IEEE P802.11  
Wireless LANs

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| IEEE 802.11  TGax January 2019 St Louis Meeting Minutes | | | | |
| Date: 2019-2-8 | | | | |
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Abstract

This document contains the TGax meeting minutes from the IEEE 802.11 January 2019 St. Louis session.

**IEEE 802.11 Task Group AX**

**January 2019 Meeting, St. Louis. MO, US**

**January 14th – 19th, 2019**

**Chair Osama Aboul-Magd (Huawei Technologies)**

**The 1st Vice-Chair Ron Porat (Broadcom Ltd.)**

**The 2nd Vice-Chair Alfred Asterjadhi (Qualcomm)**

**Secretary Yasuhiko Inoue (NTT Corporation)**

**Technical Editor Robert Stacey (Intel Corporation)**

**Monday, January 14th, 2019, AM2 TGax Session (10:30 AM - 12:30 PM)**

1. **The meeting called to order at 10:30 AM by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
   2. Agenda document 18/2114r1 available.
2. **Announcements**
   1. Chair asked people to announce name and the affiliation when addressing the group for the first time during a meeting slot.
   2. Attendance: <https://imat.ieee.org/attendance>
   3. Chair asked people to put the cellphone mute of switch off.
3. **Agenda Setting**
   1. Proposed agenda for Monday AM2
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. TG motions
         1. Approve TG meeting and Teleconference minutes since November 2018 meeting.
      4. Timeline
      5. Status of Comment Resolution
      6. Submissions and Comment Resolution
      7. Recess
   2. Chair asked if there is any item to add to the agenda. 🡪 No response.
   3. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
      1. The agenda for Monday AM1 was approved.
4. **IEEE-SA IPR Policy & Procedure**
   1. Chair read the following 5 slides:
      1. Participants have a duty to inform the IEEE – done.
      2. Ways to inform IEEE – done
         1. Chair asked if anyone in this meeting is aware of any potentially essential patents. 🡪 There was no response.
      3. Other guidelines for IEEE WG meetings – done
      4. Patent-related information – done
      5. Participation in IEEE 802 Meetings – done
5. **Agenda Items for the week – slide 12 of the agenda file (11-18-2114-01)**
   1. Approve meeting and teleconference minutes since November 2018.
   2. Complete the resolution of comments received on draft D3.0, prepare draft D4.0, and start a 15-day recirculation ballot
   3. Approve the TG Coexistence Assurance document
   4. Schedule TG ad hoc meeting, if needed.
   5. Schedule TG teleconference times.
6. **General flow and the TGax meeting schedule**
   1. TGax plans to have 11 sessions this week.

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|  | **Monday** | **Tuesday** | **Wednesday** | **Thursday** |
| **AM1** |  | **TGax** | **TGax** | **TGax** |
| **AM2** | **TGax** | **TGax** |  |  |
| **PM1** |  |  | **TGax** | **TGax** |
| **PM2** | **TGax** | **TGax** |  |  |
| **PM3 (EVE)** | **TGax** | **TGax** |  |  |

* 1. The focus is on comment resolution
  2. CIDs passed SP during Nov meeting or on a teleconference will not be reconsidered.
  3. Any document not related to comment resolution will be discussed on a best effort basis.
  4. 6 GHz related documents will be considered at the end and only if there is a consensus.

1. **TG Motion**
   1. Approval of TG Minutes (November 2018 Meeting and Teleconferences Minutes)
   2. **Motion: Approve TGax minutes of meetings and teleconferences from November 2018 Plenary meeting to today:**
      1. [**https://mentor.ieee.org/802.11/dcn/18/11-18-1933-01-00ax-tgax-november-2018-bangkok-meeting-minutes.docx**](https://mentor.ieee.org/802.11/dcn/18/11-18-1933-01-00ax-tgax-november-2018-bangkok-meeting-minutes.docx)
      2. [**https://mentor.ieee.org/802.11/dcn/18/11-18-2008-01-00ax-minutes-of-tgax-ad-hoc-mac-mu-sr-november-2018-in-bangkok.docx**](https://mentor.ieee.org/802.11/dcn/18/11-18-2008-01-00ax-minutes-of-tgax-ad-hoc-mac-mu-sr-november-2018-in-bangkok.docx)
      3. [**https://mentor.ieee.org/802.11/dcn/18/11-18-2137-00-00ax-minutes-of-tgax-teleconferences-from-nov-2018-to-jan-2019.docx**](https://mentor.ieee.org/802.11/dcn/18/11-18-2137-00-00ax-minutes-of-tgax-teleconferences-from-nov-2018-to-jan-2019.docx)
      4. [**https://mentor.ieee.org/802.11/dcn/18/11-18-1871-02-00ax-minutes-of-tgax-ad-hoc-november-2018-in-shenzhen.docx**](https://mentor.ieee.org/802.11/dcn/18/11-18-1871-02-00ax-minutes-of-tgax-ad-hoc-november-2018-in-shenzhen.docx)
      5. [**https://mentor.ieee.org/802.11/dcn/18/11-18-2024-00-00ax-bangkok-phy-ad-hoc-minutes.docx**](https://mentor.ieee.org/802.11/dcn/18/11-18-2024-00-00ax-bangkok-phy-ad-hoc-minutes.docx)
   3. **Moved by Kiseon Ryu, Seconded by Stephen Baron.**
   4. **Result: The motion was approved with no objection.**
2. **Timeline**
   1. Current timeline: [**http://www.ieee802.org/11/Reports/802.11\_Timelines.htm**](http://www.ieee802.org/11/Reports/802.11_Timelines.htm)
   2. Changes:
      1. Recirculation Jan. 2019
      2. MEC/MRD Mar. 2019
      3. Sponsor Ballot pool Feb. 2019
      4. Initial Sponsor Ballot May 2019 🡪 July 2019
      5. Final 802.11 Approval Nov. 2019 🡪 January 2020
      6. Final Conditional EC approval Nov. 2019 🡪 March 2020
      7. RevCom Dec. 2019 🡪 June 2020
3. **Comment Resolution Status**
   1. The group updates the worksheets containing the document numbers of the submissions and CIDs for each submission attached to the slide 20 of the agenda file.
4. **Comment Resolution**
   1. **Huizhao Wang (Quantenna Communications) presented “Resolution for CIDs: 15302, 15906, 16750,” based on the submission 11-18/1995r2.**
      1. Summary
         1. Resolutions for the comments with CIDs 15302, 15906 and 16750 on the IEEE 802.11ax D3.0 are proposed.
      2. Discussion
         1. (Re: CID 15302): There was a comment that there is no text saying that an HE AP can configure … The relevant text was clarified.
      3. **Straw Poll: Do you accept resolutions to CIDs 15302, 15906, 16750 in doc 11-18/1995r2?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion.
   2. **Guoqing Li (Apple) presented “CR for CID 15153,” based on the submission 11-19/0120r0.**
      1. Summary
         1. A resolution for the comment with CID 15153 on the IEEE 802.11ax D3.0 subclause 4.3.14a was proposed.
      2. Discussion
         1. The commenter requests definitions of UL MU=MIMO and UL OFDMA as well.
         2. There was a comment that the PHY ad hoc has already discussed this issue. One of the participant mentioned that he is okay with current definition is D3.3.
         3. The group agreed to reject this comment.
      3. **Straw Poll: Do you accept resolution to CID 15153 in doc 11-19/0120r1?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion.
   3. **Laurent Cariou (Intel) presented “CR for OBSS\_PD,” based on the submission 11-18/1866r4**
      1. Summary
         1. Laurent updated the text in 27.10.25 and explained the changes.
      2. Discussion
         1. No major discussion.
      3. **Straw Poll: Do you accept resolutions to CIDs 15175, 15652, 16411, 17077, 17001, 16124, 15716 in doc 11-18/1866r5?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion.
   4. **Liwen Chu (Marvell Semiconductor) presented “11ax D3.0 Comment Resolution miscellaneous,” based on the submission 11-18/2040r5**
      1. Summary
         1. Resolutions for the comments with following CIDs on the IEEE 802.11ax D3.0 (MAC miscellaneous) are proposed.
            1. Relevant CIDs: - 15079, 16504, 16868, 16949, 16950, 15090, 15952, 15333, 16012, 16663, 17153, 16250, 16163, 16168, 16214, 16221, 16282, 16351, 15606, 15934.
      2. Discussion
         1. (CID 15090): The resolution was updated as the result of the discussion.
         2. (CID 16282): The resolution was changed from rejected to revised.
         3. (CID 15606 and 15934): A member is not happy with the proposed changes since there still is ambiguity while other people are okay with the changes.
         4. The submission was updated (r5 🡪 r6).
      3. **Straw Poll: Do you accept resolutions to CIDs 15090, 16168, 16282, 15606, and 15934 in doc 11-18/2040r6?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion.
5. **AoB**
   1. 5 minutes left. Chair suggested recess at this point.
6. **Recess**
   1. TGax is in recess @ 12:26 until start of PM1 (13:30) today.

