IEEE P802.11
Wireless LANs

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| Comment Resolution on TIM Broadcast |
| Date: 2017-08-10 |
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Abstract

This submission proposes resolutions of comments received from TGax comment collection (TGax Draft 1.0).

* CIDs: 5973 and 9870
1. **Introduction**

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 TGax Draft. The introduction and the explanation of the proposed changes are not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGax Editor: Editing instructions preceded by “TGax Editor” are instructions to the TGax editor to modify existing material in the TGax draft. As a result of adopting the changes, the TGax editor will execute the instructions rather than copy them to the TGax Draft.***

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| CID | Page Number | Line Number | Comment | Proposed Change | Resolution |
| 5973 | 143 | 48 | Currently the Check Beacon field is updated when the Broadcast TWT element is added or removed from Beacon. To avoid Beacon bloat, the Broadcast TWT element should not be present in every beacon frame, but then the Check Beacon field may request that non-AP STAs receive the Beacon unnecesserily which may increase the non-AP STA power consumption. It would be better to update the Check Beacon field when information in Broadcast TWT element is modified. Also some description should be added that TWT element may not be present in every beacon. | Change the n) Inclusion of a Broadcast TWT element to n) Modification of a Broadcast TWT element. Also please add a note saying that Broadcast TWT element may not be present in every Beacon frame and modified TWT broadcast element means a change in the parameter value. | Revised.The Check Beacon field in TIM Broadcast frame causes all STAs that detect changed value in Check Beacon field to receive a Beacon frame as soon as possible. Also, STAs that are not BC TWT capable will receive a Beacon based on the value of the Check Beacon field. The STAs that are using Broadcast TWT typically receive DTIM Beacon frames in order to receive the group addressed frames. The DTIM Beacon frame contains typically the TWT element that indicates the transmission times of the BC TWT Flows. The STAs receiving Broadcast TWT may miss the start when AP starts to transmit BC TWT information in the TWT element of the Beacon frame. To detect the start of the BC TWT transmissions, the CheckBeacon field of TIM Broadcast frame should be increased by 1 when the TWT element in inserted, added the first time, to the Beacon frame. The operations in the modification, inclusion and insertion of an element are not very clear. They are clarified below. **TG**ax editor to make the changes shown in 11-17/811r2 under all headings that include CID 5973.  |
| 9870 | 143 | 48 | One Broadcast TWT element can have multiple broadcast TWT schedules. Therefore, even in case there'sa Broadcast TWT element included in a Beacon frame, its scheduled access can be modified at any time. In this sense, any change/modification in Broadcast TWT element may be considered as a critical update. | Change the item n) to "Inclusion or modification of a Broadcast TWT element" | Revised.The Check Beacon field in TIM Broadcast frame causes all STAs that detect changed value in Check Beacon field to receive a Beacon frame as soon as possible. Also, STAs that are not BC TWT capable will receive a Beacon based on the value of the Check Beacon field. The STAs that are using Broadcast TWT typically receive DTIM Beacon frames in order to receive the group addressed frames. The DTIM Beacon frame contains typically the TWT element that indicates the transmission times of the BC TWT Flows. The STAs receiving Broadcast TWT may miss the start when AP starts to transmit BC TWT information in the TWT element of the Beacon frame. To detect the start of the BC TWT transmissions, the CheckBeacon field of TIM Broadcast frame should be increased by 1 when the TWT element in inserted, added the first time, to the Beacon frame. The operations in the modification, inclusion and insertion of an element are not very clear. They are clarified below. **TG**ax editor to make the changes shown in 11-17/811r2 under all headings that include CID 9870.  |

1. **Proposed changes**

***TGax editor: Modify section 11.2.2.17 as shown below:***

**11.2.2.17 TIM Broadcast**

***Change the 11th paragraph as follows:***

The AP shall increase the value (modulo 256) of the Check Beacon field in the next transmitted TIM frame(s) when a critical update occurs to any of the elements inside the Beacon frame.The following events shall classify as a critical update:

a) Inclusion of a Channel Switch Announcement element

b) Inclusion of an Extended Channel Switch Announcement element

c) Modification of the EDCA parameters element

d) Inclusion of a Quiet element

e) Modification of the DSSS Parameter Set

f) Modification of the CF Parameter Set element

g) Modification of the HT Operation element

h) Inclusion of a Wide Bandwidth Channel Switch element

i) Inclusion of a Channel Switch Wrapper element

j) Inclusion of an Operating Mode Notification element

k) Inclusion of a Quiet Channel element

l) Modification of the VHT Operation element

m) Modification of the HE Operation element

n) ~~Inclusion~~ Insertion of a Broadcast TWT element(#9870, #5973)

o) Inclusion of BSS Color Change Announcement element

Note – Modification of an element means that at least one value of a field in the element is changed. Inclusion of an element means that the element is included to a Beacon frame. The Insertion of an element means that the element was not present in the previous Beacon and the element is present in the beacon. (#9870, #5973)