IEEE P802.15
Wireless Specialty Networks

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| IEEE 802.15.13 May, 2018 Warsaw Meeting Minutes |
| Date: 2018-05-08 |
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Abstract

# This document contains the TG13 Multi-Gigabit/s Optical Wireless Communications Meeting minutes from the IEEE 802.11 Warsaw meeting, May 2018.

**IEEE 802.15.13**

**Monday, May 7, 2018, AM2 Session**

Attendance: around 20 people

1. The IEEE 802.15.13 TG meeting was called to order by the Chair, Volker Jungnickel (HHI)
2. Chair introduced the patent policy and logistics of the group
3. Approval of meeting minutes of March in 18-0158/00
	1. Unanimous
4. Self-introduction of attendees.
5. Chair went through the agenda of the week
	1. The agenda was approved
6. Sang-Kyu Lim presented 18-0166r2 “Evaluation results on preamble of PM-PHY”
	1. Question: on slide 21, detection in AWGN seems worse than some cases with larger delay spread. It was later found that AWGN shows similar performance with other evaluation assumptions, but not worse.
	2. Questions were raised on how down sampling was performed. Sang-Kyu explained that 1 GHz ADC is used for sampling. For each bit symbol, multiple samples are obtained and averaged to get one bit symbol.
	3. Questions on which PHY was assumed for simulation.
		1. Pulsed Modulation-PHY. Chair also introduced three PHY types in the draft and different use cases.
7. Sang-Kyu Lim presented 18-0169r2 “Evaluation Results on header of pm phy”
	1. Questions raised on why theoretical performance is worse than the case with RS encoding?
		1. It was later clarified that theoretical performance means the performance with 2-PAM in AWGN channel. Therefore it can be worse than the cases when transmitted data are encoded.
	2. How un-coded transmission shows better performance than when encoded?
		1. No clear explanation, need to double check the evaluation assumptions.
	3. Question on how channel modeling is performed.
		1. It is based on the ray tracing.
8. Sang-Kyu presented 18-0171r2 “Evaluation Results on Payload of PM PHY”
	1. Sang-Kyu mentioned the RS code rate used is [255 239] instead of [255 248]. Because simulation toolbox does not support [255 248] and that [255 239] is used in a couple of standards.
		1. Concerns raised that if [255 248] has certain issues, it may not the adopted in the standard
	2. Question on whether there is any proposals to the draft. Sang-Kyu responded that not yet. The text proposal for PM-PHY currently contains two preamble designs and still further consensus is needed.
9. Volker presented 18-0170r2 “PM PHY Synch Evaluation”
	1. Question: why threshold is set according to 0.1% false alarm rate
		1. It was agreed previously that preamble need to achieve 0.1% false alarm rate and header need to achieve 1% error rate. Furthermore payload need to achieve 10% error rate.
10. The meeting recessed until PM1.

**Monday, May 7, 2018, PM1 Session**

Attendance: around 15 people

1. The IEEE 802.15.13 TG meeting was called to order by the Chair, Volker Jungnickel (HHI)
2. Chair introduced the patent policy and logistics of the group
3. Volker presented 18-0173r0 “PM PHY Header and Payload Evaluation”
	1. Volker pointed out that the 8B10B scheme does not show any coding gain which is not reasonable.
		1. There were suggestions that SNR calculations may not be correct.
	2. Comment: BER curve with channel encoding should cross over the BER curve without channel coding, but the results does not appear so.
	3. Concerns raised that the evaluation results show some unexplained phenomenon and cannot be used for decisions.
	4. Volker pointed out that the benefits of 8B10B is in dealing with baseline wander.
		1. Issues with current channel model: only propagation is modelled while transfer function of LED and photo detector were not modelled. These transfer functions will show the effects of baseline wandering.
		2. The group suggested that the channel modeling should be extended to take into account of the characteristics of LED and photo detectors.
4. Volker presented 18-0190/r0 “On PM PHY parametrization”
	1. Question on whether the proposal is use a long preamble sequence with 394 symbol
		1. Volker clarified that it is for discussion. The results show that if HCM is used, then a long sequence is needed for preamble. The length of the preamble may be adaptive and decided by higher layer.
	2. There were suggestions that if preamble sequences with different lengths are introduced, it may be beneficial to use unified structure. For example to long sequences may be built from the same short base sequence. It could reduce the efforts on blind detection on the receiver side.
5. Daniel Chew presented 18-0187/r1 “Partial Evaluation of PM-PHY using TG7r1 Channels”
6. The meeting recessed until Tuesday.