IEEE P802.11
Wireless LANs

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| IEEE 802.11 TGbb Task Group on Light Communications November, 2018 Bangkok Meeting Minutes |
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Abstract

This document contains the Task Group on Light Communications (TGbb) meeting minutes from the IEEE 802.11 Bangkok meeting, November 2018.

**IEEE 802.11 Task Group TGbb**

**Monday, November 12, 2018, AM1 Session**

Attendance: around 20 people.

1. The IEEE 802.11 TGbb meeting was called to order at by the Chair, Nikola Serafimovski (pureLiFi). As the secretary could not attend, Volker Jungnickel (Fraunhofer HHI) recorded the minutes.

1. The Chair Nikola Serafimovski (pureLiFi) reviewed the IEEE-SA patent policy, logistics, and reminders, including meeting guidelines and attendance recording procedures.
	* It is reminded all to record their attendance.
2. The Chair Nikola Serafimovski (pureLiFi) introduced the schedule for the meeting
* Approve minutes from Sept. 2018
* Approve minutes from the teleconferences
* Discussion on the Channel Model
* Discussion on the Simulations scenarios
* Doc. 11-18/1423r2,
* Discussion on the Evaluation Methodology
* Doc. 11-18/1429r2
* Call for proposal

The main goal of the meeting is to finalize the required documents and issue the Call for Proposals.

1. There has been a request to reconsider the PAR because the scope is quite limited with respect to the PAR. The Chair put the PAR on the screen. He argued that it was hard to get this together in the study group phase and it is a long process to change that. It was also mentioned that if there are enough contributions which justify particular changes the task group can bring up this point in the working group and aim to change the PAR.
2. The group started comment resolution against doc. 11-18-1423r5 on simulation scenarios stemming from the WG comment collection. The changes were directly made in the document.
* There are differences in Tx powers and size of detectors between the scenarios. Industrial use cases may have higher powers (1W) at the STA because more powering is available. In other scenarios, power is more restricted (200 mW). In the industrial scenario, also a larger PD receiver can be used (1 cm²) at the station, which is hardly realistic at a mobile handset (20 mm²) where most likely also an APD will be used. At the AP, using a larg PD is more realistic (1 cm²). Note that power specification in channel model is electrical, not optical power.
* Parametrization should always be consistent with the channel model document .
* The number of lights per AP should not exceed 8 because 802.11 MAC supports at most 8 antennas per AP so far and the use of the existing MAC is foreseen in the TGbb PAR. Moreover, this allows handover studies in the same room and let the group draw conclusions from that.
* The discussion on traffic models was postponed.
* There was a discussion on how to realize Monte Carlo simulations in mobile scenarios where the ray tracing approach is not doable anymore. There was a proposal to use a simple LOS model for the individual links as this was the insight from both simulations and measurements except in the industrial scenario.
* The following text is added to the introduction of the simulation scenarios document:
	+ The Monte Carlo simulations necessary to show the statistical performance of the system should use the analytical LOS model contained in doc. 11-17-0479r0 for stations at various locations and movement in the environment. Random blockages should be considered in the simulations as a break in the LOS between the AP and the STA.
	+ The implementation of the blockages should be modelled by introducing an object in the space that models the spatial consistency of the blocking. A pseudo-code for the proposed blockage model will be provided in an additional doc. XXXX.
	+ The channel model for the movement of the STa within a given environment should be simulated as follows: 1) distribute the APs, 2) Distribute the stations, 3) determine the LOS channel model (using CIRs provided in analytical channel modelprovided in doc. 11-17/0479r0), 4) determine the random blockages of the LOS channel model using doc. XXX.
	+ The movement of the STA should constitute multiple time instances where the location and orientation of the STA is spatially correlated.

Meeting was recessed until Monday Nov. 12, 2018 in PM1.

**Monday, Nov. 12 2018, PM1 Session**

Attendance: 15-20 people

1. The IEEE 802.11 TGbb meeting was called to order at by the Chair, Nikola Serafimovski (pureLiFi).
2. The Chair Nikola Serafimovski (pureLiFi) 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. The Chair Nikola Serafimovski (pureLiFi) introduced the schedule for the meeting
4. The Chair run a motion to approve the agenda in doc. 11-18/1719r1.
5. The Chair run a motion to approve the telco minutes in following documents.
* 16/10/2018 Teleconference Meeting Minutes: doc. 11-18/1783r0
* 30/10/2018 Teleconference Meeting Minutes: doc. 11-18/1813r2
* 06/11/2018 Teleconference Meeting Minutes: doc. 11-18-1863r1
1. The Chair run a motion to approve the TGbb September meeting minutes in doc. 11-18/1602r3.
2. Tuncer Baykas (Mediopol University) presented doc. 11-18-1582r3 on the channel model which contains few updates. The presentation triggered a discussion about the creation of the system-level channel model including mobility effects which might be based on a simplified LOS model. The discussion was it should be described in a separate document. Lennert will provide a first draft to be reviewed by Tuncer out of existing work. Then the group can decide if this is a good basis to be used for MAC layer simulations.
3. Next comment resolution was continued.
* There has been a discussion that optimized Tx deployments would be more appropriate than fixed setups as currently used.
* The question about eye safety has to be clarified. Transmitters should be eye safe. In general, the eye safety regulations of IEC are being applied to measure eye safety. Normally, the sun falls between risk classes 2-3, while LEDs are in class 0 to 1, however even then from marketing point it is important to consider this. There is a long discussion about the LED that has been used and its spectral properties and what has an impact on the eye safety.
* It was noted that the industrial wireless scenario the deployment should use IR for both uplink and downlink. It was decided to rerun ray tracing again using the IR LED SFH4616AS data sheet already provided by Volker to Tuncer.
* There was a discussion if the number of retransmissions in Table 6 is correct. Moreover the impact of interference due to overlapping APs in the medical scenario was discussed. OBSS is in the scope of the TGbb. The role of multiple AP interference shall be considered in MAC layer simulations. Thereby, intentionally, not all optical frontends (OFEs) are handled under a single AP. The proposers should clearly describe which OFEs are actually used.
* There has been a discussion about the traffic models e.g. due to limited data rates. It was found that some models were out of the scope for TGbb and would need to be removed or changed. The discussion the turned to the M2M traffic model and which one to apply. The Chair run a straw poll with multiple options. The group preferred having a table created out of

Meeting was recessed until Tuesday Nov. 13, 2018 in PM2.