**IEEE P802.15**

**Wireless Personal Area Networks**

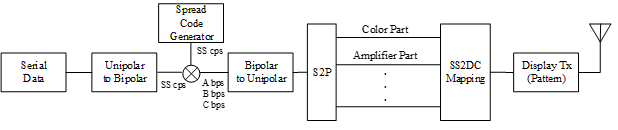
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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | **SNUST - Sequential Scalable 2D Code Related Draft D1 Comments Resolution on Super Frame Structure and PHY Dimming** | |
| Date Submitted | November, 2016 | |
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| Re: | Draft D1 Comment Resolution for Sequential Scalable 2D Code | |
| Abstract | Details of Resolutions regarding to the submitted Comments on D1 are suggested for Sequential Scalable 2D Code Super Frame Structure and PHY Dimming. The proposed method is designed to operate on the application services like LED ID using Color/QR Code, etc, LBS, Emergency EXIT Signage, LED-IT and Digital Signage with Advertisement Information etc. | |
| Purpose | Draft D1 Comments Resolutions and Editorial Revision. | |
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# **1.** **PHY DIMMING FORMART FOR SEQUENTIAL SCALABLE 2D CODE**

# **Sequential Scalable 2D Code Dimming**

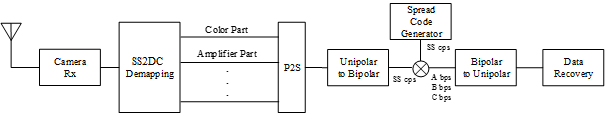
The Display to camera communication dimming control is depending on the mode of embedding data (Visible or Invisible) on display system, rate at which data is repeatedly coding on video frame, and rate at which data refresh on display.

The Display Light Pattern based Transmitter with Sequential Scalable 2D Code for OCC uses the visibly embedding the data on Video display frame. The function description of proposed PHY model is given in Figure 3-1.

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**Figure 3-1 – Display Transmitter Functional Block Diagram**

The Smart Device Camera Capture Visual Frame from Screen is shown Figure 3-2.

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**Figure 3-2 – Receiver Functional Block Diagram**

The ROI of Screen Visual Area is extracted from the captured visual frame and then apply the Sequential Scalable 2D Code detector based on mapping scheme applied on the transmitter. The data recovered by applying SS on the data decoded.

The PHY VI for Display Light Pattern based Transmitter with Sequential Scalable 2D Code designed with built-in Scalable bitrate Controller by controlling the Video display refresh rate or by frames in which data to be encoded repeatedly.

# **2. SUPERFRAME STRUCTURE FOR SEQUENTIAL SCALABLE 2D CODE**

# **5.1.2.8 Sequential Scalable 2D Code Superframe Structure**

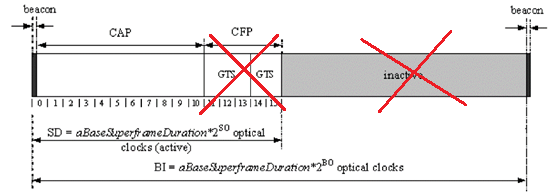
The Display Light Pattern Based Transmitter with Sequential Scalable 2D Code uses the unslotted ALOHA; that is, when the Display Light Pattern Based Transmitter with Sequential Scalable 2D Code uses has a packet to send, it just sends it. This support with beacon and without beacon support and the transmitter does not do a listen before talk channel activity check.

The super frame structure for PHY without beacon is shown in Figure 6-1.



**Figure 6-1 – PHY Superframe Structure without Beacon**

The super frame structure for PHY with beacon is shown in Figure 6-2.

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**Figure 6-2 – PHY** **Superframe Structure with Beacon**