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SERIES Q: SWITCHING AND SIGNALLING

Broadband ISDN – B-ISDN application protocols for access signalling

Digital subscriber signalling system No. 2 – Support of Quality of Service classes: Protocol Implementation Conformance Statement (PICS) proforma

ITU-T Recommendation Q.2965.1 B

(Formerly CCITT Recommendation)

ITU-T Q-SERIES RECOMMENDATIONS

SWITCHING AND SIGNALLING

For further details, please refer to the list of ITU-T Recommendations.

ITU-T Recommendation Q.2965.1 B

Digital subscriber signalling system No. 2 – Support of Quality of Service classes:
Protocol Implementation Conformance Statement (PICS) proforma

Summary

This Recommendation specifies the Protocol Implementation Conformance Statement (PICS) proforma for the T_B reference point or coincident S_B and T_B reference point (as defined in ITU-T I.413 [4]) of implementations conforming to the procedures for the handling of Quality of Service parameters that may be used for basic call and connection control of the Digital Subscriber Signalling System No. 2 (DSS2) protocol for the Broadband Integrated Services Digital Network (B-ISDN), ITU-T Q.2965.1 [1].

FOREWORD

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The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

INTELLECTUAL PROPERTY RIGHTS

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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ITU-T Recommendation Q.2965.1 B

**Digital subscriber signalling system No. 2 – Support of Quality of Service classes:
Protocol implementation conformance statement (PICS) proforma**

1 Scope

This Recommendation specifies the Protocol Implementation Conformance Statement (PICS) proforma for the T_B reference point or coincident S_B and T_B reference point (as defined in ITU-T I.413 [4]) of implementations conforming to the procedures for the handling of Quality of Service classes that may be used for basic call and connection control of the Digital Subscriber Signalling System No. 2 (DSS2) protocol for the Broadband Integrated Services Digital Network (B-ISDN), ITU-T Q.2965.1 [1].

This Recommendation is applicable to equipment supporting B-ISDN calls/connections, to be attached at either side of a T_B reference point or coincident S_B and T_B reference point when used as an access to the public B-ISDN.

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".

The supplier of a protocol implementation that is claimed to conform to ITU-T Q.2965.1 is required to complete a copy of the PICS proforma provided in Annex A.

NOTE – No PICS proforma is required to be completed for implementation capabilities not covered by this Recommendation. For coverage of capabilities, refer to clause 6.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

[1]   ITU-T Q.2965.1 (1999), *Digital subscriber signalling system No. 2 – Support of Quality of Service classes*.

[2]   ITU-T Q.2931 (1995), *Digital subscriber signalling system No. 2 (DSS2) – User-network interface (UNI) layer 3 specification for basic call/connection control*.

[3]   ITU-T Q.2931 B (2000), *Digital subscriber signalling system No. 2 (DSS2) – User-network interface (UNI) layer 3 specification for basic call/connection control: Protocol implementation conformance statement (PICS) proforma*.

[4]   ITU-T I.413 (1993), *B-ISDN user-network interface*.

[5]   ITU-T X.290 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – General concepts*.

ISO/IEC 9646-1:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts*.

[6]   ITU-T X.296 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Implementation conformance statements.*

ISO/IEC 9646-7:1995, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 7: Implementation conformance statements.*

3   Definitions

For the purposes of this Recommendation, the terms and definitions given in ITU-T Q.2931 [2] and ITU-T Q.2965.1 [1], ITU-T X.290 | ISO/IEC 9646-1 [5], and ITU-T X.296 | ISO/IEC 9646-7 [6] apply. In particular, the following terms defined in ITU-T X.290 | ISO/IEC 9646-1 [5] apply:

3.1   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.

3.2   protocol implementation conformance statement (PICS): ICS for an implementation or system claimed to conform to a given protocol specification.

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

The following definitions also apply:

3.4   network: DSS2 protocol entity at the network side of the user-network interface.

3.5   user: DSS2 protocol entity at the user side of the user-network interface.

4   Abbreviations

This Recommendation uses the following abbreviations:

B-ISDN   Broadband ISDN

DSS2   Digital Subscriber Signalling System No. 2

IUT   Implementation Under Test

PDU   Protocol Data Unit

PICS   Protocol Implementation Conformance Statement

QoS   Quality of Service

SUT   System Under Test

5   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 ITU-T Q.2965.1 [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.

6   Coverage

This Recommendation covers requirements given in ITU-T Q.2965.1 [1] as modified by ITU-T Q.2965.1/Amd.1 (1999).

ANNEX A[1]

PICS proforma for ITU-T Q.2965.1

A.1   Guidance for completing the PICS proforma

A.1.1   Purpose and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in ITU-T Q.2965.1 may provide information in a standardized manner.

This PICS proforma may be used in two different ways. In the first case, it is used to declare conformance with DSS2 basic call requirements, i.e. filled in together with the PICS proforma provided in ITU-T Q.2931 B [3]. In this case, at least the identification of the IUT, the global statement and tables related to the quality of service information element shall be filled in (see A.2.2, A.5, A.7.6, A.7.7, A.8.6 and A.8.7); all the other parts may be left unfilled.

In the second case, it is used to declare conformance to ITU-T Q.2965.1 independently of ITU-T Q.2931 B and all information requested by this proforma shall be provided.

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 user role;

A.8:   Questions for the network 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 ITU-T X.296 | ISO/IEC 9646-7.

Item column

The Item column contains a unique reference (a mnemonic plus a number) for each item within the PICS proforma. Items are not always numbered sequentially.

Item description column

The Item description contains a brief summary of the static requirement for which a Support answer is required.

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[1]   **Copyright release for PICS proforma**

    Users of this Recommendation may freely reproduce the PICS proforma in this annex so that it can be used for its intended purpose and may further publish the completed PICS.

Conditions for the Status column

The conditions for the Status column contains a specification, if appropriate, of the predicate upon which a conditional status is based.

Status column

The following notations, defined in ITU-T X.296 | ISO/IEC 9646-7, are used for the Status column:

I   Irrelevant or out-of-scope − This capability is outside the scope of the Recommendation to which this PICS proforma applies and is not subject to conformance testing in this context.

M   Mandatory − The capability is required to be supported.

N/A   Not Applicable − In the given context, it is impossible to use the capability.

O   Optional − The capability may be supported or not.

O.i   qualified Optional − For mutually exclusive or selectable options from a set. "i" is an integer that identifies a unique group of related optional items and the logic of their selection, defined below the table.

X   eXcluded or prohibited − There is a requirement not to use this capability in a given context.

Reference column

Except where explicitly stated, the Reference column refers to the appropriate text of ITU-T Q.2965.1 describing the particular item.

NOTE − A reference indicates only the location of the most essential information about an item. All additional requirements contained in ITU-T Q.2931 and ITU-T Q.2965.1 have also to be taken into account when making a statement about the conformance of that particular item.

Support column

The following notation, defined in ITU-T X.296 | ISO/IEC 9646-7, is used for the support column:

[ ] Yes Tick "Yes" if item is supported.

[ ] No   Tick "No" if item is not supported.

[ ] N/A Tick "N/A" if the item is "not applicable".

Prerequisite line

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

A prerequisite line after a clause heading or table title indicates that the whole subclause 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. For each row in each PICS proforma table, the supplier shall enter an explicit answer (i.e. by ticking the appropriate "Yes", "No", or "N/A" in each of the Support column boxes provided). Where a Support column box is left blank, or where it is marked "N/A" without any tick box, no answer is required.

If necessary, the supplier may enter additional comments at the end of each table, or separately.

More detailed instructions may be found at the beginning of each clause of the 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 to provide as much detail as possible regarding version numbers and configuration options.

The product supplier 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

Name:

....

Address:

....

....

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

....

A.2.6 PICS contact person

Name:

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

....

A.3   Identification of the protocol to which this PICS proforma applies

This PICS proforma applies to the following Recommendation:

–   ITU-T Q.2965.1 (1999), *Digital subscriber signalling system No. 2 − Support of Quality of Service classes*.

A.4   PICS proforma tables

A.4.1   Correspondence to a physical interface

The "implementation" (IUT) about which this PICS proforma asks questions corresponds to a layer 3 implementation on top of ONE physical interface. If the SUT implements more than one configuration, then a layer 3 PICS shall be created for each type of interface (and for each configuration of each interface) provided by the SUT.

A.4.2   Structure of the tables

The supplier shall provide answers to the questions concerning the major roles of the IUT (see Table A.1). The supplier shall then provide answers to the questions relating to the capabilities of the IUT in one of the major roles as appropriate. Apart from the initial questions to determine roles, the major roles of the IUT (the user role (R 1) and the network role (R 2)) are treated completely separately in the PICS proforma. It is only necessary to complete the questions for the supported role. Clause A.7 concerns the capabilities of the IUT whilst in the user role. Clause A.8 concerns the capabilities of the IUT whilst in the network role.

A.5   Global statement of conformance

Does the implementation described in this PICS meet all the mandatory requirements of the referenced Recommendation?

<div align="center">

[ ] **Yes**

[ ] **No**

</div>

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.

A.6 Roles

Table A.1/Q.2965.1 B − Roles

Item	Role: Does the implementation support ...	Conditions for status	Status	Reference	Support
R 1	the user role?		O.1		[ ]Yes [ ]No
R 2	the network role?		O.1		[ ]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. Prerequisite: R 1.

A.7.1 Major capabilities

Each question in Table A.2 refers to a major function of the protocol. Answering "Yes" to a particular question states that the implementation supports all the mandatory procedures for that function defined in the referenced clauses of ITU-T Q.2965.1. Answering "No" to a particular question states that the implementation does not support that function of the protocol.

Table A.2/Q.2965.1 B − Major capabilities of the user role

Item	Major capability: Does the implementation support ...	Conditions for status	Status	Reference	Support
Call establishment at the originating interface					
MCu 1	outgoing calls?		O.2	9.1, 10	[ ]Yes [ ]No
Call establishment at the destination interface					
MCu 2	incoming calls?		O.2	9.2, 10	[ ]Yes [ ]No
O.2 Support of at least one of these options is required.					
Comments:					

A.7.2 Subsidiary capabilities

No items requiring response.

A.7.3 PDUs

No items requiring response.

A.7.4 PDU parameters

No items requiring response.

A.7.5 Timers

No items requiring response.

A.7.6 Structure of information elements received

This table is to be completed in order to evaluate the likelihood of successful interoperation of two implementations. Prerequisite: MCu 2.

A.7.6.1 Quality of Service parameter

**Table A.3/Q.2965.1 B – Quality of Service parameter
information element contents received by user**

Item	Does the implementation support the information element field:	Status	Value	Support
IERu 15.1	QoS class forward	M		[ ]Yes [ ]No
	1. No specific QoS class explicitly requested	O	0	[ ]Yes [ ]No
		O	1	[ ]Yes [ ]No
	2. Class 1	O	2	[ ]Yes [ ]No
	3. Class 2	O	3	[ ]Yes [ ]No
	4. Class 3	O	4	[ ]Yes [ ]No
	5. Class 4	O	5	[ ]Yes [ ]No
	6. Class 5			
IERu 15.2	QoS class backward	M		[ ]Yes [ ]No
	1. No specific QoS class explicitly requested	O	0	[ ]Yes [ ]No
		O	1	[ ]Yes [ ]No
	2. Class 1	O	2	[ ]Yes [ ]No
	3. Class 2	O	3	[ ]Yes [ ]No
	4. Class 3	O	4	[ ]Yes [ ]No
	5. Class 4	O	5	[ ]Yes [ ]No
	6. Class 5			
Comments:				

A.7.7 Structure of information elements transmitted

This table is to be completed in order to evaluate the likelihood of successful interoperation of two implementations. Prerequisite: MCu 1.

A.7.7.1 Quality of Service parameter

Table A.4/Q.2965.1 B – Quality of Service parameter
information element contents transmitted by user

Item	Does the implementation support the information element field:	Status	Value	Support
IETu 15.1	QoS class forward	M		[ ]Yes [ ]No
	1. No specific QoS class explicitly requested	O	0	[ ]Yes [ ]No
	2. Class 1	O	1	[ ]Yes [ ]No
	3. Class 2	O	2	[ ]Yes [ ]No
	4. Class 3	O	3	[ ]Yes [ ]No
	5. Class 4	O	4	[ ]Yes [ ]No
	6. Class 5	O	5	[ ]Yes [ ]No
IETu 15.2	QoS class backward	M		[ ]Yes [ ]No
	1. No specific QoS class explicitly requested	O	0	[ ]Yes [ ]No
	2. Class 1	O	1	[ ]Yes [ ]No
	3. Class 2	O	2	[ ]Yes [ ]No
	4. Class 3	O	3	[ ]Yes [ ]No
	5. Class 4	O	4	[ ]Yes [ ]No
	6. Class 5	O	5	[ ]Yes [ ]No
Comments:				

A.8 Network

The table provided in this clause needs only to be completed for user implementations. Prerequisite: R 2.

