IEEE P802.11
Wireless LANs

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| Initial SA Ballot CR for CID 22159 |
| Date: 2024-03-11 |
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Abstract

This submission proposes comment resolution for CID 22159 received in initial SA ballot of 11be.

R0: Initial version.

R1: Revised discussions.

R2: Revised proposed text based on offline discussion.

## Related Comment

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| **CID** | **Commenter** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 22159 | Juseong Moon | 35.3.16.4 | 566.61 | In an AP MLD, which is associated with STA MLDs operating on an NSTR link pair, while backoff counter is zero and queue is being considered empty, another frame, destined to other STA not causing NSTR interference, can be queued and the EDCA queue becomes non-empty again. In this case, the data frame can be transmitted immediately without invoking new backoff because the backoff counter is already 0. Because this is the AP MLD's operation, it can enhance efficiency of AP MLD's transmission. However, draft 3.0 requires to invoke new backoff procedure for the AP MLD. It is more efficient to transmit a frame which doesn't cause interference without backoff, for the AP MLD. | Modify the text as following: — consider the transmit queue for that AC as empty until any frame exists in the queue which if transmitted, the transmitter determines, will not cause an unacceptable level of interference caused by transmission at the non-AP STA operating on the other link of an NSTR link pair that the AP or non-AP STA belongs to. The queue is then considered to have become nonempty and - the procedure described in 10.23.2.4 (Obtaining an EDCA TXOP) is followed for the AP if the transmit queue becomes nonempty due to an MPDU destined to another non-AP STA to be queued for transmission. - backoff is invoked per the procedure described in a) of 10.23.2.2 (EDCA backoff procedure) regardless of whether the medium is busy or not, otherwise. | Revised.Agree in principle.TGbe Editor: Apply the change tagged with #22159 to 11be D5.0. |

## Discussion

**In 35.3.16.4 Nonsimultaneous transmit and receive (NSTR) operation of D5.0, the following problem is not considered**

**<Problem: Packet to the other non-AP MLD>**

The AP MLD’s queue becomes nonempty because the packet of same AC destined for the non-AP MLD 2 (different from non-AP MLD 1 which is currently transmitting) are enqueued.



* The AP MLD’s queue becomes nonempty because the packet of same AC destined for the non-AP MLD 2 (different from non-AP MLD 1 which is currently transmitting) are enqueued.
* In this case, the AP MLD 1 can transmit the frame to the non-AP MLD 2 without invoking new backoff.
* However, AP MLD has to invoke new backoff per Draft 5.0 as marked in **blue** below.

An AP or non-AP STA affiliated with an MLD that has gained the right to initiate the transmission of a frame as described in 10.23.2.4 (Obtaining an EDCA TXOP) for an AC but does not transmit any frame corresponding to that AC for the reasons stated above may:

— invoke a backoff for the EDCAF associated with that AC as allowed per h) of 10.23.2.2 (EDCA backoff procedure)

— consider the transmit queue for that AC as empty until any frame exists in the queue which if transmitted, the transmitter determines, will not cause an unacceptable level of interference caused by transmission at the non-AP STA operating on the other link of an NSTR link pair that the AP or non-AP STA belongs to. The queue is then considered to have become nonempty and backoff is invoked per the procedure described in a) of 10.23.2.2 (EDCA backoff procedure) regardless of whether the medium is busy or not

* However, according to the baseline rule of 10.23.2.2 (EDCA backoff procedure), the AP does not have to invoke a new backoff if the medium is idle.

**10.23.2.2 (EDCA backoff procedure – 802.11-2020)**

The backoff procedure shall be invoked by an EDCAF when any of the following events occurs:

a)  An MA-UNITDATA.request primitive is received that causes an MPDU corresponding to the EDCAF’s AC to be queued for transmission such that all of the following are true:

1)  One of the transmit queues associated with that AC has now become non-empty

2)  Any other transmit queues associated with that AC are empty

3)  The backoff counter has a value of 0 for that AC

4)  The medium is busy on the primary channel as indicated by any of the following:

—  Physical CS

—  Virtual CS

—  A nonzero TXNAV timer value

—  For a mesh STA that has dot11MCCAActivated true, a nonzero RAV timer value

* Therefore, to align with the baseline operation, the 802.11be draft should be modified.
* The proposed text does not prioritize the AP at all but rather aligns the operation of 11be with the baseline.

## Proposed Text for 11be D5.0

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

***TGbe Editor: please apply the following change to P567L4 of 802.11be D5.0***

— consider the transmit queue for that AC as empty until any frame exists in the queue that if

transmitted, the transmitter determines, will not cause an unacceptable level of interference caused

by transmission at the non-AP STA operating on the other link of an NSTR link pair that the AP or non-AP STA belongs to. The queue is then considered to have become nonempty and

* the procedure described in 10.23.2.4 (Obtaining an EDCA TXOP) is followed for the AP if the transmit queue becomes nonempty due to an MPDU destined to another non-AP STA that is not affiliated with the same non-AP MLD to be queued for transmission.
* backoff is invoked per the procedure described in a) of 10.23.2.2 (EDCA backoff procedure) regardless of whether the medium is busy or not, otherwise.