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R.35

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STANDARDIZATION OF FMVFT SYSTEMS FOR A MODULATION RATE OF 50 BAUDS

ITU-T Recommendation R.35

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation R.35 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.

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Recommendation R.35

STANDARDIZATION OF FMVFT SYSTEMS FOR A MODULATION RATE OF 50 BAUDS

(former CCIT Recommendation B.48, Geneva, 1956; amended at New Delhi, 1960, Geneva, 1964, Mar del Plata, 1968, Geneva, 1972, 1976, 1980, Malaga-Torremolinos, 1984 and at Melbourne, 1988)

Note – In this Recommendation, frequency-modulated voice-frequency telegraph (FMVFT) equipment with and without crystal control are distinguished. In order to improve the quality of transmission and to minimize maintenance costs, the application of equipment with crystal control is recommended.

- 1 The nominal modulation rate should be standardized at 50 bauds.
- 2 For the nominal mean frequencies, the series formed by the odd multiples of 60 Hz should be adopted, the lowest frequency being 420 Hz in accordance with Recommendation R.31, § 1, the mean frequency F_0 being defined as half the sum of the two characteristic frequencies corresponding to the permanent start polarity F_A and stop polarity F_Z . For the numbering of channels that has been adopted in the international service, see Recommendation R.70 *bis*.
- 3 The mean frequencies at the sending end should not deviate from their nominal value by more than:
 - a) for equipment without crystal control 2 Hz;
 - b) for equipment with crystal control 0.5 Hz. ¹⁾
- 4 The unbalance due to the modulation process $\delta = 2 \frac{|F'_0 - F_l|}{F'_A - F'_Z}$ should not exceed 2%,

where

F'_A and F'_Z are the two characteristic frequencies measured over a period of 10 s;

F'_0 is the mean static frequency measured $= 2 \frac{F'_A + F'_Z}{2}$;

F_l is the mean dynamic frequency measured with 1:1 rectangular signals during 10 s.

Measurement should be made applying to the input of the transmitter 1:1 rectangular signals with the build-up and hangover time below 1 μ s and with the unbalance below 0.1%. In the event that in service the transmitter is controlled by an electromechanical relay (with a certain transit time), the measurement should also be made with that type of relay inserted between the 1:1 signal generator and the input to the transmitter. Both forms of measurements need not necessarily be included in the maintenance procedure but should be included in laboratory type tests.

Note – To determine the unbalance due to the modulation process by the method indicated above, it is necessary to measure the frequencies F'_A , F'_Z and F_l and to calculate the mean frequency F'_0 and the unbalance

$$\delta = 2 \frac{|F'_0 - F_l|}{F'_A - F'_Z}$$