IEEE P802.11  
Wireless LANs

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| Minutes of the IEEE P802.11 Full Working Group | | | | |
| Date: 2019-05-13 | | | | |
| Author(s): | | | | |
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Abstract

This document constitutes the minutes of the IEEE 802.11 full working group for the May 2019, Atlanta, Georgia, USA meeting.

Please note that all affiliations at this meeting are shown in Annex A.

**IEEE 802 Wireless Interim Meeting – Joint Opening Plenary**

**Atlanta, Georgia, USA**

**May 13 - 17, 2019**

**8:02** **802.11, 802.15, 802.18, 802.19, and 802.21 Chairs called the joint meeting to order**.

B Heile (Decawave) read the IEEE 802 Wireless Top 10 prepared by the meeting organizer for the attendees of this session.

**General announcements:**

• No photography, no audio recording

• Don’t forget, book your room and register for July’s session

Straw Poll of new attendees: 0 (although 14 have registered for this session)

**8:10 IEEE patent policy**

802.15 WG chair read the IEEE-SA instructions and displayed the four slides explaining patent policy and informed the attendees that additional information could be found on the PatCom web site: (https://standards.ieee.org/about/sasb/patcom/materials.html).

802.15 WG chair read IEEE anti-trust policy. (http://standards.ieee.org/develop/policies/antitrust.pdf)

**8:15 Financial report** by J Rosdahl (Qualcomm) doc ec-19-0066-00

Total liabilities and equity $695,197.21 (not including this meeting)

The number of people who are currently registered at this meeting is 293

**8:20 Wireless and IMAT announcements** by R Alfvin (Linespeed)

• Information can be found at ieee802.linspeed.io

**8:21** **WG15 Chair** informed the group that the Wireless Chairs Standing Committee (WCSC) met yesterday, Sunday at 16:00 local time. Chair noted that this is an open meeting, all are encouraged to attend. Minutes are available at https://mentor.ieee.org/802-ec/dcn/19/ec-19-0072-00-WCSG-atlanta-may-2019-minutes.docx

**8:23 Review future sessions**

• July 14-19, 2019, Austria Congress Centre, Vienna, Austria, 802 Plenary Session

• September 15-20, 2019 - Marriott Hanoi, Hanoi, Vietnam

• November 10-15, 2019, Hilton Waikoloa Village, Kona, HI, USA, 802 Plenary Session

• January 12-17, 2020, Hotel Irvine, Irvine, California, USA

• March 15-20, 2020, Hilton Atlanta, Atlanta Georgia, USA, 802 Plenary Session

• May 10-15, 2020, Marriott Hotel, Warsaw, Poland, 802 Wireless Interim Session\* (TBC)

• Future venues 2020 Lisbon Marriott, Budapest Marriott, Vienna Hilton, Athens Hilton, Sorrento Hilton, JW Bucharest

**8:30 Working Group Updates**

802.11 by Dorothy Stanley (HPE), (11-19-0566-00)

• voters: 329, potential voters 20, aspirant 110

802.15 by B Heile (Decawave)

• voters: 92, potential voters 7, aspirant 15

• TG4md 15.4 revision

• TG 15.4w Low Power Wide Area (LPWA)

• TG 15.4y Security Next Generation (SECN)

• TG 15.4z Enhanced impulse radio (EIR)

• TG12 Upper Layer Interface (ULI) for 802.15.4

• TG13 Multi-Gigabit OWC

802.18 by J Holcomb (Itron) (18-19-0061-00)

• voters: 42, potential voters 3, aspirant 18

• Focus on FCC ex-parte of 5GAA request to forward looking https://www.fcc.gov/ecfs/search/filings?proceedings\_name=18-357&sort=date\_disseminated,DESC

802.19 S Shellhammer (Qualcomm) (19-19-0030-00)

• Voters 42

• J Rosdahl had request to modify document 19-19-0024 to avoid changing baseline document

802.21 Subir Das (Perspectalabs) (21-18-0038-00)

• 11 voters, 1 aspirant

802.24 Tim Godfrey (EPRI) (24-19-0012-00)

• 26 voters

• White Paper projects:

o Application-specific use cases of Sub 1GHz standards 802.15.4g and 802.11ah

o Low latency

o 'Network Enablers for Seamless HMD-based VR (Virtual Reality)’

• Update on P2413 liaison

**AoB**

**8:43** Joint meeting adjourned

**IEEE 802.11 Interim Meeting – Session #175**

**Atlanta, Georgia, USA**

**May 13th – 17th, 2019**

**IEEE 802.11 Opening Plenary, Monday 13th May 2019**

Presiding chair: Dorothy Stanley (Hewlett Packard Enterprise) opened the meeting at 09:05 Eastern Daylight Time (EDT) and declared quorum for the Session.

2nd Vice-chair (VC2): Robert Stacey Intel Corporation

1st Vice-chair (VC1): Jon Rosdahl Qualcomm

Secretary: Stephen McCann BlackBerry Ltd.

There are 329 voting members and 11 Ex Officio voters of IEEE 802.11\*

There were 178 people in the room

\*11 who ask to be recognized as such in the 802.11 voters list.

1. **Notices** (11-19-0566r1)
   1. No photographs at this meeting and please turn your mobiles to vibrate.
   2. Chair: Are there any members of the press present.
      1. None
2. **Approve/modify working group agenda** (11-19-0565r1)
   1. This is a summary of all room allocations for the week. Please note that the WNG SC and TGbe will share the Tuesday AM1 slot in the same room.
   2. Chair: I suggest we approve this agenda.
   3. Changes to agenda graphic:
      1. There have been several changes made from last night’s CAC.
   4. **Move to approve the agenda 11-19-0565r1 (“Agenda Graphic” tab and the “WG11” tab Monday agenda)**
      1. Moved: Al Petrick, 2nd: Ian Sherlock
      2. No objection to approving by unanimous consent
3. **March 2019 WG Minutes**
   1. **Move to approve the Vancouver March 2019 WG minutes document 11-19-0421r1**
   2. Moved: Stephen McCann, 2nd: Nikola Serafimovski
   3. Following neither discussion nor dissent the minutes were approved by unanimous consent.
4. **Attendance**
   1. Welcome to the 6 new participants in this meeting.
   2. Chair: Please note that Stephen McCann (Secretary) will be holding a new members’ session at 10:30am.
5. **Call for essential Patents** (11-19-0539r0)
   1. VC2: read out the current PatCom rules, and then called for essential patents information, as shown by:
   2. <https://development.standards.ieee.org/myproject/Public/mytools/mob/patut.pdf>
      1. There were no issues raised regarding the call for essential patents. There was no response to the call for essential patents.
   3. VC2: The slide about IEEE 802 meeting participation was also read.
   4. VC2: Read out other policies and procedures for the meeting. Please note the slide about the valid abstain response in ballots.
   5. VC1: Please contact the VC1 if you have a typo in any document titles or wish to remove a document number. They can assist with changing document parameters.
6. **Announcements** (11-19-0566r1)
   1. **Liaisons** (slide #4)
      1. Chair: There are 4 liaisons that have been received since the last meeting that will be considered this week.
      2. Response from 3GPP RAN1 on use of no/short LBT, see <https://mentor.ieee.org/802.11/dcn/19/11-19-0663-01-0000-2019-april-liaison-from-ran1-on-the-use-of-no-short-lbt.docx>
      3. CITS Liaison, see <https://mentor.ieee.org/802.11/dcn/19/11-19-0636-00-0000-2019-04-cits-liaison.docx>
      4. ITU-T FG VM Liaison, see <https://mentor.ieee.org/802.11/dcn/19/11-19-0852-00-0000-2019-04-fg-vm-liaison.docx>
      5. Response from 3GPP RAN re: certain channel combinations for LAA, see <https://mentor.ieee.org/802.11/dcn/19/11-19-0563-00-0000-liaison-from-3gpp-ran-re-certain-channel-combinations-for-laa-in-5ghz.docx>
   2. **EC and standard board decisions** (slides #5 & #6)
      1. Chair: The EC approved the following items on the slides.
7. **Logistics and Key events/activities**
   1. **Working group session documents** (11-19-0566r1 slide #7)
   2. **M3.1 and M3.2: Joint meetings & reciprocal credit with IEEE 802 groups** (slides #9, #10)

Reminder that there are topics relevant to IEEE 802.11 to be covered in IEEE 802.18, IEEE 802.19 and some of the other IEEE 802 groups.

* 1. **M3.3 Other WG meeting plans** (11-19-0612r0 slides #4 - #7)
     1. This slide shows information about other WG meetings, future meetings and logistics this week.
     2. Please use the online schedule for the room allocations this week.
     3. Please remember to record your attendance for each 2 hour slot during the week.
     4. VC1: this slide deck shows information about other WG meetings, future meetings and logistics this week.
  2. **“Top 10” items for the week** (11-19-0612r0 slide #8)
     1. Please note that this week is the 20th anniversary of IEEE 802.15 and everyone should have received a celebration badge holder this week.
     2. Each registered attendee should have all received the “top 10” items email about this week.
     3. **M3.4** - Slide #9 shows the details of how to find the current meetings schedule and the on-line version is the one that is the most up to date. It also includes a floor plan of the meeting area within the hotel. Most of the IEEE 802.11 meetings are on this level (lower lobby). Please note that a couple of meetings are being held on the 3rd floor of the hotel.
     4. Slide #11 describes the social on Wednesday.
     5. Linespeed are managing most of the projectors this week, except for those in the large ballroom. Please can you all remember to power them down at the end of each meeting. They have a network helpdesk outside in the hallway area.
  3. **M3.6 Meeting registration (**11-19-0612r0 slide #10)
     1. There are about 294 registered people for this week’s IEEE 802 meeting.
  4. **M3.7 Recording attendance** (11-19-0612r0 slide #10)
  5. **M3.8 Local File Document Server information** (11-19-0612r0 slide #11)
     1. If you want to synchronize all the documents on mentor, please use the local server and not the external link. The IT support company this week is Linespeed, so please note the new SSID, links and URLs.
  6. **M3.9 Next meeting reminder** (11-19-0612r0 slide #18)
     1. Next IEEE 802 Plenary: July 14th – 19th, 2019, Vienna, Austria
     2. Registration is now open and there are 4 hotels within a few minutes’ walk of the convention centre.
     3. Please note the special information about the September 2019 meeting in Hanoi, Vietnam. A reduction of the room rate contract can be achieved if everyone books early and also there will be a link for the Vietnamese e-Visa that most people will require.

1. **Status of all groups** (11-19-0566r1)
   1. **Group summary** (slide #12)
      1. Chair: This is a review of the current IEEE 802.11 groups, including the new task groups 11be (Extremely High Throughput).
   2. **Sub-Group Officer Status** (slide #15)
      1. Chair: Please note the changes to sub-group officers for this week.
   3. **Summary of Ballots** (slide #18)
      1. There have been no letter ballots between the March 2019 meeting and now.
   4. **Timeline**
      1. There will be an update to the timeline chart to add a new entry for TGbe following the close of this week’s meeting.
2. **Group Summaries** (11-19-0537r0)
   1. Special notes were mentioned for the following groups:
   2. **Editor’s meeting and ANA**
      1. Tomorrow morning at 7.00am, including the ANA status, style guides and numbering situation.
   3. **AANI**
      1. There are 4 sessions this week, to cover all the work within this group. Nufront has invited IEEE 802.11 to create a joint proposal to submit an IMT-2020 proposal to ITU-R WP5D based on 802.11ax. AANI will discuss this opportunity this week.
   4. **PAR SC**
      1. Not meeting this week.
   5. **WNG**
      1. There is 1 submission for WNG this week.
      2. Comment (C): I’d just like to point out that there is a typo on the WNG slide regarding the affiliation of the submission authors.
   6. **JTC1**
      1. Review JTC1/SC6 status.
   7. **Co-ex**
      1. Will continue discussions about the 3GPP/IEEE 802.11 joint workshop during the July 2019 IEEE 802 plenary discussing topics regarding 6 GHz radio operation. Please note that this is a separate meeting and has separate registration from the main IEEE 802 meeting.
   8. **TGbe**
      1. This is the first face to face meeting of this new task group.
   9. **RCM (Random and Changing MAC address) TIG**
      1. This is the first face to face meeting of this new TIG.
3. **Comment Ballot Resolution Resources** (11-19-0566r1 slide #20)
   1. Chair: please note that there are these resources to assist with comment ballot resolutions, which I encourage all members to review.
4. **Working Group Motions** (11-19-0538r0)
   1. **TGbe chair confirmation** (slide #4)
      1. **Confirm Alfred Asterjadhi as TGbe chair**
      2. Moved: Mike Montemurro, Second: Bo Sun
      3. No objection to approving by acclamation.
   2. **RCM TIG chair confirmation** (slide #5)
      1. **Confirm Amelia Andersdotter as RCM TIG chair**
      2. Moved: Marc Emmelmann, Second: Bo Sun
      3. No objection to approving by acclamation.
5. **Recess**
   1. Meeting recessed at 10:07 EDT.

**Wednesday, 15th May 2019**

**IEEE 802.11 Mid-Week Plenary**

Presiding chair: Dorothy Stanley (HPE) opened the meeting at 10:33 EDT.

Secretary: Stephen McCann BlackBerry Ltd.

172 people present.

1. **Approve/modify working group agenda** (11-19-0565r2)
   1. Chair: There are a couple of minor changes to the agenda fixing links and various items.
   2. C: regarding the privacy item in the agenda, this is also being discussed in TGaz. I feel that this is a similar topic and I have concerns about it. I object to this item in agenda.
   3. Chair: This agenda item is in order. Let’s proceed to the agenda approval motion first.
   4. **Move to approve the agenda 11-19-0565r2**
      1. Moved: Al Petrick, 2nd: Qi Wang
      2. C: I object to item 5.2 in the agenda.
      3. C: The topic is discussed in document 11-19-0898r0 and I think that the issue about user privacy should be brought to the whole IEEE 802.11 membership. It’s not just an TGaz isolated issue.
      4. Question (Q): It appears that this is a topic from TGaz that does not have agreement in TGaz. Therefore, does this topic reflect both sides of the TGaz discussion.
      5. Answer (A): It summarizes the discussion within TGaz and does reference all the relevant material.
      6. C: This item discusses a comment from the March 2019 TGaz letter ballot, so it’s only being discussed for a short time and I feel that presenting in this meeting is premature. Task groups should be resolving issues from letter ballots themselves.
      7. Chair: This is an information item and there will be no motions.
      8. C: This is very important topic and appears to have been added to the IEEE 802.11 agenda quite recently. I’d like more time to review this.
      9. Chair: It was notified in good time.
      10. C: Ok, but the document 11-19-0898r0 has only just been uploaded to the server.
      11. C: The request for agenda time in this meeting was made last week.
      12. For: 44, Against: 49, Abstain: 34 (Motion fails)
      13. Chair: I will now prepare a revised agenda, removing item 5.2
   5. **Move to approve the agenda 11-19-0565r3**
      1. Moved: Jeremy Foland, 2nd: Dan Harkins
      2. For: 80, Against: 8, Abstain: 21 (Motion passes)
2. **Call for Essential Patents** (11-19-0567r0)
   1. The chair read out the Potentially Essential Patents slide.
   2. No statements were made.
   3. Please remember that everyone here is participating as an individual.
3. **CAC**
   1. Reminder about 19.30 EDT meeting on Thursday. The purpose of this meeting is to prepare for the Friday closing plenary. This is an open meeting and everyone is welcome to attend.
4. **Meeting Decorum**
   1. Chair: Please remember that professional behavior is expected in all the IEEE 802.11 meetings and no photographs are allowed.
   2. No questions
5. **Announcements**
   1. **Comment Resolution resources**
   2. Remember that there are comment resolution resources to assist you when working on comment resolutions.
   3. **IEEE 802.11 presentations page**
   4. Note that this page has been updated with some new material:
   5. <http://grouper.ieee.org/groups/802/11/presentation.html>
   6. This is for all members to use as a resource.
   7. Chair: In the next few weeks, there will be more material added regarding how IEEE 802.11 meets various 5G requirements.
   8. **Wednesday lunch**
   9. Lunch will be also served on the 3rd floor terrace today in addition to the usual ballroom location.
   10. **Social** (11-19-0612r0)
   11. The social on Wednesday evening will be held at the Fogo de Chao Brazilian Steakhouse that is about a 6 - 10 minute walk from this hotel.
6. **Wi-Fi Alliance Liaison** (11-19-0897r0)
   1. The Wi-Fi Alliance (WFA) last met in March 2019 in Shanghai, China.
   2. No questions
7. **IETF Liaison** (11-19-0878r0)
   1. This is report about the current IEEE 802.11 related activities within the IETF.
   2. The next meeting will be in July 2019 in Montreal, Canada.
   3. No questions
8. **IEEE 1609 Liaison** (11-19-0905r0)
   1. This is new liaison describing the IEEE 1609 working group activities. This is a project of the IEEE Vehicular Technology Society.
   2. There will be a close relationship between IEEE 1609 and IEEE 802.11bd moving forward, as IEEE 1609 addresses the upper layers above IEEE 802.11bd. There will be another joint teleconference before the IEEE 802 plenary.
   3. No questions
9. **IEEE 802.18** (11-19-0844r0)
   1. This is a summary of the IEEE 802.18 activities this week.
   2. No questions
10. **IEEE 802.19** (11-19-0904r0)
    1. This is a summary of the IEEE 802.19 activities this week.
    2. No questions
11. **Room assignment updates** (11-19-0565r3)
    1. Released rooms: TGbc Thurs AM2, one of the TGax Wed PM2 slots
    2. Required rooms: TGbd Wed PM2
    3. C: I would like to ask for agenda time regarding the WNG presentation from Tuesday.
    4. Chair: There is time in the closing plenary for this.
    5. C: Can we possibly have an extra slot for this topic, as some people will not be here in Friday.
    6. Chair: I don’t think that’s appropriate. I think the Friday plenary is the best time for this.
    7. **Motion to approve all of the above changes, with the updated room graphic included in an updated agenda**
       1. Moved: Michael Fischer, 2nd: Bo Sun
       2. C: I object to the unanimous consent.
       3. For: 121, Against: 0, Abstain: 2 (Motion passes)
12. **AANI proposal status** (11-19-0899r0)
    1. This is a summary of recent activity within the AANI standing committee.
    2. The discussions will continue in the next AANI meeting on Thurs AM1 and PM2
    3. C: The contribution mentioned is document 11-19-0901r0
    4. No questions
13. **Working Group Motions** (11-19-0899r0)
    1. **Joint 802.11ax and EUHT IMT-2020 proposal**
       1. **Approve submitting a joint 802.11ax and EUHT IMT-2020 proposal**
       2. Moved: Prabodh Varshney, 2nd: Carlos Cordeiro
       3. C: I speak against this motion. There are no contributions so far on this topic.
       4. Q: Regarding the motion, there doesn’t appear to any document mentioned. Shouldn’t this be requesting permission to work on a topic.
       5. Chair: An IMT-2020 submission would require a separate document.
       6. C: I speak against the motion. 8 years ago, I attend an ISO meeting and at that time there were market place issues that had been recognized. Nothing has changed since then.
       7. C: I think this motion is out of order, as the motion does not specify any output.
       8. Chair: ok, I will consider this.
       9. C: I would like to have a motion to amend
          1. **Move to change the word “submitting” to “preparing”**
          2. Moved: Jon Rosdahl, 2nd: Nikola Serafimovski
          3. C: I would also state that this motion has no effect on the main motion.
          4. For: 92, Against: 0, Abstain: 12 (Motion passes)
       10. **Approve preparing a joint 802.11ax and EUHT IMT-2020 proposal**
       11. Moved: Prabodh Varshney, 2nd: Carlos Cordeiro
       12. C: I again state that this motion has no effect and should not occur. I request that this motion is ruled out of order.
       13. C: If this motion passes, then work on a document proceeds. If the motion fails, then no work is done.
       14. Chair: I have decided that the motion is still in order.
       15. C: This is essentially a vote of confidence in what the AANI SC is doing. This motion will provide information to the AANI SC as to what they are spending their time doing.
