Irish Standard
I.S. EN 60904-8:2014

Photovoltaic devices - Part 8: Measurement of spectral responsivity of a photovoltaic (PV) device

I.S. EN 60904-8:2014

Incorporating amendments/corrigenda/National Annexes issued since publication:

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This document is based on:	*Published:*
EN 60904-8:2014	2014-08-29

This document was published under the authority of the NSAI and comes into effect on:	ICS number:
2014-09-29	27.160
	NOTE: If blank see CEN/CENELEC cover page

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60904-8

August 2014

ICS 27.160

Supersedes EN 60904-8:1998

English Version

Photovoltaic devices - Part 8: Measurement of spectral responsivity of a photovoltaic (PV) device (IEC 60904-8:2014)

Dispositifs photovoltaïques - Partie 8: Mesure de la sensibilité spectrale d'un dispositif photovoltaïque (PV) (CEI 60904-8:2014)

Photovoltaische Einrichtungen - Teil 8: Messung der spektralen Empfindlichkeit einer photovoltaischen (PV-)Einrichtung (IEC 60904-8:2014)

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Europäisches Komitee für Elektrotechnische Normung

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Ref. No. EN 60904-8:2014 E

Foreword

The text of document 82/822/FDIS, future edition 3 of IEC 60904-8, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60904-8:2014.

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)	2015-03-12
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-06-12

This document supersedes EN 60904-8:1998.

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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

Publication	Year	Title	EN/HD	Year
IEC 60904-3	-	Photovoltaic devices - Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data	EN 60904-3	-
IEC 60904-7	-	Photovoltaic devices - Part 7: Computation of the spectral mismatch correction for measurements of photovoltaic devices	EN 60904-7	-
IEC 60904-9	-	Photovoltaic devices - Part 9: Solar simulator performance requirements	EN 60904-9	-
IEC 61215	-	Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval	EN 61215	-
IEC 61646	-	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval	EN 61646	-
IEC/TS 61836	-	Solar photovoltaic energy systems - Terms, definitions and symbols	CLC/TS 61836	-
ISO/IEC 17025	-	General requirements for the competence of testing and calibration laboratories	EN ISO/IEC 17025	-

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IEC 60904-8

Edition 3.0 2014-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Photovoltaic devices –
Part 8: Measurement of spectral responsivity of a photovoltaic (PV) device

Dispositifs photovoltaïques –
Partie 8: Mesure de la sensibilité spectrale d'un dispositif photovoltaïque (PV)

IEC 60904-8:2014-05(en-fr)

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IEC 60904-8

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX S

ICS 27.160

ISBN 978-2-8322-1530-2

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PHOTOVOLTAIC DEVICES –

Part 8: Measurement of spectral responsivity of a photovoltaic (PV) device

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 60904-8 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

This third edition cancels and replaces the second edition published in 1998 and constitutes a technical revision.

The main technical changes with respect to the previous edition are listed below:

- Re-writing of the clause on testing
- Addition of a new clause for the measurement of series-connected modules
- Addition of the requirements of ISO/IEC 17025
- Additional figures

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

FDIS	Report on voting
82/822/FDIS	82/843/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.

A list of all parts in the IEC 60904 series, published under the general title *Photovoltaic devices*, can be found on the IEC website.

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.

PHOTOVOLTAIC DEVICES –

Part 8: Measurement of spectral responsivity of a photovoltaic (PV) device

1 Scope

This International Standard specifies the requirements for the measurement of the spectral responsivity of both linear and non-linear photovoltaic devices. It is only applicable to single-junction devices. The spectral responsivity of a photovoltaic device is used in cell development and cell analysis, as it provides a measure of recombination and other processes occurring inside the semiconductor or cell material system.

The spectral responsivity of a photovoltaic device is used for the correction of the spectral mismatch if a PV device is calibrated in a setup where the measurement spectrum is different from the reference spectral irradiance data given in IEC 60904-3 and a reference device with a different spectral responsivity to the device under test is used. This procedure is given in IEC 60904-7.

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*

IEC 60904-7, *Photovoltaic devices – Part 7: Computation of the spectral mismatch correction for measurements of photovoltaic devices*

IEC 60904-9, *Photovoltaic devices – Part 9: Solar simulator performance requirements*

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

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

IEC/TS 61836, *Solar photovoltaic energy systems – Terms, definitions and symbols*

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

3 Marking

Each photovoltaic device should carry a clear and indelible marking. This marking should be cross-referenced against:

– name, monogram or symbol of the manufacturer;

– base material and type of photovoltaic device;