



राष्ट्रीय पवन ऊर्जा संस्थान
NATIONAL INSTITUTE OF WIND ENERGY

(पूर्व में "पवन ऊर्जा प्रौद्योगिकी केंद्र" Formerly "Centre for Wind Energy Technology")
(नवीन और नवीकरणीय ऊर्जा मंत्रालय, भारत सरकार Ministry of New and Renewable Energy, Government of India)

राजेश कत्याल
उप महानिदेशक / प्रमुख (आर.एंड.डी)
Rajesh Katyal, Deputy Director General /
Head (R&D)

Ref: NIWE/R&D/ SWT/LRES-Whisper500/2015

Date: 20.03.2015

Shri Rajarshi Sen
Director & CEO
Luminous Renewable Energy Solutions Pvt. Ltd.,
Gat No.1569/B, Off Pune - Saswad Road,
Vadki village,
Pune - 412 308.

Dear Sir,

Sub: Type Testing of SWT Generator of LRES Whisper 500 - Reg
Ref: Our Agreement dated

Please find annexed the Final Test Reports of Power performance measurement, Safety & Function test and Duration test for the model LRES WHISPER 500 as per IEC 61400-12-1 and IEC 61400-2 for your records. With this the type testing projects stands closed.

Kindly acknowledge receipt.

Thanking you with best regards

Yours faithfully,

(राजेश कत्याल / Rajesh Katyal)

Encl: As above



Abstract

The report presents results of Power Performance Measurements Test for a Small Wind Turbine Model, Luminous Whisper 500 of Luminous Renewable Energy Solutions Pvt. Limited, erected at the Wind Turbine Research Station of NIWE at Kayathar, Ayyanaruthu Village, Tuticorin District, Tamil Nadu, India. The wind turbine system under test includes the small wind turbine model Luminous Whisper 500, charge controller and the dump load. The charge controller's DC output was given to an Automatic Load Controller setup which feeds an AC load of 3200W respectively. The measured data for the Power Performance Measurements were subjected to analysis and results are reported in accordance with the International Standard IEC 61400-12-1 "Power Performance measurements of electricity producing Wind Turbines".

The results from the measurements, described in this report are only valid for the specific wind turbine. The report may under no circumstances be reproduced, except in its entirety, without the written permission of the Research and Development unit of NIWE.

The Luminous Whisper 500 Small Wind Turbine with 4.5m rotor diameter is supplied by:

M/s Luminous Renewable Energy Solutions Pvt. Limited,
(Formerly UD Energy Systems Pvt. Ltd.)
Gat No. 1569/B,
Off - Pune – Saswad Road,
Vadki Village,
Pune- 412 308

Measurements Laboratory:

RESEARCH AND DEVELOPMENT UNIT
(Wind Turbine Research Station)
National Institute of Wind Energy (NIWE)
(Formerly 'Centre for Wind Energy Technology')
Survey No. 657/1A2, Velachery – Tambaram High Road,
Pallikaranai, Chennai – 600 100, INDIA


Measurement Engineer (NIWE)

Report Reviewing Engineer (NIWE)

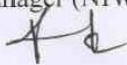
Date


20.3.15

Date


20.3.2015

Project Manager (NIWE)



Date

6. Power Curve Measurement Results

The measurements cover the period from 24.06.2014 to 31.01.2015.

6.1 Database

The database has the following properties:

Parameter	Required (As per IEC 61400-12-1)	Database
Data in each wind speed bin between 1 m/s below cut-in wind speed to 14 m/s	10	Satisfied
Number of hours between 1 m/s below cut-in wind speed to 14 m/s	60	1046

Table 6.1.1 Data base properties

6.2 Power Curve and Statistics

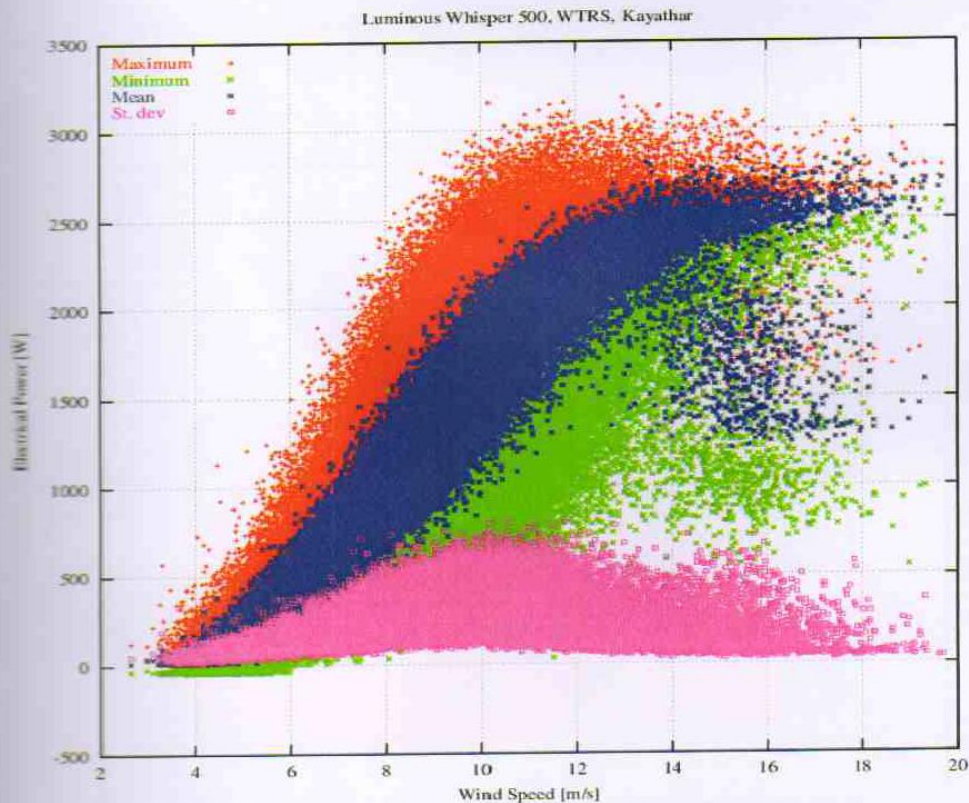


Figure 6.2.1: Electrical power scatter plot as a function of wind speed (data not corrected for air density variation)