reducing strain on portable and embedded devices

General Description

The Delta 61 is a compact, stubby terminal-mount GNSS antenna designed for direct connection via its SMA male connector.

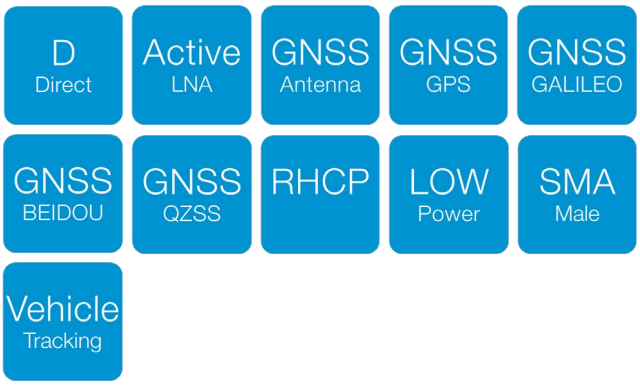
The adjustable hinge mechanism allows positioning at 0°, 45° or 90°, enabling improved signal acquisition in varied installation environments.The antenna integrates a 4-axis ceramic helix with an active low noise design, providing reliable right-hand circularly polarised gain across the top hemisphere for strong satellite reception and reduced fix times.

Encapsulated in a rugged TPU housing, the Delta 61 is well suited to demanding outdoor and mobile environments. Its lightweight, space-efficient design makes it an ideal choice for vehicles, handheld receivers, IoT trackers and portable navigation devices.

Supplied as standard with an SMA male connector. Alternative connector types can be specified for high-volume projects.

Typical Applications

- Vehicle and fleet tracking units
- Handheld GNSS receivers
- Portable navigation systems
- IoT tracking and telemetry devices
- Rugged outdoor GNSS modules



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Electrical Specifications

Impedance:	50 Ω
Polarisation:	RHCP
Frequency:	1575.42 MHz (GPS L1, Galileo E1, BeiDou B1C, QZSS L1)
VSWR:	<1.5
Ground Plane Independent:	Yes
RHCP Gain (Top Hemisphere):	4.3 dBiC average, 12.1 dBiC peak
Supply Voltage:	1.4 – 3.6 V DC
Current Consumption:	~4 mA

Environmental Specifications

Operational Temperature Range:	-40 °C to +85 °C
Storage Temperature Range:	-40 °C to +85 °C
Relative Humidity:	95 % non-condensing

Mechanical Specifications

Dimension:	Ø12.5 × 100 mm
Weight:	20 g
Materials:	TPU rubber
Connector:	SMA male straight
Mounting Methods:	Terminal mount

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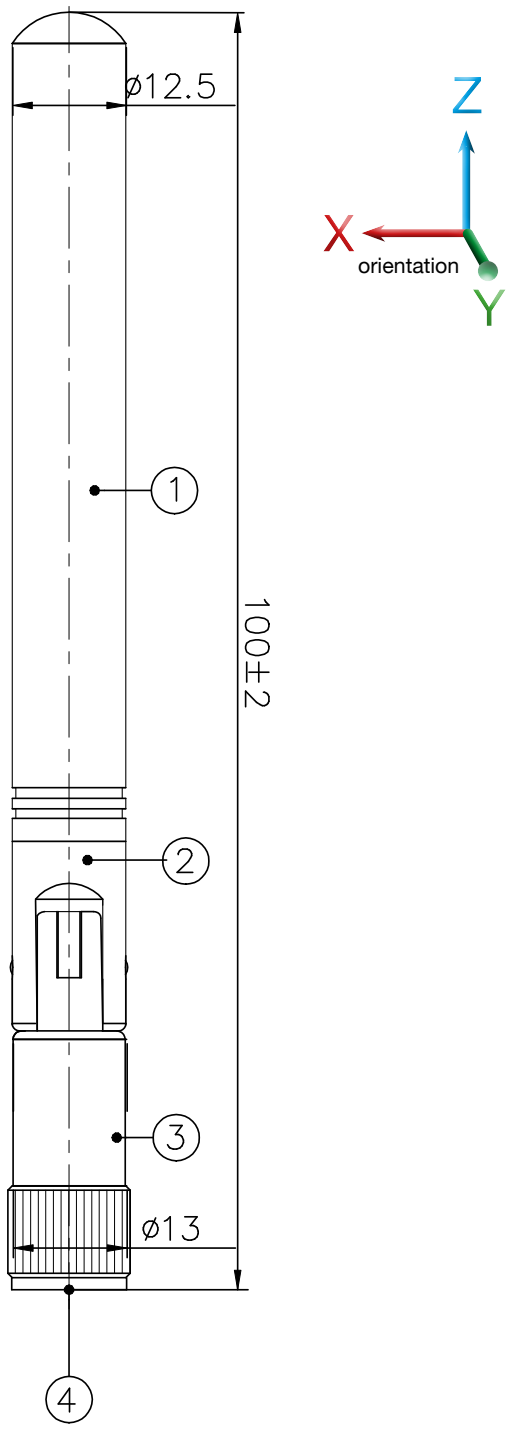
Dimensional Drawing

Unit: mm



No.	Name	Finish	Qty
1	Main Housing Tube	Black	01
2	Hinged Upper Section	Black	01
3	Hinged Lower Section	Black	01
4	SMA Male Conntor	Black	01

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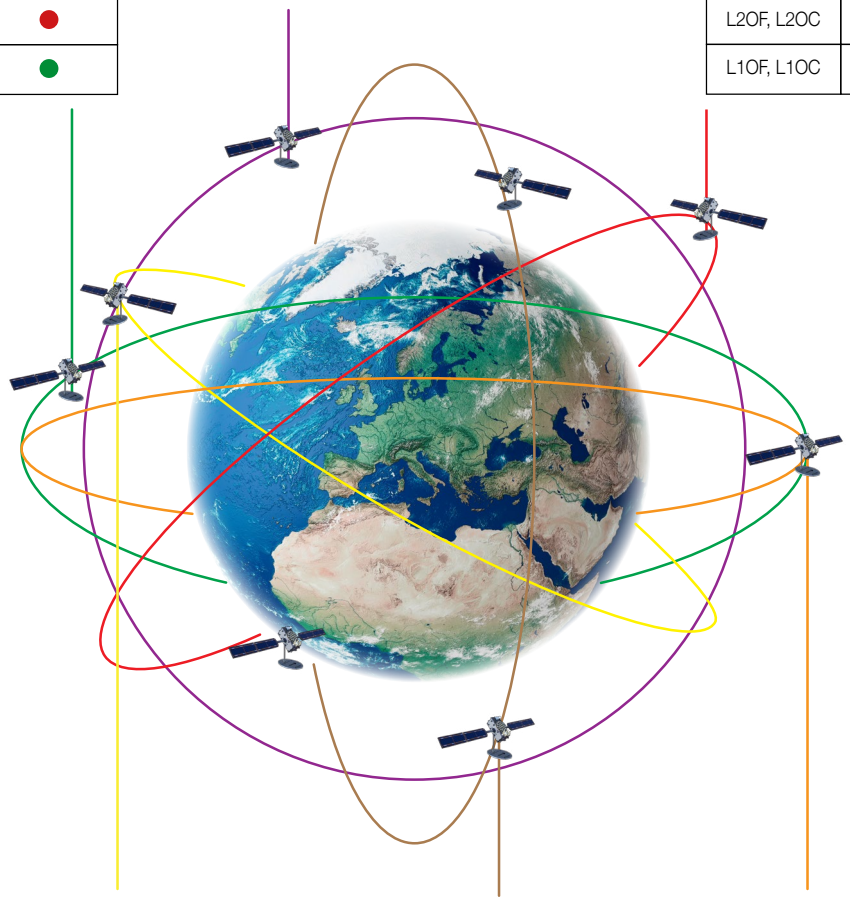
Spectrum Coverage

GPS		
Band	**Frequency**	**Use Indicator**
L5	1176.45	●
L2	1227.6	●
L1	1575.42	●

NavIC		
Band	**Frequency**	**Use Indicator**
L5	1176.45	●

GLONASS		
Band	**Frequency**	**Use Indicator**
L3OC	1202.025	●
L2OF, L2OC	1246	●
L1OF, L1OC	1602	●



Galileo		
Band	**Frequency**	**Use Indicator**
E5a	1176.45	●
E5b	1207.14	●
E6-I, E6-Q	1278.75	●
E1-I, E1-Q	1575.42	●

BeiDou		
Band	**Frequency**	**Use Indicator**
B2a	1176.45	●
B2I, B2b	1207.14	●
B3I	1268.52	●
B1I	1561.098	●
B1C	1575.42	●

QZSS		
Band	**Frequency**	**Use Indicator**
L5	1176.45	●
L2	1227.6	●
L6	1278.75	●
L1	1575.42	●

● Suitable band ● Adequate band in good signal conditions ● Likely to be unsuitable

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GNSS Standards Band Support

	Electrical Interface		Spherical RF Measurements			
Centre Frequency (MHz)	**VSWR**	**Return Loss (dB)**	**Average RHCP Gain (dBiC)**	**Peak RHCP Gain (dBiC)**	**Median Axial Ratio (dB)**	**Minimum Axial Ratio (dB)**
1575.42	1.3710	-16.1195	6.17	17.81	15.17	1.09

	Top hemisphere RF Measurements			
Centre Frequency (MHz)	**Average RHCP Gain (dBiC)**	**Peak RHCP Gain (dBiC)**	**Median Axial Ratio (dB)**	**Minimum Axial Ratio (dB)**
1575.42	4.34	12.11	15.20	5.52

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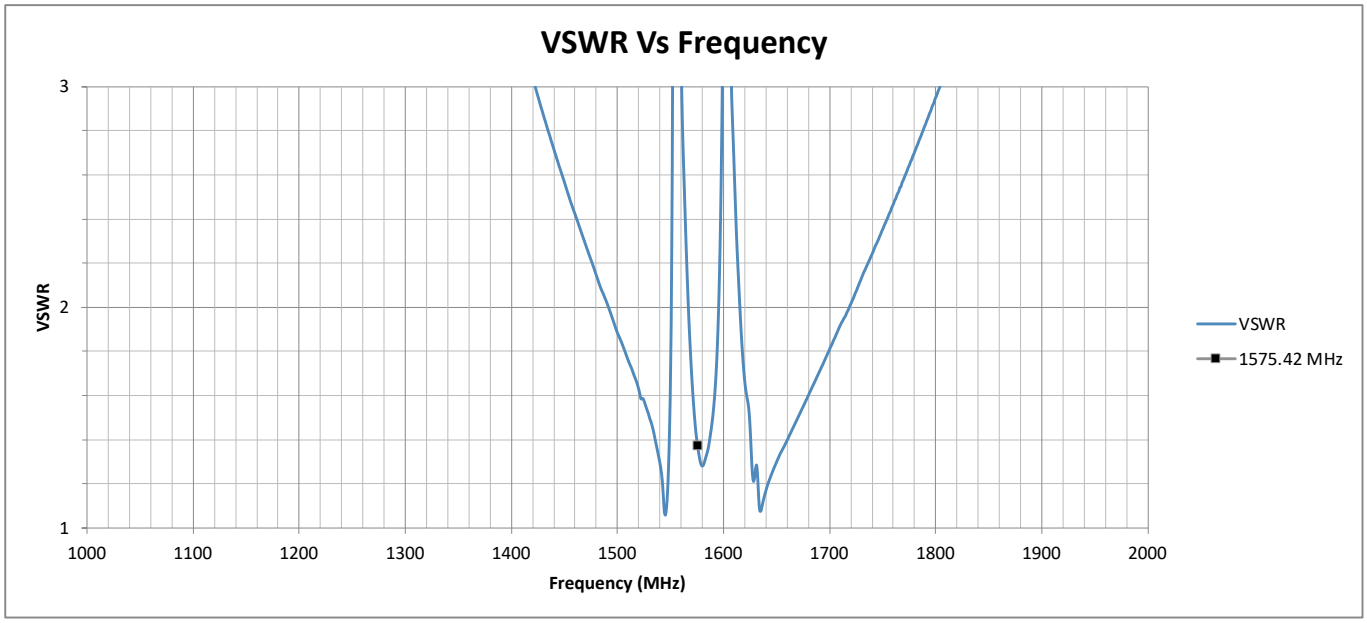
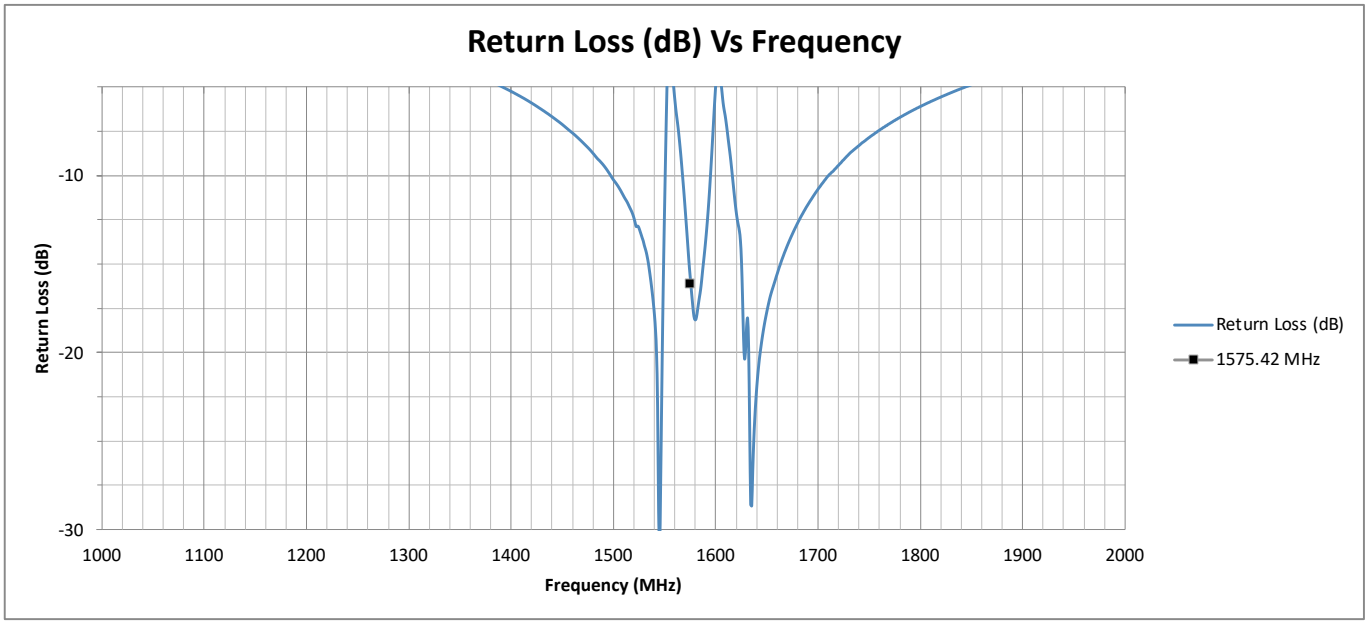
Electrical





