IEEE P802.11
Wireless LANs

|  |
| --- |
| Fragmentation in MLO |
| Date: October 16, 2025 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Abhishek Patil | Qualcomm Technologies Inc. |  |  | appatil@qti.qualcomm.com |
| Alfred Asterjadhi |  |  |  |
| George Cherian |  |  |  |

 Abstract

This submission provides guidance on dynamic fragmentation with MLO. It resolves CID 132 receives against REVmf D1.0.

**Revisions:**

* Rev 0: Initial version of the document.
* Rev 1: Revised based on feedback received when doc was presented during the March IEEE 2025 meeting.
* Rev 2:
	+ Added comments table showing CID 132 received against REVmf D1.0 on this topic.
	+ Alignment with REVmf D1.1

***TGbe editor: Baseline for this document is REVmf D1.1***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **Page** | **Line** | **Comment** | **Proposed Change** | **Resolution** |
| 132 | Abhishek Patil | 35.3.9 | 5292 | 46 | Clause 35.3.9 disallows non-dynamic fragmentation when operating in MLO mode, but does not provide any guidance on how dynamic fragmentation is expected to function in this context. In practice, this lack of guidance prevents devices from using dynamic fragmentation effectively in MLO mode. A non-AP STA that requires fragmentation may be forced to disassociate and reassociate as a single-link STA to perform non-dynamic fragmentation, which is disruptive and degrades performance. This represents a significant gap in the specification. | Incorporate the changes as shown in 11-25/0373r1 (presented and discussed during the IEEE 802.11 March 2025 meeting). | **TGm editor, please make changes as shown in 11-25/0373r2** |

**Discussion:**

Per the clause 35.3.9, non-dynamic fragmentation is disallowed when operating in MLO mode. Dynamic fragmentation is not disallowed. However, the spec does not provide any guidance on how to use dynamic fragmentation when operating in MLO mode. As a result, in practice, devices can’t use dynamic fragmentation in MLO mode. A non-AP that is struggling and needs to perform fragmentation is required to disassociate and reassociated as single link to perform non-dynamic fragmentation. Disassociation is disruptive and will further impact the non-AP’s performance. The standard needs to fill in the gap and provide guidance on how dynamic fragmentation would work in MLO mode. This contribution provides guidance on dynamic fragmentation will work when operating in MLO mode.

**Summary of changes:**

* Specifies that all links of an MLD advertise the same level of support for dynamic fragmentation in the HE Capabilities element.
* Keeps implementation simple (i.e., not have to chase which link received which fragment) by having all fragments of an MSDU be transmitted on the same link.

**35.3.9 Fragmentation in multi-link operation**

***TGm editor: Please add the following paragraphs to this subclause as shown below:***

A STA affiliated with an MLD may use dynamic fragmentation as described in 26.3 (Fragmentation and defragmentation) subject to the following additional requirements:

* The Dynamic Fragmentation Support and A-MSDU Fragmentation Support fields in the HE Capabilities elements transmitted by each STA affiliated with the same MLD shall be set to values that are identical across all STAs.
* If the first dynamic fragment of an MSDU, A-MSDU or MMPDU is sent on an enabled link then all the remaining fragments of that MSDU, A-MSDU, or MMPDU shall be sent on that same enabled link.

If a STA is required to fragment an MSDU or MMPDU so that the initial transmission of the first fragment does not cause the TXOP/PPDU limit to be exceeded (see 10.23.2.9 and Table 9-38) then the STA shall either use dynamic fragmentation (while conforming to the rules described above) or reassociate as a STA that is not affiliated with an MLD (so that it can use non-dynamic fragmentation).