



SLOVENSKI STANDARD
SIST ETS 300 268 E1:2003
01-december-2003

Omrežni vidiki (NA) – Velemestno omrežje (MAN) – Izjava o skladnosti izvedbe protokola (PICS)

Network Aspects (NA); Metropolitan Area Network (MAN); Protocol Implementation Conformance Statement (PICS)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: **ETS 300 268 Edition 1**
<https://standards.iteh.ai/catalog/standards/sist/cc1a1e61-54e0-458e-9c56-9a9469a468de/sist-ets-300-268-e1-2003>

ICS:

35.110 Omreževanje Networking

SIST ETS 300 268 E1:2003 **en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST ETS 300 268 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/cc1a1e61-54e0-458e-9c56-9a9469a468de/sist-ets-300-268-e1-2003>



EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 268

March 1994

Source: ETSI TC-NA

Reference: DE/NA-053024

ICS: 33.080

Key words: MAN, PICS

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Network Aspects (NA);
Metropolitan Area Network (MAN)
Protocol Implementation Conformance Statement (PICS)

SIST ETS 300 268 E1:2003
http://standards.iteh.ai/catalog/standards/sist-ets-300-268-e1-2003/9a9469a468de/sist-ets-300-268-e1-2003

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE

Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 92 94 42 00 - Fax: +33 93 65 47 16

Copyright Notification: No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1994. All rights reserved.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ETS 300 268 E1:2003](https://standards.iteh.ai/catalog/standards/sist/cc1a1e61-54e0-458e-9c56-9a9469a468de/sist-ets-300-268-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/cc1a1e61-54e0-458e-9c56-9a9469a468de/sist-ets-300-268-e1-2003>

Contents

Foreword.....	5
1 Scope	7
2 Normative references	7
3 Definitions, symbols and abbreviations	8
3.1 Definitions.....	8
3.2 Symbols and abbreviations	8
4 Protocol Implementation Conformance Statement (PICS) for ETS 300 212.....	8
4.1 General structure of the PICS proforma.....	9
4.2 Additional information	9
4.3 Exception information	10
4.4 Conditional items.....	10
4.5 Predicates.....	10
4.6 Identification	11
4.6.1 Implementation identification.....	11
4.6.2 Protocol summary	11
4.7 Compliance questionnaire	11
5 DQDB node functional description.....	12
5.1 Provision of MAC service or logical link control.....	12
5.1.1 MAC convergence function block.....	12
5.1.1.1 MAC convergence function transmit functions.....	12
5.1.1.2 MAC convergence function receive functions.....	13
5.1.2 Queued arbitrated functions block.....	13
5.1.2.1 Queued arbitrated transmit functions.....	13
5.1.2.2 Queued arbitrated receive functions.....	14
5.1.3 MAC sublayer service management functions.....	14
5.2 Provision of isochronous service.....	14
5.2.1 Isochronous convergence function block.....	14
5.2.2 Pre-arbitrated functions block.....	15
5.2.3 Isochronous service provider management functions	15
5.3 Provision of other services	15
5.3.1 Connection-oriented data service.....	15
5.4 Common functions.....	15
5.4.1 Relaying of slot octets and management information octets.....	15
5.4.2 Subnetwork configuration control function.....	16
5.4.3 Head of bus functions	16
5.4.4 Message identifier page allocation functions.....	17
6 DQDB layer protocol data unit formats.....	17
6.1 Ordering principles	17
6.2 Slot.....	17
6.3 Queued arbitrated slot.....	18
6.4 Pre-arbitrated slots	19
6.5 Transfer of MAC service data unit	20
6.5.1 Initial MAC protocol data unit.....	20
6.5.2 Derived MAC protocol data unit.....	21

7	DQDB layer facilities.....	21
7.1	Timers.....	21
7.1.1	Reassembly IMPDU timer	22
7.1.2	Head of bus arbitration timer (Timer_H).....	22
7.2	Counters.....	22
7.2.1	Request counter (REQ_I_CNTR)	22
7.2.2	Count-down counter (CD_I_CNTR)	22
7.2.3	Local request queue counter (REQ_I_Q).....	23
7.2.4	Page counter (PAGE_CNTR)	23
7.2.5	Bandwidth balancing counter (BWB_CNTR).....	23
7.2.6	Transmit sequence number counter (TX_SEQUENCE_NUM)	24
7.3	System parameters	24
7.4	Flags.....	24
7.5	Resource status indicators	25
7.5.1	Configuration control status indicator (CC_STATUS)	25
7.5.2	Head of bus operation indicator (HOB_OPERATION).....	25
7.5.3	Link status indicator (LINK_STATUS).....	25
7.5.4	External timing source indicator (ETS_STATUS)	25
8	DQDB layer operation.....	26
8.1	Distributed queue operation.....	26
8.1.1	Distributed queue state machine (DQSM_X_I).....	26
8.1.2	REQ queue machine (RQM_X_I).....	27
8.1.3	Bandwidth balancing machine (BWBM_X)	27
8.2	Reassembly operation	27
8.2.1	Reassembly state machine.....	27
8.3	Segment header check sequence processing.....	28
9	DQDB layer management interface.....	28
9.1	DQDB layer management primitives in support of virtual channel identifier managements functions	28
9.2	DQDB layer management primitives in support of header extension management functions.....	34
9.3	DQDB layer management primitives in support of message identifier management functions.....	35
9.4	DQDB layer management primitives in support of address management functions.....	37
9.5	DQDB layer management primitives in support of system management functions	38
9.6	DQDB layer management primitives in support of configuration control management functions.....	39
9.7	DQDB layer management primitives in support of CRC32 control flag management functions.....	40
9.8	DQDB layer management primitives in support of other management functions	40
10	DQDB layer management protocol.....	41
10.1	DQDB layer management information octets	41
10.2	Configuration control protocol.....	41
10.3	Message identifier page allocation protocol	42
11	Physical layer principles of operation.....	42
11.1	Physical layer maintenance functions	42
11.2	Physical layer facilities	43
Annex A (normative):	Coding of the PI field.....	44
History	45

Foreword

This European Telecommunication Standard (ETS) has been prepared by the Network Aspects (NA) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS details the Protocol Implementation Conformance Statement (PICS) for a European Metropolitan Area Network (MAN) based on the Distributed Queue Dual Bus (DQDB) access method as defined in ETS 300 212 [2].

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ETS 300 268 E1:2003](https://standards.iteh.ai/catalog/standards/sist/cc1a1e61-54e0-458e-9c56-9a9469a468de/sist-ets-300-268-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/cc1a1e61-54e0-458e-9c56-9a9469a468de/sist-ets-300-268-e1-2003>

Blank page

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ETS 300 268 E1:2003](https://standards.iteh.ai/catalog/standards/sist/cc1a1e61-54e0-458e-9c56-9a9469a468de/sist-ets-300-268-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/cc1a1e61-54e0-458e-9c56-9a9469a468de/sist-ets-300-268-e1-2003>

1 Scope

This European Telecommunication Standard (ETS) defines Protocol Implementation Conformance Statement (PICS) for a European Metropolitan Area Network (MAN) based on the Distributed Queue Dual Bus (DQDB) access method in the context of a subnetwork of a MAN as defined in ETS 300 212 [2]. Simplifications applying in the special case where a single node is attached to the access network are indicated.

2 Normative references

This ETS incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed below. For dated references, subsequent amendments to or revisions of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] IEEE Standard 802.6 (1990): "Distributed Queue Dual Bus (DQDB) Subnetwork of a Metropolitan Area Network (MAN)".
- [2] ETS 300 212: "Network Aspect (NA) Metropolitan Area Network (MAN) media access control layer and physical layer specification".
- [3] ETS 300 213: "Network Aspects (NA), Metropolitan Area Network (MAN), Physical layer convergence procedure for 2,048 Mbit/s".
- [4] ETS 300 214: "Network Aspects (NA), Metropolitan Area Network (MAN), Physical Layer Convergence Procedure (PLCP) for 34,386 Mbit/s".
- [5] ETS 300 215: "Network Aspects (NA), Metropolitan Area Network (MAN), Physical Layer Convergence Procedure (PLCP) for 139,264 Mbit/s".
- [6] ETS 300 216: "Network Aspects (NA), Metropolitan Area Network (MAN), Physical Layer Convergence Procedure (PLCP) for 155,520 Mbit/s".
- [7] ETS 300 269: "Network Aspects (NA), Metropolitan Area Network (MAN), Physical Layer Convergence Procedure (PLCP) for 2,048 Mbit/s Protocol Implementation Conformance Statement (PICS)".
- [8] ETS 300 270: "Network Aspects (NA), Metropolitan Area Network (MAN), Physical Layer Convergence Procedure (PLCP) for 34,386 Mbit/s, Protocol Implementation Conformance Statement (PICS)".
- [9] ETS 300 271: "Network Aspects (NA), Metropolitan Area Network (MAN), Physical Layer Convergence Procedure (PLCP) for 139,264 Mbit/s, Protocol Implementation Conformance Statement (PICS)".
- [10] ETS 300 272: "Network Aspects (NA), Metropolitan Area Network (MAN), Physical Layer Convergence Procedure (PLCP) for 155,520 Mbit/s CCITT Recommendations G.707, G.708 and G.709 SDH based systems, Protocol Implementation Conformance Statement (PICS)".
- [11] ETS 300 276: "Network Aspects (NA), Metropolitan Area Network (MAN), Physical Layer Convergence Procedure (PLCP) for 622,080 Mbit/s CCITT Recommendations G.707, G.708 and G.709 SDH based systems".
- [12] ETS 300 277: "Network Aspects (NA), Metropolitan Area Network (MAN), Physical Layer Convergence Procedure (PLCP) for 622,080 Mbit/s CCITT Recommendations G.707, G.708 and G.709 SDH based systems, Protocol Implementation Conformance Statement (PICS)".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of this ETS, the definitions as defined in ETS 300 212 [2] shall apply.

