SLOVENSKI STANDARD

SIST EN 61300-3-8:1999

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Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-8: Examinations and measurements - Ambient light susceptibility (IEC 61300-3-8:1995) cables

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 3-8: Examinations and measurements - Ambient light susceptibility (IEC 61300-3-8:1995) cables

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Grundlegende Prüf- und Meßverfahren -- Teil 3-8: Untersuchungen und Messungen - Streulichtempfindlichkeit

Dispositifs d'interconnexion et composants passifs à fibres optiques - Méthodes fondamentales d'essais et de mesures -- Partie 3-8: Examens et mesures - Immunité à l'éclairement extérieur

Ta slovenski standard je istoveten z: **EN 61300-3-8:1997**

ICS:

33.180.20	Povezovalne naprave za optična vlakna	Fibre optic interconnecting devices

SIST EN 61300-3-8:1999 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61300-3-8

August 1997

ICS 33.180.20

English version

Fibre optic interconnecting devices and passive components Basic test and measurement procedures Part 3-8: Examinations and measurements - Ambient light susceptibility (IEC 61300-3-8:1995)

Dispositifs d'interconnexion et composants passifs à fibres optiques Méthodes fondamentales d'essais et de mesures Partie 3-8: Examens et mesures Immunité à l'éclairement extérieur (CEI 61300-3-8:1995)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Grundlegende Prüf- und Meßverfahren Teil 3-8: Untersuchungen und Messungen - Streulichtempfindlichkeit (IEC 61300-3-8:1995)

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.

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.

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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 61300-3-8:1997 E

Foreword

The text of the International Standard IEC 61300-3-8:1995, 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 61300-3-8 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 61300-3-8:1995 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 3-8: Examens et mesures – Immunité à l'éclairement extérieur

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

Part 3-8: Examinations and measurements – Ambient light susceptibility

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 3-8: Examinations and measurements – Ambient light susceptibility

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 1300-3-8 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/523/DIS	86B/596/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 3-8: Examinations and measurements – Ambient light susceptibility

1 General

1.1 *Scope and object*

The purpose of this part of IEC 1300 is to measure the susceptibility of a fibre optic device to the coupling of light into the optical channel(s) from external light sources.

1.2 *General description*

This procedure simulates an idealized illumination of a fibre optic device (including its associated fibre pigtails) by an external light source and measures the amount of light coupled into one or more of the light channels of the device per unit of illumination intensity (irradiance).

2 Apparatus

The apparatus and measuring arrangement are shown in figure 1. The apparatus shall consist of the following elements.

2.1 *Light source*

This is a non-coherent source of light with a spectral range covering the wavelengths of systems operation of the specimen. Since the expected susceptibility of the majority of fibre optic devices to coupling of ambient light is very small, this shall normally be an intense light source capable of 100 mW/cm^2 of irradiance at the location of the specimen.

2.2 *Launch optics*

The launch optics are the means for coupling the light source to the light chamber. It may involve an imaging or light scattering system and may, in the case of phase-locked light detection, incorporate a light chopper. Specific information shall be provided in the detail specification.

2.3 *Light chamber*

The intent of the light chamber is to permit, as much as possible, omnidirectional illumination of the specimen by the external light source. In the case of small components, the ideal chamber here is an integrating sphere. Here "small" means that the dimensions of the specimen are equal to or smaller than 20 % of the diameter of the sphere. As an alternative, the specimen could be illuminated from a single direction and the test procedure modified to measure the specimen several times with different orientations in relation to the direction of illumination.

2.4 *Optical power meter*

The optical configuration of the detector of the power meter shall be such as to detect all of the light emitted from a fibre end of the specimen. Since low levels of coupled ambient power are expected, the power meter shall be capable of detecting light levels of –90 dBm in the wavelength range of the specimen or as specified in the detail specification.

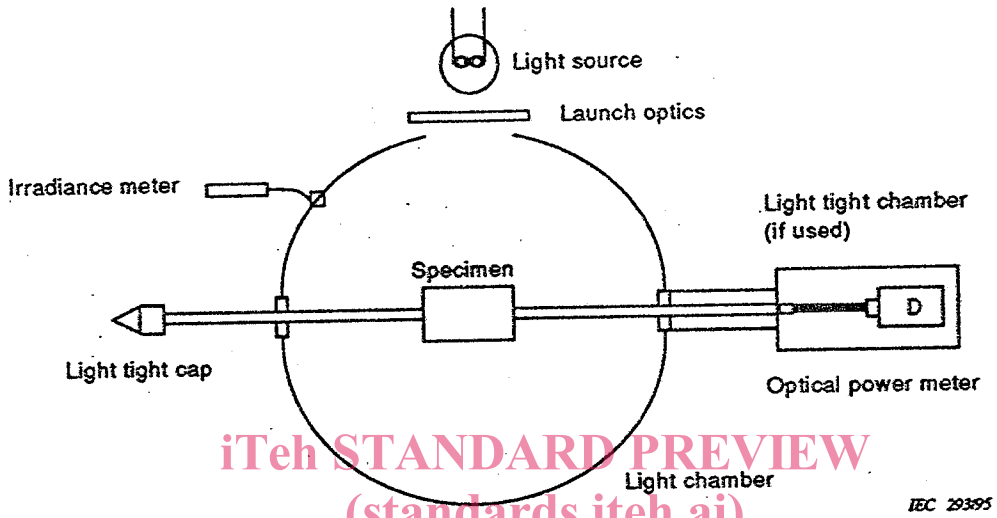

Figure 1 – Apparatus and test arrangement

2.5 *Light tight chamber (optional)*

Normally, for this measurement, control of room lighting conditions should be exercised. Light shielding of fibre that is not intentionally illuminated and of the power meter optics may be required.

2.6 *Irradiance meter*

The irradiance meter shall have enough range to measure 100 mW/cm^2, or the intensity that the detail specification requires to be at the surface of the specimen. The reproducibility shall be within 5 %. The spectral response of the detector shall be compatible with the light source used. In the case of an integrating sphere, the irradiance detector head is fitted as shown in figure 1. In the case of unidirectional illumination of the specimen, the irradiance detector head shall be placed in close proximity to the specimen and oriented to detect the illuminating light.

2.7 *Light tight caps*

Where ports of the specimen exist either inside or outside of the light chamber, they shall be capped with seals capable of blocking light to a level specified in the detail specification.

3 Procedure

3.1 Prepare the specimen in accordance with the manufacturer's instructions and place it in the light chamber as shown in figure 1. Where possible, all pigtail ports of the specimen shall lead outside of the light chamber through light tight seals and be capped. The detail specification shall provide information on the placement of the specimen in the chamber and lengths and orientations of cable pigtails in the chamber. Normally, the sample shall be placed in a manner which relieves tension and minimizes cable and fibre microbending as much as possible.

3.2 Connect a specified specimen port or pigtail to the optical power meter head in a manner which excludes stray light.

3.3 With the light source off, zero the optical power meter and the irradiance meter reading (C).

3.4 Turn on the light source and adjust the light intensity to obtain the irradiance meter readings specified in the detail specification. For each value of irradiance $P_a(i)$, record the corresponding optical power meter reading, $P_t(i)$.

3.5 Plot $P_t(i)$ vs $P_a(i)$ on a log-log chart as shown in figure 2. In the linear region of the plot (corresponding to the "A-B" region shown in figure 2), find the least squares fit to the measuring data. The ambient light susceptibility (ALS) is then defined as the slope of the curve.

3.6 Repeat the procedure with other ports of the specimen connected to the optical power meter, as specified in the detail specification.

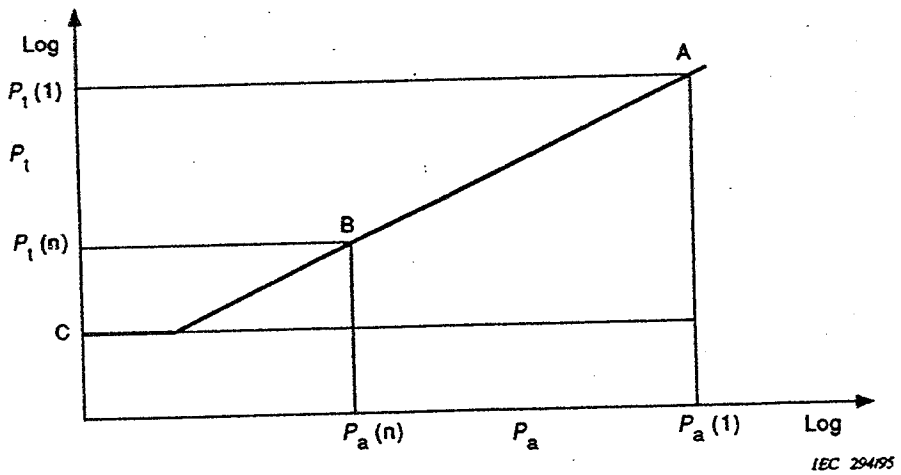

Figure 2