IEEE P802.11
Wireless LANs

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| Resolution for CID 7089 D5.0(CIDs 5422 and 5423 on 11mc/D4.0)  |
| Date: 2016-01-18 |
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Abstract

This submission proposes resolution for CID 5422 and 5423 on D4.0

Green indicates material agreed to in the group,

yellow material to be discussed, red material rejected by the group and

cyan material not to be overlooked.

The “Final” view should be selected in Word.

**Due to lack of time, the resolution as provided in 15/1274r0 was not fully discussed and hence was rejected.**

**Revision 15/1274r1 has a resolution written as a result of the limited comments that were made on 1274r0 and was posted after the discussion.**

**This Revision 15/1274r2 has changed the references to apply to D5.0. A Comment was submitted on D5.0 refering to these originalCIDs on D4.0 and this version is submitted as a resolution to that “new” comment.**

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| Identifiers | Comment | Proposed change |
| CID 5422Hunter9.3.2.91260.32D5 10.3.2.91281.32 | "The recognition of a valid Ack frame sent by the recipient of the MPDU requiring acknowledgement, corresponding to this PHY-RXEND.indication primitive, shall be interpreted as successful acknowledgement, permitting the frame sequence to continue, or to end without retries, as appropriate for the particular frame sequence in progress.": is this a direct quotation from Finnegan's Wake? Clever way to make a simple process look complicated. | Replace the drivel quoted in the comment with:{New paragraph}"If the transmission of an MPDU requires acknowledgement, the acknowledgement comes to the MPDU's transmitter in the form of an Ack frame. When the STA that transmitted the MPDU recognizes a valid Ack frame in response to the transmission, this recognition shall be interpreted as successful acknowledgement. Successful acknowledgement allows the STA's frame transmission sequence either to continue or to end without retries (whichever is appropriate for the particular frame sequence in progress)."Then replace the following sentences: " |

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| CID 5423Hunter9.3.2.91260.35D5 10.3.2.91281.39 | "The recognition of anything else, includingany other valid frame, shall be interpreted as failure of the MPDU transmission. In this instance, the STA shall invoke its backoff procedure at the PHY-RXEND.indication primitive and may process the received frame. An exception is that recognition of a valid Data frame sent by the recipient of a PS-Poll frame shall also be accepted as successful acknowledgment of the PS-Poll frame.": continuation of the obfuscation that worked so well in the preceding sentence. Unfortunately, clearer descriptions are even longer. | Replace the text quoted in the comment with:"If the STA recognizes any other transmission, including any other valid frame, that recognition shall be interpreted as failure of its MPDU transmission. This happens when the STA's MAC receives a PHY-RXEND.indication primitive from its PHY -- notifying the MAC that a frame has been received. When this primitive is received by the MAC, the MAC shall invoke its backoff procedure. During the backoff procedure the STA may process the received frame. {New paragraph} An exception (that is, a case in which a non-ACK frame is received but that event should not be interpreted as a failure of the STA's MPDU transmission) occurs with the PS-Poll frame. If the STA has transmitted a PS-Poll frame, then the STA's receipt and recognition of a valid Data frame transmitted by the recipient of the PS-Poll frame shall be accepted as successful acknowledgement of the PS-Poll frame." |

Discussion:

Here is the full paragraph.

P1281.32

After transmitting an MPDU that requires an Ack frame as a response (see Annex G), the STA shall wait for an AckTimeout interval, with a value of aSIFSTime + aSlotTime + aRxPHYStartDelay. This interval begins when the MAC receives a PHY-TXEND.confirm primitive. If a PHY-RXSTART.indication primitive does not occur during the AckTimeout interval, the STA concludes that the transmission of the MPDU has failed, and this STA shall invoke its backoff procedure upon expiration of the AckTimeout interval. If a PHY-RXSTART.indication primitive does occur during the AckTimeout interval, the STA shall wait for the corresponding PHY-RXEND.indication primitive to determine whether the MPDU transmission was successful. The recognition of a valid Ack frame sent by the recipient of the MPDU requiring acknowledgment, corresponding to this PHY-RXEND.indication primitive, shall be interpreted as successful acknowledgment, permitting the frame sequence to continue, or to end without retries, as appropriate for the particular frame sequence in progress. The recognition of anything else, including any other valid frame, shall be interpreted as failure of the MPDU transmission. In this instance, the STA shall invoke its backoff procedure at the PHY-RXEND.indication primitive and may process the received frame. An exception is that recognition of a valid Data frame sent by the recipient of a PS-Poll frame shall also be accepted as successful acknowledgment of the PS-Poll frame.

The commentor is right, this paragraph has problems.

We will look at each part separately:

“After transmitting an MPDU that requires an Ack frame as a response (see Annex G), the STA shall wait for an AckTimeout interval, with a value of aSIFSTime + aSlotTime + aRxPHYStartDelay.”

This is OK . (It was the subject of CID 5421 and was resolved.)

“If a PHY-RXSTART.indication primitive does not occur during the AckTimeout interval, the STA concludes that the transmission of the MPDU has failed, and this STA shall invoke its backoff procedure upon expiration of the AckTimeout interval.”

This is OK

“If a PHY-RXSTART.indication primitive does occur during the AckTimeout interval, the STA shall wait for the corresponding PHY-RXEND.indication primitive to determine whether the MPDU transmission was successful.”

