IEEE P802.11  
Wireless LANs

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| IEEE 802.11  Minutes of TGax CRC Weekly Teleconferences May 2020 | | | | |
| Date: 2020-05-27 | | | | |
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Abstract

This document contains the minutes from the TGax teleconferences May, 2020.

Revision History:

* R0: Initial version.
  + Minutes of TGax CRC call on May 5th, 2020.
* R1: Included the minutes from TGax CRC teleconference on May 7th, 2020.
* R2: Included the minutes from TGax CRC teleconference on May 12th, 2020 with minor update to the previous minutes.
* R3: Included the minutes from TGax CRC teleconference on May 14th, 2020 with minor update to the previous minutes.
* R4: Included the minutes from TGax CRC teleconference on May 19th, 2020.
* R5: Included the minutes from TGax CRC teleconference on May 21st, 2020.
* R6: Included the minutes from TGax CRC teleconference on May 26th, 2020.

**Tuesday, May 5th, 2020, TGax CRC Teleconference (10:00 AM - 12:00 ET)**

1. **The meeting called to order at 10:02 (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax chairperson and secretary.
   2. The agenda document 20/0538r13 is the working document (revision 12 is on the server).
2. **Attendees**
   1. Aboul-Magd, Osama (Huawei Technologies)
   2. Asterjadhi, Alfred (Qualcomm)
   3. Au, Kwok Shum (Huawei technologies)
   4. Baron, Stephane (Canon)
   5. Cherian, George (Qualcomm)
   6. Chu, Liwen (NXP)
   7. Coffey, John (RealTek)
   8. Hamilton, Mark (ARRIS/Ruckus)
   9. Herveu, Lili (CableLabs)
   10. Huang, Po-Kai (Intel)
   11. Inoue, Yasuhiko (NTT)
   12. Jones, VK (Qualcomm)
   13. Kim, Youhan (Qualcomm)
   14. Kneckt, Jarkko (Apple)
   15. Nezou, Patrice (Canon)
   16. Patil, Abhishek (Qualcomm)
   17. Petrick, Albert (InterDigital)
   18. Rison, Mark (Samsung)
   19. Roshadl, Jon (Qualcomm)
   20. Schelstraete, Sigurd (Quantenna)
   21. Smith, Graham (SR Technologies)
   22. Stacey, Robert (Intel)
   23. Sun, Roy (CableLabs)
   24. Wentink, Menzo (Qualcomm)
3. **Agenda Setting**
   1. Proposed agenda for the TGax CRC teleconference on May 5th, 2020.
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Attendance Reminder – Please record your attendance on IMAT (imat.ieee.org)
      4. CR Submissions
         1. [**https://mentor.ieee.org/802.11/dcn/20/11-20-0549-00-00ax-d6-0-comment-resolution-9-7-3.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0549-00-00ax-d6-0-comment-resolution-9-7-3.docx) **- Liwen Chu**
         2. [**https://mentor.ieee.org/802.11/dcn/20/11-20-0594-00-00ax-11ax-d6-0-comment-resolution-of-misc-cids.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0594-00-00ax-11ax-d6-0-comment-resolution-of-misc-cids.docx) **– Liwen Chu**
         3. **11-20/0494;** CR for out of band discovery – Laurent Cariou – to be uploaded
         4. [**https://mentor.ieee.org/802.11/dcn/20/11-20-0665-00-00ax-comment-resolution-on-mibs-and-pics.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0665-00-00ax-comment-resolution-on-mibs-and-pics.docx) **- Edward Au**
         5. [**https://mentor.ieee.org/802.11/dcn/20/11-20-0703-00-00ax-cr-for-nav-part-ii.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0703-00-00ax-cr-for-nav-part-ii.docx) **- Po-Kai Huang**
      5. AoB
      6. Adjourn
   2. Chair asked if there is any objection to proceed with this agenda.
      1. Discussion – No discussion
      2. **The agenda for TGax CRC teleconference on May 5th, 2020 is approved.**
4. **IEEE 802 and 802.11 IPR policy and procedure**
   1. Patent Policy:
   2. Participants have a duty to inform the IEEE - done.
      * Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
      * Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims
   3. Ways to inform IEEE: - done
      * Cause an LOA to be submitted to the IEEE-SA (patcom@ieee.org); or
      * Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
      * Speak up now and respond to this Call for Potentially Essential Patents
      * If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair
      1. Chair asked if anyone in this meeting is aware of any potentially essential patents.
         1. **No potentially essential patent reported.**
   4. Other guidelines for IEEE WG meetings – done
   5. Patent-related information – done
   6. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
   7. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
   8. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
5. **Announcement**
   1. The duration of this conference call is 2 hours.
   2. Attendance @ imat.ieee.org
6. **CR submissions**
   1. **Liwen Chu (NXP) presented “11ax D6.0 comment resolution of misc CIDs,” based on the submission doc.11-20-0594-01.**
      1. Summary
         1. Resolution for the comments with following CIDs related to the MAC layer specification of the IEEE 802.11ax D6.0 are proposed.
            1. CIDs: 24432, 24345, 24353, 24136, 24378, 24379, 24380.
      2. Discussion
         1. CID 24345: A member suggested a minor modification to the resolution, however, another member opposed to it. The chairperson suggested some offline work for this CID.
         2. CID 24378: The group discussed what the “successfully acknowledged frame” exactly means.
         3. CID 24379 and 24380: A member mentioned that the resolution did not address the comments. Another member also objected to reject the comments since some more work seem to be needed. Related definition in REVmd draft was referred to.
      3. Next Step
         1. Liwen will have offline discussion for the deferred CIDs.
   2. **Liwen Chu (NXP) presented “11ax D6.0 comment resolution9.7.3” based on the submission doc.11-20-0549-01.**
      1. Summary
         1. Resolution for the comments with following CIDs related to the MAC layer specification of the IEEE 802.11ax D6.0 are proposed.
            1. CIDs: 24004, 24085, 24086, 24087, 24088, 24468, 24509, 24510.
      2. Discussion
         1. CID 24085: There was a comment that the proposed resolution did not address the comment. A participant will send a new reason for the rejection.
         2. CID 24086: The proposed resolution was updated. BQRP related description is added to the Table 9-531.
         3. CID 24087: The same resolution with CID 24085.
         4. CID 24468: Deferred for more discussion..
      3. Next Step
         1. Liwen will have offline discussion for the deferred CIDs.
   3. **Edward Au (Huawei Technologies) presented “Comment resolution on MIBs and PICS,” based on the submission doc.11-20-0665-00.**
      1. Summary
         1. Resolution for the comments with following CIDs related to the MIB and PICS specification of the IEEE 802.11ax D6.0 are proposed.
            1. CIDs: 24212, 24210, 24539, 24536, 24534, 24532, 24533, 24359, 24333, 24531.
      2. Discussion
         1. CID 24212: The group discussed whether we need Yes, No, N/A checkbox for the mandatory features.
         2. CID 24539: A participant asked for consistency with the baseline.
         3. CID 24532: The group discussed this CID and the resolution was updated.
         4. CID 24539: Deferred - Edward to bring a new resolution.
         5. Presentation was stopped due to the time.
      3. Next Step
         1. Continue discussion in the future teleconference.
7. **AoB**
8. **Adjournment**
   1. TGax CRC teleconference has adjourned @ 11:57 AM (ET).

**Thursday, May 7th, 2020, TGax CRC Teleconference (10:00 AM - 13:00 ET)**

1. **The meeting called to order at 10:02 (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax chairperson and secretary.
   2. The agenda document 20/0538r14 is the working document (revision 13 is on the server).
2. **Attendees**
   1. Aboul-Magd, Osama (Huawei Technologies)
   2. An, Song-Haur (Independent)
   3. Asterjadhi, Alfred (Qualcomm)
   4. Au, Kwok Shum (Huawei technologies)
   5. Baron, Stephane (Canon)
   6. Cao, Rui (NXP)
   7. Chen, Xiaogang (Intel)
   8. Chu, Liwen (NXP)
   9. Coffey, John (RealTek)
   10. Derham, Thomas (Broadcom)
   11. Fischer, Matthew (Broadcom)
   12. Herveu, Lili (CableLabs)
   13. Huang, Po-Kai (Intel)
   14. Inoue, Yasuhiko (NTT)
   15. Jones, VK (Qualcomm)
   16. Kandala, Srinivas (Samsung)
   17. Kim, Youhan (Qualcomm)
   18. Kumar, Manish (NXP)
   19. Kneckt, Jarkko (Apple)
   20. Li, Yunbo (Huawei Technologies)
   21. Lou, Hui-Ling (NXP)
   22. Lu, Kaiying (MediaTek)
   23. Monajemi, Pooya (Cisco Systems)
   24. Patil, Abhishek (Qualcomm)
   25. Petrick, Albert (InterDigital)
   26. Rison, Mark (Samsung)
   27. Rosdahl, Jon (Qualcomm)
   28. Schelstraete, Sigurd (Quantenna)
   29. Smith, Graham (SR Technologies)
   30. Stacey, Robert (Intel)
   31. Sun, Bo (ZTE)
   32. Sun, Roy (CableLabs)
   33. Wentink, Menzo (Qualcomm)
   34. Yan, Aiguo (Oppo)
   35. Yu, Ross Jian (Huawei Techonologies)
   36. Yu, Mao (NXP)
   37. Zhang, Yan (NXP)
3. **Agenda Setting**
   1. Proposed agenda for the TGax CRC teleconference on May 7th, 2020.
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Attendance Reminder – Please record your attendance on IMAT (imat.ieee.org)
      4. Puncturing Discussion
      5. Motions
         1. Doc.11-20-0491: 24334, 24335, 24336, 24337, 24338, 24339, 24340, 24393, 24394, 24472, 24537
         2. Doc.11-20-0492: 24459, 24460, 24462
         3. Doc.11-20-0493: 24025, 24475
      6. Review submissions from May 5th teleconference
         1. [**https://mentor.ieee.org/802.11/dcn/20/11-20-0549-00-00ax-d6-0-comment-resolution-9-7-3.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0549-00-00ax-d6-0-comment-resolution-9-7-3.docx) **- Liwen Chu**
         2. [**https://mentor.ieee.org/802.11/dcn/20/11-20-0594-00-00ax-11ax-d6-0-comment-resolution-of-misc-cids.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0594-00-00ax-11ax-d6-0-comment-resolution-of-misc-cids.docx) **– Liwen Chu**
      7. **CR Submissions**
         1. **11-20/0494;** CR for out of band discovery – Laurent Cariou – to be uploaded
         2. [**https://mentor.ieee.org/802.11/dcn/20/11-20-0703-00-00ax-cr-for-nav-part-ii.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0703-00-00ax-cr-for-nav-part-ii.docx) **- Po-Kai Huang**
         3. [**https://mentor.ieee.org/802.11/dcn/20/11-20-0705-01-00ax-cr-for-cid-24292.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0705-01-00ax-cr-for-cid-24292.docx) **- Po-Kai Huang**
         4. [**https://mentor.ieee.org/802.11/dcn/20/11-20-0716-00-00ax-sa1-sounding-comments.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0716-00-00ax-sa1-sounding-comments.docx) **- Menzo Wentink**
      8. AoB
      9. Adjourn
   2. Chair asked if there is any objection to proceed with this agenda.
      1. Discussion – Some participants have time constraint and the order of the agenda items may be changed.
      2. **The agenda for TGax CRC teleconference on May 7th, 2020 is approved.**
4. **IEEE 802 and 802.11 IPR policy and procedure**
   1. Patent Policy:
   2. Participants have a duty to inform the IEEE - done.
      * Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
      * Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims
   3. Ways to inform IEEE: - done
      * Cause an LOA to be submitted to the IEEE-SA (patcom@ieee.org); or
      * Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
      * Speak up now and respond to this Call for Potentially Essential Patents
      * If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair
      1. Chair asked if anyone in this meeting is aware of any potentially essential patents.
         1. **No potentially essential patent reported.**
   4. Other guidelines for IEEE WG meetings – done
   5. Patent-related information – done
   6. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
   7. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
   8. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
5. **Announcement**
   1. The duration of this conference call is 3 hours.
   2. Attendance @ imat.ieee.org
6. **Review of CR submissions discussed in previous teleconference**
   1. **Doc.11-20-0665-01 “Comment resolutions on MIBs and PICS,” by Edward Au (Huawei Technologies)**
      1. Summary
         1. Edward presented the updates.
      2. Discussion
         1. CID 24333: This CID seems to be ready for motion.
         2. CID 24531: There was a comment that other people are working on BSSColor Collision and CID 24249 will be related to this CID. 🡪 Edward to check the status of BSSColor Collision related comment resolution.
         3. CID 24212, 24359 and 24531 are deferred for more discussion.
      3. Next Step
         1. This document will be revisited in a future teleconference.
7. **Discussion on Preamble Puncturing**
   1. Mark Rison (Samsung) lead the discussion reviewing the results of SPs during previous teleconference and related email on allowed puncturing patterns.
   2. Discussion
      1. The group discussed details of the allowed puncturing pattern.
      2. There was a comment to consider consistency with the discussion in TGbe.
      3. Some people opposed to have such a big change in the spec at this stage of standardization.
      4. Some people mentioned it was important to limit the number of contiguous 20 MHz channel because it has been demonstrated that large puncture channels cause harmful interference to legacy devices with SINR degradation higher than 10 dB.
      5. Group considered straw poll and discussed the wording of SP.
   3. **Straw Poll #5 (continued from previous discussion): Do you agree that for 160M/80+80MHz**
      * **Allow either zero, one, or two 20 MHz subchannels to be punctured in the secondary 80 MHz channel**
      * **when two 20 MHz subchannels are punctured in the secondary 80 MHz channel, they are adjacent to each other and are either the lower 40 MHz or upper 40 MHz**
      * **Allow only a maximum of two adjacent 20 MHz subchannels to be punctured across the entire PPDU bandwidth**
      1. Discussion on the SP
         1. Some people still opposed to this straw poll since it is too late to consider such a big change in the spec.
      2. **Result: Y/N/A = 11/11/9, still does not give clear direction.**
   4. Next Step
      1. Mark Rison will prepare for the proposal.
8. **Motions**
   1. **Doc.11-20-0491-04 “CR for MU EDCA,” by Laurent Cariou (Intel)**
      1. Summary
         1. Laurent gave updates on the deferred CIDs 24472 and 24537.
      2. Discussion
         1. CID 24394: A participant disagreed with the rejection. 🡪 The comment is covered by existing text and it is okay to reject it.
         2. CID 24336: New resolution.
      3. **CR Motion #1032: Move to accept resolutions to CIDs 24334, 24335, 24337, 24338, 24339, 24340, 24393, 24394, 24472, 24537 in doc 11-20/0491r5.**
         1. **Moved by Laurent Cariou, Seconded by Po-Kai Huang**
         2. **Discussion**
         3. **Result: Approved with unanimous consent.**
   2. **Doc.11-20-0493-01 “CR for SR,” by Laurent Cariou (Intel)**
      1. Summary
         1. Laurent gave updates.
      2. Discussion
         1. CID 24025: A participant commented that the issue is in TPC part. It is not proven technique. Another member suggested separation of the technical components and additional NOTE. 🡪 We have a volunteer to work on this (Graham Smith).
         2. CID 24475: A member commented that the rejection does not address the issue. This CID relates to CID 24025. We have a volunteer to work on this part (Sean Cofffey).
      3. Next Step
         1. Discussion will be continued in the subsequent teleconference.
   3. **Doc.11-20-0492-01 “CR for OPS,” by Laurent Cariou (Intel)**
      1. Summary
         1. Laurent gave updates.
      2. Discussion
         1. No discussion.
         2. CID 24460, 24462 seem to be ready for motion
      3. **CR Motion #1033: Move to accept resolutions to CIDs 24460, 24462 in doc 11-20/0492r1.**
         1. **Moved by Laurent Cariou, Seconded by Jarkko Kneckt**
         2. **Discussion - No discussion.**
         3. **Result: Approved with unanimous consent.**
9. **CR Submissions**
   1. **Po-Kai Huang (Intel) presented “11ax D6.0 NAV Part II,” based on the submission doc.11-20-703r0.**
      1. Summary
         1. Resolutions for the comments with CIDs 24027 and 24419 related to NAV defined in the IEEE 802.11ax D6.0 are proposed.
      2. Discussion
         1. CID 24027: The group discussed relation between NAV and preamble puncturing.
         2. CID 24419: The group discussed the need for a new NAV reset mechanism and conducted a straw poll.
      3. **Straw Poll: Do you support send CF-END frame in non-HT duplicate PPDU with inactive channels?**
         1. **Result: Y/N/A = 8/12/9**
      4. Further discussion
         1. CID 24419: The group discussed clarification of inter-BSS and intra-BSS PPDU, inter-BSS and intra-BSS frame.
      5. Next Step
         1. Discussion will be continued in the next teleconference.
   2. **Po-Kai Huang (Intel) presented “11ax D6.0 CR for CID 24292,” based on the submission doc.11-20-705r0.**
      1. Summary
         1. Resolution to the comment with CID 24292 related to HE TB PPDU related sequence defined in the IEEE 802.11ax D6.0 is proposed.
      2. Discussion
         1. A participant will send his comment by email. 🡪 Po-Kai to consider it.
      3. Next Step
         1. This submission will be revisited in a subsequent teleconference.
   3. **Menzo Wentink (Qualcomm) presented “11ax SA1 sounding comments,” based on the submission doc.11-20-716r0.**
      1. Summary
         1. Resolutions to the comments with following CIDs related to the sounding specification defined in the IEEE 802.11ax D6.0 are proposed.
            1. CIDs: 24009, 24042, 24221, 24262, 24473, 24474, 24495, 24496, 24503, 24504, 24505 and 24511
      2. Discussion
         1. CID 24009:
         2. CID 24042: The resolution seems to be good. The presentation was suspended due to the time.
      3. Next Step
         1. To be continued in the next teleconference.
10. **Adjournment**
    1. **TGax CRC teleconference has adjourned @ 12:59 (ET)**

