



**SLOVENSKI STANDARD**  
**SIST EN 60794-1-1:2001**  
**01-februar-2001**

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**Optical fibre cables - Part 1-1: General specification - General (IEC 60794-1-1:1999)**

Optical fibre cables -- Part 1-1: Generic specification - General (IEC 60794-1-1:1999)

Lichtwellenleiterkabel -- Teil 1-1: Fachgrundspezifikation - Allgemeines

Câbles à fibres optiques -- Partie 1-1: Spécification générique - Généralités

**Ta slovenski standard je istoveten z: EN 60794-1-1:1999**

[SIST EN 60794-1-1:2001](https://standards.iteh.ai/catalog/standards/sist/77c47ec3-41ea-4bba-a6f2-1f35d3a398f4/sist-en-60794-1-1-2001)

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**ICS:**

33.180.10 ~~33.180.10~~ Fibres and cables

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60794-1-1**

August 1999

ICS 33.180.10

English version

**Optical fibre cables**  
**Part 1-1: Generic specification - General**  
(IEC 60794-1-1:1999)

Câbles à fibres optiques  
Partie 1-1: Spécification générique  
Généralités  
(CEI 60794-1-1:1999)

Lichtwellenleiterkabel  
Teil 1-1: Fachgrundspezifikation  
Allgemeines  
(IEC 60794-1-1:1999)

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

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EN 60794-1-1:1999

### Foreword

The text of document 86A/471/FDIS, future edition 1 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 1999-08-01.

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) 2000-05-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2002-08-01

This standard is to be used in conjunction with EN 60794-1-2:1999.

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 60794-1-1:1999 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	1970	Fire-resisting characteristics of electric cables	-	-
IEC 60332-1 <sup>1)</sup>	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	1992
IEC 60793-1-1	1995	Optical fibres Part 1: Generic specification Section 1: General	-	-
IEC 60793-1-2	1995	Section 2: Measuring methods for dimensions	-	-
IEC 60793-1-3	1995	Section 3: Measuring methods for mechanical characteristics	-	-

1) EN 50265-1:1998 and EN 50265-2-1:1998, which are related to IEC 60332-1:1993, apply.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60793-1-4	1995	Section 4: Measuring methods for transmission and optical characteristics	-	-
IEC 60793-1-5	1995	Section 5: Measuring methods for environmental characteristics	-	-
IEC 60793-2	1992	Part 2: Product specifications	-	-
IEC 60811-1-1	1993	Insulating and sheathing materials of electric cables - Common test methods Part 1: General application Section 1: Measurement of thickness and overall dimensions - Tests for determining the mechanical properties	EN 60811-1-1	1995
IEC 60874-1	1993	Connectors for optical fibres and cables Part 1: Generic specification	-	-
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>2)</sup>	1997	Measurement of smoke density of cables burning under defined conditions Part 1: Test apparatus	-	-
IEC 61034-2 <sup>3)</sup>	1997	Part 2: Test procedure and requirements	-	-
IEC 61300-2-1	1995	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures Part 2-1: Tests - Vibration (sinusoidal)	EN 61300-2-1	1997
IEC 61300-2-2	1995	Part 2-2: Tests - Mating durability	EN 61300-2-2	1997
IEC 61300-2-4	1995	Part 2-4: Tests - Fibre/cable retention	EN 61300-2-4	1997
IEC 61300-2-5	1995	Part 2-5: Tests - Torsion/twist	EN 61300-2-5	1997
IEC 61300-2-6	1995	Part 2-6: Tests - Tensile strength of coupling mechanism	EN 61300-2-6	1997
IEC 61300-2-12	1995	Part 2-12: Tests - Impact	EN 61300-2-12	1997
IEC 61300-3-1	1995	Part 3-1: Examinations and measurements Visual examination	EN 61300-3-1	1997
IEC 61300-3-11	1995	Part 3-11: Examinations and measurements Engagement and separation forces	EN 61300-3-11	1997

2) EN 50268-1:1999, which is related to IEC 61034-1:1997, applies.

3) EN 50268-2:1999, which is related to IEC 61034-2:1997, applies.

NORME  
INTERNATIONALE  
INTERNATIONAL  
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CEI  
IEC

60794-1-1

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**Câbles à fibres optiques –**

**Partie 1-1:  
Spécification générique – Généralités**

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**Optical fibre cables –**  
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**Part 1-1:** [SIST EN 60794-1-1:2001](https://standards.iteh.ai/catalog/standards/sist/77c47ec3-41ea-4bba-a6f2-155d3a2604/sist-en-60794-1-1-2001)  
**Generic specification – General**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
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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 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 first edition of IEC 60794-1-1 together with IEC 60794-1-2 cancels and replaces the fourth edition of IEC 60794-1 published in 1996, and constitutes a technical revision.

This standard is intended be used in conjunction with IEC 60794-1-2: *Optical fibre cables – Part 1-2: Generic specification – Basic optical cable test procedures*.

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

FDIS	Report on voting
86A/471/FDIS	86A/488/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.

IEC 60794 will consist 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: Indoor cables

Part 3: Duct, buried and aerial cables

Part 4: Overhead cables

Annexes A, B and C are for information only.

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<https://standards.iteh.ai/catalog/standards/sist/77c47ec3-41ea-4bba-a6f2-1f35d3a398f4/sist-en-60794-1-1-2001>

## OPTICAL FIBRE CABLES –

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

#### 1 Scope and object

This part of International Standard 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.

Annex A contains information pertinent to short-distance links for many of the cables of this specification set.

Annex B contains guidance for users of this specification set in procuring optical cables compliant with these specifications.

Annex C is a guide to the installation of optical fibre cables.

**ITeH STANDARD PREVIEW**

#### 2 Normative references [standards.iteh.ai](http://standards.iteh.ai)

**2.1** 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 60331:1970, *Fire-resisting characteristics of electric cables*

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 60793-1-2:1995, *Optical fibres – Part 1: Generic specification – Section 2: Measuring methods for dimensions*

IEC 60793-1-3:1995, *Optical fibres – Part 1: Generic specification – Section 3: Measuring methods for mechanical characteristics*

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

IEC 60793-1-5:1995, *Optical fibres – Part 1: Generic specification – Section 5: Measuring methods for environmental characteristics*

IEC 60793-2:1992, *Optical fibres – Part 2: Product specifications*

IEC 60811-1-1:1993, *Common test methods for insulating and sheathing materials of electric cables – Part 1: Methods for general application – Section 1: Measurement of thickness and overall dimensions – Tests for determining the mechanical properties*

IEC 60874-1:1993, *Connectors for optical fibres and cables – Part 1: Generic specification*

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 450/750V*

IEC 61034-1:1997, *Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus*

IEC 61034-2:1997, *Measurement of smoke density of cables burning under defined conditions – Part 2: Test procedure and requirements*

IEC 61300-2-1:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-1: Tests – Vibration (sinusoidal)*

IEC 61300-2-2:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-2: Tests – Mating durability*

CEI 61300-2-4:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-4: Tests – Fibre/cable retention*

CEI 61300-2-5:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-5: Tests – Torsion/twist*

CEI 61300-2-6:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-6: Tests – Tensile strength of coupling mechanism*

CEI 61300-2-12:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-12: Tests – Impact*

CEI 61300-3-1:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-1: Examinations and measurements – Visual examination*

CEI 61300-3-11:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-11: Examinations and measurements – Engagement and separation forces*

**2.2** References herein to the detail specification for cable attributes and parameters are intended to include the applicable other parts of this specification, the applicable family specifications contained therein, and the detail specification. Annex A of this specification contains such requirements for short distance links.

### **3 Definitions**

Under consideration.

### **4 Optical fibre cables**

Optical fibre cables, containing optical fibres and possibly electrical conductors, consist of the following types.

#### **4.1 Cables for direct burial**

#### **4.2 Cables for installation in ducts**

#### **4.3 Cables for installation in tunnels**

#### **4.4 Overhead cables**

#### **4.5 Underwater cables for lakes, river crossings and fjords**

#### **4.6 Indoor cables**

#### **4.7 Portable cables**

#### **4.8 Equipment cables**

#### **4.9 Special purpose cables**

### **5 Materials**

#### **5.1 Optical fibre material**

Optical fibres shall be uniform in quality and their characteristics shall meet the requirements of IEC 60793-1-1 and IEC 60793-2.

#### **5.2 Electrical conductors**

The characteristics of any electrical conductors shall be in accordance with the relevant IEC standards as stated in the detail specification.

#### **5.3 Other materials**

Material used in the construction of optical fibre cables shall be compatible with the physical and optical properties of the fibres, and shall be in accordance with the relevant IEC standards as stated in the detail specification.

### **6 Cable construction**

The construction, dimensions, weight, mechanical, optical, electrical and climatic properties of each type of optical fibre cable shall be as stated in the relevant detail specification.