IEEE P802.11
Wireless LANs

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| Comment Resolution on CID 3364 |
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Abstract

This submission proposes resolution of comments on MIMO BF received from LB #234 (TGay Draft 2.0).

- 1 CID: 3364

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| **CID** | **Clause****Number** | **Page Number** | **Line Number** | **Comment** | **Proposed Change** | **Resolution** |
| 3364 | 6.3 | 30 | 4 | MLME SAP interface for MIMO BF training is missing | A contribution will be submitted later. | Revised- |

**Proposed changes to D2.1:**

***TGay editor:*** *create a new subclause “6.3.93.1 SISO beamforming” under the clause “6.3.93 DMG beamforming”, make the current clause text under this subclause and adjust all subclause numbers accordingly.*

***TGay editor:*** *insert the following new subclauses at the end of the clause “6.3.93 DMG beamforming”.*

**--------------------------------------------------------------------------------------------------**

**6.3.93.2 SU-MIMO beamforming**

**6.3.93.2.1 General**

This subclause describes the management procedures associated with SU-MIMO beamforming.

**6.3.93.2.2 MLME-SU-MIMO-BF-TRAINING.request**

**6.3.93.2.2.1 Function**

This primitive requests that SU-MIMO beamforming training occur with a peer STA.

**6.3.93.2.2.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-SU-MIMO-BF-TRAINING.request(

PeerSTAAddress,

RequestMIMOBRP,

MIMOSetupControl

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| PeerSTAAddress | MACAddress | Any valid individualMAC address | Specifies the address of the peer MAC entity with which to perform SU-MIMO beamforming training. |
| RequestMIMOBRP | Boolean | True, false | If true, the MIMO BRP procedure is performed as part of the SU-MIMO beamforming training.If false, the SISO feedback procedure is performed as part of the SU-MIMO beamforming training. |
| MIMOSetupControl | A set of information fields | As defined in 9.4.2.258 | Specifies the parameters of a SU-MIMO BF setup |

**6.3.93.2.2.3 When generated**

This primitive is generated by the SME to request that SU-MIMO beamforming training be performed with a peer STA.

**6.3.93.2.2.4 Effect on receipt**

On receipt of this primitive, the MLME invokes the MAC sublayer SU-MIMO beamforming training procedures defined in 10.43.10.2.2 (SU-MIMO beamforming).

**6.3.93.2.3 MLME-SU-MIMO-BF-TRAINING.confirm**

**6.3.93.2.3.1 Function**

This primitive reports the outcome of a requested SU-MIMO beamforming training procedure.

**6.3.93.2.3.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-SU-MIMO-BF-TRAINING.confirm(

PeerSTAAddress,

ResultCode,

 MIMOFeedbackControl,

 MeasFeedback,

EDMGMeasFeedback

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| PeerSTAAddress | MACAddress | Any valid individualMAC address | Specifies the address of the peer MAC entity with which to perform SU-MIMO beamforming training. |
| ResultCode | Enumeration  | SUCCESS, SUMIMOBFTIMEOUT | Indicates the result of thebeamforming procedure. |
| MIMOFeedbackControl | MIMO Feedback Control element | As defined in 9.4.2.260 | Zero or more elements |
| MeasFeedback  | Channel Measurement Feedback element | As defined in 9.4.2.136 | Zero or more elements |
| EDMGMeasFeedback  | EDMG Channel Measurement Feedback element | As defined in 9.4.2.253 | Zero or more elements |

**6.3.93.2.3.3 When generated**

This primitive is generated by the MLME to report the result of SU-MIMO beamforming training with a peer STA

**6.3.93.2.3.4 Effect on receipt**

The SME is notified of the result of the procedure.

**6.3.93.2.4 MLME-SU-MIMO-BF-TRAINING.indication**

**6.3.93.2.4.1 Function**

This primitive indicates that SU-MIMO beamforming training with a peer STA, and at the request of that peer, has completed.

**6.3.93.2.4.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-SU-MIMO-BF-TRAINING.confirm(

PeerSTAAddress,

ResultCode,

MIMOFeedbackControl,

MeasFeedback,

EDMGMeasFeedback

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| PeerSTAAddress | MACAddress | Any valid individualMAC address | Specifies the address of the peer MAC entity with which to perform SU-MIMO beamforming training. |
| ResultCode | Enumeration  | SUCCESS, SUMIMOBFTIMEOUT | Indicates the result of thebeamforming procedure. |
| MIMOFeedbackControl | MIMO Feedback Control element | As defined in 9.4.2.260 | Zero or more elements |
| MeasFeedback  | Channel Measurement Feedback element | As defined in 9.4.2.136 | Zero or more elements |
| EDMGMeasFeedback  | EDMG Channel Measurement Feedback element | As defined in 9.4.2.253 | Zero or more elements |

**6.3.93.2.4.3 When generated**

This primitive is generated by the MLME to indicate successful completion of a SU-MIMO beamforming training procedure requested by a peer STA.

**6.3.93.2.4.4 Effect on receipt**

The SME is notified of the result of the procedure.

**6.3.93.3 MU-MIMO beamforming**

**6.3.93.3.1 General**

This subclause describes the management procedures associated with MU-MIMO beamforming.

**6.3.93.3.2 MLME-MU-MIMO-BF-TRAINING.request**

**6.3.93.3.2.1 Function**

This primitive requests that MU-MIMO beamforming training occur with a group of peer STAs.

**6.3.93.3.2.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-MU-MIMO-BF-TRAINING.request(

EDMGGroupID,

RequestInitiatorTXSS,

MIMOSetupControl

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| EDMGGroupID | Integer | As defined in 9.4.2.254 | Specifies the group of peer MAC entities with which to perform MU-MIMO beamforming training. |
| RequestInitiatorTXSS | Boolean | True, false | If true, the initiator TXSS procedure is performed as part of the MU-MIMO beamforming training.If false, the initiator TXSS procedure is not performed as part of the MU-MIMO beamforming training. |
| MIMOSetupControl | A set of information fields | As defined in 9.4.2.258 | Specifies the parameters of a MU-MIMO BF setup |

**6.3.93.3.2.3 When generated**

This primitive is generated by the SME to request that MU-MIMO beamforming training be performed with a group of peer STAs.

**6.3.93.3.2.4 Effect on receipt**

On receipt of this primitive, the MLME invokes the MAC sublayer MU-MIMO beamforming training procedures defined in 10.43.10.2.3 (MU-MIMO beamforming).

**6.3.93.3.3 MLME-MU-MIMO-BF-TRAINING.confirm**

**6.3.93.3.3.1 Function**

This primitive reports the outcome of a requested MU-MIMO beamforming training procedure.

**6.3.93.3.3.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-MU-MIMO-BF-TRAINING.confirm(

EDMGGroupID,

ResultCode,

 MIMOFeedbackControl,

 MeasFeedback,

EDMGMeasFeedback

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| EDMGGroupID | Integer | As defined in 9.4.2.254 | Specifies the group of peer MAC entities with which to perform MU-MIMO beamforming training. |
| ResultCode | Enumeration  | SUCCESS, MUMIMOBFTIMEOUT | Indicates the result of the MU-MIMO beamforming procedure. |
| DMGBeamRefinement | DMG Beam Refinement element | As defined in 9.4.2.129 | Zero or more elements |
| MIMOFeedbackControl | MIMO Feedback Control element | As defined in 9.4.2.260 | Zero or more elements |
| MeasFeedback  | Channel Measurement Feedback elements | As defined in 9.4.2.136 | Zero or more elements |
| EDMGMeasFeedback  | EDMG Channel Measurement Feedback elements | As defined in 9.4.2.253 | Zero or more elements |

**6.3.93.3.3.3 When generated**

This primitive is generated by the MLME to report the result of MU-MIMO beamforming training with a group of peer STAs.

**6.3.93.3.3.4 Effect on receipt**

The SME is notified of the result of the procedure.

**6.3.93.3.4 MLME-MU-MIMO-BF-TRAINING.indication**

**6.3.93.3.4.1 Function**

This primitive indicates that MU-MIMO beamforming training with a peer STA, and at the request of that peer, has completed.

**6.3.93.3.4.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-MU-MIMO-BF-TRAINING.indication(

PeerSTAAddress,

ResultCode,

MIMOSelectionControl,

EDMGGroupIDSet

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| PeerSTAAddress | MACAddress | Any valid individualMAC address | Specifies the address of the peer MAC entity with which to perform MU-MIMO beamforming training. |
| ResultCode | Enumeration  | SUCCESS, MUMIMOBFTIMEOUT | Indicates the result of the MU-MIMO beamforming procedure. |
| MIMOSelectionControl | MIMO Selection Control element | As defined in 9.4.2.261 | Zero or more elements |
| EDMGGroupIDSet | EDMG Group ID Set element | As defined in 9.4.2.254 | Zero or more elements |

**6.3.93.3.4.3 When generated**

This primitive is generated by the MLME to indicate successful completion of a MU-MIMO beamforming training procedure requested by a peer STA.

**6.3.93.3.4.4 Effect on receipt**

The SME is notified of the result of the procedure.