ICS 33.180.30 SLOVENSKÁ TECHNICKÁ NORMA Jún 2017

STN	**Optické zosilňovače. Skúšobné metódy. Časť 4-1: Parametre prechodného zosilnenia. Metóda dvoch vlnových dĺžok.**	**STN EN 61290-4-1** 35 9271

Optical amplifiers - Test methods - Part 4-1: Gain transient parameters - Two-wavelength method

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/17

Obsahuje: EN 61290-4-1:2016, IEC 61290-4-1:2016

Oznámením tejto normy sa od 31.10.2019 ruší
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61290-4-1

December 2016

ICS 33.180.30

Supersedes EN 61290-4-1:2011

English Version

Optical amplifiers - Test methods - Part 4-1: Gain transient parameters - Two-wavelength method (IEC 61290-4-1:2016)

Amplificateurs optiques - Méthodes d'essai - Partie 4-1: Paramètres de gain transitoire - Méthode à deux longueurs d'onde (IEC 61290-4-1:2016)

Lichtwellenleiter-Verstärker - Prüfverfahren - Teil 4-1: Transiente Verstärkerparameter - Zwei-Wellenlängen-Verfahren (IEC 61290-4-1:2016)

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 61290-4-1:2016 E

European foreword

The text of document 86C/1347/CDV, future edition 2 of IEC 61290-4-1, 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 61290-4-1:2016.

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)	2017-07-31
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2019-10-31

This document supersedes EN 61290-4-1:2011.

EN 61290-4-1:2016 includes the following significant technical changes with respect to EN 61290-4-1:2011:

a) Extended the applicability from only EDFAs to all OFAs;

b) Updated definitions for consistency with other documents in the EN 61290-4 Series.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

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The text of the International Standard IEC 61290-4-1:2016 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 61290-1 Series	NOTE	Harmonized as EN 61290-1 Series.
IEC 61290-3-1	NOTE	Harmonized as EN 61290-3-1.
IEC 61290-3-2	NOTE	Harmonized as EN 61290-3-2.
IEC 61290-4-2	NOTE	Harmonized as EN 61290-4-2.

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

Publication	Year	Title	EN/HD	Year
IEC 61291-1	-	Optical amplifiers - Part 1: Generic specification	EN 61291-1	-

IEC 61290-4-1

Edition 2.0 2016-09

INTERNATIONAL STANDARD

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Optical amplifiers – Test methods – Part 4-1: Gain transient parameters – Two-wavelength method

Amplificateurs optiques – Méthodes d'essai – Partie 4-1: Paramètres de gain transitoire – Méthode à deux longueurs d'onde

IEC 61290-4-1:2016-09(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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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 61290-4-1 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 2011. This edition constitutes a technical revision.

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

a) extended the applicability from only EDFAs to all OFAs;
b) updated definitions for consistency with other documents in the IEC 61290-4 series.

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

CDV	Report on voting
86C/1347/CDV	86C/1397/RVC

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.

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 publication will remain unchanged until the stability date indicated on the IEC website 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This part of IEC 61290-4 is devoted to optical amplifiers (OAs). The technology of OAs is quite new and still emerging; hence amendments and new editions to this document can be expected.

Background information on the transient phenomenon in erbium-doped fibre amplifiers and the consequences on fibre optic systems is provided in Annex A and on slew rate effects in Annex B.

OPTICAL AMPLIFIERS – TEST METHODS –

Part 4-1: Gain transient parameters – Two-wavelength method

1 Scope

This part of IEC 61290-4 applies to optical amplifiers (OAs) using active fibres (optical fibre amplifiers (OFAs)) containing rare-earth dopants including erbium-doped fibre amplifiers (EDFAs) and optically amplified elementary sub-systems. These amplifiers are commercially available and widely deployed in service provider networks.

The object of document is to provide the general background for OFA transients and related parameters, and to describe a standard test method for accurate and reliable measurement of the following transient parameters:

a) channel addition or removal transient gain overshoot and transient net gain overshoot;

b) channel addition or removal transient gain undershoot and transient net gain undershoot;

c) channel addition or removal gain offset;

d) channel addition or removal transient gain response time constant (settling time).

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