IEEE P802.11  
Wireless LANs

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| Submission  CR 35.3.14.3 NSTR operation | | | | |
| Date: 2021-09-21 | | | | |
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Abstract

This submission proposes resolutions to TGbe CC36 CIDs as listed:

4216 4217 4218 4219 4221 4222 4223 4473 4726 4752 4826 4827 4828 4829 5672 5841 5993 6310 6311 6494 6559 6737 6854 6956 6957 6958 6994 6995 7606 7784 7785 7786 7823 8042 8204 8205 8344 8345 8346

These CIDs are related to the subject of NSTR operation

Revisions:

* R0: Initial version of the document.
* R1:
  + CID 4223 resolution changed from reject to revise and proposing some text modification
  + CID 4473 changed resolution from a global modification to a local one because of the question of whether the global change works and the presence of other comments that address other similar instances of this problem
  + CID 4713 removed from the document to be transferred to another member
  + CID 5926 removed from the document to be transferred to another member
  + CID 6310, 6311 – changed resolution to be similar to CID 4473
  + CID 6420 removed from the document to be transferred to another member
  + CID 6854 slight modification to the wording of the proposed resolution
  + CID 6896 removed from the document to be transferred to another member
* R2:
  + CID 7872 removed from the document to be transferred to another member
* R3:
  + CID 7606 change “N” to “n” in proposed text changes
* R4:
  + CID 7606 modest modifications to proposed text changes, and correct the doc reference from 1258 to 1259
  + CID 6958 correct the doc reference in the proposed resolution from 1258 to 1259
* R5:
  + CID 7606 changes to proposed text changes
    - In the definition of NSTR interference, removed the word “potentially” from the description of the effect of the interference
    - Added a new NOTE to the definition of an NSTR link pair
    - Removed some redundant text at the end of the second to last sentence within the PPDU end time alignment subclause changes
    - Updated from D1.1 to D1.2

