BS EN IEC 60794-1-1:2023

BSI Standards Publication

Optical fibre cables

Part 1-1: Generic specification — General

bsi.

National foreword

This British Standard is the UK implementation of EN IEC 60794-1-1:2023. It is identical to IEC 60794-1-1:2023. It supersedes BS EN 60794-1-1:2016, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/86/1, Optical fibres and cables.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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(IEC 60794-1-1:2023)

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(IEC 60794-1-1:2023)

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

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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)	2024-03-26
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2026-06-26

This document supersedes EN 60794-1-1:2016 and all of its amendments and corrigenda (if any).

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.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60794-1-1:2023 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 standard indicated:

IEC 60793-2-50	NOTE Approved as EN IEC 60793-2-50
IEC 60794-1-1	NOTE Approved as EN 60794-1-1
IEC 60794-1-2	NOTE Approved as EN IEC 60794-1-2
IEC 60794-1-3	NOTE Approved as EN 60794-1-3
IEC 60794-1-23	NOTE Approved as EN IEC 60794-1-23
IEC 60794-1-24	NOTE Approved as EN 60794-1-24
IEC 60794-1-401	NOTE Approved as EN IEC 60794-1-401
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IEC 60794-2 (series)	NOTE Approved as EN IEC 60794-2 (series)
IEC 60794-2-10	NOTE Approved as EN IEC 60794-2-10
IEC 60794-2-11	NOTE Approved as EN IEC 60794-2-11
IEC 60794-2-20	NOTE Approved as EN 60794-2-20
IEC 60794-2-21	NOTE Approved as EN IEC 60794-2-21

IEC 60794-2-22	NOTE Approved as EN IEC 60794-2-22
IEC 60794-2-30	NOTE Approved as EN IEC 60794-2-30
IEC 60794-2-31	NOTE Approved as EN IEC 60794-2-31
IEC 60794-2-40	NOTE Approved as EN 60794-2-40
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IEC 60794-2-42	NOTE Approved as EN 60794-2-42
IEC 60794-2-50	NOTE Approved as EN IEC 60794-2-50
IEC 60794-3 (series)	NOTE Approved as EN IEC 60794-3 (series)
IEC 60794-3-10	NOTE Approved as EN 60794-3-10
IEC 60794-3-11	NOTE Approved as EN 60794-3-11
IEC 60794-3-12	NOTE Approved as EN IEC 60794-3-12
IEC 60794-3-20	NOTE Approved as EN 60794-3-20
IEC 60794-3-21	NOTE Approved as EN 60794-3-21
IEC 60794-3-30	NOTE Approved as EN 60794-3-30
IEC 60794-3-40	NOTE Approved as EN IEC 60794-3-40
IEC 60794-3-70	NOTE Approved as EN IEC 60794-3-70
IEC 60794-4 (series)	NOTE Approved as EN IEC 60794-4 (series)
IEC 60794-4-10	NOTE Approved as EN 60794-4-10
IEC 60794-4-20:2018	NOTE Approved as EN IEC 60794-4-20:2018 (not modified)
IEC 60794-4-30	NOTE Approved as EN IEC 60794-4-30
IEC 60794-5 (series)	NOTE Approved as EN 60794-5 (series)
IEC 60794-5-10	NOTE Approved as EN 60794-5-10
IEC 60794-5-20	NOTE Approved as EN 60794-5-20
IEC 60794-6 (series)	NOTE Approved as EN IEC 60794-6 (series)
IEC 60794-6-10	NOTE Approved as EN IEC 60794-6-10
IEC 60794-6-20	NOTE Approved as EN IEC 60794-6-20
IEC 60794-6-30	NOTE Approved as EN IEC 60794-6-30
IEC 61753-1	NOTE Approved as EN IEC 61753-1
ISO 14001	NOTE Approved as EN ISO 14001
ISO 14064-1	NOTE Approved as EN ISO 14064-1

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.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60189-1	-	Low-frequency cables and wires with PVC insulation and PVC sheath - Part 1: General test and measuring methods	-	-
IEC 60304	-	Standard colours for insulation for low-frequency cables and wires	HD 402 S2	-
IEC 60793-1-21	-	Optical fibres - Part 1-21: Measurement methods and test procedures - Coating geometry	EN 60793-1-21	-
IEC 60793-1-22	-	Optical fibres - Part 1-22: Measurement methods and test procedures - Length measurement	EN 60793-1-22	-
IEC 60793-1-40	-	Optical fibres - Part 1-40: Attenuation measurement methods	EN IEC 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 60793-1-46	-	Optical fibres - Part 1-46: Measurement methods and test procedures - Monitoring of changes in optical transmittance	EN 60793-1-46	-
IEC 60793-1-48	-	Optical fibres - Part 1-48: Measurement methods and test procedures - Polarization mode dispersion	EN 60793-1-48	-
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 60793-2-40	2021	Optical fibres - Part 2-40: Product specifications - Sectional specification for category A4 multimode fibres	EN IEC 60793-2-40	2021

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	-	Optical fibre cables - Part 1-22: Generic specification - Basic optical cable test procedures - Environmental test methods	EN IEC 60794-1-22	-
IEC 60811-201	-	Electric and optical fibre cables - Test methods for non-metallic materials - Part 201: General tests - Measurement of insulation thickness	EN 60811-201	-
IEC 60811-202	-	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	-
IEC 60811-203	-	Electric and optical fibre cables - Test methods for non-metallic materials - Part 203: General tests - Measurement of overall dimensions	EN 60811-203	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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OPTICAL FIBRE CABLES –

Part 1-1: Generic specification – General

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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IEC 60794-1-1 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) reorganization of the document to a more logical flow making it easier for the reader:
b) expansion of the tables to include names and definitions of all documents in the IEC 60794-x series;
c) expansion of the definitions, graphical symbols, terminology and abbreviations content, with the aim of making this document the default and reference for all others in the IEC 60794-x series;

d) inclusion of updated, reorganized and expanded optical fibre, attenuation and bandwidth subclauses, with the aim of making this document the default and reference for all others in the IEC 60794-x series.

The text of this International Standard is based on the following documents:

Draft	Report on voting
86A/2286/FDIS	86A/2313/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the 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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

OPTICAL FIBRE CABLES –

Part 1-1: Generic specification – General

1 Scope

This part of IEC 60794 applies to optical fibre cables for use with communication equipment and devices employing similar techniques. Electrical properties are specified for optical ground wire (OPGW) and optical phase conductor (OPPC) cables. Hybrid communication cables are specified in the IEC 62807 series.

The object of this document is to establish uniform generic requirements for the geometrical, transmission, material, mechanical, ageing (environmental exposure), climatic and electrical properties of optical fibre cables and cable elements, where appropriate.

2 Normative references

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.

IEC 60189-1, *Low-frequency cables and wires with PVC insulation and PVC sheath – Part 1: General test and measuring methods*

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

IEC 60793-1-21, *Optical fibres – Part 1-21: Measurement methods and test procedures – Coating geometry*

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: Attenuation measurement methods*

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

IEC 60793-1-46, *Optical fibres – Part 1-46: Measurement methods and test procedures – Monitoring of changes in optical transmittance*

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

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

IEC 60793-2-10*, Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres*

IEC 60793-2-40:2021, *Optical fibres – Part 2-40: Product specifications – Sectional specification for category A4 multimode fibres*