IEEE P802.11
Wireless LANs

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| PDT and Comment resolutions for Co-TDMA (Part 1) |
| Date: 2025-03-04 |
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Abstract

This document proposes to amend the draft text for Subclause 37.8.2.3 on Co-TDMA of 11bn D0.1 based on CC50 comments and motions that are passed until March 2025 meeting.

This document also proposes resolutions for following CIDs received for Subclause 37.8.2.3 on Co-TDMA of TGbn D0.1:

111, 187, 200, 218, 219, 621, 622, 623, 670, 671, 672, 676, 679, 680, 681, 682, 683, 713, 748, 1027, 1468, 1469, 1527, 1698, 1700, 1706, 1707, 1708, 1709, 1738, 1863, 1904, 2445, 2464, 3323, 3324, 3325, 3326, 3328, 3329, 3330, 3331, 3332, 3334, 3382, 3383, 3384, 3440, 3599, 3788, 3873, 3875, 3878, 3879, 3880, 3882

**Revisions:**

* Rev 0: Initial version of the document.
* Rev 1: Minor updates based on offline comments from Mark Rison and Brian Hart

***TGbn editor: The baseline for this document is 11bn D0.1***

### Relevant passed motions:

[Motion #46, [1]]

* TGbn shall define a Coordinated TDMA (Co-TDMA) procedure for an AP to share its time resources of an obtained TXOP with a set of APs.
	+ Set of APs is TBD.
	+ The set can consist of one AP.

[Motion #120, [1]]

* A UHR AP shall indicate to another AP its capability to respond in a TB PPDU or not.

[Motion #121, [1]]

* As part of the Co-TDMA procedure, a sharing AP may solicit a poll response in a TB PPDU from another AP only if the other AP has indicated support for responding via a TB PPDU.

[Motion #135, [1]]

* The sharing AP, that transmits a Trigger frame as part of a transmission sequence in a Multi-AP coordinated transmission scheme, identifies the shared AP via an AP ID carried in the AID12 field of the User Info field of the frame.
	+ Note: the name of “sharing AP” and “shared AP” are TBD.
	+ Note: Multi-AP coordinated transmission schemes are Co-SR, Co-BF and Co-TDMA.

[Motion #156, [1]]

* A TXOP owner AP announces its intention of sharing a portion of the time resource of its TXOP for Co-TDMA operation, in an Initial Control frame (exact ICF and name TBD) sent at the beginning of the TXOP. The frame polls AP(s) with whom it may share the TXOP to determine their interest
	+ A TXOP owner AP that intends to share its TXOP is referred to as a sharing AP.
	+ A candidate AP identified (polled) in the ICF is referred to as a polled AP.
	+ The Duration field of the frame is set to the length of time required to transmit the solicited response frame plus one SIFS.
	+ Whether or not the sharing AP is mandated to send the ICF that announces that intention is TBD.

[Motion #157, [1]]

* As part of the Co-TDMA procedure, a candidate AP that is polled by the sharing AP shall provide, via a response,
	+ Its intention not to participate in TXOP sharing during the current TXOP.
		- Note: If the sharing AP doesn’t receive a response from a polled AP, it assumes that the polled AP is not interested in TXOP sharing during the current TXOP.
	+ Its intention to participate in TXOP sharing during the current TXOP.
	+ Signaling details (including traffic indication) are TBD.

[Motion #159, [1]]

* As part of the Co-TDMA procedure, to share a time portion of its TXOP, a sharing AP shall send a MU-RTS TXS Trigger frame to another non-collocated AP.
	+ The Allocation Duration field of the frame indicates the duration of that time portion.
	+ The Duration field of the frame is set to the time required to transmit the solicited response frame plus one SIFS.

[Motion #160, [1]]

* As part of the Co-TDMA procedure, TGbn defines a mechanism for an AP, that received a time portion of a TXOP from a sharing AP, to return the remainder of the allocated time (if any) back to the sharing AP.
	+ Signaling details and the condition(s) for TXOP return are TBD.

[Motion #205, [2]] Move to incorporate the proposed text changes in 11-24/1961r4 to the latest TGbn draft (TGbn D0.1).

[Motion #268, [2]]

* Do you agree that a TXOP owner AP shall announce its intention of sharing a portion of the time resource of its TXOP for C-TDMA operation, in an Initial Control frame (exact ICF and name TBD) sent at the beginning of the TXOP and that the frame polls AP(s) with whom it may share the TXOP to determine their interest?
	+ A TXOP owner AP that intends to share its TXOP is referred to as a sharing AP.
	+ A candidate AP identified (polled) in the Initial Control frame is referred to as a polled AP.
	+ The Duration field of the frame is set to the length of time required to transmit the solicited response frame plus one SIFS.
	+ ~~Whether or not the sharing AP is mandated to send the Initial Control frame that announces that intention is TBD.~~

[Motion #269, [2]]

* The ICF (polling frame) sent as part of Co-TDMA operation shall be a BSRP Trigger frame.

[Motion #270, [2]]

* As part of Co-TDMA operation, a poll response from a polled AP solicited by the ICF shall be carried in an M-BA frame.

[Motion #274, [2]]

* Define a mechanism as part of the procedure of time sharing during a TXOP (e.g. C-TDMA, TXS, …) to support fairness to neighboring STAs (APs and non-APs)?
	+ Exact mechanism is TBD

[Motion #277, [2]]

* As part of Co-TDMA operation, TGbn defines a mechanism for a Co-TDMA sharing AP to transmit to a Co-TDMA coordinated AP an indication of whether the Co-TDMA coordinated AP is to return the remainder of the allocated time (if any) back to the Co-TDMA sharing AP.
	+ How to signal the indication is TBD
	+ Note: This mechanism is to be enabled only if the Co-TDMA sharing AP is capable of receiving the TXOP return.

[Motion #329, [2]]

* The maximum time allocated by a sharing AP in a TXOP to all shared AP for CTDMA is not larger than the TXOP limit it advertised for the minimum between AC\_VI TXOP limit and the TXOP Limit of the AC it obtains the TXOP with to its associated STAs.
	+ If TXOP limit for an AC is 0, there is no CTDMA in a TXOP obtained using that AC.
	+ The sharing AP shall use at least a TBD portion of the obtained TXOP for data communication with its own associated STAs.
	+ Note: similar consideration will apply for TXS mode 2

[Motion #363, [2]]

* The Co-TDMA sharing AP and the Co-TDMA coordinated AP shall have the same primary 20 MHz channel.

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 TGbn Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbn Draft (i.e., they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGbn Editor: Editing instructions preceded by “TGbn Editor” are instructions to the TGbn editor to modify existing material in the TGbn draft. As a result of adopting the changes, the TGbn editor will execute the instructions rather than copy them to the TGbn Draft.***

**CC50 Comments:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **Pg/Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 111 | QINGLAI LIU | 37.8.2.3.1 | 72.44 | In 37.8.2.3.1 General, "co-TDMA" is used instead of "Co-TDMA" which in inconsistent with other sections. | Change "co-TDMA" to "Co-TDMA" | **Accepted**TGbn Editor: Please apply the changes marked as #111. |
| 187 | Yonggang Fang | 37.8.2.3.1 | 72.44 | change "co-" to "Co-" to align with abbrevation of other coordinated operations. | See the comment | **Accepted**The proposed change is incorporated as a resolution to CID #111. |
| 621 | Suhwook Kim | 37.8.2.3.1 | 72.44 | Capitalize c in "co-TDMA" | As in comment | **Accepted**The proposed change is incorporated as a resolution to CID #111. |
| 670 | Jungjun Kim | 37.8.2.3.1 | 72.44 | Change "co-TDMA" to "Co-TDMA" | As in comment | **Accepted**The proposed change is incorporated as a resolution to CID #111. |
| 679 | Geon Hwan Kim | 37.8.2.3.1 | 72.44 | typo (upper case "C") | co-TDMA to Co-TDMA | **Accepted**The proposed change is incorporated as a resolution to CID #111. |
| 1027 | Weiyi Li | 37.8.2.3.1 | 72.44 | Coordinated TDMA are abbreviated as co-TDMA | Change to Co-TDMA for consistency. | **Accepted**The proposed change is incorporated a resolution to CID #111. |
| 1468 | Akira Kishida | 37.8.2.3  | 72.44 | "co-TDMA" -> "Co-TDMA" | As in the comment. | **Accepted**The proposed change is incorporated as a resolution to CID #111. |
| 1698 | Gaius Wee | 37.8.2.3.1 | 72.44 | Inconsistent use of "co" for Co-TDMA | Replace all "co-TDMA" with "Co-TDMA" | **Accepted** The proposed change is incorporated as a resolution to CID #111. |
| 1738 | Kosuke Aio | 37.8.2.3.1 | 72.44 | Not "co-TDMA", but "Co-TDMA" | As comment | **Accepted** The proposed change is incorporated as a resolution to CID #111. |
| 1904 | Hyeonjun Sung | 37.8.2.3.1 | 72.44 | Typo "co-TDMA" | Change "(co-TDMA)" to "(Co-TDMA)" | **Accepted** The proposed change is incorporated as a resolution to CID #111. |
| 3323 | Sanket Kalamkar | 37.8.2.3.1 | 72.44 | "C" of "co-TDMA" is not in a capital letter. | "C" of "co-TDMA" should be in a capital letter. | **Accepted** The proposed change is incorporated as a resolution to CID #111. |
| 3382 | Zhenpeng Shi | 37.8.2.3.1 | 72.44 | "co-TDMA" in 37.8.2.3.1 (General) should be "Co-TDMA" to be consistent with the title of this subclause. | As in comment. | **Accepted** The proposed change is incorporated as a resolution to CID #111. |
| 3440 | Muhammad Kumail Haider | 37.8.2.3.1 | 72.44 | co-TDMA ->Co-TDMA to be consistent with acronyms of other MAPC schemes | As in comment | **Accepted** The proposed change is incorporated as a resolution to CID #111. |
| 622 | Suhwook Kim | 37.8.2.3.1 | 73.01 | Capitalize c in "co-TDMA" | As in comment | **Revised**Agree with the comment in principle. In addition to proposed change, the article “a” is added before Co-TDMA.TGbn Editor: Please apply the changes marked as #622. |
| 671 | Jungjun Kim | 37.8.2.3.1 | 73.01 | Change "co-TDMA" to "Co-TDMA" | As in comment | **Accepted**The proposed change is incorporated as a resolution to CID #622. |
| 680 | Geon Hwan Kim | 37.8.2.3.1 | 73.01 | typo (upper case "C") | co-TDMA to Co-TDMA | **Accepted**The proposed change is incorporated as a resolution to CID #622. |
| 1469 | Akira Kishida | 37.8.2.3 Coordinated time division multiple access (Co-TDMA) | 73.01 | "co-TDMA" -> "Co-TDMA" | As in the comment. | **Accepted**The proposed change is incorporated as a resolution to CID #622. |
| 3324 | Sanket Kalamkar | 37.8.2.3.1 | 73.01 | "C" of "co-TDMA" is not in a capital letter. | "C" of "co-TDMA" should be in a capital letter. | **Accepted** The proposed change is incorporated as a resolution to CID #622. |
| 623 | Suhwook Kim | 37.8.2.3.1 | 73.19 | Capitalize c in "co-TDMA" | As in comment | **Accepted**TGbn Editor: Please apply the changes marked as #623. |
| 672 | Jungjun Kim | 37.8.2.3.1 | 73.19 | Change "co-TDMA" to "Co-TDMA" | As in comment | **Accepted**The proposed change is incorporated as a resolution to CID #623. |
| 3325 | Sanket Kalamkar | 37.8.2.3.1 | 73.19 | In the caption of Figure 37-3, "C" of "co-TDMA" is not in a capital letter. | "C" of "co-TDMA" should be in a capital letter. | **Accepted** The proposed change is already incorporated as a resolution to CID #623. |
| 748 | Junbin Chen | 37.8.2.3.1 | 72.44 | In the sentence "The coordinated time division multiple access (co-TDMA) procedure enables ......", the "co-TDMA" shall be "Co-TDMA".Same as the title of Figure 37-3, and P73L1. | as commented | **Accepted** The proposed changes are incorporated as resolutions to CIDs #111, #622, and #623. |
| 200 | Chunyu Hu | 37.8.2.3 | 72.40 | The name TDMA used to refer to the mechanism of dividing the time in slots shared by different transmitters. While the "Co-TDMA" procedure is to coordinate the sharing of TXOP across different BSS and there is no time slot per se. Using TDMA here is confusing and can be misleading. | Change to use a different name, e.g. Co-TXOP. | **Rejected**The proposed term “Co-TXOP” is ambiguous as it does not specify which dimension is being shared (time, frequency, or spatial). In contrast, the term “Co-TDMA” captures the essence of time sharing between APs, where time is divided into slots—one for in-BSS and one for OBSS. |
| 218 | Pei Zhou | 37.8.2.3.2 | 73.30 | It is unnecessary to limit the ICF is sent at the beginning of the TXOP. The AP obtained TXOP can use it first and then send a ICF to announce its intention of sharing. | As in comment. Change ‘at the beginning of the TXOP’ to 'within the TXOP’. | **Rejected**The proposed change contradicts the approved Motions #156 and #268, which explicitly state that the ICF must be sent at the beginning of the TXOP. |
| 219 | Pei Zhou | 37.8.2.3.2 | 73.39 | The ‘TBD Trigger frame’ should be an BSRP Trigger frame. | Change ‘TBD Trigger frame’ to ‘BSRP Trigger frame’. | **Accepted**The proposed change has been included as a result of Motion #269. |
| 682 | Geon Hwan Kim | 37.8.2.3.2 | 73.39 | Based on the Motion #269 passed on recent Jan. 2025 F2F meeting, we can modify "TBD Trigger frame" to "BSRP Trigger frame". | As in the comment | **Accepted**The proposed change has been included as a result of Motion #269. |
| 3329 | Sanket Kalamkar | 37.8.2.3.2 | 73.40 | There is no need of TBD in "TBD Trigger frame." Motion #269 mentions that the ICF that polls AP(s) to determine their intent if receiving a time allocation from the Co-TDMA sharing AP within the TXOP is a BSRP Trigger frame. | Replace "TBD" with "BSRP." | **Accepted**The proposed change has been included as a result of Motion #269. |
| 3880 | Abhishek Patil | 37.8.2.3.2 | 73.39 | Address the TBD. Identify the variant of Trigger frame that will be used as ICF. See motion #269 | Replace the TBD with BSRP | **Accepted**The proposed change has been included as a result of Motion #269. |
| 681 | Geon Hwan Kim | 37.8.2.3.2 | 73.28 | Based on the Motion #268 passed on recent Jan. 2025 F2F meeting, we should modify “announces” to “shall announce”. | As in the comment | **Accepted**The proposed change has been included as a result of Motion #268. |
| 2445 | Klaus Doppler | 37.8.2.3.2 | 73.43 | Whether or not the Co-TDMA sharing AP is mandated to send the ICF as part of the Co-TDMA procedure isTBD. | ICF should be mandated as part of the Co-TDMA procedure | **Accepted**The proposed change has been included as a result of Motion #268. |
| 3330 | Sanket Kalamkar | 37.8.2.3.2 | 73.28 | As per Motion #268, it is mandatory for the Co-TDMA sharing AP to send the ICF at the beginning of the TXOP that announces its intention of sharing a portion of the time resource of its TXOP for C-TDMA operation. The current text is missing to mention this mandatory requirement. | Change the text "A Co-TDMA sharing AP announces its..." with "A Co-TDMA sharing AP shall announce its..." | **Accepted**The proposed change has been included as a result of Motion #268. |
| 683 | Geon Hwan Kim | 37.8.2.3.2 | 73.43 | Because the Motion #268 was passed, this sentence should be removed. | As in the comment | **Accepted**The proposed change has been included as a result of Motion #268. |
| 3331 | Sanket Kalamkar | 37.8.2.3.2 | 73.43 | There is no need of TBD. As per Motion #268, it is mandatory for the Co-TDMA sharing AP to send the ICF at the beginning of the TXOP that announces its intention of sharing a portion of the time resource of its TXOP for C-TDMA operation. The current text is missing to mention this mandatory requirement. | Remove the text "Whether or not the Co-TDMA sharing AP is mandated to send the ICF as part of the Co-TDMA procedure is TBD." | **Accepted**The proposed change has been included as a result of Motion #268. |
| 3882 | Abhishek Patil | 37.8.2.3.2 | 73.44 | Address the TBD. Align with motion #268. | As in comment | **Accepted** The proposed change has been included as a result of Motion #268. |
| 713 | Chien-Fang Hsu | 37.8.2.3.2 | 73.50 | The NOTE describes a normative behavior of the sharing AP. Revise the NOTE to be a part of normative behaviors in the subclause. | as the comment | **Revised**Agree with the comment in principle. TGbn Editor: Please apply changes marked as #713. |
| 1527 | Xiandong Dong | 37.8.2.3.2 | 73.51 | The wording "shall" should not used for the informative text, rephrase may instead of shall. | as in comment | **Revised**Agree with the comment in principle.The resolution of this CID is the same as the resolution of CID #713, where the text of the note is now part of normative behavior. |
| 1709 | Gaius Wee | 37.8.2.3.2 | 73.50 | Note should not contain normative text (e.g., "shall consider ...") | Separate the note into its own paragraph to inform the Co-DMA sharing AP's behaviour. And remove the "NOTE" tag | **Revised**The resolution of this CID is the same as the resolution of CID #713, where the text of the note is now part of normative behavior. |
| 1863 | Sanghyun Kim | 37.8.2.3.2 | 73.50 | Behavior described in the NOTE is normative behavior. Please move the contents outside the NOTE. | As in comment | **Revised**The resolution of this CID is the same as the resolution of CID #713, where the text of the note is now part of normative behavior. |
| 3332 | Sanket Kalamkar | 37.8.2.3.2 | 73.49 | The NOTE has normative language. | Integrate the content of the NOTE into the main text. | **Revised**The proposed change is already incorporated as a resolution to CID #713. |
| 1700 | Gaius Wee | 37.8.2.3.1 | 72.45 | The introduction of "set of APs" seems unnecessary. If MAPC agreement is set up, the AP should be able to share the obtained TXOP with the other AP based on the agreement. Do we really need to define this set of APs? | Clarify what is significant about this set of APs and if it is not needed, remove references to "set of APs". Replace "another AP" directly with "one or more APs" and delete "that belongs to a set of APs (the set is TBD and can consist of one AP)" | **Revised**Agree with the comment in principle. The updated text now specifies “one or more other APs.”TGbn Editor: Please apply the changes marked as #1700. |
| 3873 | Abhishek Patil | 37.8.2.3.1 | 72.47 | Simplify the language and resolve the TBD. | Replace: "... another AP that belongs to a set of APs (the set is TBD and can consist of one AP) ..." ... as "one or more APs .." | **Revised**The updated change similar to the proposed change is incorporated as a resolution to CID #1700. |
| 1706 | Gaius Wee | 37.8.2.3.2 | 73.46 | "provide.. Its intention" seems oddly phrased | Replace "provide" with "inform" | **Revised** Agree with the comment in principle.The text is revised as follows: “A polled AP shall transmit, in a response to the received ICF…”TGbn Editor: Please apply the change marked as #1706. |
| 1707 | Gaius Wee | 37.8.2.3.2 | 73.48 | It seems odd that the first bullet is a negative response. Suggest to swap the first and second bullets | Swap the first and second main bullets (along with the subbullet) | **Revised**Agree with the comment in principle. The text is updated on the similar line as the proposed change. As a resolution to CID #1708, the revised text now combines both the bullets, which also resolves this comment.TGbn Editor: Please apply the changes marked as #1708. |
| 1708 | Gaius Wee | 37.8.2.3.2 | 73.48 | The first two bullets can be combined for conciseness | Replace first two main bullets with "Its intention to receive or not to receive time allocation from the Co-TDMA sharing AP during the current TXOP". Retain the subbullet | **Revised.** Agree with the comment in principle. Both the bullets are combined on the similar line as the proposed change.TGbn Editor: Please apply the changes marked as #1708. |
| 3788 | Yongho Seok | 37.8.2.3.2 | 73.53 | "Its intention to receive time allocation from the Co-TDMA sharing AP during the current TXOP."Please combine this with the first sub-bullet. | As in the comment | **Revised**Agree with the comment in principle. The text is updated on the similar line as the proposed change as a resolution to CID #1708.TGbn Editor: Please apply the changes marked as #1708. |
| 3326 | Sanket Kalamkar | 37.8.2.3.3 | 73.62 | "-" from "co-located" is not needed. | "-" from "co-located" should be removed. | **Accepted**TGbn Editor: Please apply changes marked as #3326. |
| 3384 | Zhenpeng Shi | 37.8.2.3.3 | 73.61 | This paragraph uses both "colocated" and "co-located", suggest to choose one and make it consistent. | As in comment. | **Revised**Agree with the comment. The term “colocated” is accepted for the use.The revised change is already incorporated as a resolution to CID #3326. |
| 3328 | Sanket Kalamkar | 37.8.2.3.1 | 73.19 | In Figure 37-3, there is no need for TBD as the figure simply represents what has been agreed by the TGbn. | Remove "TBD" from the caption of Figure 37-3. | **Accepted**TGbn Editor: Please apply changes marked as #3328. |
| 3875 | Abhishek Patil | 37.8.2.3.1 | 73.19 | The figure shows an example sequence. The TBD doesn't provide any value. | Delete the TBD | **Accepted** The proposed change is already incorporated as a resolution to CID #3328. |
| 3334 | Sanket Kalamkar | 37.8.2.3.2 | 73.47 | The frame that carries the response from a polled AP to the ICF received from the Co-TDMA sharing AP is missing. Motion #270 specifies that "As part of Co-TDMA operation, a poll response from a polled AP solicited by the ICF shall be carried in an M-BA frame." | Add the following text after P73L55: "A poll response from a polled AP solicited by the ICF shall be carried in a Multi-STA BlockAck frame." | **Revised**Agree with the comment in principle.Based on Motion #270, the text is already updated.TGbn Editor: Please apply the changes marked as M270. |
| 3383 | Zhenpeng Shi | 37.8.2.3.2 | 73.25 | "Co-TDMA sharing AP" has not been defined yet. | Define "Co-TDMA sharing AP" in 37.8.2.3.1 | **Rejected**The definition of Co-TDMA sharing AP is provided in subclause 3.2 at P22L05 of D.01 of 11bn. |
| 3599 | kaiying Lu | 37.8.2.3.2 | 73.41 | The AID12 subfield of the polled AP's User Info field should be set to the polled AP's AP ID assigned by the sharing AP, because different sharing AP may assign different APID for the same polled AP. | Change to "the AID12 subfield of the polled AP's User Info field to the polled AP's AP ID assigned by the sharing AP." | **Revised**Agree with the comment in principle. The updated text is slightly different than the proposed change as follows:**“…**the AID12 subfield of the polled AP's User Info field to the polled AP's AP ID as assigned by the sharing AP.**”**TGbn Editor: Please apply changes marked as #3599. |
| 3878 | Abhishek Patil | 37.8.2.3.2 | 73.38 | Since the context of the discussion is clear, delete extra content from this sentence - i.e., delete: "to determine their intent if receiving a time allocation from the Co-TDMA sharing AP within the TXOP" | As in comment | **Accepted**TGbn Editor: Please apply changes as marked as #3878. |
| 3879 | Abhishek Patil | 37.8.2.3.2 | 73.38 | Add 'the' before 'AP(s)' | As in comment | **Accepted** TGbn Editor: Please apply changes as marked as #3879. |
| 676 | Taeyoung Ha | 37.8.2.3.2 | 73.36 | It would be better to change "is" to "shall be" to define the clear operation of Co-TDMA sharing AP | Change "The Duration field of the ICF is set to one SIFS plus the time required to transmit the solicited response from the polled AP(s)." to "The Duration field of the ICF shall be set to one SIFS plus the time required to transmit the solicited response from the polled AP(s)." | **Revised**Agree with the comment in principle.The same proposed change also applies to the Duration field of the MU-RTS TXS Trigger frame in Subclause 37.8.2.3.3.TGbn Editor: Please apply the changes marked as #676. |
| 2464 | Yanjun Sun | 37.8.2.3.2 | 74.04 | Please use normative text: "shall be" instead of "is" | as in comment | **Accepted** The proposed change is already incorporated as a resolution to CID #676. |

**TGbn Editor: *Please make changes to Subclause 37.8.2.3 as follows:***

* **Coordinated time division multiple access (Co-TDMA)**
* **General**

The coordinated time division multiple access (Co-TDMA)(#111) procedure enables an AP to share a time portion of an obtained TXOP with one or more other APs (#1700) to transmit one or more PPDUs.

A UHR AP may initiate a Co-TDMA procedure with another UHR AP only if the primary 20 MHz for both APs’ BSS is the same.(M363)

Figure 37-3 (Example of a Co-TDMA(#623) procedure between three APs (#3328)) shows an example of a Co-TDMA(#622) procedure that includes a polling phase, a TXOP allocation phase, and a TXOP return phase.



37.3—Example of a Co-TDMA(#623) procedure between three APs (#3328)

* **Polling phase**

A Co-TDMA sharing AP may solicit, from another AP, a poll response sent in a TB PPDU only if the other AP has indicated support for responding in a TB PPDU.

A Co-TDMA sharing AP shall announce(M268) its intention of sharing a time portion of an obtained TXOP with another AP in an ICF sent at the beginning of the TXOP. The ICF polls one or more APs to solicit a response to determine the intent of the polled AP(s) if receiving a time allocation from the Co-TDMA sharing AP within the TXOP.

The Duration field of the ICF shall be(#676) set to one SIFS plus the time required to transmit the solicited response from the polled AP(s).

The ICF that polls the(#3879) AP(s) (#3878)shall be a BSRP Trigger frame.(M269)

The Co-TDMA sharing AP identifies each AP to be polled by setting, in the BSRP(M269) Trigger frame, the AID12 subfield of the polled AP’s User Info field to the polled AP’s AP ID as assigned by the Co-TDMA sharing AP(#3599).

(M268)A polled AP shall transmit(#1706), in a response to the received ICF, a Multi-STA BlockAck frame(M270), that includes an indication whether the polled AP wishes to receive a time allocation from the Co-TDMA sharing AP during the current TXOP(#1708).

(#1708)(#713)

(#1708)Signaling details (including traffic indication) are TBD.

(#713)If a Co-TDMA sharing AP does not receive a response from a polled AP, the Co-TDMA sharing AP shall consider that the polled AP does not wish to receive a time allocation from the Co-TDMA sharing AP during the current TXOP.

* **TXOP allocation phase**

A Co-TDMA sharing AP may allocate a time portion within its obtained TXOP to another AP that is not colocated with the Co-TDMA sharing AP. To share a time portion of the Co-TDMA sharing AP's obtained TXOP, the AP shall transmit an MU-RTS TXS Trigger frame to the other AP that is not colocated(#3326) with the Co-TDMA sharing AP.

Note—The MU-RTS TXS Trigger frame is defined in 9.3.1.22.9 (MU-RTS Trigger frame format) with TBD modifications for the Co-TDMA procedure.

The Duration field of the MU-RTS TXS Trigger frame shall be(#676) set to one SIFS plus the time required to transmit the solicited CTS response frame.

A Co-TDMA sharing AP identifies the Co-TDMA coordinated AP with which a time portion of the obtained TXOP is to be shared by setting the AID12 subfield of the User Info field of the MU-RTS TXS Trigger frame to the Co-TDMA coordinated AP's AP ID.

After a Co-TDMA coordinated AP receives an MU-RTS TXS Trigger frame from the Co-TDMA sharing AP that contains a User Info field that identifies the Co-TDMA coordinated AP, the AP may transmit and/or receive one or more PPDUs within the time allocation signaled in the MU-RTS TXS Trigger frame. The first PPDU of the exchange shall carry a CTS frame transmitted as per the rules defined in 26.2.6.3 (CTS frame sent in response to an MU-RTS Trigger frame).

The time allocated to a Co-TDMA coordinated AP identified in the MU-RTS TXS Trigger frame is specified in the Allocation Duration subfield in the MU-RTS TXS Trigger frame.

* **TXOP return phase**

A Co-TDMA coordinated AP may return the remainder of the allocated time (if any) to the Co-TDMA sharing AP. The condition(s) for TXOP return and signaling details on how to return the TXOP are TBD.

A Co-TDMA sharing AP may transmit to a Co-TDMA coordinated AP an indication of whether the Co-TDMA coordinated AP is required to return the remainder of the allocated time (if any) back to the Co-TDMA sharing AP if sufficient time remains to transmit the frame which returns the TXOP and the solicited response frame.(M277)

The mechanism by which a Co-TDMA sharing AP indicates whether TXOP return is needed is TBD.(M277)