INTERNATIONAL TELECOMMUNICATION UNION

ITU-T Q.476

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

SPECIFICATIONS OF SIGNALLING SYSTEM R2

SIGNALLING PROCEDURES

ABNORMAL RELEASE OF OUTGOING AND INCOMING R2 REGISTERS

ITU-T Recommendation Q.476

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation Q.476 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.

5.5 ABNORMAL RELEASE OF OUTGOING AND INCOMING R2 REGISTERS

To limit the holding time of R2 registers, when interregister signalling is interrupted either by a fault or by any other cause, all R2 registers must be equipped with devices for continuous supervision of the time taken by the various phases of interregister signalling. The time-out delay of these devices must be as short as possible, but long enough not to interrupt normal operation.

5.5.1 *Time-out of outgoing international R2 register*

In an outgoing international R2 register, the intervals during which a forward multifrequency combination is transmitted and the intervals during which no such combination is transmitted are supervised separately.

5.5.1.1 *Supervision during sending of forward multifrequency combinations*

The lower limit of the time-out delay is a function of the time required for the switching procedures in a transit exchange.

On this basis, the time-out delay is specified as 15 ± 3 seconds.

The supervision device will start functioning at the beginning of the transmission of a forward multifrequency combination and be reset with the deactivation of the senders involved. It will start again at the beginning of the transmission of the next forward multifrequency combination.

5.5.1.2 *Supervision during intervals when no forward multifrequency combination is being sent*

The lower limit of the time-out delay is a function of:

a) the maximum permissible time interval between dialling of two successive digits by the subscriber;

b) the time-out delay specified for incoming R2 registers (see § 5.5.2 below).

On this basis, the time-out delay is specified to be longer than 24 seconds (a longer delay and an upper limit may be specified by each Administration).

If this specification is observed an incoming R2 register, which has acknowledged the last received digit with the signal A-1, is bound to be released before the supervision device of the outgoing international R2 register initiates the alarm condition.

5.5.1.3 *Procedure to be followed if time-out occurs*

If time-out occurs, the time supervision devices mentioned in §§ 5.5.1.1 and 5.5.1.2 above will bring about operations producing:

- return of an appropriate signal and/or audible tone to inform the calling party,
- release of the outgoing international R2 register and of the connection as far as the latter is not necessary for the above-mentioned operation.

Fault recording equipment may start functioning and/or a delayed alarm may alert the technical staff.

5.5.1.4 *Time-out of outgoing R2 register*

It is recommended that the same principles outlined in §§ 5.5.1.1 to 5.5.1.3 above be applied by analogy to outgoing R2 registers.

5.5.2 *Time-out of incoming R2 register*

The time-out device shall supervise the interval elapsing between seizure of the register and recognition of the first forward multifrequency combination as well as the interval elapsing between the recognition of two successive multifrequency combinations in the forward direction.

5.5.2.1 *Time-out delay*

The lower limit of the time-out delay is a function of:

a) the maximum permissible time interval between the recognition of 2 successive forward multifrequency combinations; this time interval may in certain cases be influenced by the maximum permissible time interval between dialling of 2 successive digits by the subscriber;

b) the maximum time required for setting-up the call under conditions which slow down the interregister signalling.

In view of the desirability expressed in § 5.5.1.2 above that the incoming R2 register be released before expiry of the time-out delay specified for the outgoing international R2 register, an upper limit should be fixed as well.

On this basis the time-out delay should be specified within the range of 8-24 seconds. A minimum delay of 15 seconds corresponding to the time-out delays in other CCITT standardized signalling systems is to be preferred.

For incoming R2 registers using the criterion *d)* (time-out) indicated in Recommendation Q.471 to determine completion of the number, the time referred to there as the *specified time* may exceptionally be shorter than 8 seconds, but never less than 4 seconds.

5.5.2.2 *Procedure to be followed if time-out occurs*

If time-out occurs, the time supervision device will bring about operations producing:

- sending of a congestion signal (A-4 or A-15) in pulse form;
- release of the incoming R2 register and other equipment in the incoming exchange;
- on time-out of the initial digit:
  - i) line signalling, analogue version: establishment of the blocked state on the incoming circuit until recognition of the clear-forward signal (see Recommendation Q.412, abnormal conditions);
  - ii) line signalling, digital version: no further action required.

Fault recording equipment may start functioning and/or a delayed alarm may alert the technical staff.