P802.15.6

Submitter Email: bheile@ieee.org
Type of Project: Modify Existing Approved PAR
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Status: Modification to a Previously Approved PAR
Root PAR: P802.15.6 Approved on: 05-Dec-2007
Project Record: P802.15.6

1.1 Project Number: P802.15.6
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Title: Standard for Wireless Body Area Networks

Changes in title: Standard for Information Technology—Telecommunications and Information Exchange Between Systems—Local and Metropolitan Area Networks—Specific Requirements—Part 15.6: Wireless Medium Body Access Control (MAC) and Physical Layer (PHY) Specifications for Wireless Personal Area Networks (WPANs) used in or around a body.

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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: 07/2011
4.3 Projected Completion Date for Submittal to RevCom: 02/2012

5.1 Approximate number of people expected to be actively involved in the development of this project: 150
5.2 Scope: This is a standard for short range, wireless communication in the vicinity of, or inside, a human body (but not limited to humans). It can use existing ISM bands as well as frequency bands approved by national medical and/or regulatory authorities. Support for Quality of Service (QoS), extremely low power, and data rates up to 10 Mbps is required while simultaneously complying with strict non-interference guidelines where needed. This standard considers effects on portable antennas due to the presence of a person (varying with male, female, skinny, heavy, etc.), radiation pattern shaping to minimize SAR* into the body, and changes in characteristics as a result of the user motions.

*SAR (Specific Absorption Rate) measured in (W/kg) = (J/kg/s). SAR is regulated, with limits for local exposure (Head) of: in US: 1.6 W/kg in 1 gram and in EU: 2 W/kg in 10 gram. This limits the transmit (TX) power in US < 1.6 mW and in EU < 20 mW.

5.3 Is the completion of this standard dependent upon the completion of another standard: No
5.4 Purpose: The purpose is to provide an international standard for a short range (ie about human body range), low power
and highly reliable wireless communication for use in close proximity to, or inside, a human body. Data rates, typically up to 10Mbps, can be offered to satisfy an evolutionary set of entertainment and healthcare services. Current Personal Area Networks (PANs) do not meet the medical (proximity to human tissue) and relevant communication regulations for some application environments. They also do not support the combination of reliability (QoS), low power, data rate and noninterference required to broadly address the breadth of body area network applications.

5.5 Need for the Project: There is a need for a standard optimized for ultra low power devices and operation on, in or around the human body to serve a variety of applications including medical and personal entertainment. Examples of the applications served by the proposed standard are: Electroencephalogram (EEG), Electrocardiogram (ECG), Electromyography (EMG), vital signals monitoring (temperature (wearable thermometer), respiratory, wearable heart rate monitor, wearable pulse oximeter, wearable blood pressure monitor, oxygen, pH value , wearable glucose sensor, implanted glucose sensor, cardiac arrhythmia), wireless capsule endoscope (gastrointestinal), wireless capsule for drug delivery, deep brain stimulator, cortical stimulator (visual neuro-stimulator, audio neuro stimulator, Parkinson's disease, etc...), remote control of medical devices such as pacemaker, actuators, insulin pump, hearing aid (wearable and implanted), retina implants, disability assistance, such as muscle tension sensing and stimulation, wearable weighing scale, fall detection, aiding sport training. This will include body-centric solutions for future wearable computers. In a similar vein, the same technology can provide effective solutions for personal entertainment as well.

The existence of a body area network standard will provide opportunities to expand these product features, better healthcare and well being for the users. It will therefore result in economic opportunity for technology component suppliers and equipment manufacturers.

5.6 Stakeholders for the Standard: The stakeholders include the general population who will be served by advanced medical and entertainment options enabled by this standard. Other parties having interests include medical equipment manufacturers and consumer electronics manufacturers.

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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

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

8.1 Additional Explanatory Notes (Item Number and Explanation): 2.1: The PAR title has been modified to simplify it. It is in the best interest of users and the industry to strive for a level of coexistence with other wireless systems, especially those in similar market spaces. Coexistence requirements will be established by the Task Group in cooperation with the 802 TAG on coexistence (802.19) and included in the selection criteria against which the proposals will be evaluated.