IEEE P802.11
Wireless LANs

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| LB 205 Comment Resolution for 10.2.2 |
| Date: 2015-01-06 |
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Abstract

This submission proposes resolutions for comments in clauses 10.2.2 of TGah Draft 3.0 with the following CIDs: 5335, 5336, 5337,5385,5400,5429.

Revisions:

* Rev 0: Initial version of the document.

Abstract

This submission proposes resolutions for comments in 10.2.2 of TGah Draft 3.0 with the following CIDs:

* 5335,5336,5337,5385,5400,5429

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** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 5335 | 338.36 | 10.2.2.1 | Ordering of the TIM elements does not depend on the Page slicing support. What you want to specify here is that the non-31 page slice number TIM elements may follow if page slicing is supported. | Replace ", followed by TIM elements (if any)" with ", and may be followed by TIM elements (if any when Page Slicing is supported)" and replace "are" with "shall" and remove "if Page Slicing is supported" at the end of the same sentence. | Accepted – |
| 5429 | 338.17 | 10.2.2.1 | An S1G AP does not deliver group addressed BUs if they will be delivered using multicast AID. | 1) Modify the third paragraph of 10.2.2.1 as follows:"If any STA in its BSS is in PS mode, the AP shall buffer all non-GCR-SP group addressed BUs that are not to be delivered using multicast AID, and deliver them to all STAs immediately following the next Beacon frame containing a DTIM transmission.2) Modify the 5th sentence of first paragraph of 10.2.2.3 (AP TIM transmissions) of P802.11mc D3.0 as follows:"AID 0 (zero) is reserved to indicate the presence of buffered non-GCR-SP group addressed BUs that are not to be delivered using multicast AID."3) Modify the first paragraph of 10.2.2.4 (TIM Types) of P802.11c D3.0 as follows:"Two different TIM types are distinguished: TIM and DTIM. After a DTIM, the AP shall transmit buffered non-GCR-SP group addressed BUs that are not to be delivered using multicast AID, before transmitting any individually addressed frames."4) Modify the last sentence of the item d) of the second paragraph of 10.2.2.6 (AP operation during the CP) of P802.11mc D3.0 as follows:"The bit for AID 0 (zero) in the Bitmap Control field of the TIM element shall be set to 1 when non-GCR-SP group addressed traffic that is not to be delivered using multicast AID is buffered, according to 8.4.2.6 (TIM element)."5) Modify the item e) of the second paragraph of 10.2.2.6 (AP operation during the CP) of P802.11mc D3.0 as follows:"If any associated STAs are in PS mode, all non-GCR-SP group addressed BUs except those with a service class of StrictlyOrdered or those not to be delivered using multicast AID shall be buffered."6) Modify the first sentence of the item f) of the second paragraph of 10.2.2.6 (AP operation during the CP) of P802.11mc D3.0 as follows:"When dot11FMSActivated is false, the AP shall transmit all buffered non-GCR-SP group addressedBUs that are not to be delivered using multicast AID, immediately after every DTIM." | Revised –Agree with the concept except 5), because all non-GCR-SP BUs including those to be delivered using multicast AIDs should be buffered  TGah editor to make the changes shown in 11-15/0107r1 under all headings that include CID 5429. |
| 5336 | 340.07 | 10.2.2.2 | This sentence is redundant because the behavior of an AP sending an EDCA Parameter Set element to update EDCA parameters, including the PS-Poll ACI subfield is already described. (see 9.2.4.2). | Remove the first sentence of this paragraph. | Accepted –  |
| 5400 | 342.32 | 10.2.2.6 | There are no changes in item i). It is same as the P802.11mc D3.0. | Delete the item i). | Accepted- |
| 5337 | 342.58 | 10.2.2.8 | T(S)BTT is valid only in 11ah but there is no underlining for "(S)". Same consideration for the note that follows this paragraph. | Underline "(S)" here and in the note below. Similarly insert a strikethrough "t" and underline "T" in the first "The" of the same note. Also replace "last TBTT" with "last T(S)BTT" (underline "(S)" only). | Accepted- |
| 5385 | 343.01 | 10.2.2.9 | The subclause 10.2.2.9 (Receive operation for STAs in PS mode during the CFP) is applied to A STA in PS mode that is associated as CF-Pollable during the CFP. As an S1G STA does not support PCF nor HCCA, the subclause 10.2.2.9 is not applied to an S1G STA. No amendment is necessary. | Remove the modification to the subclause 10.2.2.9. | Accepted- . |

**Discussion:** *None.*

***TGah Editor: Change the paragraph below as follows (#5335,#5429):***

**10.2.2.1 General**

***Change the 3rd paragraph of subclause 10.2.2.1 as follows:***

If any STA in its BSS is in PS mode, the AP shall buffer all non-GCR-SP group addressed BUs and deliver them to all STAs immediately following the next Beacon frame containing a DTIM transmission. The AP may additionally deliver these BUs using multicast AID as defined in 9.42i (Multicast AID).

An S1G AP with dot11NDPPSPollSupport equal to true shall set the NDP PS-Poll Supported field in the S1G Capabilities element to 1. Otherwise it shall set the NDP PS-Poll Supported field in the S1G Capabilities element to 0.

***Change the following paragraph of subclause 10.2.2.1:***

When dot11S1GOptionImplemented is false, the traffic-indication virtual bitmap, maintained by the AP, shall be transmitted in a TIM element. When dot11S1GOptionImplemented is true, the traffic-indication virtual bitmap may be divided into more than one page and each page shall be transmitted in a TIM element, hence, more than one TIM element may appear in an S1G Beacon frame. If more than one TIM element is present, then the TIM elements shall be ordered based on their value of the Page Index and Page Slice Number subfields in the Bitmap Control field. TIM elements with Page Slice Number equal to 31 (if any) shall be the first ones and ordered from page 0 to page 3, and may be followed by TIM elements (if any when Page Slicing is supported) with Page Slice Number from 0 to 30 each of which ~~are~~ shall also ordered from page 0 to page 3 ~~if Page Slicing is supported~~. When dot11S1GOptionImplemented is true, the traffic virtual bitmap shall be encoded as defined in 8.4.2.6 (TIM element) where the ADE mode may be used by the AP only if the TIM ADE Support field in the S1G Capabilities element received from every STA with AID included in the TIM element, is 1. Otherwise ADE mode shall not be used to encode the TIM element.

***TGah Editor: Change the paragraph below as follows (#5336):***

**10.2.2.2 Non-AP STA Power Management modes**

***Change the following paragraph of subclause 10.2.2.2:***

~~The S1G AP shall inform the S1G STA of the access category specified in the PS-Poll ACI subfield in the Update EDCA Info field in the EDCA Parameter Set element for sending PS-Poll frames at Beacon and Probe Response frames, over-writing the default value.~~ An S1G STA shall set the Poll Type subfield in the Frame Control field of the transmitted PS-Poll(+BDT) frame to 0 unless it is a non-TIM STA that follows the procedures described in 9.42b.2 (Rescheduling of awake/doze cycle). An S1G TIM STA shall not send a PS-Poll with the Poll Type subfield equal to 1 to an S1G STA.

***TGah Editor: Change the paragraph below as follows (#5429):***

**10.2.2.3 AP TIM transmissions**

***Change the 1st paragraph of subclause 10.2.2.3 as follows:***

The TIM shall identify the STAs for which traffic is pending and buffered in the AP. This information is

coded in a *partial virtual bitmap*, as described in 8.4.2.6 (TIM element). In addition, the TIM contains an

indication whether group addressed traffic is pending. Every STA is assigned an AID by the AP as part of

the association process. AID 0 (zero) is reserved to indicate the presence of buffered non-GCR-SP group addressed BUs that are not to be delivered using multicast AID. The AP shall identify those STAs for which it is prepared to deliver buffered BUs by setting bits in the TIM’s partial virtual bitmap that correspond to the appropriate AIDs.

***TGah Editor: Change the paragraph below as follows (#5429):***

**10.2.2.4 TIM types**

***Change the 1st paragraph of subclause 10.2.2.3 as follows:***

Two different TIM types are distinguished: TIM and DTIM. After a DTIM, the AP shall transmit buffered non-GCR-SP group addressed BUs, before transmitting any individually addressed frames. The AP may additionally deliver these BUs using multicast AID as defined in 9.42i (Multicast AID).

***TGah Editor: Change the paragraph below as follows (#5400, #5429):***

**10.2.2.6 AP operation during the CP**

***Change item d) of the second paragraph of subclause 10.2.2.6 as follows:***

d) If a STA has set up a scheduled SP, it shall automatically wake up at each SP. Therefore, the APSDcapable

AP shall transmit frames associated with admitted traffic with the APSD subfield equal to 1

in the TSPECs buffered for the STA during a scheduled SP. If the STA has set up to use

unscheduled SPs, the AP shall buffer BUs using delivery-enabled ACs until it has received a trigger

frame using a trigger-enabled AC from the non-AP STA, which indicates the start of an unscheduled

SP. A trigger frame received by the AP from a STA that already has an unscheduled SP underway

shall not trigger the start of a new unscheduled SP. The AP transmits BUs destined for the STA and

using delivery-enabled ACs during an unscheduled SP. The bit for AID 0 (zero) in the bit map

control field of the TIM element shall be set to 1 when non-GCR-SP group addressed traffic that is not to be delivered using multicast AID is buffered, according to 8.4.2.6 (TIM element).

***Change item f) of the second paragraph of subclause 10.2.2.6 as follows:***

f) When dot11FMSActivated is false, the AP shall transmit all buffered non-GCR-SP group addressed BUs immediately after every DTIM.

When dot11FMSActivated is true and the AP has established an FMS delivery interval for a multicast stream, the AP shall transmit all non-GCR-SP group addressed BUs belonging to particular FMS stream immediately after the DTIM that has the Current Count field value of the FMS Counter field set to 0 for that particular FMS stream.

***Change item i) of the second paragraph of subclause 10.2.2.6 as follows:***

~~i) If the AP does not receive an acknowledgment to an individually addressed data or bufferable Management frame sent to a STA in PS mode following receipt of a PS-Poll from that STA, it may retransmit the frame for at most the lesser of the maximum retry limit and dot11QAPMissingAckRetryLimit times before the next Beacon frame, but it shall retransmit that frame at least once before the next Beacon frame, time permitting and subject to its appropriate lifetime limit. If an acknowledgment to the retransmission is not received, it may wait until after the next Beacon frame to further retransmit that frame subject to its appropriate lifetime limit.~~

***TGah Editor: Change the paragraph below as follows (#5337):***

**10.2.2.8 Receive operation for STAs in PS mode during the CP**

***Change item a) of the second paragraph in subclause 10.2.2.8 as following:***

a) The STA with dot11NonTIMModeActivated equal to false shall wake up early enough to be able to receive the first Beacon frame scheduled for transmission at the time corresponding to the last T(S)BTT for which the STA was awake plus the ListenInterval. The STA with dot11NonTIMModeActivated equal to true is not required to wake up to receive a Beacon frame and shall transmit at least one PS-Poll or triggerframe that is individually addressed to the associated AP every listen interval starting from the last known transition of the non-TIM STA in doze state unless it follows the TWT or NDP Paging procedure.

NOTE—T~~t~~he STA might wake for a T(S)BTT that is earlier than this deadline. In that case the previous requirement is reset based on a new “last T(S)BTT”.

***TGah Editor: Change the paragraph below as follows (#5385):***

**10.2.2.9 Receive operation for STAs in PS mode during the CFP**

***~~Insert a new item e) after the item d):~~***

~~e) An S1G STA that receives an (NDP) Ack frame with the More Data subfield equal to 0 as a response to a PS-Poll frame may enter the doze state.~~