IEEE P802.11  
Wireless LANs

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| **TGbe D0.4 Comment Resolutions**  **for simultaneous trnamist and receive (STR) operation** |
| **Date:** 2021-03-24 |

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Abstract

This submission proposes resolutions for multiple comments on TGbe D0.4 regarding simultaneous trnamist and receive (STR) operation with the following CIDs (14 **CIDs**):

* 1083, 1175, 1215, 1433, 1660, 1698, 1699, 1794, 1821, 2116, 2138, 2553, 2748, 3409

Revisions:

- Rev 0: Initial version of the document.

- Rev 1: Editorial change from “corresponding” to “same” in the first subbullet of the first paragraph in 35.3.13.2 based on offline feedfback

- Rev 2: Modified the list of authors

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 0.4. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe Draft 0.4 (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.***

**- Definition of STR link pair (4 CIDs)**

- 1660, 1821, 2116, 3409

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| **CID** | **P. L** | **Comment** | **Proposed Change** | **Resolution** |
| 1660 | 0.00 | Add definitions for Simultaneous transmit and receive link pair | As in the comment | Revised  Agree in principle with the commenter. The definition of STR link pair was added in Clause 3.2.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 1660** |
| 1821 | 29.21 | Simultaneous transmit and receicve (STR) term is videly used, but it is not defined. | Please add definition for STR. | Revised  Agree in principle with the commenter. The definition of STR link pair was added in Clause 3.2.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 1821** |
| 2116 | 0.00 | add definition for STR link pair | as in comment | Revised  Agree in principle with the commenter. The definition of STR link pair was added in Clause 3.2.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 2116** |
| 3409 | 29.22 | The simultaneous transmission and receive (STR) is used in the draft spec, but there is no definition for STR. | A pair of links for which a STA of an MLD has indicated an simultaneous transmit and receive relationship as defined in 35.3.13.2 (Simultaneous transmit and receive (STR) operation). Each link of such a pair is a member of the STR link pair | Revised  Agree in principle with the commenter. The definition of STR link pair was added in Clause 3.2.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 3409** |

**- STR Operation (3 CIDs)**

- 1215, 1433, 2748

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| **CID** | **P. L** | **Comment** | **Proposed Change** | **Resolution** |
| 1215 | 141.29 | Rephrse the sentence for better understanding and unified terminology | Consider rephrasing as follows: "A STA that is affiliated with an MLD capable of STR over a pair of links and that is operating on a link in that pair of links may contend for access to WM or transmit a frame to a STA affiliated with another MLD on that link, where the latter MLD is capable of STR over that pair of links, regardless of any activity occurring on the other link within that pair of links" | Revised  Agree in principle with the commenter. The sentence was revised with the addition of the STR link pair (which was defined in Clause 3.2) and the conditions of receiving STA.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 1215** |
| 1433 | 141.30 | "...or transmit a frame to an STA of another MLD capable of STR". The frame's destimation should not limit to an MLD capable of STA. Any STA is possble. | change to "or transmit to an STA" | Revised  Agree in principle with the commenter. The sentence was revised with the addition of the STR link pair (which was defined in Clause 3.2) and the conditions of receiving STA.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 1433** |
| 2748 | 141.30 | The STR capability is independent of whether the receiving STA is an MLD or not. | Change "transmit a frame to an STA of another MLD" to "transmit a frame to a STA" | Revised  Agree in principle with the commenter. The sentence was revised with the addition of the STR link pair (which was defined in Clause 3.2) and the conditions of receiving STA.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 2748** |

