IEEE P802.11
Wireless LANs

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| IEEE 802.11 Study Group on Light Communications November, 2017 Orlando Meeting Minutes |
| Date: 2017-11-06 |
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Abstract

Study Group on Light Communications meeting minutes from the IEEE 802.11 Kona meeting, September 2017.

**IEEE 802.11 Study Group on Light Communications**

**Monday, November 12, 2017, PM1 Session**

Attendance: around 25 people

1. The IEEE 802.11 LC SG meeting was called to order at by the temporary Chair, Nikola Serafimovski (pureLiFi).
2. The temporary Chair reviewed the IEEE-SA patent policy, logistics, and reminders, including meeting guidelines and attendance recording procedures.
	* It is reminded all to record their attendance.
3. Chair introduced the schedule for the week

– Press release on SG, contributions, CSD and PAR

1. Approve the minutes from the July meeting
	* Chair asked if there is discussions. No discussion. The minutes were approved.
2. Chair discussed press release on SG LC
* PR is in document no. 1589/r0
* Nikola said that timeline is longer than expected and PR is not ready yet
* Osama suggested to remove “airplanes” from list of use cases
* Christophe said not to change too much at this time
* Discussion in the group showed more people speaking in favor of keeping than removing it
* Decision was to keep it
* Osama noted that work in 802.15 should be mentioned in some way
* There was a discussion showing that any minor change proposed would be misleading
* It was decided to upload a revised version 1589/r1 and present it at the WG opening plenary
1. Gaurav presented 1587/r0
* Proposed to break the MAC into lower and upper parts
* Full duplex makes MAC layer complicated, RTS/CTS/ACK is split over separate channels
* There is a saying on slide 5 that LC has lower latency and needs to wait for RF
* Volker objected against this statement because if both media have same bandwidth and same channel access scheme, there should be no difference in the delay, same issue on slide 6
* Half duplex can reuse the existing 802.11ad MAC layer
* OSAMA asked if MPDU aggregation is used, answer was yes
* Because of higher bandwidth, GCMP encryption is suggested
* Volker asked if the upper/lower MAC is fixed in 802.11
* Joseph said it is no official break, OSAMA said that the lower MAC is essentially HW
* Nikola asked for some more explanation of the graph on Slide 13
* Gaurav will make a number of according to the discussion and upload a revision in 1587/r1
1. Nikola presented 1590/r0 in place of Ivica who could not attend the meeting
	* Handover between different LC would need to be addressed
	* Heterogeneous network management and reliable data recovery would need to be addressed
	* Wide span of data rates demonstrated in slide 7
	* Mark mentioned that low data rates should not be considered, rather something for AR/VR with uncompressed video
	* Trade-off between data rate and coverage in slide 8 is important
	* Volker asks if 200 Gbps mentioned as upper limits demonstrated shall be the upper limit which would complicate the standard
	* Nikola says that 100s of Mbps will be the right scope for this standard
	* Volker also spoke in favor of beyond 1 Gbit/s to enable AR/VR use cases
2. Nikola presented 1609/r0 for Simon who could not attend the meeting
	* offloading from cellular to Wi-Fi
	* same is expected from Wi-Fi to LC
	* highlights consumer opportunities due to SDR and IoT
	* highlights business opportunities in smart buildings, enterprise and transportation
	* requirements on LC
	* Volker sees some technical contradiction between reqs. On Propagartion and Avaiability
	* Christophe asks where the numbers of 10 LEDs per sqm and 10 devices per LED come from
	* Volker recommends to specify a mininum and a maximum value for each required parameter in the table on slide 13 and define the range within which the standard can be operated in this way
	* The group further discussed the coverage issue, which depends on analog frontend
3. Nikola presented 1649/r0 on behalf of Chen who will be available in the next SG LC meeting
	* Discussion on path loss exponent in RF <6 GHz is 2-3
	* With light it is between 4-8
	* Comparison between coverage of high data rates
	* LC covers high data rates in smaller areas
	* Volker asks for clarifications on the simulation conditions, is same illumination assumed for µLED and OTS LEDs 🡪 will be asked to the authors
	* Data density comparison>25 Mbps/m² in 10 m with LC, 2 Mbps/m² in 100 m with 11ax
	* Volker asks for inclusion of 60 GHz would make this study complete
	* Transmission delay
	* Simultaneous UL/DL
	* MU-MIMO
4. Meeting recessed