### IEEE P802.11Wireless LANs

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| Proposed Draft Specification for Error Flag |
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Abstract

We propose draft text for error flag as discussed in 11-24/0414. This document also contains comment resolutions for CID 1751 related to subclause 37.17.2 (Dynamic Unavailability Operation (DUO) mode).

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Correcting some formatting errors.
* Rev 2: Some minor updates.
* Rev 3: Some editorial changes based on feedback received.

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 TGbn Draft. This introduction is not part of the adopted material.

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

***TGbn Editor: Editing instructions preceded by “TGbn Editor” are instructions to the TGbn editor to modify existing material in the TGbn draft. As a result of adopting the changes, the TGbn editor will execute the instructions rather than copy them to the TGbn 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 11-25/742r2 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)
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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 field indicates whether an in-device error has occurred during the reception of a PPDU that solicited a 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 error occurred during the reception of the soliciting PPDU or in case of no errors. The In-Device Error Flag field is reserved in other variants of the Block Ack frame.*[#1751]*

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

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

….

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 (see 9.3.1.8.6 (Multi-STA BlockAck variant)).

A DUO non-AP STA that is operating in DUO mode and that is a TXOP responder indicates, 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 were 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 was 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 out of scope of the standard.*[#1751]*