

INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 12059-4

First edition
1995-12-15

Information technology — International Standardized Profiles — OSI Management — Common information for management functions —

Part 4: Alarm reporting

*Technologies de l'information — Profils normalisés internationaux —
Gestion OSI — Information courante pour fonctions de gestion —
Partie 4: Rapport d'alarme*



Reference number
ISO/IEC ISP 12059-4:1995(E)



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Contents	Page
Foreword	iii
1 Scope	1
1.1 General	1
1.2 Position within the Taxonomy	1
2 Normative references	1
2.1 Identical CCITT Recommendations International Standards	1
2.2 Paired CCITT/ITU-T Recommendations International Standards equivalent in technical content	2
2.3 Additional references	2
3 Definitions	3
4 Abbreviations	3
5 Conventions	3
5.1 Common conventions	3
5.2 Document specific conventions	3
6 Conformance requirements	3
Annex A ISPICS Requirements List (IPRL) for Alarm reporting	4
A.1 Manager/Agent role	4
A.2 MAPDU support	4
A.2.1 Communications alarm MAPDU support	5
A.2.2 Quality of service alarm MAPDU support	7
A.2.3 Processing error alarm MAPDU support	9
A.2.4 Equipment alarm MAPDU support	11
A.2.5 Environmental alarm MAPDU support	13
A.3 Managed object support	15
A.3.1 Introduction	15
A.3.2 Alarm record support	15
A.3.2.1 Alarm record packages support	15
A.3.2.2 Alarm record attributes support	16
Annex B ICS proformas for Alarm reporting function	17

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Printed in Switzerland.

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. In addition to developing International Standards, ISO/IEC JTC 1 has created a special group on Functional Standardization for the elaboration of International Standardized Profiles.

An International Standardized Profile is an internationally agreed, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or set of functions.

Draft International Standardized Profiles are circulated to national bodies for voting. Publication as an International Standardized Profile requires approval by at least 75 % of the national bodies casting a vote.

International Standardized Profile ISO/IEC ISP 12059-4 was prepared with the collaboration of

- Asia-Oceania Workshop (AOW);
- European Workshop for Open Systems (EWOS);
- Open Systems Environment Implementors' Workshop (OIW).

ISO/IEC ISP 12059 consists of the following parts, under the general title *Information technology - International Standardized Profiles - OSI Management - Common information for management functions*:

- *Part 0: Common definitions for management function profiles*
- *Part 1: Object management*
- *Part 2: State management*
- *Part 3: Attributes for representing relationships*
- *Part 4: Alarm reporting*
- *Part 5: Event report management*
- *Part 6: Log control*

Annexes A and B form an integral part of this part of ISO/IEC ISP 12059.

Information technology - International Standardized Profiles - OSI Management - Common information for management functions -

Part 4:

Alarm reporting

1 Scope

1.1 General

This part of ISO/IEC ISP 12059 is based on CCITT Rec. X.733 | ISO/IEC 10164-4, Alarm reporting function. Each part of ISO/IEC ISP 12059 is a building block, containing a subset of systems management function capability, and is used by ISO/IEC ISP 12060 parts to build interoperable profile specifications.

1.2 Position within the Taxonomy

This part of ISO/IEC ISP 12059 may be referenced by parts of ISO/IEC ISP 12060 for the specification of management function profiles. The position of this part of ISO/IEC ISP 12059 within the taxonomy is described in ISO/IEC ISP 12059-0.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 12059. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of ISO/IEC ISP 12059 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and ITU-T maintains published editions of its current Recommendations.

2.1 Identical CCITT Recommendations | International Standards

- ITU-T Recommendation X.200 (1994) | ISO/IEC 7498-1:1994, *Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model*.
- CCITT Recommendation X.701 (1992) | ISO/IEC 10040:1992, *Information technology - Open Systems Interconnection - Systems management overview*.
- CCITT Recommendation X.720 (1992) | ISO/IEC 10165-1:1993, *Information technology - Open Systems Interconnection - Structure of management information: Management information model*.
- CCITT Recommendation X.721 (1992) | ISO/IEC 10165-2:1992, *Information technology - Open Systems Interconnection - Structure of management information: Definition of management information*.
- CCITT Recommendation X.722 (1992) | ISO/IEC 10165-4:1992, *Information technology - Open Systems Interconnection - Structure of management information: Guidelines for the definition of managed objects*.
- CCITT Recommendation X.724 (1993) | ISO/IEC 10165-6:1994, *Information technology - Open Systems Interconnection - Structure of management information: Requirements and guidelines for implementation conformance statement proformas associated with OSI management*.
- CCITT Recommendation X.731 (1992) | ISO/IEC 10164-2:1993, *Information technology - Open Systems Interconnection - Systems Management: State management function*.
- CCITT Recommendation X.732 (1992) | ISO/IEC 10164-3:1993, *Information technology - Open Systems Interconnection - Systems Management: Attributes for representing relationships*.
- CCITT Recommendation X.733 (1992) | ISO/IEC 10164-4:1992, *Information technology - Open Systems Interconnection - Systems Management: Alarm reporting function*.

- CCITT Recommendation X.734 (1992) | ISO/IEC 10164-5:1993, *Information technology - Open Systems Interconnection - Systems Management: Event report management function.*
- CCITT Recommendation X.735 (1992) | ISO/IEC 10164-6:1993, *Information technology - Open Systems Interconnection - Systems Management: Log control function.*

2.2 Paired CCITT/ITU-T Recommendations | International Standards equivalent in technical content

- CCITT Recommendation X.208 (1988), *Specification of abstract syntax notation one (ASN.1).*
ISO/IEC 8824:1990, *Information technology - Open Systems Interconnection - Specification of Abstract Syntax Notation One (ASN.1).*
- CCITT Recommendation X.290 (1992), *OSI conformance testing methodology and framework for protocol Recommendations for CCITT applications - General concepts.*
ISO/IEC 9646-1:1994, *Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts.*
- CCITT Recommendation X.291 (1992), *OSI conformance testing methodology and framework for protocol Recommendations for CCITT 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.296¹⁾, *OSI conformance testing methodology and framework - Implementation Conformance Statements.*
ISO/IEC 9646-7:1995, *Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements.*
- CCITT Recommendation X.700 (1992), *Management Framework Definition for Open Systems Interconnection (OSI) for CCITT applications.*
ISO/IEC 7498-4:1989, *Information processing systems - Open Systems Interconnection - Basic Reference Model - Part 4: Management framework.*
- CCITT Recommendation X.710 (1991), *Common Management Information Service Definition for CCITT applications.*
ISO/IEC 9595:1991, *Information technology - Open Systems Interconnection - Common management information service definition.*

2.3 Additional references

- ISO/IEC 9545:1994, *Information technology - Open Systems Interconnection - Application layer Structure.*
- ISO/IEC TR 10000-1:1992²⁾, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: Framework.*
- ISO/IEC TR 10000-2:1994²⁾, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Principles and Taxonomy for OSI Profiles.*
- ISO/IEC ISP 12059-0:1995, *Information technology - International Standardized Profiles - OSI Management - Common information for management functions - Part 0: Common definitions for management function profiles.*

1) Currently at the stage of Draft Recommendation.

2) Under revision.

3 Definitions

The terms used in this part of ISO/IEC ISP 12059 are defined in the referenced base standards.

4 Abbreviations

The abbreviations used in this part of ISO/IEC ISP 12059 are specified in ISO/IEC ISP 12059-0.

5 Conventions

5.1 Common conventions

The common conventions and status codes for IPRL used in this part of ISO/IEC ISP 12059, including c3, are defined in ISO/IEC ISP 12059-0.

5.2 Document specific conventions

The following conventions are used to specify conditions used in the tables of this part of ISO/IEC ISP 12059.

c21	If A.3/4 then m else -
c22	If the alarm is reported by the exceed of threshold, this is mandatory.
c23	Support required if any gauge attribute is supported.
c24	If there is a state attribute value transition, this is mandatory.

The following conditions are specified in the referenced base standard and used in this part of ISO/IEC ISP 12059:

4B/cn	See CCITT Rec. X.733 ISO/IEC 10164-4, Annex B, condition cn.
4C/cn	See CCITT Rec. X.733 ISO/IEC 10164-4, Annex C, condition cn.

6. Conformance requirements

This part of ISO/IEC ISP 12059 is referenced by parts of ISO/IEC ISP 12060. Those parts of ISO/IEC ISP 12060 that reference this part of ISO/IEC ISP 12059 each define the requirements for a particular AOM2xx profile and state the conformance requirements for that profile.

Annex A

ISPICS Requirements List (IPRL) for Alarm reporting

(This annex forms an integral part of ISO/IEC ISP 12059-4)

The following clarifies, where necessary, the column headings used in the IPRL in this annex:

- Index:
- The row index of this item in the referenced ICS proforma.
- Constraints and Values:
- Base standard constraints or any additional constraints defined in the common profile for this item.
- Base Std.:
- The status value of the item as defined in the base standard.
- Common Profile:
- Common profile requirements defined for this item (relevant to any profile referencing this table).

The notation used in this annex is identified in clause 5. The parameter names are those which are specified in CCITT Recommendation X.733 | ISO/IEC 10164-4 and CCITT Recommendation X.721 | ISO/IEC 10165-2.

A.1 Manager/Agent role

Table A.1 is based on Table B.4 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.1 - Management role support

Index	Systems management functional unit	Manager		Agent		Additional Information
		Base Std.	Common Profile	Base Std.	Common Profile	
1	alarm reporting	4B/c2	o.1	4B/c2	o.1	

A.2 MAPDU support

Table A.2 is based on Table B.5 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.2 - Alarm reporting MAPDUs

Index	MAPDU(agent sending)/(manager receiving)	Base Std.	Common Profile	Additional information
1	Communications alarm (agent sending)	4B/c3	4B/c3	
2	Environmental alarm (agent sending)	4B/c3	4B/c3	
3	Equipment alarm (agent sending)	4B/c3	4B/c3	
4	Processing error alarm (agent sending)	4B/c3	4B/c3	
5	Quality of service alarm (agent sending)	4B/c3	4B/c3	
6	Communications alarm (manager receiving)	4B/c4	4B/c4	
7	Environmental alarm (manager receiving)	4B/c4	4B/c4	
8	Processing error alarm (manager receiving)	4B/c4	4B/c4	
9	Processing failure (manager receiving)	4B/c4	4B/c4	
10	Quality of service alarm (manager receiving)	4B/c4	4B/c4	

A.2.1 Communications alarm MAPDU support

Table A.3 is based on Table B.6 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.3 - Communications alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	o.1	mc3	
1.2	localValue	-	o.1	ii	
2	specificProblems	required for some objects	o	oo	
2.1	global	-	c.o.2	c.mc3	
2.2	local	-	c.o.2	c.ii	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	required for some objects	o	oo	
5	backUpObject	for backUp relationships	o	oc21	
5.1	distinguishedName	-	c.o.3	c.oc3	
5.2	nonSpecificForm	-	c.o.3	c.oc3	
5.3	localDistinguishedName	-	c.o.3	c.oc3	
6	trendIndication	ENUMERATED 0 to 2	o	oo	
7	thresholdInfo	for threshold attributes	o	oc22	
7.1	triggeredThreshold	-	c.m	c.mm	
7.2	observedValue	-	c.m	c.mm	
7.2.1	integer	-	c.o.4	c.mc3	
7.2.2	real	required for some objects	c.o.4	c.oc3	
7.3	thresholdLevel	-	c.o	c.mo	
7.3.1	up	-	c.o.5	c.mc3	
7.3.1.1	high	-	c.m	c.mm	
7.3.1.1.1	integer	-	c.o.6	c.mc3	
7.3.1.1.2	real	required for some objects	c.o.6	c.oc3	
7.3.1.2	low	for gauge thresholds	c.o	c.oc23	
7.3.1.2.1	integer	-	c.o.7	c.mc3	
7.3.1.2.2	real	required for some objects	c.o.7	c.oc3	
7.3.2	down	-	c.o.5	c.mc3	
7.3.2.1	high	-	c.m	c.mm	
7.3.2.1.1	integer	-	c.o.8	c.mc3	
7.3.2.1.2	real	required for some objects	c.o.8	c.oc3	
7.3.2.2	low	-	c.m	c.mm	
7.3.2.2.1	integer	-	c.o.9	c.mc3	
7.3.2.2.2	real	required for some objects	c.o.9	c.oc3	
7.4	armTime	-	c.o	c.mo	
8	notificationIdentifier	-	4B/c5	4B/c5o	
9	correlatedNotifications	-	o	oo	
9.1	correlatedNotifications	-	c.m	c.mm	
9.2	sourceObjectInst	-	c.o	c.mo	
9.2.1	distinguishedName	-	c.o.51	c.mc3	
9.2.2	nonSpecificForm	-	c.o.51	c.mc3	
9.2.3	localDistinguishedName	-	c.o.51	c.mc3	
10	stateChangeDefinition	required for some objects	o	oc24	
10.1	attributeId	-	c.m	c.mm	
10.2	oldAttributeValue	-	c.o	c.mo	
10.3	newAttributeValue	-	c.m	c.mm	
11	monitoredAttributes	required for some objects	o	oo	
12	proposedRepairActions	required for some objects	o	oo	
12.1	global	-	c.o.10	c.mc3	
12.2	local	-	c.o.10	c.ii	
13	additionalText	-	o	oo	
14	additionalInformation	required for some objects	o	oo	

Table A.4 is based on Table B.7 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.4 - Communications alarm MAPDU (Manager receiving)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	m	mc3	
1.2	localValue	-	m	mc3	
2	specificProblems	-	m	mo	
2.1	global	-	m	mo	
2.2	local	-	m	mo	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	-	m	mo	
5	backUpObject	-	m	mc21	
5.1	distinguishedName	-	m	mc3	
5.2	nonSpecificForm	-	m	mc3	
5.3	localDistinguishedName	-	m	mc3	
6	trendIndication	ENUMERATED 0 to 2	m	mo	
7	thresholdInfo	-	m	mc22	
7.1	triggeredThreshold	-	m	mo	
7.2	observedValue	-	m	mo	
7.2.1	integer	-	m	mc3	
7.2.2	real	-	m	mc3	
7.3	thresholdLevel	-	m	mo	
7.3.1	up	-	m	mo	
7.3.1.1	high	-	m	mo	
7.3.1.1.1	integer	-	m	mc3	
7.3.1.1.2	real	-	m	mc3	
7.3.1.2	low	-	m	mc23	
7.3.1.2.1	integer	-	m	mc3	
7.3.1.2.2	real	-	m	mc3	
7.3.2	down	-	m	mc3	
7.3.2.1	high	-	m	mo	
7.3.2.1.1	integer	-	m	mc3	
7.3.2.1.2	real	-	m	mc3	
7.3.2.2	low	-	m	mo	
7.3.2.2.1	integer	-	m	mc3	
7.3.2.2.2	real	-	m	mc3	
7.4	armTime	-	m	mo	
8	notificationIdentifier	-	m	mo	
9	correlatedNotifications	-	m	mo	
9.1	correlatedNotifications	-	m	mo	
9.2	sourceObjectInst	-	m	mo	
9.2.1	distinguishedName	-	m	mc3	
9.2.2	nonSpecificForm	-	m	mc3	
9.2.3	localDistinguishedName	-	m	mc3	
10	stateChangeDefinition	-	m	mo	
10.1	attributeId	-	m	mo	
10.2	oldAttributeValue	-	m	mo	
10.3	newAttributeValue	-	m	mo	
11	monitoredAttributes	-	m	mo	
12	proposedRepairActions	-	m	mo	
12.1	global	-	m	mc3	
12.2	local	-	m	mc3	
13	additionalText	-	m	mo	
14	additionalInformation	-	m	mo	

A.2.2 Quality of service alarm MAPDU support

Table A.5 is based on Table B.8 of CCITT Recommendation X.733[ISO/IEC 10164-4 DAM 1.

Table A.5 - Quality of service alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	o.11	mc3	
1.2	localValue	-	o.11	ii	
2	specificProblems	required for some objects	o	oo	
2.1	global	-	c.o.12	c.mc3	
2.2	local	-	c.o.12	c.ii	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	required for some objects	o	oo	
5	backUpObject	for backUp relationships	o	oc21	
5.1	distinguishedName	-	c.o.13	c.oc3	
5.2	nonSpecificForm	-	c.o.13	c.oc3	
5.3	localDistinguishedName	-	c.o.13	c.oc3	
6	trendIndication	ENUMERATED 0 to 2	o	oo	
7	thresholdInfo	for threshold attributes	o	oc22	
7.1	triggeredThreshold	-	c.m	c.mm	
7.2	observedValue	-	c.m	c.mm	
7.2.1	integer	-	c.o.14	c.mc3	
7.2.2	real	required for some objects	c.o.14	c.oc3	
7.3	thresholdLevel	-	c.o	c.mo	
7.3.1	up	-	c.o.15	c.mc3	
7.3.1.1	high	-	c.m	c.mm	
7.3.1.1.1	integer	-	c.o.16	c.mc3	
7.3.1.1.2	real	required for some objects	c.o.16	c.oc3	
7.3.1.2	low	for gauge thresholds	c.o	c.oc23	
7.3.1.2.1	integer	-	c.o.17	c.mc3	
7.3.1.2.2	real	required for some objects	c.o.17	c.oc3	
7.3.2	down	-	c.o.15	c.mc3	
7.3.2.1	high	-	c.m	c.mm	
7.3.2.1.1	integer	-	c.o.18	c.mc3	
7.3.2.1.2	real	required for some objects	c.o.18	c.oc3	
7.3.2.2	low	-	c.m	c.mm	
7.3.2.2.1	integer	-	c.o.19	c.mc3	
7.3.2.2.2	real	required for some objects	c.o.19	c.oc3	
7.4	armTime	-	c.o	c.mo	
8	notificationIdentifier	-	4B/c6	4B/c6o	
9	correlatedNotifications	-	o	oo	
9.1	correlatedNotifications	-	c.m	c.mm	
9.2	sourceObjectInst	-	c.o	c.mo	
9.2.1	distinguishedName	-	c.o.52	c.mc3	
9.2.2	nonSpecificForm	-	c.o.52	c.mc3	
9.2.3	localDistinguishedName	-	c.o.52	c.mc3	
10	stateChangeDefinition	required for some objects	o	oc24	
10.1	attributeId	-	c.m	c.mm	
10.2	oldAttributeValue	-	c.o	c.mo	
10.3	newAttributeValue	-	c.m	c.mm	
11	monitoredAttributes	required for some objects	o	oo	
12	proposedRepairActions	required for some objects	o	oo	
12.1	global	-	c.o.20	c.mc3	
12.2	local	-	c.o.20	c.ii	
13	additionalText	-	o	oo	
14	additionalInformation	required for some objects	o	oo	

Table A.6 is based on Table B.9 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.6 - Quality of service alarm MAPDU (Manager receiving)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	m	mc3	
1.2	localValue	-	m	mc3	
2	specificProblems	-	m	mo	
2.1	global	-	m	mo	
2.2	local	-	m	mo	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	-	m	mo	
5	backUpObject	-	m	mc21	
5.1	distinguishedName	-	m	mc3	
5.2	nonSpecificForm	-	m	mc3	
5.3	localDistinguishedName	-	m	mc3	
6	trendIndication	ENUMERATED 0 to 2	m	mo	
7	thresholdInfo	-	m	mc22	
7.1	triggeredThreshold	-	m	mo	
7.2	observedValue	-	m	mo	
7.2.1	integer	-	m	mc3	
7.2.2	real	-	m	mc3	
7.3	thresholdLevel	-	m	mo	
7.3.1	up	-	m	mo	
7.3.1.1	high	-	m	mo	
7.3.1.1.1	integer	-	m	mc3	
7.3.1.1.2	real	-	m	mc3	
7.3.1.2	low	-	m	mc23	
7.3.1.2.1	integer	-	m	mc3	
7.3.1.2.2	real	-	m	mc3	
7.3.2	down	-	m	mc3	
7.3.2.1	high	-	m	mo	
7.3.2.1.1	integer	-	m	mc3	
7.3.2.1.2	real	-	m	mc3	
7.3.2.2	low	-	m	mo	
7.3.2.2.1	integer	-	m	mc3	
7.3.2.2.2	real	-	m	mc3	
7.4	armTime	-	m	mo	
8	notificationIdentifier	-	m	mo	
9	correlatedNotifications	-	m	mo	
9.1	correlatedNotifications	-	m	mo	
9.2	sourceObjectInst	-	m	mo	
9.2.1	distinguishedName	-	m	mc3	
9.2.2	nonSpecificForm	-	m	mc3	
9.2.3	localDistinguishedName	-	m	mc3	
10	stateChangeDefinition	-	m	mo	
10.1	attributeId	-	m	mo	
10.2	oldAttributeValue	-	m	mo	
10.3	newAttribute Value	-	m	mo	
11	moniteredAttributes	-	m	mo	
12	proposedRepairActions	-	m	mo	
12.1	global	-	m	mc3	
12.2	local	-	m	mc3	
13	additionalText	-	m	mo	
14	additionalInformation	-	m	mo	