**Tuesday, May 12th, 2020, TGax CRC Teleconference (17:00 - 19:00 ET)**

1. **The meeting called to order at 17:04 (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax chairperson and secretary.
   2. The agenda document 11-20/0538r15 is the working document (revision 14 is on the server).
2. **Attendees**
   1. Aboul-Magd, Osama (Huawei Technologies)
   2. Asterjadhi, Alfred (Qualcomm)
   3. Cariou, Laurent (Intel)
   4. Cherian, George (Qualcomm)
   5. Chu, Liwen (NXP)
   6. Coffey, Sean (RealTek)
   7. Fischer, Matthew (Broadcom)
   8. Herveu, Lili (CableLabs)
   9. Huang, Po-Kai (Intel)
   10. Inoue, Yasuhiko (NTT)
   11. Jones, VK (Qualcomm)
   12. Kim, Youhan (Qualcomm)
   13. Kneckt, Jarkko (Apple)
   14. Lu, Kaiying (MediaTek)
   15. Monajemi, Pooya (Cisco Systems)
   16. Patil, Abhishek (Qualcomm)
   17. Petrick, Albert (InterDigital)
   18. Rison, Mark (Samsung)
   19. Roshadl, Jon (Qualcomm)
   20. Schelstraete, Sigurd (Quantenna)
   21. Seok, Yongho (MediaTek)
   22. Smith, Graham (SR Technologies)
   23. Stacey, Robert (Intel)
   24. Viger, Pascal (Canon)
   25. Yang, Rui (InterDigital)
3. **Agenda Setting**
   1. Proposed agenda for the TGax CRC teleconference on May 12th, 2020.
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Attendance Reminder – Please record your attendance on IMAT (imat.ieee.org)
      4. Motion
         1. 11-20-0665: 24212, 24210, 24539, 24536, 24534, 24532, 24533, 24359, 24333, 24531
      5. Discussion – the issue related to the sentence at 173.11 in D6.0 – Robert Stacey
      6. Review submissions from teleconference on May 5th, 2020
         1. <https://mentor.ieee.org/802.11/dcn/20/11-20-0549-00-00ax-d6-0-comment-resolution-9-7-3.docx> - Liwen Chu
         2. <https://mentor.ieee.org/802.11/dcn/20/11-20-0594-00-00ax-11ax-d6-0-comment-resolution-of-misc-cids.docx> – Liwen Chu
      7. CR Submissions
         1. 11-20/0494;CR for out of band discovery – Laurent Cariou – to be uploaded
         2. <https://mentor.ieee.org/802.11/dcn/20/11-20-0717-00-00ax-cr-misc-phy.docx> – Xiaogang Chen
      8. AoB
      9. Adjourn
   2. Chair asked if there is any objection to proceed with this agenda.
      1. Discussion – No discussion
      2. **The agenda for TGax CRC teleconference on May 12th, 2020 is approved.**
4. **IEEE 802 and 802.11 IPR policy and procedure**
   1. Patent Policy:
   2. Participants have a duty to inform the IEEE - done.
      * Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
      * Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims
   3. Ways to inform IEEE: - done
      * Cause an LOA to be submitted to the IEEE-SA (patcom@ieee.org); or
      * Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
      * Speak up now and respond to this Call for Potentially Essential Patents
      * If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair
      1. Chair asked if anyone in this meeting is aware of any potentially essential patents.
         1. **No potentially essential patent reported.**
   4. Other guidelines for IEEE WG meetings – done
   5. Patent-related information – done
   6. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
   7. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
   8. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
5. **Announcement**
   1. The duration of this conference call is 2 hours.
   2. Attendance @ imat.ieee.org
6. **Motion**
   1. Doc. 11-20-0665: 24212, 24210, 24539, 24536, 24534, 24532, 24533, 24359, 24333, 24531
      1. Chair removed CIDs that have not been agreed yet (written in red).
      2. Discussion
         1. A participant asked for discussion on the resolutions. Unfortunately, the author is not on the call. The motion is deferred until the next teleconference.
7. **Review submissions from teleconference on May 5th, 2020**
   1. **Doc.11-20-549-01 “11ax D6.0 comment resolution 9.7.3,” by Liwen Chu (NXP)**
      1. Summary
         1. Liwen gave updates on the CIDs deferred from the previous teleconference.
      2. Discussion
         1. CID 24085, 24087: The reason for rejection is updated adopting the suggestion from Robert Stacey.
         2. CID 24509: The group discussed relation between TA and transmit BSSID. There was a comment to separate control frame case and data frame case. CID 24509 and related CID 24510 are deferred for more discussion.
      3. Next Step
         1. Continue discussion on the deferred CIDs.
   2. **Doc.11-20-594-02 “11ax D6.0 comment resolution on Misc. CIDs,” by Liwen Chu (NXP)**
      1. Summary
         1. Liwen gave updates on the CIDs deferred from the previous teleconference.
      2. Discussion
         1. CID 24345: There was a comment that the proposed change provided by the commenter seems to be better than the suggested text. Why not just accept? 🡪 Because Liwen had made small modification.
         2. CID 24353: The group discussed when the receiver stops the reception process. There was a comment that the proposed change is still not clear enough. 🡪 CID 24353 was deferred.
         3. CID 24379, 24380: The same comment with different proposal. 🡺 Liwen created the resolution based on CID 24379.
      3. Next Step
         1. Liwen to work on the deferred CID.
8. **Discussion – the issue related to the sentence at 173.11 in D6.0**
   1. Robert Stacey lead the discussion
   2. Relevant text: p.173, line 10,
      1. The Co-Located AP subfield is set to 1 if every AP in this Neighbor AP Information field is in the same co-located AP set as the transmitting AP. It is set to 0 otherwise.
      2. The issue
         1. During comment resolution of CID #21288 on D5.0, the sentence was changed.
         2. “if every AP in this Neighbor AP Information field is in the same co-located AP set as the transmitting AP” should be “The Co-Located AP subfield is set to 1 if the reported AP is in the same co-located AP set as the transmitting AP.”
         3. Robert Stacey proposed a motion. (This is a MAC motion.)
   3. **MAC Motion #132: Having reviewed conflicting changes to D5.0 in motion 131 and the resolution to #21288, instruct the editor to change the sentence at 173.11 (in D6.0) from “The Co-Located AP subfield is set to 1 if every AP in this Neighbor AP Information field is in the same colocated AP set as the transmitting AP” to “The Co-Located AP subfield is set to 1 if the reported AP is in the same colocated AP set as the transmitting AP”**
      1. **Moved by Robert Stacey, Seconded by Abhishek Patil**
      2. **Discussion – no discussion.**
      3. **Result: Approved by unanimous consent.**
9. **CR submissions**
   1. **Laurent Cariou (Intel) presented “CR for out of band discovery,” based on the submission doc.11-20-0494-00.**
      1. Summary
         1. Resolutions for the comments with following CIDs related to out of band discovery defined in the IEEE 802.11ax D6.0 are proposed.
            1. CIDs: 24149 24150 24430 24535 24056 24258
      2. Discussion
         1. CID 24430: The group discussed recommendation in NOTE and should statement in the normative text.
         2. CID 24535: There was a comment on the reason of rejection.
         3. CID 24056: A member commented the resolution (REJECT) is okay, but the issue is that the term “detected AP” does not appear in the draft. 🡪 Laurent will bring a proposal to change the current text to keep this definition.
      3. Next Step
         1. Laurent to bring a proposal relate to the CID 24056.
10. **AoB**
    1. 20 minutes left.
    2. The chairperson requested CR submissions to start recirculation ballot in June.
11. **Adjournment**
    1. **TGax CRC teleconference has adjourned @ 18:40 (ET)**

