### IEEE P802.11 Wireless LANs

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| Proposed Draft Specification for Error Flag | | | | |
| Date: 2025-04-18 | | | | |
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Abstract

We propose draft text for error flag as discussed in 11-24/0414.

Revisions:

* Rev 0: Initial version of the document.

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the subsequent TGbe Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGbe Editor: Editing instructions preceded by “TGbe Editor” are instructions to the TGbe editor to modify existing material in the TGbe draft. As a result of adopting the changes, the TGbe editor will execute the instructions rather than copy them to the TGbe Draft.***

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| **CID** | **Commenter** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 1751 | Michail Koundourakis | 9.3.1.8.6 | 0.0 | Improve feedback in BlockAck frames, to help recipient's link adaptation decisions. | Add a "parity errors count" subfield to feed back that the receiver of the A-MPDU experienced a number of parity errors. This tells the transmitter of the A-MPDU that the recipient tried to receive the MPDUs (as opposed to , it was not available to try to receive, which is typical for coex). | Revised –  Agree in principle with the comment. Proposed resolution is to define a field that indicates whether there has been any errors due to interference.  TGbn editor to make the changes shown in 11-25/xxxxr0 under all headings that include CID 1751. |

**Discussion:**Proposed resolution aligns with the following SP from [11-24/414r1](https://mentor.ieee.org/802.11/dcn/24/11-24-0414-01-00bn-improving-acknowledgment-mechanisms.pptx).

* Do you support to add internal errors reporting in M-BA frame
  + Internal (in device) Error Occurred bit is 1 if internal (in-device) error(s) occurred during the reception of the PPDU that solicited the M-BA response
    - I.e., unsuccessful RX reports in BlockAck Bitmaps in the M-BA are due to internal errors
  + Internal (in device) Error Occurred bit is 0 if no internal (in-device) error(s) occurred or if the source of error is unknown
    - I.e., unsuccessful RX reports (if any) in BlockAck Bitmaps in M-BA are not due to internal (in-device) errors or if the source of error is unknown
  + Location of the Internal Error Occurred bit in the M-BA frame is TBD
  + Note: Internal errors might be due to internal in-device coexistence or other internal limitations

**Propose:**

* + - * 1. **Overview**

***TGbn editor: Please change the figure below as follows [#1751]:***

The BA Control field is defined in Figure 9-53 (BA Control field format(11ax)(11ay)).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 | | B1 B4 | B5 B6 | B7 | B8 | B9 | B10 | B11 | B12 B15 |
|  | Reserved | | BA Type | Reserved | In-Device Error Flag | Reserved | No Memory Kept | Memory Configuration Tag | Management Ack | TID\_INFO |
| Bits: | 1 | | 4 | 2 | 1 | 1 | 1 | 1 | 1 | 4 |
|  | | * BA Control field format(11ax)(11ay) | | | | | | | | |

The GCR BlockAck frame is used in response to a GCR BlockAckReq frame, and the GLK-GCR BlockAck frame is used in response to a GLK-GCR BlockAckReq frame.(11ax)

***TGbn editor: Please insert a new paragraph below as follows [#1751]:***

The In-Device Error Flag indicates whether an in-device error has occurred during the reception of the PPDU that solicited the Multi-STA Block Ack frame. The In-Device Error Flag subfield is set to 1 to indicate that an in-device error occurred during the reception of the soliciting PPDU and is set to 0 to indicate that no in-device errors occurred during the reception of the soliciting PPDU. The In-Device Error Flag is reserved in other variants of the Block Ack frame.*[#1751]*

***TGbe editor: Please add new subclauses as follows***

**37.12.2 Dynamic Unavailability Operation (DUO) mode**

….

When a DUO non-AP STA is operating in the DUO mode, then:

* The associated AP that initiates frame exchanges that are neither group addressed Data nor group addressed Management frames with the non-AP STA shall begin the frame exchanges by transmitting an Initial Control frame (ICF) allowed for DUO mode to the non-AP STA.
* The ICF allowed for DUO shall be a BSRP Trigger frame that has either:
  + A User Info field with the AID12 field set to the AID of the STA, and with the GI And HE/ UHR-LTF Type field set to 3 to solicit a non-HT (duplicate) PPDU.
  + A User Info field with the AID12 field set to the AID of the STA, and with the GI And HE/UHR-LTF Type field not set to 3 to solicit a TB PPDU.
* The BSRP Trigger frame shall have the UL Length field set to a value that is sufficiently large to allow the DUO non-AP STA to respond to the BSRP Trigger frame with a PPDU that contains a Multi-STA BlockAck frame with DUO feedback. The non-AP STA does not include Per AID TID Info fields that follow 26.4.2 (Acknowledgment context in a Multi-STA Block Ack frame) in a Multi-STA Block Ack frame that is sent as a response to the ICF.*[#1751]*

— The ICR frame allowed for DUO shall be a Multi-STA Block Ack frame that may contain DUO feedback.*[#1751]*

— The control response frame (CRF) allowed for DUO and that is sent in response to frame(s) requiring an immediate acknowledgment shall be a Multi-STA Block Ack frame that follows the rules in 35.4 (EHT acknowledgment procedure), 26.4.2 (Acknowledgment context in a Multi-STA Block Ack frame) and that may contain DUO feedback. *[#1751]*

….

A DUO non-AP STA that is operating in the DUO mode and that is a TXOP responder may indicate, in a response Multi-STA BlockAck frame, whether the non-AP STA will be unavailable after a specific point in time and, if known, for how long, by including a Per-AID TID Info field that contains an Unavailability Target Start Time and Unavailability Duration in the Multi-STA BlockAck frame (see 9.3.1.8.6 (Multi-STA BlockAck variant)).*[#1751]*

A DUO non-AP STA that is operating in the DUO mode and that is a TXOP responder may indicate, in a Multi-STA Block Ack frame that is sent in response to a PPDU containing frame(s) requiring an immediate response, whether the non-AP STA experienced any in-device errors during the reception of the PPDU following the rules below:

* If the STA reports in the Multi-STA Block Ack frame that all the frame(s) requiring an immediate response are successfully received, then the STA shall set the In-Device Error Flag subfield to 0.
* If the STA reports in the Multi-STA Block Ack frame that at least one of the frames requiring an immediate response is not successfully received, then the STA shall set the In-Device Error Flag subfield to:
  + 1 if at least one of the unsuccessful receptions is due to an in-device error that occurred during the reception of the PPDU containing these frame(s)
  + 0 if either none of the unsuccessful receptions is due to an in-device error or the source of the error is unknown.

NOTE 1 — An in-device error might be due to internal in-device coexistence, internal or external interference, or due to other internal limitations.

NOTE 2 — If the AP receives an indication from the DUO STA that an in-device error has occurred during the reception of the soliciting PPDU, then the expectation is that the AP does not consider the failed reception of any of the frames that solicited an immediate response and contained in the soliciting PPDU as an input to the AP’s rate selection algorithm, which is by itself out of scope of the standard.*[#1751]*

A DUO non-AP STA that is operating in the DUO mode and that receives, from its associated DUO Supporting AP, a BSRP Trigger frame that is individually addressed to the STA and solicits a response in non-HT (duplicate) PPDU format shall respond subject to the rules defined in 26.5.2.5 UL MU CS mechanism, and the response shall be in non-HT (duplicate) PPDU format and shall include a Multi-STA BlockAck frame.