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Irish Standard  
I.S. EN 61300-3-6:2009

**Fibre optic interconnecting devices  
and passive components - Basic  
test and measurement procedures  
-- Part 3-6: Examinations and  
measurements - Return loss (IEC  
61300-3-6:2008 (EQV))**

## I.S. EN 61300-3-6:2009

*Incorporating amendments/corrigenda issued since publication:*

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<b>NSAI</b> 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W <b>NSAI.ie</b>	<b>Sales:</b> T +353 1 857 6730 F +353 1 857 6729 W standards.ie	<b>Price Code:</b> I
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English version

**Fibre optic interconnecting devices and passive components -  
Basic test and measurement procedures -  
Part 3-6: Examinations and measurements -  
Return loss  
(IEC 61300-3-6:2008)**

Dispositifs d'interconnexion  
et composants passifs à fibres optiques -  
Méthodes fondamentales d'essais  
et de mesures -  
Partie 3-6: Examens et mesures -  
Affaiblissement de réflexion  
(CEI 61300-3-6:2008)

Lichtwellenleiter -  
Verbindungselemente  
und passive Bauteile -  
Grundlegende Prüf- und Messverfahren -  
Teil 3-6: Untersuchungen und Messungen -  
Rückflussdämpfung  
(IEC 61300-3-6:2008)

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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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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 86B/2762/FDIS, future edition 3 of IEC 61300-3-6, 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 was approved by CENELEC as EN 61300-3-6 on 2009-03-01.

This European Standard supersedes EN 61300-3-6:2003.

The changes with respect to EN 61300-3-6:2003 are to reconsider the constitution of this standard and launch conditions for multimode fibres.

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) 2009-12-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2010-03-01

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 61300-3-6:2008 was approved by CENELEC as a European Standard without any modification.

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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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60793-2	Series	Optical fibres - Part 2: Product specifications	EN 60793-2	Series
IEC 61300-1	- <sup>1)</sup>	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 1: General and guidance	EN 61300-1	2003 <sup>2)</sup>
IEC 61300-3-1	- <sup>1)</sup>	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-1: Examinations and measurements - Visual examination	EN 61300-3-1	2005 <sup>2)</sup>
IEC 61300-3-39	- <sup>1)</sup>	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-39: Examinations and measurements - PC optical connector reference plug selection	EN 61300-3-39	1997 <sup>2)</sup>

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<sup>1)</sup> Undated reference.

<sup>2)</sup> Valid edition at date of issue.

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

#### **Part 3-6: Examinations and measurements – Return loss**

### 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 61300-3-6 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 2003. It constitutes a technical revision. The changes with respect to the previous edition are to reconsider the constitution of the document and launch conditions for multimode fibres.

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

FDIS	Report on voting
86B/2762/FDIS	86B/2792/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 of 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 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.

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

## Part 3-6: Examinations and measurements – Return loss

### 1 Scope

This part of IEC 61300 presents procedures for the measurement of the return loss (RL) of a fibre optic device under test (DUT).

### 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 60793-2 (all parts), *Optical fibres – Product specifications*

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

IEC 61300-3-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-1: Examinations and measurements – Visual examination*

IEC 61300-3-39, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-39: Examinations and measurements – PC optical connector reference plug selection*

### 3 General description

*RL*, as used in this standard, is the ratio of the power ( $P_i$ ) incident on, or entering, the DUT to the total power reflected ( $P_r$ ) by the DUT, expressed in decibels:

$$RL = -10 \times \log \left( \frac{P_r}{P_i} \right) \quad (1)$$

Return loss is a positive number.

Four methods will be presented for measuring optical return loss:

- measurement with an optical continuous wave reflectometer (OCWR) (method 1);
- measurement with an optical time domain reflectometer (OTDR) (method 2);
- measurement with an optical low coherence reflectometer (OLCR) (method 3);
- measurement with an optical frequency domain reflectometer (OFDR) (method 4).

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