

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Wind turbines –  
Part 22: Conformity testing and certification**

**Eoliennes –  
Partie 22: Essais de conformité et certification**

<https://standards.iteh.ai/catalog/standards/sist/61400-22-2010>



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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

## WIND TURBINES –

### Part 22: Conformity testing and certification

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International Standard IEC 61400-22 has been prepared by IEC technical committee 88: Wind turbines.

This standard cancels and replaces IEC WT 01 (2001): IEC System for Conformity Testing and Certification of Wind Turbines – Rules and Procedures.

The text of this standard is based on the following documents:

FDIS	Report on voting
88/365/FDIS	88/368/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.



A list of all parts of the IEC 61400 series, under the general title: *Wind turbines*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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- withdrawn,
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## INTRODUCTION

This International Standard defines rules and procedures for conformity testing and certification of wind turbines with respect to standards and technical requirements for wind turbines and wind farms. It is intended to facilitate mutual recognition (reciprocal acceptance) by participants of test results and certificates issued by other participants for obtaining certification at national level and operates within the scope of the IEC 61400 series of standards and technical specifications for wind turbines.

The certification procedures in this standard constitute a complete third party conformity evaluation of a wind turbine type, a major component type or one or more wind turbines at a specific location.

In addition to design verification and testing, this standard provides information for the recognition of or assessment for approval of the supplier's quality system, regular surveillance through inspection of the supplier's quality system and quality plans, and audit testing of samples. The standard is amongst others intended to result in significant benefit to the applicant by reducing the number of steps necessary to obtain certification or approval at national level.

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## WIND TURBINES –

### Part 22: Conformity testing and certification

#### 1 Scope

This International Standard defines rules and procedures for a certification system for wind turbines (WT) that comprises both type certification and certification of wind turbine projects installed on land or off-shore. This system specifies rules for procedures and management for carrying out conformity evaluation of WT and wind farms, with respect to specific standards and other technical requirements, relating to safety, reliability, performance, testing and interaction with electrical power networks. It provides:

- definitions of the elements in a wind turbine certification process;
- procedures for conformity evaluation in a wind turbine certification system;
- procedures for conformity surveillance;
- rules for the documentation that is to be supplied by an applicant for the conformity evaluation; and
- requirements for certification and inspection bodies and testing laboratories.

The rules and procedures are not limited to WT of any particular size or type. However, special rules and procedures apply for small wind turbines (SWT). Some elements of certification are mandatory, whilst provision is specifically made for others to be optional. For type certification, the document describes procedures relating to conformity testing, design, manufacture, and the plans for transportation, erection, installation and maintenance. The procedures deal with the assessment of loads and safety, testing, characteristics measurements and surveillance of manufacturing. For project certification, the document describes procedures relating to the assessment that particular wind turbines and support structure/foundation designs in a project are appropriate for the application and relating to transportation, installation, commissioning, operation and maintenance. The procedures deal with assessment in accordance with all modules in this document, e.g. the site conditions, the design of site-specific components and surveillance of manufacturing, transportation, installation and operation.

The purpose of the rules and procedures is to provide a common basis for certification of wind turbines and wind turbine projects, including a basis for acceptance of operating bodies (i.e. certification bodies, inspection bodies and testing laboratories) and mutual recognition of certificates.

The rules and procedures are intended to be used in conjunction with the appropriate IEC/ISO standards and Guides, see Clause 2.

#### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE In the case where an earlier or withdrawn edition of the referenced normative document is used together with this document, these earlier editions must be specified in the Agreement for Certification, see Subclause 6.2, and in conformity statements and certificates.

IEC 60034 (all parts), *Rotating electrical machines*

IEC 60050-415, *International Electrotechnical Vocabulary – Part 415: Wind turbine generator systems*

IEC 61400 (all parts), *Wind turbines*

IEC 61400-1, *Wind turbines – Part 1: Design requirements*

IEC 61400-2, *Wind turbines – Part 2: Design requirements for small wind turbines*

IEC 61400-3:2009, *Wind turbines – Part 3: Design requirements for offshore wind turbines*

IEC 61400-11, *Wind turbine generator systems – Part 11: Acoustic noise measurement techniques*

IEC 61400-12-1, *Wind turbines – Part 12-1: Power performance measurements of electricity producing wind turbines*

IEC/TS 61400-13, *Wind turbine generator systems – Part 13: Measurement of mechanical loads*

IEC 61400-21, *Wind turbines – Part 21: Measurement and assessment of power quality characteristics of grid connected wind turbines*

IEC/TS 61400-23, *Wind turbine generator systems – Part 23: Full-scale structural testing of rotor blades*

IEC 61400-24, *Wind turbines – Part 24: Lightning protection*

ISO/IEC 17020, *General criteria for the operation of various types of bodies performing inspection*

ISO/IEC 17021, *Conformity assessment – Requirements for bodies providing audit and certification of management systems*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ISO/IEC Guide 2, *Standardization and related activities – General vocabulary*

ISO/IEC Guide 65, *General requirements for bodies operating product certification systems*

ISO 9001:2008, *Quality management systems – Requirements*

ISO 81400-4:2005, *Wind turbines – Part 4: Design and specification of gearboxes* <sup>1)</sup>

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1) To be replaced by IEC 61400-4.

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply, together with the relevant definitions contained in ISO/IEC Guide 2 and IEC 60050-415.

#### 3.1

##### **accreditation**

procedure by which an authoritative body gives formal recognition that a body is impartial and technically competent to carry out specific tasks such as certification, tests, specific types of tests etc.

NOTE Accreditation is awarded following successful assessment and is followed by appropriate surveillance.

#### 3.2

##### **applicant**

entity applying for certification

#### 3.3

##### **certificate holder**

entity holding a certificate after the certificate is issued

NOTE This entity may not be the original applicant but nevertheless is responsible for maintenance of the certificate.

#### 3.4

##### **certification**

procedure by which a third party gives written assurance that a product, process or service conforms to specified requirements, also known as conformity assessment

#### 3.5

##### **certification body**

body that conducts certification of conformity

#### 3.6

##### **certification system**

system that has specific rules for procedure and management to carry out certification of conformity

#### 3.7

##### **commissioning**

process that encompasses functional safety checks, connecting the wind turbine to the grid and putting it into operation

#### 3.8

##### **conformity statement**

document issued upon successful completion of evaluation of a certification module

The statement includes identification of the receiver, the object, the main normative standards, evaluation and measurement reference reports, validity and certification body.

#### 3.9

##### **evaluation for conformity**

systematic examination of the extent to which a product, process or service fulfils specified requirements

**3.10**

**final evaluation report**

report containing the results of conformity evaluations relating to type certification

the basis for the decision to issue the type certificate

**3.11**

**inspection**

systematic examination of the extent to which a product, process or service fulfils specified requirements by means of measuring, observing, testing or gauging the relevant characteristics

**3.12**

**installation**

process that encompasses site fabrication, assembly and erection

**3.13**

**manufacture**

process that encompasses fabrication and assembly in a factory or workshop

**3.14**

**manufacturer**

entity manufacturing the wind turbine or, where relevant, main components of the wind turbine

**3.15**

**modification**

a new installation or changes to an existing installation, which changes the original design/specification

**3.16**

**operating body**

body that conducts certification of conformity, testing or inspection

**3.17**

**project certificate**

document issued upon successful completion of project certification

**3.18**

**project certification**

procedure by which a certification body gives written assurance that one or more specific wind turbines including support structure and possibly other installations are in conformity with requirements for a specific site

**3.19**

**rotor nacelle assembly**

**RNA**

part of a wind turbine carried by the support structure, see 3.22

**3.20**

**repair**

repair of a unit or a piece of equipment to its original design/specification

**3.21**

**replacement**

replacement of a unit or a piece of equipment in conformance with its original design/specification

### 3.22

#### **support structure**

part of a wind turbine consisting of the tower, sub-structure and foundation, see Figure 1 of IEC 61400-3

### 3.23

#### **surveillance**

continuing monitoring and verification of the status of procedures, products and services, and analysis of records in relation to referenced documents to ensure specified requirements are met

### 3.24

#### **type certificate**

document issued upon the successful completion of type certification

### 3.25

#### **type certification**

procedure by which a certification body gives written assurance that a wind turbine type conforms to specified requirements

### 3.26

#### **type testing**

action of carrying out tests for a given wind turbine type according to specified procedures

### 3.27

#### **wind turbine type**

wind turbines of a common design, materials and major components, subject to a common manufacturing process and uniquely described by specific values or ranges of values of machine parameters and design conditions

## 4 Symbols and abbreviations

### 4.1 Symbols

The relevant symbols contained in IEC 61400-1 are applicable.

### 4.2 Abbreviations

RNA	rotor/nacelle assembly
SWT	small wind turbine(s)
WT	wind turbine(s)

## 5 Acceptance of operating bodies

### 5.1 General

Operating bodies shall be capable and competent to operate their elements of the wind turbine certification process in an impartial manner and shall comply with the relevant ISO/IEC publications among the following: ISO/IEC 17020, ISO/IEC 17021, ISO/IEC 17025 and ISO/IEC Guide 65.

### 5.2 Accreditation

Operating bodies shall be accredited by a national or international accreditation body that has been internationally evaluated. This requirement is intended to facilitate recognition arrangements on an international level of certificates and test results and to increase public confidence in the competence and impartiality of the operating bodies.