IEEE P802.11 Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LB 271 Resolution for CIDs related to R-TWT | | | | |
| Date: May 2023 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Chunyu Hu | Meta |  |  | [chunyuhu07@gmail.com](mailto:chunyuhu07@gmail.com) |
| Kumail Kaider | Meta |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

# Abstract

This submission proposes resolutions for following 36 CIDs received for TGbe LB271:

15233, 16176, 16699, 17085, 16068, 17087, 16700, 17088, 15607, 17089,

15834, 15935, 16069, 16119, 16652, 17090, 15236, 15237, 15736, 17091

16678, 16420, 16424, 16622, 16701,

16285,

16168, 17092, 17093, 16146, 16167, 16177, 17094, 17624, 16147

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: deferred CIDs in yellow (deferred per offline req), mangeta (deferred per req during mtg), and cyan (not gone through)

***TGbe editor: The baseline for this document is 11be D3.1 and REVme3.0***

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.

# Note: 26 CIDs on 35.8.5.1 starts here

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Commenter | Clause | Pg/Ln | Comment | Proposed Change | Resolution |
| 15233 | Akira Kishida | 35.8.5.1 | 620.06 | EHT STAs should check if the TXOP holder shall ensure the TXOP ends before the start time of active R-TWT SP. At this point, If there are any overlapped R-TWT SPs, it should be clarified which operation is the correct; (1) EHT STAs should check for only the initial overlapped R-TWT SP (2) EHT STAs should check for every overlapped R-TWT SP individually | As in the comment. | **Rejected**. The comment failed to point out a valid issue. Here is the clarification to the question raised: the spec didn’t give exception to overlapping SP case and hence the supporting STA needs to check each SP start time individually. |
| 16176 | Rojan Chitrakar | 35.8.5.1 | 620.06 | This should apply to all STAs that are members of the BSS and not just STAs that support rTWT, else the reliability of rTWT SPs cannot be guaranteed. | Change as "A non-AP EHT STA as a TXOP holder shall ensure the TXOP ends before the start time of any r-TWT SPs advertised by the associated AP." | **Rejected**. The group discussed the proposed change in the previous runs of comments but couldn’t converge to agree to accept such a solution. |
| 16699 | Yonggang Fang | 35.8.5.1 | 620.06 | Please add a note for the rule of "A non-AP EHT STA with dot11RestrictedTWTOptionImplemented set to true as a TXOP holder shall ensure the TXOP ends before the start time of any active R-TWT SPs ..." is applicable to EPCS enabled devices. Otherwise an EPCS enabled device as TXOP holder could defer the access scheduled for other STAs in R-TWT SP, including other EPCS enabled devices. | Please add a note for the EPCS enabled device in the sepc. | **Rejected**. The stated rule quoted in the comment didn’t give exception to EPCS (or non-EPCS) enabled devices. Therefore, there is no need to stress it’s applicable to a specific subset of devices. |
| 17085 | Mark RISON | 35.8.5.1 | 620.08 | "a multiple BSSID set in which its associated AP belongs to" poor wording | Change to "a multiple BSSID set to which its associated AP belongs" | **Accepted** |
| 16068 | Binita Gupta | 35.8.5.1 | 620.17 | This NOTE is bit confusing to read. It should be modified to indicate that the R-TWT schedules carried in a TWT element included outside of any nontransmitted BSSID profile includes schedules for transmitted BSSID, nontransmitted BSSID(s) and co-hosted BSSIDs. | Clarify the note as per comment | **Revised**.  **TGbe editor: please revise as specified in this doc {11-23/847r1} tagged by #16068.** |
| 17087 | Mark RISON | 35.8.5.1 | 620.17 | "NOTE--The R-TWT schedule(s) announced in a Beacon or Probe Response frame and that is not in the nontransmitted BSSID profile include the schedule(s) for both transmitted BSSID and nontransmitted BSSID(s), if any, as specified in 35.8.4 (R-TWT SPs announcement)." poor grammar | Change to "NOTE--The R-TWT schedule(s) announced in a Beacon or Probe Response frame that is/are not in the nontransmitted BSSID profile include the schedule(s) for both transmitted BSSID and nontransmitted BSSID(s), if any, as specified in 35.8.4 (R-TWT SPs announcement)." | **Revised**.  **TGbe editor: please revise as specified in this doc {11-23/847r1} tagged by #17087.** |
