IEEE P802.11  
Wireless LANs

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| IEEE 802.11bd Teleconference Meeting Minutes –  July, Aug, Sept 2020 | | | | |
| Date: 2019-09-08 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| James LEPP | BlackBerry | 1001 Farrar Road, Ottawa, Canada |  | jlepp@blackberry.com |
| Joseph LEVY | InterDigital Communication, Inc. | 111 W 33rd Street New York, NY 10120 | +1.631.622.4139 | [joseph.levy@interdigital.com](mailto:joseph.levy@interdigital.com) |

Abstract

This document includes minutes of all IEEE 802.11bd teleconferences between the July and September IEEE 802.11 meetings.

Version Tracking:

R0: uploaded after July 17 and 21 teleconferences

R1: uploaded after Aug 4 teleconference

R2: uploaded after Aug 14 teleconference

R3: uploaded after Aug 18 teleconference

R4: uploaded after Aug 21 teleconference

R5: uploaded after Sep 1 teleconference

R6: uploaded after Sep 4 teleconference

R7: uploaded after Sep 8 teleconference

# Friday, July 17, 2020

## Opening (IEEE 802.11-20/0774r10)

* 1. Call to order 10:02 AM EDT
  2. Chair instructed members on how to use webex and to record attendance in IMAT.
  3. Chair introduced the patent policy and meeting rules.
  4. No response to the call for patents.
  5. Chair introduced the task group leadership

## Agenda (IEEE 802.11-20/0774r10)

* 1. Chair presented the agenda as emailed to the mailing list <http://www.ieee802.org/11/email/stds-802-11-tgbd/msg00297.html>.
  2. Discussion about document 1086 title not being correct. Presenter will obtain a new document number with the correct title before presenting this morning.
  3. Agenda for this session has been adopted without objection

### Technical Contribution (802.11-20/1061r1)

* 1. Presented by Donggkuk Lim (LGE), continuing the presentation from July 14.
  2. Comment resolution for CID 334
  3. Discussion about note on phase rotation being normative or not.
  4. All CIDs presented
  5. Strawpoll on accepting these changes to D0.3 will be run in the next meeting.

### Technical Contribution (802.11-20/1110r1)

* 1. Presented by Jianhan Liu (MediaTek)
  2. Specification text contribution for DCM
  3. Presenter made small editorial changes to the equations as he presented
  4. Discussion
     1. Comment about how this is shown in the MCS table
     2. Comment that it should be “revised” as opposed to “accepted”
     3. Editorial comment, but sentence being questioned is the same as 11ax
  5. Presenter will upload r2 and be ready for a strawpoll in the next meeting.

### Technical Contribution (802.11-20/1101r1)

* 1. Presented by Donggkuk Lim (LGE)
  2. Comment resolution for CID 117
  3. Discussion
     1. Comment that this CID is also in another document 845r1.
     2. The resolution in this document is intended to replace the resolution proposed in 845r1
  4. This will be strawpolled in the next meeting.

### Closing

* 1. The agenda is complete for this meeting session.
  2. Meeting is adjourned at 12:00pm EDT

**Attendance from IMAT**

|  |  |
| --- | --- |
| An, Song-Haur | INDEPENDENT |
| Andersdotter, Amelia | None - Self-funded |
| Cao, Rui | NXP Semiconductors |
| Edelmayer, Andras | Commsignia |
| Kain, Carl | USDoT |
| Kim, Youn-Kwan | The Catholic University of Korea |
| Lansford, James | Qualcomm Incorporated |
| Lepp, James | BlackBerry |
| Levy, Joseph | InterDigital, Inc. |
| Lim, Dong Guk | LG ELECTRONICS |
| Liu, Jianhan | MediaTek Inc. |
| Motozuka, Hiroyuki | Panasonic Corporation |
| noh, yujin | Newracom Inc. |
| Schiessl, Sebastian | u-blox |
| Sun, Bo | ZTE Corporation |
| SURACI, FRANK | U.S. Department of Homeland Security |
| YANG, RUI | InterDigital, Inc. |
| yi, yongjiang | Futurewei Technologies |

# Tuesday, July 21, 2020

## Opening (IEEE 802.11-20/0774r11)

* 1. Call to order 10:02 AM EDT
  2. There are 18 people on the webex call.
  3. Chair instructed members on how to use webex and to record attendance in IMAT.
  4. Chair introduced the patent policy and meeting rules.
  5. No response to the call for patents.
  6. Chair introduced the task group leadership

## Agenda (IEEE 802.11-20/0774r10, r11 will be uploaded after the meeting)

* 1. Chair presented the agenda as emailed to the mailing list <http://www.ieee802.org/11/email/stds-802-11-tgbd/msg00297.html>.
  2. Agenda for this session has been adopted without objection

### Straw Poll 1 (802.11-20/0774r10)

* 1. Straw poll on Dongguk Lim (LGE) comment resolutions for clause 32.3.7.3
  2. Discussion
     1. none
  3. Straw poll for 11-20/1061, the comment resolution for clause 32.3.7.3 NGV portion of NGV format preamble, Donggkuk Lim (LGE) [Continue] –  
     Straw Poll: Do you agree on the comment resolutions to following 39 CIDs and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/1061r1? CID 6, 17, 118, 119, 120, 148, 149, 150, 168, 169, 291, 292, 293, 294, 295, 296, 297, 298, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 315, 316, 317, 318, 319, 322, 323
  4. Straw poll taken with webex tool
  5. Yes 14/No 0/Abstain 2/No response 3

### Straw Poll 2 (802.11-20/0774r10)

* 1. Straw poll for Jianhan Liu (MediaTek) comment resolutions on clause 32.3.8.6
  2. Discussion
     1. none
  3. Straw poll for 11-20/1110, Comment Resolution for CID334 in Section 32.3.8.6, Jianhan Liu (MediaTek)  
     Straw Poll: Do you agree on the comment resolutions to CID 334 and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/1110r2?
  4. Straw poll taken with webex tool
  5. Yes 15 / No 0 / Abstain 2 / No response 4

### Straw Poll 3 (802.11-20/0774r10)

* 1. Straw poll on Dongguk Lim (LGE) comment resolutions for CID 117
  2. Discussion
     1. none
  3. Straw poll for 11-20/1101r2, the-comment-resolution-for-cid-117, Dongguk Lim (LGE)  
     Do you agree on the comment resolutions to CID 117 and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/1101r2 which will replace the comment resolution to CID 117 as in 11-20/0845r1?
  4. Straw poll taken with webex tool
  5. Yes 16 / No 0 / Abstain 0 / No response 5

### Technical Contribution (802.11-20/0682r2)

* 1. Presented by Miquel Lopez (Ericsson)
  2. Discussion
     1. Comment on the use of the term “time domain waveforms” – the specification should not forbid other implementations.
     2. Ans – agreed, will update the text
     3. Question the intent to apply this to both spatial streams or to all midambles?
     4. Ans – all midambles, will update the text
     5. Motion text updated to (uploaded as 802.11-20/0682r3):   
        Move to include the following text to section 3 of the 11bd SFD“PPDUs with midambles shall be randomized in order to suppress discrete spectrum components. The midambles symbols shall be multiplied by pseudo-random values plus/minus one. The data symbols immediately following any given midamble shall be multiplied by the same pseudo-random value as said midamble. In the case of MIMO PPDUs, the same pseudo-random values shall be applied to both symbols of the midamble. The pseudo-random values are defined in (17-25) of IEEE 802.11-2016”
     6. Question – is the randomization applied to each carrier or the whole symbol and which symbols is it applied to?
     7. Ans – the symbol and all midamble symbols
     8. Question – how will the receiver know the sequence?
     9. Ans – the receiver will know, as the sequence will be specified.
     10. Comment it is the same sequence as is used by the pilots
  3. Motion will be run the TGbd teleconference on Tuesday, 4 August 2020.

