IEEE P802.11  
Wireless LANs

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| Comment Collection 09 MAC CIDs (Comment Resolutions for CC09) | | | | |
| Date: 2013-07-16 | | | | |
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| Klaus Doppler |  |  |  |  |

Abstract

This document provides resolutions for CIDs: 42, 43, 44, 157, 158, 159, 225, 226, 227, 228, 229, 230, 231, 373, 465, 466, 467, 468, 469, 470, 472, 473, 474, 475, 477, 478, 479, 480, 481, 556, 789, 790, 847, 848, 904, 905 from TGah Draft 0.1 Command Collection 9

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Decision** |
| 42 | 77 | 8.4.2.170b | There are many fields which size is still TBD. Also keep consistency between fields in figure and text description of the fields (e.g., PRAW indication vs PRAW indicator). Remove pre-defined value 0 from Same Group Indication field for PRAW. | As in comment. | Revised |
| 44 | 80 | 8.4.2.170b | There are TBD values which need be defined. Define these values. | As in comment | Revised |
| 229 | 79 | 8.4.2.170b | The size of Slot Duration subfield in RAW Slot Definition subfield is TBD. | Define the size of Slot Duration. E.g., 1 byte | Revised |
| 480 | 80 | 8.4.2.170b | The length of the PRAW Periodicity subfield is TBD. Define TBD. | As suggested in the comment. | Revised |
| 481 | 80 | 8.4.2.170b | The length of the PRAW Start Offset subfield is TBD. Define TBD. | As suggested in the comment | Revised |
| 789 | 77 | 8.4.2.170b | TBD in figure 8-401cn should include a mechanism to forecast future change of PRAW several DTIM intervals in advance. | PRAW start time, PRAW duration, PRAW periodicity and PRAW start offset can be used as count down style PRAW change announcement, hence it has to be clarified. | Revised |
| 790 | 77 | 8.4.2.170b | TBD in figure 8-401cn should include a mechanism to change the PRAW assignment gradually by "Trickle style". | PRAW start time, PRAW duration, PRAW periodicity and PRAW start offset can be used as "Trickle style" change of assignment by RPS announcement, hence it has to be clarified. | Revised |
| 468 | 80 | 8.4.2.170b | The following sentence "The Slot Duration sub-subfield indicates the duration of time slots of equal duration within the RAW." does not define the length of the field and the unit of the field. | Define the length of the Slot Duration subfield to be 7 bits and use TU as the unit of the field. This allows the maximum slot duration to be 128mS. Considering the maximum PPDU time of 28mS, 7 bits allows more than 4 max PPDU times, which should be enough. | Accepted |
| 469 | 78 | 8.4.2.170b | The RAW Start Time field is one octet, which can only cover 0-255mS. However, the Beacon Interval field is 2-octet and be as long as (2^16-1) mS = 65S. This means that for a large BI, e.g. 500mS, a RAW cannot be defined after 255mS. Therefore, the length of the RAW Start Time has to be increased to match the Beacon Interval field. | Change the length of the RAW Start Time from one octet to two octets and also reflect this change in Figure 8-401cl, 8-401cm, and 8-401cn. | Accepted |
| 470 | 78 | 8.4.2.170b | The length of the RAW Duration field is not defined. Define the length of the RAW Duration field. Since the Beacon Interval field is 2-octet in TU unit, to cover the entire beacon interval, the RAW Duration also has to be as large as the maximum beacon interval. | Define the length of the RAW Duration field to be 2-octet unsigned integer in TU. | Accepted |

**Discussion:**

CIDs 42, 44, 480, 481, 789, and 790 request to include specific values to TBD fields and we have values for all TBD fields. CID 229 also indicates definition of the length of the Slot Definition field instead of the TBD. CID 468 indicates the length of the Slot Duration subfield to be of 7 bits covering up to 128ms. CID 469 provides the length of the RAW Start Time subfield to be of 2 octets covering a maximum beacon interval of 65s. The corresponding figures have been updated as shown below. CID 470 suggests length of the RAW Duration subfield to be of 2 octets unsigned integer in TU.

**Propose:** We revised all the comments

**Instruction to the Editor**

***Please modify the paragraph in P78/L51 as follows:***

The RAW Start Time subfield indicates the duration, in TU, from the end of (Short) B~~b~~eacon or (Short) Probe Response frame transmission that includes the RPS element to the start time of the RAW. This subfield is ~~1~~ 2 octets in length. ~~A RAW Start Time value of 0 indicates that the RAW starts immediately after the end of the beacon transmission.~~

***Please modify the paragraph in P78/L57 as follows:***

The RAW Duration subfield indicates the duration, unsigned integer in TU, of restricted medium access and is 2 octets in length. ~~allowed only for the group of STAs indicated in the RAW Group subfield. In other words, this interval indicated in the RAW Duration subfield is the difference between the end time of the RAW and the RAW Start Time.~~ This duration is used by all other STAs to set their NAV in order to protect transmissions within the RAW period.

***Please modify the paragraph in P80/L21 as follows:***

The Slot Duration sub-subfield indicates the duration of ~~time~~ a RAW slot~~s~~ of equal duration within the RAW. The Slot Duration sub-subfield is of length 7 bits and the unit is in TU.

***Please modify the paragraph in P80/L52 as follows:***

The PRAW Periodicity sub-subfield indicates the period of current PRAW occurrence in the unit of short beacon interval, and is of length ~~TBD~~ 16 bits.

***Please modify the paragraph in P80/L56 as follows:***

The PRAW Start Offset sub-subfield indicates the offset value in TU ~~to~~ from the end of ~~a~~ the (~~s~~Short) ~~b~~Beacon frame that the first window of the PRAW appears from ~~a reference point~~, and is of length ~~TBD~~ 16 bits. (Reference pointdetail~~s~~ ~~and unit~~ is TBD).

***Please modify Figure 8-401cl in P77/L20 as follows:***



**Figure 8-401cl—RAW N Assignment field format for RAW**

***Please modify Figure 8-401cm in P77/L34 as follows:***



**Figure 8-401cm—RAW N Assignment field format for AP PM RAW**

***Please modify Figure 8-401cn in P77/L49 as follows:***



**Figure 8-401cn—RAW N Assignment field format for PRAW**

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| 231 | 79 | 8.4.2.170b | In RAW N Assignment field the Options subfield is used for normal RAW. Therefore, it is not proper that the bit to indicate Sounding RAW is in Options field because the Sounding RAW similar to AP PM RAW indicates the specific duration by using RAW Start Time and RAW Duration. | Move the Sounding RAW Indication from Options field to other parts. | Revised |
| 373 | 80 | 8.4.2.170b | The objective of "otherwise" is not clear. | Change this to two sentences, explain exactly what the "otherwise" is. | Revised |

**Discussion:**

CID 231 suggests moving the Sounding RAW Indication subfield out of the Option field. This subfield is now included prior to the RAW Group in the RAW Assignment field. CID 373 requests to clarify the sentence with “otherwise” for the Sounding RAW Indication.

**Propose**: We have revised the comments.

**Instruction to the Editor**

***Please insert the paragraph in P78/L35 prior to description on RAW Group subfield as follows:***

The Sounding RAW Indication sub-field of length 1 bit indicates, when set to 1, that non-AP STAs are prohibited to transmit but may elect to listen to sector training for the entire RAW. When set to 0, ~~it indicates otherwise~~ this bit is ignored.

***Please delete the paragraph in P80/L11 as follows:***

~~The Sounding RAW Indication sub-field of length 1 bit indicates, when set to 1, that non-AP STAs are prohibited to transmit but may elect to listen to sector training for the entire RAW. When set to 0, it indicates otherwise.~~

***Please modify Figure 8-401cp in P79/L5 as follows:***

Resource Allocation Frame Presence Indication

Frame Type Restriction

Access Restricted to Paged STAs Only

Bits 1 1 1

**Figure 8-401cp—Options subfield**

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| 157 | 79 | 8.4.2.170b | change 'Paged STAs' Access' to 'Access Restricted to Paged STAs Only' | As comment | Revised |
| 472 | 77 | 8.4.2.170b | "The PRAW Indicator subfield ..." does not match the subfield name in the figures: Figure 8-401cl, cm, cn and in other paragraphs (e.g. P77/L11). | Change "PRAW Indicator" in P77/L59, P77L64, P77/L65, and P79/L17 to "PRAW Indication". | Revised |
| 474 | 78 | 8.4.2.170b | The following sentence "The Same Group Indication bit is defined similarly for PRAW." is ambiguous. What does it mean by similarly? | Rephrase the sentence as follows: "The Same Group Indication bit is set to 0 for PRAW." | Revised |
| 477 | 79 | 8.4.2.170b | The Access Restricted to Paged STAs Only subfield in the Figure 8-401cp does not match the definitions described in P79/L14 and P79/L42, where the subfield name "Paged STAs' Access" is used. | For consistency, change the subfield "Access Restricted to Paged STAs Only" in Figure 8-401cp to "Paged STAs' Access". | Revised |

**Discussion**

CID 472 indicates typos in mentioning “PRAW Indication” between figure and its reference in text. CID 474 accepted the comment but modified the statement moving it to the PRAW description. Also, we modified the text based on the suggestions made in the comment. Also, CIDs 157 and 477 suggest changing “Paged STAs Only’ Access” to “Access Restricted to Paged STAs Only.”

**Propose**: We revised the comments.

**Instruction to the Editor**

***Please modify the paragraph in P77/L14 as follows:***

The Options subfield contains Access Restricted to Paged STAs Only~~’ Access~~, Frame Type Restriction, and Resource Allocation Frame Presence Indicat~~or~~ion~~, and Sounding RAW iIndication~~ subfields. The Options subfield is only present when the PRAW Indication~~or~~ subfield value is set to 0 and the AP PM subfield is set to 0.~~, and the Options subfield is not present when the PRAW Indicator subfield value is set to 1.~~ The interpretation of the first two sub-subfields is illustrated in Table 8-191a (Illustration of Access R~~r~~estricted to Paged STAs Only sub-subfield in Option subfield).

***Please modify the paragraph in P77/L59 as follows:***

The PRAW Indicat~~or~~ion subfield indicates whether the current RAW N Assignment field is for a regular RAW or PRAW and is of length 1 bit. A PRAW Indicat~~or~~ion subfield value of 0 indicates that the current RAW N Assignment field is for a regular RAW, while a value of 1 indicates that the RAW N Assignment field is for a PRAW. Figure 8-401cl (RAW N Assignment field format for RAW) and Figure 8-401cm (RAW N Assignment field format for AP PM RAW) depict~~s~~ RAW N Assignment field format for RAW with PRAW Indicat~~or~~ion bit ~~is~~ set to 0. Figure 8-401cn (RAW N Assignment field format for PRAW) depicts RAW N Assignment field format for PRAW with PRAW Indicat~~or~~ion bit ~~is~~ set to 1.

***Please modify the paragraph in P80/L46 as follows:***

If the PRAW Indicat~~or~~ion bit is set to 1, the RAW N Assignment field contains Same Group Indication, PRAW Group (conditionally present), PRAW Start Time, PRAW Duration, PRAW Periodicity, PRAW Start Offset, and Channel Indication sub-subfields. The PRAW Group, PRAW Start Time, and PRAW Duration are defined similarly as RAW Group, RAW Start Time, and RAW Duration, respectively. If the Same Group Indication bit is set to 1, the PRAW Group defined in the current RAW Assignment is the same as the PRAW Group defined in the previous RAW Assignment.

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| 43 | 78 | 8.4.2.170b | This describes protocol behavior which should be done only in Clause 9. Clause 8 should only describe frame format and the values that particular fields take. | Refer to clause 9.19.4a for protocol behavior description and focus only on describing the details of the RPS Element. | Revised |

**Discussion:**

CID 43 requests to delete descriptions that relate to protocol behavior in sub-clause 8.4.2.170b. We have modified the text based on the suggestions made in the comment.

**Propose:** We revised the comment

**Instruction to the Editor**

***Please modify the paragraph in P78/L57 as follows:***

The RAW Duration subfield indicates the duration, in TU, of restricted medium access allowed only for the group of STAs indicated in the RAW Group subfield. In other words, this interval indicated in the RAW Duration subfield is the difference between the end time of the RAW and the RAW Start Time. ~~This duration is used by all other STAs to set their NAV in order to protect transmissions within the RAW period.~~

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Decision** |
| 158 | 79 | 8.4.2.170b | The meaning of "next" is not clear here. | Remove “next” | Revised |
| 159 | 80 | 8.4.2.170b | Change the "in" at the end of the line to "is" | As comment | Rejected |
| 226 | 80 | 8.4.2.170b | The sentence in line 5 on page 80 includes a typo. Correct the typo (in -> is). | Change the "a resource allocation frame in" to "a resource allocation frame is". | Rejected |
| 479 | 80 | 8.4.2.170b | A typo in the sentence. "... a resource allocation frame in ..." should be "...a resoure allocatioin frame is ...". | Fix the typo as suggested in the comment. | Rejected |
| 904 | 79 | 8.4.2.170b | Resource Allocation Frame Presence Indicator sub-subfield should indicate if there exists a Resource Allocation frame in "current RAW", not in the "next RAW". | Modify the sentence from "... it indicates if STAs  that are part of the current RAW group need to wake up at the beginning of the next RAW to receive the Resource Allocation frame ..." to "... it indicates if STAs that are part of the RAW need to wake up at the beginning of the RAW to receive the Resource Allocation frame ...". | Revised |

**Discussion:**

CID 158 and 904 suggest deletion of the word “next” in the description of the Resource Allocation Frame Presence Indicator bit. We have modified the text based on the suggestions made in the comment. CIDs 159, 226, and 479 indicate a typo in the statement on Resource Allocation frame Presence Indicator bit description.

**Propose:** We revised CIDs 158 and 904 while rejected CIDs 159, 226, and 479

**Instruction to the Editor**

***Please modify the paragraph in P79/L61 as follows:***

The Resource Allocation Frame Presence Indicator sub-subfield is of length 1 bit and it indicates if set to 1, that the AP will transmit a  ~~STAs that are part of the current RAW group need to wake up at the beginning of the next RAW to receive the~~ Resource Allocation frame, as defined in 8.3.3.15f, at the beginning of the RAW defined by the RPS Assignment field. ~~for indication of downlink buffered data and their assigned time slots to next service period. A Resource Allocation Frame Presence Indicator bit set to 1 indicates that a resource allocation frame in is transmitted by the AP at the RAW Start Time. A Resource Allocation Frame Presence Indicator bit set to 0 indicates that~~ ~~STAs wake up and access the channel based on slot assignment procedure (9.19.4a.3 (Slot assignment procedure in RAW)).~~

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Decision** |
| 225 | 78 | 8.4.2.170b | Exactly speaking, AP in Doze state subfield in RAW N Assignment field is AP PM subfield and correct the order of subfields in RAW N Assignment as shown in Figure 8-401cl. | Change the "AP in Doze state field" to "AP PM subfield" and correct the position of "AP PM subfield". | Revised |
| 227 | 77 | 8.4.2.170b | Editorial: Correction of order of subfields in RAW N Assignment field | Move the location of "AP PM" after PRAW Indication as shown in Figure 8-401cl (RAW N Assignment field format for RAW). | Revised |
| 475 | 78 | 8.4.2.170b | There is no field such as "AP in Doze State". The "AP in Doze State" should be replaced with "AP PM" as P77/L14. | As suggested in the comment. Apply the same change in P78/L20. | Revised |

**Discussion**

CIDs 225 and 475 suggest to change “AP in Doze state” subfield to “AP PM” and also to correct the order of the subfields in RPS element. CID 227 suggests modifying the order of subfields in accordance with AP PM.

**Propose:** We revised the comments

**Instruction to the Editor**

***Please modify the paragraph in P77/L11 as follows:***

The RAW N Assignment field contains PRAW Indication, AP PM, Same Group Indication, RAW Group

(conditionally present), RAW Start Time, RAW Duration, Options, and RAW Slot Definition~~,~~ and Channel

Indication~~, and AP PM~~ subfields as shown in Figure 8-401cl (RAW N Assignment field format for RAW).

***Please insert the paragraph after the paragraph on PRAW Indication subfield description in P77/L59 as follows:***

The AP PM subfield is 1 bit in length and indicates whether the AP is operating in Active or Power Save mode for this RAW, as defined in clause 10.2.1.19. If the AP PM bit is set to 1 and the PRAW Indication bit is set to 0, the RAW N Assignment field contains RAW Start Time and RAW Duration sub-subfields as shown in Figure 8-401cm (RAW N Assignment field format for AP PM RAW).

***Please modify the paragraph in P78/L13 as follows:***

When the Same Group Indication bit is set to 0, the RAW Assignment field contains RAW Group, RAW

Start Time, RAW Duration, Options, RAW Slot Definition, Channel Indication, and AP ~~in Doze State~~ PM

subfields as shown in Figure 8-401cl (RAW N Assignment field format for RAW). When the Same Group

Indication bit is set to 1, the RAW Group subfield is not present in the current RAW Assignment field~~, and~~

~~the RAW Group defined in current RAW Assignment is identical to the RAW Group defined in the previous~~

~~RAW Assignment~~. In this case, the RAW Assignment field contains RAW Start Time, RAW Duration,

Options, RAW Slot Definition, Channel Indication, and AP ~~in Doze State~~PM subfields.

***Please delete the paragraph in P80/L40 as follows:***

~~The AP PM field is 1 bit in length and indicates whether the AP is operating in Active or Power Save mode for this RAW, as defined in clause 10.2.1.19. If the AP PM bit is set to 1 and the PRAW Indication bit is set to 0, the RAW N Assignment field contains RAW Start Time and RAW Duration sub-subfields as shown in Figure 8-401cm (RAW N Assignment field format for AP PM RAW).~~

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| 228 | 76 | 8.4.2.170b | Correction of the subfield name (RAW assignment -> RAW Assignment) | Change the "RAW assignment" to "RAW Assignment". | Accepted |

**Discussion**

CID 228 points out a typo in the first paragraph of the description of RPS element.

**Propose:** We accepted the comment

**Instruction to the Editor**

***Please modify the paragraph in P76/L56 as follows:***

The RPS element contains the set of parameters necessary for restricted medium access only to a group of STAs. The Information field contains the RAW ~~a~~Assignment fields for groups 1 to N. The total length of the Information field is variable octets. The frame format of the RPS element is defined in Figure 8-401ck (RPS element format).

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Decision** |
| 230 | 79 | 8.4.2.170b | Slot Assignment subfield does not need be included in the Options subfield of RPS element because the two least significant bytes of  the FCS field of the Beacon frame is used for the Noffset. Delete the Slot Assignment subfield in Options subfield of RPS element. | Delete the Slot Assignment subfield in Options subfield of RPS element. | Revised – Refer to changes in doc.: IEEE 802.11-13/0784r0 under CID 366 heading |
| 465 | 80 | 8.4.2.170b | The Slot Assignment subfield is redundent since Noffset is the two least significant bytes of the FCS field of the Beacon frame that contains the RPS element. | Delete the following sentence "The Slot Assignment sub-subfield indicates the assignment of slots to STAs based on their location in the TIM element. Noffset is indicated in the Slot Assignment sub-subfield and the two least significant bytes of the FCS field of the Beacon frame is used for the Noffset. The procedure of slot assignment is discussed in  9.19.4a.3 (Slot assignment procedure in RAW)." | Revised – Refer to changes in doc.: IEEE 802.11-13/0784r0 under CID 366 heading |
| 466 | 79 | 8.4.2.170b | The Slot Assignment subfield is redundent since Noffset is the two least significant bytes of the FCS field of the Beacon frame that contains the RPS element. | Delete the Slot Assignment subfield from Figure 8-401cq - RAW Slot Definition subfield. | Revised – Refer to changes in doc.: IEEE 802.11-13/0784r0 under CID 366 heading |
| 467 | 80 | 8.4.2.170b | The Slot Assignment subfield is redundent since Noffset is the two least significant bytes of the FCS field of the Beacon frame that contains the RPS element. | Change the following sentence "The RAW Slot Definition subfield contains Slot Duration, Slot Assignments, and Cross Slot Boundary subsubfields." to "The RAW Slot Definition subfield contains Slot Duration and Cross Slot Boundary subsubfields." | Revised – Refer to changes in doc.: IEEE 802.11-13/0784r0 under CID 366 heading |

**Discussion**

CIDs 230, 465, 466, and 467 are related to resolutions for CID 366 in doc.: IEEE 802.11-13/0784r0.

**Propose:** Please refer to doc.: IEEE 802.11-13/0784r0 for the revised text under CID 366

**Instruction to the Editor**

***Please refer to doc.: IEEE 802.11-13/0784r0 for the revised text under CID 366.***

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| 473 | 78 | 8.4.2.170b | In the following sentence "The Same Group Indication bit shall be set to 0 in the first RAW Assignment." the word "shall be" should be replaced with "is" since clause 8 does not define a normative behavior of a STA. | As suggested in the comment. | Accepted |

**Discussion**

CID 473 suggests replacing the word “shall” to “is” for the Same Group Indication.

**Propose:** We accepted the comment

**Instruction to the Editor**

***Please modify the paragraph in …. as follows:***

The Same Group Indication is of length 1 bit and it indicates whether the RAW Group defined in the current RAW Assignment is the same RAW Group ~~that~~ as defined in the previous RAW Assignment. When the Same Group Indication bit is set to 1, the RAW Group defined in the current RAW Assignment is the same as the RAW Group defined in the previous RAW Assignment. When the Same Group Indication bit is set to 0, the RAW Group defined in the current RAW Assignment is different from the RAW Group defined in the previous RAW Assignment. The Same Group Indication bit ~~shall be~~ is set to 0 in the first RAW Assignment. ~~The Same Group Indication bit is defined similarly for PRAW.~~

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Decision** |
| 478 | 79 | 8.4.2.170b | Based on the descriptions in the Table 8-191a, only UL (uplink) frames can be transmitted in a RAW. This limits the usage of the RAW operation. A RAW should be used for both uplink and downlink frames between STAs | Remove the word "UL" from the description column of the Table 8-191a. | Rejected |

**Discussion**

CID 478 suggests deleting the word “UL” from the Description column in Table 8-191a. However, the first two sub-subfields in the Option subfield relate to the UL traffic either restricted to paged STAs or to all (paged and unpaged) STAs. For DL traffic, there need not be any restriction on frame type for paged and unpaged STAs from the AP. Hence, we think to keep the description for UL traffic. Moreover, the third sub-subfield for Resource Allocation Frame Presence Indication in Options subfield indicates DL traffic (RA frame) transmission from the AP. So, the third field still implies that RAW can be utilized for both UL and DL traffic.

**Propose:** We rejected the comment

**Instruction to the Editor**

No modification needed

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Decision** |
| 847 | 80 | 8.4.2.170b | It is unclear from the description whether the cross-boundary (set to 0) transmission includes SIFS+ACK (or SIFS+response frame time) | Clarify the rule e.g. whether the STA must take into account the response frame transmission duration with SIFS. STA may respond with lower MCS (which is allowed in 11ah) but the peer STA may not have knowledge on that and may not be able to calculate correctly whether the boundary will be crossed. | Rejected |

**Discussion**

CID 847 suggests to define the rules clearly about transmission after cross-boundary with respect to SIFS and ACK.

However, sub-clause 8.4.2.170b defines the RPS element and will not specify rules of transmissions in this section.

**Propose**: No changes in the sub-clause

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| 848 | 80 | 8.4.2.170b | STA should be able to segment its transmission to multiple RAW periods, this improves UL robustness but may increase AP buffer requirements? | allow STA to segment and deliver rest of the segment in the next RAW | Rejected |

**Discussion**

CID 848 requests allowing a STA to send fragmented packets in two adjacent RAWs, one in current RAW and the other fragment in adjacent RAW. The present signaling using RPS element does not restrict such fragmentation and transmission over multiple RAWs. It is up to the AP to assign the same STA (in RAW Group, define the STA’s AID in both the RAW Start AID and RAW End AID) in multiple RAWs, aside the current RAW.

**Propose:** We rejected the comment

**Instruction to the Editor**

No modification needed

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Decision** |
| 905 | 80 | 8.4.2.170b | If Cross Slot Boundary sub-subfield is set to 1, STAs are allowed to transmit after the assigned slot boundary, and it doesn't need to be "until the end of the RAW". | Modifiy the sentence from "The Cross Slot Boundary sub-subfield is a binary bit and indicates whether STAs are allowed to transmit after the assigned slot boundary until the end of the RAW." to "The Cross Slot Boundary sub-subfield is a binary bit and indicates whether STAs are allowed to transmit after the assigned slot boundary." | Revised |

**Discussion**

CID 905 requests deleting the phrase “until the end of the RAW” when the Cross Slot Boundary sub-subfield value is set to 1; I think it is OK to delete it, since otherwise it implies that a STA is always allowed to transmit after crossing its assigned RAW slot boundary

**Propose:** We accepted the comment

**Instruction to the Editor**

***Please modify the paragraph in P80/L29 as follows:***

The Cross Slot Boundary sub-subfield is a binary bit and indicates whether STAs are allowed to transmit after the assigned RAW slot boundary ~~until the end of the RAW~~. If the bit is set to 1, crossing a RAW slot boundary is allowed. If the bit is set to 0, crossing a RAW slot boundary is not allowed for transmissions from STAs.

**Final Draft Version of Subclause 8.4.2.170b**

***Modify the subclause as follows:***

The RPS element contains the set of parameters necessary for restricted medium access only to a group of

STAs. The Information field contains the RAW ~~a~~Assignment fields for groups 1 to N. The total length of the

Information field is variable octets. The frame format of the RPS element is defined in Figure 8-401ck (RPS

element format).

**Figure 8-401ck—RPS element format**

The RAW N Assignment field contains PRAW Indication, AP PM, Same Group Indication, RAW Group

(conditionally present), RAW Start Time, RAW Duration, Options, and RAW Slot Definition~~,~~ and Channel

Indication~~, and AP PM~~ subfields as shown in Figure 8-401cl (RAW N Assignment field format for RAW).



**Figure 8-401cl—RAW N Assignment field format for RAW**

**~~Figure 8-401cm—RAW N Assignment field format for AP PM RAW~~**

**~~Figure 8-401cn—RAW N Assignment field format for PRAW~~**

The PRAW Indicat~~or~~ion subfield indicates whether the current RAW N Assignment field is for a regular RAW

or PRAW and is of length 1 bit. A PRAW Indicat~~or~~ion subfield value of 0 indicates that the current RAW N

Assignment field is for a regular RAW, while a value of 1 indicates that the RAW N Assignment field is for

a PRAW. Figure 8-401cl (RAW N Assignment field format for RAW) and Figure 8-401cm (RAW N Assignment field format for AP PM RAW) depict~~s~~ RAW N Assignment field format for RAW with PRAW Indicat~~or~~ion bit is set to 0. Figure 8-401cn (RAW N Assignment field format for PRAW) depicts RAW N Assignment field format for PRAW with PRAW Indicat~~or~~ion bit is set to 1.

The AP PM subfield is 1 bit in length and indicates whether the AP is operating in Active or Power Save mode

for this RAW, as defined in clause 10.2.1.19. If the AP PM bit is set to 1 and the PRAW Indication bit is set

to 0, the RAW N Assignment field contains RAW Start Time and RAW Duration sub-subfields as shown in

Figure 8-401cm (RAW N Assignment field format for AP PM RAW).

The Same Group Indication is of length 1 bit and it indicates whether the RAW Group defined in the current

RAW Assignment is the same RAW Group ~~that~~ as defined in the previous RAW Assignment. When the Same

Group Indication bit is set to 1, the RAW Group defined in the current RAW Assignment is the same as the

RAW Group defined in the previous RAW Assignment. When the Same Group Indication bit is set to 0, the

RAW Group defined in the current RAW Assignment is different from the RAW Group defined in the

previous RAW Assignment. The Same Group Indication bit ~~shall be~~ is set to 0 in the first RAW Assignment.

~~The Same Group Indication bit is defined similarly for PRAW.~~

When the Same Group Indication bit is set to 0, the RAW Assignment field contains RAW Group, RAW

Start Time, RAW Duration, Options, RAW Slot Definition, Channel Indication, and AP ~~in Doze State~~ PM

subfields as shown in Figure 8-401cl (RAW N Assignment field format for RAW). When the Same Group

Indication bit is set to 1, the RAW Group subfield is not present in the current RAW Assignment field~~, and~~

~~the RAW Group defined in current RAW Assignment is identical to the RAW Group defined in the previous~~

~~RAW Assignment~~. In this case, the RAW Assignment field contains RAW Start Time, RAW Duration,

Options, RAW Slot Definition, Channel Indication, and AP ~~in Doze State~~PM subfields.

Page Index

RAW End AID

RAW Start AID

Bits 2 11 11

**Figure 8-401co—RAW Group subfield**

The RAW Group subfield indicates the STA AIDs that are allowed restricted access within the RAW period.

The RAW Group subfield contains Page Index, RAW Start AID, and RAW End AID sub-subfields according to the hierarchical addressing method of AIDs (see 8.87b). The Page Index sub-subfield indicates the page index of the subset of AIDs and is of length 2 bits.

The RAW Start AID field is 11 bits in length and indicates the 11 LSBs of the AID of the STA with the

lowest AID allocated in the RAW.

The RAW End AID field is 11 bits in length and indicates the 11 LSBs of the AID of the STA with the

highest AID allocated in the RAW.

The RAW Group field is set to all zeros to indicate that all STAs are allowed to access within the RAW.

The RAW Start Time subfield indicates the duration, in TU, from the end of (Short) B~~b~~eacon or (Short) Probe Response frame transmission that includes the RPS element to the start time of the RAW. This subfield is ~~1~~ 2 octets in length. ~~A RAW Start Time value of 0 indicates that the RAW starts immediately after the end of the beacon transmission.~~

The RAW Duration subfield indicates the duration, in TU, of restricted medium access and is 2 octets in length. ~~allowed only for the group of STAs indicated in the RAW Group subfield. In other words, this interval indicated in the RAW Duration subfield is the difference between the end time of the RAW and the RAW Start Time. This~~

~~duration is used by all other STAs to set their NAV in order to protect transmissions within the RAW period.~~

Resource Allocation Frame Presence Indication

Frame Type Restriction

Access Restricted to Paged STAs Only

Bits 1 1 1

**Figure 8-401cp—Options subfield**

The Options subfield contains Access Restricted to Paged STAs Only~~’ Access~~, Frame Type Restriction, Resource Allocation Frame Presence Indicat~~or~~ion, and Sounding RAW ~~i~~Indication sub-fields. ~~The Options subfield is present when the PRAW Indicator subfield value is set to 0, and the Options subfield is not present when the PRAW Indicator subfield value is set to 1.~~ The interpretation of the first two sub-subfields is illustrated in Table 8-191a

(Illustration of Access restricted to Paged STAs Only sub-subfield in Option subfield).

**~~Figure 8-401cq—RAW Slot Definition subfield~~**

**Table 8-191a—Illustration of Access restricted to Paged STAs Only sub-subfield in Option**

**Subfield**

The Resource Allocation Frame Presence Indicator sub-subfield is of length 1 bit and it indicates if set to 1, that the AP will transmit a  ~~STAs that are part of the current RAW group need to wake up at the beginning of the next RAW to receive the~~ Resource Allocation frame (see 8.3.3.15f) at the beginning of the RAW defined by the RPS. ~~for indication of downlink buffered data and their assigned time slots to next service period. A Resource Allocation Frame Presence Indicator bit set to 1 indicates that a resource allocation frame in is transmitted by the AP at the RAW Start Time. A Resource Allocation Frame Presence Indicator bit set to 0 indicates that~~ ~~STAs wake up and access the channel based on slot assignment procedure (9.19.4a.3 (Slot assignment procedure in RAW)).~~

The Sounding RAW Indication sub-field of length 1 bit indicates, when set to 1, that non-AP STAs are prohibited to transmit but may elect to listen to sector training for the entire RAW. When set to 0, ~~it indicates otherwise~~ this bit is ignored.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | Slot  Duration | Number of Slots | Cross Slot  Boundary |
| bits: | TBD | 8 | 1 |
| * RAW Slot Definition subfield | | | |

The RAW Slot Definition subfield contains Slot Duration, Slot Assignments, and Cross Slot Boundary sub-subfields. The RAW Slot Definition subfield is present when the PRAW Indicator subfield value is set to 0, and the RAW Slot Definition subfield is not present when the PRAW Indicator subfield value is set to 1.

The Slot Duration sub-subfield indicates the duration of ~~time~~ a RAW slot~~s~~ of equal duration within the RAW. The Slot Duration sub-subfield is of length 7 bits and the unit is in TU.

The Number of Slots subfield is 8-bit unsigned integer and indicates the number of time slots (NRAW) in the RAW.

The Cross Slot Boundary sub-subfield is a binary bit and indicates whether STAs are allowed to transmit

after the assigned RAW slot boundary ~~until the end of the RAW~~. If the bit is set to 1, crossing a RAW slot boundary is allowed. If the bit is set to 0, crossing a RAW slot boundary is not allowed for transmissions from STAs.

The Channel Indication field contains a bitmap allowing the identification of allowed operating channels for

the STAs indicated in the RAW, as defined in 9.19.4a.1. Each bit in the bitmap corresponds to one minimum

width channel within the current BSS operating channels, with the least significant bit corresponding to the

lowest numbered operating channel of the BSS.

~~The AP PM field is 1 bit in length and indicates whether the AP is operating in Active or Power Save mode~~

~~for this RAW, as defined in clause 10.2.1.19. If the AP PM bit is set to 1 and the PRAW Indication bit is set~~

~~to 0, the RAW N Assignment field contains RAW Start Time and RAW Duration sub-subfields as shown in~~

~~Figure 8-401cm (RAW N Assignment field format for AP PM RAW).~~



**Figure 8-401cm—RAW N Assignment field format for AP PM RAW**



**Figure 8-401cn—RAW N Assignment field format for PRAW**

If the PRAW Indicat~~or~~ion bit is set to 1, the RAW N Assignment field contains Same Group Indication, PRAW

Group (conditionally present), PRAW Start Time, PRAW Duration, PRAW Periodicity, PRAW Start Offset,

and Channel Indication sub-subfields. The PRAW Group, PRAW Start Time, and PRAW Duration are

defined similarly as RAW Group, RAW Start Time, and RAW Duration, respectively. If the Same Group Indication bit is set to 1, the PRAW Group defined in the current RAW Assignment is the same as the PRAW Group defined in the previous RAW Assignment.

The PRAW Periodicity sub-subfield indicates the period of current PRAW occurrence in the unit of short

beacon interval, and is of length ~~TBD~~ 16 bits.

The PRAW Start Offset sub-subfield indicates the offset value in TU ~~to~~ from the end of ~~a~~ the (S~~s~~hort) ~~b~~Beacon frame that the first window of the PRAW appears from ~~a reference point~~, and is of length ~~TBD~~ 16 bits. (Reference pointdetail~~s~~ ~~and unit~~ is TBD).