IEEE P802.11
Wireless LANs

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| Spec Text for CR for CID 1097 |
| Date: 2019-01-11 |
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Abstract

This submission proposes resolutions for the following CIDs: 1097.The baseline for this comment resolution document is 802.11ba Draft 1.1.

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| **CID** | **Commenter** | **Clause** | **Page** | **Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1097 | Xiaofei Wang | 9.4.2.273 | 31 | 1 | A group delay indicated by an AP to a group STAs assigned to the same Group ID may greatly benefit the power saving for the group of STAs since the STAs may not need to wake up prematurely to wait for a delayed packets that are expected to arrive later. | Consider to add "group delay parameter" for a group ID assigned to a STA based on | Revised—Agree in principle with the comment. Added an optional Group Max Delay field to the WUR Parameters filed by the AP. Instruction to the editor: please make changes included in 11-19/0044r0. |

**Discussion:**

For a group of STAs that are capable of

* WUR Mode element

**TGba Editor: *Change Section 9.4.2.275 as follows:***

|  |  |  |  |
| --- | --- | --- | --- |
|  | B0 | B1 | B2                                 B7 |
|  | Group ID List Present | Max Group Delays Present | Reserved |
| Bits: | 1 | 1 | 6 |
|  | * WUR Parameters Control field format
 |

The Group ID List Present subfield is set to 1 if the Group ID List subfield is present in the following WUR Parameters field and set to 0 otherwise.

The Max Group Delays Present subfield is set to 1 if the Max Group Delays subfield is present in the following WUR Parameters field and set to 0 otherwise.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | B0     B11 | B12           B14 | B15 | B16                        B79 |  |  |
|  | WUR ID | WUR Channel Offset | Reserved | Starting Time Of The WUR Duty Cycle | Group ID List | Max Group Delays |
| Bit: | 12 | 3 | 1 | 64 | Variable | Variable |
| * WUR Parameters field format from WUR AP
 |  |
| * 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 non-AP STA within the BSS of the AP  |  The size of the subfield is 12 bits. |
| WUR Channel Offset | Indicates the channel offset to be transmitted the WUR Wake-up frame relative to the WUR primary channel (see 31.9 (WUR FDMA operation)).  | The size of the subfield is 3 bits. The encoding is described in Table 9-318e (WUR Channel Offset subfield encoding). |
| Reserved | Reserved field | The size of the subfield is 1 bit. |
| Starting Time Of The WUR Duty Cycle | TSF time of the starting point of the WUR duty cycle | The size of the subfield is 8 octets in units of µs. |
| Group ID List | Indicates one or more group IDs assigned to the STA | The format is shown in Figure 9-751j (Group ID List subfield format). This subfield is present if the Group ID List Present subfield of the WUR Parameters Control field is set to 1. Otherwise this subfield is not present. (#700) |
| Max Group Delays | Indicates one or more Max Group Delays associated with one or more group IDs assigned to the STA | The format is shown in Figure 9-751x (Max Group Delays subfield format). This subfield is present if the Max Group Delays Present subfield of the WUR Parameters Control field is set to 1. Otherwise this subfield is not present. |

**TGba Editor:Insert the following figure after Figure 9-751j*:***

|  |  |  |
| --- | --- | --- |
|  | Group Delay Bitmap | Max Group Delays List |
| Bits: | Variable | variable |
| Figure 9-751x - Max Group Delays subfield format |

|  |  |
| --- | --- |
|  | Max Group PCR Transition Delay |
| Bits: | 8 |
| Figure 9-751x - Max Group PCR Transition Delay subfield format |

**TGba Editor:Insert the following at Page 37 Line 5*:***

The Max Group Delays subfield is defined in Figure 9-751x (Max Group Delays subfield format).

The Group Delay Bitmap has the same size as the Group ID Bitmap in the Group ID List subfield and indicates whether a maximum group PCR transition delay is provided for a Group ID in the Max Group Delays List field. Bit position n in the Group Delay Bitmap corresponds to bit position n in the Group ID Bitmap in the Group ID List subfield, and hence to Group ID equal to (SGID + n). A bit in the Group Delay Bitmap shall not be set to 1 if the corresponding bit in the Group ID Bitmap in the Group ID List subfield is set to 0. A bit in the Group Delay Bitmap is set to 1 to indicate that the max group PCR transition delay is provided for the corresponding Group ID in the Max Group Delays List field. The total number of bits set to 1 in the Group Delay Bitmap field indicates the number of Max Group PCR Transition Delay field contained in the Max Group Delay List subfield.

The Max Group Delays List subfield contains one or more Max Group PCR Transition fields.

The nth Max Group PCR Transition Delay field corresponds to the nth bit set to 1 in the Group Delay Bitmap subfield and indicates the the longest PCR Transition delay among all STAs within the group associated with the group ID corresponding to the nth bit set to 1 in the Group Delay Bitmap subfield. The encoding of the Max Group PCR Transition field follows the encoding of the PCR Transition Delay subfield (see 9.4.2.273 WUR Capabilities element).

**TGba Editor:Insert the following at Page 60 Line 20*:***

A WUR AP may provide in the Max Group Delays subfield in the WUR Parameter field contained in the WUR Mode element the maximum PCR transition delay for a group of STAs identified by a group ID. The maximum PCR transition delay is defined as the maximum value of the PCR transition delay values in the WUR Capabilities elements indicated by all the WUR non-AP STAs that are not in the awake state, have negotiated WUR power management service with the WUR AP, and are in WUR mode.

**TGba Editor:Insert the following at Page 61 Line 43*:***

The PCR component of a WUR non-AP STA may be in the doze state until the maximum PCR transition delay for a group ID has expired if the WUR non-AP STA receives a WUR Wake-up frame from its associated WUR AP addressed to a group ID to which the STA is assigned and if the maximum PCR transition delay for the group ID has been indicated by the AP in a WUR Mode element.