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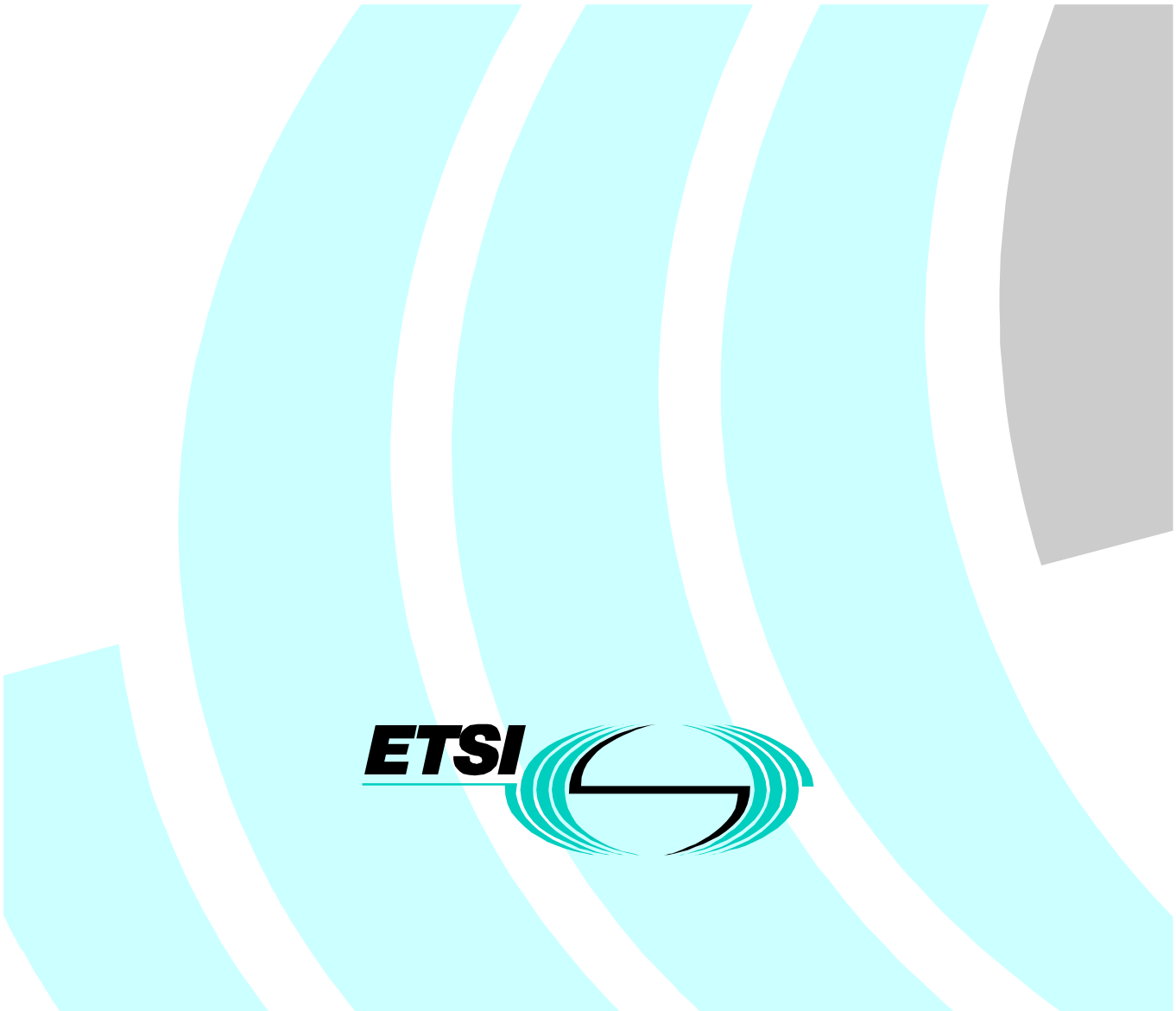
European Standard (Telecommunications series)

Integrated Services Digital Network (ISDN) and Broadband Integrated Services Digital Network (B-ISDN); Generic Addressing and Transport (GAT) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification



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Contents

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN), and is now submitted for the Vote phase of the ETSI standards Two-step Approval Procedure.

