

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

Generating Plant Type Reference: SolarRiver 1100TL-S / SolarRiver 1600TL-S / SolarRiver 2100TL-S / SolarRiver 2600TL-S		
Generating Plant Technology: Photo Voltaic		
Manufacturer: Samil Power Co., Ltd.	Tel: +86-510-83593132 Fax: +86-510-83593136	Address: No.6 XuefengshanRoad, Suqian High-tech Industrial Development Zone, Jiangsu Province, P. R. China
Technical File Reference No.:		
Maximum Export Capability (Generating Plant Rating Less Parasitic Load): 1.0/1.5/2.0/2.5KW		
Maximum AC Output Current: 4.5/6.8/9.1/11.4A		

TEST HOUSE DETAILS

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

Test Details

Date of Test	09.04.2015
Name of Tester	Mr. Zheng Xiaodong
Approved Manger	

山亿新能源股份有限公司
SAMIL POWER CO., LTD.



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 Corresponding R_{SCE} :	S_{SC} to	SolarRiver 1100TL-S /SolarRiver 2600TL-S								
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 1100TL-S	0.081	0.045	0.031	0.014	0.006	0.003	0.001	0.001	
	SolarRiver 2600TL-S	0.132	0.096	0.051	0.023	0.012	0.008	0.003	0.003	

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	0.24%	0.24%	0.173	0.207

		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	L1	0.11%	0.06%	0.14%	0.998	0.998	0.998

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



2. PROTECTION TESTS

Protection	Setting		Test Results	
Under Voltage	Voltage	Time	Voltage	Time
L-N	208 V (G83/1 Limit: 207 V)	--	208.5 V	0.062 s
Over Voltage	Voltage	Time	Voltage	Time
L-N	262 V (G83/1 Limit: 264 V)	--	262.0 V	0.081 s
	Frequency	Time	Frequency	Time
Over Frequency	50,5 Hz	--	50.51 Hz	0.071 s
Under Frequency	47 Hz	--	47.0 Hz	0.075 s

3. LOSS OF MAINS TEST

Method Used	Frequency Shift		
Output Power %	10%	55%	100%
Actual Setting	--	--	--
Trip Value	0.204 s	0.179 s	0.137 s



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.