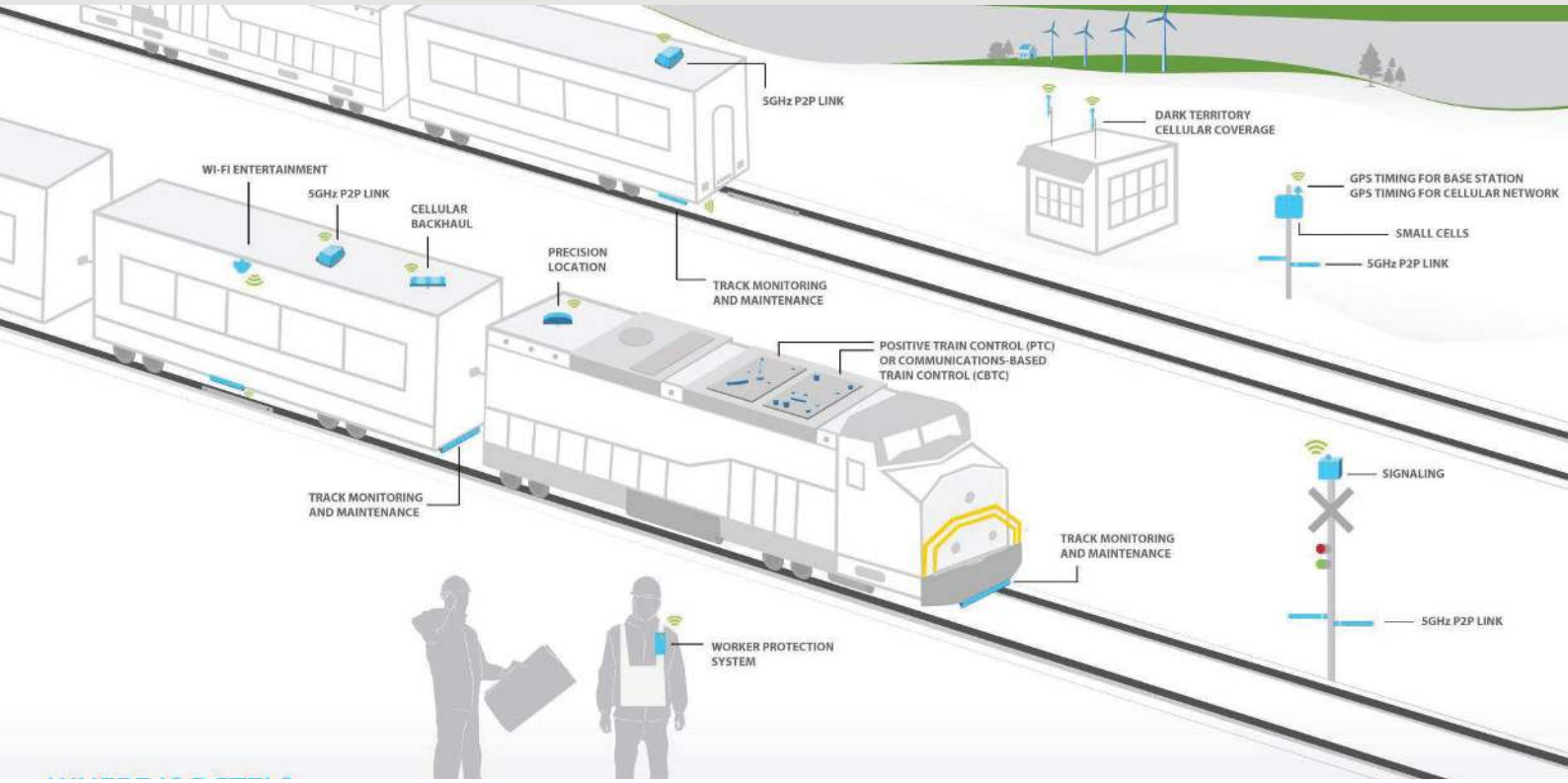
STEPGLOBAL

Engineered Solutions for Real Time Management of Mobile Assets

Antennas For Rail Application

Step Global carries a wide variety of rail specific telecommunication products. Our range includes mobile and infrastructure antennas covering, VHF, UHF, ISM, RFID, IoT, V2V, V2X, DSRC, WiFi, BT, LTE, 5G, Iridium, GNSS, from embedded modules through mobile MIMO to Base Station.



Australian Rail Telecommunications

Advanced Telecommunications include:

- Digital Train Radio Systems (DTRS)
- Advance Train Management Systems (ATMS)

Establishment and adoption of National Standards

- Local Train Radio (LTR)
- ACMA Rail Industry Only (RIO) band

400 MHz and 1800 MHz spectrum are used for the following daily activities:

- Train control
- Local Train Radio
- Emergency Response
- Signalling
- Local Train Control channel (LTR)
- Track Maintenance Safety
- Security
- Automatic train Protection / Braking
- Passenger Safety through on-train help points
- Train Speed Control
- Shunting

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PCTEL Antennas for Rail Applications

Wayside and Base Stations

High-performance, purpose-built antenna

5G FR1 BROADBAND MIMO ANTENNA WITH INTEGRATED L125 (3X1, 3X1+900, 5X1)

Market Applications

- Rugged multi-port antenna for next-generation PTC wayside applications.
- Potential use in any application using a fixed cellular subscriber router such as Intelligent Transportation Systems for traffic management, industrial IoT applications for utilities, or retail failover networks.

Key Features

- Easy installation – Collar mount for 1-1/4” pipe
- High performance — Dual MIMO design with full broadband coverage on both RF antenna ports
- Durable — UV-resistant, rugged fiberglass housing
- Efficient — low loss cable and connectors for maximum efficiency

Reliable Communications at Wayside Sites

PROBLEM

- Critical communication exchange between the trains and the wayside locations: PTC (Positive Train Control), preventative maintenance, track performance, diagnostics, safety information, etc
- 20 million data points are being transmitted on a daily basis
- Reliable and uninterrupted connectivity is a must
- Requirements for 5G, GL125 and 900 Mhz

PCTEL SOLUTION

5G FR1 broadband MIMO antenna with integrated L125 (3x1, 3x1+900, 5x1)

- Purpose built
- Multiband antenna that achieves superior bandwidth performance
- High-rejection GPS LNA technology
- Easy to install and offers maximum durability and
- Available with dual-carrier compatibility

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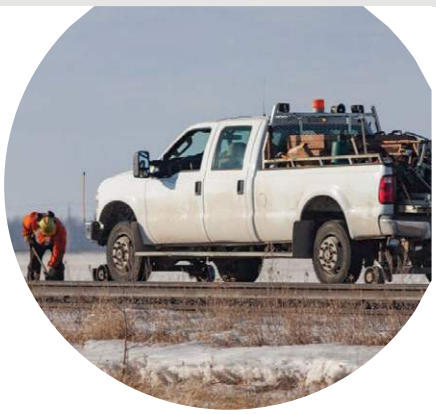
Track Safety for Hi-Rail Maintenance Vehicles



PROBLEM

- Because Hi-Rail vehicles shared the track with freight and passenger trains, a key system for maintaining the safety of their operators is the HLCS (Hi-Rail limit compliance system)
- System uses GPS to determine the location of Hi-Rail vehicles and tx back to operators' office. If vehicle approaches or exceeds its authority limits, the back office will send alerts/alarms to a visual display in the vehicle. There is also a peer-to-peer communication mode to alert Hi-Rail vehicles of proximities to other Hi-Rail vehicles.
- Since this vehicles are being used in remote locations, they need best-in-class performance to maintain connectivity with central operators and ensure safety.

