IEEE P802.11  
Wireless LANs

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| Draft Minutes of the IEEE P802.11 Full Working Group | | | | |
| Date: 2024-12-03 | | | | |
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Abstract

This document contains the minutes of the IEEE 802.11 Working Group for the November 2024 session in Vancouver, CA.

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

Abbreviations:

Q: Question

C: Comment

A: Answer

SP: Straw Poll

**IEEE 802.11 Plenary Session #208**

**November 11th – 15th, 2024**

# IEEE 802.11 Opening Plenary, Monday November 11th, 2024

1. **Opening** (WG Chair Opening Slides: [11-24/1664r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1664-01-0000-2024-november-working-group-chair-opening-report.pptx))

## Meeting Call to Order

The session was called to order at 9:00 Pacific Time (PT) by the Chair, Robert Stacey (Intel) 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 214 people attending in person (in the room), and 536 recorded in the attendance tool (IMAT).

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

## Meeting Decorum

Chair: Please, note the information about the session decorum. No press in the room.

## Review and approve 802.11 session agenda (WG Agenda 11-24/1663r3)

This is a summary of the November Plenary. 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.

Following changes: TGbk releases MON PM1. TGbn PHY (Room 2) and MAC (Room 1) get extra slots on TUES EVE. IMMW (Room 4) and Coex (Room 3) go to smaller rooms. TGmf is meeting as an ad-hoc MON PM2.

Subgroup Chairs to connect with Stephen to get Keys.

**Move to approve the agenda** [**11-24-1663r**](https://mentor.ieee.org/802.11/dcn/24/11-24-1663-03-0000-2024-november-wg11-agenda.xlsx)**3 for the Monday opening plenary.**

Moved: Al Patrick, 2nd: Lei Wang

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

## Review and approve September 2024 WG minutes

**Move to approve the September 2024 WG minutes document** [**11-24-1593r1.**](https://mentor.ieee.org/802.11/dcn/24/11-24-1593-01-0000-minutes-working-group-september-2024.docx)

Moved: Volker Jungnickel, 2nd: Donald Eastlake

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

## New attendees

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

Yes: 3 (in the room) and 15 (online).

There will be a New Members meeting at this session on Monday November 11th at PM1 13:30 local time in room Prince of Wales room. Everyone is welcome to join this meeting.

1. Announcements
   1. Policies and procedures

(2nd Vice Chair Report: [11-24-1660r0](hhttps://mentor.ieee.org/802.11/dcn/24/11-24-1660-00-0000-2nd-vice-chair-report-november-2024.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](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 Operations Manual (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. WGLB of length 1 rule.

There is also a reminder about the abstain vote (lack of expertise as the only allowed reason). WGLB of length 1 rule.

### Email reflectors (slides 21-22)

Email reflectors were explained. You need to get write rights on Mentor by attendance at one meeting. 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 on the telcos. Secretaries should put “minutes” at the bottom of their documents.

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

The corresponding slides were read.

* No questions concerning 2.1.2 to 2.1.12.

## Incoming liaisons (WG Chair Opening Report: [11-24-1664r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1664-02-0000-2024-november-working-group-chair-opening-report.pptx))

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

Chair: There is one new liaison action since the September 2024 session: 802.11 notified IETF to use IEEE Std 802.11-2024 as reference in draft RFC draft-wkumari-rfc8110-to-ieee (transfers OWE to IEEE 802.11).

## Report on 802 LMSC or IEEE SA Standards Board decisions (slides 5-6)

* P802.11bq (Integrated mmWave) PAR to be approved by LMSC in November
* drafts to be approved by SASB

* September 24-26, 2024 – NesCom/RevCom/SASB: IEEE Std 802.11-2024, IEEE Std 802.11bh-2024, IEEE Std 802.11be-2024
* October 29-30, 2024 – NesCom/RevCom: P802.11REVmf (Maintenance) PAR
* December 9-11, 2024 – NesCom/RevCom/SASB (October 21, 2024, submission deadline): P802.11bq (Integrated mmWave) PARby Nescom, letter ballots etc.

1. Logistics, key events/activities (Chair Opening Report [11-24-1664r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1664-02-0000-2024-november-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 MON PM2 and TUES AM2 this week.(Slide 9).
  + Please note that 802.19 meets on MON and THUR from 6:30-8:30 p.m. (Slide 10).

At the November 2024 Vancouver meeting, 13 meeting slots are needed to get 75% which is required to maintain voting rights.

Discussion:

Q: There is no reciprocal credit for 802.15, although there is a lot of discussion about coexistence between the groups.

A: 802.15 has a lot of meetings.

A: For the joint meeting there is an entry in imat, so you will get reciprocal credit in this way.

Q: There would be a desire to get it for all sessions of 802.15.

A: To be discussed offline. Chair does not want too much crossover between the two groups.

## Session information (Vancouver Things to Know: [ec-24/0270r0](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0270-00-00EC-vancouver-802-1124-thingstoknow-hrv-1029-3.pptx))

Meeting Planner, Network Access and Support Information, Local document server to asfe bandwidth. There is only 1 SSID this week: “IEEE802” using 2.4, 5 and 6 GHz radio bands. Note the onsite document server notice (Slides 2-3).

This meeting is organized by Face to Face Events. 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 Room Constable, 4th Floor in case of problems. Please wear your badge for security reasons. Schedule of Meetings and Attendance Tool (Slide 7).

## Meeting room locations ([slides 8](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0123-00-00EC-montreal-2024-july-802-plenary-things-to-know.pptx)-11)

Floor plan is in the slide deck. Please check most recent online room assignment.

## Meeting registration (slide 5)

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

## Recording attendance (slides 7)

Please remember to record your attendance in IMAT for each meeting slot you attend (Slide 7). 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 11 -13)

Breakfast and coffee breaks are listed on slide 11. It is only provided for participants, not for family and friends. Wear your badge! Lunch will be on 34th floor. There is a dedicated elevator. When you are finished, do not linger. We have over 450 people in person in the hotel, but fewer seats. Please, do conversations on the floors.

There is a Social on Wednesday evening (Slide 12) in the Telus Science World Vancouver, 1455 Quebec Street, Vancouver, BC. Charter busses will depart from and return to the Melville Street entrance (lower level) of the Hyatt Regency Vancouver starting at 6:10 PM. All Busses will be marked with an IEEE 802 sign and event staff will be at the hotel and Science World to direct 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 November 13. Quick start guide what to do in Vancouver.

At this meeting, as of Nov. 11, there are 1025 attendees for the whole IEEE 802 Plenary session. For 802.11, there are 292 in person, 295 virtual and 28 students, i.e., altogether 615 attendees this week, which means 802.11 is by far the largest group.

No questions.

1. Opening reports, activities and plans (Chair Opening Report: [11-24-1664r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1664-02-0000-2024-november-working-group-chair-opening-report.pptx))

## Working group reports

### 802.11 groups (slide 12)

Chair introduces the IEEE 802.11 subgroups highlighting all active subgroups.

### PARs (slide 13)

Chair explains the status of subgroup PARs. 802.11mf is awaiting approval.

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

Reflects the changes since September. Chair went through them. Chair appointed Michael Montemurro as new TGmf Chair. Vice Chairs for the AUTO TIG are Azin Neishaboori and Jing Ma, ELC has new secretary Mohamed Islim.

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

Chair mentioned 802.11 history. The new published baseline standard IEEE Std 802.11-2024. The full history is shown on slide 16. Next slide shows where in the standards production process the different projects are. Chair points out the status of each project. The status is also contained in Annex D of these minutes.

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

Chair went through them. First recirc of TGbf is completed. Initial SA ballot for TGbk closed. Check the results in the slide.

### Membership summary (slides 19-23)

Prior to this session, the status of 802.11 voting members is 576 Voters, 79 Potential Voters, 95 Aspirants, and 9 Ex Officio Voters (slide 19). Membership does up and downs, as a result of responding to Letter Ballots. Members per affiliation and attendance per subgroup are presented (slide 21-22).

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

Was updated this morning as a result of the ballot for TGbk. New TGmf has been added. If there are changes, subgroup chairs, please, contact the 2nd Vice Chair.

(Following reports are contained in Snapshot Slides: [11-24/1657r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1657-01-0000-november-2024-snapshot-slides.pptx))

### WG Technical Editor (slide 3)

Editors’ meeting on TUES 7:00-8:00 a.m. Agenda in [11-24/1709r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1709-00-0000-november-2024-editors-meeting.pptx).

No drafts in WG Letter ballot. The Amendment alignment will be reviewed. Form publication review committees. No questions.

### WG ANA report (slide 4)

ANA number spaces, latest database is [11-11/0270r7](https://mentor.ieee.org/802.11/dcn/11/11-11-0270-75-0000-ana-database.xls)5. Changes since September 2024 for TGbf and TGbi were noted (Slide 4). No pending changes. No questions.

## Standing committee reports

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

No meeting in September. 1 meeting slot in Vancouver WED AM1. Agenda [11-24/1648r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1648-00-aiml-aiml-sc-nov-2024-vancouver-agenda.pptx).

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

September minutes [11-24/1387r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1387-00-0arc-arc-sc-mixed-mode-minutes-september-2024-interim.docx). 2 meeting slots TUES AM2, PM2. Agenda [11-24/1728r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1728-01-0arc-arc-sc-agenda-november-2024.pptx).

Looking at P802REVc revision project updates. Annex G Way forward. Liaisons from WBA on QoS, and L4S. Try to understand at this meeting how to coordinate all the work on L4S. Other items being tracked (slide 7).

### COEX Coexistence SC (slide 8)

September minutes [11-24/1462r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1462-00-coex-september-2024-minutes.docx). 2 meeting slots TUES PM1, WED PM2. Agenda in [11-24/1757](https://mentor.ieee.org/802.11/dcn/24/11-24-1757-00-coex-coex-sc-agenda-november-2024.xlsx)r0.

ETSI BRAN Update, BT SIG Update, Update 802.15.4ab comment resolution regarding coexistence related comments. 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.. There are several contributions from 802.15.4ab.

2nd Vice Chair makes aware of room changes on Tuesday EVE.

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

No meeting in September. 3 meeting slots: MON PM1, TUES AM1, THUR AM2. Agenda [11-24/1896r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1896-00-0PAR-par-review-sc-mtg-agenda-and-comment-slides-2024-november-vancouver.pptx).

Several PAR proposals to be reviewed (see slide 9): P802.1CB, P802.1CBec, P802.11bq, P802.16. Review the comments by TUES 6:30 p.m.. Feedback is reviewed on THUR AM2.

### WNG Wireless Next Generations SC

No meeting in September. 1 meeting slot: TUES AM1. Agenda [11-24/1673r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1673-00-0wng-agenda-for-wng-sc-2024-november.pptx).

Three presentations this week:

“Quality of Outcome”, Bjørn Ivar Teigen (Domos) [From IETF - related to L4S]

“Segregated Data Services”, Donald Eastlake (Independent)

“Proposal on intelligent radio path control technique to improve SNR and resolve the radio shadow zone in millimeter wave band system”, Ryutaro Ohmoto (Dengyo)

### JTC SC1 (slides 11-13)

No meeting in September. One meeting slot TUES PM2. Agenda in [ec-24/0269r1](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0269-01-00EC-opening-report-to-ec-from-ieee-802-jtc1-sc-in-nov-2024.pptx).

Review of status of PSDO process. Review liaisons & notifications of projects to SC 6. Review status of ballots.

Plus a special contribution how to move IEEE 802.11 standards forward by Andrew Myles, the former leader of the group.

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

### TGmf 802.11 Maintenance Project (Slide 14)

New task group. 2 meeting slots MON PM2 (ad-hoc). WED PM2. Agenda in [11-24/1662r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1662-01-000m-revmf-agenda-november-2024-session.pptx).

Status: IEEE 802.11-2024 is in the process of publication. The REVmf PAR is recommended to be approved by NESCOM.

Objectives: Establish TG leadership. Discuss initial timeline. Entertain contributions on modifications to the REVme D7.0 draft – for consideration in the initial REVmf draft.

### TGbf WLAN Sensing (slide 15-16)

September minutes [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). 1 Telcos between September and November. 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). 5 meeting slots: MON AM2, TUES AM2, WED AM1 and AM2, THUR AM2. Agenda in [11-24/1670r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1670-01-00bf-tgbf-meeting-agenda-2024-11-plenary.pptx).

The first SA recirculation ballot for P802.11bf is closed, and passed. Open date 03 Oct 2024, close date 23 Oct 2024. Approval rate: 96%. Received 36 comments. Comment resolution for the first SA Ballot Recirculation (D5.0). 13.89 % of all comments are now resolved or marked as “ready for motion” (5 /36).

Goals for November 2024 session: Complete the comment resolution for the first SA Ballot Recirculation (D5.0). Release IEEE802.11bf D6.0, and start the second SA Ballot Recirculation (D6.0).

### TGbi Enhanced Service with Data Privacy Protection (slide 17)

Minutes for September [11-24/1612r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1612-00-00bi-tgbi-teleconference-interim-sept-2024.docx). Telco minutes from Juli to October: [11-24/1683r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1521-01-00bi-tgbi-teleconference-minutes-august-28th-2024.docx), [11-24/1707r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1707-00-00bi-tgbi-teleconference-minutes-october-23th-2024.docx). Minutes from Ad-hoc meeting 28-30 October: [11-24/1723r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1723-00-00bi-tgbi-teleconference-ad-hoc-october-2024.docx). 5 meeting slots: MON AM1, TUES AM2 & PM2, WED AM1, THUR AM1. Agenda in [11-24/1677r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1677-02-00bi-november-plenary-agenda.pptx).

Received 527 comments from comment collection. Status is detailed on slide 17.

Plan for November: We are working to consensus on the outstanding items during this plenary session. Our goal is to generate a D1.0 in January.

### TGbk 320 MHz Positioning

September minutes [11-24/1686r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1686-00-00bk-meeting-minutes-september-2024.docx). Minutes for Telcons between August-September [11-24/1605r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1605-00-00bk-minutes-for-telecons-august-sep-2024.docx). 2 meeting slots: TUES PM1, WED PM2. Agenda in [11-24/1638r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1638-00-00bk-tgbk-nov-meeting-agenda.pptx).

Initial SA ballot completed successfully by Nov. 10: 93% approval, 7% disapprove, 4% abstain, 75% return rate. 78 comments received.

### TGbn Ultra-High Reliability (UHR, slide 20-21)

Minutes for September: [11-24/1684r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1684-00-00bn-tgbn-september-2024-meeting-minutes.docx) Held 10 teleconferences between September and November covering ~50 technical submissions. Telco agenda [11-24/1643r20](https://mentor.ieee.org/802.11/dcn/24/11-24-1643-20-00bn-sept-nov-tgbn-teleconference-agenda.docx). Minutes for PHY and MAC ad-hoc telcos in [11-24/1656r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1656-02-00bn-minutes-for-tgbn-phy-ad-hoc-teleconference-in-september-to-october-2024.docxhttps:/mentor.ieee.org/802.11/dcn/24/11-24-1392-04-00bn-tgbn-july-august-2024-teleconference-minutes.docx) and [11-24/1652r3](https://mentor.ieee.org/802.11/dcn/24/11-24-1652-03-00bn-minutes-for-tgbn-mac-ad-hoc-teleconferences-from-september-to-november-2024.docx), respectively. 19 meeting slots: MON AM1 (PHY/MAC), MON PM1 (ALL), TUES AM2 & PM1 & EVE (PHY/MAC), WED AM2 & PM2 (PHY/MAC), THUR AM1 & AM2 (PHY/MAC), THUR PM1 & PM2 (ALL). November agenda in [11-24/1667r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1667-02-00bn-tgbn-nov-2024-meeting-agenda.pptx).

Presentation of technical submissions and run SPs: ~180 pending submissions and ~90 pending SPs on presented submissions (by EOB of Nov.10, 2024). Continue populating the TGbn SFD with approved concepts.

Note another TGbn MAC and PHY meeting slot on TUES EVE due to the lot of submissions.

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

September minutes in [11-14/1609r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1609-00-00bp-2024-09-interim-meeting-minutes.docx). 1 telco since September. Telco minutes in [11-24/1787r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1787-00-00bp-teleconference-minutes-october-november-2024.docx). 8 meeting slots in November: MON PM1 & PM2, TUES AM1 & PM2, WED AM1 & AM2, THUR AM1 & PM2, Agenda in [11-24/1671r](https://mentor.ieee.org/802.11/dcn/24/11-24-1671-01-00bp-tg-bp-meeting-agenda-for-nov-plenary-2024.pptx)1.

Goal for TGbp meetings in this week: 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 in September. 2 meeting slots TUES EVE, WED AM1. Agenda in [11-24/1905r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1905-00-immw-immw-sg-november-2024-meeting-agenda.pptx).

Plan for November: Address comments from PAR review.

### ELC SG Enhanced Light Communications (slide 24)

September minutes 11-23/1634r1. 2 meeting slots: TUES AM1, THUR AM2, Agenda in [11-24/1675](https://mentor.ieee.org/802.11/dcn/24/11-24-1598-00-0elc-september-2024-elc-agenda.pptx)r0.

Goals for November: Review draft PAR and CSD. Consider any other contribution.

### AUTO TIG Automotive

Minutes for September [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). 1 meeting slot: MON PM2. Agenda in [11-24/1674](https://mentor.ieee.org/802.11/dcn/24/11-24-1674-00-auto-agenda-for-automotive-tig-2024-november.pptx)r0.

Submissions:

“Passpoint & OpenRoaming for Automotive Connectivity”, Necati Canpolat (Intel)

“Consideration on existing systems and standards for ITS using IEEE802.11 technologies”, John Kenney (Toyota Motor North America), Friedbert Berens (FBConsulting)

Call for submissions for January 2025.

1. Selected Liaison Report

None.

1. New Business

## Announcement of individual experts:

Emily Qi, Self, Editors (Tue AM0),

Bjørn Ivar Teigen, Domos, WNG (Tue AM1)

## Announcement: Sharing Straw Poll Results.

Chair: There has been a bit of discussion in the CAC about the request to give members more detail about straw poll (SP) results. Some rules which come with are listed in [11-24/1664r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1664-02-0000-2024-november-working-group-chair-opening-report.pptx), Slides 24-25.

At the discretion of the chair, a member running a SP may request that a record be made of the individual responses (not just the aggregate result). The objective is to allow the member to get more detail on where other members stand on the question. If a record of the responses is requested and the chair grants the request, the responses are recorded in the minutes. This is so that the result is available to all members. The members responding to the SP must be made aware that the responses are being recorded before the poll is run. This is so that the members are aware of the information being gathered and can respond appropriately.

The chair decides whether the responses to a SP can be recorded. There may be time constraints on the agenda. There may be additional constraints on the tools (e.g., the chair is not able to gather the results because of limits on the WebEx account in use). The chair should be made aware of the intent to run a SP with recorded responses ahead of the meeting so that the appropriate account and tools are in place. Members are reminded that SPs are for gathering information, SP are NOT for making decisions. Motions are used to make decisions, the information gathered is for the member running the SP, the member running the Straw Poll decides the question asked.

Discussion:

Q: “At the discretion of the Chair”: There is no intention to change the meaning of the SP?

A: No intention.

Q: Running the SP. No other member in the room to know the results?

A: Run a straw poll. Take the results. All is for the member making the SP.

Q: Is there still a specific member to run the SP?

A: It is sometimes unclear why the SP is made. In TGbn based on the result the members can ask the chair to run a Motion. But a SP is for the individual member.

Q: How should we have to run the SP?

A: You must ask before running the SP for recorded responses. You must make the members aware that results are recorded. The member asking must make the Chair aware that it shall be recorded. There are some limitations with Slido licenses, so the Chair may not be able to host the recording.

C: I am against this. Pushes SPs too much. May help TGbn.

Q: I generally agree. What conditions when the chair rejects this?

A: There may be constraints due to agenda time or to limit the amount of discussion. Other issue is tool constraints. Chair should be fair among recordings among the members and between the meetings.

C: It is not purely discretionary.

A: The Chair will follow the procedures.

C: Assume you are in a meeting and the Chair is asking if you want to run the SP. If you want to have the record capability, this needs some preparation by the Chair. Even if he made all preps, it is possible that the details are not available due to technical reasons. This depends on the Slido licenses available to the Chair. We are trying to understand why this is happening, please share any information you have on this. Chairs needs to come to the training meeting where these experiences will be accumulated. Chairs will try to do their best. This concerns also other Webex issues, like slow updates when sharing. It is not perfect work environment.

Q: I am in favor of this change. It is needed since decades. Why this is not the default mode to do it in this way? Prepare the right tool for that.

A: Implementation needs a paid Slido account. We have credentials for a second account in the WG. They have been given to the TGbn Chair. All Chairs would need to use that second account, which is impractical so far.

Q: Where do we stand on Motions on the same issue?

A: Tools are getting better. Slido is one option, in smaller groups it could be the chat window.

C: Need to understand the limitations on the tools. But also need to understand that SPs are no Pre-Motions. Anyone can make a SP at any point in time. Moreover, a SP is not a debatable item. There may only be clarification questions, but no debate about the wording. Try to get a poll what the other members think.

A: Take that feedback. It is good point to remind members about SPs.

C: Motions are allowed. Right to make Motions has not been ruled.

A: There are Motions at certain Telecons. Most are ad-hoc meetings and have no Motions. Members should be aware what is on the Agenda. We allowed Motions during the pandemic. The concern is that people come to the meetings.

C: Chair can restrict time to make Motions. Should discuss how to enable making Motions.

A: Information about Motion context should be given.

Q: Are there any formalities to inform the Chair to run a recorded SP?

A: No, just inform the Chair so that he can make preparations.

C: Same restrictions apply to Motions. We need to learn, exchange insights and develop instructions to do this in a uniform manner. The companies decide which tools they make available.

Chair summarizes: SPs are for gathering information. The information is for the member asking for the SP.

Recess at 12:20.

Chair: We are now in recess.

The meeting recessed at 10:07 ET.

# IEEE 802.11 Mid-week Plenary, Wednesday, November 13th, 2024

1. Opening

## Call to order

Meeting was called to order at 13:39 Pacific Time (PT) by the Chair, Robert Stacey (Intel).

## WG 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 130 people attending in person (in the room) and 360 (online), 536 recorded in the attendance tool (IMAT).

## Review and approve agenda, incl. agenda graphic (Meeting agenda [11-24/1663r](https://mentor.ieee.org/802.11/dcn/24/11-24-1663-04-0000-2024-november-wg11-agenda.xlsx)4)

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

Release/Delete: WED PM2 – COEX, THUR AM2 – TGbf. Change THUR PM1 - TGbn (MAC) to TGbn and Delete THURS PM1 - TGbn (PHY). Effectively this will combine the TGbn (MAC) and TGbn (PHY) to one room/slot.

THURS AM1 needs to make recorded straw polls. This needs to be aligned with TGbn.

Chair went through the agenda.

**Approve the agenda for today’s meeting as shown in** [**11-24-1663r4**](https://mentor.ieee.org/802.11/dcn/24/11-24-1663-04-0000-2024-november-wg11-agenda.xlsx)

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

1. **Announcements** (WG Chair Supplementary [11-24-1665r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1665-00-0000-2024-november-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 introduced rules for proper decorum during the meeting. No questions.

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

Emily Qi, Self, Editors meeting (Tue AM0)

Bjørn Ivar Teigen, Domos, WNG (Tue AM1)

## Announcements

IEEE SSAB has approved the REVmf PAR (slide 12).

The 1st Vice Chair reminded about the Social Event (Telus Science World Vancouver, 1455 Quebec Street, Vancouver, BC, slide 12 in [ec-24/0270r0](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

Not presented this time.

## 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. REVmf will be added. Please check if there are any errors on the Website.

1. Liaison reports

## External liaisons

### Wi-Fi Alliance ([11-24/1937r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1937-00-0000-wi-fi-alliance-wfa-liaison-november-2024-update.pptx))

WFA celebrated its 25th anniversary. Celebration at meeting October 15-17, 2024 in Malaga, Spain. Here is the [Meeting report](https://www.wi-fi.org/file-member/october-2024-malaga-member-meeting).Next F2F (Asia) member meeting will take place on Feb 18th-20th, 2024, in Tokyo, Japan.

Activities that has led to certification: Wi-Fi 7, QoS Mgmt., Easy-Mesh, WPA3.

Activities that are expected to lead to certification: Wi-Fi 7 R2, 6 GHz standard power, Wi-Fi Direct, Wi-Fi proximity ranging, XR, QoS management (slide 4).

Additional technical work: Security, Automated Frequency Coordination, Customer Experience, EasyConnect, Wi-Fi HaLow, Wi-Fi Data Elements, Wi-Fi Aware.

Additional WFA activity that may lead to technical work: Sensing, Automotive, Healthcare, IoT, Operators (slide 5).

Spectrum regulatory.

Recent publications (slide 6) and further information (slide 7).

### IETF Internet Engineering Task Force ([11-24/1658r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-00-0000-november-2024-session-report.pptx), slides 57-74)

Upcoming meetings March 15-21, 2025 Bangkok, TH, July 19-25, 2025 Madrid.

IETF meeting fee waivers seem unlimited.

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, Local Address in virtualization and IoT, MAC address randomization, DETNET/TSN/RAW, YANG models, pervasive monitoring. IETF-IEEE 802 coordination teleconferences: October 23, 2024

There were no RFCs issued in the last two months that mention IEEE 802.11. RFC-to-be-9672 (RFC 8110 to IEEE) is in the RFC Editor’s queue awaiting the assignment by IEEE of IEEE 802.11-2024’s DOI.

Birds-of-a-feather (BOF) groups at IETF 121, 2-8 Nov. 2024 (slide 62). IETF groups being (re-) chartered that may have an impact on IEEE 802.11(slide 63). Yet Another Next Generation (YANG) model catalog with references (slide 64). IoT-related work: 6LO and Updates (slide 9). Other IoT groups: ROLL, CORE, IoT Directorate (slide 66).

Updates on working groups: MADINAS (MAC Address Device Identification for Network and Application Services WG, slide 67): New [Use cases and requirements document](https://datatracker.ietf.org/doc/draft-ietf-madinas-use-cases/). EAP (Extensible Authentication Protocol) Method Update (EMU, slide 12): Several updates. Operations Area Working Group (OPSA, slide 13): Several Updates. Transport Layer Security (TLS) (slide 15): Several Updates. Deterministic Networking (DETNET, (slide 16): [New architecture for reliable and available wireless](https://datatracker.ietf.org/doc/draft-ietf-raw-architecture/). Automated Networking Integrated Model and Approach (ANIMA, slide 17): Several Updates.

### Wireless Broadband Alliance ([11-24/1855r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1855-00-0000-wba-liaison-report-november-2024.pptx))

### Drives enabling seamless & interoperable Wi-Fi services, addresses business and technical issues. Three events per year, last on Oct. 7-10 in Paris collocated with Network X. <https://www.wirelessglobalcongress.com/2024-Post-Event-Report> .WBA Annual Industry Report will be available in Dec. 2024. There is a Technical Activities Roadmap for 2024 (slide 5) which gives an overview on different areas.

Wi-Fi 7 Field Trials covering different deployments and geographies. Results will be public in Dec. 2024 (slide 6). WBA OpenRoaming Introduction. Simplifies connectivity (slide 7). WBA Access Network Metrics for QoE. WG is focusing on industry alignment. Zero Touch Onboarding of IoT devices. Ensures device security, see also <https://wballiance.com/openroaming-for-iot-fido-device-onboard-framework/> (slide 9). Wi-Fi experience for Moving Networks (trains, ships, airplanes, buses) <https://wballiance.com/wi-fi-experience-for-moving-network/> (slide 10). Further information (slide 11).

## Internal (802) liaisons

### IEEE 802.18 Regulatory WG ([11-24/1669r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1669-01-0000-802-18-liaison-report-november-2024.pptx))

Reviewed the latest ongoing consultations. Approved the following IEEE 802 LMSC submissions (slide 3): Approved the following IEEE 802 LMSC submissions: Qatar CRA: [Public Consultation - Position Paper on IoT and M2M in the State of Qatar](https://mentor.ieee.org/802.18/dcn/24/18-24-0091-05-0000-proposed-response-to-qatar-cra-s-consultation-on-iot-and-m2m-position-paper.pdf). Mexico IFT: [Public consultation re the 64 GHz - 71 GHz frequency band](https://mentor.ieee.org/802.18/dcn/24/18-24-0092-08-0000-proposed-response-to-ift-public-consultation-re-the-64-ghz-71-ghz-frequency-band.pdf). Saudi Arabia CST: [Spectrum Outlook for Commercial and Innovative Use 2024-2027](https://mentor.ieee.org/802.18/dcn/24/18-24-0095-07-0000-proposed-response-to-saudi-arabia-cst-s-consultation-on-spectrum-outlook-2024-2027.pdf). Belgium BIPT: [Consultation on radio interfaces related to devices using the ultra wideband technology (UWB)](https://mentor.ieee.org/802.18/dcn/24/18-24-0102-03-0000-proposed-response-to-belgium-bipt-s-consultation-on-uwb-regulation.pdf). Japan MIC: [Call for opinions on the Frequency Reorganization Action Plan (FY2024 edition)](https://mentor.ieee.org/802.18/dcn/24/18-24-0100-06-0000-proposed-repsonse-to-japan-mic-s-consultation-on-frequency-reorganization-plan-2024.pdf). Czech CTU: [Call for comments on the draft Radio Spectrum Management Strategy](https://mentor.ieee.org/802.18/dcn/24/18-24-0109-05-0000-draft-response-to-czech-ctu-s-consultation-on-draft-radio-spectrum-management-strategy.docx). Discussed the latest topics related to spectrum and regulation in Europe, North America, and Asia Pacific.

Achievements this week: Reviewed and approved approval proposed response to the following consultations (slide 4): Japan MIC: [Call for opinions on the proposed ministerial ordinance to amend part of the Radio Law Enforcement Regulations: Addition of systems and bands to the special exemption system for non-technical equipment](https://mentor.ieee.org/802.18/dcn/24/18-24-0118-03-0000-draft-response-to-japan-mic-s-consultation-re-special-exemption-system.pdf) Saudi Arabia CST: [Light Licensing Regulations Annex for the 6 GHz Frequency Band](https://mentor.ieee.org/802.18/dcn/24/18-24-0112-03-0000-proposed-response-to-saudi-arabia-s-cst-consultation-re-6-ghz-afc.pdf) . Reviewed and approved the following consultations: Australia ACMA: [Proposed update to Australian radiofrequency spectrum plan](https://www.acma.gov.au/consultations/2024-11/updating-spectrum-plan). Vietnam MIC: [Consultation re lower 6 GHz band for Wi-Fi](https://mic.gov.vn/van-ban-phap-luat/du-thao/2210.htm). Discussed the latest topics related to spectrum and regulation in Europe, North America, and Asia Pacific. ETSI BRAN: [November 2024 update](https://mentor.ieee.org/802.18/dcn/24/18-24-0116-01-0000-etsi-bran-november-2024-update.pptx). Liaisons from ITU-R Working Party 5D.

802.18 has a weekly telco: 3:00 pm ET to 3:55 pm ET. Every Thursday, November 21, 2025 and Thursdays, 5 December 2025 through 20 March 2025.

### IEEE 802.19 Coexistence WG ([11-24/1945r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1945-01-0000-802-19-wg-november-2024-liaison-report.pptx))

Group reviews coexistence assessment documents (CADs) produced by working groups developing new wireless standards for unlicensed devices. Meeting times: Monday PM3 and Thursday PM3 (6:30 PM). Meeting slots are MON PM3 and THUR PM3. No ballots before November. 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)). Studies coexistence between IEEE 802.11ah and IEEE 802.15.4g SUN OFDM PHY ([19-24/0032r0](https://mentor.ieee.org/802.19/dcn/24/19-24-0032-00-003a-ieee-802-11ah-and-ieee-802-15-4g-sun-ofdm-phy-coexistence-simulation.pptx)).

### 802 REVc ([11-24/1922r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1922-00-0000-802revc-status-november-2024-update.pptx))

802RECc Draft Status Overview: WG ballot phase has completed. SA ballot phase has completed. Non-conditional LMSC approval to submit to RevCom will be requested this week, for RevCom review/SASB approval at their December 2024 meeting. Details: 802 - 802REVc has resolved all comments received on Draft 2.2. Comment resolution report can be found: [1-24/0054r1](https://mentor.ieee.org/802.1/dcn/24/1-24-0054-01-Mntg-p802-revc-sa-second-recirculation-ballot-report.pdf). One comment was received and was resolved.

Next steps: For the balloting process there are no next steps for 802.11 or 802.11 ARC SC. It is anticipated that the LMSC will agree to unconditionally forward P802 REVc D2.2 to RevCom on Friday 15 November (this week). It is also anticipated that RevCom will recommend approval of the draft and that the SASB will approve the draft for publication at the upcoming December SASB meeting.

For 802.11, the next steps will be aligning 802.11 with the updated IEEE Std 802. It is anticipated that this activity will be assigned to the 802.11 ARC SC and implemented in 802.11 TGmf.

1. New Business

## P802bq PAR and CSD

All comments from other WGs and NesCom have been addressed. Reply has already been posted. We need to approve this now and bring it to the LMSC on Friday. There are few more comments from NesCom. Chair introduces the additional changes in [11-24/0116r7](https://mentor.ieee.org/802.11/dcn/24/11-24-0116-07-immw-immw-draft-proposed-par.docx): Use “for Wireless LAN”. Use trademark 802.11TM. No repeat in section 5.2.b.

Discussion:

C: suggest to delete “for”.

A: Done.

**Believing that the PAR contained in the document referenced below meets IEEE-SA guidelines,**

**request that the PAR contained in**[**https://mentor.ieee.org/802.11/dcn/24/11-24-0116-07-immw-immw-draft-proposed-par.docx**](https://mentor.ieee.org/802.11/dcn/24/11-24-0116-07-immw-immw-draft-proposed-par.docx)**be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.**

Moved: Laurent Cariou Seconded: Abbi Patil

Results: 113Y/5N/14A

[IMMW SG result: Moved: Abhishek Patil, 2nd: Rubayet Shafin, Result: 44Y/0N/6A]

**Motion passes.**

No changes to the CSD.

**Believing that the CSD contained in the document referenced below meets IEEE-SA guidelines,**

**request that the CSD contained in**[**https://mentor.ieee.org/802.11/dcn/24/11-24-0549-06-immw-immw-draft-proposed-csd.docx**](https://mentor.ieee.org/802.11/dcn/24/11-24-0549-06-immw-immw-draft-proposed-csd.docx)**be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval.**

Moved: Laurent Cariou Seconded: Abbi Patil

Results: 147Y/3N/18A

[IMMW SG result: Moved: Abhishek Patil, 2nd: Sang Kim, Result: 47Y/0N/5A]

**Motion passes.**

## WAA Brief Introduction ([11-24/1941r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1941-01-0000-introduction-to-the-waa.pptx))

World WLAN Application Alliance (WAA) is a non-profit NGO registered in China and formed by Global WLAN stakeholders. Vision and Mission are “To promote the healthy and sustainable development of the world WLAN industry, and build up the best WLAN application experience.” Willing to represent and transfer the Voice of the WLAN industry. Goal is to achieve better WLAN experience (slide 4). WLAN and other short-range wireless industry: Wi-Fi, Bluetooth, ZigBee, NFC, UWB, LiFi. 84 Members from operators, vendors, regulation and policy, testing facilities, research institute, universities and colleges, end-users from different scenarios in America (4), EMEA (16) and APAC (64) (slide 5+6). Governance structure and global partners (slides 7+8). Scope is on Standardization, Test&Certification, Forums &Events, Industry Research, Demonstration and Pilot Project (slide 9).

