IEEE P802.11
Wireless LANs

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| IEEE 802.11 NGV SGMeeting Minutes , 802 LMCS Wireless Interim Meeting in Kona, Hawaii, 10-14 September 2018. |
| Date: 2018-09-20 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Amelia Andersdotter | ARTICLE19 | Free Word Centre, Farringdon Road 60, London EC1R 3GA, United Kingdom |  | amelia@article19.org |
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Abstract

NGV SG meeting minutes for the 802 LMCS Wireless Interim Meeting in Kona, Hawaii, 10-14 September 2018.

R1: Correction of minor spelling errors, and a larger change in section 3.8.1.7

R2: Amended as by participant comment on sections 2.4 and 2.6.

**1. Meeting slot #1 (Monday AM2)**

**1.1 Meeting called to order on 10:01, 10 September 2018.**

**1.2 Formalities**

* + Chair is Bo Sun (ZTE). Vice-chair is Hongyuan Zhang (Marvell). Secretary is Amelia Andersdotter (Article19).
	+ Patent policies and operating rules reviewed
	No patent claims were recorded that were relevant to the activities of this committee.
	+ The agenda was reviewed. An additional technical presentation has been uploaded on mentor (802.11-18/1541r0). The revised agenda was approved. Agenda can be found in 802.11-18/1392r5 on mentor.
	+ One of the two scheduled teleconferences could not be held, because of technical issues.
	+ Approval of meeting minutes from previous meetings.

**# Motion 1**

Approve NGV SG minutes of Jul meeting and teleconferences in Aug 2018:

https://mentor.ieee.org/802.11/dcn/18/11-18-1308-02-0ngv-ngv-sg-meeting-minutes-july-2018.docx

https://mentor.ieee.org/802.11/dcn/18/11-18-1430-01-0ngv-ieee-802-11-ngv-sg-2018-08-21-teleconference-minutes.docx

Moved: Amelia Andersdotter

Seconded: Hiroshi Mano

Motion passes by consensus.

* Timeline was reviewed. No discussion or objection**.**

**1.3 Presentation: IEEE 802.11 NGV SG Proposed PAR, Bo Sun (ZTE), 802.11-18/0861r6**

See https://mentor.ieee.org/802.11/dcn/18/11-18-0861-06-0ngv-ieee-802-11-ngv-sg-proposed-par.docx [note that it was updated twice during this meeting to r8, sec.]

**1.3.1** Changes have been introduced in section 6.2b, relating to registration activities.

**1.3.2** An editorial note was made that in the 802 units are presented as Mb/s instead of Mbps.

**1.3.3** There were big changes in section 8, where a number of previous standards relevant to this project are listed.

**1.4 Presentation: Items for Completing the PAR, Michael Fischer (NXP), 802.11-18/1457r1**

See https://mentor.ieee.org/802.11/dcn/18/11-18-1457-01-0ngv-items-for-completing-the-par.pptx

**1.4.1** Discussion:

 **1.4.1.1** There should be a small space between a numeral and the unit, i.e. 10 MHz rather than 10MHz.

 **1.4.1.2** The CSD is an 802 EC requirement, and is a contract with the 802 EC. Each time it goes to sponsor ballot the CSD is reviewed, and when it goes to Revcom it's reviewed again by the EC. The CSD should be current to reflect what we believe and the environment in which the standard is being proposed. NesCom doesn't actually ever see the CSD or review it.

 **1.4.1.3** 60 GHz is specifically covered by some new European regulations, which would make it very sensible for the group to allow work on this topic. Leaving it optional also makes sense.

 **1.4.1.4** There is a proposal to move directly on to motions, instead of doing straw polls. It does not gain immediate traction.

**1.4.2** Straw polls:

 **Straw poll 1:** Do you favor extending the scope of the PAR to permit NGV to define V2X communication in the 60GHz band?

Y/N/A: 33/6/3

 **Straw poll 2:** Do you favor extending the scope of the PAR to permit NGV to define V2X positioning and/or ranging?

Y/N/A: 23/2/13

 **Straw poll 3** (revised): Do you favor having the PAR contain all four of the terms related to the interoperability for NGV as presented in 18/1307?

Y/N/A: 18/2/13

 **Straw poll 4:** Do you favor having an unambiguous statement of the high mobility speed requirement in the PAR?

Y/N/A: 39/0/3

**1.4.3** The group is offered to approve the changes in one block motion.

**# Motion 2**

Move to update 11-18/861r6 based on the proposed changes as in 11-18/1457r1 and grant the chair editorial privilege.

Moved by: Michael Fischer

Seconded: Peter Ecclesine

Y/N/A: 29/4/3

The motion passes.

