IEEE P802.15
Wireless Specialty Networks

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| IEEE 802.15.13 2022 July Plenary Meeting Minutes |
| Date: 2022-07-19 |
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Abstract

# This document contains the TG13 Multi-Gigabit/s Optical Wireless Communications Meeting minutes during July Plenary.

**Monday, 11th July, 2022, 13:30 (EDT) Session #1 (Salon C - LB, Virtual Rm4)**

Attendance in-person :

* Kai Lennert Bober (Fraunhofer HHI)
* Sang-Kyu Lim (ETRI)
* Tuncer Baykas (Mediopol University)
* Tero Kivinen (Self)

Attendance remotely by Webex :

* Volker Jungnickel (Fraunhofer HHI)
* Chong Han (pureLiFi)
1. Kai Lennert Bober supported the mixed-mode hybrid meeting by connecting the audio and video cables for the WebEx sharing with his laptop-PC. Volker Jungnickel (Fraunhofer HHI) and Chong Han remotely joined the meeting by WebEx. Then before starting the meeting, Kai Lennert Bober and Tero Kivinen checked whether the audio and display operation for mixed-mode is working correctly or not.
2. The IEEE 802.15.13 meeting was called to order by the Chair, Volker Jungnickel (Fraunhofer HHI). Sang-Kyu Lim (ETRI) recorded the minutes.

1. The Chair reviewed the IEEE-SA patent policy, logistics, and reminders, including meeting guidelines and attendance recording procedures.
	* No essential patents are claimed.
	* It is reminded all to record their attendance through the IMAT system.
	* Registration fee should be paid.
	* Deadbeat consequences in default of paying registration fee for a prior meeting
	* TG13 officers and operating rules
2. The Chair brought the agenda document (15-22/0361r1) and he updated the agenda document while introducing the overall agenda for the meeting. Group discussed overall agenda and PAR extension issue. The PAR document is uploaded only by WG chair. Volker Jungnickel (Fraunhofer HHI) asked Clint, WG Chair, to come the TG13 meeting on Tuesday PM1 session by e-mail in order to prepare the TG13 PAR extension. The updated agenda document 15-22/0361r2 was uploaded after this session.
* Monday July-11 PM1 (13:30-15:30 EST, 19:30-21:30 CET)
* Reconfirm CRG, Announce teleconferences
* Approve May meeting and teleconference minutes
* Prepare joint meeting with 802.1
* Status of SA ballot, Review draft
* Discuss final changes
* Tuesday July-12 PM1 (13:30-15:30 EST, 19:30-21:30 CET)
* PAR extension, Discuss final changes
* Approve May meeting and teleconference minutes
* Wednesday July-13 PM1 (13:30-15:30 EST, 19:30-21:30 CET)
* Discuss final changes
* Thursday July-14 PM1 (13:30-15:30 EST, 19:30-21:30 CET)
* Discuss final changes
* Start recirculation
* Discuss TG13 timeline
1. Motion to approve the agenda for July TG13 hybrid meeting in doc. 15-22-0361-02.
	* Moved by: Tero Kivinen
	* Seconded by: Kai Lennert Bober
	* Approved by unanimous consent
2. TG Motion to reconfirm CRG

