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**BROADBAND ISDN**

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**B-ISDN SIGNALLING ATM ADAPTATION  
LAYER (SAAL) OVERVIEW DESCRIPTION**

**ITU-T Recommendation Q.2100**

(Previously "CCITT Recommendation")

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## FOREWORD

The ITU Telecommunication Standardization Sector is a permanent organ of the International Telecommunication Union (ITU). The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

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The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

ITU-T Recommendation Q.2100 was prepared by the ITU-T Study Group 11 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 29th of July 1994.

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### NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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## SUMMARY

This Recommendation briefly describes the various components which make up the AAL functions necessary to support signalling (SAAL). It is intended to serve as a guide to all other Recommendations required by a user for the implementation of an AAL for the purpose of signalling.

The ATM adaptation layer (AAL) is defined as enhancing the services provided by the ATM layer to support the functions required by the next higher layer. Different AALs support various protocols to suit the different needs of a range of AAL service users. One particular type of AAL service user is the signalling entity wishing to communicate with a peer entity. The SAAL comprises AAL functions necessary to support such a signalling entity.

## KEYWORDS

AAL	ATM Adaptation Layer
ATM	Asynchronous Transfer Mode
B-ISDN	Broadband Integrated Services Digital Network
CPCS	Common Part Convergence Sublayer
NNI	Network Node Interface
SAAL	Signalling AAL
SAP	Service Access Point
SAR	Segmentation and Reassembly
SSCF	Service Specific Coordination Function
SSCOP	Service Specific Connection Oriented Protocol
SSCS	Service Specific Convergence Sublayer
UNI	User-Network Interface

## **B-ISDN SIGNALLING ATM ADAPTATION LAYER (SAAL) OVERVIEW DESCRIPTION**

*(Geneva, 1994)*

### **1 Scope**

This Recommendation briefly describes the various components which make up the AAL functions necessary to support signalling (SAAL). It is intended to serve as a guide to all other Recommendations required by a user who intends to construct an AAL for the purpose of signalling.

### **2 Normative references**

The following Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision: all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of currently valid ITU-T Recommendations is regularly published.

- Recommendation I.361, *ATM layer specification for B-ISDN*.
- Recommendation I.362, *B-ISDN ATM adaptation layer functional description*.
- Recommendation I.363, *B-ISDN ATM adaptation layer specification*.
- ITU-T Recommendation Q.2110, *B-ISDN ATM Adaptation Layer Service Specific Connection Oriented Protocol (SSCOP)*.
- ITU-T Recommendation Q.2130, *B-ISDN ATM Adaptation Layer Service Specific Coordination Function (SSCF) for signalling at the User Network Interface (UNI)*.
- ITU-T Recommendation Q.2140, *B-ISDN ATM Adaptation Layer Service Specific Coordination Function (SSCF) for signalling at the Network Node Interface (NNI)*.

### **3 Abbreviations**

For the purposes of this Recommendation, the following abbreviations apply:

AAL	ATM Adaptation Layer
ATM	Asynchronous Transfer Mode
CPCS	Common Part Convergence Sublayer
NNI	Network Node Interface
SAAL	Signalling AAL
SAP	Service Access Point
SAR	Segmentation And Reassembly

SSCF	Service Specific Coordination Function
SSCOP	Service Specific Connection Oriented Protocol
SSCS	Service Specific Convergence Sublayer
UNI	User-Network Interface

## 4 General

The ATM adaptation layer (AAL) is defined as enhancing the services provided by the ATM layer to support the functions required by the next higher layer. Different AALs support various protocols to suit the different needs of a range of AAL service users. Recommendation I.362 gives an overview of the basic structure of an AAL and the manner in which it aligns with the service class.

One particular type of AAL service user is the signalling entity wishing to communicate with a peer entity. Any such entity would require that functions are provided above the common part of the AAL specifically designed to facilitate this task.

The information transfer between the SAAL user and the SAAL is performed in Message Mode. Two peer-to-peer operational procedures may be offered: Unassured or Assured operation.

## 5 Description of SAAL

The complete specification of the SAAL is indicated in Figure 1. The SAAL makes use of the service provided by the Common Part Convergence Sublayer (CPCS) and Segmentation and Re-assembly (SAR) which form the common part of AAL type 5. The Service Specific Convergence Sublayer (SSCS) part of AAL type 5 is performed by a combination of the Service Specific Connection Oriented Protocol (SSCOP) and one of several types of Service Specific Coordination Function (SSCF), two of which are currently defined and shown in the figure. The function of the SSCOP is such as to make it equally well suited for use by the user plane. A description of each SAAL component follows.

### 5.1 SAAL-SAP

This is the Service Access Point (SAP) through which all SAAL functions are accessed by the next higher layer. It provides bi-directional flow of information.

Further information regarding this component is found in Recommendations Q.2130 and Q.2140.

### 5.2 SSCF-UNI

This is the Service Specific Coordination Function which maps the particular requirements of the UNI layer 3 protocol to the SSCOP services.

Further information regarding this component is found in Recommendation Q.2130.

### 5.3 SSCF-NNI

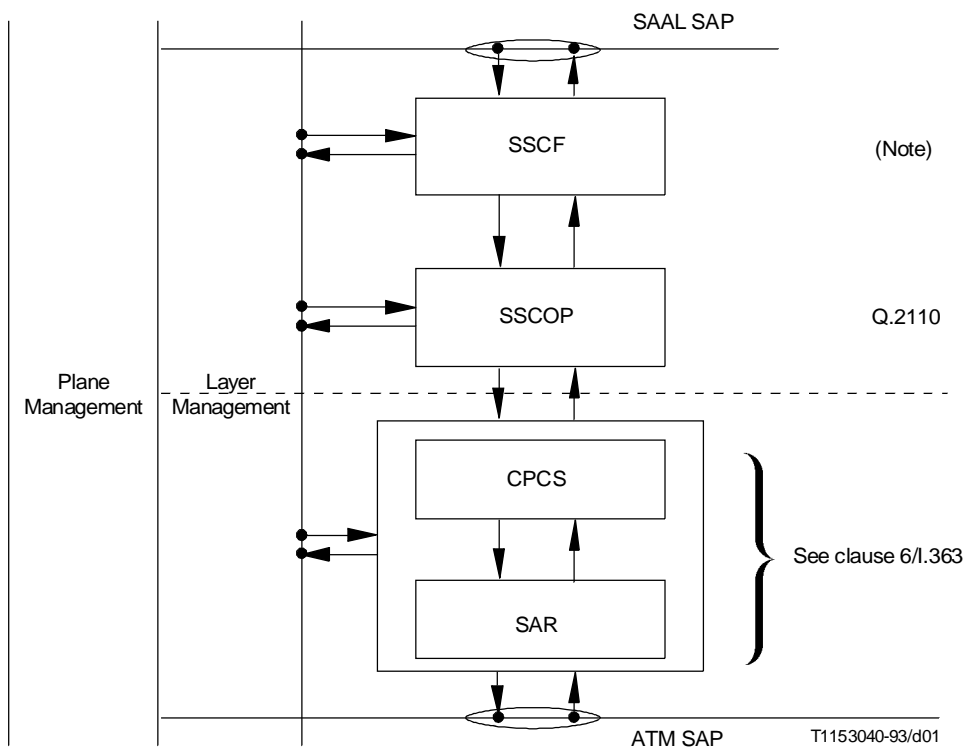
This is the Service Specific Coordination Function which maps the particular requirements of the NNI layer 3 protocol to the SSCOP services.

Further information regarding this component is found in Recommendation Q.2140.

### 5.4 SSCOP

This is the Service Specific Connection Oriented Protocol function which provides mechanisms for the establishment and release of connections and the reliable exchange of information between peer entities.

Further information regarding this component is found in Recommendation Q.2110.



NOTE – SSCF-UNI (see Recommendation Q.2130) or SSCF-NNI (see Recommendation Q.2140).

FIGURE 1/Q.2100  
**Complete AAL structure for signalling applications**

### 5.5 CPCS

This is the Common Part Convergence Sublayer which provides transparent transport of Service Data Units produced by the next higher layer.

Further information regarding this component is found in clause 6/I.363.

### 5.6 SAR

This is the Segmentation and Re-assembly function. It provides the services whereby SAR service data units (SDUs) are segmented to fit into outgoing ATM cells, while incoming cells are reassembled into SAR SDUs and data are passed up to the CPCS.

Further information regarding this component is found in clause 6/I.363.

### 5.7 ATM-SAP

This is the point through which all ATM functions are accessed by the ATM adaptation layer. It provides bidirectional flow of information.

Further information regarding this component is found in Recommendation I.361.