**1.5 Presentation: IEEE 802.11 NGV SG Proposed CSD, Bo Sun (ZTE), 802.11-18/0862r2**

**1.5.1** The CSD should take care to summarize the presentations, use-cases and features called upon to demonstrate the system feasibility of the project in section 1.2.4.a).

**1.5.2** The listed presentations could be grouped by topic, making the list look shorter. It also adds to the impression that each of the topics (MAC or PHY, data rates, etc) has been shown to have adequate feasibility.

**1.5.3** The group could choose not to do anything with the list of presentations demonstrating the system feasibility at all. The group should decide on this.

**1.5.4** It is proposed that a new CSD text is worked out and presented later in the session.

**1.5.5 Straw poll:** Which option do you prefer to categorize the reference presentations as in 11-18/0862r2?

Option 1: No change to r2

Option 2: Split the list into topics,

Option 3: Remove the URL list entirely.

Option 1/Option 2/Option 3: 0/21/6

**# Motion 3**

Approve CSD as in document 11-18/0862r3 to submit to WG for approval and grant WG chair the editorial privilege.

Moved: Hongyuan Zhang

Seconded: Amelia Andersdotter

Y/N/A: 22/1/6

Motion passes.

**1.6 Recess at 12:15.**

**2. Meeting slot #2 (Tuesday PM1)**

**2.1 Meeting called to order at 13:30, 11 September 2018.**

**2.2 Formalities**

* Chair is Bo Sun (ZTE), vice-chair is Hongyuan Zhang (Marvell), secretary is Amelia Andersdotter (Article19).
* Review of previous meeting slot decisions and IEEE meeting policies
* Presentation of the agenda.

**2.3 Presentation: Ioannis Sarris (u-blox), 802.11-18/1480r1**

See https://mentor.ieee.org/802.11/dcn/18/11-18-1480-01-0ngv-v2x-simulation-model.pptx

**2.3.1** Discussion:

 **2.3.1.1** A short discussion on what the licensing terms are for the open source code requested. If source code is sensitive for a design, then it is not intended that it be open.

 **2.3.1.2** Making the code accessible may make it easier for other standards developers to know what parameters were used to get the result.

 **2.3.1.3** It was raised that there is already a methodology for performing simulations, and it may not be productive going beyond that methodology to also share the code underlying the simulations.

**2.3.2 Straw poll** (revised in r1)**:** Do you support the use of any open-source simulation model similar to the one presented, for submissions to NGV whenever possible?

Y/N/A: 12/8/26

**2.4 Presentation: Error Correction Message, Yossi Shaul (Auto-Talks), 802.11-18/1535r1**

See https://mentor.ieee.org/802.11/dcn/18/11-18-1535-01-0ngv-error-correction-message.pptx

**2.4.1** Discussion:

 **2.4.1.1** Legacy PHY header is used in the packet and Reed-Salomon parity bytes.

 **2.4.1.2** The receiver always assumes there is a parity byte.

 **2.4.1.3** An apparently valid parity package by a legacy station could cause problems, so the CRC needs to be guaranteed to be invalid. But there is no CRC field.

 **2.4.1.4** The RS decoder was hard-decision decoded in this test, but soft decoding works too. Complexity will be higher.

 **2.4.1.5** Unicast requires an Ack to follow a SIFS, but the presentation assumes only OCB operation, and broadcast.

 **2.4.1.6** Further study possible on road-side infrastructure that is fixed. Current studies have only been performed on moving objects.

 **2.4.1.7** The over-head would be large with one parity package per data package, including the SIFS and headers. Latency of the presented procedure is a concern, and the complexity of the implementation.

 **2.4.1.8** It is necessary to wait for all the parity data packets to arrive before packet reassembly when CRC fails, which creates a need for storing the packets. Reassembling happens after DIFS. After DIFS data can be deleted because they are only separated by SIFS, so there is no need to store more than one data package.

**2.4.2 Straw poll** (as revised): We support to continue study of the error protection package.

Y/N/A: 19/7/23

**2.5 Presentation: Doppler Impact on OFDM Numerology for NGV, Rui Cao et al (Marvell), 802.11-18/1553r0**

See https://mentor.ieee.org/802.11/dcn/18/11-18-1553-00-0ngv-doppler-impact-on-ofdm-numerology-for-ngv.pptx

**2.5.1** Discussion:

 **2.5.1.1** Some concerns raised about backwards compatibility, with clarification that this presentation only covers ICI.

 **2.5.1.2** There is a proposal to map out which proposals belong to which use-cases, with a view to simplifying application development on higher layers based on proposed features.

 **2.5.1.3** The worst channel model was assumed for the C2C4 model presented.

 **2.5.1.4** The AWGN only covers the SIR, not the SNR.

**2.6 Presentation: Additional Details About Interoperable NGV PHY Improvements, Michael Fischer (NXP), 802.11-18/1577r0**

See https://mentor.ieee.org/802.11/dcn/18/11-18-1577-00-0ngv-additional-details-about-interoperable-ngv-phy-improvements.pptx

**2.6.1** Discussion:

 **2.6.1.1** This technique seems good for any kind of event-driven messaging.

 **2.6.1.2** If it were used for BSMs and CAMs, that could have regulatory implications.

 **2.6.1.3** There was discussion on whether the design target was unicast or broadcast messages, and noted that the technique in general is applicable to any communication you might wish to use it for. For unicast transmissions you could not use the SIFS separator, you would use EDCA or some other scheduling mechanism.

 **2.6.1.4** Some questions were raised about whether it is suitable to base retransmission on congestion rates, and how to deal with a failed CRC for the first package in a burst.

 **2.6.1.5** It is intended that there will be recommendations later on regarding buffering of LLR. Receiver retains CRC and continues to attempt matching and redecoding until it passes something up and or until retention time is up.

 **2.6.1.6** Channel busy ratio allows each station to determine what the congestion rate is on its own, with no need for central control over this. There is a recommendation that work on congestion control is correlated with ongoing developments in the DSRC community.

 **2.6.1.7** It's established that future work will need to analyze what happens there is no match between MAC and PHY headers (for instance due to errors, or to a different packet from secondary station that can be received between two consecutive packets).

 **2.6.1.8** Some concerns that while the proposed aggressive use of the channel increases the through-put, it may be a bit too aggressive. More work is needed.

**2.6.1.9** Some concerns about static channel performance. Future work will include Static channel test case.

**2.6 Mid-week evaluation**

The chair is not expecting that the group will need to request more meeting slots for this week. It will be re-evaluated after meeting slot #3 whether a fourth meeting slot is needed this meeting.

**2.7 Recess 15:27**

**3. Meeting slot #3 (Wednesday AM1)**

**3.1 Meeting is called to order at 08:02, 12 September 2018.**

**3.2 Formalities**

* Agenda changes announced: two new motions have been added to the agenda for approving the PAR and CSD formally.

**3.3 Liaison document progress update**

The Chair is still waiting for feedback from liaison statements to various interested parties. More feedback is expected for November.

**3.4 Teleconference plan**

Teleconference proposed for Oct 16th, 10:00-12:00 ET. No objection.

**3.5 Motion for PAR**

See https://mentor.ieee.org/802.11/dcn/18/11-18-1392-05-0ngv-ngv-sg-sep-2018-meeting-agenda.ppt

**3.5.1** Discussion:

 **3.5.1.1** The Chair proposes a motion to approve the PAR contained in docuemnt 11-18/861r7.

 **3.5.1.2** Hiroshi Mano makes a motion to table the motion. Seconded by Michael Fischer. No objection.

 **3.5.1.3** It is proposed that PAR is amended in section 5.2.d Scope so that the 60 GHz frequency band clarification should range from 57 to 71 GHz rather than 57 to 66 GHz. This change conforms with the definition of this band in clause E.1 of IEEE 802.11-2016. No objection to this change in the group.

 **3.5.1.4** There is no equivalent reference to be amended in the CSD.

 **3.5.1.5** The PAR is now revision 8.

 **3.5.1.6** The motion is brought by Jon Rosdahl, seconded by Hiroshi Mano to bring from the table the motion proposed under 3.5.1.1. It is passed without objection.

 **3.5.1.7** A motion is brought by Jon Rosdahl, seconded by Hiroshi Mano, to amend the motion in 3.5.1.1 so that the the proposed par is now revision 8. It is passed without objection.

**# Motion 4**

Believing that the PAR contained in the document referenced below meets IEEE-SA guidelines, request that the PAR contained in https://mentor.ieee.org/802.11/dcn/18/11-18-0861-08-0ngv-ieee-802-11-ngv-sg-proposed-par.docx be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.

Moved: Michael Fischer

Seconded: Hiroshi Mano

Y/N/A: 41/0/2

Motion passes.

**3.5.2** Chair will bring to the WG for approval.

**3.6 Motion for CSD**

See https://mentor.ieee.org/802.11/dcn/18/11-18-1392-05-0ngv-ngv-sg-sep-2018-meeting-agenda.ppt

**3.6.1** The previous motion passed under 1.5 above does not conform to working group standards for motions. Therefore a new motion is put forward.

