

Fibre optic active components and devices — Test and measurement procedures —

Part 2: ATM-PON transceivers

The European Standard EN 62150-2:2004 has the status of a British Standard

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National foreword

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Summary of pages

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**Fibre optic active components and devices –
Test and measurement procedures
Part 2: ATM-PON transceivers
(IEC 62150-2:2004)**

Composants et dispositifs actifs à fibres
optiques –
Procédures d'essais et de mesures
Partie 2: Émetteurs-récepteurs ATM-PON
(CEI 62150-2:2004)

Aktive Lichtwellenleiter-Bauteile und -
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Teil 2: ATM-PON-Sender-Empfänger
(IEC 62150-2:2004)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 86C/624/FDIS, future edition 1 of IEC 62150-2, prepared by SC 86C, Fibre optic systems and active devices, of IEC TC 86, Fibre optics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62150-2 on 2004-10-01.

The following dates were fixed:

- | | | |
|--|-------|------------|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2005-08-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2007-10-01 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62150-2:2004 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60617	NOTE	Harmonized in 60617 series (not modified).
IEC 60793	NOTE	Harmonized in 60793 series (not modified).
IEC 60794	NOTE	Harmonized in 60794 series (not modified).
IEC 60874	NOTE	Harmonized in 60874 series (not modified).
IEC 61280	NOTE	Harmonized in 61280 series (not modified).
IEC 61300	NOTE	Harmonized in 61300 series (not modified).
IEC 61315	NOTE	Harmonized as EN 61315:1997 (not modified).

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INTRODUCTION

This International Standard specifies testing and measuring procedures for optoelectronic properties of asynchronous-transfer-mode passive optical network (ATM-PON) transceivers. The package interface dimensions and optoelectronic performance of the transceivers are defined in IEC 62148-6 and IEC 62149-5, respectively.

FIBRE OPTIC ACTIVE COMPONENTS AND DEVICES – TEST AND MEASUREMENT PROCEDURES –

Part 2: ATM-PON transceivers

1 Scope and object

This part of IEC 62150 specifies testing and measuring procedures for fibre optic transceivers for asynchronous-transfer-mode passive optical network (ATM-PON) systems recommended by ITU-T G.983.1. These testing procedures correspond to methods of examining whether the transceivers satisfy the performance specifications defined in IEC 62149-5. On the other hand, the measuring procedures correspond to methods of precise measurement for such transceivers. The receiver sections of these transceivers can handle burst signals. Therefore, some procedures described in this standard correspond to the burst signal transmission.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61280-1-3:1998, *Fibre optic communication subsystem basic test procedures – Part 1-3: Test procedures for general communication subsystems – Central wavelength and spectral width measurement*

IEC 61280-2-2:1998, *Fibre optic communication subsystem basic test procedures – Part 2-2: Test procedures for digital systems – Optical eye pattern, waveform, and extinction ratio*

IEC 62148-6, *Fibre optic active components and devices – Package and interface standards – Part 6: ATM-PON transceivers*

IEC 62149-5:2003, *Fibre optic active components and devices – Performance standards – Part 5: ATM-PON transceivers with LD driver and CDR ICs*

ITU-T G.983.1, *Broadband optical access systems based on Passive Optical Networks (PON)*

3 Abbreviations

For the purposes of this document, the following abbreviations are applicable.

3.1

BER

bit error ratio characteristic

3.2

NRZ

non-return to zero

3.3

PRBS

pseudo random binary sequence

3.4

Tx

transmitter and /or transmitter section of ATM-PON transceivers

3.5

Rx

receiver and /or receiver section of ATM-PON transceivers

3.6

SLM-LD

single longitudinal mode laser diode

3.7

MLM-LD

multi-longitudinal mode laser diode

4 Standard ambient conditions

Standard ambient conditions need to be controlled within some range to ensure proper correlation of data obtained from measurements and tests conducted in various facilities. Test and measurement procedures shall be conducted under the following ambient conditions unless otherwise specified. In some cases, special ambient conditions may be needed. Such conditions can be specified in the performance standard.

Ambient conditions for carrying out measurements and tests are as follows:

Temperature °C	Relative humidity %	Air pressure KPa (mbar)
18 to 28	25 to 75	86 to 106 (860 mbar to 1 060 mbar)

Variations in ambient temperature and humidity shall be kept to a minimum during a series of measurements.

5 Apparatus

5.1 Power supply

In the d.c. power supply, the voltage fluctuation shall not exceed $\pm 0,5$ % or 10 mV, whichever is the larger. In the a.c. power supply, the higher harmonic content shall not exceed 5 %. If a commercial supply is used, the higher harmonic content shall not exceed 10 %.

In tests to measure a.c. output, the ripple content of the d.c. power supply, higher harmonic content of the a.c. power supply and a.c. impedance of the d.c. supply circuit through which a.c. current flows shall have small values so that they will not affect the measurements. The power supply shall be sufficient to protect against surges.