SLOVENSKI STANDARD
SIST EN 62124:2005

01-junij-2005

Otočni fotonapetostni (PV) sistemi - Preverjanje zasnove

Photovoltaic (PV) stand-alone systems - Design verification

Photovoltaische (PV)-Inselsysteme - Bauarteignung und Typprüfung

Systèmes photovoltaïques (PV) autonomes - Vérification de la conception

Ta slovenski standard je istoveten z: **EN 62124:2005**

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English version

Photovoltaic (PV) stand-alone systems – Design verification
(IEC 62124:2004)

Systèmes photovoltaïques (PV) autonomes –
Vérification de la conception
(CEI 62124:2004)

Photovoltaische (PV)-Inselsysteme -
Bauarteignung und Typprüfung
(IEC 62124:2004)

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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

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Foreword

The text of document 82/355/FDIS, future edition 1 of IEC 62124, prepared by IEC TC 82, Solar photovoltaic energy systems, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62124 on 2005-02-01.

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)	2005-11-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2008-02-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62124:2004 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 60721-2-1	NOTE	Harmonized as HD 478.2.1 S1:1989 (not modified).
IEC 61277	NOTE	Harmonized as EN 61277:1998 (not modified).
IEC 61724	NOTE	Harmonized as EN 61724:1998 (not modified).
IEC 61725	NOTE	Harmonized as EN 61725:1997 (not modified).
ISO/IEC 17025	NOTE	Harmonized as EN ISO/IEC 17025:2000 (not 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 Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60364-7-712	- [1]	Electrical installations of buildings Part 7-712: Requirements for special installations or locations - Solar photovoltaic (PV) power supply systems	HD 60364-7-712	- [2]
IEC 60904-1	- [1]	Photovoltaic devices Part 1: Measurement of photovoltaic current-voltage characteristics	EN 60904-1	1993 [3]
IEC 60904-2	- [1]	Part 2: Requirements for reference solar cells	EN 60904-2	1993 [3]
IEC 60904-5	1993	Part 5: Determination of the equivalent cell temperature (ECT) of photovoltaic (PV) devices by the open-circuit voltage method	EN 60904-5	1995
IEC 61215	- [1]	Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval	EN 61215	1995 [3]
IEC 61646	- [1]	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval	EN 61646	1997 [3]
IEC 61730-1	- [1]	Photovoltaic (PV) module safety qualification Part 1: Requirements for construction		
IEC 61730-2	- [1]	Part 2: Requirements for testing	-	-
IEC 62093	- [2]	Balance-of-system components for photovoltaic systems - Design qualification natural environments	-	-

1) Undated reference.

2) To be published.

3) Valid edition at date of issue.

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Systèmes photovoltaïques (PV) autonomes – Vérification de la conception

Photovoltaic (PV) stand-alone systems – Design verification

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch

Commission Electrotechnique Internationale
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PHOTOVOLTAIC (PV) STAND-ALONE SYSTEMS – DESIGN VERIFICATION

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 62124 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
82/355/FDIS	82/364/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.

PHOTOVOLTAIC (PV) STAND-ALONE SYSTEMS – DESIGN VERIFICATION

1 Scope and object

The specifications, test methods and procedures included in this document cover stand-alone photovoltaic (PV) systems. It covers systems containing one or more PV modules, a support structure, storage batterie(s), a charge controller and typical DC loads such as lights, radio, television and refrigerators. AC loads with dedicated inverters are considered as DC loads. The load as specified by the manufacturer is an integral part of the PV system with regards to the design verification.

The focus of the test methods and procedures in this document is limited to system performance evaluation. Individual sub-systems and components may be monitored, but only to evaluate the performance of the overall system.

The results of this test are applicable to the exact components that are tested. Any changes in components or components' specifications require design verification.

NOTE An exception to this rule is the load. Retesting is not necessary, if the nominal power of the load and its characteristics are not altered, always provided that the new loads are also type tested (provided a type test is available) and the operation frequency of the loads electronics controller (if any) do not vary more than 50 % from the new one to the one tested and being replaced. Hence, the replacement of a pure ohmic load by lights using high frequency electronic ballasts would require retesting, but not the change from one electronic lighting product to another one.

The standard is valid for system testing both for outdoors in prevailing conditions and indoors under simulated conditions. The testing conditions are intended to represent the majority of climatic zones for which these systems are designed.

The object of this standard is to verify system design and performance of stand-alone photovoltaic systems. While individual components may be qualified to environmental and safety standards, the assembled system needs further verification, to ensure that the components operate properly together as specified by the system manufacturer. The performance test consists of a check of the functionality, the autonomy and ability to recover after periods of low state-of-charge of the battery, and hence gives reasonable assurance that the system will not fail prematurely.

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 60364-7-712, *Electrical installations of buildings – Part 7-712: Requirements for special installations or locations – Solar photovoltaic (PV) power supply systems*

IEC 60904-1, *Photovoltaic devices – Part 1: Measurement of photovoltaic current-voltage characteristics*

IEC 60904-2, *Photovoltaic devices – Part 2: Requirements for reference solar cells*

IEC 60904-5:1993, *Photovoltaic devices – Part 5: Determination of the equivalent cell temperature (ECT) of photovoltaic (PV) devices by the open-circuit voltage method*

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

IEC 61646, *Thin-film silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval*

IEC 61730-1, *Photovoltaic (PV) module safety qualification – Part 1: Requirements for construction*

IEC 61730-2, *Photovoltaic (PV) module safety qualification – Part 2: Requirements for testing*

IEC 62093, *Balance-of-system components for photovoltaic systems – Design qualification* [1]

3 Acronyms

AC	Alternating current
DAS	Data acquisition system
DC	Direct current
DRT	Daily run time (of the load)
FS	Full screen
HVD	High voltage disconnect (of the charge controller)
LVD	Low voltage disconnect (of the charge controller)
NOCT	Nominal operating cell temperature
PV	Photovoltaic(s)
STC	Stand testing conditions
UBC	Usable battery capacity
VI	Visual inspection

4 Testing methods

4.1 Methods

The procedures of the performance test are subdivided into 3 different tests: the functional test, the autonomy test and the recovery test. Outdoor and indoor tests are feasible.

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[1] To be published.