Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [Resolutions to Comments Assigned to IL]
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Abstract: [Resolutions to Comments on HSI and some SC comments]

Purpose: [This document provides proposed resolution fro some comments on 802.15.3c/DF00]
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- **Comment 56:** HSI PHY missing from list
- 8.16.1, P.53
- Add a table giving the HSI PHY MAC sublayer parameters

- **Resolution**:

  Add Table 61c

  SIFS   12.3.5.5

  MIFS   12.3.5.8

  BIFS   12.3.5.6

  RIFS   12.3.5.6

  pBackoffSlot   12.3.5.6

  pMaxTransferUnitSize   12.3.6.4

  pMaxFramebodySize   12.3.6.3

  pPHYClockAccuracy   12.3.4.3

```
pLengthHCS              12.3.1.10.1

pMinFragmentSize        12.3.6.5
```

1. Replace values in Table 144 by values in Table 124.

2. Add subclause 12.3.6.4 is new (copy from 12.4.1.3.3)

3. change 16232 to 2^20 -1 in 12.3.6.3

4. move subclause 12.2.10.4 to 12.1 since this is the PIB for 3 PHYs

5. delete subclause 12.3.6.6

- **Comments 85, 86, 350, 421, 422, 453, 617, 620, 633 634:**

- **Resolution:** Remove 4 cover codes. Replace OFDM Tables 134, 135 & 136 & SC Tables 110, 107, 118, 112 & 116 by:

- **Table 134**

  Re[a128] = 5063C9FAAF6336FA5063C9FA509CC905

  Im[a128] = FAC9635005C99C50FAC96350FA3663AF

- **Table 135:**

  Re[a512] =
  FF69990FA533C355009666F0A533C3555A333C55FF9699F05A333C5500
  69660FFF69990FA533C355009666F0A533C355A5CCC3AA0069660FA5CC
  C3AAFF9699F0

  Im[a512] =
  5A333C55FF9699F0A5CCC3AAFF9699F0009666F05ACC3CAA009666F0A5
  33C3555A333C55FF9699F0A5CCC3AAFF9699F0FF69990FA533C355FF69
  990F5ACC3CAA

- **Table 136:**

Re[b512] =
0F9969FF55C333A5F066960055C333A5AAC3CCA50F666900AAC3
CCA5F09996FF0F9969FF55C333A5F066960055C333A5553C335A
F09996FF553C335A0F666900

Im[b512] =
AAC3CCA50F666900553C335A0F666900F0669600AA3CCC5AF066
960055C333A5AAC3CCA50F666900553C335A0F6669000F9969FF
55C333A50F9969FFAA3CCC5A

- **Table 110:**

  s128 = 30A99A0330A965FCCF5665FC30A965FC

- **Table 107, 118:**

  a64 = 8822BB11782D4B1E

  b64 = 77DDBB1187D24B1E

- **Table 112:**

  a256 =
  05C99C5005369CAF05C99C50FAC96350FA3663AFFAC9635005C9
  9C50FAC96350

  b256 =
  F5396CA0F5C66C5FF5396CA00A3993A00AC6935F0A3993A0F539
  6CA00A3993A0

- **Table 116:**

  a16 = 2D11

  b16 = 7844

  Note: 3 = 1100 (lsb first msb last)

- **Comment 354, 355:** In HSI PHY header, there is no AGG, Low Latency AGG, and BF ID as defined in SCM PHY Header. Are these functionalities also applied for HSI? Or solely for SCM?

- **Resolution:**

  Add a bit for aggregation in the HSI PHY header and copy the description in 12.2.4.1.7 to HSI as well.

  Reorganize HSI header to look like SC header.

- **Comment 388:** SINR measurement method is not defined.

- **Resolution:**

  Add the following text to 7.4.27:

  The LQI could be measured using the CES field in the preamble.

- **Comment 409**: Common mode (a & b codes)

- **Resolution:**

  Remove 2 bits/symbol (i.e. using a or b) from common mode.

  Use **a**64 or **b**64 based on LFSR (Figure 194) with know initial state at both transmit and receive.

- **Comment 415, 452, 624, 625**: There are multiple problems with the pilot work definition. First, The LFSR to be used for the pilot word polarity is not defined. Once it is defined, how does the receiver know the state? Second, how is the receiver supposed to know which pilot word is being used and when? Third, there are two many options? How does a transmitter decide which to use?

- **Resolution**:

  After "Pilot words are used …", add the following:

  "Furthermore, pilot words act as a known cyclic prefix and enables frequency domain equalization if desired."

  Change lines 31-32 "The scrambler used shall … to:

The LFSR used shall be the same as the LFSR described in subclause 12.2.2.3.2 with the same initial state, but should be run at the appropriate rate, i.e. one LFSR output per pilot word.

Add the following before line 25.

A data block shall contain 64 bursts.

- **Comment 416, 628:**

  I assume PCES means period channel estimate sequence, but it is not defined anywhere. Why do we need this? How do we know which option to use? How does the receiver know which option the transmitter has selected?

- **Resolution:**

  Add the following before line 52:

  Pilot channel estimation sequence (PCES) insertion is an optional feature that allows a DEV to periodically re-acquire the channel.

  change line 53 as follows

  "Each data block (as shown in Figure 206) shall be…"

Remove "The periodicity … and infinity".

Replace "The length … of the CES" by

"The PCES field shall be the same as the CES field as defined in 12.2.3.3."

- **Comments 471, 472:**

  Spreader by 2 is destroyed by interleaver

  Spreader by 24 is destroyed by interleaver

- **Resolution**:

  withdraw comments

- **Comment 508:**

  when is the Golay 256 sequence used and when is the Golay 128 sequence used? **P90**

- **Resolution**

  Change lines 45-46 "The CES … Figure 193" to

  "The CES field shall be constructed from a pair of Golay complementary sequences a256 and b256 as shown in Figure 198"

- **Comment 511:**

  Table 100, How is pi/2 BPSK and GMSK differentiated in each mode?

- **Resolution**:

  In the table, (G)MSK should be replaced by precoded (G)MSK.

  As shown in 12.2.2.1.1, $\pi/2$-BPSK is equivalent to precoded (G)MSK.

- **Comment 536, 581, 583:**

  536: What type of receiver architecture can be supported by the TX switch diversity. There is no mechanism or protocol described how feedback information can be transmitted.

  581: Figure 147c indicates that the feedback is an "Antenna Switching Indicator". Why must the antenna selection be made at the receiving end? The receiver could feedback SNR, SINR, BER, etc. information and allow the decision to be made on the transmitting end.

583: How does the transmit diversity procedure
stabilize in the case that that both sides of the
link may attempt to select transmitter/receiver
antennas? If the PNC has selected one of K possible
antennas for communication with a DEV and the DEV
selects one of N possible antennas for communication
with the PNC, then the PNC switches its selected
antenna, the selected antenna at the DEV may no
longer be the best choice.

- **Resolution**:

  Add subclause that addresses TX switch diversity &
  sectorized antenna where only step 1 of the 2 levels
  beamforming is used.

  Add the following on line 50:

  For example, for sectored or switched antennas