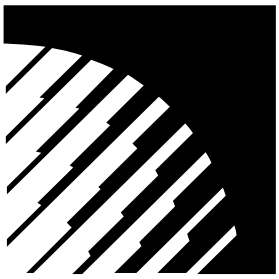

The ATM Forum
Technical Committee

PICS Proforma for the UNI 3.0 ATM Layer

af-test-0028.000
April, 1995

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1. 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 a Protocol Implementation Conformance Statement (PICS).

1.1 Scope

This document provides the PICS proforma for the UNI ATM Layer as described in the ATM User-Network Interface Specification, Version 3.0, in compliance with the relevant requirements, and in accordance with the relevant guidelines, given in ISO/IEC 9646-2[3].

1.2 Normative References

[1] ATM Forum UNI 3.0: 1993, User-Network Interface Specification, ATM Forum Version 3.0.

[2] ISO/IEC 9646-1: 1990, Information technology - Open systems interconnection - Conformance testing methodology and framework - Part 1: General concepts. (See also ITU-T Recommendation X.290 (1991))

[3] ISO/IEC 9646-2: 1990, Information technology - Open systems interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification. (See also ITU-T Recommendation X.291 (1991))

1.3 Definitions

This document uses the following terms defined in ISO/IEC 9646-1:

A Protocol Implementation Conformance Statement (PICS) is a statement made by the supplier of an implementation or a system, stating which capabilities have been implemented for given protocol.

A PICS Proforma is a document in the form of a questionnaire, designed by the protocol specifier or the conformance test suite specifier, which when completed for an implementation or a system, becomes the PICS.

A static conformance review is a 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 protocol specification.

This document uses the following terms defined in ATM Forum UNI 3.0:

CLP Cell Loss Priority
ATM Asynchronous Transfer Mode
PVC Permanent Virtual Circuit
QoS Quality of Service
UNI User-Network Interface

SVC Switched Virtual Circuit
VCC Virtual Channel Connection
VCI Virtual Channel Identifier
VPC Virtual Path Connection
VPI Virtual Path Identifier

1.4 Symbols and Conventions

IUT Implementation Under Test
M Mandatory
O Option (may be selected to suit the implementation, provided that any requirements applicable to the options are observed)
O.n Options, but support is required for either at least one or only one of the options in the group labeled with the same numeral n .
SUT System Under Test

1.5 Conformance

The supplier of a protocol implementation which is claimed to conform to the ATM User-Network Interface Specification is required to complete a copy of the PICS proforma provided in the following sections of this document and is required to provide the information necessary to identify both the supplier and the implementation.

2. Identification of the Implementation

IUT Identification

IUT Name:
_____

_____
_____

IUT Version: _____
_____

_____
_____

System Under Test

SUT
Name:_____
_

_____
_____

Hardware Configuration:
_____

_____
_____

Operating System:
_____

Product Supplier

Name:
_____

Address:
_____

_____
_____

Telephone Number: _____

Facsimile Number: _____

Additional Information:

_____

Client

Name:
_____

Address:_____
_____

_____
_____

Telephone Number: _____

Facsimile Number: _____

Additional Information:
_____

PICS Contact Person

Name:_____
_____

Address:
_____

_____
_____

Telephone Number: _____

Facsimile Number: _____

Additional Information:
_____

3. PICS Proforma for ATM Layer

3.1 Global Statement of Conformance

The implementation described in this PICS meets all of the mandatory requirements of the protocol specification.

__Yes

__No

Note: Answering No indicates non-conformance to the protocol specification. Non-supported mandatory capabilities are to be identified in the following tables, with an explanation in the comments section of each table as to why the implementation is non-conforming.

3.2 Instructions for Completing the PICS Proforma

Each question in this section refers to a major function of the protocol. Answering Yes to a particular question states that the implementation supports all of the mandatory procedures for that function, as defined in the referenced section of ATM User-Network Interface Specification. Answering No to a particular question in this section states that the implementation does not support that function of the protocol.

A supplier may also provide additional information, categorized as exceptional (X) or supplementary information. This additional information should be provided in the Support column as items labeled X<i> for exceptional or S<i> for supplementary information, respectively for cross-reference purposes, where <i> is any unambiguous number.