A.2.3 Processing error alarm MAPDU support

Table A.7 is based on Table B.10 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.7 - Processing error alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	o.21	mc3	
1.2	localValue	-	o.21	ii	
2	specificProblems	required for some objects	o	oo	
2.1	global	-	c.o.22	c.mc3	
2.2	local	-	c.o.22	c.ii	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	required for some objects	o	oo	
5	backUpObject	for backUp relationships	o	oc21	
5.1	distinguishedName	-	c.o.23	c.oc3	
5.2	nonSpecificForm	-	c.o.23	c.oc3	
5.3	localDistinguishedName	-	c.o.23	c.oc3	
6	trendIndication	ENUMERATED 0 to 2	o	oo	
7	thresholdInfo	for threshold attributes	o	oc22	
7.1	triggeredThreshold	-	c.m	c.mm	
7.2	observedValue	-	c.m	c.mm	
7.2.1	integer	-	c.o.24	c.mc3	
7.2.2	real	required for some objects	c.o.24	c.oc3	
7.3	thresholdLevel	-	c.o	c.mo	
7.3.1	up	-	c.o.25	c.mc3	
7.3.1.1	high	-	c.m	c.mm	
7.3.1.1.1	integer	-	c.o.26	c.mc3	
7.3.1.1.2	real	required for some objects	c.o.26	c.oc3	
7.3.1.2	low	for gauge thresholds	c.o	c.oc23	
7.3.1.2.1	integer	-	c.o.27	c.mc3	
7.3.1.2.2	real	required for some objects	c.o.27	c.oc3	
7.3.2	down	-	c.o.25	c.mc3	
7.3.2.1	high	-	c.m	c.mm	
7.3.2.1.1	integer	-	c.o.28	c.mc3	
7.3.2.1.2	real	required for some objects	c.o.28	c.oc3	
7.3.2.2	low	-	c.m	c.mm	
7.3.2.2.1	integer	-	c.o.29	c.mc3	
7.3.2.2.2	real	required for some objects	c.o.29	c.oc3	
7.4	armTime	-	c.o	c.mo	
8	notificationIdentifier	-	4B/c7	4B/c7o	
9	correlatedNotifications	-	o	oo	
9.1	correlatedNotifications	-	c.m	c.mm	
9.2	sourceObjectInst	-	c.o	c.mo	
9.2.1	distinguishedName	-	c.o.53	c.mc3	
9.2.2	nonSpecificForm	-	c.o.53	c.mc3	
9.2.3	localDistinguishedName	-	c.o.53	c.mc3	
10	stateChangeDefinition	required for some objects	o	oc24	
10.1	attributeId	-	c.m	c.mm	
10.2	oldAttributeValue	-	c.o	c.mo	
10.3	newAttributeValue	-	c.m	c.mm	
11	monitoredAttributes	required for some objects	o	oo	
12	proposedRepairActions	required for some objects	o	oo	
12.1	global	-	c.o.30	c.mc3	
12.2	local	-	c.o.30	c.ii	
13	additionalText	-	o	oo	
14	additionalInformation	required for some objects	o	oo	

Table A.8 is based on Table B.11 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.8 - Processing error alarm MAPDU (Manager receiving)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	m	mc3	
1.2	localValue	-	m	mc3	
2	specificProblems	-	m	mo	
2.1	global	-	m	mo	
2.2	local	-	m	mo	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	-	m	mo	
5	backUpObject	-	m	mc21	
5.1	distinguishedName	-	m	mc3	
5.2	nonSpecificForm	-	m	mc3	
5.3	localDistinguishedName	-	m	mc3	
6	trendIndication	ENUMERATED 0 to 2	m	mo	
7	thresholdInfo	-	m	mc22	
7.1	triggeredThreshold	-	m	mo	
7.2	observedValue	-	m	mo	
7.2.1	integer	-	m	mc3	
7.2.2	real	-	m	mc3	
7.3	thresholdLevel	-	m	mo	
7.3.1	up	-	m	mo	
7.3.1.1	high	-	m	mo	
7.3.1.1.1	integer	-	m	mc3	
7.3.1.1.2	real	-	m	mc3	
7.3.1.2	low	-	m	mc23	
7.3.1.2.1	integer	-	m	mc3	
7.3.1.2.2	real	-	m	mc3	
7.3.2	down	-	m	mc3	
7.3.2.1	high	-	m	mo	
7.3.2.1.1	integer	-	m	mc3	
7.3.2.1.2	real	-	m	mc3	
7.3.2.2	low	-	m	mo	
7.3.2.2.1	integer	-	m	mc3	
7.3.2.2.2	real	-	m	mc3	
7.4	armTime	-	m	mo	
8	notificationIdentifier	-	m	mo	
9	correlatedNotifications	-	m	mo	
9.1	correlatedNotifications	-	m	mo	
9.2	sourceObjectInst	-	m	mo	
9.2.1	distinguishedName	-	m	mc3	
9.2.2	nonSpecificForm	-	m	mc3	
9.2.3	localDistinguishedName	-	m	mc3	
10	stateChangeDefinition	-	m	mo	
10.1	attributeId	-	m	mo	
10.2	oldAttributeValue	-	m	mo	
10.3	newAttributeValue	-	m	mo	
11	monitoredAttributes	-	m	mo	
12	proposedRepairActions	-	m	mo	
12.1	global	-	m	mc3	
12.2	local	-	m	mc3	
13	additionalText	-	m	mo	
14	additionalInformation	-	m	mo	

A.2.4 Equipment alarm MAPDU support

Table A.9 is based on Table B.12 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.9 - Equipment alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	o.31	mc3	
1.2	localValue	-	o.31	ii	
2	specificProblems	required for some objects	o	oo	
2.1	global	-	c.o.32	c.mc3	
2.2	local	-	c.o.32	c.ii	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	required for some objects	o	oo	
5	backUpObject	for backUp relationships	o	oc21	
5.1	distinguishedName	-	c.o.33	c.oc3	
5.2	nonSpecificForm	-	c.o.33	c.oc3	
5.3	localDistinguishedName	-	c.o.33	c.oc3	
6	trendIndication	ENUMERATED 0 to 2	o	oo	
7	thresholdInfo	for threshold attributes	o	oc22	
7.1	triggeredThreshold	-	c.m	c.mm	
7.2	observedValue	-	c.m	c.mm	
7.2.1	integer	-	c.o.34	c.mc3	
7.2.2	real	required for some objects	c.o.34	c.oc3	
7.3	thresholdLevel	-	c.o	c.mo	
7.3.1	up	-	c.o.35	c.mc3	
7.3.1.1	high	-	c.m	c.mm	
7.3.1.1.1	integer	-	c.o.36	c.mc3	
7.3.1.1.2	real	required for some objects	c.o.36	c.oc3	
7.3.1.2	low	for gauge thresholds	c.o	c.oc23	
7.3.1.2.1	integer	-	c.o.37	c.mc3	
7.3.1.2.2	real	required for some objects	c.o.37	c.oc3	
7.3.2	down	-	c.o.35	c.mc3	
7.3.2.1	high	-	c.m	c.mm	
7.3.2.1.1	integer	-	c.o.38	c.mc3	
7.3.2.1.2	real	required for some objects	c.o.38	c.oc3	
7.3.2.2	low	-	c.m	c.mm	
7.3.2.2.1	integer	-	c.o.39	c.mc3	
7.3.2.2.2	real	required for some objects	c.o.39	c.oc3	
7.4	armTime	-	c.o	c.mo	
8	notificationIdentifier	-	4B/c8	4B/c8o	
9	correlatedNotifications	-	o	oo	
9.1	correlatedNotifications	-	c.m	c.mm	
9.2	sourceObjectInst	-	c.o	c.mo	
9.2.1	distinguishedName	-	c.o.54	c.mc3	
9.2.2	nonSpecificForm	-	c.o.54	c.mc3	
9.2.3	localDistinguishedName	-	c.o.54	c.mc3	
10	stateChangeDefinition	required for some objects	o	oc24	
10.1	attributeId	-	c.m	c.mm	
10.2	oldAttributeValue	-	c.o	c.mo	
10.3	newAttributeValue	-	c.m	c.mm	
11	monitoredAttributes	required for some objects	o	oo	
12	proposedRepairActions	required for some objects	o	oo	
12.1	global	-	c.o.40	c.mc3	
12.2	local	-	c.o.40	c.ii	
13	additionalText	-	o	oo	
14	additionalInformation	required for some objects	o	oo	

