IEEE P802.11
Wireless LANs

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| Comment Collection 09 MAC CIDs (Comment Resolutions for CC09) |
| Date: 2013-MM-DD |
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Abstract

This document provides resolutions for CIDs in subclause 8.4.2.7:

* 461
* 83
* 72
* 110
* 109
* 175
* 778
* 777

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| 461 | 60.00 | 27 | 8.4.2.7 | A | The equations that calculate TIM segment start and TIM segment end values are incorrect. For example, if TIM is segmented into 4 TIM segments, the TIM Segment Number field can have a value from 0 to 3. When the TIM Segment Number field is 1, based on the equation, the value for the TIM segment start = (Page Offset + 0 + 1) and the TIM segment end = (Page Offset + Length of page Segmentx1), which are incorrect. The correct values of the TIM segment start = (Page Offset + Length of Page Segmentx1) and the TIM segment end = (Page Offset + Length of Page Segmentx2 -1). | Replace"For zero value in the TIM Segment Number field:TIM segment start = Page OffsetFor non-zero value in TIM Segment Number field:TIM segment start = Page Offset + ((Length of Page Segment) ├ù (TIM Segment Number -1)) + 1TIM segment end = Page Offset + Length of Page Segment ├ù TIM Segment Number" with"TIM segment start = Page Offset + (Length of Page Segment)x(TIM Segment Number)TIM segment end = TIM segment start + Length of Page Segment -1." | **Revised.**Refer to changes in doc.: IEEE 802.11-13/0998r0 under CID 461 heading. |
| 83 | 60.00 | 34 | 8.4.2.7 | V | Is the following formula correct: "TIM segment start = Page Offset + ((Length of Page Segment) ╫ (TIM Segment Number -1)) + 1"? | It should be: TIM segment start = Page Offset + ((Length of Page Segment) ╫ (TIM Segment Number ))and TIM segment end = Page Offset + Length of Page Segment ╫ TIM Segment Number-1 | **Revised.**Refer to changes in doc.: IEEE 802.11-13/0998r0 under CID 461 heading. |
| 72 | 60.00 |  | 8.4.2.7 | V | Text in Pg148-L44-55 is repeated with a different name on Pg60-L27-39. | Remove the repeated definition and make the variables consistent. | **Revised.**Refer to changes in doc.: IEEE 802.11-13/0998r0 under CID 461 heading. |
| 110 | 60.00 | 24 | 8.4.2.7 | V | Page Offset and Page Segment haven't been defined before they are discussed in Section 8.4.2.7 | Define those notions before using them | **Revised.**Refer to changes in doc.: IEEE 802.11-13/0998r0 under CID 461 heading. |
| 109 | 59.00 | 53 | 8.4.2.7 | A | TIM element is in Section 8.4.2.6 and not in 8.4.2.7 | Correct this typo | **Accepted.**The commenter is correct. The resolution is to modify 8.4.2.7 to 8.4.2.6. |
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**CID 461, 83, 72, 110, 109:**

**Discussion:**

CID 461, 83: The commenters are correct. As explained in the comment of CID 461 and 83, the equations in subclause 8.4.2.7 are incorrect.

CID 72: The commenter is correct. The equations are repeated in subclause 8.4.2.7 and subclause 9.32j.

CID 110: There is a reference that points to subclause 9.32j that explains the defintions of the Page Offset and the Length of Page Segment.

CID 109: The commenter is correct. Accept the proposed change by the commenter.

For the above CIDs, the resolution is to delete the equations in 8.4.2.7 and correct the same equations in 9.32j based on CID 461.

**Proposed changes:**

**8.4.2.6 TIM element**

***Instruction to the editor: Please make the following changes starting from P60L21 in TGah D0.1.***

The TIM Segment Number subfield indicates the index of the TIM segment encoded in the Partial Virtual Bitmap field. (see 9.32j (TIM and Page segmentation))

The Page Index subfield indicates the index of the Page encoded in the Partial Virtual Bitmap field.

***Instruction to the editor: Please make the following changes starting from P148L28 in TGah D0.1.***

**9.32j TIM and Page segmentation**

The Segment Count element indicates assignment of STAs in Page segments corresponding to their assigned

TIM segments. STAs within the assigned Page segment wake up at corresponding TIM segment sequentially to receive buffered data from AP and access medium for uplink traffic. In order to wake up at the appropriate TIM segment, the STAs may compute the Page segment assignment to the TIM segments using the length of the Page Bitmap field and the value in the Page Segment Count fields of Segment Count element. The length of Page segment assigned to each TIM segment is calculated as:

Length of Page segment = (Number of blocks in Page Bitmap /Page Segment Count),

where the number of blocks in Page Bitmap is defined from the size of the Page Bitmap field in the Segment

Count IE and the Page Segment Count is defined in the Page Segment Count field in the Segment Count element.

