IEEE P802.11  
Wireless LANs

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| 11be D3.0 CR for 35.3.14 | | | | |
| Date: 2023-03-27 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Po-Kai Huang | Intel |  |  |  |

Abstract

This submission proposes resolutions for the following CIDs:

17347, 18100, 17329, 18306, 18307, 15411, 15550, 15553, 15554, 16546,

16843, 18238, 15551, 15552, 16047, 15379, 15410, 16841, 16842, 16543,

16544, 16545, 15546, 16832, 17330,

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Add CID 15379
* Rev 2: Editorial revision for spelling errors based on the feedback from Takuhiro

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGbe D3.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe D3.0 Draft. (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGbe Editor: Editing instructions preceded by “TGbe Editor” are instructions to the TGbe editor to modify existing material in the TGbe draft. As a result of adopting the changes, the TGbe editor will execute the instructions rather than copy them to the TGbe Draft.***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| Only one bit set to 1 in MLO Link Information element | | | | | | |
| 17347 | Alfred Asterjadhi | 9.4.2.317 | 300.01 | I believe only one bit can be set to 1 for EHT. Please add a statement. | As in comment. | Revised –  The statement is provided in 35.3.14.2 Identification of the Intended STA. We simply provide a reference and do clean up.  *Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1.*  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 17347 |
| 18100 | Abhishek Patil | 9.4.2.317 | 300.01 | Delete the "(s)" in "link(s)" and "STA(s)" to be consistent with the normative text in 35.3.14.2 (P547L26) and the description text on P299L49 | As in comment | Revised –  The statement is provided in 35.3.14.2 Identification of the Intended STA. We provide a reference and do clean up.  *Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1.*  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 17347 |
| 17329 | Alfred Asterjadhi | 35.3.14 | 545.61 | I thought an MMPDU can be sent from a STA on behalf of another STA. I.e., only one as opposed to multiple ones. Please clarify which are these cases where the MMPDU is intended to more than one STAs affiliated with the associated MLD. If there are none then just use singular | As in comment. | Revised –  There are two cases for the indications. For indication using Link ID Bitmap subfield, only one bit can be used, and the statement is provided in 35.3.14.2 Identification of the Intended STA.  *Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1.*  For the indication using link ID Bitmap in Individual TWT Parameter Set, it is possible to have more than one bit setting to one. See 35.3.24.2 Individual TWT agreements.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 17329 |
| 18306 | kaiying Lu | 35.3.14.2 | 547.26 | "Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1." Clarify whether more than one bit can be set to 1. | As in comment. | Revised –  There are two cases for the indications. For indication using Link ID Bitmap subfield, only one bit can be used, and the statement is provided in 35.3.14.2 Identification of the Intended STA.  *Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1.*  For the indication using link ID Bitmap in Individual TWT Parameter Set, it is possible to have more than one bit setting to one. See 35.3.24.2 Individual TWT agreements.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 17329 |
| 18307 | kaiying Lu | 35.3.14.1 | 546.20 | Change to "be capable of being intended for more than one STA affiliated with the peer MLD". | As in comment. | Revised –  There are two cases for the indications. For indication using Link ID Bitmap subfield, only one bit can be used, and the statement is provided in 35.3.14.2 Identification of the Intended STA.  *Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1.*  For the indication using link ID Bitmap in Individual TWT Parameter Set, it is possible to have more than one bit setting to one. See 35.3.24.2 Individual TWT agreements.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 17329 |