       16. C: The motion does not state which group is “preparing”. Therefore, I don’t think this affects the AANI SC work.
       17. For: 2, Against: 84, Abstain: 40 (Motion fails)
14. **Recess**
    1. Meeting recessed at 12.09 EDT

**Friday, 17th May 2019**

**IEEE 802.11 Closing Plenary**

Call to order at 08:00 EDT by Dorothy Stanley (HPE).

67 people present in the room.

1. **Approve/modify working group agenda** (11-19-0565r5)
   1. Chair: There have been some minor changes to the agenda from earlier this week.
   2. **Approve the agenda for the Friday meeting as shown in 11-19-0565r5**
      1. Moved: Joseph Levy, 2nd: Hiroshi Mano
      2. No objection to approving by unanimous consent.
2. **Call for Essential Patents** (11-19-0567r0 slide #5)
   1. Call for Essential Patents
   2. No statements
   3. No questions
3. **Announcements** (11-19-0567r0)
   1. **Participation**
      1. Please can you remember to read this slide and understand that everyone is here as an individual subject matter expert.
   2. **Chair’s minutes, reports and web pages**
      1. Please can you ensure that the sub-group minutes are on the server within 30 days after the close of this meeting. Please can you also send web-page and timeline updates to the secretary.
      2. The next meeting of IEEE 802.11 is in July 2019 in Vienna, Austria.
      3. Please be aware of the Chair’s schedule for the chair’s committee meetings (CAC), which are on 10th June and 8th July 2019 at noon ET.
   3. **ETSI ITS and liaison web-sites** (slide #13)
      1. No questions
   4. **Letters of Assurance (LoA)** (slide #14)
      1. Chair: please remember about the LoA requirements.
      2. There are two LoAs open at the moment.
      3. Q: Regarding these two LoA, they have been there for quite some time. Can they be resolved?
      4. Chair: I’m not sure as there is nothing I can do. I will try and check their status before the next face to face meeting.
   5. **IEEE Store and ISO SCG** (slides #15 and #16)
      1. No questions
   6. **Press Releases** (slide #17)
      1. The slide summarizes the recent IEEE 802.11 related press releases
      2. There will be a press release about the TGbe formation at some point.
4. **Current Venues** (11-19-0612r1 slide #26)
   1. **Straw Poll: How many people would like to come back to this venue?**
   2. Y: 45, N: 0
   3. **Would you be OK with meeting twice in Atlanta in 2020 (March and September)?**
   4. Y: 30, N: 16
   5. **How many people enjoyed the social?** Y: 38, N: 3
   6. **How many people went to the social?** Y: 45, N: 12
   7. C: The social was great, but the sit-down format was not so conducive to socialization (networking)
   8. **How many would like to return to the same social event, if we returned to this hotel in Atlanta?** Y: 23, N: 8
   9. **How many people would approve a meeting in Istanbul, Turkey at the Hilton Bosporus?**
   10. C: I think Istanbul is a great place, however the USA travel advisory suggests it is not a suitable place at the moment.
   11. Y: 45, N: 9
5. **Upcoming Venues** (11-19-0612r1 slides #27)
   1. VC1: This slide shows the future wireless interim and also IEEE 802 plenary locations. For the July 2019 meeting in Vienna, there is no single hotel. There are 4 hotels to choose between surrounding the convention center.
   2. For the Hanoi, September 2019 meeting, registration is not open. Please can you try and book your room early, as this will have a positive impact on the overall contract rate.
   3. Please note that there is now a requirement for a Vietnamese eVisa and do be careful about bogus Vietnamese eVisa web-sites.
   4. Please note that future venues are discussed at the IEEE 802 chairs’ meeting on Sunday afternoons at 4pm and at the start of each IEEE 802.11 face to face meeting. You are all welcome to come along.
6. **Treasury Report** (ec-19-0066-00)
   1. VC1: Please note that this is new single document for the treasurers’ report and is correct up to 30th April 2019: <https://mentor.ieee.org/802-ec/dcn/19/ec-19-0066-00-WCSG-wireless-treasurer-report-may-2019-atlanta.pptx>
   2. VC1: Slide #7 shows the break down for the separate budget of the July 2019 co-ex workshop. Please note that this is a separate event from the July IEEE 802 meeting and therefore is budgeted separately.
   3. There have been about 293 people here this week.
7. **Timelines**
   1. There are timeline updates for TGmd and TGax, with a new row for TGbe. The timeline chart will be updated over the weekend.
8. **Documentation & Attendance** (11-19-0540r1 slide #3)
   1. VC2: Here are the attendance statistics for this week.
9. **WG Committee Reports** (11-19-0540r1)
   1. **Technical editor** (slide #5)
      1. No questions
   2. **AANI Standing Committee** (slide #10)
      1. No questions
   3. **ARC Standing Committee** (slide #14)
      1. Please note that ARC is currently working on several issues and 802.11 members are invited to help out if they can.
      2. There appear to new uses of STAs appearing in TGbc and TGbe that need looking at.
      3. No questions
   4. **COEX Standing Committee** (slide #24)
      1. The Coex workshop in July 2019 was discussed. There are currently many presentations and whitepapers for the workshop.
      2. There will not be any Coex SC meetings within the 802.11 meeting itself in July 2019.
      3. No questions
   5. **WNG** **Standing Committee** (slide #28)
      1. There was 1 presentation this week:
         1. “Investigating the Compliance of Wireless Units with regulatory and normative requirements”, <https://mentor.ieee.org/802.11/dcn/19/11-19-0693-00-0wng-investigating-the-compliance-of-wireless-units-with-regulatory-and-normative-requirements.pptx>
      2. No questions
   6. **JTC1** **Standing Committee** (slide #31)
      1. Q: on slide #34, is IEEE 802.2 proposed to be withdrawn. This is because 802.11 references it.
      2. A: No
   7. **TGmd** (slide #36)
      1. No questions.
   8. **TGax** (slide #41)
      1. No questions
   9. **TGay** (slide #47)
      1. No questions
   10. **TGaz** (slide #52)
       1. No questions
   11. **TGba** (slide #57)
       1. No questions
   12. **TGbb** (slide #61)
       1. No questions
   13. **TGbc** (slide #67)
       1. No questions
   14. **TGbd** (slide #74)
       1. No questions
   15. **TGbe** (slide #84)
       1. This was the first meeting of TGbe this week.
       2. No questions
   16. **RCM (Random and Changing MAC address) TIG** (slide #89)
       1. This was the first meeting of RCM TIG this week.
       2. No questions
10. **Liaison Reports**
    1. **IEEE 802.15** (11-19-0540r1 slide #92)
       1. Q: regarding the abstain debate on slide #108, there is a rule from the IEEE 802 manual. So, is this potentially a new one in the 802.15 operational manual?
       2. A: Yes.
    2. **IEEE 802.18** (slide #110)
       1. No questions
    3. **IEEE 802.21** (slide #116)
       1. No questions
    4. **IEEE 802.24** (slide #120)
       1. No questions
11. **Working Group Motions (Old Business)** (11-19-0538r4)
    1. **Teleconferences** (slide #10)
       1. **Move to approve the following teleconferences**

|  |  |  |  |
| --- | --- | --- | --- |
| **Group** | **Date(s)** | **Start** | **Duration** |
| **CAC** | **Monday: June 10, July 8** | **Noon ET** | **1 hr** |
| **TGmd** | **Friday: (May 24), 31, June 21, 28** | **10:00 ET** | **2 hr** |
| **TGax** | **Thursday: (May 23), June 13, 27**  **Thursday: May 30, June 20** | **10:00 ET**  **20:00 ET** | **2 hr**  **2 hr** |
| **TGay** | **Wednesday: July 10** | **10:00 ET** | **1.5 hr** |
| **TGaz** | **Wednesday: (May 22), 29, June 5, 12, 19, July 10, 24** | **13:00 ET** | **1.5 hr** |
| **TGba** | **Monday: June 17** | **10:00 ET** | **1.5 hr** |
| **TGbb** | **Tuesday: May 27, June 11, 25** | **08:30 ET** | **1 hr** |
| **TGbc** | **Tuesday: June 11** | **10:00 ET** | **1 hr** |
| **TGbd** | **Tuesday: May 21, June 18, 25, Aug 6**  **Tuesday: June 4, Jul 2** | **10:00 ET**  **18:00 ET** | **2 hr**  **2 hr** |
| **TGbe** | **Thursday:**  **Thursday: June 13, May 30, June 27** | **11:00 ET**  **12:00 ET** | **2 hr**  **2 hr** |

* + 1. Moved: Nikola Serafimovski, 2nd: Ian Sherlock
    2. No objection to approving by unanimous consent.
  1. **TGbe Vice Chair Confirmation** (slide #11)
     1. **Confirm Laurent Cariou and Matthew Fischer as TGbe vice chairs**
     2. Moved: Alfred Asterjadhi, Second: Jeremy Foland
     3. No objection to approving by acclamation
  2. **RCM TIG Vice Chair Confirmation** (slide #12)
     1. **Confirm Mark Hamilton as RCM TIG vice chair**
     2. Moved: Amelia Andersdotter, Second: Lei Wang
     3. No objection to approving by acclamation
  3. **RTA TIG March 2019 minutes** (slide #13)
     1. **Approve RTA TIG minutes for March 2019 in 11-19-653r0**
     2. Moved: Guido Hiertz, Second: Amelia Andersdotter
     3. No objection to approving by unanimous consent.
  4. **TGmd – ANA element** (slide #14)
     1. **Instruct the ANA to assign an element ID for an RSN Extension element**
     2. Moved: Yunsong Yang, Second: Alfred Asterjadhi
     3. [see 802.11 operations manual: 11-14-0629-22, section 9.3]
     4. C: Document 11-19-0950r0 describes the background to this motion.
     5. Q: Can both the legacy and this new RSN extension element be transmitted in a beacon at the same time?
     6. A: Yes
     7. For: 39, Against: 0, Abstain: 4 (Motion passes)
  5. **TGax ad-hoc** (slide #15)
     1. **Authorize TGax to hold an ad-hoc meeting on July 10-12 in Rennes, France, for the purpose of resolving comments received on draft D4.0.**
     2. Moved by Robert Stacey on behalf of TGax
     3. [TGax vote: Moved: Mark Rison, Seconded: Stephane Baron, Result: 28-1-4]
     4. No objection to approving by unanimous consent
  6. **TGay PAR extension** (slide #16)
     1. **Believing that the PAR extension request contained in the document referenced below meets IEEE-SA guidelines,**
     2. **Request that the PAR extension request contained in 11-19/0673r0 be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.**
     3. Moved by Edward Au on behalf of TGay, 2nd: Lei Wang
     4. [TGay vote: Move: Claudio da Silva, Second: Cheng Chen, Result: 16/0/0]
     5. For: 45, Against: 0, Abstain: 0 (Motion passes)
  7. **TGay letter ballot** (slide #17)
     1. **Having approved comment resolutions for all of the comments received from LB239 on TGay D3.0 as contained in document 11-19/297r8,**
     2. **Instruct the editor to prepare P802.11ay D4.0 and**
     3. **Approve a 15 day Recirculation Working Group Technical Letter Ballot asking the question “Should P802.11ay D4.0 be forwarded to Sponsor Ballot?”.**
     4. Moved by Edward Au on behalf of TGay
     5. [TGay vote: Moved: Assaf Kasher, Second: Carlos Cordeiro, Result: 17/0/0]
     6. For: 41, Against: 0, Abstain: 0 (Motion passes)
  8. **TGaz PAR extension** (slide #18)
     1. **Believing that the PAR extension contained in the document referenced below meets IEEE-SA guidelines,**
     2. **Request that the PAR contained in 11-19-732r1 be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom**
     3. Moved by Jonathan Segev on behalf of TGaz, 2nd: Edward Au
     4. [TGaz vote: Moved: Assaf Kasher, Seconded: Jerome Henry, Result: 24/0/0]
     5. For: 41, Against: 0, Abstain: 0 (Motion passes)
  9. **TGaz ad-hoc** (slide #19)
     1. **Authorize TGaz to hold an ad-hoc meeting on week of June 24th, 2019 in the Bay Area, California USA, for the purpose of comment resolution**
     2. Moved by Jonathan Segev on behalf of TGaz
     3. [TGaz vote: Move: Assaf Kasher, Second: Ganesh Venkatesan, Result: 14/0/1]
     4. No objection to approving by unanimous consent.
  10. **TGba letter ballot** (slide #20)
      1. **Having approved comment resolutions for all of the comments received from LB 237 on P802.11ba D2.0 in 11-19/312r9 and 11-19/617r11**
      2. **Instruct the editor to prepare P802.11ba D3.0 incorporating these resolutions and,**
      3. **Approve a 15 day Working Group Recirculation Ballot asking the question “Should P802.11ba D3.0 be forwarded to Sponsor Ballot?”**
      4. Moved by Minyoung Park on behalf of TGba
      5. [TGba vote: Moved: Peter Loc,  Seconded: Po-Kai Huang, Result: 22-0-3]
      6. C: I would like to see a single completed comment resolution document. Document 11-19-0617r11 does not seem to be complete. There is no single document.
      7. A: TGba was not aware that all comment resolution should be in a single document. However, the TG does believe that all comments have been resolved.
      8. C: I think that this motion is different from the one passed in TGba.
      9. A: The original motion from TGba did not have the addition of the references to the comment resolution documents.
      10. C: I feel that some comments have not been addressed correctly and have been rejected without due cause.
      11. C: The TG did discuss these comments.
      12. C: I also believe that the motion is different. In addition, it is very difficult to determine whether all the TGba comments have been resolved or not.
      13. C: I also believe that back in January 2019 there was a similar discussion to this. Therefore, I am not encouraged by this debate now.
      14. C: Regarding limited time for the discussion of comments, members should try and make themselves available to assist with the discussion.
      15. Chair: It appears that the only difference in the motion between TGba and this one is the addition of the comment resolution references. Therefore, the motion is in order and I shall ask for a second.
      16. 2nd: Alfred Asterjadhi
      17. C: On the main IEEE 802.11 web-site, there is a motion template file. Please can all TG chairs use this. I also understand that on Thursday, many TGs are in a rush towards the end of the day. However, it is better to try and slow down and check comment resolutions. Additionally, comments that are resolved in ad-hocs and teleconferences must be summarised and re-visited in the face to face meetings.
      18. For: 26, Against: 2, Abstain: 16 (Motion passes)
  11. **TGbd - LS response to CITS** (slide #21)
      1. **Approve the liaison document in 11-19/0843r0 and send to ITU-T CITS, granting the 802.11 WG chair editorial privilege**
      2. Moved: Bo Sun, 2nd: Rui Yang
      3. [TGbd vote: Moved: Dongguk Lim, Seconded: Rui Yang, Result: 33-0-2]
      4. For: 29, Against: 0, Abstain: 2 (Motion passes)

1. **Additional Comments**
   * 1. Chair: I would like to mention that for letter ballot comment resolution, it is best practice for TGs to create a single comment resolution spreadsheet for all members to review.
     2. Chair: We will also continue with the meeting at this point, rather than taking a coffee break.
2. **What is harmonized standard EN 301 893** (11-19-0921r1)
   1. This presentation is related to the discussion that occurred within WNG on Tuesday morning AM1.
   2. No questions
3. **Next Meeting** (11-19-0567r0 slide #20)
   1. The next meeting is at the Austria Center Vienna, Vienna, Austria from July 14th – 19th 2019. Registration and hotel reservations are now open for this meeting.
   2. There will be an IEEE 802 Wireless Chairs meeting, as shown in slide #19, on Sunday at 16:00 local time at the July 2019 meeting. This is an open meeting, and everyone is welcome.
4. **AoB**
   1. None
5. **Adjournment**
   1. Chair: Having completed the agenda, the chair announced that the meeting was adjourned at 10:44 EDT.

**Annex A: Attendance & Affiliation**

| **Name** | **Affiliation** | **Attended >= 75%?** | **Status** |
| --- | --- | --- | --- |
| Abouelseoud, Mohamed | Sony Corporation | No | Voter |
| Aboulmagd, Osama | Huawei Technologies Co. Ltd | Yes | Voter |
| Adachi, Tomoko | TOSHIBA Corporation | Yes | Voter |
| Ahn, Woojin | WILUS | Yes | Voter |
| Aio, Kosuke | Sony Corporation | Yes | Aspirant |
| Akhmetov, Dmitry | Intel Corporation | Yes | Potential Voter |
| Alex, Sam | Facebook | No | Non-Voter |
| Alhosainy, Ammar | Employed at Carleton University | No | Non-Voter |
| Andersdotter, Amelia | Article 19 | Yes | Voter |
| Ansley, Carol | ARRIS Group | Yes | Voter |
| Asterjadhi, Alfred | Qualcomm Incorporated | Yes | Voter |
| Au, Kwok Shum | Huawei Technologies Co., Ltd | Yes | Voter |
| Avital, Ziv | Intel | Yes | Aspirant |
| Baeten, Robert | Qorvo | Yes | Voter |
| Baik, Eugene | Qualcomm Incorporated | Yes | Voter |
| baron, stephane | Canon Research Centre France | Yes | Voter |
| Baykas, Tuncer | Vestel | Yes | Voter |
| Bei, Jianwei | Marvell Semiconductor, Inc. | Yes | Voter |
| Berens, Friedbert | FBConsulting Sarl | No | Voter |
| Berkema, Alan | HP Inc. | Yes | Voter |
| Bhandaru, Nehru | Broadcom Corporation | Yes | Voter |
| Bims, Harry | Bims Laboratories, Inc. | Yes | Voter |
| Bober, Lennert | Fraunhofer Heinrich Hertz Institute | No | Voter |
| Boldy, David | Broadcom Corporation | Yes | Voter |
| Bolotin, Ilya | Intel | Yes | Voter |
| Bredewoud, Albert | Broadcom Corporation | Yes | Voter |
| Calcev, George | Huawei R&D USA | Yes | Voter |
| Cariou, Laurent | Intel Corporation | Yes | Voter |
| Carney, William | Sony Corporation | Yes | Voter |
| Cavalcanti, Dave | Intel Corporation | Yes | Voter |
| Cepni, Gurkan | Apple, Inc. | Yes | Voter |
| Chang, Soo-Young | California State University, Sacramento (CSUS) | Yes | Voter |
| Chen, Cheng | Intel Corporation | Yes | Voter |
| Chen, Evelyn | Ericsson AB | No | Aspirant |
| Chen, Fenghua | nufront | Yes | Aspirant |
| Chen, Xiaogang | Intel Corporation | Yes | Voter |
| Cheng, Paul | MediaTek Inc. | Yes | Potential Voter |
| CHERIAN, GEORGE | Qualcomm Incorporated | Yes | Voter |
| Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. | Yes | Voter |
| Cho, Hangyu | LG ELECTRONICS | Yes | Voter |
| Choi, Jinsoo | LG ELECTRONICS | Yes | Voter |
| Chu, Liwen | Marvell Semiconductor, Inc. | Yes | Voter |
| Coffey, John | Realtek Semiconductor Corp. | Yes | Voter |
| Cordeiro, Carlos | Intel Corporation | Yes | Voter |
| da Silva, Claudio | Intel Corporation | Yes | Voter |
| Das, Dibakar | Intel Corporation | Yes | Voter |
| Dauphinee, Leonard | MaxLinear Corp | Yes | Potential Voter |
| de Vegt, Rolf | Qualcomm Incorporated | Yes | Voter |
| DeLaOlivaDelgado, Antonio | Universidad Carlos III Madrid | Yes | Potential Voter |
| Derham, Thomas | Broadcom Corporation | Yes | Voter |
| Dong, Xiandong | Xiaomi Inc. | Yes | Potential Voter |
| Doostnejad, Roya | Intel Corporation | No | Potential Voter |
| Duan, Ruchen | SAMSUNG | Yes | Aspirant |
| Efrati, Noam | Celeno Communications | Yes | Potential Voter |
| Emmelmann, Marc | Self Employed / Koden-TI / Fraunhofer FOKUS | Yes | Voter |
| Erceg, Vinko | Broadcom Corporation | No | Voter |
| Fischer, Matthew | Broadcom Corporation | Yes | Voter |
| Fischer, Michael | NXP Semiconductors | Yes | Voter |
| Fletcher, Paul | Samsung Cambridge Solution Center | Yes | Voter |
| Foland, Jeremy | Broadcom Corporation | Yes | Voter |
| Furuichi, Sho | Sony Corporation | Yes | Voter |
| Gan, Ming | Huawei Technologies Co., Ltd | Yes | Voter |
| Garcia Rodriguez, Adrian Jose | Nokia | Yes | Potential Voter |
| Ghosh, Chittabrata | Intel Corporation | Yes | Voter |
| Godfrey, Tim | Electric Power Research Institute, Inc. (EPRI) | No | ExOfficio |
| Grandhe, Niranjan | Marvell Semiconductor, Inc. | Yes | Voter |
| Guo, Yuchen | Huawei Technologies Co., Ltd | Yes | Voter |
| Gwak, Yongsu | Korea National University of Transportation | Yes | Aspirant |
| Hall, Robert | Johnson Controls Inc | Yes | Voter |
| Hamilton, Mark | Ruckus Wireless | No | Voter |
| HAN, Xiao | Huawei Technologies Co. Ltd | Yes | Voter |
| Handte, Thomas | Sony Corporation | Yes | Voter |
| Hansen, Christopher | Covariant Corporation | Yes | Voter |
| Haran, Onn | Auto-Talks | No | Potential Voter |
| Harkins, Daniel | Hewlett Packard Enterprise | Yes | Voter |
| Hart, Brian | Cisco Systems, Inc. | Yes | Voter |
| Henry, Jerome | Cisco Systems, Inc. | Yes | Voter |
| hervieu, Lili | Cable Television Laboratories Inc. (CableLabs) | Yes | Voter |
| Hiertz, Guido | Ericsson AB | Yes | Voter |
| Hirata, Ryuichi | Sony Corporation | Yes | Voter |
| Ho, Duncan | Qualcomm Incorporated | No | Voter |
| Holcomb, Jay | Itron Inc. | No | ExOfficio |
| Holland, Oliver | Advanced Wireless Technology Group, Ltd. | Yes | Potential Voter |
| Hong, Hanseul | Yonsei University | Yes | Voter |
| Hu, Chunyu | Broadcom Corporation | Yes | Voter |
| Huang, Guogang | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Huang, Lei | Panasonic Asia Pacific Pte Ltd. | Yes | Voter |
| Huang, Po-Kai | Intel Corporation | Yes | Voter |
| Hwang, Sung Hyun | Electronics and Telecommunications Research Institute (ETRI) | Yes | Voter |
| Ikegami, Tetsushi | Meiji University | Yes | Potential Voter |
| Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) | Yes | Voter |
| Jang, Insun | LG ELECTRONICS | Yes | Voter |
| Jauh, Alan | Unisoc Comm. | Yes | Voter |
| Jeffries, Timothy | Huawei R&D USA | Yes | Voter |
| Jeong, SangKwon | JoyFun Inc. | No | Non-Voter |
| Ji, Chenhe | Huawei Technologies Co., Ltd | Yes | Voter |
| Jia, Jia | Huawei Technologies Co., Ltd | Yes | Voter |
| jiang, feng | Intel Corporation | Yes | Voter |
| JONES, JEFFRUM | Qorvo, Inc. | Yes | Voter |
| Jones, Vincent Knowles IV | Qualcomm Incorporated | Yes | Voter |
| Jungnickel, Volker | Fraunhofer HHI | No | Voter |
| Kain, Carl | Noblis, Inc. | Yes | Voter |
| Kandala, Srinivas | SAMSUNG | Yes | Potential Voter |
| KANG, Kyu-Min | Electronics and Telecommunications Research Institute (ETRI) | Yes | Potential Voter |
| KANG, TEAG JIN | Broadcom Corporation | Yes | Voter |
| Kasher, Assaf | Qualcomm Incorporated | Yes | Voter |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. | Yes | Voter |
| Khatibi, Farrokh | Qualcomm Incorporated | No | Non-Voter |
| Kim, Jeong Gon | Korea Polytechnic University | No | Voter |
| Kim, Jeongki | LG ELECTRONICS | Yes | Voter |
| Kim, Sang Gook | LG ELECTRONICS | Yes | Voter |
| Kim, Suhwook | LG ELECTRONICS | Yes | Voter |