**Monday, January 14th, 2019, PM1 TGax Session (13:30 - 15:30)**

1. **The meeting called to order at 10:30 AM by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
2. **Agenda Setting**
   1. Proposed agenda for Monday PM1:
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Submissions and comment resolution
      4. Recess
   2. Chair asked if there is any item to add to the agenda. 🡪 No response.
   3. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
      1. The agenda was accepted.
3. **Reminder and Announcement**
   1. Chair reminded that we are still operating under the IEEE-SA P&P.
   2. Chair asked people to state name and affiliation when addressing the group for the first time in a session.
   3. Attendance: <https://imat.ieee.org/attendance>
4. **Comment Resolution**
   1. **Po-Kai Huang (Intel) presented “11ax D3.0 MAC Comment Resolution for Capability of MU Transmission and Reception,” based on the submission 11-18/2085r0.**
      1. Summary
         1. A resolution to the comment with CID 16487 on the IEEE 802.11ax D3.0 and related changes to the text are proposed.
      2. Discussion – No discussion.
      3. **Straw Poll: Do you accept resolutions to CID 16487 in doc 11-18/2085r1?**
         1. **Result:**
            1. **Accepted with no objection 🡪 on r0**
            2. **SP: Y/N/A 16/0/4 🡪 on r1**
   2. **Alfred Asterjadhi (Qualcomm) presented “MAC CR 27.7.3,” based on the submission 11-18/1697r0.**
      1. Summary
         1. Resolutions for the comments with following CIDs on the IEEE 802.11ax D3.0 subclause 27.7.3 (Broadcast TWT operation) are proposed.
            1. Relevant CIDs: 15096, 15097, 15099, 15100, 15101, 15164, 15165, 15182, 15731, 15732, 15733, 15840, 15841, 15842, 15843, 15844, 16423, 16452, 16463
      2. Discussion
         1. A member asked for offline discussion on CIDs 15096, 15097 and 15182.
            1. After discussion, the document was updated to r1.
      3. **Straw Poll: Do you accept resolutions to CIDs 15096, 15097, 15099, 15100, 15101, 15164, 15165, 15182, 15731, 15732, 15733, 15840, 15841, 15842, 15843, 15844, 16423, 16452, 16463 In doc 11-18/1697r1?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion.
   3. **Liwen Chu (Marvell Semiconductor) presented “11ax D3.0 Comment Resolution miscellaneous,” based on the submission 11-19/0098r1.**
      1. Summary
         1. Resolutions to the comments with following CIDs on the IEEE 802.11ax D3.0 are proposed.
            1. Relevant CIDs: 15157, 16283.16293, 16494
      2. Discussion
         1. (CID 16494): Text in the resolution column is updated 🡪 r2 to be uploaded.
      3. **Straw Poll: Do you accept resolutions to CIDs 15157, 16283.16293, 16494 in doc 11-19/0098r2?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion.
   4. **Tomoko Adachi (Toshiba) presented “Resolutions to comments to subclauses 10.3.7, 3.1, 3.2, and 27.5.1.1,” based on the submission 11-18/1853r1.**
      1. Summary
         1. Resolutions to the comments with following CIDs on the IEEE 802.11ax D3.0 are proposed.
            1. Relevant CIDs: 16907, 16909, 16910, 16915, 16916, 16918, 16921
      2. Discussion
         1. (CID 16918) Need coordination with the resolutions for other CIDs on the same issue.
         2. (CID 16909) There was a comment that we may not need to change anything in sub-clause 3.1.
         3. (CID 16910) (definition of PPDU) A member asked for deferral.
      3. Straw Poll: Do you accept resolution to CIDs 16907, 16909, 16910, 16915, 16916, 16918, 16921 in doc 11-18/1853r1?
         1. Result:
            1. Resolutions to CIDs 16907, 16909, 16915, 16916 and 16921 are accepted with no objection.
            2. CID 16918 is transferred to Yasu.
      4. Next Step
         1. Tomo to have offline discussion on CID 16910.
   5. **Alfred Asterjadhi (Qualcomm) presented “Comment resolutions for TWT fixes,” based on the submission 11-19/0096r0.**
      1. Summary
         1. A resolution for a comment with CID 16737 on the IEEE 802.11ax D3.0 is proposed.
         2. This comment was discussed during the November 2018 session and was rejected.
         3. The comment was reconsidered since an erroneous behavior from the recipient side would bring performance degradation.
      2. Discussion
         1. No discussion.
      3. **Straw Poll: Do you accept resolution to CID 16737 in doc 11-19/0096r0?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion
   6. **Alfred Asterjadhi (Qualcomm) presented “MAC CR 27.7.4,” based on the submission 11-18/1472r2.**
      1. Summary
         1. Resolutions for the comment with following CIDs on the IEEE 802.11ax D3.0 subclause 27.7.4 (Use of TWT information frame) are proposed.
            1. Relevant CIDs: 15102, 15181, 15757, 15845, 16425, 16426, 16427, 16428, 16429.
      2. Discussion
         1. (CID 15757) This comment was transferred to another volunteer.
      3. **Straw Poll: Do you accept resolutions to CIDs 15102, 15181, 15845, 16425, 16426, 16427, 16428, 16429 in doc 11-18/1472r2?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by the TG motion.
   7. **Jarkko Kneckt (Apple) presented “RTS CTS protection coverage,” based on the submission 11-18/1999r0.**
      1. Summary
         1. 802.11ax OBSS PD rules allow in some cases OBSS STAs to reset the NAV when the STA has received CTS frame.
         2. The protection area of around the CTS transmitter should not leave unprotected holes.
         3. Jarkko is asking for possibility of removing some text in 27.10.2.2.
      2. Discussion
         1. A member mentioned other part of the text also can be removed. Jarkko is okay with it.
         2. Another member requested for more time to think about the impact of this proposed change.
      3. Next Step
         1. Jarkko to come back with an update.
5. **AoB**
   1. Chair asked if there is any objection to recess at this time. 🡪 No objection.
6. **Recess**
   1. TGax is in recess @ 15:22 until start of PM3 (19:30) today.

**Monday, January 14th, 2019, PM3 TGax Session (19:30 - 21:30)**

1. **The meeting called to order at 10:30 AM by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
2. **Agenda Setting**
   1. Proposed agenda for Monday PM3:
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Submissions and comment resolution
      4. Recess
   2. Chair asked if there is any item to add to the agenda. 🡪 No response.
   3. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
      1. The agenda was accepted.
3. **Reminder and Announcement**
   1. Chair reminded that we are still operating under the IEEE-SA P&P.
   2. Chair asked people to state name and affiliation when addressing the group for the first time in a session.
   3. Attendance: <https://imat.ieee.org/attendance>
4. **Comment Resolution**
   1. **Yasuhiko Inoue (NTT) presented “,” based on the submission 11-18-1807-04.**
      1. Summary
         1. Resolutions for the comments with following CIDs on the IEEE 802.11ax D3.0 are proposed.
            1. Relevant CIDs: 15000, 16130, 15001, 16100, 16101, 16102, 16918, 15929, 16170.
            2. The CID 16918 was transferred from Tomo.
      2. Discussion
         1. (CID 15929): The comment asking for clarification of the extent of the Editor's instruction at P109.6 is reasonable. The group discussed how to deal with this part of CID 15929. Some members have suggestions.
      3. Straw Poll – No straw poll right now, but resolutions for CIDs other than CID 15929 seem to be good.
      4. Next Step
         1. Yasu to come back with revised resolution for CID 15929.
   2. **Ming Gan (Huawei Technologies) presented “LB233 CR on CID 16486 17140 and 16449,” based on the submission 11-19-0076-00.**
      1. Summary
         1. Resolutions for the comments with CIDs 16486, 17140 and 16449 on the IEEE 802.11ax D3.0 are proposed.
      2. Discussion
         1. (CID 17140 & 16449) There is another submission for these comments.
      3. Next Step
         1. Ming to update the resolutions.
   3. **Yongho Seok (MediaTek) presented “LB233 CR Transmit Power Control,” based on the submission 11-18-1779-04.**
      1. Summary
         1. A resolution foe the comment with CID 16448 on the IEEE 802.11ax D3.0 on transmit power control is proposed.
      2. Discussion
      3. **Straw Poll: Do you accept resolution to CID 16448 in doc 11-18/1779r5?**
         1. **Result: Y/N/A = 20/2/15**
      4. Next Step: Approval by the TG motion.
   4. **Yongho Seok (MediaTek) presented “LB233 CR MAC Miscellaneous Part 2,” based on the submission 11-19-0085-01.**
      1. Summary
         1. Resolutions for the comments with following CIDs on the IEEE 802.11ax D3.0 are proposed.
            1. Relevant CIDs: 16441, 16738, 17046, 15939, 15835 (5 CIDs)
      2. Discussion
         1. CID 15023 (in r0 of this document) was transferred to another volunteer (to be resolved in 6 GHz related comment resolution).
         2. People discussed the portion of the PPDU that the power pre-correction is applied.
         3. The group discussed the limitation of TxPWR of each STA. 🡪 It is limited by the bandwidth of pre-HE portion of the PPDU.
      3. **Straw Poll: Do you accept resolutions to CIDs IDs: 16441, 16738, 17046, 15939, 15835 (5 CIDs) in doc 11-19/0085r2?**
         1. **Result: Y/N/A = 17/2/15 ( > 75% requirement is achieved)**
      4. Next Step: Approval by the TG motion.
   5. **Xiaogang Chen (Intel Corporation) presented “Changes to D3.3,” based on the submission 11-18-2033-02.**
      1. Summary
         1. Resolutions for comments with following CIDs on the IEEE 802.11ax Draft 3.2 PHY Sounding are proposed.
            1. Relevant CIDs: 16970, 16969, 16974, 16975, 16055.
         2. Rev 2 includes the resolution for CID 16055.
      2. Discussion
         1. A member asked for the difference about the resolution to the CID 16055 🡪 the way to include the information to the table.
         2. The group discussed the capability of 20 MHz-only STA to receive 80 MHz PPDU that is currently not capable. Since the tone plan of an 80 MHz PPDU is not the same as that of a 20 MHz PPDU, it is necessary to have a new proposal to make it possible.
      3. **Straw Poll: Do you accept resolutions to CIDs 16970, 16969, 16974, 16975, 16055 in doc 11-18/2033r3?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by the TG motion.
   6. **Peter Loc (Huawei Technologies) presented “Proposed Resolutions to Miscs PHY and MAC CIDs,” based on the submission 11-18-1932-02.**
      1. Summary
         1. Resolutions to the comments with following CIDs on the IEEE 802.11ax D3.0 various MAC and PHY specs are proposed.
            1. Relevant CIDs: 16557, 16570, 16571, 16573, 16574, 16575, 16579, 16580
         2. Previous version of this document was presented in a teleconference.
      2. Discussion
         1. （CID 16579） A member requested more time to think about the resolution for this comment.
      3. **Straw Poll: Do you accept the resolutions to CIDs 16557, 16570, 16571, 16573, 16574, 16575, 16579, 16580 in doc 11-18/1932r2?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by the TG motion.
5. **AoB**
   1. Chair asked if there is any objection to recess at this time. 🡪 No objection.
6. **Recess**
   1. TGax is in recess @ 21:23 until start of Tuesday AM1 (8:00 AM tomorrow).

**Tuesday, January 15th, 2019, AM1 TGax Session (8:00 - 10:00 AM)**

1. **The meeting called to order at 10:30 AM by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
   2. Agenda document 18/2114r1 available.
2. **Agenda Setting**
   1. Proposed agenda for Monday PM3:
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Status Update
      4. Submissions and comment resolution
      5. Recess
   2. Chair asked if there is any item to add to the agenda. 🡪 No response.
   3. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
      1. The agenda was accepted.
3. **Reminder and Announcement**
   1. Chair reminded that we are still operating under the IEEE-SA P&P.
   2. Chair asked people to state name and affiliation when addressing the group for the first time in a session.
   3. Attendance: <https://imat.ieee.org/attendance>
4. **Status Update**
5. **Submissions and Comment Resolutions**
   1. **Chao-Chun Wang (MediaTek) presented “Comment Resolution for 27.16.4,” based on the submission 11-18-1855-03.**
      1. Summary
         1. Resolutions for the comments with following CIDs on the IEEE 802.11ax D3.0 clause 27.16.4 (Quiet HE STAs in an HE BSS) are proposed.
            1. Relevant CIDs: 15900, 15773, 15635, 15774, 15775, 15046, 16559, 16560, 15726, 15784, 15785, 15448, 15449, 15787, 15418, 15125, 16619, 16620, 15419, 15788, 15126, 16621, 16622, 16561, 16873, 15725, 15451, 15452, 15789
      2. Discussion
         1. (CID 16561) The resolution was changed from “Rejected” to “Revised” for the reason described in the resolution column, i.e. the way to choose the service specific identifier. A member suggested additional NOTE.
      3. **Straw Poll: Do you accept the resolution to CID 16561 in doc 11-18/1855r4?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by the TG motion.
   2. **Po-Kai Huang (Intel) presented “11ax D3.0 MAC Comment Resolution for Capability of MU Transmission and Reception,” based on the submission 11-18-2085-01.**
      1. Summary
         1. A resolution to the comment with CID 16487 on the IEEE 802.11ax D3.0 subclause 27.8.1 (Operating mode indication - General) is proposed.
      2. Discussion
         1. No discussion.
      3. **Straw Poll: Do you accept the resolution to CID 16487 in doc 11-18/2085r1?**
         1. **Result: Y/N/A = 16/0/4, achieved > 75% support.**
      4. Next Step: Approval by the TG motion.
   3. **Huizhao Wang (Quantenna Communications) presented “11ax D3.0 sounding comments,” based on the submission 11-19-0099-02.**
      1. Summary
         1. Resolutions for the comments with following CIDs on the IEEE 802.11ax D3.0 sounding procedure are proposed.
            1. Relevant CIDs: 15687, 15689, 15690, 15692, 15693, 16756
      2. Discussion
         1. Some people commented that the proposal gives additional complexity. It is not appropriate at this point of time.
         2. There was a comment regarding backward compatibility.
      3. **Straw Poll #1: Do you accept resolutions to CIDs 15687, 15689, 15690, 15692, 15693, 16756 in doc 11-19/0099r2?**
         1. **Result: Y/N/A = 3/18/10**
      4. **Straw Poll #2: Do you accept resolutions to CIDs 15687, 15689, 15690, 15692, 15693, 16756 in doc 11-18/1921r4?**
         1. **Result: No objection.**
   4. **Liwen Chu (Marvell Semiconductor) presented “11ax D3.0 Comment Resolution 27.10.4,” based on the submission 11-18-1859-02.**
      1. Summary
         1. Resolutions for the comments with following CIDs on the IEEE 802.11ax D3.0 sub-clause 27.10.4 (Multi-TID A-MPDU and ack-enabled A-MPDU) are proposed.
            1. Relevant CIDs: 15700, 15701, 16213, 16225, 16280, 16281, 16284, 16289, 16295, 16355, 16356, 16413, 16492, 16493, 16494, 16684, 17041, 17042, 17066, 17067, 17068, 17147
      2. Discussion
         1. (CID 16289): A member mentioned that the commenter requested clarification of the definition of ack-enabled A-MPDU. Not the format of it. 🡪 It’s in 27.4.
         2. Another member would like offline discussion.
      3. Straw Poll – deferred since Liwen needs to make more changes to the document.
   5. **Zhou Lan (Broadcom Ltd.) presented “11ax D3.2 MAC Comment Resolution for Section 27.5,” based on the submission 11-18-1887-02.**
      1. Summary
         1. Resolutions for the comments with following CIDs on the IEEE 802.11ax D3.0 sub-clause 27.5 (MU operation) are proposed.
            1. Relevant CIDs: 16605, 15679, 15718, 15071
      2. Discussion
         1. (CID 16605) A member mentioned that current proposal did not resolve the comment. 🡪 More text for the PHY section is necessary to satisfy the commenter. Another member mentioned that text for the MAC section will be okay but need a reference to the PHY section.
         2. (CID 15071) Need more offline discussion.
      3. **Straw Poll: Do you accept resolutions to CIDs 15679 and 15718 in doc 11-1887r2?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by the TG motion.
   6. **Matthew Fischer (Broadcom Ltd.) presented “CR misc MAC,” based on the submission 11-19-0140-01.**
      1. Summary
         1. Resolutions for the comments with following CIDs on the IEEE 802.11ax D3.0 are proposed.
            1. Relevant CIDs：15708, 15763, 15764, 16411, 16444, 16535, 17052.
      2. Discussion
         * 1. Another participant has a related submission that should be included in this document. Additional NOTE was suggested. 🡪 Matt agreed.
           2. A member mentioned that the text should be more clear on the announcement of SRG.
6. **AoB**
   1. Time is up.
   2. Matt’s presentation to be continued in AM2.
7. **Recess**
   1. TGax meeting is in recess until start of AM2 session (10:30 AM) today.

**Tuesday, January 15th, 2019, AM2 TGax Session (10:30 AM - 12:30 PM)**

1. **The meeting called to order at 10:30 AM by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
   2. Agenda document 18/2114r4 available.
2. **Agenda Setting**
   1. Proposed Agenda for Tuesday AM2:
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Submissions and comment resolution
      4. Recess
   2. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
   3. The agenda for AM2 is approved.
3. **Reminder and Announcement**
   1. Chair reminded that we are still operating under the IEEE-SA P&P.
   2. Chair asked people to state name and affiliation when addressing the group for the first time in a session.
   3. Attendance: <https://imat.ieee.org/attendance>
4. **Submission and Comment Resolutions**
   1. **Matthew Fischer (Broadcom Ltd) continued presentation of submission 11-19-0140-01.**
      1. Discussion
         1. (CID 16411) A member commented that we rejected a similar comment during the November 2018 meeting and suggested rejection for this comment as well. 🡪 Matt is okay to reopen the comment.
         2. Now we have two proposals how to deal with this comment. A straw poll was proposed.
         3. **Straw Poll: Which option do you prefer as the resolution to CID 16411?**
            1. **Option 1: Rejected**
            2. **Option 2: Resolution in 11-19/0140r1**

**Result: Option 1/Option 2 = 13/15.**

**No clear indication of which way to go.**

* + - 1. (CID 16535) This comment was transferred to another participant (Sean Coffey), and then to the editor. Another member mentioned that the terminology is very confusing.
    1. Next Step
       1. Need more offline discussions.
  1. **Mark Rison (Samsung) presented “HE beamforming feedback subcarriers,” based on the submission 11-19-0002-01.**
     1. Summary
        1. This submission proposes corrections and clarifications on the subcarriers used for HE beamforming feedback.
        2. It supersedes the resolutions to CID 16165, 16260, 16272 and 16743 in 18/1921r4.
     2. Discussion
        1. No discussion.
     3. **Straw Poll: Do you accept resolutions to CIDs 16165, 16260, 16272 and 16743 in doc 11-19/0002r0?**
        1. **Result: No objection to the straw poll**
     4. Next Step: Approval by the TG motion.
  2. **Laurent Cariou (Intel) presented “CR for 6GHz - Discovery,” based on the submission 11-18-1227-12.**
     1. Summary
        1. Resolutions to the comments with CIDs 15121, 15825, 15651 and 15023 on the IEEE 802.11ax D3.0, 6 GHz related discovery procedure are proposed.
     2. Discussion
        1. A member asked for clarification of the “detecting AP.” 🡪 It means that a Probe Response and/or a Beacon is received.
        2. Another member discussed the TBTT offset between the neighboring Aps.
        3. The group discussed the case of a non-AP STA not supporting the 6 GHz band.
     3. **Straw Poll: Do you accept resolutions to CIDs 16165, 16260, 16272 and 16743 in doc 11-18/1227r13?**
        1. **Result: Y/N/A = 41/0/9. 🡪 Achieves > 75%**
     4. Next Step: Approval by the TG motion.
  3. **Alfred Asterjadhi (Qualcomm) presented “Comment resolutions for 27.16.1 related to 6 Ghz band,” based on the submission 11-18-1471-03.**
     1. Summary
        1. Resolutions for the comments with CIDs 15122 and 15829on the IEEE 802.11ax D3.0 sub-clause 27.16.1 (related to 6 GHz band).
     2. Discussion
        1. A member discussed the way to send a Probe Request. Also the terminology representing 6 GHz AP was discussed.
        2. There was a suggestion of re-numbering the sub-clause. 🡪 The document was updated to r4.
     3. **Straw Poll: Do you accept resolutions to CIDs 15122, 15829 in doc 11-18/1471r4?**
        1. **Result: Y/N/A = 32/3/9, achieves >= 75 % support.**
     4. Next Step: Approval by the TG motion.
  4. **Alfred Asterjadhi (Qualcomm) presented “Comment resolutions for 27.16.1 related to 6 Ghz band,” based on the submission 11-18-1211-05.**
     1. Summary
        1. Resolutions for the comments with following CIDs on the IEEE 802.11ax D3.0 sub-clause 27.16.1 are proposed.
           1. Relevant CIDs: 15120, 15166, 16446, 15177, 15647, 15154, 15831, 16396, 16447, 15161, 15827, 15828.
     2. Discussion
        1. No discussion.
     3. **Straw Poll: Do you accept resolutions to CIDs 15120, 15166, 16446, 15177, 15647, 15154, 15831, 16396, 16447, 15161, 15824, 15827, 15828 in doc 11-18/1211r5?**
        1. **Result: Y/N/A = 46/0/5, achieves >= 75% support.**
     4. Next Step: Approval by the TG motion.
  5. **Liwen Chu (Marvell Semiconductor) presented “Operation at 6GHz Band,” based on the submission 11-18-1489-03.**
     1. Summary
        1. This submission is not related to any comments, but proposes operation in the 6 GHz band such as TXOP protection and available channel polling.
     2. Discussion
        1. Some members asked for clarification of terminologies such as “Minimum Rate” and “Lowest Rate.”
        2. Based on clarification request from the participants, the document was updated to r4.
     3. **Straw Poll: Do you accept the draft text in doc 11-18/1489r4?**
        1. **Result: Y/N/A = 20/2/9, achieves >= 75% support.**
     4. Next Step: Approval by the TG motion.

1. **AoB**
   1. 7 minutes left. Chair asked if there is any objection to recess until PM2. 🡪 No objection.
2. **Recess**
   1. TGax meeting is in recess @ 12:24 until start of PM2 session (16:00) today.

**Tuesday, January 15th, 2019, PM2 TGax Session (16:00 - 18:00)**

1. **The meeting called to order at 16:00 by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
   2. Agenda document 18/2114r4 available.
2. **Agenda Setting**
   1. Proposed Agenda for Tuesday PM2:
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Submissions and comment resolution
      4. Recess
   2. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
   3. The agenda for PM2 was approved.
3. **Announcements**
   1. Chair reminded that we are still operating under the IEEE-SA P&P.
   2. Chair asked people to state name and affiliation when addressing the group for the first time in a session.
   3. Attendance: <https://imat.ieee.org/attendance>
4. **Comment Resolution**
   1. **Yongho Seok (MediaTek) presented “LB233 CR ER Beacon,” based on the submission 11-18-1506-02.**
      1. Summary
         1. Resolutions for the comment with following CIDs on the IEEE 802.11ax D3.0 ER Beacon are proposed.
            1. Relevant CIDs: 16123, 16091, 16925, 16152, 15127.
      2. Discussion
         1. (CID 15127) A member asked for the relationship between HE BSS and ER BSS whether they are co-located. While some people think they are co-located, some other people believes that they are not always co-located. 🡪 CID 15127 was deferred for now.
         2. (CID 16091) A member mentioned that the commenter has an wrong idea.
         3. (CID 16123) A participant objected to the resolution for this CID. 🡪 Need offline discussion.
         4. (CID 16925) A member commented that the reason for the rejection to this comment is not appropriate.
         5. (CID 15127) This comment was transferred to another volunteer.
      3. **Straw Poll: Do you accept resolutions to CIDs 16123, 16091, 16925, and 16152 in doc 11-18/1506r3?**
         1. **Result: Y/N/A = 15/1/2, achieves >= 75% support.**
      4. Next Step
         1. Yongho to have offline discussion for the deferred CIDs.
   2. **Zhou Lan (Broadcom Ltd.) presented “11ax D3.2 MAC Comment Resolution for**
   3. **Section 27.5,” based on the submission 11-18-1887-03.**
      1. Summary
         1. Zhou gave an update on the CID 16605 and 15071.
      2. Discussion
      3. **Straw Poll: Do you accept resolutions to CIDs 16605 and 15071 in doc 11-1887r3?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by the TG motion.
   4. **Zhou Lan (Broadcom Ltd.) presented “11ax D3.0 MAC Comment Resolution for**
   5. **Bandwidth Queue Report,” based on the submission 11-19-0166-00.**
      1. Summary
         1. A resolution for the comment with CID 16542 on the IEEE 802.11ax D3.0 Bandwidth Query Report is proposed.
      2. Discussion
         1. No discussion.
      3. **Straw Poll: Do you accept resolution to CID 16542 in doc 11-19/0166r0?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion.
   6. **Po-Kai Huang (Intel Corporation) presented “11ax D3.0 MAC Comment Resolution for Co-hosted BSS,” based on the submission 11-19-0160-00.**
      1. Summary
         1. A resolution for the comment with CID 16586 on the IEEE 802.11ax D3.0 Co-hosted BSS is proposed.
      2. Discussion
         1. A member commented that this should be described in clause 9. 🡪 There already is related description in clause 9.
         2. Another member asked for clarification about what is described in clause 9 and why we need this text. 🡪 Multiple BSS and Co-hosted BSS are described in clause 9. We need this text because this is an independent function.
         3. There was a request of cross reference between the text in clause 9 and that in clause 27.17.6.
      3. **Straw Poll: Do you accept resolution to CID 16586 in doc 11-19/0160r0?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by the TG motion.
   7. **Po-Kai Huang (Intel Corporation) presented “11ax D3.0 MAC MU-CTS Clarification,” based on the submission 11-19-0162-00.**
      1. Summary
         1. This document proposes fixes to align the rule of Trigger frame and MU-RTS Trigger frame.
      2. Discussion
         1. A member commented that NOTE should normative text.
      3. **Straw Poll: Do you accept the draft text in doc 11-19/0162r1?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by the TG motion.
5. **6 GHz discussion**
   1. **Alfred Asterjadhi Qualcomm) presented “Comment resolutions for HE SU beacon and miscellaneous rules for 6 GHz,” based on the submission 11-19-0097-01.**
      1. Summary
         1. Resolutions for the comments with CIDs 16588 and 15650 on the IEEE 802.11ax D3.0 are proposed.
      2. Discussion
         1. A member asked for clarification of ambiguous sentence in the proposed text.
         2. Another member commented that it confusing because many Beacon types are defined such as non-HT Beacon, HE Beacon and ER Beacon.
      3. Next Step
         1. Need more offline discussions.
   2. **Sean Coffey (RealTek) presented “CR misc MAC—CID 16535,” based on the submission 11-19-0161-00.**
      1. Summary
         1. A resolution for the comment with CID 16535 on the IEEE 802.11ax D3.0 is proposed.
      2. Discussion
         1. The commenter is basically asking for use of the same parameter name since both "SRP\_DISALLOW" and "SRP\_AND\_NON\_SRG\_OBSS\_PD\_PROHIBITED". are doing the same thing. This is not true.
         2. A member commented that it is appropriate to use different term for the different mechanism.
      3. **Straw Poll: Do you accept resolution to CID 16535 in doc 11-19/0161r0?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by the TG motion.
6. **AoB**
   1. Chair asked if there is any objection to recess until PM3. 🡪 No objection.
7. **Recess**
   1. TGax meeting is in recess @ 17:40 until start of PM3 session (19:30) today.

**Tuesday, January 15th, 2019, PM3 TGax Session (19:30 - 21:30)**

1. **The meeting called to order at 19:30 by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
   2. Agenda document 18/2114r4 available.
2. **Agenda Setting**
   1. Proposed Agenda for Tuesday PM3:
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Submissions and comment resolution
      4. Recess
   2. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
   3. The agenda for PM3 was approved.
3. **Announcements**
   1. Chair reminded that we are still operating under the IEEE-SA P&P.
   2. Chair asked people to state name and affiliation when addressing the group for the first time in a session.
   3. Attendance: <https://imat.ieee.org/attendance>
4. **Comment Resolution**
   1. **Jarkko Kneckt (Apple) presented “Comment resolution to CIDs 15990, 17031 and 17033,” based on the submission 11-18-1831-03.**
      1. Summary
         1. Resolutions to the comments with CIDs 15990, 17031 and 17033 related to the Operating Mode in the IEEE 802.11ax D3.0 are proposed.
      2. Discussion
         1. (CID 15990) A member asked for additional text for clarification. Another member asked for the reason of changing the Table 9-18.
         2. Based on the discussion, the document is updated to r4.
      3. **Straw Poll: Do you accept resolutions to CIDs 15990, 17031 and 17033 in doc 11-18/1831r4?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by the TG motion.
   2. **George Cherian (Qualcomm) presented “Remaining Ack related CRs,” based on the submission 11-19-0170-00.**
      1. Summary
         1. Resolutions to the comments with CIDs 16352, 16353 and 16927 related to ACK procedure in the IEEE 802.11ax D3.0 are proposed.
      2. Discussion
         1. (CID 16352) A member asked to double check consistency with the other part.
      3. **Straw Poll: Do you accept resolutions to CIDs 16352, 16353, 16927 in doc 11-19/170r0?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion.
   3. **Jarkko Kneckt (Apple) presented “CR for 6GHz – Active Scanning Part I,” based on the submission 11-19-0061-04.**
      1. Summary
         1. A resolution for the comment with CID 15651 on the IEEE 802.11ax D3.0 is proposed.
      2. Discussion
         1. A member commented that he does not understand why number of SSID has to be listed. The group discussed the need for listing the SSID.
         2. **Stroll: How many people prefer removing “SSID”?**
            1. **Result: Y/N = 15/3**
      3. Another member mentioned that we have defined many ways to for 6 GHz discovery. Do not need more.
      4. The group discussed the way to return a Probe Response frame.
      5. **Straw Poll: Do you accept resolution to CID 15651 in doc 11-19/0061r5?**
         1. **Result: Accepted with no objection.**
         2. **CIDs 15121 and 15825 are transferred to another volunteer.**
      6. Next Step: Approval by TG motion.
   4. **Matthew Fischer (Broadcom Ltd.) presented “Maximum RX PPDU Duration Signaling,” based on the submission 11-18-1821-04.**
      1. Summary
         1. It is proposed to create a mechanism to signal Maximum RX MPDU Duration to be transmitted to a STA using the A-control field.
            1. Related CID: 15757
      2. Discussion
         1. A member mentioned that this kind of proposal is not appropriate at this point of time. Another member also commented that he is not convinced by the proposed text. New mechanism is appropriate for the next generation system.
      3. **Straw Poll: Do you accept resolution to CID 15757 in doc 11-18/1821r4?**
         1. **Result: Y/N/A = 11/22/12.**
      4. Next Step: Need more discussion.
   5. **Matthew Fischer (Broadcom Ltd.) presented “TLC Signaling,” based on the submission 11-18-1822-02.**
      1. Summary
         1. A resolution to the comment with CID 16441 related to the IEEE 802.11ax D3.0 is proposed.
         2. It is proposed to create a mechanism in the Block Ack to signal a request by a receiver to Temporarily Limit the Connection.
      2. Discussion
      3. **Straw Poll: Do you accept resolutions to CID 16441 and 16440 in doc 11-18/1822r2?**
         1. **Result: Y/N/A = 11/18/6.**
      4. Next Step: Need more discussion.
   6. **Xiaogang Chen (Intel Corporation) presented “Changes to D3.3,” based on the submission 11-19-0117-01.**
      1. Summary
         1. For HE TB PPDU, the Pre-HE portion may be transmitted on wider bandwidth than the HE portion. For the HE TB PPDU, Tx power limitation issue is identified due to the OOBE caused by IM3.
      2. Discussion
         1. A member asked for the reason of sqrt(2)/2.
         2. Another member mentioned that we should be very careful to determine the boosting factor.
      3. Next Step: Need more discussion.
   7. **Abhishek Patil (Qualcomm) presented “Multiple BSSID Clarification – Part 3,” based on the submission 11-19-0028-01.**
      1. Summary
         1. Fixes to the Multiple BSSID related features are proposed.
         2. No related CID.
      2. Discussion
         1. A member requested more time for review.
         2. Another member asked for clarification on the definition of AP.
      3. Next Step: Need more offline discussion.
5. **AoB**
   1. It is 21:30.
6. **Recess**
   1. TGax meeting is in recess @ 21:30 until start of AM1 session (8:00 AM) Wednesday.

**Wednesday, January 16th, 2019, AM1 TGax Session (8:00 - 10:00 AM)**

1. **The meeting called to order at 8:00 AM by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
   2. Agenda document 18/2114r5 available.
2. **Agenda Setting**
   1. Proposed Agenda for Wednesday AM1:
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Submissions and comment resolution
      4. Recess
   2. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
   3. The agenda for AM1 was approved.
3. **Announcements**
   1. Chair reminded that we are still operating under the IEEE-SA P&P.
   2. Chair asked people to state name and affiliation when addressing the group for the first time in a session.
   3. Attendance: <https://imat.ieee.org/attendance>
4. **Comment Resolution**
   1. **Yunbo Li (Huawei Technologies) presented “CR for CID 17129,” based on the submission 11-19-0148-00.**
      1. Summary
         1. A resolution to the comment with CID 17129 on the IEEE 802.11ax D3.0 (Reverse Direction Protocol) is proposed.
      2. Discussion
         1. A member mentioned that he was confused by the proposal and clarifications are needed. 🡪 Offline discussion
         2. Another member suggested editorial changes.
      3. Straw Poll – No straw poll.
      4. Next Step: Yunbo to have offline discussions with the interested people.
   2. **Liwen Chu (Marvell Semiconductor) presented “11ax D3.0 Comment Resolution 27.10.4,” based on the submission 11-18-1859-04.**
      1. Summary
         1. Resolutions to the comments with following CIDs on the IEEE 802.11ax D3.0 sub-clause 27.10.4 (Multi-TID A-MPDU and ack-enabled A-MPDU) are proposed.
            1. Relevant CIDs: 15700, 15701, 16213, 16225, 16280, 16281, 16284, 16289, 16295, 16355, 16356, 16413, 16492, 16493, , 16684, 17041, 17042, 17066, 17067, 17068, 17147.
      2. Discussion
         1. A member asked for clarification of “TXOP holder” and “TXOP responder.”
         2. There was a comment saying “peer” may be better than “RD responder.”
         3. There was a request to use the consistent terms.
         4. One of the members has sent comments to Liwen.
      3. **Straw Poll: Do you accept resolutions to CIDs 15700, 15701, 16213, 16225, 16280, 16281, 16284, 16289, 16295, 16355, 16356, 16413, 16492, 16493, , 16684, 17041, 17042, 17066, 17067, 17068, 17147 in doc 11-18/1859r5?**
         1. **Result: Y/N/A = 22/0/4, achieves >= 75% support.**
      4. Next Step: Approval by a TG motion.
   3. **Yasuhiko Inoue (NTT) presented “Resolutions for Miscellaneous CIDs,” based on the submission 11-18-1807-05.**
      1. Summary
         1. Resolutions to the comments with following CIDs on the IEEE 802.11ax D3.0 are proposed.
            1. Relevant CIDs: 15000, 16130, - 15001, 16100, 16101, 16102, 16918

15929, 16170

* + 1. Discussion
       1. Editing instruction was updated based on the discussion.
    2. **Straw Poll: Do you accept resolution to CIDs 15000, 16130, 15001, 16100, 16101, 16102, 16918, 15929, 16170 in doc 11-18/1807r7?**
       1. **Accepted with no objection**
    3. Next Step: Approval by TG motion.
  1. **Jarkko Kneckt (Apple) presented “CR for 6GHz – Active Scanning Part II,” based on the submission 11-19-0095-02.**
     1. Summary
        1. Resolutions to the comments with CIDs 15121 and 15825 on the IEEE 802.11ax D3.0 (6 GHz active scanning) are proposed.
     2. Discussion
        1. A member asked for the intention of including RNR Criteria in FILS Request frame. 🡪 It helps to reduce the size of Probe Response.
* The concern is that only FILS capable STA could use this function.
  + - 1. The group discussed the BSS Parameter subfield proposed here and the one in other submission (Laurent’s document).
      2. Some people commented on the All-Co-located subfield that it might be redundant.
      3. There was a clarification request on the RNR Criteria.
    1. Straw Poll – No straw poll.
    2. Next Step: Need more discussion.
  1. **Alfred Asterjadhi (Qualcomm) presented “FTM in 6 Ghz,” based on the submission 11-19-0180-01.**
     1. Summary
        1. A resolution to the comment with CID 15824 on the IEEE 802.11ax D3.0 related the FTM is proposed.
     2. Discussion
        1. The group discussed the PPDU format of FTM frame and conducted a straw poll.
           1. **Straw Poll: Which option do you prefer for FTM protocol in the 6 GHz?**
* **Option 1: Allow FTM frames in VHT PPDU format**
* **Option 2: Allow FTM frames in HE PPDU format**
* **Option 3: Do nothing in 11ax (leave it for 11az)**

**Result: Option 1/Option 2/Option 3 = 14/13/24, no strong preference.**

* + - 1. Some people believe that FTM should be sent in VHT format while some other people believe FTM can be sent in an HE PPDU format.
      2. A member commented there is a missing option to use 802.11az..
    1. Next Step
       1. Alfred to come back with a proposal incorporating the result of discussions.

1. **AoB**
   1. None.
2. **Recess**
   1. TGax meeting is in recess @ 9:56 AM until start of PM1 session (13:30) today.

**Wednesday, January 16th, 2019, PM1 TGax Session (13:30 - 15:30)**

1. **The meeting called to order at 13:30 AM by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
   2. Agenda document 18/2114r5 available.
2. **Agenda Setting**
   1. Proposed Agenda for Wednesday PM1:
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Submissions and comment resolution
      4. Recess
   2. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
   3. The agenda for PM1 was approved.
3. **Announcements**
   1. Chair reminded that we are still operating under the IEEE-SA P&P.
   2. Chair asked people to state name and affiliation when addressing the group for the first time in a session.
   3. Attendance: <https://imat.ieee.org/attendance>

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1. **Status Update**
   1. Chair mentioned that there still were 63 comments without resolution.
   2. We will discuss how to proceed.
2. **Comment Resolution**
   1. **Tianyu Wu (Samsung) presented “Proposed Spec Text change on Trigger Frame MAC padding,” based on the submission 11-19-0121-02.**
      1. Summary
         1. Spec text change related to Trigger frame MAC padding in the IEEE 802.11ax D3.3 27.5.3.2.3 is proposed.
         2. When LDPC encoded, the Trigger frame MAC padding bits in the OFDM symbol containing the last coded bit of LDPC codeword that encodes the last bit of SCH does NOT contribute to the MAC processing time
         3. Two options are discussed.
            1. Option 1: If Trigger frame is carried in a PPDU with LDPC encoding, the transmitting AP shall ensure that the duration of the Data field of the PPDU that is after the OFDM symbol containing the last coded bit of the LDPC codeword that encodes the last bit of SCH, is greater than or equal to the MinTrigProcTime.
            2. Option 2: If Trigger frame is carried in a PPDU with LDPC encoding, the transmitting AP shall ensure that the duration of PPDU that is after the OFDM symbol containing the last coded bit of the LDPC codeword that encodes the last bit of SCH, is greater than or equal to the MinTrigProcTime + TPE,nominal.
      2. Discussion
         1. A member commented that option 1 is only for low rate cases. Option 2 is preferred.
         2. Another member mentioned that the intention of option 1 trying to align the OFDM symbol boundary is not really true.
         3. Some other people prefers option 2. A straw poll was conducted to see the opinion of the group.
            1. Straw Poll: In doc 11-19/0121r2, which option do you prefer

Option 1

Option 2

Result: Option 1 /Option 2 = 25/43.

* + - 1. No further discussion.
    1. **Straw Poll: Do you accept the draft text for option 2 in doc 11-19/0121r2?**
       1. **Result: Accepted with no objection.**
    2. Next Step: Approval by TG motion.
  1. **Abhishek Patil (Qualcomm) presented “Multiple BSSID Clarification – Part 3,” based on the submission 11-19-0028-02.**
     1. Summary
     2. Discussion
     3. **Straw Poll #1: Do you agree to accept the draft text in doc 11-19/0028r2?**
        1. **Result: Y/N/A = 32/13/8, does not achieve >= 75% support.**
     4. Further Discussion
        1. A member requested more time to review.
        2. After discussion, 6 GHz related text in 11.1.3.8 (Multiple BSSID procedure) was deleted and the document becomes r3.
     5. **Straw Poll #2: Do you agree to accept the draft text in doc 11-19/0028r3?**
        1. **Result: Accepted with no objection.**
     6. Next Step: Approval by TG motion.
  2. **Wookbong Li (Samsung) presented “,” based on the submission 11-18-1827-01.**
     1. Summary
        1. New operation mode is desired in the 6 GHz band. The EDCA + Triggered access does not have enough benefit. The access mechanism in 6 GHz band should be more scheduling based. Proposed text is contained in 18/1828r3.
           1. Related CUDs: 16444 and 15178.
        2. **Guoqing Li (Apple) presented a related document “CID 16444 and 15178 discussion--Why 11ax should maintain current data channel access rules on 6GHz,” 11-19-0143-03.**
           1. Summary

The access mechanism in the 6 GHz band should be based on EDCA + Triggered access.

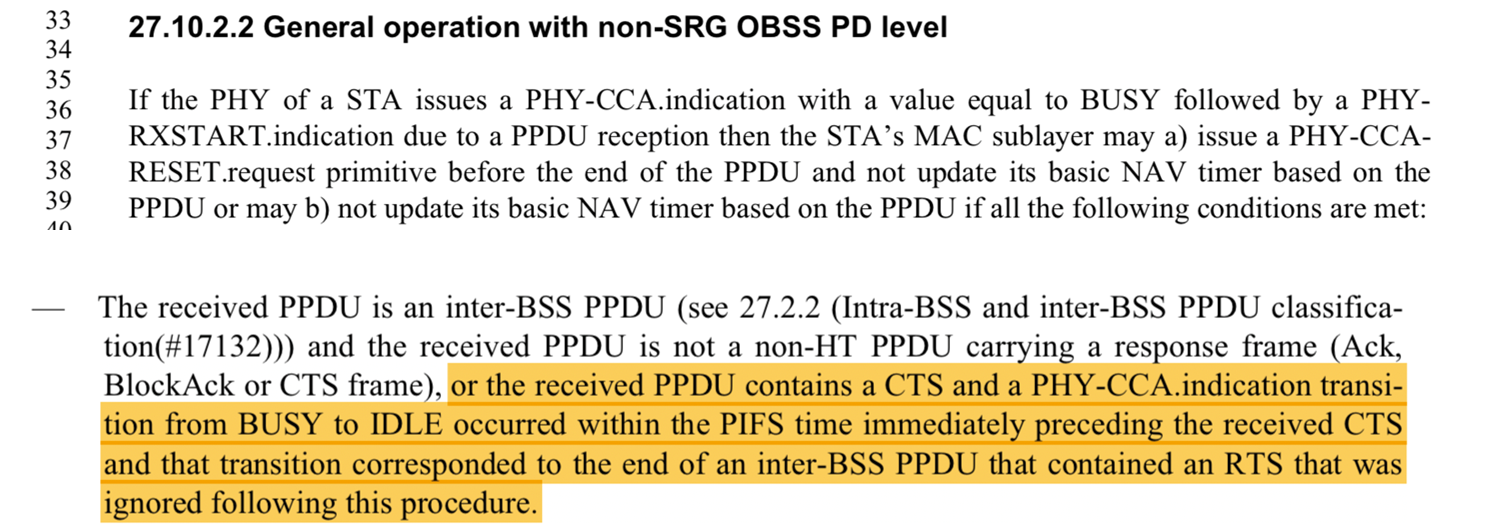
* + 1. Discussion
       1. Some people supports more centralized channel access in the 6 GHz band while some others prefer to keep existing mechanism.
       2. A member commented the he does not see big differences between those two proposals.
    2. **Straw Poll: Do you accept resolutions to CIDs 16444 and 15178 in doc 11-18/1828r4?**
       1. **Result: Y/N/A = 26/46/2, does not achieve >= 75% support.**
    3. Next Step: The group need to discuss how to deal with those comments.
  1. **Laurent Cariou (Intel Corporation) presented “CR for OPS,” based on the submission 11-19-0177-00.**
     1. Summary
        1. Resolutions to the comments with following CIDs on the IEEE 802.11ax D3.0 Opportunistic Power Save.
           1. Relevant CIDs: 15588, 15826, 15833, 15834, 15838, 16151, 16442, 16594, 16739.
     2. Discussion
        1. A member commented shall/should statement is not appropriate for the normative text.
     3. **Straw Poll: Do you accept resolutions to CIDs 15588, 15826, 15833, 15834, 15838, 16442, 16594, 16739 in doc 11-19/0177r0?**
        1. **Result: Accepted with no objection.**
        2. CID 16151: Related text needs to be updated.
     4. Next Step: Laurent to update the text related to CID 16151.
  2. **Alfred Asterjadhi (Qualcomm) presented “Comment resolutions for HE SU beacon and miscellaneous rules for 6 GHz,” based on the submission 11-19-0097-02.**
     1. Summary
        1. Alfred updated the 11-19-0097-01 which passed SP.
     2. Discussion
        1. No discussion.
     3. **Straw Poll: Do you accept resolutions to CIDs 16588, 15650 in doc 11-19/0097r3?**
        1. **Result: Accepted with no objection.**
     4. Next Step: Approval by TG motion.

1. **AoB**
   1. None.
2. **Recess**
   1. TGax meeting is in recess @ 15:27 until start of AM1 session (8:00 AM) Thursday.

