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Certificate G83/1-1

TYPE VERIFICATION TEST SHEET


SSEG DETAILS

SSEG Type Reference:		EnaSolar 2kWGT-UK	
SSEG Technology (as per Annex):		Photovoltaic (Annex C)	
Manufacturer:	Address:	Telephone:	Fax:
EnaSolar Ltd	321 Tuam Street Christchurch 8011 New Zealand	0064 3 366 4550	0064 3 366 0884
Technical File Reference No: R11CA11108-SB00			
Maximum Export Capability (SSEG Rating Less Parasitic Load)		2100W	

TEST HOUSE DETAILS

Name and Address of Test House	UL International New Zealand Ltd
Telephone Number	+64 3 9404400
Facsimile Number	+64 3 9404411
Email Address	enquiries@nz.ul.com

TEST DETAILS

Date of Test	September 2010 – October 2010
Date of Issue	10 March 2011
Name of Tester	Hoong Pang
Signature of Tester	
Test Location if Different from Above	Same as above

Test Results

POWER QUALITY

Harmonic Current Emissions (A)								
Harmonic	2nd	3rd	5 th	7th	9th	11th	13th	15 th -39th
Limit*	1.08	2.3	1.14	.77	.4	.33	.21	.15x(15/n)
Test Value	0.022	0.257	4.083x10 ⁻³	0.098	0.071	0.091	0.089	<limit EN61000-3-2 A

*Maximum permissible harmonic current As per BS EN 61000-3-2 Class A
 Test Certificate No EMC1436 Stafford Aero Technologies 2/9/2010

Voltage Fluctuation and Flicker			
	Starting	Stopping	Running
Limit*	4%	4%	P _{st} = 1.0 P _{It} = 0.65
Test Value	1.2	2.9	0.5 0.3

*Maximum permissible voltage fluctuation (expressed as a percentage of nominal voltage at 100% power) and flicker. As per BS EN 61000-3-3

	DC injection			Power Factor		
G83/1 Limit	20mA, tested at three power levels*			0.95 lag-0.95 lead at three voltage levels		
Test Level	10%	55%	100%	212V	230V	248V
Test Value #	7mA	6mA	17mA	.999	.998	.998

* Indicative values are shown for minimum, medium and maximum power levels.

Insert maximum value of dc injection and worst case pf value recorded during testing

UNDER/OVER FREQUENCY TESTS

Parameter	Under Frequency		Over Frequency	
	Frequency	Time	Frequency	Time
G83/1 Limit	47Hz	0.5s	50.5Hz	0.5s
Actual Setting	48Hz	0.3s	50.4Hz	0.3s
Trip Value	48Hz	410ms	50.5Hz	360ms

UNDER/OVER VOLTAGE TESTS

Parameter	Under Voltage		Over Voltage	
	Voltage	Time	Voltage	Time
G83/1 Limit	207V	1.5s	264V	1.5s
Actual Setting	208V	1.0s	262V	1.0s
Trip Value	207V	1.03s	261V	1.02s

LOSS OF MAINS TEST

Method Used	Vector Shift		
Output Power Level*	10%	55%	100%
G83/1 Limit	0.5s	0.5s	0.5s
Trip Setting	NA	NA	NA
Trip Value	120ms	180ms	356ms

*Indicative values are shown for minimum, medium and maximum power levels

RECONNECTION TIMES

Reconnection Time	Under/Over Voltage	Under/Over Frequency	Loss of Mains
Minimum Value	180 seconds	180 seconds	180 seconds
Actual Setting	180 seconds	180 seconds	180 seconds
Recorded Value	180 seconds	180 seconds	180 seconds

FAULT LEVEL CONTRIBUTION

C4.6 - As Photovoltaic SSEGs are inverter connected, they are deemed to comply with clause 5.8 and no further tests are required.

SELF MONITORING – SOLID STATE SWITCHING

Not applicable as electro-mechanical relays are used.

COMMENTS

The results of the G83/1-1 tests are summarised on this sheet. A full test report is available on request. These tests have been carried out with the specifications and parameters set to meet the requirements of G83/1-1. It is hereby declared by the manufacturer that all units shipped to the UK will have identical parameter settings and that these parameters cannot be changed by a user, installer or any other person without the use of password protected software.