| Kim, Yongho | Korea National University of Transportation | Yes | Voter |
| Kim, Youhan | Qualcomm Incorporated | Yes | Voter |
| Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) | Yes | Voter |
| Klein, Arik | Intel Corporation | Yes | Voter |
| Kloper, David | Cisco Systems, Inc. | Yes | Voter |
| KNECKT, JARKKO | Apple, Inc. | Yes | Voter |
| kristem, vinod | Intel Corporation | Yes | Voter |
| Kumar, Manish | Marvell Semiconductor, Inc. | No | Voter |
| Lansford, James | Qualcomm Incorporated | Yes | Voter |
| Latif, Imran | Quantenna Communications, Inc. | Yes | Voter |
| Lee, Hyeong Ho | Netvision Telecom Inc. | Yes | Voter |
| Lee, Wookbong | SAMSUNG | No | Voter |
| LEI, JUN | nufront | No | Non-Voter |
| Lepp, James | BlackBerry | Yes | Voter |
| Levy, Joseph | InterDigital, Inc. | Yes | Voter |
| Li, Qinghua | Intel Corporation | Yes | Voter |
| Li, Yunbo | Huawei Technologies Co. Ltd | Yes | Voter |
| Liang, dandan | Huawei Technologies Co., Ltd | Yes | Voter |
| Lim, Dong Guk | LG ELECTRONICS | Yes | Voter |
| Lim, Sang-Kyu | Electronics and Telecommunications Research Institute (ETRI) | No | Non-Voter |
| Lin, Wei | Huawei Technologies Co. Ltd | Yes | Voter |
| Lindskog, Erik | SAMSUNG | Yes | Voter |
| Liu, Jianhan | MediaTek Inc. | Yes | Voter |
| Liu, Shenfa | nufront | Yes | Aspirant |
| Liu, Yong | Apple, Inc. | Yes | Voter |
| Loc, Peter | Huawei Technologies Co. Ltd | Yes | Voter |
| Lopez, Miguel | Ericsson AB | Yes | Voter |
| Lou, Hui-Ling | Marvell Semiconductor, Inc. | Yes | Voter |
| Lv, Kaiying | MediaTek Inc. | Yes | Voter |
| Ma, Mengyao | HUAWEI | Yes | Voter |
| Malinen, Jouni | Qualcomm Incorporated | Yes | Voter |
| Mano, Hiroshi | Koden Techno Info K.K. | Yes | Voter |
| MARIAPPAN, VINAYAGAM | SNUT | Yes | Voter |
| Marks, Roger | EthAirNet Associates; Huawei | No | ExOfficio |
| Max, Sebastian | Ericsson AB | Yes | Voter |
| Mccann, Stephen | BlackBerry | Yes | Voter |
| Mody, Apurva | BAE Systems | No | ExOfficio |
| Montemurro, Michael | BlackBerry | Yes | Voter |
| Morioka, Hitoshi | SRC Software | Yes | Voter |
| Motozuka, Hiroyuki | Panasonic Corporation | Yes | Voter |
| Mueller, Robert | Technische Universitaet Ilmenau | Yes | Voter |
| Myles, Andrew | Cisco Systems, Inc. | Yes | Voter |
| Nagai, Yukimasa | Mitsubishi Electric Corporation | Yes | Voter |
| Nakano, Takayuki | Panasonic Corporation | Yes | Voter |
| Nandagopalan, SAI SHANKAR | Cypress Semiconductor Corporation | Yes | Voter |
| Naribole, Sharan | SAMSUNG | Yes | Voter |
| Nezou, Patrice | Canon Research Centre France | Yes | Voter |
| Nikolich, Paul | Self | No | ExOfficio |
| Noh, Yujin | Newracom Inc. | Yes | Voter |
| Ohsawa, Tomoki | NICT | No | Non-Voter |
| Pare, Thomas | MediaTek Inc. | Yes | Voter |
| Park, Eunsung | LG ELECTRONICS | Yes | Voter |
| Park, Minyoung | Intel | Yes | Voter |
| Park, Sung-jin | LG ELECTRONICS | Yes | Voter |
| Patil, Abhishek | Qualcomm Incorporated | Yes | Voter |
| Patwardhan, Gaurav | Hewlett Packard Enterprise | Yes | Voter |
| petrick, Albert | InterDigital, Inc. | Yes | Voter |
| Petry, Brian | Broadcom Corporation | Yes | Voter |
| porat, ron | Broadcom Corporation | Yes | Voter |
| Pulikkoonattu, Rethnakaran | Broadcom Corporation | No | Voter |
| Qi, Emily | Intel Corporation | Yes | Voter |
| Raissinia, Alireza | Qualcomm Incorporated | Yes | Voter |
| Rakanovic, Demir | u-blox | Yes | Voter |
| Ranganath, Ashok | SAMSUNG | Yes | Voter |
| Rantala, Enrico-Henrik | Nokia | Yes | Voter |
| Redlich, Oded | Huawei | Yes | Potential Voter |
| Riegel, Maximilian | Nokia Networks | Yes | Voter |
| Rison, Mark | Samsung Cambridge Solution Centre | Yes | Voter |
| Robert, Joerg | University of Erlangen-Nuremberg | No | Non-Voter |
| Rosdahl, Jon | Qualcomm Technologies, Inc. | Yes | Voter |
| Ryu, Kiseon | LG ELECTRONICS | Yes | Voter |
| Sadeghi, Bahareh | Intel Corporation | Yes | Voter |
| Sakamoto, Takenori | Panasonic Corporation | Yes | Voter |
| Sakoda, Kazuyuki | Sony Corporation | Yes | Voter |
| Sambasivan, Sam | AT&T | Yes | Potential Voter |
| Sand, Stephan | German Aerospace Center (DLR) | Yes | Voter |
| Sarris, Ioannis | u-blox | No | Voter |
| Sato, Naotaka | Sony Corporation | No | Voter |
| Schelstraete, Sigurd | Quantenna Communications, Inc. | Yes | Voter |
| Segev, Jonathan | Intel Corporation | Yes | Voter |
| Seo, Dong Il | JoyFun | No | Non-Voter |
| Seok, Yongho | MediaTek Inc. | Yes | Voter |
| Serafimovski, Nikola | pureLiFi | Yes | Voter |
| Sharma, Prashant | Marvell Semiconductor, Inc. | Yes | Voter |
| Shellhammer, Stephen | Qualcomm Incorporated | No | ExOfficio |
| Sherlock, Ian | Texas Instruments Incorporated | Yes | Voter |
| Shilo, Shimi | HUAWEI | Yes | Voter |
| Smith, Graham | SR Technologies | Yes | Voter |
| Son, Ju-Hyung | WILUS Inc. | Yes | Aspirant |
| Stacey, Robert | Intel Corporation | Yes | Voter |
| Stanley, Dorothy | Hewlett Packard Enterprise | Yes | Voter |
| Stavridis, Athanasios | Ericsson AB | Yes | Voter |
| Stott, Noel | Keysight Technologies | Yes | Voter |
| Suh, JUNG HOON | Huawei Technologies Co. Ltd | Yes | Voter |
| Sumi, Takenori | Mitsubishi Electric Corporation | Yes | Voter |
| Sun, Bo | ZTE Corporation | Yes | Voter |
| Sun, Li-Hsiang | InterDigital, Inc. | Yes | Voter |
| Sundman, Dennis | Ericsson AB | Yes | Voter |
| Takai, Mineo | Space-Time Engineering | Yes | Voter |
| Tanaka, Yusuke | Sony Corporation | Yes | Voter |
| Tian, Bin | Qualcomm Incorporated | Yes | Voter |
| Torab, Payam | Facebook | Yes | Voter |
| Trainin, Solomon | Qualcomm Incorporated | Yes | Voter |
| Urabe, Yoshio | Panasonic Corporation | Yes | Voter |
| V Padaki, Aditya | Samsung Research America | Yes | Voter |
| Van Nee, Richard | Qualcomm Incorporated | Yes | Voter |
| Varshney, Prabodh | Nokia | Yes | Voter |
| Venkatesan, Ganesh | Intel Corporation | Yes | Voter |
| Verma, Lochan | Qualcomm Incorporated | Yes | Voter |
| Verma, Sindhu | Broadcom Corporation | Yes | Voter |
| Vermani, Sameer | Qualcomm Incorporated | Yes | Voter |
| Wang, Chao Chun | MediaTek Inc. | Yes | Voter |
| Wang, Huizhao | Quantenna Communications, Inc. | Yes | Voter |
| Wang, James June | MediaTek Inc. | Yes | Voter |
| Wang, Lei | Huawei R&D USA | Yes | Voter |
| Wang, Qi | Apple, Inc. | Yes | Voter |
| Wang, Xiaofei | InterDigital, Inc. | Yes | Voter |
| Want, Roy | Google | Yes | Voter |
| Wendt, Matthias | Signify | No | Voter |
| Wentink, Menzo | Qualcomm Incorporated | Yes | Voter |
| Wilhelmsson, Leif | Ericsson AB | Yes | Voter |
| Wu, Tianyu | Samsung Electronics Co., Ltd. | Yes | Voter |
| Xin, Yan | Huawei Technologies Co. Ltd | Yes | Voter |
| Xue, Ruifeng | Cisco Systems, Inc. | Yes | Aspirant |
| Yang, Bo | Huawei Technologies Co. Ltd | Yes | Voter |
| YANG, RUI | InterDigital, Inc. | Yes | Voter |
| Yang, Steve TS | MediaTek Inc. | Yes | Potential Voter |
| Yang, Xun | Huawei Technologies Co. Ltd | Yes | Voter |
| Yang, Yunsong | Huawei Technologies Co. Ltd | Yes | Voter |
| Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) | Yes | Voter |
| Yee, James | MediaTek Inc. | Yes | Voter |
| Yee, Peter | NSA-Cybersecurity | Yes | Voter |
| yi, yongjiang | 1QB Information Technologies | No | Non-Voter |
| Young, Christopher | Broadcom Corporation | Yes | Voter |
| Yu, Bo | Marvell Semiconductor, Inc. | Yes | Voter |
| Yu, Chinghwa | Unisoc | Yes | Potential Voter |
| Yu, Jian | Huawei Technologies Co., Ltd | Yes | Voter |
| Zeleznikar, Alan | CommScope | Yes | Voter |
| Zhang, Hongyuan | Marvell Semiconductor, Inc. | Yes | Voter |
| Zhang, Yan | Marvell Semiconductor, Inc. | Yes | Voter |
| Zhou, Yifan | Huawei Technologies Co., Ltd | Yes | Aspirant |

