EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

Super Flower Leadex III 850W rev.2 (mode 0)

Lab ID#: SF19850061
Receipt Date: Jun 20, 2019
Test Date: Jan 7, 2019

Report:
Report Date: Mar 7, 2019

DUT INFORMATION

Brand	Super Flower
Manufacturer (OEM)	Super Flower
Series	Leadex III Gold
Model Number	SF-850F14HG rev.2
Serial Number	S1906198807
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10
Rated Frequency (Hz)	50-60
Rated Power (W)	850
Type	ATX12V
Cooling	130mm Fluid Dynamic Bearing Fan (S1282412H)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	70.8	3	0.5
	Watts	100		849.6	15	6.0
Total Max. Power (W)		850				

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (580mm)	1	1	18-22AWG	Yes
4+4 pin EPS12V (700mm)	2	2	18-22AWG	Yes
6+2 pin PCIe (550mm+150mm)	3	6	18-20AWG	Yes
SATA (550mm+120mm+120mm)	3	9	18AWG	No
4 pin Molex (550mm+100mm+100mm+100mm)	1	4	18AWG	No
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

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RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	88.574%
Efficiency With 10W (≤500W) or 2% (>500W)	69.761
Average Efficiency 5VSB	79.805%
Standby Power Consumption (W)	0.0490816
Average PF	0.985
Avg Noise Output	20.07 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

230V

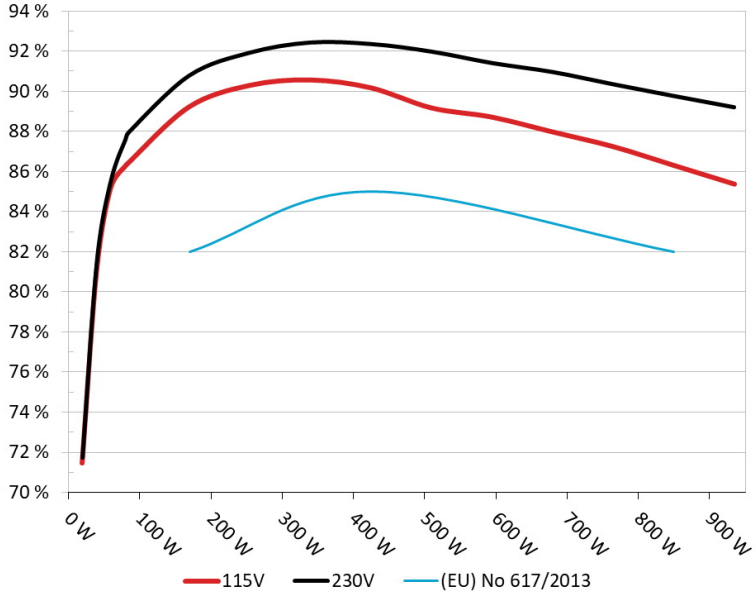
Average Efficiency	90.842%
Average Efficiency 5VSB	78.835%
Standby Power Consumption (W)	0.0851169
Average PF	0.936
Avg Noise Output	20.55 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

TEST EQUIPMENT

Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Super Flower SF-850F14HG
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

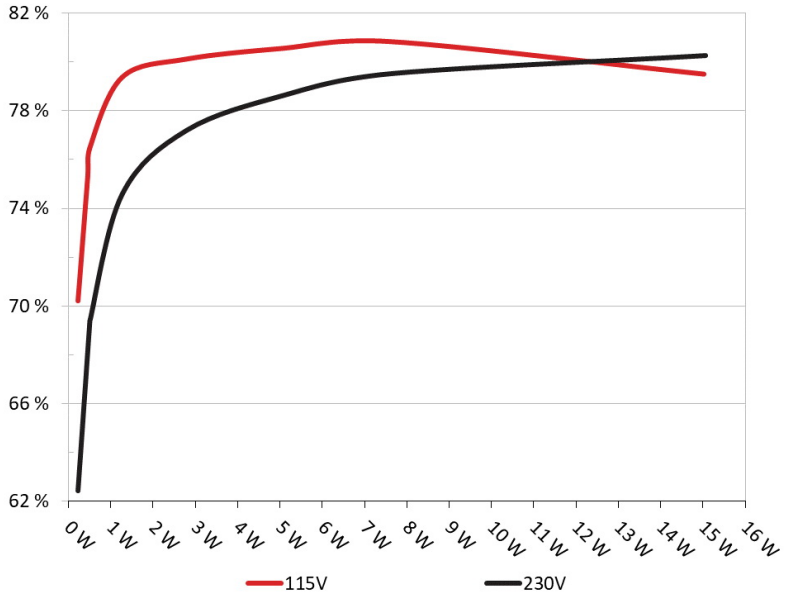


INFO

The PSU`s efficiency under high ambient temperatures with 115V and 230V input. For this graph the results of the 10-110% load regulation table are used

5VSB EFFICIENCY

5VSB Efficiency: Super Flower SF-850F14HG
Ambient: 34°C - 36°C (93.2°F - 96.8°F)



INFO

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input

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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	70.213%	0.023
	5.106V	0.329		115.14V
2	0.090A	0.460	75.286%	0.043
	5.105V	0.611		115.14V
3	0.550A	2.800	80.137%	0.210
	5.089V	3.494		115.13V
4	1.000A	5.077	80.575%	0.309
	5.076V	6.301		115.14V
5	1.500A	7.594	80.856%	0.373
	5.062V	9.392		115.13V
6	3.000A	15.032	79.518%	0.455
	5.010V	18.904		115.13V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	62.432%	0.008
	5.105V	0.370		230.32V
2	0.090A	0.460	69.382%	0.015
	5.104V	0.663		230.32V
3	0.550A	2.802	77.190%	0.077
	5.093V	3.630		230.32V
4	1.000A	5.080	78.613%	0.130
	5.079V	6.462		230.32V
5	1.500A	7.598	79.502%	0.181
	5.064V	9.557		230.32V
6	3.001A	15.055	80.246%	0.285
	5.017V	18.761		230.32V

