**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) – TG4k | |
| Title | Proposed Resolutions of Sponsor Ballot Comments about CSL Parts | |
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| Re: | [] | |
| Abstract | Proposed resolutions of Sponsor Ballot Comments about CSL Parts | |
| Purpose | Draft standard development | |
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***CID 2***

**Comment:**

“"RZ" is an odd acronym for "Rendezvous", since the English word is composed of two French words ("Rendez-vous"), and in both languages the "Z" is silent.”

**Proposed Change:**

“Could "RZ Time" be changed to "RV Time" throughout the document?”

**Explanation:**

The naming of “RZ Time” is to compatible with the CSL mechanism in 4e.

***CID 14***

**Comment:**

“This changes CSL in a non-backwards compatible way. There are existing deployments conforming to the published standard. Which are made non-conformant with this change.”

**Proposed Change:**

“Remove changes that break CSL deployments as defined by the base standard.”

**Explanation:**

Considering about the compatibility of existing standard 4e, we proposed a new mechanism add to 4k before, which named HWSL. But according to the comments from the first sponsor ballot and our discussion in Vancouver’s meeting, people all suggested to delete the HWSL mechnism, instead to just modify the CSL parts, and I remembered, I have checked, whether the mechanism in 4k is based on 4e, and the response is that 4k and 4e are different amendments of 15.4, so there isn’t inheritance relationship between 4k and 4e, so from my understanding, there is no need to consider about the backwards compatible way.

***CID 28***

**Comment:**

“when *macLEenabled* is not unique to LECIM LE mode.”

**Proposed Change:**

“Delete "LECIM".”

**Explanation:**

As explained in CID 14, 4k and 4e are different amendments of 15.4, so in 4k standard, when *macLEenabled* is set to TRUE, just means the LECIM LE mode is enabled.

***CID 29***

**Comment:**

“This paragraph seems redundant and repetitive and also not really necessary as it is repeating what's already in the base standard.”

**Proposed Change:**

‘’Delete paragraph.”

**Explanation:**

Accept, delete this paragraph.

***CID 30***

**Comment:**

“This is contradicting 5.1.6.3 in the base standard. I \*think\* the intent is that the extra data request is only sent when this LE mode is used, so that needs to be stated. However, how does sending an extra frame and holding the receiver on longer save energy over the base standard behavior?”

**Proposed Change:**

“Qualify so it is not in conflict with the base standard, or remove.”

**Explanation:**

The procedure of data transmission from coordinator to the device is similar with the indirect transmission mode in 5.1.6.3 of 15.4, the only two differences are:

1. in 15.4, the device determine whether any frames are pending for it by examining the contents of the received beacon frame, but in LECIM LE mode, by examining the contents of the received acknowledgment frame from the coordinator.
2. in 15.4, on successfully receiving the data request command, the coordinator shall send an acknowledgment frame, but in LECIM LE mode, the coordinator just send the corresponding data frame.

The procedure of data transmission is just for LECIM LE mode, which will be not used in normal network, so it isn’t conflict with the existing indirect data transmission definition, only when the LECIM LE mode is enabled, the device and coordinator will operation as this part described.

***CID 31***

**Comment:**

“Existing CSL implementation don't have wake up interval in the wake up frame interval, so this breaks current implementation of the base standard.”

**Proposed Change:**

“Remove incompatible changes.”

**Explanation:**

Same with CID 14.

***CID 32***

**Comment:**

“This seems to be adding additional transmissions in which changes CSL in a non-backwards compatible way, and seems like it is expending more energy.”

**Proposed Change:**

“Needs to preserve compatibility to existing CSL implementations. Remove incompatible changes.”

**Explanation:**

Same with CID 14.

***CID 33***

**Comment:**

“How does the MAC know what to set the wake up interval value? Something is missing but I'm not sure what - somehow the wake up interval has to be set prior to sending wake-up frames, both sides of the transaction have to know that this modified CSL is being used, neither of which are obvious.”

**Proposed Change:**

“See comment - resolution is not obvious.”

**Explanation:**

The MAC will set the wake-up interval by the MAC PIB *macCSLInterval*, which can be set by the higher layer according to the higher layer requirements, like requirements of the data transmission latency, period of channel sample of device…

All the parameters of the modified CSL mechanism shall be set prior to the sending of wake-up sequence, as we also need to set all of parameters of any other mechanism prior to the mechanism is enabled.

***CID 34***

**Comment:**

“This is step is incompatible with the base standard.”

**Proposed Change:**

“Remove incompatible changes.”

**Explanation:**

Same with CID 14.

***CID 35***

**Comment:**

“"CSL will stop sending the wake-up sequence only after receiving data request frames from all of the destination devices." how does the initiator of a broadcast frame know when it has received DRs from all destination devices, i.e. it's a broadcast frame has no particular destination. This implies the sender knows all devices in range of a broadcast message, which isn't something it can know.”

**Proposed Change:**

“Not sure.”

**Explanation:**

As mentioned in 4.3.1, the topology of 4k is star network, and as all device should to associated with the coordinator before it can work in this network, so the coordinator will know all devices which has associated with it.

As the same time, also the destination address of the broadcast transmission is 0xffff, the actually destination devices are those which has associated with the coordinator, so the coordinator can judge whether has received data request frames from all of the destination devices.

We made a modification like this, just want to try best to decrease the occupy duration of wakeup frames.

***CID 37***

**Comment:**

“This changes the base standard in a non-backwards compatible way.”

**Proposed Change:**

“Define a new IE for the new information and indicate in the functional description when the new IE is used so that we don't break existing implementations.”

**Explanation:**

Same with CID 14.

***CID 38***

**Comment:**

“This changes the base standard in a non-backwards compatible way.”

**Proposed Change:**

“Define a new IE for the new information and indicate in the functional description when the new IE is used so that we don't break existing implementations.”

**Explanation:**

Same with CID 14.