

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fibre optic interconnecting devices and passive components – Performance standard –

Part 031-2: Non-connectorized single-mode $1 \times N$ and $2 \times N$ non-wavelength-selective branching devices for Category C – Controlled environment

<https://standards.iteh.ai/catalog/standards/sist/733e93b7-b11e-4f75-bb6f-078920b78444/iec-61753-031-2-2014>

Dispositifs d'interconnexion et composants passifs à fibres optiques – Norme de performance –

Partie 031-2: Dispositifs de couplage indépendants de la longueur d'onde $1 \times N$ et $2 \times N$ en unimodal, non-connectorisés, pour catégorie C – Environnement contrôlé





THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2014 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 Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
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 corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

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 also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

More than 60 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

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: csc@iec.ch.

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.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

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 aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

Plus de 60 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

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

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fibre optic interconnecting devices and passive components – Performance standard –

Part 031-2: Non-connectorized single-mode $1 \times N$ and $2 \times N$ non-wavelength-selective branching devices for Category C – Controlled environment

<https://standards.iteh.ai/catalog/standards/sist/733e93b7-b11e-4f75-bb6f-078920b78444/iec-61753-031-2-2014>

Dispositifs d'interconnexion et composants passifs à fibres optiques – Norme de performance –

Partie 031-2: Dispositifs de couplage indépendants de la longueur d'onde $1 \times N$ et $2 \times N$ en unimodal, non-connectorisés, pour catégorie C – Environnement contrôlé

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.180.10

ISBN 978-2-8322-2981-1

**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.**

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Test.....	6
4 Test report.....	7
5 Performance requirements	7
5.1 Dimensions	7
5.2 Sample size	7
5.3 Test details and requirements	7
Annex A (normative) A and U requirements of 1 × N and 2 × N NWBDs	14
A.1 Attenuation and uniformity requirements of 1 × N and 2 × N NWBDs calculated by the equations of Tests No.1 and 2	14
A.2 Minimum requirements at room temperature of attenuation values for balanced bidirectional 1 × N and 2 × N NWBD	15
Annex B (normative) Sample size	17
Bibliography.....	18
Table 1 – Test details and requirements (1 of 6)	8
Table A.1 – Attenuation and uniformity requirements of balanced bidirectional NWBD having the most common port configurations for Class A, with the underlying formulas as specified in the Tests 1 and 2 of Table 1	14
Table A.2 – Attenuation and uniformity requirements of balanced bidirectional NWBD having the most common port configurations for Class B, with the underlying formulas as specified in Tests 1 and 2 of Table 1	15
Table A.3 – Attenuation requirements of 1 × 2 and 2 × 2 unbalanced NWBD having the most common port configurations, with the underlying formula as specified in Test 1 of Table 1	15
Table A.4 – Minimum requirements at room temperature of attenuation values for Class A balanced bidirectional NWBD.....	16
Table A.5 – Minimum requirements at room temperature of attenuation values for Class B balanced bidirectional NWBD.....	16
Table B.1 – Sample size for each test.....	17

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE
COMPONENTS – PERFORMANCE STANDARD –**
**Part 031-2: Non-connectorized single-mode 1 × N and 2 × N
non-wavelength-selective branching devices 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) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61753-031-2 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This bilingual version (2015-10) corresponds to the English version published in 2014-09. The text of this standard is based on the following documents:

FDIS	Report on voting
86B/3791/FDIS	86B/3823/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in 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 publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[IEC 61753-031-2:2014](https://standards.iteh.ai/catalog/standards/sist/733e93b7-b11e-4f75-bb6f-078920b78444/iec-61753-031-2-2014)

<https://standards.iteh.ai/catalog/standards/sist/733e93b7-b11e-4f75-bb6f-078920b78444/iec-61753-031-2-2014>

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – PERFORMANCE STANDARD –

Part 031-2: Non-connectorized single-mode 1×N and 2×N non-wavelength-selective branching devices for Category C – Controlled environment

1 Scope

This part of IEC 61753 contains the minimum initial tests and measurement requirements and severities which a non-wavelength selective branching device (NWBD) should satisfy in order to be categorized as meeting the requirement of this IEC standard.

The requirements cover balanced bidirectional non-connectorized single-mode 1 × N and 2 × N non wavelength-selective branching devices for use in an IEC Category C environment (N is the number of branching ports), especially but not exclusively used for PON application. For balanced NWBD two attenuation and uniformity performance classes are considered: class A (premium class) which meets more restrictive requirements (i.e. for extended reach PON application) and class B (standard class) for standard application (i.e. normal reach PON application).

The requirements also cover unbalanced bidirectional non-connectorized single-mode, non-wavelength-selective branching devices; however, the specifications of unbalanced branching devices are limited to 1 × 2 and 2 × 2 devices because they are the most commonly used.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60793-2-50:2012, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres*

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/cable retention*

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

IEC 61300-2-14, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-14: Tests – High optical power*

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 – High temperature endurance*

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 61300-2-42, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-42: Tests – Static side load for connectors*

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 61300-3-2:2009, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-2: Examination and measurements – Polarization dependent loss in a single-mode fibre optic device*

IEC 61300-3-3:2009, *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 61300-3-6:2008, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-6: Examinations and measurements – Return loss*

IEC 61300-3-7:2009, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-7: Examinations and measurements – Wavelength dependence of attenuation and return loss of single mode components*

IEC 61300-3-20, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-20: Examinations and measurements – Directivity of fibre optic branching devices*

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

3 Test

All test methods are selected within the IEC 61300 series.

The samples for tests shall be terminated onto single-mode fibres according to category B1.1, B1.3, or B.6 of IEC 60793-2-50:2012 in either coated fibres (primary and secondary) or reinforced cable format.

All tests shall be carried out to validate performance over one of the spectral bands listed below:

- 1) Spectral bands I:
 - 1 260 nm to 1 360 nm
 - 1 480 nm to 1 625 nm
- 2) Spectral bands II:
 - 1 260 nm to 1 360 nm
 - 1 480 nm to 1 660 nm

4 Test report

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

5 Performance requirements

5.1 Dimensions

Dimensions shall comply with those given in appropriate manufacturer's drawings.

5.2 Sample size

Sample sizes for the tests are defined in Annex B.

5.3 Test details and requirements

Performance requirements and details are specified in Table 1.

All optical performances are given only for non-connectorized NWBD. During the environmental tests where monitoring of the NWBD is needed, all ports of the device shall be monitored.

In Annex A some numerical values of attenuation and uniformity requirements of Tests No.1 and 2 for the most commonly used NWBD are shown in Tables A.1, A.2 and A.3.

In Tables A.4 and A.5 the minimum attenuation requirements at room temperature are described by way of equations on the top of column, with the calculated values of the most commonly used NWBD listed below.

STANDARD PREVIEW
(standards.iteh.ai)

IEC 61753-031-2:2014
http://standards.iteh.ai/catalog/standards/sist/733e93b7-b11e-4f75-bb6f-078920b78444/iec-61753-031-2-2014

Table 1 – Test details and requirements (1 of 6)

No.	Tests	Requirements				Details	
1	Attenuation (A) (Insertion loss) IEC 61300-3-7:2009 (Method A)	Balanced NWBD Configuration	2 × N			Launch patchcord length	≥ 2 m
		Performance class				Source type	Unpolarized
		Spectral band I	A	B		Launch conditions	The wavelength of the source shall be longer than the cut-off wavelength of the fibre.
		Spectral band II				Uncertainty	≤ ± 0,05 dB
		Unbalanced NWBD	<p> http://www.itih.org/standards/sist/755e95b7-b11e-4175-bb6f-078920b78444/iec-61753-031-2-2014 </p>				
		Spectral band I Spectral band II	<p> ≤ 22 – 10,5log₁₀P (dB) </p> <p> where P is the nominal percentage of power associated with one port </p>				<p> The measurement should be performed with all combination of input/output ports </p> <p> See Tables A.1, A.2 and A.3 for example </p>
2	Uniformity (U) IEC 61300-3-7:2009 (Method A)	Balanced NWBD Configuration	2 × N			Launch patchcord length	≥ 2 m
		Performance class				Source type	Unpolarized
		Spectral band I	A	B		Launch conditions	The wavelength of the source shall be longer than the cut-off wavelength of the fibre.
		Spectral band II				Uncertainty	≤ ± 0,05 dB
		Unbalanced NWBD	<p> http://www.itih.org/standards/sist/755e95b7-b11e-4175-bb6f-078920b78444/iec-61753-031-2-2014 </p>				
		Spectral band I Spectral band II	<p> ≤ 22 – 10,5log₁₀P (dB) </p> <p> where P is the nominal percentage of power associated with one port </p>				<p> The measurement should be performed with all combination of input/output ports. </p> <p> See Tables A.1 and A.2 for example </p>

