INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

J.101

(ex CMTT.720)

(06/90)

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

TELEVISION AND SOUND TRANSMISSION

MEASUREMENT METHODS AND TEST PROCEDURES FOR TELETEXT SIGNALS

ITU-T Recommendation J.101

(Formerly Recommendation ITU-R CMTT.720)

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation J.101 (formerly Recommendation ITU-R CMTT.720) was elaborated by the former ITU-R Study Group CMTT. See Note 1 below.

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector (ITU-R).

Conforming to a joint decision by the World Telecommunication Standardization Conference (Helsinki, March 1993) and the Radiocommunication Assembly (Geneva, November 1993), the ITU-R Study Group CMTT was transferred to ITU-T as Study Group 9, except for the satellite news gathering (SNG) study area which was transferred to ITU-R Study Group 4.

2 In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Recommendation J.101[1)]

MEASUREMENT METHODS AND TEST PROCEDURES FOR TELETEXT SIGNALS

(1990)

The CCIR,

CONSIDERING

(a) that Report 956, Appendix I to Part 1, provides conceptual definitions to proposed data signal parameters;

(b) that Report 969 is intended to identify measurement methods and test procedures for checking the impairment of special signals resulting from transmission over television circuits;

(c) that operational measurements on teletext signals need no special test signals, because they can be made on the normal teletext lines;

(d) that automatic measurement of teletext signals suits the requirements of operational staff and makes the analysis of results easier;

(e) that the definitions given in this Recommendation may be applicable to other data services,

UNANIMOUSLY RECOMMENDS,

that, when measuring equipment is used to make measurements on teletext signals, the definitions used in quantifying the parameters should be those given in Annex I.

ANNEX I

1. Introduction

The need for each of the measurements described in this Recommendation (and possibly other measurements) will depend on the type of plant in use and the policy of the administrations.

No special test signals are necessary to meet the requirements of this Recommendation.

The definitions of parameters were specifically designed to meet the requirements of automatic measuring equipment. They are also suitable for manual measurements.

To reduce the influence of non-linear distortions the signal shall be bandlimited prior to measurement to a frequency between the upper limit of the television system and the teletext clock frequency.

Due to the random nature of the teletext signals, the results will exhibit some fluctuation between successive measurements.

2. Definition of terms

This section defines terms which are used in § 3 to define the measurement parameters.

2.1 *Mean value of clock run-in*

The mean value of clock run-in is defined as the mean level of the clock run-in waveform excluding the first two bits.

2.2 *All-zeros level*

The all-zeros level is the level resulting from a continuous stream of “zero” pulses. For measuring purposes the all-zeros level is defined as the mean level of the back porch within the nominal duration of the colour burst.

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1) Formerly Recommendation ITU-R CMTT.720.

2.3 *All-ones level*

The all-ones level is the level resulting from a continuous stream of "one" pulses. For measuring purposes the all-ones level is defined as twice the mean value of clock run-in minus the all-zeros level.

2.4 *Basic amplitude*

The basic amplitude is the difference between the all-ones level and the all-zeros level.

2.5 *Nominal teletext signal amplitude*

The nominal teletext signal amplitude is defined as a fixed percentage of the luminance bar amplitude and represents the ideal binary "1" amplitude in any teletext system (Fig. 1). If no luminance bar signal is present, the nominal value of the luminance bar signal is used.

Note – The luminance bar amplitude is defined in Recommendation 569. The relationship of the nominal teletext signal amplitude to the luminance bar amplitude is defined in Recommendation 653.

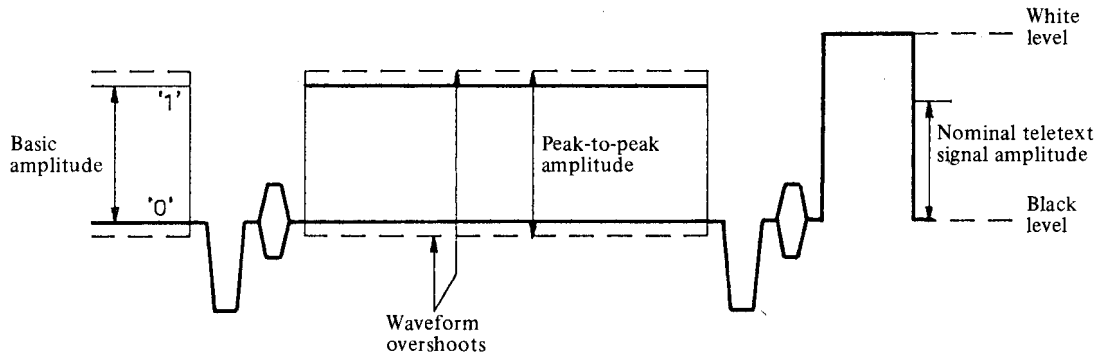

FIGURE 1 – *Teletext parameters*

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2.6 *Timing reference*

The timing reference for each line is a uniform sequence of timing instants whose timing is derived only from the clock run-in of that line excluding the first two bits.

The timing of these instants is such that they coincide with the average timing of the points where the clock run-in crosses the mean value defined in § 2.5.

2.7 *Sampling instants for decoding margin*

The sampling instants for decoding margin are half way between the timing instants defined in § 2.6.

3. Definition of parameters

3.1 *Basic amplitude error*

This parameter is defined as the difference between the basic amplitude and the nominal teletext signal amplitude expressed as a percentage of the latter. In terms of abbreviations in Fig. 1 the basic amplitude error is:

$$\frac{E - D}{D} \times 100\%$$

3.2 *Peak-to-peak amplitude*

The peak-to-peak amplitude is defined as the sum of basic amplitude zero overshoots and ones overshoots. It is expressed as a percentage of the basic amplitude (see Fig. 1).

3.3 *Decoding margin*

The decoding margin is defined as the difference between the highest "0" bit level and the lowest "1" bit level measured at the sampling instants for a bit error ratio of 10^{-3}. The difference is expressed as percentage of the basic amplitude.

3.4 *Number of run-in bits*

This parameter counts the number of the "1" and "0" run-in bits present at the start of the teletext waveform prior to the framing code. The result will be always an even number because a "0" bit follows every "1" run-in bit. The counting starts with the first bit with amplitude exceeding the mean value of the clock run-in.

3.5 *Data timing*

In teletext System B the data timing is defined as the time difference between the peak of the penultimate "1" run-in bit and the line time datum (see Report 624). In teletex System A the data timing is defined as the time difference between the leading edge of the data signal and the line time datum (see Fig. 2).

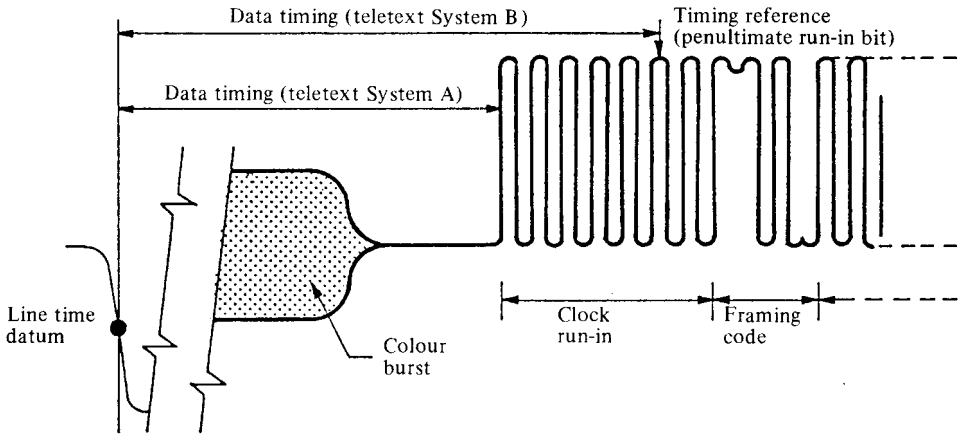

FIGURE 2 – *Data timing*

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CCIR Documents

[1986-90]: CMTT/34, CMTT/207 (Germany (Federal Republic of)).