



Enabling Industrial IoT



Tango 20

Active GPS L1 Screw-Mount Puck Antenna with Integrated LNA



General Description

The Tango 20 is a compact, puck-shaped GPS L1 antenna designed for secure outdoor mounting. Tuned to the 1575.42 MHz frequency, it is well suited to a wide range of GNSS tracking applications where consistent and reliable performance is required.

With RHCP gain reaching up to 24 dBi in the top hemisphere and a low axial ratio at zenith, the Tango 20 enables fast satellite acquisition and stable signal reception in mobile and fixed installations. The rugged ABS enclosure and M10 screw-thread base ensure durability and secure mounting in demanding environments.

The Tango 20 is supplied as standard with a 3 metre RG174 cable and SMA male connector. Alternative cable lengths and connector types can be specified for high-volume projects.

Key Features

- GPS L1 band operation at 1575.42 MHz
- Top hemisphere RHCP gain 24 ± 1 dBiC
- Axial ratio at zenith ≤ 1 dB for improved signal purity
- Rugged M10 screw-mount design for secure installation
- SMA male connector and RG174 cable as standard
- Compact, weather-resistant ABS enclosure

Typical Applications

- Vehicle and fleet tracking systems
- Outdoor GNSS modules and smart kiosks
- Industrial asset tracking
- Remote positioning and monitoring systems





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Electrical Specifications

Impedance:	50 Ω
Polarisation:	RHCP
Frequency Range:	1575.42 MHz ± 1 MHz (GPS L1)
Return Loss:	-24.4 dB
VSWR:	1.5
Ground Plane Independent:	No
Filter Insertion Loss:	<3 dB
RHCP Gain:	24 ± 1 dBiC
Axial Ratio at Zenith:	≤ 1 dB
Noise Figure:	<1.5 dB
Supply Voltage:	2.2 – 5 V DC
Current Consumption:	5 – 15 mA

Environmental Specifications

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

Mechanical Specifications

Dimension:	Ø 46 mm × H 14.5 mm
Material:	ABS
Weight:	74 g
Connector:	SMA Male
Cable:	RG174
Mounting Methods:	M10 screw thread
Maximum Material Thickness:	4.5 mm

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VAT Registration No. GB163 04 0349



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Rev 2.0

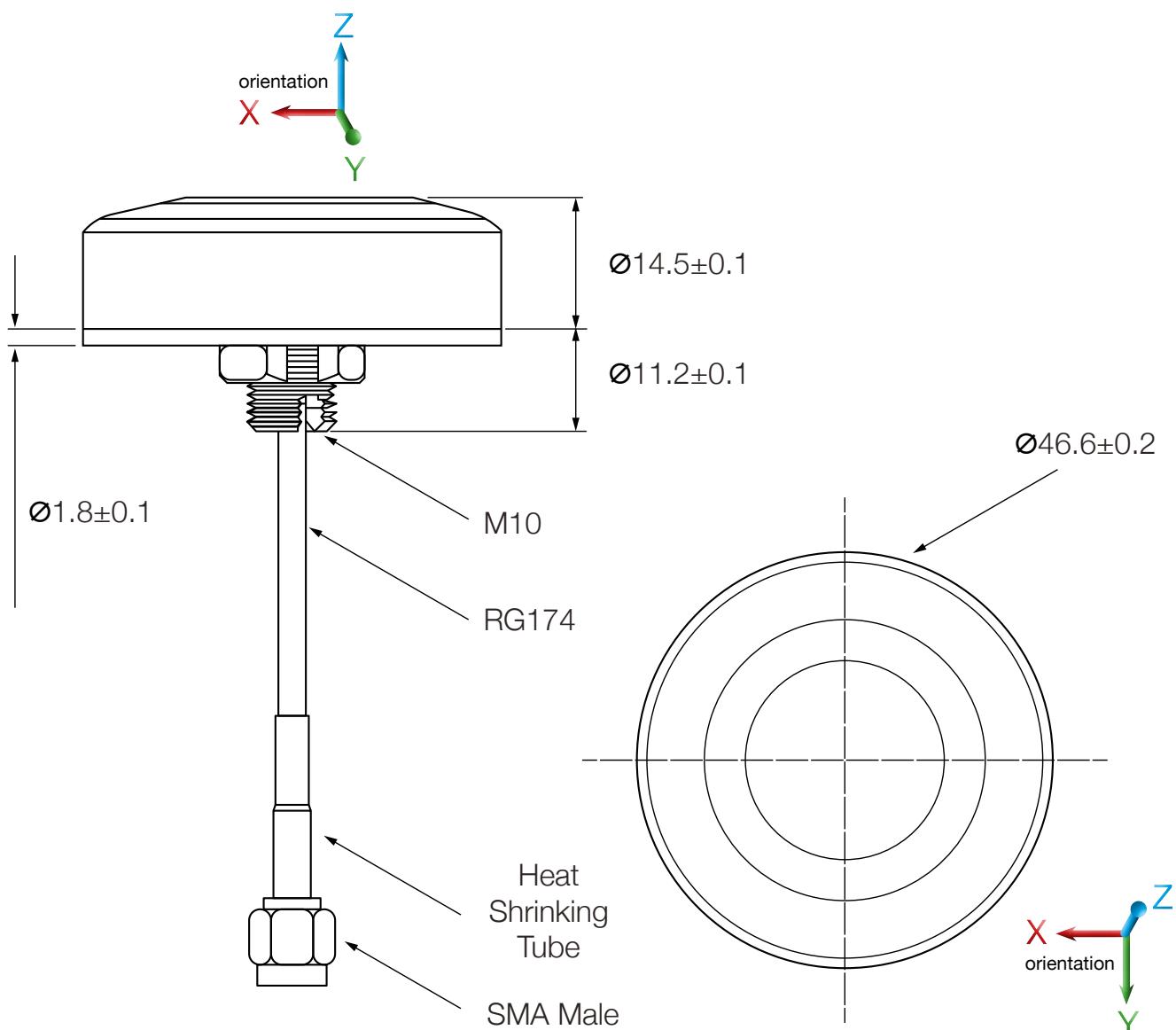


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Dimensional Drawing

Unit: mm





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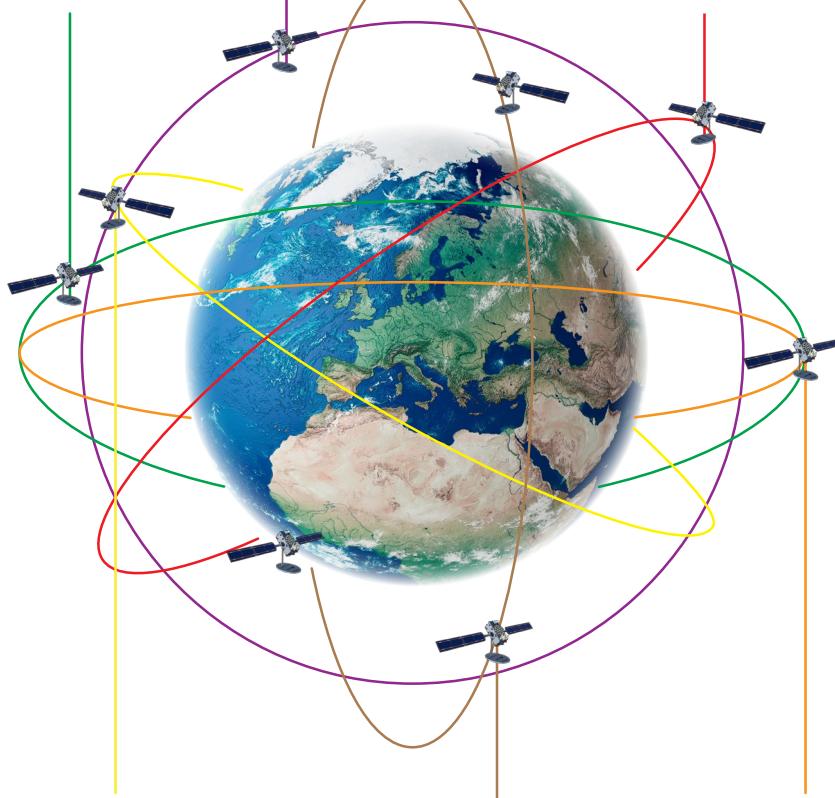
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Spectrum Coverage

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
L30C	1202.025	●
L20F, L20C	1246	●
L10F, L10C	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	1.1292	-24.3579	19.42	24.55	5.92	0.18

