IEEE P802.11  
Wireless LANs

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| UHR SG January Feburary 2023 teleconference minutes | | | | |
| Date: 2023-02-06 | | | | |
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Abstract

This document contains the minutes for UHR SG Jan Feb 2023 teleconference.

Revision history:

* Rev0: initial version.

Abbreviations:

* A: Answer
* C: Comment

# 1st Conf. Call: Feb 6th 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**.

* + Copyright Policy: Participants are advised that
    - 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 [11-22-0169r](https://mentor.ieee.org/802.11/dcn/23/11-23-0169-01-0uhr-uhr-sg-jan-feb-2023-teleconference-agendas.docx)1
  + Discussion:
    - 11-23/0016r0 is requested by the author to be removed from the agenda.
  + Agenda approved with unanimous consent.
* Announcements:
  + None
* Submissions
  + [11-22/2204r0](https://mentor.ieee.org/802.11/dcn/22/11-22-2204-00-0uhr-dynamic-subband-operation.pptx) Dynamic Subband Operation Sindhu Verma (Broadcom)
    - C: The assumption is that AP is 320MHz, STA is 160MHz. Your SP is more general.
    - A: 320 and 160 MHz are used as an example of illustration.
    - C: one of the motivations is that if the AP and STA are engaged in primary channel. If the primary channel is busy, how do we use secondary channel? Do you have any thought?
    - A: there is another feature, we have a presentation even in 11be, non-primary channel utilization.
    - C: We should see how we overall use the whole spectrum with some STA being able to engage in subband.
    - C: The first and second control such as MU-RTS, responds with CTS in S160. According to the current rule, CTS is only transmitted in P20/40… Are you considering the CTS frames in secondary channels only?
    - A: yes. It is more general than that. And the primary channel will be used by those STAs that remain in primary channels.
    - C: there should be a short switch delay.
    - A: it has to have some optimal latency. The swith will not be more than 100us.
    - C: many implementations, the delay is larger than that. Will double check.
    - C: The intiation of the TXOP, if there is no response in S160, it does not follow the current CTS response rule.
    - A: The AP suppose to have wider channel. The AP could occupy the large bandwidth using the intial control frame. The AP will make sure the entire channel is occupied and channel sensing is in any part of the channels.C
  + [11-23/0010r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0010-00-0uhr-considerations-for-enabling-ap-power-save.pptx) Considerations for enabling AP power save Alfred Asterjadhi (Qualcomm Inc.)
    - C: Have you considered for legacy compatible?
    - A: Yes
  + [11-23/0015r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0015-00-0uhr-ap-mld-power-management.pptx) AP MLD power management Liwen Chu (NXP)
    - C: Slide 10, for the 3rd bullet, slide 6, legacy STA will assume the AP will be always available. Do you have any thought regarding the 3rd bullet?
    - A: In the previous slide, the AP can announce which kinds of STA can associate to it based on basic rate set element. No legacy STAs will associate with this AP. The AP can enable this AP power management mode if the AP doesn’t want to associate more STAs.
    - C: You mention one AP should be in active mode. Do we still need short AP announcement.
    - A: No. We assume we have single link AP device. Cannot assume always one link will be available.
    - C: Support this direction. Slide 12, the requirement for the active on one link.
    - A: STA need to buffer data if all APs are in power save mode.
    - C: if the STAs are also in active mode, the STAs will transmit in active link anyway.
    - A: if you think .11ax and .11ac AP, similar AP has bandwidth and switched to narrow band, the STA does not need to buffer its data.
  + [11-23/0018r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0018-00-0uhr-low-latency-support-in-uhr.pptx) Low latency support in UHR Kiseon Ryu (NXP)
    - C: Slide 7, case 1, what is the xIFS between BA and LL data?
    - A: We can consider two types of cases to support this oepratoin. AP can indicate some preemption to the STA1. STA1 doesn’t’ transmit the following PPDU to the AP. The second one is that we can consider different xIFS. Larger xIFS for non-Low latency frame.
    - C: Case 3, how AP knows whether there is LL data from STA2?
    - A: It is challenging, an issue to solve. If the TXOP length is larger than a threshold, the AP can schedule a period within the TXOP.
    - C: there could be multiple low latency STAs? The AP doesn’t know which STAs have LL data.
    - A: TF-R, trigger for random access.
    - C: Case 2, the STA2 may go to power save mode. How does STA2 know there will be LL traffic for him?
    - A: TXOP power save mode is not supported in 11ax and 11be. If STA 2 is in TWT operation, then the AP may not transmit to STA 2 outside of TWT SP. AP can transmit to STA 2 if STA 2 is not in power save mode.
    - C: Case 4, aggressive spatial reuse, do you mean it can interrupts current transmission?
    - A: we already have some spatial reuse operation, like SRG PSR based or OBSS-PD based.We can discuss some different rules for low latency transmission. Usually low latency transmissions are short packets. Can define OBSS PD levels, can define some other rules. Can discuss further.

Back to agenda discussion

11-23/0037r0 is added to the agenda.

* + [11-23/0037r0](https://mentor.ieee.org/802.11/dcn/23/11-23-0037-00-0uhr-uhr-feature-to-overcome-psd-limitations-distributed-tone-resource-units.pptx) UHR Feature to Overcome PSD Limitations Distributed-Tone Resource Units Jianhan Liu (Mediatek Inc.)
    - C: How do you handle the control frame?
    - A: In wider bandwidth, no power limitation. 80MHz trigger, using non-HT duplicate. For MU-RTS, you can transmit in wider bandwidth. CTS, you can also transmit on wider bandwidth.
    - C: Need more examination if the whole mechanism can work.
    - A: I have one user, 80MHz, transmitting on red tones. Another user transmits on all the tones. It has the coding gain, same rate, same range. Whilst the data rate will not be comparable for the UL case.
    - C: I have asked you questions on spectrum mask in Jan meeting.
    - A: can define using the same mask for unused tone EVM.
    - C: typically, Wi-Fi device has its own crystal., when doing distributed RU, will increase ICI for UL packets? How the SNR boost vs the increased ICI?
    - A: very good question. Will indeed introduce more ICI. Our simulation results show, if there is no synchronization error, ICI will not be a problem. According to current TB transmission accuracy for regular RU, you could loose 1.5dB for the worst case. If we tighten the synchronization a little bit, the loss could be reduced. If we could increase the power by 8dB and loose 1-1.5dB back. You could also get it back by using ICI equalization.
    - C: Would be good if you show the results.
    - A: will share it in the TG.
    - C: compare with Regular RU, this DRU, for Rx fitler design, any difference?
    - A: I didn’t see any anlog filter need to be changed here.
* Recessed at 11:59 ET

# Appendix

* + Attendee List for 1st Conf. Call: