IEEE P802.11  
Wireless LANs

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| Minutes of the IEEE P802.11 Full Working Group | | | | |
| Date: 2019-01-14 | | | | |
| Author(s): | | | | |
| Name | Company | Address | Phone | email |
| Stephen McCann | BlackBerry Ltd | The Pearce Building, West Street, Maidenhead,  SL6 1RL, UK | +44 1753 667099 | [stephen.mccann@ieee.org](mailto:stephen.mccann@ieee.org) |

Abstract

This document constitutes the minutes of the IEEE 802.11 full working group for the January 2019, St. Louis, Missouri, USA meeting.

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

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

**Hilton at the Ball Park**

**St. Louis, Missouri, USA**

**January 14 - 18, 2019**

**Monday, 14 January 2019**

**8:07** 802.11, 802.15, 802.18, 802.19, and 802.21 Chairs called the joint meeting to order. IEEE 802.15 attendance is included as Annex A.

Bob Heile 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 March’s session

Straw Poll of new attendees: 4

**8:15**  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**](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**](http://standards.ieee.org/develop/policies/antitrust.pdf))

**8:20** Financial report by Jon Rosdahl (Qualcomm) doc [ec-19-0001-02](https://mentor.ieee.org/802-ec/dcn/19/ec-19-0001-02-WCSG-wireless-treasurer-report-january-st-louis.pptx)

Total liabilities and equity $686,523.78 (not including this meeting)

The number of people who are currently registered at this meeting is 283

**8:24** Wireless and IMAT announcements by Rick Alfvin (Linespeed)

* Information can be found at [ieee802.linspeed .io](http://ieee802.linespeed.io/)

**8:27** 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-19-0003-00-WCSG-st-louis-january-2019-minutes.docx>

**8:28** Review future sessions

* March 10-15, 2019, Hyatt Regency / Fairmont Hotel Vancouver, Vancouver, Canada
* May 12-17, 2019, Grand Hyatt Atlanta in Buckhead, Atlanta, Georgia, USA
* July 14-19, 2019, Austria Congress Centre, Vienna, Austria, 802 Plenary Session.
* September 15-20, 2019 - Marriott Hanoi, Hanoi, Vietnam (TBC)
* November 10-15, 2019, Hilton Waikoloa Village, Kona, HI, USA, 802 Plenary Session
* January 12-17, 2020, Hotel Irvine, Irvine, California, USA
* 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), (document [11-18-2082-00](https://mentor.ieee.org/802.11/dcn/18/11-18-2082-00-0000-2019-january-working-group-chair-opening-report.pptx))

* voters: 330, Nearly 26, Aspirant 109

802.15 by B Heile

* voters: 83, Nearly 8, Aspirant 19
* TG4md 15.4 revision
* TG 15.4w Low Power Wide Area (LPWA)
* TG 15.4x FAN enhancements (FANE)
* TG 15.4y Security Next Generation (SECN)
* TG 15.4z Enhanced impulse radio (EIR)
* TG 7m Optical Wireless Communications
* TG10a Routing Mode Addressing (RMA) amendment
* TG12 Upper Layer Interface (ULI) for 802.15.4
* TG13 Multi-Gigabit OWC

802.18 by Jay Holcomb ([18-19-0005-00](https://mentor.ieee.org/802.18/dcn/19/18-19-0005-00-0000-agenda-stl-interim-15-17-jan-2019-rr-tag.pptx))

* voters: 41, Nearly 2, Aspirant 14
* EU Items
* EC Draft Law - Vehicle communications
* NTIA National Spectrum Strategy
* U.S. DoT RFC on V2X Communications
* ACMA consultation 5G & 60GHz band

802.19 Steve Shellhammer ([19-19-0002-01](https://mentor.ieee.org/802.19/dcn/19/19-19-0002-01-0000-january-2019-opening-report.pptx))

* 34 voters

802.21 Subir Das [(21-18-0005-00)](https://mentor.ieee.org/802.21/dcn/19/21-19-0005-00-SAUC-wireless-ec-joint-plenary-report.pptx)

* Study Group on Network Enablers for Seamless HMD based VR content Service

**AoB**

* Roger Marks (Huawei) – NENDICA activities
* meeting Tuesday evening

**8:49** Joint meeting adjourned

**IEEE 802.11 Interim Meeting – Session #173**

**St. Louis, Missouri, USA**

**January 14th – 18th, 2019**

**IEEE 802.11 Opening Plenary, Monday 14th January 2019**

Presiding chair: Dorothy Stanley (Hewlett Packard Enterprise) opened the meeting at 09:05 Central Standard Time (CST) 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 330 voting members and 11 Ex Officio voters of IEEE 802.11\*

There were 205 people in the room

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

1. **Notices** (11-18-2082r0)
   1. No photographs at this meeting and please turn your mobiles to vibrate.
   2. Chair: Jonathan Goldberg is our IEEE staff representative, who will be here later in the week.
   3. Chair: Are there any members of the press present.
      1. None
2. **Approve/modify working group agenda** (11-18-2081r1)
   1. This is a summary of all room allocations for the week.
   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, especially TGba.
   4. **Move to approve the agenda 11-18-2081r1 (“Agenda Graphic” tab and the “WG11” tab Monday agenda)**
      1. Moved: Al Petrick, 2nd: Jim Lansford
      2. No objection to approving by unanimous consent
3. **November 2018 WG Minutes**
   1. **Move to approve the Bangkok November 2018 WG minutes document 11-18-1730r1**
   2. Moved: Stephen McCann, 2nd: Stuart Kerry
   3. Following neither discussion nor dissent the minutes were approved by unanimous consent.
4. **Attendance**
   1. Welcome to the 8 new participants in this meeting.
   2. Chair: Please note that Stephen McCann (Secretary) will be holding a new member’s session at 10:30am.
5. **Call for essential Patents** (11-18-2134r0)
   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** (11-18-2082r0)
   1. **Liaisons** (slide #4)
      1. Chair: There are two liaisons regarding the NGV (802.11bd) topic. There is another for the 3GPP LAA topic and one about a potential 3GPP/IEEE 802.11 joint meeting in July 2019.
   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** (11-18-2082r0)
   1. **Working group session documents** (11-18-1390r0 slide #7)
   2. **Joint meetings & Reciprocal Credit/802.18, 802.19 details** (slides #9, #10)

Reminder that there are topics relevant to IEEE 802.11 to be covered in IEEE 802.18 and IEEE 802.19 this week.

* 1. **“Top 10” items for the week** (11-18-2139r0 slide #4)
     1. Each registered attendee should have all received the “top 10” items email about this week.
     2. Slide #11 describes the social on Wednesday.
     3. Linespeed are managing most of the projectors this week. Please can you all remember to power them down at the end of each meeting. They have a network helpdesk outside in the hall way area.
  2. **M3.3 Other WG meeting plans** (11-18-2139r0 slide #12)
     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.
  3. **M3.4 Meeting Room Locations** (11-18-2139r0 slide #14)
     1. Slide #15 shows Meeting room layout
  4. **M3.6 Meeting registration (**11-18-2139r0 slide #15)
     1. There are about 290 registered people for this week’s meeting.
  5. **M3.7 Recording attendance** (11-18-2139r0 slide #16)
  6. **M3.8 Local File Document Server information** (11-18-2139r0 slide #17)
     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.
  7. **M3.9 Next meeting reminder** (11-18-2139r0 slide #18)
     1. Next 802 Plenary: March 10th – 15th 2019, Vancouver, BC, Canada

1. **Status of all groups** (11-18-2082r0)
   1. **Group summary** (slide #11)
      1. Chair: Review current IEEE 802.11 groups, including two new task groups 11bc (Broadcast Services) and 11bd (Next Generation V2X). The chairs of these two groups have been appointed by the WG chair. These positions will be confirmed by the 802.11 WG later this week.
   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 has been 1 letter ballot between the November 2018 meeting and now.
   4. **Timeline**
      1. There will be an update to the timeline chart to add new entries for TGbc and TGbd towards the end of this week.
2. **Group Summaries** (11-18-2132r0)
   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 is 1 meeting slot this week.
   4. **PAR SC**
      1. Not meeting this week.
   5. **WNG**
      1. There are two submissions for WNG this week.
   6. **JTC1**
      1. Review JTC1/SC6 status.
   7. **Co-ex**
      1. Will initiate discussions about the proposed 3GPP/IEEE 802.11 joint workshop during the July 2019 IEEE 802 plenary discussing topics regarding 6 GHz radio operation.
   8. **TGbc and TGbd**
      1. These are the first face to face meetings of these groups.
3. **Working Group Motions** (11-18-2133r0)
   1. **TGbc and TGbd chair confirmation** (slide #4)
      1. **Confirm Marc Emmelmann as TGbc chair and Bo Sun as TGbd chair**
      2. Moved: Allan Jones, Second: Mark Hamilton
      3. No objection to approving by acclamation.
4. **Recess**
   1. Meeting recessed at 10:01 CST.

**Wednesday, 16th January 2019**

**IEEE 802.11 Mid-Week Plenary**

Presiding chair: Dorothy Stanley (HPE) opened the meeting at 10:30 CST.

Secretary: Stephen McCann BlackBerry Ltd.

145 people present.

1. **Approve/modify working group agenda** (11-18-2081r2)
   1. Chair: There are a couple of minor changes to the agenda fixing links and various items.
   2. **Move to approve the agenda 11-18-2081r3.**
      1. Moved: Ian Sherlock, 2nd: Harry Bims
      2. No objection to approving the agenda by unanimous consent.
2. **Call for Essential Patents**
   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 CST 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. **Announcement**
   1. There is a social reception this evening and there will be shuttle busses to the venue at the brewery. If you have a guest, please can you collect a ticket from the registration desk, so the organizers can have a final count of attendees.
6. **Wi-Fi Alliance Liaison** (11-19-0175r0)
   1. This is a short report, as the Wi-Fi Alliance (WFA) have not met since the November IEEE 802.11 face to face meeting.
   2. The next WFA meeting is in March 2019 in Shanghai, China.
   3. No questions
7. **IETF Liaison** (11-19-0176r1)
   1. This is report about the current IEEE 802.11 related activities within the IETF.
   2. The next meeting will be in March 2019 in Prague, Czech Republic.
   3. No questions.
8. **IEEE 802.18** (11-19-0168r0)
   1. This is a summary of the IEEE 802.18 activities this week.
   2. No questions
9. **IEEE 802.19** (11-19-0084r0)
   1. This is a summary of the IEEE 802.19 activities this week.
   2. No questions
10. **Room assignment updates** (11-18-2081r3)
    1. Released rooms: RTA TIG Thurs PM1
    2. Required rooms: TGax Thurs PM2, TGbd Thurs PM1, TGaz Thurs PM1, TGba 1 slot
    3. Chair: I’d like to suggest that TGax Thurs PM2, TGaz Thurs PM1 and TGbd Thurs PM2 are considered. However, TGba cannot have another slot.
    4. **Motion to approve all of the above changes, with the updated room graphic included in an updated agenda**
       1. Moved: Ian Sherlock, 2nd: Allan Jones
       2. No objection to approving by unanimous consent.
11. **IEEE-SA Award** (11-18-2083r0 slide #8)
    1. Richard Kennedy received an IEEE Standards Medallion award for all his work in IEEE 802 regulatory work in December 2018. He is the ex-IEEE 802.18 chair and has been very active in IEEE 802.11 over the years.
    2. The group recognized this award by acclamation.
12. **Letter Ballot planning** (11-18-2083r0 slide #9)
    1. Chair: This item is to mention that it’s possible that there could be 4 letter ballots coming out of this week. Please note that usual re-circulation letter ballots require at least 15 days for comments and 30 days for an initial ballot. They are: TGax, TGay and TGba. For TGaz, this would be 30 days as it is an initial letter ballot.
    2. Chair: Therefore, if there are any of these ballots running in parallel, I think we should extend the ballots beyond the usual 15 or 30 days.
    3. C: There are 6290 pages for all of these 4 amendments together with REVmd D2.0, which is a lot of pages to review everything over a 2 month period.
    4. C: I’m concerned that some of these ballots cannot be completed before the Vancouver meeting in March 2019.
    5. C: I don’t have time to review letter ballots during a face-to-face 802.11 meeting.
    6. Chair: Yes, so that’s why TGaz has a five week ballot encompassing the Vancouver meeting in March 2019.
    7. Chair: This will be re-visited on Friday.
13. **Recess**
    1. Meeting recessed at 11.09 CST

**Friday, 18th January 2019**

**IEEE 802.11 Closing Plenary**

Call to order at 08:01 CST by Dorothy Stanley (HPE).

98 people present in the room.

1. **Approve/modify working group agenda** (11-18-2081r4)
   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 11-18-2081r4**
      1. Moved: Michael Fischer, 2nd: Tim Godfrey
      2. No objection to approving by unanimous consent.
2. **Announcements** (11-18-2083r1)
   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 March 2019 in Vancouver, Canada.
      3. Please be aware of the Chair’s schedule for the chair’s committee meetings (CAC), which are on 28th January and 25th February 2019 at noon ET.
   3. **ETSI ITS and liaison web-sites** (slide #14)
      1. No questions
   4. **Letters of Assurance (LoA)** (slide #15)
      1. Chair: please remember about the LoA requirements.
      2. There are two LoAs open at the moment.
   5. **IEEE Store and ISO SCG** (slides #16 and #17)
      1. No questions
   6. **Press Releases** (slide #19)
      1. The slide summarizes the recent IEEE 802.11 related press releases
3. **Call for Essential Patents** (11-18-2083r1 slide #5)
   1. Call for Essential Patents and Letters of Assurance (LoA)
   2. No statements
   3. No questions
4. **Current Venues** (11-18-2139r2 slide #22)
   1. **Straw Poll: How many people would like to come back to this venue?**
   2. Y: 14, N: 61
   3. **How many people enjoyed the social?** 57
   4. **How many people disliked the social?** 1
   5. **How many people did not attend the social?** 17
   6. C: Please remember that this is not the original hotel for this venue, as it was changed from the Hyatt Union Station.
   7. **How many people would like to return to St Louis but not at this venue**? 14
5. **Upcoming Venues** (11-18-2139r2 slides #24)
   1. VC1: This slide shows the future wireless interim and also IEEE 802 plenary locations.
   2. VC1: 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-19-0001-00)
   1. VC1: Please note that this is new single document for the treasurers’ report and is correct up to 31st December 2018. There have been about 290 people here this week.
   2. VC1: Slide #7 shows the summary of the bank account as of 31st August 2019.
7. **Timelines**
   1. There are timeline updates for TGbc, TGbd and TGax. The timeline chart will be updated over the weekend.
8. **Documentation & Attendance** (11-18-2135r4 slide #3)
   1. VC2: Here are the attendance statistics for this week.
9. **WG Committee Reports** (11-18-2135r4)
   1. **Technical editor** (slide #5)
      1. No questions
   2. **AANI Standing Committee** (slide #13)
      1. No questions
   3. **ARC Standing Committee** (slide #17)
      1. No questions
   4. **COEX Standing Committee** (slide #25)
      1. No questions
      2. Chair: I’d like to take the Coex motion at this point, due to the early departure of the Coex chair.
   5. **Coex** (11-18-02133r0 slide #9)
      1. **The IEEE 802.11 WG approves sending 11-19-0063-05 to 3GPP RAN1 as a Liaison Statement**
      2. Moved: Andrew Myles on behalf of SC
      3. Second: Ian Sherlock
      4. Note: r5 is “clean” version of r4
      5. For: 59, Against: 0, Abstain: 0 (Motion passes)
   6. **WNG** **Standing Committee** (11-18-2135r4 slide #30)
      1. There were 2 presentations this week:
         1. An extension to 11ba: legacy transmitter solution for 802.11ba receivers
         2. Network Enablers for Seamless HMD-based VR (Virtual Reality) SG
      2. No questions
   7. **JTC1** **Standing Committee** (11-18-2135r4 slide #33)
      1. No questions
   8. **JTC1 liaison** (11-18-02133r0 slide #9)
      1. **The IEEE 802.11 WG recommends to IEEE 802 EC that the contents of 11-19-0062-01 be liaised to SC6 as IEEE 802.11 WG’s response to the comments on the IEEE 802.11ai FDIS ballot**
      2. Andrew Myles on behalf of the JTC1 SC
      3. Second: Jon Rosdahl
      4. [JTC1 result: 5/0/2]
      5. For: 57, Against: 0, Abstain: 1 (Motion passes)
   9. **TGmd** (11-18-2135r4 slide #38)
      1. No questions.
   10. **TGax** (slide #43)
       1. No questions
   11. **TGax coex doc** (11-18-02133r0 slide #13)
   12. **Move to accept document https://mentor.ieee.org/802.11/dcn/16/11-16-1348-04-00ax-coexistence-assurance.docx as the TGax Coexistence Assurance document.**
       1. Moved: Osama Aboud-Magd
       2. Seconded: Lei Wang
       3. [TGax result: 44/0/1]
       4. For: 57, Against: 0, Abstain: 3 (Motion passes)
   13. **TGax recirc ballot D4.0** (11-18-02133r0 slide #14)
   14. **Having approved comment resolutions for all of the comments received from LB 233 on P802.11ax D3.0 Instruct the editor to prepare P802.11ax D4.0 incorporating these resolutions and, Approve a 15 day Working Group Recirculation Ballot asking the question “Should P802.11ax D4.0 be forwarded to Sponsor Ballot?”**
       1. Moved on behalf of the TG by Osama Aboud-Magd
       2. [TGax result: 48/0/0]
       3. Q: Please can this be extended to 21 days
       4. **Motion to amend the ballot period to 21 days**
          1. Moved: Wook Bong Lee
          2. Second: Mark Emmelmann
          3. For: 37, Against: 3, Abstain: 20 (Motion passes)
   15. **Having approved comment resolutions for all of the comments received from LB 233 on P802.11ax D3.0 Instruct the editor to prepare P802.11ax D4.0 incorporating these resolutions and, Approve a 21 day Working Group Recirculation Ballot asking the question “Should P802.11ax D4.0 be forwarded to Sponsor Ballot?”**
       1. Moved on behalf of the TG by Osama Aboud-Magd
       2. For: 65, Against: 0, Abstain: 0 (Motion passes)
   16. **TGay** (11-18-2135r4 slide #49)
       1. No questions
   17. **TGay recirc ballot D3.0** (11-18-02133r0 slide #15)
   18. **Having approved comment resolutions for all of the comments received from WG Letter Ballot on P802.11ay D2.0 (LB234) as specified in 11-18/1483r6, instruct the editor to generate P802.11ay D3.0, and approve a 15 day recirculation Working Group Technical Letter Ballot asking the question “Should P802.11ay D3.0 be forwarded to Sponsor Ballot?”**
       1. Moved on behalf of the TGay by Edward Au
       2. Q: Can the chair provide some guidance about how this letter ballot will fit with the earlier ballot from 11ax.
       3. Chair: They will start as soon as the drafts are available. Therefore, the letter ballots can occur in parallel.
       4. [TGay result: 21/0/1]
       5. For: 59, Against: 0, Abstain: 0 (Motion passes)
   19. **TGay Coexistence Assurance Document** (11-18-02133r0 slide #16)
   20. **Adopt 11-17/1288r3 as the coexistence assurance document for the IEEE 802.11ay amendment.**
       1. Moved: George Calcev
       2. Seconded: Alexander Eitan
       3. [TGay result: 18/0/0]
       4. For: 57, Against: 0, Abstain: 2 (Motion passes)
   21. **Draft P802.11ay/D3.0 to ISO/IEC/JTC1** (11-18-02133r0 slide #17)
   22. **Move to liaise the following drafts for information to ISO/IEC JTC1/SC6 following WG ballot approval: P802.11ay (D3.0)**
       1. Moved: George Calcev
       2. Seconded: Alexander Eitan
       3. For: 54, Against: 0, Abstain: 2 (Motion passes)
   23. **TGaz** (11-18-2135r4 slide #54)
       1. No questions
   24. **TGaz initial WG ballot** (11-18-02133r0 slide #18)
   25. **Instruct the editor to prepare P802.11az/D1.0, and approve a 30 day Working Group Technical Letter Ballot asking the question “Should TGaz Draft 1.0 be forwarded to Sponsor Ballot”?**
       1. Moved on behalf of the TGaz by Jonathan Segev
       2. [TGaz result: 15/0/0]
       3. For: 59, Against: 2, Abstain: 1 (Motion passes)
       4. TGaz: Regarding the TGaz CSD, it indicates that a co-existence assurance document should have been created. However, since TGaz re-uses existing PHYs, this document is not required. Therefore document 11-19-0215r1 is a CSD update to state ‘no’ to the requirement for the co-existence assurance document.
   26. **TGaz CSD** (11-18-02133r0 slide #19)
   27. **Approve the TGaz CSD in 11-19/215r1**
       1. Moved: Edward Au
       2. Second: Alexander Eitan
       3. For: 58, Against: 0, Abstain: 0 (Motion passes)
   28. **TGba** (11-18-2135r4 slide #59)
       1. No questions
   29. **TGba coexistence assurance document** (11-18-02133r0 slide #20)
   30. **Adopt 11-18/1069r1 as the coexistence assurance document for the P802.11ba amendment.**
       1. Moved: Minyoung Park on behalf of the TGba
       2. Seconded: Nikola Serafimovski
       3. [TGba result: 14/0/0]
       4. For: 48, Against: 3, Abstain: 3 (Motion passes)
       5. Chair: I would like to request the IEEE 802.19 chair to comment as to whether there will be a new ballot on this document?
       6. 802.19 chair: The CA ballot passed last time, so a new ballot will not be held.
   31. **TGba initial WG letter ballot** (11-18-02133r0 slide #21)
   32. **Instruct the editor to prepare P802.11ba/D2.0, and approve a 30 day Working Group Technical Letter Ballot asking the question “Should P802.11ba/D2.0 be forwarded to Sponsor Ballot?”**
       1. Moved: Minyoung Park on behalf of the TGba
       2. [TGba result: 12/0/3]
       3. C: I would like to note that come of the previous comments were resolved by a blanket motion and therefore I speak against this motion.
       4. For: 46, Against: 5, Abstain: 3 (Motion passes)
   33. **TGbb** (11-18-2135r4 slide #63)
       1. No questions
   34. **TGbc** (11-18-2135r4 slide #72)
       1. This was the first meeting of this TGbc this week.
       2. No questions
   35. **EHT (Extremely High Throughput) SG** (11-18-2135r4 slide #84)
       1. No questions
   36. **EHT PAR approval** (11-18-02133r0 slide #25)
   37. **Believing that the PAR contained in the document referenced below meets IEEE-SA guidelines, Request that the PAR contained in11-18/1231r4 <https://mentor.ieee.org/802.11/dcn/18/11-18-1231-04-0eht-eht-draft-proposed-par.docx > be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.** 
       1. Moved: Stephen McCann, Second: Stephen Palm
       2. [EHT SG result: 97/0/2]
       3. For: 58, Against: 0, Abstain: 1 (Motion passes)
   38. **EHT CSD approval** (11-18-02133r0 slide #26)
   39. **Believing that the CSD contained in the document referenced below meets IEEE 802 guidelines, Request that the CSD contained in 11-18/1233r4 <https://mentor.ieee.org/802.11/dcn/18/11-18-1233-04-0eht-eht-draft-proposed-csd.docx > be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval.**
       1. Moved: Stephen McCann, Second: Ian Sherlock
       2. [EHT SG result: 97/0/3]
       3. For: 56, Against: 0, Abstain: 1 (Motion passes)
   40. **RTA (Real Time Applications) TIG** (11-18-2135r4 slide #88)
       1. No questions
   41. **TGbd** (11-18-2135r4 slide #80)
       1. This was the first meeting of this TGbd this week.
       2. No questions
   42. **TGbd vice-chair confirmation** (11-18-02133r0 slide #23)
       1. **Confirm Hongyuan Zhang and Joseph Levy as vice chairs of TGbd**
       2. Moved: Michael Fischer, Second: Lei Wang
       3. No objection to approving by acclamation.
   43. **TGbd terminology** (11-18-02133r0 slide #24)
       1. **Approve 802.11-19/0202r1 TGbd agreed terminology and requirements, to be referred to by IEEE 802.18.**
       2. Moved: Michael Fischer, Second: Peter Ecclesine
       3. [TGbd result: 15/0/1]
       4. For: 44, Against: 0, Abstain: 1 (Motion passes)
   44. **TGbc vice-chair confirmation** (11-18-02133r0 slide #22)
       1. **Confirm Hitoshi Morioka and Stephan McCann as vice chairs of TGbc**
       2. Moved: Hiroshi Mano, Second: Edward Au
       3. No objection to approving by acclamation.
10. **Liaison Reports**
    1. **IEEE 802.15** (11-19-0213r0)
       1. No questions
    2. **IEEE 802.18** (11-19-0169r0)
       1. Worked with 802.11bd on some comments and inputs.
       2. Q: Regarding the petition to waiver from 5GAA, what’s the position?
       3. 802.18 chair: The 5 day ballot finished this week and then the document was uploaded to the FCC site. However, the FCC site only says that it has gone into their queue at the moment. The EC ballot was 12/0/0.
    3. **IEEE 802.19** (11-19-0084r0)
       1. No questions
    4. **IEEE 802.21** (11-19-0214r0)
       1. C: The virtual reality study group was approved by the EC in November 2018.
    5. **IEEE 802.24** (11-19-0210r0)
       1. No questions
11. **Working Group Motions (Old Business)** (11-18-02133r0)
    1. **Teleconferences** (slide #7)
       1. **Move to approve the following teleconferences**

