



Slender GNSS Multi-Band Antenna with Multi-Port 4G LTE and 802.11ac MIMO

The new Trooper™ II dual-carrier antenna platform is designed to meet the requirements of increasingly complex RF communication systems in transportation and IIoT applications. These antennas feature four 4G LTE elements compatible with the world's leading multi-network cellular routers that support carrier aggregation for high-speed data transmissions needed in dense RF environments, such as public safety broadband networks. The platform also incorporates dual band 802.11ac Wi-Fi MIMO connectivity with four Wi-Fi element options. In addition, the antennas include PCTEL's proprietary high-rejection multi-GNSS technology for high precision tracking and asset management. Black or white low-profile housing options are available.



GL9X1AX-TRB

Features

- Slender 4.6-inch footprint ideal for installations with limited surface space
- Metal 1-inch stud mount with slotted jam nut provides single cable exit for easier installation and/or antenna replacement
- IP67 compliant design provides maximum protection against water or dust ingress
- Built-in ground plane for maximum placement flexibility
- Proprietary high rejection filtering allows wide-band coverage while achieving superior out-of-band rejection for all GNSS frequencies

STANDARD CONFIGURATION

Model	Elements	Cable	Connectors	Mounting Method	Housing Color
GL9X1AX-TRB	4G LTE (All Ports)	Four 2-ft RG-316	SMA Plug (Male)	1-inch OD, 3/4-inch long (.75") zinc stud mount with jam nut	Black
GL9X1AX-TRW	Wi-Fi (All Ports) GNSS	Four 2-ft RG-316 One 2-ft RG-316	SMA Plug (Male) SMA Plug (Male)		White

ELECTRICAL SPECIFICATIONS - RF ANTENNAS

Elements	F1	F2	SWR**	Gain (dB)*			Efficiency*		Polarization	Nominal Impedance	Maximum Power
				Max	Typical	Range (+/-)	Avg	Range +/-			
LTE Primary (1&3)	617	698	2.7	3.5	2.9	0.6	75%	4%	Linear	50 ohms	25 watts
	698	802	1.9	3.7	3.0	0.7	79%	7%			
	824	894	2.0	3.7	2.4	1.4	81%	5%			
	880	960	2.3	3.4	2.2	1.2	76%	3%			
	1710	2200	1.5	5.6	4.7	0.9	83%	5%			
	2300	2690	1.6	5.2	4.9	0.4	82%	3%			
	3400	3800	2.4	5.9	5.4	0.5	62%	2%			
LTE Secondary (2&4)	617	698	6.9	1.0	0.1	1.0	46%	15%			
	733	802	1.8	4.5	2.5	2.0	75%	14%			
	824	894	2.8	4.5	3.2	1.4	76%	13%			
	880	960	3.6	2.6	2.0	0.5	58%	6%			
	1805	2200	2.5	7.2	5.1	2.1	69%	7%			
	2300	2690	2.2	5.6	4.8	0.8	75%	5%			
	3400	3800	1.8	7.4	7.0	0.5	74%	3%			
Wi-Fi-V	2400	2500	1.4	6.2	5.6	0.5	81%	3%			
	4900	5900	2.0	8.1	6.9	1.2	71%	9%			
Wi-Fi-H	2400	2500	1.2	6.4	5.7	0.7	82%	2%			
	4900	5900	2.0	6.4	5.7	0.8	67%	4%			

* Gain and efficiency measured with 3-in cables and no ground plane. A 2-ft ground plane would increase average gain values by approximately 0.5 dB.

** SWR measured with 2-ft RG-316 cables and no ground plane.

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ELECTRICAL SPECIFICATIONS - RF ANTENNAS, continued

Minimum Isolation (dB)***

Elements	LTE Primary (1&3)		LTE Secondary (2&4)		Wi-Fi	
LTE Primary (1&3)	617-960 MHz	15.0	617-960 MHz	13.0	617-960 MHz	25.0
	1.71-2.7 GHz	20.0	1.71-2.7 GHz	18.0	1.71-2.7 GHz	20.0
	3.4-3.7 GHz	40.0	3.4-3.7 GHz	25.0	3.3-5.9 GHz	25.0
LTE Secondary (2&4)			617-960 MHz	15.0	617-960 MHz	25.0
			1.71-2.7 GHz	20.0	1.71-2.7 GHz	17.0
				20.0	3.3-5.9 GHz	25.0
Wi-Fi					2.4-2.5 GHz	15.0
					4.9-5.9 GHz	30.0

ELECTRICAL SPECIFICATIONS - GNSS ANTENNA

Frequency Band	Amplifier Gain	Output VSWR	DC Current	DC Voltage	Noise Figure:	Out-of-Band Rejection:
1565-1608 MHz	@ 3.0 VDC: 26 dB (typical)	2.0:1 (maximum)	25 mA (typical)	2.8-6.0 V (operating) ≤ 12.0 V (survivability)	< 2.0 dB (typical)	f ₀ = 1586 MHz f ₀ ± 50 MHz: ≥ 60 dBc f ₀ ± 60 MHz: ≥ 70 dBc

ELECTRICAL SPECIFICATIONS - GNSS ANTENNA

Frequency Band	Nominal Gain	Polarization	Nominal Impedance
1565-1608 MHz	3 dBic @ 90° -2 dBic @ 20°	Right hand circular	50 ohms

MECHANICAL SPECIFICATIONS AND ENVIRONMENTAL SPECIFICATIONS (ALL MODELS)

Dimensions (L x W x H)	Weight	Housing Material	Temperature Range	Gasket Design & Construction
10.5 x 4.6 x 3.5 in (267 x 117 x 90 mm)	2 lbs (.91 kg)	UV-Stable Rugged Thermoplastics	-40°C to +85°C	Contour matching, conformable, thermoplastic-elastomer gasket designed to seal between radome and baseplate. Gasket flexes and conforms to contoured surfaces. Baseplate has a 3M™ VHB mounting pad for anti-rotation.

***Measured with 2-ft RG-316 cables