INTERNATIONAL TELECOMMUNICATION UNION

ITU-T G.931

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

DIGITAL SECTIONS AND DIGITAL LINE SYSTEMS

DIGITAL LINE SECTIONS AT 3152 kbit/s

ITU-T Recommendation G.931

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation G.931 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.

Recommendation G.931

DIGITAL LINE SECTIONS AT 3152 KBIT/S

(former Recommendation G.921 of Volume III of the Yellow Book)

1 Characteristics of interfaces

The digital interfaces at 3152 kbit/s should comply with the interface specification given in Annex A.

2 Performance standards

2.1 *Error performance*

Under study.

2.2 *Jitter*

2.2.1 *Lower limit of maximum tolerable jitter at the input*

Under study.

2.2.2 *Maximum output jitter*

Under study.

2.2.3 *Maximum output jitter in the absence of input jitter*

Under study.

2.2.4 *Jitter transfer function*

Under study.

2.3 *Availability*

Under study.

3 Fault conditions and consequent actions

Under study.

ANNEX A

(to Recommendation G.931)

Interface at 3152 kbit/s

A.1 Interconnection of 3152-kbit/s signals for transmission purposes is accomplished at a digital distribution frame.

A.2 The signal shall have a bit rate of 3152 kbit/s ± 30 ppm.

A.3 One balanced twisted pair shall be used for each direction of transmission. The distribution frame jack connected to a pair bringing signals to the distribution frame is termed the in-jack.

The distribution frame jack connected to a pair carrying signals away from the distribution frame is termed the out-jack.

A.4 Test load impedance shall be 100 ohms, resistive.

A.5 A bipolar (AMI) code shall be used. In order to guarantee adequate timing information, the minimum pulse density taken over any 130 consecutive time slots must be 1 in 8. The design intent is that the long-term pulse density be equal to 0.5. In order to provide adequate jitter performance for systems, timing extracting circuits should have a *Q* of 1200 ± 200 that is representable by a single tuned network.

A.6 The shape for an isolated pulse measured at either the out- or in-jack shall meet the requirements of Table A-1/G.931. There is no necessity for pulse overshoot for this interface.

A.7 The peak-to-peak voltage within a time slot containing a zero (space) produced by other pulses meeting the specifications of Table A-1/G.931 should not exceed 0.1 of the peak pulse amplitude.

TABLE A-1/G.931

Digital interface at 3152 kbit/s

Location		Digital distribution frame
Bit rate		3152 kbit/s ± 30 ppm
Pair(s) in each direction of transmission		One balanced twisted pair
Code		Bipolar (AMI)
Test load impedance		100 ohms, resistive
Pulse characteristics	Nominal shape	Rectangular
	Nominal amplitude	3.0 volts
	Width (at 50% amplitude)	159 ± 30 ns
	Rise and fall times (20-80% of amplitude)	≤ 50 ns (difference between rise and fall times shall be 0 ± 20 ns)
Signal power (all is signal, measured over 10 MHz bandwidth)		16.53 ± 2 dBm [ratio of (power in + pulses) to (power in - pulses) shall be 0 ± 0.5 dB]