

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

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 62108:2008 sisaldab Euroopa standardi EN 62108:2008 ingliskeelset teksti.

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**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 -
Bauartegnung 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.

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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

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with the EN have to be withdrawn (dow) 2011-02-01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.

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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	-	-

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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.