*Move to request that 802.15 WG approves the formation of a Comment Resolution Group (CRG) for the Standards Association balloting of the P802.15.13\_D7 with the following membership: Volker Jungnickel as Chair, Tuncer Baykas, Sang-Kyu Lim, Tero Kivinen. The 802.15.13 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 by: Tuncer Baykas
	+ Seconded by: Tero Kivinen
	+ Approved by unanimous consent
1. CRG teleconference dates are discussed. The telco dates should be announced at least 10 days before the telco meeting.
* TG13 CRG Telco dates
	+ 21 July 2022, 17:00-18.30 CET (11:00-12:30 ET, 00:00-01:30 KT)
	+ 25 July 2022, 11:00-12.30 CET (5:00-6:30 ET, 18:00-19:30 KT)
	+ 1 August 2022, 11:00-12.30 CET (5:00-6:30 ET, 18:00-19:30 KT)
	+ 8 August 2022, 11:00-12.30 CET (5:00-6:30 ET, 18:00-19:30 KT)
	+ 15 August 2022, 11:00-12.30 CET (5:00-6:30 ET, 18:00-19:30 KT)
	+ 22 August 2022, 11:00-12.30 CET (5:00-6:30 ET, 18:00-19:30 KT)
	+ 29 August 2022, 11:00-12.30 CET (5:00-6:30 ET, 18:00-19:30 KT)
	+ 5 September 2022, 11:00-12.30 CET (5:00-6:30 ET, 18:00-19:30 KT)
	+ Meetings to be cancelled if not needed
1. May Interim Meeting minutes and the Telco minutes between May Interim and July Plenary were discussed, but the Group decided to review again and approve them in Session #2 on Tuesday because they have not been completed yet.
2. The Chair (Fraunhofer HHI) reported briefly the current status of TG13 and the plan for July meeting.
* TG13 draft is in IEEE SA ballot
	+ SA ballot: 95% approve, 82% return, 3 NO, 314 comments (9 G, 112 T, 193 E)
	+ 1st recirc: 98% approve, 85% return, 1 NO, 158 comments (1G, 96 T, 61 E)
	+ 2nd recirc: 97% approve, 84% return, 2 NO, 94 comments (45 T, 49 E)
* All comments were addressed
* Agenda in doc. 15-22/0361r2
	+ Finalization of D7.0
	+ Start recirculation, discuss finalization and publication
	+ Joint session 802.15/802.1 TUE 11-12 prepare, TUE 18-19 joint meeting
	+ MON July-11 PM1 TG13
	+ TUE July-12 PM1 TG13
	+ WED July-13 PM1 TG13
	+ THUR July-14 PM1 TG13
1. The Group discussed the issues on the joint meeting with 802.1.
* presented answers to 4 issues
* 2 were resolved in the draft
* 2 were still unclearKai Lennert Bober (Fraunhofer HHI)
	+ What TSN version is supported by 802.15.13
	+ What PON did for TSN
* 2 were still unclearKai Lennert Bober (Fraunhofer HHI)
	+ Time-aware scheduling
	+ Ethernet PON
1. Technical Editor opened the document, 15-22/0045r15, on the comment resolution for 2nd SA ballot recirculation, and he summarized the current status.
2. The Group started to review the Draft 7.0. Especially, the Introduction part of the draft was intensively discussed because the current version has unnecessary additive information and backgroud. Therefore, the Group extracted the main characteristics as follows in order to simply describe the key specifications.
	* Aims at celling-mounted infrastructure and mobile devices or can be used in point-to-point links
	* Scheduled medium access for time-sensitive transmission
	* Industrial 🡪 D-MIMO for diversity + mobility
	* Relaying
	* Aggregation to support high throughput
	* Rate adaptation to aid reliable data transport in varying channel conditions
	* High speed PHYs besides low data rate PHYs
3. The Group recessed.

**Tuesday, 12th July, 2022, 13:30 (EDT) Session #2 (Salon C - LB, Virtual Rm4)**

Attendance in-person :

* Kai Lennert Bober (Fraunhofer HHI)
* Sang-Kyu Lim (ETRI)
* Tuncer Baykas (Mediopol University)
* Tero Kivinen (Self)
* Clint Powell (Meta)
* Phil Beecher (Wi-SUN Alliance)
* Jonathan Goldberg (IEEE Staff)

Attendance remotely by Webex :

* Volker Jungnickel (Fraunhofer HHI)
* Chong Han (pureLiFi)
* Ryuji Kohno (YNU/YRP-IAI)
1. Kai Lennert Bober supported the mixed-mode hybrid meeting by connecting the audio and video cables for the WebEx sharing with his laptop-PC. Volker Jungnickel (Fraunhofer HHI) and Chong Han remotely joined the meeting by WebEx.
2. The IEEE 802.15.13 meeting was called to order by the Chair, Volker Jungnickel (Fraunhofer HHI). Sang-Kyu Lim (ETRI) recorded the minutes.

1. The Chair reviewed the IEEE-SA patent policy, logistics, and reminders, including meeting guidelines and attendance recording procedures.
	* No essential patents are claimed.
	* It is reminded all to record their attendance through the IMAT system.
	* Registration fee should be paid.
	* Deadbeat consequences in default of paying registration fee for a prior meeting
	* TG13 officers and operating rules
2. The Chair brought the agenda document (15-22/0361r2) and he briefly explained the agenda today. The Group talked about the PAR extension issue, but Lennert said Tero cannot join the meeting today due to another meeting. So, the PAR extension issue was moved to next meeting.
3. Kai Lennert Bober (Fraunhofer HHI), TG13 Technical Editor, took over the host position for the discussion on SA ballot 2nd recirculation comment resolution and the review of D7.0 draft. So, the Group continued to review and discuss the text of D7.0 draft.
4. The text, “IEEE Std. 802.15.13 allows optional relaying ~”, in the Introduction Section was changed to “IEEE Std. 802.15.13 allows optional relaying ~” by Volker’s comment.
5. In addition, the text on last paragraph in the Introduction Section was changed to as follows: “So, overall work towards IEEE Std. 802.15.13 led to the conclusion that it is more efficient to follow a wavelength-agnostic approach and handle lighting and communication separately.
6. The Technical Editor brought the discussion issue, as a missing issue which is related to Relay Control field, in the comment from Tero (R2-40) of comment resolution document, 15-22/0045r15. Then Group discussed the issue and completed its resolution.
7. Tero Kivinen, Clint Powell, Phil Beecher, and one person (IEEE staff) joined the TG13 meeting to discuss the PAR extension issue after they finished another meeting. They discussed the official process and approval for PAR extension. As the result, the text to request the PAR extension of WG was completed. The WG motion for TG13 PAR extension will be carried in 802.15 WG Closing Plenary meeting.
8. TG13 Motion that TG13 requests the 802.15 Working Group to request an extension to the TG13 PAR for one year to complete the project.
	* Moved by: Tero Kivinen
	* Seconded by: Phil Beecher
	* Approved by unanimous consent
9. The disposition detail on the comment, R2-40, which is related to Relay address indicating the MAC address of the relay device, was discussed and completed.
10. The Group discussed 5 comments added to the additional comments sheet in doc. 15-22/0045r15, and their resolutions were completed.
11. The Group reviewed the text of D7.0 draft up to Clause 5.
12. The Group recessed.

**Wednesday, 13th July, 2022, 13:30 (EDT) Session #3 (Salon A/B - LB, Virtual Rm4)**

Attendance in-person :

* Kai Lennert Bober (Fraunhofer HHI)
* Sang-Kyu Lim (ETRI)
* Tuncer Baykas (Mediopol University)
* Tero Kivinen (Self)

Attendance remotely by Webex :

* Volker Jungnickel (Fraunhofer HHI)
* Chong Han (pureLiFi)
* Ankur (Samsung)
* Jerome Henry (Cisco)
* Vitaly Petrov
1. Kai Lennert Bober supported the mixed-mode hybrid meeting by connecting the audio and video cables for the WebEx sharing with his laptop-PC. Volker Jungnickel (Fraunhofer HHI) and Chong Han remotely joined the meeting by WebEx. Tero helped Lennert to set this hybrid meeting working well, but he will join the meeting after finishing SC maintenance meeting. Volker said Tuncer will join this meeting after 802.11 Midweek Plenary Meeting.
2. The IEEE 802.15.13 meeting was called to order by the Chair, Volker Jungnickel (Fraunhofer HHI). Sang-Kyu Lim (ETRI) recorded the minutes.

