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SmartM2M;
Smart Appliances Ontology and Communication Framework Testing;
Part 2: Protocol Implementation Conformance Statement (PICS) pro forma

Reference
DTS/SmartM2M-103 268-2_SAP PIC

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Contents

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Smart Machine-to-Machine communications (SmartM2M).

The present document is part 2 of a multi-part deliverable covering Conformance test specifications for Smart Appliances Ontology and Communication Framework Testing as identified below:

Part 1: "Testing methodology";

Part 2: "Protocol Implementation Conformance Statement (PICS) pro forma";

Part 3: "Test Suite Structure and Test Purposes (TSS & TP)";

Part 4: "Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT)".

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document provides the Protocol Implementation Conformance Statement (PICS) pro forma for Conformance test specifications for Smart Appliances testing as defined in ETSI TS 103 268-1 [6] and ETSI TS 118 115 [8] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [7].

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] ETSI TS 103 264: "SmartM2M; Smart Appliances; Reference Ontology and oneM2M Mapping".

[2] ETSI TS 103 267: "SmartM2M; Smart Appliances; Communication Framework".

[3] ETSI TS 118 101: "oneM2M; Functional Architecture (oneM2M TS-0001)".

[4] ETSI TS 118 104: "oneM2M; Service Layer Core Protocol Specification (oneM2M TS-0004)".

[5] ETSI TS 118 112: "oneM2M; Base Ontology (oneM2M TS-0012)".

[6] ETSI TS 103 268-1: "SmartM2M; Smart Appliances Ontology and Communication Framework Testing; Part 1: Testing methodology".

[7] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

[8] ETSI TS 118 115: "oneM2M; Testing Framework (oneM2M TS-0015)".

[9] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI TS 103 268-1 [6], ISO/IEC 9646-1 [9] and ISO/IEC 9646-7 [7] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 103 268-1 [6], ETSI TS 103 264 [1], ETSI TS 118 112 [5] and the following apply:

API	Application Programming Interface
EUT	Equipment Under Test
IFS	Interoperable Features Statement
IUT	Implementation Under Test
IWF	InterWorking Function
PICS	Protocol Implementation Conformance Statement
QE	Qualified Equipment
RP	Reference Point
SAP	Smart Appliance
SUT	System Under Test
TP	Test Purpose
TSS	Test Suite Structure

4 Conformance requirement concerning PICS

If it claims to conform to the present document, the actual PICS pro forma to be filled in by a supplier shall be technically equivalent to the text of the PICS pro forma given in annex A, and shall preserve the numbering, naming and ordering of the pro forma items.

An ICS which conforms to the present document shall be a conforming PICS pro forma completed in accordance with the instructions for completion given in clause A.1.

Annex A (normative): Smart Appliances Testing PICS Pro forma

A.0 Foreword

A.1 Guidance for completing the ICS pro forma

A.1.1 Purposes and structure

The purpose of this ICS pro forma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in ETSI TS 118 101 [3] may provide information about the implementation in a standardized manner. The ICS pro forma is subdivided into clauses for the following categories of information:

- guidance for completing the ICS pro forma;
- identification of the implementation;
- identification of the ETSI TS 118 101 [3];
- global statement of conformance;
- ICS pro forma tables.

A.1.2 Abbreviations and conventions

The ICS pro forma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [7].

Item column

The item column contains a number which identifies the item in the table.

Item description column

The item description column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "is <item description> supported by the implementation?".

Reference column

The reference column gives reference to the relevant clauses in core specifications.

Status column

The various status used in this annex are in accordance with the rules in table A.1.2-1.

