**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | July 2016 IEEE802.15.7r1 Minutes |
| Date Submitted | July 2016 |
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| Abstract | [Minutes of July 2016 Plenary Session]  |
| Purpose | [Description of what the author wants P802.15 to do with the information in the document.] |
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**Task group 802.15.7r1 met for 10 sessions during the July 2016 meeting.**

**Session 1 (25 July 2016)**

**AM 1 (08:00 – 10:00)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Yeong Min Jang – Kookmin University
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Prof. Soo Young Chang – California State University Sacramento
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Mohamed Abdallah – TAMU Qatar
* Shoichi Kitazawa – ATR
* Liu Qian – CAICT

Meeting called to order and the agenda for the meeting was discussed and agreed (**doc. 15-16-0437-r1**). The patent policy was briefly discussed.

The minutes from the May, 2016 meeting were accepted.

The committee discussed how to address over 2000 comments that were addressed with respect to the draft text. The suggestion is that because the document is very mixed, the committee will review all changes and comments. If there is an issue that requires significantly time for discussion, then the issue may be assigned to the most relevant individual or subcommittee for resolution.

Volker attended the G.vlc/G.hn meeting of the ITU-T two weeks early. He suggested to provide a quick report on this topic.

Comments submitted and consolidated in **doc. 16-0477r0** will be considered and updated as a live document **doc. 16-0477r1**. The comments are with respect to Draft D0 for the 802.15.7r1 standard (<http://grouper.ieee.org/groups/802/15/private/Draft/TG7r1/P802.15.7r1%20Draft%20D0.pdf>).

Soo Young raised the issue that the title of the Standard should be changed from “Part 15.7: Short-Range Wireless Optical Communication” to “Part 15.7: Short-Range Optical Wireless Communications”.

The TG7r1 chair will ask the 802.15 WG chair to modify the title of our PAR to say “Part 15.7: Short-Range Optical Wireless Communications”.

The specific outcome of the resolutions can be seen in **doc. 16-0477r1.**

Rick mentioned that topology considerations for RF and OWC should not be joined. Instead, the hybrid solution, would need to be discussed separately to determine the best resolution to comment 12. Nikola will chair the subcommittee for the resolution of comments in 4.2 and 4.3 should be merged.

Meeting recessed until PM 1.

**PM 1 (13:30 – 15:30)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Prof. Oshima – Panasonic in Osaka,
* Yoshiho Goto – Panasonic
* Hideki Aoyama – Panasonic Japan
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Prof. Soo Young Chang – California State University Sacramento
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Shoichi Kitazawa – ATR
* Liu Qian – CAICT
* Mohamed Abdallah – TAMU Qatar

Meeting called to order.

Discussion on the comment resolution (**doc. 16-047r0**) continued.

The coexistence of the new PHY modes needs to be considered with respect to the old PHY modes. A potential method for coexistence may be “the PHY modes2, 3, and 7 should not be in the same room”. To be discussed by the sub-committee on LiFi.

Meeting recessed until PM2.

**PM 2 (16:00 – 18:00)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Prof. Oshima – Panasonic in Osaka,
* Hideki Aoyama – Panasonic Japan
* Yeong Min Jang – Kookmin University
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Prof. Soo Young Chang – California State University Sacramento
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Prof. Jaesang Cha – Seoul National University of Science & Technology
* Liu Qian – CAICT
* Mohamed Abdallah – TAMU Qatar

Meeting called to order.

The chairman asked if there are any objections to accepting the comments proposed by Volker (**doc. 16-0450r0**). There were no objections and the comments will be incorporated in the newer revision of the Comment Resolution spreadsheet.

Bob Heile has started the process to change the title of the PAR, which would result in a change of the title of the eventual standard.

**MOTION**:

The need to modify the title of the existing approved PAR that reads “Part 15.7: Short-Range Wireless Optical Communication” to “Part 15.7: Short-Range Optical Wireless Communications” (**doc. 15-16-0504r0**).

Moved: Nikola

Seconded: Volker

YES: 7

NO: 0

Meeting recessed until 26 July 2016 session AM1.

**Session 2 (26 July 2016)**

**AM 1 (08:00 – 10:00)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Hideki Aoyama – Panasonic Japan
* Yeong Min Jang – Kookmin University
* Trang Nguyen – Kookmin University
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Prof. Soo Young Chang – California State University Sacramento
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Mohamed Abdallah – TAMU Qatar
* Prof. Jaesang Cha – Seoul National University of Science & Technology

Meeting called to order.

The committee continued with comment resolution for **doc. 16-0477r1**.

Meeting recessed until AM2.

**AM 2 (10:30 – 12:30)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Hideki Aoyama – Panasonic Japan
* Yeong Min Jang – Kookmin University
* Trang Nguyen – Kookmin University
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Prof. Soo Young Chang – California State University Sacramento
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Mohamed Abdallah – TAMU Qatar
* Prof. Jaesang Cha – Seoul National University of Science & Technology

Meeting called to order.

The committee is considering the possibility to start the September session earlier on 7 Sept. to allow for more time to complete the comment resolution and maintain the current publication schedule.

The Chairman will check with Bob Heile about the possibility for getting a meeting room.

Volker has suggested that a meeting in Berlin could be organized.

The committee continued with comment resolution for **doc. 16-0477r1**.

The Chief Technical editor needs to ensure that there are no more than 5-levels of sub-sections. This is direct guidance from the 802.15 working group chairman.

Meeting recessed until PM1.

**PM 1 (13:30 – 15:30)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Hideki Aoyama – Panasonic Japan
* Yeong Min Jang – Kookmin University
* Trang Nguyen – Kookmin University
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Prof. Soo Young Chang – California State University Sacramento
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Mohamed Abdallah – TAMU Qatar
* Prof. Jaesang Cha – Seoul National University of Science & Technology

Meeting called to order.

The committee continued with comment resolution for **doc. 16-0477r1**.

Li Qiang will discuss with Pat Kenney the specific use of VPANCoordinator in 802.15.7-2011 and determine if/how that is still relevant, comment 212.

There is no one currently in the committee that understands or cares about the device association procedure.

Li Qiang is responsible to provide further clarification regarding the device association procedure, comment 213.

Meeting recessed until PM2.

**PM 2 (16:00 – 18:00)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Hideki Aoyama – Panasonic Japan
* Yeong Min Jang – Kookmin University
* Trang Nguyen – Kookmin University
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Prof. Soo Young Chang – California State University Sacramento
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Mohamed Abdallah – TAMU Qatar
* Prof. Jaesang Cha – Seoul National University of Science & Technology

Meeting called to order.

The committee continued with comment resolution for **doc. 16-0477r1**.

The LiFi subcommittee will meet during AM 2 on 27 July to continue with special comment resolution.

Meeting recessed until AM1 on Wednesday, 27 July 2016.

**Session 3 (27 July 2016)**

**AM 1 (08:00 – 10:00)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Hideki Aoyama – Panasonic Japan
* Yeong Min Jang – Kookmin University
* Trang Nguyen – Kookmin University
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Mohamed Abdallah – TAMU Qatar
* Prof. Jaesang Cha – Seoul National University of Science & Technology

Meeting called to order.

Bob Heile has agreed that the Working Group would be able to provide a conference room with breakfast and lunch for USD 50 per day. However, the cost of the overall event would increase by an additional 4 nights of accommodation in Warsaw.

Rick suggested that it may not be possible to hit the original target schedule (doc. 15-0274r2) even with 3 additional days in Warsaw. Nikola suggested to postpone the discussion until the last session on Thursday to determine the progress that the committee has made on the comment resolution.

The committee continued with comment resolution for **doc. 16-0477r2**.

Meeting recessed until PM1.

**PM 1 (13:30 – 15:30)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Hideki Aoyama – Panasonic Japan
* Yeong Min Jang – Kookmin University
* Trang Nguyen – Kookmin University
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Mohamed Abdallah – TAMU Qatar
* Prof. Jaesang Cha – Seoul National University of Science & Technology

Meeting called to order.

