`IEEE P802.11  
Wireless LANs

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| UHR SG March April 2023 teleconference minutes | | | | |
| Date: 2023-03-25 | | | | |
| Author(s): | | | | |
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|  |  |  |  |  |

Abstract

This document contains the minutes for UHR SG March April 2023 teleconference.

Revision history:

* Rev0: initial version.

Abbreviations:

* A: Answer
* C: Comment

# 1st Conf. Call: Mar 27th Monday (10:00–12:00 ET)

* The Chair, Laurent Cariou (Intel), calls the meeting to order.
* IEEE 802 and 802.11 IPR policy and procedure
  + Patent Policy: Ways to inform IEEE:
    - Cause an LOA to be submitted to the IEEE-SA ([patcom@ieee.org](mailto:patcom@ieee.org)); or
    - Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
    - Speak up now and respond to this Call for Potentially Essential Patents

If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair. **Nobody speaks/writes up**.

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    - IEEE SA’s copyright policy is described in [Clause 7](https://standards.ieee.org/about/policies/bylaws/sect6-7.html#7) of the IEEE SA Standards Board Bylaws and [Clause 6.1](https://standards.ieee.org/about/policies/opman/sect6.html) of the IEEE SA Standards Board Operations Manual;
    - Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy

**Copyright Policy was presented.**

* + **Patent, Participation, Copyright and policy related subclause:** Please refer to Patent And Procedures
* Attendance reminder.
  + Participation slide: <https://mentor.ieee.org/802-ec/dcn/16/ec-16-0180-05-00EC-ieee-802-participation-slide.pptx>
  + Please record your attendance during the conference call by using the IMAT system:
    - 1) login to [imat](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “<UHR SG > conference call that you are attending.
  + If you are unable to record your attendance contact Laurent Cariou ([laurent.cariou@intel.com](mailto:laurent.cariou@intel.com)) and Ross Jian Yu ([ross.yujian@huawei.com](mailto:ross.yujian@huawei.com)) for assistance
  + Please ensure that the following information is listed correctly when joining the call:
    - "[voter status] First Name Last Name (Affiliation)"
* Agenda
  + Chair reviews proposed agenda found in [11-23-0531r](https://mentor.ieee.org/802.11/dcn/23/11-23-0531-00-0uhr-uhr-sg-march-april-2023-teleconference-agendas.docx)0
  + Discussion:
  + Agenda approved with unanimous consent.
* Announcements:
  + None
* Submissions
  + [11-23/0060r1](https://mentor.ieee.org/802.11/dcn/23/11-23-0060-01-0uhr-layered-qos-and-multi-layer-transmission-follow-up.pptx) Layered QoS and multi-layer transmission follow-up Ross Jian Yu (Huawei)
    - C: slide #4 – results for unequal power and equal power here?
    - A: 2nd and 3rd are equal power
    - C: I would expect unequal to be at least as good as equal power
    - A: equal power has better performance here
    - C: Unequal could converge to equal power, so I’m surprised that it’s much worse
    - A: we simply compare all cases, for unequal power case we balance the effective post-SNR of each stream
    - C: which channel (LOS/NLOS) did you simulate?
    - A: I think it was channel B
    - C: do you have a corresponding channel condition statistic? Looks like on the left side there are more benefits
    - A: I can double-check the condition number, for NLOS scenario the SNR is very small so there is some loss, but with SNR big enough there are gains
    - C: but with good choice you should recover the performance
    - C: here you’re prosposing MC-MIMO, did you consider unequal modulation (11n style)?
    - A: not so far, we’ve given some thoughts to that, we can further evaluate that, but we prefer this method, similar as MU-MIMO but with single receiver, easy for link adaptation. That’s our current study
    - C: for the second scheme, how is the interference generated? Is it a 20MHz waveform?
    - A: I need to double-check
    - C: is it a real 20MHz waveform with Tx power leakage on other bands, or a purely frequency-domain interference
    - A: I will check and get back to you
    - C: related to interference, in last slide you mention multi-layer gain in interference scenario, is there still gain when there is no interference?
    - A: when there is no interference, it depends on the channel selectivity; when channel selectivity is large there may be gain, but if the channel is flat, there may be some loss due to loss of the interleaver across different RUs.
    - C: but do you assume you know the interference level across frequency?
    - A: we assume there is some prior knowledge of the interference environment.
    - C: in your simulations did you consider AGC on receiver side?
    - A: we do consider it and we do consider that strong stream may lead to clipping, so we will lose some power to stream with lower SNR.
    - C: so what is dynamic range for AGC?
    - A: we have a model for that but I don’t remember.
    - C: but you do include the quantization noise for the weaker RUs?
    - A: we may double-check this offline, not sure quantization is here.
