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

GB/T 46243-2025

**Wind energy generation systems - Use of nacelle mounted
lidars for wind measurements**

风能发电系统 机舱式激光雷达在风能资源测量中的使用

(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 equivalent to IEC 61400-50-3:2022 "Wind power generation systems - Part 50-3. Nacelle lidar in wind energy resources".

Use in measurement.

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

---To align with existing standards, the standard title has been changed to "Nacelle-type LiDAR in Wind Energy Resource Measurement for Wind Power Generation Systems".

use";

---Incorporated technical errata from IEC 61400-50-3:2022/COR1.2023, and marked with [unclear text - possibly a formatting error] in the blank space outside the relevant clauses.

The vertical double lines (||) are marked;

---Angle brackets have been added for "VL", "VR", "tau", and "rho" in formulas (A.1), (A.2), and (A.6);

---Change Δv to ϵv in Part 4 Symbols and Abbreviations.

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 China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Wind Power (SAC/TC50).

1 Scope

The purpose of this document is to describe the processes and methods to ensure consistent wind energy resource measurements using nacelle-mounted wind lidar.

Based on best practices for implementation and reporting. This document does not specify the purpose or examples of use for wind energy resource measurements. However, it is expected that wind energy resource measurements will be used in accordance with best practices.

The amount will be used for some form of wind energy testing or resource assessment.

This document is limited to forward-looking nacelle-type wind-measuring lidar (i.e., the

measurement volume is located upstream of the wind turbine rotor).

This document is intended to apply to any type and brand of nacelle-mounted wind-measuring lidar. The methods and requirements provided in this document are specific to their respective models.

Regardless of type or measurement principle, it is permissible to apply to new cabin-type lidar.

This document aims to describe the use of a nacelle-mounted wind-measuring lidar for wind energy resource measurements, ensuring its quality is suitable for power characteristic testing.

Example (based on GB/T 18451.2-2025). Users of this document should consider other usage examples, as there may be other specific requirements.

This document provides only the guidelines for flat terrain and marine surveying as defined in Appendix B of GB/T 18451.2-2025. Due to the writing of this document...

Due to limited experience, this document is not applicable to applications in complex terrain.

This document does not cover modifications to the induction zone or blocking effect. Users are responsible for addressing the blocking effect themselves if required by the example.

Correction or uncertainty assessment.

The purpose of this document is to provide guidance for wind energy resource measurement. Health, safety, and environmental (HSE) requirements are important (e.g., laser operation).

(This document does not cover these topics).

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 18451.2-2025 Power characteristic test of wind turbine generator sets for wind power generation systems (IEC 61400-12-1:2022, IDT) GB/T 33225-2025 Power Characteristic Test of Wind Turbine Generator Sets Based on Nacelle Anemometer Method for Wind Power Generation Systems (IEC 61400-12-2:2022, IDT)