IEEE P802.11  
Wireless LANs

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| Telecon Minutes for REVmd CRC - Sept 14-17 2020 | | | | |
| Date: 2020-11-16 | | | | |
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Abstract

This file contains the minutes for the 802.11md REVmd CRC Telecons from September 14 to September 17, 2020.

R0: Sept 14, 2020 Telecon Minutes

R1: Sept 15, 2020 Telecon Minutes added minor corrections made to Sept 14 minutes.

R2: Sept 16, 2020 Telecon Minutes added...

1. **IEEE 802.11md REVmd CRC Telecon Monday, September 14, 2020 11:15-13:15 ET**
   1. **Called to order at 11:16 am** ET by the TG Chair Dorothy STANLEY (HPE)
   2. **Review Patent and Participation Policy**
      1. No Issues noted.
   3. **Attendance:** -please log with IMAT:
      1. **See References for the IMAT report (****Attendance Sept 14)**
      2. **About 80 attendees reported by Webex**
      3. Missing from IMAT: None reported
   4. **Review Agenda** 11-20/1366r2:
      1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1366-02-000m-2020-september-interim-tgmd-agenda.pptx>
      2. **The draft agenda for the teleconferences is below:**

1.       Call to order, attendance (<https://imat.ieee.org/attendance> ), and patent policy

a.       **Patent Policy: Ways to inform IEEE:**

1. Cause an LOA to be submitted to the IEEE-SA ([patcom@ieee.org](mailto:patcom@ieee.org)); or
2. Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
3. 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

b.      Patent, Participation and policy related slides: See slides 4-19 in <https://mentor.ieee.org/802.11/dcn/20/11-20-0323-00-0000-2nd-vice-chair-report-july-2020.pptx>

2.       Editor report – Emily QI/Edward AU – see <https://mentor.ieee.org/802.11/dcn/17/11-17-0920-28-000m-802-11revmd-editor-s-report.ppt> and <https://mentor.ieee.org/802.11/dcn/19/11-19-2156> .

3.       Comment resolution and motions for the week.

* **Monday AM2**
* Chair’s Welcome, Policy & patent reminder, Approve agenda
* Status, Review of Objectives, Editor Report 11-17-0920
* Emily Qi – CIDs 5002
* Jon ROSDAHL: CIDs 5081, 5079, 5022, 5007
* Michael Montemurro – CID 5076
* Mark Hamilton ARC Liaison – 11-20-0177
* Srini KANDALA – CID 5025
* Youhan Kim – CIDs 5009, 5010, 5011
* **Tuesday PM2**
* Mark RISON –5056 (4602), 5058 & 5061 (4699), 5040 (4205), [5048 (4229, 4226), 5047 & 5046, 5049, 5050, 5051]
* David GOODALL CID 5017 in 11-20-1433, also CIDs 5018, 5016
* Srini KANDALA – CID 5025
* C. Ghosh – CID 5008
* Mark Hamilton ARC Liaison – 11-20-0177
* **Wednesday** PM2
* Motions
* M. Montemurro, A. Myles CID 5001
* Youhan Kim – CIDs 5009, 5010, 5011
* Jouni Malinen – CIDs 5071, 5073, 5074, 5075, 5062
* Mark Rison Assigned CIDs 5038, 5042, 5043, 5063, 5066, 5068, 5078
  + - * **Thursday PM2**
* Comment resolution
* Motions
* Plans for September – December 2020
* Adjourn

4.       AOB

5. Adjourn

* + 1. Emily noted that CID 5033 was completed last Friday.
    2. Update agenda according to availability
    3. Move to approve agenda R3
       1. Moved: Jon Rosdahl 2nd: Emily QI
       2. No discussion
       3. No objection to the displayed Agenda (see 11-20/1366r3)
  1. **Status and Objectives:**
     1. We are in Recirc process for D4.0
     2. Current planned Schedule:
* **January 2018 – Initial WGLB**
* **November 2018 –D2.0 WGLB Recirculation LB**
* **May 2019 – MEC/MDR done**
* **September 2019 – D3.0 WGLB Recirculation LB**
* **September 2019 – Form SB Pool – Closes 2019-10-11**
* **November 2019 – D3.0 Recirculation (unchanged)**
* **December 2019 – Initial SB D3.0**
* **August 2020– Recirculation SB D4.0**
* **October 2020 – WG/EC approval**
* **December 2020 – RevCom/SASB approval**
  1. **Editor Report** Emily QI (Intel)
     1. Report 11-17-0920
     2. Review 11-19/2156r22
        1. <https://mentor.ieee.org/802.11/dcn/19/11-19-2156-22-000m-revmd-sponsor-ballot-comments.xls>
     3. Current status:



* 1. **Review doc 11-20/1413r4** – Emily QI (Intel)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1413-04-000m-sa2-proposed-resolutions-for-editor-adhoc-and-others.doc>
     2. CID 5002 (EDITOR)
        1. Review the comment and the history of the proposed changes.
        2. Discussion on the proposed change and the Note related to the figure.
        3. Corrections of the note from an “and” to an “or”
        4. The change in 3239.37 needed to have a change earlier in the text changes. (see R5 for final version). Also an “NF” should be “MF”
        5. Discussion on change 3242.10 – There is a reference else where so the deletion is correct and sufficient.
        6. A revision will be loaded
     3. Proposed resolution: CID 5002 (EDITOR): Revised. Incorporate the changes in 11-1413r5 for CID 5002.
        1. No Objection – Mark Ready for Motion
  2. **GEN CIDS –** Jon Rosdahl (Qualcomm)
     1. CID 5079 (GEN):
        1. Reviewed what is being changed. Sentence clean-up for clarification.
        2. Proposed Resolution: ACCEPTED (GEN: 2020-09-14 15:54:42Z).
        3. No objection - Mark Ready for motion.
     2. CID 5081 (GEN):
        1. Review comment
        2. Proposed Resolution: Rejected. The draft under consideration is D4.0. D7.0 is TGax, and not part of this ballot. The comment fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined.
        3. After more discussion, remove the TGax reference.
        4. Updated Proposed Resolution: REJECTED (GEN: 2020-09-14 15:48:08Z) The draft under consideration is D4.0. The comment fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined.1.4. Ready for motion.
        5. No Objection - Mark Ready for motion.
     3. CID 5022 (GEN):
        1. Review Comment
        2. Proposed Resolution: REJECTED (GEN: 2020-09-14 15:56:46Z) The comment does not identify a specific technical problem. The comment fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined.
        3. No Objection - Mark Ready for motion.
     4. CID 5007 (GEN):
        1. Review comment
        2. Proposed Resolution: REJECTED (GEN: 2020-09-11 16:35:29Z) Commenter withdrew comment.
        3. No Objection - Mark Ready for motion.
  3. **PHY CIDs –** Michael MONTEMURRO (Self)
     1. CID 5076 (PHY)
        1. Review comment
        2. Made a related change with CID 2391
        3. This comment is consistent with those prior changes. (In both locations)
        4. Discussion on the proposed change of plural to singular “Antenna Connector”. The power level is properly noted to be measured at the antenna connector.
           1. antenna connector: The measurement point of reference for radio frequency (RF) measurements in astation (STA).
           2. In systems using multiple antennas or antenna arrays, the antenna connector is avirtual point representing the aggregate output of (or input to) the multiple antennas. In systems using activeantenna arrays with processing, the antenna connector is the output of the active array, which includes anyprocessing gain of the active antenna subsystem.
        5. Proposed resolution: Accepted
        6. No objection – Mark Ready for Motion
  4. **Review doc 11-20/0177r2** – Mark HAMILTON (Ruckus/CommScope)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-0177-02-0arc-liaison-to-revmd-on-ess.docx>
     2. Abstract: This is a liaison from 802.11’s ARC SC to 802.11’s REVmd, with proposals for modification of Draft Standard text on the definition and introductory discussion of the concepts “ESS” and “HESS”.
     3. Presentation of the submission.
     4. Discussion on the use of “Location transparency”.
     5. Discussion on if LLC is sublayer or layer. Delete phrase “the same to an LLC layer as an IBSS” to make the sentence clear.
     6. Discussion on getting rid of “homogeneous”, also homogamous.
     7. Discussion on the meaning name for HeSS. – could a better name be found.
     8. No CID covers this issue, so we need to decide if we are going to include now, or wait until 11me.
     9. There may be more issues to resolve in Clause 4.
     10. Concern with the global change instructions and need to have the specific changes included in the proposal
     11. Discussion on if the HESSID is truly globally unique identifier.
     12. Suggestion to push these changes to REVme.
     13. There has been a lot of effort on this already. The ARC SC has spent a lot of time to create this text and should be considered in this round.
     14. A Revision of the submission will be prepared and come back to the group.
  5. **Review doc 11-20/1313r5** **Srini KANDALA (Samsung)**
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1313-05-000m-bss-max-idle-period-negotiation-enhancements-for-non-s1g-phys.docx>
     2. There is an R6 on Mentor, but the discussion is on R5 and depending on the discussion, may want to use R6
        1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1313-06-000m-bss-max-idle-period-negotiation-enhancements-for-non-s1g-phys.docx>
     3. Review submission R5 as there are more people than usual on the call.
     4. This submission is for CID 5025 (PHY)
     5. Discussion on the value that may be requested. What is the incentive to choose a larger or smaller value?
     6. Discussion on capability indication is not needed (which is in R6).
     7. Discussion on a SAP argument and a MIB variable gives 2 different access points. If we have a MIB variable, why do we need the primitive?
     8. More discussion on wanting to move to R6 (which does not have a capability bit).
     9. Discussion on if the baseline seemed to have the same type description. If the MIB variable is set true, and the SAP parameter is set.
     10. Seems that the current SAP/MIB were put in by 11ah, and may not be correct, but it is in the draft.
     11. If all variables are true, then the “may” should be a “shall” have dot11BSSMaxIdlePeriodIndicationbyNonAPSTA be present.
     12. Plan to proceed with editorial and other changes to R6 and bring back later.
     13. If we do not come to consensus, we will reject the comment.
  6. **Review CIDS 5009, 5010, 5011** – Youhan KIM (Qualcomm)
     1. Essentially the 3 CIDs are on the same topic.
     2. CID 5009, 5010, 5011 (PHY)
        1. Review comment
        2. Review the context of the comment
        3. The cited rows have not changed during the 11md process, so we are not obligated to action these CIDs.
        4. Need to check if there is a real technical issue, if not, we can reject.
        5. Put on the agenda for the first part of Wednesday.
  7. **Review CID assignment**
     1. CIDs assigned to DAN CID 5071, 5073, 5074, 5075
        1. Reassign to Jouni MALINEN
        2. Add to Wednesday Agenda
     2. Review that all assignees are on the Agenda to resolve assigned CIDs.
  8. **Recess 1:16pm**