115V

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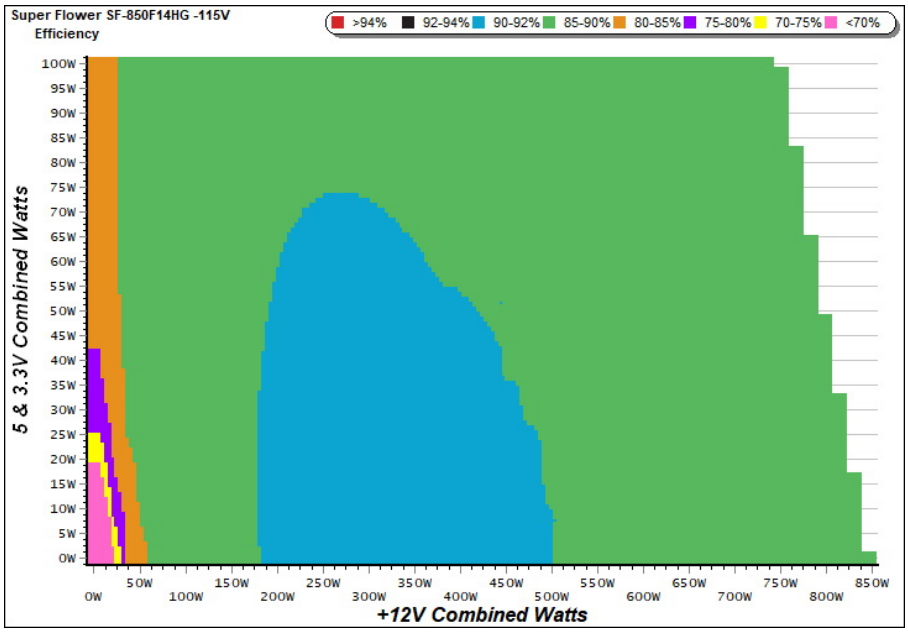
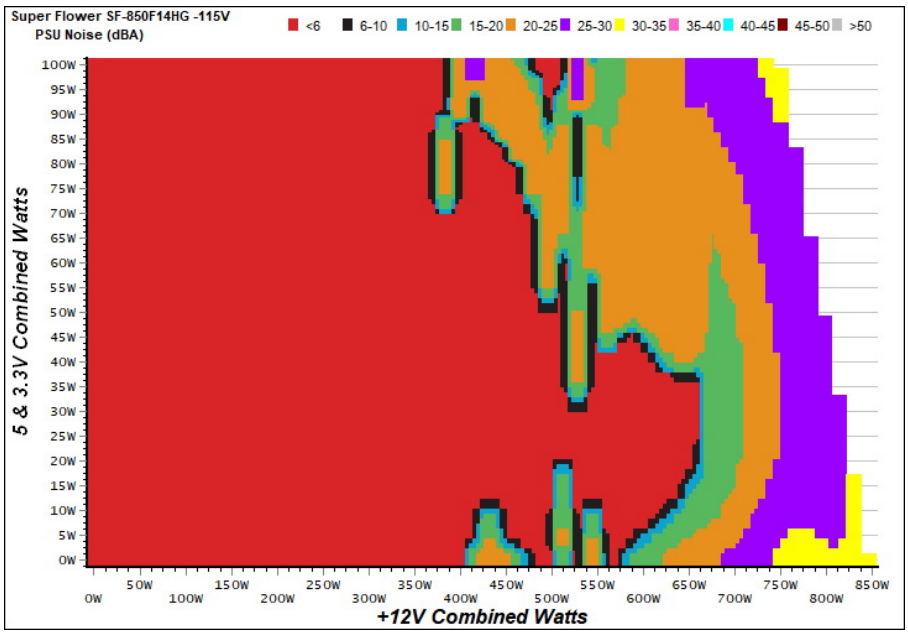
EFFICIENCY GRAPH 115V



INFO

This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations

NOISE GRAPH 115V



INFO

The PSU's noise in its entire operational range and under 30-32 °C (+-2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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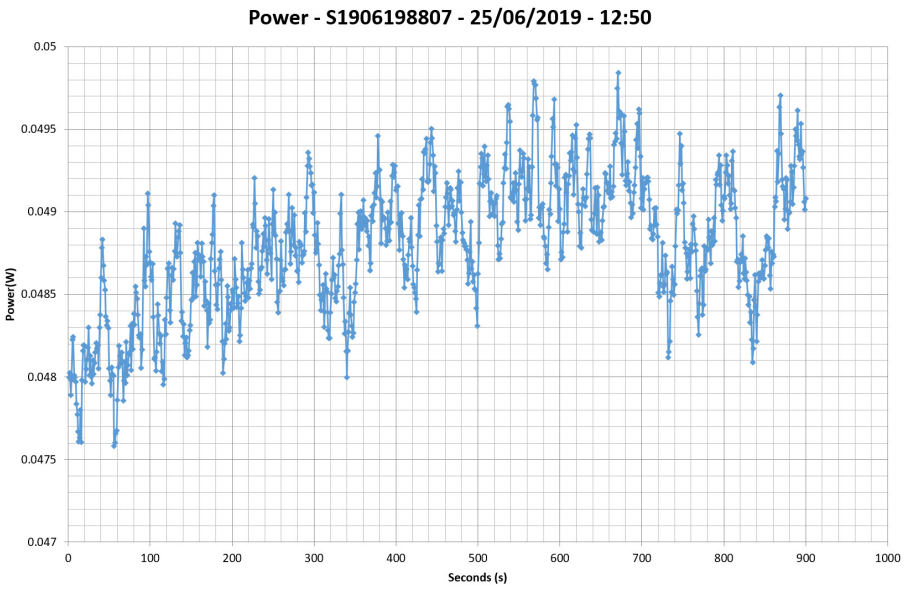
VAMPIRE POWER -115V



INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	5.204A	1.996A	1.993A	0.987A	84.953	86.461%	0	<6.0	41.48°C	0.945
	12.174V	5.012V	3.308V	5.069V	98.256				39.03°C	115.12V
2	11.389A	2.998A	2.997A	1.187A	169.438	89.234%	0	<6.0	43.42°C	0.976
	12.163V	5.007V	3.303V	5.057V	189.881				40.53°C	115.12V
5	30.911A	5.012A	5.020A	1.794A	425.064	90.185%	0	<6.0	46.57°C	0.994
	12.117V	4.990V	3.287V	5.019V	471.323				42.26°C	115.12V
10	62.787A	9.060A	9.092A	3.026A	849.951	86.314%	1736	38.6	45.49°C	0.996
	12.108V	4.969V	3.267V	4.958V	984.723				52.59°C	115.10V

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230V

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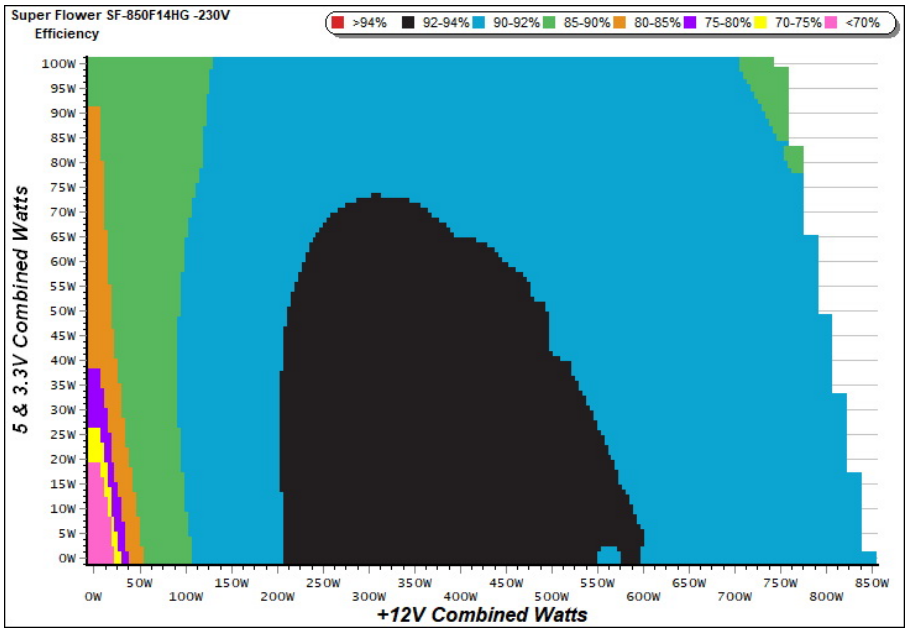
EFFICIENCY GRAPH 230V



