

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

Submission Title: [Comment resolution on the initial SB comment No.109]

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Re: [Response to the initial SB for the IEEE 802.15.7 standard]

Abstract: [This document describes the comment resolution on the initial SB comment No.109]

Purpose: [To resolve the comment of initial SB comment No.109]

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Comment resolution on the initial SB comment No.109

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Comment No.109

Comment No.	Name	Page	Subclause	Line	Comment	Proposed Change
109 (line 153)	Joachim Walewski	276	E.2.3		Using GTS mechanism implies that each line has to be implemented as an independent VLC transmitter (with an individual MAC sublayer each). This is a very awkward approach and the complexity scales unfavorably with the # of lines	Implement the lines instead as cells as discussed in E.3.2. Or even better, create as many cells as that there are pixels. By so doing, the pixels can be addressed individually with a modest increase in complexity.

- Main issue :

Does a LED display need the individual MAC sub-layers corresponding to each line when a dynamic LED display use GTS mechanism to support the VLC broadcast topology ?

Text in sub-clause E.2.3

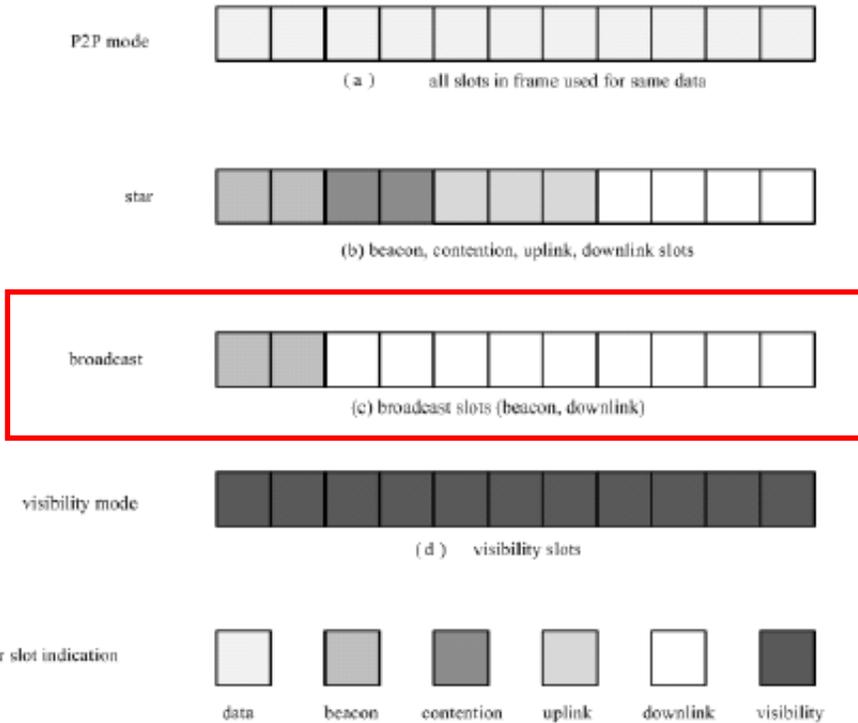
- **E.2.3 VLC application using dynamic displays**

A VLC enabled dynamic display can be used in the broadcast topology. The VLC broadcast topology in this standard consists of mainly the beacon and the downlink, as shown in Figure 14. Therefore, the VLC broadcast topology using a dynamic display can be constructed by the assignment of the active time slots and the use of GTS field in the beacon frame. Figure E.5 shows the VLC broadcast topology construction using the dynamic display. The active time slot #1 is assigned to the beacon and the active time slots from #2 to #8 are assigned to the downlink in Figure E.5. The GTS fields of the beacon frame can be used to indicate the GTS number, GTS length, and GTS direction for the broadcast topology. Multiple GTS slots can also be used depending upon the desired service level, the subscriber's grade, and the QoS policy.

1st and 2nd sentences in E.2.3

- A VLC enabled dynamic display can be used in the broadcast topology. The VLC broadcast topology in this standard consists of mainly the beacon and the downlink, as shown in Figure 14.

No problem !



5.1.1.1 Superframe structure

Figure 14—Example usage of frame structure for multiple topologies

3rd sentence in E.2.3

- Therefore, the VLC broadcast topology using a dynamic display can be constructed by the assignment of the active time slots and the use of GTS field in the beacon frame.

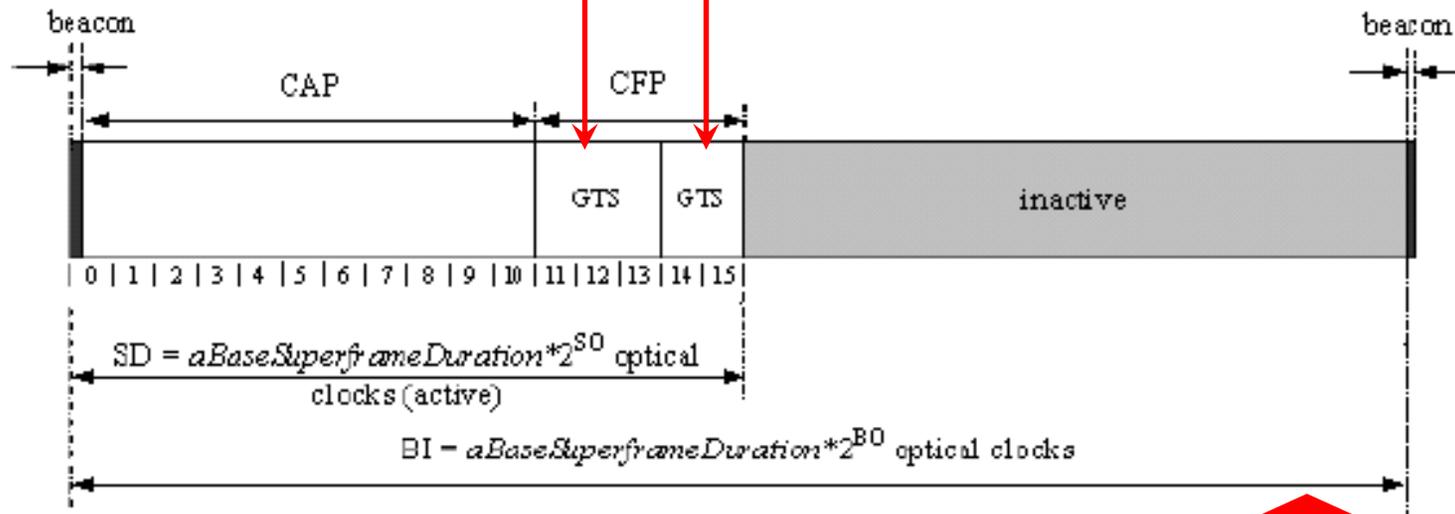


Figure 13—An example of the superframe structure

No problem !

5.1.1.1 Superframe structure

3rd sentence in E.2.3 (cont.)

- Therefore, the VLC broadcast topology using a dynamic display can be constructed by the assignment of the active time slots and the use of GTS field in the beacon frame.

Octets: 2	1	4/10	0/5/6/10/14	2	variable	variable	0/1	variable	2
Frame Control	Sequence Number	Addressing fields	Auxiliary Security Header	Superframe Spec	GTS fields (Figure 48)	Pending address fields (Figure 49)	cellSearch Length	Beacon Payload	FCS
MHR				MSDU					MFR

Figure 47—Beacon frame format

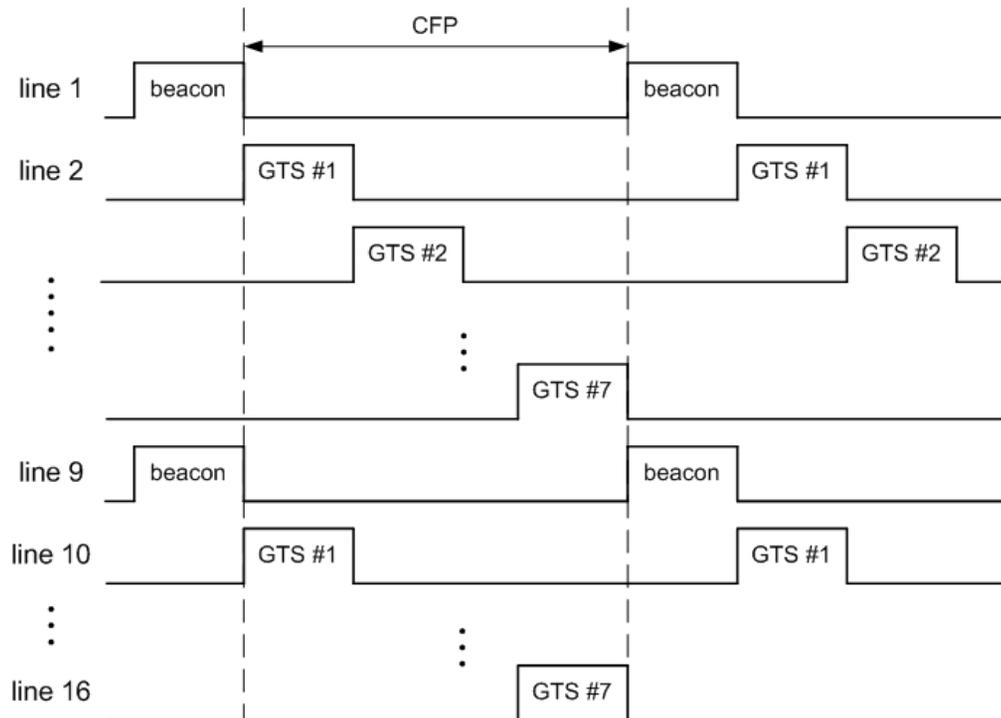


No problem !

5.2.2.1 Beacon frame format

4th and 5th sentences in E.2.3

- Figure E.5 shows the VLC broadcast topology construction using the dynamic display. The active time slot #1 is assigned to the beacon and the active time slots from #2 to #8 are assigned to the downlink in Figure E.5.



No problem !

Figure E.5 – VLC broadcast topology construction using the dynamic display

6th sentence in E.2.3

- The GTS fields of the beacon frame can be used to indicate the GTS number, GTS length, and GTS direction for the broadcast topology.

Octets: 2	1	4/10	0/5/6/10/14	2	variable	variable	0/1	variable	2
Frame Control	Sequence Number	Addressing fields	Auxiliary Security Header	Superframe Spec	GTS fields (Figure 48)	Pending address fields (Figure 49)	cellSearch Length	Beacon Payload	FCS
MHR					MSDU				MFR

Figure 47—Beacon frame format

No problem !

Octets: 1	0/1	variable
GTS Specification	GTS Directions	GTS List

Figure 48—Format of the GTS information fields

Bits: 0-2	3-6	7
GTS Descriptor Count	Reserved	GTS Permit

Figure 51—Format of the GTS Specification field

Bits: 0-6	7
GTS Directions Mask	Reserved

Figure 52—Format of the GTS Directions field

Bits: 0-15	16-19	20-23
Device Short Address	GTS Starting Slot	GTS Length

Figure 53—Format of the GTS descriptor

5.2.2.1 Beacon frame format

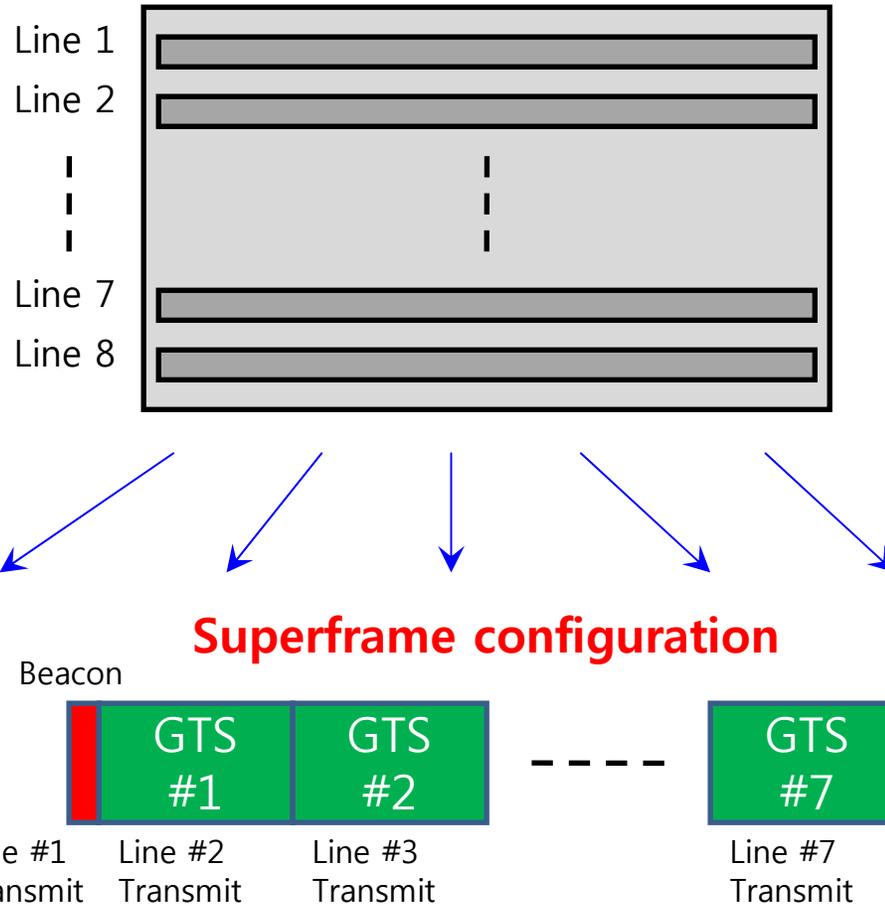
Last sentence in E.2.3

- Multiple GTS slots can also be used depending upon the desired service level, the subscriber's grade, and the QoS policy.

We cannot find any other problem on the last sentence in E.2.3.

Summary

Dynamic LED Display (Coordinator)



Response to comment No.109

- Main issue :

Does a LED display need the individual MAC sub-layers corresponding to each line when a dynamic LED display use GTS mechanism to support the VLC broadcast topology ?

- Response :

No problem because a dynamic a LED display use only a MAC sub-layer when it use GTS mechanism to support the VLC broadcast topology !