**IEEE P802.15**

**Wireless Specialty Networks**

|  |  |
| --- | --- |
| Project | IEEE P802.15 Working Group for Wireless Specialty Networks (WSNs) |
| Title | CID 1401: SIFS and LIFS for HRP-EMDEV |
| Date Submitted | 11 February 2025 |
| Source | [Benjamin Rolfe][Blind Creek Associates][Benjamin A. Rolfe][BCA] | E-mail: [ben.rolfe @ ieee.org ]  |
| Re: | LB207, CID 1401 on P802.15.4ab-D01 |
| Abstract | Proposed resolutions to CID 1401 |
| Purpose | Resolve the specific initial WG ballot (LB207) comment ID 1401 |
| Notice | This document has been prepared to assist the IEEE P802.15. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein. |
| Release | The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15. |

# Introduction

This document addresses the following comment:

Comments:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** |
| 1401 | 15 | 6.6.3.3 | 24-26 | Fixing AIFS, but leaving SIFS, LIFS unchanged as 12 and 40 preamble symbols seems to be conflicting with the base standard requiring AIFS<SIFS<LIFS. | Add definitions for SIFS and LIFS for HRP-EMDEV with adequate values. |

# Resolutions

Add change to 11.1.4 (802.15.4-2024), second group, as indicated:

For the HRP UWB PHY, except for an HRP-EMDEV, the minimum LIFS period and SIFS period are as follows:

— macLifsPeriod: 40 preamble symbols

— macSifsPeriod: 12 preamble symbols

For an HRP-EMDEV the minimum LIFS period and SIFS period are as follows:

— macLifsPeriod: Value of macEmdevImmAckAifsPeriod + 28 preamble symbols

— macSifsPeriod: Value of macEmdevImmAckAifsPeriod

# Discussion

With the addition of the attribute *macEmdevImmAckAifsPeriod* the value of AIFS for a HRP-EMDEV can be 16, 32 or 64 µs. AIFS specifies the time allowed for generating the Imm-Ack following reception of a frame with the Acknowledgment request (AR) field set. In the base standard, the Imm-Ack response time AIFS is related to the short interframe spacing (SIFS) and long interframe spacing (SIFS). The exact reason for this is obscured by the passage of time. LIFS and SIFS are minimum interframe spacings, following a long or short frame, respectively. Actual interframe spacings (the time between subsequent transmissions from a given transmitting device) may be greater.

The comment correctly observes that for some PHY configurations SIFS as specified in the base standard may be less than the AIFS specified in Draft for HRP-EMDEVs. This violates the constraint stated in the base standard.

The present specification for AIFS=*macSifsPeriod* symbol durations [802.15.4-2024 6.6.3.3]. The present specification for SIFS=12 preamble symbol durations, and LIFS is 40 preamble symbol durations (28 greater than SIFS) [802.15.4-2024, 6.3.1]. The preamble symbol durations vary based on PHY configuration.

To satisfy the requirement that AIFS <= SIFS < LIFS [802.15.4-2024, 6.3.1], the LIFS period needs to be greater than AIFS and SIFS. The simplest solution is to maintain the relationship as defined in the base standard.

This addresses the issue identified in the comment.