1. The Chair reviewed the IEEE-SA patent policy, logistics, and reminders, including meeting guidelines and attendance recording procedures.
	* No essential patents are claimed.
	* It is reminded all to record their attendance through the IMAT system.
	* Registration fee should be paid.
	* Deadbeat consequences in default of paying registration fee for a prior meeting
	* TG13 officers and operating rules
2. The Chair brought the agenda document (15-22/0361r2) and he briefly explained the agenda today. The approvals of May Interim Meeting minutes and Telco minutes was moved to the second half of the meeting after Tuncer join the meeting. The Chair mentioned that WG motion on TG13 PAR extension will be in WG Closing Plenary meeting.
3. Kai Lennert Bober (Fraunhofer HHI), TG13 Technical Editor, took over the host position for the discussion on SA ballot 2nd recirculation comment resolution and the review of D7.0 draft.
4. Kai Lennert Bober (Fraunhofer HHI) opened the document 15-22-0045/r16 to continue to resolve the additional technical comments, and then the Group started to discuss the comment resolution. The comment resolutions are as follows:
* “5.6.4 Clock rate selection” was changed to “5.6.4 Adaptive transmission”
* The text in 5.6.4 was changed to “Variable bandwidth as well as modulation and coding rates are used support varying channel condition.”
* Power normalization factor was changed to “1/sqrt(42)”.
* In the sub-clause 11.3.2.4 Constellation encoder, the new mapping tables, Table 53, 54, 55, and 56, were created and added so that readers can understand them easily. ITU-T G.9960 standard document was reviewed to keep consistency with 802.15.13 standard in this discussion
* PICS numbering was discussed. In this discussion, it was mentioned that it’s very important to design PICS numbering scheme so that their maintenance can be done easily.
* In the sub-clause 11.2.5 of HB-PHY, the text on Cyclic Prefix ID was changed.
1. The Chair tried to review and approve May Interim meeting minutes and Telco minutes between May and July, but the Group decided to moved it to the beginning of Session #4 on Thursday.
2. The Group recessed.

**Thursday, 14th July, 2022, 13:30 (EDT) Session #4 (Salon C - LB, Virtual Rm4)**

Attendance in-person :

* Kai Lennert Bober (Fraunhofer HHI)
* Sang-Kyu Lim (ETRI)
* Tuncer Baykas (Mediopol University)
* Tero Kivinen (Self)

Attendance remotely by Webex :

* Volker Jungnickel (Fraunhofer HHI)
* Chong Han (pureLiFi)
* Masayuki Hirata (Osaka Univsersity)
1. Kai Lennert Bober supported the mixed-mode hybrid meeting by connecting the audio and video cables for the WebEx sharing with his laptop-PC. Volker Jungnickel (Fraunhofer HHI) and Chong Han remotely joined the meeting by WebEx.
2. The IEEE 802.15.13 meeting was called to order by the Chair, Volker Jungnickel (Fraunhofer HHI). Sang-Kyu Lim (ETRI) recorded the minutes.

1. The Chair reviewed the IEEE-SA patent policy, logistics, and reminders, including meeting guidelines and attendance recording procedures.
	* No essential patents are claimed.
	* It is reminded all to record their attendance through the IMAT system.
	* Registration fee should be paid.
	* Deadbeat consequences in default of paying registration fee for a prior meeting
	* TG13 officers and operating rules
2. The Chair brought the agenda document (15-22/0361r3) and he updated the agenda document while introducing the overall agenda for the meeting. The updated agenda document 15-22/0361r4 will be uploaded after this session.
3. The approvals of May Interim Meeting minutes and Telco minutes was moved to the second half of the meeting after Tuncer join the meeting. The Chair mentioned that WG motion on TG13 PAR extension will be in WG Closing Plenary meeting.
* Monday July-11 PM1 (13:30-15:30 EST, 19:30-21:30 CET)
* Reconfirm CRG, Announce teleconferences
* Prepare joint meeting with 802.1
* Status of SA ballot, Review draft
* Discuss final changes
* Tuesday July-12 PM1 (13:30-15:30 EST, 19:30-21:30 CET)
* PAR extension, Discuss final changes
* Wednesday July-13 PM1 (13:30-15:30 EST, 19:30-21:30 CET)
* Discuss final changes
* Thursday July-14 PM1 (13:30-15:30 EST, 19:30-21:30 CET)
* Approve May meeting and teleconference minutes
* Discuss final changes
* Start recirculation
* Discuss TG13 timeline
1. Chong Han saind the document (15-22/0069r9) related to “LB-PHY and related MAC to be inserted” has been uploaded to the mentor and she want to discuss this document. The Group decided to discuss it in the comment resolution.
2. Motion to approve the May meeting minutes in doc. 15-22/0311r2 and the CRG telcos between May-July in doc. 15-22/0317r2.
	* Moved by: Sang-Kyu Lim
	* Seconded by: Tero Kivinen
	* Approved unanimously
3. Kai Lennert Bober (Fraunhofer HHI), TG13 Technical Editor, took over the host position from the Chair in order to finalize the draft.
4. Kai Lennert Bober (Fraunhofer HHI) opened the document 15-22-0045/r17 to continue to resolve the additional technical comments, and then the Group started to discuss the comment resolution. The comment resolutions are as follows:
* The additional comment, “It is not clearly specified whether the HB-PHY preamble has a long or short cyclic prefix or even none at all.” was discussed. For this issue, Volker said that under certain conditions, the preamble “may” have a cyclic prefix, see 7.1.4.5.1 in G.9960-2022 Amd.3 🡪 If it is optional, we can leave it out or should check what the advantage is.
* The additional comment, “In the HB-PHY preamble description, it should be clarified whether the LFSR is advanced per active, per active and masked, or per all subcarriers.” was discussed. For this issue, Volker said that the LFSR shall be advanced by two bits for each preamble’s subcarrier (for both SSC and MSC) in the order specified in clause 7.1.4.3.3 🡪 i.e. only for supported and masked subcarriers (SSC+MSC).
* So, Volker’s suggestion for these two additional comments is to refer to the newer spec. from ITU-T in case things or unclear. It is the same in ITU, people start implementing it and pose question. The standard is changed, accordingly.
* Finally, two additional comments were resolved. Please see the doc. 15-22-0045/r18.
* The last sentence, “If multiple element used to be transmitted in a single MPDU by using container elements.” was added to the sub-clause 5.6.5.
* Some texts in 7.1.1 were updated.
* In Figure 24, MAC header was reviewed and discussed.
* Some texts and Figure 26 in 7.1.4 were updated.
* All additional comments were accepted and resolved.
* Chong Han shared her screen to explain the updated text and the updated Figure 14 in the document 15-22/0069r9.
* Volker and Tero said their opinions on the issues on LB-PHY and related MAC in aspect of finalizing the draft. At that point, there were some debates, but the Group agreed to include the MAC part of the document, 15-22/0069r9, in the draft without any straw poll.
1. TG13 Motion to accept comment resolutions in doc. 15-22-0045/r18 including the additional comments, and authorize the Technical Editor to include them in TG13 D7.0, and start recirculation.
	* Moved by: Tuncer Baykas
	* Seconded by: Tero Kivinen
	* Approved unanimously
2. Plan for finalization of TG13 Spec. 🡪 D7.0 goes to 3rd recirc out of July
	* After July: prepare the draft D7.0 and start recirculation
	* First CRG meetings
	* Resolve comments in September
	* Plan is to submit to RevCom in November
3. Motion to adjourn.
	* Approved with unanimous consent
4. The meeting adjourned.