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**Optični kabli - 3-11. del: Kabli za zunanjo uporabo - Specifikacija izdelka za kanalske, neposredno vkopane in (z vezicami) povezane nadzemne enorodne optične telekomunikacijske kable (IEC 60794-3-11:2010)**

Optical fibre cables - Part 3-11: Outdoor cables - Product specification for duct, directly buried and lashed aerial single-mode optical fibre telecommunication cables (IEC 60794-3-11:2010)

Lichtwellenleiterkabel - Teil 3-11: Außenkabel - Bauartspezifikation für Einmoden-LWL-Fernmeldeluftkabel für Röhren- und direkte Erdverlegung sowie zur Befestigung an Freileitungen oder Seilen (IEC 60794-3-11:2010)

Câbles à fibres optiques - Partie 3-11: Câbles extérieurs - Spécification de produits pour les câbles de télécommunication à fibres optiques unimodales destinés à être installés dans des conduites, à être directement enterrés et à être attachés en aérien (CEI 60794-3-11:2010)

**Ta slovenski standard je istoveten z: EN 60794-3-11:2010**

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**SIST EN 60794-3-11:2010**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60794-3-11**

July 2010

ICS 33.180.10

English version

**Optical fibre cables -  
Part 3-11: Outdoor cables -  
Product specification for duct, directly buried and lashed aerial  
single-mode optical fibre telecommunication cables  
(IEC 60794-3-11:2010)**

Câbles à fibres optiques -  
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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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# 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/1314/FDIS, future edition 2 of IEC 60794-3-11, 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 60794-3-11 on 2010-07-01.

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

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) | 2011-04-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2013-07-01 |

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 60794-3-11 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 series	NOTE	Harmonized in EN 60793-1 series (partially modified).
IEC 60793-1-20	NOTE	Harmonized as EN 60793-1-20.
IEC 60793-1-21	NOTE	Harmonized as EN 60793-1-21.
IEC 60793-1-30	NOTE	Harmonized as EN 60793-1-30.
IEC 60793-1-31	NOTE	Harmonized as EN 60793-1-31.
IEC 60793-1-32	NOTE	Harmonized as EN 60793-1-32.
IEC 60793-1-33	NOTE	Harmonized as EN 60793-1-33.
IEC 60793-1-34	NOTE	Harmonized as EN 60793-1-34.
IEC 60793-1-42	NOTE	Harmonized as EN 60793-1-42.
IEC 60793-1-45	NOTE	Harmonized as EN 60793-1-45.
IEC 60793-1-46	NOTE	Harmonized as EN 60793-1-46.
IEC 60793-1-47	NOTE	Harmonized as EN 60793-1-47.
IEC 60793-1-50	NOTE	Harmonized as EN 60793-1-50.
IEC 60793-1-51	NOTE	Harmonized as EN 60793-1-51.
IEC 60793-1-52	NOTE	Harmonized as EN 60793-1-52.
IEC 60793-1-53	NOTE	Harmonized as EN 60793-1-53.
IEC 60793-2	NOTE	Harmonized as EN 60793-2.
IEC 60794-3-12	NOTE	Harmonized as EN 60794-3-12.

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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 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 60708	-	Low-frequency cables with polyolefin insulation and moisture barrier polyolefin sheath	EN 60708	-
IEC 60793-1-22	-	Optical fibres - Part 1-22: Measurement methods and test procedures - Length measurement	EN 60793-1-22	-
IEC 60793-1-40 (mod)	-	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 60793-1-48	-	Optical fibres - Part 1-48: Measurement methods and test procedures - Polarization mode dispersion	EN 60793-1-48	-
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	-	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 - Basic optical cable test procedures	EN 60794-1-2	-
IEC 60794-3	Series	Optical fibre cables - Part 3: Outdoor cables	EN 60794-3	Series
IEC 60794-3-10	-	Optical fibre cables - Part 3-10: Outdoor cables - Family specification for duct, directly buried and lashed aerial optical telecommunication cables	EN 60794-3-10	-
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	-
IEC/TR 61931	-	Fibre optic - Terminology	-	-
IEC/TR 62000	-	Single-mode fibre compatibility guidelines	-	-

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IEC 60794-3-11

Edition 2.0 2010-06

# INTERNATIONAL STANDARD



Optical fibre cables –

**Part 3-11: Outdoor cables – Product specification for duct, directly buried, and  
lashed aerial single-mode optical fibre telecommunication cables**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## OPTICAL FIBRE CABLES –

**Part 3-11: Outdoor cables –  
Product specification for duct, directly buried, and lashed aerial  
single-mode optical fibre telecommunication 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.
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International Standard IEC 60794-3-11 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 2007. It constitutes a technical revision.

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

- the title of the specification has been updated to include lashed applications;
- the fibres specification clause (subclause 5.2.2) has been enlarged to include fibre types B6\_a.

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

FDIS	Report on voting
86A/1314/FDIS	86A/1326/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.

A bilingual version of this publication may be issued at a later date.

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## OPTICAL FIBRE CABLES –

### Part 3-11: Outdoor cables – Product specification for duct, directly buried, and lashed aerial single-mode optical fibre telecommunication cables

#### 1 Scope

This part of IEC 60794 sets forth technical requirements and characteristics of single-mode optical fibre cables for duct and direct buried installation.

This specification includes functional mechanical, environmental and optical requirements, recommended features and test methods for assessing the product against the stated requirements.

The specified test methods, where applicable, are those referenced in IEC 60794-1-1 and described in detail in IEC 60794-1-2.

The requirements of this specification supplement those of IEC 60794-3 and IEC 60794-3-10

Multimode fibre requirements are not addressed in this standard; see IEC 60794-3-12.

#### 2 Normative references

SIST EN 60794-3-11:2010

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 60708, *Low-frequency cables with polyolefin insulation and moisture barrier polyolefin sheath*

IEC 60793-1-22, *Optical fibres – Part 1-22: Measurement methods and test procedures – Length measurement*

IEC 60793-1-40, *Optical fibres – Part 1-40: Measurement methods and test procedures – Attenuation*

IEC 60793-1-44, *Optical fibres – Part 1-44: Measurement methods and test procedures – Cut-off wavelength*

IEC 60793-1-48, *Optical fibres – Part 1-48: Measurement methods and test procedures – Polarization mode dispersion*

IEC 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode 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 60794-3 (all parts), *Optical fibre cables – Part 3: Sectional specification – Outdoor cables*