IEEE P802.11
Wireless LANs

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Abstract

This submission proposes CR for 4 CIDs: 23056, 23071, 23072, 23073

Revisions:

* Rev 0: Initial version of the document, including some text reshaping.
* Rev 1: Some modifications due to offline comments (Binita).

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 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe 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** | **Pg/Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- | --- |
| 23073 | Michael Montemurro | 315.31 | 9.6.13.9 | [AK] The description in P315L31-L50 defines a normative behavior of the AP MLD rather than a short description of the field setting (as expected from clause 9.6). Please revise these sentences as suggested. | The paragraph should be revised as follows:1. Add a description for the possible setting values of BSS Termination Included subfield2. The normative behavior defined in P315L31-L50 should be moved under subclause 35.3.23 (BSS transition management for MLDs) and the language should be revised respectively (i.e. will --> should / shall). | **Revised**Agree with the comment. The relevant paragraph includes a short description of the BSS Termination Included field and the Link Removal Imminent field for the non-MLD STA case and for the AP MLD case.The text in subclause in 35.3.23 was corrected to a normative behavior language **TGbe editor please implement changes as shown in doc 11-24/1029r1 tagged as 23073.**  |
| 23072 | Michael Montemurro | 315.35 | 9.6.13.9 | [AK] In case of AP MLD, the meaning of BSS Termination Included subfield setting is dependent on the Link Removal Imminent subfield. Therefore, Need to conclude the setting possibilities of these two subfields in one table instead of repeating it for each subfield. | Please add a single table that will summarize all the possible settings of BSS Termination Included subfield and Link Removal Imminent subfield in case of AP MLD | **Revised**Agree with the comment. The relevant paragraph includes a short description of the BSS Termination Included field and the Link Removal Imminent field for the non-MLD STA case and for the AP MLD case.The text in subclause in 35.3.23 was corrected to a normative behavior language **TGbe editor please implement changes as shown in doc 11-24/1029r1 tagged as 23073.** |
| 23071 | Michael Montemurro | 315.60 | 9.6.13.9 | [AK] The description in P315L60-P316L26 defines a normative behavior of the AP MLD and non-AP MLD rather than a short description of the field setting (as expected from clause 9.6). Please revise these sentences as suggested. | The paragraph should be revised as follows:1. Add a description for the possible setting values of Link Removal Imminent subfield 2. The normative behavior defined in P315L60-P316L26 should be moved under subclause 35.3.23 (BSS transition management for MLDs) and the language should be revised respectively (i.e. will --> should / shall). | **Revised**Agree with the comment. The relevant paragraph includes a short description of the BSS Termination Included field and the Link Removal Imminent field for the non-MLD STA case and for the AP MLD case.The text in subclause in 35.3.23 was corrected to a normative behavior language **TGbe editor please implement changes as shown in doc 11-24/1029r1 tagged as 23073.**  |
| 23056 | Michael Montemurro | 610.62 | 35.3.23 | [AK] The normative text for the behavior of AP MLD and the non-AP MLD is missing for the following setting use cases:Case 1: BSS Termination Included field =1 and Link Removal Imminent subfield =1Case 2: BSS Termination Included field =0 and Link Removal Imminent subfield =1 | Need to add a corresponding normative text behavior for the following cases:Case 1: BSS Termination Included field =1 and Link Removal Imminent subfield =1Case 2: BSS Termination Included field =0 and Link Removal Imminent subfield =1 | **Revised**Agree with the comment. The change applied to the subsequent paragraph (P611L4) – similar to the resolution for CID23073.**TGbe editor please implement changes as shown in doc 11-24/1029r1 tagged as 23073.** |

*TGbe editor: Please note baseline is 11be D6.0 and REVme D**6.0*

* + - 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 affiliated with an AP MLD 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 9-1270 (BSS Transition Manage- ment Request frame Action field format).

## Change the fourth, fifth and sixth paragraphs, including [Figure 9-1271 (Request Mode field](#_bookmark314) [format)](#_bookmark314), as follows:

The Dialog Token field is defined in 9.4.1.12 (Dialog Token field). It is the nonzero value received in the BSS Transition Management Query frame if the BSS Transition Management Request frame is being trans- mitted in response to a BSS Transition Management Query frame. If the BSS Transition Management Request frame is being transmitted other than in response to a BSS Transition Management Query frame, then the Dialog Token field is a nonzero value chosen by the AP or AP MLD sending the BSS Transition Management Request frame to identify the request/response transaction.

The Request Mode field is defined in [Figure 9-1271 (Request Mode field format)](#_bookmark314).

B0 B1 B2 B3 B4 B5 ~~B5~~B6 B7

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Preferred Candidate List Included | Abridged | Disassociation Imminent | BSSTermination Included | ESSDisassociation Imminent | Link Removal Imminent | Reserved |

Bits: 1 1 1 1 1 1 ~~3~~2

**Figure 9-1271—Request Mode field format**

* The Preferred Candidate List Included (bit 0) field indicates whether the BSS transition candidate list included in this frame is a preferred candidate list or a list of known BSS transition candidates. The Preferred Candidate List Included bit ~~set~~equal to 0 indicates that the receiving STA or non-AP MLD can ignore the BSS Transition Candidate List Entries field (see 11.21.7.3 (BSS transition management request)). The Preferred Candidate List Included bit ~~set~~equal to 1 indicates that the sender expects the receiving STA or non-AP MLD to process this frame.
* The Abridged (bit 1) field indicates to the recipient of the frame the intended treatment of all BSSIDs or AP MLDs not listed in the BSS Transition Candidate List Entries field.
The AP or AP MLD sets the Abridged bit in the Request Mode field to 1 when a preference value of 0 is assigned:
	+ to all BSSIDs or
	+ AP MLDs that do not appear in the BSS Transition Candidate List or
	+ AP MLDs with requested links that are not recommended in the BSS Transition Candidate List.

 The AP or AP MLD sets the Abridged bit in the Request Mode field to 0 when the:

* + AP or AP MLD has no recom- mendation for or against any BSSID or
	+ AP MLD is not present in the BSS Transition Candidate List Entries field or
	+ AP MLDs with requested links that are not recommended in the BSS Transition Candidate List.
* The Disassociation Imminent (bit 2) field indicates whether the STA or the non-AP MLD will be disassociated from the current AP or AP MLD. The value 1 in the Disassociation Imminent bit in the Request Mode field indicates that the STA or the non-AP MLD is to be disassociated from the cur- rent AP or AP MLD, while the value 0 indicates that disassociation from the AP or AP MLD is not imminent.
* (#23073)For a non-MLD STA, the BSS Termination Included field indicates whether the BSS Termination Duration field is included and the termination behavior of the BSS.
A value of 0 in the BSS Termination Included field in the Request Mode field indicates that no BSS termination duration information is included in the BSS Transition Management Request frame.
A value of 1 in the BSS Termination Included field in the Request Mode field indicates all the following:
	+ BSS termination duration information is included in the BSS Transition Management Request frame
	+ The corresponding BSS is shutting down
	+ All the non-AP STAs associated with the AP corresponding to this BSS will be disassociated.
* (#23073)For an MLD STA, the termination of the one or more BSS(s) corresponding to the APs affiliated with the AP MLD are defined by the BSS Termination Included field and the Link Removal Imminent field in the Request Mode field as indicated in Table XXX (BSS Termination Included and Link Removal Imminent fields encoding).

**Table XXX—** **BSS Termination Included and Link Removal Imminent fields encoding**

| **BSS Termination Included field** | **Link Removal Imminent field** | **Description** | **Notes** |
| --- | --- | --- | --- |
| 0 | 0 | * No BSS termination duration information is included in the BSS Transition Management Request frame
 |  |
| 0 | 1 | * No BSS termination duration information is included in the BSS Transition Management Request frame
* The link corresponding to the AP that transmits this BSS Transition Management Request frame is being disabled.
* A non-AP MLD might ignore the imminent disassociation indicated in the received broadcast BTM Request frame.
* All the non-MLD non-AP STAs associated with the BSS whose AP transmits this BSS Transition Management Request frame (with Disassociation Imminent field set to 1) will be disassociated.
 | See 35.3.7.5.2 (Affiliated AP link disablement) |
| 1 | 0 | * BSS termination duration information is included in the BSS Transition Management Request frame
* The AP MLD and all its corresponding BSSs are shutting down
* All the non-AP MLDs associated with the AP MLD will be disassociated
 |  |
| 1 | 1 | * BSS termination duration information is included in the BSS Transition Management Request frame
* A BSS whose AP transmits this BSS Transition Management Request frame is shutting down
* A non-AP MLD that has set up (with the AP MLD) only the link corresponding to the AP that transmits this BSS Transition Management Request frame will be disassociated
 | see 35.3.6.3 (Removing affiliated AP(s)) |

* + - (#23073)
* The ESS Disassociation Imminent ~~(bit 4)~~ field indicates that the Session Information URL field is included, and that the STA or non-AP MLD will be disassociated from the ESS. The value 1 in the ESS Disassociation Imminent bit in the Request Mode field indicates that the STA or the non-AP MLD is to be disassociated from the ESS, while the value 0 indicates that disassociation from the ESS is not imminent. When the ESS Disassociation Imminent bit value is equal to 1, a Session Information URL field is included in the BSS Transition Management Request frame.
* (#23073)The Link Removal Imminent field is reserved if one of the following conditions is met:
	+ The transmitting AP is not affiliated with an AP MLD.
	+ The transmitting AP is affiliated with an AP MLD that operates with only one affiliated AP.

The Disassociation Timer indicates the time after which the AP ~~issues~~sends a Disassociation frame to ~~this~~the STA or the AP affiliated with the AP MLD sends a Disassociation frame to the non-AP STA affiliated with the non-AP MLD. The Disassociation Timer field contains the number of target beacon transmission times (TBTTs) until the AP sends a Disassociation frame to ~~this~~the STA or the AP affiliated with the AP MLD sends a Disassociation frame to the non-AP STA affiliated with the non-AP MLD. Setting the field to 0 indi- cates that the AP has not determined when it will send a Disassociation frame to this STA or the AP affili- ated with the AP MLD has not determined when it will send a Disassociation frame to the non-AP STA affiliated with the non-AP MLD. If the Disassociation Imminent field is equal to 0, the Disassociation Timer field is reserved. The format of the Disassociation Timer field is shown in Figure 9-1272 (Disassociation Timer field format).

#### BSS transition management for MLDs

An SME of an MLD shall follow the procedures defined in 11.21.7 (BSS transition management) in addition to the following requirements:

* The procedure is applied between the SMEs of an AP MLD and the SME of a non-AP MLD and not between the SMEs of an AP affiliated with an AP MLD and the SME of a non-AP STA affiliated with a non-AP MLD.
* BTM frames between an AP MLD and non-AP MLD are exchanged between an affiliated AP and affiliated STA, respectively.
* If the Neighbor Report element that is carried in the BSS Transition Candidate List Entries field of a BSS Transition Management Query, Request or Response frame includes a Basic Multi-Link element, then the Neighbor Report element describes the preference for a target AP MLD candidate and not for a target BSS candidate, otherwise, it describes the preference for a target BSS candidate.
* The Preference field value of a Neighbor Report element that includes a Basic Multi-Link element describing an AP MLD provides the indication of preference for the given AP MLD, within the given list at the given time.
* If an AP MLD intends to provide a preference for a reported AP MLD without recommendations about specific affiliated APs, it shall:
	+ include a Neighbor Report element for one of the APs affiliated with the AP MLD, and include a Basic Multi-Link element in the Neighbor Report.
	+ set to 0 all subfields of the Presence Bitmap subfield.
	+ not include any Per-STA Profile subelement in the Basic Multi-Link element.
* If an AP MLD intends to provide a preference for a reported AP MLD with only a subset of recommended affiliated APs,
	+ it shall include a Neighbor Report element for one of the recommended APs affiliated with the AP MLD, and include a Basic Multi-Link element in the Neighbor Report element of this reported AP.
	+ it shall include a Link ID Info field in the Common Info field of the Basic Multi-Link element with the field value set to that corresponding to the AP reported in the Neighbor Report element.
	+ it shall set to 0 all subfields of the Presence Bitmap subfield of the Basic Multi-Link element included in the Neighbor Report element of the reported AP except the Link ID Info Present sub- field.
	+ it shall include in the Basic Multi-Link element in the Neighbor Report element of the reported AP a Per-STA Profile subfield only for each of the other recommended affiliated APs (if any) to a non-AP MLD that has dot11EHTBTMMLDRecommendationForMultipleAPsImplemented set to 1, and with all the fields set to 0 in the STA Control field, except the Link ID field.
	+ The AP MLD shall not include more than one Neighbor Report element reporting the same AP MLD with the same recommended subset of affiliated APs. If multiple Neighbor Report ele- ments are used to report the same AP MLD with a different recommended subset of affiliated APs, the Preference field value in these elements may be different.
* When an AP MLD transmits a BSS Transition Management Request frame through an affiliated AP with the Link Removal Imminent subfield equal to 0 and the Disassociation Imminent field equal to 1 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 through an affiliated AP with the Link Removal Imminent subfield equal to 0 and the BSS Termination Included field equal to 1 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 (#23073)shall:
	+ follow the procedure defined in [35.3.6.3 (Removing affiliated AP(s))](#_bookmark31) (#23073)if the BSS Termination Included field is set to 1.
	+ (#23073)follow the procedure defined in [35.3.7.5.2 (Affiliated AP link disablement)](#_bookmark45) if the BSS Termination Included field is set to 0.

A non-AP MLD with dot11EHTBTMMLDRecommendationForMultipleAPsOptionImplemented equal to true shall set the BTM MLD Recommendation For Multiple APs Support field to 1 in the Extended MLD Capabilities And Operations subfield in the Basic Multi-Link element.

If an AP MLD uses the BTM protocol to recommend a non-AP MLD to do (re)association with the same AP MLD with a different set of links, the non-AP MLD may follow the recommendation by either:

* (re)associating with the same AP MLD with the recommended set of links or
* initiating an ML reconfiguration negotiation by following the procedures in [35.3.6.4 (Link](#_bookmark32) [reconfiguration to the setup links)](#_bookmark32) to operate with the recommended set of setup links or
* initiating a TTLM negotiation (see [35.3.7.2.3 (Negotiation of TTLM)](#_bookmark40)) if the enabled links would match the set of recommended links.

NOTE—A non-AP EHT STA is also an HE STA and therefore has dot11BSSTransitionActivated equal to true (see

11.21.7.1 (BSS transition capability)).

Straw Poll:

Do you support to incorporate the proposed draft text in this document 11-24/1029r1 to the next revision of TGbe Draft 6.0, for addressing the following CIDs: 23056, 23071, 23072, 23073?

Result: Yes/No/Abstain