IEEE P802.11Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Proposed Resolutions to 11be LB271 A Few CIDs on EMLSR | | | | |
| Date: 2023-06-25 | | | | |
| Author(s): | | | | |
| Name | Company | Address | Phone | email |
| Qi Wang | Apple Inc. |  |  | qi\_wang2@apple.com |
| Yong Liu | Apple Inc. |  |  |  |

Abstract

This submission proposes the resolutions to 11be LB271CID 16684 on the EMLSR operation.

The page and line numbers refer to those in 11be\_D3.2 [1] and REVmc\_D3.0 [2].

**Introduction**

This submission proposes the resolutions to 11be LB271CIDs 16684 on the EMLSR operation.

The page and line numbers refer to those in 11be\_D3.2 [1] and REVme\_D3.0 [2].

**Comments:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Commenter | Page.  Line | Clause | Comment | Proposed change | Resolution |
| 16684 | Qi Wang | 565.27 | 35.3.7 | "The rates of the initial control frame are limited to 6, 12, or 24Mbps.". This conflicts with 802.11me subclause 10.6.6.2 (Rate selection for Control frames that initiate a TXOP). Specially, the following rule: "If a Control frame is carried in a non-HT PPDU, the transmitting STA shall transmit the frame using one of the rates in the BSSBasicRateSet parameter or a rate from the mandatory rate set of the attached PHY if the BSSBasicRateSet is empty." | Clarify in 10.6.6.2 that the rate selection for trigger frames is not limited to the BSSBasicRateSet, if the BSSBasicRateSet only includes 11b rates. | Revised.  Agree with the commenter in principle.  TGbe editor: Please incorporate the proposed text change tagged with 16684 in this document. |

1. **Discussion**

The current rate selection for the EMLSR ICF is specified in 11be\_D3.2 as follows, and it requires an update of the REVme spec so the two documents are consistent.

%------Beginning of the 11be\_D3.2 spec excerpt ----

**35.3.17 Enhanced multi-link single radio operation**

When a non-AP MLD is operating in the EMLSR mode with an AP MLD supporting the EMLSR mode, the following applies:

a) The non-AP MLD shall be able to listen on the EMLSR link(s), by having its affiliated non-AP STA(s) corresponding to those links in the awake state. The listening operation includes CCA and receiving the initial Control frame of frame exchanges that are initiated by the AP MLD.

NOTE 2—A non-AP STA operating on one of the EMLSR links can change its power management mode and follows the procedure in 11.2 (Power management). A non-AP STA can listen on one of the EMLSR links in active mode or in PS mode when it is in the awake state.

b) On the EMLSR link(s), the group addressed frame(s) that are expected to be received by the non-AP MLD shall be buffered and delivered following the rules defined in 35.3.15 (Multi-link operation group addressed frames).

c) An AP affiliated with the AP MLD that initiates frame exchanges that are neither group addressed Data nor group addressed Management frames with the non-AP MLD on one of the EMLSR links shall begin the frame exchanges by transmitting the initial Control frame to the non- AP MLD with the limitations specified below.

• The initial Control frame of frame exchanges shall be sent in the non-HT PPDU or non-HT duplicate PPDU format using a rate of 6 Mb/s, 12 Mb/s, or 24 Mb/s.

• The non-AP MLD shall indicate (#17857)the EMLSR padding delay, which is the minimum MAC padding duration (#16680)of the initial Control frame, in the EMLSR Padding Delay sub- field of the EML Capabilities subfield in the Common Info field of the Basic Multi-Link element carried in a (Re)Association Request frame that it transmits.

%------End of 11be\_D3.2 spec excerpt -----

1. **Proposed resolution:**

***TGbe editor: Please change the 11REVme spec as shown below. The reference version is 11REme\_D3.0.***

**10.6.6.2 Rate selection for Control frames that initiate a TXOP**

This subclause describes the rate selection rules for Control frames that initiate a TXOP and that are either an S-MPDU or not carried in an A-MPDU.

If a Control frame, excluding an ICF used for the EMLSR operation , is carried in a non-HT PPDU, the transmitting STA shall transmit the frame using one of the rates in the BSSBasicRateSet parameter or a rate from the mandatory rate set of the attached PHY if the BSSBasicRateSet is empty. The rate selection for an ICF used for the EMLSR operation is specified in 35.3.17 (#16684).

NOTE—Because of their utility in resolving contention and in establishing a NAV, most control subtype frames that initiate a frame exchange sequence are subject to explicit limitations regarding the choice of transmission rate with the intent of ensuring maximum possible coverage and receivability of the frame.

An HT STA shall select an MCS from the Basic HT-MCS Set field of the HT Operation parameter of the MLME-START.request primitive or Basic HT-MCS Set field of the HT Operation parameter of the SelectedBSS parameter of the MLME-JOIN.request primitive when protection is required (as defined in 10.27 (Protection mechanisms)) and shall select an MCS from the SupportedMCSSet parameter of the intended receiver when protection is not required.

When transmitting a VHT PPDU, a STA shall select a <VHT-MCS, NSS> tuple from the basic VHT-MCS and NSS set when protection is required (as defined in 10.27 (Protection mechanisms)) and shall select a <VHT- MCS, NSS> tuple from the operational VHT-MCS and NSS set parameter of the intended receiver when protection is not required.

**References**

[1] IEEE P802.11be™/D3.2, Draft standard for information technology – Telecommunications and information exchange between systems local and metropolitan area networks – Specific requirements Part 11: Wireless LAN medium access control (MAC) and physical layer (PHY) specifications, Amendment 9: Enhancements for extremely high throughput (EHT)

Amendment 4: Enhancements for positioning

[2] IEEE P802.11REVme™/D3.0, Draft standard for information technology – Telecommunications and information exchange between systems local and metropolitan area networks – Specific requirements Part 11: Wireless LAN medium access control (MAC) and physical layer (PHY) specifications