  + [11-23/0069r1](https://mentor.ieee.org/802.11/dcn/23/11-23-0069-01-0uhr-considerations-on-latency-improvement.pptx) Considerations on Latency Improvement Insun Jang (LG Electronics)
    - C: Changing traffic from one AC queue to another, the spec already allows to use that TXOP for lower AC if the higher AC is empty.
    - A: I intend to consider the case where TXOP sharing or multi-TID transmission cannot be used.
    - C: My other question is about SN. This BA is not only about per TID, but also per sub-ID?
    - C: For slide 5, I agree with what you observe. Because similar issues are also for 11be spec. Should address it in 11be than UHR.
    - C: Let us not discuss 11be here.
    - C: do you think we should have LL TID in the A-MPDU?
    - A: yes
    - C: Prefer to have offline discussion as there are many questions.
  + [11-23/0075r1](https://mentor.ieee.org/802.11/dcn/23/11-23-0075-01-0uhr-more-discussions-on-deep-learning-for-wlan.pptx) More Discussions on Deep learning for WLAN Ziyang Guo (Huawei)
    - C: The station uses this channel to access the channel. The decision will be yes or no?
    - A: The binary decission, transmit or wait.
    - C: slide 8, all these AI # are AI STAs. Only consider AI STAs have traffic? Do non-AI STAs have traffic or not?
    - A: we assume all STAs are AI STAs.
    - C: the traffic models are for AI enabled STAs?
    - A: if you want to use them for legacy STAs, it is ok.
    - C: another question, slide 10, you are saying for different features, as you list here, some models may be used, especially the input. Are they sharing the same parameters used for NN model?
    - A: I do not check whetheter they use the same model. But it is possible to reuse part of the model, e.g., use the same number of layers.
    - C: that’s from Ref [6]?
    - A: we also do some simulation, AI based channel access and AI based link adaptation can share some paraeters.
    - C: The filter action, slide 12, I try to see this decisison filter is highly implementation specific. How do you think this will impact the standardization?
    - A: this needs to have some further discussion. We need to discuss whether we need to stdanardize this filter.
  + [11-23/0092r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0092-00-0uhr-preemption.pptx) Preemption Juan Fang (Intel)
    - C: Slide 5, you may already mention that some problems need to be further solved. The STA2 has certain packet to transmit, how does AP1 know that?
    - A: We need to use different iFS for LL packet and the next DL PPDU.
    - C: The STA whichever has the LL traffic can access the channel?
    - C: What is the boundary of dividing the PPDUs?
    - A: PPDU level.
    - C: We kind of enabling doing this already by different EDCA parameters. What is xIFS you use for your simulation.
    - A: we use SIFS for the simulation. Need to define different iFS. For true value, we need further consideration.
    - C: Slide 5, on the left, the AP sends the first DL PPDU to STA, but there is no immediate BA.
    - A: very good question. We can do different scheme. We can do BA together at the end. For the DL LL PPDU, we need immediate BA from STA2.
    - C: for legacy STA, how can you control the PPDU length?
    - A: cannot control the PPDU length, but can control TXOP length for legacy STAs, not support burst transmission.
    - C: I think legacy and next generation, different generations share the same TXOP length. It hurts the Tput.
    - A: You mean it is not fair for the legacy mode?
    - C: you only control the new STA or the AP?
    - A: this new proposed soluation can only apply to the new Wi-Fi 8 STAs. We cannot do anything unless we set lmit to the TXOP length or the TXOP without burst transmission.
    - C: you mention the collision issue. It is natural we have multiple STAs have LL traffic.
    - A: we need to consider that. STA2 and STA3 may have collision. We are working on the solution.
    - C: If it is a fixed length, it seems a little bit hard, we can further discuss. This is an important issue we need to solve.
    - C: I have similar question as the previous commenter. You don’t put immediate BA. There may be retransmission for LL data.
    - A: sorry about that. There should be one immediate BA.
    - C: do you condier for LL traffic, you use low MCS?
    - A: need to consider that. For time critical packet, we have different PER setting.
    - C: do you have evaluation there are multiple LL STAs? The collision will degrade the performance.
    - A: in this simulation, both the AP and the STA have LL traffic. We did see some effect due to the collision.
  + [11-23/0042r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0042-00-0uhr-thought-for-range-extension-in-uhr.pptx) Thought for Range Extension in UHR Dongguk Lim (LG Electronics)
    - C: Is 802.11ah a baseline?
    - A: You mean the relay STA has an AP function. We can consider the relay STA has an AP function, but it requires many complicated operation. For simplicity, we can consider relay STA has a non-AP STA controlled by the AP.
    - C: Have you considered security related issue?
    - A: Thanks for your question. It is a good one. For security, we need to think more about that.
* AoB:
  + None
* Adjourned at 11:59 ET

