**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 for CCA mode 5** | |
| Date Submitted | November 2016 | |
| Source | Billy Verso (Decawave), | billy.verso (at) decawave.com |
| Re: | draft text for inclusion into 802.15.8 | |
| Abstract | This gives proposed text for CCA mode 5 applicable to the UWB PHY only. | |
| Purpose | The purpose of this document is to provide text for CCA mode 5 with a view to incorporating it into the IEEE 802.15.8 draft | |
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| Patent Policy | The contributor is familiar with the IEEE-SA Patent Policy and Procedures:  <http://standards.ieee.org/guides/bylaws/sect6-7.html#6> and  <http://standards.ieee.org/guides/opman/sect6.html#6.3>.  Further information is located at <http://standards.ieee.org/board/pat/pat-material.html> and  <http://standards.ieee.org/board/pat>. | |

**CCA mode 5**

***This document contains text for integration into the 802.15.8 draft.***

— *CCA Mode 4*: ALOHA. CCA shall always report an idle medium.

— *CCA Mode 5: UWB preamble sense based on the SHR of a frame*. In this mode, the CCA shall operate to detect the UWB preamble defined by the *phyPreambleCode* and the *phyModeSelection*, as per the specification in 10.2.2 for the BPM-BPSK modulation mode, and as per 10.3.2 for the OOK modulation mode. The preamble detection time for the UWB PHY is implementation dependant, typically between 20 µs and 200 µs, and may vary depending on the operating mode. In this CCA mode, the UWB PHY shall spend at least its normal operational preamble detection time looking for preamble before reporting an idle medium in the case where no preamble is detected. The CCA shall report a busy medium upon detection of preamble, and thereafter, shall not report an idle medium until a period has elapsed that is at least the time specified in Table 1. This time represents the transmission time at the specified reference conditions of a 127-octet data frame followed, after the requisite *macImmAckTime*, by an immediate acknowledgment.

*For highlighted reference 10.2.2 above, please insert correct hyperlinked cross-reference to the sub-clause x.2.2 within the UWB PHY titled “SHR preamble”.*

*For highlighted reference 10.3.2 above, please insert correct hyperlinked cross-reference to the sub-clause x.3.2 within the UWB PHY titled “Format of SHR”.*

Table 1 — UWB CCA busy medium reporting time

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| **UWB Modulation Mode** | **Nominal busy medium reporting time** | **Reference conditions** |
| BPM-BPSK | 550 µs | Nominal data rate = 6.81 Mb/s Preamble Nsync = 128 |
| OOK | 4 ms | Nominal data rate = 437 kb/s Preamble Nsync = 8 |

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