

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

Submission Title: comment and resolution about CID 64 and etc.

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Re: []

Abstract: Collect PHY Header related comment to resolve together

Purpose: Contribution to IEEE 802.15.7 TG-VLC

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CID 64 (Subclause 6.4.1.6, page 42, line 9)

Comment

- DME is missing from Figure 3

Suggested Remedy

- Modify figure 3 to include DME

Resolution/instruction to editor

- My suggestion is **Accept**.
- Instruction to editor: insert DME in figure 3.

CID 155,161 (Subclause 5.6.4, page 15, line 39)

Comment

- the text states four frame types, and covers five subclauses, but read the rest of the document there are six.
- missing frame types

Suggested Remedy

- There are too many inconsistencies to provide a solution. Are there two ack frames (one with no payload and one with payload)? As but one example.
- add visibility frame, add dimming, color stabilization

Resolution/instruction to editor

- My suggestion is **Accept**.
- Instruction to editor: change sentence from “This standard defines four frame structures:” to “This standard defines six frame structures:”
- Insert following sentence at line 38 and 39 in page 15.
- “– A visibility frame, used for showing visibility to user” and “– A color frame, used for intuitively providing information such as device status and channel quality to the user”

CID 162 (Subclause 5.6.4.1, page 15, line 42)

Comment

- The entire subclause needs to be deleted because it repeats normative information found in other subclauses. This is supposed to be an overview, not a repeat of the normative figures in the other subclauses

Suggested Remedy

- Delete Subclause 5.6.4.1 through 5.6.4.5

Resolution/instruction to editor

- My suggestion is **Reject**.
- Because from 5.6.4.1 to 5.6.4.5 is introduction.

CID 167 (Subclause 5.6.4.1, page 16, line 3)

Comment

- This figure is an excellent example of why normative information shall not be repeated in a specification. The PHR is shown as 1 octet in length, yet in Clause 6 it is defined to be 3 octets in length. Because the information is repeated not just once, but in 4 figures, there are now four corrections to make.

Suggested Remedy

- Delete Figures 13, 14, 15, 16 and 17 as they repeat normative information which will result (and indeed has resulted) in technical errors in the draft.

Resolution/instruction to editor

- My suggestion is accepted.
- Instruction to editor and Daeho: delete octets and length in figure 13, 14, 15, 16

CID 169 (Subclause 5.6.4.3, page 17, line 14~24)

Comment

- The frame format is different from the general packet format in section 6.4.1 page 39.

Suggested Remedy

- Harmonize the packet format.

Resolution/instruction to editor

- My suggestion is accepted.
- Figure in page 39 is updated in 448/r1.
- Instruction editor: nothing to do. We harmonized it.

CID 170 (Subclause 5.6.4.1, page 15, line 42)

Comment

- The frame format is different from the general packet format in section 6.4.1 page 39.

Suggested Remedy

- Harmonize the packet format.

Resolution/instruction to editor

- My suggestion is accepted.
- Figure in page 39 is updated in 448/r1.
- Instruction editor: nothing to do. We harmonized it.

CID 343 (Subclause 6.4.1, page 39)

Comment

- Delete CSK PDU

Suggested Remedy

- There should only be one PDU format with definable fields. Modify the PDU format in general so it also supports CSK without defining an explicit PDU just for CSK.

Resolution/instruction to editor

- My suggestion is **accept**.
- Figure 21 and 22 are updated.
- Instruction editor: Please replace 6.4 PDU with document 448/r1

CID 367b (Subclause 6.4.1, page 39)

Comment

- Come up with a different name for the field Preamble pattern as you are re-using the term preamble for both the combination of the fast locking pattern and the preamble pattern.

Suggested Remedy

- Perhaps "data recovery pattern" or similar?

Resolution/instruction to editor

- We already solved in CC.
- Refer slide 35 in 383r4.
- My suggestion is **accept**.
- Instruction editor: Refer slide 35 in 383r4

CID 404 (Subclause 6.5.1, page 45, line 17 to 26)

Comment

- The Value entries in Table 24 (PHY constants) are not consistent with the previously defined packet format / are unrealistic.

Suggested Remedy

- Please define appropriate PHY constants.

Resolution/instruction to editor

- We already solved in CID 372.
- My suggestion is **accept**.
- Instruction editor: make sure table 24 (PHY constants) uses max sizes that are precise (i.e. 65535 instead 64 kB).

CID 525 (Subclause 6.9.4.1, page 60, line 21)

Comment

- ED is stated, but there is no ED in scanning

Suggested Remedy

- Unknown

Resolution/instruction to editor

- Based on CID 534, the committee agree with deleting E D in that sentence.
- accept in principle.
- Instruction editor: delete the ED

CID 527 (Subclause 6.9.4.1, page 60, line 20~32)

Comment

- What are the CQI values to be measured and reported

Suggested Remedy

- Define the CQI values to be measured and reported, number of bits used for each value etc.

Resolution/instruction to editor

- My suggestion is **accept**.
- It is already defined in 7.2.3.3 Color Quality Indicator IE.

CID 531 (Subclause 6.9.4.1, page 60, line 28)

CID 536 (Subclause 6.9.4.1, page 60, line 29)

Comment

- (SY) "A single CQI value set consists of band plan ID and corresponding CQI value as shown below." I don't see anything below
- There appears to be something missing in the text

Suggested Remedy

- Fix
- "... CQI value as shown below." (But there is nothing actually there ... so what is missing).

