ČESKÝ TELECOM

TECHNICAL SPECIFICATION

TSPE 2084

U_0 INTERFACE

FOR ISDN BASIC ACCESS

Approved: 24. 8. 2004

Content:

1. Initial provisions

1.1. Scope

The purpose of this document is to specify characteristics of interfaces to be used between AN and TEs on one side and between AN and SNs (LE, LL, DN, ...) on the other side, in the access network of ČESKÝ TELECOM, a.s.

1.2. Validity and obligation

The document is according to the valid company regulation documents of ČESKÝ TELECOM, a.s. obligatory for NU - ND and is to be considered a valid recommendation within the entire company ČESKÝ TELECOM, a.s. It is valid from the date of approval (see the first page).

1.3. References

The document replaces TPK 2027A "UNI AND SNI INTERFACES OF TRANSMISSION EQUIPMENT FOR ACCESS NETWORK" - part 3.7 (ČESKÝ TELECOM, a.s. - 10.3.1999)

Other related documents:

ITU-T Q.512	Exchange interface for subscriber access; 1989
ITU-T Q.522	Transmission characteristics at 2-wire analogue interfaces of digital exchange; 1988
ITU-T I.411	ISDN user-network interfaces-reference configurations; 1988
ITU-T I.430	Basic user-network interface layer 1 specification; 1988
ITU-T I.431	Primary Rate User-Network Interface Layer 1 Specification; 1988
ITU-T G.703	Physical/Electrical characteristics of hierarchical digital interfaces; 1988
ITU-T G.704	Synchronous frame structures used at primary and secondary hierarchical level; 1988
ITU-T G.706	Frame alignment and cyclic redundancy check (CRC) procedures relating to basic frame structures defined in recommendation G.704; 1988
ITU-T G.712	Transmission performance characteristics of pulse code modulation; 1992
ITU-T X.21	Interface between Data Terminal Equipment and Data Circuit Terminating Equipment for synchronous operation on Public Data Networks; 1992
ITU-T G.823	The control of jitter and wander within digital networks which are based on the 2048 kbit/s hierarchy; 1993
ETS 300 001	Attachments to Public Switched Telephone Network (PSTN); General technical requirements for equipment connected to an analogue subscriber interface in the PSTN; 1992
ETS 300 011	Integrated Services Digital Network; Primary rate user-network interface Layer 1 specification and test principles; 1992
ETS 300 011/A1	Integrated Services Digital Network; Primary rate user-network interface Layer 1 specification and test

	principles;1992
ETS 300 012	Integrated Services Digital Network (ISDN); Basic user-network interface Layer 1 specification and test principles; April 1992
ETS 300 125	Integrated Services Digital Network (ISDN); User-network interface data link layer specification. Application of ITU-T Recommendations Q.920/I.440 and Q.921/I.441; 1991
ETS 300 324	Signalling protocol and Switching (SPS);V interfaces at the digital Local Exchange (LE) V 5.1 interface for the support of Access Network (AN); 1994
ETR 080	Transmission and Multiplexing (TM); ISDN basic rate access; Digital transmission system on metallic local lines; July 1993

1.4. Definitions and terms

- not used -

1.5. Abbreviations and Acronyms

ANE	Access Network Element
APS	Auxiliary Power Supply
DDI	Direct dialling in
DLL	Digital Local Line
DN	Data Network
DTS	Digital Transmission System
EOC	Embedded Operations Channel
IPS	Internal Power Supply
ITS 2M	Integral Transmission System with 2084 kbitps bit rate
LE	Local Exchange
LL	Leased Line
LT	Line Termination
LTU	Line Termination Unit
PABX	Private Automatic Branch Exchange
PSTN	Public Switching Telephone Network
R	Resistance
SN	Service Node
SNI	Service Node interface
TS	64 kbps Time Slot
UOA	DLL-Only-Activation
UNI	User Network Interface

For not listed terms and abbreviations see related documents.

2. ACCESS NETWORK INTERFACES

The following *Figure 1* describes the generic structure of an ANE.

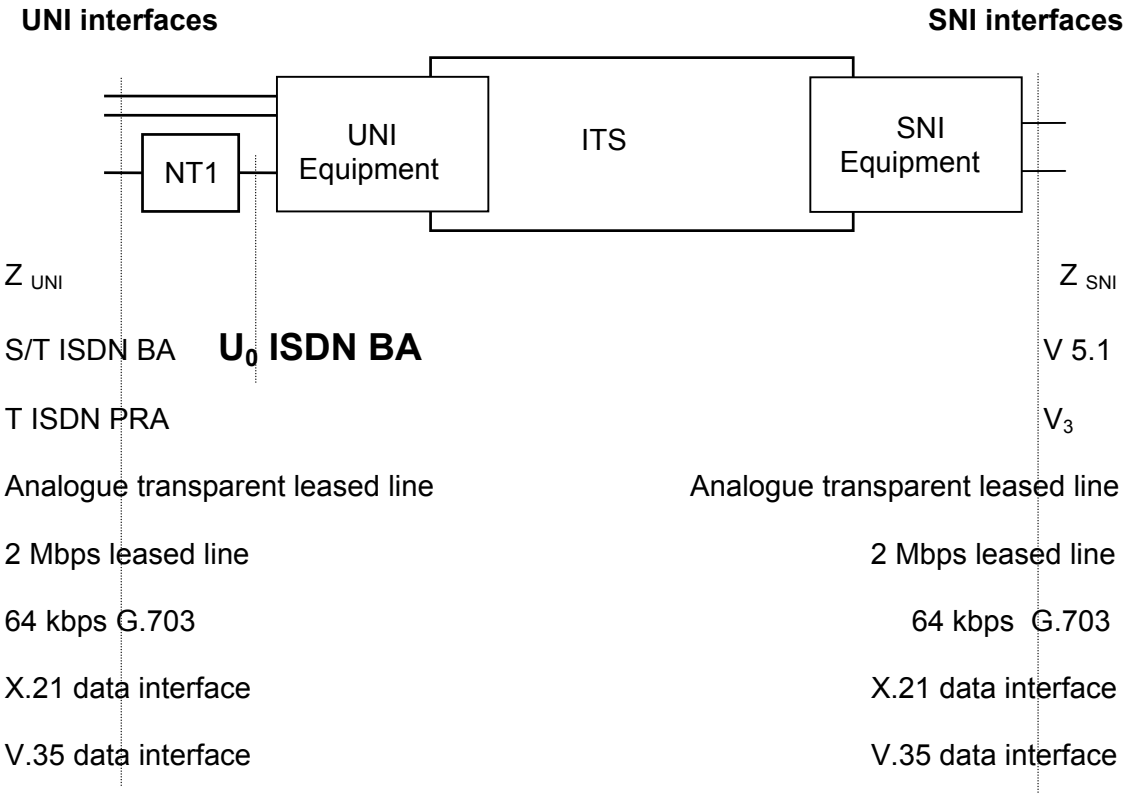

Figure 1: Generic structure of ANE

3. U_0 Interface for ISDN Basic Access

3.1. General requirement

U_0 Interface parameters shall comply with ETR 080 with the following specified Options.

3.2. ETR 080, clause 2.6

Activation from LT or NT1

Activation from the LT shall apply to the DTS only or to the DTS plus the customer equipment. This is related with the use of UOA Bit (see A.8.3.2.7 and I.5).

3.3. ETR 080, clause 2.8

Power feeding

A battery back-up is not allowed in the NT1.

3.4. ETR 080, clause 3.2

Minimum ISDN requirements

Bridged taps may not be present.

3.5. ETR 080, clause 4.2.1

DLL physical models

The ETSI test loops shall be as defined in ETR 080 (types 1 - 5).

