

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

The European Standard EN 61300-3-26:2002 has the status of a
British Standard

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National foreword

This British Standard is the official English language version of EN 61300-3-26:2002. It is identical with IEC 61300-3-26:2002. It supersedes BS EN 61300-3-26:1997 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee GEL/86, Fibre optics, to Subcommittee GEL/86/2, Fibre optic interconnecting devices and passive components, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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This British Standard, having been prepared under the direction of the Electrotechnical Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 25 November 2002

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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
(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 angulaire
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.

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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 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:

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).

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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.

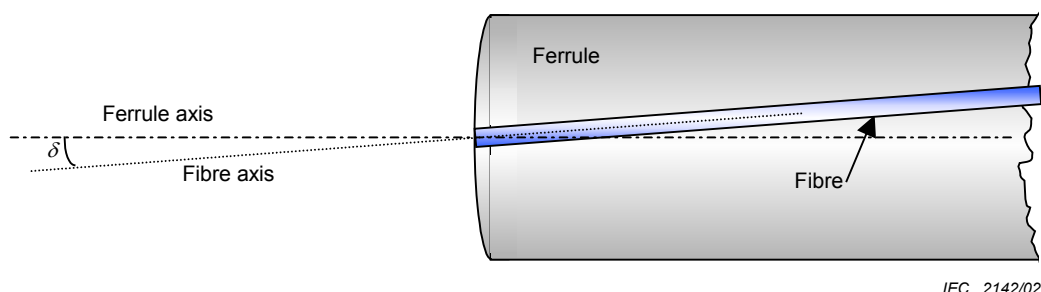


Figure 1 – Definition of the fibre misalignment angle

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.