1. **IEEE 802.11md REVmd CRC Telecon Tuesday, September 15, 2020 16:00-18:00 ET**
   1. **Called to order at 4:02** pm ET by the TG Chair Dorothy STANLEY (HPE)
   2. **Review Patent and Participation Policy**
      1. No Issues noted.
   3. **Attendance:** -please log with IMAT:
      1. **See References for the IMAT report (Attendance Sept 15)**
      2. **About 80 attendees reported by Webex**
      3. Missing from IMAT: None reported
   4. **Review Agenda** 11-20/1366r3:
      1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1366-03-000m-2020-september-interim-tgmd-agenda.pptx>
      2. **Tuesday PM2**

* Mark RISON –5056 (4602), 5058 & 5061 (4699), 5040 (4205), [5048 (4229, 4226), 5047 & 5046, 5049, 5050, 5051]
* David GOODALL CID 5017 in 11-20-1433, also CIDs 5018, 5016
* Srini KANDALA – CID 5025
* C. Ghosh – CID 5008
* Mark Hamilton ARC Liaison – 11-20-0177
  + 1. Review agenda plan
    2. Jouni requested that Move CID 5065 to Mark RISON
    3. Request to postpone time of Srini’s submission, but we will still review it today and tomorrow.
    4. No objection to the agenda displayed – see 11-1366r4
  1. **Review doc 11-20/0435r15** – Mark RISON (Samsung)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-0435-15-000m-resolutions-for-some-comments-on-11md-d3-0-sb1.docx>
     2. Mark RISON –5056 (4602), 5058 & 5061 (4699), 5040 (4205), [5048 (4229, 4226), 5047 & 5046, 5049, 5050, 5051]
     3. CID 5056 (GEN) (nee 4602)
        1. Review Comment
        2. Review the proposed changes.
        3. No objection to changes.
        4. Proposed resolution: Incorporate the changes for CID 5056 in 11-10/0435r15, which makes the sessions key name clear.
        5. No objection – Mark Ready for Motion
     4. CID 5040 (PHY) (nee 4205)
        1. Review comment
        2. Review proposed changes.
        3. Discussion on the instructions.
        4. Concern on having a “NOTE” in the table.
        5. May be better to add between NOTE 3 and NOTE 4 at 1109.26
        6. Proposed resolution: REVISED (PHY: 2020-09-15 20:22:24Z) - In Table 9-151—AKM suite selectors:

For the 00-0F-AC:11 row:

Change "Authentication negotiated over IEEE Std 802.1X"

to "Authentication negotiated over IEEE Std 802.1X using a Suite B compliant EAP method supporting SHA-256".

At 1109.26 add “NOTE 4—The AKM suite selector value 00-0F-AC:11 is deprecated.” and renumber the subsequent NOTEs.

For the 00-0F-AC:12 row:

Change "Authentication negotiated over IEEE Std 802.1X"

to "Authentication negotiated over IEEE Std 802.1X using a CNSA Suite compliant EAP method"

(For the 00-0F-AC:13 row, no change.)

* + - 1. No objection - Mark Ready for Motion
    1. CID 5058 and 5061
       1. Not ready to discuss
    2. CID 5048 (4229, 4226), 5047 & 5046, 5049, 5050, 5051 (4229)
       1. Not in document
    3. CID 5062 (MAC)
       1. Review Comment
       2. Review proposed changes
       3. No objection
       4. Proposed Resolution: CID 5062 (MAC): REVISED (MAC: 2020-09-15 20:24:40Z): In 9.4.2.246 Rejected Groups element change:

The Rejected Groups field contains a (#4658)list of unsigned 16-bit integers representing finite cyclic groups that have been rejected by a peer in a previous authentication attempt.

to:

The Rejected Groups field contains a (#4658)list of Finite Cyclic Group fields indicating finite cyclic groups that have been rejected by a peer in a previous authentication attempt.

Note to the commenter: the new text is the Proposed Change.

