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

GB/T 46980-2025

Test method for the fire resistance of photovoltaic modules

光伏组件防火性能试验方法

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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. 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 National Fire and Rescue Administration. This document was prepared by the National Technical Committee on Fire Protection Standardization (SAC/TC113) and the National Technical Committee on Standardization of Solar Photovoltaic Energy Systems. (SAC/TC90) are jointly under the jurisdiction of the State Administration of Taxation. This document was drafted by: Sichuan Fire Research Institute of the Ministry of Emergency Management, Weikai Testing Technology Co., Ltd., and China Electric Power Research Institute Co., Ltd. Limited Liability Company, Zhejiang Provincial Fire and Rescue Corps, Tianjin Fire Research Institute of the Ministry of Emergency Management, China Metrology and Testing Society, Wuxi Inspection, Testing and Certification Bureau Research Institute, LONGi Green Energy Technology Co., Ltd. Xi'an Branch, Hubei Jingkai New Energy Technology Co., Ltd., Canadian Solar Inc. Joint-stock limited company. The main drafters of this document are. Liu Songlin, Zhao Chenggang, Zhang Wei, Wang Shuang, Zhang Linzhi, He Yuting, Feng Hao, Chen Li, Chen Weiping, Zhang Wang, and Yang Yitian. Chen Peng, Fu Pengbo, Chai Huaxiong, Wang Xinxiao. Test method for fire resistance performance of photovoltaic modules

1 Scope

GB/T 46980-2025 is the Chinese national standard covering how a solar module behaves in a fire - the spread of flame across an array on a roof, the burning brands landing on it and the contribution the module itself makes to a fire that started underneath it. First edition, in force from 1 January 2027, under the National Fire and Rescue Administration. It was issued on 31 December 2025 and takes effect on 1 January 2027, as a first edition. The document is under the responsibility of the National Fire and Rescue Administration. 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 the testing methods used to evaluate the fire resistance of photovoltaic modules, including intermittent ignition tests, flame spread tests, wood burning tests, and spark tests. Verification method. This document applies to crystalline silicon photovoltaic modules (including monocrystalline silicon photovoltaic modules and polycrystalline silicon photovoltaic modules). Other photovoltaic modules are subject to the same guidelines. use.

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 2918 Standard Environment for Conditioning and Testing of Plastic Specimens

GB/T 5907.1 Firefighting Glossary Part

3 Terms and Definitions

The terms and definitions defined in GB/T 5907.1 and the following terms and definitions apply to this document.

3.1 photovoltaic module It has a complete photovoltaic cell assembly with encapsulation and internal connections, and can provide DC power output independently.

3.2 Substrate testdeck A standard sheet material laid on the back of photovoltaic modules to assess the fire resistance performance of the modules by their own protected state during fire tests.

4 Test Principle and Classification

4.1 Experimental Principle Based on different rooftop scenarios for distributed photovoltaic applications, corresponding standard substrates are selected to simulate the roof structure, and photovoltaic modules are installed. Mounted on the corresponding substrate, its fire response was tested using a test method compatible with the roof type. Ultimately, the photovoltaic module's own combustion was assessed. The characteristics and its ability to protect the underlying substrate are comprehensively evaluated, and its fire resistance performance is divided into three levels. A, B, and C.

4.2 Classification Photovoltaic modules were tested using intermittent fire tests, flame spread tests, wood burning tests, and flying spark tests, based on the specific criteria of each test. According to reports, its fire resistance performance is rated into three levels. A, B, and C.

- a) Grade A. Photovoltaic modules exposed to intense heat sources provide a high degree of protection for the substrate and meet the requirements of 11.1;
- b) Grade B. The photovoltaic modules, when exposed to a moderate heat source, provide moderate protection to the substrate and meet the requirements of 11.1;
- c) Grade C. The photovoltaic module is exposed to a mild heat source and provides basic protection to the substrate, and meets the requirements of 11.1.