IEEE P802.11  
Wireless LANs

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| LB 200 Comment Resolution for Clause 8.3.5 | | | | |
| Date: 2014-01-31 | | | | |
| Author(s): | | | | |
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Abstract

This submission proposes resolutions for comments in clause 8.3.5 of TGah Draft 1.0 with the following CIDs:

1049, 1050, 1072, 1074, 1340, 1341, 1345, 1346, 1372, 1618, 1620, 1628, 1687, 2019, 2223, 2296, 2330, 2391, 2393, 2394, 2396, 2398, 2563, 2620, 2621, 2811, 2932, 1079, 2224, 2225

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.***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1049 | 50.63 | 8.3.5 | "An NDP MAC frame is indicated by setting the value of the NDP Indication subfield to 1 in the SIG field" -- The MAC knows nothing about SIG fields. All it knows about are TXVECTOR and RXVECTOR parameters. | Reword to reference appropriate TXVECTOR and RXVECTOR parameters. | Agree with the commenter.    Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 1050 | 51.01 | 8.3.5 | "8.3.4a describes the NDP MAC frame body" -- no it doesn't | correct reference. | It is a self reference so replace with “this subclause”    Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 1072 | 51.01 | 8.3.5 | "MAC frame body" is precisely wrong terminology. It means the contents of the MAC frame once header information has been removed. | Replace with "NDP MAC frame body of NDP CTS" with "NDP CTS frame format". Similar changes for the other frames. | Replaced with “The format of the NDP MAC frame body field” because this is a field of the SIG field.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 1074 | 51.30 | 8.3.5 | Generally when a new type of structure is introduced, the generalities of the structure need to be introduced first, then the specifics. | Indicate the general features of a MAC frame body in 8.3.5. This might only be the length vs the bandwidth. | Agree with the commenter. Proposed resolution is to introduce the generalities of the NDP MAC frame structure.    Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 1340 | 51.01 | 8.3.5 | Wrong subclause reference | Corret the reference | Agree with commenter.  Same resolution as 1050.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 1341 | 50.63 | 8.3.5 | Perhaps this subclause is not the place to rationalize the introduction of the NDP frames in S1G spec. | Either remove this sentence from here, and maybe add a subclause in clause 4 (similar the general descriptions added for other S1G features). | Agree with the commenter. Removed the sentence.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 1345 | 62.06 | 8.3.5 | "The NDP MAC Frame Type field is set to 6." or " ... set to 7."? | As in the comment | Agree with commenter. Changed to “set to 7”.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 1346 | 50.00 | 8.3.5 | "Reserved. Set to 1." and "All reserved bits are set to 1." and "Reserved bit" and "The Reserved field is X bits in length and is set to 0." are used to describe reserved bits. It'd be better to use similar description for all. | As in the comment | Agree with the commenter.  Revised –  TGah Editor to replace the content of the Description column of the Reserved field row (if any) in all the Tables of this subclause with “Reserved bits”. |
| 1372 | 50.61 | 8.3.5 | NDP MAC frames are listed under subclause 8.3 which describes the Format of Individual frame types for frames with protocol version equal to 0. However, this is not the case for NDP MAC frames. | Move NDP MAC frames from subclause 8.3.5 to a new subclause 8.8 (NDP MAC frames). | Accepted—  TGah Editor to make the changes proposed by the commenter. |
| 1618 | 51.01 | 8.3.5 | 8.3.4a doesn't exist - 8.3.5 instead? | Fix xref. Ditto P51L1 | Agree with commenter.  Same resolution as CID 1050.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 1620 | 50.61 | 8.3.5 | 8.3.5 contains content but has subclauses .1 etc | Move this to a "General" subclause | Proposed resolution is the same as CID 1372.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 1628 | 51.01 | 8.3.5 | NDP MAC frame body content is not in subclause 8.3.4a | I think it should be 8.3.5. Correct the reference. | Agree with commenter.  Same resolution as CID 1050.  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 1687 | 50.60 | 8.3.5 | By definition an NDP is a PPDU. So "NDP MAC frame" is an oxymoron. | Replace all "NDP xxx" MAC frame names with "S1G xxx" names, throughout this draft. | Proposed resolution is to add the definition of an NDP MAC frame.  Revised –  TGah editor to make changes shown in 14/ 0210r0 under the heading for CIDs from 1049 to 2932. |
| 2019 | 50.61 | 8.3.5 | It is not necessary to support all the NDP MAC frames for all S1G applications. For example, for neworking operated in wider BW like 8/16MHz, NDP control frames won't bring any meaningful throughput gain but just additional complexity. However, we should mandate some basic NDP formats for better interop between high rate device and sensors. | Except NDP-ACK, NDP-BA and NDP-CTS, all the other NDP formats are optional. Add capability fields correspondingly. | Agree in principle with the commenter. See discussion.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2223 | 51.01 | 8.3.5 | Could not find Subclause 8.3.4a in 802.11ah/D1.0, however, there are multiple occurences referring to it. | Please clarify. Is 8.3.4a now 8.3.5? | Agree with commenter.  Same resolution as CID 1050.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2296 | 50.60 | 8.3.5 | Although NDP frames can save control frame TX time, it is less useful in offloading BSS with wider operation channel. | Allow an offloading STA to indicate whether it implement NDP frames. When an offloading STA doesn't implement NDP frames, another STA/AP shall never sends NDP frames to it. | Same resolution as CID 2019. See discussion.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2330 | 50.61 | 8.3.5 | There seem to be a whole bunch of new "NDP" frames defined, but the acronym NDP isn't defined here, and is already defined in the baseline to be a Null Data Packet. Use of NDP as an adjective to redefine several frames from their baseline usage is very confusing. | Use a different adjective and acronym for these new frames. Are these all "Short" frame variants of the baseline frames by the similar name? | These are NDP frames that (some of them) carry similar signalling to their baseline counter parts. Proposed resolution is to add the definition of an NDP MAC frame to avoid confusion.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2391 | 50.64 | 8.3.5 | "in the SIG field" is pretty meaningless from a MAC perspective | At least give a forward reference to an appropriate S1G PHY subclause (but this layer-breaking is a bit smelly) | Proposed resolution is to refer to TXVECTOR parameters.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2393 | 50.00 | 8.3.5 | There should be pretty Figures for all the NDP MAC frames, as there are for other MAC frames | Add pretty Figures | Proposed resolution is to add pretty figures for each NDP frame.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2394 | 50.00 | 8.3.5 | The NDP MAC frames' sizes in bits are not always a multiple of 8. How are they transmitted? | Make the NDP MAC frames' sizes in octets integer | Rejected –  NDP MAC frames cannot be multiples of octets as the number of available bits to contain NDP MAC frame body field in the SIG field is either 25 or 37. The question should be addressed by adding the following sentence: “The NDP MAC frames are transmitted as described in 24.3.11 (S1G preamble format for NDPs).” |
| 2396 | 50.00 | 8.3.5 | The NDP MAC frames' fields do not always fit within an octet. How are they transmitted? | Clarify (perhaps by reference to the general statements regarding conventions) | Added the following sentence: “The NDP MAC frames are transmitted as described in 24.3.11 (S1G preamble format for NDPs).”  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2398 | 50.00 | 8.3.5 | "All reserved bits are set to 1" -- only PHY people think this is a good idea | Change to "Reserved bits" (since it is already specified that reserved bits in the MAC are set to 0) | Proposed resolution is the same as for CID 1346 which replaces it with “Reserved bits” as suggested by the commenter.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2563 | 50.63 | 8.3.5 | It is better to specify that the NDP MAC frames are transmitted according to subclause 24.3.11 (S1G preamble format for NDPs). | Insert the following text as the 2nd paragraph of subclause 8.3.5; --- The NDP MAC frames are transmitted as described in 24.3.11 (S1G preamble format for NDPs). | Agree with the commenter.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2620 | 50.60 | 8.3.5 | The format of the NDP MAC frame is not clear. Need to add a Figure to illustrate its format. | as in comment | The requested figure is already present in 24.3.11. Proposed resolution is to add references to that subclause.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2621 | 50.60 | 8.3.5 | Does the format of the NDP MAC frame the same as that shown in Figure 24-36? | clarify | To clarify added references to the appropriate figures (24-37 to 24-40).  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2811 | 50.61 | 8.3.5 | NDP frames will be less useful in offload usage scenarios | Offloading STAs should be able to indicate support for NDP frames. | Same resolution as CID 2019. See discussion.  Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 2932 | 50.60 | 8.3.5 | Sub-clause 8.3.4a does not exist in this draft. Sub-clause 8.3.5 and its subsection should be renumberd with 8.3.4a. | As in comment. | Agree in principle with the commenter. Given that it is a self reference replaced with “This subclause”.    Revised –  TGah editor to make changes shown in 14/0210r0 under the heading for CIDs from 1049 to 2932. |
| 1079 | 60.46 | 8.3.5.1.7 | "All reserved bits are set to 1. " -- no they are not. See 8.1 | "Either delete cited text, or name this field ""Must be ones"".  Ditto for any other ""Reserved"" fields in that must be set to 1 in clause 8." | Agree in principle with the commenter. Proposed resolution is the same as for CID 1346.  Revised –  TGah Editor to replace the content of the Description column of the Reserved field row (if any) in all the Tables of this subclause with “Reserved bits”. |
| 2224 | 60.22 | 8.3.5.1.7 | The size of NDP MAC frame body of NDP Paging (1 MHz), as shown in Table 8-53, is 25 bits, not byte aligned. Is this correct? Should we change the reserved to 2 bits? | Change the size of the Reserved row in Table 8-53 to 2 bits. | Rejected –  NDP MAC frames cannot be multiples of octets as the number of available bits to contain NDP MAC frame body field in the SIG field is either 25 or 37. The question should be addressed by adding the following sentence: “The NDP MAC frames are transmitted as described in 24.3.11 (S1G preamble format for NDPs).” |
| 2225 | 61.01 | 8.3.5.1.7 | The size of NDP MAC frame body of NDP Paging (╘δ╤ 2 MHz), as shown in Table 8-54, is 37 bits, not byte aligned. Is this correct? Should we change the reserved to 14 bits? | Change the size of the Reserved row in Table 8-54 to 14 bits. | Rejected –  NDP MAC frames cannot be multiples of octets as the number of available bits to contain NDP MAC frame body field in the SIG field is either 25 or 37. The question should be addressed by adding the following sentence: “The NDP MAC frames are transmitted as described in 24.3.11 (S1G preamble format for NDPs).” |

**Discussion:** 2019, 2296, 2811 - *Agree with the commenter of CID 2019. NDP ACK, NDP CTS, and NDP BlockAck frames are mandatory as control response frames for S1G STAs. NDP frames are not only shorter but also more robust than their regular counterparts (widely discussed in TGah). NDP PS-Poll frames are already specified as optional (signaled by the NDP PS-Poll Supported field in the S1G Capabilities field. NDP Modified Ack frames are sent as a response to NDP PS-Poll frames and as such are optional as well. NDP Paging frames are also optional as they can be sent only after negotiating TWT. NDP Probe Request is mandatory at reception because the transmitter cannot know the capability of the receiver during active scanning. Normative text for NDP Beamforming Report Poll frames is missing in D1.0 and proposed resolution is to specify that their support is optional as well.*

**3.2 Definitions specific to IEEE Std 802.11**

**Instruction to TGah Editor: *Add the following definition in subclause 3.2 (@REVmc D2.0):***

* *NDP MAC frame: A physical layer (PHY) protocol data unit (PPDU) with no Data field that carries medium access control (MAC) information in the SIGNAL field of the sub 1 GHz (S1G) PPDU.***NDP MAC frames**

**Instructions to TGah Editor*: Change this subclause as follows:***

The format of S1G NDP MAC frames that use the 1MHz format is shown in Figure 24-38 (S1G NDP MAC frame for 1MHz). Figure 24-39 (SIG field format for 1MHz 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 in length for NDP MAC frames (1 MHz).

The format of S1G NDP MAC frames that use a greater than or equal to 2MHz short format is shown in Figure 24-37 (S1G NDP MAC frame for ≥ 2MHz). Figure 24-40 (SIG field format for >=2MHz 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 in length for NDP MAC frames (≥ 2 MHz).An NDP MAC frame is indicated by setting the TXVECTOR parameter NDP\_FRAME to 1. The TXVECTOR parameter NDP\_FRAME\_CONTENTS is set to the concatenated bits of the NDP MAC frame body field.

An RXVECTOR parameter NDP\_FRAME 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\_FRAME\_CONTENTS.

The NDP MAC frames are transmitted as described in 24.3.11 (S1G preamble format for NDPs).

This subclause describes the NDP MAC frame body field content in each of NDP MAC frame types defined in Table 8-41 (NDP MAC frame type field values).

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame Type field values** | | |
| **Value** | **Meaning** | **See subclause** |
| 0 | NDP CTS (control frame) | 8.3.5.1.1 |
| 1 | NDP PS-Poll (control frame) | 8.3.5.1.2 |
| 2 | NDP ACK (control frame) | 8.3.5.1.3 |
| 3 | NDP Modified ACK (control frame) | 8.3.5.1.4 |
| 4 | NDP BlockAck (control frame) | 8.3.5.1.5 |
| 5 | NDP Beamforming Report Poll (control frame) | 8.3.5.1.6 |
| 6 | NDP Paging (control frame) | 8.3.5.1.7 |
| 7 | NDP Probe Request (management frame) | 8.3.5.2.1 |

* **NDP control frame details**
* **NDP CTS**

**Instructions to TGah Editor*: Change this subclause as follows:***

The format of the NDP MAC frame body field of the NDP CTS frame (1 MHz) is illustrated in Figure 8-8a1 (NDP MAC frame body field of the NDP CTS (1MHz) frame) and it contains the information listed in Table 8-42 (NDP MAC frame body of NDP CTS (1 MHz)).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 | B4      B12 | B13 B22 | B23 | B24 |
|  | NDP MAC Frame Type | Address Indicator | RA/ Partial BSSID | Duration | Early Sector Indication | Reserved |
| Bits: | 3 | 1 | 9 | 10 | 1 | 1 |
| **Figure 8-8a1 – NDP MAC frame body field of the NDP CTS (1 MHz) frame** | | | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP CTS (1 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC Frame Type | 3 | The NDP MAC Frame Type 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 9.17b  PBSSID: 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. |
| Reserved | 1 | Reserved for future use |

The format of the NDP MAC frame body field of the NDP CTS frame (≥ 2 MHz) is illustrated in Figure 8-8a2 (NDP MAC frame body field of the NDP CTS (≥ 2 MHz) frame) and it contains the information listed in Table 8-43 (NDP MAC frame body of NDP CTS (≥ 2 MHz)).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 | B4      B12 | B13 B27 | B28 | B29 B31 | B32 B36 |
|  | NDP MAC Frame Type | Address Indicator | RA/ Partial BSSID | Duration | Early Sector Indication | Bandwidth Indication | Reserved |
| Bits: | 3 | 1 | 9 | 15 | 1 | 3 | 5 |
| **Figure 8-8a2 - NDP MAC frame body field of the NDP CTS (≥ 2 MHz) frame** | | | | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP CTS (≥2 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC Frame Type | 3 | The NDP MAC Frame Type 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 9.17b  PBSSID: 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 Table 8-4a (Bandwidth Indication encoding). |
| Reserved | 5 | Reserved for future use |

* **NDP PS-Poll**

**Instructions to TGah Editor*: Change this subclause as follows:***

The format of the NDP MAC frame body field of the NDP PS-Poll (1 MHz) frame is illustrated in Figure 8-8b1 (NDP MAC frame body field of the NDP PS-Poll (1 MHz) frame) and it contains the information listed in Table 8-44 (NDP MAC frame body of NDP PS-Poll (1 MHz)).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 B11 | B12     B20 | B21 B23 | B24 |
|  | NDP MAC Frame Type | RA | TA | Preferred MCS | UDI |
| Bits: | 3 | 9 | 9 | 3 | 1 |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP PS-Poll (1 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC  Frame Type | 3 | The NDP MAC Frame Type field is set to 1 |
| RA | 9 | PARTIAL\_AID addressed to AP as described in 9.17b |
| TA | 9 | PARTIAL\_AID addressed to a STA as described in 9.17b |
| Preferred MCS | TBD | TBD |
| UDI | 1 | Se to 0: no uplink data  Set to 1: uplink data present |
| Reserved | TBD |  |

The format of the NDP MAC frame body field of the NDP PS-Poll (≥ 2 MHz) frame is illustrated in Figure 8-8b2 (NDP MAC frame body field of the NDP PS-Poll (≥2 MHz) frame) and it contains the information listed in Table 8-45 (NDP MAC frame body of NDP PS-Poll (≥ 2 MHz)).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 B11 | B12      B20 | B21 B24 | B25 B36 |
|  | NDP MAC Frame Type | RA | TA | Preferred MCS | UDI |
| Bits: | 3 | 9 | 9 | 4 | 12 |
| **Figure 8-8b2 - NDP MAC frame body field of the NDP PS-Poll (≥ 2 MHz) frame** | | | | | |

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| --- | --- | --- |
| * **NDP MAC frame body of NDP PS-Poll (≥2 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC Frame Type | 3 | The NDP MAC Frame Type field is set to 1 |
| RA | 9 | PARTIAL\_AID addressed to AP as described in 9.17b |
| TA | 9 | PARTIAL\_AID addressed to a STA as described in 9.17b |
| Preferred MCS | 4 | Preferred MCS field indicates the preferred MCS level of the STA for downlink transmission, and its value represents MCS index. This field may be used in determining MCS level of PPDU for BU delivery.(#899) |
| UDI | 12 | Set to 0: No uplink data  Set to Non-zero: Duration of uplink data in unit of TU. |

* **NDP ACK**

**Instructions to TGah Editor*: Change this subclause as follows:***

The NDP ACK frame, used to respond to all frames other than an NDP PS-Poll frame, is described in this subclause.

The format of the NDP MAC frame body field of the NDP ACK (1 MHz) frame is illustrated in Figure 8-8c1 (NDP MAC frame body field of the NDP ACK (1 MHz) frame) and it contains the information listed in Table 8-46 (NDP MAC frame body of NDP ACK (1 MHz)).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 B11 | B12 | B13 | B14 B23 | B24 |
|  | NDP MAC Frame Type | ACK ID | More Data | Duration Indication | Duration | Relayed Frame |
| Bits: | 3 | 9 | 1 | 1 | 10 | 1 |
| **Figure 8-8c1 - NDP MAC frame body field of the NDP ACK (1 MHz) frame** | | | | | | |

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| --- | --- | --- |
| * **NDP MAC frame body of NDP ACK (1 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC  Frame Type | 3 | The NDP MAC Frame Type field is set to 2 |
| ACK ID | 9 | The ACK ID field is 9 bits in length and is set to the bit sequence Scrambler Initialization[0:6] || FCS[30:31] ("||" is concatenation) obtained from the Scrambler Initialization value in the Service field (as defined in 24.3.9.2 (SERVICE field)) prior to descrambling, and the FCS field of the PSDU that carries the soliciting frame. |
| More Data | 1 | The More Data field is described in 8.2.4.1.8 (More Data field). |
| Duration Indication | 1 | The Duration Indication field is 1 bit in length and is set to 0 if the value of the Duration field sets the NAV as described in 8.2.5 (Duration/ID field (QoS STA))). Otherwise, it is set to 1 if the value of the Duration field indicates an idle period. |
| Duration | 10 | The Duration field is 10 bits in length.  If the Duration Indication field is set to 0 the Duration field is set as described in 8.2.5.7 (Setting for control response frames) where the value is expressed in units of 40us.  If the Duration value is set to 1 the Duration field is set to the duration of time, in milliseconds, during which an idle period (during which there is no frame transmission) is expected from the STA that elicited the response, starting from the end of the NDP ACK response. |
| Relayed Frame | 1 | The Relayed Frame field is 1 bit in length and it is set as described in 9.48.3 (Procedures of TXOP sharing for relay operation) and 9.48.4 (Flow control). |

The format of the NDP MAC frame body field of the NDP ACK (≥ 2MHz) frame is illustrated in Figure 8-8c2 (NDP MAC frame body field of the NDP ACK (≥ 2 MHz) frame) and it contains the information listedin Table 8-47 (NDP MAC frame body of NDP ACK (≥ 2 MHz)).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 B18 | B19 | B20 | B21 B34 | B35 | B36 |
|  | NDP MAC Frame Type | ACK ID | More Data | Duration Indication | Duration | Relayed Frame | Reserved |
| Bits: | 3 | 16 | 1 | 1 | 14 | 1 | 1 |
| **Figure 8-8c2 - NDP MAC frame body field of the NDP ACK (≥ 2 MHz) frame** | | | | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP ACK (≥2 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC  Frame Type | 3 | The NDP MAC Frame Type field is set to 2 |
| ACK ID | 16 | The ACK ID field is 16 bits in length and is set to the bit sequence Scrambler Initialization[0:6] || FCS[23:31] ("||" is concatenation) obtained from the Scrambler Initialization value in the Service field (as defined in 24.3.9.2 (Service field)) prior to descrambling, and the FCS field of the PSDU that carries the soliciting frame. |
| More Data | 1 | The More Data field is described in 8.2.4.1.8 (More Data field). |
| Duration Indication | 1 | The Duration Indication field is 1 bit in length and is set to 0 if the value of the Duration field sets the NAV as described in 8.2.5 (Duration/ID field (QoS STA)). Otherwise, it is set to 1 if the value of the Duration field indicates an idle period. |
| Duration | 14 | The Duration field is 14 bits in length.  If the Duration Indication field is set to 0 the Duration field is set as described in 8.2.5.7 (Setting for control response frames).  If the Duration value is set to 1 the Duration field is set to the duration of time, in milliseconds, during which an idle period (during which there is no frame transmission) is expected from the STA that elicited the response, starting from the end of the NDP ACK response. |
| Relayed Frame | 1 | The Relayed Frame field is 1 bit in length and it is set as described in 9.48.3 (Procedures of TXOP sharing for relay operation) and 9.48.4 (Flow control). |
| Reserved | 1 | The Reserved field is 1 bit in length and is set to 0. |

* **NDP Modified ACK**

**Instructions to TGah Editor*: Change this subclause as follows:***

,,

The format of the NDP MAC frame body field of the NDP Modified ACK (1 MHz) frame is illustrated in Figure 8-8d1 (NDP MAC frame body field of the NDP Modified ACK (1 MHz) frame) and it contains the information listed in Table 8-48 (NDP MAC frame body of NDP Modified ACK (1 MHz)).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 B11 | B12 | B13 | B14 B23 | B24 |
|  | NDP MAC Frame Type | ACK ID | More Data | Duration Indication | Duration | Reserved |
| Bits: | 3 | 9 | 1 | 1 | 10 | 1 |
| **Figure 8-8d1 - NDP MAC frame body field of the NDP Modified ACK (1 MHz) frame** | | | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP Modified ACK (1 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC  Frame Type | 3 | The NDP MAC Frame Type field is set to 3 |
| ACK ID | 9 | The ACK ID field is 9 bits in length and is set to the bit sequence CRC[0:3] || TA[4:8] ("||" is concatenation) obtained from the CRC and TA field of the NDP PS-Poll frame that elicited the response. |
| More Data | 1 | The More Data field is described in 8.2.4.1.8 (More Data field). |
| Duration Indication | 1 | The Duration Indication field is 1 bit in length and is set to 0 if the value of the Duration field is an extension of the ACK ID. Otherwise, it is set to 1 if the value of the Duration field indicates an idle period. |
| Duration | 10 | If the Duration Indication field is set to 0 the Duration field is set to the bit sequence TA[3] || RA[0:8] ("||" is concatenation) obtained from the RA and TA fields of the NDP PS-Poll frame that elicited the response.  If the Duration Indication is set to 1, the Duration field is set to the duration of time, in milliseconds, during which an idle period (during which there is no frame transmission) is expected from the STA that elicited the response, starting from the end of the NDP Modified ACK response. |
| Reserved | 1 | The Reserved field is 1 bit in length and is set to 0. |

The format of the NDP MAC frame body field of the NDP Modified ACK (≥ 2 MHz) frame is illustrated in Figure 8-8d2 (NDP MAC frame body field of the NDP Modified ACK (≥ 2 MHz) frame) and it contains the information listed in Table 8-49 (NDP MAC frame body of NDP Modified ACK (≥ 2 MHz)).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 B18 | B19 | B20 | B21 B34 | B35 B36 |
|  | NDP MAC Frame Type | ACK ID | More Data | Duration Indication | Duration | Reserved |
| Bits: | 3 | 16 | 1 | 1 | 14 | 2 |
| **Figure 8-8d2 - NDP MAC frame body field of the NDP Modified ACK (≥ 2 MHz) frame** | | | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP Modified ACK (≥ 2 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC  Frame Type | 3 | The NDP MAC Frame Type field is set to 3 |
| ACK ID | 16 | The ACK ID field is 16 bits in length and is set to the bit sequence CRC[0:3] || TA[0:8] || RA[6:8]] ("||" is concatenation) obtained from the CRC, TA, and RA field of the NDP PS-Poll frame that elicited the response. |
| More Data | 1 | The More Data field is described in 8.2.4.1.8 (More Data field). |
| Duration Indication | 1 | The Duration Indication field is 1 bit in length and is set to 0 if the value of the Duration field sets the NAV as described in 8.2.5 (Duration/ID field (QoS STA)). Otherwise, it is set to 1 if the value of the Duration field indicates an idle period. |
| Duration | 14 | If the Duration Indication field is set to 0 the Duration field is set as described in 8.2.5.7 (Setting for control response frames). The unit of the  Duration field is 40 microseconds when the Duration Indication field is set to 0.  If the Duration Indication is set to 1, the Duration field is set to the duration of time, in milliseconds, during which an idle period (during which there is no frame transmission) is expected from the STA that elicited the response, starting from the end of the NDP Modified ACK response. |
| Reserved | 2 | The Reserved field is 2 bits in length and is set to 0. |

* **NDP BlockAck**

**Instructions to TGah Editor*: Change this subclause as follows:***

The format of the NDP MAC frame body field of the NDP BlockAck (1 MHz) frame is illustrated in Figure 8-8e1 (NDP MAC frame body field of the NDP BlockAck (1 MHz) frame) and it contains the information listed in Table 8-50 (NDP MAC frame body of NDP BlockAck (1 MHz)).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0      B2 | B3 B4 | B5      B16 | B17 B24 |
|  | NDP MAC Frame Type | BlockAck ID | Starting Sequence Control | BlockAck Bitmap |
| Bits: | 3 | 2 | 12 | 8 |
| **Figure 8-8e1 - NDP MAC frame body field of the NDP BlockAck (1 MHz) frame** | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP BlockAck (1 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC  Frame Type | 3 | The NDP MAC Frame Type field is set to 4. |
| BlockAck ID | 2 | The BlockAck ID field is 2 bits in length and contains the identifier of the NDP BlockAck frame. It is set to the 2 LSBs of the bit sequence of the Scrambler Initialization value in the SERVICE field (as defined in 24.3.9.2 (SERVICE field)), prior to descrambling, of the PSDU that carries the soliciting frame. |
| Starting Sequence Control | 12 | The Starting Sequence Control field is 12 bits in length and contains the sequence number of the first MSDU or A-MSDU for which the NDP BlockAck frame is sent. The value of this field is defined in 9.21.7.5 (Generation and transmission of BlockAck by an HT STA) when the NDP BlockAck is used during a BlockAck session and is set to the sequence number of the MSDU being fragmented when it is used during a Fragment BA session (see 9.3.2.9a (Fragment BA procedure)). |
| BlockAck Bitmap | 8 | The Block Ack Bitmap field of the NDP BlockAck frame is 8 bits in length and is used to indicate the received status of up to 8 MSDUs and A-MSDUs when the NDP BlockAck is used during a BlockAck session. Each bit that is equal to 1 in the NDP BlockAck bitmap acknowledges the successful reception of a single MSDU or A-MSDU in the order of sequence number, with the first bit of the NDP BlockAck bitmap corresponding to the MSDU or A-MSDU with the sequence number that matches the value of the Starting Sequence Control field.  When the NDP BlockAck is used during a Fragment BA session (see 9.3.2.9a (Fragment BA procedure)) each bit that is equal to 1 in the BlockAck Bitmap acknowledges the successful reception of a single fragment of an MSDU, in the order of the fragment number, with the first bit of the BlockAck Bitmap corresponding to the MPDU with fragment number equal to 0 or 8. |

The format of the NDP MAC frame body field of the NDP BlockAck (≥ 2 MHz) frame is illustrated in Figure 8-8e2 (NDP MAC frame body field of the NDP BlockAck (≥ 2 MHz) frame) and it contains the information listed in Table 8-51 (NDP MAC frame body of NDP BlockAck (≥ 2 MHz)).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0      B2 | B3 B8 | B9      B20 | B21 B36 |
|  | NDP MAC Frame Type | BlockAck ID | Starting Sequence Control | BlockAck Bitmap |
| Bits: | 3 | 6 | 12 | 16 |
| **Figure 8-8e2 - NDP MAC frame body field of the NDP BlockAck (≥ 2 MHz) frame** | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP BlockAck (≥ 2 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC  Frame Type | 3 | The NDP MAC Frame Type field is set to 4. |
| BlockAck ID | 6 | The BlockAck ID field is 6 bits in length and contains the identifier of the NDP BlockAck frame. It is set to the 6 LSBs of the bit sequence of the Scrambler Initialization value in the SERVICE field (as defined in 24.3.9.2 (SERVICE field)), prior to descrambling, of the PSDU that carries the soliciting frame. |
| Starting Sequence Control | 12 | The Starting Sequence Control field is 12 bits in length and contains the sequence number of the first MSDU or A-MSDU for which the NDP BlockAck frame is sent. The value of this field is defined in 9.21.7.5 (Generation and transmission of BlockAck by an HT STA) when the NDP BlockAck is used during a BlockAck session and is set to the sequence number of the MSDU being fragmented when it is used during a Fragment BA session (see 9.3.2.9a (Fragment BA procedure)). |
| BlockAck Bitmap | 16 | The Block Ack Bitmap field of the NDP BlockAck frame is 16 bits in length and is used to indicate the received status of up to 16 MSDUs and A-MSDUs. Each bit that is equal to 1 in the NDP BlockAck bitmap acknowledges the successful reception of a single MSDU or A-MSDU in the order of sequence number, with the first bit of the NDP BlockAck bitmap corresponding to the MSDU or A-MSDU with the sequence number that matches the value of the Starting Sequence Control field.  When the NDP BlockAck is used during a Fragment BA session (see 9.3.2.9a (Fragment BA procedure)) each bit that is equal to 1 in the BlockAck Bitmap acknowledges the successful reception of a single fragment of an MSDU, in the order of the fragment number, with the first bit of the BlockAck Bitmap corresponding to the MPDU with fragment number equal to 0. |

(#277, 278)

The transmitting (receiving) STA encodes (decodes) the BlockAck ID field and the Starting Sequence Control field of the NDP BlockAck frames applying the protection mechanism described in 9.53 (Bitmap Protection for NDP BlockAck frames)

