

# 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)**



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# CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references .....	6
3 Marking .....	6
4 Testing.....	7
4.1 General.....	7
4.2 Special considerations .....	7
4.3 Measurement under white bias light.....	7
4.4 Applying a bias voltage to the device under test.....	7
5 General description of spectral responsivity measurement.....	7
6 Apparatus.....	9
6.1 General.....	9
6.2 Monochromatic light source .....	11
6.3 PV device holder and temperature control.....	12
6.4 PV device contacts .....	12
6.5 Bias light.....	12
6.6 DC measurements .....	12
6.7 AC measurements in the presence of bias light.....	13
6.8 Reference device.....	13
7 Measurement of spectral responsivity using a constant light source .....	13
7.1 General method with a grating monochromator or filter wheel .....	13
7.2 Measurement of the reference device for setup calibration.....	13
7.3 Measurement of the device under test .....	14
7.4 Calculation of spectral responsivity .....	15
7.5 Simplifications .....	16
8 Measurement of spectral responsivity under pulsed light .....	16
8.1 Additional apparatus .....	16
8.2 Test procedure.....	17
9 Measurements of series-connected modules .....	17
9.1 General.....	17
9.2 Additional apparatus .....	17
9.3 Test procedure.....	17
9.4 Calculation of spectral responsivity.....	20
10 Report .....	20
Figure 1 – Example block diagram of a differential spectral responsivity measuring instrument using a continuous light source and a grating monochromator .....	10
Figure 2 – Example block diagram of a differential spectral responsivity measuring instrument using a continuous light source and bandpass filters .....	11
Figure 3 – Example block diagram of a spectral responsivity measuring instrument using a pulsed light source and bandpass filters .....	17
Figure 4 – Example of the measurement setup for the differential spectral responsivity measurement of a target cell in a PV module, where the supplemental bias light is applied on all the cells in the module other than the target cell .....	18

Figure 5 – Example of the measurement setup for the differential spectral responsivity measurement of a target cell in a PV module, where the supplemental bias light is applied on all the cells in a string of the module other than the target cell..... 19

Figure 6 – Determination of the bias voltage  $V_b$  to set the voltage across the target cell to the short-circuit condition (see 9.3)..... 19

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## PHOTOVOLTAIC DEVICES –

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

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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;