IEEE P802.11
Wireless LANs

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| LB200 Comment Resolutioins for MAC CIDs in Subclauses: 8.4.2.6, 9.20.5.3, 9.43 |
| Date: 2014-01-13 |
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Abstract

This document provides resolutions for CIDs in subclause 8.4.2.6, 9.20.5.3, and 9.43:

1093, 1094, 1096, 1213, 1214,

1248, 1249, 1250, 1524, 1525,

1805, 1967, 1979, 1980, 2243,

2253, 2254, 2255, 2295, 2314,

2729, 2761, 2762, 2845, 2908,

2913, 2928, 2969

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| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Resn Status** | **Comment** | **Proposed Change** | **Resolution** |
| 2314 | 68.52 | 8.4.2.6 | J | An offloading BSS typically include 50 ~100 STAs or less. S1G TIM change is not necessay. | Leave TIM as it is for offloading BSS. The 11ah TIM change is defined as a new Extended TIM. Extended TIM is mandatory in sensor BSS, sensor and offloading BSS. | Rejected. – The TIM in the TGah draft also show better compression performance for 50-100 STAs than the TIM in the baseline spec.  |
| 2969 | 69.00 | 8.4.2.6 | J | Signaling TIM segment number seems redundant, as a STA should already figure out its TIM segment via the Segment Count element. | Signal some parameters more useful than segment number. | Rejected. – The TIM Segment Number is required for a STA to know which TIM segment is contained in the TIM element based on the received frame. |
| 1093 | 69.27 | 8.4.2.6 | J | "When dot11S1GOptionImplemented is false," --We have a gratuitous variety of ways of saying a similar thing: "In an SIG BSS", "In the S1G band", "an S1G STA", "when dot11S1GOptionImplemented is true".If there is a 1:1 mapping between these, then they are gratuitous. If there is not a 1:1 mapping then statements like the one cited here are wrong, because a receiver is not aware of the transmitters MIB. | If there is a 1:1 mapping between these conditions, choose one term and use it consistently throughout the draft. If not, change at least this occurrence to relate to on-the-air signalling. | Rejected. – In subclause 8.4.2.6, there are many places where MIB variables are used to indicate how a field of the element is encoded. For example, In REVmcD1.1, P623L11 and P623L22, “dot11MgmtOptionMultiBSSIDActivated” is used to indicate different encoding for the Partial Virtual Bitmap field. The “dot11S1GOptionImplemented” is no different from the example. |
| 2243 | 69.31 | 8.4.2.6 | J | In the sentence in line 31 to 35 on page 69, there seems a size problem with the traffic-indication virtual bitmap, when dot11S1GOptionImplemented is true. It says 64NPNB bits, and NP=4 and NB=32; which is 2^13 bits, i.e., 2^10=1024 bytes. Such a big field won't fit into a TIM element, as an element can only have up to 255 bytes info body. Does this mean that 11ah TIM's Partial Virtual Bitmap field is not designed to cover the entire Traffic-Indication Virtual Bitmap? | Please clarify the over-size issue of the traffic-indication virtual bitmap, when dot11S1GOptionImplemented is true. | Rejected. – The problem is resolved by using the TIM and Page segmentation described in 9.45 (TIM and Page segmentation). |
| 2729 | 69.32 | 8.4.2.6 | J | traffic indication virtual bitmap is at most 64N\_PN\_B bits. | Change to "dot11S1GOptionImplemented is true, the traffic-indication virtual bitmap consists of at most 64N\_PN\_B bits and is" | Rejected. – The baseline spec also describes the traffic-indication virtual bitmap as “…,consists of 2008 bits, …”. The sentence in TGah D1.0 “… consists of 64NPNB bits …” is no different than the baseline spec. |
| 1967 | 70.26 | 8.4.2.6 | V | With the current draft, it says that "When dot11S1GOptionImplemented is true, if all bits in virtual bitmap are 0, the Partial Virtual Bitmap field is not present in the TIM element and the Length field of the TIM element is set to 3.". One more octet can be saved in case Bitmap control fields are also zero. | Propose to amend the sentence as follows "Further, if all bits of the bitmap control field are also zero, the Bitmap Control field is also not present in the TIM element and the Length field of the TIM element is set to 2" | Revised. – Instruction to the editor:Please change P70L26 as follows:"When dot11S1GOptionImplemented is true, if all bits in virtual bitmap are 0, the Partial Virtual Bitmap field is not present in the TIM element and the Length field of the TIM element is set to 3. If all bits in virtual bitmap are 0 and all the bits of the Bitmap Control field are 0, both the Partial Virtual Bitmap field and the Bitmap Control field is not present in the TIM element and the Length field of the TIM element is set to 2." |
| 1094 | 70.64 | 8.4.2.6.1 | V | This figure does not follow WG11 style. I cannot be both octet oriented and bit oriented. | Refer to WG11 style and reformat as bit oriented. indicate length of Encoded block information is a multiple of 8 bits.Also there is no benefit from defining a separate block control field. As we're already bit-oriented in Figure 8-109d, can show the Block Control subfield directly. | Revised. – The commenter is correct regarding the frame format. Refer to changes in doc.: IEEE 802.11-14/0031r0 under CID 1094 heading. |
| 2295 | 72.20 | 8.4.2.6.1.1 | J | "N is constructed by concatenating the Page Index field (N[12:11]), the Block Offset field (N[10:6]), m (N[5:3]), and q (N[2:0])"Since the calculation of N is nothing to do with TIM Segment Number. | Set "TIM Segment Number" reserved. | Rejected. – The proposed change by the commenter is irrelevant to the sentence that the commenter is commenting. |
| 1096 | 72.21 | 8.4.2.6.1.1 | V | The notation described on page 69 showns N[a:b] where a<b. On line 21 a>b. | Please define the syntax where a>b, or reverse the operands.Ditto comment at line 44 and 73.11. | Revised. – The commenter is correct. Refer to changes in doc.: IEEE 802.11-14/0031r0 under CID 1096 heading. |
| 1805 | 173.20 | 9.20.5.3 | J | It not clear in the text that the slot cannot be arbitraly small. If it is too small no transmisison is possible | Add clarification text, which require that the minimum slot duration is not less than DIFS+SIFS+ACK+Cwmin+some transmission duration. Make sure that the duration of RAW and the number of slots can satisfy the above constraint | Rejected. – The slot duration is not an arbitrary number but is calculated based on the equation shown in P89L9. How to use the parameters should be implementation dependent. |
| 1979 | 173.22 | 9.20.5.3 | A | In sentence "This sub-clause defines a simple slot assignment procedure for STAs ... ."The word "simple" is not necessary, propose to delete the word. | Delete the word "simple" as suggested. | Accepted. |
| 2253 | 173.22 | 9.20.5.3 | A | The word "simple" is extra. | delete the word "simple" in line line 22 page 173 | Accepted. |
| 2908 | 173.22 | 9.20.5.3 | V | In case Resource Allocation frame is present in the RAW, assigned slot for each STA within the RAW is directly indicated by the Resource Allocation frame. Therefore, the slot assignment procedure mentioned in this subclause should not be applied to the case that Resource Allocation frame is present in the RAW. | Add the following sentences at the end of the first paragraph of 9.20.5.3:"The procedure defined in this sub-clause is applied if a Resource Allocation frame is not present at the beginning of a RAW. If a Resource Allocation frame is present at the beginning of a RAW, STAs that are allowed to access the medium within the RAW shall not follow the slot assignment procedure described in this subclause but follow the assignment procedure indicated in the Resource Allocation frame." | Revised. – The comment is resolved by the resolution for CID 2255. |
| 1980 | 173.26 | 9.20.5.3 | A | In sentence "A STA shall obtain the number of time slots in the RAW (NRAW) from the Number of Slots subfield in the RAW Slot Definition subfield of the RPS element.", the RAW Slot Definition subfield is subfield of RAW Assignment field, therefore, propose to include RAW Assignment field in the description. | Change the sentence to "A STA shall obtain the number of time slots in the RAW (NRAW) from the Number of Slots subfield in the RAW Slot Definition subfield of RAW Assignment field of the RPS element.". | Accepted. |
