IEEE P802.11
Wireless LANs

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| Resolutions to CIDs related to TDD Scheduling, MIMO Channel Access and Power Save-Part 1 |
| Date: 2018-09-12 |
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Abstract

This submission proposes resolutions to 14 CIDs related to TDD scheduling, MIMO channel access and power save. These CIDs include:

3008 3020 3021 3022 3343 3348 3349 3354 3396 3482 3488 3551 3565 3566

The CIDs are in reference to Draft IEEE 802.11ay/D2.0 and IEEE 802.11-2016.

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| CID | Clause | Comment | Proposed change |
| 3008 | 11.2.6 P313 L11 | HT STA is reference dynamic SM power, HE STA should be considered as well | Consider HE STA as commented. |

**Proposed resolution:** Rejected.

1. This should be handled in TGax.

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| CID | Clause | Comment | Proposed change |
| 3020 | 11.2.7.2.4 P315 L43 | A comparison is made for CBAP duration and states whichever is smaller. What happens if they are equal? | Fix as commented. |

**Proposed resolution:** Rejected

1. The sentence reads “If present in the first CBAP, the awake window starts from the beginning of a CBAP and has a duration that is defined by the value of the Awake Window Duration field in the Awake Window element or the CBAP duration, whichever is smaller.” Therefore, if the two values are equal, it does not matter which value the duration of the awake window uses.

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| CID | Clause | Comment | Proposed change |
| 3021 | 11.2.7.2.4 P316 L35 | Grammar | Change "stay" to "remain" |
| 3022 | 11.2.7.2.4 P316 L42 | Grammar | Change "stay" to "remain" |

**Proposed resolution:** Accepted

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| CID | Clause | Comment | Proposed change |
| 3343 | 11.2.7.2.2 | According to at 11.2.7.2.2, there is a sentence "A non-AP EDMG STA may set the Triggered Unscheduled PS subfield to one..." Sounds like this is optional for non-AP EDMG STA to use Triggered Unscheduled PS. It would be preferable to define a MIB variable to control the use of Triggered Unscheduled PS. | Please consider the following changes:1. Add dot11EDMGTriggeredUnscheduledPSActivated entry to Annex C.2. Define dot11EDMGTriggeredUnscheduledPSActivated as control variable, written by an external management entity.3. Use dot11EDMGTriggeredUnscheduledPSActivated variable to express the STA is operating the feature. |

**Proposed resolution:** Rejected

1. There is already a capability field “Triggered Unscheduled PS” defined in Capability Informaton field for DMG STAs (see Figure 9-69 in IEEE 802.11-2016) that controles the use of Triggered Unscheduled PS.

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| CID | Clause | Comment | Proposed change |
| 3348 | 10.40.6.2.2 P213 L16 | 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 1 more figure right after the Figure 117 (Example of a TDD SP), showing TDD-SP only operation case. The additional figure should not contain regular A-BFT or ATI. |
| 3349 | 10.40.6.2.2  | It is not clear that A-BFT and ATI present when TDD channel access is solely enabled. | Please clarify how the BHI is configured for TDD channel access. |

**Proposed resolution:** Rejected

1. The current spec is clearly stating that TDD channel access happens only in TDD SPs scheduled in DTI. Therefore, it has no impact of BHI and the BHI configuration should remain the same.
2. TDD SPs are also SPs, therefore unless otherwise specified, all rules that are applied to SPs shall also be applied to TDD SPs.

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| CID | Clause | Comment | Proposed change |
| 3354 | 10.30.1  | The sentence reads "The RD protocol shall be supported by an EDMG STA." However, it is likely that EDMG STA that uses TDD Channel Access does not use this feature. | 1. Replace "The RD protocol shall be supported by an EDMG STA." with "When dot11DMGTDDModeActivated (or something that controls TDD mode operation) is false, EDMG STA shall support RD protocol."2. Remove "For an EDMG STA, dot11RDResponderOptionImplemented shall always be set to true." at 206.29 |

**Proposed resolution:** Rejected

1. The second to last paragraph of 10.40.6.2.2 already states “The reverse direction protocol (see 10.30) shall not be used in a TDD SP.”

