SVENSK STANDARD SS-EN IEC 60793-1-40

Fastställd	Utgåva	Sida	Ansvarig kommitté
2019-11-13	2	1 (1+35)	SEK TK 86

Optofibrer – Del 1-40: Mätning och provning – Dämpning

Optical fibres – Part 1-40: Attenuation measurement methods

Som svensk standard gäller europastandarden EN IEC 60793-1-40:2019. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60793-1-40:2019.

Nationellt förord

Europastandarden EN IEC 60793-1-40:2019

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60793-1-40, Second edition, 2019 - Optical fibres - Part 1-40: Attenuation measurement methods**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60793-1-40, utgåva 1, 2004, gäller ej fr o m 2022-05-01.

ICS 33.180.10

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Stora delar av arbetet sker internationellt

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60793-1-40

May 2019

ICS 33.180.10

Supersedes EN 60793-1-40:2003

English Version

Optical fibres - Part 1-40: Attenuation measurement methods (IEC 60793-1-40:2019)

Fibres optiques - Partie 1-40: Méthodes de mesurage d'affaiblissement
(IEC 60793-1-40:2019)

Lichtwellenleiter - Teil 1-40: Messmethoden und Prüfverfahren - Dämpfung
(IEC 60793-1-40:2019)

This European Standard was approved by CENELEC on 2019-05-01. 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.

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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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, 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

Ref. No. EN IEC 60793-1-40:2019 E

SEK Svensk Elstandard

SS-EN IEC 60793-1-40, utg 2:2019

European foreword

The text of document 86A/1909/FDIS, future edition 2 of IEC 60793-1-40, 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 60793-1-40:2019.

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)	2020-02-01
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2022-05-01

This document supersedes EN 60793-1-40:2003.

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 60793-1-40:2019 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 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.

Publication	Year	Title	EN/HD	Year
IEC 60793-1-1	-	Optical fibres - Part 1-1: Measurement methods and test procedures - General and guidance	EN 60793-1-1	-
IEC 60793-1-22	-	Optical fibres - Part 1-22: Measurement methods and test procedures - Length measurement	EN 60793-1-22	-
IEC 60793-1-43	-	Optical fibres - Part 1-43: Measurement methods and test procedures - Numerical aperture measurement	EN 60793-1-43	-
IEC 61746-1	-	Calibration of optical time-domain reflectometers (OTDR) - Part 1: OTDR for single mode fibres	EN 61746-1	-
IEC 61746-2	-	Calibration of optical time-domain reflectometers (OTDR) - Part 2: OTDR for multimode fibres	EN 61746-2	-

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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OPTICAL FIBRES –

Part 1-40: Attenuation measurement methods

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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International Standard IEC 60793-1-40 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2001. This edition constitutes a technical revision.

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

a) Improvement of the description of measurement details for B6 fibre;
b) Improvement of the calibration requirements for A4 fibre;
c) Introduction of Annex E describing examples of short cable test results on A1 multimode fibres.

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

FDIS	Report on voting
86A/1909/FDIS	86A/1927/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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

A list of all parts in the IEC 60793 series, published under the general title *Optical fibres*, 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 "http://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.

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OPTICAL FIBRES –

Part 1-40: Attenuation measurement methods

1 Scope

This part of IEC 60793 establishes uniform requirements for measuring the attenuation of optical fibre, thereby assisting in the inspection of fibres and cables for commercial purposes.

Four methods are described for measuring attenuation, one being that for modelling spectral attenuation:

– method A: cut-back;
– method B: insertion loss;
– method C: backscattering;
– method D: modelling spectral attenuation.

Methods A to C apply to the measurement of attenuation for all categories of the following fibres:

– class A multimode fibres;
– class B single-mode fibres.

Method C, backscattering, also covers the location, losses and characterization of point discontinuities.

Method D is applicable only to class B fibres.

Information common to all four methods appears in Clauses 1 to 11, and information pertaining to each individual method appears in Annexes A, B, C, and D, respectively.

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 60793-1-1, *Optical fibres – Part 1-1: Measurement methods and test procedures – General and guidance*

IEC 60793-1-22, *Optical fibres – Part 1-22: Measurement methods and test procedures – Length measurement*

IEC 60793-1-43, *Optical fibres – Part 1-43: Measurement methods and test procedures – Numerical aperture measurement*

IEC 61746-1, *Calibration of optical time-domain reflectometers (OTDR) – Part 1: OTDR for single mode fibres*

IEC 61746-2, *Calibration of optical time-domain reflectometers (OTDR) – Part 2: OTDR for multimode fibres*