3.3 Cell Relay Function

Index	Text	Status	Reference	Values	Support
3.3.1	If the IUT is Public ATM network equipment, does it support point-to-point VPCs?	O.1	1.5	Yes,No	__Yes__No
	If the IUT is Private ATM network equipment, does it support point-to-point VPCs?	O	1.5	Yes,No	__Yes__No
3.3.2	If the IUT is Public ATM network equipment, does it support point-to-point VCCs?	O.1	1.5	Yes,No	__Yes__No
	If the IUT is Private ATM network equipment, does it support point-to-point VCCs?	M	1.5	Yes,No	__Yes__No
3.3.3	If the IUT is Public ATM network equipment, does it support point-to-multipoint VPCs?	O.2	1.5	Yes,No	__Yes__No
	If the IUT is Private ATM network equipment, does it support point-to-multipoint VPCs?	O	1.5	Yes,No	__Yes__No
3.3.4	If the IUT is Public ATM network equipment, does it support point-to-multipoint VCCs, SVC?	O.2	1.5	Yes,No	__Yes__No
	If the IUT is Private ATM network equipment, does it support point-to-multipoint VCCs, SVC?	M	1.5	Yes,No	__Yes__No
3.3.5	Does the IUT support point-to-multipoint VCCs, PVC?	O	1.5	Yes,No	__Yes__No
3.3.6	Does the IUT support PVC?	O.3	1.5	Yes,No	__Yes__No
3.3.7	Does the IUT support SVC?	O.3	1.5	Yes,No	__Yes__No
3.3.8	Does the IUT relay cells within a VPC/VCC while preserving their cell sequence integrity from a single source?	M	3.1	Yes,No	__Yes__No
Comment(s) O.1 = One of these options must be supported. O.2 = One of these option					

s must be supported. O.3 = One of these options must be supported.				

3.4 Cell Structure and Encoding

Index	Text	Status	Reference	Values	Support
3.4.1	Does the IUT support the UNI cell structure, field encoding and transmission principles?	M	3.3	Yes, No	__Yes__No
3.4.2	Does the IUT allocate the bits within the VPI and VCI fields as per the coding rules?	M	3.3	Yes, No	__Yes__No
3.4.3	Does the IUT set to 0 the bits that are unallocated in the VPI and VCI subfields?	M	3.3	Yes, No	__Yes__No
3.4.4	Does the IUT discard cells with valid, but inactive VPI/VCI?	M	3.4.2	Yes, No	__Yes__No
Comment(s)					

3.5 Generic Flow Control (GFC) Field

Index	Text	Status	Reference	Values	Support
3.5.1	Does the IUT operate the GFC protocol in uncontrolled access mode, encoding the GFC field to be all zeros?	M	3.3	Yes, No	__Yes__No
3.5.2	If the IUT is an intermediate node, does the IUT overwrite any non-zero GFC field received before sending it into the network?	M	3.3	Yes, No	__Yes__No
3.5.3	Does the IUT, on receipt of 10 or more non-zero GFC fields measured for non-overlapping intervals over 30000+/-10000 cell times, generate an error to layer management?	O	3.3	Yes, No	__Yes__No
Comment(s)					

3.6 Payload Type, CLP and Pre-assigned Cell Discrimination

Index	Text	Status	Reference	Values	Support
3.6.1	Does the IUT support ATM layer fault management at the private UNI?	O	3.5	Yes, No	__Yes__No
3.6.2	Does the IUT support ATM layer fault management at the public UNI?	M	3.5	Yes, No	__Yes__No
3.6.3	Does the IUT code the Payload Type Identifier (PTI) as indicated in Figure 3-9 for the functions supported?	M (Note)	3.4.4	Yes, No	__Yes__No
3.6.4	At the user side, does the IUT use the CLP header field to indicate lower priority?	O	3.4.5	Yes, No	__Yes__No
3.6.5	At the network side, does the IUT tag the CLP header field on cells detected to be in violation of the Traffic Contract?	O	3.4.5	Yes, No	__Yes__No
3.6.6	If the IUT does not support segment OAM F5 flow cells for VCC level management, does it discard cells with PT value of 4?	O.4 (Note)	3.4.4	Yes, No	__Yes__No
3.6.7	If the IUT does not support segment OAM F5 flow cells for VCC level management, does it pass cells with PT value of 4 unmodified?	O.4 (Note)	3.4.4	Yes, No	__Yes__No
3.6.8	If the IUT does not support end-to-end OAM F5 flow cells for VCC level management, does it discard cells with PT value of 5?	O.5 (Note)	3.4.4	Yes, No	__Yes__No
3.6.9	If the IUT does not support end-to-end OAM F5 flow cells for VCC level management, does it pass cells with PT value of 5 unmodified?	O.5 (Note)	3.4.4	Yes, No	__Yes__No
3.6.10	Does the IUT discard all cells received with currently reserved or undefined PT values 6 and 7?	O.6	3.4.4	Yes, No	__Yes__No
3.6.11	Does the IUT pass all cells received with currently reserved or undefined PT values 6 and 7 unmodified?	O.6	3.4.4	Yes, No	__Yes__No

Comment(s)

O.4 = support is required for only one of these items.
O.5 = support is required for only one of these items.
O.6 = support is required for only one of these items.

