



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

H.15

(10/84)

SERIES H: TRANSMISSION OF NON-TELEPHONE
SIGNALS

Characteristics of transmission channels used for other
than telephone purposes

**Characteristics of supergroup links for the
transmission of wide-spectrum signals**

ITU-T Recommendation H.15

Extract of **Red Book Fascicle III.4 (1984)**

NOTES

- 1 ITU-T Recommendation H.15 was published in Fascicle III.4 of the *Red Book*. This file is an extract from the *Red Book*. While the presentation and layout of the text might be slightly different from the *Red Book* version, the contents of the file are identical to the *Red 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 H.15

CHARACTERISTICS OF SUPERGROUP LINKS FOR THE TRANSMISSION OF WIDE-SPECTRUM SIGNALS

(Mar del Plata, 1968; amended at Geneva, 1972 and 1976)

1 Constitution of a link and terminology

The constitution and terminology for supergroup links are analogous to those for group links described in Recommendation H.14.

2 Characteristics of corrected supergroup links

2.1 Group-delay distortion

Provisionally, the rule $(1 + 2n) \mu\text{s}$ over the band 352-512 kHz is recommended as the limit for a supergroup link with n through-supergroup connection equipments (i.e. n modulating, demodulating and through-supergroup filter equipments). Supergroup links with corrected group-delay distortion should be restricted to supergroups 5, 6 and 7 in a mastergroup.

2.2 Attenuation/frequency distortion

Over the band 352-512 kHz the attenuation/frequency distortion should not exceed ± 2 dB with respect to the attenuation at 412 kHz.

Note – The reference frequency for the purposes of defining *distortion* should be 412 kHz even if the supergroup reference pilot used for *regulating* purposes is 547.92 kHz.

2.3 Carrier leaks

The leak from a carrier in the 352-512 kHz band shall not exceed -40 dBm₀.

Note – Although this value is an objective, it may in some cases prove impossible to achieve owing to the composition of the link, which will generally involve the use of both old and new types of equipment. At all events, no carrier leak in the 352-512 kHz band should exceed -35 dBm₀.

2.4 Variations in level

The following limits should not be exceeded:

- short-term variations
(for a few seconds) ± 3 dB
- long-term variations
(during long periods, including seasonal and daily variations) ± 4 dB

relative to the nominal level.

2.5 Background noise

This can be expected to be substantially uniformly distributed over the supergroup band, and to have a value calculated in accordance with Recommendations G.222 [1] and G.223 [2]. For an actual link, a margin should be allowed as indicated in Recommendation G.226 [3].

2.6 *Impulsive noise*

Under study.

2.7 *Frequency error*

Maximum frequency error shall not exceed 5 Hz.

Note – According to Recommendation G.225 [4], this condition should readily be met in practice.

2.8 *Phase changes with time*

Under study.

2.9 *Power handling capability*

Applied signals should be within the limits given in Recommendation H.53.

3 Characteristics of uncorrected supergroup links

Under study.

References

- [1] CCITT Recommendation *Noise objectives for design of carrier-transmission systems of 2500 km*, Vol. III, Rec. G.222.
- [2] CCITT Recommendation *Assumptions for the calculation of noise on hypothetical reference circuits for telephony*, Vol. III, Rec. G.223, § 4.
- [3] CCITT Recommendation *Noise on a real link*, Vol. III, Rec. G.226.
- [4] CCITT Recommendation *Recommendations relating to the accuracy of carrier frequencies*, Vol. III, Rec. G.225.