A Tallysman Accutenna®
TW3967 Embedded Triple Band GNSS Antenna + L-band Correction Services

The TW3967 is an Accutenna® technology antenna providing triple band GPS L1/L2/L5, GLONASS G1/G2/G3, BeiDou B1/B2, Galileo E1/E5 plus L-band correction services coverage and is especially designed for precision triple frequency positioning. The TW3967 provides superior multi-path signal rejection, a linear phase response, and tight Phase Centre Variation (PCV). This antenna is ideal for precision agriculture, autonomous vehicle tracking and guidance, and other applications where precision matters.

The TW3967 features a precision tuned, twin circular dual feed, stacked patch element. The signals from the two orthogonal feeds are combined in a hybrid combiner, amplified in a wide-band LNA, then band-split for narrow filtering in each band and further amplified prior to recombination at the output.

The antenna also has a strong pre-filter to mitigate inter-modulated signal interference from LTE and other cellular bands.

The TW3967 offers excellent axial ratio and a tightly grouped phase center variation.

The TW3967 covers from 1164MHz to 1254MHz and 1525MHz to 1606MHz.

The TW3967 is also available with 35dB or 18dB gain with a part number of TW3972E and TW3967LC respectively. A 100mm ground plane is recommended.

**Applications**

- Precision GPS position
- Triple Frequency RTK receivers
- Mission Critical GPS Timing
- Military & Security
- Network Timing and Synchronization

**Features**

- Very low Noise Preamp, < 2.5dB
- Axial ratio: <2dB typ.
- Tight Phase Center Variation
- LNA Gain 28 dB typ.
- Low current: 24 mA typ.
- ESD circuit protection: 15 KV
- Invariant performance from: +2.5 to 16VDC

**Benefits**

- Ideal for triple band RTK surveying systems
- Great multipath rejection
- Increased system accuracy
- Great signal to noise ratio
- REACH and RoHS compliant
TW3967 Embedded Triple Band GNSS Antenna + L-band Correction Services

Specifications (Measured a Vcc = 3V, and Temperature=25°C)

**Antenna**

<table>
<thead>
<tr>
<th>Antenna Type</th>
<th>Gain (100mm ground plane)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E5a/L5</td>
<td>-1.5dBic at Zenith</td>
<td></td>
</tr>
<tr>
<td>B2/E5b/G3</td>
<td>2.5 dBic at Zenith</td>
<td></td>
</tr>
<tr>
<td>L2</td>
<td>4.0 dBic at Zenith</td>
<td></td>
</tr>
<tr>
<td>G2</td>
<td>2.5 dBic at Zenith</td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>4.0 dBic at Zenith</td>
<td></td>
</tr>
<tr>
<td>L1</td>
<td>2.5 dBic at Zenith</td>
<td></td>
</tr>
<tr>
<td>G1</td>
<td>2.5 dBic at Zenith</td>
<td></td>
</tr>
</tbody>
</table>

**Axial Ratio @ zenith**

- L5/E5ab: <1.5dB
- L2: <1dB
- L-Band: <1dB
- L1/E1: <1dB
- B2: <1.5dB
- G2: <1.5dB
- G1: <1.5dB

**Electrical**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Bandwidth</td>
<td>L2/L5: 1164MHz-1254MHz, L-Band/ L1: 1525 MHz-1606MHz</td>
</tr>
<tr>
<td>Overall LNA Gain</td>
<td>TW3967: 28dB typ. TW3972E: 35dB typ.</td>
</tr>
<tr>
<td>Gain Variation with Temperature.</td>
<td>3dB max over operational temperature range</td>
</tr>
<tr>
<td>LNA Noise Figure</td>
<td>2.5dB typ at 25°C</td>
</tr>
<tr>
<td>VSWR</td>
<td>&lt;1.5:1 typ 1.8:1 max</td>
</tr>
<tr>
<td>Supply Voltage Range</td>
<td>+2.5 to 16VDC nominal, up to 50mV p-p ripple</td>
</tr>
<tr>
<td>EMI Immunity</td>
<td>50V/Meter, excepting L1+/L1-100MHz and L2+/L2-100MHz</td>
</tr>
<tr>
<td>Supply Current</td>
<td>24 mA typ at 25°C, 15 KV air discharge</td>
</tr>
<tr>
<td>ESD Circuit protection</td>
<td>15 KV air discharge</td>
</tr>
<tr>
<td>Out-of-Band Rejection</td>
<td>L5/E5/L2/G2: L5 &gt;1050 MHz: &gt;45 dB, L5 &gt;1125 MHz: &gt;30 dB, L5 &gt;1350 MHz: &gt;45 dB</td>
</tr>
<tr>
<td>L1/E1/B1/G1</td>
<td>L1 &gt;1450 MHz: &gt;30dB, L1 &gt;1690 MHz: &gt;30dB, L1 &gt;1730 MHz: &gt;40dB</td>
</tr>
</tbody>
</table>

**Mechanicals & Environmental**

- Mechanical Size, Ground Plane: 60mm x 14.9mm (see drawing on other page), 100mm ground plane recommended
- Operating Temperature Range: -40°C to +85°C
- Weight: 70 g (excludes cable)
- Environmental: RoHS and REACH compliant
- Shock: Vertical axis: 50 G, other axes: 30 G
- Vibration: 3 axis, sweep = 15 min, 10 to 200 Hz sweep: 3 G

**Ordering Information**

- TW3967 – Triple Band GNSS antenna with L-Band Correction(28dB) 33-3967-xx-yy-zzzz
- TW3972E – Triple Band GNSS antenna with L-Band Correction(35dB) 33-3972E-xx-yy-zzzz
- TW3967LC – Low Current Triple Band GNSS antenna with L-Band Correction(18dB) 33-3967LC-xx-yy-zzzz

Where xx = connector type, yy = shape and colour of radome and zzzz = cable length in mm (where applicable)