Note: Question is only applicable if fault management is supported.

3.7 Unassigned Cells

Index	Text	Status	Reference	Values	Support
3.7.1	Does the IUT discard all received unassigned cells as identified by the pattern specified in Figure 3-7?	M	3.4.2	Yes, No	__Yes__No
Comment(s)					

3.8 Invalid Headers

Index	Text	Status	Reference	Values	Support
3.8.1	Does the IUT discard received cells with the invalid pattern as identified in Figure 3-7?	M	3.4.2	Yes, No	__Yes__No
Comment(s)					

3.9 Multiplexing

Index	Text	Status	Reference	Values	Support
3.9.1	Does the IUT support Specified QoS class 1 at the public UNI?	M	3.4.1	Yes, No	__Yes__No
3.9.2	Does the IUT support Specified QoS class 1 at the private UNI?	O	3.4.1	Yes,No	__Yes__No
3.9.3	Does the IUT support Specified QoS class 2?	O	3.4.1	Yes, No	__Yes__No
3.9.4	Does the IUT support Specified Qos class 3?	O	3.4.1	Yes, No	__Yes__No
3.9.5	Does the IUT support Specified QoS class 4?	O	3.4.1	Yes, No	__Yes__No
3.9.6	Does the IUT support the unspecified QoS class?	O	3.4.1	Yes, No	__Yes__No
Comment(s)					

3.10 Cell Rate Decoupling

Index	Text	Status	Reference	Values	Support
3.10.1	Does the IUT generate unassigned cells to adjust to the transmitted cell rate if required by the physical layer?	M	3.4.2	Yes, No	__Yes__No
Comment(s)					

3.11 Metasignalling

Index	Text	Status	Reference	Values	Support
3.11.1	If the IUT does not support meta-signalling protocol, then does it discard all meta-signalling cells (VCI =1) that it receives?	M	3.4.3	Yes, No	__Yes__No
Comment(s)					

3.12 Broadcast

Index	Text	Status	Reference	Values	Support
3.12.1	Does the IUT support broadcast signalling protocol?	O	3.4.3	Yes, No	__Yes__No
3.12.2	If the IUT does not support general broadcast signalling protocol, then does it discard all general broadcast cells (VCI = 2) that it receives?	M	3.4.3	Yes, No	__Yes__No
3.12.3	If the IUT supports broadcast signalling protocol, does it support broadcast signalling cells VPI=00000000 (default) for user signalling with local exchange only?	M	3.4.3	Yes, No	__Yes__No
3.12.4	If the IUT supports broadcast signalling protocol, does it support broadcast signalling cells VPI equals any value other than 00000000, for user signalling to other signalling entities?	M	3.4.3	Yes, No	__Yes__No
3.12.5	If the IUT supports broadcast signalling protocol, is the PTI field defined as PTI = 0AA where two bits are available for use by an ATM layer function?	M	3.4.3	Yes, No	__Yes__No
3.12.6	If the IUT supports broadcast signalling protocol, is the CLP bit of the broadcast cell always set to 0 by the originating ATM transmitting entity?	M	3.4.3	Yes, No	__Yes__No
Comment(s)					

3.13 Point-to-Point Signalling

Index	Text	Status	Reference	Values	Support
3.13.1	Does the IUT support point-to-point signalling protocol?	O	3.4.3	Yes, No	__Yes__No
3.13.2	Does the IUT discard point-to-point signalling cells if it doesn't support the protocol?	O.7	3.4.3	Yes, No	__Yes__No
3.13.3	Does the IUT pass point-to-point signalling cells unmodified if it doesn't support the protocol?	O.7	3.4.3	Yes, No	__Yes__No
3.13.4	If the IUT supports point-to-point signalling, does it support VPI = 0 (VCI = 5 reserved for UNI signalling)?	M	3.4.3	Yes, No	__Yes__No
3.13.5	If the IUT supports point-to-point signalling, is the PTI field defined as PTI = 0AA, where 2 bits are available for use by an ATM layer function?	M	3.4.3	Yes, No	__Yes__No
3.13.6	Is the CLP bit of the point-to-point signalling cells always set to zero by the originating end system?	M	3.4.3	Yes, No	__Yes__No
Comment(s) O.7 = One of these options must be supported.					

