SLOVENSKI STANDARD
SIST EN IEC 61753-1:2019

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Optični spojni elementi in pasivne komponente - Tehnični standardi - 1. del: Splošno in smernice (IEC 61753-1:2018)

Fibre optic interconnecting devices and passive components - Performance standards - Part 1: General and guidance (IEC 61753-1:2018)

Izvedbeni standard za optične spojne elemente in pasivne komponente - 1. del: Splošno in navodila za izvedbene standarde (IEC 61753-1:2018)

Fibre optic interconnecting devices and passive components performance standard - Part 1: General and guidance for performance standards (IEC 61753-1:2018)

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33.180.20	Povezovalne naprave za optična vlakna	Fibre optic interconnecting devices

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English Version

Fibre optic interconnecting devices and passive components - Performance standard - Part 1: General and guidance (IEC 61753-1:2018)

Dispositifs d'interconnexion et composants passifs fibroniques - Norme de performance - Partie 1: Généralités et recommandations (IEC 61753-1:2018)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Betriebsverhalten - Teil 1: Allgemeines und Leitfaden (IEC 61753-1:2018)

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

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European foreword

The text of document 86B/4131/FDIS, future edition 2 of IEC 61753-1, 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 IEC 61753-1:2018.

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)	2019-06-19
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2019-09-19

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The text of the International Standard IEC 61753-1:2018 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60721-2-1	NOTE	Harmonized as EN 60721-2-1
IEC 61753 (series)	NOTE	Harmonized as EN 61753 (series)
IEC 62005 (series)	NOTE	Harmonized as EN IEC 62005 (series)

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 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 61300	series	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)	EN 61300-2-1	-
IEC 61300-2-2	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-2: Tests - Mating durability	EN 61300-2-2	-
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 61300-2-5	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-5: Tests - Torsion	EN 61300-2-5	-
IEC 61300-2-6	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-6: Tests - Tensile strength of coupling mechanism	EN 61300-2-6	-
IEC 61300-2-7	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-7: Tests - Bending moment	EN 61300-2-7	-
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 61300-2-10	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-10: Tests - Crush resistance	EN 61300-2-10	-

IEC 61300-2-11 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-11: Tests - Axial compression	EN 61300-2-11 -
IEC 61300-2-12 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-12: Tests - Impact	EN 61300-2-12 -
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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 -
IEC 61300-2-21 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-21: Tests - Composite temperature/humidity cyclic test	EN 61300-2-21 -
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 61300-2-23 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-23: Tests - Sealing for non-pressurized closures of fibre optic devices	EN 61300-2-23 -
IEC 61300-2-26 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-26: Tests - Salt mist	EN 61300-2-26 -
IEC 61300-2-27 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-27: Tests - Dust - Laminar flow	EN 61300-2-27 -
IEC 61300-2-28 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-28: Tests - Corrosive atmosphere (sulphur dioxide)	EN 61300-2-28 -
IEC 61300-2-33 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-33: Tests - Assembly and disassembly of fibre optic mechanical splices, fibre management systems and closures	EN 61300-2-33 -
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IEC 61300-2-50 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-50: Tests - Fibre optic connector proof test with static load - Singlemode and multimode	EN 61300-2-50 -
IEC 61300-3-3 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-3: Examinations and measurements - Active monitoring of changes in attenuation and return loss	EN 61300-3-3 -
IEC 61300-3-4 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-4: Examinations and measurements - Attenuation	EN 61300-3-4 -
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IEC 61300-3-7 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-7: Examinations and measurements - Wavelength dependence of attenuation and return loss of single mode components	EN 61300-3-7 -
IEC 61300-3-28 -	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-28: Examinations and measurements - Transient loss	EN 61300-3-28 -

IEC 61300-3-29	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-29: Examinations and measurements - Spectral transfer characteristics of DWDM devices	EN 61300-3-29	-
IEC 61300-3-34	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-34: Examinations and measurements - Attenuation of random mated connectors	EN 61300-3-34	-
IEC 61300-3-45	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-45: Examinations and measurements - Attenuation of random mated multi-fibre connectors	EN 61300-3-45	-
IEC Guide 109	-	Environmental aspects - Inclusion in electrotechnical product standards	-	-
ISO 1998-1	1998	Petroleum industry - Terminology - Part 1: Raw materials and products	-	-

IEC 61753-1

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Fibre optic interconnecting devices and passive components – Performance standard –
Part 1: General and guidance

Dispositifs d'interconnexion et composants passifs fibroniques – Norme de performance –
Partie 1: Généralités et recommandations

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – PERFORMANCE STANDARD –

Part 1: General and guidance

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 61753-1 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2007. It constitutes a technical revision.

