SVENSK STANDARD

SS-EN IEC 60794-1-1, utg 5:2024

2024-03-20

COMMENTED VERSION

Optokablar – Del 1-1: Artspecifikation – Allmänt

Optical fibre cables – Part 1-1: Generic specification – General

En så kallad ”Commented Version” (CMV) innehåller både den fastställda IEC-standarden och en kommenterad och ändringsmarkerad standard. Alla tillägg och borttagningar sedan den tidigare utgåvan är markerade med färg. Med en CMV sparar du mycket tid när du ska identifiera och förklara aktuella ändringar i standarden. SEK Svensk Elstandard kan bara ge ut CMV i de fall den finns tillgänglig från IEC.

IEC 60794-1-1

Edition 5.0 2023-05
COMMENTED VERSION

INTERNATIONAL STANDARD

colour inside

Optical fibre cables –
Part 1-1: Generic specification – General

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.180.10

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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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This commented version (CMV) of the official standard IEC 60794-1-1:2023 edition 5.0 allows the user to identify the changes made to the previous IEC 60794-1-1:2015 edition 4.0. Furthermore, comments from IEC SC 86A experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

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.

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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.

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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.

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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 ~~and to cables having a combination of both optical fibres and electrical conductors~~. 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. 1

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.

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

~~IEC 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode*~~

IEC 60794-1-21, *Optical fibre cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical tests methods*

IEC 60794-1-22[1], *Optical fibre cables – Part 1-22: Generic specification – Basic optical cable test procedures – Environmental tests methods*

IEC 60811-201, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of insulation thickness*

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*

IEC 60811-203, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 203: General tests – Measurement of overall dimensions*

~~IEC TR 61931, *Fibre optic – Terminology*~~

~~ISO 14001, *Environmental management systems – Requirements with guidance for use*~~

~~ISO 14064-1, *Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals*~~

[1] This document is progressively being replaced by the IEC 60794-1-2XX series.

SVENSK STANDARD

SS-EN IEC 60794-1-1, utg 5:2024

Fastställd	Sida	Ansvarig kommitté
2024-03-20	1 (37)	SEK TK 86

Optokablar – Del 1-1: Artspecifikation – Allmänt

Optical fibre cables – Part 1-1: Generic specification – General

Som svensk standard gäller europastandarden EN IEC 60794-1-1:2023. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60794-1-1:2023.

Nationellt förord

Europastandarden EN IEC 60794-1-1:2023

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60794-1-1, Fifth edition, 2023 - Optical fibre cables – Part 1-1: Generic specification – General**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60794-1-1, utg 4:2016 med eventuella tillägg, ändringar och rättelser, gäller ej fr o m 2026-06-26.

ICS 33.180.10

Denna standard är fastställd av SEK Svensk Elstandard,
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60794-1-1

July 2023

ICS 33.180.10

Supersedes EN 60794-1-1:2016

English Version

Optical fibre cables - Part 1-1: Generic specification - General (IEC 60794-1-1:2023)

Câbles à fibres optiques - Partie 1-1: Spécification générique - Généralités
(IEC 60794-1-1:2023)

Lichtwellenleiterkabel - Teil 1-1: Fachgrundspezifikation - Allgemeines
(IEC 60794-1-1:2023)

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

Ref. No. EN IEC 60794-1-1:2023 E

European foreword

The text of document 86A/2286/FDIS, future edition 5 of IEC 60794-1-1, 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 60794-1-1:2023.

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
IEC 60794-1-402	NOTE Approved as EN IEC 60794-1-402
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
IEC 60794-2-41	NOTE Approved as EN 60794-2-41
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

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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	-
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IEC 60794-1-1

Edition 5.0 2023-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

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Part 1-1: Generic specification – General

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Partie 1-1: Spécification générique – Généralités

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CONTENTS

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

IEC 60794-1-21, *Optical fibre cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical tests methods*

IEC 60794-1-22[1], *Optical fibre cables – Part 1-22: Generic specification – Basic optical cable test procedures – Environmental tests methods*

IEC 60811-201, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 201: General tests – Measurement of insulation thickness*

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*

IEC 60811-203, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 203: General tests – Measurement of overall dimensions*

[1] This document is progressively being replaced by the IEC 60794-1-2XX series.