IEEE P802.11
Wireless LANs

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| LB 205 MAC Miscellaneous Comment Resolution  |
| Date: 2015-1-14 |
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Abstract

This submission proposes resolutions for comments in 8.4.2.170c, 9.22.5.1, 9.22.5.3, 9.22.5.4, 9.22.5.5, 9.22.5.7, 9.22.5.8 and 9.42e of TGah Draft 3.0 with the following CIDs:

* 5011, 5034, 5035, 5036, 5069, 5070, 5174, 5175, 5176, 5177, 5178, 5179, 5180, 5181, 5356, 5357, 5358, 5359, 5360, 5361, 5362, 5363, 5364, 5365, 5437, 5454

Revisions:

- Rev 0: Initial version of the document

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** | **Commenter** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 5011 | Rojan Chitrakar | 275.48 | 9.22.5.7 | "There are couple of issues with the following sentences: "The STA should be awake before the start of the slot time assign to it. AP shall start the downlink transmission using the EDCA procedure at the beginning of the slot assignment if the TIM bit for the STA is 1."1. The intention seems to be that the STA need not send PS-Poll even if its TIM is set, and the AP assumes that the STA is awake at the slot allocated to it. If this is true, then the AP can force the STA to wake up even if it is in PS-mode, or the STA risks losing frames.2. For a STA whose TIM is set, if the AP is not able to transmit the downlink frames for any reason, the STA ends up wasting the slot." | Please consider all the implications and explicitly state the rules e.g. STA is not required to send PS-Poll even when its TIM is set. Since this also changes the STA's PS-mode behavior, it should also be mentioned somewhere in section 10.2.2.2. | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5011. |
| 5034 | MARC EMMELMANN | 269.39 | 9.22.5.1 | "(short) beacon interval" -- using this wording seems to require to introduce a new abbreviation which could easily be avoided by using "short beacon interval or beacon interval". This would alse prevent the use of parenthathes. | Replace "(short) beacon interval" with "short beacon interval or beacon interval" | Rejected'(short) beacon interval' is explicitly defined on page 8.20 ("3.3 Abbreviations and acronyms") as 'short beacon interval or beacon interval'. NOTE: this is already rejected in 1372r5 with the same argument. |
| 5035 | MARC EMMELMANN | 270.20 | 9.22.5.1 | "(short) beacon interval" -- using this wording seems to require to introduce a new abbreviation which could easily be avoided by using "short beacon interval or beacon interval". This would alse prevent the use of parenthathes. | Replace "(short) beacon interval" with "short beacon interval or beacon interval" | Rejected'(short) beacon interval' is explicitly defined on page 8.20 ("3.3 Abbreviations and acronyms") as 'short beacon interval or beacon interval'. NOTE: this is already rejected in 1372r5 with the same argument. |
| 5036 | MARC EMMELMANN | 271.11 | 9.22.5.8 | "(short) beacon interval" -- using this wording seems to require to introduce a new abbreviation which could easily be avoided by using "short beacon interval or beacon interval". This would alse prevent the use of parenthathes. | Replace "(short) beacon interval" with "short beacon interval or beacon interval" | Rejected'(short) beacon interval' is explicitly defined on page 8.20 ("3.3 Abbreviations and acronyms") as 'short beacon interval or beacon interval'. NOTE: this is already rejected in 1372r5 with the same argument. Note to editor: the page number referred here is wrong. Should be page 276 instead of 271. |
| 5069 | MARK EMMELMANN | 137.17 | 8.4.2.170c | Usually, values are given in base 10 and not base 2 | Change 01000 to 15 | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5069. |
| 5070 | MARK EMMELMANN | 140.44 | 8.4.2.170c | "NOTE- The Sectorization Type can be set to 0 only when the AP Sectorized Beam-Capable setting is either 2 or 3." --- The information is an important constraint which should not be a simple note but a normative text. Same at 141.56 | Delete "Note --" at beginning of sentence | RejectedThe normative text for these notes is already present in 9.42g (Sectorized beam operation). No normative text is allowed in clause 8 (except for 8.1). |
| 5174 | Liwen Chu | 137.36 | 8.4.2.170c | "If the STAs have group addressed frames, they receive the data within the DTIM interval."This sentence is not right. 11 specification never says that group addressed frames are transmitted only in DTIM interval." | Change the sentence per the comment | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5174, 5175, 5176, 5177, 5437. |
