**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 | [25 Mar, 2024] |
| Source | [David Xun Yang][][Bantian, Shenzhen, China] | Voice: [+86.159.1411.7462]Fax: [--]E-mail: [david.yangxun@huawei.com] |
| Re: | [Mar 802.15 Plenary 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, 11 Mar, 2024 – PM2

**Opening**

**4:01 PM MT** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.
(*15-24-0155-00-04ab*)

* ~50 attendees joined the meeting

Chair introduced the hybrid meeting logistics.

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

## 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. #15-24-0128-03-04ab for the week. Chair mentioned PM1 on Tuesday might be used. Chair proposed to move AM2 to PM1. There were requests to add topic on Wed. There was no further discuss on the agenda.

Motion #1: Motion to approve agenda contained in document 15-23-0128-04.

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

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

Chair raised the motion of minutes for Jan interim *(doc. # 15-24-0116-00-04ab)* and telecons between Jan and Mar 2024 *(doc. # 15-24-0140-00-04ab)*. No discussion heard.

Motion #2: Motion to approve minutes contained in documents 15-24-0116-00 and 15-24-0140-00

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

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

Chair introduced the objectives of this week and his plan to move forward. There was no further discussion on the plan.

**TG Meeting Activity**

Using the agenda *(doc. # 15-24-0128-03-04ab)* Chair proceeded with running the meeting.

Vice chair Clint Chaplin (SRA) reviewed the unresolved comments in “Consolidated Comments Draft c” (*doc. # 15-24-010-17-04ab*). Chair checked with comment assignees on the resolution timelines.

Clint filled in the table with the discussion consensus and updated it into *15-24-010-18-04ab.*

**Presentation #1:**

Carl Murray (Qorvo) presented “Toward consensus before resolving MMS ranging CIDs”

(*doc. # 15-24-0156-00-04ab*)

This presentation proposes some agreement on MMS operation before resolving related CIDs.

There were discussions on divergence. A breakout time was requested for further discussion.

Alex Krebs (Apple) reviewed “Low hanging fruit Draft C resolution proposals”

(*doc. # 15-24-0065-01-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0065-01-04ab*.

Bin Qian (Huawei) reviewed “proposed comments resolution on one-to-many ranging”

(*doc. # 15-24-0109-01-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0109-01-04ab*.

**Presentation #2:**

Larry Zakaib (Sparks Microsystems) presented “Proposed 4ab Draft C Comments Resolution for SSBD”

(*doc. # 15-24-0121-02-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0121-02-04ab*.

Chair recessed the mtg. @ 6:00PM MT, until Tue. AM1.

# Tuesday, 12 Mar, 2024 – AM1

**8:07 AM MT** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.
(*15-24-0155-00-04ab*)

* ~60 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 announced that the agenda has been changed by moving AM2 session to PM1.

*(doc. # 15-24-0128-05-04ab)*

**TG Meeting Activity**

Using the agenda *(doc. # 15-24-0128-05-04ab)* Chair proceeded with running the meeting.

**Presentation #3:**

Jinjing Jiang (Apple) presented “Proposed resolution for some comments on one-to-many ranging session”

(*doc. # 15-24-0157-01-04ab*)

This presentation proposes resolution for comments on one-to-many ranging.

**Presentation #4:**

Rojan Chitrakar (Huawei) presented “Proposed resolution for CIR Report IE format”

(*doc. # 15-24-0114-01-04ab*)

This presentation proposes resolution for comments on CIR report IE.

**Presentation #5:**

Bin Qian (Huawei) presented “Proposed comments resolution on sensing comments part 2”

(*doc. # 15-24-0141-00-04ab*)

This presentation proposes resolution for comments on sensing.

Chair will upload the updated agenda into the server.

Chair recessed the mtg. @ 10:02am MT, until Tue. PM1.

# Tuesday, 12 Mar, 2024 – PM1

**1:32 PM MT** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.
(*15-24-0155-00-04ab*)

* ~60 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. # 15-24-0128-06-04ab)* Chair proceeded with running the meeting.

**Presentation #6:**

Rojan Chitrakar (Huawei) presented “Proposed resolution for MMS IRK”

(*doc. # 15-24-0113-00-04ab*)

This presentation proposes resolutions for MMS IRK related comments.

**Presentation #7:**

Rojan Chitrakar (Huawei) presented “Proposed resolutions for mms status code”

(*doc. # 15-24-0123-00-04ab*)

This presentation proposes resolutions for Status Code related comments.

**Presentation #8:**

Rojan Chitrakar (Huawei) presented “Proposed resolution for MMS short-term operating parameters”

(*doc. # 15-24-0110-01-04ab*)

This presentation proposes resolutions for MMS short term operating parameters related comments.

There was no objection to the resolutions as in *doc. # 15-24-0110-01-04ab*.

**Presentation #9:**

Rojan Chitrakar (Huawei) presented “Proposed resolutions for mms Initialization and Setup for O2M ranging”

(*doc. # 15-24-0125-01-04ab*)

This presentation proposes resolutions for MMS – Synchronized Responders related comments.

