**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | **<IEEE802.15 SG 4ab (NG-UWB) minutes>** |
| Date Submitted | [27 July 2021] |
| Source | [Clint Powell][][Chandler, AZ] | Voice: [+1.480.586.8457]Fax: [--]E-mail: [cpowell@ieee.org] |
| Re: | [July 802.15 Plenary Meeting held virtually] |
| Abstract | [IEEE 802.15 Study Group 4ab minutes] |
| Purpose | [Official minutes of IEEE 802.15 SG 4ab] |
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# Wednesday, 14 July 2021 – PM1

**Opening**

**1:03 PM** SG Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order and opened the SG Agenda (*15-21-0345-03-04ab*)

* > 50 attendees joined the meeting

## Legal

SG 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**

Don’t forget to turn on your mic and announce your name and affiliation before you speak.

WG Chair announced the agenda doc. # for the week. After reviewing and making a few changes to the agenda, no one objected to approving the modified agenda
*(doc. # 15-21-0345-03-04ab)*.

**SG Meeting Activity**

Using the meeting slides *(doc. # 15-21-0373-01-04ab)* Chair proceeding with running the meeting.

Chair reviewed the proposed responses to the comments received from 802.3 on the P802.15.4ab PAR. No objections were heard to the proposed responses.

Chair asked if there were any presentations that could be given during this mtg.

Chair recessed the mtg. @ 3:30pm, until Thurs. PM2

# Thursday, 15 July 2021 – PM1 (Joint .14, .15, .4ab)

**Opening**

**1:05 PM** G Chairs, Ben Rolfe (Blind Creek Associates), Clint Powell (Facebook), Phil Beecher (WiSun), called the meeting to order and opened the mtg.

* > 70 attendees joined the meeting

## Legal

SG 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**

Don’t forget to turn on your mic and announce your name and affiliation before you speak.

**SG Meeting Activity**

Clint Powell reviewed the comments received on Wed. eve from:

* WG 802.11
* WG 802.1

Proposed responses were generated for all comments raised on the .14, .15, and .4ab PARs and CSDs. The proposed responses will be reviewed and adjusted by the individual SG’s and re-coordinated/synched between the SG chairs.

Chairs adjourned the joint mtg. @ 2:57pm.

# Thursday, 15 July 2021 – PM2

**Opening**

**3:05 PM** SG Chairs, Ben Rolfe (Blind Creek Associates) called the meeting to order and opened the SG Meeting Slides (*15-21-0373-02-04ab*)

* > 50 attendees joined the meeting

## Legal

SG 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**

Don’t forget to turn on your mic and announce your name and affiliation before you speak.

**SG Meeting Activity**

Chair queried if there was any additions or changes to the agenda. A request for a technical presentation was made for todays agenda. The agenda was updated and approved unanimously.

Chair reviewed comments and proposed responses to comments received against P802.15.4ab PAR and CSD, from:

* WG 802.11
* WG 802.1

One presentation was given:

* Koorosh Akhavan (Qualcomm) presented “IR-UWB link budget analysis and how it compares with NB signaling” *(doc. # 15-21-0394-00-4ab)*
* Lots of good questions and discussion followed

Chair cancelled the Thurs. EV1 session since the group completed going through the proposed responses to the comments received on the P802.15.4ab PAR and CSD.

Chair recessed the mtg. @ 5:00pm, until Fri. PM1

# Friday, 16 July 2021 – PM1

**Opening**

**1:05 PM** SG Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order

Chair opened with agenda:

*(doc. # 15-21-0345-03-04ab)*

* ~ 60 attendees joined the meeting

## Legal

SG 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**

Don’t forget to turn on your mic and announce your name and affiliation before you speak.

**SG Meeting Activity**

Two presentations were given:

* Frank Leong (NXP) presented “UWB Sensing in 802.15”
*(doc. # 15-21-0399-00-04ab)*
* Carlos Aldana (Facebook) presented “Preamble codes for Data Communications”
*(doc. # 15-21-0377-00-04ab)*

Chair recessed the mtg. @ 2:52pm, until Tues. EV1

# Monday, 19 July 2021 – AM2 (Joint .4ab, .6a, .15)

**Opening**

**11:05 AM** G Chairs, Ben Rolfe (Blind Creek Associates), Clint Powell (Facebook), Ryuji Kohno (YNU/YRP-IAI), called the meeting to order and opened the mtg.

## Legal

SG 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**

Don’t forget to turn on your mic and announce your name and affiliation before you speak.

**SG Meeting Activity**

Clint Powell reviewed the SG6a responses to comments received on the P802.15.6a PAR and CSD from:

* WG 802.1
* WG 802.3
* WG 802.11

These were compared to the WG slide decks being generated for the EC closing and the responses were aligned to match.

Chairs adjourned the joint mtg. @ 12:58pm.

# Tuesday, 20 July 2021 – EV1

**Opening**

**5:05 PM** SG Chair, Ben Rolfe (Blind Creek Associates), called the meeting to order

Chair opened with and updated agenda:

*(doc. # 15-21-0345-07-04ab)*

* ~ 37 attendees joined the meeting

## Legal

SG 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**

Don’t forget to turn on your mic and announce your name and affiliation before you speak.

**SG Meeting Activity**

Chair reviewed the SG4ab responses to comments received on the P802.15.4ab PAR and CSD from:

* WG 802.1
* WG 802.3
* WG 802.11

These were compared to the WG slide decks being generated for the EC closing and the responses were aligned to match.

Motion:

*Request that the responses to received PAR and CSD review comments contained in document 15-21-0373-06 be approved for submission to the WG for its approval. The 802.15 working group chair and technical editor are authorized to make additional modifications to the responses as needed.*

 Moved by: Clint Chaplin (Samsung Research America)

 Seconded by: Clint Powell (Facebook)

 Discussion: None

Vote: No objections, unanimously approval – motion passes (>75%), with 37 participants on call

Motion:

*Request that the PAR and CSD contained in documents [15-21-0126-04] and [15-21-0047-08], respectively*, *be approved for submission to the WG for its approval and that the EC be requested to forward the PAR to NesCom.*

 Moved by: Clint Powell (Facebook)

 Seconded by: Clint Chaplin (Samsung Research America)

 Discussion: None

Vote: No objections, unanimously approval – motion passes (>75%), with 37 participants on call

Two presentations were given:

* Jochen Hammerschmidt (Apple) presented “Narrowband assisted multi-millisecond UWB”

(doc. # 15-21-0409-00-04ab)

* Frederic Nabki (Spark Microsystems) presented “Channel Access using Clear Channel Assessment (CCA), useful tool for efficient UWB communication”

(doc. # 15-21-0412-00-04ab)

Chair discussed the next steps and the Sept. Interim mtg. proposed # of sessions to request.

Chair adjourned the mtg. @ 6:55pm