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TECHNICAL REPORT

Information technology – Intelligent homes – Taxonomy of specifications – Part 1: Taxonomy method

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INFORMATION TECHNOLOGY – INTELLIGENT HOMES – TAXONOMY OF SPECIFICATIONS –

Part 1: Taxonomy method

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- type 2, when the subject is still under technical development or where, for any other reason, there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when the technical committee has collected data of a different kind from that which is normally published as an International Standard, for example 'state of the art'.

ISO/IEC 29107-1, which is a Technical Report of type 3, has been prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology

Technical reports of types 1 and 2 are subject to review within three years of publication to decide whether they can be transformed into International Standards. Technical reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

This Technical Report of type 3 has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

A list of all parts of the ISO/IEC 29107 series, under the general title *Information technology – Intelligent homes – Taxonomy of specifications*, can be found on the IEC website.

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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INTRODUCTION

ISO/IEC 29107 describes a taxonomy for the classification of standards and other specifications applicable to intelligent homes. It consist of two parts.

Part 1: Taxonomy method.

Part 2: Table of specifications.

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INFORMATION TECHNOLOGY – INTELLIGENT HOMES – TAXONOMY OF SPECIFICATIONS –

Part 1: Taxonomy method

1 Scope

This part of ISO/IEC 29107 specifies the concept for a taxonomy of standards and other related specifications applicable to intelligent homes. It is intended for the classification of specifications from ISO, IEC, ISO/IEC JTC 1, ITU and from organizations with liaison status with any of these.

The target of this part of ISO/IEC 29107 are the various standardisation bodies that are contributing to the intelligent home. With the help of the concept described in this report they should be able to classify their specifications. This will benefit the standardisation bodies to determine if there are overlapping specifications or areas for which specifications are missing.

NOTE The collection of all classifications, is intended to be specified in ISO/IEC TR 29107-2.[1].

2 Terms, definitions and abbreviations

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

2.1
intelligent home
home in which the integration of services and interworking of devices improve the residents' comfort, well-being, safety and communication possibilities

NOTE 1 The focus of the integration is on a unified user access to services and devices and the interworking capabilities between different application areas.

NOTE 2 Example application areas are home security, home entertainment, home automation, health care, telecommunication, energy management and personalized information (as traffic, weather,..).

3 Conformance

This Technical Report has no conformance requirements.

4 Taxonomy concept

The background for the need for a taxonomy for specifications applicable to intelligent homes are described in Annex A. It also contains some other alternative taxonomy methods.

The concept of taxonomy in this Technical Report is a multidimensional scheme that allows a predefined set of categories for each dimension. For each dimension, there may be zero, one or several categories that the specification under study matches. The number of dimensions is in principle unlimited, but this Technical Report has limited it to seven that are expected to cover the need for all relevant specifications.

[1] The table of specifications will be held by ISO/IEC JTC 1/SC 25.

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The intention is that the standardisation body that has completed a specification, or is in the progress of making one, can see and fill in those boxes in a table of the seven dimensions that the document matches.

Dimension A: What view is the specification addressing? Or in other words, who is the target of the specification. The specification can be the view from

a) the user/owner/resident of the intelligent home,
b) the manufacturer of intelligent home devices,
c) providers of intelligent home services,
d) the designer and integrator of intelligent home systems,
e) the installer of intelligent home systems,
f) other.

Dimension B: Which cluster(s), or application area(s) is the specification addressing?

a) home automation,
b) home security,
c) home appliances,
d) health care,
e) PC and peripherals,
f) entertainment,
g) telecommunications,
h) other.

Dimension C: Which point of control is the specification addressing?

a) PC,
b) TV,
c) mobile phone,
d) PDA (Personal Digital Assistant),
e) fixed display,
f) specific home control device,
g) other.

Dimension D: Which type of content is the specification addressing?

a) architecture,
b) service definitions and protocols,
c) equipment,
d) modules,
e) interoperability,
f) OSI layer 1,
g) OSI layer 2,
h) OSI layer 3,
i) OSI layer 4,
j) OSI layer 5,
k) OSI layer 6,
l) OSI layer 7,

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m) user interfaces,

n) test,

o) guidelines,

p) other.

Dimension E: Which part(s) of the service delivery path (from service to a device) is the specification addressing?

a) services protocol,

b) service integration point,

c) management protocol,

d) home integration point,

e) eco system,

f) device access protocol,

g) device networks,

h) other.