# 2nd Conf. Call: Apr 10th Monday (10:00–12:00 ET)

# 3rd Conf. Call: Apr 17th Monday (10:00–12:00 ET)

# Appendix

* + Attendee List for 1st Conf. Call:

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| UHR SG | 3/27 | Aio, Kosuke | Sony Corporation |
| UHR SG | 3/27 | Ajami, Abdel Karim | Qualcomm Technologies, Inc |
| UHR SG | 3/27 | Andersdotter, Amelia | Sky Group/Comcast |
| UHR SG | 3/27 | Anwyl, Gary | MediaTek Inc. |
| UHR SG | 3/27 | Asterjadhi, Alfred | Qualcomm Technologies, Inc |
| UHR SG | 3/27 | Baek, SunHee | LG ELECTRONICS |
| UHR SG | 3/27 | baron, stephane | Canon Research Centre France |
| UHR SG | 3/27 | Cao, Rui | NXP Semiconductors |
| UHR SG | 3/27 | Carney, William | Sony Group Corporation |
| UHR SG | 3/27 | CHENG, yajun | Xiaomi Communications Co., Ltd. |
| UHR SG | 3/27 | Chng, Shi Baw | BAWMAN LLC |
| UHR SG | 3/27 | Choi, Jinsoo | LG ELECTRONICS |
| UHR SG | 3/27 | Chu, Liwen | NXP Semiconductors |
| UHR SG | 3/27 | CHUN, JINYOUNG | LG ELECTRONICS |
| UHR SG | 3/27 | Chung, Chulho | SAMSUNG |
| UHR SG | 3/27 | DeLaOlivaDelgado, Antonio | InterDigital, Inc. |
| UHR SG | 3/27 | Dong, Xiandong | Xiaomi Communications Co., Ltd. |
| UHR SG | 3/27 | Erkucuk, Serhat | Ofinno |
| UHR SG | 3/27 | Fan, Shuang | Sanechips Technology Co., Ltd. |
| UHR SG | 3/27 | Fang, Juan | Intel |
| UHR SG | 3/27 | Fujimori, Yuki | Canon Research Centre France |
| UHR SG | 3/27 | Gu, Xiangxin | Unisoc |
| UHR SG | 3/27 | GUIGNARD, Romain | Canon Research Centre France |
| UHR SG | 3/27 | Guo, Ziyang | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Gupta, Binita | Meta Platforms, Inc. |
| UHR SG | 3/27 | Haider, Muhammad Kumail | Meta Platforms Inc. |
| UHR SG | 3/27 | Handte, Thomas | Sony Group Corporation |
| UHR SG | 3/27 | Henry, Jerome | Cisco Systems, Inc. |
| UHR SG | 3/27 | Hervieu, Lili | Cable Television Laboratories Inc. (CableLabs) |
| UHR SG | 3/27 | Hsu, Ostrovsky | Xiaomi Communications Co., Ltd. |
| UHR SG | 3/27 | HUANG, CHIHAN | MediaTek Inc. |
| UHR SG | 3/27 | Huang, Lei | Huawei International Pte Ltd |
| UHR SG | 3/27 | Huq, Kazi Mohammed Saidul | Ofinno |
| UHR SG | 3/27 | Jang, Insun | LG ELECTRONICS |
| UHR SG | 3/27 | Jeon, Eunsung | SAMSUNG ELECTRONICS |
| UHR SG | 3/27 | Jung, Insik | LG ELECTRONICS |
| UHR SG | 3/27 | Jungnickel, Volker | Fraunhofer Heinrich Hertz Institute |
| UHR SG | 3/27 | kamath, Manoj | Broadcom Corporation |
| UHR SG | 3/27 | Kim, Geon Hwan | LG ELECTRONICS |
| UHR SG | 3/27 | Kim, Jeongki | Ofinno |
| UHR SG | 3/27 | Kim, Myeong-Jin | SAMSUNG |
| UHR SG | 3/27 | Kim, Sanghyun | WILUS Inc. |
| UHR SG | 3/27 | Kim, Youhan | Qualcomm Technologies, Inc. |
| UHR SG | 3/27 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| UHR SG | 3/27 | Klein, Arik | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Koundourakis, Michail | Samsung Cambridge Solution Center |
| UHR SG | 3/27 | Kuo, Chih-Chun | MediaTek Inc. |
| UHR SG | 3/27 | Lalam, Massinissa | SAGEMCOM SAS |
| UHR SG | 3/27 | Lanante, Leonardo | Ofinno |
| UHR SG | 3/27 | Li, Weiyi | Spreadtrum |
| UHR SG | 3/27 | Li, Yapu | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| UHR SG | 3/27 | Lim, Dong Guk | LG ELECTRONICS |
| UHR SG | 3/27 | Lin, Wei | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Liu, Peng | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Lorgeoux, Mikael | Canon Research Centre France |
