



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.32

**GENERAL RECOMMENDATIONS ON TELEPHONE
SWITCHING AND SIGNALLING**

**INTERNATIONAL AUTOMATIC AND
SEMI-AUTOMATIC WORKING**

**REDUCTION OF THE RISK OF INSTABILITY
BY SWITCHING MEANS**

ITU-T Recommendation Q.32

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation Q.32 was published in Fascicle VI.1 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.

Recommendation Q.32

REDUCTION OF THE RISK OF INSTABILITY BY SWITCHING MEANS

For any connection between two-wire terminations, the transmission plan admits a certain risk of instability. In an international connection, Recommendation G.122 defines for each national network its responsibility in this respect.

It is recognized in § 2 of that Recommendation that during certain phases of the call, the risk of instability could in certain circumstances become excessive; this refers in particular to conditions other than that of an established connection, viz. during set-up, clear-down and changes in a connection. Appropriate precautions must then be taken by the switching services.

Techniques applicable to analogue exchanges which will afford a reduction of the risk of instability for a national network have been shown in earlier versions of Recommendation Q.32 (*Red Book* 1985 and earlier). For digital exchanges these methods are as a rule not equally suitable, however, it should be noted that, with today's digital networks giving 4-wire transmission down to the local exchanges and with corresponding terminating losses, the transmission plan may often not require extra loss during setting-up, etc., conditions.

Recommendation G.121, § 6.2 calls for a sum of losses round the a-t-b path of at least 6 dB; calculating according to Recommendation G.122, § 2.2, this would be some four times the standard deviation, corresponding to a risk of about 3 in 10 000. (The six calls per thousand risk called for in Recommendation G.122 corresponds to about 3.25 times the standard deviation.) The switching services thus only need to maintain this minimum loss in cases where it is reduced in the conditions mentioned.

The use of a restricted value of loss (rather than total interruption of the 4-wire loop) allows the passage of information tones or recorded announcements or of communication with an operator, and of national use for non-chargeable calls. Although as a rule digital pads are deprecated, the reasons for this are all concerned with their presence in an established connection, and do not apply to their use for the present purpose.