




OD-551-T03.2 - Summary Test Report

Report Number **IECRE Report Number**

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		
9BIEC 61400-12-1:2017		
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 : 2021-10-27		
Total number of pages..... : 6		
RE Testing Laboratory: RETL member name		
Testing location / address :		
Applicant's name :		
Address :		
Test item description :		
Manufacturer :		
Model / Type reference :		
Ratings :		
<i>Please, fill in the actual rating or ratings of the power output of the tested wind turbine model</i>		
Tested by (name, function, signature) : Printed name/function Author/ Signature		
Approved by (name, function, signature) . : Printed name/function Approver/ Signature		
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General disclaimer:		



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The test results presented in this report relate only to the object tested.
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Summary Test Report Report Number IECRE Report Number Power Performance Measurement on a Wind Turbine of Type 10BWTG Type according to 9BIEC 61400-12-1:2017	Enter Lab Logo here
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Report and Turbine Data

Report Number RETL Report Number	Reference Report IECRE Report Number
Applicable Standard: IEC 61400-12-1:2017	IEC RE RETL member name RETL member name
Wind Turbine Type: WTG Type Turbine Manufacturer/ Client:	Technical data Rated Power: kW Rated Wind Speed: m/s Cut out Wind Speed m/s
Turbine Location (coordinates): Serial Number of turbine: Blade (type and serial numbers)	Rotor Speed (range): rpm Rotor Diameter: m Hub Height: m Power Control (Controller version, Power regulation):

Measurement Campaign, Sensor Information, Wind Speed Definition and Power Curve Normalization

Measuring Period (Begin - End):			Measurement Accuracy (Standard uncertainties)		
			Power transducer(s): Current transformers: Voltage transformers:	Class / [kW] Class / [kW] Class / [kW]	
Wind Speed definition (HH or REWS) If REWS: - Based on shear or shear+veer - Number of measurement levels	Fill in HH or REWS		Anemometer : (Model, Class number, Calibration Lab)		
	Fill in add. information if REWS				
Wind Speed Measurement Setting (as per Column 1 / Table 2 of the Standard)			Remote Sensor Device: (Model, Classification report, Calibration Lab)		
Height of primary wind speed measurement:		m	Air temperature sensor: Please fill in the accuracy		K
Site Calibration and Method applied			Air pressure sensor: Please fill in the accuracy		hPa
Measurement sector of wind direction Add lines if more than 2 sectors	from:	to:	Air relative humidity sensor: Please fill in the accuracy		%RH
Normalization air density:		m/kg ³	Wind direction Please fill in the accuracy		deg
Reference Air Density Please fill in the air density for which this power curve is valid, e.g. site or standard air density		m/kg ³	Average air density in campaign		m/kg ³
Normalization shear exponent		-	Average measured shear		
Normalization wind veer		deg/m	Average measured veer		
Normalization turbulence intensity		%	Average measured turbulence intensity		
Normalization upflow		°	Average measured upflow		

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:

