This is a free page sample. Access the full version online.

NSAI Standards

Irish Standard
I.S. EN 60794-2-51:2014

Optical fibre cables - Part 2-51: Indoor cables - Detail specification for simplex and duplex cables for use in cords for controlled environment

© CENELEC 2014 No copying without NSAI permission except as permitted by copyright law.

This is a free page sample. Access the full version online.

I.S. EN 60794-2-51:2014

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:	*Published:*
EN 60794-2-51:2014	2014-07-25

This document was published under the authority of the NSAI and comes into effect on:	ICS number:
2014-08-27	NOTE: If blank see CEN/CENELEC cover page

NSAI	T +353 1 807 3800	Sales:
1 Swift Square,	F +353 1 807 3838	T +353 1 857 6730
Northwood, Santry	E standards@nsai.ie	F +353 1 857 6729
Dublin 9	W NSAI.ie	W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

This is a free page sample. Access the full version online.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60794-2-51

July 2014

ICS 33.180.10

English Version

Optical fibre cables - Part 2-51: Indoor cables - Detail specification for simplex and duplex cables for use in cords for controlled environment (IEC 60794-2-51:2014)

Câbles à fibres optiques - Partie 2-51: Câbles intérieurs - Spécification particulière pour les câbles simplex et duplex pour usage en cordons en environnement contrôlé (CEI 60794-2-51:2014)

Lichtwellenleiterkabel - Teil 2-51: LWL-Innenkabel - Bauartspezifikation für Simplex- und Duplexkabel zur Verwendung in Kabeln für kontrollierte Umgebungsbedingungen (IEC 60794-2-51:2014)

This European Standard was approved by CENELEC on 2014-07-15. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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

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

© 2014 CENELEC All rights of exploitation in any form and by any means reserved worldwide for CENELEC Members.

Ref. No. EN 60794-2-51:2014 E

This is a free page sample. Access the full version online.

Foreword

The text of document 86A/1599/FDIS, future edition 1 of IEC 60794-2-51, prepared by SC 86A "Fibres and cables" of IEC/TC 86 "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60794-2-51:2014.

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)	2015-04-15
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-07-15

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

Endorsement notice

The text of the International Standard IEC 60794-2-51:2014 was approved by CENELEC as a European Standard without any modification.

This is a free page sample. Access the full version online.

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.

Publication	Year	Title	EN/HD	Year
IEC 60793-2-10	2011	Optical fibres -- Part 2-10: Product specifications - Sectional specification for category A1 multimode fibres	EN 60793-2-10	2011
IEC 60793-2-50	2012	Optical fibres -- Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN 60793-2-50	2013
IEC 60794-1-1	-	Optical fibre cables -- Part 1-1: Generic specification - General	EN 60794-1-1	-
IEC 60794-1-2	-	Optical fibre cables -- Part 1-2: Generic specification - Cross reference table for optical cable test procedures	EN 60794-1-2	-
IEC 60794-1-22	-	Optical fibre cables -- Part 1-22: Generic specification - Basic optical cable test procedures - Environmental test methods	EN 60794-1-22	-
IEC 60794-2-50	2008	Optical fibre cables -- Part 2-50: Indoor cables - Family specification for simplex and duplex cables for use in terminated cable assemblies	EN 60794-2-50	2008
IEC 60811-201	-	Electric and optical fibre cables - Test methods for non-metallic materials -- Part 201: General tests - Measurement of insulation thickness	EN 60811-201	-
IEC 61753-1	-	Fibre optic interconnecting devices and passive components performance standard -- Part 1: General and guidance for performance standards	EN 61753-1	-
IEC/TR 62225	-	Guidance on terms for connectors and mechanical structures in electronic equipment	-	-

This is a free page sample. Access the full version online.

This page is intentionally left blank

This is a free page sample. Access the full version online.

IEC 60794-2-51

Edition 1.0 2014-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Optical fibre cables –
Part 2-51: Indoor cables – Detail specification for simplex and duplex cables for use in cords for controlled environment

Câbles à fibres optiques –
Partie 2-51: Câbles intérieurs – Spécification particulière pour les câbles simplex et duplex pour usage en cordons en environnement contrôlé

IEC 60794-2-51:2014-06(en-fr)

This is a free page sample. Access the full version online.

THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2014 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue
The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org
The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 14 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
More than 55 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue
Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,…). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 14 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary
Plus de 55 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

This is a free page sample. Access the full version online.

IEC 60794-2-51

Edition 1.0 2014-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Optical fibre cables –
Part 2-51: Indoor cables – Detail specification for simplex and duplex cables for use in cords for controlled environment

Câbles à fibres optiques –
Partie 2-51: Câbles intérieurs – Spécification particulière pour les câbles simplex et duplex pour usage en cordons en environnement contrôlé

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX
L

ICS 33.180.10

ISBN 978-2-8322-1636-1

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

This is a free page sample. Access the full version online.

CONTENTS

FOREWORD ... 3
1 Scope ... 5
2 Normative references ... 5
3 Terms and definitions ... 5
4 General requirements ... 6
5 Particular requirements ... 6
5.1 Wavelength ... 6
5.2 No change in attenuation ... 6
5.3 Buffer strippability ... 6
5.4 Dimensional requirements ... 7
5.4.1 Buffer diameter ... 7
5.4.2 Cable diameter ... 7
5.4.3 Sheath thickness ... 8
5.5 Mechanical requirements ... 8
5.5.1 General ... 8
5.5.2 Tensile performance ... 8
5.5.3 Crush ... 8
5.5.4 Impact ... 9
5.5.5 Repeated bending ... 9
5.5.6 Bend ... 9
5.5.7 Buffered fibre movement in compression ... 10
5.6 Environmental requirements ... 10
5.6.1 Temperature cycling ... 10
5.6.2 Sheath shrinkage ... 10
5.7 Transmission requirements – Cabled fibre attenuation ... 11
5.8 Fire performance ... 11

Table 1 – No change in attenuation ... 6
Table 2 – Strippability requirements ... 7
Table 3 – Buffer diameter ... 7
Table 4 – Simplex cable diameter ... 7
Table 5 – Duplex round cable diameter ... 7
Table 6 – Duplex zip-cord cable dimension ... 7
Table 7 – Sheath shrinkage grades ... 11
Table 8 – Cabled multimode fibre maximum attenuation coefficient (dB/km) ... 11
Table 9 – Cabled singlemode fibre maximum attenuation coefficient (dB/km) ... 11

This is a free page sample. Access the full version online.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRE CABLES –

Part 2-51: Indoor cables – Detail specification for simplex and duplex cables for use in cords for controlled environment

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.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60794-2-51 has been prepared by subcommittee 86A, Fibres and cables,of IEC technical committee 86: Fibre optics.

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

FDIS	Report on voting
86A/1599/FDIS	86A/1607/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 60794 series, published under the general title *Optical fibre cables*, can be found on the IEC website.

This is a free page sample. Access the full version online.

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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

This is a free page sample. Access the full version online.

OPTICAL FIBRE CABLES –

Part 2-51: Indoor cables – Detail specification for simplex and duplex cables for use in cords for controlled environment

1 Scope

This part of IEC 60794 is a detail specification. It gives detailed requirements for cables to be used in cords which are intended for use in a category C environment, according to IEC 61753-1. They are characterized with temperature range between –10 °C and +60 °C.

The fibre requirements for this specification are defined in IEC 60793-2-10 for multimode fibres and IEC 60793-2-50 for single-mode fibres.

Some deviation to family specification IEC 60794-2-50 requirements is allowed in certain clauses of this specification.

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 60793-2-10:2011, *Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres*

IEC 60793-2-50:2012, *Optical fibres – Part 2-50: Product specifications – Sectional specification for category B single-mode fibre*

IEC 60794-1-1, *Optical fibre cables – Part 1-1: Generic specification – General*

IEC 60794-1-2, *Optical fibre cables – Part 1-2: Generic specification – Crsos reference table for optical cable test procedures*

IEC 60794-1-22, *Optical fibre cables – Part 1-22: Generic specification – Basic optical cable test procedures – Environmental test methods*

IEC 60794-2-50:2008, *Optical fibre cables – Part 2-50: Indoor cables – Family specification for simplex and duplex cables for use in terminated cable assemblies*

IEC 60811-201, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of insulation thickness*

IEC 61753-1, *Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards*

IEC TR 62222, *Fire performance of communication cables installed in buildings*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
reinforced cable
cables containing one or two buffered fibres with further protection provided by non metallic strength members and surrounded by a sheath of suitable material

SAI GLOBAL

This is a free preview. Purchase the entire publication at the link below:

Product Page

Looking for additional Standards? Visit Intertek Inform Infostore

Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation