IEEE P802.11  
Wireless LANs

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| Minutes of the IEEE P802.11 Full Working Group | | | | |
| Date: 2020-01-10 | | | | |
| Author(s): | | | | |
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Abstract

This document constitutes the minutes of the IEEE 802.11 full working group for the January 2020, Irvine, California, USA meeting.

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

**IEEE 802 Wireless Interim Meeting – Joint Opening Plenary #112**

**Irvine, California, USA**

**January 13th, 2020**

**8:02 802.11, 802.15, 802.18, 802.19, and 802.21 Chairs called the 112th joint wireless meeting to order**

B Heile (Decawave) presented the IEEE 802 Wireless Top 10 prepared by the meeting organizer for the attendees of this session (included as Annex A).

General announcements:

* No photography, no audio recording
* Don’t forget, book your room and register for March’s session

Straw Poll of new attendees: 5

**8:06 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>)

**8:10 Financial report by J Rosdahl (Qualcomm)** doc [ec-19-0216-00](https://mentor.ieee.org/802-ec/dcn/19/ec-19-0216-00-WCSG-wireless-treasurer-report-jan-2020-irvine.pptx)

Total liabilities and equity $689,791.90 (includes revenue from this meeting, however expenses from this meeting have not been entered)

The number of people who are currently registered at this meeting is 335.

Comment made that thanked Jon for this service he provides to the groups.

**8:18 Wireless and IMAT announcements by R Alfvin (Linespeed)**

* Information can be found at [ieee802.linespeed.io](http://ieee802.linespeed.io/)
* Noted that hot-spots from PCs or phones have been creating a lot of interference to the meeting access points, requested that people turn off their hot-spots.

**8:22 Wireless Chairs Standing Committee (WCSC)**

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/20/ec-20-0003-00-WCSG-irvine-january-2020-minutes.docx>

**8:23 Review future interim sessions**

* + May 10-15, 2020 Warsaw Marriott
  + Sept 13-18, 2020 Grand Hyatt Atlanta in Buckhead
  + Jan 10-15, 2021 Marriott New Orleans (To be Contracted - TBC)
  + May 9-14, 2021 Sapporo, Japan (TBC)
  + Sept 12-17, 2021 Hilton Waikoloa Village
  + Jan 16-21, 2022 Hotel Irvine
  + May 15-20, 2022 Hilton Panama (TBC)
  + Sept 11-16, 2022 Hilton Waikoloa Village
  + Jan 15-20, 2023 Baltimore Marriott Waterfront (TBC)

**8:24 Working Group Updates**

802.11 by Dorothy Stanley (HPE), ([11-19-2131-00](https://mentor.ieee.org/802.11/dcn/19/11-19-2131-00-0000))

* Voters: 323, Nearly: 39, Aspirant: 103

802.15 by B Heile (Decawave)

* Voters: 94, Nearly: 9, Aspirant: 16
* TG4md 15.4 revision 4
* TG 15.4y Security Next Generation (SECN)
* TG 15.4z Enhanced impulse radio (EIR)
* TG 9ma 15.9 revision of Key Management Protocol
* TG 12 Upper Layer Interface (ULI) for 802.15.4
* TG 13 Multi-Gigabit OWC
* TG16t Amendment to 802.16
* IG VAT Vehicular Assistive Technology

802.18 by J Holcomb (Itron) ([18-20-0003-00](https://mentor.ieee.org/802.18/dcn/19/18-20-0003-00-0000-agenda-stl-interim-15-17-jan-2019-rr-tag.pptx))

* Voters: 44, Aspirant 19
* EU activities in ETSI, CEPT, etc.
* ITU-R activities
* FCC 5.9 GHz NPRM (primary agenda item)

802.19 S Shellhammer (Qualcomm) ([19-20-0002-01](https://mentor.ieee.org/802.19/dcn/19/19-20-0002-01-0000-.pptx))

* 52 voting members

802.24 Tim Godfrey (EPRI) ([24-20-0002-00](https://mentor.ieee.org/802.24/dcn/20/24-20-0002-00-0000-january-2020-meeting-presentation.pptx))

* 27 voting members
* SEPA request for update to Wireless Matrix: Last version provided by 802.24 is [24-18-0028-00](file:///\\Users\patrickkinney\MyDocuments\IEEE\Irvine%202020%20Jan\24-18-0028-00-sgtg-wireless-characteristics-matrix-update-2018-08-29-Draft-dot24edits.xlsx)
* White Papers:
  + Low latency: Latest Draft is [802.24-19-0003r5](https://mentor.ieee.org/802.24/dcn/19/24-19-0003-05-0000-low-latency-communication-white-paper.docx)
  + IEEE 802 Solutions for Vertical Applications: Draft is posted as [IEEE802-24/19-0017r3](https://mentor.ieee.org/802.24/dcn/19/24-19-0017-03-0000-ieee-802-solutions-for-vertical-applications.docxhttps:/mentor.ieee.org/802.24/dcn/19/24-19-0017-02-0000-ieee-802-solutions-for-vertical-applications.docxhttps:/mentor.ieee.org/802.24/dcn/19/24-19-0017-01-0000-ieee-802-solutions-for-vertical-applications.docx)
* ZigBee “Project Connected Home over IP: <https://www.connectedhomeip.com/>
* Update on various liaisons

**8:44 AoB**

* comment made that “myProject” will be shut down for a period to allow the new “myProject” to be installed.
* Melissa Russell, Executive Director of the IEEE Computer Society, was introduced to the group.

**8:50** Joint meeting adjourned

**IEEE 802.11 Interim Meeting – Session #179**

**Irvine, California, USA**

**January 13th – 17th, 2020**

**IEEE 802.11 Opening Plenary, Monday 13th January 2020**

Presiding chair: Dorothy Stanley (Hewlett Packard Enterprise) opened the meeting at 09:05 Pacific Standard Time (PST) 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 323 voting members and 11 Ex Officio voters of IEEE 802.11\*

