IEEE P802.11
Wireless LANs

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| IEEE 802.11 Study Group on Light Communications September, 2017 Kona Meeting Minutes |
| Date: 2017-09-14 |
| Author: |
| Name | Affiliation | Address | Phone | Email |
| John Li | Huawei |  |  | john.liqiang@huawei.com |
| Volker Jungnickel | HHI |  |  | volker.jungnickel@hhi.fraunhofer.de  |
| Nikola Serafimovski | PureLifi |  |  |  nikola.serafimovski@purelifi.com  |

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**

**Tuesday, September 12, 2017, PM1 Session**

Attendance: 30 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.
	1. It is reminded all to record their attendance.
3. LC-SG Officer selection issue
	1. Osama (Huawei): Call for nomination is needed
	2. Nikola: He will send out a call for nomination after the session.
	3. Lei (Huawei): should do within this week.
	4. Nikola: will do after this session
4. Temporary Chair introduced the schedule for the week
5. Approve the minutes from the July meeting
	1. Temporary Chair asked if there is discussions. No discussion. The minutes was approved.
6. Nikola presented proposed work item for SG 17-11/1477r0
	1. Should LC be an amendment or a new standard, and the relationship with LOA (Letter of assurance) issue: Nikola raised the LOA issue, because the policy may be different for an amendment and new standard. He suggested to send a request for clarification to the SA board
	2. Osama (Huawei): it can also be done informally.
	3. Nikola: the issue was raised during editor’s meeting, WG chair asked to discuss the issue in the SG.
	4. Osama expressed preference to have LC as a separate project.
	5. Volker (HHI) suggested to have higher integration with Wi-Fi.
	6. John (Huawei): Amendment or new standard depends several factors, need to be clear on other factors first.
	7. Lei: should analyze what will be looked like for both options and then choose which way to go.
	8. Harry: not clear about the impact of the project to the specification.
	9. Nikola: amendment reuse existing text thus making implementation easier.
	10. Osama: Making LC an amendment is not a guarantee for commercial success
7. Proposed timeline for SG
	1. The proposed time suggested to start the TG in March 2018
	2. Osama: PAR generation in Jan 18-> submission (1month before march) -> March -> Start TG in May
	3. Further discussion on the timeline and
	4. Nikola updated the proposed timeline in 17-11/1477r2

Proposed timeline

*Sept. 2017*

* *Use-cases and usage scenario discussion*
* *Amendment or standalone standard?*
* *Request for clarification from SA on LoA applicability to stand alone standard*

*Nov. 2017*

* *Use-cases, usage scenarios and technical considerations for scope*
* *Draft 1 for PAR and CSD documents*

*Jan. 2018*

* *Agree PAR and CSD document for circulation within the 802.11 WG*
* *Submit to the EC for consideration 30 days before the EC meeting at the end of March plenary*

*Mar. 2018*

* *Comments and approval of PAR by the EC*

*May 2018*

* *Start of a Task Group*
1. John presented doc. 11-17/1470r0
	1. Jaesung Cha asked why should hundreds of Mbps be the target rather than the 10s Gbps for the 802.15.13
	2. John – the need for laser diodes to achieve several 10s Gbps, while LEDs can be used to achieve hundreds of Mbps.
	3. Osama raised the issue why talk about hundreds of Mbps
	4. John argued that this matters only based on the lighting technology and therefore LEDs can achieve that. However, with LC you can provide very high data densities
	5. Osama questioned the security benefits of LC relative to WiFi
	6. Nikola discussed the area spectral efficiency and the security benefits
		1. CONTRIBUTION ON THE Area Spectral Efficiency AND THE SECURITY (SECRECY RATE) SHOULD BE CONTRIBUTED
	7. Chrisophe (Lucibel) argued that the choice of the lighting technology may not be appropriate now because the overall cost of laser diodes is decreasing and is likely to continue falling in the coming years.
	8. Jianmin Chen (Huawei) argued that this is maximum data rate should be changed to be a range of data rates for the standard.
	9. Volker mentioned that the lighting devices could have a very broad range and should be adjustable in the future.
	10. Rui (InterDigital) – asked about the hybrid RF and LC aggregation
	11. John suggested that there is very good synergy if the hybrid solution is provided/accommodated by the standard with growing prototypes about the aggregation, however, requires more studies.
	12. Rui mentioned that the aggregation should be considered as to where that aggregation happens (baseband, MAC or network layer)
	13. Rui considered if the uplink and downlink could be aggregated
	14. Volker commented on the FDD light operation – what would this full duplex operation be on the 802.11 standard, would this be a major change or a minor change?
	15. Nikola commented that this is an architecture question that may or may not cause a change to the existing 802.11 MAC.
2. Meeting recessed