The 802.15 Working Group approved the change in the PAR and Standard title (motion for change was on 25 July 2016).

The committee continued with comment resolution for **doc. 16-0477r2**.

The unified superframe structure is to be proposed.

Meeting recessed until PM2.

**PM 2 (16:00 – 18:00)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Hideki Aoyama – Panasonic Japan
* Yeong Min Jang – Kookmin University
* Trang Nguyen – Kookmin University
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Mohamed Abdallah – TAMU Qatar
* Prof. Jaesang Cha – Seoul National University of Science & Technology

Meeting called to order.

The committee continued with comment resolution for **doc. 16-0477r2**.

Meeting in recess until 28 July 2016.

**Session 4 (28 July 2016)**

**PM 1 (13:30 – 15:30)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Hideki Aoyama – Panasonic Japan
* Yeong Min Jang – Kookmin University
* Trang Nguyen – Kookmin University
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Mohamed Abdallah – TAMU Qatar
* Prof. Jaesang Cha – Seoul National University of Science & Technology

Meeting called to order.

The agenda for PM2 was reviewed and agreed.

Volker attended part of the ITU-T G.vlc meeting at the Marvell offices in Santa Clara on 14 July 2016. The G.vlc group is relatively small looking at two aspects in parallel, G.hn standard and a study about the use of G.hn for visible light communications. They only consider the indoor communications scenario, specifically LiFi. There were decisions about the future. The LiFi section will use DCO-OFDM as a base-line and re-use as much as possible the G.hn PHY. Second part of the study is investigating new waveforms, which would most likely be a unipolar waveform for the future standard.

G.vlc would like to continue the process where at least one PHY in the IEEE 802.15.7r1 is similar to the G.hn PHY. The G.hn standardization process is likely to take longer relative to the 802.15.7r1 process.

Input from Murat that would help with the Channel Model would be appreciated by the G.vlc. Huawei, Marvell and Sigma Design are participating.

ITU-R SG1 (Study Group 1) exists with Philips chair has two key topics looking at wireless charging and visible light communications, Korean universities have joined the session. Original topic was only wireless charging and has been adjusted to also include visible light communications. The group is focusing on the spectrum management with a focus from government.

The committee continued with comment resolution for **doc. 16-0477r3**.

Meeting in recess until Sept. 2016.

**PM 2 (16:00 – 18:00)**

Yeong Min Jang (Kookmin University) – Chair

Attendees:

* Hideki Aoyama – Panasonic Japan
* Yeong Min Jang – Kookmin University
* Trang Nguyen – Kookmin University
* Rick Roberts – Intel
* Nikola Serafimovski – pureLiFi
* Dobroslav Tsonev – pureLiFi
* Prof. Soo Young Chang – California State University Sacramento
* Li Qiang – Huawei Technologies
* Volker Jungnickel – Fraunhofer HHI
* Mohamed Abdallah – TAMU Qatar
* Prof. Jaesang Cha – Seoul National University of Science & Technology

Meeting called to order.

The committee discussed the need and possibility of having an ad-hoc meeting before the Sept. session in Warsaw. Several key partners would not be able to attend the ad-hoc session.

Volker said that the key requirement for a better quality standard that is implementable means that tolerating a 4 month or 6 month delay is acceptable. A straw poll reflected that most members of the committee would be able to tolerate a 6 month delay.

Nikola suggested that there is potentially an opportunity to create a better draft that may not require as many rounds in the Letter Ballot stage.

Rick will create a revision of the overall schedule (doc. 15-0297r2) to reflect the delay that might be incurred.

Aoyama-son has volunteered to be the OCC sub-committee chair to organize the meetings.

Hideki will propose a document format that would collect the opinion of different parties in a single document. This should help accelerate the comment resolution.

The committee continued with comment resolution for **doc. 16-0477r3**.

Meeting adjourned until Sept. 2016.