ethertronics

PRODUCT Data Sheet: EtherHelix™ GPS

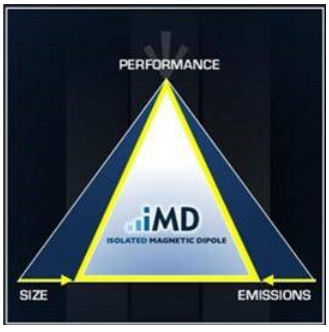
Part No. 1002857

EtherHelix
Mission Critical GPS Antenna
1.575 GHz RHCP

EtherHelix™ series of Isolated Magnetic Dipole™ (IMD) GPS antennas deliver on the key needs of device designers for higher functionality and performance. EtherHelix are the world's smallest, stand-alone, circular polarized, external /internal GPS antennas. These innovative antennas provide compelling advantages for GPS enabled cell phones, navigation equipment, and other mobile devices.

TECHNOLOGY ADVANTAGES

Real-World Performance and Implementation
Antennas may look alike on the outside, but the important difference is inside. Other antennas may contain simple PiFA or monopole patch designs that interact with their surroundings, complicating component layout or changing performance with use position. Ethertronics' antennas utilize patented IMD technology to deliver a unique size and performance combination.



Stays in Tune
High RF isolation means IMD antennas resist detuning regardless of usage position. And one standardized part can typically be placed in a variety of locations.

Smallest Effective Size
IMD antennas require a smaller keep-out area for surrounding components, leading to a smaller effective size.

High Performance
IMD's high efficiency and simple design rules lower development risk and speed time-to-market without sacrificing performance. Plus, high RF selectivity eliminates the cost and space for band-pass circuitry.

KEY BENEFITS

DESIGN ADVANTAGES

Best in Class Performance—Smallest Occupied Volume
- Reduced size and weight results in simpler integration.
- High selectivity minimizes the need for additional filters.
- IP68 —UV stabilized.

High Tolerance to Frequency Shifts
- IMD's high RF isolation resists antenna de-tuning that can otherwise impair reception.

Quicker Time-to-Market
- Fewer design changes.
- Simpler implementation—no matching networks.

RoHS Compliant
- Antennas comply with appropriate RoHS Directives.

END USER ADVANTAGES

Superior Range
- Lower axial ratio results in improved signal reception, providing a better end user experience.

Exceptional Coverage
- Better coverage results in improved performance while inside buildings, cars or other areas where signal reflection occurs.

Faster Acquisition Times
- Users experience faster signal acquisition for GPS readings.

SERVICE AND SUPPORT

Extensive RF Experience
- EtherHelix antennas are supported by our experienced RF engineers who have integrated hundreds of antenna designs into wireless devices.

Global Operations & Design Support
- Ethertronics' global operations encompass an integrated network of design centers that provide local customer support.

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PRODUCT: Mission Critical GPS Antenna— P/N 1002857

Ethertronics' EtherHelix GPS Antenna Specifications

Ethertronics produces a wide variety of standard and custom antennas to meet user needs. Below are the typical specs for a high performance GPS application.

Electrical Specifications

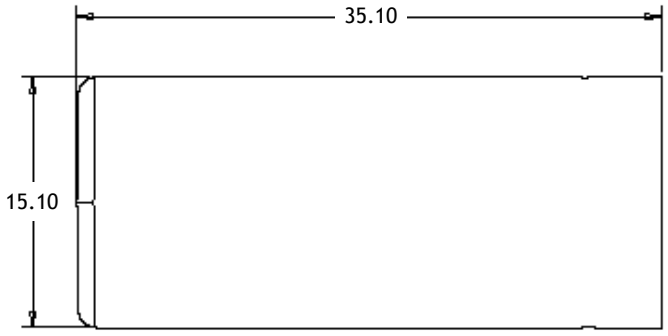
Typical Characteristics

GPS Antenna	1.575 GHz
Polarization	Right Hand CP (RHCP)
Peak Gain	-3 dB [-5 dB at Zenith]
Beam-width	120 degrees (Axial Ratio < 3dB)
Efficiency	27%
Axial Ratio	< 1.5 dB at zenith
VSWR Match	2.0:1 max
Feed Point Impedance	50 ohms unbalanced
Power Handling	2.0 Watt CW

Mechanical Specifications

Size	35.10+/- 0.30 mm height, 15.10+/- 0.30 mm diameter
Connector	SMA Male
Mechanical Rating	IP68 UV Protected
Weight	11.8 g
Packaging	Trays; 60 per tray - 300 per master carton

Main Dimensions (mm)



Mechanical Features

Working Temp	-40C to +85C
Working Altitude	>15K feet
Humidity	95% RH at 130°F

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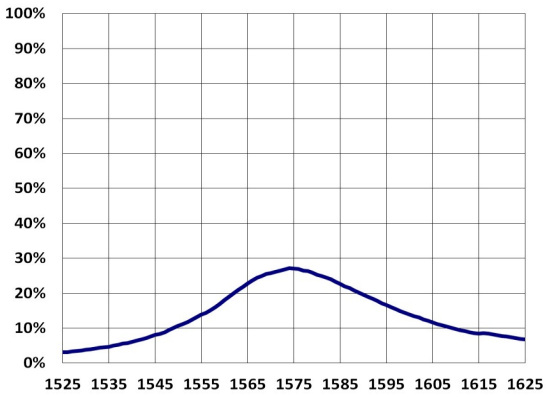
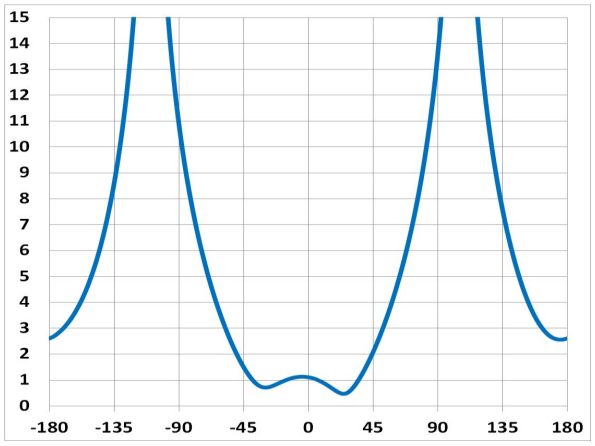
Typical Efficiency, Axial and RHCP Plots

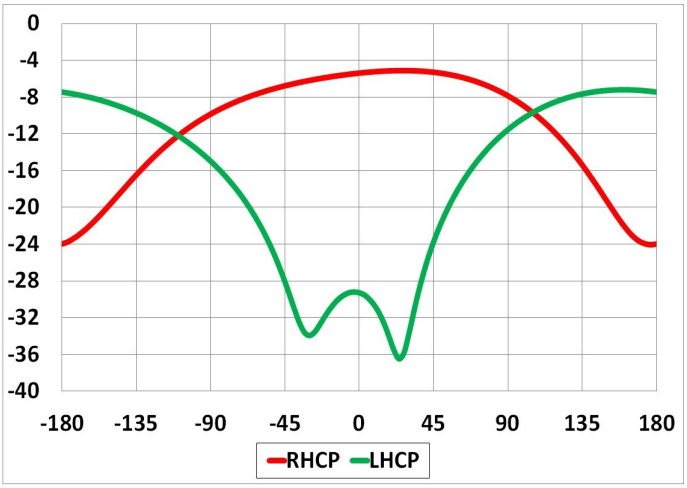
Efficiency Plot



Axial Ratio Plot

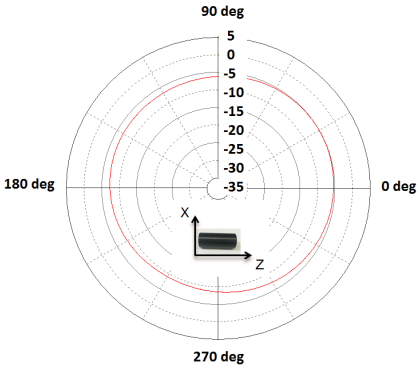


RHCP LHCP Plot

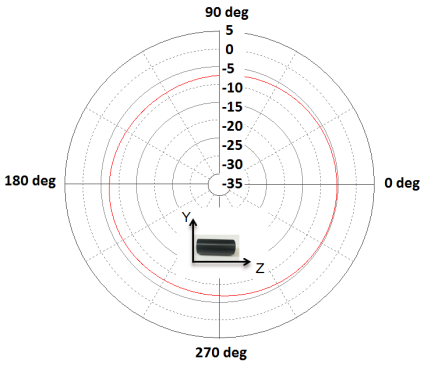


Antenna Radiation Patterns @1.575 GHz

Phi = 0° Plane



Phi = 90° Plane



Theta = 90° Plane