IEC 61753-021-02

Edition 1.0 2023-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

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 61753-021-02:2023-10(en-fr)

Documents
Document Sharing Hub
Full document details: IEC 61753-021-02-2023

THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2023 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, …). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch
Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC - webstore.iec.ch/advsearchform
La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, …). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished
Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc
Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch
Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org
Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

AVA Documents
Document Sharing Hub

Full document details: IEC 61753-021-02-2023

IEC 61753-021-02

Edition 1.0 2023-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.180.20

ISBN 978-2-8322-7612-9

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

Documents
Document Sharing Hub

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

Full document details: IEC 61753-021-02-2023

CONTENTS

FOREWORD 3
1 Scope 5
2 Normative references 5
3 Terms and definitions 7
4 Tests 8
5 Test report 8
6 Reference components 8
7 Performance requirements 8
7.1 General 8
7.2 Dimensions 8
7.3 Sample size and test sequencing 8
7.4 Endface geometry 8
7.5 Visual examination 9
7.6 Performance criteria 9
7.7 Performance details 10
Annex A (normative) Sample size 16
Annex B (normative) Visual examination of outer cable sheath movement 17
B.1 Overview 17
B.2 Preparation of the sample and initial visual examination 17
B.3 Final visual examination of outer cable sheath movement 17
Bibliography 19

Figure 1 – Pigtail test sample 7
Figure 2 – Patchcord test sample 7
Figure B.1 – Example of initial marking of the cable sheath 17
Figure B.2 – Example of final visual examination 18

Table 1 – Pass/Fail criteria 9
Table 2 – Performance test details 11
Table A.1 – Sample size 16

Documents
Document Sharing Hub

Full document details: IEC 61753-021-02-2023

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.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

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;

Documents
Document Sharing Hub

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.

Documents
Document Sharing Hub

Full document details: IEC 61753-021-02-2023

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*

Documents
Document Sharing Hub

Full document details: IEC 61753-021-02-2023

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*

Documents
Document Sharing Hub

Full document details: IEC 61753-021-02-2023

ISO/IEC 11801 (all parts), *Information technology – Generic cabling for customer premises*

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
large or small 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.

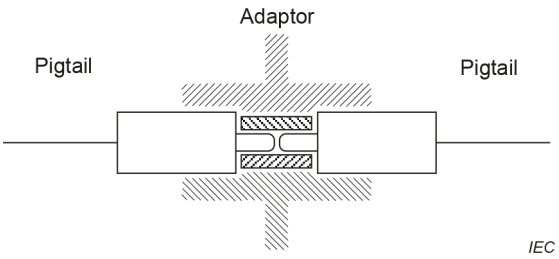

Figure 1 – Pigtail test sample

3.4
patchcord test sample
patchcord mated to two pigtails using adaptors

Note 1 to entry: See Figure 2.

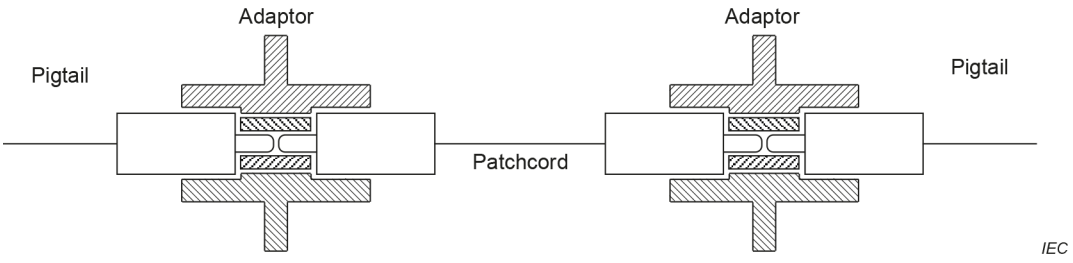

Figure 2 – Patchcord test sample

Documents
Document Sharing Hub
Full document details: IEC 61753-021-02-2023

4 Tests

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 a single-mode fibre in accordance with 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. The minimum bend radius of the cable shall be maintained. 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.

The optical connector requirements shall be met in order to be in accordance with the ISO/IEC 11801 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 the IEC 61754 series.

7.3 Sample size and test sequencing

For the purposes of this document, 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 tests may be used if desired. If a failure occurs on a sample that was tested in a previous test, a new set of samples shall be prepared, and the failed test shall be re-done.

7.4 Endface geometry

The connector endface shall comply with the endface geometry requirements of the applicable IEC optical interface standard as defined in the IEC 61755-3 series. Compliance with the appropriate optical interface standard shall be confirmed on all samples before the start of testing and after each of the tests have been completed. Non-compliance with the endface geometry requirements of the applicable optical interface standard on any connector tested results in a failure of this document.

AVA Documents
Document Sharing Hub

Full document details: IEC 61753-021-02-2023

7.5 Visual examination

A visual examination shall be carried out on all samples before and after each of the mechanical and climatic tests (see Table 2). The outer cable sheath of the samples with reinforced cable shall be marked at the end of the connector boot during the initial visual examination (see Annex B).

The connector endface shall comply with the visual requirements for defects and scratches according to the relevant part of the IEC 61755-2 series.

7.6 Performance criteria

The optical performance levels shall meet the requirements of one specified grade as defined in IEC 61753-1 (see Table 1).

Table 1 – Pass/Fail criteria

Criterion no.	Examinations and measurements	Initial	During or after test, or both
1	Attenuation – random mate IEC 61300-3-34 for cylindrical ferrules IEC 61300-3-45 for rectangular ferrules	Grade B: ≤ 0,12 dB mean ≤ 0,25 dB max. for ≥ 97 % of samples Grade C: ≤ 0,25 dB mean ≤ 0,50 dB max. for ≥ 97 % of samples Grade D: ≤ 0,50 dB mean ≤ 1,00 dB max. for ≥ 97 % of samples At 1 310 nm, 1 550 nm and 1 625 nm[a]	
2	Return loss IEC 61300-3-6	Grade 1: ≥ 60 dB Grade 2: ≥ 45 dB Grade 3: ≥ 35 dB Grade 4: ≥ 26 dB	The initial requirement shall be met.
3	Active monitoring of changes in attenuation and return loss (multiple path) IEC 61300-3-3		Change in attenuation during test[a]: δ ≤ 0,2 dB at 1 310 nm and 1 550 nm and δ ≤ 0,3 at 1 625 nm for pigtail test sample (1 connection) δ ≤ 0,5 dB at 1 310 nm, δ ≤ 0,6 dB at 1 550 nm and δ ≤ 0,8 dB at 1 625 nm for patchcord test sample (2 connections) Change in attenuation after test[a]: δ ≤ 0,2 dB at 1 310 nm, 1 550 nm and 1 625 nm for pigtail test sample (1 connection) δ ≤ 0,4 dB at 1 310 nm, 1 550 nm and 1 625 nm for patchcord test sample (2 connections) The initial return loss requirement shall be met.

Documents
Document Sharing Hub
Full document details: IEC 61753-021-02-2023

Criterion no.	Examinations and measurements	Initial	During or after test, or both
4	Transient loss IEC 61300-3-28		Change in attenuation during test[a]: $\delta \leq 0{,}5$ dB at 1 550 nm per connection $\delta \leq 1{,}0$ dB at 1 625 nm per connection Change in attenuation after test[a]: $\delta \leq 0{,}2$ dB at 1 550 nm and 1 625 nm per connection
5	Visual inspection IEC 61300-3-1	The connector plugs and adaptors shall be inspected for damage that might impair the performance. This inspection shall include: – distortion of housing parts, as indicated by difficulty in insertion, improper snap-fits, etc.; – distortion of ferrules and sleeves, as indicated by change in mating force, changes in endface geometry, etc.; – housing cracks; – presence of debris, shavings, etc.; – corrosion or residue; – ferrule endface cracks, chips or scratches; – other potentially service-affecting damage.	After the test, the sample shall be inspected and comply with the initial requirements.
[a] Testing at 1 625 nm is optional for enterprise applications but required for carrier applications.			

7.7 Performance details

Performance details are specified in Table 2.

Documents
Document Sharing Hub
Full document details: IEC 61753-021-02-2023

Table 2 – Performance test details

No.	Test	Requirements	Details
1	Attenuation (random mate)	Criterion no. 1 (Table 1)	IEC 61300-3-34, method 1 (cylindrical ferrules) IEC 61300-3-45, method 1 (rectangular ferrules) Launch mode conditions: only the fundamental mode shall propagate at the connector interface and at the detector. Source characteristics reference to IEC 61300-3-4 (attenuation) Sample shall be optically functioning. Preconditioning procedure: clean plug and adaptor according to manufacturer's instructions.
2	Return loss (random mate)	Criterion no. 2 (Table 1)	IEC 61300-3-6, method 1 Mating combinations according to: IEC 61300-3-34, method 1 (cylindrical ferrules) IEC 61300-3-45, method 1 (rectangular ferrules) Launch fibre length: L > 2 m Source stability: ±0,20 dB from the initial value over the measuring period or at least 1 h Detector linearity: ±2,5 % of the power levels to be measured Directivity: > 65 dB Sample shall be optically functioning. Preconditioning procedure: clean plug and adaptor according to manufacturer's instructions. Alternative method: IEC 61300-3-6, method 2 Launch fibre length: L_1 ≥ 500 m, L_2 ≥ 6 m, L_3 ≥ 6 m Pulse duration: ≤ 10 ns Sample shall be optically functioning. Preconditioning procedure: clean plug and adaptor according to manufacturer's instructions.
3	Vibration (sinusoidal)	During and after: Criterion no. 4 (Table 1) After: Criterion no. 2 (Table 1) Criterion no. 5 (Table 1)	IEC 61300-2-1 Frequency range: 10 Hz to 55 Hz Change in frequency: 1 octave/min Number of axes: three orthogonal Number of sweeps per axis: 15 (10 Hz to 55 Hz to 10 Hz) Vibration amplitude: 0,75 mm Sampling rate: before, during and after each axis. Method of mounting: an adaptor shall be mounted rigidly to the mounting fixture. Sample shall be optically functioning. Preconditioning procedure: clean plug and adaptor according to manufacturer's instructions. The connector samples shall not be uncoupled or cleaned anytime during the test.

Documents
Document Sharing Hub
Full document details: IEC 61753-021-02-2023