



IEC 61300-3-4

Edition 4.0 2023-05
REDLINE VERSION

INTERNATIONAL STANDARD



**Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –
Part 3-4: Examinations and measurements – Attenuation**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.180.20

ISBN 978-2-8322-7021-9

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

| | |
|--|----|
| FOREWORD..... | 4 |
| 1 Scope..... | 6 |
| 2 Normative references | 6 |
| 3 Terms, definitions and abbreviated terms | 7 |
| 3.1 Terms and definitions..... | 7 |
| 3.2 Abbreviated terms..... | 7 |
| 4 General description | 7 |
| 4.1 General..... | 7 |
| 4.2 Precautions..... | 8 |
| 5 Apparatus..... | 8 |
| 5.1 Launch conditions and light source (SLS) | 8 |
| 5.2 Optical power meter (OPM)..... | 9 |
| 5.3 Temporary joint (TJ) | 10 |
| 5.4 Fibre..... | 10 |
| 5.5 Reference plug (RP)..... | 10 |
| 5.6 Reference adaptor (RA) | 10 |
| 5.7 Termination..... | 10 |
| 6 Procedure..... | 11 |
| 6.1 Preconditioning..... | 11 |
| 6.2 Visual inspection..... | 11 |
| 6.3 DUT configuration types and test methods..... | 11 |
| 6.4 Attenuation measurements with a power meter LSPM..... | 13 |
| 6.4.1 General | 13 |
| 6.4.2 Cutback method | 13 |
| 6.4.3 Substitution method..... | 13 |
| 6.4.4 Insertion method (A)..... | 14 |
| 6.4.5 Insertion method (B) with direct coupling to power meter..... | 15 |
| 6.4.6 Insertion method (C) with additional test patchcord..... | 15 |
| 6.4.7 Insertion method (D) with additional test patchcord..... | 16 |
| 6.5 Attenuation measurements with an OTDR..... | 17 |
| 6.5.1 Measurement description..... | 17 |
| 6.5.2 Bidirectional measurement | 18 |
| 6.5.3 Measurement method | 19 |
| 6.5.4 Evaluation procedure..... | 19 |
| 7 Details to be specified and reported..... | 20 |
| Annex A (informative) Consideration of multicore fibre..... | 21 |
| A.1 General..... | 21 |
| A.2 Additional apparatus | 21 |
| A.2.1 Optical switch (OSW)..... | 21 |
| A.2.2 Fan-in/fan-out device (FIFO)..... | 21 |
| A.3 Test setup and procedure – LSPM..... | 21 |
| A.4 Test setup and procedure – OTDR..... | 22 |
| Bibliography..... | 23 |

Figure 1 – Cutback method – Type 1, type 2 and type 3 DUT..... 13

Figure 2 – Substitution method – Type 4, type 7, and type 8 DUT..... 14

Figure 3 – Insertion method (C1A) – Type 2 DUT..... 15

Figure 4 – Insertion method (C2B) – Type 5 and type 6 DUT 15

Figure 5 – Insertion method (C3C) – Type 4, type 5, type 7 and type 8 DUT 16

Figure 6 – Insertion method (D) – Type 4, type 5, type 7 and type 8 DUT 16

Figure 7 – Method 1 – One launch section 17

Figure 8 – Method 2 – Two launch sections 18

Figure 9 – Non-reflective event evaluation 19

Figure 10 – Reflective event evaluation 20

Figure A.1 – FIFO device example 21

Figure A.2 – Insertion method B – Type 5 MCF DUT 22

Figure A.3 – Method 1 – One launch section MCF DUT 22

Table 1 – Preferred source conditions..... 9

Table 2 – Preferred power meter parameters 10

Table 3 – DUT configuration types 12

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING
DEVICES AND PASSIVE COMPONENTS –
BASIC TEST AND MEASUREMENT PROCEDURES –****Part 3-4: Examinations and measurements – Attenuation**

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.

This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 61300-3-4:2012. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 61300-3-4 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 fourth edition cancels and replaces the third edition published in 2012. This edition constitutes a technical revision.

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

- a) addition of Clause 3 containing terms, definitions and abbreviated terms;
- b) addition of a new LSPM measurement method, insertion method (D);
- c) addition of Annex A describing attenuation measurement of multicore fibre;
- d) changed reference test method to insertion C and alternative test method to substitution or insertion D for power meter and type 4 DUT.

The text of this International Standard is based on the following documents:

| Draft | Report on voting |
|---------------|------------------|
| 86B/4656/FDIS | 86B/4675/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 the parts in IEC 61300 series, published under the general title, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures*, 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,
- replaced by a revised edition, or
- amended.

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

The contents of the corrigendum 1 (2023-06) have been included in this copy.

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 3-4: Examinations and measurements – Attenuation

1 Scope

This part of IEC 61300 describes the various methods available to measure the attenuation of optical components. ~~It is not, however, applicable to dense wavelength division multiplexing (DWDM) components, for which IEC 61300-3-29 should be used.~~ It is not, however, applicable to random mate attenuation measurements as described in IEC 61300-3-34 and IEC 61300-3-45 nor for attenuation measurements of dense wavelength division multiplexing (DWDM) devices as described in IEC 61300-3-29.

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, Optical fibres – Part 2: Product specifications – General~~

IEC 60793-2-10, *Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres*

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

IEC 60825-1, *Safety of laser products – Part 1: Equipment classification and requirements*

IEC 61300-1:2014, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 1: General and guidance*

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

IEC 61300-3-35, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-35: Examinations and measurements – Visual inspection of fibre optic connectors and fibre-stub transceivers*

IEC 61755 (all parts), *Fibre optic interconnecting devices and passive components – Connector optical interfaces for single-mode fibres*

~~IEC/TR 62316, Guidance for the interpretation of OTDR backscattering traces~~

IEC 63267 (all parts), *Fibre optic interconnecting devices and passive components – Connector optical interfaces for enhanced macro bend loss multimode fibres*



INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –
Part 3-4: Examinations and measurements – Attenuation**

**Dispositifs d'interconnexion et composants passifs fibroniques – Procédures fondamentales d'essais et de mesures –
Partie 3-4: Examens et mesures – Affaiblissement**

CONTENTS

| | |
|---|----|
| FOREWORD..... | 4 |
| 1 Scope..... | 6 |
| 2 Normative references | 6 |
| 3 Terms, definitions and abbreviated terms | 6 |
| 3.1 Terms and definitions..... | 6 |
| 3.2 Abbreviated terms..... | 7 |
| 4 General description | 7 |
| 4.1 General..... | 7 |
| 4.2 Precautions..... | 7 |
| 5 Apparatus..... | 8 |
| 5.1 Launch conditions and light source (LS)..... | 8 |
| 5.2 Optical power meter (PM) | 8 |
| 5.3 Temporary joint (TJ) | 9 |
| 5.4 Fibre..... | 9 |
| 5.5 Reference plug (RP)..... | 9 |
| 5.6 Reference adaptor (RA) | 9 |
| 5.7 Termination..... | 10 |
| 6 Procedure..... | 10 |
| 6.1 Preconditioning..... | 10 |
| 6.2 Visual inspection..... | 10 |
| 6.3 DUT configuration types and test methods | 10 |
| 6.4 Attenuation measurements with a LSPM | 11 |
| 6.4.1 General | 11 |
| 6.4.2 Cutback method | 12 |
| 6.4.3 Substitution method..... | 12 |
| 6.4.4 Insertion method (A)..... | 13 |
| 6.4.5 Insertion method (B) with direct coupling to power meter..... | 14 |
| 6.4.6 Insertion method (C) with additional test patchcord..... | 14 |
| 6.4.7 Insertion method (D) with additional test patchcord..... | 15 |
| 6.5 Attenuation measurements with an OTDR..... | 16 |
| 6.5.1 Measurement description..... | 16 |
| 6.5.2 Bidirectional measurement | 17 |
| 6.5.3 Measurement method | 17 |
| 6.5.4 Evaluation procedure..... | 18 |
| 7 Details to be specified and reported..... | 19 |
| Annex A (informative) Consideration of multicore fibre..... | 20 |
| A.1 General..... | 20 |
| A.2 Additional apparatus | 20 |
| A.2.1 Optical switch (OSW)..... | 20 |
| A.2.2 Fan-in/fan-out device (FIFO)..... | 20 |
| A.3 Test setup and procedure – LSPM | 20 |
| A.4 Test setup and procedure – OTDR..... | 21 |
| Bibliography..... | 22 |
| Figure 1 – Cutback method – Type 1, type 2 and type 3 DUT..... | 12 |
| Figure 2 – Substitution method – Type 4, type 7, and type 8 DUT | 13 |

| | |
|---|----|
| Figure 3 – Insertion method (A) – Type 2 DUT | 14 |
| Figure 4 – Insertion method (B) – Type 5 and type 6 DUT | 14 |
| Figure 5 – Insertion method (C) – Type 4, type 5, type 7 and type 8 DUT | 15 |
| Figure 6 – Insertion method (D) – Type 4, type 5, type 7 and type 8 DUT | 15 |
| Figure 7 – Method 1 – One launch section | 16 |
| Figure 8 – Method 2 – Two launch sections | 16 |
| Figure 9 – Non-reflective event evaluation | 18 |
| Figure 10 – Reflective event evaluation | 18 |
| Figure A.1 – FIFO device example | 20 |
| Figure A.2 – Insertion method B – Type 5 MCF DUT | 21 |
| Figure A.3 – Method 1 – One launch section MCF DUT | 21 |
| | |
| Table 1 – Preferred source conditions | 8 |
| Table 2 – Preferred power meter parameters | 9 |
| Table 3 – DUT configuration types | 11 |

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 3-4: Examinations and measurements – Attenuation

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.

IEC 61300-3-4 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 fourth edition cancels and replaces the third edition published in 2012. This edition constitutes a technical revision.

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

- a) addition of Clause 3 containing terms, definitions and abbreviated terms;
- b) addition of a new LSPM measurement method, insertion method (D);
- c) addition of Annex A describing attenuation measurement of multicore fibre;
- d) changed reference test method to insertion C and alternative test method to substitution or insertion D for power meter and type 4 DUT.

The text of this International Standard is based on the following documents:

| Draft | Report on voting |
|---------------|------------------|
| 86B/4656/FDIS | 86B/4675/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 the parts in IEC 61300 series, published under the general title, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures*, 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,
- replaced by a revised edition, or
- amended.

The contents of the corrigendum 1 (2023-06) have been included in this copy.

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 3-4: Examinations and measurements – Attenuation

1 Scope

This part of IEC 61300 describes the various methods available to measure the attenuation of optical components. It is not, however, applicable to random mate attenuation measurements as described in IEC 61300-3-34 and IEC 61300-3-45 nor for attenuation measurements of dense wavelength division multiplexing (DWDM) devices as described in IEC 61300-3-29.

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 60793-2-10, *Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres*

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

IEC 60825-1, *Safety of laser products – Part 1: Equipment classification and requirements*

IEC 61300-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 1: General and guidance*

IEC 61300-3-35, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-35: Examinations and measurements – Visual inspection of fibre optic connectors and fibre-stub transceivers*

IEC 61755 (all parts), *Fibre optic interconnecting devices and passive components – Connector optical interfaces for single-mode fibres*

IEC 63267 (all parts), *Fibre optic interconnecting devices and passive components – Connector optical interfaces for enhanced macro bend loss multimode fibres*

SOMMAIRE

| | |
|---|----|
| AVANT-PROPOS | 26 |
| 1 Domaine d'application | 28 |
| 2 Références normatives | 28 |
| 3 Termes, définitions et abréviations | 29 |
| 3.1 Termes et définitions | 29 |
| 3.2 Abréviations | 29 |
| 4 Description générale | 29 |
| 4.1 Généralités | 29 |
| 4.2 Précautions à prendre | 30 |
| 5 Appareillage | 30 |
| 5.1 Conditions d'injection et source lumineuse (LS) | 30 |
| 5.2 Appareil de mesure de la puissance optique (PM) | 31 |
| 5.3 Jonction temporaire (TJ) | 32 |
| 5.4 Fibre | 32 |
| 5.5 Fiche de référence (RP) | 32 |
| 5.6 Raccord de référence (RA) | 32 |
| 5.7 Sortie | 33 |
| 6 Procédure | 33 |
| 6.1 Préconditionnement | 33 |
| 6.2 Examen visuel | 33 |
| 6.3 Types de configuration du DUT et méthodes d'essai | 33 |
| 6.4 Mesurages de l'affaiblissement au moyen d'un LSPM | 35 |
| 6.4.1 Généralités | 35 |
| 6.4.2 Méthode de la fibre coupée | 35 |
| 6.4.3 Méthode par substitution | 36 |
| 6.4.4 Méthode par insertion (A) | 36 |
| 6.4.5 Méthode par insertion (B) avec couplage direct avec l'appareil de mesure de la puissance | 37 |
| 6.4.6 Méthode par insertion (C) avec cordon de brassage supplémentaire | 37 |
| 6.4.7 Méthode par insertion (D) avec cordon de brassage supplémentaire | 38 |
| 6.5 Mesurages de l'affaiblissement au moyen d'un OTDR | 39 |
| 6.5.1 Description du mesurage | 39 |
| 6.5.2 Mesurage bidirectionnel | 40 |
| 6.5.3 Méthode de mesure | 40 |
| 6.5.4 Procédure d'évaluation | 41 |
| 7 Informations détaillées à spécifier et à consigner | 42 |
| Annexe A (informative) Prise en considération de la fibre multicœur | 43 |
| A.1 Généralités | 43 |
| A.2 Appareillages supplémentaires | 43 |
| A.2.1 Commutateur optique (OSW) | 43 |
| A.2.2 Dispositif d'entrée/sortance (FIFO) | 43 |
| A.3 Montage et procédure d'essai – LSPM | 43 |
| A.4 Montage et procédure d'essai – OTDR | 44 |
| Bibliographie | 45 |
| Figure 1 – Méthode de la fibre coupée – DUT de type 1, de type 2, et de type 3 | 35 |

