**IEEE P802.15**

**Wireless Personal Area Networks**

|  |  |
| --- | --- |
| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | **SNUST - Offset-VPWM Super Frame Structure and PHY Dimming Specification Revision** |
| Date Submitted | January, 2017 |
| Source |  Soonho Jung [SNUST], Seungyoun Lee [Dongseoul Univ.], Ilkyoo Lee [Kongju National Univ.], Sangyule Choi[Induk Unv.], Jungkyu Rho [Seokyeong Univ] , Sooyoung Chang [SYCA], Vinayagam Mariappan [SNUST] | Voice: [ ]Fax: [ ]E-mail: [chajs@seoultech.ac.kr] |
| Re: | Draft D1 Comment Resolution based Offset-VPWM Super Frame Structure and PHY Dimming Specification Revision |
| Abstract | Details of Resolutions regarding to the submitted Comments on D1 are suggested for Offset-VPWM Super Frame Structure and PHY Dimming Specification Revision. The Flash Light designed to support LBS, Authentication, IoT/IoL, etc. |
| Purpose | Draft D1 Comments Resolutions and Editorial Revision. |
| 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. |

# **1. PHY DIMMING FORMART FOR OFFSET-VPWM**

# **Offset-VPWM Flickering**

In the Offset Variable Pulse Width Modulation for Smart Device Flash Light PHY IV uses the Smartphone Camera LED Flash light sources, no need concerning dimming. The Camera LED Flash light is not using for illumination and blinking speed is very low, then can't control dimming.

The Figure 3-1 shows the 2bit symbol map flickering control for Offset Variable Pulse Width Modulation for Smart Device Flash Light.



**Figure 3-1 – 2 Bit Symbol Flickering Control**

In accordance with the provisions of the symbol, depending on the data bit transmission because the High Pulse interval being determined brightness is adjustable (P >> V, V>time error (jitter)).

# **2. SUPERFRAME STRUCTURE FOR OFFSET-VPWM**

# **Offset-VPWM Superframe Structure**

The Offset Variable Pulse Width Modulation for Smart Device Flash Light PHY uses the unslotted ALOHA; that is, when the Smart Device flash light transmitter has a packet to send, it just transmit the data. This support with beacon and without beacon support and the transmitter does not do a listen before talk channel activity check.

The super frame structure for Offset Variable Pulse Width Modulation without beacon is shown in Figure 5-1.



**Figure 5-1 – Offset-VPWM Superframe Structure without Beacon**