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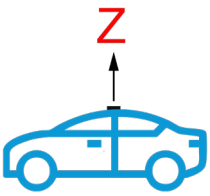
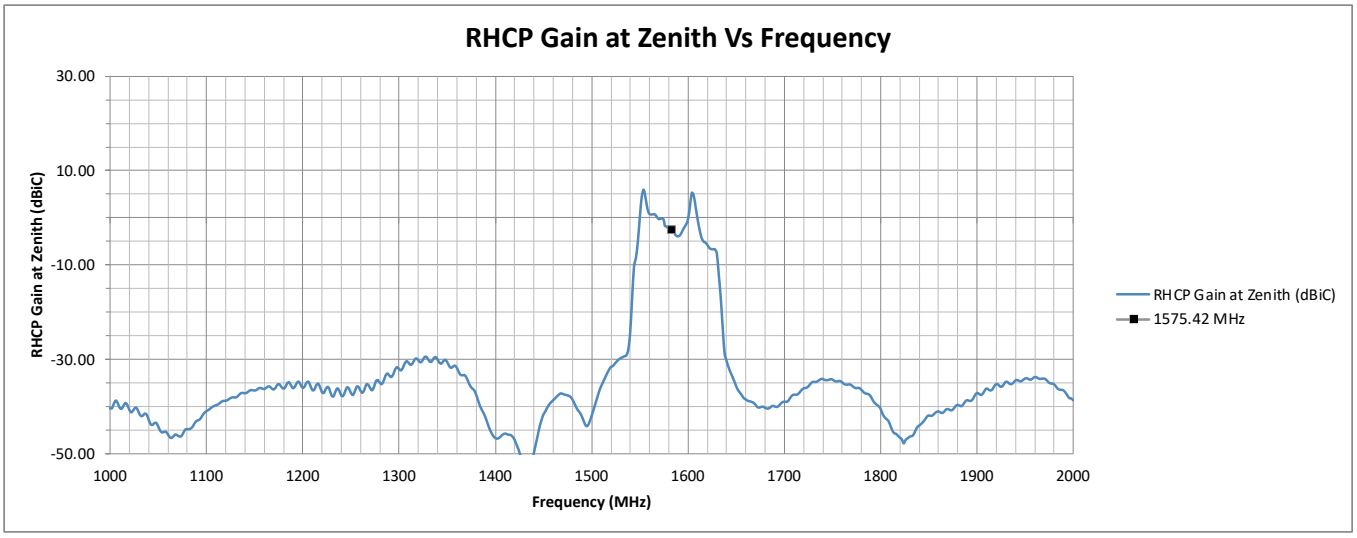
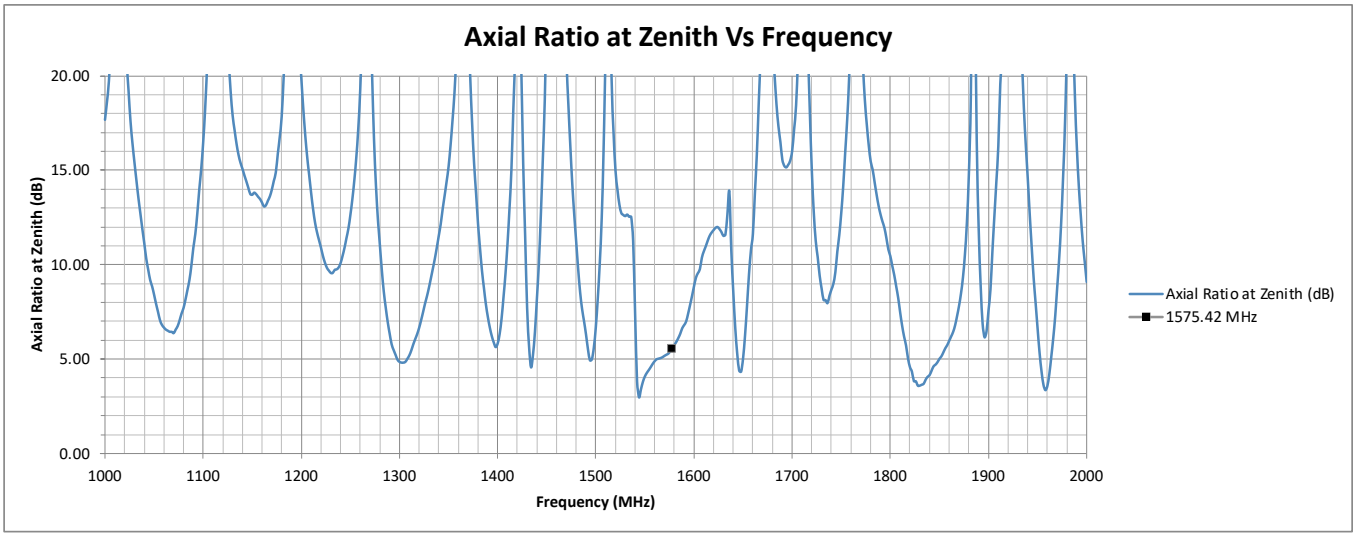
RF Zenith

