IEEE P802.11
Wireless LANs

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| IEEE 802.11TGax CRC Teleconferences Minutes August 2020 |
| Date: 2020-08-17 |
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Abstract

This document contains the minutes from the TGax teleconferences August 2020.

Revision History:

* R0: Initial version.
	+ Minutes of TGax CRC calls on August 4th and 6th, 2020.
* R1: Minutes from TGax CRC calls on August 11th and 13th, 2020 are included with minor fixes to the previous meeting minutes.

**Tuesday, August 4th, 2020, TGax CRC Teleconference (17:00 - 19:00 ET)**

1. **The meeting called to order at 17:02 (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
	1. Introduction of TGax chairperson and secretary.
	2. The agenda document doc.11-20/1169r1 is the working document (r0 is on the server).
2. **Attendees**
	1. Aboul-Magd, Osama (Huawei Technologies)
	2. Asterjadhi, Alfred (Qualcomm)
	3. Au, Kwok Shum (Huawei Technologies)
	4. Cariou, Laurent (Intel)
	5. Chen, Xiaogang (Intel)
	6. Cherian, George (Qualcomm)
	7. Derham, Thomas (Broadcom)
	8. Fischer, Matthew (Broadcom)
	9. Hunag, Po-Kai (Intel)
	10. Inoue, Yasuhiko (NTT)
	11. Kneckt, Jarkko (Apple)
	12. Qi, Emily (Intel)
	13. Rison, Mark (Samsung)
	14. Rosdahl, Jon (Qualcomm)
	15. Stacey, Robert (Intel)
	16. Yang, Rui (InterDigital)
	17. Yu, Mao (NXP)
3. **Agenda Setting**
	1. Proposed agenda for the TGax CRC teleconference on August 4th, 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. Comment Resolution Status – Robert Stacey
		5. CR Motion
			1. [Doc.11-20-1063](https://mentor.ieee.org/802.11/dcn/20/11-20-1063-00-00ax-sa1-cr-mac-miscellaneous.docx) (by Yongho Seok): CIDs 24402, 24465
			2. [Doc.11-20-0717](https://mentor.ieee.org/802.11/dcn/20/11-20-0717-08-00ax-cr-misc-phy.docx) (by Xiaogang Chen): CIDs 24297, 24307
			3. [Doc.11-20-1121](https://mentor.ieee.org/802.11/dcn/20/11-20-1121-01-00ax-misc-cids.xlsx) (by Laurent Cariou): CIDs 24030, 24165, 24166, 24459
			4. Text Change in [Doc.11-20-0913](https://mentor.ieee.org/802.11/dcn/20/11-20-0913-02-00ax-twt-wide-range.docx)
		6. CR Submissions
			1. <https://mentor.ieee.org/802.11/dcn/20/11-20-0665-05-00ax-comment-resolution-on-mibs-and-pics.docx> - Edward Au - CID 24209
			2. <https://mentor.ieee.org/802.11/dcn/20/11-20-1158-00-00ax-resolutions-for-some-comments-on-11ax-d6-0-sb1.docx> - Mark Rison
		7. AoB
		8. 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 August 4th, 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
		* All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.
			+ Don’t discuss the interpretation, validity, or essentiality of patents/patent claims.
			+ Don’t discuss specific license rates, terms, or conditions.
				- Relative costs of different technical approaches that include relative costs of patent licensing terms January be discussed in standards development meetings.

Technical considerations remain the primary focus

* + - * Don’t discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.
			* Don’t discuss the status or substance of ongoing or threatened litigation.
			* Don’t be silent if inappropriate topics are discussed … do formally object.
	1. Patent-related information – done
		+ The patent policy and the procedures used to execute that policy are documented in the:
		+ *IEEE-SA Standards Board Bylaws* (http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6)
		+ *IEEE-SA Standards Board Operations Manual* (http://standards.ieee.org/develop/policies/opman/sect6.html#6.3)
		+ Material about the patent policy is available at
		+ [*http://standards.ieee.org/about/sasb/patcom/materials.html*](http://standards.ieee.org/about/sasb/patcom/materials.html)
	2. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
	3. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
	4. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
1. **Attendance**
	1. <https://imat.ieee.org/>
		1. Please indicate the voter status by adding [V] or [NV] before your name on WebEx.
2. **Motion**
	1. [**Doc.11-20-1063**](https://mentor.ieee.org/802.11/dcn/20/11-20-1063-01-00ax-sa1-cr-mac-miscellaneous.docx)**, “SA1 CR MAC Miscellaneous,” by Yongho Seok (MediaTek)**
		1. Yongho presented the updates from the previous version of doc.11-20-1063.
		2. Discussion
			1. A member is still concerned about the proposed resolution.
		3. Next Step
			1. More offline work.
	2. [**Doc.11-20-0717**](https://mentor.ieee.org/802.11/dcn/20/11-20-0717-09-00ax-cr-misc-phy.docx)**, “CR for MISC. PHY,” by Xiaogang Chen (Intel)**
		1. Xiaogang gave an update on the remaining comment in doc.11-20-717 which is CID 24032.
		2. Discussion
			1. A member mentioned that there should be two logical points of the antenna connectors, i.e., one for Tx and one for Rx. After quick search on the REVmd draft, it turned out that there is no “antenna connectors” in the latest REVmd draft.
			2. Another member asked for more time to check all antenna connector related spec.
		3. Next Step
			1. CID 24032 was deferred again.
	3. [**Doc.11-20-0913**](https://mentor.ieee.org/802.11/dcn/20/11-20-0913-02-00ax-twt-wide-range.docx)**, “Proposal for TWT Wide Range Parameters,” by Laurent Cariou (Intel)**
		1. Laurent gave updates on the proposed text changes contained in doc.11-20-0913.
		2. Discussion
			1. A member commented that a behavior has to be described in an appropriate part.
			2. A member asked for a clarification of the value set in the TWT element.
			3. The group discussed the Broadcast Parameter Set and Individual Parameter Set of the TWT element.
			4. A member expressed a concern the range of value of TWT Wake Interval Mantissa field. Also he proposed a new text for TWT Wake Interval Exponent.
			5. Discussion continued.
		3. Next Step
			1. More offline work will be needed to adopt the proposed changes.
	4. [**Doc.11-20-1121**](https://mentor.ieee.org/802.11/dcn/20/11-20-1121-01-00ax-misc-cids.xlsx)**, “MISC CIDs,” by Laurent Cariou (Intel)**
		1. Laurent gave an update on the resolution for CID 24459.
		2. Discussion
			1. The commenter mentioned there will be more appropriate reason for the rejection, i.e., he is not happy with the proposed resolution.
		3. **CR Motion #1085: Move to accept resolutions to CIDs 24030, 24165, 24166, 24459 in doc 11-20/1121r1.**
			1. **Moved by Laurent Cariou, Seconded by Po-Kai Huang**
			2. **Discussion: A member objected to approve the resolution with unanimous consent.**
			3. **Result: Y/N/A = 8/1/1, motion passes**
3. **Submissions**
	1. **Mark Rison (Samsung) presented “Resolutions for some comments on 11ax/D6.0 (SB1),” based on the submission** [**doc.11-20-1158-00**](https://mentor.ieee.org/802.11/dcn/20/11-20-1158-00-00ax-resolutions-for-some-comments-on-11ax-d6-0-sb1.docx)**.**
		1. Summary
			1. Resolution for the comments with following CIDs related to the IEEE 802.11ax D6.0 are proposed.
				1. CIDs: 24300, 24301 and 24500.
		2. Discussion
			1. A member asked for more time to review the proposal.
		3. Next Step
			1. There will be a motion to approve the proposed resolution on Thursday.
	2. **Edward Au (Huawei Technologies) presented “Comment resolution on MIBS and PICS,” based on the submission** [**doc.11-20-0665-06**](https://mentor.ieee.org/802.11/dcn/20/11-20-0665-06-00ax-comment-resolution-on-mibs-and-pics.docx)**.**
		1. Summary
			1. Resolution for the remaining comment with CID 24209 related to the IEEE 802.11ax D6.0 is proposed.
		2. Discussion
			1. Edward would like feedback on the proposed changes related to the CID 24209.
		3. Next Step
			1. There will be a motion to approve the proposed resolution on Thursday.
	3. **George Cherian (Qualcomm) presented “Ack related CRs,” based on the submission** [**doc.11-20-1181-00**](https://mentor.ieee.org/802.11/dcn/20/11-20-1181-00-00ax-ack-related-comments-resolution-contd.docx)**.**
		1. Summary
			1. Resolutions for the comments with following CIDs related to Ack Procedure defined in the IEEE 802.11ax D6.0 are proposed.
				1. CIDs: 24143, 24227, 24487, 24485.
		2. Discussion
			1. CID 24487: A member requested more time to review the proposal.
			2. CID 24458: There is a similar comment that was resolved in doc.11-20-0917-02. A member would like to remove restriction of 64.
			3. Time is up
		3. Next Step
			1. There will be a motion to approve the proposed resolution on Thursday.
4. **AoB**
	1. No other business.
5. **Adjournment**
	1. TGax CRC teleconference on August 4th, 2020 has adjourned @ 18:59 (ET).

