IEEE P802.11
Wireless LANs

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| LB 203 Comment Resolution for Clause 8.2.5, 9.3.2.3 and 5.1.2 |
| Date: 2014-07-14 |
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Abstract

This submission proposes resolutions for comments in clause 8.2.5, 9.3.2.3, 5.1.2 of TGah Draft 2.0 with the following CIDs (9 CIDs):

* 3237
* 3889, 3974
* 3002, 3003, 3697, 3698
* 3238
* 3870

Revisions:

* Rev 0: Initial 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** | **Commenter** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 3870 | MARC EMMELMANN | 13.00 | 5.1.2 | Logic of requirements unclear. S1G STA shall not use .... Is clear but what about the , "or Use ..." part. Does the SIG STA shall use group cipher suite. | Make two sentences to improve readablilty. | Rejected –The logic of requirements is already clear because the “shall not” qualifier applies to all security suites that are listed in the sentence:“An S1G STA shall not use the pairwise cipher suite selectors WEP-40, WEP-104, TKIP, or Use group cipher suite.” Also note that the same terminology can be found in the same Subclause of REVmc D3.0: “A STA that has associated with management frame protection enabled shall not use pairwise cipher suite selectors WEP-40, WEP-104, TKIP, or “Use Group cipher suite.” |

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| 3889 | 224.17 | 9.3.2.3.4 | better wording possible | change "An S1G AP transmitting sounding NDP in SST sounding RAW.." to "An S1G AP transmitting sounding NDP(s) within an SST sounding RAW." | Accepted |
| 3974 |  | 9.3.2.3.2 | As specified in 9.3.2.3.2 (RIFS) of P802.11mc D2.5 (P1177L55), the use of RIFS is obsolete. So, an S1G STA shall not use RIFS similar to a VHT STA. | Modify the second sentence of the first paragraph of 9.3.2.3.2 as follows (proposed text is based on P802.11mc D3.0);---A VHT STA and an S1G STA shall not transmit frames separated by a RIFS. | Accepted |

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| 3237 | 79.12 | 8.2.5.1 | The calculated value can also be a negative value. Also the NDP CF-End frame is missing. | Merge the last two paragraphs and insert the following at the end of the single created paragraph: "If a calculated durationresults in a negative value, the value of the Duration field is 0." Insert "NDP\_1M CF-End" and NDP\_2M CF-End" to the list of frames. | Revised –Agree with the commenter. Proposed resolution accounts for the suggested changes with the only modification that the two paragraphs are kept separated as the units of time are different for NDP\_1M and NDP\_2M frames. TGah editor to make changes shown in 11/14/0961r0 under all headings that include CID 3237. |

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| 3002 | 79.27 | 8.2.5.2 | "S1G Beacon frames" -- the insertion by .11ah now removes Beacon frames from the list of exclusions. | "SIG" -> "(S1G)"(twice this para) | Rejected –According to REVmc D3.0 the Beacon frame is not included in the list of exclusions and S1G STAs to which this exclusion applies do not transmit Beacon frames, hence its insertion to the list of exclusions is not needed. |
| 3003 | 80.17 | 8.2.5.2 | "Any pending PS-Poll or NDP PS-Poll frame exchanges by paged STAs"Inconsistent with 8.2.4.1.1 which disallows subtype 6 (PS-Poll). | Resolve inconsistency. | Rejected –According to REVmc D3.0 the values of Type equal to “Control” and Subtype equal to 6 are actually assigned to “Control Frame Extension” while PS-Poll frames are Control frames of Subtype 10. Hence, in 8.2.4.1.1, frames under Control Frame Extension are disallowed in 11ah but PS-Poll frames are allowed. Hence there is no inconsistency. |
| ~~3696~~ | ~~79.25~~ | ~~8.2.5.2~~ | ~~In a TXOP with Duration protection with short frame or NDP BA, multiple protection shall be used.~~ | ~~As proposed~~ | ~~NOT ADDRESSED IN THIS DOCUMENT~~ |
| 3697 | 79.63 | 8.2.5.2 | Change "END-NAV" to "TEND-NAV". | As proposed | Accepted –Note that this is a formatting issue due to PDF conversion. Note to Editor: Make sure the issue is solved. |
| 3698 | 79.38 | 8.2.5.2 | The Duration of PS-Poll+BDT only includes the TX time of the following MPDU and its response. TEND-NAV + TPENDING - TPPDU is not enough for AP's buffered frames and STA's frames in BDT TXOP. | Redefine CTS rules or change PS-Poll+BDT rule to "For a PS-Poll+BDT 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 MPDUs and its responses if required, plus applicable IFS durations." | Revised –Generally agree with the proposed change but not with the comment that led to that change. Note that the STA that transmits the PS-Poll does not know the amount of time that is required by the AP to transmit the buffered frames. In order to accommodate this latter case the AP responds with an RTS to extend the NAV to accommodate its DL BU transmissions to the STA. However, agree with the proposed change because the STA may have more than one MPDU to be transmitted to the AP so the NAV need to cover the multiple MPDUs that the non-AP STA has pending.TGah editor to make changes shown in 11/14/0961r0 under all headings that include CID 3698. |

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| 3238 | 80.50 | 8.2.5.7 | There is an exception for the Duration field setting when the NDP CTS is sent as part of a NAV protection procedure for Relay TXOP sharing (see 9.49.5). | insert " except as described in 9.49.5.3 (Relay-shared TXOP protection mechanisms)" at the end of the sentence. | Accepted |

**Discussion:** *None.*

**Instructions to TGah Editor: *Change these subclauses as follows:***

* **Duration/ID field (QoS STA)**
* **General**

***Insert the following 3 paragraphs at the end of this subclause:***

The value in the Duration field of an NDP Ack, NDP\_2M PS-Poll-Ack, and NDP CTS frames 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\_1M Ack NDP\_1M CTS, and NDP\_1M CF-End 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. If a calculated duration results in a negative value, the value of the Duration field is 0.

All times for NDP\_2M Ack, NDP\_2M PS-Poll-Ack, NDP\_2M CTS , and NDP\_1M CF-End frames 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. If a calculated duration results in a negative value, the value of the Duration field is 0.

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

***Change the 1st paragraph in subclause 8.2.5.2 and add a sentence as follows:***

Within a frame (excluding Data frames containing QoS CF-Poll, PSMP frames, ~~and~~ frames that have the RDG/More PPDU subfield equal to 1, S1G Beacon frames, and frames transmitted by an S1G STA with the TXVECTOR parameter RESPONSE INDICATION equal to Long Response) 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. S1G Beacon frames always use multiple protection. 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. VHT NDP Announcement frames and Beamforming Report Poll frames always use multiple protection settings.

For S1G STAs, Duration/ID field determination rules are further specified in 9.3.2.15 (Response Indication procedure).

***Change item 1) of the following paragraph in the sub-clause 8.2.5.2:***

The Duration/ID field is determined as follows:

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

***Insert the two sentences as below under Tpending of item 4) of item b):***

* Multiple protection settings. The Duration/ID field is set to a value D as follows:
* Else 

 where

*TSINGLE-MSDU* is the estimated time required for the transmission of the allowed frame exchange sequence defined in 8.4.2.28 (EDCA Parameter Set element) (for a TXOP limit value of 0), including applicable IFS durations

*TPENDING* is the estimated time required for the transmission of

* Pending MPDUs of the same AC
* Any associated immediate response frames
* Any HT NDP, VHT NDP, or Beamforming Report Poll frame transmissions and explicit feedback response frames
* Applicable IFSs
* Any RDG
* Any pending QoS Null frame exchanges by paged STAs
* Any pending PS-Poll or NDP PS-Poll frame exchanges by paged STAs

*TTXOP* is the value of dot11EDCATable-TXOPLimit (dot11EDCAQAP-TableTXOPLimit for the AP) for that AC

*TTXOP-REMAINING* is *TTXOP* less the time already used time within the TXOP

*TEND-NAV* is the remaining duration of any NAV set by the TXOP holder, or 0 if no NAV has been established

*TPPDU* is the time required for transmission of the current PPDU

***Insert the following paragraph at the end of subclause 8.2.5.2:***

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

* For a PS-Poll+BDT 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 its following MPDUs and their responses if required, plus applicable IFS durations.
* For an RTS frame that is sent as a response to the PS-Poll+BDT frame, the Duration/ID field is set to a value D: min (*TEND-NAV +TPENDING – TPPDU; TTXOP-REMAINING - TPPDU) <= D <= TTXOP-REMAINING-TPPDU*.
* **Setting for control response frames**

***Insert the following paragraphs at the end of subclause 8.2.5.7:***

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 except as described in 9.49.5.3 (Relay-shared TXOP protection mechanisms).

For an NDP Ack frame with the Idle 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.