

ILNAS

Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 62108:2008

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

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

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

03/2008

A decorative graphic in the bottom right corner featuring several interlocking gears in shades of blue and yellow. Overlaid on the gears is a vertical column of binary code (0s and 1s) and various mathematical symbols like plus, minus, and multiplication signs.

National Foreword

This European Standard EN 62108:2008 was adopted as Luxembourgish Standard ILNAS-EN 62108:2008.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

<https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html>

THIS PUBLICATION IS COPYRIGHT PROTECTED

Nothing from this publication may be reproduced or utilized in any form or by any mean - electronic, mechanical, photocopying or any other data carries without prior permission!

**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.

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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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 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	-	-



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



CONTENTS

FOREWORD.....	5
1 Scope and object.....	7
2 Normative references	7
3 Terms and definitions	7
4 Sampling.....	8
5 Marking	9
6 Testing	9
7 Pass criteria	10
8 Report	18
9 Modifications	18
10 Test procedures	18
10.1 Visual inspection	18
10.1.1 Procedure.....	19
10.1.2 Major visual defects.....	19
10.1.3 Requirements	19
10.2 Electrical performance measurement.....	19
10.2.1 Purpose.....	19
10.2.2 Outdoor side-by-side I-V measurement.....	19
10.2.3 Solar simulator I-V measurement.....	21
10.2.4 Dark I-V measurement.....	21
10.3 Ground path continuity test.....	22
10.3.1 Purpose.....	22
10.3.2 Procedure.....	22
10.3.3 Requirements	22
10.4 Electrical insulation test.....	22
10.4.1 Purpose.....	22
10.4.2 Procedure.....	22
10.4.3 Requirements	23
10.5 Wet insulation test.....	23
10.5.1 Purpose.....	23
10.5.2 Procedure.....	23
10.5.3 Requirements	24
10.6 Thermal cycling test	24
10.6.1 Purpose.....	24
10.6.2 Test sample.....	24
10.6.3 Procedure.....	24
10.6.4 Requirements	25
10.7 Damp heat test.....	26
10.7.1 Purpose.....	26
10.7.2 Test sample.....	26
10.7.3 Procedure.....	26
10.7.4 Requirements	27
10.8 Humidity freeze test	27
10.8.1 Purpose.....	27
10.8.2 Test sample.....	27

10.8.3	Procedure.....	27
10.8.4	Requirements	27
10.9	Hail impact test	28
10.9.1	Purpose.....	28
10.9.2	Apparatus.....	28
10.9.3	Procedure.....	28
10.9.4	Requirements	29
10.10	Water spray test.....	29
10.10.1	Purpose.....	29
10.10.2	Procedure.....	29
10.10.3	Requirements	30
10.11	Bypass/blocking diode thermal test.....	30
10.11.1	Purpose.....	30
10.11.2	Test sample.....	30
10.11.3	Apparatus.....	30
10.11.4	Procedure.....	30
10.11.5	Requirements	31
10.12	Robustness of terminations test.....	31
10.12.1	Purpose.....	31
10.12.2	Types of terminations	31
10.12.3	Procedure.....	31
10.12.4	Requirements	32
10.13	Mechanical load test.....	32
10.13.1	Purpose.....	32
10.13.2	Procedure.....	32
10.13.3	Requirements	33
10.14	Off-axis beam damage test.....	33
10.14.1	Purpose.....	33
10.14.2	Special case	33
10.14.3	Procedure.....	33
10.14.4	Requirements	34
10.15	Ultraviolet conditioning test	34
10.15.1	Purpose.....	34
10.15.2	Procedure.....	34
10.16	Outdoor exposure test	34
10.16.1	Purpose.....	34
10.16.2	Procedure.....	34
10.16.3	Requirements	35
10.17	Hot-spot endurance test	35
Annex A (informative) Summary of test conditions and requirements		36
Bibliography.....		38
Figure 1 – Schematic of point-focus dish PV concentrator.....		11
Figure 2 – Schematic of linear-focus trough PV concentrator		12
Figure 3 – Schematic of point-focus Fresnel lens PV concentrator		13
Figure 4 – Schematic of linear-focus Fresnel lens PV concentrator		14