Table A.10 is based on Table B.13 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.10 - Equipment alarm MAPDU (Manager receiving)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	m	mc3	
1.2	localValue	-	m	mc3	
2	specificProblems	-	m	mo	
2.1	global	-	m	mo	
2.2	local	-	m	mo	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	-	m	mo	
5	backUpObject	-	m	mc21	
5.1	distinguishedName	-	m	mc3	
5.2	nonSpecificForm	-	m	mc3	
5.3	localDistinguishedName	-	m	mc3	
6	trendIndication	ENUMERATED 0 to 2	m	mo	
7	thresholdInfo	-	m	mc22	
7.1	triggeredThreshold	-	m	mo	
7.2	observedValue	-	m	mo	
7.2.1	integer	-	m	mc3	
7.2.2	real	-	m	mc3	
7.3	thresholdLevel	-	m	mo	
7.3.1	up	-	m	mo	
7.3.1.1	high	-	m	mo	
7.3.1.1.1	integer	-	m	mc3	
7.3.1.1.2	real	-	m	mc3	
7.3.1.2	low	-	m	mc23	
7.3.1.2.1	integer	-	m	mc3	
7.3.1.2.2	real	-	m	mc3	
7.3.2	down	-	m	mc3	
7.3.2.1	high	-	m	mo	
7.3.2.1.1	integer	-	m	mc3	
7.3.2.1.2	real	-	m	mc3	
7.3.2.2	low	-	m	mo	
7.3.2.2.1	integer	-	m	mc3	
7.3.2.2.2	real	-	m	mc3	
7.4	armTime	-	m	mo	
8	notificationIdentifier	-	m	mo	
9	correlatedNotifications	-	m	mo	
9.1	correlatedNotifications	-	m	mo	
9.2	sourceObjectInst	-	m	mo	
9.2.1	distinguishedName	-	m	mc3	
9.2.2	nonSpecificForm	-	m	mc3	
9.2.3	localDistinguishedName	-	m	mc3	
10	stateChangeDefinition	-	m	mo	
10.1	attributeId	-	m	mo	
10.2	oldAttributeValue	-	m	mo	
10.3	newAttributeValue	-	m	mo	
11	monitoredAttributes	-	m	mo	
12	proposedRepairActions	-	m	mo	
12.1	global	-	m	mc3	
12.2	local	-	m	mc3	
13	additionalText	-	m	mo	
14	additionalInformation	-	m	mo	

A.2.5 Environmental alarm MAPDU support

Table A.11 is based on Table B.14 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.11 - Environmental alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	o.41	mc3	
1.2	localValue	-	o.41	ii	
2	specificProblems	required for some objects	o	oo	
2.1	global	-	c.o.42	c.mc3	
2.2	local	-	c.o.42	c.ii	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	required for some objects	o	oo	
5	backUpObject	for backUp relationships	o	oc21	
5.1	distinguishedName	-	c.o.43	c.oc3	
5.2	nonSpecificForm	-	c.o.43	c.oc3	
5.3	localDistinguishedName	-	c.o.43	c.oc3	
6	trendIndication	ENUMERATED 0 to 2	o	oo	
7	thresholdInfo	for threshold attributes	o	oc22	
7.1	triggeredThreshold	-	c.m	c.mm	
7.2	observedValue	-	c.m	c.mm	
7.2.1	integer	-	c.o.44	c.mc3	
7.2.2	real	required for some objects	c.o.44	c.oc3	
7.3	thresholdLevel	-	c.o	c.mo	
7.3.1	up	-	c.o.45	c.mc3	
7.3.1.1	high	-	c.m	c.mm	
7.3.1.1.1	integer	-	c.o.46	c.mc3	
7.3.1.1.2	real	required for some objects	c.o.46	c.oc3	
7.3.1.2	low	for gauge thresholds	c.o	c.oc23	
7.3.1.2.1	integer	-	c.o.47	c.mc3	
7.3.1.2.2	real	required for some objects	c.o.47	c.oc3	
7.3.2	down	-	c.o.45	c.mc3	
7.3.2.1	high	-	c.m	c.mm	
7.3.2.1.1	integer	-	c.o.48	c.mc3	
7.3.2.1.2	real	required for some objects	c.o.48	c.oc3	
7.3.2.2	low	-	c.m	c.mm	
7.3.2.2.1	integer	-	c.o.49	c.mc3	
7.3.2.2.2	real	required for some objects	c.o.49	c.oc3	
7.4	armTime	-	c.o	c.mo	
8	notificationIdentifier	-	4B/c9	4B/c9o	
9	correlatedNotifications	-	o	oo	
9.1	correlatedNotifications	-	c.m	c.mm	
9.2	sourceObjectInst	-	c.o	c.mo	
9.2.1	distinguishedName	-	c.o.55	c.mc3	
9.2.2	nonSpecificForm	-	c.o.55	c.mc3	
9.2.3	localDistinguishedName	-	c.o.55	c.mc3	
10	stateChangeDefinition	required for some objects	o	oc24	
10.1	attributeId	-	c.m	c.mm	
10.2	oldAttributeValue	-	c.o	c.mo	
10.3	newAttributeValue	-	c.m	c.mm	
11	monitoredAttributes	required for some objects	o	oo	
12	proposedRepairActions	required for some objects	o	oo	
12.1	global	-	c.o.50	c.mc3	
12.2	local	-	c.o.50	c.ii	
13	additionalText	-	o	oo	
14	additionalInformation	required for some objects	o	oo	