INTERNATIONAL TELECOMMUNICATION UNION

# ITU-T G.231

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

## INTERNATIONAL ANALOGUE CARRIER SYSTEMS

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

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# ARRANGEMENT OF CARRIER EQUIPMENT

## ITU-T Recommendation G.231

(Extract from the *Blue Book*)

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**NOTES**

1 ITU-T Recommendation G.231 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.231**

**ARRANGEMENT OF CARRIER EQUIPMENT**

*(amended at Geneva, 1964; further amended)*

## 1 Carrier-system racks (formerly Part A)

The CCITT,

*considering*

that countries not having a national industry for the construction of carrier systems must obtain them from different factories, and that the variations of the dimensions of the racks between different sources of supply do not allow of a simple and economical layout of the cables and efficient use of accommodation,

*unanimously recommends*

that in future the dimensions of carrier-system racks should meet the requirements as follows:

1) *Space between suites* - The minimum space between suites should be such that it is possible to move test trolleys from place to place (between two suites), and also for maintenance staff to be able to work comfortably between two suites. A spacing of 75 cm at least seems reasonable.

2) *Overall height* - The overall height of a rack above the floor (not including the space provided for overhead cable runs) should not exceed 320 cm.

   In principle, 30 cm should be allowed for overhead cable runs, and also about 30 cm for access to these cables, which makes at the most 60 cm between the top of the rack and the ceiling; nevertheless, some Administrations consider that a total height of 40 cm between the top of the rack and the ceiling is sufficient in certain cases. In main repeater stations (or terminal equipment stations), where, in addition to cables connecting one rack to another, general distribution cables have to be allowed for, it is recommended that the height of the building between the floor and the ceiling should be at least 4 m to facilitate access to the various cables.

3) *Thickness* - The thickness of a rack should not be greater than 45 cm. For racks which may be placed back to back the total suite thickness may be up to 52 cm, including all maintenance controls, cooling fins, etc., which may protrude from the nominal face of the equipment.

## 2 Use of standard components in transmission equipment[1)] (formerly Part B)

While acknowledging that the International Electrotechnical Commission (IEC) is competent to devise standards for components or devices generally used in electrical engineering, the CCITT nevertheless reserves the right to issue recommendations dealing with such equipment and with transmission systems which, if components standardized by the IEC were used, may prove impossible to create.

Furthermore, manufacturers and Administrations wishing to use components specified by the IEC or by another body will still be responsible for ensuring that the recommendations issued by the CCITT are met.

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1) This recommendation applies both to carrier systems and to audio equipment.

Hence the CCITT *recommends*

that Administrations and manufacturers should ensure that all components used in transmission systems and equipments (even if such components have been standardized by some other national or international body) are such that the requirements of CCITT recommendations will be complied with in the conditions of use envisaged, throughout the life of the equipment or systems, i.e. twenty years or more.

## 3 Power supply (formerly Part C)

Information on noise at the terminals of the battery power supply system is given in Supplement No. 13 [1].

For carrier system equipment, it is recommended that power supply equipment should provide a no-break supply when the power mains fail.

*Note* - Much existing equipment has been designed in accordance with the old recommendation in Volume III of the *Blue Book* (1964) which is reproduced below:

"In countries where the main power supply is unreliable and where it is the normal source of supply for the coaxial system, it is recommended that in each power-feeding station there should be equipment to transfer from the normal source of supply to a standby source or vice versa in such a manner that breaks in transmission on voice-frequency telegraph circuits or on telephone circuits with automatic signalling carried by the system do not exceed about 150 milliseconds."

## 4 Repeater station cabling[2)] (formerly Part D)

The Administrations mentioned in the list kept by the CCITT Secretariat are prepared to supply other Administrations and technical assistance experts working under the ITU with information on the national standards they apply to the wiring of repeater stations. However, they would warn users that cable specifications and wiring diagrams are not always the best way of giving them the information they desire. The documentation available is very bulky and requests for information should be reasonably precise, since it is essential to know exactly on what point information is required in order to decide what form the reply should take.

A proper understanding of how wiring is done in repeater stations cannot be acquired from documents alone and the persons concerned should get in touch with the Administrations on the list in order to see the methods put into practice.

Administrations are invited to supply information to keep this list, which is deposited with the CCITT Secretariat, constantly up to date.

### Reference

[1] *Noise at the terminals of the battery supply,* Orange Book, Vol. III-3, Supplement No. 13, ITU, Geneva, 1977.

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2) This recommendation applies both to carrier systems and to audio equipment.