

**Electricity metering - Data exchange for
meter reading, tariff and load control --
Part 47: COSEM transport layers for
IPv4 networks**

Electricity metering - Data exchange for meter
reading, tariff and load control -- Part 47: COSEM
transport layers for IPv4 networks

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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| <p>Käesolev Eesti standard EVS-EN 62056-47:2007 sisaldab Euroopa standardi EN 62056-47:2007 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.03.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p> | <p>This Estonian standard EVS-EN 62056-47:2007 consists of the English text of the European standard EN 62056-47:2007.</p> <p>This document is endorsed on 23.03.2007 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p> |
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| <p>Käsitlusala: This part of IEC 62056 specifies the transport layers for COSEM communication profiles for use on IPv4 networks. These communication profiles contain a connection-less and a connection-oriented transport layer, providing OSI-style services to the service user COSEM application layer. The connection-less transport layer is based on the Internet standard User Datagram Protocol. The connection-oriented transport layer is based on the Internet standard Transmission Control Protocol. Although the major part of the COSEM transport layers is the UDP and TCP as they are specified in the relevant Internet standards, they include an additional sub-layer, called wrapper.</p> | <p>Scope: This part of IEC 62056 specifies the transport layers for COSEM communication profiles for use on IPv4 networks. These communication profiles contain a connection-less and a connection-oriented transport layer, providing OSI-style services to the service user COSEM application layer. The connection-less transport layer is based on the Internet standard User Datagram Protocol. The connection-oriented transport layer is based on the Internet standard Transmission Control Protocol. Although the major part of the COSEM transport layers is the UDP and TCP as they are specified in the relevant Internet standards, they include an additional sub-layer, called wrapper.</p> |
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Võtmesõnad:

**Electricity metering -
Data exchange for meter reading, tariff and load control -
Part 47: COSEM transport layers for IPv4 networks
(IEC 62056-47:2006)**

Equipements de mesure
de l'énergie électrique -
Echange des données pour la lecture
des compteurs, le contrôle des tarifs
et de la charge -
Partie 47 : Couches de transport COSEM
pour réseaux IPv4
(CEI 62056-47:2006)

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Teil 47: COSEM Transportschichten
für IPv4 Netzwerke
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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 13/1386/FDIS, future edition 1 of IEC 62056-47, prepared by IEC TC 13, Electrical energy measurement, tariff- and load control, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62056-47 on 2006-12-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2007-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2009-12-01

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Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62056-47:2006 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 62056-46 NOTE Harmonized as EN 62056-46:2002 (not modified).

¹⁾ Device Language Message Specification

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

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

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|--|--------------|-------------|
| IEC 60050-300 | 2001 | International Electrotechnical Vocabulary - Electrical and electronic measurements and measuring instruments - Part 311: General terms relating to measurements - Part 312: General terms relating to electrical measurements - Part 313: Types of electrical measuring instruments - Part 314: Specific terms according to the type of instrument | - | - |
| IEC/TR 62051 | 1999 | Electricity metering - Glossary of terms | - | - |
| IEC/TR 62051-1 | 2004 | Electricity metering - Data exchange for meter - reading, tariff and load control - Glossary of terms - Part 1: Terms related to data exchange with metering using DLMS/COSEM | - | - |
| IEC 62056-53 | 2006 | Electricity metering - Data exchange for meter reading, tariff and load control - Part 53: COSEM application layer | EN 62056-53 | 2007 |
| IEC 62056-62 | 2006 | Electricity metering - Data exchange for meter reading, tariff and load control - Part 62: Interface classes | EN 62056-62 | 2007 |
| STD 0005 | 1981 | Internet Protocol | - | - |
| STD 0006 | 1980 | User Datagram Protocol | - | - |
| STD 0007 | 1981 | Transmission Control Protocol | - | - |

**INTERNATIONAL
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**IEC
62056-47**

First edition
2006-11

**Electricity metering –
Data exchange for meter
reading, tariff and load control –**

**Part 47:
COSEM transport layers for IPv4 networks**



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INTERNATIONAL STANDARD

IEC 62056-47

First edition
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**Electricity metering –
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reading, tariff and load control –**

**Part 47:
COSEM transport layers for IPv4 networks**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICITY METERING –
DATA EXCHANGE FOR METER READING,
TARIFF AND LOAD CONTROL –****Part 47: COSEM transport layers for IPv4 networks**

FOREWORD

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DLMS¹ User Association

Geneva / Switzerland

www.dlms.ch

International Standard IEC 62056-47 has been prepared by IEC technical committee 13: Equipment for electrical energy measurement and load control.

¹ Device Language Message Specification

The text of this standard is based on the following documents:

| FDIS | Report on voting |
|--------------|------------------|
| 13/1386/FDIS | 13/1397/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.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A list of all parts of IEC 62056 series, published under the general title *Electricity metering – Data exchange for meter reading, tariff and load control*, can be found on the IEC website.

A bilingual version of the publication may be issued at a later date.

ELECTRICITY METERING – DATA EXCHANGE FOR METER READING, TARIFF AND LOAD CONTROL –

Part 47: COSEM transport layers for IPv4 networks

1 Scope

This part of IEC 62056 specifies the transport layers for COSEM communication profiles for use on IPv4 networks.

These communication profiles contain a connection-less and a connection-oriented transport layer, providing OSI-style services to the service user COSEM application layer. The connection-less transport layer is based on the Internet standard User Datagram Protocol. The connection-oriented transport layer is based on the Internet standard Transmission Control Protocol.

Although the major part of the COSEM transport layers is the UDP and TCP as they are specified in the relevant Internet standards, they include an additional sub-layer, called wrapper.

Annex A shows how the OSI-style transport layer services can be converted to and from UDP and TCP function calls.

2 Normative references

The following referenced documents are indispensable for the application 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 60050-300:2001, *International Electrotechnical Vocabulary (IEV) – Electrical and electronic measurements and measuring instruments – Part 311: General terms relating to measurements – Part 312: General terms relating to electrical measurements – Part 313: Types of electrical measuring instruments – Part 314: Specific terms according to the type of instrument.*

IEC 62051:1999, *Electricity metering – Glossary of terms*

IEC 62051-1:2004, Ed.1., *Electricity metering – Data exchange for meter reading, tariff and load control – Glossary of terms – Part 1: Terms related to data exchange with metering equipment using DLMS/COSEM*

IEC 62056-53, *Electricity metering – Data exchange for meter reading, tariff and load control – Part 53: COSEM application layer*³

IEC 62056-62, *Electricity metering – Data exchange for meter reading, tariff and load control – Part 62: Interface classes*³

STD0005 – *Internet Protocol*

Author: J. Postel

Date: September 1981

Also: RFC0791, RFC0792, RFC0919, RFC0922, RFC0950, RFC1112

STD0006 – *User Datagram Protocol*

Author: J. Postel

Date: 28 August 1980

Also: RFC0768

STD0007 – *Transmission Control Protocol*

Author: J. Postel

Date: September 1981

Also: RFC0793

See also Bibliography for other related Internet RFCs.

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the definitions given in IEC 60050-300, IEC 62051 and IEC 62051-1 apply.

3.2 Abbreviations

| | |
|-------------|--|
| APDU | Application Layer Protocol Data Unit |
| COSEM | COmpanion Specification for Energy Metering |
| COSEM_on_IP | The TCP-UDP/IP based COSEM communication profile |
| IP | Internet Protocol |
| PDU | Protocol Data Unit |
| PAR | Positive Acknowledgement with Retransmission |
| TCP | Transmission Control Protocol |
| UDP | User Datagram Protocol |
| WPDU | Wrapper Protocol Data Unit |

4 Overview

This standard specifies two transport layers for the COSEM_on_IP communication profiles: a connection-less transport layer, based on UDP, Internet standard STD0006 and a connection-oriented transport layer, based on TCP, Internet standard STD0007.

In these profiles, the COSEM application layer uses the services of one of these transport layers, which use then the services of the Internet Protocol (IPv4) network layer to communicate with other nodes connected to the abstract IPv4 network.

When used in these profiles, the COSEM application layer can be considered as another Internet standard application protocol (like the well-known HTTP, FTP or SNMP) and it may co-exist with other Internet application protocols, as shown in

Figure 1.