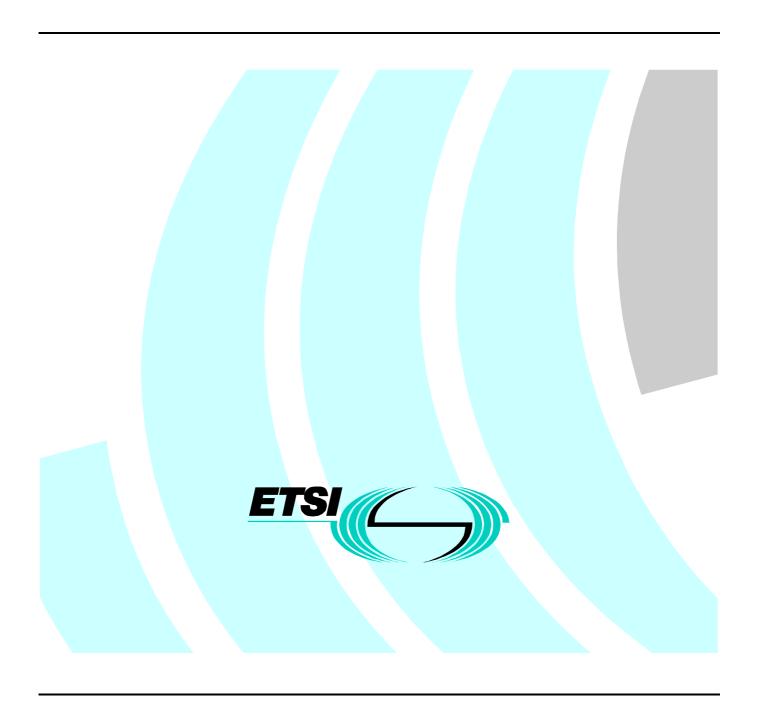# ETSI EN 301 484-2 V1.1.1 (2000-04)

European Standard (Telecommunications series)

Integrated Services Digital Network (ISDN); Line Hunting (LH) supplementary service; Digital Subscriber Signalling System No. one (DSS1); Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification

ETSI

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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).

The present document is part 2 of a multi-part EN covering the Integrated Services Digital Network (ISDN); Line Hunting (LH) supplementary service; Digital Subscriber Signalling System No. one (DSS1), as identified below:

Part 1: "Protocol specification";

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

Part 3: "Test Suite Structure and Test Purposes (TSS&TP) specifications for the user";

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

Part 5: "Test Suite Structure and Test Purposes (TSS&TP) specification for the network";

Part 6: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network".

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 Open Systems Interconnection (OSI) protocol. Such a statement is called a Protocol Implementation Conformance Statement (PICS).

National transposition dates	
Date of adoption of this EN:	21 April 2000
Date of latest announcement of this EN (doa):	31 July 2000
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 January 2001
Date of withdrawal of any conflicting National Standard (dow):	31 January 2001

1 Scope

This second part of DEN/SPAN-05171 is applicable to the stage three of the Line Hunting (LH) supplementary service for the pan-European Integrated Services Digital Network (ISDN) as provided by European public telecommunications operators at the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [6]) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol. Stage three identifies the protocol procedures and switching functions needed to support a telecommunication service (see CCITT Recommendation I.130 [5]).

The present document provides the Protocol Implementation Conformance Statement (PICS) proforma for the ISDN DSS1 supplementary service interactions protocol as specified in EN 301 484-1 [2] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [4].

The supplier of a protocol implementation which is claimed to conform to EN 301 484-1 [2] 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.

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, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1]   ETSI ETS 300 196-2: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".

[2]   ETSI EN 301 484-1: "Integrated Services Digital Network (ISDN); Line Hunting (LH) supplementary service; Digital Subscriber Signalling System No. one (DSS1); Part 1: Protocol specification".

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

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

[5]   CCITT Recommendation I.130: "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".

[6]   ITU-T Recommendation I.411: "ISDN user-network interfaces - Reference configurations".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, given in EN 301 484-1 [2] and the following terms and definitions apply.

Protocol Implementation Conformance Statement (PICS): statement made by the supplier of an Open Systems Interconnection (OSI) implementation or system, stating which capabilities have been implemented for a given OSI protocol (see ISO/IEC 9646-1 [3])

PICS proforma: document, in the form of a questionnaire, designed by the protocol specifier or conformance test suite specifier, which, when completed for an OSI implementation or system becomes the PICS (see ISO/IEC 9646-1 [3])

static conformance review: review of the extent to which the static conformance requirements are met by the IUT, accomplished by comparing the PICS with the static conformance requirements expressed in the relevant standard(s) (see ISO/IEC 9646-1 [3])

3.2   Symbols

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

•	Option (may be selected to suit the implementation, provided that any requirements applicable to the option are observed)
AND	Boolean "and"
C	Conditional requirement (to be observed if the relevant conditions apply)
M	Mandatory requirement (to be observed in all cases)
N/A	Not applicable, not supported or the conditions for status are not meet
No	not supported
not	Boolean "not"
or	Boolean "or"
Yes	supported

3.3   Abbreviations

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

DSS1	Digital Subscriber Signalling System No. one
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
LH	Line Hunting
MC	Major Capabilities
MR	Messages Received
MT	Messages Transmitted
OSI	Open Systems Interconnection
P	Parameters
PICS	Protocol Implementation Conformance Statement
R	Role
SC	Subsidiary Capabilities
SCS	System Conformance Statement
SUT	System Under Test
TM	Timers

4   Conformance

A PICS proforma which 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 which conforms to this PICS proforma specification shall:

   a) describe an implementation which claims to conform to EN 301 484-1 [2];

   b) be a conforming ICS 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 301 484-1

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the PICS proforma in this annex so that it can be used for its intended purposes and may further publish the completed PICS.

A.1 Instructions for completing the PICS proforma

A.1.1 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.

The System Conformance Statement (SCS) as defined in ISO/IEC 9646-1 is a document supplied by the client or product supplier that summarizes which OSI standards are implemented and to which conformance is claimed. The PICS/SCS clause should describe the relationship of the PICS to the SCS.

A.1.2 Global statement of conformance

If the answer to the statement in this subclause is "Yes", all subsequent subclauses should be completed to facilitate selection of test cases for optional functions.

If the answer to the statement in this subclause is "No", all subsequent subclauses should be completed, and all non-supported mandatory capabilities should be identified and explained. Explanations may be entered in the comments field at the bottom of each table or on attached pages.

A.1.3 Explanation of PICS proforma subclauses

The PICS proforma contains a Roles clause and thereafter is presented in two parts (for user and network) with the following subclauses, as required:

- major capabilities;

- subsidiary capabilities;

- protocol data unit support;

- protocol data unit parameters;

- timers;

- call states.

The User clause shall only be completed for user implementations (including private network implementations) while the Network clause shall only be completed for network implementations. The Roles clause shall be completed for all implementations.

The relationship between this PICS proforma and other related PICS proforma (e.g. the basic call PICS proforma) is expressed in the requirements list contained in annex B. This provides the additional restrictions placed on the related proforma (different conditions, different status, etc.).

A.1.4   Symbols, abbreviations and terms

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.

The reference column contained in the tables gives reference to the appropriate part(s) of EN 301 484-1 (unless another numbered reference is explicitly indicated) describing the particular item. Note, however, that a reference merely indicates the place where the core of a description of an item can be found. Any additional information contained in EN 301 484-1 (or any other possibly used reference) has to be taken into account when making a statement about the conformance of that particular item.

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

•	optional
M	mandatory
N/A	not applicable
O.<integer>	for mutually exclusive or selectable options from a set

The following common notations, defined in ISO/IEC 9646-7, are used for the support column:

N	for not supported/not implemented
Y	for supported/implemented

A.2   Identification of the implementation

A.2.1   Implementation Under Test (IUT) identification

IUT name:

....

