IEEE P802.11
Wireless LANs

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| Proposed spec text for CID 296 |
| Date: 2018-11-1 |
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Abstract

This submission proposes the spec text for a solution to the lost WUR non-AP STA problem in reference to CID 296 in 11-18-1794-00-00ba-comments-on-tgba-d1-0.xlsx. (Initial Draft based on D1.0)

Comment submitted in LB 235 on D1.0:

“When a WUR non-AP STA is operating in Duty Cycled mode and goes to sleep state for more than the agreed duty cycle period, there is a mismatch of the STA state at the AP where the AP does not know if the STA is still within the BSS range and still in sleep mode or it has moved outside the BSS range. At the AP, the knowledge of whether the STA is within the BSS range is an integral part of Usage model numbers 2 and 7 from the usage model document (11-17-0029-10-00ba-wur-usage-model-document.pptx).”

TGba Editor: Please modify this section as follows:

**9.4.2.274 WUR Capabilities element**

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The format of the WUR Capabilities Information field is defined in Figure 9-751f (WUR Capabilities Information field format).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 B7 | B8 | B9 B10 | B11 | B12 | B13 | B14 | B15 |
|  | PCR TransistionDelay | Nonzero Length Frame Body Support | Group IDsSupport | ProtectionSupport | 20 MHz WUR PPDU with HDR Support | WUR ChannelSwitchingSupport | Lost WUR TimeoutSupport | Reserved |
| Bits: | 8 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
|  |  |  |  |  |  |  |  |  |

**Figure 9-751f—WUR Capabilities Information field format**

***Insert the following new row into Table 9-318f (Subfields of the WUR Capabilities Information field) (header row shown for convenience):***

|  |  |  |
| --- | --- | --- |
| **Subfield** | **Definition** | **Encoding** |
| Lost WUR Timeout Support | Indicates the support for the timeout based detection of a Lost WUR. | Set to 1 to indicate that Lost WUR Timeout is enabled on the WUR AP. Set to 0 otherwise.Reserved for WUR non-AP STA. |

TGba Editor: Please modify this section as follows:

**9.4.2.275 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 9-751g (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** | **Offset of Target WUR Beacon Transmission Time (TWBTT)** |
| Octets: | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 2 |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | **WUR****Parameters** | **Lost WUR Timeout** |  |  |  |  |
|  |  |  | Octets: | 1 | 1 |  |  |  |  |

**Figure 9-751g—WUR Operation element format**

The Element ID, Length, and Element ID Extension fields are defined in 9.4.2.1 (General).

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The Counter field indicates the current value of the Counter subfield included in the broadcast WUR Wake-up frames.

The Lost WUR Timeout field indicates the time after which the WUR non-AP STA is considered to be lost by the WUR AP with which the WUR non-AP STA performed the WUR parameter negotiation (see 11.x.x Lost STA). The range for the values in this field is 1 to 254. A single bit represents a value of 10ms. A value of 254 is 2.54 seconds. A value of 0 is reserved and should not be used. A value of 255 indicates to the WUR non-AP STA the WUR AP will not consider WUR non-AP STAs to be lost.

The WUR Operation element is included in Beacon Frames, as described in 9.3.3.3 and in Reassociation Response, as described in 9.3.3.9 and in Probe Response, as described in 9.3.3.11.

TGba Editor: Please modify this section as follows:

**11.24.x Lost STA**

A WUR capable AP can indicate to a WUR non-AP STA the timeout after which it considers the STA to be lost via the Lost WUR Timeout field in the WUR Operation Element. This helps the AP to determine whether the client has moved outside the AP’s range or is in WUR Mode and non-responsive. The WUR non-AP STA should send a frame on the UL before the timeout to avoid being considered as lost by the WUR AP. The timeout starts when the WUR mode is accepted by the AP (31.6.1 WUR Mode Setup).

The action to be taken after determining that the non-AP STA is lost is implementation specific and outside the scope of this standard.