IEEE P802.11  
Wireless LANs

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| 11be D2.0 CR for 35.3.3 | | | | |
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Abstract

This submission proposes resolutions for the following CIDs:

10308, 10309, 10411, 11080, 10608, 10609, 10607, 13623, 11773, 12992, 10610, 12993, 11100, 11720, 11721, 11722, 12991, 11772, 13622, 13621, 13347, 11099

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Revise 10308 based on the feedback from Xiaofei
* Rev 2: revision based on the discussion during the conference.

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 D2.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe D2.0 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.***

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| **CID** | **Commenter** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 10308 | Michael Montemurro | 35.3.3 | 413.21 | MLDs don't "have" anything, especially a MAC address. | Change "has an" to "is assigned a" | Revised –  We revise the sentence as the following.  “An MLD is singly addressable by an MLD MAC address”.  This aligns with the description that we have for STA.  *station (STA): A logical entity that is a singly addressable instance of a medium access control (MAC) and physical layer (PHY) interface to the wireless medium (WM)*  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 10308 |
| 10309 | Michael Montemurro | 35.3.3 | 413.25 | The last part of the note is not needed | At cited location, delete "or different from the MAC address of any affiliated STA | Revised –  We add “might be” to emphasize that we intend to describe both cases in the note.  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 10309 |
| 10411 | yan li | 35.3.3 | 413.49 | "the value of the A3 field in the MAC header of a management frame shall be set based on". To keep consistent with the next paragrah,'A3' should be changed to 'Address 3'. Same issue in the P413L61 | as the comment | Revised –  We change A3 to Address 3 and A1 to Address 1.  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 10411 |
| 11080 | Po-Kai Huang | 35.3.3 | 413.49 | Change "A3" to "Address 3". | Change "A3" to "Address 3". | Accepted - |
| 10608 | Abhishek Patil | 35.3.3 | 413.49 | Upper case M in Management frame | As in comment | Accepted - |
| 10609 | Abhishek Patil | 35.3.3 | 413.52 | Upper case D in Data frame | As in comment | Accepted - |
| 10607 | Abhishek Patil | 35.3.3 | 413.35 | The text in the two bullets is hard to follow and can be simplified as: "- If the frame is a Probe Response frame and the AP operating on the link is an AP affiliated with the AP MLD:  - and the AP does not belong to a multiple BSSID set or the corresponds to the transmitted BSSID in a multiple BSSID set, then the value of the Address 2 (TA) field in the MAC header of the frame shall be set to the MAC address of the AP.  - and the AP the corresponds to the nontransmitted BSSID in a multiple BSSID set, then the value of the Address 2 (TA) field in the MAC header of the frame shall be set to the transmitted BSSID in the multiple BSSID set (see 11.1.4.3.4 (Criteria for sending a response))." | As in comment | Revised –  We use the texts suggested by the commenter with minor revision.  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 10607 |
| 13623 | Rubayet Shafin | 35.3.3 | 413.35 | The "MLD" should be replaced with "AP MLD" for consistency in the spec. Same issue in the following line as well. | As in comment | Revised –  Agree in principle with the commenter. The paragraph has been rewritten.  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 10607 |
| 11773 | Osama Aboulmagd | 35.3.3 | 413.35 | The sentence "if the transmitting AP affiliated with MLD corresponding to that link is ...". Which link? What does that link refer to? | as in comment | Revised –  The paragraph has been rewritten.  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 10607 |
| 12992 | Chunyu Hu | 35.3.3 | 413.35 | The qualifier "corresponding to that link" in this paragraph (two instances) seem to be completely unncessary since the transmitting AP cannot be on other links. Removing it doesn't reduce any meaning, and improves readability. Please also revisit other cases in other parallel paragraphs. | As in comment | Revised –  The paragraph has been rewritten.  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 10607 |
| 10610 | Abhishek Patil | 35.3.3 | 414.03 | The text in the bullet is confusing and can be simplified as: - if the STA is a non-AP STA affiliated with a non-AP MLD, then the BSSID is set to the MAC address of the AP affiliated with the AP MLD with whom the non-AP MLD has performed Multi-link setup and the affiliated AP is operating on the same link as the non-AP STA. | As in comment | Revised –  We use the texts suggested by the commenter and try to revise by listing the description upfront.  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 10610 |
