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European Standard (Telecommunications series)

**Integrated Services Digital Network (ISDN);
Narrowband Multi-service Delivery System (NMDS);
Part 2: Protocol Implementation Conformance
Statement (PICS) proforma specification**



Reference

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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 ETSI standards One-step Approval Procedure.

The present document is part 2 of a multi-part deliverable covering Narrowband Multi-service Delivery System (NMDS), as identified below:

Part 1: "NMDS interface specification";

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

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
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 telecommunication specification. Such a statement is called a Protocol Implementation Conformance Statement (PICS).

1 Scope

The present document provides the Protocol Implementation Conformance Statement (PICS) proforma for the "Narrowband Multi-service Delivery System (NMDS)" defined in EN 301 141-1 [3] in compliance with the relevant requirements, and in accordance with the relevant guidance given in ISO/IEC 9646-7 [5] and ETS 300 406 [2].

It allows either the network operator to formulate the requirements for an NMDS implemented in an Access Network (AN) or a Service Node (SN), or to decide whether an implementation meets these requirements. It details in tabular form the implementation options, i.e. the optional functions additional to those that are mandatory to implement.

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 300 012-1: "Integrated Services Digital Network (ISDN); Basic User-Network Interface (UNI); Part 1: Layer 1 specification".
- [2] ETSI ETS 300 406 (1995): "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications Standardization Methodology".
- [3] ETSI EN 301 141-1 (V2.1.1): "Integrated Services Digital Network (ISDN); Narrowband Multi-service Delivery System (NMDS); Part 1: NMDS interface specification".
- [4] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [5] ISO/IEC 9646-7 (1995): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 141-1 [3], ISO/IEC 9646-1 [4] and in ISO/IEC 9646-7 [5] and the following] apply.

3.2 Abbreviations

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

AN	Access Network
ICS	Implementation Conformance Statement
IUT	Implementation Under Test
NMDS	Narrowband Multi-service Delivery System
PICS	Protocol Implementation Conformance Statement
PSTN	Public Switched Telephone Network
SCS	System Conformance Statement
SN	Service Node

SUT

System Under Test

4 Conformance to this PICS proforma specification

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

A PICS which conforms to the present document shall be a conforming PICS proforma completed in accordance with the guidance for completion given in clause A.1.

Annex A (normative): Protocol ICS proforma for EN 301 141-1

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 Guidance for completing the PICS 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 301 141-1 may provide information about the implementation in a standardized manner.

The PICS proforma is subdivided into clauses for the following categories of information:

- guidance for completing the PICS proforma;
- identification of the implementation;
- identification of the protocol;
- global statement of conformance;
- < further clauses >.

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 an 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 an unique conditional status expression which is defined immediately following the table

Reference column

The reference column makes reference to EN 301 141-1, 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

It is also possible to provide a comment to an answer in the space provided at the bottom of the table.

NOTE: 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.

Values allowed column

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

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

Values supported column

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

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. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table. If there is more than one support column in a table, the columns are discriminated by letters (a, b, etc.), respectively.

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

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

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.

However, the tables containing in "AN role" clause shall only be completed for user implementations, and the tables containing in "SN role" clause shall only be completed for network implementations.

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

More detailed instructions are given at the beginning of the different clauses 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 protocol

This PICS proforma applies to EN 301 141-1.

A.4 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, on pages attached to the PICS proforma.

A.5 Local Exchange

A.5.1 Main features

A.5.1.1 General

Clauses shown in the "Reference" column of tables A.1 and A.2 refer to EN 301 141-1.

Table A.1: Main features

Index	Protocol capability description Does the implementation support ...?	Condition for status	Status	Reference	Support (Yes/No)
A.1.1	ISDN-BA?		O.1	1	
A.1.2	PSTN?		O.1	1	
Predicated imaginary features:					
NOTE: O.1 = Support of at least one of these network capabilities.					

Table A.2: PSTN ports supported

Index	Protocol capability description Does the implementation support ...?	Condition for status	Status	Reference	Support (Yes/No)
A.2.1	PSTN port No 1?		O.2	6.1 table 1	
A.2.2	PSTN port No 2?		O.2	6.1 table 1	
A.2.3	PSTN port No 2 & 3?		O.2	6.1 table 1	
A.2.4	PSTN port No 2, 3 & 4?		O.2	6.1 table 1	
A.2.5	PSTN port No 2, 3, 4 & 5?		O.2	6.1 table 1	
A.2.6	PSTN port No 2, 3, 4, 5 & 6?		O.2	6.1 table 1	
A.2.7	PSTN port No 2, 3, 4, 5, 6 & 7?		O.2	6.1 table 1	
A.2.8	PSTN port No 2, 3, 4, 5, 6, 7 & 8?		O.2	6.1 table 1	
A.2.9	PSTN port No 2, 3, 4, 5, 6, 7, 8 & 9?		O.2	6.1 table 1	
A.2.10	PSTN port No 2, 3, 4, 5, 6, 7, 8, 9 & 10?		O.2	6.1 table 1	
Predicated imaginary features:					
NOTE: O.2 = If A.1.2 then one of A.2.2 - A.2.10 and/or A.2.1 shall be supported. If NOT A.1.2 then N/A.					

A.5.2 Protocol

A.5.2.1 Physical layer

N/A.

A.5.2.2 Protocol conformance

Clauses shown in the "Reference" column of table A.3 refer to EN 301 141-1.

Table A.3: Protocol conformance

Index	Protocol capability description Does the implementation support ...?	Conditions for status	Status	Reference	Support (Yes/No)
A.3.1	NMDS Specific PSTN Message set?		O	7.3.1.1	
A.3.2	NMDS Specific ISDN-BA Message set?		O	7.3.1.2	

A.5.2.3 L3addr handling

Clauses shown in the "Reference" column of table A.4 refer to EN 301 141-1.

Table A.4: L3addr handling

Index	Protocol capability description Does the implementation support ... ?	Conditions for status	Status	Reference	Support (Yes/No)
A.4.1	L3addr = 7FFFh is always valid ?	A.1.2	O.3	8.2.1.1.1.d (i)	
A.4.2	L3addr = 7FFFh is valid only in maintenance messages ?	A.1.2	O.3	8.2.1.1.1.d (ii)	
A.4.3	Ignore messages with L3addr = reserved value ?	A.1.2	O.4	8.2.1.1.2.a	
A.4.4	Messages with L3addr = reserved value cause call clear-down ?	A.1.2	O.4	8.2.1.1.2.b	
Predicated imaginary features:					
NOTE 1: O.3 = Support of at least one option is mandatory. Only one option shall be active.					
NOTE 2: O.4 = Support of at least one option is mandatory. Only one option shall be active.					

A.5.2.4 B-channel selection

Clauses shown in the "Reference" column of table A.5 refer to EN 301 141-1.

Table A.5: B-channel selection

Index	Protocol capability description Does the implementation support ... ?	Conditions for status	Status	Reference	Support (Yes/No)
A.5.1	The LE always selects a B-channel before sending ESTABLISH ACKNOWLEDGE to NTN ?	A.1.2	O.5	8.2.1.2.a	
A.5.2	The LE sending ESTABLISH ACKNOWLEDGE to NTN with the L3addr indicating no B-channel selected?	A.1.2	O.5	8.2.1.2.b	
Predicated imaginary features:					
NOTE: O.5 = Support of at least one option is mandatory. Only one option shall be active.					

A.6 Network terminating node

A.6.1 Main features

A.6.1.1 General

Clauses shown in the "Reference" column of table A.6 and table A.7 refer to EN 301 141-1.

Table A.6: Main features

Index	Protocol capability description Does the implementation support ... ?	Condition for status	Status	Reference	Support (Yes/No)
A.6.1	ISDN-BA?		O.1	1	
A.6.2	PSTN?		O.1	1	
Predicated imaginary features:					
NOTE: O.1 = Support of at least one of these networks capabilities.					

Table A.7: PSTN ports supported

Index	Protocol capability description Does the implementation support ...?	Condition for status	Status	Reference	Support (Yes/No)
A.7.1	PSTN port No 1?		O.3	6.1 table 1	
A.7.2	PSTN port No 2?		O.3	6.1 table 1	
A.7.3	PSTN port No 2 & 3?		O.3	6.1 table 1	
A.7.4	PSTN port No 2, 3 & 4?		O.3	6.1 table 1	
A.7.5	PSTN port No 2, 3, 4 & 5?		O.3	6.1 table 1	
A.7.6	PSTN port No 2, 3, 4, 5 & 6?		O.3	6.1 table 1	
A.7.7	PSTN port No 2, 3, 4, 5, 6 & 7?		O.3	6.1 table 1	
A.7.8	PSTN port No 2, 3, 4, 5, 6, 7 & 8?		O.3	6.1 table 1	
A.7.9	PSTN port No 2, 3, 4, 5, 6, 7, 8 & 9?		O.3	6.1 table 1	
A.7.10	PSTN port No 2, 3, 4, 5, 6, 7, 8, 9 & 10?		O.3	6.1 table 1	
Predicated imaginary features:					
NOTE:	O.3 = If A.6.2 then one of A.7.2 - A.7.10 and/or A.7.1 shall be supported. If NOT A.6.2 then N/A				

A.6.2 Protocol

A.6.2.1 Physical layer

A.6.2.1.1 Physical layer options

Clauses shown in the "Reference" column of table A.8 refer to EN 301 141-1.

Table A.8: Physical layer options

Index	Protocol capability description Does the implementation support ...?	Conditions for status	Status	Reference	Support (Yes/No)
A.8.1	NMDS Physical Layer?		M	5	
A.8.2	EN 300 012-1?	A.8.1 NOT A.8.1	M N/A	4	

A.6.2.2 Protocol conformance

Clauses shown in the "Reference" column of table A.9 refer to EN 301 141-1.

Table A.9: Protocol conformance

Index	Protocol capability Does the implementation support ...?	Conditions for status	Status	Reference	Support (Yes/No)
A.9.1	NMDS Specific PSTN Message set?		O	7.3.1.1	
A.9.2	NMDS Specific ISDN-BA Message set?		O	7.3.1.2	

A.6.2.3 L3addr handling

N/A.

A.6.2.4 B-channel selection

N/A.

A.6.3 Powering user ports under failure conditions

Clauses shown in the "Reference" column of table A.10 refer to EN 301 141-1.

Table A.10: Powering options

Index	Powering of user ports under failure conditions Under local power fail conditions does the implementation support powering of ...?	Condition for status	Status	Reference	Support (Yes/No)
A.10.1	S/T Interface?		O	5.1.2	
A.10.2	PSTN port 1?		O	5.1.2	
A.10.3	PSTN port 2?		O	5.1.2	
A.10.4	PSTN port 3?		O	5.1.2	
A.10.5	PSTN port 4?		O	5.1.2	
A.10.6	PSTN port 5?		O	5.1.2	
A.10.7	PSTN port 6?		O	5.1.2	
A.10.8	PSTN port 7?		O	5.1.2	
A.10.9	PSTN port 8?		O	5.1.2	
A.10.10	PSTN port 9?		O	5.1.2	
A.10.11	PSTN port 10?		O	5.1.2	

Annex B (informative): Bibliography

- ETR 080 (1996): "Transmission and Multiplexing (TM); Integrated Services Digital Network (ISDN) basic rate access; Digital transmission system on metallic local lines".

History

Document history		
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