IEEE P802.11  
Wireless LANs

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| 802.11ah TXOP Limits | | | | |
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Abstract

This submission proposes a resolution for a post LB232 comment on 802.11ah TXOP Limits.

Revisions:

* Rev 0: Initial version of the document

Discussion:

The original comment and original proposed change are below. Note that Table 9-146 in 802.11md d1.1 has been renumbered to become Table 9-155 in 802.11md d1.3. In addition, the default values for TXOP limit are expressed in milliseconds and are multiples of 32 microseconds, so the proposed value of 32.767 milliseconds is reduced to 32.736 milliseconds in the proposed text changes further below.

A duration value of 32.736 milliseconds allows for at least the transmission of the following frame exchange at the 802.11ah MCS 10 rate in a 1 MHz channel:

RTS / NDP CTS / 511 byte Packet/ NDP ACK

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| **CID** | **Commenter** | **Pg / Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
|  | David Goodall | 1036/1 | 9.4.2.28 | For 802.11ah non-sensor STAs the default TXOP limit value for each AC is defined in Table 9-146. This value is the same as the values for IEEE 802.11ac, and is not suitable for the lower data rates of 802.11ah. For example, the TXOP limit for best effort traffic does not allow sufficient time for a non-sensor STA to transmit either TCP packets or ping packets using MCS10. | Provide a separate column in Table 9-146 for Clause 23 PHYs (802.11ah) in which the TXOP limit for each AC is set to a maximum of 32.767 milliseconds. This would allow for at least an RTS/NDP CTS/Packet/NDP ACK frame exchange to be sent at MCS10 at any value of AC, where the packet is a maximum length PSDU without aggregation (511 bytes). |  |

Table 9-155 (Default EDCA Parameter Set element parameter values if dot11OCBActivated is false or (11ah)the STA is a non-sensor STA) defines the default EDCA parameter values used by a non-AP STA if dot11OCBActivated is false.[[1]](#footnote-1)

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|  | * Default EDCA Parameter Set element parameter values if dot11OCBActivated is false or (11ah)the STA is a non-sensor STA | | | | | | | | |
| AC | | CWmin | CWmax | AIFSN | TXOP limit | | | |
| For PHYs defined in Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM -applications) and Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification) | For PHYs defined in Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), Clause 18 (Extended Rate PHY (ERP) specification), Clause 19 (High-throughput (HT) PHY specification), Clause 21 (Very high throughput (VHT) PHY specification) | For PHY defined in Clause 22 (Television very high throughput (TVHT) PHY specification) | For PHY defined in Clause 23 (Sub 1 GHz (S1G) PHY specification(11ah)) (11ah) | Other PHYs |
| AC\_BK | | aCWmin | aCWmax | 7 | 3.264 ms | 2.528 ms | 0 | 32.736 ms | 0 |
| AC\_BE | | aCWmin | aCWmax | 3 | 3.264 ms | 2.528 ms | 0 | 32.736 ms | 0 |
| AC\_VI | | (aCWmin+1)/2 – 1 | aCWmin | 2 | 6.016 ms | 4.096 ms | 22.56 ms (BCU: 6 or 7 MHz),  16.92 ms (BCU: 8 MHz) | 32.736 ms | 0 |
| AC\_VO | | (aCWmin+1)/4 – 1 | (aCWmin+1)/2 – 1 | 2 | 3.264 ms | 2.080 ms | 11.28 ms (BCU: 6 or 7 MHz),  8.46 ms (BCU: 8 MHz) | 32.736 ms | 0 |

1. The default values for TXOP limit are expressed in milliseconds and are multiples of 32 s. [↑](#footnote-ref-1)