The ATM Forum
Technical Committee

PICS Proforma for the SONET STS-3c Physical Layer Interface

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Version 1.0

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Walter Buehler, Editor

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1. Introduction

Prior to the conformance testing and the interoperability testing of two IUTs, it is necessary to have the PICS (Protocol Implementation Conformance Statement) documents for both implementations.

This particular PICS deals with the implementation of the SONET STS-3c Physical Layer Interface.

1.1 Scope

This document provides the PICS proforma for the STS-3c Physical Layer Interface as described in Section 2.1 of the ATM User-Network Interface Specification Version 3.0 [1], 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, "ATM User-Network Interface Specification Version 3.0", 1993.

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

[4] American National Standard for Telecommunications, "Broadband ISDN Customer Installation Interfaces: Physical Layer Specification, T1E1.2/93-020R1", 1993.

[5] Bellcore, "Synchronous Optical Network (SONET) Transport Systems: Common Generic Criteria, TR-NWT-000253 Issue 2", December 1991.

[6] ITU-T, "Integrated Services Digital Network (ISDN): Overall Network Aspects and Functions, ISDN User-Network Interfaces, B-ISDN User-Network Interface Physical Layer Specification, Recommendation I.432", 1991.

[7] ITU-T, "General Aspects of Digital Transmission Systems; Terminal Equipments, Synchronous Multiplexing Structure, Recommendation G.709", 1991.

[8] American National Standard for Telecommunications, "Digital Hierarchy - Optical Interface Rates and Formats Specifications (SONET) T1.105-1991", 1991.

1.3 Definitions

ATM	Asynchronous Transfer Mode
CS	Convergence Sublayer
HEC	Header Error Control
IUT	Implementation Under Test
LOS	Loss of Signal
M	Mandatory
O	Optional
O.<n>	Optional, but, if chosen, support is required for either at least one or only one of the options in the group labelled by the same numeral <n>
P	Prohibited
PDU	Protocol Data Unit
S.<i>	Supplementary information number i
SAR	Segmentation and Reassembly (Sublayer)
SDU	Service Data Unit
X.<i>	Exceptional information number i

1.4 Conformance Statement

The supplier of a protocol implementation which is claimed to conform to the STS-3c Physical Layer Interface is required to complete a copy of the PICS proforma provided in Section 3.0 and is required to provide the information necessary to identify both the supplier and the implementation.

2. Identification of the Implementation

Implementation Under Test (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: _____

PICS - System Conformance Statement

Provide the relationship of the PICS with the System Conformance Statement for the system:

_____

_____

_____

Identification of the protocol

This PICS proforma applies to the following document:

ATM Forum, "ATM User-Network Interface Specification Version 3.0", 1993.

3. PICS Proforma

3.1 Global Statement of Conformance

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

___Yes

___No

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

3.2 Instructions for Completing the PICS Proforma

The PICS Proforma is a fixed-format questionnaire. Answers to the questionnaire should be provided in the rightmost columns, either by simply indicating a restricted choice (such as Yes or No), or by entering a value or a set of range of values.

A supplier may also provide additional information, categorized as exceptional or supplementary information. This additional information should be provided as items labelled X.<i> for exceptional information, or S.<i> for supplemental information, respectively, for cross reference purposes, where <i> is any unambiguous identification for the item. The exception and supplementary information are not mandatory and the PICS is complete without such information. The presence of optional supplementary or exception information should not affect test execution, and will in no way affect interoperability verification.

3.3 Physical Media Dependent (PMD) Specification

Item	Protocol Feature	Status Pred.	Spec. Ref.	Support
3.3.1	If the interface is based on the single-mode fibre, do the IUT physical medium characteristics comply with Section 7.5.1 of [4]?	O.1	2.1.1.1.1	Yes_ No_ X__ S__
3.3.2	If the interface is based on the multi-mode fibre, do the IUT physical medium characteristics comply with Section 7.6.2 of [4]?	O.1	2.1.1.1.1	Yes_ No_ X__ S__
3.3.3	Do the IUT output and input optical parameters conform to the SR application specified in Table 4.18, Section 4.2.6 of [5]?	O.2	2.1.1.1.1	Yes_ No_ X__ S__
3.3.4	Do the IUT output and input optical parameters conform to the IR application specified in Table 4.11, Section 4.2.6 of [5]?	O.2	2.1.1.1.1	Yes_ No_ X__ S__
3.3.5	Do the IUT output and input optical parameters conform to the LR application specified in Table 4.3, Section 4.2.6 of [5]?	O.2	2.1.1.1.1	Yes_ No_ X__ S__
3.3.6	Do the IUT output and input optical parameters conform to the multimode optical application specified in Section 7.6.2 of [4]?	O.2	2.1.1.1.1	Yes_ No_ X__ S__
Comments:				

