Super Flower Leadex VII XG 1300W

Serial Number S2212199003

Lab ID SF13002121

Certification ID 252121

Test Result Report ID: 23PS2121A

Certificate Issue Date: Jan 26, 2023

Scheme: ETA-EMI PSU

115V 230V

Scheme: LAMBDA PSU

115V 230V

Outside Validation Scope

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 VII XG 1300W
OEM/ODM	Super Flower
Serial Number	S2212199003
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15

Rated Frequency (Hz)	60-50
Rated Power (W)	1300
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	140mm Fluid Dynamic Bearing Fan (ZIC ZFF142512D)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	SF13002121
Date of receipt	Dec 28, 2022
Testing Date	Jan 26, 2023
Report Issued Date	Jan 26, 2023
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 (600mm)	1	1	16-20AWG	No
4+4 pin EPS12V (700mm)	2	2	18AWG	No
6+2 pin PCIe (700mm)	4	4	16AWG	No
12+2 pin PCIe (700mm) (600W)	1	1	16-24AWG	No
SATA (600mm+150mm+150mm+150mm)	3	12	18AWG	No
4-pin Molex (600mm+150mm+150mm+150mm)	1	4	18AWG	No
AC Power Cord (1410mm) - C13 coupler	1	1	16AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	108.3	3	0.5
	Watts	100		1299.6	15	6
Total Max. Power (W)		1300				

Parts Description

General Data	-
Manufacturer (OEM)	Super Flower
PCB Type	Double Sided
Primary Side	-
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor SCK-0512 (5 Ohm) & Relay
Bridge Rectifier(s)	2x Shindengen U30K80R (800V, 30A @ 97°C)
APFC MOSFETs	3x Infineon IPA60R120P7 (600V, 16A @ 100°C, Rds(on): 0.12Ohm) & 1x Syncpower SPN5003 FET (for reduced no-load consumption)
APFC Boost Diode	1x STMicroelectronics STTH12R06 (600V, 12A @ 125°C)
Bulk Cap(s)	1x Rubycon (450V, 800uF, 3,000h @ 105°C, MXT)
Main Switchers	4x Infineon IPB50R140CP (550V, 15A @ 100°C, Rds(on): 0.14Ohm)
APFC Controller	On Semiconductor NCP153A
Resonant Controller	S9602
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	16x Vishay SiRA54DP (40V, 60A @ 70°C, Rds(on): 2.35mOhm)
5V & 3.3V	DC-DC Converters: 4x Alpha & Omega AON6516 (30V, 25A @ 100°C, Rds(on): 5mOhm) PWM Controller(s): ANPEC APW7073
Filtering Capacitors	Electrolytic: 5x Nippon Chemi-Con (105°C, W), 5x Nippon Chemi-Con (6-10,000h @ 105°C, KZM), 8x Nippon Chemi-Con (1-2,000h @ 105°C, KMG), 1x Nippon Chemi-Con (2-5,000h @ 105°C, KZE) Polymer: 26x Nippon Chem-Con
Supervisor IC	JTC113
Fan Model	ZIC ZFF142512D (140mm, 12V, 0.65A, Fluid Dynamic Bearing Fan)
5VSB Circuit	-

Rectifier	1x PFC PFR20L60CT SBR (60V, 20A)
Standby PWM Controller	29604

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	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.0 Compliance	✓

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	90.329%
Average Noise Output (>1450 Load Combinations)	37.29dBA
Average PF (>1450 Load Combinations)	0.990
Efficiency With 10W (≤500W) or 2% (>500W) Load	72.140%
Standby Power Consumption	0.0608W
Non-Accredited	
12V Ripple (Full Load)	18.26mV
5V Ripple (Full Load)	14.87mV
3.3V Ripple (Full Load)	14.14mV
5VSB Ripple (Full Load)	22.17mV
12V Load Regulation	0.51%
5V Load Regulation	0.12%
3.3V Load Regulation	0.12%
5VSB Load Regulation	2.42%
Inrush Current	32.350A