* + - 1. No Objection – Mark ready for motion
    1. CID 5048 (GEN) (Follow-up to CID 4229/4266)
       1. Review comment
       2. Review proposed changes.
       3. Discussion on the definition of the Basic Rate Set.
       4. Discussion on how the basic rate set is set when the AP first starts up establishing the BSS and it does not change.
       5. Discussion on the need for a definition for the “Basic Rate Set”.
       6. STRAW POLL S1:
          1. Resolve 5048 as “Accepted”
          2. Yes/No/Abstain
          3. Result: 6/10/10
       7. Proposed Resolution: Reject – No consensus to make the change
       8. Proposed Resolution: REJECTED (GEN: 2020-09-15 20:48:21Z) The TG considered document https://mentor.ieee.org/802.11/dcn/20/11-20-0435-15-000m-resolutions-for-some-comments-on-11md-d3-0-sb1.docx to address the comment and did not come to a consensus to adopt the proposed changes. A Strawpoll to accept the change had a result of 6 yes - 10 no and 10 abstain.
    2. CID 5049 and 5050 (MAC)
       1. The comments are the same, but the proposed change is different.
       2. Review of Comments
       3. Discussion on the STA Type
       4. Discussion on the location of the change
       5. Proposed resolution: CID 5049 (MAC): REVISED (MAC: 2020-09-15 20:56:29Z) - At 1716.6 change the NOTE to:

"NOTE—The operational rate or MCS set that a STA advertises does not necessarily contain all the mandatory rates or MCSs, respectively. The basic rate or MCS set that a STA starting a BSS advertises does not necessarily contain all the mandatory rates or MCSs, respectively. However, a STA has to be capable of receiving using a mandatory rate or MCS (when required by the rules in 10.6 (Multirate support)) even if it is not present in the operational rate or MCS set, respectively, that the STA advertises, and similarly has to be capable of transmitting using a mandatory rate or MCS (when required by the rules in 10.6 (Multirate support)) even if it is not present in the basic rate or MCS set, respectively. In this context, “mandatory” describes rates or MCSs that are so described, or described using “shall support”, in reference to the STA type, in the PHY clause applicable to the STA.".

Delete NOTE 1 in 11.1.4.6 Operation of Supported Rates and BSS Membership Selectors element and Extended Supported Rates and BSS Membership Selectors element and renumber the following NOTEs.

* + - 1. Proposed Resolution: CID 5050 (MAC): REVISED (MAC: 2020-09-15 20:56:29Z) - At 1716.6 change the NOTE to:

"NOTE—The operational rate or MCS set that a STA advertises does not necessarily contain all the mandatory rates or MCSs, respectively. The basic rate or MCS set that a STA starting a BSS advertises does not necessarily contain all the mandatory rates or MCSs, respectively. However, a STA has to be capable of receiving using a mandatory rate or MCS (when required by the rules in 10.6 (Multirate support)) even if it is not present in the operational rate or MCS set, respectively, that the STA advertises, and similarly has to be capable of transmitting using a mandatory rate or MCS (when required by the rules in 10.6 (Multirate support)) even if it is not present in the basic rate or MCS set, respectively. In this context, “mandatory” describes rates or MCSs that are so described, or described using “shall support”, in reference to the STA type, in the PHY clause applicable to the STA.".

Delete NOTE 1 in 11.1.4.6 Operation of Supported Rates and BSS Membership Selectors element and Extended Supported Rates and BSS Membership Selectors element and renumber the following NOTEs.

* + - 1. No objection – Mark Both CIDs Ready for Motion
    1. CID 5051 (MAC)
       1. Review comment
       2. Review proposed changes
       3. Proposed Resolution: CID 5051 (MAC): ACCEPTED (MAC: 2020-09-15 20:58:46Z)
       4. No objection – Mark Ready for Motion
    2. CID 5047 (GEN)
       1. Pending discussion with Sean
    3. CID 5046 (GEN) (follow-up to CID 4229)
       1. Review comment.
       2. Review proposed changes.
       3. Discussion on support of the changes.
       4. Proposed Resolution: ACCEPTED (GEN: 2020-09-15 21:03:10Z)
       5. No Objection – Mark Ready for Motion
  1. **Review doc 11-20/1433** – David GOODALL (Morse Micro)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1433-03-000m-s1g-mac-resolution-to-cid5017.docx>
     2. CID 5017 (MAC)
        1. Review comment and history of changes since last presented.
        2. Review the proposed changes.
        3. No objection to the proposed changes in 11-20/1433r3.
        4. Proposed Resolution: CID 5017 (MAC): REVISED (MAC: 2020-09-15 21:07:57Z): Incorporate the changes in 11-20/1433r3 <<https://mentor.ieee.org/802.11/dcn/20/11-20-1433-03-000m-s1g-mac-resolution-to-cid5017.docx>> for CID 5017, which corrects the discussion of the duration for these frames.
        5. No objection – Mark Ready for Motion
  2. **Review doc 11-20/1454r1**– David GOODALL (Morse Micro)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1454-01-000m-s1g-gen-resolution-to-cid5018.docx>
     2. CID 5018 (GEN)
        1. Review comment
        2. Background: Table D-4 (Maximum STA transmit power and maximum BW allowed) is out of date due to recent changes in various regulatory domains, including China and Europe. Also, the name of the table should be made specific to sub 1 GHz.
        3. Proposed resolution: REVISED (GEN: 2020-09-15 21:12:42Z); Incorporate the changes for CID 5018 in doc 11-20/1454r2 <<https://mentor.ieee.org/802.11/dcn/20/11-20-1454-02-000m-s1g-gen-resolution-to-cid5018.docx>> which updates Table D-4 as noted in the comment.
        4. No objection – Mark Ready for Motion.
  3. **Review doc 11-20/1471r0** - David GOODALL (Morse Micro)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1471-00-000m-s1g-gen-resolution-to-cid5016.docx>
     2. CID 5016 (GEN)
        1. Review comment
        2. Review proposed change.
        3. Request to have a review of the test vectors in the draft.
        4. Discussion on the variables are entered in the text.
        5. Question on the representation of the vectors. Would be best to find the original author to verify the vectors in the document.
        6. ACTION ITEM: Ask for review and present again for resolution of CID on Thursday.
  4. **Review doc 11-20/13113r8** – Srini KANDALA (Samsung)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1313-08-000m-bss-max-idle-period-negotiation-enhancements-for-non-s1g-phys.docx>
     2. CID 5025 (PHY)
        1. Review changes since last review.
        2. Many changes have been requested offline.
        3. Would like a straw-poll to determine if we have consensus for the proposed requested changes.
        4. Discussion on why the Extended Capability bits needs to be added or not.
        5. Will take up the discussion again tomorrow (Wednesday).
  5. **Review doc 11-20/0177r4** – Mark HAMILTON (Ruckus/Commscope)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-0177-04-0arc-liaison-to-revmd-on-ess.docx>
     2. Two revisions were made since presentation yesterday to address requests.
     3. Review contribution changes and the effective proposed changes.
     4. Discussion on the changes proposed could be taken in parts.
     5. Support for the changes in whole was expressed due to the fact that 802.11 ARC spent a lot of time making the proposed changes including the HESS ID.
     6. For those that wanted a little more time, the discussion was stopped and will be on the agenda for Thursday.
  6. **Review doc 11-20/1104r3** Chittabrata Ghosh (Intel Corporation)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1104-03-000m-proposed-changes-in-scs-10-23-2-2-and-10-23-2-9.docx>
     2. CID 5008 (MAC)
        1. Review the changes since last presented.
        2. Review proposed changes.
        3. Discussion on which rules need to apply to which cases.
        4. Discussion on the rationale for making any changes.
        5. Discussion on why we need two separate lists of requirements.
        6. Discussion on why the changes were made.
        7. More work is needed.
        8. Either Tomorrow or Thursday, we will have a motion and if it passes or not we will make a final determination.
  7. **Review Agenda plan:**
     1. Review 11-20/1366r4:
        1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1366-04-000m-2020-september-interim-tgmd-agenda.pptx>
     2. Reminder of CID list for Mark RISON:
        1. Mark Rison Assigned CIDs 5058 & 5061 (4699), 5047, 5038, 5042, 5043, 5063, 5066, 5068, 5078
  8. **Recessed 6:00pm ET.**

1. **IEEE 802.11md REVmd CRC Telecon Wednesday, September 16, 2020 16:00-18:00 ET**
   1. **Called to order at 4:01** pm ET by the TG Chair Dorothy STANLEY (HPE)
   2. **Review Patent and Participation Policy**
      1. No Issues noted.
   3. **Attendance:** -please log with IMAT:
      1. **See References for the IMAT report (Attendance Sept 16)**
      2. **About 58 attendees reported by Webex/IMAT**
      3. Missing from IMAT: None reported
   4. **Review Agenda** 11-20/1366r4:
      1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1366-04-000m-2020-september-interim-tgmd-agenda.pptx>
      2. **Wednesday PM2**

