



**SLOVENSKI STANDARD**  
**SIST EN IEC 60794-6-10:2021**

**01-januar-2021**

---

**Optični kabli - 6-10. del: Notranji ali zunanji kabli - Skupinska specifikacija za univerzalne notranje ali zunanje kable (IEC 60794-6-10:2020)**

Optical fibre cables - Part 6-10: Indoor-outdoor cables - Family specification for universal indoor-outdoor cables (IEC 60794-6-10:2020)

Lichtwellenleiterkabel - Teil 6-10: Innen-/Außenkabel - Familienspezifikation für Universal-Innen-/Außenkabel (IEC 60794-6-10:2020)

Câbles à fibres optiques - Partie 6-10 : Câbles intérieurs/extérieurs - Spécification de famille pour les câbles intérieurs/extérieurs universels (IEC 60794-6-10:2020)

<https://standards.iteh.ai/catalog/standards/sist/b88f16e0-a794-4db7-8b72-cd5e40e424f5/sist-en-iec-60794-6-10-2021>

**Ta slovenski standard je istoveten z: EN IEC 60794-6-10:2020**

---

**ICS:**

33.180.10 (Optična) vlakna in kabli Fibres and cables

**SIST EN IEC 60794-6-10:2021 en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN IEC 60794-6-10:2021

<https://standards.iteh.ai/catalog/standards/sist/b88f16e0-a794-4db7-8b72-cd5e40ad24f5/sist-en-iec-60794-6-10-2021>

EUROPEAN STANDARD

**EN IEC 60794-6-10**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2020

ICS 33.180.10

English Version

**Optical fibre cables - Part 6-10: Indoor-outdoor cables - Family specification for universal indoor-outdoor cables  
(IEC 60794-6-10:2020)**

Câbles à fibres optiques - Partie 6-10 : Câbles intérieurs/extérieurs - Spécification de famille pour les câbles intérieurs/extérieurs universels  
(IEC 60794-6-10:2020)

Lichtwellenleiterkabel - Teil 6-10: Innen-/Außenkabel - Familienspezifikation für ein universelles Innen-/Außenkabel  
(IEC 60794-6-10:2020)

This European Standard was approved by CENELEC on 2020-11-03. 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.

[SIST EN IEC 60794-6-10:2021](#)

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN IEC 60794-6-10:2020 (E)****European foreword**

The text of document 86A/2036/FDIS, future edition 1 of IEC 60794-6-10, 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 IEC 60794-6-10:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-08-03
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-11-03

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

**Endorsement notice**

The text of the International Standard IEC 60794-6-10:2020 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 60794-1-219	NOTE	Harmonized as EN IEC 60794-1-219 <sup>1</sup>
IEC 60794-5-10	NOTE	Harmonized as EN 60794-5-10
IEC 61753-1	NOTE	Harmonized as EN IEC 61753-1

---

<sup>1</sup> To be published. Stage at the time of publication: prEN IEC 60794-1-219:2020.

## Annex ZA (normative)

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

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60332-1	series	Tests on electric and optical fibre cables under fire conditions - Part 1: Test for vertical flame propagation for a single insulated wire or cable	EN 60332-1	series
IEC 60332-3	series	Tests on electric and optical fibre cables under fire conditions - Part 3: Test for vertical flame spread of vertically-mounted bunched wires or cables	EN IEC 60332-3	series
IEC 60754-2	2011	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	EN 60754-2	2014
IEC 60793-2	-	Optical fibres - Part 2: Product specifications - General	EN IEC 60793-2	-
IEC 60793-2-10	-	Optical fibres - Part 2-10: Product specifications - Sectional specification for category A1 multimode fibres	EN IEC 60793-2-10	-
IEC 60793-2-50	-	Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN IEC 60793-2-50	-
IEC 60794-1-1	-	Optical fibre cables - Part 1-1: Generic specification - General	EN 60794-1-1	-
IEC 60794-1-21	-	Optical fibre cables - Part 1-21: Generic specification - Basic optical cable test procedures - Mechanical tests methods	EN 60794-1-21	-
IEC 60794-1-22	2017	Optical fibre cables - Part 1-22: Generic specification - Basic optical cable test procedures - Environmental test methods	EN IEC 60794-1-22	2018

## EN IEC 60794-6-10:2020 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60794-1-23	-	Optical fibre cables - Part 1-23: Generic specification - Basic optical cable test procedures - Cable element test methods	EN IEC 60794-1-23	-
IEC 60794-1-24	-	Optical fibre cables - Part 1-24: Generic specification - Basic optical cable test procedures - Electrical test methods	EN 60794-1-24	-
IEC 60794-1-31	2018	Optical fibre cables - Part 1-31: Generic specification - Optical cable elements - Optical fibre ribbon	EN IEC 60794-1-31	2018
IEC 60794-1-215	-	Optical fibre cables - Part 1-215: Generic specification - Basic optical cable test procedures - Environmental test methods - Cable external freezing test, Method F15	EN IEC 60794-1-215	-
IEC 60794-2	series	Optical fibre cables - Part 2: Indoor cables	EN 60794-2	series
IEC 60794-2	-	Optical fibre cables - Part 2: Indoor cables - Sectional specification	EN 60794-2	-
IEC 60794-3	series	Optical fibre cables - Part 3: Outdoor cables	EN 60794-3	series
IEC 60794-3-10	2015	Optical fibre cables - Part 3-10: Outdoor cables - Family specification for duct, directly buried and lashed aerial optical telecommunication cables	EN 60794-3-10	2015
IEC 60794-6	2020	Optical fibre cables - Part 6: Indoor-outdoor cables - Sectional specification for indoor-outdoor cables	-	-
IEC 60811-202	2012	Electric and optical fibre cables - Test methods for non-metallic materials - Part 202: General tests - Measurement of thickness of non-metallic sheath	EN 60811-202	2012
+ A1	2017		+ A1	2017
IEC 60811-203	2012	Electric and optical fibre cables - Test methods for non-metallic materials - Part 203: General tests - Measurement of overall dimensions	EN 60811-203	2012
IEC 60811-406	-	Electric and optical fibre cables - Test methods for non-metallic materials - Part 406: Miscellaneous tests - Resistance to stress cracking of polyethylene and polypropylene compounds	EN 60811-406	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60811-604	-	Electric and optical fibre cables - Test methods for non-metallic materials - Part 604: Physical tests - Measurement of absence of corrosive components in filling compounds	EN 60811-604	-
IEC 61034	series	Measurement of smoke density of cables burning under defined conditions	EN 61034	series
ISO 4892-2	2013	Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps	EN ISO 4892-2	2013

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN IEC 60794-6-10:2021](https://standards.iteh.ai/catalog/standards/sist/b88f16e0-a794-4db7-8b72-cd5e40ad24f5/sist-en-iec-60794-6-10-2021)

<https://standards.iteh.ai/catalog/standards/sist/b88f16e0-a794-4db7-8b72-cd5e40ad24f5/sist-en-iec-60794-6-10-2021>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN IEC 60794-6-10:2021](https://standards.iteh.ai/catalog/standards/sist/b88f16e0-a794-4db7-8b72-cd5e40ad24f5/sist-en-iec-60794-6-10-2021)

<https://standards.iteh.ai/catalog/standards/sist/b88f16e0-a794-4db7-8b72-cd5e40ad24f5/sist-en-iec-60794-6-10-2021>





IEC 60794-6-10

Edition 1.0 2020-09

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Optical fibre cables –**  
**Part 6-10: Indoor-outdoor cables – Family specification for universal indoor-outdoor cables**

**Câbles à fibres optiques –**  
**Partie 6-10: Câbles intérieurs/extérieurs – Specification de famille pour les câbles intérieurs/extérieurs universels**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 33.180.10

ISBN 978-2-8322-8907-5

**Warning! Make sure that you obtained this publication from an authorized distributor.**  
**Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references .....	6
3 Terms, definitions and abbreviated terms .....	7
3.1 Terms and definitions.....	7
3.2 Symbols and abbreviated terms .....	8
4 General specifications .....	8
4.1 Optical fibres .....	8
4.2 Cable elements.....	8
5 Specifications for universal indoor-outdoor cables – Construction.....	8
6 Details of family specifications and test conditions for universal indoor-outdoor cables.....	8
6.1 Applicable tests .....	8
6.2 Mechanical tests.....	10
6.2.1 General .....	10
6.2.2 Tensile performance.....	10
6.2.3 Abrasion.....	11
6.2.4 Crush.....	11
6.2.5 Impact.....	11
6.2.6 Repeated bending.....	12
6.2.7 Torsion .....	12
6.2.8 Bend.....	12
6.2.9 Bending under tension.....	12
6.2.10 Kink.....	13
6.2.11 Rip cord functional test.....	13
6.3 Environmental tests .....	13
6.3.1 Temperature cycling .....	13
6.3.2 Water penetration .....	14
6.3.3 Ageing.....	14
6.3.4 UV resistance .....	15
6.3.5 Environmental stress cracking .....	15
6.3.6 Cable external freezing.....	15
6.3.7 Compound flow.....	15
6.3.8 Bleeding and evaporation .....	16
6.3.9 Material compatibility .....	16
6.4 Cable element tests .....	16
6.4.1 Ribbon strippability .....	16
6.4.2 Ribbon tear (separability) .....	16
6.4.3 Ribbon dimensions and geometry .....	16
6.4.4 Ribbon torsion .....	17
6.4.5 Ribbon residual twist .....	17
6.4.6 Tube kinking.....	17
6.4.7 Bend test for optical cable elements .....	17
6.4.8 Stripping force stability of cabled optical fibres .....	17
6.5 Other tests.....	17
6.5.1 Fire performance .....	17
6.5.2 Electrical continuity of cable metallic elements .....	18

6.5.3	Thickness of non-metallic sheath.....	18
6.5.4	Overall dimensions .....	18
Annex A (informative)	Examples of universal indoor-outdoor cable .....	19
Bibliography.....		21
Figure A.1	– Example of a stranded universal indoor-outdoor cable design .....	19
Figure A.2	– Example of an universal indoor-outdoor cable with a central tube design .....	19
Figure A.3	– Mini-breakout universal indoor-outdoor cable design.....	19
Figure A.4	– Breakout universal indoor-outdoor cable design.....	20
Table 1	– Tests applicable for mechanical and environmental performance of universal indoor-outdoor cables .....	8
Table 2	– Low and high temperatures .....	14

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN IEC 60794-6-10:2021](https://standards.iteh.ai/catalog/standards/sist/b88f16e0-a794-4db7-8b72-cd5e40ad24f5/sist-en-iec-60794-6-10-2021)

<https://standards.iteh.ai/catalog/standards/sist/b88f16e0-a794-4db7-8b72-cd5e40ad24f5/sist-en-iec-60794-6-10-2021>