P802.15.11

1.1 Project Number: P802.15.11
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Title: Standard for Multi-Gigabit/s Optical Wireless Communications

3.1 Working Group: Wireless Personal Area Network (WPAN) Working Group (C/LM/WG802.15)
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3.2 Sponsoring Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee (C/LM)
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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: 03/2018
4.3 Projected Completion Date for Submittal to RevCom
Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 10/2018

5.1 Approximate number of people expected to be actively involved in the development of this project: 80
5.2 Scope: This standard defines a Physical (PHY) and Media Access Control (MAC) layer using light wavelengths from 10,000 nm to 190 nm in optically transparent media for optical wireless communications. The standard is capable of delivering data rates between 1 Mbit/s and 10 Gbit/s. It is designed for point to point and point to multi point communications in both non-coordinated and coordinated topologies. For coordinated topologies, there may be one or more coordinators with the possibility of a global controller. The standard includes adaptation to varying channel conditions and maintaining connectivity during mobility. The standard adheres to applicable eye safety regulations. The standard may include MIMO, relaying, and mechanisms enabling heterogeneous operation with existing RF wireless data communications standards.

5.3 Is the completion of this standard dependent upon the completion of another standard: No
5.4 Purpose: This purpose of this standard is to utilize optical wireless communication, to provide a global solution initially targeting industrial applications requiring, secure, high performance, high data rate communications. The standard provides (i) access to unlicensed spectrum; (ii) inherent communication security due to inability to penetrate through optically opaque walls, (iii) data delivery without using Radio Frequency (RF) spectrum, which is desirable in various industrial environments; (iii) high reliability and low latency data transferring that meet the unique requirements of industrial applications; and (iv) communication augmenting and complementing existing services (such as illumination, display, indication, decoration, etc.). These are also attributes that will be valuable in commercial and business settings, both of which are expected to be significant emerging markets.

5.5 Need for the Project: Given the growing expectation of ubiquitous wireless connectivity in industrial environments, the need for unlicensed, high bandwidth, easy-to-use wireless communications technology, immune to radio frequency (RF) interference and which does not overload existing RF spectrum or necessarily require additional hardware, has never been greater. This standard specifically addresses these needs. In particular, optical wireless based solutions to this problem address a significant opportunity, extending to billions of existing industrial devices, to provide secure, non RF based communications between industrial devices and/or between industrial devices and fixed infrastructure on a one to one, or one to many or many to one basis at acceptable data rates. Potential applications include control of mobile robots in a personalized manufacturing cell or at an assembly line, automated guided vehicle systems, small cell backhaul, security monitoring in petrochemical plants, secure communications in nuclear facilities and hospitals, etc.

There is also a similar emerging need in commercial/business settings, especially in environments requiring high data rates and high levels of security.

5.6 Stakeholders for the Standard: Industrial devices manufactures, system integrators, aircraft and transportation manufactures, medical equipment manufacturers, lighting manufacturers, silicon providers, networking equipment manufacturers, and academic researchers

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Intellectual Property
6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No
6.1.b. 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 Joint Development
  Is it the intent to develop this document jointly with another organization?: No

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8.1 Additional Explanatory Notes: