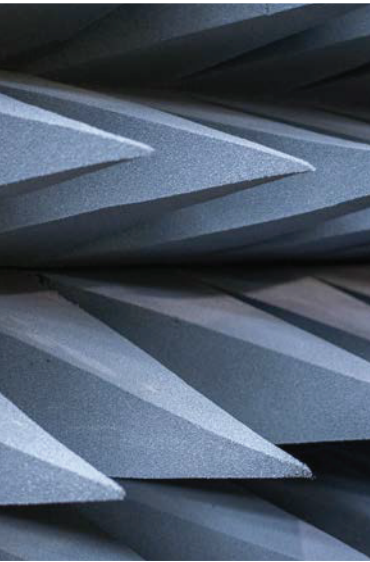




2017

PRODUCT/SERVICE CATALOG



ANTENNA SOLUTIONS

1-877-629-8362 www.maxtena.com

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1

KEY FACTS



FOUNDATION

Founded in 2007, United States

HEADQUARTERS

Rockville, MD

MARKET SERVED

Consumer, Industrial, Military

MANUFACTURING HUBS

Atlanta, Shanghai, Taipei

WORLDWIDE DISTRIBUTORS

10+

1

ABOUT MAXTENA



Maxtena is a global company engaged in designing, manufacturing and marketing a comprehensive range of embedded, external and custom antenna solutions for Global Navigation Satellite Systems (GNSS), Machine-to-Machine (M2M), and Mobile Satellite Service (MSS) applications.

Maxtena provides antenna products and consulting services to businesses, the United States and foreign governments, and non-governmental organizations around the world.

Our antenna products are ideally suited for portable wireless applications including satellite phones, military radio, hand-held navigation, GPS tracking and laptop computers.

Our consulting services include feasibility studies, comprehensive antenna testing and prototyping.

We use proprietary and patented technologies to design extremely lightweight and high performance helix, microstrip and custom antenna solutions for a variety of communications systems.

With our industry leading antenna-engineering staff, we can provide expert assistance in any antenna integration. We are uniquely positioned to enable OEMs with a quality custom antenna solution that is both quick and cost-effective.

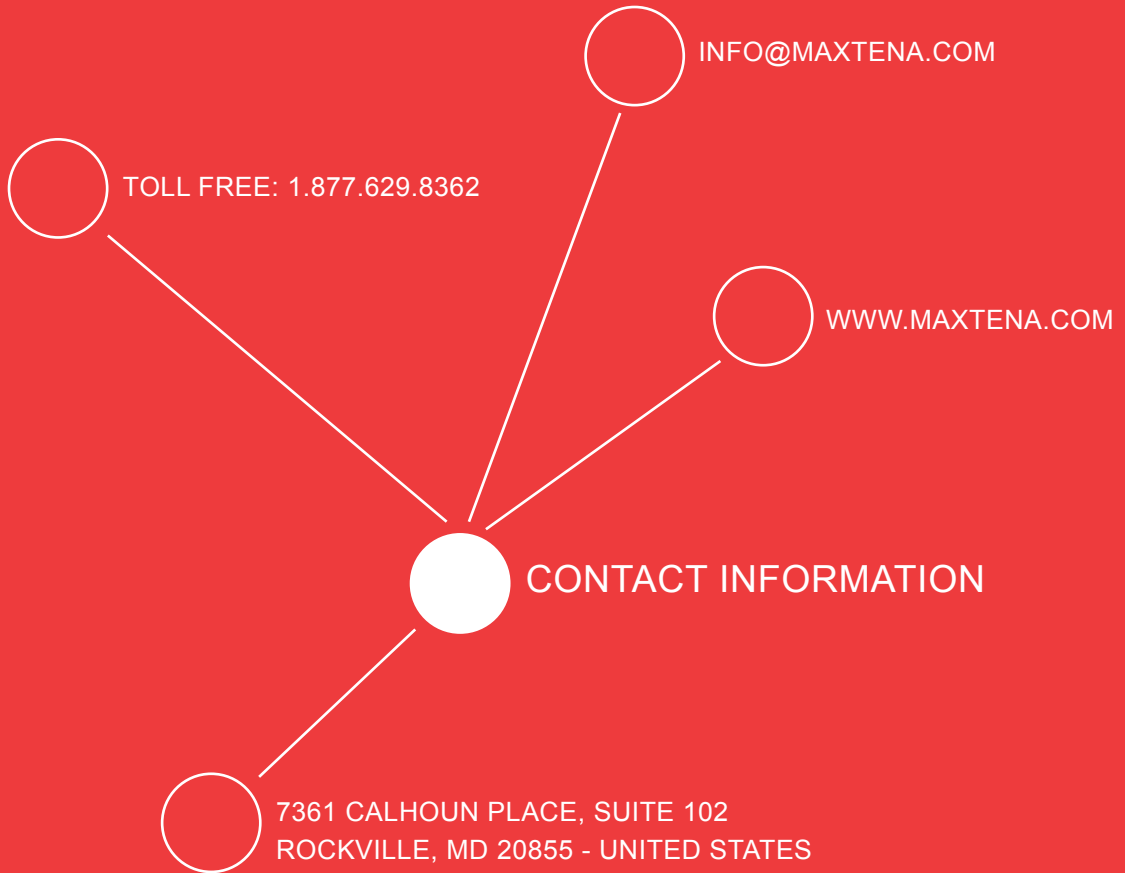
MAXTENA

Suite 102



2

CONTACT



3

MARKETS



CONSUMER

Mobile phones, cameras, tablets, laptops and recreational devices are some of the many products you can find that are using our small antenna solutions. Our compact antennas provide OEMs with fewer mechanical constraints to compensate for when designing cutting-edge equipment.

INDUSTRIAL

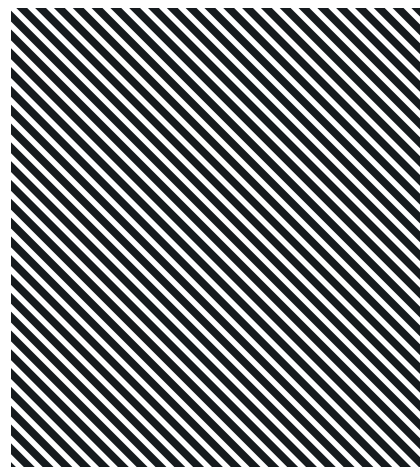
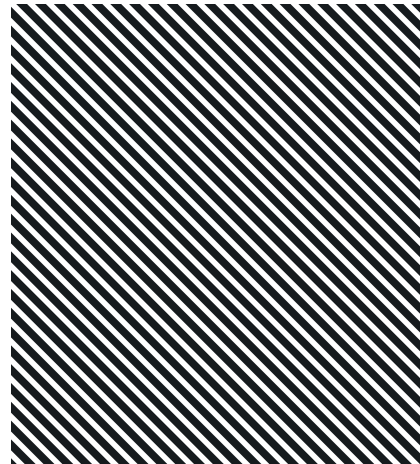
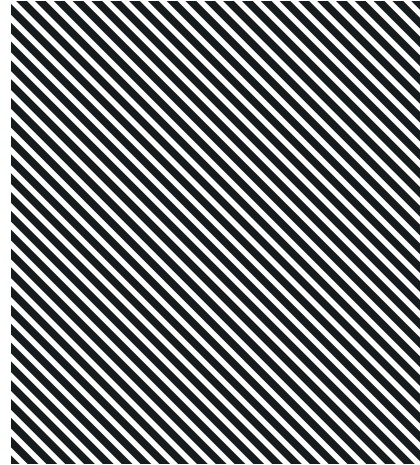
Our antennas are designed for reliable performance in high precision, heavy-duty GNSS tracking applications and M2M communications. They support a diverse range of applications such as precision agriculture, seismic recording systems, fleet management, asset tracking, mobile computing devices and mining equipment.

MILITARY

Our ruggedized antennas can be integrated externally or internally with Military/ Defense applications including vehicle-tracking equipment, UAVs, soldier worn communication gear and satellite phones and radios. They can support forces on the ground, in the air, or on the sea.



Our mission is to design and manufacture cutting-edge antenna solutions for the connected world. We'll support off-the-shelf orders as well as fully customized integrations.



4

ANTENNA SERVICES



1. FEASIBILITY STUDIES

The design of new products relies on the extensive use of accurate computer simulation models. Our engineering staff has a unique knowledge in electromagnetic simulation and numerical modeling gained through years of experience working on embedded antenna designs and general RF problems in both industry and academia.

Every aspect of the electrical design is considered by our proprietary simulation models – from the geometry and material characteristics of the antenna enclosures to the effects of parasitic reactance on printed circuit board traces. We also consider the statistical variation of component tolerances in actual production.

WHAT TO EXPECT

- Development of simplified 3-D simulation models
- Investigation into design trade-offs
- Antenna optimization based off customer provided bounds
- Estimation of user proximity effects on antenna performance
- Preliminary assessment of compliance with respect to performance requirements

2. CHAMBER TESTING

Maxtena has in-house the latest in antenna and RF measurement capabilities. We use the SATIMO Starlab Anechoic Chamber to measure radiative characteristics of the antenna for both passive and active systems. We are also equipped to provide you with TRP and TIS measurements.

WHAT TO EXPECT

- Multiple antenna correlation and efficiency
- 3-D complex antenna pattern
- Antenna input response
- TRP/TIS measurements

3. PROTOTYPING

By leveraging the most advanced electromagnetic simulation software available, we can accurately predict the performance of new designs before any hardware is built. Prototyping is then used to verify the correlation between the design and final product. Our in-house measurement capabilities allow for quick turn prototype validation. In addition to antenna design, we provide antenna integration support for clients that require a high level of device integration.

