



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

M.810

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

MAINTENANCE:

**INTERNATIONAL TELEGRAPH SYSTEMS
AND PHOTOTELEGRAPH TRANSMISSION**

**SETTING UP AND LINING UP AN
INTERNATIONAL VOICE-FREQUENCY
TELEGRAPH LINK FOR PUBLIC
TELEGRAPH CIRCUITS (FOR 50, 100
AND 200 BAUD MODULATION RATES)**

ITU-T Recommendation M.810

(Extract from the *Blue Book*)

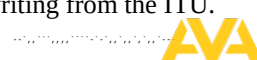
NOTES

1 ITU-T Recommendation M.810 was published in Fascicle IV.2 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 M.810

SETTING UP AND LINING UP AN INTERNATIONAL VOICE-FREQUENCY TELEGRAPH LINK FOR PUBLIC TELEGRAPH CIRCUITS (FOR 50, 100 AND 200 BAUD MODULATION RATES)

1 Designation of control stations

1.1 The designation of the control and sub-control stations should follow the principles given in Recommendations M.80 [1] and M.90 [2].

1.2 By agreement between Administrations, one of the terminal international repeater stations will be designated as the voice-frequency telegraph link control station: the other terminal being the terminal sub-control station for the link.

1.3 In making this choice, the location of the circuit control station for any international circuit designated as a reserve for the international voice-frequency telegraph line should also be taken into account, as it is very desirable that the voice-frequency telegraph link control station should be at the same terminal station as the circuit control station for the nominated reserve circuit.

2 Organization

2.1 The maintenance organization arrangements for voice-frequency telegraph links should conform to the general principles given in Recommendation M.70 [3] concerning telephone-type circuits.

3 Setting up and lining up a voice-frequency telegraph link

3.1 In setting up and lining up voice-frequency telegraph links, three types of link are concerned, differing mainly in their constitution and they are referred to as type I, type II and type III links:

- Type I are those links which contain 4-kHz sections;
- Type II are those links which contain one or more 3-kHz sections, or contain a mixture of 3-kHz and 4-kHz sections;
- Type III are those links which are routed over audio-frequency line plant.

3.2 The method to be used and the procedure to be followed in setting up and lining up a voice-frequency telegraph link are the same as those given in Recommendation M.580 [4] for public telephone circuits as far as it applies.

The test signals to be used for these three types of link and the limits of the loss/frequency characteristics at intermediate sub-control stations are the same as those given in Recommendation M.580 [4] for public telephone circuits.

3.3 The overall loss/frequency characteristics of types I, II and III voice-frequency telegraph links are given in Tables 1/M.810, 2/M.810 and 3/M.810 respectively.

3.4 The nominal relative power level of the test signals at the input and output of the link will be those normally used by the Administration concerned.

If the voice-frequency telegraph terminal stations are remote from the terminal international centres, the Administration should arrange the nominal transmission loss of the national section so that the levels at the input and output of the voice-frequency telegraph link are respected, and to permit the conventional national levels to be used at terminal international centres.

3.5 For voice-frequency telegraphy the use of the edge-channels of a group should be avoided if at all possible since these may introduce greater distortion than other channels of the group.

4 Limits for the overall loss of a voice-frequency telegraph link

4.1 *Nominal overall loss at 1020 Hz*

The nominal relative power levels at the extremities of the voice-frequency telegraph link are those levels normally used in the national network of the countries concerned so that it is not possible to recommend a particular nominal value for the overall loss.

The nominal relative power level at the input to the link and the absolute power level of the telegraph signals at this point must be such that the limits concerning the power level per telegraph channel at a zero relative point on carrier systems are respected (see Annex A).

Some Administrations have bilateral agreements to reduce the total mean power level of frequency-shift voice-frequency telegraph systems to -13 dBm0 (50 μ W0). The CCITT encourages such reduction where feasible. These Administrations have made their own determination of the feasibility of operating at the reduced level. As a guide, other Administrations may wish to use the line parameters suggested in Annex B.

4.2 Overall loss/frequency distortion

The variation with frequency of the overall loss of the link with respect to the loss at 1020 Hz must not exceed the following limits:

4.2.1 Type I – Links with 4-kHz sections throughout

TABLE 1/M.810

Frequency range (Hz)	Overall loss relative to that at 1020 Hz
Below 300	Not less than -2.2 dB; otherwise unspecified
300- 400	-2.2 to $+4.0$ dB
400- 600	-2.2 to $+3.0$ dB
600-3000	-2.2 to $+2.2$ dB
3000-3200	-2.2 to $+3.0$ dB
3200-3400	-2.2 to $+7.0$ dB
Above 3400	Not less than -2.2 dB; otherwise unspecified

4.2.2 Type II – Links with one or more 3-kHz sections or with a mixture of 3-kHz and 4-kHz sections

TABLE 2/M.810

Frequency range (Hz)	Overall loss relative to that at 1020 Hz
Below 300	Not less than -2.2 dB; otherwise unspecified
300- 400	-2.2 to $+4.0$ dB
400- 600	-2.2 to $+3.0$ dB
600-2700	-2.2 to $+2.2$ dB
2700-2900	-2.2 to $+3.0$ dB
2900-3050	-2.2 to $+6.5$ dB
Above 3050	Not less than -2.2 dB; otherwise unspecified