* **NDP Beamforming Report Poll**

**Instructions to TGah Editor*: Change this subclause as follows:***

The format of the NDP MAC frame body field of the NDP Beamforming Report Poll (≥ 2 MHz) frame is illustrated in Figure 8-8f2 (NDP MAC frame body field of the NDP Beamforming Report Poll (≥ 2 MHz) frame) and it contains the information listed in Table 8-52 (NDP MAC frame body of NDP Beamforming Report Poll (≥ 2 MHz)).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 B11 | B12      B24 | B25 B26 | B27 B34 | B35 B36 |
|  | NDP MAC Frame Type | TA (AP Address) | RA (STA Address) | Response Indication | Feedback Segment retransmission bitmap | Reserved |
| Bits: | 3 | 9 | 13 | 2 | 8 | 2 |
| **Figure 8-8f2 - NDP MAC frame body field of the NDP Beamforming Report Poll (≥ 2 MHz) frame** | | | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP Beamforming Report Poll (≥2 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC Frame Type | 3 | The NDP MAC Frame Type field is set to 5. |
| TA (AP Address) | 9 | Indicates Partial BSSID of the AP (beamformer) as described in 9.17b |
| RA (STA Address) | 13 | Indicates AID of intended STA (beamformee) |
| Response Indication | 2 | Set to 11 to indicate a following Beamforming Report Poll;  Otherwise, set to 00. |
| Feedback Segment retransmission bitmap | 8 | Indicates the feedback segments to be polled in a VHT  Compressed Beamforming report, which is contained in one or more VHT Compressed Beamforming frames |
| Reserved | 2 | Reserved bit |

* **NDP Paging**

**Instructions to TGah Editor*: Change this subclause as follows:***

The format of the NDP MAC frame body field of the NDP Paging (1 MHz) frame is illustrated in Figure 8-8g1 (NDP MAC frame body field of the NDP Paging (1 MHz) frame) and it contains the information shown in Table 8-53 (NDP MAC frame body of NDP Paging (1 MHz)).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 B11 | B12      B24 | B25 B26 | B35 B36 |
|  | NDP MAC Frame Type | P-ID | APDI/PAID | Direction | Reserved |
| Bits: | 3 | 9 | 9 | 1 | 3 |
| **Figure 8-8g1 - NDP MAC frame body field of the NDP Paging (1 MHz) frame** | | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP Paging (1 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC  Frame Type | 3 | The NDP MAC Frame Type field is set to 6. |
| P-ID | 9 | The P-ID field is the identifier of the NDP Paging Requester, as described in 9.41.5 (NDP Paging Setup). |
| APDI/PAID | 9 | If the Direction field is set to 1, this field indicates the APDI (AP Direction Information). The 8 MSBs of the APDI are set to the value of the PTSF field which stores the partial TSF of the transmitting STA as defined in 9.41.5 (NDP Paging Setup).  The LSB of the APDI is set to the Check Beacon bit that is an indicator of critical changes in the beacon as described in 9.41.5 (NDP Paging Setup).  If the Direction field is set to 0, this field indicates the PAID of the NDP Paging Responder STA. |
| Direction | 1 | The Direction field is set to 1, if the NDP Paging Responder is an AP, otherwise it is set to 0. |
| Reserved | 3 | All reserved bits are set to 1. |

The format of the NDP MAC frame body field of the NDP Paging (≥ 2 MHz) frame is illustrated in Figure 8-8g2 (NDP MAC frame body field of the NDP Paging (≥ 2 MHz) frame) and it contains the information listed in Table 8-54 (NDP MAC frame body of NDP Paging (≥ 2 MHz)).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | B0      B2 | B3 B11 | B12      B24 | B25 B26 | B35 B36 |
|  | NDP MAC Frame Type | P-ID | APDI/PAID | Direction | Reserved |
| Bits: | 3 | 9 | 9 | 1 | 15 |
| **Figure 8-8g2 - NDP MAC frame body field of the NDP Paging (≥ 2 MHz) frame** | | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP Paging (≥2 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC  Frame Type | 3 | The NDP MAC Frame Type field is set to 6. |
| P-ID | 9 | The P-ID field is the identifier of the NDP Paging Requester, as described in 9.41.5 (NDP Paging Setup). |
| APDI/PAID | 9 | If the Direction field is set to 1, this field indicates the APDI (AP Direction Information). The 8 MSBs of the APDI are set to the value of the PTSF field which stores the partial TSF of the transmitting STA as defined in 9.41.5 (NDP Paging Setup).  The LSB of the APDI is set to the Check Beacon bit that is an indicator of critical changes in the beacon as described in 9.41.5 (NDP Paging Setup).  If the Direction field is set to 0, this field indicates the PAID of the NDP Paging Responder STA. |
| Direction | 1 | The Direction field is set to 1, if the NDP Paging Responder is an AP, otherwise it is set to 0. |
| Reserved | 15 | All reserved bits are set to 1. |

* **NDP management frame details**
* **NDP Probe Request**

**Instructions to TGah Editor*: Change this subclause as follows:***

NDP Probe Request frames are used in the procedures described in 10.1.4.3.3b.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| The format of the NDP MAC frame body field of the NDP Probe Request (1 MHz) frame is illustrated in Figure 8-8h1 (NDP MAC frame body field of the NDP Probe Reques (1 MHz) frame) and it contains the information listed in Table 8-55 (NDP MAC frame body of NDP Probe Request (1 MHz)). | B0      B2 | B3 | B12       B24 | B25 B26 | B35 B36 | |
|  | NDP MAC Frame Type | SSID/Interworking Present | Compressed SSID/Access Network Option | Requested Probe Response Type | Reserved | |
| Bits: | 3 | 1 | 16 | 1 | 4 | |
| **Figure 8-8h1 - NDP MAC frame body field of the NDP Probe Request (1 MHz) frame** | | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP Probe Request (1 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC Frame Type | 3 | The NDP MAC Frame Type field is set to 7(#901). |
| SSID/  Interworking Present | 1 | Indicates the desired criteria of the probe response.  Set to 0 if the NDP Probe Request contains the Compressed SSID.  Set to 1 if the NDP Probe Request contains the Access Network Option. |
| Compressed SSID/Access Network Option | 16 | When SSID/Interworking Present bit field is set 0, Compressed SSID/Access Network Option [0:15] are set to Compressed SSID which is the 2 LSBs of 32-bit CRC calculated as defined 8.2.4.8 FCS field, wherein the calculated fields is the Full SSID.  When SSID/Interworking Present bit field is set 1, Compressed SSID/Access Network Option [0:7] are set to Access Network Option which is defined in 8.4.2.91 Interworking element (see Figure 8-386-Access Network Options field format). Compressed SSID/Access Network Option [8:15] are reserved. |
| Requested  Probe Response  Type | 1 | Indicates the Probe Response type.  Set to 0 if the AP with dot11ShortProbeResponseOptionImplemented equal to true responds with a Short Probe Response frame.  Set to 1 if the AP responds with a Probe Response frame. |
| Reserved | 4 | Reserved. Set to 1. |

The format of the NDP MAC frame body field of the NDP Probe Request (≥ 2 MHz) frame is illustrated in Figure 8-8h2 (NDP MAC frame body field of the NDP Probe Request (≥ 2 MHz) frame) and it contains the information listed in Table 8-56 (NDP MAC frame body of NDP Probe Request (≥ 2 MHz)).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0      B2 | B3 | B4       B35 | B36 |
|  | NDP MAC Frame Type | SSID/Interworking Present | Compressed SSID/Access Network Option | Requested Probe Response Type |
| Bits: | 3 | 1 | 32 | 1 |
| **Figure 8-8h2 - NDP MAC frame body field of the NDP Probe Request (≥ 2 MHz) frame** | | | | |

|  |  |  |
| --- | --- | --- |
| * **NDP MAC frame body of NDP Probe Request (≥2 MHz)** | | |
| **Field** | **Size (bits)** | **Description** |
| NDP MAC Frame Type | 3 | The NDP MAC Frame Type field is set to 7. |
| SSID/  Interworking Present | 1 | Indicates the desired criteria of the probe response.  Set to 0 if the NDP Probe Request contains the Compressed SSID.  Set to 1 if the NDP Probe Request contains the Access Network Option. |
| Compressed SSID/Access Network Option | 32 | When SSID/Interworking Present bit field is set 0, Compressed SSID/Access Network Option [0:31] are set to Compressed SSID which is 32-bit CRC calculated as defined 8.2.4.8 FCS field, wherein the calculated fields is the Full SSID.  When SSID/Interworking Present bit field is set 1, Compressed SSID/Access Network Option [0:7] are set to Access Network Option which is defined in 8.4.2.91 Interworking element (see Figure 8-386-Access Network Options field format). Compressed SSID/Access Network Option [8:31] are reserved. |
| Requested  Probe Response  Type | 1 | Indicates the Probe Response type.  Set to 0 if the AP with dot11ShortProbeResponseOptionImplemented equal to true responds with a Short Probe Response frame.  Set to 1 if the AP responds with a Probe Response frame. |

**Instructions to TGah Editor: *Add the following paragraph immediately after the 5th paragraph of subclause 9.31.5.2 (@802.11ac D5.0):***

An S1G beamformee with dot11NDPBeamformingReportPollSupport equal to true shall set the NDP Beamforming Report Poll Supported field in the S1G Capabilities element to 1. Otherwise it shall set the NDP Beamforming Report Poll Supported field in the S1G Capabilities element to 0.

An S1G beamformer may transmit NDP Beamforming Report Poll frames instead of VHT Beamforming Report Poll frames to an S1G beamformee from which it has received a frame containing an S1G Capabilities element with the NDP Beamforming Report Poll Supported field set to true; otherwise the S1G beamformer shall not transmit NDP Beamforming Report Poll frames to the S1G beamformee. A non-S1G beamformer shall not transmit NDP Beamforming Report Poll frames.

* S1G Capabilities info field

**Instructions to TGah Editor: *Change this portion of this figure as follows:***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| B48 | B49 | B50 | B51 | B52 | B53 | B54 | B55 |
| OBSS Mitigation Support | Fragment BA Support | NDP PS-Poll Supported | RAW Operation Support | TIM Segmentation Support | TXOP Sharing Implicit ACK support | Multicast ID Support | NDP Beamforming Report Poll Supported |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| * **S1G Capabilities Info field** | | | | | | | | |

**Instructions to TGah Editor: *Insert a new row in Table 8-191d as follows:***

|  |  |  |
| --- | --- | --- |
| * **Subfields of the S1G Capabilities Info field (continued)** | | |
| **Subfield** | **Definition** | **Encoding** |
| … | . |  |
| NDP Beamforming Report Poll Supported | Indicated support for reception of NDP Beamforming Report Poll frames. | Set to 0 if not supported  Set to 1 if supported |