TW3997



Embedded Multi-Constellation Full-Band Antenna

Frequency Coverage:

GPS L1, L2, L5 | QZSS L6 | GALILEO E1, E5a, E5b, E6 | BEIDOU B1, B2a, B2b, B3 | GLONASS G1, G2, G3 | NaviC L5 + L-Band

The TW3997 is a precision-tuned full band Accutenna® technology antenna providing full coverage of GPS/QZSS-L1/L2/L5/L6, GLONASS-G1/G2/G3, Galileo-E1/E5a/E5b/E6, BeiDou-B1/B2/B2a/B3, NavIC-L5, L5, including the satellite-based augmentation system (SBAS) available in the region of operation [WAAS (North America), EGNOS (Europe), MSAS (Japan), or GAGAN (India)], plus L-Band correction services. It is especially designed for precise full-band GNSS positioning.

The TW3997 features a precision-tuned, twin circular dualfeed, stacked patch element. The signals from the two orthogonal feeds are combined in a hybrid combiner, amplified in a wideband 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 TW3997 offers excellent axial ratio and a tightly grouped phase centre variation.

Ideal for train control sensors, autonomous vehicle tracking and guidance, precision agriculture, and other applications where precision matters, The TW3997 provides superior multipath signal rejection, a linear phase response, and tight phase centre variation (PCV).

The OEM TW3997 is supplied with a standard 60 mm diameter circular ground plane, with a coaxial cable terminated with a connector (right angle MCX is shown in the drawing). Mounting holes are provided for attachment to larger ground planes. Custom tuning and ground plane options may be available, depending on purchase level commitment.

This product is also available in a housed format: TW3990



Applications

- Precision GPS position
- Triple Frequency RTK receivers
- · Law enforcement and public safety
- Features
- Very low noise preamp < 2.5 dB
- Axial ratio: < 2.0 dB typ.
- Tight phase centre variationHigh-gain LNA: 28 dB typ.
- Low current: 24 mA tvp.
- ESD circuit protection (15 kV)
- Invariant performance from 2.5 to 16 VDC

Benefits

- · Ideal for full-band RTK surveying systems
- Great multipath rejection
- Increased system accuracy
- Great signal-to-noise ratio
- REACH and RoHS compliant

About Calian: With global headquarters and manufacturing in Ottawa, Canada, Calian is a leading manufacturer of highprecision 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.callan.com

Contact us: info@tallysman.com T: +1 613 591-3131

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Antenna

Technology

Dual-feed Stacked RHCP ceramic patch

		Gain	Axial Ratio
		dBic typ. at Zenith	dB at Zenith
GNSS			
GPS / QZSS	L1	4.0	< 1
	L2	4.0	< 1
	L5	-1.5	< 1.5
	G1	2.5	< 1.5
GLONASS	G2	2.5	< 1.5
	G3	2.5	< 1.5
	E1	4.0	< 1
Galileo	E5A	-1.5	< 1.5
daneo	E5B	2.5	< 1.5
	E6	-3.0	< 1.5
	B1	4.0	< 1
PaiDau	B2	2.5	< 1.5
BeiDou	B2a	-1.5	< 1.5
	B3	-2.0	< 1.5
IRNSS / NavIC	L5	-1.5	< 1.5
QZSS	L6	-3.0	< 1.5
L-Band Services (1525 MHz - 1559 MHZ)		3.5	< 1
Satellite Communications			
Iridium		-	-
Globalstar		-	-
Other			
Axial Ratio at 10°	-	Efficiency	-
PC Variation -		PCO	

Mechanicals

Size	60 mm (dia.)iameter, 0.75 mm thick, see mechanical drawing
Weight	75 g
Radome	-
Mount	-
Available Connectors	Please refer to ordering guide

Environmental

Operating Temperature	-40 °C to + 85 °C
Storage Temperature	-55 °C to + 95 °C
Vibration	MIL-STD-810D Method 514.3-1
Shock	Vertical axis: 50 G, other axes: 30 G
Salt Fog	Not Applicable
IP Rating	Not Applicable
Compliance	IPC-A-610, FCC, RED, RoHS, REACH

Warranty

Parts and Labour

1-year standard warranty

Low Noise Amplifier (LNA) - Measured at 3V and 25°C

Frequency Bandwith		Out of Band Rejection
Lower Band	1164 - 1300 MHz	< 1000 MHz > 60 dB < 1125 MHz > 35 dB > 1350 MHz > 40 dB
L-Band Correction Services	1539 - 1559 MHz	-
Upper Band	1559 - 1606 MHz	< 1450 MHz > 30 dB > 1690 MHz > 30 dB > 1730 MHz > 40 dB

Architecture	Pre-filtered
Gain	28 dB typ. 26 dB min.
Noise Figure	2.5 dB typ. @ 25 °C
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	24 mA typ. @ 25 °C
ESD Circuit Protection	15 kV air discharge
P 1dB Output	-
Group Delay	-

Mechanical Diagram



Ordering Information

Part Number

33-3997-xx-zzzz

Where xx = connector type and zzzz = cable length in mm (where applicable)

Please refer to our Ordering Guide to review available radomes and connectors at: https://www.tallysman.com/resource/tallysman-ordering-guide/

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