IEEE P802.11  
Wireless LANs

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| CR for CID5859 and CID5971 | | | | |
| Date: 2017-09-02 | | | | |
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Abstract

The submission resolves CID5958 and CID5971. The submission 11-17-1138r0 is a presentation for these comment resolutions.

These CIDs discuss on the U-APSD and PS-Poll use with TWT. The submission contains normative text to:

1. Clarify that the individual TWT SP termination terminates also an ongoing APSD SP and pending data frame as a response to PS-Poll frame.
   * Otherwise, the TWT responding STA may need to transmit additional MPDU or QoS Null frame with EOSP field set to value 1 to terminate the APSD SP.
2. Clarify that initiation of the announced TWT SP is not needed, if the STA has already a SP ongoing, or it has transmitted a PS-Poll but not received a DL frame as a response.

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| CID | Page | Clause | Comment | Proposed Change | Resolution |
| 5958 | 141.12 | 11.2.2.6 | The use of PS-Poll frame together with the TWT power save mechanism could be clarified and justified. The PS-Poll should be used only with announced TWT. The TWT SP intiated by PS-Poll should be terminated like any TWT SP, i.e. no data should be transmitted outside of TWT SP. | Please clarify how TWT and PS-Poll frames are used. It would make sense that if a PS-Poll frame is transmitted within the TWT SP and termiantion of the TWT SP also cancels the solicited DL PPDU transmission regardless if it has not been yet transmitted. | Revise – agree in principle that TWT SP termination cancels also PS-Poll frames to wait for DL frame as response to the frame.  Disagree with the principle that PS-poll frame needs to be transmitted within TWT SP. The PS-Poll, frames to transition to active/power save mode and APSD trigger frame may be transmitted at any time.  TGax editor to make changes as shown in 11-17/1137r0 that are marked with CID 5859. |
| 5971 | 141.58 | 11.2.2.6 | It is unclear can an HE non-AP STA operate in both U-APSD and TWT at the same time. | The TWT power save mechanism is superior to U-APSD power save. For instance, scheduling support and faster service period termination make TWT better. If TWT is supported by the AP and the non-AP STA, the STA shall operate only in TWT mode. | Reject – disagree in principle with the comment. PS-Poll, active and power save mode transition signaling and APSD trigger frame may be transmitted at any time. The TWT SP termination terminates also possibly ongoing U-APSD SP and pending PS-Poll frames.  TGax editor to make changes as shown in 11-17/1137r0 that are marked with CID 5971. |

**27.7.2 Individual TWT agreements**

***Instructions to ax Editor: make the following changes to the eighth paragraph of the clause.***

A TWT requesting STA that is U-APSD capable shall follow the rules as defined in 11.2.2.5 (Power management with APSD), except that all the additional rules defined in subclause supersede all the respective rules. (#5971)

A TWT requesting STA that is in PS mode and is awake shall include a PS-Poll frame or an APSD trigger frame in the HE TB PPDU if the TWT is an announced TWT unless other SP allows AP to send data to the STA, the STA has already transmitted the PS-Poll or APSD trigger frame within that TWT SP or the STA has transmitted a PS\_Poll frame prior TWT SP and not received DL MPDU within the beacon interval. The STA may include other frames in the HE TB PPDU. (#5859) (#5971)

***Instructions to ax Editor: make the following changes to the ninth paragraph of the clause.***

A TWT responding STA that receives a PS-Poll frame or an APSD trigger frame from a TWT requesting STA in PS mode during an announced TWT SP, has other SP ongoing with the requesting STA in PS mode, or the STA has transmitted a PS\_Poll frame and not received DL MPDU within the beacon interval shall follow the rules defined in 11.2.3.6 (AP operation during the CP) as long as the BU delivery does not exceed the duration of the TWT SP and the TWT requesting STA has indicated to be awake for that TWT SP. (#5859) (#5971)

***Instructions to ax Editor: Add the following test as the second last paragraph of the clause.***

A termination of an TWT SP shall also terminate an ongoing U-APSD SP of the TWT requesting STA and shall cancel the pending MPDU transmission as a response to PS\_Poll frame. (#5859) (#5971)