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Solkraftverk – Typprovning av från elnätet fristående anläggningar

*Photovoltaic (PV) stand alone systems –
Design verification*

Som svensk standard gäller europastandarden EN 62124:2005. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62124:2005.

Nationellt förord

Europastandarden EN 62124:2005^{*)}

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 62124, First edition, 2004 - Photovoltaic (PV) stand alone systems - Design verification**

utarbetad inom International Electrotechnical Commission, IEC.

^{*)} EN 62124:2005 ikraftsattes 2005-06-15 som SS-EN 62124 genom offentliggörande, d v s utan utgivning av något svenskt dokument.

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Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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**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)

This European Standard was approved by CENELEC on 2005-02-01. 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and 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 82/355/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.

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

CONTENTS

1	Scope and object.....	11
2	Normative references	11
3	Acronyms	13
4	Testing methods	13
5	Marking	15
6	Testing	17
7	Pass criteria	19
8	Design specifications.....	21
9	User manual.....	25
10	Technicians manual.....	27
11	Major defects.....	27
12	Load specification	29
13	Performance test	29
14	Outdoor testing.....	37
15	Indoor testing using a solar simulator	41
16	Indoor testing using a PV module simulator	51
17	Determination of the system balance point	53
18	Modifications	55
19	Report	55
	Annex A (normative) Classification of irradiation and systems.....	57
	Annex B (normative) Instrumentation and equipment for the system test.....	59
	Annex C (normative) Determination of the module output for the indoor testing using a PV module simulator	63
	Bibliography.....	77
	Figure 1 – Flow diagram representing the verification process	17
	Figure 2 – Sample test profile for the stand-alone PV system performance test	35
	Figure 3 – Daily irradiance profiles for functional test, 10 days.....	45
	Figure 4 – System characterisation chart, charge sequence example with 3 irradiation profiles and 10 cycles. Discharge: constant load profile	55
	Figure C.1 – Flowchart to arrive at appropriate settings for a constant current source simulating the PV module	63
	Figure C.2 – Set of IV characteristics for a daily irradiance profile (example)	67
	Figure C.3 – Approximation of array characteristics by a set of array operation lines	69
	Figure C.4 – Iteration process for current adjustment.....	71

Figure C.5 – Experimental set-up for PV system performance testing	73
Figure C.6 – Flow chart for simulation of the array performance presented for one time step of the PTOC profile	75
Table 1 – Acceptable ranges for the module temperature depending on the irradiance	37
Table 2 – Cycles of the performance test	47
Table 3 – Typical step profiles for daily irradiation cycles	47
Table A.1 – Irradiation classes	57
Table B.1 – Parameters to be measured/determined	61

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

¹ To be published.