

Serial No: UM/EE/74/20/587

TESTING OF GRID CONNECTED PV INVERTER

Model : EVVO 4600TL-G2 Grid-Tied Inverter

Client : Evolve Lanka Pvt Ltd.,
No. 123/1 Sea Street,
Colombo 11.

No. of pages in Report : 03

Date of Report : 21 September 2020



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University of Moratuwa, Sri Lanka
DEPARTMENT OF ELECTRICAL ENGINEERING
Katubedda, Moratuwa, Sri Lanka





Your Ref:

Our Ref- UM/EE/74/20/587

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TESTING OF GRID CONNECTED INVERTER SYSTEM

Client: Evolve Lanka Pvt Ltd.,
No. 123/1 Sea Street, Colombo 11.

Introduction

At the request of **Evolve Lanka Pvt Ltd.**, following single phase, grid connected solar PV inverter was tested by the Department of Electrical Engineering, University of Moratuwa, Sri Lanka, and test results are presented in this test report.

Date of Testing: 31/08/2020

Test Sample Details

Inverter Brand Name	EVVO
Manufacturer	EVOLVE Energy Group Co. Limited, RM 702, 27/F Fu Fai Comm CTR 27 Hillier Street, Sheung Wan, Hong Kong.
Country of Origin	Shenzhen, China
Country of Manufacturing	Shenzhen, China
Model	EVVO 4600TL-G2
Tested Sample Serial Nos.	-----

Technical Details of the inverter

Rated power output	4,600 VA
Nominal output voltage (rms)	230V AC, 50/60 Hz
Max. AC Current (rms)	21 A
Max input voltage	600 V DC
MPPT Voltage Range	90-580 V DC
Max. DC Input Current	2x 11.0 A



Test Results According to SLS 1547:2016 Sri Lanka Standard Specification for Photovoltaic (PV) Systems – Characteristics of the Utility Interface (IEC 61727:2004)

1. Over and Under frequency tripping:

	Measured Value	Utility Requirement	Remarks
Line frequency low trip setting (49.3 Hz)	120 ms	<160 ms	Acceptable
Line frequency high trip setting (50.5 Hz)	120 ms	<160 ms	Acceptable

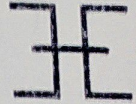
2. Response to Abnormal Voltages:

Parameter	Measured Value	Utility Requirement	Remarks
Line voltage low trip setting			
$V < 115V$	70 ms	< 0.1 s	Acceptable
$115V \leq V < 195.5V$	130 ms	< 2.0 s	Acceptable
$253V < V \leq 310.5V$	130 ms	< 2.0 s	Acceptable
$310.5V \leq V$	45 ms	< 0.05 s	Acceptable

3. Current Harmonic level of the output at full capacity (4600 VA):

Harmonic Order	Measured Value (Average)	Utility Requirement	Remarks
THD	3.4%	$\leq 5.0\%$	Acceptable**
$h < 11$	1.1%	$\leq 4.0\%$	
$11 \leq h < 17$	1.4%	$\leq 2.0\%$	
$17 \leq h < 23$	1.0%	$\leq 1.5\%$	
$23 \leq h < 35$	<0.000%	$\leq 0.6\%$	
$35 \leq h$	<0.000%	$\leq 0.3\%$	

**Note: These values are valid only for the solar PV output more than 70% of full capacity of the inverter.



4. Reconnection time:

	Measured Value	Utility Requirement	Remarks
Average reconnection time	225 s	< 300 s	Acceptable

Declaration

I certify that the said **EVOLVE EVVO 4600TL-G2 Single Phase Grid-Tied PV Inverter** has been tested by the Department of Electrical Engineering, University of Moratuwa and according to the test results, **EVOLVE EVVO 4600TL-G2 Single Phase Grid tied Single Phase Inverter** **COMPLIES** with the requirements laid down in the **IEC 61727 (2004)** and **National Grid Code**.

Certified by:

Dr. Asanka S. Rodrigo

Senior Lecturer in Electrical Engineering

Department of Electrical Engineering, University of Moratuwa