There were 212 people in the room

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

1. **Notices** (11-19-2131r1)
   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
   3. From the IEEE, Jonathan Goldberg is present as a member of staff but is not in the room. Additionally, Melissa Russell is here and she is the chair of the IEEE Computer Society.
2. **Approve/modify working group agenda** (11-19-2130r1)
   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.
      2. Comment (C): TGbb would like to release 2 slots this week please.
      3. Chair: That should be ok.
   4. **Move to approve the agenda 11-19-2130r1 with these room changes (“Agenda Graphic” tab and the “WG11” tab Monday agenda)**
      1. Moved: Marc Emmelmann, 2nd: Ian Sherlock
      2. No objection to approving by unanimous consent
3. **November 2019 WG Minutes**
   1. **Move to approve the Waikoloa (Hawaii) November 2019 WG minutes document 11-19-1775r1**
   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 13 new participants in this meeting.
   2. Chair: Please note that Stephen McCann (Secretary) will be holding a new members’ session at 10:30am in Oak Creek.
5. **Call for essential Patents** (11-19-2145r0)
   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. The slides about IEEE 802 meeting participation and IEEE copyright were also read.
   4. VC2: Please note the slide about the valid abstain response in ballots and also all members’ obligations to respond to 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** (11-19-2131r1)
   1. **Liaisons** (slide #4)
      1. Chair: There are no liaisons this week,
   2. **EC and standard board decisions** (slides #5 & #6)
      1. Chair: The EC approved the following items on the slides. I would to thank Joseph Levy for his work in creating some earlier liaisons that have been recently approved by the IEEE 802 EC.
7. **Logistics and Key events/activities**
   1. **Working group session documents** (11-19-2131r1 slide #8)
   2. **Joint meetings & reciprocal credit with IEEE 802 groups** (slides #9 & #10)
      1. 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.
      2. Please note that the IEEE 802.18 reciprocal credit rules have recently changed.
   3. **M3.3 Other WG meeting plans** (11-19-1759r0 slides #4 and slide #6)
      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.
   4. **M3.5 Meeting registration (**slide #7)
      1. There are about 330 registered people for this week’s IEEE 802 meeting of which 279 are for IEEE 802.11
   5. **M3.7 Local File Document Server information** (slide #8)
      1. Linespeed are managing the network this week. They have a network helpdesk outside in the hallway area.
      2. 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. **M3.8 Other logistic items for the week** (slide #9)
      1. Each registered attendee should have all received the logistics items email about this week.
      2. This slide describes the breakfast and lunch logistics, together with the social on Wednesday.
      3. The social will be at the K1 Speed center on Wednesday evening as explained on slides #12 - #14. Please note that a waiver form needs to be submitted before you are allowed on the K1 Speed carts. It is a 15 – 20 min walk, although there will also be busses to and from the hotel and the venue.
   7. **M3.9 Next meeting reminder** (slide #16)
      1. Next IEEE 802 Plenary: March 15th – 20th 2020, Atlanta, Georgia, USA.
      2. Please note that meeting will celebrate the 40th Anniversary of IEEE 802.
      3. Registration and Event Information:
      4. [https://www.regonline.com/ieee802plenarymarch2020](https://www.regonline.com/ieee802plenarymarch2020%20)
   8. **M3.4 Online Calendar** (slide #17)
      1. An online calendar is provided with all meeting room locations and timings.
   9. **M3.6 Recording attendance** (slide #19)
      1. Please note the rules about recording attendance at each IEEE 802.11 meeting this week.
8. **Status of all groups** (11-19-2131r1)
   1. **Group summary** (slide #12)
      1. Chair: This is a review of the current IEEE 802.11 groups. There will be a new ITU ad hoc 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 have been 5 WG letter and SA ballots between the November 2019 meeting and now.
9. **Group Summaries** (11-19-2142r0)
   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. As TGmd have recently deprecated some features [see the ANA slide], a number of frame subtype numbers have been released.
   3. **AANI**
      1. There is 1 slot this week which will cover the ITU-2020 activities from December 2019.
   4. **PAR SC**
      1. Not meeting this week.
   5. **WNG**
      1. There is 1 submission this week:
      2. “Emergency Alert via WLAN”, <https://mentor.ieee.org/802.11/dcn/20/11-20-0133-00-0wng-emergency-alert-via-wlan.pptx>
   6. **JTC1**
      1. Review JTC1/SC6 status.
   7. **Co-ex**
      1. Will continue discussions about the 3GPP/IEEE 802.11 joint workshop held during the July 2019 IEEE 802 plenary. Other topics include ETSI BRAN.
   8. **TGmd**
      1. The SA Ballot is now complete on draft 3.0 and are now in the process of comment resolution.
   9. **TGax**
      1. TGax will only meet for 1 slot this week, as there is an ongoing 11ax SA ballot.
   10. **SENS study group**
       1. Working to complete a PAR and CSD document this week.
   11. **ITU ad-hoc**
       1. This a new group meeting for the first time this week to discuss how to update several ITU documents that are referencing the parameters and performance of IEEE 802.11 technologies. It has been noted that these ITU documents are several years out of date.
   12. **RCM (Random and Changing MAC address) ad-hoc**
       1. This a new group meeting for the first time this week to discuss the next steps now that the RCM TIG finished its work in November 2019.
10. **Timeline Chart**
    1. There have been no major changes to the timeline since the November 2019 meeting.
11. **Comment Ballot Resolution Resources** (11-19-2131r1 slide #20)
    1. Chair: please note that there are these resources to assist with comment ballot resolutions, which I encourage all members to review.
12. **Recess**
    1. Meeting recessed at 10:08 PST

**Wednesday, 15th January 2020**

**IEEE 802.11 Mid-Week Plenary**

Presiding chair: Dorothy Stanley (HPE) opened the meeting at 10:32 PST.

Secretary: Stephen McCann BlackBerry Ltd.

191 people present.

1. **Approve/modify working group agenda** (11-19-2130r3)
   1. Chair: There are a couple of minor changes to the agenda fixing links and various items.
   2. Chair: Let’s proceed to the agenda approval motion first.
   3. Question (Q): Would it be possible to move the agenda item about room re-assignments to after the TGba motions please?
   4. Q: Can we postpone the SENS SG motions to Friday please, as some issues have arisen with the documents?
   5. Chair: Yes, we can do both.
   6. **Move to approve the agenda 11-19-2130r3**
      1. Moved: Ian Sherlock, 2nd: Marc Emmelmann
      2. No objection to approving by unanimous consent.
2. **Call for Essential Patents** (11-19-2132r0)
   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 PST 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. **Social**
   4. Remember that there are guest badges available for the social this evening. Please pick them up at the registration desk. Also, if you wish to race this evening at K1 Speed, you need to have competed a waiver form. The busses will pick you up outside the Eats restaurant. There is a map in document 11-19-1759r0.
   5. **IEEE 802 40th Anniversary**
   6. In March 2020, there will be a 40th Anniversary social event. Additionally, the IEEE 802 chair is looking for someone to help with 40th Anniversary outreach activities in Korea. Please contact the IEEE 802 chair if you can help.
6. **Wi-Fi Alliance Liaison** (11-20-0173r0)
   1. The Wi-Fi Alliance (WFA) last met in October 2019 in Frankfurt, Germany and the next meeting will be in March 2020 in Singapore.
   2. No questions
7. **IETF Liaison** (11-20-0176r0)
   1. This is report about the current IEEE 802.11 related activities within the IETF.
   2. The next meeting will be in March 2020 in Vancouver, Canada.
   3. No questions
8. **IEEE 1609 Liaison**
   1. IEEE 1609 is now looking at updates to an API with IEEE 802.11bd.
   2. The joint discussions between IEEE 1609 and IEEE 802.11bd did not happen this week, due to documents not being available. These discussions will now occur in future teleconferences.
   3. No questions
9. **IEEE 802.18** (11-20-0124r0)
   1. This is a summary of the IEEE 802.18 activities this week.
   2. No questions
10. **IEEE 802.19** (11-20-0175r0)
    1. This is a summary of the IEEE 802.19 activities this week.
    2. No questions
11. **IEEE 802.11 officer positions election** (11-19-2132r0 slide #12)
    1. This slide introduces the election of the IEEE 802.11 officers in March 2020.
    2. The current officers are seeking re-election.
    3. No questions
12. **Working Group Motions Part 1** (11-19-2143r2)
    1. **SENS SG Chair** (slide #4)
       1. **Confirm Tony Han as SENS SG chair**
       2. Moved: Sang Kim, 2nd: Assaf Kasher
       3. No objection to approving by acclamation
    2. **ITU Ad-Hoc Chair** (slide #5)
       1. **Confirm Hassan Yaghoobi as ITU Ad-Hoc chair**
       2. Moved: Joseph Levy, 2nd: Stuart Kerry
       3. No objection to approving by acclamation
    3. **RCM Ad-Hoc Chair** (slide #6)
       1. **Confirm Mark Hamilton as RCM Ad-Hoc chair**
       2. Moved: Stuart Kerry, 2nd: Graham Smith
       3. No objection to approving by acclamation
13. **IEEE 802.11bd FCC NPRM comments** 
    1. This group is trying to determine an IEEE 802.11 WG position regarding a FCC NPRM draft response. This has been in co-operation with IEEE 802.18.
    2. There is a draft document 11-20-0104r5, but is not complete and still requires some more work.
    3. The FCC 30 day comment period will shortly start, but it’s unlikely that IEEE 802.11 will meet during this time. Therefore, working with IEEE 802.18 will be more efficient during the 30 day period.
    4. Chair: I understand that IEEE 802.18 will form the official response to the FCC. There document will have to be approved by the IEEE 802 EC, before being sent to the FCC. Please can you therefore assist TGbd will the draft document.
    5. No questions
14. **Coex 6 GHz considerations** (11-20-0057r2)
    1. This document is about co-existence issues within the 6 GHz band between IEEE 802.11 technologies and other technologies. The co-existence (COEX) standing committee (SC) has been working on this topic.
    2. IEEE 802.11 needs to create a position regarding the use of this band.
    3. However, there have been some issues in 5 GHz with sharing and more testing of a proposed new PD signal with legacy devices is required to determine a clear way forward.
    4. This needs to be done, so that similar issues within the 6 GHz band can be solved.
    5. Therefore, it would be useful for IEEE 802.11 to liaise to ETSI BRAN a position about their proposed 6 GHz rules. This can be done by attending the COEX SC meetings this week, where this topic will be discussed further.
    6. No questions.
15. **RCM Ad-hoc** (11-20-0120r0)
    1. This presentation describes the activities of the Random and Changing MAC address (RCM) ad-hoc group, which is meeting this week.
    2. The RCM TIG output report is now being considered by this ad-hoc to determine a way forward.
    3. Some issues may be within the scope of IEEE 802E, whereas some of the others may have to be dealt with by IEEE 802.11.
    4. No questions.
16. **Working Group Motions Part 2** (11-19-2143r2)
    1. **TGba Recirculation Letter Ballot** (slide #7)
       1. **Having approved comment resolutions for all of the comments received from LB 248 on P802.11ba D5.0 as contained in document 11-19/2162r2,**
       2. **Instruct the editor to prepare Draft 6.0 incorporating these resolutions and,**
       3. **Approve a 15 day Working Group Recirculation Ballot asking the question “Should P802.11ba D6.0 be forwarded to SA Ballot?”**
       4. Moved by Minyoung Park on behalf of TGba
       5. For: 115, Against: 0, Abstain: 3 (Motion passes)
       6. [TGba vote: Moved: Po-Kai Huang, Seconded: Eunsung Park , Result: 5-0-0]
    2. **TGba Approve Report to EC** (slide #8)
       1. **Approve document 11-20/0130r1 as the report to the IEEE 802 Executive Committee on the requirements for conditional approval to forward P802.11ba to SA Ballot,**
       2. **Request the IEEE 802 Executive Committee to conditionally approve forwarding P802.11ba to SA ballot.**
       3. Moved by Minyoung Park on behalf of TGba
       4. For: 109, Against: 0, Abstain: 2 (Motion passes)
       5. [TGba vote: Moved: Eunsung Park, Seconded: Steve Shellhammer, Result: 5-0-0]
    3. **Re-affirm P802.11ba PAR** (slide #9)
       1. **Re-affirm the PAR in** [**http://www.ieee802.org/11/PARs/P802.11ba.pdf**](http://www.ieee802.org/11/PARs/P802.11ba.pdf)
       2. Moved: Minyoung Park, 2nd: Harry Bims
       3. For: 104, Against: 0, Abstain: 0 (Motion passes)
    4. **Re-affirm P802.11ba CSD** (slide #10)
       1. **Re-affirm the CSD in** [**https://mentor.ieee.org/802.11/dcn/16/11-16-0936-04-0wur-a-csd-proposal-for-wake-up-radio-wur.docx**](https://mentor.ieee.org/802.11/dcn/16/11-16-0936-04-0wur-a-csd-proposal-for-wake-up-radio-wur.docx)
       2. Q: Why is the PAR is one area and the CSD in another?
       3. Chair: There’s no reason, except that that version of the PAR was the one approved by the IEEE 802 EC.
       4. Moved: Minyoung Park, 2nd: Alfred Asterjadhi
       5. For: 104, Against: 0, Abstain: 0 (Motion passes)
17. **Room assignment updates** (11-19-1759r1 slide #23)
    1. The submission shows the currently planned room change requests.
    2. Extra deletion: TGba Thurs AM2
    3. Extra requests: Another TGbe Thurs AM2 slot
    4. Chair: Are there any objections to approving these changes?
    5. None seen.
18. **myProject update** (11-20-0182r0)
    1. The presentation is about the new myProject tool from the IEEE-SA.
    2. There will also be a small shut down for the mentor document server during the switch-over period. This should only last for 24 hours.
    3. Q: Does this site require the use of cookies? I ask regarding the privacy issue about using cookies.
    4. Answer (A): I will find out.
    5. Comment (C): I notice that the time during your demo was in UTC. IEEE 802.11 works in ET.
    6. A: Again, I will find out.
19. **Recess**
    1. Meeting recessed at 12.15 PST

**Friday, 17th January 2020**

**IEEE 802.11 Closing Plenary**

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

95 people present in the room.

1. **Approve/modify working group agenda** (11-19-2130r5)
   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 11-19-2130r5**
      1. Moved: Mark Hamilton, 2nd: Bo Sun
      2. No objection to approving by unanimous consent.
2. **Call for Essential Patents** (11-19-2132r0 slide #17)
   1. Call for Essential Patents
   2. No statements
   3. No questions
3. **Announcements** (11-19-2132r0 slide #15)
   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 2020 in Atlanta, Georgia, USA.
      3. Please be aware of the Chair’s schedule for the chair’s committee meetings (CAC), which are on February 10th and March 9th 2020 at noon ET.
   3. **ETSI ITS and liaison web-sites** (slide #19)
      1. No questions
   4. **Letters of Assurance (LoA)** (slide #20)
      1. Chair: please remember about the LoA requirements.
      2. There is one LoA request open at the moment.
   5. **IEEE Store and ISO SCG** (slides #21)
      1. No questions
   6. **Press Releases** (slide #23)
      1. The slide summarizes the recent IEEE 802.11be and AANI (IMT-2020) related press release
4. **Current Venues** (11-19-1759r2 slide #25)
   1. **Straw Poll: How many people would like to come back to this venue?** Y: 42, N: 2
   2. **How many people attended the social?** 22
   3. **How many people liked the social?** 21
   4. **How many people did not like the social?** 0
   5. **How many people would like to do the same social in 2 years’ time?** 23
   6. **How many people would not like to do the same social in 2 years’ time?** 12
5. **Upcoming Venues** (slides #26 and #27)
   1. VC1: This slide shows the next plenary in March 2020, which will be in Atlanta, Georgia, USA. The registration for this meeting is now open.
   2. The next wireless interim is in May 10-15th 2020 in Warsaw, Poland.
   3. Regarding the July 2020 meeting in Montreal, you will be sent an email this week, so that you are able to reserve a room at this time. This is because Montreal will be very busy during the time of our meeting in July.
6. **Treasury Report** (ec-19-0216-00)
   1. VC1: This show the treasurers’ report and is correct up to 31st December 2019:
   2. <https://mentor.ieee.org/802-ec/dcn/19/ec-19-0216-00-WCSG-wireless-treasurer-report-jan-2020-irvine.pptx>
   3. There have been about 338 people here this week.
7. **Timelines**
   1. There is one small change to the TGay timeline this week. The timeline chart will be updated over the weekend.
8. **Documentation & Attendance** (11-19-2144r1 slide #3)
   1. VC2: Here are the attendance statistics for this week.
9. **WG Committee Reports** (11-19-2144r1)
   1. **Technical editor** (slide #6)
      1. No questions
   2. **AANI Standing Committee** (slide #11)
      1. No questions
   3. **ARC Standing Committee** (slide #15)
      1. Please note that ARC is currently working on several issues involving 802.11 related items and 802.11 members are invited to help out if they can.
      2. There was also work regarding IEEE 802.1 and IEEE 802 Nendica.
      3. No questions
   4. **COEX Standing Committee** (slide #24)
      1. There were sessions this week and the main item of discussion was ETSI BRAN.
      2. No questions
   5. **WNG** **Standing Committee** (slide #27)
      1. There was 1 presentation this week:
         1. “Emergency Alert via WLAN”
      2. There is currently no way forward for this topic.
      3. No questions

* 1. **JTC1** **Standing Committee** (slide #30)
     1. This week, this meeting considered the upcoming ISO JTC1/SC6 meeting in February 2020 in London, UK.
     2. No questions
  2. **TGmd** (slide #35)
     1. No questions.
  3. **TGax** (slide #40)
  4. There was 1 session this week, as 11ax is currently in SA ballot.
     1. No questions
  5. **TGay** (slide #45)
  6. The group has been resolving comments this week.
     1. No questions
  7. **TGaz** (slide #50)
  8. The group have resolved many comments this week, but still have many remaining.
     1. No questions
  9. **TGba** (slide #55)
  10. The group has finished its comment resolution for document D5.0 and intends to start a new re-circulation letter ballot.
  11. Chair: Depending on the comments resolved from the proposed D6.0 working group re-circulation ballot, we may be able to proceed to initial SA ballot.
      1. No questions
  12. **TGbb** (slide #59)
      1. No questions
  13. **TGbc** (slide #63)
      1. No questions
  14. **TGbd** (slide #70)
      1. The meeting with IEEE 1609 did not occur, due to delayed progress with the documents that were going to be discussed. It is hoped that another meeting will be arranged for later in the year.
      2. No questions
  15. **TGbe** (slide #78)
      1. There were 20 sessions this week, so a lot of information was presented and discussed. There was a decision to split the output of the project into release #1 and #2.
      2. No questions
  16. **SENS (Sensing) Study Group (SG)** (slide #83)
      1. Some updates have been made to the PAR and CSD, since the SENS SG meeting adjourned earlier in the week. Therefore, there will be some modified motions later in this meeting regarding the PAR and CSD.
      2. No questions
  17. **RCM (Random and Changing MAC address) ad hoc** (slide #88)
      1. The output of this meeting is to create a study group, which will be considered later in a motion.
      2. No questions
  18. **ITU ad hoc** (slide #91)
      1. The next steps are to have 4 conference calls to review some draft documents, which will be produced as an output from this week’s meeting. The documents hope to be submitted to the ITU in April 2020.
      2. No questions

1. **Liaison Reports**
   1. **IEEE 802.15** (slide #94)
      1. No questions
   2. **IEEE 802.18** (slide #112)
      1. No questions
   3. **IEEE 802.19** (slide #118)
      1. No questions
   4. **IEEE 802.24** (slide #122)
      1. No questions
2. **Working Group Motions (Old Business)** (11-19-2143r4)
   1. **Teleconferences** (slide #12)
      1. **Move to approve the following teleconferences:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Group** | **Date(s)** | **Start** | **Duration** | **Platform** |
| **CAC** | **Monday: February 10, March 9** | **Noon ET** | **1 hr** | **Join.me** |
| **TGmd** | **Friday: January 31, February 7, 14, March 13** | **10:00 ET** | **2 hrs** | **Webex** |
| **TGax** | **Thursday: January 30, February 13, 27**  **Thursday: February 6, 20, March 5** | **10:00 ET**  **22:00 ET** | **2 hrs**  **2 hrs** | **Join.me** |
| **TGaz** | **Wednesday: January 29, February 5, 12, 19, 26, March 25** | **13:00 ET** | **1.5 hrs** | **Webex** |
| **TGay** | **Wednesday: January 29, February 5, 12, 19, 26, March 11** | **10:00 ET** | **1.5 hrs** | **Webex** |
| **TGba** | **Thursday: February 6** | **10:00 ET** | **2 hrs** | **Webex** |
| **TGbc** | **Tuesday: February 11, 25, March 10** | **10:00 ET** | **1.5 hrs** | **Webex** |
| **TGbd** | **Tuesday: February 4, 18, March 3, 31** | **9:00 ET** | **2 hrs** | **Webex** |
| **TGbe** | **Thursday: February 6, February 20 (x2), March 5 (x2)**  **Thursday: January 30 (x2), February 13, 27** | **10:00 ET**  **19:00 ET** | **2 hrs**  **3 hrs** | **Join.me/Webex** |
| **SENS SG** | **Tuesday: February 18, March 10** | **10:00 ET** | **1.5 hrs** | **Webex** |
| **ITU AH** | **Tuesday: January 28, February 11, 25, March 10** | **12:00 ET** | **1 hrs** | **Webex** |

* + 1. Moved: Ian Sherlock, 2nd: Jonathan Segev
    2. No objection to approving by unanimous consent.
  1. **Liaise IEEE 802.11ax/D6.0 to SC6** (slide #13)
     1. **The IEEE 802.11 WG requests that IEEE 802 EC liaise Draft P802.11ax/D6.0 to ISO/IEC JTC1 SC6 for information.**
     2. Moved: Andrew Myles, 2nd: Ian Sherlock
     3. For: 59, Against: 0, Abstain: 0 (Motion passes)
  2. **Liaise IEEE 802.11ay/D5.0 to SC6** (slide #14)
     1. **The IEEE 802.11 WG requests that IEEE 802 EC liaise Draft P802.11ay/D5.0 to ISO/IEC JTC1 SC6 for information.**
     2. Moved: Andrew Myles, 2nd: Joseph Levy
     3. For: 62, Against: 0, Abstain: 0 (Motion passes)
  3. **TGaz ad-hoc** (slide #15)
     1. **Authorize TGaz to hold a 3 day ad-hoc meeting on Mar. 9-11th 2020 in the SF bay area CA, USA, for the purpose of comment resolution.**
     2. Moved by Jonathan Segev on behalf of TGaz.
     3. [TGaz results (Y/N/A): 9/1/0]
     4. No objection to approving by unanimous consent.
  4. **Liaise IEEE 802.11ba/D6.0 to SC6** (slide #16)
     1. **The IEEE 802.11 WG requests that IEEE 802 EC liaise Draft P802.11ba/D6.0 to ISO/IEC JTC1 SC6 for information, subject to meeting the conditions for moving to SA ballot.**
     2. Moved: Minyoung Park, Second: Andrew Myles
     3. For: 64, Against: 0, Abstain: 0 (Motion passes)
  5. **TGbd FCC NPRM WG ballot** (slide #17)
     1. **Move to conduct a 10-day WG ballot to approve the completed comment document responding to FCC NPRM on 5.9 GHz band and authorize the WG chair to send to the FCC after EC review and approval or to forward to 802.18 for consideration.**
     2. Moved: Bo Sun on behalf of TGbd, Second: Joseph Levy
     3. [TGbd result: Moved: Joseph Levy, Seconded: Stuart Kerry, Result: 23Y/1N/3A]
     4. C: I don’t know if this is such a good idea, as IEEE 802.18 should be the main place to do this. I would prefer not to have the “or” statement in this motion as it’s ambiguous.
        1. **Motion to amend the main motion to read:**
        2. **Move to conduct a 10-day WG ballot to approve the completed comment document responding to FCC NPRM on 5.9 GHz band and authorize the WG chair to forward to 802.18 for consideration.**
        3. Moved: Hassan Yaghoobi, 2nd: Jonathan Segev
        4. C: I speak against the motion to amend. We don’t know that the timelines for this activity are going to be. The original motion was craft so that we have 2 ways of achieving the goal of sending a liaison to the FCC. I would prefer that the WG chair is able to decide which of these two options is chosen.
        5. C: I think the motion enables IEEE 802.11 to speak with 2 voices. Therefore, I’d prefer IEEE 802 to only talk with one voice and that should be through IEEE 802.18, as they have more experience talking to the FCC.
        6. C: IEEE 802.18 has responded to the FCC NPRMs before and so I don’t see why this should be a special case.
        7. C: At the moment, we don’t know when the FCC comment process will start, so the WG chair needs this motion to be able to make that decision once the FCC starts their FCC comment process.
        8. C: I speak against this motion
        9. C: The timeframe of this activity is a problem. The EC review can take 5 days (or indeed more) and therefore it is possible that nothing is sent out to the FCC by the close of their comment process (typically 30 days). However, the IEEE 802.18 process could be potentially faster. I also think that going to the FCC with an IEEE 802 contribution (as opposed to IEEE 802.11) is better.
        10. Chair: The motion to amend is a simple majority.
        11. For: 23, Against: 15, Abstain: 14 (Motion passes)
     5. **Main motion** (slide #19)**:**
     6. **Move to conduct a 10-day WG ballot to approve the completed comment document responding to FCC NPRM on 5.9 GHz band and authorize the WG chair to forward to 802.18 for consideration.**
     7. C: I speak against this motion, as IEEE 802.11 members can now just directly to IEEE 802.18. The motion doesn’t achieve anything.
     8. C: I would have preferred to have had an IEEE 802.11 position, as I have a draft document which has collected comments from IEEE 802.11 members. I think this document still needs more discussion between IEEE 802.11 members.
     9. For: 31, Against: 9, Abstain: 11 (Motion passes)
     10. Chair: I think TGbd should continue to host discussion on a document. When that document is available, I will then consider start a 10 day IEEE 802.11 WG ballot.
     11. C: So, the WG ballot can start once the FCC comment process window opens.
     12. Chair: Yes, that should work, but please note that half the IEEE 802.11 membership needs to respond to this WG ballot and it does have a 75% pass rate.
     13. C: Also remember that IEEE 802.18 will need a few days to process any document before it includes it within the IEEE 802.18 response.
     14. C: If this WG ballot fails, then there does not appear to be a fall back plan.
  6. **TGbe ad-hoc** (slide #20)
     1. **Authorize TGbe to hold a MAC ad-hoc meeting in San Jose, California, USA, hosted by Intel Corp., for the purpose of discussing technical contributions on Friday 13th of March 2020.**
     2. Moved: Osama Aboul-Magd, Second: Lei Wang
     3. [TGbe vote: Moved: Laurent Cariou, 2nd: Po-Kai Huang, Result: 28Y-19N-11A]
     4. No objection to approving by unanimous consent
  7. **PAR for SENS SG** (slide #21)
     1. **Believing that the PAR contained in the document referenced below meets IEEE-SA guidelines,**
     2. **Request that the PAR contained in 19/2103r5 be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.**
     3. Moved: Tony Xiao Han, Second: Claudio da Silva
     4. [SENS SG vote on PAR contained in 19/2103r4: Moved: Debashis Dash, 2nd: Oscar Au, Result: 39y-0n-2a]
     5. C: I would like to explain the differences between 2103r4 and 2103r5. This was to correct some issues with the PHY layer.
     6. C: I know that you’ve done your best efforts with these PAR changes this week. However, I think there are other various PAR issues that should be addressed. For example, May 2024 is too far in the future for a PAR. There are quite a few other issues as well.
     7. The PAR document was then edited to correct various aspects.
        1. **Motion to amend the main motion to read:**
        2. **Believing that the PAR contained in the document referenced below meets IEEE-SA guidelines,**
        3. **Request that the PAR contained in 11-19/2103r6 be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.**
        4. **Granting the WG chair editorial license.**
        5. Moved: Jon Rosdahl, second: Harry Bims
        6. C: I would like to mention that within SENS SG, I did mention the PAR completion date and suggested that it should have been changed.
        7. C: I would like to note that this motion has been changed once it has been moved and seconded. I also think that a debate on the original document should have been done first. I also think that the SEN SG was adjourned too early this week and was not checked.
        8. Chair: I would like to re-confirm with the mover and seconder of this motion that changes to the motion text are acceptable.
        9. The mover and seconder were content with the changes.
        10. C: Regarding the scope of the document, I think there are some issues, which need addressing.
        11. C: Please can you add “19” to the document number.
        12. Chair: Yes
        13. C: I speak against this motion. I think the SENS SG should re-consider this PAR.
        14. C: I think parts of his PAR are ambiguous, regarding whether PHYs are going to be changed or not.
        15. For: 41, Against: 10, Abstain: 9 (Motion passes)
     8. **Main motion** (slide #23)**:**
     9. **Believing that the PAR contained in the document referenced below meets IEEE-SA guidelines,**
     10. **Request that the PAR contained in 11-19/2103r6 be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.**
     11. **Granting the WG chair editorial license.**
     12. C: Within the updated PAR, it implies some aspects of security has been removed.
     13. A: Yes, for example, some of the 11az aspects could be used within sensing.
     14. C: The PAR doesn’t outline a purpose very well and needs to be updated.
     15. C: I speak against the motion and I don’t think that this motion raised by an individual now represents the support of the SG.
     16. For: 36, Against: 15, Abstain: 10 (Motion fails)
  8. **CSD for SENS SG** (slide #24)
     1. Chair: As this motion did not pass, the CSD motion is now out of order as the PAR and CSD motions exist as a pair.
  9. **Random and Changing MAC addresses (RCM) Study Group Formation** (slide #25)
     1. **Request approval by IEEE 802 EC to form an 802.11 Study Group to investigate the topic of Random and Changing MAC addresses and other privacy topics, as described in 11-20-0192r2 with the intent of creating 2 PARs and CSDs.**
     2. Moved: Mark Hamilton, 2nd: Joseph Levy
     3. C: I thought that a proposal for a new study group is done through WNG.
     4. A: I don’t think this topic went through WNG, but there was an RCM TIG that discussed this topic.
     5. C: I speak against the motion. There are many task groups at the moment. This will result in members having to consider more new material.
     6. C: I speak in favour of this motion. There were two sessions this week of the RCM ad hoc and I think a new Study Group (SG) will require the same number of meetings going forward. There should be no surprise to any 802.11 member about this topic. I also feel that WNG does not need to be included in the process of a new SG.
     7. For: 40, Against: 6, Abstain: 9 (Motion passes)

1. **Next Meeting** (11-19-2132r0 slide #26)
   1. The next meeting is at the Hilton Atlanta, Atlanta, Georgia, USA, March 15th – 20th 2020. Registration and hotel reservations are now open for this meeting.
   2. There will be an IEEE 802 Wireless Chairs meeting, as shown in slide #25, on Sunday at 16:00 local time at the March 2020 meeting. This is an open meeting, and everyone is welcome.
   3. Regarding the IEEE 802 40th Anniversary at the March 2020 plenary, the registration process includes the requests for anniversary polo shirts.
2. **AoB**
   1. None
3. **Adjournment**
   1. Chair: Having completed the agenda, the chair announced that the meeting was adjourned at 10:33 PST.

**Annex A: Attendance & Affiliation**

| **Name** | **Affiliation** | **Attended >= 75%?** | **Status** |
| --- | --- | --- | --- |
| Abdelaal, Rana | Broadcom Corporation | Yes | Aspirant |
| 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 |
| Agarwal, Peyush | Broadcom Corporation | Yes | Voter |
| Agrawal, abhishek | ON Semiconductor | Yes | Aspirant |
| Agrawal, Sandeep | C-DOT/Centre for Development of Telematics | Yes | Aspirant |
| Aio, Kosuke | Sony Corporation | No | Voter |
| Akhavan, Koorosh | Qualcomm Incorporated | No | Non-Voter |
| Akhmetov, Dmitry | Intel Corporation | Yes | Voter |
| Alex, Sam | Facebook | Yes | Aspirant |
| Amini, Peiman | ON Semiconductor | No | Non-Voter |
| An, Song-Haur | INDEPENDENT | Yes | Voter |
| Ansley, Carol | CommScope | Yes | Voter |
| Asterjadhi, Alfred | Qualcomm Incorporated | Yes | Voter |
| Atefi, Ali | Self Employed | Yes | Aspirant |
| Au, Oscar | Origin Wireless | Yes | Potential Voter |
| Baik, Eugene | Qualcomm Incorporated | Yes | Voter |
| baron, stephane | Canon Research Centre France | Yes | Voter |
| Batra, Anuj | Apple, Inc. | Yes | Voter |
| Baykas, Tuncer | Vestel | Yes | Voter |
| Beg, Chris | Cognitive Systems Corp. | Yes | Aspirant |
| Bei, Jianwei | NXP Semiconductors | Yes | Voter |
| Ben Arie, Yaron | toga networks(a huawei company) | Yes | Aspirant |
| Berger, Christian | NXP Semiconductors | Yes | Voter |
| Berkema, Alan | HP Inc. | Yes | Voter |
| Bhandaru, Nehru | Broadcom Corporation | Yes | Voter |
| Bims, Harry | Bims Laboratories, Inc. | Yes | Voter |
| Boldy, David | Broadcom Corporation | Yes | Voter |
| Bredewoud, Albert | Broadcom Corporation | Yes | Voter |
| Cao, Rui | NXP Semiconductors | 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 | SYCA | Yes | Voter |
| Chen, Chaoliang | iComm Semiconductor | No | Non-Voter |
| Chen, Cheng | Intel Corporation | Yes | Voter |
| Chen, Evelyn | Ericsson AB | Yes | Potential Voter |
| Chen, Xiaogang | Intel Corporation | Yes | Voter |
| Cheng, Paul | MediaTek Inc. | Yes | Voter |
| CHERIAN, GEORGE | Qualcomm Incorporated | Yes | Voter |
| Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. | Yes | Voter |
| Choi, Jaehyuk | Gachon University | No | Aspirant |
| Choi, Jinsoo | LG ELECTRONICS | Yes | Voter |
| Chu, Liwen | NXP Semiconductors | Yes | Voter |
| Ciochina, Dana | Sony Corporation | 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 |
| Das, Subir | Applied Communication Sciences | Yes | ExOfficio |
| Dash, Debashis | Quantenna Communications, Inc. | Yes | Voter |
| Dauphinee, Leonard | MaxLinear Corp | Yes | Voter |
| de Vegt, Rolf | Qualcomm Incorporated | Yes | Voter |
| Derham, Thomas | Broadcom Corporation | Yes | Voter |
| Ding, Yanyi | Panasonic corporation | Yes | Potential Voter |
| Dong, Xiandong | Xiaomi Inc. | Yes | Voter |
| Doostnejad, Roya | Intel Corporation | Yes | Voter |
| Duan, Ruchen | SAMSUNG | Yes | Potential Voter |
| Ecclesine, Peter | Cisco Systems, Inc. | No | Voter |
| Eitan, Alecsander | Qualcomm Incorporated | Yes | Voter |
| ElSherif, Ahmed | Qualcomm Incorporated | Yes | Potential Voter |
| Emmelmann, Marc | Self Employed / Koden-TI / Fraunhofer FOKUS | Yes | Voter |
| Erceg, Vinko | Broadcom Corporation | Yes | Voter |
| Fang, Yonggang | ZTE TX Inc | Yes | Voter |
| Fischer, Matthew | Broadcom Corporation | Yes | Voter |
| Foland, Jeremy | Broadcom Corporation | Yes | Voter |
| Gan, Ming | Huawei Technologies Co. Ltd | Yes | Voter |
| Garcia Rodriguez, Adrian Jose | Nokia | Yes | Voter |
| Gardner, James | Qualcomm Incorporated | Yes | Potential Voter |
| Ghosh, Chittabrata | Intel Corporation | Yes | Voter |
| Godfrey, Tim | Electric Power Research Institute, Inc. (EPRI) | No | ExOfficio |
| Golmie, Nada | National Institute of Standards and Technology (NIST) | No | Non-Voter |
| GOTO, Fumihide | Canon | Yes | Potential Voter |
| Hamilton, Mark | Ruckus/CommScope | Yes | Voter |
| Han, Jonghun | SAMSUNG | Yes | Aspirant |
| HAN, Xiao | Huawei Technologies Co. Ltd | Yes | Voter |
| Handte, Thomas | Sony Corporation | Yes | Voter |
| Hansen, Christopher | Covariant Corporation | Yes | Voter |
| Hedayat, Ahmadreza | Charter Communications | No | Voter |
| Henry, Jerome | Cisco Systems, Inc. | Yes | Voter |
| hervieu, Lili | Cable Television Laboratories Inc. (CableLabs) | Yes | Voter |
| Hiertz, Guido | Ericsson GmbH | Yes | Voter |
| Hirata, Ryuichi | Sony Corporation | Yes | Voter |
| Ho, Duncan | Qualcomm Incorporated | Yes | Voter |
| Holcomb, Jay | Itron Inc. | No | ExOfficio |
| Hong, Hanseul | Yonsei University | Yes | Voter |
| Hsieh, Hung-Tao | MediaTek Inc. | Yes | Potential Voter |
| Hsu, Chien-Fang | MediaTek Inc. | Yes | Potential Voter |
| Hu, Chunyu | Facebook | Yes | Voter |
| Hu, Glenn | Tencent | Yes | Voter |
| Huang, Guogang | Huawei Technologies Co. Ltd | Yes | Voter |
| Huang, Lei | Panasonic Asia Pacific Pte Ltd. | Yes | Voter |
| Huang, Po-Kai | Intel Corporation | Yes | Voter |
| Hurtarte, Jeorge | Teradyne, Inc. | Yes | Voter |
| Hwang, Sung Hyun | Electronics and Telecommunications Research Institute (ETRI) | Yes | Voter |
| Ibrahim, Mostafa | SAMSUNG ELECTRONICS | Yes | Aspirant |
| Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) | Yes | Voter |
| Iwai, Takashi | Panasonic Corporation | No | Non-Voter |
| Jang, Insun | LG ELECTRONICS | Yes | Voter |
| Jauh, Alan | Unisoc Comm. | Yes | Voter |
| Jeffries, Timothy | Huawei R&D USA | Yes | Voter |
| Ji, Chenhe | Huawei Technologies Co. Ltd | Yes | Voter |
| Jia, Jia | Huawei Technologies Co., Ltd | Yes | Voter |
| jiang, feng | Intel Corporation | Yes | Voter |
| Jiang, Jinjing | Apple, Inc. | Yes | Voter |
| Jin, Liang | Spirent Communications | Yes | Aspirant |
| JONES, JEFFRUM | Qorvo | Yes | Voter |
| Jones, Vincent Knowles IV | Qualcomm Incorporated | Yes | Voter |
| Jungnickel, Volker | Fraunhofer Heinrich Hertz Institute | No | Voter |
| Kain, Carl | Noblis, Inc. | Yes | Voter |
| Kandala, Srinivas | SAMSUNG | Yes | Voter |
| KANG, Kyu-Min | Electronics and Telecommunications Research Institute (ETRI) | Yes | Voter |
| Kasher, Assaf | Qualcomm Incorporated | Yes | Voter |
| Kenney, John | TOYOTA InfoTechnology Center U.S.A. | Yes | Voter |
| Kerry, Stuart | OK-Brit | Yes | Voter |
| Khan, Naseem | Leidos Engineering. LLC | Yes | Potential Voter |
| Khorov, EVGENY | IITP RAS | No | Voter |
| Kim, Jeongki | LG ELECTRONICS | Yes | Voter |
| Kim, Myeong-Jin | SAMSUNG | Yes | Potential Voter |
| Kim, Sang Gook | LG ELECTRONICS | Yes | Voter |
| Kim, Sanghyun | WILUS Inc. | Yes | Potential 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 |
| KNECKT, JARKKO | Apple, Inc. | Yes | Voter |
| Ko, Geonjung | WILUS Inc. | Yes | Aspirant |
| Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) | Yes | Potential Voter |
| Krieger, Ann | US Department of Defense | No | Non-Voter |
| Kumar, Manish | Marvell Semiconductor, Inc. | Yes | Voter |
| Kwon, Young Hoon | NXP Semiconductors | Yes | Potential Voter |
| Lalam, Massinissa | SAGEMCOM BROADBAND SAS | Yes | Voter |
| Lan, Zhou | Broadcom Corporation | Yes | Voter |
| Lansford, James | Qualcomm Incorporated | Yes | Voter |
| Lee, Hyeong Ho | Netvision Telecom Inc. | Yes | Voter |
| Lee, Wookbong | SAMSUNG | Yes | Voter |
| LEI, JUN | Beijing Nufront Mobile Multimedia Technology | No | Non-Voter |
| Lepp, James | BlackBerry | Yes | Voter |
| Levitsky, Ilya | IITP RAS | Yes | Potential Voter |
| Levy, Joseph | InterDigital, Inc. | Yes | Voter |
| Li, Guoqing | Apple, Inc. | No | 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 |
| LIU, CHENCHEN | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Liu, Jeff | Broadcom Corporation | Yes | Potential Voter |
| Liu, Jianhan | MediaTek Inc. | Yes | Voter |
| Liu, Yong | Apple, Inc. | Yes | Voter |
| Lopez, Miguel | Ericsson AB | Yes | Voter |
| Lv, Kaiying | MediaTek Inc. | Yes | Voter |
| Madpuwar, Girish | Broadcom Corporation | Yes | Voter |
| Malinen, Jouni | Qualcomm Incorporated | Yes | Voter |
| Marks, Roger | EthAirNet Associates | No | ExOfficio |
| Max, Sebastian | Ericsson AB | Yes | Voter |
| Mccann, Stephen | BlackBerry | Yes | Voter |
| MELZER, Ezer | Toga Networks, a Huawei company | Yes | Aspirant |
| Minotani, Jun | Panasonic Corporation | Yes | Potential Voter |
| Mirfakhraei, Khashayar | Cisco Systems, Inc. | Yes | Aspirant |
| Monajemi, Pooya | Cisco Systems, Inc. | Yes | Voter |
| Montemurro, Michael | BlackBerry | Yes | Voter |
| Morioka, Hitoshi | SRC Software | Yes | Voter |
| Moskowitz, Robert | HTT Consulting | No | Non-Voter |
| Motozuka, Hiroyuki | Panasonic Corporation | Yes | Voter |
| Mueller, Robert | Ilmenau University of Technology - TU Ilmenau | Yes | Voter |
| Myles, Andrew | Cisco Systems, Inc. | Yes | Voter |
| Nagai, Yukimasa | Mitsubishi Electric Research Labs (MERL) | No | Voter |
| nagata, kengo | Nippon Telegraph and Telephone Corporation (NTT) | Yes | Potential Voter |
| Nandagopalan, SAI SHANKAR | Cypress Semiconductor Corporation | Yes | Voter |
| Naribole, Sharan | SAMSUNG | Yes | Voter |
| Nguyen, An | DHS/CISA | Yes | Voter |
| Noh, Yujin | Newracom Inc. | Yes | Voter |
| Ochiai, Yuya | Buffalo Inc. | Yes | Aspirant |
| Oh, Hyun Seo | Electronics and Telecommunications Research Institute (ETRI) | Yes | Potential Voter |
| Ohsawa, Tomoki | NICT | No | Potential Voter |
| Palm, Stephen | Broadcom Corporation | Yes | Voter |
| Pare, Thomas | MediaTek Inc. | Yes | Voter |
| Park, Eunsung | LG ELECTRONICS | Yes | Voter |
| Park, Minyoung | Intel | Yes | Voter |
| Park, Sung-jin | LG ELECTRONICS | Yes | Aspirant |
| Patil, Abhishek | Qualcomm Incorporated | Yes | Voter |
| Perkins, Richard | Qorvo | Yes | Potential Voter |
| petrick, Albert | InterDigital, Inc. | Yes | Voter |
| Petry, Brian | Broadcom Corporation | No | Voter |
| porat, ron | Broadcom Corporation | Yes | Voter |
| Puducheri, Srinath | Broadcom Corporation | Yes | Potential Voter |
| Pulikkoonattu, Rethnakaran | Broadcom Corporation | No | Voter |
| Qi, Emily | Intel Corporation | Yes | Voter |
| Raissinia, Alireza | Qualcomm Incorporated | Yes | Voter |
| Rantala, Enrico-Henrik | Nokia | Yes | Voter |
| Redlich, Oded | Huawei Technologies Co. Ltd | Yes | Voter |
| Regev, Dror | Toga Networks (a Huawei Company) | Yes | Aspirant |
| Riegel, Maximilian | Nokia Networks | Yes | Voter |
| Rison, Mark | Samsung Cambridge Solution Centre | Yes | Voter |
| Rolfe, Benjamin | Blind Creek Associates | No | Non-Voter |
| Rosdahl, Jon | Qualcomm Technologies, Inc. | Yes | Voter |
| Sadeghi, Bahareh | Intel Corporation | Yes | Voter |
| Sakoda, Kazuyuki | Sony Corporation | Yes | Voter |
| Salem, Mohamed | Huawei Technologies Co., Ltd | Yes | Aspirant |
| Sambasivan, Sam | AT&T | Yes | Voter |
| Sand, Stephan | German Aerospace Center (DLR) | Yes | Voter |
| Sarris, Ioannis | u-blox | Yes | Voter |
| Schelstraete, Sigurd | Quantenna Communications, Inc. | Yes | Voter |
| Schiessl, Sebastian | u-blox | Yes | Aspirant |
| Sedin, Jonas | Ericsson AB | Yes | Potential Voter |
| Segev, Jonathan | Intel Corporation | Yes | Voter |
| Seok, Yongho | MediaTek Inc. | Yes | Voter |
| Serafimovski, Nikola | pureLiFi | No | Voter |
| Shah, Kunal | Itron Inc. | No | Voter |
| Shaul, yossef | Auto-Talks | No | Non-Voter |
| Shearer, Steve | octoScope | Yes | Potential Voter |
| Shellhammer, Stephen | Qualcomm Incorporated | Yes | ExOfficio |
| Sherlock, Ian | Texas Instruments Incorporated | Yes | Voter |
| Shilo, Shimi | HUAWEI | Yes | Voter |
| Smith, Frederick | Chevron Corporation | No | Non-Voter |
| Smith, Graham | SR Technologies | Yes | Voter |
| Son, Ju-Hyung | WILUS Inc. | Yes | Voter |
| Song, Taewon | LG ELECTRONICS | Yes | Voter |
| Stacey, Robert | Intel Corporation | Yes | Voter |
| Stahl Diskin, Nir | Broadcom Corporation | Yes | Voter |
| Stanley, Dorothy | Hewlett Packard Enterprise | Yes | Voter |
| Steinbacher Jr, Owen | WatchGuard | Yes | Aspirant |
| 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 |
| sun, sheng | Huawei Technologies Co., Ltd | Yes | Voter |
| Sundman, Dennis | Ericsson AB | Yes | Voter |
| SURACI, FRANK | U.S. Department of Homeland Security | Yes | Aspirant |
| Takai, Mineo | Space-Time Engineering | Yes | Voter |
| TAKATA, TOMOHUMI | Panasonic Corporation | Yes | Aspirant |
| Tan, Danny | Huawei Technologies Co., Ltd | Yes | Aspirant |
| Tanaka, Yusuke | Sony Corporation | Yes | Voter |
| Tanigawa, Masaya | Buffalo Inc. | Yes | Potential Voter |
| Taniguchi, Kentaro | TOSHIBA Corporation | Yes | Aspirant |
| Tian, Bin | Qualcomm Incorporated | Yes | Voter |
| Torab Jahromi, Payam | Facebook | Yes | Voter |
| Trainin, Solomon | Qualcomm Incorporated | Yes | Voter |
| Tsodik, Genadiy | Huawei Technologies Co. Ltd | Yes | Voter |
| Uln, Kiran | Cypress Semiconductor Corporation | Yes | Aspirant |
| Urabe, Yoshio | Panasonic Corporation | Yes | Voter |
| Van Zelst, Allert | Qualcomm Incorporated | Yes | Voter |
| 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, Hao | Self | Yes | Potential 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 |
| Ward, Lisa | Rohde & Schwarz | Yes | Voter |
| Wendt, Matthias | Signify | No | Voter |
| Wentink, Menzo | Qualcomm Incorporated | Yes | Voter |
| Wilhelmsson, Leif | Ericsson AB | Yes | Voter |
| Wu, Tianyu | Apple, Inc. | Yes | Voter |
| Xiao, Chusong | Futurewei Technologies | Yes | Potential Voter |
| Xin, Liangxiao | Sony Corporation | Yes | Potential Voter |
| Xin, Yan | Huawei Technologies Co., Ltd | Yes | Voter |
| Xu, Yanchao | Unisoc | Yes | Voter |
| YAGHOOBI, HASSAN | Intel Corporation | Yes | Voter |
| YANG, RUI | InterDigital, Inc. | Yes | Voter |
| Yang, Steve TS | MediaTek Inc. | Yes | Voter |
| Yang, Xun | Huawei Technologies Co. Ltd | Yes | Voter |
| Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) | Yes | Voter |
| Yee, James | MediaTek Inc. | No | Voter |
| Yee, Peter | NSA-CSD | Yes | Voter |
| yi, yongjiang | Futurewei Technologies | Yes | Potential Voter |
| Young, Christopher | Broadcom Corporation | Yes | Voter |
| Yu, Jian | Huawei Technologies Co. Ltd | Yes | Voter |
| Yu, Mao | NXP Semiconductors | Yes | Voter |
| YU, YU | Toshiba | No | Non-Voter |
| Zeleznikar, Alan | CommScope | Yes | Voter |
| Zhang, Hongyuan | Marvell Semiconductor, Inc. | Yes | Voter |
| Zhang, Yan | NXP Semiconductors | Yes | Voter |
| Zheng, Xiayu | NXP Semiconductors | Yes | Voter |
| Zuo, Xin | Tencent | Yes | Voter |