IUT version:

....

A.2.2   System Under Test (SUT) identification

SUT name:

....

Hardware configuration:

....

....

Operating system:

....

A.2.3   Product supplier

Name:

....

Address:

....

....

Telephone number:

....

Facsimile number:

....

Additional information:

....

....

A.2.4   Client

Name:

....

Address:

....

....

Telephone number:

....

Facsimile number:

....

Additional information:

....

....

A.2.5   PICS contact person

Name:

....

Address:

....

....

Telephone number:

....

Facsimile number:

....

Additional information:

....

....

A.3   PICS/SCS relationship

Provide the relationship of the PICS with the SCS for the system:

....

....

....

A.4   Identification of the protocol

This PICS proforma applies to the following standard:

EN 301 484-1: "Integrated Services Digital Network (ISDN); Line Hunting (LH) supplementary service; Digital Subscriber Signalling System No. one (DSS1); Part 1: Protocol specification".

A.5   Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No)

> NOTE: Answering "No" to this question indicates non-conformance to the protocol specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming. Explanations may be entered in the comments field at the bottom of each table or on attached pages.
>
> In the tabulations which follow, all references are to EN 301 484-1 unless another numbered reference is explicitly indicated.

A.6   Roles

Table A.1: Type of implementation

Item	Major role: Does the implementation...	Conditions for status	Status	Reference	Support
	Type of implementation				
R 1.1	support Line Hunting supplementary service?		O		[ ]Yes [ ]No
R 2.1	support user requirements?		O.1	9	[ ]Yes [ ]No
R 2.2	support network requirements?		O.1	9	[ ]Yes [ ]No
O.1	Support of one and only one of these options is required.				
Comments:					

A.7   User

The tables provided in this clause need only to be completed for user implementations, where item R 2.1 above is supported.

A.7.1   Major capabilities

Table A.2: Major capabilities - user

Item	Major capability: Does the implementation support...	Conditions for status	Status	Reference	Support
MC 1	the request for the withdrawal of an access from a Hunt Group?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	9.1.1	[ ]Yes [ ]No [ ]N/A
MC 2	the request for the cancellation of withdrawal of an access from a Hunt Group?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	9.1.2	[ ]Yes [ ]No [ ]N/A
MC 3	the procedures for the interrogation of the details of the instance of a Line Hunting supplementary service?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	9.1.3	[ ]Yes [ ]No [ ]N/A
Comments:					

A.7.2   Subsidiary capabilities

No items requiring response.

A.7.3   Protocol data units

No items requiring response.

A.7.4 Protocol data unit parameters

Table A.3: Facility information element components received by the user

Item	Facility information element components: Does the implementation support...	Conditions for status	Status	Reference	Support
P 1.1	withdrawLHG return result?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	7.1, 9.1.1	[ ]Yes [ ]No [ ]N/A
P 1.2	withdrawLHG return error?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	7.1, 9.1.1	[ ]Yes [ ]No [ ]N/A
P 2.1	cancelWithdrawLHG return result?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	7.1, 9.1.2	[ ]Yes [ ]No [ ]N/A
P 2.2	cancelWithdrawLHG return error?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	7.1, 9.1.2	[ ]Yes [ ]No [ ]N/A
P 3.1	interrogationLHG return result?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	7.1, 9.1.3	[ ]Yes [ ]No [ ]N/A
P 3.2	interrogationLHG return error?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	7.1, 9.1.3	[ ]Yes [ ]No [ ]N/A
P 4	withdrawnFromLHG invoke?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	O N/A	7.1, 9.3	[ ]Yes [ ]No [ ]N/A
Comments:					

Table A.4: Facility information element components transmitted by the user

Item	Facility information element components: Does the implementation support...	Conditions for status	Status	Reference	Support
P 5	withdrawLHG invoke?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	7.1, 9.1.1	[ ]Yes [ ]No [ ]N/A
P 6	cancelWithdrawLHG invoke?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	7.1, 9.1.2	[ ]Yes [ ]No [ ]N/A
P 7	interrogationLHG invoke?	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	7.1, 9.1.3	[ ]Yes [ ]No [ ]N/A
Comments:					

A.7.5   Timers

Table A.5: Timers - user

Item	Timer: Does the implementation support...	Conditions for status	Status	Reference	Support
TM 1	T-WITHDRAWAL? (Value 4 s)	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	13, 9.1.1	[ ]Yes [ ]No [ ]N/A
TM 2	T-CANCELLATION? (Value 4 s)	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	13, 9.1.2	[ ]Yes [ ]No [ ]N/A
TM 3	T-INTERROGATE? (Value 4 s)	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	13, 9.1.3	[ ]Yes [ ]No [ ]N/A
NOTE:	The generic support of these timers is specified in ETS 300 196-2. This table includes the values required by EN 301 484-1.				
Comments:					

A.7.6   Call states

No items requiring response.

A.8   Network

The tables provided in this clause need only to be completed for network implementations, where item R 2.2 in table A.1 is supported.

A.8.1   Major capabilities

Table A.6: Major capabilities - network

Item	Major capability: Does the implementation support...	Conditions for status	Status	Reference	Support
MC 4	the provision of Line Hunting supplementary service ?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	5	[ ]Yes [ ]No [ ]N/A
MC 5	the procedures for activation of the Line Hunting supplementary service?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	9.1	[ ]Yes [ ]No [ ]N/A
MC 6	the procedures for deactivation of the Line Hunting supplementary service?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	9.1	[ ]Yes [ ]No [ ]N/A
MC 7	the procedures for temporary withdrawal of an access from a Hunt Group?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	9.1.1	[ ]Yes [ ]No [ ]N/A
MC 8	the procedures for the cancellation of temporary withdrawal of an access from a Hunt Group?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	9.1.2	[ ]Yes [ ]No [ ]N/A
MC 9	the procedures for interrogation of the status of the instance of a Line Hunting supplementary service?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	9.1.3	[ ]Yes [ ]No [ ]N/A
MC 10	the procedures for invocation of the instance of a Line Hunting supplementary service?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	9.2.1	[ ]Yes [ ]No [ ]N/A
Comments:					

A.8.2   Subsidiary capabilities

No items requiring response.

A.8.3   Protocol data units

No items requiring response.

A.8.4 Protocol data unit parameters

Table A.7: Facility information element components received by the network

Item	Facility information element components: Does the implementation support...	Conditions for status	Status	Reference	Support
P 8	withdrawLHG invoke?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	7.1, 9.1.1	[ ]Yes [ ]No [ ]N/A
P 9	cancelWithdrawLHG invoke?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	7.1, 9.1.2	[ ]Yes [ ]No [ ]N/A
P 10	interrogationLHG invoke?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	7.1, 9.1.3	[ ]Yes [ ]No [ ]N/A
Comments:					

Table A.8: Facility information element components transmitted by the network

Item	Facility information element components: Does the implementation support...	Conditions for status	Status	Reference	Support
P 11.1	withdrawLHG return result?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	7.1, 9.1.1	[ ]Yes [ ]No [ ]N/A
P 11.2	withdrawLHG return error?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	7.1, 9.1.1	[ ]Yes [ ]No [ ]N/A
P 12.1	cancelWithdrawLHG return result?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	7.1, 9.1.2	[ ]Yes [ ]No [ ]N/A
P 12.2	cancelWithdrawLHG return error?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	7.1, 9.1.2	[ ]Yes [ ]No [ ]N/A
P 13.1	interrogationLHG return result?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	7.1, 9.1.3	[ ]Yes [ ]No [ ]N/A
P 13.2	interrogationLHG return error?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	M N/A	7.1, 9.1.3	[ ]Yes [ ]No [ ]N/A
P 14	withdrawnFromLHG invoke?	R 1.1 AND R 4.2 NOT (R 1.1 AND R 4.2)	O N/A	7.1, 9.3	[ ]Yes [ ]No [ ]N/A
Comments:					

A.8.5 Timers

No items requiring response.

A.8.6 Call states

No items requiring response.

Annex B (normative):
Requirements list

Annex B repeats in the form of a requirements list some items of the basic call, generic functional protocol and supplementary service interactions PICS proforma required for support of EN 301 484-1 [2]. No support column is provided as the answers are to be entered in the relevant base PICS proforma.

In the tables which follow in this annex, the status of the base PICS proforma is indicated as "C" (conditional) or "O" (optional). The "C" status is used where the base PICS proforma contains a number of interdependent items which need not be repeated in the present document. "O" indicates that the item in the base PICS proforma is dependent on one or more other items, at least one of which has an optional status. The exact interdependency is fully specified in the base PICS proforma specification.

B.1   User

B.1.1   Requirements on items used in the basic call PICS

No additional requirements.

B.1.2   Requirements on items used in the generic functional protocol PICS

In the tabulations which follow all item numbers are as contained in ETS 300 196-2 [1]. All references are to EN 301 484-1 [2] unless otherwise stated.

Table B.1: Major capabilities - user

Item	Major capability: Does the implementation support...	Status base	SS conditions for status	SS status	Reference
MCu 2	the functional protocol (common information element category) for the control of supplementary services?	O	R 4.1 NOT (R 4.1)	M N/A	8, 9,
MCu 2.2	bearer independent supplementary services procedure?	O	R 1.1 AND R 4.1 NOT (R 1.1 AND R 4.1)	M N/A	8, 9

Table B.2: Messages transmitted - user

Item	Message: Does the implementation support...	Status base	SS conditions for status	SS status	Reference
MTu 1	the sending of FACILITY message using the DCR?	O	R 2.1 NOT R 2.1	M N/A	9, 10 8, 11

Table B.3: Messages received - user

Item	Message: Does the implementation support...	Status base	SS conditions for status	SS status	Reference
MRu 1	the receipt of FACILITY message using the DCR?	O	R 2.1 NOT R 2.1	M N/A	9, 10 8, 11

B.1.3　Requirements on items used in the supplementary service interactions PICS

No additional requirements.

B.2　Network

B.2.1　Requirements on items used in the basic call PICS

Not additional requirements.

B.2.2　Requirements on items used in the generic functional protocol PICS

In the tabulations which follow all item numbers are as contained in ETS 300 196-2 [1]. All references are to EN 301 484-1 [2] unless otherwise stated.

Table B.4: Major capabilities - network

Item	Major capability: Does the implementation support...	Status base	SS conditions for status	SS status	Reference
MCn 2	the functional protocol (common information element category) for the control of supplementary services?	O	R 2.2 NOT R 2.2	M N/A	6, 8
MCn 2.2	bearer independent supplementary services procedure?	O	R 1.1 AND R 2.2 NOT (R 1.1 AND R 2.2)	M N/A	8

Table B.5: Messages transmitted - network

Item	Message: Does the implementation support...	Status base	SS conditions for status	SS status	Reference
MTn 1	the sending of FACILITY message using the DCR?	O	R 2.2 NOT R 2.2	M N/A	9, 10 [] 8.3, 11.1.1.1

Table B.6: Messages received - network

Item	Message: Does the implementation support...	Status base	Supplementary service conditions for status	SS status	Reference
MRn 1	the receipt of FACILITY message using the DCR?	O	R 2.2 AND R 1.1 NOT (R 2.2 AND R 1.1)	M N/A	9, 10; [] 8.3, 11.1.1.1

B.2.3　Requirements on items used in the supplementary services interactions PICS

No additional requirements.

Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

- ETSI EN 300 195-1: "Integrated Services Digital Network (ISDN); Supplementary service interactions; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

- ETSI EN 300 195-2: "Integrated Services Digital Network (ISDN); Supplementary service interactions; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".

- ETSI EN 300 196-1: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

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