Dimension F: What is the geographical target of the specification?

a) worldwide,

b) regional,

c) national.

Dimension G: What is the status of the specification?

a) international standard,

b) international standard in progress,

c) regional standard,

d) regional standard in progress,

e) national standard,

f) national standard in progress,

g) standard from other standardization bodies, consortia, forum, etc.,

h) standard in progress from other standardization bodies, consortia, forum, etc.

5 The presentation of specifications categorized according to this scheme

The presentation will be in a form of a table where the fields that the specification matches are indicated. An example is shown in Table 1 below.

Table 1 – Example of some specifications categorized according to this scheme

Specification	A1	A2	…	B1	B2	…	C1	…	G1	…	G8
Standard 1	X								X		
Standard 2		X			X				X		
Standard 3		X		X					X		
Standard 4							X				X

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Annex A
(informative)

Background

A.1 Current situation

Although the market for (parts of) intelligent homes is growing satisfactorily in some parts of the world, a mass market for home systems has not developed yet. The main reason for this difference between expectations and reality are the different directions taken by the different market players. Suppliers forward different technologies, specifications and business models.

Until now there exist several islands of networked devices in modern residential homes (as the clusters for telecommunication, PC/Internet, broadcasting/entertainment, home automation, white goods, home security, energy management and health care. The different technologies and devices of the different industries are shown as horizontal stripes in Figure A.1.

Industry	Services	Access Network	Access Device	Cluster Network	Devices / Device networks
Home Automation	Home Automation services	Internet	Home Controller	TP, RF, PL	Light/Blind/HVAC controllers
Home Security	Home Security services	PSTN, GSM	Home Security Controller	TP, RF	Security Sensors, keypads, sirens
Home Appliances	Whitegood services	PSTN, GSM	Whitegoods Gateway	PL	Whitegoods, kitchen appliances
Healthcare	Health care services	PSTN, GSM	Health Care hub	TP, RF	Health care sensors
PC / Internet	PC Internet services	xDSL	Router	PC protocol	PC, printers, cameras,...
Entertain-ment	Entertainment services	Internet	Digital STB	A/V	TV
Telecomm-unication	Communication services	PSTN, ISDN	Base station	DECT	Phones, video phones

Figure A.1 – Different islands of residential services (with examples for networks)

There are two main problems arising from this situation:

Incompatible existing and established specifications in the different clusters prohibit the integration of devices and services from competing physical network solutions in the home to incompatible protocols for service delivery.

Interworking between different clusters may only be achieved with the extra effort and often customer specific solutions. There exist various remote controls, at least one for each cluster. Furthermore, cross-cluster functions as energy management, comfort functions (as scenes or scenarios) are not possible. However, the consumer mandates unified remote controls and cross-cluster functions.

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A trend towards digitalization drives new features into devices, making it easier to implement interworking capabilities. An example is the PC industry driving scenarios and standards for media distribution in the home (interworking between PC and consumer electronic cluster).

However, it is not clear which specification will succeed. Existing ones (either from one or the other cluster) or new ones?

Furthermore, different standards across regions lead to a fragmented market and to incompatible systems.[2]

Some parts of the industry are pushing de-facto standards. Others are pushing them into international standardization bodies (ISO, IEC and ITU).

The long-term intent of this Technical Report is to identify and classify the various specifications and standards for intelligent home systems.

A taxonomy for the functions of an intelligent home is the basis for common understanding of the different parties involved. The application of the taxonomy should allow answering the following questions in a terminology understood by all players.

- What is the scope of a specification?
- Where are specifications missing?
- Where do competing specifications occur?
- Are there regional differences in requirements?

A.2 Integration trends

In order to achieve the integration of services and devices, two integration points are emerging: one in the backend for service integration and one in the home for device and network integration. Figure A.2 shows the two integration points.

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2 NOTE JTC 1 (Resolution 49 of 2008) notes the nature of standardisation is to attract innovative ideas from multiple sources, choose the best ones and quantify them in specifications that facilitate widespread use. Further consistent with ISO's and IEC's "one standard" principle (for example TMB's policy and principal statement on global relevance), there are times when one standard is all that is required instances where multiple standards make the most sense to respond to market requirements and to the need of our society.

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