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**Terminal Equipment (TE);
Studies and investigations concerning essential
requirements in ETS 300 001 (NET 4)**

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Foreword

This ETSI Technical Report (ETR) has been produced by the Terminal Equipment Technical Committee (TC-TE) of the European Telecommunications Standards Institute (ETSI).

ETRs are informative documents resulting from studies carried out by ETSI which are not appropriate for European Telecommunication Standard (ETS) or Interim European Telecommunication Standard (I-ETS) status. An ETR may be used to publish material which is either of an informative nature, relating to the use or application of ETs or I-ETs, or which is immature and not yet ready for formal adoption as an ETS or I-ETS.

Introduction

This report contains the findings of a study undertaken by ETSI to assign each requirement specified in ETS 300 001 [1] against the essential requirements listed in Directive 91/263EEC, Article 4 [4].

IMPORTANT

The classifications contained in this ETR do not represent the views of all ETSI members. No consultation outside ETSI TC-TE has taken place and, more in particular, the classifications have not been checked by the regulatory authorities responsible for the national requirements contained in ETS 300 001 [1]. The ETR is seen as a starting point for a more detailed analysis where regulatory as well as technical and operational aspects are considered. Many of the classifications have been deliberately chosen to be provocative in order to stimulate further discussion, and, therefore, they are not to be used in any context before comments from national experts have been considered and further discussions have taken place.

The report has been approved for publication as an ETR in order to document the findings of the initial study.

The findings have taken into account the need to balance the objectives of network operators, terminal suppliers and regulatory authorities but, in the short time available, only a preliminary assignment could be made. An in depth review with experts representing each of these sectors is required to confirm or change these findings.

During the short time available it was not possible to list all of the reasons "for" and "against" essentiality and, as it was not possible to consult national experts, the national peculiarities could not be given an adequate examination.

It is hoped that the publication of this ETR will contribute to the ongoing debate on Public Switched Telephone Network (PSTN) harmonisation and will encourage the regulatory authorities to reflect upon the essentiality of their present requirements.

The findings contained in this ETR do not, in any way, modify the requirements contained in ETS 300 001 [1]. ETSI dissuades readers from using these findings for any other purpose different from further technical studies carried out by ETSI. The consensus for the publication of this ETR has been gained only for the general public interest and for the purpose of such technical studies.

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1 Scope

The objectives of the study covered by this ETR are defined in a number of source documents. The full definition of the scope of the work is given in the complete text of the documents referenced in Clause 2 or as given in Annexes to this ETR.

The key points from each document were extracted, as shown below, as an aid to the direction of the study. This constitutes, in summarised form, the basic scope of the work.

1.1 Terms of Reference

(See Annex A - "Terms of reference for Project Team CV (extract from Collective letter 489, 3 June 1992)".

To examine ETS 300 001 [1] (including all national variants) and to assign each requirement against item 4(a) - 4(g) in Directive 91/263 Article 4 [4].

1.2 TRAC Guidelines

(See Annex B - "Guidance" - Mr. Flaviano, (FSG 4(92)5): "Guideline document from N/TRAC to ETSI Project Team CV as for the interpretation of essential requirements in terms of 91/263/EEC Directive, article 4, with reference to ETS 300 001 [1].

Exclude safety, general Electro Magnetic Compatibility (EMC), radio-frequency spectrum and interworking of TEs, i.e. highlight those requirements/tests which are essential to satisfy items 4(d) and 4(f) of the Directive.

To classify each paragraph or sub-paragraph of ETS 300 001 [1] to the maximum possible level of detail. Results should be summarised in a table. If the requirement is only applicable to TE supporting voice telephony a "v" symbol should be added. A brief reason for the classification should be given.

When a certain characteristic is "ancillary" to another; the latter being well guaranteed by scrupulous testing, the adoption of the same level of "fussiness" for the ancillary characteristic shall be classified as NOT ESSENTIAL.

Useless repetitions and redundancies shall be identified for deletion.

NOTE: The PSTN Full Steering Group (FSG) made the following comment (see Annex B) on the TRAC Guidelines; "... the first bullet point in item c of the interpretation of essential requirements is beyond the scope of PT 33V".

1.3 FSG Guidance

(See Annex B)

To undertake a rapid review of every clause and subclause in ETS 300 001 [1] to a level of detail depending upon the time available. Prolonged debate should be avoided. It is accepted that after an initial review there could be a large number of "doubtful" cases which will require further review. This will not cause difficulties if an adequate description of the problem is given.

1.4 CTR Handbook [2]

Normal use of Terminal Equipment (TE) to be assumed; misuse not covered by ETS. Diversion of network resources causing degradation of network performance should be included. A separate ETS should cover supplementary services. The full access protocol for basic call control of a bearer service is regarded as an essential requirement. Where a supplementary service affects basic call control the additional ETS/CTR should contain the signalling requirements. Teleservice and value-added services (irrespective of whether or not they are provided by the network operator) are not the subject of basic access - but basic call control may be used to gain access to them.

NOTE: Figure 6 in the CTR Handbook [2] shows a possible relationship between ETS 300 001 [1] and standards for PSTN terminals.

1.5 CEC Letter

(See Annex B)

Where there is no Common Technical Regulation (CTR), disparities between national laws can be accepted but only in so far as such requirements can be recognised as being necessary to satisfy mandatory requirements; it is for national authorities to prove that their national rules are necessary.

2 References

For the purposes of this ETR, the following references apply:

- [1] ETS 300 001: "Attachments to the Public Switched Telephone Network (PSTN); General technical requirements for equipment connected to an analogue subscriber interface in the PSTN".
- [2] Draft Issue 2 (20/11/1992): "Handbook on CTRs".
- [3] DTR/TE-05032 (12/1992): "Terminal Equipment (TE); Study and investigation into the feasibility of further harmonisation of the requirements and association tests of ETS 300 001 (Candidate NET 4)".
- [4] Office Journal of the European Communities, L128 (23 May 1991): "Directive 91/263/EEC Council Directive of 29 April 1991 on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity".
- [5] CCITT Recommendation V.25: "Automatic answering equipment and/or parallel automatic calling equipment on the general switched telephone network including procedures for disabling of echo control devices for both manually and automatically established calls".

3 Definitions and abbreviations

All definitions and abbreviations are as defined in ETS 300 001 [1].

4 Methodology

4.1 Working procedure

The following working procedure was adopted.

- a) The classification of ESSENTIALITY was jointly agreed by the drafting group based upon the technical understanding of the members that the specified requirement is required to satisfy item 4(d), "protection of the network from harm", or item 4(f), "interworking with the network", of Directive 91/263/EEC [4].
- b) Supporting information about the need FOR and AGAINST the essentiality of a requirement was provided by an individual member of the group (in consultation with other members of the group if necessary). In addition comments were added to assist an understanding of the problem, especially in the case of uncertainty about the classification. Priority was given to providing reasons for the classification for those requirements which were classified as "not essential" or "doubtful" after a first examination. During this phase particular attention was given to DTR/TE-05032 [3]. The national variations on the common requirements were also carefully examined. During the remaining time available Chapter 10 of ETS 300 001 [1] was examined.
- c) The draft report was jointly approved by the members of the group for submission to ETSI STC/TE5.

4.2 Expression of results

Results of the examination of ETS 300 001 [1] have been expressed in a common format for each requirement under the following headings;

No.	Clause	Essential?	91/263	Comment?
-----	--------	------------	--------	----------

No. Is a reference number assigned for the purpose of this ETR. Each Clause and subclause in ETS 300 001 [1] has been given a reference number of three digits. The first digit defines the chapter of ETS 300 001 [1] which contains the requirement.

Clause The number and title of the Clause or subclause of ETS 300 001 [1].

Essential? The result of the review of the classification of the requirement as essential (YES) or not essential (NO) to satisfy the terminals Directive (Directive 91/263/EEC [4]). Where there was uncertainty about the classification "?" alone is shown. Where a tentative decision was made, the classification has been marked "?" in addition. In cases where a requirement is valid but has been badly expressed and could be improved by combining several requirements each of the current requirements has been classified as YES and a comment has been made.

91/263 The relevant part of Article 4 of the Directive 91/263/EEC [4] which applies is shown. A requirement classified as not essential may have a reference under this heading to indicate under which part it might have been considered essential for inclusion in ETS 300 001 [1].

Comment? Whether a comment (Yes) has been made under the "Project Team (PT) comments" heading below.

In addition, information is given under the following headings;

ETS 300 001 text: a copy of the standardised text which specifies the requirement.

Purpose: the presumed purpose of the requirement in relation to the placing of a product on the market is briefly described as an aid to determining its essentiality.

Reasons for essentiality: a brief reason for the classification on essentiality was given in order to assist further discussion later. The reasons FOR and AGAINST making the requirement mandatory have been stated where appropriate.

Number of countries: an analysis of the countries position on supporting the requirement.

National peculiarities: a brief analysis of national variations on the requirement and other remarks.

PT comments: additional information provided by the members of the project team which undertook the review.

5 Results

5.1 Summary

ETS 300 001 [1] was examined chapter by chapter and the result of the examination is summarised chapter by chapter in this Clause. Chapter 1 was excluded because it contains only general and introductory information. Chapter 8 was excluded because examination of the different connection arrangements was considered not to be fruitful.

The main objective was to make a decision on every common requirement. A first examination covering every Clause and subclause of the ETS was undertaken. This was, of necessity, a superficial examination. A more detailed consideration was given in a second examination with priority being given to those requirements classified initially as "not essential" or "doubtful". Chapter 10 was examined differently because it specifies particular national network peculiarities and, in many cases, the purpose of a requirement is difficult to interpret and therefore the reason for it was not necessarily understood.

A classification of each Clause and subclause of ETS 300 001 [1], together with supporting information, is given in the annexes to this ETR. In some cases a subclause has been further sub-divided for the purposes of this examination in order that every separate requirement could be effectively assessed. Such cases are indicated by a subscript letter after the reference number.

5.2 Chapter 2 - DC characteristics

Chapter 2 of ETS 300 001 [1] contains six clauses specifying 13 common requirements. Five of these requirements have been classified as not essential and one as doubtful (see Annex C). Three have been classified as coming within the scope of electrical safety (Article 4a), one as end-to-end (Article 4g) and one as more onerous than necessary to achieve the objective and which should be rephrased (see item 214).

One requirement (see item 211b), classified as not essential, has been marked "4gy" to indicate that it is considered important for end-to-end operation but only in the case of equipment which supports telephony. It should be specified in the appropriate terminal standard. Item 213 requires further study.

A summary of the findings is shown in the following table (table 1).

Table 1

No.	Clause	Essential?	91/263	Comment?
201	2 DC characteristics	Title		
202	2.1 Polarity	Yes	4f	Yes
203	2.2 Insulation resistance	Yes	?	Yes
204	2.2.1 TE in quiescent condition	Introductory text		Yes
205	2.2.1.1 Line terminal to line terminal	Yes	4d/4f	
206	2.2.1.2 Line terminals to signal earth	Yes	4d/4f	
207	2.2.1.3 Line terminals to user accessible parts	No	4a	
208	2.2.2 TE in loop condition	Introductory text		
209	2.2.2.1 Line terminals to signal earth	Yes	4d	
210	2.2.2.2 Line terminals to user accessible parts	No	4a	
211a	2.3 DC current and loop resistance (Upper limit)	Yes	4f	Yes
211b	2.3 DC current and loop resistance (Lower limit)	No	4gv	Yes
212	2.4 Transient response of loop current	Title		
213	2.4.1 Quiescent to loop state	?	4f/4g	Yes
214	2.4.2 Loop current transfer	No	4f	Yes
215	2.5 Series resistance	Yes	4f	Yes
216	2.6 DC overload susceptibility	No	4a	

5.3 Chapter 3 - Ringing signal characteristics

Chapter 3 of ETS 300 001 [1] contains two Clauses specifying four common requirements. One of these requirements has been classified as not essential and two as doubtful (see Annex D). The not essential requirement is covered by electrical safety requirements (Article 4a) and the two doubtful cases could be considered to be redundant because the requirement as specified, is unduly restrictive as a means to achieve the desired objective. It is suggested that subclause 3.1 of ETS 300 001 [1] be rephrased.

A summary of the findings is shown in table 2.

Table 2

No.	Clause	Essential?	91/263	Comment?
301	3 Ringing signal characteristics	Title		
302	3.1 Input voltage-current characteristics	Introductory text		
303	3.1.1 Ringing detectors producing electrical signals	?	4f	Yes
304	3.1.2 Ringing detectors producing discernible signals	Yes	4f	Yes
305	3.1.3 TE without ringing signal detection facilities	?	4f	Yes
306	3.2 Overload susceptibility	No	4a	Yes

5.4 Chapter 4 - Transmission characteristics

Chapter 4 of ETS 300 001 [1] contains five Clauses specifying 22 common requirements. Four of the requirements have been classified as not essential, and three as doubtful (see Annex E). The requirements classified as not essential are considered to be redundant because either the purpose of specifying the requirement is unclear or the requirement is repetitive. One of the three doubtful requirements concerns quality of performance and may be proper to a TE procurement specification (see item 422b). The other two involve outband noise limits which could be covered by EMC requirements. These three doubtful cases require further study. Nine requirements have been marked "v" to indicate that they only apply to a TE which supports the telephony service.

A summary of the findings is shown in the following table 3.

Table 3

No.	Clause	Essential?	91/263	Comment?
401	4 Transmission characteristics	Title		
402	4.1 Input impedance	Title		
403a	4.1.1 Input impedance of TE in quiescent condition Z1	Yes	4d/4f	Yes
403b	4.1.1 Input impedance of TE in quiescent condition Z2	Yes	4f	Yes
403c	4.1.1 Input impedance of TE in quiescent condition Z3	No	?	
403d	4.1.1 Input impedance of TE in quiescent condition Z4	Yes	4d	
404	4.1.2 Input impedance of TE in loop condition	Yes?	4d/4gv	Yes
405	4.2 Degree of unbalance about earth	Introductory text		
406	4.2.1 Longitudinal conversion loss of a one-port TE	Title		
407	4.2.1.1 Quiescent condition	Yes	4d/4gv	
408	4.2.1.2 Loop condition	Yes	4d/4gv	
409	4.2.2 Longitudinal conversion loss and longitudinal conversion transfer loss of a series-connected TE	Introductory text		
410a	4.2.2.1 Quiescent condition (LCL)	Yes	4d/4gv	
410b	4.2.2.1 Quiescent condition (LCTL)	No	4d/4gv	Yes
411a	4.2.2.2 Loop condition (LCL)	Yes	4d/4gv	
411b	4.2.2.2 Loop condition (LCTL)	No	4d/4g	Yes
412a	4.3 Series-connected TE insertion loss (a1)	Yes	4f/4gv	
412b	4.3 Series-connected TE insertion loss (a2)	No	4f	
413	4.4 Transmission levels	Title		
414	4.4.1 Maximum transmission levels	Yes	4d	
415	4.4.2 Speech band power levels of signals sent to line	Title		
416	4.4.2.1 Levels of recorded, synthetic or live, speech or music	Yes	4d	
417	4.4.2.2 Levels of data or code signals	Yes	4d	
418	4.4.3 Unwanted outband signal levels sent to line	Introductory text		
419	4.4.3.1 Levels of recorded, synthetic or live, speech or music	Yes	4c/4d	
420	4.4.3.2 Levels of data or code signals	Yes	4c/4d	
421	4.5 Noise level	Introductory text		
422a	4.5.1 Inband noise (Psophometrically weighted) Quiescent condition)	Yes	4d/4gv	
422b	4.5.1 Inband noise (Psophometrically weighted) (Loop condition)	?	4gv	Yes
423a	4.5.2 Outband noise (Unweighted) (Quiescent condition)	?	4d	Yes
423b	4.5.2 Outband noise (Unweighted) (Loop condition)	?	4d	Yes

5.5 Chapter 5 - Calling function

Chapter 5 of ETS 300 001 [1] contains seven Clauses specifying 48 common requirements. Sixteen of the requirements have been classified as not essential and eighteen have been classified as doubtful (see

Annex F). These 34 requirements are divided as follows; 5 are quality matters, 14 ancillary to other requirements or excessively complex, 5 are related to end-to-end communication or terminal functions and 10 for various other reasons. The 18 doubtful cases require further study.

A summary of the findings is shown in the following table 4.

Table 4

No.	Clause	Essential?	91/263	Comment?
501	5 Calling function	Title		
502	5.1 General	Introductory text		
503	5.2 Dial tone detector	Title		
504	5.2.1 Dial tone detector sensitivity	?	4d/4f	Yes
505	5.2.2 Dial tone detector insensitivity	?	4d/4f	Yes
506	5.3 Decadic dialling (loop pulsing)	Introductory text		
507	5.3.1 Format and timing	Title		
508	5.3.1.1 Dial numbering	Yes	4f	
509	5.3.1.2 Dialling pulse timing	Yes	4f	
510	5.3.2 Pre-pulsing period current and loop resistance	No	4f	
511	5.3.3 Pulsing period current and loop resistance	Title		
512	5.3.3.1 Break pulse period current and loop resistance	Yes	4f	
513	5.3.3.2 Make pulse period current and loop resistance	Yes	4f	
514	5.3.4 Interpulsing period	Title		
515	5.3.4.1 Interdigital pause	Introductory text		
516a	5.3.4.1.1 Automatic or stored-digit outpulsing Min	Yes	4f	
516b	5.3.4.1.1 Automatic or stored-digit outpulsing Max	?	4f	Yes
517	5.3.4.1.2 Real-time outpulsing	No	4f	
518	5.3.4.2 Current and loop resistance	?	4f	Yes
519	5.3.5 Post pulsing period	?	4f	Yes
520	5.3.6 Spark quenching	No	4f	
521	5.4 Dialling with MFPB (DTMF) tone bursts	Title		
522a	5.4.1 General requirements (2.2.2 reference)	No	4f	
522b	5.4.1 General requirements (non 2.2.2 reference)	Yes	4f	
523	5.4.2 Signalling frequencies and format	Yes	4f	
524	5.4.3 Signalling codes	?	4f	Yes
525	5.4.4 Sending levels	Yes	4d/4f	
526a	5.4.5 Unwanted frequency components a	Yes	4f	
526b	5.4.5 Unwanted frequency components b1	Yes	4f	
526c	5.4.5 Unwanted frequency components b2	?	4c/4d	Yes
526d	5.4.5 Unwanted frequency components b3	?	4c/4d	Yes

(continued)

Table 4 (concluded)

527	5.4.6	MFPB transient timing	Introductory text		
528	5.4.6.1	MFPB signal rise time	?	4f	Yes
529	5.4.6.2	MFPB signal fall time	No	4f	Yes
530	5.4.7	MFPB output signal duration	Title		
531a	5.4.7.1	MFPB senders with manually-controlled output times (Manually controlled)	No	4f	Yes
531b	5.4.7.1	MFPB senders with manually-controlled output times (Independently controlled)	No	4f	Yes
532a	5.4.7.2	MFPB senders with automatic operation (Minimum duration)	Yes	4f	
532b	5.4.7.2	MFPB senders with automatic operation (Maximum duration)	?	4f	Yes
533	5.4.8	Suppression of unassociated signals	Yes?	4f	Yes
534	5.5	Switching after dialling condition	?	4f	Yes
535	5.6	Automatic calling functions	Introductory text		
536	5.6.1	General requirements	Title		
537	5.6.1.1	Hardware/software realisation	?	4d	Yes
538	5.6.1.2	Call up from memory	No	4d	
539	5.6.1.3	Call progress monitoring	?	4d/4f	Yes
540	5.6.2	Automatic checking of line condition	No	4g	
541	5.6.3	Initiation of dialling	Introductory text		
542a	5.6.3.1	Automatic initiation of dialling (Controlled)	?	4d/4f	Yes
542b	5.6.3.1	Automatic initiation of dialling (Dial tone detector)	?	4d/4f	Yes
542c	5.6.3.1	Automatic initiation of dialling (Audible monitoring)	?	4d/4f	Yes
543	5.6.3.2	Manual initiation of dialling	No	4f	Yes
544	5.6.4	Automatic control of call progress	No	4d	
545	5.6.5	Initiation of transmission	Introductory text		
546a	5.6.5.1	Automatic initiation of transmission (t4 & t6)	No	4g	Yes
546b	5.6.5.1	Automatic initiation of transmission (t5)	?	4d	Yes
547	5.6.5.2	Manual initiation of transmission	No	4d	
548	5.6.6	Transmission duration control	Introductory text		
549	5.6.6.1	Automatic transmission duration control	No	4d	Yes
550	5.6.6.2	Manual transmission duration control	?	4g	Yes
551	5.6.7	Automatic repeat function	Introductory text		
552	5.6.7.1	Repeat call attempts	Yes	4d	
553	5.6.7.2	Number of repeat call attempts	Yes	4d	
554	5.7	Identification signals	Introductory text		
555	5.7.1	Data-related tones	No	4g	
556	5.7.2	Speech or other non-data related tones	No	4g	

5.6 Chapter 6 - Answering function

Chapter 6 of ETS 300 001 [1] contains four Clauses specifying 13 common requirements. Five requirements have been classified as not essential and five have been classified as doubtful (see Annex G). Four of the requirements have been classified as related to end-to-end communication (Article 4(g)) but three of them (see items 614, 615 and 616) may have implications for network harm. One requirement (see item 609) has been classified as essential but is marked "?" because the team had some doubt about whether a regulation is necessary to achieve the objective. Two requirements (items 608b and 617) have been marked "?" because some experts believe that other methods of control may be used. The requirements marked with "?" should be studied in more detail.

A summary of the findings is shown in the following table 5.

Table 5

No.	Clause	Essential?	91/263	Comment?
601	6 Answering function	Title		
602	6.1 General	Introductory text		
603	6.2 Ringing signal reception	Title		
604	6.2.1 Ringing signal detector sensitivity	Yes	4f	
605	6.2.2 Ringing signal detector insensitivity	?	4f	Yes
606	6.2.3 Immunity to decadic dialling from parallel TE	No	?	
607	6.3 Automatic answering function	Title		
608a	6.3.1 Automatic establishment of loop condition Min	No	?	
608b	6.3.1 Automatic establishment of loop condition Max	?	4d/4f	Yes
609	6.3.2 Insensitivity to ringing signal	Yes?	4d	Yes
610	6.3.3 Answering signal	No	4g	Yes
611	6.4 Automatic control of loop condition	Introductory text		
612	6.4.1 TE without information-related control of loop condition	Yes	4d	
613	6.4.2 TE with information-related control of loop condition	Introductory text		
614	6.4.2.1 Data or code signal related control	?	4d/4g	Yes
615	6.4.2.2 Incoming speech or other non-data signal related control	No	4d/4g	
616	6.4.2.3 Remotely transmitted control signals	No	4d/4g	
617	6.4.3 TE with network tone related control of loop condition	?	4d	Yes
618	6.4.4 TE with control of the loop condition related to certain network dc conditions	?	4d	Yes

5.7 Chapter 7 - Power failure

Chapter 7 of ETS 300 001 [1] contains two Clauses specifying two common requirements. Both requirements have been classified as essential (see Annex H) because it is mandatory that a terminal meets all of the essential requirements of the quiescent condition when power fails. The Project Team agrees with DTR/TE-05032 [3] which expresses the view that the specification of the requirement needs clarification. It is suggested that the specification of the requirement could also be simplified.

A summary of the findings is shown in the following table 6.

Table 6

No.	Clause	Essential?	91/263	Comment?
701	7 Power failure	Introductory text		
702	7.1 Power failure with TE in the quiescent condition.	Yes	4d	Yes
703	7.2 Power failure with TE in conditions other than the quiescent condition	Yes	4d	Yes

5.8 Chapter 8 - Connection Methods

Chapter 8 of ETS 300 001 [1] was not examined.

5.9 Chapter 9 - Special functions

Chapter 9 of ETS 300 001 [1] contains six Clauses specifying 27 common requirements. The entire chapter is considered to be either not essential or doubtful in relation to basic access to the PSTN (see Annex J) because all the requirements may be outside the scope of Articles 4(d) and 4(f) of Directive 91/263/EEC [4]. They specify either access to supplementary services or else duplicate requirements specified in other chapters of ETS 300 001 [1]. In six cases the essentiality is recorded as doubtful because the purpose of the requirement was not fully understood. These requirements require further study. Subclauses 9.6.1, 9.6.2 and 9.6.3 in ETS 300 001 [1] contain no requirements.

A summary of the findings is shown in table 7.

Table 7

No.	Clause	Essential?	91/263	Comment?
901	9 Special functions	Title		
902	9.1 Register recall	Introductory text		
903	9.1.1 Break period	No	4f	
904	9.1.2 Pre-break and post-break period	No	4f	
905	9.2 Meter pulse reception	Title		
906	9.2.1 12 or 16 kHz meter pulses	Introductory text		
907	9.2.1.1 Sensitivity and selectivity	No	4f	
908	9.2.1.2 Timing	No	4f	
909	9.2.1.3 Attenuation at meter pulse frequencies for series-connected TE	No	4f	
910	9.2.1.4 Return loss at meter pulse frequencies	No	4f	
911	9.2.2 50 Hz meter pulses	Introductory text		
912	9.2.2.1 Input longitudinal impedance at 50 Hz	No	4f	
913	9.2.2.2 Sensitivity	No	4f	
914	9.2.2.3 Insensitivity	No	4f	
915	9.3 Disabling of echo control devices	?	4f/4g	Yes
916	9.4 Loop current detection	Introductory text		
917	9.4.1 Loop current detector D1	Title		
918	9.4.1.1 Series-connected TE with switch S in position 1	?	?	Yes
919	9.4.1.2 Series-connected TE with switch S in position 2	Title		
920	9.4.1.2.1 Type A	No	?	Yes
921	9.4.1.2.2 Type B	No	?	Yes
922	9.4.1.3 Series-connected TE loop current detector immunity	No	?	Yes
923	9.4.2 Loop current detector D2	No	?	Yes
924	9.5 PSTN tone detection	Introductory text		
925	9.5.1 Dial tone detection	Introductory text		
926	9.5.2 Special dial tone detection	Title		
927	9.5.2.1 Special dial tone detector sensitivity	No	4d/4f	Yes
928	9.5.2.2 Special dial tone detector insensitivity	No	4d/4f	
929	9.5.3 Busy tone detection	Title		
930	9.5.3.1 Busy tone detector sensitivity	?	4d/4f	Yes
931	9.5.3.2 Busy tone detector insensitivity	?	4d/4f	Yes
932	9.5.4 Congestion tone detection	Title		
933	9.5.4.1 Congestion tone detector sensitivity	?	4d/4f	Yes
934	9.5.4.2 Congestion tone detector insensitivity	?	4d/4f	Yes

(continued)

Table 7 (concluded)

No.	Clause	Essential?	91/263	Comment?
935	9.5.5 Ringing tone detection	Title		
936	9.5.5.1 Ringing tone detector sensitivity	No	4f	Yes
937	9.5.5.2 Ringing tone detector insensitivity	No	4f	
938	9.5.6 Special information tone detection	Title		
939	9.5.6.1 Special information tone detector sensitivity	No	4f	
940	9.5.6.2 Special information tone detector insensitivity	No	4f	
941	9.6 Detection of remote party signals	Introductory text		
942	9.6.1 Answering tone detection	Introductory text		
943	9.6.1.1 Answering tone detector sensitivity	No	4g	
944	9.6.1.2 Answering tone detector insensitivity	No	4g	
945	9.6.2 Speech signal detection	Introductory text		
946	9.6.3 Data signal detection	Introductory text		
947	9.6.4 Remote activation tone detection	Introductory text		

5.10 Chapter 10 - Additional unclassified requirements

Each of the requirements specified in chapter 10 of ETS 300 001 [1] is specific to one country. The examination of this chapter therefore requires a knowledge of the peculiarities of the network in each country in order to understand the requirements. A classification of essentiality was not attempted because there was insufficient time to consult the appropriate experts in each of the countries concerned. A brief review of the first few pages of Chapter 10 was undertaken and some comments have been provided in order to indicate the nature of the difficulty encountered by the Project Team in trying to classify the essentiality of the requirements and to assist their further study.

6 Conclusions

6.1 General

A rapid review of every common requirement specified in Chapters 2 to 7 and Chapter 9 of ETS 300 001 [1] has been undertaken. It has of necessity been restricted in view of the limited time available but, hopefully, it will provide a base from which further, more detailed consideration of the requirement and its associated test can be made. For some requirements the test description may be essential for the result of the analysis. It was not possible in the time available for the study reported here to review the tests in detail.

Each requirement was classified by reference to Article 4 of Directive 91/263/EEC [4] and was identified as "essential" if it is necessary to satisfy Article 4(d) or 4(f) of the Directive. Reasons for the classification have been given with particular attention being paid to those cases where the classification was doubtful (indicated by "?") and also where the classification is "not essential". In these cases, arguments for and against the classification have been documented in order to assist further consideration of the essentiality of the requirement.

The classifications have tended towards minimising the number of essential requirements, taking into account the context in which the review has been made (see Annex A, subclause 3.7). Some of the classifications are deliberately provocative with the aim of stimulating further discussion. It is necessary to give the regulatory authorities and the network operators an opportunity to check and comment on these before conclusions are made.

No proposal has been made for revised text in ETS 300 001 [1], the objective being solely to identify those requirements which may be deleted. However, in some cases, attention is drawn to the need to review the text. Some cases have been identified where a single requirement could, with advantage, replace several of the currently specified requirements in order to achieve the same objective.

Some national remarks in ETS 300 001 [1] (including Chapter 10) may have significance for all networks although they have not been included as a common requirement in the current version of the ETS. This will require further study.

6.2 Overall perception

A "prima facie" opinion of the Project Team is that a number of requirements in ETS 300 001 [1] could be considered as not essential when assessed against Articles 4(d) and 4(f) of the Directive 91/263/EEC [4]. The conclusion of the study is that within the chapters of the current version of ETS 300 001 [1] that were examined, some 53 of the 129 common requirements specified could be not essential to satisfy the requirements of the Directive 91/263/EEC [4] for placing on the market a product which is intended for connection to the PSTN. It may, therefore, be concluded that a conformity specification for basic access to the PSTN could contain fewer requirements than the current version of ETS 300 001 [1].

Thirty-four other requirements in ETS 300 001 [1] which have been classified in this ETR as doubtful (indicated by "?" in the tables of results) could also be considered as either essential or not essential after further examination. Four of the classifications should be considered as tentative. These are indicated by "?" against the classification.

Further review will be necessary to examine each case more carefully in collaboration with the network operators, the approval authorities and the terminal suppliers.

Furthermore, there are some cases where, in order to simplify entry to the market and to minimise the cost of type approval testing, it is desirable to debate whether the achievement of a legitimate objective should be obtained through the force of the law by means of a regulation or whether voluntary observation is more appropriate, relying upon market forces to achieve the desired objective (see for example Items 411a (sensitivity to noise), 534 (TE ready after dialling) and 609 (insensitivity to ringing)).

6.3 Reasons for classifications as not essential

Requirements have been classed as not essential for one or more of the following reasons:

- the requirement concerns quality of performance in the terminal and therefore appears to be derived from a purchasing specification (see, for example, items 538,549);
- the requirement is related to end-to-end communication and should be transferred to the relevant terminal standard (see for example items 211b, 546a);
- the requirement concerns the functioning of customer premises equipment which has no interaction with the network as defined in Article 4 of the Directive 91/263/EEC [4] (see, for example, items 606, 616);

NOTE: The transfer to relevant terminal standards has to be aligned with plans for CTRs covering the relevant terminal functions. If no CTR concerning the relevant terminal functions is planned, the inclusion of end-to-end communication requirements in ETS 300 001 [1] may be justified.

- the requirement seems to be more appropriate to the conditions for the supply of service to be established as a commercial agreement between the customer and the network operator and is not a matter for type approval testing of the terminal.(see, for example, items 537, 615);
- the requirement may be deleted from ETS 300 001 [1] because it appears to be covered by the scope of safety and EMC standards and, therefore, is not relevant to the essential requirements defined in items 4(d) and 4(f) in Article 4 of Directive 91/263/EEC [4] (see, for example, items 207, 210);
- the requirement appears to be related to a supplementary service (e.g. supply of meter pulses) and should be transferred to the appropriate standard (see, for example, items 907, 910);
- the requirement is ancillary to another one, the requirement being already adequately covered by other tests; it is therefore redundant (see, for example, item 510, 517);
- the purpose of the requirement is uncertain and it appears to serve no useful purpose (see, for example, item 403c).

Doubtful cases arose where the reason for essentiality, in relation to the Articles 4(d) and 4(f) of Directive 91/263/EEC [4], was not clear or where there is some uncertainty about the purpose of the requirement.

6.4 Expression of results

The findings of the Project Team on each Clause and subclause of ETS 300 001 [1] are recorded in a standard format (see Annexes C to J) and are summarised in Clause 5 above. Chapter 10 was dealt with differently (see Annex K). Chapters 1 and 8 were not examined.

7 Recommendations

7.1 Recommendations concerning definition of harm to the network

It is recommended that further clarification of the term "harm to the network" be provided in order that an agreed classification can be made for some of the requirements in ETS 300 001 [1].

During the examination of ETS 300 001 [1] certain requirements could not be classified with confidence because of uncertainty about their consequences for the network. The technical requirement arises from an interpretation of the policy of the approval authorities in relation to the likely harm resulting from the phenomena concerned.

Recommendation 1 It should be clarified whether harm to the network includes nuisance/inconvenience to the network operator due to unnecessary fault reports (for example, because of wrong connections due to faulty dialling, ineffective call because of poorly designed TE at called end).

Recommendation 2 It should be clarified whether harm to the network includes potential loss of revenue to the network operator due to the blocking of an incoming line (for example, by failure of an automatic calling equipment to clear).

It is assumed that the network will have been designed to release the remaining part of the connection.

Recommendation 3 It should be clarified whether a product may be placed on the market which, when connected alone to the PSTN, causes no harm but if connected in parallel with a telephony terminal may degrade the end-to-end communication quality of the telephone service and may degrade the dialling.

Recommendation 4 It should be clarified whether the network should be protected against potential interference with other (unspecified) existing or future network services (for example, using part of the spectrum not required for voice telephony).

This may be considered to be covered by EMC requirements.

7.2 Recommendations concerning national peculiarities

The review of ETS 300 001 [1] did not adequately cover Chapter 10.

Chapter 10 created special difficulties because it specifies requirements concerning particular national network peculiarities and, in many cases, the purpose of a requirement is difficult to interpret and, therefore, the reason for it was not necessarily understood.

Recommendation 5 Further examination of Chapter 10 should be undertaken to allow an open assessment of the different requirements.

This will require that the purpose of each national requirement be explained and its classification in relation to Article 4 of the Directive 91/263/EEC [4] be proposed. A blank format is proposed in Annex L of this ETR.

Annex A (informative): Terms of reference

Terms of reference for project team CV (Extract from ETSI CL 489, 3 June 1992)

1 Reasons for proposing a Project Team:

A report is urgently required in order to achieve the timescale specified in the Mandate, which is based upon the urgent need to establish throughout Europe the free circulation of PSTN terminals.

2 Consequences if not agreed:

Information will not be available in the timescale necessary to allow completion of the ongoing studies under the Mandate.

3 Detailed description

3.1 Subject title:

Review of essential requirements in ETS 300 001 [1].

3.2 Reference TC:

TE.

3.3 Other interested TC (if any):

BT.

3.4 Duration:

2 months.

3.5 Target date for start of work:

After guidance from TRAC is available.

3.6 Necessary manpower:

Expertise on technical characteristics of analogue PSTNs and the requirements for attachment of terminals.

- 3 man/months

3.7 Context of the study:

ETSI has accepted a Mandate for study and investigation of further harmonisation of the PSTN Access and related services. Some work is needed to associate the requirements in the present ETS 300 001 [1] with the requirements in Directive 91/263/EEC [4] Article 4. It will then be possible to form an opinion on which parts of ETS 300 001 [1] could be discarded in order to reduce the conformity testing to an essential minimum.

3.8 Related activities in other bodies and necessary coordination schedules:

Account should be taken of activities in TRAC on the regulatory definition of "Essential requirements".

3.9 Scope of the Terms of Reference and relevant study items:

To examine ETS 300 001 [1] (including all national variants) and to assign each requirement against item a) - g) in Directive 91/263/EEC [4] Article 4. Provision should be made to classify parts of ETS 300 001 [1] as "Not essential" or "For further review" (in the case where the PT is uncertain of the classification).

3.10 Reference specification(s) and existing documents including member contributions:

ETS 300 001 [1].

3.11 Part of ETSI Work Programme (EWP) for which the PT is required:

DTR/TE 05xxxx.

3.12 Expected outputs:

A report showing for each requirement in ETS 300 001 [1] its classification against the list of essential requirements in Directive 91/263/EEC [4].

Annex B (informative): Guidance

Document from Mr Flaviano (FSG4 (92) 5)

TITLE: "Guideline document from NTRAC to ETSI/Project Team CV as for the interpretation of essential requirements, in terms of 91/263/EEC Directive, article 4, with reference to ETS 300 001 [1]".

1 Foreword

New TRAC is an advisory committee for ACTE, the Committee set-up by 91/263 Directive, and for the Commission of EC, as well as for EFTA on matters related to terminal equipment type approvals.

NTRAC MoU signatories are the responsible bodies for type approvals in 18 European Countries (EEC + EFTA countries). Most of public network operators of these countries have co-signed the same agreement.

NTRAC MoU contains provisions for the possible set-up of arrangements for the mutual recognition of test results using national standards. This may be used to complement the effects of 91/263 Directive on terminal equipment common market in some cases where no CTR exists for that product (e.g. for analogue PSTN products - the ETS 300 001/NET 4 case).

Since NTRAC is a group of "type approval" bodies, its decisions or new MoUs dealing with type approval regulations are binding for its members.

That is why, at its 4th meeting in Lisbon in February 1992, NTRAC was asked by ETSI to provide PT CV with guidance on the interpretation of essential requirements for ETS 300 001 [1].

NTRAC set-up an "Ad Hoc group" which prepared this document.

This guideline document was approved by NTRAC by correspondence after its 6th meeting in Paris (26 June 1992) and forwarded to ETSI.

2 Interpretation of Essential Requirements

- a) Although ETS 300 001 [1] is not a CTR, the list of essential requirements contained in art. 4 of 91/263/EEC Directive is applicable also to it, since any different interpretation and application may cause breach of art. 30 of the Treaty of Rome. These same requirements should legally apply also to EFTA countries, since they have joined EEC common space.
- b) As for interpretation of essential requirements in general, NTRAC has written a Handbook on CTRs (copy of it can be obtained from NTRAC). This is a living document, subject to additions and slight modifications, as time passes by and experience with 91/263 Directive grows.

However, its content as for interpretation of essential requirements is rather stable and has also been almost completely accepted by the Commission of EC (ref. ACTE Bis (92) 22, 23, 24, 26 which may be obtained from the CEC-DG XIII).

Therefore, PT CV should use the relevant parts of the Handbook as a basis for interpreting essential requirements and in particular attention is drawn to the following:

- safety requirements/tests should be excluded, since they are covered by 72/23/EEC Directive regime;
- general EMC requirements/tests should be excluded, since they are covered by 89/336/EEC Directive regime;
- requirements/tests relevant to article 4e and 4g (in general, requirements beyond interworking with the network-4f) are not applicable to ETS 300 001 [1] and therefore should be excluded;
- requirements/tests to avoid either mechanical or electrical damage or corruption of charging should be included;
- requirements/tests to avoid "harm to the terminal" should be classified as "not essential".

Since PT CV purpose is just a study, there is no request to PT CV to directly make any amendment to ETS 300 001 [1] but PT CV should classify each ETS 300 001 [1] paragraph (or sub-paragraph or until the maximum possible level of detail) highlighting those requirements/tests which are considered "non essential", as suggested under the following item d).

- c) However, the Handbook of CTRs has been written for general applications and is not very detailed as to the interpretation of e.g. harm to the network in case of PSTN access. Therefore the following additional, pragmatic criteria of interpretation are provided:
- particular attention shall be paid to requirements/tests specified by very few countries. PT CV should highlight those cases which, it thinks, could be overcome by technological developments in the terminals and networks at a reasonable cost;
 - when a certain characteristic is "ancillary" to another one, the latter being well guaranteed by scrupulous testing, the adoption of the same level of "fussiness" for ancillary characteristic shall be classified as "not essential";
 - useless repetitions and redundancies shall be identified to be deleted (e.g. is it essential to repeat all the tests at both polarities?).
- d) PT CV output should be summarised in a table. In annex 1 to this document, a possible form for this table which satisfies NTRAC needs is suggested. Please note that additional information is contained herein as for the classification for the type of comments expected.

For reasons related to the future usage of ETS 300 001/NET 4 as a basis for mutual recognition of test results, we would very much appreciate if you could clearly identify, in that table, access requirements which are only essential in the case of equipment capable of supporting voice-telephony.

3 Conclusions

It is important that PT CV members do not waste their energies in philosophical discussions but concentrate on ETS 300 001 [1] study in a systematic way.

For additional information, a list of contact people is enclosed as annex 2.

Eventually, it goes without saying that NTRAC should like to receive the output from PT CV in due time.

Extract (Para. 7) from Document FSG (92) 4

7 Guidance for PT CV

Mr. Lawrence indicated that Doc.3 (PT CV terms of reference) had been available for some time and was reproduced again for the convenience of FSG 4.

Doc 5 contains the Guideline document from NTRAC to PT CV.

FSG expressed the view that the first bullet point of item c of the Interpretation of Essential Requirements is beyond the scope of PT CV.

Prof. Schnurr expressed concern that with the resources available to PT CV members would be unable to make competent judgements because of absence of adequate information. There would be insufficient time to perform the necessary research.

The FSG agreed that the PT should be charged with undertaking a rapid review of ETS 300 001 [1], covering every clause (including national specific requirements) to a level of detail depending upon time available, assigning as "doubtful" any requirements which are not obviously Essential or Not Essential. Prolonged debate should be avoided. It had to be accepted that after the initial review there could be a large number of "doubtful" clauses. This would not cause difficulties if the PT gives an adequate description of the problem which will enable ETSI and TRAC to investigate the Issues.

Results may be grouped in the report if it is beneficial and does not obscure the information.

Extract from letter from CEC: Jenkinson/Brenton, 30 November 1992

- 6 The new directive does not address the question of what happens in case there are no harmonised standards available at European level for a particular terminal after 6 November 1992 against which conformity to essential requirements can be assessed. As the European Court of Justice recognised in the so-called *Cassis de Dijon*-case⁽³⁾ obstacles to the free movement of goods within the community resulting from disparities between national laws must in the absence of harmonised standards be accepted, but only in so far as such requirements can be recognised as being necessary to satisfy mandatory requirements. It follows that if there are no harmonised standards available for a particular terminal after the new directive comes into force, Member States may to some extent rely on national requirements when approving that terminal. However, such national requirements would have to comply with Community law, in particular Article 30 of the EEC treaty.
- 7 The Court in its interpretation of Article 30 in the *Cassis de Dijon*-case also articulated the basic principle of mutual recognition according to which any product imported from another Member State in principle must be admitted to the territory of another Member State if it has been lawfully produced and marketed in the territory of another Member State. Thus, if national requirements present an obstacle to the importation or exportation of terminal equipment, which has been lawfully produced and marketed in another Member State, such national requirements will only be compatible with Article 30 or Article 34 if they can be recognised as necessary in order to satisfy essential requirements. The directive has defined essential requirements in terms of terminal equipment in Article 4 and Member States are not free to add to this list.
- 8 It is for the national authorities of the Member States to prove that their national rules are necessary to give effective protection to the interests referred to in Article 36 or the mandatory requirements set out in the *Cassis de Dijon*-case. Furthermore national requirements are only justified if they are no more restrictive than is strictly necessary⁽⁴⁾ and they must apply these requirements without discrimination to both domestic and imported products⁽⁵⁾.

(3) *Rewe Zentrale v Bundesmonopols B Verwaltung für Branntwein*, ECR 1970, pag. 649.

(4) *Commission v Belgium*, Case 155/82, ECR 1983, pag. 531.

(5) *Commission v Ireland*, Case 113/80, ECR 1981, pag. 1625.

Annex C (informative): Findings: Chapter 2

No	Clause	Comment?
201	2 DC characteristics	Title

No	Clause	Essential?	91/263	Comment?
202	2.1 Polarity	Yes	4f	Yes

ETS 300 001 text:

2.1 Polarity

All requirements in this document shall be met independently of the polarity of the dc voltage applied to the line terminals of the Terminal Equipment Under Test (TEUT) which are intended for connection to the PSTN. In addition, for series-connected TE, the additional terminals intended for connection to other TE shall not of themselves extend to, nor require from that other TE any polarity-dependent requirements.

Compliance shall be checked using the tests outlined in section A.2.1.

Purpose

To allow the terminal to work in both polarities.

Reasons for essentiality

For: a / b wires are not identified in the plug and are subject to change;
 some networks alter the polarity during the establishment of a call.

Against: not all networks alter polarity during a call;
 some supplementary services may be polarity dependant.

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement.
2.1 (IRL) 1, 2.1 (NL) 1, 2.1 (N) 1

Additional requirement (essential for access).
 None.

Additional requirement (not essential for access).
 "W-wire requirement" **2.1 (D) 1**

PT comments

The requirement should not apply when associated with the provision of certain supplementary services.

The German peculiarity does not seem essential, since it applies to particular installation rules.

No	Clause	Essential?	91/263	Comment?
203	2.2 Insulation resistance	Yes	?	Yes

ETS 300 001 text:

It is a requirement in this section that TEUT shall not be modified in any way.

Purpose

To prevent specially modified terminals from being presented for approval.

Reasons for essentiality

For: equipment tested for approval needs to be similar to the production version and not a specially prepared test model;
insulation is specially important for safety reasons.

Against: some tests may be difficult to perform on an unmodified terminal;
safety is outside the scope of this ETS.

Number of countries

No requirements table.

National peculiarities

No additional requirement.

None.

Additional requirement (essential for access).

None.

Additional requirement (not essential for access).

None.

PT comments

It is not clear why this requirement is restricted to Chapter 2. It is important that the product tested is the same as the product approved. This should apply to all requirements. Insulation cannot be considered special except for safety reasons which are outside the scope of the ETS.

No	Clause	Comment	Comment
204	2.2.1 TE in quiescent condition	Introductory text	Yes

ETS 300 001 text:

The requirements of this section shall be met when the TEUT is in the quiescent condition and after the TEUT has had each test voltage, up to the declared value of $V_{tmax.}$ applied for a time sufficient to allow transient effects arising from the application of that test voltage to be absent.

Purpose

Introduction to following clauses.

National peculiarities

No additional requirement.

2.2.1 (A) 1, 2.2.1 (B) 1, 2.2.1 (DK) 1, 2.2.1 (F) 2, 2.2.1 (D) 1, 2.2.1 (D) 2, 2.2.1 (NL) 1, 2.2.1 (NL) 1.1, 2.2.1 (S) 1, 2.2.1 (CH) 1, 2.2.1 (GB) 1, 2.2.1 (GB) 2, 2.2.1 (GB) 3.

Additional requirement (essential for access).

None.

Additional requirement (not essential for access).

"Testing state requirement" 2.2.1 (F) 1,

"A.C. impedance" 2.2.1 (NL) 1.2, 2.2.1 (NL) 1.3, 2.2.1 (NL) 1.4.

PT comments

Although the common text only contains an introduction describing details of the test, the associated table contains requirements belonging to the following subclauses. This has generated national comments which the PT has dealt with under the appropriate subclauses.

No	Clause	Essential?	91/263	Comment?
205	2.2.1.1 Line terminal to line terminal	Yes	4d/4f	

ETS 300 001 text:

The insulation resistance between the two line terminals intended for connection to the PSTN shall not be less than the value R_1 given in table 2.2.1.

Compliance shall be checked using the tests outlined in section A.2.2.1.1.

Purpose

To prevent incorrect line fault reports.
 To prevent false seizure by incorrect detection of loop condition.

Reasons for essentiality

For: incorrect line fault reports can result in service degradation by the line being put out of service, causing loss of revenue and nuisance;
 incorrect fault reports can result in expense to the network operator caused by unnecessary repair effort;
 false seizure represents an error in basic call control and can result in loss of revenue and nuisance to other callers finding the line busy.

Against: modern systems can detect the side of the of the subscriber's termination on which the fault lies;
 loss of revenue is not classified as network harm.

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement.

2.2.1.1 (SF) 1, 2.2.1.1 (E) 1

Additional requirement (essential for access).
 None.

Additional requirement (not essential for access).
 None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
206	2.2.1.2 Line terminals to signal earth	Yes	4d/4f	

ETS 300 001 text:

For TE with signal earth terminals, the resistance between the line terminals when shorted together and any signal earth terminals shall not be less than the value R_2 given in table 2.2.1.

Compliance shall be checked using the tests outlined in section A.2.2.1.2.

Purpose

To prevent incorrect fault reports.
 To prevent false detection of loop condition by some exchanges.

Reasons for essentiality

For: to prevent incorrect fault reports;
many exchanges detect an earth current as a loop condition;
a means to control balance about earth.

Against: exchanges which detect earth calling are outside scope;
balance is tested under another requirement.

Number of countries

Mandatory 19, Blank 1, Non-Mandatory 2.

National peculiarities

No additional requirement.

2.2.1.2 (E) 1, 2.2.1.2 (GB) 1.

Additional requirement (essential for access).

None.

Additional requirement (not essential for access).

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
207	2.2.1.3 Line terminals to user accessible parts	No	4a	

ETS 300 001 text:

The insulation resistance between the two line terminals when shorted together and all user accessible parts of the TE, other than earth or signal earth terminals, shall not be less than the value R_3 given in table 2.2.1.

Compliance shall be checked using the tests outlined in section A.2.2.1.3.

Purpose

To control the insulation resistance between the line and the user.

Reasons for essentiality

For: a means to control balance about earth.

Against: it is a safety requirement and outside scope of this ETS;
balance about earth is covered by other tests;
not mandatory in six countries.

Number of countries

Mandatory 13, Blank 1, not mandatory 6.

National peculiarities

No additional requirement.

2.2.1.3 (E) 1.

Additional requirement (essential for access).

None.

Additional requirement (not essential for access).

None.

PT comments

None.

No	Clause	Comment?
208	2.2.2 TE in loop condition	Introductory text

ETS 300 001 text:

The requirements of this section shall be met after the TEUT has been placed in a loop condition and after the TEUT has had each test voltage up to the declared value of V_{tmax} applied for a time sufficient to allow transient effects arising from the application of that test voltage to be absent.

Purpose

Introduction to following Clauses.

No	Clause	Essential?	91/263	Comment?
209	2.2.2.1 Line terminals to signal earth	Yes	4d	

ETS 300 001 text:

For TE with signal earth terminals, the resistance between each of the line terminals and the signal earth terminals shall not be less than the value of R_4 , given in table 2.2.2.

Compliance shall be checked using the tests outlined in section A.2.2.2.1.

Purpose

To prevent a current leakage path from line to earth.

Reasons for essentiality

For: to prevent an earth path from bypassing the loop current;
a means to control balance about earth.

Against: balance is controlled under another requirement.

Number of countries

Mandatory 11, Blank 1, not mandatory 8.

National peculiarities

No additional requirement.

2.2.2.1 (E) 1, 2.2.2.1 (GB) 1.

Additional requirement (essential for access).

None.

Additional requirement (not essential for access).

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
210	2.2.2.2 Line terminals to user accessible parts	No	4a	

ETS 300 001 text:

The insulation resistance between each of the line terminals and all user accessible parts of the TE other than any earth terminals shall not be less than the value of R_5 , given in table 2.2.2.

Compliance shall be checked using the tests outlined in section A.2.2.2.2.

Purpose

To control the insulation resistance between the line and the user.

Reasons for essentiality

For: to protect users from electrical harm;
a means to control balance about earth.

Against: it is a safety requirement and outside scope of this standard;
balance about earth is covered by other tests;
not mandatory in nine countries.

Number of countries

Mandatory 10, Blank 1, not mandatory 9.

National peculiarities

No additional requirement.

2.2.2.2 (E) 1, 2.2.2.2 (GB) 1.

Additional requirement (essential for access).

None.

Additional requirement (not essential for access).

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
211a	2.3 DC current and loop resistance (Upper limit)	Yes	4f	Yes

ETS 300 001 text:

The TE, when placed in the loop condition, shall comply with the requirements specified by the relevant Administration. The detailed requirements for each country, including dc masks where applicable, are specified in the sections referred to in table 2.3.

Compliance shall be checked using the tests outlined in section A.2.3. A summary of the loop resistance and current is given in table 2.3.

Purpose

To ensure that the network can detect line seizure, and to hold the line during the call.

Reasons for essentiality

For: to ensure correct interworking with the network to establish a connection;
to ensure correct interworking with the network to hold the line.

Against: ?

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement.

2.3 (A) 1, 2.3 (B) 1, 2.3 (CY) 1, 2.3 (DK) 1, 2.3 (DK) 2, 2.3 (D) 1, 2.3 (GR) 1, 2.3 (IRL) 1, 2.3 (I) 1, 2.3 (NL) 1, 2.3 (NL) 2, 2.3 (N) 1, 2.3 (P) 1, 2.3 (E) 1, 2.3 (S) 1, 2.3 (CH) 1, 2.3 (GB) 1.

Additional requirement (essential for access)

"The DC loop current is limited in the terminal equipment (60mA)" **2.3 (F) 1.**

"After the change from quiescent to the loop condition, a TE shall comply with a different mask during a given time" **2.3 (NL) 2, 2.3 (NL) 3.**

Additional requirement (not essential for access)

"TE with call barring function shall have a high impedance for the reverse polarity" **2.3 (N) 2,**

"Loop resistance for a TE in high impedance" **2.3 (E) 2.**

PT comments

It is not clear whether the range of currents given in table 2.3 implies a current limiting requirement in the terminal.

No	Clause	Essential?	91/263	Comment?
211b	2.3 DC current and loop resistance (Lower limit)	No	4gv	Yes

ETS 300 001 text:

The TE, when placed in the loop condition, shall comply with the requirements specified by the relevant Administration. The detailed requirements for each country, including dc masks where applicable, are specified in the sections referred to in table 2.3.

Compliance shall be checked using the tests outlined in section A.2.3. A summary of the loop resistance and current is given in table 2.3.

Purpose

To ensure power sharing for parallel operation of telephones for transfer.

Reasons for essentiality

For: to ensure power sharing for parallel operation of telephones;
 provides a useful user facility;
 controls automatic loudness regulation in the network.

Against: only required for end to end working;
 only required for telephone terminals so outside scope of this ETS.

Number of countries

Mandatory 6, Blank 1, not mandatory 13.

National peculiarities

No additional requirement
 None.

Additional requirement (essential for access)
 None.

Additional requirement (not essential for access)
 None.

PT comments

This requirement should be in the telephone terminal standard

No	Clause	Comment?
212	2.4 Transient response of loop current	Title

No	Clause	Essential?	91/263	Comment?
213	2.4.1 Quiescent to loop state	?	4f/4g	Yes

ETS 300 001 text:

When the TE is caused to change from a quiescent state to a "loop" state, the accompanying change in loop current should be such that the current measured t_c ms after the commencement of the change is within the specified deviation (d) from the steady-state value.

Compliance shall be checked using the tests outlined in section A.2.4.1.

Purpose

To cause the terminal to reach a stable state within a certain period.

Reasons for essentiality

For: to limit the time required to seize the line after going "off-hook";
 to ensure that the correct value of automatic loop loss compensation is applied.

Against: seven countries classify this requirement as non-mandatory;
 loop loss compensation is a matter of end to end working;
 the time required to seize the line is a quality matter which does not affect the network.

Number of countries

Mandatory 11, Blank 1, not mandatory 7, Under study 1.

National peculiarities

No additional requirement

2.4.1 (D) 1, 2.4.1 (I) 1, 2.4.1 (N) 1, 2.4.1 (P) 1, 2.4.1 (P) 2, 2.4.1 (E) 1, 2.4.1 (E) 1, 2.4.1 (CH) 1.

Additional requirement (essential for access)

"Particular Voltage/current loop characteristics shall be apply to seize the line during ringing signal pulses".
 Essential only in France.

2.4.1 (F) 1, 2.4.1 (F) 1.1, 2.4.1 (F) 1.2, 2.4.1 (F) 2, 2.4.1 (F) 3, 2.4.1 (F) 4.

Additional requirement (not essential for access)

"The requirement shall apply as well for the reverse edge (loop to quiescent state)".

2.4.1 (CH) 2.

PT comments

The requirement for the current to be within a specified figure of the final current is a quality function, but some exchanges in some countries require special conditions for line seizure. Some types of exchange used in some countries require the current to settle within a certain time after seizure is detected for the automatic compensation of loop loss necessary for satisfactory end-to-end working. A similar, but differently defined requirement could, therefore, be considered essential for some countries.

No	Clause	Essential?	91/263	Comment?
214	2.4.2 Loop current transfer	No	4f	Yes

ETS 300 001 text:

For TE capable of transferring its loop condition to or from another TE, or capable of transferring its loop condition to or from another circuit in the same TE. The value of the loop current shall reach a value of not less than I_t no later than t_t after the commencement of the transfer.

This requirement does not apply in those cases when loop transfer is effected during the period in which the TE has assumed any state relating to "loop disconnect" or any dialling or signalling function.

The values of I_t and t_t are given in table 2.4.2.

Compliance shall be checked using the tests outlined in section A.2.4.2.

Purpose

To limit the duration of interruption of loop current.

Reasons for essentiality

For: to prevent false detection of release signal;
 to prevent false impulse detection.

Against: the time to reach a certain current is not important. What matters is the period below a certain threshold.

Number of countries

Mandatory 16, Blank 1, not mandatory 3.

National peculiarities

No additional requirement.

2.4.2 (A) 1, 2.4.2 (N) 1, 2.4.2 (E) 1, 2.4.2 (E) 2, 2.4.2 (E) 3, 2.4.2 (S) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

Although the requirement as written can be considered too onerous to be essential, a similar but simpler requirement that prevents false impulsing or loop disconnection is in fact essential to protect interworking with the network.

No	Clause	Essential?	91/263	Comment?
215	2.5 Series resistance	Yes	4f	Yes

ETS 300 001 text:

Series-connected TE shall not, when connected in series with the PSTN and other TE, introduce additional loop resistance greater than R_s , nor cause a voltage drop greater than V_s to be interposed between the PSTN and the other TE to which it is connected. The values of R_s and V_s are given in table 2.5.

Compliance shall be checked using the tests outlined in section A.2.5.

Purpose

To limit additional loop resistance or voltage drop introduced by series connected apparatus.

Reasons for essentiality

For: to ensure the correct basic call control function of line seizure.

Against: ?

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement

2.5 (A) 1, 2.5 (A) 2, 2.5 (B) 1, 2.5 (DK) 1, 2.5 (D) 1, 2.5 (IRL) 1, 2.5 (N) 1, 2.5 (E) 1, 2.5 (CH) 1.

Additional requirement (essential for access)

" A Voltage/current non linear characteristic (V/I mask) shall apply instead voltage drop or series resistance" **2.5 (F) 1, 2.5 (GB) 1.**

"In case of association of several series TE, a value of SEN shall be apply in determining permissible number of series TE" **2.5 (GB) 1.**

Additional requirement (not essential for access)

None.

PT comments

Connection rules to determine the number of series connected equipment's permitted and the resistance of local installations are also an essential adjunct to this requirement.

No	Clause	Essential?	91/263	Comment?
216	2.6 DC overload susceptibility	No	4a	

ETS 300 001 text:

TE in loop condition shall withstand the application of a dc feeding voltage of increased value V_f via a series resistor of reduced value R_f or a current I_o for a given time t_o .

For series-connected TE, this requirement shall be met with a load impedance of value R_{Lo} connected.

TE shall still comply with all requirements in this document. Values are given in table 2.6.

Compliance shall be checked using the tests outlined in section A.2.6.

Purpose

To protect the terminal against network faults

Reasons for essentiality

For: to protect the terminal from being damaged by network faults;
to protect the user against hazards arising from a damaged terminal (e.g. fire).

Against: terminal protection is a quality matter and is outside the scope of the ETS;
user protection is outside the scope of the ETS;
there is not enough energy available for a fire hazard;
normal testing give sufficient protection and so the requirement is duplication of testing;
not mandatory in eight countries.

Number of countries

Mandatory 11, Blank1, not mandatory 8.

National peculiarities

No additional requirement.

2.6 (CY) 1, 2.6 (DK) 1, 2.6 (NL) 1, 2.6 (N) 1, 2.6 (E) 1, 2.6 (E) 2, 2.6 (CH) 1, 2.6 (GB) 1.

Additional requirement (essential for access).

None.

Additional requirement (not essential for access).

None.

PT comments

None.

Annex D (informative): Findings: Chapter 3

No	Clause	Comment?
301	3 Ringing signal characteristics	Title

No	Clause	Comment?
302	3.1 Input voltage-current characteristics	Introductory text

ETS 300 001 text:

The TE shall be placed in the quiescent condition with its ringing detector (if provided) able to function. The ac voltage-current characteristics of the equipment, when measured at the line terminals shall be determined over a frequency range of from f_1 to f_2 , over an ac voltage range from V_{t1} to V_{t2} .

The co-ordinates of the requirement limit for each of the requirements 3.1.1, 3.1.2. and 3.1.3 and their related frequency ranges are shown in tables 3.1.1, 3.1.2 and 3.1.3.

Purpose

Introduction to following clauses.

National peculiarities

No additional requirement.

3.1 (GB) 1, 3.1 (GB) 4.

Additional requirement (essential for access)

"Requirement on the capacitance in series with the ringing detector" 3.1 (GB) 2.

"Limitation of the ringing load for TE with an automatic answering function " 3.1 (GB) 3.

Additional requirement (not essential for access).

No	Clause	Essential?	91/263	Comment?
303	3.1.1 Ringing detectors producing electrical signals	?	4f	Yes

ETS 300 001 text:

For TE with ringing signal detection circuitry which generates electrical signals which indicate the presence of ringing signal, the location of any voltage-current point determined at any frequency of measurement shall lie below the limit shown in figure 3.1. Requirement values are shown in table 3.1.1.

Compliance shall be checked using the tests outlined in section A.3.1.1.

Purpose

To provide a sufficient voltage for operation of ringers in parallel TEs.

Reasons for essentiality

For:

- to prevent false ring trip;
- necessary to allow more than one terminal to operate on the same line;
- to allow a reasonable sharing of available ringing power;
- to give maximum power transfer.

Against:

- redundant as covered by subclause 3.1.2;
- the requirement as specified is unduly restrictive and installation dependant and some aspects may therefore not be essential;
- the requirement as specified assumes a certain installation practice.

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement.

3.1.1 (DK) 1, 3.1.1 (F) 1, 3.1.1 (IRL) 1, 3.1.1 (I) 1, 3.1.1 (P) 1, 3.1.1 (P) 1, 3.1.1 (E) 1, 3.1.1 (S) 2, 3.1.1 (CH) 1, 3.1.1 (GB) 1.

Additional requirement (essential for access)

"Requirement on the capacitance in series with the ringing detector".

3.1.1 (A) 1, 3.1.1 (B) 1, 3.1.1 (F), 3.1.1 (D) 1, 2, 3.1.1 (GR) 1, 3.1.1 (NL) 1, 3.1.1 (N) 1.

Additional requirement (not essential for access).

PT comments

See Item 304 below.

No	Clause	Essential?	91/263	Comment?
304	3.1.2 Ringing detectors producing discernible signals	Yes	4f	Yes

ETS 300 001 text:

For TE with ringers or with ring detection circuitry which produces directly a discernible signal (e.g. acoustical or visual signal) to indicate the presence of ringing signal, the location of any voltage-current point determined at any frequency of measurement shall lie below the limit shown in figure 3.1. Requirement values are shown in table 3.1.2.

Compliance shall be checked using the tests outlined in section A.3.1.2.

Purpose

To provide a sufficient voltage for operation of ringers in parallel TEs.

Reasons for essentiality

For: to prevent false ring trip;
necessary to allow more than one terminal to operate on the same line;
to allow a reasonable sharing of available ringing power;
to give maximum power transfer.

Against: the requirement as specified is unduly restrictive and installation dependant and some aspects may therefore not be essential;
the requirement as specified assumes a certain installation practice.

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement.

3.1.2 (A) 1, 3.1.2 (DK) 1, 3.1.2 (DK) 2, 3.1.2 (F) 1, 3.1.2 (IRL) 1, 3.1.2 (I) 1, 3.1.2 (P) 1, 3.1.2 (P) 2, 3.1.2 (E) 1, 3.1.2 (S) 1, 3.1.2 (S) 2, 3.1.2 (CH) 1, 3.1.2 (GB) 1.

Additional requirement (essential for access)

"Requirement on the capacitance in series with the ringing detector".

3.1.2 (A) 2, 3.1.2 (B) 2, 3.1.2 (F) 2, 3.1.2 (D) 1, 3.1.2 (GR) 1, 3.1.2 (NL) 1, 3.1.2 (N) 1.

Additional requirement (not essential for access).

PT comments

There are no differing network effects to justify treating different types of ringers or even the absence of a ringer, in a separate requirement, and such treatment complicates the testing. There may be justification for the convenience of the user to recognise differing classes of loading, which may or may not imply differing terminal realisations. If any requirements are specific to the type of output of the ringing detector, it should be specified in the appropriate terminal standard.

It is recommended that subclauses 3.1.1, 3.1.2 and 3.1.3 should be merged to avoid redundant requirements.

This requirement is affected by installation rules and practices.

No	Clause	Essential?	91/263	Comment?
305	3.1.3 TE without ringing signal detection facilities	?	4f	Yes

ETS 300 001 text:

The location of any voltage-current point determined at any frequency of measurement shall lie below the limit shown in figure 3.1. Requirement values are shown in table 3.1.3.

Compliance shall be checked using the tests outlined in section A.3.1.3.

Purpose

To provide a sufficient voltage for operation of ringers in parallel TEs.

Reasons for essentiality

- For:
- to prevent false ring trip;
 - necessary to allow more than one terminal to operate on the same line;
 - to allow a reasonable sharing of available ringing power;
 - to give maximum power transfer.
- Against:
- redundant as covered by subclause 3.1.2;
 - the requirement as specified is unduly restrictive and installation dependant and some aspects may therefore not be essential;
 - the requirement as specified assumes a certain installation practice.

Number of countries

Mandatory 17, Blank 1 not mandatory 2.

National peculiarities

No additional requirement.

3.1.3 (DK) 1, 3.1.3 (P) 1, 3.1.3 (E) 1, 3.1.3 (S) 1, 3.1.3 (S) 2, 3.1.3 (CH) 1, 3.1.3 (GB) 1.

Additional requirement (essential for access)

"Requirement on the capacitance in series with the ringing detector".

3.1.2 (A) 2, 3.1.3 (GR) 1, 3.1.3 (IRL) 1, 3.1.3 (NL) 1, 3.1.3 (N) 1.

Additional requirement (not essential for access)

PT comments

See Item 304 above.

No	Clause	Essential?	91/263	Comment?
306	3.2 Overload susceptibility	No	4a	Yes

ETS 300 001 text:

The TEUT shall be capable of withstanding a simultaneous continuous application at its line terminals of a dc feeding voltage V_f and ringing excitation "e" via a series-connected resistor R_f during a period in which the equipment is initially in a quiescent condition, is then caused to assume a loop condition, and is subsequently maintained in that loop condition as shown in figure 3.2.

This requirement shall be met at a number of ringing excitation frequencies, f_n , with a ringing cadence t_{on}/t_{off} .

Following these tests, the TEUT shall comply with all other requirements in this document.

Requirement parameter values are shown in table 3.2.

Compliance shall be checked using the test outlined in section A.3.2.

Purpose

To protect the terminal against network faults.

Reasons for essentiality

For: to protect the terminal from being damaged by network faults;
to protect the user against hazards arising from a damaged terminal (e.g. fire).

Against: terminal protection is a quality matter and is outside the scope of the ETS;
user protection is outside the scope of the ETS;
there is not enough energy available for a fire hazard;
normal testing give sufficient protection and so the requirement is duplication of testing;
not mandatory in nine countries.

Number of countries

Mandatory 10, Blank 1, not mandatory 9.

National peculiarities

No additional requirement.

3.2 (DK) 1, 3.2 (D) 1, 3.2 (E) 1, 3.2 (E) 2, 3.2 (CH) 1, 3.2 (CH) 2, 3.2 (CH) 3.

Additional requirement (essential for access).

Additional requirement (not essential for access).

PT comments

Such a requirement may be proper to a procurement specification but not to an access standard.

Annex E (informative): Findings: Chapter 4

No	Clause	Comment?
401	4 Transmission characteristics	Title

No	Clause	Comment?
402	4.1 Input impedance	Title

No	Clause	Essential?	91/263	Comment?
403a	4.1.1 Input impedance of TE in quiescent condition (200Hz-2000Hz -Z1)	Yes	4d/4f	Yes

ETS 300 001 text:

The value of modulus of the input impedance between the line terminals shall exceed the values shown in table 4.1.1.a for ac rms voltages of either up to V_{t1} or up to V_{t2} at dc voltages of up to V_f (see figure A.4.1.1). The values of V_{t1} or V_{t2} and V_f are shown in table 4.1.1.b.
The requirement shall be met for each sense of dc polarity.
Compliance shall be checked using the tests outlined in section A.4.1.1

Purpose

To maintain the input impedance to an acceptably high value.

Reasons for essentiality

For: to avoid harm to the local network installation caused by effects of parallel apparatus which may shunt the impedance, reduce transmission performance, and affect the meter performance;
To prevent apparatus from degrading the dialling of other apparatus.

Against: None.

Number of countries

Mandatory 17, Blank 2, not mandatory 1.

National peculiarities

No additional requirement

4.1.1 (A) 1, 4.1.1 (DK) 1, 4.1.1 (SF) 1, 4.1.1 (F) 1, 4.1.1 (I) 1, 4.1.1 (NL) 1, 4.1.1 (P) 1, 4.1.1 (E) 1, 4.1.1 (S) 1, 4.1.1 (S) 2, 4.1.1 (CH) 1, 4.1.1 (GB) 2, 4.1.1 (GB) 3.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

4.1.1 (GB) 1.

PT comments

This requirement is affected by installation practices. It seems difficult to justify a separate requirement for Z2 (see 403b), which is only required by three countries.

No	Clause	Essential?	91/263	Comment?
403b	4.1.1 Input impedance of TE in quiescent condition (2 000Hz - 40 00Hz Z2)	Yes	4f	Yes

ETS 300 001 text:

The value of modulus of the input impedance between the line terminals shall exceed the values shown in table 4.1.1.a for ac rms voltages of either up to V_{t1} or up to V_{t2} at dc voltages of up to V_f (see figure A.4.1.1). The values of V_{t1} or V_{t2} and V_f are shown in table 4.1.1.b.
 The requirement shall be met for each sense of dc polarity.
 Compliance shall be checked using the tests outlined in section A.4.1.1

Purpose

As for 403a above.

Reasons for essentiality

As for 403a above.

Number of countries

Mandatory 17, Blank 2, not mandatory 1.

National peculiarities

No additional requirement.
 (See item 403a above).

Additional requirement (essential for access)

See item 403a above.

Additional requirement (not essential for access)

See item 403a above

PT comments

Should be merged with Z1 requirement above to avoid redundant requirements.

No	Clause	Essential?	91/263	Comment?
403c	4.1.1 Input impedance of TE in quiescent condition (4 000Hz-10 000Hz Z3)	No	?	

ETS 300 001 text:

The value of modulus of the input impedance between the line terminals shall exceed the values shown in table 4.1.1.a for ac rms voltages of either up to V_{t1} or up to V_{t2} at dc voltages of up to V_f (see figure A.4.1.1). The values of V_{t1} or V_{t2} and V_f are shown in table 4.1.1.b.
 The requirement shall be met for each sense of dc polarity.
 Compliance shall be checked using the tests outlined in section A.4.1.1

Purpose

Not clear.

Reasons for essentiality.

For: none apparent.

Against: signals in this band are not permitted and so any shunt effect should be beneficial.

Number of countries

Mandatory 8, Blank 5, not mandatory 7.

National peculiarities

No additional requirement
 (See item 403a above).

Additional requirement (essential for access)
 See item 403a above.

Additional requirement (not essential for access)
 See item 403a above.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
403d	4.1.1 Input impedance of TE in quiescent condition (10 000Hz-18 000Hz Z4)	Yes	4d	

ETS 300 001 text:

The value of modulus of the input impedance between the line terminals shall exceed the values shown in table 4.1.1.a for ac rms voltages of either up to V_{t1} or up to V_{t2} at dc voltages of up to V_f (see figure A.4.1.1). The values of V_{t1} or V_{t2} and V_f are shown in table 4.1.1.b.
 The requirement shall be met for each sense of dc polarity.
 Compliance shall be checked using the tests outlined in section A.4.1.1

Purpose

To prevent shunting of any high frequency meters connected in parallel.

Reasons for essentiality

For: to avoid misoperation of call charging.

Against: not required in those four countries that do not use such metering.

Number of countries

Mandatory 8, Blank 5, not mandatory 7.

National peculiarities

No additional requirement.
 See item 403a above.

Additional requirement (essential for access)
 See item 403a above.

Additional requirement (not essential for access)
 See item 403a above

PT comments

None.

No	Clause	Essential?	91/263	Comment?
404	4.1.2 Input impedance of TE in loop condition	Yes?	4d/4gv	Yes

ETS 300 001 text:

The input impedance between the TE line terminals shall, in the frequency range D_f , and in the current range D_{I_f} have a return loss, in relation to the reference impedance(s) Z_r , which is not less than a dB at a voltage V_{t1} or a voltage V_{t2} (see figure A.4.1.2) in accordance with table 4.1.2.

The return loss of the input impedance Z_i in relation to the reference impedance is

$$a = 20 \times \log_{10} \left| \frac{Z_i + Z_r}{Z_i - Z_r} \right| (dB) \quad \text{Formula 4.1.2}$$

where both impedances, in principle, are complex values.

Compliance shall be checked using the tests outlined in section A.4.1.2.

Purpose

To limit range of terminal impedance so as to control echo and stability.

Reasons for essentiality

For: mismatch caused by incorrect impedance generates echo;
 echo degrades end to end transmission performance;
 echo together with delay can cause network instability;
 new transmission techniques (ATM) will make the instability problem worse.

Against: echo is an end to end interworking/quality problem;
 CCITT recommendations call for the network to be stable with all terminations.

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement

4.1.2 (B) 1, 4.1.2 (DK) 1, 4.1.2 (DK) 2, 4.1.2 (F) 1, 4.1.2 (F) 2, 4.1.2 (F) 3, 4.1.2 (F) 4, 4.1.2 (D) 1, 4.1.2 (GR) 1, 4.1.2 (IRL) 1, 4.1.2 (NL) 1, 4.1.2 (N) 1, 4.1.2 (N) 2, 4.1.2 (N) 3, 4.1.2 (N) 4, 4.1.2 (N) 5, 4.1.2 (P) 1, 4.1.2 (P) 2, 4.1.2 (P) 3, 4.1.2 (E) 1, 4.1.2 (S) 1, 4.1.2 (S) 2, 4.1.2 (S) 3, 4.1.2 (CH) 1, 4.1.2 (GB) 1, 4.1.2 (GB) 2.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

4.1.2 (E) 2, 4.1.2 (GB) 3.

PT comments

Prevention of instability is essential for both speech and data calls, but reduction of echo is only essential for the reserved service of telephony. It is recommended that the requirements should be reviewed to widen the tolerances so as to control only stability. Special requirements for telephony should be in the relevant terminal standard.

No	Clause	Comment?
405	4.2 Degree of unbalance about earth	Introductory text

ETS 300 001 text:

The requirements in this section shall be met by one-port TE and by certain series-connected TE at dc excitation conditions DV_f , DR_f and DI_f , if required, which are specified in tables 4.2.1.1, 4.2.1.2, 4.2.2.1, 4.2.2.2.a, 4.2.2.2.b.

These requirements are set out in both quiescent and loop conditions.

Purpose

Introduction to following clauses.

National peculiarities

No additional requirement

None.

Additional requirement (essential for access)

"Signal balance about earth" **4.2 (GB) 1.**

It is assumed an Output Signal Balance loss (OSB), according the test requirement A4.2 (GB) 2.

Additional requirement (not essential for access)

None.

No	Clause	Comment?
406	4.2.1 Longitudinal conversion loss of a one-port TE	Title

No	Clause	Essential?	91/263	Comment?
407	4.2.1.1 Quiescent condition	Yes	4d/4gv	

ETS 300 001 text:

The longitudinal conversion loss of TE in the quiescent condition shall be greater than each value of a_q over its corresponding frequency range, D_f , as shown in table 4.2.1.1.

Compliance shall be checked according to the test outlined in section A.4.2.1.1 using figure A.4.2.a.

Purpose

To control the balance about earth of the terminal so as not to affect the balance of the network.

Reasons for essentiality

For: to prevent the injection of unwanted signals into other terminals in use on the installation;
 effects are cumulative where more than one terminal is connected;
 to prevent crosstalk effects.

Against: ?

Number of countries

Mandatory 17, Blank 2, not mandatory 1.

National peculiarities

No additional requirement

4.2.1.1 (B) 1, 4.2.1.1 (IRL) 1, 4.2.1.1 (E) 1, 4.2.1.1 (S) 1, 4.2.1.1 (S) 2, 4.2.1.1 (CH) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)
"Longitudinal impedance at 50 Hz, with or without meter pulse reception" **4.2.1.1 (NL) 1.**

PT comments

None.

o	Clause	Essential?	91/263	Comment?
408	4.2.1.2 Loop condition	Yes	4d/4gv	

ETS 300 001 text:

The longitudinal conversion loss of TE in the loop condition shall be greater than each value of α_l over its corresponding frequency range Δf as shown in table 4.2.1.2.

Compliance shall be checked according to the test outlined in section A.4.2.1.2 using figure A.4.2.a.

Purpose

To control the balance about earth of the terminal so as not to affect the balance of the network or avoid the detection of unwanted longitudinal signals in the network.

Reasons for essentiality

For: to prevent network harm caused by unbalance about earth;
to avoid crosstalk effects.

Against: detection of unwanted signals is a quality matter.

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement

4.2.1.2 (B) 1, 4.2.1.2 (IRL) 1, 4.2.1.2 (E) 1, 4.2.1.2 (S) 1, 4.2.1.2 (S) 2, 4.2.1.2 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"Longitudinal impedance at 50 Hz, with or without meter pulse reception" **4.2.1.2 (NL) 1.**

PT comments

None.

No	Clause	Comment?
409	4.2.2 Longitudinal conversion loss and longitudinal conversion transfer loss of a series-connected TE	Introductory text

ETS 300 001 text:

For the purpose of this section, series-connected TE is defined as equipment which is provided with one port intended to be attached to the PSTN and a second port to which TE, which itself is approved for connection to the PSTN may alternatively be connected.

Requirements in this section are to be met when this series-connected TE is in a condition such that no loop current flows (second port attached TE or termination in quiescent condition), defined as quiescent condition; and when series-connected TE is in a condition such that loop current flows (second port attached TE or termination in loop condition), defined as loop condition.

Purpose

Introduction to following clauses

No	Clause	Essential?	91/263	Comment?
410a	4.2.2.1 Quiescent condition (LCL)	Yes	4d/4gv	

ETS 300 001 text:

The longitudinal conversion loss and respectively the longitudinal conversion transfer loss of a TE in the quiescent condition shall be greater than each value of a_q over its corresponding frequency range, D_f , as shown in tables 4.2.2.1.a and 4.2.2.1.b, respectively.

Compliance shall be checked according to the test outlined in section A.4.2.2.1 using figure A.4.2.b.

Purpose

To control the balance about earth of the terminal so as not to affect the balance of the network.

Reasons for essentiality

For: to prevent the injection of unwanted signals into other terminals in use on the installation;
 effects are cumulative where more than one terminal is connected;
 to prevent crosstalk effects.

Against: ?

Number of countries

Mandatory 16, Blank 1, not mandatory 3.

National peculiarities

No additional requirement

4.2.2.1 (GR) 1, 4.2.2.1 (IRL) 1, 4.2.2.1 (E) 1, 4.2.2.1 (S) 1, 4.2.2.1 (S) 2.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"Longitudinal impedance at 50 Hz, with or without meter pulse reception" **4.2.2.1 (NL) 1.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
410b	4.2.2.1 Quiescent condition (LCTL)	No	4d/4gv	Yes

ETS 300 001 text:

The longitudinal conversion loss and respectively the longitudinal conversion transfer loss of a TE in the quiescent condition shall be greater than each value of a_q over its corresponding frequency range, D_f , as shown in tables 4.2.2.1.a and 4.2.2.1.b, respectively.

Compliance shall be checked according to the test outlined in section A.4.2.2.1 using figure A.4.2.b.

Purpose

To prevent series TE from affecting balance about earth of Terminating TE.

Reasons for essentiality

For: poor balance about earth can add noise on the line which can affect end to end telephony.

Against: the effect of the LCTL of the series equipment is negligible when the terminating TE is properly balanced;
not mandatory in 14 countries.

Number of countries

Mandatory 5, Blank 1, not mandatory 14.

National peculiarities

No additional requirement
See item 410a above.

Additional requirement (essential for access)
See item 410a above.

Additional requirement (not essential for access)
See item 410a above.

PT comments

If the TE is in accordance with the access standard, the effect is negligible.

No	Clause	Essential?	91/263	Comment?
411a	4.2.2.2 Loop condition (LCL)	Yes	4d/4gv	

ETS 300 001 text:

The longitudinal conversion loss and respectively the longitudinal conversion transfer loss of a TE in the loop condition shall be greater than each value of a_1 over its corresponding frequency range, D_f , as shown in tables 4.2.2.2.a and 4.2.2.2.b, respectively.

Compliance shall be checked according to the test outlined in section A.4.2.2.2, using figure A.4.2.b.

Purpose

To control the balance about earth of the terminal so as not to affect the balance of the network or avoid the detection of unwanted longitudinal signals in the network.

Reasons for essentiality

For: to prevent network harm caused by unbalance about earth;
to avoid crosstalk effects.

Against: detection of unwanted signals is a quality matter.

Number of countries

Mandatory 17, Blank 1, not mandatory 2.

National peculiarities

No additional requirement
4.2.2.2 (IRL) 1, 4.2.2.2 (E) 1, 4.2.2.2 (S) 1, 4.2.2.2 (S) 2, 4.2.2.2 (GB) 1.

Additional requirement (essential for access)
None.

Additional requirement (not essential for access)
"Longitudinal impedance at 50 Hz, with or without meter pulse reception" **4.2.2.2 (NL) 1.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
411b	4.2.2.2 Loop condition (LCTL)	No	4d/4g	Yes

ETS 300 001 text:

The longitudinal conversion loss and respectively the longitudinal conversion transfer loss of a TE in the loop condition shall be greater than each value of a_1 over its corresponding frequency range, D_f , as shown in tables 4.2.2.2.a and 4.2.2.2.b, respectively.

Compliance shall be checked according to the test outlined in section A.4.2.2.2, using figure A.4.2.b.

Purpose

To prevent series TE from affecting balance about earth of Terminating TE.

Reasons for essentiality

For: poor balance about earth can add noise on the line which can affect end to end telephony.

Against: the effect of the LCTL of the series equipment is negligible when the terminating TE is properly balanced;
 not mandatory in 14 countries.

Number of countries

Mandatory 5, Blank 1, not mandatory 14.

National peculiarities

No additional requirement
 See item 411a above.

Additional requirement (essential for access)
 See item 411a above.

Additional requirement (not essential for access)
 See item 411a above.

PT comments

If the TE is in accordance with the access standard, the effect is negligible.

No	Clause	Essential?	91/263	Comment?
412a	4.3 Series-connected TE insertion loss (300Hz-3 400Hz a_{1max})	Yes	4f/4gv	

ETS 300 001 text:

The series-connected TE, at those frequencies at which it is intended to be transparent to signals, shall exhibit an insertion loss for the frequency ranges D_{f_1} and D_{f_2} and between impedances Z_0 and Z_L less than the values shown in the table 4.3.b. The requirement shall be met at various dc excitation conditions, DI_f , DV_f , DR_f , which are specified in table A.4.3.b.

Compliance shall be checked using the test outlined in section A.4.3.

Purpose

To limit the transmission loss introduced by series apparatus in the speech band.

Reasons for essentiality

For: to prevent degradation of MF dialling signals;
 to prevent degradation of telephony transmission.

Against: ?

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement

4.3 (A) 1, 4.3 (SF) 1, 4.3 (D) 1, 4.3 (P) 1, 4.3 (E) 1, 4.3 (S) 1, 4.3 (S) 2, 4.3 (S) 3, 4.3 (CH) 1, 4.3 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"Requirement for insertion loss in the ringing frequency band 17 to 54 Hz" **4.3 (D) 2, 4.3 (IRL) 1.**

"Limitation of the number of series equipments associated regarding the SEN" **4.3 (GB) 2.**

"Series connected TE distortion" **4.3 (GB) 3.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
412b	4.3 Series-connected TE insertion loss (3 400Hz-18 000Hz a2max)	No	4f	

ETS 300 001 text:

The series-connected TE, at those frequencies at which it is intended to be transparent to signals, shall exhibit an insertion loss for the frequency ranges Df_1 and Df_2 and between impedances Z_0 and Z_L less than the values shown in the table 4.3.b. The requirement shall be met at various dc excitation conditions, DI_f , DV_f , DR_f , which are specified in table A.4.3.b.

Compliance shall be checked using the test outlined in section A.4.3.

Purpose

To limit the transmission loss introduced by series apparatus outside the speech band.

Reasons for essentiality

For: to avoid attenuation of subscriber's meter signals.

Against: subscriber's meters are a supplementary service;
 only affects installations with subscriber's meters.

Number of countries

Mandatory 8, Blank 2, not mandatory 10.

National peculiarities

No additional requirement

See item 412a above.

Additional requirement (essential for access)

See item 412a above.

Additional requirement (not essential for access)

See item 412a above.

PT comments

None.

No	Clause	Comment?
413	4.4 Transmission levels	Title

No	Clause	Essential?	91/263	Comment?
414	4.4.1 Maximum transmission levels	Yes	4d	

ETS 300 001 text:

The TE, whilst in loop condition, shall not emit signals with a peak value greater than V_{tmax} measured across the load Z_L . The requirement shall be met over a loop current range DI_f or at various dc excitation conditions (DR_f, DV_f). V_{tmax} , Z_L are shown in table 4.4.1.

The requirement does not apply to TE in the dialling state.

Compliance shall be checked using the tests outlined in section A.4.4.1.

Purpose

To limit the amplitude of signals sent to line.

Reasons for essentiality

For: excessive signal sent to line can overload network amplifiers or codecs; overloading can generate outband signals which cause crosstalk and subsequent harm to the network by interfering with other services.

Against: overloading of amplifiers or codecs creates end to end interworking effects.

Number of countries

Mandatory 18, Blank 1, not mandatory 1.

National peculiarities

No additional requirement

4.4.1 (A) 1, 4.4.1 (F) 1,, 4.4.1 (F) 2, 4.4.1 (D) 1, 4.4.1 (D) 2, 4.4.1 (D) 3 , 4.4.1 (D) 4, 4.4.1 (GR) 1, 4.4.1 (IRL) 1, 4.4.1 (I) 1, 4.4.1 (N) 1, 4.4.1 (E) 1, 4.4.1 (S) 1, 4.4.1 (S) 2, 4.4.1 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Comment?
415	4.4.2 Speech band power levels of signals sent to line	Title

No	Clause	Essential?	91/263	Comment?
416	4.4.2.1 Levels of recorded, synthetic or live, speech or music	Yes	4d	

ETS 300 001 text:

When the TE is in loop condition the average active power level delivered by the TE to a load Z_L during any period of 10 seconds shall not exceed P_s . The requirement shall be met over a loop current range DI or at various dc excitation conditions (DR_f, DR_t). ac and dc parameter values are shown in table 4.4.2.

Compliance shall be checked using the test outlined in sections A.4.4.2 and A.4.4.2.1.

This requirement does not apply to TE in the dialling state.

Purpose

To control the level of signals sent to line derived from recorded speech or music.

Reasons for essentiality

For: to avoid the overloading of transmission facilities of the network.

Against: ?

Number of countries

Mandatory 17, Blank 1, not mandatory 2.

National peculiarities

No additional requirement

4.4.2 (F) 1, 4.4.2 (D) 1, 4.4.2 (I) 1, 4.4.2 (N) 1, 4.4.2 (N) 2, 4.4.2 (E) 1, 4.4.2.1 (S) 3, 4.4.2.1 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
417	4.4.2.2 Levels of data or code signals	Yes	4d	

ETS 300 001 text:

When the TE is in loop condition the average power level to a load Z_L delivered by the TE when sending signals arising from any form of data or code excitation shall not at any 200 ms period exceed P_{d1} if signals are transmitted in one direction, or P_{d2} if signals are transmitted in both directions at the same time. The requirement shall be met over a loop current range DI_f or at various dc excitation conditions (DR_f, DV_f). ac and dc parameter values are shown in table 4.4.2.

Compliance shall be checked using the test outlined in sections A.4.4.2 and A.4.4.2.2.

This requirement does not apply to TE in the dialling state.

Purpose

To control the level of signals sent to line derived from data equipment.

Reasons for essentiality

For: to avoid the overloading of transmission facilities of the network.

Against: ?

Number of countries

Mandatory 18, Blank1, not mandatory 1.

National peculiarities

No additional requirement

4.4.2.2 (F) 2, 4.4.2.2 (D) 1, 4.4.2.2 (E) 1, 4.4.2.2 (E) 2, 4.4.2.2 (S) 1, 4.4.2.2 (GB) 1.

Additional requirement (essential for access)

"Average power level adjustable for data transmission" **4.4.2.2 (F) 1, 4.4.2.2 (I) 1, 4.4.2.2 (GB) 1, 4.4.2.2 (E) 1.**

Additional requirement (not essential for access)

"Requirement for specific application", **4.4.2.2 (I) 2.**

"Requirement specific to portable TEs", **4.4.2.2 (I) 3.**

"Requirement excluding power in a signalling band" (obsolete technology), **4.4.2.2 (GB) 1, 4.4.2.2 (E) 1.**

PT comments

None.

No	Clause	Comment?
418	4.4.3 Unwanted outband signal levels sent to line	Introductory text

ETS 300 001 text:

The requirements of this section shall be met with TE placed in loop condition.

Reference is made to figure A.4.4.3.

The power level of any individual frequency component, found in a bandwidth of 125 Hz, delivered to a load Z_L and arising from any form of excitation of the TE shall not exceed the limits shown in table 4.4.3.1.b for the frequency ranges shown in table 4.4.3.1.a.

The requirement shall be met at various dc excitations DV_f , DR_f or DI .

ac and dc parameters are shown in table 4.4.3.1.b.

Compliance shall be determined by measurement as outlined in section A.4.4.3.

This requirement is not applicable during dialling state.

Purpose

Introduction to following clauses.

No	Clause	Essential?	91/263	Comment?
419	4.4.3.1 Levels of recorded, synthetic or live, speech or music	Yes	4c/4d	

ETS 300 001 text:

Table of frequency ranges and power levels

Purpose

To limit out of band signals sent to line.

Reasons for essentiality

For: to avoid harm to the network caused by crosstalk effects arising from signals over a range of frequencies;

Against: ?

Number of countries

Mandatory 17, Blank 1, not mandatory 2.

National peculiarities

No additional requirement

4.4.3.1 (A) 1, 4.4.3.1 (B) 1, 4.4.3.1 (CY) 1, 4.4.3.1 (DK) 1, 4.4.3.1 (F) 1, 4.4.3.1 (F) 2, 4.4.3.1 (D) 1, 4.4.3.1 (GR) 1, 4.4.3.1 (I) 1, 4.4.3.1 (NL) 1, 4.4.3.1 (N) 1, 4.4.3.1 (N) 2, 4.4.3.1 (P) 1, 4.4.3.1 (E) 1, 4.4.3.1 (E) 2, 4.4.3.1 (E) 3, 4.4.3.1 (E) 4, 4.4.3.1 (S) 1, 4.4.3.1 (S) 2, 4.4.3.1 (CH) 1, 4.4.3.1 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
420	4.4.3.2 Levels of data or code signals	Yes	4c/4d	

ETS 300 001 text:

Table of frequency ranges and power levels

Purpose

To limit out of band signals sent to line.

Reasons for essentiality

For: To avoid harm to the network caused by crosstalk effects arising from signals over a range of frequencies.

Against: ?

Number of countries

Mandatory 18, Blank 1, not mandatory 1.

National peculiarities

No additional requirement

4.4.3.2 (A) 1, 4.4.3.2 (B) 1, 4.4.3.2 (CY) 1, 4.4.3.2 (DK) 1, 4.4.3.2 (F) 1, 4.4.3.2 (D) 1, 4.4.3.2 (GR) 1, 4.4.3.2 (IRL) 1, 4.4.3.2 (I) 1, 4.4.3.2 (NL) 1, 4.4.3.2 (N) 1, 4.4.3.2 (P) 1, 4.4.3.2 (E) 1, 4.4.3.2 (S) 1, 4.4.3.2 (S) 2, 4.4.3.2 (CH) 1, 4.4.3.2 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Comment?
421	4.5 Noise level	Introductory text

ETS 300 001 text:

The noise level requirement shall be met when either quiescent or loop condition at various dc excitation conditions DI , DV_f , DR_f , specified as shown in tables 4.5.1 and 4.5.2.

Purpose

Introduction to following clauses.

No	Clause	Essential?	91/263	Comment?
422a	4.5.1 Inband noise (Psophometrically weighted) (Quiescent condition)	Yes	4d/4gv	

ETS 300 001 text:

The TE, when in either quiescent or loop condition, is placed in a state such as it does not send to the line any signal. It shall not deliver a psophometric weighted noise power level greater than P_{Na} and P_{NL} respectively onto a load impedance Z_L , according to CCITT Recommendation 0.41.

The ac parameter values are shown in table 4.5.1.

Compliance shall be checked using the test outlined in section A.4.5.1.

Purpose

To limit the noise sent to line.

Reasons for essentiality

For: noise will degrade the performance of any active parallel terminal;
 the active parallel terminal may be a telephone operating on the reserved telephony service;
 several parallel quiescent terminals will produce cumulative noise.

Against: degradation of a call in progress may be considered an end to end interworking matter.

Number of countries

Mandatory 15, Blank 2, not mandatory 3.

National peculiarities

No additional requirement

4.5.1 (B) 1, 4.5.1 (D) 1, 4.5.1 (NL) 1, 4.5.1 (E) 1, 4.5.1 (E) 1.1, 4.5.1 (S) 1, 4.5.1 (S) 2, 4.5.1 (S) 3, 4.5.1 (CH) 1, 4.5.1 (GB) 1, 4.5.1 (GB) 2.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

Although the terminal in question may not be a telephony terminal, failure to meet this requirement can degrade the performance of a telephony terminal operating on the same installation. It is therefore properly an access requirement of this ETS.

No	Clause	Essential?	91/263	Comment?
422b	4.5.1 Inband noise (Psophometrically weighted) (Loop condition)	No	4gv	Yes

ETS 300 001 text:

The TE, when in either quiescent or loop condition, is placed in a state such as it does not send to the line any signal. It shall not deliver a psophometric weighted noise power level greater than P_{Na} and P_{NL} respectively onto a load impedance Z_L , according to CCITT Recommendation 0.41.

The ac parameter values are shown in table 4.5.1.

Compliance shall be checked using the test outlined in section A.4.5.1.

Purpose

To limit the noise sent to line.

Reasons for essentiality

For: noise degrades the performance of the connection.

Against: this is an end to end interworking problem outside the scope of an access standard.

Number of countries

Mandatory 14, Blank 3, not mandatory 3.

National peculiarities

No additional requirement

See item 422a above.

Additional requirement (essential for access)
 See item 422a above.

Additional requirement (not essential for access)
 See item 422a above.

PT comments

Noise limitation is essential for the reserved telephony service and should be dealt with in the telephony terminal standard.

No	Clause	Essential?	91/263	Comment?
423a	4.5.2 Outband noise (Unweighted) (Quiescent condition)	?	4d	Yes

ETS 300 001 text:

The TE, when either quiescent or loop condition, is placed in a state such that it does not send to the line any signal. It shall not send to the line any noise with an unweighted (power) level greater than P_{No1} , P_{No2} , P_{NL1} , P_{NL2} , respectively over a bandwidth of Df_1 and Df_2 when terminated with a load impedance Z_L .

Requirement ac and dc parameters are shown in table 4.5.2.

Compliance shall be checked using the test outlined in section A.4.5.2.

Purpose

To limit the outband noise sent to line.

Reasons for essentiality

For: outband noise can harm the network by interfering with other services either on the same line or on other lines over a crosstalk path;

Against: non-mandatory in ten countries;
 this noise will probably be detected during the test of 4.4.3 so the requirement is repetitive;
 out of band noise can be considered an EMC requirement.

Number of countries

Mandatory 9, Blank 1, not mandatory 10.

National peculiarities

No additional requirement

4.5.2 (B) 1, 4.5.2 (F) 1, 4.5.2 (D) 1, 4.5.2 (NL) 1, 4.5.2 (E) 1, 4.5.2 (E) 1.1, 4.5.2 (E) 1.2, 4.5.2 (GB) 1.

Additional requirement (essential for access)
 None.

Additional requirement (not essential for access)
 None.

PT comments

The PT could not agree on essentiality.

No	Clause	Essential?	91/263	Comment?
423b	4.5.2 Outband noise (Unweighted) (Loop condition)	?	4d	Yes

ETS 300 001 text:

The TE, when either quiescent or loop condition, is placed in a state such that it does not send to the line any signal. It shall not send to the line any noise with an unweighted (power) level greater than P_{Nd1} , P_{Nd2} , P_{NL1} , P_{NL2} , respectively over a bandwidth of Df_1 and Df_2 when terminated with a load impedance Z_L .

Requirement ac and dc parameters are shown in table 4.5.2.

Compliance shall be checked using the test outlined in section A.4.5.2.

Purpose

To limit the outband noise sent to line.

Reasons for essentiality

For: outband noise can harm the network by interfering with other services either on the same line or on other lines over a crosstalk path.

Against: non-mandatory in eleven countries;
 this noise will be detected during the test of 4.4.3 so the requirement is repetitive;
 out of band noise can be considered an EMC requirement.

Number of countries

Mandatory 8, Blank 1, not mandatory 11.

National peculiarities

No additional requirements

4.5.2(B) 1, 4.5.2(F) 1, 4.5.2 (D) 1, 4.5.2(NL) 1, 4.5.2(E) 1.1, 4.5.2(E) 1.2, 4.5.2(GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

The PT could not agree on essentiality.

Annex F (informative): Findings: Chapter 5

No	Clause	Comment?
501	5 Calling function	Title

No	Clause	Comment?
502	5.1 General	Introductory text

ETS 300 001 text:

TE may be configured such that after either a manual or automatic start procedure has been initiated, one or more of the following functions may be performed. This includes:

- establishment of the loop condition;
- dial tone reception/detection, manually or automatically;
- dialling;
- determination of repeat call attempts;
- enabling of transmission;
- transfer of established connection to other TE;
- reversion of the quiescent condition.

Purpose

Introduction to following clauses.

No	Clause	Comment?
503	5.2 Dial tone detector	Title

No	Clause	Essential?	91/263	Comment?
504	5.2.1 Dial tone detector sensitivity	?	4d/4f	Yes

ETS 300 001 text:

For TE capable of detecting a dial tone, the relevant detector shall be activated, when a signal in the frequency range from f_1 (Hz) up to f_2 (Hz), with a level between p_1 (dBm) and p_2 (dBm) measured on a load impedance Z_L (W), is applied through an impedance Z_G (W) to the line terminals for a period of at least t_d (s).

The requirement values f_1 , f_2 , p_1 , p_2 , Z_G , Z_L and t_d are shown in table 5.2.1.

The requirements shall be met with dc feeding values V_f , R_f , I_f in the ranges specified in table 5.2.1.

Compliance shall be checked using the tests outlined in section A.5.2.1.

Purpose

To prevent apparatus from dialling when the network is not ready to receive dialling.

Reasons for essentiality

For: early dialling may generate wrong numbers and affect interworking with the network;
 wrong numbers cause unwanted traffic and complaints.

Against: wrong numbers are a quality aspect outside the scope of the ETS;
 other simpler methods (such as a programmed pause) can achieve the desired result.

Number of countries

Mandatory 17, Blank 1, not mandatory 2.

National peculiarities

No additional requirement

5.2.1 (B) 1, 5.2.1 (F) 1, 5.2.1 (NL) 1, 5.2.1 (NL) 2, 5.2.1 (E) 1, 5.2.1 (S) 2, 5.2.1 (CH) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"The requirement apply also to a second dial tone" **5.2.1 (F) 2, 5.2.1 (F) 4;**

"Interruption during the tone" **5.2.1 (F) 3;**

"Dial tone detector shall not be activated during incoming call" **5.2.1 (D) 1;**

"Requirement about the timing of the dial tone detection" **5.2.1 (D) 2, 5.2.1 (D) 3, 5.2.1 (D) 4, 5.2.1 (P) 1,**

5.2.1 (P) 2, 5.2.1 (S) 1;

"Cadenced dial tone" **5.2.1 (I) 1.**

PT comments

Since other simpler and cheaper methods can achieve the desired result, this requirement should not be considered essential.

No	Clause	Essential?	91/263	Comment?
505	5.2.2 Dial tone detector insensitivity	?	4d/4f	Yes

ETS 300 001 text:

For TE capable of detecting dial tone, the relevant detector shall not be activated, when in loop condition, if any of the following signals is applied through an impedance Z_G (W) to the line terminals:

a) "outband" signals with:

frequency of value lower than f_3 (Hz) or higher than f_4 (Hz) and:

- any level of value lower than P_3 (dBm), measured on a load impedance Z_L (W);
- any value of cadence t_{on}/t_{off} ;
- any value of duration.

b) "weak" signals with:

level of value lower than P_4 (dBm), measured on a load impedance Z_L (W) and:

- any value of frequency;
- any value of cadence t_{on}/t_{off} ;
- any value of duration.

c) "improperly cadence" signals with:

t_{on} of value lower than t_{on1} (ms) and any value of t_{off} , or t_{on} of value higher than t_{on2} (ms) and any value of t_{off} , or t_{off} of value lower than t_{off1} (ms) and any value of t_{on} or t_{off} of value higher than t_{off2} (ms) and any value of t_{on} and;

- any value of frequency;
- any value of level;
- any value of duration.

The requirement values are given in table 5.2.2.

The requirements shall be met with feeding values V_f , R_f , I_f in the ranges specified in table 5.2.2.

Compliance shall be checked using the test outlined in section A.5.2.2.

Purpose

To prevent apparatus from dialling when the network is not ready to receive dialling.

Reasons for essentiality

For: early dialling may generate wrong numbers;
wrong numbers cause unwanted traffic and complaints.

Against: since the capability of detecting dial tone is not essential, this requirement cannot be essential;
the requirement is so broad as to be impractical in the European environment.

