IEEE P802.11
Wireless LANs

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| Resolution to CIDs related to TDD Scheduling-Part 3 |
| Date: 2018-07-09 |
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Abstract

This submission proposes resolutions to 7 CIDs related to TDD scheduling. These CIDs include:

1292, 1572, 1740, 1772, 1773, 1775, 1788.

The CIDs are in reference to Draft IEEE P802.11ay/D1.0. The resolutions are in reference to Draft IEEE P802.11ay/D1.3.

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| CID | Clause | Comment | Proposed change |
| 1292 |  | Dynamical Spatial Reuse for transmission in parallel to a TDD network transmission is not defined | submission will be provided |

**Proposed resolution:** Rejected.

1. There is an existing spatial sharing and interference mitigation protocol for SPs defined in 11ad (see 11.32). Since TDD opeartions happen in TDD SPs, which are also SPs. The existing protocol is also applicable.

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| CID | Clause | Comment | Proposed change |
| 1572 | 3.2 | the definition of time division duplex (TDD) is not clear | may change to subframe-based or slot-based |
| 1740 | 9.4.2.1 | "TDD Slot Structure" element and "TDD Slot Schedule" element are defined to operate "TDD mode" to enable EDMG Distribution Network. However, TDD is not the appropriate term to describe single directional transmission mode. The naming TDD in this context should be reconsidered. | Replace TDD with SDT (single directional transmission mode) or something similar. |

**Proposed resolution:** Rejected

1. Subframe-based and slot-based are not accurate since a) We do not have a definition of subframe b) slot is also used in many other places in 802.11 spec.
2. SDT is confusing since although in a single TDD slot it is unidirectional, overall the transmission direction can change from a TDD slot to another TDD slot. So, it is not a permanent “single directional transmission mode”

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| CID | Clause | Comment | Proposed change |
| 1772 | 10.36.6.2.2 | If TDD channel access is operated as shown in 11-17/1321, all STAs in the network should be time synchronized. However, it is very unclear how the STAs maintain time synchronization. Some may say that STA will utilize external clock source such as GPS signal to enable global synchronization. However, there is no guarantee that STA can receive GPS signal and it will not be a robust protocol design if the STA solely relies on external clock source. | Please clarify how STAs maintain time synchronization in TDD channel access mode that operates similar to 11-17/1321. There should be a way to enable it leveraging existing framework such as S-AP/S-PCP. |

**Proposed resolution:** Revised

1. This is already resolved in 0786r3 “Draft text for protocol and frames for TDD link maintenance” with the introduced TDD Synchronization element, which passed the motion in May IEEE meeting.

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| CID | Clause | Comment | Proposed change |
| 1773 | 10.36.6.2.2 | There is a concern on coexistence with neighboring BSS if STAs operate TDD channel access. If the network is operating as shown in 11-17/1321, AP/PCP does not transmit Beacon frame regularly. This means neighboring STAs cannot detect the existence of the TDD mode EDMG BSSs in the neighborhood, and STAs in neighboring BSSs may start interfering each other. This could result in poor user experience of 60GHz channel usage, which is very harmful. At least, all BSSs should have a mean to signal existence of the network and open an opportunity for the coordination among neighboring STAs. | Please define a scheme to enable co-channel interference coordination among TDD channel access mode and regular mode. IEEE802.11ay is a specification for license exempt band. It should mandate minimal coordination opportunity among BSSs. |

**Proposed resolution:** Rejected

1. “AP/PCP does not transmit Beacon frame regularly.”---This assumption is not true. Beacon transmissions are still required in BSSs that use TDD channel access. As such, the conclusions and proposed resolution from the commenter are not needed.

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| CID | Clause | Comment | Proposed change |
| 1775 | 10.36.6.2.2 | If the network is operating as shown in 11-17/1321, how a new STA joining the BSS with TDD channel access mode transmit association request and/or authentication frames? | Please clarify. |

**Proposed resolution:** Revised

1. The AP and STA perform association and authentication after TDD beamforming (10.39.10) is done, when they have established a link and exchanged related scheduling information

*Insert the following sentence at the end of the first paragraph of 10.39.10.1*

*After the completion of TDD beamforming and the exchange of Announce frames consisting of STA capabilities and network configuration, the AP and STA may perform the authenticaltion and association as described in 11.3.*

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| CID | Clause | Comment | Proposed change |
| 1788 | 10.36.6.4 | If TDD channel access is operated, beam refinement procedure defined in the current standard cannot be used as it requires immediate handshakes. We have to define a procedure to enable beam refinement without immediate response. | Please consider to integrate beam refinement protocol for TDD channel access. |

**Proposed resolution:** Revised

1. This is already resolved in 0410r1 “Draft text for BRP Request and Response frame transmission in mmWave Distribution Networks”.

**Straw Poll:**

* **Do you agree to accept comment resolutions as proposed in doc 11-18/1107r1?**