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Optofibrer – Del 1-34: Mätning och provning – Fiberns bågformighet

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

Som svensk standard gäller europastandarden EN 60793-1-34:2006. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60793-1-34:2006.

Nationellt förord

Europastandarden EN 60793-1-34:2006^{*)}

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60793-1-34, Second edition, 2006 - Optical fibres - Part 1-34: Measurement and test procedures - Fibre curl**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60793-1-34, utgåva 1, 2003 gäller ej fr o m 2009-04-01.

^{*)} EN 60793-1-34:2006 ikraftsattes 2006-08-21 som SS-EN 60793-1-34 genom offentliggörande, d v s utan utgivning av något svenskt dokument.

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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)

This European Standard was approved by CENELEC on 2006-04-01. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat 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 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.

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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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;
- withdrawn;
- 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*