| 15411 | John Wullert | 35.3.14.2 | 547.25 | This statement says that only one bit of the Link ID bitmap subfield can be set to one. This seems to be in contradiction to the requirements earlier on the page (starting on line 6) that indicate that the procedure can be used to indicate more than one affiliated STA as a destination. Also this is not consistent with the definition of the Link ID Bitmap field of the MLO Link Information element (clause 9.4.2.317) which clearly allows for more than one bit to be set to one. | Address the contradiction or add note to indicate why it is not a contradiction. | Revised –  There are two cases for the indications. For indication using Link ID Bitmap subfield, only one bit can be used, and the statement is provided in 35.3.14.2 Identification of the Intended STA.  *Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1.*  For the indication using link ID Bitmap in Individual TWT Parameter Set, it is possible to have more than one bit setting to one. See 35.3.24.2 Individual TWT agreements.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 17329 |
| 15550 | Chaoming Luo | 35.3.14.2 | 546.20 | It's not clear what are the MMPDUs that are capable of intended for more than one STA affiliated with the peer MLD. Wondering is there any? | List them out. | Revised –  There are two cases for the indications. For indication using Link ID Bitmap subfield, only one bit can be used, and the statement is provided in 35.3.14.2 Identification of the Intended STA.  *Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1.*  For the indication using link ID Bitmap in Individual TWT Parameter Set, it is possible to have more than one bit setting to one. See 35.3.24.2 Individual TWT agreements.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 17329 |
| 15553 | Chaoming Luo | 35.3.14.2 | 547.09 | If an MMPDU is intended to STA 1 and 2 (it's possible as said in P546L20), when transmit on link 1, shall the MLO Link Information be included? | Change to: is transmitted to a STA (which is different with at least one of the intended STA(s)). | Revised –  There are two cases for the indications. For indication using Link ID Bitmap subfield, only one bit can be used, and the statement is provided in 35.3.14.2 Identification of the Intended STA.  *Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1.*  For the indication using link ID Bitmap in Individual TWT Parameter Set, it is possible to have more than one bit setting to one. See 35.3.24.2 Individual TWT agreements.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 17329 |
| 15554 | Chaoming Luo | 35.3.14.2 | 547.26 | The first paragraph of 35.3.14.2 says 'that is intended for one or more STA(s)', while this paragraph says 'only one bit', they conflicts with each other. | Either change the text in the first paragraph of 35.3.14.2 to 'that is intended for one STA' and change '(other than the intended STA(s))' to '(other than the intended STA)'; Or change the commented text to 'At least one bit' | Revised –  There are two cases for the indications. For indication using Link ID Bitmap subfield, only one bit can be used, and the statement is provided in 35.3.14.2 Identification of the Intended STA.  *Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1.*  For the indication using link ID Bitmap in Individual TWT Parameter Set, it is possible to have more than one bit setting to one. See 35.3.24.2 Individual TWT agreements.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 17329 |
| 16546 | Arik Klein | 35.3.14.2 | 547.26 | The following requirement "Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1" contradicts with the above statement that "an individually addressed MMPDU...is intended for one or more STA(s) affiliated with the associated MLD". Thus, In case there is more than one intended STA for the MMPDU, there could be more bits that are set to 1. | Please clarify the requested indication method of the Link ID Bitmap subfield of the MLO Link Information element in case of multiple intended STAs or remove this requirement. | Revised –  There are two cases for the indications. For indication using Link ID Bitmap subfield, only one bit can be used, and the statement is provided in 35.3.14.2 Identification of the Intended STA.  *Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1.*  For the indication using link ID Bitmap in Individual TWT Parameter Set, it is possible to have more than one bit setting to one. See 35.3.24.2 Individual TWT agreements.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 17329 |
| 16843 | Mark RISON | 35.3.14.2 | 547.25 | "Only one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1." -- suggests 0 might be possible | Change to "Exactly one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1." | Accepted - |
| Frame intended for MLD | | | | | | |
| 18238 | Li-Hsiang Sun | 35.3.14.1 | 546.45 | BTM request is defined as MMPDU intended for an MLD, and based on p546 L58, p547L28 it can be sent on any available link and without MLO Link Information element.  However, in 35.3.6.2.2 p511L40, it says "the affiliated AP being removed transmits BSS Transition Management Request frame(s)", i.e. the frame is intended for a non-AP STA on the link the frame is transmitted and can only be transmitted on the to-be-removed link, The frame is not intended for MLD. | Remove BTM request/response from the list of frames intended for an MLD | Revised -                  We have the following texts in the spec, which clarifies that BTM is still intended for the MLD, but that frame has to be transmitted only on that link for this specific purpose.  *When a non-AP STA affiliated with a non-AP MLD receives a BSS Transition Management Request frame from an AP with BSS Termination Included subfield and Link Removal Imminent subfield equal to 1, the non-AP MLD shall interpret the BTM to indicate that the BSS corresponding to the AP is being terminated*  This is similar to the design that some frames are intended for MLD (ex. (Re)Association Response), but may have further constraints on transmitting only on specific link.  We revise based on the reasoning above.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 18238 |
| 15551 | Chaoming Luo | 35.3.14.2 | 546.45 | Add a subbullet for 'FT Request/Response/Confirm/Ack frame' since they shall be intended for an MLD. | As in comment | Revised -  We add FT action frame.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 15551 |
| 15552 | Chaoming Luo | 35.3.14.2 | 546.45 | Add a subbullet for 'Link Recommendation frame' since it shall be intended for an MLD. | As in comment | Revised -  Agree in principle with the commenter.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 15552 |
| 16047 | Binita Gupta | 35.3.14.1 | 546.45 | This list should also include Link Recommendation frame | As in comment | Revised -  Agree in principle with the commenter.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 15552 |
| Writing style | | | | | | |
| 15379 | John Wullert | 9.4.2.317 | 299.47 | It is hard to parse the sentence, making it difficult to understand | Rephrase as "The MLO Link Information element is carried in an individually addressed Management frame to identify the link on which the STA affiliated with the peer MLD that is the intended recipient of the contents of the Management frame carrying this element is operating." | Rejected –  The original version has two sentrences separated by comma. The new suggestded version only has one sentence and is harder to parse.  *The MLO Link Information element is carried in an individually addressed Management frame to identify the link that the intended STA affiliated with the peer MLD is operating on, and the intended STA(#17747) is the intended recipient of the contents of the Management frame carrying this element* |
| 15410 | John Wullert | 35.3.14.2 | 547.08 | The sentence makes mention of STA three times, but it is not clear whether this represents two or three specific entities. Similarly, there are two mentions of MLD and it is not clear if they refer to the same or different entities | Revise sentence to clearly distinguish the STAs and MLDs that are being described | Rejected –  We explain the login below. There are MLD (one transmitting the frame) vs associated MLD (one receiving the frame). For associated MLD, there are “another STA” vs “intended STA”. Hence, all cited reference has appropriate differentiation.  *If the individually addressed MMPDU is transmitted to another STA (other than the intended STA) (#17329) affiliated with the associated MLD operating on a setup link through a STA affiliated with the MLD operating on the setup link, then the individually addressed MMPDU shall include (#16840)an MLO Link Information element that identifies the intended link (#17329) of the MMPDU as the last element but before the Vendor Specific element(s) (if present).* |
| 16841 | Mark RISON | 35.3.14.2 | 547.12 | “as the last element but before the Vendor Specific element(s) (if present)” is confusing | Change to “as the last element that is not a Vendor Specific element”. Also at line 16 | Revised –  We simply revise to elaborate the two cases.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 16841 |
| 16842 | Mark RISON | 35.3.14.2 | 547.19 | “NOTE–If the MLO Link Information element is not present in the individually addressed MMPDU, the individually addressed MMPDU cannot be retransmitted to different STA as described in the first bullet above.” – this can’t happen because it’s a “shall” above | Delete this NOTE | Rejected –  We note that the note is added based on the request of some members to have further clarification. |
| 16543 | Arik Klein | 35.3.14.1 | 545.63 | The following part seems redundant and does not contribute to the readability of the entire sentence: “through a STA affiliated with the MLD operating on the setup link”. Please remove it from the sentence, as suggested. | The revised sentence should be: “ , an MLD may transmit an individually addressed MMPDU, which is intended for one or more STA(s) affiliated with the associated MLD operating on an enabled link, to another STA (other than the intended STA(s)) affiliated with the associated MLD operating on a setup link if the MMPDU satisfies all the following conditions...” | Rejected –  We note that simply having “MLD transmit” is not suitable because the transmission is “through a STA affiliated with the MLD”. |
| 16544 | Arik Klein | 35.3.14.1 | 546.12 | The following part seems redundant and does not contribute to the readability of the entire sentence: “through an STA affiliated with the MLD operating on the setup link”. Please remove it from the sentence, as suggested. | The revised sentence should be: “ Otherwise, an MLD shall not transmit an individually addressed MMPDU, which is intended for one or more STA(s) affiliated with the associated MLD operating on an enabled link, to another STA (other than the intended STA(s)) affiliated with the associated MLD operating on a setup link subject to additional constraints” | Rejected –  We note that simply having “MLD transmit” is not suitable because the transmission is “through a STA affiliated with the MLD”. |
| 16545 | Arik Klein | 35.3.14.2 | 547.09 | The following part seems redundant and does not contribute to the readability of the entire sentence: “through a STA affiliated with the MLD operating on the setup link”. Please remove it from the sentence, as suggested. | The revised sentence should be: “ If the individually addressed MMPDU is transmitted to another STA (other than the intended STA(s)) affiliated with the associated MLD operating on a setup link, then the individually addressed MMPDU shall include MLO Link Information element that identifies the intended link(s) of the MMPDU as the last element but before the Vendor Specific element(s) (if present)” | Rejected –  We note that simply having “MLD transmit” is not suitable because the transmission is “through a STA affiliated with the MLD”. |
| List for excluded frame | | | | | | |
| 15546 | Chaoming Luo | 35.3.14.1 | 545.21 | Why Fine Timing Measurement Request is not in the exception list? This frame may also be transmitted in a specific sequence in a time critical manner. | Add Fine Timing Measurement Request frame. | Revised –  11az has public action LMR frame and protected fine timing frame with separate SN space. Protected fine timing frame includes protected LMR, protected FTM and protected FTM request. We revise with correct frame name.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 15546 |
| 16832 | Mark RISON | 35.3.14.1 | 545.19 | We don’t have LMR and FTM frames | Refer to them by their name, i.e. Link Measurement Request frame and Fine Timing Measurement frame | Revised –  11az defines LMR and FTM. However, 11az has public action LMR frame and protected fine timing frame with separate SN space. We revise with correct frame name.  TGbe editor to make the changes shown in 11-23/0541r2 under all headings that include CID 15546 |
| 17330 | Alfred Asterjadhi | 35.3.14 | 545.07 | It will help the reader if we specify why these MGMT frames are an exception. | As in comment. | Rejected –  We explain the reasoning below.  11az has public action LMR frame and protected fine timing frame with separate SN space. Protected fine timing frame includes protected LMR, protected FTM and protected FTM request. Hence, it is not suitable for MLO to override the SN space design. Public action FTM and public action FTM request is then excluded to preserve all existing ranging operation.  Beamforming CSI/CQI frames are handled in lower MAC and is not suitable to be handled by upper MAC with a unified SN. Finally, Probe Response frame has TSF and is then also handled in lower layer.  These design considerations are related to implementation rather than interop. Hence, we explain the consideration and do not have further elaboration in the spec. |