3.2 Symbols and abbreviations

For the purpose of this ETS, the symbols and abbreviations as defined in ETS 300 212 [2] and IEEE Standard 802.6 [1] shall apply.

In addition, in this PICS proforma, the following abbreviations are used in defining the support type of a feature, parameter or capability:

m	mandatory
o	optional
c	conditional
pr	prohibited
n/a	not applicable

When used in the column labelled "Value", the following abbreviations mean:

xx - yy	from number xx to number yy
xx/yy	either number xx or number yy applies, depending on the actual conditions

For each of the conditional items, an explanation of the parameter or capability under which the feature, parameter or capability is mandatory, is given in the Clause or subclause in which the conditional items appear.

The notation X_ in the column "Support" means that numbers may be entered in this place pointing to notes which indicate deviation from the ETS (see subclause 4.3).

4 Protocol Implementation Conformance Statement (PICS) for ETS 300 212

In addition to compliance with this ETS, the implementation of a working MAN shall provide compliance with one or more of the following ETSs specifying a Physical Layer Convergence Procedure (PLCP) for DQDB-MANs:

ETS 300 213 [3]	for use with 2,048 Mbit/s transmission systems;
ETS 300 214 [4]	for use with 34,368 Mbit/s transmission systems;
ETS 300 215 [5]	for use with 139,264 Mbit/s transmission systems;
ETS 300 216 [6]	for use with 155,520 Mbit/s transmission systems;
ETS 300 276 [11]	for use with 622,080 Mbit/s transmission systems.

Separate Protocol Implementation Conformance Statements (PICSS) are available for these PLCPs as:

ETS 300 269 [7]	for 2,048 Mbit/s transmission systems;
ETS 300 270 [8]	for 34,368 Mbit/s transmission systems;
ETS 300 271 [9]	for 139,264 Mbit/s transmission systems;
ETS 300 272 [10]	for 155,520 Mbit/s transmission systems;
ETS 300 277 [12]	for 622,080 Mbit/s transmission systems.

4.1 General structure of the PICS proforma

The first part of the PICS proforma "implementation identification and protocol summary" shall be completed as indicated with the information necessary to fully identify both the supplier and the implementation.

The main part of the PICS proforma is a fixed-format questionnaire divided into subclauses each containing a group of individual items. Answers to the questionnaire items shall be provided in the rightmost column, either by simply marking an answer to indicate a restricted choice (usually Yes (Y), No (N) or not applicable (n/a)), or by entering a value, or a set or, range of values.

NOTE 1: There are some items where two or more choices from a set of possible answers can apply; in this case, all relevant choices shall be marked.

Each item is identified by an item reference in the first column. The second column contains the question to be answered. The third column contains the reference or references to the material that specifies the item in the main body of the underlying IEEE Standard 802.6 [1]. The remaining columns record the status of the item, whether support is mandatory, optional, prohibited or conditional and provide the space for the answers (see also subclause 4.4).

A supplier may also provide further information, categorized as either additional information or exception information. When present, each kind of further information shall be provided in a further subclause of items labelled A<i> or X<i> respectively for cross-referencing purposes; where <i> is any unambiguous identification for the item (e.g. simply a numeral). There are no other restrictions on its format and presentation.

A completed PICS proforma, including any additional information and exception information, is the PICS for the implementation in question.

NOTE 2: Where an implementation is capable of being configured in more than one way according to the items listed under major capabilities, a single PICS may be able to describe all such configurations. However, the supplier has the choice of providing more than one PICS, each covering some subset of the implementation's configuration capabilities, in case that provides easier and clearer presentation of the information.

4.2 Additional information

Items of additional information allow a supplier to provide further information intended to assist the interpretation of the PICS. It is not intended or expected that a large quantity will be supplied, and a PICS can be considered complete without any such information. Examples may be: an outline of the ways in which a (single) implementation can be set up to operate in a variety of environments and configurations; or a brief rationale, based perhaps on specific application needs, for the exclusion of features which, although optional, are nonetheless commonly present in implementations of the DQDB protocol.

References to items of additional information may be entered next to any answer in the questionnaire, and may be included in items of exception information.

4.3 Exception information

It may occasionally happen that a supplier will wish to answer an item with mandatory or prohibited status (after any conditions have been applied) in a way that conflicts with the indicated requirement. No pre-printed answer is to be found in the support column for this. Instead, the supplier shall write the missing answer into the support column, together with an X<i> reference to an item of exception information, and shall provide the appropriate rationale in the exception item itself.

An implementation for which an exception item is required in this way does not conform to IEEE Standard 802.6 [1].

NOTE: A possible reason for the situation described above is that a defect in the standard has been reported, a correction for which is expected to change the requirement not met by the standard.

In the case where a single node is attached to the access subnetwork the full functionality of the DQDB protocol need not be implemented. The following notes have been reserved in the context of this ETS to indicate limited compliance for point-to-point connections:

X1: this note marks an item the implementation of which is not required for a point-to-point application;

X2: this note marks an item which is not applicable in a point-to-point connection.

4.4 Conditional items

The PICS proforma contains a number of conditional items. These are items for which the status (mandatory, optional or prohibited) that applies is dependent upon whether or not certain other items are supported, or upon the values supported for other items.

In many cases, whether or not the item applies at all is conditional in this way, as well as the status when the item does apply.

[SIST ETS 300 268 E1:2003](https://standards.iteh.ai/catalog/standards/sist/c1a1e61-54e0-458e-9c56-9a9469a468de/sist-ets-300-268-e1-2003)

Where a group of items is subject to the same condition for applicability, a separate preliminary question about the condition appears at the head of the group, with an instruction to skip to a later point in the questionnaire if the "not applicable (n/a)" answer is selected. Otherwise, individual conditional items are indicated by one or more conditional symbols (on separate lines) in the Status column.

A conditional item is indicated with "c:<s>" in the Status column where "<s>" is one of m, o, or o.<n>, as described in Clause 3. The Predicate column will contain a predicate, "<pred>" as described in subclause 4.5.

If the value of the predicate in any line of a conditional item is true (see subclause 4.5), the conditional item shall be applicable, and its status shall be that indicated by the status symbol following the predicate: the answer column shall be marked in the usual way. If the value of a predicate is false, no answer is required.

4.5 Predicates

A predicate is one of the following:

- a) an item-reference for an item in the PICS proforma: the value of the predicate shall be true if the item is marked as supported, and shall be false otherwise; or
- b) a predicate name, for a predicate defined elsewhere in the PICS proforma; or
- c) the logical negation symbol "NOT" prefixed to an item-reference or predicate name: the value of the predicate shall be true if the value of the predicate formed by omitting the "NOT" symbol shall be false, and vice versa.

The definition for a predicate name is one of the following:

- 1) an item-reference, evaluated as at a) above; or
- 2) a relation containing a comparison operator (i.e. = y, < y, etc.) with at least one of its operands being an item-reference for an item taking numerical values as its answer: the predicate shall be true if the relation holds when each item-reference is replaced by the value entered in the support column as answer to the item referred to; or
- 3) a Boolean expression constructed by combining simple predicates, as at 1) and 2), using the Boolean operators AND, OR and NOT, and parentheses, in the usual way. The value of such a predicate shall be true if the Boolean expression evaluates to true when the simple predicates are interpreted as described above.

4.6 Identification

4.6.1 Implementation identification

Supplier.

Contact for queries about the PICS.

Implementation name and version.

Additional identification information.

4.6.2 Protocol summary

Identification of protocol specification.

Identification of amendments/corrigenda to this PICS.

Protocol versions supported.

<https://standards.iteh.ai/catalog/standards/sist/cc1a1e61-54e0-458e-9c56-9a9469a468de/sist-ets-300-268-e1-2003>

Are any exception items required: No [] Yes []

Date and place of statement: (dd/mm/yy)

4.7 Compliance questionnaire

For ease of reference, the numbering of the following Clauses and subclauses is identical to that contained in IEEE Standard 802.6 [1], which is referenced in ETS 300 212 [2]. Within each subclause the different requirements are numbered starting with "1" for each subclause. Also the numbering used in the column marked "Reference" refers to the numbering used in IEEE Standard 802.6 [1].