IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Comment Resolution for Subclauses 9.32i | | | | |
| Date: 2013-08-01 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Alfred Asterjadhi | Qualcomm  Inc. | 5775 Morehouse Dr  San Diego,  CA 92109 | +1-858-658-5302 | aasterja@qti.qualcomm.com |
| Amin Jafarian | Qualcomm Inc. |  |  |  |
| Simone Merlin | Qualcomm Inc. |  |  |  |
| Yongho Seok | LGE Electronics |  |  | yongho.seok@lge.com |

Abstract

This document provides comment resolution for TGah Draft 0.1 Comment Collection 9 with these CIDs: 65, 82, 127, 184, 185, 259, 415, 455, 859, 860, 861, 862, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, and 980.

Revisions:

- Rev 0: Initial comment resolution document.

- Rev 1: changed proposed resolution of CID 185 to “Revised”.

- Rev 2: Removed CID 671 as it was mistakenly interpreted to reference this subclause.

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 “Instruction to 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** | **SC** | **Comment** | **Proposed Change** | **Resolution** |
| 65 | 146.1 | 9.32i.2 | Speed frame exchange rules are not clear. There are some ambiguities and missing/incorrect parts. The description of when this can be done is not clear (i.e., without a BA agreement that exchange cannot be done). Also, not all cases of the more data and ACK indication bits are described. Similar observation for ACK policies for each frame. In addition it is not clear what frame is a frame that initiates the SF exchange. What about NAV setting for those frames that have a duration? In the figure the AP can send multiple frames, separated by SIFS, without receiving any ack which needs some clarification when it can happen. | Clarify the SF behavior and specify for each exchange which are the values that need to be set in every frame. | Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 82 | 146. 41 | 9.32i.2 | "clarify why is this sentence needed? : ""but not SIFS  after the transmission of the response frame""" | as in the comment | Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 127 | 146.29 | 9.32i.2 | The sentence "An AP sending an immediate response with the More Data field set to 1 and the ACK Indication field set to Not ACK, Block ACK or CTS shall transmit a frame to the STA that elicited the response SIFS after the transmission of the response frame if the More Data field was set to 0 in the frame most recently received from the non-AP STA" is confusing. | Please clarify the sentence. Also please correct Not ACK to No ACK. | Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 184 | 146.12 | 9.32i.2 | The sentence is ambiguous. The response frame can be NDP frames. NDP ACK/Block ACK may not have ACK indication bits. | Propose change the sentence to "A STA sending an immediate response that is not an NDP frame to a frame that had the More Data field set to 1 shall set the ACK Indication field to Not ACK, BlockAck or CTS" | Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 185 | 146.24 | 9.32i.2 | Only compare the RA address in the response frame may cause mistake since RA address can be an AID, which is not unique when OBSS STA is nearby. | When the RA address is AID, the STA shall check the TA address also.  Propose change the sentence to "A STA that receives a frame with a unicast address in the RA field that matches its MAC address within SIFS after the transmission of a frame accepts the reception as an acknowledgement for the immediately previous transmission. If the unicast address in the received frame is an AID, the STA shall also examine the TA address in frame to ensure that the received response frame is from the desired reception STA" | Revised –  This issue has already been resolved in subclause 9.3.2.8 ACK procedure by comment resolution for CIDs 663, 664, 665: “When dot11S1GOptionImplemented is set to true, upon successful reception of a short frame of a type that  requires acknowledgment with the From DS field true, a STA shall generate a (NDP) ACK frame in  response if the AID subfield of Address 1 field is equal to the AID of the STA and the Address 2 field is  equal to its associated AP's MAC address. Also, on receipt of a short frame with the From DS field false, a  STA shall generate a (NDP) ACK fame in response if Address 1 field is equal to the MAC address of the  STA.” |
| 259 | 147.7 | 9.32i.2 | The PS-Poll with ACK Indication=00 in Figure 9-44c is in contradiction with the statement of line 7-10 P146. | correct the ACK Indicaton in the initial frame in Figure 9-44c | Agree with the commenter. Figure is updated according to this proposed comment resolution.  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 415 | 145.57 | 9.32i | It is not specified that whether Speed Frame Exchange is applied only to S1G STA or not | Use the term like 'S1G AP' or 'S1G STA' if this is only applied to S1G STAs | Agree with the commenter. Used proposed terms by the commenter in the resolution (S1G non-AP STA, S1G STA and S1G AP).  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 455 | 146.1 | 9.32i.2 | A field name needs to be capitalized. In subclause 9.32i.2, "the PLCP signal field" should be "the PLCP Signal field". | Make changes as suggested in the comment throughout the subclause 9.32i.2. | Agree with the commenter. Corrected the field name to PLCP Header Signal field in the proposed comment resolution.  