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Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



23K/119/CD

COMMITTEE DRAFT (CD)

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IEC SC 23K : ELECTRICAL ENERGY EFFICIENCY PRODUCTS

SECRETARIAT:
France

SECRETARY:
Mr Philippe Vollet

OF INTEREST TO THE FOLLOWING COMMITTEES:
TC 13,TC 57,TC 64,SyC Smart Energy

HORIZONTAL FUNCTION(S):

ASPECTS CONCERNED:

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TITLE:

Energy Efficiency Systems - Smart Grid - Customer Energy Management Systems - Interface between the Energy Management Gateway and BEM / CEM - Data model and messaging

NOTE FROM TC/SC OFFICERS:

SC23K officers support this IEC 63402-2-1 CD circulation, and encourage each NC to comment.

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<https://osd.iec.ch/#/editor/archive/6531976f-4b07-455d-9efc-2981485ad5c2/en/CD/1>

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Resource materials

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- OSD NC roles overview: [here](#)
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

Energy Efficiency Systems - Smart Grid - Customer Energy Management Systems - Interface between the Energy Management Gateway and BEM / CEM - Data model and messaging –

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The text of this International Standard is based on the following documents:

Draft	Report on voting
23K/XX/FDIS	23K/XX/RVD

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

The language used for the development of this International Standard is **English** [change language if necessary].

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

Over recent decades, energy production and its consumption patterns have changed dramatically. Although central energy production is still dominant, the trend for distributed production is distinctive following an increasing number of renewables. Alternative energy sources are highly fluctuating in their production capabilities, which may result in the grid operators having difficulty to keep a balance between energy production and consumption. The complexity of keeping the grid reliable is further increased by the change in the electric energy consumption and production of the customer itself, e.g., the use of electric vehicles and personal generation facilities.

A Smart Grid that allows the grid operator to be flexible and reactive is needed. Such reactivity requires a communication flow between energy consuming and producing entities, from single family houses to large factories.

The IEC63402 series describes aspects of the smart grid that relate specifically to the premises (home/building) part of the smart grid and describes the common interface between equipment in the premises and the smart grid. This part 2-1 of the series defines the fundamental aspects of semantic interoperability for the S1 interface and the related data exchange between a [CEM](#) and the Distribution System operator.

Different use cases are explained in [Annex A](#), which should help to understand the philosophy of IEC63402-2-1.

Energy Efficiency Systems - Smart Grid - Customer Energy Management Systems - Interface between the Energy Management Gateway and BEM / CEM - Data model and messaging –

1 Scope

This document specifies the fundamental aspects of semantic interoperability for the S1 interface and the related data exchange between a **CEM** and the Distribution System Operator (**DSO**). It provides a technology independent set of data models and interaction patterns in order to enable information exchange between premises and **DSO**. This document does not include:

- mappings to concrete data representations (XML, JSON and similar);
- mappings to application protocols for the message passing;
- security related aspects.

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 TR 62746-2:2015, *Systems interface between customer energy management system and the power management system - Part 2: Use cases and requirements*

3 Terms, definitions and abbreviations

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1 Terms and definitions

This clause of IEC63402-1 is applicable as follows

3.1.1

use case

describes interactions between an actor and another actor or a system to achieve a specific goal, either very abstract or very detailed; can be nested

3.1.2

home and building electronic system

building automation control system

logical group of devices which uses a multi-application communication system where the functions are distributed and linked through a common communication process

Note 1 to entry: **HBES/BACS** is used in homes and buildings plus their surroundings. Functions of the system are e.g.: switching, open loop controlling, closed loop controlling, monitoring and supervising.

Note 2 to entry: In literature, **HBES/BACS** could also be referred to as “home control system/network”, “home electronic system” “building automation system”, etc.

Note 3 to entry: Examples of **HBES/BACS** applications are the management of lighting, heating, energy, water, fire alarms, blinds, different forms of security, etc. See introduction in EN 5049141.

3.1.3**user**

either a person (e.g. installer or resident) or surrogate service

3.1.4**abnormal condition**

situation in which a Resource Manager must sacrifice user comfort when requested by the [CEM](#)

3.2 Abbreviations

API Application Programmable Interface

BACS Building Automation Control Systems

BEM Building Energy Manager

CEM Customer Energy Management

CHP Combined Heat and Power

DSO Distribution System Operator

DDBC Demand Driven Based Control

EM Energy Management

EMG Energy Management Gateway

EV Electric Vehicle

FRBC Fill Rate Based Control

HBES Home and Building Electronic Systems

HMI Human-Machine Interface

I/F Interface

M/O Mandatory / Optional

M Mandatory

O Optional

PEBC Power Envelope Based Control

PV Photovoltaics

RM Resource Manager

RTP Real Time Pricing

SASS Single Application Smart System

SG Smart Grid

TBEM Tariff Based Energy Management

TOU Time Of Use

95PPR 95 Percent Probability Range

68PPR 68 Percent Probability Range

3.3 Additional terms and definitions

Terms and definitions for Interface between the Energy Management Gateway and BEM / CEM
- Data model and messaging

3.3.1**S3 communication**

Interface between [CEM](#) and BEM in cascaded energy management systems

3.3.2**H4 communication**

Interface between Energy management gateway and Multi Utility gateway