IEEE P802.11  
Wireless LANs

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| Draft Text Changes in Subclauses 8.4.2.170c and 9.32j for D0.1 | | | | |
| Date: 2013-07-09 | | | | |
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Abstract

This document provides resolutions for CID 85, 460, 928

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

Table of Contents

[0 Revision Notes 2](#_Toc354045214)

[1 Proposed Change 4](#_Toc354045215)

# 0 Revision Notes

R0: First draft

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Comment** | **Page Number** | **Subclause** | **Line Number** | **Proposed Changes** | **Proposed Resolution** |
| 85 | What happens if the values are not divisible (the result is not an integer) | 148 | 9.32j | 37 | Make it clear or define a rule for restriction otherwise | **Revise.**  -see IEEE 802.11-13/0833r1. |
| 460 | The length of Page segment has to be integer. However, the equation "Length of Page segment = (Number of blocks in Page Bitmap /Page Segment Count)" can result in a non-integer number. | 148 | 9.32j | 37 | Change the equation as follows: "Length of Page segment = floor(Number of blocks in Page Bitmap /Page Segment Count)", and add the following sentence after the equation "where floor(x) is the largest integer not greater than x." | **Revise.**  -see IEEE 802.11-13/0833r1. |
| 928 | Current TIM segmentation signaling is unable to indicate an arbitrary page segment length. For example, it is not able to indicate page segment of 3 blocks for a total of 6 blocks in the page bitmap. | 148 | 9.32j | 37 | Amendment is needed to indicate an arbitrary number of blocks per TIM segment. | **Revise.**  -see IEEE 802.11-13/0833r1. |

**Discussions:**

The problem with current signaling is that it cannot indicate any arbitrary page segment length. For example, current scheme cannot indicate a page segment length of 3 given a page bit map of length 8. Note that the floor(.) operation proposed in CID 460 cannot solve this problem either.

Since the Page Segment Count information is not useful to STAs except as an indirect way to get Page Segment Length, a simple solution is to signal explicitly the Page Segment Length instead of Page Segment Count in the Segment Count element. The Page Segment Length field is of length 5 bits, same as the Page Segment Count field, as shown in the figure below.

*Current:*

Page Index

(2b)

Page Segment Count

(5b)

Page Bitmap

(0/8/16/24/32 b)

Page Offset

(5b)

Page Period

(8b)

TIM Offset

(4b)

*Explicit indication:*

Page Index

(2b)

**Page Segment Length**

(5b)

Page Bitmap

(0/8/16/24/32 b)

Page Offset

(5b)

Page Period

(8b)

TIM Offset

(4b)

The Page Segment Length indicates the number of blocks per TIM segment for the associated page. No new fields are added, and the proposed solution can support flexible indication of any page segment length.

Comparison between proposed changes in CID 460 and CID 928:

|  |  |  |
| --- | --- | --- |
|  | CID 928  Explicit indication of Page Segment Length | CID 460  Floor() operation |
| How to get Page Segment Length ? | Simpler. Just read from Segment Count IE directly. | First read from Segment Count IE the Page Bitmap Length and Page Segment Count,  Then take the floor(.) operation over the two values. |
| STA behavior after getting Page Segment Length | Same | |
| Additional signaling at AP ? | Not required | |
| Able to indicate any arbitrary page segment length? | Yes | No |

As the proposed change in CID 928 is more simple and flexible, we accept CID 928 and reject CID 460.

# Proposed Changes

* Segment Count element

*CID 928: 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 (see 9.32j (TIM and Page segmentation). The Information field contains Page Index, Page Segment ~~Count~~ Length, Page Offset, and Page Bitmap fields. The total length of the Information field is 4-8 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 | | 1 | | 5 | 3 |  | |
|  | Element  ID | Length | Page  Index | Page Segment  ~~Count~~ Length | | Reserved | | Page  Offset | Reserved | Page  Bitmap | |
| **Octets:** | 1 | 1 | 1 | |  | | 1 0-4 | | | |

* Segment Count element format

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

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

* TIM and Page segmentation

*CID 85, 928: The proposed resolution is to accept the comments.*

***CID 460: the proposed resolution is to reject the proposed change.***

***Modify the paragraph starting at Page 148 Line 28 as follows:***

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~~ Length fields of Segment Count IE. The ~~length~~ Length of Page segment assigned to each TIM segment is indicated by the Page Segment Length field defined in the Segment Count element. ~~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 Segment~~

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