**Annex B : Working Group Officers**

**Working Group**

|  |  |  |
| --- | --- | --- |
| Name (Affiliation) | Position | Contact Details |
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| Jon Rosdahl (Qualcomm) | 1st Vice Chair (Venues and meeting planning) Treasurer | +1 (801) 492-4023 [jrosdahl@ieee.org](mailto:jrosdahl@ieee.org) |
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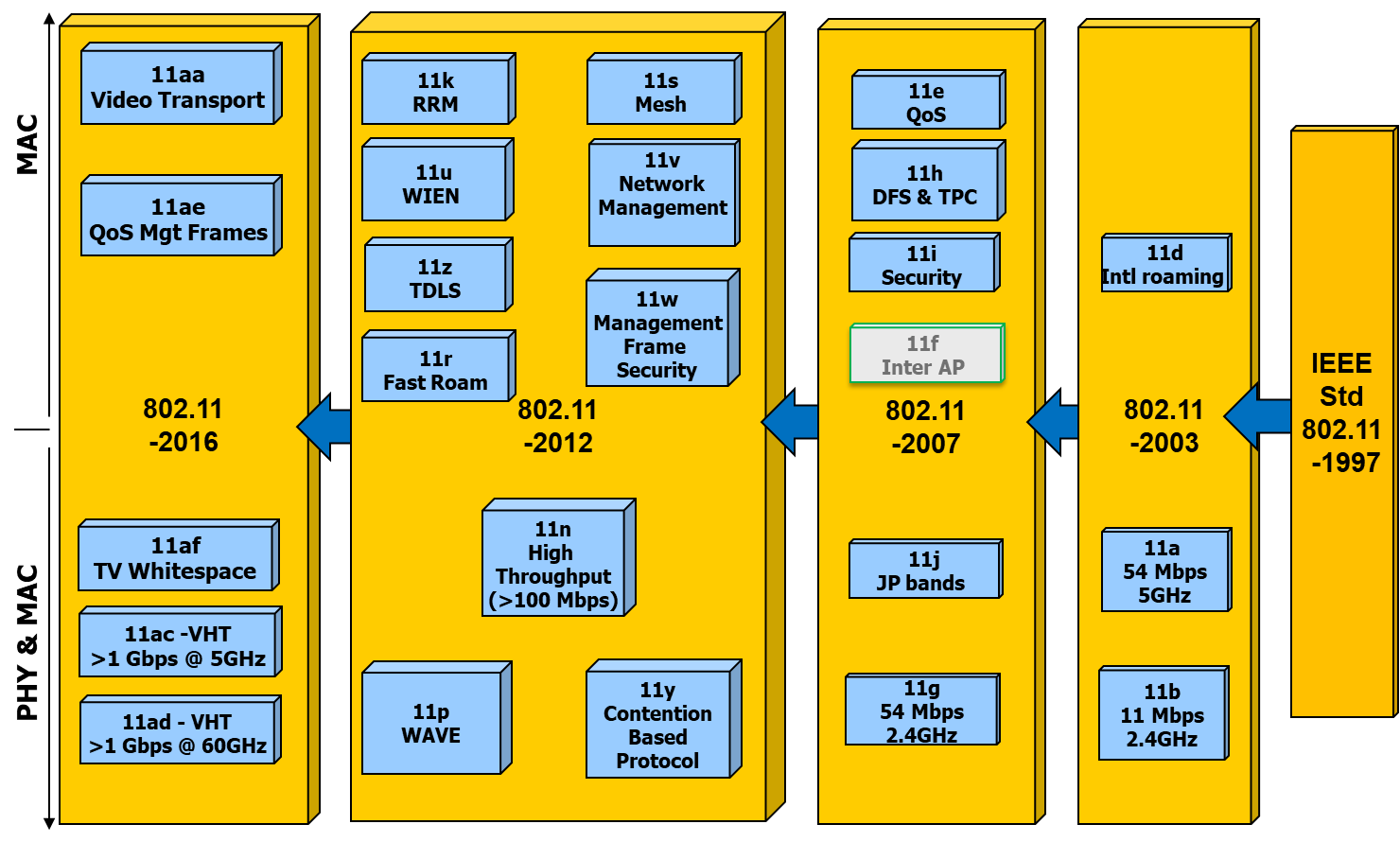
|  |  |  |
| --- | --- | --- |
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**Annex C : Minutes**

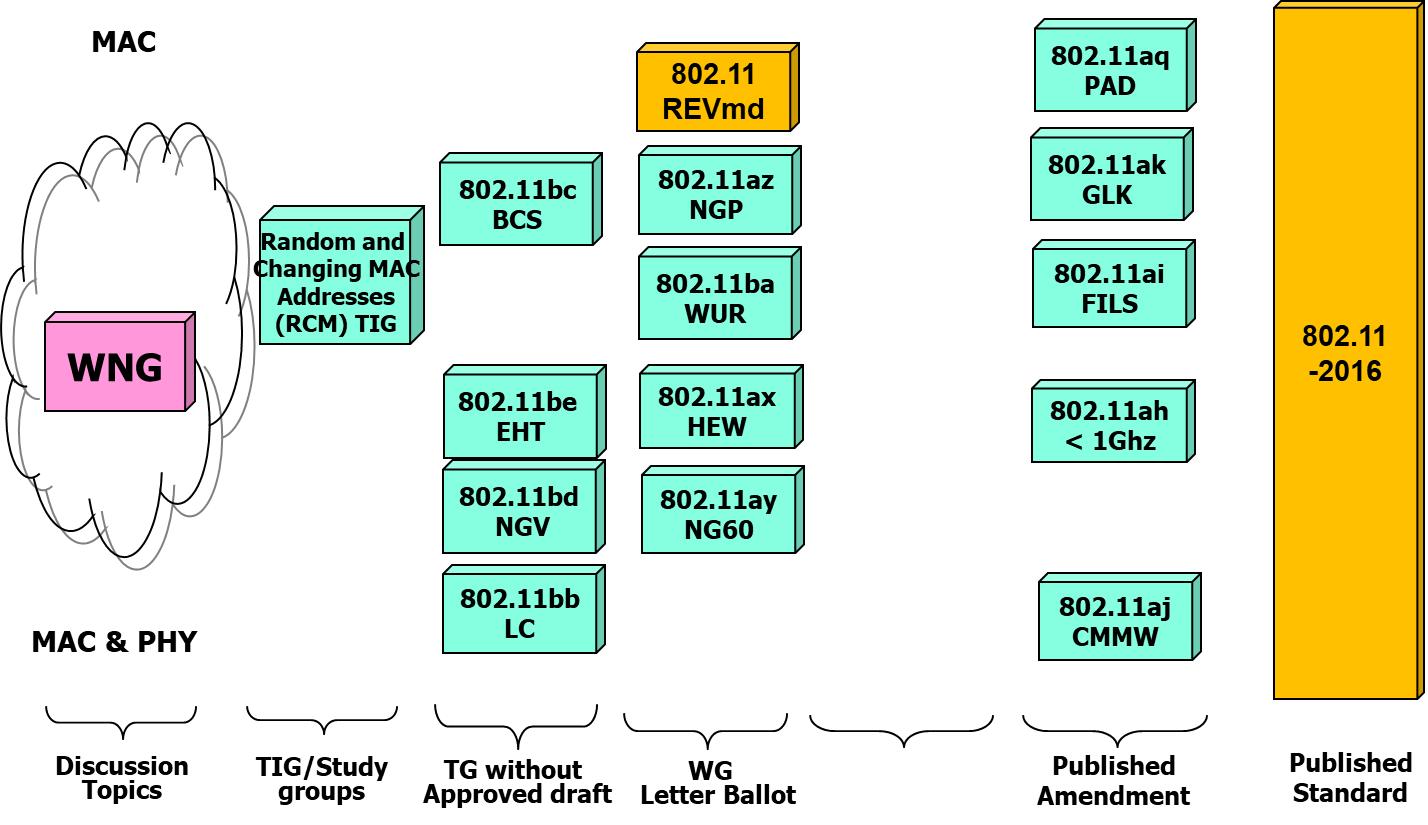
This Annex contains references to all IEEE 802.11 SC/TG/SG & Ad Hoc Committee (AHC) minutes from this meeting. Please note that they are NOT subject to the approval of these minutes, but are confirmed and approved by their individual group in the opening meeting at their next session.

|  |  |  |
| --- | --- | --- |
| WG | TE | 19-0849r1 |
| TGmd | TG | 19-0911r0 |
| TGax | TG | 19-0872r0 |
| TGay | TG | 19-0931r0 |
| TGaz | TG | 19-0882r0 |
| TGba | TG | 19-0956r1 |
| TGbb | TG | 19-0934r0 |
| TGbc | TG | 19-0819r0 |
| TGbd | TG | 19-0890r0 |
| TGbe | TG | 19-0957r1 |
| AANI | SC | 19-0940r0 |
| COEX | SC | 19-0xxxr0 |
| WNG | SC | 19-0892r0 |
| JTC 802 | SC | 19-0928r0 |
| ARC | SC | 19-0914r0 |
| RCM | TIG | 19-0891r0 |

**Annex D : Revisions and Standards Pipeline**

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**IEEE 802.11 Revisions**

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**IEEE 802.11 Standards Pipeline**

End.