Super Flower Leadex III Gold 550W rev.2

Serial Number S1907198881

Lab ID SF20550014

Certification ID 251604

Test Result Report ID: 20PSA

Certificate Issue Date: Feb 21, 2020

Scheme: ETA-EMI PSU

115V

230V

115V

230V

Scheme: LAMBDA PSU

Aristeidis Bitziopoulos, Certification Body General Manager

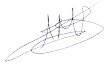
General Information

Test Equipment

Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 Chroma 63640-80-80 x10 Chroma 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P, GW Instek ASR-3500
Power Analyzers	Rohde & Schwarz HMC8015 & NPA701
Oscilloscopes	Picoscope 4444, Siglent SDS2104X PLUS
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Temperature Logger	Picoscope TC-08
Tachometer	UNI-T UT372
Multimeters	Keysight 34465A
EMI Analyzer	TekBox TBMR-110M-EU
Isolation Transformer	4kVA
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Testing Methodology	Cybenetics PSU Test Protocol

DUT Information(Non-accredited measurements)

Product Identification Details	
Brand	Super Flower
Model	Leadex III Gold 550W rev.2
OEM/ODM	Super Flower
Serial Number	S1907198881
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60

Rated Power (W)	550
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	130mm Fluid Dynamic Bearing (S1282412L)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	SF20550014
Date of receipt	Jul 11, 2019
Testing Date	Feb 21, 2020
Report Issued Date	Feb 21, 2020
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (590mm)	1	1	18-22AWG	Yes
4+4 pin EPS12V (700mm)	1	1	18-22AWG	Yes
6+2 pin PCIe (550mm+150mm)	1	2	18-22AWG	Yes
SATA (550mm+120mm+120mm)	2	6	18AWG	No
4 pin Molex (550mm+100mm+100mm+100mm)	1	4	18AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	45.8	3	0.5
	Watts	100		549.6	15	6
Total Max. Power (W)		550				

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	89.113%
Average Noise Output (>1450 Load Combinations)	18.91dBA
Average PF (>1450 Load Combinations)	0.983
Efficiency With 10W (≤500W) or 2% (>500W) Load	68.324%
Standby Power Consumption	0.0449W
Non-Accredited	
12V Ripple (Full Load)	10.51mV
5V Ripple (Full Load)	10.24mV
3.3V Ripple (Full Load)	13.93mV
5VSB Ripple (Full Load)	10.84mV
12V Load Regulation	0.46%
5V Load Regulation	0.94%
3.3V Load Regulation	1.27%

5VSB Load Regulation	2.73%
Inrush Current	35.780A

230V

Accredited		
Average Efficiency (>1450 load combinations)		91.111%
Average Noise Output (>1450 Load Combinations)		20.59dBA
Average PF (>1450 Load Combinations)		0.940
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
Standby Power Consumption		0.0723W
Non-Accredited		
12V Ripple (Full Load)		9.50mV
5V Ripple (Full Load)		8.78mV
3.3V Ripple (Full Load)		12.05mV
5VSB Ripple (Full Load)		9.58mV
12V Load Regulation		0.40%
5V Load Regulation		0.90%
3.3V Load Regulation		1.18%
5VSB Load Regulation		2.66%
Inrush Current		66.520A
Hold-Up Time & PWR_OK Signal		25.60ms
AC Loss to PWR_OK Hold Up Time		23.00ms
PWR_OK Inactive to DC Loss Delay		2.60ms
PSU Timings: T1 (20% / 100%)	246.0ms	244.0ms
PSU Timings: T3 (20% / 100%)	198.0ms	194.0ms
OPP (0.00°C / 0.00°C)	-	-

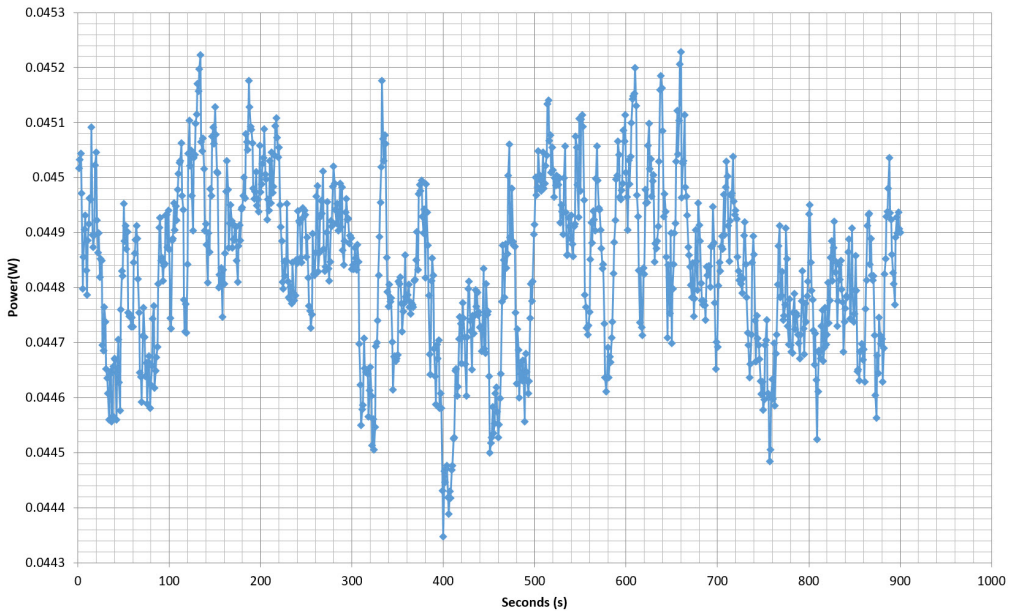
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	25.6
AC Loss to PWR_OK Hold Up Time (ms)	23

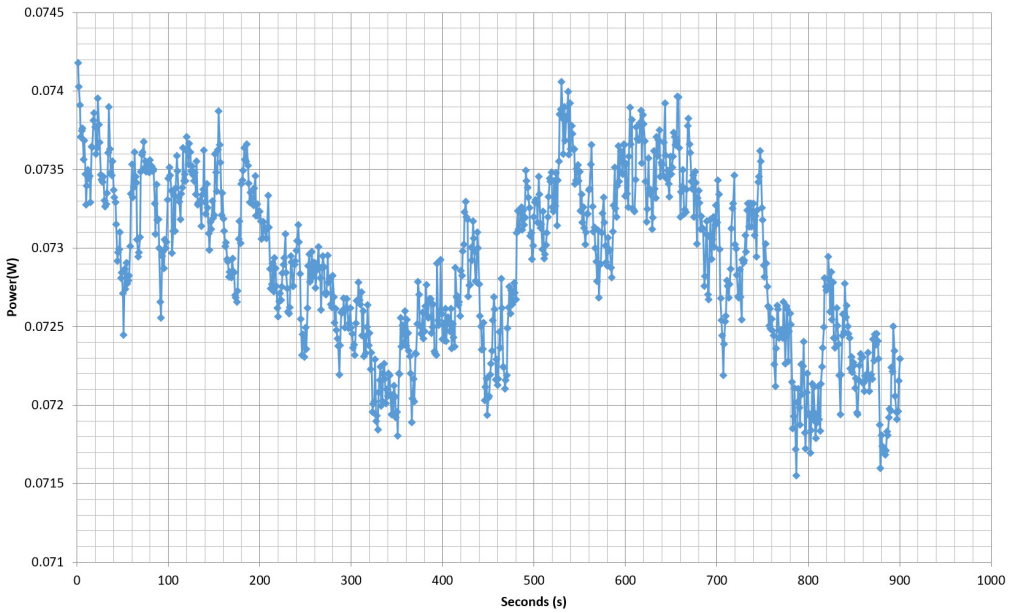
PWR_OK Inactive to DC Loss Delay (ms)	2.6

Graphs

115V

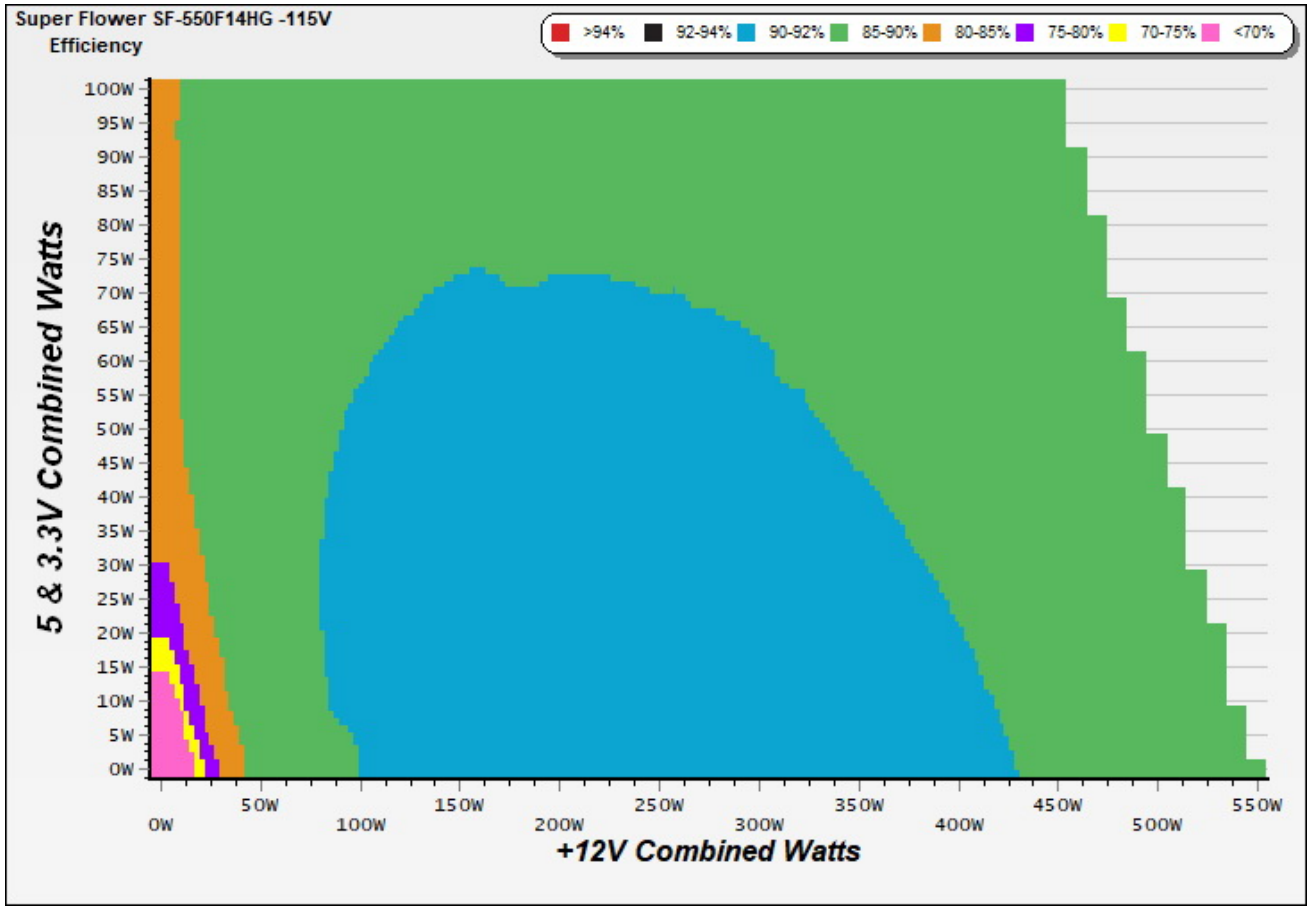


230V



Efficiency Graph

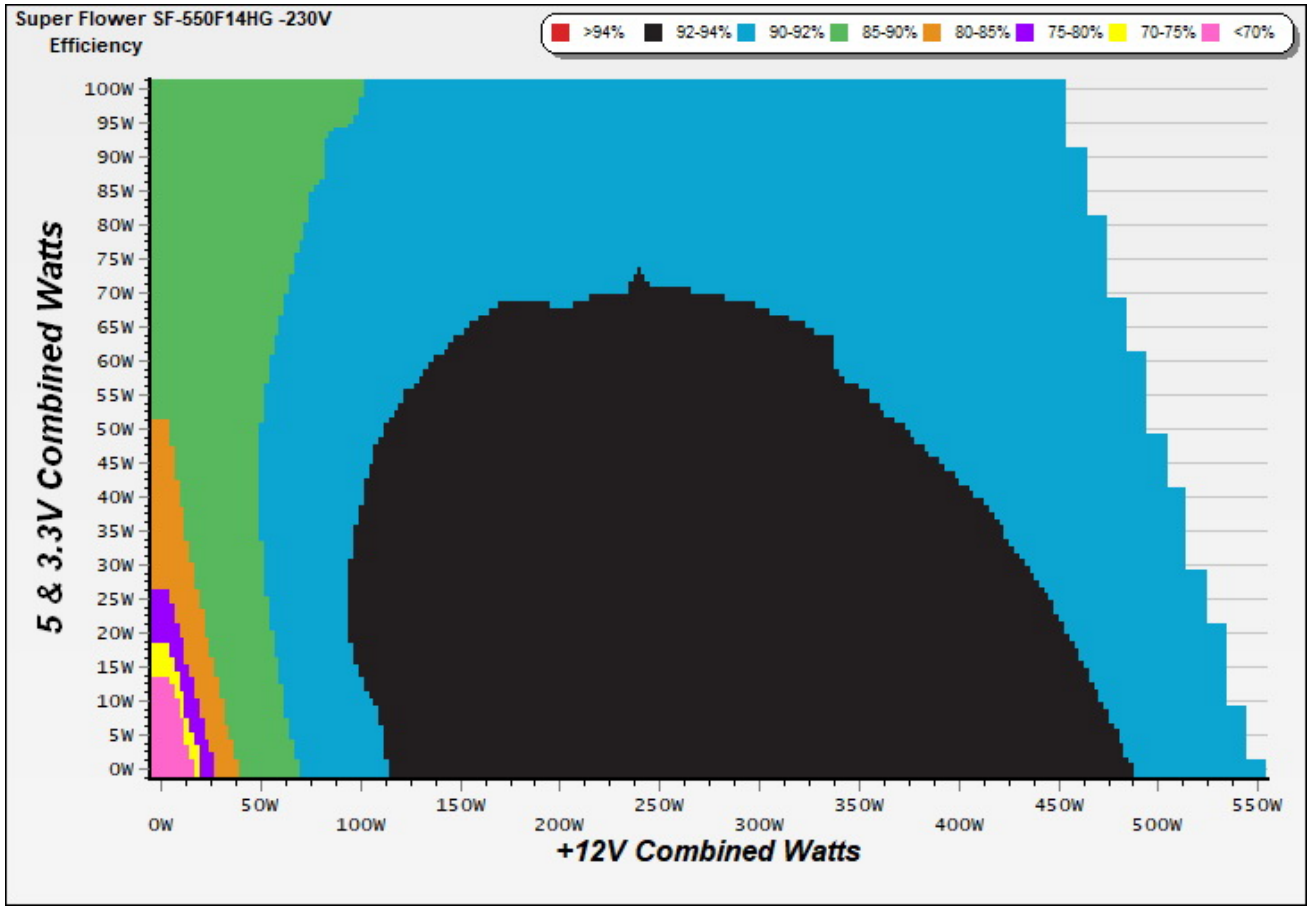
115V



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

230V

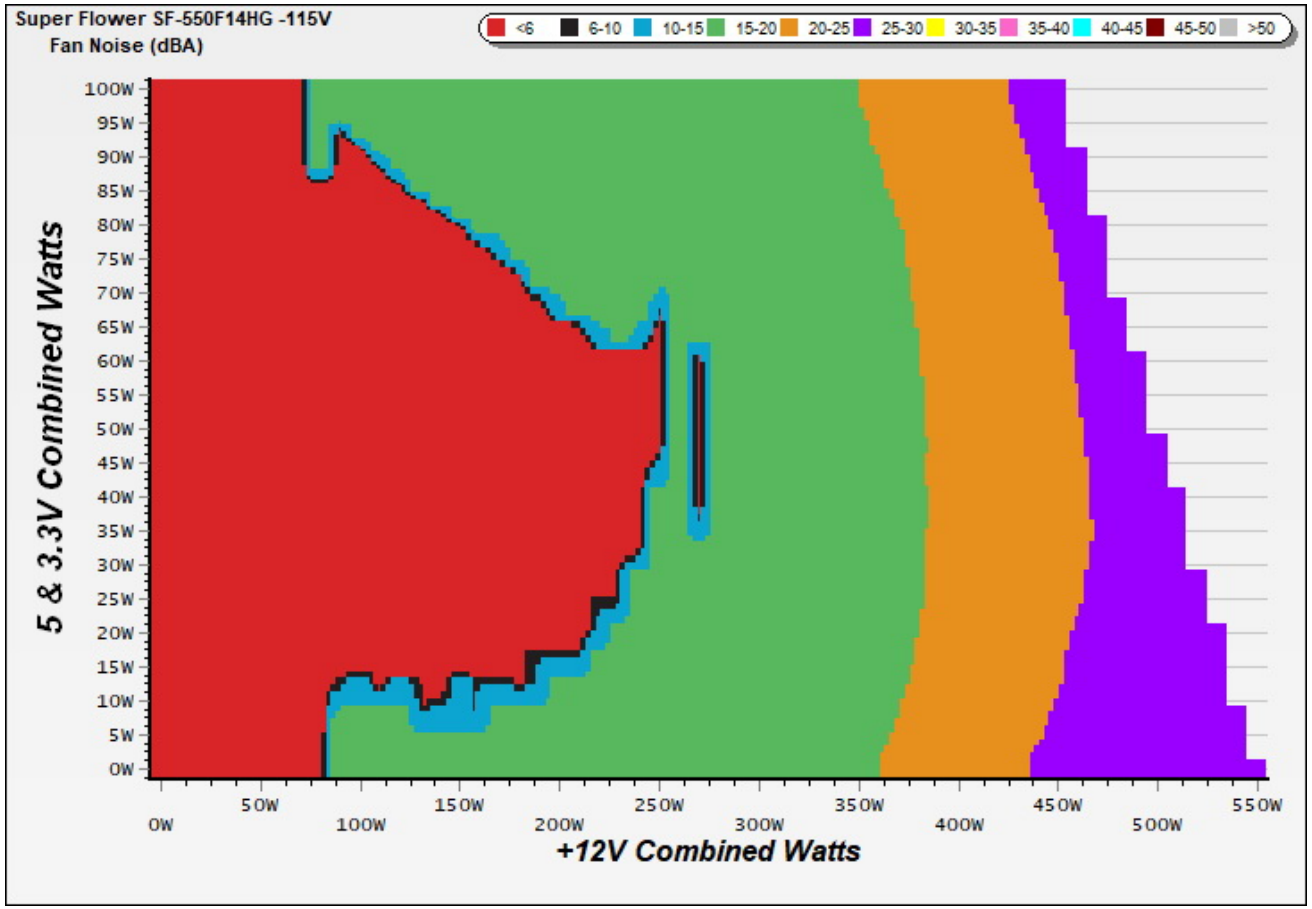


