IEEE P802.11
Wireless LANs

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| Comment resolutions for miscellaneous CIDs in clause 3 |
| Date: 2020-03-01 |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D6.0 with the following CIDs (3 CIDs):

* 24272, 24273, 24274

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Addressed comments/suggestions received from Mark. Changes highlighted in green.

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. This introduction is 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** | **Commenter** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 24272 | Levy, Joseph | 43.31 | The statement saying the non-AP STA are to wake in order to exchange frames - is not necessary and is not necessarily correct as the state of the non-AP STA is not know and the non-AP STA may already be awake. | Change the definition to be: "broadcast target wake time (TWT): A specific time or set of times broadcast by an access point (AP) to multiple non-AP stations (non-AP STAs) indicating when the non-AP STAs and the AP are expected to exchange frames. | Revised –Agree in principle with the comment that the state of certain STAs (those in PS mode) may not be known by the AP (e.g., the STA has not yet sent any PS-Poll/APSD trigger to the AP). To clarify this further we propose to specify that these are times at which the STAs are expected to wake.TGax editor: Please replace “to wake in order to exchange frames” with “at which the non-AP STAs are expected to be awake in order to exchange frames” at the cited page and line. |
| 24273 | Levy, Joseph | 43.31 | It is not possible to say where a PPDU is broadcasted to. It is possible to say that a PPDU is addressed to a group ID or list of STAs. But, this does not seem to be a critical to the definition of TWT. | Change the definition to be: broadcast target wake time (TWT): A specific time or set of times broadcast by an access point (AP) indicating when multiple non-AP stations (non-AP STAs) are to wake in order to exchange frames with the AP. | Rejected –The definition is sufficiently broad to cover all intended cases for these target wake times. Please note that broadcast TWTs generally contain other parameters, which identify for example a subset of STAs to wake, an example Broadcast TWT ID, but they are always sent in MGMT frames which are broadcast frames, such as for example beacon frames. Hence referring to broadcast is the correct term because the frame carrying these TWTs is broadcast, and the STAs can determine which of them is expected to wake based on other parameters that are containined in the broadcast TWT set. All these additional details are provided in the normative subclause 26.8.3. |
| 24274 | Levy, Joseph | 46.26 | The STA may or may not follow the TWT schedule, as a STA may be awake when it is not scheduled to be awake. Therefore, stating that the STA follows TWT schedule is not desirable. The STA need only have the capability to follow the TWT schedule. | Change the definition to be: target wake time (TWT) scheduled station (STA): A STA with the capability to follow the broadcast TWT schedules provided in a broadcast TWT element. | Revised –The comment describes expected normative behaviors related to the STA under discussion. However, this subclause is simply providing the definition of a STA that follows certain schedules provided by the AP. Please note that normative behaviors and which STAs can follow these schedules are provided in subclause 26.8.3. As for the technical point of the comment, please note that from APs perspective it is not important whether a STA can do something but rather whether the STA, that can do something, is actually doing it, which is what the current rules state. In order to clarify the intention, we provide additional details on the “expectancy” towards the STA’s behavior. We additionally propose to amend baseline definition of TWT to specify that it relates to individual TWT, as opposed to broadcast TWT which was introduced in 11ax. TGax editor: Please replace “to wake in order to exchange frames” with “at which the non-AP STAs are expected to be awake in order to exchange frames” at the cited page and line.TGax editor: Please insert “TWTs can be individual TWTs, which are described in 10.47 (Target wake time (TWT)) and 26.8.2 (Individual TWT agreements), or broadcast TWTs, which are described in 26.8.3 (Broadcast TWT operation).” at the end of the first paragraph of subclause 10.47.1 (Overview) in P200L22 of IEEE802.11REVmd D4.0.TGax editor: Please replace “ target wake time (TWT)” with “individual target wake time (TWT)”: in P200L22 of IEEE802.11REVmd D4.0.TGax editor to make the changes shown in 11-20/0348r1 under all headings that include CID 24274. |

**Discussion: *None.***

**3.2 Definitions specific to IEEE 802.11**

**TGax Editor: *Change the paragraph below of this subclause as follows (#CID 24272, 24273, 24274):***

**broadcast target wake time (TWT):** A specific time or set of times broadcast by an access point (AP) to multiple non-AP stations (non-AP STAs) at which the non-AP STAs are expected to be awake in order to exchange frames with the AP.*(#24272, 24273, 24274)*

**target wake time (TWT) scheduled station (STA)**: A STA that follows the broadcast TWT schedules provided in a broadcast TWT element.

….

individual target wake time (TWT): A specific time or set of times negotiated between two stations (STAs) at which a STA is expected to be awake in order to exchange frames with the other STA.*(#24274)*

**10.47.1 TWT overview**

Target wake times (TWTs) allow STAs to manage activity in the BSS by scheduling STAs to operate at different times in order to minimize contention and to reduce the required amount of time that a STA utilizing a power management mode needs to be awake. TWTs can be individual TWTs, which are described in 10.47 (Target wake time (TWT)) and 26.8.2 (Individual TWT agreements), or broadcast TWTs, which are described in 26.8.3 (Broadcast TWT operation). *(#24274)*