	Top hemisphere RF Measurements				Zenith RF Measurements	
Centre Frequency (MHz)	Average RHCP Gain (dBIC)	Peak RHCP Gain (dBIC)	Median Axial Ratio (dB)	Minimum Axial Ratio (dB)	RHCP Gain at Zenith (dBIC)	Axial Ratio at Zenith (dB)
1575.42	23.67	24.55	2.31	0.18	24.53	0.82



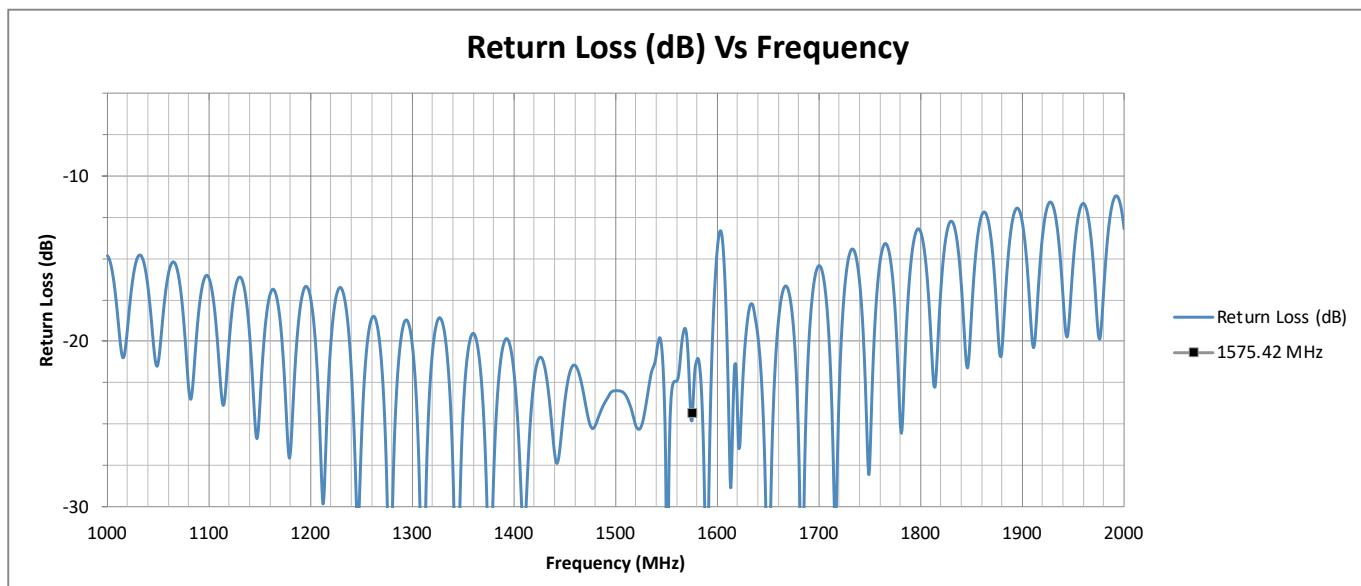
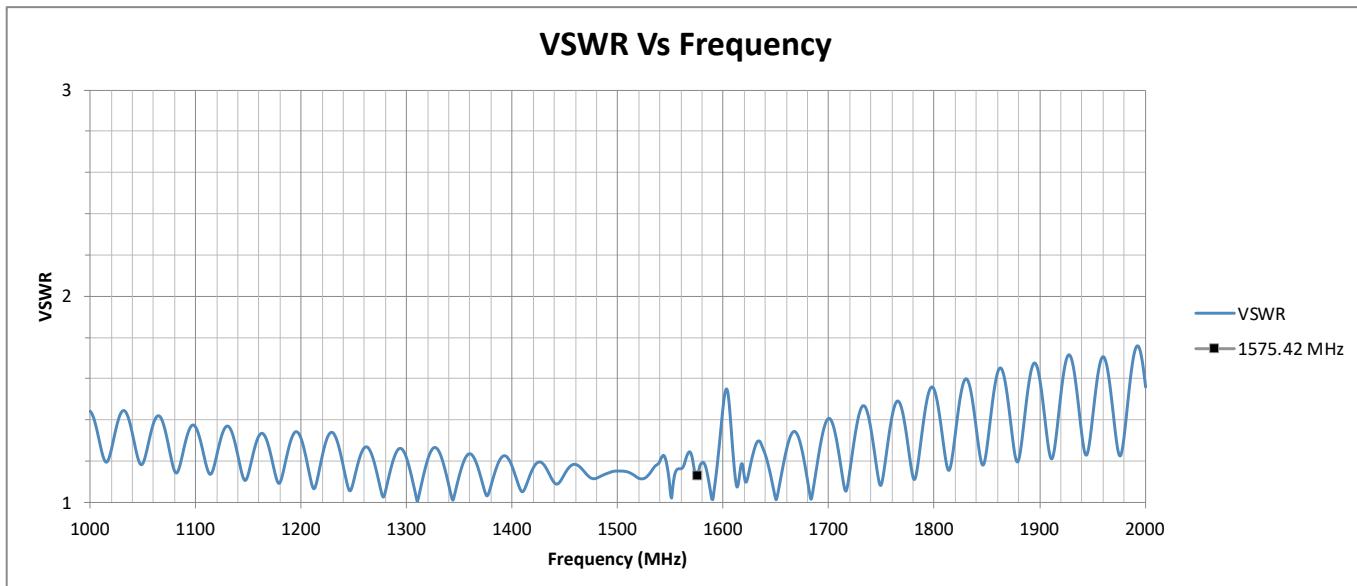
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Electrical



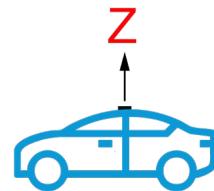


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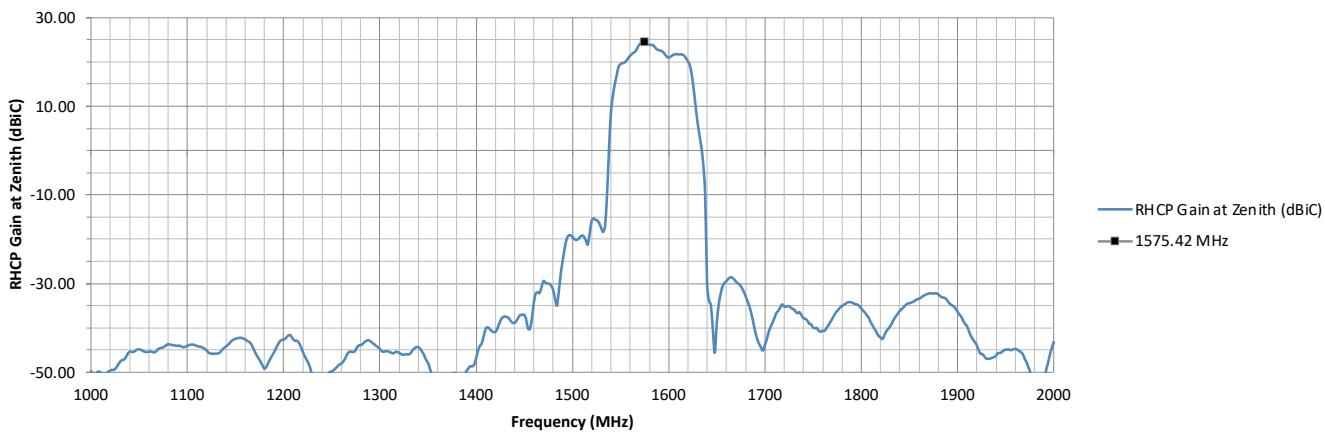
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RF Zenith

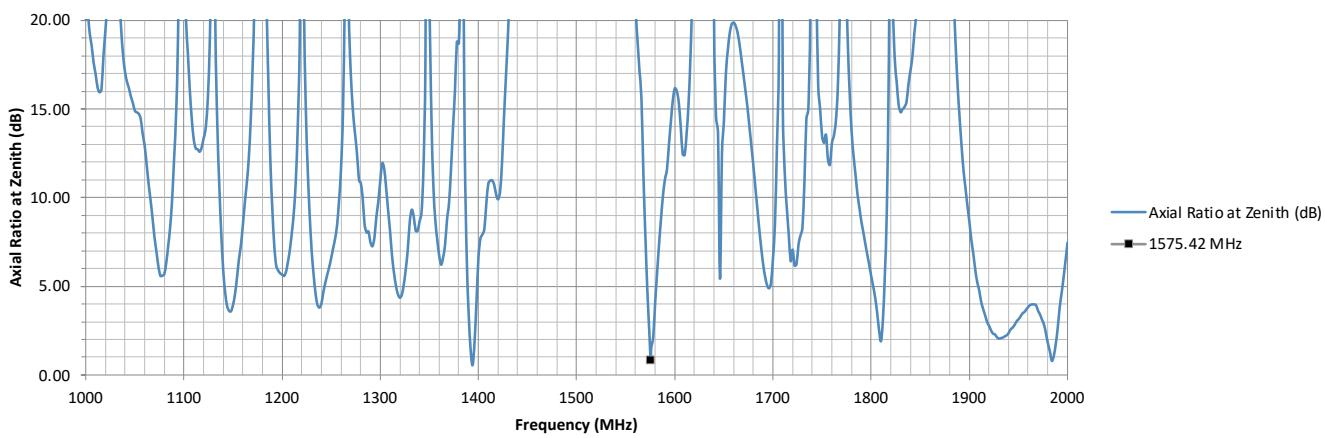
This page presents the RHCP Gain at Zenith and the Axial Ratio at Zenith as a function of frequency. These measurements indicate how well the antenna performs when receiving signals directly from satellites overhead (zenith direction). A higher RHCP gain ensures strong signal reception, while a lower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



RHCP Gain at Zenith Vs Frequency



Axial Ratio at Zenith Vs Frequency



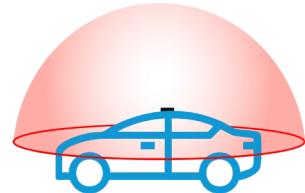


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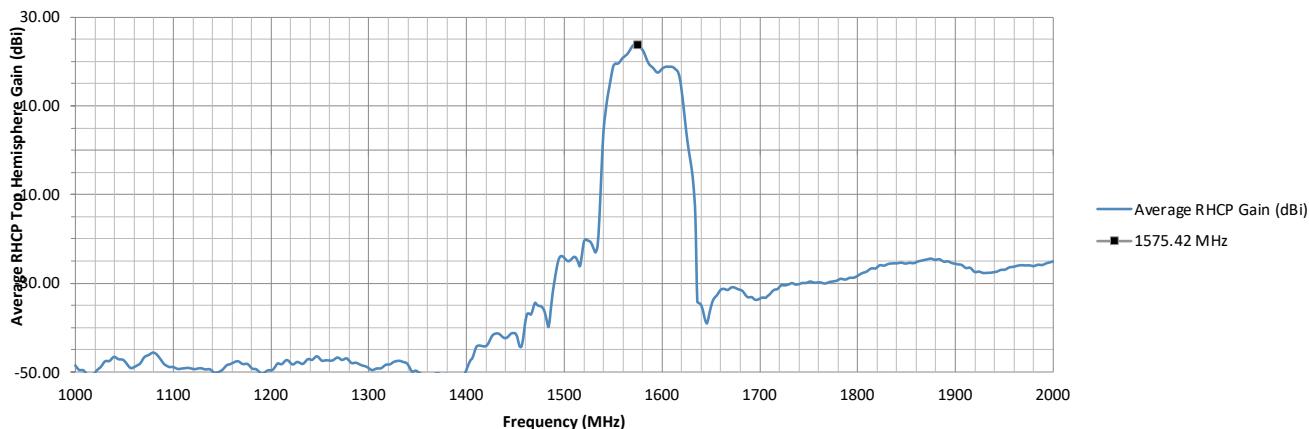
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RF Top Hemisphere

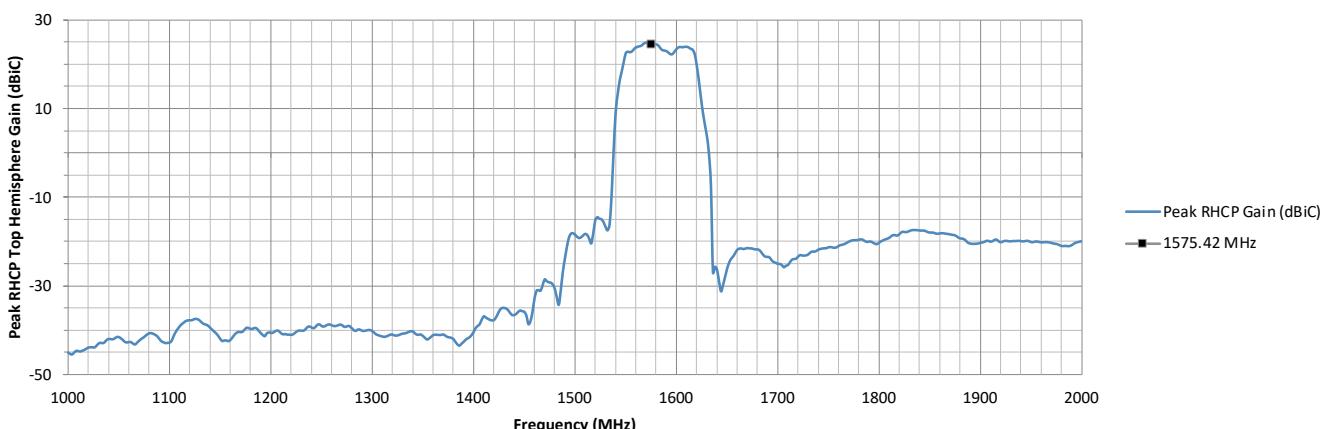
The graphs on this page showcase the Average and Peak RHCP Gain in the Top Hemisphere. These measurements assess how effectively the antenna receives signals from satellites positioned in the upper half of the sky. Strong RHCP gain in this region is critical for reliable GNSS reception, especially in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



Average RHCP Top Hemisphere Gain Vs Frequency



Peak RHCP Top Hemisphere Gain Vs Frequency



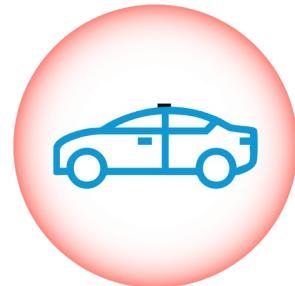


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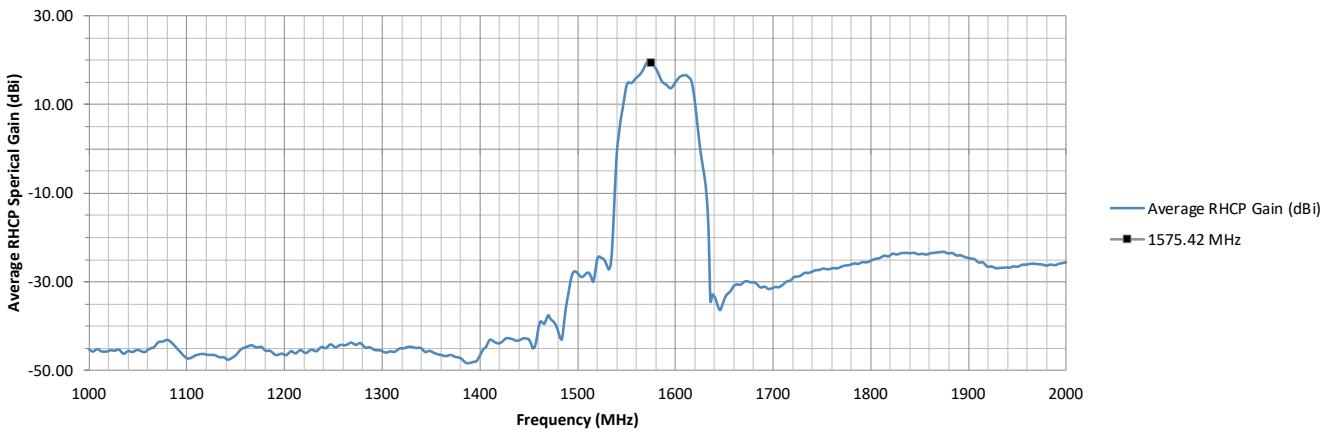
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RF Spherical

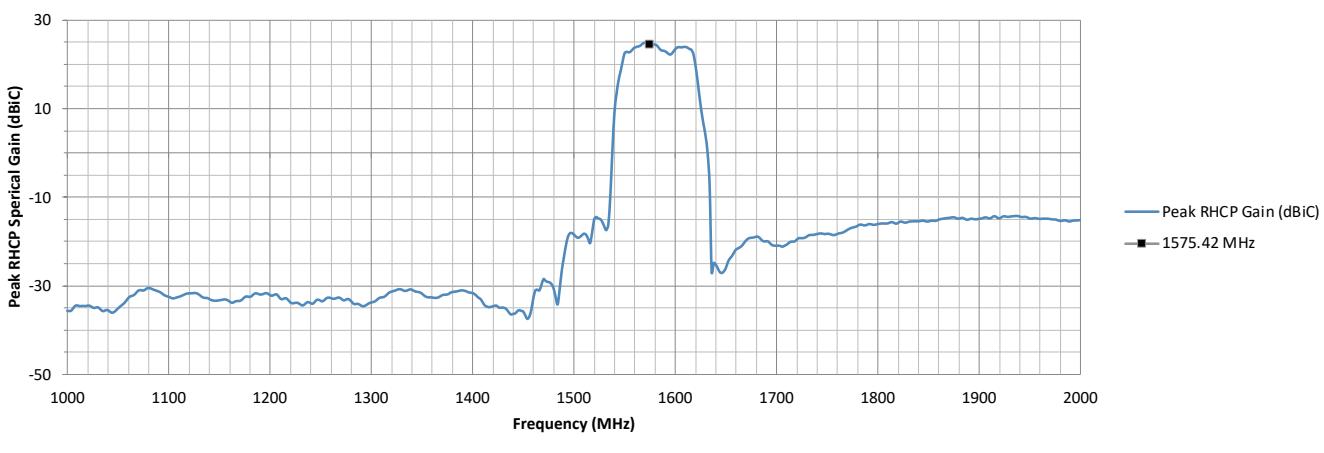
This page displays the Average and Peak RHCP Gain across the entire spherical coverage of the antenna. These metrics provide a comprehensive view of the antenna's ability to receive signals from satellites at all elevations and directions. Consistently high gain across the sphere ensures strong and stable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



Average RHCP Spherical Gain Vs Frequency



Peak RHCP Spherical Gain Vs Frequency





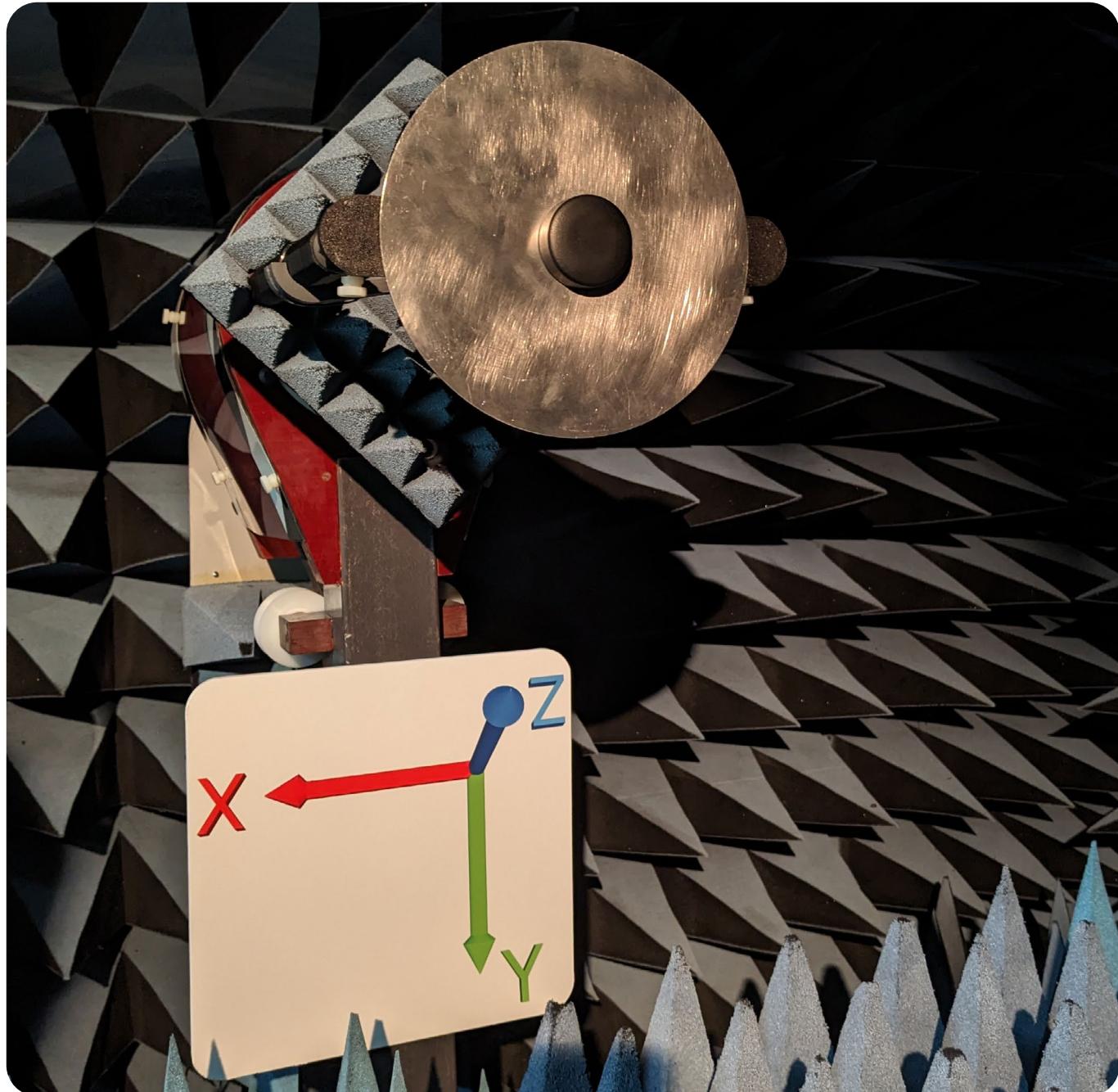
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Test Setup (in Ø200 mm Ground Plane)



Registered in England No. 08405712
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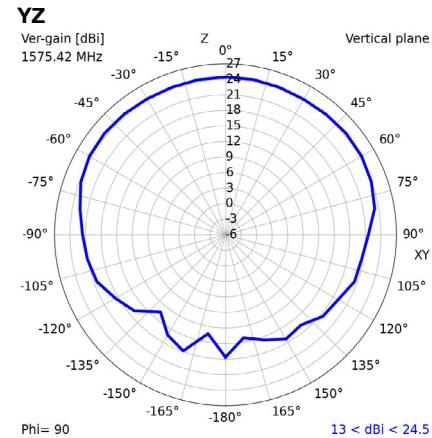
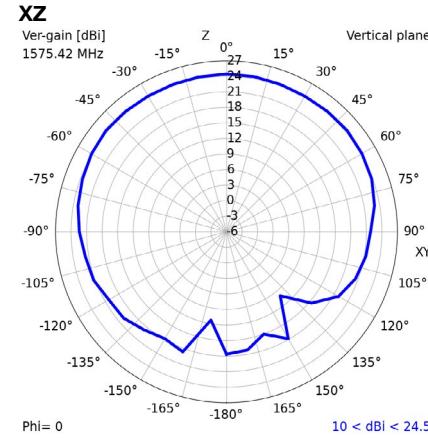
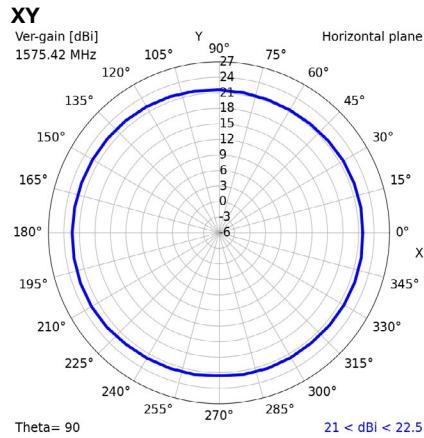
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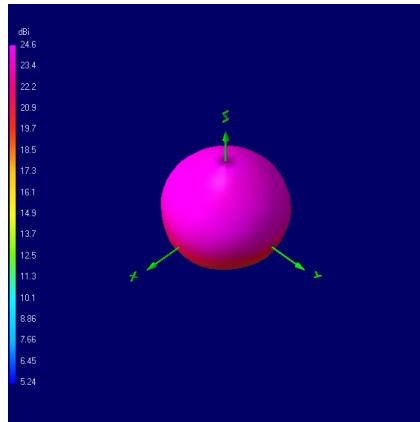
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2D Radiation Plots (1575.42 MHz)



3D Radiation Plot (1575.42 MHz)



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

Ordering Details:

Part Number	Description
TANGO20/3M/SMAM/S/S/26	GPS L1 Puck Antenna with SMA Male Connector and 3 m RG174 cable

Alternative cable lengths and connector types can be specified for high-volume projects.

Please email - siretta@sales.com