3.14 ILMI Cells

Index	Text	Status	Reference	Values	Support
3.14.1	Does the IUT support VPI=0 and VCI=16 as the default for ILMI cells?	M	3.4.3	Yes, No	__Yes__No
3.14.2	Does the IUT set the CLP bit to zero before transmitting an ILMI cell?	M	3.4.3	Yes, No	__Yes__No
Commen t(s)					

3.15 OAM General Functions Support and OAM Fields

Index	Text	Status	Reference	Values	Support
3.15.1	For the public UNI, does the IUT support ATM layer fault management?	M	1.5, 3.5	Yes, No	__Yes__No
3.15.2	For the private UNI, does the IUT support ATM layer fault management?	O	1.5, 3.5	Yes, No	__Yes__No
3.15.3	For the public UNI, if the IUT supports VP level service, does it support F4 management flow?	M	3.5.1	Yes, No	__Yes__No
3.15.4	For the public UNI, if the IUT supports VC level service, does it support F5 management flow?	M	3.5.1	Yes, No	__Yes__No
3.15.5	Does the IUT support the specified OAM cell structure and encoding principles?	M	3.5.2	Yes, No	__Yes__No
3.15.6	Does the IUT support generation and checking of the CRC-10 field?	M	3.5.2	Yes, No	__Yes__No
3.15.7	Does the IUT discard all OAM cells with invalid OAM cell type field after processing the received OAM cells?	O	3.5.2	Yes, No	__Yes__No
3.15.8	Does the IUT discard all OAM cells with invalid function type field after processing the received OAM cells?	O	3.5.2	Yes, No	__Yes__No
3.15.9	Are the unused bytes of the function specific fields of an OAM fault management cell set to 6A (HEX) as default coding?	M	3.5.2	Yes, No	__Yes__No
3.15.10	If the IUT is an intermediate node, does it pass all End-to-end OAM cells unmodified?	M	3.5.2	Yes, No	__Yes__No
3.15.11	Does the IUT support the correlation tag field?	M	3.5.3.2	Yes, No	__Yes__No
Comment(s)					

Note: All ATM management functions for private UNI are optional; the mandatory status is applicable to public UNI only.

3.16 OAM Alarm Surveillance

Index	Text	Status	Reference	Values	Support
3.16.1	Does the IUT as a VP end point detect incoming VP-AIS and generate VP-FERF in upstream direction?	M	3.5.3.1	Yes, No	__Yes__No
3.16.2	Does the IUT as a VC endpoint, detect VC-AIS and generate VC-FERF in the upstream direction?	O	3.5.3.1	Yes, No	__Yes__No
3.16.3	Does the IUT as a VP intermediate node detect VPC failure and generate VP-AIS in the downstream direction?	M	3.5.3.1	Yes, No	__Yes__No
3.16.4	Does the IUT as a VP intermediate node detect VCC failure and generate VC-AIS in the downstream direction?	O	3.5.3.1	Yes, No	__Yes__No
3.16.5	Does the IUT as an intermediate point of VPC detect physical layer failure and generate an VP-AIS in downstream direction?	M	3.5.3.1	Yes, No	__Yes__No
3.16.6	If the IUT supports alarm surveillance, does it generate alarm surveillance cells at < 1% of link capacity?	M	3.5.3.1	Yes, No	__Yes__No
3.16.7	Does the IUT support failure type field for AIS/FERF OAM cells?	O	3.5.2	Yes,No	__Yes__No
Comment(s)					

3.17 OAM Loopback

Index	Text	Status	Reference	Values	Support
3.17.1	Does the IUT support loopback OAM function?	O	3.5.3.2	Yes, No	__Yes__No
3.17.2	As an endpoint receiving OAM cells with loopback indicator value other than 00000001 and function type = 1000, does the IUT discard these cells?	M	3.5.3.2	Yes, No	__Yes__No
3.17.3	As an endpoint receiving OAM cells with loopback indicator of 00000001 and function type = 1000, does the IUT loopback after decrement of the loopback indicator value?	M	3.5.3.2	Yes, No	__Yes__No
3.17.4	As an endpoint receiving OAM cells with loopback indicator of 00000001 and function type =1000, does the IUT loopback within one second?	M	3.5.3.2	Yes, No	__Yes__No
3.17.5	Does the IUT support loopback location ID field?	O	3.5.2	Yes, No	__Yes__No
3.17.6	Are the unused 7 bits of the loopback indication field set to zero for transmission?	M	3.5.2	Yes, No	__Yes__No
Comment(s)					

3.18 Traffic Management

Index	Text	Status	Reference	Values	Support
3.18.1	Does the IUT support Network Resource Management?	O	3.6	Yes, No	__Yes__No
3.18.2	Does the IUT support Connection Admission Control?	O	3.6	Yes, No	__Yes__No
3.18.3	Does the IUT support Usage Parameter Control at the public UNI?	M	3.6	Yes, No	__Yes__No
3.18.4	Does the IUT support Usage Parameter Control at the private UNI?	O	3.6	Yes, No	__Yes__No
3.18.5	Does the IUT support Traffic Shaping?	O	3.6	Yes, No	__Yes__No
3.18.6	Does the IUT support Explicit Forward Congestion Indication?	O	3.6	Yes, No	__Yes__No
Comment(s)					