Number of countries

a) Mandatory 14, Blank 1, not mandatory 5.

National peculiarities

No additional requirement

5.2.2 (A) 1, 5.2.2 (F) 1, 5.2.2 (IS) 1, 5.2.2 (I) 1, 5.2.2 (NL) 1, 5.2.2 (NL) 2, 5.2.2 (N) 1, 5.2.2 (E) 1, 5.2.2 (S) 1, 5.2.2 (S) 2, 5.2.2 (CH) 1.

Additional requirement (essential for access).

Additional requirement (not essential for access)

"Other insensitivity requirements" **5.2.2 (B) 1, 5.2.2 (DK) 1;**

"repetition of the dialling attempt permitted" **5.2.2 (CH) 1.**

PT comments

See comment to item 504.

No	Clause	Comment?
506	5.3 Decadic dialling (loop pulsing)	Introductory text

ETS 300 001 text:

Decadic dialling may consist of a number of events as shown in principle in figure 5.3.a and detailed in figures 5.3.b to 5.3.d.

These events occur as follows:

- a change of state from loop condition to dialling condition;
- a pre-pulsing period;
- one or more pulsing periods (separated by interpulsing periods, where appropriate);
- an interpulsing period (inter digital pause);
- a post-pulsing period;
- a change from dialling condition to the loop condition.

The requirements in this section relate to those values of time at which the value of the loop current is above or below the specified limits.

The requirements shall be met with dc feeding values V_f , R_f , I_f as specified in table 5.3.

Compliance shall be checked using the tests outlined in section A.5.3.

Purpose

Introduction to following clauses.

National peculiarities

No additional requirement

5.3 (D) 1, 5.3 (D) 2, 5.3 (P) 1, 5.3 (E) 1, 5.3 (S) 1, 5.3 (S) 2.

Additional requirement (essential for access)

"Terminals with decadic dialling are forbidden in Norway " **5.3 (N) 1;**

"Denmark and France require terminals to have both decadic and DTMF signalling" **5.3 (DK) 1, 10.5(F)1.**

Additional requirement (not essential for access)
 None.

No	Clause	Comment?
507	5.3.1 Format and timing	Title

No	Clause	Essential?	91/263	Comment?
508	5.3.1.1 Dial numbering	Yes	4f	

ETS 300 001 text:

With TE in the dialling condition, the number of break pulses of each series transmitted shall correspond to the value of the digits 1 to 9 and 10 for the digit 0.

Compliance shall be checked using the test outlined in section A.5.3.1.1.

Purpose

To make the terminal coding compatible with the network code.

Reasons for essentiality

For: to interwork correctly with the Network to obtain the correct number.

Against: ?

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement
5.3.1.1 (D) 1.

Additional requirement (essential for access)
 "The digit "n" correspond to n+1 pulses" **5.3.1.1 (S) 1.**

Additional requirement (not essential for access)
 None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
509	5.3.1.2 Dialling pulse timing	Yes	4f	

ETS 300 001 text:

Dialling pulses shall have the following characteristics:	
1)	Dialling frequency: 10 Hz \pm x HZ.
2)	Break period: The time interval ($t_e - t_i$) as specified in table 5.3.1.2 (nominal value and tolerance).
3)	Make period: The time interval ($t_h - t_o$) as specified in table 5.3.1.2 (nominal value and tolerance).
NOTE:	The dialling frequency is also described as the rate of generated pulses per second. The break period and the make period are defined as differences of time values given at specified current values, as shown in figures 5.3.b and 5.3.c.
Compliance shall be checked by measurement using the test outlined in section A.5.3.1.2.	

Purpose

To control the speed and ratio of the dialling pulses.

Reasons for essentiality

For: to ensure correct interworking with the network;
 to make the terminal compatible with the detector in the network.

Against: the performance can be expressed more simply.

Number of countries

Mandatory 18, Blank 1, Forbidden 1(see item 506).

National peculiarities

No additional requirement

5.3.1.2 (SF) 1, 5.3.1.2 (D) 1, 5.3.1.2 (D) 2, 5.3.1.2 (D) 3, 5.3.1.2 (I) 1, 5.3.1.2 (P) 1, 5.3.1.2 (P) 2, 5.3.1.2 (P) 3, 5.3.1.2 (E) 1, 5.3.1.2 (E) 2, 5.3.1.2 (S) 1, 5.3.1.2 (GB) 15.3.1.2 (GB) 1.

Additional requirement (essential for access)

"rise and fall time requirement" 5.3.1.2 (F) 1.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
510	5.3.2 Pre-pulsing period current and loop resistance	No	4f	

ETS 300 001 text:

Reference is made to figure 5.3.b.	
From the time t_1 that the TE assumes the dialling condition until the time t_2 that the first break pulse is generated, the loop current shall be greater than I_1 as shown in figure 5.3.b, or the resistance between the line terminals shall not be greater than R_{pr} .	
The values of I_1 , R_{pr} and time interval ($t_2 - t_1$) are given in table 5.3.2.	
Compliance shall be checked using the test outlined in section A.5.3.2.	

Purpose

To control the line current immediately before the start of pulsing.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: ancillary to DC characteristics (2.3);
 not mandatory in seven countries.

Number of countries

Mandatory 10, Blank 2, not mandatory 7, Forbidden 1 (see item 506).

National peculiarities

No additional requirement

5.3.2 (A) 1, 5.3.2 (B) 1, 5.3.2 (P) 1, 5.3.2 (P) 2, 5.3.2 (E) 1, 5.3.2 (S) 1.

Additional requirement (essential for access)

"Maximum current limitation (60 mA) in the terminal" **5.3.2 (F) 1**, (See Chapter 2.3).

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Comment?
511	5.3.3 Pulsing period current and loop resistance	Title

No	Clause	Essential?	91/263	Comment?
512	5.3.3.1 Break pulse period current and loop resistance	Yes	4f	

ETS 300 001 text:

Reference is made to figure 5.3.b.

During the break period there shall be a period ($t_4 - t_3$) during which the loop current shall be below the limits shown in figure 5.3.b, or the resistance between the line terminals shall be greater than R_b .

The values of I_3 , I_4 , R_b and time interval ($t_4 - t_3$) are given in table 5.3.3.1.

Compliance shall be checked using the test outlined in section A.5.3.3.1.

Purpose

To ensure that the break signal is properly detected by the network.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: ?

Number of countries

Mandatory 18, Blank 1, Forbidden 1 (see item 506).

National peculiarities

No additional requirement

5.3.3.1 (SF) 1, 5.3.3.1 (D) 1, 5.3.3.1 (P) 1, 5.3.3.1 (P) 2, 5.3.3.1 (E) 1, 5.3.3.1 (S) 1, 5.3.3.1 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)
 None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
513	5.3.3.2 Make pulse period current and loop resistance	Yes	4f	

ETS 300 001 text:

Reference is made to figure 5.3.c.

During the make period there shall be a period ($t_6 - t_5$) during which the loop current shall be above the limits shown in figure 5.3.c, or the resistance between the line terminals shall not be greater than R_m .

The values of I_5 , I_6 , R_m and the time interval ($t_6 - t_5$) are given in table 5.3.3.2.

Compliance shall be checked using the test outlined in section A.5.3.3.2.

Purpose

To ensure that the make signal is properly detected by the network.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: ?

Number of countries

Mandatory 18, Blank 1, Forbidden 1(see item 506).

National peculiarities

No additional requirement

5.3.3.2 (SF) 1, 5.3.3.2 (D) 1, 5.3.3.2 (P) 1, 5.3.3.2 (P) 2, 5.3.3.2 (S) 1, 5.3.3.2 (GB) 1.

Additional requirement (essential for access)

"Maximum current limitation (75 mA) in the terminal" **5.3.3.2 (F) 1;**

"Low voltage drop in the terminal access during decadic dialling" **5.3.3.2 (I) 1, 5.3.3.2 (CH) 1.**

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Comment?
514	5.3.4 Interpulsing period	Title

No	Clause	Comment?
515	5.3.4.1 Interdigital pause	Introductory text

ETS 300 001 text:

The interdigital pause is defined as a difference of time value ($t_h - t_n$) given at the current values I_n and I_h specified in table 5.3.1.2 and shown in the figure 5.3.d.

Purpose

Introduction to following clauses.

No	Clause	Essential?	91/263	Comment?
516a	5.3.4.1.1 Automatic or stored-digit outpulsing (Minimum IDP)	Yes	4f	

ETS 300 001 text:

For decadic dialling using equipment capable of accepting and storing digits faster than the specified outpulsing rate, the interdigital pause ($t_h - t_g$) shall be as specified in table 5.3.4.1.

Purpose

To ensure that one digit can be identified as separate from the next.

Reasons for essentiality

For: to ensure correct interworking with the network
to ensure identification of the desired address

Against: ?

Number of countries

Mandatory 18, Blank 1, Forbidden 1(see item 506).

National peculiarities

No additional requirement

5.3.4.1 (D) 1, 5.3.4.1 (IRL) 1, 5.3.4.1 (P) 1, 5.3.4.1 (IRL) 1, 5.3.4.1 (P) 1, 5.3.4.1 (E) 1, 5.3.4.1 (S) 1, 5.3.4.1 (S) 2, 5.3.4.1 (GB) 1, 5.3.4.1 (GB) 2.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
516b	5.3.4.1.1 Automatic or stored-digit outpulsing (Maximum IDP)	?	4f	Yes

ETS 300 001 text:

For decadic dialling using equipment capable of accepting and storing digits faster than the specified outpulsing rate, the interdigital pause ($t_h - t_g$) shall be as specified in table 5.3.4.1.

Purpose

To limit the time taken to outpulse a number.

Reasons for essentiality

For: to minimise the use of network resources.

Against: longer times will not cause incorrect operation;
maximum time is not mandatory for real time outpulsing;
the manufacturer and the network operator both have the same aim to achieve rapid dialling;
normal market forces will, therefore, achieve the desired effect.

Number of countries

Mandatory 16, Blank 1, not mandatory 2, Forbidden 1(see item 506).

National peculiarities

See item 516 above.

PT comments

The PT could not agree on essentiality.

No	Clause	Essential?	91/263	Comment?
517	5.3.4.1.2 Real-time outpulsing	No	4f	

TS 300 001 text:

The decadic dialling using equipment which outpulses in real time, the interdigital pause shall be generated by a method incorporated in the dialling equipment which ensures a minimum interdigital pause t_r as specified in table 5.3.4.1.

Compliance for both the above subsections shall be checked using the test described in section A.5.3.4.1.

Purpose

To ensure that one digit can be identified as separate from the next.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: six countries say not mandatory;
 ancillary to 5.3.4.1.1;
 controlled by mechanical design of rotary dial;
 obsolete technology.

Number of countries

Mandatory 10, Blank 2, not mandatory 7, Forbidden 1 (see item 506).

National peculiarities

See item 516 above.

PT comments

The minimum IDP requirement could be merged in the same specification.

o	Clause	Essential?	91/263	Comment?
518	5.3.4.2 Current and loop resistance	?	4f	Yes

ETS 300 001 text:

Reference is made to figure 5.3.d.

During the interdigital pause there shall be a period ($t_6^* - t_5$) during which the loop current shall be above the limits shown in figure 5.3.d or the resistance between the line terminals shall not be greater than R_m as shown in table 5.3.4.2.

The values of current I_5 and I_6 and the resistance R_m are defined in table 5.3.3.2.

Compliance shall be checked using the test outlined in section A.5.3.4.2.

Purpose

To ensure that one digit can be identified as separate from the next.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: ancillary to DC characteristics.

Number of countries

Mandatory 6, Blank 6, not mandatory 7, Forbidden 1 (see item 506).

National peculiarities

No additional requirement

5.3.4.2 (A) 1, 5.3.4.2 (DK) 1, 5.3.4.2 (P) 1, 5.3.4.2 (P) 2, 5.3.4.2 (E) 1, 5.3.4.2 (S) 1.

Additional requirement (essential for access)

"Maximum current limitation (75 mA) in the terminal" 5.3.4.2 (F) 1.

"Interruption of the loop current shall not corrupt the dialling" 5.3.4.2 (GB) 1.

Additional requirement (not essential for access)

None.

PT comments

The PT could not agree on essentiality.

No	Clause	Essential?	91/263	Comment?
519	5.3.5 Post pulsing period	?	4f	Yes

ETS 300 001 text:

Reference is made to figure 5.3.b.

From the time t_7 that the TEUT completes the last break pulse in the last pulsing period until the time t_8 that the TE reverts to loop condition from the dialling state, the value of the loop current shall be above the limits shown in table 5.3.5.

The interval ($t_8 - t_7$) is defined in table 5.3.5. The current I_1 as defined in table 5.3.2.

Compliance shall be checked using the test outlined in section A.5.3.5.

Purpose

To hold the loop during changeover from dialling to normal operation.

Reasons for essentiality

For: to prevent false clearing and thus ensure correct interworking with the network;
 to prevent false generation of an extra impulse;
 to control a transient state.

Against: can be controlled more simply by specification of unwanted loop breaks;
 a problem arising mainly from an old terminal technology;
 a terminal quality aspect;
 not mandatory in eight countries.

Number of countries

Mandatory 11, Blank 1, not mandatory 8, Forbidden 1(see item 506).

National peculiarities

No additional requirement

5.3.5 (A) 1, 5.3.5 (A) 2, 5.3.5 (P) 1, 5.3.5 (P) 2, 5.3.5.(E) 1, 5.3.5 (S) 1, 5.3.5 (GB) 1.

Additional requirement (essential for access)

"Maximum current limitation (75 mA) in the terminal" 5.3.5 (F) 1.

"Interruption of the loop current shall not corrupt the dialling" 5.3.5 (GB) 1.

Additional requirement (not essential for access)

"Case of activation of an acoustic receiving device" 5.3.5.(E) 1, 5.3.5 (S) 2.

PT comments

The PT could not agree on essentiality.

No	Clause	Essential?	91/263	Comment?
520	5.3.6 Spark quenching	No	4f	

ETS 300 001 text:

Spark quench circuitry shall be incorporated into the TE. This circuitry shall be connected, or have the electrical effect of being connected, in parallel with the loop current interrupter, The circuitry should have the same electrical effect as a series circuit made up of a resistor with a value in the range R_1 to R_2 , and a capacitor with a value in the range C_1 to C_2 and which is placed in parallel with metallic contacts that open and close to cause the loop current to be interrupted.

The values of R_1 , R_2 , C_1 , C_2 are shown in table 5.3.6.

Compliance shall be checked using the test outlined in section A.5.3.6.

Purpose

To control the rise and fall times of dialling pulses.

Reasons for essentiality

For: to protect metallic dialling contacts;
 to reduce EMC problems for metallic contacts.

Against: duplication of requirements;
 perpetuation of an obsolete technology;
 not mandatory in 12 countries.

Number of countries

Mandatory 5, Blank 3, not mandatory 12.

National peculiarities

No additional requirement

5.3.6 (A) 1, 5.3.6 (E) 1, 5.3.6 (S) 1, 5.3.6 (GB) 1.

Additional requirement (essential for access)

"Requirement about the peak voltage value during pulse dialling" **5.3.6 (I) 1, , 5.3.6 (NL) 1.**

Additional requirement (not essential for access)

"Spark quenching form a part of the EMC requirement covered by EMC directive" **5.3.6 (CH) 1.**

"Dialling distortion limits required in case of series TE in the same line" **5.3.6 (GB) 2.**

PT comments

None.

No	Clause	Comment?
521	5.4 Dialling with MFPB (DTMF) tone bursts	Title

No	Clause	Essential?	91/263	Comment?
522a	5.4.1 General requirements (2.2.2 reference)	No	4f	

ETS 300 001 text:

TE using MFPB (DTMF) signalling shall, whilst in the signalling state, meet requirements for loop condition outlined in sections 2.2.2, 2.3, 4.1.2, and 4.2 of this document.

Compliance shall be checked using the relevant tests.

Purpose

To require the terminal to meet normal insulation resistance requirements when MF dialling.

Reasons for essentiality

For: To prevent incorrect fault reports?
 A means to control balance about earth?

Against: as 2.2.2 (items 208 - 210) is not considered essential, this cannot be essential.

Number of countries

Mandatory 11, Blank 1, not mandatory 10.

National peculiarities

No additional requirement

5.4.1 (P) 1, 5.4.1 (E) 1.

Additional requirement (essential for access)

"A telephone set shall be provided with MFPB (DTMF)" **5.4.1 (DK) 1.**

"Impedance requirement of the tone generator corresponding to Zr" **5.4.1 (D) 1.**

"Impedance requirement of the tone generator corresponding to 600 Ohm" **5.4.1 (GB) 1.**

Additional requirement (not essential for access)

"Specific requirement values for unbalance about earth, covered in chapter 4.2" **5.4.1 (B) 1.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
522b	5.4.1 General requirements (non 2.2.2 references)	Yes	4f	

ETS 300 001 text:

TE using MFPB (DTMF) signalling shall, whilst in the signalling state, meet requirements for loop condition outlined in sections 2.2.2, 2.3, 4.1.2, and 4.2 of this document.

Compliance shall be checked using the relevant tests.

Purpose

To require the terminal to meet normal, DC characteristics, input impedance, and balance about earth requirements when MF dialling.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: balance about earth unlikely to be different during dialling - ancillary;
 impedance not important as echo is not a problem.

Number of countries

2.3 Mandatory 17, Blank 1 not mandatory 2.

4.1.2 Mandatory 17, Blank 1, not mandatory 2.

4.2 Mandatory 16, Blank 1, not mandatory 3.

National peculiarities

See item 522a above.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
523	5.4.2 Signalling frequencies and format	Yes	4f	

ETS 300 001 text:

For each digit or special signalling character provided on a TE, two frequencies shall be assigned, one from each of two groups of four frequencies as outlined in table 5.4.2.a.

The frequencies shall be generated simultaneously such that the resultant combination of signals appears across the line terminals.

These frequencies shall be maintained to within n% of the nominal values shown in table 5.4.2.a over the range of dc feeding conditions given in table 5.4.2.b.

Compliance shall be checked using the test outlined in section A.5.4.2.

Purpose

To ensure that the terminal coding is compatible with that of the network detector.

Reasons for essentiality

For: to ensure interworking with the network.

Against: ?

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement

5.4.2 (N) 1, 5.4.2 (E) 1, 5.4.2 (S) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
524	5.4.3 Signalling codes	?	4f	Yes

ETS 300 001 text:

The sixteen combinations assigned to digits or special signalling characters are shown in the matrix in Table 5.4.3.a.

The TE may use only 10 signalling frequency combinations, in which case the frequencies assigned to characters *, #, A, B, C, and D are not used.

Alternatively, the TE may use 12 signalling frequency combinations, in which case the frequencies assigned to characters A, B, C, and D are not used.

Compliance shall be checked using the test outlined in section A.5.4.3.

Purpose

To associate the specified frequency combinations with the digit and to control the number of digits available to the user.

Reasons for essentiality

For: to ensure interworking with the network;
 it is necessary that terminal coding is the same as the network coding.

Against: it does not harm the network if less than ten digits are provided in some special purpose terminal;
 how many digits are needed is between the purchaser and the supplier * and # are for supplementary services.

Number of countries

Mandatory 7, Blank 13.

National peculiarities

No additional requirement

5.4.3 (CY) 1, 5.4.3 (S) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"12 signalling frequencies required" **5.4.3 (DK) 1, 5.4.3 (F) 1.**

"Transfer to DTMF dialling mode in case of decadic dialling use" **5.4.3 (F) 2.**

"user's manual instructions in case where * and # are not provided" **5.4.3 (E) 1.**

PT comments

The first part of this requirement should be merged with 5.4.2. It is not clear whether there is any requirement for the number of digits to be provided. This part needs clarification.

The correct coding is essential , but the number of digits provided is not.

No	Clause	Essential?	91/263	Comment?
525	5.4.4 Sending levels	Yes	4d/4f	

ETS 300 001 text:

The sending levels across a load impedance Z_L for frequencies in each group shall differ and be defined by the values according to the option described in table 5.4.4.a. In either case, the value of the level of the higher frequency component of the compound signal shall be $2 \text{ dB} \pm 1 \text{ dB}$ greater than the value of the level of the lower frequency component.

The requirement shall be met in the presence of dial tone signals of level "b" and frequency "f".

Measurements are carried out at the various dc feeding condition values shown in table 5.4.2.b.

The TE should be submitted for test with a declaration of which option has been selected for evaluation.

The parameter values Z_L , "b", and "f" are shown in table 5.4.4.b.

Compliance shall be checked using the tests outlined in section 1.5.4.

Purpose

To ensure that the tones are received by the detectors at the correct levels.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: ?

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement

5.4.4. (B) 1, 5.4.4 (D) 1, 5.4.4 (D) 2, 5.4.4 (E) 1, 5.4.4 (GB) 1.

Additional requirement (essential for access)

"maximum peak level in the DTMF dialling mode" 5.4.4 (F) 1,

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
526a	5.4.5 Unwanted frequency components (a)	Yes	4f	

ETS 300 001 text:

The TEUT shall be placed in the signalling state and caused to emit the frequencies corresponding to any given signalling character combination (see section 5.4.3). During the period in which the selected combination of frequencies causes a corresponding signal to appear across the load impedance Z_L :

- a) the total power level of all unwanted frequency components over the bandwidth 300 - 3 400 Hz shall be at least 20 dB below the level of the low-group frequency component of the signal;
- b) the level of any individual unwanted frequency component found in a bandwidth of 125 Hz shall not exceed the following limits:
 - in the frequency band 300 - 4 300 Hz: - 33 dBm;
 - in the frequency band 4 300 - 28 000 Hz: - 37 dBm;
at 4 300 Hz falling 12 dB/octave to 28 kHz;
 - in the frequency band 28 - 150 kHz: - 70 dBm.

The requirement shall be met at the dc feeding conditions specified in table 5.4.2.b.

The value of the load impedance Z_L and the use of the requirements "a" and "b" are shown in table 5.4.5.

Compliance shall be checked using the test outlined in section A.5.4.5.

Purpose

To allow the network detectors to discriminate between wanted and unwanted signals.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: ?

Number of countries

Mandatory 14, Blank 5, not mandatory 1.

National peculiarities

No additional requirement

5.4.5 (B) 1, 5.4.5 (F) 1, 5.4.5 (F) 2, 5.4.5 (D) 1, 5.4.5 (P) 1, 5.4.5 (E) 1, 5.4.5 (S) 1, 5.4.5 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"The unwanted frequency component requirement shall apply during interdigital pauses as well" **5.4.5 (CY) 1, 5.4.5 (DK) 2, 5.4.5 (E) 1.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
526b	5.4.5 Unwanted frequency components (b1)	Yes	4f	

ETS 300 001 text:

The TEUT shall be placed in the signalling state and caused to emit the frequencies corresponding to any given signalling character combination (see section 5.4.3). During the period in which the selected combination of frequencies causes a corresponding signal to appear across the load impedance Z_L :

- a) the total power level of all unwanted frequency components over the bandwidth 300 - 3 400 Hz shall be at least 20 dB below the level of the low-group frequency component of the signal;
- b) the level of any individual unwanted frequency component found in a bandwidth of 125 Hz shall not exceed the following limits:
 - in the frequency band 300 - 4 300 Hz: -33 dBm;
 - in the frequency band 4 300 - 28 000 Hz: -37 dBm;
at 4 300 Hz falling 12 dB/octave to 28 kHz;
 - in the frequency band 28 - 150 kHz: -70 dBm.

The requirement shall be met at the dc feeding conditions specified in table 5.4.2.b.

The value of the load impedance Z_L and the use of the requirements "a" and "b" are shown in table 5.4.5.

Compliance shall be checked using the test outlined in section A.5.4.5.

Purpose

To limit the generation of unwanted inband signals.

Reasons for essentiality

For: to ensure correct operation of the dialling detectors.

Against: ?

Number of countries

Mandatory 16, Blank 3, not mandatory 3.

National peculiarities

No additional requirement
 see item 526a above.

Additional requirement (essential for access)

The unwanted frequency component requirement shall apply during interdigital pauses as well" **5.4.5 (CY) 1, 5.4.5 (DK) 2, 5.4.5 (E) 1.**

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
526c	5.4.5 Unwanted frequency components (b2)	?	4c/4d	Yes

ETS 300 001 text:

The TEUT shall be placed in the signalling state and caused to emit the frequencies corresponding to any given signalling character combination (see section 5.4.3). During the period in which the selected combination of frequencies causes a corresponding signal to appear across the load impedance Z_L :

- a) the total power level of all unwanted frequency components over the bandwidth 300 - 3 400 Hz shall be at least 20 dB below the level of the low-group frequency component of the signal;
- b) the level of any individual unwanted frequency component found in a bandwidth of 125 Hz shall not exceed the following limits:
 - in the frequency band 300 - 4 300 Hz: -33 dBm;
 - in the frequency band 4 300 - 28 000 Hz: -37 dBm;
at 4 300 Hz falling 12 dB/octave to 28 kHz;
 - in the frequency band 28 - 150 kHz: -70 dBm.

The requirement shall be met at the dc feeding conditions specified in table 5.4.2.b.

The value of the load impedance Z_L and the use of the requirements "a" and "b" are shown in table 5.4.5.

Compliance shall be checked using the test outlined in section A.5.4.5.

Purpose

To prevent network pollution with unwanted signals.

Reasons for essentiality

For: to prevent crosstalk;
to prevent potential interference with out-of- band network services.

Against: is a duplication of 4.4.3.2;
is incompatible with local carrier systems;
is an EMC effect.

Number of countries

Mandatory 16, Blank 3, not mandatory 3.

National peculiarities

No additional requirement
see item 526a above.

Additional requirement (essential for access)

The unwanted frequency component requirement shall apply during interdigital pauses as well" **5.4.5 (CY) 1, 5.4.5 (DK) 2, 5.4.5 (E) 1.**

Additional requirement (not essential for access)

None.

PT comments

It is not clear whether out-of-band services are within the scope of the directive. It is not clear whether terminals which use of out-of-band frequencies are within the scope of this ETS.

No	Clause	Essential?	91/263	Comment?
526d	5.4.5 Unwanted frequency components (b3)	?	4c/4d	Yes

ETS 300 001 text:

The TEUT shall be placed in the signalling state and caused to emit the frequencies corresponding to any given signalling character combination (see section 5.4.3). During the period in which the selected combination of frequencies causes a corresponding signal to appear across the load impedance Z_L :

a) the total power level of all unwanted frequency components over the bandwidth 300 - 3 400 Hz shall be at least 20 dB below the level of the low-group frequency component of the signal;

b) the level of any individual unwanted frequency component found in a bandwidth of 125 Hz shall not exceed the following limits:

- in the frequency band 300 - 4 300 Hz: -33 dBm;
- in the frequency band 4 300 - 28 000 Hz: -37 dBm;
at 4 300 Hz falling 12 dB/octave to 28 kHz;
- in the frequency band 28 - 150 kHz: -70 dBm.

The requirement shall be met at the dc feeding conditions specified in table 5.4.2.b.

The value of the load impedance Z_L and the use of the requirements "a" and "b" are shown in table 5.4.5.

Compliance shall be checked using the test outlined in section A.5.4.5.

Purpose

To prevent network pollution with unwanted signals.

Reasons for essentiality

For: to prevent crosstalk;
 to prevent EMC effects;
 to prevent interference with out of band services.

Against: is a duplication of 4.4.3.2;
 is incompatible with local carrier systems;
 is an EMC effect.

Number of countries

Mandatory 16, Blank 3, not mandatory 3.

National peculiarities

No additional requirement
 see item 526a above.

Additional requirement (essential for access)

The unwanted frequency component requirement shall apply during interdigital pauses as well" **5.4.5 (CY) 1, 5.4.5 (DK) 2, 5.4.5 (E) 1.**

Additional requirement (not essential for access)

None.

PT comments

It is not clear whether out-of-band services are within the scope of the directive. It is not clear whether terminals which use of out-of-band frequencies are within the scope of this ETS.

No	Clause	Comment?
527	5.4.6 MFPB transient timing	Introductory text

ETS 300 001 text:

Reference is made to figure 5.4.6.

The rise time t_r and the fall time t_f of MFPB (DTMF) signal envelopes will be defined using the maximum and minimum reference levels.

The maximum level is taken as the maximum peak voltage, U_p , which corresponds to the maximum value of the final signal level attained during excitation of the sending TE. A maximum reference peak value, U_u is then defined as in formula 5.4.6.a

$$U_u = 0,9 U_p \quad \text{Formula 5.4.6.a}$$

The minimum reference value U_l is defined as in formula 5.4.6.b

$$U_l = 0,1 U_p \quad \text{Formula 5.4.6.b}$$

The rise time of the output signal arising from a MFPB (DTMF) sender is defined as the first period between the time that the amplitude of the peak envelope of the output signal exceeds for the first time the lower reference value U_l , and the time that the amplitude peak envelope of the output signal exceeds for the last time the upper reference value, U_u .

The fall time of the output signal arising from an MFPB (DTMF) sender is defined as the period between the time that the amplitude of the peak envelope of the output signal is for the first time less than the upper reference value, U_u , and the time that the amplitude of the peak envelope of the output signal is for the last time less than the lower reference value, U_l .

The requirements shall be met at the dc feeding conditions specified in table 5.4.6.

Compliance shall be checked using tests outlined in section A.5.4.6

Purpose

Introduction to following clauses.

National peculiarities

No additional requirement

5.4.6 (E) 1, 5.4.6 (S) 1.

Additional requirement (essential for access)

"Peak transient voltage requirement" **5.4.6 (GB) 1.**

Additional requirement (not essential for access)

None.

No	Clause	Essential?	91/263	Comment?
528	5.4.6.1 MFPB signal rise time	?	4f	Yes

ETS 300 001 text:

Reference is made to figure 5.4.6.

The rise time t_r shall not be greater than the value declared in table 5.4.6.1.

The requirements shall be met at the dc feeding conditions specified in table 5.4.6.

Compliance shall be checked by measurement using the tests outlined in section A.5.4.6.1.

Purpose

To control the rise time of the MFPB signal.

Reasons for essentiality

For: to ensure correct interworking with the network;
 to maximise the duration of the available signal;
 to slow a rise may prolong transient frequency outputs;
 false frequency outputs may generate incorrect numbers.

Against: detectors should ignore transients;
 the total period during which the signal is detected is more important than the rise and fall times;
 it is unlikely that changing frequencies will persist long enough falsely to operate the detector.

Number of countries

Mandatory 17, Blank 1, not mandatory 2.

National peculiarities

No additional requirement

5.4.6.1 (N) 1, 5.4.6.1 (P) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

It would be helpful to combine 5.4.6 and 5.4.7. It is believed that the timing and the resultant definitions of rise and fall times are of doubtful practicality. This requirement tends to reflect an obsolete technology. A requirement for maximum rise time can probably be justified in order to prevent false operation of the detector. In order to minimise testing, it is believed that this requirement can be covered by the requirement for signal duration (5.4.7) if specified to reflect the operation of the detector in the exchange although there is some dispute as to whether all of the characteristics can be accommodated. A simple test (which includes both rise time and duration) has been proposed by PT17V.

No	Clause	Essential?	91/263	Comment?
529	5.4.6.2 MFPB signal fall time	No	4f	Yes

ETS 300 001 text:

Reference is made to figure 5.4.6.

This fall time t_f shall not be greater than the time specified in table 5.4.6.2.

The requirement shall be met at the dc feeding conditions specified in table 5.4.6.

Compliance shall be checked by measurement using the tests outlined in section A.5.4.6.2.

Purpose

To control the fall time of the MFPB signal.

Reasons for essentiality

For: to maximise the duration of the available signal.

Against: the number is already detected before the fall occurs.

Number of countries

Mandatory 11, Blank 1, not mandatory 8.

National peculiarities

No additional requirement.
 None.

Additional requirement (essential for access)
 None.

Additional requirement (not essential for access)
 None.

PT comments.

It would be helpful to combine 5.4.6 and 5.4.7. The timing and the resultant definitions of rise and fall times are of doubtful practicality. This requirement tends to reflect an obsolete technology.

No	Clause	Comment?
530	5.4.7 MFPB output signal duration	Title

No	Clause	Essential?	91/263	Comment?
531a	5.4.7.1 MFPB senders with manually-controlled output times (manually controlled)	No	4f	Yes

ETS 300 001 text:

The output signal of an MFPB (DTMF) sender with manually-controlled output times shall relate directly in real time to the actuation of a push-button or other control which itself can select only one pair of signalling frequencies representing a single signalling character.

The actuation of any given control of this kind shall cause the appropriate signalling voltages to be generated and applied to the line terminals. These signalling voltages may continue to be generated and to be applied to the line terminals until the actuation of the pushbutton or other control is ceased.

Alternatively, if the manually-operated sender contains timing circuitry which determines the output signal duration independently of the time during which the push-button or other control is actuated, the minimum duration of the signal send time shall not be less than t_s ms. In addition, such senders must incorporate time-guard circuitry which ensures that the minimum pause time, regardless of how the push-buttons or other controls are operated manually is equal to t_p ms.

Signal send time t_s , and signal pause time t_p , are shown in figure 5.4.6 and the values are given in table 5.4.7.1. They do not contain rise time, t_r , and fall time, t_f .

The requirement shall be met at the dc feeding conditions specified in table 5.4.6.

Compliance shall be checked using the tests outlined in section A.5.4.7.1.

Purpose

To ensure that the signal persists for long enough to allow detection.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: not repeatably testable;
 no mandatory requirement given.

Number of countries

Not mandatory 20.

National peculiarities

No additional requirement

5.4.7.1 (A) 1, 5.4.7.1 (DK) 1, 5.4.7.1 (S) 1, 5.4.7.1 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"The user's manual shall contain a special warning" **5.4.7.1 (E) 1.**

PT comments

The title of this requirement is not consistent with the content. The requirements of the network cannot be dependent on the technology of the terminal. Therefore, there can be no justification for separating 5.4.7.1 and 5.4.7.2. This requirement should be deleted.

No	Clause	Essential?	91/263	Comment?
531b	5.4.7.1 MFPB senders with manually-controlled output times (independently controlled)	No	4f	Yes

ETS 300 001 text:

The output signal of an MFPB (DTMF) sender with manually-controlled output times shall relate directly in real time to the actuation of a push-button or other control which itself can select only one pair of signalling frequencies representing a single signalling character.

The actuation of any given control of this kind shall cause the appropriate signalling voltages to be generated and applied to the line terminals. These signalling voltages may continue to be generated and to be applied to the line terminals until the actuation of the pushbutton or other control is ceased.

