IEEE P802.11  
Wireless LANs

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| LB 200 cluase 9.20.5.4 comment resolution | | | | |
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Abstract

This submission proposes comment resolutions of the clause 9.20.5.4 from TGah Draft 1.0.

* CIDs: 1489, 1490, 1491, 1492, 1493, 1804, 1981, 1982, 2151, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2750, 2909

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 TGah Draft. This introduction is not part of the adopted material.

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

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

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1489 | 174 | 9.20.5.4 | the following sentence is based on previouse version and is not valid anymore "AP may designate a RAW for PS-Poll or trigger frames bysetting the Slot Duration subfield in RPS element to the duration of PS-Poll/trigger frame exchange sequence and setting the Cross Slot Boundary subfield of RPS element to 0" | replace the sentence with: "AP may designate a RAW for PS-Poll or trigger frames by setting the RAW type to 11" | Revised-  Agree in principle.  TGah editor to make changes shown in 11-14-0234r2 under the heading for CID 1489, 1982, 2258, 2259, 2909. |
| 1490 | 175 | 9.20.5.4 | change the language of the sentence to define normative behaviour | change the sentence to the following: "After receiving the PS-Poll frame orthe trigger frame from the paged STA in the designated RAW, the AP shall respond immediately with an (NDP) ACK frame and may deliver the downlink BU data for the corresponding paged STAs in the successive RAW, which is allocated after the current RAW" | Accepted-  Agree with the comment. |
| 1491 | 175 | 9.20.5.4 | what if AP wants to deliver the downlink BUs in more than one RAW after the PS-Poll? The way it is written if there is a PS-Poll RAW, the BUs may only be delivered in the next immediate RAW. You may want to relax or even remove that sentence. | change the line to "AP may send the downlink BUs after the end of PS-Poll RAW" or remove the sentence | Revised-  Agree in principle.  TGah editor to make changes shown in 11-14-0234r2 under the heading for CID 1491. |
| 1492 | 175 | 9.20.5.4 | remove the paragraph or move it to 9.20.5.6. The paragraph describes an independent procedure for RAW with RA frame | as in the comment | Accepted-  Agree with the comment. |
| 1493 | 175 | 9.20.5.4 | "The STAs that are allowed to access the medium may ignore..." is very ambigous. | change the line to "the STAs indicated in the PS-Poll RAW group that starts in a time protected by the (Short) Beacon may ignore..." | Rejected-  The NAV protection of the RAW by the short beacon frame is not limited to the Triggering Frame RAW. |
| 1804 | 174 | 9.20.5.4 | The text is confusing, not all stations need to contend, therefore should be clear that contention is not necessary, and the restriction applies only for those stations that need to contend | Replace "Each STA shall start to contend for the WM not earlier than the start of the assigned time slot." with "A STA shall not start to contend for the WM earlier than the start of the assigned time slot." | Revised –  Agree in principle.  A STA that only belongs to a RAW group needs to contend the WM.  TGah editor to make changes shown in 11-14-0234r2 under the heading for CID 1804. |
| 1981 | 174 | 9.20.5.4 | The language is not well organized. Propose to rephrase the paragraph. | Propose rephrase the paragraph as follows:  When a RAW is regular RAW, the Paged STA subfield within the RAW Type option subfield of the RAW Assignment is used to indicate whether all STAs or only paged STAs within the group can access the channel in the RAW.  When it indicates that all STAs that belong to a RAW group are allowed to access the medium in the RAW of the RAW group, an AP assigns a time slot for each STA that belongs to the RAW group (9.20.5.3). Each STA in the group is allowed to contend for the WM not earlier than the start of the assigned time slot. The channel access is based on DCF or EDCA. | Revised-  Agree in principle.  TGah editor to make changes shown in 11-14-0234r2 under the heading for CID 1981, 2256. |
| 1982 | 174 | 9.20.5.4 | The description here is inconsistent with the RPS definition in 8.4.2.170b. | Propose change the paragraph as follows:  "AP may designate a RAW for PS-Poll or trigger frames by setting the RAW Type subfiled to Triggering Frame RAW." | Revised-  Agree in principle.  TGah editor to make changes shown in 11-14-0234r2 under the heading for CID 1489, 1982, 2258, 2259, 2909. |
| 2151 | 174 | 9.20.5.4 | change "the access" to "to access" | change to "When an AP indicates that paged STAs only are allowed to access the medium in the RAW" | Accepted-  Agree with the comment. |
