IEEE P802.11
Wireless LANs

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| LB272 Resolution for CID 1296 |
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Abstract

This submission proposes resolution to LB272 CID 1296. The text used as reference is 802.11bf D1.0.

Revisions:

* Rev 0: Initial version of the document.

**Comment:**

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 1296 | 11.55.1.5.2.2 | 179.31 | The current power save procedure of TB measurement instance lets the STAs that are assigned to be polled but haven't been polled enter power save mode when there is no more Sensing Polling Trigger frame. In this case, the STAs haven't been polled need to wait until the last Sensing Polling Trigger frame (More TF = 0). There is a better power save procedure that can provide more power save opportunities. | For better power save, AP can poll all the STAs that are assigned to be polled by the first Sensing Polling Trigger frame of each TXOP, then those STAs that are assigned to be polled but haven't been polled only stay awake for listening the Sensing Polling Trigger frame and can enter doze state until the end of the current TXOP. | **Revised.**Agree with the commenter. TGbf Editor make changes as in doc.: 11-23/0612r0 |

**Discussions:**

The 802.11bf draft 1.0 has the following statement:

*“If the AP sets the More TF subfield to 1 in the Sensing Polling Trigger fame of the preceding TB sensing measurement instance, and if there are no additional TB sensing measurement instance within the same sensing availability window, the AP shall set the More TF subfield in the Common Info field to 0 and the RA field to the broadcast address in the next Sensing Polling Trigger frame.* ***Upon receipt of such a frame, a STA that has not been addressed by a User Info field in the Sensing Polling Trigger frame may enter doze state if no other condition requires this STA to remain awake.****”*

For a STA that has not been addressed by a User Info field in the Sensing Polling Trigger frame, it shall stay awake until “More TF = 0”. However, if we indicate those STAs that will participate in TB sensing measurement instance **in the first Sensing Polling Trigger frame of a TXOP**, the STAs that not been polled by the frame can go to doze state and doesn’t need to stay awake to hear the following Sensing Polling Trigger frames.

Note: More TF field is still used as an indication of extra TB sensing measurement instance, but not used as an indication of whether STA enters doze state or not.

**Case 1: Example of a sensing availability window with two TB sensing measurement instances within a single TXOP (corresponds to Figure 11-74e in 11bf draft 1.0)**

In the first TXOP, assume only STA 1 and STA 2 participate in TB sensing measurement instances, then AP will only poll STA 1 and STA 2 by Sensing Polling Trigger fame in the 1st TB sensing measurement instance. After receiving the Sensing Polling Trigger fame, STA 1 and STA 2 will stay awake and respond with CTS-to-Self. Then AP invites STA 1 to participate in the following TB sensing measurement instance (i.e., 1st TB sensing measurement instance). However, STA 3 finds out the Sensing Polling Trigger fame doesn’t contain its AID, then STA 3 can enter doze state directly and wake up at the end of the current TXOP. In the 2nd TB sensing measurement instance, AP will only poll the subset of STA(s) in the Sensing Polling Trigger fame of the first TB sensing measurement instance, for example, AP sends Sensing Polling Trigger fame to STA 3. After receiving the Sensing Polling Trigger fame, STA 3 responds with CTS-to-Self and participates in the following TB sensing measurement instance (i.e., 2nd TB sensing measurement instance).

Note: In this case, STA 3 has more opportunities to enter doze state than the procedure in 11bf d1.0.



Figure 1 Example of Case 1

**Case 2: Example of a sensing availability window with two TB sensing measurement instances in separate TXOPs (corresponds to Figure 11-74f in 11bf draft 1.0)**

In the first TXOP, assume only STA 1 and STA 2 participate in the TB sensing measurement instance, then AP will only poll STA 1 and STA 2 by Sensing Polling Trigger fame. After receiving the Sensing Polling Trigger fame, STA 1 and STA 2 will stay awake and respond with CTS-to-Self and participate in the following TB sensing measurement instance (i.e., 1st TB sensing measurement instance). However, STA 3 finds out the Sensing Polling Trigger fame doesn’t contain its AID, then STA 3 can enter doze state directly and wake up at the end of the current TXOP. Similarly, in the second TXOP, assume only STA 3 participates in the TB sensing measurement instance, then AP will only poll STA 3 by Sensing Polling Trigger fame. After receiving the Sensing Polling Trigger fame, STA 3 will stay awake and respond with CTS-to-Self and participate in the following TB sensing measurement instance (i.e., 2nd TB sensing measurement instance). STA 1 and STA 2 will enter doze state directly and wake up at the end of the current TXOP.

Note: In this case, STA 3 shall not enter doze state in TXOP 1 based on 11bf d1.0. STA 1 and STA 2 shall not enter doze state in TXOP 2 based on 11bf d1.0.



Figure 2 Example of Case 2

**11.55.1.5.2.2 Polling phase**

***TGbf Editor: Please make the following changes to subclause 11.55.1.5.2.2 (Polling phase).***

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If the AP does not poll all STAs assigned to be polled in the sensing availability window using a single Sensing Polling Trigger frame, the AP shall attempt to schedule one or more extra TB sensing measurement instances where each TB sensing measurement instance begins with a polling phase within the same sensing availability window. The AP shall indicate the extra TB sensing measurement instance by setting the More TF subfield in the Common Info field to 1 and the RA field to the broadcast address in the Sensing Polling Trigger frame. The extra TB sensing measurement instance may occur in the same TXOP within the same sensing availability window (see Figure 11-74e (Example of a sensing availability window with two TB sensing measurement instances within a single TXOP)), or in a separate TXOP within the same sensing availability window (see Figure 11-74f (Example of a sensing availability window with two TB sensing measurement instances in separate TXOPs)). If the AP sets the More TF subfield to 1 in the Sensing Polling Trigger fame of the preceding TB sensing measurement instance, and if there are no additional TB sensing measurement instance within the same sensing availability window, the AP shall set the More TF subfield in the Common Info field to 0 and the RA field to the broadcast address in the next Sensing Polling Trigger frame.

AP shall poll all STAs assigned to be polled and expected to participate in the TB sensing measurement instance(s) of a TXOP in the Sensing Polling Trigger frame of the first TB sensing measurement instance within the TXOP. If the AP schedules one or more extra TB sensing measurement instances within the same TXOP, the second and subsequent Sensing Polling Trigger frame(s) (if exist) shall only poll the subset of STAs indicated in the Sensing Polling Trigger frame of the first TB sensing measurement instance within the same TXOP. Any STA that is not addressed by a User Info field in the Sensing Polling Trigger frame of the first TB sensing measurement instance within the TXOP may enter doze state until the end of this TXOP if no other condition requires this STA to remain awake. (#1296)

**SP: Move to approve resolutions to CID 1296,**

**as specified in doc.: 11-23/0612r0 and incorporate the text changes into the latest TGbf draft.**