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STANDARDIZATION SECTOR
OF ITU

X.742

Amendment 1
(10/97)

SERIES X: DATA NETWORKS AND OPEN SYSTEM
COMMUNICATIONS

OSI management – Management functions and ODMA
functions

Information technology – Open Systems
Interconnection – Systems management: Usage
metering function for accounting purposes

**Amendment 1: Implementation conformance
statement proformas**

ITU-T Recommendation X.742 – Amendment 1

(Previously CCITT Recommendation)

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INTERNATIONAL STANDARD 10164-10

ITU-T RECOMMENDATION X.742

**INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION –
SYSTEMS MANAGEMENT: USAGE METERING FUNCTION
FOR ACCOUNTING PURPOSES**

AMENDMENT 1

Implementation conformance statement proformas

Source

The ITU-T Recommendation X.742, Amendment 1 was approved on the 24th of October 1997. The identical text is also published as ISO/IEC International Standard 10164-10.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, the ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

**INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION –
SYSTEMS MANAGEMENT: USAGE METERING FUNCTION
FOR ACCOUNTING PURPOSES**

AMENDMENT 1

Implementation conformance statement proformas

1) Subclause 2.1

Replace the existing reference X.724 by:

- ITU-T Recommendation X.724 (1996) | ISO/IEC 10165-6:1997, *Information technology – Open Systems Interconnection – Structure of management information: Requirements and guidelines for implementation conformance statement proformas associated with OSI management.*

2) Subclause 2.2

Add the following references:

- ITU-T Recommendation X.290 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – General concepts.*
ISO/IEC 9646-1:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts.*
- ITU-T Recommendation X.291 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Abstract test suite specification.*
ISO/IEC 9646-2:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 2: Abstract Test Suite specification.*
- ITU-T Recommendation X.296 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Implementation conformance statements.*
ISO/IEC 9646-7:1995, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 7: Implementation Conformance Statements.*

3) New subclause 3.7

Add a new subclause 3.7 and renumber the existing subclause 3.7 to 3.8:

3.7 OSI Conformance testing definitions

This Recommendation | International Standard makes use of the following terms defined in ITU-T Rec. X.290 | ISO/IEC 9646-1:

- a) PICS proform;
- b) protocol implementation conformance statement;
- c) system conformance statement.

4) Clause 4

Insert the following abbreviations by alphabetical order:

ICS	Implementation Conformance Statement
MCS	Management Conformance Summary
MICS	Management Information Conformance Statement
MIDS	Management Information Definition Statement
MOCS	Managed Object Conformance Statement
MRCS	Managed Relationship Conformance Statement
PICS	Protocol Implementation Conformance Statement

5) New Annexes B, C, D and F

Add the following annexes:

Annex B¹⁾

MCS proforma

(This annex forms an integral part of this Recommendation | International Standard)

B.1 Introduction

B.1.1 Purpose and structure

The Management Conformance Summary (MCS) is a statement by a supplier that identifies an implementation and provides information on whether the implementation claims conformance to any of the listed set of documents that specify conformance requirements to OSI management.

The MCS proforma is a document, in the form of a questionnaire that when completed by the supplier of an implementation becomes the MCS.

B.1.2 Instructions for completing the MCS proforma to produce an MCS

The supplier of the implementation shall enter an explicit statement in each of the boxes provided. Specific instruction is provided in the text which precedes each table.

B.1.3 Symbols, abbreviations and terms

For all annexes of this Recommendation | International Standard, the following common notations, defined in CCITT Rec. X.291 | ISO/IEC 9646-2 and ITU-T Rec. X.296 | ISO/IEC 9646-7 are used for the Status column:

- m Mandatory;
- o Optional;
- c Conditional;
- x Prohibited;
- Not applicable or out of scope.

NOTE 1 – 'c', 'm', and 'o' are prefixed by a 'c:' when nested under a conditional or optional item of the same table;

NOTE 2 – 'o' may be suffixed by '.N' (where N is a unique number) for mutually exclusive or selectable options among a set of status values. Support of at least one of the choices (from the items with the same values of N) is required.

For all annexes of this Recommendation | International Standard, the following common notations, defined in CCITT Rec. X.291 | ISO/IEC 9646-2 and ITU-T Rec. X.296 | ISO/IEC 9646-7 are used for the Support column:

- Y Implemented;
- N Not implemented;
- No answer required;
- Ig The item is ignored (i.e. processed syntactically but not semantically).

B.1.4 Table format

Some of the tables in this Recommendation | International Standard have been split because the information is too wide to fit on the page. Where this occurs, the index number of the first block of columns are the index numbers of the corresponding rows of the remaining blocks of columns. A complete table reconstructed from the constituent parts should have the following layout:

Index	First block of columns	Second block of columns	Etc.
-------	------------------------	-------------------------	------

1) Copyright release for MCS proforma

Users of this Recommendation | International Standard may freely reproduce the MCS proforma in this annex so that it can be used for its intended purpose, and may further publish the completed MCS. Instructions for completing the MCS proforma are specified in ITU-T Rec. X.724 | ISO/IEC 10165-6.

In this Recommendation | International Standard the constituent parts of the table appear consecutively, starting with the first block of columns.

When a table with subrows is too wide to fit on a page, the continuation tables(s) have been constructed with index numbers identical to the index numbers in the corresponding rows of the first table, and with subindex numbers corresponding to the subrows within each indexed row. For example, if Table X.1 has 2 rows and the continuation of Table X.1 has 2 subrows for each row, the tables are presented as follows:

Table X.1 – Title

					Support		
Index	A	B	C	D	E	F	G
1	a	b	–				
2	a	b	–				

Table X.1 (continued)

Index	Subindex	H	I	J	K	L
1	1.1	h	i	j		
	1.2	h	i	j		
2	2.1	h	i	j		
	2.2	h	i	j		

A complete table reconstructed from the constituent parts should have the following layout:

								Support					
Index	A	B	C	D	E	F	G	Subindex	H	I	J	K	L
1	a	b	–					1.1	h	i	j		
								1.2	h	i	j		
2	a	b	–					2.1	h	i	j		
								2.2	h	i	j		

References made to cells within tables shall be interpreted as references within reconstructed tables. In the example, above, the reference X.1/1d corresponds with the blank cell in the column G for row with Index 1, and X.1/1.2b corresponds to the blank cell in column L for row with Subindex 1.2

B.2 Identification of the implementation

B.2.1 Date of statement

The supplier of the implementation shall enter the date of this statement in the box below. Use the format DD-MM-YYYY.

Date of statement

B.2.2 Identification of the implementation

The supplier of the implementation shall enter information necessary to uniquely identify the implementation and the system(s) in which it may reside, in the box below.

--

B.2.3 Contact

The supplier of the implementation shall provide information on whom to contact if there are any queries concerning the content of the MCS, in the box below.

--

B.3 Identification of the Recommendation | International Standard in which the management information is defined

The supplier of the implementation shall enter the title, reference number and date of the publication of the Recommendation | International Standard which specifies the management information to which conformance is claimed, in the box below.

Recommendation International Standard to which conformance is claimed

B.3.1 Technical corrigenda implemented

The supplier of the implementation shall enter the reference numbers of implemented technical corrigenda which modify the identified Recommendation | International Standard, in the box below.

--

B.3.2 Amendments implemented

The supplier of the implementation shall state the titles and reference numbers of implemented amendments to the identified Recommendation | International Standard, in the box below.

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B.4 Management conformance summary

The supplier of implementation shall state the capabilities and features supported and provide summary of conformance claims to Recommendations | International Standards using the tables in this annex.

The supplier of the implementation shall specify the roles that are supported, in Table B.1.

Table B.1 – Roles

Index	Roles supported	Status	Support	Additional information
1	Manager role support	o.1		
2	Agent role support	o.1		

The supplier of the implementation shall specify support for management information in the manager role, in Table B.2.

Table B.2 – Manager role minimum conformance requirement

Index	Item	Status	Support	Additional information
1	Operations on managed objects	c1		
2	Object creation notification from at least one usage metering managed object	c1		
3	Object deletion notification from at least one usage metering managed object	c1		
4	Attribute value change notification from at least one usage metering managed object	c1		
5	State change notification from at least usage metering managed object	c1		
6	Resume metering action to usage metering control object managed object	c1		
7	Start metering action to usage metering control object managed object	c1		
8	Suspend metering action to usage metering control object managed object	c1		
9	Metering resumed notification from usage metering control object managed object	c1		
10	Metering started notification from usage metering control object managed object	c1		
11	Metering suspended notification from usage metering control object managed object	c1		
12	Usage report notification from usage metering data object managed object	c1		
c1: if B.1/1a then o.2 else –				

The supplier of the implementation shall specify support for management information in the agent role, in Table B.3.

Table B.3 – Agent role minimum conformance requirement

Index	Item	Status	Support	Additional information
1	Usage metering control object object class	c2		
2	Usage metering data object object class	c2		
3	Usage metering record object class	c2		
c2: if B.1/2a then o.3 else –				

Table B.4 – Logging of event records

Index	Item	Status	Support	Additional information
1	Does the implementation support logging of event records in agent role?	c3		
c3: if B.1/2a then o.3 else –				

NOTE – Conformance to this Recommendation | International Standard does not require conformance to CCITT Rec. X.735 | ISO/IEC 10164-6.

The supplier of the implementation shall provide information on claims of conformance to any of the Recommendation | International Standards summarized in Tables B.5 to B.8. For each Recommendation | International Standard that the supplier of the implementation claims conformance to, the corresponding conformance statement(s) shall be completed, or referenced by, the MCS. The supplier of the implementation shall complete the Support, Table numbers and Additional information columns.

In Tables B.6 to B.8, the Status column is used to indicate whether the supplier of the implementation is required to complete the referenced tables or referenced items. Conformance requirements are as specified in the referenced tables or referenced items and are not changed by the value of the MCS Status column. Similarly, the Support column is used by the supplier of the implementation to indicate completion of the referenced tables or referenced items.

Table B.5 – PICS support summary

Index	Identification of the document that includes the PICS proforma	Table numbers of PICS proforma	Description	Constraints and values	Status	Support	Table numbers of PICS	Additional information
1	CCITT Rec. X.730 ISO/IEC 10164-1	Annex E all tables	SM application context		o			

Table B.6 – MOCS support summary

Index	Identification of the document that includes the MOCS proforma	Table numbers of MOCS proforma	Description	Constraints and values	Status	Support	Table numbers of MOCS	Additional information
1	CCITT Rec. X.730 ISO/IEC 10164-1	Annex C	objectCreation and objectDeletion records	–	c4			
2	CCITT Rec. X.730 ISO/IEC 10164-1	Annex C	attribute valueChange record	–	c5			
3	CCITT Rec. X.731 ISO/IEC 10164-2	Annex C all tables	stateChangeRecord	–	c5			
4	ITU-T Rec. X.742 ISO/IEC 10164-10	Annex D.4	usageMetering ControlObject	–	c6			
5	ITU-T Rec. X.742 ISO/IEC 10164-10	Annex D.5	usageMetering DataObject	–	c7			
6	ITU-T Rec. X.742 ISO/IEC 10164-10	Annex D.6	usageMeteringRecord	–	c8			
c4: if (B.3/1a or B.3/2a) and B.4/1a then m else – c5: if B.3/1a and B.4/1a then m else – c6: if B.3/1a then m else – c7: if B.3/2a then m else – c8: if (B.3/1a or B.3/3a) and B.4/1a then m else –								

Table B.7 – MRCS support summary

Index	Identification of the document that includes the MRCS proforma	Table numbers of MRCS proforma	Description	Constraints and values	Status	Support	Table numbers of MRCS	Additional information
1	ITU-T Rec. X.742 ISO/IEC 10164-10	Annex F all tables	usageMeter Control-system	–	c9			
2	CCITT Rec. X.735 ISO/IEC 10164-6	Annex D Item D.1/1	logRecord-log	–	c10			
c9: if B.3/1a then o else – c10: if B.3/3a then o else –								

Table B.8 – MICS support summary

Index	Identification of the document that includes the MRCS proforma	Table numbers of MICS proforma	Description	Constraints and values	Status	Support	Table numbers of MICS	Additional information
1	ITU-T Rec. X.742 ISO/IEC 10164-10	Tables C.1 and C.4	management operations	–	c11			
2	ITU-T Rec. X.742 ISO/IEC 10164-10	Table C.5	attributeValueChange, objectCreation, objectDeletion meteringResumed, meteringStarted, meteringSuspended, and usageReport notifications	–	c12			
4	ITU-T Rec. X.742 ISO/IEC 10164-10	Table C.6	resumeMetering, startMetering and suspendMetering actions	–	c13			
c11: if B.2/1a then m else – c12: if B.2/2a or B.2/3a or B.2/4a or B.2/5a or B.2/9a or B.2/10a or B.2/11a or B.2/12a then m else – c13: if B.2/6a or B.2/7a or B.2/8a then m else –								

Annex C²⁾**MICS proforma**

(This annex forms an integral part of this Recommendation | International Standard)

C.1 Introduction

The purpose of this MICS proforma is to provide a mechanism for a supplier of an implementation which claims conformance, in the manager role, to management information specified in this Recommendation | International Standard, to provide conformance information in a standard form.

C.2 Instructions for completing the MICS proforma to produce a MICS

The MICS proforma contained in this annex is comprised of information in tabular form, in accordance with ITU-T Rec. X.724 | ISO/IEC 10165-6. In addition to the general guidance given in ITU-T Rec. X.724 | ISO/IEC 10165-6, the Additional information column shall be used to identify the object classes for which the management operations are supported. The supplier of the implementation shall state which items are supported in tables below and if necessary, provide additional information.

C.3 Symbols, abbreviations and terms

The following abbreviations are used throughout the MICS proforma:

smi2AttributeId	{joint-iso-itu-t ms(9) smi(3) part2(2) attribute(7)}
smi2Notification	{joint-iso-itu-t ms(9) smi(3) part2(2) notification(10)}
smi2Package	{joint-iso-itu-t ms(9) smi(3) part2(2) package(4)}
umf-act	{joint-iso-itu-t ms(9) function(2) part10(10) action(9)}
umf-att	{joint-iso-itu-t ms(9) function(2) part10(10) attribute(7)}
umf-mo	{joint-iso-itu-t ms(9) function(2) part10(10) managedObjectClass(3)}
umf-not	{joint-iso-itu-t ms(9) function(2) part10(10) notification(10)}
umf-par	{joint-iso-itu-t ms(9) function(2) part10(10) parameter(5)}
umf-pkg	{joint-iso-itu-t ms(9) function(2) part10(10) package(4)}

The notations used for the Status and Support columns are specified in B.1.3.

C.4 Statement of conformance to the management information**C.4.1 Attributes**

The specifier of a manager role implementation that claims to support management operations on the attributes specified in this Recommendation | International Standard shall import a copy of the following tables and complete them.

²⁾ **Copyright release for MICS proforma**

Users of this Recommendation | International Standard may freely reproduce the MICS proforma in this annex so that it can be used for its intended purpose, and may further publish the completed MICS. Instructions for completing the MICS proforma are specified in ITU-T Rec. X.724 | ISO/IEC 10165-6.

Table C.1 – Attribute support

Index	Attribute template label	Value of object identifier for attribute	Constraints and values	Set by create		Get		Replace	
				Status	Support	Status	Support	Status	Support
1	accountableObjectReference	{umf-att 1}	d	–		o.1		–	
2	accountableObjectsReferenceList	{umf-att 2}		c1		o.1		–	
3	additionalInformation	{smi2AttributeID 6}		–		o.1		–	
4	additionalText	{smi2AttributeID 7}		–		o.1		–	
5	allomorphs	{smi2AttributeID 50}		–		o.1		–	
6	auditInfo	{umf-att 4}		–		o.1		–	
7	controlObjectId	{umf-att 5}		–		o.1		–	
8	controlStatus	{smi2AttributeID 34}		–		o.1		–	
9	correlatedNotifications	{smi2AttributeID 12}		–		o.1		–	
10	dataErrors	{umf-att 8}		–		o.1		–	
11	dataObjectId	{umf-att 6}		–		o.1		–	
12	dataObjectsReferenceList	{umf-att 7}		c1		o.1		–	
13	eventTime	{smi2AttributeID 13}		–		o.1		–	
14	eventType	{smi2AttributeID 14}		–		o.1		–	
15	loggingTime	{smi2AttributeID 59}		–		o.1		–	
16	logRecordId	{smi2AttributeID 3}		–		o.1		–	
17	managedObjectClass	{smi2AttributeID 60}		–		o.1		–	
18	managedObjectInstance	{smi2AttributeID 61}		–		o.1		–	
19	nameBinding	{smi2AttributeID 63}		–		o.1		–	
20	notificationIdentifier	{smi2AttributeID 16}		–		o.1		–	
21	objectClass	{smi2AttributeID 65}		–		o.1		–	
22	operationalState	{smi2AttributeID 35}		–		o.1		–	
23	packages	{smi2AttributeID 66}		–		o.1		–	
24	proceduralStatus	{smi2AttributeID 36}		–		o.1		–	
25	providerId	{umf-att 10}		–		o.1		–	
26	reportingTriggers	{umf-att 11}		c1		o.1		o.1	
27	usageInfo	{umf-att 12}		–		o.1		–	
c1: if C.2/1a then o.1 else –									

Table C.1 (concluded)

Index	Add		Remove		Set to default		Additional information
	Status	Support	Status	Support	Status	Support	
1	–		–		–		
2	–		–		–		
3	–		–		–		
4	–		–		–		
5	–		–		–		
6	–		–		–		
7	–		–		–		
8	–		–		–		
9	–		–		–		
10	–		–		–		
11	–		–		–		
12	–		–		–		
13	–		–		–		
14	–		–		–		
15	–		–		–		
16	–		–		–		
17	–		–		–		
18	–		–		–		
19	–		–		–		
20	–		–		–		
21	–		–		–		
22	–		–		–		
23	–		–		–		
24	–		–		–		
25	o.1		o.1		–		
26	–		–		–		

C.5 Create and delete management operations

The specifier of a manager role implementation that claims to support the create or delete management operations on the managed objects specified in this Recommendation | International Standard shall import a copy of the following tables and complete them.

C.5.1 Usage metering control object managed object class

Table C.2 – Create and delete support

Index	Operation	Constraints and values	Status	Support	Additional information
1	Create support	usageMeteringControlObject	o.4		
1.1	Create with reference object	–	c:0		
2	Delete support	–	o.4		

C.5.2 Usage metering data object managed object class**Table C.3 – Create and delete support**

Index	Operation	Constraints and values	Status	Support	Additional information
1	Create support	usageMeteringDataObject	o.4		
1.1	Create with reference object	–	c:o		
2	Delete support	–	o.4		

C.5.3 Usage metering record managed object classes**Table C.4 – Create and delete support**

Index	Operation	Constraints and values	Status	Support	Additional information
1	Create support	–	x		
1.1	Create with reference object	–	–		
2	Delete support	usageMeteringRecord	o.4		

C.6 Notifications

The specifier of a manager role implementation that claims to support notifications specified in this Recommendation | International Standard shall import a copy of Table C.5 and complete it.

Table C.5 – Notification support

					Support		Additional information
Index	Notification type template label	Value of object identifier for notification type	Constraints and values	Status	Confirmed	Non-confirmed	
1	attributeValueChange	{smi2Notification 1}		c2			
2	meteringResumed	{umf-not 2}		c3			
3	meteringStarted	{umf-not 3}		c4			
4	meteringSuspended	{umf-not 4}		c5			
5	objectCreation	{smi2Notification 6}		c6			
6	objectDeletion	{smi2Notification 7}		c7			
7	stateChange	{smi2Notification 14}		c8			
7	usageReport	{umf-not 1}		c9			
c2: if B.2/4a then o.1 else – c3: if B.2/9a then o.1 else – c4: if B.2/10a then o.1 else – c5: if B.2/11a then o.1 else – c6: if B.2/2a then o.1 else – c7: if B.2/3a then o.1 else – c8: if B.2/5a then o.1 else – c9: if B.2/512a then o.1 else –							

Table C.5 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
1	1.1	additionalInformation	{smi2AttributeID 6}		o		
	1.1.1	identifier	–		c:m		
	1.1.2	significance	–		c:m		
	1.1.3	information	–		c:m		
	1.2	additionalText	{smi2AttributeID 7}		o		
	1.3	attributeIdentifierList	{smi2AttributeID 8}		o		
	1.3.1	globalForm	–		c:o.1		
	1.3.2	localForm	–		c:o.1		
	1.4	attributeValueChangeDefinition	{smi2AttributeID 10}		m		
	1.4.1	attributeID	–		m		
	1.4.1.1	globalForm	–		c:o.2		
	1.4.1.2	localForm	–		c:o.2		
	1.4.2	oldAttributeValue	–		o		
	1.4.3	newAttributeValue	–		m		
	1.5	correlatedNotifications	{smi2AttributeID 12}		o		
	1.5.1	correlatedNotifications	–		c:m		
	1.5.2	sourceObjectInst	–		c:o		
	1.5.2.1	distinguishedName	–		c:o.3		
	1.5.2.1.1	AttributeType	–		c:m		
	1.5.2.1.2	AttributeValue	–		c:m		
	1.5.2.2	nonSpecificForm	–		c:o.3		
	1.5.2.3	localDistinguishedName	–		c:o.3		
	1.5.2.3.1	AttributeType	–		c:m		
	1.5.2.3.2	AttributeValue	–		c:m		
	1.6	notificationIdentifier	{smi2AttributeID 16}		o		
	1.7	sourceIndicator	{smi2AttributeID 26}		o		
2	2.1	actionResponse	{umf-att 3}		c:m		
	2.1.1	success	–		c:o		
	2.1.1.1	distinguishedName	–		c:o.4		
	2.1.1.1.1	AttributeType	–		c:m		
	2.1.1.1.2	AttributeValue	–		c:m		
	2.1.1.2	nonSpecificForm	–		c:o.4		
	2.1.1.3	localDistinguishedName	–		c:o.4		
	2.1.1.3.1	AttributeType	–		c:m		
	2.1.1.3.2	AttributeValue	–		c:m		
	2.1.2	failed	–		c:o		
	2.1.2.1	distinguishedName	–		c:o.5		
	2.1.2.1.1	AttributeType	–		c:m		
	2.1.2.1.2	AttributeValue	–		c:m		

