IEEE P802.11
Wireless LANs

|  |
| --- |
| CR for fairness in CTDMA |
| Date: 2025-03-12 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Dibakar Das | Intel |  |  | Dibakar.das@intel.com |
|  |  |  |  |  |

Abstract

This document addresses the CID 1378.

Rev0: initial version

Rev 1: Update details.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| **1378** | 37.8.2.3 | 72.44 | Add some rules that channel access and airtime fairness for STAs that are not participating in C-TDMA operation but are in the same collision domain of other APs pariticpating in C-TDMA based TXOP sharing. | Add some rules that put a limit on max allocated time to a shared AP and minimum time used by sharing AP for own transmissions. |  **Revised.** We add some rules on the lines of motion 329 on March 13 2025:“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”and the Motion 274 MAC on Jan 16 2025:* + - “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”**TGbn editor to make the changes shown in 11-25/479r2 under all text tagged with #1378** |

# Discussion:

Based on some offline discussions we want to propose following way to resolve the TBDs in thr motion:

* + The maximum time allocated by a sharing AP in a TXOP to all shared AP for CTDMA is not higher 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 ~~TBD~~ 33 % of the TXOP it shares for data/management ~~communication~~ frame exchanges with its own associated STAs, except if all neighboring APs on the same primary channel in the range (-72dBm) of the AP have a C-TDMA agreement with the AP.
	+ Note: same for TXS mode 2

# Proposal:

***TGbn editor: Insert Clause 37.17 as follows (#1378):***

* 1. **Fairness considerations for time sharing during TXOP**

This subclause defines a mechanism as part of TXOP sharing (e.g., Cocoordinated-TDMA (Co-TDMA, triggered TXOP sharing (TXS), etc.) to support fairness to neighboring STAs (APs and non-APs).

When a TXOP owner UHR AP allocates a portion of its obtained TXOP to at least one of

* Co-TDMA coordinated AP(s) during a Co-TDMA procedure (see 37.8.2.3) and
* Associated non-AP STA(s) during a TXS mode 2 procedure (i.e., the one in which the MU-RTS TXS Trigger frame has the TXS Mode subfield value set to 2),

then the total allocated duration shall not exceed the minimum of:

* The TXOP limit that the TXOP owner AP advertises to its associated non-AP STAs for AC\_VI.
* The TXOP limit that the TXOP owner AP advertises to its associated non-AP STAs for the primary AC of that TXOP.

The TXOP owner AP shall not share an obtained TXOP if either of the TXOP limits for the primary AC or for AC\_VI that the AP advertises to its associated non-AP STAs is 0.

Within a TXOP in which a TXOP owner UHR AP performs either Co-TDMA or TXS mode 2 procedure, the AP shall use at least 33% of the obtained TXOP for data or management frame exchanges with its own associated STAs except if the following is true:

* The TXOP owner AP is performing Co-TDMA in that TXOP and all neighboring APs on the 20 MHz primary channel whose Beacon frame is received by the AP with an RSSI above or equal to -72 dBm

have a Co-TDMA agreement with that AP