| 12993 | Chunyu Hu | 35.3.3 | 414.04 | Improve readability by changing "where the AP is the AP affiliated with the AP MLD that has a link setup ..." to "which has a link setup with ..." | As in comment | Revised –  The paragraph has been rewritten.  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 10610 |
| 11100 | Robert Stacey | 35.3.3 | 413.23 | It is not clear what this requirement means: if two STAs have the same MAC address, then are they really separate STAs? I think the real requirement is that only one STA can have the same MAC address as the MLD. | Change to "One (and only one) STA affiliated with an MLD may have the same MAC address as the MLD." | Rejected –  We note that in Figure 4-28—Reference model for a multi-band capable device (transparent FST), even though STA1 and STA2 have the same MAC address due to the design of transparent FST, they are still called different STAs. Hence, the requirement has its purpose. |
| 11720 | Gaurav Patwardhan | 35.3.3 | 413.52 | Bullet #6 needs to begin with " If the frame is an individually addressed Data frame..." to match the condition specified on P413:L28. | as in comment | Revised –  We add the if description to clarify.  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 11720 |
| 11721 | Gaurav Patwardhan | 35.3.3 | 413.53 | Rewrite Bullet #6 to clarify where the To DS and From DS bits exist. | Rewrite to the effect of : "... settings of To DS and From DS bits, Address 3 field and the Address 4 field (if present) in the MAC header shall be set based on Table 9-30 (Address field contents)...." | Revised –  We first update the reference based on revme D1.3.  We then clarify that the To DS and From DS bits are in the same MAC header of the frame.  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 11721 |
| 11722 | Gaurav Patwardhan | 35.3.3 | 413.65 | Replace "if" with "in cases where it is allowed". | as in comment | Revised –  We move the “if allowed” upfront with detailed description.  TGbe editor to make the changes shown in 11-22/1032r2 under all headings that include CID 11722 |
| 12991 | Chunyu Hu | 35.3.3 | 413.19 | The subsection 35.3.3 (Multi-link device addressing) would be best located right after the 35.3.1 (General) subsection. | See comment. | Accepted - |
| 11772 | Osama Aboulmagd | 35.3.3 | 413.25 | NOTE 1: Need to define under what condition the MAC address of an MLD is the same as the MAC address of one affiliated STA and when it is different from the MAC address if any affiliated STA | as in comment | Rejected –  This is an implementation choice. |
| 13622 | Rubayet Shafin | 35.3.3 | 413.25 | The benefit of having the same MAC address as the MLD MAC address is not clear. | Please provide clarity or citation on the benefit of having the same MAC address. | Rejected –  We describe one possible usefulness of using same MAC address.  When only link is setup by the MLD, then that the STA MAC address of that link can be the same as the MLD MAC address without the need to have additional MAC address. |
| 13621 | Rubayet Shafin | 35.3.3 | 413.23 | This sentence can be misread as if the "different" is with respect to the MLD MAC address, in reference to the previoius sentence. This is not the intention of the sentence. | Please rewrite this sentence for better clairty. Can try "STAs affiliated with an MLD shall have different MAC addresses." | Accepted - |
| 13347 | Liwen Chu | 35.3.3 | 413.61 | The case that an AP affliated with an AP MLD to transmit frames with A1 as broadcast address is missing. | As in comment | Rejected –  The following existing texts use AP MLD and cover the case when the MLD is AP MLD.  *For a frame sent by a STA affiliated with the MLD with A1 field set to a group address, the value of the Address 2 field, the Address 3 field (if present), and the Address 4 field (if present) in the MAC header of the frame shall be set as defined in 9.3.1 (Control frames), 9.3.2 (Data frames), and 9.3.3 ((PV0) Management frames) if allowed, where the BSSID is the following:* |
| 11099 | Robert Stacey | 35.3.3 | 413.21 | "singly" is used incorrectly here (means "one at a time") | Delete "singly" or change to "uniquely". Alternatively, make a simple statement of fact: "An MLD is identified by its MAC address" | Rejected –  We use singly because that is the term used for the legacy STA as shown below.  ***station (STA):*** *A logical entity that is a singly addressable instance of a medium access control (MAC) and physical layer (PHY) interface to the wireless medium (WM).* |

**Discussion: None**

***TGbe editor: Move clause 35.3.3 Multi-link device addressing to be right after 35.3.1 General and adjust clause number correspondingly(#12991)***

***TGbe editor: Change* 35.3.3 Multi-link device addressing *as follows (track change on):***

**35.3.3 Multi-link device addressing**

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21 An MLD is singly addressable by an MLD MAC address(#10308).

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23 STAs affiliated with an MLD shall have different MAC addresses.(#13621)

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1. NOTE 1—The MLD MAC address of an MLD might be the same as the MAC address of one affiliated STA or might be different from the MAC address of any affiliated STA. (#10309)

28 For an individually addressed frame sent on a link between two MLDs, the following applies:

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1. — the value of the Address 2 (TA) field (if present) in the MAC header of the frame that is not a Probe
2. Response frame shall be the MAC address of the transmitting STA affiliated with the MLD
3. corresponding to that link except for the Individual/Group bit, which is set to 1 when the TA field
4. value is a bandwidth signaling TA and set to 0 otherwise.

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1. — If the individually addressed frame is a Probe Response frame and the AP operating on the link is an AP affiliated with the AP MLD:

* and the AP does not belong to a multiple BSSID set or corresponds to the transmitted BSSID in a multiple BSSID set, then the value of the Address 2 (TA) field in the MAC header of the frame shall be set to the MAC address of the AP.
* and the AP corresponds to the nontransmitted BSSID in a multiple BSSID set, then the value of the Address 2 (TA) field in the MAC header of the frame shall be set to the transmitted BSSID in the multiple BSSID set (see 11.1.4.3.4 (Criteria for sending a response)).(#10607)

-— the value of the Address 1 (RA) field in the MAC header of the frame shall be the MAC address of

1. the receiving STA affiliated with the MLD corresponding to that link.

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1. — If the individually addressed frame is a Management frame,(#11720) the value of the Address 3(#10411) field in the MAC header of the(#11720) Management(#10608) frame shall be set based on 9.3.3.1 (Format of (PV0) Management frames).
2. — If the individually addressed frame is a Data frame,(#11720) the value of the Address 3 field and the Address 4 field (if present) in the MAC header of the(#11720) Data(#10609) frame shall be set based on Table 9-58 (Address field contents for Data frames transmitted by nonmesh STAs) and the settings of the To DS and From DS bits in the MAC header of the Data frame(#11721), where the BSSID is the MAC address of the AP affiliated with the AP MLD corresponding to that link.

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1. NOTE 2—For frames sent over a direct path in a single link TDLS direct link, by a STA affiliated with a non-AP MLD,
2. the value of the Address 2 (TA) field is set to the MLD MAC address of the non-AP MLD as described in [35.3.21.2](#bookmark71)
3. [(TDLS direct link over a single link)](#bookmark71).

For a frame sent by a STA affiliated with the MLD with Address 1(#10411) field set to a group address (if allowed as described in 9.3.1 (Control frames), 9.3.2 (Data frames), and 9.3.3 ((PV0) Management frames)), the value of the Address 2 field, the Address 3 field (if present), and the Address 4 field (if present) in the MAC header of the frame shall be set as defined in 9.3.1 (Control frames), 9.3.2 (Data frames), and 9.3.3 ((PV0) Management frames)(#11722), where the BSSID is the following:

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1. — if the STA is an AP, then the BSSID is the MAC address of the AP
2. — if the STA is a non-AP STA affiliated with the non-AP MLD that has performed Multi-link setup with an AP MLD, and a link is set up between the non-AP STA affiliated with the non-AP MLD and an AP affiliated with the AP MLD, then the BSSID is set to the MAC address of the AP affiliated with the AP MLD.(#10610)

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