

**SLOVENSKI  
STANDARD**

**SIST EN 60794-1-1:2002**

prva izdaja  
september 2002

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Optical fibre cables - Part 1-1: Generic specification - General (IEC 60794-1-1:2001)

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ICS 33.180.10

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EUROPEAN STANDARD

**EN 60794-1-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2002

ICS 33.180.10

Supersedes EN 60794-1-1:1999 + A1:2001  
Partly supersedes EN 187000:1992

English version

**Optical fibre cables**  
**Part 1-1: Generic specification –**  
**General**  
(IEC 60794-1-1:2001)

Câbles à fibres optiques  
Partie 1-1: Spécification générique -  
Généralités  
(CEI 60794-1-1:2001)

Lichtwellenleiterkabel  
Teil 1-1: Fachgrundspezifikation -  
Allgemeines  
(IEC 60794-1-1:2001)

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This European Standard was approved by CENELEC on 2001-12-04. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and 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/683/FDIS, future edition 2 of IEC 60794-1-1, 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 60794-1-1 on 2001-12-04.

This European Standard supersedes EN 60794-1-1:1999 + A1:2001.

This European Standard, together with EN 60794-1-2:1999, supersedes EN 187000:1992.

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) 2002-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2004-12-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annex ZA is normative and annexes A, B and C are informative.

Annex ZA has been added by CENELEC.

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**Endorsement notice**

The text of the International Standard IEC 60794-1-1:2001 was approved by CENELEC as a European Standard without any modification.

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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 60189-1	1986	Low-frequency cables and wires with PVC insulation and PVC sheath Part 1: General test and measuring methods	-	-
IEC 60331-11	1999	Tests for electric cables under fire conditions - Circuit integrity Part 11: Apparatus - Fire alone at a flame temperature of at least 750 °C	-	-
IEC 60331-21	1999	Part 21: Procedures and requirements - Cables of rated voltage up to and including 0,6/1,0 kV	-	-
IEC 60332-1	1993	Tests on electric cables under fire conditions Part 1: Test on a single vertical insulated wire or cable	-	-
IEC 60332-3	1992	Part 3: Tests on bunched wires or cables	HD 405.3 S1	1993
IEC 60754-1	1994	Test on gases evolved during combustion of materials from cables Part 1: Determination of the amount of halogen acid gas	-	-
IEC 60754-2 (mod)	1991	Test on gases evolved during combustion of materials from cables - Determination of degree of acidity (corrosivity) of gases by measuring pH and conductivity	HD 602 S1 <sup>1)</sup>	1992
IEC 60793-1-1	1995	Optical fibres Part 1: Generic specification -- Section 1: General	-	-

<sup>1)</sup> HD 602 S1 is superseded by EN 50267-1:1998 and EN 50267-2-3:1998.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60793-1-4	1995	Optical fibres Part 1: Generic specification -- Section 4: Measuring methods for transmission and optical characteristics	-	-
IEC 60793-1-20	2001	Optical fibres Part 1-20: Measurement methods and test procedures - Fibre geometry	EN 60793-1-20	2002
IEC 60793-1-21	2001	Optical fibres Part 1-21: Measurement methods and test procedures - Coating geometry	EN 60793-1-21	2002
IEC 60793-1-22	2001	Optical fibres Part 1-22: Measurement methods and test procedures - Length measurement	EN 60793-1-22	2002
IEC 60793-1-40	2001	Optical fibres Part 1-40: Measurement methods and test procedures – Attenuation	EN 60793-1-40	- 2)
IEC 60793-1-41	2001	Optical fibres Part 1-41: Measurement methods and test procedures – Bandwidth	EN 60793-1-41	2002
IEC 60793-1-42	2001	Optical fibres Part 1-42: Measurement methods and test procedures - Chromatic dispersion	EN 60793-1-42	2002
IEC 60793-1-43	2001	Optical fibres Part 1-43: Measurement methods and test procedures - Numerical aperture	EN 60793-1-43	2002
IEC 60793-1-44	2001	Optical fibres Part 1-44: Measurement methods and test procedures - Cut-off wavelength	EN 60793-1-44	2002
IEC 60793-1-45	2001	Optical fibres Part 1-45: Measurement methods and test procedures - Mode field diameter	EN 60793-1-45	- 2)
IEC 60793-1-46	2001	Optical fibres Part 1-46: Measurement methods and test procedures - Monitoring of changes in optical transmittance	EN 60973-1-46	2002
IEC 60793-2	1998	Part 2: Product specifications	-	-
IEC 60794-1-2	1999	Optical fibre cables Part 1-2: Generic specification - Basic optical cable test procedures	EN 60794-1-2	1999

