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IEEE Standard Test Procedures for IEEE Std 1901.1™ for Medium Frequency (less than 15 MHz) Power Line Communications for Smart Grid Applications

STANDARDS

IEEE Communications Society

Developed by the
Power Line Communication Standards Committee

IEEE Std 1901.1.1™-2020

IEEE

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Abstract: The interoperability and compliance testing for IEEE 1901.1 products built, in which physical (PHY) and media access control (MAC) layers of the medium frequency band (less than 12 MHz) broadband power line communication technology for smart grid applications (SGPLC) based on orthogonal frequency division multiplexing (OFDM), is specified in this standard. The corresponding PLC application scenarios and test environment are introduced, and the PHY/MAC test cases and test scenarios are provided. The procedures for compliance, interoperability, and certification of IEEE Std 1901.1™ are specified in this standard.

Keywords: BPL, broadband power line, IEEE 1901.1™, IEEE 1901.1.1™, PLC, power line communication, smart grid, test standard, interoperability and compliance testing, certification

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Introduction

This introduction is not part of IEEE Std 1901.1.1-2020, IEEE Standard Procedures for IEEE 1901.1™ for Medium Frequency (less than 15 MHz) Power Line Communications for Smart Grid Applications.

Test procedures for compliance and interoperability testing of devices implementing IEEE Std 1901.1™, "Standard for Medium Frequency (less than 15 MHz) Power Line Communications for Smart Grid Applications" are specified in this standard.[1] Application scenarios and use cases for IEEE Std 1901.1-based implementations and associated channel models and performance expectations are also described. A collection of examples of real-life implementations allowing enhancement of test procedures with the input from the field are provided.

[1] Information on references can be found in Clause 2.

Contents

IEEE Standard Test Procedures for IEEE Std 1901.1™ for Medium Frequency (less than 15 MHz) Power Line Communications for Smart Grid Applications

1. Overview

1.1 Scope

This standard specifies test procedures for compliance and interoperability testing of devices implementing IEEE Std 1901.1™, "Standard for Medium Frequency (less than 12 MHz) Power Line Communications for Smart Grid Applications." [2] This standard also describes application scenarios and use cases for IEEE 1901.1 based implementations and associated channel models and performance expectations. This standard provides a collection of examples of real life implementations allowing enhancement of test procedures with the input from the field.

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

IEEE Std 1901.1™-2018, IEEE Standard for Medium Frequency (less than 12 MHz) Power Line Communications for Smart Grid Applications.[3,4]

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