

Certificate G83/1

Engineering Recommendation

Manufacturer: Anhui Duraluxe Energy Co., Ltd.
Address: No.2288 , 5th Cuihu Road, Eco.&Tech. Development Zone
Tongling, Anhui
Postal code,place: 244000
Country: China

Test house details: Anhui Duraluxe Energy Co., Ltd
R&D Department,Tongling

Type reference: Duraluxe Sun Solar Inverter DS 4000TL
Max.AC power: 4400W
Nominal AC power: 4000W

The results of the G83/1 tests are summarized in this certificate. Duraluxe declares hereby that all units shipped to the UK are within the specifications and parameters set by the G83/1 engineering recommendation. These settings cannot be changed by an installer, user or by any person other than Duraluxe. Complete documentation on test details are available at Duraluxe on demand.

Test details

Power quality
Hamrmonic current emissions as per BS EN 61000-3-2 A
Voltage fluctuations and flicker as per BS EN 61000-3-3 A
DC injection / Power ficator
Under / Over frequency switch off
Under / Over voltage switch off
Loss of mains test

Anhui Duraluxe Energy Co., Ltd.

Tongling, 22-04-2011.

Chang Rongqing *Chang Rongqing*
Director of R&D Grid-connected Inverter Technology

Test results

1. POWER QUALITY

Harmonic current emissions as per BS EN 61000-3-2-Class A								
Harmonic	2nd	3rd	5th	7 th	9th	11th	13th	15th...39th
Limit (Amp.)	1.08	2.3	1.14	0.77	0.4	0.33	0.21	0.15 x (15/n)
Test value	0.0216	0.0781	0.0784	0.0325	0.0535	0.0441	0.0634	<limit BS EN 61000-3-2
% of fund.	0.1371	0.4991	0.5010	0.2071	0.3420	0.2820	0.1100	0.2351

Voltage fluctuations and Flicker as per BS EN 61000-3-3 Class A				
Harmonic	Starting	Stopping	Running	
Limit	3.30%	4%	Pst = 1.0	Pit = 0.65
Test value	<0.25%	<0.34%	0.64	0.61

	DC injection			Power Factor		
G83/1 limit	20mA, tested at three levels			0.95 lag - 0.95 lead at three voltage levels at Prated		
Test level	10%	50%	100%	212V	230V	248V
Test value	12.8mA	14.2mA	17.1mA	0.992	0.993	0.991

2. UNDER / OVER FREQUENCY SWITCH OFF

Parameter	Under Frequency Switch Off						Over Frequency Switch Off					
	Frequency [Hz]			Time [s]			Frequency [Hz]			Time [s]		
G83/1 limit	47 Hz			0.5s			50.5 Hz			0.5s		
Output power	10%	50%	100%	10%	50%	100%	10%	50%	100%	10%	50%	100%
Actual setting	47 Hz	47 Hz	47 Hz	0.5s	0.5s	0.5s	50.5 Hz	50.5 Hz	50.5 Hz	0.5s	0.5s	0.5s
Trip value	47.03 Hz	47.03 Hz	47.03 Hz	97.8ms	97.8ms	97.8ms	50.49 Hz	50.49 Hz	50.49 Hz	91.4ms	92.3ms	91.4ms

3. UNDER / OVER VOLTAGE SWITCH OFF

Parameter	Under Frequency Switch Off						Over Frequency Switch Off					
	Voltage [V]			Time [s]			Voltage [V]			Time [s]		
G83/1 limit	207V			1.5s			264V			1.5s		
Output power	10%	50%	100%	10%	50%	100%	10%	50%	100%	10%	50%	100%
Actual setting	207V	207V	207V	1.5s	1.5s	1.5s	264V	264V	264V	1.5s	1.5s	1.5s
Trip value	209V	209V	208V	76.8ms	77.5ms	76.8ms	262V	262V	261V	77ms	77.3ms	77.6ms

4. LOSS OF MAINS TEST

Method used	Frequency shift		
	10%Prated	50%Prated	100%Prated
G83/1 limit	0.5s	0.5s	0.5s
Trip setting	0.5s	0.5s	0.5s
Trip value	243ms	231ms	217ms

5. RECONNECTION TIME MEASUREMENT

Reconnection time	Under/over Voltage	Under / over	Loss of Mains
Minimum value	180s	180s	180s
Actual setting	180s	180s	180s
Recorded value	185s	185s	185s

6. FAULT LEVEL CONTRIBUTION

As Photovoltaic SSEGs are inverter connected, they are deemed to automatically comply with regulations and no further tests are required

7. SELF MONITORING - SOLID STATE SWITCHING

Not applicable as electro-mechanical relays are used