**# Motion 5**

Believing that the CSD contained in the document referenced below meets IEEE 802 guidelines, requests that the CSD contained in https://mentor.ieee.org/802.11/dcn/18/11-18-0862-03-0ngv-ieee-802-11-ngv-sg-proposed-csd.docx be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval.

Moved: Hiroshi Mano

Seconded: Michael Fischer

Y/N/A: 40/0/2

Motion passes.

**3.6.2** Chair will bring to the WG for approval.

**3.7 Presentation: Use case for Aerial Vehicle ITS, Ronny Yongho Kim (Korea National University of Transportation), 802.11-18/1598r1**

See https://mentor.ieee.org/802.11/dcn/18/11-18-1598-01-0ngv-use-case-for-aerial-vehicle-its.pptx

**3.7.1** Discussion:

 **3.7.1.1** In Japan drones are regulated differently form radio devices, so special permits to use wireless communications in drones. In Europe there is heavy discussion on spectrum for drones. ITU-R has also this discussion. The 5.9GHz band has been proposed but there is no consensus for this just now. In the US multiple regulatory changes might be required to accommodate for the specific use-case presented here. Previously the 4.9 GHz band was allocated for such purposes but wasn't used.

 **3.7.1.2** Regulatory issues will trump 802.11 standards in the jurisdiction where they apply. Being constricted in the use-cases to applications that are allowed everywhere is not necessary.

 **3.7.1.3** Channel load is an important issue for aerial applications.

 **3.7.1.4** Battery usage in aerial applications remains to be studied.

 **3.7.1.5** Sufficient Mb/s for real-time video stream is necessary.

 **3.7.1.6** This would introduce a third radio to drones for professional use, but not necessarily to drones for consumer-use.

 **3.7.1.7** Further study is needed of whether these new communications mechanisms can/should be used to control the drone.

 **3.7.1.8** New features are not expected to arise from this application, but it is an application that can be listed.

 **3.7.1.9** It's raised that a different terminology may be needed for these use-cases. "Flying Road Side Unit" is problematic because RSUs are by definition static. V2V for vehicle-to-aerial-vehicle is also difficult since V2V is defined as communication between land-based vehicles.

**3.7.2 Straw poll:** Do you agree to adopt the Aerial Vehicle ITS use case on slide 9 as one of the NGV use cases?

Y/N/A: 24/2/26

**3.7.3** The baseline document will be amended accordingly.

**3.8 Presentation: Railway use cases for NGV, Stephen Sand (German Aerospace Center (DLR)), 802.11-18/1541r2**

See https://mentor.ieee.org/802.11/dcn/18/11-18-1541-02-0ngv-railway-use-cases-for-ngv.pptx

**3.8.1** Discussion:

 **3.8.1.1** Questioning whether wireless improves reliability or just changes the failure mode. Wireless has the advantage of being cheaper to fix: mechanical couplers are expensive to replace.

 **3.8.1.2** There are projects to look at cybersecurity aspects of railway use cases for NGV.

 **3.8.1.3** A similar use-case was presented in 802.11-08/1358r2 (see https://mentor.ieee.org/802.11/dcn/08/11-08-1358-02-0wng-fast-handover-support-for-highly-mobile-users-using-cots-802-11-cards.ppt ). They used .11 MAC and standard 2.4GHz PHY.

 **3.8.1.4** .11p was designed for high-way uses to rail-bound traffic would add a distinct area to the project. Commuter rail was already a user group community for .11p. In the US, freight and heavy-rail commuter trains share the same tracks and use the same technologies.

 **3.8.1.5** Directed communications rather than broadcast, but rail-bound traffic needs to coordinate with road traffic and to not cause additional unwanted interference. Bus lane traffic is another use case.

 **3.8.1.6** The presented use-cases overlap with those of .11p, and operational requirements could be produced in task group phase.

 **3.8.1.7** Still under investigation: doubts whether UC1 onboard train (wireless TCMS) fits under ITS; response: wireless TCMS can be directly extended to virtual coupling (UC2 train-to-train) e.g. see research project results reference [6] in presentation; note wireless TCMS in research project realized by putting LTE base station and user equipment on trains.

**3.8.2 Strawpoll:** Do you consider the presented use cases relevant for NGV?

Y/N/Need more information: 27/0/18

**3.8.2** Presenter is notified that for entry into baseline document **(11-18/1323r1)**, a summary of all the use cases is required.

**3.9 NGV SG Progress**

Meeting slot #4 (Thursday AM1) is cancelled.

Time line is not changed since the beginning of the meeting.

Teleconference will be requested for 16 October 2018 at 10-12 ET.

**3.10 Adjourned at 09:50.**