IEEE P802.11
Wireless LANs

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| LB239 CIDs 4058, 4073, 4106, 4107, 4108, 4420, 4421, 4422, 4423 |
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|  |  |  |  |  |

Abstract

Resolution of CIDs 4058, 4073, 4106, 4107, 4108, 4420, 4421, 4422, 4423

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| **CID** | **Clause Number(C)** | **Page** | **Comment** | **Proposed Change** | **Resolution** | **Comment Group** |
| 4058 | 9.4.2.266 | 159.08 | The fields Maximum Time Synchronization Error and Maxiumum Propagation Time are defined but there is no text to explain what to do with them. Without such text a device may not do the right thing and theerfore coexistence is not assured. | Add normative text to explain how a STA should use these parameters | Duplication with 4107, 4108, 4420, 4421, 4422, 4423**Revised**See resolution below in the document | TDD scheduling |
| 4073 | 10.40.6.2.2 | 244.19 | The statement "Adjacent TDD slots shall be separated in time by the guard times identified in Figure 125 and defined in the 19 TDD Slot Structure element." is incorrect and a leftover from previouse version. | Remove the sentence | **Accept** | TDD channel access |
| 4106 | 9.4.2.266 | 159.08 | "between a transmitter and receiver in either direction" what does direciton mean? Up or Down, Left or Right? If it is Uplink and Downlink, explain that. Even if explained, it is not clear what is the meaning | repalce "in either direction" with "in either uplink or downlink direction" | **Accept** | TDD scheduling |
| 4107 | 9.4.2.266 | 159.08 | "Maximum Time Synchronization Error subfield": there is no behavior associated with this field in clauses 10 or 11 (or any other clause), what is its purpose? | remove this field or add associated behavior | **Revised** As in 4058 | TDD scheduling |
| 4108 | 9.4.2.266 | 159.10 | "Maxiumum Propagation Time subfield": Propagation between what? In what units? There is no behavior associated with this field in any other place | remove this field or add associated behavior and units and explanation between what is the propagation | **Revise**As in 4058 | TDD scheduling |
| 4420 | 9.4.2.266 | 159.08 | In the existent definition "The Maximum Time Synchronization Error subfield indicates the maximum time synchronization error, in microseconds, between a transmitter and receiver in either direction" the wording of "either direction" makes no sense. No reason seeing that the synchronization error is defined between transmitter and receiver. | Clearly define that the time synchronization error is result of accumulated clock drift between clock synchronization events in devices that running on different local clocks. See submission 11-19-0281-00-00ay TDD Slot timing CID resolution. | **Revised** As in 4058 | TDD scheduling |
| 4421 | 9.4.2.266 | 159.08 | The existent definition "The Maximum Propagation Time subfield indicates the maximum propagation time for any PPDU transmission" is not clear why the PPDU is mentioned. It should OTA propagation time between the transmitter and receiver antennas. Is it possible to use the already defined aAirPropagationTime? | Use the already defined aAirPropagationTime or provide accurate definition See submission 11-19-0281-00-00ay TDD Slot timing CID resolution. | **Revised** See below in the document | TDD scheduling |
| 4422 | 9.4.2.266 | 159.08 | Role of the parameters Maximum Propagation Time and Maximum Time Synchronization Error in relation to the STA's behavior that gets the structure element from the AP is not defined that makes the parameters useless. | Either provide a definition of the parameters and declare how they are used or remove them. Pay attention that Rx2Tx turnaround shall be not shorter than SIFS. Rules how the parameters are used shall be provided in the behavioral text and not in the frame formats. See submission 11-19-0281-00-00ay TDD Slot timing CID resolution. | **Revised** As in 4058 | TDD scheduling |
| 4423 | 9.4.2.266 | 159.08 | Following the definition two consecutive TDD slots are distanced by (TDD Slot n+1 Start) - (TDD Slot n Start +TDD Slot n Duration). It is not defined if the Maximum Time Synchronization Error and Maximum Propagation Time are part or addition to the distance. | Define the Maximum Time Synchronization Error and Maximum Propagation Time as parts of the distance between the consecutive TDD slots. See submission 11-19-0281-00-00ay TDD Slot timing CID resolution. | **Revised** As in 4058 | TDD scheduling |

CIDs 4058, 4073, 4106, 4107, 4108, 4420, 4421, 4422, 4423

**Revised**

Discussion:

The parameters Maximum Propagation Time and the Maximum Time Synchronization Error shall be used to compute RxTDDSlotAdvanceTime - a time that the receiver shall be ready to receive in advance to the TDD Slot Start. This definition shall be provided in the normative text.

Definition of the Maximum Propagation Time subfield that “indicates the maximum propagation time for any PPDU“ makes sense that it depends of PPDU length that contradicts with existent definition of the aAirPropagationTime.

Propose to define new parameter the aTDDAirPropagationTime to be used in the TDD specific timing calculations and remove the Maximum Propagation Time subfield

Propose to extend the Maximum Time Synchronization Error subfield to be of 8 bits

Propose to modify the definition: “The Maximum Time Synchronization Error subfield indicates the maximum time synchronization error, in microseconds, between a transmitter and receiver in either uplink and downlink direction.”

Propose to compute RxTDDSlotAdvanceTime time as

*Tadvance = Ceil (TME*+ *TP, TTR*)

*TME is* Maximum Time Synchronization Error, in μs

*TP* is aTDDAirPropagationTime, in μs

*TTR* is aTSFResolution, in μs

***TGay editor modify as follows:***

**9.4.2.266 TDD Slot Structure element**

P159

***In the Figure 89 remove “Maximum Propagation Time” and allocate bits B4-B11 to the Maximum Time Synchronization Error subfield***

P159L8

***Modify***

The Maximum Time Synchronization Error subfield indicates the maximum time synchronization error, in microseconds, between a transmitter and receiver in the uplink and downlink directions.

P159L10

***Remove the sentence***

**10.40.6.2.2 SP with TDD channel access**

P244L12

* In a simplex TDD slot that has the Bitmap and Access Type Schedule field for the STA equal to RX, the STA shall be beamformed towards the peer STA assigned to the TDD slot, shall be ready to receive at least RxTDDSlotAdvanceTime before the TDD Slot and shall remain in the receive state for the duration of the TDD slot in order to receive transmissions from the peer STA. RxTDDSlotAdvanceTime is computed as follows: RxTDDSlotAdvanceTime = Ceil (TME+ TP, TTR)

TME is the value of the Maximum Time Synchronization Error subfield in the TDD Slot Structure element describing the TDD SP, in μs

TP is aTDDAirPropagationTime, in μs

TTR is aTSFResolution, in μs

P244L19

***Remove the sentence***

“Adjacent TDD slots shall be separated in time by the guard times identified in Figure 125 and defined in the TDD Slot Structure element.”

**20.11.4 DMG PHY**

***Append to the Table 20-29—DMG PHY characteristics***

|  |  |
| --- | --- |
| **PHY parameter** | **Value** |
| aTDDAirPropagationTime | **1** μs |

**References:**

1. IEEE P802.11ay/D3.0, February 2019
2. IEEE P802.11-REVmd/D2.1, February 2019