|  |  |  |  |
| --- | --- | --- | --- |
| **Group** | **Date(s)** | **Start** | **Duration** |
| **CAC** | **Monday: January 28, February 25** | **Noon ET** | **1 hr** |
| **TGmd** | **Fridays: February 1, 8, 15, 22, March 1** | **10:00 ET** | **3 hr** |
| **ARC** | **None** | **Noon ET** | **1.5 hr** |
| **AANI** | **None** | **10:00 ET** | **1 hr** |
| **TGax** | **None** | **18:00 ET**  **10:00 ET** | **2 hr**  **2 hr** |
| **TGay** | **Wednesdays: February 27, March 6** | **10:00 ET** | **1.5 hr** |
| **TGaz** | **Wednesdays: March 6** | **12:00 ET** | **1.5 hr** |
| **TGba** | **Monday: March 4** | **10:00 ET** | **2 hr** |
| **TGbb** | **Friday: February 1, 15,**  **Thursday: March 7** | **9:00 ET**  **9:00 ET** | **1 hr**  **1 hr** |
| **TGbc** | **Tuesdays: February 12, March 19** | **10:00 ET** | **1 hr** |
| **TGbd** | **Tuesday: January 29, March 5**  **February 19, March 19** | **10:00 ET**  **18:00 ET** | **2 hr**  **2 hr** |
|  |  |  |  |
| **RTA** | **Wednesday: January 30, February 27** | **18:00 ET** | **1.5 hr`** |
| **EHT** | **None** | **10:00 ET** | **2 hr** |

* + 1. Moved: Nikola Serafimovski, 2nd: Hiroshi Mano
    2. No objection to approving by unanimous consent.
  1. **FD TIG minutes** (slide #8)
     1. **Approve the FD TIG minutes for November 2018 in** [**https://mentor.ieee.org/802.11/dcn/18/11-18-2076-00-00fd-fd-tig-meeting-minutes-for-november-2018.docx**](https://mentor.ieee.org/802.11/dcn/18/11-18-2076-00-00fd-fd-tig-meeting-minutes-for-november-2018.docx)
     2. Moved: Edward Au, Second: Mark Hamilton
     3. No objection to approving by unanimous consent.
  2. **TGmd – ad-hoc** (slide #11)
     1. **Approve a TGmd ad-hoc meeting week of April 1, 2019 for the purpose of comment resolution and consideration of document submissions**
     2. Moved: Mark Hamilton, Second: Jouni Malinen
     3. No objection to approving by unanimous consent.
  3. **TGmd liaison to Wi-Fi Alliance** (slide #12)
     1. **Approve the liaison statement in https://mentor.ieee.org/802.11/dcn/19/11-19-0185-01-000m-proposed-ls-to-wfa-on-reserved-usage.docx from IEEE 802.11 to WFA regarding ANA assignment requests, granting the WG chair editorial license.**
     2. Moved: Jouni Malinen, Seconded: Mark Hamilton
     3. For: 42, Against: 1, Abstain: 0 (Motion passes)

1. **Impact of Random MAC Addresses** (11-19-0212r0)
   1. This is a discussion about whether IEEE 802.11 should address the impact of random MAC addresses.
   2. C: I’d prefer to continue the discussion in ARC.
   3. A: Yes, that’s fair enough, but perhaps this requires further investigation.
   4. C: I’d like to see clear division of this work in ARC. The scope of the TIG needs to be considered.
   5. C: A dedicated group is necessary to do this work. A TIG would be a good idea to start this off.
   6. Chair: If any changes are required to the IEEE 802.11 specification, then a TIG is not a place to consider such changes.
2. **Next Meeting** (11-18-2083r1 slide #21)
   1. The next meeting is at the Hyatt Regency Vancouver and Fairmont Hotel Vancouver, Vancouver, Canada from March 10th – 15th 2019. Registration and hotel reservations are now open for this meeting.
   2. Please pay special attention to the letter ballot planning slide #22
   3. There will be an IEEE 802 Wireless Chairs meeting, as shown in slide #21, on Sunday at 16:00 local time at the March 2019 meeting. This is an open meeting, and everyone is welcome.
3. **AoB:**
   1. **Japan Channel 144**
      1. The Japan MIC has recently started a consultation on its report related to the high efficiency wireless LAN, including the possibility of opening channel 144 for unlicensed operation. For details, please refer to <http://www.soumu.go.jp/menu_news/s-news/02kiban12_04000238.html>. The comment submission deadline is February 21, 2019.
4. **Adjournment**
   1. Chair: Having completed the agenda, the chair announced that the meeting was adjourned at 10:22 CST.