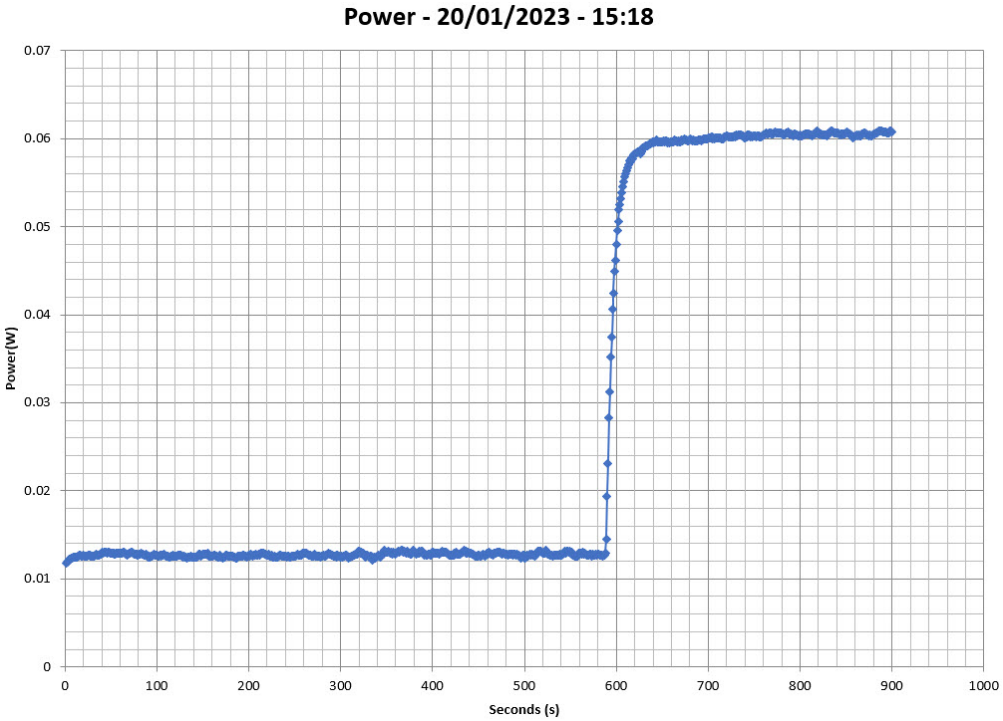
230V		
Accredited		
Average Efficiency (>1450 load combinations)	92.317%	
Average Noise Output (>1450 Load Combinations)	36.25dBA	
Average PF (>1450 Load Combinations)	0.960	
Efficiency With 10W (≤500W) or 2% (>500W) Load	71.265%	
Standby Power Consumption	0.0972W	
Non-Accredited		
12V Ripple (Full Load)	18.05mV	
5V Ripple (Full Load)	14.73mV	
3.3V Ripple (Full Load)	14.79mV	
5VSB Ripple (Full Load)	19.71mV	
12V Load Regulation	0.52%	
5V Load Regulation	0.10%	
3.3V Load Regulation	0.12%	
5VSB Load Regulation	2.40%	
Inrush Current	68.520A	
12V Transient Response (200%)	11.25V	
5V Transient Response (200%)	4.926V	
3.3V Transient Response (200%)	3.229V	
5VSB Transient Response (200%)	4.875V	
Hold-Up Time & PWR_OK Signal	25.70ms	
AC Loss to PWR_OK Hold Up Time	23.50ms	
PWR_OK Inactive to DC Loss Delay	2.20ms	
PSU Timings: T1 (20% / 100%)	114.0ms	114.0ms
PSU Timings: T3 (20% / 100%)	119.0ms	119.0ms
OPP (27.51°C / 43.35°C)	137.80%	127.60%

Hold-Up Time & PWR_OK Signal

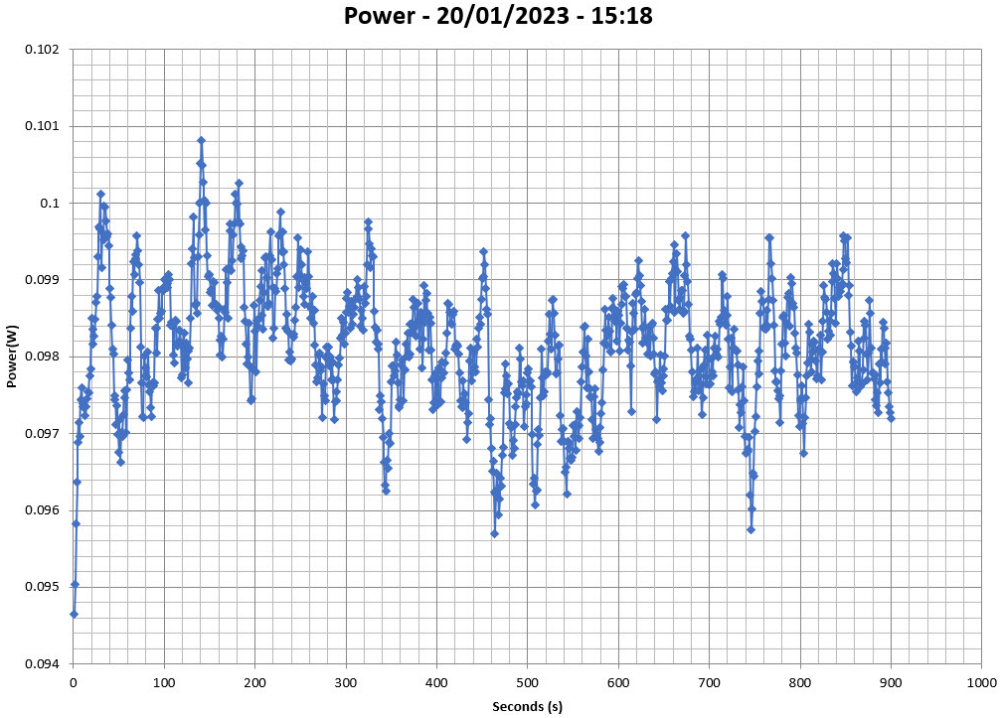
Hold-Up Time (ms)	25.7
AC Loss to PWR_OK Hold Up Time (ms)	23.5
PWR_OK Inactive to DC Loss Delay (ms)	2.2

Graphs

115V

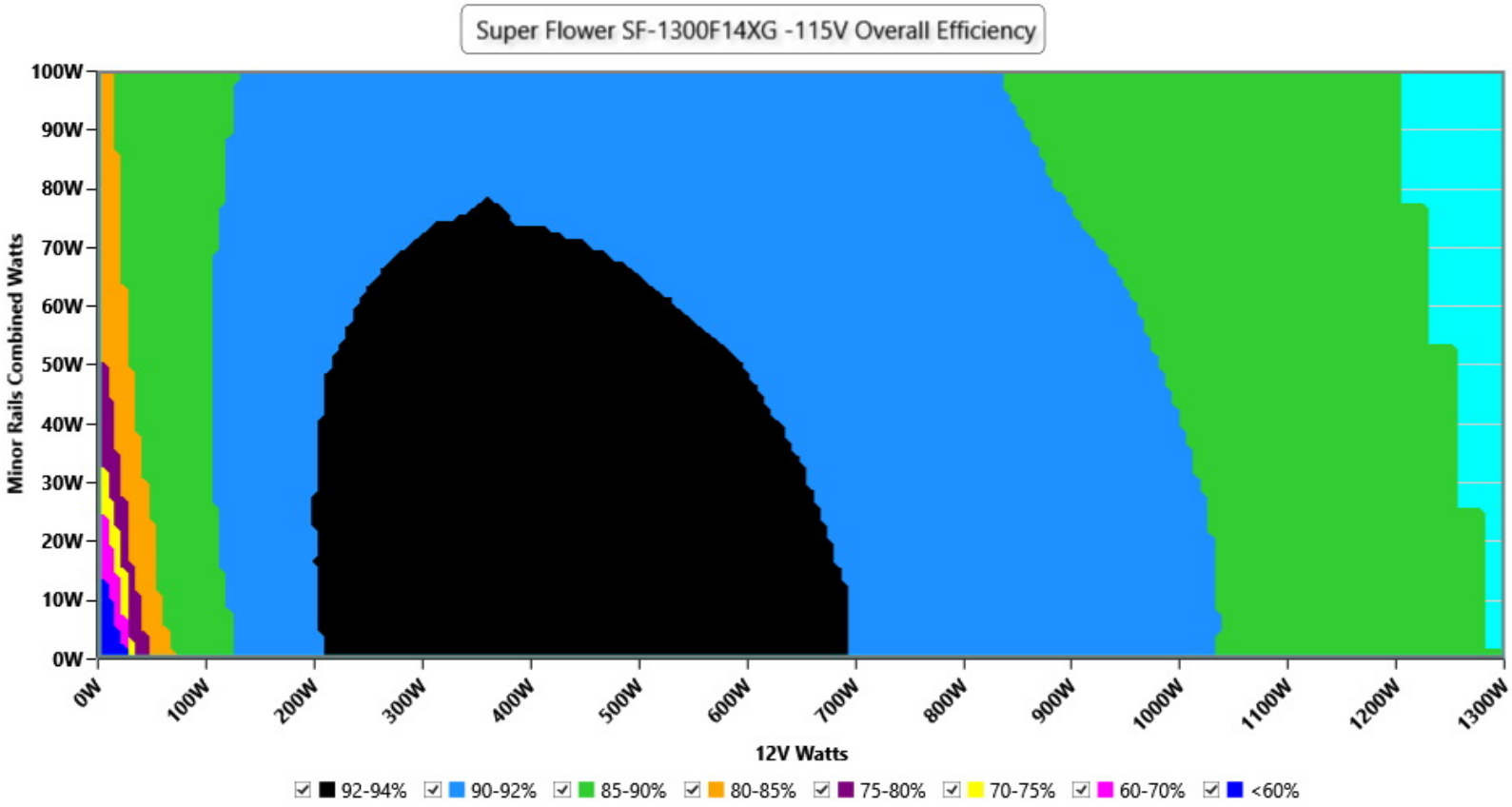


230V



Efficiency Graph

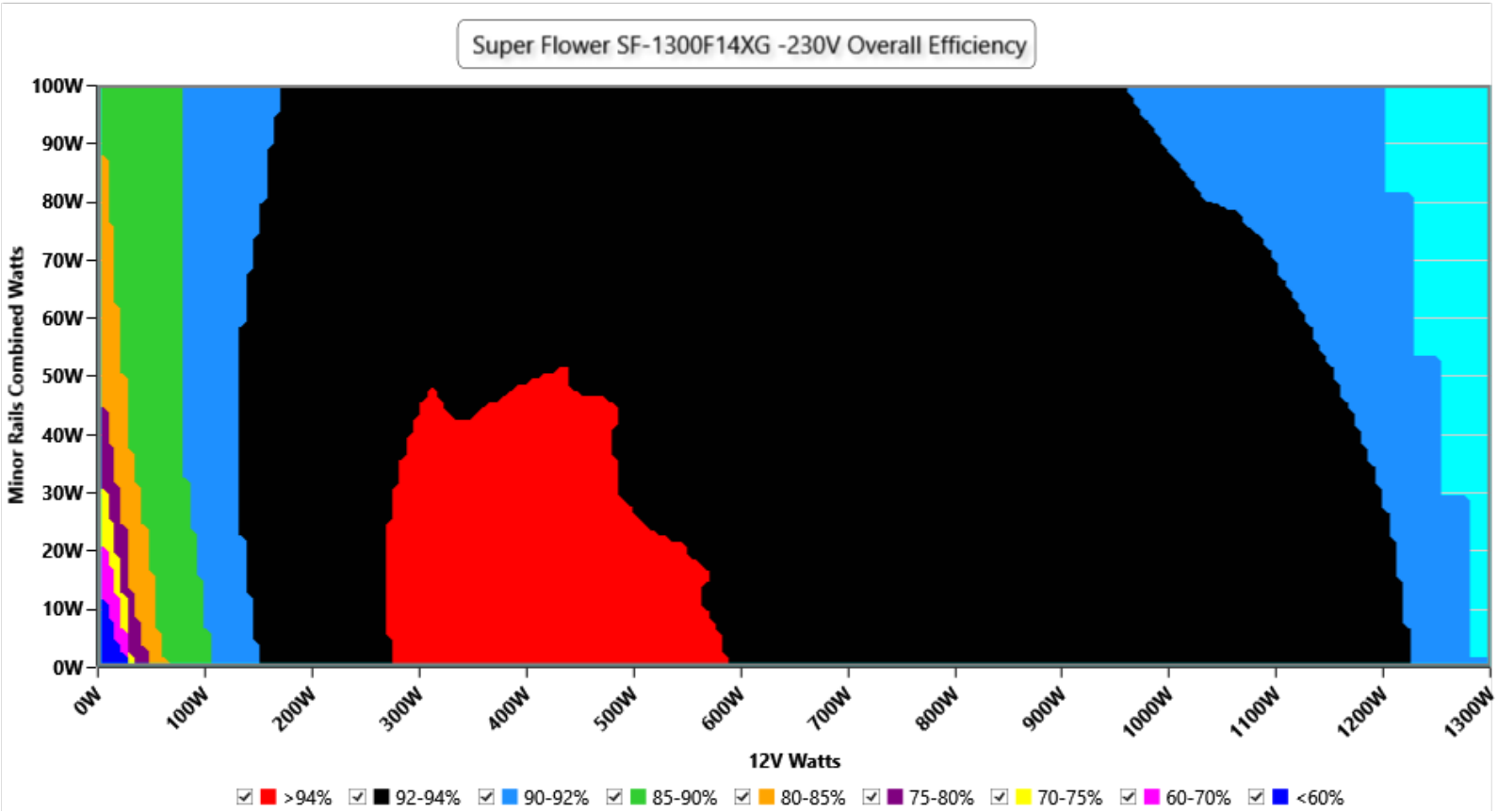
115V



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

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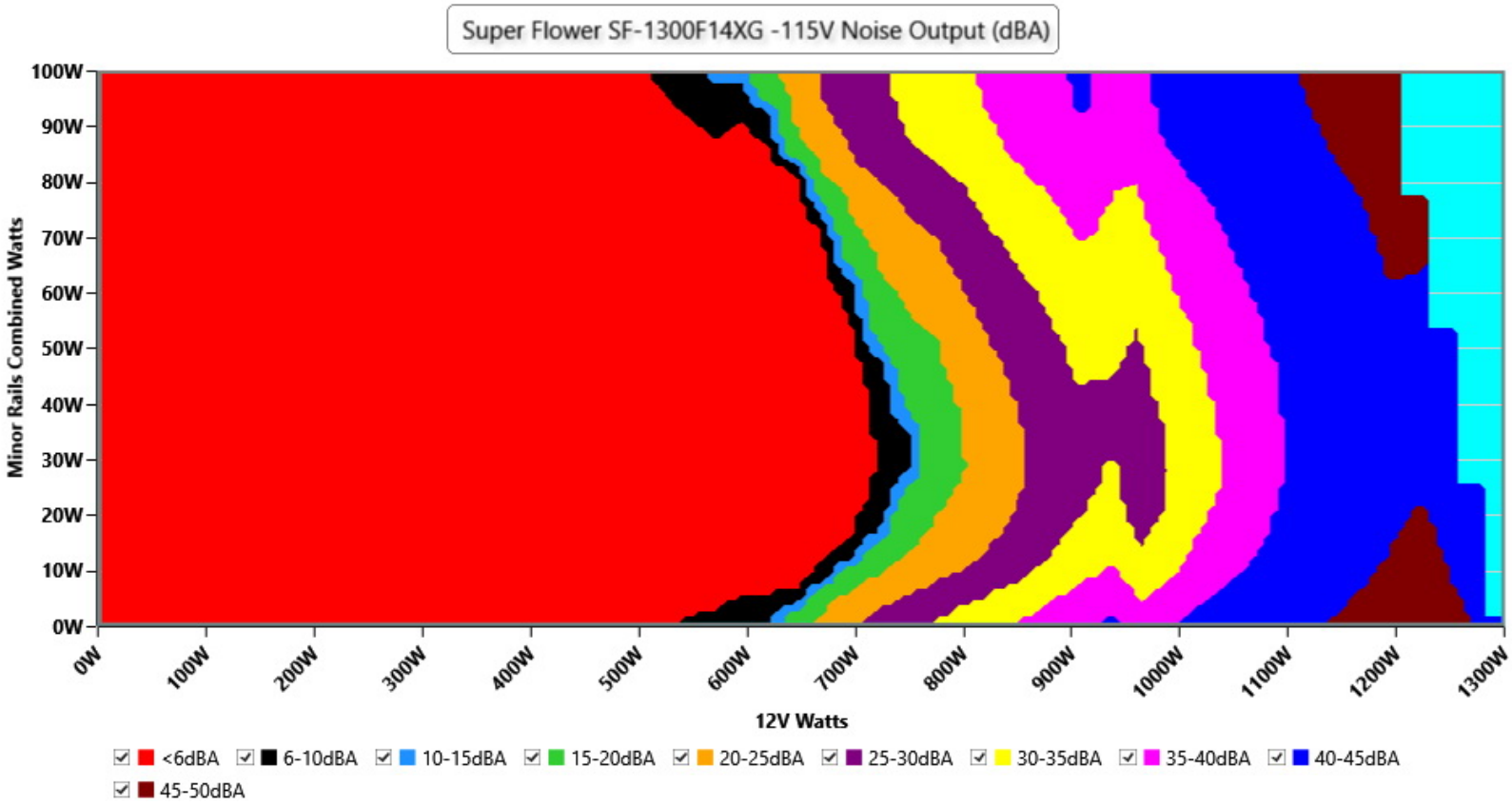
Noise Graph

