IEEE P802.11
Wireless LANs

|  |
| --- |
| Comment resolutions SRS related CIDs |
| Date: 2023-01-15 |
| Author(s): |
| Name | Affiliation | Address | Phone | Email |
| George Cherian | Qualcomm Inc. | 5775 Morehouse Dr, San Diego, CA 92109 |  |  |
| Alfred Asterjadhi | Qualcomm Inc. |  |  |  |
| Abhishek Patil | Qualcomm Inc. |  |  |  |
| Duncan Ho | Qualcomm Inc. |  |  |  |
| Gaurang Naik | Qualcomm Inc. |  |  |  |
| Abdel Karim | Qualcomm Inc. |  |  |  |

Abstract

This submission proposes resolutions for multiple comments related to TGbe D2.0 with the following CIDs:

* 11578, 12386, 12428, 13002, 13398, 13399, 13673

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 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.***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 11578 | 35.3.16.5.2 | 456.51 | The sentence "A non-AP STA shall not transmit a TB PPDU carrying an MPDU with SRS Control subfield." seems to conflict with the sentence before. By a non-AP STA, does it mean a non-AP STA that is not affiliated with an non-AP MLD? | as in comment | RevisedAgree in principle. Added the clarification.TGbe editor to make changes shown in 11-22-2152r1 |
| 12386 | 35.3.16.5.2 | 457.22 | It would help to have an example with figure to understand the mechanism. | Provide an example with figure to illustrate the mechanism. |  RevisedAgree in principle. Added the figure.TGbe editor to make changes shown in 11-22-2152r1 |
| 12428 | 35.3.16.5.2 | 457.22 | If Multi-Link synced MU OFDMA transmission or multi-link synced P2P transmission is allowed, SRS is needed to maintain synced MU or P2P transmission sequences. If without SRS, transmission sync timing may be desynchronized and it may occur NSTR Interference. | As in comment |  RejectedFor the DL MU/OFDMA scenarios, AP can solicit aligned acknowledgments through the trigger frame, and hence can ensure that the timing is aligned.For UL OFDMA, again, AP can align the timing of control response frames if AP intends to continue the transmission sequence.11be does not allow multi link TDLS. Other P2P cases fall outside of IEEE spec. |
| 13002 | 35.3.16.5.2 | 456.41 | Please add an example / figure of frame exchange on using this signaling. | As in comment |  RevisedAgree in principle. Added the figure.TGbe editor to make changes shown in 11-22-2152r1 |
| 13398 | 35.3.16.5.2 | 457.05 | IT seems single PPDU type EHT MU PPDU should be used here. The reasons are following:1, the HE PPDU and EHT PPDU may give different calculated PPDU length. This two PPDY types make the implementation complicated.2, if HE PPDU is added here, the comment about adding VHT PPDU may be raised later. | Fix the issues mentioned in the comment |  RejectedThis was discussed during the draft development. Since the PPDU Response Duration is explicitly included the the SRS control, there should not be a timing alignment issue. Limiting to EHT MU PPDU only will be too restrictive |
| 13399 | 35.3.16.5.2 | 457.17 | issue 1, Ack as responding frame is missing.Issue 2, the responding BA bitmap may be less than the maximal BA bitmap size per the negotiated BA buffer size which should be disallowed here. | Fix the issues mentioned in the comment |  RejectedThis was discussed during the draft development. For the non-AP to control the PPDU duration of the control response, the group had decided to limit acknowledgement types to M-BA and C-BA |
| 13673 | 35.3.16.5.2 | 456.54 | The transmission is between an AP and a non-AP STA, and not to STA. | Change "STA" to "non-AP STA" |  RevisedAgree in principle. Added the clarification.TGbe editor to make changes shown in 11-22-2152r0 |

**35.3.16.5.2 End time alignment of response PPDUs using SRS Control field**

An AP that is affiliated with an AP MLD shall set the SRS Support subfield in the Common Info field of the Basic Multi-Link element it transmits to 1 if its dot11SRSOptionImplemented is true; otherwise the AP shall set it to 0.

A (#12242)non-AP STA affiliated with a non-AP MLD operating on a pair of NSTR links for that MLD shall not transmit a PPDU carrying an MPDU with SRS Control subfield to an AP unless a (#12242)non-AP STA affiliated with the non-AP MLD has received from the AP MLD a Basic Multi-Link element with the SRS Support subfield equal to 1. A STA affiliated with a non-AP MLD (#11578) shall not transmit a TB PPDU carrying an MPDU with SRS Control subfield.

An AP affiliated with an AP MLD shall not transmit a PPDU carrying an MPDU with SRS Control subfield to a STA affiliated with a non-AP MLD (#13673).

NOTE 5—If the received SRS Support subfield from an AP is equal to 0, a non-AP STA might not be able to perform multiple frame transmission in a TXOP over NSTR link pair(s) with the AP, unless the expected duration of solicited PPDU transmitted on NSTR link pair(s) are the same.

If STAs affiliated with a non-AP MLD operating on a pair of NSTR links simultaneously transmit PPDUs to the respective APs affiliated with an AP MLD that has dot11SRSOptionImplemented equal to true, the transmitted PPDUs solicit control response frames and the non-AP MLD intends to align the end times of the PPDUs sent in response by the peer APs, then at least one of the PPDUs soliciting a control response frame shall carry an MPDU with SRS Control subfield. The STA shall set the PPDU Response Duration subfield of the SRS Control subfield to a value that is equal to or longer than the maximum of the expected duration of the response PPDUs on all links, where the expected duration of the response PPDU is calculated based on the following parameters:

* PPDU format that is HE SU PPDU, or an EHT MU PPDU with EHT-SIG MCS equals 0 and addressed to a single STA,
* Bandwidth that is equal to the bandwidth of the soliciting PPDU, with BCC coding if the bandwidth is 20 MHz and LDPC coding if the bandwidth is greater than 20 MHz,
* NSS and number of LTFs that are equal to one,
* GI that is equal to the longest mandatory GI value (3.2 µs),
* MCS that is selected following the rate selection rules defined in 10.6.6.5 (Rate selection for control response frames), 26.17.1 (Basic HE BSS operation), 26.15.3 (MCS, NSS, BW and DCM selection),

[35.15 (EHT BSS operation)](#bookmark140), and [35.14 (PPDU format, BW, MCS, NSS, and DCM selection rules)](#bookmark138),

* A PSDU length that is equal to or greater than the length of a PSDU that contains the larger of a Multi-STA BlockAck frame and a Compressed BlockAck frame expected in response to the soliciting PPDU.



Figure 35-xx — An example of SRS Control based timing alignment of the PPDUs carrying control response from AP (#12386, #13002)

An EHT AP affiliated with an AP MLD that transmits a PPDU in response to a frame containing an SRS Control subfield shall:

* Have the duration of the PPDU to be equal to the duration that is specified in the PPDU Response Duration subfield of the soliciting SRS Control subfield.
* Use a non-HT (duplicated) PPDU, or an HE SU PPDU, or an EHT MU PPDU format addressed to a single STA. If the PSDU carried in the response PPDU contains an A-MPDU then the contents of the A-MPDU shall be as defined in Table 9-533 (A-MPDU contents in the control response context). If the PPDU is an HE SU PPDU then it shall not use DCM encoding

NOTE 6—If the PPDU carrying the response is an HE SU PPDU or an EHT MU PPDU addressed to one non-AP STA, then the AP might use any type of padding to ensure that the duration of the PPDU is equal to the duration that is specified in the PPDU Response Duration subfield of the soliciting SRS Control subfield.