
**Optična vlakna – 1-34. del: Merilne metode in postopki preskušanja – Zvijanje
vlaknen (IEC 60793-1-34:2006)**

Optical fibres – Part 1-34: Measurement methods and test procedures – Fibre curl
(IEC 60793-1-34:2006)

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English version

**Optical fibres -
Part 1-34: Measurement methods and test procedures -
Fibre curl
(IEC 60793-1-34:2006)**

Fibres optiques -
Partie 1-34: Méthodes de mesure et
procédures d'essai -
Ondulation de la fibre
(CEI 60793-1-34:2006)

Lichtwellenleiter -
Teil 1-34: Messmethoden und
Prüfverfahren -
Faserringeln
(IEC 60793-1-34:2006)

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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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 86A/1049/FDIS, future edition 2 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 was approved by CENELEC as EN 60793-1-34 on 2006-04-01.

This European Standard supersedes EN 60793-1-34:2002. It provides more details for performing the described test.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2007-01-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2009-04-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60793-1-34:2006 was approved by CENELEC as a European Standard without any modification.

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Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60793	Series	Optical fibres	EN 60793	Series

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INTERNATIONALE
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60793-1-34

Deuxième édition
Second edition
2006-03

Fibres optiques –

Partie 1-34:

**Méthodes de mesure et procédures d'essai –
Ondulation de la fibre**

iTech STANDARD PREVIEW

Optical fibres –

Part 1-34:

**Measurement methods and test procedures –
Fibre curl**

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International Electrotechnical Commission, 3, rue de Varembe, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRES –

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

FOREWORD

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International Standard IEC 60793-1-34 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. It constitutes a technical revision providing more details for performing the described test.

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

FDIS	Report on voting
86A/1049/FDIS	86A/1056/RVD

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

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

IEC 60793 series consists of the following parts, under the general title *Optical fibres*:

- Part 1-1: Measurement methods and test procedures – General and guidance
- Parts 1-20 to 1-29: Measurement methods and test procedures for dimensions
- Parts 1-30 to 1-39: Measurement methods and test procedures for mechanical characteristics
- Part 1-30: Fibre proof test
- Part 1-31: Tensile strength
- Part 1-32: Coating strippability
- Part 1-33: Stress corrosion susceptibility
- Part 1-34: Fibre curl.
- Parts 1-40 to 1-49: Measurement methods and test procedures for transmission and optical characteristics
- Parts 1-50 to 1-59: Measurement methods and test procedures for environmental characteristics.
- Part 2: Product specifications – General
- Parts 2-10 to 2-50: Product specifications – Sectional specifications.

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

- reconfirmed; [SIST EN 60793-1-34:2006](https://standards.iteh.ai/catalog/standards/sist/en-60793-1-34-2006)
- withdrawn; <https://standards.iteh.ai/catalog/standards/sist/71ae6e7f-b571-47a7-bbfa-3c7f969e7503/sist-en-60793-1-34-2006>
- replaced by a revised edition, or
- amended.

OPTICAL FIBRES –

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

1 Scope

This part of IEC 60793 establishes uniform requirements for the mechanical characteristic: fibre curl or latent curvature, in uncoated optical fibres. Fibre curl has been identified as an important parameter for minimizing the splice loss of optical fibres when using passive alignment fusion splicers or active alignment mass fusion splicers.

Two methods are recognized for the measurement of fibre curl, in uncoated optical fibres:

- method A: side view microscopy;
- method B: laser beam scattering.

Both methods measure the radius of curvature of an uncoated fibre by determining the amount of deflection that occurs as an unsupported fibre end is rotated about the fibre's axis. Method A uses visual or digital video methods to determine the deflection of the fibre while method B uses a line sensor to measure the maximum deflection of one laser beam relative to a reference laser beam.

By measuring the deflection behaviour of the fibre as it is rotated about its axis and understanding the geometry of the measuring device, the fibre's radius of curvature can be calculated from simple circular models, the derivation of which are given in Annex C.

Both methods are applicable to types A1, A2, A3 and B optical fibres as described in the IEC 60793 series.

Method A is the reference test method, used to resolve disputes.

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 60793 (all parts), *Optical fibres*

3 Apparatus

3.1 Principle

An uncoated fibre end is mounted in a rotatable fixture so that the end extends freely into space by an overhang distance which will depend on the measurement device. The overhang distance is typically 10 mm to 20 mm. If the measurement device is designed with overhang distances greater than this, care must be taken to avoid excessive degradation due to effects of vibration and gravity. The fibre is rotated and the deviations in the position of the overhang point relative to a reference position are measured to obtain the fibre's radius of curvature, r_c .