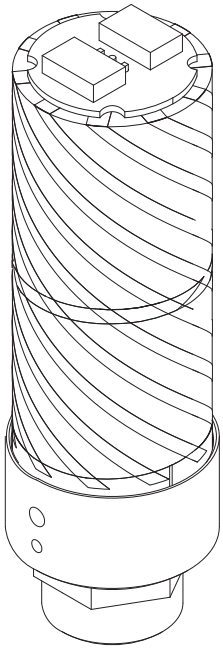
GPS L1/L5 Antenna

The Helix Geospace GPS L1/L5 Antenna is a dielectric loaded decafilar 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.

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Electrical Specifications

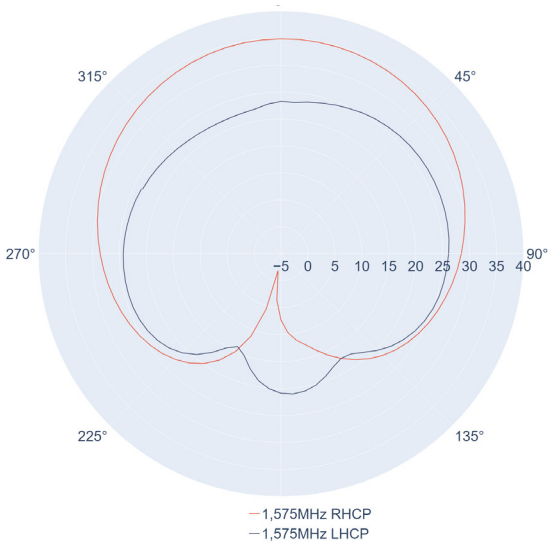
	Min	Typical	Max	Units
Frequency L1	1565.42	1575.42	1585.42	MHz
Frequency L5	1164	1176.45	1189	MHz
Polarisation		RHCP		
Antenna element peak gain L1		36		@zenith dBic
Antenna element peak gain L5		37		@zenith dBic
Efficiency (L1)			>60	Total Spherical %
Bandwidth (3db) L1	1565.42		1585,42	MHz
Bandwidth (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
Power supply	1.8	3.3	5	V
Current draw		9		mA

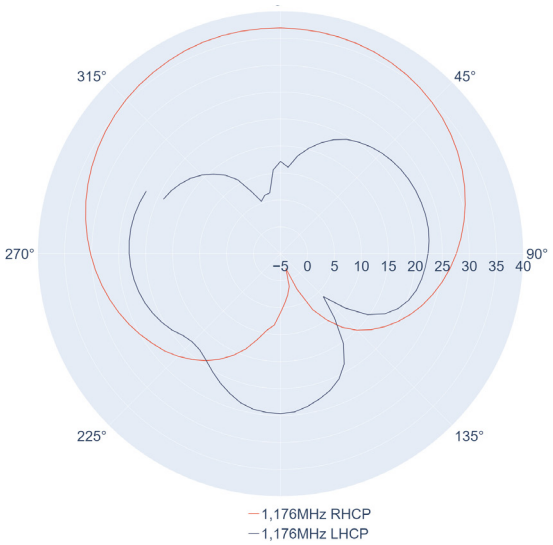
Mechanical Specifications

	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.





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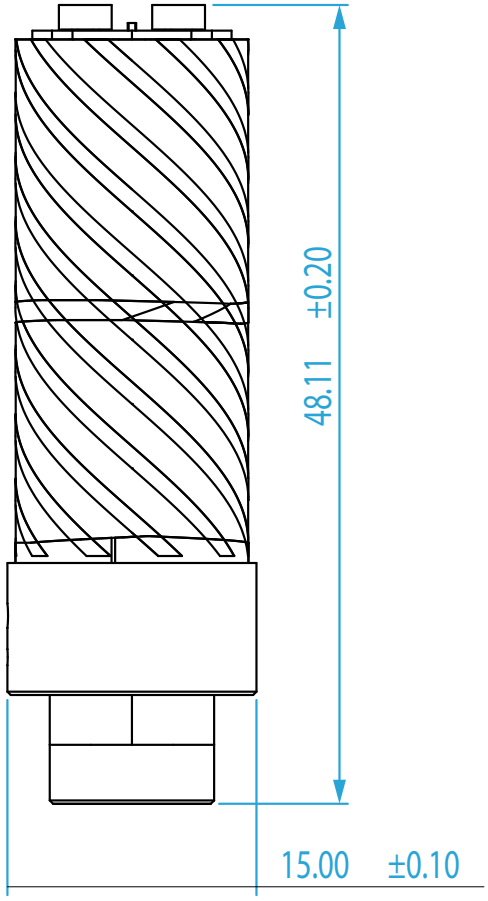
Part number	Antenna	Connector	Dimensions mm	Weight g
GL6-00A4S0-0 	Active	SMA Male	L 48 x ø 15	32

GL6-00A4S0-0 dimensions



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