

ATAAB ADVISORY NOTE

TRAC Analogue Type Approval Advisory Board

ATAAB Advisory Note Number: AN 12

Subject: Requirement regarding transient after a change to the opposite polarity

APPLICABILITY

This note is applicable for Terminal Equipment intended for connection to the Spanish Public Switched Telephone Networks, in addition to:



" CTR 21" (When published)

NOTE: Until CTR 21 is available, reference should be made to ETSI document prTBR 21 (Sept 1997) or, when it is available, to TBR 21.

Appendix to this Advisory Note:

A: Additional requirements and tests for attachment to the Spanish PSTN

In consideration of the following:

- In the Spanish PSTN, whenever a call is established, when the called TE answers the call, the network either cuts the feeding current of the calling TE for a time, or alternatively, changes the polarity of the calling TE DC feeding voltage (which also implies a little cut in the DC feeding current).
- When the DC voltage has been changed to the opposite polarity, the loop state shall be maintained within certain limits of time and current, in order not to clear the line.
- The TE must be proved capable of supporting the change to the opposite polarity in the DC voltage and the cut of the DC current without clearing the line.

ATAAB advises the following:

Terminal equipments connected to the Spanish PSTN must be capable of keeping the line when the network changes the polarity of its feeding current.

TE approved to CTR 21 and intended for connection to the Spanish Public Switched Telephone Network, shall, in addition to the requirements of CTR21, comply with the requirements found in Appendix A to this Advisory Note.

Conformity to this additional requirements is subject to approval.

It is the responsibility of the supplier to provide information for users as to whether the Terminal Equipment complies with the additional requirements for the Spanish Public Switched Telephone Network specified in this Advisory Note.

Appendix A also specifies the tests to assess compliance with this additional requirement.

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Appendix A

to

ATAAB Advisory Note Number: AN 12

Subject: Requirements regarding the susceptibility of the TE to the changes to the opposite polarity

A.1 INTRODUCTION

Terminal equipment approved to CTR 21 may not work properly when connected to the Spanish Public Switched Telephone Network, as the TE must be capable of supporting changes to the opposite polarity in the DC voltage and the implied line interruptions without clearing the line.

This Appendix specifies requirements to which a TE shall comply, in addition to the requirements of CTR 21 **in order to test that the TE can support changes to the opposite polarity from the network** for signalling purposes, keeping the line under certain limits of time and current.

It also specifies the method to assess compliance with these additional requirements.

A.2 NORMATIVE REFERENCES

- [1] CTR 21: Terminal Equipment (TE). Attachment requirements for pan-European approval for connection to the analogue Public Switched Telephone Networks (PSTNs) of TE (excluding TE supporting the voice Telephony Service) in which network addressing, if provided, is by means of Dual Tone Multi-Frequency (DTMF) signalling.

NOTE: This document makes reference to CTR21. Until CTR 21 is available, reference should be made to the base draft ETSI document prTBR 21 (Sept 1997), or when it is available, to TBR21.

A.3 REQUIREMENTS AND ASSOCIATED TESTS

NOTE: The following requirements are in addition to the requirements of CTR 21 Clause 4.7.1 and its associated tests in A.4.7.1.

A.3.1 Transient after a change to the opposite polarity (Requirement)

Justification: 91/263/EEC, Article 4(f); Interworking with the PSTN is assured by requiring the TE to support changes to the opposite polarity sent by the network, for signalling purposes in order to establish the call, without clearing the line.

Requirement: With the TE in loop condition, when it happens a change to the opposite polarity, the loop state shall be maintained in such a manner that the loop current shall comply with the limits according to the mask of figure A.3.1 where

- t_1 = instant in which the switch takes the new polarity
- $t_2 = t_1 + 3 \text{ ms}$
- $t_3 = t_1 + 10 \text{ ms}$
- I_1 = Stationary value of the loop current for the original polarity
- $I_2 = I_1 - 3 \text{ mA}$
- $I_3 = I_1 + 3 \text{ mA}$
- I_4 = Stationary value of the loop current for the new polarity
- $I_5 = I_4 + 3 \text{ mA}$
- $I_6 = I_4 - 3 \text{ mA}$
- $I_7 = 125 \text{ mA}$
- $I_8 = -125 \text{ mA}$
- $I_9 = -16 \text{ mA}$
- $I_{10} = -100 \text{ mA}$

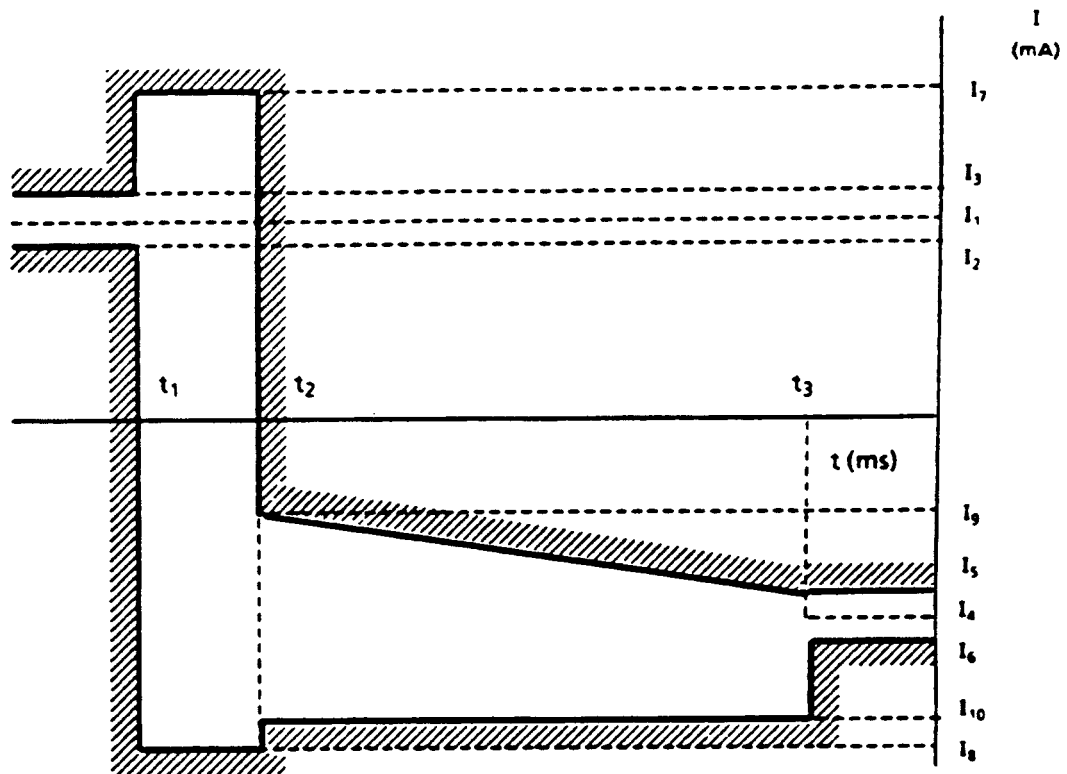


Figure A.3.1 Transient after a change to the opposite polarity

This requirement shall not be applied in those cases in which this signalling is used for clearing purposes.

Compliance shall be checked by the tests outlined in section A.3.2

A.3.2 Transient after a change to the opposite polarity (Test)

Requirement: A.3.1

Purpose: To verify that the TE is capable of keeping the line under certain conditions of time and current, after a change to the opposite polarity in the DC voltage.

Measurement principle:

Preamble: Set the TE in quiescent state

Test state: Loop state

Test configuration:

Figure A.3.2: Transient after a change to the opposite polarity

The TEUT is connected as shown in figure A.3.2.

The feeding voltages V_{f1} and V_{f2} , takes the value of 50 V. The two feeding resistors, R_{f1} and R_{f2} , take the value of 250Σ ; the test shall also be made when these resistors take the value of $1\ 100 \Sigma$.

A suitable instrument is used to document the loop current variations as consequence of the change of switch S_1 .

Measurement execution:

In sequence, select a feed resistance value according to the DC feeding arrangement and then cause the TE to enter the loop state after making sure that the TE has been held at least 1 minute in quiescent state. When the terminal has been in the loop state for at least

1,2 s, provoke a change to the opposite polarity by changing the position of switch S_1 .

The change of switch S_1 shall be done in a maximum time of 0,2 ms.

Allow sufficient setting time, to a maximum of 3 s, to ensure that the measured value is satable to within $\pm 0,5 \%$ for at least 0,2 s.

A suitable instrument is used to document the loop current variations as a consequence of the change of switch S_1 . Then repeat the sequence for other measurement points, repeating each time a transition from quiescent state to loop state.

Formal processing: None

Verdict: If, during the change of the position of the switch S_1 , the DC current has been within the time/current limits specified in figure A.3.1, then pass; else fail.

Guidance: Allowing "sufficient setting time" is useful to ensure test repeatability and reproducibility. Nevertheless if the stated stability cannot be found, the setting time shall be limited to 3s. In this latter case a measurement accuracy improvement may be obtained by averaging several measurement readings made during the setting time.

GERMAN ADVISORY NOTE

German Advisory Note Number: DE 03

Subject: Sending level in quiescent state to avoid interference with the German Public Switched Telephone Network

APPLICABILITY

This note is applicable for Terminal Equipment intended for connection to the German Public Switched Telephone Networks, in addition to:



" CTR 21" (When published)

NOTE: Until CTR 21 is available, reference should be made to ETSI document prTBR 21 (Sept 1997) or, when it is available, to TBR 21.

Appendix to this Advisory Note:

A: Additional requirements and tests for attachment to the German PSTN