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Electricity metering data exchange - The DLMS/COSEM suite - Part 8-6: High speed PLC ISO/IEC 12139-1 profile for neighbourhood networks

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This standard includes the English version of the European Standard.

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NORME EUROPÉENNE

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English Version

Electricity metering data exchange - The DLMS/COSEM suite -
Part 8-6: High speed PLC ISO/IEC 12139-1 profile for
neighbourhood networks
(IEC 62056-8-6:2017)

Échange des données de comptage de l'électricité - La
suite DLMS/COSEM - Partie 8-6: Profil CPL ISO/IEC
12139-1 à grande vitesse pour les réseaux de voisinage
(IEC 62056-8-6:2017)

Datenkommunikation der elektrischen Energiemessung -
DLMS/COSEM - Teil 8-6: Schnelles PLC-ISO/IC-12139-1-
Profil für Areal-Netze
(IEC 62056-8-6:2017)

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European foreword

The text of document 13/1730/FDIS, future edition 1 of IEC 62056-8-6, prepared by IEC/TC 13 "Electrical energy measurement and control" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62056-8-6:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2018-02-15
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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62056-1-0	2014	Electricity metering data exchange - The DLMS/COSEM suite - Part 1-0: Smart metering standardisation framework	EN 62056-1-0	2015
IEC 62056-4-7	-	Electricity metering data exchange - The DLMS/COSEM suite -- Part 4-7: DLMS/COSEM transport layer for IP networks	EN 62056-4-7	-
IEC 62056-5-3	-	Electricity metering data exchange - The DLMS/COSEM suite - Part 5-3: DLMS/COSEM application layer	EN 62056-5-3	-
IEC 62056-6-1	-	Electricity metering data exchange - The DLMS/COSEM suite - Part 6-1: Object Identification System (OBIS)	EN 62056-6-1	-
IEC 62056-6-2	2016	Electricity metering data exchange - The DLMS/COSEM suite - Part 6-2: COSEM interface classes	EN 62056-6-2	2016
IEC 62056-7-6	-	Electricity metering data exchange - The DLMS/COSEM suite -- Part 7-6: The 3-layer, connection-oriented HDLC based communication profile	EN 62056-7-6	-
IEC 62056-9-7	-	Electricity metering data exchange - The DLMS/COSEM suite -- Part 9-7: Communication profile for TCP-UDP/IP networks	EN 62056-9-7	-
IEC 62056-46	-	Electricity metering - Data exchange for meter reading, tariff and load control -- Part 46: Data link layer using HDLC protocol	EN 62056-46	-
IEC/TS 62056-1-1	2016	Electricity metering data exchange - The DLMS/COSEM suite - Part 1-1: Template for DLMS/COSEM communication profile standards	-	-
ISO/IEC 12139-1	2009	Information technology - Telecommunications and information exchange between systems - Powerline communication (PLC) - High speed PLC medium access control (MAC) and physical layer (PHY) - Part 1: General requirements	-	-
ISO/IEC/IEEE 8802-3	2014	Standard for Ethernet	-	-
RFC 1144	-	Compressing TCP/IP Headers for Low-Speed Serial Links	-	-
RFC 2460	-	Internet Protocol, Version 6 (IPv6) Specification	-	-
RFC 2508	-	Compressing IP/UDP/RTP Headers for Low-Speed Serial Links	-	-

EN 62056-8-6:2017

RFC 3095	-	RObust Header Compression (ROHC): Framework and four profiles: RTP, UDP, ESP, and uncompressed	-	-
RFC 791	-	Internet Protocol - DARPA Internet Program Protocol Specification	-	-



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Electricity metering data exchange – The DLMS/COSEM suite –
Part 8-6: High speed PLC ISO/IEC 12139-1 profile for neighbourhood networks**

**Échange des données de comptage de l'électricité – La suite DLMS/COSEM –
Partie 8-6: Profil CPL ISO/IEC 12139-1 à grande vitesse pour les réseaux de
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**Electricity metering data exchange – The DLMS/COSEM suite –
Part 8-6: High speed PLC ISO/IEC 12139-1 profile for neighbourhood networks**

