



SLOVENSKI STANDARD
SIST EN 62817:2015

01-maj-2015

Sledilniki sonca za fotonapetostne sisteme - Ocena zasnove (IEC 62817:2014)

Solar trackers for photovoltaic systems - Design qualification

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Ta slovenski standard je istoveten z: EN 62817:2015

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

March 2015

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**Photovoltaic systems - Design qualification of solar trackers
(IEC 62817:2014)**

Systèmes photovoltaïques - Qualification de conception des
suiveurs solaires
(IEC 62817:2014)

Sonnen-Nachführeinrichtungen für photovoltaische
Systeme - Bauarteignung
(IEC 62817:2014)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 82/853/FDIS, future edition 1 of IEC 62817, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62817:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-09-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-09-29

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-6	-	Environmental testing -- Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-21	-	Environmental testing -- Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices	EN 60068-2-21	-
IEC 60068-2-27	-	Environmental testing -- Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60068-2-75	-	Environmental testing -- Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 60904-3	2008	Photovoltaic devices -- Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data	EN 60904-3	2008
IEC 61000-4-5	2005	Electromagnetic compatibility (EMC) -- Part 4-5: Testing and measurement techniques	EN 61000-4-5	2006
IEC 62262	2002	Surge immunity test Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	2002
ISO 12103-1	-	Road vehicles_ - Test dust for filter evaluation_ - Part_1: Arizona test dust	-	-
ISO/IEC 17025	-	General requirements for the competence of testing and calibration laboratories	EN ISO/IEC 17025	-

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Photovoltaic systems – Design qualification of solar trackers

Systèmes photovoltaïques – Qualification de conception des suiveurs solaires

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**PHOTOVOLTAIC SYSTEMS –
DESIGN QUALIFICATION OF SOLAR TRACKERS**

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 62817 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

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

FDIS	Report on voting
82/853/FDIS	82/877/RVD

Full information on the voting for the approval of this international 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 stability 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.

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PHOTOVOLTAIC SYSTEMS – DESIGN QUALIFICATION OF SOLAR TRACKERS

1 Scope and object

This International Standard is a design qualification standard applicable to solar trackers for photovoltaic systems, but may be used for trackers in other solar applications. The standard defines test procedures for both key components and for the complete tracker system. In some cases, test procedures describe methods to measure and/or calculate parameters to be reported in the defined tracker specification sheet. In other cases, the test procedure results in a pass/fail criterion.

The objective of this design qualification standard is twofold.

First, this standard ensures the user of the said tracker that parameters reported in the specification sheet were measured by consistent and accepted industry procedures. This provides customers with a sound basis for comparing and selecting a tracker appropriate to their specific needs. This standard provides industry-wide definitions and parameters for solar trackers. Each vendor can design, build, and specify the functionality and accuracy with uniform definition. This allows consistency in specifying the requirements for purchasing, comparing the products from different vendors, and verifying the quality of the products.

Second, the tests with pass/fail criteria are engineered with the purpose of separating tracker designs that are likely to have early failures from those designs that are sound and suitable for use as specified by the manufacturer. Mechanical and environmental testing in this standard is designed to gauge the tracker's ability to perform under varying operating conditions, as well as to survive extreme conditions. Mechanical testing is not intended to certify structural and foundational designs, because this type of certification is specific to local jurisdictions, soil types, and other local requirements.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

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

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60904-3:2008, *Photovoltaic devices – Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data*

IEC 61000-4-5:2005, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 62262:2002, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

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

ISO 12103-1, *Road vehicles – Test dust for filter evaluation – Part 1: Arizona test dust*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. For additional tracker-specific terminology, see Clause 6.

3.1

photovoltaics

PV

devices that use solar radiation to directly generate electrical energy

3.2

concentrator photovoltaics

CPV

devices that focus magnified sunlight on photovoltaics to generate electrical energy. The sunlight could be magnified by various different methods, such as reflective or refractive optics, in dish, trough, lens, or other configurations

3.3

concentrator module

CPV module

group of receivers (PV cells mounted in some way), optics, and other related components, such as interconnections and mechanical enclosures, integrated together into a modular package. The module is typically assembled in a factory and shipped to an installation site to be installed along with other modules on a solar tracker

Note 1 to entry: The module is typically assembled in a factory and shipped to an installation site to be installed along with other modules on a solar tracker.

Note 2 to entry: A CPV module typically does not have a field-adjustable focus point. In addition, a module could be made of several sub-modules. The sub-module is a smaller, modular portion of the full-size module, which might be assembled into the full module either in a factory or in the field.

3.4

concentrator assembly

concentrator assembly consisting of receivers, optics, and other related components that have a field-adjustable focus point and are typically assembled and aligned in the field

EXAMPLE: A system that combines a single large dish with a receiver unit that is aligned with the focal point of the dish.

Note 1 to entry: This term is used to differentiate certain CPV designs from the CPV modules mentioned above.

4 Specifications for solar trackers for PV applications

The manufacturer shall provide the test lab, as part of its product marking and documentation, a table in the form specified below (see Table 1). The third column of Table 1 is for information purposes regarding this standard and is not intended to be part of an actual specification template provided to the test lab. See later clauses/subclauses of this standard for further explanation of individual specifications.