



Echo 19

Embedded Active Miniature 10x10 mm GPS L1 Ceramic Patch Antenna



Key Features

- GPS L1 band support (1575.42 MHz)
- Miniature 10 × 10 mm ceramic patch form factor
- Peak RHCP gain up to 16.5 dBiC
- Low power consumption (≤ 11 mA)
- Supplied with 100 mm coax and UFL/IPEX connector as standard

General Description

The Echo 19 is Siretta's smallest embedded active GPS antenna, optimised for applications where space is at a premium. Measuring just 10 × 10 × 6.7 mm, it integrates a ceramic patch antenna with an onboard low noise amplifier to deliver strong GPS L1 reception despite its miniature size.

With a peak RHCP gain of 16.5 dBiC and consistent top-hemisphere coverage, the Echo 19 provides robust satellite tracking and reliable performance. Its very low current consumption of ≤ 11 mA makes it an excellent choice for compact, battery-powered and mobile applications where efficiency and performance must coexist.

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

Typical Applications

- Portable and handheld devices
- IoT asset tags and compact trackers
- Drones and UAV modules
- Embedded GPS modules in space-limited designs





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Electrical Specifications

Impedance:	50 Ω
Polarisation:	RHCP
Frequency Band:	GPS L1 (1575.42 MHz)
Return Loss:	≥ 10 dB
VSWR:	≤ 2.0
Ground Plane Independent:	Yes
RHCP Gain:	13 $\pm$ 3 dBIC
LNA Gain:	16 dB
Noise Figure:	≤ 1.5 dB
Supply Voltage:	2.0 – 3.6 V DC
Current Consumption:	≤ 11 mA

Environmental Specifications

Operational Temperature Range:	-45 to +85 °C
Storage Temperature Range:	-45 to +100 °C
Relative Humidity:	Up to 95 %

Mechanical Specifications

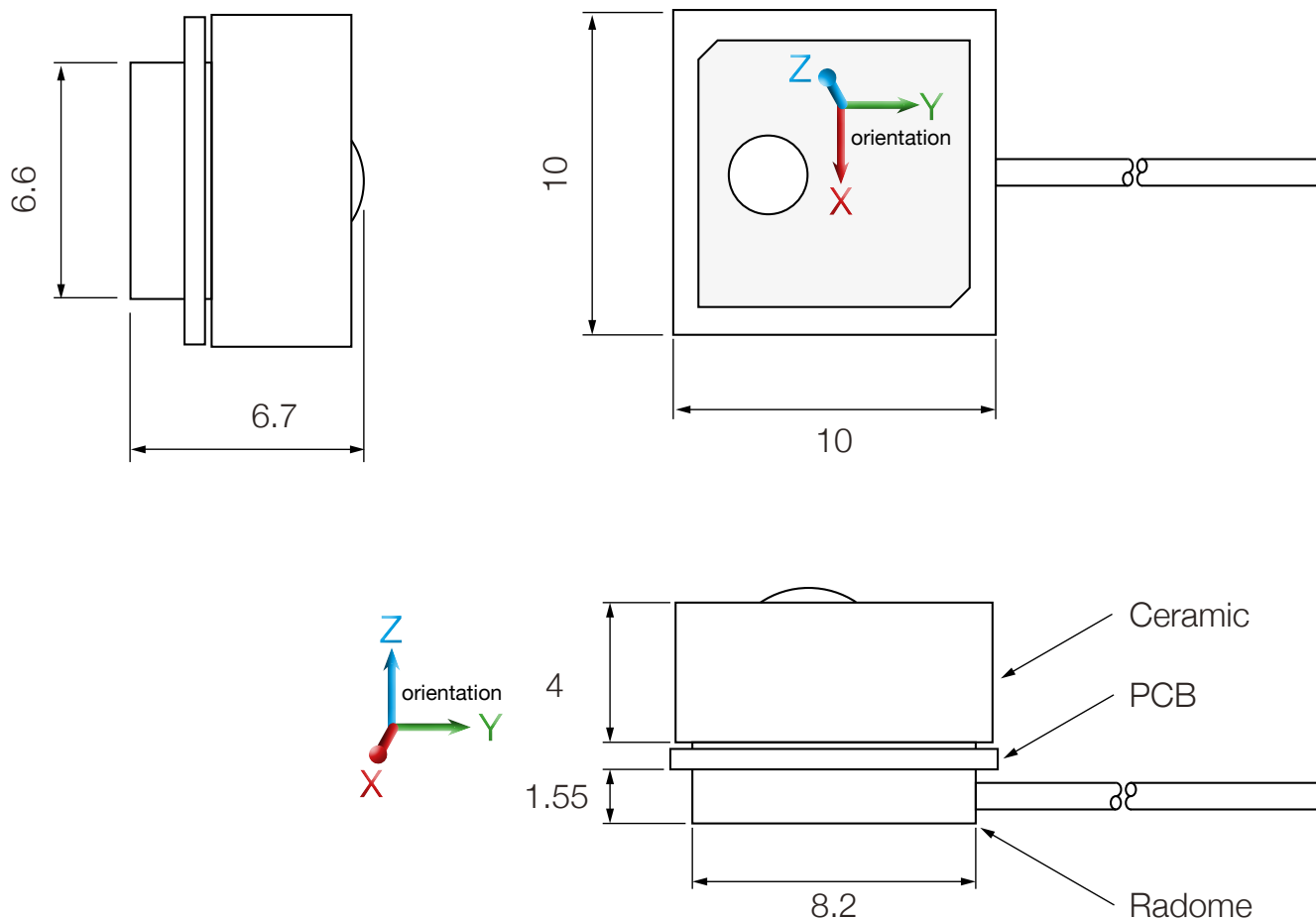
Dimension:	10 $\times$ 10 $\times$ 6.7 mm
Weight:	3 g
Connector:	IPEX/uFL
Cable:	1.13 MM coax
Mounting Methods:	Embedded

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Dimensional Drawing

Unit: mm



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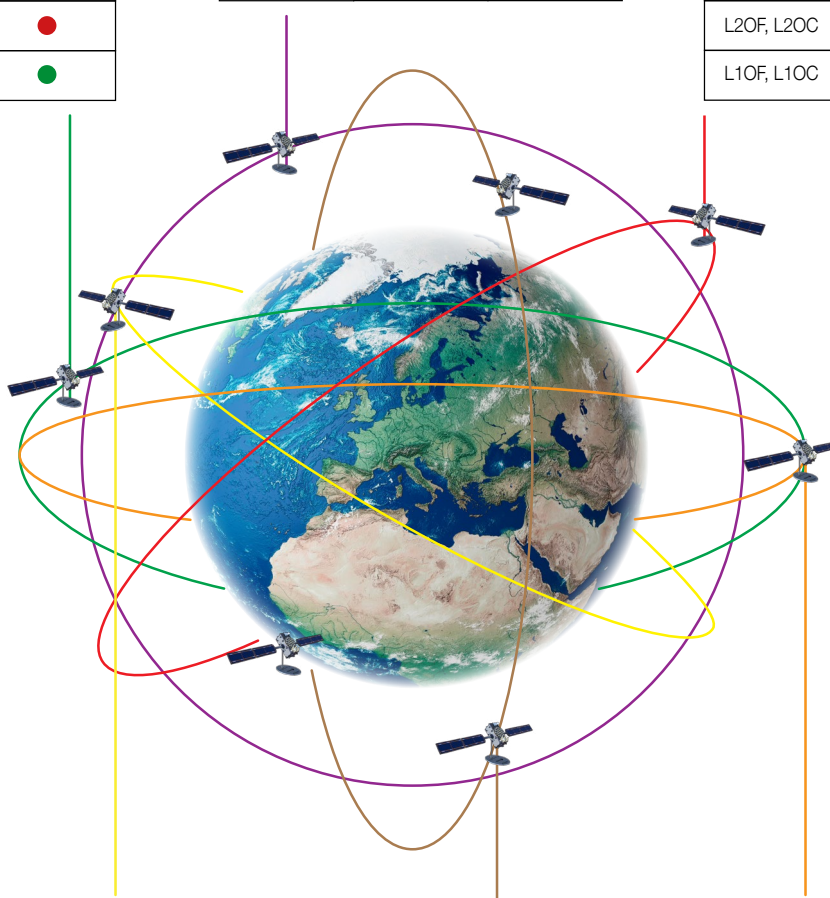
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Spectrum Coverage

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

Centre Frequency (MHz)	Electrical Interface		Spherical RF Measurements		Top hemisphere RF Measurements	
	VSWR	Return Loss (dB)	Average RHCP Gain (dBiC)	Peak RHCP Gain (dBiC)	Average RHCP Gain (dBiC)	Peak RHCP Gain (dBiC)
1575.42	1.9116	-10.0864	11.07	16.52	13.29	16.52

