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

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 06/16

Obsahuje: EN 62005-9-1:2015, IEC 62005-9-1:2015

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62005-9-1

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English Version

Fibre optic interconnecting devices and passive components - Reliability - Part 9-1: Qualification of passive optical components (IEC 62005-9-1:2015)

Dispositifs d'interconnexion et composants passifs à fibres optiques - Fiabilité - Partie 9-1: Qualification des composants optiques passifs
(IEC 62005-9-1:2015)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Zuverlässigkeit - Teil 9-1: Beurteilung der passiven optischen Bauteile
(IEC 62005-9-1:2015)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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EN 62005-9-1:2015

European foreword

The text of document 86B/3896/FDIS, future edition 1 of IEC 62005-9-1, prepared by SC 86B "Fibre optic interconnecting devices and passive components" of IEC/TC 86 "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62005-9-1:2015.

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) 2016-04-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-07-30

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Endorsement notice

The text of the International Standard IEC 62005-9-1:2015 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 61300-2-5	NOTE	Harmonized as EN 61300-2-5.
IEC 61300-2-6	NOTE	Harmonized as EN 61300-2-6.
IEC 61300-2-7	NOTE	Harmonized as EN 61300-2-7.
IEC 61300-2-14	NOTE	Harmonized as EN 61300-2-14.
IEC 61300-2-15	NOTE	Harmonized as EN 61300-2-15.
IEC 61300-2-35	NOTE	Harmonized as EN 61300-2-35.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When 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 60749-26	-	Semiconductor devices - Mechanical and climatic test methods - Part 26: Electrostatic discharge (ESD) sensitivity testing - Human body model (HBM)	EN 60749-26	-
IEC 61300	series	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures	EN 61300	series
IEC 61300-2-1	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-1: Tests - Vibration (sinusoidal)	EN 61300-2-1	-
IEC 61300-2-4	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-4: Tests - Fibre/cable retention	EN 61300-2-4	-
IEC 61300-2-9	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-9: Tests - Shock	EN 61300-2-9	-
IEC 61300-2-17	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-17: Tests - Cold	EN 61300-2-17	-
IEC 61300-2-18	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-18: Tests - Dry heat - High temperature endurance	EN 61300-2-18	-
IEC 61300-2-19	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-19: Tests - Damp heat (steady state)	EN 61300-2-19	-

EN 62005-9-1:2015

Publication	Year	Title	EN/HD	Year
IEC 61300-2-22	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-22: Tests - Change of temperature	EN 61300-2-22	-
IEC 61300-2-42	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-42: Tests - Static side load for strain relief	EN 61300-2-42	-
IEC 61300-2-44	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-44: Tests - Flexing of the strain relief of fibre optic devices	EN 61300-2-44	-
IEC 61300-2-47	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-47: Tests - Thermal shocks	EN 61300-2-47	-
IEC 61753	series	Fibre optic interconnecting devices and passive components - Performance standard	EN 61753	series
IEC 61753-1	-	Fibre optic interconnecting devices and passive components performance standard - Part 1: General and guidance for performance standards	EN 61753-1	-
IEC 62005	series	Fibre optic interconnecting devices and passive components - Reliability	EN 62005	series
IEC 62005-1	-	Reliability of fibre optic interconnecting devices and passive components - Part 1: Introductory guide and definitions	EN 62005-1	-

IEC 62005-9-1

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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

IEC 62005-9-1:2015-06(en-fr)

IEC 62005-9-1

Edition 1.0 2015-06

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – RELIABILITY –

Part 9-1: Qualification of passive optical components

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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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*

IEC 61300-2-17, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-17: Tests – Cold*

IEC 61300-2-18, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-18: Tests – Dry heat – High temperature endurance*

IEC 61300-2-19, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-19: Tests – Damp heat* (steady state)

IEC 61300-2-22, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-22: Tests – Change of temperature*

IEC 61300-2-42, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-42: Tests – Static side load for strain relief*

IEC 61300-2-44, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-44: Tests – Flexing of the strain relief of fibre optic devices*

IEC 61300-2-47, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-47: Tests – Thermal shocks*

IEC 61753 (all parts), *Fibre optic interconnecting devices and passive components performance standard*

IEC 61753-1, *Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards*

IEC 62005 (all parts), *Fibre optic interconnecting devices and passive components – Reliability*

IEC 62005-1, *Reliability of fibre optic interconnecting devices and passive components – Part 1: Introductory guide and definitions*