**Annex A: Attendance & Affiliation**

| **Name** | **Affiliation** | **Attended >= 75%?** | **Status** |
| --- | --- | --- | --- |
| Abouelseoud, Mohamed | Sony Corporation | Yes | Voter |
| Aboulmagd, Osama | Huawei Technologies Co. Ltd | Yes | Voter |
| Adachi, Tomoko | TOSHIBA Corporation | Yes | Voter |
| Adhikari, Shubhodeep | Broadcom Corporation | Yes | Voter |
| Ahn, Woojin | WILUS | Yes | Voter |
| Akhmetov, Dmitry | Intel Corporation | Yes | Aspirant |
| Ansley, Carol | ARRIS Group | Yes | Voter |
| Asterjadhi, Alfred | Qualcomm Incorporated | Yes | Voter |
| Au, Kwok Shum | Huawei Technologies Co., Ltd | Yes | Voter |
| Baeten, Robert | Qorvo | Yes | Voter |
| Baik, Eugene | Qualcomm Incorporated | Yes | Voter |
| Bajko, Gabor | MediaTek Inc. | Yes | Potential Voter |
| baron, stephane | Canon Research Centre France | Yes | Voter |
| Batra, Anuj | Apple, Inc. | No | Voter |
| Bei, Jianwei | Marvell Semiconductor, Inc. | Yes | Voter |
| Berens, Friedbert | FBConsulting Sarl | Yes | Voter |
| Berger, Christian | Marvell | Yes | Voter |
| Berkema, Alan | HP Inc. | Yes | Voter |
| Bhandaru, Nehru | INDEPENDENT | Yes | Voter |
| Bims, Harry | Bims Laboratories, Inc. | Yes | Voter |
| Bober, Lennert | Fraunhofer Heinrich Hertz Institute | No | Potential 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 |
| Cao, Rui | Marvell Semiconductor, Inc. | 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) | No | Voter |
| Chen, Cheng | Intel Corporation | Yes | Voter |
| Chen, Xiaogang | Intel Corporation | Yes | Voter |
| CHERIAN, GEORGE | Qualcomm Incorporated | Yes | Voter |
| Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. | Yes | Voter |
| Cho, Hangyu | LG ELECTRONICS | Yes | Potential 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 |
| Correll, Perry | Aerohive Networks | Yes | Voter |
| da Silva, Claudio | Intel Corporation | Yes | Voter |
| Das, Dibakar | Intel | Yes | Voter |
| Dash, Debashis | Quantenna Communications, Inc. | Yes | Voter |
| Dauphinee, Leonard | MaxLinear Corp | Yes | Potential Voter |
| Dave, Brajesh | Apple, Inc. | Yes | Voter |
| de Vegt, Rolf | Qualcomm Incorporated | Yes | Voter |
| Derham, Thomas | Broadcom Corporation | No | Voter |
| Doostnejad, Roya | Intel Corporation | No | Aspirant |
| Ecclesine, Peter | Cisco Systems, Inc. | Yes | Voter |
| Eitan, Alecsander | Qualcomm Incorporated | Yes | Voter |
| Emmelmann, Marc | Self Employed / Koden-TI | Yes | Voter |
| Erceg, Vinko | Broadcom Corporation | Yes | Voter |
| Fang, Juan | Intel Corporation | Yes | Aspirant |
| Fang, Yonggang | ZTE TX Inc | Yes | Voter |
| Fischer, Matthew | Broadcom Corporation | Yes | Voter |
| Fischer, Michael | Fischer Consulting | Yes | Voter |
| Gan, Ming | Huawei Technologies Co. Ltd | Yes | Voter |
| Garcia Villegas, Eduard | Universitat Politecnica de Catalyuna (UPC) | Yes | Voter |
| Ghosh, Chittabrata | Intel Corporation | Yes | Voter |
| Gilb, James | General Atomics Aeronautical Systems, Inc.; GenXComm; Gilb Consulting, Inc. | No | ExOfficio |
| Godbole, sachin | Broadcom Corporation | Yes | Voter |
| Godfrey, Tim | Electric Power Research Institute, Inc. (EPRI) | No | ExOfficio |
| Grandhe, Niranjan | Marvell Semiconductor, Inc. | Yes | Voter |
| Gundavelli, Sri | Cisco Systems, Inc. | No | Aspirant |
| Guo, Yuchen | Huawei Technologies Co. Ltd | Yes | Voter |
| Hall, Robert | RETIRED | Yes | Voter |
| Hamilton, Mark | Ruckus Wireless | Yes | Voter |
| HAN, Xiao | Huawei Technologies Co. Ltd | Yes | Voter |
| Hansen, Christopher | Covariant Corporation | Yes | Voter |
| Hart, Brian | Cisco Systems, Inc. | Yes | Potential Voter |
| Hartman, Chris | Apple, Inc. | Yes | Voter |
| hervieu, Lili | Cable Television Laboratories Inc. (CableLabs) | Yes | Voter |
| Hiertz, Guido | Ericsson AB | Yes | Voter |
| Hirata, Ryuichi | Sony Corporation | Yes | Potential Voter |
| Ho, Duncan | Qualcomm Incorporated | Yes | Voter |
| Hu, Chunyu | Broadcom Corporation | Yes | Voter |
| Hu, Glenn | Tencent | Yes | Voter |
| Huang, Guogang | Huawei Technologies Co. Ltd | No | Aspirant |
| Huang, Lei | Panasonic Asia Pacific Pte Ltd. | Yes | Voter |
| Huang, Po-Kai | Intel Corporation | Yes | Voter |
| Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) | Yes | Voter |
| Ishizu, Kentaro | National Institute of Information and Communications Technology (NICT) | Yes | Potential Voter |
| Jeffries, Timothy | Huawei R&D USA | No | Voter |
| jiang, feng | Intel Corporation | Yes | Voter |
| Jones, Allan | Activision | Yes | Voter |
| JONES, JEFFRUM | Qorvo, Inc | Yes | Voter |
| Jones, Vincent Knowles IV | Qualcomm Incorporated | No | Voter |
| Jungnickel, Volker | Fraunhofer HHI | Yes | Voter |
| Kakani, Naveen | Qualcomm Incorporated | Yes | Potential Voter |
| Kasher, Assaf | Qualcomm Incorporated | Yes | Voter |
| Kedem, Oren | Intel Corporation | Yes | Voter |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. | Yes | Potential Voter |
| Kerry, Stuart | OK-Brit | Yes | Voter |
| Khalid, Ihtisham | Article 19 | Yes | Voter |
| Kim, Jeong Gon | Korea Polytechnic University (KPU) | No | Voter |
| Kim, Jeongki | LG ELECTRONICS | No | Voter |
| Kim, Sang Gook | LG ELECTRONICS | Yes | Voter |
| Kim, Suhwook | LG ELECTRONICS | Yes | Voter |
| Kim, Youhan | Qualcomm Incorporated | Yes | Voter |
| Kim, Youn-Kwan | The Catholic University of Korea | Yes | Voter |
| Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) | Yes | Potential Voter |
| Kitazawa, Shoichi | Muroran IT | No | Non-Voter |
| Klein, Arik | Intel Corporation | Yes | Potential Voter |
| Kloper, David | Cisco Systems, Inc. | Yes | Potential Voter |
| KNECKT, JARKKO | Apple, Inc. | Yes | Voter |
| Krieger, Ann | US Department of Defense | No | Non-Voter |
| Kumar, Manish | Marvell Semiconductor, Inc. | Yes | Voter |
| Lan, Zhou | Broadcom Corporation | Yes | Voter |
| Lanante, Leonardo | Kyushu Institute of Technology | Yes | Aspirant |
| Lansford, James | Qualcomm Incorporated | Yes | Voter |
| Latif, Imran | Quantenna Communications, Inc. | Yes | Potential Voter |
