IEEE P802.11
Wireless LANs

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| 11be D2.0 CR for 11.3 Part I |
| Date: 2022-08-29 |
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Abstract

This submission proposes resolutions for the following CIDs:

12884, 12342, 13497, 13135, 13136, 13137, 10676, 13138, 10292, 12256,

12257, 10677, 11988, 11989, 13141, 13142, 13273, 11531, 13143, 13144,

13145, 13525

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Revise resolution for CID 12884, 12342, 13497 based on the suggestion from the editor
* Rev 2: Add green tag based on the suggestion from Chair. Revise resolution of CID 13525.

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** |
| 12884 | Ilya Levitsky | 11.3 | 307.14 | The title has a crossed out old name and a new name. However, in referenced, both old and new titles seem concatenated and old title is not crossed out. This visual bug may need a fix. | As in comment | Rejected -   It is a problem of the framemaker that is beyond the control of the TGbe Editor |
| 12342 | Atsushi Shirakawa | 11.3 | 307.04 | typo: STA authenticationAuthentication andassociation"11.3 STA authenticationAuthentication andassociation" is refferd from many places and trigger same typo. | "STA authenticationAuthentication andassociation" should replaced with "Authentication andassociation" | Rejected -   It is a problem of the framemaker that is beyond the control of the TGbe Editor |
| 13497 | Liwen Chu | 11.3 | 303.04 | change "11.3 (STA authenticationAuthentication and association)" to "11.3 (Authentication and association)" in the draft | As in comment | Rejected -   It is a problem of the framemaker that is beyond the control of the TGbe Editor |
| 13135 | Mark RISON | 11.3.1 | 307.14 | "the reference of a "STA"" is awkward. Ditto "MLD" in next para | Change to "a reference to a "STA"" | Revised – Agree in principle with the commenter.TGbe editor to make the changes shown in 11-22/1415r2 under all headings that include CID 13135 |
| 13136 | Mark RISON | 11.3.1 | 307.19 | "the reference of"SME" means the entity that manages the MLD." -- does this mean we have an MLDME? This is not shown in Clause 4 | Add an MLDME to Subclause 6.1 | Rejected – Whether we need additional MLDME has been discussed. The conclusion is not to have additional MLDME defined. As shown in Figure 4-30b and the description below, SME is reused.*An MLD supports multiple MAC sublayers, coordinated by an SME* |
| 13137 | Mark RISON | 11.3.5 | 310.01 | All these "The STA or the MLD shall" and similar are unclear: so, which shall do whatever it is? What if on one side the MLD decides to do it while on the other side a STA decides to do it? | Recast in terms of "The MLD (if it exists) or otherwise the STA shall" | Rejected- Authentication is only between two MLDs or two STAs. There is no third mode that on one side it is MLD and on the other side it is STA.  |
| 10676 | Duncan Ho | 11.3.5.4 | 312.39 | Extraneous close parenthesis | Remove the close parenthesis | Revised – Agree in principle with the commenter. TGbe editor to make the changes shown in 11-22/1415r2 under all headings that include CID 10676 |
| 13138 | Mark RISON | 11.3.5.4 | 312.48 | "If the STA is a mesh STA, its SME shall inform the mesh peering instance controller (see14.3.4 (Mesh peering instance controller)) of the deauthentication." -- what if it's a mesh MLD? | Add material for mesh MLDs | Rejected – The commenter does not provide sufficient details to add the feature. For example, the commenter does not describe how synchronization will work and how different mesh MLD with different support of links will work.  |
| 10292 | Michael Montemurro | 11.3.6.1 | 313.32 | links should be link | At cited location change "setup links" to "setup link" | Accepted -  |
| 12256 | Stephen McCann | 11.3.6.1 | 313.33 | What is a "non-FILS MLD". I think this is an MLD, as FILS does not appear to be defined for an MLD. In other words a FILS MLD does not exist. | Remove "or a non-FILS MLD" at the cited sentence. Also make the same change at P313L53. | Rejected – “non-FILS” is used to have alignment with baseline texts. We note that we use the texts of non-DMG for MLD, but MLD configuration does not include DMG. See *11.2.3 Power management in a non-DMG infrastructure network.* Technically, non-FILS does not make the sentence incorrect as well.  |
| 12257 | Stephen McCann | 11.3.6.1 | 313.62 | The term "association" does not exist anymore (see P58L63). It needs to be expanded. | Change the paragraph to "Neither STA nor MLD association is applicable in an IBSS. In an infrastructure BSS, either STA or MLD association is required. Between an AP MLD and a non-AP MLD, MLD association is required. In a PBSS, either STA or MLD association is optional. APs, AP MLDs, and PCPs do not initiate either STA or MLD association." | Revised - STA association or MLD association are created to quickly differentiate the difference for association between STAs or association between MLDs. The definition is specifically like that. For all the cases that we need the differentiation, it is possible to:1. Use MLO or non-MLO2. Use association between STAs or association between MLDs.It is also true that we do not specifically define MLD authentication or MLD disauthentication or STA authentication or STA disauthentication. If we need to specifically define all these terms, then creating all these new terms may not be so useful. Based on the resolution of CID 10270, we revise globally to simply use above options rather than creating new terms to better integrate with the baseline. TGbe editor to make the changes shown in 11-22/1236r6 under all headings that include CID 10270 |
| 10677 | Duncan Ho | 11.3.6.2 | 0.00 | "For a non-AP MLD associated with an AP MLD, a non-AP STA affiliated with the non-AP MLD shall not send an Association Request frame without Basic Multi-Link element" <- If the non-AP MLD is already associated, why will it send an Association Request frame? | Fix the inconsistency | Rejected – Agree with the commenter that the affiliated indeed should not send association request frame. This is exactly the purpose of the sentence. Note that consider you have MLD MAC address M, and one of your affiliated STA has MAC address y. Then if we allow the STA to send association request without multi-link element, then you may end up with two assocaitions inside MLD. There is no specific benefits to this, so the sentence disallows this.  |
| 11988 | Albert Petrick | 11.3.6.2 | 314.11 | Syntax error | remove extra bracket | Rejected – Note that it is correct to have two parathesis. We have one parenthesis for “see” and another parenthesis for “reference”. *The SME shall delete any PTKSA, GTKSA, IGTKSA, BIGTKSA and temporal keys held forcommunication with the AP MLD by using MLME-DELETEKEYS.request primitive (see 12.6.18 (RSNAsecurity association termination)) before invoking MLME-ASSOCIATE.request primitive.* |
| 11989 | Albert Petrick | 11.3.6.2 | 314.21 | grammar issue | Change "without Basic" to "without a Basic" | Accepted -  |
| 13141 | Mark RISON | 11.3.6.2 | 314.08 | "The SME shall delete any PTKSA, GTKSA, IGTKSA, BIGTKSA and temporal keys held forcommunication with the AP MLD by using MLME-DELETEKEYS.request primitive (see 12.6.18 (RSNAsecurity association termination)) before invoking MLME-ASSOCIATE.request primitive." -- there could be more than one PTKSA etc. Also, articles | Change to "The SME shall delete any PTKSA(s), GTKSA(s), IGTKSA(s), BIGTKSA(s) and temporal keys held forcommunication with the AP MLD by using the MLME-DELETEKEYS.request primitive (see 12.6.18 (RSNAsecurity association termination)) before invoking the MLME-ASSOCIATE.request primitive." | Rejected – “Any GTKSA, IGTKSA, BIGTKSA” already refers to the ones in any link. Also, there is only one PTKSA. |
| 13142 | Mark RISON | 11.3.6.2 | 314.08 | "The SME shall delete any PTKSA, GTKSA, IGTKSA, BIGTKSA and temporal keys held forcommunication with the AP MLD by using MLME-DELETEKEYS.request primitive (see 12.6.18 (RSNAsecurity association termination)) before invoking MLME-ASSOCIATE.request primitive." -- there are other possible SAs (e.g. WTKSA) | Extend the list to cover all SAs (see latest 802.11me draft) | Rejected – WIGTKSA is for wake-up radio, which is not defined for MLD. |
| 13273 | Binita Gupta | 11.3.6.2 | 314.27 | Change "non-AP, non-AP MLD,..." to "non-AP STA, non-AP MLD, ...". Fix in other places as well in 11.3.6 (11.3.6.4, 11.3.6.6/7, | As in comment | Revised – Agree in principle with the commenter. TGbe editor to make the changes shown in 11-22/1415r2 under all headings that include CID 13273 |
| 11531 | Xiaofei Wang | 11.3.6.3 | 315.60 | which MLD is the "a non-AP MLD associated with an AP MLD"? The first phrase seems to be out of place. | as in comment | Rejected – We note that the beginning phrase just describes an existing association between a non-AP MLD and an AP MLD so that the following rule can be described.*For a non-AP MLD associated with an AP MLD, if an AP affiliated with the AP MLD receives anAssociation Request frame without Basic Multi-Link element from a non-AP STA affiliated with the non-AP MLD, then the AP shall reject the association request with a status code ofDENIED\_STA\_AFFILIATED\_WITH\_MLD\_WITH\_EXISTING\_MLD\_ASSOCIATION.* |
| 13143 | Mark RISON | 11.3.6.3 | 315.61 | "without Basic Multi-Link element" missing article. Similarly at 316.7, 318.53, 314.18/21/37, 319.2, 321.23/34 | Change to "without a Basic Multi-Link element" | Accepted -  |
| 13144 | Mark RISON | 11.3.6.3 | 316.45 | "dot11MLDAssociationSAQueryMaximum-Timeout" -- no such MIB attribute. Also other locations | Delete "or dot11MLDAssociationSAQueryMaximum-Timeout" | Revised – We add the MIB attribute.TGbe editor to make the changes shown in 11-22/1415r2 under all headings that include CID 13144 |
| 13145 | Mark RISON | 11.3.6.4 | 319.22 | "If the MLME-REASSOCIATION.request primitive has the new AP's, AP MLD's, or PCP's MACaddress in the CurrentAPAddress parameter (reassociation to the same AP, AP MLD, or PCP), thefollowing states, agreements and allocations shall be deleted or reset to initial values: " is not clear since the things referred to pertain to STAs not MLDs | Clarify that for AP MLDs this is referring to each AP of the AP MLD | Rejected – This is the state maintained by the non-AP MLD or non-AP STA. The statement already applies to the state in each link (if applicable) when it is the case of non-AP MLD.*If the MLME-REASSOCIATION.request primitive has the new AP’s, AP MLD’s, or PCP’s MAC address in the CurrentAPAddress parameter (reassociation to the same AP, AP MLD, or PCP), the following states, agreements and allocations shall be deleted or reset to initial values:**All EDCAF state**Any block ack agreements that are not GCR agreements**Sequence number**Packet number**Duplicate detection caches**Anything queued for transmission**Fragmentation and reassembly buffers**Power management mode**WNM sleep mode**TPKSAs established with any peers**TSPECs**DMG TSPECs**GLK-GCR agreement**MSCS**SCS**TWT* |
| 13525 | Mark Hamilton | 11.3.6.4 | 319.50 | AP MLD addition missing | Add "or same AP MLD" after "same AP" | Revised – We add the description as suggested by the commenter.We note that TDLS is defined for MLD.TGbe editor to make the changes shown in 11-22/1415r2 under all headings that include CID 13525 |

**Discussion: None**

***TGbe editor: Change 11be specification as follows (track change on):***

* + 1. **General**

***Insert the following two paragraphs as the first two paragraphs of the subclause:***

In [11.3 (STA authenticationAuthentication and association)](#bookmark3), a reference to(#13135) a “STA” means that the “STA” is not affiliated with an MLD unless specified otherwise.

In [11.3 (STA authenticationAuthentication and association)](#bookmark3), when referring to MLD authentication, MLD deauthentication, MLD (re)association, MLD disassociation, or MLD 4-way handshake, a reference to(#13135) “SME” means the entity that manages the MLD.

***Change the title of the subclause 11.3.5.4 as follows:***

**11.3.5.4 Deauthentication—originating STA or MLD**

***Change as follows:***

The originating STA or MLD shall deauthenticate with the indicated STA or MLD, respectively, using the following procedure:

* + - * 1. The SME shall generate an MLME-DEAUTHENTICATE.request primitive containing the appropriate reason code for the STA or MLD deauthentication, as defined in Table 9-49 (Reason codes) of 9.4.1.7 (Reason Code field).
				2. On receipt of the MLME-DEAUTHENTICATE.request primitive, if the state for the indicated STA or MLD is State 2, State 3, or State 4, the MLME shall generate a Deauthentication frame to be transmitted to the indicated STA or MLD, respectively.

NOTE—As the Deauthentication frame is a bufferable MMPDU, the transmission of this frame might be delayed by the operation of a power saving protocol. The AID and the PTKSA are maintained (when applicable) until the frame is acknowledged or attempts to transmit the frame are abandoned.

* + - * 1. The state for the indicated STA or MLD shall be set to State 1.
				2. Once the Deauthentication frame is acknowledged or attempts to transmit the frame are abandoned, the MLME shall issue an MLME-DEAUTHENTICATE.confirm primitive to inform the SME of the deauthentication.
				3. The SME, upon receipt of an MLME-DEAUTHENTICATE.confirm primitive, shall delete any PTKSA, GTKSA, IGTKSA, BIGTKSA, WIGTKSA and temporal keys held for communication with the indicated STA or MLD by using the MLME-DELETEKEYS.request primitive (see

12.6.18 (RSNA security association termination)) and by generating an MLME- SETPROTECTION.request(None) primitive.

* + - * 1. If the STA is contained within an AP or PCP, its SME, upon receipt of an MLME- DEAUTHENTICATE.confirm primitive, shall release the AID assigned for the indicated STA, if the state for the indicated STA was State 3 or State 4.

f1) If the MLD is an AP MLD, its SME(#10676), upon receipt of an MLME-DEAUTHENTICATE.confirm primitive, shall release the AID assigned for the indicated non-AP MLD, if the state for the indicated MLD was State 3 or State 4.

* + - * 1. If the STA is contained within an AP, its SME shall inform the DS of the disassociation, if the state for the indicated STA was State 3 or State 4.

g1) If the MLD is an AP MLD, its SME shall inform the DS of the disassociation, if the state for the indicated non-AP MLD was State 3 or State 4.

* + - * 1. If the STA is a mesh STA, its SME shall inform the mesh peering instance controller (see

14.3.4 (Mesh peering instance controller)) of the deauthentication.

**11.3.6 Association, reassociation, and disassociation**

**11.3.6.1 General**

***Change the third, fourth, and fifth paragraphs as follows:***

Successful association enables a STA to exchange Class 3 frames. Successful association enables an MLD to exchange Class 3 frames on any setup link(#10292) subject to additional constraints (see 35.3.7 (Link management)). Successful association sets the state for a non-FILS STA or a non-FILS MLD to State 3 or State 4. Successful association sets the state for FILS STAs to State 4.

(..existing texts…)

***Change the title of the subclause 11.3.6.2 as follows:***

**11.3.6.2 Non-AP STA, non-AP MLD, and non-PCP STA association initiation procedures**

(..existing texts…)

NOTE—A non-AP MLD can disassociate from the associated AP MLD to allow a non-AP STA that was affiliated with
the non-AP MLD to send an Association Request frame without a(#11989) Basic Multi-Link element to perform regular STA
association, i.e., non-MLD association.

***Change the now-shifted eighth paragraph as follows:***Upon receipt of an MLME-ASSOCIATE.request primitive, a non-AP STA(#13273), non-AP MLD, and non-PCP STA shall
associate with an AP, AP MLD, or PCP, respectively, using the following procedure:

(..existing texts…)

***Change the title of the subclause 11.3.6.3 as follows:***

**11.3.6.3 AP, AP MLD, or PCP association receipt procedures**

***Insert the following paragraph as the first paragraph of the subclause:***

For a non-AP MLD associated with an AP MLD, if an AP affiliated with the AP MLD receives an Association Request frame without a(#13143) Basic Multi-Link element from a non-AP STA affiliated with the non- AP MLD, then the AP shall reject the association request with a status code of DENIED\_STA\_AFFILIATED\_WITH\_MLD\_WITH\_EXISTING\_MLD\_ASSOCIATION.

***Change the title of the subclause 11.3.6.4 as follows:***

**11.3.6.4 Non-AP STA(#13273), non-AP MLD, and non-PCP STA reassociation initiation procedures**

(..existing texts…)

***Change the now-shifted sixth paragraph as follows:***Upon receipt of an MLME-REASSOCIATE.request primitive, a non-AP STA(#13273), non-AP MLD, and non-PCP STA
shall reassociate with an AP, AP MLD, or PCP, respectively, using the following procedure:

(..existing texts…)

If the reassociation is to the same AP or the same AP MLD (as described above), the following states, agreements and allocations (if it exists)(#13525) are not affected by the reassociation procedure:

1. PSMP sessions
2. Enablement/Deenablement
3. GDD enablement
4. TDLS agreements
5. MMSLs
6. GCR agreements that are not GLK-GCR agreements
7. DMS agreements
8. TFS agreements
9. FMS agreements
10. Triggered autonomous reporting agreements
11. FTM sessions
12. DMG SP and CBAP allocations
13. PTP TSPECs.

(..existing texts…)

***Change the title of the subclause 11.3.6.6 as follows:***

**11.3.6.6 Non-AP STA(#13273), non-AP MLD, and non-PCP STA disassociation initiation procedures**

***Change the second paragraph as follows:***

Upon receipt of an MLME-DISASSOCIATE.request primitive, a non-AP STA(#13273), non-AP MLD, and non-PCP STA’s MLME shall disassociate from an AP, AP MLD, or PCP, respectively, using the following procedure:

(..existing texts…)

***Change the title of the subclause 11.3.6.7 as follows:***

**11.3.6.7 Non-AP STA(#13273), non-AP MLD, and non-PCP STA disassociation receipt procedure**

***Change as follows:***

Upon receipt of a Disassociation frame from an AP, AP MLD, or PCP for which the state is State 3 or State 4, if management frame protection was not negotiated when the PTKSA(s) were created, or if management frame protection is in use and the frame is not discarded per management frame protection processing, a non-AP STA(#13273), non-AP MLD, and non-PCP STA, respectively, shall disassociate from the AP, AP MLD, or PCP using the following procedure:

(..existing texts…)

**C.3 MIB Detail**

(..existing texts…)

***Insert the following after the dot11STACivicLocationConfig TABLE:***

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \* dot11EHTStationConfig TABLE

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

(..existing texts…)

Dot11EHTStationConfigEntry ::= SEQUENCE {

dot11EHTPPEThresholdsRequired TruthValue,

dot11TIDtoLinkMappingActivated TruthValue,

dot11EHTEPCSPriorityAccessActivated TruthValue,

dot11MSDTimerDuration Unsigned32,

dot11MSDTXOPMAX Unsigned32,

dot11MLDAssociationSAQueryMaximumTimeout Unsigned32(#13144)}

(..existing texts…)

dot11MLDAssociationSAQueryMaximumTimeout OBJECT-TYPE(#13144)
SYNTAX Unsigned32 (1..4294967295)
UNITS "TUs"(#1724)
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This is a control variable.
It is written by an external management entity.
Changes take effect as soon as practical in the implementation.
This attribute specifies the time period(#1724) that an AP MLD can wait, from
the scheduling of the first SA Query Request to allow association process
to be started without starting additional SA Query procedure if a successful SA Query Response is not received."
DEFVAL { 1000 }
::= { dot11StationConfigEntry <ANA>}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \* End of dot11EHTStationConfig TABLE

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*