Nos. 5, 6 and 7 (TUP and ISUP). For circuits employing Signalling System R2, Recommendation Q.416 details the actions to be taken.

1.5The recognition time used by the international exchange to validate the alarm ON/alarm OFF states shall be 20 $\pm$ 10 milliseconds. The recognition time is defined as the duration that the signals representing the alarm ON/OFF states must be present at the input of the exchange terminal equipment.

Following recognition of the alarm ON or alarm OFF states the exchange shall carry out the actions detailed in § 4.

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 section 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, section 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, section 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.

1.4Following a transmission failure a number of specific signalling actions are required to be carried out by the switching control of an international exchange. These actions are designed to:

a) prevent failure of new call attempts;

b) provide appropriate failure indications on established calls;

c) provide a means of releasing circuit connections beyond the point of transmission failure.

Paragraph 4 below details the actions to be taken for circuits employing Signalling Systems