

BS EN 61300-2-21: 2010



BSI Standards Publication

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

Part 2-21: Tests — Composite temperature/humidity cyclic test

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### National foreword

This British Standard is the UK implementation of EN 61300-2-21:2010. It is identical to IEC 61300-2-21:2009. It supersedes BS EN 61300-2-21:1997 which is withdrawn.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.

A list of organizations represented on this committee 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.

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**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 31 March 2010

### Amendments issued since publication

| Amd. No. | Date | Text affected |
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

# EN 61300-2-21

February 2010

ICS 33.180.20

Supersedes EN 61300-2-21:1997

English version

**Fibre optic interconnecting devices and passive components -  
Basic test and measurement procedures -  
Part 2-21: Tests -  
Composite temperature/humidity cyclic test  
(IEC 61300-2-21:2009)**

Dispositifs d'interconnexion et composants  
passifs à fibres optiques – Méthodes  
fondamentales d'essais et de mesures –  
Partie 2-21: Essais – Essai cyclique  
composite température/humidité  
(CEI 61300-2-21:2009)

Lichtwellenleiter -  
Verbindungselemente und passive  
Bauteile -  
Grundlegende Prüf- und Messverfahren -  
Teil 2-21: Prüfungen -  
kombinierte Temperatur/Feuchte, zyklisch  
(IEC 61300-2-21:2009)

This European Standard was approved by CENELEC on 2010-02-01. 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

## CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: Avenue Marnix 17, B - 1000 Brussels**

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## Foreword

The text of document 86B/2924/FDIS, future edition 2 of IEC 61300-2-21, 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 61300-2-21 on 2010-02-01.

This European Standard supersedes EN 61300-2-21:1997.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The changes with respect to EN 61300-2-21:1997 are:

- to reconsider the whole parts of the standard;
- to describe the apparatus and procedure in greater details;
- to define with precision the number of 24 cycles in the severity.

The following dates were fixed:

- |                                                                                                                                                |       |            |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------|
| – latest date by which the EN has to be implemented<br>at national level by publication of an identical<br>national standard or by endorsement | (dop) | 2010-11-01 |
| – latest date by which the national standards conflicting<br>with the EN have to be withdrawn                                                  | (dow) | 2011-02-01 |

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 61300-2-21:2009 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

|             |      |                           |
|-------------|------|---------------------------|
| IEC 61300-1 | NOTE | Harmonized as EN 61300-1. |
|-------------|------|---------------------------|

## 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.

| <u>Publication</u> | <u>Year</u> | <u>Title</u>                                                                                                                                                                  | <u>EN/HD</u>  | <u>Year</u> |
|--------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|
| IEC 60068-2-38     | -           | Environmental testing -<br>Part 2-38: Tests - Test Z/AD: Composite<br>temperature/humidity cyclic test                                                                        | EN 60068-2-38 | -           |
| IEC 61300-3-1      | -           | Fibre optic interconnecting devices and<br>passive components - Basic test and<br>measurement procedures -<br>Part 3-1: Examinations and measurements -<br>Visual examination | EN 61300-3-1  | -           |
| IEC 61300-3-4      | -           | Fibre optic interconnecting devices and<br>passive components - Basic test and<br>measurement procedures -<br>Part 3-4: Examinations and measurements -<br>Attenuation        | EN 61300-3-4  | -           |

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

## **Part 2-21: Tests – Composite temperature/humidity cyclic test**

### **1 Scope**

The purpose of this part of IEC 61300 is to determine the resistance of a fibre optic device to the deteriorative effects of high temperature, humidity and cold conditions.

It is intended to reveal defects in a device under test (DUT) caused by breathing as opposed to absorption of moisture. The test covers the effect of the freezing of trapped water in cracks and fissures as well as condensation. However, the degree of condensation will vary depending on the size and thermal mass of the DUT.

This test differs from other cyclic damp heat tests in that it derives its increased severity from:

- a) a greater number of temperature variations leading to pumping actions in a given time;
- b) a greater cyclic temperature range;
- c) a higher rate of change of temperature;
- d) the inclusion of a number of excursions to sub-zero temperature.

This type of test is particularly important for fibre optic devices made of a variety of different materials.

### **2 Normative references**

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 60068-2-38 *Environmental testing – Part 2-38: Tests – Test Z/AD: Composite temperature/humidity cyclic test*

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

IEC 61300-3-4, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-4: Examinations and measurements – Attenuation*

### **3 General description**

This procedure is conducted in accordance with IEC 60068-2-38, test Z/AD. The DUT is placed in a humidity chamber and subjected to 10 temperature-humidity cycles, each of 24 h duration. During any five of the first nine cycles after exposure to the humidity subcycle, the DUT shall be subjected to cold.