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Fiberoptik – Funktionsfordringar på anslutningsdon och passiva komponenter – Del 021-02: Anslutningsdon för singelmodfiber med fibersvans och patchkabel för kategori C – Kontrollerad miljö

*Fibre optic interconnecting devices and passive components –
Performance standard –
Part 021-02: Single-mode fibre optic connectors terminated as pigtailed and patchcords for category C –
Controlled environment*

Som svensk standard gäller europastandarden EN IEC 61753-021-02:2023. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 61753-021-02:2023.

Nationellt förord

Europastandarden EN IEC 61753-021-02:2023

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61753-021-02, First edition, 2023 - Fibre optic interconnecting devices and passive components – Performance standard – Part 021-02: Single-mode fibre optic connectors terminated as pigtailed and patchcords for category C – Controlled environment**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61753-021-2, utg 2:2008 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2024-11-10.

ICS 33.180.20

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English Version

Fibre optic interconnecting devices and passive components -
Performance standard - Part 021-02: Single-mode fibre optic
connectors terminated as pigtails and patchcords for category C
- Controlled environment
(IEC 61753-021-02:2023)

Dispositifs d'interconnexion et composants passifs
fibroniques - Norme de performance - Partie 021-02:
Connecteurs à fibres optiques unimodales raccordés
comme des fibres amorces ou des cordons de brassage
pour la catégorie C - Environnement contrôlé
(IEC 61753-021-02:2023)

Lichtwellenleiter - Verbindungselemente und passive
Bauteile - Betriebsverhalten - Teil 021-02: Lichtwellenleiter-
Steckverbinder der Stufe C/2 für Einmodenfasern für die
Kategorie C - Kontrollierte Umgebung
(IEC 61753-021-02:2023)

This European Standard was approved by CENELEC on 2023-11-10. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 86B/4793/FDIS, future edition 1 of IEC 61753-021-02, 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 61753-021-02:2023.

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) 2024-08-10
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-11-10

This document supersedes EN 61753-021-2:2008 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 61753-021-02:2023 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 standard indicated:

IEC 61300 (series) NOTE Approved as EN 61300 (series)

IEC 61754-4 NOTE Approved as EN IEC 61754-4

IEC 61754-20 NOTE Approved as EN 61754-20

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.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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 60794-2-50	-	Optical fibre cables - Part 2-50: Indoor cables - Family specification for simplex and duplex cables for use in terminated cable assemblies	EN IEC 60794-2-50	-
IEC 61300-1	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 1: General and guidance	EN IEC 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 IEC 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 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 IEC 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	-

EN IEC 61753-021-02:2023 (E)

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 61300-2-17	-	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	EN IEC 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 61300-2-22	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-22: Tests - Change of temperature	EN 61300-2-22	-
IEC 61300-2-44	-	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 61300-3-1	-	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 61300-3-4	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-4: Examinations and measurements - Attenuation	EN IEC 61300-3-4	-
IEC 61300-3-6	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-6: Examinations and measurements - Return loss	EN 61300-3-6	-
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 61300-3-34	-	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 IEC 61300-3-45	-
IEC 61753-1	-	Fibre optic interconnecting devices and passive components - Performance standard - Part 1: General and guidance	EN IEC 61753-1	-
IEC 61754	series	Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces	EN 61754	series
IEC 61755	series	Fibre optic interconnecting devices and passive components - Connector optical interfaces for single-mode fibres	EN IEC 61755	series
IEC 61755-2	series	Fibre optic interconnecting devices and passive components - Connector optical interfaces for single-mode fibres - Part 2: Connection parameters of dispersion unshifted physically contacting fibres	EN IEC 61755-2	series
IEC 61755-3	series	Fibre optic interconnecting devices and passive components - Connector optical interfaces for single-mode fibres - Part 3: Connector parameters of dispersion unshifted physically contacting fibres	EN 61755-3	series
ISO/IEC 11801	series	Information technology - Generic cabling for customer premises	-	-



INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fibre optic interconnecting devices and passive components – Performance standard –

Part 021-02: Single-mode fibre optic connectors terminated as pigtailed and patchcords for category C – Controlled environment

Dispositifs d'interconnexion et composants passifs fibroniques – Norme de performance –

Partie 021-02: Connecteurs à fibres optiques unimodales raccordés comme des fibres amorcées ou des cordons de brassage pour la catégorie C – Environnement contrôlé

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING DEVICES
AND PASSIVE COMPONENTS – PERFORMANCE STANDARD –****Part 021-02: Single-mode fibre optic connectors terminated as pigtails
and patchcords for category C – Controlled environment**

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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IEC 61753-021-02 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 second edition of IEC 61753-021-2 published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 61753-021-2:2007:

- a) changed scope to remove restrictions on attenuation and return loss grades;
- b) included provisions for rectangular ferrule connectors;

- c) changed 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;
- d) updated fibre naming conventions according to IEC 60793-2-50 and added provisions for B-657 fibres;
- e) added all the attenuation and return loss grades defined in IEC 61753-1;
- f) test severities updated according to IEC 61753-1;
- g) reduced flexing of strain relief cycles from 100 cycles to 50 cycles;
- h) added the torsion test;
- i) reduced the duration of the fibre/cable retention test on reinforced cables from 120 s to 60 s minimum;
- j) removed the static side load test;
- k) reduced the number of mating durability cycles from 500 cycles to 200 cycles and added provisions for rectangular ferrule connectors;
- l) 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
86B/4793/FDIS	86B/4812/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.

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – PERFORMANCE STANDARD –

Part 021-02: Single-mode fibre optic connectors terminated as pigtails and patchcords for category C – Controlled 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 or a patchcord satisfy in order to be categorized as meeting the IEC standard category C (controlled environment), as defined in IEC 61753-1.

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

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 61300-2-12, *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 61300-2-19, *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 61300-2-44, *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 61300-3-1, *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 for single-mode fibres – Part 3: Connector parameters of dispersion unshifted physically contacting fibres*

