

DGA Deutsche Gesellschaft für Akkreditierung mbH

Annex to Accreditation Certificate DGA-ZE-3443.00 Accreditation based on DIN EN 45011:1998

Period of validity: 2009-12-22 to 2013-07-14

Holder of the Certificate: **Germanischer Lloyd Industrial Services GmbH
Competence Centre Renewables Certification**

Steinhöft 9
20459 Hamburg

Conformity evaluations in the field of: **wind turbines and their components, wind farm projects, small wind turbines, ocean energy converter and related technologies**

abbreviations used: see page 4

Certification of wind turbines and their components, wind farm projects, small wind turbines and related technologies

Germanischer Lloyd (with Supplement 2004) 2003	Guideline for the Certification of Wind Turbines
Germanischer Lloyd 2005	Guideline for the Certification of Offshore Wind Turbines
Germanischer Lloyd 2007	Guideline for the Certification of Condition Monitoring Systems for Wind Turbines
Germanischer Lloyd 2009, Revision 3	GL Wind Technical Note 067 Certification of Wind Turbines for Extreme Temperatures (here: <i>Cold Climate</i>)
Germanischer Lloyd 2009, Revision 2	GL Wind Technical Note Certification of Fire Protection Systems for Wind Turbines, Certification Procedures
IEC 61400-2 Edition 2.0 2006-03	Wind Turbines - Part 2: Design requirements for small wind turbines (DIN EN 61400-2, 2007-02)
IEC WT 01 2001-04	IEC System for Conformity Testing and Certification of Wind Turbines - Rules and procedures, Edition 1.0
IEC 61400-22 CDV (2009-03)	Wind turbines - Part 22: Conformity Testing and Certification

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FGW TR 8 Revision 0 Draft 30.04.2009	Certification of electrical properties of generating units and power parcs connected to medium- high- and extra high voltage grids
Asociacion Empresarial Eolica PVVC Versión 4 10. Marzo 2008	Procedure for verification, validation and certification of the requirements of the P.O. 12.3 on the response of wind farms in the event of voltage dips
Danish executive order 2008-06	Executive Order from the Danish Energy Authority (“Energistyrelsen”) No. 651 dated 26.6.2008: ”Bekendtgørelse om teknisk godkendelsesordning for konstruktion, fremstilling, opstilling, vedligeholdelse og service af vindmøller “ <i>(“Executive order on the technical certification scheme for the design, manufacture, installation, maintenance and service of wind turbines“)</i>
BWEA 2008-02	Small Wind Turbine Performance and Safety Standard (British Wind Energy Association)
DECC, UK Edition 2008	Microgeneration Certification Scheme (MCS)
TAPS-2000 2003-04	Provisional Type Certification Scheme For Wind Turbine Generator Systems In India <i>Ministry of Non-conventional Energy Sources (New Delhi, India)</i>

Certification of ocean energy converter and related technologies

Germanischer Lloyd 2005	Guideline for the Certification of Ocean Energy Converters Part 1: Ocean Current Turbines
Det Norske Veritas 2008	DNV-OSS-312 - Certification of Tidal and Wave Energy Converters

above stated certification schemes in connection with:

<i>Germanischer Lloyd 2009, Revision 6</i>	<i>GL Wind Technical Note 065 (TN65) Grid Code Compliance according to Grid Codes (GCC) - Certification procedure</i>
<i>Germanischer Lloyd 2009, Revision 6</i>	<i>GL Wind Technical Note 066 (TN66) Grid Code Compliance (GCC) according to Grid Codes (GCC)</i>
<i>Germanischer Lloyd 2009</i>	<i>Guideline for the Continued Operation of Wind Turbines</i>
<i>FGW TR 4 Revision 3 Draft 30.04.2009</i>	<i>Requirements for modelling and validation of simulation models concerning electrical properties of generating units and power parcs</i>

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<i>Federal Association of Energy and Water Management e.V. (bdew) 2008</i>	<i>Generating units in the medium voltage system, guideline for connection and parallel operation of generating units in the medium voltage system</i>
<i>BMU KI III 4 2009-07</i>	<i>Ordinance on System Services by Wind Energy Plants (System Service Ordinance - SDLWindV)</i>
<i>Ministerio de Industria, Turismo y Comercio 2006</i>	<i>PO 12.3: Requirements regarding wind power facility response to grid voltage dips</i>
<i>Federal Maritime and Hydrographic Agency 2007-06</i>	<i>BSH 7005 - Standard for design and construction of Offshore Wind Turbines</i>
<i>Det Norske Veritas 2007</i>	<i>OS-J101: Design of Offshore Wind Turbine Structures</i>
<i>EN 61400-1 2006</i>	<i>Wind Turbine Generator Systems - Part 1: Design requirements</i>
<i>IEC 61400-1 Edition 3.0 2005-08</i>	<i>Wind Turbines - Part 1: Design requirements</i>
<i>IEC 61400-3 Edition 1.0 2009-02</i>	<i>Wind turbines - Part 3: Design requirements for offshore wind turbines</i>
<i>IEC 61400-11 Consolidated Edition 2.1 (incl. am1) 2006-11</i>	<i>Wind turbine generator systems - Part 11: Acoustic noise measurement techniques</i>
<i>IEC 61400-12-1 Edition 1.0 2005-12 (DIN EN 61400-12-1)</i>	<i>Wind Turbines - Part 12-1: Power Performance Measurements of Electricity Producing Wind Turbines</i>
<i>IEC/TS 61400-13 Edition 1.0 2001-06</i>	<i>Wind turbine generator systems - Part 13: Measurement of mechanical loads</i>
<i>IEC/TS 61400-14 Edition 1.0 2005-03</i>	<i>Wind turbines - Part 14: Declaration of apparent sound power level and tonality values</i>
<i>IEC 61400-21 Edition 1.0 2001-12 (DIN EN 61400-21)</i>	<i>Wind Turbines - Part 21: Measurement and assessment of power quality characteristics of grid connected wind turbines</i>
<i>IEC 61400-21 Edition 2.0 2008-08</i>	<i>Wind turbines - Part 21: Measurement and assessment of power quality characteristics of grid connected wind turbines</i>

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<i>IEC/TS 61400-23 Edition 1.0 2001-04</i>	<i>Wind turbine generator systems - Part 23: Full-scale structural testing of rotor blades</i>
<i>E DIN IEC 61400-24 2009-03 VDE 0127-24:2009-03</i>	<i>Wind turbines - Part 24: Lightning protection (IEC 88/322/CD:2008)</i>
<i>DIN EN 50308 VDE 0127-100 2008 Correction 1</i>	<i>Wind turbines – Protective measures Requirements for design, operation and maintenance</i>
<i>Det Norske Veritas 2005</i>	<i>Guideline on Design and Operation of Wave Energy Converters</i>

abbreviations used:

bdew	Federal Association of Energy and Water Management e.V.
BMU KI III	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Germany) Department KI - Climate, Environment and Energy, Renewable Energy and international Bureau KI III - Renewable Energy
BSH	Federal Maritime and Hydrographic Agency, Germany
BWEA	British Wind Energy Association
CDV	Committee Draft for Voting
DECC	Department of Energy and Climate Change
FGW	Development fund for Wind Energy e.V.
OSS	Offshore Service Specification
P.O.	Procedimiento de operación (<i>Procedure of operation</i>)
PVVC	Procedure for Verification, Validation and Certification
TAPS	Type Approval - Provisional Scheme
TC	Technical Committee
TN	Technical Note
TR (eng)	Technical Report
TR (de)	Technical Guideline
TS	Technical Specifications
UK	United Kingdom
IEC	International Electrotechnical Commission
WEA	Wind Turbine

The following persons are authorised to sign certificates

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