Table A.1.2-1: Key to status codes

Status code	Status name	Meaning
m	mandatory	The capability shall be supported. It is a static view of the fact that the conformance requirements related to the capability in the reference specification are mandatory requirements. This does not mean that a given behaviour shall always be observed (this would be a dynamic view), but that it shall be observed when the implementation is placed in conditions where the conformance requirements from the reference specification compel it to do so. For instance, if the support for a parameter in a sent PDU is mandatory, it does not mean that it shall always be present, but that it shall be present according to the description of the behaviour in the reference specification (dynamic conformance requirement).
o	optional	The capability may or may not be supported. It is an implementation choice.
n/a	not applicable	It is impossible to use the capability. No answer in the support column is required.
c.<integer>	conditional	The requirement on the capability ("m", "o", "n/a") depends on the support of other optional or conditional items. <integer> is the identifier of the conditional expression.
o.<integer>	qualified optional	For mutually exclusive or selectable options from a set. <integer> is the identifier of the group of options, and the logic of selection of the options.

Mnemonic column

The Mnemonic column contains mnemonic identifiers for each item.

Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [7], are used for the support column:

Y or y — supported by the implementation

N or n — not supported by the implementation

N/A, n/a or - — no answer required (allowed only if the status is N/A, directly or after evaluation of a conditional status)

References to items

For each possible item answer (answer in the support column) within the ICS pro forma there exists a unique reference, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table.

EXAMPLE 1: A.5/4 is the reference to the answer of item 4 in table A.5.

EXAMPLE 2: A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in table 6 of annex A.

Values allowed column

The values allowed column contains the type, the list, the range, or the length of values allowed. The following notations are used:

- range of values: <min value> .. <max value>
  example: 5 .. 20
- list of values: <value1>, <value2>, ..., <valueN>
  example: 2 ,4 ,6 ,8, 9
  example: '1101'B, '1011'B, '1111'B
  example: '0A'H, '34'H, '2F'H
- list of named values: <name1>(<val1>), <name2>(<val2>), ..., <nameN>(<valN>)
  example: reject(1), accept(2)
- length: size (<min size> .. <max size>)

example: size (1 .. 8)

Values supported column

The values supported column shall be filled in by the supplier of the implementation. In this column, the values or the ranges of values supported by the implementation shall be indicated.

Prerequisite line

A prerequisite line takes the form: Prerequisite: <predicate>.

A prerequisite line after a clause or table title indicates that the whole clause or the whole table is not required to be completed if the predicate is FALSE.

A.1.3 Instructions for completing the ICS pro forma

The supplier of the implementation shall complete the ICS pro forma in each of the spaces provided. In particular, an explicit answer shall be entered, in each of the support or supported column boxes provided, using the notation described in clause A.1.2.

If necessary, the supplier may provide additional comments in space at the bottom of the tables or separately.

More detailed instructions are given at the beginning of the different clauses of the ICS pro forma.

A.2 Identification of the implementation

A.2.1 Introduction

Identification of the Implementation Under Test (IUT) and the system in which it resides (the System Under Test (SUT)) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the ICS should be named as the contact person.

A.2.2 Date of the statement

.....

A.2.3 Implementation Under Test (IUT) identification

IUT name:

.....

.....

IUT version:

.....

.....

A.2.4 System Under Test (SUT) identification

SUT name:

.....

.....

Hardware configuration:

.....

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Operating system:

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A.2.5 Product supplier

Name:

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Address:

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.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.2.6 Client (if different from product supplier)

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

A.2.7 ICS contact person

(A person to contact if there are any queries concerning the content of the ICS)

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.3 Identification of the reference specifications

This ICS pro forma applies to the following standards:

- ETSI TS 103 264: "SmartM2M; Smart Appliances; Reference Ontology and oneM2M Mapping" [1].
- ETSI TS 103 267: "SmartM2M; Smart Appliances; Communication Framework" [2].
- ETSI TS 118 101: "oneM2M; Functional Architecture (oneM2M TS-0001)" [3].
- ETSI TS 118 104: "oneM2M; Service Layer Core Protocol Specification (oneM2M TS-0004)" [4].
- ETSI TS 118 112: "oneM2M; Base Ontology (oneM2M TS-0012)" [5].

A.4 Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No) .....

NOTE: Answering "No" to this question indicates non-conformance to the SAP specifications ETSI TS 103 264 [1] and ETSI TS 103 267 [2]. Non-supported mandatory capabilities are to be identified in the ICS, with an explanation of why the implementation is non-conforming, on pages attached to the ICS pro forma.

A.5 Tables

A.5.1 oneM2M Resource Type Statement

This clause presents a list of resource types specified in oneM2M standard. Table A.5.1-1 shown as below can be used to check whether the IUT supports the listed oneM2M resource type(s).

Table A.5.1-1: oneM2M Resource Types

Item	Resource Type	Reference	Condition	Support
1	AE	ETSI TS 118 101 [3], clause 9.6.5	M	O Yes O No
2	Container	ETSI TS 118 101 [3], clause 9.6.6	O.1	O Yes O No
3	FlexContainer		O.1	O Yes O No
4	genericInterworkingService (flexContainer)	ETSI TS 118 112 [5], clause 9.2	C.1	O Yes O No
5	genericInterworkingOperationInstance (flexContainer)	ETSI TS 118 112 [5], clause 9.3	C.1	O Yes O No
O.1: At least one shall be supported. C.1: If A.5.1-1.3 then O else N/A.				

A.5.2 SAREF Device Class Statement

This clause presents a list of Device classes specified in SAREF. Table A.5.2-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.2-1: SAREF Device classes

Item	Resource Type	Reference	Condition	Support
1	saref:Device	[1]	M	O Yes O No
2	saref:Door switch	[1]	O.1	O Yes O No
3	saref:Energy meter	[1]	O.1	O Yes O No
4	saref:Light switch	[1]	O.1	O Yes O No
5	saref:Meter	[1]	O.1	O Yes O No
6	saref:Sensor	[1]	O.1	O Yes O No
7	saref:Smoke sensor	[1]	O.1	O Yes O No
8	saref:Switch	[1]	O.1	O Yes O No
9	saref:Temperature sensor	[1]	O.1	O Yes O No
10	saref:Washing machine	[1]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.3 SAREF Function Class Statement

This clause presents a list of Function classes specified in SAREF. Table A.5.3-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.3-1: SAREF Function classes

Item	Resource Type	Reference	Condition	Support
1	saref:Function	[1]	C.1	O Yes O No
2	saref:Actuating function	[1]	O.1	O Yes O No
3	saref:On off function	[1]	O.1	O Yes O No
4	saref:Open close function	[1]	O.1	O Yes O No
5	saref:start stopfunction	[1]	O.1	O Yes O No
6	saref:Event function	[1]	O.1	O Yes O No
7	saref:Metering function	[1]	O.1	O Yes O No
8	saref:Sensing function	[1]	O.1	O Yes O No
O.1: At least one shall be supported. C.1: If A.5.2-1 – 1 then M else O.1.				

A.5.4 SAREF Service Class Statement

This clause presents a list of Service classes specified in SAREF. Table A.5.4-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.4-1: SAREF Service Class

Item	Resource Type	Reference	Condition	Support
1	saref:Service	[1]	C.1	O Yes O No
2	saref:Switch on service	[1]	O.1	O Yes O No
O.1: At least one shall be supported. C.1: If A.5.3-1 – 1 or A.5.2-1– 1 then M else O.1.				

A.5.5 SAREF Property Class Statement

This clause presents a list of Property classes specified in SAREF. Table A.5.5-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.5-1: SAREF Property Classes

Item	Resource Type	Reference	Condition	Support
1	saref:Property	[1]	O.1	O Yes O No
2	saref:Energy	[1]	O.1	O Yes O No
3	saref:Average energy	[1]	O.1	O Yes O No
4	saref:HVACEnergy	[1]	O.1	O Yes O No
5	saref:Hot water energy	[1]	O.1	O Yes O No
6	saref:Lighting energy	[1]	O.1	O Yes O No
7	saref:Maximum energy	[1]	O.1	O Yes O No
8	saref:Minimun energy	[1]	O.1	O Yes O No
9	saref:Total energy	[1]	O.1	O Yes O No
10	saref:Humidity	[1]	O.1	O Yes O No
11	saref:Light	[1]	O.1	O Yes O No
12	saref:Motion	[1]	O.1	O Yes O No
13	saref:Occupancy	[1]	O.1	O Yes O No
14	saref:Power	[1]	O.1	O Yes O No
15	saref:Pressure	[1]	O.1	O Yes O No
16	saref:Price	[1]	O.1	O Yes O No
17	saref:Smoke	[1]	O.1	O Yes O No
18	saref:Temperature	[1]	O.1	O Yes O No
19	saref:Time	[1]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.6 SAREF Command Class Statement

This clause presents a list of Command classes specified in SAREF. Table A.5.6-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.6-1: SAREF Command Classes

Item	Resource Type	Reference	Condition	Support
1	saref:Command	[1]	C.1	O Yes O No
2	saref:Close command	[1]	O.1	O Yes O No
3	saref:Get command	[1]	O.1	O Yes O No
4	saref:Get current meter value command	[1]	O.1	O Yes O No
5	saref:Get meter data command	[1]	O.1	O Yes O No
6	saref:Get meter history command	[1]	O.1	O Yes O No
7	saref:Get sensing data command	[1]	O.1	O Yes O No
8	saref:Notify command	[1]	O.1	O Yes O No
9	saref:Off command	[1]	O.1	O Yes O No
10	saref:On command	[1]	O.1	O Yes O No
11	saref:Open command	[1]	O.1	O Yes O No
12	saref:Pause command	[1]	O.1	O Yes O No
13	saref:Set level command	[1]	O.1	O Yes O No
14	saref:Set absolute level command	[1]	O.1	O Yes O No
15	saref:Set relative level command	[1]	O.1	O Yes O No
16	saref:Start command	[1]	O.1	O Yes O No
17	saref:Step down command	[1]	O.1	O Yes O No
18	saref:Step up command	[1]	O.1	O Yes O No
19	saref:Stop command	[1]	O.1	O Yes O No
20	saref:Toggle command	[1]	O.1	O Yes O No
O.1: At least one shall be supported. C.1: If A.5.3-1 – 1 then M else O.1.				

A.5.7 SAREF Device Category Class Statement

This clause presents a list of Device Category classes specified in SAREF. Table A.5.7-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.7-1: oneM2M Device Category Classes

Item	Resource Type	Reference	Condition	Support
1	saref:Device category	[1]	O.1	O Yes O No
2	saref:Building related	[1]	O.1	O Yes O No
3	saref:Energy related	[1]	O.1	O Yes O No
4	saref:Generator	[1]	O.1	O Yes O No
5	saref:Load	[1]	O.1	O Yes O No
6	saref:Storage	[1]	O.1	O Yes O No
7	saref:Function related	[1]	O.1	O Yes O No
8	saref:Actuator	[1]	O.1	O Yes O No
9	saref:Appliance	[1]	O.1	O Yes O No
10	saref:HVAC	[1]	O.1	O Yes O No
11	saref:Lighting	[1]	O.1	O Yes O No
12	saref:Meter	[1]	O.1	O Yes O No
13	saref:Micro renewable	[1]	O.1	O Yes O No
14	saref:Multimedia	[1]	O.1	O Yes O No
15	saref:Network	[1]	O.1	O Yes O No
16	saref:Sensor	[1]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.8 SAREF State Class Statement

This clause presents a list of State classes specified in SAREF. Table A.5.8-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.8-1: SAREF State Classes

Item	Resource Type	Reference	Condition	Support
1	saref:State	[1]	O.1	O Yes O No
2	saref:Multi level state	[1]	O.1	O Yes O No
3	saref:On off state	[1]	O.1	O Yes O No
4	saref:Off state	[1]	O.1	O Yes O No
5	saref:On state	[1]	O.1	O Yes O No
6	saref:Open close state	[1]	O.1	O Yes O No
7	saref:Close state	[1]	O.1	O Yes O No
8	saref:Open state	[1]	O.1	O Yes O No
9	saref:Start stop state	[1]	O.1	O Yes O No
10	saref:Start state	[1]	O.1	O Yes O No
11	saref:Stop state	[1]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.9 SAREF Task Class Statement

This clause presents a list of Task classes specified in SAREF. Table A.5.9-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.9-1: SAREF Task Classes

Item	Resource Type	Reference	Condition	Support
1	saref:Task	[1]	O.1	O Yes O No
2	saref:Cleaning	[1]	O.1	O Yes O No
3	saref:Drying	[1]	O.1	O Yes O No
4	saref:Entertainment	[1]	O.1	O Yes O No
5	saref:Safety	[1]	O.1	O Yes O No
6	saref:Washing	[1]	O.1	O Yes O No
7	saref:Well being	[1]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.10 SAREF Unit of Measure Class Statement

This clause presents a list of Unit of Measure classes specified in SAREF. Table A.5.10-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.10-1: SAREF Unit of Measure Classes

Item	Resource Type	Reference	Condition	Support
1	Saref:Unit of measure	[1]	O.1	O Yes O No
2	time:TemporalUnit	[1]	O.1	O Yes O No
3	saref:Currency	[1]	O.1	O Yes O No
4	saref:Energy unit	[1]	O.1	O Yes O No
5	saref:Illuminance unit	[1]	O.1	O Yes O No
6	saref:Power unit	[1]	O.1	O Yes O No
7	saref:Pressure unit	[1]	O.1	O Yes O No
8	saref:Temperature unit	[1]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.11 SAREF Commodity Class Statement

This clause presents a list of Commodity classes specified in SAREF. Table A.5.11-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.11-1: SAREF Commodity Classes

Item	Resource Type	Reference	Condition	Support
1	saref:Commodity	[1]	O.1	O Yes O No
2	saref:coal	[1]	O.1	O Yes O No
3	saref:Electricity	[1]	O.1	O Yes O No
4	saref:Gas	[1]	O.1	O Yes O No
5	saref:Water	[1]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.12 SAREF Building Object Class Statement

This clause presents a list of Building Object classes specified in SAREF. Table A.5.12-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.12-1: SAREF Building Object Classes

Item	Resource Type	Reference	Condition	Support
1	saref:Building Object	[1]	O.1	O Yes O No
2	saref:Door	[1]	O.1	O Yes O No
3	saref:Window	[1]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.13 SAREF Building Space Class Statement

This clause presents a list of Building Space class specified in SAREF. Table A.5.13-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.13-1: SAREF Building Space Classes

Item	Resource Type	Reference	Condition	Support
1	saref:Building Space	[1]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.14 SAREF Profile Class Class Statement

This clause presents a list of Profile class specified in SAREF. Table A.5.14-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.14-1: SAREF Function Category Classes

Item	Resource Type	Reference	Condition	Support
1	saref:Profile	[1]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.15 SAREF Function Category Class Statement

This clause presents a list of Function Category classes specified in SAREF. Table A.5.15-1 shown as below can be used to check whether the IUT supports the listed Classes.

Table A.5.15-1: SAREF Profile Classes

Item	Resource Type	Reference	Condition	Support
1	saref:Function Category	[1]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.16 SAREF Object Properties Statement

This clause presents a list of Object Properties specified in SAREF. Table A.5.16-1 shown as below can be used to check whether the IUT supports the listed Object Properties.

