IEEE P802.11
Wireless LANs

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| Resolutions to SA ballot CIDs  |
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Abstract

This submission proposes resolutions to 10 SA ballot CIDs. These CIDs include:

6193 6194 6211 6213 6214 6215 6228 6229 6230 6231

The CIDs are in reference to Draft IEEE 802.11ay/D5.0 and IEEE 802.11REVmd D3.2.

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| CID | Clause | Comment | Proposed change |
| 6193 | 3.2P23 L26 | the definition for secondary1 channel is not clear. The phrase "associated with a primary and second channel" is at least missing an "a' in front of "secondary channel". In addition, the term secondary1 may imply that it is a part of secondar channel. In addition, when a 2.16+2.16GHz channel is formed by primary and secondary1 channel, the secondary channel is not involved and the definition of the secondary1 channel should be revised to reflect that.; Suggest to clearly define secondary1 channel. It may also be beneficial to add the reference to figure 8-6. | as in comment |
| 6194 | 3.2 P23 L29 | the definition for secondary2 channel is not clear. The phrase "associated with a primary, second channel and secondary1 channel" is at least missing an "a' in front of "secondary channel" and "secondary1 channel". In addition, the term secondary2 may imply that it is a part of secondary channel. In addition, when a 2.16+2.16GHz channel is formed by primary and secondary2 channel, the secondary and secondary1 channel is not involved and the definition of the secondary1 channel should be revised to be more precise to reflect that.; Suggest to clearly define secondary2 channel. It may also be beneficial to add the reference to figure 8-6. | as in comment |

**Discussion:**

Secondary1 channel only exists if there is a primary channel and a secondary channel, and secondary2 channel only exists if there is a primary channel, a secondary channel, and a secondary1 channel. In this sense, the original text is correct. However, agree with the commenter that we can add a NOTE to refer to Figure 8-6 and Table 8-5a for better clarifications.

**Proposed resolution: Revise**

*Revise the following definitions in section 3.2:*

**secondary1 channel**: a 2.16 GHz channel associated with a primary channel and secondary channel used by enhanced directional multi-gigabit (EDMG) stations (STAs) for the purpose of creating a 6.48 GHz, 8.64 GHz, 2.16+2.16 GHz or 4.32+4.32 GHz channel.

**secondary2 channel**: a 2.16 GHz channel associated with a primary channel, secondary channel, and secondary1 channel used by enhanced directional multi-gigabit (EDMG) stations (STAs) for the purpose of creating an 8.64 GHz channel, 2.16+2.16 GHz or 4.32+4.32 GHz channel.

**NOTE---** For the assignment and relationship of EDMG primary, secondary, secondary1, and secondary2 channels, pleaser refer to Table 8-5a and Figure 8-6.

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| CID | Clause | Comment | Proposed change |
| 6211 | 10.39.12.4.4 P267 L15 | What is the group address used in TA for the CTS-to-self?According to rev.md, "For DMG CTS-to-self frames, the TA field is set to the individual address of the recipient or the group address of the recipients of the frame that the DMG STA intends to transmit after the DMG CTS-to-self frame." | Specify TA for the CTS-to-self the broadcast MAC address |

**Proposed resolution: Revise**

*Revise the 3rd paragraph in section 10.39.12.4.4 as follows:*

An EDMG STA initiates MU-MIMO channel access by transmitting an RTS frame or a DMG CTS-to-self frame to the intended MU-MIMO group of responders. The EDMG STA shall transmit the RTS frame or DMG CTS-to-self frame with a control trailer to the group of responders. The RTS or DMG CTS-to-self frame shall be transmitted using the same set of DMG antennas and antenna configuration planned to be used during the MU-MIMO transmission or hybrid beamforming training, and a CSD between the transmissions in different antennas as defined in 28.4.7.2. The TA field of the DMG CTS-to-self frame shall be set to the broadcast MAC address.

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| CID | Clause | Comment | Proposed change |
| 6213 | 11.2.6 P364 L33 | The seems to be a missing word in the sentence which obscures its meeting. | Change: ".... while the EDMG STA enables its multiple receive chains only when the frame it receives indicates the following transmission requires the activation of multiple receive chains."To be: ".... while the EDMG STA enables its multiple receive chains only when the frame it receives indicates that the following transmission requires the activation of multiple receive chains." |
| 6214 | 11.2.6 P365 L3 | This sentence is awarkard and not very clear. As "switches back" is not presice language. | Change: "... the EDMG STA switches back immediately when the frame exchange sequence ends."To be: "... when the frame exchange sequence ends the EDMG STA immediately disables the multiple recieve chains, enabled durring the frame exchange, returning to single receive chain operation." |

**Discussion:**

Agree with the editorial suggestion in CID 6213.

However, the sentence indicated in CID 6214 is following the same style in the baseline REVmd specification as follows.

REVmd D3.0 Section 11.2.6

The STA switches to the multiple receive chain mode when it receives the frame addressed to it

and switches back immediately when the frame exchange sequence ends.

It is better to keep it consistent with the baseline REVmd specification.

**Proposed resolution: Revise**

*Revise the first sentence in the following paragraph in Section 11.2.6 as follows:*

In dynamic SM power save mode, the HT STA enables its multiple receive chains when it receives the start of a frame exchange sequence addressed to it, while the EDMG STA enables its multiple receive chains only when the frame it receives indicates that the following transmission requires the activation of multiple receive chains.

