



INTERNATIONAL TELECOMMUNICATION UNION

CCITT

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

O.153

(10/92)

SPECIFICATIONS OF MEASURING EQUIPMENT

BASIC PARAMETERS FOR THE MEASUREMENT OF ERROR PERFORMANCE AT BIT RATES BELOW THE PRIMARY RATE



Recommendation O.153

FOREWORD

The CCITT (the International Telegraph and Telephone Consultative Committee) is a permanent organ of the International Telecommunication Union (ITU). CCITT 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 Plenary Assembly of CCITT which meets every four years, establishes the topics for study and approves Recommendations prepared by its Study Groups. The approval of Recommendations by the members of CCITT between Plenary Assemblies is covered by the procedure laid down in CCITT Resolution No. 2 (Melbourne, 1988).

Recommendation O.153 was revised by Study Group IV and was approved under the Resolution No. 2 procedure on the 5th of October 1992.

CCITT NOTE

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

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Recommendation O.153**BASIC PARAMETERS FOR THE MEASUREMENT OF ERROR PERFORMANCE
AT BIT RATES BELOW THE PRIMARY RATE***(Melbourne, 1988; revised 1992)**Abstract*

Defines the requirements for equipment to measure error performance at bit rates between 0.050 and 168 kbit/s

Keywords

- digital error detector;
- digital pattern generator;
- error performance measurement;
- measurement;
- tester.

PREAMBLE

The requirements for the characteristics of error measuring equipment which are described below must be adhered to in order to ensure compatibility between equipment produced by different manufacturers.

While requirements are given for the equipment, the realization of the equipment configuration is not covered and should be given careful consideration by the designer and user. In particular, it is not required that all features listed below shall be provided in one piece of equipment. Administrations may select those functions which correspond best to their applications.

When selecting functions, administrations may also consider other Recommendations dealing with error measuring equipment, e.g. Recommendations O.151 [17] and O.152 [18].

1 General

The equipment is designed to measure the error performance on circuits operating at bit rates as defined in § 3. The measurement is based on the direct comparison of specified test patterns which are transmitted through the circuit under test, with identical patterns generated at the receive side. Synchronous and asynchronous operation shall be possible.

2 Test patterns

The following test patterns are recommended (see also Recommendation O.150 [16]).

Note – The use of certain test patterns may be restricted to synchronous or asynchronous operation only. It shall be possible to transmit the patterns for an unlimited time.

2.1 511-bit pseudo-random test pattern

This pattern is primarily intended for error measurements at bit rates up to 14.4 kbit/s (see § 3.1).

The pattern may be generated in a nine-stage shift-register whose 5th and 9th stage outputs are added in a modulo-two addition stage, and the result is fed back to the input of the first stage. The pattern begins with the first ONE of 9 consecutive ONES.

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