IEEE P802.11
Wireless LANs

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| LB 200 Comment Resolution for Clause 8.3.5.1.1 |
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Abstract

This submission proposes resolution for comments in clause 8.3.5.1.1 of TGah Draft 1.2 with the following CIDs: 1076, 1373, 1634, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 1700, 2290, 2291, 2493, 2496, 2566, 2721, 2722, 2882

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| **CID** | **Clause** | **Page** | **Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1076 | 8.3.5.1.1 | 52 | 15 | "in units of OFDM symbol time (40 us)"Magic numbers are inherently evil, because they always end up wrong. | Replace with reference to PHY characteristic that provides this value. | RevisedComments: The 40us value is the T\_{SYML} or the OFDM symbol duration with normal guard interval (see Table 24-4, Page 315, Line 60 of Draft 1.2) - TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882 |
| 1373 | 8.3.5.1.1 | 51 | 33 | The Address Indicator field is not consistent for NDP CTS (1MHz) and (>=2MHz). E.g., in one case the field is set to 1 to indicate Partial BSSID and in another case it is set to 1 to indicate RA field. And in one case it is in conflict with the Ra/Partial BSSID field description as well. | Replace the existing text in the Description row for Address Indicator in Table 8-42 and Table 8-43 with the following: "The Address Indicator field is 1 bit in length and it indicates that the RA/Partial BSSID field contains an RA if it is set to 0 and it contains a Partial BSSID when it is set to 1." | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1634 | 8.3.5.1.1 | 51 | 45 | The various NDP control frames seem to have strange bit lengths, e.g. the NDP CTS MAC frame body at 1 MHz is 25 bits long and 37 bits long at >= 2 MHz. | Confirm bit lengths for all NDP control frames. | Accepted |
| 1688 | 8.3.5.1.1 | 51 | 45 | Including the full name of the field in its own description generally is more confusing than helpful. Also "set to" is used for specific instances of setting the field. | Replace "The NDP MAC Frame Type" field is set to 0." with "The value of this field is always 0." | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1689 | 8.3.5.1.1 | 51 | 52 | "In the case that" is a complicated (and somewhat confusing) way of saying "when". An article also is needed here, but not in "the sector training" (which would indicate that this is one sector training among several), nor in "the field" (which field?). The length of each field is already specified in the Size column, so should not be repeated. And labeling "the field" in one sentence and naming it in the next makes it appear that two separate fields are being described. | Replace "This field is of length 1 bit and when set to 0 indicates" with "The value of 0 for this bit indicates". Replace "In the case that NDP CTS is used in the sector training, the field" with "When the NDP CTS frame is used in sector training, this bit". And replace "The Address Indicator bit set to 1". The value of 1 for this bit". | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1690 | 8.3.5.1.1 | 52 | 12 | "In the case that NDP CTS" is a complicated way of saying "when". An article also is needed here, but not in "the sector training" (which would indicate that this is one sector training among several), nor in "the field" (which field?). And labeling "the field" in one seems to indicate another field is being described. | Replace "In the case that NDP CTS is used in the sector training, the field" with "When the NDP CTS frame is used in sector training, this field". | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1691 | 8.3.5.1.1 | 52 | 18 | "In the case that NDP CTS" is a complicated way of saying "when". | Replace "In the case that NDP CTS" with "When the NDP CTS frame". | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1692 | 8.3.5.1.1 | 52 | 21 | There are so many things wrong in this paragraph, listing them would take far too much time. | Replace this paragraph with:"When the NDP CTS frame is used in sector training, the difference between the value of its Duration field and the value of the Duration field in the frame that carried the NDP announcement that initiated the sector training identifies the sector ID to which the NDP CTS is transmitted." This version probably should be split into several sentences, but at least it is much clearer than what is there now. | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1693 | 8.3.5.1.1 | 52 | 54 | "In the case that NDP CTS" is a complicated way of saying "when". | Replace "In the case that NDP CTS" with "When the NDP CTS frame". | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1694 | 8.3.5.1.1 | 52 | 54 | "sector training" is a mass term and so does not take an article. In addition, "the" is not specific enough when specifying the contents of this particular field, and why is the name of the field being referenced again after "this" is used above? | Replace "the sector" with "sector". Also replace "the field" with "this field" and "The Address Indicator bit set to 1 indicates" with "This field is set to 1 to indicate". | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1695 | 8.3.5.1.1 | 53 | 7 | Per the 802.11 Style Guide "set to" is used only when the variable is being set, not read. | Replace "When Address Indicator field is set to 0," with "When the Address Indicator field is 0," and on line 8 replace "When Address Indicator field is set to 1," with "When the Address Indicator field is 1," | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1696 | 8.3.5.1.1 | 53 | 15 | "In the case that NDP CTS" is a complicated way of saying "when". | Replace "In the case that NDP CTS" with "When the NDP CTS frame" both here and on line 18. | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1697 | 8.3.5.1.1 | 53 | 18 | "sector training" is a mass term and so does not take an article. | Replace "the sector training," with "sector training." | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1698 | 8.3.5.1.1 | 53 | 18 | The rest of the sentence is very confused, both in English and in basic logic. For instance, the frame \_that\_ carries the Announcement for initiating sector training needs to be clearly identified. And this information is not used to deduct, not even to deduce, but is used in the determination of the sector ID. | Replace the text "the relative value" through to the end of the paragraph with:"This field minus the baseline duration determines the sector ID to which the NDP CTS is transmitted. The baseline duration is the value of the Duration field in the frame that carries the NDP announcement that initiates sector training." However this procedure for determining the sector ID needs to be explictly spelled out somewhere and referenced here. | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 1699 | 8.3.5.1.1 | 53 | 33 | The bandwidth set in Table 8-4a is the bandwidth currently being used by the PHY, not the bandwidth of a specific PPDU frame. | Replace "of the PPDU frame" with "currently used by the PHY" and replace the name of the field with "Current Bandwidth Employed". | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882 |
| 1700 | 8.3.5.1.1 | 53 | 38 | Since the format of this frame is not identical to the format of the CTS frame, the format of this frame needs to be shown in a diagram similar to figure 8-16. Insert that figure at this location. Likewise all of the other frame definitions in this draft need to be accompanied by frame diagrams for their respective defined structures. | Insert a frame diagram for each frame that is defined in this document. | RevisedThis CID is identical to CID 1075. Please refer to the resolution to CID 1075.  |
| 2290 | 8.3.5.1.1 | 51 | 48 | "Indicates whether the following subfield is an RA or a Partial BSSID".An RA may also be a Partial BSSID, e.g. when NDP CTS is sent to the AP. | Change the text to differentiate this | Accepted.Comments: It is already differentiated using the Address Indicator value 1 and RA / PBSSID value equal to the PBSSID of the AP to which a STA sending the NDP CTS is associated with. |
| 2291 | 8.3.5.1.1 | 52 | 51 | "Indicates whether the following subfield is an RA or a Partial BSSID".An RA may also be a Partial BSSID, e.g. when NDP CTS is sent to the AP. | Change the text to differentiate this. | Accepted.Comments: It is already differentiated using the Address Indicator value 1 and RA / PBSSID value equal to the PBSSID of the AP to which a STA sending the NDP CTS is associated with. |
| 2493 | 8.3.5.1.1 | 51 | 48 | The definition is confusing because it switches terms and the size is already indicated elsewhere and the exact value to be filled in should be listed in the behavioral section - only meaning should appear here - and the "following field" is bad form. | Change to: "Indicates whether the RA/Partial BSSID field is an RA or a Partial BSSID. When set to 0, the RA/PartialBSSID field contains the unicast address of the intended recipient." this change will result in the loss of information about how to fill in the field when being used for sectorized beam operation but that will be recovered by the resolution to a different comment. This same problem needs to be fixed in the 2 MHz frame format definition in a similar manner! | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882 |
| 2496 | 8.3.5.1.1 | 52 | 8 | First, wrong verb, then note that for the 1 MHz version, for sectorized beam operation, the field contains a different value than it does for the 2 MHz format - is this inentional? If not, I do not know how to fix it. Figure it out and fix it. Also, if there is a different value from PARTIAL\_AID or PBSSID (i.e. broadcast) then the address indication descirption needs to change to include that broadcast case. I.e. when the value is broadcast, is the address indication set to 0 or 1? | Change "this field indicates" to "this field contains" in two places for each of 1 MHz and 2 MHz frame formats and remove "In the case that NDP CTS is used in the sector training, the field is set to PBSSID of the AP." in both places as this is behavioral language that belongs in clause 9. Not sure how to fix the secbeamop problems. | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882 |
| 2566 | 8.3.5.1.1 | 51 | 50 | According to 802.11 Style Guide (11/09-1034r7), the term "unicast" is deprecated in favor of "individually addressed". | Replace "unicast" by "individually addressed" throughout the draft. | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |
| 2721 | 8.3.5.1.1 | 52 | 29 | Inconsistency is found. | Change "short CTS" to "NDP CTS". | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882 |
| 2722 | 8.3.5.1.1 | 52 | 26 | Inconsistency is found. | Change "short CTS" to "NDP CTS". | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882 |
| 2882 | 8.3.5.1.1 | 51 | 53 | It is not clear why Address Indicator is set to the RA for the case of sector training. Based on description in RA/PBSSID, it should be set to PBSSID instead of RA. | Modify the sentence from "In the case that NDP CTS is used in the sector training, the field is set to the RA." to "In the case that NDP CTS is used in the sector training, the field is set to the Partial BSSID.". | Revised- TGah editor to make changes shown in 11-14/0285r0 under the heading for CID 1076, 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2496, 2566, 2882  |

**CID 2721, 2722, 1373, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 2493, 2566, and 2882**

**Instruction to TGah Editor: Replace the existing text in subclause 8.3.5.1.1 with the following text:**

**8.3.5.1.1 NDP CTS**

The NDP MAC frame body of the NDP CTS frame contains the information listed in Table 8-38b (NDP MAC frame body of NDP CTS (1 MHz)) and Table 8-38c (NDP MAC frame body of NDP CTS (≥2 ‌ﾠMHz)).

**Table 8-38b – NDP MAC frame body of NDP CTS (1 MHz)**

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| --- | --- | --- |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC Frame Type | 3 |

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| --- |
| The value of NDP MAC Frame Type field is 0. ~~The NDP MAC Frame Type field is set to 0.~~ |

 |
| NDP CTS / CF-End Indicator | 1 | The CTS / CF-End Indicator field is set to 0. (#1525) |
| Address Indicator | 1 |

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| Indicates that the RA/Partial BSSID field contains an RA when the value is 0 in this field and it contains a Partial BSSID when the value is 1 in this field. w~~hether 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~~When the NDP CTS frame is used in sector training, this field is set to 1.~~the RA.~~ ~~The Address Indicator field 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 the Address Indicator field is ~~set to~~ 0, this field ~~indicates~~ represents the intended AID for an ~~unicast STA~~ individually addressed intended recipient; when the Address Indicator field is ~~set to~~ 1, this field represents ~~indicates~~ a broadcast address (#152) (see 9.3.2.6 for STA behaviour based on this field). ~~In the case that~~ When the NDP CTS frame is used in sector training, this field ~~is set to~~ represents the PBSSID of the AP. (#213) |

 |
| Duration | 10 | The Duration field is expressed in units of OFDM symbol ~~time~~ duration (40 us) (Table 24-4 Timing-related constants) and follows the definitions in 8.3.1.3 CTS frame format. ~~In the case that~~ When the NDP CTS frame is used as a synch frame, the value in this field indicates the duration of time for NAV protection.

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| ~~In the case that~~ When the NDP CTS frame is used in sector training, the difference between the value of its Duration field and the value of the Duration field in the frame that carried the NDP announcement that initiated the sector training identifying the sector ID to which the NDP CTS is transmitted. ~~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 frame is transmitted to.~~ |

 |
| Early Sector Indicator  | 1 | The Early Sector Indicator field facilitates the detection of Spatially Orthogonal conditions by the stations receiving the NDP ~~short~~ CTS frame. If the Early Sector Indicator field is set to 1, it indicates that the ~~short~~ NDP 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. |

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**Table 8-38c – NDP MAC frame body of NDP CTS (> 2 MHz)**

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| --- | --- | --- |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC Frame Type | 3 |

|  |
| --- |
| The value of NDP MAC Frame Type field is always 0. ~~The NDP MAC Frame Type field is set to 0.~~ |

 |
| NDP CTS / CF-End Indicator | 1 | The CTS / CF-End Indicator field is set to 0. (#1525) |
| Address Indicator | 1 |

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| Indicates that the RA/Partial BSSID field contains an RA when the value is 0 in this field and it contains a Partial BSSID when the value is 1 in this field. ~~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~~ ~~unicast STA address.~~ |

~~In the case that~~When the NDP CTS frame is used in sector training, this field is set to 1.~~the RA.~~ ~~The Address Indicator field 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 the Address Indicator field is ~~set to~~ 0, this field ~~indicates~~ represents the intended AID for an ~~unicast STA~~ individually addressed intended recipient; when the Address Indicator field is ~~set to~~ 1, this field represents ~~indicates~~ a broadcast address (#153) (see 9.3.2.6 for STA behaviour based on this field).  |

 |
| Duration | 15 | The Duration field is expressed in units of us and follows the definitions in 8.3.1.3 CTS frame format. ~~In the case that~~ When the NDP CTS frame is used as a synch frame, the value in this field indicates the duration of time for NAV protection.

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| ~~In the case that~~ When the NDP CTS frame is used in sector training, the difference between the value of its Duration field and the value of the Duration field in the frame that carried the NDP announcement that initiated the sector training identifying the sector ID to which the NDP CTS is transmitted. ~~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 frame is transmitted to.~~ |

 |
| Early Sector Indicator  | 1 | The Early Sector Indicator field facilitates the detection of Spatially Orthogonal conditions by the stations receiving the NDP ~~short~~ CTS frame. If the Early Sector Indicator field is set to 1, it indicates that the ~~short~~ NDP 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 | 1 | The Bandwidth Indication field ~~is 3 bits in length,~~ identifies the bandwidth currently used by the PHY ~~of the PPDU frame~~, and is set according to Table 8-4a (Bandwidth Indication encoding). |
| Reserved | 4 | Reserved for future use |

**Instruction to TGah Editor: Modify the existing text in subclause 9.3.2.6 in Page 176 / Line 45 as follows:**

The RA field of the NDP CTS shall be generated as described in 8.3.5.1.1 (NDP CTS). The Duration field in the NDP CTS frame shall be set to the same value as the Duration field from the received RTS frame, adjusted by subtraction of aSIFSTime and the NDPTxTime required to transmit the NDP CTS frame, where NDPTxTime is calculated according to 9.3.2.4a (Setting and resetting the RID(#303)). In case the NDP CTS is a CTS-to-self, the value in the Duration field of the NDP CTS frame shall protect the pending transmission plus possibly an ACK frame (see 9.3.2.11 NAV distribution).

**Instruction to TGah Editor: Modify the existing text in subclause 9.3.2.6 in Page 177 / Line 1 as follows:**

An S1G STA that receives an NDP CTS frame should disregard the value of the Duration field of the NDP CTS frame if any of the following conditions are satisfied:

—The value of the Address Indicator field is equal to 1, and the value of the Early Sector Indicator field is equal to 0, and the value of the RA/PBSSID field is equal to the PBSSID of the AP with which the non-AP STA is associated to.

—The value of the Address Indicator field is equal to 1, and the value of the Early Sector Indicator field is equal to ~~0~~1, and the value of the RA/PBSSID is not equal to the PBSSID of the AP with which the non-AP STA is associated.(#14/0081r0)