**Before the
Federal Communications Commission**

**Washington, D.C. 20554**

In the Matter of )

 )

Petition for Waiver to Allow Deployment of ) GN Docket 18-357

Intelligent Transportation System Cellular )

Vehicle to Everything (C-V2X) Technology )

**COMMENTS OF IEEE 802**

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[Month, Day, Year filed]

1. Introduction

IEEE 802 is pleased to provide comments in the above-captioned proceeding.

IEEE is a leading consensus-based industry standards body, producing standards for wireless networking devices, including wireless local area networks (“WLANs”), wireless specialty networks (“WSNs”), wireless metropolitan area networks (“Wireless MANs”), and wireless regional area networks (“WRANs”). We appreciate the opportunity to provide these comments to the Commission.

IEEE 802 is a component of the IEEE Standards Association, one of the Major Organizational Units of the Institute of Electrical and Electronics Engineers (IEEE). IEEE has about 420,000 members in about 190 countries and supports the needs and interests of engineers and scientists broadly. In submitting this document, IEEE 802 acknowledges and respects that other IEEE Organizational Units may have perspectives that differ from, or compete with, those of IEEE 802. Therefore, this submission should not be construed as representing the views of IEEE as a whole.[[1]](#footnote-1)

1. Inconsistency of 5GAA waiver request and U-NII-4 sharing proposals under evaluation today by the FCC and USDOT

**🡺 Blue text are notes to build comments from, delete when no longer needed**.

== any statements we make, to have a citation sited really helps.

* U-NII-4 proceeding has been active since 2013 (13-49)
* Two sharing proposals brought forward for comment and testing. Testing is ongoing with FCC & USDOT.
* Both sharing proposals depend explicitly on U-NII-4 devices detecting the presence of IEEE 802.11p (DSRC) activity in the band. (we can cite the Phase 1 Test Report’s discussion of DSRC detection)

= Currently in the rules is an ITS device follows the DSRC protocol, since 2003.

= The U-NII-4 proceeding, 2013/2016, attempted to formally recognize the 2 proposals, with testing that is ongoing now. Phase 1 just completed, with phase 2 being planned.

* If non-DSRC ITS protocols are allowed to use the 5.9 GHz band, they will not be detected by U-NII-4 devices as proposed under the two sharing approaches. Detection of non-DSRC would be at best more complex, possibly less effective, and as the set of non-DSRC ITS protocols expands over time it may be impossible for a U-NII-4 device to detect them.

= if this waiver was approved, opens the door for more later, watch for potential loop holes.

* We can go into more detail here about the specific inconsistencies of the 5GAA proposal with Detect & Vacate and with Re-channelization, and also take note of 5GAA’s stated intention to file a rulemaking request to provide even more 5.9 GHz spectrum for non-DSRC ITS protocols. The important point with regard to Re-channelization is that Re-channelization and 5GAA have incompatible views about the use of the 5895-5925 MHz band (and possibly also the 5850-5925 MHz band).

= re-channelization – rather than the 7 (10 MHz) channels, the DSRC community would use the upper 3 for critical/safety needs, the lower 40MHz would be less critical needs.

* The waiver would cover 2 of the 3 proposed most critical/safety defined channels.
* Along with this is a further waiver/rule request was mentioned to go up and ask for more spectrum above.

= safety would be compromised here.

1. The evolution path from IEEE 802.11p to 3GPP LTE V2X with evolution path from IEEE 80211p to IEEE 802.11bd (Next Generation V2X)

IEEE 802.11 NGV represents a seamless evolution path for IEEE 802.11p DSRC. By contrast, 3GPP LTE V2X (Release 14 and 15) and New Radio (NR) V2X protocols under development in Release 16 can only offer a more disruptive evolution from DSRC.

IEEE 802 recently approved the project scope for a new Next Generation V2X (NGV) amendment, to be called IEEE 802.11bd. That project scope includes the following requirement:

This amendment shall provide interoperability, coexistence, backward compatibility, and fairness with deployed OCB (Outside the Context of a BSS) devices.

= Need to let the FCC know/remind them what is coming for standards, and what 5GAA is saying about the future is not all true; P802.11bd is coming.

NGV devices must be capable of:

* Interoperating with IEEE 802.11p devices, i.e. capable of decoding IEEE 802.11p packets and capable of at least one transmission mode that can be decoded by IEEE 802.11p devices
* Sharing the channel with IEEE 802.11p devices on an efficient and fair basis (this implies that NGV packets will utilize the same packet preamble as DSRC packets, following the normal 802.11 evolution strategy)

These pillars of interoperability and fair & effective same-channel coexistence are expected to be the basis for a seamless evolution path from IEEE 802.11p (DSRC) to IEEE 802.11bd (NGV). No splitting of the spectrum is needed to simultaneously accommodate DSRC and NGV.

By contrast, the waiver seeks to introduce ITS protocols into the 5.9 GHz band that are incompatible with DSRC. These new protocols, LTE V2X in this waiver request, and likely NR V2X in a future rulemaking request, are not designed to co-exist in the same channel with DSRC or with each other. An LTE V2X receiver cannot decode an 802.11p packet, nor can an 802.11p device decode an LTE V2X packet. Furthermore, they cannot reliably detect and defer to each other’s transmissions. So, there is no expectation of interoperability or fair channel sharing between DSRC and these non-DSRC protocols. To the extent that the waiver request is motivated by providing an evolution path from DSRC to protocols with more advanced MAC/PHY features, we observe that the NGV development presents a better alternative that does not require splitting the spectrum (and thus utilizes the spectrum more efficiently and with less cost and complexity).

1. Is this a waiver or more a rule change request?

== Is this a waiver or more a rule change request? With the request to have DSRC vacate the upper 20MHz, seems beyond a waiver. We may want to add to this 3rd point to the comments if consensus.

= Currently in the rules is an ITS device follows the DSRC protocol, since 2003.

= The U-NII-4 proceeding, 2013/2016, attempted to formally recognize the 2 proposals, with testing that is ongoing now. Phase 1 just completed, with phase 2 being planned.

can we site the part 90.377 +/- or 95 rules of today?

== top 2 channels is for the public safety, site the rules here.

== 70 deployments, many using channel 184, to vacate users would be good to state, and site the rule.

= know that CA, maybe UT and AZ are using channel 184; others are using 182 like NY and FL, also affected.

= there maybe a DOT document on all 7 channels are being used.

= a member will look into any info/documents on where these channels are being used.

= would Andrew Miles have some information or citations we could use for this or not. Chair will ask him.

= don’t forget why not an experimental license?

= some links for possible citations:

https://www.nhtsa.gov/press-releases/us-department-transportations-national-highway-traffic-safety-administration-issues

The NHTSA press release above includes this statement: "The automotive industry and municipalities are already deploying V2X technology and actively utilizing all seven channels of the 5.9 GHz band."

In addition to Section 90.377, Section 95.1511 also cites the special designation for Channel 184: "Channel 184 is designated for public safety applications involving safety of life and property."

= DoT 3 large pilots: WY, NYC, Tampa,

Link to US DOT Connected Vehicle Pilot Deployments:https://www.its.dot.gov/pilots/

1. Conclusion

Considering the points mentioned above, we therefore ask the Commission to request 5GAA to re-evalute their waiver request considering these points and the Commission not act until such adjustments to the waiver request is done and then re- published and opened for further comments by interested parties such as IEEE 802.

Regards,

By: \_\_\_\_

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1. This document solely represents the views of the IEEE 802 LAN/MAN Standards Committee and does not necessarily represent a position of either the IEEE or the IEEE Standards Association. [↑](#footnote-ref-1)