IEEE P802.11  
Wireless LANs

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| 11bi D1.0 Miscellaneous comments | | | | |
| Date: 2025-03-09 | | | | |
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Abstract

This submission resolves the following CIDs:

394, 399, 403, 405, 409, 410, 160,

459, 47, 491, 495, 311, 496, 497,

857, 744, 261, 644, 393, 379, 979, 944, 927,

962, 392, 147, 169, 648, 655, 650, 667, 840, 173,

841, 842, 843, 975, 457, 742, 465, 407, 267, 268, 164

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Put similar CIDs together.
* Rev 2: Revision on the resolution of changing field name. Add CID 147, 169, 648, 655, 650, 667, 840, 173, 841, 842, 843, 975
* Rev 3: Revision based on the discussion during the teleconference. Defer 267, 268, 164. Need to review revision of 457, 742. 465 and 407 may need separate SP/Motion.

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 TGbi D1.0 Draft. This introduction is not part of the adopted material.

Editing instructions formatted like this are intended to be copied into the TGbi D1.0 Draft. (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents). TGbi Editor: Editing instructions preceded by “TGbi Editor” are instructions to the TGbi editor to modify existing material in the TGbi draft. As a result of adopting the changes, the TGbi editor will execute the instructions rather than copy them to the TGbi Draft.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 394 | 6.5.5 | 28.50 | "The set of elements and fields to be included in 802.1X Authentication frames" -- surely in .ind (and .cfm) it's the set received | Change "to be included" to "received" at 28.50, 29.3, 29.50, 30.3 | Revised –  Agree in principle with the commenter.  Initiator has .request and gets .confirm. Responder gets .indication and prepares .response. Hence, .confirm and .indication is the reception results.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 394 |
| 399 | 9.3.3 | 0.00 | There are a bunch of "if the <something> frame is encrypted" but I think we normally use the more generic term "protected" | Change as suggested throughout 9.3.3 | Rejected –  Protected may mean MIC only protection or encryption. Since the case is only true for encryption, we use encrypted to differentiate from being MIC protected. |
| 403 | 9.3.3.11 | 37.55 | I have a nasty feeling it's not allowed to insert new elements in the middle | Add the new elements at the end, ah, but maybe it's OK because only used in a new auth frame type? | Rejected –  Since this is a new auth frame type, it is fine to add a field or an element in the middle. Furthermore, we note thatthe addition is a field not an element, and the field can not be added after elements. |
| 405 | 9.3.3.11 | 37.55 | It would be cleaner just to define an element containing the EAPOL PDU, than to have a length field and an optional content field | Ah, but this is because the PDU can be >255 octets? OK, then just give a xref for row 9a to 9.4.1.81 Encapsulation Length field | Revised –  We provide reference.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 405 |
| 409 | 9.3.3.11 | 38.48 | You cannot require existing FT implementations to include a new element | Change to "is optionally present" | Accepted - |
| 410 | 9.3.3.11 | 42.32 | The contents for ATSN 3 with success or not success are the same | Delete the rows for ATSN 3. At 42.44 change ">3" to ">= 3" where the >= should be the single glyph | Revised –  We provide reference.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 410 |
| 160 | 9.3.3.5 | 35.47 | The text "...and the peer supports DS MAC Address;" doesn't make sense. It needs re-writing. | Change the cited text to "and the peer supports the use of a destination MAC address;". Make the same change at P35L42. | Revised –  We refer to the indication in RSNXE.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 160 |
| 459 | 9.4.2.23.3 | 51.35 | "0 (open) or 8 (IEEE 802.1X) " is confusing for a row that already says the auth type is "Authentication negotiated over IEEE Std 802.1X" | Add a xref to somewhere that explains why we have two options (now) | Rejected –  We note that 0 (open) is used in baseline because EAPOL PDU is transferred using data frame which needs an open authentication to go into association. 8 is added so that EAPOL PDU can be exchanged using authentication frame.  We also note that reference is generally not provided in the table. |
| 47 | 9.4.2.347 | 61.27 | "The DS MAC Address field indicates the DS MAC address." Needs "value" | At cited location make following edit :"The DS MAC Address field value indicates the DS MAC address." | Rejected –  We note that in the baseline we have 672 instances of “field indicate” and only 11 instances of “field value indicate”. “field indicate” is sufficient based on the style of the baseline. |
| 491 | 9.6.38.1 | 65.46 | It's not clear why Protected EHT Compressed Beamforming/ CQI frame is time-priority if Protected HE Compressed Beamforming/ CQI is not. Ditto 67.62 | Change "Yes" to "No" | Revised –  We note that HE Compressed Beamforming/CQI is time-priority per baseline. Hence, we add time-priority to protected HE Compressed Beamforming/CQI.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 491 |
| 495 | 9.6.42.2 | 69.35 | It would be better to just drop Table 9-658v and keep Table 9-658w with an indication that item 3 is only present for MLO, especially since the text in the para at line 29 does not actually say which format is used when | As it says in the comment | Rejected –  The title specifies which is for MLO and which is for non-MLO.  Table 9-658v—Capabilities And Operation Parameters Request frame Action field format  for non-MLO  Table 9-658w—Capabilities And Operation Parameters Request frame Action field format  for MLO |
| 311 | 9.6.42.3 | 70.52 | Cyphering the beacon is a BPE behavior, which I assume is an MLD-only behavior. Therefore, does it make sense to have Capabilities and Operation Parameters Response frames for non-MLD? | Discuss | Rejected –  The response frame is encrypted, which also provides the benefits of protection, which is not available under Probe response. As a result, it is still beneficial for non-MLO to have this feature in terms of both privacy and protection. |
| 496 | 9.6.42.3 | 70.20 | This para does not actually say that Table 9-658x is used for non-MLO and Table 9-658y for MLO | Add words to that effect | Rejected –  The title specifies which is for MLO and which is for non-MLO. It is in the second line.  Table 9-658x—Capabilities And Operation Parameters Response frame Action field format  for non-MLO  Table 9-658y—Capabilities And Operation Parameters Response frame Action field format  for MLO |
| 497 | 9.6.42.3 | 70.43 | It's not clear why MLO just gets a Basic Multi-Link element but non-MLO gets every single element from probe responses | Only pass for non-MLO what is actually needed | Rejected –  For MLO, there are multiple links, and the elements for each link is in a per-STA profile of multi-link element. For non-MLO, there is only one link, so there is no need of ML element and just specific element. |
| 857 | 9.6.42.3 | 71.13 | The Basic Multi-Link element should be a complete profile to be sure that all mandatory elements are included in the basic multi-link element. | Please modify such as "The Basic Multi-Link element is defined in 9.4.2.322 (Multi-Link element)(#1061) and is optionally present (see 12.16.4 (EDP capabilities and operation parameters request and response procedure))." | Rejected –  In 12.16.4, it is specified that it is a complete profile. See cited texts below.  *The EDP Capabilities And Operation*  *Parameters Response frame shall include a Basic Multi-Link element, and the Basic Multi-Link element*  *shall include a Per-STA Profile subelement with the Complete Profile subfield set to 1 for each AP affiliated with the AP MLD (see 9.4.2.321.2.4 (Link Info field of the Basic Multi-Link element)).* |
| 744 | C.3 | 142.43 | "to support DS MAC Address is enabled" -- not clear what this means and case wrong | Maybe "to support use of a DS MAC Address field" or "to support use of a DS MAC address"? | Revised –  We revise to align the description.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 744 |
| 261 | 11.3.2 | 101.16 | Conditions to move from state 2 to state 4 look goofy. Especially word successful is used wildly. This makes the operations hard to understand. | Please modify the conditions to move from state 2 to state 4: - Start every condition with "Succesful..." | Rejected –  Bullets without “successful” are the baseline texts. |
| 644 | 11.3.2 | 99.01 | It's not clear what's changed, but I don't see any reason 11bi should be messing with the auth/assoc state machine | Do not make any changes in this subclause | Rejected –  11bi introduces encryption of (re)association request/response frame utilizing derived PTKSA, which does not need additional 4-way handshake. Hence, it is required to update the figure. |
| 393 | 4.10.7 | 25.56 | "or first IEEE 802.1X Authentication frame" insertion seems to be changing required behaviour for existing devices | Delete the cited text | Rejected –  The insertion does not change existing device behavior because there is a capability bit to use 802.1X Authentication frame. |
| 379 | 4.2.5 | 23.52 | I don't understand why .1X was added here, but not FT, which was missing compared to the para above too. Also, .1X is already covered by the next sentence | Change "IEEE 802.1X authentication" to "FT authentication" | Rejected –  We add IEEE 802.1X authentication because we add new authentication type for 802.1X over Authentication frame.  FT builds on other authentication like SAE and 802.1X. This reflects in the AKM definition where we have FT over XXX. |
| 979 | 4.2.5 | 23.18 | 802.1X-2020's clause 12 is about carrying EAPOL frames within "data" frames, and how they are controlled at the port for distribution to the PAE, versus to the MAC SAP. The addition of use (and mention of that use) of Management frames (i.e. Authentication frames) to carry EAPOL PDUs is not appropriate for reference to this clause of 802.1X. | Reword this sentence, or just add a new sentence instead of trying to merge, to keep the different uses clear. | Revised –  We use different sentences.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 979 |
| 944 | 4.2.5 | 23.21 | The sentence added refers to "this process" but its unclear with "this" refers to | Revise the sentence to (presumably) refer to Authentication frames containing an IEEE 802.1X payload. | Revised –  We use different sentences.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 979 |
| 927 | 4.5.4.2 | 23.56 | The sentence has been struck out. Is there a reason? It seems that the sentence is still valid | Provide an explanation or restore the sentence | Rejected –  The struck out sentence has been moved to the paragraph above. |
| 962 | 4.5.4.2 | 23.22 | Introduction of the "EAPOL-Start Authentication frame" feels like unnecessary and undesired extra complexity. Furthermore, it is used incorrectly in 4.2.5 (it applies only to the last item in the list, not the first two: EAPOL-Key frames and EAPOL-Key request frames).  The NOTE 1 using this term in 12.16.5 feels like something that should be normative language and not just an informative note since EAPOL-Start is not normally used to start EAP authentication in WLAN cases. The AP/Authenticator starts directly with EAP-Request/Identity on association. The Authentication frame case needs something special for the STA/Supplicant to use as a starting point. | At P21 L24-26, delete definition of EAPOL-Start Authentication frame. At P23 L22, delete "Authentication frames used for this purpose are generally referred to as EAPOL-Start Authentication frames." At P25 L44, replace "or EAPOL-Start Authentication frames" with "or in an Authentication frame". At P122 L46-47, delete NOTE 1. | Revised –  Agree in principle with the commenter.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 962 |
| 392 |  | 0.00 | "EAPOL-Start frames or EAPOL-Start Authentication frames" -- have all instances of "EAPOL-Start" in the baseline been checked and "or EAPOL-Start Authentication" added where necessary? | As it says in the comment | Revised –  We remove definition of EAPOL-Start.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 962 |
| 147 | 3.2 | 21.16 | The distribution service (DS) is a logical service that allows frames to transition from one place to another. Therefore the DS is not an end point and does not have an address. It looks as though the DS MAC address is actually a destination (or a source) MAC address per clause 4.3.19 in the baseline. | Replace all occurences of "DS MAC address" in the draft and replace them with "destination MAC address". Some of them may be "source MAC address". There are 62 occurences. | Rejected –  DS MAC address mean the MAC address is used by the DS. When another STA on the other side of the DS sends to a STA with DS MAC address x, then the destination MAC address is x. When an AP on the other side of the DS sends a data frame to a STA from a STA with DS MAC address x, the source address is x. Since it maybe used for both cases, it is not accurate to change it to either source MAC address or destination MAC address. |
| 169 | 12.6.1.1.6 PTKSA | 109.22 | Add 802.1X authentication using Authentication frame since PTKSA is also derived | As in comment | Revised –  Agree in principle with the commenter. We generalize it to key derivation with  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 169 |
| 648 | 12.6.1.2.2 | 110.24 | "The Supplicant and Authenticator might also use Authentication frames to pass EAPOL PDUs." -- I think it does one or the other | Change to "The Supplicant and Authenticator might alternatively use Authentication frames to pass EAPOL PDUs." | Accepted - |
| 655 | 12.6.18 | 113.39 | "EDP robust individually addressed Management frames and EDP robust individually addressed Beamforming/CSI/CQI frames" -- Management frames are the superset, so the latter is in the former. Also case horror | As it says in the comment | Revised –  “Beamforming” has been revised with “beamforming” in CID 647. 12.16.3 (EDP Robust Individually Addressed  Management Frames and Robust Individually Addressed Beamforming/CSI/CQI Frames(#647)) describes the definitions of the two categories. |
| 650 | 12.6.7 | 111.17 | "an IEEE 802.1X authentication procedure completes successfully over the Authentication frame exchanges car-rying EAPOL PDUs (if using IEEE 802.1X authentication utilizing Authentication frames) and the IEEE 802.1X Uncontrolled Port" -- it does one or the other | change "and" to "or" and append "(otherwise)" | Revised –  Agree in principle with the commenter.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 650 |
| 667 | 12.16.2 | 118.65 | "An EDP AP shall follow the rules defined in 11.1.4.3.4 (Criteria for sending a response) when receiving a Probe Request frame addressed to it even if the frame does not contain some of the elements that Table 9-66 (Probe Request frame body) indicates to be present when the soliciting non-AP STA follows the rules described in this subclause." -- the "even if" is not clear, and "this subclause" is ambiguous | As it says in the comment | Rejected -  “Even if” is used because some elements is omitted in probe request. “even if” is used in the spec 116 times for similar usage. “described in this subclause” is used in the baseline “87” times. It means the rules defined in this subclause which is 12.16.2. |
| 840 | 12.16.2 | 118.57 | Clause 12.16.2 talks about content of Prope Response frames sent by EDP APs. It makes no reference to the requirement in clause 10.71.8.1 that says that a "BPE AP shall not respond to Probe Request frames". | Add text describing behavior of BPE APs with regard to generating Probe Responses including a link to clause 10.71.81. Change instances of "EDP AP" in this section to "EDP AP that is not a BPE AP". Also, while requirement in clause 10.71.8.1 does not apply to BPE non-AP's, it does not make sense to define how they should form Probe Requests, so references to "EDP non-AP STA" should be changed to "EDP non-AP STA that is not a BPE non-AP STA". | Revised –  We add the exception for BPE AP. BPE non-AP MLD is still allowed to discover non-BPE AP, so we do not add the exception.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 840 |
| 173 | 12.16.3 | 119.40 | Maybe useful to add the categories value and action fields value in table 12-13a and 12-13b to help easier identify the frame. | As in comment | Revised –  Agree in principle with the commenter. We add reference to the table.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 173 |
| 841 | 12.16.3 | 119.60 | The text referring to the non-robust frames is not clear | Revise sentence as "When performing operations that need to use any of the individually addressed Management frames listed in the 'Not Robust' column in Table 12-13a, ..." | Revised –  Agree in principle with the commenter.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 841 |
| 842 | 12.16.3 | 120.45 | The text referring to the non-robust frames is not clear | Revise sentence as "When performing operations that need to use any of the individually addressed Beamforming/CSI/CQI frames listed in the 'Not Robust' column in Table 12-13b, ..." | Revised –  Agree in principle with the commenter.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 842 |
| 843 | 12.16.3 | 120.54 | Text refers to "individually addressed Management Frame" rather than "individually addressed Beamforming/CSI/CQI frame" | Change both instances of "individually addressed Management frame" in this bullet, the one instance in the next bullet and the one instance in the first paragraph on page 121 to "individually addressed Beamforming/CSI/CQI frame" | Accepted - |
| 975 | 12.16.3 | 119.29 | Protected EHT compressed BF/COI report defined in 11bi could be used in 11bn CoBF for CrossBSS UHR TB sounding. However, the encryption of the frame prevents it to be useful for this purpose. | Define an additional protected EHT compressed BF/COI frame that is protected by GMAC 256 without encryption such that an associated AP could base on MIC verification status of cross BSS sounding report to schedule CoBF transmissions | Rejected –  MIC only protection does not address the privacy issue raised in the requirement document. |
| 457 | 9.4.2.1 | 50.53 | Elements should be extensible unless there's a really good reason not to (2x) | As it says in the comment | Revised –  Agree with the commenter.  DS MAC address element is not extensible because the element is supposed to include only DS MAC address.  However, OTA MAC Collision Warning element maybe extended in the future, so we make it extensible.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 457 |
| 742 | C.3 | 141.30 | I don't understand why dot11EDPCapabilitiesAndOperationParametersRequestResponseActivated takes effect on start/join but dot11EDPRobustIndividuallyAddressedManagementFrameActivated "as soon as practical" | As it says in the comment | Revised –  We revise to align the description.  TGbi editor to make the changes shown in the latest version of 11-25/0435 under all headings that include CID 742 |
| 465 | 9.4.2.188 | 59.09 | We're not allowed to rename fields | Reinstate "FILS" before "Nonce" throughout | Rejected –  Have checked with Emily and Robert to understand reasons of no name change and with name change. Reason for no name change: The name maybe connected to upper layer operation and name change will create confusion - The name maybe used by driver implementation and name change create confusion. Reason for name change: Keeping the name creates confusion on protocol usage By considering above, the name change from “FILS Nonce” to “Nonce” has more benefits. There has been similar name change for another element from 11az, which changes “FILS wrapped data” to “Wrapped Data”. In that case, there is no confusion to upper layer and the name change does no create confusion to driver implementation. The name change does help protocol usage to clarify that Wrapped Data element can be used outside of FILS. The change from “FILS Nonce” to “Nonce” follows basically the same reasoning. |
| 407 |  | 0.00 | Err, I don't think we are allowed to rename elements (we certainly are not allowed to rename fields) | Reinstate "FILS" before "Nonce" throughout | Rejected –  Have checked with Emily and Robert to understand reasons of no name change and with name change. Reason for no name change: - The name maybe connected to upper layer operation and name change will create confusion - The name maybe used by driver implementation and name change create confusion. Reason for name change: - Keeping the name creates confusion on protocol usage By considering above, the name change from “FILS Nonce” to “Nonce” has more benefits. There has been similar name change for another element from 11az, which changes “FILS wrapped data” to “Wrapped Data”. In that case, there is no confusion to upper layer and the name change does no create confusion to driver implementation. The name change does help protocol usage to clarify that Wrapped Data element can be used outside of FILS. The change from “FILS Nonce” to “Nonce” follows basically the same reasoning. |
| 267 | 9.3.3.5 | 35.44 | non-AP MLDs should not have DS MAC address, because MLD address can do the same operations with reduced complexity. | Make DS MAC address present only for non-AP STAs. | Rejected –  DS MAC address is never transmitted over the air. Non-AP MLD MAC address is still transmitted in authentication frame and as a result can not be used as DS MAC address. |
| 268 | 9.3.3.7 | 36.39 | non-AP MLDs should not have DS MAC address, because MLD address can do the same operations with reduced complexity. | Make DS MAC address present only for non-AP STAs. | Rejected –  DS MAC address is never transmitted over the air. Non-AP MLD MAC address is still transmitted in authentication frame and as a result can not be used as DS MAC address. |
| 164 | 9.4.2.347 | 61.05 | With a new DS MAC address, a non-AP MLD will need to maintain 3 levels of MAC addresses, which is unnecessarily complicated. Instead of introducing a new DS MAC address, it would be better to reuse the MLD MAC address to achieve the same purpose of DS MAC address. | Remove the usage of DS MAC address for non-AP MLD | Rejected –  DS MAC address is never transmitted over the air. Non-AP MLD MAC address is still transmitted in authentication frame and as a result can not be used as DS MAC address. |

***Discussion:***

Reference for CID 261

***A diagram of a document

AI-generated content may be incorrect.***

Reference for CID 393

***A close-up of a document

AI-generated content may be incorrect.***

Reference for CID 379:

A screenshot of a computer application

AI-generated content may be incorrect.

***Proposal:***

**TGbi Editor: *Instruction: Modify 6.5.5 as follows***

* Authenticate
* MLME-AUTHENTICATE.confirm
* Semantics of the service primitive

***Modify MLME-AUTHENTICATE.confirm and the table as follows (not all lines shown):***

The primitive parameters are as follows:

MLME-AUTHENTICATE.confirm(

....

Content of 802.1X Authentication frame,

Content of EDPKE Authentication frame,

VendorSpecificInfo

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| ..... | ..... | ..... | ..... |
| AuthenticationType | Enumeration | OPEN\_SYSTEM, SHARED\_KEY FAST\_BSS\_TRANSITION, SAE, FILS\_SHARED KEY\_WITHOUT\_PFS, FILS\_SHARED\_KEY\_WITH\_PFS, FILS\_PUBLIC\_KEY, PASN, 802\_1X, EDPKE | Specifies the type of authentication algorithm that was used during the authentication process. This value matches the AuthenticationType parameter specified in the corresponding MLME-AUTHENTICATE.request primitive. |
| ..... | ..... | ..... | ..... |
| Content of 802.1X Authentication frame | Sequence of elements and fields | As defined in 12.16.5 (IEEE 802.1X authentication utilizing Authentication frames), 12.16.8.2 (IEEE 802.1X),  9.4.1.81 (Encapsulation Length field), 9.4.1.82 (Encapsulation field), 9.4.2.295 (AKM Suite Selector element), 9.4.2.23 (RSNE), 9.4.2.240 (RSNXE), 9.4.2.188 (FILS Nonce element), 9.4.2.312 (Diffie-Hellman Parameter element). | The set of elements and fields received(#394) in 802.1X Authentication frames. Present if AuthenticationType indicates 802\_1X and dot11EDPIEEE8021XAuthenticationUtilizi  ngAuthenticationFrameActivated is true, otherwise not present. |
| Content of EDKPE Authentication frame | Sequence of elements and fields | As defined in 12.16.9.3.2 (EDPKE Frame Construction and Processing), 9.4.2.23 (RSNE), 9.4.2.240 (RSNXE), 9.4.2.186 (Wrapped Data element), 9.4.2.305 (PASN Parameters element), 9.4.2.47 (Timeout Interval element) | The set of elements and fields received(#394) in EDPKE Authentication frames. Present if AuthenticationType indicates EDPKE and dot11EDPKEActivated is true, otherwise not present. |
| VendorSpecificInfo | A set of elements | As defined in 9.4.2.24 (Vendor Specific element) | Zero or more elements. |

* MLME-AUTHENTICATE.indication
* Semantics of the service primitive

***Modify MLME-AUTHENTICATE.indication and the table as follows (not all lines shown):***

The primitive parameters are as follows:

MLME-AUTHENTICATE.indication(

....

Content of 802.1X Authentication frame,

Content of EDPKE Authentication frame,

VendorSpecificInfo

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| ..... | ..... | ..... | ..... |
| AuthenticationType | Enumeration | OPEN\_SYSTEM, SHARED\_KEY, FAST\_BSS\_ TRANSITION, SAE, FILS\_SHARED\_KEY\_WITHOUT\_PFS, FILS\_SHARED\_KEY\_WITH\_PFS, FILS\_PUBLIC\_KEY, PASN, 802\_1X, EDPKE | Specifies the type of authentication algorithm that was used during the authentication process. |
| ..... | ..... | ..... | ..... |
| Content of 802.1X Authentication frame | Sequence of elements and fields | As defined in 12.16.5 (IEEE 802.1X authentication utilizing Authentication frames), 12.16.8.2 (IEEE 802.1X),  9.4.1.81 (Encapsulation Length field), 9.4.1.82 (Encapsulation field), 9.4.2.295 (AKM Suite Selector element), 9.4.2.23 (RSNE), 9.4.2.240 (RSNXE), 9.4.2.188 (FILS Nonce element), 9.4.2.312 (Diffie-Hellman Parameter element). | The set of elements and fields received(#394) in 802.1X Authentication frames. Present if AuthenticationType indicates 802\_1X and dot11EDPIEEE8021XAuthenticationUtilizi  ngAuthenticationFrameActivated is true, otherwise not present. |
| Content of EDKPE Authentication frame | Sequence of elements and fields | As defined in 12.16.9.3.2 (EDPKE Frame Construction and Processing), 9.4.2.23 (RSNE), 9.4.2.240 (RSNXE), 9.4.2.186 (Wrapped Data element), 9.4.2.305 (PASN Parameters element), 9.4.2.47 (Timeout Interval element) | The set of elements and fields received(#394) in EDPKE Authentication frames. Present if AuthenticationType indicates EDPKE and dot11EDPKEActivated is true, otherwise not present. |
| VendorSpecificInfo | A set of elements | As defined in 9.4.2.24 (Vendor Specific element) | Zero or more elements. |
|  |  |  |  |

**TGbi Editor: *Instruction: Modify 9.3.3.11 as follows***

* Authentication frame format
* revme D7.0 up to order 27. 11be D7.0 up to order 28.

