The ATM Forum
Technical Committee

PICS for AAL5

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Table of Contents

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 ITU-T AAL Type 5 as described in Section 6 of the ITU-T Draft Recommendation I.363[3]. It covers the AAL5 with the SSCS sublayer set to Null. For AAL5 based protocols with SSCS not Null, a separate PICS Proforma should be generated. In this case the PICS for AAL5 Common Part will be merged together with the one for the SSCS in one document. The proforma, when completed for an implementation, becomes the PICS for the implementation.

1.2 Normative References

[1] ISO/IEC 9646-1: 1990, *Information technology - Open systems interconnection - Conformance testing methodology and framework - Part1: General concepts.* (See also CCITT Recommendation X.290 (1991))

[2] ISO/IEC 9646-2: 1990, I*nformation technology - Open systems interconnection - Conformance testing methodology and framework - Part2: Abstract test suite specification.* (See also CCITT Recommendation X.291 (1991))
[3] CCITT Document TD-XVIII/10 (AAL 5), *"AAL Type 5, Draft Recommendation text for section 6 of I.363", 29 January 1993*[1]*, Geneva.*

1.3 Definitions

This document uses the following terms defined in ISO/IEC 9646-1:
IUT: Implementation under test.
PICS: Protocol Implementation Conformance Statement. A statement made by the supplier of an implementation or system, stating which capabilities have been implemented for a given protocol.
PICS Proforma: A document in the form of a questionnaire, designed by the protocol specifier or conformance test suite specifier, which, when completed for an implementation or system, becomes the PICS.
SUT: System under test.

This document uses the following terms defined in ITU-T Recommendation I.363:
AAL5: ATM Adaptation Layer Type 5
ATM: Asynchronous Transfer Mode

1. Although UNI 3.0 & 3.1 make reference to draft recommendation, this PICS has been developed based on the published version of April 1994

CLP: Cell Loss Priority
CPAAL5: Common Part AAL5
CPCS: AAL5 Common Part CS
CPI: Common Part Indicator
CRC: bit Cyclic Redundancy Code
CS: AAL5 Convergence Sublayer
HEC: Header Error Control
LSB: Least Significant Bit
PDU: Protocol Data Unit
SAR: Segmentation And Reassembly sublayer
SDU: Service Data Unit
SSCS: AAL5 Service Specific CS

1.4 Symbols and Conventions

–	M	Mandatory
–	O	Optional
–	O.<n>	Optional, at least one or only one of the options is required in the group labelled
–		with number n
–	Yes	Supported
–	No	Not supported

1.5 Conformance Statement

The supplier of a protocol implementation which is claimed to conform to the AAL5 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 (i.e. Sections 2 and 3).

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 AAL5

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 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 ITU-T I363 [3]. Answering “No” to a particular question in this section states that the implementation does not support that function of the protocol.

3.3 AAL5 Service

3.3.1 Service Modes and Operations Service

Index	Text	Status	Reference	Support
3.3.1.1	Does the IUT support Message Mode?	M	6.1	❑ Yes ❑ No
3.3.1.2	Does the IUT support Streaming Mode?	O	6.1	❑ Yes ❑ No
3.3.1.3	Does the IUT support non-assured operations in any supported service mode?	M	6.1	❑ Yes ❑ No
Comment (s)				

3.4 Functions, Structure and Coding of AAL5

3.4.1 Functions of SAR and CPCS

Index	Text	Status	Reference	Support
3.4.1.1	Does the IUT pass congestion information between the layers above and below the CPAAL5 in both directions?	M	6.3.2.1.1	❑ Yes ❑ No
3.4.1.2	Does the IUT pass CLP information between the layers above and below the CPAAL5 in both directions?	M	6.3.2.1.1	❑ Yes ❑ No
Comment (s)				

