



INTERNATIONAL TELECOMMUNICATION UNION

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**R.60**

**TELEGRAPHY**

**TELEGRAPH TRANSMISSION**

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**CONDITIONS TO BE FULFILLED  
BY REGENERATIVE REPEATERS FOR  
START - STOP SIGNALS OF INTERNATIONAL  
TELEGRAPH ALPHABET No. 2**

**ITU-T Recommendation R.60**

(Extract from the *Blue Book*)

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## NOTES

1 ITU-T Recommendation R.60 was published in Fascicle VII.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 R.60

### CONDITIONS TO BE FULFILLED BY REGENERATIVE REPEATERS FOR START-STOP SIGNALS OF INTERNATIONAL TELEGRAPH ALPHABET No. 2

*(former CCIT Recommendation B.20, 1952; amended at Geneva, 1956 and 1964,  
Mar del Plata, 1968 and Malaga-Torremolinos, 1984)*

The CCITT,

*considering*

(a) that the duration of the transmitting start-stop cycle of terminal start-stop apparatus should be at least 7.4 units for apparatus operating at 50 and 75 bauds, 7.5 units for apparatus operating at 100 bauds;

(b) that the effective net margin should be greater than:

- 35% for signals sent by a transmitter having a nominal cycle equal to or greater than 7 units (for operation at 50 or 75 bauds),
- 30% for signals sent by a transmitter having a nominal cycle equal to or greater than 7.2 units (for operation at 100 bauds),

*unanimously declares the view*

(1) that regenerative repeaters for start-stop signals should operate at the nominal modulation rate of the signals that they are required to regenerate with a speed tolerance in service of  $\pm 0.5\%$ ;

(2) the effective synchronous margin should be at least 40%;

(3) that the degree of synchronous start-stop distortion (see Definition 33.10, Recommendation R.140) of the retransmitted signals should not exceed 5%;

(4) that the significant instants corresponding to the beginning of the start signals emitted by the regenerative repeater should in no case be separated by less than 7 unit intervals (for operation at 50 or 75 bauds) or 7.2 unit intervals (for operation at 100 bauds).