* Motions
* M. MONTEMURRO, A. MYLES CID 5001
* Youhan KIM – CIDs 5009, 5010, 5011
* Jouni MALINEN – CIDs 5071, 5073, 5074, 5075
* Mark RISON Assigned CIDs 5058 & 5061 (4699), 5047, 5038, 5042, 5043, 5063, 5066, 5068, 5078
* Srini KANDALA – CID 5025
  + 1. Add Chitta to Thursday’s agenda
    2. No other changes to today’s agenda plan – see 11-20/1366r5.
  1. **Motions:**
     1. **Motion S1: Approve prior TGmd minutes**
        1. Approve the minutes of
* Teleconference minutes:
* August 3-7: <https://mentor.ieee.org/802.11/dcn/20/11-20-1183-04-000m-telecon-minutes-for-revmd-crc-aug-3-7-2020.docx>
* August 19: <https://mentor.ieee.org/802.11/dcn/20/11-20-1251-00-000m-telecon-minutes-for-revmd-crc-aug-19-2020.docx>
* August 21-26: <https://mentor.ieee.org/802.11/dcn/20/11-20-1325-01-000m-telecon-minutes-for-revmd-crc-aug-21-and-aug-26-2020.docx>
* September 2-4: <https://mentor.ieee.org/802.11/dcn/20/11-20-1390-01-000m-telecon-minutes-for-revmd-crc-sept-2-and-sept-4-2020.docx>
* September 8-9-11: <https://mentor.ieee.org/802.11/dcn/20/11-20-1432-03-000m-telecon-minutes-for-revmd-crc-sept-8-9-and-10-2020.docx>
  + - 1. Moved: Jon ROSDAHL
      2. Seconded: Emily QI
      3. **Result S1**: Approved by Unanimous Consent – motion Passes.
    1. **Motion S2: Re-affirm TGmd officers**
       1. Reaffirm the following TG officers:

Mark HAMILTON and Michael MONTEMURRO as TGmd Vice Chairs

and Jon ROSDAHL as TGmd secretary.

* + - 1. Moved: Edward AU
      2. Seconded: Joseph LEVY
      3. **Result S2**: Approved by Unanimous consent (38 on the call (24 voters)
    1. **Motion #253 - EDITOR (5+6+1) and EDITOR2 (12) CIDs**
       1. Approve the comment resolutions in the

“Motion-EDITOR-A”, “Motion-EDITOR-B” and “Motion-EDITOR-C” tabs in <https://mentor.ieee.org/802.11/dcn/20/11-20-1412-02-000m-revmd-sa2-comments-for-editor-ad-hoc.xlsx>

Motion-EDITOR2-V tab in <https://mentor.ieee.org/802.11/dcn/19/11-19-2160-15-000m-revmd-editor2-standards-association-ballot-comments.xlsx>

and incorporate the text changes into the TGmd draft.

* + - 1. Moved: Stephen PALM
      2. Seconded: Edward AU
      3. **Result Motion #253:** Approved with Unanimous Consent – Motion Passes
    1. **Motion #254 – GEN (7+4) CIDs**
       1. Approve the comment resolutions in the

“Motion GEN -Sept A” and “Motion GEN –Sept B” tabs in 11-20/1438r3 < <https://mentor.ieee.org/802.11/dcn/20/11-20-1438-03-000m-sa-ballot-recirc-1-revmd-gen-comments.xls> >

and incorporate the text changes into the TGmd draft.

* + - 1. Moved: Jon ROSDAHL
      2. Seconded: Michael MONTEMURRO
      3. **Result Motion #254:** Approved with Unanimous Consent – Motion Passes
    1. **Motion #255 – MAC (6) CIDs**
       1. Approve the comment resolutions in the

“Motion MAC-AU” tabs in <https://mentor.ieee.org/802.11/dcn/17/11-17-0927-65-000m-revmd-mac-comments.xls>

and incorporate the text changes into the TGmd draft.

* + - 1. Moved: Michael MONTEMURRO
      2. Seconded: Stephen PALM
      3. **Result Motion #255:** Approved with Unanimous Consent – Motion Passes
  1. **Review 11-20/227r4 CID 5001 (PHY)** – Andrew MYLES (Cisco)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-0227-04-000m-pifs-for-beacons.pptx>
     2. CID 5001 (PHY):
        1. Review history of the comment
        2. Rejected in last ballot, new comment to reconsider.
        3. Discussion on if the comment in the last ballot was appropriately considered.
        4. Discussion on the use of Beacons using AC\_V) with AIFSN of 1.
        5. From Aug 5th Telecon Minutes – 3.10.2.7:

Proposed Resolution: REVISED (GEN: 2020-08-05 21:43:54Z) – at 1730.30 add

"–A STA transmitting a Beacon frame, as described in 11.1.3.2 (Beacon generation in non-DMG infrastructure networks).

NOTE–An extended period during which the medium is busy after the TBTT can increase the probability for collisions between PIFS transmissions from nearby STAs on the same channel. The use of a random backoff instead of PIFS can reduce the collision probability in this case."

Note to the Commenter:

This change allows beacons to be transmitted at PIFS.

It is possible that clock drift causes TBTTs at two nearby APs to line up within 9 us and that a beacon collision occurs. However, the time this happens would only be 0.009% for a 100 ms beacon period. This fraction may be increased some by CCA busy events occurring around the TBTT, but the odds will still be low.

A medium busy time after the TBTT of for example 1 ms will increase this collision probability to 1%.

Matthew FISCHER suggested: A medium busy time after the TBTT of for example 5 ms will increase this collision probability to 5%.

* + - 1. STRAW POLL S2: Modify the Text to explicitly allow Beacon Frames Using PIFS.
         1. YES/NO/Abstain
         2. Results: 14-8-4
      2. If this were a motion it would not pass.
      3. ACTION: Mike to prepare Accept and Reject motions for this CID.
      4. Two resolutions to be prepared for Thursday. One will reject and one will be a revised.
      5. Proposed Resolutions: CID 5001 (PHY)
         1. Reject Proposal: Reject;

- the comment was discussed.

1) Makes a major change to the requirements that are already specified.

2) Making the change would introduce unfairness.

3) There was no consensus for making a change.

4) AP's should not use PIFS for transmitting beacons. In the industry, it’s a valid mechanism for transmitting beacons.

5) In the commenter's opinion, AP's that use PIFS are not compliant with the specification. There is no clear statement that AP's shall not transmit beacons on PIFS.

* + - * 1. Proposed change under discussion in 11-20/1183r4:

At 1730.30 add

 "–A STA transmitting a Beacon frame, as described in 11.1.3.2 (Beacon generation in non-DMG infrastructure networks).

NOTE–An extended period during which the medium is busy after the TBTT can increase the probability for collisions between PIFS transmissions from nearby STAs on the same channel. The use of a random backoff instead of PIFS can reduce the collision probability in this case."

* 1. **Review doc 11-20/1475r0 - CID 5009, 5010, 5011 (PHY)** - Youhan KIM: (QUALCOMM)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1475-00-000m-sa2-cids-5009-5010-5011.docx>
     2. CID 5009, 5010, 5011 (PHY)
        1. Review Comments
        2. Review proposed changes.
        3. Discussion on the changes.
        4. Discussion on the coverage of the clause 19 and 20 Mhz.
        5. Proposed Resolution: Revised; REVISED (PHY: 2020-09-16 20:47:30Z)

Implement the proposed text changes under "Proposed Text Updates for CIDs 5009, 5010, 5011" in https://mentor.ieee.org/802.11/dcn/20/11-20-1475-00-000m-sa2-cids-5009-5010-5011.docx, so that the text states directly that start of PPDUs needed to be detected regardless of the PPDU bandwidth if the power measured within the primary 20 MHz is at or above -82 dBm.

