SLOVENSKI STANDARD
SIST EN 60512-11-7:2002

01-september-2002

Electromechanical components for electronic equipment - Basic testing procedure and measuring methods - Part 11: Climatic tests - Section 7: Test 11g: Flowing mixed gas corrosion test (IEC 60512-11-7:1996)

Electromechanical components for electronic equipment - Basic testing procedures and measuring methods -- Part 11: Climatic tests -- Section 7: Test 11g: Flowing mixed gas corrosion test

Elektrisch-mechanische Bauelemente für elektronische Einrichtungen - Meß- und Prüfverfahren -- Teil 11: Klimatische Prüfungen -- Hauptabschnitt 7: Prüfung 11g: Korrosionsprüfung mit strömendem Mischgas

Composants électromécaniques pour équipements électroniques - Procédures d'essai de base et méthodes de mesure -- Partie 11: Essais climatiques -- Section 7: Essai 11g: Essai de corrosion dans un flux de mélange de gaz

Ta slovenski standard je istoveten z: **EN 60512-11-7:1996**

ICS:

31.220.01	Elektromehanske komponente (sestavni deli, gradniki) na splošno	Electromechanical components in general

SIST EN 60512-11-7:2002 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60512-11-7

March 1996

ICS 31.220.00

Descriptors: Electromechanical components, testing procedures, corrosion test

English version

Electromechanical components for electronic equipment Basic testing procedures and measuring methods Part 11: Climatic tests Section 7: Test 11g: Flowing mixed gas corrosion test (IEC 512-11-7:1996)

Composants électromécaniques pour équipements électroniques - Procédures d'essai de base et méthodes de mesure Partie 11: Essais climatiques Section 7: Essai 11g: Essai de corrosion dans un flux de mélange de gaz (CEI 512-11-7:1996)

Elektrisch-mechanische Bauelemente für elektronische Einrichtungen - Meß- und Prüfverfahren Teil 11: Klimatische Prüfungen Hauptabschnitt 7: Prüfung 11g: Korrosionsprüfung mit strömendem Mischgas (IEC 512-11-7:1996)

This European Standard was approved by CENELEC on 1996-03-05. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Foreword

The text of document 48B/391/FDIS, future edition 1 of IEC 512-11-7, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60512-11-7 on 1996-03-05.

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) 1996-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1996-12-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 512-11-7:1996 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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 68-2-60	1995	Environmental testing Part 2: Tests - Test Ke: Flowing mixed gas corrosion test	EN 60068-2-60	1996
IEC 512-2	1985	Electromechanical components for electronic equipment; basic testing procedures and measuring methods Part 2: General examination, electrical continuity and contact resistance tests, insulation tests and voltage stress tests	-	-
IEC 512-7	1993	Part 7: Mechanical operating tests and sealing tests	-	-

NORME INTERNATIONALE
INTERNATIONAL STANDARD

CEI
IEC
512-11-7

Première édition
First edition
1996-01

Composants électromécaniques pour équipements électroniques – Procédures d'essai de base et méthodes de mesure –
Partie 11:
Essais climatiques –
Section 7: Essai 11g: Essai de corrosion dans un flux de mélange de gaz

Electromechanical components for electronic equipment – Basic testing procedures and measuring methods –
Part 11:
Climatic tests –
Section 7: Test 11g: Flowing mixed gas corrosion test

Bureau Central de la Commission Electrotechnique Internationale 3, rue de Varembé Genève, Suisse

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE E

Pour prix, voir catalogue en vigue
For price, see current catalogue

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMECHANICAL COMPONENTS FOR ELECTRONIC EQUIPMENT – BASIC TESTING PROCEDURES AND MEASURING METHODS –

Part 11: Climatic tests –

Section 7: Test 11g: Flowing mixed gas corrosion test

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, express as nearly as possible an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.

3) The documents produced have the form of recommendations for international use and are 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.

5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 512-11-7 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

This standard cancels and replaces clause 7 of IEC 512-6 (Test 11g). It should be read in conjunction with part 1: General, issued as IEC 512-1.

The complete publication will include other tests which will be issued as they become available.

The text of this standard is based on the following documents:

FDIS	Report on voting
48B/391/FDIS	48B/463/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.

ELECTROMECHANICAL COMPONENTS FOR ELECTRONIC EQUIPMENT – BASIC TESTING PROCEDURES AND MEASURING METHODS –

Part 11: Climatic tests –

Section 7: Test 11g: Flowing mixed gas corrosion test

1 Scope and object

This section of IEC 512-11 defines a standard test method to assess the effects of a controlled atmosphere polluted by gases at very low concentration on electrical contacts or connections.

1.1 *Normatives references*

The following normative documents contain provisions which, through reference in this text, constitute provisions of this section of IEC 512-11. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this section of IEC 512-11 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 68-2-60: 1995, *Environmental testing – Part 2: Tests – Test Ke: Flowing mixed gas corrosion test*

IEC 512-2: 1985, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 2: General examination, electrical continuity and contact resistance tests, insulation tests and voltage stress tests*

IEC 512-7: 1993, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 7: Mechanical operating tests and sealing tests*

2 Preparation of the specimen

2.1 *Mechanical preparation*

The specimen, equipped with normal accessories, shall be mounted and wired in accordance with the detail specification.

When required by the detail specification, the specimen shall be operated the number of times specified, prior to test.

For each test carried out, the detail specification shall specify the condition of the component, for example, mated or unmated.

2.2 *Preconditioning*

Preconditioning shall be carried out in accordance with the requirements of the detail specification.

3 Test method

3.1 *Initial measurements*

When required by the detail specification, the specified initial measurements shall be made under standard atmospheric conditions, immediately after preconditioning.

3.2 *Test severities*

The test severity is defined by:

- the test method, chosen from table 1;
  this table is in accordance with test Ke: Flowing mixed gas corrosion test, of IEC 68-2-60 (second edition);
- the test duration;
  preferred values are 4, 7, 10, 14 and 21 days.

The test method and duration shall be specified in the detail specification.

Guides for the selection of test methods and test duration, and descriptions of test apparatus are given in IEC 68-2-60.

During the test, specimens are not electrically loaded.

Table 1

Parameters	Method 1	Method 2	Method 3	Method 4
$H_2S(10^{-9}$ vol/vol)	100 ± 20	10 ± 5	100 ± 20	10 ± 5
$NO_2(10^{-9}$ vol/vol)		200 ± 50	200 ± 50	200 ± 50
$Cl_2(10^{-9}$ vol/vol)		10 ± 5	20 ± 5	10 ± 5
$SO_2(10^{-9}$ vol/vol)	500 ± 100			200 ± 20
Temperature °C	25 ± 1	30 ± 1	30 ± 1	25 ± 1
Relative humidity %	75 ± 3	70 ± 3	75 ± 3	75 ± 3
Volume changes per hour	3-10	3-10	3-10	3-10
Weight increase of copper coupons mg/dm²/day	1,0-2,0	0,3-1,0	1,2-2,2	1,2-2,4

Care should be taken on any possible poisonous effect of gases used.

3.3 *Final measurements*

The specimen shall then be subjected to the following tests and shall meet the requirements specified by the detail specification:

a) contact resistance tests (tests 2 of IEC 512-2), as applicable;

b) mechanical operating tests (test 13 of IEC 512-7), as applicable;

c) visual examination (test 1a of IEC 512-2).