***Modify Table 9-70 as follows (not all lines shown):***

* Authentication frame body

|  |  |  |
| --- | --- | --- |
| Order | Information | Notes |
| … |  |  |
| 9 | Confirm | An unsigned integer encoded as described in 12.4.7.4 (Encoding and decoding of SAE Confirm messages). This is present only in certain Authentication frames as defined in Presence of fields and elements in Authentication frames. |
| 9a | Encapsulation Length | The Encapsulation Length field indicates the number of octets of the Encapsulation field as described in 9.4.1.81 (Encapsulation Length field)(#405). This is present only in certain Authentication frames as defined in Table 9-71 |
| 9b | Encapsulation | The field is used to carry an EAPOL PDU as described in 12.16.5 (IEEE 802.1X authentication utilizing Authentication frames). This is present only when the Encapsulation Length field is nonzero. |
| ... |  |  |
| 17 | ~~FILS~~ Nonce | The ~~FILS~~ Nonce element is present in ~~FILS~~ Authentication frames as defined in Table 9-71 (Presence of fields and elements in Authentication frames). |
| ... |  |  |
| 25 | PASN Parameters | A PASN Parameters element is present only in certain Authentication frames  as defined in Table 9-71 (Presence of fields and elements in Authentication frames). |
| ... |  |  |
| 29 | Diffie-Hellman Parameter | A Diffie-Hellman Parameter element is present only in certain Authentication frames as defined in Table 9-71 (Presence of fields and elements in Authentication frames). |

***Change Table 9-71 and insert new rows at the end of Table 9-71 as follows (not all lines shown):***

* Presence of fields and elements in Authentication frames

|  |  |  |  |
| --- | --- | --- | --- |
| Authentication algorithm | Authentication transaction sequence number | Status code | Presence of fields and elements  indicated as conditional in Table 9-70 (Authentication frame body) |
| FT | 1 | Reserved | The MDE is present.  The FTE and RSNE(s) are present if dot11RSNAActivated is true.  The RSNXE is present if any subfield of the Extended RSN Capabilities field in this element is nonzero, except the Field Length subfield.  The Diffie-Hellman Parameter element is optionally(#409) present as defined in 12.16.8.1 (FT). |
| FT | 2 | Not REJECTED\_WITH\_SUGGESTED\_BSS\_TRANSITION | The MDE is present if the Status Code field is 0.  The FTE and RSNE(s) are present if the Status Code field is 0 and dot11RSNAActivated is true.  The Diffie-Hellman Parameter element is optionally(#409) present as defined in 12.16.8.1 (FT). |
| .... |  |  |  |
| FILS Shared Key  authentication  without PFS | 1 | Reserved | The RSNE is present.  The MDE is present if the FILS authentication is used for FT initial mobility domain association.  The ~~FILS~~ Nonce element is present.  The FILS Session element is present.  The Wrapped Data element is present. |
| FILS Shared Key  authentication  without PFS | 2 | Status | The RSNE is present.  The MDE and the FTE are present if the Status Code field is 0 and FILS authentication is used for FT initial mobility domain association.  The ~~FILS~~ Nonce element is present if the Status Code field is 0.  The FILS Session element is present if the Status Code field is 0.  The Wrapped Data element is present if the Status Code field is 0.  The Association Delay Info element is present if the Status Code field is 0 and the AP expects that the (Re)Association Response frame will be transmitted more than 1 TU after the (Re)Association Request  frame. |
| FILS Shared Key  authentication with PFS | 1 | Reserved | The Finite Cyclic Group field is present.  The FFE field is present.  The RSNE is present.  The MDE is present if the FILS  authentication is used for FT initial mobility domain association.  The ~~FILS~~ Nonce element is present.  The FILS Session element is present.  The Wrapped Data element is present. |
| FILS Shared Key  authentication with  PFS | 2 | Status | The Finite Cyclic Group field is present if the Status Code field is 0.  The FFE field is present if the Status Code field is 0.  The RSNE is present.  The MDE and the FTE are present if the Status Code field is 0 and FILS authentication is used for FT initial mobility domain association.  The ~~FILS~~ Nonce element is present if the Status Code field is 0.  The FILS Session element is present if the Status Code field is 0.  The Wrapped Data element is present if the Status Code field is 0.  The Association Delay Info element is present if the Status Code field is 0 and the AP expects that the (Re)Association Response frame will be transmitted more than 1 TU after the (Re)Association Request frame. |
| FILS Public Key  authentication | 1 | Reserved | The Finite Cyclic Group field is present.  The FFE field is present.  The RSNE is present.  The MDE is present if the FILS authentication is used for FT initial mobility domain association.  The ~~FILS~~ Nonce element is present.  The FILS Session element is present. |
| FILS Public Key  authentication | 2 | Status | The Finite Cyclic Group field is present if the Status Code field is 0.  The FFE field is present if the Status Code field is 0.  The RSNE is present.  The MDE and the FTE are present if the Status Code field is 0 and FILS authentication is used for FT initial mobility domain association.  The ~~FILS~~ Nonce element is present if the Status Code field is 0.  The FILS Session element is present if the Status Code field is 0.  The Association Delay Info element is present if the Status Code field is 0 and the AP expects that the (Re)Association Response frame will be transmitted more than 1 TU after the (Re)Association Request frame. |
| .... |  |  |  |
| IEEE 802.1X authentication | 1 | Reserved | The Encapsulation Length field is present.  The Encapsulation field is present only when the Encapsulation Length field is nonzero.  The AKM Suite Selector element is optionally present as defined in 12.16.5 (IEEE 802.1X authentication utilizing Authentication frames).  The RSNE is optionally present as defined in 12.16.8.2 (IEEE 802.1X).  The RSNXE is optionally present as defined in 12.16.8.2 (IEEE 802.1X).  The Nonce element is optionally present as defined in 12.16.8.2 (IEEE 802.1X).  The Diffie-Hellman Parameter element is optionally present as defined in 12.16.8.2 (IEEE 802.1X). |
| IEEE 802.1X authentication | 2 | SUCCESS | The Encapsulation Length field is present.  The Encapsulation field is present only when the Encapsulation Length field is nonzero.  The AKM Suite Selector element is optionally present as defined in 12.16.5 (IEEE 802.1X authentication utilizing Authentication frames).  The RSNE is optionally present as defined in 12.16.8.2 (IEEE 802.1X).  The Nonce element is optionally present as defined in 12.16.8.2 (IEEE 802.1X).  The Diffie-Hellman Parameter element is optionally present as defined in 12.16.8.2 (IEEE 802.1X). |
| IEEE 802.1X authentication | 2 | Not SUCCESS | The Encapsulation Length field is present.  The Encapsulation field is present only when the Encapsulation Length field is nonzero. |
|  |  |  | (#410) |
|  |  |  | (#410) |
| IEEE 802.1X authentication | >= 3(#410) | Status | The Encapsulation Length field is present.  The Encapsulation field is present only when the Encapsulation Length field is nonzero. |
| EDPKE authentication | 1 | Reserved | RSNE is present.  RSNXE is present if any subfield of the Extended RSN Capabilities field in this element, except the Field Length subfield, is nonzero.  PASN Parameters element is present.  Timeout Interval element may be present.  Wrapped Data element is present if the wrapped data format in PASN Parameters element is nonzero and not reserved. |
| EDPKE authentication | 2 | Status | RSNE is present and PASN Parameters element is present if Status Code field is 0.  RSNXE is present if any subfield of the Extended RSN Capabilities field in this element, except the Field Length subfield, is nonzero.  Timeout Interval element may be present.  Wrapped data element is present if wrapped data format in PASN Parameters element is nonzero and not reserved and Status Code field is 0.  MIC element is present. |
| EDPKE authentication | 3 | Status | PASN Parameters element is present if Status Code field is 0.  Wrapped data element is present if wrapped data format in PASN Parameters element is nonzero and not reserved; and Status Code field is 0.  MIC element is present. |

**TGbi Editor: *Instruction: Modify 9.3.3.5 as follows***

* Association Request frame format

***Insert new rows to Table 9-64 in numeric order (not all lines shown):.***

* Association Request frame body

|  |  |  |
| --- | --- | --- |
| Order | Information | Notes |
| … |  |  |
| <Last assigned+1> | DS MAC Address | The DS MAC Address element is present if the Association Request frame is encrypted, dot11DSMACAddressActivated is true, and the peer indicates support for DS MAC Address in the RSNXE(#160); otherwise, it is not present. |
| <Last assigned+2> | EDP | The EDP element is present if the Association Request frame is encrypted and dot11EDPGroupEpochActivated is true; otherwise, it is not present. This element carries the desired parameters of the Epoch to be joined by the sending STA. |

**TGbi Editor: *Instruction: Modify 9.3.3.7 as follows***

* Reassociation Request frame format

***Insert new rows to Table 9-66 in numeric order (not all lines shown):.***

* Reassociation Request frame body

|  |  |  |
| --- | --- | --- |
| Order | Information | Notes |
| … |  |  |
| <Last assigned+1> | DS MAC Address | The DS MAC Address element is present if the Reassociation Request frame is encrypted, dot11DSMACAddressActivated is true, and the peer indicates support for DS MAC Address in the RSNXE(#160); otherwise, it is not present. |
| <Last assigned+2> | EDP | The EDP element is present if the Reassociation Request frame is encrypted and dot11EDPGroupEpochActivated is true; otherwise, it is not present. This element carries the desired parameters of the Epoch to be joined by the sending STA. |

**TGbi Editor: *Instruction: Modify 9.6.32.1 as follows***

* Protected HE Action field

***Insert the following new rows to Table 9-647 while maintaining the numerical order and updating the reserved range (not all lines shown):***

* Protected HE Action field values

|  |  |  |
| --- | --- | --- |
| Value | Meaning | Time priority(#491) |
| 0 | HE BSS Color Change Announcement | No |
| 1 | MU EDCA Reset | No |
| 2 | Protected HE Compressed Beamforming/CQI | Yes |
| 3 | Protected Quiet Time Period | No |
| ~~2~~4-255 | Reserved |  |

**TGbi Editor: *Instruction: Modify C.3 as follows***

* MIB detail

Dot11EDPStationConfigEntry ::= SEQUENCE

{

dot11EPDPKEActivated TruthValue,

dot11EDPGroupEpochActivated TruthValue,

dot11EDPEpochStartTimeMargin Unsigned32,

dot11EDPEpochTransitionTime Unsigned32,

dot11EDPGroupEpochCurrentGroup Unsigned32,

dot11EDPRobustIndividuallyAddressedManagementFrameActivated

TruthValue,

dot11EDPCapabilitiesAndOperationParametersRequestResponseActivated

TruthValue,

dot11EDPReAssociationFrameEncryptionSupportActivated TruthValue,

dot11EDPIEEE8021XAuthenticationUtilizingAuthenticationFrameActivated

TruthValue,

dot11EDPPMKSACachingPrivacySupportActivated TruthValue

dot11DSMACAddressActivated TruthValue,

dot11PrivacyBeaconResponseTime Unsigned32

}

(…existing texts…)

dot11EDPRobustIndividuallyAddressedManagementFrameActivated OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable. It is written by an external management entity or the SME. Changes take effect for the next MLME-START.request primitive or MLME-JOIN.request primitive.(#742) This attribute, when true, indicates the capability to support EDP robust individually addressed Management frame is enabled. The capability is disabled otherwise."

DEFVAL { false }

::= { dot11EDPStationConfigEntry 6 }

dot11EDPCapabilitiesAndOperationParametersRequestResponseActivated OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable. It is written by an external management entity or the SME. Changes take effect for the next MLME-START.request primitive or MLME-JOIN.request primitive. This attribute, when true, indicates the capability to support capabilities and operation parameters request and response is enabled. The capability is disabled otherwise."

DEFVAL { false }

::= { dot11EDPStationConfigEntry 7 }

(…existing texts…)

dot11DSMACAddressActivated OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable. It is written by an external management entity or the SME. Changes take effect for the next MLME-START.request primitive or MLME-JOIN.request primitive. This attribute, when true, indicates the capability to support use of a DS MAC address(#744) is enabled. The capability is disabled otherwise."

DEFVAL { false }

::= { dot11EDPStationConfigEntry 11}

(…existing texts…)

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

-- \* End of dot11EDPStationConfig TABLE

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

**TGbi Editor: *Instruction: Modify 4.2.5 as follows***

* Interaction with other IEEE 802® layers

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

In a robust security network association (RSNA), IEEE Std 802.11 provides functions to protect Data frames, IEEE Std 802.1X-2020 provides authentication and a Controlled Port, and IEEE Std 802.11 and IEEE Std 802.1X-2020 collaborate to provide key management. All STAs in an RSNA have a corresponding IEEE 802.1X entity that handles these services. This standard defines how an RSNA utilizes IEEE Std 802.1X-2020 to access these services. Within IEEE Std 802.11, EAPOL PDUs are carried as MSDUs within one or more Data frames , as described in Clause 12 of IEEE Std 802.1X-2020. Within this standard, Data frames used for this purpose are generally referred to as *EAPOL-Key frames, EAPOL-Key request frames, and EAPOL-Start frames*.

