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Standards

Irish Standard  
I.S. EN 61300-2-43:2014

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-43: Tests - Screen testing of return loss of single-mode PC optical fibre connectors

**I.S. EN 61300-2-43:2014**

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*This document is based on:*

EN 61300-2-43:2014

*Published:*

2014-09-12

*This document was published under the authority of the NSAI and comes into effect on:*

2014-10-14

ICS number:

33.180.20

NOTE: If blank see CEN/CENELEC cover page

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EUROPEAN STANDARD

EN 61300-2-43

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2014

ICS 33.180.20

Supersedes EN 61300-2-43:1999

English Version

Fibre optic interconnecting devices and passive components -  
Basic test and measurement procedures - Part 2-43: Tests -  
Screen testing of return loss of single-mode PC optical fibre  
connectors  
(IEC 61300-2-43:2014)

Dispositifs d'interconnexion et composants passifs à fibres  
optiques - Procédures fondamentales d'essais et de  
mesures - Partie 2-43: Essais - Sélection des connecteurs  
PC pour fibres optiques unimodales en fonction de leur  
affaiblissement de réflexion  
(CEI 61300-2-43:2014)

Lichtwellenleiter - Verbindungselemente und passive  
Bauteile - Grundlegende Prüf- und Messverfahren -  
Teil 2-43: Prüfungen - Verfahren zur Sortierprüfung von  
Einmoden-PC-LWL-Steckverbindern in Abhängigkeit von  
der Rückflusdämpfung  
(IEC 61300-2-43:2014)

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

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

## Foreword

The text of document 86B/3669/CDV, future edition 2 of IEC 61300-2-43, 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 61300-2-43:2014.

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) 2015-04-24
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IEC 61300-1                      NOTE                      Harmonized as EN 61300-1.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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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 61300-3-6	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-6: Examinations and measurements - Return loss	EN 61300-3-6	-

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**IEC 61300-2-43**

Edition 2.0 2014-06

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

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**Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –  
Part 2-43: Tests – Screen testing of return loss of single-mode PC optical fibre connectors**

**Dispositifs d'interconnexion et composants passifs à fibres optiques –  
Procédures fondamentales d'essais et de mesures –  
Partie 2-43: Essais – Sélection des connecteurs PC pour fibres optiques unimodales en fonction de leur affaiblissement de réflexion**





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**IEC 61300-2-43**

Edition 2.0 2014-06

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

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**Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –  
Part 2-43: Tests – Screen testing of return loss of single-mode PC optical fibre connectors**

**Dispositifs d'interconnexion et composants passifs à fibres optiques –  
Procédures fondamentales d'essais et de mesures –  
Partie 2-43: Essais – Sélection des connecteurs PC pour fibres optiques unimodales en fonction de leur affaiblissement de réflexion**

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PRICE CODE  
CODE PRIX

**M**

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ICS 33.180.20

ISBN 978-2-8322-1640-8

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

#### Part 2-43: Tests – Screen testing of return loss of single-mode PC optical fibre connectors

#### FOREWORD

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International Standard IEC 61300-3-43 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This second edition of IEC 61300-3-43 cancels and replaces the first edition published in 1999 and constitutes a technical revision.

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

- a) revision of the scope;
- b) revision of the procedure;
- c) addition of measurement uncertainty into the 'Details to be specified';
- d) addition of a bibliography.

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

CDV	Report on voting
86B/3669/CDV	86B/3755/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 in the IEC 61300 series, published under the general title, *Fibre optic interconnecting and passive components – Basic test and measurement procedures*, can be found on the IEC website.

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- reconfirmed,
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## **FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –**

### **Part 2-43: Tests – Screen testing of return loss of single-mode PC optical fibre connectors**

#### **1 Scope**

This part of IEC 61300 aims at screening single-mode physical contact (PC) optical fibre connectors of an optical fibre cord or an optical fibre pigtail in terms of return loss, thus ensuring minimum return loss when the connectors, which have been screen tested by this method, are randomly mated with each other in the field.

#### **2 Normative references**

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IEC 61300-3-6, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-6: Examinations and measurements – Return loss*

#### **3 General description**

The domed ferrule end faces of PC connectors (not angled) are produced by a polishing process. This polishing process results in a thin damaged layer at the fibre end face of the connector. In silica fibres, the refractive index of the damaged layer is slightly higher than that of original fibre. This high refractive index layer generates optical reflection. When PC connectors are mated, return loss occurs as a result of multiple reflections at the two damaged layers of the butted connectors.

This test procedure ensures that a designed minimum return loss is achieved when PC connectors are randomly mated. It screens cords or pigtails by using a pair of reflection standard plug (RP) cords. The pair of reflection standard plugs is selected on the condition that the return loss when the plugs are mated is several decibels better than the designed minimum return loss. Cords which pass this test will achieve the designed minimum return loss in over 99 % of cases when randomly mated (see Annex A).

#### **4 Apparatus**

The equipment listed below shall be chosen according to the method used to measure the connector return loss, in accordance with IEC 61300-3-6. The reflection standard plug shall be prepared according to the procedure given in 5.1.

- Sources S
- Excitation unit E
- Detector D
- Temporary joint TJ
- Terminator T
- Branching device BD
- Reflection standard cord

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