***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.***

**CIDs**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution (Proposed)** |
| 4216 | Alfred Asterjadhi | 35.3.14.3 | 275.01 | Gain the right? Do you mean has obtained a TXOP? Or is contending to obtain a TXOP? Please clarify. | As in comment. | Reject – the STA has not obtained a TXOP, because it has not yet actually transmitted anything on the medium and the STA is no longer contending to obtain a TXOP, as it has completed that contention and is abot to transmit on the medium. Note that the baseline language in 10.23.2.4 (Obtaining an EDCA TXOP) indicates that at some point in time a STA that has completed a backoff count may perform exactly one of several actions, one of those actions being to “initiate the transmission of a frame exchange sequence”. The commenter should note that this exact language has been used in the text of 35.3.14.3 which has been cited by the commenter, so the original authors of the draft amendment did in fact find the language that most closely relates the event of importance from the baseline to the new behavior. |
| 4217 | Alfred Asterjadhi | 35.3.14.3 | 275.01 | This portion is redundant and also not clear "and lack of availability of an alternative frame in the queue that would not cause such interference. I would guess that interference does not depend on the type of frame. Or is this referring to the fact that certain PPDUs (short) cause less interference compared to longer ones? | As in comment. | Revise – TGbe editor to change the phrase “cause such interference” to “introduce the opportunity for such interference” – in the cited paragraph and in the following paragraph as well, that is, P313 L10 and P313 L17 of D1.1  The commenter should note that the cited paragraph refers to an AP TX queue, in which case, the interference might affect reception of the frame at the head of the TX queue because it is targeted to an NSTR non-AP MLD that is transmitting on a different link. However, a different frame in the same TX queue at the same AP but which is targeted to a different non-AP STA might not be subject to such interference because the second targeted STA is either not NSTR or is not transmitting on an NSTR link that would cause such interference. |
| 4218 | Alfred Asterjadhi | 35.3.14.3 | 275.08 | This paragraph can be merged with th eprevious one. Just say a STA of an MLD. | As in comment. | Reject – the commenter, in a separate comment complains of the lack of clarity of meaning in the first paragraph and then proposes to reduce the clarity even further by combining the paragraphs which reduces the language further which does not sound like a good idea and is rathe self-contradictory. |
| 4219 | Alfred Asterjadhi | 35.3.14.3 | 275.15 | TXOPs are obtained rather than gained. Please replace accordingly. Also, above it states one reason rather than "Reasons": And replace AP or non-AP STA with STA. | As in comment. | Revise – Tgbe editor shall change “that gains a TXOP through” to “that has gained the right to initiate transmission of a frame as described in” at P313 L20 of D1.1 |
| 4221 | Alfred Asterjadhi | 35.3.14.3 | 275.21 | Very long sentence, which makes it difficult to understand. Please expand it a little bit more. | As in comment. | Reject – the sentence follows a logical and time-ordered flow which is unambiguous. The resolution committee welcomes suggestions for improved language, but absent such a proposal, elects to not make a change. |
| 4222 | Alfred Asterjadhi | 35.3.14.3 | 275.29 | Different ways of referring to the same thing, link of a link pair, link that is a member of link pair. Suggest to use the same terminology throughout. | As in comment. | Revise – Tgbe editor shall change “in another link of any of those NSTR link pairs” to “on a link that is a member of any of those NSTR link pairs” at P313 L36 of D1.1 |
| 4223 | Alfred Asterjadhi | 35.3.14.3 | 275.30 | Is the non-AP MLD expected to be receiving the group addressed BUs or the other STA afiliated with the same MLD? Use the same terminology consistently throughout. | As in comment. | Revise – Tgbe editor shall change  “the non-AP MLD is expected to be receiving”  To  “any of the other STA(s) affiliated with the non-AP MLD is expected to be receiving” at P313 L37 |
| 4473 | Arik Klein | 35.3.14.3 | 275.11 | Use unified terminology of non-AP STA affiliated with AP MLD rather than STA within MLD, as in the sentence:"... due to expected NSTR based interference at another STA \*within the MLD\* and lack of availability of an alternative frame..." | Revise the sentence as follows:"... due to expected NSTR based interference at another STA \*affiliated with the same MLD\* and lack of availability of an alternative frame..." | Revise – TGbe editor shall change “of an MLD” to “affiliated with an MLD” at P3131 L6 and L13 in D1.1 |
