



SLOVENSKI STANDARD

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Broadband Integrated Services Digital Network (B-ISDN); Asynchronous Transfer Mode (ATM); Signalling ATM Adaptation Layer (AAL) requirements

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Contents

Foreword	5
1 Scope	7
2 References	7
3 Definitions, symbols and abbreviations	7
4 General	8
4.1 Concept and terminology	8
4.2 AAL structure for signalling applications	10
5 Service specific part	11
5.1 SSP-AAL services	11
5.2 Operational attributes	12
6 Common part	13
6.1 CP-AAL services	13
6.2 Operational attributes	13
6.3 Primitives	14
7 Service specific part functions	14
8 Definition of the AAL boundary	15
8.1 Definition of the AAL boundary at the UNI	15
8.1.1 Primitives	15
8.1.2 State diagram	16
8.2 Definition of the AAL boundary at the NNI	17
8.2.1 Primitives	17
8.2.2 State diagram	19
Annex A: Example flow diagrams	20
Annex B: Bibliography	26
History	27

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Foreword

This ETSI Technical Report (ETR) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

ETRs are informative documents resulting from ETSI studies which are not appropriate for European Telecommunication Standard (ETS) or Interim European Telecommunication Standard (I-ETS) status. An ETR may be used to publish material which is either of an informative nature, relating to the use or the application of ETSs or I-ETSs, or which is immature and not yet suitable for formal adoption as an ETS or an I-ETS.

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1 Scope

This ETR describes the Broadband Integrated Services Digital Network (B-ISDN) Asynchronous Transfer Mode (ATM) ATM Adaptation Layer (AAL) requirements to support the transfer of signalling messages. The AAL operates over an ATM virtual channel connection to provide a signalling link for the transfer of messages between two signalling entities. This is applicable for both User Network Interfaces (UNIs) and Network Node Interfaces (NNIs). As such, the Signalling ATM Adaptation Layer (SAAL) shall be able to provide the services provided by both Link Access Procedure on the D-channel (LAPD) and Message Transfer Part (MTP) layer 2.

This ETR specifies the SAAL requirements. It is designed to assist the protocol experts in the design of a service specific SAAL. These are minimum requirements, i.e. based on services provided by the existing link layers of the UNI (ITU-T Recommendation Q.921 [5]) and NNI (ITU-T Recommendation Q.703 [4]). The requirements are not intended to limit the protocol definition to only these capabilities, but form a basis for starting the work.

2 References

For the purposes of this ETR, the following references apply:

- [1] ITU-T Recommendation I.361 (1993): "B-ISDN ATM layer specification".
- [2] ITU-T Recommendation I.362 (1993): "B-ISDN ATM Adaptation Layer (AAL) functional description".
- [3] ITU-T Recommendation I.363 (1993): "B-ISDN ATM Adaptation Layer (AAL) specification".
- NOTE: ITU-T Recommendation I.363 [3] includes the specification of the Common Part (CP) of the AAL types 3 and 4.
- [4] ITU-T Recommendation Q.703 (1993): "Signalling link".
- [5] ITU-T Recommendation Q.921 (1993): "ISDN user-network interface - Data link layer specification".

3 Definitions, symbols and abbreviations

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

AAL	ATM Adaption Layer
ATM	Asynchronous Transfer Mode
B-ISDN	Broadband Integrated Services Digital Network
CP	Common Part
LAPD	Link Access Procedure on the D-channel
MTP	Message Transfer Part
NNI	Network Node Interface
OSI	Open Systems Interconnection
SAAL	Signalling AAL
SAP	Service Access Point
SDH	Synchronous Digital Hierarchy
SDU	Signalling Data Unit
SSP	Service Specific Part
UNI	User Network Interface

4 General

4.1 Concept and terminology

The basic structuring technique in the Open Systems Interconnection (OSI) reference model is layering. According to this technique, communication among application processes is viewed as being logically partitioned into an ordered set of layers represented in a vertical sequence as shown in figure 1.

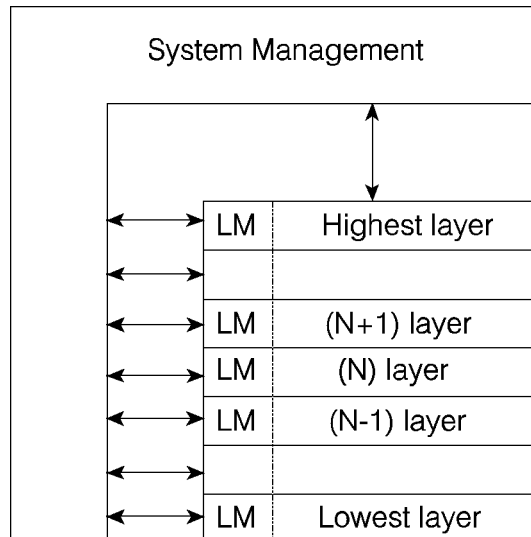


Figure 1: Layering

A SAAL Service Access Point (SAP) is the point at which the SAAL provides services to layer 3. Associated with each SAAL SAP are one or more SAAL connection endpoints, see figure 2.

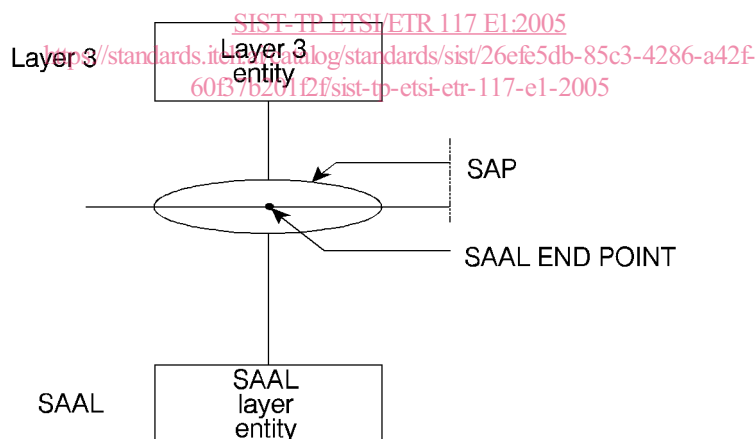


Figure 2: Entities, service access points and endpoints

Entities exist in each layer. Entities in the same layer but in different systems which need to exchange information to achieve a common objective are called "peer entities". Entities in adjacent layers interact through their common boundary. The services provided by the data link layer are the combination of the services and functions provided by the SAAL Service Specific Part (SSP), SAAL Common Part (CP) and the ATM layer.

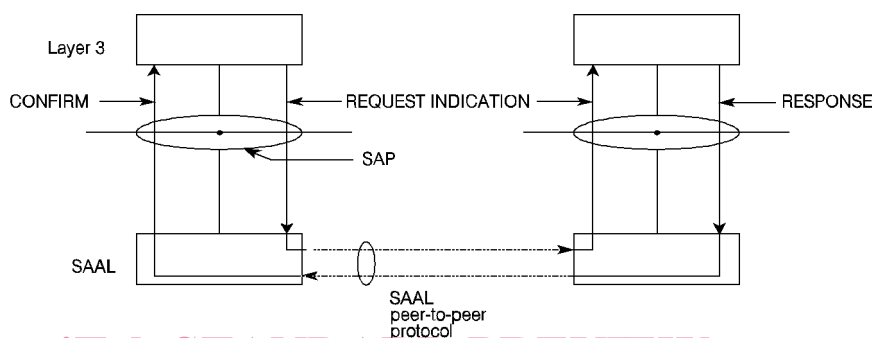
Cooperation between SAAL entities is governed by a peer-to-peer protocol specific to the layer.

SAAL Signalling Data Units (SDUs) are conveyed between SAAL entities by means of a physical connection.

Layer 3 requests services from the SAAL via service primitives. The same applies for the interaction between the SAAL and the ATM layer. The primitives represent, in an abstract way, the logical exchange of information and control between the SAAL and the adjacent layers and between the SAAL SSP and the SAAL CP. They do not specify or constrain implementation.

The primitives that are exchanged between the SAAL and adjacent layers are of the following four types (see also figure 3):

- a) request;
- b) indication;
- c) response;
- d) confirm.



NOTE: The same principle applies for SAA-ATM interactions.

Figure 3: Primitive action sequence

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The request primitive type is used when a higher layer is requesting a service from the next lower layer.

The indication primitive type is used by a layer providing a service to notify the next higher layer of any specific activity which is service related. The indication primitive may be the result of an activity of the lower layer related to the primitive type request at the peer entity.

The response primitive type is used by a layer to acknowledge receipt from a lower layer of the primitive type indication.

The confirm primitive type is used by the layer providing the requested service to confirm that the activity has been completed.

Information is transferred, in various types of SDUs, between peer entities and between entities in adjacent layers (and sublayers) that are attached to a specific SAP. The SDUs are of two types:

- SDUs of a peer-to-peer protocol; and
- SDUs that contain layer-to-layer information concerning status and specialized service requests.