O.1 One of these options must be supported

O.2 One of these options must be supported

3.4 B-ISDN Independent Transmission Convergence (TC) Sublayer Functions

Item	Protocol Feature	Status Pred.	Spec. Ref.	Support
3.4.1	Does the IUT process and generate all mandatory active overhead bytes listed in Section 7.4.1 of [4]?	M	2.1.1.2.1	Yes_ No_ X__ S__
3.4.2	Does the IUT perform the SONET procedures related to STS-1 signal concatenation, STS-3c frame scrambling, timing and framing as defined in [4], Sections 7.4 and 10.3?	M	2.1.1.2.1	Yes_ No_ X__ S__
Comments:				

3.5 B-ISDN Specific TC Sublayer Functions

Item	Protocol Feature	Status Pred.	Spec. Ref.	Support
3.5.1	Does the IUT implement the HEC error detection as defined in [6], Section 4.3.1?	M	2.1.1.2.2.1	Yes_ No_ X__ S__
3.5.2	Does the IUT generate the HEC byte as described in [6], Section 4.3.2?	M	2.1.1.2.2.1	Yes_ No_ X__ S__
3.5.3	Does the IUT support the bistate HEC check procedure described in [6]?	O	2.1.1.2.2.1	Yes_ No_ X__ S__
3.5.4	In Correction State, does the IUT correct an apparent single-bit error in the header and go to Detection State?	O	2.1.1.2.2.1	Yes_ No_ X__ S__
3.5.5	In Correction State, does the IUT discard a cell with a multi-bit error in the header and go to Detection State?	O	2.1.1.2.2.1	Yes_ No_ X__ S__

3.5.6	In Detection State, does the IUT discard a cell with any error(s) in the header and stay in Detection State?	O	2.1.1.2.2.1	Yes_ No_ X__ S__

Item	Protocol Feature	Status Pred.	Spec. Ref.	Support
3.5.7	In Detection State, does the IUT accept a cell with no error in the header and go to Correction State?	O	2.1.1.2.2.1	Yes_ No_ X__ S__
3.5.8	Does the IUT implement the self synchronizing scrambler as defined in [6], Section 4.5.3?	M	2.1.1.2.2.2	Yes_ No_ X__ S__
3.5.9	Does the IUT map ATM cells into the SONET STS-3c SPE as specified in Section 7.4 of [4]?	M	2.1.1.2.2.3	Yes_ No_ X__ S__
3.5.10	Does the IUT perform cell delineation using the HEC based algorithm described in [6], Section 4.5.1.1?	M	2.1.1.2.2.4	Yes_ No_ X__ S__
3.5.11	Does the IUT support the ATM Payload Construction Indication as defined in [1]?	M	2.1.1.2.2.5	Yes_ No_ X__ S__
Comments:				

3.6 SONET STS-3c Frame at the UNI

Item	Protocol Feature	Status Pred.	Spec. Ref.	Support
3.6.1	When the IUT is transmitting, does it encode all undefined overhead bytes/bits to zero patterns before scrambling as described in [1]?	M	2.1.1.3	Yes_ No_ X__ S__
3.6.2	Does the IUT ignore all overhead bytes/bits undefined at the UNI?	M	2.1.1.3	Yes_ No_ X__ S__

Comments:

3.7 Physical Layer Operation and Maintenance Specification

Item	Protocol Feature	Status Pred.	Spec. Ref.	Support
3.7.1	Does the IUT perform Performance Monitoring functions included in Sections 14.1.1 and 14.1.4 of [4]?	M	2.1.2.1.1	Yes_ No_ X__ S__
3.7.2	Does the IUT perform Fault Management functions included in Sections 14.1.2 and 14.1.3 of [4]?	M	2.1.2.1.2	Yes_ No_ X__ S__
3.7.3	Does the IUT perform the Signal Label Mismatch Fault Management Function in accordance with the procedures described in Section 6.3.1.1.8 of [5]?	O	2.1.2.1.2	Yes_ No_ X__ S__
3.7.4	Does the IUT support facility testing by repetitively sending the appropriate 64 byte code in the J1 POH byte as defined in [4] Section 3.3.2.3?	O	2.1.2.1.3	Yes_ No_ X__ S__
Comments:				

3.8 B-ISDN Specific Operation and Maintenance Functions

Item	Protocol Feature	Status Pred.	Spec. Ref.	Support
3.8.1	Does the IUT perform the Line Performance Monitoring function (including the line FEBE function) as defined in Section 14.1.4 of [4]?	M	2.1.2.2.1	Yes_ No_ X__ S__

3.8.2	Does the IUT detect Out-of-Cell Delineation (OCD) as explained in Section 2.1.2.2.2 of [1]?	M	2.1.2.2.2	Yes_ No_ X__ S__
Comments:				