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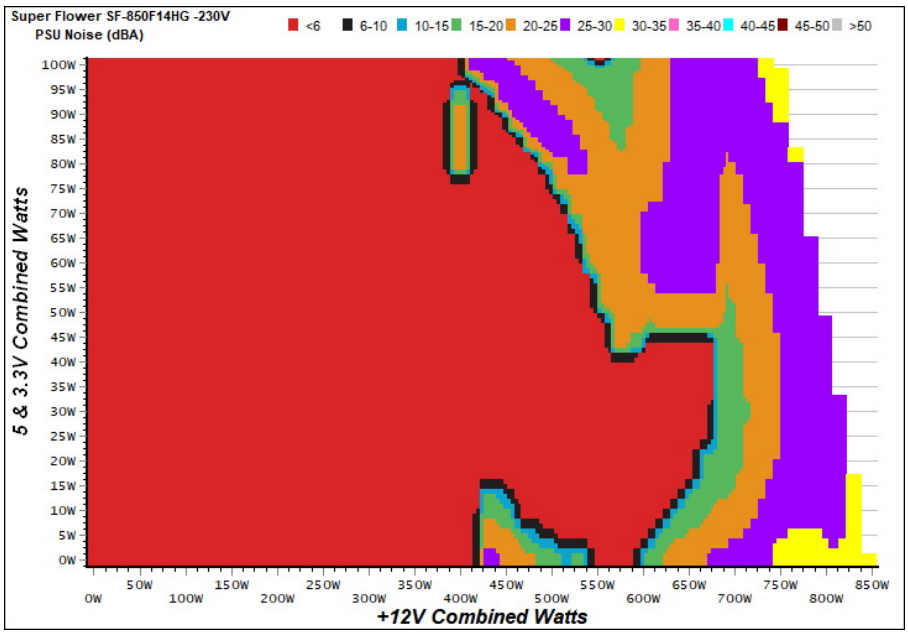
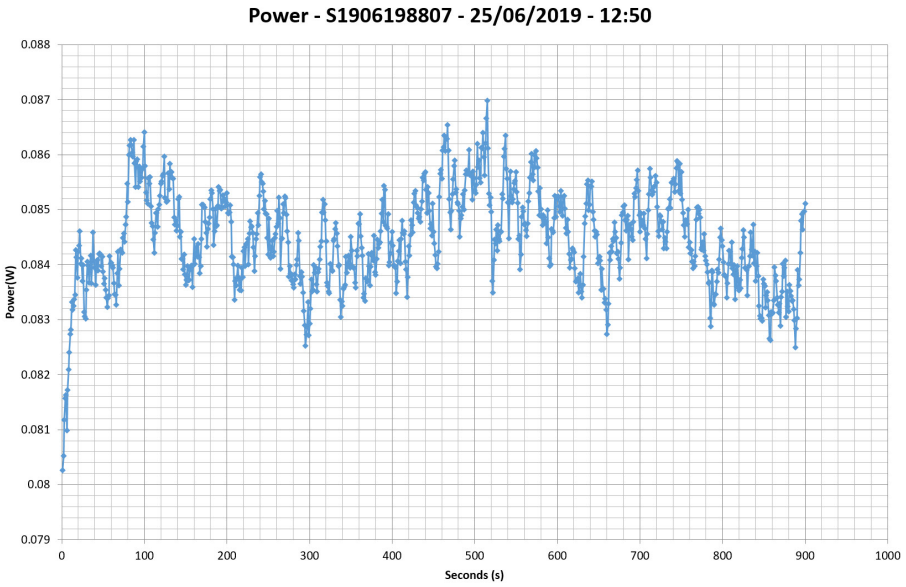
NOISE GRAPH 230V



INFO

The PSU's noise in its entire operational range and under 30-32 °C (+-2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

VAMPIRE POWER -230V



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COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	5.206A	1.996A	1.995A	0.987A	84.951	87.953%	0	<6.0	43.33°C	0.732
	12.167V	5.013V	3.309V	5.068V	96.587				40.03°C	230.28V
2	11.399A	2.998A	2.998A	1.187A	169.465	90.763%	0	<6.0	44.48°C	0.890
	12.155V	5.005V	3.303V	5.056V	186.712				40.74°C	230.28V
5	30.919A	5.013A	5.021A	1.794A	425.070	92.335%	0	<6.0	47.58°C	0.967
	12.114V	4.989V	3.287V	5.019V	460.355				42.02°C	230.28V
10	62.805A	9.062A	9.094A	3.027A	849.983	89.749%	1792	40.4	45.76°C	0.987
	12.105V	4.968V	3.266V	4.958V	947.067				53.72°C	230.28V

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Super Flower Leadex III 850W rev.2 (mode 0)

Top side

Power specifications label

CERTIFICATIONS 115V

CYBENETICS GOLD

CYBENETICS A

CERTIFICATIONS 230V

CYBENETICS GOLD 230v

CYBENETICS A 230v

Aris Mpitsiopoulos
Lab Director