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**Aktivne komponente in naprave optičnih vlaken – Izvedbeni standardi – 5. del:  
ATM-PON oddajniki in sprejemniki z lasersko diodnim pogonom in CDR ICs\*  
(IEC 62149-5:2003)\***

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

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EUROPEAN STANDARD

**EN 62149-5**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2003

ICS 33.180.20

English version

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

Composants et dispositifs actifs  
à fibres optiques –  
Normes de fonctionnement  
Partie 5: Emetteurs-récepteurs ATM-PON  
avec programme de gestion LD  
et ICs CDR  
(CEI 62149-5:2003)

Aktive Lichtwellenleiterbauelemente  
und -geräte –  
Betriebsverhaltensnormen  
Teil 5: ATM-PON Sende- und  
Empfangsmodule mit Laserdioden-  
treiberschaltungen und Takt- und  
Datenrückgewinnungs-ICs  
(IEC 62149-5:2003)

SIST EN 62149-5:2004  
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This European Standard was approved by CENELEC on 2003-11-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of document 86C/544/FDIS, future edition 1 of IEC 62149-5, 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 62149-5 on 2003-11-01.

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) 2004-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-11-01

Annexes designated "normative" are part of the body of the standard. In this standard, annexes A, B and ZA are normative. Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 62149-5:2003 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 60130	NOTE	Harmonized in EN 60130 series (not modified). <small>https://standards.iteh.ai/catalog/standards/sist/01661637-527c-4241-83db-4f9061540098/iec-en-62149-5-2004</small>
IEC 60191	NOTE	Harmonized in EN 60191 series (not modified).
IEC 60603	NOTE	Harmonized in EN 60603 series (not modified).
IEC 60793	NOTE	Harmonized in EN 60793 series (modified).
IEC 60794	NOTE	Harmonized in EN 60794 series (modified).
IEC 60825	NOTE	Harmonized in EN 60825 series (modified).
IEC 60874	NOTE	Harmonized in EN 60874 series (not modified).
IEC 61076	NOTE	Harmonized in EN 61076 series (not modified).
IEC 61280	NOTE	Harmonized in EN 61280 series (not modified).
IEC 61281-1	NOTE	Harmonized as EN 61281-1:1999 (not modified).
IEC 61754	NOTE	Harmonized in EN 61754 series (modified).
IEC 62007-1	NOTE	Harmonized as EN 62007-1:2000 (not modified).
IEC 62007-2	NOTE	Harmonized as EN 62007-2:2000 (not modified).
IEC 62148-1	NOTE	Harmonized as EN 62148-1:2002 (not modified).

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**Annex ZA**  
(normative)

**Normative references to international publications  
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-6	- <sup>1)</sup>	Environmental testing Part 2: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	1995 <sup>2)</sup>
IEC 60068-2-27	- <sup>1)</sup>	Part 2: Tests - Test Ea and guidance: Shock	EN 60068-2-27	1993 <sup>2)</sup>
IEC 60825-1	- <sup>1)</sup>	Safety of laser products Part 1: Equipment classification, requirements and user's guide	EN 60825-1	1994 <sup>2)</sup>
IEC 60950-1 (mod)	- <sup>1)</sup>	Information technology equipment - Safety Part 1: General requirements	EN 60950-1	2001 <sup>2)</sup>
IEC 61280-1-1	- <sup>1)</sup>	Fibre optic communication subsystem basic test procedures Part 1-1: Test procedures for general communication subsystems - Transmitter output optical power measurement for single-mode optical fibre cable	EN 61280-1-1	1998 <sup>2)</sup>
IEC 61280-1-3	- <sup>1)</sup>	Part 1-3: Test procedures for general communication subsystems - Central wavelength and spectral width measurement	EN 61280-1-3	1999 <sup>2)</sup>
IEC 61280-2-2	- <sup>1)</sup>	Part 2-2: Test procedures for digital systems - Optical eye pattern, waveform, and extinction ratio	EN 61280-2-2	1999 <sup>2)</sup>

1) Undated reference.

2) Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61300-2-4	- <sup>1)</sup>	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures Part 2-4: Tests - Fibre/cable retention	EN 61300-2-4	1997 <sup>2)</sup>
IEC 61300-2-17	2003	Part 2-17: Tests - Cold	EN 61300-2-17	2003
IEC 61300-2-18	- <sup>1)</sup>	Part 2-18: Tests - Dry heat - High temperature endurance	EN 61300-2-18	1997 <sup>2)</sup>
IEC 61300-2-19	- <sup>1)</sup>	Part 2-19: Tests - Damp heat (steady state)	EN 61300-2-19	1997 <sup>2)</sup>
IEC 61300-2-22	- <sup>1)</sup>	Part 2-22: Tests - Change of temperature	EN 61300-2-22	1997 <sup>2)</sup>
IEC 61300-3-6	2003	Part 3-6: Examinations and measurements - Return loss	EN 61300-3-6	2003
IEC 61753-1-1	- <sup>1)</sup>	Fibre optic interconnecting devices and passive components performance standard Part 1-1: General and guidance - Interconnecting devices (connectors)	EN 61753-1-1	2001 <sup>2)</sup>
ITU-T Recommendation G.983.1	- <sup>1)</sup>	Broadband optical access systems based on Passive Optical Networks (PON)	-	-

