



Rail & Metro

FiberinMotion®

Train-to-ground wireless solution for mission critical & security applications

In today's era of digitization, the demand for railway and metro connectivity has become a necessity. Until recently, most communication networks were connected by best effort standard wireless services, with limited capacity. However, critical networks require high quality connectivity with guaranteed throughput and interference mitigation to ensure robust wireless communications and Quality of Service (QoS).

That's where RADWIN's FiberinMotion® train-to-ground communications solution becomes relevant. Designed specifically for critical applications in the rail industry, FiberinMotion is a market-proven solution that has been successfully deployed in numerous public transport systems worldwide. FiberinMotion powers critical applications including, but not limited to signaling and Communication-Based Train Control (CBTC), Automatic Train Protection (ATP) as a part of the European Railway Traffic Management Systems (ERTMS)™ - and real-time high-definition Closed-Circuit Television (CCTV).

Operating in challenging outdoor conditions and underground tunnels, FiberinMotion complies with the strictest security and railway industry standards. Utilizing a unique air interface, FiberinMotion delivers guaranteed throughput, seamless handover, zero packet loss and long-range coverage.

FiberinMotion® overview

RADWIN's FiberinMotion train-to-ground communications solution is comprised of three primary components that assure operational simplicity:

1. TBSPlus: Transportation Base Stations

Deployed along the train route, creating a continuous trackside radio network to which the trains connect.

2. TMUPlus: Transportation Mobile Units

Installed on-board the rolling-stock, creating a continuous, high-speed link to the trackside network, as the train travels along the route.

3. Management and Analysis

A central network management system with an offline performance & optimization application.



FiberinMotion® Highlights:

FiberinMotion incorporates a field-proven air interface and advanced interference mitigation technologies. The solution provides reliable connectivity for long ranges and high-capacity throughput for high-speed trains:

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

Seamless connectivity between radio base stations: supporting Layer-2 & Layer-3 networks.

TDD synchronization: minimizes radio interference for a superior and consistent connection.

Unique Air Interface: protects crucial networks to ensure non-RADWIN devices will not connect to the system. The Air Interface guards against Wi-Fi attacks such as DOS and man-in-the-middle.

Extended security package: integrates advanced encryption and user authentication. It also provides access control with project configuration and physical security.

Unique handover mechanism: utilizing an on-board decision algorithm

- » No dependency on a network controller, reduces single points of failure and improves the connection speed.
- » Algorithm dynamically addresses capacity requirements for trains moving in parallel.
- » Proactive software engine continuously monitors received signal trends and selects the best available air link.

Over-the-air QoS: enables service transmission prioritization with assured SLA.

Extended coverage per Base Station: reduces number of trackside installations and associated infrastructure (poles, power, network) required for the wayside network.

High-speed support: seamless connectivity between radio base stations, at speeds of up to 350 kmph/220 mph.

Software analysis applications: real-time and offline software analysis applications, designed uniquely for train and metro operations.

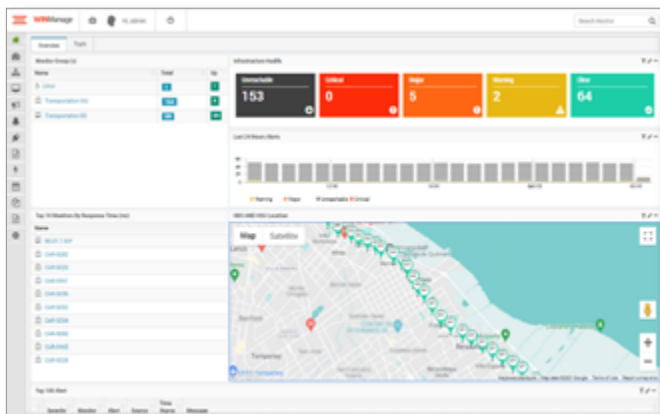
TBSPlus
Transportation
Base Station



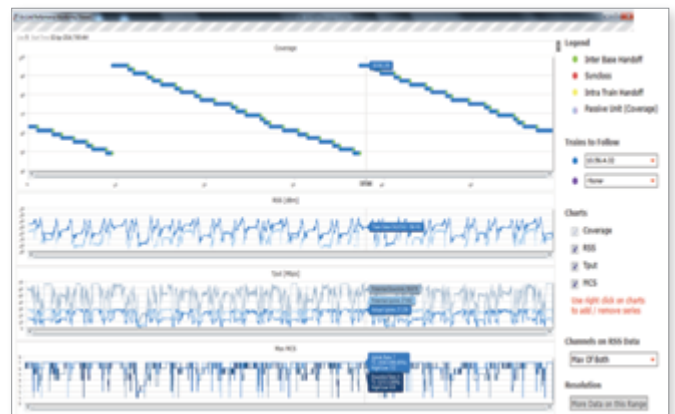
TMUPlus
Transportation
Mobile Unit



Network management & monitoring tools



WINManage: Web based, customizable, real time data management system



Air Link Performance Monitoring Tool

Additional selected features



Multi-band radio

4.9 to 5.9 GHz, per specific country regulation



High reliability

MTBF: more than 47 years



IP-67 radios

Designed for harsh outdoor environment



Railway standards compliance

EN50155, EN61373, EN50121, IEC 60571, EN45545.



Secured communication

EN50159 Support

About RADWIN's Transportation Solutions:

RADWIN is the global provider of broadband wireless solutions that deliver blazing-fast broadband with unparalleled reliability. Deployed in over 170 countries, RADWIN's solutions power applications including backhaul, access, private network connectivity, and broadband on the move for rail and metro trains.

RADWIN

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