



**SLOVENSKI STANDARD  
SIST EN 61291-1:2007**

**01-september-2007**

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SIST EN 61291-1:2001**

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Optical amplifiers -- Part 1: Generic specification (IEC 61291-1:2006)

Lichtwellenleiter-Verstärker - Teil 1: Fachgrundspezifikation (IEC 61291-1:2006)

Amplificateurs optiques -- Partie 1: Spécification générique (IEC 61291-1:2006)

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**Ta slovenski standard je istoveten z: EN 61291-1:2006**

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**ICS:**

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**SIST EN 61291-1:2007**

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English version

**Optical amplifiers**  
**Part 1: Generic specification**  
(IEC 61291-1:2006)

Amplificateurs optiques  
Partie 1: Spécification générique  
(CEI 61291-1:2006)

Lichtwellenleiter-Verstärker  
Teil 1: Fachgrundspezifikation  
(IEC 61291-1:2006)

This European Standard was approved by CENELEC on 2006-09-01. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**CENELEC**

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/705/FDIS, future edition 2 of IEC 61291-1, 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 61291-1 on 2006-09-01.

This European Standard supersedes EN 61291-1:1998.

It includes the following significant changes: the applicability has been extended to all commercially available optical amplifiers, not just optical fiber amplifiers, and definitions for multichannel amplifiers are included.

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) 2007-06-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2009-09-01

Annex ZA has been added by CENELEC.

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## iTech STANDARD PREVIEW

### Endorsement notice

The text of the International Standard IEC 61291-1:2006 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 60793-2	NOTE	Harmonized as EN 60793-2:2004 (not modified).
IEC 60825-1	NOTE	Harmonized as EN 60825-1:1994 (not modified).
IEC 60825-2	NOTE	Harmonized as EN 60825-2:2004 (not modified).
IEC 60874-1	NOTE	Harmonized as EN 60874-1:1999 (not modified).

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## Annex ZA

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

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.

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 61290	Series	Optical amplifiers - Test methods	EN 61290	Series
IEC 61290-1-1	- <sup>1)</sup>	Optical amplifiers - Test methods Part 1-1: Optical power and gain parameters - Optical spectrum analyzer method	EN 61290-1-1	2006 <sup>2)</sup>
IEC 61290-1-2	- <sup>1)</sup>	Optical amplifiers - Test methods Part 1-2: Power and gain parameters - Electrical spectrum analyzer method	EN 61290-1-2	2005 <sup>2)</sup>
IEC 61290-1-3	- <sup>1)</sup>	Optical amplifiers - Test methods Part 1-3: Power and gain parameters - Optical power meter method	EN 61290-1-3	2005 <sup>2)</sup>
IEC 61290-3-1	- <sup>1)</sup>	Optical amplifiers - Test methods Part 3-1: Noise figure parameters - Optical spectrum analyzer method	EN 61290-3-1	2003 <sup>2)</sup>
IEC 61290-3-2	- <sup>1)</sup>	Optical amplifiers Part 3-2: Test methods for noise figure parameters - Electrical spectrum analyzer method	EN 61290-3-2	2003 <sup>2)</sup>
IEC 61290-5-1	- <sup>1)</sup>	Optical amplifiers - Test methods Part 5-1: Reflectance parameters - Optical spectrum analyzer method	EN 61290-5-1	2006 <sup>2)</sup>
IEC 61290-5-2	- <sup>1)</sup>	Optical amplifiers - Test methods Part 5-2: Reflectance parameters - Electrical spectrum analyser method	EN 61290-5-2	2004 <sup>2)</sup>
IEC 61290-5-3	- <sup>1)</sup>	Basic specification for optical amplifier test methods Part 5-3: Test methods for reflectance parameters - Reflectance tolerance test method using electrical spectrum analyser	EN 61290-5-3	2002 <sup>2)</sup>
IEC 61290-6-1	- <sup>1)</sup>	Optical fibre amplifiers - Basic specification Part 6-1: Test methods for pump leakage parameters - Optical demultiplexer	EN 61290-6-1	1998 <sup>2)</sup>
IEC 61290-7-1	- <sup>1)</sup>	Optical fibre amplifiers - Basic specification Part 7-1: Test methods for out-of-band insertion losses - Filtered optical power meter	EN 61290-7-1	1998 <sup>2)</sup>

<sup>1)</sup> Undated reference.

<sup>2)</sup> Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61290-10-1	- <sup>1)</sup>	Optical amplifiers - Test methods Part 10-1: Multichannel parameters - Pulse method using an optical switch and optical spectrum analyzer	EN 61290-10-1	2003 <sup>2)</sup>
IEC 61290-10-2	- <sup>1)</sup>	Optical amplifiers - Test methods Part 10-2: Multichannel parameters - Pulse method using a gated optical spectrum analyzer	EN 61290-10-2	2003 <sup>2)</sup>
IEC 61290-10-3	- <sup>1)</sup>	Optical amplifiers - Test methods Part 10-3: Multichannel parameters - Probe methods	EN 61290-10-3	2003 <sup>2)</sup>
IEC 61290-11-1	- <sup>1)</sup>	Optical amplifier test methods Part 11-1: Polarization mode dispersion - Jones matrix eigenanalysis method (JME)	EN 61290-11-1	2003 <sup>2)</sup>
IEC 61290-11-2	- <sup>1)</sup>	Optical amplifiers - Test methods Part 11-2: Polarization mode dispersion parameter - Poincaré sphere analysis method	EN 61290-11-2	2005 <sup>2)</sup>
IEC 61291-2	- <sup>1)</sup>	Optical fibre amplifiers Part 2: Digital applications - Performance specification template	EN 61291-2	2000 <sup>2)</sup>
IEC 61291-4	- <sup>1)</sup>	Optical amplifiers Part 4: Multichannel applications - Performance specification template	EN 61291-4	2003 <sup>2)</sup>
IEC 61291-5-2	- <sup>1)</sup>	Optical amplifiers Part 5-2: Qualification specifications - Reliability qualification for optical fibre amplifiers	EN 61291-5-2	2002 <sup>2)</sup>
IEC/TR 61292-3	- <sup>1)</sup>	Optical amplifiers Part 3: Classification, characteristics and applications	-	-

NORME  
INTERNATIONALE  
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STANDARD

CEI  
IEC

61291-1

Deuxième édition  
Second edition  
2006-08

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**Amplificateurs optiques –**

**Partie 1:  
Spécification générique**

**STANDARD PREVIEW**  
**Optical amplifiers –**  
**(standards.iteh.ai)**

**Part 1:  
Generic specification**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## OPTICAL AMPLIFIERS –

## Part 1: Generic specification

## FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International standard IEC 61291-1 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 1998. It is a technical revision that includes the following significant changes: the applicability has been extended to all commercially available optical amplifiers, not just optical fiber amplifiers, and definitions for multichannel amplifiers are included.

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

FDIS	Report on voting
86C/705/FDIS	86C/729/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.

A list of all parts of the IEC 61291-1 series, published under the general title *Optical amplifiers*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

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## INTRODUCTION

This International Standard is devoted to the subject of optical amplifiers. The technology of optical amplifiers is still rapidly evolving, hence amendments and new editions to this standard can be expected.

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## OPTICAL AMPLIFIERS –

### Part 1: Generic specification

#### 1 Scope and object

This part of IEC 61291 applies to all commercially available optical amplifiers (OAs) and optically amplified assemblies. It applies to OAs using optically pumped fibres (OFAs based either on rare-earth doped fibres or on the Raman effect), semiconductors (SOAs), and waveguides (POWAs). The object of this standard is:

- to establish uniform requirements for transmission, operation, reliability and environmental properties of OAs;
- to provide assistance to the purchaser in the selection of consistently high-quality OA products for his particular applications.

Parameters specified for OAs are those characterizing the transmission, operation, reliability and environmental properties of the OA seen as a “black box” from a general point of view. In the sectional and detail specifications a subset of these parameters will be specified according to the type and application of the particular OA device or assembly.

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#### 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 61290 (all parts): *Optical amplifiers – Test methods*

IEC 61290-1-1, *Optical fibre amplifiers – Basic specification – Part 1-1: Test methods for gain parameters – Optical spectrum analyzer*

IEC 61290-1-2, *Optical amplifiers – Test methods – Part 1-2: Power and gain parameters – Electrical spectrum analyzer method*

IEC 61290-1-3, *Optical amplifiers – Test methods – Part 1-3: Power and gain parameters – Optical power meter method*

IEC 61290-3-1, *Optical amplifiers – Test methods – Part 3-1: Noise figure parameters – Optical spectrum analyzer method*

IEC 61290-3-2, *Optical amplifiers – Part 3-2: Test methods for noise figure parameters – Electrical spectrum analyzer method*

IEC 61290-5-1, *Optical fibre amplifiers – Basic specification – Part 5-1: Test methods for reflectance parameters – Optical spectrum analyser*

IEC 61290-5-2, *Optical amplifiers – Test methods – Part 5-2: Reflectance parameters – Electrical spectrum analyser method*