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Integrated Services Digital Network (ISDN); Attachment requirements for packet mode terminal equipment to connect to an ISDN using ISDN primary rate access

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ICS:

33.080	Digitalno omrežje z integriranimi storitvami (ISDN)	Integrated Services Digital Network (ISDN)
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to connect to an ISDN using ISDN primary rate access

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Foreword

This Technical Basis for Regulation (TBR) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This TBR resulted from a mandate from the Commission of the European Community (CEC) to provide harmonized standards for the support of the Council Directive 91/263/EEC ("The Terminal Equipment Directive").

Annex F provides information relating to the articles of the Directive 91/263/EEC.

Annexes A, B, C, D, E and G are normative whereas annexes F, H and J are informative.

Overview of the Abstract Test Suites (ATs)

This TBR is accompanied by the following ATs (see annexes C and D):

- T34L2_3 (layer 2);
- T34L3_5 (layer 3).

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1 Scope

This Technical Basis for Regulation (TBR) specifies the technical requirements under Articles 4 (c) to 4 (f) of Council Directive 91/263/EEC ("The Terminal Equipment Directive") for Terminal Equipment (TE) to be attached to the pan-European Integrated Services Digital Network (ISDN) at an interface at the T reference point or coincident S and T reference point for a primary rate access. These requirements are taken from TBR 4 [8], TBR 13 [9], ETS 300 007 [10], ETS 300 046-3 [12], ETS 300 011 [11], ETS 300 102-1 [13] and ETS 300 125 [14]. This TBR does not contain the essential requirements of Article 4 (g) for interworking via the public network, and so does not provide any guarantee of correct terminal-to-terminal operation.

NOTE 1: Although this TBR provides the technical attachment requirements, it does not contain the full specification of the user side of the ISDN user-network interface. Important information necessary for correct working can be found only in the base standards mentioned above.

This TBR specifies these requirements for TE that:

- a) access Packet Handler (PH) of an ISDN through either on-demand B- or D-channel mode or semi-permanent B-channel mode basic services (case B of X.31) and those related supplementary services that are specified in annex G; and
- b) is capable of handling either incoming calls only, outgoing calls only or both incoming and outgoing calls.

This TBR applies to all TE that is intended for connection to the forms of ISDN access referred to above, irrespective of whether the TE provides additional interfaces, telecommunications services or functions for which other TBRs or national approval requirements apply.

This TBR does not specify the requirements for a packet mode TE that uses on-demand B-Channel circuit mode access (case A of X.31); the requirements for such a TE are contained in TBR 4 [8].

NOTE 2: This TBR is not applicable to TE which may be supplied in some countries for connection to an ISDN telecommunications service corresponding to, but not compatible with, the pan-European ISDN primary rate access standards.

2 Normative references

This TBR incorporates by dated or 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 TBR only when incorporated into it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ITU-T Recommendation G.703 (1991): "Physical/electrical characteristics of hierarchical digital interfaces".
- [2] ITU-T Recommendation G.706 (1991): "Frame alignment and cyclic redundancy check (CRC) procedures relating to basic frame structures defined in Recommendation G.704".
- [3] ITU-T Recommendation I.411 (1988): "ISDN user-network interfaces - Reference configurations".
- [4] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General Concepts".
- [5] ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".

- [6] ISO/IEC 9646-3: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".
- [7] TBR 2 (1997): "Attachment requirements for Data Terminal Equipment (DTE) to connect to Packet Switched Public Data Networks (PSPDNs) for CCITT Recommendation X.25 interfaces at data signalling rates up to 1 920 kbit/s utilizing interfaces derived from CCITT Recommendations X.21 and X.21bis".
- [8] TBR 4 (1995) and A1: "Integrated Services Digital Network (ISDN); Attachment requirements for terminal equipment to connect to an ISDN using ISDN primary rate access".
- [9] TBR 13 (1996): "Business TeleCommunications (BTC); 2 048 kbit/s digital structured leased lines (D2048S); Attachment requirements for terminal equipment interface".
- [10] ETS 300 007 (1991): "Integrated Services Digital Network (ISDN); Support of packet-mode terminal equipment by an ISDN".
- [11] ETS 300 011 (1992): "Integrated Services Digital Network (ISDN); Primary rate user-network interface; Layer 1 specification and test principles".
- [12] ETS 300 046-3 (1992): "Integrated Services Digital Network (ISDN); Primary rate access - safety and protection; Part 3: Interface I_a - protection".
- [13] ETS 300 102-1 (1990): "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control".
- [14] ETS 300 125 (1991): "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".

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3 Definitions and abbreviations

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3.1 Definitions

For the purposes of this TBR, the following definitions, together with those given in ITU-T Recommendation I.411 [3] and TBR 4 [8] apply:

access connection: Used instead of *call* in situations where interchanging with *virtual call* should be prevented (the term access being derived from "packet handler access").

call: Call establishment according to ETS 300 102-1 [13] procedures.

conditional notification class: Class of methods to inform a user of an incoming virtual call, where the network can use ETS 300 102-1 [13] procedures to activate or provide a channel for the delivery of the virtual call (applicable to the use of the D-channel or of a B-channel).

notification class: Class of methods to inform a user of an incoming virtual call and provide a channel for that call.

no notification class: Class of methods to inform a user of an incoming virtual call, where the network requires that an access connection (use of B-channel) or a data link with SAPI=16 (use of D-channel) is currently established between the TE and the PH (if none of the conditions is fulfilled, the network will not inform the user of the incoming call).

on-demand B-channel: Case where a B-channel is established as a result of D-channel signalling procedures (as opposite to semi-permanent B-channel).

on-demand layer 1: Case where the physical layer is activated/deactivated as a result from requests from layer 2.

semi-permanent: Case where a B-channel is semi-permanently established at installation or subscription time and is kept activated semi-permanently.

semi-permanent layer 1: Case where the physical layer is activated (established) at installation or subscription time and is kept activated semi-permanently.

semi-permanent layer 2: Case where the data link is kept established independently of an active call or virtual call.

virtual call: Call according to the procedures of X.25 layer 3.

3.2 Abbreviations

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

ADPCM	Adaptive Differential Pulse Code Modulation
AFI	Authority and Format Identifier
AMI	Alternate Mark Inversion
ATS	Abstract Test Suite
BCD	Binary Coded Decimal
C/R	Command/Response field bit
CRC	Cyclic Redundancy Check
DISC	DISConnect
DM	Disconnected Mode
DSP	Domain Specific Part
DSS1	Digital Subscriber Signalling System No. one
DTE	Data Terminating Equipment
EA	Address field Extension bit
EMC	Electro-Magnetic Compatibility
FCS	Frame Check Sequence
HDLC	High level Data Link Control
I _a	Interface point a
I _b	Interface point b
IDI	Initial Domain Identifier
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
LAN	Local Area Network
LAPB	Link Access Procedure - Balanced
LAPD	Link Access Procedure on the D-channel
MFAS	Multi-Frame Alignment Signal
NSAP	Network Service Access Point
NT	Network Termination
PCO	Point of Control and Observation
PH	Packet Handler
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PLL	Pre-allocated Logical Link (former: Permanent Logical Link)

NOTE: The terms PLL and Long-term-PLL have been defined in ETS 300 049 second edition. The option of accessing the PH over the D-channel using PLL or Long-term-PLL is covered by this TBR, although the terms themselves are not further used.

ppm	parts per million
PSPDN	Public Switched Packet Data Network
REJ	REJect
Ri	Reference number
RNR	Receive Not Ready
RR	Receive Ready
Rx	Receive
SABME	Set Asynchronous Balanced Mode Extended
SAP	Service Access Point
SAPI	Service Access Point Identifier