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

GB/T 19394-2025

Replacing GB/T 19394-2003

UV test for photovoltaic modules

光伏组件紫外试验方法

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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 replaces GB/T 19394-2003 "Ultraviolet Testing of Photovoltaic (PV) Modules". Compared with GB/T 19394-2003, except for structural adjustments... Aside from integration and editorial changes, the main technical changes are as follows:

- The scope has been changed (see Chapter 1, Chapter 1 of the.2003 edition);
- Added terms and definitions (see Chapter 3);
- The "Initial Measurement" section has been revised, and stability testing and wet leakage current testing have been added (see Chapter 4, Chapter 3 of the.2003 edition);
- The section on "Equipment" has been revised, and content regarding the component circuit conditions during the test has been added (see Chapter 5, Chapter 4 of the.2003 edition);
- The "Steps" section has been modified, adding information on test types and component temperature ranges, as well as content on flexible component testing. For details on testing the back of similar components, see Chapter 6 (Chapter 5 of the.2003 edition).
- The "Final Test" section has been revised to include stability testing and wet leakage current testing (see Chapter 7, Chapter 6 in the.2003 edition);
- The "Requirements" have been changed, and the revised standard has been updated to include criteria for judging photovoltaic modules under standard test conditions after different test types. Requirements (see Chapter 8, Chapter 7 of the.2003 edition);
- A "Report" section has been added (see Chapter 9). 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, Canadian Solar Inc., and LONGi. Green Energy Technology Co., Ltd., China Electronics Technology Standardization Institute, China Quality Certification Center Co., Ltd., Jineng Clean Energy Technology Joint-stock company, Shanghai Electric Group Co., Ltd., Risen Energy Co., Ltd., Beijing Certification Center Co., Ltd. The main drafters of this document are: Hu Tao, Xu Zhengyuan, Li Zhenguo, Zhang Ning, Guo Suqin, Xu Tao, Chen Xiaoda, Li Qicong, Xue Chaowei, and Su Bojie. Huang Yun, Xu Minwei, Liu Yafeng, Zhou Gang. The release history of this document and the document it replaces is as follows:

---First published in 2003 as GB/T 19394-2003;

---This is the first revision. Photovoltaic module ultraviolet testing methods

1 Scope

GB/T 19394-2025 is the Chinese national standard covering the ultraviolet preconditioning of a module - the exposure that yellows the encapsulant and weakens the bonds before the thermal cycling and damp heat tests are applied, because a module that fails those only after UV would have failed on a roof too. It replaces GB/T 19394-2003. It was issued on 31 December 2025 and has been in force since 1 July 2026, replacing GB/T 19394-2003. 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 describes a test method for assessing the UV resistance of photovoltaic modules when exposed to UV radiation. This document is applicable to evaluating the UV radiation resistance of materials such as polymers and protective layers, and is suitable for evaluating photovoltaic modules at wavelengths of [wavelength missing]. Withstandability in ultraviolet radiation environments ranging from 280nm to 400nm.

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 9535.2-2025 Design qualification and type approval of ground-mounted photovoltaic modules - Part

3 Terms and Definitions

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

4. Initial Testing Photovoltaic modules should undergo the following initial tests.

- a) Visually inspect the components according to the specifications of MST01 in GB/T 20047.2-2025;
- b) Conduct initial stability testing according to MQT 19.1 in GB/T 9535.2-2025;
- c) Measure IV characteristics under standard test conditions according to MQT 06.1 in GB/T 9535.2-2025;
- d) Perform insulation testing according to MST16 in GB/T 20047.2-2025;
- e) Perform wet leakage current test according to MST17 in GB/T 20047.2-2025.

5 Equipment Requirements

The equipment consists of the following components.

- a) A temperature-controlled test chamber with a window or a fixed ultraviolet light source and the component under test, the chamber being equipped to control the temperature of the component. The ability to maintain the temperature specified in Chapter 6c).
- b) It can generate irradiation with a uniformity of $\pm 15\%$ on the component testing surface, with undetectable radiation at wavelengths less than 280nm, and can produce... The ultraviolet light source providing the required total irradiance is specified in Chapter 6(c). The UVB wavelength range is 280 nm to 320 nm. The UVA wavelength range is 320nm~400nm. The ultraviolet light source should be selected with reference to Appendix A.