ITU-T

Q.470

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

INTERNATIONAL TELECOMMUNICATION UNION

SPECIFICATIONS OF SIGNALLING SYSTEM R2

SIGNALLING PROCEDURES

AT AN INCOMING R2 REGISTER SITUATED IN A TRANSIT EXCHANGE

ITU-T Recommendation Q.470

(Extract from the *Blue Book*)

NOTES

1   ITU-T Recommendation Q.470 was published in Fascicle VI.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.

5.3.1 AT AN INCOMING R2 REGISTER SITUATED IN A TRANSIT EXCHANGE

5.3.1.1   *Successful routing*

Normally, interregister signalling is terminated in one of the following ways:

a)   The last forward interregister signal received by the incoming R2 register at the transit exchange is not acknowledged from that register. After an outgoing link to the next exchange is seized, the register is dismissed and the speech-path is through-connected. The forward signal remains on-line and is the first signal received by the next incoming R2 register. Provision must be made for the switching operations to be completed so as to ensure that the signal will remain on-line and be received by the succeeding register.

b)   The last forward interregister signal received by the incoming R2 register at the transit exchange is acknowledged by a backward signal (A-1, A-2, A-7, A-8, A-11 or A-12) requesting transmission of a clearly specified signal as the first to be received by the next incoming R2 register. When the compelled signalling sequence is complete the register is dismissed and the speech-path is through-connected.

Because it is not possible to send signals A-2, A-7, A-8, A-11 or A-12 in pulse form, precautions are necessary to avoid acknowledging the last address digit (on automatic calls) until the signalling system employed on the outgoing link is known. If signal A-1 is sent in acknowledgement of the last address digit and if the outgoing link employs System R2 it may not then be possible to send one of these signals and therefore end-to-end signalling to the next exchange is no longer feasible (see also Recommendation Q.474).

In international working signals A-2, A-7 and A-8 may be used to acknowledge receipt of any forward signal.

Signal A-11 must be used to request a country code indicator.

Signal A-12 must generally be used to request the language or discriminating digit. However, in the case where an incoming R2 register is equipped with only 5 backward signalling frequencies only one of the signals A-2, A-7 or A-8 can be used for this purpose. Attention is drawn to the fact that in this case the language or discriminating digit may not be sent by all outgoing international R2 registers.

Although it is not normally necessary to request a repeat of a digit *n* because it remains on the line until acknowledged (but see Recommendation Q.476) such repetition may prove necessary after an interruption of digit transmission (e.g. to request information concerning the calling party's category) or if the completion of switching operations referred to in method *a)* above, cannot be guaranteed with a time compatible with the time-out of the outgoing (international) R2 register (see Recommendation Q.476). The procedure is then as follows:

Signal A-2 is sent, eliciting the digit *n*-1; this is immediately acknowledged by signal A-1 to elicit the required digit *n*. When the digit *n* in question is the first digit in the store of the outgoing R2 register this procedure is not applicable.

At an international transit exchange method *b)* above, must be used and only one of the signals A-11 or A-12 applies.

When the outgoing link connects to a further international transit exchange signal A-11 must be used to request a country code indicator. On recognition of signal A-11 the outgoing international R2 register must send a country code indicator (signal I-12 or I-14, see Recommendation Q.479) as the first forward signal to be received by the next incoming R2 register.

Signal I-12 or I-14 may be requested as many times as necessary by sending signal A-11.

When the outgoing link connects to an incoming international terminal exchange signal A-l2 must be used to request the language or discriminating digit. On recognition of signal A-12 the outgoing international R2 register must send the language or discriminating digit (a signal I-1 to I-10) as the first forward signal to be received by the next incoming R2 register.

On recognition of signal A-12 (sent from an international transit exchange) an outgoing international R2 register is informed that an international link connected to an incoming international terminal exchange has been added to the (multi-)link section and that call set-up is now in progress in the national destination network. This is of importance when signal A-9 or A-10 are, in the originating country, amongst those used to set-up international calls.

5.3.1.2   *Congestion*

If it is impossible to set-up the desired connection in the transit exchange the incoming R2 register terminates interregister signalling by transmission of the congestion signal A-4 or A-15. The backward signal may serve as acknowledgement of the last forward signal received by the incoming R2 register at the transit exchange or is sent in pulse form.

The two congestion signals A-4 and A-15 are provided to enable an outgoing international R2 register to determine whether congestion is occurring in the international network or in that of the destination country so that provision for repeat attempt or re-routing can be made in the former case:

-   Signal A-15 is sent from an international exchange.

-   Signal A-4 is sent from a national exchange or possibly from a terminal international exchange. [See also § 5.1.2.2 c).]

Because receipt of congestion signal A-15 by an outgoing international R2 register may initiate repeat attempt or re-routing it is possible to transmit congestion signal A-4 from international exchanges where repeat attempt or re-routing may be expected useless.