**IEEE 802.15**

**Wireless Specialty Networks (WSN)**

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| --- | --- |
| Project | IEEE P802.15 Working Group for Wireless Specialty Networks (WSN) |
| Title | **802.15 WG & CAC Minutes July 2023 Hybrid Plenary** |
| Date Submitted | [ July 2023] |
| Source | [Ann Krieger][U.S. Department of Defense] | Email: [AnnKrieger.dod@gmail.com]Voice: [+1.614.545.8255] |
| Re: | [July 802.15 Session] |
| Abstract | [IEEE 802.15 Working Group & CAC Minutes] |
| Purpose | [Official minutes of the Working Group Opening/Mid-week/Closing/Joint and CAC Sessions] |
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**142th IEEE 802.15 WSN SESSION**

**Held Hybrid at Estrel Berlin (all times in local)**

**July 9-14, 2023**

# 802.15 WG Opening

# Monday, 10th July 2023

**10:36AM** WG Chair, Clint Powell (HID), called the meeting to order and opened the WG Agenda ([*15-22-0301-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0301-01-0000-july-2023-802-15-agenda.xlsx))

1. **Announcements**

Don’t forget to log in to IMAT, when you speak, state your name and affiliation

You must be registered to participate in any of these session meetings.

WG 1st Vice-Chair, Phil Beecher (Wi-SUN Alliance) discussed the meeting requirements:

* Register your attendance in IMAT and if you have any problems please reach out to Phil Beecher. 75% Attendance = 10 time slots (any 10 of the 13)
	+ Question: Are adhocs getting attendance? No, that was not done on purpose, those will be removed after this meeting.
* Using Direct Vote Live (DVL) for the mid-week and closing plenary.
* TG and SC chairs, get motions to the WG chairs as soon as possible and immediately after your TG closing meeting.
	+ Comment: SG THz will have two motions for the mid-week on Wednesday. DVL will be set up for those for the mid-week.
* Q: Do we get .15 credit for the Tutorial? Yes, that will be added to IMAT

Lunch is included in your registration and will be served on the first floor.

WG Chair explained how sensitive the mics are at this location – speak directly into the mic.

Everyone should have received an email about accessing the electronic media. LMSC reflector has the slides about how to download if you have problems

* Question: How do you access old task group specifications?
	+ You can use Get802 for standards after they have been published 6 months.
	+ If they are not on Get802, you can get them here on site – talk to Rick Alfin if you have problems.
	+ They give out the media to participants on a yearly basis. But this is only for participants use, it can NOT be shared with anyone else.

For the remote participation, we are using Scarlet Boxes in the rooms. It is a different setup than in the past so check the slides the Chair sent in an email about the setup.

WG Chair asked for new participants to speak up; there was one person in the room and one on-line.

## Legal

WG Chair informed the group of and displayed the IEEE-SA patent policy presentation
slides 0-5 ([*http://standards.ieee.org/board/pat/pat-slideset.ppt*](http://standards.ieee.org/board/pat/pat-slideset.ppt)).

* WG Chair asked the participants who wished to declare a Letter of Assurance (LoA) or to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) that the participant believes may be essential for any of the ongoing activities within the 802.15 WG.
* No essential patent claims were brought forth.

WG Chair displayed and read the standard IEEE Anti-Trust statement and the standard IEEE Copyright Policy, including Code of Ethics.

WG Chair presented the WG opening report: [*15-23-0302-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0302-01-0000-july-2023-802-15-opening-report.pptx)

* Voters:133, nearly:18, aspirant: 26
* Elections in March 2024 for officers
* The WebEx is organized by virtual rooms
* Some schedule highlights include:
	+ Tutorial on Monday night
	+ A joint session with 802.1 (802.15.6) on Tuesday
	+ Wednesday night – social – across the street.

WG Chair went through the agenda.

## WG Approvals

Motion to *approve the agenda (*[*15-23-0301-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0301-01-0000-july-2023-802-15-agenda.xlsx))

* Moved by: Ann Krieger (US DoD)
* Seconded by: Thomas Kuerner (TU Braunschweig)
* Discussion: none
* Approved by unanimous consent.

Motion to *approve the previous meeting minutes (*[*15-23-0220-03*](https://mentor.ieee.org/802.15/dcn/23/15-23-0220-03-0000-802-15-wg-cac-min-may-2023-hybrid-interim.docx)*)*

* Moved by: Ann Krieger (US DoD)
* Seconded by: Thomas Kuerner (TU Braunschweig)
* Discussion: none
* Approved by unanimous consent.

WG Chair presented the SASB dates, on a tab in the agenda ([*15-23-0301-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0301-01-0000-july-2023-802-15-agenda.xlsx)), there is a lag during the summer.

## General and Administrative

WG Chair presented the general meeting information:

* Voters: (voters: 133, nearly: 18, aspirant: 26)
* We have someone automating the voting rights.
* The next step will be to update the website.

Ben Rolfe (BCA) gave the treasurers report (*EC-23-0003-04*):

* Same report we gave in May.

The July 802.15 CAC meeting minutes are included in the WG minutes
*(this document, 15-23-0321-00)*

The Wireless Chairs Steering Committee meeting minutes are contained in
*(document #:*[*ec-23-0147-00-WCSG -minutes*](https://mentor.ieee.org/802-ec/dcn/23/ec-23-0147-00-WCSG-minutes-july-9-2023.docx)*)*

## Future Meetings and Polls

The next session is the Wireless interim in Atlanta in September.

We were asked to conduct a poll about Food and Beverage for this Friday

* Mid morning break: 15
* Lunch 15
* Afternoon break: 14

There was a discussion at the Wireless chairs meet about continuing or discontinuing mixed-mode or hybrid meetings moving forward.

* Wireless Interim sessions for 2024 (Jan, May, Sept) will be hybrid.
* They want feedback from the WG about moving past 2024.
	+ Benefits for remote participants – no travel
	+ But in-person leads to better discussions.
	+ Should we encourage participation by changing voting rights?

## 802.15 Status Reports (Goals/Objectives for the Week)

**TG 15.3mb Revision**: recirculation

**SC THz**: two motions on Wednesday

**TG 4ab (NG-UWB)**: doc #: 15-23-0305-00

**SC WNG**: no contributions yet.

**TG 4ac (Privacy Amendment)**

**SC IETF**

**TG 4me (Revision to 2020)** – doc #: 15-23-0275-03

TG 6ma – (BAN/VAN) – doc #: 15-23-0318-00

TG 7a (OCC) – comment resolution

TG 13 – will be published soon.

TG 14 & TG15 are still in hibernation

TG 16t (802.16 Lic-NB Amendment)

IG JS1G – completed the business in May, will be continuing in 802.19.

* Can close down this IG, removing the meetings for this session.

IG SUNPHYs (p.k.a. NG-OFDM)

Joint 802.1/802.15 Mtg. – TG 6ma is presenting

SC (Maintenance& Rules)

##  New Business

WG Chair asked if there was any new business. Nothing was raised.

##  Any Other Business

WG Chair asked if there was any other business. Nothing was raised.

##  WG Recess

**11:55 PM** WG Chair recessed the meeting

# 802.1 / 802.15 Joint Mtg.

# Tuesday, 11 July 2023

**6:03 PM** 802.1 WG Chair Glenn Parsons (Ericsson) and 802.15 WG Chair Clint Powell (HID) called the meeting to order. This activity is looking at 802.1 features/concepts that can be applied to the various 802.15 standards.

Glenn shared the [agenda](https://1.ieee802.org/2023-07-plenary-joint-1-15-agenda/) (with no objections to the agenda) and went through the IEEE patent (there was no response to the Call for Potentially Essential Patents) and other introduction [slides](https://www.ieee802.org/1/files/public/templates/admin-TG-intro-0721-v01.pdf).

Marco Hernandez (YRP-IAI, Japan/CWC, Oulu Univ. Finland) presented: Overview of 15.6-2012 and P15.6ma in the 802 architecture (document # [15-23-0316-00](https://mentor.ieee.org/802.15/dcn/23/15-23-0316-00-006a-overview-of-15-6-2012-std-and-p15-6ma-in-the-802-architecture.pptx)):

* 802.15.6, Body Area Network, specifies a simple star topology of devices or wearables around the human body.
* The TG 15.6ma amendment works on a revision of the 802.15.6-Std - specified MAC
* Guarantee of delivery of data to infrastructure (throughput and latency in L2), interest in TSN
* Traffic type for the UWB PHY in 15.4ma
* Planned QoS in 15.4ma
* Comment of questions:
	+ QoS table from 802.1D – you intend to update it based on 802.1Q that has superseded 802.1D? Yes
	+ EtherType with the MAC – page 13? We are rewriting the MAC to include the EtherType field.
	+ Convergence function, to add that into 802.1AC. 802.1 would need to open a PAR, what is your timeframe?
		- Probably before the TG6ma letter ballot it would be nice to have this PAR, so the sooner the better.
		- The PAR would be to amend 802.1AC. The sooner the better,
		- 802.1 will have a motion, this session, for the September 2023 802.1 interim session to develop a PAR for an amendment to 802.1AC
		- 802.1 & 802.15 will have a joint call during the interims in September 2023.

Tero Kivinen (self) presented: TG4ac and privacy addresses (document #: [15-23-0384-01](https://mentor.ieee.org/802.15/dcn/23/15-23-0384-01-04ac-mac-address-formats.pptx))

* TG4ac needs to decide how privacy addresses are generated and what kind of format should be used for them.
* 802.15 has different bit/byte orders than other groups. Some of our options moving forward are?
	+ Use AAI-64 as specified in the 802c-2017
	+ Use existing 802.15 CID
	+ Allocate new CID for private addressing
	+ Use ELI-64 as specified in the 802c-2017
* Why haven’t we cared before? Because most of our items/devices were static, it didn’t matter before. But now they interact with moving items/devices or move, so now we need some privacy in the addressing.
* Comments or questions?
	+ We only have broadcast bit defined but no multicast (all ffs)
	+ Q: There is not a lot of bridging of 64-bit addresses. Do they become IPv6 addresses? We don’t think so. Then pick a 64-bit address that is global in both systems, nice safe choice, if 39 bits are enough.
		- Small mobile case is who is worried about tracking, not a large use case.
	+ There is no such thing as a random address, you will always need to identify an item/device.
	+ Q: Are you familiar with 802E “IEEE Recommended Practice for Privacy Considerations for IEEE 802® Technologies”?
	+ In 802.1, they have been looking at privacy of the traffic – other things to consider.
	+ All of these are off the cuff feedback
* Please think about this – Thursday PM2 is the next TG4ac, but it is 802.1 plenary. Please send any comments to Tero.
* If you want a more formal response, you can send a liaison.

At the next meeting in September 2023, the agenda item will be the PAR proposal for an 802.1AC convergence function, slotted during the daytime. Looking ahead to November 2023, 802.15 will need to circle back, but a placeholder in. Action to 802.15 about what to talk about.

**6:58pm** 802.1 Chair adjourned the meeting

# 802.15 WG Mid-week

# Wednesday, 12th July 2023

**10:40 AM** WG Chair, Clint Powell (HID) called the meeting to order displaying (document #[*15-22-0301-02*](https://mentor.ieee.org/802.15/dcn/23/15-23-0301-02-0000-july-2023-802-15-agenda.xlsx))

Announcements:

* We are a family of standards, please keep an eye on other groups, i.e. TG4ab & TG6ma, TG4ab & TG4ac. Tero (Kivinen) has done a good job reorganizing the 802.15.4 draft
* You must be registered to attend this session.
* Please look at the calendar on line for WebEx rooms. The 802.15 Graphic shows which Virtual room is for that meeting. We try to schedule the physical and virtual rooms the same for the week, but this is not always possible. Please look at the most recent versions.
* This is a mixed-mode session and we will be using DVL for voting.
* All Motions are due by 6pm Thursday to the WG Chair and Phil Beecher (Wi-SUN Alliance)
* Social is tonight, at 6:30
* Any new participants? - No
* No patent issues.
* Use IMAT for attendance, need 10 meetings for the 75%
* New session for TG4ab on Wed PM1 – virtual room 3.

Polls

* There will be a future meetings poll sent to your emails, please return by the closing on Thursday.
* Someone must be physically present in your sessions.

All TG, SG and SC chairs gave a quick verbal status. There are currently 3 motions.

**TG 3mb Revision:** Has adjourned but will have closing report at the closing plenary.

**SC THz Closing Report:** Thomas Kuerner (TU Braunschweig) presented (*15-23-0348-02*)

* Motion: Move that 802.15 WG reviews and approves the response to the liaison from ETSI ISG THz in doc. IEEE 802.15-23-0344-02 and forward it to 802.18 TAG for submission to 802 EC.
	+ Moved: Thomas Kürner
	+ Seconded: Phil Beecher
	+ Discussion: none
	+ Votes: Y 28, N 0, A 2
* Motion: Move that 802.15 WG reviews and approves the response to the liaison to APG in doc. IEEE 802.15-23-0345-02 and forward it to 802.18 TAG for submission to 802 EC.
	+ Moved: Thomas Kürner
	+ Seconded: Phil Beecher
	+ Discussion: none
	+ Votes: Y 41, N 0, A 2
* They will not meet in September or November but will meet in January at the Panama City Interim

**TG 4ab**: Verbal

**SC WNG**: Verbal – one presentation.

**TG 4ac**: Verbal

**SC IETF**: Verbal

* Only two people attending, should we lesson the SC IETF meetings?
* Could turn it into standing report at the closing meeting?
* Could have calls in between?

**TG 4me**: Verbal

**TG 6ma**: Verbal

**TG 7a**: Verbal

**TG 16t**: Verbal

**IG SUN PHYs**: Problems with meeting (room and on-line)

* Priority to in room participants.

**Joint 802.1/802.15 Mtg**:

* Extremely well attended, two presentations: TG 6ma and TG 4ac.
* Q: who is engaged in the 802 Rev? Ben Rolfe has been attending the calls, but couldn’t come today because it conflicted with the 802.15 AC. Very important issue with 64 and 48 bit addressing.

**SC Maintenance:** Phil Beecher (Wi-SUN Alliance)

* Action to provide information to James Gill on information in 802Rev.
* Provided information about PARs (doc # [*15-23-0375-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0375-01-0mag-802-15-par-csd-comments-july-2023.pptx)) to the appropriate WG. This needed to be done by 6pm on Tuesday. The document was circulated by email as there were no WG meetings before the deadline. A motion is provided below
* Motion: Approve 802.15 WG comments to PARs and ICAID in document 15-23-0375-01 to be submitted to WG chairs for consideration.
	+ Moved: Phil Beecher
	+ Seconded: Tero Kivinen
	+ Discussion: none
	+ Votes: Y 31, N 0, A 2

AOB

* Some doors lock when they close, please let us know if they do.

**11:33am** 802.15 Midweek recessed by WG Chair Clint Powell (HID) until Thursday 6:30.

**Wireless Next Generation (WNG)**

**11:38am** 802.15 WNG Called to order by Ben Rolfe (BCA) (doc #[*15-23-0396-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0396-01-wng0-july-agenda-and-meeting-slides.pptx))

This is a non PAR activity. There was no discussion on the Agenda

**11:48am** – recess for technical difficulties.

**11:54am** – called back to order

After problems with WebEx – Some corrections were made to the agenda.

**Presentation:** Brief overview of 802.15.4 Revisionby Tero Kivinen (self) doc

* 802.15.4me is in the draft area.
* Tried to move everything optional out of Clause 6, what is in this section is what every device should be able to do. This should only have the minimal items you need.
* Clause 7, similar to clause 6, moving optional items to clause 10
* Need help on 10.2 and some other sections in 10, so please help and fill in.
* Questions (not on content, but on organization)
	+ None
* Starting letter ballot soon.
* What should the WG do next:
	+ Review the draft
	+ Become familiar with the new organization
	+ Submit comments on the Letter ballot.
* All empty sections are informative.

**Any other business**

* 802.15.13 had a tutorial in Atlanta, but couldn’t bring all the equipment. It will be set up again in Europa Conference Room during the lunch break.

**12:16pm** WNG Adjourned by Ben Rolfe

# 802.15 WG Closing

# Thursday, 13th July 2023

**6:30 PM** WG Chair, Clint Powell (HID) called the meeting to order displaying the closing agenda (document #[15-23-0301-04](https://mentor.ieee.org/802.15/dcn/23/15-23-0301-04-0000-july-2023-802-15-agenda.xlsx))

## Announcements

Announce name and affiliation when you speak.

WG Chair mentioned the 75% attendance (10 out of 13 meetings). Attendance closes when we adjourn. WG Vice-Chair – reminder about 9 people still need one more meeting.

Direct Vote Live (DVL) will be used for all votes. You should have received an email with a link. If you did not, please let Clint or Phil know. All votes are recorded below as Y x, N x, A x (Yes, No, Abstain)

The Chair discussed the historic plaque and that 802.15 was not on the plaque, we need a consistent, shorter name. An epoll will be coming out shortly.

**Future Meetings**

September – Wireless Interim in Atlanta

Chairs – important reminder, if you are not physically going to be at the meeting, you need someone at the meeting for the in-person component. The in-person component is more important. Meetings should not start until the in-person component is ready.

Polls – You should have received an email regarding a Poll about future sessions. Please complete it before 8am Friday morning to allow us to get the information to the closing LMSC meeting Friday afternoon. Fill in by Friday morning.

## Closing Reports

**TG3mb Closing Report**: Thomas Kurner presented: [15-23-0347-00](https://mentor.ieee.org/802.15/dcn/23/15-23-0347-00-03ma-tg3mb-closing-plenary-slides-meeting-july-2023.pptx)  (needs 1 slot for Sept.):

* Motion: Move “WG 802.15 has reviewed and approves the CSD 15-21-0477-04-03ma-draft-csd-15-3ma.docx and the CA document 15-22-0462-05-03ma-coexistence-assurance.doc and requests unconditional approval from the EC to submit P802-15-3-Rev B-D6.pdf to RevCom.”
	+ Moved: Thomas Kürner
	+ Seconded: Phil Beecher
	+ Discussion:
	+ Vote: Y 33, N 0 , A 0
* Motion: Move that 802.15 WG approve the formation of a Comment Resolution Group (CRG) for the Standards Association balloting of the P802-15-3-Rev B-D6.pdf  with the following membership: Thomas Kürner (Chair), Iwao Hosako, Josep Jornet, Shoichi Kitazawa and Jörg Robert. The CRG is authorized to approve comment resolutions, edit the draft according to the comment resolutions, and to approve the start of recirculation ballots of the revised draft on behalf of the 802.15 WG. Comment resolution on recirculation ballots between sessions will be conducted via reflector email and via teleconferences announced to the reflector as per the LMSC 802 WG P&P.
	+ Moved: Thomas Kürner
	+ Seconded: Phil Beecher
	+ Discussion: All members are different affiliations and voting members
	+ Vote: Y 40, N 0, A 0

**SC THz Closing Report:** Presented during the mid-week (0 slots in Sept. Meet again in Jan)

**TG4ab Closing Report**: Ben Rolfe (BCA) presented[*15-23-0421-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0421-01-04ab-tg4ab-closing-report-july-2023.pptx)(8 slots in Sept.)

**WNG Closing Report**: Ben Rolfe (BCA) discussed verbally (1 slot in Sept.)

**TG4ac Closing Report:** Tero Kivinen (self) presented [*15-23-0157-03*](https://mentor.ieee.org/802.15/dcn/23/15-23-0157-03-0017-sg-priv-march-opening-and-closing-slides.pptx) (2 slots in Sept. preferably not against 802.11bh or .11bi)

**SC IETF Closing Report:** Presented during the mid-week (0 slots in Sept)

**TG4me Closing Report**: Gary Steubing (Cisco) presented [*15-23-0380-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0380-01-04me-july-2023-ieee-802-15-4me-plenary-agenda-and-closing.pptx) (4 slots in Sept. do not compete with JTC1)

* Motion: Move that 802.15 WG start a WG Letter Ballot requesting approval of document P802-15-04me-D00, to Standards Association ballot.
	+ Moved: Gary Stuebing
	+ Second: Phil Beecher
	+ Discussion: none
	+ Vote: Y 37, N 0, A 0

**TG6ma Closing Report**: Ryuji Kohno (YNU/YRP-IAI) presented [*15-23-0401-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0401-01-04ab-consensus-one-to-many-ranging-using-nba-mms-tfd.docx)(4 slots in Sept. – Preferences, AM1is the best, no PMs)

* Save Drafts in PDF with line numbering.

**TG7a Closing Report:** Yeong Min Jang (Kookmin University) presented [*15-23-0410-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0410-01-016t-direct-peer-to-peer-comments-jj.docx) (3 slots in Sept., Preference AM1)

* Motion: Move that 802.15 WG start a WG recirculation Letter Ballot requesting approval of CA document 15-22-0292-r3 and document P802.15.7a\_D5 (as edited in accordance with the instructions in document 15-23-0381-03-007a) and to forward document P802.15.7a\_D5, as edited in accordance with the instructions in document 115-23-0381-03-007a, and CA document 15-22-0292-r3 to Standards Association ballot pending the completion and inclusion of the edits in the draft.
	+ Moved: Yeong Min Jang
	+ Seconded: Phil Beecher
	+ Discussion: none
	+ Vote: Y 38, N 0, A 2
* Motion: Move that 802.15 WG approve the formation of a Comment Resolution Group (CRG) for the WG balloting of the P802.15.7a\_D5 with the following membership: Yeong Min Jang(Chair), Sang-Kyu Lim, Ryuji Kohno, and Seongsoon Joo. The 802.15.7a CRG is authorized to approve comment resolutions, edit the draft according to the comment resolutions, and to approve the start of recirculation ballots of the revised draft on behalf of the 802.15 WG. Comment resolution on recirculation ballots between sessions will be conducted via reflector email and via teleconferences announced to the reflector as per the LMSC 802 WG P&P.
	+ Moved: Yeong Min Jang
	+ Seconded: Phil Beecher
	+ Discussion: none
	+ Vote: Y 36, N 0, A 1

**TG16t Closing Report:** Tim Godfrey (EPRI) presented [*15-23-0419-00*](https://mentor.ieee.org/802.15/dcn/23/15-23-0419-00-016t-july-2023-tg16t-closing-report.pptx)(4 slots in Sept.)

