**Introduction**

This compact multi-band antenna is designed by Maxtena using an 8 element RHCP helix antenna, with optional integrated filter. The filter improves filtering and rejection, which reduces the real estate required on the main application board. The antenna operates across; BeiDou, GPS L1, GLONASS, and Omni-star bands and offers an excellent axial ratio and gain performance.

The MULTIBAND-HELIX-1539 is a high performance antenna, built on proprietary Maxtena Helicore™ technology. This technology provides exceptional pattern control, polarization purity and high efficiency in a very compact form factor. The antenna includes a short U.FL pigtail connector for easy installation.

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 & Environmental Specifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specifications</th>
<th>Specifications (with filter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating frequency</td>
<td>1539 MHz-1610 MHz</td>
<td></td>
</tr>
<tr>
<td>Minimum bore-sight gain</td>
<td>0 dBi (min)</td>
<td>-1.6 dBi (min)</td>
</tr>
<tr>
<td>Peak bore-sight gain</td>
<td>1.5 dBi (typical) @1575MHz</td>
<td>0.2 dBi (typical) @1575 MHz</td>
</tr>
<tr>
<td>Min gain at 0 elevation</td>
<td>-7 dBi (typical) @1575MHz</td>
<td>-7 dBi (typical) @1575MHz</td>
</tr>
<tr>
<td>Polarization</td>
<td>RHCP</td>
<td></td>
</tr>
<tr>
<td>Axial ratio (max)</td>
<td>2.0 dBi (typical) @ bore-sight</td>
<td></td>
</tr>
<tr>
<td>VSWR (max) (3 dB bandwidth)</td>
<td>2.0:1 (max) @ 50 Ohm U.FL connector</td>
<td></td>
</tr>
<tr>
<td>Relative humidity range</td>
<td>0-95%</td>
<td></td>
</tr>
<tr>
<td>Operating temp. range</td>
<td>from -40°C to 85°C</td>
<td></td>
</tr>
<tr>
<td>Storage temp. range</td>
<td>from -40°C to 100°C</td>
<td></td>
</tr>
<tr>
<td>RF connector</td>
<td>U.FL</td>
<td></td>
</tr>
<tr>
<td>ROHS compliant</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Frequency temp. coefficient</td>
<td>10 ppm/°C max (-40 to 105°C)</td>
<td></td>
</tr>
</tbody>
</table>

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

**Applications**

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

**Features**

- Ultra Compact 8 Element Multiband RHCP Helix
- Multiple Operating bands 1539MHz-1610 MHz - Beidou/GPS L1/GLONASS/Omni-star
- Maxtena patented Helicore™ light-weight air-dielectric design
- U.FL coaxial 50 Ohm termination

---

**Parametric plots**

- **1540 MHz Omni-star Gain (dBi)**
- **1558 MHz Omni-star Gain (dBi)**
- **1576 MHz GPS L1 Gain (dBi)**
- **1604 MHz GLONASS Gain (dBi)**
Mechanical Specifications & Dimensions

dimensions are in mm

NOTES
1. THE DRAWING ONLY SHOWS THE OUTER PROFILE OF THE ANTENNA. U.FL CONNECTOR IS NOT INCLUDED.
2. THE DIMENSIONS WITH * CAN BE MODIFIED UPON REQUESTS.

PROPRIETARY AND CONFIDENTIAL
DIMENSIONS ARE IN MM
TOLERANCES:
FRACTIONAL
ANGULAR: MACH BEND
TWO PLACE DECIMAL
THREE PLACE DECIMAL
INTERPRET GEOMETRIC TOLERANCING PER:
MATERIAL
FINISH

DRAWN
CHECKED
ENG APPR.
MFG APPR.
Q.A.
COMMENTS:

DATENAME
TITLE:
SIZE
DWG. NO. REV
SCALE: 2:1

UNLESS OTHERWISE SPECIFIED:
XXL
NPC
CDN
MULTIBAND HELIX ANTENNA

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MAXTENA, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF MAXTENA, INC IS PROHIBITED.