IEEE P802.11  
Wireless LANs

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | miscellaneous CFP related CIDs | | | | | | Date: 2025-09-26 | | | | | | Author(s): | | | | | | Name | Affiliation | Address | Phone | email | | Po-Kai Huang | Intel |  |  | po-kai.huang@intel.com | |  |  |  |  |  | |

Abstract

This submission proposes resolutions for the following comments from comment collection on P802.11-REVmf D1.0:

215, 254, 239, 240, 552, 151, 152, 243, 478

**Revision History:**

R0: Initial version.

R1: Add CID 151, 152, 243, 478

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 215 | 9.3.1.8.6 | 753.01 | s the reference to Fig 9-67 correct? There is no PN and MIC in Fig 9-67. Fix it. | As in comment. | REVISED –  Agree in principle with the commenter.  Instruction to TGmf Editor:  Implement the proposed text updates for CID 215 in 11-25/1723r1 |
| 254 | 9.3.1.8.6 | 753.07 | The name of the field is not correct and not aligned with the approved document 11-25/260r7 | Replace "Block Ack Bitmap" with "PN And MIC". Also please make sure there is no accidental inconsistencies with 11-25/0260r7 | REVISED –  Agree in principle with the commenter.  Instruction to TGmf Editor:  Implement the proposed text updates for CID 215 in 11-25/1723r1 |
| 239 | 9.3.1.8.5 | 753.46 | Padding field is not described in the overall M-BA frame format and needs to be added. Please also clarify that the Padding field may consist of one or more Per AID TID Info fields | As in comment | REVISED –  Agree in principle with the commenter.  Instruction to TGmf Editor:  Implement the proposed text updates for CID 239 in 11-25/1723r1 |
| 240 | 9.3.1.22.2 | 787.19 | Please apply CIP for EHT variant Common Info field by using the same B61 an B62. In baseline, this bit is typically set to 1. Why don't we use 0 to indicate a protected frame? If we keep the current spec text, does this mean that B61 set to 0 in this MU-RTS for the legacy STA and PN/MIC is not included? Lastly, when B62 is reserved, what's the value? It looks that 1 is a natural choice instead of the typical 0 to align with baseline behavior. | As in comment | Revised -  First, CFP has been applied to EHT variant in D1.1. Second, B61 is set to 1 to indicate protected frame to align with the setting in protected BAR and M-BA. Third, based on the texts “If control frame protection is negotiated with at least one of the recipient(s), B61 and B62 of any variant of  Common Info field are set as follows:”, if MU-RTS is for legacy STAs only, then B61 and B62 are still reserved, since control frame protection is not negotiated with any recipients. Finally, when B61 and B62 are reserved, then the following two sentences indicates that the value is set to 1. We revise the following sentences to clarify this point.  “NOTE 1—For backward compatibility with HE variant Common Info field, an EHT AP sets B22, B26, B53, and B63 to  0 and sets B56–B62 to 1 in the EHT variant Common Info field unless specified otherwise(#199).” “A non-EHT HE  AP sets the UL HE-SIG-A2 Reserved subfield of the HE variant Common Info field to all 1s unless  specified otherwise.”  Instruction to TGmf Editor:  Implement the proposed text updates for CID 240 in 11-25/1723r1 |
| 552 | 11.55 |  | There should be some CFP test vectors | As it says in the comment | REVISED –  Agree in principle with the commenter.  Instruction to TGmf Editor:  Implement the proposed text updates for CID 194 in 11-25/1442r1 |
| 151 | 12.5.5.1 Overview | 3308.38 | The descrption is unclear | Suggest to change "... the Control frames" to "... the individually addressed and group addressed Control frames" | Accepted - |
| 152 | 12.5.5.1 Overview | 3308.38 | The descrption is unclear | Suggest to clarify what Control frames are  defined to be protected. Whether to add a note? | REVISED –  Agree in principle with the commenter.  Instruction to TGmf Editor:  Implement the proposed text updates for CID 152 in 11-25/1723r1 |
| 243 |  |  | Current CIPN naming is not easy to track.  CIPN is link specific packet number.  There is a:  1) CIPN for group protected control frames  2) CIPN for individual protected control frames.  There should be separate names for 1) and 2). Now there is only one name | As in comment | Rejected –  Note that we also only have PN for CCMP under group data and inidividually addressed data encryption and we do not use different names. The reason is that the general encryption mechanism is the same. For integrity protection, similar reasons applies. |
| 478 |  |  | "BIPN" is given as BIGTK packet number but that doesn't make sense as the abbreviation | Either abbreviate to "BPN" or call it the "beacon integrity packet number" | Rejected –  BIPN is used rather than BPN because BPN is already used. Hence, we can not use BPN.  *BPN base packet number*  Also, there is no strict rule that acronym needs to follow word by word. We have examples like A-BFT, where we use BF for beamforming even though beamforming is just one word. Also note that in daily life we use TV for television.  *A-BFT association beamforming training* |

## Proposed Text:

**TGmf Editor: *Instruction: Modify 9.3.1.8.6 as shown below***

* Multi-STA BlockAck variant

The Multi-STA BlockAck frame is supported if either UL MU or multi-TID A-MPDU operation is supported and acknowledges MPDUs carried in an HE TB PPDU or multi-STA multi-TID, multi-STA single-TID, or single-STA multi-TID A-MPDUs.

An HE AP that sends a Multi-STA BlockAck frame where the Per AID TID Info fields are addressed to more than one STA sets the RA field to the broadcast address. An HE AP that sends a Multi-STA BlockAck frame where the Per AID TID Info fields are all addressed to a single recipient STA and that is sent in response to an HE TB PPDU sets the RA field of the Multi-STA BlockAck frame to either the address of the recipient STA or to the broadcast address. An HE AP that sends a Multi-STA BlockAck frame where the Per AID TID Info fields are all addressed to a single recipient STA and that is not sent in response to an HE TB PPDU sets the RA field of the Multi-STA BlockAck frame to the address of the recipient STA.

A non-AP HE STA sets the RA field to the TA field of the soliciting frame or to the address of the recipient STA whose Data or Management frames are acknowledged.

The TID\_INFO subfield of the BA Control field of the Multi-STA BlockAck frame is reserved.

The BA Information field of the Multi-STA BlockAck frame comprises one or more Per AID TID Info subfields as defined in Figure 9-64 (BA Information field format (Multi-STA BlockAck)).

|  |  |
| --- | --- |
|  | Repeated for each <AID, TID> tuple |
|  | Per AID TID Info |
| Octets: | variable |
| * BA Information field format (Multi-STA BlockAck) | |

The AID TID Info subfield is shown in Figure 9-65 (AID TID Info subfield format).

|  |  |  |  |
| --- | --- | --- | --- |
|  | B0 B10 | B11 | B12 B15 |
|  | AID11 | Ack Type | TID |
| Bits: | 11 | 1 | 4 |
| * AID TID Info subfield format | | | |

The AID11 subfield carries the 11 LSBs of the AID of the non-AP STA for which the Per AID TID Info subfield is intended. The format of the Per AID TID Info subfield depends on the value of the AID11 subfield. If the Multi-STA BlockAck frame is sent to an AP, the AID11 subfield is set to 0. A value of 2045 in the AID11 subfield is used as an identifier for any unassociated STA (#166)or or for identifying that a Multi-STA BlockAck frame is used as a protected GCR BlockAck frame. If the AID11 subfield is set to 2045, then the Ack Type subfield and TID subfield are set to 0 and 15, respectively.

NOTE 1—More than one Per AID TID Info subfield with the same value in the AID11 subfield but different values in the TID subfield can be present in the Multi-STA BlockAck frame.

If the AID11 subfield of the AID TID Info subfield is not 2045, 2009, or 2047,(#M7) then the Per AID TID Info subfield has the format shown in Figure 9-66 (Per AID TID Info subfield format if the AID11 subfield is not 2045, 2009, or 2047(#M7)(#11be)).

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | AID TID Info | Block Ack Starting Sequence Control | Block Ack Bitmap |
| Octets: | 2 | 0 or 2 | 0, 4, 8, 16, 32, 64, or 128 |
| * Per AID TID Info subfield format if the AID11 subfield is not 2045, 2009, or 2047(#M7)(#11be) | | | |

If the AID11 subfield of the AID TID Info subfield is equal to 2009, then the Per AID TID Info subfield has the format shown in Figure 9-67 (Per AID TID Info subfield format if the AID11 subfield is equal to 2009(#M7)) for PN and MIC(#199). The Per AID TID Info field with the AID11 subfield equal to 2009 follows all other Per AID TID Info fields in the Multi-STA BlockAck frame that have AID11 not equal to 2047 and are addressed to STAs that have negotiated control frame protection. The Starting Sequence Number subfield of the Block Ack Starting Sequence Control subfield is reserved. The Fragment Number subfield of the Block Ack Starting Sequence Control subfield is set as defined in Table 9-44 (Fragment Number subfield encoding for the Multi-STA BlockAck variant) for the length of the Block Ack Bitmap subfield to indicate the PN And MIC field as described in Figure 9-67 (Per AID TID Info subfield format if the AID11 subfield is equal to 2009(#M7)) and Figure 9-68 (PN And MIC subfield format(#M7)).(#199)

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | AID TID Info | Block Ack Starting Sequence Control | PN And MIC(#215) |
| Octets: | 2 | 2 | 32 |

(#M7)

* Per AID TID Info subfield format if the AID11 subfield is equal to 2009(#M7)

The PN And MIC field has the format shown in Figure 9-68 (PN And MIC subfield format(#M7)).

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | PN | MIC | Reserved |
| Octets: | 6 | 16 | 10 |

(#M7)

* PN And MIC subfield format(#M7)

The PN field contains the PN corresponding to the integrity key (see 12.5.5 (Control integrity protocol (CIP)(#M7))) indicated by the Key ID field. The PN subfield format is the same as defined in Figure 9-1079 (PN field format).(#M7)

The MIC field contains a message integrity check calculated over the BlockAck frame as defined in 12.5.5 (Control integrity protocol (CIP)(#M7)).(#M7)

If the AID11 subfield of the AID TID Info subfield is equal to 2047, then the Per AID TID Info subfield has the format shown in Figure 9-69 (Per AID TID Info subfield format if the AID11 subfield is equal to 2047(#M7)) for padding(#199). The Per AID TID Info field(s) with the AID11 subfield equal to 2047 follow(s) all other Per AID TID Info field(s) in the Multi-STA BlockAck frame with AID11 not equal to 2047. The Starting Sequence Number subfield of the Block Ack Starting Sequence Control subfield (if present as defined in Table 9-43 (Context of the Per AID TID Info subfield and presence of optional subfields if the AID11 subfield is not 2045) is reserved and the Fragment Number subfield of the Block Ack Starting Sequence Control subfield (if present as defined in Table 9-43 (Context of the Per AID TID Info subfield and presence of optional subfields if the AID11 subfield is not 2045)) is set as defined in Table 9-44 (Fragment Number subfield encoding for the Multi-STA BlockAck variant) for the length of the Block Ack Bitmap subfield to indicate the Padding field.(#199)(#M7)

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | AID TID Info | Block Ack Starting Sequence Control | Padding(#239) |
| Octets: | 2 | 0 or 2 | 0, 4, 8, 16, or 32 |

* Per AID TID Info subfield format if the AID11 subfield is equal to 2047(#M7)

If the AID11 subfield is not 2045, then the context and the presence of each optional subfield in a Per AID TID Info subfield in a Multi-STA BlockAck frame is defined in Table 9-43 (Context of the Per AID TID Info subfield and presence of optional subfields if the AID11 subfield is not 2045). (#166)If the AID11 subfield is 0 and the Per AID TID Info subfield contains the block ack bitmap for a GCR agreement, as indicated in the immediate previous Per AID TID Info subfield within which the AID11 subfield is set to 2045, then the Ack Type subfield is set to 0, and the TID subfield is set to 0.

|  |  |  |  |
| --- | --- | --- | --- |
| * Context of the Per AID TID Info subfield and presence of optional subfields if the AID11 subfield is not 2045 | | | |
| Ack Type subfield values | TID subfield values | Presence of Block Ack Starting Sequence Control subfield and Block Ack Bitmap/PN And MIC/Padding (sub)fields | Context of a Per AID TID Info subfield in a  Multi-STA BlockAck frame |
| 0(#M7) | 0 | Present | Block acknowledgment context:  Sent as an acknowledgment to QoS Data frames that solicit a BlockAck frame response or to a BlockAckReq frame if AID11 subfield is not 2009 or 2047.  PN And MIC context if AID11 subfield is equal to 2009.  Padding context if AID11 subfield is equal to 2047. |
| 0 | 1–7(#M7) | Present | Block acknowledgment context:  Sent as an acknowledgment to QoS Data frames that solicit a BlockAck frame response or to a BlockAckReq frame. |
| 1(#M7) | 0 | Not present | Acknowledgment context:  Sent as an acknowledgment to a QoS Data or QoS Null frame that solicits an Ack frame response if AID11 subfield is not equal to 2047.  Padding context if AID11 subfield is equal to 2047. |
| 1 | 1–7(#M7) | Not present | Acknowledgment context:  Sent as an acknowledgment to a QoS Data or QoS Null frame that solicits an Ack frame response. |
| 0 or 1 | 8–13 | N/A | Reserved |
| 0 | 14 | N/A | Reserved |
| 1 | 14 | Not present | All ack context:  Sent as an acknowledgment to an A-MPDU that contains an MPDU that solicits an immediate response and all MPDUs contained in the A-MPDU are received successfully. |
| 0 | 15 | N/A | Reserved |
| 1 | 15 | Not present | Management/PS-Poll frame acknowledgment context:  Sent as an acknowledgment to a Management or PS-Poll frame. |
| NOTE 1—Additional rules for acknowledgment, block acknowledgment and the all ack context are defined in 26.4.2 (Acknowledgment context in a Multi-STA BlockAck frame) for a multi-TID A-MPDU.  NOTE 2—As HE STAs do not use HCCA (see 10.23.1 (General)), TID values from 8 to 15 are not used in QoS Data frames. | | | |

(…existing texts.)

**TGmf Editor: *Instruction: Modify 9.3.1.22.2 as shown below***

* Common Info field(#11be)

(…existing texts…)

NOTE 1—For backward compatibility with HE variant Common Info field, an EHT AP sets B22, B26, B53, and B63 to 0 and sets each bit of B56–B62 of the EHT variant Common Info field that is reserved to 1 (#240)(#199).

(…existing texts…)

The UL HE-SIG-A2 Reserved subfield of the (#11be)HE variant Common Info field carries the value to be included in the Reserved field in the HE-SIG-A2 subfield of the solicited HE TB PPDUs. A non-EHT HE AP sets each bit of the UL HE-SIG-A2 Reserved subfield of the HE variant Common Info field that is reserved to 1(#240).(#199)

(…existing texts…)

**TGmf Editor: *Instruction: Modify 12.5.5 as shown below***

**12.5.5 Control integrity protocol (CIP)**(#M7)

**12.5.5.1 Overview**

The control integrity protocol (CIP) provides integrity and replay protection for the individually addressed and group addressed(#151) Control frames that are defined to be protected (see 12.2.13 (Requirements for control frame protection)).(#152)

(…existing texts….)