



AMENDMENT

TBR 3

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**This amendment A1 modifies
the Technical Basis for Regulation TBR 3 (1995)**

**Integrated Services Digital Network (ISDN);
Attachment requirements for terminal equipment to connect
to an ISDN using ISDN basic access**

Urgent Technical Correction

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Foreword

This amendment to Technical Basis for Regulation (TBR) has been produced by ETSI Project Digital Terminals and Access (DTA).

This amendment should be considered as an urgent technical correction.

This amendment has been produced at the request of the Approvals Committee for Terminal Equipment (ACTE) and:

- contains amendments to the requirements as determined by the special group of the ISDN Type Approval Advisory Ad-Hoc Group (ITAAAG) in order to align with the "essential requirements" according to Directive 91/263/EEC;
- contains corrections to reported shortcomings in the Tree and Tabular Combined Notation (TTCN) at Layers 1, 2, and 3;
- contains TTCN in ISO International Standard (IS) form in place of the Draft ISO International Standard (DIS) form;
- deselects tests declared by the special group of ITAAAG as being not essential according to Directive 91/263/EEC;
- contains a complete replacement of the TBR-RT (tables of annex A). The ETSI BTC2-TE5 joint meeting to discuss the results of the UAP decided to give preference to a complete replacement of the TBR-RT instead of an amendment of at least each second table which could lead to confusion to the user of the document.

NOTE: The references to the changed pages in the standard refer to an old presentation. See history box at the end of the standard itself. The new presentation format, applied from 1 December 1995, may have different page numbering. The clause numbering has not changed.

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Amendments

Page 16, subclause 3.1

Amend definition as indicated:

designated terminal: A terminal which is permitted to draw power from Power Source 1 (PS1) under both normal and restricted power conditions in the absence of any other power source.

non-designated terminal: A terminal which is only permitted to draw power from Power Source 1 (PS1) under normal power conditions in the absence of any other power source.

Page 37, subclause 9.2.7

Amend the line below the figure 9.7 as indicated:

The Longitudinal Conversion Loss: $LCL = 20 \log_{10} |E_L/V_T|$ dB

The voltages V_T and E_L should be measured within the frequency range from 10 kHz up to 300 KHz ~~1 MHz~~ using selective test voltage measuring equipment.

Page 43, subclause 9.4.2.1.1

Amend definition as indicated:

Definition: In this inactive (powered off) state, the TE is not transmitting and cannot detect the presence of any input signals. In the case of locally powered TEs ~~which cannot detect the appearance/disappearance of PS1, this state is entered when local power is not present. For locally powered TEs that can detect PS1, state F1.0 is entered whenever loss of local power (required to support all TEI functions) is detected, and state F1.1 is entered when the absence of power from PS1 is detected and local power is available. No requirements are applicable for locally powered TEs for absence of PS1.~~

Page 45, subclause 9.4.2.3.1

Insert note and amend test as indicated:

Requirement: A TE which is powered from PS1 shall follow the procedures described in the finite state matrix table shown in table 9.7.

~~A TE which is locally powered and does not have a connection detector capable of detecting the presence of PS1 shall follow the procedures described in the finite state matrix table shown in table 9.8.~~

~~A TE which is locally powered and has a connection detector capable of detecting the presence of PS1 shall follow the procedures described in the finite state matrix table shown in table 9.9.~~

NOTE: Where requirements are not subject for testing in all possible states, the corresponding behaviour is implicitly checked in the tests for other states.

Test: The test shall be conducted according to annex B, TTCN test cases AD1aF1_PS&_LP_on, AD1bF10_LP_on, AD1cF11_LP_off, AD1dF11_PS_on, AD2F11_CHK_T3, AD3aF2_PS_off, AD3bF2_LP_off, AD4F2_RX_I0, AD5F2_RX_I2, AD6F2_RX_I4, AD7F2_RX_IX, AD8F2_CHK_T3, CPF2PHAI, AD9aF3_PS_off, AD9bF3_LP_off, AD10F3_PH_AR, AD11F3_RX_I0, AD12F3_RX_I2, AD13F3_RX_I4, AD14F3_RX_IX, AD15F3_CHK_T3, CPF3MPHIID, CPF3PHAI, AD16aF4_PS_off, AD16bF4_LP_off, AD17F4_RX_I0, AD18F4_RX_I2, AD19F4_RX_I4, AD21F4_CHK_T3, CPF4MPHIID, CPF4PHAI, CPF4PHDI_T3exp, CPF4Tlayer2, AD22aF5_PS_off, AD22bF5_LP_off, AD23F5_RX_I0, AD24F5_RX_I2, AD25F5_RX_IX, AD26F5_RX_I4, AD27F5_CHK_T3, CPF5MPHIID, CPF5PHAI, CPF5PHDI_I0T3, CPF5PHDI_T3expa, CPF5PHDI_T3expb, AD28aF6_PS_off, AD28bF6_LP_off, AD28cF6_PS_off, AD29F6_Lostfr, AD30F6_PH_AR, AD31F6_RX_I0, AD32F6_RX_I2, AD33F6_RX_I4, AD34F6_CHK_T3, CPF6PHAIa, CPF6PHAIb, CPF6PHDI_T3exp, CPF6PHDI_I0T3, CPF6PHDI_I0, CPF6PHARa, CPF6PHARb, AD35aF7_PS_off, AD35bF7_LP_off, AD35cF7_PS_off, AD36F7_Lostfr, AD37F7_RX_I0, AD38F7_RX_I2, AD39F7_RX_I4, CPF7PHDI_I0, CPF7DIS_I2, CPF7DIS_IX,

AD40aF8_PS_-off, AD40bF8_LP_-off, AD41F8_PH_-AR, ~~AD42F8_RX-I0, AD43F8_RX_-I2, AD44F8_RX_-I4, AD45F8_RX_-IX, AD46F8_CHK_T3, CPF8MPHIIa, CPF8MPHIIb, CPF8PHAib, CPF8PHAic, CPF8PHDI_T3exp, CPF8PHDI_I0T3, CPF8PHDI_I0b, and CPF8PHARa and CPF8PHARb.~~

Page 46, subclause 9.4.2.3.1, table 9.7

Amend table as indicated:

**Table 9.7: Activation/deactivation Layer 1 finite state matrix table for
TEs powered from PS1**

State Name	Inactive	Sensing	Deactivated	Awaiting signal	Identifying input	Synchro- nized	Activated	Lost Framing
State Number	F1	F2	F3	F4	F5	F6	F7	F8
INFO Sent	INFO 0	INFO 0	INFO 0	INFO 1	INFO 0	INFO 3	INFO 3	INFO 0
Detection of PS1 (note 2)	F2	---	---	---	---	---	---	---
Disappearance of PS1 for at least 500 ms (note 2)	---	F1	MPH-II(d) F1	MPH-II(d) PH-DI F1	MPH-II(d) PH-DI F1	MPH-II(d) PH-DI F1	MPH-II(d) PH-DI F1	MPH-II(d) PH-DI F1
PH-ACTIVATE REQUEST	/		ST. T3 F4			---		---
Expiry T3	/	/	---	PH-DI F3	PH-DI F3	<u>Not applicable</u>	/	PH-DI F3
Receive INFO 0 (notes 4 and 5)	/	MPH-II(e) F3	---	---	---	PH-DI F3	PH-DI F3	PH-DI F3
Receive any signal (note 1)	/	---	---	F5	---	/	/	---
Receive INFO 2	/	MPH-II(e) F6	F6	(note 3)	F6	---	F6	F6
Receive INFO 4	/	MPH-II(e) PH-AI F7	PH-AI S/ R T3 F7	(note 3)	PH-AI S/R T3 F7	PH-AI S/R T3 F7	---	PH-AI S/R T3 F7
Lost Framing	/	/	/	/	/	F8	F8	---
---	No change, no action.			PH-AI	Primitive PH-ACTIVATE INDICATION.			
	Impossible by the definition of the Layer 1 service.			PH-DI	Primitive PH-DEACTIVATE INDICATION.			
/	Impossible situation.			ST. T3	Start timer T3.			
a, b; Fn	Issue primitives "a" and "b" and then go to state "Fn".			S/R T3	Stop and reset timer T3.			
MPH-II(e)	Primitive MPH INFORMATION INDICATION (connected).							
MPH-II(d)	Primitive MPH INFORMATION INDICATION (disconnected).							
(continued)								

**Table 9.7 (concluded): Activation/deactivation Layer 1 finite state matrix table for
TEs powered from PS1**

NOTE 1:	This event reflects the case where a signal is received which is not INFO 2 or INFO 4. To ensure that a TE takes appropriate action when receiving a signal to which it cannot synchronize, operation of TEs should be verified where the received signal is any bit pattern (containing at least three ZEROs in each frame interval) to which TEs conforming to subclause 9.4.3 are not able to synchronize. In the TTCN test cases in annex B, clause B.4, this signal is called INFO X.
NOTE 2:	If more than one power feeding source can be used as declared in items 1 and 2 of annex A, table A.1, the reaction of the TE may be different from that described. It may be necessary then to analyse the behaviour of the TE, when tested according to annex B, clause B.4, and when powered as declared by the supplier (see annex E, table E.2).
NOTE 3:	Two responses are possible. Either: a) the TE shall enter state F5 within 5 ms. Where this option is implemented by the TE, the requirements associated with state F5 are applicable; or b) on receipt of INFO 2, the TE shall enter state F6 within 5 ms; and on receipt of INFO 4, the TE shall enter state F7 within 5 ms, stop and reset timer T3, and send PH-AI. Where this option is implemented by the TE, the requirements associated with state F5 are not applicable.
NOTE 4:	The timer T4 shall be started when leaving state F7 or F8 upon the reception of INFO 0. The corresponding PH-DI will be delivered to Layer 2 only, if Layer 1 does not re-enter an active state before expiry of this timer. The value of this timer is in the range of 500 ms to 1 000 ms. This prevents the loss of an on-going communication caused by spurious effects.
NOTE 5:	INFO 0 shall be detected when 48 or more contiguous binary ONES have been received and the TE shall perform the actions specified in table 9.7. Conformance shall be tested with a sinusoidal signal having a voltage of 100 mV peak-to-peak (with a frequency in the range of 2 kHz to 1 000 kHz, preferably 100 kHz). TE being in state F6 or F7 shall react on receipt of this signal by transmitting INFO 0 within a period of time 250 µs to 25 ms.

Page 48, subclause 9.4.2.3.1, table 9.8

Amend table as indicated:

Table 9.8: Activation/deactivation Layer 1 finite state matrix table for locally powered TEs unable to detect PS1

State Name	Inactive	Sensing	Deactivated	Awaiting signal	Identifying input	Synchronized	Activated	Lost Framing
State Number	F1	F2	F3	F4	F5	F6	F7	F8
INFO Sent	INFO 0	INFO 0	INFO 0	INFO 1	INFO 0	INFO 3	INFO 3	INFO 0
Loss of power	/	F1	MPH-II(d) F1	MPH-II(d) PH-DI F1	MPH-II(d) PH-DI F1	MPH-II(d) PH-DI F1	MPH-II(d) PH-DI F1	MPH-II(d) PH-DI F1
Application of power (note 2)	F2	---	---	---	---	---	---	---
Detect PS1	No requirements apply							
PH-ACTIVATE REQUEST	/		ST. T3 F4			---		---
Expiry T3	/	/	---	PH-DI F3	PH-DI F3	<u>Not applicable</u>	/	PH-DI F3
Receive INFO 0 (notes 4 and 5)	/	MPH-II(e) F3	---	---	---	PH-DI F3	PH-DI F3	PH-DI F3
Receive any signal (note 1)	/	---	---	F5	---	/	/	---
Receive INFO 2	/	MPH-II(e) F6	F6	(note 3)	F6	---	F6	F6
Receive INFO 4	/	MPH-II(e) PH-AI F7	PH-AI S/R T3 F7	(note 3)	PH-AI S/R T3 F7	PH-AI S/R T3 F7	---	PH-AI S/R T3 F7
Lost Framing	/	/	/	/	/	F8	F8	---
---	No change, no action.			PH-AI	Primitive PH-ACTIVATE INDICATION.			
	Impossible by the definition of the Layer 1 service.			PH-DI	Primitive PH-DEACTIVATE INDICATION.			
/	Impossible situation.			ST. T3	Start timer T3.			
a, b; Fn	Issue primitives "a" and "b" and then go to state "Fn".							
MPH-II(e)	Primitive MPH-INFORMATION INDICATION (connected).			S/R T3	Stop and reset timer T3.			
MPH-II(d)	Primitive MPH-INFORMATION INDICATION (disconnected).							

(continued)

Table 9.8 (concluded): Activation/deactivation Layer 1 finite state matrix table for locally powered TEs unable to detect PS1

NOTE 1:	This event reflects the case in which a signal is received which is not INFO 2 or INFO 4. To ensure that a TE takes appropriate action when receiving a signal to which it cannot synchronize, operation of TEs should be verified where the received signal is any bit pattern (containing at least three ZEROs in each frame interval) to which TEs conforming to subclause 9.4.3 are not able to synchronize. In the TTCN test cases in annex B, clause B.4, this signal is called INFO X.
NOTE 2:	The term power could be the full operational power or backup power. Backup power is defined such that it is enough to hold the TEI values in memory and maintain the capability of receiving and transmitting Layer 2 frames associated with the TEI procedures. If more than one power feeding source can be used as declared in items <u>1 and 2</u> of annex A, table A.13.2, the reaction of the TE may be different from that described. It may be necessary then to analyse the behaviour of the TE, when tested according to annex B, clause B.4, and when powered as declared by the supplier (see annex E, table E.2).
NOTE 3:	Two responses are possible. Either: a) the TE shall enter state F5 within 5 ms. Where this option is implemented by the TE, the requirements associated with state F5 are applicable; or b) on receipt of INFO 2, the TE shall enter state F6 within 5 ms; and on receipt of INFO 4, the TE shall enter state F7 within 5 ms, stop and reset timer T3, and send PH-AI. Where this option is implemented by the TE, the requirements associated with state F5 are not applicable.
NOTE 4:	The timer T4 shall be started when leaving the states F7 or F8 upon reception of INFO 0. The corresponding PH-DI will be delivered to Layer 2 only, if Layer 1 does not re-enter state F7 before expiry of this timer. The value of this timer is in the range of 500 ms to 1 000 ms. This prevents the loss of on-going communication caused by spurious effects.
NOTE 5:	INFO 0 shall be detected when 48 or more contiguous binary ONES have been received and the TE shall perform the actions specified in table 9.8. Conformance shall be tested with a sinusoidal signal having a voltage of 100 mV peak-to-peak (with a frequency in the range 2 kHz to 1 000 kHz, preferably 100 kHz). TE being in state F6 or F7 shall react on receipt of this signal by transmitting INFO 0 within a period of time 250 μ s to 25 ms.

Page 51, subclause 9.4.2.3.1, table 9.9

Delete table 9.9.

NOTE: Changes to table 9.8 have made table 9.9 superfluous, it is therefore deleted.

Page 56, subclause 9.5.5.1.4

Delete entire subclause.

Page 61, clause 10

Add the following text to the bottom of the first paragraph:

Requirement: "Before the procedures of this clause are invoked, a physical layer connection shall be activated between the TE and the network. All layer 2 frames shall be sent to the physical layer using a PH-DATA request primitive".

NOTE: The reception of a PH-DI primitive by layer 2 implies the discarding of all outstanding PH-DATA requests and all LAPD frames in queue.

Test: The requirement is implicitly verified by the tests in annex B, subclause B.4.2, (Test Group ISDN1/Cp).

Page 71, subclause 10.4.1

Amend the list of test cases as indicated:

Test: The test shall be conducted according to annex C, TTCN test case TC14001 and annex B subclause B.4.42, TTCN test cases CPF4PHDI_T3exp, CPF5PHDI_I0T3, CPF5PHDI_T3expa, CPF5PHDI_T3expb, CPF6PHDI_T3exp, CPF6PHDI_I0T3, CPF6PHDI_I0, CPF6PHARa, CPF7PHDI_I0, CPF8PHDI_T3exp, and CPF8PHDI_I0T3, ~~CPF8PHDI_I0b and CPF8PHARa.~~

Page 72, subclause 10.5.1

Add the following text to the end of the subclause:

Test: This requirement is implicitly tested by other TEI management tests.

Page 72, subclause 10.5.2

Amend the list of test cases as indicated:

Test: The test shall be conducted according to annex C, TTCN test case TC13014 and test preamble PR37004, and annex B, subclause B.4.42, TTCN test cases ~~CPF2PHAI, CPF3PHAI, CPF4PHAI, CPF4Tlayer2, CPF5PHAI, CPF6PHAIa, CPF6PHAIb, CPF6PHARb, and CPF8PHAIb, CPF8PHAIc and CPF8PHARb.~~

Page 74, subclause 10.5.4.2

Amend text as indicated:

Requirement: At the TE, automatic TEI values shall be removed by sending an MDL-REMOVE-REQUEST primitive to the data link layer entity under the following conditions:

- on receipt from the ASP of an identity remove message;
- ~~on receipt of an MPH-INFORMATION-INDICATION (disconnected) primitive;~~
- on receipt of an MDL-ERROR-INDICATION primitive indicating that the data link layer entity has assumed possible multiple-assignment of a TEI value, rather than requesting a TEI check procedure by the transmission of an identity verify request message.

Test: The test shall be conducted according to annex C, TTCN test cases ~~TC14021, TC14022, TC24007, TC27031~~ and test preamble PR31401, ~~and annex B, subclause B.4.4, TTCN test cases CPF3MPHIID, CPF4MPHIID, CPF5MPHIID, CPF8MPHIIDa and CPF8MPHIIDb.~~