Within IEEE Std 802.11, EAPOL PDUs can also be carried within Authentication frames (see 12.16.5 (IEEE 802.1X authentication utilizing Authentication frames)). (#979) (#962)

**TGbi Editor: *Instruction: Modify 3.2 as follows***

* Definitions specific to IEEE 802.11

***Insert the following definitions (maintaining alphabetical order):***

(#962)

**TGbi Editor: *Instruction: Modify 4.10.3.2 as follows***

* AKM operations with AS

***Change item b) of the first paragraph as follows (not all lines are shown):***

The following AKM operations are carried out when an IEEE 802.1X AS is used:

* A STA discovers the AP’s security policy through passively monitoring Beacon frames or through active probing. If IEEE 802.1X authentication is used, the EAP authentication process starts when the Authenticator sends the EAP-Request or the Supplicant sends the EAPOL-Start PDU (in one or more EAPOL-Start frames or in an(#962) Authentication frame). EAP messages pass between the Supplicant and AS via the Authenticator and Supplicant’s Uncontrolled Ports as described in 12.7 (Keys and key distribution).

**TGbi Editor: *Instruction: Modify 12.16.5 as follows***

**12.16.5 IEEE 802.1X authentication utilizing Authentication frames**

(#962)

**TGbi Editor: *Instruction: Modify 12.6.1.1.6 as follows***

* PTKSA

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

The PTKSA results from a successful 4-way handshake, FT 4-way handshake, FT protocol, FT resource request protocol, FILS authentication, IEEE 802.1X authentication utilizing Authentication frames with PTKSA derivation,(#169)  ~~or~~ PASN authentication, or EDPKE authentication. This security association is also bidirectional. PTKSAs, except those established using PASN authentication or EDPKE authentication, have the same lifetime as the PMKSA or PMK-R1 security Association, whichever comes first. PTKSAs for PASN authentication or EDPKE authentication have a minimum of the lifetime of the PMKSA used and the timeout negotiated, if any, during PASN authentication. Because the PTKSA is tied to the PMKSA or to a PMK-R1 security association, it only has the additional information from the 4-way handshake, FT Protocol authentication, FILS authentication, IEEE 802.1X authentication utilizing Authentication frames with PTKSA derivation (#169) ~~or~~ PASN authentication, or EDPKE authentication. There shall be only one PTKSA per key ID per band (see 12.6.20 (Multi-band RSNA)) or per MLD setup (see 35.3.5 (ML (re)setup)) with the same Supplicant and Authenticator MAC addresses.

**TGbi Editor: *Instruction: Modify 12.6.1.2.2 as follows***

* Security association in an ESS

NOTE 4—Prior to the completion of IEEE 802.1X authentication and the installation of keys, the IEEE 802.1X Controlled Port in the AP blocks all Data frames. The IEEE 802.1X Controlled Port returns to the unauthorized state and blocks all Data frames before invocation of an MLME-DELETEKEYS.request primitive. The IEEE 802.1X Uncontrolled Port allows EAPOL PDUs to pass between the Supplicant and Authenticator. The Supplicant and Authenticator might alternativelyuse Authentication frames to pass EAPOL PDUs.(#648)

**TGbi Editor: *Instruction: Modify 12.6.7 as follows***

* RSN management of the IEEE 802.1X Controlled Port

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

In an RSN, this standard relies on the fact that IEEE 802.1X Supplicants and Authenticators exchange protocol information via the IEEE 802.1X Uncontrolled Port or Authentication frames carrying EAPOL PDUs. The IEEE 802.1X Controlled Port is blocked from passing general data traffic between the STAs until an IEEE 802.1X authentication procedure completes successfully over the Authentication frame exchanges carrying EAPOL PDUs (if using IEEE 802.1X authentication utilizing Authentication frames) or alternatively(#650) the IEEE 802.1X Uncontrolled Port. The security of an RSNA depends on this being true.

**TGbi Editor: *Instruction: Modify 12.16.2 as follows***

* Contents of Probe Request frame

This subclause defines rules for the contents of a Probe Request frame that is not a multi-link probe request that preserve privacy.(#666)

An EDP AP that is not a BPE AP(#840) shall follow the rules defined in 11.1.4.3.4 (Criteria for sending a response) when receiving a Probe Request frame addressed to it even if the frame does not contain some of the elements that Table 9-66 (Probe Request frame body) indicates to be present when the soliciting non-AP STA follows the rules described in this subclause.

An EDP non-AP STA follows the rules defined in 35.3.4.5 (Probe Request frame content for a non-AP EHT STA) to determine the contents of a Probe Request frame that is not a multi-link probe request with the following exceptions:

* The EDP non-AP STA may omit the Supported Rates and BSS Membership Selectors element.
* In the 2.4 GHz band, if the Supported Rates and BSS Membership Selectors element is included, the EDP STA should indicate only 1, 2, 5.5, 6, 11, 12, and 24 Mb/s in the Supported Rates and BSS Membership Selectors element and should not include the Extended Supported Rates and BSS Membership Selectors element.
* In the 5 GHz or 6 GHz band, if the Supported Rates and BSS Membership Selectors element is included, the EDP STA should indicate only 6, 12, and 24 Mb/s in the Supported Rates and BSS Membership Selectors element and should not include the Extended Supported Rates and BSS Membership Selectors element.

NOTE 1—The inclusion of the Request element, the SSID List element, the Extended Request element, the FILS Request Parameters element, the Short SSID List element, the Known BSSID element, and the Vendor Specific elements, and is optional as described in Table 9-66 (Probe Request frame body) and an EDP non-AP STA can omit these elements to preserve privacy.(#668)

NOTE 2—An EDP STA can follow the rules defined in 12.2.10 (Requirements for support of MAC privacy enhancements) to avoid leakage of possibly sensitive network identifying information in the SSID element.

**TGbi Editor: *Instruction: Modify 12.16.3 as follows***

* EDP Robust Individually Addressed Management Frames and Robust Individually Addressed Beamforming/CSI/CQI Frames(#647)

This subclause defines rules for the individually addressed Management frames described in Table 12-13a (EDP robust individually addressed Management frame and its corresponding individually addressed Management frame that is not robust) and the individually addressed beamforming/CSI/CQI frames described in Table 12-13b (EDP robust individually addressed beamforming/CSI/CQI frame and its corresponding individually addressed beamforming/CSI/CQI frame that is not robust(#647)).(#647)

* EDP robust individually addressed Management frame and its corresponding individually addressed Management frame that is not robust

|  |  |
| --- | --- |
| Robust | Not Robust |
| Protected Notify Channel Width frame (see 9.6.40.2 (Protected Notify Channel Width frame format)) | Notify Channel Width frame (see 9.6.11.2 (Notify Channel Width frame format)) |
| Protected SM Power Save frame (see 9.6.40.3 (Protected SM Power Save frame format)) | SM Power Save frame (see 9.6.11.3 (SM Power Save frame format)) |
| Protected Group ID Management frame (see 9.6.41.3 (Protected Group ID Management frame format)) | Group ID Management frame (see 9.6.22.3 (Group ID Management frame format)) |
| Protected Operating Mode Notification frame (see 9.6.41.4 (Protected Operating Mode Notification frame format)) | Operating Mode Notification frame (see 9.6.22.4 (Operating Mode Notification frame format)) |
| Protected Quiet Time Period frame (see 9.6.32.5 (Protected Quiet Time Period frame format)) | Quiet Time Period frame (9.6.31.3 (Quiet Time Period action frame format))(#173) |

When performing operations that need to use any individually addressed Management frame that is in the Not Robust column (#841)in Table 12-13a (EDP robust individually addressed Management frame and its corresponding individually addressed Management frame that is not robust), if management frame protection is negotiated and both STAs set the EDP Robust Individually Addressed Management Frame Support field in the RSNXE that they transmit to 1, the STAs shall

* use the corresponding robust individually addressed Management frame described in Table 12-13a (EDP robust individually addressed Management frame and its corresponding individually addressed Management frame that is not robust) instead of the individually addressed Management frame that is not robust and
* discard any individually addressed Management frame that is not robust described in Table 12-13a (EDP robust individually addressed Management frame and its corresponding individually addressed Management frame that is not robust) from the peer STA.(#670)

If management frame protection is not negotiated or either STA does not indicate support for the EDP robust individually addressed Management frame, the STAs shall not use any robust individually addressed Management frame described in Table 12-13a (EDP robust individually addressed Management frame and its corresponding individually addressed Management frame that is not robust).

* EDP robust individually addressed beamforming/CSI/CQI frame and its corresponding individually addressed beamforming/CSI/CQI frame that is not robust

|  |  |
| --- | --- |
| Robust | Not Robust |
| Protected CSI frame (see 9.6.40.4 (Protected CSI frame format)) | CSI frame (see 9.6.11.4 (CSI frame format)) |
| Protected Noncompressed Beamforming frame (see 9.6.40.5 (Protected Noncompressed Beamforming frame format)) | Noncompressed Beamforming frame (see 9.6.11.5 (Noncompressed Beamforming frame format)) |
| Protected Compressed Beamforming frame (see 9.6.40.6 (Protected Compressed Beamforming frame format)) | Compressed Beamforming frame (see 9.6.11.6 (Compressed Beamforming frame format)) |
| Protected VHT Compressed Beamforming frame (see 9.6.41.2 (Protected VHT Compressed Beamforming frame format)) | VHT Compressed Beamforming frame (see 9.6.22.2 (VHT Compressed Beamforming frame format)) |
| Protected HE Compressed Beamforming/CQI frame (see 9.6.32.4 (Protected HE Compressed Beamforming/CQI frame format)) | HE Compressed Beamforming/CQI frame (see 9.6.31.2 (HE Compressed Beamforming/CQI frame format)) |
| Protected EHT Compressed Beamforming/CQI frame (see 9.6.38.15 (Protected EHT Compressed Beamforming/CQI frame format)) | EHT Compressed Beamforming/CQI frame (see 9.6.37.2 (EHT Compressed Beamforming/CQI frame format))(#173) |

* (#647)

When performing operations that need to use any individually addressed beamforming/CSI/CQI frame that is in the Not Robust column(#842) in Table 12-13b (EDP robust individually addressed beamforming/CSI/CQI frame and its corresponding individually addressed beamforming/CSI/CQI frame that is not robust(#647)), if management frame protection is negotiated, the transmitting STA sets the EDP Robust Individually Addressed Beamforming/CSI/CQI Frame Tx Support field in the RSNXE that it transmits to 1, and the receiving STA sets the EDP Robust Individually Addressed Beamforming/CSI/CQI Frame Rx Support field in the RSNXE that it transmits to 1, then(#Ed)

* the transmitting STA shall use the corresponding robust individually addressed beamforming/CSI/CQI(#843) frame described in Table 12-13b (EDP robust individually addressed beamforming/CSI/CQI frame and its corresponding individually addressed beamforming/CSI/CQI frame that is not robust(#647)) instead of the individually addressed beamforming/CSI/CQI(#843) frame that is not robust and
* the receiving STA shall discard any individually addressed beamforming/CSI/CQI(#843) frame that is not robust described in Table 12-13b (EDP robust individually addressed beamforming/CSI/CQI frame and its corresponding individually addressed beamforming/CSI/CQI frame that is not robust(#647)) from the peer STA, with which management frame protection is negotiated.

If management frame protection is not negotiated or the transmitting STA does not indicate support for the transmission of the EDP robust individually addressed beamforming/CSI/CQI frame, or the receiving STA does not indicate support for the reception of the EDP robust individually addressed beamforming/CSI/CQI frame, the transmitting STA shall not transmit any robust individually addressed beamforming/CSI/CQI(#843) frame described in Table 12-13b (EDP robust individually addressed beamforming/CSI/CQI frame and its corresponding individually addressed beamforming/CSI/CQI frame that is not robust(#647)) to the receiving STA.(#Ed, #647)

**TGbi Editor: *Instruction: Modify 9.4.2.1 as follows***

* General

***Modify Table 9-130 (Element IDs) as follows:***

* ANA assignment is done

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Element | Element ID | Element ID Extension | Extensible | Fragmentable |
| ...... |  |  |  |  |
| ~~FILS~~ Nonce (see 9.4.2.188 (FILS Nonce element)) | 255 | 13 | No | No |
| ..... |  |  |  |  |
| DS MAC Address (see 9.4.2.347 (DS MAC Address element)) | 255 | 146 | No | No |
| EDP (see 9.4.2.348 (EDP element))(#458, #456) | 255 | 147 | Yes | No |
| OTA MAC Collision Warning (see 9.4.2.349 (OTA MAC Collision Warning element))(#456) | 255 | 148 | Yes(#457) | No |
| AID List (see 9.4.2.350 (AID List element))(#456) | 255 | 149 | Yes | Yes |
| ... |  |  |  |  |
| NOTE 1—See 10.28.6 (Element parsing) on the parsing of elements.  NOTE 2—Yes for a Reassociation Response frame transmitted during ML resetup by an AP affiliated with an AP MLD, in response to a Reassociation Request frame received from a non-AP STA affiliated with a non-AP MLD. No otherwise. | | | | |