IEEE P802.11
Wireless LANs

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| Draft Minutes of the IEEE P802.11 Full Working Group |
| Date: 2024-11-10 |
| Author(s): |
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Abstract

This document contains the minutes of the IEEE 802.11 Working Group for the September 2024 session.

Please note that all attendees at this session and their affiliations are shown in Annex B.

Revision history:

R0: initial version for review by WG members

R1: included missing minutes, corrected the grammar and several flaws

**IEEE 802.11 Interim Session #207**

**September 9th – 13th, 2024**

# IEEE 802.11 Opening Plenary, Monday September 9th, 2024

1. **Opening** (WG Chair Opening Slides: [11-24/1362r1](https://mentor.ieee.org/802.11/dcn/24/11-24-0998-04-0000-2024-july-wg11-agenda.xlsx))

## Call to order

The session was called to order by the Chair, Robert Stacey (Intel) at 9:00 local time who declared quorum for the session.

## Officer and IEEE SA staff introduction

Chair: Robert Stacey Intel

1st Vice-chair: Jon Rosdahl Qualcomm

2nd Vice-chair: Stephen McCann Huawei Technologies Co., Ltd

Secretary: Volker Jungnickel Fraunhofer Heinrich Hertz Institute

IEEE SA Staff present: Christy Bahn

Are there any members of the press present?

* + None.

There were 158 people attending in person (in the room), 271 (online) and 436 recorded in the attendance tool (IMAT).

Please note that this session requires a registration fee to be paid.

## Decorum

Chair: Please, note the information about the session decorum.

## Review and approve 802.11 session agenda (WG Agenda 11-24/1361r3)

This is a summary of the September Interim. Please, note the schedule for this session on the separate tab “Schedule Graphic”. There were a couple of updates from yesterday’s Chairs Advisory Committee (CAC) meeting. The chair highlighted the changes for the meeting slots.

Most significant change is TGbn has now two slots also for TUES AM2 while 11bp moved to AM1. Moreover, WNG and AIML SCs were removed. There is a possible conflict with COEX SC now, which can be hosted.

C: Issue with the days of the week, year was wrong.

A: An update will be posted.

**Move to approve the agenda** [**11-24-1361r3**](https://mentor.ieee.org/802.11/dcn/24/11-24-1361-03-0000-2024-september-wg11-agenda.xlsx) **for the Monday opening plenary.**

Moved: Jon Rosdahl, 2nd: Joseph Levy

**No objection to approving by unanimous consent.**

## Review and approve July 2024 WG minutes

**Move to approve the July 2024 WG minutes document** [**11-24-1382r1.**](https://mentor.ieee.org/802.11/dcn/24/11-24-1382-01-0000-minutes-working-group-july-2024.docx)

Moved: Volker Jungnickel, 2nd: Joseph Levy

**No objection to approving by unanimous consent.**

## New attendees

**Straw Poll: Are you a new attendee to IEEE 802.11?**

Yes: 4 (in the room) and 1 (online).

There will be a New Members meeting at this session on Monday September 9th at 10:30 ET in room Kona 3. Everyone is welcome to join this meeting.

1. Announcements
	1. Policies and procedures

(2nd Vice Chair Report: [11-24-1424r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1424-00-0000-2nd-vice-chair-report-2024-sept-interim-waikoloa.pptx))

### Review Patent Policy Slides (slides 3-7)

The current PatCom rules were read out, including the call for essential patents information, as shown by <https://development.standards.ieee.org/myproject/Public/mytools/mob/patut.pdf>

* + There were no issues raised regarding the call for essential patents.
	+ There were no responses to the call for essential patents. No questions.

### Review Copyright Slides (slide 8-10)

The current IEEE SA copyright policy slides were presented.

### IEEE SA Participation Slides (slides 11-13)

The current IEEE SA meeting participation slides were read.

### IEEE SA Policy Documents (slide 14)

The current IEEE SA policy documents were read. No questions.

### IEEE SA Rules Documents (slide 15)

The current IEEE SA rules documents were read.

### 802 Ground Rules (slide 16)

The current IEEE 802 ground rules were read. The 1st VC reminds people to remove confidentiality notes at the bottom of emails. Please work with your IT departments to remove these attachments. From January on, those emails will be removed from the reflector.

### IEEE 802 Rules Documents (slide 17)

The current IEEE 802 rules documents were read.

### IEEE 802.11 Rules Documents (slide 18)

Latest version of 802.11 Operations Manual is doc. [11-22/1638r4](https://mentor.ieee.org/802.11/dcn/22/11-22-1638-04-0000-802-11-operations-manual.docx). No changes this time.

### Voting rule reminder (slides 19-20)

Remember to record your attendance for this session. To achieve 75%, which counts towards an attendance credit for the session, you must attend 13 meeting slots. Take care of losing voting rights and do your ballots. There is also a reminder about the abstain vote (lack of expertise as the only allowed reason).

### Email reflectors (slides 21-22)

Email reflectors were explained. If you want to change your email address, please contact the WG officers.

### Posting documents (slides 23-24)

Erroneous documents can be corrected by the 802.11 working group officers. Please, send them an email. Close captioning during Telcos is available now. Secretaries should put “minutes” at the bottom of their documents.

### IEEE Event Conduct and Safety (Slide 25-26)

The corresponding slides 25 and 26 were read.

* No questions concerning 2.1.2 to 2.1.12.

## Incoming liaisons (Chair Opening Report: [11-24-1362r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1362-01-0000-2024-september-working-group-chair-opening-report.pptx))

### Summary of new and pending liaisons and processing this week (slide 4)

Chair: There are 2 new liaisons since the July 2024 session, fromWBA, see 11-24/1569r9, and IETF.

1. WBA is contained on doc. [11-24/1569r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1569-00-0000-liaison-from-wba-guidelines-for-l4s.docx) “Liaison from WBA – Implementation Guidelines for L4S in Wi-Fi Equipment”. It is available in the member’s area, as it is intended for members only. WBA asks for feedback from the ARC and TGbn groups. WBA likes to present an overview in the next session in November. The ARC group will consider this liaison in their meeting this time.
2. IETF is pleased to announce that draft-wkumari-rfc8110-to-ieee has been approved and will be published as an RFC within 2-4 months, i.e., the maintenance of the protocol described in RFC 8110 is now officially transferred to the IEEE 802.11 WG. The IETF would like to receive answers to the two following questions/proposals:

Q1: Does the IEEE want an expedite processing, i.e., getting the RFC number in 1 month or even sooner? This means that the RFC won’t have a forward pointer to the IEEE Std.

Q2: Would IEEE agree that the RFC publication is postponed until the IEEE Std is published to allow the RFC to contain a reference to the IEEE Std?

The IETF prefers the latter, i.e., to keep a chain of specifications. Without answer, draft-wkumari-rfc8110-to-ieee will be published as an RFC within 2-4 months probably without a forward reference to IEEE Std 802.11-2024.

## Recent and anticipated 802 LMSC actions (slides 5-6)

Chair: These are some TBDs regarding upcoming LMSC meetings.

Q: Assuming 11me is approved at this meeting, it is in the October LMSC agenda?

A: Yes, it is 11bq which is on the December agenda.

1. Logistics and key events/activities ([11-24-1362r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1362-01-0000-2024-september-working-group-chair-opening-report.pptx))

## Working group session documents (slide 7)

## Joint meetings & reciprocal credit with IEEE 802 groups (slides 8-11)

Reminder that there are topics relevant to IEEE 802.11 to be covered in IEEE 802.18, IEEE 802.19, IEEE 802.24, IEEE 802.1 and IEEE 802 JTC1 SC. If you attend any of these meetings, reciprocal credit is provided.

* + Please note that 802.18 meets on TUES AM2 and THUR AM1 this week.
	+ Please note that 802.19 meets on MON and THUR from 6:30-8:30 p.m. (slide 10).

At the September Waikoloa meeting, 13 meeting slots are needed to get voting rights.

## Session information (Waikoloa Things to Know: [ec-24/0215r0](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0215-00-WCSG-waikoloa-802w-0924-thingstoknow-hwv-0904.pptx))

Meeting Planner, Network Access and Support Information (slides 2-3): Meeting is organized by Face to Face Events. Please wear your badge for security reasons. There is only 1 SSID this week: “IEEE802” using 2.4, 5 and 6 GHz radio bands. Note the onsite document server notice. AV support (slide 4): Please remember not to connect to audio when you sign into the Webex tool, including those who are running the meetings. Go to Waikoloa 1 room in case of problems.

## Meeting room locations ([slide 8](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0123-00-00EC-montreal-2024-july-802-plenary-things-to-know.pptx))

Floor plan is in the slide deck. Please check online room assignment. Breakfast and Lunch is included in your Registration for this session (see times on slide 9).

## Meeting registration (slide 5)

There are also QR codes on the back of your badges that provide more information that guides you to the program online. Registration is required for this meeting.

## Recording of attendance (slides 6-7)

There is a newcomers orientation meeting (slide 6). Reminder for Newcomers to join Monday AM2 in Kona 3. Here is the schedule of meetings and attendance. Please remember to record your attendance in IMAT for each meeting slot you attend. Also remember to pay your registration fee for this session. Use the QR code in the area to get to the session schedule, which may be updated.

## Local file server access (slide 3)

* WLAN SSID: IEEE802, Password: ieeeieee
* IEEE 802 Documents: Local Document Server <http://ieee802.linespeed.com/>

## Breakfast, breaks, social logistics (slide 9 -10)

Breakfast and coffee breaks are listed on slide 9. It is only provided for participants, not for family and friends. Wear your badge!

There is a Social on Wednesday evening (Slide 10) in the Kamehameha Court, Hilton Waikoloa. Follow the museum walkway past the main lobby towards the KPC restaurant. Access to the court will be marked with a sign (see poster on this slide), event staff will be onsite to welcome you. All individuals attending the social event (attendees and their guests) must wear a name badge. Guest badges must be picked up before 12:00 PM Wednesday September 11th. There is a photographer taking professional photos. Pointers to get around in Waikoloa (slides 11-12).

Registration for Vancouver in November is open (slide 13). If you need assistance for Visa, please, contact the event organizers.

No questions.

1. Opening reports, activities and plans (Chair Opening Report: [11-24-1362r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1362-01-0000-2024-september-working-group-chair-opening-report.pptx))

## Working group reports

## Note: 4.1.1.to 4.1.5 were presented after the end of the agenda was reached.

### 802.11 groups (slide 12)

 Chair introduces the IEEE 802.11 subgroups.

### PARs (slide 13)

Chair explains the TGbf PAR extension is NesCom agenda for September.

### 802.11 Appointed Positions and Officers (slide 14-15)

Reflects the changes since July. Chair went through them.

### Standards pipeline and 802.11 revisions (slides 16-17)

Chair mentioned 802.11 history. The next baseline standard IEEE Std 802.11-2024. It should be finished this year, produced by the TGme group. Next slide shows where in the standards production process the different projects are. Chair points out the status of each project.

### Summary of ballots and comment collections (slide 18)

Chair went through them. Final recirculation ballots for 11me, 11be and 11bh.

### Membership summary (slides 19-23)

Prior to this session, the status of 802.11 voting members is 597 Voters, 52 Potential Voters, 99 Aspirants, and 9 Ex Officio Voters (slide 19). We are at a new historic high. Members per affiliation and attendance per subgroup are presented.

### WG timeline report / planning (<https://www.ieee802.org/11/Reports/802.11_Timelines.htm>)

There have not been many changes. If there are changes, subgroup chairs, please, contact the 2nd Vice Chair.

The 2nd Vice Chair opened the official 802.11 timelines available.

(Following reports are contained in Snapshot Slides: [11-24/1518r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1518-00-0000-september-2024-snapshot-slides.pptx))

### WG Technical Editor (slide 3)

Editors’ meeting on TUES 7:00-8:00 a.m. Agenda in [11-24/1509](https://mentor.ieee.org/802.11/dcn/24/11-24-1509-00-0000-september-2024-editors-meeting.pptx)r0.

3 drafts to be published by end of 2024, they have to be reviewed. The Amendment alignment will be continued. No questions.

### WG ANA report (slide 4)

The Chair will hand over this responsibility to Carol Ansley after this meeting. ANA number spaces, latest database is [11-11/0270r7](https://mentor.ieee.org/802.11/dcn/11/11-11-0270-73-0000-ana-database.xls)4. Changes since July 2024 for TGbh and TGme were noted. No pending changes.

## Standing committee reports

### AIML Artificial Intelligence/Machine Learning SC (slide 5)

July minutes in [11-24/1325r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1325-00-aiml-aiml-sc-july-2024-plenary-meeting-minutes.doc). No meeting this time.

Plan for November: Please, let the AIML SC Chair know of any contributions by EoB of Thursday November 7th.

### ARC Architecture SC (slides 6-7)

Two meeting slots MON PM1, THUR AM1, Agenda in [11-24/1370r3](https://mentor.ieee.org/802.11/dcn/24/11-24-1370-03-0arc-arc-sc-agenda-september-2024.pptx).

 Looking at P802REVc revision project updates.

Annex G Way forward. Liaisons from WBA on QoS, and L4S.

List of other discussion items being tracked (slide 7).

### COEX Coexistence SC (slide 8)

2 meeting slots TUES AM1, THUR AM1. Agenda in [11-24/1332](https://mentor.ieee.org/802.11/dcn/24/11-24-1332-01-coex-coex-sc-agenda-september-2024.xlsx)r1.

COEX Chair will run the meeting remotely. COEX Vice Chair (Sebastian Max) will be onsite handling the meeting in the room. Please, put him in c.c. for all last-minute agenda requests.

