



INTERNATIONAL TELECOMMUNICATION UNION

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**G.952**

## **DIGITAL SECTIONS AND DIGITAL LINE SYSTEMS**

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### **DIGITAL LINE SYSTEMS BASED ON THE 2048 KBIT/S HIERARCHY ON SYMMETRIC PAIR CABLES**

#### **ITU-T Recommendation G.952**

(Extract from the *Blue Book*)

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## NOTES

- 1 ITU-T Recommendation G.952 was published in Fascicle III.5 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.952

### DIGITAL LINE SYSTEMS BASED ON THE 2048 kbit/s HIERARCHY ON SYMMETRIC PAIR CABLES

(Malaga-Torremolinos, 1984; amended at Melbourne, 1988)

#### 1 General

This Recommendation covers digital line systems for the transmission of signals based on the 2048 kbit/s hierarchy on symmetric pair cables and includes systems operating at the following bit rates:

2 048 kbit/s

8 448 kbit/s

34 368 kbit/s

The requirement for overall performance and interfaces of the corresponding digital line sections are given in Recommendation G.921.

#### 2 Transmission medium

The system can be operated on symmetrical pair cables of various wire diameters and cable constructions including those given in Recommendations G.611, 612 and 613.

*Note* - 34 368 kbit/s systems should be operated on high performance cables and may require one cable for each direction of transmission.

#### 3 Protection against interference from external sources

The digital line system can be disturbed by interference from telephone circuits carried within the same cable and by a switch when repeaters are installed in switching centres. Examples of possible ways of reducing the effect of this type of interference are the reduction of repeater section length near switching centres, segregation of pairs, the use of particular line codes, etc.

#### 4 Overall design features

##### 4.1 Availability

The availability objective of the system should be derived taking into account the availability requirement for the hypothetical reference digital section as given in draft Recommendation G.801.

##### 4.2 Reliability

MTBF values should be specified for the line system as a whole taking into account the requirements concerning availability.

##### 4.3 Repeater crosstalk-noise figures

Repeater crosstalk-noise figures are defined in Annex A, together with suggested measurement techniques. Crosstalk-noise figures quantify the performance of digital regenerators which are subject to crosstalk interference. They are functions of BER, line system line code, cable characteristics, environmental conditions, and repeater spacing loss  $A_0$  (at half the line system baud rate).