IEEE P802.11
Wireless LANs

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| Pre-ballot (802.11-2012) resolutions for A-MPDU contents |
| Date: 2012-11-10 |
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Abstract

This document proposes resolutions for CIDs 170, 171 and 194 on 802.11-2012, regarding the definition of A‑MPDU contents in the various contexts.

## Revision History

r0: Initial revision.

## Comments

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| 170 | Mark RISON | 8.6.3 (814) | The A-MPDU context descriptions are not clear, e.g. the "Of these, at most one of the followingis present:" stuff | Clarify it all |
| 171 | Mark RISON | 8.6.3 (814) | In Table 8-287, "Only one of these is present at the start of the A-MPDU." is trivially true and hence useless | Intention is presumably "only one of these is present, and it is at the start"; best to adopt the same presentation as in other tables in this subclause |
| 194 | Mark RISON | 8.6.3 (815) | The wording is inconsistent in the A-MPDU context tables and the stuff on the positional requirements should be separated out | Tidy it all up |

## Discussion

The commenter makes insightful, trenchant and crucial points, as always. What a star! Let’s have a round of applause! Hip hip hurrah!

## Proposed changes

The changes are relative to D0.3. The changes are shown using Word change tracking (it may be worth not showing formatting changes, if Word is being more stupid than it usually is). Select “Final Showing Markup” or “Final” as appropriate. Editorial instructions are shown using bold italics; those with “Editor:” prefix are to be effected by the editor before the next draft; those without are to be given as-is in the draft. Any Word comments should be ignored when merging the proposed changes in.

* A-MPDU contents

An A-MPDU is a sequence of MPDUs carried in a single PPDU with the TXVECTOR/RXVECTOR AGGREGATION parameter set to 1.

All the MPDUs within an A-MPDU are addressed to the same RA. All QoS data frames within an A-MPDU that have a TID for which an HT-immediate Block Ack agreement exists have the same value for the Ack Policy subfield of the QoS Control field.

All protected MPDUs within an A-MPDU have the same Key ID.

The Duration/ID fields in the MAC headers of all MPDUs in an A-MPDU carry the same value.

An A-MPDU is transmitted in one of the contexts specified in A-MPDU contexts. Ordering of MPDUs within an A-MPDU is not constrained, except where noted in these tables. See 9.12.1 (A-MPDU contents).

NOTE 1—The TIDs present in a data enabled A-MPDU context are also constrained by the channel access rules (for a TXOP holder; see 9.19.2 (HCF contention-based channel access (EDCA)) and 9.19.3 (HCCA)) and the RD response rules (for an RD responder, see 9.25.4 (Rules for RD responder)). This is not shown in these tables.

NOTE 2—MPDUs carried in an A-MPDU are limited to a maximum length of 4095 octets. If a STA supports A-MSDUs of 7935 octets (indicated by the Maximum A-MSDU Length field in the HT Capabilities element), A-MSDUs transmitted by that STA within an A-MPDU are constrained so that the length of the QoS data MPDU carrying the A‑MSDU is no more than 4095 octets. The use of A-MSDU within A-MPDU might be further constrained as described in 8.4.1.14 (Block Ack Parameter Set field) through the operation of the A-MSDU Supported field.

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| * A-MPDU contexts
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| Name of context | Definition of context | Table defining permitted contents |
| Data Enabled Immediate Response | The A-MPDU is transmitted outside a PSMP sequence by a TXOP holder or an RD responder including potential immediate responses. | A-MPDU contents in the data enabled immediate response context |
| Data Enabled No Immediate Response | The A-MPDU is transmitted outside a PSMP sequence by a TXOP holder that does not include or solicit an immediate response.See NOTE. | A-MPDU contents in the data enabled no immediate response context |
| PSMP | The A-MPDU is transmitted within a PSMP sequence. | A-MPDU contents in the PSMP context  |
| Control Response | The A-MPDU is transmitted by a STA that is neither a TXOP holder nor an RD responder that also needs to transmit one of the following immediate response frames:ACKBlockAck with a TID for which an HT-immediate Block Ack agreement exists | A-MPDU contents in the control response context |
| NOTE—This context includes cases when no response is generated or when a response is generated later by the operation of the delayed Block Ack rules. |

