



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

Incorporating amendments/corrigenda/National Annexes issued since publication:

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NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 50631-1:2017

Published:

2017-12-08

This document was published under the authority of the NSAI and comes into effect on:

2017-12-26

ICS number:

NOTE: If blank see CEN/CENELEC cover page

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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

EN 50631-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

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

This European Standard was approved by CENELEC on 2017-09-18. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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have to be withdrawn

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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

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 management 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 communication technology 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 Connectivity 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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