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| CID | Clause | Comment | Proposed change |
| 3396 | 9.4.2.2.67  | Unavailable (encoding 3) should be the behavior of non-AP STA (i.e. unavailable at non-AP STA side)Currently p214 L22 only has requirement for non-AP STA to send slot schedule elementWhen 2 DNs associate, do they send association request to each other? Based on 11-17-0130, the 2 DN schedule each other and both are APs and non-APs at the same time. | change to the column of Behavior of non-AP and non-PCP STAremove slot schedule element from Association response frame |

**Proposed resolution:** Rejected

1. There is no restriction that the unavailable TDD slot is only applicable for the non-AP STA side. See 11-18-0130-01 “Link Maintenance in Distribution Networks” for details (Slide 18-22).
2. TDD Slot Schedule element can be transmitted by DMG AP or PCP in an Association Response frame, as described in 10.40.6.2.2:

“The DMG AP or DMG PCP shall ransmit the TDD Slot Schedule element conveyed through an MLME-TDD-SLOT-SCHEDULE.request primitive to each DMG STA that is assigned to access the TDD SP; this transmission shall be done using an Announce frame or Association Response frame before the time indicated by the value of the Slot Schedule Start Time subfield within the element.”

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| CID | Clause | Comment | Proposed change |
| 3482 | 9.4.2.266 P139 L27 | The Slot Structure field name should be changed to reflect the exact meaning of it | please consider changing the name of the field from "Slot Structure" to "Slots Duration" |

**Proposed resolution:** Rejected

1. “Slots Duration” is not appropriate because the element not only specifies all the duration information, but also includes specific structure information such as number of TDD Slots per TDD Interval, and the guard intervals.

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| CID | Clause | Comment | Proposed change |
| 3488 | 10.40.6.2.2 P214 L23 | The non-AP/PCP may transmit a TDD Slot Schedule element in an Announce frame or Association frame. The Reassociation frame should be included in this list as well | Add the Reassociation frame to the list of the frames that the TDD Slot Schedule element can be optionally added when transmitted from a non-AP/PCP |

**Proposed resolution:** Accepted

*Change P214 L22-L25 as follows:*

A non-AP and non-PCP DMG STA may transmit a TDD Slot Schedule element in an Announce frame or (Re)Association Request frame to a DMG AP or DMG PCP. In this case, the Bitmap and Access Type Schedule field in the element is set from the viewpoint of the AP or PCP and indicates the availability of the STA, which can be used as input to the AP or PCP scheduling.

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| CID | Clause | Comment | Proposed change |
| 3551 | 9.4.2.250.6  | What is the behavioral difference between static SM (capability value equal 0) and SM power save disabled (capability value equal 3)? Are both states are needed? | Remove the "SM Disabled" option, keep only Dynamic and Static |

**Proposed resolution:** Rejected

1. Static SM power save means the STA is always operating a single receive chain, but it is able to activate its multiple receive chains after it gets out of the Statis SM power save mode. SM power save disabled means the STA does not support this power save feature, i.e., it cannot operate in Static SM power save or Dynamic SM power save mode.

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| CID | Clause | Comment | Proposed change |
| 3565 | 10.40.6.2.1 P212 L12 | Remove the "receive" as station is allowed to receive any frame transmitted in any DTI format | Change rule to "A DMG STA shall transmit in a TDD SP only if the TDD Channel Access Supported subfield in the STA's DMG Capabilities element is 1." |

**Proposed resolution:** Revised

*Change P212 L12-L13 in 10.40.6.2.1 as follows:*

A DMG STA ~~shall~~ may transmit ~~or receive~~ in a TDD SP only if the TDD Channel Access Supported subfield in the STA’s DMG Capabilities element is 1. Otherwise, the DMG STA shall not transmit in the TDD SP.

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| CID | Clause | Comment | Proposed change |
| 3566 | 10.40.6.2.2 P214 L26 | the assignment of a slot to "unavailable" or "unassigned" is individual per STA. one STA may get unavailable on specific slot and other STA will get TX assignment. The term "no transmission shall occur in" is too restrict, need to change to “STA shall not transmit in.." | Remove or change to:"A TDD slot can be a simplex TDD slot, an unavailable TDD slot, or an unassigned TDD slot. STA shall not transmit during an unassigned TDD slot or an unavailable TDD slot." |

**Proposed resolution:** Accepted

**Straw Poll:**

* **Do you agree to accept comment resolutions as proposed in doc 11-18/1560r0?**