**IEEE P802.15**

**Wireless Personal Area Networks**

|  |  |
| --- | --- |
| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | Draft text of Architecture for TG8 |
| Date Submitted | March 2015 |
| Source | Qing Li (InterDigital Inc.) | Email: Qing.Li@InterDigital.com |
| Re: | TG8 draft text for architecture for 802.15.8 |
| Abstract | This is the work in progress text of the MAC component for IEEE 802.15.8 group for PAC. |
| Purpose | This document provides the details of draft text to IEEE 802.15.8 |
| Notice | This document does not represent the agreed views of the IEEE 802.15 Working Group or IEEE 802.15.8 Task Group. It represents only the views of the participants listed in the “Source(s)” field above. 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. |
| Patent Policy | The contributor is familiar with the IEEE-SA Patent Policy and Procedures:<http://standards.ieee.org/guides/bylaws/sect6-7.html#6> and<http://standards.ieee.org/guides/opman/sect6.html#6.3>.Further information is located at <http://standards.ieee.org/board/pat/pat-material.html> and<http://standards.ieee.org/board/pat>. |

# [This is draft text for subclause of Architecture for TG8]

# Overview

# Definitions

# Acronyms and abbreviations

# General descriptions

-------------------------------- Beginning of Text ---------------------------------

(Changes are in red)

## Architecture

The IEEE 802.15.8 architecture is defined in terms of a number of blocks in order to simplify the standard. These blocks are called layers. Each layer is responsible for one part of the standard and offers services to the higher layers.

The interfaces between the layers serve to define the logical links that are described in this standard.

A PAC device comprises at least one PHY, which contains the radio frequency (RF) transceiver along with its low-level control mechanism, and a MAC sublayer that provides access to the physical channel for all types of transfer. Figure 3 shows these blocks in a graphical representation, which are described in more detail in 4.4.1 and 4.4.2.



Figure 3—PAC device architecture

The upper layers, shown in Figure 3, consist of a network layer, which provides network configuration, manipulation, and IP routing if applicable, and an application layer, which provides the intended function of the device. The definition of these upper layers is outside the scope of this standard.

* + 1. Physical layer (PHY)

The PHY provides two services: the PHY data service and the PHY management service. The PHY data service enables the transmission and reception of PHY protocol data units (PPDUs) across the physical radio channel. The general PHY requirements are described in Clause 8.

The features of the PHY are activation and deactivation of the radio transceiver, ED, CQI, channel selection, clear channel assessment (CCA), and transmitting as well as receiving packets across the physical medium. The UWB PHY also has the feature of precision ranging.

A discussion of the coexistence of the various IEEE 802.15.8 PHYs with other wireless systems is given in “Coexistence analysis of IEEE Std 802.15.8 with other IEEE standards and proposed standards” [TBD].

* + 1. MAC sublayer

The MAC sublayer provides two services: the MAC data service and the MAC management service interfacing to the MAC sublayer management entity (MLME) service access point (SAP) (known as MLME-SAP). The MAC data service enables the transmission and reception of MAC protocol data units (MPDUs) across the PHY data service.

The features of the MAC sublayer are ~~beacon management~~, channel scan, distributed synchronization, resource block management, acknowledged frame delivery, discovery, peering ~~association~~, re-peering, de-peering ~~disassociation,~~ and relative positioning. In addition, the MAC sublayer provides hooks for implementing application-appropriate security mechanisms.

Clause 5 and Clause 6 contain the specifications for the MAC sublayer.

---------------------------------- End of Text --------------------------------------

# MAC Layer

## MPDU Format

## Synchronization Procedure

## Discovery

## Peering

## Communication Period