Optical amplifiers - Test methods -- Part 7-1: Out-of-band insertion losses - Filtered optical power meter method

Optical amplifiers - Test methods -- Part 7-1: Out-of-band insertion losses - Filtered optical power meter method

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 61290-7-1:2007 sisaldab Euroopa standardi EN 61290-7-1:2007 ingliskeelset teksti. Käesolev dokument on jõustatud 13.09.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 61290-7-1:2007 consists of the English text of the European standard EN 61290-7-1:2007. This document is endorsed on 13.09.2007 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This part of IEC 61290 applies to optical fibre amplifiers (OFAs) using active fibres, containing rare-earth dopants, presently commercially available. The object of this standard is to establish uniform requirements for accurate and reliable measurements, by means of the filtered optical power meter test method, of the following OFA parameters, as defined in clause 3 of IEC 61291-1.	**Scope:** This part of IEC 61290 applies to optical fibre amplifiers (OFAs) using active fibres, containing rare-earth dopants, presently commercially available. The object of this standard is to establish uniform requirements for accurate and reliable measurements, by means of the filtered optical power meter test method, of the following OFA parameters, as defined in clause 3 of IEC 61291-1.

ICS 33.180.30

Võtmesõnad: insertion loss, optical fibres, optical waveguides

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61290-7-1

June 2007

ICS 33.180.30

Supersedes EN 61290-7-1:1998

English version

Optical amplifiers - Test methods - Part 7-1: Out-of-band insertion losses - Filtered optical power meter method

(IEC 61290-7-1:2007)

Amplificateurs optiques - Méthodes d'essai - Partie 7-1: Pertes d'insertion hors-bande - Méthode par puissance-mètre optique filtré (CEI 61290-7-1:2007)

Prüfverfahren für Lichtwellenleiter-Verstärker - Teil 7-1: Einfügungsdämpfungen außerhalb des Bandes - Leistungsmessverfahren mit optischem Filter (IEC 61290-7-1:2007)

This European Standard was approved by CENELEC on 2007-05-01. 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.

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CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, 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

Ref. No. EN 61290-7-1:2007 E

Foreword

The text of document 86C/726/CDV, future edition 2 of IEC 61290-7-1, prepared by SC 86C, Fibre optic systems and active devices, of IEC TC 86, Fibre optics, was submitted to the IEC-CENELEC parallel Unique Acceptance Procedure and was approved by CENELEC as EN 61290-7-1 on 2007-05-01.

This European Standard supersedes EN 61290-7-1:1998.

The main significant changes are the following:

– the title has been changed to be consistent with other documents in the EN 61290 series;

– the applicability has been extended to all commercially available optical amplifiers - not just optical fiber amplifiers;

– Clause 9, EMC, has been added.

This standard is to be used in conjunction with EN 61291-1:2006.

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)	2008-02-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-05-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 61290-7-1:2007 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	NOTE	Harmonized in EN 60793-1 series (not modified).
IEC 60825-2	NOTE	Harmonized as EN 60825-2:2004 (not modified).
IEC 60874-1	NOTE	Harmonized as EN 60874-1:2003 (not modified).

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Annex ZA
(normative)

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.

Publication	Year	Title	EN/HD	Year
IEC 61291-1	- [1)]	Optical amplifiers - Part 1: Generic specification	EN 61291-1	2006 [2)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

IEC
CEI
61290-7-1

Second edition
Deuxième édition
2007-04

Optical amplifiers –
Test methods –

Part 7-1:
Out-of-band insertion losses –
Filtered optical power meter method

Amplificateurs optiques –
Méthodes d'essai –

Partie 7-1:
Pertes d'insertion hors-bande –
Méthode par puissance-mètre optique filtré

Reference number
Numéro de référence
IEC/CEI 61290-7-1:2007

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INTERNATIONAL STANDARD

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL AMPLIFIERS – TEST METHODS –

Part 7-1: Out-of-band insertion losses – Filtered optical power meter method

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the 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. The 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 61290-7-1 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 and constitutes a technical revision. The main significant changes are the following:

a) the title has been changed to be consistant with other documents in the IEC 61290 series;
b) the applicability has been extended to all commercially available optical amplifiers - not just optical fiber amplifiers;
c) Clause 9, EMC, has been added.

This standard shall be used in conjunction with IEC 61291-1. It was established on the basis of the second (2006) edition of that standard.

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

CDV	Report on voting
86C/726/CDV	86C/741/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 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 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.

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 additions to this standard can be expected.

OPTICAL AMPLIFIERS – TEST METHODS –

Part 7-1: Out-of-band insertion losses – Filtered optical power meter method

1 Scope and object

This part of IEC 61290 applies to optical amplifiers (OAs) using active fibres presently commercially available containing rare-earth dopants.

The object of this standard is to establish uniform requirements for accurate and reliable measurements, by means of the filtered optical power meter test method, of the following OA parameters, as defined in IEC 61291-1:

a) out-of-band insertion loss;

b) out-of-band reverse insertion loss.

NOTE 1 The out-of-band insertion loss of an OA is highly dependent on the amplifier configuration and the out-of-band wavelength.

NOTE 2 All numerical values followed by (‡) are suggested values.

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

3 Abbreviated terms

Each abbreviation introduced in this standard is explained in the text at least the first time it appears. However, for an easier understanding of the whole text, the following is a list of all abbreviations used in this standard:

OA Optical amplifier

EMC Electromagnetic compatibility

ESD Electrostatic discharge

4 Apparatus

A scheme of the measurement set-up is given in Figure 1.