**IEEE 802.15**

**Wireless Specialty Networks (WSN)**

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| Project | IEEE 802.15 Working Group for Wireless Specialty Networks (WSN) | |
| Title | **IEEE 802.15 TG 4ab (NG-UWB) minutes** | |
| Date Submitted | [7 Nov, 2024] | |
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| Re: | [Sep 802.15 Interim Meeting held in Hybrid Mode] | |
| Abstract | [IEEE 802.15 Task Group 4ab minutes] | |
| Purpose | [Official minutes of IEEE 802.15 TG 4ab] | |
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# Monday, 9 Sep, 2024 – PM1

**Opening**

**1:37 PM HST** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.  
(*15-24-0473-00-04ab*)

* >40 attendees joined the meeting

Chair introduced the hybrid meeting logistics.

Chair reminded the group of registration for 802 LMSC and wireless interim.

## Legal

Chair reminded the group of the following from the 802.15 opening meeting:

* IEEE-SA patent policy
* Submission of Letter(s) 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
* IEEE Anti-Trust statement
* IEEE Copyright Policy, including Code of Ethics

**Announcements**

Chair announced the agenda doc. *#15-24-0453-01-04ab* for the week. There were several requests on the time slots for presentations. The agenda was updated to doc. *#15-24-0453-02-04ab.* There was no further discuss on the agenda. It was passed with unanimous consent.

Chair raised the motion of minutes for Jul plenary *(doc. # 15-24-0472-00-04ab)* and telecons between Jul and Sep 2024 *(doc. # 15-24-0463-00-04ab)*. No discussion heard.

Motion to approve minutes contained in documents 15-24-0472-00 and 15-24-0463-00

* Moved by: David Xun Yang (Huawei)
* Second by: Clint Chaplin (Samsung)

No one objected to approve the motion. It was approved by unanimous consent.

Chair reviewed the objectives of this week.

**TG Meeting Activity**

Using the agenda *(doc. # 15-24-0453-02-04ab)* Chair proceeded with running the meeting.

Vice Chair Clint Chaplin (Samsung) and Billy Verso (Qorvo) reviewed the consolidated comments and assigned comments to volunteers. (*doc. # 15-24-0371-14-04ab*)

Chair reviewed the slots for breakout.

Chair recessed the mtg. @ 3:27PM HST, until Mon. PM2.

# Monday, 9 Sep, 2024 – PM2

## Opening

**4:03 PM HST** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.  
(*15-24-0473-00-04ab*)

* >40 attendees joined the meeting

## Legal

Chair reminded the group of the following from the 802.15 opening meeting:

* IEEE-SA patent policy
* Submission of Letter(s) 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
* IEEE Anti-Trust statement
* IEEE Copyright Policy, including Code of Ethics

**TG Meeting Activity**

Using the agenda *(doc. # 15-24-0453-02-04ab)* Chair proceeded with running the meeting.

**Presentation #1:**

Xiliang Luo (Apple) presented “Proposed Resolutions for CID 93, 174, etc.”

(*doc. # 15-24-0452-00-04ab*)

Need more discussion offline.

**Presentation #2:**

Bin Qian (Huawei) presented “Discussions on CID 965 and 1421”

(*doc. # 15-24-0455-00-04ab*)

Open discussion on possible resolutions.

**Presentation #3:**

Bin Qian (Huawei) presented “Sensing related comments resolution part 2”

(*doc. # 15-24-0454-00-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0454-00-04ab.*

Chair recessed the mtg. @ 5:51pm ET, until 8:00am Tue. AM1.

# Tuesday, 10 Sep, 2024 – AM1

## Opening

**8:00 AM ET** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.  
(*15-24-0473-00-04ab*)

* >40 attendees joined the meeting

## Legal

Chair reminded the group of the following from the 802.15 opening meeting:

* IEEE-SA patent policy
* Submission of Letter(s) 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
* IEEE Anti-Trust statement
* IEEE Copyright Policy, including Code of Ethics

**TG Meeting Activity**

Using the agenda *(doc. # 15-24-0453-02-04ab)* Chair proceeded with running the meeting.

**Presentation #4:**

Jinjing Jiang (Apple) presented “proposed resolution for one-to-many ranging related CIDs”

(*doc. # 15-24-0458-02-04ab*)

Need more discussion offline.

**Presentation #5:**

Alex Krebs (Apple) presented “LB207/D01 comment resolution -- Reassignment requests”

(*doc. # 15-24-0491-01-04ab*)

Need more discussion offline.

Vice chair Clint Chaplin (SRA) continued to review the consolidated comments and assigned comments to volunteers.

Chair recessed the mtg. @ 10:00am HST, until Tue. PM1.

# Tuesday, 10 Sep, 2024 – PM1

## Opening

**1:33 PM HST** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.  
(*15-24-0473-00-04ab*)

* >40 attendees joined the meeting

## Legal

Chair reminded the group of the following from the 802.15 opening meeting:

* IEEE-SA patent policy
* Submission of Letter(s) 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
* IEEE Anti-Trust statement
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**TG Meeting Activity**

Using the updated agenda *(doc. # 15-24-0453-03-04ab)* Chair proceed with running the meeting.

**Presentation #6:**

Panpan Li (Huawei) presented “Draft 1.0 Comment Resolution”

(*doc. # 15-24-0462-00-04ab*)

Need more discussion offline.

**Presentation #7:**

Alex Krebs (Apple) presented “LB207/D01 comment resolution -- Reassignment requests”

(*doc. # 15-24-0491-02-04ab*)

Need more discussion offline.

**Presentation #8:**

Hongwon Lee (LG) presented “Proposed Resolution for Hyper Block - Bitmap-based block scheduling”

(*doc. # 15-24-0478-00-04ab*)

Need more discussion offline.

Chair updated the agenda to *doc. # 15-24-0453-04-04ab.*

**Presentation #9:**

Alex Krebs (Apple) presented “LB207/D01 comment resolution -- Accept as proposed -- CIDs 42, 79, 117, 119, 120, 121, 123, 124, 159, 173, 303, 487, 498, 502, 1159, 1160, 1175, 1197, 1212, 1222, 1306, 1337, 1338, 1339, 1398”

(*doc. # 15-24-0494-00-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0494-00-04ab.*

Chair recessed the mtg. @ 9:45am HST, until Wed. PM1.

# Wednesday, 11 Sep, 2024 – PM1

## Opening

**1:30 PM HST** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.  
(*15-24-0473-00-04ab*)

* >40 attendees joined the meeting

## Legal

Chair reminded the group of the following from the 802.15 opening meeting:

* IEEE-SA patent policy
* Submission of Letter(s) 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
* IEEE Anti-Trust statement
* IEEE Copyright Policy, including Code of Ethics

Chair reviewed the agenda (*doc. # 15-24-0453-05-04ab*). There were several requests to change the agenda. The agenda was converted to *doc. # 15-24-0453-06-04ab.*

**TG Meeting Activity**

Using the updated agenda *(doc. # 15-24-0453-06-04ab)* Chair proceed with running the meeting.

**Presentation #10:**

Larry Zakaib (Spark Microsystems) presented “Draft 1.0 Proposed LE PHY Comments Resolution”

(*doc. # 15-24-0457-02-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0457-02-04ab.*

**Presentation #11:**

Pooria Pakrooh (Qualcomm) presented “Proposed Comments Resolution for 15.4ab D1.0 Sensing Comments”

(*doc. # 15-24-0515-00-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0515-00-04ab.*

Pooria Pakrooh (Qualcomm) continued to present “Discussion on CID 15”

(*doc. # 15-24-0449-00-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0449-00-04ab.*

**Presentation #12:**

Alex Krebs (Apple) presented “Proposed Comments Resolution for 15.4ab D1.0 Sensing Comments”

(*doc. # 15-24-0497-02-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0497-02-04ab.*

Chair recessed the mtg. @ 2:00pm ET, until Wed. PM2.

# Wednesday, 11 Sep, 2024 – PM2

## Opening

**4:00 PM HST** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.  
(*15-24-0473-00-04ab*)

* >40 attendees joined the meeting

## Legal

Chair reminded the group of the following from the 802.15 opening meeting:

* IEEE-SA patent policy
* Submission of Letter(s) 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
* IEEE Anti-Trust statement
* IEEE Copyright Policy, including Code of Ethics

**TG Meeting Activity**

Using the updated agenda *(doc. # 15-24-0453-07-04ab)* Chair proceed with running the meeting.

**Presentation #13:**

Billy Verso (Qorvo) presented “D01 selected comments on page eighty-four”

*(doc. # 15-24-0506-00-04ab)*

There was no objection to the comment resolutions as in *doc. # 15-24-0506-00-04ab.*

**Presentation #14:**

Billy Verso (Qorvo) presented “D01 comment resolutions misc-A”

*(doc. # 15-24-0516-00-04ab)*

Need more discussion offline.

Jinjing Jiang (Apple) continued to present the updates in “proposed resolution for one-to-many ranging related CIDs”

(*doc. # 15-24-0458-03-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0458-03-04ab.*

**Presentation #15:**

Hongwon Lee (LG) presented “Proposed Resolution for MMS - Public part 1”

(*doc. # 15-24-0479-02-04ab*)

Need more discussion offline.

**Presentation #16:**

Youngwan (Samsung) presented “Proposed comments resolutions - hyper block overlappinig parameters”

(*doc. # 15-24-0508-00-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0508-00-04ab.*

**Presentation #17:**

Xiliang Luo (Apple) presented “Proposed Resolutions for CID 93, 174, etc.”

(*doc. # 15-24-0452-01-04ab*)

Need more discussion offline.

Chair recessed the mtg. @ 6:00pm HST, until Thu. AM2.

# Thursday, Sep 12, 2024 – AM2

## Opening

**10:33 AM HST** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.  
(*15-24-0473-00-04ab*)

* ~50 attendees joined the meeting

## Legal

Chair reminded the group of the following from the 802.15 opening meeting:

* IEEE-SA patent policy
* Submission of Letter(s) 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
* IEEE Anti-Trust statement
* IEEE Copyright Policy, including Code of Ethics

**TG Meeting Activity**

Chair updated the agenda based on several presentation requests. Using the updated agenda *(doc. # 15-24-0453-08-04ab)* Chair proceed with running the meeting.

**Presentation #18:**

Carlos Aldana (Meta) presented “Proposed Resolution for CID 988”

(*doc. # 15-24-0407-00-04ab*)

Need more discussion offline.

Hongwon Lee (LG) presented the updates in “Proposed Resolution for MMS - Public part 1”

(*doc. # 15-24-0479-03-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0479-03-04ab.*

**Presentation #19:**

Riku Pirhonen (NXP Semiconductors) presented “Non-interleaved MMS comment resolution”

(*doc. # 15-24-0532-00-04ab*)

Need more discussion offline.

**Presentation #20:**

Li-Hsiang Sun (MediaTek) presented “MMS DS-TWR reporting and avoidance of clock attack”

(*doc. # 15-24-0502-00-04ab*)

Need more discussion offline.

**Presentation #21:**

Wenzheng Li (Calterah) presented “Further proposal on MMS in automotive use case”

(*doc. # 15-24-0469-00-04ab*)

Need more discussion offline.

**Presentation #22:**

Wenzheng Li (Calterah) presented “Proposed resolution for CID 187”

(*doc. # 15-24-0470-00-04ab*)

Need more discussion offline.

**Presentation #23:**

Wenzheng Li (Calterah) presented “Proposed resolutions for CID 192,198”

(*doc. # 15-24-0471-00-04ab*)

Need more discussion offline.

Chair recessed the mtg. @ 12:31pm HST, until Thu. PM1.

# Thursday, Sep 12, 2024 – PM1

## Opening

**1:32 PM HST** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.  
(*15-24-0473-00-04ab*)

* >40 attendees joined the meeting

## Legal

Chair reminded the group of the following from the 802.15 opening meeting:

* IEEE-SA patent policy
* Submission of Letter(s) 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
* IEEE Anti-Trust statement
* IEEE Copyright Policy, including Code of Ethics

**TG Meeting Activity**

Using the updated agenda *(doc. # 15-24-0453-09-04ab)* Chair proceed with running the meeting.

Panpan Li (Huawei) presented “Draft 1.0 Comment Resolution”

(*doc. # 15-24-0462-02-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0462-02-04ab.*

**Presentation #24:**

Panpan Li (Huawei) presented “Draft 1.0 NB PHY Related Comments Resolution-CID 980 981 989”

(*doc. # 15-24-0441-00-04ab*)

The presentation is to collect opinions from people.

SP1: Would you support removing channels from UNII-5? Y: 1

SP2: Should we add channels in UNII-4? Y: 1

The recommended resolution is to reject the comments based on the straw polls.

**Presentation #25:**

Rojan Chitrakar (Huawei) presented “Proposed Resolution for Hyper-block comments”

(*doc. # 15-24-0477-00-04ab*)

Need more discussion offline.

**Presentation #26:**

Rojan Chitrakar (Huawei) presented “Proposed resolutions for Report Compact frame part-1”

(*doc. # 15-24-0496-00-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0496-00-04ab.*

**Presentation #27:**

Rojan Chitrakar (Huawei) presented “Proposed Resolutions for common message fields”

(*doc. # 15-24-0505-00-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0505-00-04ab.*

Billy Verso (Qorvo) reviewed the comments in *doc. # 15-24-0371-14-04ab* and resolved comments through discussion with attendees.

Panpan Li (Huawei) presented the updates in “Draft 1.0 NB PHY Related Comments Resolution-CID 980 981 989”

(*doc. # 15-24-0441-01-04ab*)

There was no objection to the comment resolutions as in *doc. # 15-24-0441-01-04ab.*

Vice chair Clint Chaplin (Samsung) reviewed the current progress of comment resolutions and check the remaining comments with assignees.

Chair reviewed the telecon schedule between Sep and Nov.

Chair adjourned the mtg. @ 3:30pm HST.