802.11ba Draft Specification

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| Starting Time Indication of WUR Beacon and Duty Cycle Operation |
| Date: 2018-05-08 |
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Abstract

This submission proposes spec text based on the following passed straw poll in March IEEE meeting.

* AP indicates the offset of Target Wake-up radio Beacon Transmission Time (TWBTT) in WUR Operation element, which is the TSF time of the first TWBTT
* AP indicates the TSF time of the starting point of the WUR duty cycle schedule in WUR Mode element

Revision History:

* Rev 0: Initial version of the document
* Rev 1: Clarify the unit of starting time indication for ducy cycle

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

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

**TGba Editor: *Instruction: Modify 9.4.2.264 WUR Operation element as shown below (Track Change On)***

* 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).

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Element ID** | **Length** | **Element ID Extension** | **Minimum Wake-up Duration** | **Duty Cycle Period Units** | **WUR Operation class** | **WUR Channel** | **WUR Beacon Period** | **Offset of Target Wake-up radio Beacon Transmission Time (TWBTT)** |
| Octets: | 1 | 1 | 1 | TBD | TBD | 1 | 1 | TBD | 2 |
| * 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 Offset of Target Wake-up radio Beacon Transmission Time (TWBTT) field indicates the TSF time of the first TWBTT in units of TU.

**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. |
| **Starting time of the WUR duty cycle** | **TSF time of the starting point of the WUR duty cycle schedule** | The size is 5 bytes in units of us. |

WUR AP indicates the start time of one WUR duty cycle schedule in the Starting time of the WUR duty cycle subfield of the WUR Parameters field in WUR Mode element.

(..existing texts..)

**TGba Editor: *Instruction: Modify 31.4 WUR duty cycle operation as shown below (Track Change On)***

* WUR duty cycle operation

WUR duty cycle operation reduces the required amount of time that a WUR non-AP STA utilizing WUR Mode needs to be in WURx awake state after the PCR component of the WUR non-AP STA enters doze state (see 31.5 (Power management with WUR)) and allows WUR AP to manage WUR activity in the BSS by scheduling WUR non-AP STA to receive WUR frame at different times.

WUR duty cycle operation is determined by three parameters: starting point, on duration, and duty cycle period as shown in Figure 31-1 (WUR Duty Cycle). On duration determines the time that a WUR non-AP STA is in WURx awake state for each WUR duty cycle schedule. Duty cycle period determines the elapsed time between the start times of two successive WUR duty cycle schedules. Starting point is the start time of one WUR duty cycle schedule and is indicated by the WUR AP in WUR Mode element.

WUR AP indicates the set of parameters necessary to support the WUR duty cycle operation in WUR Operation element.

 (..existing texts..)