



**BUREAU
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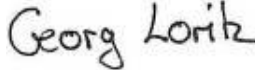
TEST REPORT SUMMARY IEC 62116

Test procedure of islanding prevention measures for
utility-interconnected photovoltaic inverters

Report reference number	11TH0290-IEC62116_SUM_2			
Date of issue	2012-11-08			
Total number of pages	9			
Testing laboratory name	Bureau Veritas Consumer Products Services Germany GmbH			
Address	Businesspark A96 86842 Türkheim Germany			
Applicant's name	SMA Solar Technology AG			
Address	Sonnenallee 1, 34266 Niestetal			
Test specification				
Standard	IEC 62116:2008, EN 62116:2011, DIN EN 62116:2012			
Certificate	Certificate of compliance			
Test report form number	IEC 62116			
Master TRF	Bureau Veritas Consumer Products Services Germany GmbH			
Test item description	Grid-tied photovoltaic and wind inverter			
Trademark				
Model / Type	SB 3000TL-21, SB 3600TL-21, SB 4000TL-21, SB 5000TL-21 SB 2500TLST-21, SB 3000TLST-21 WB 3000TL-21, WB3600TL-21, WB 4000TL-21, WB 5000TL-21			
Ratings	SB 3000TL-21	SB 3600TL-21	SB 4000TL-21	SB 5000TL-21
MPP DC voltage range [V]	175V – 500V			
Input DC voltage range [V]	125V – 750V			
Input DC current [A]	2 x 15A			
Output AC voltage [V]	230 V / 50 Hz			
Output AC current [A]	nom. 13,1A max. 16A	nom. 16A max. 16A	nom. 17,4A max. 22A	nom. 20A max. 22A
Output power [VA]	nom. 3000W max. 3000VA	nom. 3680W max. 3680VA	nom. 4000W max. 4000VA	nom. 4600W max. 5000VA

Ratings	SB 2500TLST-21	SB 3000TLST-21
MPP DC voltage range [V]	180V – 500V	213V – 500V
Input DC voltage range [V]	125V – 750V	
Input DC current [A]	15A	
Output AC voltage [V]	230 V / 50 Hz	
Output AC current [A]	nom. 10,9A max. 10,9A	nom. 13,1A max. 13,1A
Output power [VA]	nom. 2500W max. 2500VA	nom. 3000W max. 3000VA

Ratings	WB 3000TL-21	WB3600TL-21	WB 4000TL-21	WB 5000TL-21
MPP DC voltage range [V]	175V – 500V			
Input DC voltage range [V]	80V – 550V			
Input DC current [A]	2 x 15A			
Output AC voltage [V]	230 V / 50 Hz			
Output AC current [A]	nom. 13,1A max. 16A	nom. 16A max. 16A	nom. 17,4A max. 22A	nom. 20A max. 22A
Output power [VA]	nom. 3000W max. 3000VA	nom. 3680W max. 3680VA	nom. 4000W max. 4000VA	nom. 4600W max. 5000VA

Testing Location	Bureau Veritas Consumer Products Services Germany GmbH
Address	Businesspark A96, 86842 Türkheim, Germany
Tested by (name and signature)	Frederic Schmitt 
Approved by (name and signature)	Georg Loritz 
Manufacturer's name	SMA Solar Technology AG
Factory address	Sonnenallee 1, 34266 Niestetal

Document History			
Date	Internal reference	Modification / Change / Status	Revision
2012-05-09	Frederic Schmitt	Initial report was written	0
2012-10-24	Frederic Schmitt	Output power of unit SB 3000TLST-21 updated	1
2012-11-06	Frederic Schmitt	Windy Boy inverter models WB 3000TL-21, WB3600TL-21, WB 4000TL-21, WB 5000TL-21 included	2
Supplementary information:			

Test items particulars

Equipment mobility..... : Permanent connection
Operating condition..... : Continuous
Class of equipment..... : Class I
Protection against ingress of water.. : IP65 according to EN 60529
Mass of equipment [kg]..... : SB 3000TL-21 26kg
SB 3600TL-21 26kg
SB 4000TL-21 26kg
SB 5000TL-21 26kg
SB 2500TLST-21 23kg
SB 3000TLST-21 23kg
WB 3000TL-21 26kg
WB3600TL-21 26kg
WB 4000TL-21 26kg
WB 5000TL-21 26kg

