IEEE P802.11
Wireless LANs

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| Comment Collection 09 MAC CIDs (Comment Resolutions for CC09) |
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Abstract

This document provides resolutions for CID 749,750, 751, 981,982,983,984, 261,262 and 263.

The changes are in the following subclauses: 9.32n.3 and 9.32n.3.1.

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# 0 Revision Notes

R2: Combine with the resolution to CID 261,262 and 263

R1: In Response to Alfred’s comments, suppress the ACK frame as there is no Relayed Frame bit in ACK frame and use implicit ACK Indication to replace Equivalent ACK Indication

R0: First draft

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| **CID** | **Clause** | **Page** | **Line** | **Comment** | **Proposed Change** | **Resolution** |
| 749 | 9.32n.3.1 | 160 | 51 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. NDP ACK can be used for TXOP sharing for two-hop relay. Need to modify the text of 9.32n.3.1. | Change to "A non-AP STA starts a frame exchange by sending a frame addressed to the relay STA with ACK Indication field set to Normal Response or NDP Response and Aggregation field set to 0. The relay STA shall set the equivalent ACK Indication to Long Response if the response frame that is transmitted to the non-AP STA is NDP ACK. Otherwise, the relay STA shall set the ACK Indication field of the response frame that is transmitted to the non-AP STA to Long Response. " | Revised.see document IEEE 802.11-13/0891r2 for the resolution. |
| 750 | 9.32n.3.1 | 160 | 25 | Need to consider NDP ACK as the response frame in TXOP sharing procedure | change "STA shall set the Relayed Frame field to 1 in the immediate ACK frame." to "STA shall set the Relayed Frame field to 1 in the immediate ACK frame or NDP ACK frame." | Revised.see document IEEE 802.11-13/0891r2 for the resolution |
| 751 | 9.32n.3.1 | 160 | 30 | Need to consider NDP ACK as the response frame in TXOP sharing procedure | change "A non-AP STA that receives the ACK frame that matches its address shall not initiate any further frame" to "A non-AP STA that receives the ACK frame that matches its address or the NDP ACK frame with a matching ACK ID shall not initiate any further frame" | Revised.see document IEEE 802.11-13/0891r2 for the resolution |
| 981 | 9.32n.3.1 | 161 | 1 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. NDP ACK can be used for TXOP sharing for two-hop relay. Need to modify the text of 9.32n.3.1. | Change to "When the direction of the frame is from the AP to the non-AP the AP STA starts a frame exchange by sending a frame addressed to the relay STA with ACK Indication field set to Normal Response or NDP Response and Aggregation field set to 0. The relay STA shall set the equivalent ACK Indication in the response frame that is transmitted to the AP STA to Long Response if the response frame is NDP ACK. Otherwise, the relay STA shall set the ACK Indication field of the response frame that is transmitted to the AP STA to Long Response."  | Revised.see document IEEE 802.11-13/0891r2 for the resolution |
| 982 | 9.32n.3.1 | 161 | 7 | 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 "The relay STA shall transmit the received frame addressed to the non-AP STA SIFS after sending the response frame transmission that included an ACK Indication field value of Normal Response or NDP Response and Aggregation field value of 0. Upon the successful receipt of the relayed frame, the non-AP STA shall set the ACK Indication field or the equivalent ACK Indication value in the response frame to No Response. " | Revised.see document IEEE 802.11-13/0891r2 for the resolution |
| 983 | 9.32n.3.1 | 160 | 51 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. NDP ACK can be used for TXOP sharing for two-hop relay. Need to modify the text of 9.32n.3.1. | Change to "A non-AP STA starts a frame exchange by sending a frame addressed to the relay STA with ACK Indication field set to Normal Response to 0 or set to NDP Response and Aggregation field to 0. The relay STA shall set the equivalent ACK Indication to Long Response if the response frame that is transmitted to the non-AP STA is NDP ACK. Otherwise, the relay STA shall set the ACK Indication field of the response frame that is transmitted to the non-AP STA to Long Response. " | Revised.see document IEEE 802.11-13/0891r2 for the resolution |
| 984 | 9.32n.3.1 | 160 | 57 | Speed frame change using NDP frames is accepted in SFD and 2-bit ACK Indication is redefined. NDP ACK can be used for TXOP sharing for two-hop relay. Need to modify the text of 9.32n.3.1. | Change to "The relay STA shall transmit the received frame addressed to the AP SIFS after sending the response frame transmission that included an ACK Indication field value of Normal Response or NDP Response and Aggregation field value of 0. Upon the successful receipt of the relayed frame, the AP shall set the ACK Indication field or the equivalent ACK Indication value of the response frame to No Response. " | Revised.see document IEEE 802.11-13/0891r2 for the resolution |

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| CID | Comment | Category | Page Number | Subclause | Line Number | Proposed Change | Comment Resolution |
| 261 | The statement "A Relay STA may set RelayedFrame field to 1 only if the More Data field was set to 0 in the frame most recently received from the non-AP STA." is not completely correct since Relay can also share TXOP from AP. And it's better to explain the conception of Relay sharing TXOP at the beginning of this sub-clause. | technical | 160 | 9.32n.3 | 27 | Delete "A Relay STA may set RelayedFrame field to 1 only if the More Data field was set to 0 in the frame most recently received from the non-AP STA."And insert following sentence at the beginning of this sub-clause:"A Relay may share TXOP by setting Relayed Frame field to 1 only if the More Data field was set to 0 in the frame most recently received from the non-AP STA or AP" | Revised.see document IEEE 802.11-13/0891r2 for the resolution |

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| CID | Comment | Category | Page Number | Subclause | Line Number | Proposed Change | Comment Resolution |
| 262 | The first sentence of the paragraph is totally confusing | technical | 160 | 9.32n.3.1 | 58 | Change to "The Relay STA shall transmit the received frame addressed to the AP SIFS after sending the response frame transmission that included an ACK Indication field value of ACK.Not ACK, BlockAck or CTS", or"The Relay STA shall transmit the received frame addressed to the AP that included an ACK Indication field value of ACK, SIFS after sending the response frame transmission that included an ACK Indication field value of ACK" | Revised.see document IEEE 802.11-13/0891r2 for the resolution |
| 263 | The first sentence of the paragraph is totally confusing | Technical  | 161 | 9.32n.3.1 | 9 | Change to "The Relay STA shall transmit the received frame addressed to the non-AP STA SIFS after sending the response frame transmission that included an ACK Indication field value of ACK.Not ACK, BlockAck or CTS", or"The Relay STA shall transmit the received frame addressed to the non-AP STA that included an ACK Indication field value of ACK, SIFS after sending the response frame transmission that included an ACK Indication field value of ACK" | Revised.see document IEEE 802.11-13/0891r2 for the resolution |

***Proposed changes:***

**9.32n.3 Procedures TXOP sharing**

A non-S1G STA shall not perform TXOP sharing as described in this subclause.

The sequence of frames exchanged over the first hop and second hop depends on the acknowledgement procedure used at the Relay STA. ~~Frames~~ A Relay STA can use either:

— Explicit ACK procedure

— Implicit ACK procedure

When a Relay STA receives a valid frame with the Relayed Frame field set to 1 and the More Data field was set to 0, the Relay STA may acknowledge the received frame using the Implicit ACK procedure.

When a Relay STA receives a valid frame with Relayed Frame field in the Frame Control field set to 0, the Relay STA shall not acknowledge the received frame using the Implicit ACK procedure.

**[CID 750]**

When a Relay STA receives a valid frame with the More Data field set to 0, the~~When~~ Relay STA may use~~s~~ the Explicit ACK procedure to acknowledge the reception of the frame~~,~~. When a Relay STA uses the Explicit ACK procedure to acknowledge the reception of a valid frame, the Relay STA shall set the Relayed Frame field in the immediate NDP ACK frame to 1 ~~only if the More Data field was set to 0 in the frame most recently received from the non-AP STA~~.

**[CID 751] [261]**

An S1G STA ~~non-AP~~ STA that transmitted a frame to a Relay STA with the More Data field set to 0 and that receives ~~the ACK frame that matches its address~~ the NDP ACK frame with an ACK ID that matches the expected ACK ID value calculated based on an immediately preceding transmission shall not initiate any further frame transmissions within the current TXOP.

~~The choice of acknowledgement procedure is optional to the Relay STA.~~

~~The operation of TXOP sharing is supported only for S1G frames.~~

NOTE- The frames transmitted over the first hop and second hop can be sent at two different MCSs.

**9.32n.3.1 Explicit ACK procedure**

A non-AP STA is the source of the frame to be relayed when the direction of the frame is from the non-AP STA to the AP.

An AP is the final destination of the frame to be relayed when the direction of the frame is from the non-AP STA to the AP.

**[CID 749,983]**

A non-AP STA starts a frame exchange by sending a frame addressed to the relay STA with ACK Indication field set to ~~ACK~~ NDP Response. The relay STA shall set theACK Indication ~~field~~ value of the response NDP ACK frame that is transmitted to the non-AP STA to ~~Not ACK, BlockAck or CTS and~~ Long Response as described in Table 9.3.2.4a2-ACK INDICATION Value for NDP MAC frames and shall set the Relayed Frame field of the response NDP ACK frame that is transmitted to the non-AP STA to 1.

**[CID984] [262][263]**

The Relay STA shall transmit the previously received frame which is addressed to the AP that included an ACK Indication value of NDP Response, SIFS time after sending the response NDP ACK frame ~~transmission that included an ACK Indication field value of ACK~~. Upon the successful receipt of the relayed frame, the AP shall ~~set the ACK Indication field of the response frame~~ transmit an NDP ACK frame to the Relay STA with the ACK Indication value set to No ~~ACK~~ Response.

The non-AP STA uses a new TXOP for a new frame transmission.

**[CID981]**

When the direction of the frame is from the AP to the non-AP, the AP ~~STA~~ starts a frame exchange by sending a frame addressed to the relay STA with the ACK Indication field set to ~~ACK~~ NDP Response. The relay STA shall set the ACK Indication ~~field~~ value of the response NDP ACK frame that is transmitted to the AP ~~STA~~ to ~~Not ACK, BlockAck or CTS~~ Long Response.~~,~~ ~~and~~ The relay STA shall set the Relayed Frame field of the response NDP ACK frame that is transmitted to the ~~non-AP STA~~ AP to 1.

**[CID982][262][263]**

The Relay STA shall transmit the received frame addressed to the non-AP STA that included an ACK Indication field value of NDP Response, SIFS time after sending the response NDP ACK frame ~~transmission that included an ACK Indication field value of ACK~~. Upon the successful receipt of the relayed frame, the non-AP STA shall ~~set the ACK Indication field of the response frame~~ transmit an NDP ACK frame to the Relay STA with the ACK Indication value set to No ~~ACK~~Response.

The AP uses a new TXOP for a new frame transmission.