**Thursday, August 6th, 2020, TGax CRC Teleconference (10:00AM - 13:00 ET)**

1. **The meeting called to order at 10:05 AM (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
	1. Introduction of TGax chairperson and secretary.
	2. The agenda document 20/1169r3 (working document, r2 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. Chen, Xiaogang (Intel)
	6. Inoue, Yasuhiko (NTT)
	7. Kneckt, Jarkko (Apple)
	8. Nandagopalan, Sai Shankar (Cypress)
	9. Petrick, Albert (InterDigital)
	10. Rison, Mark (Samsung)
	11. Rosdahl, Jon (Qualcomm)
	12. Zhang, Yan (NXP)
3. **Agenda Setting**
	1. Proposed agenda for the TGax CRC teleconference on August 6th, 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. Comment Resolution Status – Robert Stacey
		5. CR Motion
			1. [Doc.11-20-1063](https://mentor.ieee.org/802.11/dcn/20/11-20-1063-00-00ax-sa1-cr-mac-miscellaneous.docx) (by Yongho Seok): CIDs 24402, 24465
			2. [Doc.11-20-0717](https://mentor.ieee.org/802.11/dcn/20/11-20-0717-08-00ax-cr-misc-phy.docx) (by Xiaogang Chen): CIDs 24297, 24307
			3. [Doc.11-20-1121](https://mentor.ieee.org/802.11/dcn/20/11-20-1121-01-00ax-misc-cids.xlsx) (by Laurent Cariou): CIDs 24030, 24165, 24166, 24459
			4. Text Change in [Doc.11-20-0913](https://mentor.ieee.org/802.11/dcn/20/11-20-0913-02-00ax-twt-wide-range.docx)
			5. [Doc.11-20-1158](https://mentor.ieee.org/802.11/dcn/20/11-20-1158-00-00ax-resolutions-for-some-comments-on-11ax-d6-0-sb1.docx) (by Mark Rison): CIDs 24300, 24301, 24500
			6. [Doc.11-20-0665](https://mentor.ieee.org/802.11/dcn/20/11-20-0665-07-00ax-comment-resolution-on-mibs-and-pics.docx) (by Edward Au): CID 24209
		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 August 6th, 2020 was 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
		* All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.
			+ Don’t discuss the interpretation, validity, or essentiality of patents/patent claims.
			+ Don’t discuss specific license rates, terms, or conditions.
				- Relative costs of different technical approaches that include relative costs of patent licensing terms January be discussed in standards development meetings.

Technical considerations remain the primary focus

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			* Don’t discuss the status or substance of ongoing or threatened litigation.
			* Don’t be silent if inappropriate topics are discussed … do formally object.
	1. Patent-related information – done
		+ The patent policy and the procedures used to execute that policy are documented in the:
		+ *IEEE-SA Standards Board Bylaws* (http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6)
		+ *IEEE-SA Standards Board Operations Manual* (http://standards.ieee.org/develop/policies/opman/sect6.html#6.3)
		+ Material about the patent policy is available at
		+ [*http://standards.ieee.org/about/sasb/patcom/materials.html*](http://standards.ieee.org/about/sasb/patcom/materials.html)
	2. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
	3. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
	4. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
1. **Attendance**
	1. <https://imat.ieee.org/>
		1. Please indicate the voter status by adding [V] or [NV] before your name on WebEx.
2. **CR Motion**
	1. [**Doc.11-20-1158-00**](https://mentor.ieee.org/802.11/dcn/20/11-20-1158-00-00ax-resolutions-for-some-comments-on-11ax-d6-0-sb1.docx)**, “Resolutions for some comments on 11ax/D6.0 (SB1),” by Mark Rison (Samsung).**
		1. Summary
			1. There no change on doc.11-20-1158-00 since previous presentation (It is still revision 0).
		2. Discussion
			1. A member asked for clarification that there is no technical change. 🡪 The answer was yes. The intension is clarification.
		3. **CR Motion #1086: Move to accept resolutions to CIDs 24300, 24301 and 24500 in doc 11-20/1158r0.**
			1. **Moved by Mark Rison, Seconded by Jarkko Kneckt**
			2. **Discussion – no discussion**
			3. **Result: Approved with unanimous consent.**
	2. [**Doc.11-20-0665-07**](https://mentor.ieee.org/802.11/dcn/20/11-20-0665-07-00ax-comment-resolution-on-mibs-and-pics.docx)**, “Comment resolution on MIBS and PICS,” by Edward Au (Huawei Technologies).**
		1. Summary
			1. Edward gave an updates from the previous version..
		2. Discussion
			1. A member mentioned that he would like to check the requirements for 802.11ax devices and non-802.11ax devices. He asked for some time to check the proposed resolutions.
			2. Chair noticed that some members have different opinions as for the resolution of CID 24209 and asked Edward to trigger email discussion on the reflector.
		3. Next
			1. Doc.11-20-0665 will be revisited next week.
3. **AoB**
	1. The chairperson emphasized that the plan is to complete current round of comment resolution during the next week.
4. **Adjourn**
	1. TGax CRC teleconference on August 6th, 2020 has adjourned @ 10:21 (ET)

