IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IEEE 802.11bd November-December 2020 meeting minutes | | | | |
| Date: 2020-11-20 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Yan Zhang | NXP | 350 Holger Way, San Jose, CA, |  | [yan.zhang\_5@nxp.com](mailto:yan.zhang_5@nxp.com) |

Abstract

This document includes minutes of all IEEE 802.11bd teleconferences on November 20th , December 8th and December 11th.

Version Tracking:

R0: November 20th teleconference session 10:00-11:59 am ET

R1: December 8th teleconference session 9:00-11:00 am ET, December 11th teleconference session 9:00-10:17 am ET

# Friday 20 November 2020 @ 10:00-11:59 am ET

## Opening (IEEE 802.11-20/1806r1)

* 1. Call to order 10:05 am ET
  2. Chair instructed members to record attendance in IMAT.
  3. Chair introduced the patent policy and meeting rules (slides 2-6).
  4. No response to the call for patents.
  5. Chair reviewed Meeting Guidelines (slides 7-10)
  6. Chair reviewed current Teleconference plan, TGbd Documents Update, and current TGbd Timeline (slides 11-13)
  7. Chair introduced the task group leadership (slide 14)

## Agenda (IEEE 802.11-20/1806r1)

* 1. Chair presented the agenda: https://mentor.ieee.org/802.11/dcn/20/11-20-1806-01-00bd-tgbd-teleconference-agenda-for-oct-2020.pptx. (slide 16):
     + Call meeting to order and remind the group to record attendance on imat.ieee.org
     + IEEE-SA IPR policies and meeting rules
     + Approval of agenda (slide 16)
     + WG LB 251 results
     + LB 251 comments assignment (TGbd Editor)
       - 11-20/1887r0, tgbd-lb251-comments
     + Presentations and discussion (Call for submission)
       - SPs for 11-20/1728r3, 802-11bd-NGV-ranging-Status-and-Types, Stephan Sand (DLR)
       - 11-20/1802, summary of ARC SC discussion on 11-20/1164r4, Joseph Levy (InterDigital)
       - TBD
     + Next teleconference on Nov 24th
     + Adjourn
  2. Agenda was approved without objection

## Chair shared WG LB 251 results

* 1. Total comments received: 846 (Editorial: 347, Technical: 465, General: 34),

## LB251 comments assignment, (TGbd Editor)

* 1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1887-00-00bd-tgbd-lb251-comments.xlsx>
  2. TGbd Editor asked volunteers to take comments in each subclause shown in the Excel sheet, and finished assignments for most of the comments.
  3. TGbd Editor will take all editorial comments, and each assignee will take technical and general comments in each subclause.

## 11-20/1728r3, 802-11bd-NGV-ranging-Status-and-Types, Stephan Sand (DLR)

* 1. The presenter showed the update of 1728r3, 11bd differential distance computation using FTM frames and NTB measurement exchange on slides 11-14.
  2. A question was asked which capability the presenter is referred to regarding the update of Annex P.3. The presenter answered that capability is shown in SP#2. The following comment was made that this is purely receiver design, no capability announcement is needed. A further comment was made that 11ac FTM has no such capability announcement, hence there is no need for 11bd either. But an update for Annex P.3 is needed. The presenter asked if we need to defer SP #2 after comment resolutions for 11bd D1.0 which includes comments related to 11bd ranging. The editor answered that we can do either way and the presenter can take a look at comments related to ranging.
  3. A comment was made that we can SP Annex P.3 text or comment resolutions related to ranging instead, and whether Annex P.3 text update is needed. The presenter answered that we need to add some texts related to ranging in Annex P.3. The editor replied that she will update Annex P.3 to have a whole ranging solution. SP #2 texts are not appropriate since it is only receiver design.
  4. SP #2 Discussions, “Do you agree to update Annex P.3 for 11bd D1.0 including FTM and NTB measurement exchange?” A question was asked whether we need to include FTM. The presenter answered that we do need FTM for NTB measurement. The editor said that we need FTM negotiations and NTB measurement.
  5. SP #2 Discussions, SP #2 is changed to “Do you agree to update Annex P.3 for 11bd D1.0 including NTB measurement exchange?”. A question was asked why 11az does not update Annex P.3. The presenter answered that new protocol is needed for passive NTB ranging for 11bd.
  6. SP #2 is changed to “Do you agree to update Annex P.3 for 11bd D1.0 including NTB measurement exchange?”
     + Yes/No/Abstain: 11/0/10
  7. SP3 is deferred.

## 11-20/1802, summary of ARC SC discussion on 11-20/1802r0, Joseph Levy (InterDigital)

* 1. The presenter presented 5 open issues on slide 4, “questions and comments from ARC SC to TGbd”
  2. A comment was made that first question on slide 4 answered itself, the use is intended to be per MSDU.
  3. A question was asked whether we feel there is no need for channel control/radio environment information assuming per MSDU. A further question was asked about the clarification of channel control information. The presenter answered that there is no need to create specific control SAP for this purpose. A further question was asked whether we allow to access 1609 SAPs and whether a new primitive if needed. The presenter answered that a new primitive is needed since we need to access high layers, and 11bd devices are not self-defined.
  4. The answer to the second question on slide 4 is the MA-UNITDATA.indication is meant to be on the peer device, not on the transmitter, the indication is going out to higher layer or going to the air. A following question was aksed if it is going to the MAC layer. The presenter said it is not necessary going upstack, and the recipient can use this information and send it to the upper layer. It is suggested the presenter to add flow diagram in 11bd spec, and explain it to ARC people. A further comment was made that some clauses in 11bd spec already stated that MA-UNITDATA.indication is recipient primitives.
  5. A comment was made that question 3 on slide 4 is answered by 1609. The presenter will reach out to Michael Fisher who wrote this part for 1609 for a clear answer.
  6. The answer to question 4 on slide 4 is the new Radio Environment control is only for OCB. The editor further commented that there is a comment from LB to make it clear in spec text. A comment was made that OCB is not only for NGV, or non-NGV, and future devices can use it too. The presenter answered that future devices supporting this feature will be NGV devices. A following comment was made that we should relax this requirement.
  7. It was suggested that the chair should organize meetings with ARC SC people to present the solutions if all 5 questions on slide 4 get solved, or if there are any other comments related to the five open issues on slide 4.

## Closing

* 1. Any other business
     + None
  2. Chair announced the next TGbd teleconference will be cancelled on Nov. 24 9:00 am ET
  3. Chair announced the next TGbd teleconference will be on Dec. 1 9:00 am ET
  4. Chair announced TGbd teleconference on Dec. 29 9:00 am ET will be cancelled
  5. Chair adjourned the teleconference at 12:00 pm ET

**Attendance from IMAT**

| **Name** | **Affiliation** |
| --- | --- |
| An, Song-Haur | INDEPENDENT |
| Sun, Bo | ZTE Corporation |
| Cao, Rui | NXP Semiconductors |
| Coffey, John | Realtek Semiconductor Corp |
| Kenney, John | TOYOTA infoTechnology Center U.S.A |
| Schiessl, Sebastian | u-blox |
| Motozuka, Hiroyuki | Panasonic Corporation |
| Liwen, Chu | NXP |
| Sand, Stephan | German Aerospace Center (DLR) |
| Yujin, Noh | Newracom Inc. |
| Aboulmagd, Osama | Huawei Technologies Co. Ltd |
| Yan, Zhang | NXP |
| Kain, Carl | USDoT |
| Lansford, James | Qualcomm Incorporated |
| Rosdahl, John | Qualcomm Incorporated |
| Lopez, Miguel | Ericsson AB |
| McCann, Stephen | Huawei Technologies Co. Ltd |
| Montemurro, Michael | Huawei Technologies Co. Ltd |
| Sadeghi, Bahareh | Intel Corporation |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Sosack, Robert | Molex incorporated |
| Yee, Peter | NSA-CSD |
| Joseph, Levy | InterDigital |

# Tuesday 8 December 2020 @ 9:00-11:00 am ET

## Opening (IEEE 802.11-20/1891r2)

* 1. Call to order 9:03 am ET
  2. Chair instructed members to record attendance in IMAT.
  3. Chair introduced the patent policy and meeting rules (slides 2-6).
  4. No response to the call for patents.
  5. Chair reviewed Meeting Guidelines (slides 7-10)
  6. Chair reviewed current Teleconference plan, TGbd Documents Update, and current TGbd Timeline (slides 11-13)
  7. Chair introduced the task group leadership (slide 14)

## Agenda (IEEE 802.11-20/1891r2)

* 1. Chair presented the agenda: https://mentor.ieee.org/802.11/dcn/20/11-20-1891-02-00bd-tgbd-teleconference-agenda-for-oct-2020.pptx. (slide 16):
     + Call meeting to order and remind the group to record attendance on imat.ieee.org
     + IEEE-SA IPR policies and meeting rules
     + Approval of agenda (slide 16)
     + Meeting agenda for January 2021 IEEE 802.11 interim week
     + Presentations and discussion
       - 11-20/1934, D1.0 comment resolution editorials, Bahar Sadeghi (Intel)
     + Next teleconference on December 11th
     + Adjourn
  2. Agenda was approved without objection

## Draft Teleconference Plan for January 2021 Interim week January 11-13

* 1. The agenda for January Interim week teleconferences is approved without objection.

## 11-20/1934, D1.0 comment resolution editorials , Baha Sadeghi (Intel)

* 1. This submission addresses editorial comments submitted as part of LB 251 on 802.11bd 299 comments for D1.0 are resolved as captured in database 11-20/1887r2 and implemented in D1.1.
  2. CID 1456 discussions: The presenter suggested to reject the CID, and a comment was made that spectral mask and spectrum mask both are used in Revmd . The presenter will check which terminology is consistent with the context to use.
  3. CID 1691, 1514 discussions: The presenter asked which option should be used to make the PAR title and draft title consistent. A comment was made that changing title of draft document is the easy option as we have control over it. PAR update will wait until May the earliest and we cannot do SA ballot before that. A further comment was made that the group should arrange a title discussion and make a decision. The presenter will prepare material on the topic for the group to review.
  4. CID 1016 discussions: The presenter asked which option to solve the CID, removing SU-MIMO, replacing multiple spatial streams with SU MIMO, or making SU-MIMO consistent in the draft. The presenter will check with the owner of this clause to make a decision.
  5. CID 1102 discussions: The presenter asked if 10 MHz non-NGV STA is appropriate to use. A comment was made that it should be 10 MHz channel access mechanism.
  6. CID 1550, 1551 discussions: The presenter reassigned the CID to Liwen since it is not simple editorial change.
  7. CID 1275, 1276, 1277, 1278 discussions: The presenter asked where radio environment request vector should be placed in the document. It is suggested to put it in 5.2.5 under MA-UNITDATA.
  8. CID 1106,1567 discussions: The presenter reassigned the CID to Liwen since it is not simple editorial change.
  9. CID 1108 discussions: The presenter will reassign the CID to Liwen if it cannot be solved after radio environment vector related editorial changes.
  10. CID 1558 discussions: A comment was made that it can be removed since CBW80 is not applicable to NGV. Another comment was made to separate the sentence, and LSB is transmitted first for NGV.
  11. CID 1151, 1150, 1620, 1561, 1562, 1563, 1564 discussions: The presenter reassigned the CIDs to Bo.
  12. CID 1040 discussions: The presenter asked which unit it should use for buffer size. The presenter reassigned the CID to Joseph after some discussions.
  13. CID 1633 discussions: The presenter asked if it should be rejected. The comment was made that there is no STBC in 11bd, so NUM\_SS is the correct one, same as in 11be.
  14. CID 1576 discussions: The presenter asked if frequency segment should be removed since there is only one frequency segment. It is reassigned to Rui since it may not be simple editorial changes.
  15. CID 1327 discussions: The presenter asked if the Note should be added to transmit state machine figure. The group answered yes.

## Closing

* 1. Any other business
     + None
  2. Chair announced the next TGbd teleconference will be on Dec. 11 9:00 am ET
  3. Chair adjourned the teleconference at 12:00 pm ET

**Attendance from IMAT**

| **Name** | **Affiliation** |
| --- | --- |
| Sun, Bo | ZTE Corporation |
| Cao, Rui | NXP Semiconductors |
| Kenney, John | TOYOTA infoTechnology Center U.S.A |
| Schiessl, Sebastian | u-blox |
| Liwen, Chu | NXP |
| Sand, Stephan | German Aerospace Center (DLR) |
| Yan, Zhang | NXP |
| Kain, Carl | USDoT |
| Rosdahl, John | Qualcomm Incorporated |
| Christy Bahn | IEEE staff |
| Montemurro, Michael | Huawei Technologies Co. Ltd |
| Sadeghi, Bahareh | Intel Corporation |
| Al Petrick | InterDigital |
| Hanseul Hong | WILUS |
| Yee, Peter | NSA-CSD |
| Joseph, Levy | InterDigital |
| Juseong Moon | KNUT |

# Friday 11 December 2020 @ 9:00-11:00 am ET

## Opening (IEEE 802.11-20/1891r2)

* 1. Call to order 9:03 am ET
  2. Chair instructed members to record attendance in IMAT.
  3. Chair introduced the patent policy and meeting rules (slides 2-6).
  4. No response to the call for patents.
  5. Chair reviewed Meeting Guidelines (slides 7-10)
  6. Chair reviewed current Teleconference plan, TGbd Documents Update, and current TGbd Timeline (slides 11-13)
  7. Chair introduced the task group leadership (slide 18)

## Agenda (IEEE 802.11-20/1891r2)

* 1. Chair presented the agenda: https://mentor.ieee.org/802.11/dcn/20/11-20-1891-02-00bd-tgbd-teleconference-agenda-for-oct-2020.pptx. (slide 20):
     + Call meeting to order and remind the group to record attendance on imat.ieee.org
     + IEEE-SA IPR policies and meeting rules
     + Approval of agenda (slide 20)
     + Presentations and discussion
       - 11-20/1945, Resolutions to 32.3.5 NGV modulation and coding schemes, Yujin Noh (Newracom)
       - 11-20/1946， Resolutions to 32.3.15 Parameters for NGV-MCSs, Yujin Noh (Newracom)
       - 11-20/1947， Resolutions to 32.3.9.9 Midambles, Yujin Noh (Newracom)
       - 11-20/1948， Resolutions to 32.3.10 Transmit specification, Yujin Noh (Newracom)
       - 11-20/1949， Resolutions to 32.3.12 NGV transmit procedure, Yujin Noh (Newracom)
       - 11-20/1950， Resolutions to 32.3.13 NGV receive procedure, Yujin Noh (Newracom)
     + Next teleconference on December 15th
     + Adjourn
  2. Agenda was approved without objection

## 11-20/1945, Resolutions to 32.3.5 NGV modulation and coding schemes , Yujin Noh (Newracom)

* 1. CID 1785 discussions: The presenter suggested to modify the MCS 10 (BSPK+DCM, Nss = 1) to MCS 15 to be consistent with other 802 standard, such as 11be. A question was asked whether MCS table needs to be modified accordingly. The presenter confirmed that MCS table needs to be modified accordingly.
  2. CID 1785 discussions: A question was asked if MCS 10- 14 entries are missing in Table 32-18 in resolution to CID , as shown in document 11-20/1946. It is suggested to add one entry MCS 10-14 are reserved. A comment was made that reserved MCS values do not need to be included in MCS table.
  3. CID 1785 discussions: A question was asked what is the difference between invalid value for MCS and reserved value for MCS. The presenter answered that MCS 9 modulation order and coding rate combination will not work for N\_DBPS in 11bd, so this value will never be used. However, the reserved MCS value may be used in the future.

