**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | **Text proposal for LPWA repeater** |
| Date Submitted | [07 September, 2018] |
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| Re: | [P802-15-18-0147-00-004w-call-for-proposals.docx 8 (08-Mar-2018)] |
| Abstract | [This is a proposal for single-hop LPWA repeater to resolve harsh environment applications] |
| Purpose | [Contribution to IEEE 802.15.4w] |
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***1. Add the following paragraph at the end of 5.5.1:***

**5.5.1 Star network formation**

For the LPWA star topology, a single-hop frame repeater may be used to extend the transmission range for connecting the end devices in harsh communication environment.

** **

***2. Add the following attributes in Table 8-81***

**Table 8-81 MAC PIB attributes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Type** | **Range** | **Description** | **Default** |
| *macLpwaRepeaterEnabled*  |  Boolean | TRUE, FLASE | A value of TRUE indicates that single-hop frame repeaters are used to extend the transmission range. | - |
| *macLpwaRepeaterBeaconOffset* |  Integer | - | The time offset at the air interface from the trailing edge of the last chip (of the last symbol) of a received beacon to the time of transmitting the leading edge of the first chip (of the first symbol) of the repeated beacon, if *phyLpwaRepeaterEnabled* is set to TRUE. | - |

***3. Add the following paragraphs at the end of 24.2.2:***

**24.2.2 PHR field format**

In a LPWA, if *phyLpwaRepeaterEnabled* is set to TRUE, the format of the PHR is shown in Figure xx-x

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Bits: 0 | 1 | 2 | 3 | 4 | 5-15 |
| Repeat Request | Repeat Indicator | Parity | FCS Type | Data Whitening | Frame Length |

where the Parity field is calculated in the following way:

 Parity field = b0 ⊕ b1 ⊕ b3 ⊕ b4 ⊕ b5 ⊕ b6 ⊕ b7 ⊕ b8 ⊕ b9 ⊕ b10 ⊕ b11 ⊕ b12 ⊕ b13 ⊕ b14 ⊕ b15.