| Lee, Hyeong Ho | Netvision Telecom Inc. | No | Voter |
| Lee, Wookbong | SAMSUNG | Yes | Voter |
| Lepp, James | BlackBerry | Yes | Voter |
| Levy, Joseph | InterDigital, Inc. | Yes | Voter |
| Li, Guoqing | Apple, 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 |
| Lin, Wei | ZTE Corporation | Yes | Voter |
| Lin, Yingpei | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Lindskog, Erik | SAMSUNG | Yes | Voter |
| Liu, Jianhan | MediaTek Inc. | Yes | Voter |
| Liu, Yong | Apple, Inc. | Yes | Voter |
| Loc, Peter | Huawei Technologies Co. Ltd | Yes | Voter |
| Lomayev, Artyom | Intel Corporation | Yes | Potential Voter |
| Lopez, Miguel | Ericsson AB | Yes | Voter |
| Lopez-Perez, David | Nokia | Yes | Voter |
| Lv, Kaiying | ZTE Corporation | Yes | Voter |
| Madpuwar, Girish | Broadcom Corporation | Yes | Voter |
| Malinen, Jouni | Qualcomm Incorporated | Yes | Voter |
| Maltsev, Alexander | Intel Corporation | Yes | Voter |
| Mano, Hiroshi | Koden Techno Info K.K. | Yes | Voter |
| MAQBOOL, Masood | Apple, Inc. | No | Non-Voter |
| Marks, Roger | EthAirNet Associates; Huawei | No | ExOfficio |
| Max, Sebastian | Ericsson AB | Yes | Potential Voter |
| Mccann, Stephen | BlackBerry | Yes | Voter |
| Meng, Xing | Tencent | Yes | Voter |
| Monajemi, Pooya | Cisco Systems, Inc. | Yes | Voter |
| Montemurro, Michael | BlackBerry | Yes | Voter |
| Morioka, Hitoshi | SRC Software | Yes | Voter |
| Motozuka, Hiroyuki | Panasonic Corporation | Yes | Voter |
| Myles, Andrew | Cisco Systems, Inc. | Yes | Voter |
| Nagai, Yukimasa | Mitsubishi Electric Corporation | No | Voter |
| Nakano, Takayuki | Panasonic Corporation | Yes | Potential Voter |
| Nandagopalan, SAI SHANKAR | Cypress Semiconductor Corporation | Yes | Voter |
| Naribole, Sharan | SAMSUNG | Yes | Potential Voter |
| Noh, Yujin | LG ELECTRONICS | Yes | Voter |
| Orlik, Philip | Mitsubishi Electric Research Labs (MERL) | No | Non-Voter |
| Oteri, Oghenekome | InterDigital, Inc. | Yes | Voter |
| Palm, Stephen | Broadcom Corporation | Yes | Voter |
| Pare, Thomas | MediaTek Inc. | Yes | Voter |
| Park, Eunsung | LG ELECTRONICS | Yes | Voter |
| Park, Minyoung | Intel | Yes | Voter |
| Patil, Abhishek | Qualcomm Incorporated | Yes | Voter |
| Patwardhan, Gaurav | Hewlett Packard Enterprise | Yes | Voter |
| Petranovich, James | ViaSat, Inc. | Yes | Voter |
| petrick, Albert | Jones-Petrick and Associates, LLC. | Yes | Voter |
| Petry, Brian | Broadcom Corporation | Yes | Voter |
| porat, ron | Broadcom Corporation | Yes | Voter |
| Qi, Emily | Intel Corporation | Yes | Voter |
| Raissinia, Alireza | Qualcomm Incorporated | Yes | Voter |
| Ranganath, Ashok | SAMSUNG | Yes | Voter |
| Redlich, Oded | Huawei Technologies Co. Ltd | Yes | Aspirant |
| Rison, Mark | Samsung Cambridge Solution Centre | Yes | Voter |
| Rosdahl, Jon | Qualcomm Technologies, Inc. | Yes | Voter |
| Ryu, Kiseon | LG ELECTRONICS | Yes | Voter |
| Sadeghi, Bahareh | Intel Corporation | Yes | Voter |
| Sadri, Ali | Intel Corporation | Yes | Potential Voter |
| Sahin, Alphan | InterDigital, Inc. | Yes | Voter |
| Sakamoto, Takenori | Panasonic Corporation | Yes | Voter |
| Sakoda, Kazuyuki | Sony Corporation | Yes | Voter |
| Sambasivan, Sam | AT&T | Yes | Aspirant |
| Sarris, Ioannis | u-blox | Yes | Potential Voter |
| Sato, Naotaka | Sony Corporation | Yes | Voter |
| Schelstraete, Sigurd | Quantenna Communications, Inc. | Yes | Voter |
| Segev, Jonathan | Intel Corporation | Yes | Voter |
| Seok, Yongho | MediaTek Inc. | Yes | Voter |
| Serafimovski, Nikola | pureLiFi | No | Voter |
| Sharma, Prashant | Marvell Semiconductor, Inc. | Yes | Potential 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 |
| Stacey, Robert | Intel Corporation | Yes | Voter |
| Stahl Diskin, Nir | Broadcom Corporation | Yes | Voter |
| Stanley, Dorothy | Hewlett Packard Enterprise | Yes | Voter |
| Stavridis, Athanasios | Ericsson AB | Yes | Voter |
| Stott, Noel | Keysight Technologies | Yes | Voter |
| Strauch, Paul | Cypress Semiconductor Corporation | Yes | Voter |
| SU, HONGJIA | Huawei Technologies Co., Ltd | Yes | Aspirant |
| 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 |
| sun, sheng | Huawei Technologies Co. Ltd | Yes | Voter |
| Sundman, Dennis | Ericsson AB | Yes | Voter |
| Takai, Mineo | Space-Time Engineering | Yes | Voter |
| Tan, Pek-Yew | Panasonic Corporation of North America | No | Non-Voter |
| Tanaka, Yusuke | Sony Corporation | Yes | Voter |
| Therrien, Scott | Teradyne, Inc. | Yes | Potential Voter |
| Tian, Bin | Qualcomm Incorporated | Yes | Voter |
| Toledano, Ron | Autotalks | No | Non-Voter |
| Torab, Payam | Facebook | Yes | Voter |
| Trainin, Solomon | Qualcomm Incorporated | Yes | Voter |
| Unterhuber, Paul | German Aerospace Center (DLR) | Yes | Aspirant |
| Urabe, Yoshio | Panasonic Corporation | No | Voter |
| V Padaki, Aditya | Samsung Research America | No | Voter |
| Vaidya, Maulik | Charter Communications | Yes | Aspirant |
| Varshney, Prabodh | Nokia | Yes | Voter |
| Venkatesan, Ganesh | Intel Corporation | Yes | Voter |
| Verma, Sindhu | Broadcom Corporation | Yes | Voter |
| Vermani, Sameer | Qualcomm Incorporated | Yes | Voter |
| VIGER, Pascal | Canon Research Centre France | 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 | Southeast University, China | Yes | Voter |
| Wang, Xiaofei | InterDigital, Inc. | Yes | Voter |
| WANG, Ying | HUAWEI | Yes | Aspirant |
| Want, Roy | Google | Yes | Voter |
| Wendt, Matthias | Signify | No | Potential 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 |
| YAGHOOBI, HASSAN | Intel Corporation | Yes | Voter |
| YANG, RUI | InterDigital, Inc. | Yes | 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 |
| Yu, Jian | Huawei Technologies Co. Ltd | Yes | Voter |
| Yu, Mao | Marvell Semiconductor, Inc. | Yes | Voter |
| Zhang, Hongyuan | Marvell Semiconductor, Inc. | Yes | Voter |
| Zhang, Yan | Marvell Semiconductor, Inc. | Yes | Voter |
| Zhou, Richard (Yujia) | Charter Communications | Yes | Aspirant |

**Annex B : Working Group Officers**

**Working Group**

|  |  |  |
| --- | --- | --- |
| Name (Affiliation) | Position | Contact Details |
| Dorothy Stanley (HP Enterprise) | IEEE 802.11 Working Group Chair | +1( 630) 363-1389  [dstanley@ieee.org](mailto:dstanley@ieee.org) |
| Jon Rosdahl (Qualcomm) | 1st Vice Chair (Venues and meeting planning) Treasurer | +1 (801) 492-4023 [jrosdahl@ieee.org](mailto:jrosdahl@ieee.org) |
| Robert Stacey (Intel Corporation) | 2nd Vice Chair (Rules and reflectors) IEEE 802 (LMSC) EC delegate | +1 (503) 712 4447 [robert.stacey@intel.com](mailto:robert.stacey@intel.com) |
| Stephen McCann (Blackberry Ltd.) | Secretary | +44 1753 667099 [stephen.mccann@ieee.org](mailto:stephen.mccann@ieee.org) |
| Peter Ecclesine (Cisco Systems, Inc.) | Co-Technical Editor | +1 (408) 710-3403 [petere@ieee.org](mailto:petere@ieee.org) |
| Robert Stacey (Intel Corporation) | Co-Technical Editor 802.11 Assigned Numbers Authority | +1 (503) 712 4447 [robert.stacey@intel.com](mailto:robert.stacey@intel.com) |

**Standing Committees**

|  |  |  |
| --- | --- | --- |
| Name (Affiliation) | Position | Contact Details |
| Jim Lansford (Qualcomm) | Wireless Next Generation (WNG) Chair | +1-719-286-8660 [jim.lansford@ieee.org](mailto:jim.lansford@ieee.org) |
| Joseph Levy  (InterDigital Communications Inc.) | Advanced Access Network Interface (AANI) Chair | +1.631.622.4139 [jslevy@ieee.org](mailto:jslevy@ieee.org) |
| Mark Hamilton (Ruckus Wireless) | Architecture (ARC) Chair | +1 (303) 818-8472 [mark.hamilton2152@gmail.com](mailto:mark.hamilton2152@gmail.com) |
| Jon Rosdahl (Qualcomm) | Project Authorization Request (PAR) review Chair | +1 (801) 492-4023 [jrosdahl@ieee.org](mailto:jrosdahl@ieee.org) |
| Andrew Myles (Cisco) | Coexistence Standing Committee Chair | +61 418 656587 [amyles@cisco.com](mailto:amyles@cisco.com) |

**Task Groups**

|  |  |  |
| --- | --- | --- |
| Name (Affiliation) | Position | Contact Details |
| Osama Aboul-Magd (Huawei) | TGax Chair High Efficiency WLAN | +1 (613) 287-1405 [osama.aboulmagd@huawei.com](mailto:osama.aboulmagd@huawei.com) |
| Edward Au (Huawei) | TGay Chair Next Generation 60 GHz (NG60) | +1 773 782 6875  [edwardau@marvell.com](mailto:edwardau@marvell.com) |
| Jonathan Segev (Intel Corporation) | TGaz Chair Next Generation Positioning (NGP) | +972-54-2403587 [jonathan.segev@intel.com](mailto:jonathan.segev@intel.com) |
| Minyoung Park (Intel Corporation) | TGba Chair Wake-up Radio (WUR) | [mpark.ieee@gmail.com](mailto:mpark.ieee@gmail.com) |
| Nikola Serafimovski (pureLiFi) | TGbb Chair Light Communication (LC) | +44 131 516 1816 [nikola.serafimovski@purelifi.com](mailto:nikola.serafimovski@purelifi.com%3E) |
| Marc Emmelmann (Koden-TI) | TGbc Chair  Broadcast Services (BCS) | [marc.emmelmann@me.com](mailto:marc.emmelmann@me.com) |
| Bo Sun (ZTE) | TGbd Chair  Next Generation V2X  (NGV) | [sun.bo1@zte.com.cn](mailto:sun.bo1@zte.com.cn) |
| Dorothy V. Stanley (HPE) | TGmd Chair 802.11 revision project - P802.11REVmd | +1( 630) 363-1389  [dorothy.stanley@hpe.com](mailto:dorothy.stanley@hpe.com) |

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**Study Groups & Topic Interest Groups (TIG)**

|  |  |  |
| --- | --- | --- |
| Name (Affiliation) | Position | Contact Details |
| Michael Montemurro (Blackberry) | Extremely High Throughput Topic Interest Group Chair | [mmontemurro@blackberry.com](mailto:mmontemurro@blackberry.com) |
| Allan Jones (Activision) | Real Time Applications Topic Interest Group Chair | [Allan.Jones@activision.com](mailto:Allan.Jones@activision.com) |

**Liaison Officials to non IEEE-802 organizations**

|  |  |  |
| --- | --- | --- |
| Name (Affiliation) | Position | Contact Details |
| Peter Yee (Akayla) | Liaison to IETF (Internet Engineering Task Force) | [peter@akayla.com](mailto:peter@akayla.com) |
| Ian Sherlock (Texas Instruments Inc.) | Liaison to WFA (Wi-Fi Alliance) | +1-972-995-2011 [isherlock@ieee.org](mailto:isherlock@ieee.org) |

**Liaison Officials to IEEE-802 organizations**

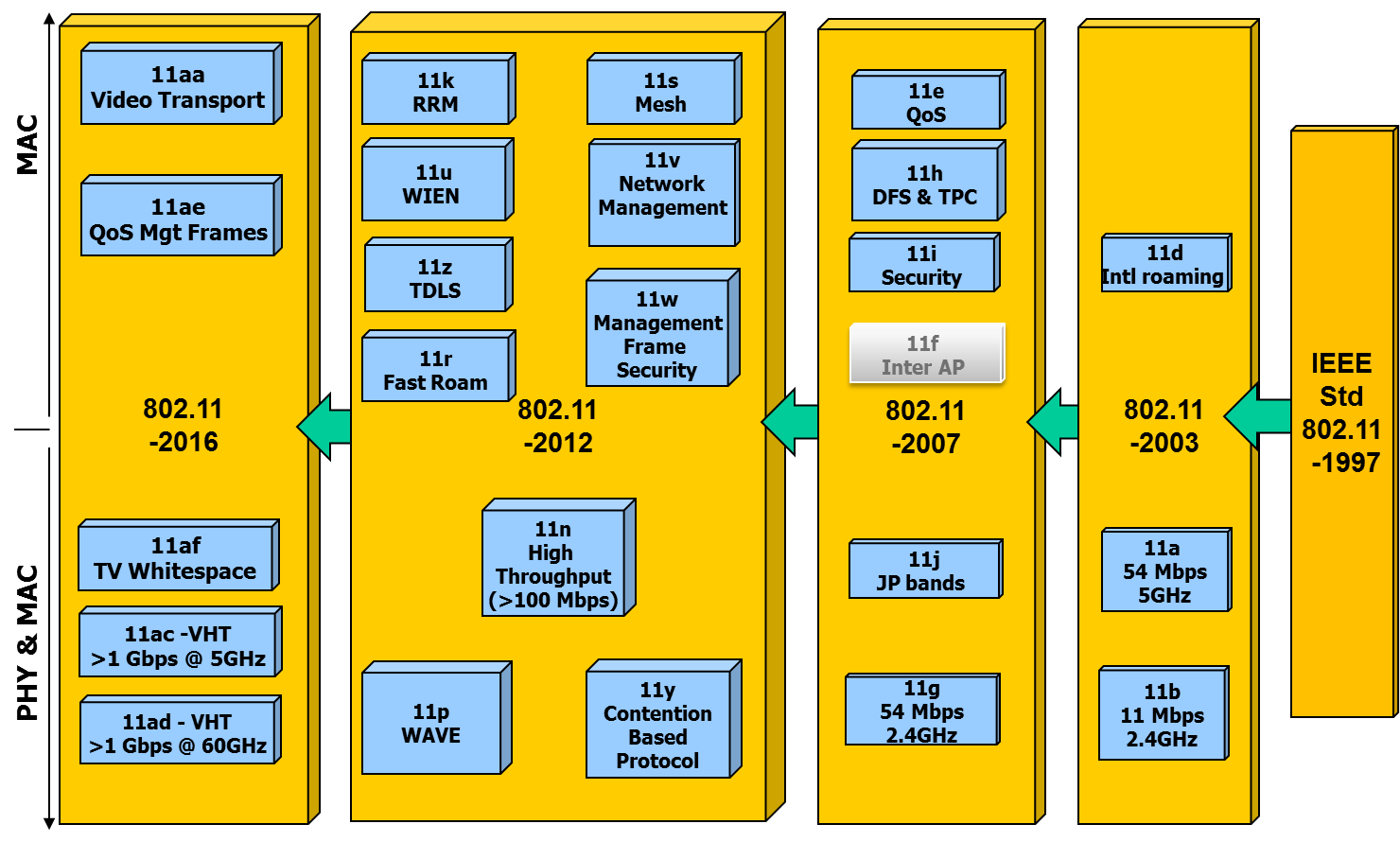
|  |  |  |
| --- | --- | --- |
| Name (Affiliation) | Position | Contact Details |
| Juan-Carlos Zuniga (InterDigital Communications) | Liaison to IEEE 802E | [j.c.zuniga@ieee.org](mailto:j.c.zuniga@ieee.org) |
| Jay Holcomb (Itron) | Liaison to IEEE 802.18 | +1 (509) 891-3281 [jay.holcomb@itron.com](mailto:jay.holcomb@itron.com) |
| Tuncer Baykas (Istanbul Medipol Universitesi) | Liaison to IEEE 802.19 | [tbaykas@ieee.org](mailto:tbaykas@ieee.org) |
| Tim Godfrey (Electric Power Research Institute) | Liaison to IEEE 802.24 | +1 (650) 855-8584 (office) [tim.godfrey@ieee.org](mailto:tim.godfrey@ieee.org) |

**Annex C : Minutes**

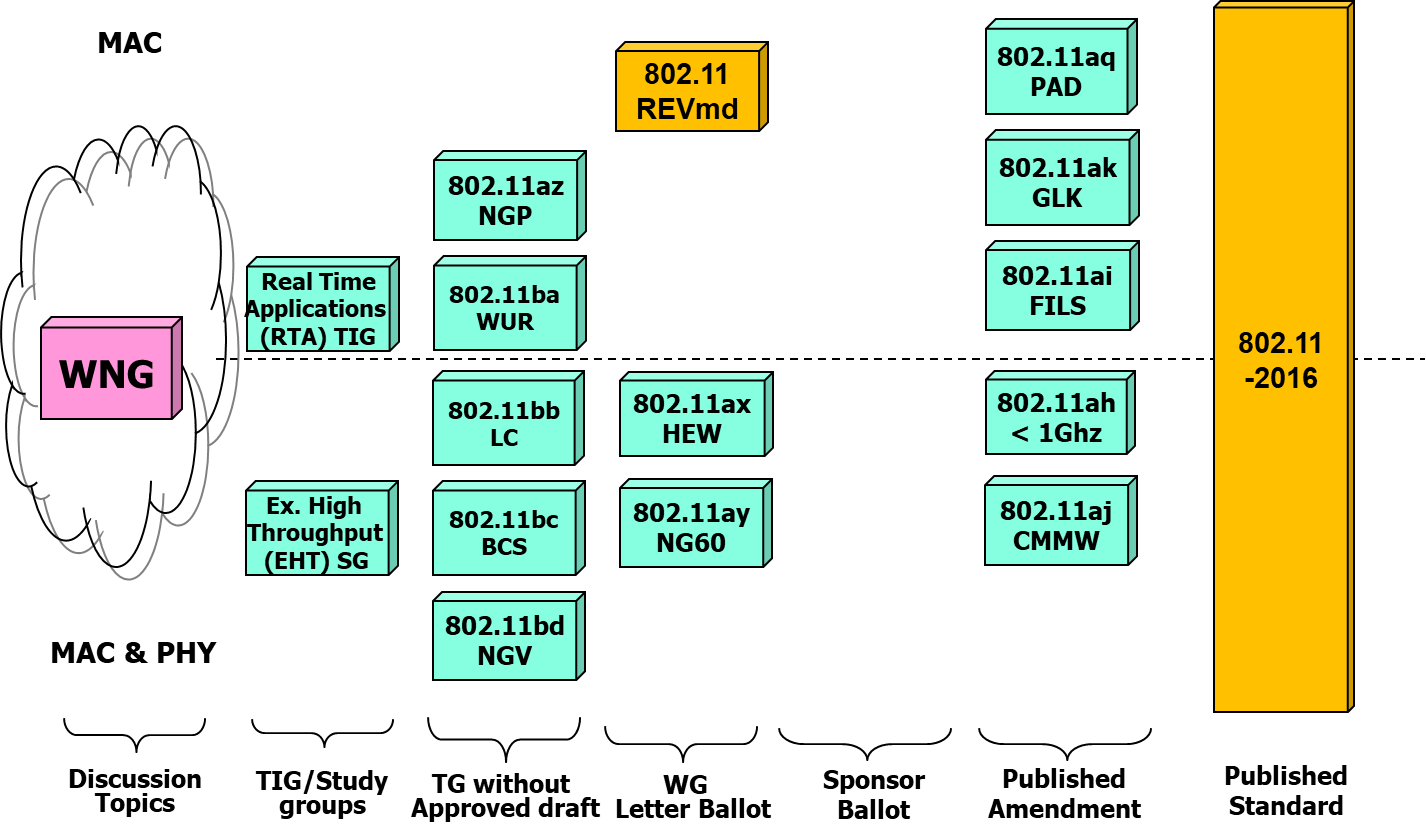
This Annex contains references to all IEEE 802.11 SC/TG/SG & Ad Hoc Committee (AHC) minutes from this meeting. Please note that they are NOT subject to the approval of these minutes, but are confirmed and approved by their individual group in the opening meeting at their next session.

|  |  |  |
| --- | --- | --- |
| WG | TE | 19-0003r1 |
| TGmd | TG | 18-2140r0 |
| TGax | TG | 19-0126r0 |
| TGay | TG | 19-0225r0 |
| TGaz | TG | 19-0127r0 |
| TGba | TG | 19-0226r0 |
| TGbb | TG | 19-0211r0 |
| TGbc | TG | 19-0119r1 |
| TGbd | TG | 19-0228r0 |
| AANI | SC | 19-0234r0 |
| COEX | SC | 19-0271r0 |
| WNG | SC | 19-0141r0 |
| JTC 802 | SG | 19-0252r0 |
| ARC | SG | 19-0165r0 |
| RTA | TIG | 19-0392r0 |
| EHT | SG | 19-0227r0 |

**Annex D : Revisions and Standards Pipeline**

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**IEEE 802.11 Revisions**

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**IEEE 802.11 Standards Pipeline**

End.