| | |
|---|----|
| Figure 2 – Méthode par substitution – DUT de type 4, de type 7 et de type 8 | 36 |
| Figure 3 – Méthode par insertion (A) – DUT de type 2 | 37 |
| Figure 4 – Méthode par insertion (B) – DUT de type 5 et de type 6 | 37 |
| Figure 5 – Méthode par insertion (C) – DUT de type 4, de type 5, de type 7 et de type 8 | 38 |
| Figure 6 – Méthode par insertion (D) – DUT de type 4, de type 5, de type 7 et de type 8 | 38 |
| Figure 7 – Méthode 1 – Un tronçon d'injection | 39 |
| Figure 8 – Méthode 2 – Deux tronçons d'injection | 39 |
| Figure 9 – Évaluation d'événement non réfléchissant..... | 41 |
| Figure 10 – Évaluation d'événement réfléchissant | 41 |
| Figure A.1 – Exemple de dispositif FIFO | 43 |
| Figure A.2 – Méthode par insertion B – DUT à MCF de type 5 | 44 |
| Figure A.3 – Méthode 1 – DUT à MCF à un tronçon d'injection | 44 |
| | |
| Tableau 1 – Conditions concernant la source préférentielle | 31 |
| Tableau 2 – Paramètres préférentiels de l'appareil de mesure de la puissance | 32 |
| Tableau 3 – Types de configuration de DUT | 34 |

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

DISPOSITIFS D'INTERCONNEXION ET COMPOSANTS PASSIFS FIBRONIQUES – PROCÉDURES FONDAMENTALES D'ESSAIS ET DE MESURES –

Partie 3-4: Examens et mesures – Affaiblissement

AVANT-PROPOS

- 1) La Commission Électrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. À cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
- 2) Les décisions ou accords officiels de l'IEC concernant les questions techniques représentent, dans la mesure du possible, un accord international sur les sujets étudiés, étant donné que les Comités nationaux de l'IEC intéressés sont représentés dans chaque comité d'études.
- 3) Les Publications de l'IEC se présentent sous la forme de recommandations internationales et sont agréées comme telles par les Comités nationaux de l'IEC. Tous les efforts raisonnables sont entrepris afin que l'IEC s'assure de l'exactitude du contenu technique de ses publications; l'IEC ne peut pas être tenue responsable de l'éventuelle mauvaise utilisation ou interprétation qui en est faite par un quelconque utilisateur final.
- 4) Dans le but d'encourager l'uniformité internationale, les Comités nationaux de l'IEC s'engagent, dans toute la mesure possible, à appliquer de façon transparente les Publications de l'IEC dans leurs publications nationales et régionales. Toutes divergences entre toutes Publications de l'IEC et toutes publications nationales ou régionales correspondantes doivent être indiquées en termes clairs dans ces dernières.
- 5) L'IEC elle-même ne fournit aucune attestation de conformité. Des organismes de certification indépendants fournissent des services d'évaluation de conformité et, dans certains secteurs, accèdent aux marques de conformité de l'IEC. L'IEC n'est responsable d'aucun des services effectués par les organismes de certification indépendants.
- 6) Tous les utilisateurs doivent s'assurer qu'ils sont en possession de la dernière édition de cette publication.
- 7) Aucune responsabilité ne doit être imputée à l'IEC, à ses administrateurs, employés, auxiliaires ou mandataires, y compris ses experts particuliers et les membres de ses comités d'études et des Comités nationaux de l'IEC, pour tout préjudice causé en cas de dommages corporels et matériels, ou de tout autre dommage de quelque nature que ce soit, directe ou indirecte, ou pour supporter les coûts (y compris les frais de justice) et les dépenses découlant de la publication ou de l'utilisation de cette Publication de l'IEC ou de toute autre Publication de l'IEC, ou au crédit qui lui est accordé.
- 8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
- 9) L'attention est attirée sur le fait que certains des éléments de la présente Publication de l'IEC peuvent faire l'objet de droits de brevet. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets.

