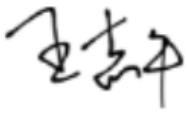
G100 Declaration of conformance			
Inverter type	SMILE 5		
Manufacturer name	Alpha ESS Ltd., Co.		
Address	Jiu Hua Road 888, Nantong, 226300		
Meter type	SM60A, ACR10R		
Manufacturer name	Jiangsu Acrel Electric MFG. Co.,Ltd.		
Address	No.5 Dongmeng Road, Jiangyin City, Jiangsu Province, China		
Test address	Jiu Hua Road 888, Nantong, 226300		
Tel	86 512 6828 0679	Date	2019-12-20
E-mail	Jester.li@alpha-ess.com		
Signed		On behalf of	

Power limiting setting: adjustable, decided by DNO.

	Non Export
Reverse Power Limit test set point	2% / 25% / 50% / 75% of inverter rating
Declared accuracy	2% (set value= Agreed value-2%)
Definite time delay (fall time)	5 s (detect an excursion and reduce the export to the Agreed Export Capacity)
	1 s(sense an excursion and signal to the generation to reduce output)

Type testing data

1. Setting protection test：

Requirement	**Result**	**Note**
The settings is password protected, and cannot be changed by anyone Other than gotting written agreement of the DNO;	**Pass**	

2. Fail-safe test：

Method: Set 50% export limit, implement the test before start or in running.
Criteria: response time is less than 1s, fall time is less than 5s, the inverter's output active power is less than set limit. After fail safe test, disconnect AC, the reconnect time delay is more than 10min.

No.	Component	Test	Active power	Response Time	Fall Time	Reconnect time	Pass/ Fail
1	**Power Monitoring Unit(PMU)**	Remove power supply to Meter	1930W	<1s	3S	10min48s	pass
2	**Power Monitoring Unit(PMU)**	Remove CT	1940W	<1s	4.2S	10min48s	pass
3	**Control Unit (CU)**	NA	NA	NA	NA	NA	NA
4	**Generator Interface units (GIU)**	NA	NA	NA	NA	NA	NA
5	**Demand Control Unit (DCU)**	NA	NA	NA	NA	NA	NA
6	Network hub /switches	NA	NA	NA	NA	NA	NA
7	**PMU → CU** communication cable	Unplug cable	1970W	0.3s	1.1s	10min48s	Pass
8	**CU → GIU** communication cable	NA	NA	NA	NA	NA	NA
9	**GIU** → Generator Communication cable	NA	NA	NA	NA	NA	NA
10	**CU → DCU** communication cable	NA	NA	NA	NA	NA	NA
11	**DCU** → load Communication cable	Unplug cable (repeat where additional **DCU** units)	NA	NA	NA	NA	NA

3. Power Limit check

Method: Set export limit, implement the test before start, than start the inverter.

Criteria: response time is less than 1s, fall time is less than 5s, export power ±2% Pn.

2%export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load [% Inverter Rating]	0%	pass/3.8S	pass/4.9S	Pass/2.5s	pass/2.9S
	25%	pass/3s	Pass/3.5s	Pass/2.7s	Pass/1.9s
	50%	NA	Pass/3.8s	pass/4.8S	Pass/1.6s
	75%	NA	NA	Pass/2.5s	pass/2.6s
	100%	NA	NA	NA	pass/3.6s

25%export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load [% Inverter Rating]	0%	pass/3.1S	pass/3.4S	Pass/3.7s	pass/2.4S
	25%	NA	Pass/3.7s	Pass/4.2s	Pass/1.9s
	50%	NA	NA	pass/0.4s	Pass/2.4s
	75%	NA	NA	NA	pass/2.1s
	100%	NA	NA	NA	NA

50%export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load [% Inverter Rating]	0%	NA	pass/0.5S	Pass/1.5s	pass/2.6S
	25%	NA	NA	Pass/2.7s	Pass/1.9s
	50%	NA	NA	NA	Pass/0.4s
	75%	NA	NA	NA	NA
	100%	NA	NA	NA	NA

75%export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load [% Inverter Rating]	0%	NA	NA	Pass/3.5s	pass/4.2S
	25%	NA	NA	NA	Pass/1.9s
	50%	NA	NA	NA	NA
	75%	NA	NA	NA	NA
	100%	NA	NA	NA	NA

4. Decreasing Load test

Input supply: 100% of the inverter rating

The load shall be decreased from the initial load to the final load as shown in followed Table。

The export control function shall manage the input supply such that the export power is below the export limit setting within the relevant timeframe for all step decreases in load shown in Table.

Criteria: response time is less than 1s, fall time is less than 5s, export power ±2% Pn .

2%export Agreedlimit

		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Final Load [% Inverter Rating]	75%	pass/3.2S	NA	NA	NA
	50%	pass/3s	Pass/2.2s	NA	NA
	25%	pass/3.9s	Pass/3.8s	pass/2S	NA
	0%	pass/2.9s	pass/1.9s	Pass/2.5s	pass/2.6s

25%export Agreedlimit

		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Final Load [% Inverter Rating]	75%	pass/4.8S	NA	NA	NA
	50%	pass/2.8s	Pass/2.5s	NA	NA
	25%	pass/4.6s	Pass/2.4s	pass/2.8S	NA
	0%	pass/2.1s	pass/2.4s	Pass/3.5s	pass/2.6s

50% export Agreedlimit

		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Final Load [% Inverter Rating]	75%	NA	NA	NA	NA
	50%	pass/3s	Pass/2s	NA	NA
	25%	pass/3s	Pass/3.8s	pass/4.2S	NA
	0%	pass/2.3s	pass/3s	Pass/4.5s	pass/2.9s

75%export Agreedlimit

		Input supply [% Inverter Rating]			
		100%	75%	50%	25%
Final Load [% Inverter Rating]	75%	NA	NA	NA	NA
	50%	NA	NA	NA	NA
	25%	Pass/1.8s	Pass/0.8s	pass/1.8S	NA
	0%	Pass/2.8s	Pass/2.8s	Pass/2.9s	pass/3.6s

5. Adding input supply test

At given load, the input shall be added from the initial input supply to the final as shown in followed Table. The export power will below the export limit setting within the relevant timeframe for all step.

Criteria: response time is less than 1s, fall time is less than 5s, export power ±2% Pn .

2% export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load/Initial input supply [% Inverter Rating]	0%	pass/3.2S	pass/4.3S	Pass/4.5s	pass/4.9S
	25%	NA	Pass/2s	Pass/1	Pass/0.9s
	50%	NA	Pass/3.8s	pass/1.2S	Pass/2.6s
	75%	NA	NA	NA	pass/1.6s

25% export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load/Initial input supply [% Inverter Rating]	0%	pass/0.8S	pass/4.1S	Pass/2.5s	pass/2.3S
	25%	NA	Pass/1.1s	Pass/1.7s	Pass/2.9s
	50%	NA	NA	pass/1.3S	Pass/4.6s
	75%	NA	NA	NA	pass/2.6s

50% export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load/Initial input supply [% Inverter Rating]	0%	NA	pass/1.9S	Pass/4.5s	pass/2.9S
	25%	NA	NA	Pass/0.7s	Pass/4s
	50%	NA	NA	NA	Pass/1.3s
	75%	NA	NA	NA	NA

75% export Agreedlimit

		Input supply [% Inverter Rating]			
		25%	50%	75%	100%
Load/Initial input supply [% Inverter Rating]	0%	NA	NA	Pass/2.5s	pass/3.9S
	25%	NA	NA	NA	Pass/1.9s
	50%	NA	NA	NA	NA
	75%	NA	NA	NA	NA

Comments

Test data is tested in SMILE5 cooperated with Meter SM60A.