



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

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STANDARDIZATION SECTOR
OF ITU

G.241

INTERNATIONAL ANALOGUE CARRIER SYSTEMS GENERAL CHARACTERISTICS COMMON TO ALL ANALOGUE CARRIER - TRANSMISSION SYSTEMS

PILOTS ON GROUPS, SUPERGROUPS, ETC.

ITU-T Recommendation G.241

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation G.241 was published in Fascicle III.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 G.241

PILOTS ON GROUPS, SUPERGROUPS, ETC.

(amended at Geneva, 1964; further amended)

1 Use of pilots

Experience has shown that, without the use of a group pilot transmitted throughout a group link, adequate stability of the channels of individual group links cannot be guaranteed in spite of the care given to the maintenance of the carrier systems on which they are routed.

It may be necessary, in the first place, to place an automatic regulator, controlled by the pilot, at the end of some of the group sections forming the group link to compensate for inevitable variations in attenuation on each of the sections. This regulator is not, of course, designed to correct automatically for faults.

It is desirable for the regulator to have a range of at least ± 4 dB. While no maximum range is specified, note should be taken that too great a range can prove unsatisfactory, e.g. due to noise or the masking of faults. A maximum range of approximately ± 7 dB has been found satisfactory by some Administrations.

An alarm should be given when the amplitude of the pilot at the input of the regulator departs from its nominal value by more than ± 4 dB. The conditions governing the use of these regulators are given in Recommendation M.160 [1].

It is also necessary to provide for measuring the level of the group pilot at the ends of group sections where it is not planned to use a regulator. In these cases, too, an alarm should be given when the level of the pilot departs from its nominal value by more than ± 4 dB.

Precisely similar considerations apply to the use of supergroup, mastergroup and supermastergroup pilots, and also to the use of basic 15-supergroup assembly pilots.

Note - When a group is through-connected from a cable section (on coaxial or symmetric pairs) to an open-wire line, transmission of the group pilot over the open-wire line, which is an advantage as regards maintenance of the complete group can, to a certain extent, facilitate "tapping" of conversations by means of radio receivers of a particular type in the territory traversed by the open-wire line. However, this risk of "tapping" is less than the similar risk arising from inadequate suppression of the carrier, because the frequency of the group pilot is more remote from the nearby carrier frequency, so that the quality of the overheard conversation would be necessarily degraded.

2 Nominal characteristics of pilots (group, supergroup, etc.)

When group, supergroup, etc., pilots are considered necessary, they should be permanently transmitted.

The frequency and the level of these pilots are shown in Table 1/G.241.