IEEE P802.11  
Wireless LANs

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| Minutes of the IEEE P802.11 Full Working Group | | | | |
| Date: 2018-01-15 | | | | |
| Author(s): | | | | |
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Abstract

This document constitutes the minutes of the IEEE 802.11 full working group for the January 2018, Irvine, California, USA meeting.

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

**IEEE 802 Wireless Interim Meeting – #107 Joint Opening Plenary**

**Hotel Irvine**

**Irvine, California, USA**

**January 15 - 19, 2018**

**Monday, 15th January 2018**

**8:01** 802.11, 802.15, 802.18, 802.19, and 802.24 Chairs called the joint meeting to order. IEEE 802.15 attendance is included as Annex A.

General announcements:

* No photography, no audio recording
* Social – K1 Racing on Wednesday 18:00 – 21:30
* Don’t forget, book your room and register for March’s session

Straw Poll of new attendees: 5

**8:10**  IEEE patent policy

802.15 WG chair read the IEEE-SA instructions and displayed the four slides explaining patent policy and informed the attendees that additional information could be found on the PatCom web site: ([**http://standards.ieee.org/board/pat/pat-slideset.ppt**](http://standards.ieee.org/board/pat/pat-slideset.ppt)**)**.

802.15 WG chair read IEEE anti-trust policy.

**8:14** Financial report by J Rosdahl (Qualcomm) docs [11-18-0001-00](https://mentor.ieee.org/802.11/dcn/18/11-18-0001-00-0000-treasurer-report-january-2018-irvine.pptx),   
[15-18-0015-00](https://mentor.ieee.org/802.15/dcn/18/15-18-0015-00-0000-treasurer-report-january-2018-irvine.pptx)

Total liabilities and equity $ 700,628.20

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

**8:21** WG15 Chair informed the group that the Wireless Chairs Standing Committee (WCSC) met yesterday, Sunday at 16:00 local time. Chair noted that this is an open meeting, all are encouraged to attend. Minutes are available at [ec-18-0009-00-WCSG](https://mentor.ieee.org/802-ec/dcn/18/ec-18-0009-00-WCSG-irvine-january-2018-minutes.docx)

**8:23** Review future sessions (document # [15-17-0676-01](https://mentor.ieee.org/802.15/dcn/17/15-17-0676-01-0000-802-15-sna-2018-graphic-agenda.xlsx))

* **March 4-9, 2018, Hyatt Regency O'Hare, Rosemont, IL, USA,** 802 Plenary Session
* **May 6-11, 2018, Warsaw Marriott,** 802 Wireless Interim Session.\*
* **July 8-13, 2018, Manchester Grand Hyatt, San Diego, CA, USA,** 802 Plenary Session
* **September 9 - 14, 2018, Hilton Waikoloa Village, Kona, HI, USA,** 802 Wireless Interim Session.\*
* **November 11-16, 2018, Bangkok Thailand,** 802 Plenary Session
* **January 13-18, 2019, TBD (Ottawa, St Louis, NOLA, maybe Montreal),** 802 Wireless Interim Session.\*
* **March 10-15, 2019, Hyatt Regency/Fairmont Hotel Vancouver, Vancouver, Canada,** 802 Plenary Session
* **May 12-17, 2019, Grand Hyatt Atlanta in Buckhead, Atlanta, Georgia, USA,** 802 Wireless Interim Session.\*

**8:27 Working Group Updates**

802.11 by Adrian Stephens (Intel), (document [11-17-1804-01](https://mentor.ieee.org/802.11/dcn/17/11-17-1804-01-0000-january-2018-wg-opening-report.pptx))

* Adrian showed the Emerging Technology Award that was presented to the 802.11 group by the IEEE-SA for their effort on 802.11ad.
* 275 voters

802.15 by B Heile (document [15-16-0857-04](https://mentor.ieee.org/802.15/dcn/16/15-16-0857-04-0000-802-15-atl-2017-graphic-agenda.xlsx))

* 65 voters
* TG4md: 15.4 revision
* TG 7m: Optical Wireless Communications
* TG12 Upper Layer Interface (ULI) for 802.15.4
* TG13 Multi-Gigabit OWC
* SG 15.4w Low Power Wide Area (LPWA)
* SG 15.4x FAN enhancements (FANE)
* SG 15.4y Security Next Generation (SECN)
* IG VAT (Vehicular Assistive Technology)
* IG ELR (enhanced low rate UWB RFID PHY)

802.16 by R Marks

* not meeting since the 802 EC voted to hibernate it

802.18 by J Holcomb

* 40 voting members
* Canadian consultation
* EMEA - EC mandate came out
* 3GPP - looking at 6 GHz spectrum
* OFCOM consultation
* IT 2020 – watching this effort

802.19 S Shellhammer

* 35 voters
* Ongoing revision effort
* Presentation on coexistence in sub-GHz
* Official liaison on BT and 802.11 coexistence

802.24 Tim Godfrey

* 28 voting members
* editing white paper on utility applications

**AoB**

None

**8:42** Joint meeting adjourned

**IEEE 802.11 Interim Meeting – Session #167**

**Irvine, California, USA**

**January 15th – 19th, 2018**

**IEEE 802.11 Opening Plenary, Monday 15th January 2018**

Presiding chair: Adrian Stephens (Intel Corporation) opened the meeting at 09:00 Pacific Standard Time (PST) and declared quorum for the Session.

2nd Vice-chair (VC2): Dorothy Stanley Hewlett Packard Enterprise

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

Acting Secretary: Michael Montemurro BlackBerry Ltd.

There are 275 voting members and 12\*\* Ex Officio voters of IEEE 802.11

There were 168 people in the room

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

1. **Notices** (11-17-1804r1)
   1. No photographs at this meeting and please turn your mobiles to vibrate.
   2. Chair: Are there any members of the press present.
      1. None
2. **Approve/modify working group agenda** (11-17-1803r1)
   1. This is a summary of all room allocations for the week.
   2. Chair: I suggest we approve this agenda.
   3. **Move to approve the agenda 11-17-1803r1 (“Agenda Graphic” tab and the “WG11” tab Monday agenda)**
      1. Moved: Mark Hamilton, 2nd: Al Petrick
      2. No objection to approving by unanimous consent
3. **November 2017 WG Minutes**
   1. **Move to approve the Orlando November 2017 WG minutes document 11-17-1573r1**
   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 5 new participants in this meeting.
   2. Chair: Please note that Stephen McCann (Secretary) will be holding a newcomer’s session at 10:30 in room Salon E.
5. **Call for essential Patents** (11-18-0017r0)
   1. VC2: read out the current PatCom rules, which were revised a couple of weeks ago and then called for essential patents information, as shown by:
   2. <http://standards.ieee.org/board/pat/pat-slideset.ppt>
      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 mentioned.
   4. VC2: read out other policies and procedures for the meeting. There were some small changes made to the IEEE-SA rules regarding affiliation, IEEE RAC co-ordination requirements and data privacy regulations. These all became effective on 1st January 2018.
   5. VC2: There are changes about the loss of voting rights within the IEEE 802 Policies and Procedures.
   6. Chair: Within the rules text about the loss of voting rights, there is a clause about the chair allowing exceptions to the loss of voting rights and I usually will only do this for members with medical issues and similar excuses.
   7. No questions
6. **Announcements**
   1. **Liaisons** (11-17-1804r1 slide #4)
      1. Chair: IEEE 802.11 was copied on a liaison from the Wi-Fi Alliance to 3GPP and this will be considered within the Coexistence SC.
   2. **EC and standard board decisions** (slides #5 & #6)
      1. Chair: The EC approved the following items on the slide.
      2. Note, that the EC did not approve the TGaq conditional approval.
   3. **Emerging Technology Award**
      1. Chair: Please note the award at the front of the room, which was presented to IEEE 802.11 from the IEEE-SA. Please come and have a look at it.
   4. **Meeting logistics** (11-18-0002r0 slide #4)
      1. VC1: this slide deck shows information about other WG meetings, future meetings and logistics this week.
      2. Slide #5 shows a link to this week’s online room schedule and a meeting room layout URL, within this convention center.
      3. There is an online google IEEE 802.11 calendar which is available for most hand-held devices.
      4. The next meeting is in March 2018 in Rosemont, Illinois, USA.
   5. **Recording Attendance** (slide #9)
      1. VC1: There are 308 registered people for this week’s meeting.
      2. VC1: Please remember to record your attendance for each 2 hour slot during the week.
   6. **WG Documents** (slide #10)
      1. VC1: 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. The IT support center is along the corridor from the IEEE 802 registration desk.
   7. **Social and Catering options** (slides #11 & #12)
      1. VC1: Please note that breakfast and lunch are provided in the hotel for this meeting. The hotel has a very nice Marketplace store with reasonable prices.
      2. There is a social on Wednesday evening, from 6:30pm-9:30pm at the “K1 Speed Irvine” venue. Everyone must have a badge, including guests. In addition, you must fill out a waiver if you want to use the electric go-karts.
      3. There are two shuttle buses, although the venue is only 2 miles away. The last bus back is at 9.30pm.
7. **Status of all groups** (11-17/1804r1)
   1. **Sub-Group Status**
      1. Chair: Please note the changes to sub-group officers for this week.
   2. **Summary of Ballots**
      1. There have been 5 ballots since the last IEEE 802.11 face-to-face meeting.
      2. As the TGay letter ballot achieved 74%, it failed.
8. **Group Summaries** (11-18-0016r1)
   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’s going to be quite a lot of activity within this group this week and a summary will be presented during the Wednesday IEEE 802.11 plenary.
   4. **WNG**
      1. There are 3 presentations this week for this group, which meets on Tuesday at 8am.
   5. **TGmd**
      1. The current draft is D0.5, including the 11ah and 11ai amendments. Hopefully the initial letter ballot will be approved at the end of this week.
   6. **TGaq**
      1. Main work this week will be to resolve comments from the 7th re-circulation sponsor ballot and update the waiver request document 11-17-1704r5.
      2. Intend to ask the EC for unconditional approval to go to RevCom in March 2018.
   7. **LC SG**
      1. The main work this week will be to review the draft PAR and CSD documents.
9. **Recess**
   1. Meeting recessed at 10:04 PST.

**Wednesday, 17th January 2018**

**IEEE 802.11 Mid-Week Plenary**

Presiding chair: Adrian Stephens (Intel) opened the meeting at 10:31 PST.

197 people present.

1. **Approve/modify working group agenda** (11-17-1803r2)
   1. Chair: There are a couple of minor changes to the agenda fixing links and various items.
   2. Chair: Please note that there will be an award ceremony and photographs today, once this meeting has recessed, as the taking of photographs is not allowed in the meeting.
   3. **Move to approve the agenda 11-17-1803r2.**
      1. Moved: Al Petrick, 2nd: Stuart Kerry
      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 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. **Social** (11-18-0002r0)
   1. VC1: Please remember that there is a social this evening, as shown on slide #14. Please wear your name badge to attend.
   2. No questions
5. **Wi-Fi Alliance liaison** (11-18-0233r0)
   1. This is report about the current IEEE 802.11 related activities within the Wi-Fi Alliance. The next meeting is scheduled for 6th February 2018 in Hong Kong.
   2. No questions
6. **IETF Liaison** (11-18-0020r0)
   1. This is report about the current IEEE 802.11 related activities within the IETF.
   2. The next meeting is March 18th – 23rd 2018 in London.
   3. No questions
7. **IEEE 802.18** (11-18-0271r0)
   1. There will be an extra ad-hoc meeting in the Saddleback room in Wednesday PM2 to work on OfCom fixed wireless consultation comments.
   2. No questions
8. **Room assignment updates** (11-17-1803r2)
   1. TGak has adjourned for the week and can free its slots.
   2. TGaz would like a new slot: Thurs AM2
   3. **Motion to approve the updated room graphic in the agenda 11-17-1803r3**
      1. Moved: John Notor, 2nd: Stephen McCann
      2. No objection to approving the agenda by unanimous consent.
9. **Officer Elections March 2018** (11-17-1805r3)
   1. This is the process for the IEEE 802.11 officers election in March 2018.
   2. Adrian Stephens is not seeking re-election.
   3. Chair: Any vice-chairs are able to stand in for the chair and therefore they also need to complete the paperwork as mentioned slide #7.
   4. Comment (C): In addition, the chair and vice-chairs must also be members of IEEE-SA.
   5. Chair: yes, thank you.
   6. Appointed positions (e.g. secretary, treasurer) will be decided in the May 2018 IEEE 802.11 meeting.
10. **IMT 2020 report** (11-18-0232r1)
    1. This is a report from the AANI Standing Committee (SC)
    2. **Straw Poll**
    3. **Should 802.11 propose itself as a IMT-202 technology?**
    4. Question (Q): I think the straw poll be changed to use the word “submit”.
    5. Answer (A): Yes, ok.
    6. **Should the 802.11 WG submit the IEEE 802.11 standard as an IMT-2020 RIT (of any type) technology?**
    7. Q: Does this mean a single RIT or a set of SITs
    8. A: I don’t think that level of detail is required in this straw poll
    9. Chair: Let’s now have some debate about the AANI SC activity in this area?
    10. C: Regarding the amount of work in AANI SC, there are 14 requirements for IMT-2020. Some of these have been addressed and it should be realised that there is 18 months before the deadline. There is indeed a lot of effort required and this is also true for many other technologies. Therefore, we just need to discuss what level of resources within IEEE 802.11 are required. At the moment, just an intent to submit in 2019 is all that is required. Therefore, it’s not an insurmountable task and there are entities which will consider using IEEE 802.11 in licensed bands.
    11. C: I’m not completely opposed to this idea, but if IEEE 802.11 joins in the process now, we’ll need 12 companies to be present at the ITU in Geneva for a lot of time. The 3GPP community will not appreciate IEEE 802.11’s entry at this point.
    12. C: I’m not in favour of this straw poll, as I don’t think that IEEE 802.11 can meet the IMT 2020 requirements and this may be embarrassing for IEEE 802.11. 3GPP spends many resources working on the IMT 2020 requirements, whereas IEEE 802.11 typically does not.
    13. C: I support this straw poll as many of the IMT 2020 requirements can be supported by IEEE 802.11ax and indeed some groups within 3GPP have mentioned that some IMT 2020 aspects can be achieved with IEEE 802.11ax or similar technologies.
    14. C: Submission of an intent to take part in IMT 2020, is only an intent. It’s the not the final proposal itself. It’s not an attempt to compete with 3GPP.
    15. C: I agree with the previous statement, but proceeding with this will cause political issues and may disrupt ongoing 6GHz discussions.
    16. Yes: 49
    17. No: 76
    18. Need more time: 37
11. **TGaq update** (11-18-0238r0)
    1. This is a report about progress within TGaq regarding the latest re-circulation ballot comments.
    2. All the comments received from the 7th re-circulation sponsor ballot have now been resolved.
    3. The TGaq ballot resolution committee is unable to satisfy some mandatory coordination comments received form the IEEE RAC and therefore it is necessary to create a waiver request document to foreword to RevCom with the comment resolution report and package that will be presented to the EC in March 2018.
12. **MIB TruthValue Usage** (11-18-0052r2)
    1. This is a report from the ARC SC regarding MIB TruthValues, which are attributes set to either true or false.
    2. Document 11-15/0355r13 provides guidance on how to do this and hopefully it can be used for new amendments.
    3. There will be a motion on Friday to adopt this document as part of the editorial Mandatory Draft Review process.
13. **LC PAR/CSD**
    1. Within the LC Study Group (SG) the PAR document has now been approved 11-17-1604r6 and the CSD is 11-17-1603r6. The scope is considering light on the uplink and downlink.
    2. There will be a motion on the PAR during the Friday meeting to move this group forward.
    3. **Straw Poll**
    4. **Should the LC PAR https://mentor.ieee.org/802.11/dcn/17/11-17-1604-06-00lc-a-par-proposal-for-light-communications.docx and   
       CSD https://mentor.ieee.org/802.11/dcn/17/11-17-1603-06-00lc-a-csd-proposal-for-light-communications.docx documents be approved?**
    5. Yes: 48
    6. No: 0
    7. Need more time: 28
14. **Any Other Business**
    1. Chair: Once we recess, we will have an award ceremony for the “Emerging Technology Award” which was presented to IEEE 802.11 by IEEE-SA for the work done in 802.11ad (60 GHz).
    2. Meeting recessed at 12:04 PST

**Friday, 19th January 2018**

**IEEE 802.11 Closing Plenary**

Call to order at 08:01 PST by Adrian Stephens (Intel).