Table 1 (2 of 6)

No.	Tests	Requirements	Details													
3	Directivity IEC 61300-3-20	≥ 55 dB	Launch patchcord length Source type Launch conditions Uncertainty	≥ 2 m LD The wavelength of the source shall be longer than the cut-off wavelength of the fibre. $\leq \pm 1$ dB The measurement should be made between all pairs of input/output ports. All ports not under test shall be terminated to avoid unwanted reflections contributing to the measurement												
4	Return loss (RL) IEC 61300-3-6:2008 (Method 1, OCWR)	≥ 55 dB	Launch patchcord length Source type Launch conditions Uncertainty	≥ 2 m LD The wavelength of the source shall be longer than the cut-off wavelength of the fibre. $\leq \pm 1$ dB The measurement should be performed with all combination of input/output ports. All ports not under test shall be terminated to avoid unwanted reflections contributing to the measurement												
5	Polarization dependent loss (PDL) IEC 61300-3-2	For balanced NWBD: <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">$1 \times N$</td> <td style="text-align: center;">$2 \times N$</td> </tr> <tr> <td>$N \leq 4$</td> <td style="text-align: center;">$\leq 0,2$ dB</td> <td style="text-align: center;">$\leq 0,3$ dB</td> </tr> <tr> <td>$4 < N \leq 16$</td> <td style="text-align: center;">$\leq 0,3$ dB</td> <td style="text-align: center;">$\leq 0,4$ dB</td> </tr> <tr> <td>$N > 16$</td> <td style="text-align: center;">$\leq 0,4$ dB</td> <td style="text-align: center;">$\leq 0,5$ dB</td> </tr> </table> For unbalanced 1×2 and 2×2 NWBD and for any pair of input and output ports: $\leq 0,7 - 0,25 \log_{10} P$ (DB) where P is the nominal percentage of the power associated with one port		$1 \times N$	$2 \times N$	$N \leq 4$	$\leq 0,2$ dB	$\leq 0,3$ dB	$4 < N \leq 16$	$\leq 0,3$ dB	$\leq 0,4$ dB	$N > 16$	$\leq 0,4$ dB	$\leq 0,5$ dB	Launch patchcord length Source type Uncertainty	≥ 2 m LD $\leq \pm 0,05$ dB The measurement should be performed with all combination of input/output ports
	$1 \times N$	$2 \times N$														
$N \leq 4$	$\leq 0,2$ dB	$\leq 0,3$ dB														
$4 < N \leq 16$	$\leq 0,3$ dB	$\leq 0,4$ dB														
$N > 16$	$\leq 0,4$ dB	$\leq 0,5$ dB														

Table 1 (3 of 6)

No.	Tests	Requirements	Details	
6	High optical power IEC 61300-2-14	$P_{max} = 500 \text{ mW (+27 dBm)}$ per port only one at the time. During the test the change in A shall be within $\pm 0,5 \text{ dB}$ of the original value under ambient conditions, while on completion of the test the change in A shall be within $\pm 0,3 \text{ dB}$ of the original value. During and on completion of the test the RL limit of test No. 4 shall be met	Launch patchcord length Source type Launch conditions Uncertainty A test Uncertainty RL test Test wavelength Spectral band I Test wavelength Spectral band II Duration of the optical power exposure at the each level	$\geq 2 \text{ m}$ Unpolarized. The wavelength of the source shall be longer than the cut-off wavelength of the fibre $\leq \pm 0,05 \text{ dB}$ $\leq \pm 1 \text{ dB}$ 1 310 nm \pm 20 nm 1 550 nm \pm 20 nm 1 310 nm \pm 20 nm 1 625 nm \pm 20 nm 30 min The measurement shall be performed between the common port (input port) and the output ports
7	Cold IEC 61300-2-17	For balanced and unbalanced NWBD before and on completion of the test the A limits of Test No. 1 shall be met. In addition during the test the change in A of balanced NWBD shall be within $\pm 0,3 \text{ dB}$ for $N \leq 4$ and within $\pm 0,5 \text{ dB}$ for $N > 4$ of the original value under ambient conditions. For unbalanced NWBD the change in A during the test shall be within $\pm 0,3 \text{ dB}$ for $P \% > 2 \%$ and $\pm 0,5 \text{ dB}$ for $P \% \leq 2 \%$ of the original value. During and after the test the RL limit of test No. 4 shall be met	Temperature Duration of exposure	$-10 \text{ }^\circ\text{C} \pm 2 \text{ }^\circ\text{C}$ 96 h Specimens shall be optically functioning. A and RL shall be measured before the test, during the test at a maximum interval of 1 h and after the test by the Method 3 of IEC 61300-3-3:2009
8	Dry heat – High temperature endurance IEC 61300-2-18	For balanced and unbalanced NWBD before and on completion of the test the A limits of Test No. 1 shall be met. In addition, during the test the change in A of balanced NWBD shall be within $\pm 0,3 \text{ dB}$ for $N \leq 4$ and within $\pm 0,5 \text{ dB}$ for $N > 4$ of the original value under ambient conditions. For unbalanced NWBD the change in A during the test shall be within $\pm 0,3 \text{ dB}$ for $P \% > 2 \%$ and $\pm 0,5 \text{ dB}$ for $P \% \leq 2 \%$ of the original value. During and after the test the RL limit of test No. 4 shall be met	Temperature Duration of exposure	$+ 60 \text{ }^\circ\text{C} \pm 2 \text{ }^\circ\text{C}$. 96 h Specimens shall be optically functioning. A and RL shall be measured before the test, during the test at a maximum interval of 1 h and after the test by the Method 3 of IEC 61300-3-3:2009

iTeH STANDARD PREVIEW
(standards.iteh.ai)

IEC 61753-031-2:2014

https://standards.iteh.ai/catalog/standards/iec/61753-031-2:2014

Table 1 (4 of 6)

No.	Tests	Requirements	Details	
9	Damp heat (steady state) IEC 61300-2-19	For balanced and unbalanced NWBD before and on completion of the test the A limits of Test No. 1 shall be met. In addition during the test the change in A of balanced NWBD shall be within $\pm 0,3$ dB for $N \leq 4$ and within $\pm 0,5$ dB for $N > 4$ of the original value under ambient conditions. For unbalanced NWBD the change in A during the test shall be within $\pm 0,3$ dB for $P \% > 2$ % and $\pm 0,5$ dB for $P \% \leq 2$ % of the original value. During and after the test the RL limit of Test No. 4 shall be met	Temperature Relative humidity Duration of exposure	+ 40 °C \pm 2 °C 93 % + 2 % to -3 % 96 h Specimens shall be optically functioning. A and RL shall be measured before the test, during the test at a maximum interval of 10 min and after the test by the Method 3 of IEC 61300-3-3:2009
10	Change of temperature IEC 61300-2-22	For balanced and unbalanced NWBD before and on completion of the test the A limits of Test No. 1 shall be met. In addition during the test the change in A of balanced NWBD shall be within $\pm 0,3$ dB for $N \leq 4$ and within $\pm 0,5$ dB for $N > 4$ of the original value under ambient conditions. For unbalanced NWBD the change in A during the test shall be within $\pm 0,3$ dB for $P \% > 2$ % and $\pm 0,5$ dB for $P \% \leq 2$ % of the original value. During and after the test the RL limit of Test No. 4 shall be met.	High temperature Low temperature Duration at extreme temperature Temperature rate of change Number of cycles	+ 60 °C \pm 2 °C -10 °C \pm 2 °C 1 h 1 °C/min 5 Specimens shall be optically functioning. A and RL shall be measured before the test, during the test at a maximum interval of 10 min and after the test by the Method 3 of IEC 61300-3-3:2009