

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –
Part 1: General and guidance**

**Dispositifs d'interconnexion et composants passifs fibroniques – Procédures fondamentales d'essais et de mesures –
Partie 1: Généralités et lignes directrices**





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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING
DEVICES AND PASSIVE COMPONENTS –
BASIC TEST AND MEASUREMENT PROCEDURES –****Part 1: General and guidance**

FOREWORD

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International Standard IEC 61300-1 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre Optics.

This fourth edition cancels and replaces the third edition published in 2011. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) reconsideration of the terms and definitions;
- b) addition of Clause 4.

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

FDIS	Report on voting
86B/3992/FDIS	86B/4008/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.

A list of all parts in the IEC 61300 series, published under the general title, *Fibre optic interconnecting and passive components – Basic test and measurement procedures*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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- withdrawn,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.

INTRODUCTION

The publications in the IEC 61300 series contain information on mechanical and environmental testing procedures and measurement procedures relating to fibre optic interconnecting devices and passive components. They are intended to be used to achieve uniformity and reproducibility in environmental testing procedures and measurement procedures.

The term "test procedure" refers to procedures commonly known as mechanical and environmental tests. The expressions "environmental conditioning" and "environmental testing" refer to the environments to which components or equipment may be exposed so that an assessment may be made of their performance under the conditions of use, transport and storage.

The term "measurement procedure" refers to those measurements which are necessary to assess the physical and optical characteristics of a component and may also be used before, during or after a test procedure to measure the effects of environmental conditioning or testing. The return loss and attenuation tests are examples of measurement procedures.

The requirements for the performance of components or equipment subjected to the test and measurement procedures described in this part of IEC 61300 are not included. The relevant specification for the device under test defines the allowed performance limits.

When drafting a specification or purchase contract, only those tests which are necessary for the relevant components or equipment taking into account the technical and economic aspects should be specified.

The mechanical and environmental test procedures are contained in the IEC 61300-2 series and the measurement procedures in the IEC 61300-3 series. Each test or measurement procedure is published as a stand-alone publication so that it may be modified, expanded or cancelled without having an effect on any other test or measurement procedure. However it should be noted that, where practical, reference is made to other standards as opposed to repeating all or part of already existing standards. As an example, the cold test for fibre optic apparatus refers to IEC 60068-2-1, but it also provides other needed information such as purpose, recommended severities and a list of items to be specified.

Multiple methods may be contained in a test or measurement procedure. As an example, several methods of measuring attenuation are contained in the attenuation measurement procedure.

If more than one method is contained in a test or measurement procedure, the reference method may be identified.

The tests in this standard permit the performance of components or equipment to be compared. To assess the overall quality of a production lot, the test procedures should be applied in accordance with a suitable sampling plan and may be supplemented by appropriate additional tests, if necessary.

To provide tests appropriate to the different intensities of an environmental condition, some of the test procedures have a number of degrees of severity. These different degrees of severity are obtained by varying the time, temperature or some other determining factor separately or in combination.

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 1: General and guidance

1 Scope

This part of IEC 61300 provides general information and guidance for the basic test and measurement procedures defined in the IEC 61300-2 and IEC 61300-3 series for interconnecting devices and passive components.

This standard should be used in combination with the relevant specification which will define the tests to be used, the required degree of severity for each of them, their sequence, if relevant, and the permissible performance limits. In the event of conflict between this basic standard and the relevant specification, the latter will take precedence.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-731, *International Electrotechnical Vocabulary – Chapter 731: Optical fibre communication*

IEC 60617, *Graphical symbols for diagrams* (available at <http://std.iec.ch/iec60617>)

IEC 60793-2-10, *Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres*

IEC 60793-2-30, *Optical fibres – Part 2-30: Product specifications – Sectional specification for category A3 multimode fibres*

IEC 60793-2-40, *Optical fibres – Part 2-40: Product specifications – Sectional specification for category A4 multimode fibres*

IEC 60825-1, *Safety of laser products – Part 1: Equipment classification and requirements*

IEC 60825-2, *Safety of laser products – Part 2: Safety of optical fibre communication systems (FOC)*

IEC 61280-1-4, *Fibre optic communication subsystem test procedures – Part 1-4: General communication subsystems – Light source encircled flux measurement method*

IEC 61280-4-1, *Fibre optic communication subsystem test procedures – Part 4-1: Installed cable plant – Multimode attenuation measurement*

IEC 61300-2 (all parts), *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Tests*