This page presents the RHCP Gain at Zenith and the Axial Ratio at Zenith as a function of frequency. These measurements indicate how well the antenna performs when receiving signals directly from satellites overhead (zenith direction). A higher RHCP gain ensures strong signal reception, while a lower axial ratio signifies better polarization purity for optimal GNSS performance.







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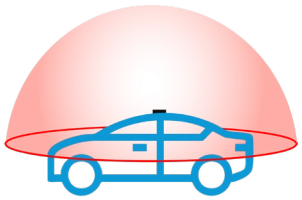
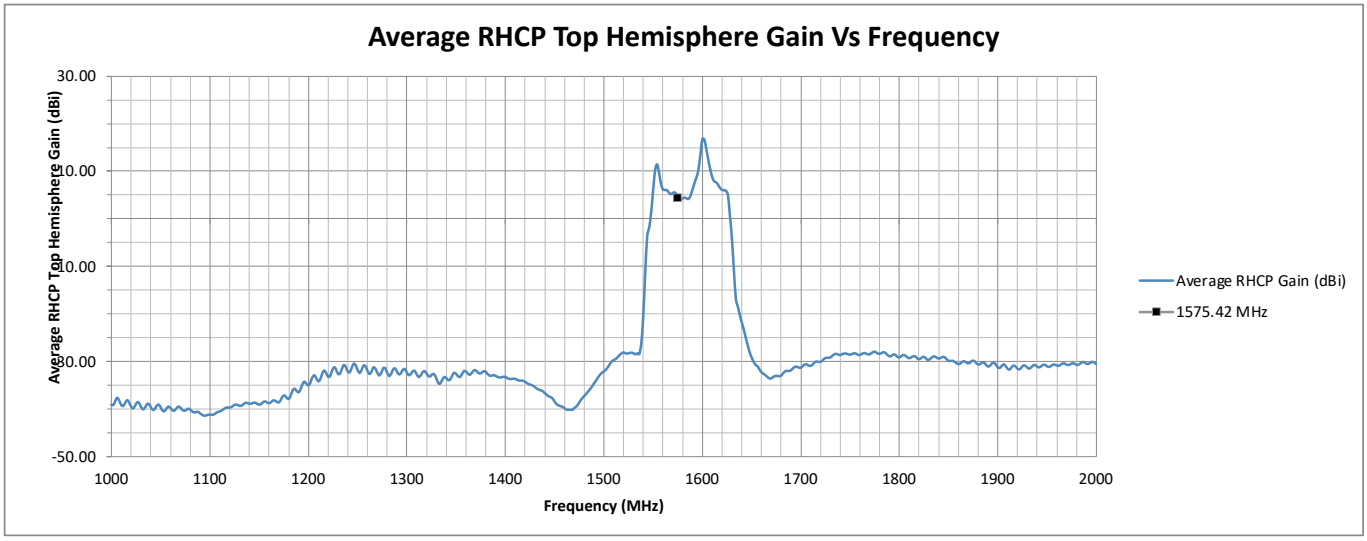
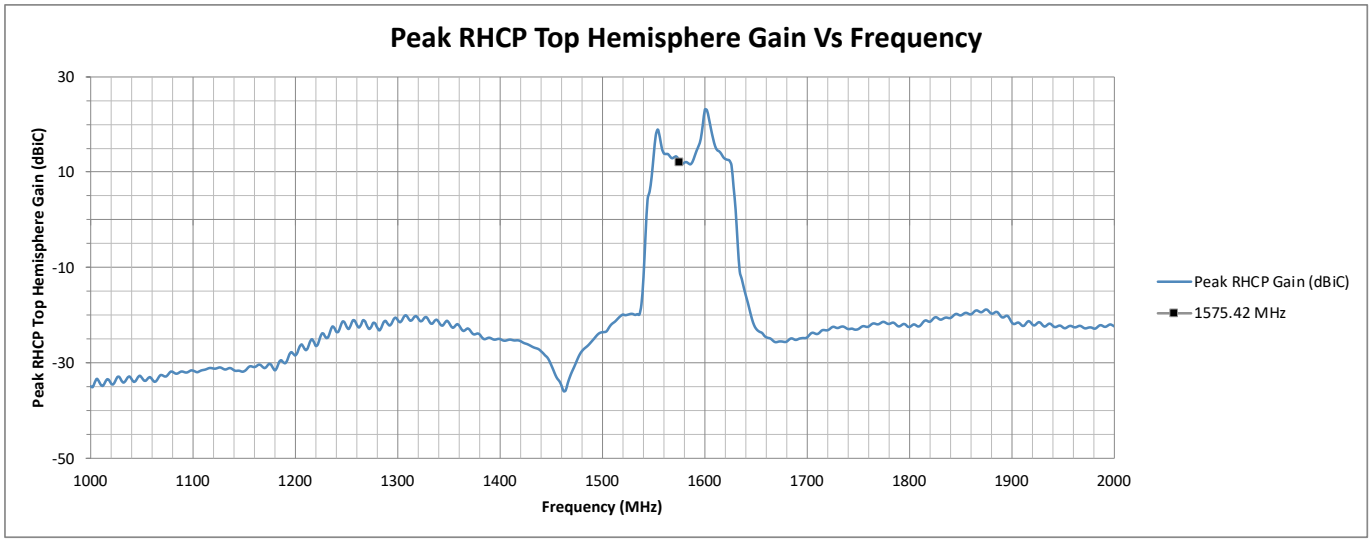
RF Top Hemisphere

