

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Photovoltaic devices –
Part 2: Requirements for photovoltaic reference devices**

**Dispositifs photovoltaïques –
Partie 2: Exigences applicables aux dispositifs photovoltaïques de référence**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PHOTOVOLTAIC DEVICES –

Part 2: Requirements for photovoltaic reference devices

FOREWORD

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IEC 60904-2 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) added calibration procedures for calibrating PV devices at maximum power by extending the respective Clauses 12 and 13;
- b) revised requirements for mandatory measurement of spectral responsivity, temperature coefficients and linearity, depending on usage and allowing some measurements on equivalent devices;
- c) revised requirements for built-in shunt resistor;
- d) added requirements for traceability of calibration explicitly.

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

Draft	Report on voting
82/2127/FDIS	82/2151/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

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PHOTOVOLTAIC DEVICES –

Part 2: Requirements for photovoltaic reference devices

1 Scope

This part of IEC 60904 gives requirements for the classification, selection, packaging, marking, calibration and care of photovoltaic reference devices.

This document applies to photovoltaic (PV) reference devices that are used to measure the irradiance of natural or simulated sunlight for the purpose of quantifying the electrical performance of photovoltaic devices (cells, modules and arrays). It does not cover photovoltaic reference devices for use under concentrated sunlight.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60891, *Photovoltaic devices – Procedures for temperature and irradiance corrections to measured I-V characteristics*

IEC 60904-1, *Photovoltaic devices – Part 1: Measurement of photovoltaic current-voltage characteristics*

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

IEC 60904-4, *Photovoltaic devices – Part 4: Photovoltaic reference devices – Procedures for establishing calibration traceability*

IEC 60904-5, *Photovoltaic devices – Part 5: Determination of the equivalent cell temperature (ECT) of photovoltaic (PV) devices by the open-circuit voltage method*

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

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

IEC 60904-9, *Photovoltaic devices – Part 9: Classification of solar simulator characteristics*

IEC 60904-10, *Photovoltaic devices – Part 10: Methods of linear dependence and linearity measurements*

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