IEEE SA STANDARDS ASSOCIATION

IEEE

P802.15.14

Submitter Email:
Type of Project: New IEEE Standard
Project Request Type: Initiation / New
PAR Request Date:
PAR Approval Date:
PAR Expiration Date:
PAR Status: Draft

1.1 Project Number: P802.15.14
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Project Title: IEEE Standard for Ad-Hoc Impulse Radio Ultra Wideband Wireless 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:
Name: PATRICK KINNEY
Email Address: pat.kinney@kinneyconsultingllc.com
3.1.2 Contact Information for Working Group Vice Chair:
Name: Richard Alfvin
Email Address: alfvin@ieee.org
3.2 Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee(C/LM)
3.2.1 Contact Information for Standards Committee Chair:
Name: Paul Nikolich
Email Address: p.nikolich@ieee.org
3.2.2 Contact Information for Standards Committee Vice Chair:
Name: James Gilb
Email Address: gilb@ieee.org
3.2.3 Contact Information for Standards Representative:
Name: James Gilb
Email Address: gilb@ieee.org

4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot: Sep 2022
4.3 Projected Completion Date for Submittal to RevCom: May 2023

5.1 Approximate number of people expected to be actively involved in the development of this project: 30
5.2 Scope of proposed standard: This standard specifies the physical layer (PHY) and data link layer for impulse radio ultra wideband (UWB) wireless connectivity with fixed, portable, and moving devices with limited energy consumption requirements, and supports precision ranging. PHYs are defined for devices operating in a variety of regulatory domains.

5.3 Is the completion of this standard contingent upon the completion of another standard? No
5.4 Purpose: The standard provides for low complexity, low cost, low power consumption, and wireless connectivity among inexpensive devices, with impulse radio UWB PHY and data link layers providing precision ranging capability that is accurate to the centimeter level, especially targeting the communications requirements of what is now commonly referred to as the Internet of Things. Multiple PHYs are defined to support multiple bands.
5.5 Need for the Project: IEEE Std 802.15.4-2020, including the amendments IEEE Std 802.15.4w-2020, IEEE Std 802.15.4y-2021, and IEEE Std 802.15.4z-2020, hereafter referred to collectively as IEEE Std 802.15.4, is overly complex and the end-users (industry) will benefit by including (via. referencing) the ad-hoc impulse radio ultra wideband functionality into a simple focused specification, enabling improved multi-vendor interoperability and further technology adoption.
5.6 Stakeholders for the Standard: The stakeholders include manufacturers and users of telecom, medical, environmental, industrial, energy, transportation, consumer electronics equipment, manufacturers, and users of equipment involving the use of wireless sensor and control 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: This standard specifies the use of Extended Unique Identifiers (EUI) and the Company ID (CID).

7.1 Are there other standards or projects with a similar scope? Yes

Explanation: As specified in the need for the project, some IEEE Std 802.15.4 functionality will be included (via. referencing) into IEEE P802.15.14 and IEEE P802.15.15.

7.1.1 Standards Committee Organization: IEEE Computer Society/LAN/MAN Standards Committee (C/LM)

Project/Standard Number: IEEE Std 802.15.4-2020

Project/Standard Date:

Project/Standard Title: IEEE Standard for Low-Rate Wireless Networks

7.2 Is it the intent to develop this document jointly with another organization? No

---

8.1 Additional Explanatory Notes: Currently IEEE Std 802.15.4 is extensively implemented for an increasingly diverse range of applications referred to as the Internet of Things and has been adopted for a diverse range of applications.

However, IEEE Std 802.15.4 has become extremely difficult to understand, amend or enhance. Recently it has become clear that the impulse radio ultra wideband functionality and features have become increasingly complex to support inside the framework of IEEE Std 802.15.4. The inclusion (via. referencing) of impulse radio ultra wideband functionality and features into a new standard will improve the accessibility and comprehension of the standard and more easily enable further amendments and enhancements.

IEEE Std 802.15.4 is used and referenced by many different organizations (SDO's, consortia, etc.) and will not be modified as part of this project.

List of standards referenced in the PAR are as follows:
IEEE Std 802.15.4-2020, IEEE Standard for Low-Rate Wireless Networks
IEEE Std 802.15.4w-2020, IEEE Standard for Low-Rate Wireless Networks Amendment for a Low Power Wide Area Network (LPWAN) extension to the Low Energy Critical Infrastructure Monitoring (LECIM) Physical layer (PHY)
IEEE Std 802.15.4y-2021, IEEE Standard for Low-Rate Wireless Networks Amendment Defining Support for Advanced Encryption Standard (AES)-256 Encryption and Security Extensions
IEEE Std 802.15.4z-2020, IEEE Standard for Low-Rate Wireless Networks Amendment: Enhanced Ultra Wideband (UWB) Physical Layers (PHYs) and Associated Ranging Techniques
IEEE P802.15.15, Standard for Ad-Hoc Low-Rate Wireless Networks