IEEE P802.11
Wireless LANs

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| Comment Resolution for EDMG Channel Access CIDs part2 |
| Date: 2018-07-09 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| SungJin Park | LG Electronics | Yangjae-daero 11gil, Seocho-gu, Seoul, 137-893, Korea |  | allean.park@lge.com |
| JinMin Kim | LG Electronics |  |  | jinmin1230.kim@lge.com |
| Saehee Bang | LG Electronics |  |  | saehee.bang@lge.com |
| SunWoong Yun | LG Electronics |  |  | sunwoong.yun@lge.com |
| Jinsoo Choi | LG Electronics |  |  | js.choi@lge.com |
| Sanggook Kim | LG Electronics | San Diego/California/US |  | sanggook.kim@lge.com |

Abstract

This document proposes resolutions for EDMG channel access CIDs.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 1224 | 132.24 | 10.36.1 | "SP can span the primary and the secondary channel" -- this statement is intended to be definitive, so the verb is wrong | can -> may |

**Proposed resolution:** accept

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 1226 | 138.29 | 10.36.11.2.2 | "An EDMG STA shall maintain physical and virtual CS on a primary channel." -- This normative statement is insufficient because it does not define or reference what is meant. | Add references to subclauses that define physical and virtual CS. Or, if this adds nothing that isn't stated below, turn it into an intoductory declaritive statement. |

**Proposed resolution:** revised

**Discussion**

Physical and virtual CS is defined in 10.3.2.1 (CS mechanism) in REVmd\_D1.0.

**Modification**

*TGay Editor: Modify the paragraph (lines 29) of page 138 as follows*

An EDMG STA shall maintain physical and virtual CS on a primary channel as specified in 10.3.2.1 (CS mechanism).

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 1227 | 139.13 | 10.36.11.3 | "Channel access during a directional allocation shall follow the same rules that are applicable to a CBAP if the directional allocation is of type CBAP and shall follow the same rules that are applicable to an SP if the directional allocation is of type SP" -- this is lazy and inadequate specification. "Is applicable" has the sense of "you go figure". | Insert references to the "applicable" subclauses defining this behaviour. |

**Proposed resolution:** revised

**Modification**

*TGay Editor: Modify the paragraph (lines 13-15) of page 139 as follows*

Channel access during a directional allocation shall follow the same rules that are applicable to a CBAP defined in 10.36.6.3 (Contention based access period (CBAP) allocation) if the directional allocation is of type CBAP and shall follow the same rules that are applicable to an SP defined in 10.36.6.2 (Service period (SP) allocation) if the directional allocation is of type SP

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 1370 | 137.26 | 10.36.11.2.1 | "The occupied bandwidth of all BRP frames transmitted during beam refinement shall be the same." - "beam refinement: is not well defined | replace "during beam refinemnet" with "during a beam refinement transacation or a BRP TXSS procedure. |

**Proposed resolution:** reject

**Discussion**

This comment was already resolved by removing this sentence in D1.3.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 1480 | 144.14 | 10.36.11.6 | It would be helpful to have a reference for asymmetric beamforming. | Reference the section that describes how asymmetric beamforming would be used. |

**Proposed resolution:** revised

**Modification**

*TGay Editor: Modify the paragraph (lines 11-16) of page 144 as follows*

A non-PCP and non-AP EDMG STA may estimate whether its signal can be successfully received by an EDMG PCP or AP which is listening in quasi-omnidirectional mode, i.e., to classify itself as a “Near” or a “Far” STA to the PCP or AP. This allows the EDMG STA to decide whether to access the A-BFT (if it is classified as “Near”) or to use asymmetric beamforming (if it classified as “Far”) defined in 10.38.9.3 (Beamforming for asymmetric links). To enable this, the PCP or AP informs EDMG STAs about its link-budget parameters combined in one value, the PCP/AP Coverage Parameter, which is transmitted in SSW field of the DMG Beacon frame.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 1635 | 263.03 | 30.3.5 | the TX mask for contiguous channel aggregation is unclear. What kind of TX mask is used for channel aggregation? | The clarification is needed. |

**Proposed resolution:** reject

**Discussion**

The transmit spectral mask for a 4.32 and 8.64 GHz mask PPDU can be used for the spectral mask for the contiguous channel aggregation. Therefore, we don’t need to define.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 1652 | 138.10 | 10.36.11.2.1 | Any reason not to have the flexibility to have SP allocation on two 2.16GHz? | Please clarify |

**Proposed resolution:** revised

**Discussion**

The restriction that an SP allocation shall not span more than one 2.16GHz is not necessary. There is no technical issue even if this restriction is removed. Therefore, we propose that an SP allocation can span more than one 2.16GHz in order to improve channel utilization.

**Modification**

*TGay Editor: Modify the paragraph (lines 11) of page 138 as follows*

* If the allocation is an SP, then:

- The allocation does not have to include the primary channel.

- If the allocation does not include the primary channel, the allocation ~~shall not~~ may span more than one 2.16 GHz channel.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 1868 | 137.30 | 10.36.11.2.1 | The channel access rules are explicit to EDMG STA. A reference to a peer STA is made. Needs to be EDMG STA | Change "peer STA" to "peer EDMG STA" |

**Proposed resolution:** accept

**Discussion**

The Supported Channels field in EDMG Capabilities element can be contained only by EDMG STA.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 1950 | 103.02 | 10 | There is no definition of protection mechanisms to protect non-EDMG receivers like 10.26.2 Protection mechanism for non-ERP receivers. The protection mechanism and conditions when to activate it should be provided | Provide sub clause 10.26.xyz Protection mechanism for non-EDMG receivers. The intent of a protection mechanism is to cause a STA not to transmit a non-EDMG PPDU unless it has attempted to update the NAV of receiving non-EDMG STAs. One specific case of transmission of PPDU in non-EDMG control mode shall be covered as well. |

**Proposed resolution:** revised

**Discussion**

The definition of protection mechanism needs to be defined.

**Modification**

*TGay Editor: add the subclause 10.27.6 (Protection mechanism for EDMG transmissions) in subclause 10.27 (protection mechanisms) as follows*

**10.27.6 Protection mechanism for EDMG transmissions**

The intent of a protection mechanism is to cause a STA not to transmit an EDMG PPDU unless it has attempted to update the NAV of receiving non-EDMG STAs. The updated NAV period shall be longer than or equal to the total time required to send the Data and any required response frames. An EDMG STA may use protection mechanisms (such as RTS/ DMG CTS or DMG CTS-to-self). Protection mechanisms frames shall be sent using one of the mandatory Clause 20 (Directional multi-gigabit (DMG) PHY specification) or Clause 29 (Enhanced directional multi-gigabit (EDMG) PHY specification) rates and waveforms, so all STAs in the BSA are able to learn the duration of the exchange even if they cannot detect the EDMG signals using their CCA function.

In the case of a BSS composed of only EDMG STAs, but with knowledge of a neighboring co-channel BSS having Non-EDMG traffic, the AP might need protection mechanisms to protect the BSS’s traffic from interference. This provides propagation of NAV to all attached STAs and all STAs in a neighboring co-channel BSS within range by messages sent using rates contained in the OperationalRateSet. The frames that propagate the NAV throughout the BSS include RTS/DMG CTS/Ack frames, all Data frames with the More Fragments field equal to 1, all Data or Management frames sent in response to PS-Poll frame that are not proceeded in the frame exchange sequence by a Data frame with the More Fragments field equal to 1, CF-End frames, and CF-End +CF-Ack frames.

When RTS/DMG CTS is used as the protection mechanism, cases exist such as NAV resetting (discretionary, as indicated in 10.3.2.4 (Setting and resetting the NAV)), where a hidden STA may reset its NAV and this might cause a collision. The likelihood of occurrence is low, and it is not considered to represent a significant impairment to overall system operation. A mechanism to address this possible situation would be to use alternative protection mechanisms or to revert to alternative modulation methods.

The rules for calculating RTS/DMG CTS NAV fields are unchanged when using RTS/DMG CTS as a protection mechanism.

Control frames such as RTS/DMG CTS or DMG CTS-to-self prior to the EDMG transmissions:

— 2.16GHz transmissions use the rates defined in Clause 20 (Directional multi-gigabit (DMG) PHY specification)

— 4.32 GHz, 6.48GHz, 8.64GHz, 2.16+2.16GHz, and 4.32+4.32GHz transmissions use non-EDMG duplicate frames defined in Clause 29 (Enhanced directional multi-gigabit (EDMG) PHY specification)

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 2185 | 145.18 | 10.36.11.5 | The text describes access to the A-BFT or the DTI. DTI is not shown in Figure 93. Update the figure or remove DTI from text. | Fix as commented. |

**Proposed resolution:** reject

**Discussion**

According to the figure 93 (Example behavior for “Near-Fa” self-classification), the box with “Access” means the channel access for DTI.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 2223 | 137.21 | 10.36.11.2.1 | "In this case, the PPDU that reduces the occupied bandwidth shall not be a non-EDMG PPDU for which the RXVECTOR of the PPDU indicates the estimated channel bandwidth but no other indication of the occupied channel bandwidth of non-EDMG PPDU is indicated." Doesn't a BW field in a control trailer in a non-EDMG control mode PPDU indicate the occupied channel bandwidth? Remove this sentence, otherwise need additional explanation. | As in comment. |

**Proposed resolution:** reject

**Discussion**

This comment was already revised by removing this sentence in D1.3.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 2263 | 113.09 | 10.22 | There are 'VHT MU PPDU' in clauses 10.22.2.3 and 10.22.2.6 which may need to be updated with EDMG MU PPDU | Add EDMG MU PPDU in those clauses |

**Proposed resolution:** accept

**Discussion**

The sharing an EDCA TXOP is used by an AP that supports DL-MU-MIMO and it is one of the mode of EDCA TXOP defined in REVmd1.0. As a commenter mentioned, The EDMG MU PPDU shall be added into those subclauses because DL-MU-MIMO is also supported by EDMG.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 2290 | 138.25 | 10.36.11.2.1 | Allocation for asymmetric BF and directional reception shall also uses scheduling type 1 | add asymmteric beam forming and directional allocation to this sentence |

**Proposed resolution:** reject

**Discussion**

This paragraph is about channel access over multiple channels and describes that the Scheduling Type subfield shall be set to 1 when an allocation does not include the primary channel. Therefore, an allocation for asymmetric BF and directional reception do not need to be added in this paragraph.

**SP/M:** Do you accept the resolutions of CIDs 1224, 1226, 1227, 1370, 1480, 1635, 1652, 1868, 1950, 2185, 2223, 2263, and 2290?