**IG SUN PHYs:** Thomas Almholt (TI) presented [*15-23-0417-02*](https://mentor.ieee.org/802.15/dcn/23/15-23-0417-02-04ad-ig-sun-phy-next-july-23-gen.pptx) (3 slots in Sept)

* Problem with meeting day #1 (room/WebEx)
* Motion: That the 802.15 Working Group seeks approval from the IEEE 802 LMSC to form a study group in 802.15 to develop the PAR and CSD documents for “Next Generation SUN PHY” and additionally authorize the 802.15 WG Chair to make any necessary changes to these docs required to support the submission.
	+ Moved: Thomas Almholt
	+ Seconded: Phil Beecher
	+ Discussion: None
	+ Vote: Y 37, N 0, A 0

**Joint Session 802.1/802.15** Phil Beecher (Wi-SUN) verbally reiterated what was reported at the mid-week. (1 slot in Sept. during the day)

**SC-Maintenance:** Phil Beecher (Wi-SUN) presented [*15-23-0357-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0357-01-0mag-scm-opening-and-closing-report-plenary-july-2023.pptx)(3-4 slots in Sept.)

* 802.11 PAR has had more discussion. 802f there is a question about scope.

**Liaison Reports**

**802.24 Liaison Report –** Tim Godfrey (EPRI) presented [*24-23-0021-00*](https://mentor.ieee.org/802.24/dcn/23/24-23-0021-00-0000-july-2023-closing-report.pptx):

* Same meeting pattern in Sept. (Tues & Wed PM4)

**802.18 RRTAG Liaison Report –** Edward Au posted the report:

**802.19 Coexistence TAG Liaison Report –** Ben Rolfe (BCA) gave a verbal report.

* Motion to create a study group for an amendment to 19.3

**802.11 Liaison Report** – Al Petrick (Jones, Petrick and Associates) presented 15-23-0423-00

## AOB

* Don’t forget to register you attendance and to register for the Interim in September.

**WG Adjourn**

**7:56 PM** The WG Chair adjourned the meeting

# Annex A Total attendance (in-person + remote) =

|  |  |  |
| --- | --- | --- |
| Last Name | First Name | Affiliation |
| Adakeja | Olubukola | Teradyne, Inc. |
| Akhavan | Koorosh | Qualcomm Incorporated |
| Aldana | Carlos | Facebook |
| Al-kadi | Ghiath | STMicroelectronics |
| Almholt | Thomas | Texas Instruments Inc. |
| Amezawa | Yasuharu | Mobile Techno Corp. |
| Andre | Jean-Marie | ST micro |
| Anliker | Claudio | ETH Zurich |
| Ansley | Carol | IEEE member / Self Employed |
| Anzai | Daisuke | Nagoya Institute of Technology |
| Bahn | Christy | IEEE STAFF |
| Bansal | Ankur | SAMSUNG |
| Barbour | Ian | IEEE STAFF |
| Barras | David | 3db Access AG |
| Baykas | Tuncer | Ofinno |
| BEECHER | PHILIP E | Wi-SUN Alliance |
| Beg | Chris | Cognitive Systems Corp. |
| Behnamfar | Firouz | Apple Inc. |
| Berens | Friedbert | FBConsulting Sarl |
| Berger | Catherine | IEEE STAFF |
| Bettesh | Ido | Apple Inc. |
| Bims | Harry | Bims Laboratories, Inc. |
| Bober | Lennert | Fraunhofer Heinrich Hertz Institute |
| Brown | Monique | National Institute of Information and Communications Technology (NICT) |
| Buyukbas | Afsin | Ict authority of Turkiye |
| Calvert | Chris | Landis Gyr Group Worldwide |
| Canchi | Radhakrishna | Kyocera International Inc |
| Cao | Rui | NXP Semiconductors |
| Cha | Jaesang | CHIBA UNIV. & VTASC Corp., Ltd |
| Chakraborty | Abhiram | Infineon Technologies |
| Chaplin | Clint | Self |
| Chen | Run | New Radio Technology Co., Ltd. |
| Chen | You-Wei | Mediatek Inc |
| Chitrakar | Rojan | Huawei International Pte Ltd |
| Cho | Hangyu | LG ELECTRONICS |
| Choi | Jin Seek |   |
| Choi | Jinsoo | LG ELECTRONICS |
| Choi | Sangsung | Kookmin University |
| Clanney | Nathan | Siemens Mobility, Inc. |
| Corbalan Pelegrin | Pablo | NXP Semiconductors |
| Danev | Boris | 3db Access AG |
| da Silva | Claudio | Meta Platforms, Inc. |
| De Ruijter | Hendricus | Silicon Laboratories |
| Dolmans | Guido | Holst Centre / IMEC-NL |
| Dotlic | Igor | Qorvo |
| Dowd | Garrett | Battelle Memorial Institute |
| Du | Jianxuan | NXP Semiconductors |
| Ekrem | Ersen | Google, LLC |
| EMMELMANN | MARC | Self |
| Gan | Ming | Huawei Technologies Co., Ltd |
| Ghosh | Chittabrata | Facebook, Inc. |
| Gilb | James | General Atomics Aeronautical Systems, Inc. |
| Godfrey | Tim | Electric Power Research Institute, Inc. (EPRI) |
| Golshan | Robert | Apple, Inc. |
| Granhaug | Kristian | novelda |
| Grosswindhager | Bernhard | NXP Semiconductors |
| Gruber | Josef | Infineon Technologies |
| Guimond | Raphael | SPARK Microsystems |
| Guo | Jianlin | Mitsubishi Electric Research Labs (MERL) |
| Guo | Ziyang | Huawei Technologies Co., Ltd |
| Ha | Taeyoung | Samsung Electronics Co., Ltd. |
| Haasz | Jodi | IEEE Standards Association (IEEE-SA) |
| Harada | Hiroshi | Kyoto University; National Institute of Info and Comms Technology (NICT) |
| Harrington | Timothy | Pro-ID |
| Hartman | James | Landis Gyr Group Worldwide |
| Hedayat | Ahmadreza | Apple Inc. |
| Henry | Jerome | Cisco Systems, Inc. |
| Hernandez | Marco | National Institute of Information and Communications Technology (NICT) |
| Hirata | Masayuki | Osaka Univ. Grad School of Med, Dept of Neurological Diag and Rest. |
| Hjortland | Haakon | Novelda AS |
| HOSAKO | IWAO | National Institute of Information and Communications Technology (NICT) |
| Hotchkiss | Ron | IEEE STAFF |
| Huang | Lei | Huawei Technologies Co., Ltd |
| Huszak | Gergely | KONE |
| Ichapurapu | Ravi | Amazon Lab126 |
| Ikegami | Tetsushi | Meiji University |
| Jang | Yeong Min | Kookmin University |
| Jeffries | Timothy | Futurewei Technologies |
| Jiang | Jinjing | Apple Inc. |
| JOO | SEONG-SOON | Korea Platform Service Technology (KPST) |
| Jornet | Josep Miquel | Northeastern University |
| Jungnickel | Volker | Fraunhofer Heinrich Hertz Institute |
| Juntunen | Juha | Meteor Communications Corp. |
| Kabbinale | Aniruddh | SAMSUNG |
| Kalkundrikar | Vishal | Ondas Networks |
| Kandala | Srinivas | SAMSUNG |
| Kandhalu | Arvind | Amazon Lab126 |
| Kasamatsu | Akifumi | National Institute of Information and Communications Technology (NICT) |
| Kennedy | Richard | IEEE member / Self Employed |
| Keren | Rani | Huawei Technologies Co., Ltd |
| Kerry | Stuart | OK-Brit; Self |
| Kim | Minsoo | YRP International Alliance Institute |
| Kipness | Michael | IEEE Standards Association (IEEE-SA) |
| Kitazawa | Shoichi | Muroran IT |
| Kivinen | Tero | Self Employed |
| KO | GUNHO | TTA |
| KOBAYASHI | Takumi | YRP International Alliance Institute |
| Kohno | Ryuji | YNU/CWC UofOulu; YNU/YRP-IAI |
| Korn | Clemens | Fraunhofer IIS; Technische Universitaet Ilmenau |
| Krebs | Alexander | Apple Inc. |
| Krieger | Ann | US Department of Defense |
| kristem | Vinod | Apple Inc. |
| Kuechler | Wolfgang | NXP Semiconductors |
| Kuerner | Thomas | TU Braunschweig |
| Kuramochi | Takashi | LAPIS Semiconductor Co., Ltd |
| Lansford | James | Qualcomm Incorporated |
| Lee | Hong Won | LG ELECTRONICS |
| Lee | Jack | Samsung Electronics Co., Ltd. |
| Lee | Jaegook | SAMSUNG ELECTRONICS |
| LEE | Mingyu | Samsung Electronics Co., Ltd. |
| Lee | Nancy | Signify |
| Lemsitzer | Stefan | NXP Semiconductors |
| Leong | Frank | NXP Semiconductors |
| Li | Huan-Bang | National Institute of Information and Communications Technology (NICT) |
| Lim | Sang-Kyu | Electronics and Telecommunications Research Institute (ETRI) |
| Lin | Wei | Huawei Technologies Co., Ltd |
| Lindskog | Erik | SAMSUNG |
| LIU | CHENCHEN | Huawei Technologies Co., Ltd |
| Liu | Yong | Apple, Inc. |
| Lopez | Miguel | Ericsson AB |
| Luo | Xiliang | Apple, Inc. |
| Ma | Li | MediaTek Inc. |
| Ma | Yongsen | Redpoint Positioning |
| Mak | Siukai | Broadcom Corporation |
| Maman | Mickael | STMicroelectronics |
| Mano | Hiroshi | Koden Techno Info K.K. |
| MARIAPPAN | VINAYAGAM | SMR Automotive Modules Korea Ltd |
| Marks | Roger | EthAirNet Associates |
| McCann | Stephen | BlackBerry |
| Megahed | Abdelfattah | Renesas Electronics Corporation |
| Mueller | Robert | DENSO AUTO Deutschland GmbH; Ilmenau Univ of Tech - TU Ilmenau |
| Murray | Carl | Qorvo |
| Nabki | Frederic | SPARK Microsystems |
| Nagai | Yukimasa | Mitsubishi Electric Corporation |
| Namboodiri | Vamadevan | SAMSUNG ELECTRONICS |
| Neirynck | Dries | Ultra Radio Ltd |
| Niewczas | Jaroslaw | Qorvo |
| Ogawa | Hiroyo | National Institute of Information and Communications Technology (NICT) |
| OH | HEUNG RYONG | TTA |
| Orlando | Christian | IEEE STAFF |
| Orlik | Philip | Mitsubishi Electric Corporation |
| Pakrooh | Pooria | Qualcomm Technologies, Inc. |
| Palmer | Clark | Meteorcomm LLC |
| Pare | Thomas | MediaTek Inc. |
| Parthasarathi | Srivathsa Masthi | NXP Semiconductors |
| Patel | Tushar | Teradyne, Inc. |
| Peng | Xiaohui | Huawei Technologies Co., Ltd |
| Petrov | Vitaly | Northeastern University |
| Pirhonen | Riku | NXP Semiconductors |
| Pleym | Jan | Novelda AS |
| Powell | Clinton | Powell Wireless Consulting, LLC |
| Pulikkoonattu | Rethnakaran | Broadcom Corporation |
| Qi | Yinan | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| QIAN | BIN | Huawei Technologies Co., Ltd |
| Rahmani | Mohammad | SPARK Microsystems |
| Redlich | Oded | Huawei Technologies Co., Ltd |
| Robert | Joerg | TU Ilmenau/Fraunhofer IIS |
| Rolfe | Benjamin | Blind Creek Associates |
| Saito | Hiroki | ARIS, Inc. |
| Sakaguchi | Naotaka | Mitsubishi Electric Corporation |
| Salazar Cardozo | Ruben E | Landis+Gyr AG |
| Sand | Stephan | German Aerospace Center (DLR) |
| Sasaki | Shigenobu | Niigata University |
| Sayrafian | Kamran | National Institute of Standards and Technology |
| Schmidt | Reinhold | Infineon Technologies |
| Schweizer | Benedikt | Apple Inc. |
| Segev | Jonathan | Intel Corporation |
| Sekine | Norihiko | National Institute of Information and Communications Technology (NICT) |
| Shah | Kunal | Silver Spring Networks Inc. |
| SHAHAR | MENASHE | Ondas Networks |
| Shellhammer | Stephen | Qualcomm Incorporated |
| Shilo | Shimi | Huawei Technologies Co., Ltd |
| shimazaki | Takunori | Jikei University of Health Care Sciences |
| siaud | Isabelle | Orange |
| So | Youngwan | Samsung Electronics Co., Ltd. |
| Sosack | Robert | Molex Incorporated |
| Stuebing | Gary | Cisco Systems, Inc. |
| Sturek | Don | Itron Inc. |
| Sumi | Takenori | Mitsubishi Electric Corporation |
| Sun | Li | Huawei Technologies Co., Ltd |
| Sun | Li-Hsiang | MediaTek Inc. |
| Suzuki | Takafumi | NICT |
| Takabayashi | Kento | Toyo University |
| Tang | Weidong | NewRadio Techologies Co., Ltd. |
| Thakur | Sidharth | Apple Inc. |
| Tian | Bin | Qualcomm Incorporated |
| Tomeba | Hiromichi | SHARP CORPORATION |
| Verma | Lochan | Apple, Inc. |
| Verso | Billy | Qorvo |
| Wang | Chao Chun | MediaTek Inc. |
| Wang | Pu | Mitsubishi Electric Research Laboratories (MERL) |
| Wang | Yi | Huawei Technologies Co., Ltd |
| Wang | Yi-Hsiu | Zeku |
| Ward | Lisa | Rohde & Schwarz |
| Wendt | Matthias | Signify |
| Wilhelmsson | Leif | Ericsson AB |
| Wisland | Dag | University of Oslo; Novelda AS |
| Wu | Kanke | Qualcomm Incorporated |
| Wu | Kuan | Huawei Technologies Co., Ltd |
| Xiao | Libra | NewRadio Technology Co., Ltd. |
| Yan | Aiguo | Zeku Inc |
| Yang | Menghuan | State Key Laboratory of Satellite Navigation System and Equipment Tech. |
| Yang | Shang-Te | Apple, Inc. |
| Yang | Xun | Huawei Technologies Co., Ltd |
| Yang | Yifei | Huawei Technologies Co., Ltd |
| YE | ZHENZHEN | Red Point Positioning |
| Yee | Peter | NSA-CSD |
| Yong | Su Khiong | Apple, Inc. |
| Yoon | Jeonghwan | LG ELECTRONICS |
| Yoon | Kangjin | Meta Platforms Inc. |
| Yufit | Alex | CEVA DSP |
| Zakaib | Larry | SPARK Microsystems |
| Zeisberg | Sven | ZIGPOS GmbH |
| Zou | Qiyue | Facebook |
| Zuniga | Juan Carlos | Cisco Systems, Inc. |