A.8.1 Major capabilities

Each question in Table A.5 refers to a major function of the protocol. Answering "Yes" to a particular question states that the implementation supports all the mandatory procedures for that function defined in the referenced clauses and subclauses of ITU-T Q.2965.1. Answering "No" to a particular question states that the implementation does not support that function of the protocol.

Table A.5/Q.2965.1 B − Major capabilities of the network role

Item	Major capability: Does the implementation support ...	Conditions for status	Status	Reference	Support
Call establishment at the originating interface					
MCn 1	call establishment at the originating interface (outgoing calls from the user's point of view)?		M	9.1, 10	[ ]Yes [ ]No
Call establishment at the destination interface					
MCn 2	call establishment at the destination interface (incoming calls from the user's point of view)?		M	9.2, 10	[ ]Yes [ ]No
Comments:					

A.8.2 Subsidiary capabilities

No items requiring response.

A.8.3 PDUs

No items requiring response.

A.8.4 PDU parameters

No items requiring response.

A.8.5 Timers

No items requiring response.

A.8.6 Structure of information elements received

This table is to be completed in order to evaluate the likelihood of successful interoperation of two implementations. Prerequisite: MCn 1.

A.8.6.1   Quality of Service parameter

**Table A.6/Q.2965.1 B – Quality of Service parameter information
element contents received by network**

Item	Does the implementation support the information element field:	Status	Value	Support
IERn 15.1	QoS class forward	M		[ ]Yes [ ]No
	1. No specific QoS class explicitly requested	O	0	[ ]Yes [ ]No
	2. Class 1	O	1	[ ]Yes [ ]No
	3. Class 2	O	2	[ ]Yes [ ]No
	4. Class 3	O	3	[ ]Yes [ ]No
	5. Class 4	O	4	[ ]Yes [ ]No
	6. Class 5	O	5	[ ]Yes [ ]No
IERn 15.2	QoS class backward	M		[ ]Yes [ ]No
	1. No specific QoS class explicitly requested	O	0	[ ]Yes [ ]No
	2. Class 1	O	1	[ ]Yes [ ]No
	3. Class 2	O	2	[ ]Yes [ ]No
	4. Class 3	O	3	[ ]Yes [ ]No
	5. Class 4	O	4	[ ]Yes [ ]No
	6. Class 5	O	5	[ ]Yes [ ]No
Comments:				

A.8.7   Structure of information elements transmitted

This table is to be completed in order to evaluate the likelihood of successful interoperation of two
implementations. Prerequisite: MCn 2.

A.8.7.1 Quality of Service parameter

Table A.7/Q.2965.1 B – Quality of Service parameter information element contents transmitted by network

Item	Does the implementation support the information element field:	Status	Value	Support
IETn 15.1	QoS class forward	M		[ ]Yes [ ]No
	1. No specific QoS class explicitly requested	O	0	[ ]Yes [ ]No
	2. Class 1	O	1	[ ]Yes [ ]No
	3. Class 2	O	2	[ ]Yes [ ]No
	4. Class 3	O	3	[ ]Yes [ ]No
	5. Class 4	O	4	[ ]Yes [ ]No
	6. Class 5	O	5	[ ]Yes [ ]No
IETn 15.2	QoS class backward	M		[ ]Yes [ ]No
	1. No specific QoS class explicitly requested	O	0	[ ]Yes [ ]No
	2. Class 1	O	1	[ ]Yes [ ]No
	3. Class 2	O	2	[ ]Yes [ ]No
	4. Class 3	O	3	[ ]Yes [ ]No
	5. Class 4	O	4	[ ]Yes [ ]No
	6. Class 5	O	5	[ ]Yes [ ]No
Comments:				

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