

Onboard WiFi for Trains

Industry	Transportation
Products	AWK-3121 Series
In Brief	More and more people today use trains to commute to work or to go on business trips. Because people are spending more time on trains, onboard Internet service has become more and more important to help business travelers maximize their efficiency.

Background

More and more people today use trains to commute to work or to go on business trips. Because people are spending more time on trains, onboard Internet service has become more and more important to help business travelers maximize their efficiency. These travelers demand high bandwidth so WiFi is the best solution for this kind of mobile communication. It is not very difficult to implement a local WiFi network on a train. However, connecting to the Internet can be problematic because WiFi is not designed for high speed vehicles travelling at speed over 80 km/h, such as a high speed train. Therefore, satellites are used to connect high speed trains to the Internet. Besides Internet service, railway companies can also use wireless technology to provide multimedia entertainment services.

Application Requirements

- EN50155 certification
- Dual RF band
- QoS

Solution Description

An access point (AP) such as the AWK-3121 can be installed in each coach to let passengers to use their laptop to connect to the Internet. These APs should be set to IEEE802.11b/g with a 2.4 GHz spectrum. Two additional APs connect different coaches together with IEEE802.11a and a 5 GHz spectrum. This can avoid RF conflict and reduce interference. The AWK-3121 can also be used to connect the onboard WiFi network to a satellite gateway, providing Internet access for high-speed trains. Because of vibrations and harsh environmental conditions, such as lightening, rain, etc., the solution also required adherence to EN50155 certification.

System Diagram



Benefits

- IEEE802.11a/b/g can provide 54 Mbps bandwidth
- IEEE802.11a with 5 GHz band for inter-coach communication and IEEE802.11b/g with 2.4 GHz band for intra-coach service to avoid interference