

AS/NZS 13246:1999
ISO/IEC 13246:1997

Australian/New Zealand Standard™

**Information technology—
Telecommunications and
information exchange between
systems—Broadband private
integrated services network—
Inter-exchange signalling
protocol—Signalling ATM
adaptation layer**

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This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee IT/16, Private Telecommunications Networking. It was approved on behalf of the Council of Standards Australia on 7 December 1998 and on behalf of the Council of Standards New Zealand on 7 December 1998. It was published on 5 March 1999.

The following interests are represented on Committee IT/16:

Australia Post
Australian Communications Authority
Australian Electrical and Electronic Manufacturers Association
Australian Telecommunications User Group
New Zealand Standards Committee SC605 WG1
N.S.W. Public Works and Services
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This Standard was issued in draft form for comment as DR 98500.

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First published as AS/NZS 13246:1999.

Published jointly by:

Standards Australia
1 The Crescent,
Homebush NSW 2140 Australia

Standards New Zealand
Level 10, Radio New Zealand House,
155 The Terrace,
Wellington 6001 New Zealand

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee IT/16, Private Telecommunications Networking.

This Standard is identical with, and has been reproduced from, ISO/IEC 13246:1997, *Information technology—Telecommunications and information exchange between systems—Broadband Private Integrated Services Network—Inter-exchange signalling protocol—Signalling ATM adaptation layer*.

The objective of this Standard is to provide broadband private integrated services network (B-PISN) designers and users with the specification for the signalling ATM adaptation layer protocol used at the interface between B-PISN exchanges and networks themselves in order to provide the services required for the signalling protocols worldwide.

The Standard is one of a series of emerging ISO/IEC Standards applicable to private integrated services networking. The series uses the ISDN concepts as developed by ITU-T and is also within the framework of Standards for Open Systems Interconnection (OSI) as defined by ISO/IEC JTC 1.

The number of this Standard is not reproduced on each page; its identity is shown only on the cover and title page.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the annex to which they apply. A 'normative' annex is an integral part of a Standard, whereas an 'informative' annex is only for information and guidance.

For the purpose of this Standard, the ISO/IEC text should be modified as follows:

- (a) The words 'this Australian/New Zealand Standard' should replace the words 'this International Standard' wherever they appear.
- (b) References to International Standards should be replaced by references, where appropriate, to the following Australian/New Zealand Standards:

<i>Reference to International Standard or other publication</i>		<i>Australian/New Zealand Standard</i>	
ISO/IEC		AS/NZS	
9646	Information technology— Open Systems Interconnection— Conformance testing methodology and framework	4103	Information technology— Open Systems Interconnection— Conformance testing methodology and framework
9646-1	Part 1: General concepts	4103.1	Part 1: General concepts
9646-7	Part 7: Implementation Conformance Statements	—	
ITU-T			
Rec. I.321	B-ISDN Protocol Reference Model and Its Application	—	
Rec. I.361	B-ISDN ATM Layer Specification	—	
Rec. I.362	B-ISDN ATM Adaptation Layer (AAL) Functional Description	—	
Rec. I.363.5	B-ISDN ATM Adaptation Layer (AAL) Specification— Part 5: AAL Type 5	—	
Rec. I.371	Traffic control and congestion control in B-ISDN	—	

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ITU-T	AS/NZS
Rec. Q.2100 B-ISDN Signalling ATM Adaptation Layer Overview Description	—
Rec. Q.2110 B-ISDN ATM Adaptation Layer—Service Specific Connection Oriented Protocol (SSCOP)	—
Rec. Q.2130 B-ISDN Signalling ATM Adaptation Layer—Service Specific Coordination Function for Support of Signalling at the User-to-Network Interface (SSCF at UNI)	—

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AUSTRALIAN/NEW ZEALAND STANDARD

Information technology — Telecommunications and information exchange between systems — Broadband Private Integrated Services Network — Inter-exchange signalling protocol — Signalling ATM adaptation layer

1 Scope

This International Standard specifies the signalling ATM adaptation layer (SAAL) protocol used at the interface between Broadband PINXs and between Broadband PISNs within the framework of the B-QSIG signalling system protocol family. The B-QSIG SAAL uses the functions provided by the ATM layer, and provides the services required by the B-QSIG Layer 3 signalling protocols.

2 Conformance

In order to conform to this International Standard, a PINX shall satisfy requirements identified in the Protocol Implementation Conformance Statement (PICS) in annex A.

3 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

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

ITU-T Rec. I.321 (1991), *B-ISDN Protocol Reference Model and Its Application*.

ITU-T Rec. I.361 (1993), *B-ISDN ATM Layer Specification*.

ITU-T Rec. I.362 (1993), *B-ISDN ATM Adaptation Layer (AAL) Functional Description*.

ITU-T Rec. I.363.5 (1996), *B-ISDN ATM Adaptation Layer (AAL) Specification — Part 5: AAL Type 5*.

ITU-T Rec. I.371 (1996), *Traffic control and congestion control in B-ISDN*.

ITU-T Rec. Q.2100 (1994), *B-ISDN Signalling ATM Adaptation Layer Overview Description*.

ITU-T Rec. Q.2110 (1994), *B-ISDN ATM Adaptation Layer — Service Specific Connection Oriented Protocol (SSCOP)*.

ITU-T Rec. Q.2130 (1994), *B-ISDN Signalling ATM Adaptation Layer — Service Specific Coordination Function for Support of Signalling at the User-to-Network Interface (SSCF at UNI)*.

4 Definitions

For the purposes of this International Standard, the definitions given in ITU-T Recommendations I.363.5, Q.2110 and Q.2130 apply.

5 List of Acronyms

AAL	ATM Adaptation Layer
ATM	Asynchronous Transfer Mode
B-ISDN	Broadband ISDN
B-PISN	Broadband Private Integrated Service Network

B-PINX	B-PISN Exchange
B-QSIG	Broadband QSIG
CRC	Cyclic Redundancy Check
IPL	Inter-PINX-Link
PICS	Protocol Implementation Conformance Statement
PINX	Private Services Network eXchange
SAAL	Signalling AAL
SDU	Service Data Unit
SPC	Semi-Permanent Connection
SSCF	Service Specific Convergence Functions
SSCOP	Service Specific Connection Oriented Protocol
UBR	Unspecified Bit Rate
UNI	User Network Interface

6 Description

The SAAL protocol for Broadband Inter-PINX signalling uses the services of the ATM layer and provides the services required by the B-QSIG Layer 3 signalling protocols. It is based on the generic framework outlined by Recommendations I.362 for the functional description of the AAL, and Q.2100 for the signalling AAL specification.

The B-QSIG SAAL allows a B-QSIG SAAL user (i.e. a layer 3 signalling protocol) to communicate with its peer entity. In particular, it provides for a reliable transfer of layer 3 signalling messages. The information transfer between the B-QSIG SAAL user and the B-QSIG SAAL uses primitives and is performed in Message Mode.

Two peer-to-peer operational procedures are specified: Unassured or Assured operation. The support of the Assured operation is mandatory. The support of Unassured operation is optional.

NOTE The use of unassured operation is not required by the B-QSIG layer 3 signalling protocol.

The basic structure of the B-QSIG SAAL is contained in Figure 1. For the B-QSIG SAAL, 3 sublayers are defined similar to those shown in Figure 1 of Rec. Q.2100:

- SSCF for B-QSIG
- SSCOP
- Common Part - AAL Type 5.

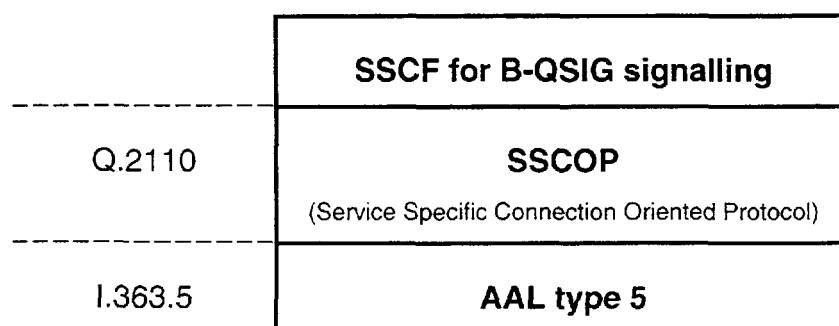


Figure 1 — B-QSIG SAAL Structure

6.1 Common Part - AAL Type 5

AAL Type 5 provides transparent transfer and CRC checking (32 Bits) for SSCOP SDUs, segmentation into ATM cells, and reassembly.

6.2 SSCOP

SSCOP provides the basic mechanisms for the establishment and release of connections and the reliable exchange of information between B-PINX peer entities.

6.3 SSCF for Broadband Inter-PINX Signalling

SSCF maps the particular requirements of the Broadband Inter-PINX layer 3 signalling protocols to the SSCOP services.

7 Operational Requirements

B-QSIG SAAL requires that the following configuration information is available at both sides of an IPL (the method for making this information available for both peer entities is outside the scope of this International Standard):

- which virtual channel acts as the signalling channels for the IPL
- which traffic management method is applied on that virtual channel.

7.1 B-QSIG SAAL Connections

The B-QSIG SAAL operates in a connection-oriented mode. The B-QSIG SAAL connection(s) shall be established as part of the IPL establishment, and shall reside permanently (except for error cases).

NOTE B-QSIG SAAL connections are established between two peer entities at the two ends of an IPL.

7.2 Traffic Management Method for B-QSIG SAAL Connections

For the operation of the B-QSIG SAAL protocol, the peer entities at two ends of an IPL shall be pre-configured with the traffic resources allocated to the B-QSIG SAAL connections. For each B-QSIG SAAL connection (or for a set of them together), the following are examples of parameters that can be pre-configured (see also ITU-T Rec. I.371):

- a) a peak cell rate indication (only), e.g. 167 cells/sec.
- b) peak cell rate, sustainable cell rate, and maximum burst size (together)
- c) an indication as "unspecified bit rate" (UBR).

The method of configuring the traffic resources allocated to the B-QSIG SAAL connection is outside the scope of this International Standard. However, it is essential for the traffic management of B-QSIG SAAL connections that both peer entities at the IPL apply the same allocation of parameters.

8 B-QSIG SAAL Specification**8.1 Basic Structure**

Clause 5 of ITU-T Rec. Q.2100 applies.

8.2 AAL Type 5

ITU-T Rec. I.363.5 applies.

8.3 SSCOP

ITU-T Rec. Q.2110 applies.

NOTE The SSCOP can be combined with different Service Specific Coordination Functions (SSCFs) to offer different AAL services. As a result, the SSCOP specification defines mandatory functions for a general protocol. Some of these functions are not needed within B-QSIG SAAL. Therefore, it is possible for an implementation not to implement a certain SSCOP function and still meet the mandatory requirements of B-QSIG SAAL (e.g. the SSCOP local data retrieval function is not needed within B-QSIG SAAL), provided that the SSCOP implementation provides for the services used by the B-QSIG SAAL-SSCF.

A fully compliant SSCOP implementation according to ITU-T Rec. Q.2110 meets the requirements for the SSCOP of this International Standard.