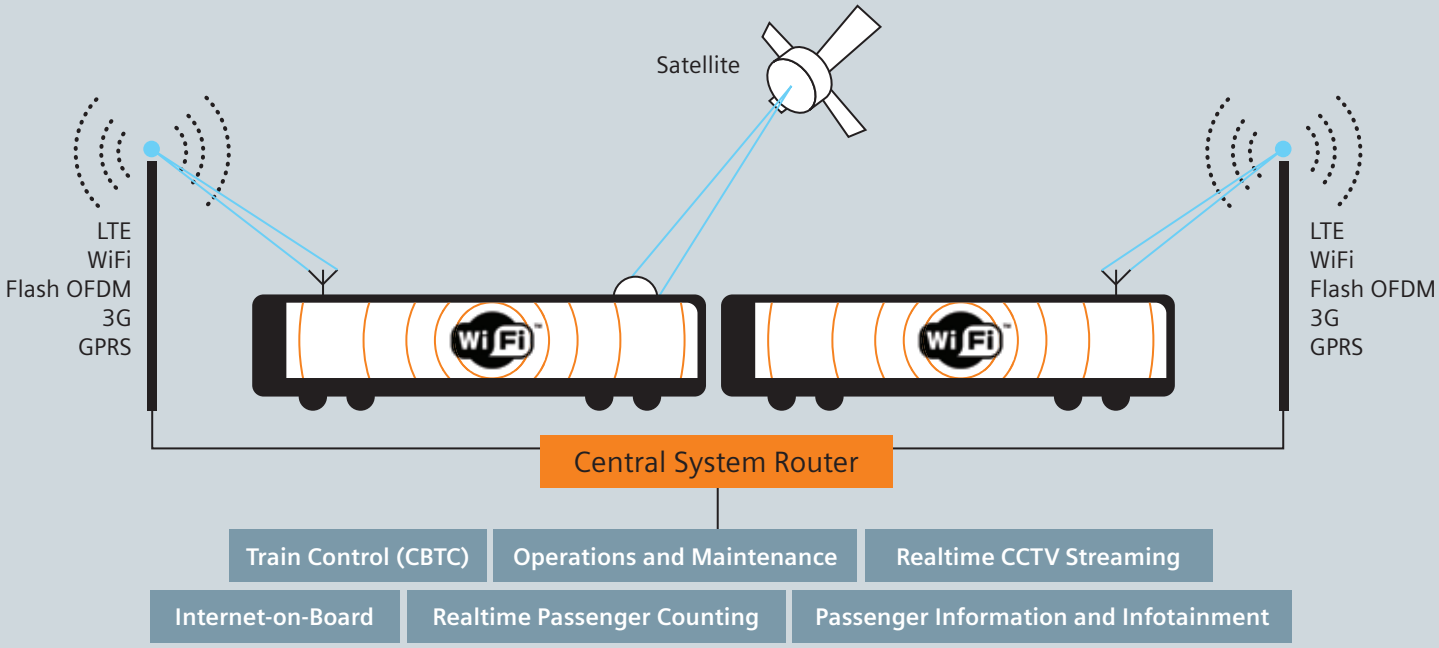
How do you take a giant leap forward in your train to track communications?

With Airlink - Our high performance wireless broadband onboard connection

To enable operators managing train to track communications more cost effectively and with increased efficiency

Answers for mobility.

SIEMENS



One solution, applications unlimited

Multiple applications
From Train Control, passenger information to CCTV and remote diagnostics, all applications make use of one single platform.

Scalable bandwidth
Airlink provides aggregated bandwidth of multiple radios for maximum design flexibility of availability and data throughput.

Cost effectiveness
Future-proof investment is ensured by the upgradeability of bandwidth, applications and radio technologies. Airlink's platform concept reduces maintenance and lifecycle costs.

Adaptability
Airlink's seamless and dynamic roaming between radio technologies in any environment enables it to meet the bandwidth needs of the most demanding applications - anywhere, any time.

System overview
Connection is achieved via an existing communications infrastructure. For example, from multiple radios technologies like WiMAX, 3G, LTE, Flash OFDM and more, or a dedicated wireless backhaul system from Siemens pulz8 to create seamless roaming and uninterrupted service.

The train-borne unit, used as a gateway, provides multiple wireless connections to the train with all radio components throughout the network implemented with full redundancy to deliver maximum availability and reliability.

