SLOVENSKI STANDARD
SIST EN 61300-3-16:1999

01-maj-1999

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-16: Examinations and measurements - Endface radius of spherically polished ferrules (IEC 61300-3-16:1995)

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 3-16: Examinations and measurements - Endface radius of spherically polished ferrules (IEC 61300-3-16:1995)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Grundlegende Prüf- und Meßverfahren -- Teil 3-16: Untersuchungen und Messungen - Endflächenradius sphärisch polierter Stifte

Dispositifs d'interconnexion et composants passifs à fibres optiques - Méthodes fondamentales d'essais et de mesures -- Partie 3-16: Examens et mesures - Rayon de la face terminale des embouts polis sphériquement

Ta slovenski standard je istoveten z: **EN 61300-3-16:1997**

ICS:

33.180.20	Povezovalne naprave za optiļ na vlakna	Fibre optic interconnecting devices

SIST EN 61300-3-16:1999 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61300-3-16

August 1997

ICS 33.180.20

English version

Fibre optic interconnecting devices and passive components Basic test and measurement procedures Part 3-16: Examinations and measurements Endface radius of spherically polished ferrules (IEC 61300-3-16:1995)

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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

Ref. No. EN 61300-3-16:1997 E

Foreword

The text of the International Standard IEC 61300-3-16:1995, 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 61300-3-16 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- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-06-01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 61300-3-16:1995 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 –

Partie 3-16:
Examens et mesures – Rayon de la face terminale des embouts polis sphériquement

Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –

Part 3-16:
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 3-16: Examinations and measurements – Endface radius of spherically polished ferrules

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.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

International Standard IEC 1300-3-16 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/521/DIS	86B/594/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 3-16: Examinations and measurements – Endface radius of spherically polished ferrules

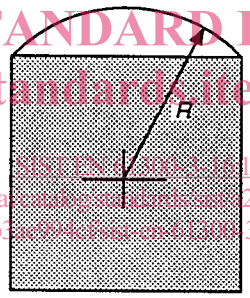
1 General

1.1 *Scope and object*

The object of this part of IEC 1300 is to describe procedures for measuring the radius of the endface of a spherically polished ferrule.

1.2 *General description*

The ferrule endface radius R is defined as the radius of curvature of the portion of the endface which is domed for physical contact polishing. It is assumed that the endface is spherical, although in practice the endface is often aspherical (see figure 1).



IEC 297/95

Figure 1 – Radius of curvature of the endface

Three methods are described for measuring the endface radius.

Method 1 – Profiling the endface with a surface analyzer

Method 2 – Analyzing the separation of interference rings when the endface is imaged with an interferometer

Method 3 – Use of a profile projector to make a simple go/no go measurement of physical contact and angled physical contact shaped endfaces.

1.3 *Normative reference*

The following normative document contains provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated was valid. All normative documents are subject to revision and parties to agreements based on this part of IEC 1300 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2538: 1974, *Limits and fits – Series of angles and slopes on wedges and prisms*

2 Apparatus

2.1 *Method 1 – Profiling*

The apparatus consists of the following elements.

2.1.1 *V-groove*

The V-groove axis is vertical or, in the case of the angled type ferrules, the V-groove fixture shall be adjusted according to the nominal angle of the ferrule tip. The preferred angle for a V-groove is 108° according to ISO 2538.

2.1.2 *Profilometer*

A profilometer, equipped with a chisel type probe, is arranged so that the motion of the trace is perpendicular to the axis of the ferrule.

2.1.3 *Chart recorder*

A chart recorder is used to record the trace of the profilometer as it moves across the endface of the ferrule.

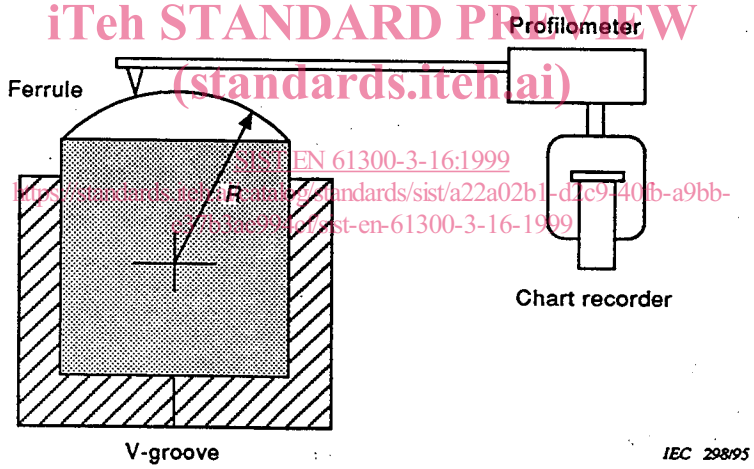


Figure 2 – Example of apparatus using method 1 (profiling)

2.2 *Method 2 – Interferometry*

The apparatus consists of the following elements.

2.2.1 *V-groove fixture*

This fixture is parallel to the viewing axis of a flat plate interferometer or a non-contact interferometer operating at a known wavelength. In the case of angled endface type ferrules, the V-groove fixture shall be adjusted according to the nominal angle of the ferrule endface.

2.2.2 *Television camera and monitor*

This allows the display of the interference fringes that result from viewing the spherical endface with the interferometer.

2.2.3 *Means of vision*

This may be manual or automatic and permits the determination of the diameter and location of at least two rings.

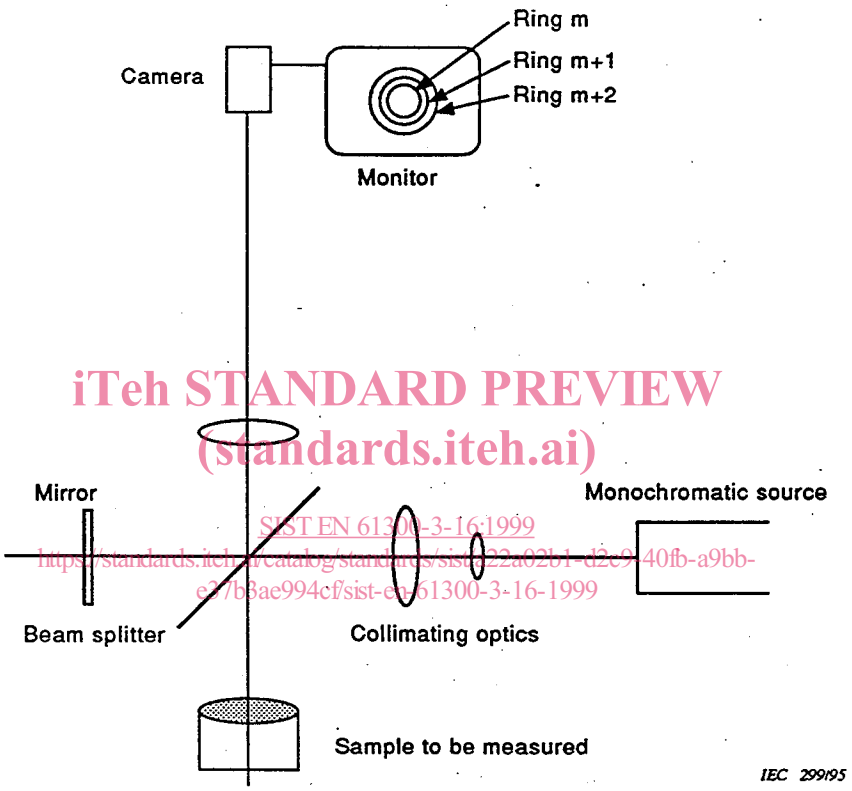


Figure 3 – Example of apparatus using method 2 (interferometry)

2.3 *Method 3 – Profile projector*

The apparatus consists of a profile projector having the following features:

- magnification of 20x minimum;
- simultaneous top and bottom side illumination;
- goniometer table;
- cross-hair chart;
- chart with the minimum and maximum profile of the object to be measured.