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

a) definitions updated with new products: wall outlets, wall or pole mounted boxes, splices, ODF modules, street cabinets, hardened connectors and field mountable connectors;

b) categories U and O are replaced by categories OP and OP+. No mandatory sequence in category OP+. Category OP+ contains the tests from category OP with the addition of only 4 other tests;

c) addition of Category I (Industrial);

d) temperature ranges added (with the HD suffix to the categories C, OP, OP+ and I) in case passive optical components are placed in a housing together with active electronics (HD stands for “heat dissipation”);

e) the height of category A changed from 3 m to ground level (0 m);

f) the lower level height of category G environment changed from ground level (0 m) to –1 m below ground level. Upper level remains at 3 m above ground level;

g) addition of performance tests, test severities and performance criteria for new products: Wall outlet, wall or pole mounted boxes, mechanical splices, fusion splice protectors, ODF modules, street cabinets, field mountable connectors and hardened optical connectors;

h) test severity of "Mating durability" test for connectors in categories C, OP ,OP+ and I is reduced to 200 cycles for connectors with cylindrical ferrules and 50 cycles for connectors with rectangular ferrules;

i) test severity of "Change of temperature" test for connectors and passive optical components in category I is reduced from 20 cycles to 12 cycles (harmonized with connectors and components from other categories);

j) test severity of "Flexing of strain relief" test for connectors in categories C, OP and OP+ is reduced to 50 cycles;

k) test severities of "Assembly and disassembly of fibre optic mechanical splices, fibre management systems and closures" test for all enclosures is reduced to 5 cycles;

l) test severities of "Change of temperature" test for all protective housings in categories C, A, G and S is reduced from 20 cycles to 12 cycles (harmonized with connectors and components);

m) test severities of "Resistance to solvents and contaminating fluids" test for closures in categories G and S changed – kerosene is removed, diesel oil exposure reduced to 1 h immersion and 24 h drying at room temperature;

n) sealing performance criteria of sealed closures for categories G and A are reduced to 20 kPa overpressure.

o) the change in attenuation criterion for connectors has changed from peak-to-peak into a +/- deviation from the original value of the transmitted power at the start of the test (harmonized with the change in attenuation criterion for components, splices and protective housings).

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

FDIS	Report on voting
86B/4131/FDIS	86B/4137/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 61753 series, published under the general title *Fibre optic interconnecting devices and passive components – Performance standard,* 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

The IEC 61753 series is dealing with performance standards for all passive fibre optic products, including connectors, passive optical components, fibre management systems and various protective housings. The standard is published in multiple parts. This part, Part 1, covers general information on performance standards. Subsequent parts are known as performance standards and are numbered according to the classification defined in Annex B. These standards contain the minimum test and measurement severities which are common to all passive fibre optic products, for a particular service environment or performance category, and the test and measurement severities which are considered specific to that particular product in that environment.

Performance Standards define the requirements for standard optical performance under a set of specified conditions. Each standard contains a series or a set of tests and measurements with clearly stated conditions, severities and pass/fail criteria. The series of tests, commonly referred to as an operating service environment or performance category, is intended to be run on a ‘one-off’ basis to prove the product’s ability to satisfy the requirements of a specific application, market sector or user group.

This document define those sets of tests which form each operating service environment or performance category and which have been standardised for international use. A product that has been shown to meet all the requirements of a performance standard can be declared as complying with that performance standard.

Products having the same classification from one manufacturer that satisfy a performance standard, will operate within the boundaries set by the performance standard. Intermateability or interchangeability of products from different suppliers (having the same classification and conforming to the same performance standard) can only be guaranteed when these products also meet the interface standards. Only in this condition will an equivalent level of performance be provided when they are used together (for example, in the case of optical connectors).

Conformance to a performance standard is not a guarantee of lifetime assured performance or reliability. Reliability testing is the subject of a separate test schedule, where the tests and severities selected are truly representative of the requirements of this reliability test programme. Consistency of manufacture will be maintained using a recognised quality assurance programme whilst the reliability of product will be evaluated using the procedures recommended in IEC 62005 (all parts).

Tests and measurements are selected from IEC 61300 (all parts). Where this is not possible, the required test method is attached as an annex to the performance standard.