IEEE P802.11
Wireless LANs

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| Resolution for Miscellaneous CIDs related to Clause 35.3.19 (CC36) |
| Date: April 4, 2022 |
| Author(s): |
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 Abstract

This submission proposes resolutions for following comments received for TGbe CC36:

4208, 4209, 5614, 5850, 7621, 5704, 5705, 5706, 5108, 5225, 5269, 5270, 8212, 5700

Revisions:

* Rev 0: Initial version of the document.

***TGbe editor: Please note Baseline is REVmd D8.0, 11ax D8.0, and 11be D1.5***

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.***

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| **CID** | **Commenter** | **Clause**  | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 4208 | Alfred Asterjadhi | 35.3.17.1 | 284.11 | If they are mandatory features then they are required to be supported. Easiest thing is to call out those that are not required to be supported. E.g. shall support all AP features (or smth like this) except for the following: | As in comment. | RevisedAgree with the commenter in principle. Explicitly call out the mandatory features for a regular AP MLD but are not mandatorily required to be supported by a mobile AP MLD.TGbe editor to make the changes shown in doc 22/540r0. |
| 4209 | Alfred Asterjadhi | 35.3.17.1 | 284.11 | Given that EHT MU PPDU format is mandatory in both DL and UL this statement may be misleading. Please clarify what optional support for MU operation means here. | As in comment. | RevisedAgree with the commenter in principle. Explicitly call out the mandatory features for a regular AP MLD but are not mandatorily required to be supported by a mobile AP MLD.TGbe editor to make the changes shown in doc 22/540r0. |
| 5614 | John Wullert | 35.3.17.1 | 284.27 | This section specifies requirements that apply to a "NSTR soft AP MLD", but that element is not defined. The opening sentence indicates that an NSTR soft AP MLD has a specific parameter set, but provides no indication of the conditions under which that parameter should be set. It follows with a set of "restrictions" that would apply to the device, but the first two describe behaviors or consequences of being a NSTR soft AP MLD rather than restrictions, the third is a generality and the last is a characteristic of all AP MLDs. | As in the comment. | RevisedAgree with the commenter in principle. Explicitly call out the mandatory features for a regular AP MLD but arenot mandatorily required to be supported by a mobile AP MLD.TGbe editor to make the changes shown in doc 22/540r0. |
| 5850 | Lei Wang | 35.3.17.1 | 284.06 | Section 35.3.17 is all about NSTR Soft AP MLD. Then, have some questions: how about STR Soft AP MLD? Is it allowed in EHT? If so, are there special rules for it comparing to regular AP MLD, e.g., different requirements for supported spatial streams? | Please clarify if there are STR Soft AP MLDs and the corresponding rules if any. | RejectedSTR mobile AP MLD is not covered in the current IEEE 802.11be spec. |
| 7621 | Tomoko Adachi | 35.3.17.1 | 284.14 | "Each AP affiliated with a soft AP MLD is not required to support all the EHT AP mandatory features" The features that the soft AP MLD does not support should be explicitly stated. | Change the cited text to read "Each AP affiliated with an NSTR soft AP MLD is not required to support the following EHT AP mandatory features:" and add missing exceptions if any after the two sub-bullets. | RevisedAgree with the commenter in principle. Explicitly call out the mandatory features for a regular AP MLD but are not mandatorily required to be supported by a mobile AP MLD.TGbe editor to make the changes shown in doc 22/540r0. |

***TGbe editor: Please modify the following subclause 35.3.19.1 as follows:***

**35.3.19 NSTR mobile AP MLD operation**

**35.3.19.1 General**

(#5386) (#4207) An NSTR mobile AP MLD shall be an AP MLD which sets (#5386)(#4206)dot11EHTNSTRMobileAPMLDImplemented to true.

If dot11EHTBaseLineFeaturesImplementedOnly is equal to true, an NSTR mobile AP MLD shall have one NSTR pair of links and shall follow with the restrictions below:

* (#4208)(#4209)(#5614)(#7621)Each AP affiliated with an NSTR mobile AP MLD may optionally support the following features in addition to the optional features supported by a regular AP

• (#5386)Support of DL and UL OFDMA operation

•(#5386)Support of two or more spatial streams (#4212)(#5268)

• Support for 160 MHz operating channel width in the 6 GHz band

 —(#5386)The NSTR mobile AP MLD is in a mobile device that is typically battery powered

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| **CID** | **Commenter** | **Clause**  | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 5108 | Geonjung Ko | 35.3.17.1 | 284.34 | Start time sync is only defined for an MLD operating on a NSTR link pair. So a non-AP MLD operating on a STR link pair has difficulty to use the nonprimary link. | Extend start time sync for an MLD operating on a STR link pair. | RevisedAgree with the commenter in principle.TGbe editor to make the changes shown in doc 22/540r0. |
| 5705 | Kaiying Lu | 35.3.17.1 | 284.06 | Channel access mechanism in an NSTR soft AP MLO needs to be clarified | As in comment | RevisedAgree with the commenter in principle.TGbe editor to make the changes shown in doc 22/540r0. |
| 5225 | Huizhao Wang | 35.3.17.1 | 284.28 | Shall NSTR soft AP MLD observe PPDU end time alignment requirement as well? | If NSTR soft AP MLD is capable to transmit PPDUs on both links, then PPDU end time aligment requriement shall apply, otherwise, please clearly specify that it can only transmit PPDU on one link at a time. | RevisedAgree with the commenter in principle.TGbe editor to make the changes shown in doc 22/540r0. |
| 5269 | Insun Jang | 35.3.17.1 | 284.27 | Regarding the transmission, what about TID-to-link mapping negotiation for soft AP MLD? That should be default mapping because there are restricrtions, i.e., the transmission on nonprimary link is possbile only when happened on primary link | As in the comment. | RevisedAgree with the commenter in principle.TGbe editor to make the changes shown in doc 22/540r0. |
| 5270 | Insun Jang | 35.3.17.1 | 284.08 | Throughout this subcluase, please change "soft AP MLD" to "NSTR soft AP MLD" | As in comment | RevisedAgree with the commenter in principle. “NSTR Mobile AP MLD” has been accepted to replace “NSTR Soft AP MLD” in doc 11-21/1180r2 (https://mentor.ieee.org/802.11/dcn/21/11-21-1180-02-00be-cc36-cr-for-5386.docx) tagged as 5386. |
| 5704 | Kaiying Lu | 35.3.17.1 | 284.06 | Medium sync recovery mechanism for NSTR soft AP MLD needs to be clarified | As in comment | RevisedAgree with the commenter in principle. Medium Sync recovery for NSTR mobile AP MLD has been resolved in doc 11-22/1825r3 tagged as #4836. |
| 5706 | Kaiying Lu | 35.3.17.1 | 284.06 | Define error recovery mechanism for NSTR soft AP MLO | As in comment | RevisedAgree with the commenter in principle.TGbe editor to make the changes shown in doc 22/540r0. |
| 8212 | Yunbo Li | 35.3.17.1 | 284.08 | How to obtain a TXOP in ML for NSTR Soft AP MLD or an STA MLD associated with the NSTR Soft AP MLD is not specified. E.g. when soft AP MLD initiate the transmission on primary link and nonprimary link, but the response on primary link doesn't received, whether soft AP MLD should continue the transmission on non-primary link. | Provide the according rules to make the channel access procedure complete for soft AP MLD and associated STA MLD. | RevisedAgree with the commenter in principle.TGbe editor to make the changes shown in doc 22/540r0. |

***TGbe editor: Please modify the following subclause 35.3.19.1 as follows:***

**35.3.19 NSTR mobile AP MLD operation**

**35.3.19.1 General**

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STAs affiliated with a non-AP MLD supporting STR or NSTR operation (#5108) (#5705) that is associated with an NSTR mobile AP MLD and APs affiliated with an NSTR mobile AP MLD shall follow the procedure defined in 35.3.16.6 (Start time sync PPDUs medium access) when intending to transmit in the nonprimary link with the following additional constraints: (#4211)

* A STA affiliated with the non-AP MLD may initiate a PPDU transmission to its associated AP affiliated with the NSTR mobile AP MLD in the nonprimary link only if the (#7425) other STA affiliated with the same MLD in the primary link is also initiating the PPDU as a TXOP holder with the same start time.
* An AP affiliated with the NSTR mobile AP MLD may initiate a PPDU transmission to its associated non-AP STA in the nonprimary link only if the (#7426) other AP affiliated with the same NSTR mobile AP MLD in the primary link is also initiating the PPDU as a TXOP holder with the same start time.

(#5225) (#5705) APs affiliated with an NSTR mobile AP MLD simultaneously transmitting PPDUs to the respective STAs affiliated with an NSTR non-AP MLD shall follow the procedure to align the end time of PPDUs as defined for an AP MLD in 35.3.16.5 (PPDU end time alignment).

(#5225) (#5705) STAs affiliated with a non-AP MLD supporting STR or NSTR operation simultaneously transmitting PPDUs to the respective APs affiliated with an NSTR mobile AP MLD shall follow the procedure to align the end time of PPDUs as defined for an AP MLD in 35.3.16.5 (PPDU end time alignment).

(#5225) (#5705) An AP that is affiliated with an NSTR mobile AP MLD shall set the SRS Support subfield in the Common Info field of the Basic Multi-Link element it transmits to 1 to indicate support for the generation and reception of a frame that carries an SRS Control sub-field if its dot11SRSOptionImplemented is true; otherwise, the AP shall set it to 0.

(#5225) (#5705) A STA affiliated with a non-AP MLD that is associated with an NSTR mobile AP MLD shall set the SRS Support subfield in the Common Info field of the Basic Multi-Link element it transmits to 1 to indicate support for the generation and reception of a frame that carries an SRS Control sub-field if its dot11SRSOptionImplemented is true; otherwise, the STA shall set it to 0.

(#5225) (#5705) When intending to align the end times of the PPDUs sent in response by the peer STAs affiliated with an MLD from which the received SRS Support subfield is equal to 1, at least one of the PPDUs soliciting a control response frame shall carry an MPDU with SRS Control subfield following the procedure defined in 35.3.16.5.2 (End time alignment of response PPDUs using SRC Control field).

(#8212)When a PPDU transmission failed to obtain a TXOP or within a TXOP in the primary link, the TXOP obtained in the non-primary link shall be terminated at the end of the immediate response for the most recently transmitted frame in the non-primary link that requires an immediate response after a SIFS or at the end of the most recently transmitted frame in the non-primary link that does not require an immediate response after a SIFS.

(#5706) When a PPDU transmission failed within a TXOP in the primary link, PIFS recovery procedure shall not be performed within the TXOP in the primary link if there is a TXOP in the non-primary link. When a PPDU transmission failed within a TXOP in the non-primary link, the TXOP shall be terminated immediately.

(#5269) At any point in time, a TID shall always be mapped to at least the primary link of an NSTR link pair both in DL and UL. A TID-to-link mapping change is only valid and successful if it will not result in having a single TID for which the link set is made of non-primary link only.

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| **CID** | **Commenter** | **Clause**  | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 5700 | Kaiying Lu | 35.3.17.1 | 284.06 | Power save mechanism for non-AP MLD associated with NSTR soft AP MLD need to be clarified | As in comment | RejectThe group does not reach consensus.  |