

**BS EN 61300-2-28:2013**

*Incorporating corrigendum December 2013*



**BSI Standards Publication**

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

Part 2-28: Tests — Corrosive atmosphere (sulphur dioxide)

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This British Standard is the UK implementation of EN 61300-2-28:2013. It is identical to IEC 61300-2-28:2013, incorporating corrigendum December 2013. It supersedes BS EN 61300-2-28:1997 which is withdrawn.

Attention is drawn to the fact that during the development of this international standard, the UK committee voted against its approval as a British standard.

The UK committee draws users' attention towards the conflicting statements in the scope and clause 3 about the intent of the document, in regards to whether the test is a general corrosion test. The scope states that the test 'can be considered a general corrosion test', whereas clause 3 states that the test 'is not suitable as a general corrosion test'. It is the opinion of the UK committee that it can be used as a general corrosion test.

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 subcommittee 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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Published by BSI Standards Limited 2013

ISBN 978 0 580 85524 5

ICS 33.180.20

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2013.

### Amendments/corrigenda issued since publication

Date	Text affected
30 June 2015	Implementation of IEC corrigendum 1 December 2013: title of standard updated

EUROPEAN STANDARD  
 NORME EUROPÉENNE  
 EUROPÄISCHE NORM

**EN 61300-2-28**

September 2013

ICS 33.180.20

English version

**Fibre optic interconnecting devices and passive components -  
 Basic test and measurement procedures -  
 Part 2-28: Tests -  
 Corrosive atmosphere (sulphur dioxide)  
 (IEC 61300-2-28:2013)**

Dispositifs d'interconnexion et composants  
 passifs à fibres optiques -  
 Méthodes fondamentales d'essais et de  
 mesures -  
 Partie 2-28: Essais -  
 Atmosphère industrielle (anhydride  
 sulfureux)  
 (CEI 61300-2-28:2013)

Lichtwellenleiter -  
 Verbindungselemente und passive  
 Bauteile -  
 Grundlegende Prüf- und Messverfahren -  
 Teil 2-28: Prüfungen -  
 Industrielatmosphäre (Schwefeldioxid)  
 (IEC 61300-2-28:2013)

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 Comité Européen de Normalisation Electrotechnique  
 Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 86B/3619/FDIS, future edition 2 of IEC 61300-2-28, 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 approved by CENELEC as EN 61300-2-28:2013.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2014-05-20
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2014-08-20

This document supersedes EN 61300-2-28:1997.

EN 61300-2-28:2013 includes the following significant technical changes with respect to EN 61300-2-28:1997:

The reconsideration of Clauses 5 and 6, Procedure and Severity, respectively.

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

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The text of the International Standard IEC 61300-2-28:2013 was approved by CENELEC as a European Standard without any modification.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 60068-2-42	-	Environmental testing - Part 2-42: Tests - Test Kc: Sulphur dioxide test for contacts and connections	EN 60068-2-42	-
IEC 61300-1	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 1: General and guidance	EN 61300-1	-
IEC 61300-3-1	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-1: Examinations and measurements - Visual examination	EN 61300-3-1	-

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

## Part 2-28: Tests – Corrosive atmosphere (sulphur dioxide)

### 1 Scope

The purpose of this part of IEC 61300 is to assess the corrosive effects of atmospheres polluted with sulphur dioxide on fibre optic devices. The procedure is only suitable for comparative purposes. It can be considered a general corrosion test, but which does not predict the behaviour of the devices in use.

### 2 Normative references

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

IEC 60068-2-42, *Environmental testing – Part 2-42: Tests – Test Kc: Sulphur dioxide test for contacts and connections*

IEC 61300-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 1: General and guidance*

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

### 3 General description

This test

- is intended to provide accelerated means to assess the corrosive effects of atmospheres polluted with sulphur dioxide on fibre optic devices,
- is particularly suitable for giving information on a comparative basis,
- is not suitable as a general corrosion test, i.e. it may not predict the behaviour of fibre optic devices in industrial atmospheres.

### 4 Apparatus

The apparatus consists of a test chamber in accordance with IEC 60068-2-42, Test Kc. The test chamber and its auxiliary parts shall be made of materials that do not react with or absorb sulphur dioxide and which do not influence the corrosive effects of the test atmosphere. The mixture of air and sulphur dioxide shall enter and leave the chamber through tubes with sufficiently large diameters such that the total flow through the chamber is at least three, but not more than five, changes of the atmosphere per hour. The exhaust from the chamber should not be allowed to enter the laboratory.

The detailed construction of the chamber including the method of producing the test atmosphere is optional provided that

- a) the conditions in that part of the chamber occupied by the specimens are within the specified limits,
- b) the specimens under test are protected from direct exposure to the incoming gas flow,
- c) arrangements are made to move the specimens through the test atmosphere at an average rate of 20 m/h to 60 m/h (approximately 6 mm/s to 17 mm/s) or, alternatively, to gently stir the atmosphere, obtaining a similar relative velocity between atmosphere and specimens,
- d) condensation on the specimen does not occur inside the test chamber.

## **5 Procedure**

### **5.1 General**

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.

### **5.2 Preconditioning**

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

Unless otherwise stated, maintain the specimen under standard atmospheric condition according to IEC 61300-1 for 2 h minimum.

### **5.3 Measurements**

Place the specimens in the chamber in its normal operating position and make connections to the monitoring equipment.

Prior to the start of the test it shall be established by suitable measurements that a stable conditions for the concentration of sulphur dioxide, the temperature and the relative humidity have been achieved. Periodic checks shall be made during test to ensure that these conditions are maintained.

Care should be taken that the specimens are so placed that they do not come into contact with one another and that they do not shield one another from the test atmosphere.

Adequate precautions shall be taken to ensure that the specimens are not disturbed during exposure period.

Specimens shall be exposed mated and/or unmated as prescribed in the relevant specification.

The specimens shall be operational and/or not operational according to relevant specifications.

The specimens shall be continuously exposed to the test atmosphere for the period specified by the relevant specification.

### **5.4 Recovery**

Allow the specimen to remain under standard test conditions for 2 h, as defined in IEC 61300-1, unless otherwise specified in the relevant specification. Clean the specimen according to the manufacturer's instructions.



## 5.5 Final examinations and measurements

On completion of the test, remove all fixtures and make final measurements, as defined by the relevant specification, to ensure that there is no permanent damage to the specimen. The results of the final measurement shall be within the limit established in the relevant specification.

Unless otherwise specified, visually examine the specimen in accordance with IEC 61300-3-1. Check for evidence of any degradation in the specimen. This may include, for example

- broken, loose or damaged parts or accessories,
- breaking or damage to the cable jacket, seals, strain relief, or fibres,
- displaced, bent, or broken parts.

## 6 Severity

The severity consists of the duration of exposure. The severity shall be specified in the relevant specification.

The preferred severities for category E, shown in Table 1, are non-mandatory severities which may be specified for this procedure. Sulphur dioxide shall be taken as the total oxides of sulphur expressed as SO<sub>2</sub>. Small concentrations of sulphur oxides other than SO<sub>2</sub> (such as SO<sub>3</sub>) are permitted to be present to a maximum concentration of 1 % of the total sulphur oxides. The relative humidity shall be held as close as possible to 75 % but shall in no case exceed 80 % nor fall below 70 %.

**Table 1 – Severities for category E**

Parameter	Value
Sulphur dioxide	$(25 \pm 5) \times 10^{-6}$ (vol/vol)
Temperature	25 °C ± 2 °C
Relative humidity	75 %
Duration	4 days

## 7 Details to be specified

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

- test severities;
- specimen optically functioning or non-functioning;
- specimen mated or unmated;
- pre-conditioning procedure;
- test duration;
- recovery procedure, duration;
- 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.





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