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

Submission Title: Comment resolution assignment
Date Submitted: 14th June, 2010
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Re: []

Abstract: Proposes comment resolutions for a set of CIDs

Purpose: Contribution to IEEE 802.15.7 TG-VLC

CID 54

Comment

- "The mechanism by which identifiers are chosen is outside the sc ope of this standard." is redundant as that is defined elsewhere.

Suggested Remedy

- Delete the sentence.

Resolution/instruction to editor

- IEEE 802.15.7 draft does not define which identifiers are chosen.
- So the sentence "The mechanism by which identifiers are chosen is outside the scope of this standard." is not redundant.
- So, my suggestion is “Reject”.

CID 55

Comment

- All clauses and subclauses in the standard are normative, the group may not declare subclauses to be "informative"

Suggested Remedy

- Delete "informative" from the title. If the group wants to have informative text, create an informative annex to hold it.

Resolution/instruction to editor

- We have to delete “informative” or move it to annex.
- So, my suggestion is Accepted in principle.
- Instruction to editor: remove the word "informative" from the clause and subclause title.

CID 55a

Comment

- Is "radio sphere of influence" the same as "operating space"? If so use one and o nly one terminology if not then define RSOI..

Suggested Remedy

- None

Resolution/instruction to editor

- Accepted in principle
- This is achieved by choosing a WPAN identifier that is not currently used by any ot her network within the radio sphere of influence.
- Two or more devices within an operating space communicating on the same physi cal channel constitute a VLC-WPAN.
- So, my suggestion is: "radio sphere of influence" does not same as "operating space“ and TG7 decides to replace "radio sphere of influence" with "coverage area" in CID 43.
- Instruction to editor: Nothing to do

CID 55b

Comment

- The statement that peer-peer network also have 'a coordinator' raises many questi ons. It would be useful to have a reference to a definitive section dealing with coo rdinator role in P-P network case. For example, P-P may not be able to guarantee that all devices are within range of a given device having the coordinator function.. ..

Suggested Remedy

- Add reference… if such a section exists. If not, then add text to explain limitations of P-P topology

Resolution/instruction to editor

- In 5.3.2 page 5, there is already a sentence about coordinator in peer to peer mode
- "One device is nominated as the coordinator, for instance, by virtue of being the first device to communicate on the channel."
- So, my suggestion is reject.

CID 60

Comment

- This last sentence is probably the best description of modulation domain. This is all that really needs t o be said (that plus the figure).

Suggested Remedy

- Delete mos of this first paragraph, retaining this sentence.

Resolution/instruction to editor

- My suggestion is accepted in principle
- I think following sentence is redundant.
- "It will help the reader of this specification to understand such concepts as VLC CCA by thinking in the modulation domain."
- Instruction to editor: delete first paragraph "It will help the reader of this specification to understand such concepts as VLC CCA by thinking in the modulation domain. The “modulation domain” is based upon the premise (at the time of the writing of this specification) that VLC receivers are photodetector based and hence basically the receiver non-coherently detects the envelope of the lightwave carrier. The modulation domain is defined as what we observe at the output of the photodetector. So when the standard mentions detecting a carrier, the reference point for detecting said carrier is at the photodetector output, which was modulated on the lightwave carrier. That is, CCA is not detecting the presence of “light” but rather detecting the presence of modulation on a lightwave carrier wjeh (i.e. modulation domain). Figure 2 illustrates this concept." and insert following sentence “ Figure 2 illustrates modulation domain spectrum concept”

CID 95a

Comment

- "The possibility which the flicker appears is higher in low data rates than in high data rates." Eh? What does this mean?

Suggested Remedy

- Possibly "Flicker is more likely at low data rates than at high d ata rates." . . . ?

Resolution/instruction to editor

- Accepted in principle
- See the remedy of CID 86
- 5.5.3 reorganizztino

CID 185

Comment

- According to this paragraph, 'Apart from the two topologies, IEEE 802.15.7 devices may also operate in a broadcast only mode without being part of a network, i.e., without being associated to any device or having any devices associated to them.' However the Broadcast Mode is described and graphically depicted as one-way from coodinator to device only.
- Describe the device to coordinator broadcast mode in this draft and/or add a one-way non-associated Blink Frame with a data field which transmits from device to coordinator receivers.

Suggested Remedy

- One-way non-associated, non-acknowledged, Blink Frames with a data field, perhaps similar to the Blink Frame description and primatives in the draft TGe standard, must be included in this draft standard. One-way Blink Frame transmissions from devices to coordinator receivers would open additional applications (i.e. low energy device location tracking, remote control, sensors, etc.) and could compliment the already defined one-way broadcast mode.

Resolution/instruction to editor

- It is page 5 not page 19 in comment excel file.
- In TG7, broadcast mode is only one way communication from the coordinator to the device.
- We do not consider from device to coordinator receiver in broadcast mode.
- So my suggestion is reject.

CID 186

Comment

- 2009 IEEE Standards Style Manual 10.1 is not being followed.

Suggested Remedy

- Remove "(Informative)". Body of standard is always normative.

Resolution/instruction to editor

- See CID 55
- So my suggestion is accepted in principle
- Instruction to editor: remove the word "informative" from the clause title.

CID 187

Comment

- Wrong level of indent. It should be under 5.6 as 5.6.5 as stated in 5.6.

Suggested Remedy

- Correct indent level

Resolution/instruction to editor

- In 5.6 functional overview, there is a sentence "A brief overview of the general functions of a VLC WPAN is given in 5.6 and includes information on the superframe structure, the data transfer model, the frame structure, robustness and security.".
- But, regulation is not functional overview. so, move subclause 5.7.1 Security to subclause 5.6.6 Security and leave 5.7 Regulation
- So my suggestion is Accept.
- Instruction to editor: move subclause 5.7.1 Security to subclause 5.6.6 Security and leave 5.7 Regulation

CID 188

Comment

- What is ecr?

Suggested Remedy

- Add to acronym list and spell out here on first usage

Resolution/instruction to editor

- Mr. Joachim found the definition of ecr.
- My suggestion is accept.
- Instruction to editor: Change "ecr" to "electroretinogram“ and insert in acronym list.

CID 189

Comment

- For safety reasons, should not needs to be shall not

Suggested Remedy

- Change should to shall

Resolution/instruction to editor

- Safety is mandatory.
- So my suggestion is accept.
- Instruction to editor: Change "should" to "shall“ at line 29 in page 19.

CID 191 (Subclause 5.7.1, page 19)

Comment

- VLC security

Suggested Remedy

- mention VLC has advantages of security due to visibility

Resolution/instruction to editor

- Accept
- Instruction to editor: Insert following sentence at line 36 in page 19.
- VLC has a higher security characteristic due to the beam visibility, intrinsic element. If unauthorized receiver is in the path of the communication signal, it can be recognized.

CID 193(Subclause 5.7, page 19, line 10)

Comment

- A subclause cannot be declared to be informative. All Clau ses and subclauses are normative in the standard. If infor mative information is required, it shall be in an informative annex.

Suggested Remedy

- Delete "(informative)" from the subclause title.

Resolution/instruction to editor

- My suggestion is Accept.
- Instruction to editor: Delete (informative).

CID 197 (Subclause 5.8, page 20, line 33)

Comment

- There is no "user" in the next higher layer. The user sits above layer 7 (in the OSI model)."

Suggested Remedy

- Delete "user in the" so that you are just referring to "the next higher layer"

Resolution/instruction to editor

- Accept
- Instruction to editor: change the sentence at line 32 in page 20.
- "The services of a layer are the capabilities it offers ~~to the user~~ in the next higher layer or sublayer by building its functions on the services of the next lower layer."-> "The services of a layer are the capabilities it offers to the next higher layer or sublayer by building its functions on the services of the next lower layer."

CID 198 (Subclause 5.8, page 20, line 39)

Comment

- I know this is copied exactly from 802.15.4-2006 and so the assumption is that it is correct. However, the figure gives an incorrect view. The MSC in this format would show that one entity, the line on the left, would communicate with the second entity, the line on the right. A request results in an action that may cause a confirm at a remote entity. The entity then may send a response, which may or may not result in a confirm. However, the figure does not illuminate this, but rather confuses it.

Suggested Remedy

- Delete the figure and the paragraph "The services ... peer protocol entities." The dashed list at the end of the subclause says it all. Plus, there is no definition of an "N-user" or "N-layer".

Resolution/instruction to editor

- Figure 18—Service primitives is from ISO/IEC 8802-2:1998 not 802.15.4-2008.
- So, my suggestion is accept in principle.
- Instruction to editor: Insert following definition in clause 3. Definitions page 2.
- N-layer: A subdivision of the architecture, constituted by subsystems of the same rank (N).
- N-user: An N+1 entity that uses the services of the N-layer, and below, to communicate with another N+1 entity.

CID 199 (Subclause 5.8, page 21, line 1)

Comment

- This description is better, but is still confusing with the use of "N-layer" and "N-user".

Suggested Remedy

- Change the paragraph to be "The services are specified by describing the information flow between layers. These service primitives are an abstraction because they specify only the provided service rather than the means by which it is provided. This definition is independent of any other interface implementation."

Resolution/instruction to editor

- We refer ISO/IEC 8802-2:1998.
- So my suggestion is accepted in principle.
- "N-Layer" and "N-User" defined in CID 198

CID 200 (Subclause 5.8, page 21, line 8)

Comment

- This paragraph, "Services are specified … provide the service." adds no new information.