| 2254 | 173.32 | 9.20.5.3 | V | What does it mean by "accessing the medium" in line 32 page 173? Does it mean "allowed to contend for medium access"? Or does it mean "transmit onto the medium"? | Please clarify what it means by " "accessing the medium" in line 32 page 173". | Revised. – The “accessing” in the sentence means a STA is allowed to contend for the medium.Instruction to the editor:Please change P173L32 of TGah D1.0 as follows:“The STA shall determine the index of the time slot, *i*slot, in which the STA is allowed to start ~~accessing~~contending for the medium based on the following mapping function” |
| 2255 | 173.40 | 9.20.5.3 | V | How does a STA know which method, i.e., Figure 9-24b or Figure 9-24c, should be used to calculate its assigned RAW slot index?Is it to use the 2-bit RAW Type field and the 2-it RAW Type Options field in the RAW control? If so, it should be clearly specified that what value(s) of RAW Type + RAW Type Options for Figure 9-24b and Figure 9-24c? | Please clarify. | Revised. – The commenter’s question is valid.Instruction to the editor: Please change P87L8 of TGah D1.0 as follows:“Bit 0: Paged STA”to“Bit 0: set to 0 if the RAW is restricted to paged STAs; otherwise set to 1”Please change P173L40 of TGah D1.0 as follows:“if the RAW is restricted to STAs whose AID bits in the TIM element are set to 1 (the RAW Type field is set to 00 and the Bit 0 of the RAW Type Options field is set to 1 or the RAW Type field is set to 11) and , *x* is the position indexof the AID of the STA when the AIDs are arranged in ascending order and each AID is assigned with a position index, which starts from 0 (see Figure 9-24c (Illustration of the RAW slot assignment procedure(RAW restricted to STAs whose AID bits are set to 1))); if the RAW is not restricted to STAs whose AID bits in the TIM element are set to1 (the RAW Type field is set to 00 and the Bit 0 of the Raw Type Options field is set to 0 or the RAW Type field is set to 11), *x* is the AID of the STA, otherwise (seeFigure 9-24b (Illustration of the RAW slot assignment procedure (RAW not restricted to STAs whoseAID bits are set to 1)));” |
| 1213 | 173.50 | 9.20.5.3 | V | " shall be used" - passive voice is dangerous | Replace with a non-passive normative statement. Or a declarative one. | Revised. – The commenter is correct. Instruction to the editor:Change the sentence in P173L50 as follows:“and the STA shall use the two least significant bytes of the FCS field of the (Short) Beacon frame for the Noffset;” |
| 1214 | 174.13 | 9.20.5.3 | V | Figures 9-24b and 9-24c have a huge range of text size. The largest is larger than body text (10pt) and the smallest is almost invisible. | Limit the range of text size. The IEEE-SA style guide say text should be 8pt, but this is too restrictive. I suggest the largest text size should be 8pt, and the smallest 6pt, to allow to subscripts. | Revised. – The commenter is correct. Refer to changes in doc.: IEEE 802.11-14/0031r0 under CID 1214 heading. |
| 1248 | 189.01 | 9.43 | A | I don't like unssry abrvtns. But I accept that "synchronization" is an awefully long word, which is really difficult to pronounce, and therefore needs the heck abbrvted out of it.But "synch" is not the more common form of abbrvtn. According to a popular search engine, "sync" is 26 times more popular. | Replace all "synch" with "sync". | Accepted. |
| 1524 | 189.19 | 9.43.1 | V | Some minor editorial comments and clarifications for the paragraphs starting from line 19 are proposed in the resolution of this comment. | Replace the following occurrences in the 1st paragraph: "sync" with "synch", "an AP" with "the AP", "time slot" with "RAW slot", "for a TWT time" with "at TWT", "in a RAW or a TWT time of the STA" with "in a RAW, TWT or wakeup timer of the STA" . In paragraph starting in line 47 replace : "in the RAW or at the target wake time of the STA" with "in the RAW, at TWT, or at the expiration of the wakeup timer of the STA". Replace in paragraph starting in line 52: "or at target wake time of the STA", with " or at TWT of the STA, or the expiration of the wakeup timer, " and "or the TWT SP" with " or the TWT SP, or the TXOP duration" | Revised. - Refer to changes in doc.: IEEE 802.11-14/0031r0 under CID 1524 heading. |
| 2845 | 189.34 | 9.43.1 | J | Synch frame also has some benifit for the SST operation.A STA may also request to an AP to protect a time duration indicated for permitted downlink and uplink operation according to the Activity fields and the Activity Start Time field in the SST element by setting the Time Slot Protection Request field in the Synch Control field to 1. | Include that a STA requests to an UL-Synch capable AP to transmit a synch frame at the Activity Start Time of SST operation. | Rejected. – The operation that the commenter proposed can be done by using RAW or TWT with the SST operation. For example, the TWT or the RAW start time can be set to the Activity Start Time of the SST operation. |
| 2761 | 189.43 | 9.43.1 | A | Change "Sync" to "Synch Control" | as commented | Accepted. |
| 2928 | 189.52 | 9.43.1 | A | AP shall cancel the synch frame transmission if medium is busy or the remaining time is too short. Therefore, for clearer explanation, it is better to use "or" instead of "and" for connecting two "if" phrases. | Modify the sentence from "If the medium is busy at the slot boundary of the STA in the RAW or at the target wake time of the STA, and if the UL-Sync capable AP determines ..." to "If the medium is busy at the slot boundary of the STA in the RAW or at the target wake time of the STA, or if the UL-Sync capable AP determines ...". | Accepted. |
| 1249 | 189.55 | 9.43.1 | J | "synch frame" -- frame names are proper nouns. | "Synch frame" globally. (or "Sync frame" if my other comment is accepted). | Rejected. – Here “synch frame” is not a unique frame defined in the spec. The synch frame is used as a frame that is used to synchronize a STA to the medium for an uplink transmission and represents a general concept. This is same as “a Beacon frame transmission” and “a beacon frame transmission” in the 802.11REVmc D1.1. |
| 2913 | 189.60 | 9.43.1 | J | The last paragraph in page 189 is nothing to do with synch frame operation. It needs to be deleted/modified or moved to appropriate subclause. | As mentioned in the Comment. | Rejected. – The paragraph is describing the behavior of a STA when the STA receives an NDP CTS frame as a synch frame. Therefore, the paragraph is in the right subclause. |
| 1525 | 190.05 | 9.43.1 |  | At the end of this paragraph it is specified that the AP may transmit a CF-End frame to reset the NAV. However the frame that set the NAV is an NDP frame that is more robust, hence sending a CF-End which is longer and less robust may not be able to reset the NAV at all STAs that previously received the NDP CTS. Hence a NDP CF-End should be sent for this purpose. | Consider defining an NDP CF-End frame for resetting the NAV for UL-Synch procedure. Also the sentence that is added in line 14 " The UL-Synch capable AP should use the NDP CTS frame as a synch frame" should be moved immediately previous to the paragraph that described the NDP CTS tx/rx behavior (in page 189 before line 60). | Revised. - The commenter is asking a valid concern. Refer to changes in doc.: IEEE 802.11-14/0031r0 under CID 1525 heading. |
| 2762 | 190.09 | 9.43.1 | V | The conflict between the text on P189L47 and P190L9 | Is it "For a STA requesting for the sync frame transmission, AP should not send a synch frame at each slot boundary within a RAW period if Cross-Slot Boundary transmission is not allowed within the RAW. "? Please clarify. | Revised. - The commenter is correct. Refer to changes in doc.: IEEE 802.11-14/0031r0 under CID 2762 heading. |
| 1250 | 190.43 | 9.43.1 | V | This figure needs some fettling to improve readability. | Increase size of diagram so it fills the page width. Keep text same size (i.e. scale it smaller the same amount the figure is scaled larger). This means that the Slot labelling should be more readable. | Revised. - The commenter is correct. Refer to changes in doc.: IEEE 802.11-14/0031r0 under CID 1250 heading. |

**CID 1094:**

The commenter is correct regarding the frame format. The similar changes should be made to Clause 8.

***Instruction to the editor:***

***Please make the changes to Figure 8-109d – Encoded Block subfield as follows:***

|  |  |  |  |
| --- | --- | --- | --- |
| ~~Bits:~~ | B0 B2 | B3 B7 |  |
|  | Block Control | Block Offset | Encoded Block Information |
| ~~Octets~~Bits: | 3 | 5 | Variable (a multiple of 8 bits) |
| * Encoded Block subfield
 |

**CID 1096:**

The commenter is correct. The notation of N[a:b] should be unified throughput clause 8.4.2.

***Instruction to the editor:***

***Please change P72L21 as follows:***

Each Subblock subfield is 1 octet in length and contains a Subblock of the Block, which has at least one bit position equal to 1. The bit in position q of the Subblock subfield, which contains the Subblock in position m of the Block, indicates traffic buffered for the STA whose AID is N, where N is constructed by concatenating q (N[0:2]), m (N[3:5]), the Block Offset field (N[6:10]), and the Page Index field (N[11:12])in sequence from LSB to MSB.

***Please change P72L44 as follows:***

The value in the Single AID subfield indicates traffic buffered for the STA whose AID is N, where N is constructed by concatenating the Single AID subfield(N[0:5]), the Block Offset field (N[6:10]), and the Page Index field (N[11:12])in sequence from LSB to MSB.

Please change P73L10 as follows:

The bit in position q of the Subblock m which is located in Block k indicates that there is traffic buffered for the STA whose AID is N, where N is constructed by concatenating q (N[0:2]), the Subblock offset mod(m, 8) (N[3: 5]), the Block k (N[6:10]), the Page Index field (N[12:12]), in sequence from LSB to MSB.

**CID 1214:**

***Instruction to the editor:***

***Replace Figure 9-24b with the following figure and increase the size of the diagram so it fills the page width***:



***Replace Figure 9-24c with the following figure and increase the size of the diagram so it fills the page width***:



**CID 1524, 2762:**

**Instruction to the editor:**

***Change the paragraph in P189L34 as follows***:

When a STA is requesting for the sync frame transmission, a STA may also request to an AP to protect a RAW slot in a RAW defined in the Slot Duration field (8.4.2.170b (RPS element)) or a time duration at a TWT defined in the Nominal Minimum Wake Duration field (8.4.2.170j (TWT element)), or by setting the Time Slot Protection Request field in the Synch Control field to 1.

***Change the paragraph in P189L47 as follows***:

For a STA that requested for a synch frame transmission, the UL-Synch capable AP shall schedule a synch frame at the slot boundary of the STA in the RAW if the Time Slot Protection Request field is set to 1 or the Cross Slot Boundary field is set to 1, or at the TWT of the STA, or at the expiration of the wakeup timer, as the next frame for transmission according to the medium access rules specified in Clause 9.

***Change the paragraph in P189L52 as follows***:

If the medium is busy at the slot boundary of the STA in the RAW, or at the TWT of the STA, or at the expiration of the wakeup timer, or if the UL-Sync capable AP determines that the remaining time in the RAW slot or the TWT SP, or the TXOP duration to be too short to transmit a synch frame, the UL-Synch capable AP shall cancel the scheduled synch frame transmission. When the STA is changing from Doze to Awake in order to transmit, the STA shall follow the rules defined in 10.2.2.2 (STA Power Management modes).

***Change the paragraph in P190L9 as follows and move the changed paragraph right after P189L51***:

For a STA requesting for the sync frame transmission with the Time Slot Protection Request field set to 0, the AP should not send a synch frame at each slot boundary within a RAW period if the Cross Slot Boundary field is set to 0.

**CID 1525:**

**Discussion**: In the TGah Draft 1.0, there are 8 NDP MAC frames defined indicated by the 3-bit NDP MAC Frame Type field. In order to define an NDP CF-End frame, another bit is needed. The NDP CTS frame has 1 reserved bit for 1MHz frame and 5 bits are reserved for 2MHz frame. The NDP CTS frame can be used for NDP CTS and NDP CF-End by using one reserved bit as a CTS/CF-End Indicator bit to indicate whether the frame is used as a CTS or CF-End.

***Instruction to the editor:***

***Change subclause 8.3.2.1.1 NDP CTS as follows:***

* NDP CTS

The NDP MAC frame body of the NDP CTS frame contains the information listed in NDP MAC frame body of NDP CTS (1 MHz) (continued) and NDP MAC frame body of NDP CTS (.

|  |
| --- |
| * NDP MAC frame body of NDP CTS (1 MHz) (continued)
 |
| Field | Size (bits) | Description |
| NDP MAC Frame Type | 3 | The NDP MAC Frame Type field is set to 0. |
| CTS/CF-End Indicator | 1 | The CTS/CF-End Indicator field is set to 0. |
| Address Indicator | 1 | Indicates whether the following subfield is an RA or a Partial BSSID. This field is of length 1 bit and when set to 0 indicates that the following field represents a unicast STA address. In the case that NDP CTS is used in the sector training, the field is set to the RA. The Address Indicator bit set to 1 indicates that the following field represents a Partial BSSID.  |
| RA / Partial BSSID  | 9 | RA: PARTIAL\_AID addressed to a STA as described in 9.17bPBSSID: PARTIAL\_AID addressed to AP as described in 9.17b When Address Indicator field is set to 0, this field indicates the intended AID for a unicast STA; when Address Indicator field is set to 1, this field indicates a broadcast address (#152)(see 9.3.2.6 for STA behavior based on this field).In the case that NDP CTS is used in the sector training, the field is set to PBSSID of the AP.(#213) |
| Duration | 10 | The Duration field is expressed in units of OFDM symbol time (40 s) and follows the definitions in 8.3.1.3 CTS frame format.In the case that NDP CTS is used as a synch frame, the value in this field indicates the duration of time for NAV protection. In the case that NDP CTS is used in the sector training, the relative value of the Duration field in the NDP CTS to the value of the Duration field in the frame which carries the NDP Announcement in the HT Control field for initiating the sector training is used to deduct the Sector ID the current NDP CTS is transmitted to. |
| Early Sector Indicator  | 1 | The Early Sector Indicator facilitates the detection of Spatially Orthogonal conditions by the stations receiving the short CTS frame. If the Early Sector Indicator is set to 1, it indicates that the short CTS frame is followed by the sectorized beam frame exchange. If the Early Sector Indicator is set to 0, it indicates that the NDP CTS frame is not followed by the sectorized beam frame exchange.  |
|  |  |  |

|  |
| --- |
| * NDP MAC frame body of NDP CTS (≥2 MHz) (continued)
 |
| Field | Size (bits) | Description |
| NDP MAC Frame Type | 3 | The NDP MAC Frame Type field is set to 0. |
| CTS/CF-End Indicator | 1 | The CTS/CF-End Indicator field is set to 0. |
| Address Indicator | 1 | Indicates whether the following subfield is an RA or a Partial BSSID. This field is of length 1 bit and when set to 0 indicates that the following field represents a unicast STA address. In the case that NDP CTS is used in the sector training, the field is set to the Partial BSSID. The Address Indicator bit set to 1 indicates that the following field represents a Partial BSSID.  |
| RA / Partial BSSID  | 9 | RA: PARTIAL\_AID addressed to a STA as described in 9.17bPBSSID: PARTIAL\_AID addressed to AP as described in 9.17b When Address Indicator field is set to 0, this field indicates the intended AID for a unicast STA; when Address Indicator field is set to 1, this field indicates a broadcast address(#153) (see 9.3.2.6 for STA behavior based on this field). |
| Duration | 15 | The Duration field is expressed in units of s and follows the definitions in 8.3.1.3 CTS frame format. In the case that NDP CTS is used as a synch frame, the value in this field indicates the duration of time for NAV protection. In the case that NDP CTS is used in the sector training, the relative value of the Duration field in the NDP CTS to the value of the Duration field in the frame which carries the NDP Announcement in the HT Control field for initiating the sector training is used to deduct the Sector ID the current NDP CTS is transmitted to. |
| Early Sector Indicator  | 1 | The Early Sector Indicator facilitates the detection of Spatially Orthogonal conditions by the stations receiving the short CTS frame. If the Early Sector Indicator is set to 1, it indicates that the short CTS frame is followed by the sectorized beam frame exchange. If the Early Sector Indicator is set to 0, it indicates that the NDP CTS frame is not followed by the sectorized beam frame exchange.  |
| Bandwidth Indication | 3 | The Bandwidth Indication field is 3 bits in length, identifies the bandwidth of the PPDU frame, and is set according to **Error! Reference source not found.**. |
| Reserved | 4 | Reserved for future use |

***Insert the following new subclause right after 8.3.5.1.1 NDP CTS:***

8.3.5.1.1a NDP CF-End

The format of the NDP MAC frame body field of the NDP CF-End frame (1 MHz) is illustrated in Figure 8-8a3 (NDP MAC frame body field of the NDP CF-End (1 MHz)) and it contains the information listed in NDP MAC frame body of NDP CTS (1 MHz) (continued).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 | B4      B12 | B13 B22 | B23 B24 |
|  | NDP MAC Frame Type | CTS/CF-End Indicator | Partial BSSID (TA) | Duration | Reserved |
| Bits: | 3 | 1 | 9 | 10 | 2 |
| **Figure 8-8a3 – NDP MAC frame body field of the NDP CTS (1 MHz) frame** |

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| --- |
| Table 8-43a NDP MAC frame body of NDP CF-End (1 MHz) |
| Field | Size (bits) | Description |
| NDP MAC Frame Type | 3 | The NDP MAC Frame Type field is set to 0. |
| CTS/CF-End Indicator | 1 | The CTS/CF-End Indicator field is set to 1. |
| Partial BSSID (TA)  | 9 | The Partial BSSID field indicates the PARTIAL\_AID of the address of the STA contained in the AP.(#213) |
| Duration | 10 | The Duration field is expressed in units of OFDM symbol time (40 s) and follows the definitions in 8.3.1.6 CF-End frame format. |
| Reserved | 2 | Reserved bits. |

The format of the NDP MAC frame body field of the NDP CF-End frame (≥ 2 MHz) is illustrated in Figure 8-8a4 (NDP MAC frame body field of the NDP CF-End (≥ 2 MHz) frame) and it contains the information listed in Table 8-43 (NDP MAC frame body of NDP Cf-End (≥ 2 MHz)).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 | B4      B12 | B13 B27 | B28 B36 |
|  | NDP MAC Frame Type | CTS/CF-End Indicator | Partial BSSID (TA) | Duration | Reserved |
| Bits: | 3 | 1 | 9 | 15 | 9 |
| **Figure 8-8a2 - NDP MAC frame body field of the NDP CF-End (≥ 2 MHz) frame** |

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| --- |
| Table 8-43b NDP MAC frame body of NDP CF-End (≥2 MHz)  |
| Field | Size (bits) | Description |
| NDP MAC Frame Type | 3 | The NDP MAC Frame Type field is set to 0. |
| CTS/CF-End Indicator | 1 | The CTS/CF-End Indicator field is set to 1. |
| Partial BSSID (TA) | 9 | The Partial BSSID field indicates the PARTIAL\_AID of the address of the STA contained in the AP.(#213) |
| Duration | 15 | The Duration field is expressed in units of s and follows the definitions in 8.3.1.6 CF-End frame format.  |
| Reserved | 9 | Reserved bits. |

***Move the following sentence in P190L14 to P189L59:***

The UL-Synch capable AP should use the NDP CTS frame as a synch frame.

***Change the following paragraph in P190L4:***

If a PHY-RXSTART.indication primitive does not occur during the ACKTimeout interval, the AP may transmit a CF-End frame or an NDP CF-End frame to reset the NAV provided that the remaining duration is long enough to transmit this frame.

***Change the following paragraph in P169L6:***

When a STA gains access to the channel using EDCA and empties its transmission queue, it may transmit a CF-End frame provided that the remaining duration is long enough to transmit this frame. By transmitting the CF-End frame, the STA is explicitly indicating the completion of its TXOP. A STA that is an S1G AP may transmit an NDP CF-End frame instead of a CF-End frame. A non-S1G STA shall not transmit an NDP CF-End frame.

***Add the following following paragraph immediately after the paragraph that ends in P169L42:***

An S1G STA that receives an NDP CF-End frame should reset its NAV and can start contending for the medium without further delay.

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***Instruction to the editor:***

***Replace Figure 9-88 with the following figure and increase the size of the diagram so it fills the page width***:

