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IEEE Standard for Wireless Access in Vehicular Environments (WAVE)—Networking Services

IEEE Vehicular Technology Society

Sponsored by the
Intelligent Transportation Systems Committee

IEEE
3 Park Avenue
New York, NY 10016-5997
USA

IEEE Std 1609.3™-2016
(Revision of
IEEE Std 1609.3-2010)

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Abstract: Services to WAVE devices and systems are provided in IEEE Std 1609.3™, IEEE Standard for Wireless Access in Vehicular Environments (WAVE)—Networking Services. Layer 3 and layer 4 of the open system interconnect (OSI) model and the Internet Protocol (IP), User Datagram Protocol (UDP), and Transmission Control Protocol (TCP) elements of the Internet model are represented. Management and data services within WAVE devices are provided.

Keywords: IEEE 1609.3™, Provider Service Identifier (PSID), WAVE Service Advertisement (WSA), WAVE Short Message (WSM), Wireless Access in Vehicular Environments (WAVE)

The Institute of Electrical and Electronics Engineers, Inc.
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Introduction

This introduction is not part of IEEE Std 1609.3™-2016, IEEE Standard for Wireless Access in Vehicular Environments (WAVE)—Networking Services.

A WAVE system is a radio communications system intended to provide seamless, interoperable services to transportation. These services include those recognized by the U.S. National Intelligent Transportation Systems (ITS) Architecture [B7][a] and many others contemplated by the automotive and transportation infrastructure industries. These services include vehicle-to-roadside communication, vehicle-to-vehicle communications, and potentially communication among other devices. Networking Services provides services to WAVE devices and systems. Layer 3 and layer 4 of the open system interconnect (OSI) model and the Internet Protocol (IP), User Datagram Protocol (UDP), and Transmission Control Protocol (TCP) elements of the Internet model are represented. Management and data services within WAVE devices are provided. Network Services is but one component in the overall WAVE architecture, which is described in IEEE Std 1609.0™.

[a] The numbers in brackets correspond to those of the bibliography in Annex A.

Contents

IEEE Standard for Wireless Access in Vehicular Environments (WAVE)—Networking Services

1. Overview

A WAVE system is a radio communications system intended to provide interoperable services to transportation. These services include those recognized by the U.S. National Intelligent Transportation Systems (ITS) Architecture and many others contemplated by the automotive and transportation infrastructure industries. These services include communications between vehicles and roadside units, vehicles and other vehicles, and perhaps communications among other WAVE devices. WAVE Networking Services provide management services and data delivery services between WAVE devices. Networking Services is but one component in the overall WAVE architecture, which includes IEEE Std 1609.2™,[1] IEEE Std 1609.4™, and IEEE Std 802.11™. The WAVE architecture is described in IEEE Std 1609.0™.

1.1 Scope

The scope of this standard is to define services, operating at the network and transport layers, in support of wireless connectivity among vehicle-based devices, and between fixed roadside devices and vehicle-based devices using the 5.9 GHz Dedicated Short Range Communications/Wireless Access in Vehicular Environments (DSRC/WAVE) mode.

[1] Information on references can be found in Clause 2.