ETSI BRAN Update, BT SIG Update, Follow-up on joint COEX SC / 802.15.4ab session.

In addition, there is a joint meeting slot with the 802.15.4ab TG on TUES EVE 7:30-9:30 p.m.. 802.11 Coex SC and 802.15.4.ab Chairs are in contact with members to identify potential submissions. No confirmed submission so far – some frequent contributors from .11 could not travel to Waikoloa.

Q: Will the COEX Chair be attending the EVE slot?

A: Yes.

### PAR Project Authorization Request Review SC (slide 9)

No meeting this time. Will meet in November 2024 to review proposed PAR documents. Upcoming Submission deadlines are listed on the slide.

### WNG Wireless Next Generations SC

No meeting this time. Please, consider any submissions for November.

### JTC SC1 (slides 11-13)

One meeting slot TUES PM2. Agenda in [ec-24/0196r0](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0196-00-JTC1-agenda-for-september-2024-mixed-mode.pptx).

Review of status of PSDO process. Review liaisons & notifications of projects to SC 6. Review status of ballots. Discussion of how to move IEEE 802.11 standards forward.

A large number of IEEE 802 submissions ought to be in the PSDO balloting & publication process – but there are IPR issues with 802.11ba, 802.11ax and 802.11ay (slide 12).

IEEE 802 has 156 standards in or through the PSDO pipeline (slide 13).

## Task Group reports

### TGme 802.11 Maintenance Project (verbal)

Everything is done. No meeting this time. Applause.

### 4.3.2. TGbe EHT Extremely High Throughput (slide 14-16)

Everything is done. D7.0 delivered to RevCom. Hope to have RevCom and SA approval out of the September meeting. No meeting this time. Applause.

### TGbf WLAN Sensing (slide 17-18)

6 Telcos between July and September. Telco meeting minutes in [11-24/1376r4](https://mentor.ieee.org/802.11/dcn/24/11-24-1376-04-00bf-ieee-802-11bf-teleconference-minutes-august-september-2024.docx).

2 meeting slots: MON AM2, THURS AM2. Agenda in [11-24/1378](https://mentor.ieee.org/802.11/dcn/24/11-24-1378-02-00bf-tgbf-meeting-agenda-2024-09-interim.pptx)r2.

Initial SA ballot: 97.1 % of all Initial SA Ballot (D4.0) comments are now resolved or marked as “ready for motion” (201 /207). Continue comment resolution and develop the draft.

Goals for September 2024 session: Complete the comment resolution for Initial SA Ballot (D4.0). Release IEEE802.11bf D5.0. Start the 1st SA Ballot Recirculation (D5.0).

### TGbh Randomized and Changing MAC addresses (slide 19)

Everything is done. No meeting this time. Applause.

Note by the Chair: Minutes of me, be and bh will be approved by the working group.

### TGbi Enhanced Service with Data Privacy Protection (slide 20)

5 meeting slots: MON PM1, TUES AM1 & AM2, WED AM2, THUR PM2, Agenda in [11-24/1383](https://mentor.ieee.org/802.11/dcn/24/11-24-1383-01-00bi-tgbi-september-interim-agenda.pptx)r1.

Received 524 comments from comment collection after May Interim.

Continue comment resolution. Filling blank spaces and TBDs. Accept text submissions to requirements not yet satisfied.

### TGbk 320 MHz Positioning (slide 21-22)

4 meeting slots: MON PM1, TUES PM1, WED PM1. Agenda in [11-24/1385r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1385-00-00bk-tgbk-sep-meeting-agenda.pptx).

Circulated on D3.0 LB287 with the following results: Vote percentiles: Approve: 98.3%, Disapprove: 1.7% Vote: 342 (A), 6 (D), later on turned 347 (A), 6 (D). Comments received: 1 (T), 0 (G), 8 (E). Have proposed resolution for all comments with no changes to D3.0.

Expect TG to consider proposed resolution and request unconditional approval to go to SA ballot out of this meeting.

### TGbn Ultra-High Reliability (UHR, slide 23-24)

Held 9 teleconferences between July and September covering 41 technical submissions. Telco agenda and minutes in [11-24/1340r14](https://mentor.ieee.org/802.11/dcn/24/11-24-1340-14-00bn-july-to-sept-tgbn-teleconference-agenda.docx) and [11-24/1392r4](https://mentor.ieee.org/802.11/dcn/24/11-24-1392-04-00bn-tgbn-july-august-2024-teleconference-minutes.docx), respectively.

19 meeting slots: MON AM2 (ALL), MON PM2 (PHY/MAC), TUES AM2 & PM1 & PM2 (PHY/MAC), WED AM1 & AM2 (PHY/MAC), WED PM2 (ALL), THUR AM1 & AM2 (PHY/MAC), THUR PM1 (ALL). September agenda in [11-24/1364r3](https://mentor.ieee.org/802.11/dcn/24/11-24-1364-03-00bn-tgbn-sept-2024-meeting-agenda.pptx)

Presentation of technical submissions is ongoing, there are about 200 in the queue. Continue populating SFD with approved concepts.

### TGbp Ambient Power (slide 25-26)

Two telcos were held since July. Telco agenda and minutes in [11-24/1379r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1379-02-00bp-tg-bp-tc-agenda-till-sep-2024.pptx) and [11-24/1390](https://mentor.ieee.org/802.11/dcn/24/11-24-1390-03-00bp-teleconference-minutes-august-september-2024.docx)r3.

7 meeting slots in September: MO AM2 & PM1, TUES AM1, WED AM2 & PM2, THUR AM2 & PM2, Agenda in [11-24/1380r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1380-02-00bp-tg-bp-meeting-agenda-for-sep-interim-2024.pptx).

Goal is to approve the TGbp SFD skeleton and improve it. Have an open technical discussion and improve FRD/SFD documents based on consensus.

## Study Group, Technical Interest Group, Ad-hoc Group reports

### IMMW SG Integrated mm-wave Study Group (slide 27)

No meeting this time. Comments will be received and processed in November.

### ELC SG Enhanced Light Communications (slide 28)

2 meeting slots: TUES AM1, WED AM1, Agenda in [11-24/1598](https://mentor.ieee.org/802.11/dcn/24/11-24-1598-00-0elc-september-2024-elc-agenda.pptx)r0

Appoint Officers, review draft PAR and CSD, considering any contributions.

### AUTO TIG Automotive

1 meeting slot: MON PM1. Agenda in [11-24/1372](https://mentor.ieee.org/802.11/dcn/24/11-24-1372-00-auto-agenda-for-automotive-tig-2024-september.pptx)r0

Officer elections

Submissions:

* Sustained automotive connectivity use case study - Azin Neishaboori (General Motors)
* Automotive WLAN use case study – Jing Ma (Toyota)
* Automotive TIG Technical Report Draft – Jing Ma (Toyota)

Call for submissions for November 2024.

### ITU Liaison Ad-hoc Group

No meeting in July and this time.

Next Steps: Working Party 5A Next Meeting Dates: Tuesday 2024-11-19 - Friday 2024-11-29. Draft revisions of M.1450 and M.1801 is expected to advance for approval during WP5A Nov. 2024 meeting. No IEEE contribution is expected. Coex with SSTX Radar at 5 GHz: Monitor WP5A-WP5B joint discussion.

1. Selected Liaison Report

None.

1. New Business

None.

1. Recess

Chair: We are now in recess.

The meeting recessed at 10:07 ET.

# IEEE 802.11 Mid-week Plenary, Wednesday, September 11th, 2024

1. Opening

##  Call to order

Meeting was called to order at 13:32 ET by the Chair, Robert Stacey (Intel).

##  Officer and IEEE SA staff introduction

Chair: Robert Stacey Intel

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

2nd Vice-chair (VC2): Stephen McCann Huawei Technologies Co., Ltd

Secretary: Volker Jungnickel Fraunhofer Heinrich Hertz Institute

IEEE SA Staff present:

* Christy Bahn.

There were 96 attending in person (in the room) and 253 (online), 421 recorded in the attendance tool (IMAT).

##  Review and approve agenda, including agenda graphic (Meeting agenda [1361r3](https://mentor.ieee.org/802.11/dcn/24/11-24-0998-06-0000-2024-july-wg11-agenda.xlsx))

Chair: There have been some schedule changes to the agenda since the opening plenary.

Q: TGbp requests a larger room because of MAC discussions. TGbn MAC has more submissions in the queue compared to PHY and is fine with joint session instead of MAC/PHY.

A: Chair requests that 11bn takes the PM2 slot. No objections.

**Approve the agenda for today’s meeting as shown in** [**11-24-1361r3**](https://mentor.ieee.org/802.11/dcn/24/11-24-0998-06-0000-2024-july-wg11-agenda.xlsx)

Moved: Donald Eastlake, 2nd: Rich Kennedy

**No objection to approving by unanimous consent.**

1. **Announcements** (WG Chair Supplementary [11-24-1363r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1363-00-0000-2024-september-working-group-chair-supplementary-material.pptx))

## Policies and Procedures (slides 4-8)

The Chair reminded the group about the Code of ethics and conduct and the IEEE-SA Standards Board Bylaws.

## **Call for essential patents** (slide 9)

The Chair read the Call for Essential Patents. No statements were made. No questions.

## **Meeting decorum** (slide 10)

The Chair reminded the group about the Code of ethics and conduct and the IEEE-SA Standards Board Bylaws.

##  Session-specific additional designated experts (slide 11)

No external experts designated at this meeting.

##  Announcements

The 1st Vice Chair reminded about the Social Event (Waikoloa Logistics: [ec-24/0215r0](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0215-00-WCSG-waikoloa-802w-0924-thingstoknow-hwv-0904.pptx)) this evening. All members should bring and guests should have picked up their badges by now. Go to the desk if you do not have it. Please consume responsibly.

## WG11 Overview material (1362r1)

The Chair presented the WG11 overview material (slides 11-13) as they were skipped during the opening plenary.

Carol Ansley is appointed as ANA authority. Vice Chairs to be added to Automotive TIG in WG/SC/TF`G/TIG slides.

## Timeline reminder (<https://www.ieee802.org/11/Reports/802.11_Timelines.htm>)

The 2nd Vice Chair reminds the subgroup chairs to update the timelines after Thursday CAC. Please check if there are any errors on the Website.

1. Liaison reports

## External liaisons

### Wi-Fi Alliance ([11-24-1626r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1626-00-0000-wi-fi-alliance-wfa-liaison-september-update.pptx))

No new meeting since July, so context is similar to last time.

WFA celebrated its 25th anniversary in Austin, TX on May 21-23.Link to meeting reports is on slide 3. Next meeting is October 15-17, 2024, in Malaga, Spain.Activities: Finish Wi-Fi 7, QoS Mgmt., Easy-Mesh. Activities that are expected to lead to certification: Wi-Fi 7 R2, 6 GHz standard power, Wi-Fi Direct, Wi-Fi proximity ranging, increased interoperability events (slide #4), Feature releases for 2025. Additional technical work areas: Security, Automated Frequency Coordination, Customer Experience, EasyConnect, EasyMesh, QoS Management, Wi-Fi HaLow, Wi-Fi Data Elements, Wi-Fi Aware, Potential work areas: Automotive, Health, IoT, Operators, XR (slide 5), recent publications (slide 6), further information (slide 7).

### IETF Internet Engineering Task Force ([11-24-1629r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1629-00-0000-september-2024-liaison-to-ietf-report.pptx))

Upcoming meetings November 2-8 Dublin, IE. March 15-21, 2025 Bangkok, TH. Newcomer training: <https://www.ietf.org/about/participate/get-started/> Joint meetings, agenda and presentation: <http://www.iab.org/activities/joint-activities/iab-ieee-coordination/> , Proceedings: <https://datatracker.ietf.org/iabasg/ietfieee/meetings/>

Coordination topics include: Capability Discovery, Data Center Bridging, use of Local Address in virtualization and IoT, MAC address randomization, DETNET/TSN/RAW, YANG models, pervasive monitoring. There were no RFCs issued in the last two months that mention IEEE 802.11. Birds-of-a-feather (BOF) groups at IETF 121, 2-8 Nov. 2024 (slide 6). Several IETF groups being (re-) chartered that may have an impact on IEEE 802.11(slide 7). Yet Another Next Generation (YANG) model catalog with references (slide 8). IoT-related work: 6LO, Updates on revised documents (slide 9). Other IoT groups: ROLL, CORE, IoT Directorate (slide 10).

Updates on working groups: MAC Address Device Identification for Network and Application Services WG (MADINAS, slide 11). Extensible Authentication Protocol (EAP) Method Update (EMU, slide 12). Operations Area Working Group (OPSA, slide 13). Internet Area WG (INTAREA, slide 14). Transport Layer Security (TLS) (slide 15). Deterministic Networking (DETNET, (slide 16). Automated Networking Integrated Model and Approach (ANIMA, slide 17).

### Wireless Broadband Alliance

### Not presented this time.

## Internal (802) liaisons

### IEEE 802.15 Wireless Specialty Networks WG ([11-24/1631r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1631-02-0000-802-15-liaison-report-sept-2024.pptx))

See 802.15 report in Friday Closing Plenary.

### IEEE 802.18 Regulatory WG ([11-24/1396r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1396-01-0000-802-18-liaison-report-september-2024.pptx))

Reviewed the latest ongoing consultations. Approved the following IEEE 802 LMSC submissions (slide 4): EC RSPG: Questionnaire on long-term vision for the upper 6 GHz band. Oman TRA: Public consultations on the draft regulation for the Ultra-Wide Band technology. Canada RABC: RSS-248, issue 3, “Radio Local Area Network (RLAN) Devices Operating in the 5925-7125 MHz Band”. US FCC: NextNav’s petition for rulemaking (WT Docket No. 24-240). Activities this week: Discussed the latest topics related to spectrum and regulation in Europe, North America, and Asia Pacific.

Review and consider approval proposed response to the following consultations (slide 5). Mexico IFT: Public consultation re the 64 GHz - 71 GHz frequency band. [18-24/0092](https://mentor.ieee.org/802.18/documents?is_dcn=92&is_group=0000&is_year=2024), Qatar CRA: Public Consultation - Position Paper on IoT and M2M in the State of Qatar [18-24/0091](https://mentor.ieee.org/802.18/documents?is_dcn=91&is_group=0000&is_year=2024), Discuss the latest topics related to spectrum and regulation in Europe, North America, and Asia Pacific. ETSI BRAN: September 2024 update.

802.18 has a weekly telco: 3:00pm ET to 3:55pm ET. Every Thursday, through November 7 and November 24, 2024.

### IEEE 802.19 Coexistence WG ([11-24/1630r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1630-00-0000-802-19-wg-september-2024-liaison-report.pptx))

This document summarizes the discussion topics within IEEE 802.19 sessions, especially those that are relevant to 802.11. Group reviews coexistence assessment documents (CADs) for new wireless standards in unlicensed bands and develops standards for coexistence among these standards. Meeting slots are MON PM3 and THUR PM3. No ballots before September. 802.19.3a Task Group focusing on coexistence between 802.11-2020 and 802.15.4 sub-1 GHz. Observed significant changes in utilization of the 900 MHz band in Japan between 2019 and 2024 ([19-24/0024r0](https://mentor.ieee.org/802.19/dcn/24/19-24-0024-00-003a-latest-measured-radio-use-over-920-mhz-band-in-kansai-area-of-japan.pptx)).

### 802 REVc ([11-24/1614r](https://mentor.ieee.org/802.11/dcn/24/11-24-1614-01-0000-802revc-status-september-2024-update.pptx)1)

802RECc Draft Status Overview: WG ballot phase has completed. SA ballot phase has started. Ballot pool established 13 Apr 2024. P802-REVc D2.0 – SA ballot – all comments received were resolved. P802-REVc D2.1 – 1st Recirculation ballot – will close 15 Sep 2024. Goal: Goto RevCom – September 2024 – Publish – December 2024.

802.11 ARC SC has not yet discussed [802-REVc, Draft 2.1](https://www.ieee802.org/1/files/private/802-REVc-drafts/d2/P802-REVc-d2-1.pdf) (members only). 802 - 802REVc has resolved all comments received on Draft 2.0. Comment resolutions in doc. 1-24/0042r5. Several documents to support these resolutions: [1-24/0047r0](https://mentor.ieee.org/802.1/dcn/24/1-24-0047-00-Mntg-p802-revc-d2-0-comment-dispositions.pdf) P802-REVc D2.0 comment dispositions, [1-24/0045r1](https://mentor.ieee.org/802.1/dcn/24/1-24-0045-01-Mntg-mac-frame-vs-frame-in-d2-0.odt) MAC frame vs frame in D2.0, [1-24/0046r1](https://mentor.ieee.org/802.1/dcn/24/1-24-0046-01-Mntg-comments-on-1-24-0045-00-mntg.docx) Comments on 1-24-0045-00-Mntg, [1-24/0034r1](https://mentor.ieee.org/802.1/dcn/24/1-24-0034-01-Mntg-proposal-to-revise-bit-ordering-material-in-p802revc-d2-0.docx) Proposal to revise bit-ordering material in P802REVc D2.0.

Next steps: After the ballot closes (15 Sep 2024) – comment resolution or declare victory, Next scheduled P802REVc meeting: 17 September 2024 12:00 EDT. 802.11 ARC has no plans to meeting prior to November Plenary, but will schedule an electronic meeting if there are comments of interest to be resolve. Status of P802REVc will be provided via the 802.11 WG reflector. If you would like to submit a comment on the upcoming and are not a member of the SA Ballot Pool, please contact Joseph Levy (jslevy@ieee.org).

1. New Business

## Approve TGme, TGbe and TGbh minutes

**Motion 1: Approval of minutes for several Task Groups which finished their work**

**Move to approve the following minutes:**

[**https://mentor.ieee.org/802.11/dcn/24/11-24-1399-00-000m-minutes-for-revme-2024-august-12-telecon.docx**](https://mentor.ieee.org/802.11/dcn/24/11-24-1399-00-000m-minutes-for-revme-2024-august-12-telecon.docx)**,** [**https://mentor.ieee.org/802.11/dcn/24/11-24-1302-00-000m-minutes-for-revme-2024-july-montreal.docx**](https://mentor.ieee.org/802.11/dcn/24/11-24-1302-00-000m-minutes-for-revme-2024-july-montreal.docx)**,** [**https://mentor.ieee.org/802.11/dcn/24/11-24-1412-02-00be-tgbe-july-september-teleconference-minutes.docx**](https://mentor.ieee.org/802.11/dcn/24/11-24-1412-02-00be-tgbe-july-september-teleconference-minutes.docx)**,** [**https://mentor.ieee.org/802.11/dcn/24/11-24-1292-00-00be-tgbe-july-2024-meeting-minutes.docx**](https://mentor.ieee.org/802.11/dcn/24/11-24-1292-00-00be-tgbe-july-2024-meeting-minutes.docx)**,** [**https://mentor.ieee.org/802.11/dcn/24/11-24-1437-00-00bh-802-11bh-telecon-minutes-august-20-2024.docx**](https://mentor.ieee.org/802.11/dcn/24/11-24-1437-00-00bh-802-11bh-telecon-minutes-august-20-2024.docx)

Moved: Michael Montemurro. Seconded: Ian Sherlock.

**Motion passes with unanimous consent.**

## TGbk - P802.11bk for SA ballot

**Motion 2: P802.11bk SA Ballot**

**Approve document 11-24-1446r2 as the report to the IEEE 802 LMSC on the requirements for unconditional approval to forward P802.11bk D3.0 to SA Ballot, and**

**Request the IEEE 802 LMSC to unconditionally approve forwarding P802.11bk D3.0 to SA ballot.**

Moved by Jonathan Segev on behalf of TGbk. Seconded: Roy Want.

Y / N / A: 114 / 0 / 7

**Motion passes.**

**Motion 3: P802.11bk PAR re-affirmation**

**Re-affirm the P802.11bk PAR in https://grouper.ieee.org/groups/802/11/PARs/P802.11bk.pdf.**

Moved by Jonathan Segev on behalf of TGbk. Seconded: Christian Berger.

Y / N / A: 117 / 0 / 6

**Motion passes.**

**Motion 4: P802.11bk CSD re-affirmation**

**Re-affirm the P802.11bk CSD in https://mentor.ieee.org/802-ec/dcn/23/ec-23-0155-00-ACSD-p802-11bk.docx.**

Moved by Jonathan Segev on behalf of TGbk. Seconded: Bo Sun.

Y / N / A: 107 / 0 / 8

**Motion passes.**

Q: Tool seems much more responsive than last time.

A: Maybe changes in the backend, but also lower attendance than at the last Plenary.

## Review of SC scope and duties ([11-24/1601r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1601-00-0000-review-sc-scope-and-duties.pptx))

The 802 LMSC requires that all 802 subgroups produce a short report regarding their Scope and Duties. This includes 802 WG and SC (standing committees). Check slide 2 for the reasons why these reports are needed and a quotation of the 802.11 operations Manual.

The **Project Authorization Request (PAR) SC** review PARs and CSDs posted 30 days in advance of 802 Plenary Sessions from other IEEE 802 working groups (e.g. WG & TAGs) providing 802.11 members’ feedback to the respective WG. It organizes PAR Review SC meetings at Plenary sessions, ensuring that these meetings match the timing requirements of the 802 LMSC PAR review and feedback, and produces a PAR Review SC report each plenary to present to the 802.11 membership.

The **Wireless Next Generation (WNG) SC** is an open forum to present new ideas, proposals, and other forward-looking topics related to WLAN for the 802.11 community, especially when it does not fall under the scope of any other 802.11 sub-group. The WNG SC acts as an incubator where discussions about possible new standards activity starts. The WNG SC organizes meetings at sessions and teleconferences (when appropriate) and, produce a WNG SC report to present to the 802.11 membership.

The **Architecture (ARC) SC** reviews and discusses material within existing 802.11 scope (typically not new concepts), when it does not fall under the scope of any other 802.11 subgroup and needs a forum for focused activity. This can include consistency across the 802.11 specification, and topics of broad applicability across the specification where direction is sought. The ARC SC provides advice to other 802.11 subgroups about the 802.11 architecture, responds to comments about the 802.11 architecture from other IEEE 802 groups within a timely manner, organizes ARC SC meetings at sessions and teleconferences (when appropriate) and, produces an ARC SC report to present to the 802.11 membership.

The **Coexistence (COEX) SC** promotes, within the 802.11 WG and externally, an environment that enables IEEE 802.11 technologies to have equitable access to unlicensed spectrum globally. The SC reviews and discusses material that relates to the coexistence between IEEE 802.11 and dissimilar technologies. On this topic, the SC provides advice to the IEEE 802.11 Working Group and its subgroups. Furthermore, the SC provides the competence to support the IEEE 802.11 WG in a timely manner in developing responses to comments received from other IEEE 802 WGs with respect to coexistence with IEEE 802.11 and the respective other WGs' technologies. The SC organizes meetings at sessions and teleconferences (when appropriate) and, produces a COEX SC report to present to the 802.11 membership.

The **Artificial Intelligence Machine Learning (AIML) SC** reviews and discusses AI/ML material that is relevant for 802.11 technology, provides advice to other 802.11 subgroups about relevant AI/ML material, organizes AI/ML SC meetings at sessions and teleconferences (when appropriate) and, produces an AI/ML SC report to present to the 802.11 membership.

C: Always thought that a SC fixes a topic. But now a previous TIG has been changed into a SC to remain alive.

A: The reason was that the topic of AI/ML was applicable to 802.11 but has no need to create a standard. The mission is to provide input to several other TGs on AI/ML. And it has a marketing aspect for 802.11 as a whole, because the topic will be relevant for the future.

C: This was a wrong decision. Next time we have one submission. Take care that the TIG just does not extend its live.

A: Significant number of WG members came with the impression that this is a long-term topic and should be further considered.

## IETF questions on OWE transfer

Related to question on slide 12 in doc. [11-24/1363r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1363-01-0000-2024-september-working-group-chair-supplementary-material.pptx).

Q1: Answer is: **No.**

Q2: Answer is **Yes.**

C: Suggest to delay until it is published.

A: Not a big step to move from Draft to published one.

C: Disagree with the statement: Document will exist when it is published.

C: IETF is in the position to decide this and they want to make the right reference. No concern about time, as long as the RFC points to the right document.

A: As long as the year is the right one, it points to the right document.

C: The response is perfectly fine.

## Remembering Frank Suraci

We have lost one of our members who has contributed to our group (see [11-24-1363r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1363-01-0000-2024-september-working-group-chair-supplementary-material.pptx), slide 13).

C (by Subir Das and An Nguyen): Frank Suraci was a man of dedication and passion. Driven by a deep commitment, he worked tirelessly to achieve the goals of National Security and Emergency Preparedness (NS/EP) Communications Services of the United States of America. He never hesitated to push the boundaries that he truly believed in. He had the honor of naming the new service Government Emergency Telecommunication Service (GETS) and made the first GETS call in June 1995. He oversaw the roll-out of Wireless Priority Service (WPS) in the USA following the 9/11 event. When WPS was implemented across the border, Canada presented Frank with a prestigious medal. He is best known for fostering a cooperative spirit amongst customers, industry vendors and service providers. He started participating in IEEE 802.11 meetings from 2019 and his last meeting was January, 2024 in Panama. His goal was to extend the WPS over Wi-Fi networks. His energy and determination will be deeply missed, but his legacy of hard work and perseverance will always remain with us.

Chair asked for a moment of silence.

## AoB

None.

1. Recess

Chair: We are now in recess.

Meeting recessed at 15:01 ET.

# IEEE 802.11 Closing Plenary, Friday, September 13th, 2024

1. Opening

## Call to order

Meeting was called to order at 8:04 ET by the Chair, Robert Stacey (Intel).

## Officer and IEEE SA staff introduction

Chair: Robert Stacey Intel

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

2nd Vice-chair (VC2): Stephen McCann Huawei Technologies Co., Ltd

Secretary: Volker Jungnickel Fraunhofer Heinrich Hertz Institute

IEEE SA Staff present

* Christy Bahn

There were 74 people in the meeting (in the room) 191 online and 292 recorded in the attendance tool (IMAT).

## Review and approve agenda (July WG 11 agenda [11-24-1361r5](https://mentor.ieee.org/802.11/dcn/24/11-24-1361-05-0000-2024-september-wg11-agenda.xlsx))

Chair: There have been some minor changes to the agenda since the mid-week plenary.

**Approve the agenda for today’s meeting as shown in** [**11-24-1361r5**](https://mentor.ieee.org/802.11/dcn/24/11-24-1361-05-0000-2024-september-wg11-agenda.xlsx)**.**

Moved: Stephen McCann. Seconded: Jim Lansford.

**No objection to approving by unanimous consent.**

1. **Announcements** (WG Chair’s Supplementary Material [11-24-1363r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1363-01-0000-2024-september-working-group-chair-supplementary-material.pptx))

##  Policies and procedure reminder (slides 16-18)

The Chair went through participant behavior, code of ethics & conduct and IEEE standards bylaws. Please, can you all remember these slides and understand that everyone is here as an individual subject matter expert.

##  Call for Essential Patents (slide 19)

This is the Call for Essential Patents. No statements. No questions.

##  Meeting Decorum (slide 20)

No questions.

##  Next session and CAC meetings (slide 21)

The next session of the IEEE 802.11 working group is from November 10-15, 2024, in Vancouver, Canada. It will be a mixed mode session. Please be aware of the chair’s committee meetings (CAC), the first one of which will be on September 30, then on November 4, both at 09:00 ET. Subgroup chairs, please note the deadline for the sub-group agendas.

## Any other announcements (slide 22)

Chair: No individual experts this time.

## Reminder to get minutes to WG secretary

Secretary: Please can all sub-group chairs remember that their minutes should be posted to the server within 30 days of the completion of this session. No questions.

## Letters of Assurance (LoA) received (slide 23)

There is a link to the PatCom list of LoAs. 2 LoAs have been requested. The recent status can be found in [11-15/1489r23](https://mentor.ieee.org/802.11/dcn/15/11-15-1489-23-0000-register-of-loa-requests.docx). Recent changes are indicated on slide 23. No questions.

## Drafts for sale in IEEE Shop (slide 24)

This is the current list of items available in the IEEE store, what drafts are in the members area and published by 802 and ISO.

## Drafts to liaise with ISO/JTC/SC6 (slide 25)

Published 2022 July: IEEE Std 802.11-2020 as ISO/IEC/IEEE 8802-11:2022.

Since 2021, 14 drafts have been submitted, but all are currently stalled due to IPR concerns.

Drafts are sent to JTC1/SC6 during SA ballot to solicit comments. Approved drafts may also be sent during working group ballot. Any comments received from ISO are processed by the comment resolution committee. All drafts are liaised subject to EC approval. No questions.

## Press release status (slide 26)

In April 2024, there has been an IEEE Livestream on 802.11ah.

## IEEE 802 Public Visibility Standing Committee (slides 27-28)

This group is designed to increase the external visibility of IEEE 802.

Here are the links to the main Twitter <https://twitter.com/ieee802>, LinkedIn <https://www.linkedin.com/company/ieee802> and IEEE-SA 802 <https://standards.ieee.org/featured/802/index.html> pages which are regularly updated.

Recent activities include: IEEE Computer Society webinar about IEEE 802.11be (Wi-Fi 7) on July 30, 2024, to register <https://lnkd.in/eR6Z2TiN>*,* IEEE SA IEEE 802.11ah HaLow webinar: 20 June 2024, to watch: <https://lnkd.in/ddpSWaQa>, Recording of the latest IEEE 802 – ITU Workshop: <https://lnkd.in/d3zK8mcQ>. No questions.

1. Closing reports

## Working group reports

### Treasurers report (verbal)

802.11 Treasurer: This week the IEEE tools have not been available as usual, thus, there is no document to present. Some preliminary information: The Panama meeting is now finalized. The tool created some outcome to be verified. The Warsaw meeting numbers are complete, on the order of 70.000, final numbers will be 44.000. We will go to the Warsaw Presidential Hotel next year. This week had over 500 people joining the meetings, 249 of them in person. We did not get some payments for May. Over two years, the account is balanced.

### Straw Poll regarding meetings ([11-24/1368r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1368-02-0000-september-2024-working-group-motions.pptx), slide 9)

Only people present in the room were asked to participate in the following straw polls:

1. How many people would like to come back to this venue? 46Y/8N
2. Did you go to the social? 61Y/1N
3. If you attended the social, did you like the social? 59Y/1N

### Future Venues Insight ([ec-24-0006r12](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0006-12-WCSG-ieee-802wcsc-meeting-venue-manager-report-2024.pptx))

Slide 4 shows the status of the future Plenary venues.Registration for Vancouver is open. Madrid contract went for signature. EC asked to run a poll across all WGs for the meeting slot times in Madrid. It will be online since tools were not available. IEEE 802.11 meeting will be after IETF, i.e. in the Week of July 27, 2025 which is unusually late. S*lide 8 shows the status of future Interim venues.* More details from MTG Events (slide 7). For Warsaw, the hotel recognizes your status with Marriot and also other chains. Venue status (slide 8) “TBC” means to be contracted.

### Timelines (<https://www.ieee802.org/11/Reports/802.11_Timelines.htm>)

2nd Vice Chair: There are not many changes. Please check if there are any issues. No questions.

### Attendance report ([11-24-1519r](https://mentor.ieee.org/802.11/dcn/24/11-24-1519-02-0000-september-2024-session-report.pptx)2)

Clear uptrend in membership with 597 people which is a historic height. There is a breakdown by affiliation. (slide 3).

Q: It would be good if you updated this at the session. Would it be possible to add "As on mm/dd/yy)" in the title of these charts?

A: Data are for the beginning of the session. Update is after the session and after the end of the ballot series, e.g. for 11bk. Attendance is sorted by subgroup and by breakout. One can see the total attendance in the opening plenary.

### Editors report ([11-24-1509r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1509-01-0000-september-2024-editors-meeting.pptx), slides 7-25)

Held one meeting slot. Drafts progressed as follows (slide 10):

Editor contacts (slide 8). Amendment ordering is the same as in May (slide 10). Reviewed the publication process (slide 12). Introduce new process of reviewing drafts when their baseline changes (slide 13). For an overview of ANA managed number space, see slide 14.

## Standing committee reports ([11-24/1519r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1519-02-0000-september-2024-session-report.pptx))

### AIML Artificial Intelligence Machine Learning SC (slides 15-16)

Held no meeting this time.

### ARC Architecture SC (slides 17-22)

Held two meeting slots. Agenda in [11-24/1370r7](https://mentor.ieee.org/802.11/dcn/24/11-24-1370-07-0arc-arc-sc-agenda-september-2024.pptx). Minutes in [11-24/1763r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1763-00-0https%3A/mentor.ieee.org/802.11/dcn/24/11-24-1763-00-0arc-arc-sc-28-october-2024-teleconference-minutes.docxarc-arc-sc-28-october-2024-teleconference-minutes.docx).

IEEE Std 802 revision: Received a report on the P802REV activities (slide 18): SA recirculation underway, to close on Sept 15 and comment resolution during next week’s 802.1 session. Hope is that this is the final recirc. Will know more when the ballot closes. There are at least two items that impact 802.11: Change of terminology and definition for EPD and LPD concepts. MAC address bit and octet ordering description.

Annex G: Progressed the proposal for Annex G replacement: [11-23/0880r3](https://mentor.ieee.org/802.11/dcn/23/11-23-0880-03-0arc-revised-annex-g-containing-example-frame-exchange-sequences.docx). Consensus that this is useful and in the right direction. Feedback to be provided off-line before November, and will continue discussion in November. Other concepts to consider adding to this.

WBA L4S presentation: Incoming liaison letter: [11-24/1569r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1569-00-0000-liaison-from-wba-guidelines-for-l4s.docx). Discussed presentation: [11-24/1617r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1617-00-0arc-overview-of-wba-l4s-implementation-guidelines.pptx). Suggested process for 802.11 response to WBA’s liaison: ARC to review L4S architecturally, and determine what aspects are within 802.11 scope (and what is above L2). Suggest to TGbn the items that are in scope. TGbn can then do the technical work on these identified items.

Future/pending activities (slides 20-21): Start working on following items once IEEE Std 802 is stable. EPD/LPD, MAC address ordering, 802.1AC mapping from ISS to 802.11 MAC SAP interface, remove 802.2/LLC terms, 802.11’s usage of IEEE Std 802 terminology, Access domains, Is the DS a bridge?, VLANs in 802.11, MLME-SCAN and MLME-END: how MAC address is set/controlled

Plans: Monitor results of IEEE P802REVc recirculation ballot, Progress on EPD/LPD clean-up, MAC address bit/octet ordering, Annex G replacement phase 2, WBA L4S liaison response coordination.

Teleconference – Oct 28, 1pm ET, 2 hours – L4S topic. Two meeting slots requested in November.

### Coexistence SC (slides 23-32)

One meeting slot. Minutes in [11-24/1462](https://mentor.ieee.org/802.11/dcn/24/11-24-1462-00-coex-september-2024-minutes.docx)r0.

ETSI BRAN update 6 GHz (slide 25): V1.1.1 is published. Publication in OJEU still on hold. Request for clarification arrived after BRAN #125.

ETSI BRAN update 5 GHz (slide 26): EN 301 893 (Wireless Access System/Radio Local Area Network (WAS/RLAN) in the license-exempt 5 GHz band), Reference to IEEE 802.11-2020 replaced by ISO/IEC/IEEE 8802-11:2022. Ver. 2.2.0f of HS published. Submission for final national vote (60 d) approved. Successful vote expected due to high maturity.

ITU R WP5B.AR (slide 27): ITU-R WP5B.AR contribution [556](https://www.itu.int/md/R19-WP5B.AR-C-0556/en) by World Meteorological Organization (WMO) and ITU-R R23-WP5B, Discuss “Technical specifications of solid-state weather radar system – Draft liaison statement to WP 5A on efficiency of DFS regarding these radars in the 5 GHz frequency band”. Will RLAN equipment be capable to detect the new radar pulses sequences that are transmitted a lower transmit powers? BRAN chair expects participation of radar community in BRAN #126.

Bluetooth SIG update (slide 28): Submission to ETSI BRAN #125. Bluetooth SIG (and others) submitted a document for full Narrow Band Equipment (NBE) Clause 4 changes for the EN 303 687 draft. Submission did not meet the deadline and contains remaining “TBDs”. Intend to resolve “TBDs” and submit to next ETSI BRAN. Next steps: Submitting the PfR to the FCC for narrowband operation in 6 GHz in Q1 2025 🡪 ongoing interference analysis.

Coex-related comments to 802.15.4ab (slide 29): Review of document [15-24/407r5](https://mentor.ieee.org/802.15/dcn/24/15-24-0407-05-04ab-proposed-resolution-for-cid-988.docx). Proposed comment resolution provides specific control attribute values for Spectrum Sensing Based Deferral (SSBD) when used for narrowband assist. Coex SC will receive an update of the ongoing discussion in 802.15.4ab during the next meeting in November

ITU-R WP5B LS to WP5A (slide 30): Waiting for the result of possible joint session between WP5A and WP5B in Nov before any reaction to the issue in ITU. Chairs of ITU AHG and Coex SC will continue providing updates to the group and coordinate potential future actions.

Plans for November (slide 31): One joint slot with 802.15.4 TUES EVE on channel Access. Two slots for 802.11 COEX only TUES PM1 and WED AM2 on Updates on ETSI BRAN, Bluetooth SIG, Technical submissions (tba).

No Telco scheduled.

### PAR Review SC

Held no meeting this time.

### Wireless Next Generation SC

Held no meeting this time.

### JTC1 802 SC (slides 34-36)

Held one meeting slot. Agenda in [ec-24/0196r01](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0196-01-JTC1-agenda-for-september-2024-mixed-mode.pptx), Minutes in [ec-24/0217r0](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0217-00-JTC1-minutes-of-mixed-mode-meeting-in-september-2024.docx).

IPR issue: 802.11 has 14 drafts stalled in the PSDO process. IPR holding up PSDO process. Going forward, 802.11 will not be shown as in-process. Next steps: Keep waiting. Resolution appears to be down to patent holders supplying LOAs under the ISO patent policy. Observe how IEEE 802.3 fares in the parallel ITU-T SG15 process.

Plans for November (slide 36): Execute PSDO process, to the extent possible. There are current ballots open for IEEE 802.1AEdk (FDIS: 25 September), IEEE 802.1Qcz (FDIS: 25 September), IEEE 802.1Qdj (CIB: 26 October), IEEE 802.15.9 (FDIS: 8 November). Monitor ISO/IEC JTC 1/SC 6 activities.

## Task Group reports ([11-24-1270r](https://mentor.ieee.org/802.11/dcn/24/11-24-1270-01-0000-july-2024-session-report.pptx)1)

### TGme 802.11 Revision Project

Held no meeting this time.

### TGbe Extremely High Throughput (EHT)

Held no meeting this time.

Telco will be announced if needed.

### TGbf - WLAN Sensing (SENS) (slides 37)

Held one meeting slot. Agenda in [11-24/1378r8](https://mentor.ieee.org/802.11/dcn/24/11-24-1378-08-00bf-tgbf-meeting-agenda-2024-09-interim.pptx). Minutes in [11-24/1642r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1642-00-00bf-ieee-802-11bf-september-2024-interim-meeting-minutes.docx).

Finished all, ready go SA Ballot: 100 % of all Initial SA Ballot (D4.0) comments are resolved or marked as “ready for motion” (207 /207). Completed comment resolution for Initial SA Ballot (D4.0).

Goals for next two months: Release IEEE802.11bf D5.0. Start and complete the 1st SA Ballot Recirculation (D5.0). Start comment resolution for D5.0. Requested 2 calls per week. TUES Oct 22, 9-11 ET, THURS Oct 24, 22- 0 ET, TUES Oct 29 9-11 ET, THURS Oct 31, 22-0 ET, TUES Nov 5, 9-11 ET. Request two slots in November.

### TGbh - Randomized Changing MAC Addresses (RCM)

No meeting slot in September.

### TGbi - Enhanced Data Privacy (EDP) (slides 42-44)

Held 5 meeting slots. Agenda in [11-24/1383r8](https://mentor.ieee.org/802.11/dcn/24/11-24-1383-08-00bi-tgbi-september-interim-agenda.pptx). Minutes in [11-24/1612r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1612-00-00bi-tgbi-teleconference-interim-sept-2024.docx).

Reviewed CID resolution submissions and technical submissions on open topics. Reached consensus on 210 CIDs and ran out of time for additional submissions. Editor to generate a new draft (D0.6) incorporating the resolutions as a new reference for submissions. Continue to call for submissions of text that addresses requirements as well as submissions to resolve comments from comment collection. No change of timeline, targeting D1.0 in January 2025.

3 teleconferences beginning WED 10 a.m. EDT on October 2, 9, 23. Plan an ad hoc meeting concentrating on comment resolution and text submissions for Oct. 28-30. The location is probably Cox Atlanta facilities.

### TGbk - 320 MHz Positioning (slides 45-49)

Held 3 meeting slots. Agenda in [11-24/1385r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1385-02-00bk-tgbk-sep-meeting-agenda.pptx). Minutes in [11-24/1686r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1686-00-00bk-meeting-minutes-september-2024.docx).

Completed response to LB287 and seek approval to move to SA ballot. Approved report to EC on unconditional request to go to SA ballot.

Targets for November: Receive EC approval to go to SA ballot. Conduct initial SA ballot and move to rapid decision making.

Updated timeline (slides 47-48). Teleconference on Nov. 5. 10:00 am PT/13:00 ET (2hrs).

Chair: Should these initial ballots be longer than 30 days to let people more time.

A: We do need to put a date. Hopefully we will be managing.

### TGbn - Ultra High Reliability (UHR) (slides 50-53)

11 meeting slots for PHY, MAC and jointly. Agenda in [11-24/1364r14](https://mentor.ieee.org/802.11/dcn/24/11-24-1364-14-00bn-tgbn-sept-2024-meeting-agenda.pptx). Motions in [11-24/171r15](https://mentor.ieee.org/802.11/dcn/24/11-24-0171-15-00bn-tgbn-motions-list-part-1.pptx). TGbn MAC ad-hoc Minutes in [11-24/1654r](https://mentor.ieee.org/802.11/dcn/24/11-24-1654-00-00bn-minutes-for-tgbn-mac-ad-hoc-sessions-in-september-2024.docx)0, TGbn all minutes in [11-24/1684r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1684-00-00bn-tgbn-september-2024-meeting-minutes.docx).

Discussed around 80 technical submissions, covering a variety of topics: Unequal modulation (UEQM), multi-AP, coordinated spatial reuse (CSR), distributed RU (dRU). Beamforming, power save, enhanced long range (ELR), control frame design, L4S, relay, roaming. Preamble and PPDU design, interference mitigation, preemption, Quality of Service (QoS) enhancements. Coordinated beamforming (CBF), coordinated rTWT (CrTWT), coordinated TDMA (C-TDMA), etc..

Consensus reached on adding new MCSs, interference mitigation, C-TDMA, C-rTWT, AP power save, common framework for AP coordination. Additionally, the group reached consensus on adding additional design details for ELR, dRU, UEQM, roaming, power save, intermediate FCS, etc..

Goals for September: Discuss technical submissions. Continue populating the TGbn SFD.

Teleconferences plan (slide 52): Sept. 23 19-21 ET MAC/PHY, Sept. 26 10-12 ET MAC, Sept. 30 19-21 ET MAC, Oct. 10 10-12 ET Joint, Oct. 14, 21, 28 19-21 ET MAC, Oct. 17, 24, 10-12 ET MAC, Oct. 31 10-12 ET Joint.

Timeline is unchanged (Slide 53). Next milestone is D0.1 for January 2025.

### TGbp - Ambient Power Communications (AMP) (slides 54-57)

7 meeting slots were held in September. Agenda is in [11-24/1380r7](https://mentor.ieee.org/802.11/dcn/24/11-24-1380-07-00bp-tg-bp-meeting-agenda-for-sep-interim-2024.pptx). Motion deck in [11-24/1322r4](https://mentor.ieee.org/802.11/dcn/24/11-24-1322-04-00bp-tgbp-motion-dock.pptx). Minutes in [11-24/1609r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1609-00-00bp-2024-09-interim-meeting-minutes.docx).

Progress during this week (slide 55): TGbp approved the SFD baseline document included in 11-24/1613r0. 23 technical contributions were presented and discussed, on functional requirements, PHY/MAC solutions and Wireless Power Transmission. Lots of technical SPs and Motions for FRD/SFD were approved as captured in [11-24/1380r7](https://mentor.ieee.org/802.11/dcn/24/11-24-1380-0-00bp-2024-09-interim-meeting-minutes.docx) and [11-24/1322r4](https://mentor.ieee.org/802.11/dcn/24/11-24-1322-04-00bp-tgbp-motion-dock.pptx). Timeline was revisited without change. 2 teleconferences arranged after September.

Goal of future work: Continue developing FRD and SFD based on consensus. Open technical discussion.

Telcos: Oct 15th (Tuesday), 10 a.m. ET, 2 hours, Nov 5th (Tuesday), 9 a.m. ET, 2 hours

## PAR Study Group/TIG/AHG reports ([11-24-1519r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1519-02-0000-september-2024-session-report.pptx))

No meeting this time.

### ELC SG – Enhanced Light Communication (slides 58-60)

Held 2 meeting slots. Agenda in [11-24/1598r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1598-02-0elc-september-2024-elc-agenda.pptx). Minutes in [11-24/1634r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1634-01-0elc-2024-09-11-minutes.docx).

Chair appointed Vice Chair, still seeking for permanent recording Secretary. The group reviewed the proposed draft Project Authorization Request (PAR) and heard three contributions on the possible scope of the eventual Task Group. An initial Scope section of the PAR (section 5.2.b) was agreed. A timeline for ELC SG was agreed (slide 60). Goal is to finalize PAR and CSD in January, aiming for approval in March and start as a Task Group in May.

### IMMW SG – Integrated Millimeter Wave

No meeting this time.

### AUTO TIG Automotive (slide 61-62)

Held one meeting slot. Agenda in [11-24/1372r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1372-02-auto-agenda-for-automotive-tig-2024-september.pptx). Minutes in [11-24/1621r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1621-01-auto-automotive-tig-meeting-minutes-for-september-9-2024.docx).

Two Co-Vice-Chairs were elected. Open call for permanent recording Secretary. Presentation of submissions: Automotive WLAN use case study [11-24/1526r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1526-01-auto-automotive-wlan-use-case-study.pptx), Automotive TIG Technical Report Draft [11-24/1393r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1393-01-auto-automotive-tig-technical-report-draft.doc), Sustained automotive connectivity use case study [11-24/1525r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1525-02-auto-sustained-automotive-connectivity-use-case-study.potx).

Plans for November: Presentations on use cases and requirements.

### ITU Liaison Ad-hoc Group

No meeting this time.

## Liaisons reports ([11-24-1519r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1519-02-0000-september-2024-session-report.pptx))

### 802.15 Liaison report (updated in [11-24/1631r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1631-02-0000-802-15-liaison-report-sept-2024.pptx), slides 63-66)

802.15 Overview: Wireless Specialty Networks Active standards (slide 64):

* 802.15.3 Recently completed revision (roll-in Terahertz).
* 802.15.4 (many current projects, see below).
* 802.15.6a Body Area Networks: Revision project, pre-WG ballot.
* 802.15.7a Higher Rate, Longer Range Optical Camera Communication, nearly done.
* 802.15.9a KMP Transport, extensions to key management: Call for proposals.
* 802.16t Extension to 802.16 for specific bands: First SA ballot in progress.
* Interest Group Access: Exploring potential new features to support more efficient spectrum usage via effective shared access.

802.15.4 Projects (slide 65):

* 802.15.4ab Next Generation UWB: First WG Ballot complete, in comment resolution.
* 802.15.4ac Enhanced Privacy: pre-ballot draft in preparation.
* 802.15.4ad Next Generation SUN PHYs: Pre-draft, use case evaluation and Technical Characteristics definition.
* 802.15.4ae ASCON lightweight encryption extension for 802.15.4: pre-draft.
* 802.15.4me Revision project: Completed SA ballot, on RevCom agenda September.

802.15 References (slide 66)

WG agenda [15-24/0429r3](https://mentor.ieee.org/802.15/dcn/24/15-24-0429-03-0000-sept-2024-802-15-agenda.xlsx), TG4ab meeting slides [15-24/0473r1](https://mentor.ieee.org/802.15/dcn/24/15-24-0473-01-04ab-tg4ab-meeting-slides.pptx) and agenda [15-24/0453r9](https://mentor.ieee.org/802.15/dcn/24/15-24-0453-09-04ab-tg4ab-september-2024-agenda.xlsx), TG4ac opening and closing report [15-24/0464r2](https://mentor.ieee.org/802.15/dcn/24/15-24-0464-02-04ac-september-opening-and-closing.pptx), TG4ad opening and closing report [15-24/460r1](https://mentor.ieee.org/802.15/dcn/24/15-24-0460-01-04ad-tg4ad-opening-and-closing-report-interim-september-2024.pptx), TG4ae opening and closing report [15-24/0465r3](https://mentor.ieee.org/802.15/dcn/24/15-24-0465-03-04ae-september-opening-and-closing.pptx).

### 802.24 Liaison report (verbal)

Finishing up one White Paper on IoT. Update White Paper on Smart Grid after a decade. Alternative Vehicle Fueling White Paper is new work.

1. Motions (Sept. WG Motions [11-24-1368r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1368-02-0000-september-2024-working-group-motions.pptx))

## Working Group Motions

### Teleconference schedule

The teleconference schedule is on the 802.11 Working Group website <https://ieee802.org/11/>.

## Standing Committee Motions

None.

## Task Group Motions

### Motion 5: TGbi Ad-hoc (slide 10)

**Approve a TGbi ad-hoc meeting on Oct. 28-30 in Atlanta, TBC, for the purposes of comment resolutions and consideration of document submissions.**

Moved by Jerome Henry on behalf of TGbi. Seconded: Joseph Levy.

Disussion:

Q**:** Will there be remote participation?

A: Everyone is welcome to join Webex.

**Motion passes with unanimous consent.**

[TGbi Moved: Jerome Henry seconded: Joseph Levy, Result: Unanimous consent (Motion passes), 13 present, 16 remote]

1. New Business

None.

1. Closing (WG Chair’s Supplementary Material [11-24/1363r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1363-01-0000-2024-september-working-group-chair-supplementary-material.pptx))

## Reminder about next wireless chairs meeting (Slides 29 and 21)

The next 802 wireless chairs’ teleconference meeting is on Wednesday 2024-10-09 15:00 ET, and mixed-mode meeting on Sunday 2024-11-10 16:00 ET (Slide 29).

802.11 CAC teleconference meeting times are Monday 2024-09-30 at 09:00 ET, Monday 2024-11-04 at 09:00 ET, CAC mixed-mode meeting time Sunday 2024-11-10 at 18:00 ET.

## Next WG Session reminder

The date of the next IEEE 802.11 WG session is November 11-15, 2024, in the Hyatt Regency Vancouver, Canada and is a mixed mode session. Next is Jan 12-17, 2025 Kobe, Japan. For meeting information and registration, <http://www.ieee802.org/11/Meetings/Meeting_Plan.html> .

## Announcements

**ePoll w.r.t. Meeting times in Madrid**. (doc. [ec-24/0213r0](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0213-00-00EC-2025-july-ieee-802-plenary-time-slot-considerations.pptx)). Typical meeting times in Madrid are different (slide 3). Many of the restaurants do not open until 8:00. Typical meeting schedule does not fit to meeting times in 802.11. The idea is to modify our schedule so that it is more likely to fit. E.g., dinner needs more than one hour in Spain. Two alternative options will be proposed. One is normal slot times, but move the evening slot to 8:30. Other is normal schedule by one hour but move to starting at 9:00. Dinner after 21:30. Think about it.

C: EVE is PM3. Whether or not the WG use PM3 or not, is up to them.

Q: Thank for doing the hard job for us. When are the snacks?

A: Between the meeting slots, as usual, between AM1 and AM2 and between PM1 and PM2.

C: This would be a plenary. So will there be tutorials. For the Monday there will be tutorials.

C: This is very useful approach. Madrid is very hot. Everything shuts down between 1 and 8.

A: Plan is to do an ePoll in the next week.

C: In Option 2, more coffee slots will be needed.

A: We will look at this. Considered after the decision is known.

C: Check Hotel breakfast times against these slots, is up to 10:30.

C: Spanish know very well how to live in Madrid. Adhering to their timing is a very good idea. Maybe additional tapas break between PM2 and PM3. Finishing so late may be tough.

A: There will be a time schedule as a framework and the WGs are free to use the slots in there.

C: Is it possible to reduce the break time between PM2 and PM3 for Option 1?

A: One should not change the duration of the time slots because this causes additional discussions between the groups.

C: Or, don't meet during PM1, and have siesta time, instead...

A: You have to go to your hotel room during siesta.

C: You have to queue in the restaurants and reserve time if you have no kids. Don’t think either of these slots is correct.

C: One WG member from Madrid suggests Option 2 is better.

**Updated the website with pictures:** If you like to publish your own photos, please, send an email to the Chair.

Q: Can people sent pictures from previous meeting?

A: Yes of course.

C: To post pictures in LinkedIn, signatures from everyone are needed. Otherwise, links to other sources can be used. In other media, this is simpler.

Q: How about the 802.11 webpage?

A: If you send a picture to the Chair, this is taken as the permission.

## Adjourn

Having completed the agenda, the chair announced that the meeting was adjourned at 10:21.

