

**Environmental testing - Part 2-5: Tests - Test Sa:
Simulated solar radiation at ground level and guidance
for solar radiation testing**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60068-2-5:2011 sisaldab Euroopa standardi EN 60068-2-5:2011 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 31.03.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

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Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 60068-2-5:2011 consists of the English text of the European standard EN 60068-2-5:2011.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.03.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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The standard is available from Estonian standardisation organisation.

ICS 19.040

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English version

**Environmental testing -
Part 2-5: Tests -
Test Sa: Simulated solar radiation at ground level and guidance for solar
radiation testing**
(IEC 60068-2-5:2010 + corrigendum Dec. 2010)

Essais d'environnement -
Partie 2-5: Essais -
Essai Sa: Rayonnement solaire simulé au
niveau du sol et guide pour les essais de
rayonnement solaire
(CEI 60068-2-5:2010 + corrigendum Dec.
2010)

Umgebungseinflüsse -
Teil 2-5: Prüfverfahren -
Prüfung Sa: Nachgebildete
Sonnenbestrahlung in Bodennähe und
Leitfaden zur Sonnenstrahlung
(IEC 60068-2-5:2010 + corrigendum Dec.
2010)

This European Standard was approved by CENELEC on 2011-01-02. 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

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Foreword

The text of document 104/500/FDIS, future edition 2 of IEC 60068-2-5, prepared by IEC TC 104, Environmental conditions, classification and methods of test, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60068-2-5 on 2011-01-02.

This European Standard supersedes EN 60068-2-5:1999 and EN 60068-2-9:1999.

The main changes with respect to EN 60068-2-5:1999 are listed below:

This EN 60068-2-5:2011 will make the reading much easier, partly because it includes guidance for solar radiation testing, previously published in a separate publication, EN 60068-2-9, and partly because it now allows the use of all lamps specified in CIE 85 and published in 1985 by the International commission on Illumination.

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 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) | 2011-10-02 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2014-01-02 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60068-2-5:2010 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

ISO 4892-1	NOTE	Harmonized as EN ISO 4892-1.
ISO 4892-2	NOTE	Harmonized as EN ISO 4892-2.
ISO 4892-3	NOTE	Harmonized as EN ISO 4892-3.

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 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-
IEC 60068-2-1	-	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	-
IEC 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
CIE 20	1972	Recommendation for the integrated irradiance - and the spectral distribution of simulated solar radiation for testing purposes		-
CIE 85	1985	Solar spectral irradiance	-	-

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INTRODUCTION

This part of IEC 60068 describes methods of simulation designed to examine the effect of solar radiation on equipment and components at the surface of the earth. The main characteristics of the environment to be simulated are the spectral energy distribution of the sun, as observed at the earth's surface, and the intensity of received energy, in combination with controlled temperature conditions. However, it may be necessary to consider a combination of solar radiation with other environments, e.g. temperature, humidity, air velocity, etc.

ENVIRONMENTAL TESTING –

Part 2-5: Tests – Test Sa: Simulated solar radiation at ground level and guidance for solar radiation testing

1 Scope and object

This part of IEC 60068 provides guidance for testing equipment or components under solar radiation conditions.

The purpose of testing is to investigate to what extent the equipment or components are affected by solar radiation.

The method of combined tests detects electrical, mechanical or other physical variations.

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 60068-1, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

CIE 20:1972, *Recommendation for the integrated irradiance and the spectral distribution of simulated solar radiation for testing purposes*

CIE 85:1985, *Solar spectral irradiance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60068-1, as well as the following, apply.

3.1

air mass

path length that light from a celestial object takes through the earth's atmosphere relative to the length where air mass = 1

NOTE The air mass is $1/\sin(\gamma)$, where γ is the elevation angle of the sun.

3.2

black standard temperature

BST

characteristic value of the specimen surface temperature

NOTE Black standard temperature as measured by a black standard thermometer (see ISO 4892-1).