

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Optical amplifiers – Test methods –

Part 1-1: Power and gain parameters – Optical spectrum analyzer method

Amplificateurs optiques – Méthodes d'essai –

Partie 1-1: Paramètres de puissance et de gain – Méthode de l'analyseur de spectre optique





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OPTICAL AMPLIFIERS – TEST METHODS –**Part 1-1: Power and gain parameters –
Optical spectrum analyzer method****FOREWORD**

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

This fourth edition cancels and replaces the third edition published in 2015 and constitutes a technical revision.

This edition includes the following significant technical change with respect to the previous edition: addition of techniques to test gain ripple of SOAs.

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

FDIS	Report on voting
86C/1673/FDIS	86C/1687/RVD

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

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

This document is to be used in conjunction with IEC 61290-1 and IEC 61291-1.

A list of all parts of 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 "<http://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- withdrawn,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 1-1: Power and gain parameters – Optical spectrum analyzer method

1 Scope

This part of IEC 61290 applies to all commercially available optical amplifiers (OAs) and optically amplified modules. It applies to OAs using optical fibre amplifiers (OFAs) based on either rare-earth doped fibres or on the Raman effect, semiconductor OAs (SOAs) and planar optical waveguide amplifiers (POWAs).

The object of this document is to establish uniform requirements for accurate and reliable measurements, by means of the optical spectrum analyzer (OSA) test method, of the following OA parameters, as defined in IEC 61291-1:

- a) nominal output signal power;
- b) gain;
- c) polarization-dependent gain (PDG);
- d) maximum output signal power;
- e) maximum total output power.

In addition, this document provides the test method of:

- f) gain ripple (for SOAs).

NOTE All numerical values followed by (‡) are suggested values for which the measurement is assured.

The object of this document is specifically directed to single-channel amplifiers. Test methods for multichannel amplifiers are standardized in IEC 61290-10 (all parts) [1]¹.

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 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres*

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

IEC 61291-1, *Optical amplifiers – Part 1: Generic specification*

¹ Numbers in square brackets refer to the Bibliography.