



Echo 27

Embedded Active GPS L1 15 × 15 mm Ceramic Patch Antenna



Key Features

- Supports GPS L1 (1575.42 MHz)
- Top hemisphere RHCP gain: 19.6 dBiC average, 24.2 dBiC peak
- Compact 15 × 15 × 7.45 mm embedded ceramic form factor
- Low voltage, low current design for power-sensitive devices
- Ceramic filter to suppress out-of-band noise
- Supplied with 100 mm cable and IPEX/u.FL connector (other options available for volume orders)

General Description

The Echo 27 is a miniature embedded ceramic patch antenna designed for GPS L1 (1575.42 MHz) applications where space efficiency is critical.

Despite its compact 15 mm footprint, the Echo 27 delivers strong performance with peak RHCP gain exceeding 24 dBiC at zenith, ensuring reliable reception and fast satellite acquisition. The integrated LNA boosts sensitivity while maintaining low noise, providing stable operation even in challenging environments.

Its small size, efficient design, and low power consumption make it ideally suited to portable, low-power, and space-constrained GPS devices.

Supplied as standard with 100mm coax cable and terminated with a uFL/IPEX connector. Alternative cable lengths and connector types can be fitted for volume requirements.

Typical Applications

- IoT and asset tracking devices
- UAVs and drones
- Portable GNSS receivers
- Compact navigation modules
- Wearable GPS equipment





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Electrical Specifications

Impedance:	50 Ω
Polarisation:	RHCP
Frequency Range:	GPS L1 (1575.42 MHz)
Return Loss:	-10.0 dB
VSWR:	<2
Ground Plane Independent:	No
RHCP Gain:	19 $\pm$ 5 dBiC
Noise Figure:	1.5 dB typ
Supply Voltage:	2.3 – 5.5 V DC
Current Consumption:	6.6 – 16 mA

Environmental Specifications

Operational Temperature Range:	-40 °C to +90 °C
Storage Temperature Range:	-40 °C to +90 °C
Relative Humidity:	10 – 95 %

Mechanical Specifications

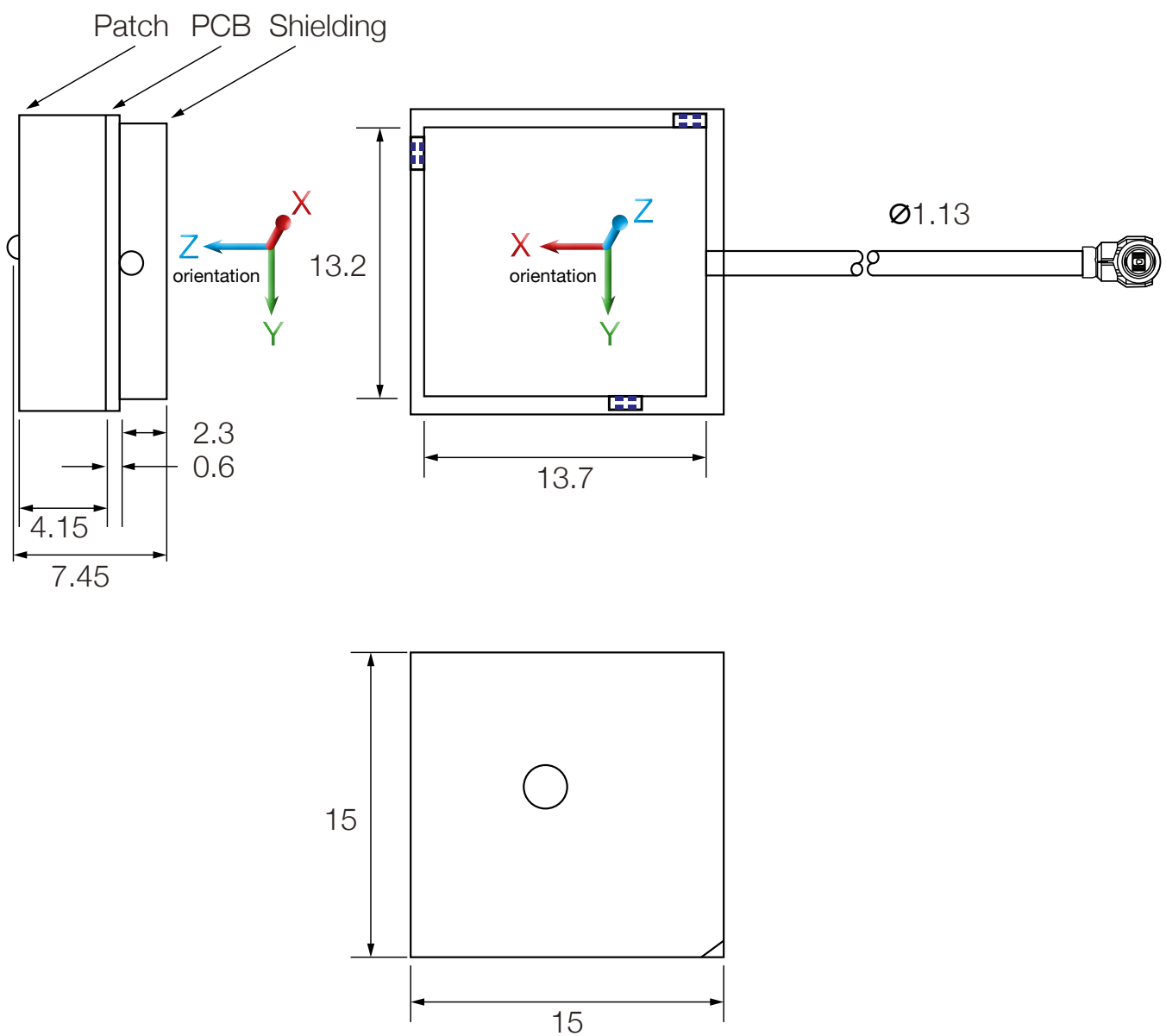
Dimension:	15 × 15 × 7.45 mm
Weight:	6 g
Connector:	IPEX/u.FL
Cable:	1.13 mm coax, 100 mm length
Mounting Methods:	Embedded

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Dimensional Drawing

Unit: mm



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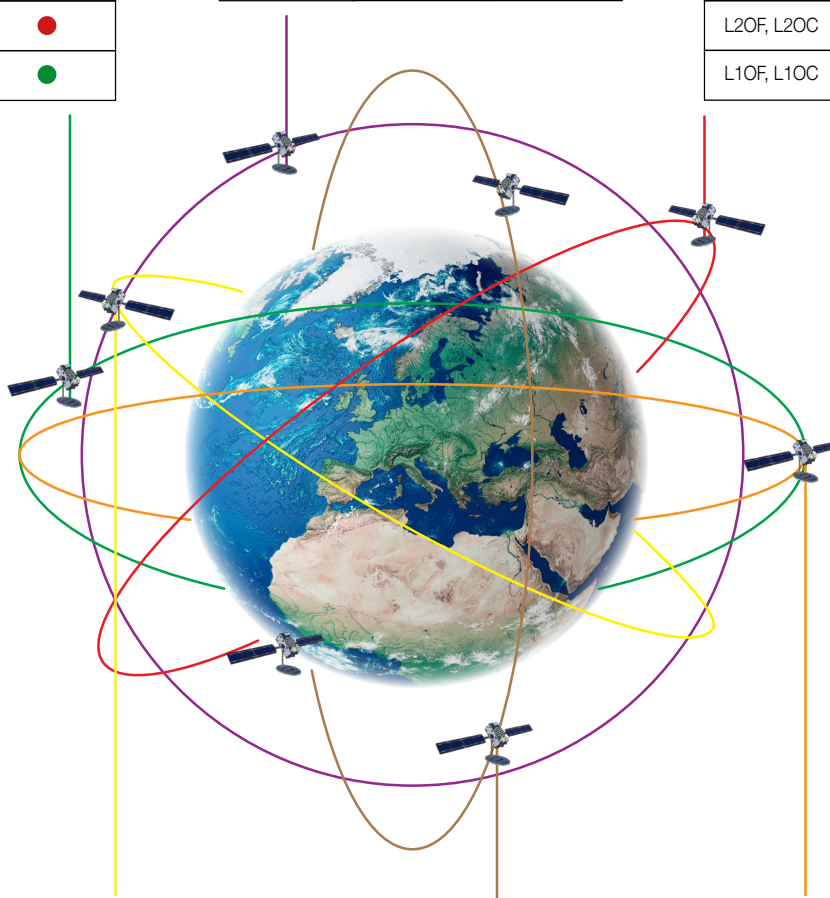
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Spectrum Coverage

