

PORTUGUESE ADVISORY NOTE

Portuguese Advisory Note Number: P 03

Subject: Requirement regarding input impedance for voice band signals and billing signals in quiescent state.

APPLICABILITY

This note is applicable for Terminal Equipment intended for connection to the Portuguese 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 Portuguese PSTN.

In consideration of the following:

- Terminal equipment must correctly inter-work with the Portuguese PSTN as stated in Terminal Equipment Directive 91/263/EEC.
- The Portuguese PSTN, due to the rules applicable to the users telephone installation, allows several terminal equipments to be connected in parallel at the Network Termination Point.
- TBR21, in its Introduction section, states that "In an arbitrary combination of parallel and/or series connections, the performance of each individual terminal will need to be better than required by this TBR, to ensure satisfactory inter-working with the network.
- In a parallel connection it is necessary to guarantee that each connected terminal equipment in quiescent state has a sufficient high impedance for voice band signals in order not to interfere with another terminal connected on the same NTP and already in loop state in such a way that might
 - a) prevent the terminal in loop state from receiving signalling sent by the Portuguese PSTN (i.e. 12 kHz pulses or ringing signals);
 - b) prevent a voice telephony terminal in loop state from receiving voice sent by the Portuguese PSTN;
 - c) prevent the Portuguese PSTN from receiving signalling sent by the terminal in loop state, namely DTMF signals;
 - d) prevent the Portuguese PSTN from receiving signalling sent by a voice telephony terminal in loop state.

The Portuguese Regulatory Authority advises the following:

Terminal equipment in quiescent state shall present at its input terminals an input impedance with an absolute value not lower than 15 kW for signals with an AC voltage up to 1,5 Vrms and frequencies in the band frequency of 300 Hz – 4 000 Hz, and with an absolute value not lower than 6 kW for signals with an AC voltage up to 1,5 Vrms and frequencies in the band frequency of 4 kHz – 15 kHz.

TE approved to CTR 21 and intended for connection to the Portuguese PSTN shall, in addition to the requirements of CTR21, comply with the requirements found in Appendix A to this Advisory Note.

It is a supplier's responsibility to provide information for users as to whether the Terminal Equipment complies with the additional requirements for the Portuguese PSTN specified in this Advisory Note.

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

PORTUGUESE ADVISORY NOTE

Appendix A

To

Portuguese Advisory Note Number: P 03

Subject: Requirement regarding input impedance for voice band signals and billing signals in quiescent state.

A.1 INTRODUCTION

Terminal equipment approved to CTR 21 may not interwork properly with the Portuguese PSTN.

This Appendix specifies requirements to which a TE shall comply, in addition to the requirements of CTR 21 in order to ensure interworking with the Portuguese PSTN. It also specifies the method to assess compliance with these additional requirements, including reference to additional tests to be performed to dynamically assess compliance with the 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 CTR 21. Until CTR 21 is available, reference should be made to the base ETSI documents prTBR 21 (Sept 1997) or, when it is available, to TBR 21.

A.3 REQUIREMENTS AND ASSOCIATED TESTS

A.3.1 Input impedance in quiescent state for voice band and 12 kHz signals

NOTE: The following requirement is in addition to Clause 4.4 of CTR 21 and to the associated tests in Clause A.4.4.

Justification: 91/263/EEC, Article 4(f); Interworking with the Portuguese PSTN is assured by requiring the TE to present a sufficient high input impedance in quiescent state to signals sent by the Portuguese PSTN or by other terminal equipment in loop state connected on the same NTP.

Requirement: Terminal equipment in quiescent state shall present at its input terminals an input impedance with an absolute value not lower than 15 kW for signals with an AC voltage up to 1,5 Vrms and frequencies in the band frequency of 300 Hz - 4 000 Hz, and with an absolute value not lower than 6 kW for signals with an AC voltage up to 1,5 Vrms and frequencies in the band frequency of 4 kHz - 15 kHz.

Test: The test shall be conducted according to A.3.2.

A.3.2 Input impedance in quiescent state for voice band and 12 kHz signals

Requirement: Subclause A.3.1.

Purpose: To verify that the input impedance to voice band signals and to 12 kHz signals in quiescent state complies with the limits stated in A.3.1.

Measurement principle:

Preamble: Set the TE in quiescent state.

Test state: Quiescent state.

Test configuration: the same as Figure A.3 of prTBR21.

DC feeding arrangement: Feed Voltage = 50 V DC.

AC feeding arrangement: 1) Sinusoidal source $U_0 = 1,5$ V rms, frequency varying from 300 Hz to 4 kHz in order to measure U_{TE} across the TE.

2) Sinusoidal source $U_0 = 1,5$ V rms, frequency varying from 4 kHz to 15 kHz in order to measure U_{TE} across the TE.

Measurement points: Voltage U_{TE} and current I_{TE1} and I_{TE2} .

Safety Warning:

Measurement execution:

Using the test configuration shown, apply (one at a time), each one of the signals described in "AC feeding arrangement" to the circuit. Adjust the voltage (U_0) to set the voltage across the TE (U_{TE}) to 1,5 V rms. Measure the current I_{TE1} flowing in the circuit with sinusoidal source 1) and the current I_{TE2} flowing in the circuit with sinusoidal source 2).

Formal processing: The impedance of the TE can be calculated using the formulas

$$|Z_{Ri1}| = U_{TE} / I_{TE1}$$

$$|Z_{Ri2}| = U_{TE} / I_{TE2}$$

Verdict: If $|Z_{Ri1}|$ is equal or greater than 15 kW and if $|Z_{Ri2}|$ is equal or greater than 6 kW then "PASS"; else "FAIL".

A.3.3 Requirements Table (CTR-RT)

The requirements table of CTR 21, Annex B is still applicable.