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Photovoltaic cells

Part 3: Measurement of current-voltage characteristics of bifacial photovoltaic cells

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

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Part 3: Measurement of current-voltage characteristics of bifacial photovoltaic cells

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CONTENTS

FOREWORD 3
1 Scope 5
2 Normative references 5
3 Terms and definitions 6
4 Methods 7
4.1 General 7
4.2 Double-side simultaneous irradiation 8
4.3 Equivalent irradiation 8
4.4 Sequential irradiation 10
5 Apparatus 11
5.1 General 11
5.2 Double-side simultaneous irradiation 11
5.3 Equivalent irradiation 11
5.4 Sequential irradiation 12
6 Procedures 12
6.1 General 12
6.2 Double-side simultaneous irradiation 12
6.2.1 Requirements for calibration 12
6.2.2 Procedures 13
6.3 Equivalent irradiation 13
6.3.1 Requirements for calibration 13
6.3.2 Procedures 13
6.4 Sequential irradiation 14
6.4.1 Requirements for calibration 14
6.4.2 Procedures 14
7 Report 15
Annex A (normative) Determination of bifacial I-V characteristics 16
A.1 General 16
A.2 Shift approximation 16
A.3 Linear interpolation 17

Figure 1 – Schematic procedure of double-side simultaneous irradiation method with integrated flash conditions 8
Figure 2 – Schematic procedure of equivalent irradiation method with sequential flash conditions 9
Figure 3 – Schematic procedure of equivalent irradiation method with integrated flash conditions 10
Figure 4 – Schematic procedure of sequential irradiation method with integrated flash conditions 10
Figure 5 – Separate solar simulator on both front and rear side for double-side simultaneous irradiation 11
Figure 6 – Setup for equivalent irradiation with adjustable intensity 12
Figure 7 – Schematic configuration with two consecutive solar simulators 12

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PHOTOVOLTAIC CELLS –

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IEC TS 63202-3 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems. It is a Technical Specification.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
82/2070/DTS	82/2094/RVDTS 82/2094A/RVDTS

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 Technical Specification 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 https://www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at https://www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 63202 series, published under the general title *Photovoltaic cells*, 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

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

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PHOTOVOLTAIC CELLS –

Part 3: Measurement of current-voltage characteristics of bifacial photovoltaic cells

1 Scope

This part of IEC 63202 describes procedures for the measurement of current-voltage (I-V) characteristics of crystalline silicon bifacial photovoltaic (PV) cells for both laboratory and mass production applications.

This document is intended to be used for measurement of individual unencapsulated bifacial PV cells, in addition to the requirements described in IEC 60904-1 and differentiating from IEC TS 60904-1-2 which is more applicable to encapsulated PV device. Specific requirements on bifacial reference cells and calibration of solar simulators are also defined to provide useful guidance for the proposed methods.

The bifacial I-V characteristics contain front standard test condition (STC), rear STC and bifacial STC results for the bifacial PV cells under test. Thus, bifaciality as well as the power generation capability under single-side or bifacial irradiation are evaluated.

NOTE This document does not apply to tandem or multi-junction bifacial PV cells.

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 TS 60904-1-2, *Photovoltaic devices – Part 1-2: Measurement of current-voltage characteristics of bifacial photovoltaic (PV) devices*

IEC 60904-2, *Photovoltaic devices – Part 2: Requirements for photovoltaic reference devices*

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

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: Classification of solar simulator characteristics*

IEC 61215-1:2021, *Terrestrial photovoltaic (PV) modules – Design qualification and type approval – Part 1: Test requirements*

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