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

GB/T 9535.101-2025

Replacing GB/T 9535-1998

**Terrestrial photovoltaic (PV) modules - Design qualification and
type approval - Part 1-1: Special requirements for testing of
crystalline silicon photovoltaic (PV) modules**

地面用光伏组件 设计鉴定和定型 第1-1部分：晶体硅光伏组件测试的特殊要求
(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 1-1 of GB/T 9535 "Design Qualification and Type Approval of Ground-Mounted Photovoltaic Modules". GB/T 9535 has been published.

The following section.

---Part 1: Test Requirements;

---Part 1-1.Special Requirements for Testing Crystalline Silicon Photovoltaic Modules;

---Part 2: Experimental Procedures.

This document supersedes GB/T 9535-1998 "Design Qualification and Type Approval of Ground-Mounted Crystalline Silicon Photovoltaic Modules" and is consistent with GB/T 9535-1998.

In comparison, aside from structural adjustments and editorial changes, the main technical changes are as follows.

---Added terms and definitions (see Chapter 3);

---The test sample sampling procedure has been changed, and requirements for test samples such as oversized components, representative samples, and bifacial components have been added.

(See Chapter 4, Chapter 3 of the 1998 edition);

---The tagging and documentation have been changed, and detailed requirements have been added (see Chapter 5, Chapter 4 of the 1998 edition);

---The testing procedures have been changed (see Chapter 6, Chapter 5 of the 1998 edition);

---The judgment criteria have been changed, and the judgment is now divided into comparison of electrical parameter measurements with the nameplate ("Threshold 1") and measurement of work before and after stress testing.

The comparison of rates ("Threshold 2") has been expanded; detailed determination

methods have been added (see Chapter 7, Chapter 6 of the 1998 edition).

---The categories for major appearance defects have been changed (see Chapter 8, Chapter 7 of the 1998 edition);

---The composition of the qualification test report has been changed, and detailed requirements for the report's composition have been added (see Chapter 9, Chapter 8 of the 1998 edition);

---The requirements for product changes have been changed (see Chapter 10, Chapter 9 of the 1998 edition);

---The experimental procedures have been changed (see Chapter 11, Chapter 10 of the 1998 edition);

---The measurement of the battery's rated operating temperature, performance at the battery's rated operating temperature, and torsion test have been removed (see the 1998 edition).

10.5, 10.6 and 10.15);

---Added wet leakage current test, bypass diode test, stability test, dynamic mechanical load test, and potential-induced decay (PID) test.

Tests and bending tests (see 11.15, 11.18~11.22).

This document is equivalent to IEC 61215-1-1:2021 "Design qualification and type approval of terrestrial photovoltaic modules - Part 1-1. Crystalline silicon photovoltaic modules".

Special requirements for testing of volt-ampere components.

The following minimal editorial changes have been made to this article.

---Added explanations of symbols in the formulas (see 11.11).

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

With the global transition to clean energy, photovoltaic power generation, as one of the most promising green energy sources, has attracted much attention. my country's photovoltaic industry capacity...

For many years, China has held the world's largest market share, with new products and technologies constantly emerging. To adapt to the rapid development of the photovoltaic industry, and to standardize...

This series of standards is formulated to address photovoltaic market behavior. GB/T 9535 is a fundamental standard for the design qualification and type approval of ground-mounted photovoltaic modules.

It aims to describe the testing requirements, experimental procedures, and special requirements for photovoltaic modules produced based on different cell technologies.

GB/T 9535 is proposed to consist of 6 parts.

---Part 1: Testing Requirements, which aim to specify the design qualification and testing requirements for ground-mounted photovoltaic modules to operate long-term in open-air climates.

Design requirements.

---Part 1-1.Special Requirements for Testing Crystalline Silicon Photovoltaic Modules, the purpose of which is to specify the ground-based requirements for long-term operation in open-air climates.

The design qualification and type approval requirements for crystalline silicon photovoltaic modules are applied, and the electrical characteristics of the modules are verified within a reasonable cost and timeframe.

The evaluation component was assessed for its ability to withstand prolonged outdoor exposure.

---Parts 1-2.Special requirements for testing cadmium telluride thin-film photovoltaic modules, the purpose of which is to specify the requirements for long-term operation under open-air climate conditions.

The design qualification and type approval requirements for cadmium telluride thin-film photovoltaic modules, and the verification of the electrical characteristics of the modules, within a reasonable cost and timeframe.

The internal evaluation components are capable of withstanding prolonged outdoor exposure.

---Parts 1-3.Special requirements for testing amorphous silicon thin-film photovoltaic modules, the purpose of which is to specify the requirements for long-term operation under open-air climates.

Design qualification and type approval requirements for ground-mounted amorphous silicon thin-film photovoltaic modules, verification of the module's electrical characteristics, and at a reasonable cost.