
Povezovalne naprave in pasivne komponente optičnih vlaken – Postopki osnovnega preskušanja in merjenja – 3-6. del: Preiskovanje in meritve; meritve kotne napačne razvrstitve med osjo vlakna in osjo čepa (IEC 61300-3-26:2002)*

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-26: Examinations and measurements - Measurement of the angular misalignment between fibre and ferrule axes (IEC 61300-3-26:2002)

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English version

**Fibre optic interconnecting devices and passive components -
Basic test and measurement procedures
Part 3-26: Examinations and measurements -
Measurement of the angular misalignment
between fibre and ferrule axes
(IEC 61300-3-26:2002)**

Dispositifs d'interconnexion et
composants passifs à fibres optiques -
Méthodes fondamentales d'essais
et de mesures
Partie 3-26: Examens et mesures -
Mesure de l'erreur d'alignement
des embouts avec fibre
(CEI 61300-3-26:2002)

Lichtwellenleiter-Verbindungselemente
und passive Bauteile -
Grundlegende Prüf- und Messverfahren
Teil 3-26: Untersuchungen
und Messungen -
Messung des Winkelversatzes zwischen
Faser- und Stiftachse
(IEC 61300-3-26:2002)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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 document 86B/1707/FDIS, future edition 2 of IEC 61300-3-26, prepared by SC 86B, Fibre optic interconnecting devices and passive components, of IEC TC 86, Fibre optics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61300-3-26 on 2002-11-01.

This European Standard supersedes EN 61300-3-26:1997.

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) 2003-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-11-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annex ZA is normative and annex A is informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61300-3-26:2002 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

<u>SIST EN 61300-3-26:2004</u>		
IEC 61300-1	NOTE	Harmonized as EN 61300-1:1997 (not modified).
IEC 61300-3-15	NOTE	Harmonized as EN 61300-3-15:1997 (not modified).
IEC 61300-3-16	NOTE	Harmonized as EN 61300-3-16:1997 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 2538	- ¹⁾	Geometrical Product Specifications (GPS) - Series of angles and slopes on prisms	-	-

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¹⁾ Undated reference.

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NORME
INTERNATIONALE
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CEI
IEC

61300-3-26

Deuxième édition
Second edition
2002-09

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

**Partie 3-26:
Examens et mesures –
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**Fibre optic interconnecting devices
and passive components –
Basic test and measurement procedures –**

**Part 3-26:
Examinations and measurements –
Measurement of the angular misalignment
between fibre and ferrule axes**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

**Part 3-26: Examinations and measurements –
Measurement of the angular misalignment
between fibre and ferrule axes**

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 co-operation 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.
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International Standard IEC 61300-3-26 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This second edition of IEC 61300-3-26 cancels and replaces the first edition published in 1997 and constitutes a technical revision.

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

FDIS	Report on voting
86B/1707/FDIS	86B/1754/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 61300 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.

The committee has decided that the contents of this publication will remain unchanged until 2007. At this date, the publication will be

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

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

Part 3-26: Examinations and measurements – Measurement of the angular misalignment between fibre and ferrule axes

1 Scope

This part of IEC 61300 describes the procedure to determine the angular misalignment between the fibre and the ferrule axes in a cylindrical ferrule for singlemode fibre optical connectors with fibre installed.

- **General description**

This procedure describes the measurement of the angular misalignment between the fibre and the ferrule axes in a cylindrical ferrule for fibre optic connectors with fibre installed. Angular misalignment is defined as the angle δ between the axis of the ferrule and the axis of the installed fibre (see Figure 1).

This procedure measures angular misalignment by measuring the deviation in the far field pattern coming from the core as the ferrule is rotated around its axis.

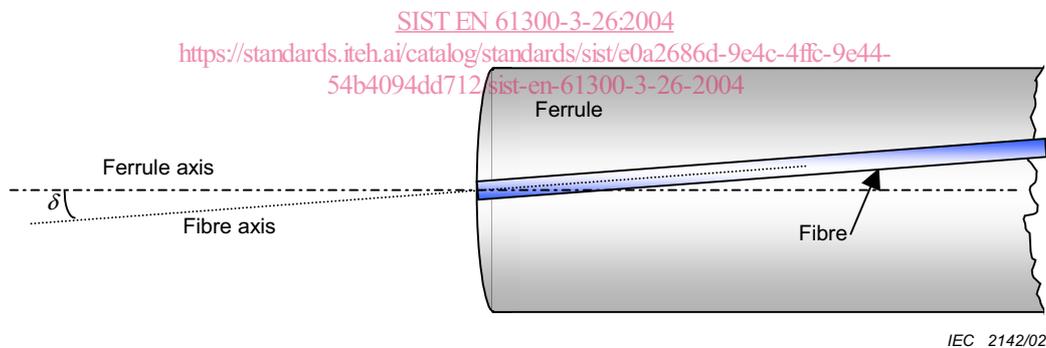


Figure 1 – Definition of the fibre misalignment angle

In a optical connector typical values of angular misalignment are in the range of tenths of a degree. At 5 mm from the ferrule surface, the diameter of the light spot (white light) is about 1 mm. On rotating the connector the displacement of the spot is of the order of 1/100 of the spot diameter (45 μm for an angular misalignment of 0,5° at 5 mm from the fibre surface). To detect such a displacement a high precision, automatically controlled set-up is necessary.

The deviation of the spot coming from the fibre is also affected by the tilt of the fibre surface with respect to the ferrule axis. This deflection is described by Snell's law. It is possible to calculate the contribution due to the tilt of the fibre surface from the curvature radius and the apex offset eccentricity. Some notes and explanation about the equations used in this document to correct this effect are given in Annex A.