The present document is part 2 of a multi-part deliverable covering the Digital Subscriber Signalling System No.one (DSS1) and the Signalling System No.7 (SS7) ISDN User Part (ISUP) protocol implementation conformance statement for the Integrated Services Digital Network (ISDN), the Digital Subscriber Signalling System No.two (DSS2) and Signalling System No.7 (SS7) B-ISDN User Part (B-ISUP) protocol implementation conformance statement for the Broadband Integrated Services Digital Network (B-ISDN) to support the Generic Addressing and Transport protocol (GAT), as described below:

Part 1: "Protocol specification [ITU-T Recommendation Q.860 (2000), modified]";

Part 2: "Protocol Implementation Conformance Statement (PICS) proforma specification";

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

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

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
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Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

Introduction

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a given protocol. Such a statement is called an Implementation Conformance Statement (ICS). An ICS stating what capabilities and options have been implemented for a particular protocol is called a protocol ICS. This is commonly abbreviated to "PICS".

EN 301 813-1 [1] is derived from ITU-T Recommendation Q.860 [4]. However, no PICS proforma exists for this recommendation. Therefore, ETSI has created a PICS proforma that is specific to the European environment.

1 Scope

The present document provides the Protocol Implementation Conformance Statement (PICS) proforma for the Generic Addressing and Transport (GAT) protocol for Integrated Services Digital Network (ISDN), Broadband Integrated Services Digital Network (B-ISDN)) and Signalling System No. 7 defined in EN 301 813-1 [1] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [3].

The supplier of a protocol implementation that is claimed to conform to EN 301 813-1 [1] is required to complete a copy of the PICS proforma provided in annex A of the present document and is required to provide the information necessary to identify both the supplier and the implementation.

Unless otherwise noted, all clauses referred to in the present document refer to clauses in ITU-T Recommendation Q.860 [4].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[1] ETSI EN 301 813-1 (V1.1.1): "Integrated Services Digital Network (ISDN) and Broadband Integrated Services Digital Network (B-ISDN); Generic Addressing and Transport (GAT) protocol; Part 1: Protocol specification [ITU-T Recommendation Q.860 (2000), modified]".

[2] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[3] ISO/IEC 9646-7 (1995): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

[4] ITU-T Recommendation Q.860 (2000): "Integrated Services Digital Network (ISDN) and Broadband Integrated Services Digital Network (B-ISDN) Generic Addressing and Transport (GAT) protocol".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 813-1 [1], ISO/IEC 9646-1 [2], ISO/IEC 9646-7 [3] and the following apply:

Implementation Conformance Statement (ICS): statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented. The ICS can take several forms: protocol ICS, profile ICS, profile specific ICS, and information object ICS

Protocol Implementation Conformance Statement (PICS): ICS for an implementation or system claimed to conform to a given protocol specification

PICS proforma: document, in the form of a questionnaire, which when completed for an implementation or system becomes a PICS

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

APDU	Application Protocol Data Unit
AS-ASE	Application Service Application Service Element
ASN.1	Abstract Syntax Notation No. one
B-ISDN	Broadband Integrated Services Digital Network
DSS1	Digital Subscriber Signalling System No. one
DSS2	Digital Subscriber Signalling System No. two
GAT	Generic Addressing and Transport
GAT-Control	Generic Addressing and Transport Control
GAT-PDU	Generic Addressing and Transport Protocol Data Unit
ICS	Implementation Conformance Statement
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
IUT	Implementation Under Test
PDU	Protocol Data Unit
PICS	Protocol ICS
PINX	Private Integrated Network Exchange
ROSE	Remote Operations Service Element
SCS	System Conformance Statement
SUT	System Under Test

4 Conformance

A PICS proforma that conforms to this PICS proforma specification shall be technically equivalent to annex A, and shall preserve the numbering and ordering of the items in annex A.

A PICS that conforms to this PICS proforma specification shall:

a) describe an implementation which conforms to EN 301 813-1 [1];

b) be a conforming PICS proforma, which has been completed in accordance with the instructions for completion given in clause A.1;

c) include the information necessary to uniquely identify both the supplier and the implementation.

Annex A (normative): PICS proforma for EN 301 813-1

A.1 Guidance for completing the ICS proforma

A.1.1 Purposes and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in EN 301 813-1 may provide information about the implementation in a standardized manner.

The PICS proforma is subdivided into clauses as follows:

A.1: guidance for completing the various parts of the PICS proforma;

A.2: identification of the implementation;

A.3: identification of the protocol to which this PICS proforma applies;

A.4: explanation of the PICS proforma tables;

A.5: global statement of conformance;

A.6: questions to determine roles;

A.7: questions for the signalling entity role.

A.1.2 Abbreviations and conventions

The PICS proforma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7.

Item column

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

Item description column

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

Status column

The following notations, defined in ISO/IEC 9646-7, are used for the status column.

m mandatory - the capability is required to be supported.

o optional - the capability may be supported or not.

n/a not applicable - in the given context, it is impossible to use the capability.

x prohibited (excluded) - there is a requirement not to use this capability in the given context.

o.i qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies a unique group of related optional items and the logic of their selection which is defined immediately following the table.

ci conditional - the requirement on the capability ("m", "o", "x" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression which is defined immediately following the table.

i irrelevant (out-of-scope) - capability outside the scope of the reference specification. No answer is requested from the supplier.

NOTE 1: This use of "i" status is not to be confused with the suffix "i" to the "o" and "c" statuses above.

NOTE 2: In the present document, the conditions ci are replaced by logical IF.

Reference column

The reference column makes reference to ITU-T Recommendation Q.860, except where explicitly stated otherwise.

Support column

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

Y or y supported by the implementation.

N or n not supported by the implementation.

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

If this PICS proforma is completed in order to describe a multiple-profile support in a system, it is necessary to be able to answer that a capability is supported for one profile and not supported for another. In that case, the supplier shall enter the unique reference to a conditional expression, preceded by "?" (e.g. ?3). This expression shall be given in the space for comments provided at the bottom of the table. It uses predicates defined in the SCS, each of which refers to a single profile and which takes the value TRUE if and only if that profile is to be used.

EXAMPLE: ?3: IF prof1 THEN Y ELSE N.

NOTE 3: As stated in ISO/IEC 9646-7, support for a received PDU requires the ability to parse all valid parameters of that PDU. Supporting a PDU while having no ability to parse a valid parameter is non-conformant. Support for a parameter on a PDU means that the semantics of that parameter are supported.

NOTE 4: Within the present document, the term "correctly coded" and the term "incorrectly coded" does not include the full syntactic check of the ASN.1 of the ApduPortion. The check of the ApduPortion is performed by ROSE in conjunction with GAT-Control in conjunction with the AS-ASE when a decision has been reached that end GAT-Control should be provided.

References to items

For each possible item answer (answer in the support column) within the PICS proforma a unique reference exists, used, for example, in the conditional expressions.

Prerequisite line

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

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

A.1.3 Instructions for completing the PICS proforma

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

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

More detailed instructions are given at the beginning of the different subclasses of the PICS proforma.

A.2 Identification of the implementation

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

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

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

A.2.1 Date of the statement

.....

A.2.2 Implementation Under Test (IUT) identification

IUT name:

.....

.....

IUT version:

.....

A.2.3 System Under Test (SUT) identification

SUT name:

.....

.....

Hardware configuration:

.....

.....

.....

Operating system:

.....

A.2.4 Product supplier

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.2.5 Client (if different from product supplier)

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

A.2.6 PICS contact person

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

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

A.3 Identification of the reference specification type

This PICS proforma applies to the following standard:

EN 301 813-1: "Integrated Services Digital Network (ISDN) and Broadband Integrated Services Digital Network (B-ISDN); Generic Addressing and Transport (GAT) protocol; Part 1: Protocol specification [ITU-T Recommendation Q.860 (2000), modified]".

A.4 Global statement of conformance

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

NOTE: Answering "No" to this question indicates non-conformance to the EN specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming, on pages attached to the PICS proforma.

A.5 Roles

Table A.1: Roles

Item	Role	Reference	Status	Support
R.1	GAT-Control	5.1.1	M	[ ] Yes [ ] No
NOTE:	Sending GAT-Control and Receiving GAT-Control are Major Capabilities of GAT-Control.			

A.6 GAT-Control role

This clause contains the PICS proforma tables related to the GAT-Control role.

