

# TW1421

## GPS-L1/GLONASS-G1 Antenna

Frequency Coverage: GPS L1 | GLONASS G1

### Overview

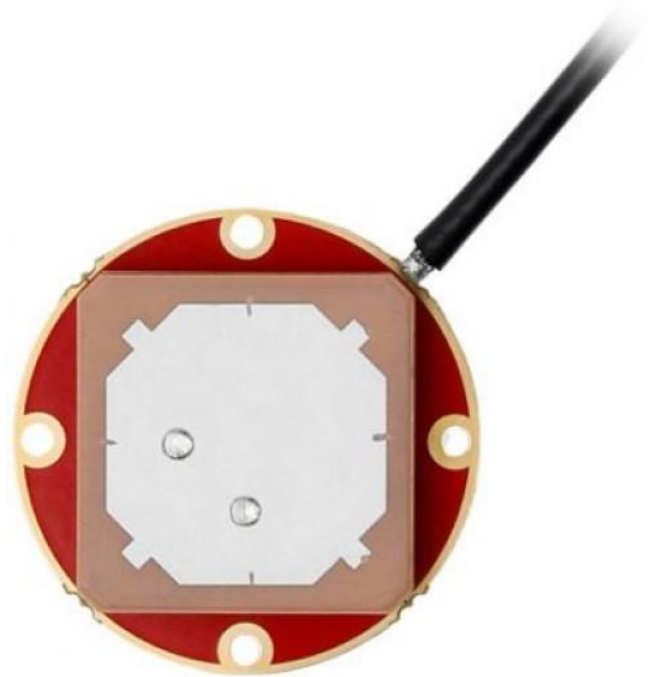
The TW1421 employ Calian's patented Accutenna<sup>®</sup> technology covering the GPS-L1, GLONASS-G1, and SBAS (WAAS, EGNOS & MSAS) frequency band (1575 to 1606 MHz). It provides truly circular response over its entire bandwidth thereby producing superior multipath signal rejection. It also offers high out-of-band signal rejection.

The antennas feature a novel 25 mm 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, and a second low noise gain stage. This configuration provides excellent axial ratio and cross-polarization rejection across the full frequency band.

The built-in 35 mm 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. Calian offers custom tuning services for optimized integration into OEM end-user modules.



### Applications

- High Accuracy GPS & GLONASS
- Precision agriculture, mining, and construction
- Avionics
- Law enforcement and public safety
- Fleet management and asset tracking

### Features

- Compact Dual-feed Patch Element
- Low noise figure, 1.5 dB typ.
- ≤ 3 dB Axial Ratio at zenith
- LNA gain (28 dB typ.)
- Wide Supply voltage, 2.5V to 16V
- ESD circuit protection (15 kV)
- 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

**About Calian:** With global headquarters and manufacturing in Ottawa, Canada, Calian is a leading manufacturer of high-precision antennas and components for Global Navigation Satellite System (GNSS) applications. Calian's mission is to support the needs of a new generation of positioning systems by delivering unprecedented antenna precision at competitive prices. Learn more at [www.calian.com](http://www.calian.com)

# GPS-L1/GLONASS-G1 Antenna

Frequency Coverage: GPS L1 | GLONASS G1

Antenna - Measured with a 100 mm ground plane

Technology Dual-feed RHCP ceramic patch

		Gain	Axial Ratio
		dBic typ. at Zenith	dB at Zenith
<b>GNSS</b>			
GPS / QZSS	L1	4.5	≤ 3
	L2	-	-
	L5	-	-
GLONASS	G1	4.5	≤ 3
	G2	-	-
	G3	-	-
Galileo	E1	-	-
	E5A	-	-
	E5B	-	-
	E6	-	-
BeiDou	B1	-	-
	B2	-	-
	B2a	-	-
	B3	-	-
IRNSS / NavIC	L5	-	-
QZSS	L6	-	-
L-Band Services (1525 MHz - 1559 MHz)		-	-
<b>Satellite Communications</b>			
Iridium		-	-
Globalstar		-	-
<b>Other</b>			
Axial Ratio at 10°	-	Efficiency	-
PC Variation	-		

## Mechanicals

Size	35 mm (dia.) x 8.8 mm
Weight	18 g
Radome	-
Mount	Adhesive   4 · M2 screws
Available Connectors	Refer to Ordering Guide

## Environmental

Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +95 °C
Vibration	MIL-STD-810D
Shock	Vertical axis: 50 G, other axes: 30 G
Salt Fog	-
IP Rating	-
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

## Warranty

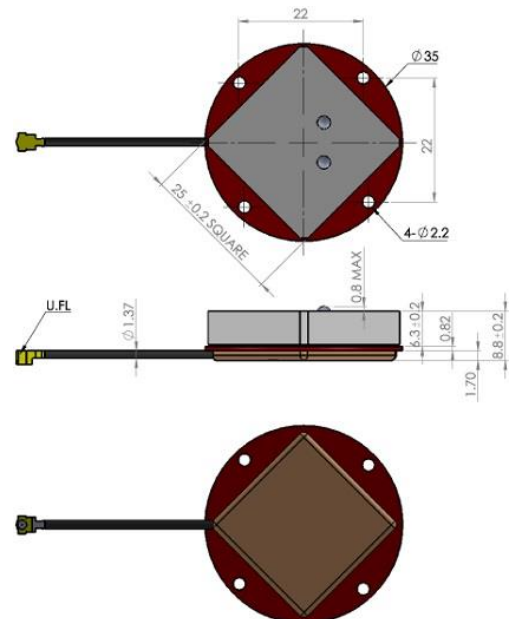
Parts and Labour	1-year standard warranty
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Low Noise Amplifier (LNA) - Measured at 3 V and 25°C

Upper Band	Lower Band
Frequency Bandwidth	
1575 - 1606 MHz	-
Out-of-band Rejection	
> 32 dB @ < 1500 MHz > 25 dB @ < 1550 MHz > 60 dB @ > 1640 MHz	-

Architecture	Non pre-filtered
Gain	28 dB typ., 25 dB Min,
Noise Figure	1.5 dB typ
VSWR	< 1.5:1 typ., 1.8:1 max.
Supply Voltage Range	2.5 to 16 VDC nominal, up to 50mV p-p ripple
Supply Current	10 mA typ., 15 mA max.
ESD Circuit Protection	15 kV air discharge
P 1dB Output	-
Group Delay	-
PCO	-

## Mechanical Diagram



## Ordering Information

Part Number **33-1421-xx-yyyy-zz**

Where xx = connector type yyyy= cable length (in mm) and zz = reserved for Calian's use

Please refer to our **Ordering Guide** to review available radomes and connectors at: <https://at.calian.com/gnss/information-support/part-number-ordering-guide/>