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**Composants et dispositifs actifs  
à fibres optiques –  
Normes de fonctionnement –**

**Partie 5:**

**Emetteurs récepteurs ATM-PON  
avec programme de gestion LD et ICs CDR**

**Fibre optic active components and devices –  
Performance standards –**

**Part 5:**

**ATM-PON transceivers with LD driver  
and CDR ICs**

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International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## CONTENTS

FOREWORD .....	7
INTRODUCTION .....	11
1 Scope .....	13
2 Normative references .....	13
3 Terms, definitions and abbreviations .....	15
3.1 Terms and definitions .....	15
3.2 Abbreviations .....	17
4 Classification .....	17
5 Product definition .....	17
5.1 Description of transceiver module .....	17
5.2 Description of applied form .....	19
5.3 Block diagram .....	19
5.4 Absolute limiting rating .....	23
5.5 Functional specification .....	25
6 Testing .....	41
6.1 Characterization testing .....	41
6.2 Performance testing .....	45
7 Environmental specifications .....	45
7.1 General safety .....	45
7.2 Laser safety .....	45
7.3 Electromagnetic emission .....	47
Annex A (normative) Measurement on tolerance to the reflected optical power (Table 3, Parameter 13) .....	49
Annex B (normative) Logic level of alarm and shutdown signal .....	53
Bibliography .....	55
Figure 1 – Functional block diagram (example) .....	21
Figure 2 – Relationship of phase between clock and data signals .....	37
Figure 3 – Recommended electrical circuit diagram for TLVTTL-type interface (example) .....	39
Figure 4 – Schematic drawing for defining launched optical power without input to transmitter .....	39
Figure 5 – Schematic drawing for defining the influence of signal reflection on transmission characteristics .....	41
Figure A.1 – Model for incidence into ONU receiver .....	49
Figure A.2 – An example system to measure tolerance to the reflected optical power .....	51
Figure A.3 – A recommended system to measure tolerance to the reflected optical power .....	51



Table 1 – Absolute maximum ratings .....	23
Table 2 – Operating environment .....	25
Table 3 – Electrical and optical characteristics .....	27
Table 4 – Electrical interface characteristics (PECL type).....	33
Table 5 – Electrical interface characteristics (TLVTTL type) .....	35
Table 6 – Electrical interface characteristics of alarm output voltage (TLVTTL type).....	35
Table 7 – Electrical interface characteristics of alarm output voltage (LVCMOS type).....	37
Table 8 – Electrical interface characteristics of shutdown input voltage (both PECL and TLVTTL types) .....	37
Table 9 – Transmitter section characterization tests .....	43
Table 10 – Receiver section characterization tests .....	43
Table 11 – Performance testing plan .....	45

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC ACTIVE COMPONENTS AND DEVICES –  
PERFORMANCE STANDARDS –****Part 5: ATM-PON transceivers  
with LD driver and CDR ICs**

## FOREWORD

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International Standard IEC 62149-5 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

The text of this standard is based on the following documents:

FDIS	Report on voting
86C/546/FDIS	86C/566/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This standard constitutes Part 5 of the IEC 62149 series, published under the general title *Fibre optic active components and devices – Performance standards*. This series consists of Part 1, devoted to general requirements, and various additional parts, specific to individual module families.

Part 1: General and guidance

Part 2: Discrete vertical cavity surface emitting laser devices

Part 3: 2,5 Gbit/s modulator-integrated laser diode transmitters

Part 4: 1 300-nm transceivers for Gigabit Ethernet application

Part 5: ATM-PON transceivers with LD driver circuits and CDR ICs

Part 6: 650-nm 250-Mbit/s plastic optical fibre transceivers

The committee has decided that the contents of this publication will remain unchanged until 2008. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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## INTRODUCTION

Fibre optic transceivers are used to convert electrical signals into optical signals and vice versa. The optical performance criteria are generally well specified for a number of internationally agreed applications areas such as ITU Recommendation TG.983.1 and IEEE 802.3. This standard aims to assure inter-changeability in performance between fibre optic transceivers for ATM-PON systems supplied by different manufacturers, but does not guarantee operation between fibre optic transceivers.

Manufacturers using the standards are responsible for meeting the required performance and/or reliability and quality assurance under a recognized scheme.

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