IEEE P802.11  
Wireless LANs

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| IEEE 802.11 Topic Interest Group on Light Communications  January, 2017 Atlanta Meeting Minutes | | | | |
| Date: 2017-01-19 | | | | |
| Author: | | | | |
| Name | Affiliation | Address | Phone | email |
| Tuncer Baykas | Istanbul Medipol University | Istanbul |  | tbaykas @medipol.edu.tr |

Abstract

Topic Interest Group on Light Communications meeting minutes from the IEEE 802.11 Atlanta meeting, January 2017.

**IEEE 802.11 Topic Interest Group on Light Communications**

**Monday, January 15, 2017, PM1 Session (13:30-15:30 EDT)**

Attendance: around 45 people

1. The IEEE 802.11 LC TIG meeting was called to order at by the Chair, Nikola Serafimovski (pureLiFi).
2. Chair introduced himself and started going over the agenda for the January meeting in Atlanta.
3. Chair reviewed the IEEE-SA patent policy, logistics, and reminders on TIG rules, including meeting guidelines and attendance recording procedures.
   1. Chair asked if anyone has any questions about the IEEE-SA patent policy, logistics or reminders. No questions.
   2. Chair asked if there were any questions on any of the above items. None.
   3. It is reminded all to record their attendance.
4. Chair reviewed the meeting agenda 16/1584r0.
5. Chair asked if there are any volunteers for a secretary position that could be voted in during the January meeting. Tuncer Baykas (Medipol University) volunteered for the secretary position.
6. Agenda is approved by unanimous consent.
7. Group reviewed TIG draft report outline (17/0023r0)

* Dorothy Stanley (HPE) indicated that there are enough differentiating characteristics to go forward.
* Adrian Stevens (Intel) asked how VLC downlink and RF uplink work? N. Serafimovski answered that it is a MAC or upper layer problem. First step would be light uplink and light downlink.
* Adrian Stevens (Intel) asked how VLC high power downlink and VLC low power uplink work? N. Serafimovski answered that there are no current solutions in the current models. V. Jungnickel (HHI) indicated that channel reciprocity won’t apply in this case as well. Dorothy Stanley (HPE) indicated that this situation should be added LC requirements.
* Consideration to MAC efficiency is added to LC metrics
* Adrian Stevens (Intel) indicates that use cases can be used to indicate how asymmetry works.
* Adrian Stevens (Intel) stated that the main 802.11 assumption is that same freq. is used in uplink and downlink. One question would which MAC features of 802.11 would be used? Dorothy Stanley (HPE) indicated that 802.11 ad and 802.11ah features could be used.
* A question is raised that if a standalone substandard can be started for VLC?
* A question is raised for the system architecture. Dorothy Stanley (HPE) stated that use cases should be checked and than systems architecture should be considered.
* Yeong Min (Kookmin U.) asked of OCC is considered? Chair answered that the focus of the group is photodiode based communications.
* T Baykas (Istanbul Medipol U.) asked that regulators which can regulate light should be checked.
* Recommendations will be added to the report. Uniqueness of the project could be added.

1. Chair asked contributions to (17/0023r1) for March meeting with the aim or finalizing May meeting.
2. .V. Jungnickel (HHI) presented “Short Overview of Light Communication “17/0125r0

* V. Jungnickel indicated that hybrid RF and VLC systems have some advantages, for offloading and coverage.

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1. Chair asks if there are any more agenda items to discuss. None.
2. Meeting recessed at 15:30 EDT

**Thursday, January 19, 2017, AM1 Session (8:00-10:00 EDT)**

Attendance: around 45 people

1. Chair called meeting into order and introduced himself.
2. Chair reviewed the IEEE-SA patent policy, logistics, and reminders on TIG rules, including meeting guidelines and attendance recording procedures.
   1. Chair asked if anyone has any questions about the IEEE-SA patent policy, logistics or reminders. No questions.
   2. Chair asked if there were any questions on any of the above items. None.
   3. It is reminded all to record their attendance.
3. Chair reviewed the meeting agenda 16/1584r0.
4. Group discussed to add an agenda item to discuss 17/161r0. Agenda 16/1584r1 is approved.
5. Osama Aboul-Magd (Huawei) suggested to add ITU-T to ongoing standards in 17/023r1.
6. Osama Aboul-Magd (Huawei) suggested to indicated how Lifi can be complimentary to Wifi? N. Serafimovski answered that there are locations where RF is not allowed and it can increase the capacity in WiFi points. N. Serafimovski indicated that more information is added.
7. Group discussed if 802.11 should issue a call for interest for the LC TIG. Adrian Stevens (Intel) indicates that there is a process for press release. He needs to check with EC. Osama Aboul-Magd (Huawei) indicated that call for interest is too early. Andrew Myles (Cisco) is in favor to call for a call for interest and sees there is no harm for issuing a call for interest.
8. Andrew Myles (Cisco) would like to have a strawpoll.
   1. Should 802.11 reach out to additional stakeholders
9. No it should not at all (Votes:2)
10. Yes, it should reach out to targeted industry associations? Identify relevant associations and issue a liaison statement (Votes:18)
11. Yes it should reach out in a broad spectrum (Press release)?

(Votes:10)

1. Group decided to go forward with second option. Adrian Stevens (Intel) indicated that 802.11 can prepare liaison reports. Group decided to indicate relevant associations and prepare liaison report before March meeting. During March meeting liaison report will be finalized.
2. Nikola Serafimovski (pureLiFi) reviewed 17/0023r1.
3. Group started to review 17/0161r0, which answers some of the questions in 17/0023r1.
4. Group approved to add “How does LC work?” section of 17/0161r0 to TIG report 17/0023r2..
5. Group approved to add “How does LC work in a bright room with sunlight?” section of 17/0161r0 to TIG report 17/0023r2.
6. Group approved to add “How does LC when you turn off lights?” section of 17/0161r0 to TIG report 17/0023r2.
7. Group decided to not to add “Can we see LC lights flicker?” section of 17/0161r0 to TIG report 17/0023r2, until human eye-safety considerations is added as a design constraint
8. Group approved to add “Is the flicker created by modulation safe?” section of 17/0161r0 to TIG report 17/0023r2.
9. Group decided not to add “Is a line-of-sight technology?” section of 17/0161r0 to TIG report 17/0023r2 until LoS and NLoS for LC is defined.
10. Group decided not to add “Are LC systems subject to multipath fading?” section of 17/0161r0 to TIG report 17/0023r2 until the section is clarified.
11. Group approved to add “If LC nLoS technology, then how it is it more secure than wireless technologies” section of 17/0161r0 to TIG report 17/0023r2.
12. Chair clarified that the scope of the TIG includes all light frequencies.
13. Group approved to add “Will LC work in my pocket?” section of 17/0161r0 to TIG report 17/0023r2, with the update of changing the word “complimentary” to “adjunct”.
14. Group approved to add “Can we enable LC to be Full-duplx in 802.11” section of 17/0161r0 to TIG report 17/0223r2, with the update of the first sentence. “Yes it could theoretically be achieved.”
15. Group approved to add “How does the backhaul work” section of 17/0161r0 to TIG report 17/0023r2.
16. Adrian Stevens (Intel) asked how the RF and LiFi transceivers will be located. Nikola Serafimovski (pureLiFi) indicated that it is an design issue, but it has to be considered in LiFi group.
17. Group approved to add references in 17/0161r0 to TIG report 17/0023r2.
18. Nikola Serafimovski (pureLiFi) reviewed Timelines, Conference calls and Goals section of 17/00169r0.
19. Adrian Stevens (Intel) suggested to work until July meeting. Chair asked if there is any objection to extend the duration of the TIG if necessary. No objections.
20. Adrian Stevens (Intel) suggested to have an tutorial during March meeting. Group agreed to have a tutorial.
21. Chair asked if there is any objections to have the timeline for TIG shown in 17/0161r1.
22. Yeong Ming Jang presented 17/0168r1.
23. Meeting adjourned at 10:00 EDT