**Tuesday, August 11th, 2020, TGax CRC Teleconference (10:00 - 12:00 ET)**

1. **The meeting called to order at 10:05 AM (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
	1. Introduction of TGax chairperson and secretary.
	2. The agenda document 20/1169r4 is the working document (revision 3 is on the server).
2. **Attendees**
	1. Aboul-Magd, Osama (Huawei Technologies)
	2. An, Song-Haur (Independent)
	3. Asterjadhi, Alfred (Qualcomm)
	4. Chen, Xiaogang (Intel)
	5. Chu, Liwen (NXP)
	6. Dogukan, Ali (Vestel)
	7. Gan, Ming (Huawei Technologies)
	8. Hervieu, Lili (CableLabs)
	9. Inoue, Yasuhiko (NTT)
	10. Kim, Youhan (Qualcomm)
	11. Nandagopalan, Sai Shankar (Cypress)
	12. Petrick, Albert (InterDigital)
	13. Rison, Mark (Samsung)
	14. Rosdahl, Jon (Qualcomm)
	15. Schelstraete, Sigurd (Quantenna/ON)
	16. Yang, Rui (InterDigital)
	17. Yu, Mao (NXP)
3. **Agenda Setting**
	1. Proposed agenda for the TGax CRC teleconference on August 11th, 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. Comment Resolution Status – Robert Stacey
		5. CR Motion
			1. [Doc.11-20-1063](https://mentor.ieee.org/802.11/dcn/20/11-20-1063-00-00ax-sa1-cr-mac-miscellaneous.docx) (by Yongho Seok): CIDs 24402, 24465
			2. [Doc.11-20-0717](https://mentor.ieee.org/802.11/dcn/20/11-20-0717-08-00ax-cr-misc-phy.docx) (by Xiaogang Chen): CIDs 24297, 24307
			3. Doc.11-20-1129 (by Sigurd Schelstraete): CIDs 24211, 24212
			4. Doc.11-20-1181 (by George Cherian): CIDs 24143, 24227, 24487, 24485
			5. [Doc.11-20-0665](https://mentor.ieee.org/802.11/dcn/20/11-20-0665-07-00ax-comment-resolution-on-mibs-and-pics.docx) (by Edward Au): CID 24209
		6. Submissions
			1. <https://mentor.ieee.org/802.11/dcn/20/11-20-0980-01-00ax-mac-cr-on-mu-cascading-for-draft-6-0.doc> - Ming Gan
			2. <https://mentor.ieee.org/802.11/dcn/20/11-20-0981-01-00ax-mac-cr-on-fragmentation-for-draft-6-0.doc> **-** Ming Gan
		7. AoB
		8. 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 August 11th, 2020 was 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
		* All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.
			+ Don’t discuss the interpretation, validity, or essentiality of patents/patent claims.
			+ Don’t discuss specific license rates, terms, or conditions.
				- Relative costs of different technical approaches that include relative costs of patent licensing terms January be discussed in standards development meetings.

Technical considerations remain the primary focus

* + - * Don’t discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.
			* Don’t discuss the status or substance of ongoing or threatened litigation.
			* Don’t be silent if inappropriate topics are discussed … do formally object.
	1. Patent-related information – done
		+ The patent policy and the procedures used to execute that policy are documented in the:
		+ *IEEE-SA Standards Board Bylaws* (http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6)
		+ *IEEE-SA Standards Board Operations Manual* (http://standards.ieee.org/develop/policies/opman/sect6.html#6.3)
		+ Material about the patent policy is available at
		+ [*http://standards.ieee.org/about/sasb/patcom/materials.html*](http://standards.ieee.org/about/sasb/patcom/materials.html)
	2. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
	3. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
	4. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
1. **Attendance**
	1. <https://imat.ieee.org/>
		1. Please indicate the voter status by adding [V] or [NV] before your name on WebEx.
2. **CR Motion**
	1. [**Doc.11-20-1129-02**](https://mentor.ieee.org/802.11/dcn/20/11-20-1129-02-00ax-cids-24211-24212.docx)**, “CIDs 24211, 24212,” by Sigurd Schelstraete (Quantenna/ON).**
		1. Summary
			1. Sigurd presented the resolutions for CIDs 24211 and 24212. He asked for feedback on the second CID.
		2. Discussion on CID 24212
			1. (Re: HEP 2.3.1) A member commented that there is no description on the DL OFDMA.
			2. (Re: HEP 2.3.5) There was a comment to clarify the use of “\*”.
			3. There is only PSR-based Spatial Reuse. Need to add OBSS-PD-based Spatial Reuse.
		3. Next Step
			1. Sigurd to update the document based on the feedback.
3. **Submissions**
	1. **Ming Gan (Huawei Technologies) presented “MAC CR Fragmentation,” based on the submission** [**doc.11-20-0981-03**](https://mentor.ieee.org/802.11/dcn/20/11-20-0981-03-00ax-mac-cr-on-fragmentation-for-draft-6-0.doc)**.**
		1. Summary
			1. Ming presented the new resolutions based on the feedback.
		2. Discussion
			1. CID 24364:
			2. CID 24553: A member commented that the name of the subfield should be clearly express what the value means.
			3. CID 24554: The group discussed the relation between the WinSizeO and the WinSizeR. In relation to the dynamic fragmentation, the buffer size is restricted depending on the level of dynamic fragmentation while current baseline assumes no fragmentation.
			4. CID 24557: Need offline discussion on the PN setting rules for dynamic fragmentation with different retransmission sizes. A member commented that we should also check the spec from the security point of view. 🡪 CID 24557 was deferred.
		3. **CR Motion #1087: Move to accept resolutions to CIDs 24364, 24553, 24554 in doc 11-20/0981r3.**
			1. **Moved by Ming Gan, Seconded by Alfred Asterjadhi**
			2. **Discussion – no discussion**
			3. **Result: Approved by unanimous consent.**
		4. Next Step
			1. More offline discussion on the remaining CID (24557).
	2. **Ming Gan (Huawei Technologies) presented “MAC CR MU cascading,” based on the submission** [**doc.11-20-0980-02**](https://mentor.ieee.org/802.11/dcn/20/11-20-0980-02-00ax-mac-cr-on-mu-cascading-for-draft-6-0.doc)**.**
		1. Summary
			1. Ming presented the proposed resolutions for CIDs related to MU Cascading.
				1. CIDs: 20732 20733 21450
		2. Discussion
			1. The group discussed whether the MU cascading sequence is an optional feature on the top of MU frame sequence or a part of mandatory MU sequences which makes a big difference in the spec and could make inconsistency with the other part of the draft.
			2. A participant requested to double check the CIDs Ming is resolving since the comments for 802.11ax D6.0 is numbered from 24001.
		3. Next Step
			1. Ming to double check the CIDs he is working on.
4. **AoB**
	1. The chairperson emphasized that the plan is to complete current round of comment resolution during the next week.
	2. Jon Rosdahl, the 1st vice chair of the 802.11 WG, informed that the 802.11REVmd D4.0 will be ready soon. The 802.11ax D7.0 will be based on that document.
5. **Adjourn**
	1. TGax CRC teleconference on August 11th, 2020 has adjourned @ 11:47 (ET)

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

1. **The meeting called to order at 10:02 AM (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
	1. Introduction of TGax chairperson and secretary.
	2. The agenda document 20/1169r6 (working document, r5 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. Chen, Xiaogang (Intel)
	6. Dogukan, Ali (Vestel)
	7. Dong, Xiandong (Xiaomi)
	8. Inoue, Yasuhiko (NTT)
	9. Kim, Youhan (Qualcomm)
	10. Kim, Youn-Kwan (The Catholic University of Korea)
	11. Kneckt, Jarkko (Apple)
	12. Nandagopalan, Sai Shankar (Cypress)
	13. Ozbakis, Basak (Vestel)
	14. Ozpoyraz, Burak (Vestel)
	15. Patil, Abhishek (Qualcomm)
	16. Petrick, Albert (InterDigital)
	17. Rison, Mark (Samsung)
	18. Rosdahl, Jon (Qualcomm)
	19. Schelstraete, Sigurd (Quantenna/ON)
	20. Seok, Yongho (MediaTek)
	21. Stacey, Robert (Intel)
3. **Agenda Setting**
	1. Proposed agenda for the TGax CRC teleconference on August 13th, 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. Comment Resolution Status – Robert Stacey
		5. CR Motion
			1. [Doc.11-20-1063](https://mentor.ieee.org/802.11/dcn/20/11-20-1063-00-00ax-sa1-cr-mac-miscellaneous.docx) (by Yongho Seok): CIDs 24402, 24465
			2. [Doc.11-20-0717](https://mentor.ieee.org/802.11/dcn/20/11-20-0717-08-00ax-cr-misc-phy.docx) (by Xiaogang Chen): CIDs 24297, 24307
			3. [Doc.11-20-1129](https://mentor.ieee.org/802.11/dcn/20/11-20-1129-04-00ax-cids-24211-24212.docx) (by Sigurd Schelstraete): CIDs 24211, 24212
			4. Text Change in [Doc.11-20-0913](https://mentor.ieee.org/802.11/dcn/20/11-20-0913-02-00ax-twt-wide-range.docx) (by Laurent/.Alfred)
			5. [Doc.11-20-0665](https://mentor.ieee.org/802.11/dcn/20/11-20-0665-07-00ax-comment-resolution-on-mibs-and-pics.docx) (by Edward Au): CID 24209
			6. [Doc.11-20-1181](https://mentor.ieee.org/802.11/dcn/20/11-20-1181-00-00ax-ack-related-comments-resolution-contd.docx) (by George Cherian): CIDs 24143, 24227, 24487, 24485
			7. [Doc.11-20-0981](https://mentor.ieee.org/802.11/dcn/20/11-20-0981-03-00ax-mac-cr-on-fragmentation-for-draft-6-0.doc) (by Ming Gan): CID: 24557
			8. [Doc.11-20-0912](https://mentor.ieee.org/802.11/dcn/20/11-20-0912-04-00ax-resolutions-to-miscellaneous-cids.docx) (by Osama Aboul-Magd): CID: ???
		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 August 13th, 2020 was 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
		* All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.
			+ Don’t discuss the interpretation, validity, or essentiality of patents/patent claims.
			+ Don’t discuss specific license rates, terms, or conditions.
				- Relative costs of different technical approaches that include relative costs of patent licensing terms January be discussed in standards development meetings.

Technical considerations remain the primary focus

* + - * Don’t discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.
			* Don’t discuss the status or substance of ongoing or threatened litigation.
			* Don’t be silent if inappropriate topics are discussed … do formally object.
	1. Patent-related information – done
		+ The patent policy and the procedures used to execute that policy are documented in the:
		+ *IEEE-SA Standards Board Bylaws* (http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6)
		+ *IEEE-SA Standards Board Operations Manual* (http://standards.ieee.org/develop/policies/opman/sect6.html#6.3)
		+ Material about the patent policy is available at
		+ [*http://standards.ieee.org/about/sasb/patcom/materials.html*](http://standards.ieee.org/about/sasb/patcom/materials.html)
	2. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
	3. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
	4. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
1. **Attendance**
	1. <https://imat.ieee.org/>
		1. Please indicate the voter status by adding [V] or [NV] before your name on WebEx.
2. **Comment Resolution Status, by Robert Stacey (Intel), the TGax technical editor**
	1. We have 44 comments to resolve. We can resolve one by one if no resolution is proposed.
3. **CR Motion**
	1. [**Doc.11-20-1063-02**](https://mentor.ieee.org/802.11/dcn/20/11-20-1063-02-00ax-sa1-cr-mac-miscellaneous.docx)**, “SA1 CR MAC Miscellaneous,” by Yongho Seok (MediaTek).**
		1. Summary
			1. Yongho presented the updated resolutions for CIDs 24402 and 24465 based on the feedback from a participant.
		2. Discussion
			1. CID 24402: The participant is basically okay with the proposed changes but, suggested further clarification to the proposed text. The document was updated (🡪 r3).
		3. **CR Motion #1088: Move to accept resolutions to CIDs 24402, 24465 in doc 11-20/1063r3.**
			1. **Moved by Yongho Seok, Seconded by Mark Rison**
			2. **Discussion – no discussion**
			3. **Result: Approved with unanimous consent.**
	2. [**Doc.11-20-0717-10**](https://mentor.ieee.org/802.11/dcn/20/11-20-0717-10-00ax-cr-misc-phy.docx)**, “CR for MISC. PHY,” by Xiaogang Chen (Intel).**
		1. Summary
			1. The discussion on the terms of “antenna connector” and “antenna connectors” are reviewed.
		2. Discussion
			1. A participant mentioned that CID 24371 which is also related to antenna connector would be resolved by this document.
		3. **CR Motion #1089: Move to accept resolutions to CIDs 24297, 24037 in doc 11-20/0717r10**
			1. **Moved by Xiaogang Chen, Seconded by Youhan Kim.**
			2. **Discussion – no discussion**
			3. **Result: Approved with unanimous consent.**
	3. [**Doc.11-20-1129-03**](https://mentor.ieee.org/802.11/dcn/20/11-20-1129-03-00ax-cids-24211-24212.docx)**, “CIDs 24211, 24212,” by Sigurd Schelstraete (Quantenna/ON).**
		1. Summary
			1. Sigurd explained the resolutions to CIDs 24211 and 24212 with new proposed text changes.
		2. Discussion
			1. Some further updates (editorial) are made to the PICS..
		3. **CR Motion #1090: Move to accept resolutions to CIDs 24211, 24212 in doc 11-20/1129r4 with the resolution references modified to 11-20/1129r4.**
			1. **Moved by Sigurd Schelstraete, Seconded by Robert Stacey**
			2. **Discussion – no discussion**
			3. **Result: Approved by unanimous consent.**
	4. [**Doc.11-20-0912-04**](https://mentor.ieee.org/802.11/dcn/20/11-20-0912-04-00ax-resolutions-to-miscellaneous-cids.docx)**, “Resolutions to Miscellaneous CIDs,” by Osama Aboul-Magd (Huawei Technologies).**
		1. Summary
			1. Osama presented the proposed CIDs for the remaining CIDs 24566 and 24567.
		2. Discussion
			1. The group discussed the behavior of a non-AP STA that received a PPDU containing the BQRP in relation with the operating channel and CCA per 20 MHz channel.
			2. After the discussion, those CIDs are transferred to Robert Stacey.
		3. Next Step
			1. Robert to bring the resolutions for CIDs 24566 and 24567.
4. **Submission**
	1. **Robert Stacey (Intel) presented “D6.0 Misc CR,” based on the submission** [**doc.11-20-1218-00**](https://mentor.ieee.org/802.11/dcn/20/11-20-1218-00-00ax-d6-0-misc-cr.docx)**.**
		1. Summary
			1. Resolutions to the comments with following CIDs related to the IEEE 802.11ax D6.0 are proposed.
				1. CIDs: 24002, 24033, 24526, 24527, 24302, 24541
		2. Discussion
			1. CIDs 24033, 24526: A member commented that there should not be references to the resolution for other CIDs according to the SA ballot rule. 🡪 Robert to update.
			2. CID 24527: Although the proposed resolution says that the commenter has not clearly identified a problem, a member can identify the issue and he disagrees with the first sentence of the proposed resolution. 🡪 The 1st sentence will be removed.
			3. CID 24302: While Robert disagrees with the comment, a member mentioned that it is not clear which field is always present and which are not. Another member mentioned that this might be a general issue and is not sure if TGax is the right place to resolve it. 🡪 Robert plans to bring a new resolution.
		3. Next Step
			1. Robert will update resolutions for some comments and will work on some other CIDs.
5. **AoB**
	1. The plan is to complete current round of comment resolution next week.
6. **Adjourn**
	1. TGax CRC teleconference on August 13th, 2020 has adjourned @ 11:34 (ET)

**Tuesday, August 18th, 2020, TGax CRC Teleconference (17:00 - 19:00 ET)**

1. **The meeting called to order at 17:02 AM (ET) by Osama Aboul-Magd (Huawei Technologies), the chairperson of 802.11 TGax.**
	1. Introduction of TGax chairperson and secretary.
	2. The agenda document 20/1169r8 is the working document (revision 7 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. Cariou, Laurent (Intel)
	6. Chen, Xiaogang (Intel)
	7. Cherian, George (Qualcomm)
	8. Chu, Liwen (NXP)
	9. Coffey, John (RealTek)
	10. Derham, Thomas (Broadcom)
	11. Fischer, Matthew (Broadcom)
	12. Gan, Ming (Huawei Technologies)
	13. Hervieu, Lili (CableLabs)
	14. Huang, Po-Kai (Intel)
	15. Inoue, Yasuhiko (NTT)
	16. Jones, VK (Qualcomm)
	17. Kim, Youhan (Qualcomm)
	18. Kneckt, Jarkko (Apple)
	19. Nandagopalan, Sai Shankar (Cypress)
	20. Petrick, Albert (InterDigital)
	21. Rison, Mark (Samsung)
	22. Rosdahl, Jon (Qualcomm)
	23. Schelstraete, Sigurd (Quantenna/ON)
	24. Stacey, Robert (Intel)
	25. Stanley, Dorothy (HPE)
	26. Yang, Rui (InterDigital)
	27. Yu, Mao (NXP)
3. **Agenda Setting**
	1. Proposed agenda for the TGax CRC teleconference on August 11th, 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. Comment Resolution Status – Robert Stacey
		5. CR Motion
			1. [Doc.11-20-0717](https://mentor.ieee.org/802.11/dcn/20/11-20-0717-08-00ax-cr-misc-phy.docx) (by Xiaogang Chen): CIDs 24297, 24307
			2. [Doc.11-20-1181](https://mentor.ieee.org/802.11/dcn/20/11-20-1181-00-00ax-ack-related-comments-resolution-contd.docx) (by George Cherian): CIDs 24143, 24227, 24487, 24485
			3. [Doc.11-20-0913](https://mentor.ieee.org/802.11/dcn/20/11-20-0913-03-00ax-twt-wide-range.docx) (by Laurent Cariou): Proposed text changes
			4. [Doc.11-20-0665](https://mentor.ieee.org/802.11/dcn/20/11-20-0665-07-00ax-comment-resolution-on-mibs-and-pics.docx) (by Edward Au): CID 24209
		6. Submissions
			1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1218-02-00ax-d6-0-misc-cr.docx> - Robert Stacey
			2. <https://mentor.ieee.org/802.11/dcn/20/11-20-1233-00-00ax-the-last-of-the-cids-plan-b.docx> - Alfred Asterjadhi
			3. <https://mentor.ieee.org/802.11/dcn/20/11-20-1235-00-00ax-11ax-d6-0-comment-resolution-of-cid-24043.docx> - Liwen Chu
		7. AoB
		8. 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 August 18th, 2020 was 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
		* All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.
			+ Don’t discuss the interpretation, validity, or essentiality of patents/patent claims.
			+ Don’t discuss specific license rates, terms, or conditions.
				- Relative costs of different technical approaches that include relative costs of patent licensing terms January be discussed in standards development meetings.

