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

Submission Title: PHY Header related comments
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Re: []

Abstract: Collect PHY Header related comment to resolve together

Purpose: Contribution to IEEE 802.15.7 TG-VLC

Please refer 15-10-0400-00-0007 first.

CID 314 (Subclause 6.4.1.1, page 39, line 49)

Comment

- Need to mention about default preamble transmission illustrated in Figure 23 in the section.

Suggested Remedy

- Put an explanation about default preamble transmissio n illustrated in Figure 23 in this section.

Resolution/instruction to editor

- Sridhar will help me to add explanation.
- So, my suggestion is Accept.

CID 317 (Subclause 6.4.1, page 39, line 7)

Comment

- rate for PHR transmission is not mentioned

Suggested Remedy

- Lowest mandatory data rate should be used for PHR

Resolution/instruction to editor

- The comment should be Accepted but the suggested remedy should be Rejected.
- The PHR is sent using the lowest mandatory data rate “for the agreed optical clock rate” by the MAC clock rate negotiation process defined in Section 7.8.
- If there is no MAC clock rate negotiation and the RX does not support automatic detection of the clock rate, then the lowest mandatory data rate at the lowest mandatory clock rate shall be used for the PHR.

CID 321 (Subclause 6.4.2, page 39, line 11)

Comment

- Figure 21: Having 1 reserved bit is not a good option. It caused a lot of problems during the transition from 11g --> 11n

Suggested Remedy

- Add at least 1 more reserved bit

Resolution/instruction to editor

- Please refer contribution 15-10-0400-00-0007
- My suggestion is Accept.
- Instruction to editor: Please reflect document 15-10-xxxx-00-0007 to D2 document.

CID 322 (Subclause 6.4.1, page 39, line 29)

Comment

- Figure 22: Having 1 reserved bit is not a good option. It caused a lot of problems during the transition from 11g --> 11n

Suggested Remedy

- Add at least 1 more reserved bit

Resolution/instruction to editor

- Please refer contribution 15-10-0400-00-0007
- My suggestion is Accept.
- Instruction to editor: Please reflect document 15-10-xxxx-00-0007 to D2 document.

CID 325 (Subclause 6.4.1, page 39, line 7)

Comment

- Both PPDU format have a frame length that is 7 bits, which implies that the PSDU can be no more than 127 bytes, but section 6.5 implies that the MAC payload could be 65535 b ytes long

Suggested Remedy

- Fix inconsistency

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 372.

CID 329 (Subclause 6.4, page 39, line 7)

Comment

- The packet formats are different from the frame formats in section 5.6.4.x.

Suggested Remedy

- Harmonize the packet format.

Resolution/instruction to editor

- Please refer contribution 15-10-0400-00-0007
- My suggestion is Accept.
- Instruction to editor: Please reflect document 15-10-xxxx-00-0007 to D2 document.

CID 333 (Subclause 6.4, page 39, line 12)

Comment

- There is a conflict between this figure and Table 23 and the text in the draft. Apparently, the intent was to have more information than just the frame length. This will require some work.

Suggested Remedy

- For this location, change the figure to just show the structure for all PHY packets, i.e., boxes for SHR, PHR, PSDU (or PHY payload, pick one name and use it) and FCS. Don't put lengths in the figure, the length of the fields is defined in the subclauses that define those fields.

Resolution/instruction to editor

- Please refer contribution 15-10-0400-00-0007
- My suggestion is Accept.
- Instruction to editor: Please reflect document 15-10-xxxx-00-0007 to D2 document.

CID 335 (Subclause 6.4, page 39, line 26)

Comment

- Normally, a channel estimation field is used to improve the demodulation of d ata. In this case, the channel estimation field needs to precede the PHR and not be part of the data that is checked by the FCS.

Suggested Remedy

- Move the channel estimation field (CES) to between the SHR and PHR and ha ve it as a new field for CSK modes.

Resolution/instruction to editor

- Please refer contribution 15-10-0400-00-0007
- CES moved to after PHR. Because, there is "alternated mode" indication in the PHR.
- My suggestion is Accept in principle.
- Instruction to editor: Please reflect document 15-10-xxxx-00-0007 to D2 document..

CID 346 (Subclause 6.4.1.1, page 39, line 38)

Comment

- rate for preamble transmission is not mentioned

Suggested Remedy

- Lowest mandatory data rate should be used for PHR

Resolution/instruction to editor

- The comment should be Accepted but the suggested remedy should be Rejected.
- See CID 317

CID 367b (Subclause 6.4.1.1, page 40, line 34)

Comment

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

Suggested Remedy

- Perhaps "data recovery pattern" or similar?

