INTERNATIONAL TELECOMMUNICATION UNION

ITU-T O.61

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

SPECIFICATIONS FOR MEASURING EQUIPMENT

SIMPLE EQUIPMENT TO MEASURE INTERRUPTIONS ON TELEPHONE-TYPE CIRCUITS

ITU-T Recommendation O.61

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation O.61 was published in Fascicle IV.4 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

© ITU 1988, 1993

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the ITU.

Recommendation O.61

SIMPLE EQUIPMENT TO MEASURE INTERRUPTIONS ON TELEPHONE-TYPE CIRCUITS

(Geneva, 1972; amended at Geneva, 1980, and at Melbourne, 1988)

The requirements for the characteristics of a simple interruption counter equipment capable of detecting short interruptions in transmission on audio channels are described below and must be adhered to in order to ensure compatibility between equipments standardized by the CCITT and produced by different manufacturers.

1 Definitions

1.1 interruption

For the purpose of this specification an interruption shall be regarded as a break in transmission or drop in the level of a test tone below a designated threshold.

1.2 dead time

The dead time is defined for the purpose of this specification as the time after which the counter is ready to record another interruption following the end of the preceding interruption.

2 The detector

2.1 *General*

All interruptions above 3.5 ms shall be detected. Interruptions of less than 2 ms shall not be recognized nor restoration of the signal for less than 2 ms. Interruptions separated by more than 4 ms shall be detected separately.

2.2 *Interruption detection threshold*

The instrument shall be capable of adjustment to threshold levels of 6 and 10 dB. The accuracy of the instrument at these threshold levels shall be ± 1 dB.

2.3 *Input conditions*

2.3.1 The detector shall respond to a test signal of 2000 Hz ± 100 Hz (see also § 4).

2.3.2 The instrument shall be capable of adjustment for input levels between +10 dBm and –30 dBm.

2.4 *Input impedance* (frequency range 300 Hz to 4 kHz)

– balanced, earth free.

– Input longitudinal interference loss ..... ≥ 46 dB

2.4.1 *Terminating impedance* (other impedances optional)..... 600 ohms

– Return loss ..... ≥ 30 dB

2.4.2 *High impedance*..... approx. 20 kohms

– Bridging loss across 300 ohms ..... ≤ 0.15 dB.

2.5 *Dead time*

2.5.1 The dead time of an electronic instrument shall be 3 ms ± 1 ms.

2.5.2 The dead time of an instrument with mechanical counters shall be 125 ms ± 25 ms.

2.5.3 A switch shall be provided on the electronic instrument giving an optional 125 ms ± 25 ms dead time to enable comparable tests to be made with instruments using mechanical counters.

2.6 *Auxiliary logic output*

An auxiliary output from the detector shall be provided wired to a suitable socket giving a logic output for computer access or auxiliary equipment. The output from this socket shall be a two-state digital signal:

logic “0”: signal level above the threshold;

logic “1”: interruption, signal level below the threshold.

The output levels shall be as supplied by TTL (Transistor-Transistor Logic) integrated circuits. The output impedance shall be less than 2000 ohms, the precise value depending on the requirements of individual Administrations.

2.7 *Timing clock* (optional)

A timing clock shall be provided which shall limit the test duration to any period up to one hour. A manual position shall be provided on the clock for special testing purposes when test periods of greater than one hour are required.

3 The counter

3.1 *General*

All interruptions of greater than 3 ms shall be recorded. The interruptions shall be recorded on a single counter which shall have at least a three digit display. At the end of the testing period the counter display shall hold its accumulated total.

3.2 *Power failure*

In the event of a power failure the counter shall hold its accumulated total and resume the count when the power supply is restored. Should it prove impossible to meet this requirement a visual indication shall be provided to show that a power failure has taken place.

4 Simultaneous measurements

The measurement of interruptions may be provided in an instrument which also makes measurements of other transient impairments, e.g., amplitude and phase hits. A test signal frequency of 1020 Hz ± 10 Hz may be used to facilitate the integration of several measurements of transient phenomena in such a combined instrument. In all other respects, the measurement of interruptions shall be in accordance with the principles of this Recommendation.

5 Operating environment

The electrical performance requirements shall be met when operating at the climatic conditions as specified in Recommendation O.3, § 2.1.