IEEE P802.11  
Wireless LANs

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| LB 203 Comment Resolution for 9.3.2.4a | | | | |
| Date: 2014-08-01 | | | | |
| Author(s): | | | | |
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Abstract

This submission proposes resolutions for comments in clause 9.3.2.4a of TGah Draft 2.0 with the following CIDs (TOT 22 CIDs):

* 3029, 3481, 3756, 3758, 3895, 3896, 3897, 3898, 3899, 3900, 3901, 3902, 3903, 3904, 3905, 4006, 4208, 4209, 4210, 4211, 4212, 4213
* 3758

Revisions:

* Rev 0: Initial version of the document
* Rev 1: Removed redundant phrase and fixed inconsistency in mathematical expression (these changes are highlighted in green in this 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** |
| 3029 | 226.21 | 9.3.2.4a | " may additionally account for information contained"  this is too loose for a normative statement. | Either enumerate the information here, or reference where that process of "accounting for information" is defined, or turn sentence into note. | Revised –  Agree in principle with the commenter. Proposed resolution clarifies that the STA may additionally use the information contained in a valid MAC header (i.e., A1 and/or A2 fields) to differentiate between member and non-member PPDUs.  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3029. |
| 3481 | 226.21 | 9.3.2.4a | What does it mean for a S1G STA to "account for information"? What is this procedure in the implementations? If this procedure is not related to the interoperability of STAs, then delete this sentence. | Delete the sentence on page 226 lines 21 through 24. | Revised –  Proposed resolution is the same as for CID 3029 and clarifies that the STA may additionally use the information contained in a valid MAC header (i.e., A1 and/or A2 fields) to differentiate between member and non-member PPDUs. This change removes the ambiguity generated by the statement “account for information” that was present in D2.0.  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3481. |
| 3756 | 226.28 | 9.3.2.4a | when the PPDU contains a valid nonzero Duration field that updates the NAV as described in 9.3.2.4 (Setting and resetting the NAV), do the RID is reset? | Change the text to make it clear. | Rejected –  The current text is already clear and does specify that the RID is reset. Quoting the relevant part of the statement: “except when the PPDU either contains a valid nonzero Duration field that updates the NAV as described in 9.3.2.4(…) or it is intended to the S1G STA in which cases the RID shall be reset.” it can be noticed that the exceptions that trigger the RID reset are either the one mentioned by the commenter or the other condition underlined above. |
| 3895 | 225.32 | 9.3.2.4a | wrong word | change "clause" to "subclause" | Revised –  Agree with the commenter. Suggested change is included in the proposed resolution.  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3895. |
| 3896 | 225.34 | 9.3.2.4a | missing a parameter | For NDP MAC frames, the word "value" should be plural and the parameter list should be indicated as plural and should also include UPLINK\_INDICATION | Revised –  Agree with the commenter that the word value should be plural. However, note that the UPLINK\_INDICATION parameter is not present in NDP MAC frames. Please refer to 9.19a (Group ID, partial AID, Uplink Indication and COLOR in S1G PPDUs): “The TXVECTOR parameter UPLINK\_INDICATION is not present for 1 MHz frames and is not present for NDP frames.”  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3896. |
| 3897 | 226.1 | 9.3.2.4a | better wording possible | change "The S1G STA shall reset its RID counter when the RX-START.indication primitive is received if the received PPDU is a member PPDU and it shall not reset the RID counter if the received PPDU is a non-member PPDU, then the S1G STA shall update the RID counter, i.e., set it to a new value (as defined in 9.3.2.4a.1 (RID update)) that is not less than the value that the RID counter will have at the end of the received PPDU." to "An S1G STA that receives a member PPDU shall reset its RID counter when the RX-START.indication primitive corresponding to that PPDU is received. An S1G STA that receives a non-member PPDU shall update the RID counter, i.e., set it to a new value (as defined in 9.3.2.4a.1 (RID update)) that is not less than the value that the RID counter would have had at the time corresponding to the end of the received PPDU on the medium had the PPDU not been received." | Revised –  The proposed resolution accounts for the suggested change by the commenter. The sentence has been split into two sentences: for reception of a member PPDU and for reception of a non-member PPDU. And we clearly indicate the conditions for RID reset/update. The main difference with the suggested change from the commenter is that the proposed resolution in this document does ont change the statement that the RID counter shall not be reset for a non-member PPDU (also the last part of the suggested change is modified for better clarity).  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3897. |
