IEEE P802.11
Wireless LANs

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| Resolutions for “Obsolete?” BlockAcksBasic BlockAckReq, Basic BlockAck, NON HT BlockAck and HT Delayed BlockAck |
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Abstract

This submission proposes resolutions for CIDs 57, 58, 61 and 70

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.

R2 CIDs 70 and 137 added

R5 has edits by Menzo plus results of discussions Dec 7th 2017

R6 has additions based upon the discussions on Dec 7th 2017

* 784.21
* Clause 10.24

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| --- | --- | --- | --- | --- | --- | --- |
| CID | Commenter | Clause  | Page  | Line | Comment | Proposed |
| 57 | Graham Smith | 9.3.1.8.2 | 712 | 8 | Time to remove BlockAckReq? | Remove |
| 58 | Graham Smith | 9.3.1.9.2 | 716 | 14 | Time to remove basic BlockAck variant? | Remove |
| 61 | Graham Smith | 11.5.2.4 | 1802 | 31 | Time to remove Non-HT blockack ? | Remove, also at 2949L25, 2950L6 |
| 70 | Graham Smith | B4.17.1 | 2970 | 8 | HT-delayed block ack obsolete? But I see 50 other instances of HT-delayed Block ack where obsolete is not mentioned. Which is in error? | Is it obsolete or not? Correct |
| 137 | Mark R |  |  |  | We should not include obsolete material | Delete all material described as obsolete |

P711.56

*“DMG STAs use only the Compressed BlockAckReq variant and the Extended Compressed BlockAckReq variant.”*

So no worries there then.

No other reference to this outside of 9.3.1.8.2

CID 57 BlockAckReq variant and CID 58 Basic Block Ack variant

9.3.1.8.2 “The use of the **basic BlockAckReq variant is obsolete**. Consequently, this subclause might be removed in a

later revision of the standard.”

9.3.1.9.2 “The use of the **basic BlockAck variant is obsolete**. This subclause might be removed in a later revision of the

standard.

9.3.1.8 “BlockAckReq frame format”

This describes the BlockAckReq of which there are 5 variants. One of those variants is the “**Basic** BlockAckReq variant”. This, and only this is to be deleted.

“9.3.1.8.2 Basic BlockAckReq variant”

The term “BlockAckReq is used generally so we need to be careful.

**712.5 “NOTE—Reference to “a BlockAckReq” frame without any other qualification from other subclauses applies to any of the variants, unless specific exclusions are called out.”**

The term “Basic BlockAck” is used to refer to the “Basic BlockAckReq variant”

***So we need to remove all “Basic BlockAck”references*** as well as Basic BlockAckReq.

We do note that PSMP appears to use the basic variant.

At 1564.54 we read:

“Within a PSMP-DTT or PSMP-UTT between STAs where one is not an HT STA, BlockAckReq and BlockAck frames shall be exchanged through the use of an immediate block ack agreement and shall be the basic variants, i.e., Basic BlockAckReq and Basic BlockAck, respectively.”

In this case it is referring to the case where one STA is NOT an HT STA. As non-HT block ack is obsolete, I am assuming that this sentence can be deleted.

CID 61 Non-HT block ack agreement and CID 70 HT-delayed block ack

11.5.2.4. Table 11-4

“NOTE 1—**Non-HT block ack agreement is obsolete**. Support for this mechanism might be removed in a later revision of the standard.”

“NOTE 2—**HT-delayed block ack agreement is obsolete**. Support for this mechanism might be removed in a later revision of the standard.”

In response to CID 70, I take the view that as it stated here, and in the PICS (2970.9), that the HT-Delayed block ack is indeed obsolete.

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Discussed in Berlin as part of document 17/0989

General consensus to remove but need to check Basic BlockAckReq and Basic BlockAck

Also required detailed editor instructions.

This submission 17/1137 was therefore prepared to consider removing these block acks.

CIDs 57, 58

RESOLUTION

REVISED

711.40 in Table 9-22 replace “Basic BlockAckReq” in column 4 with “Reserved”

(Note: At 711.28 it says four variants, which was wrong but is now correct.)

715.42 in Table 9-24 replace “Basic BlockAck” in column 4 with “Reserved”

712.8 Delete 9.3.1.8.2 “Basic BlockAckReq variant”

715.26 Delete “The value 1 is not used in a Basic BlockAck frame outside a PSMP sequence.”

716.14 Delete 9.3.1.9.2 (Basic BlockAck variant)

1453.22 delete “other than a Basic BlockAckReq or Basic BlockAck frame”

1453.26 delete lines 26 to 32.

1453.36 delete “But the Basic BlockAckReq and Basic BlockAck frames are subject to fewer restrictions because their use at times mimics a typical data-Ack exchange, where no BSSBasicRateSet rate restriction exists on the Data frame. In addition, the Basic BlockAck frame is significantly larger than the other Control frames.”

