IEEE P802.11
Wireless LANs

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| Minutes 802.11 be PHY ad hoc Telephone Conferences, January - March 2021 |
| Date: 2021-01-21 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Sigurd Schelstraete | ON Semiconductor |  |  | sigurd.schelstraete@onsemi.com |

Abstract

This document contains the PHY ad hoc meeting minutes for TGbe teleconferences held at the following dates:

* Jan 21, 2021 (R0)
* Jan 25, 2021 (R1)

**Thursday Jan 21st 2021, 10:00 – 12:00 ET**

**Introduction**

1. The Chair (Tianyu Wu, Apple) calls the meeting to order at 10:00 ET.
2. The Chair follows the agenda in 11-20/1917r10.
3. The Chair goes through the IPR policy and asks if anyone is aware of any potentially essential patents. Nobody speaks up.
4. The Chair reminds everyone to report their attendance by using IMAT system and by sending an e-mail to the Co-chair, Sigurd Schelstraete (ON Semiconductor) or the Chair himself if unable to record attendance via IMAT system.
5. Agenda for the meeting is discussed and approved

**Agenda**

* Technical Submissions: **Run SPs from Previous Topics**
	+ *No Pending Requests*
* Technical Submissions: **Proposed Draft Text (PDTs) for fixings TBDs**
	+ [104r2](https://mentor.ieee.org/802.11/dcn/21/11-21-0104-00-00be-subcarriers-and-resource-allocation-for-multiple-rus-update.docx) PDT Subcarriers and Resource Allocation for Multiple RUs Update Jianhan Liu

* + [114r1](https://mentor.ieee.org/802.11/dcn/21/11-21-0114-01-00be-pdt-updates-on-ltf.docx) PDT updates on LTF Chenchen Liu
* Technical Submissions:
	+ [0089r1](https://mentor.ieee.org/802.11/dcn/21/11-21-0089-01-00be-eht-ppe-thresholds-field-follow-up.pptx) EHT PPE Thresholds Field Follow-up Mengshi Hu
	+ [0102r0](https://mentor.ieee.org/802.11/dcn/21/11-21-0102-00-00be-considerations-on-capabilities-and-operation-mode-mu-mimo.pptx) Considerations on Capabilities and Operation Mode: MU-MIMO Wook Bong Lee
	+ [129r0](https://mentor.ieee.org/802.11/dcn/21/11-21-0129-00-00be-phase-rotation-for-320-mhz-non-ht-duplicate-transmission-and-pre-eht-modulated-fields.pptx) Phase Rotation for 320 MHz Non-HT Duplicate Transmission and Pre-EHT modulated Fields Chenchen LIU
	+ [130r0](https://mentor.ieee.org/802.11/dcn/21/11-21-0130-00-00be-papr-comparison-for-two-320mhz-phase-rotation-sequences.pptx) PAPR Comparison for Two 320MHz Phase Rotation Sequences Eunsung Park

**Attendance**

The following people registered their attendance for the meeting:

* Gary Anwyl (Mediatek Inc.)
* Hari Ram B (Nxp Semiconductors)
* Jinsoo Choi (Lg Electronics)
* John Coffey (Realtek Semiconductor Corp.)
* Ruchen Duan (Samsung)
* Shuling Feng (Mediatek Inc.)
* Zhigang Gao (Cisco Systems, Inc.)
* Alireza Ghaderipoor (Mediatek Inc.)
* Bo Gong (Huawei Technologies Co. Ltd)
* Brian Hart (Cisco Systems, Inc.)
* Lili Hervieu (Cable Television Laboratories Inc. (Cablelabs))
* Hung-Tao Hsieh (Mediatek Inc.)
* Mohsen Jamalabdollahi (Cisco Systems, Inc.)
* Mahmoud Kamel (Interdigital, Inc.)
* Assaf Kasher (Qualcomm Incorporated)
* Youhan Kim (Qualcomm Incorporated)
* James Lansford (Qualcomm Incorporated)
* Wookbong Lee (Samsung)
* Jialing Li (Qualcomm Incorporated)
* Dong Guk Lim (Lg Electronics)
* Der-Zheng Liu (Realtek Semiconductor Corp.)
* Jianhan Liu (Mediatek Inc.)
* Mikael Lorgeoux (Canon Research Centre France)
* Lily Lv (Huawei Technologies Co. Ltd)
* Li Ma (Mediatek Inc.)
* Ebubekir Memisoglu (Istanbul Medipol University; Vestel)
* Leo Montreuil (Broadcom Corporation)
* Basak Ozbakis (Vestel)
* Eunsung Park (Lg Electronics)
* Srinath Puducheri (Broadcom Corporation)
* Oded Redlich (Huawei)
* Sigurd Schelstraete (On Semiconductor)
* Ankit Sethi (Nxp Semiconductors)
* Stephen Shellhammer (Qualcomm Incorporated)
* Shimi Shilo (Huawei)
* Jung Hoon Suh (Huawei Technologies Co. Ltd)
* Bo Sun (Zte Corporation)
* Tao Tian (Unisoc Comm.)
* Prabodh Varshney (Nokia)
* Daniel Verenzuela (Sony Corporation)
* Sameer Vermani (Qualcomm Incorporated)
* Leif Wilhelmsson (Ericsson Ab)
* Tianyu Wu (Apple, Inc.)
* Yan Xin (Huawei Technologies Co., Ltd)
* Steve Ts Yang (Mediatek Inc.)
* Jian Yu (Huawei Technologies Co., Ltd)
* Yan Zhang (Nxp Semiconductors)

**Proposed Draft Text (PDTs)**

**104r2 PDT Subcarriers and Resource Allocation for Multiple RUs Update (Jianhan Liu)**

Submission is presented and discussed. Based on discussion, the authors will provide an update. No SP is run at this time. Target is to SP this submission on the next call.

**114r1 PDT updates on LTF (Chenchen Liu)**

Submission is presented and discussed. Author will make updates accordingly. To be revisited on the next call.

**Presentations**

**0089r1 EHT PPE Thresholds Field Follow-up (Mengshi Hu)**

This submission discusses extensions of the PPE Threshold indication mechanism to cover new RU, MCS and N\_SS cases. Two options are proposed for EHT PPE Threshold field design.

Discussion

Q: 20usec use requires N\_SS > 8?

A: yes

Q: different implementations may have different bottlenecks. Option 2 has some restrictions. Will make some cases hard to signal.

A: will never be worse than 11ax. Option 1 is more flexible, Option 2 saves overhead.

SPs deferred

**0102r0 Considerations on Capabilities and Operation Mode: MU-MIMO (Wook Bong Lee)**

The submission reports some test results for HE, comparing various MU configurations with different MCS and different N\_SS,total. Sometimes reducing total number of streams in MU helps improve throughput.

11ax does not distinguish between SU and MU for supported NSS and MCS level. It is proposed to have two different set of Supported NSS and MCS level and allow that separate Rx NSS for MU can be updated by e.g. OMI.

Discussion

Q: MCS level might be different between SU and MU, don’t see it as capability issue, but rather Rate Adaptation issue. Don’t see the need for capability indication. Also, STA does not need to dictate the number of streams.

A: in the field, we use capabilities to control behavior as well

Q: STA should not decide parameters for other links. This could punish a good implementation AP.

Q: performance could also be limited by MIMO detection algorithm. Agree in principle with the proposal. Capabilities may take a lot of bytes.

A: max 3 bytes more.

Q: This is about HW capability vs. rate adaptation. Shouldn’t mix the two. Not really necessary to have separate capabilities. Is this similar to closed loop MCS feedback?

A: capability indication is static, OMI not.

SPs deferred

**Adjourn**

The meeting is adjourned 12:00 ET

**Monday Jan 25th 2021, 10:00 – 12:00 ET**

**Introduction**

1. The Chair (Tianyu Wu, Apple) calls the meeting to order at 10:00 ET.
2. The Chair follows the agenda in 11-20/1917r11.
3. The Chair goes through the IPR policy and asks if anyone is aware of any potentially essential patents. Nobody speaks up.
4. The Chair reminds everyone to report their attendance by using IMAT system and by sending an e-mail to the Co-chair, Sigurd Schelstraete (ON Semiconductor) or the Chair himself if unable to record attendance via IMAT system.
5. Agenda for the meeting is discussed and approved

**Agenda**

* Run SPs from Previous Topics
	+ *Pending Requests*
* Proposed Draft Text (PDTs) for fixings TBDs
	+ [1958r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1958-02-00be-pdt-phy-phase-noise-per-160mhz.docx) PDT-PHY-Phase-Noise-Per-160MHz Brian Hart
	+ [104r0](https://mentor.ieee.org/802.11/dcn/21/11-21-0104-00-00be-subcarriers-and-resource-allocation-for-multiple-rus-update.docx) PDT Subcarriers and Resource Allocation for Multiple RUs Update Jianhan Liu
	+ [114r1](https://mentor.ieee.org/802.11/dcn/21/11-21-0114-01-00be-pdt-updates-on-ltf.docx) PDT updates on LTF Chenchen Liu
	+ [139r0](https://mentor.ieee.org/802.11/dcn/21/11-21-0139-00-00be-pdt-phy-eht-dup-mode.docx) EHT DUP mode Srinath Puducheri
	+ 140 PDT-EHT-preamble-EHT-SIG-for-D04 Ross Yu
	+ 143 PDT-EHT-SIG-MCS-Table Ross Yu
* Technical Submissions:
	+ [~~0102r0~~](https://mentor.ieee.org/802.11/dcn/21/11-21-0102-00-00be-considerations-on-capabilities-and-operation-mode-mu-mimo.pptx) ~~Considerations on Capabilities and Operation Mode: MU-MIMO Wook Bong Lee~~
	+ [129r0](https://mentor.ieee.org/802.11/dcn/21/11-21-0129-00-00be-phase-rotation-for-320-mhz-non-ht-duplicate-transmission-and-pre-eht-modulated-fields.pptx) Phase Rotation for 320 MHz Non-HT Duplicate Transmission and Pre-EHT modulated Fields Chenchen LIU
	+ [130r0](https://mentor.ieee.org/802.11/dcn/21/11-21-0130-00-00be-papr-comparison-for-two-320mhz-phase-rotation-sequences.pptx) PAPR Comparison for Two 320MHz Phase Rotation Sequences Eunsung Park
	+ 93r1 Reducing USIG PAPR via Disregard Bit Value (Shimi Shilo)

**Attendance**

The following people registered their attendance for the meeting:

* Song-Haur An (Independent)
* Kwok Shum Au (Huawei Technologies Co.,  Ltd)
* Hari Ram B (Nxp Semiconductors)
* Andreas Bluschke (Signify)
* Jinsoo Choi (Lg Electronics)
* Seungho Choo (Senscomm Semiconductor Co., Ltd.)
* Jinyoung Chun (Lg Electronics)
* Zhigang Gao (Cisco Systems, Inc.)
* Bo Gong (Huawei Technologies Co. Ltd)
* Brian Hart (Cisco Systems, Inc.)
* Hung-Tao Hsieh (Mediatek Inc.)
* Lei Huang (Guangdong Oppo Mobile Telecommunications Corp.,Ltd)
* Mohsen Jamalabdollahi (Cisco Systems, Inc.)
* Eunsung Jeon (Samsung Electronics)
* Mahmoud Kamel (Interdigital, Inc.)
* Youhan Kim (Qualcomm Incorporated)
* Hong Won Lee (Lg Electronics)
* Wookbong Lee (Samsung)
* Jialing Li (Qualcomm Incorporated)
* Dong Guk Lim (Lg Electronics)
* Taesung Lim (Lg Electronics)
* Wei Lin (Huawei Technologies Co. Ltd)
* Der-Zheng Liu (Realtek Semiconductor Corp.)
* Mikael Lorgeoux (Canon Research Centre France)
* Li Ma (Mediatek Inc.)
* Leo Montreuil (Broadcom Corporation)
* Eunsung Park (Lg Electronics)
* Sigurd Schelstraete (On Semiconductor)
* Ankit Sethi (Nxp Semiconductors)
* Stephen Shellhammer (Qualcomm Incorporated)
* Shimi Shilo (Huawei)
* Jung Hoon Suh (Huawei Technologies Co. Ltd)
* Bo Sun (Zte Corporation)
* Bin Tian (Qualcomm Incorporated)
* Genadiy Tsodik (Huawei Technologies Co. Ltd)
* Allert Van Zelst (Qualcomm Incorporated)
* Prabodh Varshney (Nokia)
* Daniel Verenzuela (Sony Corporation)
* Leif Wilhelmsson (Ericsson Ab)
* Tianyu Wu (Apple, Inc.)
* Yan Xin (Huawei Technologies Co., Ltd)
* Steve Ts Yang (Mediatek Inc.)
* Homin Yoo (Lg Electronics)
* Jeonghwan Yoon (Lg Electronics)
* Jian Yu (Huawei Technologies Co., Ltd)
* Malia Zaman (Ieee Standards Association (Ieee-Sa))
* Yan Zhang (Nxp Semiconductors)

**Proposed Draft Text (PDTs)**

[**1958r2**](https://mentor.ieee.org/802.11/dcn/20/11-20-1958-02-00be-pdt-phy-phase-noise-per-160mhz.docx) **PDT-PHY-Phase-Noise-Per-160MHz (Brian Hart)**

Proposal to accept TBD text that mentions the possibility of 2 LO implementation of 320 MHz.

Discussion:

Q: better to write something in EVM section, Tx being responsible for meeting the requirement.

A: can be added in modulation accuracy section. Additional text referencing EVM section is proposed.

Q: text is confusing. Not even sure we need this. You still want receiver to consider 2 LOs, even without this text.

A: Tx has to achieve all Tx requirements. No obligation on Rx side.

Q: probably should not mention one or two LOs. Rx can assume there are no phase differences. This simplifies the design. Compromise: don’t mention number of LO’s at Tx side. At Rx side, assume there is no phase difference.

A: the proposal is exactly like in 11ac/11ax

Document will be updated offline. SP deferred.

[**104r3**](https://mentor.ieee.org/802.11/dcn/21/11-21-0104-00-00be-subcarriers-and-resource-allocation-for-multiple-rus-update.docx) **PDT Subcarriers and Resource Allocation for Multiple RUs Update (Jianhan Liu)**

Two issues discussed during last call are addressed here.

No Discussion

SP1

Do you agree to accept the proposed text in 11-21/104r3 for 11be D0.4?

No objections

Accepted by unanimous consent

[**114r3**](https://mentor.ieee.org/802.11/dcn/21/11-21-0114-01-00be-pdt-updates-on-ltf.docx) **PDT updates on LTF (Chenchen Liu)**

Modified to 114r4 based on discussion

SP2

Do you agree to accept the proposed text in 11-21/114r4 for 11be D0.4?

No objections

Accepted by unanimous consent

[**139r0**](https://mentor.ieee.org/802.11/dcn/21/11-21-0139-00-00be-pdt-phy-eht-dup-mode.docx) **EHT DUP mode (Srinath Puducheri)**

Create new section for EHT-DUP. Existing text removed from Constellation mapping section.

Discussion will be continued next meeting.

**Adjourn**

The meeting is adjourned 12:00 ET