BRITISH STANDARD

BS EN 61300-2-46: 2006

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

Part 2-46: Tests — Damp heat cyclic

The European Standard EN 61300-2-46:2006 has the status of a British Standard

ICS 33.180.20

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 61300-2-46:2006. It is identical with IEC 61300-2-46:2006.

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.

A list of organizations represented on GEL/86/2 can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 29 September 2006

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EUROPEAN STANDARD

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English version

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures Part 2-46: Tests - Damp heat cyclic

(IEC 61300-2-46:2006)

Dispositifs d'interconnexion et composants passifs à fibres optiques - Méthodes fondamentales d'essais et de mesures
Partie 2-46: Essais - Chaleur humide, essai cyclique
(CEI 61300-2-46:2006)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Grundlegende Prüf- und Messverfahren
Teil 2-46: Prüfungen - Feuchte Wärme (zyklisch)
(IEC 61300-2-46:2006)

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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 61300-2-46:2006 E

Foreword

The text of document 86B/2304/FDIS, future edition 1 of IEC 61300-2-46, 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 61300-2-46 on 2006-08-01.

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)	2007-05-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2009-08-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61300-2-46:2006 was approved by CENELEC as a European Standard without any modification.

CONTENTS

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

Part 2-46: Tests – Damp heat, cyclic

1 Scope

The purpose of this part of IEC 61300 is to describe a test to determine the suitability of a fibre optic device to withstand the environmental condition of high humidity and change of temperature which may occur in actual use, storage and/or transport. The test is primarily intended to determine the suitability of fibre optic components under conditions of high humidity - combined with cyclic temperature changes and, in general, producing condensation on the surface of the specimen. Absorption of moisture may result in swelling that would destroy functional utility, cause loss of physical strength, and cause changes in other important mechanical properties. Degradation of optical properties may also occur. Although not necessarily intended as a simulated tropical test, this test can, nevertheless, be useful in determining moisture absorption of insulating or covering materials.

2 Normative reference

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-30, *Environmental testing - Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 61300-3-3, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-3: Examinations and measurements – Active monitoring of changes in attenuation and return loss*

3 General description

This procedure is conducted in accordance with IEC 60068-2-30, test Db, variant 1. The specimen is placed in a chamber and subjected to a damp-heat environment which is maintained at given temperatures and relative humidity for a specified duration, as specified in the relevant specification.

4 Apparatus

4.1 Chamber

The apparatus consists of an environmental chamber in accordance with IEC 60068-2-30, test Db. The chamber shall be capable of housing the specimen and of allowing access for measurement during conditioning. It shall also be capable of maintaining the specified temperatures and humidity within the specified tolerances. Forced air circulation may be used to maintain homogeneous conditions. The chamber and accessories shall be constructed and arranged in such a manner as to avoid condensation on the specimens.

Water: use distilled, demineralized or deionized water to obtain the specified humidity. No rust or corrosion contaminants shall be imposed on the specimen by the test facility.

4.2 Other apparatus

Additional apparatus may be necessary to perform the examinations and measurements specified by the relevant specification.

5 Procedure

5.1 Preparation of specimens

Prepare the specimen according to the manufacturer's instructions or as specified in the relevant specification. The specimen shall be terminated with a sufficient length of fibre cable to facilitate connection with the optical source and detector.

Maintain the specimen under standard atmospheric conditions (room temperature condition) for 2 h minimum.

Clean the mechanical and optical alignment parts of the specimen according to the manufacturer's instructions.

5.2 Initial examinations and measurements

If specified, perform initial examinations and measurements as required by the relevant specification.

5.3 Conditioning

5.3.1 Stabilize the chamber and the specimen to standard atmospheric conditions. Place the specimen in the chamber in its normal operating position, including hook-ups to peripheral equipment (when required).

5.3.2 Adjust the chamber temperature and humidity to the specified severity. The rate of change of temperature shall not exceed 1 °C/min, averaged over a maximum period of 5 min. In any case the rising temperature should stay within the limits indicated in Figure 1.

5.3.3 At the completion of the test, allow the specimen to remain in the chamber while the temperature is gradually reduced to standard atmospheric conditions. The rate of change of temperature shall not exceed 1 °C/min, averaged over a maximum period of 5 min. In any case the decreasing temperature should stay within the limits indicated in Figure 1.

