DATASHEET COMBINATION ANTENNA

Trooper™ Max

Combination Antenna - 5G Cellular, Wi-Fi, GNSS with LMR Option

GLPSF Platform

Description

Slender GNSS Multi-Spectrum Antenna

Technologies

- 5G
- Dual LTE
- Wi-Fi
- GPS L1/Galileo/Beidou
- UHF
- TETRA

Features

- Optional Land Mobile Radio (LMR) capability
- No field tune, multiband coverage
- Meets high speed requirements of complex RF communication systems used for Intelligent Transportation Systems (ITS)
- Rugged, aerodynamic, and UV resistant black radome
- Slender sharkfin form factor fits leading public safety vehicle rooftop profiles

PCTEL

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The Trooper™ Max antenna platform supports the high speed requirements of complex RF communication systems used for Intelligent Transportation Systems (ITS), including Public Safety fleets. Its compact sharkfin form factor makes this antenna ideal for installation on surfaces with limited space including the new police utility vehicles and fire trucks with ridged rooftops. These antennas feature two 5G elements compatible with the world's leading cellular routers supporting 600 MHz to 6 GHz frequencies. The platform also incorporates two additional dual band Wi-Fi antennas, as well as the option to add a UHF or a TETRA whip, for LMR band coverage. PCTEL's proprietary high-rejection multi GNSS technology is included for high precision tracking and asset management.

Features

- No tune, multi-band coverage: 5G cellular, 802.11ac Wi-Fi, optional UHF or TETRA whip, and GPS L1/GLONASS/Galileo/ Beidou constellations
- Metal 5/8" (22.9 mm or 0.9") long stud mount provides single cable exit for installation ease
- IP67 compliant design provides maximum protection against water or dust ingress under severe environmental conditions[1]
- Rugged, aerodynamic, and UV resistant black radome for demanding aesthetic requirements

Certifications

RoHS COMPLIANT

[1] *If installed according to PCTEL's installation instructions*

SPECIFICATIONS

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Standard Configurations

Model	Elements	Cable	Connector[2]	Mount	Housing Color
GLPSF-5X1	LTE Wi-Fi GNSS	Two 1-foot RG-316 pigtails (LTE) Two 1-foot RG-316 pigtails (Wi-Fi) One 1-foot RG-316 (GNSS)	SMA Plug (LTE) SMA Male (Wi-Fi) SMA Plug (GNSS)	5/8-inch (22.9 mm or 0.9") long stud mount with jam nut	Black
GLPSF-UH6X1LB GLPSF-UH6X1HB	LTE Wi-Fi GNSS UHF	Two 1-foot RG-316 pigtails (LTE) Two 1-foot RG-316 pigtails (Wi-Fi) One 1-foot RG-316 (GNSS) One 1-foot RG-316 (UHF)	SMA Plug (LTE) SMA Male (Wi-Fi) SMA Plug (GNSS) SMA Plug (UHF)		Black
GLPSF-UH350-6X1	LTE Wi-Fi GNSS TETRA	Two 1-foot RG-316 pigtails (LTE) Two 1-foot RG-316 pigtails (Wi-Fi) One 1-foot RG-316 (GNSS) One 1-foot RG-316 (UHF)	SMA Plug (LTE) SMA Male (Wi-Fi) SMA Plug (GNSS) SMA Plug (UHF)		Black

Electrical Specifications – RF Antennas

F1 (MHz)	F2 (MHz)	SWR[3]	Gain[3]			Efficiency (%)[3]		Polarization	Nominal Impedance	Maximum Power
			Max (dBi)	Typical (dB)	Range (±) (dB)	Avg	Range (±)			
LTE Primary Port 1										
617	698	3.8	2.2	1.5	0.6	50	4	Linear	50 ohms	50 watts
698	802	3.1	3.4	2.8	0.6	59	14			
824	960	1.8	4.9	4.1	0.8	73	5			
1710	2200	2.1	5.1	4.6	0.5	66	3			
2300	2690	2.4	5.9	4.5	1.5	57	8			
3400	3800	1.7	7.8	7.3	0.5	64	2			
5150	5950	5.1	4.4	2.9	1.4	24	8			
LTE Primary Port 2										
617	698	6.7	2.3	0.9	1.3	39	4	Linear	50 ohms	50 watts
733	802	3.1	4.9	3.5	1.4	55	13			
824	960	3.5	4.3	3.2	1.1	53	6			
1805	2200	2.3	6.7	5.9	0.8	74	6			
2300	2690	2.0	6.1	5.6	0.6	73	7			
3400	3800	2.2	7	6.7	0.4	63	9			
5150	5950	4.9	5.6	4.5	1.2	30	4			
Wi-Fi										
2400	2500	1.9	7.7	5.5	2.2	56	3	Linear	50 ohms	50 watts
4900	5900	2.0	7.7	5.5	2.2	56	3			
UHF-LB (P/N GLPSF-UH6X1LB)										
380	446	3.3	2.6	2.8	1.6			Linear		
UHF-HB (P/N GLPSF-UH6X1HB)										
446	512	4.0	2.2	0.7	1.6	47	20	Linear		
TETRA (GLPSF-UH350-6X1)										
350	405	3.4	2.8	2.0	0.8			Linear		

[2] Consult Customer Service for other connector options
[3] Gain, efficiency, SWR and isolation measured with 1-ft cables and 2-ft ground plane

SPECIFICATIONS

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Electrical Specifications – RF Antennas (continued)

Minimum Isolation[3] (dB)

	LTE Secondary (2)		Wi-Fi (3,4)		UHF-H/L (5)		Tetra (5)	
LTE Primary (1)	698 - 960 MHz	6.1	617 - 960 MHz	22.0	617 - 960 MHz	12.9	617 - 960 MHz	8.1
	1.71 - 2.7 GHz	19.6	1.71 - 2.7 GHz	12.2	1.71 - 2.7 GHz	15.1	1.71 - 2.7 GHz	15.6
	3.3 - 5.9 GHz	30.1	3.3 - 5.9 GHz	17.5	3.3 - 5.9 GHz	21.6	3.3 - 5.9 GHz	22.0
LTE Secondary (2)			617 - 960 MHz	29.0	617 - 960 MHz	15.9	617 - 960 MHz	17.9
			1.71 - 2.7 GHz	22.6	1.71 - 2.7 GHz	25.4	1.71 - 2.7 GHz	25.3
			3.3 - 5.9 GHz	24.1	3.3 - 5.9 GHz	25.1	3.3 - 5.9 GHz	25.7
Wi-Fi (3,4)			2.4 - 2.5 GHz	-12.9	2.4 - 2.5 GHz	28.1	2.4 - 2.5 GHz	28.9
			4.9 - 6.0 GHz	-15.1	4.9 - 6.0 GHz	26.7	4.9 - 6.0 GHz	19.4

Electrical Specifications – GPS Antenna

Frequency Band	1559 - 1608 MHz
Amplifier Gain	@ 3.0 VDC: 26 dB (typical)
Output VSWR	2.0:1 (maximum)
DC Current	25 mA (typical)
DC Voltage	2.8-6.0 V (operating) ≤ 12.0 V (survivability)
Noise Figure	< 2.0 dB (typical)
Out-of-Band Rejection	f0 = 1586 MHz f0 ± 50 MHz: ≥ 60 dBc f0 ± 60 MHz: ≥ 70 dBc
Nominal Gain	3 dBic @ 90° -2 dBic @ 20°
Polarization	Right hand circular
Nominal Impedance	50 ohms

Mechanical Specifications

Physical

Dimensions	Multiband Antenna Base UHF Whip TETRA Whip	2.4" W x 7.0" L x 3.2" H in (6.1 W x 17.7 L x 8.0 H cm) 5.8" L x 0.28" W in (147.3 H x 7.10 W mm) 5.8" L x 0.28" W in (147.3 H x 7.10 W mm)
Weight		0.75 lbs (0.340 kg); 0.87 lbs (0.395 kg) with Whip
Radome Construction		UV-Stable Rugged Thermoplastics
Operating / Storage Temperature		-40°C to +85°C
Gasket Design & Construction		Contour matching, conformable, thermoplastic-elastomer gasket overmolded to baseplate and designed to seal between radome, baseplate, and vehicle body. Gasket flexes to conform to contoured surfaces and provides an anti-rotation feature.

[3] Gain, efficiency, SWR and isolation measured with 1-ft cables and 2-ft ground plane

CONTACT US

For more information about this product contact your sales representative or visit

> pctel.com/antenna-products

Solving Complex Wireless Challenges

PCTEL is a leading global provider of wireless technology, including purpose-built Industrial IoT devices, antenna systems, and test and measurement solutions. Trusted by our customers for over 25 years, we solve complex wireless challenges to help organizations stay connected, transform, and grow.

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T: +1 630 372 6800 | pctel.com