NSAI
Standards

Irish Standard
I.S. EN 50631-1:2017

Household appliances network and grid connectivity - Part 1: General Requirements, Generic Data Modelling and Neutral Messages

I.S. EN 50631-1:2017

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Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 50631-1:2017 is the adopted Irish version of the European Document EN 50631-1:2017, Household appliances network and grid connectivity - Part 1: General Requirements, Generic Data Modelling and Neutral Messages

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50631-1

December 2017

ICS 97.120

English Version

Household appliances network and grid connectivity - Part 1: General Requirements, Generic Data Modelling and Neutral Messages

Appareils domestiques connectés au réseau et réseau intelligent - Partie 1: Exigences générales, modélisation de données génériques et messages neutres génériques

Netzwerk- und Stromnetz-Konnektivität von Haushaltsgeräten - Teil 1: Allgemeine Anforderungen, allgemeine Datenmodellierung und neutrale Meldungen

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CENELEC

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

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Ref. No. EN 50631-1:2017 E

EN 50631-1:2017 (E)

Contents

Page

This is a free page sample. Access the full version online.
I.S. EN 50631-1:2017

EN 50631-1:2017 (E)

EN 50631-1:2017 (E)

This is a free page sample. Access the full version online.
I.S. EN 50631-1:2017

EN 50631-1:2017 (E)

EN 50631-1:2017 (E)

European foreword

This document (EN 50631-1:2017) has been prepared by the WG 7 "Smart Household Appliances" of CLC/TC 59X "Performance of household and similar electrical appliances".

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2018-09-18
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2020-09-18

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I.S. EN 50631-1:2017

EN 50631-1:2017 (E)

Introduction

Energy management systems will more and more become necessary due to change from fossil and nuclear to renewable production and the associated decentralisation. Since an appropriate standard for a home & building maqnagement is in preparation this European Standard specifies how sets of products from multiple manufacturers are able to interoperate with Home & Building / Customer Energy Management Systems, located in a home network or in the cloud, in the most interoperable manner.

This standard focuses on interoperability of household appliances and describes the necessary control and monitoring. It defines a set of functions of household and similar electrical appliances. The functions in this standard cover next to energy-management main remote-control and – monitoring use cases.

This European Standard does not deal with safety and security requirements. Safety requirements have been set in IEC/EN 60335-x [17].

EN 50631 will provide interoperability on information exchange among various appliances in the home. The standard will be split into 4 parts:

EN 50631-1: *Household appliances network and grid connectivity — Part 1: General Requirements, Generic Data Modeling and Neutral Messages*

EN 50631-2-x: *Household appliances network and grid connectivity — Part 2: Product Specific Requirements and -Specifications*

EN 50631-3: *Household appliances network and grid connectivity — Part 3: General Test-Requirements & -Specifications*

EN 50631-4-x: *Household appliances network and grid connectivity — Part 4: Technology Specific Implementation and Test Requirements*

Data communication heavily depends on the environment of appliances. Sometimes low bitrate or energy efficient communication puts strict requirements to selected communication technologies. Therefore, popular and de facto standards had been and will be developed by the industry to fulfil such requirements. To not influence common data modeling for appliances because of such restrictions, the standardized data models and neutral message structures need to be applied to communication technologies.

This standard series therefore is intended to separate data modeling and neutral message structure from the attached communication.

Part 1 defines general requirements, generic data modeling and generic neutral messages without relation to any specific communiction technologoy or any product specific layout.

Part 2 lists and specifies product specific requirements and implementation guidance based on the generic data model and generic neutral messages.

Part 3 defines Test-Requirements and Test-Specifications.

Part 4 defines the mapping of neutral messages to examples of typical communication protocols like ZigBee, KNX, OIC, SHIP, Echonet light, Thread and so forth. These communication protocols are neither mandatory nor to be seen as complete spectrum of communication protocols. A few can be found at [6] - [13].

EN 50631-1:2017 (E)

1   Scope

This document defines data models for Interoperable Connected Household Appliances. The data model is derived from a logical decomposition of use cases into functional blocks that themselves are realized by abstract actions on the data model itself.

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.

EN 60335 (all parts), *Household and similar electrical appliances – Safety*

RFC 2119, *Key words for use in RFCs to Indicate Requirement Levels,* March 1997

3   Terms, definitions and abbreviations

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

3.1
appliance
electrical apparatus intended for household or similar use

Examples: Refrigerators, dishwashers, clothes washers, clothes dryers, air conditioners, water heaters, circulation pumps etc.

3.2
binding
concept for connecting functionally matching features

3.3
(standard or complex) class
set of SPINE functions used to describe a specific functionality. A class can be considered as a topic where functions are defined for. For example the SPINE class "Measurement" is a collection of SPINE functions that are used to describe measurement values

3.4
classifier
specifies whether a message serves to read, reply, write, etc.

3.5
client
role that specifies that a node uses data from a "server" or can request for change

3.6
command
functional part of a Message

3.7
complex class
SPINE class that is built up by parts of SPINE standard classes and combines them in a new, ordered way

3.8
Customer Connectivtiy Manager (CCM), see also 4.2
component or set of functions with the capability to:

1)   Receive and process Grid Information, Appliance Information and User Instructions, and

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