IEEE P802.11  
Wireless LANs

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| IEEE 802.11 Study Group on Light Communications  January, 2018 Irvine Meeting Minutes | | | | |
| Date: 2018-01-16 | | | | |
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Abstract

Study Group on Light Communications meeting minutes from the IEEE 802.11 Orlando meeting, November 2017.

**IEEE 802.11 Study Group on Light Communications**

**Monday, January 16, 2018, PM2 Session**

Attendance: around 30-35 people

1. The IEEE 802.11 LC SG meeting was called to order at by the Chair, Nikola Serafimovski (pureLiFi).
2. The 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

* Finalization of CSD and PAR

1. Approve the minutes from the November meeting
   * Chair asked if there are discussions. No discussion. The minutes were approved.
2. Approve the minutes from two teleconferences

Doc 1831r3 contains the comments and resolutions prepared in the teleconferences. Main comments:

* + One or multiple PHY layer specifications?
  + Discussion in telcos was undecided
  + Range of requirements from 10 Mbps to 5 Gbps, hard to cover with single PHY, TG13 in 802.15 has 3 PHYs i) low bandwidth – high spectral efficiency, ii) high bandwidth – low spectral efficiency, iii) high bandwidth – high spectral efficiency
  + Each PHY mode has another amendment, one PHY can have multiple modes
  + One PHY with multiple modes that can address different requirements
  + Image Sensor Communication should be regarded, besides Photodiodes
  + OFDM and Single Carrier would be 2 different PHYs
  + Language should be general enough
  + Needs not to be too precise at this point in the process, Devices can have very different characteristics

1. Chair discussed Draft of the PAR doc. 1604r5

It was mentioned that there is a difficulty here is that solution is unknown, what has to be changed in the standard. The main text is as follows.

Standard defines a new PHY layer and modifications to the 802.11 MAC that enable operation of light communications (LC).

The new PHY specified in this amendment enables

* + Uplink and downlink operations only in 380 nm to 5,000 nm band,
  + All modes of operation achieve at least a min. throughput of 10 Mb/s, and at least one mode of operation with min. throughput of 5 Gb/s
  + Interoperation among LEDs with different modulation bandwidths

The changes to the MAC clauses are limited to:

* hybrid coordination functions channel access
* power management modes of operation (excluding new modes)
* Rules for overlapping BSS detection and mitigation

and modifications to other clauses necessary to support the above changes.

* Fast session transfer between LC and radio (PHYs operating in 72 GHz and lower bands)

Discussion about to keep or to remove this sentence: will be discussed tomorrow again

There was a long discussion of 10 Mbps for the lower limit, as it is not the same as 1 Mbps agreed upon in 802.15. But the discussion on these points was already closed.

There was a discussion if two limitations should be kept, and about what is the meaning of minimum/maximum. The two numbers indicate two different targets due to use cases etc.. All modes of operation should achieve at least 10 Mbps.

There was a discussion to include different types of receivers, such as photodiodes and image sensors, and to have a straw poll about to include that in the PAR.

It was mentioned that the image sensor topic was not included in the feasibility study, despite there is a lot of progress in research, at least in Asia. It was argues that to redo the feasibility study would need a lot of work to be done.

There was a straw poll to change the minimum data rate from 10 Mb/s to 1 Mb/s.

Y: 4 N: 21 A: 3

There was a second straw poll to change the high data rate from 5 Gb/s to 1 Gb/s.

Y: 6 N: 13 A: 7

The meeting recessed at 5:57 p.m..