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Fibre optic interconnecting devices and passive components - Performance standard - Part 111-09: Sealed closures - Category S - Subterranean

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EUROPÄISCHE NORM

EN IEC 61753-111-09

October 2021

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English Version

Fibre optic interconnecting devices and passive components - Performance standard - Part 111-09: Sealed closures - Category S - Subterranean (IEC 61753-111-09:2021)

Dispositifs d'interconnexion et composants passifs fibroniques - Norme de performance - Partie 111-09: Boîtiers étanches pour la catégorie S - Souterrains (IEC 61753-111-09:2021)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Betriebsverhalten - Teil 111-9: Druckdichte Muffen für die Kategorie S - unterirdische Verlegung (IEC 61753-111-09:2021)

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European foreword

The text of document 86B/4494/FDIS, future edition 1 of IEC 61753-111-09, 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 61753-111-09:2021.

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) 2022–07–19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024–10–19

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-1	NOTE Harmonized as EN 60068-1
IEC 60068-2 (series)	NOTE Harmonized as EN IEC 60068-2 (series)
IEC 60721-3-1	NOTE Harmonized as EN IEC 60721-3-1
IEC 60721-3-2	NOTE Harmonized as EN IEC 60721-3-2
IEC 60793-2	NOTE Harmonized as EN IEC 60793-2
IEC 60794-1-2	NOTE Harmonized as EN IEC 60794-1-2
IEC 60794-2	NOTE Harmonized as EN 60794-2
IEC 60794-3	NOTE Harmonized as EN 60794-3
IEC 61300 (series)	NOTE Harmonized as EN 61300 (series)
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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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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 60068-2-10	-	Environmental testing - Part 2–10: Tests - Test J and guidance: Mould growth	EN 60068-2-10	-
IEC 60793-2-50	-	Optical fibres - Part 2–50: Product specifications - Sectional specification for class B single-mode fibres	EN IEC 60793-2-50	-
IEC 61300-1	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 1: General and guidance	EN 61300-1	-
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 or cable retention	EN IEC 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 61300-2-9	-	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 and load resistance	EN IEC 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	-
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 61300-2-33	-	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	-
IEC 61300-2-34	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2–34: Tests - Resistance to solvents and contaminating fluids of interconnecting components and closures	EN 61300-2-34	-
IEC 61300-2-37	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2–37: Tests - Cable bending for fibre optic closures	EN 61300-2-37	-
IEC 61300-2-38	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2–38: Tests - Sealing for pressurized fibre optic closures	EN 61300-2-38	-
IEC 61300-3-1	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3–1: Examinations and measurements - Visual examination	EN 61300-3-1	-
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 61300-3-28	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3–28: Examinations and measurements - Transient loss	EN 61300-3-28	-

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IEC 61753-1	2018	Fibre optic interconnecting devices and passive components - Performance standard - Part 1: General and guidance	EN IEC 61753-1	2018
IEC 61756-1	2019	Fibre optic interconnecting devices and passive components - Interface standard for fibre management systems - Part 1: General and guidance	EN IEC 61756-1	2020
ISO 4892-3	-	Plastics - Methods of exposure to laboratory light sources - Part 3: Fluorescent UV lamps	EN ISO 4892-3	-

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IEC 61753-111-09

Edition 1.0 2021-09

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Dispositifs d'interconnexion et composants passifs fibroniques – Norme de performance – Partie 111-09: Boîtiers étanches pour la catégorie S – Souterrains



IEC 61753-111-09:2021-09(en-fr)

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IEC Central Office
3, rue de Varembé
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Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
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Fibre optic interconnecting devices and passive components – Performance standard –
Part 111-09: Sealed closures – Category S – Subterannean

Dispositifs d'interconnexion et composants passifs fibroniques – Norme de performance –
Partie 111-09: Boîtiers étanches pour la catégorie S – Souterrains

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – PERFORMANCE STANDARD –

Part 111-09: Sealed closures – Category S – Subterannean

FOREWORD

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IEC 61753-111-09 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics. It is an International Standard.

This first edition cancels and replaces IEC 61753-111-9 published in 2009. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 61753-111-9:

a) terms and definitions updated according to IEC 61753-1:2018 and IEC 61756-1:2019;
b) detailed test severities added for UV light and fungus resistance tests of materials;
c) test severities updated according to IEC 61753-1:2018;
d) laboratory test conditions harmonized with IEC 61300-1 to +23 °C ± 5 °C, unless otherwise specified;

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e) addition of B-657 fibre types with minimum bending radius of stored fibres according to IEC 61756-1:2019;

f) vibration sealing test changed to 10 Hz, 3 mm amplitude and 1 000 000 cycles;

g) reduced loads added in cable retention test for small diameter cables and tubes;

h) reduced loads for cable axial compression test for small diameter cables and tubes;

i) duration of the cycles in torsion and bending test added;

j) free fall test removed (is covered now by the optical shock test);

k) assembly and disassembly test duration reduced to 5 cycles;

l) resistance to solvents and contaminating fluids: changed duration of immersion in diesel to 1 h and 24 h drying time and removed immersion in kerosene;

m) duration of the change of temperature reduced to 12 cycles.

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

Draft	Report on voting
86B/4494/FDIS	86B/4515/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. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts of 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

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- withdrawn,
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INTRODUCTION

Performance standards for sealed closures define the requirements for standard optical performance under a set of specified conditions. This subpart of the IEC 61753-111 series contains a series or a set of tests and measurements with clearly stated conditions, severities and pass/fail criteria. The set of tests is intended to be a basis to prove the product's ability to satisfy the requirements of a specific application, market sector or user group.

A product that has been shown to meet all the requirements of this performance standard may be declared as complying with this performance standard. Products having the same classification from one manufacturer that satisfy this performance standard will operate within the boundaries set by the performance standard. There is no guarantee that products from different manufacturers, having the same classification and which conform to the same performance standard, will provide an equivalent level of performance when they are used together.

Conformance with IEC environmental policy according to IEC Guide 109 and concerning the need to reduce the impacts on the natural environment of fibre optic closures during all phases of their life – from acquiring materials to manufacturing, distribution, use, and end-of-life treatment (i.e. re-use, recycling – recovery and disposal) – is not part of this document, but will be covered in the generic specification.

Conformance to a performance standard demonstrates that a product has passed a design verification test. It 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 such that they are truly representative of the requirements of this reliability test programme. Consistency of manufacture should be maintained using a recognised quality assurance programme whilst the reliability of product should be evaluated using the procedures recommended in IEC 62005 (all parts).

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – PERFORMANCE STANDARD –

Part 111-09: Sealed closures – Category S – Subterannean

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1 Scope

This part of IEC 61753 contains the minimum tests, test severities and measurement requirements which a sealed fibre optic closure need to meet in order to be categorised as meeting the IEC standard for category S – Subterannean, as defined in Table A.15 of IEC 61753-1:2018.

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 60068-2-10, *Environmental testing – Part 2-10: Tests – Test J and guidance: Mould growth*

IEC 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres*

IEC 61300-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 1: General and guidance*

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 or cable retention*

IEC 61300-2-5, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-5: Tests – Torsion*

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

IEC 61300-2-10, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-10: Tests – Crush and load resistance*

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

IEC 61300-2-23, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-23: Tests – Sealing for non-pressurised closures of fibre optic devices*

IEC 61300-2-26, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-26: Tests – Salt mist*

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*

IEC 61300-2-34, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-34: Tests – Resistance to solvents and contaminating fluids of interconnecting components and closures*

IEC 61300-2-37, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-37: Tests – Cable bending for fibre optic closures*

IEC 61300-2-38, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-38: Tests – Sealing for pressurized fibre optic closures*

IEC 61300-3-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-1: Examinations and measurements – Visual examination*

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*

IEC 61300-3-28, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-28: Examinations and measurements – Transient loss*

IEC 61753-1:2018, *Fibre optic interconnecting devices and passive components – Performance standard – Part 1: General and guidance*

IEC 61756-1:2019, *Fibre optic interconnecting devices and passive components – Interface standard for fibre management systems – Part 1: General and guidance*

ISO 4892-3, *Plastics – Methods of exposure to laboratory light sources – Fluorescent UV lamps*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

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