RADWIN’s FiberinMotion® train-to-ground communications solution ensures continuous high-speed wireless connectivity between trains or metros and network control centers.

RADWIN’s field-proven FiberinMotion® solution is deployed in railway and metro systems worldwide, powering applications such as Wi-Fi for passengers, real time high-definition CCTV, PIS, signaling and more.

Operating in challenging outdoor conditions and in underground tunnels, FiberinMotion® complies with railway industry standards and delivers unmatched capacity and long-range coverage.
FIBERinMOTION®
Overview

The FiberinMotion® train-to-ground communications solution incorporates three primary elements:

» Transportation Base Stations (TBS) - Deployed along the train route to provide continuous coverage and connectivity to rolling stock. Each TBS is deployed with multiple antennas and operates in auto Diversity/ MIMO modes (based on requirements and topology). Base stations are typically deployed at intervals reaching 1 km/0.6 miles underground or 5 km/3 miles above ground (based on topology and country regulations).

» Transportation Mobile Units (TMUs) - Installed on-board the rolling-stock and connected to designated train antennas to assure continuous communications with the nearest TBS. It is possible to install two mobile radio units on-board the train to enhance resiliency and coverage.

» Suite of Management & Monitoring tools - including a central network management system, real-time performance monitoring and offline performance analysis applications. These tools have been specifically developed and customized to support large-scale project deployments.
FiberinMotion® Highlights:

» FiberinMotion® incorporates a field-proven air interface and advanced technologies. The solution operates in near and non line-of-sight (nLOS/NLOS) conditions and in environments where there is high interference.

» High capacity - 750 Mbps per train.

» Extended coverage per TBS, reducing the number of track-side installations required and saving upon substantial infrastructure costs (e.g. poles, electricity, network) as well as on-going maintenance. Infrastructure requirements are reduced by a typical ratio of 1:5 to 1:15 when compared with other Wi-Fi/mesh Wi-Fi based solutions.

» Supports train speeds of up to 350 kmh / 220 mph.

» Seamless handover between radio base stations with a handover time of < 50msec.

» Fully synchronized network that operates on a common time base for all radio base stations, eliminating potential mutual radio interference. This capability is essential for maintaining high and consistent throughput along all routes and operational scenarios.

» Low and fixed latency and jitter critical for delay sensitive applications such as video and VoIP.

» Over-the-air QoS enabling service transmission prioritization with assured SLA.

» A suite of real-time and offline software analysis applications designed specifically for train and metro operations.

Network Management & Monitoring Tools

Real-Time Monitoring Tool

Air Link Performance Monitoring Tool
RADWIN is a leading provider of sub-6 GHz wireless Point-to-Point and Point-to-Multipoint solutions that deliver voice, video and data with unmatched high-capacity for long ranges. Deployed in over 170 countries, RADWIN’s solutions serve the needs of service providers, enterprises and rail and metro operators.

RADWIN’s industry-leading FiberinMotion® train-to-ground solution powers a range of applications including high-speed Wi-Fi for passengers, real-time CCTV, PIS and infotainment services, and CBTC.

FIBERinMOTION® Key Features

» Configurable uplink/downlink bandwidth ratio enabling a variety of services over the same infrastructure.
» Multi-band radio supporting 4.9 to 6.9 GHz (per relevant regulations). Additional frequency bands are also available including customized options.
» High reliability - MTBF > 47 yrs.
» IP-67 radios for operation in harsh outdoor environments.
» Complies with railways standards including EN50155, EN61373, EN50121 and IEC 60571.
» Advanced encryption.

Moscow Metro Deploys RADWIN
Delivering Wi-Fi to Millions of Passengers

» Daily download of over 70 Terabytes
» 90 Mbps net throughput per train
» 1.2 million unique Wi-Fi users daily
» 12 lines, 750 trains, 600 km of tracks

Utah Transit Authority (UTA) – Frontrunner
Delivering connectivity throughout the route

» Total length of 88 miles (142 km)
» Daily ridership of 16,800
» Speed up to 79 mph/127 kmh)