IEEE P802.11
Wireless LANs

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| LB 203 Comment Resolution for 8.9 |
| Date: 2014-08-01 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Alfred Asterjadhi | Qualcomm Inc. | 5775 Morehouse Dr, San Diego, CA 92109 | +1-858-658-5302 | aasterja@qti.qualcomm.com |

Abstract

This submission proposes resolutions for comments in clauses 8.9 of TGah Draft 2.0 with the following CIDs (TOT 3 CIDs):

* 3090, 4182, 3027

Revisions:

* Rev 0: Initial version of the document
* Rev 1: Minor editorial change.

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 TGah Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGah Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGah Editor: Editing instructions preceded by “TGah Editor” are instructions to the TGah editor to modify existing material in the TGah draft. As a result of adopting the changes, the TGah editor will execute the instructions rather than copy them to the TGah Draft.***

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 3090 | 204.40 | 8.9 | Before defining NDP MAC frame Type the text and the table refers to it. Either refer to the clause that defines it, or berifly state what it is. | Suggest to briefly state that either of the NDP MAC frames have the NDP MAC frame Type which has three bits. | Revised –Agree with the commenter. Proposed resolution is inline with the commenter’s suggested change. TGah editor to make the changes shown in 11-14/1045r1 under all headings that include CID 3090. |
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| 4182 | 204.8 | 8.9 | NDP frames have 4-bit CRC. I have not seen any simulation (in TGah docs) reasoning that the 4-bit CRC is enough.https://mentor.ieee.org/802.11/documents?is\_dcn=NDP&is\_group=00ah | The TG should convince the WG members that the 4-bit CRC is enough for NDP MAC frames, preferably by generating simulations. If the simulations indicate otherwise then the TG should increase the size of the CRC. | Rejected –The use of 4-bit CRC to protect the SIG field has been previously discussed in TGah with results showing that false positive rates are low enough and these events happen “at such a low SNR where most likely packet detecton and timing synchronization will fail anyway” (please refer to the folloing documents for more information regarding this topic: <https://mentor.ieee.org/802.11/dcn/12/11-12-0596-01-00ah-sig-field-4-bit-crc.pptx><https://mentor.ieee.org/802.11/dcn/12/11-12-1092-00-00ah-4-bit-crc-revisited.pptx>In addition there have already been discussions on the impact of false positives for:NDP Ack frames: <https://mentor.ieee.org/802.11/dcn/12/11-12-0324-02-00ah-short-ack.pptx>NDP CTS frames: <https://mentor.ieee.org/802.11/dcn/12/11-12-0643-00-00ah-short-cts.pptx>Where it has been concluded that with its impact is minimal. And a solution to minimize the impact of these false positives for NDP BlockAck frames has been discussed in:<https://mentor.ieee.org/802.11/dcn/13/11-13-1434-00-00ah-ndp-blockack-bitmap-protection.pptx> and the respective protection mechanism can already be found in D2.0 of 11ah. |
| 3027 | 204.08 | 8.9 | """NDP MAC frames""The naming is internally contradictory and unnecessarily couples the MAC and PHY layers." | Really these are MAC frames that use a specific service provided by the PHY. Rename to avoid NDP, which reflects how the PHY provides this service, into something that relates to the service provided by the PHY. | Revised –Proposed resolution is to change the definition in subclause 3.2:“null data packet (NDP) carrying medium access control (CMAC frame: A physical layer (PHY) protocol data unit (PPDU) with no Data field used by the PHY to provide to the MAC the service of that carryingies medium access control (MAC) information in the SIGNAL field of the sub 1 GHz (S1G) PPDU.”TGah editor to make the changes shown in 11-14/1045r1 under all headings that include CID 3027. |

**Discussion:** *None.*

* Definitions specific to IEEE 802.11

***TGah Editor: Change the paragraph below as follows (#3027):***

**null data packet (NDP) carrying medium access control (CMAC)**(#3125) **frame**: A physical layer (PHY) protocol data unit (PPDU) with no Data field used by the PHY to provide to the MAC the service of carrying medium access control (MAC) information in the SIGNAL field of the sub 1 GHz (S1G) PPDU.

***TGah Editor: Replace all occurrences of “NDP MAC” with “NDP CMAC” throughout the draft.***

* **NDP MAC frames**

The format of NDP MAC frames that use the S1G\_1M format is shown in Figure 24-39 (S1G NDP MAC frame for 1 MHz). Figure 24-40 (SIG field format for 1 MHz NDP MAC frame) shows the SIG field format that contains the NDP MAC frame body field. The NDP MAC frame body field is 25 bits for NDP MAC frames that are transmitted using the S1G\_1M format (NDP\_1M).

The format of NDP MAC frames that use the S1G\_SHORT format is shown in Figure 24-38 (S1G NDP MAC frame for ≥ 2 MHz). Figure 24-41 (SIG field format for >= 2 MHz NDP MAC frame) shows the SIG field format that contains the NDP MAC frame body field. The NDP MAC frame body field is 37 bits for NDP MAC frames that are transmitted using the S1G\_SHORT format (NDP\_2M).

An NDP MAC frame is indicated by setting the TXVECTOR parameter NDP\_INDICATION to 1. The TXVECTOR parameter NDP\_MAC\_FRAME\_BODY is set to the concatenated bits of the NDP MAC frame body field.

An RXVECTOR parameter NDP\_INDICATION equal to 1 indicates reception of an NDP MAC frame, and the NDP MAC frame body field of the frame is obtained from the RXVECTOR parameter NDP\_MAC\_FRAME\_BODY.

The PHY preamble format for transmission of NDP MAC frames is defined in 24.3.11 (S1G preamble format for NDPs).

***TGah Editor: Change the paragraph below as follows (#3090):***

This subclause describes the NDP MAC frame body field content for each of the NDP MAC frame types. The type of the NDP MAC frame is indicated in the NDP MAC Frame Type field of the NDP MAC frame body field and its values are defined in Table 8-401 (NDP MAC frame Type field values).

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| * **NDP MAC frame Type field values**
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| **Value** | **Meaning** | **See subclause** |
| 0 | NDP CTS (control frame) | 8.9.1.1 (NDP CTS) |
| 0 | NDP CF-End (control frame) | 8.9.1.2 (NDP CF-End) |
| 1 | NDP PS-Poll (control frame) | 8.9.1.3 (NDP PS-Poll) |
| 2 | NDP Ack (control frame)  | 8.9.1.4 (NDP Ack) |
| 3 | NDP PS-Poll-Ack (control frame) | 8.9.1.5 (NDP PS-Poll-Ack) |
| 4 | NDP BlockAck (control frame) | 8.9.1.6 (NDP BlockAck) |
| 5 | NDP Beamforming Report Poll (control frame) | 8.9.1.7 (NDP Beamforming Report Poll) |
| 6 | NDP Paging (control frame) | 8.9.1.8 (NDP Paging) |
| 7 | NDP Probe Request (management frame) | 8.9.2.1 (NDP Probe Request) |