| 4726 | Chittabrata Ghosh | 35.3.14.3 | 275.06 | Please clarify that the intended recipient (underlined) is of the same MLD in the sentence: "An AP of an MLD that has gained the right to initiate transmission of a frame of an AC on a link through the rules for EDCA backoff in 10.23.2.4 (Obtaining an EDCA TXOP) may elect to not transmit any frame from the transmission queue for that AC due to expected NSTR based interference at the intended recipient and lack of availability of an alternative frame in the queue that would not cause such interference." | Please replace "An AP of an MLD that has gained the right to initiate transmission of a frame of an AC on a link through the rules for EDCA backoff in 10.23.2.4 (Obtaining an EDCA TXOP) may elect to not transmit any frame from the transmission queue for that AC due to expected NSTR based interference at the intended recipient and lack of availability of an alternative frame in the queue that would not cause such interference." with "An AP of an MLD that has gained the right to initiate transmission of a frame of an AC on a link through the rules for EDCA backoff in 10.23.2.4 (Obtaining an EDCA TXOP) may elect to not transmit any frame from the transmission queue for that AC due to expected NSTR based interference at the intended recipient of the same MLD and lack of availability of an alternative frame in the queue that would not cause such interference." | Revise – Tgbe editor shall change “at the intended recipient” to “at the intended recipient MLD” at P313 L10 of D1.1 |
| 4752 | Chunyu Hu | 35.3.14.3 | 275.41 | The "Capability signaling" should be something done at beginning of the MLO subclause; instead of being embeded in a sub topic. | As commented | Revise – Tgbe editor shall move D1.1 subclause 35.3.15.4 Capability signaling to be the second subclause of 35.3.15, i.e. it shall become 35.3.15.2, appearing after the subclause 35.3.15.1 General |
| 4826 | Dibakar Das | 35.3.14.3 | 275.16 | "gains a TXOP" --> "obtains a TXOP" | As in comment. | Revise – Tgbe editor shall change “that gains a TXOP through” to “that has gained the right to initiate transmission of a frame as described in” at P313 L20 of D1.1 |
| 4827 | Dibakar Das | 35.3.14.3 | 275.18 | What is "NSTR deferral" ? | Clarify | Revise – within 35.3.15.3 of D1.1 at P313 L23, TGbe editor to change “perform an NSTR deferral for the EDCAF associated with that AC by invoking backoff per item h) of 10.23.2.2 (EDCA backoff procedure)” to “invoke a backoff for the EDCAF associated with that AC as allowed per item h) of 10.23.2.2 (EDCA backoff procedure)” and within 10.23.2.2 at P201 L54 of D1.1, change “An NSTR deferral is performed as described in 35.3.14.3” to “If explicitly indicated as in 35.3.15.3” |
| 4828 | Dibakar Das | 35.3.14.3 | 275.21 | Change "TX queue" to the term used in REVme: "Transmit queue" | As in comment. | Accept |
| 4829 | Dibakar Das | 35.3.14.3 | 275.21 | "he queue which the transmitter determines .."-> does the presence of the frame cause NSTR interference or the transmission of it? | Clarify | Revise – Tgbe editor shall change “which the transmitter determines will not cause” to “which if transmitted, the transmitter determines, will not cause” at P313 L26 of D1.1 |
| 5672 | Julien Sevin | 35,3,14,3 | 274.60 | How to indicate a modification of the NSTR bitmap in operation time | As in comment |  |
| 5841 | Lei Wang | 35.3.14.3 | 274.60 | The NSTR operation in Section 35.3.14.2 is specific to Multi-Link operation. Suggest naming the section accordingly. | Suggest changing the section title for 35.3.14.3 to the following or something similar in order to better represent the section content: "Multi-Link nonsimultaneous transmit and receive (ML-NSTR) operation". |  |
| 5993 | Liwen Chu | 35.3.14.3 | 274.62 | STR definition should not be defined in this subclause. | Change it to NSTR definition. | Reject – the signaling that exists is for NSTR and therefore, the simplest expression of what links have which relationship is with respect to what was signaled in the element and that is NSTR. By definition, then, what is not signaled as NSTR must be STR. |
| 6310 | Ming Gan | 35.3.14.3 | 275.01 | Change "of" to "affiliated with" | as in the comment | Revise – TGbe editor shall change “of an MLD” to “affiliated with an MLD” at P3131 L6 in D1.1 |
| 6311 | Ming Gan | 35.3.14.3 | 275.08 | Change "of" to "affiliated with" | as in the comment | Revise – TGbe editor shall change “of an MLD” to “affiliated with an MLD” at P3131 L13 in D1.1 |
| 6494 | Osama Aboulmagd | 35.3.14.3 | 275.02 | It is more appropriate here to use EDCAF rather than AC since AC don't compete for the medium | As in comment | Reject – the frame to be transmitted does not belong to an EDCAF, it belongs to an AC. |
