IEEE P802.11
Wireless LANs

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| EIFS Issues - Normative Text |
| Date: 15 May 2013 |
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**Abstract**

The normative text in this document accomplishes changes to the value of EIFS such that EIFS is not started after what appears to be an ACK or Block Ack frame, and such that EIFS can be adapted based on the expected duration of the (hidden) response frame.

The normative text in this document is based on 11-13/124r0.

History:

R0: initial revision

**9.3.7 DCF timing relations**

***Modify 9.3.7 as follows:***

When dot11DynamicEIFSActivated is false or not defined, the EIFS is derived from the SIFS and the DIFS and the length of time it takes to transmit an ACK frame at the lowest PHY mandatory rate by Equation (9-4).

 EIFS = aSIFSTime + DIFS + ACKTxTime (9-4)

where

 ACKTxTime is the time expressed in microseconds required to transmit an ACK frame, including preamble, PLCP header and any additional PHY dependent information, at the lowest PHY mandatory rate.

When dot11DynamicEIFSActivated is true, EIFS is based on an estimated duration of the frame that is the possible response to the frame that causes the EIFS.

When dot11DynamicEIFSActivated is true and the frame that causes the EIFS does not contain a single MPDU with a length equal to 14 or 32 Bytes, EIFS is determined as shown in Equation (9-4a).

 EIFS = aSIFSTime + EstimatedACKTxTime + DIFS (9-4a)

where

 EstimatedACKTxTime based on an estimated duration of the frame that is the possible response to the frame that causes the EIFS, as specified in Table 9.x.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Modulation of frame causing EIFS** | **Rate/MCS of frame causing EIFS** | **Other properties of frame causing EIFS** | **Presumed response** | **EstimatedACKTxTime (μs)** | **Example EIFS for short slot (μs)** |
| (HR-)DSSS | 1 Mbps |   | ACK | 304 | 342 |
| (HR-)DSSS | ≥ 2 Mbps |   | ACK | 152 | 190 |
| (ERP-)OFDM | BPSK |   | ACK | 44 | 94 |
| (ERP-)OFDM | QPSK |   | ACK | 32 | 82 |
| (ERP-)OFDM | ≥16-QAM |   | ACK | 28 | 78 |
| HT | BPSK | Aggregation = 0 | ACK | 44 | 94 |
| HT | QPSK | Aggregation = 0 | ACK | 32 | 82 |
| HT | ≥16-QAM | Aggregation = 0 | ACK | 28 | 78 |
| HT | BPSK | Aggregation = 1 | Block Ack | 68 | 118 |
| HT | QPSK | Aggregation = 1 | Block Ack | 44 | 94 |
| HT | ≥16-QAM | Aggregation = 1 | Block Ack | 32 | 82 |

**Table 9.x — Determination of the EstimatedACKTxTime based on properties of the frame causing the EIFS**

When dot11DynamicEIFSActivated is true and the frame that causes the EIFS contains a single MPDU with a length equal to 14 or 32 Bytes, EIFS is equal to DIFS. This reflects the fact that a 14 or 32 Byte MPDU is very likely an ACK or a Block Ack, which does not cause a response frame to be transmitted. EIFS must be equal to DIFS in this case.

**B.4.4.1 MAC protocol capabilities**

***Add a PICS entry in table in B.4.4.1 as follows:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Protocol capability** | **References** | **Status** | **Support** |
| PC3.11a | Dynamic EIFS | 9.3.7 (DCF timing relations) | O | Yes ☐ No ☐ N/A ☐ |

**C.3 MIB Detail**

***Add an item to Dot11StationConfigEntry as follows:***

 dot11DynamicEIFSActivated TruthValue

***Add an item to the Dot11StationConfig table as follows:***

dot11DynamicEIFSActivated OBJECT-TYPE

 SYNTAX TruthValue

 MAX-ACCESS read-only

 STATUS current

 DESCRIPTION

 "This is a control variable.

 It is written by an external management entity.

 Changes take effect for the next MLME-START.request primitive or MLME-

 JOIN.request primitive.

 This attribute indicates whether the entity uses a dynamic value for EIFS

 based on properties of the frame that causes the EIFS, or a fixed value."

 ::= { dot11StationConfigEntry [ANA]}