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

GB/T 46242-2025

**Wind energy generation systems-Power performance for
assessment of obstacles and terrain**

风能发电系统 功率特性测试障碍物与地形评估

(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 61400-12-5:2022 "Wind power generation systems - Part 12-5. Power characteristics - Obstacles and terrain".

Evaluate".

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

---To align with existing standards, the standard name has been changed to "Obstacle and Terrain Assessment for Power Characteristic Testing of Wind Power Generation Systems".

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).

Introduction

The purpose of this document is to describe how to determine, for a specific wind turbine generator, its independence from obstacles or other wind turbine generators.

The procedure for measuring sectors. Measurement sectors are used to assess the terrain and determine if site marking is required; these sectors can also be used for wind power generation.

Power characteristic assessment of the unit.

Chapter 6 describes a procedure for identifying one or more sectors that are not suitable for power characteristic measurements because the wind force being measured...

The airflow at the location of the generator set and/or the airflow at the location of the wind measuring equipment (such as a wind tower or remote sensing equipment) may be affected by the wind force during operation.

The impact of the motor set and/or obstacles.

Chapter 7 describes the procedure for establishing measurement sectors during the determination of the nacelle wind speed transfer function.

Chapter 8 describes the procedure for establishing measurement sectors during the determination of the nacelle power curve.

Chapter 9 describes methods for assessing the terrain surrounding a site and determining whether it is complex and whether site marking is required.

Calibration is typically used to measure changes in the boundary layer, as it follows topographic variations, often accompanied by flow, while obstacles usually generate their associated effects.

More turbulent wakes, which are affected by sharp edges and vertical surfaces that can cause turbulence.

Chapter 10 describes a method for classifying the terrain in order to apply the nacelle wind speed transfer function to nacelle power curve measurements.

The level is used to estimate the uncertainty of the nacelle wind speed transfer function (NTF) and the nacelle power curve (NPC), and also to determine the terrain conditions.

The NTF can be used by NPCs.

Wind power generation system power characteristic test obstacles and Topographical assessment

1 Scope

This document from the IEC 61400 series specifies the procedures for assessing the importance of obstacles and terrain changes at power characteristic test sites, and is also applicable to...

This procedure is used for performance testing of all types and sizes of grid-connected wind turbine generators described in other documents of the IEC 61400 series.

Performance evaluation of specific wind turbine generators applicable to specific locations.

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 61400-12-1 Wind power generation systems - Part 12-1. Test of power characteristics of wind turbine generators (Wind energy generator - 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) IEC 61400-12-3 Wind power generation systems - Part 12-3.Site calibration for power characteristic tests (Windenergy) Note. GB/T 46245-2025 Field calibration of power characteristic test for wind power generation systems (IEC 61400-12-3:2022, IDT) IEC 61400-12-6 Wind power generation systems - Part 12-6.Measurement of wind speed transfer function in wind turbine nacelles (Wind (ducingwindturbines) Note. GB/T 46241-2025 Measurement of wind speed transfer function of wind turbine nacelle in wind power generation system (IEC 61400-12-6:2022, IDT)

3 Terms and Definitions

The following terms and definitions apply to this document.

Complex terrain

The test site is surrounded by areas or obstacles with significant topographical changes that could cause airflow distortion.

Cut-in wind speed

The minimum wind speed at which a wind turbine can start generating electricity.