



IWLAN for transportation systems

Safety and comfort in transportation applications

Requirements for the transportation sector

Transportation companies' major responsibility is to provide reliable and punctual service. However, passengers not only want to get from point A to point B. They also want to enjoy a certain degree of comfort on the way. More importantly, a maximum level of personal safety has to be guaranteed for both passengers and employees.

Wireless, safe, and convenient

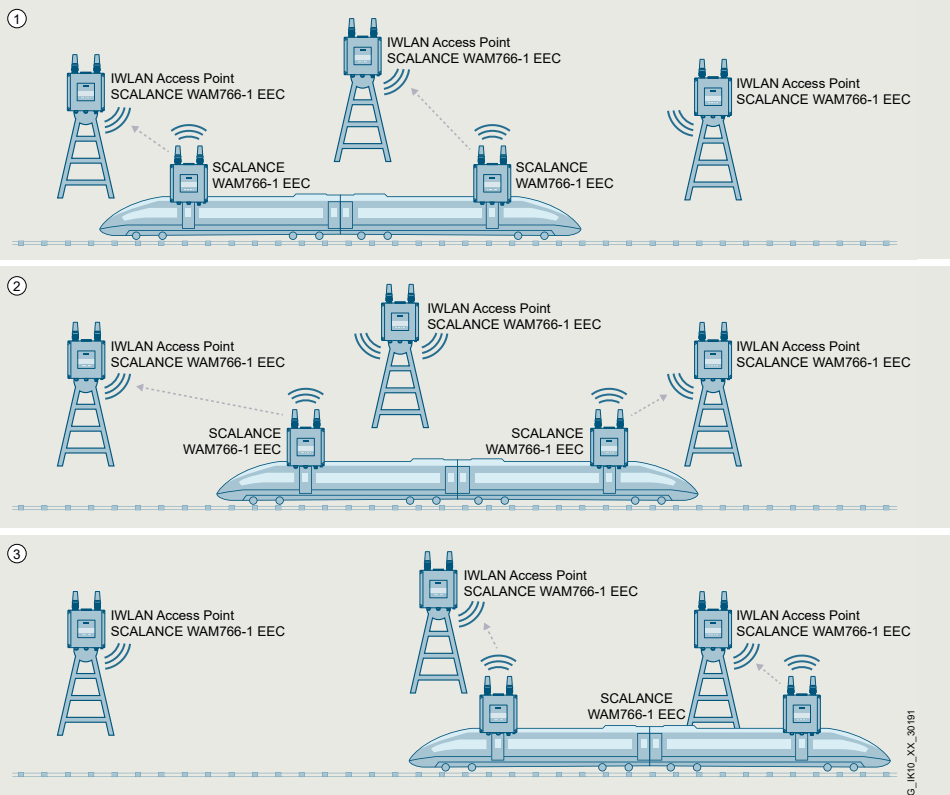
Wireless connections via IWLAN (Industrial Wireless LAN) from the rail depot or station to the stationary train permit communications between the trainset and the control room. But you can also set up an IWLAN connection along the entire route. This allows to reliably transmit important train data, such as for, e.g., train control and signaling, wirelessly. Also, passenger information such as multimedia content, e.g., news tickers, timetables, or advertisements, can be transmitted via IWLAN. With the right IWLAN antennas, web connections remain stable even in tunnels. Another plus is passenger safety – IWLAN can also transmit video monitoring images from the traveling train to the control room.

Special challenges of mobile data connections

All along a rail route, ambient conditions for wireless data communications change constantly – tunnels, spatial obstacles, adverse geographic conditions, or interferences along the way can continually cause disruptions. And, since the duration of a roaming process is generally not predictable, connections can often be cut off. This can easily cause complications in mobile applications.

Advantages of IWLAN in the rail sector

- Reliable connections thanks to redundancy: two WLAN connections running simultaneously from the Client to the Access Point
- Uninterrupted communication via a permanent network connection
- Important certifications for use in a transportation environment (NEMA TS2, E1) together with certifications for rail applications (EN 50155, EN 45545-2, EN 50121-4, EN 50121-3-2)
- This wireless solution can also be used in other sectors, e.g., in Automated Guided Vehicles (AGV) in logistics



For rail applications, in which the Client Modules on the traveling train must connect with Access Points along the route, wireless communication has to meet special requirements to ensure a secured and reliable radio connection.

Reliable communication thanks to redundancy

The iPRP (Industrial Parallel Redundancy Protocol) iFeature makes it possible to use two radio links in parallel in wireless networks. iPRP is based on the PRP redundancy technology known from wired networks. In both cases, data packets are duplicated and transmitted on two mutually independent infrastructures. However, PRP is not enough for wireless applications because of the special characteristics and requirements involved in radio communication. The iPRP iFeature is a specific improvement that establishes reliable redundancy

via WLAN. This additional function enables PRP via WLAN – even for moving applications. If the roaming process is delayed or interference or disruptions crop up, communication continues reliably by way of the second path. The special feature here is that the two Clients on a vehicle never connect with the same Access Point. What's more, the two Clients on a vehicle never scan simultaneously for alternative Access Points, meaning that at least one connection is always stable. This solution is usable across multiple sectors and is suitable for a variety of applications, including Automated Guided Vehicles (AGVs).

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Siemens AG
Digital Industries
Process Automation
Östliche Rheinbrückenstr. 50
76187 Karlsruhe, Germany

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