The graphs on this page showcase the Average and Peak RHCP Gain in the Top Hemisphere. These measurements assess how effectively the antenna receives signals from satellites positioned in the upper half of the sky. Strong RHCP gain in this region is critical for reliable GNSS reception, especially in environments where satellites may not always be directly overhead.







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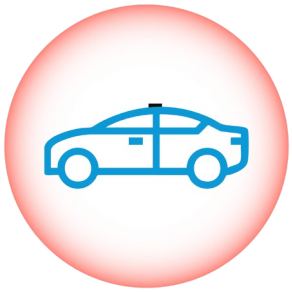
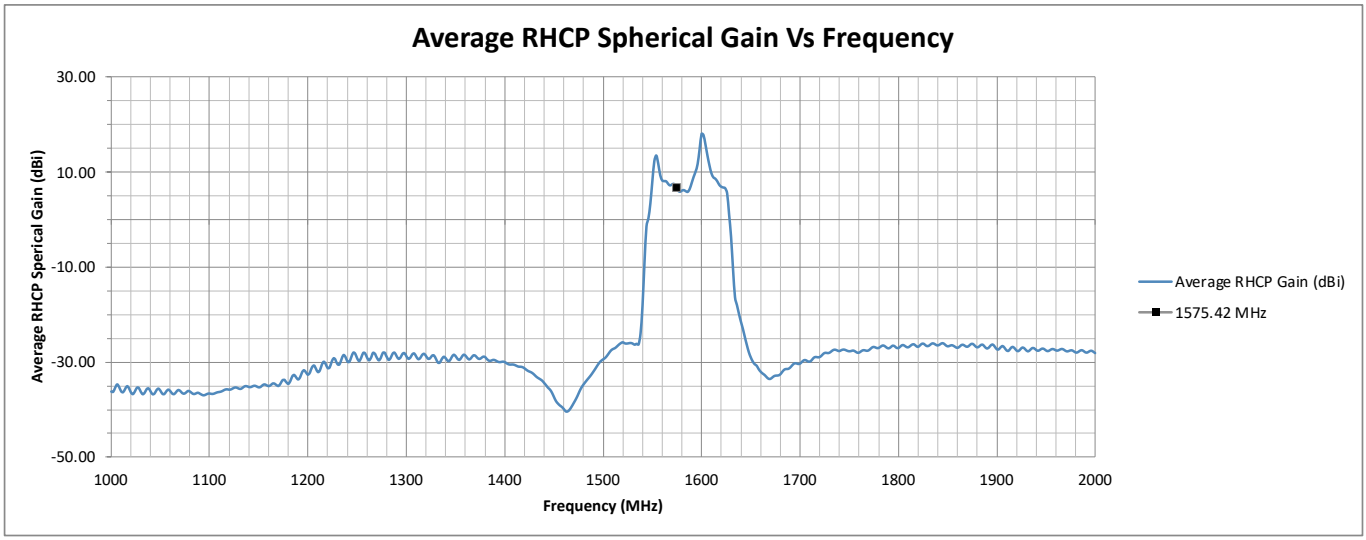
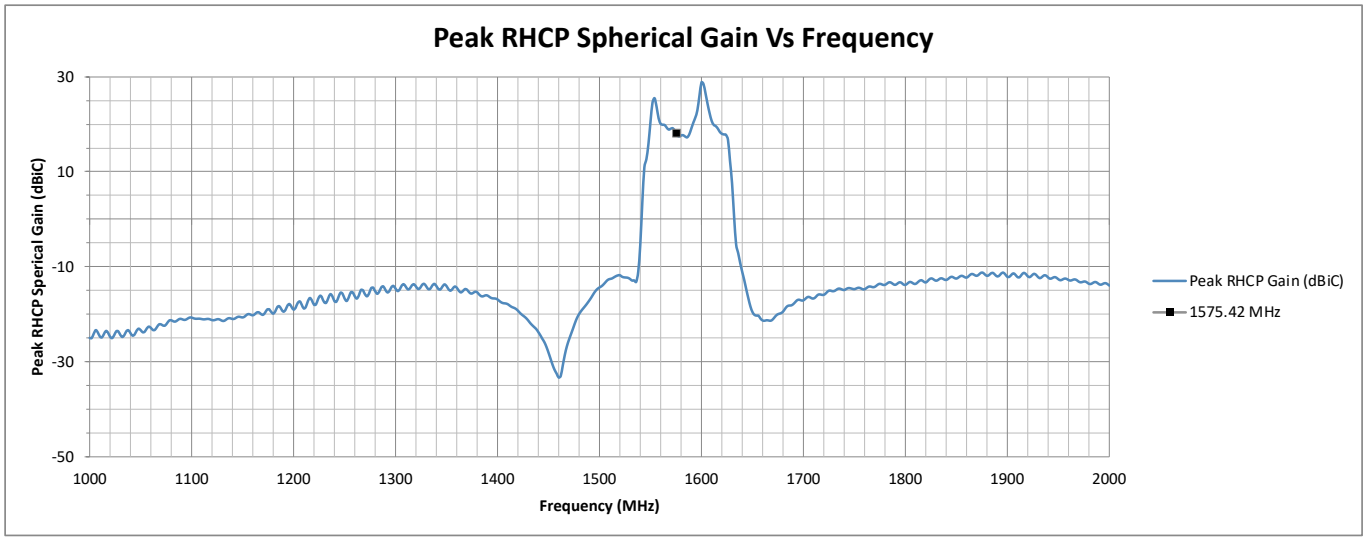
RF Spherical