| 5175 | Liwen Chu | 137.34 | 8.4.2.170c | "when they have no group addressed frames" is not right. It should be "when the AP indicates there is no futher buffered group addressed frames for transmission." | As in comment | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5174, 5175, 5176, 5177, 5437. |
| 5176 | Liwen Chu | 137.34 | 8.4.2.170c | "...in blocks 1 to 6..."Why is block "1 to 6"? The first block is not always block 0." | Change to "the second block to 7th block". | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5174, 5175, 5176, 5177, 5437. |
| 5177 | Liwen Chu | 137.24 | 8.4.2.170c | "...all the assigned page slices..."Why are more than page slices? Page Slice element defines blocks for a single Page Slice." | A change page slices in the paragraph to a page slice. | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5174, 5175, 5176, 5177, 5437. |
| 5178 | Liwen Chu | 136.18 | 8.4.2.170c | Shouldn't "Page Slice Length" subfield be "Block Number Per TIM" subfield? The name "Page Slice Length" mislead the readers. Per TIM is also not accurate. It should be per BI. In a Beacon, multiple TIMs are possible. So the best name seems to be "Block Number Per BI". | As in comment | RejectedPage Slice Length is defined clearly on page 136.24: "The Page Slice Length subfield indicates the number of blocks included in each TIM for the associated page except for the last TIM." and the parameter name is already approved by the group. |
| 5179 | Liwen Chu | 137.01 | 8.4.2.170c | Can the value in Page Slice Count field be bigger than DTIM Period? If yes what happens, the following DTIM Beacon include another Page Slice element? | Clarify it. | RejectedThe value is limited to DTIM Period.(Clause 8.4.2.170c, p135 lines 44-49 and 61-63 implicitly say this). |
| 5180 | Liwen Chu | 135.42 | 8.4.2.170c | "It is not necessary to keep Page Slice Length, Page Slice Count and Page Bitmap. What you can do is to keep Page Bitmap and one of Page Slice Length, Page Slice Count. For example, with Page Slice Length and Page Bitmap, page slice count is Plength/PSlength when Plength%PSlength is 0 or Plength/PSlength + 1 when Plength%PSlength is not 0. You can also figure out block number in each BI.If the argument is that 3 fields can avoid division operation, I don't think it is true since PSnumber needs devision operation.An optimization to remove division totally is to define Page Slice Length as exponent of 2. Division is not necessary and Page Slice Length, Page Bitmap are enough." | Rewrite 8.4.2.170c and related subclause in clause 9 according to the comment. | RejectedThe comment does not identify changes in sufficient detail. |
| 5181 | Liwen Chu | 136.49 | 8.4.2.170c | What is the operation of floor? | Clarify it. | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5181. |
| 5356 | Alfred Asterjadhi | 270.31 | 9.22.5.1 | How can a TIM STA not be a member of the RAW type implicitly indicated by the RAW Type subfield for which the RAW Group subfield is not present?I submitted a comment last LB asking to improve the readibility of the RAW operation but it seems that the outcome is not the expected one. | Please clarify. And please review the subclause 9.22.5 to enhance the readibility. | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5356. |
| 5357 | Alfred Asterjadhi | 270.44 | 9.22.5.1 | Does this mean that both SST element and RPS element need to be present in the S1G Beacon? | I think this paragraph needs some clarifications to be inline with SST operation procedure. | RejectedThe comment fails to identify changes in sufficient detail. |
| 5358 | Alfred Asterjadhi | 270.60 | 9.22.5.1 | "An S1G AP may indicate the sensor-only access window in some Beacon frames by allocating the PRAW (9.22.5.8 (Periodic RAW (PRAW) operation))." Does this imply that sensor-only RAW can only be PRAW? | please clarify or remove this sentence if sensor-only RAW is not limited to PRAW. | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5358. |
| 5359 | Alfred Asterjadhi | 272.49 | 9.22.5.3 | "Illustration of the RAW slot assignment procedure (RAW not restricted to STAs whose AID bits are equal to 1" -->"Illustration of the RAW slot assignment procedure (RAW not restricted to STAs whose AID bits in the TIM element are equal to 1" | As in comment | Accepted |
| 5360 | Alfred Asterjadhi | 273.26 | 9.22.5.3 | "Illustration of the RAW slot assignment procedure (RAW restricted to STAs whose AID bits are equal to 1" -->"Illustration of the RAW slot assignment procedure (RAW restricted to STAs whose AID bits in the TIM element are equal to 1" | As in comment | Accepted |
| 5361 | Alfred Asterjadhi | 274.33 | 9.22.5.5 | "First backoff function state is used in outside RAW" --> "First backoff function state is used outside RAW" | As in comment | Accepted |
| 5362 | Alfred Asterjadhi | 274.41 | 9.22.5.5 | "anSTA shall"-->"a STA shall" Also what does resume mean. Is it formally described somewhere? | As in comment | RevisedResume is consistently used in REVmc and agree with the typo.TGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5362. |
| 5363 | Alfred Asterjadhi | 274.43 | 9.22.5.5 | "If the Cross Slot Boundary subfield in RAW Assignment field of the RPS element is 1, the STA shall continue to count down backoff after its assigned slots."After the end of the RAW, STAs with the second backoff counter shall reset and disregard the second backoff function state."Confusing text: does it mean that the countdown can across RAW slots, but if the countdown is in the last RAW slot, it need to bereset? Also the STA cannot start transmission on a non-assigned RAW slot right?" | Clarify that may continue to count down after its assigned RAW slot unless it is the last RAW slot of the RAW. | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5363. |
| 5364 | Alfred Asterjadhi | 273.44 | 9.22.5.4 | Where is it specified that STAs cannot access RAW slots that are not assigned to them? | As in comment. Also there are still occurrences of time slot. Last time I checked we are using RAW slot terminology. Please use RAW slot consistently throughout this 9.22.5 subclause. | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5364. |
| 5365 | Alfred Asterjadhi | 273.50 | 9.22.5.4 | Up to one triggering frame... and nothing else right? So please say so. | As in comment. | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5365. |
| 5437 | Mingguang Xu | 137.34 | 8.4.2.170c | Block 0 is not always the first block to start with. Need to revise "blocks 1 to 6". | Change to "the second block to seventh block". | RevisedTGah editor to make the changes shown in 11-15/0113r0 under all headings that include CID 5174, 5175, 5176, 5177, 5437. |
| 5454 | David Hunter | 301.53 | 9.42e | "has a value of true for dot11.." implies there is some grand physical repository of dot11xxx variables out there that a STA needs to provide values for. The 11ah descriptions need to make it clear that a STA either includes or doesn't include a dot11xx variable (whether it does that correctly or not), and not imply that the STA includes a value for some variable that resides elsewhere. The CRC resolution of CID3502 pointed out that instances of the same mistake remain in 11mc. The fact that a mistake is found in 11mc is no reason to repeat it in 11ah. Replace all instances of "has a value of true for dot11..." with "A STA whose dot11... value is true." (These 11mc mistakes -- thanks for pointing them out -- will be taken up in 11mc. No one needs 11ah to push more of them into a later edition of 11m.)Also: this whole paragraph needs to be rewritten for clarity, but that is an additional problem." | Replace "An AP with a value of true for dot11PageSlicingSupported that has any STA(s) associated that has a value of true for dot11PageSlicingSupported whose AID is contained in the:"with"An AP whose dot11PageSlicingSupported value is true and that has at least one associated STA whose dot11PageSlicingSupported value is true and whose AID is contained in the:". On page 345 line 41 replace "A STA that has a value of true for dot11S1GCentralizedAuthenticationControlActivated shall generate" with "A STA whose dot11S1GCentralizedAuthenticationControlActivated value is true shall generate". On page 345 line 47 replace "A STA with a value of true for dot11S1GCentralizedAuthenticationControlActivated shall compare" with "A STA whose dot11S1GCentralizedAuthenticationControlActivated is true shall compare". On page 354 line 46 replace "A STA that has a value of true for dot11DynamicAIDActivated is defined" with "A STA whose dot11DynamicAIDActivated is true is defined". | RejectedThe terminology is in line with current REVmc. If the commenter believes to be an issue please submit the comment to REVmc. |