| 2256 | 174 | 9.20.5.4 | Did not find the Access Restricted to Paged STA Only field in RPS element? | Please clarify. | Revised-  Agree in principle.  TGah editor to make changes shown in 11-14-0234r2 under the heading for CID 1981, 2256. |
| 2257 | 174 | 9.20.5.4 | The "non-paged STAs" in line 58 page 174 needs a clarification, i.e., those STAs should also have dot11RAWOperationSupported set to true, as the RAW operation won't generate any impact on those STAs not supporting RAW. | Change the 2nd-sentence in line 58 page 174 to the following: and non-paged STAs with the dot11RAWOperationSupported set to true are not allowed to access the RAW. | Revised –  See the discussion shown in 11-14-0234r2 under the heading for CID 2257.  TGah editor to make changes shown in 11-14-0234r2 under the heading for CID 2257. |
| 2258 | 174 | 9.20.5.4 | what does it mean by "designate" in line 60 page 174? How does a STA know AP's intention of the RAW slot allocation? Does the paragraph in line 60 page 174 actually meant that one of ways for AP to choose the RAW slot durations is to purposely set it up to accommodate a PS-poll frame exchange sequence? | Please clarify the text in line 60 page 174 to address the questions asked by this comments. | Revised-  Agree in principle.  TGah editor to make changes shown in 11-14-0234r2 under the heading for CID 1489, 1982, 2258, 2259, 2909. |
| 2259 | 175 | 9.20.5.4 | How does a STA know the RAW allocation is only for PS-Poll or trigger frames? What happens if AP receives other frames than PS-Poll or trigger frames in the RAW allocation? | Please clarify the text in line 1 page 175 to address the questions asked by this comments. | Revised-  See the proposed change of CID 1489.  TGah editor to make changes shown in 11-14-0234r2 under the heading for CID 1489, 1982, 2258, 2259, 2909. |
| 2260 | 175 | 9.20.5.4 | Multiple questions to the paragraph in line 5 page 175: 1). What does it mean by "(NDP) ACK frame"? Is it NDP ACK frame or ACK frame? 2). What does it mean by "immediately"? Still need to contend for the channel access or just transmit or in next RAW allocation i.e., at the same time as Delivery BU data? 3) Is RAW for UL only? or does AP also gives himself RAW allocations too? | Please clarify the text in line 5 page 175 to address the questions asked by this comments. | Rejected –  1) (NDP) ACK frame means NDP ACK frame or ACK frame.  2) “immediately” means responding with the SIFS interval.  3) PS-Poll or trigger frame is only allowed. So, you can think it as the UL-only RAW.  But, the spec change is not needed because the current description is clear. |
| 2261 | 175 | 9.20.5.4 | multiple questions to the paragraph in line 9 page 175: 1). With RAW operation, the AP is allowed to contend for the channel access during RAW time, right? Otherwise, how can AP transmit the Resource Allocation frame at the beginning of the RAW? 2). Does the Resource Allocation frame overwrite the RAW slot allocations given by the RPS element transmitted in Beacon or Short Beacon? 3). In the text in line 9 page 175, which frames or Elements is the the Resource Allocation Frame Presence Indicator subfield in? Could not fine any frames or Elements in 11ah/D1.0 spec contain such subfield. Also, there are only two occurrences of "the Resource Allocation Frame Presence Indicator subfield", both in this paragraph. | Please clarify the text in line 9 page 175 to address the questions asked by this comments. | Revised –  See the proposed resolution of the CID 1492. |
| 2262 | 175 | 9.20.5.4 | The word "may" in line 19 page 175 is problematic, as it may result in WM time wastes if the STAs choose not to ignore the NAV settings, i.e., the STAs decided not to contend for the channel access if the NAV is set. | In line 19 page 175 change "may" to "shall". | Accepted-  Agree with the comment. |
| 2750 | 174 | 9.20.5.4 | Resource Allocation Frame Presence Indicator is changed to RAW Type Options subfield bit 1 | Change "Resource Allocation Frame Presence Indicator" to "RAW Type Options subfield bit 1" | Revised –  See the proposed resolution of the CID 1492. |
| 2909 | 174 | 9.20.5.4 | There's explicit indication of RAW for PS-Poll/trigger frames by setting RAW type bits to be 11. So, contents described in the third paragraph is not the way to designate the RAW for PS-Poll. | Delete the third paragraph of 9.2.5.4. | Revised-  Agree in principle.  TGah editor to make changes shown in 11-14-0234r2 under the heading for CID 1489, 1982, 2258, 2259, 2909. |

**Discussion:**

**CID 2257**

“The "non-paged STAs" in line 58 page 174 needs a clarification, i.e., those STAs should also have dot11RAWOperationSupported set to true, as the RAW operation won't generate any impact on those STAs not supporting RAW.”

It looks like there is some misunderstanding. If a STA successfully receives a RPS element, a STA with dot11RAWOperationSupported set to false also shall not access the WM for the RAW duration.

**Propose:**

Revised for CID 1489, 1490, 1491, 1492, 1804, 1981, 1982, 2151, 2256, 2257, 2258, 2259, 2261, 2262, 2750, 2909, per discussion and editing instructions in 11-14/0234r2.

***TGah editor: Modify the sub-clause 9.20.5.4 as the following:***

* Slotted channel access procedure in RAW

When the RAW is not restricted to STAs whose AID bits in the TIM element are set to 1 (the RAW Type field is set to 0 and the Bit 0 of the RAW Type Options field is set to 0), ~~When the Access Restricted to Paged STA Only field in the RPS element indicates that~~ all STAs that belong to a RAW group are allowed to access the medium in the RAW of the RAW group, an AP assigns a time slot for each STA that belongs to the RAW group (9.20.5.3). Each STA that belongs to the RAW group shall start to contend for the WM not earlier than the start of the assigned time slot. The channel access is based on DCF or EDCA.

When the RAW is restricted to STAs whose AID bits in the TIM element are set to 1 (the RAW Type field is set to 0 and the Bit 0 of the RAW Type Options field is set to 1 or the RAW Type field is set to 3), ~~When an AP indicates that~~ paged STAs only are allowed to ~~the~~ access the medium in the RAW, after receiving a TIM element, the paged STA starts to contend for the WM not earlier than the allocated time slot within the RAW defined as the function of STA position in the TIM element and the RAW group information in the RPS element (9.20.5.3), and non-paged STAs are not allowed to access the RAW.

AP may designate a RAW for trigger frames by setting the RAW type subfield of the RPS element to 3 (Triggering Frame RAW). When the RAW type is Triggering Frame RAW, each paged STA in the RAW Group is allowed to send up to one triggering frame during its assigned slot as described in 9.20.5.3 (Slot assignment procedure in RAW). In the Triggering Frame RAW, a trigger frame is limited to a QoS Null (no data) contained in a non-A-MPDU frame or a (NDP) PS-Poll frame. ~~AP may designate a RAW for PS-Poll or trigger frames by setting the Slot Duration subfield in RPS element to the duration of PS-Poll/trigger frame exchange sequence and setting the Cross Slot Boundary subfield of RPS element to 0.~~ In the Triggering Frame RAW, the STA transmits a trigger frame to the AP not earlier than the start of its assigned RAW slot. The duration of the trigger frame exchange sequence shall not exceed a slot duration calculated by the RAW Slot Definition Subfield in the RAW Assignment field of the RPS element. And, in the Triggering Frame RAW, crossing slot boundary is not allowed. ~~If the RAW is designated only for PS-Poll or trigger frames, the STA transmits a PS-Poll frame or a trigger frame to the AP not earlier than the start of its assigned RAW slot.~~ After receiving the trigger frame from the paged STA in the Triggering Frame RAW ~~designated RAW~~, the AP shall not respond with the downlink buffered BU ~~immediately with an (NDP) ACK frame~~ during the Triggering Frame RAW and may deliver~~s~~ the downlink buffered BU ~~data~~ for the corresponding paged STAs after the end of the current Triggering Frame RAW. ~~in the successive RAW, which is allocated after the current RAW~~.

~~The AP may send a Resource Allocation frame at the beginning of the RAW with the Resource Allocation Frame Presence Indicator subfield set to 1 to indicate presence of downlink buffered data for paged STAs and the slot assignment within the RAW. The STA within the group indicated by the RAW Group field of the RAW with the Resource Allocation Frame Presence Indicator subfield set to 1 should listen to the Resource Allocation frame at the beginning of the RAW.~~

The AP may protect transmissions of trigger frames by setting the NAV for the RAW immediately following the (Short) Beacon frame as specified in at least one of the RPS elements (see 9.3.2.4). The STAs with dot11RAWOperationSupported set to true that are allowed to access the medium during this RAW shall ~~may~~ ignore the NAV set by the (Short) Beacon as described in 9.3.2.4 (Setting and resetting the NAV).

A TIM STA with dot11RAWOperationSupported equal to false that successfully receives an RPS element from the AP it is associated with shall not access the WM for the RAW duration indicated in the RPS element.