Technical considerations remain the primary focus

* + - * Don’t discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.
			* Don’t discuss the status or substance of ongoing or threatened litigation.
			* Don’t be silent if inappropriate topics are discussed … do formally object.
	1. Patent-related information – done
		+ The patent policy and the procedures used to execute that policy are documented in the:
		+ *IEEE-SA Standards Board Bylaws* (http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6)
		+ *IEEE-SA Standards Board Operations Manual* (http://standards.ieee.org/develop/policies/opman/sect6.html#6.3)
		+ Material about the patent policy is available at
		+ [*http://standards.ieee.org/about/sasb/patcom/materials.html*](http://standards.ieee.org/about/sasb/patcom/materials.html)
	2. Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct - done
	3. Participants in the IEEE-SA “individual process” shall act independently of others, including employers - done
	4. IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints - done
1. **Attendance**
	1. <https://imat.ieee.org/>
		1. Please indicate the voter status by adding [V] or [NV] before your name on WebEx.
2. **Motions**
	1. [**Doc.11-20-0717-10**](https://mentor.ieee.org/802.11/dcn/20/11-20-0717-10-00ax-cr-misc-phy.docx)**, “CR for MISC. PHY,” by Xiaogang Chen (Intel).**
		1. Summary
			1. Xiaogang proposed updates on the mathematical representation of HE-SIG-A.
			2. The proposed changes are not related to any CIDs.
		2. Discussion
			1. A member asked for clarification that the proposed changes are on the Eqn. 27-16 and Eqn. 27-17. 🡪 Correct.
		3. **PHY Motion #218: Move to accept changes to EQ (27-16) EQ (27-17) as shown on page 17 of doc 11-20/0717r11.**
			1. **Moved by Xiaogang Chen, Seconded by Youhan Kim**
			2. **Discussion – no discussion.**
			3. **Result: Approved with unanimous consent.**
	2. [**Doc.11-20-1181-00**](https://mentor.ieee.org/802.11/dcn/20/11-20-1181-00-00ax-ack-related-comments-resolution-contd.docx)**, “Ack Related CRs,” by George Cherian (Qualcomm).**
		1. Summary
			1. George mentioned that there is no update from the one presented in a previous teleconference.
		2. Discussion
			1. A member asked for clarification of how to respond to non-HE PPDU with an HE TB PPDU. 🡪 Subclause 26.4.4.4 is about acknowledgement rules. Also, refer to Table 9-529 (A-MPDU context) to see the constrains for sending Trigger frame. The table restricts the PPDUs that can carry a Trigger frame (when aggregated with other MPDUs) to only HE PPDUs. It is also confirmed that when a HE PPDU is sent soliciting an HE TB PPDU, then the Ack policy is set to HTP Ack.
		3. **CR Motion #1091: Move to accept resolutions to CIDs 24143, 24227, 24487, 24485 in doc 11-20/1181r1.**
			1. **Moved by George Cherian, Seconded by Alfred Asterjadhi**
			2. **Discussion – A member mentioned he would like to abstain.**
			3. **Result: Y/N/A = 11/0/3, motion passes.**
	3. [**Doc.11-20-0913-03**](https://mentor.ieee.org/802.11/dcn/20/11-20-0913-03-00ax-twt-wide-range.docx)**, “Proposal for TWT Wide Range Parameters,” by Laurent Cariou (Intel).**
		1. Summary
			1. Laurent updated the submission incorporating the result of offline work.
		2. Discussion
			1. A member suggested editorial change from “Target Wake Time field” to “Target Wake Time field in TWT element.” For clarification.
			2. The group discussed the applicability of the proposed scheme to the individual TWT and broadcast TWT.
		3. **MAC Motion #135: Move to accept text changes in doc 11-20/0913r5 and include it in the next revision of TG draft.**
			1. **Moved by Laurent Cariou, Seconded by Alfred Asterjadhi**
			2. **Discussion – A member mentioned he would like to abstain.**
			3. **Result: Y/N/A = 10/0/4, motion passes.**
3. **Submissions**
	1. **Robert Stacey (Intel) presented “D6.0 Misc CR,” based on the submission** [**doc.11-20-1218-02**](https://mentor.ieee.org/802.11/dcn/20/11-20-1218-02-00ax-d6-0-misc-cr.docx)**.**
		1. Summary
			1. Robert continued presentation of doc.11-20-1218.
		2. Discussion
			1. CID 24418: The group discussed the definition of RSSI and AP Tx Power. RSSI is based on the total power while AP Tx Power is based on the 20 MHz channel width.
		3. **Straw Poll: Do you prefer the existing text or Mark’s text?**

**Option A) Existing text**

**Option B) Mark’s text**

* + - 1. **Result: A/B = 6/3, slight preference on the existing text.**
		1. Next Step
			1. Robert to continue his presentation in the next teleconference.
1. **AoB**
	1. No other business to conduct.
2. **Adjourn**
	1. TGax CRC teleconference on August 18th, 2020 has adjourned @ 19:01 (ET)