P802.15.4p

Submitter Email: bheile@ieee.org
Type of Project: Amendment to IEEE Standard 802.15.4-2011
PAR Request Date: 07-Feb-2012
PAR Approval Date:
PAR Expiration Date:
Status: Unapproved PAR, PAR for an Amendment to an existing IEEE Standard

1.1 Project Number: P802.15.4p
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Title: Standard for Local and metropolitan area networks--Part 15.4: Low-Rate Wireless Personal Area Networks (LR-WPANs) Amendment: Positive Train Control (PTC) System Physical Layer

3.1 Working Group: Wireless Personal Area Network (WPAN) Working Group (C/LM/WG802.15)
Contact Information for Working Group Chair
Name: Robert Heile
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Contact Information for Working Group Vice-Chair
None

3.2 Sponsoring Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee (C/LM)
Contact Information for Sponsor Chair
Name: Paul Nikolich
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Contact Information for Standards Representative
None

4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 11/2013
4.3 Projected Completion Date for Submittal to RevCom: 05/2014

5.1 Approximate number of people expected to be actively involved in the development of this project: 150
5.2 Scope: This amendment specifies a PHYsical layer (PHY) for IEEE 802.15.4, and any Medium Access Control (MAC) changes needed to support this PHY, for use in equipment intended to address industry needs and to meet United States (US) Positive Train Control regulatory requirements and similar regulatory requirements in other parts of the world. The PHY enables operation in licensed or license-free radio frequency bands below 6 GHz; accommodates transmit power levels greater than the 1 watt typical of US FCC Part 15 devices; meets performance requirements at speeds up to 600 km/h; supports radio ranges on the order of 70 km; allows operation in contiguous or non-contiguous channel bandwidths as narrow as 5 kHz; supports data rates up to 1 Mbps with flexible and robust quality of service; provides modulation methods and spectral characteristics consistent with local regulatory requirements; and accommodates rapidly changing network membership.

5.3 Is the completion of this standard dependent upon the completion of another standard: No
5.4 Purpose: This document will not include a purpose clause.
5.5 Need for the Project: PTC is becoming a vital part of global rail transportation systems. In the US, the PTC performance requirement is specified in Section 20157.(i).(3) of US Public Law 110-432, also known at the US Rail Safety Improvement Act of 2008 (http://www.gpo.gov/fdsys/pkg/PLAW-110publ432/pdf/PLAW-110publ432.pdf). It is anticipated that requirements similar to those in the US public law may be adopted in other geographic regions in the future.

There are over 250,000 km of track in North America alone, approximately 24,000 locomotives, and the potential for tens of thousands of wayside devices and other infrastructure. There is much potential in large-scale information exchange, and device command and control applications. These needs are effectively served by the development of mobility-capable IEEE 802.15.4 networks. In addition, the work done by the IEEE Vehicular Technology Society's Rail Transportation Standards Committee to establish the IEEE 1474 family of standards for Communication Based Train Control may benefit from development of a wireless protocol for communications links.

5.6 Stakeholders for the Standard: The stakeholders include:
-Communication device manufacturers and users
-Passenger rail entities
-Freight rail entities

-State, regional, municipal and private rail transit entities
-Device, component, and systems suppliers
-US regulatory and government agencies
-Spectrum licensees and spectrum management entities

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 (Item Number and Explanation): 5.2 Scope: This amendment also provides mechanisms that enable coexistence with other 802 systems in the same band.
5.2 Scope: North American Class One railroads and many rail transit entities have acquired spectrum in the 216 - 222 MHz band for such uses.