



NSAI
Standards

Irish Standard
I.S. EN 60793-1-44:2011

Optical fibres -- Part 1-44:
Measurement methods and test
procedures - Cut-off wavelength (IEC
60793-1-44:2011 (EQV))

I.S. EN 60793-1-44:2011

Incorporating amendments/corrigenda issued since publication:

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English version

**Optical fibres -
Part 1-44: Measurement methods and test procedures -
Cut-off wavelength
(IEC 60793-1-44:2011)**

Fibres optiques -
Partie 1-44: Méthodes de mesure et
procédures d'essai -
Longueur d'onde de coupure
(CEI 60793-1-44:2011)

Lichtwellenleiter -
Messmethoden und Prüfverfahren -
Teil 1-44: Grenzwellenlänge
(IEC 60793-1-44:2011)

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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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CENELEC

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

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I.S. EN 60793-1-44:2011

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Foreword

The text of document 86A/1369/FDIS, future edition 2 of IEC 60793-1-44, prepared by SC 86A, Fibres and cables, of IEC TC 86, Fibre optics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60793-1-44 on 2011-05-25.

This European Standard supersedes EN 60793-1-44:2002.

The main change with respect to EN 60793-1-44:2002 is the withdrawal of Annex D.

Annexes A, B and C form an integral part of EN 60793-1-44:2011.

This standard should be read in conjunction with EN 60793-1-1.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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) 2012-02-25
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2014-05-25

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60793-1-44:2011 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 60793-2-10 | NOTE | Harmonized as EN 60793-2-10. |
| IEC 60793-2-50 | NOTE | Harmonized as EN 60793-2-50. |
| IEC 60793-2-60 | NOTE | Harmonized as EN 60793-2-60. |
-

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 60793-1-1	-	Optical fibres - Part 1-1: Measurement methods and test procedures - General and guidance	EN 60793-1-1	-
IEC 60793-1-40 (mod)	-	Optical fibres - Part 1-40: Measurement methods and test procedures - Attenuation	EN 60793-1-40	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRES –

Part 1-44: Measurement methods and test procedures – Cut-off wavelength

FOREWORD

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International Standard IEC 60793-1-44 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2001. This edition constitutes a technical revision.

The main change with respect to the previous edition is the withdrawal of annex D.

Annexes A, B and C form an integral part of this standard.

This standard should be read in conjunction with IEC 60793-1-1.

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

FDIS	Report on voting
86A/1369/FDIS	86A/1385/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 the IEC 60793-1-4x series, published under the general title *Optical fibres – measurement methods and test procedures*, 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.

OPTICAL FIBRES –

Part 1-44: Measurement methods and test procedures – Cut-off wavelength

1 Scope

This part of IEC 60793 establishes uniform requirements for measuring the cut-off wavelength of single-mode optical fibre, thereby assisting in the inspection of fibres and cables for commercial purposes.

This standard gives the methods for measuring the cut-off wavelength of fibre and cable

There are two methods for measuring cable cut-off wavelength, λ_{CC} :

- Method A: using uncabled fibre;
- Method B: using cabled fibre.

There is only one method (Method C) for measuring fibre cut-off wavelength, λ_C .

The test method in this standard describes procedures for determining the cut-off wavelength of a sample fibre in either an uncabled condition (λ_C) or in a cable (λ_{CC}). Three default configurations are given here: any different configuration will be given in a detail specification. These procedures apply to all category B and C fibre types (see Normative references).

All methods require a reference measurement. There are two reference-scan techniques, either or both of which may be used with all methods:

- bend-reference technique;
- multimode-reference technique using category A1 multimode fibre.

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 60793-1-1, *Optical fibres – Part 1-1: Measurement methods and test procedures – General and guidance*

IEC 60793-1-40, *Optical fibres – Part 1-40: Measurement methods and test procedures – Attenuation*

3 Background

Theoretical cut-off wavelength is the shortest wavelength at which only the fundamental mode can propagate in a single-mode fibre, as computed from the refractive index profile of the fibre.

In optical fibres, the change from multimode to single-mode behaviour does not occur at an isolated wavelength, but rather smoothly over a range of wavelengths. For purposes of

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