**Annex B : Working Group Officers**

**Working Group**

|  |  |  |
| --- | --- | --- |
| Name (Affiliation) | Position | Contact Details |
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| --- | --- | --- |
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| Andrew Myles (Cisco) | Coexistence Standing Committee Chair | +61 418 656587 [amyles@cisco.com](mailto:amyles@cisco.com) |

**Task Groups**

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| --- | --- | --- |
| Name (Affiliation) | Position | Contact Details |
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| 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) |
| Alfred Asterjadhi  (Qualcomm) | TGbe Chair  Extremely High Throughput (EHT) | aasterja@qti.qualcomm.com |
| 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 |
| Tony Xiao Han  (Huawei) | SENS (Sensing) Study Group |  |

**Ad-Hoc Groups (AHG)**

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| --- | --- | --- |
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| Hassan YAGHOOBI  (Intel) | ITU Ad-Hoc |  |

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|  |  |  |
| --- | --- | --- |
| Name (Affiliation) | Position | Contact Details |
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| Ian Sherlock (Texas Instruments Inc.) | Liaison to WFA (Wi-Fi Alliance) | +1-972-995-2011 [isherlock@ieee.org](mailto:isherlock@ieee.org) |
| John Kenney  (Toyota) | Liaison to IEEE 1609 | [jkenney@us.toyota-itc.com](mailto:jkenney@us.toyota-itc.com) |

**Liaison Officials to IEEE-802 organizations**

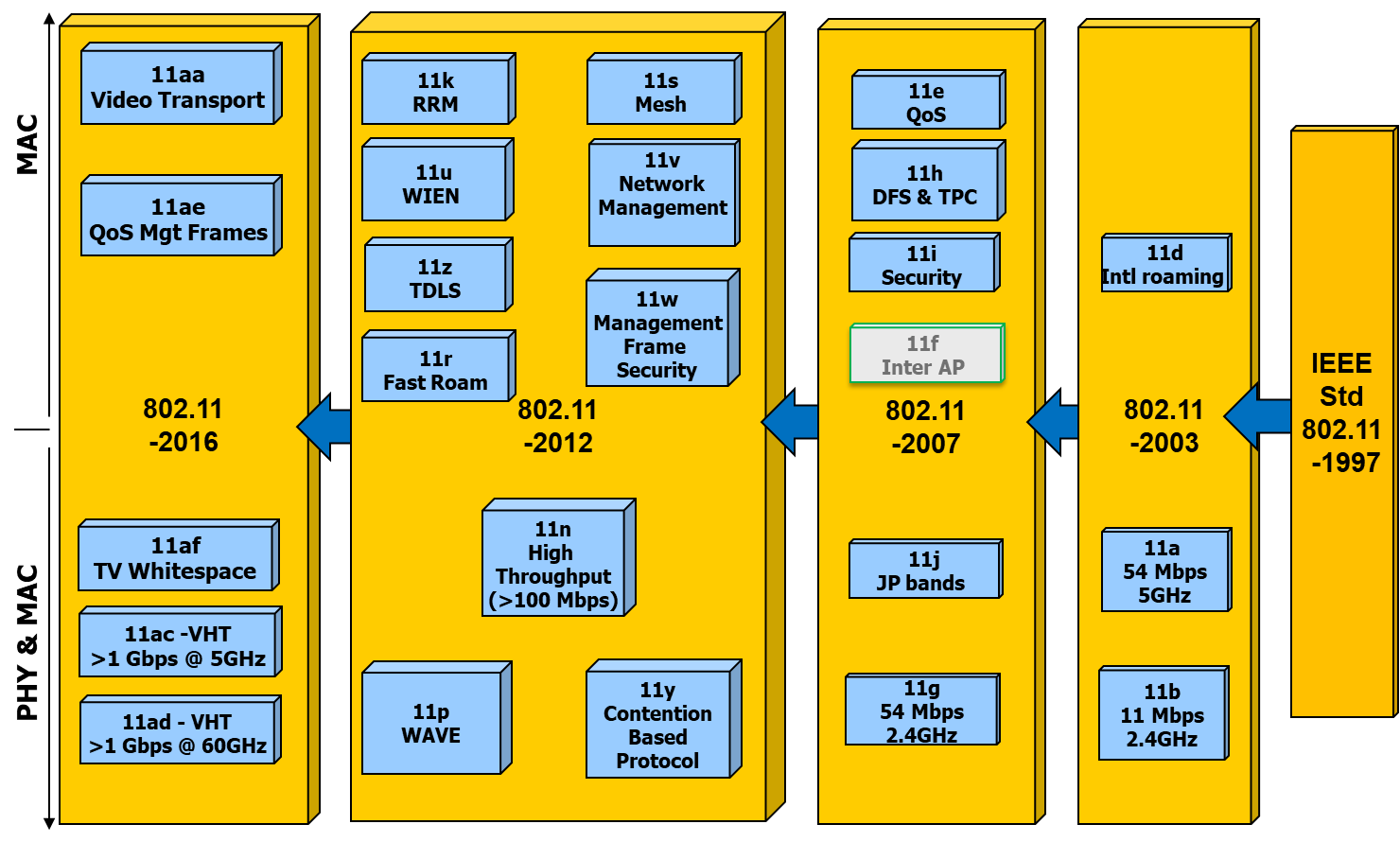
|  |  |  |
| --- | --- | --- |
| Name (Affiliation) | Position | Contact Details |
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| Jay Holcomb (Itron) | Liaison to IEEE 802.18 | +1 (509) 891-3281 [jay.holcomb@itron.com](mailto:jay.holcomb@itron.com) |
| Tuncer Baykas (Istanbul Medipol Universitesi) | 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**

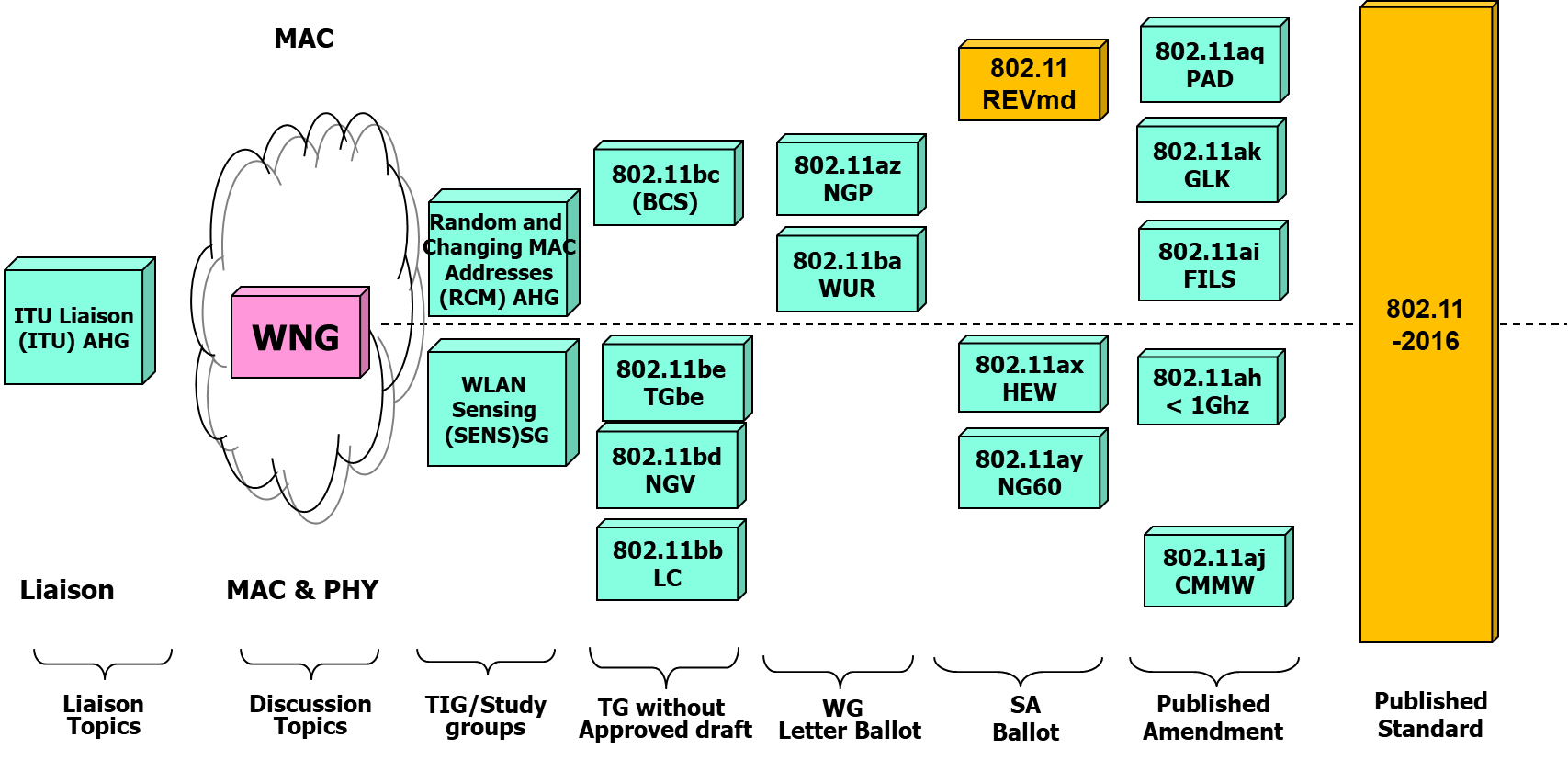
This Annex contains references to all IEEE 802.11 SC/TG/SG & Ad Hoc Committee (AHC) minutes from this meeting. Please note that they are NOT subject to the approval of these minutes, but are confirmed and approved by their individual group in the opening meeting at their next session.

|  |  |  |
| --- | --- | --- |
| WG | TE | 20-0015r1 |
| TGmd | TG | 20-0146r0 |
| TGax | TG | 20-0148r0 |
| TGay | TG | 20-0160r0 |
| TGaz | TG | 20-0140r0 |
| TGba | TG | 20-0185r0 |
| TGbb | TG | 20-0205r0 |
| TGbc | TG | 19-2114r0 |
| TGbd | TG | 20-0016r0 |
| TGbe | TG | 20-0228r1 |
| AANI | SC | 20-0302r0 |
| COEX | SC | 20-0xxxr0 |
| WNG | SC | 20-0166r0 |
| JTC 802 | SC | 20-0178r0 |
| ARC | SC | 20-0144r0 |
| SENS | SG | 20-0165r0 |
| RCM | AH | 20-0197r0 |
| ITU | AH | 20-0299r0 |

**Annex D : Revisions and Standards Pipeline**

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**IEEE 802.11 Revisions**

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**IEEE 802.11 Standards Pipeline**

End.