Test case verdicts

Test case does not apply
to the test object..... : N/A
Test item does meet
the requirement..... : P(ass)
Test item does not meet
the requirement..... : F(ail)

Testing

Date of receipt of test item..... : 2012-04-04
Date(s) of performance of test..... : 2012-04-12 until 2012-04-18

General remarks:

The test result presented in this report relate only to the object(s) tested.
This report must not be reproduced in part or in full without the written approval of the issuing testing laboratory.

"(see Annex #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

Copy of marking plate:

<p>SMA Solar Technology AG Sonnentallee 1 34266 Niestetal Germany www.SMA.de</p> <p>SUNNY BOY Solar Inverter made in Germany by SMA Solar Technology AG Model SB 3000TL-21 Serial No. 0000000001 Date of manufacture 2012-11-08</p> <table border="1"> <tr><td>DC</td><td>V_{DC max}</td><td>750 V</td></tr> <tr><td></td><td>V_{DC MPP}</td><td>175 - 500 V</td></tr> <tr><td></td><td>I_{DC max}</td><td>2 x 15 A</td></tr> <tr><td rowspan="2">AC</td><td>V_{AC,r}</td><td>220/230/240 V</td></tr> <tr><td>P_{AC,r}</td><td>3000 W</td></tr> <tr><td></td><td>S_{max}</td><td>3000 VA</td></tr> <tr><td></td><td>f_{AC,r}</td><td>50 / 60 Hz</td></tr> <tr><td></td><td>I_{AC max}</td><td>16 A</td></tr> <tr><td></td><td>cos(φ)</td><td>0.8 overexcited 0.8 underexcited</td></tr> </table> <p>IP65 max. 26 kg Safety class I Overvoltage protection III</p> <p>CE</p> <p>N23114</p> <p>Warning symbols: lightning, fire, information</p>	DC	V _{DC max}	750 V		V _{DC MPP}	175 - 500 V		I _{DC max}	2 x 15 A	AC	V _{AC,r}	220/230/240 V	P _{AC,r}	3000 W		S _{max}	3000 VA		f _{AC,r}	50 / 60 Hz		I _{AC max}	16 A		cos(φ)	0.8 overexcited 0.8 underexcited	<p>Sunnydots.com</p> <p>Sunnydots.com</p> <p>* 0 0 0 0 0 0 0 0 0 0 1 *</p> <p>* 0 0 0 0 0 0 0 0 0 0 1 *</p> <p>* 0 0 0 0 0 0 0 0 0 0 1 *</p> <p>* 0 0 0 0 0 0 0 0 0 0 1 *</p> <p>* 0 0 0 0 0 0 0 0 0 0 1 *</p> <p>SB 3000TL-21 SBF\$5RR\$1/2012 0000000001</p>	<p>SMA Solar Technology AG Sonnentallee 1 34266 Niestetal Germany www.SMA.de</p> <p>SUNNY BOY Solar Inverter made in Germany by SMA Solar Technology AG Model SB 3600TL-21 Serial No. 0000000001 Date of manufacture 2012-11-08</p> <table border="1"> <tr><td>DC</td><td>V_{DC max}</td><td>750 V</td></tr> <tr><td></td><td>V_{DC MPP}</td><td>175 - 500 V</td></tr> <tr><td></td><td>I_{DC max}</td><td>2 x 15 A</td></tr> <tr><td rowspan="2">AC</td><td>V_{AC,r}</td><td>220/230/240 V</td></tr> <tr><td>P_{AC,r}</td><td>3680 W</td></tr> <tr><td></td><td>S_{max}</td><td>3680 VA</td></tr> <tr><td></td><td>f_{AC,r}</td><td>50 / 60 Hz</td></tr> <tr><td></td><td>I_{AC max}</td><td>16 A</td></tr> <tr><td></td><td>cos(φ)</td><td>0.8 overexcited 0.8 underexcited</td></tr> </table> <p>IP65 max. 26 kg Safety class I Overvoltage protection III</p> <p>CE</p> <p>N23114</p> <p>Warning symbols: lightning, fire, information</p>	DC	V _{DC max}	750 V		V _{DC MPP}	175 - 500 V		I _{DC max}	2 x 15 A	AC	V _{AC,r}	220/230/240 V	P _{AC,r}	3680 W		S _{max}	3680 VA		f _{AC,r}	50 / 60 Hz		I _{AC max}	16 A		cos(φ)	0.8 overexcited 0.8 underexcited	<p>Sunnydots.com</p> <p>Sunnydots.com</p> <p>* 0 0 0 0 0 0 0 0 0 0 1 *</p> <p>* 0 0 0 0 0 0 0 0 0 0 1 *</p> <p>* 0 0 0 0 0 0 0 0 0 0 1 *</p> <p>* 0 0 0 0 0 0 0 0 0 0 1 *</p> <p>* 0 0 0 0 0 0 0 0 0 0 1 *</p> <p>SB 3600TL-21 SBF\$5RR\$1/2012 0000000001</p>
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	S _{max}	4000 VA																																																																																	
	f _{AC,r}	50 / 60 Hz																																																																																	
	I _{AC max}	22 A																																																																																	
	cos(φ)	0.8 overexcited 0.8 underexcited																																																																																	
DC	V _{DC max}	550 V																																																																																	
	V _{DC MPP}	175 - 500 V																																																																																	
	I _{DC max}	2 x 15 A																																																																																	
	V _{AC,r}	230 V																																																																																	
	P _{AC,r}	3680 W																																																																																	
	S _{max}	3680 VA																																																																																	
	f _{AC,r}	50 / 60 Hz																																																																																	
	I _{AC max}	16 A																																																																																	
	cos(φ)	0.8 overexcited 0.8 underexcited																																																																																	