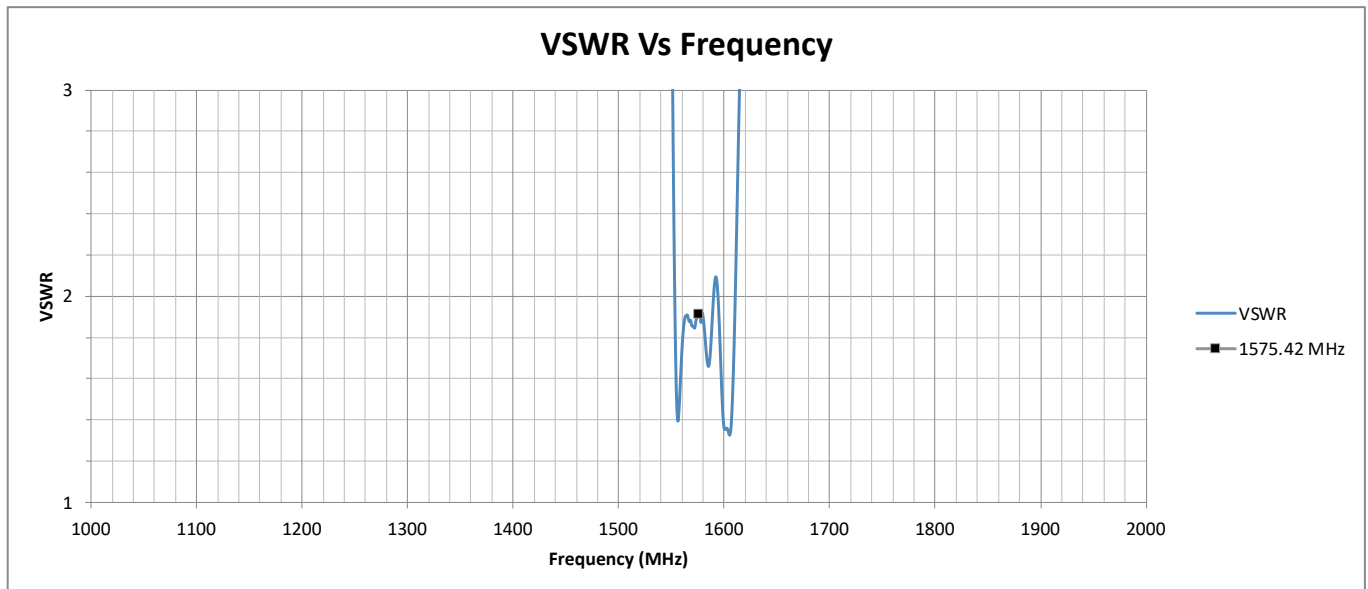
Centre Frequency (MHz)	Zenith RF Measurements
	RHCP Gain at Zenith (dBiC)
1575.42	13.00



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Electrical

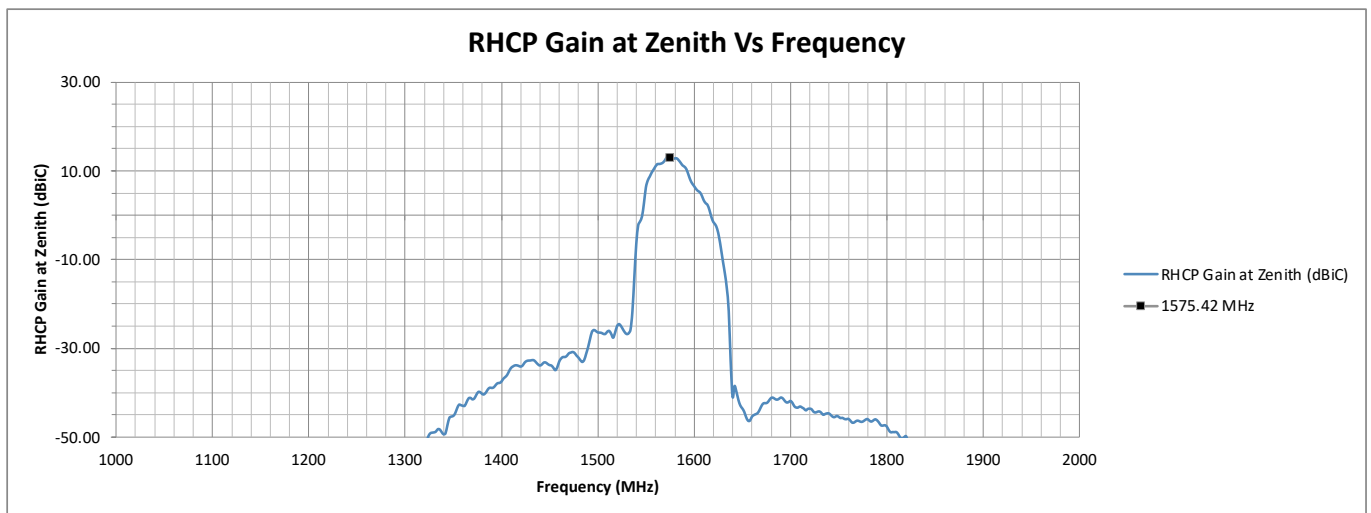
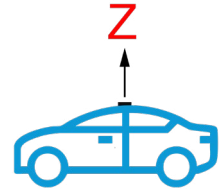