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2) To be published.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60811-1-1	1993	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
IEC 60885-1	1987	Electrical test methods for electric cables Part 1 : Electrical tests for cables, cords and wires for voltages up to and including 450/750 V	-	-
IEC 61034-1 <sup>3)</sup>	1997	Measurement of smoke density of cables burning under defined conditions Part 1: Test apparatus	-	-
IEC 61034-2 <sup>4)</sup>	1997	Part 2: Test procedure and requirements	-	-

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<sup>3)</sup> EN 50268-1:1999, which is related to IEC 61034-1:1997, applies.

<sup>4)</sup> EN 50268-2:1999, which is related to IEC 61034-2:1997, applies.

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Second edition  
2001-07

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Câbles à fibres optiques –

Partie 1-1:  
Spécification générique – Généralités

iTeh STANDARD PREVIEW  
Optical fibre cables –  
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Part 1-1:  
Generic specification – General

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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Pour prix, voir catalogue en vigueur  
For price, see current catalogue

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## OPTICAL FIBRE CABLES –

## Part 1-1: Generic specification – General

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60794-1-1 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 1999, and constitutes a technical revision.

This standard shall be used in conjunction with IEC 60794-1-2.

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

FDIS	Report on voting
86A/683/FDIS	86A/715/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 3.

Informative annexes A “Guide for optical fibre cables for short distance links” and B “Guide to the procurement of optical fibre cables” existing in Edition 1 are deleted in Edition 2. In accordance with IEC status, informative annexes C “Guide to the installation of optical fibre cables”, D “Guide to hydrogen effects in optical fibre cables” are renamed A and B, then informative annex E “Guide to specific defined application of cabled fibre attenuation” is named C.

Annexes A, B and C are for information only.

IEC 60794 consists of the following parts, under the general title: *Optical fibre cables*:

Part 1-1: Generic specification – General

Part 1-2: Generic specification – Basic optical cable test procedures

Part 2: Product specification (internal cable)

Part 3: Sectional specification – External cables

Part 4: Overhead cables <sup>1)</sup>

The committee has decided that the contents of this publication will remain unchanged until 2005. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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<sup>1)</sup> Under consideration.

## OPTICAL FIBRE CABLES –

### Part 1-1: Generic specification – General

#### 1 Scope

This part of IEC 60794 applies to optical fibre cables for use with telecommunication equipment and devices employing similar techniques and to cables having a combination of both optical fibres and electrical conductors.

The object of this standard is to establish uniform generic requirements for the geometrical, transmission, material, mechanical, ageing (environmental exposure) and climatic properties of optical fibre cables, and electrical requirements, where appropriate.

#### 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60794. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60794 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60189-1:1986, *Low-frequency cables and wires with PVC insulation and PVC sheath – Part 1: General test and measuring methods*

IEC 60331-11:1999, *Tests for electric cables under fire conditions – Circuit integrity – Part 11: Apparatus – Fire alone at a flame temperature of at least 750 °C*

IEC 60331-21:1999, *Tests for electric cables under fire conditions – Circuit integrity – Part 21: Procedures and requirements – Cables of rated voltage up to and including 0,6/1,0 kV*

IEC 60332-1:1993, *Tests on electric cables under fire conditions – Part 1: Test on a single vertical insulated wire or cable*

IEC 60332-3:1992, *Tests on electric cables under fire conditions – Part 3: Tests on bunched wires or cables*

IEC 60754-1:1994, *Test on gases evolved during combustion of materials from cables – Part 1: Determination of the amount of halogen acid gas*

IEC 60754-2:1991, *Test on gases evolved during combustion of electric cables – Part 2: Determination of degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity*

IEC 60793-1-1:1995, *Optical fibres – Part 1: Generic specification – Section 1: General*

IEC 60793-1-4:1995, *Optical fibres – Part 1: Generic specification – Section 4: Measuring methods for transmission and optical characteristics*