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
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

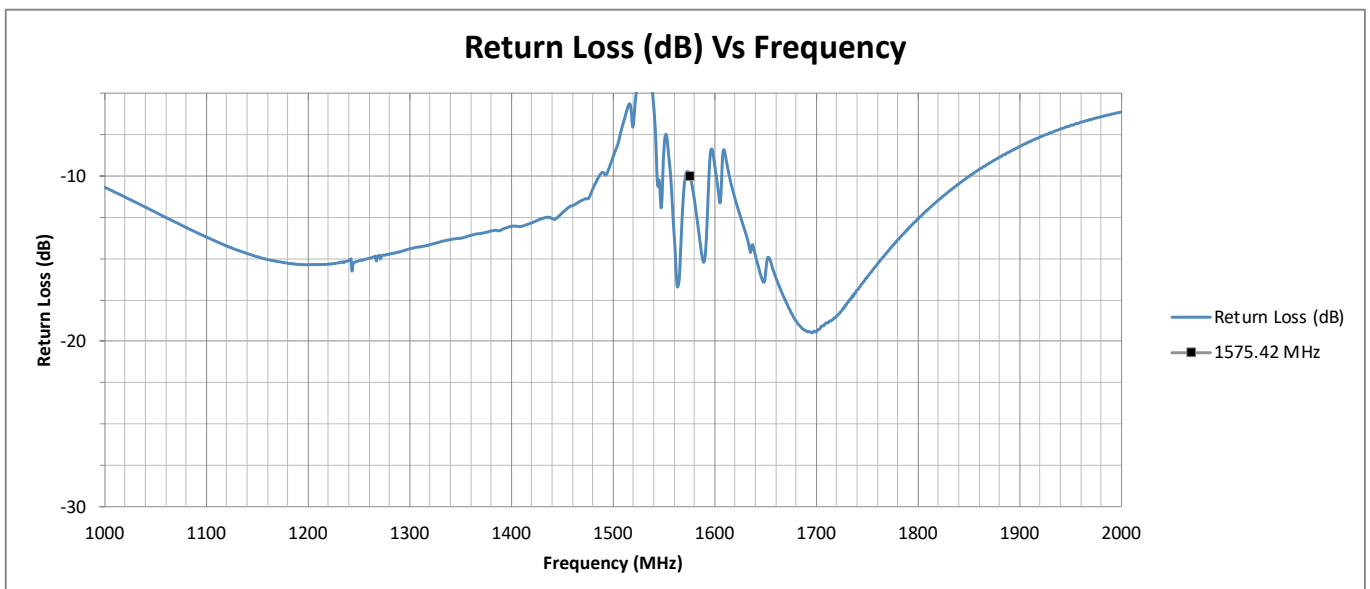
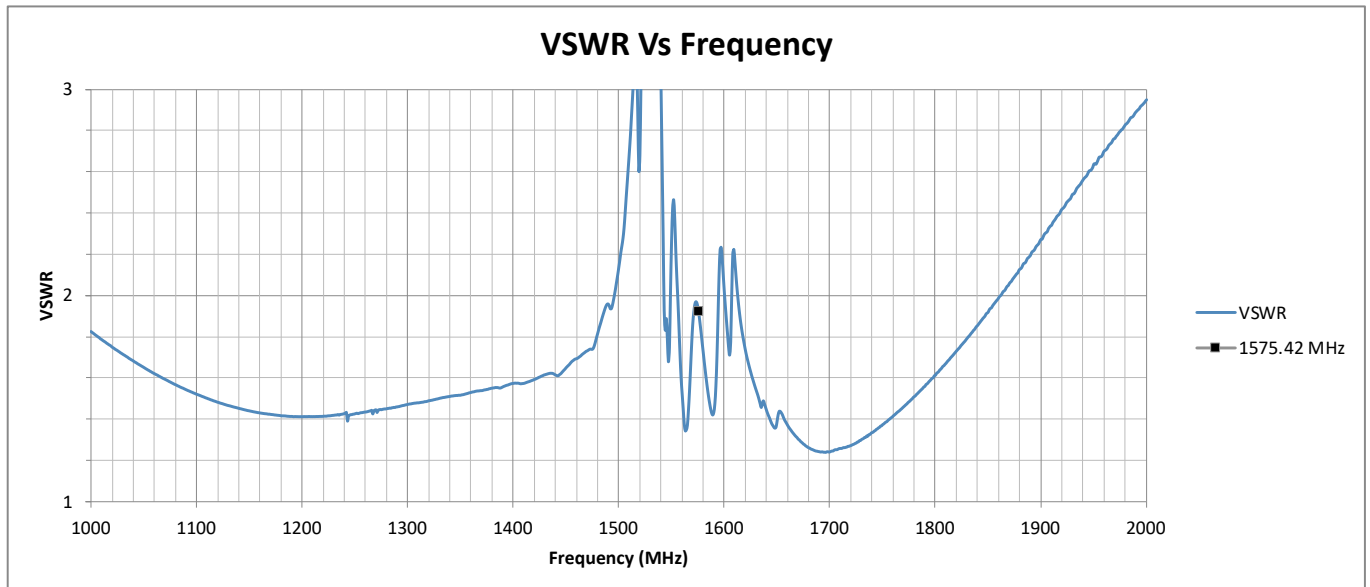
	Electrical Interface		Spherical RF Measurements		Top Hemisphere RF Measurements	
Centre Frequency (MHz)	VSWR	Return Loss (dB)	Average RHCP Gain (dBiC)	Peak RHCP Gain (dBiC)	Average RHCP Gain (dBiC)	Peak RHCP Gain (dBiC)
1575.42	1.9245	-10.0040	15.87	24.15	19.58	24.15

	Zenith RF Measurements
Centre Frequency (MHz)	RHCP Gain at Zenith (dBiC)
1575.42	23.36

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Electrical

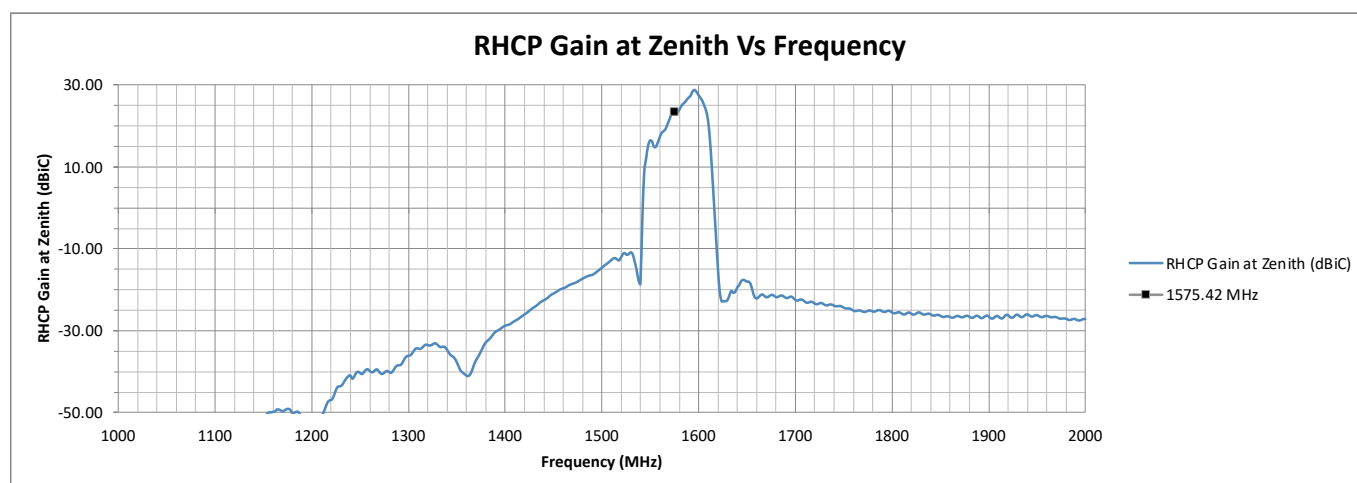
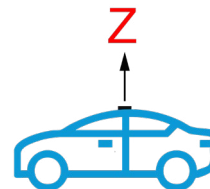


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RF Zenith

This page presents the RHCP Gain at Zenith as a function of frequency. This measurement indicates how well the antenna performs when receiving signals directly from satellites overhead (zenith direction). A higher RHCP gain ensures strong signal reception.

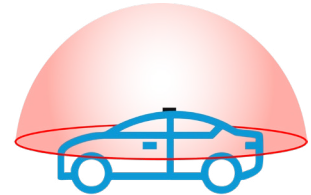


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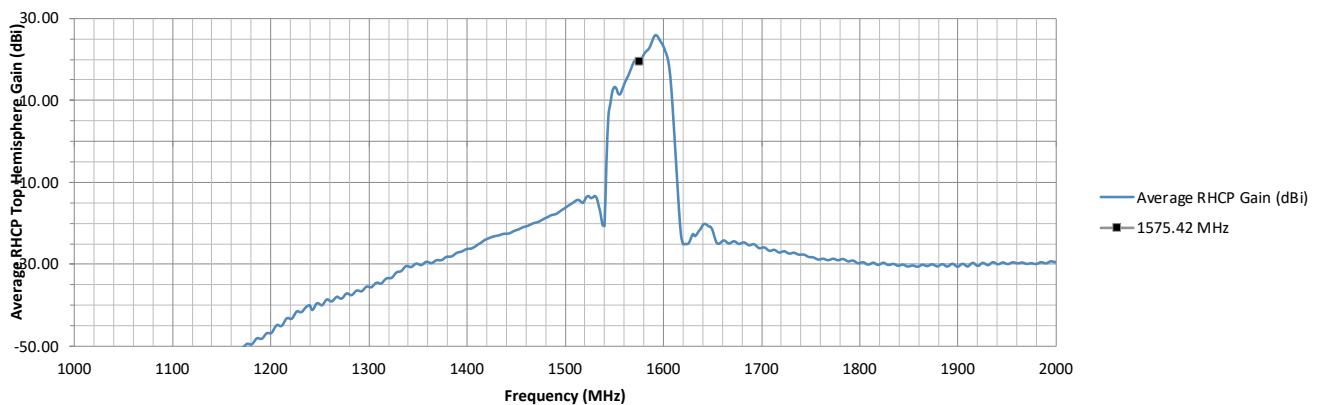
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RF Top Hemisphere

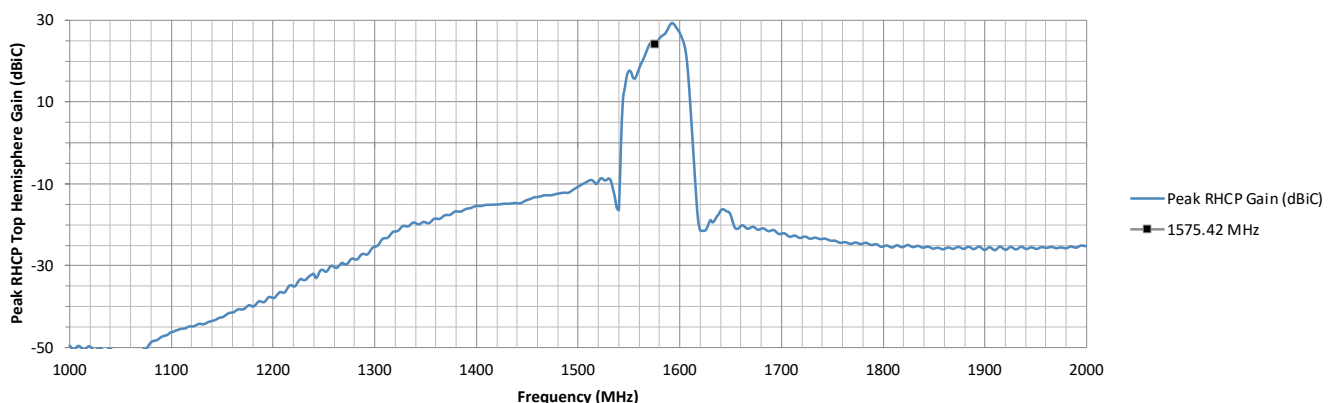
The graphs on this page showcase the Average and Peak RHCP Gain in the Top Hemisphere. These measurements assess how effectively the antenna receives signals from satellites positioned in the upper half of the sky. Strong RHCP gain in this region is critical for reliable GNSS reception, especially in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



Average RHCP Top Hemisphere Gain Vs Frequency



Peak RHCP Top Hemisphere Gain Vs Frequency

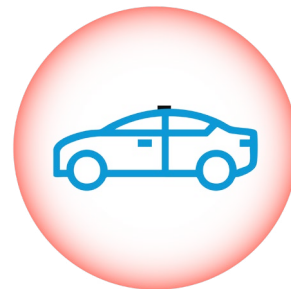


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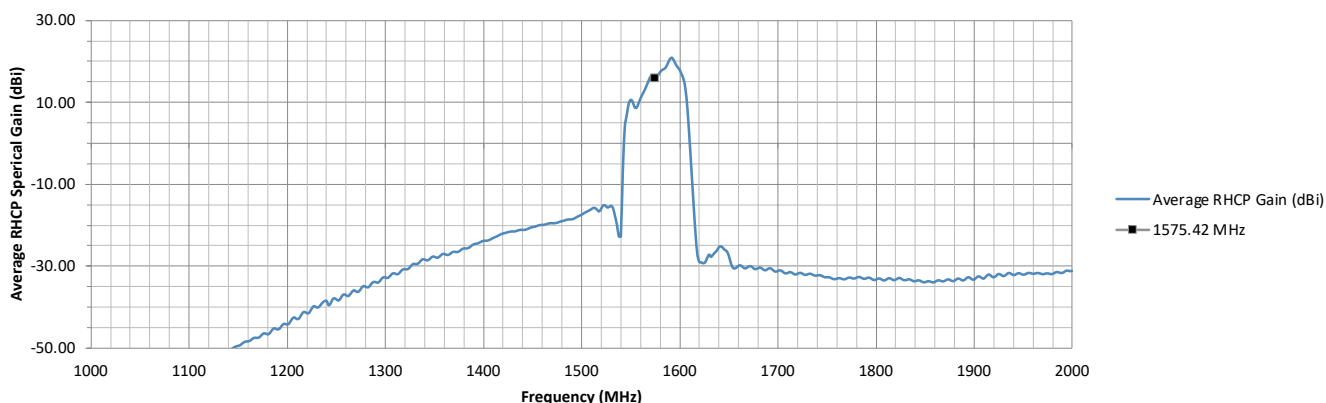
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RF Spherical

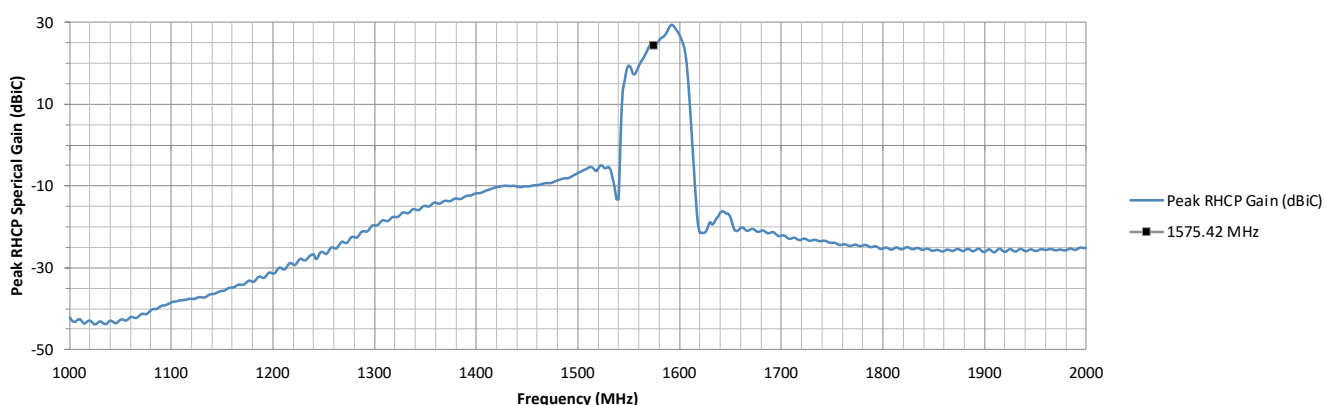
This page displays the Average and Peak RHCP Gain across the entire spherical coverage of the antenna. These metrics provide a comprehensive view of the antenna's ability to receive signals from satellites at all elevations and directions. Consistently high gain across the sphere ensures strong and stable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



Average RHCP Spherical Gain Vs Frequency



Peak RHCP Spherical Gain Vs Frequency

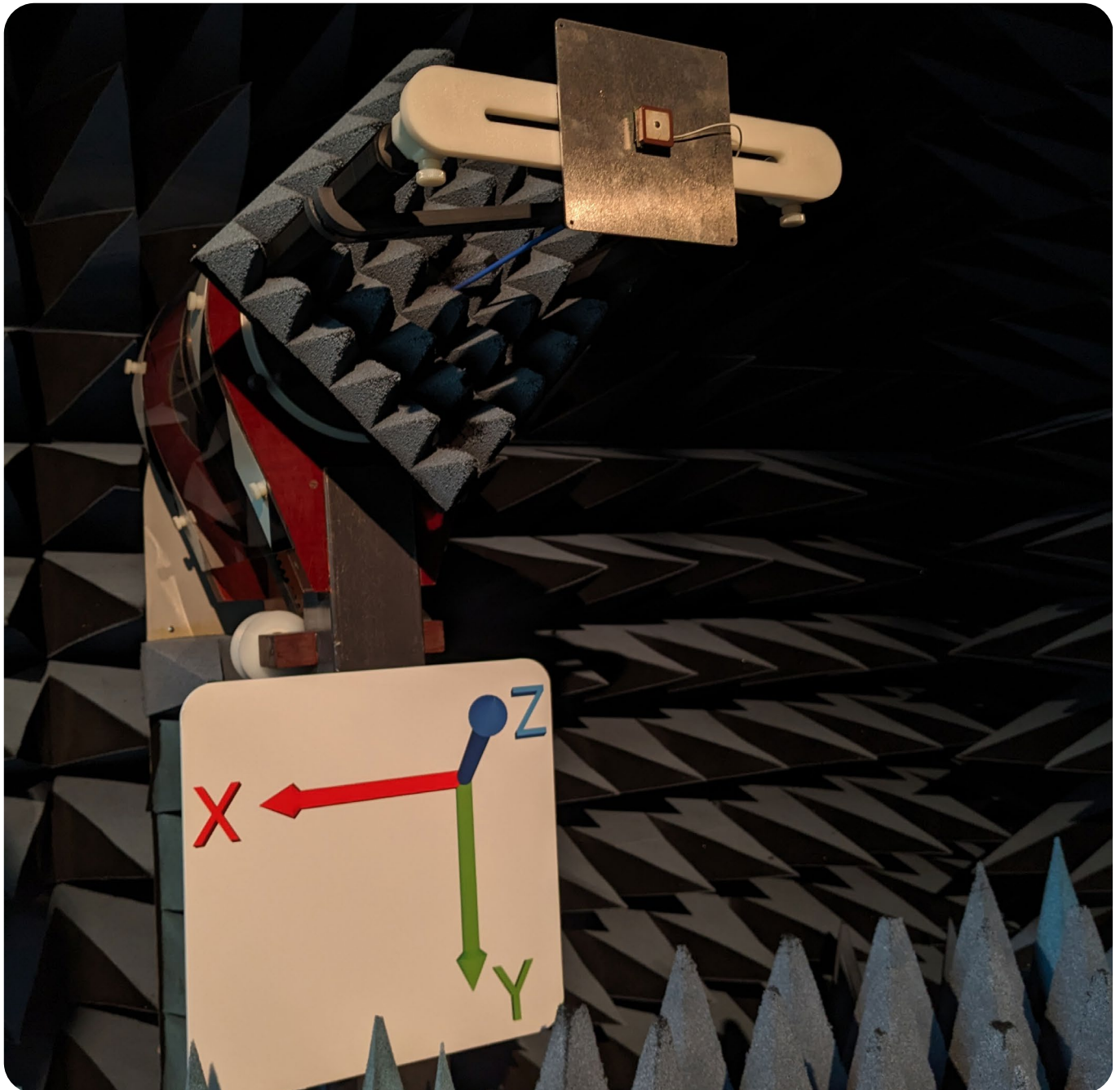




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Test Setup (in 100 x 100 mm Ground Plane)

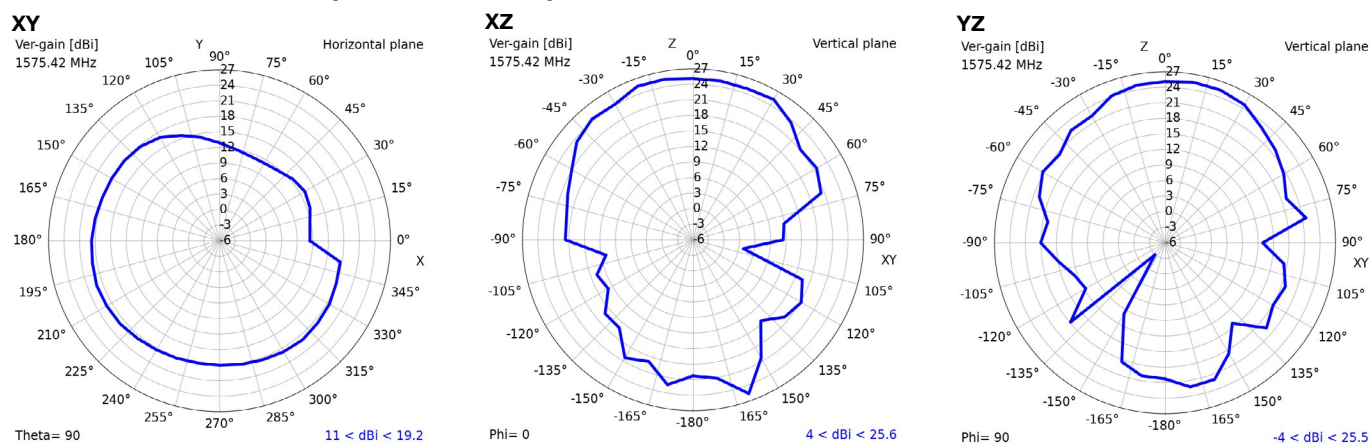




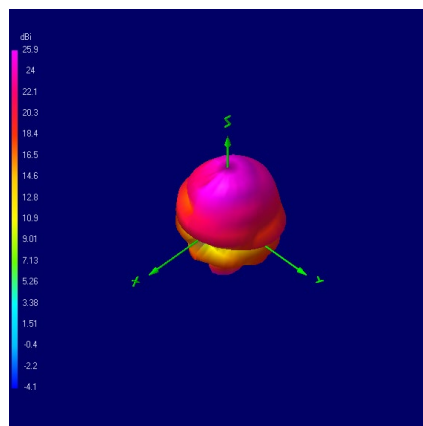
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2D Radiation Plots (1575.42 MHz)



3D Radiation Plot (1575.42 MHz)



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

Ordering Details:

Part Number	Description
ECHO27/0.1M/IPEX/S/S/15	GPS Ceramic Patch Antenna, 100 mm Cable, IPEX Connector

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

Please email - siretta@sales.com