| 6559 | Patrice Nezou | 35.3.14.3 | 275.01 | The 2 paragraphs refers to the same rules for a non-AP STA and an AP. For sake of clarity and simplicity, remove the second one and replace "An AP of an MLD ..." to "A STA of an MLD ..." | as in comment | Reject – there are two paragraphs because one refers to NSTR interference at the transmitter MLD and the other refers to NSTR interference at the receiver MLD. (This statement is not actually a restrictive rationale that would preclude the proposed merger.) |
| 6737 | Rojan Chitrakar | 35.3.14.3 | 275.21 | " - consider the TX queue for that AC as empty until any frame exists in the queue which the transmitter determines will not cause an unacceptable level of NSTR interference,..." It is not apparent why the NSTR interference level will differ from one frame to another and how the transmitter can make such determination? | Explain why the NSTR interference level will differ from one frame to another and how the transmitter can make such determination, e.g. is it due to the target recipient of the frame? | Reject – the paragraph refers to either case, i.e. AP transmitting or non-AP transmitting. In the case of the AP transmitting, a frame could arrive into the TX queue which is 1) targeted to a different RA, in which case, the recipient is different and therefore, the NSTR interference is potentially not a problem (i.e. the initial frame at the head of the TX queue was not transmitted because the AP detected a UL TX from that RA on another link, and the AP knows that that link is NSTR to this link) or 2) yes, it is quite possible that an AP decides that a frame at a low MCS can be transmitted at a high enough power to be received anyway. In the non-AP transmitting case, the non-AP could decide that the amount of loss induced by the interference is acceptable for one frame v another frame, for example, due to the duration of the TX. |
| 6854 | Rubayet Shafin | 35.3.14.3 | 275.28 | Typo: "solicits an immediate response to a STA" | change 'to' to 'from'--"solicits an immediate response from an STA" | Reject – oddly, both “to” and “from” work perfectly fine in the sentence. The preposition “to” works because the sentence is meant to say that the AP should not transmit “a frame” to a STA – but “a frame” is modified with the adjectivial phrase “solicits an immediate response” so that when the noun and its adjectivial phrase are read as a subject unit, the use of “to” correctly describes the relationship between that noun and its direct object. However, one can instead, use “from” which then causes “a STA affiliated with a non-AP MLD” to become part of the adjectivial phrase instead of the direct object, i.e. “a frame” now becomes “a frame that solicits an ACK from a STA”. In either case, the sentence is technically accurate. |
| 6956 | Sanghyun Kim | 35.3.14.3 | 274.62 | A link pair of a single radio MLD (and an MLD in EMLSR mode) is also an NSTR link pair. It is recommended to modify explanation for the NSTR link pair. | As in the comment | Reject – the EMLSR section describes rules of behavior for EMLSR MLDs and the MLDs that are communicating with EMLSR MLDs. Those rules are sufficient to provide for correct and efficient exchanges using the limited link resources of the EMLSR MLD. |
| 6957 | Sanghyun Kim | 35.3.14.3 | 275.01 | It is missing how an AP of an MLD figures out the intended recipient has NSTR based interference or not. | Clarify the method to figure out status(regarding NSTR based interference) of intended recipient . | Reject – the main method is to simply examine the TA of any received MPDUs. Additionally, an AP could use scheduling information to make interference inferences. There is no need to include this information in the draft amendment, as such amendments typically do not provide hints to the implementer, but instead, are intended to provide rules of behavior. |
| 6958 | Sanghyun Kim | 35.3.14.3 | 275.08 | If an AP transmits a PPDU to multiple non-AP MLDs on link 1, multiple non-AP STAs(of the MLDs) on link 2 may keep their backoff counter to zero because their Tx queue considered as empty.  In that case, the multiple non-AP STAs initiate their PPDU transmission at the same time. | A non-AP STA should consider its TX queue as empty, only when another non-AP STA of the same MLD on the NSTR link pair receiving individually addressed PPDU. (and the intended recipient of the PPDU is the STA on the NSTR link pair) | Revise – TGbe editor shall modify the text as shown under the heading for CID 6958 in document 11-21-1259r3, which provides an alternative to the suggested change, effectively requiring a backoff whenever the TX queue considered empty becomes considered non-empty, regardless of the state of the medium. |
