



AMENDMENT

FINAL DRAFT
TBR 4
pr **A1**

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**This draft amendment A1, if approved, will modify
the Technical Basis for Regulation TBR 4 (1995)**

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

ETSI

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Foreword

This final draft amendment to Technical Basis for Regulation (TBR) has been produced by the Business Telecommunications (BTC) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Voting phase of the ETSI standards approval procedure.

This final draft amendment should be considered as an urgent technical correction.

The draft 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 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.

Amendments

Page 50, subclause 10.5.1

Add the word "Requirement:" in front of the last paragraph.

Add the following text to the end of the subclause:

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

Page 52, subclause 10.5.4.2

Amend the list of test cases as indicated:

Test: The test shall be conducted according to annex C, TTCN test case TC27031 and test preamble PR31401.

Page 52, subclause 10.5.5.2

Amend the list of test cases as indicated:

Test: The test shall be conducted according to annex C, TTCN test case TC27031.

Page 53, subclause 10.5.5.3

Delete entire subclause.

Page 55, subclause 10.6.1.1

Amend text as indicated below:

Reference: ETS 300 125, Part 2, subclause 5.5.1.1.

Requirement: These procedures shall be used to establish multiple frame operation between the network and a designated user entity.

The data link layer entity shall initiate establishment of multiple frame operation on receipt of the DL-ESTABLISH-REQUEST primitive from Layer 3.

Test: The test shall be conducted according to annex C, test preamble PR37004.

Page 56, subclauses 10.6.3 and 10.6.3.1

Delete entire subclauses.

Page 58, subclause 10.7.4

Delete test case TC28407 from the list of test cases.

Page 60, subclause 10.7.5.3

Delete test case TC27416 from the list of test cases.

Page 60, subclause 10.7.5.4

Delete test case TC27405 from the first list of test cases and delete TC27407 from the second list of test cases.

Page 61, subclause 10.7.5.5

Add the following text to the end of the subclause:

Test:

NOTE: It is not possible to replicate the conditions required to bring the IUT into the state required to perform the test, and therefore no tests is specified.

Page 61, subclause 10.8

Delete test case TC28408 from the list of test cases.

Page 63, subclause 10.9.4

Delete test cases TC24007 and TC28019 from the list of test cases.

Page 124, subclause 11.4.2.2.2

Delete entire subclause.

Page 127, subclause 11.4.3.4.2

Delete test case TC11001 from the list of test cases.

Page 128, subclause 11.4.6.1

Delete entire subclause.

Page 130, subclause 11.4.6.3

Add test cases TC11908 and TC11909 to the list of test cases.

Page 130 subclause 11.4.6.5.1

Amend text as shown below:

Requirement:

When a SETUP or RELEASE message is received which has one or more mandatory information elements missing, a RELEASE COMPLETE message shall be returned.

Test: This requirement shall be tested according to the procedures of annex D, test case TC10015,

Page 131, subclause 11.4.6.5.2

Delete entire subclause.

Page 131, subclause 11.4.6.6.1

Amend text as shown below:

Requirement: When a message is received which has one or more unrecognized information elements, the TE shall check whether any are encoded to indicate "comprehension required" (refer to table 11.27 for information element identifiers reserved with this meaning). If any unrecognized information element is encoded to indicate "comprehension required", then the procedures in subclause 11.4.6.5.1 are followed; i.e. as if a "missing mandatory information element" error condition had occurred. If all unrecognized information elements are not encoded to indicate "comprehension required", then the TE shall proceed as follows.

Action shall be taken on the message and those information elements which are recognized and have valid content. When the received message is other than DISCONNECT, RELEASE or RELEASE COMPLETE, a STATUS message may be returned containing one Cause information element. The STATUS message shall indicate the Call state of the receiver after taking action on the message. The Cause information element shall contain Cause #99 "information element non-existent or not implemented", and the diagnostic field, if present, shall contain the information element identifier for each information element which was unrecognized.

Subsequent actions are determined by the sender of the unrecognized information elements. If a clearing message contains one or more unrecognized information elements, the error is reported to the local TE in the following manner:

- when a RELEASE message is received which has one or more unrecognized information elements, a RELEASE COMPLETE shall be returned.

Test: This requirement shall be tested according to the procedures of annex D, test cases TC10027, TC10028, TC11118 .

Page 134, subclause 11.5

Amend text as indicated below:

Requirement: The duration of timer T305 shall be in the range 15 s to 45 s.

NOTE 1: A value of 30 s is recommended.

The duration of timer T308 shall be in the range 3 s to 15 s.

NOTE 2: A value of 4 s is recommended.

Test: This requirement shall be tested according to the procedures of annex D, test cases TC21001 and TC21006.

Page 134 to 135, clause A.2

Replace entire clause A.2. by the following:

A.2 Layer 1 and overvoltage requirements TBR-RT

Table A.1: Layer 1 and overvoltage conditions table

Refer-ence	Condition	Status	Support (Y/N)	Comment
1	Is TE mains powered?	o		Affects requirements in clause 8

Table A.2: Overvoltage requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	8.1	Impulse transfer from mains, common mode	c1	
2	8.2	Impulse transfer from mains, transverse mode	c1	
3	8.3	Conversion of common mode to transverse mode	m	

c1 = m if A1.1 else n/a

Table A.3: Layer 1 physical characteristics requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	9.1.1	Hardwiring	m	
2	9.1.2	Alternative connection method	o	

Table A.4: Layer 1 output port electrical requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	9.2.1	Waveform shape	m	
2	9.2.2	Impedance towards ground	m	
3	9.2.3	Clock accuracy	m	
4	9.2.4a	Output jitter, input timing derived from the same primary rate access	o1	
5	9.2.4b	Output jitter, input timing derived from a different primary rate access	o1	
6	9.2.4c	Output jitter, input timing derived from a non-ISDN 2 048 kbit/s access	o1	
7	9.2.4d	Output jitter, input timing derived from internal source	o1	
8	9.2.4e	Output jitter, input timing derived from dedicated external reference	o1	

o1. One or more options shall be chosen.

Table A.5: Layer 1 input port electrical requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	9.3.1	Return loss	m	
2	9.3.2	Immunity to attenuation and reflections	m	
3	9.3.3	Jitter tolerance	m	
4	9.3.4	Tolerable longitudinal voltage	m	
5	9.3.5	Impedance towards ground	m	

Table A.6: Layer 1 frame structure requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	9.4.4	Allocation of bits number 1 to 8 of the frame	m	
2	9.4.8	Use of bit 1 in 2 048 kbit/s CRC-4 multiframe	m	
3	9.4.9	D-channel	m	

Table A.7: Layer 1 operational functions requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	9.5.4.2.1	Anomalies and defect detection	m	
2	9.5.4.2.2	Detection of defect indication signals	m	
3	9.5.4.2.3	Consequent actions	m	
4	9.5.5.1	Loss of frame alignment	m	
5	9.5.5.2	Strategy for frame alignment recovery	m	
6	9.5.5.3	CRC multiframe alignment using information in bit 1 of the basic frame	m	
7	9.5.5.4	CRC bit monitoring	m	
8	9.5.5.5	Monitoring for false frame alignment	m	

Page 137 to 139, clause A.3

Replace entire clause A.3. by the following:

A.3 Layer 2 TBR-RT**Table A.8: Layer 2 point-to-point configuration requirements table**

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	10.3	Does the TE support a configuration using only a single point-to-point data link?	o	

Table A.9 Layer 2 unacknowledged operation requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	10.4.1	Transmission of unacknowledged information	c1	
2	10.4.2	Receipt of unacknowledged information	c1	

c1 = n/a if A.8.1 else m

Table A.10 Layer 2 TEI management requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	10.5.2	TEI assignment procedure, automatic TEIs	c1	
2	10.5.2	TEI assignment procedure, non-automatic TEIs	c1	
3	10.5.2.1	Expiry of timer T202	c2	
4	10.5.3	Operation of the TEI check procedure	c3	
5	10.5.4.1	Action taken by the data link layer entity receiving the MDL-REMOVE-REQUEST primitive	c2	
6	10.5.4.2	Conditions for TEI removal, receipt of an identity remove message	c2	
7	10.5.4.2	Conditions for TEI removal, receipt of MDL-ERROR INDICATION indicating possible multiple TEI assignment	c4	
8	10.5.5.2	Operation of the TEI identity verify procedure	c4	
9	10.5.1	General TEI management procedures	m	

c1 = n/a if A.8.1 else o1
c2 = m if A.10.1 else n/a
c3 = n/a if A.8.1 else m
c4 = o1 if A.10.1 else n/a
o1 = One or more options shall be chosen

Table A.11: Layer 2 establishment and release procedures requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	10.6.1.1	General	m	
2	10.6.1.2	Establishment procedures	m	
3	10.6.1.3	Procedure on expiry of timer T200	m	
4	10.6.2	Termination of multiple frame operation	m	

Table A.12: Layer 2 multiple frame operation requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	10.7.1	Transmitting I-frames	m	
2	10.7.2	Receiving I-frames	m	
3	10.7.2.1	P bit set to 1	m	
4	10.7.2.2	P bit set to 0	m	
5	10.7.3	Receiving acknowledgements	m	
6	10.7.4	Receiving REJ frames	m	
7	10.7.5.1	Receiving a valid RNR command or response	m	
8	10.7.5.2	Expiry of timer T200 during "peer receiver busy"	m	
9	10.7.5.3	Receiving a valid RNR command or response during "peer receiver busy"	m	
10	10.7.5.4	Receiving a valid RR or REJ command during "peer receiver busy"	m	
11	10.7.5.5	Appropriate supervisory response frame	m	
12	10.7.6	Waiting acknowledgement	m	
13	10.8	Re-establishment of multiple frame operation	m	

Table A.13: Layer 2 exception condition requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	10.9.1	N(S) sequence error	m	
2	10.9.2	Invalid frame condition	m	
3	10.9.3	Frame rejection condition	m	
4	10.9.4	Multiple-assignment of TEI value	c1	

c1 = m if A10.1 else n/a

Table A.14: Layer 2 system parameters requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	10.10.7	Layer 2 response time, TE not operating in accordance with subclause 10.3 (200 ms)	c1	
2	10.10.7	Layer 2 response time, TE operating in accordance with 10.3 (500 ms)	c2	

c1 = n/a if A.8.1 else m
c2 = m if A.8.1 else n/a

Page 139 to 140, clause A.4

Replace entire clause A.4. by the following:

A.4 Layer 3 TBR-RT

Table A.15: Layer 3 Call establishment at the originating interface requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	11.4.1	Call establishment at the originating interface	m	
2	11.4.1.1	Call request, SETUP message with Sending Complete information element	o1	
3	11.4.1.1	Call request, SETUP message with all called party address information, but without Sending Complete information element	o1	
4	11.4.1.1	Call request, SETUP message without all called party address information	o1	
5	11.4.1.2	Overlap sending, enter Overlap sending state	c1	
6	11.4.1.2	Overlap sending, send INFORMATION messages	c2	
7	11.4.1.3.1	Call proceeding, en-bloc sending	m	
8	11.4.1.3.2	Call proceeding, overlap sending	c1	
9	11.4.1.4	Call confirmation indication	m	
10	11.4.1.5	Call connected	m	

c1 = m if A.15.3 or A.15. else n/a

c2 = m if A.15.4

o1 = One or more options shall be chosen.

Table A.16: Layer 3 Call establishment at the destination interface requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	11.4.2	Call establishment at the destination interface	m	
2	11.4.2.1	Incoming call, SETUP message delivered by point-to-point data link	m	
3	11.4.2.2.1	Compatibility checking on Bearer capability information element, SETUP message delivered by point-to-point data link	o	
4	11.4.2.3.1	B-channel selection-destination, SETUP message delivered by point-to-point data link	m	
5	11.4.2.4	Overlap receiving	o	
6	11.4.2.5.1	Response to en-bloc SETUP or completion of overlap receiving	m	
7	11.4.2.6	Call accept	m	
8	11.4.2.7	Active indication	m	

Table A.17: Layer 3 Call clearing requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	11.4.3.2	Exception conditions	m	
2	11.4.3.3	Clearing initiated by the user	m	
3	11.4.3.4.1	Clearing when tones/announcements provided, Disconnect Indication state entered	o1	
4	11.4.3.4.1	Clearing when tones/announcements provided, Release Request state entered	o1	
5	11.4.3.4.2	Clearing when tones/announcements not provided	m	
6	11.4.3.4.3	Completion of clearing	m	
7	11.4.3.5	Clear collision	m	

o1 = One or more options shall be chosen.

Table A.18: Layer 3 error conditions requirements table

No.	Reference	TBR Requirement	Status	Support (Y/N)
1	11.4.6.2	Call reference procedural errors	m	
2	11.4.6.3	Message type or message sequence errors	m	
3	11.4.6.4	Duplicated information elements	m	
4	11.4.6.5.1	Mandatory information element missing	m	
5	11.4.6.6.1	Unrecognized information element	m	
6	11.4.6.6.2	Non-mandatory information element content error	m	
7	11.4.6.7	Status enquiry procedure	m	
8	11.4.6.8	Receiving a STATUS message	m	
9	11.4.7	User notification procedure	m	
10	11.4.8	Restart procedure	m	
11	11.5	TE Timer T305	m	
12	11.5	TE Timer T308	m	

Page 409 and 411, annex F, subclause F.3.2, table F.2 (continued)

Amend the following rows of table F.2 as indicated:

Table F.2 (continued): Changes with respect to ETS 300 125

Clause of ETS 300 125	Clause of TBR 3	Status	Justification
5.3.5.3 Expiry of timer T202	10.5.5.3	X	Requirement considered as non-essential by the special ITAAAG group.
5.5.5.1 Identical transmitted and received commands	10.6.3.1	X	Requirement considered as non-essential by the special ITAAAG group.

Page 144, subclause B.2.2

Amend the text of the paragraph result as indicated:

Results:

- a) $10 \text{ Hz} \leq f \leq 500 \text{ kHz}$: $V_{\text{TEST}} \leq 20 \text{ mV rms}$
- b) $500 \text{ kHz} \leq f \leq 1 \text{ MHz}$: maximum value increasing at 6dB/octave from $V_{\text{TEST}} = 20 \text{ mV rms}$

Page 155, subclause B.3.5

Amend the text of the paragraph result as indicated:

Results:

- a) $10 \text{ Hz} \leq f \leq 500 \text{ kHz}$: $V_{\text{TEST}} \leq 20 \text{ mV rms}$
- b) $500 \text{ kHz} \leq f \leq 1 \text{ MHz}$: maximum value increasing at 6dB/octave from $V_{\text{TEST}} = 20 \text{ mV rms}$

Page 420, subclause F.4.7

Amend the text of the first paragraph as indicated:

All the layer 3 user side timers except T305 and T308 are considered not to be essential. The reasons in each case are included in the table below.

Amend the following rows of table F.3 as indicated:

T305	Timer is essential
T308	Timer is essential

Page 430 - 432, annex F, subclause F.4.8, table F.4 (continued)

Amend the following rows of table F.4 as indicated:

Table F.4 (continued): Changes with respect to ETS 300 102-1

Subclause of ETS 300 102-1	Subclause of TBR	Status	Justification
5.8.1 Protocol discrimination error	11.4.6.1	X	Requirement considered as non-essential by the special ITAAAG group.
5.8.6.1 Mandatory information element missing	11.4.6.5.1	4f	2nd requirement is essential. 1st, 3rd, 4th, 5th, 6th requirements considered as non-essential by the special ITAAAG group.
5.8.6.2 Mandatory information element content error	11.4.6.5.2	X	Requirement considered as non-essential by the special ITAAAG group.
5.8.7.1 Unrecognized information element	11.4.6.6.1	4f	2nd requirement is essential. Requirements a) and c) considered as non-essential by the special ITAAAG group.
9.2 Timers in the User side	11.5	4f	Requirement for T305 and T308 was included by the PE-resolution meeting for TBR 3 and TBR 4. All other Layer 3 timers except T317 relating to requirements included in the TBR would require a network misoperation in order to occur. See subclause F.4.7 for more detail.

ATS in electronic form

TTCN.GR and TTCN.MP representations of this Abstract Test Suite (ATS) are contained in a self-extracting archive file (004__B1U.EXE) which can be found on the diskette attached to the last page of this TBR. After decompression, the archive file will yield the Graphical representation for each layer as follows:

- XBU004L2.GR (layer 2);
- XBU004L3.GR (layer 3);

and the Machine Processable representation for each layer as follows:

- XBU004L2.MP (layer 2);
- XBU004L3.MP (layer 3).

NOTE: According to ISO/IEC 9646-3 [8], in case of a conflict in interpretation of the operational semantics of TTCN.GR and TTCN.MP, the operational semantics of the TTCN.GR representation takes precedence.

Revisions to the test suites

Page 167, annex C

Delete annex and replace with text contained in electronic file: XBU004L2.GR.

Page 250, annex D

Delete annex and replace with text contained in electronic file: XBU004L3.GR.

History

Document history			
November 1995	First Edition		
May 1996	Unified Approval Procedure	UAP 47:	1996-05-20 to 1996-10-11
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