| 3898 | 226.18 | 9.3.2.4a | better wording possible - this wording change is important, because there would otherwise be confusion about the possible update to the member PPDU declaration that is allowed in the next paragraph | change "Otherwise, the S1G STA shall consider the PPDU as a non-member PPDU." to "A PPDU that is not a member PPDU is a non-member PPDU." | Revised –  Generally agree with the commenter. Proposed resolution accounts for the suggested change.  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3898. |
| 3899 | 226.21 | 9.3.2.4a | better wording possible | Change "An S1G STA that has classified a PPDU as a member PPDU may additionally account for information" to "Because the PARTIAL\_AID and COLOR values in PPDUs are based on imperfect hashes, an S1G STA that has classified a PPDU as a member PPDU based on PARTIAL\_AID or COLOR may additionally use information" | Revised –  Agree in principle with the commenter. Suggested resolution is included in the proposed resolution  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3899. |
| 3900 | 226.8 | 9.3.2.4a | better wording possible | Prepend a new sentence to the paragraph: "A member PPDU is a PPDU received by a STA and which was transmitted by a STA that is a member of the same BSS as the receiving STA." | Revised –  Agree in principle with the commenter. Suggested resolution is included in the proposed resolution  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3900. |
| 3901 | 226.28 | 9.3.2.4a | the behavior of the RID counter is not adequately or completely described - please answer the following questions - when does the counter stop? Does it ever get suspended and if so, when does it resume? What happens if the counter is nonzero and a new PPDU arrives? | add new text that provides answers to the questions asked and be sure to include strict timing references to events at the MAC-PHY interface | Revised –  Agree in principle with the commenter that strict timing to events at the MAC-PHY interface are needed. Hence the proposed resolution is to clearly specify when RXSTART-Indication primitive is issued by the PHY, give references to equations in PHY section for the calculation of the PSDU\_LENGTH and add the missing duration of TDSTF in the RXTIME calculation for S1G\_LONG that is missing. As for the other questions please note that the RID counter is the same as the NAV and it stops when reaches 0 and does not get suspended. In Subclause 9.3.2.1:  “The NAV and RID may be thought of as counters, which count down to 0 at a uniform rate…. For S1G STAs, when both NAV and RID counters are 0, the virtual CS indication is that the medium is idle; when either the NAV counter or the RID counter is non-zero the indication is that the medium is busy.”  And if the counter is non-zero and a new PPDU arrives the STA resets/updates its RID counter following the rules defined in this subclause (i.e., 9.3.2.4a).  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3901. |
| 3902 | 226.33 | 9.3.2.4a | OMG! missing the exact calculation for PSDU\_RXTIME | please add a specific definition for the calculation of PSDU\_RXTIME | Revised –  Agree in principle with the commenter. Proposed resolution adds the equations to calculate the PSDU\_RXTIME for each S1G PPDU format.  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3902. |
| 3903 | 226.39 | 9.3.2.4a | should the word "only" appear in this sentence, as in "receive only the PLCP header and not the MAC portion of the PPDU"? | clarify | Revised –  Agree in principle with the commenter. The proposed resolution is to clarify that the figure indicates the RID for STAs that “receive the PLCP Header of the Data frame but the MAC portion of the PPDU does not contain a valid Duration field that updates the NAV” inline with description in P226L28.  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3903. |
| 3904 | 226.40 | 9.3.2.4a | does "only" here mean that only the PLCP header of the ACK PPDU is received, but not the PHY Payload portion, or does it mean only of the ACK and not of the DATA PPDU? | clarify | Revised –  Agree in principle with the commenter. The proposed resolution is to clarify that it means that only the PLCP Header of the ACK is received but not that of the DATA PPDU (i.e., second option).  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 3904. |
| 3905 | 228.19 | 9.3.2.4a | I think that frame should be exchanged for PPDU in this paragraph to avoid confusion because frame is often used to refer to MPDUs | change "2 MHz duplicated frame (i.e. TXVECTOR parameter FORMAT equal to S1G\_DUP\_2M)"" to "2 MHz PPDU with TXVECTOR parameter FORMAT set to S1G\_DUP\_2M" change "in any other frame" to "in any other PPDU" | Accepted –  Note to the TGah editor: The proposed change refers to text that is found in Subclause 9.3.2.6 (VHT and S1G RTS procedure) rather than 9.3.2.4a (Setting and resetting the RID). |
| 4006 | 226.40 | 9.3.2.4a | Does "only" here mean that only the PLCP header of the ACK PPDU is received, but not the PHY Payload portion, or does it mean only of the ACK and not of the DATA PPDU? | Please clarify and modify the text accordingly. | Revised –  This CID seems to be the same as CID 3904 and the proposed resolutions are the same.  Agree in principle with the commenter. The proposed resolution is to clarify that it means that only the PLCP Header of the ACK is received but not that of the DATA PPDU (i.e., second option).  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 4006. |
| 4208 | 225.34 | 9.3.2.4a | missing a parameter | For NDP MAC frames, the word "value" should be plural and the parameter list should be indicated as plural and should also include UPLINK\_INDICATION | Revised –  This CID seems to be the same as CID 3896 and the proposed resolutions are the same.  Agree with the commenter that the word value should be plural. However, note that the UPLINK\_INDICATION parameter is not present in NDP MAC frames. Please refer to 9.19a (Group ID, partial AID, Uplink Indication and COLOR in S1G PPDUs): “The TXVECTOR parameter UPLINK\_INDICATION is not present for 1 MHz frames and is not present for NDP frames.”  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 4208. |
| 4209 | 226.18 | 9.3.2.4a | better wording possible - this wording change is important, because there would otherwise be confusion about the possible update to the member PPDU declaration that is allowed in the next paragraph | change "Otherwise, the S1G STA shall consider the PPDU as a non-member PPDU." to "A PPDU that is not a member PPDU is a non-member PPDU." | Revised –  This CID seems to be the same as CID 3898 and the proposed resolutions are the same.  Generally agree with the commenter. Proposed resolution accounts for the suggested change.  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 4209. |
| 4210 | 226.28 | 9.3.2.4a | RID counter is not adequately or completely described - please answer the following questions - when does the counter stop? Does it ever get suspended and if so, when does it resume? What happens if the counter is nonzero and a new PPDU arrives? | add new text that provides answers to the questions asked and be sure to include strict timing references to events at the MAC-PHY interface | Revised –  This CID seems to be the same as CID 3901 and the proposed resolutions are the same.  Agree in principle with the commenter that strict timing to events at the MAC-PHY interface are needed. Hence the proposed resolution is to clearly specify when RXSTART-Indication primitive is issued by the PHY, give references to equations in PHY section for the calculation of the PSDU\_LENGTH and add the missing duration of TDSTF in the RXTIME calculation for S1G\_LONG that is missing. As for the other questions please note that the RID counter is the same as the NAV and it stops when reaches 0 and does not get suspended. In Subclause 9.3.2.1:  “The NAV and RID may be thought of as counters, which count down to 0 at a uniform rate…. For S1G STAs, when both NAV and RID counters are 0, the virtual CS indication is that the medium is idle; when either the NAV counter or the RID counter is non-zero the indication is that the medium is busy.”  And if the counter is non-zero and a new PPDU arrives the STA resets/updates its RID counter following the rules defined in this subclause (i.e., 9.3.2.4a).  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 4210. |
| 4211 | 226.33 | 9.3.2.4a | Missing the exact calculation for PSDU\_RXTIME | please add a specific definition for the calculation of PSDU\_RXTIME | Revised –  Agree in principle with the commenter. Proposed resolution is the same as for CID 3902 for which we add the equations to calculate the PSDU\_RXTIME for each S1G PPDU format.  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 4211. |
| 4212 | 226.40 | 9.3.2.4a | Does "only" here mean that only the PLCP header of the ACK PPDU is received, but not the PHY Payload portion, or does it mean only of the ACK and not of the DATA PPDU? | clarify | Revised –  This CID seems to be the same as CID 3904 and the proposed resolutions are the same.  Agree in principle with the commenter. The proposed resolution is to clarify that it means that only the PLCP Header of the ACK is received but not that of the DATA PPDU (i.e., second option).  TGah editor to make the changes shown in 11-14/1017r1 under all headings that include CID 4212. |
| 4213 | 228.19 | 9.3.2.4a | Frame should be exchanged for PPDU in this paragraph to avoid confusion because frame is often used to refer to MPDUs | Change "2 MHz duplicated frame (i.e. TXVECTOR parameter FORMAT equal to S1G\_DUP\_2M)"" to "2 MHz PPDU with TXVECTOR parameter FORMAT set to S1G\_DUP\_2M" change "in any other frame" to "in any other PPDU" | Accepted –  This CID seems to be the same as CID 4209 and the proposed resolutions are the same.    Note to the TGah editor: The proposed change refers to text that is found in Subclause 9.3.2.6 (VHT and S1G RTS procedure) rather than 9.3.2.4a (Setting and resetting the RID). |

**Discussion:** *There seems to be some inconsistency in the PHY regarding the following:*

* *It is not clear when the PHY-RXSTART.indication primitive is issued for an SU PPDU(proposed resolution is to solve this inline with 11ac.*
* *Equation 24-65 seems to have a bug because TDSTF is not included in it (proposed resolution is to solve this as well).*
* **Setting and resetting the RID**

This subclause describes the setting and resetting of the RID for S1G STAs.

***TGah Editor: Change the paragraph below as follows (#3895, 3896, and 4208):***

An S1G STA that receives a frame that is not an NDP MAC frame shall update its RID counter based on the values of the RXVECTOR parameters FORMAT, PREAMBLE\_TYPE, RESPONSE\_INDICATION, AGGREGATION, MCS, PARTIAL\_AID, COLOR, UPLINK\_INDICATION, and CH\_BANDWITH of the received frame as described in this subclause. An S1G STA that receives an NDP MAC frame shall update its RID counter based on the values of the RXVECTOR parameter FORMAT, PREAMBLE\_TYPE and the RESPONSE\_INDICATION value which is defined per type of NDP MAC frame in Table 9-1a (RESPONSE\_INDICATION value for NDP MAC frames).

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| * **RESPONSE\_INDICATION value for NDP MAC frames** | |
| **NDP MAC Frame type** | **RESPONSE\_INDICATION value** |
| NDP Ack or NDP PS-Poll-Ack (NDP (PS-Poll-)Ack) | No Response if either Idle Indication field value is 0 or the Duration field value is not 0  Long Response if Idle Indication field value is 1 and Duration field value is 0 |
| NDP Block Ack | No Response |
| NDP CTS | No Response |
| NDP PS-Poll | NDP Response |
| NDP Beamforming Report Poll | Long Response |
| NDP Paging | No Response |
| NDP Probe Request | No Response |
| NDP CF-End | No Response |

***TGah Editor: Change the paragraph below as follows (#3897):***

An S1G STA that receives a member PPDU shall reset its RID counter when the RX-START.indication primitive corresponding to that PPDU is received. An S1G STA that receives a non-member PPDU shall not reset the RID counter and shall update the RID counter, i.e., set it to a new value (as defined in 9.3.2.4a.1 (RID update)) that is not less than the value that the RID counter will have at the instant of time that corresponds to the end of the received PPDU.***TGah Editor: Change the paragraph below as follows (#3900):***

A member PPDU is a PPDU received by a STA and which was transmitted by a STA that is a member of the same BSS as the receiving STA.The S1G STA shall classify a received PPDU as a member PPDU if it is an NDP MAC frame, or an S1G 1M PPDU, or a PPDU for which the PREAMBLE\_TYPE is either S1G\_LONG\_PREAMBLE or S1G\_SHORT\_PREAMBLE and either of the conditions below is satisfied:

* UPLINK\_INDICATION is 1 and the PARTIAL\_AID indicates that the PPDU is addressed to the AP with which the non-AP STA is associated
* UPLINK\_INDICATION is 0 and the COLOR indicates that the PPDU is generated by the AP with which the STA is associated

***TGah Editor: Change the paragraph below as follows (#3898, 4209):***

A PPDU that is not a member PPDU is a non-member PPDU.

***TGah Editor: Change the paragraph below as follows (#3899, 3029, and 3481):***

Because the PARTIAL\_AID and COLOR values obtained from received PPDUs are not globally unique, an S1G STA that has classified a PPDU as a member PPDU based on PARTIAL\_AID and/or COLOR may additionally use the information contained in a valid MAC header (i.e., A1 and/or A2 fields) from an MPDU carried in the received PPDU to differentiate between a non-member and member PPDU.

NOTE - If the PHY-RXEND.indication primitive for the received S1G PPDU contains an ERROR or FormatViolation then the S1G STA sets the EIFS as described in 9.3.7 (DCF timing relations).

The RID counter shall start at the end of the received S1G PPDU which contains the PSDU, except when the PPDU either contains a valid nonzero Duration field that updates the NAV as described in 9.3.2.4 (Setting and resetting the NAV) or it is intended to the S1G STA in which cases the RID shall be reset.

***TGah Editor: Change the paragraph below as follows (#3901, 4210, 3902, 4211):***

The received PPDU has an expected duration, in microseconds, of PSDU\_RXTIME, starting from the moment the PHY-RXSTART.indication primitive is received. If the PPDU is not an NDP MAC frame the PSDU\_RXTIME is calculated based on multiple RXVECTOR parameters including PSDU\_LENGTH and is equal to the *RXTIME* defined in Equation (24-64) for S1G\_SHORT/S1G\_1M formats, is equal to *RXTIME* defined in Equation (24-65) if the PPDU has S1G\_LONG format and is an SU PPDU and is equal to *RXTIME* defined in Equation (24-65) minus (*TDSTF + NLTFT DDLTF + TSIG-B*) defined in Table 24-4 (Timing related constraints) if the PPDU has S1G\_LONG format and is an MU PPDU. If the PPDU is an NDP MAC frame the PSDU\_RXTIME is equal to 0.

***TGah Editor: Change the paragraph below as follows (#3903, 3904, 4006, 4212):***

Figure 9-5a (Data/Ack and RID setting) indicates the RID for STAs that receive the PLCP Header of the Data frame whose MAC portion does not contain a valid Duration field that updates the NAV. The RID for STAs that receive the PLCP Header of the Ack frame but not that of the Data frame is omitted in the figure because it is 0 (i.e., no response is expected to the Ack frame in this example) while the RID is reset for the STA to which the Data was addressed.

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| * **Data/Ack with RID setting**   ***TGah Editor: Change the paragraph below of 24.3.19 (PHY receive procedure) as follows (#3901, 4210, 3902, 4211):***  If the PHY preamble reception is successful and a valid SIG or SIG-A CRC is indicated:  —Upon reception of a S1G\_LONG format preamble, after receiving a valid SIG-A indicating a supported mode, the PHY entity shall begin receiving the rest of S1G training symbols and SIG-B. If the received MU/SU subfield in SIG-A has a value indicating SU PPDU (see 24.3.8.2.2.1.4 (SIG-A definition)), the PHY entity does not need to decode SIG-B since in this case SIG-B does not carry any information bit (see 24.3.8.2.2.2.4 (SIG-B definition)). If the SIG-B is not decoded, subsequent to an indication of a valid SIG-A, a PHY-RXSTART.indication (RXVECTOR) primitive shall be issued. If the received MU/SU subfield in SIG-A has a value indicating MU PPDU (see 24.3.8.2.2.1.4 (SIG-A definition)), SIG-B shall be decoded. If the check of the SIG-B CRC is not valid, a PHY-RXSTART.indication primitive is not issued, and instead the PHY shall issue the error condition PHY-RXEND.indication(FormatViolation) primitive, and the S1G PHY shall maintain PHYCCA.indication(BUSY, channel-list) for the predicted duration of the transmitted PPDU, as defined by RXTIME in Equation (24-64) or Equation (24-65), for all supported modes, unsupported modes, and Reserved SIG-B Indication. If the SIG-B indicates an unsupported mode, the PHY shall issue the error condition PHY-RXEND.indication(UnsupportedRate) primitive, and a PHY-RXSTART.indication primitive shall not be issued. If the check of the SIG-B CRC is valid and it indicates a supported mode, a PHY-RXSTART.indication(RXVECTOR) primitive shall be issued. The RXVECTOR associated with this primitive includes the parameters specified in 24-1 (TXVECTOR and RXVECTOR parameters).  —Upon reception of a S1G\_SHORT or S1G\_1M format preamble, after receiving a valid SIG indicating a supported mode, the PHY entity shall begin receiving the rest of S1G training symbols, and then A PHY-RXSTART.indication(RXVECTOR) primitive shall be issued. The RXVECTOR associated with this primitive includes the parameters specified in 24-1 (TXVECTOR and RXVECTOR parameters).In this case, if the NDP Indication subfield in SIG field has a value indicating an NDP MAC frame, the PHY shall generate a PHYCCA.indication(IDLE) primitive and return to RX IDLE state, and it shall not issue the PHY-RXSTART.indication(RXVECTOR) primitive.  ***TGah Editor: Insert “TDSTF +” immediately before “NLTF” (twice) in equation 24.65 which is shown below (#3901, 4210, 3902, 4211):*** |

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 3758 | 227.15 | 9.3.2.4a.1 | Using the largest value in dot11EDCATableTXOPLimit provides over protection of OBSS transmission. Also Different BSSes may have different EDCA parameters. | At least change to use default EDCA parameters to estimate the RID setting if the transmission is from neighboring BSS. | Rejected –  The comment fails to identify a real issue.  As a response to the commenter: Please note that using the largest value in the dot11EDCATableTXOPLim can provide either over protection of OBSS transmission if the AP of the OBSS uses values that are smaller than the STAs BSS, or under protection of the OBSS transmission if the AP of the OBSS uses values that are larger than the STAs BSS. However, please note that the main reson of using the values of the dot11EDCATableTXOPLim is to provide the adequate protection to exchanges within the BSS (hence , the STAs use the most recent values that are indicated by the AP to which they are associated to) with the expectation that all STAs associated with the same AP have the same values. |

**Discussion:** *None.*

* **RID update**

An S1G STA updates the value of the RID counter by setting it as described below:

If the value of the RESPONSE\_INDICATION parameter is Long Response, the RID counter shall be set to LongTxTime + aSIFSTime, where LongTxTime is obtained as follows:

* If FORMAT is either S1G or S1G\_DUP\_1M and CH\_BANDWIDTH is CBW1 then LongTxTime is equal to the S1G PPDU Duration as defined in Table 8-19 (Maximum data unit sizes (in octets) and durations (in microseconds))
* If FORMAT is either S1G or S1G\_DUP\_2M and PREAMBLE\_TYPE is either S1G\_SHORT\_PREAMBLE or S1G\_LONG\_PREAMBLE then LongTxTime is equal to the largest value in the dot11EDCATableTXOPLimit

If the value of the RESPONSE\_INDICATION parameter is Normal Response, the RID counter shall be set to NormalTxTime + aSIFSTime. NormalTxTime is calculated based on the RXVECTOR parameters PREAMBLE\_TYPE, AGGREGATION, MCS and CH\_BANDWIDTH following the rules listed in Table 9-1b (NormalTXTime duration based on RXVECTOR's parameters).

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| * **NormalTXTime duration based on RXVECTOR's parameters** | | | |
| **PPDU format (see 24.1.4 (PPDU formats))** | **AGGREGATION** | **Expected Response Length (Type)** | **NormalTxTime** |
| S1G\_1M | 0 | 14 Octets MPDU (Ack) | The time, in microseconds, required to transmit one Ack frame, where the duration of the frame is calculated according to the rate selection rules described in 9.7.6.5 (Rate selection for control response frames) using its BSSBasicMCSSet parameter and with CH\_BANDWIDTH RXVECTOR value equal to CBW1 |
| 1 | 32 Octets MPDU (BlockAck) | The time, in microseconds, required to transmit one BlockAck frame, where the duration of the frame is calculated according to the rate selection rules described in 9.7.6.5 (Rate selection for control response frames) using its BSSBasicMCSSet parameter and with CH\_BANDWIDTH RXVECTOR value equal to CBW1. |
| S1G\_SHORT or S1G LONG PREAMBLE | 0 | 14 Octets MPDU (Ack) | The time, in microseconds, required to transmit one Ack frame, where the duration of the frame is calculated according to the rate selection rules described in 9.7.6.5 (Rate selection for control response frames) using its BSSBasicMCSSet parameter and channel width selection rules for control frames described in 9.7.6.6 (Channel Width selection for Control frames). |
| 1 | 32 Octets MPDU (BlockAck) | The time, in microseconds, required to transmit one BlockAck frame, where the duration of the frame is calculated according to the rate selection rules described in 9.7.6.5 (Rate selection for control response frames) using its BSSBasicMCSSet parameter and channel width selection rules for control frames described in 9.7.6.6 (Channel Width selection for Control frames). |

If the value of RESPONSE\_INDICATION parameter is NDP Response, the RID counter shall be set to NDPTxTime + aSIFSTime. NDPTxTime is calculated based on the RXVECTOR parameter PREAMBLE\_TYPE and is equal to the time in microseconds, required to transmit either an NDP\_1M MAC frame if the PPDU format is S1G\_1M or an NDP\_2M MAC frame if PPDU format is either S1G\_SHORT or S1G\_LONG (see 24.1.4 (PPDU formats)).

If the value of the RESPONSE\_INDICATION parameter is No Response, the RID counter shall be set to 0.