| 6994 | Sharan Naribole | 35.3.14.3 | 275.08 | "A non-AP STA of an MLD that has gained the right to initiate transmission of a frame of an AC on a link through the rules for EDCA backoff in 10.23.2.4 (Obtaining an EDCA TXOP) may elect to not transmit any frame from the transmission queue for that AC due to expected NSTR based interference at another STA within the MLD and lack of availability of an alternative frame in the queue that would not cause such interference." It is not clear how an alternative frame in the queue might not cause interference considering NSTR based interference is a PHY constraint. | Provide explicit details of alternative frame in the queue that might not cause NSTR based interference on the link | Reject – for the non-AP transmitting case, the non-AP could decide that the amount of loss induced by the interference is acceptable for one frame v another frame, for example, due to the duration of the TX or the TX power. Note that the language says that the alternative frame does not cause “*such* interference”, i.e. there still might be interference, just not the same as the first frame in the queue and therefore, there might be enough difference to decide to transmit based on the damage assessment. |
| 6995 | Sharan Naribole | 35.3.14.3 | 275.08 | "A non-AP STA of an MLD that has gained the right to initiate transmission of a frame of an AC on a link through the rules for EDCA backoff in 10.23.2.4 (Obtaining an EDCA TXOP) may elect to not transmit any frame from the transmission queue for that AC due to expected NSTR based interference at another STA within the MLD and lack of availability of an alternative frame in the queue that would not cause such interference." Does the backoff counter stall at zero in this case? Or, a new backoff counter needs to be generated? | Clarify that the backoff counter remains at zero when non-AP STA of an MLD elects to not transmit ant frame due to expected NSTR based interference | Reject – the subsequent paragraph clearly describes what happens to the backoff process. However, that paragraph has a significant change proposed which requires a new backoff for all cases. Note that the countdown of the new backoff proceeds as it normally would otherwise, depending only on the medium state as reported as the CCA condition. See CID 6958 for the proposed modification to the paragraph. |
| 7606 | Tomoko Adachi | 35.3.14.3 | 275.04 | "NSTR based interference" This term appears only here and there is no description what it is. Description required. | As in comment. | Revise – Tgbe editor shall modify the text as shown under the heading of CID 7606 within document 11-21-1259r5 which adds a definition of the term NSTR interference and deploys the term. |
| 7784 | Yanchao Xu | 35.3.14.3 | 274.62 | The current spec said "A pair of links that is not indicated as an NSTR pair is an STR pair". It's a strange description. For example, when we want to say "One thing that is not A is B", it has assumed that A has been defined earlier. But the current spec only defines STR links earlier, so the sentence shall be changed as "A pair of links that is not indicated as an STR pair is an NSTR pair" | as comments | Reject – the definitions subclause 3.2 contains a definition for NSTR link pair and no definition for STR link pair. The elements subclause 9.4.2 contains the ML element which contains fields to define which link pairs are NSTR, not STR. Therefore, the existing draft clearly and technically defines NSTR link pairs and then the definition of an STR link pair is simply, any link pair not previously identified as NSTR. |
| 7785 | Yanchao Xu | 35.3.14.3 | 275.17 | The current description is "An AP or non-AP STA that gains a TXOP through 10.23.2.4 (Obtaining an EDCA TXOP) for an AC but does not transmit any frame from the queue for that AC for the reasons stated above may". The "does not transmit any frame from the queue" sounds like there no frame has ever been transmited. But a quite common case exists, in which a non-initial TxOP frame is not transmited during the TxOP. And such a case shall also apply recovery rules here . | A proposed change is to delete the word "any" , "An AP or non-AP STA that gains a TXOP through 10.23.2.4 (Obtaining an EDCA TXOP) for an AC but does not transmit frame from the queue for that AC for the reasons stated above may" | Revise – at P313 L21 of D1.1, Tgbe editor shall change  “does not transmit any frame from the queue for that AC”  To  “does not transmit any frame corresponding to that AC”  The comment is correct, in that for example, an RTS might be transmitted before a frame in the queue, and if there is no CTS response, then such a situation would appear to match the indicated condition, as no frame from the queue had been transmitted, but this situation should not meet the conditions described, but the commenter’s proposed change is not quite correct, hence the proposed revision. |
