



SIEMENS

Ingenuity for life

IWLAN for transportation systems

Safety and comfort in transportation applications

Requirements for the transportation sector

Transportation companies have a major responsibility: customers must be provided with reliable, punctual service at all times. And passengers not only want to get from point A to point B, but also to enjoy a certain degree of comfort on the way. Last but not least, a maximum level of personal safety has to be guaranteed for both passengers and employees.

Wirelessly safe and convenient

Wireless connections from the rail depot or station to the stationary train, via IWLAN (Industrial Wireless LAN), permit communications between the vehicle and the control room. But you can also set up an IWLAN connection along the whole route. That offers passengers Internet service via their mobile devices or laptops even while the train is in motion – with the right IWLAN anten-

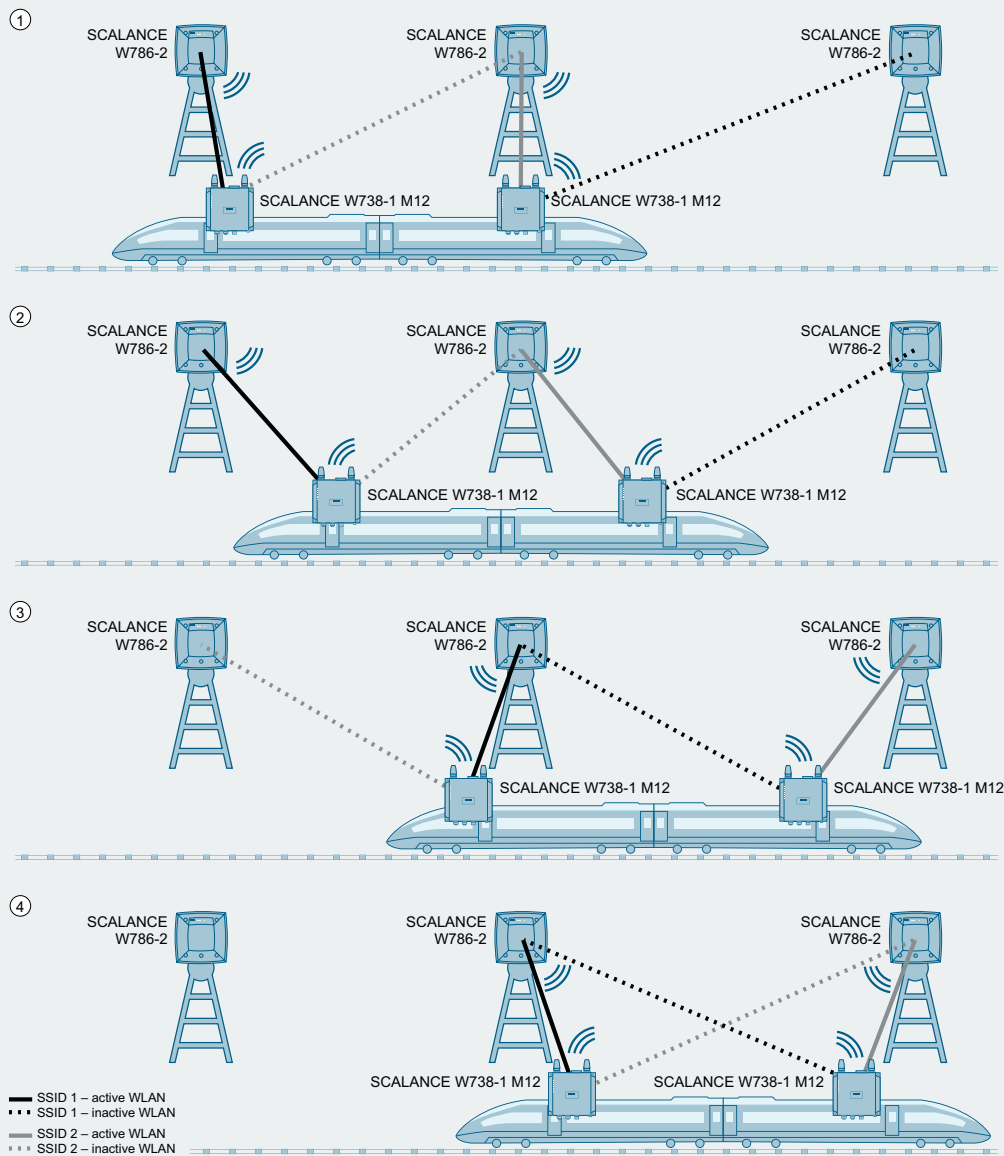
nas, a web connection remains stable even in tunnels. Another plus is passenger safety – IWLAN can also transmit video monitoring images from the traveling train to the control room.

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 interference 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. That can easily cause complications in mobile applications. So rail applications, in which the Client Modules on the traveling train must connect with Access Points along the route, have to meet special requirements to ensure a lastingly reliable radio connection.

Advantages of IWLAN in 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) and also specifically for rail applications (EN 50155, EN 45545-2, EN 50121-4, EN 50121-3-2)
- The solution can be used for multiple sectors, for example in Automated Guided Vehicles in logistics



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. But PRP is not enough for wireless applications, because of the special characteristics and requirements involved in radio. The iPRP iFeature is an expansion 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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