Note to Commenter:

The main point the commenter is making is that a STA in a X1 MHz operating mode needs to be able to detect the start of PPDUs with X2 MHz bandwidth, including cases where X2 > X1. For example, a STA in 80 MHz operating mode needs to be able to detect the start of a 160 MHz PPDU and defer appropriately, even though the 80 MHz operating STA will not be able to demodulate the data portion of the 160 MHz PPDU. And Table 21-27 does not capture this point.

Furthermore, Table 21-27 as currently written is not easy to understand. For example, does the row “The start of a 160 MHz or 80+80 MHz non-HT duplicate or VHT PPDU at or above –73 dBm.” mean that a VHT receiver must measure the preamble power over 160 MHz, and run the preamble detector over 160 MHz? The intention of that row was that even for 160 MHz PPDUs, if you see energy in the primary 20 MHz greater than or equal to -82 dBm (the requirement for 20 MHz VHT PPDU detection), then you need to detect those 160 MHz PPDUs as well. And assuming flat power spectral density, -82 dBm in primary 20 MHz translates to -73 dBm over 160 MHz – hence the limit of -73 dBm in the last row of Table 21-27.

* + - 1. No objection – Mark Ready for Motion
  1. **Review doc 11-1493r0** – CID 5071, 5073, 5074, and 5075- Jouni MALINEN (Qualcomm)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1493-00-000m-some-sa2-sae-comments.docx>
     2. CID 5071 (PHY) (nee 4671)
        1. Review comment.
        2. Review proposed changes.
        3. Question if there was similar Comment? Not overlapping.
        4. No objection to the change.
        5. Proposed Resolution: ACCEPTED (PHY: 2020-09-16 20:50:29Z)
        6. No objection – Mark Ready for Motion
     3. CID 5073 (PHY)
        1. Review comment.
        2. Review proposed changes.
        3. Review discussion in the submission.
        4. Proposed resolution: REJECTED. Modular multiplication and division are operations in the SSWU algorithm and as such, are already covered by practically identical requirement on line 63.
        5. Discussion on the need to indicate “constant time operation” and if it is sufficiently defined or not.
        6. STRAW POLL S3: Reject CID 5073 with the reason proposed in 11-20/1493r0:
           1. YES/NO/Abstain
           2. Results: 14-2-8
        7. Proceed with the reject resolution.
        8. Updated Resolution: REJECTED (PHY: 2020-09-16 21:01:54Z) - Modular multiplication and division are operations in the SSWU algorithm and as such, are already covered by practically identical requirement on line 63.
        9. Mark Ready for Motion.
     4. CID 5074 (PHY)
        1. Review comment.
        2. Review proposed changes.
        3. Review discussion in the submission.
        4. Discussion on the need for constant time operations and if it is defined sufficiently or not...
        5. Proposed resolution: REJECTED (PHY: 2020-09-16 21:10:20Z). Determination of quadratic residue on page 2561 line 58 is one of the operations in the SSWU algorithm and as such, is already covered by practically identical requirement on line 63.
        6. The next CID is similar
     5. CID 5075 (PHY)
        1. Review comment.
        2. Review proposed changes.
        3. Review discussion in the submission.
        4. Proposed Resolution: REJECTED (PHY: 2020-09-16 21:10:04Z) -. sqrt(x) is one of the operations in the SSWU algorithm and as such, is already covered by practically identical requirement on line 63. The NOTE following this algorithm description indicates how sqrt(x) is implemented. The condition in that note applies to all the applicable curves. As such, there is no need to define sqrt(x) in the SSWU algorithm itself as it is a common operation in modular arithmetic which the reader of this algorithm is expected to be familiar with and is implemented in the manner described immediately following this text.
        5. Discussion on the sqrt(x) cannot be defined in the NOTE. It was pointed out that line 63 covers sqrt(x) also.
        6. ACTION ITEM: Michael MONTEMURRO to prepare a separate Motion will be prepared for CID 5074 and 5075 with an option for reject and Accept.
        7. *Secretary Note – response on Action item:*
           1. With respect to tomorrow. The motion for Rejection will be Approve resolutions on the "SAE Constant Time" tab of 11-20/1425r2. The motion for approve will simply be "Resolve CID 5074 and CID 5075 as ACCEPTED".
  2. **Mark Rison Assigned CIDs** 5058 & 5061 (4699), 5047, 5038, 5042, 5043, 5063, 5066, 5068, 5078
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-0435-15-000m-resolutions-for-some-comments-on-11md-d3-0-sb1.docx>
     2. CID 5058 and 5061 (MAC) (nee 4699)
        1. Review comment
        2. From Webex Chat Window:
           1. The STA shall not initiate transmission of a frame unless the transmission and any acknowledgment orother immediate response expected from the peer MAC entity are able to complete prior to the end of thethe HCCA TXOP. All transmissions, including response frames, within the polled TXOP are considered to be the part of the TXOP
           2. NOTE-The remaining TXOP duration is indicated in the NAV.
        3. Discussion on completing prior to the TXOP. No Need to change the text.
        4. The use of NAV would also need the TX NAV included in the resolution.
        5. Discussion on the value of leaving the existing text.
        6. There was insufficient support for a change.
        7. ACTION ITEM: Mark HAMILTON to prepare CID 5058 and 5061 (MAC) rejection resolution for tomorrow.
     3. CID 5038 (MAC)
        1. Review comment
        2. Review discussion in submission.
        3. Proposed resolution: CID 5038 (MAC): REVISED (MAC: 2020-09-16 21:25:20Z): Incorporate the text changes in 11-20/0435r16 for CID 5038, which clarifies when security is required.
        4. Mark Ready for Motion
     4. CID 5042 (MAC) (nee 4679)
        1. Review comment
        2. Review discussion in submission.
        3. Proposed change reviewed: Change “For example, receiver address matching is always performed on the contents of the Address 1 field in received frames, and the receiver address of CTS and Ack frames is always obtained from the Address 2 field in the corresponding RTS frame, or from the frame being acknowledged.” in 9.2.4.3.1 to “Specifically, the Address 1 field always identifies the intended receiver(s) of the frame, and the Address 2 field, where present, always identifies the transmitter of the frame.NOTE—The Address 2 field is not equal to the MAC address of the transmitter, in the case of a bandwidth signalling TA.”
        4. Proposed Resolution: CID 5042 (MAC): ACCEPTED (MAC: 2020-09-16 21:31:02Z)
        5. No objection – Mark Ready for Motion
     5. CID 5043 (MAC) (nee 4689)
        1. Review comment
        2. Review discussion in submission.
        3. Proposed resolution: CID 5043 (MAC): ACCEPTED (MAC: 2020-09-16 21:34:45Z)
        4. No objection – Mark Ready for Motion
     6. CID 5063 (MAC) (ne 4137)
        1. Review comment
        2. Review context on page 784.
        3. Discussion on the reserved fields being treated differently in MAC and PHY sections.
        4. The Note would be added to Clause 9.
        5. Discussion what the scope of the statement “Reserved Fields and subfields are set to 0 on transmission and ignored on reception.
        6. Proposed resolution: At the end of the penultimate para in the referenced subclause add a "NOTE---Reserved fields and subfields in PHY headers might be set to different values upon transmission and might not be ignored upon reception."Change the penultimate para from "Reserved fields and subfields are set to 0 upon transmission and are ignored upon reception." to "Reserved fields and subfields defined in this clause are set to 0 upon transmission and are ignored upon reception."
        7. Discussion on the wording caused a change.
        8. Updated proposed resolution: CID 5063 (MAC): REVISED (MAC: 2020-09-16 21:39:28Z): At the end of the penultimate para in the referenced subclause add a "NOTE---Reserved fields and subfields in PHY headers might be set to a nonzero value upon transmission and might not be ignored upon reception."Change the penultimate para from "Reserved fields and subfields are set to 0 upon transmission and are ignored upon reception." to "Reserved fields and subfields defined in this clause are set to 0 upon transmission and are ignored upon reception."
        9. No objection - Mark ready for motion
     7. CID 5066 (MAC) (nee 4717)
        1. Review comment
        2. Review proposed changes
        3. Proposed Resolution: CID 5066 (MAC): ACCEPTED (MAC: 2020-09-16 21:44:52Z)
        4. No objection - Mark ready for motion
     8. CID 5078 (MAC): (nee 4444)
        1. Review comment
        2. Review proposed resolution.
        3. Proposed Resolution: CID 5078 (MAC): REVISED (MAC: 2020-09-16 21:47:43Z): Change to "To start an HCCA TXOP, the HC gains control of the WM by waiting a shorter time before initiating the first transmission of the TXOP than STAs using the EDCA procedures."
        4. No objection - Mark ready for motion
     9. CID 5047 (GEN)
        1. Already done yesterday.
     10. CID 5068 left to do.
  3. **Review doc 11-20/1313r8** Srini KANDALA (Samsung)
     1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1313-08-000m-bss-max-idle-period-negotiation-enhancements-for-non-s1g-phys.docx>
     2. CID 5025 (PHY)
        1. Discussion on the concerns of having a capability bit or not.
        2. Discussion on why a capability bit is being requested.
        4. STRAW POLL S4: Include a capability bit in the 11-20-1313 proposal:
           1. YES/NO/ABSTAIN
           2. Results: 6/5/
        5. Will have a motion on the version without the capability bit.
  4. Add Sean Coffey who was not able to mark attendance.
  5. For tomorrow, we will have many motions.
     1. Mark RISON CIDs remain – 5068
     2. Mark HAMILTON -will have a motion on 11-20/0177 and any discussion will be with the motion.
  6. Call for any negative voters to identify any CIDs that are still associated with the disapprove vote. You can change your vote in the myProject as well.
  7. Recess 6:02pm ET.