Applications Enabled

Operations
- Communication Based Train Control (CBTC)
- Real-time Operation data
- 24/7 Maintenance data
- Ticketing / Point of Sales
- Remote Configuration / Diagnostic
- Communication for staff
- Asset Tracking (over GPS)
- Realtime Passenger Counting
- Telemetrics

Security applications
- Realtime CCTV Streaming
- Front facing camera streaming in realtime
- Level crossing monitoring
- Equipment Intrusion
- Incident Analysis
- On-line virtual Black Box
- Emergency Intercom

Passenger
- Passenger Information System
- Internet-on-Board
- Entertainment
- Media Content Platform
- Digital Advertising
- At-seat Audio
- Enhanced Cellular Coverage

Airlink

Every day around the world, transportation providers and passengers are taking advantage of Airlink's high performance broadband connection. Airlink enables operators to manage train to track communications more cost effectively and with increased efficiency while opening the door to more exciting products and services for passengers.

What is Airlink?
Airlink is a secure dependable broadband wireless connection between the train and wayside. Its industry-leading performance, in terms of bandwidth and quality of service, enables operators and passengers to take advantage of multiple applications concurrently like train control, security, onboard internet and infotainment - even in the most challenging railway environments.

How does Airlink work?
Airlink combines and manages already available radio technologies like WiMAX, 3G, LTE, Flash OFDM and more into 1 scalable, robust broadband wireless connection for your operations and services.

The bandwidth is delivered to the train from wayside much like a wireless router provides bandwidth to your home pc - with of course, significant security and reliability upgrades. Operators can choose instead, to build a Siemens Airlink dedicated Wi-Fi backhaul system to deliver the internet connection where no radio technologies are available or to support existing ones. Either way, Airlink provides you with the industry's most robust and cost effective wireless broadband connection.

Market drivers for communication to trains

Airlink's broadband wireless connection enables unlimited opportunities for transportation providers to develop train to track communications and create services. At this very moment, train operators around the world are taking advantage of our powerful solution to provide:

Train Control (CBTC)
Operators can choose various levels of control from automatic train operations to driverless operations with full confidence due to Airlink's high availability and redundant setup that enables an always-secured connection. Our radio design network provides a seamless non-stop connection for the complete line of a metro system including depot areas, for example.

Realtime CCTV Streaming
Airlink provides a reliable broadband connection with plenty of muscle to meet on-demand video streaming needs. This gives operators the freedom to choose from a variety of solutions to meet security demands. From onboard video surveillance to live cameras at the stations, Airlink delivers the necessary scalable bandwidth even to the most challenging railway environments.

Passenger Information and Infotainment
Keeping your passengers informed is a great way to keep your passengers. With a robust wireless connection from Airlink, you have multiple channels and means to efficiently pass information and content on to your passengers. Deliver real-time traffic information to train stations or passengers' mobile devices and laptops, sell advertising space, partner with content providers, the opportunities are limitless for you to better serve and engage your passengers and discover new revenue streams.

Internet-on-Board
Make your rail line the most attractive choice for commuters. With onboard Internet, your train line becomes not only the most environmentally friendly way to travel but also the most productive for travelers. Passengers can stay connected with a reliable connection. And with Airlink's in-train caching feature, it provides an improved internet performance for your passengers.

Operations and Maintenance
Because Airlink uses standard interfaces for its set-up, it supports the train's existing network infrastructure. This enables operators to achieve better and more cost effective service planning and maintenance by taking advantage of Airlink's robust communication channel for telemetric data transfer.

Realtime Passenger Counting
Combining passenger counting information with GPS data and the ability to transmit it to the landside provides operators with a real time overview of passenger capacity and movement.

References

Automatic Train Control for Beijing Metro
Line 10 and the Olympic Branch are two key lines in Beijing's Metro system. Both lines are equipped with Siemens pulz8 advanced modular automatic train control system. The first time ever that moving block ATC technology in combination with continuous bidirectional data transmission (Airlink) has been used.

- The Olympic Line consists of 4 stations along a 6 km line.
- Metro Line 10 consists of 22 stations along a 25 km line.

Onboard Internet for train and bus passengers in Denmark
Siemens pulz8 and Butler Networks provide super broadband bandwidth for Danish rail operator DSB. Enabling free Internet onboard, live TV, real time passenger information, advertising and technical communications between onboard train equipment and landside systems to 135 Metropolitan train sets (960 Wagons).

- Rail line consists of 84 stations along 155 km.

CBTC and PDS (CCTV and HDTV) for Nanjing Metro
Line 2 of Nanjing's metro system is equipped with Trainguard MT train control system with CBTC. The Airlink radio transmission system for train control has a focus on quality and security thus with a 99.999999% delivery guarantee that moves the data to drive the train and a Public Data System that delivers 2.0 Mbit from the train for CCTV streaming to the Operations Center, in addition a HDTV streaming into the train on 6.0 Mbit.

- The rail line consists of 19 stations along a 25.5 km line, 24 train sets equipped.

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The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

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