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Fibre optic interconnecting devices and passive components - Performance standard -
Part 021-03: Single-mode fibre optic connectors terminated as pigtails and patchcords for category OP - Outdoor protected environment

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IEC 61753-021-03 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 the first edition of IEC 61753-021-3 published in 2012. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 61753-021-3:2012:

a) update of environmental categories (from U to OP), tests and their severities in accordance with IEC 61753-1;
b) changes in the terms and definitions of the different types of test samples (pigtail test samples and patchcord test samples) used in the various tests to avoid confusion;

c) update of fibre naming conventions in accordance with IEC 60793-2-50 and addition of provisions for B-657 fibres;

d) addition of all the attenuation and return loss grades defined in IEC 61753-1;

e) deletion of the static side load test;

f) addition of provisions for rectangular ferrule connectors;

g) addition of the fibre optic connector proof test with static load – side pull;

h) update of the flexing of the strain relief test to use change of attenuation instead of transient loss;

i) addition of Annex B for visual examination of the outer cable sheath movement of reinforced cables as an additional requirement for change of temperature, cable retention and flexing of the strain relief tests.

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

Draft	Report on voting
86B/5180/FDIS	86B/5217/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/publications.

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

– reconfirmed,

– withdrawn, or

– revised.

1 Scope

This part of IEC 61753 defines minimum initial test and measurement requirements and severities which single-mode fibre optic connectors terminated as a pigtail or a patchcord satisfy in order to be categorized as meeting the IEC standard category OP (outdoor protected environment), as defined in IEC 61753-1.

If tests are performed on the connectors terminated as pigtails or patchcords for category OP^{HD}, OP+ or $OP+^{HD}$ and the product passes these tests, the product will be automatically qualified or categorized as meeting the IEC standard for category OP. If tests are performed on the connectors terminated as pigtails or patchcords for category OP, and the product passes these tests, the product will be automatically qualified or categorized as meeting the IEC standard for category C or C^{HD}.

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

IEC 60794-2-23, *Optical fibre cables - Part 2-23: Indoor cables - Detailed specification for multi-fibre cables for use in MPO connector terminated cable assemblies*

IEC 60794-2-50, *Optical fibre cables - Part 2-50: Indoor cables - Family specification for simplex and duplex cables for use in terminated cable assemblies*

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 61300-2-2, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-2: Tests - Mating durability*

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 61300-2-6, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-6: Tests - Tensile strength of coupling mechanism*

IEC 61300-2-7, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-7: Tests - Bending moment*

IEC 61300-2-12, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-12: Tests - Impact*

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*

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

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

IEC 61300-2-27, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-27: Tests - Dust - Laminar flow*

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 and components*

IEC 61300-2-46, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-46: Tests - Damp heat, cyclic*

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*

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 61300-3-4, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-4: Examinations and measurements - Attenuation*

IEC 61300-3-6, *Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-6: Examinations and measurements - 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 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*

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*

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

IEC 61754 (all parts), *Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces*

IEC 61755 (all parts), *Fibre optic interconnecting devices and passive components - Connector optical interfaces for single-mode fibres*

IEC 61755-2 (all parts), *Fibre optic interconnecting devices and passive components - Connector optical interfaces for single-mode fibres - Part 2: Connection parameters of dispersion unshifted physically contacting fibres*

IEC 61755-3 (all parts), *Fibre optic interconnecting devices and passive components - Connector optical interfaces - Part 3: Connector parameters of dispersion unshifted single-mode physically contacting fibres*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61753-1 and the following apply.

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

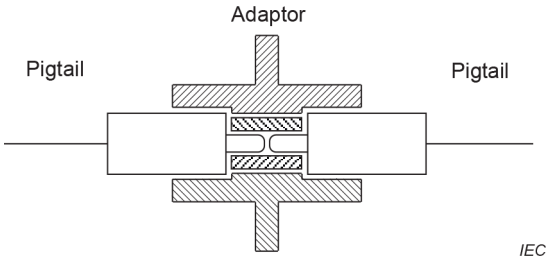
– IEC Electropedia: available at https://www.electropedia.org/
– ISO Online browsing platform: available at https://www.iso.org/obp

3.1
change in attenuation
δ
positive or negative deviation from the original value of the transmitted power at the start of the test

Note 1 to entry: The deviation is expressed as a unit of dB.

3.2
sample
complete set of connector components required to provide demountable coupling between one or more pairs of optical fibres

3.3
pigtail test sample
sample comprised of two pigtails mated with an adaptor



3.4
patchcord test sample
sample comprised of a patchcord mated to two pigtails using adaptors