| 16700 | Yonggang Fang | 35.8.5.1 | 620.21 | Please add a note for the rule of "An EHT AP with dot11RestrictedTWTOptionImplemented set to true as a TXOP holder shall ensure the TXOP ends before the start time of any active R-TWT SPs ..." is applicable to EPCS enabled devices. Otherwise an EPCS enabled device as TXOP holder could defer the access scheduled for other STAs in R-TWT SP, including other EPCS enabled devices. | Please add a note for the EPCS enabled device in the sepc. | **Rejected**. The stated rule quoted in the comment didn’t give exception to EPCS (or non-EPCS) enabled devices. Therefore, there is no need to stress it’s applicable to a specific subset of devices. |
| 17088 | Mark RISON | 35.8.5.1 | 620.23 | "fallen" should be "falling" | As it says in the comment | **Accepted** |
| 15607 | Sanghyun Kim | 35.8.5.1 | 620.27 | It is hard to expect non-AP STAs to stop decrementing the backoff counter during R-TWT SP. This is because following the 'may suspend' behavior is disadvantageous in terms of channel access. | It is necessary to change 'may suspend' to 'shall suspend' or 'should suspend'. | **Revised**. The backoff counter may not be running at all and hence no need to suspend it.  **TGbe editor: please revise as specified in this doc {11-23/847r1} tagged by #15607.** |
| 17089 | Mark RISON | 35.8.5.1 | 620.27 | "When an R-TWT SP starts, a member STA may suspend decrementing the backoff counter of any AC that does not have any R-TWT TID(s) mapped to until it has delivered all its frames from R-TWT TID(s)" hard to understand | Delete "to" | **Revised**.  **TGbe editor: please revise as specified in this doc {11-23/847r1} tagged by #17089.** |
| 15834 | Muhammad Kumail Haider | 35.8.5.1 | 620.32 | Current spec does not use "pair of" in context of EMLSR/EMLMR links. Please update the last paragraph to align with the rest of the spec | as in comment | **Revised**.  **TGbe editor: please revise as specified in this doc {11-23/847r1} tagged by #15834.** |
| 15935 | Zhou Lan | 35.8.5.1 | 620.32 | "The second AP as a TXOP holder on the second link should ensure its TXOP ends no later than Tamount of time before the start time of the R-TWT SP on the first link," The seond AP in this case should not terminate its TXOP on the second link if the TXOP is for another STA other than the NSTR STA of concern. This should only happen if the seocndd AP is transmitting or receiving to that NSTR MLD STA in this TXOP | Add a condition that the second AP would terminate its TXOP only if it is transmitting to the second non-AP STA. " the terminated TXOP is communicating with the second non-AP STA". Rewrite this section to be easier to read. | **Revised**.  **TGbe editor: please revise as specified in this doc {11-23/847r1} tagged by #15935.** |
| 16069 | Binita Gupta | 35.8.5.1 | 620.32 | There can be other possible scenarios for R-TWT schedules on EMLSR links besides the one captured here. | See if there are other scenarios for R-TWT schedules on EMLSR links which may need to be addressed. | **Rejected**. The comment fails to point out a specific scenario that needs to be addressed. Note that for the overlapping case, the group couldn’t converge to a consensus and hence is left out. |
| 16119 | Sanghyun Kim | 35.8.5.1 | 620.32 | When initiating frame exchange with a non-AP STA in EMLSR mode within R-TWT SP, it is possible to consider not sending an initial Control frame. This is possible if the non-AP STA in EMLSR mode transitions to enhanced mode (frame exchange mode) before the beginning of the R-TWT SP without the initial Control frame. If the AP MLD does not send the initial Control frame to the non-AP STA in EMLSR mode, the overhead caused by the initial Control frame during the R-TWT SP can be reduced. | As in comment | **Rejected**.  The initial control frame can be saved during frame exchanges (or TXOPs). Beyond it, it would need to be treated case by case in order to save it safely, esp. giving that there might be other SPs in other links. The benefit is not clear. |
| 16652 | Mohamed Abouelseoud | 35.8.5.1 | 620.32 | "The second AP as a TXOP holder on the second link should ensure its TXOP ends no later than Tamount of time before the start time of the R-TWT SP on the first link," The seond AP in this case should not terminate its TXOP on the second link if the TXOP is for another STA other than the NSTR STA of concern. This should only happen if the seocndd AP is transmitting or receiving to that NSTR MLD STA in this TXOP | Add a condition that the second AP would terminate its TXOP only if it is transmitting to the second non-AP STA. " the terminated TXOP is communicating with the second non-AP STA". Rewrite this section to be easier to read. | **Revised**.  **TGbe editor: please revise as specified in this doc {11-23/847r1} tagged by #15935.** |
| 17090 | Mark RISON | 35.8.5.1 | 620.32 | "When a non-AP STA, which is affiliated with a non-AP MLD and operates on one of a pair of NSTR or EMLSR or EMLMR links, is" bad grammar | Change to "When a non-AP STA that is affiliated with a non-AP MLD and operates on one of a pair of NSTR or EMLSR or EMLMR links is" | **Revised**.  **TGbe editor: please revise as specified in this doc {11-23/847r1} tagged by #17090.** |
| 15236 | Akira Kishida | 35.8.5.1 | 620.38 | The draft indicates that "The second AP or non-AP STA as a TXOP holder on the second link should ensure its TXOP ends no later than T amount of time before the start time of the R-TWT SP on the first link," At this point, this TXOP should be calculated considering the padding of the NSTR of the second link. | Propose to add explanatory notes: "This TXOP should contain the length of padding of NSTR of the second link." | **Rejected**.  There are paddings at various timing during the frame exchange for start time or ending time alignment. The padding within the frame exchange is already counted as part of TXOP. It’s not clear if there are specific cases the padding is not counted within TXOP and requires similar non-zero T setting for NSTR. |
| 15237 | Akira Kishida | 35.8.5.1 | 620.38 | It should be clarified following; In the case that the second AP or non-AP STA, as a TXOP holder on the second link, cannot ensure its TXOP ends before the start time of the R-TWT SP on the first link, it should be clarified that the AP or non-AP STA on the first link can transmit frames if a TXOP holder on the first link can ensure its TXOP ends before the start time of the R-TWT SP on the first link regardless of the second link that refrains from any transmission. | As in the comment. | **Rejected**. The AP/non-AP STAs still need to follow the SP start time protection rule in the scenario raised in the comment, as no exception is given to that scenario or generally speaking. Hence no need to add clarification which may add confusion. |
| 15736 | KENGO NAGATA | 35.8.5.1 | 620.38 | "--The second AP as a TXOP holder on the second link should ensure its TXOP ends no later than Tamount of time before the start time of the R-TWT SP on the first link, --The second non-AP STA as a TXOP holder on the second link should ensure its TXOP ends no later than T amount of time before the start time of the R-TWT SP on the first link," If the second AP or the senond non-AP STA can not ensure its TXOP ends before the start time of the R-TWT SP on the first link, the first AP or the first non-AP STA should initiate transmission without waiting for the second AP or the second non-AP, when it already obtained an EDCA TXOP. | Please add the following language. "NOTE- If the second AP or the senond non-AP STA can not ensure its TXOP ends before the start time of the R-TWT SP on the first link, the first AP or the first non-AP STA should initiate transmission without waiting for the second AP or the second non-AP." | **Rejected**. The text in suggested change is normative, and would have been changed to “may”. However, this is already allowed, and hence no need to add the suggested text. |
| 17091 | Mark RISON | 35.8.5.1 | 620.38 | The rules appear to be the same for APs and non-AP STAs | Condense the two bullets into a single one | **Rejected**. With the resolution for CID #15935, the condition for AP and non-AP STA are not the same any more. |
| 16118 | Sanghyun Kim | 35.8.5.1 | 620.45 | The point at which a non-AP STA in EMLSR mode begins switching back operation is at the end of the frame exchange. Since the end of frame exchange for a non-AP STA in EMLSR mode is TXOP end time + aSIFSTime + aSlotTime + aRxPHYStartDelay, we need to verify whether the 'T' for EMLSR should be EMLSR transition delay + aSIFSTime + aSlotTime + aRxPHYStartDelay. | As in comment | **Rejected**. The additional time (aSFISTime + aSlotTime + aRxPHYStartDelay) is to ensure the frame exchanges have indeed ended. In this case, it’s not necessary for T to include this part. |
| 16678 | Qi Wang | 35.8.5.1 | 620.45 | "where T equals to one of the following values: -- 0 if the two non-AP STAs operate on a pair of NSTR links,...." "NSTR links" needs be replaced with "STR links" here. | As in comment | **Rejected**. The comment fails to point out a valid technical issue. The text is intended to cover the NSTR case. |
| 16420 | Jeongki Kim | 35.8.5.1 | 620.53 | In a r-TWT SP, non-member STA may transmit a frame using EDCA to AP although AP allocates a quiet interval overlapping with the r-TWT SP, especially when AP does not allocate the overlapped quiet interval at the start of the r-TWT SP. This may degrade the performance of the latency sensitive traffic. In a r-TWT SP, if the AP wants to further protect/support the latency sensitive traffic related to TIDs of the r-TWT SP, the AP can be able to control a transmission of non-member STA (legacy STA as well as EHT STA) with minimizing the impact of the non-member STA. The group need to discuss this issue and provide a good solution for supporting a latency sensitive traffic in a r-TWT SP. | Define a mechanism for AP to be able to control a transmission of a non-member STA in a r-TWT SP | **Rejected**. The group discussed this (e.g. 11-22/1036) but couldn’t reach consensus. |
| 16424 | Jeongki Kim | 35.8.5.1 | 620.53 | In a trigger-enabled R-TWT SP, a non-member STA may transmit a RTS to AP and when an AP receives a RTS from the STA if the medium indicates idle, the AP sends CTS to the STA and the STA transmits data to AP. It may increase the delay of the latency senstive traffic of the member STA. Define the method of reducing the delay of the latency sensitive traffic of the member STA in R-TWT SP. | As in comment | **Rejected**.  Understood that the traffic for other non-member STAs may introduce delay. However, the R-TWT SP doesn’t disallow other STAs to access the medium (following the baseline channel access in general). |
| 16622 | Tuncer Baykas | 35.8.5.1 | 620.53 | In a trigger-enabled R-TWT SP, a non-member STA may delay traffic by sending an RTS to an AP. Provide a method to reduce delay for member STAs in that situation. | As stated in the comment | **Rejected**.  Understood that the traffic for other non-member STAs may introduce delay. However, the R-TWT SP doesn’t disallow other STAs to access the medium (following the baseline channel access in general). |
| 16701 | Yonggang Fang | 35.8.5.1 | 620.53 | In 26.8.3.3 of 802.11m, a rule of broadcast TWT which is applicable to RTWT: "A TWT scheduled STA should not transmit frames to the TWT scheduling AP outside of broadcast TWT SPs and should not transmit frames that are not contained within HE TB PPDUs to the TWT scheduling AP within trigger-enabled broadcast TWT SPs, except that the STA can transmit frames within negotiated individual TWT SPs as defined in 26.8.2 (Individual TWT agreements)." A STA affiliated with the EPCS non-AP MLD with R-TWT enabled should not have such restriction. | Please add a note "A STA affiliated with an EPCS non-AP MLD with dot11RestrictedTWTOptionImplemented set to true can perform priority channel access inside and outside of the SP of R-TWT using the values carried in the EDCA Parameter Set element in the Per-STA Profile corresponding to the AP to which the STA is associated in Priority Access Multi-Link element, if provided, or the default EDCA parameter values otherwise." | **Rejected**.  The NOTE is unnecessary as the rule quoted was a recommendation (‘should’) and there is already NOTE in the baseline, see P802.11meD3.0 P3910L6 and P3918L7. |

## 35.8.4 Channel access rules for R-TWT SP

## 35.8.4.1 TXOP and backoff procedures rules for R-TWT SPs

***TGbe Editor: please revise the first few paragraphs in this subclause as below:***

A non-AP EHT STA with dot11RestrictedTWTOptionImplemented set to true as a TXOP holder shall ensure the TXOP ends before the start time of any active R-TWT SPs that are advertised by its associated AP or the AP corresponding to the transmitted BSSID in a multiple BSSID set in which its associated AP belongs to, as specified in 35.8.3 (R-TWT SPs announcement). In addition, before starting transmission of any PPDU, the non-AP EHT STA with dot11RestrictedTWTOptionImplemented set to true shall check if there is enough time for the frame exchange to complete prior to the start of the R-TWT SP and, if there is not enough time, then the STA shall defer transmission by selecting a random backoff count using the present CW (without advancing to the next value in the sequence). The QSRC[AC] for the MSDU or A- MSDU is not affected.

(#16068,#17087)NOTE—The R-TWT schedule(s) carried in a TWT element outside of a Multiple BSSID element in a Beacon or Probe Response frame include the schedule(s) for the transmitted BSSID, nontransmitted BSSID(s) and co-hosted BSSID(s), if any, as specified in 35.8.3 (R-TWT SPs announcement).

An EHT AP with dot11RestrictedTWTOptionImplemented set to true as a TXOP holder shall ensure the TXOP ends before the start time of any active R-TWT SP advertised by itself as specified in 35.8.3 (R-TWT SPs announcement) unless the remaining portion of TXOP fallen within the R-TWT SP is used for the delivery of DL frames of R-TWT DL TID(s) or to solicit the UL frames of R-TWT UL TID(s).

(#15607)NOTE--When an R-TWT SP starts, a member STA might suspend decrementing the backoff counter of any AC (#17089)to which none of the R-TWT TID(s) belongs until it has delivered all its frames from R-TWT TID(s), and resume the decrementing afterwards or when the SP is ended.

When a non-AP STA (#17090)that is affiliated with a non-AP MLD and operates on one of (#15834)the NSTR or EMLSR or EMLMR links is a member of a R-TWT SP on the first link; if the second non-AP STA affiliated with the same MLD is not a member of any other R-TWT SPs on the second link that overlap with the first SP, then the second non-AP STA and its associated AP (referred as the second AP), if their respective dot11RestrictedTWTOptionImplemented equal to true, should follow the rules below:

* The second AP as a TXOP holder on the second link should ensure its TXOP ends no later than T amount of time before the start time of the R-TWT SP on the first link, (#15935) if the second non-AP STA is the corresponding TXOP responder or one of the responders,
* The second non-AP STA as a TXOP holder on the second link should ensure its TXOP ends no later than T amount of time before the start time of the R-TWT SP on the first link,

where T equals to one of the following values:

* 0 if the two non-AP STAs operate on (#15834)the NSTR links,
* the EMLSR transition delay, indicated in the EMLSR Transition Delay subfield, as specified for the (#15834) EMLSR links if the two non-AP STAs belong to (#15834)the EMLSR links,
* the EMLMR delay, indicated in the EMLMR Delay subfield, as specified for the (#15834) EMLMR links if the two non-AP STAs belong to (#15834)the EMLMR links.

# Note: 10 CIDs on 35.8.5.2 starts here

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Commenter | Clause | Pg/Ln | Comment | Proposed Change | Resolution |
| 16285 | Pascal VIGER | 35.8.5.2 | 620.56 | The Quiet element use is not appropriate to efficiently overlap an R-TWT SP : this is because r-TWT specifies a Target Wake Time corresponding to a TSF time (9.4.2.199), whereas the Quiet Element (9.4.2.22) uses an Offset from the n+1 TBTT. Thus, the Quiet element can not protect a TWT SP of current TBTT. This would require notification anticipation of any new/changing R-TWT SP timing, which seems not appropriate. | Either consider removing such protection, or indicate the limitation as in comment | **Rejected**.  The quiet interval can still protect R-TWT SP start time in applicable TWT configuration, e.g. when the TWT wake up interval is in TU granularity. |
| 16168 | Charlie Pettersson | 35.8.5.2 | 620.59 | XR like applications may have jitter in the traffic generation up to several ms, but the overlapping quiet interval has a fixed duration of 1 TU, which may not be sufficient to keep the channel available when the data arrives. | Please clarify if R-TWT should support higher jitter sources such as XR and if so what are the protection mechanisms? | **Rejected**. Not clear if the described case would be a main constraint. Quite some XR applications or its alike can be generally modeled as periodic bursty traffic, or can achieve so by doing necessary traffic shaping (which is out of the scope of 802.11std). |
| 17092 | Mark RISON | 35.8.5.2 | 620.61 | "To schedule overlapping quiet intervals for one or more R-TWT SPs that belong to one or more periodic or aperiodic R-TWT schedules, the EHT AP may do so by transmitting one or more Quiet elements in Beacon and Probe Response frames." poor grammar | Change to "To schedule overlapping quiet intervals for one or more R-TWT SPs that belong to one or more periodic or aperiodic R-TWT schedules, the EHT AP may transmit one or more Quiet elements in Beacon and Probe Response frames." | **Accepted** |
| 17093 | Mark RISON | 35.8.5.2 | 621.07 | "AP can" missing article | Prepend "An" | **Accepted** |
| 16146 | SunHee Baek | 35.8.5.2 | 621.10 | In R-TWT, overlapping quiet interval sets 1 TU to guarantee R-TWT SP, but the current spec doesn't support any method for non-AP EHT STAs that don't support R-TWT to ignore overlapping quiet interval. | Please specify how non-AP EHT STAs that don't support R-TWT may behave as if overlapping quiet intervals do not exist. | **Revised**. An EHT non-AP STA can still choose to parse the TWT element to extract R-TWT info and choose to ignore overlapping intervals as an example. Add a NOTE. |
| 16167 | Charlie Pettersson | 35.8.5.2 | 621.10 | It looks like this statement is intended as a note. | Add a note tag in front of the statement. | **Rejected**. It’s intended as normative text. |
| 16177 | Rojan Chitrakar | 35.8.5.2 | 621.10 | "Non-AP EHT STAs may behave as if overlapping quiet intervals do not exist." why? Only EHT STAs that are members of the r-TWT SP should be exempted. | Modify as "Non-AP EHT STAs that are members of the corresponding r-TWT SP may behave as if overlapping quiet intervals do not exist." | **Rejected**. The group couldn’t converge to a consensus. |
| 17094 | Mark RISON | 35.8.5.2 | 621.10 | "Non-AP EHT STAs may behave as if overlapping quiet intervals do not exist." is not clear | Change to "Non-AP EHT STAs may ignore overlapping quiet intervals." | **Accepted**. |
| 17624 | Brian Hart | 35.8.5.2 | 621.11 | Current requrements for overlapping quiet intervals are weak and undermines the feature. | Option A:(Preferred) Improve the spec: "A non-AP STA that is a member of an R-TWT SP may behave as if the overlapping quiet interval of the R-TWT SP, if present, does not exist." Option B: Given the weakness of the requirements on overlapping quiet intervals, leave quiet intervals intact by deleting all reference to quiet intervals in relation to R-TWT SPs. | **Rejected**. The group discussed this in previous run but couldn’t reach consensus. |
| 16147 | SunHee Baek | 35.8.5.2 | 621.12 | The NOTE doesn't specify why an R-TWT scheduling AP might transmit a CF-End frame during an overlapping quiet interval. | Please add the text shown the intention of the CF-End frame during overlapping quiet interval at the end of NOTE. For example, "to release TXOP set by the quiet interval if the AP and member STA don't have buffered frame." | **Revised**.  **TGbe editor: please revise as specified in this doc {11-23/847r1} tagged by #16147.** |

## 35.8.4.2 Quieting STAs during R-TWT SPs

An R-TWT scheduling AP may schedule at most one quiet interval that overlaps with an R-TWT SP. Such a quiet interval, referred to as an overlapping quiet interval in this subclause, if scheduled, shall have a duration of 1 TU, and shall start at the same time as the corresponding R-TWT SP.

To schedule overlapping quiet intervals for one or more R-TWT SPs that belong to one or more periodic or aperiodic R-TWT schedules, the EHT AP may do so by transmitting one or more Quiet elements in Beacon and Probe Response frames. An EHT AP affiliated with an AP MLD shall not include in its transmitted Beacon or Probe Response frames any Quiet elements that correspond to overlapping quiet intervals that are scheduled and advertised by other APs affiliated with the same AP MLD (see 35.3.11 (Multi-link procedures for channel switching, extended channel switching, and channel quieting)).

NOTE 1—Unless specified otherwise (e.g., through the rules in this subclause), the channel access and transmission rules during quiet intervals are defined in 11.8.3 (Quieting channels for testing), 26.17.1 (Basic HE BSS operation), and

26.17.2 (HE BSS operation in the 6 GHz band). AP can still use quiet intervals for channel testing by managing or avoiding the overlap between R-TWT SPs and quiet intervals that it schedules.

***TGbe Editor: please revise the last two paragraphs in this subclause as below:***

NOTE 2—An R-TWT scheduling AP might transmit a CF-End frame during an overlapping quiet interval that it schedules (#16147) to reset the NAV timer to 0 that is set for the quiet interval.

Non-AP EHT STAs may behave as if overlapping quiet intervals do not exist.

(#16146)NOTE3—An EHT non-AP STA that is not a member of an R-TWT SP or that doesn’t have dot11RestrictedTWTOptionImplemented set to true might parse the TWT element in the Broadcast TWT advertising Management frames and decide whether an quiet interval is an overlapping one and decide whether to ignore it.