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 298~301

CID 368 (Subclause 6.4.1.2, page 40, line 52)

Comment

- rate for burst preamble transmission is not mentioned

Suggested Remedy

- Lowest mandatory data rate should be used for PHR

Resolution/instruction to editor

- The comment should be Accepted but the suggested remedy should be Rejected.
- See CID 317

CID 372 (Subclause 6.4.1.3, page 41, line 33)

Comment

- The maximum packet size is 64 kB, which requires 16 bits for the length f ield. This is reflected in Table 23 for the PHY header and appears to be t he intention of the group. The 7 bit length is from 802.15.4, which is tryi ng to solve a much different problem.

Suggested Remedy

- Make the Length field 16 bits. Create a figure that shows the PHR using the values in Table 23 and a 2 octet HCS.

Resolution/instruction to editor

- Please refer contribution 15-10-0400-00-0007
- My suggestion is Accept.
- Instruction to editor: Please reflect document 15-10-xxxx-00-0007 to D2 document.

CID 374 (Subclause 6.4.1.5, page 42, line 3)

Comment

- HCS says "The combination of PHY header and the MAC header shall be protected with a 2 octet CCITT CRC-16 header check sequence (HCS)". This does not agree with the picture Figure 22 (page 53(39)) where HCS seems to be for PHY header only?

Suggested Remedy

- It is not clear but I would expect this HCS to apply to PHY only and not MAC. If this is so then remove reference to MAC header from this clause.

Resolution/instruction to editor

- My suggestion is Accept. And see CID 333
- Instruction to editor: change "The combination of PHY header and the MAC header shall be protected with a 2 octet CCITT CRC-16 header check sequence (HCS). " to "The PHY header shall be protected with a 2 octet CCITT CRC-16 header check sequence (HCS). " at line 3 in page 42.

CID 375 (Subclause 6.4.1.6, page 42, line 9)

Comment

- Frame Check Sequence. Talks about HCS which should be in 6.4.1.5 only. Also it mentions CCITT which no longer exists, s hould say ITU-T.

Suggested Remedy

- Delete this and refer to section 7.2.1.9 where the FCS field is defined correctly.

Resolution/instruction to editor

- My suggestion is Accept.
- Instruction to editor:
- Delete subclause 6.4.1.6

CID 376 (Subclause 6.4.1.5, page 42, line 4)

Comment

- The statement about this CRC applying to PHY header and M AC header is confusing. How can the MAC header be include d if there are multiple MAC frames per PHY frame?

Suggested Remedy

- If the statement is supposed to be true, add text describing h ow this is done when creating for sending and decomposing when receiving.

Resolution/instruction to editor

- My suggestion is Accept
- Instruction to editor: See CID 374 and 333

CID 379 (Subclause 6.4.1.5, page 42, line 7)

Comment

- Data scrambling is nor defined for HCS

Suggested Remedy

- Define data scrambling

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 481

CID 380 (Subclause 6.4.1.5, page 42, line 3)

Comment

- Assuming the HCS is intended to detect errors in the PHY header, the allocation of a 16-bit CRC to detect errors in t he remainder 8 bit of the PHR seems excessive.

Suggested Remedy

- Use a more economical error detection scheme

Resolution/instruction to editor

- PHR is longer(Frame length 7bits->16bits) than D1 version.
- So, current HCS is not excessive.
- My suggestion is Reject.

CID 381 (Subclause 6.4.1.6, page 42, line 9)

Comment

- FCS is generated in MAC

Suggested Remedy

- move FCS section to MAC

Resolution/instruction to editor

- Please refer contribution 15-10-0400-00-0007
- My suggestion is Accept.
- Instruction to editor: Please reflect document 15-10-xxxx-00-0007 to D2 document.

CID 382 (Subclause 6.4.1.5, page 42, line 7)

Comment

- The entire section explain and showing the CRC sh ould be taken out of here and put into an appendix.

Suggested Remedy

- Put CRC explanation and example in appendix

Resolution/instruction to editor

- CRC is normative text.
- My suggestion is Reject.

CID 383 (Subclause 6.4.1.5, page 42, line 7)

Comment

- Where is data scrambling defined for the HCS?

Suggested Remedy

- Please define or remove data scrambling in this s ubclause.

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 481

CID 384 (Subclause 6.4.1.5, page 42, line 3)

Comment

- This paragraph is a mess. Plus, the MAC header isn't protected by the HCS.

