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Electricity metering data exchange - The DLMS/COSEM suite - Part 8-5: Narrow-band OFDM G3-PLC communication profile for neighbourhood networks

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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Foreword

This document (CLC/TS 52056-8-5:2015) has been prepared by CLC/TC 13, "Electrical energy measurement and control".

The following date is fixed:

- latest date by which the existence of this document has to be announced at national level (doa) 2015-07-24

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This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

Introduction

This Technical Specification is based on the results of the European OPEN Meter project, Topic Energy 2008.7.1.1, Project no.: 226369, www.openmeter.com, and prepared by G3 Alliance, www.g3-plc.com.

1 Scope

This Technical Specification specifies the EN 62056 DLMS/COSEM communication profile for metering purposes based on the Recommendations ITU-T G.9901: *Narrowband Orthogonal Frequency Division Multiplexing Power Line Communication Transceivers – Power Spectral Density Specification* and ITU-T G.9903 *Narrow-band orthogonal frequency division multiplexing power line communication transceivers for G3-PLC networks*, an Orthogonal Frequency Division Multiplexing (OFDM) Power Line Communications (PLC) protocol.

The physical layer provides a modulation technique that efficiently utilizes the allowed bandwidth within the CENELEC A band (3 kHz – 95 kHz) (although ITU-T G.9903 defines the protocol for CENELEC B, ARIB and FCC bands as well), thereby allowing the use of advanced channel coding techniques. This combination enables a very robust communication in the presence of narrowband interference, impulsive noise, and frequency selective attenuation.

The medium access control (MAC) layer allows the transmission of MAC frames through the use of the power line physical channel. It provides data services, frame validation control, node association and secure services.

The 6LoWPAN adaptation sublayer enables an efficient interaction between the MAC and the IPv6 network layers. The IPv6 network protocol; the latest generation of IP (Internet Protocol), widely opens the range of potential applications and services for metering purposes (but not limited to metering purposes).

The transport layer, the application layer and the data model are as specified in the EN 62056 DLMS/COSEM suite.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

FprEN 62056-4-7:2014, *Electricity metering data exchange - The DLMS/COSEM suite – Part 4-7: DLMS/COSEM transport layer for IP networks (IEC 62056-4-7:2015)*

EN 62056-5-3, *Electricity metering data exchange – The DLMS/COSEM suite – Part 5-3: DLMS/COSEM application layer (IEC 62056-5-3)*

EN 62056-6-1, *Electricity metering data exchange – The DLMS/COSEM suite – Part 6-1: Object identification system (OBIS) (IEC 62056-6-1)*

EN 62056-6-2, *Electricity metering data exchange – The DLMS/COSEM suite – Part 6-2: COSEM interface classes (IEC 62056-6-2)*

EN 62056-9-7:2013, *Electricity metering data exchange – The DLMS/COSEM suite – Part 9-7: Communication profile for TCP-UDP/IP networks (IEC 62056-9-7:2013)*

Recommendation ITU-T G.9901 (2014) *Narrowband Orthogonal Frequency Division Multiplexing Power Line Communication Transceivers – Power Spectral Density Specification* – available at http://www.itu.int/rec/T-REC-G.9901/en

Recommendation ITU-T G.9903 (2014) *Narrowband Orthogonal Frequency Division Multiplexing Power Line Communication Transceivers for G3-PLC Networks available at http://www.itu.int/rec/T-REC-G.9903/en*

IETF RFC 768: *User Datagram Protocol. Edited by J. Postel. August 1980. Available from http://www.ietf.org/rfc/rfc768.txt*

IETF RFC 2460: *Internet Protocol, Version 6 (IPv6) Specification. Edited by S. Deering, R. Hinden. December 1998. Available from http://www.ietf.org/rfc/rfc2460.txt*

IETF RFC 4193: *Unique Local IPv6 Unicast Addresses. Edited by R. Hinden, B. Haberman. October 2005. Available from http://www.ietf.org/rfc/rfc4193.txt*

IETF RFC 4291: *IP Version 6 Addressing Architecture. Edited by R. Hinden, S. Deering. February 2006. Available from http://www.ietf.org/rfc/rfc4291.txt*

IETF RFC 4944: *Transmission of IPv6 Packets over IEEE 802.15.4 Networks. Available from http://www.ietf.org/rfc/rfc2460.txt*

IETF RFC 6282: *Compression Format for IPv6 Datagrams over IEEE 802.15.4-Based Networks. Available from http://www.ietf.org/rfc/rfc2460.txt*