IEEE P802.11  
Wireless LANs

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| TGbb formation - IEEE blog content | | | | |
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Abstract

This document contains the draft IEEE blog content related to formation of TGbb (Light Communications).

# Process

IEEE staff are recommending a blog posting rather than a press release, as communication related to the formation of the Light Communications Project, P802.11bb. This blog text was authored by the IEEE marketing department (represented by Jeff Pane) after interviewing 802.11 subject-matter experts (Nikola Serafimovski).

This blog text is being notified to the WG and will be notified to the EC for comment.

# Blog content:

IEEE 802.11**™** Launches Standards Amendment Project for Light Communications (LiFi)

*IEEE 802.11bb™ to define one medium access control (MAC) and several physical layer (PHY) specifications for light-based wireless connectivity for fixed, portable, and moving stations within a local area network*

In May 2018, IEEE announced the formation of the IEEE 802.11 Light Communications Task Group and its intent to engage with manufacturers, operators and end users in consensus building efforts to develop a global standard for light communications in wireless local area networking. The task group continues to call upon stakeholders to participate in the newly approved standards amendment project IEEE 802.11bb. The IEEE 802.11 is the group responsible for the technical definitions behind Wi-Fi and includes individuals affiliated with a broad ecosystem including chipset providers like Qualcomm, Huawei, Broadcom, Intel and more, infrastructure providers like Cisco, HPE, Nokia, Ericsson and others, device manufacturers like Apple, Samsung, Sony, Panasonic, etc., and with the new task group, lighting companies like Lucibel, Ushio, Osram and others.

Light communications offers access to a very large source of globally unlicensed and globally harmonized wireless spectrum outside of the traditional radio spectrum. It utilizes solid state lighting, e.g., LED lighting, installations to transmit high bandwidth data to create a wireless network. This can address the ever-growing demand for wireless data and the impending spectrum crunch. The technology has notable potential as a wireless solution that offers greater bandwidth, energy efficiency, security, and data density, while not being subjected to or contributing to electromagnetic interference (EMI) below 3 THz.

According to Nikola Serafimovski, chair of the IEEE 802.11 Light Communications Task Group, “IEEE 802.11 is ideally suited for LiFi because of the diversity, completeness, and proven track record of the ecosystem, as well as the Wi-Fi community’s success in bringing technologies into standards and, more importantly, into products. The commercial success of LiFi requires a coherent approach from this broad ecosystem and the participation of world-leading organizations in the development of IEEE 802.11bb. This will lay the foundation for mass market product development and introduction, leveraging the ecosystem that has global deployments in billions of units.”

With [Cisco](https://www.cisco.com/c/dam/en_us/solutions/trends/iot/docs/iot-aag.pdf) projecting the Internet of Things (IoT) to grow to 50 billion connected devices by 2020, light communication is gaining ground through use cases that demonstrate its viability as a global wireless solution with initial applicability in EMI-challenged environments, such as hospitals, petrochemical plants, and airplanes, but also secure environments where RF is not sanctioned. In addition, Light Communications will also be used to substantially improve indoor connectivity, which accounts for over 80% of all wireless communication, in both office environments and, most significantly, in the home. The additional security benefits of LiFi also enhance the privacy of consumer and commercial networks while maintaining solutions’ seamless connectivity.

IEEE 802.11bb—Standard for Information Technology—Telecommunications and Information Exchange Between Systems Local and Metropolitan Area Networks—Specific Requirements-Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment: Light Communications specifies a PHY that provides:

* Uplink and downlink operations in 380 nm to 5,000 nm band,
* All modes of operation achieve minimum single-link throughput of 10 Mb/s and at least one mode of operation that achieves single-link throughput of at least 5 Gb/s, as measured at the MAC data service access point (SAP),

Interoperability among solid state light sources with different modulation bandwidths.

This amendment specifies changes to the IEEE 802.11 MAC that are limited to the following:

* Hybrid coordination function (HCF) channel access
* Overlapping basic service set (OBSS) detection and coexistence
* Existing power management modes of operation (excluding new modes), and modifications to other clauses necessary to support these changes.

For more information on the IEEE 802.11 Light Communications Task Group, please visit the group’s [web page](http://www.ieee802.org/11/Reports/lcsg_update.htm). To learn more about the IEEE 802.11bb, or to get involved in the development process, please visit the standards project’s [web page](https://standards.ieee.org/develop/project/802.11bb.html).

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**References:**

Press release for Light Comuncations Study Group formation: <http://standards.ieee.org/news/2017/Light_Communications.html>