Table C.5 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	2.1.2.2	nonSpecificForm	–		c:o.5		
	2.1.2.3	localDistinguishedName	–		c:o.5		
	2.1.2.3.1	AttributeType	–		c:m		
	2.1.2.3.2	AttributeValue	–		c:m		
	2.1.3	indeterminate	–		c:o		
	2.1.3.1	distinguishedName	–		c:o.6		
	2.1.3.1.1	AttributeType	–		c:m		
	2.1.3.1.2	AttributeValue	–		c:m		
	2.1.3.2	nonSpecificForm	–		c:o.6		
	2.1.3.3	localDistinguishedName	–		c:o.6		
	2.1.3.3.1	AttributeType	–		c:m		
	2.1.3.3.2	AttributeValue	–		c:m		
	2.2	dataObjectsReferenceList	{umf-att 7}		c:m		
	2.2.1	distinguishedName	–		c:o.7		
	2.2.1.1	AttributeType	–		c:m		
	2.2.1.2	AttributeValue	–		c:m		
	2.2.2	nonSpecificForm	–		c:o.7		
	2.2.3	localDistinguishedName	–		c:o.7		
	2.2.3.1	AttributeType	–		c:m		
	2.2.3.2	AttributeValue	–		c:m		
	2.3	reportingTriggers	{umf-att 11}		c:o		
	2.3.1	periodic	–		c:o.8		
	2.3.1.1	days	–		c:o.9		
	2.3.1.2	hours	–		c:o.9		
	2.3.1.3	minutes	–		c:o.9		
	2.3.1.4	seconds	–		c:o.9		
	2.3.1.5	milliSeconds	–		c:o.9		
	2.3.1.6	microSeconds	–		c:o.9		
	2.3.1.7	nanoSeconds	–		c:o.9		
	2.3.1.8	picoSeconds	–		c:o.9		
	2.3.2	induced	–		c:o.8		
	2.3.3	event	–		c:o.8		
	2.3.4	stimulus	–		c:o.8		
3	3.1	actionResponse	{umf-att 3}		c:m		
	3.1.1	success	–		c:o		
	3.1.1.1	distinguishedName	–		c:o.10		
	3.1.1.1.1	AttributeType	–		c:m		
	3.1.1.1.2	AttributeValue	–		c:m		

Table C.5 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	3.1.1.2	nonSpecificForm	–		c:o.10		
	3.1.1.3	localDistinguishedName	–		c:o.10		
	3.1.1.3.1	AttributeType	–		c:m		
	3.1.1.3.2	AttributeValue	–		c:m		
	3.1.2	failed	–		c:o		
	3.1.2.1	distinguishedName	–		c:o.11		
	3.1.2.1.1	AttributeType	–		c:m		
	3.1.2.1.2	AttributeValue	–		c:m		
	3.1.2.2	nonSpecificForm	–		c:o.11		
	3.1.2.3	localDistinguishedName	–		c:o.11		
	3.1.2.3.1	AttributeType	–		c:m		
	3.1.2.3.2	AttributeValue	–		c:m		
	3.1.3	indeterminate	–		c:o		
	3.1.3.1	distinguishedName	–		c:o.12		
	3.1.3.1.1	AttributeType	–		c:m		
	3.1.3.1.2	AttributeValue	–		c:m		
	3.1.3.2	nonSpecificForm	–		c:o.12		
	3.1.3.3	localDistinguishedName	–		c:o.12		
	3.1.3.3.1	AttributeType	–		c:m		
	3.1.3.3.2	AttributeValue	–		c:m		
	3.2	dataObjectsReferenceList	{umf-att 7}		c:m		
	3.2.1	distinguishedName	–		c:o.13		
	3.2.1.1	AttributeType	–		c:m		
	3.2.1.2	AttributeValue	–		c:m		
	3.2.2	nonSpecificForm	–		c:o.13		
	3.2.3	localDistinguishedName	–		c:o.13		
	3.2.3.1	AttributeType	–		c:m		
	3.2.3.2	AttributeValue	–		c:m		
	3.3	reportingTriggers	{umf-att 11}		c:o		
	3.3.1	periodic	–		c:o.14		
	3.3.1.1	days	–		c:o.15		
	3.3.1.2	hours	–		c:o.15		
	3.3.1.3	minutes	–		c:o.15		
	3.3.1.4	seconds	–		c:o.15		
	3.3.1.5	milliSeconds	–		c:o.15		
	3.3.1.6	microSeconds	–		c:o.15		
	3.3.1.7	nanoSeconds	–		c:o.15		
	3.3.1.8	picoSeconds	–		c:o.15		

Table C.5 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	3.3.2	induced	—		c:o.14		
	3.3.3	event	—		c:o.14		
	3.3.4	stimulus	—		c:o.14		
4	4.1	actionResponse	{umf-att 3}		c:m		
	4.1.1	success	—		c:o		
	4.1.1.1	distinguishedName	—		c:o.16		
	4.1.1.1.1	AttributeType	—		c:m		
	4.1.1.1.2	AttributeValue	—		c:m		
	4.1.1.2	nonSpecificForm	—		c:o.16		
	4.1.1.3	localDistinguishedName	—		c:o.16		
	4.1.1.3.1	AttributeType	—		c:m		
	4.1.1.3.2	AttributeValue	—		c:m		
	4.1.2	failed	—		c:o		
	4.1.2.1	distinguishedName	—		c:o.17		
	4.1.2.1.1	AttributeType	—		c:m		
	4.1.2.1.2	AttributeValue	—		c:m		
	4.1.2.2	nonSpecificForm	—		c:o.17		
	4.1.2.3	localDistinguishedName	—		c:o.17		
	4.1.2.3.1	AttributeType	—		c:m		
	4.1.2.3.2	AttributeValue	—		c:m		
	4.1.3	indeterminate	—		c:o		
	4.1.3.1	distinguishedName	—		c:o.18		
	4.1.3.1.1	AttributeType	—		c:m		
	4.1.3.1.2	AttributeValue	—		c:m		
	4.1.3.2	nonSpecificForm	—		c:o.18		
	4.1.3.3	localDistinguishedName	—		c:o.18		
	4.1.3.3.1	AttributeType	—		c:m		
	4.1.3.3.2	AttributeValue	—		c:m		
	4.2	dataObjectsReferenceList	{umf-att 7}		c:m		
	4.2.1	distinguishedName	—		c:o.19		
	4.2.1.1	AttributeType	—		c:m		
	4.2.1.2	AttributeValue	—		c:m		
	4.2.2	nonSpecificForm	—		c:o.19		
	4.2.3	localDistinguishedName	—		c:o.19		
	4.2.3.1	AttributeType	—		c:m		
	4.2.3.2	AttributeValue	—		c:m		
	4.3	reportingTriggers	{umf-att 11}		c:o		
	4.3.1	periodic	—		c:o.20		

Table C.5 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	4.3.1.1	days	–		c:o.21		
	4.3.1.2	hours	–		c:o.21		
	4.3.1.3	minutes	–		c:o.21		
	4.3.1.4	seconds	–		c:o.21		
	4.3.1.5	milliSeconds	–		c:o.21		
	4.3.1.6	microSeconds	–		c:o.21		
	4.3.1.7	nanoSeconds	–		c:o.21		
	4.3.1.8	picoSeconds	–		c:o.21		
	4.3.2	induced	–		c:o.20		
	4.3.3	event	–		c:o.20		
	4.3.4	stimulus	–		c:o.20		
5	5.1	additionalInformation	{smi2AttributeID 6}		o		
	5.1.1	identifier	–		c:m		
	5.1.2	significance	–		c:m		
	5.1.3	information	–		c:m		
	5.2	additionalText	{smi2AttributeID 7}		o		
	5.3	attributeList	{smi2AttributeID 9}		o		
	5.3.1	attributeId	–		c:m		
	5.3.1.1	globalForm	–		c:o.22		
	5.3.1.2	localForm	–		c:o.22		
	5.3.2	attributeValue	–		c:m		
	5.4	correlatedNotifications	{smi2AttributeID 12}		o		
	5.4.1	correlatedNotifications	–		c:m		
	5.4.2	sourceObjectInst	–		c:o		
	5.4.2.1	distinguishedName	–		c:o.23		
	5.4.2.1.1	AttributeType	–		c:m		
	5.4.2.1.2	AttributeValue	–		c:m		
	5.4.2.2	nonSpecificForm	–		c:o.23		
	5.4.2.3	localDistinguishedName	–		c:o.23		
	5.4.2.3.1	AttributeType	–		c:m		
	5.4.2.3.2	AttributeValue	–		c:m		
	5.5	notificationIdentifier	{smi2AttributeID 16}		o		
	5.6	sourceIndicator	{smi2AttributeID 26}		o		
6	6.1	additionalInformation	{smi2AttributeID 6}		o		
	6.1.1	identifier	–		c:m		
	6.1.2	significance	–		c:m		
	6.1.3	information	–		c:m		
	6.2	additionalText	{smi2AttributeID 7}		o		

Table C.5 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	6.3	attributeList	{smi2AttributeID 9}		o		
	6.3.1	attributeId	—		c:m		
	6.3.1.1	globalForm	—		c:o.24		
	6.3.1.2	localForm	—		c:o.24		
	6.3.2	attributeValue	—		c:m		
	6.4	correlatedNotifications	{smi2AttributeID 12}		o		
	6.4.1	correlatedNotifications	—		c:m		
	6.4.2	sourceObjectInst	—		c:o		
	6.4.2.1	distinguishedName	—		c:o.25		
	6.4.2.1.1	AttributeType	—		c:m		
	6.4.2.1.2	AttributeValue	—		c:m		
	6.4.2.2	nonSpecificForm	—		c:o.25		
	6.4.2.3	localDistinguishedName	—		c:o.25		
	6.4.2.3.1	AttributeType	—		c:m		
	6.4.2.3.2	AttributeValue	—		c:m		
	6.5	notificationIdentifier	{smi2AttributeID 16}		o		
	6.6	sourceIndicator	{smi2AttributeID 26}		o		
7	7.1	additionalInformation	{smi2AttributeID 6}		o		
	7.1.1	identifier	—		c:m		
	7.1.2	significance	—		c:m		
	7.1.3	information	—		c:m		
	7.2	additionalText	{smi2AttributeID 7}		o		
	7.3	attributeIdentifierList	{smi2AttributeID 8}		o		
	7.3.1	globalForm	—		c:o.26		
	7.3.2	localForm	—		c:o.26		
	7.4	correlatedNotifications	{smi2AttributeID 12}		o		
	7.4.1	correlatedNotifications	—		c:m		
	7.4.2	sourceObjectInst	—		c:o		
	7.4.2.1	distinguishedName	—		c:o.27		
	7.4.2.1.1	AttributeType	—		c:m		
	7.4.2.1.2	AttributeValue	—		c:m		
	7.4.2.2	nonSpecificForm	—		c:o.27		
	7.4.2.3	localDistinguishedName	—		c:o.27		
	7.4.2.3.1	AttributeType	—		c:m		
	7.4.2.3.2	AttributeValue	—		c:m		
	7.5	notificationIdentifier	{smi2AttributeID 16}		o		
	7.6	sourceIndicator	{smi2AttributeID 26}		o		

Table C.5 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	7.7	stateChangeDefinition	{smi2AttributeID 28}		m		
	7.7.1	attributeID	—		m		
	7.7.1.1	globalForm	—		c:o.28		
	7.7.1.2	localForm	—		c:o.28		
	7.7.2	oldAttributeValue	—		o		
	7.7.3	newAttributeValue	—		m		
8	8.1	accountableObjectReference	{umf-att 1}		m		
	8.1.1	distinguishedName	—		c:o.5		
	8.1.1.1	AttributeType	—		c:m		
	8.1.1.2	AttributeValue	—		c:m		
	8.1.2	nonSpecificForm	—		c:o.5		
	8.1.3	localDistinguishedName	—		c:o.5		
	8.1.3.1	AttributeType	—		c:m		
	8.1.3.2	AttributeValue	—		c:m		
	8.2	auditInfo	{umf-att 4}		o		
	8.2.1	service	—		c:m		
	8.2.2	auditDetails	—		c:m		
	8.3	dataErrors	{umf-att 8}		m		
	8.3.1	possibleErrors	—		c:o.6		
	8.3.2	noProblem	—		c:o.6		
	8.4	notificationCause	{umf-att 9}		m		
	8.4.1	periodic	—		c:o.7		
	8.4.1.1	days	—		c:o.8		
	8.4.1.2	hours	—		c:o.8		
	8.4.1.3	minutes	—		c:o.8		
	8.4.1.4	seconds	—		c:o.8		
	8.4.1.5	milliSeconds	—		c:o.8		
	8.4.1.6	microSeconds	—		c:o.8		
	8.4.1.7	nanoSeconds	—		c:o.8		
	8.4.1.8	picoSeconds	—		c:o.8		
	8.4.2	induced	—		c:o.7		
	8.4.3	event	—		c:o.7		
	8.4.4	stimulus	—		c:o.7		
	8.5	providerId	{umf-att 10}		o		
	8.5.1	objectReference	—		c:o.9		
	8.5.1.1	distinguishedName	—		c:o.10		
	8.5.1.1.1	AttributeType	—		c:m		
	8.5.1.1.2	AttributeValue	—		c:m		

Table C.5 (concluded)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	8.5.1.2	nonSpecificForm	–		c:o.10		
	8.5.1.3	localDistinguishedName	–		c:o.10		
	8.5.1.3.1	AttributeType	–		c:m		
	8.5.1.3.2	AttributeValue	–		c:m		
	8.5.2	textualName	–		c:o.9		
	8.5.3	serviceSpecific	–		c:o.9		
	8.5.3.1	service	–		c:m		
	8.5.3.2	serviceSpecificId	–		c:m		
	8.5.4	unknown	–		c:o.9		
	8.6	usageInfo	{umf-att 12}		m		
	8.6.1	serviceType	–		m		
	8.6.2	usageData	–		m		

C.7 Actions

The specifier of a manager role implementation that claims to support actions specified in this Recommendation | International Standard shall import a copy of Table C.6 and complete it.

Table C.6 – Action support

Index	Action type template label	Value of object identifier for action type	Constraints and values	Status	Support	Additional information
1	resumeMetering	{umf-act 1}		c1		
2	startMetering	{umf-act 2}		c2		
3	suspendMetering	{umf-act 3}		c3		
c1: if B.2/6a then o.1 else – c2: if B.2/7a then o.1 else – c3: if B.2/8a then o.1 else –						

Table C.6 (continued)

Index	Subindex	Action field name label	Constraints and values	Status	Support	Additional information
1	1.1	ActionArgument		c1		
	1.1.1	selectedObjects		c:o.1		
	1.1.1.1	distinguishedName		c:o.2		
	1.1.1.1.1	AttributeType		c:m		
	1.1.1.1.2	AttributeValue		c:m		
	1.1.1.2	nonSpecificForm		c:o.2		
	1.1.1.3	localDistinguishedName		c:o.2		
	1.1.1.3.1	AttributeType		c:m		
	1.1.1.3.2	AttributeValue		c:m		
	1.1.2	allObjects		c:o.1		

Table C.6 (continued)

Index	Subindex	Action field name label	Constraints and values	Status	Support	Additional information
	1.2	ActionResponse		c1		
	1.2.1	success		c:o		
	1.2.1.1	distinguishedName		c:o.3		
	1.2.1.1.1	AttributeType		c:m		
	1.2.1.1.2	AttributeValue		c:m		
	1.2.1.2	nonSpecificForm		c:o.3		
	1.2.1.3	localDistinguishedName		c:o.3		
	1.2.1.3.1	AttributeType		c:m		
	1.2.1.3.2	AttributeValue		c:m		
	1.2.2	failed		c:o		
	1.2.2.1	distinguishedName		c:o.4		
	1.2.2.1.1	AttributeType		c:m		
	1.2.2.1.2	AttributeValue		c:m		
	1.2.2.2	nonSpecificForm		c:o.4		
	1.2.2.3	localDistinguishedName		c:o.4		
	1.2.2.3.1	AttributeType		c:m		
	1.2.2.3.2	AttributeValue		c:m		
	1.2.3	indeterminate		c:o		
	1.2.3.1	distinguishedName		c:o.5		
	1.2.3.1.1	AttributeType		c:m		
	1.2.3.1.2	AttributeValue		c:m		
	1.2.3.2	nonSpecificForm		c:o.5		
	1.2.3.3	localDistinguishedName		c:o.5		
	1.2.3.3.1	AttributeType		c:m		
	1.2.3.3.2	AttributeValue		c:m		
2	2.1	ActionArgument		c2		
	2.1.1	selectedObjects		c:o.6		
	2.1.1.1	distinguishedName		c:o.7		
	2.1.1.1.1	AttributeType		c:m		
	2.1.1.1.2	AttributeValue		c:m		
	2.1.1.2	nonSpecificForm		c:o.7		
	2.1.1.3	localDistinguishedName		c:o.7		
	2.1.1.3.1	AttributeType		c:m		
	2.1.1.3.2	AttributeValue		c:m		
	2.1.2	allObjects		c:o.6		
	2.2	ActionResponse		c2		
	2.2.1	success		c:o		
	2.2.1.1	distinguishedName		c:o.8		
	2.2.1.1.1	AttributeType		c:m		
	2.2.1.1.2	AttributeValue		c:m		

Table C.6 (continued)

Index	Subindex	Action field name label	Constraints and values	Status	Support	Additional information
	2.2.1.2	nonSpecificForm		c:o.8		
	2.2.1.3	localDistinguishedName		c:o.8		
	2.2.1.3.1	AttributeType		c:m		
	2.2.1.3.2	AttributeValue		c:m		
	2.2.2	failed		c:o		
	2.2.2.1	distinguishedName		c:o.9		
	2.2.2.1.1	AttributeType		c:m		
	2.2.2.1.2	AttributeValue		c:m		
	2.2.2.2	nonSpecificForm		c:o.9		
	2.2.2.3	localDistinguishedName		c:o.9		
	2.2.2.3.1	AttributeType		c:m		
	2.2.2.3.2	AttributeValue		c:m		
	2.2.3	indeterminate		c:o		
	2.2.3.1	distinguishedName		c:o.10		
	2.2.3.1.1	AttributeType		c:m		
	2.2.3.1.2	AttributeValue		c:m		
	2.2.3.2	nonSpecificForm		c:o.10		
	2.2.3.3	localDistinguishedName		c:o.10		
	2.2.3.3.1	AttributeType		c:m		
	2.2.3.3.2	AttributeValue		c:m		
3	3.1	ActionArgument		c1		
	3.1.1	selectedObjects		c:o.11		
	3.1.1.1	distinguishedName		c:o.12		
	3.1.1.1.1	AttributeType		c:m		
	3.1.1.1.2	AttributeValue		c:m		
	3.1.1.2	nonSpecificForm		c:o.12		
	3.1.1.3	localDistinguishedName		c:o.12		
	3.1.1.3.1	AttributeType		c:m		
	3.1.1.3.2	AttributeValue		c:m		
	3.1.2	allObjects		c:o.11		
	3.2	ActionResponse		c1		
	3.2.1	success		c:o		
	3.2.1.1	distinguishedName		c:o.13		
	3.2.1.1.1	AttributeType		c:m		
	3.2.1.1.2	AttributeValue		c:m		
	3.2.1.2	nonSpecificForm		c:o.13		
	3.2.1.3	localDistinguishedName		c:o.13		
	3.2.1.3.1	AttributeType		c:m		
	3.2.1.3.2	AttributeValue		c:m		

Table C.6 (concluded)

Index	Subindex	Action field name label	Constraints and values	Status	Support	Additional information
	3.2.2	failed		c:o		
	3.2.2.1	distinguishedName		c:o.14		
	3.2.2.1.1	AttributeType		c:m		
	3.2.2.1.2	AttributeValue		c:m		
	3.2.2.2	nonSpecificForm		c:o.14		
	3.2.2.3	localDistinguishedName		c:o.14		
	3.2.2.3.1	AttributeType		c:m		
	3.2.2.3.2	AttributeValue		c:m		
	3.2.3	indeterminate		c:o		
	3.2.3.1	distinguishedName		c:o.15		
	3.2.3.1.1	AttributeType		c:m		
	3.2.3.1.2	AttributeValue		c:m		
	3.2.3.2	nonSpecificForm		c:o.15		
	3.2.3.3	localDistinguishedName		c:o.15		
	3.2.3.3.1	AttributeType		c:m		
	3.2.3.3.2	AttributeValue		c:m		

C.8 Parameters

The supplier of the implementation shall state whether or not the parameters specified by all packages instantiated in a managed object of this class are supported, in the “Support” and “Additional information” columns in Table C.7.

Table C.7 – Parameter support

Index	Parameter template label	Value of object identifier for parameter	Constraints and values	Status	Support	Additional information
1	deniedMeteringAction	{umf-par 1}		c1		
c1: if C.6/1a or C.6/2a or C.6/3a then m else –						

Annex D³⁾**MOCS proforma**

(This annex is an integral part of the Recommendation | International Standard)

D.1 Introduction

The purpose of this MOCS proforma is to provide a mechanism for a supplier of an implementation which claims conformance to a managed object class to provide conformance information in a standard form.

D.2 Instructions for completing the MOCS proforma to produce a MOCS

The MOCS proforma contained in this annex is comprised of information in tabular form, in accordance with ITU-T Rec. X.724 | ISO/IEC 10165-6. The supplier of the implementation shall state which items are supported in the tables below and if necessary provide additional information.

D.3 Symbols, abbreviations and terms

The following abbreviations are used throughout the MOCS proforma:

smi2AttributeId	{joint-iso-itu-t ms(9) smi(3) part2(2) attribute(7)}
smi2Notification	{joint-iso-itu-t ms(9) smi(3) part2(2) notification(10)}
smi2Package	{joint-iso-itu-t ms(9) smi(3) part2(2) package(4)}
umf-act	{joint-iso-itu-t ms(9) function(2) part10(10) action(9)}
umf-att	{joint-iso-itu-t ms(9) function(2) part10(10) attribute(7)}
umf-mo	{joint-iso-itu-t ms(9) function(2) part10(10) managedObjectClass(3)}
umf-not	{joint-iso-itu-t ms(9) function(2) part10(10) notification(10)}
umf-par	{joint-iso-itu-t ms(9) function(2) part10(10) parameter(5)}
umf-pkg	{joint-iso-itu-t ms(9) function(2) part10(10) package(4)}

The notations used for the Status and Support columns are specified in B.1.3.

D.4 Usage metering control object managed object class**D.4.1 Statement of conformance to the usageMeteringControlObject object class****Table D.1 – Managed object class support**

Index	Managed object class template label	Value of object identifier for class	Support of all mandatory features	Is the actual class the same as the managed object class to which conformance is claimed? (Y/N)
1	usageMeteringControlObject	{umf-mo 1}		

If the answer to the actual class question in the managed object class support Table D.1 is no, the supplier of the implementation shall fill in the actual class support in Table D.2.

³⁾ Copyright release for MOCS proforma

Users of this Recommendation may freely reproduce the MOCS proforma in this annex so that it can be used for its intended purpose, and may further publish the completed MOCS. Instructions for completing the MOCS proforma are specified in ITU-T Rec. X.724 | ISO/IEC 10165-6.

Table D.2 – Actual class support

Index	Actual managed object class template label	Value of object identifier for actual class	Additional information
1			
2			

D.4.2 Packages

The supplier of the implementation shall state whether or not the conditional packages specified by this class are supported by an instance of this class, in the “Support” and “Additional information” columns in Table D.3.

Table D.3 – Package support

Index	Package template label	Value of object identifier for package	Constraints and values	Status	Support	Additional Information
1	allomorphicPackage	{smi2Package 17}		c1		
2	controlNotification	{umf-pkg 4}		c2		
3	meteringControl	{umf-pkg 5}		c3		
4	meteringStart	{umf-pkg 7}		c4		
5	packagesPackage	{smi2Package 16}		c5		
6	startNotification	{umf-pkg 8}		c6		
c1: if NOT(D.1/1b) then m else – c2: if “there is a static requirement to advise manager(s) other than the one generating the action of the outcome of the action and the meteringControl package is supported” then m else – c3: if “suspend and resume operations are required and the corresponding data objects support the meteringDataCondition package” then m else – c4: if “corresponding data objects are explicitly created in a suspended condition” then m else – c5: if D.3/1 OR D.3/2 OR D.3/3 OR D.3/4 OR D.3/6 then m else – c6: if “there is a static requirement to advise manager(s) other than the one generating the action of the outcome of the action and the meteringStart package is supported” then m else –						

D.4.3 Attributes

The supplier of the implementation shall state whether or not the attributes specified by all packages instantiated in a managed object of this class are supported, in the “Support” and “Additional information” columns in Table D.4. The supplier of the implementation shall indicate support for each of the operations for each attribute supported.

Table D.4 – Attribute support

Index	Attribute template label	Value of object identifier for attribute	Constraints and values	Set by create		Get		Replace	
				Status	Support	Status	Support	Status	Support
1	accountableObjects ReferenceList	{umf-att 2}		m		m		x	
2	allomorphs	{smi2AttributeID 50}		x		c1		x	
3	controlObjectId	{umf-att 5}		–		m		x	
4	dataObjectsReferenceList	{umf-att 7}		m		m		x	
5	nameBinding	{smi2AttributeID 63}		–		m		x	
6	objectClass	{smi2AttributeID 65}		–		m		x	
7	operationalState	{smi2AttributeID 35}		–		x		x	
8	packages	{smi2AttributeID 66}		–		m		x	
9	reportingTriggers	{umf-att 11}		m		m		m	

Table D.4 (concluded)

Index	Add		Remove		Set to default		Additional information
	Status	Support	Status	Support	Status	Support	
1	x		x		x		
2	x		x		x		
3	x		x		x		
4	x		x		x		
5	x		x		x		
6	x		x		x		
7	x		x		x		
8	x		x		x		
9	m		m		x		
c1: if not (D.1/1b) then m else –							

D.4.4 Attribute groups

There are no attribute groups defined for the managed object class.

D.4.5 Actions

The supplier of the implementation shall state whether or not the actions specified by all packages instantiated in a managed object of this class are supported, in the “Support” and “Additional information” columns in Table D.5.

Table D.5 – Action support

Index	Action type template label	Value of object identifier for action type	Constraints and values	Status	Support	Additional information
1	resumeMetering	{umf-act 1}		c1		
2	startMetering	{umf-act 2}		c2		
3	suspendMetering	{umf-act 3}		c1		
c1: if D.3/3 then m else –						
c2: if D.3/4 then m else –						

Table D.5 (continued)

Index	Subindex	Action field name label	Constraints and values	Status	Support	Additional information
1	1.1	ActionArgument		c1		
	1.1.1	selectedObjects		c:o.1		
	1.1.1.1	distinguishedName		c:o.2		
	1.1.1.1.1	AttributeType		c:m		
	1.1.1.1.2	AttributeValue		c:m		
	1.1.1.2	nonSpecificForm		c:o.2		
	1.1.1.3	localDistinguishedName		c:o.2		
	1.1.1.3.1	AttributeType		c:m		
	1.1.1.3.2	AttributeValue		c:m		
	1.1.2	allObjects		c:o.1		

Table D.5 (continued)

Index	Subindex	Action field name label	Constraints and values	Status	Support	Additional information
	1.2	ActionResponse		c1		
	1.2.1	success		c:o		
	1.2.1.1	distinguishedName		c:o.3		
	1.2.1.1.1	AttributeType		c:m		
	1.2.1.1.2	AttributeValue		c:m		
	1.2.1.2	nonSpecificForm		c:o.3		
	1.2.1.3	localDistinguishedName		c:o.3		
	1.2.1.3.1	AttributeType		c:m		
	1.2.1.3.2	AttributeValue		c:m		
	1.2.2	failed		c:o		
	1.2.2.1	distinguishedName		c:o.4		
	1.2.2.1.1	AttributeType		c:m		
	1.2.2.1.2	AttributeValue		c:m		
	1.2.2.2	nonSpecificForm		c:o.4		
	1.2.2.3	localDistinguishedName		c:o.4		
	1.2.2.3.1	AttributeType		c:m		
	1.2.2.3.2	AttributeValue		c:m		
	1.2.3	indeterminate		c:o		
	1.2.3.1	distinguishedName		c:o.5		
	1.2.3.1.1	AttributeType		c:m		
	1.2.3.1.2	AttributeValue		c:m		
	1.2.3.2	nonSpecificForm		c:o.5		
	1.2.3.3	localDistinguishedName		c:o.5		
	1.2.3.3.1	AttributeType		c:m		
	1.2.3.3.2	AttributeValue		c:m		
2	2.1	ActionArgument		c2		
	2.1.1	selectedObjects		c:o.6		
	2.1.1.1	distinguishedName		c:o.7		
	2.1.1.1.1	AttributeType		c:m		
	2.1.1.1.2	AttributeValue		c:m		
	2.1.1.2	nonSpecificForm		c:o.7		
	2.1.1.3	localDistinguishedName		c:o.7		
	2.1.1.3.1	AttributeType		c:m		
	2.1.1.3.2	AttributeValue		c:m		
	2.1.2	allObjects		c:o.6		
	2.2	ActionResponse		c2		
	2.2.1	success		c:o		
	2.2.1.1	distinguishedName		c:o.8		
	2.2.1.1.1	AttributeType		c:m		
	2.2.1.1.2	AttributeValue		c:m		

Table D.5 (continued)

Index	Subindex	Action field name label	Constraints and values	Status	Support	Additional information
	2.2.1.2	nonSpecificForm		c:o.8		
	2.2.1.3	localDistinguishedName		c:o.8		
	2.2.1.3.1	AttributeType		c:m		
	2.2.1.3.2	AttributeValue		c:m		
	2.2.2	failed		c:o		
	2.2.2.1	distinguishedName		c:o.9		
	2.2.2.1.1	AttributeType		c:m		
	2.2.2.1.2	AttributeValue		c:m		
	2.2.2.2	nonSpecificForm		c:o.9		
	2.2.2.3	localDistinguishedName		c:o.9		
	2.2.2.3.1	AttributeType		c:m		
	2.2.2.3.2	AttributeValue		c:m		
	2.2.3	indeterminate		c:o		
	2.2.3.1	distinguishedName		c:o.10		
	2.2.3.1.1	AttributeType		c:m		
	2.2.3.1.2	AttributeValue		c:m		
	2.2.3.2	nonSpecificForm		c:o.10		
	2.2.3.3	localDistinguishedName		c:o.10		
	2.2.3.3.1	AttributeType		c:m		
	2.2.3.3.2	AttributeValue		c:m		
3	3.1	ActionArgument		c1		
	3.1.1	selectedObjects		c:o.11		
	3.1.1.1	distinguishedName		c:o.12		
	3.1.1.1.1	AttributeType		c:m		
	3.1.1.1.2	AttributeValue		c:m		
	3.1.1.2	nonSpecificForm		c:o.12		
	3.1.1.3	localDistinguishedName		c:o.12		
	3.1.1.3.1	AttributeType		c:m		
	3.1.1.3.2	AttributeValue		c:m		
	3.1.2	allObjects		c:o.11		
	3.2	ActionResponse		c1		
	3.2.1	success		c:o		
	3.2.1.1	distinguishedName		c:o.13		
	3.2.1.1.1	AttributeType		c:m		
	3.2.1.1.2	AttributeValue		c:m		
	3.2.1.2	nonSpecificForm		c:o.13		
	3.2.1.3	localDistinguishedName		c:o.13		
	3.2.1.3.1	AttributeType		c:m		
	3.2.1.3.2	AttributeValue		c:m		

Table D.5 (concluded)

Index	Subindex	Action field name label	Constraints and values	Status	Support	Additional information
	3.2.2	failed		c:o		
	3.2.2.1	distinguishedName		c:o.14		
	3.2.2.1.1	AttributeType		c:m		
	3.2.2.1.2	AttributeValue		c:m		
	3.2.2.2	nonSpecificForm		c:o.14		
	3.2.2.3	localDistinguishedName		c:o.14		
	3.2.2.3.1	AttributeType		c:m		
	3.2.2.3.2	AttributeValue		c:m		
	3.2.3	indeterminate		c:o		
	3.2.3.1	distinguishedName		c:o.15		
	3.2.3.1.1	AttributeType		c:m		
	3.2.3.1.2	AttributeValue		c:m		
	3.2.3.2	nonSpecificForm		c:o.15		
	3.2.3.3	localDistinguishedName		c:o.15		
	3.2.3.3.1	AttributeType		c:m		
	3.2.3.3.2	AttributeValue		c:m		

D.4.6 Notifications

The supplier of the implementation shall state whether or not the notifications specified by all packages instantiated in a managed object of this class are supported, in the “Support” and “Additional information” columns in Table D.6. The supplier of the implementation shall indicate support in terms of the confirmed and non-confirmed modes.

Table D.6 – Notification support

Index	Notification type template label	Value of object identifier for notification type	Constraints and values	Status	Support		Additional information
					Con- firmed	Non-con- firmed	
1	attributeValueChange	{smi2Notification 1}		m			
2	meteringResumed	{umf-not 2}		c1			
3	meteringStarted	{umf-not 3}		c2			
4	meteringSuspended	{umf-not 4}		c1			
5	objectCreation	{smi2Notification 6}		m			
6	objectDeletion	{smi2Notification 7}		m			
7	stateChange	{smi2Notification 14}		m			
c1: if D.3/2 then m else –							
c2: if D.3/6 then m else –							

Table D.6 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
1	1.1	additionalInformation	{smi2AttributeID 6}		o		
	1.1.1	identifier	—		c:m		
	1.1.2	significance	—		c:m		
	1.1.3	information	—		c:m		
	1.2	additionalText	{smi2AttributeID 7}		o		
	1.3	attributeIdentifierList	{smi2AttributeID 8}		o		
	1.3.1	globalForm	—		c:o.1		
	1.3.2	localForm	—		c:o.1		
	1.4	attributeValueChangeDefinition	{smi2AttributeID 10}		m		
	1.4.1	attributeID	—		m		
	1.4.1.1	globalForm	—		c:o.2		
	1.4.1.2	localForm	—		c:o.2		
	1.4.2	oldAttributeValue	—		o		
	1.4.3	newAttributeValue	—		m		
	1.5	correlatedNotifications	{smi2AttributeID 12}		o		
	1.5.1	correlatedNotifications	—		c:m		
	1.5.2	sourceObjectInst	—		c:o		
	1.5.2.1	distinguishedName	—		c:o.3		
	1.5.2.1.1	AttributeType	—		c:m		
	1.5.2.1.2	AttributeValue	—		c:m		
	1.5.2.2	nonSpecificForm	—		c:o.3		
	1.5.2.3	localDistinguishedName	—		c:o.3		
	1.5.2.3.1	AttributeType	—		c:m		
	1.5.2.3.2	AttributeValue	—		c:m		
	1.6	notificationIdentifier	{smi2AttributeID 16}		o		
	1.7	sourceIndicator	{smi2AttributeID 26}		o		
2	2.1	actionResponse	{umf-att 3}		c:m		
	2.1.1	success	—		c:o		
	2.1.1.1	distinguishedName	—		c:o.4		
	2.1.1.1.1	AttributeType	—		c:m		
	2.1.1.1.2	AttributeValue	—		c:m		
	2.1.1.2	nonSpecificForm	—		c:o.4		
	2.1.1.3	localDistinguishedName	—		c:o.4		
	2.1.1.3.1	AttributeType	—		c:m		
	2.1.1.3.2	AttributeValue	—		c:m		
	2.1.2	failed	—		c:o		
	2.1.2.1	distinguishedName	—		c:o.5		
	2.1.2.1.1	AttributeType	—		c:m		
	2.1.2.1.2	AttributeValue	—		c:m		

Table D.6 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	2.1.2.2	nonSpecificForm	—		c:o.5		
	2.1.2.3	localDistinguishedName	—		c:o.5		
	2.1.2.3.1	AttributeType	—		c:m		
	2.1.2.3.2	AttributeValue	—		c:m		
	2.1.3	indeterminate	—		c:o		
	2.1.3.1	distinguishedName	—		c:o.6		
	2.1.3.1.1	AttributeType	—		c:m		
	2.1.3.1.2	AttributeValue	—		c:m		
	2.1.3.2	nonSpecificForm	—		c:o.6		
	2.1.3.3	localDistinguishedName	—		c:o.6		
	2.1.3.3.1	AttributeType	—		c:m		
	2.1.3.3.2	AttributeValue	—		c:m		
	2.2	dataObjectsReferenceList	{umf-att 7}		c:m		
	2.2.1	distinguishedName	—		c:o.7		
	2.2.1.1	AttributeType	—		c:m		
	2.2.1.2	AttributeValue	—		c:m		
	2.2.2	nonSpecificForm	—		c:o.7		
	2.2.3	localDistinguishedName	—		c:o.7		
	2.2.3.1	AttributeType	—		c:m		
	2.2.3.2	AttributeValue	—		c:m		
	2.3	reportingTriggers	{umf-att 11}		c:o		
	2.3.1	periodic	—		c:o.8		
	2.3.1.1	days	—		c:o.9		
	2.3.1.2	hours	—		c:o.9		
	2.3.1.3	minutes	—		c:o.9		
	2.3.1.4	seconds	—		c:o.9		
	2.3.1.5	milliSeconds	—		c:o.9		
	2.3.1.6	microSeconds	—		c:o.9		
	2.3.1.7	nanoSeconds	—		c:o.9		
	2.3.1.8	picoSeconds	—		c:o.9		
	2.3.2	induced	—		c:o.8		
	2.3.3	event	—		c:o.8		
	2.3.4	stimulus	—		c:o.8		
3	3.1	actionResponse	{umf-att 3}		c:m		
	3.1.1	success	—		c:o		
	3.1.1.1	distinguishedName	—		c:o.10		
	3.1.1.1.1	AttributeType	—		c:m		
	3.1.1.1.2	AttributeValue	—		c:m		

Table D.6 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	3.1.1.2	nonSpecificForm	—		c:o.10		
	3.1.1.3	localDistinguishedName	—		c:o.10		
	3.1.1.3.1	AttributeType	—		c:m		
	3.1.1.3.2	AttributeValue	—		c:m		
	3.1.2	failed	—		c:o		
	3.1.2.1	distinguishedName	—		c:o.11		
	3.1.2.1.1	AttributeType	—		c:m		
	3.1.2.1.2	AttributeValue	—		c:m		
	3.1.2.2	nonSpecificForm	—		c:o.11		
	3.1.2.3	localDistinguishedName	—		c:o.11		
	3.1.2.3.1	AttributeType	—		c:m		
	3.1.2.3.2	AttributeValue	—		c:m		
	3.1.3	indeterminate	—		c:o		
	3.1.3.1	distinguishedName	—		c:o.12		
	3.1.3.1.1	AttributeType	—		c:m		
	3.1.3.1.2	AttributeValue	—		c:m		
	3.1.3.2	nonSpecificForm	—		c:o.12		
	3.1.3.3	localDistinguishedName	—		c:o.12		
	3.1.3.3.1	AttributeType	—		c:m		
	3.1.3.3.2	AttributeValue	—		c:m		
	3.2	dataObjectsReferenceList	{umf-att 7}		c:m		
	3.2.1	distinguishedName	—		c:o.13		
	3.2.1.1	AttributeType	—		c:m		
	3.2.1.2	AttributeValue	—		c:m		
	3.2.2	nonSpecificForm	—		c:o.13		
	3.2.3	localDistinguishedName	—		c:o.13		
	3.2.3.1	AttributeType	—		c:m		
	3.2.3.2	AttributeValue	—		c:m		
	3.3	reportingTriggers	{umf-att 11}		c:o		
	3.3.1	periodic	—		c:o.14		
	3.3.1.1	days	—		c:o.15		
	3.3.1.2	hours	—		c:o.15		
	3.3.1.3	minutes	—		c:o.15		
	3.3.1.4	seconds	—		c:o.15		
	3.3.1.5	milliSeconds	—		c:o.15		
	3.3.1.6	microSeconds	—		c:o.15		
	3.3.1.7	nanoSeconds	—		c:o.15		
	3.3.1.8	picoSeconds	—		c:o.15		

Table D.6 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	3.3.2	induced	—		c:o.14		
	3.3.3	event	—		c:o.14		
	3.3.4	stimulus	—		c:o.14		
4	4.1	actionResponse	{umf-att 3}		c:m		
	4.1.1	success	—		c:o		
	4.1.1.1	distinguishedName	—		c:o.16		
	4.1.1.1.1	AttributeType	—		c:m		
	4.1.1.1.2	AttributeValue	—		c:m		
	4.1.1.2	nonSpecificForm	—		c:o.16		
	4.1.1.3	localDistinguishedName	—		c:o.16		
	4.1.1.3.1	AttributeType	—		c:m		
	4.1.1.3.2	AttributeValue	—		c:m		
	4.1.2	failed	—		c:o		
	4.1.2.1	distinguishedName	—		c:o.17		
	4.1.2.1.1	AttributeType	—		c:m		
	4.1.2.1.2	AttributeValue	—		c:m		
	4.1.2.2	nonSpecificForm	—		c:o.17		
	4.1.2.3	localDistinguishedName	—		c:o.17		
	4.1.2.3.1	AttributeType	—		c:m		
	4.1.2.3.2	AttributeValue	—		c:m		
	4.1.3	indeterminate	—		c:o		
	4.1.3.1	distinguishedName	—		c:o.18		
	4.1.3.1.1	AttributeType	—		c:m		
	4.1.3.1.2	AttributeValue	—		c:m		
	4.1.3.2	nonSpecificForm	—		c:o.18		
	4.1.3.3	localDistinguishedName	—		c:o.18		
	4.1.3.3.1	AttributeType	—		c:m		
	4.1.3.3.2	AttributeValue	—		c:m		
	4.2	dataObjectsReferenceList	{umf-att 7}		c:m		
	4.2.1	distinguishedName	—		c:o.19		
	4.2.1.1	AttributeType	—		c:m		
	4.2.1.2	AttributeValue	—		c:m		
	4.2.2	nonSpecificForm	—		c:o.19		
	4.2.3	localDistinguishedName	—		c:o.19		
	4.2.3.1	AttributeType	—		c:m		
	4.2.3.2	AttributeValue	—		c:m		

Table D.6 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	4.3	reportingTriggers	{umf-att 11}		c:o		
	4.3.1	periodic	—		c:o.20		
	4.3.1.1	days	—		c:o.21		
	4.3.1.2	hours	—		c:o.21		
	4.3.1.3	minutes	—		c:o.21		
	4.3.1.4	seconds	—		c:o.21		
	4.3.1.5	milliSeconds	—		c:o.21		
	4.3.1.6	microSeconds	—		c:o.21		
	4.3.1.7	nanoSeconds	—		c:o.21		
	4.3.1.8	picoSeconds	—		c:o.21		
	4.3.2	induced	—		c:o.20		
	4.3.3	event	—		c:o.20		
	4.3.4	stimulus	—		c:o.20		
5	5.1	additionalInformation	{smi2AttributeID 6}		o		
	5.1.1	identifier	—		c:m		
	5.1.2	significance	—		c:m		
	5.1.3	information	—		c:m		
	5.2	additionalText	{smi2AttributeID 7}		o		
	5.3	attributeList	{smi2AttributeID 9}		o		
	5.3.1	attributeId	—		c:m		
	5.3.1.1	globalForm	—		c:o.22		
	5.3.1.2	localForm	—		c:o.22		
	5.3.2	attributeValue	—		c:m		
	5.4	correlatedNotifications	{smi2AttributeID 12}		o		
	5.4.1	correlatedNotifications	—		c:m		
	5.4.2	sourceObjectInst	—		c:o		
	5.4.2.1	distinguishedName	—		c:o.23		
	5.4.2.1.1	AttributeType	—		c:m		
	5.4.2.1.2	AttributeValue	—		c:m		
	5.4.2.2	nonSpecificForm	—		c:o.23		
	5.4.2.3	localDistinguishedName	—		c:o.23		
	5.4.2.3.1	AttributeType	—		c:m		
	5.4.2.3.2	AttributeValue	—		c:m		
	5.5	notificationIdentifier	{smi2AttributeID 16}		o		
	5.6	sourceIndicator	{smi2AttributeID 26}		o		
6	6.1	additionalInformation	{smi2AttributeID 6}		o		
	6.1.1	identifier	—		c:m		
	6.1.2	significance	—		c:m		
	6.1.3	information	—		c:m		

Table D.6 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	6.2	additionalText	{smi2AttributeID 7}		o		
	6.3	attributeList	{smi2AttributeID 9}		o		
	6.3.1	attributeId	–		c:m		
	6.3.1.1	globalForm	–		c:o.24		
	6.3.1.2	localForm	–		c:o.24		
	6.3.2	attributeValue	–		c:m		
	6.4	correlatedNotifications	{smi2AttributeID 12}		o		
	6.4.1	correlatedNotifications	–		c:m		
	6.4.2	sourceObjectInst	–		c:o		
	6.4.2.1	distinguishedName	–		c:o.25		
	6.4.2.1.1	AttributeType	–		c:m		
	6.4.2.1.2	AttributeValue	–		c:m		
	6.4.2.2	nonSpecificForm	–		c:o.25		
	6.4.2.3	localDistinguishedName	–		c:o.25		
	6.4.2.3.1	AttributeType	–		c:m		
	6.4.2.3.2	AttributeValue	–		c:m		
	6.5	notificationIdentifier	{smi2AttributeID 16}		o		
	6.6	sourceIndicator	{smi2AttributeID 26}		o		
7	7.1	additionalInformation	{smi2AttributeID 6}		o		
	7.1.1	identifier	–		c:m		
	7.1.2	significance	–		c:m		
	7.1.3	information	–		c:m		
	7.2	additionalText	{smi2AttributeID 7}		o		
	7.3	attributeIdentifierList	{smi2AttributeID 8}		o		
	7.3.1	globalForm	–		c:o.26		
	7.3.2	localForm	–		c:o.26		
	7.4	correlatedNotifications	{smi2AttributeID 12}		o		
	7.4.1	correlatedNotifications	–		c:m		
	7.4.2	sourceObjectInst	–		c:o		
	7.4.2.1	distinguishedName	–		c:o.27		
	7.4.2.1.1	AttributeType	–		c:m		
	7.4.2.1.2	AttributeValue	–		c:m		
	7.4.2.2	nonSpecificForm	–		c:o.27		
	7.4.2.3	localDistinguishedName	–		c:o.27		
	7.4.2.3.1	AttributeType	–		c:m		
	7.4.2.3.2	AttributeValue	–		c:m		
	7.5	notificationIdentifier	{smi2AttributeID 16}		o		
	7.6	sourceIndicator	{smi2AttributeID 26}		o		

Table D.6 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	7.7	stateChangeDefinition	{smi2AttributeID 28}		m		
	7.7.1	attributeID	—		m		
	7.7.1.1	globalForm	—		c:o.28		
	7.7.1.2	localForm	—		c:o.28		
	7.7.2	oldAttributeValue	—		o		
	7.7.3	newAttributeValue	—		m		
8	8.1	accountableObjectReference	{umf-att 1}		m		
	8.1.1	distinguishedName	—		c:o.5		
	8.1.1.1	AttributeType	—		c:m		
	8.1.1.2	AttributeValue	—		c:m		
	8.1.2	nonSpecificForm	—		c:o.5		
	8.1.3	localDistinguishedName	—		c:o.5		
	8.1.3.1	AttributeType	—		c:m		
	8.1.3.2	AttributeValue	—		c:m		
	8.2	auditInfo	{umf-att 4}		o		
	8.2.1	service	—		c:m		
	8.2.2	auditDetails	—		c:m		
	8.3	dataErrors	{umf-att 8}		m		
	8.3.1	possibleErrors	—		c:o.6		
	8.3.2	noProblem	—		c:o.6		
	8.4	notificationCause	{umf-att 9}		m		
	8.4.1	periodic	—		c:o.7		
	8.4.1.1	days	—		c:o.8		
	8.4.1.2	hours	—		c:o.8		
	8.4.1.3	minutes	—		c:o.8		
	8.4.1.4	seconds	—		c:o.8		
	8.4.1.5	milliSeconds	—		c:o.8		
	8.4.1.6	microSeconds	—		c:o.8		
	8.4.1.7	nanoSeconds	—		c:o.8		
	8.4.1.8	picoSeconds	—		c:o.8		
	8.4.2	induced	—		c:o.7		
	8.4.3	event	—		c:o.7		
	8.4.4	stimulus	—		c:o.7		
	8.5	providerId	{umf-att 10}		o		
	8.5.1	objectReference	—		c:o.9		
	8.5.1.1	distinguishedName	—		c:o.10		
	8.5.1.1.1	AttributeType	—		c:m		
	8.5.1.1.2	AttributeValue	—		c:m		

Table D.6 (concluded)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	8.5.1.2	nonSpecificForm	–		c:o.10		
	8.5.1.3	localDistinguishedName	–		c:o.10		
	8.5.1.3.1	AttributeType	–		c:m		
	8.5.1.3.2	AttributeValue	–		c:m		
	8.5.2	textualName	–		c:o.9		
	8.5.3	serviceSpecific	–		c:o.9		
	8.5.3.1	service	–		c:m		
	8.5.3.2	serviceSpecificId	–		c:m		
	8.5.4	unknown	–		c:o.9		
	8.6	usageInfo	{umf-att 12}		m		
	8.6.1	serviceType	–		m		
	8.6.2	usageData	–		m		

D.4.7 Parameters

The supplier of the implementation shall state whether or not the parameters specified by all packages instantiated in a managed object of this class are supported, in the “Support” and “Additional information” columns in Table D.7.

Table D.7 – Parameter support

Index	Parameter template label	Value of object identifier for parameter	Constraints and values	Status	Support	Additional information
1	deniedMeteringAction	{umf-par 1}		c1		
c1: if D.3/3 or D.3/4 then m else –						

D.5 Usage metering data object managed object class**D.5.1 Statement of conformance to the usageMeteringDataObject object class****Table D.8 – Managed object class support**

Index	Managed object class template label	Value of object identifier for class	Support of all mandatory features	Is the actual class the same as the managed object class to which conformance is claimed? (Y/N)
1	usageMeteringDataObject	{umf-mo 2}		

If the answer to the actual class question in the managed object class support Table D.8 is no, the supplier of the implementation shall fill in the actual class support in Table D.9.

Table D.9 – Actual class support

Index	Actual managed object class template label	Value of object identifier for actual class	Additional information
1			
2			

D.5.2 Packages

The supplier of the implementation shall state whether or not the conditional packages specified by this class are supported by an instance of this class, in the “Support” and “Additional information” columns in Table D.10.

Table D.10 – Package support

Index	Package template label	Value of object identifier for package	Constraints and values	Status	Support	Additional information
1	allomorphicPackage	{smi2Package 17}		c1		
2	auditInformation	{umf-pkg 3}		c2		
3	meteringDataCondition	{umf-pkg 6}		c3		
4	packagesPackage	{smi2Package 16}		c4		
c1: if not (D.8/1b) then m else – c2: if “the accounting activity requires the measurement of certain source information for audit purposes” then m else – c3: if “the accounting activity can be suspended or can exist in a terminating condition pending the emission of a usageReport notification” then m else – c4: if D.10/1 or D.10/2 or D.10/3 then m else –						

D.5.3 Attributes

The supplier of the implementation shall state whether or not the attributes specified by all packages instantiated in a managed object of this class are supported, in the “Support” and “Additional information” columns in Table D.11. The supplier of the implementation shall indicate support for each of the operations for each attribute supported.

Table D.11 – Attribute support

Index	Attribute template label	Value of object identifier for attribute	Constraints and values	Set by create		Get		Replace	
				Status	Support	Status	Support	Status	Support
1	accountableObjectReference	{umf-att 1}		–		m		x	
2	allomorphs	{smi2AttributeID 50}		x		c1		x	
3	auditInfo	{umf-att 4}		–		c2		x	
4	controlStatus	{smi2AttributeID 34}		–		c3		x	
5	dataErrors	{umf-att 8}		–		m		x	
6	dataObjectId	{umf-att 6}		–		m		x	
7	nameBinding	{smi2AttributeID 63}		–		m		x	
8	objectClass	{smi2AttributeID 65}		–		m		x	
9	packages	{smi2AttributeID 66}		–		m		x	
10	proceduralStatus	{smi2AttributeID 36}		–		c3		x	
11	providerId	{umf-att 10}		–		m		x	
12	usageInfo	{umf-att 12}		–		m		x	

Table D.11 – (concluded)

Index	Add		Remove		Set to default		Additional information
	Status	Support	Status	Support	Status	Support	
1	x		x		x		
2	x		x		x		
3	x		x		x		
4	x		x		x		
5	x		x		x		
6	x		x		x		
7	x		x		x		
8	x		x		x		
9	x		x		x		
10	x		x		x		
11	x		x		x		
12	x		x		x		
c1: if not (D.8/1b) then m else – c2: if D.10/2 then m else – c3: if D.10/3 then m else –							

D.5.4 Attribute groups

There are no attribute groups defined for the managed object class.

D.5.5 Actions

There are no actions defined for this object class.

D.5.6 Notifications

The supplier of the implementation shall state whether or not the notifications specified by all packages instantiated in a managed object of this class are supported, in the “Support” and “Additional information” columns in Table D.12. The supplier of the implementation shall indicate support in terms of the confirmed and non-confirmed modes.

Table D.12 – Notification support

Index	Notification type template label	Value of object identifier for notification type	Constraints and values	Status	Support		Additional information
					Con- firmed	Non-con- firmed	
1	objectCreation	{smi2Notification 6}		m			
2	objectDeletion	{smi2Notification 7}		m			
3	usageReport	{umf-not 1}		m			

Table D.12 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
1	1.1	additionalInformation	{smi2AttributeID 6}		o		
	1.1.1	identifier	—		c:m		
	1.1.2	significance	—		c:m		
	1.1.3	information	—		c:m		
	1.2	additionalText	{smi2AttributeID 7}		o		
	1.3	attributeList	{smi2AttributeID 9}		o		
	1.3.1	attributeId	—		c:m		
	1.3.1.1	globalForm	—		c:o.1		
	1.3.1.2	localForm	—		c:o.1		
	1.3.2	attributeValue	—		c:m		
	1.4	correlatedNotifications	{smi2AttributeID 12}		o		
	1.4.1	correlatedNotifications	—		c:m		
	1.4.2	sourceObjectInst	—		c:o		
	1.4.2.1	distinguishedName	—		c:o.2		
	1.4.2.1.1	AttributeType	—		c:m		
	1.4.2.1.2	AttributeValue	—		c:m		
	1.4.2.2	nonSpecificForm	—		c:o.2		
	1.4.2.3	localDistinguishedName	—		c:o.2		
	1.4.2.3.1	AttributeType	—		c:m		
	1.4.2.3.2	AttributeValue	—		c:m		
	1.5	notificationIdentifier	{smi2AttributeID 16}		o		
	1.6	sourceIndicator	{smi2AttributeID 26}		o		
2	2.1	additionalInformation	{smi2AttributeID 6}		o		
	2.1.1	identifier	—		c:m		
	2.1.2	significance	—		c:m		
	2.1.3	information	—		c:m		
	2.2	additionalText	{smi2AttributeID 7}		o		
	2.3	attributeList	{smi2AttributeID 9}		o		
	2.3.1	attributeId	—		c:m		
	2.3.1.1	globalForm	—		c:o.3		
	2.3.1.2	localForm	—		c:o.3		
	2.3.2	attributeValue	—		c:m		
	2.4	correlatedNotifications	{smi2AttributeID 12}		o		
	2.4.1	correlatedNotifications	—		c:m		
	2.4.2	sourceObjectInst	—		c:o		
	2.4.2.1	distinguishedName	—		c:o.4		
	2.4.2.1.1	AttributeType	—		c:m		
	2.4.2.1.2	AttributeValue	—		c:m		

Table D.12 (continued)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	2.4.2.2	nonSpecificForm	–		c:o.4		
	2.4.2.3	localDistinguishedName	–		c:o.4		
	2.4.2.3.1	AttributeType	–		c:m		
	2.4.2.3.2	AttributeValue	–		c:m		
	2.5	notificationIdentifier	{smi2AttributeID 16}		o		
	2.6	sourceIndicator	{smi2AttributeID 26}		o		
3	3.1	accountableObjectReference	{umf-att 1}		m		
	3.1.1	distinguishedName	–		c:o.5		
	3.1.1.1	AttributeType	–		c:m		
	3.1.1.2	AttributeValue	–		c:m		
	3.1.2	nonSpecificForm	–		c:o.5		
	3.1.3	localDistinguishedName	–		c:o.5		
	3.1.3.1	AttributeType	–		c:m		
	3.1.3.2	AttributeValue	–		c:m		
	3.2	auditInfo	{umf-att 4}		o		
	3.2.1	service	–		c:m		
	3.2.2	auditDetails	–		c:m		
	3.3	dataErrors	{umf-att 8}		m		
	3.3.1	possibleErrors	–		c:o.6		
	3.3.2	noProblem	–		c:o.6		
	3.4	notificationCause	{umf-att 9}		m		
	3.4.1	periodic	–		c:o.7		
	3.4.1.1	days	–		c:o.8		
	3.4.1.2	hours	–		c:o.8		
	3.4.1.3	minutes	–		c:o.8		
	3.4.1.4	seconds	–		c:o.8		
	3.4.1.5	milliSeconds	–		c:o.8		
	3.4.1.6	microSeconds	–		c:o.8		
	3.4.1.7	nanoSeconds	–		c:o.8		
	3.4.1.8	picoSeconds	–		c:o.8		
	3.4.2	induced	–		c:o.7		
	3.4.3	event	–		c:o.7		
	3.4.4	stimulus	–		c:o.7		
	3.5	providerId	{umf-att 10}		o		
	3.5.1	objectReference	–		c:o.9		
	3.5.1.1	distinguishedName	–		c:o.10		
	3.5.1.1.1	AttributeType	–		c:m		
	3.5.1.1.2	AttributeValue	–		c:m		

Table D.12 (concluded)

Index	Subindex	Notification field name label	Value of object identifier of attribute type associated with field	Constraints and values	Status	Support	Additional information
	3.5.1.2	nonSpecificForm	–		c:o.10		
	3.5.1.3	localDistinguishedName	–		c:o.10		
	3.5.1.3.1	AttributeType	–		c:m		
	3.5.1.3.2	AttributeValue	–		c:m		
	3.5.2	textualName	–		c:o.9		
	3.5.3	serviceSpecific	–		c:o.9		
	3.5.3.1	service	–		c:m		
	3.5.3.2	serviceSpecificId	–		c:m		
	3.5.4	unknown	–		c:o.9		
	3.6	usageInfo	{umf-att 12}		m		
	3.6.1	serviceType	–		m		
	3.6.2	usageData	–		m		

D.5.7 Parameters

There are no parameters defined for this object class.

D.6 Usage metering record managed object class**D.6.1 Statement of conformance to the usageMeteringRecord object class****Table D.13 – Managed object class support**

Index	Managed object class template label	Value of object identifier for class	Support of all mandatory features	Is the actual class the same as the managed object class to which conformance is claimed? (Y/N)
1	usageMeteringRecord	{umf-mo 3}		

If the answer to the actual class question in the managed object class support Table D.13 is no, the supplier of the implementation shall fill in the actual class support in Table D.14.

Table D.14 – Actual class support

Index	Actual managed object class template label	Value of object identifier for actual class	Additional information
1			
2			

D.6.2 Packages

The supplier of the implementation shall state whether or not the conditional packages specified by this class are supported by an instance of this class, in the “Support” and “Additional information” columns in Table D.15.

Table D.15 – Package support

Index	Package template label	Value of object identifier for package	Constraints and values	Status	Support	Additional information
1	additionalInformationPackage	{smi2Package 18}		c1		
2	additionalTextPackage	{smi2Package 19}		c2		
3	allomorphicPackage	{smi2Package 17}		c3		
4	auditInformation	{umf-pkg 3}		c4		
5	correlatedNotificationsPackage	{smi2Package 23}		c5		
6	eventTimePackage	{smi2Package 11}		c6		
7	notificationIdentifierPackage	{smi2Package 24}		c7		
8	packagesPackage	{smi2Package 16}		c8		
c1: if “the Additional information parameter is present in the notification or event report corresponding to the instance of event record or an instance of its subclasses” then m else – c2: if “the Additional text parameter is present in the notification or event report corresponding to the instance of event record or an instance of its subclasses” then m else – c3: if not (D.13/1b) then m else – c4: if “this package has been included in the usageMeteringData object emitting the notification to be stored in this record managed object” then m else – c5: if “the correlatedNotifications parameter is present in the notification or event report corresponding to the instance of an event record or an instance of its subclasses” then m else – c6: if “the event time parameter was present in the received event report” then m else – c7: if “the notification Identifier parameter is present in the notification or event report corresponding to the instance of an event record or an instance of its subclasses” then m else – c8: if D.15/1 or D.15/2 or D.15/3 or D.15/4 or D.15/5 or D.15/6 or D.15/7 then m else –						

D.6.3 Attributes

The supplier of the implementation shall state whether or not the attributes specified by all packages instantiated in a managed object of this class are supported, in the “Support” and “Additional information” columns in Table D.16. The supplier of the implementation shall indicate support for each of the operations for each attribute supported.

Table D.16 – Attribute support

Index	Attribute template label	Value of object identifier for attribute	Constraints and values	Set by create		Get		Replace	
				Status	Support	Status	Support	Status	Support
1	accountableObjectReference	{umf-att 1}		–		m		x	
2	additionalInformation	{smi2AttributeID 6}		–		c1		x	
3	additionalText	{smi2AttributeID 7}		–		c2		x	
4	allomorphs	{smi2AttributeID 50}		x		c3		x	
5	auditInfo	{umf-att 4}		–		c4		x	
6	correlatedNotifications	{smi2AttributeID 12}		–		c5		x	
7	dataErrors	{umf-att 8}		–		m		x	
8	eventTime	{smi2AttributeID 13}		–		c6		x	
9	eventType	{smi2AttributeID 14}		–		m		x	
10	loggingTime	{smi2AttributeID 59}		–		m		x	

Table D.16 (continued)

Index	Attribute template label	Value of object identifier for attribute	Constraints and values	Set by create		Get		Replace	
				Status	Support	Status	Support	Status	Support
11	logRecordId	{smi2AttributeID 3}		–		m		x	
12	managedObjectClass	{smi2AttributeID 60}		–		m		x	
13	managedObjectInstance	{smi2AttributeID 61}		–		m		x	
14	nameBinding	{smi2AttributeID 63}		–		m		x	
15	notificationIdentifier	{smi2AttributeID 16}		–		c7		x	
16	objectClass	{smi2AttributeID 65}		–		m		x	
17	packages	{smi2AttributeID 66}		–		c8		x	
18	providerId	{umf-att 10}		–		m		x	
19	usageInfo	{umf-att 12}		–		m		x	

Table D.16 (concluded)

Index	Add		Remove		Set to default		Additional information
	Status	Support	Status	Support	Status	Support	
1	x		x		x		
2	x		x		x		
3	x		x		x		
4	x		x		x		
5	x		x		x		
6	x		x		x		
7	x		x		x		
8	x		x		x		
9	x		x		x		
10	x		x		x		
11	x		x		x		
12	x		x		x		
13	x		x		x		
14	x		x		x		
15	x		x		x		
16	x		x		x		
17	x		x		x		
18	x		x		x		
19	x		x		x		
c1: if D.15/1 then m else – c2: if D.15/2 then m else – c3: if not (D.13/1b) then m else – c4: if D.15/4 then m else – c5: if D.15/5 then m else – c6: if D.15/6 then m else – c7: if D.15/7 then m else – c8: if D.15/8 then m else –							

D.6.4 Attribute groups

There are no attribute groups defined for the managed object class.

D.6.5 Actions

There are no actions defined for this object class.

D.6.6 Notifications

There are no notifications defined for this object class.

D.6.7 Parameters

There are no parameters defined for this object class.

Annex F⁴⁾**MRCS proforma for name binding**

(This annex forms an integral part of this Recommendation | International Standard)

F.1 Introduction

The purpose of this MRCS proforma for name bindings is to provide a mechanism for a supplier which claims conformance to a name binding to provide conformance information in a standard form.

The following abbreviation is used in this proforma:

umf-nb joint-iso-itu-t ms(9) function(2) part10(01) nameBinding(6)

F.2 Instructions for completing the MRCS proforma for name binding to produce a MRCS

The supplier of the implementation shall state which items are supported in the tables below and if necessary provide additional information.

The notations used in the Status and Support columns are specified in B.1.3.

F.3 Statement of conformance to the name binding**Table F.1 – Name binding support**

Index	Name binding template label	Value of object identifier for name binding	Constraints and values	Status	Support	Additional information
1	usageMeterControl–system	{moa-nb 1}	–	o		

Table F.1 (concluded)

Index	Subindex	Operation	Constraints and values	Status	Support	Additional information
1	1.1	Create support	–	–		
	1.1.1	Create with reference object	–	–		
	1.1.2	Create with automatic instance naming	–	–		
	1.2	Delete support	–	c:m		
	1.2.1	Delete only if no contained objects	–	c:x		
	1.2.2	Delete contained objects	–	c:m		

4) Copyright release for MRCS proforma

Users of this Recommendation | International Standard may freely reproduce the MRCS proforma in this annex so that it can be used for its intended purpose, and may further publish the completed MRCS. Instructions for completing the MRCS proforma are found in ITU-T Rec. X.724 | ISO/IEC 10165-6.

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