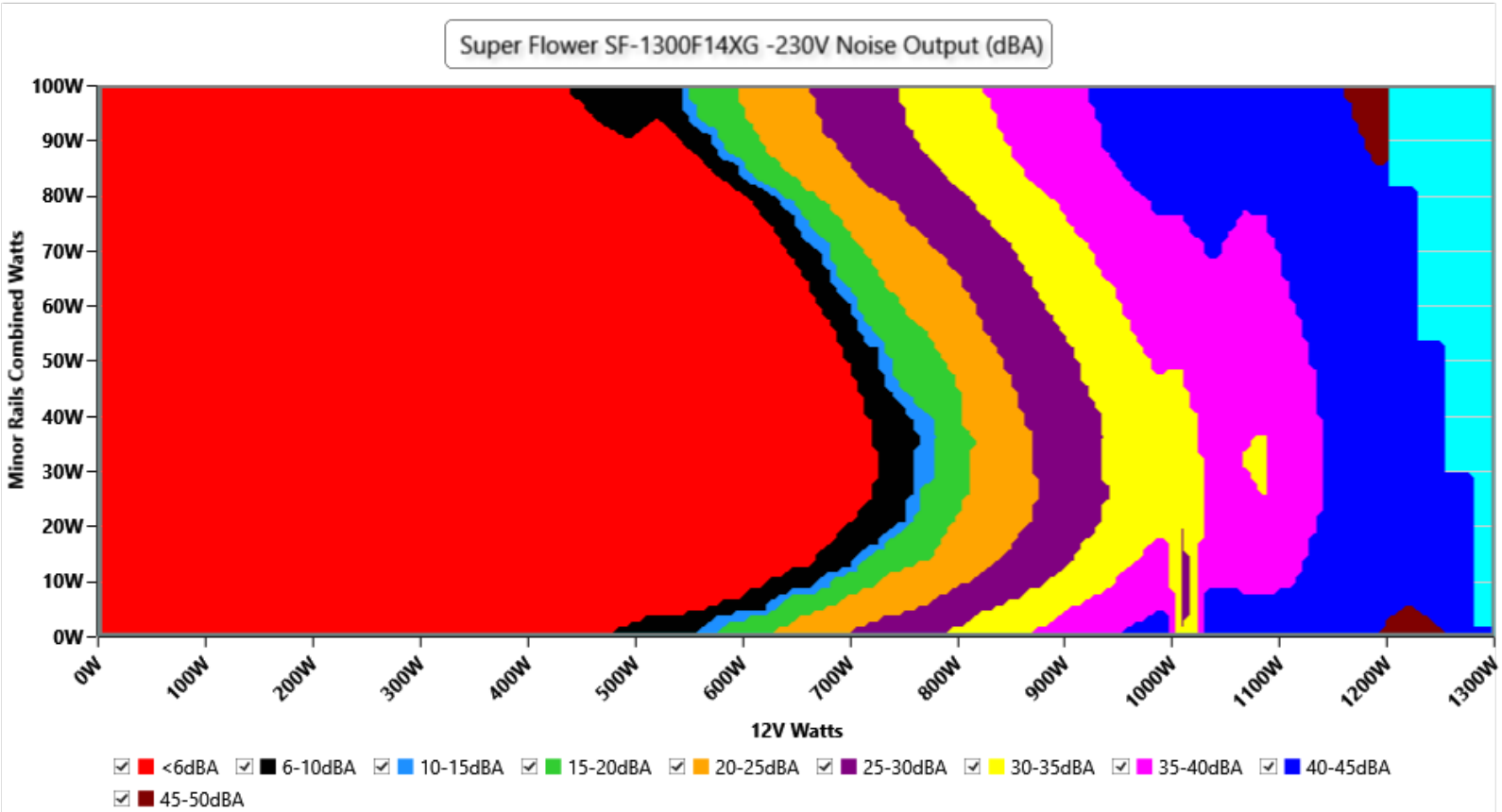
115V



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

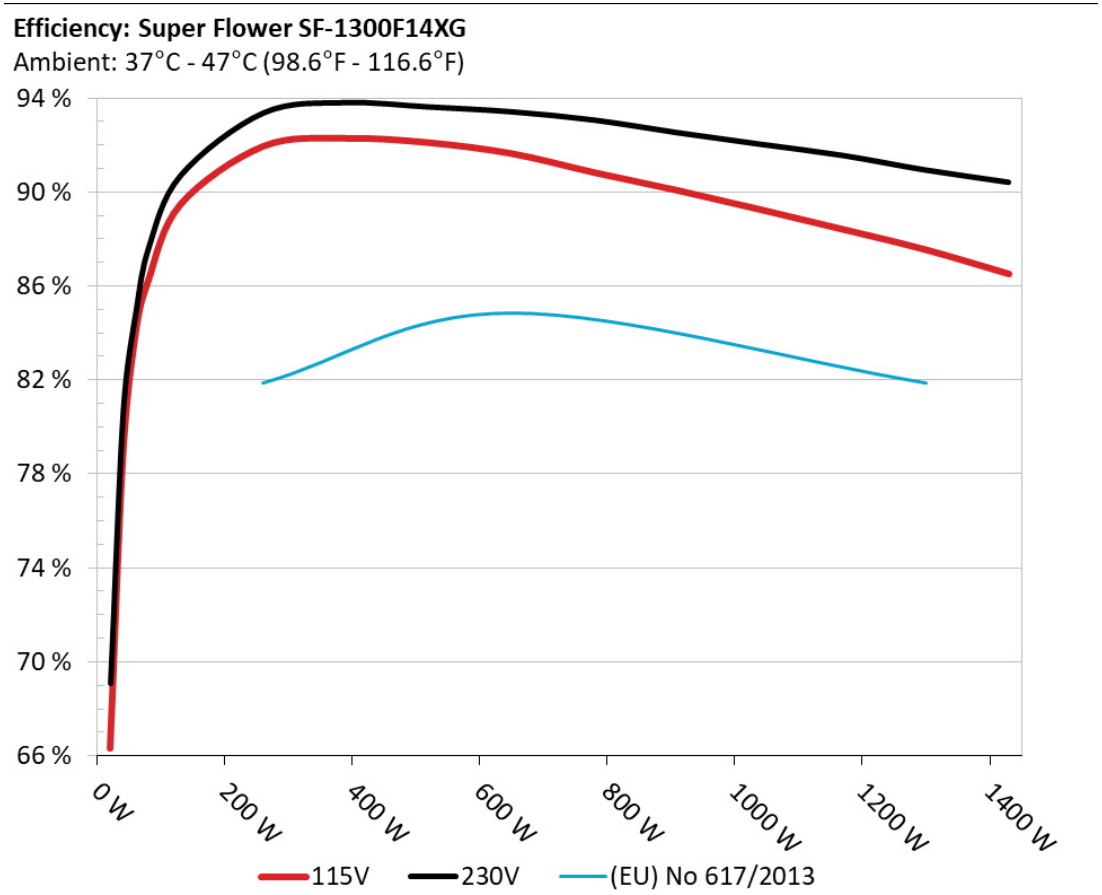


INFO

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

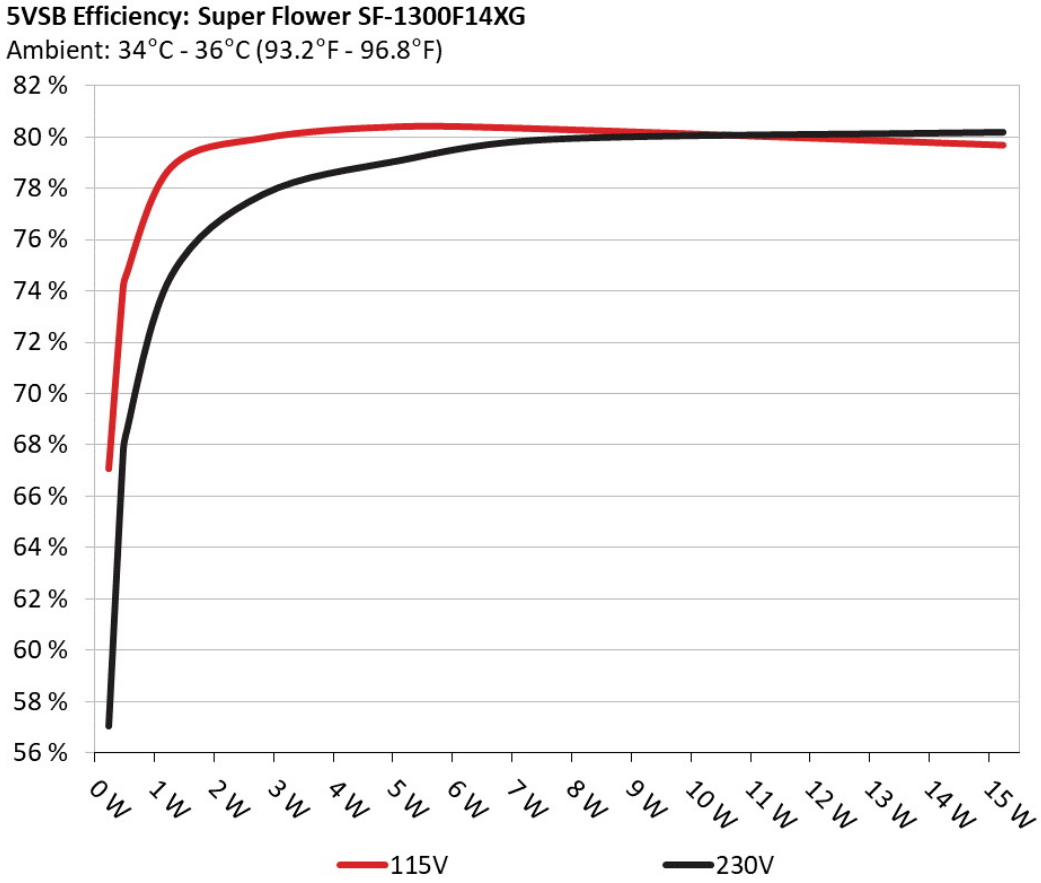
Efficiency under high ambient temperature



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	0.231W	67.087%	0.037
	5.133V	0.344W		114.95V
2	0.09A	0.462W	73.885%	0.066
	5.132V	0.625W		114.96V
3	0.55A	2.818W	79.971%	0.29
	5.124V	3.524W		114.95V
4	1A	5.116W	80.418%	0.392
	5.116V	6.362W		114.95V
5	1.5A	7.661W	80.318%	0.448
	5.108V	9.538W		114.94V
6	2.999A	15.238W	79.697%	0.512
	5.081V	19.12W		114.94V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	57.039%	0.013
	5.133V	0.405W		230.04V
2	0.09A	0.462W	67.287%	0.022
	5.132V	0.687W		230.04V
3	0.55A	2.818W	77.772%	0.111
	5.124V	3.623W		230.05V
4	1A	5.116W	79.093%	0.184
	5.116V	6.468W		230.05V
5	1.5A	7.661W	79.919%	0.247
	5.107V	9.586W		230.06V
6	3A	15.239W	80.194%	0.359
	5.081V	19.003W		230.06V

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
10%	8.981A	1.983A	1.982A	0.979A	129.987	89.632%	0	<6.0	44.45°C	0.984
	12.069V	5.044V	3.33V	5.107V	145.023				40.02°C	114.97V
20%	18.991A	2.974A	2.974A	1.177A	259.934	92.115%	0	<6.0	45.45°C	0.983
	12.060V	5.043V	3.329V	5.096V	282.185				40.66°C	114.97V
30%	29.320A	3.47A	3.47A	1.376A	389.467	92.456%	0	<6.0	46.79°C	0.989
	12.053V	5.043V	3.329V	5.085V	421.248				41.46°C	114.96V
40%	39.692A	3.967A	3.966A	1.576A	519.434	92.272%	378	<6.0	41.85°C	0.993
	12.048V	5.043V	3.328V	5.075V	562.937				47.63°C	114.96V
50%	49.758A	4.96A	4.958A	1.777A	649.57	91.804%	634	20.0	42.44°C	0.994
	12.039V	5.042V	3.328V	5.064V	707.565				48.61°C	114.95V
60%	59.830A	5.952A	5.951A	1.979A	779.687	90.993%	911	31.7	42.96°C	0.995
	12.032V	5.041V	3.328V	5.053V	856.868				49.49°C	114.95V
70%	69.921A	6.946A	6.944A	2.181A	909.768	90.236%	1198	40.8	43.3°C	0.995
	12.023V	5.04V	3.327V	5.042V	1008.215				50.39°C	114.94V
80%	79.997A	7.94A	7.933A	2.285A	1039.365	89.422%	1428	44.9	44.64°C	0.995
	12.019V	5.04V	3.326V	5.033V	1162.312				52.69°C	114.94V
90%	90.462A	8.433A	8.415A	2.388A	1169.569	88.572%	1606	49.1	44.73°C	0.996
	12.017V	5.039V	3.326V	5.023V	1320.469				53.77°C	114.93V
100%	100.663A	8.93A	8.926A	2.995A	1299.18	87.708%	1765	50.9	45.13°C	0.996
	12.015V	5.038V	3.326V	5.007V	1481.264				55.22°C	114.92V
110%	110.820A	9.921A	10.008A	2.999A	1429.348	86.675%	1836	51.2	46.65°C	0.996
	12.011V	5.039V	3.326V	5V	1649.09				57.58°C	114.91V
CL1	0.115A	11.909A	11.909A	0A	101.261	82.75%	617	19.3	39.35°C	0.987
	12.078V	5.054V	3.332V	5.118V	122.396				44.84°C	114.99V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	0.114A	19.765A	0A	0A	101.375	82.582%	383	<6.0	39.58°C	0.987
	12.080V	5.059V	3.328V	5.121V	122.758				46.65°C	114.98V
CL3	0.114A	0A	19.779A	0A	67.358	77.033%	524	14.1	38.6°C	0.965
	12.079V	5.046V	3.336V	5.119V	87.441				47.66°C	114.98V
CL4	108.189A	0A	0A	0.001A	1299.816	88.202%	1717	49.7	47.17°C	0.996
	12.014V	5.03V	3.325V	5.07V	1473.691				58.04°C	114.9V

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
10%	8.981A	1.983A	1.982A	0.979A	129.991	90.866%	0	<6.0	44.61°C	0.883
	12.069V	5.042V	3.329V	5.107V	143.058				40.32°C	230.08V
20%	18.990A	2.975A	2.974A	1.177A	259.93	93.527%	0	<6.0	45.34°C	0.948
	12.061V	5.042V	3.329V	5.097V	277.921				40.65°C	230.08V
30%	29.315A	3.47A	3.469A	1.376A	389.387	93.964%	0	<6.0	45.86°C	0.969
	12.053V	5.043V	3.329V	5.086V	414.403				40.83°C	230.06V
40%	39.681A	3.967A	3.965A	1.576A	519.339	93.783%	376	<6.0	41.54°C	0.978
	12.049V	5.042V	3.329V	5.076V	553.77				47.15°C	230.05V
50%	49.738A	4.96A	4.957A	1.777A	649.467	93.577%	596	17.8	42.45°C	0.98
	12.042V	5.041V	3.328V	5.066V	694.047				48.54°C	230.05V
60%	59.815A	5.953A	5.95A	1.978A	779.579	93.22%	860	30.0	42.73°C	0.981
	12.033V	5.04V	3.327V	5.055V	836.281				49.26°C	230.04V
70%	69.907A	6.945A	6.942A	2.18A	909.673	92.687%	1186	40.5	43.14°C	0.982
	12.024V	5.04V	3.327V	5.044V	981.448				50.16°C	230.04V
80%	79.985A	7.939A	7.93A	2.283A	1039.269	92.196%	1410	44.9	43.46°C	0.983
	12.020V	5.04V	3.327V	5.035V	1127.241				51.56°C	230.04V
90%	90.447A	8.432A	8.412A	2.386A	1169.469	91.716%	1602	48.9	44.94°C	0.985
	12.018V	5.038V	3.326V	5.026V	1275.095				54.03°C	230.04V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	100.663A	8.928A	8.924A	2.994A	1299.103	91.096%	1783	51.1	46.34°C	0.986
	12.014V	5.039V	3.326V	5.008V	1426.082				56.44°C	230.05V
110%	110.824A	9.921A	10.007A	2.999A	1429.304	90.576%	1838	51.4	46.82°C	0.986
	12.010V	5.038V	3.326V	5V	1578.022				57.76°C	230.05V
CL1	0.114A	11.908A	11.908A	0A	101.257	83.628%	655	21.4	43.34°C	0.861
	12.078V	5.054V	3.332V	5.118V	121.102				48.83°C	230.07V
CL2	0.114A	19.765A	0A	0A	101.374	83.407%	392	<6.0	41.16°C	0.861
	12.079V	5.059V	3.328V	5.121V	121.54				48.19°C	230.07V
CL3	0.114A	0A	19.779A	0A	67.357	78.311%	603	18.3	39.55°C	0.702
	12.079V	5.046V	3.336V	5.119V	86.022				48.58°C	230.07V
CL4	108.185A	0A	0A	0.001A	1299.71	91.669%	1623	48.5	45.25°C	0.986
	12.013V	5.03V	3.325V	5.07V	1417.83				56.19°C	230.05V

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])	Temps (In/Out)	PF/AC Volts
20W	1.229A	0.496A	0.495A	0.195A	19.989	66.465%	0	<6.0	39.68°C	0.828
	12.076V	5.043V	3.33V	5.128V	30.075				36.62°C	114.96V
40W	2.706A	0.694A	0.693A	0.293A	39.987	78.904%	0	<6.0	40.53°C	0.92
	12.075V	5.043V	3.33V	5.125V	50.678				37.19°C	114.97V
60W	4.184A	0.892A	0.892A	0.39A	59.986	84.179%	0	<6.0	42.33°C	0.961
	12.074V	5.043V	3.33V	5.122V	71.26				38.62°C	114.97V
80W	5.658A	1.091A	1.09A	0.488A	79.94	86.402%	0	<6.0	43.67°C	0.967
	12.072V	5.043V	3.33V	5.119V	92.521				39.72°C	114.97V

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
20W	1.228A	0.496A	0.495A	0.195A	19.985	69.226%	0	<6.0	40.33°C	0.454
	12.077V	5.042V	3.33V	5.128V	28.858				37.28°C	230.07V
40W	2.706A	0.694A	0.694A	0.293A	39.985	80.854%	0	<6.0	40.86°C	0.556
	12.075V	5.042V	3.33V	5.125V	49.475				37.55°C	230.07V
60W	4.184A	0.892A	0.892A	0.39A	59.984	85.074%	0	<6.0	41.21°C	0.741
	12.074V	5.042V	3.33V	5.122V	70.508				37.71°C	230.08V
80W	5.658A	1.091A	1.09A	0.488A	79.938	87.801%	0	<6.0	43.46°C	0.799
	12.073V	5.042V	3.329V	5.119V	91.045				39.58°C	230.08V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	29.57mV	5.59mV	7.94mV	11.03mV	Pass
20% Load	27.49mV	5.95mV	7.48mV	11.03mV	Pass
30% Load	28.71mV	6.30mV	7.64mV	10.88mV	Pass
40% Load	29.06mV	7.47mV	7.89mV	13.26mV	Pass
50% Load	26.68mV	8.59mV	8.74mV	12.30mV	Pass
60% Load	11.14mV	8.08mV	8.64mV	12.50mV	Pass
70% Load	32.76mV	9.56mV	9.86mV	13.66mV	Pass
80% Load	31.80mV	11.03mV	12.94mV	15.03mV	Pass
90% Load	13.11mV	11.99mV	12.89mV	15.94mV	Pass
100% Load	18.26mV	14.87mV	14.14mV	22.17mV	Pass
110% Load	18.48mV	16.51mV	16.73mV	31.69mV	Pass
Crossload1	9.44mV	9.77mV	11.96mV	27.57mV	Pass
Crossload2	28.96mV	8.89mV	8.44mV	27.12mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	30.43mV	8.79mV	12.99mV	26.06mV	Pass
Crossload4	17.38mV	11.45mV	12.08mV	27.70mV	Pass

The results above are not used in the certification process

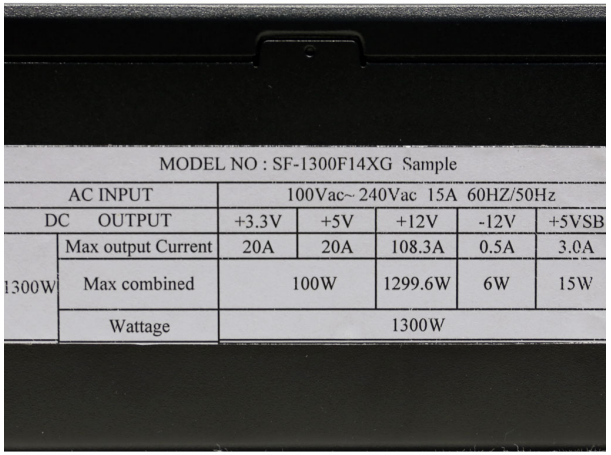
230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	17.65mV	5.64mV	7.64mV	10.37mV	Pass
20% Load	22.17mV	7.32mV	7.94mV	12.14mV	Pass
30% Load	9.16mV	6.45mV	7.89mV	11.18mV	Pass
40% Load	24.45mV	7.17mV	9.00mV	14.93mV	Pass
50% Load	25.01mV	8.33mV	9.71mV	14.12mV	Pass
60% Load	24.10mV	8.59mV	9.91mV	13.82mV	Pass
70% Load	23.24mV	9.45mV	9.70mV	14.27mV	Pass
80% Load	13.42mV	11.43mV	13.10mV	14.52mV	Pass
90% Load	25.32mV	13.11mV	13.75mV	16.24mV	Pass
100% Load	18.05mV	14.73mV	14.79mV	19.71mV	Pass
110% Load	18.34mV	15.67mV	15.50mV	22.25mV	Pass
Crossload1	9.80mV	9.46mV	11.51mV	29.95mV	Pass
Crossload2	23.69mV	8.39mV	8.69mV	26.26mV	Pass
Crossload3	18.93mV	8.59mV	13.10mV	25.86mV	Pass
Crossload4	17.56mV	11.81mV	12.55mV	29.83mV	Pass

The results above are not used in the certification process

Super Flower Leadex VII XG 1300W

Top side



MODEL NO : SF-1300F14XG Sample						
AC INPUT		100Vac~ 240Vac 15A 60HZ/50Hz				
DC OUTPUT		+3.3V	+5V	+12V	-12V	+5VSB
1300W	Max output Current	20A	20A	108.3A	0.5A	3.0A
	Max combined	100W		1299.6W	6W	15W
	Wattage	1300W				

Power specifications label

Cybenetics □□□□□□□□□□□□□□□□□□ ETA□□□□ LAMBDA□□□□ SAFE□□□□□□□□□□□□□□□□□ DELTA□□□□□□□ PHI□□□□□□□□□

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