



DPC: 22 / 30466123 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

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Interested committees:

Title: BS EN 60794-3-11 Optical fibre cables

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

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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UK Vote

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



86A/2259/CD

COMMITTEE DRAFT (CD)

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CLOSING DATE FOR COMMENTS:

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SUPERSEDES DOCUMENTS:

86A/2257/RR

IEC SC 86A : FIBRES AND CABLES

SECRETARIAT:

France

SECRETARY:

Mr Laurent Gasca

OF INTEREST TO THE FOLLOWING COMMITTEES:

PROPOSED HORIZONTAL STANDARD:



Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.

FUNCTIONS CONCERNED:

☐ EMC

☐ ENVIRONMENT

☐ QUALITY ASSURANCE

☐ SAFETY

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TITLE:

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

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Contents

1			
2	1	Scope	6
3	2	Normative references	6
4	3	Terms, definitions and symbols	7
5	3.1	Terms and definitions	7
6	3.2	Symbols	7
7	4	General requirements	7
8	4.1	Overview	7
9	4.2	General cable description	7
10	4.2.1	Characteristics of optical fibre	7
11	4.2.2	Characteristics of optical fibre cable elements	8
12	4.2.3	Characteristics of optical fibre cables	8
13	4.2.4	Environmental and product safety requirements	8
14	4.3	Optical fibre splice-ability	8
15	4.4	Testing	9
16	4.4.1	General	9
17	4.4.2	No change in attenuation	9
18	4.4.3	No change in fibre strain	9
19	5	Detailed requirements for cabled single-mode optical fibres	9
20	5.1	Fibre materials	9
21	5.2	Optical requirements	10
22	5.2.1	General	10
23	5.2.2	Attenuation coefficient	10
24	5.2.3	Attenuation discontinuities	11
25	5.2.4	Cable cut-off wavelength	11
26	5.2.5	Polarization mode dispersion (PMD)	11
27	5.2.6	Group index	11
28	6	Detailed requirements for cable elements	12
29	6.1	Element design	12
30	6.1.1	General	12
31	6.1.2	Modularity	12
32	6.1.3	Fibre and element identification	12
33	6.2	Element characteristics	13
34	6.2.1	Ribbon	13
35	6.2.2	Tube kinking	13
36	7	Detailed requirements for optical cables	13
37	7.1	Cable construction	13
38	7.1.1	General	13
39	7.1.2	Cable core	14
40	7.1.3	Anti-buckling and strength element splicing	14
41	7.1.4	Cable element stranding	14
42	7.1.5	Spliced fibres	14
43	7.1.6	Spare fibres	14
44	7.1.7	Cable sheath removal	14
45	7.1.8	Armouring	15
46	7.2	Marking	15
47	7.2.1	Sheath marking	15

48	7.2.2	Identification marking	15
49	7.2.3	Cable length marking.....	15
50	7.3	Cable core materials	16
51	7.3.1	Tube filling compound material (if required)	16
52	7.3.2	Water-blocking material.....	16
53	7.3.3	Cable material compatibility.....	16
54	7.3.4	Tube material	16
55	7.4	Cable sheath	16
56	7.4.1	Sheath material	16
57	7.4.2	Sheath thickness	16
58	7.4.3	Outer cable diameter	17
59	7.4.4	Moisture barrier	17
60	7.4.5	Rodent resistant barrier	17
61	7.5	Mechanical requirements.....	17
62	7.5.1	General	17
63	7.5.2	Bend.....	17
64	7.5.3	Impact	18
65	7.5.4	Crush	18
66	7.5.5	Tensile performance	19
67	7.5.6	Torsion	20
68	7.5.7	Repeated bending	20
69	7.6	Environmental requirements	20
70	7.6.1	Temperature cycling	20
71	7.6.2	Stripping force stability of cabled optical fibres	22
72	7.6.3	Water penetration	23
73	7.6.4	Environmental impact	23
74	7.7	Electrical protection.....	23
75	8	Quality assurance.....	23
76	Annex A (informative)	Guidance for ITU-T and IEC cabled fibre and fibre references	24
77	A.1	Guidance for ITU-T and IEC cabled fibre and fibre references	24
78	Annex B (informative)	Fibres.....	25
79	B.1	Fibre materials	25
80	B.2	List of fibre attributes	25
81			
82	Figure 1	– For all cycles except last.....	21
83	Figure 2	– Last cycle.....	21
84			
85	Table 1	– Requirements for the attenuation coefficient of cabled fibre.....	10
86	Table 2	– Colour for individual fibres or units (listed alphabetically)	12
87	Table A.1	– ITU-T and IEC cross-reference	24
88	Table B.1	– Dimensional attributes and measurement methods	25
89	Table B.2	– Mechanical attributes and test methods	26
90	Table B.3	– Transmission attributes and measurement methods	26
91	Table B.4	– Environmental exposure tests	26
92	Table B.5	– Attributes measured during or after environmental exposure	26

INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRE CABLES –

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

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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 third edition cancels and replaces the second edition published in 2010. 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.

149 This bilingual version, published in 2011-04, corresponds to the English version.

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

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

151
152 Full information on the voting for the approval of this standard can be found in the report on
153 voting indicated in the above table.

154 The French version of this standard has not been voted upon.

155 This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

156 A list of all parts of IEC 60794 series, published under the general title *Optical fibre cables*,
157 can be found on the IEC website.

158 The committee has decided that the contents of this publication will remain unchanged until
159 the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data
160 related to the specific publication. At this date, the publication will be

- 161 • reconfirmed,
162 • withdrawn,
163 • replaced by a revised edition, or
164 • amended.

165

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OPTICAL FIBRE CABLES –

Part 3-11: Outdoor cables –

Detailed specification for duct, directly buried, and lashed aerial single-mode optical fibre telecommunication cables

1 Scope

This part of IEC 60794 sets forth detailed requirements and characteristics specific to this type 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 the sectional specification IEC 60794-3 and the family specification IEC 60794-3-10

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

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 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*

207 IEC 60794-3 (all parts), *Optical fibre cables – Part 3: Sectional specification – Outdoor cables*

208 IEC 60794-3-10, *Optical fibre cables – Part 3-10: Outdoor cables – Family specification for*
209 *duct, directly buried and lashed aerial optical telecommunication cables*

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

213 IEC/TR 61931, *Fibre optic – Terminology*

214 IEC/TR 62000, *Single mode fibre compatibility guidelines*

215 **3 Terms, definitions and symbols**

216 **3.1 Terms and definitions**

217 For the purposes of this document, the terms and definitions given in IEC 61931 apply.

218 **3.2 Symbols**

219 The following symbols are used in this document:

220 λ_{cc} cable cut-off wavelength

221 d outer cable diameter

222 SZ technique in which the lay reverses direction periodically.

223 **4 General requirements**

224 **4.1 Overview**

225 Single-mode optical fibres are widely used for telecommunication purposes and are cabled to
226 satisfy the functional requirements of the installation environment. Further, cables placed into
227 ducts and sub-ducts may be installed using solely, or a combination of, pushing, pulling, and
228 air-assisted installation techniques. For duct installation, the environment and infrastructure
229 can be varied and may also involve the use of single and multiple sub-ducts. Directly buried
230 cables may be installed by a variety of methods such as ploughing and trenching with
231 different environments and infrastructure. This may require specific cable design solutions
232 based on multiple layers of armours and sheaths. It is recognised that certain designs of
233 cable for direct buried applications involving such solutions may also be suitable for duct
234 installation. The functional requirements and test methods featured in this specification are
235 based upon adherence to established and recognised installation techniques such as those
236 included in IEC TR 62691.

237 **4.2 General cable description**

238 **4.2.1 Characteristics of optical fibre**

239 Single-mode optical fibres are classified according to their operational wavelength and
240 dispersion characteristics. The fibres covered by this specification are categorised as type B
241 and are described in IEC 60793-2-50. The fibre types featured in this specification are listed
242 below:

- 243 • dispersion unshifted (B-652.B/D);
- 244 • bending loss insensitive (B-657.B2/B3/A1/A2);
- 245 • dispersion shifted (B-653.A/B);