Prerequisite: R.1 -- GAT-Control role

A.6.1 Major capabilities

Table A.2: Sending GAT-Control Major Capabilities

Item	Does the implementation support..	Reference	Status	Support
MC.1	sending GAT-Control	9.1	o.1	[ ] Yes [ ] No
MC.2	receiving GAT-Control	9.2	o.1	[ ] Yes [ ] No
MC.3	operation on a bearer-related transport mechanism	5.4.3	o.2	[ ] Yes [ ] No
MC.4	operation on a connection-oriented bearer independent transport mechanism	5.4.3	o.2	[ ] Yes [ ] No
MC.5	operation over DSS1 protocol	5.1.1	o.3	[ ] Yes [ ] No
MC.6	operation over DSS2 protocol	5.1.1	o.3	[ ] Yes [ ] No
MC.7	operation over SS7 protocol	5.1.1	o.3	[ ] Yes [ ] No
MC.8	end Terminal function	9.1.2.2	o.4	[ ] Yes [ ] No
MC.9	end Node function	9.1.2.2	o.4	[ ] Yes [ ] No
MC.10	sending a service user APDU as the initial APDU of a transaction		MC.1: o.5 If NOT MC.1 N/A	[ ] Yes [ ] No [ ] N/A
MC.11	responding to a service user APDU that has been received	9.1.3	If MC.1 o.5 If NOT MC.1 N/A	[ ] Yes [ ] No [ ] N/A
MC.12	receiving GAT-Control located at a terminal	9.2.2	If MC.2 AND MC.8 M else N/A	[ ] Yes [ ] No [ ] N/A
MC.13	receiving GAT-Control located at an exchange (note 2)	9.2.3	IF MC.2 AND (NOT MC.8) M Else N/A	[ ] Yes [ ] No [ ] N/A
MC.14	transit GAT-Control	9.3	If MC.13, M If NOT MC.13, N/A	[ ] Yes [ ] No [ ] N/A
MC.15	end GAT-Control	9.4	If MC.2, M else N/A	[ ] Yes [ ] No [ ] N/A
MC.16	bearer-related service	5.4.2	c. on MC.3	[ ] Yes [ ] No
MC.17	connection-oriented bearer-independent service	5.4.2	c. on MC.4	[ ] Yes [ ] No

o.1: It is mandatory to support at least one of these items.
o.2: It is mandatory to support at least one of these items.
o.3: It is mandatory to support at least one of these items.
o.4: Not more than one of these options shall be supported.
o.5: It is mandatory to support at least one of these items.
NOTE 1: MC stands for Major Capability.
NOTE 2: Exchange is short for transit exchange, incoming local exchange, incoming gateway PINX, incoming gateway exchange, outgoing local exchange or outgoing gateway exchange.

A.6.2 Subsidiary Capabilities

Table A.3: Subsidiary Capabilities of GAT-Control

Item	Does the implementation support..	Reference	Status	Support
SC.1	communication between terminal or network node and end node	9.1.2.1	o.6 if MC.11 N/A if NOT MC.11	[ ] Yes [ ] No [ ] N/A
SC.2	communication between terminal or network node and end terminal	9.1.2.1	o.6 if MC.11 N/A if NOT MC.11	[ ] Yes [ ] No [ ] N/A
SC.3	communication between terminal or network node and an addressed node	9.1.2.1	o.6 if MC.11 N/A if NOT MC.11	[ ] Yes [ ] No [ ] N/A
SC.4	communication between terminal or network node and next node which understands contents	9.1.2.1	o.6 if MC.11 N/A if NOT MC.11	[ ] Yes [ ] No [ ] N/A
SC.5	communication between terminal or network node and next entity	9.1.2.1	o.6 if MC.11 N/A if NOT MC.11	[ ] Yes [ ] No [ ] N/A
SC.6	rejection of non GAT PDU in the first and only APDU	9.2.2	MC.12 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.7	procedure of End GAT-Control upon reception of a GAT PDU with destinationEntity “endTerminal"	9.2.2	MC.12 M If not MC.12	[ ] Yes [ ] No [ ] N/A
SC.8	rejection of GAT PDU with any destinationEntity excepted “endTerminal"	9.2.2	MC.12 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.9	recognition of an incorrectly coded GAT PDU in the first and only APDU	9.2.2	MC.2 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.10	procedure of End GAT-Control upon reception of a GAT PDU with no GAT NFE	9.2.3	MC.13 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.11	procedure of Transit GAT-Control upon reception of GAT PDU with “endTerminal" as destinationEntity	9.2.3	MC.13 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.12	procedure of Transit GAT-Control upon reception of GAT PDU with “anyNode" in the NFE and the destinationEntityAddress is present but not equivalent to the service address at this location	9.2.3	MC.13 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.13	procedure of End GAT-Control upon reception of GAT PDU with “anyNode" and "destinationEntityAddress" present and equivalent to the service address at this location	9.2.3	MC.13 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.14	procedure of End GAT-Control upon reception of GAT PDU with “anyNode", no “destinationEntityAddress" and application present in the node	9.2.3	MC.13 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.15	procedure of End GAT-Control upon reception of GAT PDU with “endNode" where GAT-ASE is at an outgoing local exchange or at the origin of a transport mechanism	9.2.3	MC.13 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.16	procedure of Transit GAT-Control upon reception of GAT PDU with “endNode" where GAT-ASE is not at an outgoing local exchange or not at the origin of a transport mechanism	9.2.3	MC.13 AND MC.9: O MC.13 AND NOT MC.9 M Else N/A	[ ] Yes [ ] No [ ] N/A

Item	Does the implementation support..	Reference	Status	Support
SC.17	discarding of the GAT PDU when the address for the transport mechanism is the same as the address of the node providing transit GAT-Control	9.3	MC.13 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.18	sending of the GAT PDU unchanged when the node is not the endpoint of the transport mechanism to the next entity along the transport entity acting as a transit GAT-Control (same value of protocol field as received and same value of GAT NFE as received	9.3	MC.14 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.19	removal of the “destinationEntityAddress" from the sent GAT-PDU NFE in the case where the GAT-PDU contains NFE "destinationEntityType" of “endTerminal" or “EndNode"	9.3	MC.14 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.20	passing the content of the service indicator field and APDU portion to the AS-ASE if the identified AS-ASE is present at the location	9.4	MC.15 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.21	indicate to the transport mechanism that the connection-oriented bearer-independent transport mechanism shall be accepted if the GAT-PDU for which the end GAT-Control is the last remaining GAT-PDU in the transport parameter	9.4	MC.15 AND MC.17 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.22	passing the content of the service indicator field and APDU portion to the AS-ASE if the identified AS-ASE is present at the location	9.4	MC.15 M Else N/A	[ ] Yes [ ] No [ ] N/A
SC.23	passing the content of the service indicator field and APDU portion to the unrecognized AS-ASE handling function if the identified AS-ASE is not present at the location	9.4	MC.15 M Else	[ ] Yes [ ] No [ ] N/A
o.6: It is mandatory to support at least one of those items. NOTE: SC stands for Subsidiary Capability.				

A.6.3 Sending GAT-Control PDUs

A.6.3.1 PDUs transmitted

Table A.4: GAT-PDU Transmitted

Item	PDU	Reference	Status	Support
1	GAT	8.2	M	[ ] Yes [ ] No

A.6.3.2 Sending GAT-Control PDU Parameters

The parameters of GAT-PDU are listed in table A.5.

Table A.5: Parameters of Sending GAT-Control GAT-PDU

Item	Parameter	Reference	Status	Support
GATs.1	GAT Network Facility Extension	8.2	O if MC.1	[ ] Yes [ ] No
GATs.2	Service Indicator	8.2	M if MC.1	[ ] Yes [ ] No
GATs.3	Local Value Discriminator	8.2	M if MC.1	[ ] Yes [ ] No
GATs.4	Interpretation-APDU	8.2	O if MC.1	[ ] Yes [ ] No
GATs.5	APDU Portion	8.2	M if MC.1	[ ] Yes [ ] No

A.6.4 Receiving GAT-Control PDUs

A.6.4.1 PDUs received

Table A.6: GAT-PDU Received

Item	PDU	Reference	Status	Support
1	GAT	8.2	M	[ ] Yes [ ] No

A.6.4.2 Receiving GAT-Control PDU Parameters

The parameters of GAT-PDU are listed in table A.7.

Table A.7: Parameters of Receiving GAT-Control GAT-PDU

Item	Parameter	Reference	Status	Support
GATr.1	GAT Network Facility Extension	8.2	M	[ ] Yes [ ] No
GATr.2	Service Indicator	8.2	M	[ ] Yes [ ] No
GATr.3	Local Value Discriminator	8.2	M	[ ] Yes [ ] No
GATr.4	Interpretation-APDU	8.2	M	[ ] Yes [ ] No
GATr.5	APDU Portion	8.2	M	[ ] Yes [ ] No

History

Document history				
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