P802.15.4ad

Type of Project: Amendment to IEEE Standard 802.15.4-2020
Project Request Type: Initiation / Amendment
PAR Request Date:
PAR Approval Date:
PAR Expiration Date:
PAR Status: Draft
Root Project: 802.15.4-2020

1.1 Project Number: P802.15.4ad
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Project Title: IEEE Standard for Low-Rate Wireless Networks Amendment: Data rate and range extensions for the Smart Utility Network (SUN) Physical layer (PHY)

3.1 Working Group: Wireless Specialty Networks (WSN) Working Group(C/LAN/MAN/802.15 WG)
3.1.1 Contact Information for Working Group Chair:
Name: Clinton Powell
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3.2 Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee(C/LAN/MAN)
3.2.1 Contact Information for Standards Committee Chair:
Name: Paul Nikolich
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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: Dec 2025
4.3 Projected Completion Date for Submittal to RevCom: Dec 2026

5.1 Approximate number of people expected to be actively involved in the development of this project: 20
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. In addition, the standard provides modes that allow for precision ranging. PHYs are defined for devices operating in a variety of geographic regions.
5.2.b Scope of the project: This amendment defines new data rate extensions by increasing the occupied bandwidth, adding new modulation and coding schemes (MCSs), and extending the SUN PHYs to provide long-range communication in congested environments. Additionally, this amendment defines at least one mode of the SUN-Orthogonal Frequency Division Multiplexing (OFDM) PHY that exceeds a sensitivity of -120 dBm at a 1 % packet error rate (PER) with a 64 B payload, intended for the Federal Communications Commission (FCC) 15.247 digital modulation system. At least one of the new MCSs achieves a data rate greater than 2.4 Mb/s. The amendment defines the MAC modifications required to support the amended PHYs. The amendment also defines frequency bands based on updated regional regulations.

5.3 Is the completion of this standard contingent upon the completion of another standard? No
5.4 Purpose: This document will not include a purpose clause.
Change to Purpose: ~~The standard provides for ultra low complexity, ultra low cost, ultra low power consumption, and low data rate wireless connectivity among inexpensive devices, especially targeting the~~

~~communications requirements of what is now commonly referred to as the Internet of Things. In addition, some of the alternate PHYs provide precision ranging capability that is accurate to one meter. Multiple PHYs are defined to support a variety of frequency bands.~~

5.5 Need for the Project: The PHY enhancements address the needs of emerging applications where additional data rates expand the usefulness of the SUN PHYs.

5.6 Stakeholders for the Standard: The stakeholders include semiconductor vendors, product manufacturers, utilities, agriculture, infrastructure/environmental monitoring and similar organizations.

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

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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: 5.2b: FCC 15.247 - Title 47 Code of Federal Regulations (CFR) 15.247 - "Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz."