

BS EN 62670-1:2014



BSI Standards Publication

Photovoltaic concentrators (CPV) — Performance testing

Part 1: Standard conditions

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National foreword

This British Standard is the UK implementation of EN 62670-1:2014. It is identical to IEC 62670-1:2013.

The UK participation in its preparation was entrusted to Technical Committee GEL/82, Photovoltaic Energy Systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Photovoltaic concentrators (CPV) - Performance testing - Part 1:
Standard conditions
(IEC 62670-1:2013)

Essai de performances des concentrateurs photovoltaïques
(CPV) - Partie 1: Conditions normales
(CEI 62670-1:2013)

Konzentrator-Photovoltaik (CPV)-Leistungsmessung - Part
1: Standardprüfbedingungen
(IEC 62670-1:2013)

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European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 82/734/CDV, future edition 1 of IEC 62670-1, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62670-1:2014.

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) 2014-11-23
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-10-30

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

CONTENTS

INTRODUCTION.....5

1 Scope.....6

2 Normative references6

3 Standard conditions.....6

INTRODUCTION

This International Standard series establishes IEC requirements for evaluating concentrator PV performance. It is written to be applicable to all concentrator PV technologies that have a geometric concentration ratio greater than 3X and require tracking.

Included in the IEC 62670 series of standards are definitions of the standard conditions and methods to be used for assessing CPV performance.

IEC 62670-1 defines a standard set of conditions so that power ratings noted on data sheets and nameplates will have a standard basis.

IEC 62670-2 describes an on-sun, measurement-based method for determining the energy output and performance ratio for CPV arrays, assemblies and power plants.

IEC 62670-3 describes methods for providing a CPV power assessment under the sets of standard conditions, enabling assessments both indoors and outdoors.

PHOTOVOLTAIC CONCENTRATORS (CPV) – PERFORMANCE TESTING –

Part 1: Standard conditions

1 Scope

This part of IEC 62670 defines standard conditions for assessing the power produced by CPV systems and their photovoltaic subcomponents. The object of this part of IEC 62670 is to define a consistent set of conditions so that power ratings noted on data sheets and nameplates will have a standard basis. Two sets of conditions are included to characterize:

- a) operating conditions that represent on-sun performance relative to commonly measured meteorological conditions, and
- b) test conditions that represent performance when the module is in a readily reproducible environment.

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

3 Standard conditions

Any power rating shall indicate the standard conditions used.

- a) CSOC (concentrator standard operating conditions)
 - Irradiance: $900 \text{ W}\cdot\text{m}^{-2}$ direct normal irradiance.
 - Temperature: $20 \text{ }^{\circ}\text{C}$ ambient temperature.
 - Wind speed: $2 \text{ m}\cdot\text{s}^{-1}$.
 - Spectrum: Direct normal AM1.5 spectral irradiance distribution consistent with conditions described in IEC 60904-3.
- b) CSTC (concentrator standard test conditions)
 - Irradiance: $1\,000 \text{ W}\cdot\text{m}^{-2}$ direct normal irradiance.
 - Temperature: $25 \text{ }^{\circ}\text{C}$ cell temperature.
 - Spectrum: Direct normal AM1.5 spectral irradiance distribution consistent with conditions described in IEC 60904-3.

DNI (direct normal irradiance) is to be corrected for angle of incidence for devices using single-axis tracking.

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