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RF Zenith

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.

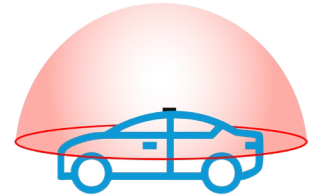


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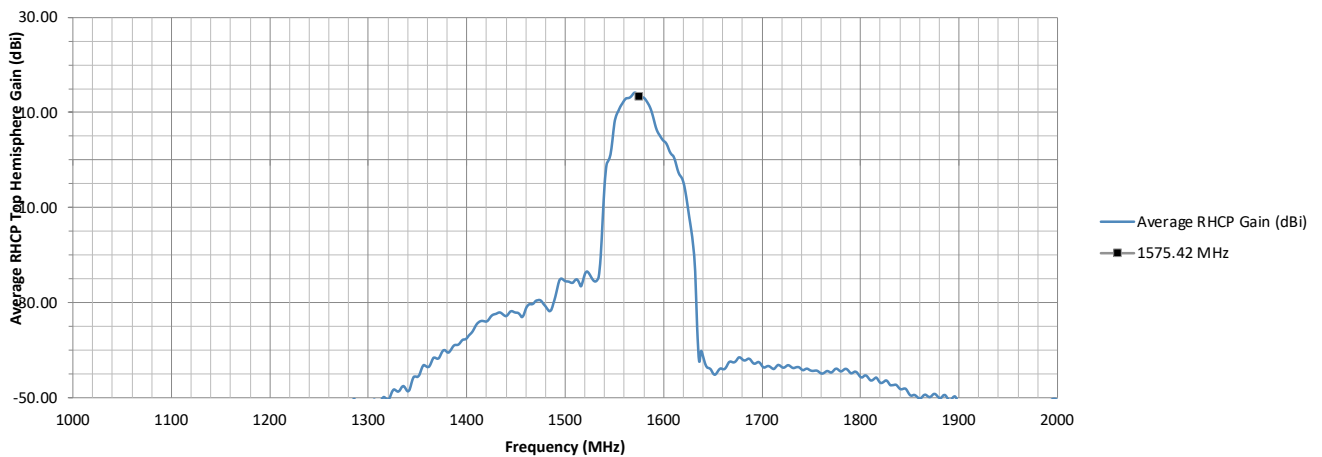
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RF Top Hemisphere