## 11-20/1946, Resolutions to 32.3.15 Parameters for NGV-MCSs, Yujin Noh (Newracom)

* 1. CID 1075, 1685 discussions: The presenter will update Table 32-18 according to the discussions of CID 1785.

## 11-20/1947, Resolutions to 32.3.9.9 Midambles, Yujin Noh (Newracom)

* 1. CID 1833, 1834 discussions: No discussions.

## 11-20/1948, Resolutions to 32.3.10 Transmit specification, Yujin Noh (Newracom)

* 1. CID 1088, 1322 discussions: The presenter asked if the Note should be added to transmit state machine figure. The group answered yes.
  2. CID 1586, 1677 discussions: The comments are accepted.
  3. CID 1587 discussions: A question was asked if the presenter reached out to the commenter why he made the comments for the first comment to the CID. The presenter answered that she does not see any technical issues in the original texts although the texts in the two paragraphs are not identical. A following comment was made that the presenter should contact the commenter for the reason before rejecting the comments. Another two comments were made that it is not the presenter responsibility to reach out commenter if he/she thinks the comment is not clear or correct. But the reason why the comments are rejected needs to be clearly given.
  4. CID 1089 discussions: No discussion.
  5. CID 1588 discussions: The presenter will defer this resolution. A question was asked what segment means in the text. The presenter answered that there is only one segment in NGV. A comment was made that there is a related CID in regarding to segment, and it may get resolved by that CID, which will remove all texts related to segment.
  6. CID 1589 discussions: No discussion.

## 11-20/1949, Resolutions to 32.3.12 NGV transmit procedure, Yujin Noh (Newracom)

* 1. CID 1836 discussions: No discussion.
  2. CID 1598, 1837 discussions: No discussion.

## 11-20/1950, Resolutions to 32.3.13 NGV receive procedure, Yujin Noh (Newracom)

* 1. CID 1096, 1118, 1238, 1239, 1475, 1500, 1506, 1513, 1549, 1688, 1730 discussions: No discussion.

## Closing

* 1. Any other business
     + None
  2. Chair announced the next TGbd teleconference will be on Dec. 15 9:00 am ET
  3. Chair adjourned the teleconference at 10:17 pm ET

**Attendance from IMAT**

| **Name** | **Affiliation** |
| --- | --- |
| Sun, Bo | ZTE Corporation |
| Cao, Rui | NXP Semiconductors |
| Kenney, John | TOYOTA infoTechnology Center U.S.A |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Sand, Stephan | German Aerospace Center (DLR) |
| Yan, Zhang | NXP |
| Kain, Carl | USDoT |
| Rosdahl, John | Qualcomm Incorporated |
| Santulli, Jennifer | IEEE staff |
| Montemurro, Michael | Huawei Technologies Co. Ltd |
| McCann, Stephen | Huawei Technologies Co. Ltd |
| Sadeghi, Bahareh | Intel Corporation |
| Osama Aboul-Magd | Huawei Technologies Co. Ltd |
| Hanseul Hong | WILUS |
| Joseph, Levy | InterDigital |
| Juseong Moon | KNUT |
| Edelmayer, Andras | Commsignia |
| Goto, Fumihide | DENSO |
| Lansford, James | Qualcomm Incorporated |
| Lim, Dong Guk | LG Electronics |
| Motozuka, Hiroyuki | Panasonic Corporation |
| Noh, Yujin | Newracom Inc. |
| RISON, Mark | Samsung Cambridge solution centre |
| Stanley, Dorothy | Hewlett Packard Enterprise |
| Sebastian, Schiessl | u-blox |
| Al Petrick | InterDigital |