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. " | 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 ~~ACK~~ NDP Response. The relay STA shall set the Implicit ACK Indication 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 9.3.2.4a (Setting and resetting the RID). The relay STA shall set the Relayed Frame field of the response NDP ACK frame that is transmitted to the non-AP STA to 1.” |
| 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." | Change to “When 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 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.” |
| 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" | Change to “A S1G STA that receives ~~the ACK frame that matches its address~~ the NDP ACK frame with a matching ACK ID shall not initiate any further frame transmissions within the current TXOP.” |
| 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."  | Modified. Change to“When the direction of the frame is from the AP to the non-AP, the AP 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 the Implicit ACK Indication ~~field~~ of the response NDP ACK frame that is transmitted to the AP 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 AP to 1.” |
| 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. " | Change to “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 transmit an NDP ACK frame to the Relay STA with the Implicit ACK Indication set to No ~~ACK~~Response.” |
| 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. " | Modified. See resolution for 749. |
| 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. " | Modified. Chang to “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 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 transmit an NDP ACK frame to the Relay STA with the Implicit ACK Indication set to No ~~ACK~~ Response.” |

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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" | Accept in principle.Also see resolution to CID 751 |

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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" | Accept in principle.Also see resolution to CID 984 |
| 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" | Accept in principle.Also see resolution to CID 982 |

***Proposed changes:***

**9.32n.3 Procedures TXOP sharing**

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

— Explicit ACK procedure

— Implicit ACK procedure

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

When 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 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 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.

**[CID 751] [261]**

A S1G STA that receives ~~the ACK frame that matches its address~~ the NDP ACK frame with a matching ACK ID 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 the Implicit ACK Indication 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 9.3.2.4a (Setting and resetting the RID). The relay STA 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 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 transmit an NDP ACK frame to the Relay STA with the Implicit ACK Indication 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 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 the Implicit ACK Indication ~~field~~ of the response NDP ACK frame that is transmitted to the AP 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 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 transmit an NDP ACK frame to the Relay STA with the Implicit ACK Indication set to No ~~ACK~~Response.

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