There was no objection to the resolutions as in *doc. # 15-24-0125-01-04ab*.

**Presentation #10:**

Hongwon Lee (LG Electronics) presented “Proposed resolution for MMS MAC public part2”

(*doc. # 15-24-0144-01-04ab*)

This presentation proposes resolutions for MMS MAC public comments.

**Presentation #11:**

Larry Kazaib (Spark Microsystems) presented “Proposed 4ab draft c comments resolution for ssbd”

(*doc. # 15-24-0167-00-04ab*)

This presentation proposes resolution to CID 577.

There was no objection to the resolutions as in *doc. # 15-24-0167-00-04ab*.

**Presentation #12:**

Rojan Chitrakar (Huawei) presented “Proposed resolution for Hyperblock block-assignment”

(*doc. # 15-24-0111-00-04ab*)

This presentation proposes resolutions for Hyperblock block-assignment related comments.

There was no objection to the resolutions as in *doc. # 15-24-0111-00-04ab*.

**Presentation #13:**

Xiliang Luo (Apple) presented “Proposed Resolutions for Comments: 92, 93, 115, 117, 118, 176, 215, 216, 217, 218, 295, 297, 839, 840, 841, 843, 877, 878, 879”

(*doc. # 15-24-0139-02-04ab*)

This presentation proposes resolutions for multiple PHY comments.

Chair recessed the mtg. @ 3:31pm MT, until the second half of Tue. PM2.

# Tuesday, 12 Mar, 2024 – PM2

**5:03 PM MT** Vice Chair, Clint Chaplin (SRA), called the meeting to order and opened the TG Agenda.
(*15-24-0155-00-04ab*)

* ~60 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. # 15-24-0128-06-04ab)* Chair proceed with running the meeting.

**Presentation #14:**

Hongwon Lee (LG Electronics) presented “Proposed resolution for block scheduling in hyper block mode” (*doc. # 15-24-0145-01-04ab*) and “RR IE signaling rule for hyper block mode” (*doc. # 15-24-0146-00-04ab*)

This presentation proposes resolutions for comments related to block scheduling in hyper block mode.

**Presentation #15:**

Bin Qian (Huawei) presented “Proposed comments resolution on NB PHY”

(*doc. # 15-24-0142-01-04ab*)

This presentation proposes resolutions for NB PHY related comments.

There was no objection to the resolutions as in *doc. # 15-24-0142-01-04ab*.

Vice chair Clint Chaplin (SRA) reviewed the unresolved comments in “Consolidated Comments Draft c” (*doc. # 15-24-010-18-04ab*). Chair checked with comment assignees on the resolution timelines.

Chair recessed the mtg. @ 6:02pm MT, until the second half of Wed. AM1.

# Wednesday, 13 Mar, 2024 – AM1

**9:06 AM MT** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.
(*15-24-0155-00-04ab*)

* ~60 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 announced that the agenda has some minor changes.

*(doc. # 15-24-0128-07-04ab)*

**TG Meeting Activity**

Using the updated agenda *(doc. # 15-23-0128-07-04ab)* Chair proceed with running the meeting.

Xiliang Luo (Apple) reviewed the updates in “Proposed Resolutions for Comments: 92, 93, 115, 117, 118, 176, 215, 216, 217, 218, 295, 297, 839, 840, 841, 843, 877, 878, 879”

(*doc. # 15-24-0139-03-04ab*)

There were still several resolutions need updates.

Bin Qian (Huawei) reviewed the updates in “Proposed comments resolution on sensing comments part 2”

(*doc. # 15-24-0141-01-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0141-01-04ab*.

Rojan Chitrakar (Huawei) reviewed the updates in “Proposed resolutions for mms status code”

(*doc. # 15-24-0123-01-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0123-01-04ab*.

Hongwon Lee (LG Electronics) reviewed the updates in “Proposed resolution for block scheduling in hyper block mode”

(*doc. # 15-24-0145-02-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0145-02-04ab*.

**Presentation #16:**

Youngwan So (Samsung) presented “Proposed comments resolutions”

(*doc. # 15-24-0143-02-04ab*)

This presentation proposes resolutions for hyper block related comments.

Chair recessed the mtg. @ 10:02am MT, until the second half of Wed. PM2.

# Wednesday, 13 Mar, 2024 – PM2

**5:06 PM MT** Vice Chair, Clint Chaplin (SRA), called the meeting to order and opened the TG Agenda.
(*15-24-0155-00-04ab*)

* ~60 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 updated the agenda based on requests. *(doc. # 15-23-0637-07-04ab)*

**TG Meeting Activity**

Using the updated agenda *(doc. # 15-23-0128-07-04ab)* Chair proceed with running the meeting.

**Presentation #17:**

Carl Murray (Qorvo) presented “Proposed Comments Resolution on 739 and 747”

(*doc. # 15-24-0171-00-04ab*)

There was no objection to the comments resolution as in doc. # 15-24-0171-00-04ab.

**Presentation #18:**

Alex Krebs (Apple) presented “DraftC comment resolution 1/30/2024”

(*doc. # 15-24-0103-05-04ab*)

This presentation proposes resolution for MMS related comments.

There were discussions on time allocation for the remaining presentations.

Chair recessed the mtg. @ 6:04pm MT, until Thu. AM2.

# Thursday, 14 Mar, 2024 – AM2

**10:32 AM MT** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.
(*15-24-0155-01-04ab*)

* ~60 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

**TG Meeting Activity**

Using the updated agenda *(doc. # 15-24-0128-08-04ab)* Chair proceed with running the meeting.

Rojan Chitrakar (Huawei) reviewed the updates in “Proposed resolution for CIR Report IE format”

(*doc. # 15-24-0114-03-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0114-03-04ab*.

Jinjing Jiang (Apple) reviewed the updates in “Proposed resolution for some comments on one-to-many ranging session”

(*doc. # 15-24-0157-02-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0157-02-04ab*.

Alex Krebs (Apple) reviewed the updates in “CIDs from DCN 24-103r6 ready for approval”

(*doc. # 15-24-0177-01-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0177-01-04ab*.

Rojan Chitrakar (Huawei) reviewed the updates in “Proposed resolution for MMS IRK”

(*doc. # 15-24-0113-01-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0113-01-04ab*.

**Presentation #19:**

Pooria Pakrooh (Qualcomm) presented “DraftC\_Proposed comment resolutions for Sensing and AC IE”

(*doc. # 15-24-0183-00-04ab*)

This presentation proposes resolution for sensing and AC IE related comments.

There was no objection to the resolutions as in *doc. # 15-24-0183-01-04ab*.

Youngwan So (Samsung) r continued to present “Comment Resolution (Continued)”

(*doc. # 15-24-0178-02-04ab*)

This presentation is to continue comment resolutions with a new document separated from *doc. # 15-24-0143-02-04ab.*

Youngwan planned to further revise based on the received comments in the discussion.

Hongwon Lee (LG Electronics) reviewed the updates in “Proposed resolution for MMS MAC public part2”

(*doc. # 15-24-0144-02-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0144-02-04ab*.

Alex Krebs (Apple) continued to present “DraftC comment resolution 1/30/2024”

(*doc. # 15-24-0103-06-04ab*)

Vice chair Clint Chaplin (SRA) reviewed the unresolved comments in “Consolidated Comments Draft c” (*doc. # 15-24-010-18-04ab*). For the remaining comments, chairs called for volunteers and assigned the comments. Chairs further checked the status of the unapproved comment resolutions with the assignees.

Chair recessed the mtg. @ 12:33pm MT, until Thu. PM1.

# Thursday, 14 Mar, 2024 – PM1

**1:34 PM MT** Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the TG Agenda.
(*doc. #* *15-24-0155-01-04ab*)

* >60 attendees joined the meeting

## Legal

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

* IEEE-SA patent policy
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	+ 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. # 15-24-0128-09-04ab)* Chair proceed with running the meeting.

Alex Krebs (Apple) reviewed the updates in “DraftC comment resolution 1/30/2024”

(*doc. # 15-24-0103-07-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0103-07-04ab*.

Xiliang Luo (Apple) reviewed the updates in “Proposed Resolutions for Comments: 92, 93, 115, 117, 118, 176, 215, 216, 217, 218, 295, 297, 839, 840, 841, 843, 877, 878, 879”

(*doc. # 15-24-0139-05-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0139-05-04ab*.

Youngwan So (Samsung) reviewed the updates in “Proposed comments resolutions” (*doc. # 15-24-0143-03-04ab*) and “Comment Resolution (Continued)” (*doc. # 15-24-0178-03-04ab*).

There was no objection to the resolutions as in *doc. # 15-24-0143-03-04ab* and *doc. # 15-24-0178-03-04ab*.

**Presentation #20:**

Mickael Maman (ST Microelectronics) presented “Proposed comment resolution for RSS related comment IDs 503 and 926”

(*doc. # 15-24-0160-01-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0160-01-04ab*.

Pooria Pakrooh (Qualcomm) reviewed the updates in “DraftC\_Proposed comment resolutions for Sensing and AC IE”

(*doc. # 15-24-0183-01-04ab*)

There was no objection to the resolutions as in *doc. # 15-24-0183-01-04ab*.

Chair reviewed his plan on the telecons between Mar and May. (*doc. #* *15-24-0155-01-04ab*).

Chair recess the mtg.@2:37pm until 3:15pm.

Chair called the meeting back to order @3:15pm.

Vice chair Clint Chaplin (SRA) introduced the updates in both *doc. # 15-24-0143-04-04ab* and *doc. # 15-24-0178-04-04ab*. No objection to the changes.

Chair adjourned the mtg. @ 3:20pm MT.