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Standards

Irish Standard  
I.S. EN 61753-1-3:2014

Fibre optic interconnecting devices and passive components - Performance standard - Part 1-3: General and guidance for single-mode fibre optic connector and cable assembly for industrial environment, Category I

**I.S. EN 61753-1-3:2014**

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EUROPEAN STANDARD

**EN 61753-1-3**

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2014

ICS 33.180.20

English Version

**Fibre optic interconnecting devices and passive components -  
Performance standard - Part 1-3: General and guidance for  
single-mode fibre optic connector and cable assembly for  
industrial environment, Category I  
(IEC 61753-1-3:2014)**

Dispositifs d'interconnexion et composants passifs à fibres  
optiques - Norme de performance - Partie 1-3 : Généralités  
et lignes directrices relatives aux connecteurs à fibres  
optiques unimodales et aux cordons en environnement  
industriel, Catégorie I  
(CEI 61753-1-3:2014)

Lichtwellenleiter - Verbindungselemente und passive  
Bauteile - Betriebsverhalten - Teil 1-3: Allgemeines und  
Leitfaden für Einmoden-Lichtwellenleiter-Steckverbinder  
und konfektionierte LWL-Kabel in rauer industrieller  
Umgebung der Kategorie I  
(IEC 61753-1-3:2014)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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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/3752/FDIS, future edition 1 of IEC 61753-1-3, 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 61753-1-3:2014.

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) 2015-03-27
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-06-27

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## **Endorsement notice**

The text of the International Standard IEC 61753-1-3:2014 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 61300-2-35	NOTE	Harmonised as EN 61300-2-35.
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## 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](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-60	-	Environmental testing -- Part 2-60: Tests - Test Ke: Flowing mixed gas corrosion test	EN 60068-2-60	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
IEC 60793-2-50	-	Optical fibres -- Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN 60793-2-50	-
IEC 61300 (series)	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures	EN 61300 (series)	-
IEC 61300-2-1	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-1: Tests - Vibration (sinusoidal)	EN 61300-2-1	-
IEC 61300-2-2	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-2: Tests - Mating durability	EN 61300-2-2	-
IEC 61300-2-4	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-4: Tests - Fibre/cable retention	EN 61300-2-4	-
IEC 61300-2-5	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-5: Tests - Torsion	EN 61300-2-5	-
IEC 61300-2-6	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-6: Tests - Tensile strength of coupling mechanism	EN 61300-2-6	-
IEC 61300-2-7	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-7: Tests - Bending moment	EN 61300-2-7	-
IEC 61300-2-9	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-9: Tests - Shock	EN 61300-2-9	-

IEC 61300-2-10	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-10: Tests - Crush resistance	EN 61300-2-10	-
IEC 61300-2-12	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-12: Tests - Impact	EN 61300-2-12	-
IEC 61300-2-22	-	Basic test and measurement procedures - Part 2-22: Tests - Change of temperature	-	-
IEC 61300-2-26	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-26: Tests - Salt mist	EN 61300-2-26	-
IEC 61300-2-34	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-34: Tests - Resistance to solvents and contaminating fluids of interconnecting components and closures	EN 61300-2-34	-
IEC 61300-2-46	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-46: Tests - Damp heat cyclic	EN 61300-2-46	-
IEC 61300-3-1	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 3-1: Examinations and measurements - Visual examination	EN 61300-3-1	-
IEC 61300-3-3	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 3-3: Examinations and measurements - Active monitoring of changes in attenuation and return loss	EN 61300-3-3	-
IEC 61300-3-4	2012	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 3-4: Examinations and measurements - Attenuation	EN 61300-3-4	2013
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	-
IEC 61300-3-11	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 3-11: Examinations and measurements - Engagement and separation forces	EN 61300-3-11	-
IEC 61300-3-28	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 3-28: Examinations and measurements - Transient loss	EN 61300-3-28	-

IEC 61300-3-34	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 3-34: Examinations and measurements - Attenuation of random mated connectors	EN 61300-3-34	-
IEC 61300-3-35	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 3-35: Examinations and measurements - Visual inspection of fibre optic connectors and fibre-stub transceivers	EN 61300-3-35	-
IEC 61753-1	2007	Fibre optic interconnecting devices and passive components performance standard -- Part 1: General and guidance for performance standards	EN 61753-1	2007
IEC (series)	61754-	Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces	EN 61754 (series)	-
IEC (series)	61755-	Fibre optic interconnecting devices and passive components -Fibre optic connector optical interfaces	EN 61755 (series)	-
IEC 61755-1	-	Fibre optic interconnecting devices and passive components -Fibre optic connector optical interfaces -- Part 1: Optical interfaces for single mode non-dispersion shifted fibres - General and guidance	EN 61755-1	-
ISO/IEC 24702	-	Information technology - Generic cabling - Industrial premises	-	-
ISO/IEC/TR 29106	-	Information technology - Generic cabling - Introduction to the MICE environmental classification	-	-

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**IEC 61753-1-3**

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# **INTERNATIONAL STANDARD**

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**Fibre optic interconnecting devices and passive components – Performance  
standard –  
Part 1-3: General and guidance for single-mode fibre optic connector and cable  
assembly for industrial environment, Category I**



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**IEC 61753-1-3**

Edition 1.0 2014-05

# **INTERNATIONAL STANDARD**

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**Fibre optic interconnecting devices and passive components – Performance standard –  
Part 1-3: General and guidance for single-mode fibre optic connector and cable assembly for industrial environment, Category I**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**FIBRE OPTIC INTERCONNECTING  
DEVICES AND PASSIVE COMPONENTS –  
PERFORMANCE STANDARD –**
**Part 1-3: General and guidance for single-mode fibre optic connector  
and cable assembly for industrial environment, Category I**
**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 61753-1-3 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

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

FDIS	Report on voting
86B/3752/FDIS	86B/3780/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 61753 series, published under the general title *Fibre optic interconnecting devices and passive components – Performance standard*, 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 – PERFORMANCE STANDARD –**

### **Part 1-3: General and guidance for single-mode fibre optic connector and cable assembly for industrial environment, Category I**

#### **1 Scope**

This part of IEC 61753 defines the minimum initial performance, test and measurement requirements and severities which a connector or cable assembly with single-mode fibres needs to satisfy in order to be categorized as meeting IEC Category I (industrial environment). Category I is an additional environmental category to C, U, O and E already described in IEC 61753-1. Category I is based on the MICE Table described in ISO/IEC 24702.

The performance tests evaluate the product for two basic acceptance criteria: mechanical integrity and optical transmission requirements, by simulating the effects of exposure to the environment in which it will be installed, simulating installation and intervention conditions, and evaluating specified features of the product.

The defined performance test procedures simulate the situation in a mated condition under use in an industrial environment. It is not the intention to simulate the situation:

when being mated or demated;  
during the assembling of the connector;  
during transportation and storage of the connector.

Reliability tests for life time expectations are not covered by this standard.

#### **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 60068-2-60, *Environmental testing – Part 2: Tests – Test Ke: Flowing mixed gas corrosion test*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres*

IEC 61300 (all parts), *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures*

IEC 61300-2-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-1: Tests – Vibration (sinusoidal)*

IEC 61300-2-2, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-2: Tests – Mating durability*

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