IEEE P802.11
Wireless LANs

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| LB275 CR for EHT MU Operation |
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 Abstract

This submission proposes resolutions for following 6 CIDs received for TGbe LB275:

19629 19529 19336 19337 19335 19890

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.***

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| **CID** | **Commenter** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 19629 | Yanjun Sun | 35.5.1.1 | 583.29 | "MRU" is missing. Please replace "RU" with "RU or MRU". | As in comment | Accepted. |
| 19529 | Sigurd Schelstraete | 35.5.1.1 | 583.31 | "EHT MU PPDU with an RU that is narrower than the PPDU bandwidth and that is allocated to more than one STA (DL MU-MIMO)". This should be more accurately referred to as "DL MU-MIMO within OFDMA". Compare with e.g. P655L63. | Change "(DL MU-MIMO)" to "(DL MU-MIMO within OFDMA)" | Accepted. |
| 19336 | Brian Hart | 35.5.2.3.3 | 589.20 | This para including the bullets relies on 3 entites: the TRS in the eliciting frame, the PPDU containing that frame, and the EHT TB response. However, the introductory lines L20-21 only mention two of these and so we have various article weirdnesses in the bullets (P589L33,P590L1 "\*the\* EHT MU PPDU ..."; L39/42 "the soliciting EHT PPDU" ) | 1) In the lines at L20-21, also introduce the term soliciting EHT PPDU: try "A non-AP STA transmitting an EHT TB PPDU in response to a soliciting EHT PPDU carrying a frame containing a TRS Control subfield shall set the TXVECTOR parameters as follows:" Later in the bullets we can then talk about "the soliciting PPDU" without needing to refer to "carrying the ... TRS Ctrl subfield" etc (check/revise reference to "PPDU" in the bullets x5) | Revised.Agree in principle with the comment.TGbe Editor:Please implement the changes in this document tagged as #19336 |
| 19337 | Brian Hart | 35.5.2.3.3 | 589.33 | The bullets under this para are mutually inconsistent. L23 as a rule \*if\* the soliciting PPDU is EHT\_MU but P589L33 and P590L1 presume that the soliciting PPDU is EHT\_MU. Also L39/L42 need it to be an EHT PPDU. So what must the PPDU be? Apparently EHT, but maybe/maybe not MU? | Rewrite P589L33 and P590L1 to allow for the case when the soliciting PPDU is not MU | Rejected.The soliciting PPDU is always EHT MU PPDU, and can not be other PPDU type, e.g., EHT TB PPDU. |
| 19335 | Brian Hart | 35.5.2.3.3 | 589.37 | Typo: "CH\_BANDWITDTH" | Try "CH\_BANDWIDTH" | Accepted. |
| 19890 | RUI YANG | 9.2.4.7.1 | 141.51 | The sentence "When carried in an EHT MU PPDU, the UL MCS subfield indicates the EHT-MCS to be used by the receiving STA for the EHT TB PPDU, and ..., it is set to 3 for EHT-MCS 15" implies that EHT-MCS 15 can be indicated in EHT TB PPDU for UL MU-MIMO. However, in Page 192, L60, it says that "EHT-MCS 15 cannot be indicated in the UL EHT-MCSsubfield for UL MU-MIMO." It appears that two sentences are not consistent to each other. | Add a NOTE after Line 53 to indicate the situations that EHT-MCS 15 cannot be used. | Revised.Agree in principle with the comment. Modifications are made in Clause 35.TGbe Editor:Please implement the changes in this document tagged as #19890 and #fix |

**35.5 MU operation
35.5.1 EHT DL MU operation
35.5.1.1 General**

When transmitting or receiving an EHT MU PPDU, the rules defined in 26.5.1.1 (General), 26.5.1.2 (RU addressing in an HE MU PPDU), and 26.5.1.3a (Minimum RU allocation in an HE MU PPDU) that apply to an HE MU PPDU shall also apply to the EHT MU PPDU. In cases where a rule in 26.5.1.1 (General), 26.5.1.2 (RU addressing in an HE MU PPDU) or 26.5.1.3a (Minimum RU allocation in an HE MU PPDU) refers to RUs in an HE MU PPDU, the rule also applies to RUs and MRUs in an EHT MU PPDU.

An EHT AP shall not transmit an EHT MU PPDU with an RU that is narrower than the PPDU bandwidth and that is allocated to more than one STA (DL MU-MIMO) unless the AP has received from each STA an EHT Capabilities element with the Partial Bandwidth DL MU-MIMO subfield in the EHT PHY Capabilities Information field equal to 1.

**35.5.2.3.3 TXVECTOR parameters for EHT TB PPDU response to TRS Control subfield**

TGbe Editor: please update the subclause as follows:

A non-AP STA transmitting an EHT TB PPDU in response to (#19336)a soliciting EHT PPDU carrying a frame containing a TRS Control subfield shall set the TXVECTOR parameters as follows:
— The FORMAT parameter is set to EHT\_TB if the RXVECTOR parameter FORMAT of the (#19336)soliciting PPDU is equal to EHT\_MU.
— The TRIGGER\_METHOD parameter is set to TRS.
— The L\_LENGTH parameter is computed as described in Equation (27-11) with using the
TXTIME value. The TXTIME is defined by Equation (36-110) where *NSYM* is set to *FVAL* + 1, where
*FVAL* is the value of the UL Data Symbols subfield of the TRS Control subfield.
— The RU\_ALLOCATION parameter is set to the value indicated by the RU Allocation subfield of the
TRS Control subfield and a PS160 subfield which is determined based on the RU allocation in the
(#19336)soliciting PPDU according to Table 35-2 (PS160 subfield for RU allocation in EHT TRS).
— The MCS parameter is set to the value of the UL MCS subfield of the TRS Control subfield.
— The CH\_BANDWITDTH parameter is set to the value of the RXVECTOR parameter
CH\_BANDWIDTH of the soliciting (#19336)PPDU (see Table 36-1 (TXVECTOR and RXVECTOR
parameters)).
— The BSS\_COLOR parameter is set to the values of the RXVECTOR parameter BSS\_COLOR of the
soliciting (#19336)PPDU.
— The NUM\_EHT\_LTF parameter is set to 1.
— The STARTING\_STS\_NUM parameter is set to 0.
— The NUM\_STS parameter is set to 1.
— The FEC\_CODING parameter is set to BCC\_CODING if the RU Allocation subfield indicates an
RU or MRU that is smaller than a 484-tone RU; otherwise, it is set to LDPC\_CODING.
— The LDPC\_EXTRA\_SYMBOL parameter is set to 0 if the RU Allocation subfield indicates an RU
or MRU that is smaller than a 484-tone RU; otherwise, it is set to 1.
— The SPATIAL\_REUSE parameter is set to PSR\_AND\_NON\_SRG\_OBSS\_PD\_PROHIBITED.
— If the received EHT Default PE Duration subfield of the EHT Operation Parameters field in the EHT
Operation element transmitted by the AP with which the non-AP STA is associated is set to 0, the
DEFAULT\_PE\_DURATION parameter is set to the default PE duration value indicated by the AP
in the Default PE Duration subfield of the HE Operation element it transmits; Otherwise, the
DEFAULT\_PE\_DURATION parameter is set to 20 µs.
— The TXOP\_DURATION parameter is set as defined in 26.11.5 (TXOP\_DURATION).
— All U-SIG Disregarded and Validate bits are set to 1.
— If the RXVECTOR parameters EHT\_LTF\_TYPE and GI\_TYPE of the (#19336)soliciting PPDU are either 4× EHT-LTF and 3u2s\_GI, respectively, or
2× EHT-LTF and 1u6s\_GI, respectively, then the EHT\_LTF\_TYPE and GI\_TYPE parameters are
set to 4× EHT-LTF and 3u2s\_GI, respectively. Otherwise, the EHT\_LTF\_TYPE and GI\_TYPE
parameters are set to 2× EHT-LTF and 1u6s\_GI, respectively.
— The TXPWR\_LEVEL\_INDEX parameter is set to a value based on the computed transmission
power (see 36.3.16.2 (Power pre-correction)) for an EHT TB PPDU, the value of the AP Tx Power
subfield of the TRS Control subfield and the UL Target Receive Power subfield of the TRS Control
subfield.

**35.5.2 EHT UL MU operation**

**35.5.2.1 General**

TGbe Editor: please update the 7th paragraph of this subclause as follows:

……

An EHT AP shall not set the UL EHT-MCS subfield of an EHT variant User Info field to 15 in a transmitted Trigger frame if the RU (#fix)or MRU assigned by that User Info field is used for UL MU MIMO transmission. (#19890)An EHT AP shall not set the UL MCS subfield of the TRS Control subfield carried in an EHT MU PPDU to 3 if the RU or MRU assigned by the TRS Control subfield is used for UL MU MIMO transmission.