# P802.11br

**Type of Project:** Amendment to IEEE Standard 802.11-2024
**Project Request Type:** Initiation / Amendment
**PAR Request Date:** 10 Feb 2025
**PAR Approval Date:** 27 Mar 2025
**PAR Expiration Date:** 31 Dec 2029
**PAR Status:** Active
**Root Project:** 802.11-2024

**1.1 Project Number:** P802.11br
**1.2 Type of Document:** Standard
**1.3 Life Cycle:** Full Use

**2.1 Project Title:** IEEE Standard for Information Technology — Telecommunications and Information Exchange Between Systems Local and Metropolitan Area Networks — Specific Requirements - Part 11: Wireless Local Area Network (LAN) Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment: Enhanced Light Communications

**3.1 Working Group:** Wireless LAN Working Group(C/LAN/MAN/802.11 WG)
**3.1.1 Contact Information for Working Group Chair:**
**Name:** Robert Stacey
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**3.2 Society and Committee:** IEEE Computer Society/LAN/MAN Standards Committee(C/LAN/MAN)
**3.2.1 Contact Information for Standards Committee Chair:**
**Name:** James Gilb
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**3.2.2 Contact Information for Standards Committee Vice Chair:**
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**4.1 Type of Ballot:** Individual
**4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot:** Nov 2026
**4.3 Projected Completion Date for Submittal to RevCom:** Mar 2028

**5.1 Approximate number of people expected to be actively involved in the development of this project:** 20
**5.2.a Scope of the complete standard:**The scope of this standard is to define one medium access control (MAC) and several physical layer (PHY) specifications for wireless connectivity for fixed, portable, and moving stations (STAs) within a local area.
**5.2.b Scope of the project:** This amendment provides enhanced light communications (ELC) for Wireless LAN operation. This amendment modifies the IEEE 802.11 MAC to support the ELC PHY and multi-link operation. The amendment introduces an ELC PHY through the modification of IEEE 802.11 sub-7.25 GHz PHYs. These modifications are limited to specifying:
1) Operations in new optical bands in the range of 400 nm to 600 nm and 1200 nm to 1600 nm
2) New channelization
3) The use of wavelength division multiplexing (WDM)
4) Simpler integration of the IEEE 802.11 baseband with optical frontends
5) PHY support for existing ranging techniques
6) Methods to reduce the peak-to-average-power ratio

This amendment provides for compatibility with legacy Light Communications (LC) devices as defined in IEEE Std 802.11bb-2023™ operating in the identified optical bands.

**5.3 Is the completion of this standard contingent upon the completion of another standard?** No
**5.4 Purpose:** The purpose of this standard is to provide wireless connectivity for fixed, portable, and moving stations within a local area. This standard also offers regulatory bodies a means of standardizing access to one or more frequency bands for the purpose of local area communication.
**5.5 Need for the Project:** The IEEE Std 802.11bb-2023™ standard extended the operation of IEEE 802.11 into the optical spectrum. LC devices as defined in IEEE Std 802.11bb-2023™ have been introduced with several organizations developing prototypes and products. The amendment enabled the use of IEEE Std 802.11n™, IEEE Std 802.11ac™ and IEEE Std 802.11ax™ standards in the optical domain. New features defined in the latest series of IEEE 802.11 amendments have been requested by various customers. These changes, including reducing the power consumption and increasing the range of LC devices, aim to expand the market and address a wider range of applications. This project aims to support those customer requests and ensure that the latest generation of IEEE 802.11 systems have an up-to-date industry standard to operate in the optical spectrum.
**5.6 Stakeholders for the Standard:** The stakeholders include chipset manufacturers to deliver PHY and MAC sub systems, system integrators and lightning companies, telecom operators, Internet Service Providers (ISPs), emerging IoT companies, large industrial manufacturers, aviation and transportation industries.

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**6.1 Intellectual Property**

**6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project?** No

**6.1.2 Is the Standards Committee aware of possible registration activity related to this project?** No

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**7.1 Are there other standards or projects with a similar scope?** No
**7.2 Is it the intent to develop this document jointly with another organization?** No

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**8.1 Additional Explanatory Notes:** 5.2.b IEEE Std 802.11bb-2023™ systems are expected to adhere to regulation and standards such as IEC 62471:2006-"Photobiological safety of lamps and lamp systems" as well as ITU-T G.664 - "Optical Safety Procedures and Requirements for Optical Transmission Systems", IEC 60825-1:2014 – “Safety of laser products – Part 1: Equipment classification and requirements.” and others. In addition, IEEE Std 802.11bb-2023™ systems are expected to not create additional electromagnetic interference in accordance with national regulation standards.

IEEE Std 802.11bb-2023™: 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