SLOVENSKI STANDARD
SIST EN IEC 61290-1:2022

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SIST EN 61290-1:2015

Optični ojačevalniki - Preskusne metode - 1. del: Parametri moči in ojačenja (IEC 61290-1:2022)

Optical amplifiers - Test methods - Part 1: Power and gain parameters (IEC 61290-1:2022)

Prüfverfahren für Lichtwellenleiter-Verstärker - Teil 1: Optische Leistungs- und Verstärkungsparameter (IEC 61290-1:2022)

Amplificateurs optiques - Méthodes d'essai - Partie 1: Paramètres de puissance et de gain (IEC 61290-1:2022)

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Optical amplifiers - Test methods - Part 1: Power and gain parameters (IEC 61290-1:2022)

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Prüfverfahren für Lichtwellenleiter-Verstärker - Teil 1: Optische Leistungs- und Verstärkungsparameter (IEC 61290-1:2022)

This European Standard was approved by CENELEC on 2022-07-12. 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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

The text of document 86C/1746/CDV, future edition 2 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 IEC 61290-1:2022.

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) 2023-04-12
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-07-12

This document supersedes EN 61290-1:2015 and all of its amendments and corrigenda (if any).

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Endorsement notice

The text of the International Standard IEC 61290-1:2022 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 60793-1-1	NOTE Harmonized as EN 60793-1-1
IEC 60793-1-40	NOTE Harmonized as EN IEC 60793-1-40
IEC 60825-1	NOTE Harmonized as EN 60825-1
IEC 60825-2	NOTE Harmonized as EN 60825-2
IEC 61290-10 (series)	NOTE Harmonized as EN 61290-10 (series)

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where 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.

Publication	Year	Title	EN/HD	Year
IEC 61290-1-1	-	Optical amplifiers - Test methods - Part 1-1: Power and gain parameters - Optical spectrum analyzer method	EN IEC 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 IEC 61290-1-3	-
IEC 61291-1	2018	Optical amplifiers - Part 1: Generic specification	EN IEC 61291-1	2018

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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

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OPTICAL AMPLIFIERS – TEST METHODS –

Part 1: Power and gain parameters

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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IEC 61290-1 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics. It is an International Standard.

This second edition cancels and replaces the first edition published in 2014. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) specification of gain ripple as a new parameter;
b) specification of test method and test report for gain ripple measurements;
c) use of the term "measurement uncertainty" instead of "measurement accuracy".

The text of this International Standard is based on the following documents:

Draft	Report on voting
86C/1746/FDIS	86C/1783/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

OPTICAL AMPLIFIERS – TEST METHODS –

Part 1: Power and gain parameters

1 Scope

This part of IEC 61290 applies to all commercially available optical amplifiers (OAs) and optically amplified subsystems. It applies to OAs using optically pumped fibres (optical fibre amplifiers (OFAs) based on either rare-earth doped fibres or on the Raman effect), semiconductors (semiconductor optical amplifiers (SOAs)), and waveguides (planar optical waveguide amplifiers (POWAs)). It is specifically directed to single-channel amplifiers. Test methods for multichannel amplifiers are defined in the IEC 61290-10 series.

This document establishes uniform requirements for accurate and reliable measurements of the following OA parameters, as defined in IEC 61291-1:2018, Clause 3:

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) gain ripple (SOA only);
l) large-signal output stability;
m) saturation output power;
n) maximum output signal power;
o) maximum total output power.

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

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

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 61290-1-1, *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*