



When precision matters<sup>®</sup>

## A Tallysman Accutenna<sup>®</sup> TW1421/TW1422 Compact Dual Feed Embedded GPS/GLONASS

The TW1421/TW1422 employ Tallysman's patented Accutenna<sup>®</sup> technology covering the GPS L1, GLONASS G1, and SBAS (WAAS, EGNOS & MSAS) frequency band (1574 to 1606 MHz). It provides truly circular response over its entire bandwidth thereby producing superior multipath signal rejection. It also offers high out of band signal rejection.

The antennas feature a novel 25mm wideband patch element with dual-feeds that are summed in a 90° Hybrid and input to a two stage Low Noise Amplifier (LNA) with a mid-section SAW a second low noise gain stage. This configuration provides excellent axial ratio and cross-polarization rejection across the full frequency band.

The TW1422 has a pre-filter which increases the antenna's immunity to high amplitude interfering signals, such as LTE and other cellular signals.

The built-in 35mm circular ground plane should ideally be augmented with a local system ground plane or reflecting surface (DC connection not required).

The height of the RF shield (can) will be selected based upon the connector type. Connectors which require RG174 cable will be used with the taller can. Connectors which require micro-coax cable will be used with the shorter can.

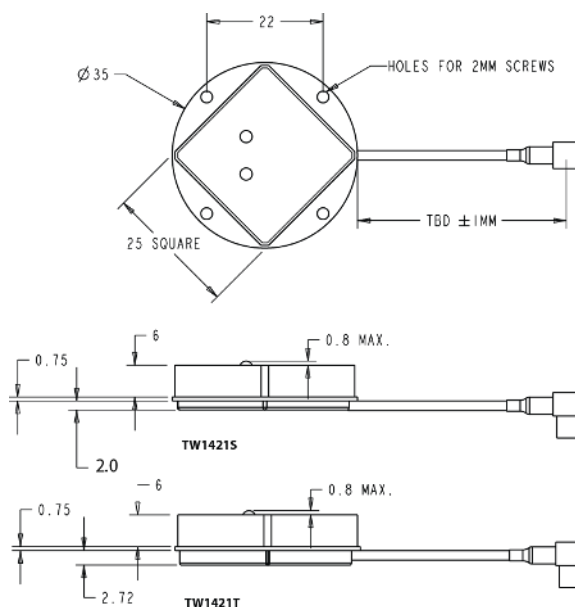
OEM antennas are easily detuned by the local environment. Tallysman offers custom tuning services for optimized integration into OEM end-user modules.

### Applications

- High Accuracy GPS & GLONASS
- Precision Agriculture, Mining & Construction
- Avionics
- Law Enforcement & Public Safety
- Fleet Management & Asset Tracking

### Features

- Compact Dual Feed Patch Element
- 1dB bandwidth 1575-1606MHz
- Very low noise LNA: <1.25 dB(TW1421)
- <1.5 dB Axial Ratio @ zenith over bandwidth
- LNA gain: 28 dB typ. (TW1421) 26dB typ (TW1422)
- Wide Supply voltage: fixed 2.5V to 16V
- ESD circuit protection: 15KV
- Temperature Compensated Gain



### Benefits

- Great multipath rejection
- Increase system accuracy
- Improved carrier phase linearity
- Excellent signal to noise ratio
- Great out of band signal rejection
- Compact form factor
- RoHS compliant



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## TW1421/TW1422 Dual Feed Embedded GPS/GLONASS Antenna Specifications

At; Vcc = 3V, over full bandwidth, T=25°C

### Antenna

Architecture	Dual, Quadrature Feeds
1 dB Bandwidth	31MHz
Antenna Gain (with 100mm ground plane)	4.5dBic
Axial Ratio over full bandwidth,	<1.5 dB @zenith, ≤3.0dB max

### Electrical

Architecture	One LNA per feed line, mid-section SAW filter												
Filtered LNA Frequency Bandwidth	1574MHz to 1606MHz												
Polarization	RHCP												
LNA Gain 1575.42MHz to 1606MHz	28dB typ., 25dB Min, (TW1421) 26dBtyp. 23dB min (TW1422)												
Gain flatness	+/- 2dB, 1575MHz to 1606MHz												
Out-of-Band Rejection	<table> <thead> <tr> <th></th> <th><u>TW1421</u></th> <th><u>TW1422</u></th> </tr> </thead> <tbody> <tr> <td>&lt;1500MHz:</td> <td>&gt;32dB</td> <td>&gt;60dB</td> </tr> <tr> <td>&lt;1550MHz:</td> <td>&gt;25dB</td> <td>&gt;55dB</td> </tr> <tr> <td>&gt;1640MHz:</td> <td>&gt;60dB</td> <td>&gt;65dB</td> </tr> </tbody> </table>		<u>TW1421</u>	<u>TW1422</u>	<1500MHz:	>32dB	>60dB	<1550MHz:	>25dB	>55dB	>1640MHz:	>60dB	>65dB
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<1500MHz:	>32dB	>60dB											
<1550MHz:	>25dB	>55dB											
>1640MHz:	>60dB	>65dB											
VSWR (at LNA output)	<1.5:1 typ. 1.8:1 max												
Noise Figure	≤1.25dB typ.(TW1421) 3.5dBtyp (TW1422)												
Supply Voltage Range (over coaxial cable)	+2.5 VDC to 16 VDC nominal												
Supply Current	10mA typ. 15mA max. (@ 85°C)												
ESD Circuit Protection	15KV air discharge												

### Mechanicals & Environmental

Mechanical Size	35mm dia. x 7.25mm
Cable	1.38mm OD (micro-coax) or 2.6mm OD (RG174)
Operating Temp. Range	-40°C to +85°C
Weight	18g
Attachment Method	Adhesive or M2 screw mount
Environmental	RoHS and REACH 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

Part Numbers:

TW1421 – GPS L1/GLONASS G1 antenna,	33-1421-xx-yyyy-zz
TW1422 – Pre-filtered GPS L1/GLONASS G1 antenna	33-1422-xx-yyyy-zz

Please refer to the Ordering Guide (<http://www.tallysman.com/wp-content/uploads/Current-Ordering-Guide.pdf>) for the current and complete list of available connectors.



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