3.4.2 SAR Functions, Structure and Coding

Index	Text	Status	Reference	Support
3.4.2.1	Does the IUT encodes AUU parameter value = 0 to indicate beginning or continuation of SAR-SDU and AUU parameter value = 1 to indicate the end of the SAR-SDU?	M	6.3.1.1 6.3.1.2	❑ Yes ❑ No
3.4.2.2	Does the IUT SAR accept variable length SAR-SDUs which are integral multiples of 48 octets from the CPCS?	M	6.3.1.1	❑ Yes ❑ No
3.4.2.3	Does the IUT SAR generate SAR-PDUs containing 48 octets of SAR-SDU data?	M	6.3.1.1	❑ Yes ❑ No
Comment (s)				

3.4.3 CPCS Functions

Index	Text	Status	Reference	Support
3.4.3.1	Does the IUT preserve the CPCS-SDU sequence integrity on each CPCS connection?	M	6.3.2.1	❑ Yes ❑ No
3.4.3.2	Does the IUT preserve the CPCS user-to-user information?	M	6.3.2.1.1	❑ Yes ❑ No
3.4.3.3	Is the option of discarding corrupted CPCS-SDUs supported for non-assured operations?	O (Note 1)	6.3.2.1.1	❑ Yes ❑ No
3.4.3.4	Is the option of delivering corrupted CPCS-SDU supported for non-assured operations?	O (Note 1)	6.3.2.1.1	❑ Yes ❑ No
3.4.3.5	Does the IUT provide the means to abort a partially transmitted CPCS-SDU using the Length field?	M (Note 2)	6.3.2.1.1	❑ Yes ❑ No
3.4.3.6	Does the IUT provide for 48 octet alignment of the CPCS-PDU trailer?	M	6.3.2.1.1	❑ Yes ❑ No
Comment (s) Note 1: At least one of these capabilities shall be implemented. Note 2: The response is meaningful if only question 3.3.1.2 is given a “yes” answer.				

3.4.4 CPCS Structure and Coding

3.4.4.1 CPCS-PDU Structure

Index	Text	Status	Reference	Support
3.4.4.1.1	Does the IUT support CPCS-PDU structure as presented in figure 6.5 of [3] ?	M	6.3.2.1.2	❑ Yes ❑ No
Comment (s)				

3.4.4.2 CPCS-PDU Payload

Index	Text	Status	Reference	Support
3.4.4.2.1	Does the IUT support CPCS-PDU payload field with 1 to 65535 octets in length?	M	6.3.2.1.2	❑ Yes ❑ No
3.4.4.2.2	Does the IUT use the CPCS-PDU payload to carry CPCS-SDU?	M	6.3.2.1.2	❑ Yes ❑ No
Comment (s)				

3.4.4.3 CPCS-PDU Pad Field

Index	Text	Status	Reference	Support
3.4.4.3.1	Does the IUT support the padding field with 0 to 47 octets in length?	M	6.3.2.1.2	❑ Yes ❑ No
3.4.4.3.2	Does the IUT use the Padding field to align the CPCS-PDU on a 48 octet boundary?	M	6.3.2.1.2	❑ Yes ❑ No
Comment (s)				

3.4.4.4 CPCS User-to-User indication (UU) Field

Index	Text	Status	Reference	Support
3.4.4.4.1	Does the IUT support the 1 octet CPCS-UU field?	M	6.3.2.1.2	❑ Yes ❑ No
3.4.4.4.2	Does the IUT use the CPCS-UU field to carry CPCS user-to-user information only?	M	6.3.2.1.2	❑ Yes ❑ No
Comment (s)				

3.4.4.5 CPCS-PDU Common Part Indicator (CPI) Field

Index	Text	Status	Reference	Support
3.4.4.5.1	Does the IUT support the 1 octet CPI field?	M	6.3.2.1.2	❑ Yes ❑ No
3.4.4.5.2	Does the IUT encode the CPI field to all zeros?.	M	6.3.2.1.2	❑ Yes ❑ No
Comment (s)				

3.4.4.6 CPCS-PDU Length Field

Index	Text	Status	Reference	Support
3.4.4.6.1	Does the IUT support the 2 octet Length field?	M	6.3.2.1.2	❑ Yes ❑ No
3.4.4.6.2	Does the IUT binary encode the Length field with the number of octets of the CPCS-PDU payload?	M	6.3.2.1.2	❑ Yes ❑ No
3.4.4.6.3	Does the IUT encode the Length field as zero for the abort function in the sending side?	M (note1)	6.3.2.1.2	❑ Yes ❑ No
Comment (s) Note 1: The response is meaningful if only question 3.4.3.5 is given a “yes” answer.				

3.4.4.7 CPCS-PDU Cyclic Redundancy Code (CRC) Field

Index	Text	Status	Reference	Support
3.4.4.7.1	Does the IUT support the 4 octet CRC field?	M	6.3.2.1.2	❑ Yes ❑ No
3.4.4.7.2	Does the IUT use the specified CRC-32 to calculate the CRC value?	M	6.3.2.1.2	❑ Yes ❑ No
3.4.4.7.3	Does the IUT place the result of the CRC-32 calculation in the CRC field with the LSB right justified?	M	6.3.2.1.2	❑ Yes ❑ No
Comment (s)				

3.5 Procedures

3.5.1 Procedures for the SAR Sublayer at the Sender Side

Index	Text	Status	Reference	Support
3.5.1.1	Does the IUT generate more than one SAR-PDU, if the CPCS-PDU has the length of more than 48 octets?	M	6.4.1.2	❑ Yes ❑ No
3.5.1.2	In all the generated SAR-PDUs, does the IUT fill the SAR-PDU payload field with 48 octets of CPCS-PDU information?	M	6.4.1.2	❑ Yes ❑ No
Comment (s)				

3.5.2 Procedures of the CPCS for the Message Mode Service at the Receiver Side

	Text	Status	Reference	Support
3.5.2.1	Does the IUT maintain the Max_SDU_Deliver_Length to indicate the maximum size SDU in octets?	M	6.4.2.4	❑ Yes ❑ No
3.5.2.2	Does the IUT allow Max_SDU_Deliver_Length to take on any integer value, set by the management plane, from 1 to 65535?	M (note 1)	6.4.2.4	❑ Yes ❑ No
3.5.2.3	Does the IUT discard any CPCS-SDUs that have a length greater than MAX_SDU_Deliver_Length and report the event to Layer Management?	M (note 1)	6.4.2.4	❑ Yes ❑ No
3.5.2.4	Does the IUT discard CPCS-PDU when a CRC error is detected and the delivery option for non-assured operations is not set?	M	6.4.2.4	❑ Yes ❑ No
3.5.2.5	Does the IUT discard CPCS-PDU when invalid CPI is detected if 3.4.3.3 (discarding option) is supported?	M	6.4.2.4	❑ Yes ❑ No
3.5.2.6	Does the IUT discard CPCS-PDU when the Length field is coded as zero?	M	6.4.2.4	❑ Yes ❑ No
3.5.2.7	Does the IUT discard CPCS-PDU when the value of the Length field indicates that the PAD field is longer than 47 octets or not enough data has been received if 3.4.3.3 (discarding option) is supported?	M	6.4.2.4	❑ Yes ❑ No

	Text	Status	Reference	Support
3.5.2.8	Does the IUT set the CPCS-UU parameter to the value of the CPCS-UU parameter field of the CPCS-PDU trailer if the CPCS-SDU is delivered?	M	6.4.2.4	❑ Yes ❑ No
3.5.2.9	Does the IUT support a reassembly timer?	O	6.4.2.4	❑ Yes ❑ No
3.5.2.10	If reassembly timer is supported, does the IUT (re)start the timer when it receives a SAR-UNITDATA signal with More=1?	M (note 2)	6.4.2.4	❑ Yes ❑ No
3.5.2.11	If reassembly timer is supported, does the IUT discard CPCS-PDU when the timer expires?	M (note 2)	6.4.2.4	❑ Yes ❑ No
Comment (s) Note 1: Although the management layer interactions are not defined in the standard, they are very important to check, therefore they can be implementation dependent for the time being. Note 2: The response is meaningful if only question 3.5.2.9 is given a “yes” answer.				