### Closing

* 1. There are 23 people on the webex call, at end of the meeting.
  2. Adjourned 11:05 AM ET

**Attendance from IMAT**

|  |  |
| --- | --- |
| An, Song-Haur | INDEPENDENT |
| Cao, Rui | NXP Semiconductors |
| Edelmayer, Andras | Commsignia |
| Kain, Carl | USDoT |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. |
| Kim, Youn-Kwan | The Catholic University of Korea |
| Levy, Joseph | InterDigital, Inc. |
| Lim, Dong Guk | LG ELECTRONICS |
| Lopez, Miguel | Ericsson AB |
| Motozuka, Hiroyuki | Panasonic Corporation |
| noh, yujin | Newracom Inc. |
| Sadeghi, Bahareh | Intel Corporation |
| Sand, Stephan | German Aerospace Center (DLR) |
| Singh, Gurdev | SAMSUNG ELECTRONICS |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Sun, Bo | ZTE Corporation |
| SURACI, FRANK | U.S. Department of Homeland Security |
| Yee, Peter | NSA-CSD |
| yi, yongjiang | Futurewei Technologies |

# Friday, July 31, 2020

## Opening (IEEE 802.11-20/0774r11)

* 1. Call to order 10:02 AM EDT
  2. Chair instructed members on how to use webex and to record attendance in IMAT.
  3. Chair introduced the patent policy.
  4. No response to the call for patents.
  5. Chair introduced meeting rules, including the teleconference motion rules. The first motion in this TG will be run at the August 4.
  6. Chair showed task group teleconference schedule and announced that more meetings will be added next week to complete the comment resolution and next draft in time for the Sept meeting.
  7. Chair introduced the task group leadership.
  8. James Lepp (BlackBerry) the 802.11bd secretary announced his resignation from the position due to taking a new position that doesn’t involve

## Agenda (IEEE 802.11-20/0774r11)

* 1. Chair presented the agenda as displayed on IEEE 802.11-20/0774r11 slide 71.
  2. Discussion:
     1. Typo corrected on the slide (date of next teleconference
  3. Agenda for this session has been adopted without objection

### Updated of ARC SC topic

* 1. 802.11 ARC SC chair has sent an email to the 11bd mailing list about impact of 802.11bd amendment on the architecture. (<http://www.ieee802.org/11/email/stds-802-11-tgbd/msg00303.html>)
  2. Chair encourages 11bd members who are interested to join ARC teleconference if this agenda is being discussed.
  3. Chair’s preliminary opinion is there is no impact, and he will share that.
  4. Call for further input to the ARC group
     1. Member suggested that 11bd should provide a summary (a couple slides) to explain the 11bd position to the ARC SC meeting about 11bc and 11bd.
     2. Member suggests that this has been discussed, but there isn’t yet consensus on the spec text. Hard to make a presentation.
     3. Member suggests we’re impacting the architecture of 1609 more than 802.11
  5. Joseph Levy and Liwen Chu volunteered to contribute to a presentation. Will use the reflector to ensure the process is open to the whole group.

### Technical Contribution (802.11-20/1155r0)

* 1. Presented by Rui Cao (NXP).
  2. Comment resolution for five comments on 32.3.5
  3. CID 139
     1. No discussion
  4. CID 268
     1. No discussion
  5. CID 269
     1. No discussion
  6. CID 270
     1. Discussion about big “X” vs small “x” in the left column of the table.
     2. Editorial change will be made to the T\_NGV-LTF-2X-Repeat and uploaded as r1
  7. CID 271
     1. No discussion
  8. All CIDs presented. Strawpoll will be run in the next teleconference.

### Technical Contribution (802.11-20/0973r1)

* 1. Presented by Rui Cao (NXP).
  2. No discussion or comments on the presentation
  3. Strawpoll: Do you agree that the pre-NGV cyclic shift, 𝑻\_𝑪𝑺^(𝒊\_𝑻𝑿 ), uses the values defined in Table 21-10 (Cyclic shift values for L-STF, L-LTF, L-SIG, and VHT-SIG-A fields of the PPDU)?
  4. Chair called for any objection to the strawpoll and there was none. Chair declared consensus agreement with the proposal.

### Technical Contribution (802.11-20/0897r1)

* 1. Presented by Rui Cao (NXP).
  2. Presenter is highlighting the two changes made in response to the discussion in a previous meeting.
     1. Initial transmission follows clause 17, repetition transmissions have a new branch defined in the figure.
     2. Change suggested: “PPDU is stored in memory” to “PPDU may be stored in memory”
     3. Comment that there is a lot of change in the text and the figure and suggestion to run the strawpoll on Tuesday to give members time to review the text.

### Closing

* 1. Chair reminded the group of the next call on Aug 4, when a motion will be run.
  2. Other business
     1. Question to the editor about the proposed text on the MAC SAP that was agreed but not included in the Draft 0.3. Do we need to review this again, or will it be included by the editor?
     2. Editor response that there is a comment submitted about the omitted text that is tracking this. The CID is assigned to the editor and the original text will be submitted as the resolution to the comment.
  3. Chair reminded the group about the members developing a presentation from 11bd to ARC and the use of the reflector for this.
  4. Chair announced the call for members to volunteer for the open secretary position.
  5. Chair adjourned the meeting at 11:00am EDT

Attendance from IMAT

|  |  |
| --- | --- |
| An, Song-Haur | INDEPENDENT |
| Cao, Rui | NXP Semiconductors |
| Dong, Xiandong | Xiaomi Inc. |
| Edelmayer, Andras | Commsignia |
| Goto, Fumihide | Self |
| Kim, Youn-Kwan | The Catholic University of Korea |
| Lepp, James | BlackBerry |
| Levy, Joseph | InterDigital, Inc. |
| Motozuka, Hiroyuki | Panasonic Corporation |
| Sadeghi, Bahareh | Intel Corporation |
| Sand, Stephan | German Aerospace Center (DLR) |
| Schiessl, Sebastian | u-blox |
| Sun, Bo | ZTE Corporation |

# Tuesday, Aug 4, 2020

## Opening (IEEE 802.11-20/1164r1)

* 1. Call to order 10:15 AM EDT after some difficulty getting the webex started. 25 participants are on the call.
  2. Chair instructed members on how to use webex and to record attendance in IMAT.
  3. Chair introduced the patent policy.
  4. No response to the call for patents.
  5. Chair introduced the task group leadership.
  6. Chair verified that the outgoing secretary James Lepp (BlackBerry) is taking the minutes for this session. There was an announcement for a volunteer to take over this position.
  7. Chair reviewed TG motion teleconference rules for motions.
  8. Chair reviewed the teleconference plan.

## Agenda (IEEE 802.11-20/1164r1)

* 1. Chair presented the agenda as displayed on IEEE 802.11-20/1164r1 slide 16.
  2. Discussion:
     1. No discussion
  3. Agenda for this session has been adopted without objection

### Motion on midamble randomization (802.11-20/0682)

* 1. Motion: Move to include the following text to section 3 of the 11bd SFD:
  2. “PPDUs with midambles shall be randomized in order to suppress discrete spectrum components. The midambles symbols shall be multiplied by pseudo-random values plus/minus one. The data symbols immediately following any given midamble shall be multiplied by the same pseudo-random value as said midamble. In the case of MIMO PPDUs, the same pseudo-random values shall be applied to both symbols of the midamble. The pseudo-random values are defined in (17-25) of IEEE 802.11-2016”
  3. Moved: Miguel Lopez
  4. Seconded: Joseph Levy
  5. Discussion: No discussion
  6. Motion accepted unanimously (20 participants on the call)

### Update on ARC presentation (802.11-20/1166r0)

* 1. Presented by Joseph Levy (Interdigital).
  2. The presenter showed this working copy of the presentation being prepared to deliver to ARC SC next month.
  3. Comment on the word broadcast slide 3. Text changes suggested.
  4. Presenter encouraged to email him directly (email address in the document) or email the reflector additional updates to this initial draft.
  5. Question about whether its worth involving the ARC SC in the discussion about the 802.11 WAVE MAC? Presenter agrees that this is WAVE MAC architecture is what should be discussed. Commenter volunteers to help with 1609 MLME and MAC interfaces.

### Strawpoll (802.11-20/1155r0)

* 1. Straw Poll: Do you agree on the comment resolutions to the following 5 CIDs and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/1155r1? CID 139, 268, 269, 270 and 271
  2. No Discussion
  3. Straw Poll called with unanimous consent

### Strawpoll (802.11-20/0897r2)

* 1. Straw Poll: Do you agree to add the proposed spec text as in 11-20/0897r2 based on IEEE P802.11 D0.3 and included in next revision?
  2. Discussion led to the rewording of the strawpoll.
  3. Straw Poll conducted using the webex tool
  4. Yes 16 / No 0 / Abstain 6 / No response 2

### Technical Contribution (802.11-20/1175r1)

* 1. Presented by Rui Cao (NXP).
  2. Comment resolution for five comments on 32.3.5
  3. CID 35
     1. Discussion about reason for rejection, though all speakers are in agreement with rejecting the comment. Text in the document was revised.
  4. CID 259
     1. No discussion
  5. CID 264
     1. Question about section number for the proposed change. Checking for a collision with another section with the same title.
  6. Presenter will upload R2 for strawpoll at the next meeting

### CID 139 Technical Contribution (802.11-20/1177r0)

* 1. Presented by Dongguk Lim (LG).
  2. Comment resolution for CID 279
  3. Discussion
     1. Typo corrected in the resolution box
     2. No further discussion
  4. Presenter will upload R1 for strawpoll at the next meeting.

### Closing

* 1. Chair reminded the group of the next call on Aug 11.
  2. Discussion about agenda for next meeting.
     1. No due date yet for the ARC presentation, meeting has not been scheduled.
     2. Member announced a presentation and strawpoll on the 20MHz mandatory/optional decision.
  3. No other business
  4. Chair adjourned at 11:15am

Attendance from IMAT

|  |  |
| --- | --- |
| An, Song-Haur | INDEPENDENT |
| Cao, Rui | NXP Semiconductors |
| Chu, Liwen | NXP Semiconductors |
| Filippi, Alessio | NXP Semiconductors |
| Goto, Fumihide | Self |
| Hiertz, Guido | Ericsson GmbH |
| Kain, Carl | USDoT |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. |
| Kim, Youn-Kwan | The Catholic University of Korea |
| Lansford, James | Qualcomm Incorporated |
| Lepp, James | BlackBerry |
| Levy, Joseph | InterDigital, Inc. |
| Lim, Dong Guk | LG ELECTRONICS |
| Lopez, Miguel | Ericsson AB |
| Max, Sebastian | Ericsson AB |
| Motozuka, Hiroyuki | Panasonic Corporation |
| Noh, Yujin | Newracom |
| Rosdahl, Jon | Qualcomm Technologies, Inc. |
| Roy, Dick | Self |
| Sadeghi, Bahareh | Intel Corporation |
| Sand, Stephan | German Aerospace Center (DLR) |
| Schiessl, Sebastian | u-blox |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Sun, Bo | ZTE Corporation |
| Suraci, Frank | U.S. Department of Homeland Security |

# Friday, August 14, 2020

## Opening (IEEE 802.11-20/1164r2)

* 1. Call to order 10:03 AM EDT
  2. Chair instructed members on how to use webex and to record attendance in IMAT.
  3. Chair introduced the patent policy and meeting guidelines.
  4. No response to the call for patents.
  5. Chair introduced the task group leadership.

## Agenda (IEEE 802.11-20/1164r2)

* 1. Chair presented the agenda.
  2. Discussion:
     1. Strawpoll on 20MHz mandatory or optional is in the document 1202, so those two line items can be combined
     2. Member offered document 1227 to add to the agenda today, and 1228 for next meeting.
  3. Agenda for this session has been adopted without objection

### Technical Contribution (802.11-20/1175r2)

* 1. Presented by Rui Cao (NXP).
  2. Comment resolution document presented earlier
  3. CID 264
     1. Presenter highlighted changes since last version.
     2. Discussion about differences between this text and the baseline 802.11 text.
     3. Comment that it might be useful to add a paragraph summarizing these differences as a benefit to the reader.
     4. Response that that doesn’t fit in this overview clause, but specific differences are the more detailed PPDU definition clauses.
  4. Strawpoll
  5. Do you agree on the comment resolutions to the following 3 CIDs and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/1175r2? CID 35, 259 and 264.
  6. Straw poll taken with the webex polling tool
  7. Yes 11 / No 0 / Abstain 6 / No response 2

### Straw Poll (802.11-20/1177r1)

* 1. Contribution from Dongguk Lim (LGE)
  2. No changes to the document from last meeting
  3. No discussion on the strawpoll question
  4. Strawpoll: Do you agree on the comment resolutions to CID 279 and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/1177r1?
  5. Straw poll taken with the webex polling tool
  6. Yes 8 / No 0 / Abstain 9 / No response 2

### Technical Contribution (802.11-20/1202r0)

* 1. Presented by Rui Cao (NXP)
  2. Discussion
     1. One member spoke in support of mandatory, on spoke in favor of optional.
  3. Straw Poll: “Do you agree to define 20MHz NGV PPDU as an optional feature?
  4. Note: 20MHz NGV PPDU is the PPDU format that coexists with 10MHz NGV PPDU and 10MHz non-NGV PPDU.”
  5. Straw poll taken with the webex polling tool
  6. Yes 11 / No 3 / Abstain 4 / No response 2
  7. Discussion about next steps
     1. Member offers to update the Comment resolution on the PICs to change the TBD to optional (doc 0731)
     2. Chair plans to run a motion to update the 20MHz as optional in the Spec Framework Document (SFD)

### Technical Contribution (802.11-20/0790r0)

* 1. Presented by Bo Sun (NXP)
  2. CID 247
     1. Question about channel access rules, response they are the same as 20MHz.
     2. Comment that channel access rules are in the last paragraph of 31.2.2. This is shown on screen and discussed. The “NGV PPDU or NGV Duplicate PPDU” needs to be added here. This will be added to r1. There may be other places in the MAC this text needs to be clarified.
     3. Question about acknowledgements for unicast frames.
     4. Discussion about Control Frames having duplicate 10MHz PPDU format and whether Data Frames can use the format.
     5. Question about why this is added to OCB since RTS/CTS frames haven’t been used for V2X in the past. The primary use of OCB is data frames.
     6. Discussion about use of control frames (e.g. RTS/CTS) in NGV products.
     7. 90 degree duplicate management frames goes back to 11ac.
     8. Suggestion to add clarifying text about the MAC restriction as readers of NGV may not be familiar with the baseline restrictions on these frame types.
  3. CID 128
     1. Discussion about how aCCAMidTime value was derived.
     2. Discussion about aRxPHYStartDelay and its definition in the baseline. 11ac and 11ax it counts until the end of the SIG. Note 2 is adjusted.
     3. Comment about using a comma to delimit long numbers. Comma is changed to space.
     4. Discussion about max A-MPDU length. Action to coordinate this value with the MAC section comment resolutions.
  4. CID 359
     1. Discussion about definition being added.
  5. CID 254 and CID 360
     1. Discussion about aCCAMidTime
  6. Presenter will make updates and revisit these comments next time.

### Closing

* 1. Chair reminded the group of the next call on Aug 18.
  2. Discussion about agenda for next meeting. Presentations not completed today will be scheduled for Tuesday.
  3. No other business
  4. Chair adjourned at 11:47am EDT

Attendance from IMAT:

|  |  |
| --- | --- |
| Berens, Friedbert | FBConsulting Sarl |
| Cao, Rui | NXP Semiconductors |
| Chu, Liwen | NXP Semiconductors |
| Edelmayer, Andras | Commsignia |
| Filippi, Alessio | NXP Semiconductors |
| Kain, Carl | USDoT |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. |
| Kim, Youn-Kwan | The Catholic University of Korea |
| Kim, Ronny Yongho | KNUT |
| Lepp, James | BlackBerry |
| Levy, Joseph | InterDigital, Inc. |
| Lim, Dong Guk | LG ELECTRONICS |
| Lopez, Miguel | Ericsson AB |
| Motozuka, Hiroyuki | Panasonic Corporation |
| RISON, Mark | Samsung Cambridge Solution Centre |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Sosack, Robert | Molex Incorporated |
| Sun, Bo | ZTE Corporation |
| Unterhuber, Paul | German Aerospace Center (DLR) |
| Yee, Peter | NSA-CSD |

# Tuesday, August 18, 2020

## Opening (IEEE 802.11-20/1164r4)

* 1. Call to order 10:04 AM EDT
  2. Chair instructed members on how to use webex and to record attendance in IMAT.
  3. Chair introduced the patent policy and meeting guidelines.
  4. No response to the call for patents.
  5. Chair introduced the task group leadership.

## Agenda (IEEE 802.11-20/1164r3, r4 coming out of the teleconference)

* 1. Chair presented the agenda. (Slide 27)
  2. Discussion:
     1. An additional contribution was added 802.11-20/1236r0 and will be taken as the first document for presentation and discussion.
  3. The updated agenda for this session has been adopted without objection
  4. Teleconference Discussion: The Chair presented the current plan of 3 teleconferences during the week of the interim meeting. There were no comments, though it was noted that this mean that TGbd will be in conflict with most of the other TG/SC/SG meetings.

## Update on material for ARC SC discussion

* 1. [802.11-20/1166r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1166-01-00bd-ngv-11bd-architecture-discussion.pptx) reviewed by Joseph Levy.
  2. Discussion:
     1. The document was only noted as available, it was not presented
     2. Comment – the document looks good to me.

### Technical Contribution (802.11-20/1236r0)

* 1. Contribution presented by Liwen Chu (NXP)
  2. Discussion:
     1. Question– What is a 10 MHz NGV station?
     2. Ans – 10 MHz is removed, so the text now refers to an NGV station.
     3. Question Are the 10MHz channels adjacent channels.
     4. Ans – Yes they are, text added to clarify
     5. Question – What is the meaning of “on any one”?
     6. Ans – text was updated to clarify.
     7. Question – regarding bandwidth signaling – what is the meaning of the service field?
     8. Ans – the service field will carry the bandwidth indication (this needs to be added to the specification, this is not understood by a legacy STA, this is only for NGV capable STAs. This is to inform the neighbor STA to set their NAV.
     9. Question - Why are we doing this bandwidth transmission signaling?
     10. Ans - So the recipient will know it is a 20 MHz transmission
     11. Comment – This isn’t in clause 17
     12. Ans – We needs to find the right section to fix it in the PHY header.
     13. Question – How does dynamic bandwidth operation work, and what does it do?
     14. Ans – the mode of operation was clarified.
     15. Additional minor editorial updates were made during the review of the document.
     16. Comment – These parameters are not defined in TABLE 32-1, the table needs to updated.
     17. Comment - 11-20-0790 also has related text changes see below
     18. Document 11-20/1236r0 needs to be updated and discussion should continue offline.

## Technical Contribution (802.11-20/0790r1)

### Presented by Bo Sun

### Based on the need to update this document as discussed during 11-20/1236r0 discussion, there will be no SPs and work will need to be done offline to update the text.

### The areas which need to be updated were reviewed.

### Table 9-249 needs to be updated – Maximum A-MPDU Length Exponent – we need to define this parameter.

### Need to update the value in “FORMAT is NGV “(as shown in 11-20/0790r1. This will be worked off line.

### Also changes may be needed in Clause 17.

### No SPs.

### Technical Contribution (802.11-20/1227r0)

* 1. Contribution from Liwen Chu (NXP)
  2. Discussion:
     1. Comments on the wording of the definition
     2. Text was modified to address the comments
     3. An editorial comment – the font style of the font CID number should be marked differently than the proposed text.
     4. R1 will be uploaded
  3. Strawpoll deferred to next meeting

### Technical Contribution (802.11-20/1228r0)

* 1. Contribution from Liwen Chu (NXP)
  2. Discussion:
     1. Question on RSSI and how this primitive is being used
  3. Chair request this discussion continue offline as time expired before document presentation/discussion could be completed

### Technical Contribution (802.11-20/1166r2)

* 1. Contribution from Joseph Levy (InterDigital) not presented (time did not allow)
  2. Requested people provide comments on 11-20/1166r2
  3. 11-20/1166r2 is to be contributed to an upcoming ARC SC teleconference, currently anticipated to be held during the 802.11WG Interim Meeting week (September 14-17), meeting details to be announced.

### Closing

* 1. Time expired
  2. Chair adjourned at 12:00 pm EDT

1. Attendance from IMAT

|  |  |
| --- | --- |
| An, Song H | Independent |
| Cao, Rui | NXP Semiconductors |
| Chu, Liwen | NXP Semiconductors |
| Goto, Fumihide | Self |
| Hong, Hanseul | WILUS |
| Kain, Carl | USDoT |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. |
| Levy, Joseph | InterDigital, Inc. |
| Motozuka, Hiroyuki | Panasonic Corporation |
| Noh, Yujin | Newracom |
| Sadeghi, Bahar | Intel |
| Schiessl, Sebastian | u-blox |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Sun, Bo | ZTE Corporation |
| Unterhuber, Paul | German Aerospace Center (DLR) |
| Yee, Peter | NSA-CSD |

# Friday, August 21, 2020

## Opening (IEEE 802.11-20/1164r5)

* 1. Call to order 10:04 AM EDT
  2. Chair instructed members on how to use webex and to record attendance in IMAT.
  3. Chair introduced the patent policy and meeting guidelines.
  4. No response to the call for patents.
  5. Chair outlined teleconference schedule, including the online interim week Sept. 15
  6. Chair introduced the task group leadership.

## Agenda (IEEE 802.11-20/1164r4, r5 coming out of the teleconference)

* 1. Chair presented the agenda. (Slide 27)
  2. Discussion of 802.11 interim week teleconference schedule added to the agenda
  3. Discussion:
     1. No discussion
  4. The updated agenda for this session has been adopted without objection

## Discussion of teleconference plan during 802.11 interim week.

* 1. Currently there are 3 meetings scheduled, Sept 15, 16, and 17 from 9-11am
  2. Chair suggests to cancel the Sept 16 meeting as it conflicts with 802.11be MAC and many members will be unavailable.
  3. Discussion:
     1. Comment that the WG chair’s schedule hasn’t been shared widely, so members may not be aware of conflicts.
     2. Chair says that he’s been asked to provide feedback for the schedule and that is why he is asking this group.
     3. There are some conflicts in all timeslots. Suggest that 11be MAC is the most impactful (on Wednesday) the other two timeslots should be manageable.
     4. Further discussion of meeting timing.
     5. A tentative schedule for the 802.11 interim week (from WG chair) was shown
     6. Suggestion that we could move the Wednesday slot to the evening time instead of canceling it.
     7. Discussion about benefits and issues of different timeslots for members around the world
  4. Proposal is to move the Wednesday timeslot to 7pm ET. It will be cancelled if not needed at that time, but is available for us if we need to get more work done.
  5. No objection to proposing this time change to the WG Chair.

### Strawpoll (802.11-20/1227r2)

* 1. Contribution presented by Liwen Chu (NXP)
  2. One change was made between r1 and r2 due to editor comments on the document since last meeting.
  3. Liwen presented the changes to the document. (to first sentence of 31.2.1)
  4. Discussion
     1. Comment to change additional sentence
     2. Change made and R3 uploaded
  5. Strawpoll: Do you agree on the comment resolutions to the following 16 CIDs and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/1227r3? CID 1, 45, 76, 77, 78, 79, 80, 81, 92, 94, 95, 207, 208, 209, 228, 231
  6. Strawpoll taken using webex polling tool
  7. Yes 11, No 0, Abstain 2, No response 2

### Technical Contribution (802.11-20/12286r1)

* 1. Contribution presented by Liwen Chu (NXP)
  2. CID 38
     1. No Discussion
  3. CID 39
     1. No discussion
  4. CID 37
     1. Discussion of the MIB parameters and viewing of the 11md baseline section 6.2
     2. Discussion about adding channel information into the Radio Environment Request Vector
     3. Discussion about definition of base channel, whether channel, channel width, and primary channel need to be indicated.
     4. Discussion about channel changing on a packet by packet basis vs staying on a channel for a duration to operate a service.
     5. Discussion about the pending feedback from IEEE 1609 liaison.
     6. Further discussion of 1609 requirements needed
     7. Comment that the parameter for LDPC or BCC isn’t needed. The format indicator (legacy or NGV) is enough to indicate it.
     8. Comment that power boost isn’t needed. The power boost if based on MCS and for DCM it is on, and for other rates it is off.
     9. Suggestion to add two values to the primitive: primary channel for 20MHz plus indicator for the choice to 20 to fallback on 10 when available or to wait for 20MHz to be free.
     10. Request vector and status vector should be harmonized
     11. Further work required for this comment resolution.
  5. CID 40
     1. Comment of support from the commenter
  6. CID41
     1. No discussion
  7. CID42
     1. No discussion
  8. CID58
     1. Commenter agrees with rejection, but suggest the group needs to clarify what dot11NGVactivated means. Proposes that it means its NGV capable, not that it is currently transmitting NGV frame format. NGV STA can send legacy PPDU format.
     2. Update to the rejection reason made on the screen. Will be in r2 of the document.
  9. CID59
     1. No discussion
  10. CID60
      1. No discussion
  11. CID61
      1. Discussion that CID59 and CID61 may be in conflict with CID21. Agreement among commenters on the changes, but looking to ensure that instructions to the editor are clear. (some comments are to add the section based on old contribution, some are further changes on top of that.)
  12. CID64
      1. No discussion
  13. CID218
      1. Discussion led to updated text description for dot11NGVactivated
  14. CID219, CID220
      1. No discussion
  15. Several CIDs need further work and some offline discussion to resolve.
  16. Presenter will return with an update next week.

### Technical Contribution (802.11-20/0790r2)

* 1. Contribution presented by Bo Sun (ZTE)
  2. Presenter highlighting changes to the document
  3. Did not complete as time ran out. Send feedback by email. Will revisit in the next meeting.

### Closing

* 1. Time expired
  2. Chair adjourned at 12:00 pm EDT

Attendance from IMAT”

|  |  |
| --- | --- |
| Name | Affiliation |
| An, Song-Haur | INDEPENDENT |
| Cao, Rui | NXP Semiconductors |
| Chu, Liwen | NXP Semiconductors |
| Kain, Carl | USDoT |
| Lepp, James | BlackBerry |
| Levy, Joseph | InterDigital, Inc. |
| Lim, Dong Guk | LG ELECTRONICS |
| Motozuka, Hiroyuki | Panasonic Corporation |
| noh, yujin | Newracom Inc. |
| Sadeghi, Bahareh | Intel Corporation |
| Schiessl, Sebastian | u-blox |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Sun, Bo | ZTE |

# Tuesday, August 25, 2020

## Opening (IEEE 802.11-20/1164r6)

* 1. Call to order 10:04 AM EDT
  2. Chair announced open secretary position. Joseph Levy (Interdigital will take notes today).
  3. Chair instructed members on how to record attendance in IMAT.
  4. Chair introduced the patent policy and meeting guidelines.
  5. No response to the call for patents.
  6. Chair outlined teleconference schedule, including the online interim week Sept. 15
  7. Chair introduced the task group leadership.

## Agenda (IEEE 802.11-20/1164r6)

* 1. Chair presented the agenda.
  2. Discussion:
     1. Added 11-20/1297 to the agenda
  3. The updated agenda for this session has been adopted without objection

## Teleconference Plan (802.11-20/1164r6 slide 11)

* 1. Discussion led by chair
  2. Conflict between 11bd and 11be on Sept 17.
  3. Proposal to change time of the 11bd meeting on Sept 17 to 7pm
  4. Chair will discuss this at the upcoming CAC meeting on Monday Aug 31

## Straw Poll (802.11-20/1228r3)

* 1. SP #1 (11-20/1228r3) - for CIDs 27, 37, 38, ~~39~~, 40, 41 42, 58, ~~59~~, 60, ~~61~~, 63, 64, 218, 219,
  2. Discussion resulted in removing the struck though, red CID numbers above from the list.
  3. Straw Poll:
     1. Do you agree on the comment resolutions to the following 14 CIDs and the proposed spec text modification to IEEE P802.11bd D0.3 as in 20/1228r3? CID 27, 37, 38, 40, 41, 42, 58, 60, 62, 63, 64, 218, 220
     2. Straw poll taken with webex polling tool
     3. Yes 12/No 0/Abstain 4/No Response 3

## Straw Poll (802.11-20/12360r1)

* 1. No discussion
  2. Straw Poll:
     1. Do you agree proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/1236r1?
     2. Straw poll taken with webex polling tool
     3. Yes 11/No 0/Abstain 5/No Response 3

## Straw Poll (802.11-20/0790r3)

* 1. No discussion
  2. Straw Poll:
     1. Do you agree on the comment resolutions to the following 5 CIDs and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/0790r3?
     2. Straw poll taken with webex polling tool
     3. Yes 13/No 0/Abstain 3/No Response 3

## Technical contribution (802.11-20/1273r0)

* 1. Presentation by Dongguk Lim (LGE)
  2. Discussing the duplicated Non-NGV PPDU it was an error to call out Non-HT instead of Non-NGV.
  3. There were no objections to the proposed resolution. Will Straw Poll next meeting.

## Technical contribution (802.11-20/1297r0)

* 1. Presentation by Rui Cao (NXP)
  2. Provides text proposal for 32.3.13 Regulatory requirements.
  3. Q: is this text is taken from md and ax both have this paragraph.
  4. ANS - Y
  5. Q - is Annex D in our spec?
  6. Ans - Y
  7. Chair - Annex D will be in the published base line for out specification.
  8. Straw poll in next teleconference

## Closing

* 1. Any other business
  2. Question about motion on Aug 28.
  3. Chair confirms this was approved by WG chair and announced with 10 days’ notice and planned for Aug 28.
  4. No other business
  5. Chair adjourned the teleconference at 10:46am

Attendance from IMAT pending

|  |  |
| --- | --- |
| An, Song-Haur | INDEPENDENT |
| Cao, Rui | NXP Semiconductors |
| Edelmayer, Andras | Commsignia |
| Kain, Carl | USDoT |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. |
| Levy, Joseph | InterDigital, Inc. |
| Lim, Dong Guk | LG ELECTRONICS |
| Motozuka, Hiroyuki | Panasonic Corporation |
| noh, yujin | Newracom Inc. |
| Schiessl, Sebastian | u-blox |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Sosack, Robert | Molex Incorporated |
| Sun, Bo | ZTE Corporation |
| Unterhuber, Paul | German Aerospace Center (DLR) |
| Yee, Peter | NSA-CSD |

# Friday, August 28, 2020

## Opening (IEEE 802.11-20/1164r6 [r7 out of meeting])

* 1. Call to order 10:02 AM EDT
  2. Chair instructed members on how to use Webex and to record attendance in IMAT.
  3. Chair introduced the patent policy and meeting rules.
     1. No response to the call for patents.
  4. Chair reviewed meeting rules and participate obligations (slides 7-10)
  5. Chair reviewed the Teleconference Plan (slide 11)
  6. Chair reviewed the current TG documents and timeline (slides 12, 13)
  7. Chair introduced the task group leadership (slide 38)

## Agenda (IEEE 802.11-20/1164r6)

* 1. Chair presented the agenda (slide 40)
  2. The following items were added 64.3.4.4 and 64.3.4.5
  3. Agenda for this session has been adopted without objection:

### Call meeting to order and remind the group to record attendee on imat.ieee.org

### IEEE-SA IPR policies and meeting rules

### Approval of agenda

### Presentation and discussion (Call for submission)

### Motion on 20 MHz NGV PPDU

### SP for 11-20/1273, the comment resolution for CID 114 and 115, Dongguk Lim (LGE)

### SP for 11-20/1297, comment resolution for CID 358 (Regulatory Requirement), Rui Cao (NXP)

### 11-20/1228r3, D0.3 comment resolution subclause 5, Liwen Chu (NXP)

### 11-20/1230r1, Comment Resolutions for 32.3.10 (Receiver Specification) Rui CAO (NXP)

### Next teleconference on Sep 1st

### Adjourn

### Current Teleconference Plan

* 1. Slide 11 updated teleconference plan for the 17 September teleconference to be 10:00am-11:00am EDT – this new time has been discussed with the TGbe Chair but is not final, it will be reviewed at the upcoming CAC meeting 31 August and it is likely to be approved there.

## Motion on 20 MHz NGV PPDU

* 1. Move to include the following text to section 3 of the 11bd SFD:  
     "*An NGV STA optionally supports 20MHz NGV PPDU.  
     Note: 20MHz NGV PPDU is the 20MHz PPDU format that coexists with 10MHz NGV PPDU and 10MHz non-NGV PPDU.*"
     + 1. Moved: Rui Cao
       2. Seconded: Liwen Chu
  2. Discussion:
     1. C- Against the motion.
     2. A - This approach will support compatibility and does not have a coexistence issue.
     3. C – This could be disabled by regulatory. But, is not fully optimized.
     4. A – The regulators can disallow use
     5. C - In support of the motion. In EU there are no 20 channels. In the U.S. there is no certainty that there will be any 20 MHz channels. Therefore, this should be optional.
     6. C - Also in support of the motion.
  3. Voting Results:
     1. During the Meeting preliminary results: Y/N/A/dnv - 9/3/3/7 - was recorded by Webex polling tool, as modified by voice acclimation of a voter – who could not vote via the tool.
     2. Following the meeting the Certified Results were (see details below): **Y/N/A/dnv – 8/3/3/1 Motion Fails.**

| **Voter Name** | **Vote in Webex Poll** | **Voter Status** | **Verified Vote** |
| --- | --- | --- | --- |
| An, Song-Haur | Yes | Voter | Yes |
| Cao, Rui | Yes | Voter | Yes |
| Chu, Liwen | Yes\*\*\*\* | Voter | Yes |
| Edelmayer, Andras | DNV | Non-Voter | - |
| Hong, Hanseul | No | Voter | No |
| Jung, hyojin | No | Voter | No |
| Kain, Carl | Abs | Voter | Abs |
| Kenney, John | Yes | Voter | Yes |
| Kim, Yongho | No | Voter | No |
| Kim, Youn-Kwan | Yes | Voter | Yes |
| Levy, Joseph | Yes | Voter | Yes |
| Lim, Dong Guk | Abs | Voter | Abs |
| Moon, Juseong\*\* | DNV | Non-Voter | - |
| Motozuka, Hiroyuki | Yes | Voter | Yes |
| noh, yujin | Yes/DNV\* | Voter | Yes |
| Rosdahl, Jon\*\* | Abs | Voter | Abs |
| Schiessl, Sebastian | DNV | Potential-Voter | - |
| Smely, Di Dieter | Yes | Non-Voter | - |
| Sosack, Robert | DNV | Aspirant | - |
| Sun, Bo\*\*\* | DNV | Voter | DNV |
| Unterhuber, Paul | DNV | Potential-Voter | - |
| Yee, Peter | \*! | Voter | - |

*\*Signed into Webex twice*

*\*\* Did not register in IMAT but was present in the meeting.*

*\*\*\* Chair, ran poll did not vote and is not in Webex statistics*

*\*\*\*\* Vote added verbally, Webex technical issue*

*\*! Not present for this Webex Poll, registered attendance in IMAT*

## SP for 11-20/1273, the comment resolution for CID 114 and 115, Dongguk Lim (LGE)

* 1. SP results: **Y/N/A/dnv 12/0/4/5**

## SP for 11-20/1297, comment resolution for CID 358 (Regulatory Requirement), Rui Cao (NXP)

* 1. SP results: **Y/N/A/dnv 11/0/7/3**

## 11-20/1228r3, D0.3 comment resolution subclause 5, Liwen Chu (NXP)

* 1. The three CID that were previously deferred during the discussion of 11-20/1228r2, are discussed (CID 39, 59, and 61).
     1. Q – Is the Text being added to section 5.2.3 or 5.3?
     2. A – It is currently under 5.2.2a.
     3. C – The original proposal was to create 5.3 and put this text there, as proposed by Michael Fischer in a passed motion.
     4. A long discussion on where this text should be located, with resulted in the discussion being differed till next week, and a call for additional discussion on the reflector. The editors (the TGbd editor and 802.11 editor should be consulted).

## 11-20/1230r1, Comment Resolutions for 32.3.10 (Receiver Specification) Rui CAO (NXP)

* 1. This submission addresses CID 344 and is constructed following the style of 802.11ac and 802.11ax.
  2. There was some discussion on the sensitivity values, as the BW is 10 MHz and not 20 MHz. The values in the text were confirmed.
  3. Q – Do these added table create redundant requirements?
     1. A – No.
  4. Q - Do these numbers consider the Doppler impacts?
     1. A - No these values are based on the AWGN case as are all 802.11 sensitivity numbers in the 802.11 specification, as stated in the Receiver Specification description. The 802.11 specification is not a certification/performance spec.
  5. Plan for SP in next teleconference (Tuesday Sept 1)

## Closing

* 1. Any other business
     1. none
  2. Chair adjourned the teleconference at 10:46am

Attendance from IMAT:

|  |  |
| --- | --- |
| **Name** | **Affiliation** |
| An, Song-Haur | INDEPENDENT |
| Cao, Rui | NXP Semiconductors |
| Chu, Liwen | NXP Semiconductors |
| Edelmayer, Andras | Commsignia |
| Hong, Hanseul | Yonsei University |
| Jung, hyojin | Hyundai Motor Company |
| Kain, Carl | USDoT |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. |
| Kim, Yongho | Korea National University of Transportation |
| Kim, Youn-Kwan | The Catholic University of Korea |
| Levy, Joseph | InterDigital, Inc. |
| Lim, Dong Guk | LG ELECTRONICS |
| Motozuka, Hiroyuki | Panasonic Corporation |
| noh, yujin | Newracom Inc. |
| Joh Rosdahl\* | Qualcomm\* |
| Schiessl, Sebastian | u-blox |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Sosack, Robert | Molex Incorporated |
| Sun, Bo | ZTE Corporation |
| Unterhuber, Paul | German Aerospace Center (DLR) |
| Yee, Peter | NSA-CSD |

*\* Did not register in IMAT but was present in the meeting (noted on Webex and via voice).*

# Tuesday, Sept 1, 2020

## Opening (IEEE 802.11-20/1352r1)

* 1. Call to order 10:34 AM EDT
  2. Chair instructed members on how to use Webex and to record attendance in IMAT.
  3. Chair introduced the patent policy and meeting rules.
     1. No response to the call for patents.
  4. Chair reviewed meeting rules and participate obligations (slides 7-10)
  5. Chair reviewed the Teleconference Plan and changes made during yesterday’s CAC (slide 11)
  6. Chair reviewed the current TG documents and timeline (slides 12, 13)
  7. Chair introduced the task group leadership (slide 38)

## Agenda (IEEE 802.11-20/1352r0)

* 1. Chair presented the agenda (slide 16)
  2. Chair went through list and presenters acknowledged their readiness to present today.
  3. 1228 presenter is not available today and will be deferred to the next meeting.
  4. No Discussion
  5. Agenda for this session has been adopted without objection

## Technical presentation (IEEE 802.11-20/1230r3)

* 1. Presented by Rui Cao (NXP)
  2. Presenter highlighted changes since the last revision
  3. CID344
  4. No comments or discussion. These changes had been developed since last call after an offer to collaborate with all interested parties.
  5. Straw Poll: “Do you agree on the comment resolution to CID 344 and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/1230r1?”
  6. Yes 11 / No 0 / Abstain 5 / No Response 3

## Technical presentation (IEEE 802.11-20/1378r0)

* 1. Presented by Rui Cao (NXP)
  2. Comment resolution for CID 340
  3. Discussion
     1. Question about the subject in 11-20/1378 being similar to 11-20/790r3
     2. Response that this has been taken into account in the drafting of the comment resolution text and the sections are complimentary. This has been noted in the instructions to the editor.
  4. Strawpoll will be run in the next meeting

## Technical presentation (IEEE 802.11-20/1264r1)

* 1. Presented by Bahar Sadeghi (Intel)
  2. This is a document showing 5 of the 95 editorial comments on Draft 0.3 that were assigned to the editor.
  3. Draft 0.4 containing accepted comment resolutions is now on the server.
  4. Three CIDs have suggested resolutions, two were reassigned.
  5. Discussion
     1. Comment in support of CID73 and use of the NGV STA term.
     2. Discussion about number of antennas (N\_TX) versus the number of streams. The spec limits it to two streams, but doesn’t specify antennas. Comment noted to be resolved by Qinghua
     3. Of these comments 23, 73 and 74 will need a straw poll. Presenter proposes to run a straw poll on all the editorial comments together.
     4. It was noted that CID23 is the only editorial comment marked as revised, and CID74 is the only editorial comment marked as rejected.
  6. Chair states there will be one week to review the editorial comments in D0.4 and a strawpoll run next week.

## Technical presentation (IEEE 802.11-20/1268r0)

* 1. Presented by Bahar Sadeghi (Intel)
  2. Discussion about ensuring these resolutions don’t collide with other technical comments addressing the same text.
  3. Straw poll in a future meeting.

## Closing

* 1. Chair reviewed the progress in the meeting and items that will be covered in the next meeting
  2. Chair reminded members of the upcoming meeting schedule, highlighting the plan for a motion on Sept 17 to approve all comment resolutions and instruct the editor to create draft 1.0.
  3. Chair announced that we’ve come to the end of the agenda. And called for any other business.
     1. none
  4. Chair adjourned the teleconference at 11:25am

Attendance from IMAT and webex:

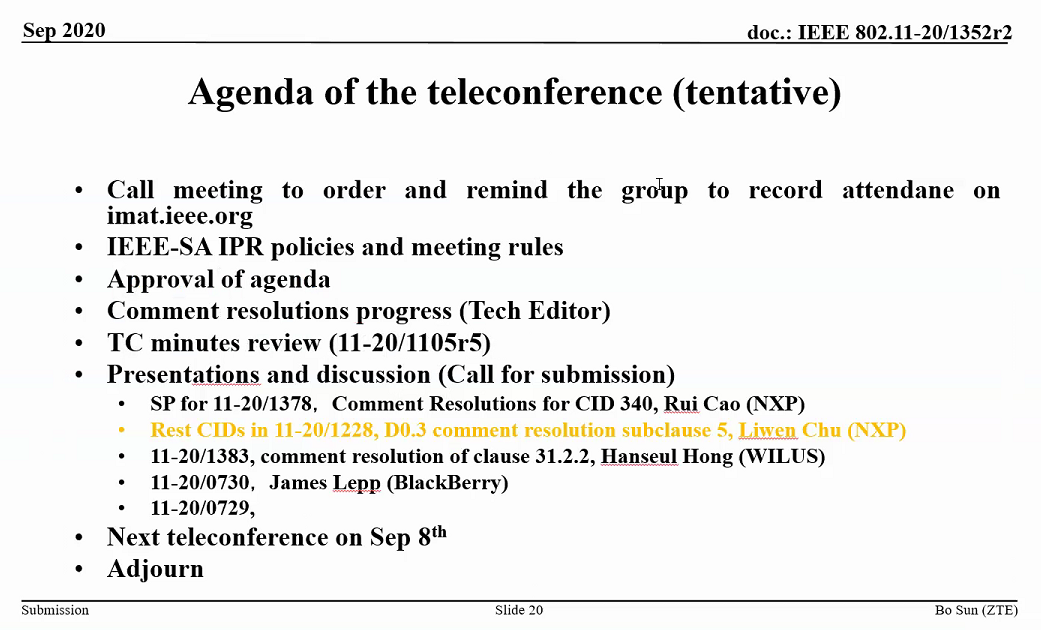
|  |  |
| --- | --- |
| An, Song-Haur | INDEPENDENT |
| Cao, Rui | NXP Semiconductors |
| Hong, Hanseul | Yonsei University |
| Kain, Carl | USDoT |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. |
| Kim, Youn-Kwan | The Catholic University of Korea |
| Lepp, James | BlackBerry |
| Levy, Joseph | InterDigital, Inc. |
| Lim, Dongguk | LGE |
| Moon, Juseong | KNUT |
| Motozuka, Hiroyuki | Panasonic Corporation |
| Noh, Yujin | Newracom Inc. |
| Rosdahl, Jon | Qualcomm Technologies, Inc. |
| Roy, Dick | Self |
| Sadeghi, Bahareh | Intel Corporation |
| Schiessl, Sebastian | u-blox |
| Stanley, Dorothy | Hewlett Packard Enterprise |
| Sun, Bo | ZTE Corporation |
| Unterhuber, Paul | German Aerospace Center (DLR) |
| Yee, Peter | NSA-CSD |

# Friday, Sept 4, 2020

## Opening (IEEE 802.11-20/1352r2)

* 1. Call to order 10:03 AM EDT
  2. Chair instructed members on how to use Webex and to record attendance in IMAT.
  3. Chair introduced the patent policy and meeting rules.
     1. No response to the call for patents.
  4. Chair reviewed meeting rules and participate obligations (slides 7-10)
  5. Chair reviewed teleconference plan (slide 11)
  6. Chair reviewed the current TG documents and timeline (slides 12, 13)
  7. Chair introduced the task group leadership (slide 18)

## Agenda (IEEE 802.11-20/1352r2)

* 1. Chair presented the agenda (slide 20)
  2. Chair went through list and presenters acknowledged their readiness to present today.
  3. Presenter for 1228 asked to defer to next Tuesday.
  4. Document 11-20/0729 was added to the agenda.
  5. Member asked for a discussion on the result of the motion last week.
  6. Member commented that discussion is appropriate and a discussion of the minutes could be the basis of that discussion.
  7. Document 1105r5 suggested for that agenda item
  8. Agenda for this session has been adopted without objection
  9. 

## Editor Report (IEEE 802.11-19/2045r6)

* 1. Presented by Bahar Sadeghi (Intel)
  2. The comment resolution documents have been updated with all the TG work in August.
  3. Editorial comments have been published in the D0.4 on the server
  4. There are 74 remaining comments
  5. Discussion
     1. Q: Are all 74 technical?
     2. A: Mostly, there are a few editorial and general that were assigned here.
  6. Chair reminds the group we have 5 teleconferences before our planned motion for D1.0

## Minutes Review (IEEE 802.11-20/1105r5)

* 1. Presented by James Lepp (BlackBerry)
  2. Secretary reviewed the motion on August 28 and the validated results
  3. The preliminary results were 9/3/3 and after verifying, on non-voter had voted yes. The motion results were 8/3/3 and failed to achieve the 75% support required to pass a technical motion.
  4. Discussion about procedures and options for the group to reconsider this motion.
  5. Chair state that a motion to reconsider can be made by any member of the committee.

## Technical presentation (IEEE 802.11-20/1378r0)

* 1. Presented by Rui Cao (NXP)
  2. Strawpoll: “**Do you agree on the comment resolution to CID 340 and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/1378r0?**
  3. No discussion
  4. Straw poll taken with webex tool
  5. Yes 12/No 0/Abstain 5/No Response 1

## Technical presentation (IEEE 802.11-20/1383r)

* 1. Presented by Hanseul Hong (WILUS)
  2. CID25
     1. No discussion
  3. CID82
     1. No discussion
  4. CID157
     1. No discussion
  5. CID232, 233, 234
     1. No discussion
  6. Discussion
     1. Question about the fallback enabled parameter. If this is present, then it is telling the upper layer that it can send in 10MHz or 20MHz? Suggestion to clarify that if it is sent in 10MHz it is the “primary 10MHz” with a small text change.
     2. Comment about the term “primary channel” in the primitive. Does this enable channel switch the way 1609 upper layer expects it?
     3. Comment about channel change on a frame by frame basis.
     4. Presenter suggests to defer CID233 and collect more information from upper layer stakeholders
     5. Offer from John Kenney to bring this up with 1609 WG
     6. Question about the secondary channel and whether it is above or below the primary 20MHz channel.
     7. This could be part of the proposed parameter, or a separate parameter.
     8. Suggestion to split “primary channel and channel width” to two separate entries in the vector. Then add the secondary channel offset as a third entry.
     9. Discussion about channel plan and 20MHz channel allocation in different regions. Suggestion that there would be no overlapping 20MHz channels within a region.
     10. Question about CID157. What if the primary channel is busy, but the secondary channel is idle, but before the primary channel becomes idle the secondary channel has become busy. Some text will be added for this case. Another commenter suggest there may be need for further discussion.
     11. Presenter will continue discussion offline and bring a new revision and strawpoll in a future meeting
     12. Discussion about when feedback will be ready from 1609. John offers to bring a submission next Tuesday.

## Technical presentation (IEEE 802.11-20/0729r0)

* 1. Presented by James Lepp (BlackBerry)
  2. CID 24
     1. No Discussion
  3. CID 90
     1. Comment that the original text was clear.
     2. Another comment that the original text was clear
     3. Presenter proposes strawpoll to decide
     4. Straw Poll: Do you agree to reject CID90 and keep the original text?
     5. Straw poll taken using Webex polling tool
     6. 12Yes/0No/5Abstain/1No response
  4. Presenter will update the resolution to reject and strawpoll the document next meeting.

## Technical presentation (IEEE 802.11-20/0730r0)

* 1. Presented by James Lepp (BlackBerry)
  2. Discussion
     1. Comment that values in table 31-1 need to take into account 4 bytes for the delimiters
     2. Discussion about not defining A-MSDU size (3rd row in table) as it isn’t defined for VHT and HE. As such it doesn’t need to be defined in NGV. Presenter will update this in r1.
  3. A revision with the suggested change will be uploaded for a straw poll in the next meeting.

## Closing

* 1. Chair reviewed the progress in the meeting and items that will be covered in the next meeting
  2. Chair announced that we’ve come to the end of the agenda. And called for any other business.
     1. none
  3. Chair adjourned the teleconference at 11:49am

Attendance from IMAT:

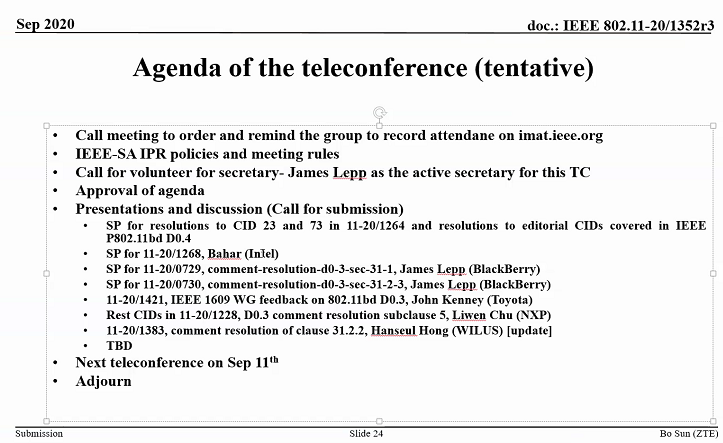
|  |  |
| --- | --- |
| An, Song-Haur | INDEPENDENT |
| Cao, Rui | NXP Semiconductors |
| Chu, Liwen | NXP Semiconductors |
| Edelmayer, Andras | Commsignia |
| Hong, Hanseul | WILUS Inc. |
| Kain, Carl | USDoT |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. |
| Kim, Yongho | Korea National University of Transportation |
| Lepp, James | BlackBerry |
| Levy, Joseph | InterDigital, Inc. |
| Lim, Dong Guk | LG ELECTRONICS |
| Motozuka, Hiroyuki | Panasonic Corporation |
| noh, yujin | Newracom Inc. |
| Sadeghi, Bahareh | Intel Corporation |
| Schiessl, Sebastian | u-blox |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Sosack, Robert | Molex Incorporated |
| Sun, Bo | ZTE Corporation |
| Yee, Peter | NSA-CSD |

# Tuesday, Sept 8, 2020

## Opening (IEEE 802.11-20/1352r3)

* 1. Call to order 10:04 AM EDT
  2. Chair instructed members on how to use Webex and to record attendance in IMAT.
  3. Chair introduced the patent policy and meeting rules.
     1. No response to the call for patents (slide 5).
  4. Chair reviewed meeting rules and participate obligations (slides 7-10)
  5. Chair reviewed the Teleconference plan (slide 11)
  6. Chair introduced the task group leadership (slide 22