SMA Solar Technology AG
 Sonnenallee 1
 34266 Niestetal
 Germany
 www.SMA.de

WINDY BOY
 Wind Inverter * made in Germany
 by SMA Solar Technology AG

Model
WB 3000TL-21

Serial No.
0123456789

Date of manufacture
 2012-09-06

DC	V _{DC max}	550 V
	V _{DC MPP}	175 - 500 V
AC	I _{DC max}	2 x 15 A
	V _{AC,r}	230 V
AC	P _{AC,r}	3000 W
	S _{max}	3000 VA
	f _{AC,r}	50 / 60 Hz
	I _{AC max}	16 A
	cos(φ)	0.8 overexcited 0.8 underexcited

IP65 max. 26 kg
 Safety class I Overtoltage protection III

CE

RAL GS

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* 0 1 2 3 4 5 6 7 8 9 *

* 0 1 2 3 4 5 6 7 8 9 *

* 0 1 2 3 4 5 6 7 8 9 *

* 0 1 2 3 4 5 6 7 8 9 *

WB 3000TL-21 / 09/2012
0123456789

General product information:

Description of the power circuit:

The input and output are protected by varistors to Earth. The unit is providing EMC filtering at the PV input and output toward mains. The unit does not provide galvanic separation from input to output (transformerless). The output is switched off redundantly by the high power switching bridge and two relays. This assures that the opening of the output circuit will also operate in case of one error.

Description of the differences of the models within a series:

The units are identical in the control circuit and the internal supply. Generally the units provide the same hardware except of some components:

- Group 1) SB 3000TL-21, SB 3600TL-21, SB 4000TL-21, SB 5000TL-21, WB 3000TL-21, WB3600TL-21, WB 4000TL-21, WB 5000TL-21
- Group 2) SB 2500TLST-21, SB 3000TLST-21,

All models within one group provide the same hardware. The models with lower power are derated via software.

Group 1 provides two MPP-Tracker

Group 2 provides one MPP-Tracker. The EMV-Filter, the boost converter and the DC-connections have been omitted of the second MPP-Tracker.

The different configurations have no influence on the device behaviour. All types have the same software.

Test overview:		
IEC 62116:2008		
Clause	Test	Result
	Type test:	
Table 6	Load imbalance (real, reactive load) for test condition A	P
Table 7	Load imbalance (reactive load) for test condition B and test condition C	P