| UHR SG | 3/27 | Lou, Hanqing | InterDigital, Inc. |
| UHR SG | 3/27 | Lovison, Federico | Cisco Systems, Inc. |
| UHR SG | 3/27 | Lu, Liuming | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| UHR SG | 3/27 | Ma, Yunsi | HiSilicon (Shanghai) Technologies Co., LTD. |
| UHR SG | 3/27 | Maguluri, Anilkumar | Synaptics |
| UHR SG | 3/27 | Mantha, Abhishek | Broadcom Corporation |
| UHR SG | 3/27 | MAO, ZHI | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Martinez Vazquez, Marcos | MaxLinear Corp |
| UHR SG | 3/27 | McCann, Stephen | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Miwa, Shinya | Canon Research Centre France |
| UHR SG | 3/27 | Montemurro, Michael | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Mutgan, Okan | Nokia |
| UHR SG | 3/27 | Nayak, Peshal | Samsung Research America |
| UHR SG | 3/27 | Nezou, Patrice | Canon Research Centre France |
| UHR SG | 3/27 | Ng, Boon Loong | Samsung Research America |
| UHR SG | 3/27 | Noh, Si-Chan | Newracom Inc. |
| UHR SG | 3/27 | Park, Eunsung | LG ELECTRONICS |
| UHR SG | 3/27 | Park, Minyoung | Intel |
| UHR SG | 3/27 | Park, Sungjin | Senscomm |
| UHR SG | 3/27 | Patil, Abhishek | Qualcomm Incorporated |
| UHR SG | 3/27 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| UHR SG | 3/27 | Pettersson, Charlie | Ericsson AB |
| UHR SG | 3/27 | Qi, Yue | Samsung Research America |
| UHR SG | 3/27 | Quan, Yingqiao | Unisoc |
| UHR SG | 3/27 | RISON, Mark | Samsung Cambridge Solution Centre |
| UHR SG | 3/27 | Ryu, Kiseon | NXP Semiconductors |
| UHR SG | 3/27 | Sato, Takuhiro | SHARP CORPORATION |
| UHR SG | 3/27 | Schelstraete, Sigurd | MaxLinear |
| UHR SG | 3/27 | Serizawa, Kazunobu | Advanced Telecommunications Research Institute International (ATR) |
| UHR SG | 3/27 | Shafin, Rubayet | Samsung Research America |
| UHR SG | 3/27 | Shilo, Shimi | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Son, Ju-Hyung | WILUS Inc. |
| UHR SG | 3/27 | Song, Hao | Intel |
| UHR SG | 3/27 | SUH, JUNG HOON | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Sun, Bo | Sanechips |
| UHR SG | 3/27 | Tsodik, Genadiy | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Tsujimaru, Yuki | Canon Inc. |
| UHR SG | 3/27 | Uln, Kiran | Infineon Technologies |
| UHR SG | 3/27 | Urabe, Yoshio | Panasonic Holdings Corporation |
| UHR SG | 3/27 | Vaidya, Maulik | Charter Communications |
| UHR SG | 3/27 | Val, Inaki | MaxLinear, Inc. |
| UHR SG | 3/27 | Vermani, Sameer | Qualcomm Incorporated |
| UHR SG | 3/27 | Wang, Qi | Apple, Inc. |
| UHR SG | 3/27 | Wu, Kanke | Qualcomm Incorporated |
| UHR SG | 3/27 | Wu, Tianyu | Apple, Inc. |
| UHR SG | 3/27 | Xia, Qing | Sony Corporation |
| UHR SG | 3/27 | Xin, Yan | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Yang, Jay | Nokia |
| UHR SG | 3/27 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| UHR SG | 3/27 | Yi, Yongjiang | Spreadtrum Communication USA, Inc |
| UHR SG | 3/27 | Yoon, Yelin | LG ELECTRONICS |
| UHR SG | 3/27 | Yu, Jian | Huawei Technologies Co., Ltd |
| UHR SG | 3/27 | Zhang, Jiayi | Ofinno |
| UHR SG | 3/27 | Zhang, Yan | NXP Semiconductors |
| UHR SG | 3/27 | Zhao, Yue | Huawei Technologies Co., Ltd; |

* + Attendee List for 2nd Conf. Call:
  + Attendee List for 3rd Conf. Call: