



NSAI
Standards

Irish Standard
I.S. EN 61290-1:2015

Optical amplifiers - Test methods - Part 1: Power and gain parameters

I.S. EN 61290-1:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

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EUROPEAN STANDARD

EN 61290-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2015

ICS 33.180.30

English Version

**Optical amplifiers - Test methods -
Part 1: Power and gain parameters
(IEC 61290-1:2014)**

Amplificateurs optiques - Méthodes d'essai -
Partie 1: Paramètres de puissance et de gain
(IEC 61290-1:2014)

Prüfverfahren für Lichtwellenleiter-Verstärker -
Teil 1: Optische Leistungs- und Verstärkungsparameter
(IEC 61290-1:2014)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 86C/1188/CDV, future edition 1 of IEC 61290-1, 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 approved by CENELEC as EN 61290-1:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-10-20
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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

| | | |
|----------------|------|--|
| IEC 60793-1-1 | NOTE | Harmonized as EN 60793-1-1. |
| IEC 60793-1-40 | NOTE | Harmonized as EN 60793-1-40. |
| IEC 60825-1 | NOTE | Harmonized as EN 60825-1. |
| IEC 60825-2 | NOTE | Harmonized as EN 60825-2. |
| IEC 60874-1 | NOTE | Harmonized as EN 60874-1. |
| IEC 61290-10 | NOTE | Harmonized as EN 61290-10 series (not modified). |

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

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

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|---|--------------|-------------|
| IEC 61290-1-1 | - | Optical amplifiers - Test methods - Part 1-1: Power and gain parameters - Optical spectrum analyzer method | EN 61290-1-1 | - |
| IEC 61290-1-2 | - | Optical amplifiers - Test methods - Part 1-2: Power and gain parameters - Electrical spectrum analyzer method | EN 61290-1-2 | - |
| IEC 61290-1-3 | - | Optical amplifiers - Test methods - Part 1-3: Power and gain parameters - Optical power meter method | EN 61290-1-3 | - |
| IEC 61291-1 | 2012 | Optical amplifiers - Part 1: Generic specification | EN 61291-1 | 2012 |

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IEC 61290-1

Edition 1.0 2014-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Optical amplifiers – Test methods –
Part 1: Power and gain parameters**

**Amplificateurs optiques – Méthodes d'essai –
Partie 1: Paramètres de puissance et de gain**





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Edition 1.0 2014-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Optical amplifiers – Test methods –
Part 1: Power and gain parameters**

**Amplificateurs optiques – Méthodes d’essai –
Partie 1: Paramètres de puissance et de gain**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**OPTICAL AMPLIFIERS –
TEST METHODS –**
Part 1: Power and gain parameters**FOREWORD**

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International Standard IEC 61290-1 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:

| | |
|--------------|------------------|
| CDV | Report on voting |
| 86C/1188/CDV | 86C/1258/RVC |

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 in the IEC 61290 series, published under the general title *Optical amplifiers – Test methods*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

OPTICAL AMPLIFIERS – TEST METHODS –

Part 1: Power and gain parameters

1 Scope and object

This part of 61290 applies to all commercially available optical amplifiers (OAs) and optically amplified subsystems. It applies to OAs using optically pumped fibres (OFAs based on either rare-earth doped fibres or on the Raman effect), semiconductors (SOAs), and waveguides (POWAs).

NOTE 1 The applicability of the test methods described in the present standard to distributed Raman amplifiers is still under study.

The object of this standard is to establish uniform requirements for accurate and reliable measurements of the following OA parameters, as defined in Clause 3 of IEC 61291-1:2012:

- a) nominal output signal power;
- b) gain;
- c) reverse gain;
- d) maximum gain;
- e) maximum gain wavelength;
- f) maximum gain variation with temperature;
- g) gain wavelength band;
- h) gain wavelength variation;
- i) gain stability;
- j) polarization-dependent gain;
- k) large-signal output stability;
- l) saturation output power;
- m) maximum output signal power;
- n) maximum total output power.

NOTE 2 All numerical values followed by (‡) are suggested values for which the measurement is assured. Other values are acceptable if verified.

The object of this standard is specifically directed to single-channel amplifiers. For multichannel amplifiers, one should refer to the IEC 61290-10 series.

2 Normative references

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

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

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

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