INFO

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

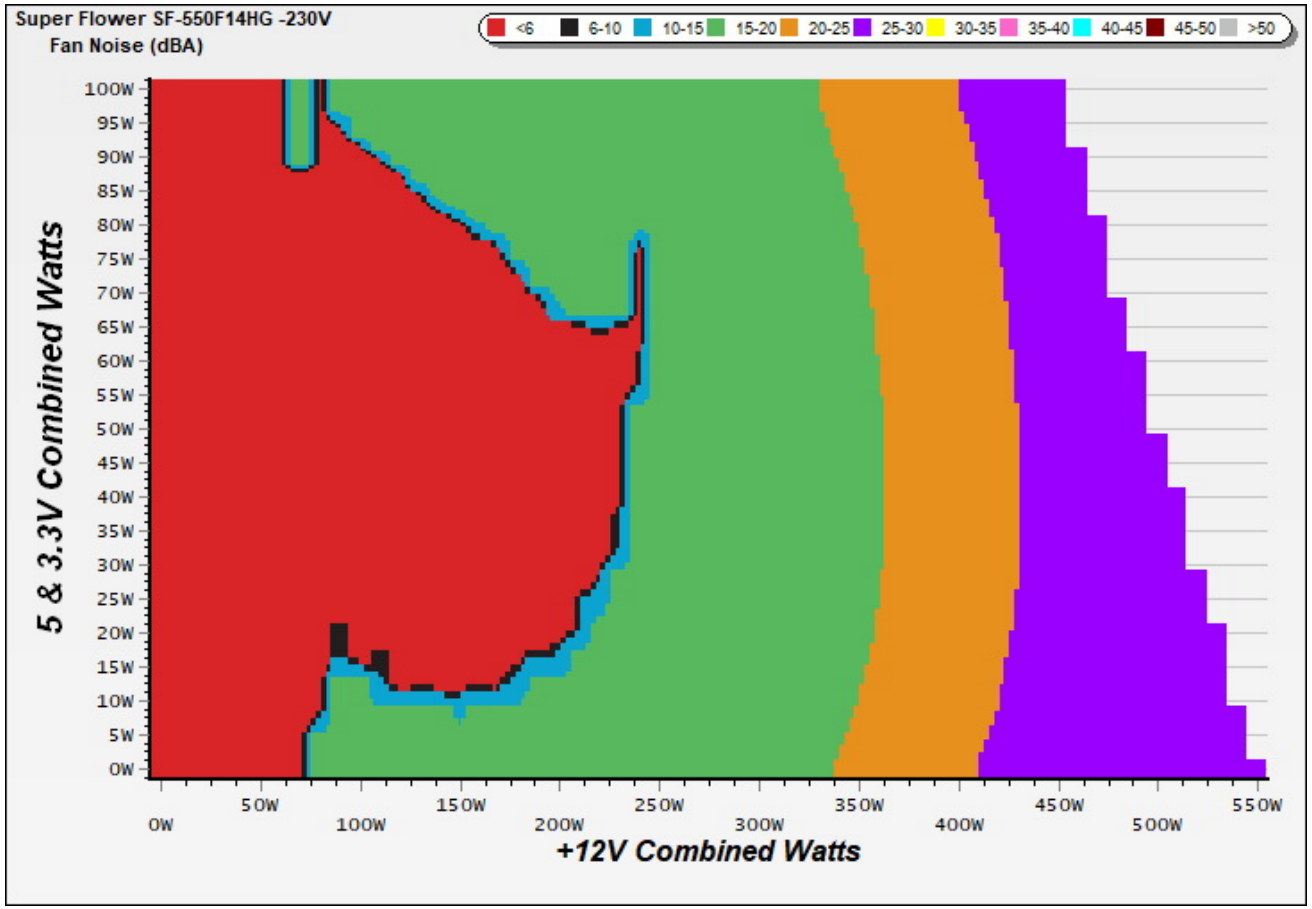
115V



INFO

The PSU`s noise in its entire operational range and under 30-32 °C 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

230V

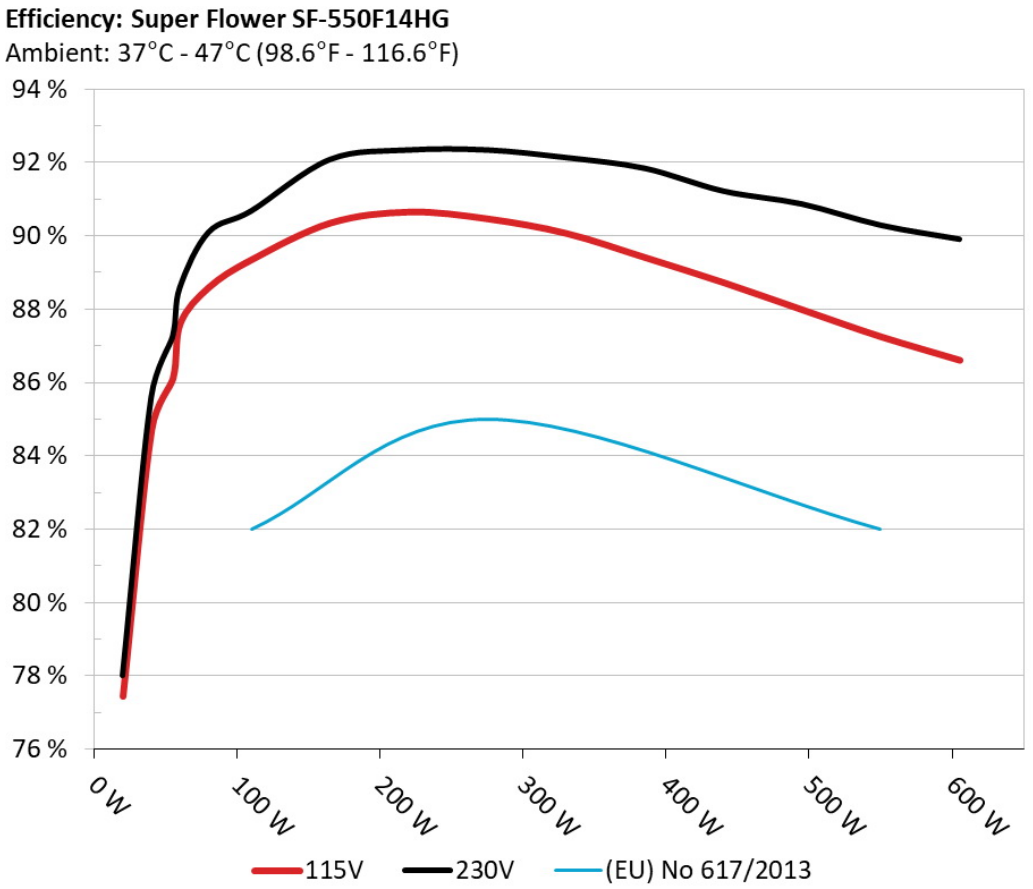


INFO

The PSU`s noise in its entire operational range and under 30-32 °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

Indicative Performance

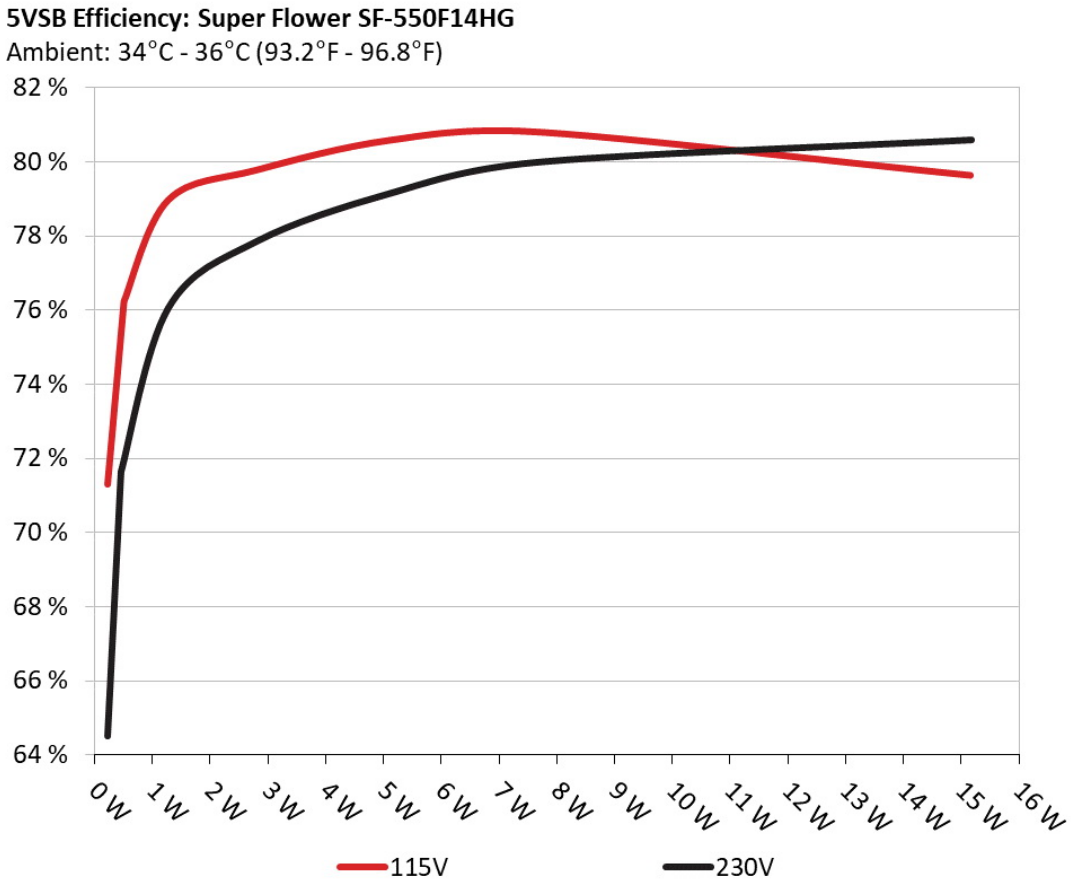
Efficiency under high ambient temperature



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



INFO

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

5VSB Efficiency (ERP LOT 3/6 & CEC)

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	71.296%	0.037
	5.128V	0.324		115.12V
2	0.090A	0.462	76.238%	0.068
	5.127V	0.606		115.12V
3	0.550A	2.815	79.790%	0.280
	5.117V	3.528		115.12V
4	1.000A	5.107	80.590%	0.360
	5.106V	6.337		115.12V
5	1.500A	7.643	80.818%	0.403
	5.095V	9.457		115.12V
6	3.000A	15.166	79.645%	0.457
	5.055V	19.042		115.12V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	64.525%	0.012
	5.128V	0.358		230.24V
2	0.090A	0.462	71.517%	0.022
	5.127V	0.646		230.24V
3	0.550A	2.815	77.870%	0.116
	5.116V	3.615		230.25V
4	1.000A	5.107	79.154%	0.186
	5.106V	6.452		230.24V
5	1.500A	7.642	79.996%	0.241
	5.094V	9.553		230.25V
6	3.000A	15.175	80.602%	0.329
	5.058V	18.827		230.25V

Supplementary Tests (For Reference)

Typical Load Tests

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	2.743A	1.992A	1.996A	0.982A	54.974	86.107%	0	<6.0	45.87°C	0.936
	12.165V	5.019V	3.309V	5.095V	63.844				40.47°C	115.13V
2	6.510A	2.992A	2.998A	1.181A	110.057	89.339%	775	16.2	40.97°C	0.967
	12.157V	5.015V	3.305V	5.082V	123.191				46.82°C	115.13V
3	10.615A	3.492A	3.500A	1.381A	165.062	90.335%	786	16.5	41.19°C	0.981
	12.153V	5.011V	3.302V	5.071V	182.722				47.55°C	115.13V
4	14.721A	3.995A	4.004A	1.581A	220.077	90.634%	802	17.0	41.53°C	0.988
	12.150V	5.009V	3.298V	5.061V	242.819				48.42°C	115.12V
5	18.491A	4.998A	5.013A	1.783A	275.079	90.447%	857	18.2	42.34°C	0.991
	12.144V	5.004V	3.294V	5.048V	304.133				49.67°C	115.12V
6	22.270A	6.005A	6.021A	1.986A	330.086	90.051%	941	20.4	42.58°C	0.993
	12.136V	4.998V	3.289V	5.036V	366.553				50.62°C	115.12V
7	26.065A	7.013A	7.036A	2.191A	385.185	89.393%	1054	23.3	43.06°C	0.994
	12.126V	4.992V	3.284V	5.023V	430.888				51.51°C	115.12V
8	29.852A	8.005A	8.051A	2.396A	440.101	88.710%	1153	27.0	43.58°C	0.994
	12.119V	4.986V	3.280V	5.010V	496.114				52.82°C	115.12V
9	34.011A	8.534A	8.550A	2.400A	494.713	87.977%	1273	30.6	44.95°C	0.994
	12.119V	4.982V	3.276V	5.003V	562.320				54.62°C	115.11V
10	37.984A	9.045A	9.079A	3.013A	549.934	87.240%	1373	31.4	45.21°C	0.994
	12.116V	4.977V	3.271V	4.980V	630.370				55.65°C	115.11V
11	42.541A	9.051A	9.086A	3.017A	605.146	86.600%	1483	34.1	46.64°C	0.995
	12.116V	4.974V	3.268V	4.974V	698.783				57.53°C	115.11V
CL1	0.102A	12.003A	11.997A	0.000A	100.663	84.367%	990	22.4	42.58°C	0.968
	12.137V	4.993V	3.292V	5.090V	119.316				49.53°C	115.13V

CL2	45.846A	0.999A	1.001A	1.000A	569.253	87.936%	1374	31.4	45.35°C	0.994
	12.126V	4.997V	3.284V	5.045V	647.351				55.62°C	115.11V

The results above are not used in the certification process

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	2.744A	1.989A	1.994A	0.982A	54.960	87.245%	0	<6.0	45.50°C	0.731
	12.163V	5.018V	3.310V	5.095V	62.995				40.50°C	230.23V
2	6.508A	2.992A	2.995A	1.181A	110.029	90.669%	786	16.5	40.83°C	0.877
	12.158V	5.014V	3.305V	5.083V	121.353				46.44°C	230.24V
3	10.611A	3.493A	3.498A	1.380A	165.030	92.071%	803	17.1	41.11°C	0.930
	12.155V	5.011V	3.302V	5.072V	179.242				47.35°C	230.24V
4	14.717A	3.994A	4.003A	1.581A	220.035	92.326%	797	16.9	41.96°C	0.956
	12.151V	5.009V	3.298V	5.061V	238.323				48.62°C	230.24V
5	18.487A	4.997A	5.010A	1.783A	275.036	92.326%	858	18.2	42.02°C	0.966
	12.145V	5.004V	3.294V	5.049V	297.898				49.51°C	230.24V
6	22.266A	6.005A	6.021A	1.986A	330.038	92.120%	935	20.3	42.38°C	0.973
	12.136V	4.998V	3.289V	5.036V	358.268				50.54°C	230.24V
7	26.061A	7.014A	7.035A	2.190A	385.135	91.827%	1032	23.0	43.05°C	0.977
	12.126V	4.992V	3.284V	5.024V	419.415				51.75°C	230.25V
8	29.845A	8.003A	8.049A	2.396A	440.001	91.207%	1175	27.5	43.28°C	0.981
	12.119V	4.986V	3.280V	5.011V	482.418				52.26°C	230.25V
9	34.001A	8.534A	8.547A	2.399A	494.613	90.858%	1252	30.4	44.91°C	0.984
	12.120V	4.982V	3.276V	5.004V	544.381				54.39°C	230.25V
10	37.974A	9.043A	9.077A	3.012A	549.843	90.279%	1371	31.4	45.66°C	0.986
	12.117V	4.977V	3.272V	4.982V	609.047				55.80°C	230.25V
11	42.535A	9.050A	9.085A	3.016A	605.064	89.897%	1487	34.2	46.70°C	0.987
	12.116V	4.974V	3.268V	4.975V	673.062				57.61°C	230.25V
CL1	0.101A	12.001A	12.000A	0.000A	100.651	85.852%	985	22.1	42.37°C	0.872
	12.139V	4.993V	3.292V	5.092V	117.238				49.97°C	230.25V

CL2	45.838A	1.000A	1.002A	1.000A	569.257	91.076%	1368	31.3	45.09°C	0.986
	12.128V	4.997V	3.284V	5.046V	625.032				55.20°C	230.25V

The results above are not used in the certification process

Light Load Tests

115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.219A	0.497A	0.499A	0.195A	20.000	77.453%	0	<6.0	0.797
	12.180V	5.029V	3.315V	5.120V	25.822				115.13V
2	2.439A	0.995A	0.998A	0.391A	39.992	84.705%	0	<6.0	0.900
	12.172V	5.024V	3.313V	5.113V	47.213				115.13V
3	3.663A	1.494A	1.495A	0.588A	60.024	87.602%	0	<6.0	0.947
	12.168V	5.021V	3.311V	5.105V	68.519				115.13V
4	4.881A	1.993A	1.995A	0.785A	79.974	88.581%	0	<6.0	0.952
	12.164V	5.018V	3.308V	5.097V	90.283				115.13V

The results above are not used in the certification process

230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.219A	0.497A	0.498A	0.195A	19.990	78.013%	0	<6.0	0.474
	12.176V	5.027V	3.315V	5.120V	25.624				230.23V
2	2.439A	0.995A	0.996A	0.391A	39.979	85.592%	0	<6.0	0.649
	12.170V	5.023V	3.313V	5.112V	46.709				230.23V
3	3.663A	1.494A	1.493A	0.588A	60.009	88.582%	0	<6.0	0.750
	12.166V	5.020V	3.311V	5.105V	67.744				230.23V
4	4.880A	1.993A	1.995A	0.785A	79.960	90.082%	0	<6.0	0.820
	12.163V	5.018V	3.309V	5.097V	88.764				230.23V

The results above are not used in the certification process

Ripple Measurements

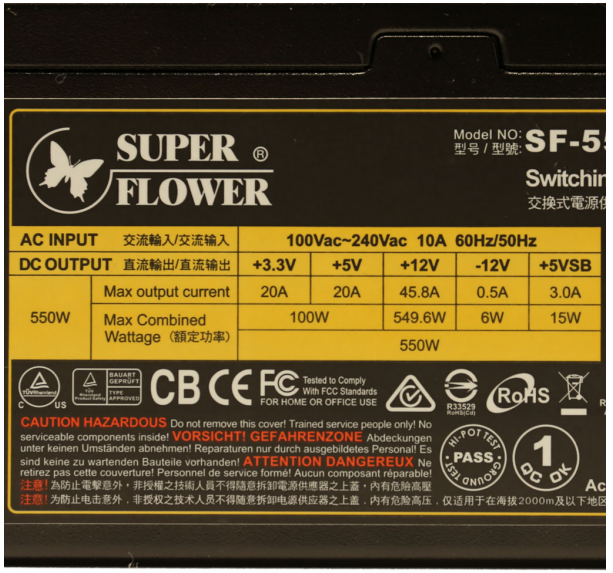
115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.00mV	5.70mV	9.50mV	8.90mV	Pass
20% Load	6.20mV	5.90mV	9.00mV	8.20mV	Pass
30% Load	6.50mV	6.50mV	11.10mV	8.00mV	Pass
40% Load	6.70mV	6.90mV	10.70mV	7.90mV	Pass
50% Load	6.60mV	7.20mV	10.00mV	8.10mV	Pass
60% Load	7.50mV	7.70mV	11.30mV	7.70mV	Pass
70% Load	7.80mV	8.90mV	11.60mV	7.40mV	Pass
80% Load	8.50mV	8.90mV	12.30mV	8.50mV	Pass
90% Load	8.60mV	9.50mV	13.70mV	8.80mV	Pass
100% Load	10.50mV	10.20mV	13.90mV	10.80mV	Pass
110% Load	10.40mV	10.90mV	15.20mV	10.40mV	Pass
Crossload1	8.20mV	7.00mV	10.50mV	10.30mV	Pass
Crossload2	10.90mV	10.40mV	14.10mV	11.40mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	5.20mV	5.60mV	8.80mV	8.90mV	Pass
20% Load	5.70mV	5.90mV	8.50mV	8.40mV	Pass
30% Load	6.60mV	6.40mV	9.90mV	8.20mV	Pass
40% Load	6.30mV	6.60mV	10.70mV	8.10mV	Pass
50% Load	6.40mV	7.10mV	9.90mV	7.80mV	Pass
60% Load	7.00mV	7.30mV	10.40mV	7.50mV	Pass
70% Load	7.10mV	7.50mV	10.50mV	7.40mV	Pass
80% Load	7.30mV	8.30mV	11.00mV	8.00mV	Pass



Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	7.70mV	8.00mV	11.40mV	8.00mV	Pass
100% Load	9.50mV	8.80mV	12.10mV	9.60mV	Pass
110% Load	9.90mV	8.90mV	12.50mV	10.00mV	Pass
Crossload1	6.90mV	6.90mV	10.70mV	10.70mV	Pass
Crossload2	9.80mV	8.80mV	11.80mV	11.50mV	Pass

The results above are not used in the certification process

Super Flower Leadex III Gold 550W rev.2

Top side

Power specifications label

Cybenetics 提供自願性認證方案: 電源供應器方面有 ETA (效率)、 LAMBDA (噪音) 與 SAFE (安全與正確運作)；散熱產品方面有 DELTA (機殼隔音) 與 PHI (風扇風量與靜壓)

CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus

www.cybenetics.com - info@cybenetics.com