## Agenda (IEEE 802.11-20/1352r0)

* 1. Chair presented the agenda (slide 24)
  2. Chair went through list and presenters acknowledged their readiness to present today.
  3. Order of presentations changed after discussion.
  4. 
  5. Agenda for this session has been adopted without objection

## Straw Poll (IEEE 802.11-20/1264r1)

* 1. Straw Poll: “Do you agree on the comment resolution to CID 23 and 73 in 11-20/1264r1 and spec text modifications as resolutions to editorial CIDs covered in IEEE P802.11bd D0.4?”
  2. No discussion
  3. Straw poll taken with Webex polling tool
  4. Yes 14 / No 0 / Abstain 5 / No Response 4

## Straw Poll (IEEE 802.11-20/1268r0)

* 1. Straw Poll: “Do you agree on the comment resolution to the following CIDs and propose spec text modification to 802.11bd D0.4 as in 11-20/1268r0?” CID 21, 48, 84, 343
  2. No discussion
  3. Straw poll taken with Webex polling tool
  4. Yes 13 / No 0 / Abstain 7 / No Response 3

## Straw Poll (IEEE 802.11-20/0729r1)

* 1. Straw Poll: “Do you agree on the comment resolution to following CIDs and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/0729r1? CID 24 and 90”
  2. No discussion
  3. Straw poll taken with Webex polling tool
  4. Yes 14 / No 0 / Abstain 5 / No Response 4

## Straw Poll (IEEE 802.11-20/0730r1)

* 1. Straw Poll: “Do you agree on the comment resolution to following CIDs and the proposed spec text modification to IEEE P802.11bd D0.3 as in 11-20/0730r0? CID 4, 5, 20, and 26”
  2. Question about whether the 4 octet adjustment was made in the length values to account for the delimiter.
  3. Answer looked into this and did not need to adjust the numbers.
  4. Straw poll taken with Webex polling tool
  5. Yes 13 / No 0 / Abstain 6 / No Response 3

## Technical presentation (IEEE 802.11-20/1421r1)

* 1. Presented by John Kenney (Toyota)
  2. Discussion on the multiple queues and including channel in the vector
     1. Question: channel is useful when queuing a frame at the upper layer, but when sent to the lower layer the channel is known by the PHY. Suggest no need to send channel number down to lower layer.
     2. Discussion of layering for the channel information and the queuing.
     3. Effort is to remove the -X extension primitives from 1609 into 802.11bd
     4. Comment that the channel number is not useful to the MAC layer.
     5. Discussion about the MAC layer queuing frames for a channel before the channel switches.
     6. Discussion about slide 5 showing queues and ability to queue both the active channel and non-active channels.
     7. Mention that the chipsets today support this queuing on the non-active channel before the channel switch. The question is how to design the primitives to enable it.
     8. Discussion about having multiple parallel queues for different channels with a single PHY. Current 802.11 architecture has only one set of EDCA queues. Suggestion you may need two separate MAC addresses for the two virtual MACs
     9. Response that no, different MAC addresses are not needed. The two are never active at the same time. The main ability required by 1609 is to enqueue frames on two channels.
     10. If the upper layer can queue frames on multiple channels, what causes the PHY to switch channels?
     11. That’s a MLME, a separate direct interface – not happening over the data SAP.
     12. Comment that in this design there is a set of Queues for channel A and a set of Queues for channel B. How is the channel number useful, what happens if the upper layer enqueues frames to a third channel number?
     13. Data frame for 3rd channel could be rejected. Design isn’t limited to two channels, could be devices supporting multiple channels.
     14. Comment that this multiple sets of queues for different channels is quite different from the existing 802.11 architecture.
     15. Q: Does the base channel and channel width apply to both 11p and 11bd?
     16. A: Think of it just as an 11bd feature.
     17. Does this parameter go to all STA?
     18. This parameter is an enqueuing request for the upper layer to send to lower layers an MSDU for transmission.
     19. Discussion about the need to include channel information in the receiving side vector.
  3. Presenter continued presentation with the “expiry time” part.
  4. Discussion
     1. Comment: there is in the baseline a MSDU lifetime. The difference I see here is that the frames all have the same lifetime. What you’re proposing is that different frames have different lifetimes.
     2. Yes, the idea here is that the MSDUs from different applications or even different frames from the same application may have different lifetimes. Idea was to make this a per-MSDU characteristic.
  5. Presenter continued presentation with the “cancel request” part.
  6. Discussion
     1. Discussion about not cancelling the head-of-line MSDU
     2. There are 3 options, has not started transmission, is partially transmitted, has already been transmitted. Attempting to distinguishing between the first two.
     3. Comment that there may also be a retransmission queue for transmission sent but not ACKed yet.
     4. Hadn’t considered that, but may want to cancel that. Main point is to include head-of-line frame in almost all cases.
  7. Presenter summarized the ask from IEEE 1609 WG on slide 11.
  8. Presenter has no strawpolls, suggests they be run by the volunteers who are handling those specific CIDs.
  9. Discussion
     1. Question about why the cancel request doesn’t need a channel number.
     2. Previous discussion was about whether it should allow canceling a queue for a non-active channel. IEEE 1609 WG suggests the channel number isn’t needed. Cancel request would be implicitly to the active channel.
     3. Question about whether the OCB primary channel within a 20MHz channel is indicated in the radio environment request vector
     4. Comment that on slide 7, the text “base channel” should be “primary channel”.
     5. Question about changes in the comment resolution proposals.
     6. Response that expiry time is already in the submission. Suggest to add clarifying text if not in the baseline.
     7. Further discussion about including channel and channel width in the vector. Members will discuss further offline.
     8. Comment that having multiple queues for multiple channels may need more architecture explanation or logical diagrams to clarify behavior differences from the baseline.
     9. Presenter is open to this.
     10. Commenter sees this as an 802.11 issue to ensure it is described clearly to meet the requirements of 1609.
  10. Chair discussing procedure for presentation 1228.
  11. Assignee for 1228 said there will be offline discussion, and if no consensus there will be two options presented to the group.
  12. Recommendation from the chair that the reflector is best used for offline discussions.

## Technical presentation (IEEE 802.11-20/1383r1)

* 1. Presented by Hanseul Hong (WILUS)
  2. Continuing with two CIDs that have updates from last time presented.
  3. CID157
     1. No discussion
  4. CID232
     1. Needs further discussion/presentation
  5. Presenter would like to have a strawpoll next session to accept all the comment resolutions except CID232

## Closing (IEEE 802.11-20/1352r3)

* 1. Chair reviewed progress in the meeting
  2. Chair went over agenda items that will be added to the next teleconference.
  3. Chair reminded members to register attendance on IMAT.
  4. Call for any other business
  5. Chair adjourned at 11:59am EDT.

Attendance from IMAT:

|  |  |
| --- | --- |
| Aboulmagd, Osama | Huawei Technologies Co. Ltd |
| An, Song-Haur | INDEPENDENT |
| Cao, Rui | NXP Semiconductors |
| Chu, Liwen | NXP Semiconductors |
| Dong, Xiandong | Xiaomi Inc. |
| Edelmayer, Andras | Commsignia |
| Hong, Hanseul | WILUS Inc. |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. |
| Kim, Yongho | Korea National University of Transportation |
| Kim, Youn-Kwan | The Catholic University of Korea |
| Lepp, James | BlackBerry |
| Levy, Joseph | InterDigital, Inc. |
| Lim, Dong Guk | LG ELECTRONICS |
| Moon, Juseong | Korea National University of Transportation |
| Motozuka, Hiroyuki | Panasonic Corporation |
| Nikolich, Paul | Self |
| noh, yujin | Newracom Inc. |
| Sadeghi, Bahareh | Intel Corporation |
| Sand, Stephan | German Aerospace Center (DLR) |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Sun, Bo | ZTE Corporation |
| Wang, Lei | Huawei R&D USA |
| Yang, Rui | Interdigital |
| Yee, Peter | NSA-CSD |

# Next Meetings

Working Group Interim:

Online, Sept 15-17, 2020 (Sept 15 9-11am, Sept 16 7-9pm, Sep 17 10-11am EDT)

<http://www.ieee802.org/11/Meetings/Meeting_Plan.html>

Teleconferences:

July 17, 21, 24, 28, 31, Aug 4, 14, 18, 21, 25, 28, Sep 1, 4, 8, 11 | Time 10-11:59am EDT | Webex

Meeting Documents:

<https://mentor.ieee.org/802.11/documents>

Task Group Email reflector:

<http://www.ieee802.org/11/email/stds-802-11-tgbd/index.html>

Website:

<http://www.ieee802.org/11/Reports/tgbd_update.htm>