# SLOVENSKI STANDARD
# SIST EN 62108:2008

**01-september-2008**

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**Koncentratorski fotonapetostni (CPV) moduli in sestavi - Ocena zasnove in odobritev tipa (IEC 62108:2007)**

Concentrator photovoltaic (CPV) modules and assemblies - Design qualification and type approval

Konzentrator-Photovoltaik(CPV)-Module und -Anordnungen - Bauarteignung und Bauartzulassung



Modules et ensembles photovoltaïques à concentration - Qualification de la conception et homologation



**Ta slovenski standard je istoveten z:** **EN 62108:2008**

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**ICS:**

| | | |
|---|---|---|
| 27.160 | Sonį na energija | Solar energy engineering |

**SIST EN 62108:2008** **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 62108

March 2008

ICS 27.160

English version

# Concentrator photovoltaic (CPV) modules and assemblies - Design qualification and type approval
(IEC 62108:2007)

Modules et ensembles photovoltaïques à concentration - Qualification de la conception et homologation
(CEI 62108:2007)

Konzentrator-Photovoltaik(CPV)-Module und -Anordnungen - Bauarteignung und Bauartzulassung
(IEC 62108:2007)



This European Standard was approved by CENELEC on 2008-02-01. 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.

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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**



Ref. No. EN 62108:2008 E

## Foreword

The text of document 82/494/FDIS, future edition 1 of IEC 62108, prepared by IEC TC 82, Solar photovoltaic energy systems, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62108 on 2008-02-01.

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) | 2008-11-01 |
| – latest date by which the national standards conflicting 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 62108:2007 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:

| | | |
|---|---|---|
| IEC 60904-1 | NOTE | Harmonized as EN 60904-1:2006 (not modified). |
| IEC 61730-1 | NOTE | Harmonized as EN 61730-1:2007 (modified). |
| IEC 61730-2 | NOTE | Harmonized as EN 61730-2:2007 (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 60068-2-21 | 2006 | Environmental testing - Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices | EN 60068-2-21 | 2006 |
| IEC 61215 | 2005 | Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval | EN 61215 | 2005 |
| ISO/IEC 17025 | 2005 | General requirements for the competence of testing and calibration laboratories | EN ISO/IEC 17025 | 2005 |
| ANSI/UL 1703 | 2002 | Flat-Plate Photovoltaic Modules and Panels | - | - |

# IEC 62108

Edition 1.0 2007-12

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Concentrator photovoltaic (CPV) modules and assemblies – Design qualification and type approval**



**Modules et ensembles photovoltaïques à concentration – Qualification de la conception et homologation**



INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# CONCENTRATOR PHOTOVOLTAIC (CPV) MODULES AND ASSEMBLIES – DESIGN QUALIFICATION AND TYPE APPROVAL

## FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62108 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

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

| FDIS | Report on voting |
|---|---|
| 82/494/FDIS | 82/504/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

# CONCENTRATOR PHOTOVOLTAIC (CPV) MODULES AND ASSEMBLIES – DESIGN QUALIFICATION AND TYPE APPROVAL

## 1 Scope and object

This International Standard specifies the minimum requirements for the design qualification and type approval of concentrator photovoltaic (CPV) modules and assemblies suitable for long-term operation in general open-air climates as defined in IEC 60721-2-1. The test sequence is partially based on that specified in IEC 61215 for the design qualification and type approval of flat-plate terrestrial crystalline silicon PV modules. However, some changes have been made to account for the special features of CPV receivers and modules, particularly with regard to the separation of on-site and in-lab tests, effects of tracking alignment, high current density, and rapid temperature changes, which have resulted in the formulation of some new test procedures or new requirements.

The object of this test standard is to determine the electrical, mechanical, and thermal characteristics of the CPV modules and assemblies and to show, as far as possible within reasonable constraints of cost and time, that the CPV modules and assemblies are capable of withstanding prolonged exposure in climates described in the scope. The actual life of CPV modules and assemblies so qualified will depend on their design, production, environment, and the conditions under which they are operated.



## 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 60068-2-21:2006, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 61215:2005, *Crystalline silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval*

ISO/IEC 17025:2005, *General requirements for the competence of testing and calibration laboratories*

ANSI/UL 1703 ed.3 March 15, 2002: *Flat-Plate Photovoltaic Modules and Panels*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

**3.1**
**concentrator**
term associated with photovoltaic devices that use concentrated sunlight

**3.2**
**concentrator cell**
basic photovoltaic device that is used under the illumination of concentrated sunlight

**3.3**
**concentrator optics**
optical device that performs one or more of the following functions from its input to output: increasing the light intensity, filtering the spectrum, modifying light intensity distribution, or changing light direction. Typically, it is a lens or a mirror. A **primary optics** receives unconcentrated sunlight directly from the sun. A **secondary optics** receives concentrated or modified sunlight from another optical device, such as primary optics or another secondary optics.