# Annex A: Links to Minutes

This Annex contains references to all IEEE 802.11 SC/TG/SG & Ad Hoc Committee (AHC) minutes from this session. 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 | 11-24/1593r1 |
| TGme | TG | [none](https://mentor.ieee.org/802.11/dcn/24/11-24-1302-00-000m-minutes-for-revme-2024-july-montreal.docx) |
| TGbe | TG | [none](https://mentor.ieee.org/802.11/dcn/24/11-24-1302-00-000m-minutes-for-revme-2024-july-montreal.docx) |
| TGbf | TG | [11-24/1642r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1642-00-00bf-ieee-802-11bf-september-2024-interim-meeting-minutes.docx) |
| TGbh | TG | [none](https://mentor.ieee.org/802.11/dcn/24/11-24-1302-00-000m-minutes-for-revme-2024-july-montreal.docx) |
| TGbi | TG | [11-24/1612r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1612-00-00bi-tgbi-teleconference-interim-sept-2024.docx) |
| TGbk | TG | [11-24/1686r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1686-00-00bk-meeting-minutes-september-2024.docx) |
| TGbn | TG | [11-24/1684r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1684-00-00bn-tgbn-september-2024-meeting-minutes.docx) |
| TGbp | TG | [11-24/1609r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1609-00-00bp-2024-09-interim-meeting-minutes.docx) |
| AUTO | TIG | [11-24/1621r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1621-01-auto-automotive-tig-meeting-minutes-for-september-9-2024.docx) |
| IMMW | SG | [none](https://mentor.ieee.org/802.11/dcn/24/11-24-1273-01-immw-immw-meeting-minutes-for-july.docx) |
| ELC | SG | [11-24/1634r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1634-01-0elc-2024-09-11-minutes.docx) |
| AIML | SC | [none](https://mentor.ieee.org/802.11/dcn/24/11-24-1273-01-immw-immw-meeting-minutes-for-july.docx) |
| ARC | SC | [24-1387r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1021-00-0arc-arc-sc-mixed-mode-minutes-july-2024-plenary.docx) |
| COEX | SC | [24-1462r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1462-00-coex-september-2024-minutes.docx) |
| PAR | SC | none |
| WNG | SC | [none](https://mentor.ieee.org/802.11/dcn/24/11-24-1273-01-immw-immw-meeting-minutes-for-july.docx) |
| JTC 802 | SC | [ec-24/0217r0](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0217-00-JTC1-minutes-of-mixed-mode-meeting-in-september-2024.docx) |
| ITU | AH | [none](https://mentor.ieee.org/802.11/dcn/24/11-24-1273-01-immw-immw-meeting-minutes-for-july.docx) |

# Annex B: Attendance & Affiliation

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Affiliation** | **Attended ≥ 75%** | **Status** |
| Abdelaal, Rana | Broadcom Corporation | true | Voter |
| Abeywickrama, Tharindu | Huawei Technologies Duesseldorf GmbH | true | Potential Voter |
| AbidRabbu, Shaima' | VESTEL, IMU | true | Voter |
| Abouelseoud, Mohamed | Apple Inc. | true | Voter |
| Aboulmagd, Osama | Huawei Technologies Co., Ltd | true | Voter |
| Adachi, Tomoko | TOSHIBA Corporation | false | Voter |
| Adhikari, Shubhodeep | Broadcom Corporation | true | Voter |
| Agarwal, Peyush | Broadcom Corporation | true | Voter |
| Aio, Kosuke | Sony Corporation | false | Voter |
| Ajami, Abdel Karim | Apple Inc. | true | Voter |
| Akhavan, Koorosh | Qualcomm Incorporated | false | Non-Voter |
| Akhmetov, Dmitry | Intel | true | Voter |
| Al-Baidhani, Amer | NXP Semiconductors | true | Voter |
| Aldana, Carlos | Meta Platforms Inc. | false | Voter |
| Ali, Sawaira | Istanbul Medipol University, Vestel | true | Voter |
| AL OLAIMAT, AYAT | Vestel, IMU | true | Potential Voter |
| Amtmann, Franz | NXP Semiconductors | true | Potential Voter |
| Ansley, Carol | Cox Communications Inc. | true | Voter |
| Anwyl, Gary | MediaTek Inc. | true | Voter |
| Asai, Yusuke | NTT | true | Voter |
| Asterjadhi, Alfred | Qualcomm Technologies, Inc | true | Voter |
| Au, Kwok Shum | Huawei Technologies Co., Ltd | false | ExOfficio |
| Aygul, Mehmet | Vestel | true | Aspirant |
| Balakrishnan, Hari Ram | NXP Semiconductors | true | Potential Voter |
| Baek, SunHee | LG ELECTRONICS | true | Voter |
| Bahn, Christy | IEEE Staff | false | Non-Voter |
| Bai, Jiyang | TCL | true | Aspirant |
| Baik, Eugene | Qualcomm Incorporated | false | Voter |
| Bajaj, Ian | Huawei International Pte. Ltd. | true | Potential Voter |
| Bajko, Gabor | MediaTek Inc. | true | Voter |
| Banerjee, Subharthi | NXP Semiconductors | true | Voter |
| Bankov, Dmitry | IITP RAS | true | Voter |
| Bao, Zhanjing | TCL | true | Voter |
| Baron, stephane | Canon Research Centre France | true | Voter |
| Batra, Anuj | Apple, Inc. | true | Voter |
| Baykas, Tuncer | Ofinno | true | Voter |
| Beg, Chris | Cognitive Systems Corp. | false | Voter |
| Ben Arie, Yaron | Toga Networks (A Huawei Company) | true | Voter |
| Berger, Catherine | IEEE Staff | false | Non-Voter |
| Berger, Christian | NXP Semiconductors | true | Voter |
| Bethapudi, Shirly | NXP Semiconductors | true | Voter |
| Bhandaru, Nehru | Broadcom Corporation | true | Voter |
| Bhatia, Puneet | Synaptics Inc | true | Aspirant |
| Bian, Tong | Panasonic | true | Voter |
| Bims, Harry | Bims Laboratories, Inc. | true | Voter |
| Bo, Cao | ZTE Corporation | true | Voter |
| Boodannavar, Veerendra | Apple Inc. | true | Voter |
| Borges, Daniel | Apple, Inc. | true | Voter |
| Byeon, Seongho | SAMSUNG ELECTRONICS | true | Voter |
| Bykov, Denis | NXP Semiconductors | true | Voter |
| Campiglio, Ugo | Cisco Systems, Inc. | true | Voter |
| Cao, Rui | NXP Semiconductors | true | Voter |
| Cariou, Laurent | Intel | true | Voter |
| Carney, William | Sony Group Corporation | true | Voter |
| Carty, Clark | Juniper Networks, Inc. | true | Aspirant |
| Cepni, Gurkan | Apple, Inc. | true | Voter |
| Cha, Dongju | LG ELECTRONICS | true | Voter |
| Chang, Chen-Yi | MediaTek Inc. | true | Voter |
| Chang, Yu Hsien | Mediatek | true | Aspirant |
| Chaturvedi, Abhishek | Samsung Electronics | true | Voter |
| Che, Hui | Ruijie Networks Co., Ltd | true | Voter |
| CHEN, CHENG | pureLiFi Ltd. | true | Aspirant |
| Chen, Cheng-Ming | Qualcomm Incorporated | false | Non-Voter |
| Chen, Junbin | TP-Link Systems Inc. | true | Voter |
| Chen, Shuqiao | Huawei Technologies Co., Ltd | false | Voter |
| Chen, Wei-Han | MediaTek Inc. | true | Aspirant |
| Chen, Xiaogang | Spreadtrum Communication USA, Inc | true | Voter |
| CHEN, YI-HSUAN | Acer, Inc. | true | Potential Voter |
| Chen, You-Wei | MediaTek Inc. | true | Voter |
| Cheng, Ching-Chia | MediaTek Inc. | true | Voter |
| Cheng, Nan | Xidian University | true | Voter |
| Cheng, Paul | MediaTek Inc. | true | Voter |
| cheng, phoebe | MediaTek Inc. | true | Voter |
| CHENG, yajun | Xiaomi Communications Co., Ltd. | true | Non-Voter |
| CHERIAN, GEORGE | Qualcomm Incorporated | false | Voter |
| Chisci, Giovanni | Qualcomm Technologies, Inc | false | Voter |
| Chitrakar, Rojan | Huawei International Pte Ltd | false | Voter |
| Chiu, WenHsien | MediaTek Inc. | true | Non-Voter |
| Cho, Hangyu | LG ELECTRONICS | true | Voter |
| Choi, JinHo | SAMSUNG ELECTRONICS | true | Voter |
| Choi, Jinsoo | LG ELECTRONICS | true | Voter |
| Choo, Seungho | Senscomm Semiconductor Co., Ltd. | true | Voter |
| Chou, Tzu-Hsuan | Qualcomm Incorporated | true | Voter |
| Chu, Liwen | NXP Semiconductors | true | Voter |
| Chung, Bruce | Realtek Semiconductor Corp. | true | Voter |
| Chung, Chulho | SAMSUNG | true | Voter |
| Coffey, John | Realtek Semiconductor Corp. | true | Voter |
| Cordeiro, Carlos | Intel | true | Voter |
| Costa, D.Nelson | HaiLa Technologies | true | Voter |
| Cui, Yaoshen | TP-Link Systems Inc. | true | Voter |
| Das, Dibakar | Intel Corporation | true | Voter |
| Das, Sovan | Kyocera SLD Laser Inc | true | Aspirant |
| Das, Subir | Peraton Labs | true | ExOfficio |
| Dash, Debashis | Apple, Inc. | true | Voter |
| da Silva, Claudio | Meta Platforms | true | Voter |
| DeLaOlivaDelgado, Antonio | InterDigital, Inc. | false | Voter |
| Derham, Thomas | Broadcom Corporation | true | Voter |
| Deshmukh, Mrugen | InterDigital | true | Aspirant |
| de Vegt, Rolf | Qualcomm Incorporated | true | Voter |
| Dezfouli, Behnam | Nokia | true | Aspirant |
| Dinan, Esmail | Ofinno | true | Voter |
| Di Taranto, Rocco | Ericsson AB | true | Voter |
| Dong, Xiandong | Xiaomi Communications Co., Ltd. | true | Voter |
| Doppler, Klaus | Nokia | true | Voter |
| Du, Rui | Huawei Technologies Co., Ltd | true | Voter |
| Du, Zhenguo | Huawei Technologies Co., Ltd | true | Voter |
| Dunna, Manideep | Qualcomm | true | Aspirant |
| Eastlake 3rd, Donald | Self | true | Non-Voter |
| Eiger, Martin | Peraton Labs | true | Voter |
| Ekkundi, Manasi | SAMSUNG ELECTRONICS | true | Voter |
| ElSherif, Ahmed | Qualcomm Incorporated | true | Voter |
| EMMELMANN, MARC | Self | false | Voter |
| Erceg, Vinko | Broadcom Corporation | true | Voter |
| Erkucuk, Serhat | Ofinno | true | Voter |
| Fan, Shuang | Sanechips Technology Co., Ltd. | true | Voter |
| Fang, Juan | Intel Corporation | true | Voter |
| Fang, Yonggang | MediaTek Inc. | true | Voter |
| feng, Shuling | MediaTek Inc. | true | Voter |
| Ficara, Domenico | Cisco Systems, Inc. | true | Voter |
| Fischer, Matthew | Broadcom Corporation | true | Voter |
| Friedl, Stephan | Cisco | true | Aspirant |
| Fu, Qingwei | TP-Link Systems Inc. | true | Aspirant |
| Fujimori, Yuki | Canon Research Centre France | true | Voter |
| Gan, Ming | Huawei Technologies Co., Ltd | true | Voter |
| Gangur, Trivikram | Infineon Technologies | true | Voter |
| Ganji, Mehdi | Charter Communications | true | Voter |
| Ganotra, Shivesh | Cisco Systems, Inc. | true | Aspirant |
| Gao, Ning | Guangdong OPPO Mobile Telecommunications Corp.,Ltd | true | Voter |
| Garg, Lalit | Broadcom Corporation | true | Voter |
| Ghaderipoor, Alireza | MediaTek Inc. | true | Voter |
| Ghosh, Chittabrata | Apple Inc. | true | Voter |
| Gidvani, Ravi | SAMSUNG ELECTRONICS | true | Voter |
| Gong, Bo | Huawei Technologies Co., Ltd | true | Voter |
| Goto, Fumihide | DENSO | true | Voter |
| Gu, Jaheon | Samsung Electronics Co., Ltd. | true | Voter |
| Gu, Junrong | Clourney Semiconductor | true | Voter |
| Gu, Xiangxin | Spreadtrum Communications (Shanghai) Co., Ltd. | true | Voter |
| GUIGNARD, Romain | Canon Research Centre France | true | Voter |
| Guo, Jing | NXP Semiconductors | true | Voter |
| Guo, Yuchen | Huawei Technologies Co., Ltd | true | Voter |
| Guo, Zheng | NXP Semiconductors | true | Voter |
| Guo, Ziyang | Huawei Technologies Co., Ltd | true | Voter |
| Gupta, Ankit | NXP Semiconductor | true | Aspirant |
| Gupta, Binita | Cisco Systems, Inc. | true | Voter |
| gutierrez, luis | Broadcom Corporation | true | Voter |
| Ha, Taeyoung | Samsung Electronics Co., Ltd. | false | Voter |
| Haider, Muhammad Kumail | Meta Platforms Inc. | true | Voter |
| Halasz, David | Morse Micro | true | Voter |
| Hamilton, Mark | Ruckus/CommScope | true | Voter |
| HAN, DONG | Apple Inc. | true | Potential Voter |
| HAN, Xiao | Huawei Technologies Co., Ltd | true | Voter |
| Hart, Brian | Cisco Systems, Inc. | true | Voter |
| Hasabelnaby, Mahmoud | Huawei Technologies Canada; Huawei Technologies Co., Ltd | true | Voter |
| Hawkes, Philip | Qualcomm Incorporated | false | Aspirant |
| He, Chuanfeng | Beijing OPPO telecommunications corp., ltd; Guangdong OPPO Mobile Telecommunications Corp.,Ltd | true | Potential Voter |
| He, Linhai | Qualcomm Incorporated | true | Aspirant |
| Hedayat, Ahmadreza | Apple Inc. | true | Voter |
| Helmy, Ahmed | Apple Inc. | true | Voter |
| Helwa, Sherief | Qualcomm Technologies, Inc | false | Voter |
| Henry, Jerome | Cisco Systems, Inc. | true | Voter |
| Hervieu, Lili | Cable Television Laboratories Inc. (CableLabs) | true | Voter |
| Hiertz, Guido | Ericsson GmbH | true | Voter |
| Hirata, Ryuichi | Sony Corporation | true | Voter |
| Ho, Duncan | Qualcomm Technologies, Inc | true | Voter |
| Hosseinianfar, Hamid | Ofinno | true | Voter |
| Hsiao, Ching-Wen | MediaTek Inc. | true | Voter |
| Hsieh, Hung-Tao | MediaTek Inc. | false | Voter |
| Hsu, Chien-Fang | MediaTek Inc. | true | Voter |
| Hsu, Ostrovsky | Xiaomi Communications Co., Ltd. | false | Voter |
| Hsu, Yung Lin | National Taiwan University | true | Voter |
| Hsu, Yungping | MediaTek Inc. | false | Voter |
| Hu, Chunyu | Spreadtrum Communications USA | true | Voter |
| Hu, Mengshi | Huawei Technologies Co., Ltd | true | Voter |
| Hu, Shengquan | MediaTek Inc. | true | Potential Voter |
| HUANG, CHIHAN | MediaTek Inc. | true | Voter |
| Huang, Guogang | Huawei Technologies Co., Ltd | true | Voter |
| huang, kaikai | Nokia | true | Voter |
| Huang, Lei | Huawei International Pte Ltd | false | Voter |
| Huang, Po-Kai | Intel | true | Voter |
| Huang, Qisheng | ZTE Corporation | true | Potential Voter |
| Inohiza, Hirohiko | Canon | true | Voter |
| Inoue, Kyosuke | SHARP CORPORATION | true | Potential Voter |
| Islim, Mohamed Sufyan | pureLiFi | true | Aspirant |
| Jang, Insun | LG ELECTRONICS | true | Voter |
| Jee, Anand | SAMSUNG ELECTRONICS | true | Potential Voter |
| Jeffries, Timothy | Futurewei Technologies | true | Voter |
| Jeon, Eunsung | SAMSUNG ELECTRONICS | true | Voter |
| Ji, Chenhe | Huawei Technologies Co., Ltd | true | Voter |
| Jia, Boqi | Huawei Technologies Co., Ltd | true | Aspirant |
| jiang, feng | Apple Inc. | true | Voter |
| Jiang, Jinjing | Apple, Inc. | true | Voter |
| Joh, Hanjin | KT Corp. | true | Voter |
| John, Toby | Verizon | false | Voter |
| Johnsson, Kerstin | Nokia | true | Non-Voter |
| Jones, Vincent Knowles IV | Qualcomm Incorporated | true | Voter |
| Jung, Insik | LG ELECTRONICS | true | Non-Voter |
| Jungnickel, Volker | Fraunhofer Heinrich Hertz Institute | true | Voter |
| Kabbinale, Aniruddh | SAMSUNG | true | Voter |
| Kadampot, Ishaque Ashar | Qualcomm Technologies, Inc. | false | Voter |
| Kain, Carl | USDOT; Noblis, Inc. | true | Voter |
| Kakani, Naveen | Qualcomm Incorporated | true | Voter |
| Kalamkar, Sanket | Qualcomm Technologies, Inc | false | Voter |
| Kamel, Mahmoud | InterDigital, Inc. | true | Voter |
| Kancherla, Sundeep | Infineon Technologies | true | Voter |
| Kandala, Srinivas | SAMSUNG | true | Voter |
| Kang, HaoHua | MediaTek Inc. | true | Voter |
| Karamyshev, Anton | IITP RAS | true | Voter |
| Karmuchi, Shailender | SAMSUNG ELECTRONICS | true | Voter |
| Karthik, S. G. | SAMSUNG ELECTRONICS | true | Voter |
| Kasargod, Sudhir | Infineon Technologies | true | Voter |
| Kennedy, Richard | Bluetooth SIG | false | Voter |
| Kezys, Vytas | CONSULTANT | false | Non-Voter |
| Khericha, samir | Broadcom Corporation | false | Voter |
| Khorov, Evgeny | IITP RAS | true | Voter |
| Khosroazad, Somayeh | NXP Semiconductors | true | Aspirant |
| KIM, DONGWAN | Broadcom Corporation | false | Voter |
| Kim, Geon Hwan | LG ELECTRONICS | true | Voter |
| Kim, Jeongki | Ofinno | true | Voter |
| Kim, Jungjun | Samsung Electronics | true | Aspirant |
| Kim, Sang Gook | LG ELECTRONICS | true | Voter |
| Kim, Sanghyun | WILUS Inc. | true | Voter |
| Kim, Suhwook | Samsung Electronics | true | Aspirant |
| Kim, Taehoon | Hanbat National University | true | Aspirant |
| Kim, Yongho | Korea National University of Transportation | true | Voter |
| Kim, Youhan | Qualcomm Technologies, Inc. | false | Voter |
| Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) | true | Voter |
| Kitazawa, Shoichi | Muroran IT | true | Voter |
| Klein, Arik | Huawei Technologies Co., Ltd | true | Voter |
| Kneckt, Jarkko | Apple, Inc. | true | Voter |
| Koo, Jonghoe | SAMSUNG ELECTRONICS | true | Voter |
| Krebs, Alexander | Apple Inc; Apple Inc. | false | Voter |
| Ku, Chung-Ta | MediaTek Inc | true | Voter |
| Kumar, Manish | NXP Semiconductors | true | Voter |
| Kuo, Chih-Chun | MediaTek Inc. | true | Voter |
| Kureev, Aleksey | IITP RAS | true | Voter |
| Lalam, Massinissa | SAGEMCOM BROADBAND SAS | true | Voter |
| Lanante, Leonardo | Ofinno | true | Voter |
| Lansford, James | farafir, SRL | true | Voter |
| Lee, Gwangho | Korea National University of Transportation | true | Potential Voter |
| Lee, Hong Won | LG ELECTRONICS | true | Voter |
| Lee, Jack | SAMSUNG ELECTRONICS | true | Voter |
| LEE, JOONSOO | Newracom Inc. | true | Voter |
| Lee, Kyoung-Jae | Hanbat National University | true | Aspirant |
| LEE, Mingyu | Samsung Electronics Co., Ltd. | true | Voter |
| Lee, Wookbong | Apple Inc. | true | Voter |
| Levitsky, Ilya | IITP RAS | true | Voter |
| Levy, Joseph | InterDigital, Inc. | true | Voter |
| Li, Bo | Northwestern Polytechnical University | true | Voter |
| Li, Haozheng | TP-Link System Inc. | true | Voter |
| Li, Jialing | Qualcomm Technologies, Inc | false | Voter |
| Li, Panpan | Huawei Technologies Co., Ltd | false | Voter |
| Li, Qinghua | Intel | true | Voter |
| Li, Weiyi | Spreadtrum Communication USA, Inc | true | Voter |
| Li, Xin | Huawei Technologies Co., Ltd | true | Voter |
| Li, Yan | ZTE Corporation | true | Voter |
| Li, Yanchun | Huawei Technologies Co., Ltd | true | Voter |
| Li, Yapu | Guangdong OPPO Mobile Telecommunications Corp.,Ltd | true | Voter |
| li, yun | ZTE Corporation | true | Voter |
| Li, Yunbo | Huawei Technologies Co., Ltd | true | Voter |
| Lim, Dong Guk | LG ELECTRONICS | true | Voter |
| Lim, Yeon Geun | Newracom Inc. | false | Voter |
| Lin, Wei | Huawei Technologies Co., Ltd | true | Voter |
| LIU, CHENCHEN | Huawei Technologies Co., Ltd | true | Voter |
| Liu, Der-Zheng | Realtek Semiconductor Corp. | true | Voter |
| Liu, Jeff | Broadcom Corporation | true | Voter |
| Liu, Jianhan | MediaTek Inc. | true | Voter |
