802.11ba Draft Specification

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| Proposed Spec Text for Indication of Current Value of BSS Parameter Update Counter |
| Date: 2018-05-09 |
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Abstract

This submission proposes two options for the spec text based on the following passed straw poll in May IEEE meeting.

* The current value of BPUC (BSS Parameter Update Counter) should be indicated to the STA before it enters WUR mode

The baseline for the proposed spec text is IEEE P802.11 Draft 0.2.

Revision History:

* Rev 0: Initial version of the document

***Discussion:***

***Two options of proposed spec text regarding to indicating the current value of the BSS Parameter Update Counter (BPUC) are presented***

***Option 1: Indicating the current value of the BSS Parameter Update Counter (BPUC) to WUR STAs using WUR Operation element (included in the PCR beacon)***

**TGba Editor: *Instruction: Modify 9.4.2.264 WUR Operation element as shown below***

* WUR Operation element

The WUR Operation element contains the set of parameters necessary to support the WUR operation. The format of the WUR Operation element is defined in Figure 9-589c (WUR Operation element format).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Element ID** | **Length** | **Element ID Extension** | **Minimum Wake-up Duration** | **Duty Cycle Period Units** | **WUR Operation class** | **WUR Channel** | **WUR Beacon Period** | **Current Counter Value** |
| Octets: | 1 | 1 | 1 | TBD | TBD | 1 | 1 | TBD | 1 |
| * WUR Operation element format
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The Element ID, Length, and Element ID Extension fields are defined in 9.4.2.1 (General).

The Minimum Wake-up Duration field indicates the minimum on duration of the WUR duty cycle operation (see 31.4 (WUR duty cycle operation)). The encoding of the Minimum Wake-up Duration field is TBD.

The Duty Cycle Period Units field indicates the basic unit of the period of the WUR duty cycle operation (see 31.4 (WUR duty cycle operation)). The encoding of the Duty Cycle Period Units field is TBD.

The WUR Operating Class field indicates the operating class in use for transmission of WUR frame from the WUR AP to the WUR non-AP STA. The encoding is the same as the definition of Operating Class field in 9.4.1.22 (Operating Class and Channel field)

The WUR Channel field indicates the channel in use for transmission of WUR frame from the WUR AP to the WUR non-AP STA. The encoding is the same as the definition of Channel field in 9.4.1.22 (Operating Class and Channel field).

The WUR Beacon period field indicates the period of WUR Beacon frame.

The Current Counter Value field indicates the current value of the Counter subfield included in the broadcast WUR frames and its format is defined in Figure 9-589d (Current Counter Value field).

|  |  |  |  |
| --- | --- | --- | --- |
|  | B0   B3 | B4   B7 |  |
|  | Current Value of the Counter Subfield in Broadcast Wake Up frames | Reserved |
| Bits: | 4 | 4 |
| Figure 9-598d - Current Counter Value field format |

***Option 2: Indicating the current value of the BSS Parameter Update Counter (BPUC) to WUR STAs using WUR Mode element (included in the WUR Action frame)***

**TGba Editor: *Instruction: Modify 9.4.2.262 WUR Mode element as shown below (Track Change On)***

* WUR Mode element

(..existing texts..)

The subfields of the WUR Parameters field sent from WUR AP are defined in Table 9-262c (Subfields of WUR Parameters field from WUR AP).

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| * Subfields of WUR Parameters field from WUR AP
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| **Subfield** | **Definition** | **Encoding** |
| WUR ID | A WUR identifier that uniquely identifies the WUR STA within the BSS of the AP  | An WUR identifier provided by the AP. |
| Duty cycle information | TBD | TBD |
| Current Counter Value | Current value of the Counter subfield contained in broadcast WUR frames | An unsigned integer between the value 0 – 15.  |

An WUR AP indicates the current value of the Counter Subfield included in broadcast WUR frames using the Current Counter Value subfield in the WUR Parameters field of the WUR Mode element.

(..existing texts..)

***Discussions:***

***Two options for spec text for indicating the BSS Parameters Update Counter to a WUR STAs before the STA enters WUR Doze state.***

***In Option 1, the current value of the Counter subfield included in the broadcast WUR frames is indicated in a field in WUR Operation element which is contained in AP’s PCR beacons.***

***Advantage of Option 1:***

* ***Common WUR parameter which belongs more to the WUR Operation element since WUR Action frame seems to contain individual WUR parameters for the WUR STAs.***

***Disadvantage of Option 1:***

***Broadcast many times, there is really no saving compared to including this information in the WUR action frames***

* ***WUR STAs may not have the most up to date counter value since WUR STAs may not listen to beacons since the PCR of a WUR STA may be in PS mode and not always listen to beacons***

***In Option 2, the current value of the Counter subfield included in the broadcast WUR frames is indicated in a field in the WUR Mode element which is contained in the AP’s WUR Action frame sent to a WUR STA.***

***Advantage of Option 2:***

* ***The counter value is sent to the WUR STA in a WUR action frame, which is sent in unicast anyway before the WUR STA enters WUR mode***
* ***The counter value is always most up to date***

***Disadvantage of Option 2:***

* ***Common WUR parameter which belongs more to the WUR Operation element since WUR Action frame seems to contain individual WUR parameters for the WUR STAs.***
* ***May be sent in a few WUR action frames to the WUR STAs, but should not be more often than the PCR beacon transmissions***

***Straw Poll:***

***Do you prefer Option 1 or Option 2 to be included in 802.11ba Draft 0.3?***

***Option 1/ Option 2/Abstain:***