**- STR Capability (4 CIDs)**

- 1698, 1699, 1794, 1083

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| **CID** | **P. L** | **Comment** | **Proposed Change** | **Resolution** |
| 1698 | 141.29 | Add a sentence which states: "All APs affiliated with a regular AP MLD shall be capable of STR operation among all pairs of links" | As in the comment | Revised  Agree in principle with the commenter. A sentence regarding the STR capability of a regular AP MLD was added in terms of STR link pair.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 1698** |
| 1699 | 141.34 | "An MLD shall announce whether the MLD is capable of STR over a pair of links as defined in 35.3.13.4 (Capability signaling)."  Change it to:  "A non-AP MLD shall announce whether the MLD is capable of STR over a pair of links as defined in 35.3.13.4 (Capability signaling)." | As in the comment | Revised  Agree in principle with the commenter. The sentence was revised in terms of non-AP MLD only.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 1699** |
| 1794 | 141.34 | Based on the current agreements (including SFD) we've agreed with that a regular AP MLD shall be operates as STR except for the case of a soft AP MLD. Therefore, such AP MLD doesn't need to announce STR capability. However, since the current text means all MLDs shall announce STR capablity, the text should be clairified | Please clarify the text regarding STR capability according to the comment. | Revised  Agree in principle with the commenter.  The sentence was revised in terms of non-AP MLD only. Moreover, a sentence regarding the STR capability of a regular AP MLD was added in terms of STR link pair.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 1794** |
| 1083 | 141.39 | STR operation over a pair of MLD links are describe, text doesn't call out in the draft which bands are supported (mandatory / optional) on the client side 2.4 GHz, 5 GHz, 6 GHz. | Add text stating which freqency bands are supported mandatory or optional | Revised  Agree in principle with the commenter. The subclause 35.3.13.4 (Capability signaling) is mentioning a condition that a link pair where one of the STAs in the link pair operates in the 2.4 GHz band and the other STA operates in the 5 GHz or 6 GHz band shall be an STR link pair. Therefore, the revised text refers to the subcluase.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 1083** |

**- Regarding Figure 35-5 (3 CIDs)**

- 2138, 2553, 1175

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| **CID** | **P. L** | **Comment** | **Proposed Change** | **Resolution** |
| 2138 | 0.00 | editorial: contenting should be contending | as in comment | Accepted  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 2138** |
| 2553 | 141.56 | "operating as STR" is non-sensical | Change title to "STR operation by two MLDs on a pair of links" | Revised  Agree in principle with the commenter. The revised spec, provides the definition of STR link pair. Therefore, using the definition, the title of Figure was changed to make it clear  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 2553** |
| 1175 | 141.42 | The transmission / reception operations on the links can occur only if the setup links are enabled (i.e has at least on TID mapped to each fo these links) | Revise the sentence as follows: " After the AP MLD  has set up link 1 and link 2 with the non-AP MLD, then AP 2 may receive data frames from STA 2 on link 2, if enabled, while AP 1 contends for the WM and then transmits data frames to STA 1 on link 1, if enabled. | Revised  Agree in principle with the commenter. Similar changes are applied to the sentence.  **TGbe editor, please make changes as shown in doc 11-21/498r2 tagged as CID 1175** |

**Propose:**

***TGbe editor: Please note that the baseline is D0.4***

***TGbe editor: Please add a new definition in an appropriate location within subclause 3.2 Definitions specific to IEEE 802.11, as follows:***

3.2 Definitions specific to IEEE 802.11

***TGbe editor: Please insert the following definition maintaining alphabetical order:***

**Simultaneous transmit and receive (STR) link pair**: A pair of links for which a STA affiliated with an MLD has indicated simultaneous transmit and receive relationship as defined in 35.3.13.2 (Simultaneous transmit and receive (STR) operation). Each link of such a pair is a member of the STR link pair. (#1660, 1821, 2116, 3409)

***TGbe editor: Please modify the subclause 35.3.13.2 (Simultaneous transmit and receive (STR) operation), as follows:***

35.3.13.2 Simultaneous transmit and receive (STR) operation

When a pair of links on which an MLD operates is an STR link pair, a STA that is affiliated with the MLD and that is operating on a link in that STR link pair may contend for access to WM or transmit a frame to a receiving STA on that link regardless of any activity occurring on the other link within that STR link pair, if the receiving STA is

- A STA that is affiliated with another MLD that operates on the same pair of links which is also the STR link pair.

- A STA which is not affiliated with an MLD. (#1215, 1433, 2748)

All pairs of links where an AP MLD which is not a soft AP MLD operates shall be STR link pairs. (#1698, 1794)

A non-AP MLD shall announce whether each pair of links where the MLD operates is the STR link pair or the NSTR link pair if there exists at least one NSTR link pair as defined in 35.3.13.4 (Capability signaling). (#1699, 1794, 1083)

***TGbe editor: Please change the tile of Figure 35-5 from “Channel access of two MLDs operating as STR over a pair of links” to “Channel access of two MLDs over an STR link pair”.***

Figure 35-5 (Channel access of two MLDs over an STR link pair) shows an example of an AP MLD and a non-AP MLD that are operating over an STR link pair and that are contending (#2138) for access to the WM and subsequent frame exchanges between two MLDs on those links. After the AP MLD has set up link 1 and link 2 with the non-AP MLD and the links are enabled, then AP 2 may receive data frames from STA 2 on link 2, while AP 1 contends for the WM and then transmits data frames to STA 1 on link 1. (#2553, 1175)