Table A.5.16-1: SAREF Object Properties

Item	Resource Type	Reference	Condition	Support
1	saref:accomplishes	[1]	O.1	O Yes O No
2	saref:acts upon	[1]	O.1	O Yes O No
3	saref:consists of	[1]	O.1	O Yes O No
4	saref:contains	[1]	O.1	O Yes O No
5	saref:has category	[1]	O.1	O Yes O No
6	saref:has command	[1]	O.1	O Yes O No
7	saref:has consumption	[1]	O.1	O Yes O No
8	saref:has function	[1]	O.1	O Yes O No
9	saref:has input parameter	[1]	C.1	O Yes O No
10	saref:has meter reading	[1]	O.1	O Yes O No
11	saref:has meter reading time	[1]	O.1	O Yes O No
12	saref:has output parameter	[1]	C.1	O Yes O No
13	saref:has price	[1]	O.1	O Yes O No
14	saref:has production	[1]	O.1	O Yes O No
15	saref:has profile	[1]	O.1	O Yes O No
16	saref:has sensing range	[1]	O.1	O Yes O No
17	saref:has sensing time	[1]	O.1	O Yes O No
18	saref:has singular unit	[1]	O.1	O Yes O No
19	saref:has state	[1]	O.1	O Yes O No
20	saref:has threshold	[1]	O.1	O Yes O No
21	saref:has time	[1]	O.1	O Yes O No
22	saref:has typical consumption	[1]	O.1	O Yes O No
23	saref:is accomplished by	[1]	O.1	O Yes O No
24	saref:is category of	[1]	O.1	O Yes O No
25	saref:is command of	[1]	O.1	O Yes O No
26	saref:is located in	[1]	O.1	O Yes O No
27	saref:is measured in	[1]	O.1	O Yes O No
28	saref:is offered by	[1]	O.1	O Yes O No
29	saref:Is used for	[1]	O.1	O Yes O No
30	saref:offers	[1]	O.1	O Yes O No
31	saref:represents	[1]	O.1	O Yes O No
O.1: At least one shall be supported. C.1: If A.5.4-1 – 1 then M else O.1.				

A.5.17 SAREF Data Type Statement

This clause presents a list of Data Types specified in SAREF. Table A.5.17-1 shown as below can be used to check whether the IUT supports the listed Data Types.

Table A.5.17-1: SAREF Data types

Item	Resource Type	Reference	Condition	Support
1	saref:has description	[1]	O.1	O Yes O No
2	saref:has manufacturer	[1]	C.1	O Yes O No
3	saref:has meter reading type	[1]	O.1	O Yes O No
4	saref:has model	[1]	C.1	O Yes O No
5	saref:has name	[1]	O.1	O Yes O No
6	saref:has sensor type	[1]	O.1	O Yes O No
7	saref:has space type	[1]	O.1	O Yes O No
8	saref:has task	[1]	O.1	O Yes O No
9	saref:has value	[1]	O.1	O Yes O No
10	saref:is flexible	[1]	O.1	O Yes O No
11	saref:is interruption possible	[1]	O.1	O Yes O No
O.1: At least one shall be supported. C.1: If A.5.2-1 – 1 then M else O.1.				

A.5.18 oneM2M Operation Statement

This clause presents the class Operation specified in oneM2M base ontology. Table A.5.18-1 shown as below can be used to check whether the IUT supports the listed operation.

Table A.5.18-1: SAREF Data types

Item	Resource Type	Reference	Condition	Support
1	oneM2M:operation	[5]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.19 oneM2M Thing Statement

This clause presents the class Thing specified in oneM2M base ontology. Table A.5.19-1 shown as below can be used to check whether the IUT supports the listed Thing.

Table A.5.19-1: SAREF Data types

Item	Resource Type	Reference	Condition	Support
1	oneM2M:thing	[5]	O.1	O Yes O No
O.1: At least one shall be supported.				

A.5.20 oneM2M Aspect Statement

This clause presents the class Aspect specified in oneM2M base ontology. Table A.5.20-1 shown as below can be used to check whether the IUT supports the listed Aspect.

Table A.5.20-1: SAREF Data types

Item	Resource Type	Reference	Condition	Support
1	oneM2M:Aspect	[5]	O.1	O Yes O No
O.1: At least one shall be supported.				

History

Document history		
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