L'IEC 61300-3-4 a été établie par le sous-comité 86B: Dispositifs d'interconnexion et composants passifs à fibres optiques, du comité d'études 86 de l'IEC: Fibres optiques. Il s'agit d'une Norme internationale.

Cette quatrième édition annule et remplace la troisième édition parue en 2012. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) ajout de l'Article 3 relatif aux termes, définitions et abréviations;
- b) ajout d'une nouvelle méthode de mesure LSPM, la méthode par insertion (D);

- c) ajout de l'Annexe A qui décrit le mesurage de l'affaiblissement de la fibre multicœur;
- d) modification de la méthode d'essai de référence par insertion C et de la méthode d'essai alternative par substitution ou par insertion D pour l'appareil de mesure de la puissance et le DUT de type 4.

Le texte de cette Norme internationale est issu des documents suivants:

| Projet | Rapport de vote |
|---------------|-----------------|
| 86B/4656/FDIS | 86B/4675/RVD |

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/standardsdev/publications.

La liste de toutes les parties de la série IEC 61300, publiées sous le titre général, *Dispositifs d'interconnexion et composants passifs fibroniques – Procédures fondamentales d'essais et de mesures*, peut être consultée sur le site web de l'IEC.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date du résultat de la maintenance indiquée sur le site web de l'IEC sous webstore.iec.ch dans les données relatives au document recherché. À cette date, le document sera

- reconduit,
- supprimé,
- remplacé par une édition révisée, ou
- amendé.

Le contenu du corrigendum 1 (2023-06) a été pris en considération dans cet exemplaire.

DISPOSITIFS D'INTERCONNEXION ET COMPOSANTS PASSIFS FIBRONIQUES – PROCÉDURES FONDAMENTALES D'ESSAIS ET DE MESURES –

Partie 3-4: Examens et mesures – Affaiblissement

1 Domaine d'application

La présente partie de l'IEC 61300 décrit les différentes méthodes disponibles qui permettent de mesurer l'affaiblissement des composants optiques. Toutefois, elle n'est applicable ni aux mesurages de l'affaiblissement dû à l'accouplement aléatoire décrits dans l'IEC 61300-3-34 et l'IEC 61300-3-45 ni aux mesurages de l'affaiblissement des dispositifs de multiplexage par répartition en longueur d'onde à forte densité (DWDM - *dense wavelengths division multiplexer*) décrits dans l'IEC 61300-3-29.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60793-2-10, *Fibres optiques – Partie 2-10: Spécifications de produits – Spécification intermédiaire pour les fibres multimodales de catégorie A1*

IEC 60793-2-50, *Fibres optiques – Partie 2-50: Spécifications de produits – Spécification intermédiaire pour les fibres unimodales de classe B*

IEC 60825-1, *Sécurité des appareils à laser – Partie 1: Classification des matériels et exigences*

IEC 61300-1, *Dispositifs d'interconnexion et composants passifs fibroniques – Procédures fondamentales d'essais et de mesures – Partie 1: Généralités et recommandations*

IEC 61300-3-35, *Dispositifs d'interconnexion et composants passifs à fibres optiques – Procédures fondamentales d'essais et de mesures – Partie 3-35: Examens et mesures – Examen visuel des connecteurs à fibres optiques et des émetteurs-récepteurs à embase fibrée*

IEC 61755 (toutes les parties), *Dispositifs d'interconnexion et composants passifs fibroniques – Interfaces optiques de connecteur pour fibres unimodales*

IEC 63267 (toutes les parties), *Fibre optic interconnecting devices and passive components – Connector optical interfaces for enhanced macro bend loss multimode fibres* (disponible en anglais seulement)