IEEE P802.19
Wireless Coexistence

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| 802.19 WAC SG Proposed PAR |
| Date: 2016-05-18 |
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# Abstract

This submission includes the IEEE 802.19 Wireless Automotive Coexistence (WAC) Study Group PAR.

# PAR

**P802.11**

**Submitter Email:** igal.kotzer@gm.com
**Type of Project:** Recommended practice
**PAR Request Date:** TBD
**PAR Approval Date:** TBD **PAR Expiration Date:** TBD **Status:** Unapproved PAR,

**1.1 Project Number:** P802.19.2
**1.2 Type of Document:** Standard
**1.3 Life Cycle:** Full Use

**2.1 Title:** Recommended Practice for Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks - Specific Requirements - Part 19: Coexistence of Unlicesnsed Wireless Systems in an Automotive Environment

**3.1 Working Group:** Coexistence TAG (C/LM/WG802.19)
**Contact Information for Working Group Chair**

**Name:** Stephen Shellhammer
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**Contact Information for Working Group Vice-Chair Name:**
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**3.2 Sponsoring Society and Committee:** IEEE Computer Society/Local and Metropolitan Area Networks (C/LM)
**Contact Information for Sponsor Chair**

**Name:** Paul Nikolich
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**4.1 Type of Ballot:** Individual
**4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot:**This should be filled in --
**4.3 Projected Completion Date for Submittal to RevCom:**This should be filled in – This should be at least 6 months after the value in 4.2

**5.1 Approximate number of people expected to be actively involved in the development of this project:** 15

**5.2. Scope:**This recommended practice provides parameters for IEEE 802 2.4GHz and 5GHz wireless devices and Bluetooth devices to enhance their performance in the automotive environment. The term “automotive environment” means in-vehicle and inter-vehicle environments as well as interaction between other IEEE 802 devices and in-vehicles devices. Typical scenarios the recommended practice will focus on include:

* + Interference among IEEE std 802.11 devices
	+ Interference from IEEE std 802.11 devices to non IEEE std 802.11 devices in the 2.4GHz band
	+ Interference from non IEEE std 802.11 devices in the 2.4GHz band to IEEE std 802.11 devices

The recommended practice will focus on the frequency bands that are allowed for wireless automotive use:

* + The 2.4GHz ISM band (2.401GHz – 2.483GHz)
	+ UNII-1 in the US (5.150GHz – 5.250GHz)
	+ UNII-3 in Europe, where the EIRP is limited to 14dBm (5.725GHz – 5.875GHz)

**5.3 Is the completion of this standard dependent upon the completion of another standard:** No

**5.4 Purpose:**

This document will not include a purpose clause.

* The purpose of the recommended practise is to identify performance enhancement settings that provide improvements in throughput, latency, reliability, PESQ score etc for IEEE 802 unlicensed wireless devices, for example IEEE std 802.11, IEEE std 802.15 compliant devices. The wireless device parameters include both the physical layer (PHY) and the medium access control layer (MAC) settings of the devices. The typical scenarios the recommended practice will focus on include::
	+ Interference among IEEE std 802.11 devices
	+ Interference from IEEEstd 802.11 devices to non IEEE std 802.11 devices in the 2.4GHz band
	+ Interference from non IEEE802.11 devices in the 2.4GHz band to IEEE std 802.11 devices
	+ Non-IEEE 802.11 devices in the 2.4GHz band include but are not limited to Bluetooth devices.
* Since the values of the performance metrics depend on the scenario, the focus will be on the relative improvement of these performance metrics with and without the recommended practice in play in the automotive environment.

**5.5 Need for the Project:**

Wireless LAN (WLAN) devices are used in diverse environments. One of the environments with rapidly increasing deployment is the automotive environment. However, this environment differs from the enterprise or residential environments. In particular, very high congestion of both access points and stations (e.g. in traffic jams) situations with inter-AP distance of about 2m-3m and rapid time varying channel due to automotive mobility. Additionally there is the mobility effect on the wireless channel even in the scenario of static AP and STAs inside the vehicle caused by signal reflections from outside elements. Moreover, there is an extensive use of other non IEEE 802 technologies in the 2.4GHz band, which requires consideration of coexistence issues.

As this environment is a challenging environment for IEEE 802 devices, the recommended practice aims to improve coexistence and hence improve the devices’ performance.

**5.6 Stakeholders for the Standard:**Manufacturers and users of network semiconductors, consumer electronic devices, vehicle manufacturers.

**Intellectual Property:**

**6.1.a. Is the Sponsor aware of any copyright permissions needed for this project? :** No

**6.1.b. Is the Sponsor aware of possible registration activity related to this project? :** No

**7.1 Are there other standards or projects with a similar scope? :** No

**7.2 Joint Development**

**Is it the intent to develop this document jointly with another organization?:** No

**8.1 Additional Explanatory Notes (Item Number and Explanation):**

5.2 and 5.4 IEEE std 802.11 Standard for Information technology—

Telecommunications and information exchange between systems

Local and metropolitan area networks— Specific requirements

Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

IEEE 802.15.4: Low-Rate Wireless Networks

**5.2**

* The term “automotive environment” means in-vehicle and inter-vehicle environments as well as interaction between other IEEE 802 devices and in-vehicles devices
* Non-IEEE 802.11 devices in the 2.4GHz band include but are not limited to Bluetooth devices.