

Declaration of Conformity to EN50549

We

Company name: Alpha ESS Co., Ltd.
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declare that the DoC is issued under our sole responsibility and belongs to the following product:

Product: Hybrid Inverter
Model(s): SMILE-S6-HVINV
Description: Nominal output power: 6000 W
Rated voltage: 230 V
Grid voltage range: 180 ~ 270 Vac
Rated frequency: 50/60 Hz

Object of the declaration described above is in conformity with EN 50549-1:2019, Requirements for micro-generating plants to be connected in parallel with public low-voltage distribution networks.

Notified body:

Alpha ESS Co., Ltd.

Signed for and on behalf of:



Jester Li
Certification Manager
Alpha ESS Co., Ltd.

Nantong
Place of issue

2022-05-05
Date of issue

TEST Results

Power quality

Harmonic current emissions as per EN 61000-3-2 Class A

Order n	2nd	3rd	5th	7th	9th	11th	13th	15th ... 39th
Limit [A]	1.08	2.30	1.14	0.77	0.40	0.33	0.21	0.15 x (15/n)
Test value	0.23	0.15	0.14	0.11	0.09	0.08	0.07	< limit

Voltage fluctuations and flicker as per EN 61000-3-3

	Starting	Stopping	Running (at rated power)	
Limit [%]	3.3%	4%	P _{st} = 1.0	P _{lt} = 0.65
Test value	0.89%	1.23%	0.334	0.221

Power factor

EN 50438 Limit	0.95 lag - 0.95 lead
Test level (AC voltage)	210 V 230 V 250 V
Test value (at rated power)	> 0.99 > 0.99 > 0.99

Grid monitoring

Under / Over Frequency Tests

Parameter	Under Frequency		Over Frequency	
	Frequency	Disconnection time	Frequency	Disconnection time
EN 50438 Limit	48Hz	0.5s	50.5Hz	0.5s
Actual setting	48Hz	0.06s	50.5Hz	0.06s
Test result	47.93Hz	0.08s	50.52Hz	0.07s

Over /Under Voltage Tests

Parameter	Under Voltage		Over Voltage	
	Voltage	Disconnection time	Voltage	Disconnection time
EN 50438 Limit	207V	0.5s	253V	0.5s
Actual setting	207V	0.4s	253V	0.4s
Test result	206.5V	0.46s	253.5V	0.44s

LoM test

Output Level	10%	50%	100%
Setting time	2s	2s	2s
Trip time	0.12s	0.09s	0.17s
Indicative values are shown for minimum, medium and maximum power levels.			

Type testing of a micro-generator
Operating Range

Test sequence	Voltage	Frequency	Output power
Test 1	208V	47.7Hz	6000W
Teat 2	255V	51.6Hz	6000W

Active power at under-frequency

Test sequence	Output Power	Frequency
Test a)	6000W	50.01Hz
Test b)	6000W	49.53Hz
Test c)	/	/

Power response to over-frequency

100%	Output(W)	Frequency	Power gradient
Step a)	6000.00	50.00Hz	40%Pm/Hz
Step b)	5739.13	50.30 Hz	40%Pm/Hz
Step c)	5478.26	50.40 Hz	40%Pm/Hz
Step d)	5347.83	50.45Hz	40%Pm/Hz
Step e)	5478.26	50.40 Hz	40%Pm/Hz
Step f)	5739.13	50.30Hz	40%Pm/Hz
Step g)	6000.00	50.00Hz	40%Pm/Hz

50%	Output(W)	Frequency	Power gradient
Step a)	3000.00	50.00Hz	40%Pm/Hz
Step b)	2921.74	50.30 Hz	40%Pm/Hz
Step c)	2804.35	50.40 Hz	40%Pm/Hz
Step d)	2739.13	50.45Hz	40%Pm/Hz
Step e)	2804.35	50.40 Hz	40%Pm/Hz
Step f)	2934.78	50.30Hz	40%Pm/Hz
Step g)	3000.00	50.00Hz	40%Pm/Hz