OD-551-T03.1 - Summary Test Report

Report Number IECRE Report Number

2019-08-12

Note: orange text is guidance text and should be removed before the report is finalized.

Test Report issued under the responsibility of:

RETL Logo

TEST REPORT

7BIEC 61400-12-1:2005 ed. 2.0

Wind turbines -Part 12-1: Power performance measurements of electricity producing wind turbines

IECRE Report Number. .....:	
RETL internal Report Number. .....:	Report Number
Date of issue .....:	**2019-08-12**
Total number of pages.....:	**5**
RE Testing Laboratory:	RETL
Testing location/ address .....:	
Applicant's name .....:	
Address .....:	
Test item description .....:	
Manufacturer .....:	
Model/Type reference .....:	
Ratings .....: Please, fill in the actual rating or ratings of the power output of the tested wind turbine model	

Tested by (name, function, signature) ..... :	Printed name/function Author/	Signature
Approved by (name, function, signature). :	Printed name/function Approver/	Signature

This report is not valid as a Test Report unless signed by an approved RE Testing Laboratory.

General disclaimer:

The test results presented in this report relate only to the object tested.

Summary Test Report Report Number IECRE Report Number **Power Performance Measurement on a Wind Turbine of Type 8BWTG Type according to 7BIEC 61400-12-1:2005 ed. 2.0**	**Enter Lab Logo here**

Report and Turbine Data

Report Number RETL Report Number	**Report Number**	**Reference Report** IECRE Report Number	
Applicable Standard:	IEC 61400-12-1:2005 ed. 2.0	**IEC RE RETL**	**RETL**
Wind Turbine Type:	**WTG Type**	**Technical data**	
Turbine Manufacturer/ Client:		**Rated Power:**	**kW**
		Rated Wind Speed:	**m/s**
		Cut out Wind Speed **YYY**	**m/s**
Turbine Location (coordinates):		**Rotor Speed (range):**	**rpm**
Serial Number of turbine:		**Rotor Diameter:**	**m**
Blade (type and serial numbers)		**Hub Height:**	**m**
		Power Control (Controller version, Power regulation):	

Measurement Campaign and Sensor Information

Measuring Period (Begin - End):			**Measurement Accuracy (Standard uncertainties)**		
			Power transducer(s): **Current transformers:** **Voltage transformers:**	**Class / [kW]** **Class / [kW]** **Class / [kW]**	
Measurement sector of wind direction Add lines if more than 2 sectors	**from:**	**to:**	**Anemometer : (Model, Class number, Calibration Lab)**		
Height of primary wind speed measurement:		**m**	**Air temperature sensor:** Please fill in the accuracy		**K**
Normalization air density:		**m/kg3**	**Air pressure sensor:** Please fill in the accuracy		**hPa**
Average air density in campaign		**m/kg³**			
Reference Air Density Please fill in the air density for	**xxx**	**m/kg³**	**Database:**	B	

which this power curve is valid, e.g. site or standard air density			

Scope of Performance Measurement

Please introduce anything which may be of relevance for the reader to understand the results, “e.g. site calibration performed, see report XYZ” or “Please note contractual filter criteria as per table below” or any applied procedures which are optional in the guideline

Data filtering applied:

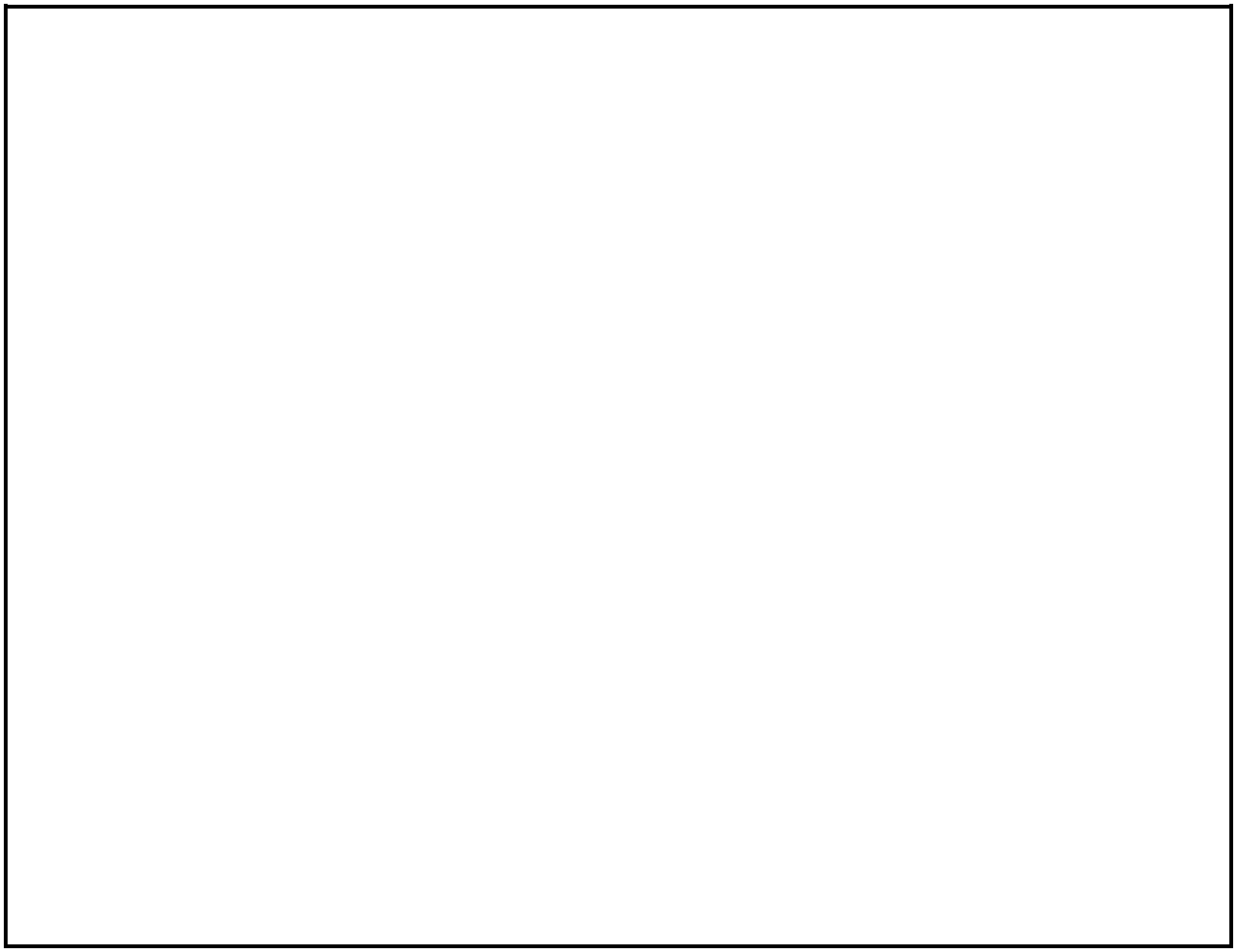
WTG available:		**Filter of temperature**	
WTG grid connected:		**Filter of Icing**	
WTG curtailed:		**Filter on turbulence intensity**	
WTG park controlled:		**Filter on shear**	
WTG generator running:		**Filter on veer**	
		Filter on flow inclination	

Deviation(s) from the Standard

Deviation	**Influence to measurement results**
Please list all deviations to the applied standard here. Provide comments on how it has been dealt with the deviations	Provide an assessment of the influence of each individual deviation on the measurement result. Guidance is given in table below

Item	Explanation
none	No influence to measurement results expected. Deviation can be neglected.
low/minor	Minor influence to measurement results expected. There might be a minimal influence, which is included in the uncertainties of the results.
medium	Significant influence to the measurement results is expected, however, the influence is still expressed in the uncertainties.
high/major	Major influence to the measurement results is expected. This means that the requirements of the guideline are not met, hence the report is not compliant to the guideline.

Power Curve Graph, Database B



Measured power curve for reference air density xxx kg/m³, presenting only completed bins (for minimum three data sets).

Power Curve Table, Database B

Reference air density xxx kg/m³, presenting completed bins only

Bin-No.	Normalized Wind Speed (at hub height) V_i [m/s] Please change for passive power control (stall) to "Wind Speed" and "Normalized Power Output"	Power Output P_i [kW]	$c_{p,i}$-value [-]	Number of Data Sets N_i [-]	Category A Uncertainty S_i [kW]	Category B Uncertainty u_i [kW]	Combined Uncertainty $u_{c,i}$ [kW]
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
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28							
29							
30							
31							

Annual Energy Production (AEP)

Reference air density:xxx kg/m³, used cut-out wind speed:9BYYY m/s (Extrapolation with constant power starting from last complete bin)

Annual mean wind speed (Rayleigh distributed)	Measured AEP	Uncertainty of AEP for the measured power curve		Extrapolated AEP
[m/s]	[MWh]	[MWh]	[%]	[MWh]
4				
5				
6				
7				
8				
9				
10				
11				

*) Incomplete according to IEC 61400-12-1 (AEP-measured less than 95 % of the AEP-extrapolated)

Measured by:

Company:	RETL
Street Zip-Code/City	
Country	

Date: 2019-08-12

Signature:		Signature:	
Name: Title: Position in Lab:	Author	Name: Title: Position in Lab:	Approver