Irish Standard
I.S. EN 61300-3-14:2014

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-14: Examinations and measurements - Error and repeatability of the attenuation settings of a variable optical attenuator

I.S. EN 61300-3-14:2014

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1 Swift Square,	F +353 1 807 3838	T +353 1 857 6730
Northwood, Santry	E standards@nsai.ie	F +353 1 857 6729
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EN 61300-3-14

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English Version

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-14: Examinations and measurements - Error and repeatability of the attenuation settings of a variable optical attenuator (IEC 61300-3-14:2014)

Dispositifs d'interconnexion et composants passifs à fibres optiques - Procédures fondamentales d'essais et de mesures - Partie 3-14: Examens et mesures - Erreur et répétabilité des positions d'affaiblissement d'un affaiblisseur optique variable
(CEI 61300-3-14:2014)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Grundlegende Prüf- und Messverfahren - Teil 3-14: Untersuchungen und Messungen - Abweichung und Reproduzierbarkeit der Einstellung eines einstellbaren optischen Dämpfungsgliedes
(IEC 61300-3-14:2014)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 86B/3816/FDIS, future edition 3 of IEC 61300-3-14, prepared by SC 86B “Fibre optic interconnecting devices and passive components” of IEC/TC 86 “Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61300-3-14:2014.

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)	2015-08-14
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-11-14

This document supersedes EN 61300-3-14:2007.

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.

Endorsement notice

The text of the International Standard IEC 61300-3-14:2014 was approved by CENELEC as a European Standard without any modification.

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 61300-1	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 1: General and guidance	EN 61300-1	-
IEC 61300-3-4	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-4: Examinations and measurements - Attenuation	EN 61300-3-4	-

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IEC 61300-3-14

Edition 3.0 2014-10

INTERNATIONAL STANDARD

Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –
Part 3-14: Examinations and measurements – Error and repeatability of the attenuation settings of a variable optical attenuator

IEC 61300-3-14:2014-10(en)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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Edition 3.0 2014-10

INTERNATIONAL STANDARD

Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-14: Examinations and measurements – Error and repeatability of the attenuation settings of a variable optical attenuator

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 3-14: Examinations and measurements – Error and repeatability of the attenuation settings of a variable optical attenuator

FOREWORD

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International Standard IEC 61300-3-14 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This third edition cancels and replaces the second edition published in 2006 and constitutes a technical revision

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

a) title modification replacing the word "accuracy" by "error";
b) inclusion of the distinction of manually and electrically controlled variable optical attenuators in the Scope;

c) revision of clauses for apparatus and details to be specified to harmonize with other standards in the IEC 61300 series;

d) addition of “the maximum deviation of attenuation from setting” to the clause for calculation;

e) addition of “measurement method of hysteresis characteristics” in Annex B.

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

FDIS	Report on voting
86B/3816/FDIS	86B/3843/RVD

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 61300 series, published under the general title, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures* 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.

A bilingual version of this publication may be issued at a later date.

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 3-14: Examinations and measurements – Error and repeatability of the attenuation settings of a variable optical attenuator

1 Scope

This part of IEC 61300 provides a method to measure the error and repeatability of the attenuation value settings of a variable optical attenuator (VOA). There are two control technologies for VOAs, manually controlled and electrically controlled. This standard covers both control technologies of VOAs and also covers both single-mode and multimode fibre VOAs.

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 61300-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 1: General and guidance*

IEC 61300-3-4, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-4:Examinations and measurements – Attenuation*

3 General description

A variable optical attenuator is adjusted sequentially through a series of nominal attenuation settings prescribed in the relevant specification. For an electrically controlled VOA, the attenuation is set by applying electrical voltage or current to the device.

There are two categories of VOAs:

– those that can be adjusted to nominal attenuation levels;

– those that have no information on the nominal attenuation levels.

Some manually controlled VOAs have a scaled dial to indicate the nominal attenuation levels. Some electrically controlled VOAs have a table (or equation) indicating the applied voltage (or current) corresponding to nominal attenuation levels. This measurement method of attenuation error and repeatability can only be applied to VOAs which can be adjusted to nominal attenuation levels.

In this type of measurement, the attenuation value is measured at each setting. This sequence of measurements is repeated a number of times as prescribed in the relevant specification. The error of the attenuator at each setting is then given by the difference between the mean of the measured values and the nominal value. The repeatability at each setting is given by a value of plus and minus three times the standard deviation of the measurements.