**Discussion: (None)**

**CID #5011: TGah Editor: *Please change the existing paragraph in Page 275 Line 45 with the following paragraph:***

An intended STA identified by the RPS element of a RAW learns its assigned RAW slots for both uplink and downlink service periods according to the Slot Assignment subfield or the Slot Assignment Bitmap subfield in Slot Assignment Indication field of the RA frame. The STA should be awake before the start of the RAW slot time assigned to it. The AP shall start the downlink transmission using the EDCA procedure at the beginning of the RAW slot assignment if the TIM bit for the STA in the TIM element is equal to 1 after receiving an (NDP) PS-Poll or trigger frame from the STA. The STA may transmit uplink data as listed below:

**CID #5069: TGah Editor: *Please change the existing paragraph in Page 137 Line 16 with the following paragraph:***

The Block Offset subfield indicates the offset of the block in the first page slice from the first block in the page assigned within the page period. A value of 16 in the Block Offset field indicates that the first page slice starts at block 16, *i.e*., STAs in the second half of the page are assigned within this page period.

**CID #5174, #5175, #5176, #5177: TGah Editor: *Please change the existing paragraph in Page 137 Line 24 with the following paragraph:***

The Page Bitmap field indicates presence of buffered data for each of the one or more blocks in a page slice or all the assigned page slices within a page period. A bit in the Page Bitmap field indicates information of buffered data for STAs in one block of a page slice corresponding to the location of the bit in the bitmap. The first block indicated in the Page Bitmap field is the block indicated in the Block Offset subfield. Based on the number of page slices assigned to the TIMs, this field is of variable length from 0-4 octets. A value of 10000001 in the Page Bitmap field indicates that there is buffered data for at least one STA in the first block and at least one STA in the last block. The bit sequence also indicates that only a page slice of 8 blocks is assigned within a page period. Further, the bit sequence indicates that there is no downlink buffered data for any STA in blocks 2nd to 7th and STAs in these blocks enter doze state when the AP indicates there are no further buffered group addressed frames for transmission, avoiding them to waking up for the assigned TIM to check for downlink buffered data. . The AP transmits group addressed BUs to the STAs following the rules in 10.2.2.

**CID #5181: TGah Editor: *Please change the existing paragraph in Page 136 Line 46 with the following paragraph:***

For every TIM, a STA computes whether its sub-block is included within a page slice using the following equation:

SBSTA = floor(AID[7:11]- BO)

where *SBSTA* is the sub-block with the STA AID and *BO* is the value indicated in the Block Offset subfield of the Page Slice element and floor(x) is the largest integer not greater than x.

**CID #5356: TGah Editor: *Please change the existing paragraph in Page 270 Line 25 with the following paragraph:***

An AP may assign to each TIM STA or a group of TIM STAs a RAW slot inside the RAW at which the STA(s) is (are) allowed to contend for medium access. After determining its channel access RAW slot assigned by the AP, the TIM STA starts to access the channel not earlier than its assigned RAW slot based on the S1G variant of EDCA (9.22.2.5a (EDCA channel access in an S1G BSS)). A TIM STA that is not a member of the RAW group indicated by the RAW Group subfield in the RAW Assignment field of the RPS element or is not allowed to access the RAW implicitly indicated by the values of RAW Type and RAW Type Options subfield for which the RAW Group subfield is not present, shall not access the WM in the indicated channels of the RPS element or in the BSS operating channel if there are no indicated channels for duration of the RAW, except for a non-AP STA that is allowed not to check the Beacon frame (e.g., non-TIM STA). Upon receipt of any frame (e.g., PS-Poll frame or trigger frame) for the RAW duration from a TIM STA not within the RAW group indicated by the RAW Group subfield in the RAW Assignment field of the RPS element, the AP shall respond with a control frame (e.g., NDP PS-Poll ACK frame).

**CID #5358: TGah Editor: *Please change the existing paragraph in Page 270 Line 60 with the following paragraph:***

An S1G AP may protect the access of sensor STAs in some S1G Beacon frames by allocating the PRAW (9.22.5.8 (Periodic RAW (PRAW) operation)). During the allocated PRAW, only sensor STAs can access the wireless medium. An S1G AP may determine the duration of the PRAW based on the number of sensor STAs in its network, their expected uplink data amount and data rate and any other factors that the S1G AP chooses.

**CID #5362: TGah Editor: *Please change the existing paragraph in Page 274 Line 36 with the following paragraph:***

Each STA performing EDCA access suspends an operation of its EDCAF at the start of each RAW and stores the value of the backoff counter, CW[AC], QSRC[AC] and QLRC[AC] as the first backoff state. At the end of the RAW, the stored first backoff function state is restored and an operation of the EDCAF is resumed. If the previously stored first backoff function state is empty, the EDCAF of an STA shall invoke a backoff procedure, even if no additional transmissions are currently queued.

**CID #5363: TGah Editor: *Please change the existing paragraph in Page 274 Line 51 with the following paragraph:***

If the Cross Slot Boundary subfield in RAW Assignment field of the RPS element is 0, the STA shall count down backoff only in its assigned slots within the RAW. If the Cross Slot Boundary subfield in RAW Assignment field of the RPS element is 1, the STA shall continue to count down backoff after its assigned slots unless it is the last slot of the RAW.

**CID #5364: TGah Editor: *Please change the existing paragraph in Page 270 Line 15 with the following paragraph:***

If the TIM STA belongs to the RAW group, it is allowed to contend for medium access at the start of its assigned RAW slot (see 9.22.5.3 (Slot assignment procedure in RAW)) and shall not contend for medium access within a RAW slot not assigned to it during the RAW.

**CID #5365: TGah Editor: *Please change the existing paragraph in Page 273 Line 48 with the following paragraph:***

AP may designate a RAW for trigger frames by setting the RAW type to Triggering Frame RAW. When the RAW type is Triggering Frame RAW, each STA in the RAW Group is only allowed to send up to one trigger frame during its assigned slot as described in 9.22.5.3 (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. 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.