| 7786 | Yanchao Xu | 35.3.14.3 | 275.17 | If an AP or STA elects to not transmit a non-initial frame during TxOP due to expected NSTR based interference, another "error recovery" shall be applied. And the rule can be the one in 10.23.2.2 EDCA backoff procedure "For the EDCAF that is the TXOP holder, the transmission by the TXOP holder of an MPDU in a non-initial PPDU of a TXOP fails, as defined in this subclause, and an MPDU in the non-initial PPDU does not solicit an HE TB PPDU" | as comments | Reject – the proposed change causes item c) of 10.23.2.2 to be invoked which requires an increment of CW, but the group has agreed to not increment CW for this new case. |
| 7823 | Yiqing Li | 35.3.14.3 | 275.02 | It should be "...may select to not transmit..." | As commented. | Revise – at P313 L7 and P313 L14, the Tgbe editor shall change  “may elect to not transmit any frame from the transmission queue for that AC”  To  “may choose to not transmit any frame corresponding to that AC” |
| 8042 | Yuchen Guo | 35.3.14.3 | 275.18 | The term "NSTR deferral" is not clearly defined. Actually the behavior in lines 16-17 can be called "NSTR deferral" | Please clarify | Revise – within 35.3.15.3 of D1.1 at P313 L23, TGbe editor to change “perform an NSTR deferral for the EDCAF associated with that AC by invoking backoff per item h) of 10.23.2.2 (EDCA backoff procedure)” to “invoke a backoff for the EDCAF associated with that AC as allowed per item h) of 10.23.2.2 (EDCA backoff procedure)” and within 10.23.2.2 at P201 L54 of D1.1, change “An NSTR deferral is performed as described in 35.3.14.3” to “If explicitly indicated as in 35.3.15.3” |
| 8204 | Yunbo Li | 35.3.14.3 | 275.12 | "and lack of availability of an alternative frame in the queue that would not cause such interference" can be deleted. The reason is the interfered STA is afflicated with the same non-AP MLD of the non-AP STA. The interference doesn't changes when tranmit different frames. | as in comment | Reject – not true, exactly – the language is rather vague, as “interference” can be at any level, so to determine that the interference is enough to cause one to not transmit is a variable decision that depends on the amount of interference, the duration of the interference, the MCS, etc. A different frame might be, for example, so short that the interference can be considered negligible. |
| 8205 | Yunbo Li | 35.3.14.3 | 275.01 | the rules in first two paragraphs didn't include NSTR soft AP MLD | Add corresponding rules for NSTR soft AP MLD | Reject – nothing in the wording of the cited paragraphs precludes their use by an NSTR soft AP MLD. |
| 8344 | Zhiqiang Han | 35.3.14.3 | 275.03 | If link1 and link2 are a NSTR link pair for a non-AP MLD, The AP on link2 has received frames, can AP on link1 initiate the backoff procedure?Or Keep CCA busy until the receipt on link2 is finished? Please clarify it. | as in comment. | Reject – the AP can initiate a backoff as indicated, either immediately invoking it per item h), or waiting until the queue contents changes to invoke backoff. If the medium is IDLE on link1 when the backoff is invoked, then the backoff proceeds to count down. If the backoff completes while the RX activity continues, then the situation is back to where it was – i.e. the backoff has reached zero and the AP chooses to not transmit again, so it will invoke backoff again. If the medium is busy, then the backoff does not count down. The language here does not alter the countdown of backoff, it only prescribes conditions wherein backoff must be invoked. Once backoff is invoked, the normal procedure is followed. |
| 8345 | Zhiqiang Han | 35.3.14.3 | 275.03 | If the AP elects to not transmit any frame from the transmission queue,how to handle the EDCA parameter? Reset the CW?double the CW? keep CCA busy until the the receipt is finished?Please clarify it | as in comment. | Reject – the language clearly points to 10.23.2.2 items h) and a). Each of these items describes the appropriate modification of CW. Note that there is no modification to the determination of medium BUSY condition. |
| 8346 | Zhiqiang Han | 35.3.14.3 | 275.03 | In which case, the AP will elect to transmit frames, and in which case, the AP will elect not to transmit frames? | as in comment. | Reject – the decision to transmit or not is left to the implementation and does not need to be specified here. The only thing that needs to be specified is what steps are required regarding backoff in order to maintain fairness. |

