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

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Photovoltaic (PV) modules - Non-uniform snow load testing

光伏组件 非均匀雪载荷试验

(English Translation)

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Reference

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 adopts IEC 62938:2020 "Photovoltaic modules - Non-uniform snow load test".

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

---Some content has been modified and moved to the introduction.

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

This document proposes a non-uniform load testing method for photovoltaic modules, along with the test procedures, equipment, and failure mechanisms surrounding this load testing method.

The requirements for entrapment and data processing are of positive significance for studying the ability of photovoltaic modules to cope with non-uniform mechanical loads.

The test methods defined in this document are used to determine the non-uniform mechanical load limits of framed photovoltaic modules.

The load testing methods specified in this document are only applicable to simulating natural snow load distribution. Any artificial snow distribution pattern (e.g., snow removal or...) (Artificial allocation behavior) needs to be considered separately.

This document does not include methods for eliminating or mitigating uneven snow accumulation, such as increasing the installation angle (above 60°). The snow accumulation on the ground is assumed in this document.

The coefficient relationship between snow accumulation on the component surface and the snow accumulation coefficient cannot be used in scenarios where snow accumulation does

not completely melt during multiple snowfall intervals. This document does not consider...

The impact of snow accumulation on module power generation.

Although the test methodology includes waiting time between load test steps, this document does not address fatigue behavior of component materials (such as the front panel glass).

A complete assessment has been conducted.

Since typical field failures of photovoltaic modules caused by snow loads manifest as glass breakage and frame bending, this experimental method aims to reproduce such failures.

The load state when the effect occurs.

Photovoltaic module non-uniform snow load test

1 Scope

This document describes a test method for determining the mechanical properties of framed photovoltaic modules under the influence of tilted, non-uniform snow loads.

This document applies to framed photovoltaic modules, whose frames are expected to protrude beyond the lower edge of the front panel glass surface after installation.

Snow sliding off the component surface creates additional obstruction. This document does not apply to components with other border structures, such as those with borders forming the back.

The frame structure or the side, top, and bottom edges of the frame do not additionally impede snow from sliding down.

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.

IEC 61215-1:2016 Design qualification and type approval of terrestrial photovoltaic modules - Part 1: Test requirements IEC 61215-2:2016 Design qualification and type approval of terrestrial photovoltaic modules - Part 2: Test procedures Note. GB/T 2297-2025 Terminology for Solar Photovoltaic Energy Systems (IEC TS61836:2025, NEQ)

3 Terms and Definitions

The terms and definitions defined in IEC TS61836 and the following terms and definitions apply to this document.

The URLs for the terminology databases maintained by ISO and IEC for standardization are as follows.

Snow accumulation characteristics on the ground.

Note: The minimum value of SK in this document is 2.4 kN/m².

The product of the characteristic snow load on the ground and the snow load shape factor.

Note: The minimum value of SA in this document is 1.47 kN/m².