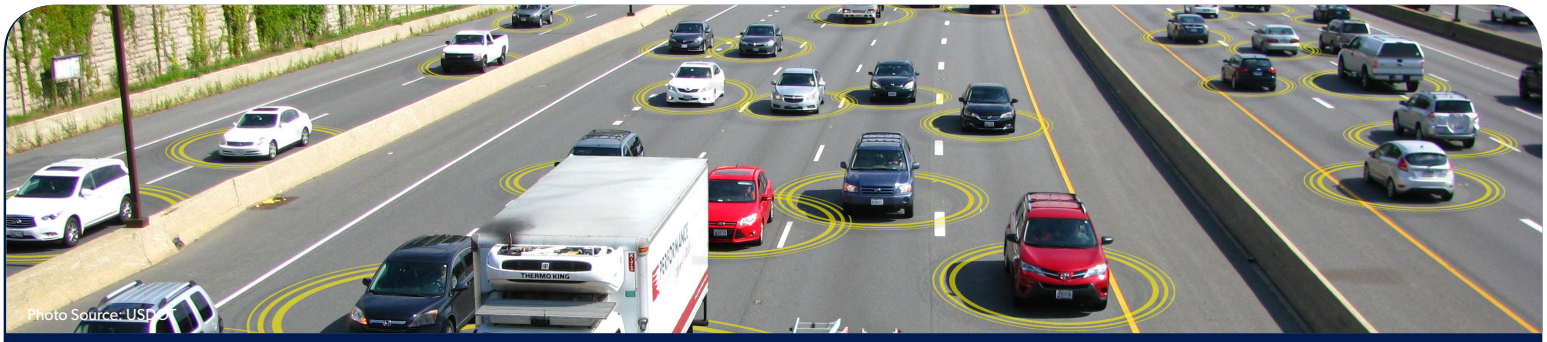

CONNECTED VEHICLE STANDARDS

LIMIT 35 SAFETY | MOBILITY | ENVIRONMENT

Connected vehicles have the potential to transform the way Americans travel by allowing cars, buses, trucks, trains, traffic signals, smart phones, and other devices to communicate through a safe, interoperable wireless network. A connected vehicle system benefits all travelers, including pedestrians.

Several intelligent transportation systems (ITS) standards have recently been published. These standards support connected vehicle deployments and the expected 2016 National Highway Traffic Safety Administration (NHTSA) rulemaking on vehicle-to-vehicle (V2V) communications:

- **SAE J2735 Dedicated Short Range Communications (DSRC) Message Set Dictionary:** This standard will assure that DSRC applications are interoperable. Applications, including collision avoidance, emergency vehicle warnings, and signage, require this standard to be effective.

- **SAE J2945/1 Onboard Minimum Performance Requirements for V2V Safety Communications:** This standard sets the minimum performance requirements and the interface standard features that are required to establish interoperability between onboard units for V2V safety systems.
- **IEEE 1609.2-2016 Standard for Wireless Access in Vehicular Environments (WAVE) – Security Services for Applications and Management Messages:** This standard defines secure message formats and processing within the DSRC/WAVE system.

The development of connected vehicle system standards is informed by:

- The results of ongoing connected vehicle technical and policy research activities, findings from field testing, and other global technological developments
- Adaptation of existing standards, where relevant
- Harmonization through joint international efforts.

U.S. Department of Transportation

- **EEE 1609.3-2016 Standard for WAVE – Networking Services:** This standard defines network and transport layer services, including addressing and routing, in support of secure WAVE data exchange. It also defines WAVE short messages, providing an efficient WAVE-specific alternative to Internet Protocol version 6 that can be directly supported by applications, and the Management Information Base for the WAVE protocol stack.
- **IEEE 1609.4-2016 Standard for WAVE – Multi-Channel Operations:** This standard provides enhancements of the IEEE 802.11 Media Access Control to support WAVE operations and describes various standard message formats for DSRC applications.
- **IEEE 1609.12-2016 Standard for WAVE – Identifier Allocations:** This standard specifies allocations of WAVE identifiers defined in the IEEE 1609™ series of standards.

The U.S. Department of Transportation's ITS Joint Program Office, NHTSA, standards development organizations, the Society of Automotive Engineers International (SAE), the Institute of Electrical and Electronics Engineers (IEEE), and the Crash Avoidance Metrics Partnership are working together to update and publish these standards. This collaborative effort also considers the input of many other interested stakeholders.

The increased deployment of connected vehicle systems may necessitate enhancements and corrections to one or more of these standards. SAE and IEEE are prepared to update the standards via publication of Errata to ensure that these updates do not break backward compatibility.

Additional information on ITS standards can be found at: www.standards.its.dot.gov.

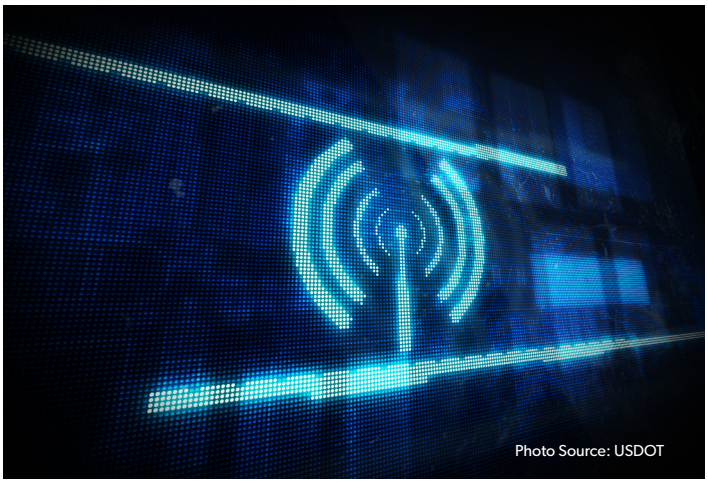
Photo Source: USDOT

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