IEEE P802.11
Wireless LANs

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| Comment Resolution for Subclauses 8.4.2.170c and 9.32j |
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Abstract

This document provides resolutions for CID 927, 267.

The changes are in the following subclauses: 8.4.2.170c, 9.32j.

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# 0 Revision Notes

R0: First draft

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Comment** | **Page Number** | **Subclause** | **Line Number** | **Proposed Changes** | **Proposed Resolution** |
| 927 | "Page Period" indication has been accepted in 802.11ah SFD in May. The normative text is missing in draft D0.1 | 81 | 8.4.2.170c | 12 | Insert a field called "Page Period" with length 1 octet before the field "Page Index" in Figure 8-401cr. Also add the definition of page period in 8.4.2.10c: "The Page Period indicates the number of beacon intervals between successive beacons that carry the the Segment Count element for the associated page. The field is of length 1 octet." Also make editorial changes in 8.4.2.170c and 9.32j by replacing "DTIM interval" and "DTIM beacon interval" to "page period". | **Revise.**-see document IEEE802.11 -13/0832r2. |
| 267 | TIM offset field in segment count IE has been accepted in spec framework. Draft text should be provided. | 81 | 8.4.2.170c | 1 | Accept the proposed text as in "TIM offset of page segment” | **Revise.**-see document IEEE802.11 -13/0832r2. |

**Discussion on CID 267, 927:**

This comment resolution provides necessary changes to incorporate the page period and TIM offset indication that has already been accepted in 802.11ah SFD in May.

# Proposed changes

* Segment Count element

*CID 267, 927: The proposed resolution is to accept the comments.*

***Modify the paragraph starting at Page 80 Line 63 as follows:***

The Segment Count element contains the list of page segments included in TIM segments that will be served during the TIM intervals within a ~~DTIM interval~~ Page Period (see 9.32j (TIM and Page segmentation). The Information field contains Page Period, Page Index, Page Segment Count, Page Offset, TIM Offset, and Page Bitmap fields. The total length of the Information field is ~~4-8~~ 5-9 octets. The frame format of the Segment Count element is defined in Figure 8-401cr (Segment Count element format).

***Modify Figure 8-401cr as follows:***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Bits:** |  |  |  | 2 | 5 | 5 | 4 |  |
|  | Element ID | Length | Page Period | Page Index | Page Segment Count | Page Offset | TIM offset | Page Bitmap |
| **Octets:**  | 1 | 1 | 1 |  1 |

Figure 8-401cr Segment Count element format

***Modify the fourth paragraph as follows:***

~~The Reserved field is kept for future use; this field is of length 4 bits.~~

The TIM offset field indicates the TIM Beacon offset for the first page segment of a specific page to the DTIM Beacon which carries the segment Count elements of the pages. This field is of length 4 bits.

***Modify the paragraph starting at Page 81 Line 18 as follows:***

The Page Index field indicates the Page whose segments are served during TIM intervals within a ~~DTIM interval~~ Page Period. This field is of length 2 bits. A Page Index of 01 indicates the second page out of the four pages defined in the hierarchical AID addressing (See 8.4.2.7)

***Insert the following paragraph after the paragraph starting at Page 81 Line 18:***

The Page Period field indicates the number of beacon intervals between successive beacons that carry the Segment Count element for the associated page. This field is of length 1 octet.

***Modify the paragraph starting at Page 81 Line 23 as follows:***

The Page Segment Count field indicates the number of TIM segments scheduled in one ~~DTIM interval~~ Page Period. This field is of length 5 bits indicating a maximum of 32 TIM segments in a ~~DTIM interval~~ Page Period. A Page Segment Count of 3 indicates 4 TIM segments in ~~DTIM interval~~ the Page Period.

***Modify the paragraph starting at Page 81Line 28 as follows:***

The Page Offset field indicates the offset of the block in the first Page segment from the first block in the

Page assigned within the ~~DTIM interval~~ Page Period. This field is of length 5 bits. A Page Offset of 01000 indicates that the first page segment starts at the 16th Block, *i.e*., STAs in the second half of the page are assigned within this ~~DTIM interval~~ Page Period.

***Modify the paragraph starting at Page 81 Line 36 as follows:***

The Page Bitmap field indicates presence of buffered data for each of the one or more blocks in all the assigned page segments within a ~~DTIM interval~~ Page Period. A bit in the Page Bitmap field indicates buffered data for one block in a Page segments corresponding to the location of the bit in the Bitmap. The first block in the Page Bitmap is the block indicated in the Page Offset field. Based on the number of Page segment assigned to TIM segments, this field is of variable length from 0-4 octets. A Page Bitmap of 10000001 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 segment of 8 blocks is assigned within a ~~DTIM interval~~ Page Period. Further, the bit sequence indicates that there is no downlink buffered data for any STA in blocks 1 to 6 and STAs in these blocks may enter doze state, avoiding waking up for the assigned TIM segment to check for downlink buffered data.

* TIM and Page segmentation

*CID 927: The proposed resolution is to accept the comments.*

***Modify the paragraph starting at Page 147 Line 47 as follows:***

Multiple such TIM segments may be assigned within a ~~DTIM beacon interval~~ Page Period and the Segment Count element indicates the sequence of Page segments among scheduled TIM segments. The Segment Count element is only transmitted in DTIM beacon frames and not in TIM segments. Each TIM segment shall use a fixed length Page segment within one ~~DTIM beacon interval~~ Page Period. However, the length of Page segment may vary over multiple ~~DTIM intervals~~ Page Periods. Each ordered page segment is assigned sequentially to TIM segments, where the first Page segment of a specific page may be assigned to the DTIM segment or TIM segment indicated by TIM offset to the DTIM, second Page segment in the next ~~first~~ TIM segment, and so on. The TIM Segments can be flexibly scheduled for page segments of different pages over beacon intervals. Figure 9-44d (Illustration of TIM and Page Segmentation with Segment Count IE) is an illustration with 4 Page segments that are assigned to the DTIM segment and three TIM segments.

***Modify the paragraph starting at Page 148 Line 61 as follows:***

The STAs supporting TIM Segmentation~~,~~ wake up to receive the DTIM beacon frame that contains the Segment Count element for their associated page from the AP. The STAs check the DTIM frame comprising of the Page Bitmap field and the block bitmap fields in Segment Count element and TIM segments, respectively. The Page Bitmap field in the Segment Count IE provides an early indication of buffered data for all blocks in the assigned Page segments. If a bit in Page Bitmap field is set to 0, it indicates that there is no buffered data for STAs with AIDs located in that block. They may return to Doze state immediately or after receiving buffered broadcast/multicast data as indicated in the DTIM. If the block bit in Page Bitmap is set to 1, then it indicates that there is buffered data at the AP for at least one of the STAs with AIDs in that block.