# 802.15 CAC Mtg.

# Sunday, 9th July 2023

## Attendance (13)

Clint Powell

Phil Beecher

Ann Krieger

Ben Rolfe

Tim Godfrey

Tero Kivinen

Gary Stuebing

Clint Chapman

Thomas Kurner

Ryuji Kohno

Christy Bahn

Peter Yee

Yeong Min

## Minutes

**5:47 pm**: WG Chair, Clint Powell (HID) called the mtg. to order and presented the agenda (document #[*15-23-0301-01*](https://mentor.ieee.org/802.15/dcn/23/15-23-0301-01-0000-july-2023-802-15-agenda.xlsx))

General Announcements:

* Audio – The Microphones are very directional, Clint is preparing an email to pass to the chairs.
* Clint is employed by HID Global and they are sponsoring him for IEEE 802.
* This is the 144th IEEE 80215, we should plan something for the 150th
* Added to the agenda: What should be do about mixed mode meetings and going forward
	+ Wireless chairs did approve mixed mode through 2024
	+ Thoughts around the room
		- If no mixed mode we may lose some voices.
		- Mixed - in-person is best but it is good to have
			* How to get people here, create incentives to attend?
			* Need to figure out the costs (difficulty with setup)
		- How do we get new people in?
		- How do we credit voting rights with remote people?
		- Attending in person can give you exposure to other TGs.
	+ How do you encourage people to get into standards and Communications in general?
* Reminders: Chairs show opening slides and ask patent claim question – flash them quickly.
* Update on Nescom and RevCom dates: We have not gotten confirmation about any of them.