Alternatively, if the manually-operated sender contains timing circuitry which determines the output signal duration independently of the time during which the push-button or other control is actuated, the minimum duration of the signal send time shall not be less than t_s ms. In addition, such senders must incorporate time-guard circuitry which ensures that the minimum pause time, regardless of how the push-buttons or other controls are operated manually is equal to t_p ms.

Signal send time t_s , and signal pause time t_p , are shown in figure 5.4.6 and the values are given in table 5.4.7.1. They do not contain rise time, t_r , and fall time, t_f .

The requirement shall be met at the dc feeding conditions specified in table 5.4.6.

Compliance shall be checked using the tests outlined in section A.5.4.7.1.

Purpose

To ensure that the signal persists for long enough to allow detection.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: not mandatory in three countries;
 ancillary to 5.4.7.2 requirement.

Number of countries

Mandatory 16, Blank 1, not mandatory 3.

National peculiarities

See item 531a above.

PT comments

The requirements of the network cannot be dependent on whether the source is operated manually or automatically. Therefore there can be no justification for separating 5.4.7.1 and 5.4.7.2. This requirement should be subsumed into 5.4.7.2.

No	Clause	Essential?	91/263	Comment?
532a	5.4.7.2 MFPB senders with automatic operation (Minimum duration)	Yes	4f	

ETS 300 001 text:

MFPB (DTMF) senders are able to generate on output resulting from a sequence of signals corresponding to a given sequence of characters, and which cause the timing of such output sequences to be corresponding to a given sequence of characters, and which cause the timing of such output sequences to be independent of the times at which information regarding the given characters are input to the sender circuitry shall have a value of send time t_s , and pause time t_p which are within the ranges shown in table 5.4.7.2.

Signal send time t_s , and signal pause time t_p , are shown in figure 5.4.6 and the values are given in table 5.4.7.2. They do not contain rise time, t_r , and fall time, t_f .

The requirement shall be met at the dc feeding conditions specified in table 5.4.6.

Compliance shall be checked using the tests outlined in section A.5.4.7.2.

Purpose

To ensure that the signal persists for long enough to allow detection.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: ?

Number of countries

Mandatory 18, Blank 2.

National peculiarities

No additional requirement

5.4.7.2 (A) 1, 5.4.7.2 (NL) 1, 5.4.7.2 (E) 1, 5.4.7.2 (S) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"The user's manual shall contain a special warning" **5.4.7.2 (E) 1.**

"The ratio $t_s / (t_s + t_p)$ shall not be greater than 0,6" **5.4.7.2 (GB) 1.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
532b	5.4.7.2 MFPB senders with automatic operation (Maximum duration)	?	4f	Yes

ETS 300 001 text:

MFPB (DTMF) senders are able to generate an output resulting from a sequence of signals corresponding to a given sequence of characters, and which cause the timing of such output sequences to be corresponding to a given sequence of characters, and which cause the timing of such output sequences to be independent of the times at which information regarding the given characters are input to the sender circuitry shall have a value of send time t_s , and pause time t_p which are within the ranges shown in table 5.4.7.2.

Signal send time t_s , and signal pause time t_p , are shown in figure 5.4.6 and the values are given in table 5.4.7.2. They do not contain rise time, t_r , and fall time, t_f .

The requirement shall be met at the dc feeding conditions specified in table 5.4.6.

Compliance shall be checked using the tests outlined in section A.5.4.7.2.

Purpose

To limit the dialling time for automatic equipment.

Reasons for essentiality

For: to reduce occupancy of network resources.

Against: not mandatory in 7 countries which specify only minimum time; both suppliers and network providers have a common interest to reduce total dialling time; not mandatory for Manual dialling (5.4.7.1).

Number of countries

Mandatory 11, Blank 2, not mandatory 7.

National peculiarities

See item 532a above.

PT comments

As the terminal provider and the network operator both have an interest in keeping dialling time to a minimum, regulatory control may not be necessary.

No	Clause	Essential?	91/263	Comment?
533	5.4.8 Suppression of unassociated signals	Yes?	4f	Yes

ETS 300 001 text:

During the signalling state, the actuation of MFPB (DTMF) senders shall have the effect of reducing to a lower value of level of those output signals appearing at the line terminals which arise from normal excitation of any transducers or signal input ports during the time the TE is in loop condition when the original excitation is sustained and the TE is placed in the signalling state.

This reduction in level shall exceed a dB as shown in table 5.4.8.

The requirement shall be met at the dc feeding conditions specified in table 5.4.2.

Compliance shall be checked by inspection using the tests outlined in section A.5.4.8.

Purpose

To limit power of unwanted signals.

Reasons for essentiality

For: to ensure correct interworking with the network by limiting undesirable signal levels;
to prevent generation of false numbers.

Against: not mandatory in six countries.

Number of countries

Mandatory 12, Blank 2, not mandatory 6.

National peculiarities

No additional requirement

5.4.8 (NL) 1, 5.4.8 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"Requirement about of the start of the suppression of the unassociated signals" **5.4.8 (GB) 1.**

PT comments

It is not clear why six countries make this requirement not mandatory.

No	Clause	Essential?	91/263	Comment?
534	5.5 Switching after dialling condition	?	4f	Yes

ETS 300 001 text:

TE capable of dialling shall at termination of the dialling condition revert to the loop condition and/or a condition such that it is capable of exchanging speech band frequency signals with the PSTN. This reversion shall take place within a given time t_s as shown in table 5.5.

The requirement shall be met at the dc feeding conditions as specified in table 5.5.

Compliance shall be checked by measurement using the test outlined in section A.5.5.

Purpose

To ensure that the transmission circuit is activated when dialling is complete.

Reasons for essentiality

For: to ensure that the terminal is capable of normal operation after the completion of dialling;
to ensure that the user can hear network tones as soon as possible;
receipt of tones may be necessary for correct interworking with the network.

Against: the hearing of network tones is a human factors effect;
a terminal quality matter, a terminal that does not work after dialling will soon be taken off the market;
not mandatory in eight countries.

Number of countries

Mandatory 11, Blank 1, not mandatory 8.

National peculiarities

No additional requirement

5.5 (A) 1, 5.5 (A) 2, 5.5 (D) 1, 5.5 (P) 1, 5.5 (E) 1, 5.5 (S) 1, 5.5 (S) 2.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)
 None.

PT comments

The PT could not agree on essentiality.

No	Clause	Comment?
535	5.6 Automatic calling functions	Introductory text

ETS 300 001 text:

This section specifies the requirements for

- dialling initiation;
- transmission initiation;
- transmission duration control;
- automatic repeat calls.

The initiation of a calling function may be made either manually or by some automatic means.

Manual initiation is normally made by the user operating a "start" button or by some other similar physical action. Automatic initiation is normally made by an instruction from a timer control, alarm system or similar automatic devices.

As a result of this initiation the TE commences the appropriate dialling procedure.

An informative overview of the various combinations of options within an automatic calling procedure is given in diagram 5.6, which is intended to show how the sub-sections which follow, fit together during a normal calling procedure.

Purpose

Introduction to following clauses.

National peculiarities

No additional requirement

5.6 (D) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

No	Clause	Comment?
536	5.6.1 General requirements	Title

No	Clause	Essential?	91/263	Comment?
537	5.6.1.1 Hardware/software realisation	?	4d	Yes

ETS 300 001 text:

The control of the automatic dialling calling functions described in the requirements in section 5.6 shall be contained within the associated hardware and/or software, which shall only operate within the TE in conjunction with each other, and shall not be alterable by external means.

It is a requirement that the supplier declares the means by which it is effected.

The inclusion of these functions may be mandatory, see table 5.6.1.1.

Compliance shall be checked by the evaluation of the declared information from the supplier.

Purpose

To require total separation between the control of the dialling function and any externally connected apparatus.

Reasons for essentiality

For: to prevent the operation of the apparatus from being modified after approval.

Against: almost impossible to control in practice;
 not mandatory in six countries.

Number of countries

Mandatory 13, Blank 1, not mandatory 6.

National peculiarities

No additional requirement

5.6.1.1 (D) 1, 5.6.1 (N) 1, 5.6.1.1 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"Dial tone, busy tone, congestion tone, detector is mandatory" 5.6.1.1 (CH) 1.

"The supplier shall provide informations about features provided in the TE and the means to produce operation for the testing purposes and means of adjustment for user operations" 5.6.1 (GB) 1.

PT comments

Control of such operation can only be by contractual means such as conditions of service or by use of law.

No	Clause	Essential?	91/263	Comment?
538	5.6.1.2 Call up from memory	No	4d	

ETS 300 001 text:

TE with number storage facilities shall not initiate dialling when unoccupied or erased memory locations have been called up. In the case of TE with automatic initiation of dialling the line seizure shall not be performed when unoccupied or erased memory locations have been called up.

The inclusion of these functions may be mandatory, see table 5.6.1.2.

Compliance shall be checked by functional tests.

Purpose

To prevent apparatus from. seizing the line when there is no number in the memory store.

Reasons for essentiality

For: to prevent unnecessary use of network resources.

Against: not mandatory in six countries;
 an unlikely design fault, a terminal quality matter.

Number of countries

Mandatory 13, Blank 1, not mandatory 6.

National peculiarities

No additional requirement.

Additional requirement (essential for access)

"Requirement limiting the line seizure for the number storage purposes" **5.6.1.2 (F) 1.**

Additional requirement (not essential for access)

"A monitor is required for the fully automatic TE having more than four call number" **5.6.1.2 (F) 2.**

"Possibility to alter some calling parameters" **5.6.1.2 (F) 3.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
539	5.6.1.3 Call progress monitoring	?	4d/4f	Yes

ETS 300 001 text:

TE with on-hook dialling facilities which can pass a call attempt to an associated handset or similar device shall include a call progress monitor in order to enable audible and/or visible monitoring of the progress of the call attempt.

The inclusion of these functions may be mandatory, see table 5.6.1.3.

Compliance shall be checked by inspection.

Purpose

To warn the user of call progress.

Reasons for essentiality

For: to ensure efficient interworking with the network;
 to prevent ineffective calls.

Against: not mandatory in 8 countries;
 it is undesirable to provide call monitoring in some cases e.g. burglar alarms.

Number of countries

Mandatory 11, Blank 1, not mandatory 9.

National peculiarities

No additional requirement

5.6.1.3 (F) 1, 5.6.1.3 (P) 1, 5.6.1.3 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"Minimum level of the audible monitoring" 5.6.1.3 (F) 2.

PT comments

Important to some network operators.

No	Clause	Essential?	91/263	Comment?
540	5.6.2 Automatic checking of line condition	No	4g	

ETS 300 001 text:

Prior to assuming the loop condition, the TE shall check the voltage across its line terminals or associated loop current according to Chapter 9.4, to ensure that the line through which it is connected is not already in loop condition.

If the line is determined as being already in loop condition then the TE shall not initiate a call attempt until the line becomes free.

The inclusion of these functions shall be mandatory, see table 5.6.2.

Compliance shall be checked by inspection.

Purpose

To prevent a call attempt on a line already in use.

Reasons for essentiality

For: to avoid interruption to an established call.

Against: an effect on an established call is an end to end effect.

Number of countries

Mandatory 3, Blank 1, not mandatory 16.

National peculiarities

No additional requirement

5.6.2 (A) 1, 5.6.2 (B) 15.6.2 (B) 1, 5.6.2 (F) 2, 5.6.2 (P) 1.

Additional requirement (essential for access)

"Priority for incoming call or for engaged call" 5.6.2 (F) 1, 5.6.2 (F) 2.a, 5.6.2 (F) 2.b, 5.6.2 (D) 1.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Comment?
541	5.6.3 Initiation of dialling	Introductory text

ETS 300 001 text:

Initiation of dialling may be controlled manually, or automatically.

Purpose

Introduction to following clauses.

No	Clause	Essential?	91/263	Comment?
542a	5.6.3.1 Automatic initiation of dialling (Controlled)	?	4d/4f	Yes

TS 300 001 text:

Automatic initiation of dialling shall be controlled either by a dial tone detector or by a timer function or by a combination of both, within the TE. The inclusion of a dial tone detector may be mandatory, see table 5.6.3.1.

Where the calling function has been manually initiated and the TE does not include a dial tone detector, audible monitoring of the presence of dial tone may be mandatory, see table 5.6.3.1.

If the TE includes a timer function, dialling shall not be initiated until a time period $t_{1min}(s)$ has elapsed, but shall be initiated before $t_{1max}(s)$ has elapsed, following the establishment of the dc loop condition.

If the TE includes a dial tone detector, then dialling shall start within $t_2(s)$ of the application of the PSTN dial tone.

If the TE includes a dial tone detector and it does not detect the PSTN dial tone within $t_3(s)$ of the establishment of loop condition, the TE shall revert to the idle state.

The values of t_1 , t_2 and t_3 are shown in table 5.6.3.1.

Compliance shall be checked using the tests outlined in section A.5.6.3.1.

Purpose

To prevent the commencement of dialling before the network is ready.

Reasons for essentiality

For: early dialling may generate wrong numbers and thus affect interworking with the network;
 wrong numbers cause unwanted traffic and complaints.

Against: wrong numbers are a quality aspect outside the scope of the ETS;
 the requirement is unclear and ambiguous as stated in DTR/TE-05032 [3] (to be ETR 075).

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement

5.6.3.1 (A) 1, 5.6.3.1 (E) 1, 5.6.3.1 (E) 1, 5.6.3.1 (CH) 1.

Additional requirement (essential for access)

"Automatic calibrated pause insertion not authorised" **5.6.3.1 (F) 3.**

Additional requirement (not essential for access)

None.

PT comments

This requirement needs rewording more clearly as there are conflicts when both dial tone detectors and timers are provided in the terminal.

No	Clause	Essential?	91/263	Comment?
542b	5.6.3.1 Automatic initiation of dialling (Dial tone detector)	?	4d/4f	Yes

ETS 300 001 text:

Automatic initiation of dialling shall be controlled either by a dial tone detector or by a timer function or by a combination of both, within the TE. The inclusion of a dial tone detector may be mandatory, see table 5.6.3.1.

Where the calling function has been manually initiated and the TE does not include a dial tone detector, audible monitoring of the presence of dial tone may be mandatory, see table 5.6.3.1.

If the TE includes a timer function, dialling shall not be initiated until a time period t_{1min} (s) has elapsed, but shall be initiated before t_{1max} (s) has elapsed, following the establishment of the dc loop condition.

If the TE includes a dial tone detector, then dialling shall start within t_2 (s) of the application of the PSTN dial tone.

If the TE includes a dial tone detector and it does not detect the PSTN dial tone within t_3 (s) of the establishment of loop condition, the TE shall revert to the idle state.

The values of t_1 , t_2 and t_3 are shown in table 5.6.3.1.

Compliance shall be checked using the tests outlined in section A.5.6.3.1.

Purpose

To prevent the commencement of dialling before the network is ready.

Reasons for essentiality

For: to ensure correct interworking with the network;
 to prevent unnecessary occupation of network resources.

Against: wrong numbers are a quality aspect outside the scope of the ETS;
 a timer is an optional alternative;
 not mandatory in five countries.

Number of countries

Mandatory 14, Blank 1, not mandatory 5.

National peculiarities

No additional requirement

5.6.3.1 (F) 2, 5.6.3.1 (E) 1, 5.6.3.1 (A) 2, 5.6.3.1 (F) 1, 5.6.3.1 (D) 1, 5.6.3.1 (N) 1, 5.6.3.1 (P) 1, 5.6.3.1 (E) 1, 5.6.3.1 (CH) 1.

Additional requirement (essential for access)

"The TE shall clear when receiving busy tone or congestion tone" **5.6.3.1 (NL) 1.**

Additional requirement (not essential for access)

"Dial tone detector shall detect other tones" **5.6.3.1 (F) 4, 5.6.3.1 (P) 2.**

"Timing of the dialling initiation controlled by dial tone detector" **5.6.3.1 (GB) 1.**

PT comments

The PT could not agree on essentiality.

No	Clause	Essential?	91/263	Comment?
542c	5.6.3.1 Automatic initiation of dialling (Audible monitoring)	?	4d/4f	Yes

ETS 300 001 text:

Automatic initiation of dialling shall be controlled either by a dial tone detector or by a timer function or by a combination of both, within the TE. The inclusion of a dial tone detector may be mandatory, see table 5.6.3.1.

Where the calling function has been manually initiated and the TE does not include a dial tone detector, audible monitoring of the presence of dial tone may be mandatory, see table 5.6.3.1.

If the TE includes a timer function, dialling shall not be initiated until a time period $t_{1min}(s)$ has elapsed, but shall be initiated before $t_{1max}(s)$ has elapsed, following the establishment of the dc loop condition.

If the TE includes a dial tone detector, then dialling shall start within $t_2(s)$ of the application of the PSTN dial tone.

If the TE includes a dial tone detector and it does not detect the PSTN dial tone within $t_3(s)$ of the establishment of loop condition, the TE shall revert to the idle state.

The values of t_1 , t_2 and t_3 are shown in table 5.6.3.1.

Compliance shall be checked using the tests outlined in section A.5.6.3.1.

Purpose

To prevent the commencement of dialling before the network is ready.

Reasons for essentiality

For: to ensure correct interworking with the network;
 to prevent unnecessary occupation of network resources.

Against: wrong numbers are a quality aspect outside the scope of the ETS;
 not mandatory in eight countries.

Number of countries

Mandatory 11, Blank 1, not mandatory 8.

National peculiarities

No additional requirement

5.6.3.1 (N) 1, 5.6.3.1 (CH) 1, 5.6.3.1 (B) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments.

The PT could not agree on essentiality.

o	Clause	Essential?	91/263	Comment?
543	5.6.3.2 Manual initiation of dialling	No	4f	Yes

ETS 300 001 text:

The supervision of manually initiated dialling may be controlled by either the user or an integral dial tone detector.

If the TE includes a dial tone detector then dialling shall not commence until the detection of the PSTN dial tone has taken place. The TE shall start dialling within t_2 (s) of detection.

If the TE includes a dial tone detector and it does not detect the PSTN dial tone within t_3 (s) of the establishment of the dc loop condition the TE shall revert to the idle state.

The values of t_2 and t_3 are shown in table 5.6.3.1.

Compliance shall be checked using the tests outlined in section A.5.6.3.2.

Purpose

To control the timing of a dial tone detector.

Reasons for essentiality

For: to ensure correct interworking with the network;
 to prevent unnecessary occupation of network resources.

Against: provision of the detector is not mandatory;
 the user has control.

Number of countries

Mandatory 18, Blank 1, not mandatory 1?

National peculiarities

No additional requirement

5.6.3.2 (F) 1, 5.6.3.2 (GB) 1.

Additional requirement (essential for access)

"Automatic calibrated pause insertion not authorised" 5.6.3.2 (F) 1.

Additional requirement (not essential for access)

PT comments

The Table includes data both for manual and automatic initiation and so it is not possible to know for which purpose the answer is made.

No	Clause	Essential?	91/263	Comment?
544	5.6.4 Automatic control of call progress	No	4d	

ETS 300 001 text:

Prior to the initiation of transmission, the TE may monitor the line to check if the PSTN tones are present. Reference is made to Chapter 9.

If a tone, which indicates that the call connection has not been successful, is detected (e.g. busy tone, congestion tone, etc.) the TE shall revert to the idle state.

The inclusion of these functions may be mandatory, (see table 5.6.4).

Compliance shall be checked by inspection.

Purpose

To force clearing of an unsuccessful call attempt.

Reasons for essentiality

For: to prevent unnecessary occupation of network resources;
 incoming calls are blocked if the line is not cleared.

Against: it is not mandatory to provide a tone detector and so the test cannot be failed;
 not mandatory in seventeen countries.

Number of countries

Mandatory 2, Blank 1, not mandatory 17.

National peculiarities

No additional requirement

5.6.4 (B) 1, 5.6.4 (NL) 1, 5.6.4 (E) 1, 5.6.4 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Comment?
545	5.6.5 Initiation of transmission	Introductory text

ETS 300 001 text:

Initiation of transmission shall be controlled manually, or automatically by either identification signal or by a timer within the TE.

Purpose

Introduction to following clauses.

No	Clause	Essential?	91/263	Comment?
546a	5.6.5.1 Automatic initiation of transmission (t₄ & t₆)	No	4g	Yes

TS 300 001 text:

Automatic initiation of transmission shall be controlled either by an identification signal or by a timer within the TE which shall not initiate transmission until a time period t₄(s) has elapsed.

If the TE is controlled by identification signals and it does not receive the identification signal within t₅(s) of the change from dialling to transmission state, then the TE shall revert to the idle state.

If the TE is controlled by identification signals and it receives the identification signal, then transmission shall start within t₆(s) of recognition.

The values t₄, t₅ and t₆ are shown in table 5.6.5.1.

Compliance shall be checked using the tests outlined in section A.5.6.5.1.

Purpose

To prevent start of data transmission before the called party is ready.

Reasons for essentiality

For: to ensure correct end to end working of e.g. a facsimile machine.

Against: end-to-end working;
terminal specific.

Number of countries

t4 Mandatory 2, Blank 1, not mandatory 17.

t6 Mandatory 2, Blank 1, not mandatory 17.

National peculiarities

No additional requirement

5.6.5 (B) 1, 5.6.5 (F) 1, 5.6.5.1 (D) 1, 5.6.5.1 (P) 1, 5.6.5.1 (E) 1.

Additional requirement (essential for access)

"TE with automatic calling facility shall initiate, messages, tones, etc...and recognize answering tones etc..." **5.6.5 (F) 2, 5.6.5 (CH) 1.**

Additional requirement (not essential for access)

None.

PT comments

May be essential in a terminal standard.

No	Clause	Essential?	91/263	Comment?
546b	5.6.5.1 Automatic initiation of transmission (t5,)	?	4d	Yes

ETS 300 001 text:

Automatic initiation of transmission shall be controlled either by an identification signal or by a timer within the TE which shall not initiate transmission until a time period t_4 (s) has elapsed.

If the TE is controlled by identification signals and it does not receive the identification signal within t_5 (s) of the change from dialling to transmission state, then the TE shall revert to the idle state.

If the TE is controlled by identification signals and it receives the identification signal, then transmission shall start within t_6 (s) of recognition.

The values t_4 , t_5 and t_6 are shown in table 5.6.5.1.

Compliance shall be checked using the tests outlined in section A.5.6.5.1.

Purpose

To release the line quickly following an unsuccessful call attempt or or a failure establish end-to-end communication.

Reasons for essentiality

For: to avoid unnecessary blocking of incoming calls in the case of an unsuccessful call attempt (in first party release systems there is a potential for the network operator to lose revenue).

Against: this is a terminal quality matter;
not mandatory in 7 countries.

Number of countries

t5 Mandatory 12, Blank 1, not mandatory 7.

National peculiarities

See item 546a above.

PT comments

Once a call is established, the end-to-end procedures are irrelevant to the network.

A terminal that repeatedly holds the line following an unsuccessful call attempt will fail in the market place. This assumes satisfactory protection for the consumer/user who buys such a product.

No	Clause	Essential?	91/263	Comment?
547	5.6.5.2 Manual initiation of transmission	No	4d	

ETS 300 001 text:

If the TE allows only manual initiation of transmission and the user does not manually initialise transmission (e.g. pick-up the handset or switch-on a handsfree function, etc.) within t_7 (s) of the change from dialling to transmission state the TE shall revert to the idle state.

The value of t_7 is shown in table 5.6.5.2.

Compliance shall be checked using the tests outlined in section A.5.6.5.2.

Purpose

To release the line quickly following an unsuccessful call attempt or or a failure establish end-to-end communication.

Reasons for essentiality

For: to avoid unnecessary occupation of network resources.

Against: prevents certain uses of combined telephony/data terminals; not mandatory in 10 countries.

Number of countries

Mandatory 9, Blank 1, not mandatory 10.

National peculiarities

No additional requirement

5.6.5.2 (E) 1.

Additional requirement (essential for access)
"Monitoring system is mandatory" **5.6.5.2 (F) 1.**

Additional requirement (not essential for access)
None.

PT comments

None.

No	Clause	Comment?
548	5.6.6 Transmission duration control	Introductory text

ETS 300 001 text:

Transmission duration control may be controlled automatically by either monitoring the flow of information or by a timer within the TE. When transmission has been completed under automatic duration control with information flow, it is possible for the TE to pass control to the user and the termination of the call to be performed manually.

Purpose

Introduction to following clauses.

No	Clause	Essential?	91/263	Comment?
549	5.6.6.1 Automatic transmission duration control	No	4d	Yes

ETS 300 001 text:

Transmission duration control shall be controlled automatically by either monitoring the flow of information or by a timer within the TE. The timer terminates the transmission and returns the TE to the idle state within a time period t_8 (s).

If the transmission duration is controlled by monitoring the flow of information and no information flow is identified for a continuous period of t_9 (s), the TE shall revert to the idle state or pass control of the call to the user as appropriate.

The values of t_8 and t_9 are shown in table 5.6.6.1.

Compliance shall be checked using the tests outlined in section A.5.6.6.1.

Purpose

To clear the line at the end of data transmission.

Reasons for essentiality

For: to avoid unnecessary occupation of network resources.

Against: end-to-end working is used to control the operation;
 terminal specific;
 the network can protect itself by timing out;
 not mandatory in 5 or 6 countries.

Number of countries

t_8 Mandatory 14, Blank 1, not mandatory 5.

t_9 Mandatory 13, Blank 1, not mandatory 6.

National peculiarities

No additional requirement

5.6.6.1 (A) 1, 5.6.6.1 (DK) 1, 5.6.6.1 (F) 1, 5.6.6.1 (I) 1, 5.6.6.1 (N) 1, 5.6.6.1 (P) 1, 5.6.6.1 (P) 2, 5.6.6.1 (P) 3, 5.6.6.1 (P) 5, 5.6.6.1 (E) 1.

Additional requirement (essential for access)

"Series TE shall connect the second port in a certain time after clearing" **5.6.6.1 (F) 4.**

"Specific requirement for emergency calls" **5.6.6.1 (GB) 1.**

Additional requirement (not essential for access)

"Polarity reversal shall cause clearing " **5.6.6.1 (F) 3.**

"Clearing by detecting the busy/congestion tone" **5.6.6.1 (N) 2, 5.6.6.1 (P) 6.**

"Case of TE using backward channel for modem" **5.6.6.1 (P) 4.**

PT comments

May be essential in a terminal standard.

No	Clause	Essential?	91/263	Comment?
550	5.6.6.2 Manual transmission duration control	?	4g	Yes

ETS 300 001 text:

If it has been indicated (by lifting the handset etc.) that control of the call duration should be passed to the user, after the automatic duration control with information flow has finished operating, then the TE may include an audible warning device to alert the user, see table 5.6.6.2.

Compliance shall be checked using the tests outlined in section A.5.6.6.2.

Purpose

To give an audible warning that user action is needed to complete the call.

Reasons for essentiality

For: to facilitate end to end working.

Against: end-to-end interworking for a non reserved service.

Number of countries

Mandatory 7, Blank 2, not mandatory 11.

National peculiarities

No additional requirement

5.6.6.2 (D) 1, 5.6.6.2 (P) 1, 5.6.6.2 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

It is not clear why this is mandatory in some countries.

No	Clause	Comment?
551	5.6.7 Automatic repeat function	Introductory text

ETS 300 001 text:

TE with automatic calling functions may be capable of performing repeat call attempts to the same or different numbers in an arbitrary order.

Purpose

Introduction to following clauses.

No	Clause	Essential?	91/263	Comment?
552	5.6.7.1 Repeat call attempts	Yes	4d	

ETS 300 001 text:

TE capable of performing repeat call attempts to the same or different numbers shall not repeat a second call attempt until a time period of t_{10} (s) has elapsed, following the return to idle state at the end of the first call attempt. Subsequent call attempts shall not be repeated until a time period of t_{11} (min) has elapsed following the return to idle state at the end of the previous call attempt.

In the case where a subsequent call attempt is to a number which is different from the number used in the previous call attempt, the repeat time period t_{10} shall apply.

The values of t_{10} and t_{11} are shown in table 5.6.7.1.

Compliance shall be checked using the tests outlined in section A.5.6.7.1.

Purpose

To restrict the rate of repeat attempts.

Reasons for essentiality

For: to avoid degradation of the service provided by the network by diverting its resources unnecessarily.

Against: the network can be dimensioned to accept all likely traffic;
can be controlled by a suitable cost-based tariff;
the trunk network is not affected when modern signalling methods are used.

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement

5.6.7.1 (F) 1, 5.6.7.1 (N) 2, 5.6.7.1 (N) 3, 5.6.7.1 (E) 1, 5.6.7.1 (S) 1, 5.6.7.1 (S) 1.

Additional requirement (essential for access)

"Dial tone detector mandatory" 5.6.7.1 (N) 1.

Additional requirement (not essential for access)

"Classification of the requirement in three group" 5.6.7.1 (D) 1.

"Alternative pattern of repeat call attempt" 5.6.7.1 (GB) 1, 5.6.7.1 (GB) 2.

PT comments

None.

o	Clause	Essential?	91/263	Comment?
553	5.6.7.2 Number of repeat call attempts	Yes	4d	

ETS 300 001 text:

TE capable of performing repeat call attempts shall not attempt more than n_1 call attempts to any one number within any one time period of t_{12} (hrs), except for alarm calls which shall not attempt more than n_2 calls within the same period if no call is successful. Following a successful call or a manual reset, the repeat call attempt cycle may recommence. For the purpose of this requirement a successful call is defined as one that:

- a) provides to the calling TE a data or code signal originating from the TE;
- b) delivers to the calling party a metering pulse or an answering signal.

The values of t_{12} , n_1 and n_2 are shown in table 5.6.7.2.

Compliance shall be checked using the tests outlined in section A.5.6.7.2.

Purpose

To restrict the number of repeat attempts.

Reasons for essentiality

For: to conserve network resources.

Against: the trunk network is not affected when modern signalling methods are used.

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirement

5.6.7.2 (A) 2, 5.6.7.2 (F) 1, 5.6.7.2 (N) 1, 5.6.7.2 (N) 2, 5.6.7.2 (P) 1, 5.6.7.2 (E) 1, 5.6.7.2 (CH) 1, 5.6.7.2 (GB) 1.

Additional requirement (essential for access)

"Particular case of the emergency calls" 5.6.7.2 (B) 1, 5.6.7.2 (F) 2, 5.6.7.2 (I) 1.

Additional requirement (not essential for access)

"Classification of the requirement in three group" 5.6.7.2 (A) 1, 5.6.7.2 (D) 1.

"Case of TE able to distinguish between erroneous call and ineffective call" 5.6.7.2 (F) 1.

PT comments

None.

No	Clause	Comment?
554	5.7 Identification signals	Introductory text

ETS 300 001 text:

For TE capable of automatically establishing a call, an identification signal consisting of speech or data-related tones shall be sent by the TE no later than t_1 after the completion of the dialling function.

Purpose

Introduction to following clauses.

No	Clause	Essential?	91/263	Comment?
555	5.7.1 Data-related tones	No	4g	

ETS 300 001 text:

For data-related tones, the identification signal shall consist of one or more frequencies in a bandwidth B, and shall be emitted in such a way as to comply otherwise with all the relevant requirements in section 4.4 and to attempt to cause either a related action at the remote TE or the receipt of a signal which is subject to the requirements of section 6.4 from the called TE.

The bandwidth B and t_1 are shown in table 5.7.1.

Compliance shall be checked by inspection and measurement using the appropriate test arrangements outlined in section A.5.7.

Purpose

To provide necessary data protocols and to indicate to the called party that a real call has been established.

Reasons for essentiality

For: to set up data communication.

Against: an end-to-end requirement;
 terminal specific.

Number of countries

Mandatory 12, Blank 2, not mandatory 6.

National peculiarities

No additional requirement

5.7.1 (P) 1.

Additional requirement (essential for access)
 None.

Additional requirement (not essential for access)
 "Reference to the identification signals recommended by the CCITT" **5.7.1 (A) 1, 5.7.1 (B) 1, 5.7.1 (DK) 1, 5.7.1 (F) 1, 5.7.1 (N) 1, 5.7.1 (N) 2, 5.7.1 (E) 1, 5.7.1 (CH) 1.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
556	5.7.2 Speech or other non-data related tones	No	4g	

ETS 300 001 text:

For speech or speech-like or music signals, the identification signal shall be emitted in such a way as to comply with all the relevant requirements in section 4.4 and to attempt to cause either a related action at the remote TE or the receipt of a signal subject to the requirements of section 6.4 from the remote TE.

This requirement may be mandatory and this is shown in table 5.7.2.

Compliance shall be checked by inspection and measurement using the appropriate test arrangements outlined in section A.5.7.

Purpose

To indicate to the called party that a real call has been established.

Reasons for essentiality

For: ?

Against: end-to-end interworking;
terminal specific.

Number of countries

Mandatory 4, Blank 3, not mandatory 13.

National peculiarities

No additional requirement

5.7.2 (F) 1, 5.7.2 (N) 1, 5.7.2 (P) 1, 5.7.2 (E) 1, 5.7.2 (CH) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

Annex G (informative): Findings: Chapter 6

No	Clause	Comment?
601	6 Answering function	Title

No	Clause	Comment?
602	6.1 General	Introductory text

ETS 300 001 text:

TE capable of detecting a ringing signal, whilst in the quiescent state, shall subsequently alter its state to the loop condition or indicate to the user that such a change should be initiated.

Compliance shall be checked by inspection and measurement using the tests outlined in the relevant sections.

Purpose

Introduction to following clauses.

No	Clause	Comment?
603	6.2 Ringing signal reception	Title

No	Clause	Essential?	91/263	Comment?
604	6.2.1 Ringing signal detector sensitivity	Yes	4f	

ETS 300 001 text:

The ringing detection circuitry or ringer of the TE shall be activated within the time t_r (ms) when ringing signals generated by an ac source "e" connected in series with a dc source (V_f) are applied to the line terminals (see figure A.6.2.1). The requirements shall be met in the specified voltage ranges DU(ac) and DV_f , in the specified frequency range Df and with the series resistance DR_f . The requirement values DU, DV_f , Df and DR_f are shown in table 6.2.1.

Compliance shall be checked using the test outlined in A.6.2.1.

Purpose

To demonstrate that the ringing signal is detected and acted upon.

Reasons for essentiality

For: to enable a call to be answered.

Against: ?

Number of countries

Mandatory 19, Blank 1.

National peculiarities

No additional requirements

6.2.1 (A) 1, 6.2.1 (F) 1, 6.2.1 (F) 2, 6.2.1 (F) 4, 6.2.1 (D) 1, 6.2.1 (D) 2, 6.2.1 (D) 4, 6.2.1 (I) 1, 6.2.1 (I) 2, 6.2.1 (N) 1, 6.2.1 (P) 1, 6.2.1 (P) 2, 6.2.1 (E) 1, 6.2.1 (CH) 1, 6.2.1 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"Stop within specified period" **6.2.1 (F) 3, 6.2.1 (D) 3.**

"Not activate on short pulses" **6.2.1 (S) 1.**

"Ignore continuous ringing" **6.2.1 (CH) 1.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
605	6.2.2 Ringing signal detector insensitivity	?	4f	Yes

ETS 300 001 text:

The ringing detection circuitry or ringer of the TE shall not be activated when ringing signals of voltages less than U are applied at its terminals for 20 s in the frequency range Df, generated by an ac source connected in series with a dc source (V_f) (see figure A.6.2.2). The requirement shall be met for various dc excitations (V_f , R_f).

The requirement values U, Df, DV_f , DR_f are shown in table 6.2.2.

Compliance shall be checked using the test outlined in A.6.2.2.

Purpose

To ensure that a ringing detector is not activated on false signals.

Reasons for essentiality

For: to prevent false line seizure which can cause a false calling signal to be sent to the network or which can frustrate line testing;
to prevent operation by transient signals.

Against: the frustration of line testing is a quality matter;
operation of a ringer is a nuisance to customer not network harm;
not mandatory in 4 countries.

Number of countries

Mandatory 15, Blank 1, not mandatory 4.

National peculiarities

No additional requirements

6.2.2 (F) 1, 6.2.2 (D) 1, 6.2.2 (D) 2, 6.2.2 (D) 4, 6.2.2 (I) 1, 6.2.2 (P) 1, 6.2.2 (E) 1.

Additional requirements (essential for access)

None.

Additional requirements (not essential for access)

"must not respond with out of band signals" **6.2.2 (D) 3.**

"not activate on short pulses" **6.2.2 (S) 1.**

"Ignore continuous ringing" **6.2.2 (CH) 1.**

PT comments

This requirement does not specify the action when the ringing detector is activated and so embraces automatic answer. It thus duplicates 609.

No	Clause	Essential?	91/263	Comment?
606	6.2.3 Immunity to decadic dialling from parallel TE	No	?	

ETS 300 001 text:

The ringing detector of a TE shall not produce any indication of ringing detection caused by the decadic dialling (loop pulsing) function of frequency D_f of a parallel connected TE.

The requirements shall be met at variation of dc conditions DV_f , DR_f . The requirement values D_f , Dt_{break} , Dt_{make} , DV_f , DR_f are shown in table 6.2.3. Dt_{break} , Dt_{make} are the ranges of the break and the make respectively.

Compliance shall be checked using the test outlined in A.6.2.3.

Purpose

To prevent ringing detector operation when a parallel instrument is dialling in loop disconnect mode.

Reasons for essentiality

For: bell tinkle can jeopardise customer privacy by alerting others that a call is being made.

Against: no harm to network;
does not affect interworking;
not mandatory in 6 countries.

Number of countries

Mandatory 13, Blank 1, not mandatory 6.

National peculiarities

No additional requirements

6.2.3 (F) 1, 6.2.3 (IRL) 1, 6.2.3 (P) 1, 6.2.3 (P) 2, 6.2.3 (E) 1, 6.2.3 (E) 1, 6.2.3 (S) 2, 6.2.3 (CH) 1, 6.2.3 (GB) 1.

Additional requirements (essential for access)

"must not respond to speech" 6.2.3 (GB) 1 6.2.3 (GB) 1.

Additional requirements (not essential for access)

None.

PT comments.

None.

No	Clause	Comment?
607	6.3 Automatic answering function	Title

No	Clause	Essential?	91/263	Comment?
608a	6.3.1 Automatic establishment of loop condition (Min)	No	?	

ETS 300 001 text:

For TE with the ability to detect ringing signals and subsequently capable of automatically establishing a loop condition in itself or a related TE, the time period between the application of the ringing signal and the establishment of the loop condition shall be greater than t_1 (s) but less than t_2 (s).

The requirement shall be met in the specified voltage ranges DU (ac) and DV_f (dc) in the specified frequency range Df and with the series resistance DR_f .

The requirement values t_1 , t_2 , DU, DV_f and DR_f are shown in table 6.3.1.

Compliance shall be checked using the test outlined in A.6.3.1.

Purpose

To control timing of automatic answering.

Reasons for essentiality

For: early answer may prevent the caller from hearing ring tone.

Against: early answer is only a human factors effect.

Number of countries

Mandatory 10, Blank 6, not mandatory 4.

National peculiarities

No additional requirements

6.3.1 (F) 1, 6.3.1 (D) 3, 6.3.1 (I) 1, 6.3.1 (N) 1, 6.3.1 (E) 1, 6.3.1 (S) 1, 6.3.1 (S) 2, 6.3.1 (CH) 1.

Additional requirements (essential for access)

None.

Additional requirements (not essential for access)

"Non-polarised call", 6.3.1 (F) 1.

"Special domestic delays", 6.3.1 (F) 3.

"Ready to operate requirement", 6.3.1 (D) 1.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
608b	6.3.1 Automatic establishment of loop condition (Max)	?	4d/4f	Yes

ETS 300 001 text:

For TE with the ability to detect ringing signals and subsequently capable of automatically establishing a loop condition in itself or a related TE, the time period between the application of the ringing signal and the establishment of the loop condition shall be greater than t_1 (s) but less than t_2 (s).

The requirement shall be met in the specified voltage ranges DU (ac) and DV_f (dc) in the specified frequency range Df and with the series resistance DR_f .

The requirement values t_1 , t_2 , DU, DV_f and DR_f are shown in table 6.3.1.

Compliance shall be checked using the test outlined in A.6.3.1.

Purpose

To control timing of automatic answering.

Reasons for essentiality

For: late answer will cause network resources to be occupied unnecessarily without any revenue being received;
to ensure user friendly operation of automatic equipment.

Against: the network can protect itself by timing out;
user friendly operation is not essential.

Number of countries

Mandatory 13, Blank 2, not mandatory 5.

National peculiarities

No additional requirements

6.3.1 (F) 1, 6.3.1 (F) 2, 6.3.1 (D) 2, 6.3.1 (D) 3, 6.3.1 (I) 1, 6.3.1 (N) 1, 6.3.1 (P) 1, 6.3.1 (E) 1, 6.3.1 (S) 1, 6.3.1 (S) 2, 6.3.1 (CH) 1.

Additional requirements (essential for access)

"Non-polarised call" **6.3.1 (F) 1.**

Additional requirements (not essential for access)

"Special domestic delays", **6.3.1 (F) 3**, "naive callers", **6.3.1 (GB) 1.**

"Ready to operate requirement", **6.3.1 (D) 1.**

PT comments

It is not clear whether such a loss of revenue should be considered as harm to the network.

No	Clause	Essential?	91/263	Comment?
609	6.3.2 Insensitivity to ringing signal	Yes?	4d	Yes

ETS 300 001 text:

For TE with the ability to detect ringing signals and subsequently capable of automatically establishing a loop condition in itself or a related TE, the loop condition shall not be established when ringing signals of voltage less than U are applied at its terminal for t_3 (s) in the frequency range Df generated by an ac source connected in series with a dc source V_f .

The requirement shall be met for various dc excitations (V_f , R_f).

The requirement values U, Df, DV_f , DR_f and t_3 are shown in table 6.3.2.

Compliance shall be checked using the test outlined in A.6.3.2.

Purpose

To prevent operation with incorrect ringing signals.

Reasons for essentiality

For: to prevent automatic answer on low ringing voltages;
to prevent operation by transients.

Against: market forces will provide sufficient control;
not mandatory in three countries.

Number of countries

Mandatory 16, Blank1, not mandatory 3.

National peculiarities

No additional requirements

6.3.2 (A) 1, 6.3.2 (F) 1, 6.3.2 (F) 2, 6.3.2 (D) 1, 6.3.2 (D) 2, 6.3.2 (D) 3, 6.3.2 (D) 4, 6.3.2 (NL) 1, 6.3.2 (E) 1, 6.3.2 (S) 1, 6.3.2 (CH) 1.

Additional requirements (essential? for access)
 "Insensitivity to pulses", **6.3.2 (DK) 1, 6.3.2 (F) 3, 6.3.2 (IRL) 1, 6.3.2 (CH) 1.**
 "Polarity reversal", **6.3.2 (NL) 1.**

Additional requirements (not essential for access)

PT comments

This requirement duplicates item 605.

No	Clause	Essential?	91/263	Comment?
610	6.3.3 Answering signal	No	4g	Yes

ETS 300 001 text:

For TE which has the capability of automatically altering its state from the quiescent condition to the loop condition an answering signal complying with all the requirements of section 4.4 and with a minimum level of a (dBm) and a minimum duration t_5 seconds shall be able to be applied to the network by the TE or related TE no later than t_4 seconds after the TE establishes the loop condition.

The answering signal shall either be a recorded message or a tone within a frequency band D_f (Hz).

The requirements shall be met for various dc excitations (V_f, R_f).

The requirement values $t_4, t_5, D_f, a, DV_f, DR_f$ are shown in table 6.3.3.

Compliance shall be checked by inspection and measurement using the tests outlined in section A.6.3.3.

Purpose

To give the caller an indication that an answer has occurred.

Reasons for essentiality

For: to allow caller to know that an answer has occurred.

Against: end-to-end interworking only;
 human factors reasons only;
 not mandatory in four countries.

Number of countries

Mandatory 14 , Blank 1, not mandatory 5.

National peculiarities

No additional requirements

6.3.3 (A) 1, 6.3.3 (B) 1, 6.3.3 (DK) 1, 6.3.3 (F) 1, 6.3.3 (D) 1, 6.3.3 (IRL) 1, 6.3.3 (N) 1, 6.3.3 (E) 1, 6.3.3 (S) 1, 6.3.3 (CH) 1, 6.3.3 (GB) 1.

Additional requirements (essential for access)

None.

Additional requirements (not essential for access)

"network tones not allowed", **6.3.3 (NL) 1.**

PT comments.

As drafted this requirement concerns an end-to-end function. It should be reviewed to determine whether there is a danger of misoperation of the network.

No	Clause	Comment?
611	6.4 Automatic control of loop condition	Introductory text

ETS 300 001 text:

The TE may have a manual control capable of interrupting the automatic control of the loop at any moment by the user.

Purpose

Introduction to the following clauses.

No	Clause	Essential?	91/263	Comment?
612	6.4.1 TE without information-related control of loop condition	Yes	4d	

ETS 300 001 text:

TE without information-related control of loop condition shall revert to the quiescent condition no longer than t_6 (s) after the loop condition was initially established.

The requirement shall be met for various dc excitations (V_f , R_f).

Compliance shall be checked using the tests outlined in A.6.4.1.

Purpose

To limit the duration of an unchargeable line hold condition.

Reasons for essentiality

For: to limit harm to the network by unnecessary occupation of resources;
to prevent loss of revenue by unnecessary line holding.

Against: limits the time available for automatic services.

Number of countries

Mandatory 17, Blank 1, not mandatory 2.

National peculiarities

No additional requirements

6.4.1 (DK) 1, 6.4.1 (SF) 1, 6.4.1 (F) 1, 6.4.1 (D) 1, 6.4.1 (NL) 1, 6.4.1 (P) 1, 6.4.1 (E) 1, 6.4.1 (S) 1, 6.4.1 (CH) 1.

Additional requirements (essential for access)

None.

Additional requirements (not essential for access)

None.

PT comments

None.

No	Clause	Comment?
613	6.4.2 TE with information-related control of loop condition	Introductory text

ETS 300 001 text:

The requirements in this section apply to TEs with facilities which permit a loop condition to be sustained or controlled by the presence of speech band signals.

Purpose

Introduction to the following clauses.

No	Clause	Essential?	91/263	Comment?
614	6.4.2.1 Data or code signal related control	?	4d/4g	Yes

ETS 300 001 text:

The TE shall revert to the idle state if the level of the present signal falls below a value a_2 (dBm) for at least t_7 (s). If during this period the level should rise again to a value greater than a_3 (dBm), the timer controlling time t_7 (s) shall be reset (hysteresis).

The requirement shall be met for various dc excitations (V_f , R_f).

Compliance shall be checked using the tests outlined in section A.6.4.2.

Purpose

To cause call clearing by the termination or absence of an end to end data communication.

Reasons for essentiality

For: to prevent unnecessary occupation of network resources.

Against: a terminal quality function only;
 an end-to-end communication effect.

Number of countries

Mandatory 13, Blank 1, not mandatory 6.

National peculiarities

No additional requirements

6.4.2.1 (A) 1, 6.4.2.1 (DK) 1, 6.4.2.1 (F) 1, 6.4.2.1 (D) 1, 6.4.2.1 (N) 1, 6.4.2.1 (P) 1, 6.4.2.1 (P) 2, 6.4.2.1 (E) 1, 6.4.2.1 (CH) 1.

Additional requirements (essential? for access)

6.4.2.1 (F) 2.

Additional requirements (not essential for access)

"Special hold code" 6.4.2.1 (DK) 1.

"Howler" 6.4.2.1 (F) 1.

PT comments

The PT could not agree on essentiality.

No	Clause	Essential?	91/263	Comment?
615	6.4.2.2 Incoming speech or other non-data signal related control	No	4d/4g	

ETS 300 001 text:

The TE shall sustain the loop condition when signals with an active average speech power level greater than or equal to a_4 (dBm) are received.

For received signals with an active average power level less than a_5 (dBm), for a continuous period of t_8 (s), the TE shall revert to quiescent condition within a subsequent time period of t_9 (s).

The requirement shall be met for various dc excitations (V_f , R_f).

Compliance shall be checked using the tests outlined in section A.6.4.2.2.

Purpose

To force automatic clearing when end to end communication is completed.

Reasons for essentiality

For: to prevent unnecessary occupation of network resources.

Against: a terminal quality function only;
 an end-to-end communication effect.

Number of countries

Mandatory 14, Blank 1, not mandatory 5.

National peculiarities

No additional requirements

6.4.2.2 (DK) 1, 6.4.2.2 (F) 1, 6.4.2.2 (F) 2, 6.4.2.2 (D) 1, 6.4.2.2 (N) 1, 6.4.2.2 (E) 1, 6.4.2.2 (S) 1, 6.4.2.2 (CH) 1.

Additional requirements (essential for access)
 None.

Additional requirements (not essential for access)
 "Howler", **6.4.2.2 (F) 3, 6.4.2.2 (F) 4.**
 "Out-of -band" **6.4.2.2 (S) 2.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
616	6.4.2.3 Remotely transmitted control signals	No	4d/4g	

ETS 300 001 text:

For control signals (e.g. remote recall) with a level less than a_6 (dBm) or, in the absence of control signals, the TE shall revert to the quiescent condition within a period of t_{10} (s) following the last successful receipt of any control signal.

The requirement shall be met for various dc excitations (V_f, R_f).

Compliance shall be checked using the tests outlined in section A.6.4.2.3.

Purpose

To cause call clearing by the termination or absence of an end-to-end control signals.

Reasons for essentiality

For: to prevent unnecessary occupation of network resources.

Against: control by end to end signals;
 not mandatory in 13 countries.

Number of countries

Mandatory 6, Blank 2, not mandatory 13.

National peculiarities

No additional requirements

6.4.2.3 (B) 1, 6.4.2.3 (DK) 1, 6.4.2.3 (F) 1, 6.4.2.3 (F) 2, 6.4.2.3 (F) 3, 6.4.2.3 (D) 1, 6.4.2.3 (GR) 1, 6.4.2.3 (E) 1, 6.4.2.3 (CH) 1.

Additional requirements (essential for access).

Additional requirements (not essential for access)
 "Howler" **6.4.2.3 (F) 1, 6.4.2.3 (F) 2.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
617	6.4.3 TE with network tone related control of loop condition	?	4d	Yes

ETS 300 001 text:

TEs with the facility of network tone detection and the facility to terminate the loop condition upon the detection of network tones shall revert to the quiescent condition upon the receipt of the tones specified in table 6.4.3.a. The inclusion of these facilities may be mandatory (see table 6.4.3.a).

For the characteristics of the tones which activate the detection facility see Chapter 9.

Purpose

To allow apparatus to terminate a call on receipt of network tones.

Reasons for essentiality

For: to prevent unnecessary unchargeable occupancy of network resources.

Against: other methods (e.g. timing) are effective and cheaper;
not mandatory in most countries.

Number of countries

Dial tone Mandatory 8, Blank 2, not mandatory 10.
Busy tone Mandatory 6, Blank 2 not mandatory 12.
Congestion tone Mandatory 4, Blank 2, not mandatory 14.
Other tone Mandatory 2, Blank 2, not mandatory 16.

National peculiarities

No additional requirements

6.4.3 (A) 1, 6.4.3 (B) 1, 6.4.3 (D) 1, 6.4.3 (GR) 1, 6.4.3 (I) 1, 6.4.3 (NL) 1, 6.4.3 (NL) 2, 6.4.3 (P) 1, 6.4.3 (E) 1, 6.4.3 (CH) 1, 6.4.3 (GB) 1.

Additional requirements (essential ? for access)

"Howler" **6.4.3 (F) 1.**

Additional requirements (not essential for access)

None.

PT comments

The PT could not agree on essentiality.

No	Clause	Essential?	91/263	Comment?
618	6.4.4 TE with control of the loop condition related to certain network dc conditions	?	4d	Yes

ETS 300 001 text:

TEs with the facility to detect certain network dc conditions and the facility to terminate the loop condition upon detection of these conditions shall revert to the quiescent condition upon the detection of the conditions specified in table 6.4.4.

These facilities may be mandatory.

The TE shall revert to the quiescent condition within a period of t_{12} (s) after application of the relevant signal.

The requirement shall be met for various dc excitations (V_f , R_f , I_f).

Compliance shall be checked using the tests outlined in section A.6.4.4.

Purpose

To regulate apparatus which uses network dc conditions to terminate the call.

Reasons for essentiality

For: to prevent unnecessary holding of the line loop.

Against: not mandatory in 15 countries;
 market forces will give sufficient control.

Number of countries

Mandatory 4, Blank 1, not mandatory 15.

National peculiarities

No additional requirements

6.4.4 (A) 1, 6.4.4 (A) 2, 6.4.4 (A) 3, 6.4.4 (F) 1, 6.4.4 (E) 1, 6.4.4 (CH) 1, 6.4.4 (GB) 1.

Additional requirements (essential for access)

None.

Additional requirements (not essential for access)

None.

PT comments

The PT could not agree on essentiality.

Annex H (informative): Findings: Chapter 7

No	Clause	Comment?
701	7 Power failure	Introductory text

ETS 300 001 text:

The requirements of this chapter refer to a TE whose functions covered by this document depend upon power derived from sources other than the PSTN to which it is attached.

Purpose

Introduction to following clauses.

No	Clause	Essential?	91/263	Comment?
702	7.1 Power failure with TE in the quiescent condition.	Yes	4d	Yes

ETS 300 001 text:

TE which, whilst in a quiescent condition, has its power source interrupted, shall not subsequently be able to initiate any function or sequence of functions which cannot be completed with its power source interrupted. Subsequent re-application of the power source to the TE shall not of itself cause the TE to change from the quiescent condition to any other condition.

NOTE: It is permitted for the TE to execute an intended reaction to the restoration of power (e.g. for a TE intentionally to make an automatic call for the purposes of indicating to a remote party that it is back in service).

Compliance shall be checked using the tests outlined in section A.7.1.

Purpose

A TE not able to perform any function without external power shall not seize the line when it is quiescent, either during the power failure or after its re-application.

Reasons for essentiality

For: false seizure is incorrect interworking with the network;
 an ineffective call is a loss of revenue for the operator.

Against: this requirement is to some extent the duplication of the next one (see item 703);
 power sources other than line power and failure conditions are not defined precisely;
 not mandatory in two countries.

Number of countries

Mandatory 17, Blank 1, not mandatory 2.

National peculiarities

No additional requirement

7.1 (A) 1, 7.1 (A) 2, 7.1 (A) 6, 7.1 (A) 7, 7.1 (CY) 2, 7.1 (CY) 3, 7.1 (F) 2, 7.1 (GR) 1, 7.1 (E) 1, 7.1 (GB) 1.

Additional requirement (essential for access)

"TE shall continue to meet the relevant NET4 (essential) requirements in the quiescent state".

7.1 (A) 3, 7.1 (CY) 4, 7.1 (F) 3, 7.1 (GR) 2, 7.1 (IS) 1, 7.1 (S) 1, 7.1 (CH) 1, 7.1 (A) 4.

Additional requirement (not essential for access)

"The basic Telephony service shall be available during power failure".

7.1 (A) 5, 7.1 (CY) 1, 7.1 (CY) 2, 7.1 (F) 1, 7.1 (GR) 3, 7.1 (I) 1, 7.1 (CH) 1.

PT comments

The case for other than quiescent state (item 703 below) should be grouped with this requirement which needs rewriting for clarification (see DTR/TE- 05032/NOTE). It should be made clear that it is essential

that the terminal meets all of the (essential) requirements of the quiescent condition when power fails. It might be an essential terminal requirement for telephony terminals to provide basic operation without power for access to emergency services.

NOTE: DTR/TE-05032 is a 3 part ETR which is to be published as ETR 075.

No	Clause	Essential?	91/263	Comment?
703	7.2 Power failure with TE in conditions other than the quiescent condition	Yes	4d	Yes

ETS 300 001 text:

TE which, whilst in any condition other than quiescent condition, has its power source interrupted such that it is unable to continue normally the function in progress, shall revert to the quiescent condition no later than "t" seconds after the power source interruption occurs. Subsequent re-application of the power source to the TE shall not of itself cause the TE to change from the quiescent condition to any other condition.

NOTE: It is permitted for the TE to execute an intended reaction to the restoration of power (e.g. for a TE intentionally to make an automatic call for the purposes of indicating to a remote party that it is back in service.)

Compliance shall be checked using the tests outlined in section A.7.2.

Purpose

TEs not able to perform any function without external power shall revert to the quiescent condition in a certain time after the power failure start and to remain quiescent after the power re-application.

Reasons for essentiality

For: false seizure is incorrect interworking with the network;
an ineffective call is a loss of traffic for the operator;
seventeen countries say mandatory.

Against: power sources other than line power and failure conditions are not defined precisely;
the requirement is partly a duplication of the previous requirement.

Number of countries

Mandatory 17, Blank 1, not mandatory 2.

National peculiarities

No additional requirement

7.2 (A) 1, 7.2 (A) 2, 7.2 (F) 2, 7.2 (GR) 1, 7.2 (E) 1.

Additional requirement (essential)

"TE shall continue to meet the relevant NET4 (essential) requirements in the quiescent state"

7.2 (A) 3, 7.2 (A) 4, 7.2 (A) 6, 7.2 (CY) 1, 7.2 (F) 3, 7.2 (GR) 2, 7.2 (S) 1, 7.2 (CH) 1, 7.2 (GB) 1.

Additional requirement (essential)

"The basic Telephony service shall be available during power failure".

7.2 (A) 5, 7.2 (A) 7, 7.2 (F) 1, 7.2 (GR) 3, 7.2 (I) 1, 7.2 (N) 1, 7.2 (CH) 1.

PT comments

The case for the quiescent state (item 702 above) should be grouped with this requirement which needs rewriting for clarification (see DTR/TE-05032/NOTE). It should be made clear that it is essential that the terminal meets all of the (essential) requirements of the quiescent condition when power fails. It might be an essential terminal requirement for telephony terminals to provide basic operation without power for access to emergency services.

NOTE: DTR/TE-05032 is a 3 part ETR which is to be published as ETR 075.

Annex J (informative): Findings: Chapter 9

No	Clause	Comment?
901	9 Special functions	Title

No	Clause	Comment?
902	9.1 Register recall	Introductory text

ETS 300 001 text:

Register recall is a time calibrated break pulse of the dc loop presented to the PSTN by the TE in order to cause the PSTN to initiate certain facilities.

The time calibrated register recall break pulse can be sent to PSTN by a manual action on the TE or automatically by the TE.

In the case of a manual action, the break period duration shall be independent of the time that the relevant button is depressed. Compliance shall be checked by inspection.

The register recall conditions includes:

- a pre-break period;
- a break period;
- a post-break period;

as shown in figure 9.1.

The further requirements in this section relate to the values of loop current, measured at various times, during the register recall condition.

Purpose

Introduction to detailed requirements in following clauses.

National peculiarities

No additional requirement

9.1 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"Push button marking specification" and "Inhibition of the acoustic transducer and transmission circuits" etc....**9.1 (E) 1.**

No	Clause	Essential?	91/263	Comment?
903	9.1.1 Break period	No	4f	

ETS 300 001 text:

a)	The time interval from when the loop current crosses the limit value I_1 (mA) for the first time at the front edge of the break pulse to when the loop current crosses the limit value I_2 (mA) for the last time at the rear edge of the break pulse shall have the nominal value t_b (ms) with the tolerance Dt_b (ms), as specified in table 9.1.1.
b)	During the break period, there shall be a period not shorter than t_m (ms) during which the loop current shall be lower than I_m (mA) or the resistance between the line terminals shall be greater than R_1 (kW), as specified in table 9.1.1.
c)	The fall time during which the loop current falls from the I_f (mA) to I_m (mA) and the rise time during which the loop current rises from I_m (mA) to I_r (mA) shall be shorter than t_t (ms), as specified in table 9.1.1.
The requirements for a), b) and, c) shall be met with feeding values in the ranges specified in table 9.1.1.	
Compliance shall be checked by the tests outlined in section A.9.1.	

Purpose

To describe the characteristics of a recall signal.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: recall is used to invoke a supplementary service.

Number of countries

Mandatory 15, Blank 2, not mandatory 3.

National peculiarities

No additional requirement

9.1.1 (N) 1, 9.1.1 (E) 1, 9.1.1 (E) 2, 9.1.1 (E) 3, 9.1.1 (S) 1, 9.1.1 (CH) 1, 9.1.1 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"Minimum time depression of the key required" 9.1.1 (DK) 1.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
904	9.1.2 Pre-break and post-break period	No	4f	

ETS 300 001 text:

- a) From the time t_1 when the TE assumes the register recall condition until time t_2 when the break pulse is generated and, from the time t_3 when the TE completes the break pulse until time t_4 when it reverts to loop condition, the loop current shall be greater than I_3 (mA) or, the resistance between the line terminals shall not be greater than R_2 (ohms) or, the additional voltage drop shall be greater than U (V), as specified in table 9.1.2.
- b) The time intervals t_1 to t_2 and t_3 to t_4 shall be respectively shorter than t_a (ms) and t_p (ms), as specified in table 9.1.2.

The requirements for a) and b) shall be met with feeding values in the ranges specified in table 9.1.2.

Compliance shall be checked by the tests outlined in section A.9.1.

Purpose

To describe the loop current characteristics of the terminal before and after a recall signal.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: recall is used to invoke a supplementary service.

Number of countries

Mandatory 6, Blank 4, not mandatory 10.

National peculiarities

No additional requirement

9.1.2 (B) 1, 9.1.2 (F) 1, 9.1.2 (NL) 1, 9.1.2 (E) 1, 9.1.2 (E) 2, 9.1.2 (E) 3, 9.1.2 (CH) 1.

Additional requirement (essential for access)

"The DC loop current is limited in the terminal equipment (75mA)", **9.1.2 (F) 2.**

"Transient response requirement" **9.1.2 (E) 3.**

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Comment?
905	9.2 Meter pulse reception	Title

No	Clause	Comment?
906	9.2.1 12 or 16 kHz meter pulses	Introductory text

ETS 300 001 text:

The reception of 12 or 16 kHz meter pulses is performed by detecting a transverse signal between the line terminals with a normal frequency of 12 kHz or 16 kHz.

Detection of meter pulses may be provided by a separate unit dedicated to this purpose or by a unit incorporated in a TE having other functions.

The requirements of this section shall be met only by TEs intended to receive meter pulses transmitted from the PSTN.

Purpose

Introduction to following clauses.

National peculiarities

No additional requirement

9.2.1 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

No	Clause	Essential?	91/263	Comment?
907	9.2.1.1 Sensitivity and selectivity	No	4f	

ETS 300 001 text:

The receiver shall respond to meter pulses applied between line terminals through an impedance of Z_G (Ω) with an open circuit ac rms voltages "e" (mV) and frequencies "f" (kHz) within area "I" of figure 9.2.1.1, and shall not respond to signals having frequencies and voltages within area "II" of the same figure.

The mask of figure 9.2.1.1 is determined by linking the points (f_i , e_i) given in tables 9.2.1.1.a and 9.2.1.1.b.

The requirements shall be met with the terminating impedances Z_G , Z_L and with feeding values V_f , R_f , I_f in the ranges specified in table 9.2.1.1.c.

The requirements shall be met with presence and absence of loop current.

Compliance shall be checked by the tests outlined in section A.9.2.1.1.

Purpose

To ensure correct operation of a meter.

Reasons for essentiality

For: to ensure correct interworking with a meter pulse signal when provided;
 to control charging in a pay phone.

Against: the operation of a subscriber's private meter is a supplementary service;
 pay phone operation is a terminal requirement.

Number of countries

Mandatory 16, Blank 2, not mandatory 2.

National peculiarities

No additional requirement

9.2.1.1 (A) 1, 9.2.1.1.b (B) 1, 9.2.1.1.c (SF) 1, 9.2.1.1.b (F) 1, 9.2.1.1 (F) 2, 9.2.1.1 (D) 1, 9.2.1.1.a,b (I) 1, 9.2.1.1.c (I) 1, 9.2.1.1.b (N) 1, 9.2.1.1.b (N) 1, 9.2.1.1.b (P) 1, 9.2.1.1 (E) 1, 9.2.1.1.a (S) 2, 9.2.1.1.b (S) 1, 9.2.1.1.b (S) 2, 9.2.1.1.a (CH) 1.

Additional requirement (essential for access)

"Detection during quiescent state required and during register recall", **9.2.1.1 (F) 3, 9.2.1.1 (F) 5, 9.2.1.1.c (CH) 1.**

"Immunity requirement against defined signals", **9.2.1.1 (F) 4, 9.2.1.1 (E) 2.**

Additional requirement (not essential for access)

"Special setting of the sensitivity for the long lines", **9.2.1.1.a (B) 1, 9.2.1.1.a (S) 1.**

"Equipment with high sensitivity shall be installed by a licensed company", **9.2.1.1.a (N) 1.**

PT comments

None.

No	Clause	Essential?	91/263	Comment?
908	9.2.1.2 Timing	No	4f	

ETS 300 001 text:

a) The receiver shall respond to a series of meter pulses within area "I" of figure 9.2.1.1 with a duration between t_3 (ms) and t_4 (ms), and a pause of at least t_5 (ms). It must not respond to single pulses shorter than t_6 (ms).

b) The receiver shall not take into account signal interruptions of t_7 (ms).

The values of these durations are given in table 9.2.1.2.

The requirements shall be met with the terminating impedances Z_G and Z_L and feeding values V_f , R_f , I_f in the ranges specified in table 9.2.1.1.c.

The requirements shall be met with the presence or absence of loop current.

Compliance shall be checked using the tests outlined in section A.9.2.1.2.

Purpose

To ensure correct operation of a meter.

Reasons for essentiality

For: to ensure correct interworking with a meter pulse signal when provided;
 to control charging in a pay phone.

Against: the operation of a subscriber's private meter is a supplementary service;
 pay phone operation is a terminal requirement.

Number of countries

Mandatory 16, Blank 2, not mandatory 2.

National peculiarities

No additional requirement

9.2.1.2 (B) 1, 9.2.1.2 (P) 1, 9.2.1.2 (E) 1.

Additional requirement (essential for access)

"Detection during quiescent state required during a given time", 9.2.1.2 (A) 1.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
909	9.2.1.3 Attenuation at meter pulse frequencies for series-connected TE	No	4f	

ETS 300 001 text:

When the meter pulse detection unit is connected in series with a TE in loop condition, the insertion loss of the detection unit shall be higher than a (dB) in the frequency range f_1 (kHz) up to f_2 (kHz), with an open circuit voltage e_1 (mV) to e_2 (mV), as specified in table 9.2.1.3.

The requirements shall be met with terminating impedances Z_G (W) and Z_L (W) as specified in table 9.2.1.3, and with feeding values V_f , R_f , I_f in the ranges specified in table 9.2.1.3.

Compliance shall be checked by the tests outlined in section A.9.2.1.3.

Purpose

To protect TE connected to the second port of series equipment against unwanted effects created by the outband metering signal pulse.

Reasons for essentiality

For: to prevent disturbance to end to end working of TEs.

Against: the disturbance is only to the subscriber with the series meter; an end-to-end interworking effect.

Number of countries

Mandatory 12, Blank 4, not mandatory 4.

National peculiarities

No additional requirement

9.2.1.3 (F) 1, 9.2.1.3 (D) 2, 9.2.1.3 (I) 1, 9.2.1.3 (N) 1, 9.2.1.3 (E) 1, 9.2.1.3 (E) 1.

Additional requirement (essential for access)

"The meter pulse TE shall be transparent" 9.2.1.3 (D) 1.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
910	9.2.1.4 Return loss at meter pulse frequencies	No	4f	

ETS 300 001 text:

The input impedance between the line terminals shall have a return loss, in relation to the specified reference impedance Z_r (W), not less than a (dB) at a voltage up to V_{t1} (V) or V_{t2} (V) (see figure A.9.2.1.4) within the frequency range f_1 (kHz) up to f_2 (kHz), as specified in table 9.2.1.4.

The return loss of the input impedance Z_i in relation to the reference impedance Z_r (W) is calculated as follows:

$$a = 20 \times \log_{10} \left| \frac{Z_i + Z_r}{Z_i - Z_r} \right| \text{ dB} \quad \text{Formula 9.2.1.4}$$

where both impedances are complex values.

The requirements shall be met with terminating impedances Z_G (W), Z_L (W) and with feeding values V_f , R_f , I_f as specified in table 9.2.1.4.

The requirements shall be met with the presence and absence of loop current.

Compliance shall be checked by the tests outlined in section A.9.2.1.4.

Purpose

To ensure correct operation of a meter.

Reasons for essentiality

For: to ensure correct interworking with a meter pulse signal when provided;
 to control charging in a payphone.

Against: the operation of a subscriber's private meter is a supplementary service;
 payphone operation is a terminal requirement.

Number of countries

Mandatory 8, Blank 3, not mandatory 9.

