IEEE P802.11
Wireless LANs

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| Resolution of LB239 CIDs |
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|  |  |  |  |  |

Abstract

Resolution of CIDs 4070, 4223, 4419, 4424, 4425, 4426, 4430

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 4070 | 10.40.6.2.2 | 243.02 | Figure 125 is an example of the TDD slot access but there is no text to explain the example and what it stands for. | Add text to explain the example in the figure. | **Revised**See proposed resolution in the text below, covers also CIDs 4073, 4405, 4223, and 4425  | TDD channel access |
| 4223 | 10.40.6.2.2 | 243.01 | The structure of TDD SP is shown in Figure 117. Figure 117 contains CBAP, SP and TDD-SP in a single DTI. While I understand that the standard allows generic use of these access scheme in a single DTI, I do not believe this is a typical practice. The specification should draw more practical example rather than generic figure that nobody will implement. | Add annex clause describing typical practice of the TDD mode. Add figure in the annex showing TDD-SP only operation case. The additional figure should not contain regular A-BFT or ATI. | **Revised**Additional figure is proposed. See below in the document | TDD channel access |
| 4419 | 9.4.2.266 | 159.01 | Fields of Slot Structure start time and Slot Schedule start time, are placed differently in the TDD Slot structure and in the TDD Slot schedule elements. The fields are of close meaning hence keeping the structures unified simplifies the implementation. | Unify the TDD Slot structure and the TDD Slot schedule elements structures.See submission 11-19-0281-00-00ay TDD Slot timing CID resolution. | **Revised**See below in the document | TDD scheduling |
| 4424 | 10.40.6.2.2 | 243.13 | "The repetition period for each TDD interval in a TDD SP from one beacon interval to the next beacon interval is a fixed number equal to the beacon interval duration." The DMG SP cannot cross the DTI borders, so it is wrong to declare that the repetition period in a TDD SP is of the beacon interval duration. | Remove unnecessary reference to the TDD SP: "The repetition period for each TDD interval in a TDD SP from one beacon interval to the next beacon interval is a fixed number equal to the beacon interval duration." | **Accept** | TDD channel access |
| 4425 | 10.40.6.2.2 | 243.02 | Figure 125 is not representative because it does not indicate parameters of the TDD slot structure element: Slot Structure Start Time, Number of TDD Intervals, TDD Interval Duration, Number of TDD Slots per TDD Interval, TDD Slot Start, TDD Slot Duration. | Replace the Figure 125 by one that clearly refers to the TDD Slot Structure element (9.4.2.266 TDD Slot Structure element). See submission 11-19-0281-00-00ay TDD Slot timing CID resolution. | **Revised**Additional figure is proposed to illustrate use of the parameters  | TDD channel access |
| 4426 | 9.4.2.266 | 159.19 | Sequences of the TDD slots may be repeated in the TDD Interval w/o need to define each one of the TDD slots separately. | In the Figure 88 --TDD Slot Structure element format, rename the "Number of TDD Slots per TDD Interval" by "Number of TDD Slots in the Slot Structure field"Change the text:P159L19The Number of TDD Slots per TDD Slot Structure subfield indicates the number of TDD slots in the Slot Structure field. The number of the TDD slots in the TDD Interval = TDD Interval Duration/(TDD\_Slot\_K\_Start+TDD\_Slot\_K\_Duration) x K. The sequence of K TDD slots defined in the Slot Structure field is repeated ((TDD Interval Duration/(TDD\_Slot\_K\_Start+TDD\_Slot\_K\_Duration)) times in the TDD Interval.Equation to compute the TDD\_slot\_j\_Start (j>K) of the repetitive sequence shall be provided. See submission 11-19-0281-00-00ay TDD Slot timing CID resolution. | **Reject**Repetition of the TDD Intervals in the TDD Structure provides the expected functionality | TDD scheduling |
| 4430 | 9.4.2.267 | 160.16 | The TDD Slot Schedule element structure is not balanced with the TDD Slot Structure element. Longest time the TDD Slot Schedule element can cover is of 2 octets TDD Slot Schedule Duration field. The TDD Slot Structure element allows covering time equal to Number of TDD Intervals \* TDD Interval Duration, each field of 2 octets. | Propose to align structures of the elements to eliminate excessive repetition of slot sequences with equal Access Type and Slot Category. See submission 11-19-0281-00-00ay TDD Slot timing CID resolution. | **Reject**It is already defined that “The TDD slots defined by the Bitmap and Access Type Schedule field are repeated for the duration indicated by the TDD Slot Schedule Duration subfield value.” | TDD scheduling |

CID4419

Discussion:

The proposed changes unify structures of the TDD Slot Structure element and the TDD Slot Schedule element. In the TDD Slot Schedule element few fields are moved from the Slot Schedule Control field to the basic structure. There are no changes in the definition of the fields.

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***TGay editor change the Figure 88 and the Figure 89 as presented below***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Element ID  | Length  | Element ID Extension  | Slot Structure Control  | Peer STA Address  | Slot Structure Start Time  | Number of TDD Intervals  | TDD Interval Duration  | Number of TDD Slots per TDD Interval (M) | Slot Structure  |
| Octets:  | 1 | 1 | 1 | 2 | 6 | 4 | 2 | 2 | 1 | 4×M |

**Figure 88 —TDD Slot Structure element format**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0 B3  | B4 B7  | B8 B11  | B12 B31  |
|  | Allocation ID  | *[In use]*  | *[In use]* | Reserved  |
| Bits:  | 4 | 4 | 4 | 4 |

**Figure 89 —Slot Structure Control field format**

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***TGay editor change the Figure 91 and the Figure 92 as presented below***

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Element ID  | Length  | Element ID Extension  | Slot Schedule Control  | Peer STA Address  | Slot Schedule Start Time | Number of TDD Intervals in the Bitmap (Q) | TDD Slot Schedule Duration | Bitmap and Access Type Schedule  | Slot Category Schedule  |
| Octets: | 1 | 1 | 1 | 2 | 6 | 4 | 2 | 2 | ⌈(𝑄×𝑀)/4⌉ | ⌈(𝑄×𝑀)/4⌉ |

**Figure 91 —TDD Slot Schedule element format**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 B3  | B4 | B5 B12  |  |  |  |  | B13 B15 |
|  | Allocation ID  | Channel Aggregation  | BW  |  |  |  |  | Reserved  |
| Bits: | 4 | 1 | 8 |  |  |  |  | 3 |

**Figure 92 —Slot Schedule Control field format**

CIDs 4070, 4223, 4425

P243L3

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**Figure xyz – TDD slot structure and TDD slot schedule relationship example**

Figure xyz depicts an example of the TDD slot timing and access permissions provided by the TDD Slot Structure element (9.4.2.266) and the TDD Slot Schedule element (9.4.2.267).

Starting from the value indicated in the Slot Structure Start Time field (Figure 88), the TDD slot structure repeats for each beacon interval. The Slot Structure Start Time field = TBTT2 in this example. In each beacon interval, the TDD intervals indicated by the Number of TDD intervals field (Figure 88), i.e. n, occupies the entire beacon interval. Each TDD interval has a duration equal to value in the TDD Interval Duration field (Figure 88), so that TDD Interval Duration \* n equals to the beacon interval duration. Each TDD interval contains M TDD slots indicated in the Number of the TDD Slots per TDD interval field (Figure 88), (M=3 in this example). Each TDD slot in the TDD Interval is defined by pair of the TDD Slot Start and the TDD Slot Duration in the Slot Structure field (Figure 90).

Starting from the value =T set in the Slot Schedule Start Time field (Figure 91), a new slot schedule becomes active. The Bitmap and Access Type Schedule field and the Slot Category Schedule field (Figure 91) in the TDD Slot Schedule element indicates Access Type and Slot Category for each of M\*Q TDD slots, where Q is equal to the value in the Number of TDD Intervals in the Bitmap field (Figure 91), (Q=2 in this example). The bitmap that indicates the Access Type and the Slot Category for number of M\*Q TDD slots is repeated during the time indicated in the TDD Slot Schedule Duration field (Figure 91).

**References:**

1. IEEE P802.11ay/D3.0, February 2019