SLOVENSKI STANDARD
oSIST prEN IEC 61753-021-06:2022

01-oktober-2022

Optični spojni elementi in pasivne komponente - Izvedbeni standard - 021-06. del: Konektorji za enorodovna optična vlakna, zaključeni kot repki ali povezovalne vrvice za kategorijo OP+ - Razširjeno zunanje zaščiteno okolje

Fibre optic interconnecting devices and passive components - Performance standard - Part 021-06: Single-mode fibre optic connectors terminated as pigtails and patchcords for category OP+ - Extended outdoor protected environment

Dispositifs d'interconnexion et composants passifs fibroniques - Norme de performance - Partie 021-06: Connecteurs à fibres optiques unimodales raccordés comme des fibres amorces ou des cordons de brassage pour la catégorie OP+ – Environnement extérieur protégé étendu

Ta slovenski standard je istoveten z: **prEN IEC 61753-021-06:2022**

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COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 61753-021-06 ED2**	
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IEC SC 86B : FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS

SECRETARIAT: Japan	SECRETARY: Mr Shigeru Tomita
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

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TITLE:

Fibre optic interconnecting devices and passive components - Performance standard - Part 021-06: Single-mode fibre optic connectors terminated as pigtails and patchcords for category OP+ – Extended outdoor protected environment

PROPOSED STABILITY DATE: 2032

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – PERFORMANCE STANDARD –

Part 021-06: Single-mode fibre optic connectors terminated as pigtails and patchcords for category OP+ – Extended outdoor protected environment

FOREWORD

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IEC 61753-021-06 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 61753-021-6 published in 2007. This edition constitutes a technical revision.

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

a) updated environmental category (from O to OP+), tests and their severities according to IEC 61753-1:2018;

b) removed the copyright notice as it is no longer needed;

c) changed title and scope to remove restrictions on attenuation and return loss grades;

d) changed the term and definitions of the different type of test samples (pigtail test samples and patchcord test samples) used in the various tests to avoid confusion;

e) removed the term and definition for small form factor (SFF) connectors as it is no longer used in the document;

f) updated fibre naming conventions according to IEC 60793-2-50:2018 and added provisions for B-657 fibres;

g) added all the attenuation and return loss grades defined in IEC 61753-1;

h) removed the static side load test;

i) removed the need to perform all tests sequentially to align with other performance standards;

j) added provisions for rectangular ferrule connectors;

k) added 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
XX/XX/FDIS	XX/XX/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 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.

INTRODUCTION

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.

The subsequent parts of this document define those sets of tests which form each operating service environment or performance category, and which have been standardized for international use. A product that has been shown to meet all the requirements of a performance standard may 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 must be 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 should be maintained using a recognized Quality Assurance programme whilst the reliability of the product should be evaluated using the procedures recommended in IEC 62005.

Tests and measurements should be selected from the IEC 61300 series. Where this is not possible, the required test method should be attached as an annex to the performance standard.

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – PERFORMANCE STANDARD –

Part 021-06: Single-mode fibre optic connectors terminated as pigtails and patchcords for category OP+ – Extended outdoor protected environment

1 Scope

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

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 60794-2-50, *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 61300-2-21, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-21: Tests – Composite temperature/humidity cyclic test*

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*

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 – Fibre optic connector optical interfaces*

IEC 61755-2 (all parts), *Fibre optic interconnecting devices and passive components – Fibre optic connector optical interfaces – Part 2: Optical interface*

IEC 61755-3 (all parts), *Fibre optic interconnecting devices and passive components – Fibre optic connector optical interfaces – Part 3: Optical interface*

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 terminological databases for use in standardization at the following addresses:

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

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

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
two pigtails mated with an adaptor

Note 1 to entry: See Figure 1.

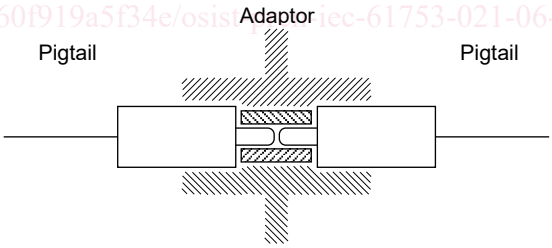

Figure 1 – Pigtail test sample

3.4
patchcord test sample
patchcord mated to two pigtails using adaptors

Note 1 to entry: See Figure 2.

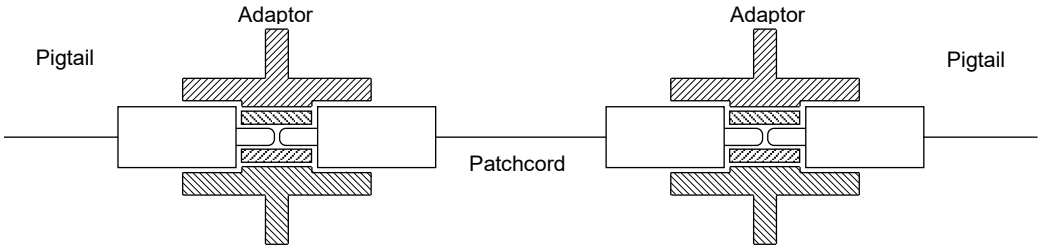

Figure 2 – Patchcord test sample

4 Test

All test and measurement methods have been selected from the IEC 61300 series and the test parameters and requirements from IEC 61753-1 as defined in 7.6 and 7.7. Additional requirements to certain tests are given in Annex B.

The connector plugs under test shall be terminated onto single-mode fibre per IEC 60793-2-50, type B-652 or B-657, in either buffered or reinforced cable format. The reinforced cable used for the pigtails or patchcords shall conform to the requirements of IEC 60794-2-50. Care shall be taken to respect the minimum bend radius of the cable. The connector interface standard shall meet the dimensions of the relevant part of the IEC 61754 series and the connector optical interface standard shall meet the relevant requirements of the IEC 61755 series.

5 Test report

Fully documented test reports and supporting evidence shall be prepared and available for inspection as evidence that the tests have been carried out and the results are satisfactory.

6 Reference components

No reference components are required to perform the tests in this document.

7 Performance requirements

7.1 General

Unless otherwise specified, all tests shall be carried out at standard atmospheric conditions as specified in IEC 61300-1.

7.2 Dimensions

Dimensions shall comply with the appropriate IEC interface standard as defined in IEC 61754.

7.3 Sample size and test sequencing

For the purposes of this standard, a sample is composed of pigtail test samples or patchcord test samples (see Clause 3). The sample sizes to be used for the tests shall be as defined in Annex A. The tests are not intended to be performed in any particular sequence or grouping, but rather, individually on new samples. Samples for the first test (attenuation) are to be randomly selected and randomly mated new products. Samples for the second test (return loss) are the same plugs selected and mated for the first test. Samples from the previous