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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 6495.2-2025

Replacing GB/T 6495.2-1996

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

光伏器件 第2部分：标准光伏器件的要求

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 2 of GB/T 6495 "Photovoltaic Devices". GB/T 6495 has already published the following parts.

---Part 1: Measurement of Photovoltaic Current-Voltage Characteristics;

---Part 1-1.Measurement of Current-Voltage Characteristics of Multijunction Photovoltaic Devices;

---Part 2: Requirements for Standard Photovoltaic Devices;

---Part 3: Measurement Principle of Ground-Based Photovoltaic Devices Based on Standard Spectral Irradiance Data;

---Part 5: Determining the Equivalent Cell Temperature (ECT) of Photovoltaic Devices Using the Open-Circuit Voltage Method;

---Part 7: Calculation Method for Spectral Mismatch Correction in Photovoltaic Device Measurements;

---Part 8: Measurement of the Spectral Response of Photovoltaic Devices;

---Part 8-1.Measurement of the Spectral Response of Multijunction Photovoltaic Devices;

---Part 9: Characteristic Classification of Solar Simulators;

---Part 10: Methods for measuring linear correlation and linearity;

---Part 11: Initial light-induced degradation test method for crystalline silicon solar cells.

This document supersedes GB/T 6495.2-1996 "Photovoltaic Devices - Part 2: Requirements for Standard Solar Cells", and is consistent with GB/T 6495.2-Compared to 1996, aside from structural adjustments and editorial changes, the main technical changes are as follows.

a) A new chapter on "Terms and Definitions" has been added (see Chapter 3);

- b) Increased requirements for calibration traceability (see 3.1);
- c) Additional requirements for standard components have been added (see 4.3);
- d) An additional requirement for a built-in parallel resistor has been added (see 4.4);
- e) Mandatory measurement requirements for spectral responsivity, temperature coefficient, and linearity have been added (see 7.3, 7.4, and 7.5);
- f) Change "Data Sheet" to "Documents and Reports" (see 8.2 and 8.3, Chapter 7 of the 1996 edition);
- g) A new chapter on "Use of Standard Devices" has been added (see Chapter 12);
- h) Added calibration specifications for maximum power point photovoltaic devices (see 13.1);
- i) Added test methods for subsequent calibration of Level 1 and Level 2 standard photovoltaic devices under simulated sunlight (see 13.3);
- j) A "Test Procedure" has been added (see 13.4);
- k) An "Additional Test" has been added (see 13.5);
- l) A new chapter, "Calibrating Working Standard Devices with Secondary Standard Devices," has been added (see Chapter 14).

This document is equivalent to IEC 60904-2:2023 "Photovoltaic devices - Part 2: Requirements for standard photovoltaic devices".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the Ministry of Industry and Information Technology of the People's Republic of China.

This document is under the jurisdiction of the National Technical Committee on Standardization of Solar Photovoltaic Energy Systems (SAC/TC90).

Introduction

GB/T 6495 proposes methods for measuring the performance of photovoltaic devices, as well as standards, value transfer, and result correction related to performance measurement.

The requirements for the classification of testing equipment, etc., have positive guiding significance for the performance measurement of photovoltaic devices such as photovoltaic cells and photovoltaic modules.

GB/T 6495 is proposed to consist of the following parts.

---Part 1: Measurement of Photovoltaic Current-Voltage Characteristics. The purpose is to define the basic requirements for measuring the IV curve of photovoltaic devices.

---Part 1-1.Measurement of Current-Voltage Characteristics of Multijunction Photovoltaic Devices. The purpose is to specify the measurement of the IV characteristics of multijunction photovoltaic devices.

Quantification method.

---Part 1-2.Measurement of Current-Voltage Characteristics of Bifacial Photovoltaic Devices. The purpose is to specify the IV characteristic measurement of bifacial photovoltaic modules.

Quantification method.

---Parts 1-3.Measurement of Current-Voltage Characteristics of Curved Photovoltaic Devices. The purpose is to specify the measurement of the IV characteristics of curved photovoltaic devices.

Quantification method.

---Part 2: Requirements for Standard Photovoltaic Devices. The purpose is to specify the requirements for standard photovoltaic devices.

---Part 3: Measurement Principles of Ground-Based Photovoltaic Devices Based on Standard Spectral Irradiance Data. The aim is to provide standard photovoltaic irradiance data.

Degree data.

---Part 4: Procedures for Establishing Standard Photovoltaic Device Calibration Traceability. The purpose is to establish traceability for photovoltaic device calibration program.

---Part 5: Determining the Equivalent Cell Temperature (ECT) of Photovoltaic Devices Using the Open-Circuit Voltage Method. The aim is to define the equivalent cell temperature (ECT) of photovoltaic devices.

Method for testing the open-circuit voltage of battery temperature.

---Part 7: Calculation Method for Spectral Mismatch Correction in Photovoltaic Device Measurements. The purpose is to specify the calculation method for spectral mismatch correction.

---Part 8: Measurement of the Spectral Response of Photovoltaic Devices. The purpose is to specify the methods for measuring the spectral response.

---Part 8-1.Measurement of the Spectral Response of Multijunction Photovoltaic Devices. The purpose is to specify the measurement method for the spectral response of