Suggested Remedy

- Change "The CRC … shall be protected …" to be "The PHY header shall be protected "

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 374

CID 385 (Subclause 6.4.1.6, page 42, line 11)

Comment

- "The CCITT CRC-16 HCS" -> "The FCS"

Suggested Remedy

- Change as indicated

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 375

CID 386 (Subclause 6.4.1.5, page 42, line 3)

Comment

- Text says HCS should cover PHY and MAC headers, b ut figures for PPDU show that HCS only covers PHY h eader

Suggested Remedy

- Clarify and fix

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 374

CID 386a (Subclause 6.4.1.5, page 42, line 3)

Comment

- The HCS subclause is confusing. On one hand, it states th e HCS field is computed over the PHY header. On the othe r hand, it states "the combination of PHY header and the M AC header shall be protected with … (HCS)".

Suggested Remedy

- Fix paragraph

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 374

CID 386b (Subclause 6.4.1.5, page 42, line 3)

Comment

- A figure of CRC implementation for HCS would be very helpful to reader

Suggested Remedy

- Reference Figure 26 for the HCS sections as well

Resolution/instruction to editor

- There is not reference sentence about figure 26. If there is not any reference sentence then we have to delete figure 26.
- My suggestion is Accept.
- Instruction to editor: Insert following sentence at line 4 in page 42. "A schematic of the processing is shown in Figure 26. ".

CID 389 (Subclause 6.4.2, page 44, line 42)

Comment

- Phy Header field is not defined in PPDU

Suggested Remedy

- Define Phy Header field position in the PPDU

Resolution/instruction to editor

- We already defined in figure 21 and 22.
- My suggestion is Reject.

CID 390 (Subclause 6.4.2, page 44, line 43)

Comment

- Text says that "all light sources shall transmit the same hea der contents simultaneously". What does simultaneously m eans? Can the preambles be offset? Do the first bits of pre amble have to be aligned?

Suggested Remedy

- Clarify

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 355

CID 391 (Subclause 6.4.2, page 44, line 40)

Comment

- PHY Header is not defined in PPDU.

Suggested Remedy

- Please define PHY Header.

Resolution/instruction to editor

- We already defined in Table23.
- My suggestion is Reject.

CID 395 (Subclause 6.4.2, page 44, line 42)

Comment

- CRC is not defined for the PHY Header in Table 23

Suggested Remedy

- Need the PHY header to be protected by CRC for o bustness. Define CRC for the PHY header.

Resolution/instruction to editor

- There is HCS (see 6.4.1.5) in the PHR
- My suggestion is Reject.

CID 397 (Subclause 6.4.2, page 45, line 1)

Comment

- Table 23 What is the meaning of the cloumn bit? Does it represe nt bit position? Number of bits?

Suggested Remedy

- I have no clue, since there is no place for the PHY header show n in Figure 21 or Figure 22

Resolution/instruction to editor

- Please refer contribution 15-10-0400-00-0007
- My suggestion is Accept.
- Instruction to editor: Please reflect document 15-10-xxxx-00-0007 to D2 document.

CID 399 (Subclause 6.4.2, page 45, line 22)

Comment

- It appears that multiple PHY headers are defined, e.g. in 6.4.2 as well as in Figures 21 and 22, presumably for the different modulation types. In th e case of the latter, a frame length of 64kB cannot be supported, since t he frame length field is 7 bits.

Suggested Remedy

- Clarify applicability of frame length constant and re-organize the section s on PHY header.

Resolution/instruction to editor

- Please refer contribution 15-10-0400-00-0007
- My suggestion is Accept.
- Instruction to editor: Please reflect document 15-10-xxxx-00-0007 to D2 document.

CID 403 (Subclause 6.4.2, page 45, line 1)

Comment

- Table 23 (PHY Header) is not consistent with the previously defined packet format.

Suggested Remedy

- Please define PHY Header.

Resolution/instruction to editor

- Please refer contribution 15-10-0400-00-0007
- My suggestion is Accept.
- Instruction to editor: Please reflect document 15-10-xxxx-00-0007 to D2 document.

summary

- Accept (46 comments)
  - 188, 189, 191, 193, 197, 308a, 311, ,314, 317, 321, 322, 329, 325, 332, 333, 346, 355, 361, 367b, 368, 372, 373, 374, 375, 376, 379, 381, 383, 384, 385, 386, 386a, 386b, 390, 395, 397, 399, 403, 477, 478, 487, 491, 492, 494, 513, 520
- Accepted in principle (9 comments)
  - 55, 55a, 60, 95a, 186, 198, 199, 335, 381
- Reject (16 comments)
  - 54, 55b, 185, 187, 200, 314, 356, 366, 367a, 380, 382, 389, 391, 395, 476, 490
- 71 comments are resolved