P802.15.4q

Submitter Email: bheile@ieee.org
Type of Project: Amendment to IEEE Standard 802.15.4-2011
PAR Request Date: 01-Oct-2012
PAR Approval Date:
PAR Expiration Date:
Status: Unapproved PAR, PAR for an Amendment to an existing IEEE Standard

1.1 Project Number: P802.15.4q
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 for an Ultra Low Power Physical Layer

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: 03/2014
4.3 Projected Completion Date for Submittal to RevCom: 10/2014

5.1 Approximate number of people expected to be actively involved in the development of this project: 75
5.2.a. Scope of the complete standard: This standard defines the physical layer (PHY) and medium access control (MAC) sublayer specifications for low-data-rate wireless connectivity with fixed, portable, and moving devices with no battery or very limited battery consumption requirements typically operating in the personal operating space (POS) of 10 m.

Physical layers (PHYs) are defined for
-- Devices operating in the license-free 868-868.6 MHz, 902-928 MHz, and 2400-2483.5 MHz bands
-- Devices with precision ranging, extended range, and enhanced robustness and mobility
-- Devices operating according the Chinese regulations, Radio Management of P. R. of China doc. #6326360786867187500 or current document, for one or more of the 314-316 MHz, 430-434 MHz,
and 779-787 MHz frequency bands
-- Devices operating in the 950-956 MHz allocation in Japan and coexisting with passive tag systems in the band

5.2.b. Scope of the project: This amendment defines an ultra low power (ULP) physical layer operating in sub 1 GHz and 2.4 GHz license exempt bands supporting typical data rates up to 1 Mbps. This amendment also defines the necessary MAC changes required for supporting the new ULP physical layer. The desired peak power consumption for the PHY should be typically less than 15 mW.

5.3 Is the completion of this standard dependent upon the completion of another standard: No
5.4 Purpose: The standard provides for ultra low complexity, ultra low cost, ultra low power consumption, and low data rate wireless connectivity among inexpensive devices. The raw data rate is high enough (250 kb/s) to satisfy a set of applications but is also scaleable down to the needs of sensor and automation needs (20 kb/s or below) for wireless communications.

In addition, one of the alternate PHYs provides precision ranging capability that is accurate to one meter.

Multiple PHYs are defined to support a variety of frequency bands including

-- 868-868.6 MHz
-- 902-928 MHz
-- 2400-2483.5 MHz
-- 314-316 MHz, 430-434 MHz, and 779-787 MHz band for LR-WPAN systems in China
-- 950-956 MHz in Japan

5.5 Need for the Project: Emerging applications in sensor networks demand increasingly small form factor, low power consumption and low cost solutions. From a power consumption perspective, this amendment addresses solutions making it possible to achieve a battery life of several years when connected to coin cell batteries and/or making it possible to use harvested energy sources while meeting the targeted data rates and continuing to support the small form factor, low cost attributes of 802.15.4.

5.6 Stakeholders for the Standard: Chip vendors, Equipment manufacturers, wireless sensor application developers and users

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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 (Item Number and Explanation): none