IEEE P802.11  
Wireless LANs

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| 802.11bb Functional Requirements | | | | |
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Abstract

This submission proposes the IEEE P802.11bb Functional Requirements as derived from the IEEE P802.11bb PAR [Ref-1] and CSD [Ref-2].

1. **Introduction**
   1. **Purpose**

This document proposes requirements for solutions addressing functionality to be provided by the IEEE P802.11bb amendment, referred to as the TGbb Functional Requirements.

* 1. **Scope**

The scope for deriving functional requirements is set by the IEEE P802.11bb PAR [Ref-1] and CSD [Ref-2].

The functional requirements as stated in this document cover the following aspects of IEEE P802.11bb:

1. System performance
2. Photobiological safety
3. Supporting wavelength bands
4. Coexistence and interoperability
5. Compliance to PAR
   1. **Notation**

Requirements are identified by a preceding unique number in the format of “TGbb R*n*” , where *n* is an integer number representing the ID of the requirements.

1. **Functional Requirements**
   1. **System performance**
      1. **Throughput**
2. IEEE 802.11bb amendment shall provide all modes of operation of achieving minimum single-link throughput of 10 Mb/s and at least one mode of operation of achieving single-link throughput of at least 5 Gb/s, as measured at the Medium Access Control (MAC) data service access point (SAP).

Note: A single-link is defined as a link between an access point and a single station in the downlink.

* + 1. **Security**

1. IEEE 802.11bb amendment shall address the security of the transition between the new light communication (LC) Physical Layer (PHY) and the existing IEEE 802.11 PHYs as well as the security implications in supporting Fast Session Transfer. The 802.11bb amendment shall provide equivalent security capabilities as the existing 802.11 PHYs.
   1. **Photobiological Safety**
2. IEEE 802.11bb amendment shall provide optically safe working conditions (i.e., for ordinary light sources [Ref-3], [Ref-4], for the specific aspect of blue light hazard from LED light sources [Ref-5], for lasers [Ref-6]-[Ref-8] ).
   1. **Supporting wavelength bands**
3. IEEE 802.11bb amendment shall define operations in the wavelength bands between 380 nm and 5,000 nm.
   1. **Coexistence and interoperability**
4. IEEE 802.11bb amendment shall show that coexistence with other light communication systems developed by the IEEE 802 LMSC in the wavelength bands between 380 nm and 5,000 nm is possible.
5. IEEE 802.11bb amendment shall support interoperability among solid state light sources with different modulation bandwidths.
   1. **Compliance to PAR**
6. The 802.11bb amendment shall comply with the PAR [Ref-1] and the CSD [Ref-2].
7. **References**
8. 11-17-1604-10-00lc-a-par-proposal-for-light-communications
9. 11-17-1603-09-00lc-a-csd-proposal-for-light-communications
10. CIE S 009/IEC 62471, Lamps and lamp systems. Photobiological safety.
11. IEC/TR 62471-2, Photobiological safety of lamps and lamp systems. Guidance on manufacturing requirements relating to non-laser optical radiation safety.
12. IEC/TR 62778, Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires.
13. IEC 60825-1, Safety of laser products - Part 1: Equipment classification and requirements.
14. IEC 60825-12, Safety of laser products - Part 12: Safety of free space optical communication systems used for transmission of information.
15. IEC/TR 60825-13, Safety of laser products - Part 13: Measurements for classification of laser products.