



# SLOVENSKI STANDARD SIST EN 60794-2-42:2008

01-september-2008

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Optical fibre cables - Part 2-42: Indoor optical fibre cables - Product specification for simplex and duplex cables with A4 fibres (IEC 60794-2-42:2008)

Lichtwellenleiterkabel - Teil 2-42: LWL-Innenkabel - Produktspezifikation für Simplex- und Duplexkabel mit Fasern der Kategorie A4 (IEC 60794-2-42:2008)

Câbles à fibres optiques - Partie 2-42 - Câbles intérieurs à fibres optiques - Spécification de produit pour les câbles simplex et duplex munis de fibres A4 (CEI 60794-2-42:2008)

Ta slovenski standard je istoveten z: EN 60794-2-42:2008

## ICS:

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60794-2-42**

June 2008

ICS 33.180.10

English version

**Optical fibre cables -  
Part 2-42: Indoor optical fibre cables -  
Product specification for simplex and duplex cables with A4 fibres  
(IEC 60794-2-42:2008)**

Câbles à fibres optiques -  
Partie 2-42: Câbles intérieurs  
à fibres optiques -  
Spécification de produit pour les câbles  
simplex et duplex munis de fibres A4  
(CEI 60794-2-42:2008)

Lichtwellenleiterkabel -  
Teil 2-42: LWL-Innenkabel -  
Produktspezifikation für Simplex- und  
Duplexkabel mit Fasern der Kategorie A4  
(IEC 60794-2-42:2008)

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This European Standard was approved by CENELEC on 2008-05-01. 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: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of document 86A/1126/CDV, future edition 1 of IEC 60794-2-42, prepared by SC 86A, Fibres and cables, of IEC TC 86, Fibre optics, was submitted to the IEC-CENELEC parallel Unique Acceptance Procedure and was approved by CENELEC as EN 60794-2-42 on 2008-05-01.

This standard is to be used in conjunction with EN 60794-1-1, EN 60794-1-2 and EN 60794-2.

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) 2009-02-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2011-05-01

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 60794-2-42:2008 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 60793-1-40	NOTE	Harmonized as EN 60793-1-40:2003 (modified).
IEC 60793-1-41	NOTE	Harmonized as EN 60793-1-41:2003 (not modified).
IEC 60793-1-50	NOTE	Harmonized as EN 60793-1-50:2002 (not modified).
IEC 60793-1-51	NOTE	Harmonized as EN 60793-1-51:2002 (not modified).
IEC 60793-2-52	NOTE	Harmonized as EN 60793-1-52:2002 (not modified).

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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 1 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Where a standard cited below belongs to the EN 50000 series, the European Standard applies instead of the relevant International Standard.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60189-1	- <sup>1)</sup>	Low-frequency cables and wires with PVC insulation and PVC sheath - Part 1: General test and measuring methods	-	-
IEC 60654-4	- <sup>1)</sup>	Operating conditions for industrial-process measurement and control equipment - Part 4: Corrosive and erosive influences	EN 60654-4	1997 <sup>2)</sup>
IEC 60721-1	- <sup>1)</sup>	Classification of environmental conditions - Part 1: Environmental parameters and their severities	EN 60721-1	1995 <sup>2)</sup>
IEC 60721-3-3	- <sup>1)</sup>	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 3: Stationary use at weather protected locations	EN 60721-3-3	1995 <sup>2)</sup>
IEC 60793-1-20	- <sup>1)</sup>	Optical fibres - Part 1-20: Measurement methods and test procedures - Fibre geometry	EN 60793-1-20	2002 <sup>2)</sup>
IEC 60793-1-21	- <sup>1)</sup>	Optical fibres - Part 1-21: Measurement methods and test procedures - Coating geometry	EN 60793-1-21	2002 <sup>2)</sup>
IEC 60793-2-40	- <sup>1)</sup>	Optical fibres - Part 2-40: Product specifications - Sectional specification for category A4 multimode fibres	EN 60793-2-40	2006 <sup>2)</sup>
IEC 60794-1-1	- <sup>1)</sup>	Optical fibre cables - Part 1-1: Generic specification - General	EN 60794-1-1	2002 <sup>2)</sup>
IEC 60794-1-2	- <sup>1)</sup>	Optical fibre cables - Part 1-2: Generic specification - Basic optical cable test procedures	EN 60794-1-2	2003 <sup>2)</sup>
IEC 60794-2	- <sup>1)</sup>	Optical fibre cables - Part 2: Indoor cables - Sectional specification	EN 60794-2	2003 <sup>2)</sup>
IEC 60811-1-1	- <sup>1)</sup>	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	1995 <sup>2)</sup>

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

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60811-1-4	1985	Insulating and sheathing materials of electric and optical cables - Common test methods - Part 1-4: General application - Tests at low temperature	EN 60811-1-4 <sup>3)</sup>	1995
IEC/TS 61000-2-5	- <sup>1)</sup>	Electromagnetic compatibility (EMC) - Part 2: Environment – Section 5: Classification of electromagnetic environments - Basic EMC publication	-	-
IEC 61000-6-2	- <sup>1)</sup>	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments	EN 61000-6-2 + corr. September	2005 <sup>2)</sup> 2005
IEC 61326	Series	Electrical equipment for measurement, control and laboratory use - EMC requirements	EN 61326	Series
ISO/IEC 11801	- <sup>1)</sup>	Information technology - Generic cabling for customer premises	EN 50173-1 <sup>4)</sup> and EN 50173-2 <sup>5)</sup>	- <sup>1)</sup>
ISO/IEC 24702	- <sup>1)</sup>	Information technology - Generic cabling - Industrial premises	EN 50173-1 <sup>4)</sup> and EN 50173-3 <sup>6)</sup>	- <sup>1)</sup>

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<sup>3)</sup> EN 60811-1-4 includes A1:2001 to IEC 60811-1-4 + corr. May 1986.

<sup>4)</sup> The title of EN 50173-1 is: *Information technology – Generic cabling systems – Part 1: General requirements.*

<sup>5)</sup> The title of EN 50173-2 is: *Information technology – Generic cabling systems – Part 2: Office premises.*

<sup>6)</sup> The title of EN 50173-3 is: *Information technology – Generic cabling systems – Part 3: Industrial premises.*



# INTERNATIONAL STANDARD

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**Optical fibre cables –**  
**Part 2-42: Indoor optical fibre cables – Product specification for simplex and duplex cables with A4 fibres**

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INTERNATIONAL  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## OPTICAL FIBRE CABLES –

**Part 2-42: Indoor optical fibre cables –  
Product specification for simplex and duplex cables with A4 fibres**

## 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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- 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 60794-2-42 has been prepared by sub-committee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

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

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

CDV	Report on voting
86A/1126/CDV	86A/1155/RVC

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 blank detail specification is provided in Annex B.

A list of all parts of the 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 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 publication may be issued at a later date.

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## OPTICAL FIBRE CABLES –

### Part 2-42: Indoor optical fibre cables – Product specification for simplex and duplex cables with A4 fibres

#### 1 Scope

This part of IEC 60794 covers simplex and duplex optical fibre cables containing A4 fibres for indoor use. The requirements of the sectional specification IEC 60794-2 are applicable to cables covered by this standard.

#### 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 60189-1: *Low-frequency cables and wires with PVC insulation and PVC sheath – Part 1: General test and measuring methods*

IEC 60654-4, *Operating conditions for industrial-process measurement and control equipment – Part 4: Corrosive and erosive influences*

IEC 60721-1, *Classification of environmental conditions – Part 1: Environmental parameters and their severities* <https://standards.iteh.ai/catalog/standards/sist/672242fd-9b0f-4adb-9441-6e806996af5a/sist-en-60794-2-42-2008>

IEC 60721-3-3, *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 3: Stationary use at weather protected locations*

IEC 60793-1-20: *Optical fibres – Part 1-20: Measurement methods and test procedures – Fibre geometry*

IEC 60793-1-21: *Optical fibres – Part 1-21: Measurement methods and test procedures – Coating geometry*

IEC 60793-2-40, *Optical fibres – Part 2-40: Product specifications – Sectional specification for category A4 multimode fibres*

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 – Basic optical cable test procedures*

IEC 60794-2: *Optical fibre cables – Part 2: Indoor cables – Sectional specification*

IEC 60811-1-1, *Common test methods for insulating and sheathing materials of electric cables and optical cables – Part 1-1: Methods for general application – Measurement of thickness and overall dimensions – Tests for determining the mechanical properties*

IEC 60811-1-4:1985, *Common test methods for insulating and sheathing materials of electric cables – Part 1: Methods for general application – Section 4: Tests at low temperature*

IEC 61000-2-5, *Electromagnetic compatibility (EMC) – Part 2: Environment – Section 5: Classification of electromagnetic environments – Basic EMC publication*

IEC 61000-6-2, *Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments*

IEC 61326 (all parts), *Electrical equipment for measurement, control and laboratory use – EMC*

ISO/IEC 11801: *Information technology – Generic cabling for customer premises*

ISO/IEC 24702: *Information technology – Generic cabling – Industrial premises*

### 3 Construction

#### 3.1 General

In addition to the constructional requirements in IEC 60794-2, the following considerations apply to simplex and duplex indoor cables.

The cable shall be designed and manufactured for an expected operating lifetime of at least 15 years. In this context, the attenuation of the installed cable at the operational wavelength(s) shall not exceed values agreed between customer and supplier. The materials in the cable shall not present a health hazard within its intended use.

There shall be no fibre splice in a delivery length unless otherwise agreed by customer and supplier.

[SIST EN 60794-2-42:2008](https://standards.iteh.ai/catalog/standards/sist/672242fd-9b0f-4adb-9441-6e806996af5a/sist-en-60794-2-42-2008)

It shall be possible to identify each individual fibre throughout the length of the cable.

#### 3.2 Optical fibres

Multimode category A4a through A4g optical fibres shall be used that meet the requirements of IEC 60793-2-40.

#### 3.3 Buffer

The buffer, if any, shall consist of one or more layers of inert material. For tight buffer, the buffer shall be easily removable in one operation over a length of 15 mm to 25 mm, depending on customer requirements. For semi-tight buffers, the buffer shall be easily removable over a length of 0,2 m to 2,0 m.

#### 3.4 Ruggedized fibre

Further protection can be provided to buffered fibres by surrounding one or two with non-metallic strength members within a sheath of suitable material.

#### 3.5 Tube

One or two identified primary coated or buffered fibres may be packaged (loosely or not) in a tube construction, which may be filled. The tube may be reinforced with a composite wall.

If required, the suitability of the tube shall be determined by an evaluation of its kink resistance in accordance with IEC 60794-1-2, Method G7.