INTERNATIONAL TELECOMMUNICATION UNION

ITU-T R.36

TELECOMMUNICATION
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TELEGRAPHY

TELEGRAPH TRANSMISSION

COEXISTENCE OF 50-BAUD/120-Hz CHANNELS, 100-BAUD/240-Hz CHANNELS, 200-BAUD/360-Hz OR 480-Hz CHANNELS ON THE SAME VOICE - FREQUENCY TELEGRAPH SYSTEM

ITU-T Recommendation R.36

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation R.36 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.36

**COEXISTENCE OF 50-BAUD/120-Hz CHANNELS,
100-BAUD/240-Hz CHANNELS, 200-BAUD/360-Hz OR 480-Hz CHANNELS
ON THE SAME VOICE-FREQUENCY TELEGRAPH SYSTEM**

(New Delhi. 1960; amended at Geneva, 1964 and 1980)

1 Common views

1.1 Channels with higher modulation rates (100 or 200 bauds) must be capable of being inserted in systems of amplitude-modulated 50-baud/120-Hz channels conforming to Recommendations concerning them respectively as well as in systems of frequency-modulated 50-baud/120-Hz channels (conforming to Recommendation R.35). However, it is preferable that these high-speed channels should, as far as possible, be placed in a frequency-modulated system (conforming to Recommendation R.35). However, 200-baud/360-Hz channels can be set up only on systems established on bearer circuits having a spacing of 3 kHz.

1.2 If there are 50-baud channels on a mixed system, the distortion limits for the 50-baud channels on homogeneous 50-baud channel systems will have to be respected; hence, 100-baud and 200-baud channel equipment will have to be designed to this end. If this is not possible, the power levels on the 100-baud and 200-baud channels will have to be reduced.

1.3 The 100- and 200-baud channels should have performances comparable to those that could be obtained in a homogeneous system, as specified in Recommendations R.37, R.38 A, R.38 B, provided that the condition indicated under § 1.2 above is respected. They should, in particular, satisfy § 13a) of Recommendations R.37, R.38 A, or R.38 B respectively.

1.4 The mean power transmitted to line at a point of zero relative level is normally dependent on the transmission characteristics of the bearer circuit as follows:

a) 50 µW total for FMVFT aggregates carried on circuits complying with the limits specified in Annex A to Recommendation R.35;

b) 135 µW total for other circuits and for AMVFT.

The mean normal power for each channel should not exceed the values specified in Table 1/R.36, for cases a) and b) above.

TABLE 1/R.36

VFT channel power levels

VFT channel power level (µW)		Relevant Recommendation	VFT channel characteristics		
Bearer case a)	Bearer case b)		Modulation rate (bauds)	Bandwidth (Hz)	Type of modulation
–	9	R.31	50	120	AM
2.0	5.6	R.35	50	120	FM
4.0 a)	10.8 a)	R.37	100	240	FM
–	19.2 a)	R.38B	200	360	FM
8.0 a)	21.6 a)	R.38A	200	480	FM

a) Provided that the condition mentioned under § 1.2 is respected.

2 Combined use of channels with 240-Hz spacing and channels with 120-Hz spacing

2.1 Channels with 240-Hz spacing should be installed in the following preferred order: 12 (if possible), 11, 10, 9, 8,
7, … The channel numbers[1)] are in accordance with Recommendation R.37 (100-baud channels with 240-Hz spacing).

3 Combined use of 200-baud channels with 360-Hz spacing and channels with 120-Hz or 240-Hz spacing

3.1 The characteristics of these channels with high modulation rates are defined in Recommendations R.37 on 100-baud channels with 240-Hz spacing and R.38 B on 200-baud channels with 360-Hz spacing.

3.2 The 200-baud/360-Hz channels should be installed in the following preferred order: 5, 4, 6, 3, 2, 1 instead of the corresponding 50-baud channels. The channel numbers[1)] are in accordance with Recommendation R.38 B.

3.3 In combined systems using channels with three different modulation rates, the order indicated in § 3.2 above should be used in preference to that indicated in § 2.1 above.

4 Combined use of 200-baud channels with 480-Hz spacing and channels with 120-Hz or 240-Hz spacing

4.1 For a combination of channels with 240-Hz spacing and channels with 480-Hz spacing, the channels with 480-Hz spacing should be installed in the following preferential order: 4, 3, 5, 2, 6[2)].

4.2 For a combination of channels with 120-Hz spacing and channels with 480-Hz spacing, the order indicated in § 4.1 above is applicable.

Note – In cooperation with a system using 6-channel group modulation, the preferred order would be: 4, 3, 6 (if possible), 1[2)].

4.3 In combined systems using channels with three different modulation rates, the order indicated in § 4.1 above should be used in preference to that indicated in § 2.1 above.

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1) For the numbering of channels that has been adopted in the international services see Recommendation R.70 *bis*.

2) For the numbering of channels that has been adopted in the international services see Recommendation R. 70 *bis*.