**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | Minutes of TG13 Ad-hoc Meeting July |
| Date Submitted | 17 July 2017 |
| Source | Volker Jungnickel (HHI) | Voice: [ ]Fax: [ ]E-mail: [ ] |
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| Abstract | [Minutes of July 2017 Ad hoc Session]  |
| Purpose | [Inform TG13 about most recent work.] |
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**Task group 802.15.13 met for 3 meetings (so far) during the July 2017 Ad-hoc meeting in Berlin hosted at Fraunhofer HHI, Einsteinufer 37, 10587 Berlin, Germany.**

**Meeting #1, Monday 17 July 2017, AM2, 10:30 – 12:30**

Attendees:

* Volker Jungnickel (Fraunhofer HHI)
* Mohammad Noshad (VLNComm)
* Tae-Gyu Kang (ETRI)
* Sang-Kyu Lim (ETRI)
* Jonas Hilt (HHI)

The meeting was called to order by Volker Jungnickel (Fraunhofer HHI).

Volker Jungnickel presented **doc. 15-17-0342r1**.

Patent slides are shown and the rules to attendance are explained.

Agenda is provided in **doc. 15-17-0342r1** ; it has been discussed and approved.

Sang-Kyu Lim (ETRI) presented **doc. 15-17-0445r0** and **doc. 15-17-0446r0** on flicker mitigation and dimming support in 802.15.7. The participants discussed the schemes and their complexity in order to get a better understanding. Any discussion was postponed after hearing all contributions.

Jonas Hilt presented **doc. 15-17-0448r0** on the Fraunhofer OOK implementation. There were minor errors corrected in version **doc. 15-17-0448r1** uploaded onto the Mentor.

Meeting recessed until Afternoon.

**Session #2, Monday 17 July 2017, PM1, 13:30 – 15:30**

Attendees:

* Volker Jungnickel (Fraunhofer HHI)
* Mohammad Noshad (VLNComm)
* Tae-Gyu Kang (ETRI)
* Sang-Kyu Lim (ETRI)
* Jonas Hilt (HHI)

The meeting was called to order by the Chair Volker Jungnickel (Fraunhofer HHI).

Mohammad Noshad (VLNComm) presented **doc. 15-17-0450r0.**

Group discussed the proposed HCM technique and found it useful to support multiple users as well as to reduce the coding rate while keeping the Optical clock rate constant.

Meeting was recessed until late afternoon.

**Session #3, Monday 17 July 2017, PM2, 16:00 – 18:00**

Attendees:

* Volker Jungnickel (Fraunhofer HHI)
* Mohammad Noshad (VLNComm)
* Tae-Gyu Kang (ETRI)
* Sang-Kyu Lim (ETRI)

The meeting was called to order by the Chair Volker Jungnickel (Fraunhofer HHI).

The group discussed the structure of the new section on Pulsed Modulation PHY.

There are two separate functionalities to be distinguished. First, there is a communications functionality and, when using visible light, second, there may be the need for an additional dimming functionality. Joint implementation is possible in various ways.

One particular way is that the dimming is controlled via a bias current which is constant over time and where there is an output signal for the data transmission (denoted as modulation signal) which is orthogonal to the constant bias signal. This property of the modulation signal can be realized using several techniques, e.g. by using line coding (e.g. Manchester coding, 4B6B or 8B10B) or Hadamard Coded Modulation (HCM)) as described in **doc. 15-17-0450r0**. At the transmitter, the bias and the modulation signal are then just added.

In this particular way, the receiver does not even need to know the dimming level in order to decode the data from the compound signal received after the PD, and if needed, the transmitter is free to set the dimming level independent of the receiver. Accordingly, there is no need for signalling fields telling the receiver the dimming level used at the transmitter, or an accordingly used parameter setting of the modulation scheme.

Proposed new structure of Section 10

10 Pulsed Modulation PHY

10.1 Forward error correction

10.2 Modulation signal

10.3. Line coding

10.4. Hadamard coded modulation

10.5. Dimming support

Task until Wednesday is to think about reasonable parameter settings like in Table 107 in D0.

The meeting was recessed until Wednesday.