

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Fibre optic interconnecting devices and passive components – Reliability –
Part 9-1: Qualification of passive optical components**

**Dispositifs d'interconnexion et composants passifs à fibres optiques –
Fiabilité –
Partie 9-1: Qualification des composants optiques passifs**





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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING DEVICES
AND PASSIVE COMPONENTS –
RELIABILITY –**

Part 9-1: Qualification of passive optical components

FOREWORD

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International Standard IEC 62005-9-1 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

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

FDIS	Report on voting
86B/3896/FDIS	86B/3921/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.

It is the intent of this standard to be compatible with and work in conjunction with the performance standards defined in the IEC 61753 series, the test and measurement standards defined in the IEC 61300 series, and the reliability standards defined in the IEC 62005 series.

A list of all parts in the IEC 62005 series, published under the general title, *Fibre optic interconnecting and passive components – Reliability*, 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 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- withdrawn,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.

INTRODUCTION

Qualification reliability standards define the conditions for a set of stress tests, the passing of which suggests an acceptable level of reliability in the referenced performance categories and operating service environments. Upon passing, the specific product tested is called qualified to that standard. The results of these tests are attribute data, i.e. pass or fail. True reliability prediction and quantification requires significantly greater testing.

This International Standard is meant to be a general document that can be applied to all passive optical components, except connectors. As such, it does not and cannot cover every possible component and application. Its application to electrically assisted non-active components such as optical switches is under study. The stress tests are specific and explicitly defined to establish consistency. The measurements and pass/fail criteria are not explicitly stated in this standard; however, guidance is given in the relevant clause to establish reasonable parameters and values. Explicit reporting requirements are defined which include written justifications and technical support for all selected measurements and pass/fail criteria.

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – RELIABILITY –

Part 9-1: Qualification of passive optical components

1 Scope

This part of IEC 62005 establishes a general reliability qualification program that applies to all passive fibre optic components except connectors and connector assemblies, the passing of which, suggests a minimum level of reliability assurance and allows that specific device to be called qualified to this standard.

The objectives of this International Standard are as follows:

- to specify the requirements for a general reliability qualification standard (RQS) for passive optical components;
- to give direction to the supplier and to the end user on the production and purchase of passive optical components to meet and verify reliability qualification standards for certain specified service environments;
- to give the minimum list of reliability qualification stress tests and conditions;
- to establish guidance for the selection of appropriate measurements and pass/fail criteria;
- to give relevant references; and
- to establish the minimum reporting requirements.

This standard defines a series of stress tests, their severity, sequences, quantities of devices under the test (DUT), acceptance criteria, and reporting requirements. It also gives guidelines to selecting appropriate measurements and pass/fail criteria.

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 60749-26, *Semiconductor devices – Mechanical and climatic test methods – Part 26: Electrostatic discharge (ESD) sensitivity testing – Human body model (HBM)*

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

IEC 61300-2-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-1: Tests – Vibration (sinusoidal)*

IEC 61300-2-4, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-4: Tests – Fibre/cable retention*

IEC 61300-2-9, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-9: Tests – Shock*