At every TIM segment, a STA may compute the TIM segment range (start and end Blocks within a Page segment) using the TIM Segment number obtained from the TIM Segment Number field in the TIM element, the Page Offset field in the Segment Count element, and the Length of Page Segment value based on the following equations:

TIM segment start = Page Offset + (Length of Page Segment)x(TIM Segment Number)
TIM segment end = TIM segment start + Length of Page Segment -1

If an STA does not support the segmentation, its corresponding bit in the TIM shall be included in all the Beacons irrespective of segmentation.

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| 175 | 61.00 | 31 | 8.4.2.7 | V | In 802.11-2012, when all bits of a bitmap are zero, the standard says "In the event that all bits other than bit 0 in the virtual bitmap are 0, the Partial Virtual Bitmap field is encoded as a single octet equal to 0, the Bitmap Offset subfield is 0, and the Length field is 4."In 802.11ah draft 0.1, when all bits of a bitmap or a segment of bitmap covered by a TIM IE are zero is not addressed explicitly yet. The standard draft shall specify the TIM IE format in such case. | Change the section 8.4.2.7 as follows (insert text in green color):When dot11S1GOptionImplemented is false, in In the event that all bits other than bit 0 in the virtual bitmap are 0, the Partial Virtual Bitmap field is encoded as a single octet equal to 0, the Bitmap Offset subfield is 0, and the Length field is 4. When dot11S1GOptionImplemented is true, in the event that all bits in the virtual bitmap or all bits in the segements of the virtual bitmap coverved by the current TIM IE are zero, the length field is set to 3 if at least one of the sub fields in bitmap control octets is non-zero and the length field is set to 2 if all bits in bitmap control field are zero. | **Revised.**Refer to changes in doc.: IEEE 802.11-13/0998r0 under CID 175 heading.  |

**CID 175:**

**Discussion:** In TGah D0.1, subclause 8.4.2.7.1 (P61/L37), there is the following sentence “If there is no bit in the traffic indication virtual bitmap set to 1, the Partial Virtual Bitmap field is not present in the TIM element and the Length field of the TIM element is set to 3.” That describes how a TIM element is encoded when all the bits in the virtual bitmap field are 0. Therefore, the comment is not correct. However, to minimize such confusion, the changes are proposed in 8.4.2.6 TIM element and 8.4.2.7.1 S1G partial Virtual Bitmap encoding as follows.

**Proposed changes:**

**8.4.2.6 TIM element**

***Instruction to the editor: Please modify the following paragraph in subclause 8.4.2.6 TIM element in REVmc D1.1:***

When dot11S1GOptionImplemented is false, in the event that all bits other than bit 0 in the virtual bitmap are 0, the Partial Virtual Bitmap field is encoded as a single octet equal to 0, the Bitmap Offset subfield is 0, and the Length field is 4. When dot11S1GOptionImplemented is true, if all bits in virtual bitmap are 0, the Partial Virtual Bitmap field is not present in the TIM element and the Length field of the TIM element is set to 3.

**8.4.2.7.1 S1G Partial Virtual Bitmap encoding**

***Instruction to the editor: Please modify the following paragraph in subclause 8.4.2.7.1 TIM element in TGah D0.1:***

When dot11S1GOptionImplemented is true, the Partial Virtual Bitmap field is constructed with one or more Encoded Block subfields if at least one bit in the traffic indication virtual bitmap is set to 1 as shown in Figure 8-87k (Partial Virtual Bitmap field). The Encoded Block subfield consists of the Block Control subfield, the Block Offset subfield, and the Encoded Block Information subfield as shown in Figure 8-87l (Encoded Block subfield).

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| 778 | 62.00 | 57 | 8.4.2.7.1 | J | ADE seems to utilize "Inverse bit" (bit 2). If so, table 8-55a is mis-leading. | Describe the ADE usage of Inverse Bit. | **Rejected.**The last row of the Table 8-55a (Block Control field encoding) already describes the Inverse Bitmap + ADE mode. |
| 777 | 62.00 | 37 | 8.4.2.7.1 | J | Encoding options of partial bitmap is too many. A comprehensive evaluation including compression performance and decoding complexity rather than encoding complexity should be preferable. | In order to simplify the encoding options, other than ADE (including implicit single AID) should be discarded. | **Rejected.**Each encoding mode has its own advantage in terms of compression performance and complexity and this was studied and discussed comprehensively in the past meetings.  |