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IEEE Standard for Low-Rate Wireless Networks

Amendment 7: Defining Enhancements to the Smart Utility Network (SUN) Physical Layers (PHYs) Supporting up to 2.4 Mb/s Data Rates

IEEE Computer Society

Developed by the
LAN/MAN Standards Committee

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IEEE Std 802.15.4x™-2019
(Amendment toIEEE Std 802.15.4™-2015
as amended by IEEE Std 802.15.4n™-2016,
IEEE Std 802.15.4q™-2016, IEEE Std 802.15.4u™-2016,
IEEE Std 802.15.4t™-2017, IEEE Std 802.15.4v™-2017,
IEEE Std 802.15.4s™-2018, and IEEE Std 802.15.4-2015/Cor 1-2018)

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Approved 21 March 2019

IEEE-SA Standards Board

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Abstract: Enhancements to the IEEE 802.15.4™ smart utility network (SUN) orthogonal frequency division multiplexing (OFDM) physical layers (PHYs) that enable support for data rates up to 2.4 Mb/s are defined by this amendment to IEEE Std 802.15.4™-2015. This amendment also defines additional channel plans, as needed, to support emerging applications.

Keywords: amendment, IEEE 802.15.4™, IEEE 802.15.4x™, low data rate, low power, wireless personal area network, WPAN

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This introduction is not part of IEEE Std 802.15.4x-2019, IEEE Standard for Low-Rate Wireless Networks—Amendment 7: Defining Enhancements to the Smart Utility Network (SUN) Physical Layers (PHYs) Supporting up to 2.4 Mb/s Data Rates.

This amendment defines enhancements to the IEEE 802.15.4 smart utility network (SUN) orthogonal frequency division multiplexing (OFDM) physical layers (PHYs) that enable support for data rates up to 2.4 Mb/s. This amendment also defines additional channel plans, as needed, to support emerging applications.

Building upon the numerous successful deployments of the IEEE 802.15.4 SUN PHY technology in field area networking (FAN) and the rapid growth in applications, such as the Internet of Things (IoT), Smart Grid, Smart Cities, and others, these SUN PHY enhancements are needed to support higher data rates along with enhancements for longer range utilizing existing hardware deployments based upon the IEEE 802.15.4 SUN PHYs. As an example, these enhancements enable broader electric system distribution automation and reduce the amount of equipment needed for deployment in Smart Grid systems. This example is but one of many application areas where FAN enhancements can have a substantial beneficial impact.

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