

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

IEEE
3 Park Avenue
New York, NY 10016-5997
USA

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(Amendment to IEEE Std 802.15.4™-2015
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IEEE Std 802.15.4q™-2016, IEEE Std 802.15.4u™-2016,
IEEE Std 802.15.4t™-2017, IEEE Std 802.15.4v™-2017,
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Approved 21 March 2019

IEEE-SA Standards Board

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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Kunal Shah, *Task Group 4x Vice-Chair and Technical Editor*
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Chris Hartman	Alejandro Marquez	Johannes Wechsler
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Jay Holcomb	Ayman Naguib	Hidetoshi Yokota

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Butch Anton	Keith Chow	Werner Hoelzl
Stefan Aust	Steven Crowley	Noriyuki Ikeuchi
Harry Bims	Liu Fangfang	Sergiu Iordanescu
Riccardo Brama	Avraham Freedman	Atsushi Ito
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Introduction

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.

Contents

7. MAC frame formats	11
7.4 IEs.....	11
7.4.4 Nested IE.....	11
7.4.4.10 SUN Device Capabilities IE.....	11
10. General PHY requirements.....	12
10.1 General requirements and definitions.....	12
10.1.2 Channel assignments.....	12
10.1.2.8 Channel numbering for SUN and TVWS PHYs	12
20. SUN FSK PHY.....	18
20.1 Introduction	18
20.3 Modulation and coding for SUN FSK	18
20.6 SUN FSK PHY RF requirements	19
20.6.6 Transmit spectral mask	19
21. SUN OFDM PHY.....	19
21.3 Data rates for SUN OFDM.....	19
21.4 Modulation and coding for SUN OFDM.....	20
21.4.3 PIB attribute values for <i>phySymbolsPerOctet</i>	20
21.4.5 Interleaver	20
21.5 SUN OFDM PHY RF requirements	21
21.5.3 Receiver sensitivity.....	21
22. SUN O-QPSK PHY.....	21
22.3 Modulation and coding for SUN O-QPSK	21
22.3.2 SHR coding and spreading.....	21
22.3.3 PHR coding and spreading.....	22
22.3.4 PSDU coding and spreading for DSSS	22
22.3.11 Chip whitening.....	24
22.3.12 Pilot insertion.....	24
22.5 SUN O-QPSK PHY RF requirements	25
22.5.3 Receiver sensitivity.....	25
22.5.4 Adjacent channel rejection.....	26
22.5.13 CCA	28

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(This amendment is based on IEEE 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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