| Liu, Peng | Huawei Technologies Co., Ltd | false | Non-Voter |
| LIU, QINGLAI | Panasonic Holdings Corporation | true | Voter |
| Liu, Yong | Apple, Inc. | false | Voter |
| Lorgeoux, Mikael | Canon Research Centre France | true | Voter |
| Lou, Hanqing | InterDigital, Inc. | true | Voter |
| Lou, Hui-Ling | NXP Semiconductors | true | Voter |
| Lovison, Federico | Cisco Systems, Inc. | false | Voter |
| Lu, kaiying | MediaTek Inc. | true | Voter |
| Lu, Liuming | Guangdong OPPO Mobile Telecommunications Corp.,Ltd | true | Voter |
| LU, Yuxin | TCL Industries | true | Voter |
| Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. | true | Voter |
| Luo, Hui | Infineon Technologies | true | Voter |
| Luo, Sixian | SHARP CORPORATION | true | Potential Voter |
| Ma, Jing | Toyota Motor Corporation | true | Voter |
| Ma, Li | MediaTek Inc. | true | Voter |
| Ma, Yongsen | SAMSUNG ELECTRONICS | true | Voter |
| Magrin, Davide | Meta Platforms Inc. | true | Voter |
| Mak, Siukai | Broadcom Corporation | true | Voter |
| Malinen, Jouni | Qualcomm Technologies, Inc | true | Voter |
| Martinez Vazquez, Marcos | MaxLinear Corp | true | Voter |
| Max, Sebastian | Ericsson AB | true | Voter |
| McCann, Stephen | Huawei Technologies Co., Ltd | true | Voter |
| Mehrnoush, Morteza | Apple Inc | true | Voter |
| Merlin, Simone | Qualcomm Incorporated | true | Aspirant |
| Minotani, Jun | Panasonic Holdings Corporation | true | Non-Voter |
| Moelker, Dignus-Jan | Broadcom Corporation | true | Voter |
| Mohamed, Ahmed | NXP Semiconductors | true | Voter |
| Mohamed Hassan Salem, Nedime Pelin | Cisco Systems, Inc. | true | Voter |
| Monajemi, Pooya | Apple Inc. | true | Voter |
| Montemurro, Michael | Huawei Technologies Co., Ltd | true | Voter |
| Montreuil, Leo | Broadcom Corporation | true | Voter |
| Moon, Juseong | Korea National University of Transportation | true | Voter |
| Morikawa, Yudai | Sony Corporation | true | Aspirant |
| Morioka, Hitoshi | SRC Software | true | Voter |
| Motozuka, Hiroyuki | Panasonic Holdings Corporation | true | Voter |
| Mourtada, Yasser | Ofinno | true | Voter |
| Mukherjee, Suprojit | Infineon Technologies | true | Potential Voter |
| Mutgan, Okan | Nokia | true | Voter |
| Nagai, Yukimasa | Mitsubishi Electric Corporation | true | Voter |
| Naik, Gaurang | Qualcomm Technologies, Inc | true | Voter |
| Namvar, Nima | Charter Communications | true | Potential Voter |
| Narengerile, Narengerile | Huawei Technologies Co., Ltd | true | Voter |
| Nassiri Toussi, Karim | Broadcom Corporation | true | Voter |
| Nayak, Peshal | Samsung Research America | true | Voter |
| Neishaboori, Azin | General Motors Company | true | Voter |
| Nezou, Patrice | Canon Research Centre France | true | Voter |
| Ng, Boon Loong | Samsung Electronics | true | Voter |
| Nguyen, An | U.S. Department of Homeland Security | true | Voter |
| Nogami, Toshizo | SHARP CORPORATION | true | Potential Voter |
| Noh, Si-Chan | Newracom Inc. | false | Voter |
| Nomura, Tetsuya | DENSO TEN Limited | false | Non-Voter |
| Norouzi, Sara | Huawei Technologies Canada; Huawei Technologies Co., Ltd | true | Voter |
| Nurani Krishnan, Neelakantan | Apple Inc. | true | Voter |
| Ohmoto, Ryutaro | Nihon Dengyo Kosaku Co. Ltd. | true | Non-Voter |
| Omar, Hassan | Huawei Technologies Co., Ltd | true | Voter |
| Orr, Stephen | Cisco Systems, Inc. | false | Voter |
| ouzane, riadh | Vestel, IMU | true | Potential Voter |
| Pakrooh, Pooria | Qualcomm Incorporated | false | Voter |
| Palayur, Saju | MaxLinear Inc. | true | Voter |
| Palm, Stephen | Broadcom Corporation | true | Voter |
| Pan, Ju Yan | Huawei Technologies Co., Ltd | true | Potential Voter |
| Pare, Thomas | MediaTek Inc. | true | Voter |
| Park, Eunsung | LG ELECTRONICS | true | Voter |
| Patel, Tushar |   | false | Non-Voter |
| Patil, Abhishek | Qualcomm Incorporated | false | Voter |
| Patwardhan, Gaurav | Hewlett Packard Enterprise | true | Voter |
| Peng, Lan | Huawei Technologies Co., Ltd | true | Voter |
| Peng, Ronny | MediaTek Inc. | true | Voter |
| Perahia, Eldad | Hewlett Packard Enterprise | true | Voter |
| Petrick, Albert | InterDigital, Inc. | true | Voter |
| Pettersson, Charlie | Ericsson AB | true | Voter |
| Pirhonen, Riku | NXP Semiconductors | false | Non-Voter |
| Porat, Ron | Broadcom Corporation | true | Voter |
| Portier, Fabrice | Silicon Labs | false | Non-Voter |
| Puducheri, Srinath | Broadcom Corporation | true | Voter |
| Pulikkoonattu, Rethnakaran | Broadcom Corporation | true | Voter |
| Qi, Emily | Intel | true | Voter |
| Qi, Yinan | Guangdong OPPO Mobile Telecommunications Corp.,Ltd | true | Non-Voter |
| Qi, Yue | Samsung Research America | true | Non-Voter |
| QIAN, BIN | Huawei Technologies Co., Ltd | true | Voter |
| Qian, Yurong | ZTE Corporation | true | Voter |
| Quan, Li | ZTE Corporation | true | Potential Voter |
| Quan, Yingqiao | Spreadtrum | true | Voter |
| Qureshi, Haneya | General Motors | false | Non-Voter |
| Rafique, Saira | Istanbul Medipol University, Vestel | true | Voter |
| Rai, Kapil | Qualcomm Incorporated | true | Potential Voter |
| Raissinia, Alireza | Qualcomm Incorporated | true | Voter |
| Ratnam, Vishnu | Samsung Research America | true | Voter |
| Redlich, Oded | Huawei Technologies Co., Ltd | true | Voter |
| Regev, Dror | Toga Networks (A Huawei Company) | true | Voter |
| REICH, MOR | Huawei Technologies Co., Ltd | false | Voter |
| Rezk, Meriam | Qualcomm Technologies, Inc | true | Voter |
| Rios, Carlos | Terabit Wireless Internet LLC | true | Voter |
| Robert, Joerg | Technische Universitaet Ilmenau | false | Voter |
| Rodriguez, Stephen | Cisco Systems, Inc. | true | Voter |
| Rolfe, Benjamin | Blind Creek Associates | false | Non-Voter |
| Rosdahl, Jon | Qualcomm Technologies, Inc. | true | Voter |
| Roy, Rishabh | SAMSUNG ELECTRONICS | true | Potential Voter |
| Ryu, Kiseon | NXP Semiconductors | true | Voter |
| Sadiq, Bilal | Samsung Research America | true | Voter |
| Sahyoun, Walaa | Canon Research Centre France | true | Potential Voter |
| Sakamoto, Ryunosuke | SHARP CORPORATION | true | Potential Voter |
| Salem, Mohamed | Huawei Technologies Co., Ltd | false | Non-Voter |
| Sambasivan, Sam | AT&T | true | Voter |
| Sampath, Hemanth | Qualcomm Inc | false | Aspirant |
| Sampath, Hemanth | Qualcomm Incorporated | true | Non-Voter |
| Sand, Sophia | FernUniversitat in Hagen | false | Non-Voter |
| Sand, Stephan | German Aerospace Center (DLR) | true | Voter |
| Sanderovich, Amichai | Wiliot Ltd | true | Voter |
| Santra, Avik | Infineon Technologies | true | Voter |
| Sato, Takuhiro | SHARP CORPORATION | true | Voter |
| Schelstraete, Sigurd | MaxLinear | true | Voter |
| Schweizer, Benedikt | Apple Inc. | false | Voter |
| Segev, Jonathan | Intel | true | Voter |
| Seo, Sangho | Broadcom Corporation | true | Voter |
| Seok, Yongho | Apple Inc. | true | Voter |
| Serafimovski, Nikola | pureLiFi | true | Voter |
| Serizawa, Kazunobu | Advanced Telecommunications Research Institute International (ATR) | true | Voter |
| Sevin, Julien | Canon Research Centre France | true | Voter |
| Shafin, Rubayet | Samsung Electronics | true | Voter |
| Shaw, Amit | Infineon Technologies | true | Voter |
| Shellhammer, Stephen | Qualcomm Incorporated | false | Voter |
| shen, wendi | National Taiwan University | true | Potential Voter |
| Sherlock, Ian | Texas Instruments Inc. | true | Voter |
| shi, shuyu | TP-Link Corporation Limited | true | Voter |
| Shi, Yan | Mediatek | true | Aspirant |
| Shi, Zhenpeng | Huawei Technologies Co., Ltd | true | Aspirant |
| Shilo, Shimi | Huawei Technologies Co., Ltd | true | Voter |
| Shirakawa, Atsushi | SHARP CORPORATION | true | Voter |
| Shukla, Ashish | Amazon, Inc | true | Voter |
| Singh, Aditi | Charter Communications | true | Voter |
| Smith, Graham | SR Technologies | true | Voter |
| Smith, Luther | Cable Television Laboratories Inc. (CableLabs) | false | Voter |
| Son, Ju-Hyung | WILUS Inc. | true | Potential Voter |
| Sood, Ayush | Infineon Technologies | true | Voter |
| Srinivasa, Sudhir | NXP Semiconductors | true | Voter |
| Sriram, Sundar | Apple Inc. | true | Voter |
| Stacey, Robert | Intel | true | Voter |
| Stanley, Dorothy | Hewlett Packard Enterprise | true | Voter |
| Stott, Noel | Keysight Technologies | true | Voter |
| Strobel, Rainer | MaxLinear | true | Voter |
| Su, Hang | Broadcom Corporation | true | Voter |
| SUH, JUNG HOON | Huawei Technologies Co., Ltd | true | Voter |
| Sumi, Takenori | Mitsubishi Electric Corporation | false | Non-Voter |
| Sun, Bo | Sanechips | true | Voter |
| Sun, Jiaqi | China Mobile (Hangzhou) Information Technology Co., Ltd. | true | Non-Voter |
| Sun, Li-Hsiang | MediaTek Inc. | false | Voter |
| Sun, Yanjun | Apple Inc | true | Voter |
| Sung, Hyeonjun | WILUS Inc. | true | Aspirant |
| SUZUKI, Shuntaro | Yamaha Corporation | true | Voter |
| Taherzadeh, Mahmoud | Qualcomm | true | Aspirant |
| Takai, Mineo | Space-Time Engineering | true | Aspirant |
| Talarico, Salvatore | Sony Corporation | true | Voter |
| Tanaka, Ken | Sony Corporation | false | Aspirant |
| Tanaka, Yusuke | Sony Corporation | true | Voter |
| Tang, Zhuqing | Huawei Technologies Co., Ltd | true | Voter |
| Taori, Rakesh | Infineon Technologies | true | Voter |
| Thakur, Sidharth | Apple Inc. | true | Voter |
| Thota, Sri Ramya | Infineon Technologies | true | Voter |
| Tian, Bin | Qualcomm Incorporated | true | Voter |
| Tinnakornsrisuphap, Peerapol | Qualcomm Incorporated | true | Aspirant |
| Tomeba, Hiromichi | SHARP CORPORATION | true | Voter |
| Tota, Kazuyuki | Canon | true | Voter |
| Trainin, Solomon | Wiliot | false | Voter |
| Tretiakov, Anton | IITP RAS | true | Voter |
| Tsai, Tsung-Han | MediaTek Inc. | false | Voter |
| Tseng, Yen Hsiung | MediaTek Inc. | true | Potential Voter |
| Tsodik, Genadiy | Huawei Technologies Co., Ltd | true | Voter |
| Tsujimaru, Yuki | Canon | false | Voter |
| Urabe, Yoshio | Panasonic Holdings Corporation | true | Voter |
| Vaidya, Maulik | Charter Communications | false | Voter |
| Val, Inaki | MaxLinear, Inc. | true | Voter |
| Varshney, Prabodh | Nokia | true | Voter |
| Venkatesh, Narasimhan | Silicon Laboratories | true | Potential Voter |
| Verma, Sindhu | Broadcom Corporation | true | Voter |
| Vermani, Sameer | Qualcomm Incorporated | true | Voter |
| Videv, Stefan | Kyocera SLD Laser | true | Aspirant |
| VIGER, Pascal | Canon Research Centre France | true | Voter |
| Wang, Chao Chun | MediaTek Inc. | true | Voter |
| Wang, Hao | Tencent | false | Voter |
| Wang, Huizhao | NXP Semiconductors | true | Voter |
| Wang, Lei | Futurewei Technologies | true | Voter |
| WANG, PU | Mitsubishi Electric Research Laboratories (MERL) | false | Non-Voter |
| Wang, Pu | Mitsubishi Electric Research Laboratories (MERL) | true | Voter |
| Wang, Steven Qi | Huawei Technologies Co., Ltd | true | Voter |
| Wang, Xiaofei | InterDigital, Inc. | true | Voter |
| Wang, Ying | InterDigital, Inc. | true | Voter |
| Wang, Zisheng | ZTE Corporation | false | Voter |
| Want, Roy | Google | true | Voter |
| Ward, Lisa | Rohde & Schwarz | true | Voter |
| Wee, Gaius | Panasonic Holdings Corporation | true | Potential Voter |
| Wei, Dong | Guangdong OPPO Mobile Telecommunications Corp.,Ltd | true | Voter |
| Wendt, Matthias | Signify | false | Voter |
| Wentink, Menzo | Qualcomm Incorporated; Qualcomm Technologies, Inc | false | Voter |
| White, Gregory | Cable Television Laboratories Inc. (CableLabs) | true | Voter |
| Wilhelmsson, Leif | Ericsson AB | true | Voter |
| Wu, Chao-Yi | Samsung Electronics Co., Ltd. | true | Voter |
| Wu, Kanke | Apple Inc | true | Voter |
| Wu, Tianyu | Apple, Inc. | true | Voter |
| Wullert, John | Peraton Labs | true | Voter |
| Xia, Qing | Sony Corporation | true | Voter |
| Xiao, Bo | ZTE Corporation | true | Voter |
| Xiao, Tong | Xiaomi Communications Co., Ltd. | true | Potential Voter |
| Xin, Liangxiao | Guangdong OPPO Mobile Telecommunications Corp.,Ltd | true | Voter |
| Xin, Yan | Huawei Technologies Co., Ltd | true | Voter |
| Xu, Fangxin | Longsailing Semiconductor | true | Voter |
| Xu, Weijie | Beijing OPPO telecommunications corp., ltd. | true | Potential Voter |
| Xu, Yanchao | Amlogic | true | Voter |
| Xu, Yue | Huawei Technologies Co., Ltd | true | Voter |
| Xue, Qi | Qualcomm Incorporated | true | Aspirant |
| YAGHOOBI, HASSAN | Intel | true | Voter |
| Yahya, Salim | VESTEL,IMU | true | Potential Voter |
| Yamada, Ryota | SHARP CORPORATION | true | Voter |
| Yan, Aiguo | SAMSUNG ELECTRONICS | true | Voter |
| Yan, Min | Huawei Technologies Co., Ltd | false | Voter |
| Yan, Peng | Wi-Fi Alliance | true | Non-Voter |
| Yan, Zhongjiang | Northwestern Polytechnical University | true | Voter |
| Yang, Hang | Ruijie Networks Co. Ltd | true | Potential Voter |
| Yang, Haorui | China Mobile | true | Potential Voter |
| Yang, Hsi-Chang | Mediatek Inc | true | Aspirant |
| Yang, Jay | ZTE Corporation | false | Voter |
| Yang, Lin | Qualcomm Incorporated | true | Voter |
| Yang, Mao | Northwestern Polytechnical University | true | Voter |
| YANG, Ning | Guangdong OPPO Mobile Telecommunications Corp.,Ltd | true | Voter |
| YANG, RUI | InterDigital, Inc. | true | Voter |
| Yang, Steve TS | MediaTek Inc. | true | Voter |
| Yang, Xun | Huawei Technologies Co., Ltd | false | Voter |
| Yang, Yunpeng | TP-Link Systems Inc. | true | Aspirant |
| Yang, Zigui | Samsung Electronics Co,. Ltd. | true | Aspirant |
| Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) | true | Voter |
| Yee, James | MediaTek Inc. | true | Voter |
| Yee, Peter | NSA-CSD | true | Voter |
| Yong, Su Khiong | Apple, Inc. | false | Voter |
| Yoon, Yelin | LG ELECTRONICS | true | Voter |
| Young, Christopher | Broadcom Corporation | true | Voter |
| Yu, Jian | Huawei Technologies Co., Ltd | true | Voter |
| Zhang, Hongyuan | NXP Semiconductors | true | Voter |
| Zhang, Jiayi | Ofinno | true | Voter |
| Zhang, John | Guangdong OPPO Mobile Telecommunications Corp.,Ltd | false | Voter |
| Zhang, Maolin | Huawei Technologies Co., Ltd | true | Voter |
| Zhang, Rong | NXP Semiconductors | true | Voter |
| Zhang, Yan | Apple Inc | true | Voter |
| Zhao, Xuwen | TCL | true | Aspirant |
| Zhao, Yue | Huawei Technologies Co., Ltd | true | Voter |
| Zheng, Xiayu | NXP Semiconductors | true | Voter |
| Zhong, Ke | Ruijie Networks Co.,Ltd. | true | Voter |
| Zhou, Chengzhi | Apple Inc. | true | Voter |
| Zhou, Lei | H3C Technologies Co., Limited | true | Voter |
| Zhou, Pei | TCL | true | Voter |
| Zhou, RenFang | TP-Link Systems Inc. | true | Aspirant |
| Zhou, Yan | Qualcomm | true | Aspirant |
| Zhu, Yu | TP-Link System Inc. | true | Voter |
| Zuniga, Juan Carlos | Cisco Systems, Inc. | true | Voter |
| Zuo, Zhisong | Guangdong OPPO Mobile Telecommunications Corp.,Ltd | true | Potential Voter |

# Annex C: Working Group Officers

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# Annex D: Revisions and Standards Pipeline

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**IEEE 802.11 Standards Pipeline**

End.