Optical fibre cables - Part 1-211: Generic specification - Basic optical cable test procedures - Environmental test methods - Sheath shrinkage, Method F11

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 60794-1-211:2021 sisaldab Euroopa standardi EN IEC 60794-1-211:2021 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 60794-1-211:2021 consists of the English text of the European standard EN IEC 60794-1-211:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 26.03.2021.	Date of Availability of the European standard is 26.03.2021.
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EUROPEAN STANDARD

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EN IEC 60794-1-211

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Supersedes EN IEC 60794-1-22:2018 and all of its amendments and corrigenda (if any)

English Version

Optical fibre cables - Part 1-211: Generic specification - Basic optical cable test procedures - Environmental test methods - Sheath shrinkage, method F11 (IEC 60794-1-211:2021)

Câbles à fibres optiques - Partie 1-211: Spécification générique - Procédures fondamentales d'essais des câbles optiques - Méthodes d'essais d'environnement - Rétraction de la gaine, méthode F11 (IEC 60794-1-211:2021)

Lichtwellenleiterkabel - Teil 1-211: Fachgrundspezifikation - Grundlegende Prüfverfahren für Lichtwellenleiterkabel - Umweltprüfverfahren - Mantelschrumpf, Methode F11 (IEC 60794-1-211:2021)

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European foreword

The text of document 86A/2074/FDIS, future edition 1 of IEC 60794-1-211, 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 60794-1-211:2021.

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) 2021-12-25
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-03-25

This document supersedes EN IEC 60794-1-22:2018 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.

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The text of the International Standard IEC 60794-1-211:2021 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60794-1-2	NOTE	Harmonized as EN IEC 60794-1-2
IEC 60811-503	NOTE	Harmonized as EN 60811-503

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 60794-1-1	-	Optical fibre cables - Part 1-1: Generic specification - General	EN 60794-1-1	-
IEC 60794-1-22	2017	Optical fibre cables - Part 1-22: Generic specification - Basic optical cable test procedures - Environmental test methods	EN IEC 60794-1-22	2018

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INTERNATIONAL STANDARD

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Optical fibre cables –
Part 1-211: Generic specification – Basic optical cable test procedures – Environmental test methods – Sheath shrinkage, method F11

Câbles à fibres optiques –
Partie 1-211: Spécification générique – Procédures fondamentales d'essais des câbles optiques – Méthodes d'essais d'environnement – Rétraction de la gaine, méthode F11

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OPTICAL FIBRE CABLES –

Part 1-211: Generic specification – Basic optical cable test procedures – Environmental test methods – Sheath shrinkage, method F11

FOREWORD

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IEC 60794-1-211 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics. It is an International Standard.

This document cancels and replaces IEC 60794-1-22:2017. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 60794-1-22:2017:

a) method F11 (cables intended for patch cords) of IEC 60794-1-22:2017 was renumbered F11A and renamed as "sheath shrinkage (cables to be terminated with connectors)";
b) a second method F11B is newly included that was adapted from ANSI/TIA-455-86-A;
c) in method F11A, the thermal exposure from ambient to the specified temperature was replaced by temperature cycling between a low and high temperature according to IEC 60794-1-22, method F1;

d) in method F11A, the continuing of the test cycles until the shrinkage exhibits a variation less than ±1 mm was replaced with a fixed number of cycles specified by the detail specification;

e) in method F11A, the average was changed to maximum sheath shrinkage that shall not exceed the value specified in the relevant detail specification;

f) in both methods, the alternative that the sample may be cut to length and the length between the cut sheath ends measured is added.

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

Draft	Report on voting
86A/2074/FDIS	86A/2087/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the 60794 series, published under the general title *Optical fibre cables*, 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.

INTRODUCTION

This document defines two test methods to measure the shrinkage of the sheath due to thermal exposure of cables intended for termination with connectors and cables for general purpose.

This document cancels and replaces method F11 of IEC 60794-1-22:2017, which will be withdrawn. It includes an editorial revision, based on the new structure and numbering system for optical fibre cable test methods. Additionally, technical changes were implemented. The environmental tests contained in IEC 60794-1-22:2017 will be individually numbered in the IEC 60794-1-2xx series. Each test method is now considered to be an individual document rather than part of a multi-test method compendium. Full cross-reference details are given in IEC 60794-1-2.

This document includes a first method F11 of IEC 60794-1-22:2017 named "sheath shrinkage test for cables intended for patch cords". This method was renumbered as method F11A in this document. There are technical changes in method F11A. The thermal exposure from ambient to the specified temperature was replaced by temperature cycling according to IEC 60794-1-22, method F1. Also, the continuing of the test cycles until the shrinkage exhibits a variation less than ±1 mm was replaced by a fixed number of cycles according to the detail specification.

This document includes a second method F11B for sheath shrinkage of cable for general purpose. This test procedure adapts the method in ANSI/TIA-455-86-A.

The numbering of these tests continues the F-series numbering sequence of IEC 60794-1-22:2017.

A test procedure other than method F11A and method F11B to measure the shrinkage exists. Method F17 according to IEC 60794-1-22 defines shrinkage testing on a cable sample with a minimum length of 10 m or longer by measuring the fibre protrusion and, indirectly, the buffered fibre or fibre tube protrusion at both ends.

For electric and optical fibre cables, a shrinkage test for sheaths according to IEC 60811-503 exists that uses a nominal sample length of 500 mm and exposes the sample over a specified temperature and time. Afterwards, the sample is allowed to cool in air to ambient temperature. Five such thermal cycles are carried out.

IEC TR 62959[1] provides information on cable shrinkage characterisation of optical fibre cables that consist of standard glass optical fibres for telecommunication applications. The characterisation is directed to the effects of cable shrinkage or cable element shrinkage on the termination of cables. Recommended test methods for the evaluation of cable shrinkage and classification by several grades are given.

[1] Under preparation. Stage at the time of publication: IEC TR/TPUB 62959:2020.