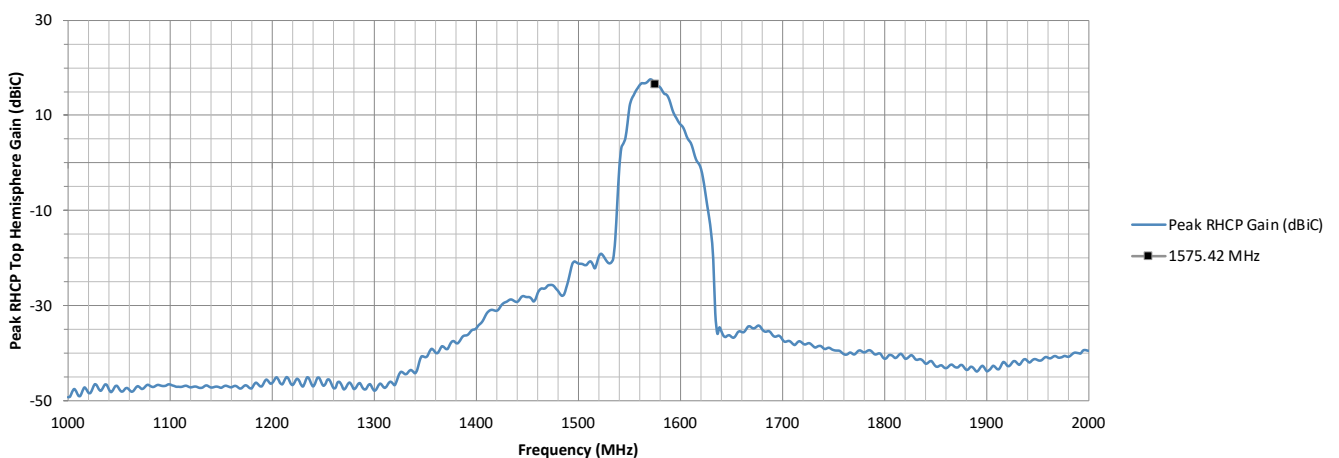
The graphs on this page showcase the Average and Peak RHCP Gain in the Top Hemisphere. These measurements assess how effectively the antenna receives signals from satellites positioned in the upper half of the sky. Strong RHCP gain in this region is critical for reliable GNSS reception, especially in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



Average RHCP Top Hemisphere Gain Vs Frequency



Peak RHCP Top Hemisphere Gain Vs Frequency

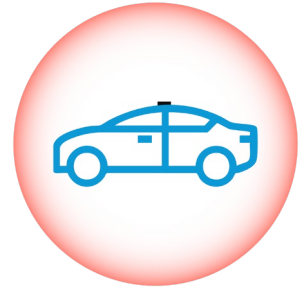


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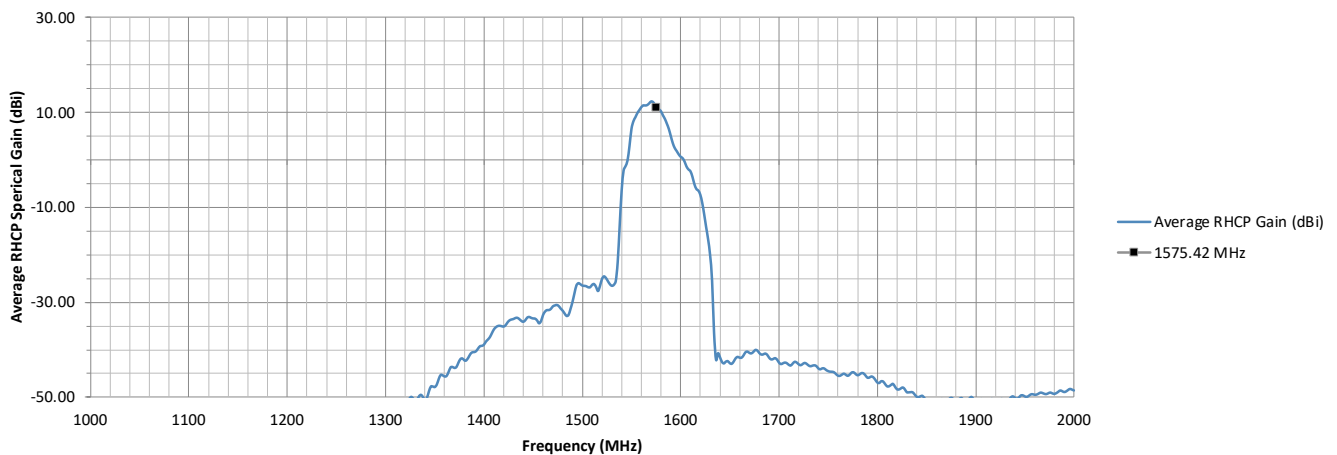
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RF Spherical

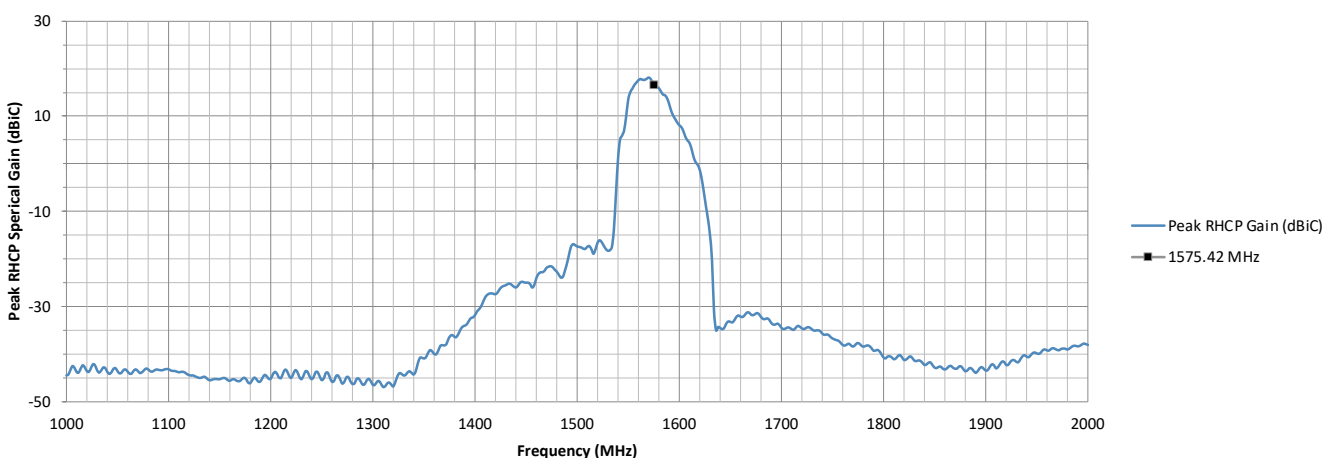
This page displays the Average and Peak RHCP Gain across the entire spherical coverage of the antenna. These metrics provide a comprehensive view of the antenna's ability to receive signals from satellites at all elevations and directions. Consistently high gain across the sphere ensures strong and stable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



Average RHCP Spherical Gain Vs Frequency



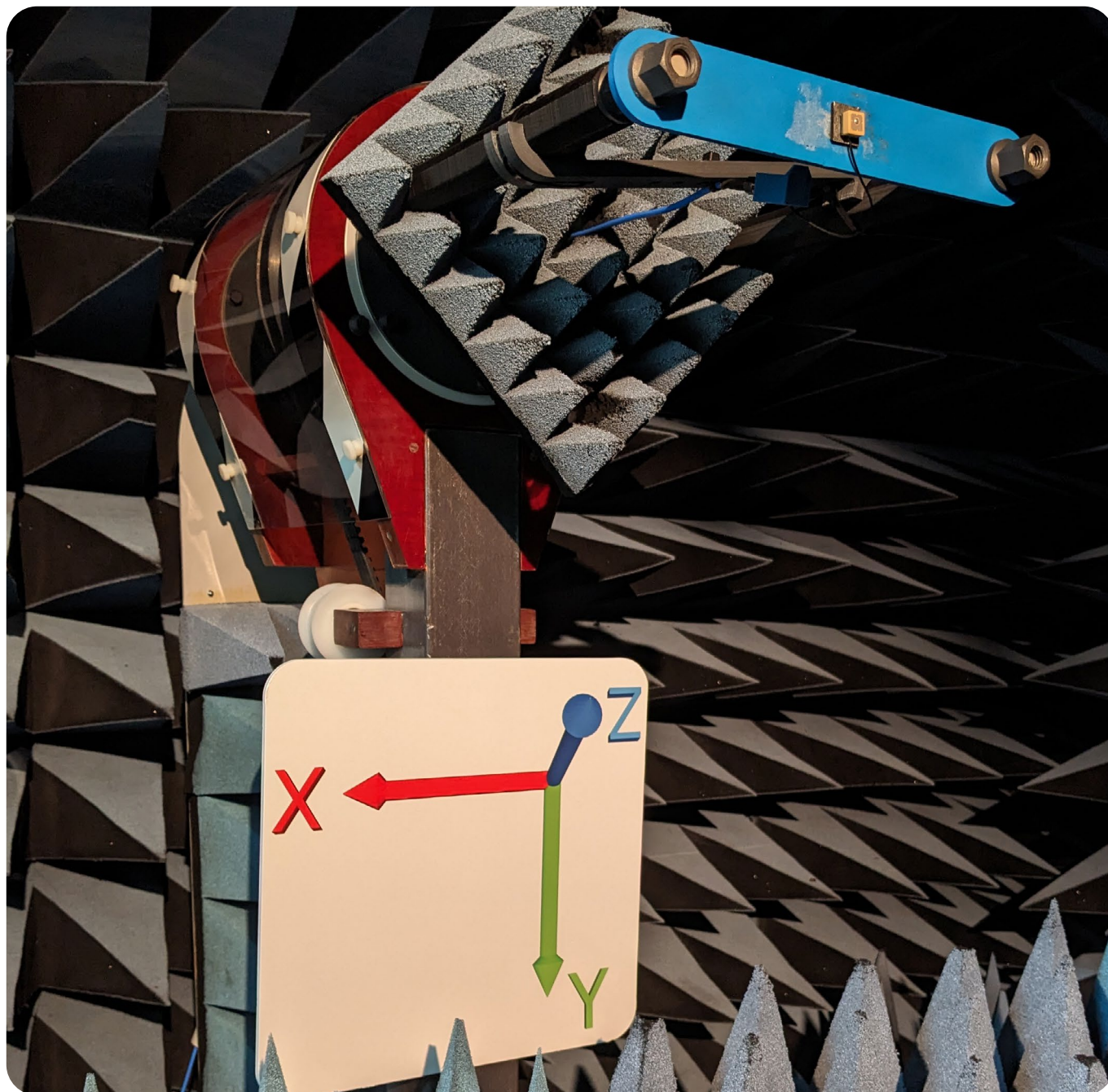
Peak RHCP Spherical Gain Vs Frequency



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Test Setup (in freespace)

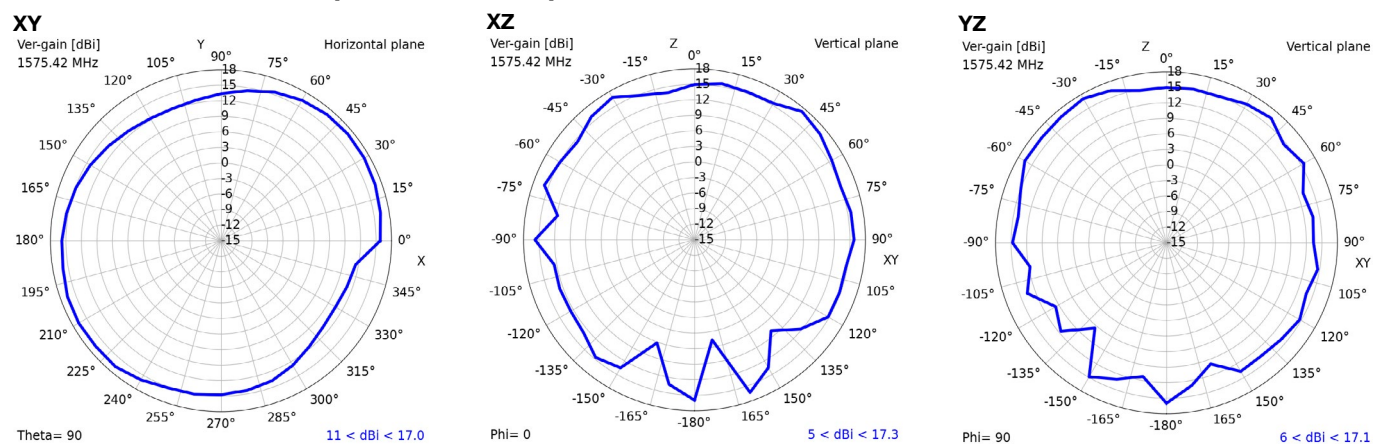




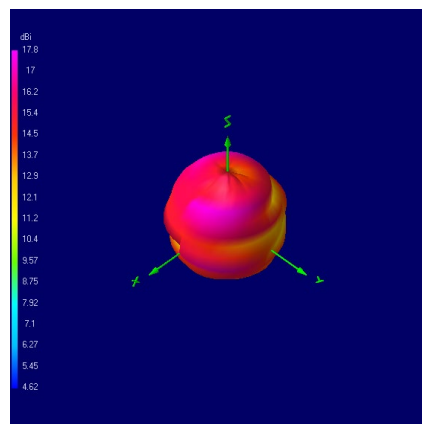
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2D Radiation Plots (1575.42 MHz)



3D Radiation Plot (1575.42 MHz)



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

Ordering Details:

Part Number	Description
ECHO19/0.1M/UFL/S/S/17	Embedded Active Miniature 10x10 mm GPS L1 Ceramic Patch Antenna 100 mm Cable, UFL Connector