5.3.4 Where optical measurements are required during the test, measurements shall be made at a maximum interval of 1 h. Do not remove the specimen(s) from the chamber when taking these measurements. Measurements shall be made in accordance with IEC 61300-3-3.

5.4 Recovery

Allow the specimen to remain under standard atmospheric conditions for a period of 2 h.

5.5 Final examinations and measurements

Perform final examinations and measurements as required by the relevant specification.

6 Severity

Details:

- test cycle: (see Figure 1)
- high temperature: +55 °C ±2 °C
- low temperature: +25 °C ±2 °C
- humidity: >90 %
- duration of each cycle: 24 h
- number of cycles: 6

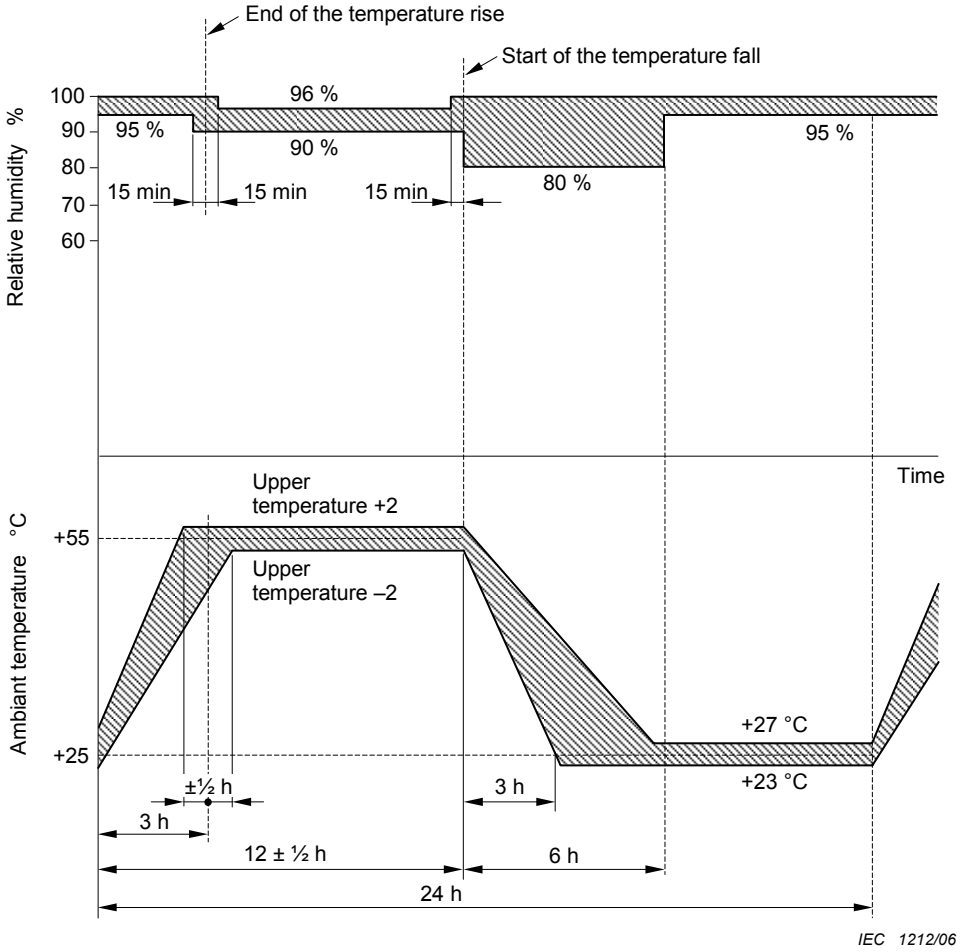

Figure 1 – Test Db – Test cycle

7 Details to be specified

The following details, as applicable, shall be specified in the relevant specification:

- specimen optically functioning or non-functioning;
- specimen mated or unmated (for connectors);
- initial examinations and measurements and performance requirements;
- examinations and measurements during test and performance requirements;
- final examinations and measurements and performance requirements;
- deviations from test procedure;
- additional pass/fail criteria.

Bibliography

IEC 61300-3-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-1: Examinations and measurements - Visual examination*

NOTE Harmonized as EN 61300-3-1:2005 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

Publication	Year	Title	EN/HD	Year
IEC 60068-2-30	-[1)]	Environmental testing Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	2005[2)]
IEC 61300-3-3	-[1)]	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures Part 3-3: Examinations and measurements - Active monitoring of changes in attenuation and return loss	EN 61300-3-3	2003[2)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

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