**Échange des données de comptage de l'électricité – La suite DLMS/COSEM –
Partie 8-6: Profil CPL ISO/IEC 12139-1 à grande vitesse pour les réseaux de
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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms, definitions and abbreviated terms	8
3.1 Terms and definitions.....	8
3.2 Abbreviated terms.....	8
4 Targeted communication environments.....	9
5 Use of the communication layers for this profile.....	10
5.1 Information related to the use of the standard specifying the lower layers	10
5.2 Structure of the communication profile	10
5.3 Lower protocol layers and their use.....	11
5.3.1 Overview	11
5.3.2 Physical layer	11
5.3.3 MAC layer.....	11
5.4 Service mapping and adaptation layers	11
5.4.1 Overview	11
5.4.2 CPAS	12
5.4.3 IP SSAS	12
5.4.4 HDLC SSAS	16
5.5 Registration and connection management.....	19
6 Identification and addressing schemes	19
7 Specific considerations for the application layer services.....	20
7.1 Overview.....	20
7.2 Application Association establishment and release: ACSE services	20
7.3 xDLMS services	20
7.4 Security mechanisms	21
7.5 Transferring long application messages	21
7.6 Media access, bandwidth and timing considerations	21
7.7 Other considerations.....	21
8 Communication configuration and management.....	21
9 The COSEM application process	21
10 Additional considerations for the use of this profile	21
Annex A (informative) Examples	22
A.1 IP-based communication examples	22
A.2 HDLC-based communication examples	25
A.2.1 Example 1: Data link layer connection establishment (SNRM-UA exchange).....	25
A.2.2 Example 2: Establishment of an AA (AARQ – AARE exchange).....	26
A.2.3 Example 3: Data communication (Get-request)	28
A.2.4 Example 4: Disconnection example with Releasing (DISC)	30
Annex B (normative) COSEM ICs for data exchange using HS-PLC ISO/IEC 12139-1 neighbourhood networks.....	32
B.1 General.....	32
B.2 Interface classes for setting up and managing DLMS/COSEM HS-PLC ISO/IEC 12139-1 networks.....	32

B.2.1	Overview	32
B.2.2	HS-PLC ISO/IEC 12139-1 MAC setup (class_id = 140, version = 0).....	32
B.2.3	HS-PLC ISO/IEC 12139-1 CPAS setup (class_id = 141, version = 0).....	33
B.2.4	HS-PLC ISO/IEC 12139-1 IP SSAS setup (class_id = 142, version = 0).....	34
B.2.5	HS-PLC ISO/IEC 12139-1 HDLC SSAS setup (class_id = 143, version = 0).....	35
B.3	Relation to OBIS	35
B.3.1	Use of value group C	35
B.3.2	Objects for data exchange using DLMS/COSEM HS-PLC ISO/IEC 12139-1 networks	36
Index	37
Figure 1	– Entities and interfaces of a smart metering system using the terminology of IEC 62056-1-0	9
Figure 2	– DLMS/COSEM High Speed PLC profile	10
Figure 3	– Adaptation layer architecture.....	11
Figure 4	– CPAS frame structure	12
Figure 5	– IP SSAS control packet	13
Figure 6	– IP SSAS data packet.....	13
Figure 7	– HDLC SSAS Frame.....	16
Figure 8	– Message configuration for response to HDLC addresses request	17
Table 1	– IP SSAS control packet format Inconsistencies! IP_Len	13
Table 2	– IP SSAS data packet format	14
Table 3	– Values for IP_Header_Comp_Type.....	15
Table 4	– Valid range of the Transmission_status value.....	16
Table 5	– HDLC SSAS Frame format	17
Table 6	– Usage of CMD and STA fields	17
Table 7	– Client and Server SAPs for the IP based communication	20
Table 8	– Client and Server SAPs for the HDLC based communication	20
Table B.1	– Use of value group C for abstract objects in the COSEM context	36

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICITY METERING DATA EXCHANGE –
THE DLMS/COSEM SUITE –****Part 8-6: High speed PLC ISO/IEC 12139-1
profile for neighbourhood networks**

FOREWORD

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International Standard IEC 62056-8-6 has been prepared by IEC technical committee 13: Electrical energy measurement and control.

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FDIS	Report on voting
13/1730/FDIS	13/1741/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62056 series, published under the general title *Electricity metering data exchange – The DLMS/COSEM suite*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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INTRODUCTION

As defined in IEC 62056-1-0, the IEC 62056 DLMS/COSEM suite provides specific communication profile standards for communication media relevant for smart metering.

Such communication profile standards specify how the COSEM data model and the DLMS/COSEM application layer can be used on the lower, communication media-specific protocol layers.

Communication profile standards refer to communication standards that are part of the IEC 62056 DLMS/COSEM suite or to any other open communication standard.

This document specifies the DLMS/COSEM profile for High Speed PLC (HS-PLC) technologies according to ISO/IEC 12139-1 for neighbourhood networks. The technology is based on Discrete Multi-Tone (DMT) modulation. It may be used in low voltage or on medium voltage distribution networks. The PHY rate of High Speed PLC is typically 24 Mbps, however the data throughput varies according to many aspects of low voltage or medium voltage power lines. Although High Speed PLC can be used both on low voltage and medium voltage networks, in this document HS-PLC on low voltage network is only considered.

When implementing advanced services based on DLMS/COSEM profiles such as complex tariff programs, data security measures, two-way consumption data exchange for demand response and so forth, the neighbourhood network may become a bottleneck. The HS-PLC technology minimizes such bottlenecks due to the high data rates available. Moreover, the HS-PLC technology can accommodate increased amounts of data thus it can additionally support other applications such as Internet of Things (IoT).

Using the high speed PLC technology specified in ISO/IEC 12139-1 may be subject to national regulations. However, this aspect is outside the Scope of this document.

ELECTRICITY METERING DATA EXCHANGE – THE DLMS/COSEM SUITE –

Part 8-6: High speed PLC ISO/IEC 12139-1 profile for neighbourhood networks

1 Scope

This part of IEC 62056 specifies the DLMS/COSEM communication profile for ISO/IEC 12139-1 High speed PLC (HS-PLC) neighbourhood networks.

It uses the standard ISO/IEC 12139-1 established by ISO/IEC JTC1 SC06.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62056-1-0:2014, *Electricity metering data exchange – The DLMS/COSEM suite – Part 1-0: Smart metering standardisation framework*

IEC TS 62056-1-1:2016, *Electricity metering data exchange – The DLMS/COSEM suite – Part 1-1: Template for DLMS/COSEM communication profile standards*

IEC 62056-46, *Electricity metering – Data exchange for meter reading, tariff and load control – Part 46: Data link layer using HDLC protocol*

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

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

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

IEC 62056-6-2:2016, *Electricity metering data exchange – The DLMS/COSEM suite – Part 6-2: COSEM interface classes*

IEC 62056-7-6, *Electricity metering data exchange – The DLMS/COSEM suite – Part 7-6: The 3-layer, connection-oriented HDLC based communication profile*

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

ISO/IEC/IEEE 8802:2014, *Standard for Ethernet*

ISO/IEC 12139-1:2009, *Information technology – Telecommunications and information exchange between systems – Power line communication (PLC) – High speed PLC medium access control (MAC) and physical layer (PHY) – Part 1: General requirements*

RFC 791, *Internet Protocol, DARPA internet program protocol specification, 1981*

RFC 1144, *Compressing TCP/IP Headers for Low-Speed Serial Links, 1990*

RFC 2460, *Internet Protocol, Version 6 (IPv6) Specification, 1998*

RFC 2508, *Compressing IP/UDP/RTP Headers for Low-Speed Serial Links, 1999*

RFC 3095, *RObust Header Compression (ROHC): Framework and four profiles: RTP, UDP, ESP, and uncompressed, 2001*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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