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](mailto: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??  
**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**

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**3.2 Sponsoring Society and Committee:** IEEE Computer Society/Local and Metropolitan Area Networks (C/LM)  
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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:**TBD  
**4.3 Projected Completion Date for Submittal to RevCom:**TBD

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

**5.2. Scope:**

The scope of this recommended practice is to provide recommendations on the value settings for the various parameters of the IEEE802 unlicensed wireless devices as well as Bluetooth to enhance their performance in the automotive environment. The recommended practice is provided for devices operating in the 2.4GHz and 5GHz unlicensed frequency bands.

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

**5.4 Purpose:**

The purpose of this recommended practice is to provide value settings to improve the performance in the automotive environment of IEEE802 devices as well as reduce mutual interference between IEEE802 devices and other devices on the 2.4GHz ISM band.

**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 that are the focus of the majority of the other standards. 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 the effect of the vehicle mobility on the channel even in the scenario of static AP and STAs inside the vehicle due to signal reflections from outside elements, as well as the use of other non IEEE802.11 technologies in the 2.4GHz ISM band and the need to coexist with them.

As this environment is a challenging environment for IEEE802.11 devices, the recommended practice standard aims at improving the devices’ performance as well as improving coexistence.

**5.6 Stakeholders for the Standard:**Manufacturers and users of 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**

* IEEE802 unlicensed wireless, for example IEEE802.11, IEEE802.15
* The wireless devices include both the physical layer (PHY) and the medium access control layer (MAC)
* The term “automotive environment” means in-vehicle and inter-vehicle environments as well as interaction between other IEEE802 devices and in-vehicles devices
* The frequency bands that are allowed for wireless automotive use are:
  + The 2.4GHz ISM band (2.401GHz – 2.483GHz)
  + UNII-1 in the US (5.170GHz – 5.250GHz)
  + UNII-3 in Europe, where the EIRP is limited to 14dBm (5.725GHz – 5.875GHz)
* Typical scenarios the standard will focus on are:
  + Interference among IEEE802.11 devices
  + Interference from IEEE802.11 devices to non IEEE802.11 devices in the 2.4GHz band
  + Interference from non IEEE802.11 devices in the 2.4GHz band to IEEE802.11 devices
* Non-IEEE802.11 devices in the 2.4GHz band include but are not limited to Bluetooth devices.
* Examples of performance enhancements are improvements in throughput, latency, reliability, PESQ score etc.
* 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.