**IEEE P802.15**

**Wireless Specialty Networks**

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| Project | IEEE P802.15 Working Group for Wireless Specialty Networks (WSNs) – 802.15.6ma | |
| Title | **Proposed text for 6ma MAC – Dependable BAN Operation** | |
| Date Submitted | July 4, 2023 | |
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| Re: | Contribution to IEEE 802.15.6ma | |
| Abstract | This document provides a text draft of 6ma MAC for describing creation and operation of a dependable BAN and a dependable BAN group in clause 6.4. | |
| Purpose | Support development of technical content for the draft | |
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***Insert the sub-clause 6.4.4 as follows:***

**6.4.4 Dependable BAN creation/operation**

**6.4.4.1 Dependable BAN and dependable BAN group creation**

When a hub starts to create a BAN, the hub shall listen channels to search hubs of coexisting BANs and to choose an operating channel for the BAN.

If the hub finds no hub within coexisting range, the hub becomes a coordinator hub of the dependable BAN group and starts to maintain a dependable BAN and a dependable BAN group by broadcasting a dependable BAN beacon (D-Beacon) as specified in 5.3.10 and 5.7.16.

**6.4.4.2 Dependable BAN group join**

When a hub starts to create a dependable BAN, if the hub finds a coordinator hub, the hub sends a join request to the coordinator of the coexisting dependable BAN group as specified in 5.3.10 and 5.7.16.8.

When receiving a join response as specified in 5.7.16.9, the hub synchronizes beacon access phase to the BAP of the coordinator hub. The hub starts to broadcast a beacon as specified in 5.3.10 and 5.7.16 on a beacon slot of the BAP, which is assigned by the coordinator hub.

The hub starts to receive a connection request from nodes of its BAN.

**6.4.4.3 Dependable BAN group maintenance**

A hub listens operating channel while maintaining its BAN. When the hub finds new coordinator hub, the hub checks the class of new coordinator hub and BAN ID.

When the class of new coordinator hub is higher priority or when the class of new coordinator hub is equal but new coordinator hub’s BAN ID is lower, if the hub is a coordinator hub, the hub becomes a leaf hub. If the hub is a leaf hub, the hub joins new dependable BAN group.

To become a leaf hub of new dependable BAN group, the hub sends a join request to new coordinator hub. When receiving a join response, the hub synchronizes the beacon access phase to new coordinator hub BAP and adjusts the start time of access phase.

The hub broadcasts a beacon containing superframe adjust notice to its BAN nodes. From next superframe the hub broadcasts a beacon on a new beacon slot, which is assigned by new coordinator hub.

**6.4.4.4 Dependable BAN beacon access phase management**

The coordinator hub of a dependable BAN maintains the start time of a beacon access phase of a dependable BAN group and assigns beacon slots to the hubs of coexisting dependable BANs.

The beacon access phase length is set to the number of coexisting BANs that a coordinator determines the maximum number of leaf hubs coordinated in dependable BAN group. For the superframe of a dependable BAN, the allocation slot length of the dependable BAN is fixed value such that is equal to pAllocationSlotMin + 62 x pAllocationSlotResolution. The beacon period length of the dependable BAN is discrete value such that is calculated as 10 x (pAllocationSlotMin + 62 x pAllocationSlotResolution) x n, where 0 < n < 256.

The coordinator hub broadcasts the start time of a BAP by the time stamp field of D-Beacon. The leaf hubs follow the coordinator hub’s start time of a BAP. When a leaf hub detects the difference of the start time by listening a D-Beacon from a coordinator hub, the leaf hub broadcasts a notice that the start time of its beacon slot will be changed as defined 5.7.16.10. The beacon slot of the leaf hub will be changed from next superframe.