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**IEC System for Conformity Testing and  
Certification of Wind Turbines**

**Rules and procedures**

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International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**IEC SYSTEM FOR CONFORMITY TESTING AND CERTIFICATION  
OF WIND TURBINES –  
RULES AND PROCEDURES**

## FOREWORD

This publication has been prepared by TC 88: Wind turbine systems, and has been approved by the Conformity Assessment Board (CAB). It defines a certification system for wind turbines.

It specifies rules of procedure and management for carrying out conformity evaluation with respect to standards and technical requirements for wind turbines. This document is intended to be used with other technical standards and normative documents and, where necessary, technical requirements and test procedures are specified.

Compliance with this system does not relieve any person, organisation or corporation of the responsibility for observing other applicable regulations.

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

Documents	Report on voting
88/115/CDV	
CAB/235A/DV	CAB/270/RV

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

## INTRODUCTION

NOTE This INTRODUCTION provides an overview of the IEC WT System and is not part of the Rules.

The international scheme for recognition of results of testing to standards for wind turbines is operated by the IEC, and known as the IEC WT System. The IEC WT System is based on the principle of 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 for wind turbines.

In addition to type testing, the IEC WT System provides for the recognition of or assessment for approval of the manufacturer's quality system, regular surveillance through inspection of the manufacturer's factory quality system and product quality plans, and audit testing of samples from the manufacturer's factory. The System is intended to result in significant benefit to the manufacturer by reducing the number of steps necessary to obtain certification or approval at national level.

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# IEC SYSTEM FOR CONFORMITY TESTING AND CERTIFICATION OF WIND TURBINES – RULES AND PROCEDURES

## 1 Title

The title of the System is:

IEC System for conformity testing and certification of wind turbines”, hereinafter referred to as “the IEC WT System”.

## 2 Object

Taking into account the object of the International Electrotechnical Commission (IEC) as given in Article 2 of the Statutes, the particular object of the IEC WT System, operated under the authority of the IEC in conformity with the Statutes, is to facilitate international trade in wind turbine generator systems which comply with one or more of the IEC standards prepared by IEC TC 88. This compliance, should reduce the number of steps necessary to obtain certification or approval at national level whilst preserving an appropriate level of safety.

## 3 Governing documents

The documents which state the Rules of the IEC WT System and which govern the organization of its work are as follows:

- the Statutes of the IEC;
- the Rules of Procedure of the IEC and the ISO/IEC Directives, unless otherwise specified in the Rules of Procedure of the IEC WT System;
- the Rules and Procedures which define the principles of the IEC WT System and which are approved by the CAB;

## 4 Organization

The system shall be monitored by an overseeing group, comprising the IEC TC 88 officers. The overseeing group reports annually to the CAB on the use and development of the IEC WTGS System.

## 5 Scope

This publication defines a certification system for wind turbines (IEC WT). It specifies rules for procedures and management to carry out conformity evaluation of WTs, 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 the 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 standard is not limited to WTs of any particular size or type. It describes procedures relating to design, manufacture, erection and installation, operation and maintenance, and decommissioning. The procedures deal with the assessment of loads and safety, testing, characteristics measurements and surveillance of manufacturing, installation and operation. Some elements of certification are mandatory, whilst provision is specifically made for others to be optional. The purpose of the standard is to provide a common basis for certification of wind turbines, including a basis for acceptance of operating bodies and mutual recognition of certificates.

The standard shall be used in conjunction with the appropriate IEC/ISO standards and Guides, see clause 6.

## 6 References

The following documents contain normative provisions, which, through reference in this text, constitute provisions of the International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents referenced below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 61400-1: (Ed. 2, 1999), *Wind turbine generator systems. Safety requirements.*

IEC 61400-2:1996, *Wind turbine generator systems. Safety of small wind turbines.*

IEC 61400-11:1998, *Wind turbine generator systems. Acoustic noise measurement techniques.*

IEC 61400-12:1998, *Wind turbine generator systems. Wind turbine power performance testing*

IEC 61400-13 TS Ed 1 (in preparation): *Wind turbine generator systems. Mechanical load measurements.*

IEC 61400-21:2001, *Wind turbine generator systems. Power quality requirements for grid connected wind turbines*

IEC 61400-23 TS (In preparation): *Wind turbine generator systems. Full-scale structural testing of rotor blades for WTGs.*

IEC 60050-415:1999, *International Electrotechnical Vocabulary (IEV), Chapter 415: Wind Turbine Systems*

ISO/IEC Guide 2:1986, *General terms and their definitions concerning standardization and related activities.*

IEC/ISO 17020:1999, *General criteria for the operation of bodies performing inspection*

IEC/ISO 17025:1999, *General requirements for the competence of calibration and testing laboratories.*

ISO/IEC Guide 62:1996, *General requirements for bodies operating assessment and certification/registration of quality systems.*

ISO/IEC Guide 65:1996, *General requirements for bodies operating product certification systems.*

ISO 8402:1994, *Quality management and quality assurance – Vocabulary*

ISO 9001:1994, *Quality systems – Model for quality assurance in design, development, production, installation and servicing.*

ISO 9002:1994, *Quality systems – Model for quality assurance in production, installation and servicing.*

## 7 Definitions

The relevant definitions contained in ISO/IEC Guide 2, ISO 8402 and IEC 60050-415 are applicable.

For purposes of this International Standard, the following definitions also apply:

### 7.1

#### **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.

### 7.2

#### **applicant**

entity applying for certification

### 7.3

#### **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

### 7.4

#### **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

### 7.5

#### **certification body**

body that conducts certification of conformity

### 7.6

#### **certification system**

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

### 7.7

#### **evaluation for conformity**

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

### 7.8

#### **final evaluation report**

report containing the results of conformity evaluations relating to Type Certification. It is the basis for the decision to issue the Type Certificate

**7.9  
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

**7.10  
installation**

process that encompasses on site fabrication, assembly, erection and commissioning

**7.11  
manufacture**

process that encompasses fabrication and assembly in a factory or workshop

**7.12  
manufacturer**

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

**7.13  
operating body**

body that conducts certification of conformity, testing or inspection

**7.14  
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

**7.15  
type certificate**

document issued upon the successful completion of type certification

**7.16  
type certification**

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

**7.17  
type testing**

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

**7.18  
project certificate**

document issued upon successful completion of project certification

**7.19  
project certification**

procedure by which a certification body gives written assurance that one or more specific wind turbines are in conformity with requirements for a specific site

**7.20  
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 machine parameters and design conditions

## 8 Symbols and abbreviations

### 8.1 Symbols

The relevant symbols contained in IEC 61400-1 (Ed.2, 1999) are applicable. For purposes of this International Standard, the following symbols also apply:

$g$  acceleration due to gravity (= 9.81 m/s<sup>2</sup>) [m/s<sup>2</sup>]

### 8.2 Abbreviations

WTs: Wind Turbines

## 9 Acceptance of Operating Bodies

### 9.1 General

Operating bodies shall be capable and competent to operate their elements of the wind turbine certification system in an impartial manner and shall comply with the relevant IEC/ISO publications among the following:

ISO/IEC 17020: *General requirements for the operation of bodies performing inspection;*

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

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

### 9.2 Accreditation

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

### 9.3 Recognition Arrangements

Operating bodies shall seek to obtain, preferably multilateral, recognition arrangements for the acceptance of each other's work, e.g. test results or quality system certificates. Such arrangements shall be established with reference to the requirements of this standard.

When the operating bodies have been accredited by a common accreditation body or where recognition arrangements exist between the corresponding accreditation bodies, the accreditation forms a sufficient basis for mutual recognition of work under the accreditation.

If a recognition arrangement based on accreditation is not possible, a recognition arrangement between operating bodies should include:

- the scope of the agreement;
- specification of the parts of the wind turbine certification system with unrestricted acceptance;
- identification of the signatories and their legal status;
- agreement regarding surveillance of each other's work;
- a procedure for handling complaints and appeals;
- definition of the parties' responsibilities;

- details of lines of communication;
- undertakings regarding confidentiality and security; and
- a procedure for maintenance of a register of certificates, conformity statements and test reports issued by the bodies of the agreement.

## 10 Management of the Certification system

### 10.1 General

The certification system shall be managed and operated in accordance with IEC/ISO Guide 65: General requirements for bodies operating product certification systems.

### 10.2 Agreement on Certification

The Certification Body shall upon request be prepared to take on work for certification of wind turbines according to the rules of this publication. The services of the Certification Body shall be available to all applicants without undue financial or other conditions.

Prior to starting certification work, an agreement between Applicant and Certification Body shall be made. In addition to financial and other usual contract conditions the agreement shall include:

- the scope of the certification;
- the identification of collaborating bodies (inspection or testing bodies), their accreditation and their responsibilities;
- the set of IEC 61400 standards and other standards and technical requirements to which conformity shall be evaluated;
- a description of the scope of documentation to be supplied by the Applicant for evaluation, e.g. see Annex A: List of design documentation; and
- conditions for reporting and investigating incidents.

### 10.3 Issue of Certificates and Conformity Statements

The certification system covers the issue of certificates and conformity statements.

A certificate or conformity statement is based on evaluation of wind turbine documentation and the results of inspection, surveillance or testing, as applicable. The results of evaluation shall be documented in a final report. A certificate or a conformity statement shall be issued on the basis of an assessment of the completeness and correctness of an evaluation report or reports.

A certificate or conformity statement shall identify the scope of evaluation, the wind turbine, the supplier, the design assumptions and the set of normative documents, standards and other technical requirements. Examples, showing a suitable format and the minimum information, are given in Annex B.

### 10.4 Security of Relevant Documentation

The Certification Body shall keep a file of all received material that is relevant to the certificate or conformity statement. The files shall be kept in a place with restricted access for at least 5 years after the last date of receipt of the material or expiry of the last certificate issued. Subsequently the material and any copies shall be returned to the Applicant or destroyed with written notice thereof.