

## P802.15.7

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**Submitter Email:** bheile@ieee.org  
**Type of Project:** New IEEE Standard  
**PAR Request Date:** 08-Oct-2008  
**PAR Approval Date:** 10-Dec-2008  
**PAR Expiration Date:** 31-Dec-2012  
**Status:** PAR for a New IEEE Standard  
**Project Record:**

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**1.1 Project Number:** P802.15.7  
**1.2 Type of Document:** Standard  
**1.3 Life Cycle:** Full Use

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**2.1 Title:** Physical (PHY) and Medium Access Control (MAC) Layer Standard for Short-Range Wireless Optical Communication Using Visible Light

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**3.1 Working Group:** Wireless Personal Area Network (WPAN) Working Group (C/LM/WG802.15)

**Contact Information for Working Group Chair**

**Name:** Robert F Heile  
**Email Address:** bheile@ieee.org  
**Phone:** 781-929-4832

**Contact Information for Working Group Vice-Chair**

None

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**3.2 Sponsoring Society and Committee:** IEEE Computer Society/Local and Metropolitan Area Networks (C/LM)

**Contact Information for Sponsor Chair**

**Name:** Paul Nikolich  
**Email Address:** p.nikolich@ieee.org  
**Phone:** 857.205.0050

**Contact Information for Standards Representative**

None

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**4.1 Type of Ballot:** Individual

**4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot:** 07/2010

**4.3 Projected Completion Date for Submittal to RevCom:** 11/2010

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**5.1 Approximate number of people expected to be actively involved in the development of this project:** 150

**5.2 Scope:** This standard defines a PHY and MAC layer for short-range optical wireless communications using visible light in optically transparent media. The visible light spectrum extends from 380 to 780 nm in wavelength. The standard is capable of delivering data rates sufficient to support audio and video multimedia services and also considers mobility of the visible link, compatibility with visible-light infrastructures, impairments due to noise and interference from sources like ambient light and a MAC layer that accommodates visible links. The standard will adhere to any applicable eye safety regulations

**5.3 Is the completion of this standard dependent upon the completion of another standard:** No

**5.4 Purpose:** The purpose of this standard is to provide a global standard for short-range optical wireless communication using visible light. The standard will provide (i) access to several hundred THz of unlicensed spectrum; (ii) immunity to electromagnetic interference and noninterference with Radio Frequency (RF) systems; (iii) additional security by allowing the user to see the communication channel; and (iv) communication augmenting and complementing existing services (such as illumination, display, indication, decoration, etc.) from visible-light infrastructures.

**5.5 Need for the Project:** Visible light is drawing great interest as a new communication medium due to the following recent developments. Firstly, solid-state light sources are rapidly replacing conventional ones in signaling, illumination and display infrastructures. It thus becomes possible to carry communication data on such light sources. Secondly, the visible band is free from frequency regulation and Radio Frequency (RF) interference so that it is well suited to RF crowded or RF restricted environments. Thirdly, the unique feature of visibility can enhance the physical-layer security and offer intuitive usage. Given the growing expectation of ubiquitous connectivity in all settings and environments, the need for unlicensed, high bandwidth, easy to use wireless communications technology has never been greater. Potential applications include secure point-to-point communication, indoor Location Based Service (LBS), secure point-to-Multipoint communication (office, hospital, airplane), Intelligent Transportation System (ITS), information broadcast, and etc. A visible light communication standard will provide economic opportunities to

equipment manufacturers, component suppliers, service providers, and infrastructure operators.

**5.6 Stakeholders for the Standard:** Mobile Communications Device Manufacturers and Users, Location Based Services Suppliers and Users, component suppliers, other service providers, infrastructure operators.

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#### **Intellectual Property**

**6.1.a. Has the IEEE-SA policy on intellectual property been presented to those responsible for preparing/submitting this PAR prior to the PAR submittal to the IEEE-SA Standards Board?:** Yes

If yes, state date: 08-Sep-2008

**6.1.b. Is the Sponsor aware of any copyright permissions needed for this project?:** No

**6.1.c. Is the Sponsor 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 International Activities**

##### **a. Adoption**

**Is there potential for this standard (in part or in whole) to be adopted by another national, regional or international organization?:** Do Not Know

**Organization:**

**Technical Committee Name:**

**Technical Committee Number:**

**Contact Name:**

**Phone:**

**Email:**

##### **b. Joint Development**

**Is it the intent to develop this document jointly with another organization?:** No

##### **c. Harmonization**

**Are you aware of another organization that may be interested in portions of this document in their standardization development efforts?:** Do Not Know

**Organization:**

**Technical Committee Name:**

**Technical Committee Number:**

**Contact Name:**

**Phone:**

**Email:**

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**8.1 Additional Explanatory Notes (Item Number and Explanation):** A PICS Proforma will be included as part of the initial standard