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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 6492-2025

Replacing GB/T 6492-1986

Aerospace reference photovoltaic cells

航天用标准光伏电池

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Standardization Administration of the PRC

Table of Contents

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 replaces GB/T 6492-1986 "Standard Solar Cells for Aerospace Use". Compared with GB/T 6492-1986, the main differences are structural adjustments and... Aside from editorial changes, the main technical changes are as follows:

---A "Scope" section has been added, expanding the standard's provisions and scope of application (see Chapter 1);

---The section on "Variety, Grade, and Parameters" has been revised, and terms and definitions have been added (see Chapter 3, Chapter 1 of the 1986 edition);

---The naming convention has been changed, and naming information for triple-junction and multi-junction photovoltaic cells has been added (see Chapter 3, Chapter 1 of the 1986 edition);

---The "Technical Requirements" section has been revised, and the requirements for solar cell size have been removed (see Chapter 5, Chapter 2 of the 1986 edition);

---The sample screening and standard screening were combined, and the test methods and equipment requirements were changed (see Chapter 6, Chapter 3 of the 1986 edition);

---The section on "Transmission of Standard Solar Cells" has been revised to include content on the transmission of sunlight under ground level (see Chapter 7, Chapter 4 of the 1986 edition);

---The "Parameters" content is merged and unified with Appendix C to standardize the parameter requirements for standard photovoltaic cells (see Appendix C, 1986 edition). Chapter 1). 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). This document was drafted by: the 18th Research Institute of China Electronics Technology Group Corporation, Tianjin Hengdian Space Power Co., Ltd., and the National Institute of Metrology. The Academy of Sciences, China Electronics Technology Standardization Institute, and Yangzhou Qianzhao Optoelectronics Co., Ltd. The main drafters of this document are. Hu Tao, Wang Jinyu, Zhang Ning, Xiao Zhibin, Tie Jianrui, Meng Haifeng, Wang Ganqiang, Zhuang Tianqi, and Wu Zhenlong. The release history of this document and the document it replaces is as follows:

---First published in 1986 as GB/T 6492-1986;

---This is the first revision. Standard photovoltaic cells for aerospace

1 Scope

GB/T 6492-2025 is the Chinese national standard covering the reference cell against which space solar arrays are calibrated - a cell whose response is known precisely so that a simulator's light can be set to one sun, which is the basis of every efficiency figure quoted for a satellite array. It replaces GB/T 6492-1986, a standard forty years old. It was issued on 31 December 2025 and has been in force since 1 July 2026, replacing GB/T 6492-1986. The document is under the responsibility of the Ministry of Industry and Information Technology. This page is published from the official record of the 2025 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the requirements for standard photovoltaic cells used in aerospace, screening test methods, calibration and transfer, maintenance, storage and transportation requirements. This document applies to standard photovoltaic cells made of monocrystalline silicon, single-junction gallium arsenide, and multi-junction gallium arsenide for aerospace applications, and is intended for testing aerospace photovoltaic cells. When testing individual cells, modules, composite panels, or arrays, calibrate or determine the total irradiance established by the test light source on the surface of the photovoltaic cell under test.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 2297 Terminology for Solar Photovoltaic Energy Systems

GB/T 6494-2017 Test methods for electrical performance of solar cells for aerospace applications

GB/T 6495.2 Photovoltaic devices - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 2297 and the following terms and definitions apply to this document.

3.1 Photovoltaic cells are calibrated based on radiometers, standard detectors, or standard light sources that are traceable to International System of Units (SI).

3.2 Photovoltaic cells calibrated against a Class I standard photovoltaic cell under natural or simulated sunlight.

3.3 Photovoltaic cells calibrated against a secondary standard photovoltaic cell under natural light or simulated sunlight.

4.Naming Method for Standard Photovoltaic Cells Standard photovoltaic cells of grades I and II should be labeled with their naming number in an appropriate location according to Table 1, indicating the cell's grade and type. And numbering, etc. Standard photovoltaic cells generally only provide the cell number; refer to Part 4 of Table 1 for the numbering method.