

**Optical fibre cables -- Part 3-20: Outdoor cables -
Family specification for self supporting aerial
telecommunication cable**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 60794-3-20:2009 sisaldab Euroopa standardi EN 60794-3-20:2009 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 29.05.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 03.04.2009.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 60794-3-20:2009 consists of the English text of the European standard EN 60794-3-20:2009.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 29.05.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 03.04.2009.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

ICS 33.180.10

Võtmesõnad:

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

English version

**Optical fibre cables -
Part 3-20: Outdoor cables -
Family specification
for self-supporting aerial telecommunication cables
(IEC 60794-3-20:2009)**

Câbles à fibres optiques -
Partie 3-20: Câbles extérieurs -
Spécification de famille
pour les câbles de télécommunication
aériens autoporteurs
(CEI 60794-3-20:2009)

Lichtwellenleiter -
Teil 3-20: Außenkabel -
Familienspezifikation
für selbsttragende
LWL-Fernmelde-Luftkabel
(IEC 60794-3-20:2009)

This European Standard was approved by CENELEC on 2009-03-01. 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: avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 86A/1246/FDIS, future edition 2 of IEC 60794-3-20, 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 60794-3-20 on 2009-03-01.

This European Standard supersedes EN 60794-3-20:2002.

The main changes from EN 60794-3-20:2002 are listed below:

- the fibres specification clause (Clause 5) has been enlarged to include fibre Types B5 and B6.a;
- an annex has been added for additional requirements according to the MICE table.

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) 2009-12-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2012-03-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60794-3-20:2009 was approved by CENELEC as a European Standard without any modification.

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 60304	- ¹⁾	Standard colours for insulation for low-frequency cables and wires	HD 402 S2	1984 ²⁾
IEC 60654-4	- ¹⁾	Operating conditions for industrial-process measurement and control equipment - Part 4: Corrosive and erosive influences	EN 60654-4	1997 ²⁾
IEC 60721-1	- ¹⁾	Classification of environmental conditions - Part 1: Environmental parameters and their severities	EN 60721-1	1995 ²⁾
IEC 60721-3-3	- ¹⁾	Classification of environmental conditions - Part 3-3: Classification of groups of environmental parameters and their severities - Stationary use at weatherprotected locations	EN 60721-3-3	1995 ²⁾
IEC 60793-1-20	- ¹⁾	Optical fibres - Part 1-20: Measurement methods and test procedures - Fibre geometry	EN 60793-1-20	2002 ²⁾
IEC 60793-1-40 (mod)	- ¹⁾	Optical fibres - Part 1-40: Measurement methods and test procedures - Attenuation	EN 60793-1-40	2003 ²⁾
IEC 60793-1-44	- ¹⁾	Optical fibres - Part 1-44: Measurement methods and test procedures - Cut-off wavelength	EN 60793-1-44	2002 ²⁾
IEC 60793-1-48	- ¹⁾	Optical fibres - Part 1-48: Measurement methods and test procedures - Polarization mode dispersion	EN 60793-1-48	2007 ²⁾
IEC 60793-2-50	- ¹⁾	Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN 60793-2-50	2008 ²⁾
IEC 60794-1-1	- ¹⁾	Optical fibre cables - Part 1-1: Generic specification - General	EN 60794-1-1	2002 ²⁾
IEC 60794-1-2	- ¹⁾	Optical fibre cables - Part 1-2: Generic specification - Basic optical cable test procedures	EN 60794-1-2	2003 ²⁾
IEC 60794-3	- ¹⁾	Optical fibre cables - Part 3: Sectional specification - Outdoor cables	EN 60794-3	2002 ²⁾

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60811-1-1	- 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	1995 ²⁾
IEC 60811-5-1 (mod)	- ¹⁾	Insulating and sheathing materials of electric and optical cables - Common test methods - Part 5-1: Methods specific to filling compounds - Drop point - Separation of oil - Lower temperature brittleness - Total acid number - Absence of corrosive components - Permittivity at 23 °C - D.C. resistivity at 23 °C and 100 °C	EN 60811-5-1	1999 ²⁾
IEC/TS 61000-2-5	- ¹⁾	Electromagnetic compatibility (EMC) - Part 2: Environment - Section 5: Classification of electromagnetic environments - Basic EMC publication	-	-
IEC 61000-6-2	- ¹⁾	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments	EN 61000-6-2 + corr. September	2005 ²⁾ 2005
IEC 61326-1	- ¹⁾	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements	EN 61326-1	2006 ²⁾
IEC 62363	- ¹⁾	Radiation protection instrumentation - Portable photon contamination meters and monitors	-	-
ISO/IEC 24702	- ¹⁾	Information technology - Generic cabling - Industrial premises	-	-

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Symbols	6
4 Optical fibre, cable construction and tests applicable for aerial telecommunication cables to be used in self-supporting aerial applications	7
4.1 Optical fibres	7
4.1.1 Common single-mode fibre requirements.....	7
4.1.2 Single-mode dispersion unshifted (B1.1) optical fibre	7
4.1.3 Single-mode dispersion unshifted (B1.2) optical fibre	8
4.1.4 Single-mode dispersion unshifted (B1.3) optical fibre	8
4.1.5 Single-mode dispersion shifted (B2) optical fibre	8
4.1.6 Single-mode non-zero dispersion (B4) optical fibre	8
4.1.7 Single-mode non-zero dispersion shifted (B5) optical fibre	9
4.1.8 Single-mode (B6.a) optical fibre.....	9
4.2 Cable element	9
4.3 Installation and operating conditions	10
4.3.1 Tests applicable	10
4.3.2 Installation conditions	10
4.4 Mechanical and environmental tests	10
4.4.1 Tests applicable	10
4.4.2 Details on family requirements and test conditions for optical fibre cable tests	11
Annex A (normative) Family specification for self-supporting aerial telecommunication cables.....	17
Table 1 – Common single-mode fibre requirements	7
Table 2 – Single-mode dispersion unshifted (B1.1) optical fibre	7
Table 3 – Single-mode dispersion unshifted (B1.2) optical fibre	8
Table 4 – Single-mode dispersion unshifted (B1.3) optical fibre	8
Table 5 – Single-mode dispersion shifted (B2) optical fibre	8
Table 6 – Single-mode non-zero dispersion (B4) optical fibre.....	8
Table 7 – Single-mode non-zero dispersion shifted (B5) optical fibre	9
Table 8 – Single-mode (B6.a) optical fibre	9
Table 9 – Cable element	9
Table 10 – Tests applicable	10
Table 11 – Mechanical and environmental applicable tests	10

OPTICAL FIBRE CABLES –

Part 3-20: Outdoor cables – Family specification for self-supporting aerial telecommunication cables

1 Scope

This part of IEC 60794 which is a family specification covers optical self-supporting aerial telecommunication cables. Requirements of the sectional specification IEC 60794-3 for duct, buried and aerial cables are applicable to cables covered by this standard.

Self-supporting aerial telecommunication cable in this context means a cable construction with sufficient strength members designed to be suspended on poles and similar devices without the aid of another supporting wire or conductor. ADSS cables and other constructions intended for high-voltage applications are not covered by this standard.

Detail specifications may be prepared based on this family specification.

Clause A.2 contains requirements that supersede the normal requirements in case the cables are intended to be used in installation governed by the MICE table of ISO/IEC 24702.

The parameters specified in this standard may be affected by measurement uncertainty arising either from measurement errors or calibration errors due to lack of suitable standards. Acceptance criteria shall be interpreted with respect to this consideration (see IEC 60794-3, Clause 8).

The number of fibres tested shall be representative of the cable design and shall be agreed between the customer and the supplier.

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 60304, *Standard colours for insulation for low-frequency cables and wires*.

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*

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

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

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, *Product specifications – Sectional specification for class B single-mode fibres*

IEC 60794-1-1, *Optical fibre cables – Part 1: Generic specification – General*

IEC 60794-1-2, *Optical fibre cables – Part 1-2: Generic specification – Basic optical cable test procedure*

IEC 60794-3, *Optical fibre cables – Part 3: Sectional specification – Outdoor cables*

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 60811-5-1, *Insulating and sheathing materials of electric and optic cables – Common test methods – Part 5-1: Methods specific to filling compounds – Drop-point – Separation of oil – Lower temperature brittleness – Total acid number – Absence of corrosive components – Permittivity at 23 °C – DC resistivity at 23 °C and 100 °C*

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 61326-1, *Electrical equipment for measurement, control and laboratory use – EMC requirements - Part 1: General requirements*

IEC 62363, *Radiation protection instrumentation – Portable photon contamination meters and monitors*

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