Suggested Remedy

- Delete the paragraph, it is not necessary.

Resolution/instruction to editor

- We refer ISO/IEC 8802-2:1998.
- So my suggestion is Reject.

CID 308a (Subclause 6.4, page 38, line 43)

Comment

- Pick one, packet or frame, and use it consistently.

Suggested Remedy

- Review the use of frame and packet to ensure that only on e term is used throughout the draft.

Resolution/instruction to editor

- Packet is used in layer 3 and frame is used in MAC layer.
- So, my suggestion is Accept and use frame instead of packet.
- Instruction to editor: Change "packet" to frame" in the draft.

CID 311 (Subclause 6.4.1, page 39, line 22)

Comment

- Figure 22—CSK PPDU has TBD in it, and question: "where is this defined?"

Suggested Remedy

- This needs to be finished.

Resolution/instruction to editor

- We already defined it in CID 311a.
- So, my suggestion is Accept.
- Instruction to editor: CE sequence is 8 bits in figure 22 at page 39. Update TBD to 32 bits. It is not variable – type it as 4 bytes

CID 332 (Subclause 6.4, page 39, line 5)

Comment

- "structure shall be formatted" -> "structure for type 1 and type 2 PPDUs shall be formatted" or "structure for non-CSCK PPDUs s hall be formatted"

Suggested Remedy

- Change as indicated

Resolution/instruction to editor

- My suggestion is Accept.
- Instruction to editor: change the following sentence "The PPDU packet structure shall be formatted as illustrated in Figure 21" to " Structure for type 1 and type 2 PPDUs shall be formatted as illustrated in Figure 21." at line 5 in page 39.

CID 355 (Subclause 6.4.1.1, page 40, line 37~38)

Comment

- Text says that "all light sources shall transmit the same preamble simultaneou sly". What does simultaneously means? Can the preambles be offset? Do the first bits of preamble have to be aligned?

Suggested Remedy

- Clarify

Resolution/instruction to editor

- My suggestion is Accept
- Simultaneously applies for multiple light sources transmitting at same band or in other bands. The RX may not have knowledge of the frequency bands of the TX and hence, has to receive at all frequencies. If the light source supports multiple bands, all of them have to transmit simultaneously. There should not be any offset between the preambles else it may cause ISI at the receiver.

CID 356 (Subclause 6.4.1.1, page 40, line 40)

Comment

- Why is preamble inversion allowed? Since the preamble is j ust a repetition of 10, won't an odd symbol delay due to m ultipath cause the receiver to have problems with timing?

Suggested Remedy

- Disallow inverted preambles

Resolution/instruction to editor

- We already presented about inverted preambles in 15-09-0660-00-0007
- My suggestion is Reject.

CID 361 (Subclause 6.4, page 40, line 45)

Comment

- "The same preamble ... image array device discovery." One repetition should be e nough. If it is variable, then it will make calculating time for packet reception more difficult, e.g., an Imm-ACK could be very long if the sending MAC decides to send 16384 bits for the fast locking field.

Suggested Remedy

- Don't allow changes to fast locking pattern. However, if you keep it, then say "pat tern may be extended" and delete "The same preamble ... high rate PHY." and "fo r better synchronization ... image array device discovery."

Resolution/instruction to editor

- Accept in part.
- The extension of the preamble during idle time or otherwise does not make packet reception difficult. It is transparent to the communication process. It is more to hel p with visibility and synchronization.
- Instruction to editor: Change low rate and high rate to “all PHY types” at line 45.

CID 366 (Subclause 6.4, page 40, line 45)

Comment

- Preambles for various topologies are not DC balanced.

Suggested Remedy

- The codes used for the preamble need to be DC balanced, specially for modes where Manchester encoded OOK is used. The reason has to do with the strong desire to use AC coupling. Also, as has been pointed out many times, the presence of DC unbalance – under the right conditions – can cause flicker. First off, the codes are of odd length so DC un-balance is inherent. But particularly out-of-balance are codes P2 and P3 which for 4 repetitions will have 20 zeros and 40 ones. This will cause a transient response in the AC coupling and problems with baseline shifting. One possible remedy is to repeat the code 4 times and invert the code every other repetition.

Resolution/instruction to editor

- The TDP part of the preamble is very small compared to the entire frame.
- Even at the lowest clock rate(200kHz) and lowest data rate PHY(11.67kbps), the effective frequency is well above 120Hz required to see flicker.
- It is impossible for the TDP preamble to cause flicker.
- My suggestion is Reject.

CID 367a (Subclause 6.4.1.1, page 40, line 37)

Comment

- The length of the preambles is not clearly stated.

Suggested Remedy

- Please state the preamble pattern length for clarity.

Resolution/instruction to editor

- There is preamble length at line 43 in page 39. Please refer following sentence.
- "The preamble first starts with a fast locking pattern of at least 64 alternate 1's and 0's."
- So, My suggestion is Reject.

CID 373 (Subclause 6.4.1.2, page 41)

Comment

- (TR) §6.4.1.2, p. 41, Table 21: It is unclear how one determines how the preamble "P1 or inverted P1" is set (esp. if "topology-dependent" may be dynamic). Sugge sted remedy: Clearly specify how one determines how these parameters are suppo sed to be interpreted.

Suggested Remedy

- Clearly specify how one determines how these parameters are supposed to be inte rpreted.

Resolution/instruction to editor

- My suggestion is Accept.
- Either the preamble or the inverted version can be selected.
- Instruction to editor:
- Insert following sentence at the end of subclause 6.4.1.2 first paragraph :
- Once selected, it shall not be changed until the communication session ends. Receiver can automatically detect it and is used for co-existence.

CID 477 (Subclause 6.8, page 55, line 22)

Comment

- Add more descriptions on CSK constellation.

Suggested Remedy

Resolution/instruction to editor

- My suggestion is Accept.
- I presented contribution 15-10-0287-01-0007-response-about-cid-877-884-885 in May meeting
- Please refer contribution 15-10-0406-00-0007-CSK-constellation-description
- Document 0406 is full description about CSK constellation based on document 15-10-0287-01-0007
- Instruction to editor: please replace subclause 6.8.5 with conribution 15-10-0406-00-0007

CID 478 (Subclause 6.8.2, page 55, line 1)

Comment

- This section cannot consist of just a figure. It needs mu ch more text. In addition, the figure really doesn't look l ike a block diagram to me.

Suggested Remedy

- Add the necessary text to this section, and make the fig ure look like a block diagram

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 488

CID 487 (Subclause 6.8.5, page 55, line 30-40)

Comment

- Hard to read numbers in Figure 39

Suggested Remedy

- Please specify values in table, rather than figure

Resolution/instruction to editor

- My suggestion is Accept.
- Please refer contribution 15-10-0406-00-0007-CSK-constellation-description
- Document 0406 is full description about CSK constellation based on document 15-10-0287-01-0007
- Figure is presented in table also.
- Instruction to editor: please replace 6.8.5 with conribution 15-10-0406-00-0007

CID 490 (Subclause 6.8.6, page 56, line 1)

Comment

- Position of the training field is not defined wrt the PPDU

Suggested Remedy

- Establish the training sequence position

Resolution/instruction to editor

- We already defined in PPDU format in figure 22
- My suggestion is Reject.

CID 491 (Subclause 6.8.6, page 56)

Comment

- In figure 41, coordinates of symbol positions should be replaced for following equations (in page 57).

Suggested Remedy

- The figure 41 should be replaced to the figure 34 in '15-10-0036-06-0007'.

Resolution/instruction to editor

- My suggestion is Accept.
- Instruction to editor: Do as suggested remedy. Jason will send WMF file to TE.

CID 492 (Subclause 6.8.6, page 56, line 30)

Comment

- Symbol mapping is shown in Figure 41, but there are a l ot of ambiguity in interpreting the symbol location in the figure.

Suggested Remedy

- Need to add numerical values for matehmatical expressi on to specify the symbol mapping correctly.

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 477

CID 513 (Subclause 6.8.6.2, page 59, line 24)

Comment

- Figure 35 replace with Figure 46

Suggested Remedy

- replace Figure 35 with Figure 46

Resolution/instruction to editor

- Please refer editorial sheet CID 370
- Figure 35 shows the mapping rules (color constellations) f or the CSK. -> Figure 46 shows the mapping rules (color c onstellations) for the CSK.
- So, my suggestion is Accept.

CID 520 (Subclause 6.8.6.2, page 59, line 24)

Comment

- Symbol mapping is shown in Figure 46, but there are a l ot of ambiguity in interpreting the symbol location in the figure.

Suggested Remedy

- Need to add numerical values for matehmatical expressi on to specify the symbol mapping correctly.

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 477

CID 476 (Subclause 6.8.4, page 55, line 18)

Comment

- Since 6.7.3.2 does not contain the answer but is only a pointer, add the base reference here

Suggested Remedy

- Change 6.7.3.2 to [B24] Clause 11

Resolution/instruction to editor

- CSK uses scrambler instead of RLL.
- We will define scrambler in CID 481.
- So, my suggestion is Reject.

CID 494 (Subclause 6.8.8, page 56, line 4)

Comment

- Figure 40 shows a scrambler. No description for t he scrambler in the draft.

Suggested Remedy

- Define scrambler

Resolution/instruction to editor

- My suggestion is Accept.
- See CID 481