**Tuesday, September 14, 2017, AM2 Session**

Attendance: 20 people

1. The IEEE 802.11 LC SG meeting was called to order at by the temporary Chair, Nikola Serafimovski (pureLiFi).
2. Nikola introduced the agenda of this session
3. Selection of the officer
	1. Nikola Serafimovski (pureLiFi) volunteered to be the chair of the SG. John Li (Huawei) volunteered to be the vice chair of the SG.

Motion

*Move to approve Nikola Serafimovski for the Chair of the LC SG, Li Qiang (John) as Vice-Chair of the LC SG and Volker Jungnickel as Secretary.*

*Mover: Osama*

*Seconder: Harry Bims*

*Motion passed with unanimous consent*

1. Christophe Jurczak (Lucibel) presented 17-11/1500r0
	1. Harry: How much power consumption reduction of LED over florescent light
	2. Christophe: 90% reduction in the power consumption
	3. Osama: the proposed data rate is within a wide range. Suggested to focus on key use cases and narrow down the range of the target data rate.
	4. Christophe: high and low data rate are target different use cases. It is also related to lighting technologies.
	5. Osama: are there going to be multiple PHYs to address different use cases?
	6. Nikola: Depends on design. One PHY can also be scalable.
	7. Osama: What kind of mobility?
	8. Christophe: Walking, from one room to one room
	9. Volker: latencies lower than 5ms are targeted in the use cases shown, but the proposal for the PAR suggests much higher values for the handover, which inconsistent in the presented document, as the handover time is the common time used to evaluate latency of a mobile technology. This should be made consistent in a revision of the document
	10. Christophe: Will be checked and revised.
	11. Volker: uplink using IR is fine, what about the downlink. It is common to assume using the white light also for data. Laboratory experiments show that the same electrical setup delivers 4 times higher data rates when using IR, compared to while LED. One can place an IR LED next to the white LED and achieve a higher efficiency of the communication link.
	12. Christophe: This is driven by use cases, the while light is already there, and can be easily modulated.
2. Whether LC should be a new standard
	1. Nikola: introduced 11-08/0591r0 which is a contribution back in 2008 from VHT SG. The contribution introduced the LOA issues.
	2. Osama: dot11 amendment also need LOA. Not sure how LC can be different.
	3. Andrew Myles (Cisco) raised the issue that the current 802.11 document got so huge and unmanageable. One way to go would to have an standalone chapter for LC within 802.11 specification
	4. Nikola suggest to request clarification from SA-broad

Motion:

*Move to ask the IEEE 802.11 Working Group Chair to request a statement from the IEEE SA Standards Board to provide clarification on the applicability of the existing Letters of Assurance as worded, granting the WG Chair editorial license:*

* *Do the Letters of Assurance provided to the IEEE 802.11 WG by all organizations current and past apply to a potentially new standalone standard formed as part of the 802.11 WG, e.g., 802.11.3, in the same manner as they apply to any current and future amendments to the original IEEE 802.11-2016 document, e.g., 802.11ba?*

*Moved: Andrew Myles*

*Seconded: Li Qiang (John)*

*Y: 7                       N: 0                       Abstain: 4*

Motion:

*Move to ask the IEEE 802.11 Working Group Chair to request a statement from the IEEE SA Standards Board to provide clarification on the applicability of the existing Letters of Assurance as worded, granting the WG Chair editorial license:*

* *Do the Letters of Assurance provided to the IEEE 802.11 WG by all organizations current and past apply to a potentially new chapter within the IEEE 802.11-2016? If the LoAs do not apply, then under what conditions do those LoAs not apply?*

*Moved: Andrew Myles*

*Seconded: Li Qiang (John)*

*Y:            10           N:           1             Abstain: 0*

1. Temporary Chair asked if there is any other business.
	1. No other business
	2. Temporary Chair cancelled PM2 session
2. Meeting adjourned until November 2017