IEEE P802.11
Wireless LANs

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| Liaison from IEEE 1609 WG re: NGV Use cases and requirements |
| Date: 2019-01-08 |
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Abstract

This document contains a liaison statement received from the IEEE 1609 Working Group in response to the IEEE 802.11 WG request for comments on NGV use cases and requirements, see <https://mentor.ieee.org/802.11/dcn/18/11-18-1303-02-0ngv-liaison-requesting-feedback-on-ngv-usage-scenarios.docx> .

The received liaison is embedded below and reproduced on the following pages.



 

SUBJECT: **IEEE 1609 WG Reply to IEEE 802.11 Working Group Liaison Communication Related to Next Generation V2X (NGV) use cases and requirements**

DATE: January 4, 2019

FROM: IEEE Vehicular Technology/Intelligent Transportation System (VT/ITS) 1609 Working Group

TO: IEEE 802.11 Chairperson, Dorothy Stanley (dstanley@ieee.org)

COPY TO’ IEEE VTS President, Alexander Wyglinski (alexw@wpi.edu)

Thank you for informing the IEEE 1609 Working Group (WG) about the IEEE 802.11 NGV Study Group activities, including proposed use cases for an IEEE 802.11 amendment. We understand that the SG has now transitioned to task group TGbd. The IEEE 1609 WG is pleased to learn that the IEEE 802.11 WG is initiating a Next Generation V2X amendment. We assembled a subcommittee to reply to the IEEE 802.11 WG’s request to comment on prioritization of use cases and to provide additional feedback. With the approval of the IEEE 1609 WG, at its December 13, 2018, WG teleconference meeting, we submit the following comments.

The IEEE 1609 WG develops higher layer protocols for wireless access in vehicular environments (WAVE). The IEEE 1609 WG defines a “WAVE device” as “a device that is compliant with IEEE Std 1609.3, IEEE Std 1609.4 and IEEE Std 802.11 communicating outside the context of a basic service set.”[[1]](#footnote-1) We believe that a WAVE device, based on the IEEE 802.11p-2010 amendment, is capable of meeting the requirements of planned safety, mobility, environmental sustainability, and automation use cases. IEEE 1609 fully supports efforts to improve and enhance the operation and performance of the capabilities that were introduced in IEEE 802.11p for these use cases. IEEE 1609 also fully supports the consideration of new use cases by the Study Group, and now in the task group TGbd.

Interoperability, co-existence, backward compatibility and fairness between legacy devices and NGV devices, as defined in document IEEE 802.11-18-1323/0 are extremely important features that should be requirements in the development of a new amendment. We believe these features, possibly combined with other features like a capability indicator, form the basis for a seamless evolution strategy from IEEE 802.11p-based WAVE devices to next generation WAVE devices based on IEEE 802.11bd. We consider it critical that the 802.11bd amendment fully support such an evolution strategy, and we look forward to continued interaction between our two WGs to realize this goal.

Improvements in performance, receiver sensitivity, and throughput proposed by the study group will benefit all use cases. However, in the use case concerning the Basic Safety Message, increased range may need to be tempered with congestion control to ensure effectiveness in dense user environments. When a Task Group (TG) activity is initiated, it will be beneficial if traceability of requirements derived from use cases is well documented.

Sensor sharing, automated driving assistance, and enhanced vehicular positioning are new use cases that were not explicitly considered during the development of IEEE 802.11p. While many of these may already be supported by IEEE 802.11p, backward compatible improved performance would be welcome, and advanced capabilities should also be pursued.

As noted in the IEEE 802.11 document, there are challenges and limitations for each of the use cases. Sensitivity to cost and complexity of the devices should be considered as the currently proposed use cases, new use cases and requirements are further developed in the Task Group phase.

IEEE 802.11 NGV development may have an impact on the IEEE 1609 standards, and the IEEE 1609 WG requests an ongoing liaison with the IEEE 802.11 activities to coordinate, as closely as possible, improvements to both sets of standards.

Best Regards,

Thomas M Kurihara

Chair, IEEE VT/ITS 1609 Working Group (t.kurihara@ieee.org)

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**References:**

<https://mentor.ieee.org/802.11/dcn/18/11-18-1303-02-0ngv-liaison-requesting-feedback-on-ngv-usage-scenarios.docx>

1. We note that the portion of IEEE 802.11 specifying communication outside the context of a BSS is commonly referred to as IEEE 802.11p. [↑](#footnote-ref-1)