



INTERNATIONAL TELECOMMUNICATION UNION

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**Q.471**

**SPECIFICATIONS OF SIGNALLING SYSTEM R2  
SIGNALLING PROCEDURES**

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**AT THE LAST INCOMING R2 REGISTER  
SITUATED IN THE EXCHANGE TO WHICH  
THE CALLED SUBSCRIBER IS CONNECTED**

**ITU-T Recommendation Q.471**

(Extract from the *Blue Book*)

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## NOTES

1 ITU-T Recommendation Q.471 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.

## Recommendation Q.471

### 5.3.2 AT THE LAST INCOMING R2 REGISTER SITUATED IN THE EXCHANGE TO WHICH THE CALLED SUBSCRIBER IS CONNECTED

#### 5.3.2.1 Successful routing

When a call has been completely set up by means of System R2 interregister signalling, the incoming R2 register terminates interregister signalling immediately on receipt of the entire number.

The following criteria are used to determine whether the number received by the incoming R2 register is complete:

- a) analysis - to determine the last digit;
- b) electrical conditions given by the switching equipment succeeding the incoming R2 register;
- c) receipt of the end-of-pulsing signal (I-15);
- d) the assumption, after a specified time has elapsed, that no further digits will be sent (see Recommendation Q.476).

When criterion *a*) (analysis) is applied:

- if the incoming R2 register is equipped to send Group B signals to provide information about the condition of the called subscriber's line the address-complete signal A-3 is transmitted on receipt of the last digit. As soon as it is known whether the connection with the subscriber's line can be established, only the appropriate Group B signal needs to be sent. The use of the Group B signals is detailed in Recommendation Q.474;
- if the incoming R2 register is not equipped to receive information about the condition of the called subscriber's line, the address-complete signal A-6 is sent immediately after reception, of the last digit and no Group B signal will be transmitted.

In both cases the time interval between the end of a signal A-6 or a Group B signal and the start of the subsequent answer signal must not be less than 75 ms.

When criterion *b*) (electrical conditions) is applied:

It is recommended that, to avoid delay in sending the answer signal, no Group B signal should be sent when the called subscriber's line is free, and that the setting-up of speech conditions be ensured by sending address-complete signal. A-6 immediately the electrical conditions are recognized. The time interval between the end of signal A-6 and the start of transmission of the subsequent answer signal must be not less than 75 ms (see also Recommendations Q.412 and Q.475).

Criterion *c*) (end-of-pulsing) can be applied only if the incoming R2 register is equipped to receive the 6 forward signalling frequencies (see also Recommendation Q.473). When signal I-15 is received and recognized the last incoming R2 register can perform in the way described under criterion *a*).

When criterion *d*) (time-out) is applied:

Address-complete signal A-6 must be sent in pulse form as soon as the specified time has elapsed. The time between the end of signal A-6 and the start of transmission of the subsequent answer signal must be, as indicated above for criterion *b*), not less than 75 ms (see also Recommendations Q.412 and Q.472).

It may happen, however, that the called subscriber answers before the specified time has elapsed. In such exceptional circumstances the pulse signal A-6 must be sent immediately the answer signal is recognized. In this case the time between the end of signal A-6 and the start of the transmission of the subsequent answer signal must be 75 ms or more but less than 150 ms. The calling subscriber will not hear the ringing tone.

This disadvantage can be avoided by not using a received digit to set up the call until after the following digit has been received or until a certain time has elapsed. This procedure, however, may give rise to difficulties if the time-out devices provided in the switching equipment succeeding the incoming R2 register are set for too short a delay [see also Recommendation Q.120, § 1.5.5.2 b) iv)].

#### 5.3.2.2 *Congestion*

An incoming R2 register should terminate interregister signalling immediately any conditions preventing complete setting-up of a call have been recognized.

If congestion is encountered congestion signal A-4 is sent, possibly in pulse form. However if address-complete signal A-3 has already been sent then congestion signal B-4 is sent in acknowledgement of the Group II signal which commences the last compelled signalling sequence.