The line loss X shall be 36 dB at 40 kHz.

3.6. ETR 080, clause 6.2

Physical representation of signals

The signals used on the digital transmission system shall be in accordance to Annex A to ETR 080 (2B1Q line code).

3.7. ETR 080, clause 7.2.2

C_L channel requirements

The minimum number of functions to be supported by the C_L channel are those defined in Annex A to ETR 080.

3.8. ETR 080, clause 8.2.2

Power feeding of the NT1

Remote powering of the NT1 from the network shall be provided under all conditions. A backup batteries set is not allowed in the NT1.

3.9. ETR 080, clause 8.2.3

Power feeding of the UNI

Power feeding of the UNI shall satisfy ETS 300 012. Power Source 1 normal and restricted mode.

Power Source 1 Normal mode	4.4 W
Power Source 1 Restricted mode	420 mW
Power Sink 2	Not applicable
Power Sink 3	Not applicable

3.10. ETR 080, clause 8.3

DLL Resistance

DLL Resistance shall be up to 1200 Ω.

3.11. ETR 080, clause 8.5.1

Feeding voltage from the LT

Nominal voltages in the range 3: 91 to 99 V.

The LT Power Source is of low resistance („voltage source“).

The relation with ground may be fixed or floating.

3.12. ETR 080, clause 8.6.1

Power requirements of NT1

As indicated in ETR 080, with the addition of:

Deactivated state, restricted mode (with powering of the UNI): up to 200 mW (U interface side).

3.13. ETR 080, clause 8.6.3

Feeding voltage of NT1

The NT1 shall be fully operational at an input voltage between 28 VDC and 99 VDC either polarity under both normal and restricted mode.

3.14. ETR 080, clause A.8.3.2.10

Network Indicator Bit (NIB) for network use

Not required. NIB = 1 (fixed value).

3.15. ETR 080, clause A.8.3.3.4

Definition of required EOC Functions

The implementation and operation of the individual B-channel loopbacks is mandatory.

3.16. ETR 080, clause A.10.6

Activation times

The requirements of cold-start and warm-start activation times are mandatory.

3.17. ETR 080, clause A.11.6

Test Conditions for Jitter Measurement

A test point in the NT1 shall be provided to measure jitter with an undisturbed signal.

3.18. ETR 080, clause I.2

Power Status Bits

The provision of the NT1 Power Status Bits is mandatory, where Power Status 1 bit defines the power derived from the IPS to the NT1 to provide normal power to the S/T-interface by way of Power Source 1. As no backup battery is allowed the Power Status 2 bit is always set to ONE according to Annex A of ETR 080.

	Power Status 1 bit	Power Status 2 bit
Normal mode	1	1
Restricted mode	0	1

3.19. ETR 080, clause I.3

NT1 Test Mode Indicator (NTM) Bit

Not required: NTM = 1 (fixed value)

3.20. ETR 080, clause I.4

Cold - Start - Only (CSO) Bit

Not required: CSO = 0 (fixed value)

3.21. ETR 080, clause I.5

DLL - Only - Activation (UOA) Bit

DLL bit is required

UOA = 1, T and U-interfaces are to be activated

UOA = 0, Only U-interface is to be activated.

3.22. ETR 080, clause I.6

S/T Interface - Activity - Indicator (SAI) Bit

SAI bit is required:

SAI = 1 (there is activity INFO1, INFO3).

SAI = 0 (there is no activity)

3.23. ETR 080, clause I.7

Alarm Indicator Bit (AIB)

Not required: AIB = 1 (fixed value).

TSPE 2084 - U_0 Interface for ISDN Basic Access

Published as an internal technical standard by ČESKÝ TELECOM, a.s.

Applicant: Ing. Jiří Kánský (NU - ND1)
Draft by: Ing. Martin Parolek (NU - ND1.1)
Approved by: Ing. Martin Škop, Network Development Director