The ATM Forum
Technical Committee

PICS Proforma for the DS1 Physical Layer Interface

af-test-0037.000

April, 1995

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Version 1.0

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Walter Buehler, Editor

Table of Contents

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 DS1 Physical Layer Interface.

1.1 Scope

This document provides the PICS proforma for the DS1 Physical Layer Interface as described in the ATM Forum DS1 Physical Layer Specification, AF-PHY-0016.000, September, 1994 [1], in compliance with relevant requirements, and in accordance with the relevant guidelines, given in ISO/IEC 9646-2 [3].

1.2 Normative References

[1] ATM Forum, "DS1 Physical Layer Specification" AF-PHY-0016.000, September, 1994

[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 Interconnection - Part 2: Abstract Test Suite Specification. (See also ITU-T Recommendation X.291 (1991))

[4] American National Standard, "Integrated Services Digital Network (ISDN) Primary Rate - Customer Installation Metallic Interfaces Layer 1 Specification, ANSI T1.408-1990"

[5] 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", 03/93.

1.3 Definitions

ATM	Asynchronous Transfer Mode
B8ZS	Bipolar with 8-Zero Substitution
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>
S.<i>	Supplementary information number i
X.<i>	Exceptional information number i

1.4 Conformance Statement

The supplier of a protocol implementation which is claimed to conform to the DS1 Physical Layer Interface Specification 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 provided in Section 2.0.

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 Identification

Name: ______________________________

Address: ______________________________

____

Telephone Number: ______________________________

Facsimile Number: ______________________________

Additional Information: ______________________________

Client Identification

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, "DS1 Physical Layer Specification, AF-PHY-0016.000, September, 1994"

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) Characteristics

Item	Protocol Feature	Status Pred.	Spec. Ref.	Support
3.3.1	Is the PMD Sublayer based on [4] Sections 5.2, 5.3.3, 5.4-5.4.2.3, 5.5 and 5.6.1?	M	2.0	Yes_ No_ X__ S__
3.3.2	Is the physical layer bit rate nominally 1.544 Mbps?	M	2.1	Yes_ No_ X__ S__
3.3.3	Is the nominal bit rate available for transport of ATM cells 1.536 Mbps?	M	2.2	Yes_ No_ X__ S__
3.3.4	Is the interface symmetric?	M	2.3	Yes_ No_ X__ S__
3.3.5	In the case of a public network access applications, does it meet the synchronization characteristics of Ia at the U reference point as described in [4] Sections 5.3.1.1-5.3.1.2.1?	M	2.4	Yes_ No_ X__ S__
3.3.6	In the case of a leased line applications, does it meet the synchronization characteristics of Ia at the U reference point as described in [4] Section 5.3.1.2.3?	M	2.4	Yes_ No_ X__ S__
3.3.7	Is the line code used Bipolar with 8-Zero Substitution (B8ZS) according to [4] Section 5.3.2?	M	2.5	Yes_ No_ X__ S__
Comments:				

3.4 Transport Signal Format

Item	Protocol Feature	Status Pred.	Spec. Ref.	Support
3.4.1	Is the frame format the 24 frame multiframe Extended Superframe Format (ESF) as specified in [4] Sections 6.1-6.3 and 7?	M	3.1	Yes_ No_ X__ S__
3.4.2	Are the bit-oriented alarm messages of the ESF Data Link supported according to [4] Sections 8.1 and 8.2?	M	3.2	Yes_ No_ X__ S__
3.4.3	Are the bit-oriented loopback messages of the ESF Data Link supported according to [4] Sections 8.3 (including Annex E PT FS and Ia FS required functions) and 8.3.1, 8.3.3 and 8.3.4?	M	3.2	Yes_ No_ X__ S__
3.4.4	Do the bit-oriented messages meet the conditions of the ESF Data Link according to [4] Sections 8.4.1-8.4.2.2?	M	3.2	Yes_ No_ X__ S__
3.4.5	Are the message-oriented performance report messages supported according to [4] Sections 8.4.3.1-8.4.3.1.2?	M	3.2	Yes_ No_ X__ S__
3.4.6	Do the message-oriented performance report messages support the format and meet the conditions described in [4] Sections 8.4.3.2-8.4.5?	M	3.2	Yes_ No_ X__ S__
Comments:				

3.5 Transmission Convergence (TC) Characteristics

Item	Protocol Feature	Status Pred.	Spec. Ref.	Support
3.5.1	Are ATM Cells carried in the DS1 payload in accordance with [1] Section 4.1/Figure 4-1?	M	4.1	Yes_ No_ X__ S__
3.5.2	Does the transmit side adapt the cell rate arriving from the ATM layer to the DS1 frame payload capacity by inserting unassigned or idle cells when assigned cells are not available from the ATM layer?	M	4.2	Yes_ No_ X__ S__
3.5.3	If GFC is supported, does the IUT transmit unassigned cells when assigned cells are not available from the ATM layer?	M	4.2	Yes_ No_ X__ S__
3.5.4	Can the receive side of the interface receive and filter unassigned and idle cells?	M	4.2	Yes_ No_ X__ S__
3.5.5	Is cell delineation performed using the HEC mechanism as defined in [5] Section 4.5?	M	4.3	Yes_ No_ X__ S__
3.5.6	Does the interface operate without payload scrambling?	M	4.3	Yes_ No_ X__ S__
3.5.7	Is the Header Error Control (HEC) generated as defined in [5] Section 4.3.2?	M	4.4	Yes_ No_ X__ S__
3.5.8	Is the generator polynomial and coset used in accordance with [5] Section 4.3.2?	M	4.4	Yes_ No_ X__ S__
3.5.9	Is HEC error detection function in accordance with [5] Sections 4.3.1-4.3.2?	M	4.4	Yes_ No_ X__ S__
3.5.10	Is single bit error correction implemented in accordance with [5] Section 4.3.1?	O	4.4	Yes_ No_ X__ S__

Comments: