



SLOVENSKI STANDARD SIST EN 60794-2-10:2011

01-december-2011

Nadomešča:

SIST EN 60794-2-10:2004

Optični kabli - 2-10. del: Notranji kabli - Rodovna specifikacija za kable simpleks in dupleks (IEC 60794-2-10:2011)

Optical fibre cables - Part 2-10: Indoor optical fibre cables - Family specification for simplex and duplex cables (IEC 60794-2-10:2011)

Lichtwellenleiterkabel - Teil 2-10: LWL-Innenkabel - Familienspezifikation für Simplex- und Duplexkabel (IEC 60794-2-10:2011)

Câbles à fibres optiques - Partie 2-10: Câbles intérieurs à fibres optiques - Spécification de famille pour les câbles simplex et duplex (CEI 60794-2-10:2011)

Ta slovenski standard je istoveten z: EN 60794-2-10:2011

ICS:

33.180.10 (Optična) vlakna in kabli Fibres and cables

SIST EN 60794-2-10:2011

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 60794-2-10:2011](#)

<https://standards.iteh.ai/catalog/standards/sist/dd295820-32b1-46c3-aca3-938844d961e7/sist-en-60794-2-10-2011>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60794-2-10

October 2011

ICS 33.180.10

Supersedes EN 60794-2-10:2003

English version

**Optical fibre cables -
Part 2-10: Indoor optical fibre cables -
Family specification for simplex and duplex cables
(IEC 60794-2-10:2011)**

Câbles à fibres optiques -
Partie 2-10: Câbles intérieurs à fibres
optiques -
Spécification de famille pour les câbles
simplex et duplex
(CEI 60794-2-10:2011)

Lichtwellenleiterkabel -
Teil 2-10: LWL-Innenkabel -
Familienspezifikation für Simplex- und
Duplexkabel
(IEC 60794-2-10:2011)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

This European Standard was approved by CENELEC on 2011-09-14. 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, 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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 86A/1396/FDIS, future edition 2 of IEC 60794-2-10, 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 60794-2-10:2011.

This document supersedes EN 60794-2-10:2003.

The main changes with respect to EN 60794-2-10:2003 are as follows:

- A new clause has been introduced: Clause 4 – Dimensions.
- Test conditions and requirements have been made more accurate.
- The new Subclause 5.5 has been added to give useful figures.

EN 60794-2-10:2011 is to be used in conjunction with EN 60794-1-1, EN 60794-1-2 and EN 60794-2.

The following dates are fixed:

- latest date by which the document has (dop) 2012-06-14 to be implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national (dow) 2014-09-14 standards conflicting with the document have to be withdrawn

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 60794-2-10:2011 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 60654-4	NOTE	Harmonized as EN 60654-4.
IEC 60721-1	NOTE	Harmonized as EN 60721-1.
IEC 60721-3-3	NOTE	Harmonized as EN 60721-3-3.
IEC 61000-6-2	NOTE	Harmonized as EN 61000-6-2.
IEC 61918	NOTE	Harmonized as EN 61918.

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 60304	-	Standard colours for insulation for low-frequency cables and wires	HD 402 S2	-
IEC 60793-1-20	-	Optical fibres - Part 1-20: Measurement methods and test procedures - Fibre geometry	EN 60793-1-20	-
IEC 60793-1-21	-	Optical fibres - Part 1-21: Measurement methods and test procedures - Coating geometry	EN 60793-1-21	-
IEC 60793-1-40	-	Optical fibres - Part 1-40: Measurement methods and test procedures - Attenuation	EN 60793-1-40	-
IEC 60793-1-44	-	Optical fibres - Part 1-44: Measurement methods and test procedures - Cut-off wavelength	EN 60793-1-44	-
IEC 60793-2	-	Optical fibres - Part 2: Product specifications - General	EN 60793-2	-
IEC 60793-2-10	-	Optical fibres - Part 2-10: Product specifications - Sectional specification for category A1 multimode fibres	EN 60793-2-10	-
IEC 60793-2-50	-	Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN 60793-2-50	-
IEC 60794-1-1	2001	Optical fibre cables - Part 1-1: Generic specification - General	EN 60794-1-1	2002
IEC 60794-1-2	2003	Optical fibre cables - Part 1-2: Generic specification - Basic optical cable test procedures	EN 60794-1-2	2003
IEC 60794-2	-	Optical fibre cables - Part 2: Indoor cables - Sectional specification	EN 60794-2	-
IEC 60811-1-1	-	Insulating and sheathing materials of electric and optical cables - Common test methods - Part 1-1: General application - Measurement of thickness and overall dimensions - Tests for determining the mechanical properties	EN 60811-1-1	-

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 60794-2-10:2011](#)

<https://standards.iteh.ai/catalog/standards/sist/dd295820-32b1-46c3-aca3-938844d961e7/sist-en-60794-2-10-2011>



IEC 60794-2-10

Edition 2.0 2011-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Optical fibre cables –
Part 2-10: Indoor optical fibre cables – Family specification for simplex and duplex cables

Câbles à fibres optiques –
Partie 2-10: Câbles intérieurs à fibres optiques – Spécification de famille pour les câbles simplex et duplex

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

S

ICS 33.180.10

ISBN 978-2-88912-613-2

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references	6
3 Construction.....	7
3.1 General.....	7
3.2 Optical fibres and primary coating	7
3.3 Buffer.....	7
3.4 Ruggedised fibre.....	7
3.5 Slotted core.....	7
3.6 Tube.....	8
3.7 Stranded loose tube	8
3.8 Ribbon structure.....	8
3.9 Strength and anti-buckling members	8
3.10 Ripcord	8
3.11 Sheath	8
3.12 Sheath marking	8
3.13 Identification.....	8
3.14 Examples of cable constructions	8
4 Dimensions – Optical fibres and primary coating	8
5 Tests.....	9
5.1 General.....	9
5.2 Dimensions.....	9
5.3 Mechanical requirements.....	9
5.3.1 Tensile performance.....	9
5.3.2 Crush	9
5.3.3 Impact.....	10
5.3.4 Bend.....	10
5.3.5 Repeated bending	10
5.3.6 Bending under tension.....	10
5.3.7 Bending at low temperature.....	10
5.3.8 Flexing	10
5.3.9 Torsion.....	10
5.3.10 Kink.....	10
5.4 Environmental requirements.....	11
5.4.1 Temperature cycling	11
5.5 Transmission requirements	11
5.5.1 Single-mode optical fibres	11
5.5.2 Single-mode dispersion unshifted (B1.1) optical fibre	12
5.5.3 Single-mode dispersion unshifted (B1.3) optical fibre	12
5.5.4 Single-mode (B6_a) optical fibre.....	12
5.5.5 Single-mode (B6_b) optical fibre.....	12
5.5.6 Multimode optical fibres.....	13
5.5.7 Multimode (A1a and A1b) optical fibres	13
5.6 Fire performance.....	13
Annex A (informative) Examples of some types of cable construction	14

Annex B (informative) Family specification of indoor cables – simplex and duplex cables	17
Bibliography	20
Figure A.1 – Simplex loose non-buffered fibre cable	14
Figure A.2 – Simplex ruggedised fibre cable	14
Figure A.3 – Duplex loose non-buffered fibre cable	14
Figure A.4 – Duplex ruggedised fibre cable	15
Figure A.5 – Duplex ruggedised fibre zip cord	15
Figure A.6 – Duplex flat cable	15
Figure A.7 – Duplex round cable	16
Figure A.8 – Simplex and duplex rectangular cables	16
Table 1 – Dimensions of buffered fibres	7
Table 2 – Temperature cycling conditions	11
Table 3 – Common single-mode optical fibre requirements	11
Table 4 – Cabled fibre attenuation requirements for B1.1 optical fibre	12
Table 5 – Cabled fibre attenuation requirements for B1.3 optical fibre	12
Table 6 – Cabled fibre attenuation requirements for B6_a optical fibre	12
Table 7 – Cabled fibre attenuation requirements for B6_b optical fibre	12
Table 8 – Common multimode optical fibre requirements	13
Table 9 – Cabled fibre attenuation requirements for A1a and A1b optical fibres	13
Table B.1 – Cable description	17
Table B.2 – Cable element	18
Table B.3 – Cable construction	18
Table B.4 – Installation and operating conditions	19
Table B.5 – Tests applicable	19

INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRE CABLES –

**Part 2-10: Indoor optical fibre cables –
Family specification for simplex and duplex cables**

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 60794-2-10 has been prepared by sub-committee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2003. It constitutes a technical revision.

The main changes with respect to the previous edition are as follows:

- A new clause has been introduced: Clause 4 – Dimensions.
- Test conditions and requirements have been made more accurate.
- The new Subclause 5.5 has been added to give useful figures.

This standard is to be used in conjunction with IEC 60794-1-1:2008, IEC 60794-1-2:2007 and IEC 60794-2.

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

FDIS	Report on voting
86A/1396/FDIS	86A/1412/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.

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.

[SIST EN 60794-2-10:2011](https://standards.iteh.ai/catalog/standards/sist/dd295820-32b1-46c3-aca3-938844d961e7/sist-en-60794-2-10-2011)

<https://standards.iteh.ai/catalog/standards/sist/dd295820-32b1-46c3-aca3-938844d961e7/sist-en-60794-2-10-2011>