IEEE P802.11
Wireless LANs

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| Resolution of BRP TXSS-related CIDs |
| Date: 2018-03-01 |
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Abstract

This submission proposes resolutions to BRP TXSS-related CIDs. The text used as reference is D1.0.

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed change** |
| 2319 | 183.01 | 10.38.9.5.1 | Suggest to add a BRP frame w/ ack from responder to initiator (which is needed in MIMO BRP-TXSS) in the far-right of the figure to show all possible frames and directions | as in comment |

**Proposed resolution**: Rejected

**Discussion:** As stated in the title of Figure 105, the figure is an example of a BRP TXSS procedure and does contain all elements/specifications of all possible BRP TXSS procedures. If a BRP frame w/ ack was included at the far-right of the figure, we would have a BRP frame w/ ack sent in response of a BRP frame w/ ack, which is not correct. It is worth to note that BF procedures typically do not include the transmission of an ack frame in response of an ack frame – the commenter is referred to Figures 9-48, 9-49, and 9-50 for SLS-related examples, to Figure 9-64 for an MIDC example, and Figures 9-70 and 9-71 for beam tracking examples, among others. (References are with respect to 802.11ad.)

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed change** |
| 2320 | 10.38.9.5.2.2 | 184.30 | The sentence is somewhat confusing because TRN field of a single BRP-TX packet can contain multiple awvs | Change to The n-th TRN subfield of the ith EDMG BRP-TX packet ... |

**Proposed resolution**: Revised

**Discussion:** Sentence referred to by the commenter is:

“The TRN subfields of the *i*th EDMG BRP-TX packet within each of the *Rresp* + 1 repetitions, where 1 ≤ *i* ≤ *Ninit* + 1, shall be transmitted using the same DMG antenna and the same AWVs; and”

**Modification:** Replace lines 30-31 of page 184 with the following:

- The TRN field of the *i*th EDMG BRP-TX packet within each of the *Rresp* + 1 repetitions, where 1 ≤ *i* ≤ *Ninit* + 1, shall be transmitted using the same DMG antenna;

- The *jth* TRN subfield of the *kth* TRN-Unit of the *i*th EDMG BRP-TX packet within each of the *Rresp* + 1 repetitions, where 1 ≤ *j* ≤ *M+1*, 2 ≤ *k* ≤ *L+1,* and 1 ≤ *i* ≤ *Ninit* + 1, where *M* is the value of the EDMG TRN-Unit M field and *L* is the EDMG TRN Length field, shall be transmitted using the same AWV; and

Replace lines 7 and 8 of page 185 with the following:

- The TRN field of the *i*th EDMG BRP-TX packet within each of the *Rinit* + 1 repetitions, where 1 ≤ *i* ≤ *Nresp* + 1, shall be transmitted using the same DMG antenna;

- The *jth* TRN subfield of the *kth* TRN-Unit of the *i*th EDMG BRP-TX packet within each of the *Rinit* + 1 repetitions, where 1 ≤ *j* ≤ *M+1*, 2 ≤ *k* ≤ *L+1,* and 1 ≤ *i* ≤ *Nresp* + 1, where *M* is the value of the EDMG TRN-Unit M field and *L* is the EDMG TRN Length field, shall be transmitted using the same AWV; and

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed change** |
| 2321 | 10.38.9.5.3 | 192.44 | after the EDMG BRP-TX packet | should be 'after the EDMG BRP-RX packet' |

**Proposed resolution**: Accepted

**Modification:** Modify line 44 of page 192 as follows:

*… packet MBIFS after the ~~EDMG BRP-TX~~ EDMG BRP-RX packet sent by the initiator or, if receive training of the responder…*

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| 2322 | 10.38.9.5.4 | 193.10 | "If the BRP TXSS includes receive training of the initiator, the responder shall transmit the first EDMG BRP-RX packet MBIFS interval after the reception of the BRP frame sent by the responder with feedback of the Initiator BRP TXSS or, if Responder BRP TXSS is not performed, of the EDMG BRP-RX packet transmitted by the responder.' The sentence does not seem correct" | change to 'If the BRP TXSS includes receive training of the initiator, the responder shall transmit the first EDMG BRP-RX packet MBIFS interval after the reception of the BRP frame sent by the initiator with feedback of the responder BRP TXSS or, if Responder BRP TXSS is not performed, of the EDMG BRP-RX packet transmitted by the initiator' |

**Proposed resolution**: Accepted

**Modification:** Modify lines 10-14 of page 193 as follows

*If the BRP TXSS includes receive training of the initiator, the responder shall transmit the first EDMG BRP-RX packet MBIFS interval after the reception of the BRP frame sent by the ~~responder~~ initiator with feedback of the ~~Initiator~~ Responder BRP TXSS or, if Responder BRP TXSS is not performed, of the EDMG BRP-RX packet transmitted by the ~~responder~~ initiator. The EDMG BRP-RX packets sent by the responder shall be separated by SIFS interval.*

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed change** |
| 1792 | 10.38.9.5.1 | 183.01 | In Figure 105, during initiator BRP TXSS, does responder need to use quasi-omni reception? It seems to be more reasonable to use "quasi-omni or directional". | Please replace "quasi-omni" with "quasi-omni or directional" if it is applicable. |

**Proposed resolution**: Rejected

**Discussion:** The use of a quasi-omni pattern in the Initiator BRP TXSS is intentional as BRP TXSS mimics the “conventional” TXSS procedure defined in 11ad with the exception that it uses BRP frames as opposed to DMG Beacon frames or SSW frames. As defined in 9.35.2.2.2 (802.11ad), the responder of an Initiator TXSS uses quasi-omni patterns.

It is worth noting, however, that different from the “conventional” Responder TXSS that mandates the initiator to use a quasi-omni pattern (9.35.2.3.2, 802.11ad), the initiator in a Responder BRP TXSS may use a directional pattern depending on its reciprocity characteristics.

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed change** |
| 1793 | 10.38.9.5.2.2.1 | 184.32 | "TRN field" should read "TRN subfield". | As in comment |

**Proposed resolution**: Rejected

**Discussion:** The text referred to by the commenter is:

“The DMG antenna used when transmitting the TRN field of the *Ninit + 1* EDMG BRP-TX packets within one of the *Rresp + 1* repetitions in an Initiator BRP TXSS should be different.”

Since only one DMG Antenna switch is allowed (at the start of the TRN field), all TRN subfields of the TRN field are transmitted with the same DMG Antenna. Thus, to refer to the collection of all TRN subfields, it is more appropriate to use TRN field.

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed change** |
| 1691 | 10.38.9.5.2.2.1 | 184.00 | EDMG BRP-RX packet is not defined | Define EDMG BRP-RX packet |

**Proposed resolution**: Rejected

**Discussion:** EDMG BRP-RX packets are defined in 30.9.2.2 (EDMG BRP packet).

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed change** |
| 1026 | 10.38.9.5.2.2.1 | 187.02 | It shall be specified for EDMG BRP-RX packets that k is equal to the L-RX value exchanged in the setup phase. | Add the following sentences to the first paragraph in page 187: "For the EDMG BRP-RX packet sent in the receive training for the responder, k is equal to the value of the L-RX field requested by the responder in the BRP frame sent to confirm the procedure. If present, for the one or more EDMG BRP-RX packets sent in the receive training for the initiator, k is equal to the value of the L-RX field requested by the initiator in the BRP frame sent to start the procedure." Also, in line 23 of page 185, add "plus one" at the end of the sentence, and in line 37 of page 185, add "plus one" at the end of the sentence. |

**Proposed resolution**: Revised

**Background:** Modify the first paragraph of page 187 as follows

*EDMG\_TRN\_LEN shall be set to k + 1~~, where k is the number of TRN-Units used for transmit or receive training~~. For the EDMG BRP-RX packet sent in the receive training for the responder, k is equal to the value of the L-RX field in the BRP frame sent by the responder to confirm the procedure. If present, for the one or more EDMG BRP-RX packets sent in the receive training for the initiator, k is equal to the value of the L-RX field in the BRP frame sent by the initiator to start the BRP TXSS. The TRN subfields that comprise the first TRN-Unit in EDMG BRP-TX packets used as part of a BRP TXSS shall not be included in the TRN subfield and AWV feedback ID indexing procedures described in 30.9.2.2.5.*

Modify lines 22 and 23 of page 185 as follows

*The length of the TRN field shall be equal to the value of the L-RX field ~~requested by the responder~~ in the BRP frame sent by the responder to confirm the procedure plus one.*

Modify lines 36 and 37 of page 185 as follows

*The length of the TRN field shall be equal to the value of the L-RX field ~~requested by the initiator~~ in the BRP frame sent by the initiator to start the procedure plus one.*

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed change** |
| 1030 | 10.38.9.5.3 | 193.05 | Typo | Delete line 5 (10.38.9.5.4 BRP TXSS feedback). |

**Proposed resolution**: Accepted

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed change** |
| 1363 | 10.38.8.5 | 182.26 | Throughout this subclause (10.38.9.5) replace "EDMG BRP request element" with "EDMG BRP request element or EDMG BRP field" | submission will be provided |

**Proposed resolution**: Accepted

**Discussion:** In addition to fields used by BRP TXSS only (TXSS-PACKETS, TXSS-INITIATOR...), 10.38.9.5 also makes use of BRP CDOWN and L-RX, which are also present in the EDMG BRP field. Thus, all instances of “EDMG BRP request element” in 10.38.8.5 must be replaced by “EDMG BRP request element or EDMG BRP field”.

**Modifications:** Please replace all instances of “EDMG BRP request element” in 10.38.8.5 with “EDMG BRP request element or EDMG BRP field”.

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed change** |
| 1367 | 10.38.9.5.3 | 192.23 | Sending feedback within MBIFS that contain anything besides BS-FBCK is tough, mosty in terms of fomratging the packet. | Allow feedback in the short BRP feedback format |

**Proposed resolution**: Revised

**Modifications:** Modify lines 28-34 in page 192 as follows

*A BRP frame with feedback transmitted in a BRP TXSS may have the EDMG-SHORT-FBCK field set to 0 or 1. If the EDMG-SHORT-FBCK field is set to 0, the BRP frame shall have the SNR Present subfield within the FBCK-TYPE field set to 1, the Sector ID Order subfield set to 1, the EDMG Extension Flag set to 1 and the EDMG Channel Measurement Present set to 1. ~~In the~~ The EDMG Sector ID Order subfield ~~the SISO IDs~~ indicates the AWV IDs, TX antennas and RX antennas of sectors that were received in the ~~last BRP TXSS~~ procedure. If the EDMG-SHORT-FBCK field is set to 1, the Sector ID/CDOWN/AWV ID subfield indicates the Sector ID of a PPDU received in the sector sweep. For both cases, when the EDMG-SHORT-FBCK field is set to 0 or 1, the ~~The~~ SNR subfields indicate the SNRs with which the BRP packets received through the corresponding sectors were received~~. The~~, and the BRP-CDOWN subfields associated with each SISO ID indicate the BRP-CDOWN values within the BRP packets received from the corresponding sector.*

**SP/M:** Do you accept the resolutions given in 18/0393r0 to the following CIDs: 1026, 1030, 1363, 1367, 1691, 1792, 1793, 2319, 2320, 2321, and 2322?