IEEE P802.11
Wireless LANs

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| CR on UORA Power Saving |
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Abstract

This submission is a CR document on the following CIDs.

* CID: 12000, 12050, 12176, 13071, 13524, 13852

Revisions:

* R0: Initial version of the document
* R1: Resolution of CID 12000 is changed from Rejected to Revised with some texts.

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGax Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGax Editor: Editing instructions preceded by “TGax Editor” are instructions to the TGax editor to modify existing material in the TGax draft. As a result of adopting the changes, the TGax editor will execute the instructions rather than copy them to the TGax Draft.***

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| **CID** | **Commenter** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 12000 | James Yee | 313.38 | 27.14.2 | Not clear what "remain awake for random access in the cascaded Trigger frame" means. IS it supposed to be "remain awake for the subsequent Trigger frame" | Please clarify. | RevisedAgree in principle.For clarification, delete ‘in the the cascaded Trigger frame’ in the indicated sentence..**TGax editor: Makes the changes as show in the 18/0063r1.** |
| 12050 | Jeongki Kim | 313.28 | 27.14.2 | A part of resolutions of 17/1060r6 is not implemented in D2.0 correctly. | Change from "When the No Further RA RU subfield is set to 1, an AP shall not allocate the random access RUs assigned to2045 in the subsequent Trigger frames until either the end of the current TWT SP or the end of the currentTXOP in case of no TWT SP."to "When the No Further RA RU subfield is set to 1, an AP shall not allocate the random access RUs in the subsequent Trigger frames until either the end of the current TWT SP or the end of the currentTXOP in case of no TWT SP." | Accepted.A resolution of 17/1060r6 which motion passed at the September meeting 2017 is not implemented in 11ax D2.0. The text "assigned to 2045" should be deleted in the indicated sentence. |
| 12176 | kaiying Lv | 313.28 | 27.14.2 | When the No Further RA RU subfield is set to 1, an AP shall not allocate the random access RUs assigned to 0 either. | Please clarify it | RevisedAgree in principle with the comment. When the No Further RA RU subfield is set to 1, an AP shall not allocate the random access RUs assigned to 0 either. A resolution of 17/1060r6 was not implemented in D2.0 correctly at the last September meeting. The text "assigned to 2045" should be deleted in the indicated sentence.Same as the resolution of CID 12050 as followings.**TGax editor makes the following.**Change from "When the No Further RA RU subfield is set to 1, an AP shall not allocate the random access RUs assigned to 2045 in the subsequent Trigger frames until either the end of the current TWT SP or the end of the current TXOP in case of no TWT SP."to "When the No Further RA RU subfield is set to 1, an AP shall not allocate the random access RUs in the subsequent Trigger frames until either the end of the current TWT SP or the end of the current TXOP in case of no TWT SP." |
| 13071 | Pascal VIGER | 92.33 | 9.3.1.23 | The No Further RA RU subfield is set to 1 to indicate that random access RUs are not allocated in subsequent Trigger frames.As there could have several RUs with AID12 subfield that is 0 or 2045 (especially but not only due to the requirement of one scheduled RU per each 20Mhz channel), I suggest to make 'No Further RA RU subfield' value consistent for all the RUs that is 0 or 2045. | as per comment | Revised Agree in principle with the commentBecause there is no certain restriction for random access RUs, "random access RU" in the sentence means all RUS with AID12 set to 0 or 2045. And, No Further RA RU subfield is present in User Info field with AID12 set to 0 or 2045. Therefore, we don't need to modify the current spec text.**TGax editor: No further changes are required.** |
| 13524 | stephane baron | 92.32 | 9.3.1.23 | "The No Further RA RU subfield is set to 1 to indicate that random access RUs are not allocated in subsequent Trigger frames that are sent before either the end of the current TWT SP or the end of the current TXOP in the case of no TWT SP." But without recommendation on the RU scheduler of the AP, the main objective of this field which allows stations to enter earlier in doze mode is not achieved. | Add a recommendation in the standard : "A trigger frame sent in a TWT cascading sequence should schedule in priority RUs intended to stations with the lowest amount of data to transmit (to allow those stations to enter in doze mode as earlier as possible)." | RejectedAs mentioned in comment, AP can schedule Trigger frames for random access as ealier as possible during a TWT SP for more power saving of UORA STA. It’s not a spec issue but it’s AP’s scheduler. Without any recommendation, AP can schedule Trigger frames for UORA earlier.And, other factors except for power saving of STAs should also be considered for Trigger frame scheduling. **TGax editor: No further changes are required.** |
| 13852 | Yonggang Fang | 259.39 | 27.5.5.2 | How to determine whether a RU is idle or busy based on physical CS or virtual CS if the RU size is less than 20MHz? The CS can only measure the status for channel BW 20MHz. |  | RejectedThe comment fails to identify changes in sufficient details.Techinically, if the 20MHz channel containing the selected RU is considered idle, the selected RU is considered idle, otherwise, the selected RU is considered busy. The detail of it is described in the reference of the indicated sentence (27.5.3.5 (UL MU CS mechanism)).**TGax editor: No further changes are required.** |

*TGax Editor: Please modify the last two paragraphs in the subclause 27.14.2 (Power save with UORA) as follows:(CID 12000, 12050, 12176)*

When the No Further RA RU subfield is set to 1, an AP shall not allocate the random access RUs ~~assigned to 2045~~(#12050 , 12176) in the subsequent Trigger frames until either the end of the current TWT SP or the end of the current TXOP in case of no TWT SP.

While TWT SP termination event has not occurred, an HE STA may use the value indicated in the Cascade Indication field in a Trigger frame to determine whether to enter the doze state. An HE STA shall decrement its OBO counter as defined in 27.5.5 (UL OFDMA-based random access (UORA)). If the OBO counter decrements to a nonzero value and the Cascade Indication field is equal to 0, then the STA may enter the doze state if no other condition requires it to remain awake. If the OBO counter decrements to a nonzero value and the Cascade Indication field is equal to 1, then the STA may remain awake for random access ~~in the cascaded Trigger frame~~ (#12000) unless the No Further RA RU subfield is equal to 1 in User Info fields with AID12 subfield equal to 0 or 2045 in which case, the STA may enter the doze state immediately until either the end of the current TWT SP or the end of the current TXOP in case of no TWT SP if no other condition requires the STA to remain awake.If the OBO counter decrements to zero then the STA shall follow the procedure defined in 27.5.5.2 (UORA procedure) to transmit an HE TB PPDU in response to the Trigger frame.