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

GB/T 46241-2025

**Wind energy generation systems - Measurement based nacelle
wind speed transfer function of electricity producing wind
turbines**

风能发电系统 风力发电机组机舱风速传递函数测量

(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 61400-12-6:2022 "Wind power generation systems - Part 12-6.Wind speed transfer in wind turbine nacelles".

Function measurement.

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

---To align with existing standards, the standard title has been changed to "Measurement of Wind Speed Transfer Function in Wind Turbine Nacelles of Wind Power Generation Systems";

---Change formula (C.9) to " $\sigma_i = \frac{P_i}{P_N}$ " "Because formula (C.9) of IEC 61400-12-6:2022 overlaps with formula (C.8)..." According to the interpretation of the symbols in formula (C.9), formula (C.9) in IEC 61400-12-6:2022 is incorrect.

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

This document describes the method for measuring the wind speed transfer function of the nacelle of a single horizontal axis wind turbine generator. This document is applicable to IEC 61400-the measurement of the nacelle wind speed transfer function described in 12-2 is not applicable to the nacelle wind speed transfer function of small wind turbine generators as described in IEC 61400-2.

Measurement of the function. This document is used when a nacelle wind speed transfer function is required for power characteristic testing according to IEC 61400-12-2.

The wind speed measured at the nacelle or hub of a wind turbine is affected by the wind rotor (i.e., it speeds up or slows down the wind). This is according to IEC 61400-12-1.

In this system, the anemometer is located on a wind-measuring tower, which is situated between 2 and 4 times the rotor diameter upwind of the wind turbine being measured.

The position allows for direct measurement of "free" wind with minimal interference from the wind turbine rotor being measured. In the program of this document, the anemometer position...

The anemometer is positioned on or near the nacelle of the wind turbine generator. At this location, the wind speed measured by the anemometer is affected by the rotor and...

The strong influence of the nacelle. The procedures in this document include methods for identifying the above-mentioned interferences and implementing appropriate corrections, but note that they are consistent with IEC 61400-Compared to the stringent measurement requirements in 12-1, the above corrections will increase measurement uncertainty.

This document specifies how to simultaneously measure the nacelle wind speed and free-flow wind speed (measured on the wind tower) over a period of time.

The results characterize the nacelle wind speed transfer function of the wind turbine generator set. The measurement period is long enough to establish a system containing a series of wind speeds and...

A database of statistically significant wind and atmospheric conditions. This document also provides guidance for determining measurement uncertainty, including...

Evaluation of sources of certainty and recommended values for combined uncertainty.

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 33225-2025 Power Characteristic Test of Wind Turbine Generators Based on Nacelle Anemometer Method for Wind Power Generation Systems (IEC 61400-12-2:2022, IDT)
GB/T 46242-2025 Power Characteristic Testing and Obstacle and Terrain Assessment for Wind Power Generation Systems (IEC 61400-12-5:2022) IDT) IEC 60688 Electrical measurement converters for converting AC and DC electrical quantities into analog or digital signals.

Note: GB/T 13850-1998 Electrical measuring transmitters that convert AC electrical quantities into analog or digital signals (IEC 688:1992, IDT) IEC 61400-12-1 Wind power generation systems - Part 12-1. Test of power characteristics of wind turbine generators (Windenergygenera-Note. GB/T 18451.2-2025 Power characteristic test of wind turbine generator sets for wind power generation systems (IEC 61400-12-1:2022, IDT) IEC 61400-12-2 Wind power generation systems - Part 12-2. Power characteristic testing of wind turbine generators based on nacelle anemometer method Note. GB/T 33225-2025 Power Characteristic Test of Wind Turbine Generators Based on Nacelle Anemometer Method (IEC 61400-12-2) 2022, IDT)