**Thursday, May 14th, 2020, TGax CRC Teleconference (20:00 - 23:00 ET)**

1. **The meeting called to order at 20:03 (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax chairperson and secretary.
   2. The agenda document 11-20/0538r15 is the working document (revision 14 is on the server).
2. **Attendees**
   1. Aboul-Magd, Osama (Huawei Technologies)
   2. Adachi, Tomoko (Toshiba)
   3. An, Song-Haur (Independent)
   4. Asterjadhi, Alfred (Qualcomm)
   5. Au, Kowk Shum (Huawei Technologies)
   6. Baron, Stephane (Canon)
   7. Cao, Rui (NXP)
   8. Cariou, Laurent (Intel)
   9. Chen, Xiaogang (Intel)
   10. Chu, Liwen (NXP)
   11. Coffey, Sean (RealTek)
   12. Derham, Thomas (Broadcom)
   13. Fischer, Matthew (Broadcom)
   14. Hamilton, Mark (Ruckus/CommScope)
   15. Herveu, Lili (CableLabs)
   16. Huang, Po-Kai (Intel)
   17. Inoue, Yasuhiko (NTT)
   18. Jones, VK (Qualcomm)
   19. Kim, Youhan (Qualcomm)
   20. Kneckt, Jarkko (Apple)
   21. Kumar, Manish (NXP)
   22. Li, Qinghua (Intel)
   23. Lu, Kaiying (MediaTek)
   24. Nandagopalan, Sai Shankar (Cypress)
   25. Patil, Abhishek (Qualcomm)
   26. Petrick, Albert (InterDigital)
   27. Rison, Mark (Samsung)
   28. Roshadl, Jon (Qualcomm)
   29. Schelstraete, Sigurd (Quantenna)
   30. Seok, Yongho (MediaTek)
   31. Smith, Graham (SR Technologies)
   32. Stacey, Robert (Intel)
   33. Sun, Bo (ZTE)
   34. Tian, Bin (Qualcomm)
   35. Yang, Rui (InterDigital)
3. **Agenda Setting**
   1. Proposed agenda for the TGax CRC teleconference on May 14th, 2020.
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Attendance Reminder – Please record your attendance on IMAT (imat.ieee.org)
      4. Motion (Approval of January meeting and teleconferences minutes)
      5. Motion
         1. 11-20-0665: 24212, 24210, 24539, 24536, 24534, 24532, 24533, 24359, 24333, 24531
         2. 11-20-0549: 24004, 24085, 24086, 24087, 24088, 24468, 24509, 24510
         3. 11-20-0594: 24432, 24345, 24353, 24136, 24378, 24379, 24380
         4. 11-20-0492: 24459, 24460, 24462
         5. 11-20-0493: 24025, 24475
         6. 11-20-0703: 24027, 24419
         7. 11-20-0795: 24292
         8. 11-20-0529: 24235 and 24236
      6. Discussion – the issue related to the sentence at 173.11 in D6.0 – Robert Stacey
      7. CR Submissions
         1. <https://mentor.ieee.org/802.11/dcn/20/11-20-0717-00-00ax-cr-misc-phy.docx> – Xiaogang Chen
      8. AoB
      9. Adjourn
   2. Chair asked if there is any objection to proceed with this agenda.
      1. Discussion – No discussion
      2. **The agenda for TGax CRC teleconference on May 14th, 2020 is approved.**
4. **IEEE 802 and 802.11 IPR policy and procedure**
   1. Patent Policy:
   2. Participants have a duty to inform the IEEE - done.
      * Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
      * Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims
   3. Ways to inform IEEE: - done
      * Cause an LOA to be submitted to the IEEE-SA (patcom@ieee.org); or
      * Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
      * Speak up now and respond to this Call for Potentially Essential Patents
      * If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair
      1. Chair asked if anyone in this meeting is aware of any potentially essential patents.
         1. **No potentially essential patent reported.**
   4. Other guidelines for IEEE WG meetings – done
   5. Patent-related information – done
   6. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
   7. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
   8. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
5. **Announcement**
   1. The duration of this conference call is 2 hours.
   2. Attendance @ imat.ieee.org
6. **Motion – Minutes Approval**
   1. **Motion: Move to approve the minutes of meetings and teleconferences since January 2020 till now**
      1. **TGax meeting minutes fron January 2020 Irvine session**
      * [**https://mentor.ieee.org/802.11/dcn/20/11-20-0148-00-00ax-tgax-january-2020-irvine-meeting-minutes.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0148-00-00ax-tgax-january-2020-irvine-meeting-minutes.docx)
      1. **TGax CRC Teleconferences on January 30th, February 20th, 27th, and March 5th**
      * [**https://mentor.ieee.org/802.11/dcn/20/11-20-0257-03-00ax-minutes-of-tgax-teleconference-from-january-to-february-2020.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0257-03-00ax-minutes-of-tgax-teleconference-from-january-to-february-2020.docx)
      1. **TGax CRC Teleconferences on March 16th and 19th**
      * [**https://mentor.ieee.org/802.11/dcn/20/11-20-0501-00-00ax-minutes-of-tgax-teleconference-on-march-16-and-19-2020.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0501-00-00ax-minutes-of-tgax-teleconference-on-march-16-and-19-2020.docx)
      1. **TGax CRC Teleconferences on March 26th**
      * [**https://mentor.ieee.org/802.11/dcn/20/11-20-0546-00-00ax-minutes-of-tgax-crc-weekly-teleconferences-march-2020.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0546-00-00ax-minutes-of-tgax-crc-weekly-teleconferences-march-2020.docx)
      1. **TGax CRC Teleconferences on April 2nd, 9th, 16th, 23rd, and 30th**
      * [**https://mentor.ieee.org/802.11/dcn/20/11-20-0588-03-00ax-minutes-of-tgax-crc-weekly-teleconferences-april-2020.docx**](https://mentor.ieee.org/802.11/dcn/20/11-20-0588-03-00ax-minutes-of-tgax-crc-weekly-teleconferences-april-2020.docx)
   2. **Moved by Yasuhiko Inoue, Seconded by Edward Au**
   3. **Discussion – No discussion**
   4. **Result: Approved with unanimous consent.**
7. **CR Motion**
   1. **Doc.11-20-0665, “Comment resolution on MIBs and PICS,” by Edward Au (Huawei Technologies)**
      1. Edward gave updates on the deferred CIDs.
      2. Discussion
         1. CID 24120: The group discussed the applicability of HEM1.3 is discussed. It is valid for HE devices.
         2. CID 24532, 24534: The commenter suggested offline discussion. CID 24532 and 24534 are deferred.
      3. **CR Motion #1034: Move to approve resolutions to CIDs 24210, 24539, 24536, 24533, 24333 in doc 11-20/0665r2**
         1. **Moved by Edward Au, Seconded by Alfred Asterjadhi**
         2. **Discussion – no discussion**
         3. **Result: Approved with unanimous consent.**
      4. Next Step
         1. Revisit deferred CIDs in a subsequent teleconference.
   2. **Doc.11-20-0549, “11ax D6.0 comment resolution 9.7.3,” by Liwen Chu (NXP)**
      1. Liwen gave updates on the deferred CIDs.
      2. Discussion
         1. CID 24509, 24510: The group discussed settings of TA field in some types of HE PPDUs that contain A-MPDUs. Another member commented on multiple BSSID related specification.
      3. **CR Motion #1035: Move to approve resolutions to CIDs 24004, 24085, 24086, 24087, 24088, 24468, 24509, 24510 in doc 11-20/0549r4**
         1. **Moved by Liwen Chu, Seconded by Alfred Asterjadhi**
         2. **Discussion – no discussion**
         3. **Result: Approved with unanimous consent.**
   3. **Doc.11-20-0594, “11ax D6.0 comment resolution of misc CIDs,” by Liwen Chu (NXP)**
      1. Liwen gave updates on the deferred CIDs.
      2. Discussion
         1. CID 24353: There was a comment on the expression in the proposed text of subclause 26.6.2.1. The group also discussed the NOTE in 26.6.2.1.
      3. **CR Motion #1036: Move to approve resolutions to CIDs 24432, 24345, 24353, 24136, 24378, 24379, 24380 in doc 11-20/0594r6**
         1. **Moved by Liwen Chu, Seconded by Edward Au**
         2. **Discussion – no discussion**
         3. **Result: Approved with unanimous consent.**
   4. **Doc.11-20-0491, “CR for MU EDCA,” by Laurent Cariou (Intel)**
      1. Laurent gave updates on the deferred CIDs. Basically the resolution provided by a member was adopted with minor edit.
      2. Discussion
         1. CID 24336: The group discussed the HE TB PPDU case.
      3. **CR Motion #1037: Move to approve resolutions to CID 24336 in doc 11-20/0491r7**
         1. **Moved by Laurent Cariou, Seconded by Po-Kai Huang**
         2. **Discussion – no discussion**
         3. **Result: Approved with unanimous consent.**
   5. **Doc.11-20-0492, “CR for OPS,” by Laurent Cariou (Intel)**
      1. Laurent gave updates on the deferred CIDs.
      2. Discussion
         1. CID 24459: There was a comment that the reason for rejection is not valid. We need to show enough evidence to say the resolution proposed here did not receive sufficient support. For this purpose, a straw poll was proposed.
         2. **Straw Poll: Do you agree to change “should” to a “Shall” in CID 24459?**
            1. **Result: Y/N/A: 6/11/10**
         3. The proposed change by the commenter did not have enough support.
      3. **CR Motion #1038: Move to approve resolutions to CIDs 24460, 24462 in doc 11-20/0492r2**
         1. **Moved by Laurent Cariou, Seconded by Alfred Asterjadhi**
         2. **Discussion**
            1. **The group discussed if we can add one more CID we just discussed. The group agreed to have a separate motion on that CID.**
         3. **Result: Approved with unanimous consent.**
   6. **Doc.11-20-0493, “CR for SR,” by Laurent Cariou (Intel)**
      1. Laurent gave updates on the deferred CIDs.
      2. Discussion
         1. CID 24025:
            1. A participant asked a question where from the value “between 20 to 30” come? Another member mentioned it is the margin for the spatial reuse operation.
            2. The group discussed the relation between the proposed resolution and equation 26-5.
            3. There was a comment that it is hard to understand the related NOTE 2 in the proposed resolution. The group had a long discussion and the CID 24025 was deferred again.
      3. Next Step
         1. More offline discussion will be needed.
   7. **Doc.11-20-0703, “11ax D6.0 NAV Part II,” by Po-Kai Huang (Intel)**
      1. Po-Kai gave updates on the deferred CIDs based on rev 2 of the document.
      2. Discussion
         1. CID 24027: Robert Stacey, the TGax editor, provided the reason for rejection.
         2. CID 24419: The group discussed the case that CF-End is contained the received inter-BSS PPDU. Related to this part of the draft, a member pointed out an issue in current text. However, it is not related to this CID and group suggested to submit a comment in the next round of the SA ballot.
      3. **CR Motion #1039: Move to approve resolutions to CIDs 24027, 24419 in doc 11-20/0703r3**
         1. **Moved by Laurent Cariou, Seconded by Abhishek Patil**
         2. **Discussion – no discussion**
         3. **Result: Approved with unanimous consent.**
   8. **Doc.11-20-0705, “11ax D6.0 CR for CID 24292,” by Po-Kai Huang (Intel)**
      1. Po-Kai gave updates on the deferred CIDs.
      2. Discussion
         1. CID 24929: The commenter is okay for the proposed resolution.
      3. **CR Motion #1040: Move to approve resolutions to CID 24292 in doc 11-20/0705r2**
         1. **Moved by Po-Kai Huang, Seconded by Abhishek Patil**
         2. **Discussion – no discussion**
         3. **Result: Approved with unanimous consent.**
   9. **Doc.11-20-0529, “CR 24235 24236 PSR 20 MHz Normalization,” by Matthew Fischer (Broadcom)**
      1. Matt gave updates from the previous discussion based on rev 6 of the document.
      2. Discussion
         1. Re Table 26-xxyy: There was a comment that PPDU BW of 60 MHz and 140 MHz should be 80 MHz and 160 MHz.
         2. The group discussed possibility of using CCK packets by an 11ax STA.
      3. **CR Motion #1041: Move to approve resolutions to CIDs 24027, 24419 in doc 11-20/0529r7**
         1. **Moved by Matthew Fischer, Seconded by Xiaogang Chen**
         2. **Discussion – A member mentioned he would like to abstain from voting.**
         3. **Result: Y/N/A = 5/1/14, motion passes.**
8. **CR Submission**
   1. **Xiaogang Chen (Intel) presented “CR for MISC. PHY,” based on the submission doc.11-20-717-02.**
      1. Summary
         1. Resolutions for the comments with following CIDs on PHY specification defined in the IEEE 802.11ax D6.0 are proposed.
            1. CIDs: 24020, 24045, 24208, 24288, 24290, 24297, 24304, 24312, 24313, 24321, 24326, 24346, 24347, 24363, 24385, 24405, 24406, 24407, 24564, 24282
         2. In addition, text change for the power normalization issue in the Pre-HE portion is proposed.
      2. Discussion
         1. CID 24288: A participant asked what kind of information is obtained implicitly. 🡪 RSSI, etc.
         2. CID 24304: A member suggested clarification text, however, some other member do not think it is necessary because it is obvious. A straw poll was proposed to see the needs for the clarification text.
         3. **Straw Poll: Do you agree that it is not necessary to specify that a sum of starting spatial stream offset (0 – 7) and number of spatial streams in a trigger frame contents is not greater than 8 spatial streams?**
            1. **Result: Y/N/A = 9/2/5**
         4. CID 24312: A participant suggested a change to the proposed text.
         5. CID 24326: A member mentioned that there might be some situation that LDPC extra symbol subfield set to 0 does not make sense and he requested more time to double check with his PHY colleagues.
         6. Time is up!
      3. Next Step
         1. Xiaogang will have offline works on deferred CIDs.
9. **AoB – none**
10. **Adjournment**
    1. TGax CRC teleconference on May 14th, 2020 has adjourned @ 23:00 (ET)

**Tuesday, May 19th, 2020, TGax CRC Teleconference (17:00 - 19:00 ET)**

1. **The meeting called to order at 17:04 (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax chairperson and secretary.
   2. The agenda document 11-20/0538r15 is the working document (revision 14 is on the server).
2. **Attendees**
   1. Aboul-Magd, Osama (Huawei Technologies)
   2. Asterjadhi, Alfred (Qualcomm)
   3. Baron, Stephane (Canon)
   4. Cariou, Laurent (Intel)
   5. Cherian, George (Qualcomm)
   6. Chu, Liwen (NXP)
   7. Coffey, Sean (RealTek)
   8. Hart, Brian (Cisco Systems)
   9. Inoue, Yasuhiko (NTT)
   10. Kim, Youhan (Qualcomm)
   11. Kneckt, Jarkko (Apple)
   12. Lu, Kaiying (MediaTek)
   13. Rison, Mark (Samsung)
   14. Roshadl, Jon (Qualcomm)
   15. Schelstraete, Sigurd (Quantenna)
   16. Smith, Graham (SR Technologies)
   17. Stacey, Robert (Intel)
   18. Yang, Rui (InterDigital)
   19. Yu, Mao (NXP)
3. **Agenda Setting**
   1. Proposed agenda for the TGax CRC teleconference on May 19th, 2020.
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Attendance Reminder – Please record your attendance on IMAT (imat.ieee.org)
      4. Motion
         1. 11-20-0493: 24025, 24475
         2. 11-20-0494: 24149, 24150, 24430, 24535, 24056, 24258
      5. CR Submissions
         1. 11-20/0494;CR for out of band discovery – Laurent Cariou – to be uploaded
         2. <https://mentor.ieee.org/802.11/dcn/20/11-20-0717-00-00ax-cr-misc-phy.docx> – Xiaogang Chen
         3. <https://mentor.ieee.org/802.11/dcn/20/11-20-0769-00-00ax-resolution-to-annex-z-and-hesigb-comments.docx> - Brian Hart
      6. AoB
      7. Adjourn
   2. Chair asked if there is any objection to proceed with this agenda.
      1. Discussion – No discussion
      2. **The agenda for TGax CRC teleconference on May 19th, 2020 is approved.**
4. **IEEE 802 and 802.11 IPR policy and procedure**
   1. Patent Policy:
   2. Participants have a duty to inform the IEEE - done.
      * Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
      * Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims
   3. Ways to inform IEEE: - done
      * Cause an LOA to be submitted to the IEEE-SA (patcom@ieee.org); or
      * Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
      * Speak up now and respond to this Call for Potentially Essential Patents
      * If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair
      1. Chair asked if anyone in this meeting is aware of any potentially essential patents.
         1. **No potentially essential patent reported.**
   4. Other guidelines for IEEE WG meetings – done
   5. Patent-related information – done
   6. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
   7. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
   8. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
5. **Announcement**
   1. Attendance @ imat.ieee.org
6. **Motion**
   1. **Doc. 11-20-0493: “CR for SR,” by Laurent Carou (Intel)**
      1. Laurent gave updates on the deferred CIDs (24025 and 24475).
      2. Discussion
         1. CID 24475: The group discussed the NOTE2 in the resolution column. 25 dB is the margin for SINR. The group also discussed what exactly the candidate OBSS PD level is. As the result of discussion, the text in the resolution column was updated and the document became revision 5.
      3. **CR Motion#1042: Move to accept resolutions to CIDs 24025, 24475 in doc 11-20/0493r5.**
         1. **Moved by Laurent Cariou, Seconded by Sean Coffey**
         2. **Result: Approved by unanimous consent.**
   2. **Doc.11-20-494: “CR for out of band discovery,” by Laurent Cariou (Intel)**
      1. Summary
         1. Laurent gave updates from the previous version.
      2. Discussion
         1. CID 24535: The group discussed the definition of a MIB related to the Unsolicited Probe Response and its possible range.
      3. **CR Motion#1043: Move to accept resolutions to CIDs 24149, 24150, 24430, 24535, 24056, 24258 in doc 11-20/0494r2.**
         1. **Moved by Laurent Cariou, Seconded by Yasuhiko Inoue**
         2. **Result: Approved by unanimous consent.**
7. **CR Submissions**
   1. **Xiaogang Chen (Intel) presented “CR for MISC. PHY,” based on the doc. 11-20-0717-02.**
      1. Summary
         1. Xiaogang continued his presentation of 20/717 that was suspended due to time constraint during the previous teleconference.
      2. Discussion
         1. CID 24313: The group discussed the encoded and actual value contained in the Pre-FEC Padding Factor subfield.
         2. CID 24326: The group discussed the validity of the proposed resolution. While a participant commented that the proposed resolution does not make sense, it is okay for other members.
         3. CID 24346: A participant provided the reason for rejection.
         4. CID 24385: Regarding the uplink power headroom, a participant would like to think about the current resolution. 🡪 CID 24385 was deferred.
         5. CID 24045: A member is concerned by current resolution to normalize the UL Target RSSI with 20 MHz bandwidth which could introduce confusion (use of total power or power spectrum density). Related to this CID, the group also discussed the reference point of antenna connector.
         6. CID 24297: Again the group discussed the reference point of antenna connector. The chairperson suggested offline work.
      3. Next Step
         1. This submission will be revisited during the next teleconference.
   2. **Brian Hart (Cisco Systems) presented “Resolution to Annex Z and HESIGB Comments,” based on the doc. 11-20-0769-02.**
      1. Summary
         1. Resolutions to the comments on Annex Z of the IEEE 802.11ax D6.0 with following CIDs are proposed.
            1. CIDs: 24373, 24386, 24387, 24388, 24431, 24506, 24507
      2. Discussion
         1. CID 24388: A participant asked for more time to think about this comment. 🡪 CID 24388 was deferred.
         2. CID 24431: A participant expressed disagreement with the proposed resolution. He might bring up a new comment in the next round of IEEE-SA ballot.
      3. Next Step
         1. There will be a motion to approve the resolutions in the next teleconference.
8. **AoB**
9. **Adjournment**
   1. TGax CRC teleconference on May 19th, 2020 has adjourned @ 19:02 (ET).

**Thursday, May 21st, 2020, TGax CRC Teleconference (10:00 AM - 13:00 ET)**

1. **The meeting called to order at 10:02 (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax chairperson and secretary.
   2. The agenda document 20/0538r21 is the working document (revision 20 is on the server).
2. **Attendees**
   1. Aboul-Magd, Osama (Huawei Technologies)
   2. An, Song-Haur (Independent)
   3. Asterjadhi, Alfred (Qualcomm)
   4. Cao, Rui (NXP)
   5. Chen, Xiaogang (Intel)
   6. Cherian, George (Qualcomm)
   7. Chu, Liwen (NXP)
   8. Derham, Thomas (Broadcom)
   9. Fischer, Matthew (Broadcom)
   10. Gan, Ming (Huawei Technologies)
   11. Hedayat, Ahmadreza (Charter)
   12. Herveu, Lili (CableLabs)
   13. Huang, Po-Kai (Intel)
   14. Inoue, Yasuhiko (NTT)
   15. Jones, VK (Qualcomm)
   16. Kandala, Srinivas (Samsung)
   17. Kim, Youhan (Qualcomm)
   18. Kneckt, Jarkko (Apple)
   19. Kumar, Manish (NXP)
   20. Lee, Wookboong (Samsung)
   21. Li, Qinghua (Intel)
   22. Li, Yunbo (Huawei Technologies)
   23. Lu, Kaiying (MediaTek)
   24. Patil, Abhishek (Qualcomm)
   25. Rison, Mark (Samsung)
   26. Rosdahl, Jon (Qualcomm)
   27. Stacey, Robert (Intel)
   28. Stanley, Dorothy (HPE
   29. Sun, Bo (ZTE)
   30. Sun, Roy (CableLabs)
   31. Wentink, Menzo (Qualcomm)
   32. Yan, Aiguo (Oppo)
   33. Yu, Jian Ross (Huawei Techonologies)
   34. Yu, Mao (NXP)
   35. Zhang, Yan (NXP)
3. **Agenda Setting**
   1. Proposed agenda for the TGax CRC teleconference on May 21st, 2020.
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Attendance Reminder – Please record your attendance on IMAT (imat.ieee.org)
      4. Puncturing Discussion
      5. Motions
         1. Doc.11-20-0717: 24045, 24208, 24288, 24290, 24304, 24312, 24313, 24321, 24346, 24347, 24363, 24385, 24564, 24282
         2. Doc.11-20-0716: 24009, 24042, 24221, 24262, 24473, 24474, 24495, 24496, 24503, 24504, 24505, 24511
         3. Doc.11-20-0769: 24373, 24386, 24387, 24388, 24431, 24506, 24507
         4. Doc.11-20-0795: 24270
      6. CR Submissions
         1. <https://mentor.ieee.org/802.11/dcn/20/11-20-0717-03-00ax-cr-misc-phy.docx> - Xiaogang Chen
         2. <https://mentor.ieee.org/802.11/dcn/20/11-20-0795-00-00ax-cr-for-cid-24270.docx> - Po-Kai Huang
      7. Puncturing Discussion
      8. AoB
      9. Adjourn
   2. Chair asked if there is any objection to proceed with this agenda.
      1. Discussion – Some participants have time constraint and the order of the agenda items may be changed.
      2. **The agenda for TGax CRC teleconference on May 21st, 2020 is approved.**
4. **IEEE 802 and 802.11 IPR policy and procedure**
   1. Patent Policy:
   2. Participants have a duty to inform the IEEE - done.
      * Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
      * Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims
   3. Ways to inform IEEE: - done
      * Cause an LOA to be submitted to the IEEE-SA (patcom@ieee.org); or
      * Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
      * Speak up now and respond to this Call for Potentially Essential Patents
      * If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair
      1. Chair asked if anyone in this meeting is aware of any potentially essential patents.
         1. **No potentially essential patent reported.**
   4. Other guidelines for IEEE WG meetings – done
   5. Patent-related information – done
   6. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
   7. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
   8. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
5. **Announcement**
   1. The duration of this conference call is 3 hours.
   2. Attendance @ imat.ieee.org
6. **Motion**
   1. **Doc.11-20-0716 “11ax SA1 sounding comments,” by Menzo Wentink (Qualcomm)**
      1. Summary
         1. Menzo continued his presentation of 20/716 that was interrupted due to time constraint.
      2. Discussion
         1. CID 24262: A participant commented that the notation of the spatial mapping matrix for the subcarrier k in frequency segment iSeg must be precise so that editor can make correct expression.
         2. CID 24503: The commenter mentioned that the proposed resolution effectively rejects the comment and objected to the resolution.
         3. CID 24505: The commenter mentioned that the resolution should be revised.
         4. CID 24511: There was a request to clarify which field is reserved. The group had further discussion. The chairperson suggested offline discussion on this CID.
      3. Next Step
         1. Menzo to come back with a revised submission.
7. **Puncturing discussion**
   1. The group discussed the allowed puncturing pattern and the proposed resolutions for this topic.
      1. Summary
         1. Lili Hervieu (CableLabs) discussed allowed puncturing pattern based on the email. The point is that we should limit the allowed puncturing pattern not to give harmful interference to the frame exchanges on the punctured channel.
         2. Ross Jian Yu (Huawei Technologies) had a new revision of doc.11-20-497.
   2. **Doc.11-20-0497-05, “Misc CR on D6.0,” by Ross Jian Yu (Huawei Technologies).**
      1. Ross presented the updates from previous discussion
      2. Discussion.
         1. CID 24105: There was a comment that the one of the disadvantages of proposed resolution was the sensitivity of the secondary 80 MHz channel.
         2. CID 24107: The group discussed the contents of Table 27-4 and related MIB.
   3. **Next Step**
      1. There will be a motion on next Thursday.
8. **CR Submission**
   1. **Po-Kai Huang (Intel) presented “11ax D6.0 NAV,” based on the submission doc.11-20-0795-00.**
      1. Summary
         1. Resolution to the comment with CID 24270 related to NAV specification of the IEEE 802.11ax D6.0 is proposed.
      2. Discussion
         1. The group discussed the relation between HE TB PPDU and PS-Poll frame and the resolution was changes from “Rejected” to “Revised.”
         2. A participant commented that the proposed change should be limited only for the Individual TWT case.
      3. Next Step
         1. To have a motion in the next teleconference.
   2. **Xiaogang Chen (Intel) presented “Comment resolutions MISC. PHY,” based on the submission doc.11-20-0717-03.** 
      1. Xiaogang presented updates from the previous version (r2).
      2. Discussion
         1. CID 24045: The group discussed whether the normalization to 20 MHz channel is really necessary.
         2. CID 24297: A member requested more time for review.
         3. CID 24326: The group discussed the LDPC Extra Symbol Segment field.
         4. CID 24405: A participant mentioned that he agreed with the direction. However, there was a comment that the proposed resolution addressed the second part of the comment and need more work. The group discussed the first part of the comment and updated the resolution.
      3. Next Step
         1. A motion to approve the proposed resolutions was ready but did not have enough time to vote.
9. **AoB**
   1. Time is up.
10. **Adjournment**
    1. TGax CRC teleconference on May 21st has adjourned @

**Thursday, May 26th, 2020, TGax CRC Teleconference (10:00 AM - 13:00 ET)**

1. **The meeting called to order at 10:02 (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
   1. Introduction of TGax chairperson and secretary.
   2. The agenda document 20/0538r21 is the working document (revision 20 is on the server).
2. **Attendees**
   1. Aboul-Magd, Osama (Huawei Technologies)
   2. An, Song-Haur (Independent)
   3. Asterjadhi, Alfred (Qualcomm)
   4. Baron, Stephane (Canon)
   5. Chen, Xiaogang (Intel)
   6. Chu, Liwen (NXP)
   7. Coffey, Sean (RealTek)
   8. Fischer, Matthew (Broadcom)
   9. Herveu, Lili (CableLabs)
   10. Inoue, Yasuhiko (NTT)
   11. Kim, Youhan (Qualcomm)
   12. Kneckt, Jarkko (Apple)
   13. Kumar, Manish (NXP)
   14. Lu, Kaiying (MediaTek)
   15. Nezou, Patrice (Canon)
   16. Patil, Abhishek (Qualcomm)
   17. Petrick Albert (InterDigital)
   18. Rison, Mark (Samsung)
   19. Rosdahl, Jon (Qualcomm)
   20. Stacey, Robert (Intel)
   21. Seok, Yongho (MediaTek)
   22. Wentink, Menzo (Qualcomm)
   23. Yan, Aiguo (Oppo)
   24. Yi, Youngjiang (Futurewai)
   25. Yu, Mao (NXP)
3. **Agenda Setting**
   1. Proposed agenda for the TGax CRC teleconference on May 26th, 2020.
      1. Call meeting to order
      2. IEEE-SA IPR policy and Procedure
      3. Attendance Reminder – Please record your attendance on IMAT (imat.ieee.org)
      4. Puncturing Discussion
      5. Motions
         1. Doc.11-20-0717: 24045, 24208, 24288, 24290, 24304, 24312, 24313, 24321, 24346, 24347, 24363, 24385, 24564, 24282
         2. Doc.11-20-0716: 24009, 24042, 24221, 24262, 24473, 24474, 24495, 24496, 24503, 24504, 24505, 24511
         3. Doc.11-20-0769: 24373, 24386, 24387, 24388, 24431, 24506, 24507
         4. Doc.11-20-0795: 24270
      6. CR Submissions
         1. <https://mentor.ieee.org/802.11/dcn/20/11-20-0717-03-00ax-cr-misc-phy.docx> - Xiaogang Chen
         2. <https://mentor.ieee.org/802.11/dcn/20/11-20-0795-00-00ax-cr-for-cid-24270.docx> - Po-Kai Huang
      7. Puncturing Discussion
      8. AoB
      9. Adjourn
   2. Chair asked if there is any objection to proceed with this agenda.
      1. Discussion – Some participants have time constraint and the order of the agenda items may be changed.
      2. **The agenda for TGax CRC teleconference on May 26th, 2020 is approved.**
4. **IEEE 802 and 802.11 IPR policy and procedure**
   1. Patent Policy:
   2. Participants have a duty to inform the IEEE - done.
      * Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
      * Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims
   3. Ways to inform IEEE: - done
      * Cause an LOA to be submitted to the IEEE-SA (patcom@ieee.org); or
      * Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
      * Speak up now and respond to this Call for Potentially Essential Patents
      * If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair
      1. Chair asked if anyone in this meeting is aware of any potentially essential patents.
         1. **No potentially essential patent reported.**
   4. Other guidelines for IEEE WG meetings – done
   5. Patent-related information – done
   6. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
   7. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
   8. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
5. **Announcement**
   1. The duration of this conference call is 3 hours.
   2. Attendance @ imat.ieee.org
6. **Comment Resolution Status**
   1. Showing an email that contains a table of remaining comments, the chairperson mentioned we still have a lot of comments to resolve. The plan is to send an email to each assignee.
   2. Discussion
      1. A participant requested accuracy of the CIDs in the table. The chairperson asked for a report to him and the TGax technical editor if there are any discrepancy.
7. **Motion**
   1. **Doc.11-20-0717 “CR Misk PHY,” by Xiaogang Chen (Intel)**
      1. Xiaogang presented the updates based on the revision 4 of the 11-20-0717.
      2. Discussion
         1. CID 24020: The group discussed whether the TXTIME calculation is possible for all types of HE PPDUs.
         2. CID 24297: People discussed the definition of antenna connectors. A participant suggested a new definition for the antenna connectors. This CID may be more suitable for REVmd discussion.
         3. CID 24407: There was discussion on the LDPC Extra Symbol segment. The group also discussed the related NOTE. This CID needs more discussion and is deferred.
      3. **CR Motion #1044: Move to accept resolutions to CIDs 24045, 24208, 24288, 24290, 24304, 24312, 24313, 24321, 24346, 24347, 24363, 24385, 24564, 24282, 24020, 24405, 24406 in doc 11-20/0717r5.**
         1. **Moved by Xiaogang Chen, Seconded by Youhan Kim**
         2. **Discussion – no discussion**
         3. **Result: Approved by unanimous consent.**
      4. **PHY Motion #215: Move to accept text change in doc 11-20/0717r5 under the heading “Power Normalization issue” on page 12-15.**
         1. **Moved by Xiaogang Chen, Seconded by Youhan Kim**
         2. **Discussion – no discussion**
         3. **Result: Approved by unanimous consent.**
      5. Next Step
         1. Xiaogang to work on the remaining CIDs (24020, 24297, 24326, 24407).
   2. **Doc.11-20-0716 “11ax SA1 sounding comments,” by Menzo Wintink (Qualcomm)**
      1. There are no updates from previous discussion.
      2. **CR Motion #1045: Move to accept resolutions to CIDs 24009, 24042, 24221, 24262, 24473, 24474, 24495, 24496, 24503, 24504, 24505 in doc 11-20/0716r2.**
         1. **Moved by Menzo Wentink, Seconded by Alfred Asterjadhi**
         2. **Discussion – no discussion**
         3. **Result: Approved by unanimous consent.**
   3. **Doc.11-20-0769 “Resolution to Annex Z and HESIGB Comments,” by Brian Hart (Cisco Systems)**
      1. Brian is not on the call. There are no updates and we can vote to approve the resolutions in this document.
      2. **CR Motion #1046: Move to accept resolutions to CIDs 24373, 24386, 24387, 24388, 24431, 24506, 24507 in doc 11-20/0769r4.**
         1. **Moved by Youhan Kim, Seconded by Yasuhiko Inoue**
         2. **Discussion – no discussion**
         3. **Result: Approved by unanimous consent.**
   4. **Doc.11-20-0795 “11ax D6.0 NAV,” by Po-Kai Huang (Intel)**
      1. Po-kai is not on the call. 🡪 to be voted on during the next teleconference.
8. **AoB**
   1. No other business.
9. **Adjournment**
   1. TGax CRC teleconference on May 26th, 2020 has adjourned @ 10:55 AM (ET).