



**NSAI**  
Standards

Irish Standard  
I.S. EN 60904-8-1:2017

# Photovoltaic devices - Part 8-1: Measurement of spectral responsivity of multi-junction photovoltaic (PV) devices

**I.S. EN 60904-8-1:2017**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## National Foreword

I.S. EN 60904-8-1:2017 is the adopted Irish version of the European Document EN 60904-8-1:2017, Photovoltaic devices - Part 8-1: Measurement of spectral responsivity of multi-junction photovoltaic (PV) devices

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EUROPEAN STANDARD

**EN 60904-8-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2017

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English Version

Photovoltaic devices -  
Part 8-1: Measurement of spectral responsivity  
of multi-junction photovoltaic (PV) devices  
(IEC 60904-8-1:2017)

Dispositifs photovoltaïques -  
Partie 8-1: Mesurage de la sensibilité spectrale  
des dispositifs photovoltaïques (PV) multijonctions  
(IEC 60904-8-1:2017)

Photovoltaische Einrichtungen -  
Teil 8-1: Messen der spektralen Empfindlichkeit von  
photovoltaischen (PV) Einrichtungen mit Mehrschichtsolarellen  
(IEC 60904-8-1:2017)

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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

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

## **EN 60904-8-1:2017**

### **European foreword**

The text of document 82/1255/FDIS, future edition 1 of IEC 60904-8-1, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60904-8-1:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at (dop) 2018-03-22  
national level by publication of an identical national  
standard or by endorsement
- latest date by which the national standards conflicting with (dow) 2020-06-22  
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## **Annex ZA**

(normative)

### **Normative references to international publications with their corresponding European publications**

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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](http://www.cenelec.eu).

| <u>Publication</u> | <u>Year</u> | <u>Title</u>  | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|---|--------------|-------------|
| IEC 60904-8        | -           | Photovoltaic devices - Part 8:<br>Measurement of spectral responsivity of<br>a photovoltaic (PV) device | EN 60904-8   | -           |
| IEC 60904-9        | -           | Photovoltaic devices - Part 9: Solar<br>simulator performance requirements                              | EN 60904-9   | -           |
| IEC/TS 61836       | -           | Solar photovoltaic energy systems -<br>Terms, definitions and symbols                                   | -            | -           |

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**IEC 60904-8-1**

Edition 1.0 2017-05

# **INTERNATIONAL STANDARD**

## **NORME INTERNATIONALE**

**Photovoltaic devices –**

**Part 8-1: Measurement of spectral responsivity of multi-junction photovoltaic (PV) devices**

**Dispositifs photovoltaïques –**

**Partie 8-1: Mesurage de la sensibilité spectrale des dispositifs photovoltaïques (PV) multijonctions**



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**IEC 60904-8-1**

Edition 1.0 2017-05

# **INTERNATIONAL STANDARD**

## **NORME INTERNATIONALE**

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**Photovoltaic devices –**

**Part 8-1: Measurement of spectral responsivity of multi-junction photovoltaic (PV) devices**

**Dispositifs photovoltaïques –**

**Partie 8-1: Mesurage de la sensibilité spectrale des dispositifs photovoltaïques (PV) multijonctions**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## PHOTOVOLTAIC DEVICES –

**Part 8-1: Measurement of spectral responsivity  
of multi-junction photovoltaic (PV) devices**

## FOREWORD

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International Standard IEC 60904-8-1 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

The text of this International Standard is based on the following documents:

| FDIS         | Report on voting |
|--------------|------------------|
| 82/1255/FDIS | 82/1273/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 document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## PHOTOVOLTAIC DEVICES –

### Part 8-1: Measurement of spectral responsivity of multi-junction photovoltaic (PV) devices

#### 1 Scope

This part of IEC 60904 gives guidance for the measurement of the spectral responsivity (SR) of multi-junction photovoltaic devices. It is principally intended for non-concentrating devices, but parts may be applicable also to concentrating multi-junction PV devices. The SR is required for analysis of measured current-voltage characteristics of multi-junction PV devices as described in IEC 60904-1-1.

The requirements for measurement of SR of single-junction PV devices are covered by IEC 60904-8, whereas this document describes the additional requirements for the measurement of SR of multi-junction PV devices. This document only considers the measurement of SR of individual junction layers within a two-terminal multi-junction device.

This document may be applicable to PV devices designed for use under concentrated irradiation if they are measured without the optics for concentration.

#### 2 Normative references

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

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

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

#### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC TS 61836 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

##### 3.1

##### **current limiting junction**

junction in a multi-junction photovoltaic device in which under given illumination conditions the lowest photovoltaic current is generated

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