



International  
Standard

**ISO/IEC/IEEE**  
**8802-15-4**

**Information technology —  
Telecommunications and  
information exchange between  
systems — Local and metropolitan  
area networks — Specific  
requirements —**

Part 15-4:

**Wireless medium access control  
(MAC) and physical layer (PHY)  
specifications for low-rate wireless  
personal area networks (WPANs)**

*Technologies de l'information — Télécommunications et échange  
d'information entre systèmes — Réseaux locaux et métropolitains  
— Exigences spécifiques —*

*Partie 15-4: Spécifications du contrôle d'accès du milieu sans fil  
(MAC) et de la couche physique (PHY) pour les réseaux personnels  
sans fil de faible débit (WPAN)*

Third edition  
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# IEEE Standard for Low-Rate Wireless Networks

Developed by the

**LAN/MAN Standards Committee**  
of the  
**IEEE Computer Society**

Approved on 6 May 2020

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**Abstract:** 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 are defined in this standard. In addition, the standard provides modes that allow for precision ranging. PHYs are defined for devices operating in a variety of geographic regions.

**Keywords:** ad hoc network, IEEE 802.15.4™, low data rate, low power, LR-WPAN, mobility, PAN, personal area network, radio frequency, RF, short range, wireless, wireless network, wireless personal area network, WPAN

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Many individuals have participated in the IEEE P802.15 Working Group during various stages of the standard's development. Since the initial publication, many amendments have added functionality or updated material in this standard, and now three revisions have been published. Here is a historical list of the working group participants who dedicated their valuable time, energy, and knowledge to the advancement of this standard at the time of its original publication and for its revisions. Many of these members also worked on amendments.

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