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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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: The standard defines short-range, wireless communication in the vicinity of, or inside, a human body (but not limited to humans) using the Ultra-Wideband (UWB) and narrow-band physical layer (PHY) and medium access control (MAC) to support enhanced dependability to human body area networks (HBAN) in the industrial scientific medical (ISM) bands as well as frequency bands approved by national medical and regulatory authorities. The standard supports quality of service (QoS) and data rates up to 50 Mb/s and incorporates support for vehicle body area networks (VBAN).
The standard specifies the coexistence of multiple piconets, including inter-body area network (inter-BAN) interference and inter-piconets interference; simple MAC protocol; and sensing and feedback control loop delay.
Change to scope of proposed standard: ~~This is a~~ The standard ~~for~~ defines short-range, wireless communication in the vicinity of, or inside, a human body (but not limited to humans) ~~.~~ using the Ultra-Wideband (UWB) and narrow-band physical layer (PHY) and medium access control (MAC) to ~~It~~ support ~~uses~~ enhanced ~~existing~~ dependability to human body area networks (HBAN) in the industrial scientific medical (ISM) bands as well as frequency bands approved by national medical and ~~/or~~ regulatory authorities. ~~Support~~ The ~~for~~ standard supports quality of service (QoS) ~~, extremely low power,~~ and data rates up to ~~10~~ 50 ~~Mbps~~ Mb/s ~~is~~ and ~~required~~ incorporates ~~while~~ support ~~simultaneously~~ for ~~complying~~ vehicle ~~with~~ body ~~strict~~ area ~~noninterference~~ networks ~~guidelines where needed~~ (VBAN) . ~~This~~ The standard ~~considers effects on portable antennas due to~~ specifies the ~~presence~~ coexistence of ~~a person (varying with~~ multiple ~~male~~ piconets

, female, including skinny, inter-body heavy, area etc.), radiation pattern shaping to minimize specific absorption rate network (SAR inter-BAN) into interference the and body, inter-piconets and interference; changes simple in MAC characteristics protocol; as and a sensing result and of feedback the control user loop motions delay .

5.3 Is the completion of this standard contingent upon the completion of another standard? No
5.4 Purpose: To provide an international standard for short-range, low power consumption, and highly reliable wireless communication for use in proximity to, or inside, a human body and a vehicle body. Data rates satisfy an evolutionary set of entertainment and healthcare services various population segments.
Change to Purpose: The purpose is to To provide an international standard for a short-range (i.e., about human body range) , low power consumption , and highly reliable wireless communication for use in close proximity to, or inside, a human body . Data and rates, a typically vehicle up body. to Data 10Mbps, can be offered to rates 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 various also population do not support the combination of reliability, QoS, low power, data rate, and noninterference required to broadly address the breadth of body area network (BAN) applications segments .
5.5 Need for the Project: This project provides dependability against interference and contention in critical use cases as overlaid with the same and different piconets. 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 consumption, data rate, and interference protection required to address the wide range of body area network applications. Additionally, this standard provides the dependability required for medical use cases. That includes remote medical healthcare, therapy, and other monitoring that enhances the quality of life (QoL) in various population segments.
Focus use cases include multiple body area networks (BAN)s coexisting within range, multiple UWB and non-UWB piconets coexisting within range, and interference management among BANs.
The standard supports automotive use (vehicular body area network) with primary medical use cases and optional non-medical use cases with high dependability.
The standard assists remote medical healthcare monitoring and therapy to combat the coronavirus disease 2019 (Covid-19) pandemic.
Change to Need for the Project: There This is project a provides need dependability for against a standard optimized for ultra low power devices interference and operation on, contention in or critical around use the cases human as body overlaid to with serve a variety of the applications including medical same and personal different entertainment piconets . Current Examples piconets of do the not applications served by meet the proposed standard are: Electroencephalogram medical (EEG), proximity Electrocardiogram (ECG), to Electromyography human (EMG tissue), vital and signals relevant monitoring communication (temperature regulations (wearable for thermometer), some respiratory, application wearable environments. heart They rate also monitor, do wearable not pulse support oximeter, the wearable combination blood of pressure reliability monitor (QoS) , oxygen, pH low value power consumption , wearable glucose data sensor rate , implanted glucose sensor, and cardiac interference arrhythmia), protection wireless required capsule to endoscope address (gastrointestinal), the wireless wide capsule range for of drug body delivery, area deep network brain applications. stimulator Additionally , cortical this stimulator standard (visual provides neuro-stimulator, the audio dependability neuro required stimulator, for Parkinson's medical disease, use etc.. cases .), remote That control includes of remote medical devices such as pacemaker, actuators healthcare , insulin pump therapy , hearing aid (wearable and implanted), other retina monitoring implants, that disability enhances assistance, the such quality as of muscle life tension (QoL) sensing in and various stimulation, population wearable weighing scale, fall detection, aiding sport training segments . Focus This use will cases include multiple body centric solutions area for networks future (BAN)s wearable coexisting computers. within In range, a multiple similar UWB vein, and the non-UWB same piconets technology coexisting can within provide range, effective solutions and for personal interference entertainment management as among well BANs .The existence standard of supports a automotive use (vehicular body area network standard will) provide with opportunities primary to medical expand use these cases product and features, optional better non-medical healthcare use and cases well with being high for dependability. The the standard users. assists It remote will medical therapy healthcare result monitoring in and economic therapy opportunity to for combat technology the component coronavirus suppliers disease and 2019 equipment (Covid-19) manufacturers pandemic .
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?
Yes

Explanation: The Registration Authority Committee may wish to review to assure usage of registries and registry terms are consistent with the project.

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

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8.1 Additional Explanatory Notes: VBAN consists of a coordinator in a vehicle with devices around the vehicle, operating under strict compliance to standards and limits for electromagnetic compatibility (EMC) and electromagnetic interference (EMI).