



Certificate G83/1-1

Engineering Recommendation

Manufacturer	SMA Solar Technology AG
Address	Sonnenallee 1
Postal code, place	34266 Niestetal
Country	Germany

Test house details	SMA Solar Technology AG
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Type reference	Max. AC power	Nominal AC power
SB 2500TLST-21	2,500 VA	2,500 VA
SB 3000TLST-21	3,000 VA	3,000 VA

The results of the G83/1-1 tests are summarized in this certificate. SMA declares that all devices (with G83 setting) that are shipped to the UK comply with the requirements defined in engineering recommendation G83/1-1. These settings cannot be changed by an installer, user or by any other person without the use of a tool (password protected).
The complete documentation can be viewed at SMA (headquarters) after prior announcement.

SMA Solar Technology AG
Niestetal, 2013-02-15

ppa. Frank Greizer
(Vice President MP T PD)

Test Results

Power Quality

Harmonic current emissions as per BS EN 61000-3-2								
Harmonic	2 nd	3 rd	5 th	7 th	9 th	11 th	13 th	15 th ... 39 th
BS EN 61000-3-2 Limit [A]	1.08	2.30	1.14	0.77	0.40	0.33	0.21	0.15 x (15/n)
Test value [A] (at rated power)	SB 2500TLST-21	0.08	1.10	0.5	0.41	0.30	0.23	0.19
	SB 3000TLST-21	0.10	1.21	0.35	0.29	0.22	0.16	0.12

Voltage fluctuations and flicker				
	Starting	Stopping	Running (at rated power)	
BS EN 61000-3-3 Limit	4%	4%	$P_{st} = 1.0$	$P_{lt} = 0.65$
Test value	0.00%	0.00%	0.27	0.27

	DC injection		
G83/1-1 Limit	20 mA		
Test level (% of rated power)	10%	55%	100%
Test value	< 4 mA	< 6 mA	< 11 mA

	Power factor		
G83/1-1 Limit	0.95 lag - 0.95 lead at three voltage levels at P_{rated}		
Test level (AC voltage)	211 V	230 V	259 V
Test value (at rated power)	> 0.99	> 0.99	> 0.99

Test Results

Grid Monitoring and Reconnection Time

Undervoltage/overvoltage				
	Undervoltage switch off		Overvoltage switch off	
Parameter	Voltage	Time	Voltage	Time
G83/1-1 Limit	207 V	5 s	264 V	5 s
Actual setting	207 V	5 s	264 V	5 s
Trip value	209.4 V	4.97 s	261.3 V	4.97 s

Under/over frequency				
	Under frequency switch off		Over frequency switch off	
Parameter	Frequency	Time	Frequency	Time
G83/1-1 Limit	47 Hz	5 s	50.5 Hz	5 s
Actual setting	47 Hz	5 s	50.5 Hz	5 s
Trip value	47.1 Hz	4.5 s	50.5 Hz	4.5 s

Loss of mains tests (method used: frequency shift)				
Test level (% of rated power)	10%	55%	100%	
G83/1-1 Limit	5 s	5 s	5 s	
Actual setting	-	-	-	
Trip value	< 0.8 s	< 0.9 s	< 0.9 s	

Reconnection times			
Test level (% of rated power)	Undervoltage/overvoltage	Under/over frequency	Loss of mains
Minimum value	180 s	180 s	180 s
Actual setting	180 s	180 s	180 s
Recorded value	> 182 s	> 182 s	> 182 s

Fault Level Contribution

As SSEGs (small-scale embedded generators) for PV systems are inverter-connected, they are deemed to automatically comply with regulations and no further tests are required.

Self Monitoring – Solid State Switching

Not applicable as electro-mechanical relays used.