



SLOVENSKI STANDARD
SIST EN IEC 60793-1-34:2021

01-junij-2021

Nadomešča:
SIST EN 60793-1-34:2006

Optična vlakna - 1-34. del: Merilne metode in postopki preskušanja - Zvijanje vlaken (IEC 60793-1-34:2021)

Optical fibres - Part 1-34: Measurement methods and test procedures - Fibre curl (IEC 60793-1-34:2021)

Lichtwellenleiter - Teil 1-34: Messmethoden und Prüfverfahren - Faserringeln (IEC 60793-1-34:2021)

Fibres optiques - Partie 1-34: Méthodes de mesure et procédures d'essai - Ondulation de la fibre (IEC 60793-1-34:2021)

ITIH STANDARD PREVIEW
(standards.iteh.ai)
SIST EN IEC 60793-1-34:2021
<https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021>

Ta slovenski standard je istoveten z: EN IEC 60793-1-34:2021

ICS:

33.180.10 (Optična) vlakna in kabli Fibres and cables

SIST EN IEC 60793-1-34:2021 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN IEC 60793-1-34:2021](https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021)

<https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021>

EUROPEAN STANDARD

EN IEC 60793-1-34

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2021

ICS 33.180.10

Supersedes EN 60793-1-34:2006 and all of its
amendments and corrigenda (if any)

English Version

**Optical fibres - Part 1-34: Measurement methods and test
procedures - Fibre curl
(IEC 60793-1-34:2021)**Fibres optiques - Partie 1-34: Méthodes de mesure et
procédures d'essai - Ondulation de la fibre
(IEC 60793-1-34:2021)Lichtwellenleiter - Teil 1-34: Messmethoden und
Prüfverfahren - Faserringeln
(IEC 60793-1-34:2021)

This European Standard was approved by CENELEC on 2021-03-17. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

[SIST EN IEC 60793-1-34:2021](#)

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

EN IEC 60793-1-34:2021 (E)**European foreword**

The text of document 86A/1971/CDV, future edition 3 of IEC 60793-1-34, 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 60793-1-34:2021.

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) 2021-12-17
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-03-17

This document supersedes EN 60793-1-34:2006 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.

Endorsement notice**iTeh STANDARD PREVIEW**

The text of the International Standard IEC 60793-1-34:2021 was approved by CENELEC as a European Standard without any modification. (standards.iteh.ai)

[SIST EN IEC 60793-1-34:2021](https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021)

<https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021>

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60793	series	Optical fibres - Part 1: Generic specification	EN IEC 60793	series

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN IEC 60793-1-34:2021](https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021)

<https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN IEC 60793-1-34:2021](https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021)

<https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021>



IEC 60793-1-34

Edition 3.0 2021-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Optical fibres – **iTeh STANDARD PREVIEW**
Part 1-34: Measurement methods and test procedures – Fibre curl
(standards.iteh.ai)

Fibres optiques –
Partie 1-34: Méthodes de mesure et procédures d'essai – Ondulation de la fibre
SIST EN IEC 60793-1-34:2021
749d72ca8b69/sist-en-iec-60793-1-34-2021

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.180.10

ISBN 978-2-8322-9396-6

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

CONTENTS

FOREWORD	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
4 Apparatus	7
4.1 Principle	7
4.2 Fibre holding fixture	7
4.3 Fibre rotator	7
4.4 Deflection measurement device	7
4.5 Computer (optional)	7
5 Sample preparation	7
6 Procedure	7
6.1 General	7
6.2 Mounting of the fibre	7
6.3 Rotation	8
7 Calculation	8
8 Result	8
9 Specification information	8
Annex A (normative) Fibre curl by side view microscopy	9
A.1 Principle	9
A.2 Apparatus	10
A.2.1 Deflection measurement device	10
A.2.2 Video camera and monitor	11
A.2.3 Digital image analysis system (optional)	11
A.3 Test procedure	11
A.3.1 General	11
A.3.2 Procedure for the extrema technique	11
A.3.3 Procedure for the Fourier fitting technique	11
A.4 Calculations	11
A.4.1 Extrema technique calculation	11
A.4.2 Fourier fitting technique calculation	11
A.4.3 Computation of fibre curl	12
Annex B (normative) Fibre curl by laser beam scattering	13
B.1 Principle	13
B.2 Apparatus	13
B.2.1 Light source	13
B.2.2 Detector	13
B.3 Test procedure	13
B.3.1 General	13
B.3.2 Procedure for the extrema technique	13
B.3.3 Procedure for the Fourier fitting technique	13
B.4 Calculations	13
B.4.1 Extrema technique calculation	13
B.4.2 Fourier fitting technique calculation	14
B.4.3 Computation of fibre curl	14

ITeH STANDARD PREVIEW
(standards.iteh.ai)

SIST EN IEC 60793-1-34:2021

<https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8069/sist-en-iec-60793-1-34-2021>

Annex C (informative) Derivation of the circular fibre curl	15
C.1 Derivation of equations for side view microscopy	15
C.2 Derivation of equations for the laser scattering method	16
Figure A.1 – Schematic diagram for apparatus to measure fibre curl using an optical microscope	9
Figure A.2 – Schematic diagram for apparatus to measure fibre curl using a laser micrometer.....	10
Figure A.3 – Schematic diagram for apparatus to measure fibre curl while securing the sample in a ferrule	10
Figure B.1 – Schematic diagram of optical curl by laser beam scattering	14
Figure C.1 – Geometrical layout of side view microscopy fibre curl measurement	15
Figure C.2 – Geometrical layout of laser scattering fibre curl measurement	16

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

[SIST EN IEC 60793-1-34:2021](https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021)

<https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRES –

Part 1-34: Measurement methods and test procedures – Fibre curl

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60793-1-34 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 2006. This edition constitutes a technical revision.

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

- a) modification of several derivation equations for laser scattering;
- b) change of angular increment from 10° to 30° to 10° to 45°;
- c) change of Annex B from informative to normative.

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

CDV	Report on voting
86A/1971/CDV	86A/1994/RVC

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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

ITeH STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN IEC 60793-1-34:2021](https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021)

<https://standards.iteh.ai/catalog/standards/sist/4ba216a6-572a-419c-9e5a-749d72ca8b69/sist-en-iec-60793-1-34-2021>