IEEE P802.11
Wireless LANs

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| cc50-cid-1783-discussion-on-npca-minimum-duration-threshold |
| Date: May 15, 2025 |
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 Abstract

This submission proposes resolution for CID 1783 received for CC50 and a TBD in D0.2.

**Revisions:**

* Rev 0: Initial version of the document.
* Rev 1: Change the document format from ppt to doc
* Rev 2: Correction of typo “TGbf” with “TGbn”
* Rev 3: Also resolve a TBD related to NPCA Minimum Duration Threshold field.

***TGbn editor: The baseline for this document is P802.11bn D0.2 and P802.11REVmeD7.0***

***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.***

# **CID 1783:**

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| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **Page.line** | **Comment** | **Proposed Change** | **Resolution** |
| 1783 | Chaoming Luo | 37.10 | 78.01 | The NPCA Minimum Duration Threshold should be long enough to complete at least one frame exchange in the NPCA P-channel, otherwise it's waste of power to do the switch. | As in comment. | **Revised**Agree with the commenter in principle.**TGbn editor, please incorporate changes tagged with 1783 in 11-25/0537r3.** |

## **Discussion**:

11bn draft 0.2 defines: The NPCA Minimum Duration Threshold field indicates the minimum duration of inter-BSS activity (inter-BSS PPDU or inter-BSS TXOP) that is required to have been indicated on the primary channel of the BSS as a necessary condition to permit an NPCA STA to switch to the NPCA primary channel to perform NPCA operation. The encoding and the maximum value of this field are TBD.

As stated in the comment, we should also limit the **minimum value** of **the** **NPCA Minimum Duration Threshold field** to avoid meaningless NPCA switching.

A simple analysis for the minimum time the NPCA operation consumes as follows:

* At least a NPCA Switching Delay of the AP
* At least one EDCA backoff, consumes a minimum of PIFS, i.e., 25 us.
* At least one ICF + SIFS + ICR + SIFS sequence, consumes a minimum around 232 us.
	+ Assume ICF takes around 128 us (using non-HT PPDU or non-HT duplicate PPDU format using a rate of 6 Mb/s, 12 Mb/s, or 24 Mb/s), ICR takes around 72 us.
* At least one Data + SIFS + Ack/BA sequence, consumes a minimum around 160 us.
	+ Assume Data takes at least 72 us, Ack/BA takes around 72 us.
	+ Although QoS Data with No Ack ack policy do not need Ack, prefer to still consider Ack in NPCA as a common case.

And here we also consider to solve the **TBD** in this part: “The encoding and the maximum value of this field are TBD.”

Overall, we propose:

The range of the NPCA Minimum Duration Threshold field is 512 us to 2432 us, so the field uses 4 bits with a resolution of 128 us.

## **Proposed Text starts here**

**9.4.2.aa1 UHR Operation Element**

***TGbn Editor: Please modify the NPCA Operation Information field format in 11bn D0.2 as follows:***

The format of the NPCA Operation Information field is defined in Figure 9-aa3 (NPCA Operation Information field format),

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0 B7 | B8 B11 | B12 B17 | B18 B23 |
|  | **NPCA Primary Chanel** | **NPCA Minimum Duration Threshold** | **NPCA Switching Delay** | **NPCA Switch Back Delay** |
| Bits: | 8 | ~~TBD~~ 4 | 6 | 6 |

**Figure 9-aa3 —NPCA Operation Information field format [1783]**

***TGbn Editor: Please modify the paragraph at P66L26 in 11bn D0.2 as follows:***

The NPCA Minimum Duration Threshold field indicates the minimum duration of inter-BSS activity (inter-BSS PPDU or inter-BSS TXOP) that is required to have been indicated on the primary channel of the BSS as a necessary condition to permit an NPCA STA to switch to the NPCA primary channel to perform NPCA operation. ~~The encoding and the maximum value of this field are TBD.~~ The NPCA Minimum Duration Threshold field is set as defined in Table 9-xxx (Encoding of the NPCA Minimum Duration Threshold field). *[1783]*

**Table 9-xxx (Encoding of the NPCA Minimum Duration Threshold field)** *[1783]*

|  |  |
| --- | --- |
| **NPCA Minimum Duration Threshold field** | **Description** |
| 0 - 15 | The NPCA minimum duration threshold T, in units of 128 us, is T = 512 + NMDT × 128, where NMDT is the field value, which yields a minimum of 512 us and a maximum of 2432 us.Note – The minimum is chosen to cover at least the transmission time of NPCA ICF and ICR exchange plus a typical Data and Ack/BA exchange using non-HT or non-HT duplicate PPDU format with 6 Mb/s data rate. |

## **Proposed Text ends here**

# **SP**

Do you support resolution to the CID 1783 and incorporate the corresponding text changes in 11-25/0537r3 into the latest TGbn draft?

Y/N/A