Resolution/instruction to editor

- My suggestion is **accept**.
- Instruction editor: replace "below" with "in table 77" at line 29

CID 609 (Subclause 7.1.11.1.2, page 113, line 31)

Comment

- CHANNEL_ACCESS_FAILURE and NO_ACK are described here but not part of Table 58

Suggested Remedy

- Add to TABLE 58

Resolution/instruction to editor

- 7.1.11.1.2 is related with MLME-COMM-STATUS.indication and table 58 is MLME-SET.confirm parameters.
- And CHANNEL_ACCESS_FAILURE and NO_ACK is already in table 56.
- My suggestion is **Reject**.

CID 646 (Subclause 7.2.1.1.1, page 132, line 1-20)

Comment

- IEEE 802.15.4 has huge problems with the number of remaining reserved frame types – there are not enough, and it is difficult to provide extensibility for future extensions. So, do not assign too few frame types as well.

Suggested Remedy

- make the Frame Type subfield (at least) 4 bits long.

Resolution/instruction to editor

- My suggestion is **Reject**.
- There is already 3 bits reserved for extending frame format.

CID 722 (Subclause 7.4.2, page 163)

Comment

- (TR) §7.4.2, p. 163, l. 40–44: The phrase “where 6 represents ...” seems to be a remnant of the corresponding clause of the IEEE 802.15.4–2006 specification (where the PPDU has size 6 octets, viz. preamble: 4 octets; SHR: 1 octet; length: 1 octet). With 802.15v1c, the PHY header has variable size and contains more octets than with 802.15.4–2006. Suggested remedy: Correct the formula accordingly.

Suggested Remedy

- Correct the formula accordingly.

Resolution/instruction to editor

CID 722

ackWaitDuration is sum of backoffperiod, turnaround time and time taken to transmit ack packet

$$\text{macAckWaitDuration} = \quad (25)$$

$$aUnitBackoffPeriod + aTurnaroundTime + \text{phySHRDuration} + \lceil 6 \cdot \text{phySymbolsPerOctet} \rceil$$

where

6 represents the number of PHY header octets plus the number of PSDU octets in an acknowledgment frame.

CID 722 (Subclause 7.4.2, page 163)

❖ IEEE 802.15.4

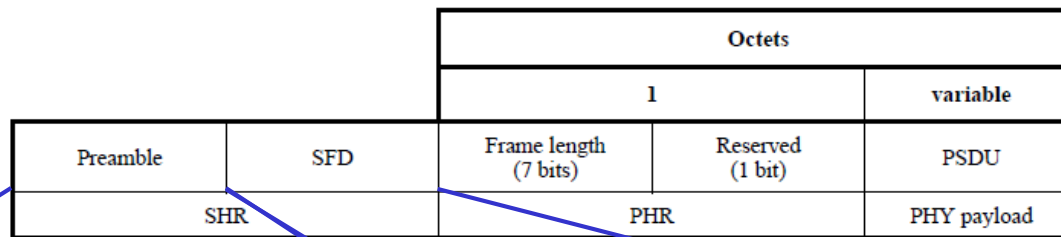


Table 19—Preamble field length

PHY	Length		Duration (uS)
868–868.6 MHz BPSK	4 octets	32 symbols	1600
902–928 MHz BPSK	4 octets	32 symbols	800
868–868.6 MHz ASK	3 octets	2 symbols	160
902–928 MHz ASK	3.75 octets	6 symbols	120
868–868.6 MHz O-QPSK	4 octets	8 symbols	320
902–928 MHz O-QPSK	4 octets	8 symbols	128
2400–2483.5 MHz O-QPSK	4 octets	8 symbols	128

Table 20—SFD field length

PHY	Length	
868–868.6 MHz BPSK	1 octet	8 symbols
902–928 MHz BPSK	1 octet	8 symbols
868–868.6 MHz ASK	2.5 octets	1 symbol
902–928 MHz ASK	0.625 octets	1 symbol
868–868.6 MHz O-QPSK	1 octet	2 symbols
902–928 MHz O-QPSK	1 octet	2 symbols
2400–2483.5 MHz O-QPSK	1 octet	2 symbols

CID 722 (Subclause 7.4.2, page 163)

- ❖ IEEE 802.15.7
 - Preamble
 - ◆ Fast locking pattern: 64 bit
 - ◆ Topology dependent pattern: 15 bit
 - PHY header
 - ◆ Burst mode : 1 bit
 - ◆ Channel number : 3 bit
 - ◆ MCS ID : 6 bit
 - ◆ Length of PSDU :16 bit
 - ◆ Reserved fields : 6 bit
 - ◆ HCS :16 bit
 - Channel estimation field
 - ◆ 8 bit
 - Total
 - ◆ PHY type 1,2 : 127 bit (7.875 octets)
 - ◆ PHY type 3 : 135 bit (8.875 octets)
 - Ack MAC payload size
 - ◆ 5 octets

New calculation CID 722

$$\text{AckWaitTime} = \text{backoff period} + \text{turnaround time} + \text{clock period} * \text{numSymAckFrame}$$

- Where numSymAckFrame is the number of bits in the acknowledgement frame. numSymAckFrame = 12.875*8 for PHY I & II and 13.875*8 for PHY III. For B-ACK mode, the AckWaitTime would be larger, depending on the number of acknowledgements in the b-ack mode as explained in 7.2.2.2. The clock period is obtained via the optical rates specified in Tables 2 and 3.

Instruction to editor

- Replace formula with above equation and supporting text

CID 716, 717, 718, 721, 722a,

Instruction to
editor

- Resolved via CID 722