**Thursday, January 17th, 2019, AM1 TGax Session (8:00 - 10:00 AM)**

1. **The meeting called to order at 8:00 AM by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
   2. Agenda document 18/2114r6 available.
2. **Agenda Setting**
   1. Proposed Agenda for Thursday AM1:
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Submissions and comment resolution
      4. Recess
   2. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
   3. The agenda for AM1 was approved.
3. **Announcements**
   1. Chair reminded that we are still operating under the IEEE-SA P&P.
   2. Chair asked people to state name and affiliation when addressing the group for the first time in a session.
   3. Attendance: <https://imat.ieee.org/attendance>
4. **Status Update**
   1. According to the email from Robert Stacey, the TGax technical editor, we have 38 comments to resolve.
5. **Unresolved Comments**
   1. The group discussed how to resolve CID 16444 and 15178
      1. Discussion
         1. Need a reference what was discussed and was peoples’ preference.
         2. Another member introduced a tutorial we should follow (11-13/0230-03).
      2. **Straw Poll: Do you accept “Rejected” as the resolution to the CIDs 16444 and 15178. A proposal was made in doc 11-18/1828 to add a new mode of operation in response to the CIDs. Effort was made to reach consensus. It was felt that a new mode is not needed and the 11ax draft already has enough mechanisms to address the comments. After debating the issues a straw poll indicated that a technical consensus of 75% would not be achieved in an equivalent motion”**
         1. **Result: Y/N/A = 22/5/7, achieves >= 75% approval.**
      3. Further Discussion
         1. A member is not happy with the decision since we have not made enough effort to resolve the comments.
         2. Another member mentioned the resolution is good.
6. **Comment Resolution**
   1. **Osama Aboul-Magd (Huawei Technologies) presented “D3.0 Comment Resolution on MAC Miscellaneous,” based on the submission 11-18-1987r3 on behalf of Jae Seung Lee (ETRI).**
      1. Summary
         1. Resolutions to the comments with following CIDs on the IEEE 802.11ax D3.0 clause 9 and clause 11 are proposed.
            1. Relevant CIDs: 15210, 15875, 16581, 16582, 16583, 16556, 16558, 15064 and 15065.
      2. Discussion
         1. A member discussed the relationship among EDCA Parameter Set, QoS Capability and MU EDCA Parameter Set on the Table 9-27.
         2. A member asked whether there is a STA that supports QoS Capability but does not support EDCA Parameter Set. 🡪 No.
         3. Both of QoS Capability and EDCA Parameter Set IEs are defined in 802.11e to avoid inclusion of all of QoS related information in every QoS related frame.
         4. (CID 15064) A member discussed planned BSS related settings.
      3. **Straw Polls**
         1. **Straw Poll #1: Do you accept resolutions to CIDs 15210, 15875, 16581, 16582, 16583, 16556, 16558, 15064 and 15065 in doc 11-18/1987r3?**
            1. **Result: Y/N/A = 3/6/8, did not achieve >= 75% support.**
         2. **Straw Poll #2: Do you accept resolutions to CIDs 15210, 15875, 16581, 16582, 16583, 16556 and 16558 in doc 11-18/1987r3?**
            1. **Result: Accepted with no objection.**
            2. **CIDs 15064 and 15065 are removed.**
      4. Next Step: Approval by TG motion.
   2. **Jarkko Kneckt (Apple) presented “RTS CTS protection coverage,” based on the submission 11-18-1999r1.**
      1. Summary
         1. Jarkko came back with a revised document.
      2. Discussion
         1. A member expressed a concern that this proposal could break the spatial reuse mechanism.
         2. Another member mentioned that this was discussed and the conclusion was as mentioned by the previous commenter. Do not support this proposal.
      3. Straw Poll:

Do you agree to delete the highlighted text from the 802.11ax specification?



* + - 1. Result: Y/N/A = 3/13/13, did not achieve >= 75% support.
  1. **The document “D3.0 Comment Resolution on MAC Miscellaneous,” was revisited.**
     1. Summary
        1. CIDs 15064 and 15065 were discussed and the resolutions are agreed.
     2. Discussion
        1. No discussion.
     3. **Straw Poll: Do you accept resolutions to CIDs 15210, 15875, 16581, 16582, 16583, 16556, 16558, 15064 and 15065 in doc 11-18/1987r3?**
        1. **Result: Accepted with no objection.**
     4. Next Step: Approval by TG motion.
  2. **Abhishek Patil (Qualcomm) revisited “Multiple BSSID Clarification – Part 3,” based on the submission 11-19-0028r4.**
     1. Discussion
        1. No discussion.
     2. **Straw Poll: Do you accept the draft text in doc 11-19/0028r4?**
        1. **Result: 25/0/6, achieved >= 75% support.**
     3. Next Step: Approval by TG motion.
  3. **Alfred Asterjadhi (Qualcomm) presented “Comment resolutions for last CIDs,” based on the submission 11-19-0192r1.**
     1. Summary
        1. Resolutions for the comments with following CIDs on the IEEE 802.11ax D3.0 are proposed.
           1. Relevant CIDs: 16838, 15850, 15098, 15104, 15668, 15757, 15832, 16450.
     2. Discussion
        1. (CID 16838) A member mentioned that the comment seems to be valid and rejection is not appropriate.
        2. (CID 15850) A member mentioned that commenter seems to be asking for a mechanism to provide information of different power limit depending on the frequency band.
        3. (CID 16450) A member commented that the reason for the rejection is not good. 🡪 The reason was updated.
     3. **Straw Poll: Do you accept resolutions to CIDs 16838, 15850, 15098, 15104, 15668, 15757, 15832 and 16450 in doc 11-19/0192r1?**
        1. **Result: Y/N/A = 12/0/12, achieved >= 75% support.**
     4. Next Step: Approval by TG motion.
  4. **Alfred Asterjadhi (Qualcomm) presented “Comment resolutions for 27.16.1 related to 6 Ghz band,” based on the submission 11-18-1211r6.**
     1. Summary
        1. Alfred gave an update.
     2. Discussion
        1. No discussion.
     3. **Straw Poll: Any objection to the update?**
        1. **No objection.**
     4. Next Step: Approval by TG motion.
  5. **Alfred Asterjadhi (Qualcomm) presented “Comment resolutions for TWT fixes,” based on the submission 11-19-0096r1.**
     1. Summary
        1. Alfred gave an update.
           1. Relevant CID: 16737
     2. Discussion
        1. No discussion.
     3. **Straw Poll: Any objection to the update?**
        1. **Result: No objection.**
     4. Next Step: Approval by TG motion.
  6. **Matthew Fischer (Broadcom Ltd.) presented “CR Default UORA Parameters,” based on the submission 11-19-0006r3.**
     1. Summary
        1. Resolutions for the comments with CIDs 16451 and 16584 on the IEEE 802.11ax D3.0 on the default UORA parameters are proposed.
     2. Discussion
        1. People discussed timing related to the association sequence.
        2. The group discussed RA-RU eligible for associated non-AP HE STA and for unassociated non-AP HE STAs.
        3. A member asked for the reason of removing the NOTE in 27.5.5. The member also commented that there is no Authentication Request frame.
     3. Straw Poll – deferred.
     4. Next Step: Matt to update the document.
  7. **Matthew Fischer (Broadcom Ltd.) presented “STA State Signaling,” based on the submission 11-18-1821r7.**
     1. Summary
        1. A creation of a mechanism to signal STA State to be transmitted to a STA using the A-control field is proposed.
     2. Discussion
        1. Document 19/0189 contains an alternative resolution.
  8. **Matthew Fischer (Broadcom Ltd.) presented “Fragment Flushing BlockAckReq,” based on the submission 11-18-0218r7.**
     1. Summary
        1. Resolutions for the comments with CIDs 17140 and 16449 on the IEEE 802.11ax D3.0.
     2. Discussion
        1. A member mentioned that BlockAck has already changed to allow the proposed behavior.
        2. Another member also commented that the two CIDs have already been resolved.
     3. Straw Poll – No straw poll.
     4. Next Step
        1. These two CIDs are to be rejected.
  9. **Matthew Fischer (Broadcom Ltd.) presented “TWT Capability Support Signaling,” based on the submission 11-19-0041r0.**
     1. Summary
        1. Modification of the TWT capability as exists within the Extended Capability IE was proposed.
     2. Discussion
        1. There was a comment that additional text is needed.
     3. Next Step
        1. Matt to update the document.
  10. **Mark Rison (Samsung) presented “Clarification of HE TB PPDU timing requirements,” based on the submission 11-19-0194r1.**
      1. Summary
         1. Clarifications on the timing requirements for HE TB PPDUs are proposed.
      2. Discussion
         1. A member mentioned that we are not allowed to discuss Wi-Fi Alliance Test Plan.
         2. While there was supportive comments, some people expressed concern due to the complexity.
      3. Straw Poll – No straw poll.

1. **AoB**
2. **Recess**
   1. TGax is in recess @ 10:00 AM until start of PM1 (13:30) today.

**Thursday, January 17th, 2019, PM1 TGax Session (13:30 - 15:30)**

1. **The meeting called to order at 10:30 AM by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
   2. Agenda document 18/2114r6 available.
2. **Agenda Setting**
   1. Proposed Agenda for Thursday PM1 and PM2:
      1. Call Meeting to order
      2. IEEE-SA IPR policy and Procedure.
      3. Resolution of the outstanding comments
      4. TG Motions
      5. Goals for March 2019
      6. Ad hoc meeting, if necessary
      7. Telecon Schedule
      8. Adjourn
   2. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
   3. The agenda for PM1 and PM2 was approved.
3. **Announcements**
   1. Chair reminded that we are still operating under the IEEE-SA P&P.
   2. Chair asked people to state name and affiliation when addressing the group for the first time in a session.
   3. Attendance: <https://imat.ieee.org/attendance>
4. **Resolutions of outstanding comments**
   1. **Laurent Cariou (Intel Corporation) presented updated submission “CR for OPS,” based on the submission 11-19-0177-01.**
      1. Summary
         1. Additional text in 27.7.3 Rules for HE sounding protocol sequences is proposed.
      2. Discussion
         1. No discussion.
      3. **Straw Poll: Do you agree to accept the draft text in doc 11-19-0177-01?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion.
   2. **Laurent Cariou (Intel Corporation) presented update on the “CR for 6GHz - Discovery,” based on the submission 11-18-1227-14.**
      1. Summary
         1. Minor fix in the RNR section for the Neighbor AP TBTT Offset was proposed.
      2. Discussion
         1. No discussion.
      3. **Straw Poll: Do you agree to accept the draft text in doc 11-18-1227-14?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion.
   3. **Yunbo Li (Huawei Technologies) presented update on the “CR for CID 17129,” based on the submission 11-19-0148-02.**
      1. Summary
         1. Yunbo had an offline discussion. Now the text is okay.
      2. Discussion
         1. No discussion.
      3. **Straw Poll: Do you agree to accept the draft text in doc 11-19-0148-02?**
         1. **Result: Accepted with no objection.**
      4. Next Step: Approval by TG motion.
   4. **Matthew Fischer (Broadcom Ltd.) presented update of the “CR Default UORA Parameters,” based on the submission 11-19-0006r4.**
      1. Summary
         1. Matt presented the update..
      2. Discussion
         1. A member still has a concern on the RA-RU allocation by a Trigger frame.
         2. Another member commented on related probing procedure.
      3. Next Step: Need more offline discussion.
   5. **Matthew Fischer (Broadcom Ltd.) presented update of the “TWT Capability Support Signaling,” based on the submission 11-19-0041r1.**
      1. Summary
         1. Matt presented the update.
      2. Discussion
         1. No discussion.
      3. **Straw Poll: Do you accept the draft text in doc 11-19-0041-01?**
         1. **Result: Y/N/A = 22/0/6, achieves >= 75% support.**
      4. Next Step: Approval by TG motion.
5. **TG Motions**
   1. **Approval of 802.11ax Coexistence Assurance document**
      1. **Motion: Move to accept document 11-16/1348r4**

[**https://mentor.ieee.org/802.11/dcn/16/11-16-1348-04-00ax-coexistence-assurance.docx**](https://mentor.ieee.org/802.11/dcn/16/11-16-1348-04-00ax-coexistence-assurance.docx)

**as the TGax Coexistence Assurance document.**

* + - 1. **Moved by Robert Stacey, Seconded by Alfred Asterjadhi.**
      2. **Discussion: No discussion**
      3. **Result: Y/N/A = 44/0/1, motion passes.**
  1. **CR Motions**
     1. **CR Motion #781: Move to accept resolutions to CIDs in the following comment groups:**
* **Approved Edits in D3.1 - Approved Edits in D3.2**
* **Approved Edits in D3.3 - Editorials**
* **Editorials in D3.1 - Editorials in D3.2**

**in doc 11-18/1123r19.**

* + - 1. **Moved by Robert Stacey, Seconded by Po-Kai Huang.**
      2. **Discussion: No discussion.**
      3. **Result: Passed by unanimous consent**
    1. **CR Motion #782: Move to accept resolutions to CIDs in the following comment groups:**
* **Alfred 18/1472 27-7-4** 🡪 **r2**
* **Alfred 18/1697 27.7.3** 🡪 **r1**
* **Alfred 18/1698 Misc Part 2** 🡪 **r1**
* **ChaoChun 18/1855 QTP** 🡪 **r4**
* **George 19/0170 Ack related** 🡪 **r0**
* **Guoqing 18/1868 Clause 4** 🡪 **r9**
* **Guoqing 19/0120 Definitions** 🡪 **r1**
* **Huizhao 18/1995 Duration based RTS** 🡪 **r3**
* **Jarkko 19/0061 6 GHz Discovery** 🡪 **r7**
* **Laurent 18/1866 OBSS PD** 🡪 **r5**
* **Liwen 18/1487 27.5.3.2.3** 🡪 **r3**
* **Liwen 18/1975 27.5.3.4** 🡪 **r4**
* **Liwen 18/2040 Misc** 🡪 **r6**
* **Liwen 19/0098 Misc** 🡪 **r1**
* **Matt 19/0140 MAC Misc** 🡪 **r1**
* **Menzo 18/1921 Sounding** 🡪 **r4**
* **Ming 19/0076 Fragmentation** 🡪 **r1**
* **Peter 18/1932 Misc** 🡪 **r5**
* **Sean 19/0161 Spatial Reuse** 🡪 **r0**
* **Tomo 18/1851 9.3.1.9** 🡪 **r3**
* **Tomo 18/1853 10.3.7, 3.1, 3.2, and 27.5.1.1** 🡪 **r2**
* **Yasu 18/1807 Misc** 🡪 **r7**
* **Zhou 18/1887 27.5** 🡪 **r3**
* **Zhou 19/0166 BQR** 🡪 **r0**
* **Xiaogang 18/2033 Sounding** 🡪 **r3**
* **Po-Kai 19/0160 Co-hosted BSS** 🡪 **r2**
  + - 1. **Moved by Robert Stacey, Seconded by Alfred Asterjadhi.**
      2. **Discussion: No discussion.**
      3. **Result: Approved by unanimous consent.**
    1. **CR Motion #783: Move to accept resolutions to CIDs in the following comment group:**
* **Alfred 18/1471 27.16.1 6 GHz 🡪 r4**

**in doc 11-18/1123r20.**

* + - 1. **Moved by Alfred Asterjadhi, Seconded by Abhishek Patil.**
      2. **Discussion: No discussion.**
      3. **Result: Approved by unanimous consent.**
    1. **CR Motion #784: Move to accept resolutions to CIDs in the following comment group:**
* **Alfred 18/1211 27.16.1 6 GHz 🡪 r6**

**in doc 11-18/1123r21.**

* + - 1. **Moved by Alfred Asterjadhi, Seconded by Abhishek Patil.**
      2. **Discussion: No discussion.**
      3. **Result: Approved by unanimous consent.**
    1. **CR Motion #785: Move to accept resolutions to CIDs in the following comment group:**
* **Liwen 18/1859 27.10.4** 🡪 **r7**

**in doc 11-18/1123r20.**

* + - 1. **Moved by Liwen Chu, Seconded by Alfred Asterjadhi.**
      2. **Discussion: No discussion.**
      3. **Result: Approved by unanimous consent.**
    1. **CR Motion #786: Move to accept resolutions to CIDs in the following comment group:**
* **Po-Kai 18/2085 MU Capability 🡪 r1**

**in doc 11-18/1123r20.**

* + - 1. **Moved by Po-Kai Huang, Seconded by Alfred Asterjadhi.**
      2. **Discussion: No discussion.**
      3. **Result: Approved by unanimous consent.**
    1. **CR Motion #787: Move to accept resolutions to CIDs in the following comment group:**
* **Yongho 1505 MAC TXVECTOR** 🡪 **r1**

**in doc 11-18/1123r20.**

* + - 1. **Moved by Yongho Seok, Seconded by James Yee.**
      2. **Discussion: No discussion.**
      3. **Result: Approved by unanimous consent.**
    1. **CR Motion #788: Move to accept resolutions to CIDs in the following comment group:**
* **Yongho 18/1506 ER Beacon** 🡪 **r2**

**in doc 11-18/1123r20.**

* + - 1. **Moved by Yongho Seok, Seconded by James Yee.**
      2. **Discussion: No discussion.**
      3. **Result: Approved by unanimous consent.**
    1. **CR Motion #789: Move to accept resolutions to CIDs in the following comment group:**
* **Yongho 18/1779 Tx Power Control** 🡪 **r6**

**in doc 11-18/1123r21.**

* + - 1. **Moved by Yongho Seok, Seconded by James Yee.**
      2. **Discussion: A member commented there is no need to add this and opposes to this motion. 🡪 This was agreed during the November 2018 meeting.**
      3. **Result: Y/N/A = 27/4/11, motion passes.**
    1. **CR Motion #790: Move to accept resolutions to CIDs in the following comment group:**
* **Yongho 19/0085 MAC Misc Part 2** 🡪 **r3**

**in doc 11-18/1123r21.**

* + - 1. **Moved by Yongho Seok, Seconded by James Yee.**
      2. **Discussion: No discussion.**
      3. **Result: Approved by unanimous consent.**
    1. **CR Motion #791: Move to accept resolutions to CIDs in the following comment groups:**
* **Osama November 2018**
* **Editor November 2018**

**in 11-18/1123r20.**

* + - 1. **Moved by Robert Stacey, Seconded by Alfred Asterjadhi.**
      2. **Discussion: No discussion.**
      3. **Result: Approved by unanimous consent.**
    1. **CR Motion #792: Move to accept resolutions to CIDs 16165, 16260, 16272 and 16743 in doc 11-19/0002r0.**
       1. **Moved by Mark Rison, Seconded by Alfred Asterjadhi.**
       2. **Discussion: There was a clarification request if this is replacement of the previous resolution. The answer was yes.**
       3. **Result: Approved by unanimous consent.**
    2. **CR Motion #793: Move to accept resolutions to CIDs in the following comment group:**
* **Laurent 18/1227 6 GHz Discovery** 🡪 **r14**

**in doc 11-18/1123r21.**

* + - 1. **Moved by Laurent Cariou, Seconded by Alfred Asterjadhi.**
      2. **Discussion: No discussion.**
      3. **Result: Approved by unanimous consent.**
    1. **CR Motion #794: Move to accept resolutions to CIDs 15588, 15826, 15833, 15834, 15838, 16151, 16442, 16594, 16739 in doc 11-19/0177r1.**
       1. **Moved by Laurent Cariou, Seconded by Alfred Asterjadhi.**
       2. **Discussion: No discussion.**
       3. **Result: Approved by unanimous consent.**
    2. **CR Motion #795: Move to accept “Rejected” as the resolution to the CIDs 16444 and 15178. A proposal was made in doc 11-18/1828 to add a new mode of operation in response to the CIDs. Effort was made to reach consensus. It was felt that a new mode is not needed and the 11ax draft already has enough mechanisms to address the comments. After debating the issues a straw poll indicated that a technical consensus of 75% would not be achieved in an equivalent motion”**
       1. **Moved by Osama Aboul-Magd, Seconded by Guoqing Li.**
       2. **Discussion: No discussion.**
       3. **Result: Approved by unanimous consent.**
    3. **CR Motion #796: Move to accept resolutions to CIDs 16838, 15850, 15098, 15104, 15668, 15757, 15832, 16450 in doc 11-19/0192r1.**
       1. **Moved by Alfred Asterjadhi, Seconded by Abhishek Patil.**
       2. **Discussion: No discussion.**
       3. **Result: Approved by unanimous consent.**
    4. **CR Motion #797: Move to accept resolutions to CIDs 15763, 15764, 17052 in doc 11-19/0140r1.**
       1. **Moved by Alfred Asterjadhi, Seconded by Zhou Lan.**
       2. **Discussion: No discussion.**
       3. **Result: Approved by unanimous consent.**
    5. **CR Motion #798: Move to accept resolution to CID 17129 in doc 11-19/0148r2.**
       1. **Moved by Yunbo Li, Seconded by Alfred Asterjadhi.**
       2. **Discussion: No discussion.**
       3. **Result: Approved by unanimous consent.**
  1. **MAC Motions**
     1. **MAC Motion #117: Move to accept the draft text in doc 11-18/1489r4.**
        1. **Moved by Liwen Chu, Seconded by Alfred Asterjadhi.**
        2. **Discussion: No discussion.**
        3. **Result: Approved by unanimous consent.**
     2. **MAC Motion #118: Move to accept the draft text in doc 11-18/2128r0.**
        1. **Moved by Po-Kai Huang, Seconded by Alfred Asterjadhi.**
        2. **Discussion: No discussion.**
        3. **Result: Approved by unanimous consent.**
     3. **MAC Motion #119: Move to accept the draft text in doc 11-19/0162r1.**
        1. **Moved by Po-Kai Huang, Seconded by Alfred Asterjadhi.**
        2. **Discussion: No discussion.**
        3. **Result: Approved by unanimous consent.**
     4. **MAC Motion #120: Move to accept the draft text in doc 11-19/0028r4.**
        1. **Moved by Abhishek Patil, Seconded by Po-Kai Huang.**
        2. **Discussion: No discussion.**
        3. **Result: Approved by unanimous consent.**
     5. **MAC Motion #121: Move to accept draft text in doc 11-19/0041r2.**
        1. **Moved by Zhou Lan, Seconded by Ming Gan.**
        2. **Discussion: No discussion.**
        3. **Result: Approved by unanimous consent.**
  2. **PHY Motion**
     1. **PHY Motion #212: Move to accept the draft text in doc 11-19/0121r3.**
        1. **Moved by Tianyu Wu, Seconded by Xiaogang Chen.**
        2. **Discussion: No discussion.**
        3. **Result: Approved by unanimous consent.**

1. **AoB**
   1. Chair asked if there is any objection to recess at this time. – No objection.
2. **Recess**
   1. TGax is in recess @ 15:24 until start of PM2 session (16:00) today.

**Thursday, January 17th, 2019, PM2 TGax Session (16:00 - 18:00)**

1. **The meeting called to order at 10:30 AM by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax leadership.
   2. Agenda document 18/2114r1 available.
2. **Agenda – already approved during the PM1 session.**
   1. Call Meeting to order
   2. IEEE-SA IPR policy and Procedure.
   3. Resolution of the outstanding comments
   4. TG Motions
   5. Goals for March 2019
   6. Ad hoc meeting, if necessary
   7. Telecon Schedule
   8. Adjourn
3. **Announcements**
   1. Chair reminded that we are still operating under the IEEE-SA P&P.
   2. Chair asked people to state name and affiliation when addressing the group for the first time in a session.
   3. Attendance: <https://imat.ieee.org/attendance>
4. **TG Motions**
   1. **Mark Rison (Samsung) presented update of “,” based on the submission 11-19-0194-01.**
      1. Summary
         1. Mark gave an update.
      2. Discussion - No discussion.
      3. **MAC Motion #122:**

**Move to accept the following text and add to the next revision of the TG draft**

**“Change the last two paras of 28.3.14.3 to:**

**A STA that transmits an HE TB PPDU in response to a triggering PPDU shall ensure that the transmission start time of the HE TB PPDU is within ±0.4 + 16 µs from the end, at the STA’s antenna connector, of the last OFDM symbol of the triggering PPDU (if it contains no packet extension) or of the packet extension of the triggering PPDU (if present).**

**NOTE—This end instant is before any signal extension, so this is equivalent to HE TB PPDU transmission within 0.4 µs of SIFS after the end of the triggering PPDU including signal extension.”**

* + - 1. **Moved by Mark Rison, Seconded by Bin Tian.**
      2. **Discussion – No discussion.**
      3. **Result: Approved by unanimous consent.**
  1. **Matthew Fischer (Broadcom Ltd.) presented update of “CR Default UORA Parameters,” based on the submission 11-19-0006-05.**
     1. Summary
        1. Matt gave an update.
     2. Discussion
        1. A member asked for a pre-requisite to use the RA-RU.
        2. Another member asked for the background for the 3 TUs described in the document.
        3. The group discussed shall/should statement of the proposed text.
     3. **CR Motion #799: Move to accept resolutions to CIDs 16451 and 16585 in doc 11-19/0006r6.**
        1. **Moved by Matthew Fischer, Seconded by Mark Rison.**
        2. **Discussion – No discussion.**
        3. **Result: Y/N/A = 17/3/13, motion passes.**
  2. **Jarkko Kineckt (Apple) presented update of “Comment resolution to CIDs 15990, 17031 and 17033,” based on the submission 11-18-1831-05.**
     1. Summary
        1. Jarkko presented the update.
     2. Discussion
        1. A member mentioned that he was confused by the text. Not sure the value of the field is 0 or the field is not present.
        2. Another member expressed an opposition. This is not the right way to go.
     3. **Straw Poll: Do you accept the resolutions to CIDs 15990, 17031 and 17033 I doc 11-18//1831r5?**
        1. **Result: Y/N/A = 14/19/4, did not achieve >= 75% support..**

1. **Remaining Motions** 
   1. **CR Motion #800: Move to accept resolutions to CIDs 15210, 15875, 16581, 16582, 16583, 16556, 16558, 15064 and 15065 in doc 11-18/1987r3.**
      1. **Moved by Alfred Asterjadhi, Seconded by Abhishek Patil.**
      2. **Discussion – No discussion.**
      3. **Result: Approved by unanimous consent.**
   2. **CR Motion #801: Move to accept resolutions to CIDs in the following comment group:**

* **Osama 18/1876 Misc MAC – r3**

**in doc 11-18/1123r21.**

* + 1. **Moved by Yasu Inoue, Seconded by Alfred Asterjadhi.**
    2. **Discussion – No discussion.**
    3. **Result: Approved by unanimous consent.**
  1. **CR Motion #802:**

**Move to accept “Rejected” as the resolution to CIDs 15990, 17031, and 17033. A proposal was discussed in doc 11-18/1831r5. The draft includes two mechanisms for UL MU disable. After debating the issues it was decided not to include a third mechanism. A straw poll indicated that a technical consensus of 75% would not be achieved in an equivalent motion.**

* + 1. **Moved by Robert Stacey, Seconded by Laurent Cariou.**
    2. **Discussion – No discussion.**
    3. **Result: Approved by unanimous consent.**
  1. **CR Motion #803: Move to change the resolution to CID 16737 to “Revised” with the resolution described in doc 11-19/0096r1.**
     1. **Moved by Alfred Asterjadhi, Seconded by Abhishek Patil.**
     2. **Discussion – No discussion.**
     3. **Result: Approved by unanimous consent.**
  2. **CR Motion #804: Move to accept resolutions to CIDs in the following comment group:**
* **Editor January 2019**

**in doc 11-18/1123r21.**

* + 1. **Moved by Robert Stacey, Seconded by Bin Tian.**
    2. **Discussion – No discussion.**
    3. **Result: Approved by unanimous consent.**
  1. **CR Motion #805: Move to accept resolution to CID 16963 in doc 11-19/0177r1.**
     1. **Moved by Laurent Cariou, Seconded by Robert Stacey.**
     2. **Discussion – No discussion.**
     3. **Result: Approved by unanimous consent.**
  2. **CR Motion #806: Move to accept the resolutions to CIDs in the comment group:**
* **Withdrawn**

**in doc 11-18/1123r21.**

* + 1. **Moved by Robert Stacey, Seconded by Abhishek Patil.**
    2. **Discussion – No discussion.**
    3. **Result: Approved by unanimous consent.**
  1. **CR Motion #807: Move to accept “Rejected” as the resolution to CID 16763.**

**A safety margin value greater than 5 dB leaves almost no range remaining in the acceptable interference level.**

* + 1. **Moved by Bin Tian, Seconded by Matthew Fischer.**
    2. **Discussion – No discussion.**
    3. **Result: Approved by unanimous consent.**
  1. **MAC Motion #123:**

**Move to change the statement “A STA shall not transmit VHT PPDUs in the 6 GHz band” to “A STA shall not transmit a VHT PPDU in the 6 GHz band unless the VHT PPDU carries a Fine Timing Measurement frame”**

* + 1. **Moved by Robert Stacey, Seconded by Alfred Asterjadhi.**
    2. **Discussion**
       1. **A member asked for a recorded vote.**
    3. **Result: Y/N/A = 24/20/7, motion fails.**
    4. **The vote of each participant is shown in Annex.**

1. **Motion for WG Recirculation Ballot:**
   1. **Motion: Having approved comment resolutions for all of the comments received from LB 233 on P802.11ax D3.0,**

**Instruct the editor to prepare P802.11ax D4.0 incorporating these resolutions and,**

**Approve a 15 day Working Group Recirculation Ballot asking the question “Should P802.11ax D4.0 be forwarded to Sponsor Ballot?”**

* 1. **Moved by Robert Stacey, Seconded by Abhishek Patil.**
  2. **Discussion – No discussion.**
  3. **Result: Y/N/A = 48/0/0, motion passes.**

1. **Teleconference scheduling**
   1. Teleconference will be scheduled with a 10-day notice.
2. **AoB**
   1. None.
3. **Adjournment**
   1. **TGax has adjourned for the week @ 17:55.**

Annex. Vote record for MAC Motion #123:

|  |  |  |
| --- | --- | --- |
| **Name** | **Affiliation** | **Vote** |
| Tomoko Adachi | Toshiba | No |
| Shubhodeep Adhikari | Broadcom Ltd. | Yes |
| Alfred Asterjadhi | Qualcomm | Yes |
| Stephen Baron | Canon Research | Abstain |
| David Boldy | Broadcom Ltd. | Yes |
| Rui Cao | Marvell Semiconductor | No |
| Laurent Cariou | Intel Corporation | Yes |
| Dave Cavalcanti | Intel Corporation | Yes |
| Cheng Chen | Intel Corporation | Yes |
| George Cherian | Qualcomm | Yes |
| Liwen Chu | Marvell Semiconductor | No |
| Carlos Cordeiro | Intel Corporation | Yes |
| Claudio da Silva | Intel Corporation | Yes |
| Rolf de Vegt | Qualcomm | Yes |
| Alecsander Eitan | Qualcomm | Yes |
| Vinko Erceg | Broadcom Ltd. | Abstain |
| Xiang Feng | Keysight Technologies | Yes |
| Matthew Fischer | Broadcom Ltd. | Abstain |
| Ming Gan | Huawei Technologies | No |
| Sachin Godbole | Broadcom Ltd. | Yes |
| Jason Yuchen Guo | Huawei Technologies | No |
| Mark Hamilton | Ruckus Wireless | Abstain |
| Chunyu Hsu | Broadcom Ltd. | Yes |
| Assaf Kasher | Qualcomm | Yes |
| Jarkko Kneckt | Apple | Abstain |
| Qinghua Li | Intel Corporation | Yes |
| Yunbo Li | Huawei Technogies | No |
| Dandan Liang | Huawei Technologies | No |
| Wookbong Lee | Samsung | No |
| Girish Madpuwar | Broadcom Ltd. | Yes |
| Pooya Monajemi | Cisco Systems | No |
| Malinen Jouni | Qualcomm | Yes |
| Stephen Palm | Broadcom Ltd. | Yes |
| Abhishek Patil | Qualcomm | Yes |
| Al Petrick | InterDigital Communications | Yes |
| Ashok Ranganath | Samsung | No |
| Jon Rosdahl | Qualcomm | Yes |
| Kiseon Ryu | LG Electronics | No |
| Sigurd Schelstraete | Quantenna Communications | No |
| Yongho Seok | MediaTek | No |
| Robert Stacey | Intel Corporation | Yes |
| Paul Strauch | Cypress Semiconductor | Abstain |
| Yusuke Tanaka | Sony | No |
| Bin Tian | Qualcomm | Yes |
| Payam Torab | Facebook | No |
| Pascal Viger | Canon Research | Abstain |
| Tianyu Wu | Samsung | No |
| David Xun Yang | Huawei Technologies | No |
| James Yee | MediaTek | No |
| Ross Jian Yu | Huawei Technologies | No |
| Hongyuan Zhang | Marvell | No |

Result: Y/N/A = 24/20/7