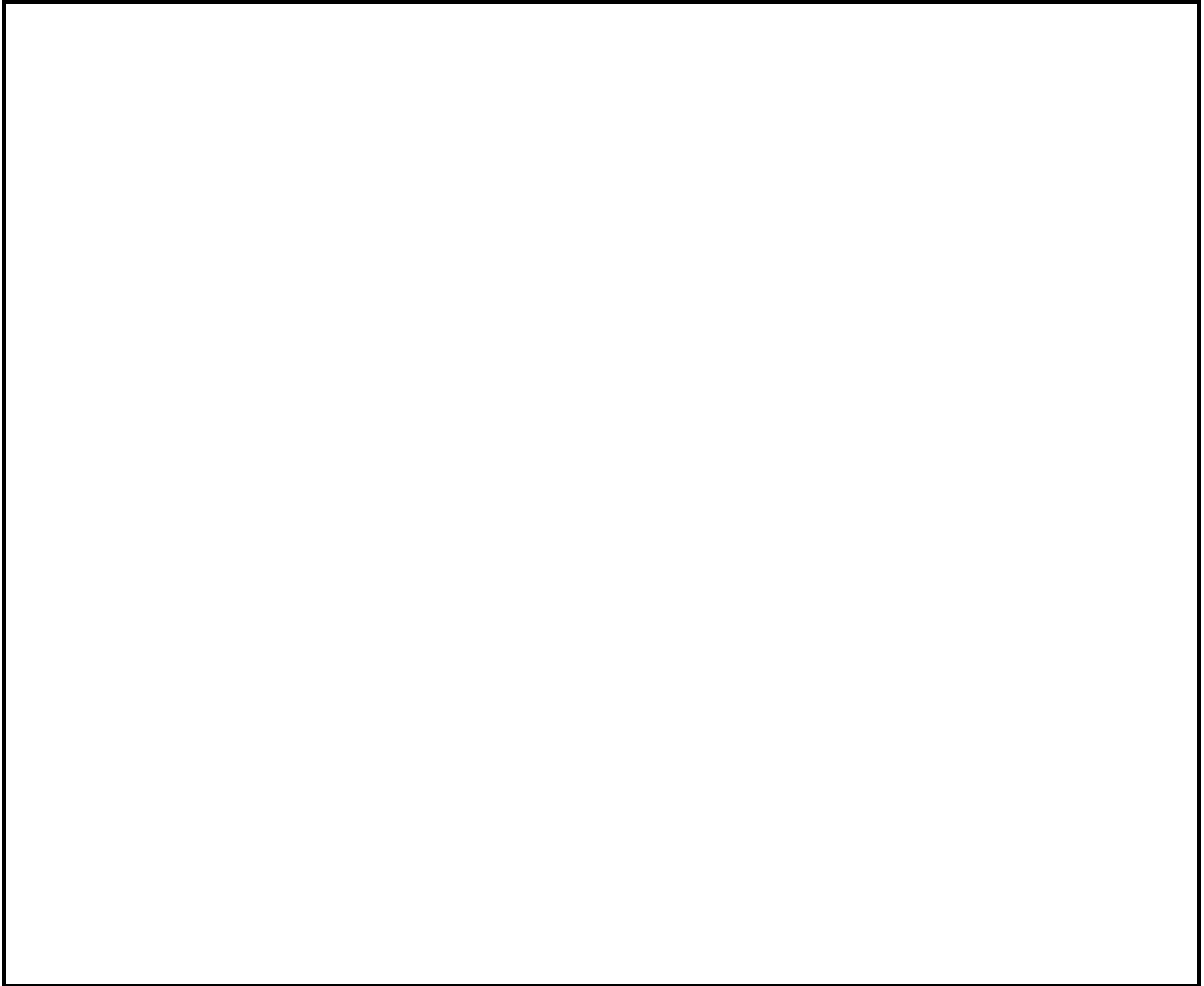
WTG available:		Filter of temperature	
WTG grid connected:		Filter of Icing	
WTG curtailed:		Filter on turbulence intensity	
WTG park controlled:		Filter on shear	
WTG generator running:		Filter on veer	
		Filter on flow inclination	

Deviation(s) from the Standard

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

Item	Explanation
none	No influence on measurement results expected. Deviation can be neglected.
low/minor	Minor influence on measurement results expected. There might be a minimal influence, which is included in the uncertainties of the results.
medium	Significant influence on the measurement results is expected, however, the influence is still expressed in the uncertainties.
high/major	Major influence on 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



Measured power curve for reference air density [Kommentare] kg/m³ and wind speed definition, presenting only completed bins (for minimum three data sets).



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Power Curve Table							
Reference air density [Kommentare] kg/m ³ , 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							
13							
14							
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31							

Annual Energy Production (AEP)				
Reference air density:[Kommentare] kg/m ³ , used cut-out wind speed:YYY 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 member name
 Street Zip-Code/City
 Country

Date: 2021-10-27

Signature: _____ Signature: _____

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