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IEEE Standard for Wireless Access in Vehicular Environments (WAVE)—Multi-Channel Operation

IEEE Vehicular Technology Society

Sponsored by the
Intelligent Transportation Systems Committee

IEEE
3 Park Avenue
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USA

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Abstract: Multi-channel wireless radio operations, Wireless Access in Vehicular Environments (WAVE) mode, medium access control (MAC), and physical layers (PHYs), including parameters for priority access, channel switching and routing, management services, and primitives designed for multi-channel operations are described in this standard.

Keywords: channel coordination, IEEE 1609.4™, multi-channel operation, user priority, WAVE, Wireless Access in Vehicular Environments

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Introduction

This introduction is not part of IEEE Std 1609.4™-2016, IEEE Standard for Wireless Access in Vehicular Environments (WAVE)—Multi-Channel Operation.

A Wireless Access in Vehicular Environments (WAVE) system is a radio communications system intended to provide seamless, interoperable services for surface transportation. These services include those recognized by the U.S. National Intelligent Transportation Systems (ITS) Architecture [B4][a] and many others contemplated by the automotive and transportation infrastructure industries. These services include vehicle-to-roadside communication, vehicle-to-vehicle communication, and potentially communication among other devices. Multi-channel operation provides medium-access control (MAC)-layer enhancements to the capabilities specified in IEEE Std 802.11™.[b] This 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.
[b] Information on references can be found in Clause 2.

Contents

IEEE Standard for Wireless Access in Vehicular Environments (WAVE)—Multi-Channel Operation

1. Overview

1.1 Scope

The scope of this standard is the specification of medium access control (MAC) sublayer functions and services that support multi-channel wireless connectivity between IEEE 802.11 Wireless Access in Vehicular Environments (WAVE) devices.

1.2 Purpose

The purpose of this standard is to enable effective mechanisms that control the operation of upper layer data transfers across multiple channels, without requiring knowledge of physical layer (PHY) parameters, and describe the multi-channel operation channel routing and switching for different scenarios.

1.3 Conformance

Per the *IEEE Style Manual* [B1],[1] this standard includes normative and informative information. Normative text may describe mandatory or optional features. A mandatory feature may have optional as well as

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