IEEE P802.11
Wireless LANs

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| Minutes 802.11 be PHY ad hoc Telephone Conferences, March 2020 |
| Date: 2020-03-23 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Tianyu Wu | Apple |  |  | tianyu@apple.com |
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Abstract

This document contains the PHY ad hoc meeting minutes for TGbe teleconferences held on:

* March 23, 2020

**Monday March 23th, 2020 10:00 – 13:00 ET**

**Introduction**

1. The Chair (Sigurd Schelstraete, Quantenna/ON Semiconductor) calls the meeting to order at 10:00am ET.
2. The Chair follows the agenda in 11-20/0425r9
3. The Chair goes through the IPR policy and asks if anyone is aware of any potentially essential patents. Nobody speaks up.
4. Discussions on the agenda. Updated presentation list for today:
	* [439r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0439-00-00be-efficient-eht-preamble-design.pptx) Efficient EHT Preamble Design (Jianhan Liu)
	* [402r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0402-00-00be-u-sig-and-eht-sig-contents-discussion.pptx) U-sig-and-eht-sig-contents-discussion (Ross Jian Yu) (Deferred)
	* [474r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0474-00-00be-1-remarks-on-the-content-channels.pptx) Remarks on the content channels (Miguel Lopez)
	* [382r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0382-00-00be-p-matrix-based-ltfs-for-eht.pptx) P-matrix based LTFs for EHT (Sameer Vermani)
	* [406r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0406-00-00be-phase-rotation-proposal.pptx) Phase Rotation Proposal (Eunsung Park)
	* [486r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0486-00-00be-decoupling-channel-training-from-nsts.pptx) Decoupling Channel Training from NSTS (Abhishek Agrawal)
5. The Chair reminds everyone to report their attendance by sending an e-mail to the Co-chair, Tianyu Wu (Apple) or the Chair himself.

**Attendance**

The following people recorded their attendance for this call:

* Ahmed Elsherif (Qualcomm)
* Al Petrick (InterDigital)
* Allert Van Zelst (Qualcomm)
* Bin Tian (Qualcomm)
* Bo Sun (ZTE)
* Carol Ansley (CommScope)
* Chenghe Ji (Huawei)
* Dandan Liang (Huawei)
* Dennis Sundman (Ericsson)
* Dongguk Lim (LG)
* Eunsung Park (LG)
* Feng Jiang (Intel)
* Hanqing Lou (InterDigital)
* Jianhan Liu (Mediatek)
* Jim Lansford (Qualcomm)
* Jinsoo Choi (LG)
* John Son (WILUS)
* Junhoon Suh (Huawei)
* Kiran Uln (Cypress)
* Leif Wilhelmsson (Ericsson)
* Lily Yunping Lyu (Huawei)
* Massinissa Lalam (Sagemcom)
* Mengshi Hu (Huawei)
* Miguel Lopez (Ericsson)
* Ming Gan (Huawei)
* Myeongjin Kim (Samsung)
* Niranjan Grandhe (NXP)
* Oded Redlich (Huawei)
* Prashant Sharma (NXP)
* Ron Porat (Broadcom)
* Rui Cao (NXP)
* Rui Yang (InterDigital)
* Sameer Vermani (Qualcomm)
* Shawn Sanghyun Kim (WILUS)
* Shimi Shilo (Huawei)
* Sigurd Schelstraete (Quantenna/On Semiconductor)
* Steve Shellhammer (Qualcomm)
* Tianyu Wu (Apple)
* Vinko Erceg (Broadcom)
* VK Jones (Qualcomm)
* Wook Bong Lee (Samsung)
* Xiaogang Chen (Intel)
* Yan Xin (Huawei)
* Yan Zhang (NXP)
* Youhan Kim (Qualcomm)
* Yujin Noh

**New Submissions**

1. **11-20-0439r0 – Efficient EHT Preamble Design –** Jianhan Liu (Mediatek)

**Summary:** Proposal for efficient EHT preamble that allows different signalling information on different 80MHz segment.

**Discussion:**

C: Need to decode all 4 channels within an 80MHz?

A: Yes. From generation to generation, the requirements is higher.

C: Need to include some MAC experts to review the contribution.

SP deferred till other options have been discussed.

1. **11-20-0474r0 – Remarks on the content channels –** Miguel Lopez (Ericsson)

**Summary:** Proposed to use Erasure code for EHT SIG.

**Discussion:**

C: Any simulation results?

A: From the analysis, there is no performance loss.

SP#1

* **Do you agree that TGbe should consider the use of low complexity erasure codes in the design of the content channels?**

Y/N/A: 9/14/22

1. **11-20-0382r0 – P-matrix based LTFs for EHT –** Sameer Vermani (Qualcomm)

**Summary:** Presented simulation results and showed that P-matrix based LTF design is robust to CFO spreads. Propose to adopt P-matrix based design for all spatial multiplexing modes in EHT.

**Discussion:**

C: May need further discussion on P-matrix for large dimension.

C: Do you assume perfect power control in your simulation?

A: Yes.

C: When you say CFO tracking, you mean for LTF not for data right?

A: Data part always have tracking. We refer to tracking for LTF in the contribution.

SP#2

* **Do you agree to adopt P-matrix based modulation of EHT-LTFs for all spatial multiplexing modes (both UL and DL) defined in EHT?**
	+ All spatial streams are active during EHT-LTFs on every non-zero LTF tone
	+ Applicable to multi-AP transmission modes as well

Y/N/A: 30/0/11

1. **11-20-0406r1 – Phase Rotation Proposal –** Eunsung Park (LG)

**Summary:** Proposed phase rotation for 320MHz PPDU and evaluated PAPR performance.

**Discussion:**

C: Some concern on the performance of L-SIG, may need some more discussion

C: Can you also take U-SIG into consideration?

A: Yes.

SP deferred for more discussions.

1. **11-20-0486r0 – Decoupling Channel Training from NSTS –** Abhishek Agrawal (Quantenna/ON semiconductor)

**Summary:** Propose to decouple N\_EHTLTF from NSTS and signal separately. Allow using larger number of LTF symbols can bring some gain.

**Discussion:**

C: How much gain depends on smoothing implementation. The gain can be smaller with some implementation choice.

C: Adding more LTF brings overhead, it’s a tradeoff.

C: Is it possible to make it optional to let Rx decide?

A: Tx may be able to learn it and decide number of LTF. May not need to signal from Rx.

SP#3

* **Do you support to optionally allow flexible NEHT-LTF and include NEHT-LTF in EHT packets sent to a single user?**

Y/N/A: 11/12/16

**Adjourn**

The meeting is adjourned at 12:50 PM ET