**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 PHY PPDU Format and PIB Attributes Specification Revision** |
| Date Submitted | January, 2017 |
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| Re: | Draft D1 Comment Resolution based Sequential Scalable 2D Code PHY PPDU Format and PIB Attributes Specification Revision |
| Abstract | Details of Resolutions regarding to the submitted Comments on D1 are suggested for Sequential Scalable 2D Code PHY PPDU Format and PHY PIB Attributes Specification Revision. 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 | D1 Comments Resolutions and Editorial Revision. |
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# **1. PPDU FORMART FOR SEQUENTIAL SCALABLE 2D CODE**

# **Sequential Scalable 2D Code PPDU Format**

The PPDU frame structure Display Light Pattern Based Transmitter with Sequential Scalable 2D Code is formatted as illustrated in Figure 4-1 for PHY-VI 2-Dimensional codes

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**Figure 4-1 – SS2DC PPDU Format**

**8.6.8.4.1 SHR Field**

The SHR field is used by the transceiver to obtain optical clock synchronization with an incoming message is called Preamble. The standard defines one fast locking pattern (FLP) followed by choice of four topology dependent patterns (TDPs) for the purposes of distinguishing different PHY topologies is shown in Table 4-1.



**Table 4-1 – Preamble Pattern with Topologies**

**8.6.8.4.2 PHR Field**

The PHY VI header is described as shown in Table 4-2 and shall be transmitted with data to identify the PHY Mode, Data rate, and PSDU length etc. to identify the transmission specification.

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**Table 4-2 – PHY Header**

Burst Mode Field: The burst mode bit indicates that the next frame following the current frame is part of the burst mode. The Burst Mode bit shall be set TRUE if the burst mode is being used otherwise, the Burst Mode bit shall be set FALSE.

Channel Number Field: The channel number field for PHY shall be the band plan ID of the lowest wavelength. Refer to 9.3.1 for more detailed information.

MCS ID Field: The modulation and coding scheme (MCS) ID shall be indicated in the PHY header based on Table 83.

PSDU Field: The PSDU length field specifies the total number of octets contained in the PSDU.

**8.6.8.4.3 PSDU Field**

The PSDU field has a variable length and carries the data of the PHY VI frame. The FCS is appended if the PSDU has a non-zero byte payload. The structure of the PSDU field is as shown in Figure 4-2.



**Figure 4-2 – SS2DC PHY PSDU Field Structure**

# **2. PHY PIP ATTRIBUTES FOR SEQUENTIAL SCALABLE 2D CODE**

# **9.5.2 PHY PIB Attributes**

The PHY PIB comprises the attributes required to manage the PHY sublayer of a device. The attributes contained in the IEEE802.15.7-2011 PHY PIB are presented in Table 125 - PHY PIB Attributes.

The additional PHY PIB attributes added on PHY for Sequential Scalable 2D Code is presented in the Table 188 — PHY PIB attributes (continued).

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| **PHY PIB Table 100 Additions** |
| **Attribute** | **Identifier** | **Type** | **Range** | **Description** |
| PhySS2DCApplicationSpecificMode | 0x10 | Unsigned | 0~255 | This attribute specifies the application specific PHY mode.0 : Normal Data (Media Content, Information Content based on the Application used for)1 : ID Data 2 : Authentication Data |
| phySS2DCTxHSize | 0x11 | Integer | 0-65535 | This attribute specify the no of Horizontal Pixel in the 2D Display Transmitter |
| phySS2DCTxVSize | 0x12 | Integer | 0-65535 | This attribute specify the no of Vertical Pixel in the 2D Display Transmitter |
| phySS2DCTxFrequency | 0x13 | Integer | 0-65535 | This attribute specify the frame rate of SS2DC sequence Transmission  |

**Table 188 — PHY PIB attributes (continued for SS2DC)**