National peculiarities

No additional requirement

9.2.1.4 (F) 1, 9.2.1.4 (F) 2, 9.2.1.4 (I) 1, 9.2.1.4 (N) 1, 9.2.1.4 (P) 1, 9.2.1.4 (E) 1, 9.2.1.4 (E) 2, 9.2.1.4 (S) 1, 9.2.1.4 (S) 2, 9.2.1.4 (CH) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

Purpose

To introduce the following clauses.

National peculiarities

No additional requirement

9.2.2 (B) 1, 9.2.2 (N) 1, 9.2.2 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

No	Clause	Essential?	91/263	Comment?
912	9.2.2.1 Input longitudinal impedance at 50 Hz	No	4f	

ETS 300 001 text:

The modulus of the input impedance of the TE with presence of loop current shall not be less than R (kW) at a voltage up to U (V) at a frequency between f_1 (Hz) and f_2 (Hz), when measured as shown in figure A.9.2.2.1.

The requirement parameters are given in table 9.2.2.1.

Compliance shall be checked using the tests outlined in section A.9.2.2.1.

Purpose

To ensure correct operation of a meter.

Reasons for essentiality

For: to ensure correct interworking with a meter pulse signal when provided;
 to control charging in a payphone.

Against: the operation of a subscriber's private meter is a supplementary service;
 pay phone operation is a terminal requirement.

Number of countries

Mandatory 3, Blank 2, not mandatory 15.

National peculiarities

No additional requirement

9.2.2.1 (F) 1, 9.2.2.1 (F) 2, 9.2.2.1 (NL) 1, 9.2.2.1 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
913	9.2.2.2 Sensitivity	No	4f	

ETS 300 001 text:

The meter pulse detection circuitry of the TE with presence of loop current shall be activated when a signal in the frequency range f_1 (Hz) to f_2 (Hz), with a level between U_1 (V) and U_2 (V), and a sending period between t_{S1} (ms) and t_{S2} (ms), are applied to the line terminals.

The detector shall recognise each signal in any series of signals having the characteristics above, and separated by pause periods of value higher than t_{p1} (ms).

The requirement parameter values are given in table 9.2.2.2.

The requirements shall be met with the terminating impedances Z_G and Z_L and with dc feeding values V_f , R_f , I_f in the ranges specified in table 9.2.2.2.

Compliance shall be checked using the test outlined in section A.9.2.2.2.

Purpose

To ensure correct operation of a meter.

Reasons for essentiality

For: to ensure correct interworking with a meter pulse signal when provided;
to control charging in a pay phone.

Against: the operation of a subscriber's private meter is a supplementary service;
pay phone operation is a terminal requirement.

Number of countries

Mandatory 4, Blank 2, not mandatory 14.

National peculiarities

No additional requirement

9.2.2.2 (F) 1, 9.2.2.2 (NL) 1, 9.2.2.2 (E) 1.

Additional requirement (essential for access)

"Detection of meter pulse during the quiescent condition", **9.2.2.2 (F) 2.**

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
914	9.2.2.3 Insensitivity	No	4f	

ETS 300 001 text:

The meter pulse detection circuitry of the TE, with presence of loop current, shall not be activated when any series of the following signals are applied to the line terminals:

- a) "outband signals" with:
 - frequency of value lower than f_3 (Hz) or higher than f_4 (Hz) and;
 - any level of value lower than U_3 (V);
 - any value of sending period;
 - any value of pause period.
- b) "weak signals" with:
 - level of value lower than U_4 (V) and;
 - any value of frequency;
 - any value of sending period;
 - any value of pause period.
- c) "short signals" with:
 - sending period of value lower than t_{S3} (ms) and;
 - any value of frequency;
 - any value of level;
 - any pause of value higher than t_{p2} (ms).
- d) The meter pulse detection circuitry shall not recognise two pulses when one meter pulse as specified in 9.2.2.2 is interrupted for a period of t_i (ms).

The requirement values are given in table 9.2.2.3.

The requirements shall be met with feeding values V_f , R_f , I_f in the ranges specified in table 9.2.2.3.

Compliance shall be checked using the tests outlined in section A.9.2.2.3.

Purpose

To avoid incorrect operation of the meter.

Reasons for essentiality

For: to ensure correct interworking with a meter pulse signal when provided;
 to control charging in a pay phone.

Against: the operation of a subscriber's private meter is a supplementary service;
 pay phone operation is a terminal requirement.

Number of countries

Mandatory 3, Blank 2, not mandatory 15.

National peculiarities

No additional requirement

9.2.2.3 (F) 1, 9.2.2.3 (NL) 1.

Additional requirement (essential for access)

"Inhibition of the detector after a given period from the line release time", **9.2.2.3 (F) 2.**

"Insensitivity to some defined signals", **9.2.2.3 (F) 3, 9.2.2.3 (E) 1, 9.2.2.3 (E) 2.**

Additional requirement (not essential for access)

"Maximum current consumption" 9.2.2.3 (NL) 2.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
915	9.3 Disabling of echo control devices	?	4f/4g	Yes

ETS 300 001 text:

The requirement of this section shall only be applied for TE that are intended to transmit at any time tones for disabling the echo control devices inside the PSTN.

The disabling of echo suppressers is performed by the TE in loop condition sending a $2\ 100 \pm 15$ Hz tone for a period of $3,3 \pm 0,7$ s, at a level between p_1 (dBm) and p_2 (dBm) measured on a load impedance Z_L (W), as specified in table 9.3.

In the case of automatic answering, the tone shall be preceded by a silent period between 1,8 s and 2,5 s following the establishment of the dc loop condition, and shall be followed by a silent period of 75 ± 20 ms after which energy shall be maintained, without signal gaps exceeding 100 ms, in order to maintain the disabled state of echo control devices in the network.

If it is intended to disable network echo cancellers as well as echo suppressers, then the TE shall reverse the phase of the tone intervals of between 425 ms and 475 ms, such that the phase is within 180 ± 10 degrees in less than 1 ms and that the amplitude of the 2 100 Hz tone is not more than 3 dB below its steady state value for more than 400 μ s.

The send period shall be:

- less than 2,6 s if a calling station response is received. In this case the 2 100 Hz tone may be discontinued after detection of the calling station response for a continuous period of 100 ms;
- greater than 4 s, but less than 10 s, for applications where an automatically answering TE is permanently dedicated to receiving calls only from acoustically coupled originating stations, in order to compensate for operator reaction time in placing the telephone handset on the acoustic coupler.

The requirements shall be met with dc feeding values V_f , R_f , I_f in the ranges specified in table 9.3.

Compliance shall be checked using the test outlined in section A.9.3.

Purpose

To allow the equipment to disable echo devices in the network to ensure satisfactory data transmission.

Reasons for essentiality

For: to preserve the quality of data transmission.

Against: end-to-end interworking for data transmission.

Number of countries

Mandatory 7, Blank 3, not mandatory 10.

National peculiarities

No additional requirement

9.3 (F) 1, 9.3 (P) 1, 9.3 (E) 1, 9.3 (E) 1.1, 9.3 (E) 1.2, 9.3 (E) 1.2.1, 9.3 (E) 1.2.2, 9.3 (E) 1.2.3, 9.3 (E) 1.2.4, 9.3 (E) 1.2.5, 9.3 (E) 1.2.6, 9.3 (E) 1.3, 9.3 (E) 1.3.1, 9.3 (E) 1.3.2, 9.3 (E) 1.3.3, 9.3 (E) 1.3.5, 9.3 (CH) 1, 9.3 (GB) 1.

Additional requirement (essential for access)

"The echo suppresser disabling tone level shall be the same as the data level (see section 4.4.2 (F)2)",
9.3 (F) 2.

"Suppression of the unassociated signals", **9.3 (E) 1.2.7, 9.3 (E) 1.3.7.**

Additional requirement (not essential for access)

"The tone shall persist at least 400 ms after the silent period...", **9.3 (B) 1.**

"Requirements for: signal rise and fall time, unwanted Frequency components, transient response of the loop current", **9.3 (E) 1.2.8, 9.3 (E) 1.3.8.**

"Distinct specification for the format and the timing distinguishing the case of the echo suppresser and the echo canceller", **9.3 (E) 1.2.4, 9.3 (E) 1.2.6, 9.3 (E) 1.3.4, 9.3 (E) 1.3.6.**

PT comments

The PT could not agree on essentiality.

No	Clause	Comment?
916	9.4 Loop current detection	Introductory text

ETS 300 001 text:

Loop current detectors D1 and D2 as shown in figures 9.4.a and 9.4.b, can be used by series-connected TE for:

- a) determination of the operational state (loop or quiescent) of the TE connected to the second port a_2, b_2 (function dedicated to D1);
- b) detection of the operational state (loop or quiescent) of the line connected to the first port a_1, b_1 (function dedicated to D2).

Both functions D1 and D2 may be combined and realised as one detector.

The requirements for implementing D1 and/or D2 in the TE, as well as the operations resulting from the loop current detection are specified in other chapters of NET 4 or in terminal standards, depending on the type of the series-connected TE.

The electrical requirements can be different, according to whether the series-connected TE is of type A or type B, as shown in figures 9.4.a and 9.4.b, respectively.

The function of the detectors D1 and D2 can be either the detection of the presence of loop current, or the detection of the absence or interruption of loop current.

In this section the following definitions are used:

- "activated" : the detector recognises the appearance of loop current;
- "deactivated" : the detector recognises the disappearance of loop current.

Purpose

To introduce following clauses.

National peculiarities

No additional requirement

9.4 (D) 2.

Additional requirement (essential for access)

"Immunity against loop current interruptions", **9.4 (D) 1.**

Additional requirement (not essential for access)

None.

No	Clause	Comment?
917	9.4.1 Loop current detector D1	Title

No	Clause	Essential?	91/263	Comment?
918	9.4.1.1 Series-connected TE with switch S in position 1	?	?	Yes

ETS 300 001 text:

For a series-connected TE of type A or B, with its switch S in position 1, capable of detecting loop current due to a TE connected to its second port, the loop current detector D1 shall:

- a) be activated when current value is greater than I_1 (mA) for a period of at least t_1 (ms);
- b) not be activated when current value is greater than I_1 (mA) for a period shorter than t_2 (ms);
- c) be deactivated when current value is lower than I_2 (mA) for a period of at least t_3 (ms);
- d) not be deactivated when current value is lower than I_2 (mA) for a period shorter than t_4 (ms).

Requirement values are shown in table 9.4.1.1.

Compliance shall be checked using the tests outlined in section A.9.4.1.1.

Purpose

To allow a series connected TE to detect whether the line is in use before seizing the line.

Reasons for essentiality

For: to ensure series apparatus does not upset interworking of other apparatus on the same line.

Against: not mandatory in 14 countries.

Number of countries

Mandatory 3, Blank 3, Not mandatory 14.

National peculiarities

No additional requirement

9.4.1.1 (D) 1, 9.4.1.1 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

Mandatory in three countries but there is no specification for the action to be performed when current is detected.

No	Clause	Comment?
919	9.4.1.2 Series-connected TE with switch S in position 2	Title

No	Clause	Essential?	91/263	Comment?
920	9.4.1.2.1 Type A	No	?	Yes

ETS 300 001 text:

For a series-connected TE of type A, with its switch S in position 2, capable of detecting loop current due to a TE connected to its second port, the loop current detector D1 shall:

- a) be activated when TE's second port is loaded with a resistor of value lower than R_{L1} (kW) for a period of at least t_1 (ms);
- b) not be activated when TE's second port is loaded with a resistor of value lower than R_{L1} (kW) for a period shorter than t_2 (ms);
- c) be deactivated when TE's second port is loaded with a resistor of value higher than R_{L2} (kW) for a period of at least t_3 (ms);
- d) not be deactivated when TE's second port is loaded with a resistor of value higher than R_{L2} (kW) for a period shorter than t_4 (ms).

Moreover, the internal dc source necessary to feed the TE connected to the second port, shall present a voltage of value between V_{t1} (V) and V_{t2} (V), through a resistor of value R_{L3} (W) and shall have a maximum short circuit current of I_{SC} (mA).

Requirement values are shown in table 9.4.1.2.1.

Compliance shall be checked by the tests outlined in section A.9.4.1.2.1.

Purpose

To allow a TE to detect whether the line is in use before seizing the line.

Reasons for essentiality

For: to ensure series apparatus does not upset interworking of other apparatus on the same line.

Against: not mandatory in 12 countries.

Number of countries

Mandatory 2, Blank 6, not mandatory 12.

National peculiarities

No additional requirement

9.4.1.2.1 (A) 1, 9.4.1.2.1 (D) 1, 9.4.1.2.1 (D) 2, 9.4.1.2.1 (D) 3, 9.4.1.2.1 (D) 4, 9.4.1.2.1 (D) 5, 9.4.1.2.1 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

There is no specification for the action to be performed when current is detected.

No	Clause	Essential?	91/263	Comment?
921	9.4.1.2.2 Type B	No	?	Yes

ETS 300 001 text:

For a series-connected TE of type B, with its switch S in position 2, capable of detecting loop current due to a TE connected to its second port, the loop current detector D1 shall:

- a) be activated when TE's second port is loaded with a resistor of value lower than R_{L1} (kW) for a period of at least t_1 (ms);
- b) not be activated when TE's second port is loaded with a resistor of value lower than R_{L1} (kW) for a period shorter than t_2 (ms);
- c) be deactivated when TE's second port is loaded with a resistor of value higher than R_{L2} (kW) for a period of at least t_3 (ms);
- d) not be deactivated when TE's second port is loaded with a resistor of value higher than R_{L2} (kW) for a period shorter than t_4 (ms).

Moreover, the voltage measured at a load resistor value R_{L3} (W) which is connected to a second port, shall be higher than V_t (V) for all feeding conditions described in table 9.4.1.2.2.

Requirement values are shown in table 9.4.1.2.2.

Compliance shall be checked by the tests outlined in section A.9.4.1.2.2.

Purpose

To allow a TE to detect whether the line is in use before seizing the line.

Reasons for essentiality

For: to ensure series apparatus does not upset interworking of other apparatus on the same line.

Against: not mandatory in 12 countries.

Number of countries

Mandatory 2, Blank 6, not mandatory 12.

National peculiarities

No additional requirement

9.4.1.2.2 (A) 1, 9.4.1.2.2 (D) 1, 9.4.1.2.2 (D) 2, 9.4.1.2.2 (D) 3, 9.4.1.2.2 (D) 4, 9.4.1.2.2 (D) 5, 9.4.1.2.2 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

There is no specification for the action to be performed when current is detected.

No	Clause	Essential?	91/263	Comment?
922	9.4.1.3 Series-connected TE loop current detector immunity	No	?	Yes

ETS 300 001 text:

TE which is placed in series with the PSTN network termination point and with other TE which itself is approved for connection to the PSTN and which has loop current detection capability is tested according to the method outlined in section A.9.4.1.3.

The loop current detection circuitry of the series-connected TE shall not respond to the applied ringing current when a circuit consisting of R (kW) in series with C (μ F) is connected directly across the line terminals or leads intended to be connected to other TE.

Compliance shall be checked using the test outlined in section A.9.4.1.3.

Purpose

To avoid false detection that a line is in use so as to prevent seizing the line.

Reasons for essentiality

For: to ensure series apparatus does not upset interworking of other apparatus on the same line.

Against: not mandatory in 13 countries.

Number of countries

Mandatory 6, Blank 1, not mandatory 13.

National peculiarities

No additional requirement

9.4.1.3 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

There is no specification for the action to be performed when current is detected.

No	Clause	Essential?	91/263	Comment?
923	9.4.2 Loop current detector D2	No	?	Yes

ETS 300 001 text:

For a series-connected TE of type A or type B with its switch S in position 2, capable of detecting loop current interruption of the line connected to its first port, the loop current detector D2 shall:

- a) be activated when current value is greater than I_1 (mA) for a period of at least t_1 (ms);
- b) not be activated when current value is greater than I_1 (mA) for a period shorter than t_2 (ms);
- c) be deactivated when current value is lower than I_2 (mA) for a period of at least t_3 (ms);
- d) not be deactivated when current value is lower than I_2 (mA) for a period shorter than t_4 (ms).

The requirements for TE of type B shall be met when a second port is loaded with a resistor of value R_L (kW).

Requirement values are shown in table 9.4.2.

Compliance shall be checked using the tests outlined in section A.9.4.2.

Purpose

To allow a TE to detect whether the line is in use before seizing the line.

Reasons for essentiality

For: to ensure series apparatus does not upset interworking of other apparatus on the same line.

Against: not mandatory in 14 countries.

Number of countries

Mandatory 1, Blank 5, not mandatory 14.

National peculiarities

No additional requirement

9.4.2 (A) 1, 9.4.2 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

There is no specification for the action to be performed when current is detected.

No	Clause	Comment?
924	9.5 PSTN tone detection	Introductory text

ETS 300 001 text:

The following sections deal with tones sent by the PSTN to the TE when the TE is in loop condition.

The detection of these tones, as treated herein, is followed by the generation of other signals inside the TE destined to cause the TE to initiate or to prevent it from initiating a certain subsequent action.

The necessity to implement these detection facilities, as well as the subsequent actions, are specified in other chapters of this document, or in TE standards, depending on the type of TE.

The tones covered by the present requirements are:

- Dial tone;
- Special dial tone;
- Busy tone;
- Congestion tone;
- Ringing tone;
- Special information tone.

Purpose

Introduction to following clauses.

National peculiarities

No additional requirement

9.5 (CH) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

No	Clause	Comment?
925	9.5.1 Dial tone detection	Introductory text

ETS 300 001 text:

Dial tone detection is closely linked to the calling function and therefore described in subclause 5.2.

Purpose

To direct reader to another chapter.

No	Clause	Comment?
926	9.5.2 Special dial tone detection	Title

No	Clause	Essential?	91/263	Comment?
927	9.5.2.1 Special dial tone detector sensitivity	No	4d/4f	Yes

ETS 300 001 text:

For TE capable of detecting a special dial tone, the relevant detector shall be activated, when a signal in the frequency range from f_1 (Hz) up to f_2 (Hz), with a level between p_1 (dBm) and p_2 (dBm) measured on a load impedance Z_L (W), a send period between t_{on1} (ms) and t_{on2} (ms) and a pause between t_{off1} (ms) and t_{off2} (ms) is applied through an impedance Z_G (W) to the line terminals for a period of at least t_{d1} (s).

The subsequent action shall occur not later than t_a (s) after the beginning of application of the special dial tone.

The requirement values f_1 , f_2 , p_1 , p_2 , t_{on1} , t_{on2} , t_{off1} , t_{off2} , t_{d1} and t_a are shown in table 9.5.2.1.

The requirements shall be met with dc feeding values V_f , R_f , I_f in the ranges specified in table 9.5.2.1.

Compliance shall be checked using the tests outlined in section A.9.5.2.1.

Purpose

To prevent apparatus from dialling when the network is not ready to receive dialling.

Reasons for essentiality

For: early dialling may generate wrong numbers;
 wrong numbers cause unwanted traffic and complaints.

Against: wrong numbers are a quality aspect outside the scope of the ETS;
 other simpler methods (such as a programmed pause) can achieve the desired result.

Number of countries

Mandatory 7, Blank 2, not mandatory 11.

National peculiarities

No additional requirement

9.5.2.1 (A) 1, 9.5.2.1 (F) 1, 9.5.2.1 (IS) 1, 9.5.2.1 (I) 1, 9.5.2.1 (NL) 1, 9.5.2.1 (P) 1, 9.5.2.1 (E) 1, 9.5.2.1 (S) 1, 9.5.2.1 (CH) 1.

Additional requirement (essential for access)

"The detection of the special dial tone shall not be disturbed by an interruption of signal of a given duration", 9.5.2.1 (F) 2.

Additional requirement (not essential for access)

None

PT comments

Since other simpler and cheaper methods can achieve the desired result, this requirement cannot be considered essential.

No	Clause	Essential?	91/263	Comment?
928	9.5.2.2 Special dial tone detector insensitivity	No	4d/4f	

ETS 300 001 text:

For TE capable of detecting special dial tone, the relevant detector shall not be activated, if any of the following signals are applied through an impedance Z_G (W) to the line terminals:

- a) "outband signals" with:
 - frequency of value lower than f_3 (Hz) or higher than f_4 (Hz) and;
 - any level of value lower than p_3 (dBm), measured on a load impedance Z_L (W);
 - any value of cadence t_{on}/t_{off} ;
 - any value of duration.
- b) "weak signals" with:
 - level of value lower than p_4 (dBm), measured on a load impedance Z_L (W) and;
 - any value of frequency;
 - any value of cadence t_{on}/t_{off} ;
 - any value of duration.
- c) "improperly cadenced" signals with:
 - t_{on} of value lower than t_{on3} (ms) and any value of t_{off} , or t_{on} of value higher than t_{on4} (ms) and any value of t_{off} , or t_{off} of value lower than t_{off3} (ms) and any value of t_{on} or t_{off} of value higher than t_{off4} (ms) and any value of t_{on} and;
 - any value of frequency;
 - any value of level;
 - any value of duration.
- d) "short signals" with:
 - duration of value lower than t_{d2} (s) and;
 - any value of frequency;
 - any value of level;
 - any value of cadence t_{on}/t_{off} .

The requirement values are given in table 9.5.2.2.

The requirements shall be met with feeding values V_f , R_f , I_f in the ranges specified in table 9.5.2.2.

Compliance shall be checked using the test outlined in section A.9.5.2.2.

Purpose

To prevent apparatus from dialling when the network is not ready to receive dialling.

Reasons for essentiality

For: early dialling may generate wrong numbers;
 wrong numbers cause unwanted traffic and complaints.

Against: nine countries say not mandatory;
 since the special dial tone detector is not essential, this requirement cannot be essential.

Number of countries

Mandatory 6, Blank 5, not mandatory 9.

National peculiarities

No additional requirement

9.5.2.2 (I) 1, 9.5.2.2 (E) 1, 9.5.2.2 (S) 1.

Additional requirement (essential for access)

"The special dial tone detector shall be insensitive to the busy tone", **9.5.2.2 (F) 1.**

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Comment?
929	9.5.3 Busy tone detection	Title

No	Clause	Essential?	91/263	Comment?
930	9.5.3.1 Busy tone detector sensitivity	?	4d/4f	Yes

ETS 300 001 text:

For TE, capable of detecting a busy tone, the relevant detector shall be activated, when a signal in the frequency range from f_1 (Hz) up to f_2 (Hz), with a level of value between p_1 (dBm) and p_2 (dBm), measured on a load impedance Z_L (W), a send period of value between t_{on1} (ms) and t_{on2} (ms) and a pause of value between t_{off1} (ms) and t_{off2} (ms) is applied through an impedance Z_G (W), to the line terminals for a period of at least t_{d1} (s).

The subsequent action shall occur not later than t_a (s) after the beginning of application of the busy tone.

The requirement values f_1 , f_2 , p_1 , p_2 , t_{on1} , t_{on2} , t_{off1} , t_{off2} , t_{d1} and t_a are shown in table 9.5.3.1.

The requirements shall be met with dc feeding values V_f , R_f , I_f in the ranges specified in table 9.5.3.1.

Compliance shall be checked using the tests outlined in section A.9.5.3.1.

Purpose

To ensure that the tone is detected and that the terminal performs some (unspecified) action.

Reasons for essentiality

For: to cause the TE to release the line as soon as possible on an ineffective call;
 to reduce occupancy of network resources;
 incoming call traffic may be lost.

Against: 5 countries say not mandatory;
 no specific action is required to be performed after detection of tone;
 modern exchanges will protect themselves by parking the line;
 the range of international tones does not allow reliable operation.

Number of countries

Mandatory 13, Blank 2, not mandatory 5.

National peculiarities

No additional requirement

9.5.3.1 (A) 1, 9.5.3.1 (A) 2, 9.5.3.1 (SF) 1, 9.5.3.1 (D) 1, 9.5.3.1 (IS) 1, 9.5.3.1 (NL) 1, 9.5.3.1 (E) 1, 9.5.3.1 (S) 1, 9.5.3.1 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"Case of the TE having transmission duration controlled by monitoring the flow of information" **9.5.3.1 (P) 1.**

PT comments

This requirement as written contains such major defects as to make a judgement impossible without making assumptions of its intent.

No	Clause	Essential?	91/263	Comment?
931	9.5.3.2 Busy tone detector insensitivity	?	4d/4f	Yes

ETS 300 001 text:

For TE capable of detecting busy tone, the relevant detector shall not be activated, if any of the following signals are applied through an impedance Z_G (W) to the line terminals:

a) "outband signals" with:

frequency of value lower than f_3 (Hz) or higher than f_4 (Hz) and;

- any level of value lower than p_3 (dBm), measured on a load impedance Z_L (W);
- any value of cadence t_{on}/t_{off} ;
- any value of duration.

b) "weak signals" with:

level of value lower than p_4 (dBm), measured on a load impedance Z_L (W) and;

- any value of frequency;
- any value of cadence t_{on}/t_{off} ;
- any value of duration.

c) "improperly cadenced" signals with:

t_{on} of value lower than t_{on3} (ms) and any value of t_{off} , or t_{on} of value higher than t_{on4} (ms) and any value of t_{off} , or t_{off} of value lower than t_{off3} (ms) and any value of t_{on} or t_{off} of value higher than t_{off4} (ms) and any value of t_{on} and;

- any value of frequency;
- any value of level;
- any value of duration.

d) "short signals" with:

duration of value lower than t_{d2} (s) and;

- any value of frequency;
- any value of level;
- any value of cadence t_{on}/t_{off} .

The requirement values are given in table 9.5.3.2.

The requirements shall be met with feeding values V_f , R_f , I_f in the ranges specified in table 9.5.3.2.

Compliance shall be checked using the test outlined in section A.9.5.3.2.

Purpose

To prevent false busy tone detection.

Reasons for essentiality

For: to prevent false clearing;
 call traffic may be lost.

Against: thirteen countries say not mandatory;
 a terminal quality matter.

Number of countries

Mandatory 3, Blank 4, not mandatory 13.

National peculiarities

No additional requirement

9.5.3.2 (NL) 1, 9.5.3.2 (E) 1.

Additional requirement (essential for access)

"Busy tone shall not detect, the dial tone, the call progress tone, and the ringing tone", **9.5.3.2 (F) 1.**

Additional requirement (not essential for access)

None.

PT comments

The PT could not agree on essentiality.

No	Clause	Comment?
932	9.5.4 Congestion tone detection	Title

No	Clause	Essential?	91/263	Comment?
933	9.5.4.1 Congestion tone detector sensitivity	?	4d/4f	Yes

ETS 300 001 text:

For TE, capable of detecting a congestion tone, the relevant detector shall be activated, when a signal in the frequency range from f_1 (Hz) up to f_2 (Hz), with a level of value between p_1 (dBm) and p_2 (dBm), measured on a load impedance Z_L (W), a send period of value between t_{on1} (ms) and t_{on2} (ms) and a pause of value between t_{off1} (ms) and t_{off2} (ms) is applied through an impedance Z_G (W), to the line terminals for a period of at least t_{d1} (s).

The subsequent action shall occur not later than t_a (s) after the beginning of application of the congestion tone.

The requirement values f_1 , f_2 , p_1 , p_2 , t_{on1} , t_{on2} , t_{off1} , t_{off2} , t_{d1} and t_a are shown in table 9.5.4.1.

The requirements shall be met with dc feeding values V_f , R_f , I_f in the ranges specified in table 9.5.4.1.

Compliance shall be checked using the tests outlined in section A.9.5.4.1.

Purpose

To ensure that the tone is detected and that the terminal performs some (unspecified) action.

Reasons for essentiality

For: to allow the apparatus to release the line as soon as possible on an ineffective call;
 to reduce occupancy of network resources;
 traffic may be lost.

Against: eight countries say not mandatory;
 no specific action is required to be performed after detection of tone;
 modern exchanges will protect themselves by parking the line;
 the range of international tones does not allow reliable operation.

Number of countries

Mandatory 10, Blank 2, not mandatory 8.

National peculiarities

No additional requirement

9.5.4.1 (A) 1, 9.5.4.1 (A) 2, 9.5.4.1 (NL) 1, 9.5.4.1 (D) 1, 9.5.4.1 (E) 1, 9.5.4.1 (S) 1, 9.5.4.1 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

"Case of the TE having transmission duration controlled by monitoring the flow of information", **9.5.4.1 (P) 1.**

PT comments

This requirement as written contains such major defects as to make a judgement impossible without making assumptions of its intent.

No	Clause	Essential?	91/263	Comment?
934	9.5.4.2 Congestion tone detector insensitivity	?	4d/4f	Yes

ETS 300 001 text:

For TE capable of detecting congestion tone, the relevant detector shall not be activated, if any of the following signals are applied through an impedance Z_G (W) to the line terminals:

- a) "outband signals" with:
 - frequency of value lower than f_3 (Hz) or higher than f_4 (Hz) and;
 - any level of value lower than p_3 (dBm), measured on a load impedance Z_L (W);
 - any value of cadence t_{on}/t_{off} ;
 - any value of duration.

- b) "weak signals" with:
 - level of value lower than p_4 (dBm), measured on a load impedance Z_L (W) and;
 - any value of frequency;
 - any value of cadence t_{on}/t_{off} ;
 - any value of duration.

- c) "improperly cadenced" signals with:
 - t_{on} of value lower than t_{on3} (ms) and any value of t_{off} , or t_{on} of value higher than t_{on4} (ms) and any value of t_{off} , or t_{off} of value lower than t_{off3} (ms) and any value of t_{on} or t_{off} of value higher than t_{off4} (ms) and any value of t_{on} and;
 - any value of frequency;
 - any value of level;
 - any value of duration.

- d) "short signals" with:
 - duration of value lower than t_{d2} (s) and;
 - any value of frequency;
 - any value of level;
 - any value of cadence t_{on}/t_{off} .

The requirement values are given in table 9.5.4.2.

The requirements shall be met with feeding values V_f , R_f , I_f in the ranges specified in table 9.5.4.2.

Compliance shall be checked using the test outlined in section A.9.5.4.2.

Purpose

To ensure only correct tones are detected.

Reasons for essentiality

For: ?

Against: twelve countries say not mandatory;
 a procurement/quality matter.

Number of countries

Mandatory 3, Blank 4, not mandatory 12.

National peculiarities

No additional requirement

9.5.4.2 (NL) 1, 9.5.4.2 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

The PT could not agree on essentiality.

No	Clause	Comment?
935	9.5.5 Ringing tone detection	Title

No	Clause	Essential?	91/263	Comment?
936	9.5.5.1 Ringing tone detector sensitivity	No	4f	Yes

ETS 300 001 text:

For TE, capable of detecting a ringing tone, the relevant detector shall be activated, when a signal in the frequency range from f_1 (Hz) up to f_2 (Hz), with a level of value between p_1 (dBm) and p_2 (dBm), measured on a load impedance Z_L (W), a send period of value between t_{on1} (ms) and t_{on2} (ms) and a pause of value between t_{off1} (ms) and t_{off2} (ms) is applied through an impedance Z_G (W), to the line terminals for a period of at least t_{d1} (s).

The subsequent action shall occur not later than t_a (s) after the beginning of application of the ringing tone.

The requirement values f_1 , f_2 , p_1 , p_2 , t_{on1} , t_{on2} , t_{off1} , t_{off2} , t_{d1} and t_a are shown in table 9.5.5.1.

The requirements shall be met with dc feeding values V_f , R_f , I_f in the ranges specified in table 9.5.5.1.

Compliance shall be checked using the tests outlined in section A.9.5.5.1.

Purpose

To ensure that the calling TE with a ringing tone detector is capable of detecting that the called number is being rung.

Reasons for essentiality

For: to ensure interworking with the network by detecting ringing tone.

Against: the provision of a ringing tone detector is not generally mandatory; not mandatory in ten countries.

Number of countries

Mandatory 6, Blank 6, not mandatory 10.

National peculiarities

No additional requirement

9.5.5.1 (A) 1, 9.5.5.1 (D) 1, 9.5.5.1 (IS) 1, 9.5.5.1 (E) 1, 9.5.5.1 (S) 1, 9.5.5.1 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)
 "Case of quick "off hook" from the called party", **9.5.5.1 (F) 1.**

PT comments

There is no specification for the action to be performed when current is detected.

No	Clause	Essential?	91/263	Comment?
937	9.5.5.2 Ringing tone detector insensitivity	No	4f	

ETS 300 001 text:

For TE capable of detecting ringing tone, the relevant detector shall not be activated, if any of the following signals are applied through an impedance Z_G (W) to the line terminals:

- a) "outband signals" with:
 - frequency of value lower than f_3 (Hz) or higher than f_4 (Hz) and;
 - any level of value lower than p_3 (dBm), measured on a load impedance Z_L (W);
 - any value of cadence t_{on}/t_{off} ;
 - any value of duration.

- b) "weak signals" with:
 - level of value lower than p_4 (dBm), measured on a load impedance Z_L (W) and;
 - any value of frequency;
 - any value of cadence t_{on}/t_{off} ;
 - any value of duration.

- c) "improperly cadenced" signals with:
 - t_{on} of value lower than t_{on3} (ms) and any value of t_{off} , or t_{on} of value higher than t_{on4} (ms) and any value of t_{off} , or t_{off} of value lower than t_{off3} (ms) and any value of t_{on} or t_{off} of value higher than t_{off4} (ms) and any value of t_{on} and;
 - any value of frequency;
 - any value of level;
 - any value of duration.

- d) "short signals" with:
 - duration of value lower than t_{d2} (s) and;
 - any value of frequency;
 - any value of level;
 - any value of cadence t_{on}/t_{off} .

The requirement values are given in table 9.5.5.2.

The requirements shall be met with feeding values V_f , R_f , I_f in the ranges specified in table 9.5.5.2.

Compliance shall be checked using the test outlined in section A.9.5.5.2.

Purpose

To prevent false detection by the calling TE that the called number is being rung.

Reasons for essentiality

For: to ensure correct interworking with the network.

Against: the provision of a ringing tone detector is not generally mandatory; not mandatory in twelve countries.

Number of countries

Mandatory 2, Blank 6, not mandatory 12.

National peculiarities

No additional requirement

9.5.5.2 (E) 1.

Additional requirement (essential for access)

"The ringing tone detector shall not detect the call progress tone and the busy tone", **9.5.5.2 (F) 1.**

Additional requirement (not essential for access).

None.

PT comments

None.

No	Clause	Comment?
938	9.5.6 Special information tone detection	Title

No	Clause	Essential?	91/263	Comment?
939	9.5.6.1 Special information tone detector sensitivity	No	4f	

ETS 300 001 text:

For TE, capable of detecting a special information tone, the relevant detector shall be activated, when:

- 3 successive tones are sent in the frequency ranges from f_{a1} (Hz) up to f_{a2} (Hz), from f_{b1} (Hz) up to f_{b2} (Hz) and from f_{c1} (Hz) up to f_{c2} (Hz), respectively;
- the level of each tone, measured on a load impedance Z_L (W), has a value between p_1 (dBm) and p_2 (dBm);
- each tone is sent for a period of value between t_{on1} (ms) and t_{on2} (ms);
- the 3 tones are separated by 2 pauses of maximum t_p (ms);
- the triple combination is repeated after a pause of value between t_{off1} (ms) and t_{off2} (ms);
- the signal composed as above is applied through an impedance Z_G (W) to the line terminals for a period of at least t_{d1} (s).

The subsequent action shall occur not later than t_a (s) after the beginning of application of the special information tone.

The requirement values are shown in table 9.5.6.1.

The requirements shall be met with dc feeding values V_f , R_f , I_f in the ranges specified in table 9.5.6.1.

Compliance shall be checked using the tests outlined in section A.9.5.6.1.

Purpose

To ensure detection of special information tone to enable a subsequent (unspecified) action to be performed.

Reasons for essentiality

For: to ensure interworking with the network by detecting special information tone.

Against: not mandatory in twelve countries.

Number of countries

Mandatory 3, Blank 5, not mandatory 12.

National peculiarities

No additional requirement

9.5.5.2 (E) 1, 9.5.6.1 (IS) 1, 9.5.6.1 (E) 1, 9.5.6.1 (S) 1, 9.5.6.1 (GB) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
940	9.5.6.2 Special information tone detector insensitivity	No	4f	

ETS 300 001 text:

For TE capable of detecting special information tone, the relevant detector shall not be activated, if any of the following signals are applied through an impedance Z_G (W) to the line terminals:

a) "outband signals" with:

- frequency f_a of value lower than f_{a3} (Hz) or higher than f_{a4} (Hz) or
 frequency f_b of value lower than f_{b3} (Hz) or higher than f_{b4} (Hz) or
 frequency f_c of value lower than f_{c3} (Hz) or higher than f_{c4} (Hz) and,
- any level of value lower than p_3 (dBm), measured on a load impedance;
 - any value of cadence t_{on}/t_{off} ;
 - any value of duration;
 - any value of pause between the tones.

b) "weak signals" with:

- level of value lower than p_4 (dBm), measured on a load impedance and;
- any value of frequency;
 - any value of cadence t_{on}/t_{off} ;
 - any value of duration;
 - any value of pause between the tones.

c) "improperly cadenced" signals with:

- t_{on} of value lower than t_{on3} (ms) and any value of t_{off} , or t_{on} of value higher than t_{on4} (ms) and any value of t_{off} , or t_{off} of value lower than t_{off3} (ms) and any value of t_{on} or t_{off} of value higher than t_{off4} (ms) and any value of t_{on} and;
- any value of frequency;
 - any value of level;
 - any value of duration;
 - any value of pause between tones.

d) "short signals" with:

- duration of value lower than t_{d2} (s) and;
- any value of frequency;
 - any value of level;
 - any value of cadence t_{on}/t_{off} ;
 - any value of pause between the tones.

The requirement values are given in table 9.5.6.2.

The requirements shall be met with feeding values V_f , R_f , I_f in the ranges specified in table 9.5.6.2.

Compliance shall be checked using the test outlined in section A.9.5.6.2.

Purpose

To prevent false detection of special information tone.

Reasons for essentiality

For: to prevent false interpretation of network tones.

Against: not mandatory in twelve countries.

Number of countries

Mandatory 1, Blank 7, not mandatory 12.

National peculiarities

No additional requirement

9.5.6.2 (E) 1.

Additional requirement (essential for access)

None

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Comment?
941	9.6 Detection of remote party signals	Introductory text

ETS 300 001 text:

The following sections deal with signals sent by the remote party of the TE.

The detection of these signals, as treated here, is followed by the generation of other signals inside the TE destined to cause the TE to initiate or to prevent it from initiating a certain subsequent action.

The necessity to implement these detection facilities, as well as the subsequent actions, are specified in other chapters of this document, or in the TE standards, depending on the type of TE.

The signals covered by the present requirements are:

- answering tone;
- speech signal;
- data signal;
- remote activation tone.

Purpose

Introduction to following clauses.

National peculiarities

No additional requirement

9.6 (S) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

No	Clause	Comment?
942	9.6.1 Answering tone detection	Introductory text

ETS 300 001 text:

NOTE: For TE using the detection of the echo control devices disabling tone as detection of answering tone, it is recommended to keep the requirements given in table 9.6.1, where the values follow the CCITT Recommendation V.25 and complete them for unspecified requirements.

The meaning of the parameter symbols are the same as those given in sections 9.6.1.1 and 9.6.1.2.

Purpose

To define the tones recommended by CCITT Recommendation V.25 [5].

No	Clause	Essential?	91/263	Comment?
943	9.6.1.1 Answering tone detector sensitivity	No	4g	

ETS 300 001 text:

For TE capable of detecting answering tone, the detector of answering tone shall be activated, when a signal in the frequency range from f_1 (Hz) up to f_2 (Hz), with a level of value between p_1 (dBm) and p_2 (dBm) measured on a load impedance Z_L (W), is applied through an impedance Z_G (W) to the line terminals for a period of at least t_{d1} (s).

Phase reversals on the tone at intervals of value between t_{ph1} (ms) and t_{ph2} (ms) as shown in section 9.3 shall not disturb its detection by the TE.

The requirement values are shown in table 9.6.1.1.

The requirements shall be met with dc feeding values V_f , R_f , I_f in the ranges specified in table 9.6.1.1.

Compliance shall be checked using the tests outlined in section A.9.6.1.1.

Purpose

To demonstrate that the apparatus can detect CCITT Recommendation V.25 [5] tone.

Reasons for essentiality

For: to ensure correct operation of apparatus capable of detecting answer tone.

Against: not an access requirement;
not mandatory in 11 countries.

Number of countries

Mandatory 4, Blank 5, not mandatory 11.

National peculiarities

No additional requirement

9.6.1.1 (B) 1, 9.6.1.1 (D) 1, 9.6.1.1 (I) 1, 9.6.1.1 (P) 1, 9.6.1.1 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
944	9.6.1.2 Answering tone detector insensitivity	No	4g	

ETS 300 001 text:

For TE capable of detecting answering tone, the detector of answering tone shall not be activated, when, in loop condition, any of the following signals is applied through an impedance Z_G (W) to the line terminals:

- a) "outband signals" with:
 - frequency of value lower than f_3 (Hz) or higher than f_4 (Hz) and;
 - any level of value lower than p_3 (dBm), measured on a load impedance Z_L (W);
 - any value of duration.
- b) "weak signals" with:
 - level of value lower than p_4 (dBm), measured on a load impedance Z_L (W) and;
 - any value of frequency;
 - any value of duration.
- d) "short signals" with:
 - duration of value lower than t_{d2} (ms) and;
 - any value of frequency;
 - any value of level.

The requirement values are given in table 9.6.1.2.

The requirements shall be met with feeding values V_f , R_f , I_f in the ranges specified in table 9.6.1.2.

Compliance shall be checked using the test outlined in section A.9.6.1.2.

Purpose

To demonstrate that the apparatus does not identify other tones as answering tone.

Reasons for essentiality

For: to prevent false operation of apparatus capable of detecting answer tone.

Against: not an access requirement;
not mandatory in 13 countries.

Number of countries

Mandatory 2, Blank 5, not mandatory 13.

National peculiarities

No additional requirement

9.6.1.2 (D) 1, 9.6.1.2 (E) 1.

Additional requirement (essential for access)
None.

Additional requirement (not essential for access)
None.

PT comments

None.

No	Clause	Essential?	91/263	Comment?
945	9.6.2 Speech signal detection			Introductory text

ETS 300 001 text:

Speech signal detection is described in section 6.4.2.2.

Purpose

To direct reader to another chapter.

National peculiarities

No additional requirement

9.6.2 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

No	Clause	Essential?	91/263	Comment?
946	9.6.3 Data signal detection			Introductory text

TS 300 001 text:

Data signal detection is described in section 6.4.2.1.

Speech signal detection is described in section 6.4.2.2.

Purpose

To direct reader to another chapter

National peculiarities

No additional requirement

9.6.3 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

No	Clause	Essential?	91/263	Comment?
947	9.6.4 Remote activation tone detection			Introductory text

ETS 300 001 text:

Remote activation tone detection is described in 6.4.2.3.

Purpose

To direct reader to another chapter.

National peculiarities

No additional requirement

9.6.4 (E) 1.

Additional requirement (essential for access)

None.

Additional requirement (not essential for access)

None.

Annex K (informative): Findings: Chapter 10

A brief review of the first few pages of Chapter 10 was undertaken and some comments have been provided in order to indicate the nature of the difficulty encountered by the project team in trying to classify the essentiality of the requirements and to assist their further study.

This brief review follows:

10.2 DC characteristics

10.2 (A) Austria

10.2 (A) 1 Bouncing time

This is very similar to the Austrian comment in subclause 2.4.2 which limits current interruptions to 5 ms. This could probably be covered by a general limit on the length of undesired loop current interruptions.

10.2 (A) 2 Time of loop interruptions

This is very similar to the Austrian comment in subclause 2.4.2 which limits current interruptions to 5 ms.

10.2 (A) 3 Signals to the line before operation

Although there is a similar German requirement the purpose of this requirement is not clear in that signals to line are undefined, and ready for operation is not specified.

10.2 (SF) Finland

10.2 (SF) 1 Leakage current in the quiescent condition

This appears to be an alternative statement of a requirement of subclause 2.2.1.1.

10.2 (SF) 2 Overvoltages

This appears to be an additional requirement, which could possibly be associated with subclause 2.6. It may be reasonable to specify that TEs continue to meet essential requirements after receiving a likely line surge. There may be a duty on the network provider to protect the TE against excessive surges. France offers a similar remark in subclause 10.10 (F) 1.

10.2 (F) France

10.2 (F) 1 (Immunity to dc breaks from PSTN)

This is an additional requirement. It seems reasonable that the terminal should continue to meet essential requirements after being subject to loop current breaks likely to occur during normal network operation.

10.2 (F) 2 "The loop state shall be clearly indicated by the user."

It appears that this comment should say "The loop state shall be clearly indicated **to** the user."

This appears to be a human factors requirement or a terminal quality matter outside the scope of the ETS.

10.2 (F) 3 Transient conditions on call transfer

This comment could have been made under subclause 2.4.2 dealing with loop current transfer. The requirement could probably be covered by a common clause specifying a general limit on the length of undesired loop current interruptions.

10.2 (D) Germany

10.2 (D) 1 DC specifications

10.2 (D) 1.1 (maximum setting pulse)

This appears to be a concession on the normal requirements of subclause 2.3 and perhaps the comment belongs there.

10.2 (D) 1.2 (ready to operate)

This remark appears to describe a test for the requirement described in **6.3.1 (D) 1**. The two should be associated. The remark also contains requirements appropriate to a telephony terminal standard.

10.2 (D) 1.3

This remark contains comment on overload requirements appropriate to subclause 2.6 and a requirement for series TE which could possibly be incorporated into subclause 2.5.

10.2 (D) 1.4 (switching disturbances)

This is very similar to the Austrian comment in subclause 2.4.2 which limits current interruptions to 5 ms. This could probably be covered by a general limit on the length of undesired loop current interruptions.

10.2 (D) 1.5 (Effect of series TE on dialling)

This remark may be redundant as any effect on dialling is likely to be controlled sufficiently by subclause 2.5 (series resistance) and/or subclause 4.3 (series connected TE insertion loss).

10.2 (D) 1.6 (Resistance between line terminals - series apparatus)

This remark seems appropriate to be associated with subclause 2.2.1.

Annex L (informative): Proposed Format: Chapter 10

The following tables cover country by country the entries (397 in total) in Chapter 10. As indicated in subclause 5.10 and Annex K, the project team had insufficient time to elicit sufficient information from the appropriate experts in each country about the network peculiarities that resulted in the need for these requirements. The tables below provide a convenient means of recording this information once it has been obtained.

No.	National remark of the Austria (chapter 10)	Essential?	91/263	Comment?
A01	10.1 (A) 1 Switching contacts for series connected TE			
A02	10.2 (A) 1 Bouncing time			
A03	10.2 (A) 2 Time of loop interruptions			
A04	10.2 (A) 3 Signals to the line before operation			
A05	10.3 (A) 1 DC flow in the ringing condition			
A06	A.10.3 (A) 1 DC flow in the ringing condition			
A07	10.4 (A) 1 Frequency range of signal frequency signals			
A08	10.5 (A) 1 Bouncing time			
A09	10.5 (A) 2 Decadic dialling distortion caused from a series connected TE			
A10	A.10.5 (A) 2 Decadic dialling distortion caused from a series connected TE			
A11	10.5 (A) 3 Automatic initiation of dialling in PABX			
A12	10.6 (A) 1 Ringing signal frequency range for TE connected in PABX			
A13	A.10.6 (A) 1 Ringing signal frequency range for TE connected in PABX			

No.	National remark of the Belgium (chapter 10)	Essential?	91/263	Comment?
B01	10.3 (B) 1 TE identification			
B02	A.10.3 (B) 1 TE identification			
B03	10.4 (B) 1 Cross-talk			
B04	A.10.4 (B) 1 Cross-talk			
B05	10.5 (B) 1 Dialling system for TE with automatic calling functions			
B06	10.6 (B) 1 Power feeding of telephone sets			
B07				

No.	National remark of the Denmark (chapter 10)	Essential?	91/263	Comment?
DK01	10.3 (DK) 1 Impedance to earth			
DK02	A.10.3 (DK) 1			

No.	National remark of the Finland (chapter 10)	Essential?	91/263	Comment?
SF01	10.2 (SF) 1 Leakage current in the quiescent condition			
SF02	A.10.2 (SF) 1 Leakage current in the quiescent condition			
SF03	10.2 (SF) 2 Overvoltages			
SF04	A.10.2 (SF) 2 Overvoltages			

No.	National remark of the France (chapter 10)	Essential?	91/263	Comment?
F01	10.2 (F) 1			
F02	10.2 (F) 2			
F03	10.2 (F) 3			
F04	10.3 (F) 1			
F05	10.3 (F) 2			
F06	10.5 (F) 1			
F07	10.5 (F) 2			
F08	10.5 (F) 4			
F09	10.5 (F) 5			
F10	10.5 (F) 6			
F11	10.5 (F) 7			
F12	10.6 (F) 1			
F13	10.6 (F) 2			
F14	10.9 (F) 1			
F15	10.9 (F) 1			
F16	10.10 (F) 1			
F17				

No.	National remark of the Germany (chapter 10)	Essential?	91/263	Comment?
D01	10.1 (D) 1 Preliminary remarks			
D02	10.1 (D) 1.1			
D03	10.1 (D) 1.2			
D04	10.1 (D) 1.3			
D05	10.1 (D) 1.4			
D06	10.1 (D) 1.5			
D07	10.1 (D) 2 General requirements			
D08	10.1 (D) 2.1			
D09	10.1 (D) 2.2			
D10	10.1 (D) 2.3			
D11	10.1 (D) 2.4			
D12	10.1 (D) 2.5			
D13	10.1 (D) 2.6			
D14	10.1 (D) 2.7			
D15	10.1 (D) 2.8			
D16	10.1 (D) 2.9			
D17	10.1 (D) 2.10			
D18	10.1 (D) 2.11			
D19	10.1 (D) 2.12			
D20	10.1 (D) 3 TE not receiving approval for a specific public communication service			
D21	10.1 (D) 3.1 Voice terminals in the telephone service			
D22	10.1 (D) 3.2 Specifications for TE used for other communication purposes and capable of interworking with facsimile equipment			
D23	10.2 (D) 1 DC specifications			
D24	10.2 (D) 1.1			
D25	10.2 (D) 1.2			
D26	10.2 (D) 1.3			
D27	10.2 (D) 1.4			
D28	10.2 (D) 1.5			
D29	10.2 (D) 1.6			
D30	10.3 (D) 1 Call detection and signalling			
D31	10.3 (D) 2 General			
D32	10.3 (D) 2.1			
D33	10.3 (D) 2.2			
D34	10.3 (D) 3 Signalling			
D35	10.3 (D) 3.1			
D36	10.3 (D) 3.2			
D37	10.4 (D) 1 General			
D38	10.4 (D) 2 General requirements for all TEs			
D39	10.4 (D) 2.1 Directional independence			
D40	10.4 (D) 2.2 Polarity independence			
D41	10.4 (D) 2.3 Feedback circuits			
D42	10.4 (D) 2.4 Resistance against meter pulse signals			
D43	10.4 (D) 2.5 Input sensitivity of TEs with handshake capability			
D44	10.4 (D) 2.6 Resistance against external voltages			
D45	10.5 (D) 1 Dialling			
D46	10.5 (D) 1.1			
D47	10.5 (D) 1.2			
D48	10.5 (D) 1.3			
D49	10.5 (D) 1.4			
D50	10.5 (D) 1.5			
D51	10.5 (D) 1.6			
D52	10.5 (D) 1.7			

D53	10.5 (D) 1.8			
D54	10.5 (D) 1.9			
D55	10.5 (D) 1.10			
D56	10.5 (D) 1.11			
D57	10.5 (D) 1.12			
D58	10.5 (D) 2 Manual initiation of dialling from memories without automatic redialling			
D59	10.5 (D) 2.1 Definitions, flow of functions			
D60	10.5 (D) 2.1.1			
D61	10.5 (D) 2.1.2			
D62	10.5 (D) 2.1.3			
D63	10.5 (D) 2.1.4			
D64	10.5 (D) 2.1.5			
D65	10.5 (D) 2.1.6			
D66	10.5 (D) 2.2 General requirements			
D67	10.5 (D) 2.2.1			
D68	10.5 (D) 2.2.2			
D69	10.5 (D) 2.2.3			
D70	10.5 (D) 2.3 Automatic checking of line condition for Group A terminal equipment			
D71	10.5 (D) 2.4 Initiation of dialling			
D72	10.5 (D) 2.4.1			
D73	10.5 (D) 2.4.2			
D74	10.5 (D) 2.4.3			
D75	10.5 (D) 2.4.4			
D76	10.5 (D) 2.5 Initiation of transmission			
D77	10.5 (D) 2.5.1			
D78	10.5 (D) 2.5.2			
D79	10.5 (D) 2.6 Transmission duration control			
D80	10.7 (D) 1			
D81	10.7 (D) 2			
D82	10.7 (D) 3			
D83	10.7 (D) 4			
D84	10.8 (D) 1			
D85	10.8 (D) 1.1			
D86	10.8 (D) 1.2			
D87	10.8 (D) 2 Group C auxiliary equipment AE (C)			
D88	10.8 (D) 2.1			
D89	10.8 (D) 2.2			
D90	10.8 (D) 2.3			
D91	10.8 (D) 2.4			
D92	10.8 (D) 2.5			
D93	10.8 (D) 2.6			
D94	10.8 (D) 2.7			
D95	10.8 (D) 2.8			

No.	National remark of the Greece (chapter 10)	Essential?	91/263	Comment?
GR01	10.1 (GR) 1.1			
GR02	10.1 (GR) 1.2			
GR03	10.1 (GR) 1.3			
GR04	10.1 (GR) 1.4			
GR05				

No.	National remark of the Italy (chapter 10)	Essential?	91/263	Comment?
I01	10.3 (I) 1 Ringing signal input capacitance			
I02	A.10.3 (I) 1 Ringing signal input capacitance			

No.	National remark of the Norway (chapter 10)	Essential?	91/263	Comment?
N01	10.1 (N) 1 Safety and protection			
N02	10.1 (N) 1.1 Overvoltage arresters			
N03	10.1 (N) 1.2 Resistibility to overvoltages and overcurrents			
N04	10.1 (N) 1.3 Dielectric barrier between telecom line terminals and mains terminals - impulse voltage resistibility			
N05	10.2 (N) 1 Immunity to current interruptions during loop condition			
N06	A.10.2 (N) 1			
N07	10.3 (N) 1 Insertion loss for ringing currents			
N08	A.10.3 (N) 1			
N09	10.4 (N) 1 Cross-talk			
N10	10.9 (N) 1 Meter pulse reception			
N11	10.10 (N) 1 Additional Norwegian regulatory requirements			

No.	National remark of the Portugal (chapter 10)	Essential?	91/263	Comment?
P01	10.1 (P) 1 Two ports TE, not series-connected, with dedicated TE			
P02	10.1 (P) 2 Two ports TE, not series connected, with TE approved for connection to the PSTN			
P03	10.2 (P) 1 Immunity to an external loop current interruption			
P04	A.10.2 (P) 1 Immunity to an external loop current interruption			
P05	10.2 (P) 2 Loop current interruptions and variations caused by the TE			
P06	10.2 (P) 2 Loop current interruptions and variations caused by the TEA.10.2 (P) 2 Loop current interruptions and variations caused by the TE			
P07	10.2 (P) 3 Polarity reversal			
P08	A.10.2 (P) 3 Polarity reversal			
P09	10.4 (P) 1 Degree of unbalance about earth			
P10	10.4 (P) 1.1 Longitudinal conversion loss of a TE in quiescent condition			
P11	10.4 (P) 1.1 Longitudinal conversion loss of a TE in quiescent condition			
P12	10.4 (P) 1.2 Longitudinal conversion loss of a TE in loop condition			
P13	Insertion loss for a TE not series-connected			
P14	10.5 (P) 1 Loop current interruption during the interpulsing period in decadic dialling			
P15	A.10.5 (P) 1 Loop current interruption during the interpulsing period in decadic dialling			
P16	10.5 (P) 2 Switching after dialling condition			
P17	A.10.5 (P) 2 Switching after dialling condition			
P18	10.6 (P) 1 Insensitivity to ringing signals			
P19	A.10.6 (P) 1 Insensitivity to ringing signals			
P20				

No.	National remark of the Spain (chapter 10)	Essential?	91/263	Comment?
E01	10.1 (E) 1 Test Order			
E02	10.1 (S) 1			
E03	10.2 (E) 1 Insulation resistance between line terminals of two lines (multi-line)			
E04	A.10.2 (E) 1 Insulation resistance between line terminals of two lines (multi-line)			
E05	10.2 (E) 2 Susceptibility to dc transients from the network			
E06	10.2 (E) 2.1 Transients after a change to the opposite polarity			
E07	10.2 (E) 2.2 Transient after a line interruption			
E08	A.10.2 (E) 2 Susceptibility to dc transients from the network			
E09	A.10.2 (E) 2.1 Transient after a change to the opposite polarity			
E10	A.10.2 (E) 2.2 Transient after a line interruption			
E11	10.3 (E) 1 Ringling signal input characteristics			
E12	10.3 (E) 1.1 Ringling signal maximum input capacitance			
E13	10.3 (E) 1.2 Ringling signal maximum direct current			
E14	A.10.3 (E) 1 Ringling signal input characteristics			
E15	A.10.3 (E) 1.1 Ringling signal maximum input capacitance			
E16	A.10.3 (E) 1.2 Ringling signal maximum direct current			
E17	10.3 (E) 2 Ringling signal impedance between line terminals and accessible parts (and earth)			
E18	A.10.3 (E) 2 Ringling signal impedance between line terminals and accessible parts (and earth)			
E19	10.3 (E) 3 Ringling signal insertion loss (series)			
E20	A.10.3 (E) 3 Ringling signal insertion loss (series)			
E21	10.3 (E) 4 Line detector immunity			
E22	10.3 (E) 4.1 Line voltage detector immunity			
E23	A.10.3 (E) 4.1 Line voltage detector immunity			
E24	10.3 (E) 4.2 Loop current detector immunity (series)			
E25	A.10.3 (E) 4.2 Loop current detector immunity (series)			
E26	10.3 (E) 5 Ringling signal distortion (series)			
E27	A.10.3 (E) 5 Ringling signal distortion (series)			
E28	10.4 (E) 1 Impedance at output port (series)			
E29	10.4 (E) 1.1 Transverse return loss at output port (series)			
E30	10.4 (E) 1.2 Impedance linearity (series)			
E31	A.10.4 (E) 1 Impedance at output port (series)			
E32	A.10.4 (E) 1.1 Transverse return loss at output port (series)			
E33	A.10.4 (E) 1.2 Impedance linearity (series)			
E34	10.4 (E) 2 Impedance between line terminals and accessible parts (and earth)			
E35	10.4 (E) 2.1 Impedance between line terminals and accessible parts (and earth) in quiescent condition			
E36	10.4 (E) 2.2 Impedance between line terminals and accessible parts (and earth) in loop condition			
E37	A.10.4 (E) 2 Impedance between the line terminals and accessible parts			
E38	A.10.4 (E) 2.1 Impedance between the line terminals and accessible parts in quiescent condition			
E39	A.10.4 (E) 2.2 Impedance between line terminals and accessible parts (and earth) in loop condition			

E40	10.4 (E) 3	Output signal characteristics			
E41	10.4 (E) 3.1	Longitudinal output level			
E42	10.4 (E) 3.2	Output signal balance loss			
E43	10.4 (E) 3.3	Longitudinal interference threshold level			
E44	A.10.4 (E) 3	Output signal characteristics			
E45	A.10.4 (E) 3.1	Longitudinal output level			
E46	A.10.4 (E) 3.2	Output signal balance			
E47	A.10.4 (E) 3.3	Longitudinal interference threshold level			
E48	10.4 (E) 4	Protection against acoustic shocks			
E49	A.10.4 (E) 4	Protection against acoustic shocks			
E50	10.4 (E) 5	Cross-talk between input terminals of two lines (multi-line)			
E51	A.10.4 (E) 5	Cross-talk between input terminals of two lines (multi-line)			
E52	10.5 (E) 1	General			
E53	A.10.5 (E) 1	General			
E54	10.5 (E) 2	Establishment of loop condition			
E55	A.10.5 (E) 2	Establishment of loop condition			
E56	10.5 (E) 3	Start of dialling sequence			
E57	10.5 (E) 3.1	Manual start and automatic start with dial tone			
E58	10.5 (E) 3.2	Automatic start without dial tone			
E59	A.10.5 (E) 3	Start of dialling sequence			
E60	A.10.5 (E) 3.1	Manual start and automatic start with dial tone			
E61	A.10.5 (E) 3.2	Automatic start without dial tone			
E62	10.5 (E) 4	Dial tone reception			
E63	10.5 (E) 4.1	General of dial tone reception			
E64	10.5 (E) 4.2	Dial tone receiver immunity			
E65	A.10.5 (E) 4	Dial tone reception			
E66	A.10.5 (E) 4.1	General of dial tone reception			
E67	A.10.5 (E) 4.2	Dial tone receiver immunity			
E68	10.5 (E) 5	Dialling sequence			
E69	A.10.5 (E) 5	Dialling sequence			
E70	10.5 (E) 6	Dialling with loop pulsing			
E71	10.5 (E) 6.1	General of dialling with loop pulsing			
E72	A.10.5 (E) 6	Dialling with loop pulsing			
E73	A.10.5 (E) 6.1	General of dialling with loop pulsing			
E74	A.10.5 (E) 6.1.a				
E75	A.10.5 (E) 6.1.b				
E76	A.10.5 (E) 6.1.c				
E77	A.10.5 (E) 6.1.d				
E78	A.10.5 (E) 6.1.e				
E79	A.10.5 (E) 6.1.f				
E80	A.10.5 (E) 6.1.g				
E81	10.5 (E) 6.2	Transient response of loop current during dialling with loop pulsing			
E82	A.10.5 (E) 6.2	Transient response of loop current during dialling with loop pulsing			
E83	A.10.5 (E) 6.2.a				
E84	A.10.5 (E) 6.2.b				
E85	A.10.5 (E) 6.2.c				
E86	A.10.5 (E) 6.2.d				
E87	A.10.5 (E) 6.2.e				
E88	10.5 (E) 6.3	Fall and rise time of the current			
E89	10.5 (E) 6.3.1	Fall time of the current			
E90	10.5 (E) 6.3.2	Rise time of the current			
E91	A.10.5 (E) 6.3	Fall and rise times of the current			

E92	A.10.5 (E) 6.3.1	Fall time of the current			
E93	A.10.5 (E) 6.3.2	Rise time of the current			
E94	10.5 (E) 6.4	Sequence length			
E95	A.10.5 (E) 6.4	Sequence length			
E96	10.5 (E) 7	Dialling with DTMF signals			
E97	10.5 (E) 7.1	General of dialling with DTMF signals			
E98	A.10.5 (E) 7	Dialling with DTMF signals			
E99	A.10.5 (E) 7.1	General of dialling with DTMF signals			
E100	A.10.5 (E) 7.1.a				
E101	A.10.5 (E) 7.1.b				
E102	A.10.5 (E) 7.1.c				
E103	A.10.5 (E) 7.1.d				
E104	10.5 (E) 7.2	Transient response of loop current during dialling with DTMF signals			
E105	A.10.5 (E) 7.2	Transient response of loop current dialling with DTMF signals			
E106	A.10.5 (E) 7.2.a				
E107	A.10.5 (E) 7.2.b				
E108	10.5 (E) 7.3	Dial tone susceptibility			
E109	A.10.5 (E) 7.3	Dial tone susceptibility			
E109	10.5 (E) 7.4	Sequence length			
E110	A.10.5 (E) 7.4	Sequence length			
E111	10.5 (E) 8	Establishment of loop condition after a dialling sequence			
E112	A.10.5 (E) 8	Establishment of loop after a dialling sequence			
E113	10.5 (E) 9	Identification signals			
E114	10.5 (E) 9.1	General of identification signals			
E115	10.5 (E) 9.2	Identification signal timing			
E116	10.5 (E) 9.3	Identification tones			
E117	10.5 (E) 9.4	Other identification signals			
E118	A.10.5 (E) 9	Identification signals			
E119	A.10.5 (E) 9.1	General of identification signals			
E120	A.10.5 (E) 9.2	Identification signal timing			
E121	A.10.5 (E) 9.2.a				
E122	A.10.5 (E) 9.2.b				
E123	A.10.5 (E) 9.2.c				
E124	A.10.5 (E) 9.2.d				
E125	A.10.5 (E) 9.2.e				
E126	A.10.5 (E) 9.2.f				
E127	A.10.5 (E) 9.3	Identification tones			
E128	A.10.5 (E) 9.4	Other identification signals			
E127	10.5 (E) 10	Loop condition duration control			
E128	10.5 (E) 10.1	General of loop condition duration control			
E129	10.5 (E) 10.2	Change from automatic control to manual control			
E130	10.5 (E) 10.3	Duration control not related with information transferred			
E131	10.5 (E) 10.4	Preservation of loop condition related with information transfer			
E132	10.5 (E) 10.5	Liberation of loop condition control related with information transfer			
E133	10.5 (E) 10.6	Liberation of loop condition related with ac network signals			
E134	10.5 (E) 10.7	Liberation of loop condition control related with other network signals			
E135	A.10.5 (E) 10	Loop condition duration control			

E136	A.10.5 (E) 10.1	General of loop condition duration control			
E137	A.10.5 (E) 10.2	Change from automatic control to manual control			
E138	A.10.5 (E) 10.3	Duration control not related with information transferred			
E139	A.10.5 (E) 10.4	Preservation of loop condition related with information transfer			
E140	A.10.5 (E) 10.4.a				
E141	A.10.5 (E) 10.4.b				
E142	A.10.5 (E) 10.5				
E143	A.10.5 (E) 10.6				
E144	A.10.5 (E) 10.6.a				
E145	A.10.5 (E) 10.6.b				
E146	A.10.5 (E) 10.7	Liberation of loop condition control related with other network signals			
E147	A.10.5 (E) 10.7.a.i.1				
E148	A.10.5 (E) 10.7.a.i.2				
E149	A.10.5 (E) 10.7.a.ii				
E149	A.10.5 (E) 10.7.b				
E150	10.5 (E) 11	Call attempts			
E151	10.5 (E) 11.1	Successive call attempts to different numbers			
E152	10.5 (E) 11.2	Successive call attempts to one number			
E153	10.5 (E) 11.3	Total number of repeat call attempts			
E154	A.10.5 (E) 11	Call attempts			
E155	A.10.5 (E) 11.1	Successive call attempts to different numbers			
E156	A.10.5 (E) 11.2	Successive call attempts to one number			
E157	A.10.5 (E) 11.3	Total number of repeat call attempts			
E158	10.6 (E) 1	General			
E159	A.10.6 (E) 1	General			
E160	10.6 (E) 2	Establishment of loop condition from ringing condition			
E161	10.6 (E) 2.1	General of the change to loop condition			
E162	10.6 (E) 2.2	Manual change to loop condition			
E163	10.6 (E) 2.3	Automatic changes to loop condition			
E164	A.10.6 (E) 2	Establishment of loop condition from ringing condition			
E165	A.10.6 (E) 2.1	General of the change to loop condition			
E166	A.10.6 (E) 2.2	Manual change to loop condition			
E167	A.10.6 (E) 2.2.a				
E168	A.10.6 (E) 2.2.a				
E169	A.10.6 (E) 2.2.a.a1				
E170	A.10.6 (E) 2.2.a.a2.ii.1				
E171	A.10.6 (E) 2.2.a.a2.ii.2				
E172	A.10.6 (E) 2.2.a.a2.iii				
E173	A.10.6 (E) 2.2.a.a2.iv				
E174	A.10.6 (E) 2.2.a.a2.v				
E175	A.10.6 (E) 2.2.b				
E176	A.10.6 (E) 2.3	Automatic change to loop condition			
E177	10.6 (E) 3	Ringing signal reception			
E178	10.6 (E) 3.1	Ringing signal receiver immunity			
E179	10.6 (E) 3.2	Change of polarity susceptibility			
E180	A.10.6 (E) 3				
E181	10.6 (E) 4	Loop condition after the automatic change from ringing condition			

E182	A.10.6 (E) 4	Loop condition after automatic change from the ringing condition			
E183	10.6 (E) 5	Identification signals			
E184	10.6 (E) 5.1	General of identification signals			
E185	10.6 (E) 5.2	Identification signal timing			
E186	10.6 (E) 5.3	Identification tones			
E187	10.6 (E) 5.4	Other identification signals			
E188	A.10.6 (E) 5	Identification signals			
E189	A.10.6 (E) 5.1	General of identification signals			
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No.	National remark of the Switzerland (chapter 10)	Essential?	91/263	Comment?
CH01	10.3 (CH) 1			

No.	National remark of the U. Kingdom (chapter 10)	Essential?	91/263	Comment?
GB01	10.4 (GB) 1 Multi-line series-connected TE crosstalk attenuation			
GB02	A.10.4 (GB) 1			

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