PCTEL SOLUTION:

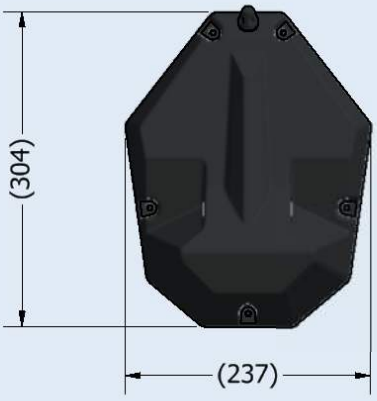
10-1 Multi-spectrum, combination train-top antenna for Intelligent Transportation Systems

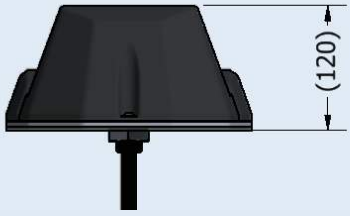
- Purpose-built, combination antenna that supports the high-speed requirements of complex rail fleet communication systems used in Intelligent Transportation Systems (ITS)
- Ultra rugged low-profile platform for maximum clearance in roof top installations
- Robust construction complies with EN50155 and AAR railway standards
- Supports 5G FR1, 802.11ax and multi-spectrum GNSS systems.
- Provides compliance with Hi-Rail Limits Compliance System (HLCS SMTA) standards

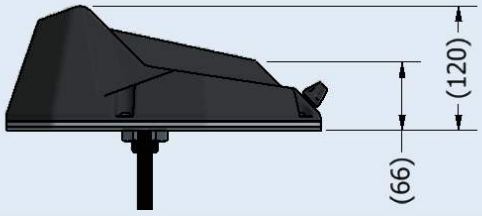
CMTA Platform

Multiband Antenna – GNSS + Cellular + Wi-Fi, Through Hole Mounted for Up to 10 Configurations

PCTEL







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PCTEL Rail Antennas

Model Number	Descritipon	
GL125-DLTEMIMO	Coach™ II 5G Cellular GNSS Multiband Antenna	
GNSS-L125-TNC	Multi-GNSS High Performance Antenna	
GNSS-L125-40TNC	Multi-GNSS High Performance Antenna, High Gain 40 dB typical	
PCT-RSA	Wideband Low Profile Rail Antennas	
PCT-RSABD-DP	Bi-directional Train Top Antenna	
BOA-LCMGPS-PTNF-4LTE	5-port LTE Multiband Base Station Omnidirectional Antenna	
MLPVs	Low Profile Vertical Antennas	
CMTA-910001	10-1 Multi-spectrum, Combination Train-top Antenna for Intelligent Transportation Systems	
BOA5G2X2L125PT-NM	5G FR1 Multiband Base Station Omnidirectional Antenna	

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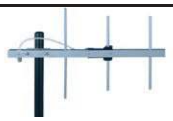
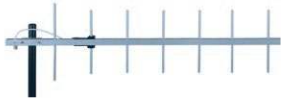
Mobile Mark Antennas

Model Number	Descritipon	
PR-NXD-W	Passenger Rail Low Profile Omni MIMO Antenna Up to 4x Dual-Band WiFi 6E. Meets NFPA-130.	
PR-LLPG508	Passenger Rail Antenna for 5G. MIMO 5-Cables: 2x Sub-6 5G Cellular, 2x WiFi 6 & 1x GNSS. Meets NFPA-130.	
PR-LTMG508	Passenger Rail Antenna for 5G. MIMO 5-Cables: 2x Sub-6 5G Cellular, 2x WiFi 6 & 1x GNSS. Meets NFPA-130.	
MXFG508	Sharkfin for Rail Vehicles. Multiband, 5 in 1: 2 × 5G, 2 x WiFi, 1 x GNSS	
BPN942	5G Base Station for Private Networks. 4 x 5G, 2 x WiFi, 1 x GNSS	
BSLL450XL4.5-C	Base Station Omnidirectional, 450-480MHz. 6.5 dBi gain.	
BSLL915XL	Base Station Omnidirectional, ISM, 900-930 MHz, 7 dBi gain	
Y3343D	Heavy Duty UHF Yagi. Models from 406 to 512 MHz. 7 dB Gain	
Y3345D	Heavy Duty UHF 5 Element Yagi. Models from 406 to 512 MHz. 8.8 dB Gain	
Y3347D	Heavy Duty UHF 7 Element Yagi. Models from 406 to 512 MHz. 10.4 dB Gain	
Y42400WB	Wideband Log Periodic. 400-800 MHz. 9 dBi gain.	
ED450-2	Folded Dipole. 406 to 512 MHz. 5 dBd Gain. BW = 106 MHz.	

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