IEEE P802.11
Wireless LANs

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| Beamforming Training for CB & CA |
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Abstract

This document proposes draft changes to include the beamforming training for channel bonding and channel aggregation.

10.38.3 Beam Refinement Protocol (BRP) phase

10.38.3.1 General

*Insert the following at the end of the subclause:*

An EDMG STA which intends to transmit over a 4.32 GHz, 6.48 GHz, 8.64 GHz, 2.16 + 2.16 GHz or 4.32 + 4.32 GHz channel can perform the beamforming training during the BRP phase.

10.7.7.5 Rate selection for BRP packets

*Insert the following at the end of the subclause:*

When the EDMG BRP packets are sent in order to perform the beamforming training over a 4.32 GHz, 6.48 GHz, 8.64 GHz, 2.16 + 2.16 GHz or 4.32 + 4.32 GHz channel, EDMG BRP packets transmitted during BRP transaction should use EDMG control mode.

30.3.3.3.2.2 Definition for EDMG control mode PPDU

Table 14 —EDMG-Header-A1 subfield definition

|  |  |  |  |
| --- | --- | --- | --- |
| **Field** | **Number of bits** | **Start bit** | **Description** |
| BW | 8 | 0 | See Table 16 |
| Primary Channel Number | 3 | 8 | See Table 16 |
| PSDU Length | 10 | 11 | Length of the PSDU field in octets. |
| EDMG TRN Length | 8 | 21 | See Table 16 |
| RX TRN-Units per Each TX TRN-Unit | 8 | 29 | See Table 16 |
| EDMG TRN-Unit P | 2 | 37 | See Table 16 |
| EDMG TRN-Unit M | 4 | 39 | See Table 16 |
| EDMG TRN-Unit N | 2 | 43 | See Table 16 |
| TRN Subfield Sequence Length | 2 | 45 | See Table 16 |
| TRN-Unit RX Pattern | 1 | 47 | See Table 16 |

1. 5—EDMG-Header-A2 subfield definition

|  |  |  |  |
| --- | --- | --- | --- |
| **Field** | **Number of bits** | **Start bit** | **Description** |
| Aggregation | 1 | 0 | If this field set to 0, the BW field specifies that the TRN field ofthe PPDU is appended on a 2.16 GHz, 4.32 GHz, 6.48 GHz or8.64 GHz channel. If this field set to 1, the BW field specifies a2.16+2.16 GHz or 4.32+4.32 GHz channel.This field is reserved if the value of the EDMG TRN Length field is 0. |
| Reserved | 7 | 1 | Set to 0 by the transmitter and ignored by the receiver. |
| CRC | 16 | 8 | Header Check sequence. Calculation of the header check sequence is defined in 20.3.7. |

30.4 EDMG control mode

30.4.1 General

Transmission and reception of EDMG control mode PPDUs is mandatory. The modulation, coding scheme and MCS index of the EDMG control mode shall be the same as the DMG control mode defined in 20.4.

Except for the TRN field, all the fields of an EDMG control mode PPDU transmitted by an EDMG STA over a 4.32 GHz, 6.48 GHz or 8.64 GHz channel shall be transmitted using the non-EDMG duplicate format. The TRN field of an EDMG control mode PPDU sent by an EDMG STA over a 4.32 GHz, 6.48 GHz, ~~or~~ 8.64 GHz, 2.16 + 2.16 GHz or 4.32 + 4.32 GHz channel shall be transmitted over the entire signal bandwidth of the channel.

All fields of an EDMG control mode PPDU except for the TRN field shall be transmitted using a single spatial stream. The TRN field of an EDMG control mode PPDU may be transmitted with multiple spatial streams, depending on the capability of the transmitter and receiver in supporting multiple streams.

30.9.2.2.2 EDMG Packet structure

An EDMG BRP packet shall be composed of a non-EDMG portion containing an L-STF, an L-CEF, and an L-Header, and of an EDMG portion containing an EDMG-Header-A, a Data field, and a TRN field. An EDMG BRP packet may be composed by an EDMG-STF and an EDMG-CEF.

If beam refinement is performed on a 4.32 GHz, 6.48 GHz, ~~or~~ 8.64 GHz, 2.16 + 2.16 GHz or 4.32 + 4.32 GHz channel, the TRN field in EDMG BRP packets sent as part of the beam refinement shall be transmitted over the entire signal bandwidth of the channel.