This page displays the Average and Peak RHCP Gain across the entire spherical coverage of the antenna. These metrics provide a comprehensive view of the antenna's ability to receive signals from satellites at all elevations and directions. Consistently high gain across the sphere ensures strong and stable GNSS reception in a variety of operating conditions.







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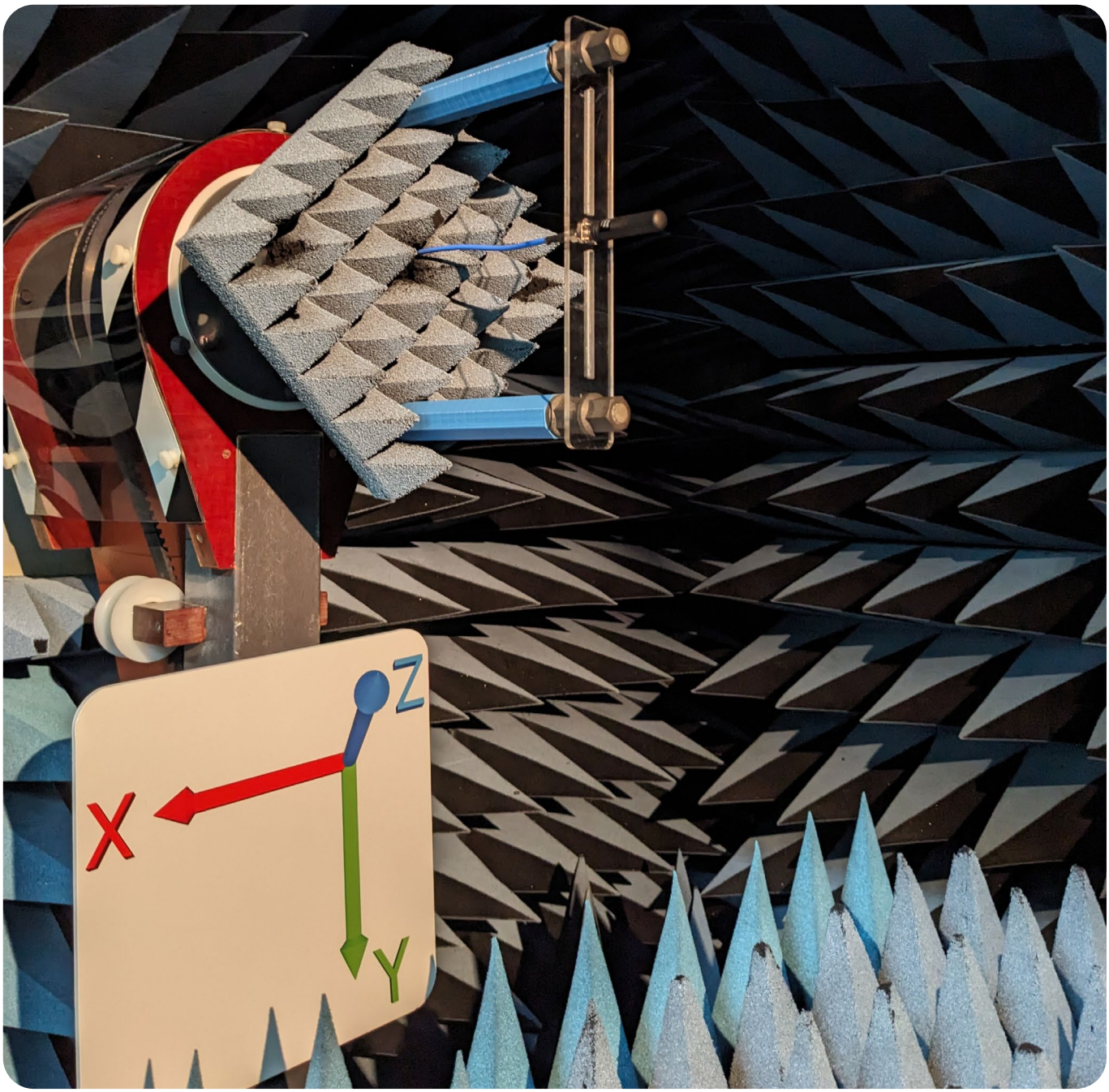
Test Setup (in freespace)



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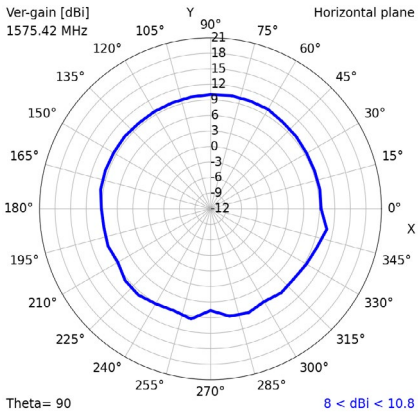
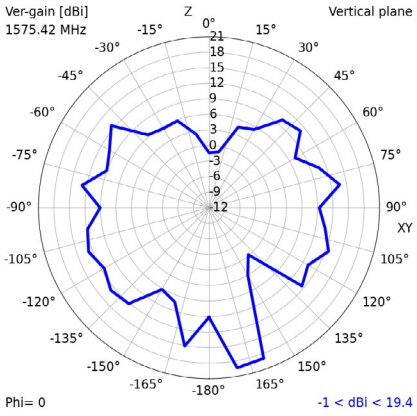
2D Radiation Plots (1575.42 MHz)

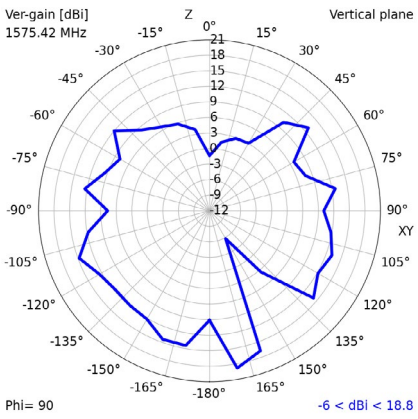
XY



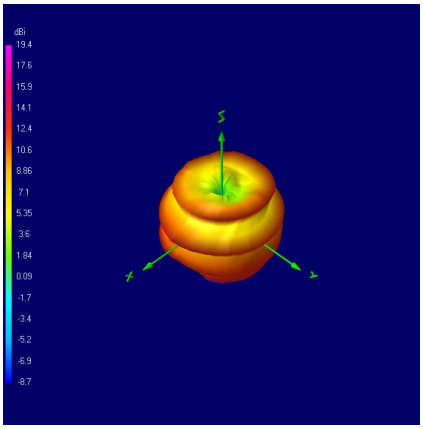
XZ



YZ



3D Radiation Plot (1575.42 MHz)



NOTE: All 3D radiation plots are shown with Theta = 45 and Phi = 45.

Ordering Details:

Part Number	Description
DELTA61/x/SMAM/S/S/32	Stubby Hinged Terminal Mount Active GPS L1 Helical Antenna SMA Male Connector

Alternative cable lengths and connector types can be specified for high-volume projects.
Please email - siretta@sales.com