**Discussion**

**Proposed changes**

**CID 6958**

***TGbe editor: Within TGbe Draft D1.1, modify the text of the fourth paragraph of 35.3.15.3 Nonsimultaneous transmit and receive (NSTR) operation as shown:***

**35.3.15.3 Nonsimultaneous transmit and receive (NSTR) operation**

An AP or non-AP STA that gains a TXOP through 10.23.2.4 (Obtaining an EDCA TXOP) for an AC but does not transmit any frame from the queue for that AC for the reasons stated above may:

—perform an NSTR deferral for the EDCAF associated with that AC by invoking backoff per item h) of 10.23.2.2 (EDCA backoff procedure)

—consider the TX queue for that AC as empty until any frame exists in the queue which the transmitter determines will not cause an unacceptable level of NSTR interference, at which time the queue is considered to have become nonempty and backoff is invoked per the procedure described in item a) of 10.23.2.2 (EDCA backoff procedure) regardless of whether the medium is busy or not. **(#6958)**

**CID 7606**

***TGbe editor: Within TGbe Draft D1.2, add the following definition in subclause 3.2 Definitions specific to IEEE 802.11:***

**3.2 Definitions specific to IEEE 802.11**

**nonsimultaneous transmit and receive (NSTR) interference:** Energy that propagates from a transmission on a first link of an MLD into the receiver function of a second link of the same MLD and that causes the STA operating on the second link to fail to meet the receiver requirements specified in Clause 36 (Extremely high throughput (EHT) PHY specification). **(#7606)**

***TGbe editor: Within TGbe Draft D1.2, change the following definition in subclause 3.2 Definitions specific to IEEE 802.11, by adding a NOTE as shown:***

**nonsimultaneous transmit and receive (NSTR) link pair:** A pair of links within a multi-link device (an MLD) for which the receiver requirements specified in Clause 36 (Extremely high throughput (EHT) PHY specification) are not met on one of the links when a station (STA) of the MLD is transmitting on the other link. Each link of such a pair is a member of the NSTR link pair.

NOTE—If an MLD supports transmission on link 1 concurrent with reception on link 2, but cannot support transmission on link 2 concurrent with reception on link 1, this pair of links is NSTR for that MLD.

NOTE—It is not necessary that every transmission on one link of an NSTR link pair causes a failure of the receiver requirements to be met on the other link of the NSTR link pair. The determination of when a STA indicates that any given pair of links is an NSTR link pair or not is implementation dependent.

***TGbe editor: Within TGbe Draft D1.2, globally change “NSTR based interference” to “NSTR interference”***

***TGbe editor: Within TGbe Draft D1.2, subclause 35.3.15.5 PPDU end time alignment, modify the text of the first paragraph as shown:***

**35.3.15.5 PPDU end time alignment**

In this subclause “simultaneously transmit” means more than one PPDU is transmitted on more than one link of an MLD, where each PPDU is transmitted over one link, and those transmissions overlap in time. Likewise, “simultaneously trigger” means more than one HE or EHT TB PPDU is triggered on more than one link of an MLD, where each PPDU is triggered over one link, and those transmissions overlap in time. If an MLD that is receiving a PPDU on a first link that is a member of an NSTR link pair simultaneously transmits another PPDU on a second link that is a member of the same NSTR link pair, then the MLD might fail to receive the PPDU on the first link because of NSTR interference. This subclause specifies a mechanism to align the end time of PPDUs that are simultaneously transmitted to the same non-AP MLD on links that a members of the same NSTR link pair of the non-AP MLD, which helps reduce the chances of the occurrence of such NSTR interference among STAs affiliated to the same MLD. **(#7606)**