IEEE P802.11
Wireless LANs

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| LB 200 Comment Resolution for Clause 8.2.5 |
| Date: 2014-01-01 |
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Abstract

This submission proposes resolutions for comments in clause 8.2.5 of TGah Draft 1.0 with the following CIDs:

2717

1046, 1675, 2375, 2376, 2511, 1398, 2564

1047, 1333, 1414, 1677

2378

Revisions:

Rev 0 – Initial version of the document

Rev 1 – Renamed SF-Poll frames as SF variant of the PS-Poll to address some comments received the presentation of the first version of the document.

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** |
| 2717 | 36.44 | 8.2.5.1 | As Duration field exists also in NDP frames, the description for Duraiton/ID field shall include the text for NDP frames. | Instruction to the Editor: Change the text of subclause 8.2.5.1 as follows: "The value in the Duration/ID field in a frame transmitted by a non-S1G QoS STA or in the Duration field in a NDP (Modified) ACK or NDP CTS (>=2MHz) frame transmitted by a S1G QoS STA is defined in 8.2.5.2 (Setting for single and multiple protection under enhanced distributed channel access (EDCA)) through 8.2.5.8 (Setting for other response frames).All times except NDP (Modified) ACK and NDP CTS (1MHz) frame are calculated in microseconds. All times for NDP (Modified) ACK and NDP CTS (1MHz) frame are calculated in 40 microseconds. If a calculated duration includes a fractional microsecond, that value inserted in the Duration(/ID) field is rounded up to the next higher integer. " | Agree in principle with the commenter. Revised – TGah editor to make changes shown in 14/0038r1 under the heading for CID 2717. |

**Discussion:** *None.*

8.2.5.1 General

**Instructions to TGah Editor*: Insert the following 3 paragraphs at the end of this subclause (@IEEE802.11REVmc D2.0):***The value in the Duration field of an NDP ACK, NDP Modified ACK (>= 2MHz), and NDP CTS frame transmitted by an S1G STA is defined in 8.2.5.7 (Setting for control response frames). Setting the value in the Duration field is additionally constrained by the same rules that apply to the value of the Duration/ID field of ACK, and CTS frames as described in 8.2.5.2 (Setting for single and multiple protection under enhanced distributed channel access (EDCA)), 8.2.5.4 (Setting for frames sent by a TXOP holder under HCCA), 8.2.5.8 (Setting for other response frames).

All times for NDP ACK (1MHz) and NDP CTS (1MHz) frames are calculated in multiples of 40 microseconds. If a calculated duration is not a multiple of 40 microseconds, the value inserted in the Duration field is rounded up to the next higher integer.

 All times for for NDP ACK (>=2MHz), NDP Modified ACK (>=2MHz) and NDP CTS (>=2MHz) are calculated in microseconds. If a calculated duration includes a fractional microsecond, the value inserted in the Duration field is rounded up to the next higher integer.

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1046 | 36.51 | 8.2.5.2 | "Within a frame (excluding Data frames containing QoS CF-Poll, PSMP frames, and frames that have theRDG/More PPDU subfield equal to1, and (Short) Beacon frames" -- when you extend a list, you also need to remove the previous "and" | Replace with " .. PSMP frames, frames that have the RDG/More PPDU subfield equal to1, and (Short) Beacon frames" | Agree with the commenter. Proposed change is included in this resolution. Revised – TGah editor to make changes shown in 14/0038r1 under the heading for CIDs from 1046 to 2564. |
| 1675 | 37.11 | 8.2.5.2 | Number problems. | Replace "For PS-Poll frames as the initial frame of SF exchange from S1G STAs," with "For a PS-Poll frame that is the initial frame of SF exchange from a S1G STA," | Agree in principle with the commenter. See discussion. Revised – TGah editor to make changes shown in 14/0038r1 under the heading for CIDs from 1046 to 2564. |
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| 2375 | 36.53 | 8.2.5.2 | "(Short) Beacon frames" includes ordinary Beacon frames, and hence this change is a change to existing conforming devices | Change to "Short Beacon frames" | Agree with the commenter. Revised – TGah editor to make changes shown in 14/0038r1 under the heading for CIDs from 1046 to 2564. |
| 2376 | 37.12 | 8.2.5.2 | This change contradicts the value for the Duration/ID field of PS-Poll frames shown in Table 8-6 | Amend Table 8-6 accordingly | Agree with the commenter. Revised – TGah editor to make changes shown in 14/0038r1 under the heading for CIDs from 1046 to 2564. |
| 2511 | 36.11 | 8.2.5.2 | How is it known whether a PS-Poll is the start of an SF exchange or not? Or is this a choice of the transmitter of the PS-Poll frame and therefore, the duration rule is simply a requirement for that transmission? Is the difference indicated by the DUR field bits 14 and 15, and if so, should the spec be more explicit about that? | clarify. | Agree with the commenter. Revised – TGah editor to make changes shown in 14/0038r1 under the heading for CIDs from 1046 to 2564. |
| 1398 | 219.53 | 10.2.2.2 | Upon reception of a PS-Poll, the S1G AP may use RTS/CTS to ..." How is the Duration field of the RTS set when the eliciting PS-Poll is the initial frame of a SF which has already a duration value? Also the intepretation of an RTS as a successful acknowledgement must be added as an explicit exception in the corresponding clause 9.3.2.8 | Clearly describe how the Duration field of the RTS/CTS is set when the eliciting PS-Poll includes a Duration and add an exception of successful acknowledgement upon reception of an RTS following transmission of a PS-Poll in clause 9.3.2.8 | This comment, while referring to subclause 10.2.2.2 resolved here as it requests clarifications regarding the Duration field of RTS/CTS as a response to an eliciting PS-Poll that is the initial frame of a SF exchange. See discussion below.Revised – TGah editor to make changes shown in 14/0038r1 under the heading for CIDs from 2557 to 2897.  |
| 2564 | 36.53 | 8.2.5.2 | As defined in (9.3.2.13 Response Indication procedure), an S1G STA that transmits a PPDU with the TXVECTOR parameter RESPONSE INDICATION equal to Long Response shall use multiple protection. It is better to add the condition to subclause 8.2.5.2. | 1) Modify the 1st sentence of the 1st paragraph as follows:--Within a frame (excluding Data frames containing QoS CF-Poll, PSMP frames, frames that have the RDG/More PPDU subfield equal to 1, frames transmitted by an S1G STA with the TXVECTOR parameter RESPONSE INDICATION equal to Long Response, and (Short) Beacon frames) transmitted under EDCA by a STA that initiates a TXOP, there are two classes of duration settings: single protection and multiple protection.2) Insert a following new text as the 4th last sentence of the 1st paragraph:---Frames transmitted by an S1G STA with the TXVECTOR parameter RESPONSE INDICATION equal to Long Response always use multiple protection. | Agree with the commenter. Proposed resolution accounts for the commenter’s suggestion.Revised – TGah editor to make changes shown in 14/0038r1 under the heading for CIDs from 1046 to 2564. |

**Discussion:** *CID 1675, 2511: A PS-Poll frame that initiates a Speed Frame exchange is a PS-Poll frame that includes a Duration value in the Duration/ID field, instead of the AID of the STA transmitting the PS-Poll frame. To avoid confustion the proposed resolution is to identify a PS-Poll frame that initiates a SF exchange as an PS-Poll+SF frame (suggested by the commenter of CID 1838 which is related to subclause 9.3.2.1 but using a nomenclature similar to Control frames that include the HT Control field e.g., RTS+HTC in baseline), where the difference between a PS-Poll (baseline) and aPS-Poll+SF (for S1G usage in SF exchange) is that Bit 15 of the Duration/ID field is equal to 0 instead of 1 which is the case of a PS-Poll frame as indicated by the commenter of CID 2511 (Note: some changes related to this are also added to doc with resolutions for subclause 8.2.4.2).*

*CID 1398 – The proposed resolution is to add the exception in subclause 9.3.2.8 (Ack procedure) to accept the reception of an S1G RTS as successful acknowledgement,and also to specify how the duration field of the RTS is set in this case (clarifying for both cases (as a response to a PS-Poll and to PS-Poll+SF).*

***Note – Impacts multiple subclauses of D1.0 which are assigned to multiple other assignees as follows:***

***8.2.4 to Liwen, 8.3.1 to Matt, 9.44 to Amin.***

**Instruction to TGah Editor: *Replace all occurrences of “SF-Poll” with” PS-Poll+SF” in the draft to become 802.11ah D2.0:***

10.2.2.2 STA Power Management modes

**Instruction to TGah Editor: *Change the 2nd added paragraph as follows:***

Upon receiving a PS-Poll or a PS-Poll+SF frame, the S1G AP may use the RTS/CTS protection scheme to send buffered data until it transmits a frame with MORE DATA set to 0 or until the duration of the exchange, including the initial PS-Poll or PS-Poll+SF frame reaches the TXOP limit whichever comes first.

* **ACK procedure**

**Instruction to TGah Editor: *Change this sentence as follows:***

Other exceptions exist for S1G STAs as described in the following three paragraphs:

**Instruction to TGah Editor: *Insert a new paragraph immediately after the paragraph below as follows:***

Under Speed Frame Exchange operation as described in 9.44 (Speed Frame Exchange): If a data frame is sent as an immediate response to an MPDU requiring acknowledgement, the successful reception of the data frame shall be accepted as successful acknowledgement of the eliciting MPDU.

The recognition of a valid S1G RTS frame, sent by the recipitent of a PS-Poll frame or of a PS-Poll+SF frame shall be accepted as successful acknowledgement of the PS-Poll or of the PS-Poll+SF frame.

* **Setting for single and multiple protection under enhanced distributed channel access (EDCA)**

**Instructions to TGah Editor: *Change the 1st paragraph in subclause 8.2.5.2 as follows:***

Within a frame (excluding Data frames containing QoS CF-Poll, PSMP frames, frames that have the RDG/More PPDU subfield equal to 1, Short Beacon frames, and frames transmitted by an S1G STA with the TXVECTOR parameter RESPONSE INDICATION equal to Long Response(#15,59,168)) transmitted under EDCA by a STA that initiates a TXOP, there are two classes of duration settings: single protection and multiple protection. In single protection, the value of the Duration/ID field of the frame can set a NAV value at receiving STAs that protects up to the end of any following Data, Management, or response frame plus any additional overhead frames as described below. In multiple protection, the value of the Duration/ID field of the frame can set a NAV that protects up to the estimated end of a sequence of multiple frames. Frames that have the RDG/More PPDU subfield equal to 1 always use multiple protection. PSMP frames always use multiple protection. Short Beacon frames in S1G always use multiple protection(#15,59,168). Frames transmitted by an S1G STA with the TXVECTOR parameter RESPONSE INDICATION equal to Long Response always use multiple protection. The STA selects between single and multiple protection when it transmits the first frame of a TXOP. All subsequent frames transmitted by the STA in the same TXOP use the same class of duration settings.

For S1G STAs, Duration/ID field determination rules are further specified in 9.3.2.13 (Response Indication procedure).

**Instructions to TGah Editor: *Change the following paragraph in subclause 8.2.5.2 as follows:***

The Duration/ID field is determined as follows:

* Single protection settings.

1) For an RTS that is not part of a dual clear-to-send (CTS) exchange and not part of an SF exchange, the Duration/ID field is set to the estimated time, in microseconds, required to transmit the pending frame, plus one CTS frame, plus one (#1198)Ack or BlockAck frame if required, plus any NDPs required, plus explicit feedback if required, plus applicable IFSs(#156).

**Instruction to TGah Editor: Add this paragraph at the end of subclause 8.2.5.2:**

For a PS-Poll+SF frame and an RTS frame generated by an S1G STA as part of an SF exchange the Duration/ID field value is determined as follows:

* For a PS-Poll+SF frame, the Duration/ID field is set to the estimated time required for the transmission of one ACK frame, plus the estimated time required for the transmission of the following MPDU and its response if required, plus applicable IFS durations.
* For an RTS that is sent as as a response to the PS-Poll+SF frame, the Duration/ID field is set to a value D min (*TEND-NAV +TPENDING – TPPDU; TTXOP \_REMAINING - TPPDU*) *<= D <= TTXOP \_REMAINING-TPPDU.*
* **PS-Poll frame format**

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

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| --- | --- | --- | --- | --- | --- |
| Octets: | 2 | 2 | 6 | 6 | 4 |
|  | Frame Control | Duration/~~A~~ID | BSSID (RA) | TA | FCS |
|  |  |  |  |  |  |
| * **PS-Poll frame**
 |

The BSSID is the address of the STA contained in the AP. The TA field is the address of the STA transmitting the frame.

The Duration/ID field contains the AID which is the value assigned to the STA transmitting the frame by the AP in the association response frame that established that STA's current association.

Bit 15 of the Duration/ID field of a PS-Poll frame is equal to 1.

**8.3.1.5.1 SF variant of the PS-Poll frame format**

A PS-Poll with the Duration/ID field that contains a duration value which is set as described in 8.2.5 (Duration/ID field (QoS STA)) is an SF variant of the PS-Poll frame and is referred to as PS-Poll+SF frame. The Poll Type field in the Frame Control field of the PS-Poll+SF frame is set to 0.

 Bit 15 of the Duration/ID field of a PS-Poll+SF frame is equal to 0.

A non-S1G STA does not transmit PS-Poll+SF frames.

* **Rules for SF exchange**

**Instructions to TGah Editor*: Add the following sentences at the end of the 3rd paragraph of this subclause:***

 An S1G non-AP STA may initiate a SF exchange with a PS-Poll+SF frame. An S1G non-AP STA shall not initiate a SF exchange with a PS-Poll frame that is not a PS-Poll+SF frame.

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1047 | 38.06 | 8.2.5.7 | "NDP (Modified) Ack" is wrong for a number of reasons.Is this really the name of a frame. If so, I can't find it's definition. | If this is really is the name of a frame or variant of a frame choose a descriptive name that captures the essence of the variation, rather than merely saying "we changed it, go figure". And don't include any fancy characters in the name of a frame. Folks will interpret that as carrying some semantics, e.g. an optional qualifier.If this is not really the name of a frame, change all such references so that they reference the proper name of the frame. | Agree with the commenter. Proposed resolution is to clarify that they NDP ACK and NDP Modified ACK are two different NDP MAC frames.Revised – TGah Editor to make changes shown in 14/0038r1 under the heading for CIDs from 1047 to 1677. |
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| 1333 | 37.62 | 8.2.5.7 | change "time, in microseconds between the end of the ... " to "time, in microseconds, between the end of the ... ". Same in P38L2. | As in the comment | Accepted –TGah Editor to make changes proposed by the commenter. |
| 1414 | 38.06 | 8.2.5.7 | The last paragraph in subclause 8.2.5.7 describes protocol behavior as such need to be included under clause 9. | Move the last paragraph "An S1G AP sending an NDP (Modified) ACK with the More Data field set to 1 as a response to an eliciting (NDP) PS-Poll may set the Duration field of the NDP (Modified >=2MHz) ACK to the estimated duration of the BU frame that the S1G AP has buffered for the polling STA, plus SIFS, plus the duration of the response from the S1G non-AP STA, if required." at the end of subclause 9.3.2.13 (Response Indication procedure). | Agree with the commenter.Revised – TGah Editor to make changes shown in 14/0038r1 under the heading for CIDs from from 1047 to 1677. |
| 1677 | 37.59 | 8.2.5.7 | Per the Style Guide "set to" is used only when the value is being set, not when it simply has a value or is being read. | Replace "set to 0" with "0". (The other instances of "set to" seem to be about setting the value in a frame that is to be transmitted.) | Agree with the commenter.Revised – TGah Editor to make changes shown in 14/0038r1 under the heading for CIDs from from 1047 to 1677. |

**Discussion:** *None.*

* **Setting for control response frames**

**Instructions to TGah Editor: *Change the following 3 paragraphs of this subclause:***

For an NDP CTS frame transmitted in response to an RTS frame, the Duration field is set to the value obtained from the Duration/ID field of the RTS frame that elicited the response minus the time, in microseconds, between the end of the PPDU carrying the RTS frame and the end of the NDP CTS frame.

For an NDP ACK frame with the Duration Indication field equal to 0, the Duration field is set to the value obtained from the Duration/ID field of the frame that elicited the response minus the time, in microseconds, between the end of the PPDU carrying the frame that elicited the response and the end of the NDP ACK frame.

For a TACK frame, the Duration/ID field is set to the value obtained from the Duration/ID field of the frame that elicited the response minus the time, in microseconds, between the end of the PPDU carrying the frame that elicited the response and the end of the PPDU carrying the TACK frame.

**Instructions to TGah Editor*: Change the following paragraph and subsequently move these two created paragraphs at the end of subclause 9.3.2.13 (Response Indication Procedure):***

An S1G AP sending an NDP ACK frame with the More Data field set to 1 as a response to an eliciting PS-Poll frame may set the Duration field of the NDP ACK to the estimated duration of the BU frame that the S1G AP has buffered for the polling STA, plus SIFS, plus the duration of the response from the S1G non-AP STA, if required.

An S1G AP sending an NDP Modified ACK (>=2 MHz) frame with the More Data field set to 1 as a response to an eliciting NDP PS-Poll frame may set the Duration field of the NDP Modified ACK (>= 2MHz) to the estimated duration of the BU frame that the S1G AP has buffered for the polling STA, plus SIFS, plus the duration of the response from the S1G non-AP STA, if required.

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2378 | 38.17 | 8.2.5.8 | What is the difference between a "Duration/ID" and a "Duration field"? | Just say "Duration/ID field", unless some other field is also covered, in which case be clearer about which this/these are | Agree in principle with the commenter. Clarification, the difference is that the Duration field is present in NDP Ack frames while Duration/ID field is normal control response frames. Revised – TGah editor to make changes shown in 14/0038r1 under the heading for CIDs from 1415 to 2378. |

**Discussion:** *None.*

* **Setting for other response frames**

**Instructions to TGah Editor*: Change the last paragraph and insert another paragraph after it as follows:***

For any frame that includes a Duration/ID field, transmitted by an S1G STA as a response to Short frames, the Duration/ID field of the frame is set to 0.