**References:**

**Files reviewed:**

**1. September 14:**

1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1366-02-000m-2020-september-interim-tgmd-agenda.pptx>
2. <https://mentor.ieee.org/802.11/dcn/20/11-20-0323-00-0000-2nd-vice-chair-report-july-2020.pptx>
3. <https://mentor.ieee.org/802.11/dcn/20/11-20-1366-03-000m-2020-september-interim-tgmd-agenda.pptx>
4. <https://mentor.ieee.org/802.11/dcn/19/11-19-2156-22-000m-revmd-sponsor-ballot-comments.xls>
5. <https://mentor.ieee.org/802.11/dcn/20/11-20-1413-04-000m-sa2-proposed-resolutions-for-editor-adhoc-and-others.doc>
6. <https://mentor.ieee.org/802.11/dcn/20/11-20-0177-02-0arc-liaison-to-revmd-on-ess.docx>
7. <https://mentor.ieee.org/802.11/dcn/20/11-20-1313-05-000m-bss-max-idle-period-negotiation-enhancements-for-non-s1g-phys.docx>
8. <https://mentor.ieee.org/802.11/dcn/20/11-20-1313-06-000m-bss-max-idle-period-negotiation-enhancements-for-non-s1g-phys.docx>

**2. September 15:**

1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1366-03-000m-2020-september-interim-tgmd-agenda.pptx>
2. <https://mentor.ieee.org/802.11/dcn/20/11-20-0435-15-000m-resolutions-for-some-comments-on-11md-d3-0-sb1.docx>
3. <https://mentor.ieee.org/802.11/dcn/20/11-20-1433-03-000m-s1g-mac-resolution-to-cid5017.docx>
4. <https://mentor.ieee.org/802.11/dcn/20/11-20-1454-01-000m-s1g-gen-resolution-to-cid5018.docx>
5. <https://mentor.ieee.org/802.11/dcn/20/11-20-1454-02-000m-s1g-gen-resolution-to-cid5018.docx>
6. <https://mentor.ieee.org/802.11/dcn/20/11-20-1471-00-000m-s1g-gen-resolution-to-cid5016.docx>
7. <https://mentor.ieee.org/802.11/dcn/20/11-20-1313-08-000m-bss-max-idle-period-negotiation-enhancements-for-non-s1g-phys.docx>
8. <https://mentor.ieee.org/802.11/dcn/20/11-20-0177-04-0arc-liaison-to-revmd-on-ess.docx>
9. <https://mentor.ieee.org/802.11/dcn/20/11-20-1104-03-000m-proposed-changes-in-scs-10-23-2-2-and-10-23-2-9.docx>
10. <https://mentor.ieee.org/802.11/dcn/20/11-20-1366-04-000m-2020-september-interim-tgmd-agenda.pptx>

**3. September 16:**

1. <https://mentor.ieee.org/802.11/dcn/20/11-20-1366-04-000m-2020-september-interim-tgmd-agenda.pptx>
2. Teleconference minutes:
   1. August 3-7: <https://mentor.ieee.org/802.11/dcn/20/11-20-1183-04-000m-telecon-minutes-for-revmd-crc-aug-3-7-2020.docx>
   2. August 19: <https://mentor.ieee.org/802.11/dcn/20/11-20-1251-00-000m-telecon-minutes-for-revmd-crc-aug-19-2020.docx>
   3. August 21-26: <https://mentor.ieee.org/802.11/dcn/20/11-20-1325-01-000m-telecon-minutes-for-revmd-crc-aug-21-and-aug-26-2020.docx>
   4. September 2-4: <https://mentor.ieee.org/802.11/dcn/20/11-20-1390-01-000m-telecon-minutes-for-revmd-crc-sept-2-and-sept-4-2020.docx>
   5. September 8-9-11: <https://mentor.ieee.org/802.11/dcn/20/11-20-1432-03-000m-telecon-minutes-for-revmd-crc-sept-8-9-and-10-2020.docx>
3. <https://mentor.ieee.org/802.11/dcn/20/11-20-1412-02-000m-revmd-sa2-comments-for-editor-ad-hoc.xlsx>
4. <https://mentor.ieee.org/802.11/dcn/19/11-19-2160-15-000m-revmd-editor2-standards-association-ballot-comments.xlsx>
5. <https://mentor.ieee.org/802.11/dcn/20/11-20-1438-03-000m-sa-ballot-recirc-1-revmd-gen-comments.xls>
6. <https://mentor.ieee.org/802.11/dcn/17/11-17-0927-65-000m-revmd-mac-comments.xls>
7. <https://mentor.ieee.org/802.11/dcn/20/11-20-0227-04-000m-pifs-for-beacons.pptx>
8. <https://mentor.ieee.org/802.11/dcn/20/11-20-1475-00-000m-sa2-cids-5009-5010-5011.docx>
9. <https://mentor.ieee.org/802.11/dcn/20/11-20-1493-00-000m-some-sa2-sae-comments.docx>
10. <https://mentor.ieee.org/802.11/dcn/20/11-20-0435-15-000m-resolutions-for-some-comments-on-11md-d3-0-sb1.docx>
11. <https://mentor.ieee.org/802.11/dcn/20/11-20-1313-08-000m-bss-max-idle-period-negotiation-enhancements-for-non-s1g-phys.docx>

