



SLOVENSKI STANDARD SIST EN 60793-1-54:2004

01-september-2004

**Optična vlakna – 1-54. del: Metode merjenja in preskusni postopki - gama žarčenje
(IEC 60793-1-54:2003)***

Optical fibres -- Part 1-54: Measurement methods and test procedures - Gamma irradiation

Lichtwellenleiter -- Teil 1-54: Messmethoden und Prüfverfahren - Radioaktive Strahlung

iTeh STANDARD PREVIEW

Fibres optiques -- Partie 1-54: Méthodes de mesure et procédures d'essai - Irradiation gamma

[SIST EN 60793-1-54:2004](https://standards.iteh.ai/catalog/standards/sist/29bc88cf-372e-4174-b5d3-0a140c462198/sist-en-60793-1-54-2004)

Ta slovenski standard je istoveten z: EN 60793-1-54:2003

ICS:

17.240	Merjenje sevanja	Radiation measurements
33.180.10	(Optična) vlakna in kabli	Fibres and cables

SIST EN 60793-1-54:2004

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 60793-1-54:2004](#)

<https://standards.iteh.ai/catalog/standards/sist/29bc88cf-372e-4174-b5d3-0a140c462198/sist-en-60793-1-54-2004>

EUROPEAN STANDARD

EN 60793-1-54

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2003

ICS 33.180.10

English version

Optical fibres
Part 1-54: Measurement methods and test procedures -
Gamma irradiation
(IEC 60793-1-54:2003)

Fibres optiques
Partie 1-54: Méthodes de mesure
et procédures d'essai -
Irradiation gamma
(CEI 60793-1-54:2003)

Lichtwellenleiter
Teil 1-54: Messmethoden
und Prüfverfahren -
Radioaktive Strahlung
(IEC 60793-1-54:2003)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 60793-1-54:2004](https://standards.iteh.ai/catalog/standards/sist/29bc88cf-372e-4174-b5d3-114474219c5f/iec-60793-1-54-2003)

<https://standards.iteh.ai/catalog/standards/sist/29bc88cf-372e-4174-b5d3-114474219c5f/iec-60793-1-54-2003>
This European Standard was approved by CENELEC on 2003-09-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and 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/852/FDIS, future edition 1 of IEC 60793-1-54, prepared by SC 86A, Fibres et câbles, du CE 86 de la CEI, Fibres optiques, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60793-1-54 on 2003-09-01.

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) 2004-06-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-09-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60793-1-54:2003 was approved by CENELEC as a European Standard without any modification.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 60793-1-54:2004](https://standards.iteh.ai/catalog/standards/sist/29bc88cf-372e-4174-b5d3-0a140c462198/sist-en-60793-1-54-2004)

<https://standards.iteh.ai/catalog/standards/sist/29bc88cf-372e-4174-b5d3-0a140c462198/sist-en-60793-1-54-2004>

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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 60793-1-40	2001	Optical fibres Part 1-40: Measurement methods and test procedures - Attenuation	EN 60793-1-40	2003
IEC 60793-1-44	2001	Part 1-44: Measurement methods and test procedures - Cut-off wavelength	EN 60793-1-44	2002

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 60793-1-54:2004](https://standards.iteh.ai/catalog/standards/sist/29bc88cf-372e-4174-b5d3-0a140c462198/sist-en-60793-1-54-2004)

<https://standards.iteh.ai/catalog/standards/sist/29bc88cf-372e-4174-b5d3-0a140c462198/sist-en-60793-1-54-2004>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 60793-1-54:2004](#)

<https://standards.iteh.ai/catalog/standards/sist/29bc88cf-372e-4174-b5d3-0a140c462198/sist-en-60793-1-54-2004>

**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

60793-1-54

Première édition
First edition
2003-06

Fibres optiques –

**Partie 1-54:
Méthodes de mesure et procédures d'essai –
Irradiation gamma**

iTech STANDARD PREVIEW

Optical fibres – (standards.iteh.ai)

Part 1-54: [SIST EN 60793-1-54:2004](http://standards.iteh.ai/catalog/standards/sist/299bc88cf372e4174b5d30a140c462198/sist-en-60793-1-54-2004)
**Measurement methods and test procedures –
Gamma irradiation**

© IEC 2003 Droits de reproduction réservés — Copyright - all rights reserved

Aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'éditeur.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

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



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

M

*Pour prix, voir catalogue en vigueur
For price, see current catalogue*

CONTENTS

FOREWORD	5
INTRODUCTION	9
1 Scope	11
2 Normative references.....	11
3 Apparatus	13
3.1 Radiation source.....	13
3.1.1 Testing of environmental background radiation	13
3.1.2 Testing of adverse nuclear environments	13
3.2 Light source.....	13
3.3 Optical filters/monochromators	13
3.4 Cladding mode stripper	13
3.5 Fibre support and positioning apparatus	13
3.6 Optical splitter	13
3.7 Input launch simulator	15
3.7.1 Category A1 fibres (graded index multimode fibre).....	15
3.7.2 Category B fibres (single-mode fibre).....	15
3.7.3 Categories A2.1 and A2.2 (quasi-step and step index fibres)	15
3.8 Detector – Signal detection electronics	15
3.9 Optical power meter.....	15
3.10 Radiation dosimeter.....	15
3.11 Temperature-controlled container	15
3.12 Test reel	15
4 Sampling and specimens	17
4.1 Specimens.....	17
4.1.1 Fibre specimen	17
4.1.2 Cable specimen	17
4.2 Specimen for environmental background radiation test	17
4.3 Specimen for testing adverse nuclear environments	17
4.4 Test reel	17
4.5 Ambient light shielding.....	17
5 Procedure	17
5.1 Calibration of radiation source	17
5.2 Preparation and conditioning	19
5.3 Attenuation measurement for environmental background radiation.....	19
5.4 Attenuation measurement for adverse nuclear environment	21
6 Calculations	21
6.1 The change in optical attenuation ΔA (environmental background radiation test)	21
6.2 The change in optical transmittance, A (adverse nuclear environmental radiation test)	21
6.3 Normalisation of the results	23
7 Results	23
7.1 Information to be provided with each measurement	23
7.2 Information available upon request	23
8 Specification information.....	25

INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRES –

**Part 1-54: Measurement methods and test procedures –
Gamma irradiation**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60793-1-54 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

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

FDIS	Report on voting
86A/852/FDIS	86A/866/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 60793-1-5X consists of the following parts, under the general title *Optical fibres*:

Part 1-50: Measurement methods and test procedures – Damp heat (steady state)

Part 1-51: Measurement methods and test procedures – Dry heat

Part 1-52: Measurement methods and test procedures – Change of temperature

Part 1-53: Measurement methods and test procedures – Water immersion

Part 1-54: Measurement methods and test procedures – Gamma irradiation