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 859 | 146.12 | 9.32i.2 | "A STA sending an immediate response to a frame that had the More Data field set to 1 shall set the ACK Indication field to Not ACK, BlockAck or CTS."  In Figure 9-44c, the ACK Indication field of the last ACK frame should be set to "Not ACK, BlockAck or CTS".  Figure 9-44c is not aligned with the description in 9.32i.2. | Modify Figure 9-44c and the description in 9.32i.2 for a consistency. | Agree with the commenter that there is an inconsistency. However, given that the ACK frame is the last frame the indication is No Response.  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 860 | 146.19 | 9.32i.2 | An AP sending an immediate response that is an ACK frame or a BlockAck frame after receiving a frame that had the More Data field set to 0 may set the ACK Indication field to Not ACK, BlockAck or CTS or to No ACK."  Please specify the rule of the ACK Indication field between "Not ACK, BlockAck or CTS" and "No ACK". | Please specify the rule of the ACK Indication field. | Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 861 | 146.7 | 9.32i.2 | "A non-AP STA may send a trigger frame or a PS-Poll frame as the initial frame of a SF exchange. A non-AP STA shall set the ACK Indication field of the PLCP signal field to Not ACK, BlockAck or CTS in a frame that initiates an SF exchange."  In Figure 9-44c, the ACK Indication field of a PS-Poll frame should be set to "Not ACK, BlockAck or CTS".  Figure 9-44c is not aligned with the description in 9.32i.2. | Modify Figure 9-44c and the description in 9.32i.2 for a consistency. | Agree with the commenter. Proposed resolution is inline with the suggestion.  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 862 | 145.52 | 9.32i | Because the Speed Frame Exchange is a power saving mechanism, Section 10.2.2.19 is more appropriate. | Move Section 9.32i to Section 10.2.2.19 | Rejected –  Speed Frame exchange is a simil-Reverse direction protocol that enables multiple packets to be exchanged within a TXOP. Hence, it is classified as a channel access mechanism. |
| 969 | 146.3 | 9.32i.2 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "An AP may send any frame as the initial frame of a SF exchange. An AP may set the ACK Indication field of the PLCP signal field to Normal Response and the Aggregation field of the PLCP signal field to 1 or set the ACK Indication field of the PLCP signal field to NDP Response for the initial frame of a SF exchange." | Agree in principle with the commenter. However, in this subclause rules on how to exchange multiple frames with Long Response indication should be defined. Selection of a NDP or Normal Response are addressed in other clauses (e.g., 9.3.2.8 Ack procedure)  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 970 | 146.7 | 9.32i.2 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "A non-AP STA may send a trigger frame or a (NDP) PS-Poll frame as the initial frame of a SF exchange. A non-AP STA shall set the ACK Indication field of the PLCP signal field to Long Response in a frame that initiates an SF exchange. " | Rejected –  The NDP PS-Poll frame does not have a field to specify Long response. Note that a line to enable the NDP Modified Ack as the first frame of the SF exchange is allowed which should address the commenter’s concern. |
| 971 | 146.12 | 9.32i.2 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "A STA sending an immediate response to a frame that had the More Data field set to 1 shall set the ACK Indication field to Long Response. A STA sending an immediate response to a 1MHz NDP PS-Poll frame that had UDI field set to 1 shall set set the Duration Indication field to 1 and the Duration field to 0 . A STA sending an immediate response to a >= 2MHz NDP PS-Poll frame that had UDI field set to nonzero shall set the Duration Indication field to 0 and the Duration field to a nonzero value that covers the speed frame exchange sequence. " | Rejected –  SF exchange rules specify how to Set the Response Indication field in the SIG field and the More data field to enable multiple frame exchanges. If NAV protection is required the STA can always use Reverse Direction Protocol. NAV setting follows the existing rules for NAV setting as specified in existing 8.2.5.2. |
| 972 | 146.15 | 9.32i.2 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "A non-AP STA sending an immediate response that is an ACK frame or a BlockAck frame after receiving a frame that had the More Data field set to 0 shall set the ACK Indication field to No Response. A non-AP STA sending an immediate response that is an (Modified) NDP ACK frame after receiving a frame that had the More Data field set to 0 or a NDP PS-Poll that had UDI field set to 0 shall set the Duration Indication field to 0 and the Duration field to 0. " | Rejected –  SF exchange rules specify how to Set the Response Indication field in the SIG field and the More data field to enable multiple frame exchanges. If NAV protection is required the STA can always use Reverse Direction Protocol. NAV setting follows the existing rules for NAV setting as specified in existing 8.2.5.2. |
| 973 | 146.19 | 9.32i.2 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "An AP sending an immediate response that is an ACK frame or a BlockAck frame after receiving a frame that had the More Data field set to 0 may set the ACK Indication field to Long Response or to No Response. An AP sending an immediate response that is a (Modified) NDP ACK after receiving a frame that had the More Data field set to 0 may set the equivalent ACK Indication to Long Response or No Response. " | Agree in principle with the commenter. Proposed resolution is inline with the suggestion.  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 974 | 146.24 | 9.32i.2 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "A STA that receives a frame with a unicast address in the RA field that matches its address or a (Modified) NDP ACK frame with a matching ACK ID within SIFS after the transmission of a frame accepts the reception as an acknowledgement for the immediately previous transmission." | This paragraph was removed from this subclause as the same behavior was introduced in 9.3.2.8 ACK Procedure which is more related to this behavior.  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 975 | 146.29 | 9.32i.2 | Speed frame change using NDP frames is in SFD. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "An AP sending an immediate response with the More Data field set to 1 and the ACK Indication field set to Long Response or an equivalent ACK Indication set to Long Response shall transmit a frame to the STA that elicited the response SIFS after the transmission of the response frame if the More Data field was set to 0 in the frame most recently received from the non-AP STA. " | Agree with the commenter. Added the following sentence at the beginning of the subclause:  “Throughout this subclause, a Response Indication of Long Response is signaled by setting the TXVECTOR’s parameter RESPONSE\_INDICATION to Long Response for non-NDP frames and by setting the Duration Indication field to 1 and the Duration field to 0 for NDP (Modified) ACK. ”  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 976 | 146.35 | 9.32i.2 | Speed frame change using NDP frames is in SFD. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "An AP sending an immediate response with the More Data field set to 1 and the ACK Indication field set to Long Response, or an equivalent ACK Indication set to Long Response shall not transmit a frame to the STA that elicited the response SIFS after the transmission of the response frame if the More Data field was set to 1 in the frame most recently received from the non-AP STA. " | Agree with the commenter. Added the following sentence at the beginning of the subclause:  “Throughout this subclause, a Response Indication of Long Response is signaled by setting the TXVECTOR’s parameter RESPONSE\_INDICATION to Long Response for non-NDP frames and by setting the Duration Indication field to 1 and the Duration field to 0 for NDP (Modified) ACK. ”  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 977 | 146.41 | 9.32i.2 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "An AP sending an immediate response with the More Data field set to 1 and the ACK Indication field set to No Response or an equivalent ACK Indication set to No Response shall transmit a frame to the STA that elicited the response within the current TXOP, but not SIFS after the transmission of the response frame." | Agree with the commenter. Added the following sentence at the beginning of the subclause:  “A Response Indication of No Response is signaled by setting the TXVECTOR’s parameter RESPONSE\_INDICATION to No Response for non-NDP frames and by setting the Duration Indication field to 0 and the Duration field to 0 for NDP (Modified) ACK. The reception of NDP BlockAck is an implicit indication of No Response.”  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 978 | 146.46 | 9.32i.2 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "An AP sending an immediate response to a non-AP STA that sets the More Data field to 0 and ACK Indication to No Response or an equivalent ACK Indication set to No Response shall not transmit a frame to the STA within the current TXOP. " | Agree with the commenter. Added the following sentence at the beginning of the subclause:  “A Response Indication of No Response is signaled by setting the TXVECTOR’s parameter RESPONSE\_INDICATION to No Response for non-NDP frames and by setting the Duration Indication field to 0 and the Duration field to 0 for NDP (Modified) ACK. The reception of NDP BlockAck is an implicit indication of No Response.”  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 979 | 146.49 | 9.32i.2 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "A non-AP STA shall remain in the Awake state until the end of the current TXOP if it receives a frame from the AP either addressed to itself or a (Modified) NDP ACK frame with a matching ACK ID and the More Data field set to 1. " | Clarified that the non-AP STA may transition to the Doze state if it is the intended receiver of a frame transmitted by the AP. The determination of whether is the intended receiver is described in 9.3.2.8 ACK procedure.  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |
| 980 | 146.53 | 9.32i.2 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. Need to modify the text of 9.32i.2 Rules for SF exchange. | Change to "A non-AP STA may transition to the Doze state if it receives a frame from the AP either addressed to itself or a (Modified) NDP ACK frame with a matching ACK ID and the More Data field set to 0." | Clarified that the non-AP STA may transition to the Doze state if it is the intended receiver of a frame transmitted by the AP. The determination of whether is the intended receiver is described in 9.3.2.8 ACK procedure.  Revised –  TGah editor to make changes shown in 11-13-1062-02-00ah under the heading for CIDs 65, 82, 127, and 184. |

**Discussion:***Proposed comment resolution takes into account that Short MPDUs now have an ACK policy field (when SF exchange was proposed it did not have an ACK Policy field). NAV setting is already described in the 8.2.5.2 section and proposed comment resolutions therein. And selection between normal control response frames, and NDP frame is also defined in their corresponding subclauses (Ack procedure, CTS procedure, BlockAck protocol, etc.)*

**Instruction to Editor: *Please modify subclause 9.32i as follows:***

**9.32i.1 Overview**

Speed frame (SF) exchange allows an S1G AP and a S1G non-AP STA to exchange a sequence of uplink and downlink PPDUs separated by SIFS time. This operation combines both uplink and downlink channel access into a continuous frame exchange sequence between a pair of S1G STAs. S1G STAs that participate in SF exchange use information that is present in the Frame Control field, PLCP Header Signal field and NDP MAC frames to signal an undergoing SF exchange as described in 9.32i.2 (Rules for SF exchange). The objective of this operation is to minimize the number of contention-based channel accesses, improve channel efficiency by reducing the number of frame exchanges, and reduce S1G STA power consumption by shortening Awake times.

* **Rules for SF exchange**

Throughout this subclause, a Response Indication of Long Response is signaled by setting the TXVECTOR’s parameter RESPONSE\_INDICATION to Long Response for non-NDP frames and by setting the Duration Indication field to 1 and the Duration field to 0 for NDP (Modified) ACK.

A Response Indication of No Response is signaled by setting the TXVECTOR’s parameter RESPONSE\_INDICATION to No Response for non-NDP frames and by setting the Duration Indication field to 0 and the Duration field to 0 for NDP (Modified) ACK. The reception of NDP BlockAck signals a Response Indication of No Response.

A S1G AP may initiate a SF exchange with a NDP Modified ACK frame that is sent as a response to a received NDP PS-Poll frame.

An SF exchange sequence comprises the following:

1. The transmission of one PPDU by a S1G STA containing a Response Indication of Long Response. The S1G STA that transmits this PPDU is known as the *SF Initiator*.
2. The transmission of one or more PPDUs (SF response burst) by the S1G STA addressed in the PPDUs transmitted by the *SF Initiator*, separated by SIFS time. Only the last (or only) PPDU of the SF response burst may contain any MPDU requiring an immediate response. The S1G STA that transmits the SF response burst is known as the *SF Responder*.
3. The transmission of one PPDU by the *SF Initiator* containing an immediate response (the *SF Initiator* final PPDU), if so required by the last PPDU of the SF response burst.

NOTE—A *SF Initiator* may include multiple SF exchange sequences, separated by SIFS time, within a single TXOP.

A *SF Responder* sending an SF response burst containing an immediate response to an eliciting PPDU that had the More Data field set to 1 shall set the Response Indication to Long Response for each PPDU in the SF response burst. A *SF Responder* that is a non-AP STA, sending an SF response burst containing an immediate response to an eliciting PPDU that had the More Data field set to 0, shall not set the Response Indication of the last PPDU of the SF response burst to Long Response .

A *SF Responder* that is an AP, sending an SF response burst containing an immediate response to an eliciting PPDU that had the More Data field set to 0, shall set the Response Indication of the last PPDU of the SF response burst to either of the following:

* Not Long Response if the More Data field of its final PPDU in the SF response burst is set to 0.
* Long Response if the More Data field field of its final PPDU in the SF response burst is set to 1.

A non-AP STA shall remain in the Awake state until the end of the current TXOP when one of the following conditions is met:

* If it is the intended receiver of a frame with More Data field set to 1 that is sent by the AP.
* If it is an *SF Initiator* of a SF exchange sequence within a single TXOP.

A non-AP STA may transition to the Doze state if it is the intended receiver of a frame with More Data field set to 0 that is sent by the AP.

**Instruction to Editor: Please replace Figure 9-44c with the following one:**

|  |
| --- |
|  |
| * **Example of SF exchange sequence** |