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Digitalno omrežje z integriranimi storitvami (ISDN) – Digitalni dostopovni odsek za osnovni dostop v sistemu ISDN

Integrated Services Digital Network (ISDN); Access digital section for ISDN basic access

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Transmission and Multiplexing (TM) Technical Committee of the European Telecommunications Standards Institute (ETSI).

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1 Scope

This European Telecommunication Standard (ETS) specifies the characteristics of an access digital section for the Integrated Services Digital Network (ISDN) basic access between the user-network interface (at T reference point, as defined in ETS 300 012 [6] and the local exchange (at V_1 reference point defined in CCITT Recommendation Q.512 [4]) supporting the basic access interface channel structure (defined in CCITT Recommendation I.412 [1] and ETS 300 012 [6]) and the additional functions required for operation and maintenance of the access digital section. This ETS is based on CCITT Recommendation G.960 [7].

The requirements of this ETS and subsequently for the transmission systems based on this ETS, satisfy network performance requirements of CCITT Recommendation G.821 on error performance as well as CCITT Recommendations G.801 and I.350 with regard to availability. Annex A to this ETS is normative and specifies requirements for working with the Exchange Termination (ET) and the definition of the ET layer 1 state machine which are outside the scope of this ETS, but nevertheless are important for the understanding of the behaviour of the access digital section.

Annex B specifies an optional procedure for partial activation and deactivation of the access digital section.

Annex C provides a bibliography of informative references used in this ETS.

A further annex is under development which will specify conformance testing for this ETS. This will be added to this ETS using the ETSI standards maintenance procedures.

2 Normative references

This ETS incorporates, by dated or undated reference, provision 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 applies.

[1] CCITT Recommendation I.412 (1988): "ISDN user-network interfaces - Interface structures and access capabilities".

[2] ETS 300 125 (1990): "Integrated Services Digital Network (ISDN); User-network interface data link layer specification; Application of CCITT Recommendations Q.920/I.440 and Q.921/I.441".

[3] ETR 001 (1990): "Integrated Services Digital Network (ISDN); Customer access maintenance".

[4] CCITT Recommendation Q.512 (1988): "Exchange interfaces for subscriber access".

[5] CCITT Recommendation G.114 (1988): "Mean one-way propagation time".

[6] ETS 300 012 (1991): "Integrated Services Digital Network (ISDN); Basic user-network interface Layer 1 specification and test principles".

[7] CCITT Recommendation G.960 (1988): "Digital section for ISDN basic rate access".

[8] ETR 080 (1992): "Transmission and Multiplexing (TM); Integrated Services Digital Network (ISDN) basic rate access Digital transmission system on metallic local lines".

[9] CCITT Recommendation I.430 (1988): "Basic user-network interface - Layer 1 specification".

3 Definitions and abbreviations

3.1 Definitions

Access: The ISDN customer access as defined in CCITT Recommendation G.960 [7], annex B. The Access consists of the ET, the access digital section and the terminal equipment.

full activation: Activation of the access in order to establish a layer 2 service between the user and the network.

partial activation: Partial activation of the access digital section under control from the ET. No signal shall be sent from the NT1 to the interface at the T reference point, but signals can be received for the activation from the user side.

TE: In this ETS, unless otherwise indicated, the term TE is used to indicate terminating layer 1 aspects of TE1, TA and NT2 functional groups. When the term TE indicates terminating layer 1 aspects of TE1, then, according to CCITT Recommendation I.411, figure 2, the S and T reference points coincide. However, for the purposes of this ETS, the terminology used is in accordance with annex B of CCITT Recommendation G.960 [7].

3.2 Abbreviations

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

AI	Action Indicator
DS	access Digital Section
ET	Exchange Termination
FE	Function Element used between the ET and LT
HDLC	High level Data Link Control
INFO	Information element defined at the user-network interface
ISDN	Integrated Services Digital Network
LFA	Loss of Frame Alignment
LOS	Loss Of Signal
LT	Line Termination
MPH	Communication between Management and Physical layer
NT	Network Termination
PH	Communication between data link layer and Physical layer
REG	Regenerator
SIG	Signal between LT and NT1
TE	Terminal Equipment (see also subclause 3.1)

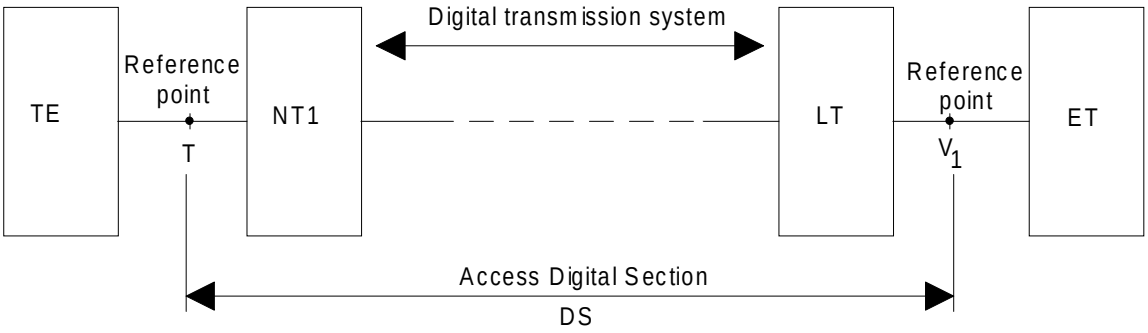
4 Configuration and application

4.1 Configuration

Figure 1 shows the boundaries of the access digital section in relation to the digital system definition.

NOTE 1: From a functional point of view the information transferred via the reference points T and V_1 are different and, therefore, the access digital section is not symmetrical.

NOTE 2: The T and V_1 reference points are defined in CCITT Recommendations I.411 and Q.512 [4].



NOTE 1: Digital transmission system refers to a line system using metallic pairs, optical fibres or radio systems.

NOTE 2: The line transceivers in the Network Termination (NT) and the Line Termination (LT) are part of the digital transmission system.

Figure 1: Access digital section and transmission system boundaries

The concept of the access digital section is used in order to allow a functional and procedural description and a definition of the network requirements.

The concept of a digital transmission system is used in order to describe the characteristics of an implementation, using a specific medium, in support of the access digital section.

4.2 Application

The basic access digital section may be applied as given in figure 2 for:

- direct access to the local exchange (V_1 reference point);
- access via a basic access multiplex equipment (V_5 interface) to the local exchange;
- access via a basic access concentrator (V_5 interface) to the local exchange.

NOTE: Other applications may also be possible and may be defined in the relevant standard, e.g. flexible access network. However, it is assumed that the functionality of the basic access section will be maintained.