**IMAT Attendance Reports:**

**Attendance Sept 14**

About 80 attendees reported by WebEx for Monday Sept 14

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | TGmd | 9/14 | An, Song-Haur | INDEPENDENT |
|  | TGmd | 9/14 | Asterjadhi, Alfred | Qualcomm Incorporated |
|  | TGmd | 9/14 | Au, Kwok Shum | Huawei Technologies Co., Ltd |
|  | TGmd | 9/14 | Baik, Eugene | Qualcomm Incorporated |
|  | TGmd | 9/14 | Batra, Anuj | Apple, Inc. |
|  | TGmd | 9/14 | Berner, Stephan | pureLiFi |
|  | TGmd | 9/14 | Bredewoud, Albert | Broadcom Corporation |
|  | TGmd | 9/14 | Cariou, Laurent | Intel Corporation |
|  | TGmd | 9/14 | Chayat, Naftali | Vayyar Imaging |
|  | TGmd | 9/14 | Cheng, Paul | MediaTek Inc. |
|  | TGmd | 9/14 | Coffey, John | Realtek Semiconductor Corp. |
|  | TGmd | 9/14 | Dash, Debashis | Apple, Inc. |
|  | TGmd | 9/14 | Derham, Thomas | Broadcom Corporation |
|  | TGmd | 9/14 | Eitan, Alecsander | Qualcomm Incorporated |
|  | TGmd | 9/14 | ElSherif, Ahmed | Qualcomm Incorporated |
|  | TGmd | 9/14 | Gan, Ming | Huawei Technologies Co. Ltd |
|  | TGmd | 9/14 | Hamilton, Mark | Ruckus Wireless |
|  | TGmd | 9/14 | HAN, CHONG | pureLiFi |
|  | TGmd | 9/14 | Hansen, Christopher | Covariant Corporation |
|  | TGmd | 9/14 | Ikegami, Tetsushi | Meiji University |
|  | TGmd | 9/14 | Jiang, Jeng-Shiann | Vertexcom Technologies |
|  | TGmd | 9/14 | JONES, JEFFRUM | Qorvo |
|  | TGmd | 9/14 | Jones, Vincent Knowles IV | Qualcomm Incorporated |
|  | TGmd | 9/14 | Kakani, Naveen | Qualcomm Incorporated |
|  | TGmd | 9/14 | Kamel, Mahmoud | InterDigital, Inc. |
|  | TGmd | 9/14 | Kandala, Srinivas | SAMSUNG |
|  | TGmd | 9/14 | Kasher, Assaf | Qualcomm Incorporated |
|  | TGmd | 9/14 | Kedem, Oren | Intel Corporation |
|  | TGmd | 9/14 | Kim, Jeongki | LG ELECTRONICS |
|  | TGmd | 9/14 | Kim, Sang Gook | LG ELECTRONICS |
|  | TGmd | 9/14 | Kim, Youhan | Qualcomm Incorporated |
|  | TGmd | 9/14 | Lalam, Massinissa | SAGEMCOM SAS |
|  | TGmd | 9/14 | Lansford, James | Qualcomm Incorporated |
|  | TGmd | 9/14 | Levy, Joseph | InterDigital, Inc. |
|  | TGmd | 9/14 | Liu, Der-Zheng | Realtek Semiconductor Corp. |
|  | TGmd | 9/14 | Liu, Jianhan | MediaTek Inc. |
|  | TGmd | 9/14 | Liu, Yong | Apple, Inc. |
|  | TGmd | 9/14 | Lopez, Miguel | Ericsson AB |
|  | TGmd | 9/14 | Lou, Hanqing | InterDigital, Inc. |
|  | TGmd | 9/14 | Malinen, Jouni | Qualcomm Incorporated |
|  | TGmd | 9/14 | Mirfakhraei, Khashayar | Cisco Systems, Inc. |
|  | TGmd | 9/14 | Montemurro, Michael | Self |
|  | TGmd | 9/14 | Nam, Junyoung | Qualcomm Incorporated |
|  | TGmd | 9/14 | NANDAGOPALAN, SAI SHANKAR | Cypress Semiconductor Corporation |
|  | TGmd | 9/14 | Naribole, Sharan | SAMSUNG |
|  | TGmd | 9/14 | Nguyen, An | DHS/CISA/ECD |
|  | TGmd | 9/14 | Oyama, Satoshi | Association of Radio Industries and Businesses (ARIB) |
|  | TGmd | 9/14 | Pare, Thomas | MediaTek Inc. |
|  | TGmd | 9/14 | Petrick, Albert | Jones-Petrick and Associates, LLC. |
|  | TGmd | 9/14 | Pirhonen, Riku | NXP Semiconductors |
|  | TGmd | 9/14 | Qi, Emily | Intel Corporation |
|  | TGmd | 9/14 | Rai, Kapil | Qualcomm Incorporated |
|  | TGmd | 9/14 | RISON, Mark | Samsung Cambridge Solution Centre |
|  | TGmd | 9/14 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
|  | TGmd | 9/14 | Sand, Stephan | German Aerospace Center (DLR) |
|  | TGmd | 9/14 | Sandhu, Shivraj | Qualcomm Incorporated |
|  | TGmd | 9/14 | Segev, Jonathan | Intel Corporation |
|  | TGmd | 9/14 | Serafimovski, Nikola | pureLiFi |
|  | TGmd | 9/14 | Sherlock, Ian | Texas Instruments Incorporated |
|  | TGmd | 9/14 | Smely, Di Dieter | Kapsch TrafficCom AG |
|  | TGmd | 9/14 | Smith, Graham | SR Technologies |
|  | TGmd | 9/14 | Srinivasan, Shree Raman | Qualcomm Incorporated |
|  | TGmd | 9/14 | Stanley, Dorothy | Hewlett Packard Enterprise |
|  | TGmd | 9/14 | Stavridis, Athanasios | Ericsson AB |
|  | TGmd | 9/14 | Stephens, Adrian | Self |
|  | TGmd | 9/14 | Sun, Bo | ZTE Corporation |
|  | TGmd | 9/14 | Sun, Yanjun | Qualcomm Incorporated |
|  | TGmd | 9/14 | Tian, Bin | Qualcomm Incorporated |
|  | TGmd | 9/14 | Tian, Tao | Unisoc Comm. |
|  | TGmd | 9/14 | Turkmen, Halise | IMU; Vestel |
|  | TGmd | 9/14 | Vermani, Sameer | Qualcomm Incorporated |
|  | TGmd | 9/14 | Wang, Chao Chun | MediaTek Inc. |
|  | TGmd | 9/14 | Wang, Huizhao | Quantenna Communications, Inc. |
|  | TGmd | 9/14 | Ward, Lisa | Rohde & Schwarz |
|  | TGmd | 9/14 | Wentink, Menzo | Qualcomm Incorporated |
|  | TGmd | 9/14 | Xue, Ruifeng | Cisco Systems, Inc. |
|  | TGmd | 9/14 | Yang, Mao | Northwestern Polytechnical University |
|  | TGmd | 9/14 | YANG, RUI | InterDigital, Inc. |
|  | TGmd | 9/14 | yi, yongjiang | Futurewei Technologies |
|  | TGmd | 9/14 | Zhang, Yan | NXP Semiconductors |