Standardization: Technical Committee on Standardization (TCS) meets twice a year. Purpose is to influence and accelerate the development of regional and global WLAN standards on application experience and system requirements, to make recommendations and cooperate with other worldwide standards organizations (ISO, IEC, ITU, IEEE, etc.), and other national/regional standardization departments to promote their adoption. WAA TCS Principles: Meaningful – should be required by the industry development, to enhance the WLAN application experience. Not redundant – should leverage work and standards of other global SDOs. Doable – should have basement with mature technologies and massive practices. Working procedure: Proposal-Draft-WG Review-External Review-Approval. Voting rules on slide 11: 2/3 majority is required. WAA TCS scope and relationship with IEEE 802.11. WAA does Networking Scenario Definition, Network Performance for different scenario, Equipment & System Requirements (Bandwidth, Security, Latency, Roaming, Coverage, Connection). IEEE 802.11 defines standard protocol (MAC/PYH) of WLAN, Future technical discussion (Interest Topic), see slide 12. WAA Standards Publications and on-going projects (slide 13).

Test and Certification: Based on the WLAN for home wireless broadband, enterprise campus, whole house intelligence, smart healthcare, industrial intelligent manufacturing, smart cars and other scenarios of wireless access latency, reliability, anti-interference, roaming switching and other application-aware performance. Current on-going Certification: WLAN single-device network performance and experience verification in home scenarios. WLAN performance certification in campus office scenarios. Certification Testing Elements (for process, see slide 16, left): Field-based, scenario-based, product-based certification.

Forums & Events (slide 18): WLAN Application Ecology and Standards Forum, by WAA & IEEE SA. WAA x Informa Tech 2024 Barcelona Roundtable. WAA Summer Forum 2024.

Industry research status: White Paper on Building High-Quality WLANs in Typical Enterprise Scenarios. White Paper on Sustainability in the Wi-Fi Industry. White paper on Green energy-saving WLAN. White Paper on the Development and Application of Integrated WLAN Sensing and Communication in Smart Campus. White Paper on advanced WLAN Application Experience.

Demonstration and Pilot Project: Large scale demonstrations in Shenzen, Xiamen, Macao. Pilots in Shop/restaurant, Home network in apartment building. Implementing Plan and User Experience Platform (Slide 22).

WAA is willing to establish the liaison relationship with IEEE 802.11 WG.

Discussion:

Q: Are these papers published in English?

A: Yes, all papers are published in English.

Q: Thanks for this presentation. Do you have any topics that you would like to exchange?

A: First step is to establish exchange with IEEE 802.11. In the future, we want to ask for comments from the experts in 802.11.

Q: What kind of information can you exchange about Wi-Fi deployments in China?

A: People collect requirements from end users and bring that to standardization works.

C: Open to the proposal. Expect that WAA can bring us into regulation discussions.

Q: What can WAA ask to IEEE 802.11 and how to respond to this?

A: Let us see what happens. No Motion at this time. Just gathering further information.

## Establishing a liaison relationship with WAA

**Chair’s Straw Poll: How frequently do you like to see liaison reports from WAA?**

Every session: 15 Every Two sessions: 49 If new material: 122 Never: 29

## Technical proposal for TGbi ([11-24/1868r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1868-02-0000-tech-proposal-mwp.pptx))

This presentation explains the reason for a personal motion in this midweek plenary.

Background on password identifiers (Slide 3): Back in 2001, PSK authentication was designed under an assumption: One secret for the whole network. Password identifiers were added to SAE nearly a decade ago to support multiple passwords on a single SSID. Password identifiers are passed clear over the air during the SAE exchange. In Wi-Fi 7, SAE is mandatory. Problem can delay the deployment of the technology.

Problem (Slide 4): “Password Identifiers” have a privacy issue since they are passed clear over the air. TGbi has an approved document describing requirements for the project: [11-21/1848r16](https://mentor.ieee.org/802.11/dcn/21/11-21-1848-16-00bi-requirements-document.docx): To satisfy the requirement, the group needs to come up with a solution to protect SAE password identifiers over the air.

Proposed solution (known since a year, Slide 5): There is a proposal to address this problem and protect SAE password identifiers: [11-24/0046r3](https://mentor.ieee.org/802.11/dcn/24/11-24-0046-03-00bi-privacy-protection-for-sae-credentials.docx). Unfortunately, a static group of members has consistently voted no on any attempt to address this requirement. Members of this group have refused repeated questions to explain their opposition or to suggest changes that could change their no votes to yes. The members of this group were asked to provide an alternative mechanism that would address the requirements, but no alternative proposal was presented. The TG needs to address this issue and it has not been able to because of this voting group. Given the importance of preserving privacy and that ultimately the approval of P802.11bi rests with the WG, we believe the WG should consider this specific issue. This would allow TGbi to progress and meet its objectives.

Discussion:

C: Have gone through this few times. The updated proposal requires the STA to encrypt the password identifier. But if the AP rejects the encrypted password identifier, the STA is required to fall back to unencrypted, which could violate the STA's privacy policy. Because of this, I will vote NO.

A: This is incorrect. There is nothing that would require the STA to violate its privacy policy. The STA is not required to expose its identifier. Is required to have a public key only. It is perfectly acceptable for the use cases.

A (online): I second that the comment is incorrect.

Q: Can I have an info about task group votes.

A: Straw poll before Motion is used. Don’t have the numbers here but about 50/50. However, NO voters do not speak at all about their reason.

C: I am sorry this happens. It is always difficult to understand. No security expert. Looked into minutes of the presentation. No clear communication what was wrong. Wondering if the best resolution is to go to the WG or TGmf. Where should we address this?

A: We don’t have time for a technical debate. There is more background on this. We started in TGme, but similar voting behavior. Goto TGmf will not solve the problem. We need to go forward.

C (Chair): Need to close the queue now because of time.

### Personal Motion related to TGbi draft

**Instruct the TGbi editor to incorporate the changes indicated in** [**11-24/0046r3**](https://mentor.ieee.org/802.11/dcn/24/11-24-0046-03-00bi-privacy-protection-for-sae-credentials.docx) **into the TGbi draft.**

Moved: Jouni Malinen, Seconded: Dan Hakins

Recorded vote is requested. Records are displayed below.

Result: **57Y** / **62N** / **67A**

**Motion fails.**

Counted vote results:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Abdel Karim Ajami | No | Hui Luo | No | Qing Xia | Abstain |
| Abhijit Bhattacharya | Yes | Ian Sherlock | Yes | Rainer Strobel | Abstain |
| Abhishek Chaturvedi | No | I. A. Kadampot | Yes | Ratnesh Kumbhkar | Abstain |
| Abhishek Patil | Yes | Jack Lee | No | Robert Sosack | Abstain |
| Aditi Singh | Abstain | Jaheon Gu | No | Rolf de Vegt | Yes |
| Ahmadreza Hedayat | No | James Gilb | Yes | Romain GUIGNARD | Abstain |
| Ahmed ElSherif | Yes | James Yee | Abstain | Roy Want | No |
| Ahmed Helmy | No | Jarkko Kneckt | No | RUI YANG | Abstain |
| Ahmed Mohamed | Abstain | Javier C. Albesa | No | Ryota Yamada | Yes |
| Alfred Asterjadhi | Yes | Jerome Henry | Abstain | S. G. Karthik | No |
| Anton Karamyshev | Abstain | Jialing Li | Yes | Salvatore Talarico | Yes |
| A. DeLaOlivaDelgado | No | Jing Guo | No | Sanket Kalamkar | Yes |
| Anuj Batra | No | JinHo Choi | No | Sebastian Max | Yes |
| Arik Klein | Yes | Jinjing Jiang | No | Seungho Choo | Yes |
| Ashish Shukla | Abstain | Joerg Robert | Abstain | Shinya Miwa | Abstain |
| Atsushi Shirakawa | Abstain | John Coffey | Yes | Shivesh Ganotra | No |
| Bin Tian | Yes | John Kenney | Abstain | Shuntaro SUZUKI | Abstain |
| Binita Gupta | No | Jon Rosdahl | Yes | Sidharth Thakur | No |
| Bo Sun | Abstain | Jonghoe Koo | No | Sigurd Schelstraete | Abstain |
| Brian Hart | No | Joseph Levy | Yes | Sixian Luo | Abstain |
| Brian Petry | No | Jouni Malinen | Yes | Somayeh Khosroazad | Abstain |
| Carl Kain | Abstain | Juan C. Zuniga | Abstain | Srinath Puducheri | No |
| Carol Ansley | Yes | Julien Sevin | Yes | Srinivas Kandala | No |
| Chao Chun Wang | Abstain | Jung H. Suh | Abstain | Stefan Videv | Abstain |
| Charlie Pettersson | Abstain | Jungjun Kim | No | Stephan Sand | Abstain |
| Chengzhi Zhou | No | Kaikai Huang | Abstain | stephane Baron | Abstain |
| Chien-Fang Hsu | No | Kanke Wu | No | Stephen Orr | No |
| Chih-Chun Kuo | Abstain | Kapil Rai | Yes | Stephen Rodriguez | No |
| CHIHAN HUANG | Abstain | Kazuto Yano | Abstain | Stephen Shellhammer | Yes |
| Chittabrata Ghosh | No | Kazuyuki Tota | Yes | Su Khiong Yong | No |
| Chung-Ta Ku | Yes | Ke Zhong | Abstain | Subharthi Banerjee | Abstain |
| D.Nelson Costa | Abstain | Kiseon Ryu | No | Subir Das | Abstain |
| Dana Ciochina | Abstain | Lalit Garg | No | Suhwook Kim | No |
| Daniel Borges | No | Manideep Dunna | Yes | Taeyoung Ha | No |
| Daniel Harkins | Yes | Manish Kumar | No | Thomas Gee | Abstain |
| Daniel Verenzuela | Abstain | M. Emmelmann | Abstain | Thomas Handte | Abstain |
| David Halasz | Yes | Marcos M. Vazquez | No | Timothy Jeffries | Yes |
| Debashis Dash | No | Mark Hamilton | Yes | Tomoko Adachi | Abstain |
| Denis Bykov | Abstain | Martin Eiger | Abstain | Toshizo Nogami | Abstain |
| Der-Zheng Liu | Yes | Matthias Wendt | Abstain | Ugo Campiglio | No |
| Domenico Ficara | No | Maulik Vaidya | Yes | Vincent K. IV Jones | Yes |
| DONG HAN | No | Michael Grigat | Yes | Volker Jungnickel | Abstain |
| Dong Wei | Abstain | M. Montemurro | Yes | wendi shen | Yes |
| Dorothy Stanley | Yes | M. Koundourakis | No | William Carney | No |
| Duncan Ho | Yes | Mikael Lorgeoux | Abstain | Wookbong Lee | No |
| Eugene Baik | Yes | Mike Davis | Yes | Xiaofei Wang | No |
| Federico Lovison | No | Mingyu LEE | No | Xilin Cheng | Abstain |
| Francis Keshmiri | Yes | Minyoung Park | No | Yan Zhang | No |
| Fumihide Goto | Yes | M. S Islim | Abstain | Yanchun Li | No |
| Gabor Bajko | Abstain | Naveen Kakani | Yes | Yanjun Sun | No |
| Gaius Wee | Abstain | Necati Canpolat | Yes | YI-HSUAN CHEN | Yes |
| Gaurang Naik | Yes | N. P. M.H. Salem | No | Ying Wang | Abstain |
| GEORGE CHERIAN | Yes | N. N. Krishnan | No | Yong Liu | No |
| Giovanni Chisci | Yes | Nehru Bhandaru | No | Yongho Seok | No |
| Graham Smith | Yes | Nima Namvar | Yes | Yongsen Ma | No |
| Gregory White | Abstain | Noel Stott | Yes | Yoshio Urabe | Abstain |
| Guido Hiertz | Yes | Okan Mutgan | Abstain | Youhan Kim | Yes |
| Hari R. Balakrishnan | No | O. Adakeja | Abstain | Yuki Fujimori | Abstain |
| Helene Ralle | Yes | Pascal VIGER | Abstain | Yuki Tsujimaru | Abstain |
| Hiromichi Tomeba | Abstain | Patrice Nezou | Abstain | Yuki Yoshikawa | Abstain |
| Hiroyuki Motozuka | Abstain | Pooya Monajemi | No | ZE ZHENG | Yes |
| Hitoshi Morioka | Yes | P. Varshney | No | Zheng Guo | Abstain |

## AoB

None.

1. Recess

Chair: We are now in recess.

Meeting recessed at 15:33 PT.

# IEEE 802.11 Closing Plenary, Friday, November 15th, 2024

1. Opening

## Call to order

Meeting was called to order at 8:05 PT by the Chair, Robert Stacey (Intel). There were online issues.

## 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 75 people in the meeting (in the room) 234 online (8:26) and 292 recorded in the attendance tool (IMAT).

## Review and approve agenda (WG 11 agenda [11-24/1663r6](https://mentor.ieee.org/802.11/dcn/24/11-24-1663-06-0000-2024-november-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** [**11-24-1663r6**](https://mentor.ieee.org/802.11/dcn/24/11-24-1663-06-0000-2024-november-wg11-agenda.xlsx)**.**

Moved: Tuncer Baykas. Seconded: Jim Lansford.

Discussion:

Q: Can we have any time for some discussion on remote attendees voting?

A: Has been added to the New Business section.

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

1. **Announcements** (WG Chair’s Supplementary Material [11-24/1665r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1665-01-0000-2024-november-working-group-chair-supplementary-material.pptx))

## Policies and procedure reminder (slides 14-16)

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 17)

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

## Meeting Decorum (slide 18)

No questions.

## Next session and CAC meetings (slide 19)

The next session of the IEEE 802.11 working group is from January 12-17, 2025, in Kobe, Japan. 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 Monday 2024-12-16, then on Monday 2025-01-06, both at 09:00 ET. There is another one Sunday 2025-01-12 at 18:00 Kobe, Japan immediately before the January meeting. Subgroup chairs, please note the deadline for the sub-group agendas.

## Any other announcements (slide 20)

Chair: Individual experts this time:

Emily Qi, Self, Editors (Tue AM0), Bjørn Ivar Teigen, Domos, WNG (Tue AM1).

## 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 21)

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 22)

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 (2024-11-01).

## Drafts to liaise with ISO/JTC/SC6 (slide 23)

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 24)

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

## IEEE 802 Public Visibility Standing Committee (slides 25-26)

The group is designed to raise industry awareness in timely fashion of IEEE 802 WG/TAG activities.

Links to 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 being regularly updated. We have 4698 followers on LinkedIn. Help us to reach 5000.

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.

Discussion:

C: This can help us. See Sticker in the registration area. Become a member of LinkedIn group.

1. Closing reports

## Working group reports

### Treasurers report ([ec-24/0007r9](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0007-09-WCSG-wireless-treasurer-report-2024.pptx))

802.11 Treasurer: Bank account on Nov. 9, 2024 was around 990k$. Still in very good shape. Income Slide 5 shows the money we spent per meeting. Slides 6-9 show details on Interim meeting in Panama. Projections for January: Please register! Many items depend on people. May meeting so far a loss because costs are going up in Europe. Slide 19: Please help to contact the people to pay their fees. Potential deadbeats on Slide 20: Please inform them, one has already contacted Jon. Net session Value per year (slide 21). Surplus is in the order of 442k$. Session fees remain the same as 2024. We are in a good fiscal shape. Historical attendance (slide 25).

Discussion:

Q: It is amazing what you do. Let us give you an applause.

A: Thanks.

### Straw Polls regarding meetings ([11-24/1659r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1659-02-0000-november-2024-working-group-motions.pptx), slide 9)

Only people present in the room were asked to participate in the following straw polls. These will be compiled into a statistics for all events, hopefully in 2025.

1. How many people would like to come back to this venue? 65Y / 1N
2. Did you go to the social? 60Y / 14N
3. If you attended the social, did you like the social? 31Y / 15N

### Future Venues Insight ([ec-24-0006r13](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0006-13-WCSG-ieee-802wcsc-meeting-venue-manager-report-2024.pptx))

Contracts on Slide 3.

Slide 4 shows the status of the future plenary venues. 2023 RFP had 100 hotels applying for our meetings. Unique situation July 27-Aug. 1 after IETF Meeting. Status of pending wireless contracts (slide 5). Two more items are missing for Hilton Wailokoa that were approved.

More details from MTG Events (slide 6):

JANUARY 2025 INTERIM – KOBE CONVENTION CENTRE: Registration is open. Accommodation links are live. Bookings for accommodation will go directly to the nearby Hotels. Portopia is the main hotel. Bookings are currently set to close December 11 for accommodation. Registration is open: Information about the Session, registration and accommodation can be found at the 2025 Jan IEEE 802 Wireless Interim Session website.

MAY 2025 INTERIM – WARSAW PRESIDENTIAL HOTEL, POLAND (previous the Marriott Hotel). Same hotel, same people just new Hotel name confirmed as Warsaw Presidential Hotel. TBC if they decide to join a chain or stay independent. Contract Executed on Oct 28, 2024. For Warsaw, the hotel recognizes your status with Marriot and also other chains. Venue status (slide 8) “TBC” means to be contracted.

Slide 7 shows the status of future Interim venues. 3 outstanding contracts.

Discussion:

Q: Why to switch from Chicago to Vancouver in 2026 Plenary?

A: Originally we were supposed going to Denver. Then Chicago and Denver was swapped. All people should be union members, was not possible. Hyatt Regency was responding to quick request.

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

2nd Vice Chair: There are not many changes. There is a new column on TGbf.

### Attendance report ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slide 4-7)

Clear uptrend in membership which is going up and down due to ballot returns. There is a breakdown by affiliation, by subgroup and breakout.

### Editors report ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slides 7-25)

Held one meeting slot.

Editor contacts (slide 9). New editors for TGmf are Po-Kai Huang and Edward Au. Roundtable status report (slide 10). Amendment order and page count as discussed in November (slide 11). Dates are editors view, may not be consistent with timeline. Draft development snapshot (slide 12). Reviewed publication process and committee members (slides 13+14). For an overview of ANA managed number space, see slide 16. Please, request a number from ANA authority (Carol Ansley).

## Standing committee reports ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slides 17-42)

### AIML Artificial Intelligence Machine Learning SC ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slides 17-19)

One meeting slot. Agenda: [11-24/1648r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1648-00-aiml-aiml-sc-nov-2024-vancouver-agenda.pptx), SP + Motions: [11-24/765r2](https://mentor.ieee.org/802.11/dcn/24/11-24-0765-02-aiml-aiml-sc-motion-booklet.pptx). Minutes: [11-24/2003r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2003-00-aiml-aiml-sc-nov-2024-plenary-meeting-minutes.doc)

Achievements: Two technical presentations. Approved the AIML SC 1st Technical Report Draft Outline [11-24/1650r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1650-00-aiml-aiml-sc-1st-technical-report-draft.doc).

No Telco planned.

Discussion:

Q: Assume that SC produces another report. Why and how different from TIG report?

A: SC will generate an annual report. Content will be additional studies. New use cases. This will complement the TIG report. Content is based on Contributions.

C (Chair): Fast moving topic. Let us give them some time.

Q: What is the timeline?

A: We promised annual reports.

C: It is really useful to have this group. Need to be updated. Bring regular inputs.

### ARC Architecture SC (slides 20-25)

Held two meeting slots. Agenda: [11-24/1728r6](https://mentor.ieee.org/802.11/dcn/24/11-24-1728-06-0arc-arc-sc-agenda-november-2024.pptx). Minutes: [11-24/1725r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1725-00-0arc-arc-sc-mixed-mode-minutes-november-2024-plenary.docx).

IEEE Std 802 revision: Received a report on the P802REV activities. SA recirculation is completed (assuming the LMSC approves). Moving to publication editor. There are at least two items that impact 802.11: Change of terminology and removal of EPD and LPD terms. MAC address bit and octet ordering description.

Annex G: Progressed the proposal for Annex G replacement: [11-23/0880r4](https://mentor.ieee.org/802.11/dcn/23/11-23-0880-04-0arc-revised-annex-g-containing-example-frame-exchange-sequences.docx). Consensus that this is useful work, and in the right direction. Will continue discussion in January. 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: [11-24/1933r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1933-01-0arc-proposed-response-to-wba-on-implementation-guidelines-for-l4s.docx). Note also the latest version in [11-24/1933r4](https://mentor.ieee.org/802.11/dcn/24/11-24-1933-04-0arc-proposed-response-to-wba-on-implementation-guidelines-for-l4s.docx) after edits by the 802.11 WG Chair.

Future/pending activities (slides 23-24): 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. Consider to remove 802.2/LLC terms. 802.11’s “Portal”, and mapping to/usage of IEEE Std 802 terminology. Access Domains: “802 Access Domains”? In 802.11, an ESS? TGbe implications? Is the DS a bridge (small ‘b’)? Consider adding something about VLANs (just informal) into 802.11? Relationship to security domains (e.g. Authenticator relationship)? VLAN-aware STAs? What about GLK/non-GLK STAs? (cf [11-08/0114r2](https://mentor.ieee.org/802.11/dcn/08/11-08-0114-02-0wng-segregated-data-services.ppt)). MLME-RESET versus MLME-JOIN, MLME-START, MLME-SCAN and MLME-END. How MAC address is set/controlled – related to IEEE 1609/TGbd activities.

Plans: Start progress on EPD/LPD clean-up, MAC address bit/octet ordering, other “Future activities”. Annex G replacement phase 2, continued. L4S technical work, and WBA L4S liaison response coordination, continued. MLME clean-up.

Teleconference – None. Three meeting slots requested in January.

Discussion:

C: Liaison will come up for Motion. Ask you to introduce this.

### Coexistence SC ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slides 26-36)

Two meeting slots. Agenda in [11-24/1757r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1757-02-coex-coex-sc-agenda-november-2024.xlsx). Minutes in [11-24/1784r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1784-00-coex-november-2024-minutes.docx).

ETSI BRAN update (slides 28-30)

6 GHz: EN 303 687 (Wireless Access System/Radio Local Area Network (WAS/RLAN) in the license-exempt 6 GHz band). Version 1.1.1 published. Publication in OJEU still on hold: Open question on potential lack of technology neutrality. Request for clarification arrived after BRAN #125. ETSI’s response to the EC is available from BRAN(24)127006r1. Discuss proposals related to requirements for NB FH operation, contribution discusses the inclusion of Client-to-Client (C2C).

5 GHz: EN 301 893 (Wireless Access System/Radio Local Area Network (WAS/RLAN) in the license-exempt 5 GHz band). Normative reference to IEEE 802.11-2020 replaced by ISO/IEC/IEEE 8802-11:2022. Version 2.2.0f of the HS published. Final national voting (approval) ongoing until 2024‑11‑25 – so far, no comments.

Other Items: ETSI asks TC BRAN to review and decide about the status of standards older than five years until the end of March 2025. Among others, this relates to the family of HiperLAN standards. This will be discussed at future meetings.

Bluetooth SIG update (slide 31): Continued work on technical proposal for ETSI BRAN – to be agreed: LBT: nearly complete; some concern with “overlap” issues. EDT: Ericsson and Meta EDT proposals are being discussed. SCS: 5% duty cycle with no LBT at issue. OOBE: scaled for 20 MHz channels or NBE channel width.

Two contributions (slide 32): Example NB operation in 40 MHz ([11-24/1912](https://mentor.ieee.org/802.11/dcn/24/11-24-1912-00-coex-example-nb-operation-in-40-mhz.pptx)r0). NB ACL simulations ([11-24/1913](https://mentor.ieee.org/802.11/dcn/24/11-24-1913-00-coex-nb-acl-simulations.pptx)r0).

Coex SC – 15.4ab Joint Session (slide 33): Thoughts for Consideration in the Joint 802.11/802.15 Coex Forum ([15-24/0637r1](https://mentor.ieee.org/802.15/dcn/24/15-24-0637-01-0000-thoughts-for-consideration-in-the-joint-802-11-802-15-coex-forum.pptx) & [11-24/1940](https://mentor.ieee.org/802.11/dcn/24/11-24-1940-01-coex-thoughts-for-consideration-in-the-joint-802-11-802-15-coex-forum.pptx)r1). Discussion of 15.407 and associated KDB 987594 D02. Definition of ”contention-based protocol”. Test procedure to avoid co-channel interference with incumbent devices sharing the band. Controversial discussion if 802.15.4ab devices are already in the market. Proposes to keep existing joint discussions and additional (new) means for collaboration and addressing coexistence.

Plans for January (slide 34): Two dot11 Coex (only) slots. Wednesday PM2. Thursday PM2. Topics: Update on ETSI BRAN, Bluetooth SIG. Technical submissions (tba).

No Telco.

### PAR Review SC ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slide 37)

Two meeting slots. Minutes in [11-24/1815r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1815-00-0PAR-minutes-november-2024-session.docx).

PAR SC made comments to 2 out of 3 PARs, see [11-24/1896r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1896-02-0PAR-par-review-sc-mtg-agenda-and-comment-slides-2024-november-vancouver.pptx). Feedback was generally positive. Further comments on grammar issues. Just minor things. Will be discussed in EC today. PARs received were in pretty good shape this time, overall.

### Wireless Next Generation SC ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slide 38-39)

### One meeting slot. Agenda: [11-24/1673r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1673-00-0wng-agenda-for-wng-sc-2024-november.pptx). Minutes: [11-24/1932r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1932-00-0wng-wng-meeting-minutes-2024-november-vancouver-meeting.docx).

### Three Presentations: “Quality of Outcome”, Bjørn Ivar Teigen (Domos) [11-24/1910r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1910-00-0wng-quality-of-outcome.pdf%20). “Segregated Data Services”, Donald Eastlake (Independent) [11-24/1904r4](https://mentor.ieee.org/802.11/dcn/24/11-24-1904-04-0wng-vlan-segregated-data-services.pptx%20). “Proposal on intelligent radio path control technique to improve SNR and resolve the radio shadow zone in millimeter wave band system”, Ryutaro Ohmoto (Dengyo) [11-24/1554r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1554-01-0wng-proposal-on-intelligent-radio-path-control-technique-to-improve-snr-and-resolve-the-radio-shadow-zone-in-millimeter-wave-band-system.pptx%20)

### Plans for January: TBD. Call for presentations will be sent out in December.

### No motions, one straw poll: Support for creation of a TIG to explore additional uses of and management of VLANs inside WLANs: Y: 47 / N 41 / A 71.

### JTC1 802 SC ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slides 40-42)

One meeting slot. Agenda in [ec-24/0229r05](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0229-05-JTC1-agenda-for-november-2024-mixed-mode.pptx), Minutes in [ec-24/0292r](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0292-01-JTC1-minutes-of-mixed-mode-meeting-in-november-2024.docx)1.

IPR issue (slide 41): 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: Reach out to IEEE BoG for insights into actions they are taking towards issue resolution. Observe how IEEE 802.3 fares in the parallel ITU-T SG15 process.

Plans for January (slide 42): Usual process is continued. Execute PSDO process, to the extent possible. There are current ballots open for IEEE 802.1Qdx (CIB: 27 November), IEEE 802.15.3-2023 (CIB: 27 November), IEEE 802.1ASdm (CIB: 31 December), IEEE 802.1ASdn (CIB: 31 December), IEEE 802f (FDIS: 12 February), IEEE 802.1Qcw (FDIS: 12 February), IEEE 802.1Qcj (FDIS: 3 March), and IEEE 802.1ASdr (FDIS: 10 March). Monitor ISO/IEC JTC 1/SC 6 activities.

## Task Group reports ([11-24-1658r](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx)1)

### TGmf 802.11 - Revision Project ([11-24-1658r](https://mentor.ieee.org/802.11/dcn/24/11-24-1519-02-0000-september-2024-session-report.pptx)1, slides 43-46)

One initial meeting slot. Minutes in TBD.

Officer elections: Vice Chairs: Mark Hamilton, Mark Rison. Editors: Po-Kai Huang, Edward Au, (with Emily Qi in supervisory role). Secretary: Jon Rosdahl.

Work completed: Timeline was established (Slide 46) targeting publication in 2028. TGmf will add 11bh, 11be, 11bf, 11bk and 11bi to 802.11. Considered contributions on REVme D7.0.

Plans for January: No Telcos. Two meeting slots for January. Objectives: Discussions on changes for REVmf (in advance of IEEE 802.11-2024 publication).

### TGbf - WLAN Sensing (SENS) ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slides 47-50)

Held two meeting slots. Agenda in [11-24/1670r](https://mentor.ieee.org/802.11/dcn/24/11-24-1670-04-00bf-tgbf-meeting-agenda-2024-11-plenary.pptx)4. Minutes in [11-24/1976r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1976-00-00bf-ieee-802-11bf-november-2024-plenary-meeting-minutes.docx).

Progress during November: Comment resolution for the first SA Ballot Recirculation (D5.0). 100 % of all the first SA Ballot Recirculation (D5.0) comments are now resolved or marked as “ready for motion” (36/36). Approved TG motions to include resolutions into TGbf draft and start P802.11bf second recirculation SA ballot. Timeline was changed (see slide 49).

Goals for the next two months: Release IEEE802.11bf D6.0. Start and complete the second SA Ballot Recirculation (D6.0). Start comment resolution for D6.0.

2 Telcos: Dec 19, (Thursday) 22:00 - 00:00 ET, Jan 7 (Tuesday) 9:00 - 11:00 ET.

### TGbi - Enhanced Data Privacy (EDP) ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slides 51-54)

Held 5 meeting slots. Agenda in [11-24/1677r7](https://mentor.ieee.org/802.11/dcn/24/11-24-1677-07-00bi-november-plenary-agenda.pptx). Minutes in [11-24/1911r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1911-00-00bi-november-2024-plenary-sessions-minutes-for-tgbi.docx).

Achievements in November: Tgbi reviewed CID resolution submissions and technical submissions on open topics. Across the plenary and our earlier ad hoc session, TGbi achieved consensus on 144 CIDs and ran out of time for additional submissions. TGbi approved directing editor to generate a new draft (D0.7) incorporating these texts to serve as a new reference for submissions. TGbi continues to call for submissions of text that address requirements as well as submissions to resolve comments from the comment collection.

Plan for January: Work toward a D1.0 and initial WG LB.

4 teleconferences planned WED 10 a.m. EDT on Dec. 4, 11, 18 and Jan. 8. If needed, a telecon with motions might be scheduled with 10 day notice in December.

### TGbk - 320 MHz Positioning ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slides 55-57)

Held 2 meeting slots. Agenda in [11-24/1638r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1638-01-00bk-tgbk-nov-meeting-agenda.pptx). Minutes in [11-24/2094r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2094-00-00bk-minutes-for-nov-2024-plenary.docx).

Work completed during the meeting week: Completed assignment of CIDs. Resolved all editorial CID. Resolved 8 Technical CIDs.

Targets towards January session: Complete comment resolution and recirculate.

4 Teleconferences planed: Nov. 21, Dec. 5, Dec. 12, Jan. 9, all 10:00 PT / 13:00 ET (2hrs).

### TGbn - Ultra High Reliability (UHR) ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slides 58-61)

19 meeting slots for PHY, MAC and joint group altogether. Agenda in [11-24/1667r15](https://mentor.ieee.org/802.11/dcn/24/11-24-1667-15-00bn-tgbn-nov-2024-meeting-agenda.pptx). Motions in [11-24/0171r20](https://mentor.ieee.org/802.11/dcn/24/11-24-0171-20-00bn-tgbn-motions-list-part-1.pptx). TGbn PHY and MAC ad-hoc Minutes in [11-24/1971r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1971-00-00bn-802-11bn-phy-ad-hoc-minutes-for-the-november-2024-interim-session.docx) and [11-24/1791r](https://mentor.ieee.org/802.11/dcn/24/11-24-1791-00-00bn-tgbn-mac-ad-hoc-nov-2024-vancouver-minutes.doc)0, TGbn all minutes in [11-24/2019r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2019-00-00bn-tgbn-november-2024-meeting-minutes.docx). Specification framework in [11-24/0209r6](https://mentor.ieee.org/802.11/dcn/24/11-24-0209-06-00bn-specification-framework-for-tgbn.docx).

Discussed around 60 technical submissions, covering a variety of topics: Spatial Reuse, Feedback, low latency, channel access, distributed RU (dRU), preemption, power save (PS), Non-primary channel access (NPCA), coexistence, coordinated beamforming (CBF), sounding, security, Enhanced long range (ELR), multi-AP (MAP), coordinated rTWT (CrTWT), L4S, coordinated TDMA (C-TDMA), Preamble and PPDU, multi-AP, control, roaming, unequal modulation (UEQM), QoS enhancements.

Approved over 110 motions that added additional concepts to the SFD such as 2xLDPC, ELR, (joint/sequential) CBF sounding, high priority EDCA, coexistence modes, more details for DRU, ELR, UEQM, C-TDMA, PS, NPCA, MAP, C-RTWT, AP PS, eMLSR, roaming, etc.

Goals for January: Discuss technical submissions. Continue populating the TGbn SFD. Deliver TGbn D0.1.

Teleconferences (slide 60): Dec. **2**, 9, 16, Jan 6 (Monday) 19:00-21:00 ET, Dec. 5, 12, **19**\*, Jan 9 (Thursday) 10:00-12:00 ET, bold: joint, otherwise: MAC/PHY, \*: Motions

Timeline is unchanged (Slide 61). Next milestone is D0.1 for January 2025.

Discussion:

Q: First slide: Motion deck is not uploaded. Please upload latest Motion deck.

A: Will be done in next 10 minutes.

Q: 1654r1 is not uploaded, likewise.

A (2nd Vice Chair): Will be uploaded shortly.

### TGbp - Ambient Power Communications (AMP) ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slides 62-65)

8 meeting slots in November. Agenda in [11-24/1671r6](https://mentor.ieee.org/802.11/dcn/24/11-24-1671-06-00bp-tg-bp-meeting-agenda-for-nov-plenary-2024.pptx). Motion deck in [11-24/1322r5](https://mentor.ieee.org/802.11/dcn/24/11-24-1322-05-00bp-tgbp-motion-dock.pptx). Minutes in [11-24/1965r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1965-00-00bp-2024-11-plenary-meeting-minutes.docx). Functional requirements in [11-24/1307r3](https://mentor.ieee.org/802.11/dcn/24/11-24-1307-03-00bp-proposed-tgbp-functional-requirements.doc). Specification framework in [11-24/1613r3](https://mentor.ieee.org/802.11/dcn/24/11-24-1613-03-00bp-specification-framework-for-tgbp.docx).

Progress during November (slide 55): TGbp approved the updated FRD and SFD documents incorporating approved motions in September. More than 30 technical contributions were presented and discussed, on functional requirements, PHY/MAC solutions and Wireless Power Transmission. Lots of technical Motions for FRD/SFD were approved as captured in last revision of [11-24/1322r5](https://mentor.ieee.org/802.11/dcn/24/11-24-1322-05-00bp-tgbp-motion-dock.pptx). The 11bp timeline was revisited without change. 2 telcos were arranged after November.

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

2 Telcos: Dec. 3 and Jan. 7 (Tuesday), 9:00am, ET, 2 hours

## PAR SG/TIG/AHG reports ([11-24-1658r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx), slides 66-73)

### ELC SG – Enhanced Light Communication ([11-24-1658r](hhttps://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx)1, slides 66-68)

Two meeting slots in November. Agenda in [11-24/1675r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1675-02-0elc-november-2024-elc-agenda.pptx). Minutes in [11-24/1948r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1948-02-0elc-2024-11-12-minutes.docx).

Achievements in November: ELC reviewed the proposed draft Project Authorization Request as well as the Criteria for Standards Development (CSD) documents. 3 New Contributions: Low-Power Enhanced-Range PHY Mode for ELC (doc. 11-24/1926r1), Underwater Interoperability and Backwards Compatibility (doc. 11-24/1928r0) ELC Support for positioning (doc. 11-24/1956r0). The draft PAR and CSD were agreed.

Timeline is unchanged. No telco. 2 meeting slots in January.

### IMMW SG – Integrated Millimeter Wave ([11-24-1658r](hhttps://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx)1, slides 69-71)

Two meeting slots in November. Agenda in [11-24/1905r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1905-02-immw-immw-sg-november-2024-meeting-agenda.pptx). Minutes in [11-24/1943r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1943-00-immw-immw-meeting-minutes-for-november.docx).

Achievements: SG responded to comments received from other 802 WGs and approved the response to comments and the updated PAR and CSD documents. PAR 44Y, 0N, 6A, CSD 47Y, 0N, 5A. PAR and CSD document were then approved in the WG during mid-week plenary.

No telcos. Plan for January: Have the first TGbq meeting.

Discussion:

C: (2nd VC) There will be a Motion on this at the LMSC meeting today.

### AUTO TIG Automotive ([11-24-1658r](hhttps://mentor.ieee.org/802.11/dcn/24/11-24-1658-01-0000-november-2024-session-report.pptx)1, slides 72-)

One meeting slot in November. Agenda in [11-24/1674r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1674-00-auto-agenda-for-automotive-tig-2024-november.pptx). Minutes in [11-24/1950r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1950-00-auto-automotive-tig-meeting-minutes-for-november-11-2024.docx).

Achievements: Carol Ansley was appointed as Editor. Two contributions: “Passpoint & OpenRoaming for Automotive Connectivity”, [11-24/1858r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1858-01-auto-passpoint-openroaming-for-automotive-connectivity.pptx), “Consideration on existing systems and standards for ITS using IEEE802.11 technologies” [11-24/1845r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1845-02-auto-consideration-on-existing-systems-and-standards-for-its-using-ieee802-11-technologies.pptx).

Plans for January: Presentations on use cases and requirements and KPI.

## Liaisons reports

### 802.15 Liaison report (updated in [11-24/1949r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1949-01-0000-802-15-liaison-report-november-2024.pptx))

WG15 Agenda in [15-24/0545r6](https://mentor.ieee.org/802.15/dcn/24/15-24-0545-06-0000-nov-2024-802-15-agenda.xlsx).

802.15 WG Overview: Wireless Specialty Networks Active standards (slide 4):

* 802.15.4 Many current projects, overview on slide 5.
* 802.15.6ma Body Area Networks Revision project.
* 802.15.7a Higher Rate, Longer Range Optical Camera Communication.
* 802.15.9a KMP Transport, extensions to key management: Technical proposals.
* 802.16t Extension to 802.16 for specific bands.
* IG Access: Potential new features for effective shared access.
* SC THz: THz communications.

802.15.4ab Next Generation UWB (slide 6): Agenda in [15-24/0582r7](https://mentor.ieee.org/802.15/dcn/24/15-24-0582-07-04ab-tg4ab-detailed-agenda-november-2024.xlsx). Closing report in [15-24/0665r3](https://mentor.ieee.org/802.15/dcn/24/15-24-0665-03-04ab-tg4ab-closing-report.pptx). Initial WG ballot complete. 1471 comments received on draft – 895 technical, 606 editorial. 47 comments received on CAD. Meeting objectives: Comment resolution.

802.15.4ac Enhanced Privacy (slides 7-8): Agenda and Closing Report in [15-24/0599r1](https://mentor.ieee.org/802.15/dcn/24/15-24-0599-01-04ac-november-opening-and-closing.pptx). Mechanisms that address and improve user privacy, i.e., randomized addresses, and exchanges that support session continuity. Achievements: Pre-ballot draft in preparation. WG LB is planned for Jan. 2025.

802.15.4ad Next Generation SUN PHYs (Slide 9): Agenda in [15-14/0597r1](https://mentor.ieee.org/802.15/dcn/24/15-24-0597-01-04ad-tg4ad-agenda-opening-and-closing-report-nov-2024.pptx). Minutes in [15-24/0612r0](https://mentor.ieee.org/802.15/dcn/24/15-24-0612-00-04ad-tg4ad-minutes-november-plenary-2024.docx). Developing enhancements to 802.15.4 SUN PHYs (FSK, OFDM). Achievements: Pre-draft development. Meeting goals: Finalize and approve technical guidance document. Finalize call for proposals.

802.15.4ae ASCON lightweight encryption extension (Slide 10). Agenda in [15-24/0600r2](https://mentor.ieee.org/802.15/dcn/24/15-24-0600-02-04ae-november-opening-and-closing.pptx). Minutes in [15-24/0615r0](https://mentor.ieee.org/802.15/dcn/24/15-24-0615-00-04ae-nov-2024-tg4ae-minutes.docx). Sent out call for participation and call for proposals [15-24/0482r03](https://mentor.ieee.org/802.15/dcn/24/15-24-0482-03-04ae-call-for-participation-and-call-for-proposals.docx). Updated [15-24/0484r0](https://mentor.ieee.org/802.15/dcn/24/15-24-0484-01-04ae-list-of-changes-to-ieee-std-802-15-4.docx) listing changes needed for IEEE Std 802.15.4. Created [15-24/0617r2](https://mentor.ieee.org/802.15/dcn/24/15-24-0617-05-04ae-comments-to-nist-sp-800-232-ipd.docx) containing comments to be sent to NIST in response to their public initial draft of Ascon.

802.15.6ma Body Area Networks Revision project (Slides 11-12): Agenda in [15-24/0565r10](https://mentor.ieee.org/802.15/dcn/24/15-24-0565-10-006a-tg15-6ma-revision-of-ieee802-15-6-2012-with-enhanced-dependability-november-meeting-agenda.xlsx). Draft is in WG letter ballot process. Comment resolution is in progress. Objectives: Resolve comments.

802.15.7a Higher Rate, Longer Range Optical Camera Communication. Agenda in [15-24/0605r0](https://mentor.ieee.org/802.15/dcn/24/15-24-0605-00-007a-15-7a-higher-rate-longer-range-occ-tg-nov-agenda.xlsx). Closing report in [15-24/0656r0](https://mentor.ieee.org/802.15/dcn/24/15-24-0656-00-007a-15-7a-higher-rate-longer-range-occ-tg-closing-report-nov-2024.pptx). Achievements: Resolution for comment received from ISO/IEC JTC 1/SC 6 N 18278. Prepare Response on Chinese comment regarding IEEE Std 802.15.7-2018. CRG formation for SA ballot of 802.15.7a.

802.15.9a KMP Transport extension to key management (Slide 13): Agenda in [15-24/0601r1](https://mentor.ieee.org/802.15/dcn/24/15-24-0601-01-009a-november-opening-and-closing.pptx). Minutes in [15-24/0621r1](https://mentor.ieee.org/802.15/dcn/24/15-24-0621-01-009a-nov-2024-tg9a-minutes.docx). Developing draft. Update and send out call for participation and call for proposals.

IG Access (slide 14): Purpose: Explore potential enhancements to support better spectrum access to support sharing through coexistence. Agenda and Closing report in [15-24/0667r0](https://mentor.ieee.org/802.15/dcn/24/15-24-0667-00-acss-ig-agenda-opening-and-closing-report-minutes.pptx). Short term focus: U-NII 6 GHz band. Consider present occupants (includes UWB) and future growth in occupation and use. Goals: Support for a diversity of use cases. Equal access and improved performance for all 802 wireless technologies. Contributions: Summarize key differences in requirements for various regulatory regions.

TG16t Licensed Narrowband (slide 15): Agenda in [15-24/560r4](https://mentor.ieee.org/802.15/dcn/24/15-24-0560-04-016t-tg16t-nov-2024-plenary-meeting-agenda-and-presentation.pptx) . Minutes in [15-24/0646r1](https://mentor.ieee.org/802.15/dcn/24/15-24-0646-01-016t-tg-16t-meeting-minutes-november-2024.docx). Achievements: SA Ballot on P802.16t D4.0 closed October 19. Comment Resolution Spreadsheet in [15-24/0561r0](https://mentor.ieee.org/802.15/dcn/24/15-24-0561-04-016t-tg16t-initial-sa-ballot-comments-and-resolutions.xlsx). Complete comment resolution and initiation recirculation.

THz SC Committee (Slide 16): Agenda in [15-24/0568r3](https://mentor.ieee.org/802.15/dcn/24/15-24-0568-03-0thz-agenda-sc-thz-november-2024-plenary-meeting.xlsx). Minutes in [15-24/0592r0](https://mentor.ieee.org/802.15/dcn/24/15-24-0592-00-0thz-sc-thz-minutes-meeting-november-2024.docx). 5 presentations on channel measurements and use of THz as Wireless Fronthaul. Plans for January: Extended WG15 demo on THz communications. Not yet clear how much can be live or video.

Discussion:

Q: Slide 4 IG Access met this session, searching for a document.

A: Putting together a summery. Developing a concept for the future of that band.

Q: There is no folder on Mentor. Submissions went into another folder. Highly suggest that group follows the rules and policies.

A: Yes. We will do that.

C: Good to see that update in ASCON. Go to 802.11 with this.

A: WG approved ACSON. Ask everyone to attend.

Q: Some further clarification.

A: Think this will also be interesting in 802.11. It is mandatory how to implement these things. Will be difficult to implement other approaches (ask Rakesh).

### 802.24 Vertical Applications TAG Liaison report ([24-24/0030r0](https://mentor.ieee.org/802.24/dcn/24/24-24-0030-00-0000-nov-2024-closing-report.pptx))

WG is preparing three White Papers.

Low Latency WP (Slide 4) published <https://ieeexplore.ieee.org/document/10707142>.

IoT WP (Slide 5): Highlights IEEE solutions for IoT. Last version [24-24/0011r7](https://mentor.ieee.org/802.24/dcn/22/24-22-0011-07-IoTg-internet-of-things-white-paper.docx).

Smart Grid WP (Slide 6): Latest amendments of 802.15.4. Last version [24-24/0014r4](https://mentor.ieee.org/802.24/dcn/24/24-24-0014-04-sgtg-802-24-smart-grid-white-paper-2024-update.docx).

802.24 WG is seeking further contributions to these WPs.

1. Motions (Sept. WG Motions [11-24/1659r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1659-02-0000-november-2024-working-group-motions.pptx))

## Working Group Motions

### TGmf Chair

**Confirm Mike Montemurro as the TGmf chair.**

Moved by Guido Hiertz, Second: Marc Emmelmann

**Approved with unanimous consent.**

Applause.

### Liaison to WBA (based on [11-24/1933r3](https://mentor.ieee.org/802.11/dcn/24/11-24-1933-03-0arc-proposed-response-to-wba-on-implementation-guidelines-for-l4s.docx))

Document [11-24/1933r3](https://mentor.ieee.org/802.11/dcn/24/11-24-1933-03-0arc-proposed-response-to-wba-on-implementation-guidelines-for-l4s.docx) was introduced. L4S liaison document was received. Say: Thank you, we are working on it. Some interesting questions how L4S fits into the stack. Sort out what groups are affected. Specifically mentioning 802.11bn. Some presentations on L4S in 11bn are supporting the idea. People offered to present a tutorial. November was not possible. Will be in upcoming session.

Discussion:

Q: Correct first in c.c. to Alpesh Shah.

A: Thanks.

Q: Is their input for information only? Add some additional sentence in first paragraph saying this. Last sentence 2nd paragraph:

A: Change to subgroups.

A: Some paragraphs are only informational.

Q: Second paragraph: What eventually will be given back?

A: Complicated question. Reason why no response this time. 11bn is addressing the latency issues. Depending on the progress of the technical work, there can be feedback. Also TGmf can do some technical work. How L4S requirements interact with our stack, is a multi-layered problem.

**Approve the liaison in** [**11-24/1933r3**](https://mentor.ieee.org/802.11/dcn/24/11-24-1933-03-0arc-proposed-response-to-wba-on-implementation-guidelines-for-l4s.docx) **with updates during the discussion to the Wireless Broadband Alliance (WBA), granting the WG chair editorial license.**

Moved by Mark Hamilton, Second: Joseph Levy

**Result: Yes: 91, No: 1, Abstain: 9**

**Motion passes.**

Discussion:

Q: Should we have a break.

A: People want to push through.

### Teleconference schedule

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

## Standing Committee Motions

None.

## Task Group Motions

None.

1. New Business

## Statistics on in-person/remote attendance ([ec-24/0268r0](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0268-00-00EC-in-person-remote-attendance-stats-for-802-11.pptx))

Overview (Slide 3): Data were gathered data from IMAT for last 5 sessions (Interim and Plenary). Mapped registration data to attendance data. It is not 100% consistent, there were few mismatches. Only declared attendance is counted.

802.11 currently has 576 voting members, 79 potential voters, 95 aspirants, total 749. Most have attended the sessions. Few are “aging out”.

One session on slide 5 (Sept. 2024): Overall attendance 520, 283 in person 227 remotely. For this session, a little over half attend in-person. This is typical for all 802.11 sessions.

Two sessions on slide 6: There are about 120 more unique attendees for 2 sessions than for 1 session. Clearly the mix is changing each session as new people attend and some stop attending.

Three sessions on slide 7: 102 have not attended any of the 3 sessions in-person. 582 have attended at least one of the 3 sessions in-person. Not many (2) attended all 3 sessions remotely. But quite a few (192) attended all 3 sessions in-person.

Five sessions on slide 8: Only 79 have not attended any of the last 5 sessions in-person. Conversely, most (682 / 761) have attended at least one session in-person. Only one attended all 5 recent sessions remotely. Two others attended 4 of the recent sessions remotely. However, many take advantage of remote attendance: 478 have used it at least once

Summary (slide 9): Not so many people attend sessions only remotely. 90% attended at least 1 session in person, 10% remote only, 37% in person only, 53% use mixed attendance. There is a clear preference for in-person attendance, at least among the dedicated participants: 150 attended all 5 sessions in-person. Only 1 attended all 5 sessions remotely. It is not the end of the statistics, it can be broken down a bit more e.g. by voting members etc..

Discussion:

C: Thank you for good data. I related to attendance and voting which will be in AoB section.

Q: Very interesting, in-person only row. Could not get this number out of the previous data.

A: 283 attended a session but none of which remotely.

Q: All these statistics are all interesting, but only half of the equation. The question is how effective we are in hybrid mode. Think we are more effective when meeting in person only. Mixed mode causes loss of efficiency.

A: There is a recognition in the membership for this, e.g. 150 attended all sessions, 1 only remotely.

Q: In-person attendance is not the whole story. Some people were not able to attend because of visa issues. This should be noted.

A: Agreed.

C: If people cannot attend in-person, they might not be removed from in-person attendance. Work with the Meeting Planners. There are also No-Shows. If you change late, there is a charge. We are trying to use correct data and are aware of some problems.

C: Registration costs should be carried also by no shows. Same discussions in other organizations. How to measure effectiveness. Having 5000 people makes us not more effective. Having the people here makes us more effective. Encourage people, establish requirements.

C: Clarification about numbers: 102 have not attended zero meetings in person.

Q: Last slide: I though the number of people attending only remotely is higher. Some companies may think that if there is a cheaper option they will prefer this. Not sure if there is a golden rule for this. What was the intention?

A: Present the data to help informing the discussion. Not draw too many conclusions.

C: We are committed for hybrid until 2025 but not yet beyond. Hybrid option has attracted more people to participate. Does remote attendance cause problems for 802.11?

A: Believe that remote attendance has increased the participation.

C: Agreed.

Q: Why people attend remotely? What prevents people to attend in person? Visa issues are really serious. Include the numbers for visa problems if possible. I know more people attending only remotely.

A: Maybe related to some misalignments.

Q: Makes me comfortable to see people attend also in person. People should indicate if they have visa issues. We should gather these data. Have no basis how our pre-Covid data were related to this.

A: All pre-Covid was in-person. I will try to include the data from 2019.

C: Having the option to attend remotely has helped me a lot.

C: What possibilities we have in the future. Took two meetings to set this up. Switching to remote only would take 30 seconds. Hybrid gives us resilience in case something happens. I am in favor of having that option available.

C: F2F only will remove the hybrid aspect. Speak in favor of keeping the remote option, despite the higher effort.

C: With hybrid it is very difficult to get all information, we need to attend to get this. 3GPP has remote attendance option. This is good for monitoring. This does not count for votes. We should consider this as another option. If people attend only remotely companies invest less into the standards.

A: Think about how much we allow in-person and remote attendance.

C: Standards-making is an exhaustive process.

C: Use of the word “preference” is not appropriate looking at these data. Hybrid brings flexibility. Some voting members come to the meetings, some do not. Most important number is how many voting members do not come to meetings.

A: Intention is to gather these data.

C: I think one should come at least once a year.

A: I will try to clear the issues in the data.

C: Raw data should be made available.

A: I struggle with this. Attendees do in-person and remote. I have these data, did not look at this. 50/50 remote/in-person.

C: Longer period of study. When we canceled the meeting we refunded. But all this creates troubles. We are learning. It is not easy to go through all these data.

C: Think that hybrid is the future. IETF gets things done by using hybrid. There are no issues. Our meetings are better in terms of process. IEEE wants to be inclusive, search for young people. For younger people, hybrid is the norm. Efficiency is to be discussed. Think about pre-Motions. If there are so few people attending remotely only, why should we put further constraints on them?

A: Improve the remote experience, not targeting to remove it.

C: Personal attendance is preferred. In 11bn, there are 100-200 presentations in the queue. There is not enough time for Q&A. In this situation, it is more convenient to speak directly with the authors. In big rooms, there are big screens but in small ones one cannot read this.

A: To some degree in-person is required to be effective as a SDO.

C: We have other interactions in restaurants. If I lose my voting rights by only attending remotely.

A: The voting rules are under discussion in the LMSC. Needs to be explored.

C: There is no shame in having budget issues in attending. People manage to contribute nevertheless. We should make online more effective.

A: There is a risk to become too big to remain effective.

C: Switch between comments from online and the queue on-site. Better structure this discussion: Should we only allow in-person attendees to gain voting rights? Believe that remote attendance should help to gain voting rights.

C: Making it dependent on budget is foolish for the companies. Addressing it through rule changes will not address the problem. Better advertise the value of remote attendance.

C: We don’t have a clear problem statement. There is a potential problem in stacking the room. It is behavior. Look at the mirror and say we need to behave in a professional manner. This is very effective in person, but also by getting on the phone. Issue was raised by 802.3 and 802.1. The solution is on our hands. Make a good effort to work with the people.

## Remote attendance and voting rights (Dan Harkins)

The presenter stated that his agenda item has already been covered in the discussion above for item 5.1. A quick summary is that we should all work, communicate and collaborate with each other.

1. Another other Business (AoB)

## Book presentation

Some members presented a new book “Wi-Fi 7 in depth” to the Chair that will be released in 2025.

## January 2025 logistics

Please look at [ec-24-0214r3](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0214-03-WCSG-kobe-interim-summary.pptx) (slides 8-10) for some updated logistical information about travelling to the January 2025 interim meeting in Kobe, Japan. If you require a registration letter for visa purposes, please contact Hiroshi Mano.

C: I would like to mention that, without Hiroshi Mano’s assistance, the January 2025 meeting in Kobe would not have been possible.

1. Closing (WG Chair’s Supplementary Material [11-24/1665r1](https://mentor.ieee.org/802.11/dcn/24/11-24-1665-01-0000-2024-november-working-group-chair-supplementary-material.pptx))

## Reminder about next wireless chairs meeting (Slides 27)

The next 802 wireless chairs’ teleconference meeting is on Wednesday 2024-12-18 15:00 ET, and mixed-mode meeting on Sunday 2025-01-12 02:00 ET.

The next 802.11 CAC teleconference meeting times are Monday 2024-12-16 at 09:00 ET, Monday 2025-01-06 at 09:00 ET, CAC mixed-mode meeting time Sunday 2025-01-12 at 04:00 ET.

## Next WG Session reminder

The date of the next IEEE 802.11 WG session is January 12-17, 2025, in the Kobe International Conference Center, Kobe, Japan and is a mixed mode session. Next is March 9-14, 2025 Atlanta, USA. For meeting information and registration, see <http://www.ieee802.org/11/Meetings/Meeting_Plan.html> .

## Announcements

Following the adjournment of this meeting, there will be a video presentation of the ex-802.11 Chair Vic Hayes’ acceptance speech for the 2024 Brooklyn 6G Summit Wireless Pioneer Award.

## Adjourn

Having completed the agenda, the chair announced that the meeting was adjourned at 11:26 PT.

# 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 | 11-24/1680r0 |
| TGmf | TG | TBD |
| TGbf | TG | [11-24/1976r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1976-00-00bf-ieee-802-11bf-november-2024-plenary-meeting-minutes.docx) |
| TGbi | TG | [11-24/1911r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1911-00-00bi-november-2024-plenary-sessions-minutes-for-tgbi.docx) |
| TGbk | TG | [11-24/2094r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2094-00-00bk-minutes-for-nov-2024-plenary.docx) |
| TGbn | TG | [11-24/2019r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2019-00-00bn-tgbn-november-2024-meeting-minutes.docx) |
| TGbp | TG | [11-24/1965r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1965-00-00bp-2024-11-plenary-meeting-minutes.docx) |
| AUTO | TIG | [11-24/1950r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1950-00-auto-automotive-tig-meeting-minutes-for-november-11-2024.docx) |
| IMMW | SG | [11-24/1943r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1943-00-immw-immw-meeting-minutes-for-november.docx) |
| ELC | SG | [11-24/1948r2](https://mentor.ieee.org/802.11/dcn/24/11-24-1948-02-0elc-2024-11-12-minutes.docx) |
| AIML | SC | [11-24/2003r0](https://mentor.ieee.org/802.11/dcn/24/11-24-2003-00-aiml-aiml-sc-nov-2024-plenary-meeting-minutes.doc) |
| ARC | SC | [11-24/1725r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1725-00-0arc-arc-sc-mixed-mode-minutes-november-2024-plenary.docx) |
| COEX | SC | [11-24/1784r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1784-00-coex-november-2024-minutes.docx) |
| PAR | SC | [11-24/1815r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1815-00-0PAR-minutes-november-2024-session.docx) |
| WNG | SC | [11-24/1932r0](https://mentor.ieee.org/802.11/dcn/24/11-24-1932-00-0wng-wng-meeting-minutes-2024-november-vancouver-meeting.docx) |
| JTC 802 | SC | [ec-24/0292r](https://mentor.ieee.org/802-ec/dcn/24/ec-24-0292-01-JTC1-minutes-of-mixed-mode-meeting-in-november-2024.docx)1 |
| 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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**Task Groups**

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| --- | --- | --- |
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|  | | |

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**Liaison Officials to IEEE organizations**

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| Edward Au  (Huawei Technologies Co., Ltd) | Liaison to IEEE 802.18 | [edward.ks.au@gmail.com](mailto:edward.ks.au@gmail.com) |
| Tuncer Baykas (Ofinno) | Liaison to IEEE 802.19 | [tbaykas@ieee.org](mailto:tbaykas@ieee.org) |

# Annex D: Revisions and Standards Pipeline