This is OK

“The recognition of a valid Ack frame sent by the recipient of the MPDU requiring acknowledgment, corresponding to this PHY-RXEND.indication primitive, shall be interpreted as successful acknowledgment, permitting the frame sequence to continue, or to end without retries, as appropriate for the particular frame sequence in progress.”

This is the text cited for CID 5422.

It definitely has problems:

* “…*valid Ack frame sent by the recipient of the MPDU requiring acknowledgment*” is wrong as the ACK frame does not include the address of the sender hence it is only assumed that the Ack is sent by the recipient of the MPDU.

Commenter proposes text to read as follows:

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After transmitting an MPDU that requires an Ack frame as a response (see Annex G), the STA shall wait for an AckTimeout interval, with a value of aSIFSTime + aSlotTime + aRxPHYStartDelay. If a PHY-RXSTART.indication primitive does not occur during the AckTimeout interval, the STA concludes that the transmission of the MPDU has failed, and this STA shall invoke its backoff procedure upon expiration of the AckTimeout interval. If a PHY-RXSTART.indication primitive does occur during the AckTimeout interval, the STA shall wait for the corresponding PHY-RXEND.indication primitive to determine whether the MPDU transmission was successful.

If the transmission of an MPDU requires acknowledgement, the acknowledgement comes to the MPDU's transmitter in the form of an Ack frame. When the STA that transmitted the MPDU recognizes a valid Ack frame in response to the transmission, this recognition shall be interpreted as successful acknowledgement. Successful acknowledgement allows the STA's frame transmission sequence either to continue or to end without retries (whichever is appropriate for the particular frame sequence in progress). If the STA recognizes any other transmission, including any other valid frame, that recognition shall be interpreted as failure of its MPDU transmission. This happens when the STA's MAC receives a PHY-RXEND.indication primitive from its PHY -- notifying the MAC that a frame has been received. When this primitive is received by the MAC, the MAC shall invoke its backoff procedure. During the backoff procedure the STA may process the received frame.

An exception (that is, a case in which a non-ACK frame is received but that event should not be interpreted as a failure of the STA's MPDU transmission) occurs with the PS-Poll frame. If the STA has transmitted a PS-Poll frame, then the STA's receipt and recognition of a valid Data frame transmitted by the recipient of the PS-Poll frame shall be accepted as successful acknowledgement of the PS-Poll frame.

Although a definite improvement there are some minor changes I think are needed.

The first sentence is superfluous, for example. Also the AckTimeout aPHY-RXSTART and PHY-RXEND within the AckTimeout is explained at the beigiining and does not need to be explained again.

Also why drivel on about ‘other frames’, it is Ack or nothing.

Plus, I think the PS-Poll can be handled better.

Hence, the proposed resolution is:

**Resolution**

REVISED

At 1281.32:

Replace

“After transmitting an MPDU that requires an Ack frame as a response (see Annex G), the STA shall wait for an AckTimeout interval, with a value of aSIFSTime + aSlotTime + aRxPHYStartDelay. If a PHY-RXSTART.indication primitive does not occur during the AckTimeout interval, the STA concludes that the transmission of the MPDU has failed, and this STA shall invoke its backoff procedure upon expiration of the AckTimeout interval. If a PHY-RXSTART.indication primitive does occur during the AckTimeout interval, the STA shall wait for the corresponding PHY-RXEND.indication primitive to determine whether the MPDU transmission was successful. The recognition of a valid Ack frame sent by the recipient of the MPDU requiring acknowledgment, corresponding to this PHY-RXEND.indication primitive, shall be interpreted as successful acknowledgment, permitting the frame sequence to continue, or to end without retries, as appropriate for the particular frame sequence in progress. The recognition of anything else, including any other valid frame, shall be interpreted as failure of the MPDU transmission. In this instance, the STA shall invoke its backoff procedure at the PHY-RXEND.indication primitive and may process the received frame. An exception is that recognition of a valid Data frame sent by the recipient of a PS-Poll frame shall also be accepted as successful acknowledgment of the PS-Poll frame.”

With (changes are shown)

“After transmitting an MPDU that requires an Ack frame as a response (see Annex G), the STA shall wait for an AckTimeout interval, with a value of aSIFSTime + aSlotTime + aRxPHYStartDelay, starting at the PHY-TXEND.confirm primitive. If a PHY-RXSTART.indication primitive does not occur during the AckTimeout interval, the STA concludes that the transmission of the MPDU has failed, and this STA shall invoke its backoff procedure upon expiration of the AckTimeout interval.

If a PHY-RXSTART.indication primitive does occur during the AckTimeout interval, the STA shall wait for the corresponding PHY-RXEND.indication primitive to determine whether the MPDU transmission was successful. If the STA recognizes a valid Ack frame addressed to the STA and corresponding to this PHY-RXEND.indication primitive, this recognition shall be interpreted as successful acknowledgement.

If the STA does not recognize a valid Ack frame addressed to the STA, this condition shall be interpreted as failure of its MPDU transmission. In this instance, the STA shall invoke its backoff procedure at the PHY-RXEND.indication primitive and may process the received frame. If the STA has transmitted a PS-Poll frame, then the STA's receipt and recognition of a valid Data frame transmitted by the recipient of the PS-Poll frame shall also be accepted as successful acknowledgment of the PS-Poll frame.”