**Attendance Sept 15**

About 46 attendees reported by WebEx for Tuesday Sept 15

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | TGmd | 9/15 | Asterjadhi, Alfred | Qualcomm Incorporated |
|  | TGmd | 9/15 | Au, Kwok Shum | Huawei Technologies Co., Ltd |
|  | TGmd | 9/15 | CHERIAN, GEORGE | Qualcomm Incorporated |
|  | TGmd | 9/15 | Derham, Thomas | Broadcom Corporation |
|  | TGmd | 9/15 | DOAN, DUNG | Qualcomm Incorporated |
|  | TGmd | 9/15 | Dogukan, Ali | Vestel |
|  | TGmd | 9/15 | ElSherif, Ahmed | Qualcomm Incorporated |
|  | TGmd | 9/15 | Ghosh, Chittabrata | Intel Corporation |
|  | TGmd | 9/15 | Haider, Muhammad Kumail | Facebook |
|  | TGmd | 9/15 | Hamilton, Mark | Ruckus Wireless |
|  | TGmd | 9/15 | Hart, Brian | Cisco Systems, Inc. |
|  | TGmd | 9/15 | Kakani, Naveen | Qualcomm Incorporated |
|  | TGmd | 9/15 | Kang, Sugbong | Apple, Inc. |
|  | TGmd | 9/15 | Kim, Youhan | Qualcomm Incorporated |
|  | TGmd | 9/15 | Kwon, Young Hoon | NXP Semiconductors |
|  | TGmd | 9/15 | Levy, Joseph | InterDigital, Inc. |
|  | TGmd | 9/15 | Li, Qinghua | Intel Corporation |
|  | TGmd | 9/15 | Lindskog, Erik | SAMSUNG |
|  | TGmd | 9/15 | Malinen, Jouni | Qualcomm Incorporated |
|  | TGmd | 9/15 | Montemurro, Michael | Self |
|  | TGmd | 9/15 | Nam, Junyoung | Qualcomm Incorporated |
|  | TGmd | 9/15 | Naribole, Sharan | SAMSUNG |
|  | TGmd | 9/15 | Palm, Stephen | Broadcom Corporation |
|  | TGmd | 9/15 | Pare, Thomas | MediaTek Inc. |
|  | TGmd | 9/15 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
|  | TGmd | 9/15 | Petrick, Albert | Jones-Petrick and Associates, LLC. |
|  | TGmd | 9/15 | Qi, Emily | Intel Corporation |
|  | TGmd | 9/15 | Rai, Kapil | Qualcomm Incorporated |
|  | TGmd | 9/15 | Rezk, Meriam | Qualcomm Incorporated |
|  | TGmd | 9/15 | RISON, Mark | Samsung Cambridge Solution Centre |
|  | TGmd | 9/15 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
|  | TGmd | 9/15 | Sandhu, Shivraj | Qualcomm Incorporated |
|  | TGmd | 9/15 | Segev, Jonathan | Intel Corporation |
|  | TGmd | 9/15 | Sherlock, Ian | Texas Instruments Incorporated |
|  | TGmd | 9/15 | Smith, Graham | SR Technologies |
|  | TGmd | 9/15 | Srinivasan, Shree Raman | Qualcomm Incorporated |
|  | TGmd | 9/15 | Stanley, Dorothy | Hewlett Packard Enterprise |
|  | TGmd | 9/15 | Tian, Tao | Unisoc Comm. |
|  | TGmd | 9/15 | Torab Jahromi, Payam | Facebook |
|  | TGmd | 9/15 | Wang, Pu | Mitsubishi Electric Research Labs (MERL) |
|  | TGmd | 9/15 | Want, Roy | Google |
|  | TGmd | 9/15 | Wentink, Menzo | Qualcomm Incorporated |
|  | TGmd | 9/15 | Wu, Kanke | Qualcomm Incorporated |
|  | TGmd | 9/15 | Xue, Qi | Qualcomm Incorporated |
|  | TGmd | 9/15 | yi, yongjiang | Futurewei Technologies |
|  | TGmd | 9/15 | Yona, Yair | Qualcomm Incorporated |

**Attendance Sept 16**

About 58 attendees reported by WebEx for Tuesday Sept 15

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | TGmd | 9/16 | Andersdotter, Amelia | None - Self-funded |
|  | TGmd | 9/16 | Asterjadhi, Alfred | Qualcomm Incorporated |
|  | TGmd | 9/16 | Au, Kwok Shum | Huawei Technologies Co., Ltd |
|  | TGmd | 9/16 | Au, Oscar | Origin Wireless |
|  | TGmd | 9/16 | Berkema, Alan | HP Inc. |
|  | TGmd | 9/16 | Bims, Harry | Bims Laboratories, Inc. |
|  | TGmd | 9/16 | Coffey, John | Realtek Semiconductor Corp. |
|  | TGmd | 9/16 | Davies, Robert | Signify |
|  | TGmd | 9/16 | Derham, Thomas | Broadcom Corporation |
|  | TGmd | 9/16 | DOAN, DUNG | Qualcomm Incorporated |
|  | TGmd | 9/16 | Dogukan, Ali | Vestel |
|  | TGmd | 9/16 | ElSherif, Ahmed | Qualcomm Incorporated |
|  | TGmd | 9/16 | Ghosh, Chittabrata | Intel Corporation |
|  | TGmd | 9/16 | Goodall, David | Morse Micro |
|  | TGmd | 9/16 | Haider, Muhammad Kumail | Facebook |
|  | TGmd | 9/16 | Hamilton, Mark | Ruckus Wireless |
|  | TGmd | 9/16 | Kakani, Naveen | Qualcomm Incorporated |
|  | TGmd | 9/16 | Kandala, Srinivas | SAMSUNG |
|  | TGmd | 9/16 | Kim, Youhan | Qualcomm Incorporated |
|  | TGmd | 9/16 | Lee, Il-Gu | Sungshin University |
|  | TGmd | 9/16 | Levy, Joseph | InterDigital, Inc. |
|  | TGmd | 9/16 | Li, Qinghua | Intel Corporation |
|  | TGmd | 9/16 | Lindskog, Erik | SAMSUNG |
|  | TGmd | 9/16 | Lou, Hanqing | InterDigital, Inc. |
|  | TGmd | 9/16 | Malinen, Jouni | Qualcomm Incorporated |
|  | TGmd | 9/16 | McGuire, Colin | The MathWorks, Inc. |
|  | TGmd | 9/16 | Montemurro, Michael | Self |
|  | TGmd | 9/16 | Myles, Andrew | Cisco Systems, Inc. |
|  | TGmd | 9/16 | Nam, Junyoung | Qualcomm Incorporated |
|  | TGmd | 9/16 | NANDAGOPALAN, SAI SHANKAR | Cypress Semiconductor Corporation |
|  | TGmd | 9/16 | Nguyen, An | DHS/CISA/ECD |
|  | TGmd | 9/16 | Palm, Stephen | Broadcom Corporation |
|  | TGmd | 9/16 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
|  | TGmd | 9/16 | Perkins, Richard | Qorvo |
|  | TGmd | 9/16 | Petrick, Albert | Jones-Petrick and Associates, LLC. |
|  | TGmd | 9/16 | Purwita, Ardimas | University of Edinburgh |
|  | TGmd | 9/16 | Qi, Emily | Intel Corporation |
|  | TGmd | 9/16 | Rai, Kapil | Qualcomm Incorporated |
|  | TGmd | 9/16 | Rezk, Meriam | Qualcomm Incorporated |
|  | TGmd | 9/16 | RISON, Mark | Samsung Cambridge Solution Centre |
|  | TGmd | 9/16 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
|  | TGmd | 9/16 | Sarris, Ioannis | u-blox |
|  | TGmd | 9/16 | Segev, Jonathan | Intel Corporation |
|  | TGmd | 9/16 | Seok, Yongho | MediaTek Inc. |
|  | TGmd | 9/16 | Sherlock, Ian | Texas Instruments Incorporated |
|  | TGmd | 9/16 | Smely, Di Dieter | Kapsch TrafficCom AG |
|  | TGmd | 9/16 | Smith, Graham | SR Technologies |
|  | TGmd | 9/16 | Srinivasan, Shree Raman | Qualcomm Incorporated |
|  | TGmd | 9/16 | Stacey, Robert | Intel Corporation |
|  | TGmd | 9/16 | Stanley, Dorothy | Hewlett Packard Enterprise |
|  | TGmd | 9/16 | Tian, Tao | Unisoc Comm. |
|  | TGmd | 9/16 | Torab Jahromi, Payam | Facebook |
|  | TGmd | 9/16 | Want, Roy | Google |
|  | TGmd | 9/16 | Wentink, Menzo | Qualcomm Incorporated |
|  | TGmd | 9/16 | Wu, Kanke | Qualcomm Incorporated |
|  | TGmd | 9/16 | Yang, Jay | Nokia |
|  | TGmd | 9/16 | Yee, Peter | NSA-CSD |
|  | TGmd | 9/16 | yi, yongjiang | Futurewei Technologies |