1524.33 The originator requests acknowledgment of outstanding QoS Data frames by sending a BlockAckReq frame. The recipient shall maintain a block ack record for the block.

1524.40 Separate the block of QoS data frames and the BlockAckReq frames into separate TXOPs or SPs

1525.12 If the immediate block ack policy is used, the recipient shall respond to a BlockAckReq frame with a BlockAck frame. If the recipient sends the BlockAck frame, the originator updates its own record and retries any frames that are not acknowledged in the BlockAck frame, either in another block or individually.

1525.18 If the delayed block ack policy is used, the recipient shall respond to a BlockAckReq frame with an Ack frame. The recipient shall then send its BlockAck frame response in a subsequently obtained TXOP. Once the contents of the BlockAck frame have been prepared, the recipient shall send this frame in the earliest possible TXOP using the highest priority AC. The originator shall respond with an Ack frame upon receipt of the BlockAck frame. If delayed block ack policy is used and if the HC is the recipient, then the HC may respond with a +CF-Ack frame if the BlockAckReq frame is the final frame of the polled TXOP’s frame exchange. If delayed block ack policy is used and if the HC is the originator, then the HC may respond with a +CF-Ack frame if the BlockAck frame is the final frame of the TXOP’s frame exchange

1525.46 The subsequent BlockAckReq frame’s starting sequence number shall be higher than or equal to the starting sequence number of the immediately preceding BlockAckReq frame for the same TID.

1525.60 If there is no response (i.e., neither a BlockAck frame nor an Ack frame) to the BlockAckReq frame, the originator may retransmit the BlockAckReq frame within the current TXOP or SP (if time

1526.56 The BlockAckReq frame shall be discarded if all MSDUs..

1564.54 10.29 (PSMP operation), Delete “Within a PSMP-DTT or PSMP-UTT between STAs where one is not an HT STA, BlockAckReq and BlockAck frames shall be exchanged through the use of an immediate block ack agreement and shall be the basic variants, i.e., Basic BlockAckReq and Basic BlockAck, respectively.”

1570.1 (PSMP ack rules) Acknowledgment for data transmitted under an immediate or HT-immediate block ack agreement may be requested implicitly using PSMP Ack setting of the Ack Policy field in Data frames or explicitly with a Multi-TID BlockAckReq frame. An AP that transmits Data frames with the Ack Policy field equal to PSMP Ack or that transmits a Multi-TID BlockAckReq frame addressed to a STA in a PSMP-DTT shall allocate sufficient time for the transmission of a Multi- TID BlockAck frame, respectively, in a PSMP-UTT allocated to that STA within the same PSMP sequence. A STA that has received a PSMP frame and that receives a QoS Data frame with the Ack Policy field equal to PSMP Ack or that receives a Multi-TID BlockAckReq frame shall transmit a Multi-TID BlockAck frame, respectively, in the PSMP-UTT of the same PSMP sequence.

1570.19 An AP that receives a QoS Data frame with the Ack Policy field equal to PSMP Ack during a PSMP-UTT shall transmit a response that is a Multi-TID BlockAck frame in the next PSMPDTT that it schedules for that STA, except if it has transmitted a BlockAck frame for such TIDs to the STA outside the PSMP mechanism.

2949.28 (2952), and 2950.9 (2953) (PICS) Delete “9.3.1.8.2 (Basic BlockAckReq variant)”

2949.31 (2952), 2950.12 (2953) (PICS) Delete “9.3.1.9.2 (Basic BlockAck variant)”

CID 61 and 70

RESOLUTION

REVISED

154.25 to 154.29 delete all (high-throughput (HT) delayed (HT-delayed) block acknowledgement (Ack))

215.11 delete “HT-delayed block ack,”

687.22 delete “10.24.8.3 (Operation of HT-delayed block ack),”

714.26 Modify as shown in revision marks: The TA field value is the address of the STA transmitting the BlockAck frame.

715.16 Delete “The value 0 is not used for data sent under HT-delayed Block Ack during a PSMP sequence.”

715.22 Delete “The value 1 in a Compressed BlockAck frame indicates HT-delayed block ack. HT-delayed block ack is obsolete and this value might be reserved in a later revision of the standard.”

715.25 Delete “The value 0 is not used for data sent under HT-delayed Block Ack during a PSMP sequence.”

784.21 Edit as shown “The Block Ack Policy subfield is set to 1 for non-DMG STAs. For DMG STAs the Block Ack Policy subfield is set to 1 or 0 in accordance with Table 11-5 (Types of block ack agreement based on capabilities and ADDBA conditions for DMG STAs).

Add “NOTE: The Block Ack Policy subfield for non-DMG STAs could be set to either one or zero in previous revisions.”

1004.35 Replace text in B10 (HT-delayed Block Ack) with “Reserved”

1005.45 delete entire row (HT-delayed Block Ack)

1394.30 delete entire row (Delayed BlockAcks)

1394.33 delete entire row

1394.38 delete entire row

1395.7 delete entire row (Delayed BlockAcks)

1395.10 delete entire row

1395.19 delete entire row (Delayed BlockAckReqs)

1395.35 delete entire row (Delayed BlockAcks)

1395.44 delete leftmost two columns (Delayed Block Ack Data)

1395.56 delete entire row (Delayed BlockAckReqs)

1404.1, 1404.16, delete “or HT-delayed"

1421.63 modify as shown in revision marks: “NOTE 1—A BlockAck frame is sent in immediate response to the BlockAckReq frame for HT immediate Block Ack.”

1459.45 delete “BlockAck frames in the context of HT-delayed Block Ack,”

Note to editor: Changes to Clause 10.24 are at end

1536.34 Delete 10.24.8 (HT-delayed block ack extensions) in its entirety.

1569.48 Delete “A QoS Data frame transmitted under an HT-delayed block ack agreement during either a PSMP-DTT or a PSMP-UTT shall have the Ack Policy field set to Block Ack”

1570.40 Delete “If a BlockAckReq frame for an HT-delayed block ack agreement is transmitted during a PSMP sequence, the BAR Ack Policy subfield of the BlockAckReq frame shall be set to the value representing No Acknowledgment”

1789.17 delete paragraph

1802.13 Table 11-4 Delete entire first row of Table

1802.18 Table 11-4 Delete entire third row of Table

1802.22 Table 11-4 Delete fourth row of Table

1802.13 Table 11-4 Delete NOTE 1 and NOTE 2

2949.27 (2952), 2950.8 (2953) Delete “Non-HT block ack is obsolete. Support for this mechanism might be removed in a later revision of the standard.”

2949.43 (2952), 2950.24 (2953) Delete in column 3, “10.24.8 HT delayed Block Ack extensions”

2970.6 (2973) Delete Entire row (HTM5.4)

3252.49 (3255) Delete lines 49 to 61 (dot11RMNeighborReportHTDelayedBlockAck)

3371.16 Delete “or HT-delayed”

Make following revisions to Clause 10.24

*Note that GCR Block Ack is same as HT immediate BA, see 1538.19 “*the operation of GCR block ack is the same as is described in 10.24.7 (HTimmediate block ack extensions)

*This has influenced the proposed changes below)*

1522.10 edit as shown

“The block ack mechanism improves channel efficiency by aggregating several acknowledgments into one

frame. In this subclause, the STA with data to send using the block ack mechanism is referred to as

the *originator*, and the receiver of that data as the *recipient*.

The block ack mechanism is initialized by an exchange of ADDBA Request/Response frames. After

initialization, A-MPDU frames may be transmitted from the originator to the recipient. An A-MPDU may be started within a polled TXOP, within an SP, or by winning EDCA contention. The MPDUs within the

A-MPDU are acknowledged by a BlockAck frame, which is requested by a BlockAckReq frame.”

The block ack mechanism does not require the setting up of a TS; however, QoS STAs using the TS facility

may choose to signal their intention to use block ack mechanism for the scheduler’s consideration in assigning

TXOPs. The block ack mechanism is also used by the GCR service.

1522.35 to 1523.56 delete, including Figure 10-32

1523.9 edit as shown

“An originator that intends to use the block ack mechanism for the transmission of A-MPDU Data frames to an

intended recipient should first check whether the intended recipient STA is capable of participating in block

ack mechanism by discovering and examining its Immediate Block Ack capability

bit. If the intended recipient STA is capable of participating, the originator sends an ADDBA Request frame

indicating the TID for which the block ack agreement is being set up. When a block ack agreement is set up

between HT STAs, the Buffer Size and Block Ack Timeout fields in the ADDBA Request frame are advisory.

When a block ack agreement is set up between HT or DMG STAs, the Buffer Size and Block Ack Timeout

fields in the ADDBA Request frame are advisory. A block ack agreement shall not be set up between a non-HT

non-DMG STA and another STA.”

1524.22 edit as shown

“After setting up an immediate block ack agreement following the

procedure in 10.24.2 (Setup and modification of the block ack parameters), and having gained access to the

medium and established protection, if necessary, the originator may transmit an A-MPDU

The RA field of the frames that are not delivered using the GCR block ack retransmission policy shall be

the recipient’s individual address. The RA field of GCR frames delivered using the GCR block ack

retransmission policy shall be set to the GCR concealment address. The originator requests acknowledgment of

outstanding QoS Data frames by sending a BlockAckReq frame. ”

1524.37 to 1527.12 delete entirely

1527.13 delete clause 10.24.4 in its entirety

1528.5 edit as shown

“The block ack agreement may be torn down if there are no BlockAck, BlockAckReq, or A-MPDU frames (sent

under block ack policy) for the block ack’s TID received from the peer within a duration of block ack timeout

value (see 11.5.4 (Error recovery upon a peer failure)).”

1528.43 delete “and 10.24.8 (HT-delayed block ack extensions),”