WHAT TO EXPECT

- Import devices full 3-D mechanical database
- Development of fully featured simulation models
- Determination of the optimal grounding map
- PCB RF layout optimization
- Complete assessment of compliance and requirements
- Result verification through initial prototyping



5

PRODUCT OVERVIEW



HELIX ANTENNAS

We offer a unique set of helix antennas for satellite communications. Our helical antennas operate across several satellite networks including GPS, Iridium and GLONASS. We also offer several antennas that work across multiple networks.

The antennas are available in different sizes and form factors. We produce both external antennas that come in a range of rugged housings, as well as embedded antennas.

Our embedded antennas are custom built to fit perfectly in your device's own housing. We have developed countless first-to-market helix innovations and our antennas are currently being used in multiple major Satellite Phones, Tracking and Navigation Devices and Military Communications Equipment.

COMBO ANTENNAS

SATFleet
Built by Maxtena and powered by Maxtena's advanced antenna technology. The SATFleet combines two high performance antennas covering Iridium and GPS. It provides superior voice and data capabilities. Our fleet/telematics solution provides high, reliable performance in a rugged, low profile form factor.

MICROSTRIP ANTENNAS

We offer a large portfolio of both active and passive microstrip antennas. The antennas are available in several different sizes depending on customer requirements. The active antennas can be customized with different cable lengths and connectors upon request.

All of our microstrip antennas offer high performance with a very low profile. The antennas are ideal for GPS handhelds, PDAs and tracking devices. The compact size and lightweight features of the microstrip antennas make them perfect for various commercial and industrial applications.

We also have microstrip antenna tuning kits available for our customers. The tuning kits enable the user to find the exact antenna frequency to compensate for downward shifts caused by the devices housing construction and electronic components.



6

HELIX, COMBO SOLUTIONS



GPS L1 L2, GLONASS, Iridium

We offer the most advanced and innovative antenna solutions for a variety of MSS, M2M, LTE and GNSS applications.

Our Helicore antennas are the best performing and lightest helix solutions available. The patented Helicore technology offers both a weight advantage and performance advantage for the most demanding applications and environments.

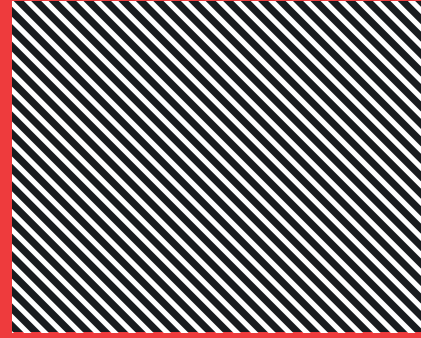
The antennas can be used for the GPS, GLONASS, LTE and Iridium networks and can either be embedded or used externally with a device.

Our helix antennas can get a signal in many more orientations compared to a block

ceramic antenna. If the orientation of the GPS unit is not always toward the sky then one of our helix antennas will be the ideal choice as an antenna ground plane is not required.



GPS



M1575HCT-22P-SMA

HIGH PERFORMANCE PASSIVE GPS ANTENNA

Ordering Part #: 100-00043-01

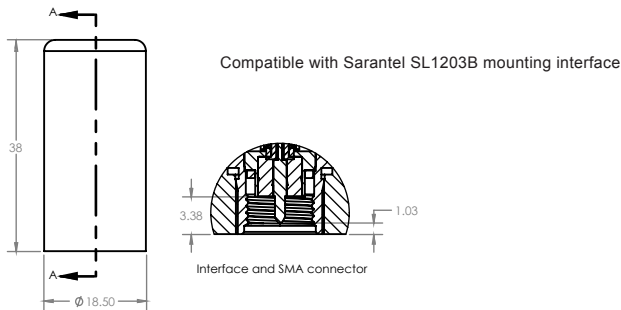


Description

The M1575HCT-22P-SMA is a rugged high performance passive antenna designed for the GPS L1 band, and built on Maxtena proprietary Helicore technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The M1575HCT-22P-SMA is a screw-on design, featuring an integrated SMA connector. The ultra light design is rated IP-67 when both mounted and unmounted for added protection. This product is designed for applications requiring high quality reception of GPS signals.

Mechanical Specifications

dimensions are in mm



Features

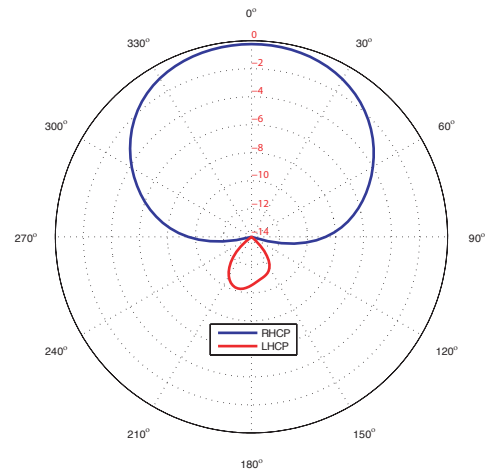
- GPS band
- Very low axial ratio
- IP-67/68 mounted and unmounted
- Ultra light weight - 10 grams
- Ground plane independent

Applications

- Vehicle and fleet tracking
- Military & security
- Asset tracking
- Seismic recording instruments
- Oil & gas industries
- Navigation devices
- Mining equipment
- LBS & M2M applications
- Handheld devices

Realized gain plot

Measured at 1575 MHz



Electrical Specifications

Parameter	Design Specifications
Frequency	1575 MHz
Polarization	RHCP
Antenna element peak gain	-0.5 dBi (typical)
Efficiency	25% (typical)
Bandwidth (-1dB)	20 MHz
Axial Ratio	1 dB (typical) / 1.5 dB (max)
VSWR	1.5 (max)
Impedance	50 Ohm
Operating temp.	from -40°C to 85°C
RF connector	SMA
Overall dimensions	38 mm (height) x 18.50 mm (diameter)
Weight	10 grams (typical)

M1575HCT-22P-MR

HIGH PERFORMANCE PASSIVE GPS ANTENNA

Ordering Part #: 100-00042-01

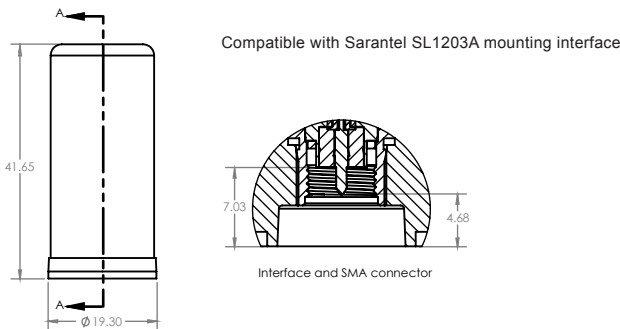


Description

The M1575HCT-22P-MR is a rugged high performance passive antenna designed for the GPS L1 band, and built on Maxtena proprietary Helicore technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The M1575HCT-22P-MR is a screw-on design, featuring an integrated SMA connector. The ultra light design is rated IP-67 when both mounted and unmounted for added protection. This product is designed for applications requiring high quality reception of GPS signals.

Mechanical Specifications

dimensions are in mm



Electrical Specifications

Parameter	Design Specifications
Frequency	1575 MHz
Polarization	RHCP
Antenna element peak gain	-0.5 dBic (typical)
Efficiency	25% (typical)
Bandwidth (-1dB)	20 MHz
Axial Ratio	1 dB (typical) / 1.5 dB (max)
VSWR	1.5 (max)
Impedance	50 Ohm
Operating temp.	from -40°C to 85°C
RF connector	SMA
Overall dimensions	41.65 mm (height) x 19.30 mm (diameter)
Weight	10 grams (typical)

Features

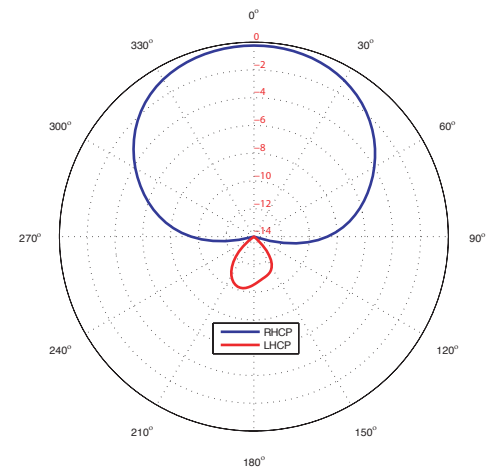
- GPS band
- Very low axial ratio
- IP-67/68 mounted and unmounted
- Ultra light weight - 10 grams
- Ground plane independent

Applications

- Vehicle and fleet tracking
- Military & security
- Asset tracking
- Seismic recording instruments
- Oil & gas industries
- Navigation devices
- Mining equipment
- LBS & M2M applications
- Handheld devices

Realized gain plot

Measured at 1575 MHz



M1575HCT-A-SMA

HIGH PERFORMANCE ACTIVE GPS ANTENNA

Ordering Part #: 100-00028-02

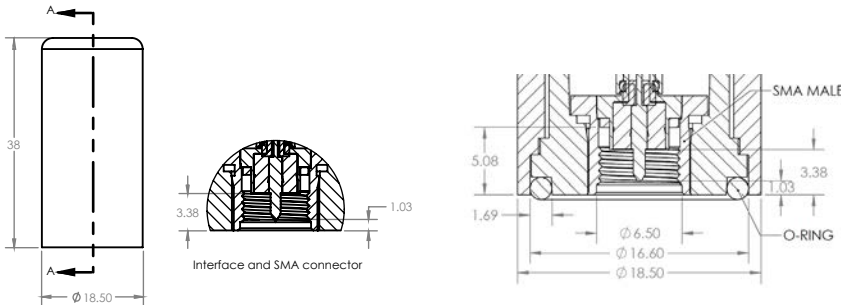


Description

The M1575HCT-A-SMA is a high performance dual stage LNA active antenna designed for the GPS L1 band, and built on Maxtena proprietary Helicore® technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The M1575HCT-A-SMA is a screw-on design, featuring an integrated SMA connector. The ultra light design is rated IP-67/68 when mounted and unmounted for added protection and includes an o-ring. This product is ideal for applications requiring high quality reception of GPS signals.

Mechanical Specifications

dimensions are in mm



Electrical Specifications

Parameter	Design Specifications
Frequency	1575 MHz
Polarization	RHCP
Total active gain	28 dBic (typical) @ 3.3 V
Passive gain	-2.5 dBic (typical)
Beamwidth	140° (both axes)
Axial Ratio	1 dB (max) @ zenith
Input P1dB	-31 dBm
Noise figure	0.8 dB (typical) LNA chain only
Supply voltage	1.5 - 3.7 V
DC current	30 mA (typical) @ 3.3 V
Filtering	>30 dB rejection @ 1575 +/- 100 MHz
Operating temp	from -40°C to 85°C
RF connector	SMA
Overall dimensions	38 mm (height) x 18.50 mm (diameter)
Weight	10 grams (typical)

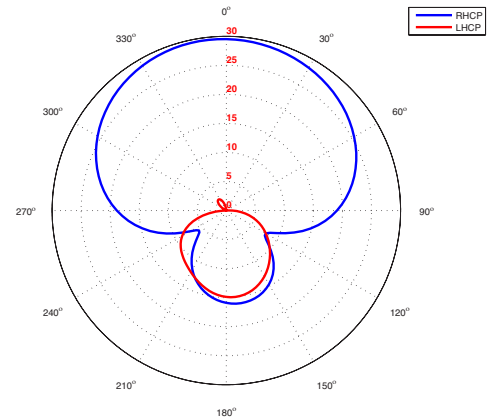
Features

- GPS band
- IP-67/68 mounted and unmounted
- Ultra light weight - 10 grams
- Ground plane independent

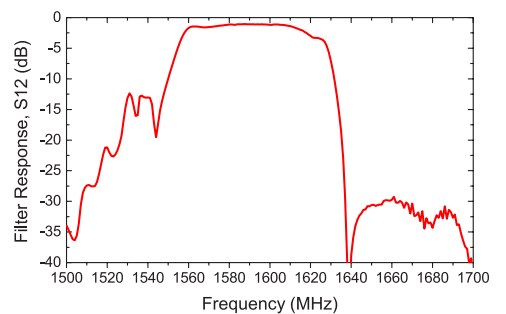
Applications

- Vehicle and fleet tracking
- Military & security
- Asset tracking
- Seismic recording instruments
- Oil & gas industries
- Navigation devices
- Mining equipment
- LBS & M2M applications
- Handheld devices

Typical Radiation Pattern (@ 3.3 V)



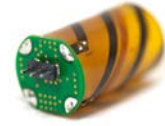
Filter Response



M1575HCT-22-P

HIGH PERFORMANCE PASSIVE GPS ANTENNA

Ordering Part #: TBD (Custom)

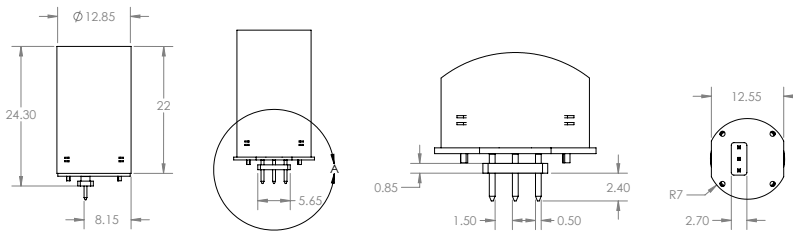


Description

The M1575HCT-22-P is a high performance passive antenna designed for the GPS L1 band, and built on proprietary Helicore technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The M1575HCT-22-P is designed for embedded applications and features an integrated 3-pin connector. The ultra light design weighs only 2 grams making this antenna ideal for the most demanding, mechanically constrained platforms. This product is designed for applications requiring high quality reception of GPS signals.

Mechanical Specifications

dimensions are in mm



Features

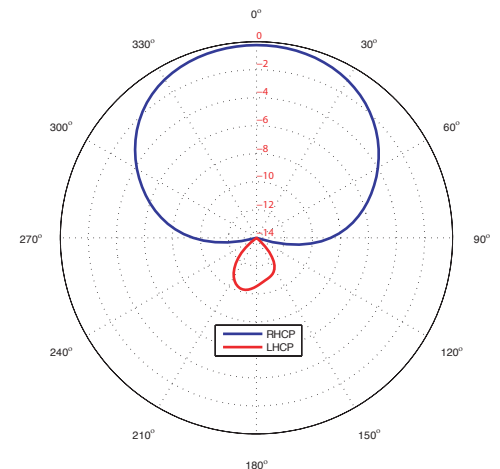
- GPS band
- Very low axial ratio
- Easy integrate 3 pin connector
- Ultra light weight - 2 grams
- Ground plane independent

Applications

- Vehicle and fleet tracking
- Military & security
- Asset tracking
- Seismic recording instruments
- Oil & gas industries
- Navigation devices
- Mining equipment
- LBS & M2M applications
- Handheld devices

Realized gain plot

Measured at 1575 MHz



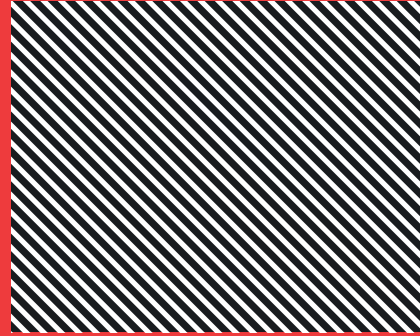
Electrical Specifications*

Parameter	Design Specifications
Frequency	1575 MHz
Polarization	RHCP
Antenna element peak gain	-0.5 dBic (typical)
Efficiency	25% (typical)
Bandwidth (-1dB)	20 MHz
Axial Ratio	1 dB (typical) / 1.5 dB (max)
VSWR	1.5 (max)
Impedance	50 Ohm
Operating temp.	from -40°C to 85°C
RF connector	3 pin, U.F.L., SMA
Overall dimensions	See mechanical drawing above
Weight	2 grams (typical)

* Declared peak gain and reported radiation pattern are intended for a rotationally symmetrical plastic radome.



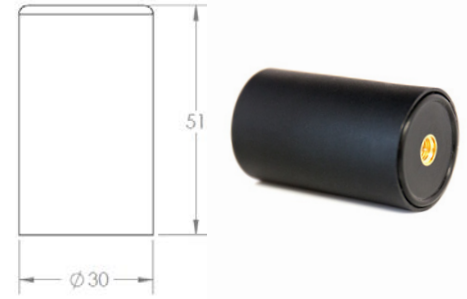
GPS/ GLONASS



M1227HCT-A2-SMA

L1/L2 GPS GLONASS ACTIVE ANTENNA

Ordering Part #: 100-00004-02



Mechanical Specifications
dimensions are in mm

Description

The M1227HCT-A2-SMA is Maxtena's latest high performance Active rugged antenna designed for L1/L2 GPS and GLONASS bands. The antenna is designed for applications requiring greater accuracy than what L1 only antennas can provide. The antenna is built on proprietary Maxtena Helicore® technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. It is a screw-on design, featuring an integrated SMA connector. This antenna has superior filtering performance and is rated for 50 V/m out of band interference. The product is ideal for applications requiring minimal integration effort or for retrofitting existing products. The antenna is equipped with an O-ring and its rugged assembly is rated IP-67/68.

Electrical Specifications

Parameter	Design Specifications
Frequency	1217-1250 MHz (L2) 1565-1610 MHz (L1)
Polarization	RHCP
Passive peak gain	2 dBic @ 1227 MHz (typical) 2 dBic @ 1575 MHz (typical)
Total gain	30 dBic @ 1227 MHz (typical) 28 dBic @ 1575 MHz (typical) 28 dBic @ 1602 MHz (typical)
Out-of-band rejection	>50 dB
Current drain	25 mA (typical)
Voltage	3-12 V
Noise figure	1.5 dB (typical)
RF interference rating	50 V/m out of band
Operating temp.	from -40° C to 85° C
Weight	24 grams (typical)

Features

- L1/L2 GPS-GLONASS bands
- Superior out-of-band rejection
- 50 V/m jamming resistant
- Very low noise figure
- SMA mount
- Ground plane independent
- GIS & RTK applications
- Ultra light weight - 24 grams (typical)

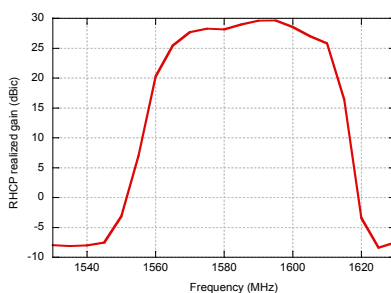
Applications

- Precision navigation
- Precision timing
- Military & security
- Asset tracking
- Oil & gas industries
- Navigation devices
- Mining equipment
- LBS & M2M applications
- Handheld devices
- Law enforcement

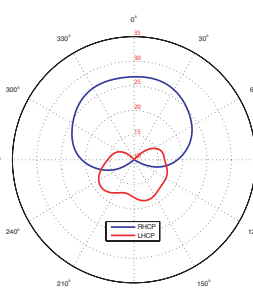
L1 Band Typical Performance

Parameter	Design Specifications
Total peak gain	28 dBic
Axial Ratio	0.5 dB (typical) / 1 dB (max)
VSWR	<1.5

L1 Band Frequency Response



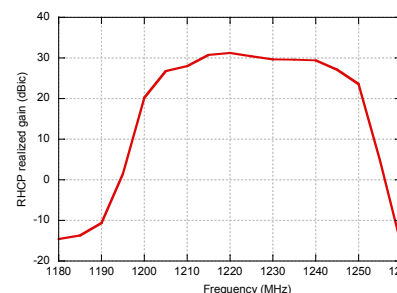
L1 Gain (dBic)



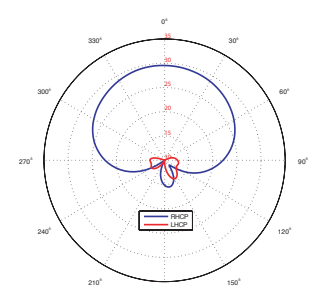
L2 Band Typical Performance

Parameter	Design Specifications
Total peak gain	30 dBic
Axial Ratio	0.5 dB (typical) / 1 dB (max)
VSWR	<1.5

L2 Band Frequency Response



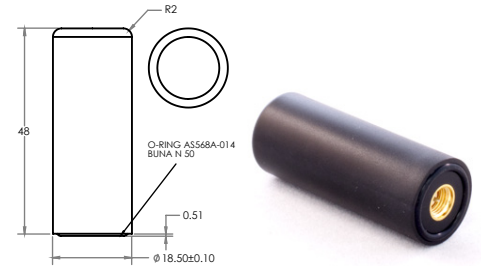
L2 Gain (dBic)



M1516HCT-P-SMA

L1 GPS GLONASS PASSIVE ANTENNA

Ordering Part #: 100-00002-02



Mechanical Specifications

dimensions are in mm

Description

The M1516HCT-P-SMA is a dual band, high performance antenna designed for both GPS and GLONASS, and built on Maxtena proprietary Helicore technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The M1516HCT-P-SMA is a screw-on design, featuring an integrated SMA connector. The ultra light design is rated IP-67 when mounted for added protection. This product is ideal for applications requiring high quality reception of both GPS and GLONASS signals.

Electrical Specifications

Parameter	Design Specifications
Frequency	1575 MHz (GPS) 1602 MHz (GLONASS)
Polarization	RHCP
Antenna element peak gain	1.5 dBic (GPS) 1.5 dBic (GLONASS)
Axial Ratio	0.5 dB (typical) / 1 dB (max)
VSWR	1.5 (max)
Impedance	50 Ohm
Operating temp.	from -40° C to 85° C
RF connector	SMA
Overall dimensions	48 mm (height) x 18.5 mm (diameter)
Weight	11 grams (typical)

Features

- Very low axial ratio
- IP-67/68 mounted
- Ultra light weight - 11 grams
- Ground plane independent

Applications

- Vehicle and fleet tracking
- Military & security
- Asset tracking
- Oil & gas industries
- Navigation devices
- Mining equipment
- LBS & M2M applications
- Handheld devices
- Law enforcement

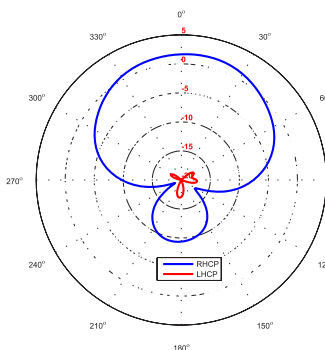
GPS Band Typical Performance

Parameter	Design Specifications
Antenna element peak gain	1.5 dBic (typical)
Efficiency	40% (typical)
Axial Ratio (@ Zenith)	0.5 dB (max)

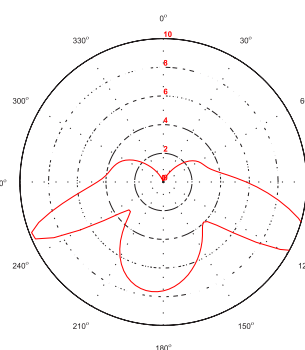
GLONASS Band Typical Performance

Parameter	Design Specifications
Antenna element peak gain	1.5 dBic (typical)
Efficiency	40% (typical)
Axial Ratio (@ Zenith)	0.5 dB (max)

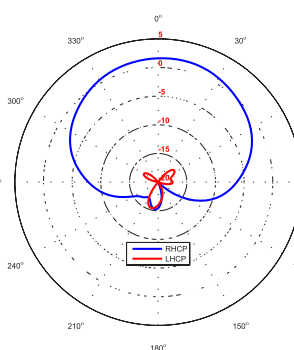
GPS RHCP Gain



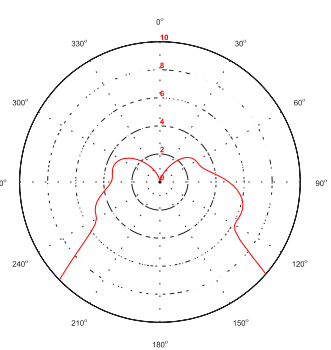
GPS Axial Ratio



GLONASS RHCP Gain



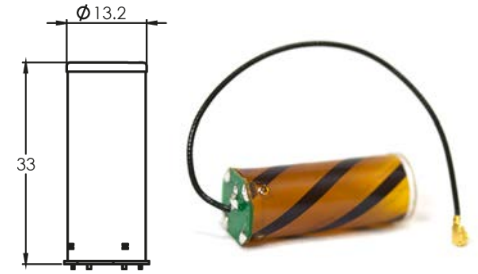
GLONASS Axial Ratio



M1516HCT-P-UFL

L1 GPS GLONASS PASSIVE ANTENNA

Ordering Part #: TBD (custom)



Mechanical Specifications
dimensions are in mm

Description

The M1516HCT-P-UFL is a dual band, high performance antenna designed for both GPS and GLONASS, and built on Maxtena proprietary Helicore technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The M1516HCT-P-UFL comes with an integrated coaxial cable with UFL connector. Cable length and connector can be customized upon request. This antenna requires the sale of service ahead of the sale of antennas, such as feasibility studies, prototyping, and chamber measurement. The antenna is mounted on the inside of the applications housing, allowing it to be hidden. The antenna element is custom tuned to the applications enclosure.

Electrical Specifications*

Parameter	Design Specifications
Frequency	1575 MHz (GPS) 1602 MHz (GLONASS)
Polarization	RHCP
Antenna element peak gain	1.5 dBic (GPS) 1.5 dBic (GLONASS)
Axial Ratio	0.5 dB (typical) / 1 dB (max)
VSWR	1.5 (max)
Impedance	50 Ohm
Operating temp.	from -40°C to 85°C
Overall dimensions	33 mm (height) x 13.2 mm (diameter)
Weight	3 grams (typical)

* Declared peak gain and reported radiation pattern are intended for a rotationally symmetrical plastic radome.

Features

- Very low axial ratio
- Ultra light weight - 3 grams
- Ground plane independent
- GPS/GLONASS bands

Applications

- Vehicle and fleet tracking
- Military & security
- Asset tracking
- Oil & gas industries
- Navigation devices
- Mining equipment
- LBS & M2M applications
- Handheld devices
- Law enforcement

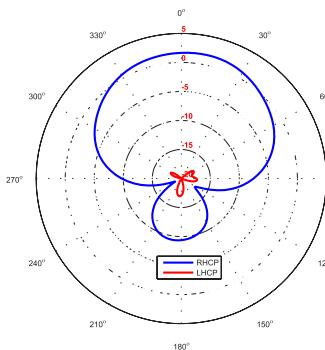
GPS Band Typical Performance

Parameter	Design Specifications
Antenna element peak gain	1.5 dBic (typical)
Efficiency	40% (typical)
Axial Ratio (@ Zenith)	0.5 dB (max)

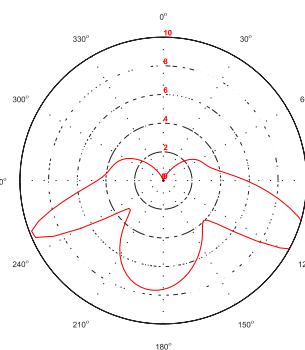
GLONASS Band Typical Performance

Parameter	Design Specifications
Antenna element peak gain	1.5 dBic (typical)
Efficiency	40% (typical)
Axial Ratio (@ Zenith)	0.5 dB (max)

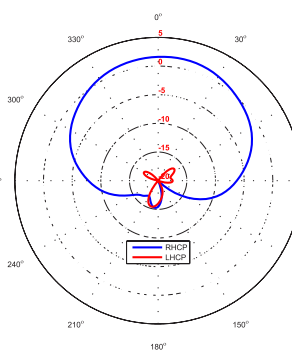
GPS RHCP Gain



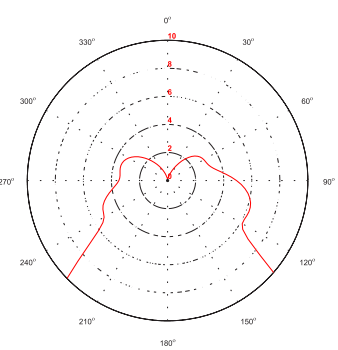
GPS Axial Ratio



GLONASS RHCP Gain



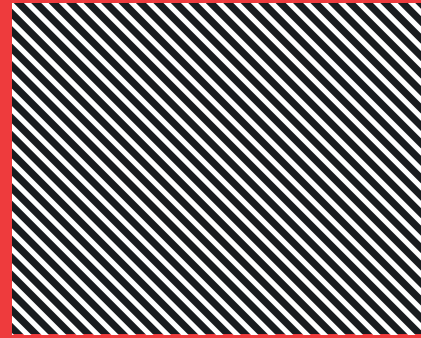
GLONASS Axial Ratio







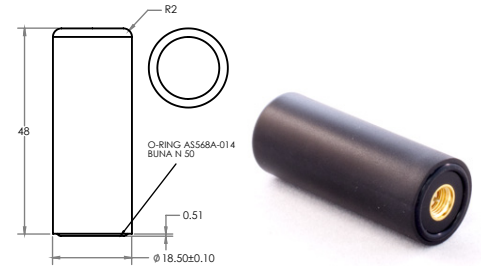
IRIDIUM/ GPS



M1600HCT-P-SMA

IRIDIUM/GPS PASSIVE ANTENNA

Ordering Part #: 100-00050-01



Mechanical Specifications
dimensions are in mm

Description

The M1600HCT-P-SMA is a high performance antenna designed for the Iridium network and GPS band, and built on proprietary Maxtena Helicore technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The M1600HCT-P-SMA is a screw-on design, featuring an integrated SMA connector and is rated IP-67 when mounted for added protection. This product is designed for applications requiring high quality GPS and Iridium satellite reception.

Electrical Specifications

Parameter	Design Specifications
Frequency	1616-1626 MHz (Iridium) 1575 MHz (GPS)
Polarization	RHCP
Antenna element peak gain	2.8 dBic (Iridium) -3 dBic (GPS)
Axial Ratio	0.5 dB (typical) / 1 dB (max)
VSWR	1.5 (max)
Impedance	50 Ohm
Operating temp.	from -40°C to 85°C
RF connector	SMA
Overall dimensions	48 mm (height) x 18.5 mm (diameter)
Weight	11 grams (typical)

Features

- Very low axial ratio
- IP-67/68 mounted
- Ultra light weight - 11 grams
- Ground plane independent

Applications

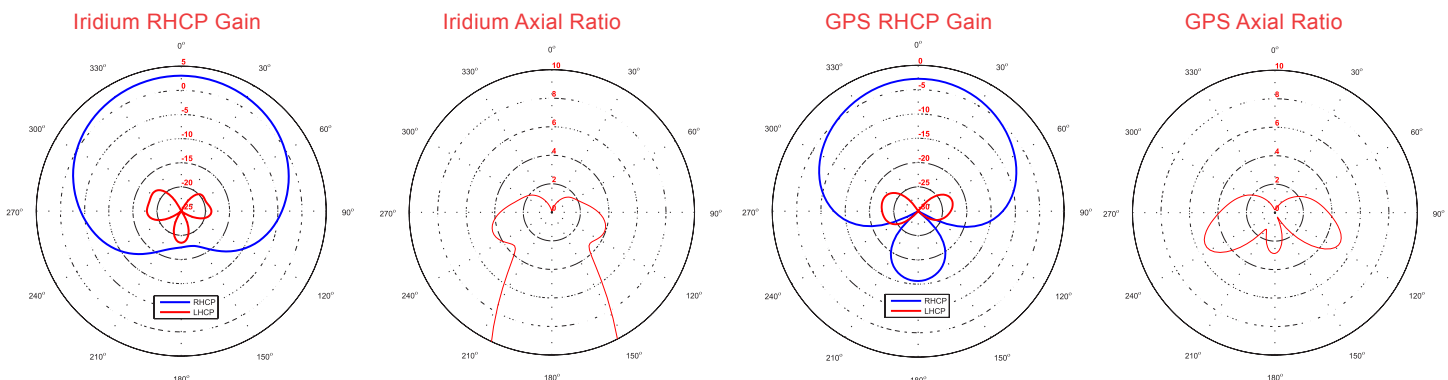
- Vehicle and fleet tracking
- Military & security
- Asset tracking
- Oil & gas industries
- Navigation devices
- Mining equipment
- LBS & M2M applications
- Handheld devices
- Law enforcement

Iridium Network Typical Performance

Parameter	Design Specifications
Antenna element peak gain	2.8 dBic (typical)
Efficiency	60% (typical)
Axial Ratio (@ Zenith)	0.5 dB (max)

GPS Band Typical Performance

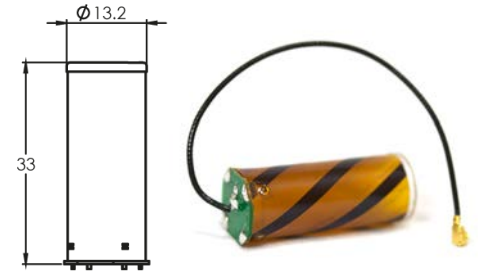
Parameter	Design Specifications
Antenna element peak gain	-3 dBic (typical)
Efficiency	20% (typical)
Axial Ratio (@ Zenith)	0.5 dB (max)



M1600HCT-P-UFL

IRIDIUM/GPS PASSIVE ANTENNA

Ordering Part #: TBD (custom)



Mechanical Specifications
dimensions are in mm

Description

The M1600HCT-P-UFL is a high performance antenna designed for the Iridium network and GPS band, and built on proprietary Maxtena Helicore technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The M1600HCT-P-UFL comes with an integrated coaxial cable with UFL connector. Cable length and connector can be customized upon request. This antenna requires the sale of service ahead of the sale of antennas, such as feasibility studies, prototyping, and chamber measurement. The antenna is mounted on the inside of the applications housing, allowing it to be hidden. The antenna element is custom tuned to the applications enclosure.

Electrical Specifications*

Parameter	Design Specifications
Frequency	1616-1626 MHz (Iridium) 1575 MHz (GPS)
Polarization	RHCP
Antenna element peak gain	2.8 dBic (Iridium) -3 dBic (GPS)
Axial Ratio	0.5 dB (typical) / 1 dB (max)
VSWR	1.5 (max)
Impedance	50 Ohm
Operating temp.	from -40°C to 85°C
Overall dimensions	33 mm (height) x 13.2 mm (diameter)
Weight	3 grams (typical)

* Declared peak gain and reported radiation pattern are intended for a rotationally symmetrical plastic radome.

Features

- Very low axial ratio
- Iridium/GPS band
- Ultra light weight - 3 grams
- Ground plane independent

Applications

- Vehicle and fleet tracking
- Military & security
- Asset tracking
- Oil & gas industries
- Navigation devices
- Mining equipment
- LBS & M2M applications
- Handheld devices
- Law enforcement

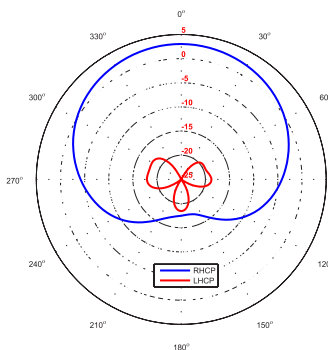
Iridium Network Typical Performance

Parameter	Design Specifications
Antenna element peak gain	2.8 dBic (typical)
Efficiency	60% (typical)
Axial Ratio (@ Zenith)	0.5 dB (max)

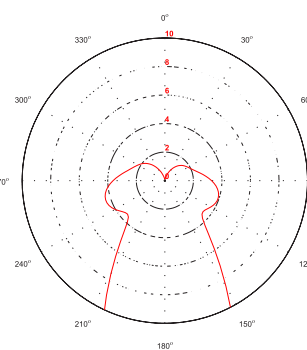
GPS Band Typical Performance

Parameter	Design Specifications
Antenna element peak gain	-3 dBic (typical)
Efficiency	20% (typical)
Axial Ratio (@ Zenith)	0.5 dB (max)

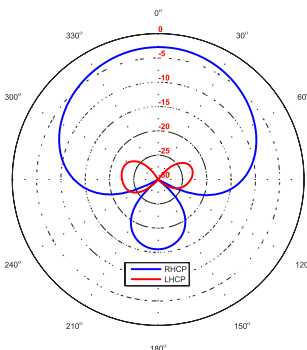
Iridium RHCP Gain



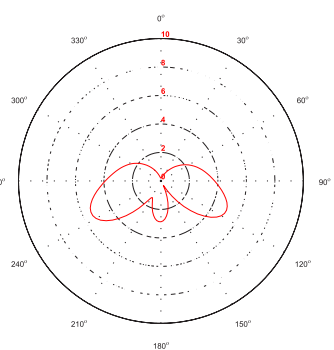
Iridium Axial Ratio



GPS RHCP Gain



GPS Axial Ratio





SATFleet

LOW PROFILE IRIDIUM/GPS FLEET ANTENNA

Ordering Part #: 100-00045-01

Iridium Certified Voice/Data, and GPS

Maxtena's SATFleet Iridium/GPS fleet solution consists of two separate high performance antennas in one compact and secure housing: one helix Iridium enabling Voice and Data and one high gain active GPS antenna.

The SATFleet measures 2.4" (61mm) in width by 4.6" (116mm) in length with a peak height of 2" (50mm). By leveraging techniques in antenna miniaturization perfected in our other products, the SATFleet provides maximum performance in one of the most compact, easy to install form factors.

The Maxtena solution is designed for reliable Iridium network SBD application and provides superior call/voice quality. The low profile SATFleet is a screw mount antenna with a rugged IP-67 rated housing and is ideal for the most demanding environmental challenges. The antenna provides outstanding performance for any telematics and fleet management application.



Applications

Fleet Management/Circuit Switch Data/Asset Tracking/Law Enforcement & Public Safety/Heavy Machinery/Oil & Gas

Features

- Superior Iridium Voice/Data performance
- No Iridium ground plane requirement
- High performance helix Iridium antenna
- Active GPS antenna

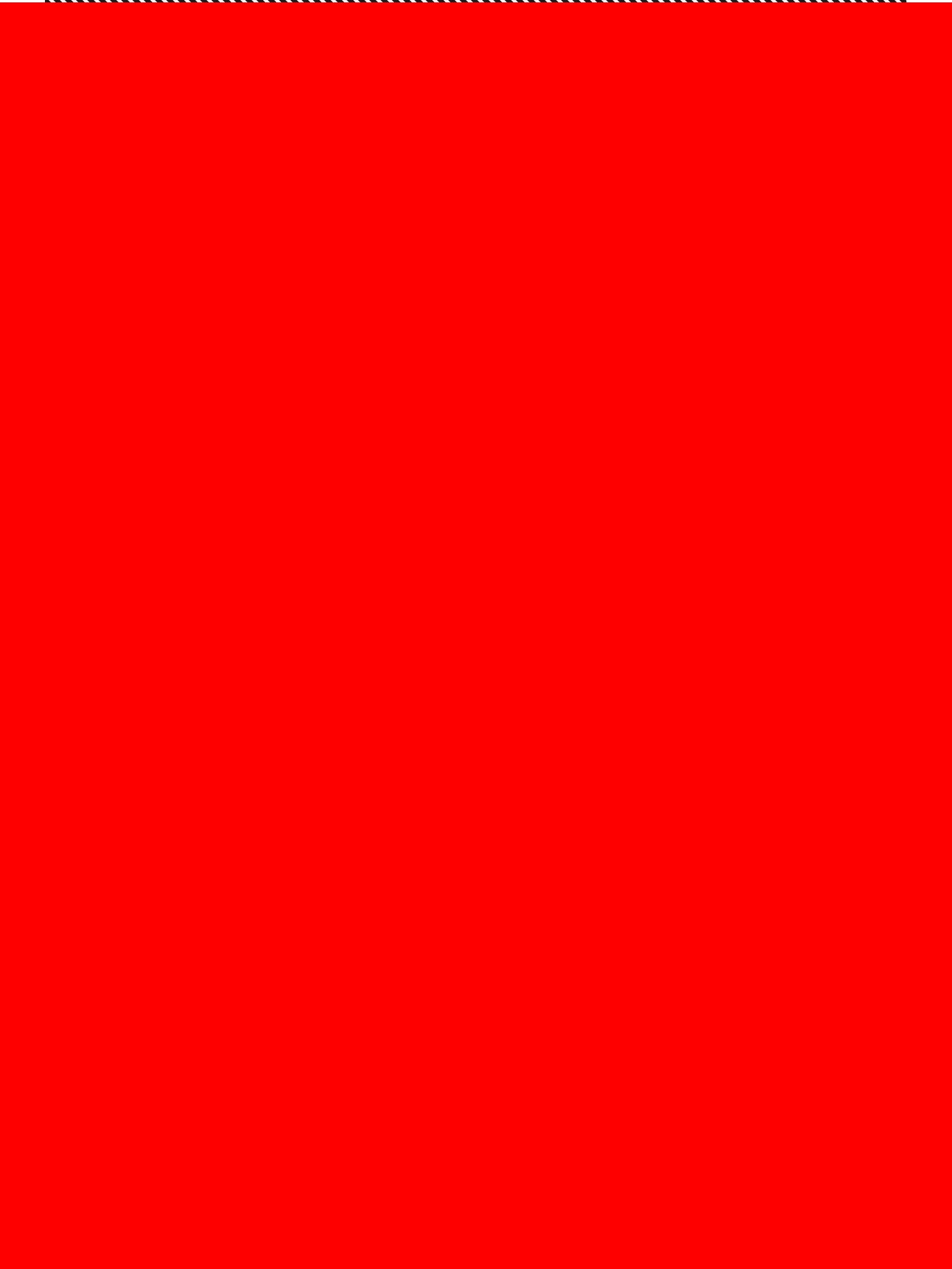
Advantages

- Iridium Certified
- Rugged IP-67 housing
- Low profile with screw mount
- Superb low elevation performance
- Low weight



Waiver:

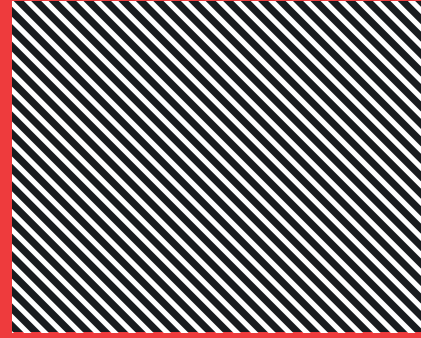
Fact and figures herein are for information only and do not represent any warranty of any kind. Specifications are subject to change without notice (01/2014).







IRIDIUM



M1621HCT-P-SMA

IRIDIUM CERTIFIED PASSIVE ANTENNA

Ordering Part #: 100-00003-02



Description

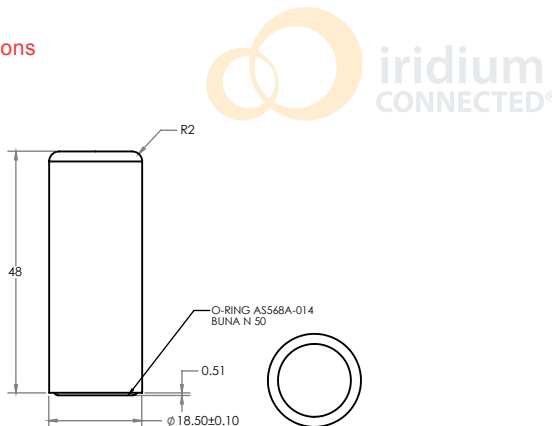
The M1621HCT-P-SMA is a high performance antenna designed for the Iridium network, and built on proprietary Maxtena Helicore technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The M1621HCT-P-SMA is a screw-on design, featuring an integrated SMA connector and is rated IP-67 when mounted for added protection. This product is designed for applications requiring high quality Iridium network reception.

Features

- Optimized for Iridium network
- Very low axial ratio
- IP-67/68 mounted
- Ultra light weight - 11 grams
- Ground plane independent

Mechanical Specifications

dimensions are in mm



Applications

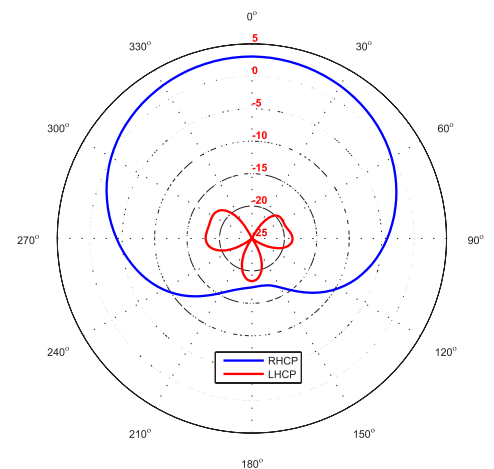
- Vehicle and fleet tracking
- Military & security
- Asset tracking
- Iridium (SBD) Short Burst Data
- Oil & gas industries
- Navigation devices
- Mining equipment
- LBS & M2M applications
- Handheld devices
- Law enforcement

Electrical Specifications

Parameter	Design Specifications
Frequency	1616-1626 MHz
Polarization	RHCP
Antenna element peak gain	2.8 dBic (typical)
Efficiency	60%
Bandwidth (-1dB)	20 MHz
Axial Ratio	0.2 dB (typical) / 0.5 dB (max)
VSWR	1.5 (max)
Impedance	50 Ohm
Operating temp.	from -40°C to 85°C
RF connector	SMA
Overall dimensions	48 mm (height) x 18.50 mm (diameter)
Weight	11 grams (typical)

Realized gain plot

Measured at 1621 MHz



M1621HCT-EXT

IRIDIUM CERTIFIED EXTERNAL MAGNET MOUNT

Ordering Part #: 100-00044-01 (TNC)
 Ordering Part #: 100-00044-02 (SMA)



Description

The M1621HCT-EXT is a high performance antenna designed for the Iridium network, built on proprietary Maxtena Helicore technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The M1621HCT-EXT is an external magnet mount antenna, featuring a 1,500 mm LRM100 coaxial cable with integrated TNC, or SMA connector.

The very small size and light weight make this helix Iridium antenna unique in the market and perfect for various commercial and industrial applications. This antenna is the ideal solution for the most extreme and demanding applications where reliable satellite reception and high accuracy are required. It can be used to boost the performance of the Iridium handsets among other uses.

Mechanical Specifications

dimensions are in mm



Features

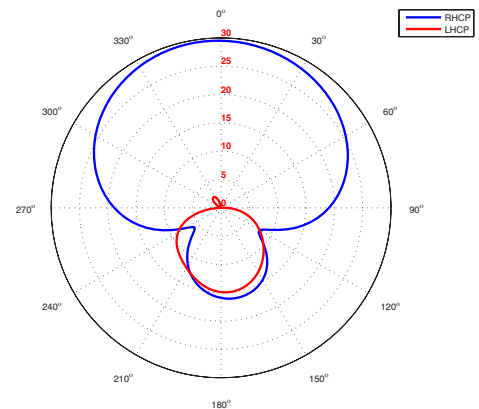
- Optimized for the Iridium network
- Very low axial ratio
- TNC, or SMA connector
- Ground plane independent
- Magnet mount
- Ultra light weight - 52 grams

Applications

- Vehicle and fleet tracking
- Military & security
- Asset tracking
- PDAs and laptops
- Oil & gas industries
- Navigation devices
- Law enforcement
- LBS & M2M applications
- Iridium (SBD) Short Burst Data

Realized gain plot

Measured at 1621 MHz



Electrical Specifications

Parameter	Design Specifications
Frequency	1616-1626 MHz
Polarization	RHCP
Antenna element peak gain	1 dBic (typical)
Efficiency	50%
Bandwidth (-1dB)	30 MHz
Axial Ratio	2 dB (max)
VSWR	1.5 (max)
Impedance	50 Ohm
Operating temp.	from -40° C to 85° C
RF connector	TNC, or SMA
Overall dimensions	52.20 mm (height) x 36 mm (diameter)
Weight	52 grams (typical)

M1621HCT-P-UFL

IRIDIUM CERTIFIED PASSIVE ANTENNA

Ordering Part #: TBD (custom)

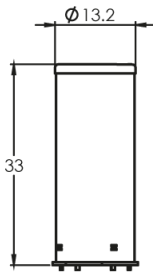


Description

The M1621HCT-P-UFL is a high performance antenna designed for the Iridium network, and built on proprietary Maxtena Helicore technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The M1621HCT-P-UFL comes with an integrated coaxial cable with UFL connector. Cable length and connector can be customized upon request. This antenna requires the sale of service ahead of the sale of antennas, such as feasibility studies, prototyping, and chamber measurement. The antenna is mounted on the inside of the applications housing, allowing it to be hidden. The antenna element is custom tuned to the applications enclosure.

Mechanical Specifications

dimensions are in mm



Features

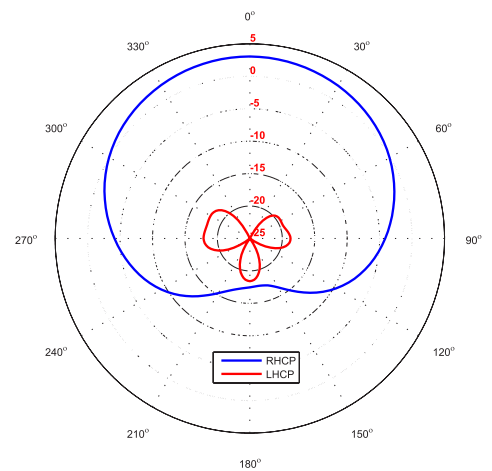
- Optimized for Iridium network
- Very low axial ratio
- Ultra light weight - 3 grams
- Ground plane independent
- Custom cable length and connector

Applications

- Vehicle and fleet tracking
- Military & security
- Asset tracking
- Iridium (SBD) Short Burst Data
- Oil & gas industries
- Navigation devices
- Mining equipment
- LBS & M2M applications
- Handheld devices
- Law enforcement

Realized gain plot

Measured at 1621 MHz



Electrical Specifications*

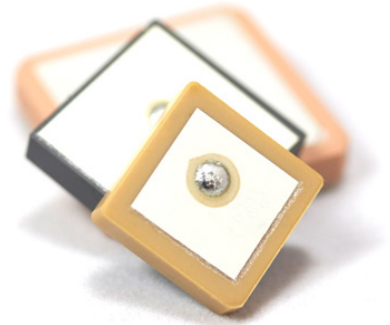
Parameter	Design Specifications
Frequency	1616-1626 MHz
Polarization	RHCP
Antenna element peak gain	2.8 dBic (typical)
Efficiency	60%
Bandwidth (-1dB)	20 MHz
Axial Ratio	0.2 dB (typical) / 0.5 dB (max)
VSWR	1.5 (max)
Impedance	50 Ohm
Operating temp.	from -40°C to 85°C
Overall dimensions	33 mm (height) x 13.2 mm (diameter)
Weight	3 grams (typical)

* Declared peak gain and reported radiation pattern are intended for a rotationally symmetrical plastic radome.



6

MICROSTRIP ANTENNAS



Tuning kits, passive, active, external

Our microstrip antennas offer high performance with a low profile. By integrating our Microstrip Technology we are pioneering the optimization of the microstrip antenna by using proper electromagnetic grounding schemes to optimize the solutions for the highest efficiency and axial ratio purity.

The passive and active embedded antennas can be used with the GPS, Globalstar and Iridium networks and are designed for embedded placement inside a device or application.

The active antennas are available with custom cable lengths and connectors depending on customer requirements. Other customizations are also available upon request.





GPS TUNING KITS

10X10 - 12X12 - 15X15 - 18X18 - 25X25

Microstrip Patch Tuning Kits for GPS

Our Microstrip Antenna Tuning Kit includes 10 sample dielectric ceramic microstrip antennas ranging from 1580MHz to 1598MHz, at 2MHz intervals. The realized gain is 5 dBic. This enables the user to find the exact antenna frequency to compensate for downward shifts caused by the devices housing construction and electronic components.

The Microstrip Antenna Tuning Kit comes in vacuum packed and waterproof robust PU packaging, which makes it easy and secure to ship our antennas worldwide.

Available sizes (mm):



10x10x4

Part No: 189-00018-01



12x12x4

Part No: 189-00019-01



15x15x4

Part No: 189-00020-01



18x18x4

Part No: 189-00021-01



25x25x4

Part No: 189-00022-01



GPS/GLONASS/IRIDIUM PASSIVE

MPA 104 - MPA 124 - MPA 154 - MPA 184 - MPA 254 - MPA 1618 - MPA 1516 -
MPA-D254-1621



Part Name	MPA 104	MPA 124	MPA 154	MPA 184	MPA 254	MPA 1618	MPA 1516	MPA D254 1621
Network	GPS	GPS	GPS	GPS	GPS	Globalstar	GPS/ GLONASS	Iridium
Part No.	189-00008-01	189-00007-01	189-00006-01	189-00005-01	189-00003-01	189-00003-59	189-00030-01	100-00024-02
Dimensions	10x10x4mm	12x12x4mm	15x15x4mm	18x18x4mm	25x25x4mm	25x25x4mm	25x25x4mm	25x25x4mm
Frequency	1575.42 MHz	1575.42 MHz	1575.42 MHz	1575.42 MHz	1575.42 MHz	1618 MHz	1590 MHz	1616-1621 MHz
Polarization	RHCP	RHCP	RHCP	RHCP	RHCP	LHCP	RHCP	RHCP
Efficiency	50%	60%	70%	80%	90%	80%	-	80%
Realized Gain	2.5 dBic	3.5 dBic	4 dBic	5 dBic	5.5 dBic	5 dBic	-	2.5 dBic
Axial Ratio	1.5 dB (typical) / 2.5 dB (max)	1.5 dB (typical) / 2.5 dB (max)	1.5 dB (typical) / 2.5 dB (max)	1.5 dB (typical) / 2.5 dB (max)	1.5 dB (typical) / 2.5 dB (max)	2.5 dB (typical) / 5 dB (max)	3.0 dB (max)	4.0 dB (typical)
Bandwidth (-1db)	10 MHz	10 MHz	10 MHz	16 MHz	20 MHz	20 MHz	9 MHz (min)	20 MHz
Beamwidth (3 db)	100°	100°	100°	100°	100°	100°	-	100° (both axes)
CP Rejection	15 dB (typical) / 10 dB (min)	15 dB (typical) / 10 dB (min)	15 dB (typical) / 10 dB (min)	15 dB (typical) / 10 dB (min)	15 dB (typical) / 10 dB (min)	17 dB (typical) / 11 dB (min)	-	7 dB (typical)
VSWR	1.3:1	1.3:1	1.3:1	1.3:1	1.3:1	1.3:1	-	1.3:1
Impedance	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm
Operating temp.	from -40° C to 85° C	from -40° C to 85° C	from -40° C to 85° C	from -40° C to 85° C	from -40° C to 85° C	from -40° C to 85° C	from -40° C to 85° C	from -40° C to 85° C



GPS/GLONASS ACTIVE

MIA GPS 10 - MIA GPS 12 - MIA GPS 15 - MIA GPS 18 - MIA GPS 25 - MIA 1516



Part Name	MIA GPS 10	MIA GPS 12	MIA GPS 15	MIA GPS 18	MIA GPS 25	MIA 1516
Network	GPS	GPS	GPS	GPS	GPS	GPS/GLONASS
Part No.	189-00010-01	189-00011-01	189-00012-01	189-00013-01	189-00014-01	189-00031-01
Dimensions	10.2x10.2x6.7mm	12x12x5.9mm	16.3x16.3x4.8mm	18.4x18.4x5.5mm	25.2x25.2x9.1mm	25.2x25.2x9.1mm
Frequency	1575.42 MHz	1575.42 MHz	1575.42 MHz	1575.42 MHz	1575.42 MHz	1590 MHz
Polarization	RHCP	RHCP	RHCP	RHCP	RHCP	RHCP
Antenna element peak gain	2.5 dBic	3.5 dBic	4 dBic	5 dBic	5.5 dBic	-
DC voltage	2.5 to 3.5 V	2.5 to 3.5 V	2.5 to 3.5 V	2.5 to 3.5 V	2.5 to 5 V	2.5 to 5V
DC current	9 mA @ 2.5 V / 15 mA @ 3.5 V	4 mA @ 2.5 V / 7 mA @ 3.5 V	4 mA @ 2.5 V / 7 mA @ 3.5 V	5 mA @ 2.5 V / 7 mA @ 3.5 V	7 mA @ 2.5 V / 11 mA @ 3.5 V	11mA (max)
Bandwidth (-1db)	10 MHz	10 MHz	10 MHz	10 MHz	20 MHz	15 MHz
Total system peak gain	23 dB @ 2.5 V / 26 dB @ 3.5 V	20 dB @ 2.5 V / 24 dB @ 3.5 V	16 dB @ 2.5 V / 16 dB @ 5 V	24 dB @ 2.5 V / 28 dB @ 5 V	34 dB @ 2.5 V / 34 dB @ 3.5 V	30 dB @ 2.5 V / 32 dB @ 5 V
Axial ratio	1.5 dB (typical) / 2.5 dB (max)	1.5 dB (typical) / 2.5 dB (max)	1.5 dB (typical) / 2.5 dB (max)	1.5 dB (typical) / 2.5 dB (max)	1.5 dB (typical) / 2.5 dB (max)	1 dB (min)
VSWR	1.3 (max)	1.3 (max)	1.3 (max)	1.3 (max)	2 (max)	1.5:1
Impedance	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm
Operating temp.	from -40° C to 85° C	from -40° C to 85° C	from -40° C to 85° C	from -40° C to 85° C	from -40° C to 85° C	from -40° C to 85° C



GPS/GLONASS EXTERNAL

MEA GPS GG - MEA GPS S - MEA GPS SM



Part Name	MEA GPS GG	MEA GPS S	MEA GPS SM
Network	GPS/GLONASS	GPS	GPS
Part No.	189-00015-01	189-00016-01	189-00017-01
Dimensions	44x36mm	36.3x36.3x18mm	46.50mm
Frequency	1590 MHz	1575.42 MHz	1575.42 MHz
Polarization	RHCP	RHCP	RHCP
DC voltage	2.5 to 5 V	2.5 to 5 V	2.5 to 5 V
DC current	11 mA (max)	6.6 mA	5 to 15 mA
Bandwidth (-1db)	15 MHz	5 MHz	5 MHz
Total system peak gain	30 dB @ 2.5 V / 32 dB @ 5 V	28 dBic @ 2.5 V / 30 dBic @ 5 V	26 dBic @ 2.5 V / 28 dBic @ 5 V
Axial Ratio	1 dB (min)	2.5 dB (min)	2 dB (min)
VSWR	1.5:1	2 (max)	2 (max)
Impedance	50 Ohm	50 Ohm	50 Ohm
Operating temp.	from -40° C to 85° C	from -40° C to 85° C	from -40° C to 85° C

7

TECHNOLOGY



INTRODUCTION

Our commitment to innovation is unprecedented. Our technologies power some of today's most cutting-edge wireless solutions. These solutions allow consumers to seamlessly access data from anywhere in the world.

Here we take an approach where the next advances in wireless communications will come from looking at fundamental problems from the antenna/electromagnetic perspective. This new perspective lends itself to novel technologies to drive the new Internet infrastructure with smaller and higher efficiency devices, enable more bandwidth and combat interference.

Two of our most successful and highly sought after technologies include Helicore and Microstrip Patch. We are proud to present you with the technologies on which our products are designed and engineered.

HELICORE™

Our patented Helicore technology provides an extremely flexible and low cost platform for designing different antenna products where pattern, polarization purity, efficiency and size are the driving design parameters.

Patented Helicore technology uses air as the dielectric core and minimizes typical

losses associated with ceramic materials. Helicore technology is pushing antenna limits in terms of axial ratio, bandwidth, and pattern stability. The design itself allows easy active circuitry and filtering addition due to the independent nature of feed and antenna structure.

Helicore technology addresses widely known issues with ceramic materials and ceramic antenna manufacturing processes which create wide dielectric constant variations due to material, temperature, and humidity variations. Those variations are reflected in reduced performance of ceramic antennas and low manufacturing yields.

KEY ADVANTAGES AND FEATURES:

- Active circuitry and filtering integrated with antenna
- Differential of single-ended architecture
- Smaller in size
- Lower manufacturing cost
- Lighter in weight compared to ceramic solutions
- Superb axial ratio at lower elevation angles for significant multipath rejection
- Multiband and wideband capabilities (e.g. L1-L2, GPS-GLONASS, etc...)
- Meets 200 V/m susceptibility requirements
- Superb noise figure performance
- Ground-plane independent design

MICROSTRIP

Our Microstrip technology offers a truly optimized wireless system. We are pioneering the optimization of the microstrip antenna by using proper electromagnetic grounding schemes to optimize solutions for the highest efficiency and axial ratio purity.

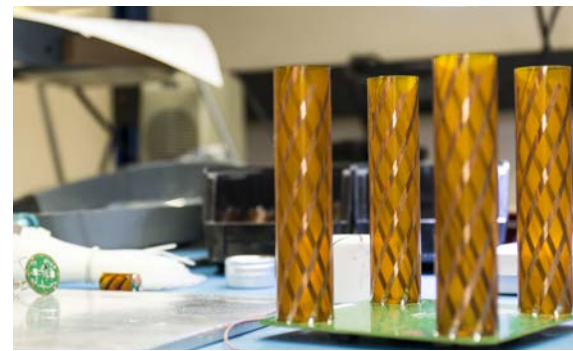
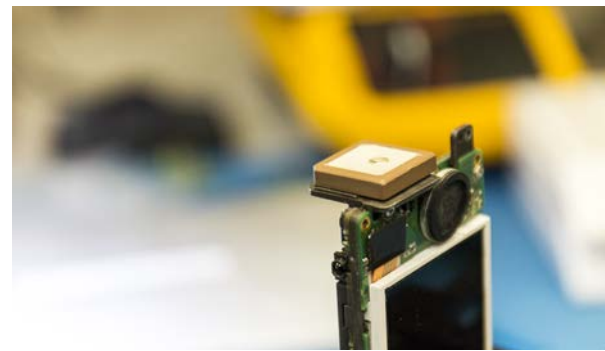
Our technology incorporates the ground plane and creates highly optimized solutions for the application. Microstrip antennas are typically low performance and do not give the desired performance to the customer in more complex integrations where the antenna ground plane is reduced or other parts of the device are interfering. This results in significantly lower efficiency and deteriorated axial ratio purity.

We offer a technology that uses an electromagnetically co-optimized antenna and ground plane combination that enhances the system performance.

KEY FEATURES AND ADVANTAGES:

- Antenna and ground plane co-optimization for maximum performance
- Efficiency can be as much as 40% higher than regular patch technology
- Axial ratio purity improved by as much as 3 dB compared to conventional technology





DAT™

DAT™ (Dynamic Aperture Technology) is an advanced platform designed for building a new generation of low cost user terminals that will enable higher data throughputs, stronger link integrity, and lower power consumption for aerial, maritime, and land mobile communications.

One of the major impediments in mobile communications is the antenna technology. In order to deliver "rich" data content a new technology is required. The major complication is that in a mobile environment communication happens between moving objects. Things get significantly more complicated with satellite communications where a satellite is also moving with the respect to the end user on Earth. The current state of the art user terminals are still relying on mechanically steered or fixed solutions. These solutions either exhibit poor efficiency or are cost prohibitive. Maxtena has created the DAT™ platform to address these issues.

The applications for our DAT™ platform are numerous. The typical applications are for mobile satellite communications on the move, including land, aerial, and maritime applications. However, other applications such as radar and direction finding systems are also possible. Our DAT™ platform allows for low cost, small size, and low weight applications, which could be ideal for high-data terminals for UAV's and other aeronautical platforms.

KEY FEATURES AND ADVANTAGES:

- Achieves omni-directional coverage with the high performance of a directional antenna
- Single beam or multi-beam in single aperture/multibeam aggregation – higher throughput even on legacy systems
- Software configurable/software controlled aperture for a variety of applications and reconfigurations
- Digital sensor and gyroscopic control for accurate tracking of satellites and platform dynamics
- Interference nulling for better signal to noise
- Tracking and performing interference detection for link integrity and sustained high throughput
- Extremely low power design due to distributed power amplifier approach
- Fast satellite acquisition and tracking from computationally efficient algorithms
- Digitally steered beams eliminate all moving parts
- Scalable platform accommodates wide range of frequencies and satellite networks – L to Ka band
- Mobile platform dynamics over 360 degrees per second turning ratios

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QUALITY, SHIPPING & LEAD TIME



QUALITY

We work hard to provide customers with the very best products. We strive to provide best-in-class quality and reliability in each and every product we manufacture.

We have developed a systematic approach to assure the quality of our products from development to prototyping to product qualification to manufacturing. We have manufactured to date more than 500,000 antennas.

We have selected strategic partners who meet the ISO management system standards to ensure we deliver the best quality products to our customers.

Every product manufactured is individually tested on the production line using proprietary software developed by Maxtena for quality assurance.

SHIPPING

We sell our products globally and use strategically picked distribution partners to shorten lead times, as well as to provide excellent on-time customer support.

Shipping of sample products

Sample quantities for all of Maxtena's products are available for purchase and will ship from our headquarters in Rockville, Maryland, USA or from an authorized distributor.

For a complete list of Maxtena authorized distributors please visit:

<http://www.maxtena.com/distributors>

PRODUCT LEAD TIME

The lead time for all Maxtena products is 8-10 weeks ARO, unless the product is in-stock and available off-the-shelf, in which case product(s) will ship immediately.

Customers placing purchase orders (PO) will be quoted a lead time based on product availability before the PO is accepted and processed.

Any custom tuned or custom built antenna requires the sale of service ahead of the sale of antennas, such as feasibility studies, prototyping, and chamber measurement. We have developed a three-phase process for embedded and custom antennas that can be read on our website.

<http://www.maxtena.com/embedded-antennas>

For further information, please visit our website at:

<http://www.maxtena.com>

**PRODUCT
CATALOG**

Antenna Solutions 2017
Consumer, Industrial, Military

USA OFFICES

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For the most recent information please check product data on our website:
www.maxtena.com

Maxtena Reseller

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