**Discussion:**

*TGbe editor: Change Clause 9.4.2.317 as follows (track change on):*

* + - 1. **MLO Link Information element**

The MLO Link Information element is carried in an individually addressed Management frame to identify the link that the intended STA affiliated with the peer MLD is operating on, and the intended STA(#17747) is the intended recipient of the contents of the Management frame carrying this element (see 35.3.14.2 (Identification of the Intended STA))(#17347).

The MLO Link Information element is defined in [Figure 9-1002ax (MLO Link Information element for-](#bookmark243) [mat)](#bookmark243).

|  |  |  |  |
| --- | --- | --- | --- |
| Element ID | Length | Element ID Extension | Link ID Bitmap |

Octets: 1 1 1 2

**Figure 9-1002ax—MLO Link Information element format**

The Element ID, Length, and Element ID Extension fields are defined in [9.4.2.1 (General)](#bookmark109).

The Link ID Bitmap field indicates the link (#17347) that(#17970) the intended STA (#17347) affiliated with the peer MLD(#17970) is(#17347) operating on (see 35.3.3.2 (Link ID)). A value of 1 in bit position *i* of the Link ID Bitmap field indicates link ID *i*.

*TGbe editor: Change Clause 35.3.14 as follows (track change on):*

* + 1. **Multi-link device individually addressed Management frame delivery**
       1. **General**

This subclause describes rules for individually addressed management frame delivery by (#16327)an MLD with the exception of the following frames(#16838):

* CSI frame
* Noncompressed Beamforming frame
* Compressed Beamforming frame
* VHT Compressed Beamforming frame
* HE Compressed Beamforming/CQI frame
* EHT Compressed Beamforming/CQI frame
* Probe Response frame
* Public Action LMR frame(#15546)
* Public Action FTM frame(#15546)
* Public Action FTM Request frame(#15546)
* Protected Fine Timing frame(#15546)

An MLD with dot11QMFActivated equal to false shall follow the rules described in 10.3.2.14.2 (Transmitter requirements) to determine the sequence number of an individually addressed Management frame (except the frames (#15548)listed at the beginning of [35.3.14.1 (General)](#bookmark77)) that is delivered to the associated MLD.

An MLD with dot11QMFActivated equal to false shall follow the rules as described in 10.3.2.14.3 (Receiver requirements) to discard duplicate individually addressed Management frames (except the frames (#15548)listed at the beginning of [35.3.14.1 (General)](#bookmark77)) that are delivered from the associated MLD.

An MLD with dot11QMFActivated equal to false shall maintain a transmit MMPDU timer for each MMPDU (except the frames (#15548)listed at the beginning of [35.3.14.1 (General)](#bookmark77)). The transmit MMPDU timer shall be started when the MMPDU is passed to the MAC.

For an MLD with dot11QMFActivated equal to false, the frame retry counter and retry limit for each MMPDU that belongs to a TC that requires acknowledgment (#16835)are implementation specific.

An MLD with dot11QMFActivated equal to false shall continue to deliver the failed individually addressed Management frame (except the frames (#15548)listed at the beginning of [35.3.14.1 (General)](#bookmark77)) to an associated MLD on the setup links subject to additional constraints (see [35.3.7 (Link management)](#bookmark49))) until any of the following conditions occurs:

* The retry limit is met.
* The transmit MMPDU timer for the MMPDU exceeds dot11EDCATableMSDULifetime.
* The individually addressed Management frame is successfully delivered.

Between (#17964)an MLD and an associated peer MLD, a STA affiliated with the MLD with dot11QMFActivated equal to false shall not transmit other individually addressed Management frames (except the frames (#15548)listed at the beginning of [35.3.14.1 (General)](#bookmark77)) over a setup link while the current individually addressed Management frame (except the frames (#15548)listed at the beginning of [35.3.14.1](#bookmark77) [(General)](#bookmark77)) being transmitted by any STA affiliated with the same MLD over a setup link has not yet completed to the point of success, failed due to retry limit, or other MAC discard (e.g., lifetime expiration).

Between an AP MLD and an associated non-AP MLD subject to additional constraints (see [35.3.7 (Link](#bookmark49) [management)](#bookmark49)), an MLD may transmit an individually addressed MMPDU, which is not a TWT Setup frame that includes a Link ID Bitmap subfield in its TWT element and(#17329) is intended for one STA affiliated with the associated MLD operating on (#15549)enabled link, to another STA (other than the intended STA) affiliated with the associated MLD operating on a setup link through a STA affiliated with the MLD operating on the setup link if the MMPDU satisfies all the following conditions: (#17329)

* The MMPDU is a Class 3 frame
* The MMPDU is not a TPC Request frame, a TPC Report frame, a Link Measurement Request frame or a Link Measurement response frame
* The MMPDU is classified as a bufferable MMPDU
* The MMPDU is not one of the frames listed at the beginning of [35.3.14.1 (General)](#bookmark77).

NOTE—MMPDU only includes the Frame Body field of the management frame and does not include a MAC header and a frame check sequence (FCS) of the management frame (see 3.2 (Definitions specific to IEEE 802.11)).

Otherwise, an MLD shall not transmit an individually addressed MMPDU, which is not a TWT Setup frame that includes a Link ID Bitmap subfield in its TWT element and is intended for one STA affiliated with the associated MLD operating on an enabled link, to another STA (other than the intended STA) affiliated with the associated MLD operating on a setup link through an STA affiliated with the MLD operating on the setup link subject to additional constraints (see [35.3.7 (Link management)](#bookmark49)). (#17329)

An individually addressed MMPDU, which is not a TWT Setup frame that includes a Link ID Bitmap subfield in its TWT element and is transmitted by an MLD through an affiliated STA, is intended for a STA affiliated with the peer MLD unless specified otherwise to be intended for an MLD.(#17329)

Between an AP MLD and a non-AP MLD, the following individually addressed MMPDUs shall be intended for an MLD:

* Authentication frame that includes a Basic Multi-Link element
* (Re)Association Request/Response frame that includes a Basic Multi-Link element
* Deauthentication frame
* Disassociation frame
* Block Ack Action frame
* SA Query Action frame
* Multi-link probe request/response
* WNM Sleep Mode Request/Response frame
* TID-To-Link Mapping Request/Response/Teardown frame
* EPCS Priority Access Enable Request/Enable Response/Teardown frame
* EML Operating Mode Notification frame
* SCS Request/Response frame
* MSCS Request/Response frame
* BSS Transition Management Request/Response frame
* FT Action frame(#15551)
* Link Recommendation frame(#15552)

A non-AP MLD may transmit an individually addressed MMPDU that is an Authentication frame that includes a Basic Multi-Link element or a (Re)Association Request frame that includes a Basic Multi-Link element or a multi-link probe request or a Deauthentication frame or a Disassociation frame to any AP affiliated with the AP MLD subject to additional constraints (see [35.3.7 (Link management)](#bookmark49)).

An AP MLD may transmit an individually addressed MMPDU that is a Deauthentication frame or a Disassociation frame to any non-AP STA affiliated with the non-AP MLD subject to additional constraints (see

[35.3.7 (Link management)](#bookmark49)).

An MLD may transmit an individually addressed MMPDU that is a Class 3 frame that is intended for an associated MLD to any STA affiliated with the associated MLD operating on a setup link through an STA affiliated with the MLD operating on the setup link subject to additional constraints (see [35.3.7 (Link](#bookmark49) [management)](#bookmark49)).

* + - 1. **Identification of the intended STA(#16839)**

Between an AP MLD and a non-AP MLD associated with the AP MLD, an individually addressed MMPDU that is not a TWT Setup frame that includes a Link ID Bitmap subfield in its TWT element and that is intended for one STA (#17329) affiliated with the associated MLD operating on (#16608)enabled link(#17329) shall follow the below procedure:

* If the individually addressed MMPDU is transmitted to another STA (other than the intended STA) (#17329) affiliated with the associated MLD operating on a setup link through a STA affiliated with the MLD operating on the setup link, then the individually addressed MMPDU shall include (#16840)an MLO Link Information element that identifies the intended link (#17329) of the MMPDU as the last element but before the Vendor Specific element(s) (if present).
* Otherwise, the individually addressed MMPDU may include (#16840)an MLO Link Information element that identifies the intended link (#17329) of the MMPDU as the last element if the Vendor Specific element is not present or as the element immediately before the Vendor Specific element(s) if one or more Vendor Specific element is present.(#16841)

NOTE—If the MLO Link Information element is not present in the individually addressed MMPDU, the individually addressed MMPDU cannot be retransmitted to different STA as described in the first bullet above.

Between an AP MLD and a non-AP MLD associated with the AP MLD, a TWT Setup frame that includes a Link ID Bitmap subfield in its TWT element shall not include (#16331)an MLO Link Information element.

Exactly(#16843) one bit in the Link ID Bitmap subfield of the MLO Link Information element shall be set to 1.

Between an AP MLD and a non-AP MLD associated with the AP MLD, an individually addressed MMPDU that is intended for an associated MLD shall not include (#16840)an MLO Link Information element.

Between an AP MLD and a non-AP MLD associated with the AP MLD, if an individually addressed MMPDU that carries (#16840)an MLO Link Information element is received by a STA affiliated with the MLD, then the MLD shall discard the MMPDU if the MLO Link Information element indicates any link that is not an enabled link.

-----------------------------------------------Change for CID 18238 below (track change on)-------------------------------

*TGbe editor: Change Clause 35.3.6.3 as follows (track change on):*

* + - 1. **Removing affiliated APs(#18115)**

(…existing texts…)

(#15995)An AP MLD may transmit BSS Transition Management Request frame(s) through an affiliated AP that is being removed to notify of (#15401)(#15864)the termination of its BSS to associated non-AP STAs that support BTM and that are not affiliated with a non-AP MLD or to notify of the termination of its BSS to non-AP MLDs that are associated with the AP MLD of the affiliated AP, and the BSS Transition Management Request frame(s) to notify of the termination of its BSS shall not be transmitted by other APs affiliated with the AP MLD. The AP MLD shall transmit BSS Transition Management Request frame(s) through the affiliated AP if there are associated non-AP STAs that are not affiliated with a non-AP MLD and that support BTM to notify such non-AP STAs of the termination of its BSS.

If the AP MLD transmits BSS Transition Management Request frame(s) through the affiliated AP that is being removed to notify (#15865)of the termination of its BSS, the SME of that affiliated AP shall perform the following procedure to terminate the BSS:

(…existing texts…)

A BSS Transition Management Request frame transmitted by the AP MLD through the affiliated AP that is being removed may provide preference for other AP MLDs to associate with as per [35.3.23 (BSS transition management for](#bookmark113) [MLDs)](#bookmark113) for the non-AP MLDs that have a single setup link with the AP being removed.

When a non-AP MLD receives a BSS Transition Management Request frame through an affiliated non-AP STA from an AP with BSS Termination Included subfield and Link Removal Imminent subfield equal to 1, the non-AP MLD shall interpret the BTM to indicate that the BSS corresponding to the AP is being terminated.

When the AP MLD (#15403)does not transmit BSS Transition Management Request frame(s) through the affiliated AP being removed to notify of the termination of its BSS, the SME of the affiliated AP shall terminate the corresponding BSS at the TBTT indicated by the value of the AP Removal Timer subfield.

(…existing texts…)

*TGbe editor: Change Clause 35.3.23 as follows (track change on):*

* + 1. **BSS transition management for MLDs**

A STA affiliated with an MLD has dot11BSSTransitionActivated equal to true (see 11.21.7.1 (BSS transition capability)) and shall follow the procedure define in 11.21.7 (BSS transition management for network load balancing), except that:

(…existing texts…)

* When an AP MLD transmits a BSS Transition Management Request frame with the Link Removal Imminent subfield equal to 0 and the Disassociation Imminent field equal to 1 through an affiliated AP to a non-AP MLD, the Disassociation Timer field in the BSS Transition Management Request frame shall be set to 0 or set to the number of TBTTs that will occur prior to the AP MLD disassociating the non-AP MLD.
* When an AP MLD transmits a BSS Transition Management Request frame with the Link Removal Imminent subfield equal to 0 and the BSS Termination Included field equal to 1 through an affiliated AP to a non-AP MLD, the BSS termination means that the AP MLD is shutting down, and the non- AP MLD will be disassociated from the AP MLD.
* A non-AP MLD that receives a BSS Transition Management Request frame with the Link Removal Imminent subfield equal to 1 follows the procedure defined in [35.3.6.3 (Removing affiliated](#bookmark48) [APs(#18115))](#bookmark48).

NOTE—An AP MLD can use this protocol to recommend a non-AP MLD to do (re)association with the same AP MLD with a different set of links, or to initiate a TID-to-link mapping change if that would match the recommendation.

*TGbe editor: Change Clause 9.6.13.9 as follows (track change on):*

* + - 1. **BSS Transition Management Request frame format**

***Change the first paragraph as follows:***

The BSS Transition Management Request frame is transmitted by an AP or an AP MLD through an affiliated AP in response to a BSS Transition Management Query frame, or autonomously. The format of the BSS Transition Management Request frame Action field is shown in Figure 9-1152 (BSS Transition Manage- ment Request frame Action field format).

(…existing texts…)

*TGbe editor: Change Clause 9.6.13.10 as follows (track change on):*

* + - 1. **BSS Transition Management Response frame format**

***Change the first paragraph as follows:***

The BSS Transition Management Response frame is optionally transmitted by a STA or a non-AP MLD through an affiliated non-AP STA in response to a BSS Transition Management Request frame. The format of the BSS Transition Management Response frame Action field is shown in Figure 9-1156 (BSS Transition Management Response frame Action field format).

(…existing texts…)