IEEE P802.11
Wireless LANs

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| Resolution to 11ad related CIDs |
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Abstract

This document includes proposed resolutions to 11ad related CIDs: 7209, 7626, 7211, 7152 and 7787.

The discussion is in reference to Draft P802.11REVmc\_D5.3.

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| 7209 | 661.62 | 9.4.1.8 | "A DMG STA sets the 8 MSBs of the AID field to 0." is not clear.  Is it trying to say that the 8 MSBs are reserved? | If so, say so.  If not, then the sentence should be deleted, as it follows naturally from putting a value of 1-254 in a 16-bit field |

**Proposed resolution**: Revised

**Discussion**: Have a slight preference to be clear that the 8 MSBs are not used. Hence, stating that they are reserved is better, IMO, than simply deleting the sentence.

**Proposed changes**:

**9.4.1.8 AID field**

*Change the third paragraph as follows*

A DMG STA assigns the value of the AID field in the range of 1 to 254. The value 255 is reserved as the broadcast AID, and the value 0 corresponds to the AP or PCP. The 8 MSBs of the AID field are reserved.

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| 7626 | 1602.16 | 11.2.3.5 | "The following rules describe operation of the ATIM frame and frame transmission to STAs in PS mode in a non-DMG IBSS and in a DMG BSS:".  Either the "BSS" was intended to be "IBSS", in which case it collapses to "in an IBSS", or this is wildly confusing as it's in a subsubsubclause and subsubclause which are about IBSSen (fear it's the latter...) | Assuming it's the latter, move the DMG-related behaviour to 11.2.6 or a new 11.2.7 just for DMG BSSen (since 11.2.6 is only for DMG infra BSSen) |

**Proposed resolution**: Revised

**Discussion**: As part of CID7179, in D5.3 this paragraph has been changed to “The following rules describe operation of the ATIM frame(#2069) and frame transmission to STAs in PS mode in an IBSS”, basically removing “DMG BSS”. The problem this change caused is that section 11.2.6 (Power management in a PBSS and DMG infrastructure BSS) states under 11.2.6.4 “ATIM frame transmissions and MSDU transmissions follow the rules defined in 11.2.3.5 (ATIM frame(#2069) and frame transmission).” Thus, with the change as part of CID7179, there is now an inconsistency.

Options to resolve this problem:

1. Revert the change of CID7179
2. Create a new subclause to cover IBSS and DMG BSS
3. Use an approach similar to that used in the Security subclause (e.g.., 12.6.8) that uses a rule of the form “…. with the PCP taking the role of the AP”, but now applied to a BSS.

Below a proposal will be made along the lines of option (2).

**Proposed changes**:

*Renumber and rename “***11.2.3.5 ATIM frame(#2069) and frame transmission***” as a new subclause “***11.2.7 ATIM frame and frame transmission in an IBSS, DMG infrastructure BSS and PBSS***”*

*Change all references to section 11.2.3.5 to 11.2.7*

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| 7787 | 1488.31 | 10.36 | The material related to DMG has a lot of "TXTIME"s without an indication of the PHY parameters (especially the MCS) to be used to determine this.  Without this information the "TXTIME"s are meaningless | Add an indication of the PHY parameters (especially the MCS) to be assumed when TXTIME(frame) is mentioned in the context of DMG (and anything else which might suffer from the same problem) |

**Proposed resolution**: Revised

**Discussion**: The following frames are used within TXTIME(<frame>): CF-End, Grant, RTS, DMG DTS, SSW, SSW-Feedback, SPR, Poll, DMG Beacon, TPA Request and TPA Response. Out of these, section 10.7.7 already specifies the MCS that is to be used for the following frames: DMG Beacon, RTS, DMG DTS, SSW, and SSW-Feedback. Therefore, the proposed resolution is to:

1. Specify in 10.7.7.1 that the remaining Control frames are all transmitted with DMG Control modulation. For example, note that if the MCS of Poll and SPR frames are not specified, there could be a lack of synchronization as part of the dynamic allocation protocol in 10.36.7.
2. For the two management frames, propose to specify the MCS of those frames as part of section 10.7.7.4. For these frames, both the transmitter and receiver need to know the MCS that was used to transmit the management frame to be able to calculate the timer to achieve synchronization.

**Proposed changes**:

**10.7.7.1 Usage of DMG Control modulation class**

*Change the first paragraph as follows*

The DMG Control modulation class has only one MCS, which is DMG MCS 0 defined in Clause 20 (Directional multi-gigabit (DMG) PHY specification(11ad)). The DMG Beacon, SSW-Feedback, SSW-Ack, RTS, DMG CTS, DMG CTS-to-self, DMG DTS, CF-End, Grant, SPR, Poll and first BRP packet in beam refinement shall be transmitted using the DMG Control modulation class. In the case of an RXSS that was specified through the Beamforming Control field with the value of the RXSSTxRate subfield equal to 1 and the RXSSTxRate Supported field in the DMG Capabilities element of the STA performing the RXSS is 1, the first SSW frame of the RXSS shall be transmitted using the DMG Control modulation class, and the remaining frames of the RXSS shall be transmitted using MCS 1 of the DMG SC modulation class. In all other cases, the SSW frames shall be transmitted using the DMG Control modulation class. Other DMG beamforming training frames may be transmitted using the DMG Control modulation class or the DMG SC modulation class.

**10.7.7.4 Rate selection for individually addressed Data and (Ed)Management frames transmitted by DMG STAs**

*Insert the following after the third paragraph*

A DMG STA shall transmit a TPA Request frame and a TPA Response frame using MCS 1.

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| 7211 | 2445.10 | 20.4.3.2.1 | If b0 is used for "differential detector initialisation", whatever that is, it cannot be reserved, can it? | Either make the rightmost cell blank (if it's indeed just reserved", or change the leftmost cell to say "Differential detector initialisation" and make the rightmost cell blank (if it's used for DDI, but the notion does not seem to be covered) |

**Proposed resolution**: Revised

**Discussion**: The first bit after the Channel estimate field is used to initiate the differential encoding. It can be considered reserved, but that may imply that amendments to REVmc may use it – which is incorrect. Therefore, the description of it as reserved should be removed.

**Proposed changes**:

*In P2495L19, change the field name from “*Reserved*” to “*Differential Encoder Initialization*” and replace the text in the description column with “*Used to initialize the differential encoding. Possible values are 0 or 1.*”*

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| 7152 | 2075.11 | 13.5.2 |  |  | Authentication frame is not supported in DMG. This frame is broadly used in FT protocol and FT resource request protocol. As result current version of FT is not applicable for DMG. Additional relevant places are. in 13.5.4 Over-the-air FT protocol authentication in a non-RSN P2078 L58, 13.6.2 Over-the-air fast BSS transition with resource request P2080 L36, P2082L34 | Use another frame - FT Request frame that is applicable for DMG to deliver FT information in the over-the-air FT protocol and in the Over-the-air FT resource request protocol |

**Proposed resolution**: Revised

**Discussion**: the comment is not fully correct. It is correct that Open System Authentication (OSA) is not used in DMG (see 12.3.3.1). However, it is not correct that Authentication frames cannot be used in DMG – they can.

Having said that, this limitation is not mentioned in definition of Fast BSS transition; specifically, the second paragraph in 13.4.2 (FT initial mobility domain association in an RSN).

**Proposed changes**:

*Change the paragraph at P2115L55 as follows*

A non-DMG STA initiates the FT initial mobility domain association procedures by performing an IEEE Std(#130) 802.11 authentication using the Open System authentication algorithm.

*Insert the following paragraph at P2115L61*

A DMG STA initiates the FT initial mobility domain association procedures by performing an IEEE Std 802.11 authentication using the SAE algorithm.

STA → AP: Authentication-Request (SAE algorithm)

AP → STA: Authentication-Response (SAE algorithm, Status)