TW4421 Wideband Dual Feed GPS/GLONASS Antenna

The TW4421 by Tallysman Wireless is a low cost dual feed GPS & GLONASS magnetic mount antenna covering the GPS L1, GLONASS L1 and SBAS (WAAS, EGNOS & MSAS) frequency band (1574 to 1606 MHz). The TW4421 features a novel 25mm dual feed wideband patch element that provides excellent multipath rejection and a more linear carrier phase response by virtue of the axial ratio that is greatly improved across the full frequency bandwidth. It is especially suitable for high accuracy applications, and also offers high out of band signal rejection.

The two feeds from the patch element are summed in a 90° Hybrid then input to a first stage Low Noise Amplifier (LNA), followed by a mid-section SAW and a second low noise gain stage.

The TW4421 is the smallest dual feed, high performance antenna available. It is housed in a compact IP67 magnetic mount enclosure. It comes with 3 metres of cable with a wide range of connector options.

Applications
- Cost Sensitive Mission Critical Positioning
- Military & Security
- Covert surveillance
- Fleet Management & Asset Tracking

Features
- Dual feed patch element
- 40% wider bandwidth, small footprint
- Axial ratio: 3 dB Max. (GPS & GLONASS)
- Low noise LNA: 1 dB
- High rejection mid-section SAW filter
- High gain: 28 dB typ.
- Wide voltage input range: 2.5 to 10 VDC

Benefits
- 1dB Bandwidth Includes GPS-L1 & GLONASS
- Greatly enhanced multipath rejection
- improved GNSS reliability
- Excellent signal to noise ratio
- RoHS compliant
- Ideal for harsh environments
- Excellent out of band signal rejection

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Specifications

**Antenna**
- **Architecture**: Wideband Dual Feed Patch Element
- **1 dB radiated power bandwidth (RHCP)**: 32 MHz
- **Antenna Gain (with 100mm ground plane)**: 4.5 dBi
- **Axial Ratio over Bandwidth (over full bandwidth)**: <2dB typ. 3dB max.
- **Polarization**: RHCP

**Electrical**
- **Architecture**: Dual Feed Patch -> Hybrid->LNA stage 1 -> SAW filter-> LNA stage 2
- **Filtered LNA Frequency Bandwidth**: 1575 to 1606 MHz
- **Gain**: 28dB min, 1575 MHz to 1606MHz
- **Gain flatness**: +/- 2dB, 1575 MHz to 1606MHz
- **Out-of-Band Rejection**:
  - <1500MHz: >32dB
  - <1550MHz: >25dB
  - >1640MHz: >35dB
- **VSWR (at LNA output)**: <1.5:1
- **Noise Figure**: 1.0dB typ.
- **Supply Voltage Range (over coaxial cable)**: +2.5VDC to 16VDC nominal
- **Supply Current**: 10mA typ. 15mA max (@ 85°C)
- **ESD Circuit Protection**: 15KV air discharge

**Mechanicals & Environmental**
- **Mechanical Size**: 38mm x 38mm dia. x 14.3mm High
- **Connectors**: SMA male standard, others available
- **Cable**: RG174 / 3metres, other lengths optional
- **Operating Temp. Range**: -40°C to +85°C
- **Enclosure**: Radome and base: ASA plastic
- **Weight**: 50gm (Enclosure + SMA connector 34gm, cable 0.31gm/cm)
- **Attachment Method**: Magnetic
- **Environmental**: IP67 and RoHS compliant
- **Shock**: Vertical axis: 50G, other axes: 30G
- **Vibration**: 3 axis, sweep = 15 min, 10 to 200Hz sweep: 3G
- **Warranty**: One year, parts and labour

**Ordering Information**
- TW4422 – GPS/GLONASS Antenna, 3 metre cable, SMA Male
- xx = cable length connector, (SMA male standard), yyyy= Coaxial cable length (3meters standard)

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