



IEC 61753-031-3

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# INTERNATIONAL STANDARD

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**Fibre optic interconnecting devices and passive components performance standard –  
Part 031-3: Non-connectorized single-mode 1×N and 2×N non-wavelength-selective branching devices (NWBD) for Category U – Uncontrolled environment**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## 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 (informative) Examples of attenuation requirements of $1 \times N$ and $2 \times N$ branching devices.....	15
Annex B (normative) Sample size .....	16
Bibliography.....	17
Table 1 – Test details and requirements .....	8
Table A.1 – Attenuation and uniformity requirements of balanced bidirectional branching devices having the most common port configurations for class FBT.....	15
Table A.2 – Attenuation and uniformity requirements of balanced bidirectional branching devices having the most common port configurations for class PLC.....	15
Table A.3 – Attenuation requirements of $1 \times 2$ and $2 \times 2$ unbalanced branching devices having the most common port configurations .....	15
Table B.1 – Sample size for each test.....	16

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**FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE  
COMPONENTS PERFORMANCE STANDARD –**
**Part 031-3: Non-connectorized single-mode 1×N and 2×N  
non-wavelength-selective branching devices (NWBD) for Category U –  
Uncontrolled environment**

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International Standard IEC 61753-031-3 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

The text of this standard is based on the following documents:

FDIS	Report on voting
86B/2789/FDIS	86B/2821/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.

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

A list of all the parts in the IEC 61753 series, 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 maintenance result 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.

A bilingual version of this publication may be issued at a later date.

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## FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS PERFORMANCE STANDARD –

### Part 031-3: Non-connectorized single-mode 1×N and 2×N non-wavelength-selective branching devices (NWBD) for Category U – Uncontrolled 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 requirements of Category U (uncontrolled environment) as defined in Annex A of IEC 61753-1.

This standard takes into account two technologies present on the market: the Fused Biconical Taper (FBT) and the Planar Lightwave Circuit (PLC). Requirements cover balanced, bidirectional, non-connectorized, single-mode 1 × N and 2 × 1, non-wavelength-selective branching devices for use in an IEC Category U environment (N = the number of output ports), especially for Passive Optical Network (PON) application. The specifications of unbalanced branching devices are limited to 1 × 2 and 2 × 1 devices because they are the most commonly used.

#### 2 Normative references

The following normative documents are indispensable for the application 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: 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 61300-2-5, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-5: Tests – Torsion/Twist*

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

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

IEC 61300-2-14, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-14: Tests – Optical power handling and damage threshold characterization*

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 2-19: Tests – Change of temperature*

IEC 61300-2-42, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-19: Tests – Static side load for connectors*

IEC 61300-2-44, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-19: Tests – Flexing of the strain relief of fibre optic devices*

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

IEC 61300-3-2, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-2: Examinations and measurements – Polarization dependence of attenuation in a single-mode fibre optic device*

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

IEC 61300-3-7, *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*

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 61753-2-1, *Fibre optic interconnecting devices and passive components performance standard – Part 2-1: Fibre optic connectors terminated on single-mode fibre for category U – Uncontrolled environment*