



Certificate G83/1

Engineering Recommendation

Manufacturer: SMA Technologie AG
Address: Hannoversche Str. 1 - 5
Postal code, place: 34266 Niestetal
Country: Germany

Test house details: Phoenix Testlab, Blomberg (D) (a)
SMA Technologie AG, department R&D, Niestetal (D)
(b)

Type reference: Sunny Boy SB 3300 / SB 3800
Windy Boy WB 3300 / WB 3800
Max. AC power: 3600 W / 3800 W
Nominal AC power: 3300 W / 3800 W

The results of the G83/1 tests are summarized in this certificate. SMA 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 unauthorized person. Complete documentation on test details are available from SMA on demand.

Test details

- Power quality
- Harmonic 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 factor
- Under / Over frequency switch off
- Under / Over voltage switch off
- Loss of mains test

SMA Technologie AG
Niestetal, 2006-01-23

i. V. Frank Greizer

Frank Greizer
Head of R&D Solar Technology

Test results

Power quality

Harmonic current emissions as per BS EN 61000-3-2 A, tested by (b)								
Harmonics	2 nd	3 rd	5 th	7 th	9 th	11 th	13 th	15 th ... 39 th
Limit [A]	1.08	2.3	1.14	0.77	0.4	0.33	0.21	0.15 x (15/n)
Test value [A]	0.07	0.15	0.10	0.09	0.09	0.06	0.05	< limit BS EN 61000-3-2 A

Voltage Fluctuations and Flicker, tested by (a)			
Harmonic	starting	stopping	running
Limit	4 %	4 %	$P_{st} = 1.0$
Test value	0.22%	0.27%	0.129

	DC injection, tested by (b)			Power factor, tested by (b)		
G83/1 limit	20mA, tested at three levels			0.95 lag - 0.95 lead at three voltage levels at P_{rated}		
Test level	10%	55%	100%	212V	230V	248V
Test value	<1mA	<1mA	<1mA	0.99	0.99	0.99

Under / Over frequency switch off

	Under frequency switch off, tested by (b)		Over frequency switch off, tested by (b)	
Parameter	Frequency (Hz)	Time (s)	Frequency (Hz)	Time (s)
G83/1 Limit	47 Hz +/- 0.5%	5 s	50.5 Hz +/- 0.5%	5 s
Actual setting	47.0 Hz	-	50.5 Hz	-
Trip value	47.01 Hz	< 1 s	50.50 Hz	< 1 s

Under / Over voltage switch off

	Under voltage switch off, tested by (b)		Over voltage switch off, tested by (b)	
Parameter	Voltage (V)	Time (s)	Voltage (V)	Time (s)
G83/1 limit	207 V	5 s	264 V	5 s
Actual setting	209 V	-	261 V	-
Trip value	210 V	< 1 s	262 V	< 1 s

Loss of mains test, tested by (b)

Method used	Resonant Circuit as per Annex C		
Output power level	10 % P_{rated}	55 % P_{rated}	100 % P_{rated}
G83/1 limit	0.5 (5) s	0.5 (5) s	0.5 (5) s
Trip setting	-	-	-
Trip value	1.76 s	0.84 s	0.72 s

Reconnection time measurement, tested by (b)

	Under / Over voltage	Under / Over frequency	Loss of mains
Minimum value	180 s	180 s	180 s
Actual setting	180 s	180 s	180 s
Recorded value	200 s	210 s	200 s

Fault level contribution

As Photovoltaic SSEGs 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.