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| * A-MPDU contents in the data enabled immediate response context
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| MPDU description | Conditions |
| ACK | If the preceding MPDU requires an ACK response, an ACK frame. | At most one of these is present.If present, at the start of the A-MPDU. |
| HT-immediate BlockAck | If the preceding PPDU requires an immediate BlockAck response, a BlockAck frame.NOTE—This is the case if the preceding PPDU contains an implicit or explicit Block Ack request for a TID for which an HT-immediate Block Ack agreement exists. |
| HT-delayed BlockAcks | BlockAck frames with the BA Ack Policy subfield equal to No Acknowledgment with a TID for which an HT-delayed Block Ack agreement exists. |
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| HT-delayed BlockAckReqs | BlockAckReq frames with the BA Ack Policy subfield equal to No Acknowledgment with a TID for which an HT-delayed Block Ack agreement exists. |
| ata sent under a dagreement | for which exists |
|  |  |
| Data sent under an HT-immediate Block Ack agreement | QoS Data MPDUs with the same TID, for which an HT-immediate Block Ack agreement exists. NOTE—These MPDUs all have the Ack Policy field equal to the same value, which is either Implicit Block Ack Request or Block Ack. | At most one of the following is present:* One or more QoS Data MPDUs with the Ack Policy field equal to Implicit Block Ack Request
* One BlockAckReq frame
 |
| HT-immediate BlockAckReq | A BlockAckReq frame with a TID for which an HT-immediate Block Ack agreement exists.If present, at the end of the A-MPDU. Not present if any QoS data frames for that TID are present. |

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| * A-MPDU contents in the data enabled no immediate response context
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| MPDU description | Conditions |
| HT-delayed BlockAcks | BlockAck frames with the BA Ack Policy subfield equal to No Acknowledgment with a TID for which an HT-delayed Block Ack agreement exists. |
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| HT-delayed BlockAckReqs | BlockAckReq frames with the BA Ack Policy subfield equal to No Acknowledgment and with a TID that for which an HT-delayed Block Ack agreement exists. |
| ata sent under a dagreement | for which exists |
| not sent under | for which no exists |
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| * A-MPDU contents in the PSMP context
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| MPDU description | Conditions |
| Multi-TID BlockAck | At most one Multi-TID BlockAck frame.Acknowledgment in response to data received with the Ack Policy field equal to PSMP Ack and/or a Multi-TID BlockAckReq frame in the previous PSMP-UTT or PSMP-DTT. |
| HT-delayed BlockAcks | BlockAck frames with the BA Ack Policy subfield equal to No Acknowledgment and with a TID for which an HT-delayed Block Ack agreement exists. |
| HT-delayed BlockAckReq | BlockAckReq frames with the BA Ack Policy subfield equal to No Acknowledgment and with a TID for which an HT-delayed Block Ack agreement exists. |
| Data sent under an HT-immediate agreement | QoS Data MPDUs with a TID for which an HT-immediate Block Ack agreement exists.These have the Ack Policy field equal to PSMP Ack or Block Ack. | An A-MPDU containing MPDUs for which a Block Ack agreement exists does not also contain MPDUs for which no Block Ack agreement exists. |
| Data sent under a delayed Block Ack data agreement | QoS Data MPDUs with a TID for which a Delayed or HT-delayed Block Ack agreement exists.These have the Ack Policy field equal to Block Ack. |
| Data not sent under a Block Ack agreement | QoS Data MPDUs with a TID for which no Block Ack agreement exists.These have the Ack Policy field equal to No Ack and the A-MSDU Present subfield equal to 0. |
| Action No Ack | Management frames of subtype Action No Ack. |
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| Multi-TID BlockAckReq  | At most one Multi-TID BlockAckReq frame with the BA Ack Policy subfield equal to No Ack. |

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| * A-MPDU contents in the control response context
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| MPDU description | Conditions |
| ACK | If the preceding MPDU requires an ACK response, an ACK frame. | One of these is present.At the start of the A-MPDU. |
| HT-immediate BlockAck | If the preceding PPDU requires an immediate BlockAck response, a BlockAck frame.NOTE—This is the case if the preceding PPDU contains an implicit or explicit Block Ack request for a TID for which an HT-immediate Block Ack agreement exists. |
| Action No Ack | Management frames of subtype Action No Ack +HTC carrying a Management Action Body containing an explicit feedback response. |

## Proposed resolution

170, 171 and 194: REVISED. See Proposed changes in 12/1344r$last\_revision, which agree in principle with the commenter.