July Meetings:

* 802.15 Chairs Corner: 2pm to 3:00pm on Sun., Jul. 09, 2023
* 802 Wireless Chairs (WCSC) meeting: 4pm to 5:30pm on Sun. Jul. 09, 2023
* Opening 802.15 WG AC meeting: 5:30pm to 6:30pm on Sun. Jul. 09, 2023
* Opening LMSC meeting: 8:00am to 9:00am on Mon. Jul 10, 2023
* Opening 802.15 WG meeting: 9:00am to 10:00am on Mon. Jul 10, 2023
* Mid-Week 802.15 WG AC meeting: 7:30am to 8:30am on Wed. Jul 12, 2023
* Mid-Week 802.15 WG meeting: 10:30am to 11:30am on Wed. Jul 12, 2023
* Closing 802.15 WG meeting: 4pm to 6pm on Thurs. Jul 13 2023
* Closing 802 LMSC: 1pm to 6pm on Friday, Jul 14, 2023
* Joint meeting with 802.1/802.15 Tues. Jul 11, 2023

Subgroup Status and Objectives for July Plenary.

* Task Group 3mb
* Study Group THz
* Task Group 4ab – NG-UWB
* Standing Committee WNG
	+ None at this time.
* Task Group 4ac Privacy Amendment
* Standing Committee IETF
* Task Group 4me Revision to 2020
* Task Group 6ma – BAN/VAN
* Task Group 7a – OCC
* Task Group 16t – 802.16 Lic-NB Amendment
* IG JS1G
	+ Move to 4me.
* IG SUN PHYs (p.k.a. NG-OFDM)
	+ Study group or interest group.
* Joint 802.1/802.15 Mtg – TG6ma presenting.
* Standing Committee – SC-M / Rules
* JTC1/SC6 - Peter Yee (Akayla)
	+ If there are Negative LOAs, the Standards will never get to an ISO ballot.
	+ The next meeting on Tuesday PM2

Upcoming Meetings:

* September 2023 – Wireless Interim in Atlanta
* November 2023 – Plenary in Hawaii

AOB:

* Attendance for 802.15 in IMAT is as follows
	+ 13 slots are deemed as 100%, therefore 75% is 10 slots.
* Host keys for WebEx – reminder emails

**6:20pm** WG chair recessed until Wednesday (730-830am)

# 802.15 Mid-Week CAC Mtg.

# Wednesday, 12th July 2023

## Attendance

Clint Powell

Phil Beecher

Ann Krieger

Ben Rolfe

Tim Godfrey

Tero Kivinen

Gary Stuebing

Clint Chapman

Thomas Kurner

Ryuji Kohno

Yeong Min

Harry Bims

Christy Bahn

Larry Zakaib (on-line)

Lochan Verma (on-line)

## Minutes

**8:07am**: WG Chair, Clint Powell (HID) called the mtg. to order and presented the agenda ([15-23-0301-02](https://mentor.ieee.org/802.15/dcn/23/15-23-0301-02-0000-july-2023-802-15-agenda.xlsx))

General Announcements:

* Be prepared for anything that needs to go to the AC.

Mid week motions:

* SG THz
	+ Two motions – liaison statements.
* SC Maintenance
	+ Motion – to approve our comments to the PARs

Subgroup Status and Objectives for July Plenary

* Task Group 3mb
	+ Closing motions – yes
* Study Group THz
	+ Closing motions – no
* Task Group 4ab – NG-UWB
	+ No motions
* Standing Committee WNG
	+ None at this time – nothing on the agenda.
* Task Group 4ac Privacy Amendment
	+ No motions
	+ Is there a draft in 4ab? Not yet,
	+ Likely have draft after the September meeting
* Standing Committee IETF
	+ No motions
* Task Group 4me Revision to 2020
	+ Closing Motion – Yes - WG approval for a letter ballot
	+ No CRG formation
* Task Group 6ma – BAN/VAN
	+ No motions
* Task Group 7a – OCC
	+ Closing Motion – yes – conditional (resolution in the database)
* Task Group 16t – 802.16 Lic-NB Amendment
	+ No motions
	+ Have a motion in September
* Joint 802.1/802.15 Mtg – TG6ma presenting.
	+ Good meeting – joint meeting in Sept to create a 802.1 PAR
	+ 4ac also presented, 802.1 didn’t have a preference on which way to go.

Any Other Business:

* Problems with Room mixup
	+ If webex doesn’t work, move on.
	+ Priority - Make sure the local people can attend.
* Look at the updated graphic as the virtual room might change – it did for SC THz on Tuesday PM1.
	+ Document sent on Mentor, email about host keys.
	+ Google hosted IEEE mail is not forwarding all messages. Maybe send a plaintext email with the host keys.
* Changes to the graphic were made, making it more user friendly on phones
* Tero Kivinen (self) is giving a briefing on the overview of .4me at WNG and then also in September specifically to 4ab
* How to get people to the opening/mid-week/closing plenaries?
	+ WG doesn’t decide how voting rights are decided.
	+ 802.15 is not a single standard, so it is difficult to motivate people to things they are not interested in.
	+ Needs more discussion.

**9:01am** WG chair adjourned the CAC meeting.