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ITU-T

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STANDARDIZATION SECTOR
OF ITU

V.16

DATA COMMUNICATION OVER THE TELEPHONE NETWORK

MEDICAL ANALOGUE DATA TRANSMISSION MODEMS

ITU-T Recommendation V.16

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation V.16 was published in Fascicle VIII.1 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 V.16

MEDICAL ANALOGUE DATA TRANSMISSION MODEMS

(Geneva, 1976)

The CCITT,

considering that

(a) computer-aided automatic ECG (electro-cardiogram) interpretation is being made available by special diagnostic centres to general practitioners and hospitals at remote places and suitable transmission equipment is necessary for this reason;

(b) such a service can be implemented to advantage in a special data collection system using simple remote stations and a high-quality central unit;

(c) for such applications particularly suitable and compatible transmission facilities are necessary which must not interfere with other telephone services;

(d) analogue as well as digitalized transmission of the analogue data (e.g. ECG records) are in principle possible;

(e) in most cases, however, on-line transmission with analogue transmission methods can be implemented more easily and economically;

(f) in practice, analogue transmission generally promises a sufficient degree of quality;

(g) in cases of emergency and monitoring of implanted pacemakers, very simple, acoustically coupled equipment may be of great assistance to the persons concerned;

unanimously declares the following view

1 Analogue transmission of medical analogue data, e.g. ECGs, should be permitted in the public telephone network. Reliable, sufficiently interference-free transmission cannot be taken for granted on every connection or route. Therefore, it is necessary to test the connections under consideration before such a service is definitely introduced.

2 This service requires two basically different transmission devices (modems):

- 1) transmission equipment for simultaneous transmission of three ECG signals on a telephone channel from a remote station to the central station, preferably for direct galvanic coupling to the telephone channel;
- 2) transmission equipment, preferably for emergency use and for monitoring of implanted pacemakers, to simultaneously transmit only one ECG signal from a remote station to a central station with acoustic or galvanic coupling to a telephone channel.

The ECG station usually consists of an ECG recorder, including separating amplifier, data input/output device and the modem specified in this Recommendation (see Figure 1/V.16).

The central station usually comprises the central modem specified herein and the interpretation system for ECGs (e.g. a computer programmed for ECG interpretation).

This Recommendation covers the modems, the desired transmission characteristics of the ECG transmission channel as well as the necessary interchange circuits and the method of transmitting the digital data associated with the ECG (e.g. patients' identification codes, control signals in both transmission directions and the interpretation record).