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**BS EN 61300-3-14:2014**



**BSI Standards Publication**

# **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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This British Standard is the UK implementation of EN 61300-3-14:2014. It is identical to IEC 61300-3-14:2014. It supersedes BS EN 61300-3-14:2007 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee GEL/86, Fibre optics, to Subcommittee GEL/86/2, Fibre optic interconnecting devices and passive components.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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**Compliance with a British Standard cannot confer immunity from legal obligations.**

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## EUROPÄISCHE NORM

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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)

This European Standard was approved by CENELEC on 2014-11-14. 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  
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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.

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(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](http://www.cenelec.eu)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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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## **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.