

**APPENDIX A13.1 GENERATING PLANT TYPE VERIFICATION TEST SHEET****GENERATING PLANT DETAILS**

<b>Generating Plant Type Reference:</b> SolarRiver 1100TL / SolarRiver 1600TL		
<b>Generating Plant Technology:</b> Photo Voltaic		
<b>Manufacturer:</b> Samil Power Co., Ltd.	<b>Tel:</b> +86-510-83593132 <b>Fax:</b> +86-510-83593136	<b>Address:</b> No.66 Taihangshan Road, Suyu Economic Development Zone, Suqian City, Jiangsu Province, 223800 P. R. China
<b>Technical File Reference No.:</b>		
<b>Maximum Export Capability (Generating Plant Rating Less Parasitic Load):</b> 1000W/1500W		
<b>Maximum AC Output Current:</b> 5.5A/8.3A		

**TEST HOUSE DETAILS**

<b>Name and Address of Test House</b>	Samil Power Co., Ltd. R&D (Wuxi) Laboratories No.52, HuiGu Innovation Park, Huishan District, Wuxi City, Jiangsu Province, 214174 P. R. China
<b>Telephone Number</b>	+86-510-83593132
<b>Facsimile Number</b>	+86-510-83593136
<b>E-mail Address</b>	info@samilpower.com

**Test Details**

<b>Date of Test</b>	06.03.2013
<b>Name of Tester</b>	Mr. Zheng Xiaodong
<b>Signature of Tester</b>	
<b>Approved Manager</b>	 2013.03.07 17:36:00 +08'00'



## 1. POWER QUALITY

Harmonic Current Emissions as Per BS EN 61000-3-2										
Minimal Short Circuit Ratio $R_{SCE}$ :										33 Ohm
Value of Short Circuit Ratio $S_{SC}$ Corresponding to $R_{SCE}$ :			SolarRiver 1100TL/SolarRiver1600TL						0,1 MVA	
Equipment Phase:			Single Phase							
Description			Harmonic Current % = $100 I_n/I_1$							
Harmonic			2nd	3rd	5th	7th	9th	11th	13th	15th-39th
Limit BS EN 61000-3-12 Table 2-4			1,08	2,30	1,14	0,77	0,40	0,33	0,21	0,15*(15/n)
Actual Values:	SolarRiver 3400TL-D	L	0,02	0,09	0,05	0,04	0,03	0,04	0,02	0.03

Voltage Fluctuations and Flicker				
	Starting	Stopping	Running(at rated power)	
BS EN 61000-3-3 Limit	4%	4%	$P_{st} = 1,0$	$P_{it} = 0,65$
Test Values	0,37	0,37	0,164	0,085

	DC Injection			Power Factor		
Protection Limit	20mA, test at three power levels*			0,95 lag – 0,95 lead at three voltage levels		
Test Point	10%	55%	100%	212V	230V	248V
Test Values	8,5 mA	6,2 mA	5,0 mA	0,997	0,997	0,995

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



## 2. PROTECTION TESTS

Protection	Setting		Test Results	
	Voltage	Time	Voltage	Time
Under Voltage				
L-N	208 V (G83/1 Limit: 207 V)	--	208,5 V	68 ms
Over Voltage				
L-N	262 V (G83/1 Limit: 264 V)	--	260,4 V	66 ms
	Frequency	Time	Frequency	Time
Over Frequency	50,5 Hz	--	50,50 Hz	65 ms
Under Frequency	47 Hz	--	47,01 Hz	68 ms

## 3. LOSS OF MAINS TEST

Method Used	Frequency Shift		
Output Power %	10%	55%	100%
Actual Setting	--	--	--
Trip Value	219 ms	175 ms	211 ms

## 4. RECONNECTION TIMES

Parameter	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	186 seconds	186 seconds	186 seconds



## **5. FAULT LEVEL CONTRIBUTION**

As Photovoltaic SSEG's are inverter connected, they are deemed to automatically comply with regulations and no further tests are required.

## **6. SELF MONITORING – SOLID STATE SWITCHING**

No applicable as electro-mechanical relay used.