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| CID | Clause | Comment | Proposed change |
| 6215 | 11.2.7.4 P38 L38 | Stating that the STA may enter the doze state, is not the best way to specify that once the ATIM frame exchange has completed that there will be no additional transmissions to the STA, and hence the STA may go into doze state. It is critical that all the involved STAs are aware that no additional transmissions are allowed durring the awake window. | Change: "An EDMG STA that receives from, or transmits to, a peer EDMG STA an ATIM frame during an awake window may enter the doze state when it has successfully transmitted to and received from all corresponding peer STAs for this allocation a QoS Data frame with the EOSP subfield set to 1; otherwise it shall remain active until the end of the allocation."To; ""Durring an awake window an EDMG STA that receives from, or transmits to, a peer EDMG STA an ATIM frame will transmit and receive until it has received from all corresponding peer STAs for this allocation a QoS Data frame with the EOSP subfield set to 1 or until the end of the allocation." |

**Discussion:**

After completing the transmission or reception during an awake window, it is up to the EDMG STA to decide whether to go to doze or to keep awake. The only point that needs to be make here is that if the transmission or reception is not over, it shall remain active for the remaining transmission or reception. In this sense, the original text is clearer more accurate.

**Proposed resolution: Reject**

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| CID | Clause | Comment | Proposed change |
| 6228 | 3.1 P23 L37 | TDD SP should be defined independenty of its channe access. Once a TDD SP is defined, its channel access scheme can be specified. Test has a better definition of TDD SP, use that one. | Remove the NOTE on line 38, and change the definition to "An SP that has the TDD Applicable SP subfield in an Allocation field within an Extended Schedule element equal to 1."There is another comment that proposes to use the Allocation Type field in DMG Extended Schedule Element to designate a TDD SP. If the proposed resolution for that comment is accepted, the definition here should be "A DMG allocation with Allocation Type subfield set to 4." |
| 6231 | 10.39.6.2 P253 L8 | An SP with TDD channel access (TDD SP) is a DMG allocation type of its own, not a variation of DMG SP. | Consider adding |

**Discussion:**

Disagree with the proposed changed due to the following reasonings:

1. The necessity of making such changes is not convincing.
	1. There are no convincing arguments supporting that a TDD SP has to be an independent allocation type instead of being a variant under existing SP.
	2. TDD channel access within a TDD SP is already defined in Section 11.54. Moreover, since most of the characteristics of a TDD SP are similar to an SP, and those different behaviors have been taken care of in the specification (for example, like the acknowledgement procedure), it does not make sense to make TDD SP an independent allocation type.
2. Such changes will cause issues with coexistence with legacy 11ad devices.
	1. The existing approach provides information that the legacy device that belongs to OBSS can use for protection purposes. The schedule is backward compatible, and the legacy devices understand that access in the SP may introduce interference thus allowing the devices to prevent the interference by not transmitting during the SP.  The approach to avoid transmission during OBSS SP is agnostic to the type of access during the SP that makes it backward compatible.
	2. If we make TDD SP an independent allocation type, legacy 11ad devices will not understand the scheduling of TDD SP allocations, thus creating coexistence issues.
3. The overhead associated with such changes is large.
	1. If we make TDD SP an independent allocation type, a large portion of the technical specification will need to be rewritten.
	2. This type of significant change should not happen in SA process.

**Proposed resolution: Reject**

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| CID | Clause | Comment | Proposed change |
| 6229 | 3.1 P24 L2 | Desination DMG STA is a STA that is expected to receive during (not at the start of) a TDD slot (not TDD SP). Language can be improved too. | Change the definition to "A DMG STA that is expected to receive during a time division duplex (TDD) slot, or a DMG STA identified by the destination association identifier (AID) field in a Grant frame or in an Extended Schedule element that defines a service period (SP) or a contention based access period (CBAP). |
| 6230 | 3.1 P24 L16 | Source DMG STA is a STA that is expected to transmit during (not at the start of) a TDD slot (not TDD SP). Language can be improved too. | Change the definition to "A DMG STA that is expected to transmit during a time division duplex (TDD) slot, or a DMG STA identified by the source association identifier (AID) field in a Grant frame or in an Extended Schedule element that defines a service period (SP) or a contention based access period (CBAP). |

**Discussion:**

Section 10.39.6.2.2 SP with TDD channel access says the following:

In a simplex TDD slot that has the Bitmap and Access Type Schedule field for the STA equal to TX, the STA shall initiate transmissions addressed to the peer STA assigned to the TDD slot at the start of the TDD slot.

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 start of 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.

Therefore, suggest to keep “at the start of” but also add “during”

**Proposed resolution: Revise**

*Revise the following definitions in section 3.2:*

**destination directional multi-gigabit (DMG) station (STA)**: In a time division duplex (TDD) service period (SP), it is a DMG STA that is expected to receive at the start of and during a time division duplex (TDD) slot. Otherwise, it is the A DMG STA identified by the destination association identifier (AID) field contained in a Grant frame or Extended Schedule element that caused the allocation of a service period (SP) or a contention based access period (CBAP).

**source directional multi-gigabit (DMG) station (STA)**: In a service period (SP) with the TDD Applicable SP subfield equal to 1, it is a DMG STA that is expected to transmit at the start of and during a time division duplex (TDD) slot. Otherwise, it is the A DMG STA identified by the source association identifier (AID) field contained in a Grant frame or Extended Schedule element that caused the allocation of a service period (SP) or contention based access period (CBAP).

**Straw Poll:**

* **Do you agree to accept comment resolutions as proposed in doc 11-20/0544r0?**