
Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-4: Tests - Fibre/cable retention (IEC 61300-2-4:1995)

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-4: Tests - Fibre/cable retention

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Grundlegende Prüf- und Meßverfahren -- Teil 2-4: Prüfungen - Zugfestigkeit von Faser- oder Kabelanschluß

Dispositifs d'interconnexion et composants passifs à fibres optiques - Méthodes fondamentales d'essais et de mesures -- Partie 2-4: Essais - Rétention de la fibre ou du câble

Ta slovenski standard je istoveten z: EN 61300-2-4:1997

ICS:

33.180.20	Povezovalne naprave za optična vlakna	Fibre optic interconnecting devices
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SIST EN 61300-2-4:1999**en**

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English version

**Fibre optic interconnecting devices and passive components
Basic test and measurement procedures
Part 2-4: Tests - Fibre/cable retention
(IEC 61300-2-4:1995)**

Dispositifs d'interconnexion et
composants passifs à fibres optiques
Méthodes fondamentales d'essais et
de mesures
Partie 2-4: Essais - Rétention de
la fibre ou du câble
(CEI 61300-2-4:1995)

Lichtwellenleiter - Verbindungselemente
und passive Bauteile - Grundlegende
Prüf- und Meßverfahren
Teil 2-4: Prüfungen: Zugfestigkeit von
Faser oder Kabel
(IEC 61300-2-4:1995)

This European Standard was approved by CENELEC on 1997-07-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of the International Standard IEC 61300-2-4:1995, prepared by SC 86B, Fibre optic interconnecting devices and passive components, of IEC TC 86, Fibre optics, was submitted to the formal vote and was approved by CENELEC as EN 61300-2-4 on 1997-07-01 without any modification.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 1998-06-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 1998-06-01

Endorsement notice

The text of the International Standard IEC 61300-2-4:1995 was approved by CENELEC as a European Standard without any modification.

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**Dispositifs d'interconnexion et composants
passifs à fibres optiques –
Méthodes fondamentales d'essais
et de mesures –**

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Partie 2-4:

Essais – Rétention de la fibre ou du câble

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**Fibre optic interconnecting devices
and passive components –**

Basic test and measurement procedures –

Part 2-4:

Tests – Fibre/cable retention

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2-4: Tests – Fibre/cable retention

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. 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. The 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 the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
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International Standard IEC 1300-2-4 has been prepared by sub-committee 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:

DIS	Report on voting
86B/533/DIS	86B/617/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.

IEC 1300 consists of the following parts, under the general title *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures*:

- Part 1: General and guidance
- Part 2: Tests
- Part 3: Examinations and measurements

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

Part 2-4: Tests – Fibre/cable retention

1 General

1.1 Scope and object

The purpose of this part of IEC 1300 is to ensure that the captivation or attachment of the fibre/cable to a fibre optic device will withstand tensile loads likely to be applied during normal service.

1.2 General description

The specimen is rigidly clamped to a holding fixture and a tensile load is applied to the fibre/cable. Potential failure modes for this test include, but are not limited to:

- a) cable jacket damage;
- b) fibre breakage or damage;
- c) cable clamp failure;
- d) cable pull-out;
- e) loss of optical continuity;
- f) degradation of optical transmission characteristics;
- g) excessive movement of the cable/terminus relative to the device.

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2 Apparatus

The apparatus consists of the following elements.

2.1 Holding fixture

A means to hold the fibre/cable and the device(s) in position for the duration of the test. The holding method used shall not distort the device under test. Mount the device in a fixed position using its normal mounting provisions. As an example, wrap the fibre/cable around a mandrel having a diameter which is at least 25 times the diameter of the fibre/cable. Use an adequate number of turns to preclude slippage. The distance between the rearmost portion of the device under test and the mandrel tangent point shall be no less than 50 times the diameter of the fibre/cable.

NOTE – The fixturing should allow the specimen to be connected to an optical source and detector in order to monitor changes in attenuation (if required by the detail specification).

2.2 Force generator

An appropriate device or apparatus capable of smoothly applying the specified force at the specified rate.

2.3 Force gauge

An appropriate gauge to register the amount of force being exerted between the device under test and the fibre/cable. This equipment may include a device to record the rate of force application or the total time the force is applied, or both.

2.4 Alternative apparatus

Unless otherwise specified in the detail specification, other apparatus may be used in lieu of a mechanical separation device or force gauge. For example, the required force may be achieved by applying controlled increments of mass to one of the holding devices while the other holding device remains fixed.

2.5 Timer

A device to measure the total time the force is applied, if the apparatus mentioned in 2.3 is not used.

2.6 Other equipment

Optical and other examination and measuring equipment shall be available as required by IEC 1300-3-1 and IEC 1300-3-5, as appropriate. Refer to the required procedure for details.

3 Procedure

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3.1 Visually examine each specimen in accordance with IEC 1300-3-1 to ensure that the specimens have not been damaged.

3.2 Unless otherwise specified, precondition each prepared specimen for 4 h at the standard test conditions specified in IEC 1300-1.

3.3 Securely mount the device under test on the holding fixture and place in the test apparatus.

3.4 Perform any initial optical measurement and make any other measurements as required by the detail specification. Unless otherwise specified in the detail specification, measure the attenuation in accordance with IEC 1300-3-5.

3.5 Activate the test apparatus so that an axial force is gradually exerted between the fibre/cable and the device under test. Apply the load gradually so as to eliminate any impulse or impact loading effect. If automatic equipment is used, it is recommended that the rate of separation of the holding devices be approximately 25 mm/min. Continue loading until the tensile load specified in the detail specification has been reached.

3.6 Maintain the specified load for the specified time period required by the detail specification. While the specimen is under load, make observations and perform measurements as required by the detail specification.

3.7 Remove the test load and perform any final optical measurement required by the detail specification. Unless otherwise specified in the detail specification, measure the attenuation in accordance with IEC 1300-3-5.