78 people present in the room.

1. **Approve/modify working group agenda** (11-17-1803r4)
   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 11-17-1803r4**
      1. Moved: Al Petrick, 2nd: James Gilb
      2. No objection to approving by unanimous consent.
2. **Call for Essential Patents** (11-17-1805r4 slide #20)
   1. Call for Essential Patents and Letters of Assurance (LoA)
   2. No statements
   3. No questions
3. **Announcements** (11-17-1805r4)
   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. Please be aware of the Chair’s schedule for the chair’s committee meetings (CAC), which are on 29th January and 26th February 2018 at noon ET.
   3. **Letters of Assurance (LoA)** (slide #22)
      1. Chair: please remember about the LoA requirements.
   4. **IEEE Store and ISO SCG** (slides #23)
      1. No questions
4. **Current Venues** (11-18-0002r1 slide #19)
   1. **Straw Poll: How many people would like to come back to this venue?**
   2. Y: 54, N: 0
   3. **Straw Poll: How many people enjoyed the social?** 39, **Did not**: 0
   4. **Straw Poll: How many people did not attend the social?** 19
5. **Upcoming Venues** (11-18-0002r1 slides #20 and #21)
   1. VC1: This slide shows the future wireless interim locations.
   2. VC1: Please note that Bangkok venue for November 2018 is now confirmed.
6. **Treasury Report** (11-18-0001r0 slide #10)
   1. VC1: This is the treasurer’s report for January 2018. There will be a small loss for this week and the number of attendees is slightly up for an interim (326).
7. **Timelines**
   1. There is a timeline update for TGaq. It will be updated over the weekend.
8. **Documentation & Attendance** (11-18-0019r0 slide #3)
   1. These are the usual attendance statistics for this week and IEEE 802.11ax is by far the largest project this week, although IEEE 802.11ba is close behind.
   2. The number of document uploads per meeting is quite steady, although the current trend is a slow decrease.
9. **WG Committee Reports** (11-18-0019r0)
   1. **Technical editor** (slide #9)
      1. The main topic this week was the use of TruthValues within the MIB.
      2. No questions
   2. **AANI Standing Committee** (slide #15)
      1. There has been a lot of activity this week, including a discussion about the future of this group. No draft documents were approved as IMT 2020 submissions.
      2. Chair: Regarding the future of AANI SC, perhaps we should review this at the Thursday CAC during the March 2018 face to face meeting, to see if AANI should meet in May 2018. I would be expecting to see some output from the AANI SC at this review.
   3. **ARC Standing Committee** (slide #23)
      1. VC2: Regarding the broadcast Technical Interest Group (TIG) proposal you mentioned, this will actually be a Study Group (SG) proposal.
      2. Chair: I notice that the sponsor ballot pool for IEEE 802.1AS (Time Sensitive Networking) has not closed due to lack of numbers.
   4. **Co-existence Standing Committee** (slide #30)
      1. No questions
   5. **WNG** (slide #35)
      1. There were 3 presentations this week.
      2. No questions
   6. **JTC1** (slide #38)
      1. No questions
   7. **TGmd** (slide #41)
      1. The group approved a motion for an initial working group letter ballot with D1.0 and there will be a WG motion later in this meeting. This motion will be 40 days to give people more time to review the very large draft and therefore the ballot period will overlap the March 2018 face to face meeting.
      2. No questions.
   8. **TGak** (slide #49)
      1. No questions
   9. **TGaq** (slide #52)
      1. Q: Has the 11aq waiver request document been updated recently, as the version I saw still had “tdb”s in it.
      2. A: yes, it was revised on Thursday afternoon to 11-17-1704r8
   10. **TGax** (slide #56)
       1. No questions
   11. **TGay** (slide #62)
       1. No questions
   12. **TGaz** (slide #66)
       1. No questions
   13. **TGba** (slide #71)
       1. No questions
   14. **LC SG** (slide #76)
       1. No questions
10. **Working Group Motions (Old Business) Part 1** (11-18-0018r2)
    1. **LC PAR Approval** (slide #8)
       1. **Believing that the PAR contained in the document referenced below meets IEEE-SA guidelines, Request that the PAR contained in https://mentor.ieee.org/802.11/dcn/17/11-17-1604-08-00lc-a-par-proposal-for-light-communications.docx be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.**
       2. [LC SG: Moved: Andrew Myles, Seconded: Christophe Jurczak, Result: 18-0-1]
       3. Moved: Nikola Serafimovski on behalf of the LC SG, Second: Ian Sherlock
       4. For: 47, Against: 0, Abstain: 6 (Motion passes)
    2. **LC CSD Approval** (slide #9)
       1. **Believing that the CSD contained in the document referenced below meets IEEE 802 guidelines, Request that the CSD contained in https://mentor.ieee.org/802.11/dcn/17/11-17-1603-07-00lc-a-csd-proposal-for-light-communications.docx be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval.**
       2. [LC SG: Moved: Andrew Myles, Seconded: Christophe Jurczak, Result: 13-0-1]
       3. Moved: Nikola Serafimovski on behalf of the LC SG, Second: Andrew Myles
       4. For: 48, Against: 0, Abstain: 5 (Motion passes)
       5. Chair: I would like to appoint Nikola Serafimovski as chair pro-tem for this task group (if approved by the EC).
11. **Liaison Reports**
    1. **IEEE 802.18** (11-18-0013r0 slide #2)
       1. No questions
    2. **IEEE 802.24** (11-18-0269r0)
    3. No questions
12. **Working Group Motions (Old Business) Part 2** (11-18-0018r2)
    1. **Teleconferences** (slide #10)
       1. **Move to approve the following teleconferences**

|  |  |  |  |
| --- | --- | --- | --- |
| **Group** | **Date(s)** | **Start** | **Duration** |
| **CAC** | **Mon Jan 29, Feb 26** | **Noon ET** | **1 hr** |
| **TGmd** | **Friday Feb 16, 23** | **10:00 ET** | **2 hr** |
| **TGaq** | **Friday Feb 16, 23** | **Noon ET** | **2 hrs** |
| **TGax** | **Thurs Jan 25, Feb 8, 22**  **Thurs Feb 1** | **20:00 ET**  **10:00 ET** | **2 hrs**  **2 hrs** |
| **TGay** | **Wed Jan 24, 31, Feb 7, 14, 21(60 min)** | **10:00 ET** | **1.5 hrs** |
| **TGaz** | **Wed Feb 21, 28** | **11:00 ET** | **1 hr** |
| **TGba** | **Mon Jan 29**  **Mon Feb 12**  **Mon Feb 26** | **10:00 ET**  **17:00 ET**  **23:00 ET** | **1 hr**  **1 hr**  **1 hr** |

* + 1. Moved: John Notor, 2nd: Edward Au
    2. No objection to approving by unanimous consent.
  1. **ARC MIB Pattern** (slide #11)
     1. **Approve 11-15/0355r13 as recommended practice for future amendments (that is, any amendments that go through MRD processing after Jan 18, 2018) to the 802.11 MIB and instruct the technical editor to include reference to this practice in the 802.11 Style Guide and review future amendments for conformance to 11-15/0355r13 during the MDR.**
     2. Moved: Mark Hamilton, Seconded: Joseph Levy
     3. For: 45, Against: 1, Abstain: 0 (Motion passes)
  2. **COEX SC** (slide #12)
     1. **The IEEE 802.11 WG support the contents and the requests in the LS from WFA to 3GPP RAN documented in 11-17-1853-00**
     2. [COEX SC Motion:
     3. The IEEE 802.11 Coexistence SC requests the IEEE 802.11 WG to express support for the LS from WFA to 3GPP RAN as documented in 11-17-1853-00. Passed 10/0/6/1]
     4. Moved: Andrew Myles on behalf of the COEX SC
     5. Q: What are we doing with this document? Is there any point to this motion?
     6. Chair: I won’t be doing anything with this. The result will be recorded in the minutes.
     7. C: I am concerned that IEEE 802.11 is not producing a formal response to 3GPP regarding this topic. I think we should provide a formal liaison.
     8. A: Yes, I understand. All of the material in this document has already been exchanged with 3GPP previously.
     9. C: I do support this document, but I also think we should have a liaison.
     10. For: 22, Against: 0, Abstain: 21 (Motion passes)
  3. **P802.11REVmd Initial WG Letter Ballot** (slide #13)
     1. **Having approved changes to P802.11REVmd D0.5 as defined in 11-17-914r12 and 11-17-1871r9, Instruct the editor to prepare P802.11REVmd D1.0 and Approve a 40 day Working Group Technical Letter Ballot asking the question “Should P802.11REVmd D1.0 be forwarded to Sponsor Ballot?”**
     2. [TGmd: Moved: Jon Rosdahl Seconded: Matthew Fischer, Result: 13-2-0 Passes]
     3. Moved by Dorothy Stanley on behalf of TGmd
     4. No objection to approving by unanimous consent.
  4. **TGmd ad-hoc Motion** (slide #14)
     1. **Approve a 3-day TGmd Ad-hoc meeting during the week of April 9, 2018, anticipated to be held in Fort Lauderdale FL/Cambridge UK/Portland OR, USA (may change depending on sponsor).**
     2. Moved: Dorothy Stanley on behalf of the TG
     3. [TGmd result: Moved: Graham Smith Seconded: Stephen McCann Result: 11-0-3 Passes]
     4. No objection to approving by unanimous consent.
  5. **TGak Report to EC and forward to REVCom** (slide #15)
     1. **Approve document https://mentor.ieee.org/802.11/dcn/18/11-18-0045-03-00ak-p802-11ak-revcom-submittal.pptx as the report to the IEEE 802 Executive Committee on the requirements for approval to forward P802.11ak to RevCom, and Request the IEEE 802 EC to forward P802.11ak D6.0 to RevCom.**
     2. Moved: Donald Eastlake, Second: Edward Au
     3. [TGak: Moved: Mark Hamilton Seconded: Joseph Levy Yes: 6 No: 0 Abstain: 0]
     4. For: 51, Against: 0, Abstain: 0 (Motion passes)
  6. **TGak CSD reaffirmation** (slide #16)
     1. **Reaffirm the CSD contained in https://mentor.ieee.org/802.11/dcn/12/11-12-1208-00-0glk-802-11-glk-draft-5c.docx**
     2. Moved: Donald Eastlake, Seconded: James Gilb
     3. For: 49, Against: 0, Abstain: 1 (Motion passes)
  7. **TGax February/March 2018 Ad-Hoc Meeting** (slide #17)
     1. **Authorize TGax to hold an ad-hoc meeting on Feb. 28, March 1-2 in the Bay area, for the purpose of working on draft D2.0 comment resolution.**
     2. [TGax result: Moved: Peter Ecclesine, Seconded: Jianhan Liu, Result: 42-0-1]
     3. Moved: Osama Aboul-Magd on behalf of TGax
     4. No objection to approving by unanimous consent.
  8. **TGay March 2018 Ad-Hoc Meeting** (slide #18)
     1. **Authorize TGay to hold an ad hoc meeting in Hyatt Regency O’Hare, Rosemont, on March 2 (Friday) and March 3 (Saturday).**
     2. [TGay result: Moved: Claudio da Silva, Seconded: Kome Oteri, Result: 14/0/3 motion passes]
     3. Moved: Edward Au on behalf of TGay
     4. No objection to approving by unanimous consent

1. **Human rights in technical standards: our practical approach** (11-18-0242r4)
   1. This is a presentation regarding how freedom of speech and human rights impact IEEE 802 standards development.
   2. C: Please can you upload the revision shown on the screen.
   3. C: Thanks for the presentation. Regarding IEEE 802e, it has been dormant since 2016, although it will re-appear and there are issues within the IETF that may need to be reconsidered within IEEE 802.
   4. C: Regarding security and privacy within the CSD, I think this is a great item. There are IEEE 802 rules meetings held at the plenaries and the VC2 may prepare some material for consideration within this meeting.
2. **Working Group Motions (New Business)** (11-18-0018r2)
   1. **Broadcast Services (BCS) Study Group formation** (slide #19)
      1. **Request approval by IEEE 802 LMSC to form an 802.11 Study Group to consider broadcast service enhancements as described in https://mentor.ieee.org/802.11/dcn/17/11-17-1736-04-0wng-broadcast-service-on-wlan.pptx with the intent of creating a PAR and CSD.**
      2. Some background material on this motion was presented from document 11-17-1736r4
      3. Q: What is the scope of the work. It will be mostly the broadcast service with extra security.
      4. A: Yes
      5. Q: From the IETF point of view, what is the entity above the Wireless LAN that co-ordinates the broadcasting?
      6. A: The solution will try and use IPv6 multicast addressing.
      7. Q: I would like some measurable goals for the study group. How much bandwidth can be save by using this broadcast mechanism.
      8. A: This does need to be considered by the study group
      9. Moved: Hitoshi Morioka, Seconded: Hiroshi Mano
      10. C: I speak in favour of this motion, as I believe that broadcast is a future direction for radio systems. However, broadcast services do need to consider privacy issues. Perhaps this is a solution to avoid “face news” issues.
      11. C: From an architecture issue, there are security issues and I also think that the name needs to be re-considered. Perhaps ‘multicast’ may be better.
      12. C: This idea does need studying, but it feels a little early in the process. I’m not so sure about the benefits of broadcasting at the moment. Therefore, I think this should be a TIG and not a SG.
      13. C: I do have some concerns about this technology as there are other broadcast services out there. I worry about whether there is much of a market for this at the moment.
      14. For: 24, Against: 3, Abstain: 23 (Motion passes)
      15. Chair: At this point, I’ve not determined who will be chair pro tem for this potential SG. I’ll also try and see approval of this SG on the next EC teleconference.
   2. **Full Duplex TIG** (slide #20)
      1. **Approve formation of a TIG to study the technical feasibility of Full Duplex operation. TIG is to complete a report on this topic at or before the September 2018 session.**
      2. Some background material on this motion was presented. There have been some considerable enhancements of how to transmit and receive simultaneously on the same channel using Tx/Rx and echo cancellation and collision detection. It would be worthwhile for IEEE 802.11 to consider this new technology.
      3. Moved: James Gilb, Second: John Notor
      4. For: 35, Against: 7, Abstain: 9 (Motion passes)
      5. Chair: I would like to appoint James Gilb as chair pro tem of this new TIG. I’ve like to mention that TIGs are formed by the WG chair and do not need EC approval. However, I wanted a motion to show the level of support within IEEE 802.11.
3. **Next Meeting** (11-18-0018r1 slide #24)
   1. The next meeting is at the Hyatt Regency O’Hare, Rosemont, Illinois, USA, March 4th – 9th 2018. Registration is now open for this meeting and please note the new type of web-page. The deadline for early bird reservations is January 26th, 2018.
   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 2018 meeting. This is an open meeting and everyone is welcome.
4. **AoB:**
   1. None
5. **Adjournment**
   1. Chair: Having completed the agenda, the chair announced that the meeting was adjourned at 10.21 PST.

**Annex A: Attendance & Affiliation**

| **Name** | **Affiliation** | **Attended >= 75%?** | **Status** |
| --- | --- | --- | --- |
| Abouelseoud, Mohamed | Sony Corporation | Yes | Potential Voter |
| Aboulmagd, Osama | Huawei Technologies Co. Ltd | Yes | Voter |
| Adachi, Tomoko | TOSHIBA Corporation | Yes | Voter |
| Adhikari, Shubhodeep | Broadcom Corporation | Yes | Potential Voter |
| Agarwal, Peyush | Broadcom Corporation | Yes | Aspirant |
| Ahn, Woojin | WILUS | Yes | Voter |
| Aio, Kosuke | Sony Corporation | Yes | Voter |
| Alpert, Yaron | Intel Corporation | Yes | Voter |
| An, Song-Haur | INDEPENDENT | Yes | Voter |
| Andersdotter, Amelia | Article 19 | Yes | Potential Voter |
| Ansley, Carol | ARRIS Group | Yes | Voter |
| Asterjadhi, Alfred | Qualcomm Incorporated | Yes | Voter |
| Au, Kwok Shum | Huawei Technologies Co. Ltd | Yes | Voter |
| Azizi, Shahrnaz | Intel Corporation | Yes | Voter |
| Bajko, Gabor | MediaTek Inc. | Yes | Aspirant |
| baron, stephane | Canon Research Centre France | Yes | Voter |
| Batra, Anuj | Apple, Inc. | Yes | Voter |
| Berger, Christian | Marvell | Yes | Voter |
| Bhandaru, Nehru | Broadcom Corporation | Yes | Voter |
| Bims, Harry | Bims Laboratories, Inc. | Yes | Potential Voter |
| Bolotin, Ilya | Intel | Yes | Potential Voter |
| Bredewoud, Albert | Broadcom Corporation | Yes | Aspirant |
| Calcev, George | Huawei R&D USA | Yes | Voter |
| Cariou, Laurent | Intel Corporation | Yes | Voter |
| Carney, William | Sony Corporation | Yes | Voter |
| Cha, Jaesang | Seoul National University | No | Aspirant |
| Chang, Soo-Young | California State University, Sacramento (CSUS) | Yes | Potential Voter |
| Chen, Cheng | Intel Corporation | Yes | Potential Voter |
| Chen, Jiamin | HUAWEI | Yes | Voter |
| Chen, Teyan | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Chen, Xiaogang | Intel Corporation | Yes | Voter |
| CHERIAN, GEORGE | Qualcomm Incorporated | Yes | Voter |
| Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. | Yes | Voter |
| Choi, Jinsoo | LG ELECTRONICS | Yes | Voter |
| Chu, Liwen | Marvell Semiconductor, Inc. | Yes | Voter |
| Ciochina, Dana | Sony Corporation | Yes | Voter |
| Coffey, John | Realtek Semiconductor Corp. | Yes | Voter |
| Cordeiro, Carlos | Intel Corporation | Yes | Voter |
| Correll, Perry | Aerohive Networks | Yes | Potential Voter |
| Costa, D.Nelson | Peraso Technologies Incorporated | Yes | Potential Voter |
| da Silva, Claudio | Intel Corporation | Yes | Voter |
| Das, Dibakar | Intel Corporation | Yes | Aspirant |
| Das, Subir | Applied Communication Sciences | No | ExOfficio |
| de Vegt, Rolf | Qualcomm Incorporated | Yes | Voter |
| Derham, Thomas | Broadcom Corporation | Yes | Potential Voter |
| Dong, Xiandong | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Eastlake 3rd, Donald | Huawei Technologies Co. Ltd | Yes | Voter |
| Ecclesine, Peter | Cisco Systems, Inc. | Yes | Voter |
| Eitan, Alecsander | Qualcomm Incorporated | Yes | Potential Voter |
| Erceg, Vinko | Broadcom Corporation | Yes | Voter |
| erez, shai | Texas Instruments Incorporated | No | Non-Voter |
| Fan, Xiaojing | Fujitsu Research & Development Center | No | Non-Voter |
| Fischer, Matthew | Broadcom Corporation | Yes | Voter |
| Fletcher, Paul | Samsung Cambridge Solution Center | Yes | Aspirant |
| Foland, Jeremy | Broadcom Corporation | Yes | Potential Voter |
| Fujio, Shunsuke | FUJITSU LABORATORIES LIMITED | No | Voter |
| Furuichi, Sho | Sony Corporation | No | Voter |
| Gan, Ming | Huawei Technologies Co. Ltd | Yes | Voter |
| Ghosh, Chittabrata | Intel Corporation | Yes | Voter |
| Gilb, James | Gilb Consulting, Inc. | No | ExOfficio |
| Godbole, sachin | Broadcom Corporation | Yes | Potential Voter |
| Godfrey, Tim | Electric Power Research Institute, Inc. (EPRI) | No | ExOfficio |
| Grigat, Michael | Deutsche Telekom AG | No | Voter |
| Hall, Robert | Johnson Controls Inc | Yes | Voter |
| Hamilton, Mark | Ruckus Wireless | Yes | Voter |
| HAN, Xiao | Huawei Technologies Co. Ltd | Yes | Voter |
| Handte, Thomas | Sony Corporation | Yes | Voter |
| Hansen, Christopher | Covariant Corporation | Yes | Voter |
| Harkins, Daniel | Aruba Networks, Inc. | Yes | Aspirant |
| Hartman, Chris | Apple, Inc. | Yes | Voter |
| Hayashi, Kasumi | Student | No | Non-Voter |
| Hiertz, Guido | Ericsson AB | Yes | Voter |
| Ho, Duncan | Qualcomm Incorporated | Yes | Voter |
| Holcomb, Jay | Itron Inc. | No | Non-Voter |
| Hsu, Chien-Fang | MediaTek Inc. | Yes | Potential Voter |
| Hu, Chunyu | Broadcom Corporation | Yes | Voter |
| Huang, Lei | Panasonic Asia Pacific Pte Ltd. | Yes | Voter |
| Huang, Po-Kai | Intel Corporation | Yes | Voter |
| Hurtarte, Jeorge | Teradyne, Inc. | No | Aspirant |
| Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) | Yes | Voter |
| Ishizu, Kentaro | National Institute of Information and Communications Technology (NICT) | Yes | Aspirant |
| Jang, Insun | LG ELECTRONICS | Yes | Aspirant |
| Jeffries, Timothy | Huawei R&D USA | Yes | Voter |
| Ji, Chenhe | Huawei Technologies Co., Ltd | Yes | Aspirant |
| Jia, Chenlong | Huawei Technologies Co., Ltd | Yes | Potential Voter |
| jiang, feng | Intel Corporation | Yes | Potential Voter |
| Jiang, Jinjing | Marvell Semiconductor, Inc. | Yes | Voter |
| Jin, Liang | Spirent Communications | Yes | Voter |
| Jindal, Nihar | Google | No | Non-Voter |
| Johnsson, Kerstin | Intel | No | Non-Voter |
| JONES, JEFFRUM | Qorvo, Inc. | Yes | Potential Voter |
| Jones, Vincent Knowles IV | Qualcomm Incorporated | No | Voter |
| Jungnickel, Volker | Fraunhofer HHI | No | Voter |
| Jurczak, Christophe | lucibel | Yes | Voter |
| Kain, Carl | Noblis, Inc. | Yes | Voter |
| Kalhan, Amit | KYOCERA Corporation | No | Non-Voter |
| KANG, TEAG JIN | Broadcom Corporation | Yes | Potential Voter |
| Kasher, Assaf | Qualcomm Incorporated | Yes | Voter |
| Kedem, Oren | Intel Corporation | Yes | Voter |
| Kerry, Stuart | OK-Brit | Yes | Voter |
| Khatibi, Farrokh | Qualcomm Incorporated | No | Non-Voter |
| Khericha, samir | Broadcom Corporation | Yes | Aspirant |
| Kim, Jeong Gon | Korea Polytechnic University (KPU) | No | Potential 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 |
| Kitazawa, Shoichi | Muroran IT | No | Non-Voter |
| KNECKT, JARKKO | Apple, Inc. | Yes | Voter |
| Krieger, Ann | US Department of Defense | No | Non-Voter |
| kristem, vinod | Intel Corporation | Yes | Aspirant |
| Kumar, Manish | Marvell Semiconductor, Inc. | Yes | Voter |
| Lan, Zhou | Huawei Technologies Co. Ltd | Yes | Voter |
| Lanante, Leonardo | Kyushu Institute of Technology | No | Voter |
| Lansford, James | Qualcomm Incorporated | Yes | Voter |
| Lee, Wookbong | SAMSUNG | Yes | Potential Voter |
| Leong, Frank | NXP Semiconductors | No | Non-Voter |
| Lepp, James | BlackBerry | Yes | Voter |
| Levy, Joseph | InterDigital, Inc. | Yes | Voter |
| Li, Bo | northwestern polytechnical university | Yes | Potential Voter |
| Li, Dejian | Huawei Technologies; HiSilicon | Yes | Voter |
| Li, Guoqing | Apple, Inc. | Yes | Voter |
| Li, Qiang | HUAWEI | Yes | Voter |
| Li, Qinghua | Intel Corporation | Yes | Potential Voter |
| Li, Yunbo | Huawei Technologies Co. Ltd | Yes | Voter |
| Liang, dandan | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Lim, Dong Guk | LG ELECTRONICS | Yes | Voter |
| Lindskog, Erik | Qualcomm Incorporated | Yes | Voter |
| LIU, CHENCHEN | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Liu, Jianhan | MediaTek Inc. | Yes | Voter |
| Liu, Jinnan | HUAWEI | Yes | Potential Voter |
| Liu, Yingzhuang | Huazhong University of Sci.&Tech | Yes | Potential Voter |
| Liu, Yong | southwest jiaotong university | Yes | Potential Voter |
| Liu, Yong | Apple, Inc. | Yes | Voter |
| Loc, Peter | Huawei Technologies Co. Ltd | Yes | Voter |
| Lou, Hui-Ling | Marvell Semiconductor, Inc. | No | Voter |
| Luo, Pengfei | Huawei Technologies Co., Ltd | Yes | Aspirant |
| Lv, Kaiying | ZTE Corporation | Yes | Voter |
| Lv, Lily | Huawei Technologies Co. Ltd | Yes | Voter |
| Lynch, Michael | MJ Lynch & Associates, LLC. | No | Non-Voter |
| Ma, Jing | National Institute of Information and Communications Technology (NICT) | Yes | Voter |
| Madan, Nitin | Broadcom Corporation | Yes | Potential Voter |
| Madpuwar, Girish | Broadcom Corporation | Yes | Potential Voter |
| Malinen, Jouni | Qualcomm Incorporated | Yes | Voter |
| Mano, Hiroshi | Koden Techno Info K.K. | Yes | Voter |
| MARIAPPAN, VINAYAGAM | SNUT | No | Non-Voter |
| Marks, Roger | EthAirNet Associates; Huawei | No | ExOfficio |
| Mccann, Stephen | BlackBerry | Yes | Voter |
| Mennecke, Ryan | Johns Hopkins University Applied Physics Lab | No | Aspirant |
| Merlin, Simone | Qualcomm Incorporated | No | Voter |
| Mohanty, Bibhu | Qualcomm Incorporated | Yes | Voter |
| Monajemi, Pooya | Cisco Systems, Inc. | Yes | Potential Voter |
| Montemurro, Michael | Research In Motion Limited | Yes | Voter |
| Morioka, Hitoshi | SRC Software | Yes | Voter |
| Morioka, Yuichi | Sony Corporation | Yes | Voter |
| Motozuka, Hiroyuki | Panasonic Corporation | Yes | Voter |
| Murakami, Yutaka | Panasonic Corporation | Yes | Voter |
| Myles, Andrew | Cisco Systems, Inc. | Yes | Voter |
| Nandagopalan, SAI SHANKAR | Cypress Semiconductor Corporation | Yes | Potential Voter |
| Nezou, Patrice | Canon Research Centre France | Yes | Voter |
| Nguyen, An | U.S. Department of Homeland Security | Yes | Aspirant |
| Noh, Yujin | Newracom Inc. | Yes | Voter |
| Notor, John | Notor Research; ARM, Inc. | Yes | Voter |
| Oh, Minseok | Kyonggi University | Yes | Voter |
| Oteri, Oghenekome | InterDigital, Inc. | Yes | Voter |
| Palm, Stephen | Broadcom Corporation | Yes | Voter |
| Park, Eunsung | LG Electronics | Yes | Voter |
| Park, Hyunhee | LG ELECTRONICS | No | Aspirant |
| Park, Minyoung | Samsung Semiconductor Inc. | Yes | Voter |
| Park, Sung-jin | LG ELECTRONICS | No | Voter |
| Patil, Abhishek | Qualcomm Incorporated | Yes | Voter |
| Patwardhan, Gaurav | Hewlett Packard Enterprise | Yes | Potential Voter |
| petrick, Albert | InterDigital, Inc. | Yes | Voter |
| Petry, Brian | Broadcom Corporation | Yes | Potential Voter |
| Popper, Ambroise | Quantenna Communications, Inc. | No | Potential Voter |
| porat, ron | Broadcom Corporation | Yes | Voter |
| Qi, Emily | Intel Corporation | Yes | Potential Voter |
| Rakanovic, Demir | u-blox | Yes | Voter |
| Ranganath, Ashok | SAMSUNG | Yes | Aspirant |
| Robert, Joerg | University of Erlangen-Nuremberg | No | Aspirant |
| Rong, Zhigang | Huawei Technologies Co. Ltd | Yes | Voter |
| Rosdahl, Jon | Qualcomm Technologies, Inc. | Yes | Voter |
| Ryu, Kiseon | LG ELECTRONICS | Yes | Voter |
| Sadat, Nikoo | Other | Yes | Aspirant |
| Sadeghi, Bahareh | Intel Corporation | No | Voter |
| Sahin, Alphan | InterDigital, Inc. | Yes | Aspirant |
| Sakata, Ren | TOSHIBA Corporation | No | Non-Voter |
| Sakoda, Kazuyuki | Sony Corporation | Yes | Voter |
| Salhotra, Atul | SAMSUNG | Yes | Aspirant |
| Sambasivan, Sam | AT&T | Yes | Voter |
| Sampath, Hemanth | Qualcomm Incorporated | Yes | Voter |
| Sato, Naotaka | Sony Corporation | No | Voter |
| Schelstraete, Sigurd | Quantenna Communications, Inc. | Yes | Voter |
| Segev, Jonathan | Intel Corporation | Yes | Potential Voter |
| Seok, Yongho | MediaTek Inc. | Yes | Voter |
| Serafimovski, Nikola | pureLiFi | No | Non-Voter |
| Shah, Kunal | Silver Spring Networks Inc. | No | Non-Voter |
| Shellhammer, Stephen | Qualcomm Incorporated | No | ExOfficio |
| Sherlock, Ian | Texas Instruments Incorporated | Yes | Voter |
| Smith, Graham | SR Technologies | Yes | Voter |
| Song, Taewon | LG ELECTRONICS | Yes | Potential Voter |
| Srinivasa, Sudhir | Marvell Semiconductor, Inc. | Yes | Voter |
| Stacey, Robert | Intel Corporation | Yes | Voter |
| Stanley, Dorothy | Hewlett Packard Enterprise | Yes | Voter |
| Stephens, Adrian | Intel Corporation | Yes | Voter |
| Suh, JUNG HOON | Huawei Technologies Co. Ltd | Yes | Voter |
| Sumi, Takenori | Mitsubishi Electric Corporation | No | Voter |
| Sun, Bo | ZTE Corporation | Yes | Voter |
| Sun, Chen | Sony Corporation | No | Voter |
| Sun, Li-Hsiang | InterDigital, Inc. | Yes | Voter |
| sun, sheng | Huawei Technologies Co., Ltd | Yes | Voter |
| Sun, Yanjun | Qualcomm Incorporated | Yes | Voter |
| Sundman, Dennis | Ericsson AB | Yes | Voter |
| Szymanski, Christopher | Broadcom Corporation | Yes | Potential Voter |
| Takai, Mineo | Space-Time Engineering | Yes | Voter |
| Tamhane, Sagar | Marvell Semiconductor, Inc. | Yes | Voter |
| Tanaka, Yusuke | Sony Corporation | Yes | Voter |
| Taneja, Mukesh | Cisco Systems, Inc. | Yes | Potential Voter |
| Taniguchi, Kentaro | TOSHIBA Corporation | Yes | Voter |
| Tao, Wu | Huawei Technologies Co. Ltd | Yes | Voter |
| Taori, Rakesh | SAMSUNG | No | Non-Voter |
| Tarighat, Alireza | Facebook | No | Non-Voter |
| Tian, Bin | Qualcomm Incorporated | Yes | Voter |
| Tian, Tao | Spreadtrum Communications, Inc. | Yes | Potential Voter |
| Tiedemann, Edward | Qualcomm Incorporated | No | Non-Voter |
| Torab, Payam | Self | Yes | Potential Voter |
| Trainin, Solomon | Qualcomm Incorporated | Yes | Voter |
| Tsodik, Genadiy | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Urabe, Yoshio | Panasonic Corporation | Yes | Voter |
| Varshney, Prabodh | Nokia | Yes | Voter |
| Venkatesan, Ganesh | Intel Corporation | Yes | Voter |
| Verma, Lochan | Qualcomm Incorporated | Yes | Voter |
| Verma, Sindhu | Broadcom Corporation | Yes | Potential Voter |
| Vermani, Sameer | Qualcomm Incorporated | Yes | Voter |
| Vreeland, Russell | Siemens Corporation | No | Non-Voter |
| Wang, Chao Chun | MediaTek Inc. | Yes | Voter |
| Wang, Huizhao | Quantenna Communications, Inc. | Yes | Voter |
| Wang, James June | MediaTek Inc. | Yes | Voter |
| Wang, Lei | Huawei R&D USA | Yes | Voter |
| Wang, Qi | Apple, Inc. | Yes | Aspirant |
| WANG, QIAN | Huawei Technologies Co., Ltd | Yes | Potential Voter |
| Wang, Xiaofei | InterDigital, Inc. | Yes | Voter |
| Wang, Xuehuan | Huawei Technologies Co. Ltd | Yes | Voter |
| Want, Roy | Google | Yes | Aspirant |
| Ward, Lisa | Rohde & Schwarz | No | Voter |
| Webber, Julian | Advanced Telecommunications Research Institute International (ATR) | Yes | Voter |
| Wechsler, Johannes | Fraunhofer Institute for Integrated Circuits IIS | No | Non-Voter |
| Wentink, Menzo | Qualcomm Incorporated | Yes | Voter |
| Wilhelmsson, Leif | Ericsson AB | Yes | Voter |
| Wu, Jianbing | SHEN ZHEN ITEST TECH CO.,LTD | Yes | Potential Voter |
| Wu, Tianyu | Samsung Electronics Co., Ltd. | Yes | Voter |
| Xia, Kaifeng | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Xin, Yan | Huawei Technologies Co. Ltd | Yes | Voter |
| Xu, Han | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Xue, Qi | Qualcomm Incorporated | Yes | Voter |
| Yamada, Akira | NTT DoCoMo, Inc. | No | Non-Voter |
| Yan, Min | Huawei Technologies Co., Ltd | Yes | Potential Voter |
| Yan, Zhongjiang | Northwestern Polytechnical University | Yes | Potential Voter |
| Yang, Bo | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Yang, Mao | Northwestern Polytechnical University | Yes | Potential 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, Peter | NSA/IAD | Yes | Voter |
| Yong, Su Khiong | Apple, Inc. | No | Voter |
| Young, Christopher | Broadcom Corporation | Yes | Voter |
| Yu, Jian | Huawei Technologies Co. Ltd | Yes | Voter |
| Yun, SunWoong | LG ELECTRONICS | Yes | Voter |
| Zeleznikar, Alan | ARRIS Group | Yes | Voter |
| Zhang, Hongyuan | Marvell Semiconductor, Inc. | Yes | Voter |
| Zhang, Xingxin | Huawei Technologies Co. Ltd | Yes | Voter |
| Zhang, Yan | Marvell Semiconductor, Inc. | Yes | Voter |
| Zheng, Lei | southwest jiaotong university | Yes | Potential Voter |
| Zheng, Xiayu | Marvell Semiconductor, Inc. | Yes | Voter |
| Zhu, Chunhui | Huawei Technologies Co. Ltd | Yes | Aspirant |
| Zhu, Jun | Huawei Technologies Co. Ltd | Yes | Potential Voter |
| Zuo, Xin | Huawei Technologies Co., Ltd | Yes | Potential Voter |

**Annex B : Working Group Officers**

Working group

|  |  |  |
| --- | --- | --- |
| **Name (Affiliation)** | **Position** | **Contact Details** |
| Adrian Stephens  (Intel Corporation UK Ltd.) | IEEE 802.11 Working Group Chair | +1 (971) 203-2032  [adrian.p.stephens@ieee.org](mailto:adrian.p.stephens@ieee.org) |
| Jon Rosdahl (Qualcomm) | 1st Vice Chair (Policies and Procedures) Treasurer | +1 (801) 492-4023 [jrosdahl@ieee.org](mailto:jrosdahl@ieee.org) |
| Dorothy V. Stanley  (HPE) | 2nd Vice Chair (Rules and reflectors)  IEEE 802 (LMSC) EC delegate | +1 (630) 363-1389  [dorothy.stanley@hpe.com](mailto:dorothy.stanley@hpe.com) |
| Stephen McCann (BlackBerry Ltd.) | Secretary | +44 1753 667099 [stephen.mccann@ieee.org](mailto:stephen.mccann@ieee.org) |
| Peter Ecclesine (Cisco) | 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** |
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Task Groups

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Liaison Officials to IEEE 802 organizations

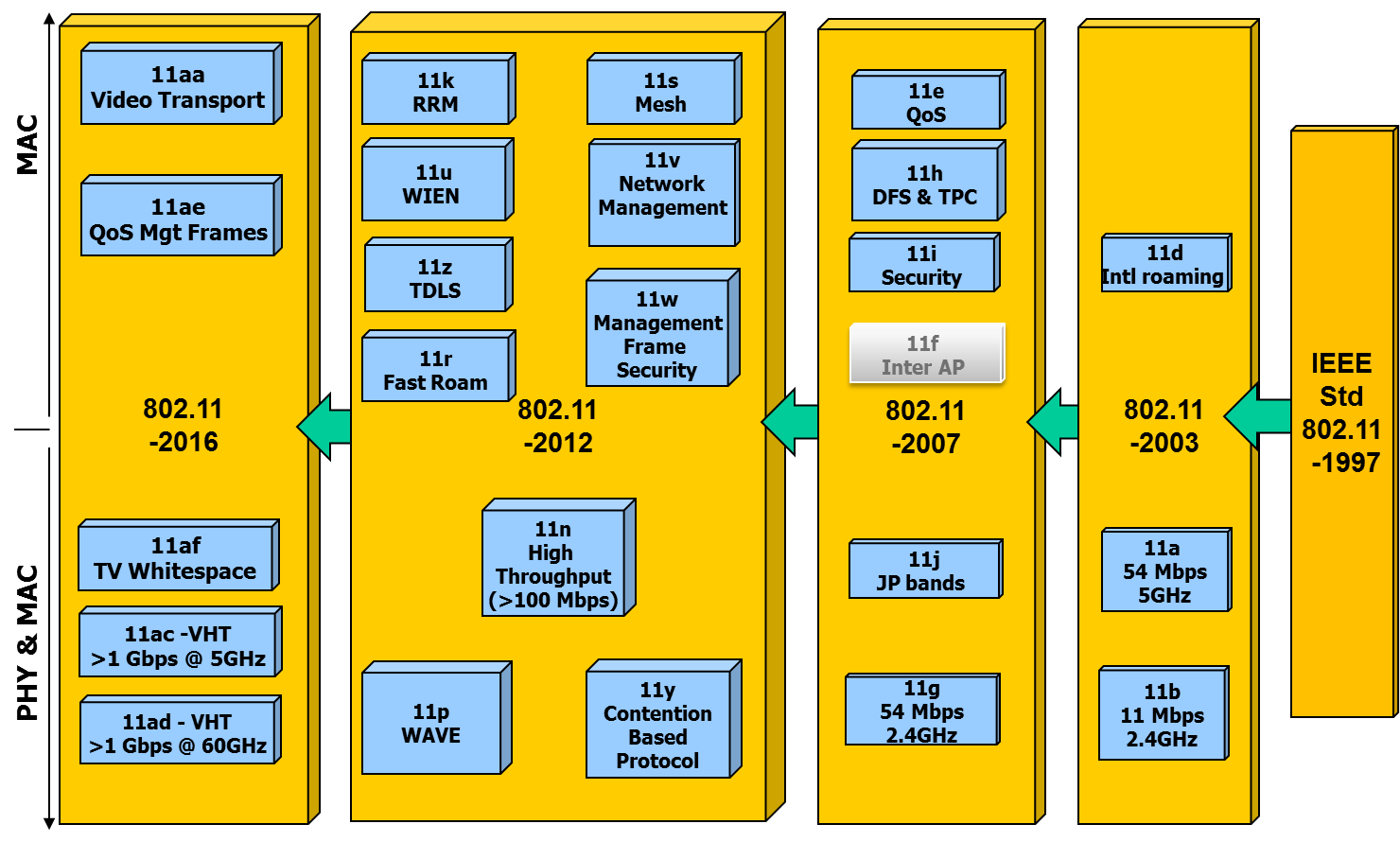
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| Juan-Carlos Zuniga (InterDigital Communications) | Liaison to IEEE 802E | [j.c.zuniga@ieee.org](mailto:j.c.zuniga@ieee.org) |

**Annex C : Minutes**

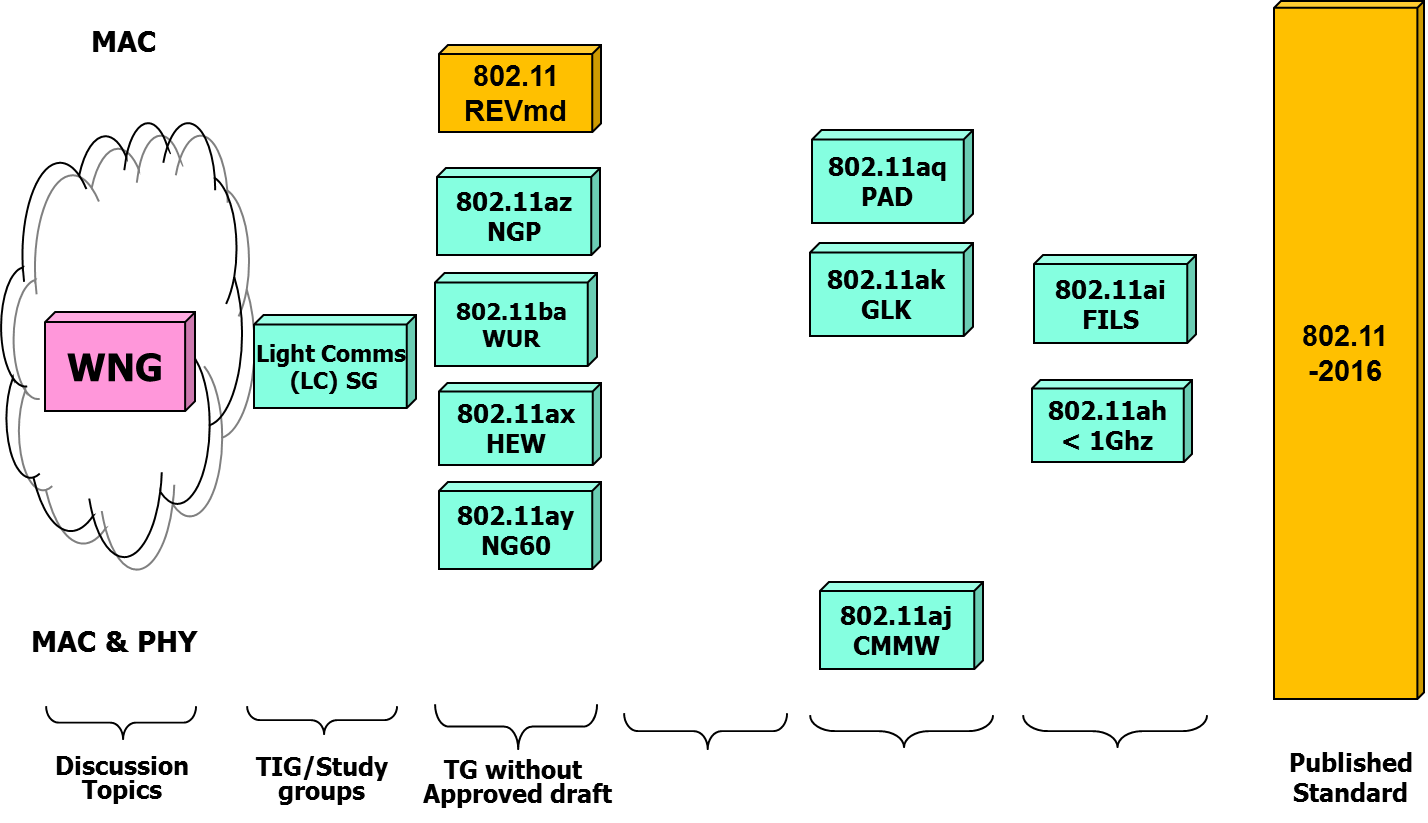
This Annex contains references to all IEEE 802.11 SC/TG/SG & Ad Hoc Committee (AHC) minutes from this meeting. Please note that they are NOT subject to the approval of these minutes, but are confirmed and approved by their individual group in the opening meeting at their next session.

|  |  |  |
| --- | --- | --- |
| WG | TE | 18-0021r1 |
| TGmd | TG | 18-0003r0 |
| TGak | TG | 18-0247r1 |
| TGaq | TG | 18-0195r0 |
| TGax | TG | 18-0213r0 |
| TGay | TG | 18-0240r0 |
| TGaz | TG | 18-0221r0 |
| TGba | TG | 18-0270r0 |
| LC | SG | 18-0206r4 |
| WNG | SC | 18-0253r0 |
| ARC | SC | 18-0224r0 |
| JTC 802 | SC | 18-0320r0 |
| AANI | SC | 18-0228r2 |
| COEX | SC | 18-0285r0 |

**Annex D : Revisions and Standards Pipeline**

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**IEEE 802.11 Revisions**

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**IEEE 802.11 Standards Pipeline**

End.