IEEE P802.11  
Wireless LANs

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| EIFS comment | | | |
| **Date:** January 18, 2016 | | | |
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**Abstract**

This document contains a proposed resolution for an EIFS-related comment carried over from SB1.

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| **SB1 CID** | Identifiers | Comment | Proposed Change |
| **5966** | draft 5.0:  10.3.7  P1298 L1 | EIFS can be avoided at devices that do not implement dynamic EIFS (yet) by requiring that a TXOP is always terminated with a transmission of an ACK at the lowest rate within the PHY. (Dynamic EIFS is defined in 10.3.7, P1298 L9 in 802.11REVmc draft 5.0.) | Require that the TXOP holder terminates a TXOP with an ACK at the lowest rate within the PHY (i.e. at 6 Mbps for 11ac). |

**Discussion**

Spurious EIFSs as addressed in the comment can be caused by any final control response frame transmitted at a rate higher than 6 Mbps (typically 12 or 24 Mbps), because the preamble of such PPDUs travels far beyond the MPDU, which causes an EIFS to occur in a potentially very large region. The response rate selection can not be controlled however, so an option is that the TXOP holder sends a short frame at 6 Mbps as the terminating frame in a TXOP. This final terminating transmission truncates an EIFS in a large region around the TXOP holder, strongly reducing the area where a a spurious EIFS may occur.

Based on offline discussion, it appears that there is a preference to use a CF-End as the terminating frame, because its definition already exists. A CF-End is longer than an ACK but probably still not causing much overhead. The proposed resolution therefore proposes to add an explanation about terminating any TXOP with a CF-End at 6 Mbps, and makes it a should requirement, while also allowing the use of a CTS-to-self.

Note that an alternative solution would be to deprecate EIFS altogether.

**Proposed resolution**

Revised. In 10.3.7 (DCF timing relations), at P1298 L64, add the following three paragraphs:

"A TXOP holder should transmit a short control frame as the final transmission in a TXOP, at the lowest PHY mandatory rate of the PHY that was used for the immediately preceding frame in the TXOP, unless that immediately preceding frame already was a short control frame at the lowest PHY mandatory rate. The final transmission can be a CF-End, or a CTS-to-self when no NAV needs to be truncated. See NOTE1 and NOTE2.

NOTE1: The terminating frame (e.g. the CF-End or CTS-to-self at the lowest PHY rate) is needed because a final (response) frame of a TXOP which is transmitted at a higher rate than the lowest PHY mandatory rate can cause spurious EIFSs to occur, because the PHY header of such frames travels farther then the MPDU.

NOTE2: The use of the PHY that was used for the immediately preceding frame enables that for example an OFDM TXOP in the 2.4 GHz band is terminated with an OFDM CF-End frame and not a DSSS CF-End frame."