

Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [P802.15.6ma Revision PAR]

Date Submitted: [21 January 2022]

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Re: [Revision PAR for IEEE Std 802.15.6.]

Abstract: [Revision PAR for IEEE Std 802.15.6.]

Purpose: [myProject Revision PAR document for 802.15 WG and 802 EC review]

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P802.15.6

Type of Project: Revision to IEEE Standard 802.15.6-2012

Project Request Type: Initiation / Revision

PAR Request Date:

PAR Approval Date:

PAR Expiration Date:

PAR Status: Draft

Root Project: 802.15.6-2012

1.1 Project Number: P802.15.6

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Project Title: Standard for Local and metropolitan area networks - Part 15.6: Wireless Body Area Networks

Change to Title: ~~IEEE~~ Standard for Local and metropolitan area networks - Part 15.6: Wireless Body Area Networks

3.1 Working Group: Wireless Specialty Networks (WSN) Working Group(C/LM/802.15 WG)

3.1.1 Contact Information for Working Group Chair:

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3.2 Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee(C/LM)

3.2.1 Contact Information for Standards Committee Chair:

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3.2.3 Contact Information for Standards Representative:

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4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot:

Jul 2024

4.3 Projected Completion Date for Submittal to RevCom: Mar 2026

5.1 Approximate number of people expected to be actively involved in the development of this project: 12

5.2 Scope of proposed standard: This is a standard for short-range, wireless communication in the vicinity of, or inside, a human body (but not limited to humans). It uses existing industrial scientific medical (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 Mb/s is required while simultaneously complying with strict noninterference 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 specific absorption rate (SAR) into the body, and changes in characteristics as a result of the user motions.

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5.3 Is the completion of this standard contingent upon the completion of another standard? No

5.4 Purpose: The purpose is to provide an international standard for a short range, low power and highly reliable wireless communication for use in proximity to, or inside, a human body and/or a vehicle body. Data rates can be offered to satisfy an evolutionary set of entertainment and healthcare services. Current piconets 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. Additionally, this standard provides enhanced dependability that is required for some medical use cases. This includes remote medical healthcare, therapy and other monitoring that can enhance quality of life (QoL) in various population segments.

Change to Purpose: The purpose is to provide an international standard for a short-range (i.e., about human body range), low power, and highly reliable wireless communication for use in close proximity to, or inside, a human body. Data and/or rates, a typically vehicle up body. to Data 10Mbps, rates can be offered to satisfy an evolutionary set of entertainment and healthcare services. Current personal area networks (PANs) piconets 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. Additionally, this standard provides enhanced dependability that is required for some medical use cases. This includes remote medical healthcare, therapy and other monitoring that can enhance quality of life (BAN QoL) applications in various population segments.

5.5 Need for the Project: This project provides dependability against interference and contention in such critical use cases as overlaid with the same and/or different piconets. Focus use cases: multiple BANs, where user's devices cross each other among different BANs within range. Multiple piconets, where narrowband and wideband devices cross each other within the same coverage range. Interference management among BANs. This amendment for enhanced dependability supports automotive use (vehicular body area network) with primary medical use for a human body and additionally non-medical use with common enhanced dependability. This amendment helps remote medical healthcare monitoring and therapy to combat Covid-19 pandemic and to support QoL in aging population and people with medical conditions.

Change to Need for the Project: There is a need for a standard optimized This for project ultra provides low dependability power against devices interference and operation on, contention in or around the human such body to critical serve use a cases variety as of overlaid applications with including the medical same and/or personal different entertainment piconets. Examples of the applications served by the Focus proposed use standard are cases: Electroencephalogram multiple (EEG) BANs, Electrocardiogram where (ECG), user's Electromyography devices (EMG), cross vital each signals other monitoring among (temperature (wearable thermometer), different respiratory, BANs wearable within heart range. rate Multiple monitor piconets, wearable where pulse narrowband oximeter, and wearable wideband blood devices pressure cross monitor, each oxygen, other pH within value the, same wearable coverage glucose range. sensor, Interference implanted glucose sensor, cardiac arrhythmia), wireless management capsule endoscope among (gastrointestinal), BANs. wireless This capsule amendment for drug enhanced delivery, deep dependability brain supports stimulator, automotive cortical stimulator use (visual neuro stimulator, audio neuro stimulator, vehicular Parkinson's body disease, area etc... network), remote with control of primary medical devices such as pacemaker, actuators, insulin pump, hearing aid (wearable and implanted), retina implants, disability assistance, such use as for muscle a tension human sensing body and stimulation, wearable weighing additionally scale, non-medical fall use detection, with aiding common sport enhanced training dependability. This will amendment include helps body-centric remote solutions medical for healthcare future monitoring wearable and 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 therapy to expand these product combat features, better Covid-19 healthcare pandemic and well being to for support the users. It will therefore result QoL in economic aging opportunity population for and technology people component with suppliers medical and equipment manufacturers conditions.

5.6 Stakeholders for the Standard: The stakeholders include silicon vendors, manufacturers and users of telecom, medical and automotive. Manufacturers and users of environmental sensors and actuators. Consumer electronics equipment manufacturers and users of equipment involving the use of wireless sensor and control networks.

Change to Stakeholders for the Standard: The stakeholders include the silicon general vendors, population manufacturers who and will users of be telecom, served medical by and advanced automotive. medical Manufacturers and entertainment users options of enabled environmental by sensors this and standard actuators. Consumer Other electronics parties equipment having manufacturers interests and include users medical of equipment manufacturers involving and the use of wireless sensor consumer and electronics control manufacturers networks.

6.1 Intellectual Property

6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project?

No

6.1.2 Is the Standards Committee 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 Is it the intent to develop this document jointly with another organization? No

8.1 Additional Explanatory Notes: