



# SLOVENSKI STANDARD

## SIST ETS 300 479-1 E1:2003

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Network Aspects (NA); Connectionless Broadband Data Service (CBDS) over Asynchronous Transfer Mode (ATM); Protocol specification at the Network Node Interface (NNI); Part 1: Specification

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## Foreword

This European Telecommunication Standard (ETS) has been produced by the Network Aspects (NA) Technical Committee of the European Telecommunications Standards Institute (ETSI).

The present document is part 1 of a multi-part ETS covering the protocol specification at the Network Node Interface (NNI), for the Connectionless Broadband Data Service (CBDS) over Asynchronous Transfer Mode (ATM), as identified below:

Part 1: "**Specification**";

Part 2: "Connectionless Network Interface Protocol (CLNIP) Protocol Implementation, Conformance Statement (PICS) proforma specification".

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## 1 Scope

This first part of ETS 300 479 describes the protocol to support the Connectionless Broadband Data Service (CBDS) at the Network Node Interface (NNI) of Broadband Integrated Services Digital Network (B-ISDN) in accordance with:

- ETS 300 217 [1], which details the stage 1 aspects for the CBDS;
- ETS 300 478-1 [4], which provides the general framework to provide CBDS over Asynchronous Transfer Mode (ATM) and the protocol specification to support the service at the UNI.

## 2 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ETS 300 217 (1992): "Network Aspects (NA); Connectionless Broadband Data Service".
- [2] CCITT Recommendation E.164 (1991): "Numbering plan for the ISDN era".
- [3] ETS 300 349: "Broadband Integrated Services Digital Network (B-ISDN); Asynchronous Transfer Mode (ATM) Adaptation Layer (AAL) specification - type 3/4".
- [4] ETS 300 478-1: "Network Aspects (NA); Connectionless Broadband Data Service (CBDS) over Asynchronous Transfer Mode (ATM); Framework and protocol specification at the User-network Interface (UNI), Part 1: Specification".

## 3 Abbreviations

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

AAL	ATM Adaptation Layer
ATF	Access Termination Functions
ATM	Asynchronous Transfer Mode
BAsize	Buffer Allocation size
B-ISDN	Broadband Integrated Services Digital Network
BOM	Beginning Of Message
BTag	Beginning Tag
CBDS	Connectionless Broadband Data Service
CIB	CRC Indication Bit
CLAI	Connectionless Access Interface
CLCP	Connectionless Convergence Protocol
CLL	Connectionless Layer
CLLR&R	Connectionless Layer Routeing & Relaying
CLNAP	Connectionless Network Access Protocol
CLNI	Connectionless Network Interface
CLNIP	Connectionless Network Interface Protocol
CLS	Connectionless Server
CLSF	Connectionless Service Function
CPCS	Common Part Convergence Sublayer
CPI	Common Part Indicator
CRC	Cyclic Redundancy Check
DA	Destination Address
EI	Encapsulating Indicator
EOM	End Of Message
GA	Group Address
GAA	Group Address Agent

HE	Header Extension
HEL	Header Extension Length
IWU	Interworking Unit
MID	Multiplexing Identification
NGA	Nested Group Address
NGAA	Nested Group Address Agent
NNI	Network Node Interface
NTF	Network Termination Functions
OAM	Operation Administration and Maintenance
PDU	Protocol Data Unit
PI	Protocol Identifier
QoS	Quality of Service
SA	Source Address
SAP	Service Access Point
SAR	Segmentation And Reassembly
SDU	Service Data Unit
SMDS	Switched Multi-megabit Data Service
SSCS	Service Specific Convergence Sublayer
SSM	Single Segment Message
UNI	User Network Interface

#### 4 Framework for the provision of CBDS

See ETS 300 478-1 [4], clause 4.

#### 5 Layer service and functions provided by the Connectionless Layer (CLL)

See ETS 300 478-1 [4], clause 5.

#### 6 Protocol for the support of the CBDS on B-ISDN at the NNI

##### 6.1 Overview

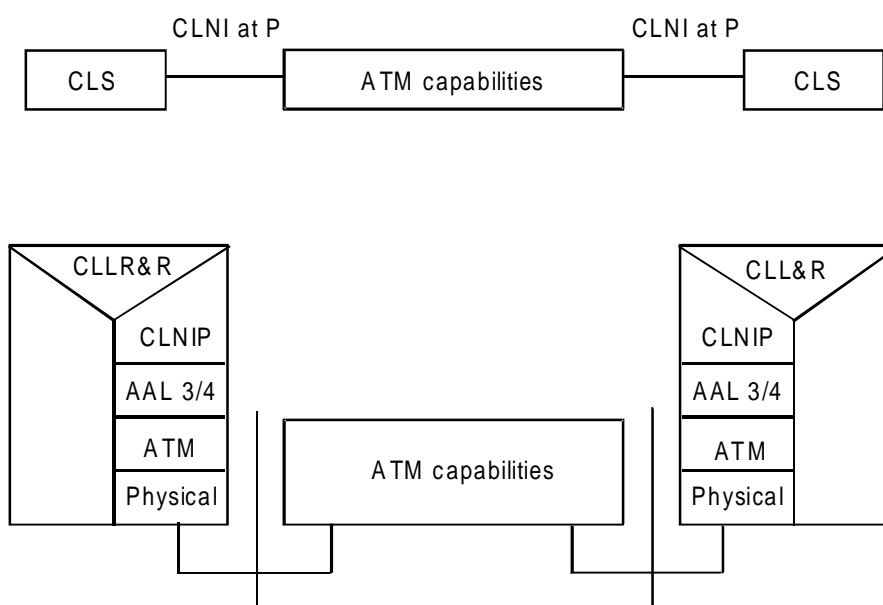
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The Connectionless Network Interface Protocol (CLNIP) supports the CBDS as specified in ETS 300 217 [1] between Connectionless Servers (CLSs) inside a network operator's domain and between two network operators' domains.

NOTE: It is assumed that this protocol applies to all cases. Additional functionalities may be needed for the support of this service within a network operator domain.

The CLNIP provides two modes of operation: encapsulation and non-encapsulation. For the conditions for the selection of the mode of operation and the mechanisms to be applied in either mode see clause 7.

The CLNIP shall be applied at the Connectionless Network Interface (CLNI), as shown in figure 1.

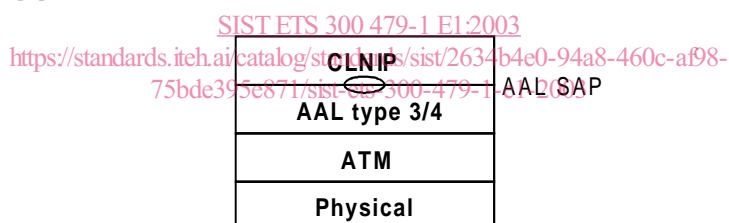


NOTE: A null (empty) Service Specific Convergence Sublayer (SSCS) is used.

**Figure 1: Network and protocol architecture**

## 6.2 Protocol stack

The protocol stack for supporting the transfer of connectionless data between CLSs is depicted in figure 2. The CLNIP uses the ATM Adaptation Layer (AAL) type 3/4 unassured service (using null SSCS) and includes the necessary functionality to provide the CLL service. For structure and encoding of AAL type 3/4 (Segmentation And Reassembly (SAR) sublayer and Common Part Convergence Sublayer (CPCS)) see ETS 300 349 [3].



NOTE: A null (empty) SSCS is used.

**Figure 2: Protocol stack for CLNIP**

## 6.3 Layer service expected from the AAL

The CLNIP expects the AAL connection to provide for the transparent and sequence-preserving transfer of CLNIP Protocol Data Units (CLNIP-PDUs) between two CLNIP entities when accessing a point-to-point AAL connection. This transfer is operated in an unassured manner, i.e. lost or corrupted data units are not retransmitted (Unassured Operation).

The information transfer between the CLNIP entity and the AAL entity can be performed in a message mode or streaming mode.

The information exchanged between the AAL entities and the CLNIP entities across the AAL-Service Access Point (AAL-SAP) uses the following primitives:

- a) AAL-UNITDATA.request (Interface Data, More (see note), Maximum Length (see note));
- b) AAL-UNITDATA.indication (Interface Data, More (see note), Maximum Length (see note), Reception Status);
- c) AAL-U-Abort.request (see note);
- d) AAL-U-Abort.indication (see note);
- e) AAL-P-Abort.indication (see note).

NOTE: This primitive/parameter is used in streaming mode only.

The CLNIP shall not make use of the Corrupted Data delivery option which may be supported by the AAL type 3/4 protocol i.e. the optional Reception Status parameter in the AAL-UNIT-DATA -indication primitive is not used.

A detailed description of the primitives and parameters is provided in ETS 300 349 [3].

#### 6.4 CLNIP-PDU structure and encoding

The detailed structure of the Connectionless Network Interface Protocol-Protocol Data Unit (CLNIP-PDU) is illustrated in figure 3.

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