

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

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**Optical fibre cables -  
Part 1-218: Generic specification - Basic optical cable test procedures -  
Environmental test methods - Mid-span temperature cycling test for exposed  
optical units, Method F18**

**Câbles à fibres optiques -  
Partie 1-218: Spécification générique - Procédures fondamentales d'essais des  
câbles optiques - Méthodes d'essai d'environnement - Essai de cycles de  
température à mi-portée pour les éléments optiques exposés, Méthode F18**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Optical fibre cables -  
Part 1-218: Generic specification - Basic optical cable test procedures -  
Environmental test methods - Mid-span temperature cycling test for  
exposed optical cable elements, method F18**

FOREWORD

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IEC 60794-1-218 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics. It is an International Standard.

This first edition partially cancels and replaces the second edition of IEC 60794-1-22 published in 2017. This edition constitutes a technical revision.

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

- a) extension of the test method scope to apply to any optical cables with optical cable elements including loose tubes, tight buffer tubes, and ribbons, exposed in a mid-span entry (expressed) and stored in a pedestal, closure, or similar;
- b) modification of the test method title according to item a);
- c) deletion of the tube diameter requirement for the test object;
- d) modification of the default temperature range according to IEC 60794-1-1;
- e) addition of the default coiled turns in the assembly during the test.

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

Draft	Report on voting
86A/2587/FDIS	86A/2608/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

A list of all parts in the IEC 60794 series, published under the general title *Optical fibre cables*, can be found on the IEC website.

The committee has decided that the content of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

## INTRODUCTION

This document cancels and replaces method F18 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.

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## 1 Scope

This part of IEC 60794 defines test procedures to establish uniform requirements for the environmental performance of:

- optical fibre cables for telecommunication equipment and devices employing similar techniques, and
- cables having a combination of both optical fibres and electrical conductors.

Throughout this document, the wording "optical cable" can also include optical fibre units, microduct fibre units, etc.

This document defines a test standard to determine the ability of optical cable elements from a cable exposed in a mid-span entry (expressed) and stored in a pedestal, closure or similar to withstand the effects of temperature cycling by observing changes in attenuation. The optical cable element bundles up single or multiple optical fibres, e.g. loose tube, tight buffer tube, or optical fibre ribbon.

See IEC 60794-1-2 for a reference guide to test methods of all types and for general requirements and definitions.

## 2 Normative references

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.

IEC 60793-1-46, *Optical fibres - Part 1-46: Measurement methods and test procedures - Monitoring of changes in attenuation*

IEC 60794-1-1:2023, *Optical fibre Cables - Part 1-1: Generic specification – General*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60794-1-1 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

## 4 Method F18 – Mid-span temperature cycling test for exposed optical cable elements

### 4.1 Object

The mid-span temperature cycling test evaluates the environmental effects on uncut optical cable elements from a cable exposed in a mid-span entry (expressed) and stored in a pedestal, closure or similar. The test measures the change in attenuation caused by thermal contraction and expansion of the uncut optical cable elements of a mid-span entry when exposed to temperature cycles in the stored configuration.

The method uses a generic simulation assembly but can also be used to evaluate optical performance in a pedestal, closure, or any other device with mid-span access.