

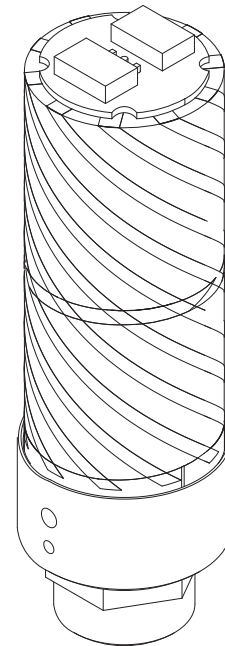
GPS L1/L5 Antenna

The Helix Geospace GPS L1/L5 Antenna is a dielectric loaded decafililar helix, which uses patented Dielectrix™ antenna technology to provide the highest available efficiency per unit of size/volume.

These antennas have excellent co-to-cross polarisation and therefore provide useful discrimination of multi-path (reflected polarisation-reversed) signals. They are balanced and isolated from platform ground, ensuring high resilience to common-mode noise and very low proximity de-tuning caused by nearby objects.

Dielectrix antennas deliver predictable installed performance that belies the small size, due to operation of the dielectric-core material (patent-protected).

The product will be available encapsulated with an overmoulded protective radome, or unencapsulated as appropriate for direct integration into devices.



Key Features

Tuned to GPS L1 and L5 frequencies: (L5) 1,176.45 MHz (1,166 - 1,189) and (L1) 1,565.42-1,585.42 MHz

- Intrinsic band-pass filter response, tightly tuned to L1 and L5 frequency bands – resilient to out of band interference
- Typical gain at zenith: 37 dBic at L5 and 36dBic at L1
- RHCP polarization with 15dB co-to-cross polarisation discrimination - exceptional rejection of multi-path (reflected) signals
- Low de-tuning due to objects in the near field: ideal for hand-held and vehicle mounted applications
- Cardioid radiation pattern – optimal reception of signals from low elevation satellites: when antenna is in a dynamic application (e.g. maritime, airborne and vehicle applications where the platform has pitch and yaw movement)
- Balanced antenna – resilient to common-mode noise (e.g. vehicle chassis ground fluctuations due to in-car compute and electric drive-train noise)
- Over-moulded variants provide IP-67 environmental protection ideal for external mount in harsh environments
- Robust – withstands shock and vibration
- Wide operating temperature range (-40 to +85 °C)
- SMA/U.FL connector.

Applications

Helix Geospace GPS L1/L5 series antennas are ideally suited for PNT (Position, Navigation and Timing) applications in which resilience, position accuracy and compact form factor are essential.

- Precision location and navigation
- Precision timing for network sync and crypto
- Defence/security/CNI/first responder
- UAS/UAV and autonomous vehicles
- Asset tracking and fleet vehicle tracking
- Internet of Things
- Personal safety devices
- Hand-held and wearable location devices
- Industrial/oil and gas/mining.

dielectrix™

Antenna technology provides unrivaled efficiency per unit volume.

Helix Geospace provides custom tuning services to optimise and tune antenna performance when integrated into customers enclosure.

Helix Geospace

148 Sixth Street, Thomson Avenue, Harwell Campus, Oxfordshire OX11 0TR, UK
t +44 1235 887 444 e info@helixgeospace.com w helixgeospace.com

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Electrical Specifications

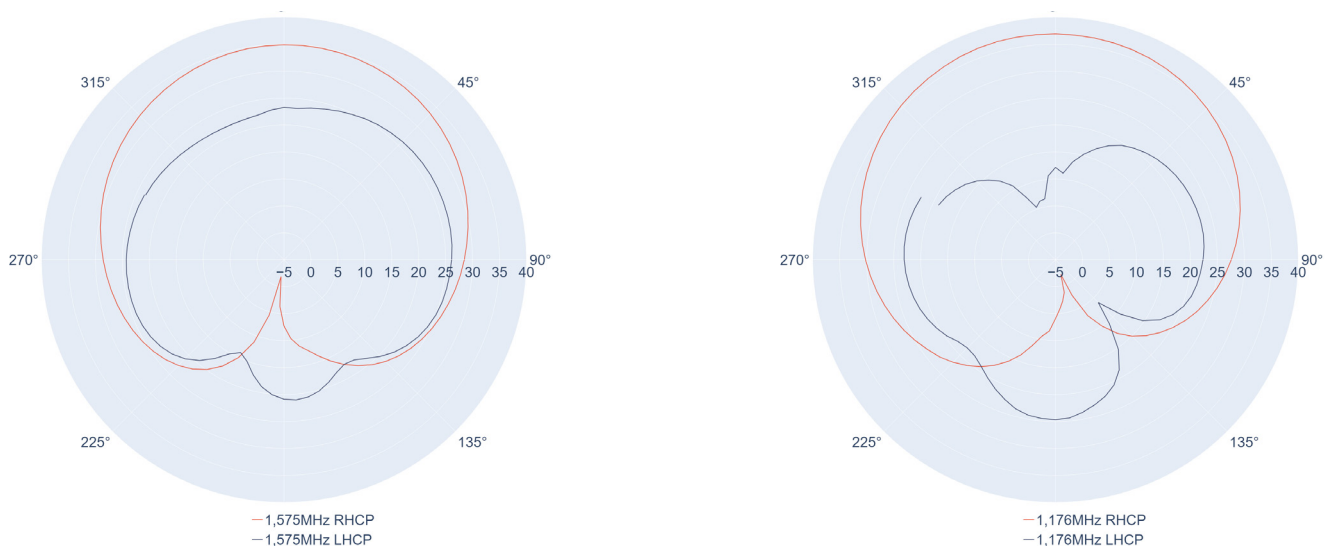
	Min	Typical	Max	Units
Frequency L1	1565.42	1575.42	1585.42	MHz
Frequency L5	1164	1176.45	1189	MHz
Polarisation		RHCP		
Antenna element peak gain L1		36		@zenith dBic
Antenna element peak gain L5		37		@zenith dBic
Efficiency (L1)			>60	Total Spherical %
Bandwidth (3db) L1	1565.42		1585,42	MHz
Bandwidth (3db) L5	1164		1189	MHz
Axial ratio			<3dB	dB
Impedance		50		Ohms
Operating temp range	-40		+85	C
RF connector		SMA		
Out of band rejection (L1, L5 ±150 MHz)			>50	dB
Noise figure		1.5		dB


Mechanical Specifications

	Min	Typical	Max	Units
Dimensions SMA (non-overmould)	48 x 15			mm
Dimensions SMA (overmould)		TBC		mm
Weight SMA (non-overmould)	32			grams
Weight SMA (overmould)		TBC		grams
IP Rating (overmould)		67		IP
Additional Sealing (overmould)		O-ring		

Radiation Patterns

The following radiation pattern has been measured WITHOUT a ground plane.



Part number	Antenna	Connector	Dimensions mm	Weight g
GL6-00A4S0-0 	Active	SMA Male	L 48 x ø 15	32

GL6-00A4S0-0 dimensions

