DATASHEET COMBINATION ANTENNAS

Coach™ II Permanent Mount

Combination Antenna - 5G Cellular, Wi-Fi and GNSS

GL9X1AX-SF, GL7X1AX-SF, GL4X4-SF-PLK, GL6X1AX-SF

Description

Dual carrier GNSS multiband antennas with 600 MHz to 6 GHz frequencies, 5G and 4G LTE with 802.11ax and 802.11ac MIMO connectivity.

Meets EN 50155:2007 requirements for rail and transit installations.

Technologies

- Dual LTE
- Wi-Fi
- GNSS
- 5G
- MIMO

Features

- Compatible with the world's leading multi-carrier cellular routers
- Superior out-of-band rejection
- Easy installation and/or replacement
- Withstands severe environmental conditions
- EN 50155:2007; AAR compliant

PCTEL

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The Coach™ II dual-carrier antenna platform supports the high speed requirements of complex RF communication systems used for Intelligent Transportation Systems (ITS) and Industrial IoT applications. These low-profile, high endurance antennas feature four 5G elements compatible with the world's leading multi-carrier cellular routers that support 600 MHz to 6 GHz frequencies. The platform also incorporates 802.11ax Wi-Fi MIMO connectivity, with four dual band 2.4/5 GHz Wi-Fi elements supporting DSRC 5.99 GHz applications. In addition, PCTEL's proprietary high-rejection multi-GNSS technology is included for high precision tracking and asset management. The platform meets EN 50155:2007 and AAR requirements for ITS rail and roadway applications.

Features

- Wideband coverage – 4G LTE, 5G and dual-band 802.11ac Wi-Fi coverage in a single, low-profile housing
- Superior out-of-band rejection – Proprietary filtering design allows wideband coverage for all GNSS frequencies
- Easy installation and/or replacement – Metal stud mount with slotted jam nut provides single cable exit
- Withstands severe environmental conditions – IP67 compliant design with overmolded gasket protects against water or dust ingress (when installed on sealed surface)
- Meets EN 50155:2007 and AAR certification requirements for rail applications

Certifications

RoHS COMPLIANT

SPECIFICATIONS

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Standard Configurations

Model	Elements	Cable	Connector	Mount
GL9X1AX-SF	LTE (All Ports) Wi-Fi (All Ports) GNSS	Four-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) Four-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) One-17 feet RG-316	SMA Plug (Male) Reverse Polarity SMA Plug (Male) SMA Plug (Male)	1-inch OD, 3/4-inch long (.75") zinc stud mount with jam nut (all models)
GL7X1AX-SF	LTE (All Ports) Wi-Fi (All Ports) GNSS	Four-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) Two-17 feet (2-ft RG-316/15-ft Pro-Flex Plus 195) One-17 feet RG-316	SMA Plug (Male) Reverse Polarity SMA Plug (Male) SMA Plug (Male)	
GL4X4-SF-PLK	LTE (All Ports) GNSS	Four-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) One-17 feet RG-316	SMA Plug (Male) SMA Plug (Male)	
GL6X1AX-SF[1]	LTE (All Ports) Wi-Fi (All Ports) GNSS	Two-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) Three-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) One-17 feet RG-316	SMA Plug (Male) Reverse Polarity SMA Plug (Male) SMA Plug (Male)	

Electrical Specifications – RF Antennas

F1 (MHz)	F2 (MHz)	SWR[2]	Gain (dB)[3]			Efficiency[3]		Polarization	Nominal Impedance	Maximum Power
			Max	Typical	Range (±)	Avg	Range (±)			
LTE Primary (1&3)										
617	698	2.5	-0.2	-0.9	0.7	33%	3%	Linear	50 ohms	50 watts
698	802	1.9	1.1	-0.3	1.4	34%	6%			
824	960	2.0	2.1	0.6	1.6	36%	4%			
1710	2200	1.6	4.4	2.6	1.9	31%	3%			
2300	2690	1.4	4.8	2.7	2.1	29%	2%			
3400	3800	1.4	4.7	2.5	2.2	26%	1%			
5150	5950	1.3	5.8	1.9	3.9	16%	3%			
LTE Secondary (2&4)										
617	698	3.4	-1.4	-3.0	1.6	16%	8%	Linear	50 ohms	50 watts
733	802	2.0	0.0	-1.0	0.9	31%	4%			
824	960	2.7	0.0	-1.6	1.5	28%	8%			
1805	2200	1.6	1.7	0.9	0.8	29%	4%			
2300	2690	2.0	1.5	-0.5	2.0	20%	6%			
3400	3800	1.9	2.2	0.4	1.8	20%	3%			
5150	5950	1.4	2.6	1.3	1.4	16%	1%			
Wi-Fi										
2400	2500	1.3	9.1	7.2	1.9	74%	4%	Linear	50 ohms	50 watts
4900	5900	1.5	11.4	9.1	2.3	59%	14%			

[1] This model is not dual carrier and only includes two primary LTE ports.
[2] Gain and efficiency measured with no cable and no ground plane.
[3] SWR measured with 17-ft cables and no ground plane.

SPECIFICATIONS

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Electrical Specifications – RF Antennas (continued)

Minimum Isolation (dB)[4]

Elements	LTE Primary (1&2)		LTE Primary (1&2)		Wi-Fi	
LTE Primary (1&3)	617-960 MHz	14.0	698-960 MHz	14.0	698-960 MHz	20.0
	1.71-2.7 GHz	25.0	1.71-2.7 GHz	25.0	1.71-2.7 GHz	17.0
	3.3-3.59 GHz	35.0	3.3-3.59 GHz	27.0	3.3-5.9 GHz	35.0
LTE Secondary (2&4)			698-960 MHz	18.0	698-960 MHz	22.0
			1.71-2.7 GHz	30.0	1.71-2.7 GHz	16.0
			3.3-3.59 GHz	32.0	4.9-5.9 GHz	32.0
Wi-Fi					2.4-2.5 GHz	25.0
					4.9-5.9 GHz	32.0

Electrical Specifications – GNSS Antenna

Specification	Measurement
Frequency Band	1565-1608 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 and Environmental Specifications

All Models

Dimensions (L x W x H)	6.93 L x 6.09 W x 3.01 H in (176.0 x 154.8 x 76.5 mm)
Weight (9 ports)	4.8 lbs (2.2 kg)
Housing Material	Black or White[5], UV-Stable Rugged Thermoplastics
Temperature Range	-40°C to +85°C
Gasket Design & Construction	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.

[4] *Isolation measured with 17-ft cables and no ground plane.*
[5] *For black radome, order P/N GL9X1AX-SF; for white radome, order P/N GL9X1AX-SFW.*

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