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Standards

Irish Standard
I.S. EN 61300-3-2:2009

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 3-2: Examinations and measurements - Polarization dependent loss in a single-mode fibre optic device (IEC 61300-3-2:2009 (EQV))

I.S. EN 61300-3-2:2009

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Údarás um Chaighdeáin Náisiúnta na hÉireann

English version

**Fibre optic interconnecting devices and passive components -
Basic test and measurement procedures -
Part 3-2: Examinations and measurements -
Polarization dependent loss in a single-mode fibre optic device
(IEC 61300-3-2:2009)**

Dispositifs d'interconnexion
et composants passifs à fibres optiques -
Méthodes fondamentales d'essais
et de mesures -
Partie 3-2: Examens et mesures -
Pertes dépendant de la polarisation
dans les dispositifs
à fibres optiques unimodales
(CEI 61300-3-2:2009)

Lichtwellenleiter -
Verbindungselemente
und passive Bauteile -
Grundlegende Prüf- und Messverfahren -
Teil 3-2: Untersuchungen
und Messungen -
Polarisationsabhängiger Verlust
in Einmoden- Lichtwellenleiter-Bauteilen
(IEC 61300-3-2:2009)

This European Standard was approved by CENELEC on 2009-02-01. 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.

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.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: avenue Marnix 17, B - 1000 Brussels

I.S. EN 61300-3-2:2009

EN 61300-3-2:2009

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Foreword

The text of document 86B/2783/FDIS, future edition 3 of IEC 61300-3-2, 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 61300-3-2 on 2009-02-01.

This European Standard supersedes EN 61300-3-2:1999 and EN 61300-3-12:1997.

EN 61300-3-2:2009 includes both the all-states method (EN 61300-3-2:1999) and the Mueller matrix method (EN 61300-3-12:1997).

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) 2009-11-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2010-02-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61300-3-2:2009 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 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 61300-3-29	- ¹⁾	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-29: Examinations and measurements - Measurement techniques for characterising the amplitude of the spectral transfer function of DWDM components	EN 61300-3-29 + corr. November	2006 ²⁾ 2006

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

**Part 3-2: Examination and measurements –
Polarization dependent loss in a single-mode fibre optic device**

FOREWORD

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International Standard IEC 61300-3-2 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 1999. It constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

- This edition includes both the all-states method of the previous edition as well as the Mueller matrix method from IEC 61300-3-12.

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

FDIS	Report on voting
86B/2783/FDIS	86B/2811/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.

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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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.

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

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

Part 3-2: Examination and measurements – Polarization dependent loss in a single-mode fibre optic device

1 Scope

This part of IEC 61300 specifies measurement methods to determine the dependence of loss in a single-mode fibre optic device to changes in polarization. This procedure focuses on measurements with a fixed wavelength source; therefore, this procedure is applicable to devices whose properties at a single wavelength can represent those over the broader wavelength band. Typical examples of such devices are single-mode interconnecting devices and passive components, including connectors, splices, branching devices, attenuators, isolators, and switches. The maximum observed variation in transmission loss is referred to as polarization-dependent-loss (PDL).

This standard applies to broadband devices and not to narrow-band devices like filters and multiplexers. The reader is referred to IEC 61300-3-29 for such measurements.

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 61300-3-29, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-29: Examinations and measurements – Measurement techniques for characterising the amplitude of the spectral transfer function of DWDM components*

3 Measurement methods

Two methods for measuring polarization-dependent-loss are described. The all states method determines the maximum variation in transmission loss by stimulating with a representative set of all possible polarization states including linear, circular, and elliptical. The Mueller matrix method determines the sensitivity using a set of fixed states and applying the Mueller matrix mathematical analysis.

This procedure originally consisted of only one method, but has been updated to incorporate the technique previously described by IEC 61300-3-12¹. That standard will be discontinued.

3.1 All states method

In this method, the PDL is determined by rotating the source polarization over a representative set of all possible polarization states while monitoring the transmission

¹ IEC 61300-3-12, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-12: Examinations and measurements – Polarization dependence of attenuation of a single-mode fibre optic component: Matrix calculation method*

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