SILVERSTONE

SilverStone SFX 550W

Serial Number S6101000173

Lab ID 130

Certification ID 25130

Test Result Report ID:

Certificate Issue Date: Jun 22, 2018

115V 230V

Scheme: ETA-EMI PSU

CYBENETICS GOLD

115V 230V

CYBENETICS A-

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	SilverStone
Model	SFX 550W
OEM/ODM	FSP
Serial Number	S6101000173
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8-4
Rated Frequency (Hz)	50-60

Rated Power (W)	550
Operating Temperature (Continuous Full Load) (°C)	
Type	SFX
Cable Design	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	80mm Sleeve Bearing Fan (MGA8012YS-A15)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	130
Date of receipt	Jun 16, 2018
Testing Date	Jun 20, 2018
Report Issued Date	Jun 22, 2018
DUT Notes	Retested on 10/16/2017
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Captive Cables			
Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (310mm)	1	1	20AWG
4+4 pin EPS12V (420mm)	1	1	18AWG
6+2 pin PCIe (420mm+155mm)	1	2	18AWG
SATA (315mm+200mm+100mm)	1	3	20AWG
4 pin Molex (315mm+200mm) / FDD (+200mm)	1	2 / 1	20-22AWG

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	21	22	45	2.5	0.3
	Watts	120		540	12.5	3.6
Total Max. Power (W)		550				

Parts Description

Primary Side	
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x GBU10V06 (600V, 2.9A @ 100°C - without heatsink)
APFC MOSFETS	2x Infineon IPA60R125CP (650V, 16A @ 100°C, 0.125 Ohm)
APFC Boost Diode	1x STMicroelectronics STTH8R06FP (600V, 8A @ 85°C)
Hold-up Cap(s)	2x Nippon Chemi-Con (420V, 150uF each, 2000h @ 105°C, KMG)
Main Switcher	1x Infineon SPA17N80C3 (800V, 11A @ 100°C, 0.29 ohm)
Reset Switch	Fairchild FQPF3N80C (800V, 1.9A @ 100°C, 4.8 ohm)
APFC/Switching Controller	FSP 6600 IC
Topology	Primary side: Active Clamp Reset Forward Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	2x Texas Instruments CSD19506KCS (80V, 193A @ 100°C, 2.2 mOhm)
5V & 3.3V	DC-DC Converters: 4x Infineon BSC030N03LS G (30V, 77A @ 100°C, 3 mOhm) PWM Controller: ANPEC APW7159C
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (105°C, KZE, KZH) Polymers: Teapo
Supervisor IC	FSP6601

Fan Model	Protechnic Electric MGA8012YS-A15 (80mm, 12V, 0.28A, Sleeve Bearing)
5VSB Circuit	
Rectifier	1x A-Power AP03N70I-H FET (700V, 2.5A, 4.4 Ohm)

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

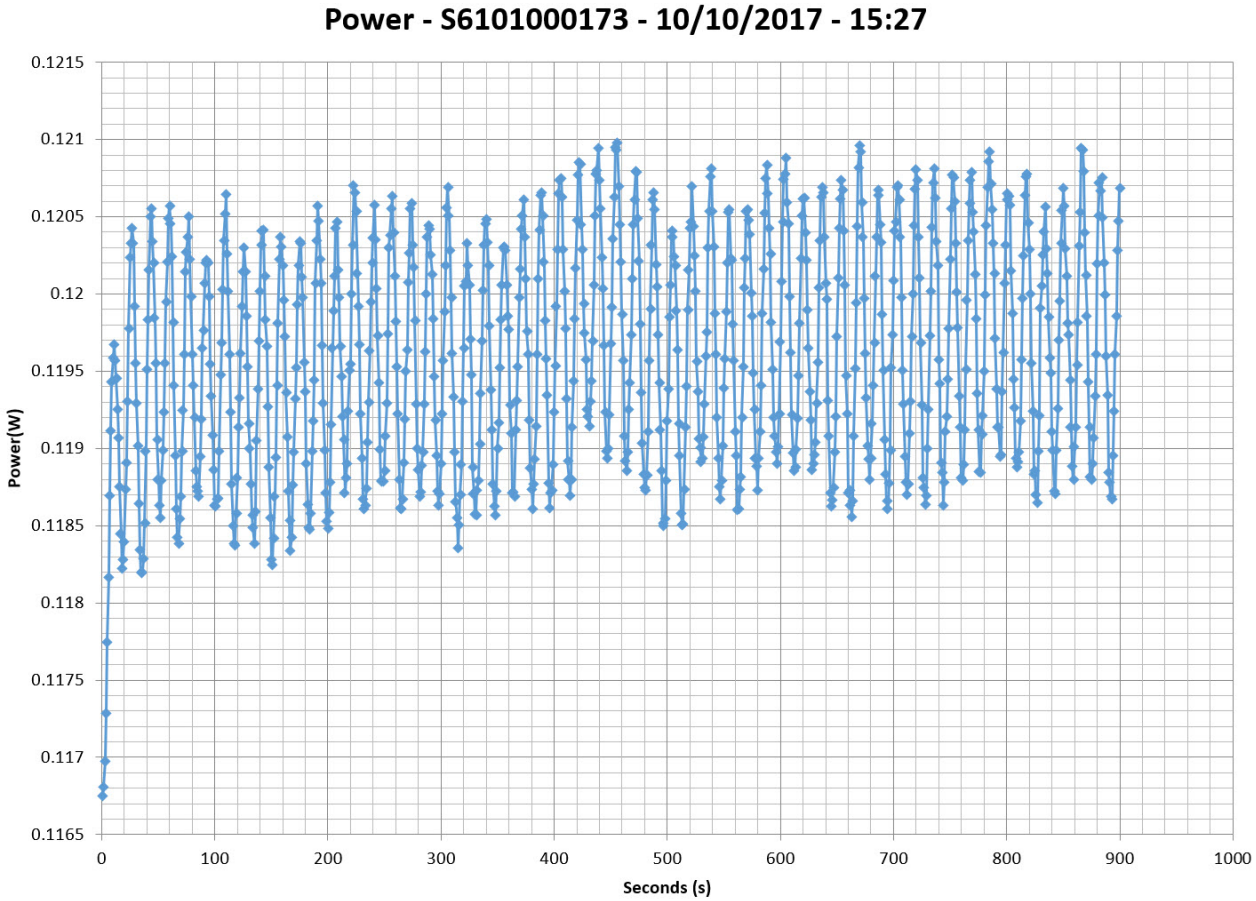
Accredited	
Average Efficiency (>1450 load combinations)	87.847%
Average Noise Output (>1450 Load Combinations)	29.14dBA
Average PF (>1450 Load Combinations)	0.992
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.1207W
Non-Accredited	
12V Ripple (Full Load)	61.55mV
5V Ripple (Full Load)	39.36mV
3.3V Ripple (Full Load)	26.07mV
5VSB Ripple (Full Load)	14.06mV
12V Load Regulation	1.62%
5V Load Regulation	2.34%
3.3V Load Regulation	2.49%
5VSB Load Regulation	3.64%
Inrush Current	39.893A

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	21.7
AC Loss to PWR_OK Hold Up Time (ms)	17.5
PWR_OK Inactive to DC Loss Delay (ms)	4.2

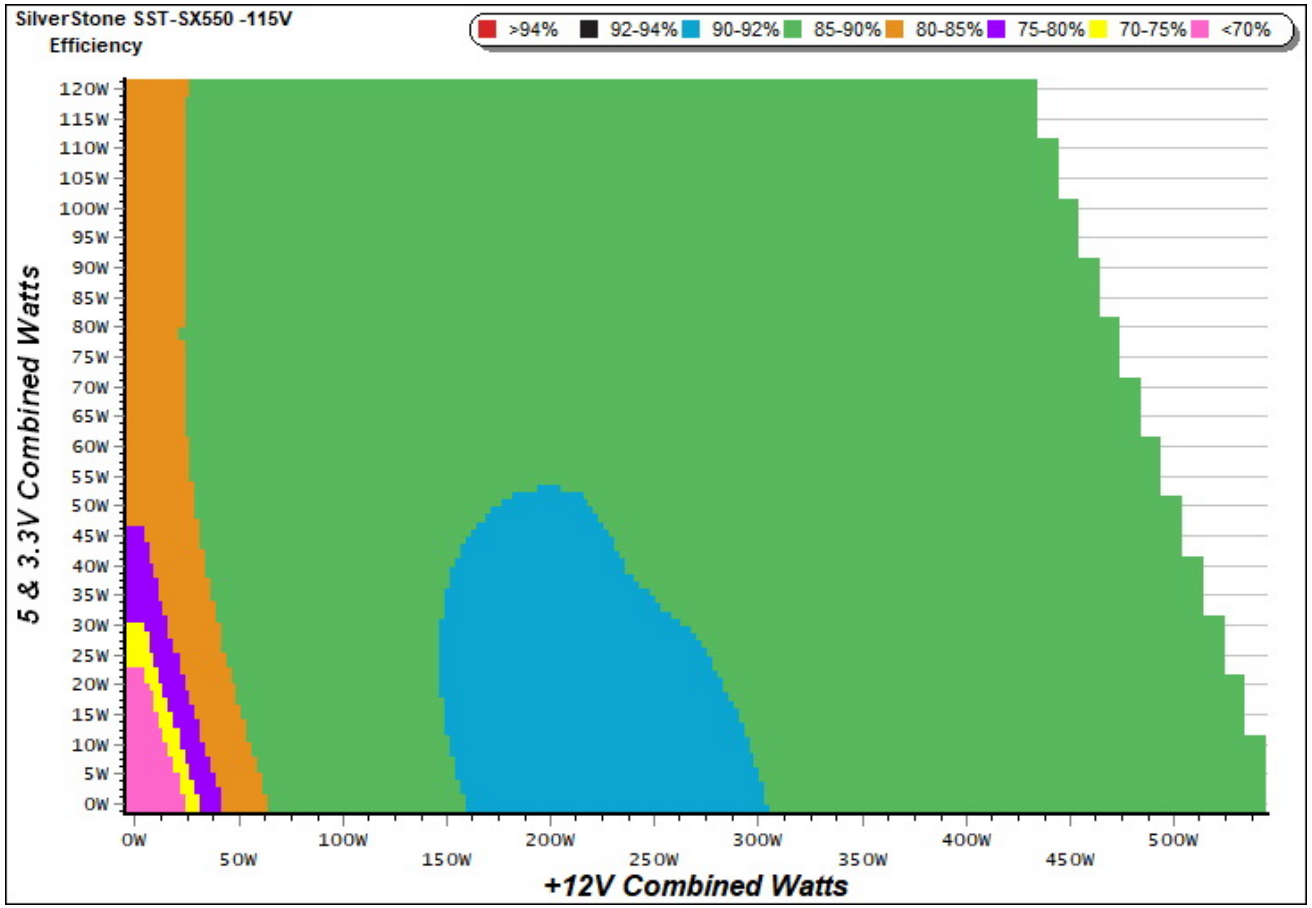
Vampire Power

Graphs 115V



Efficiency Graph

115V

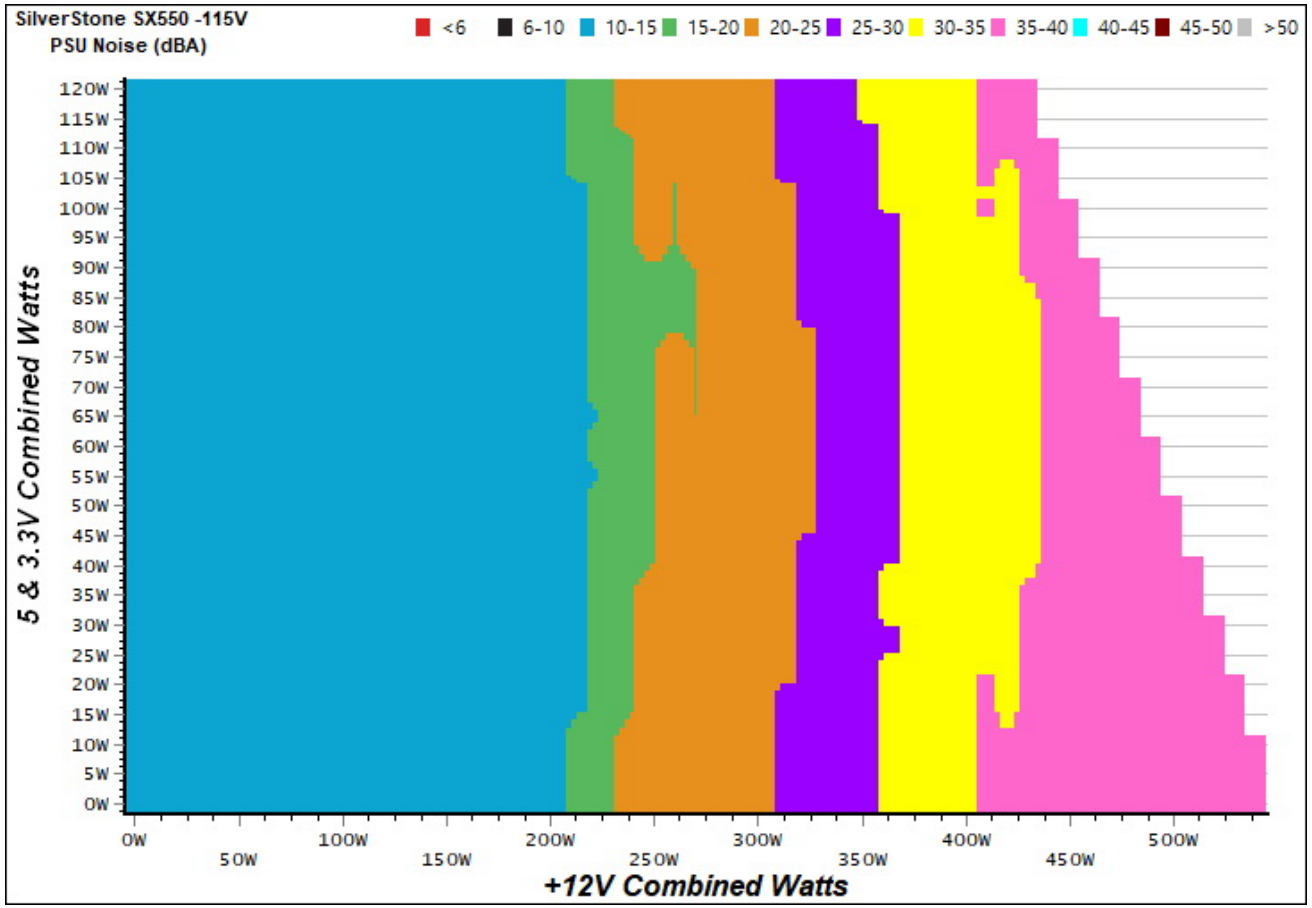


INFO

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

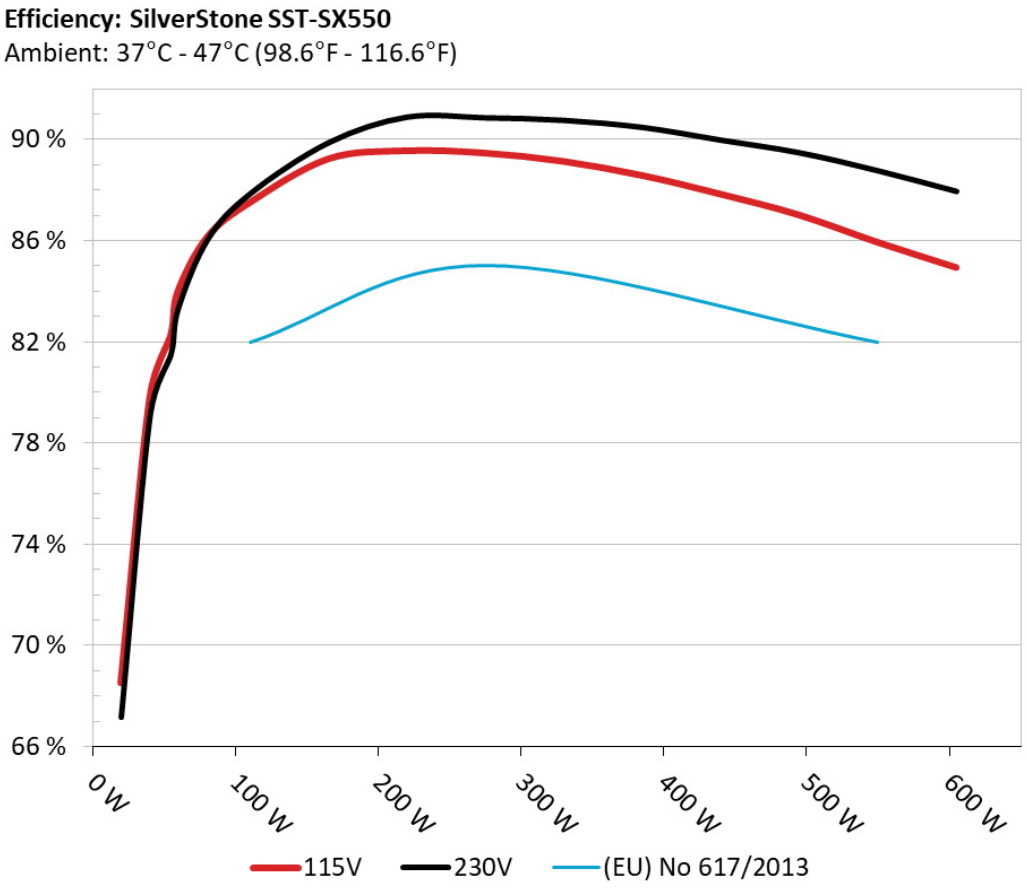


INFO

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

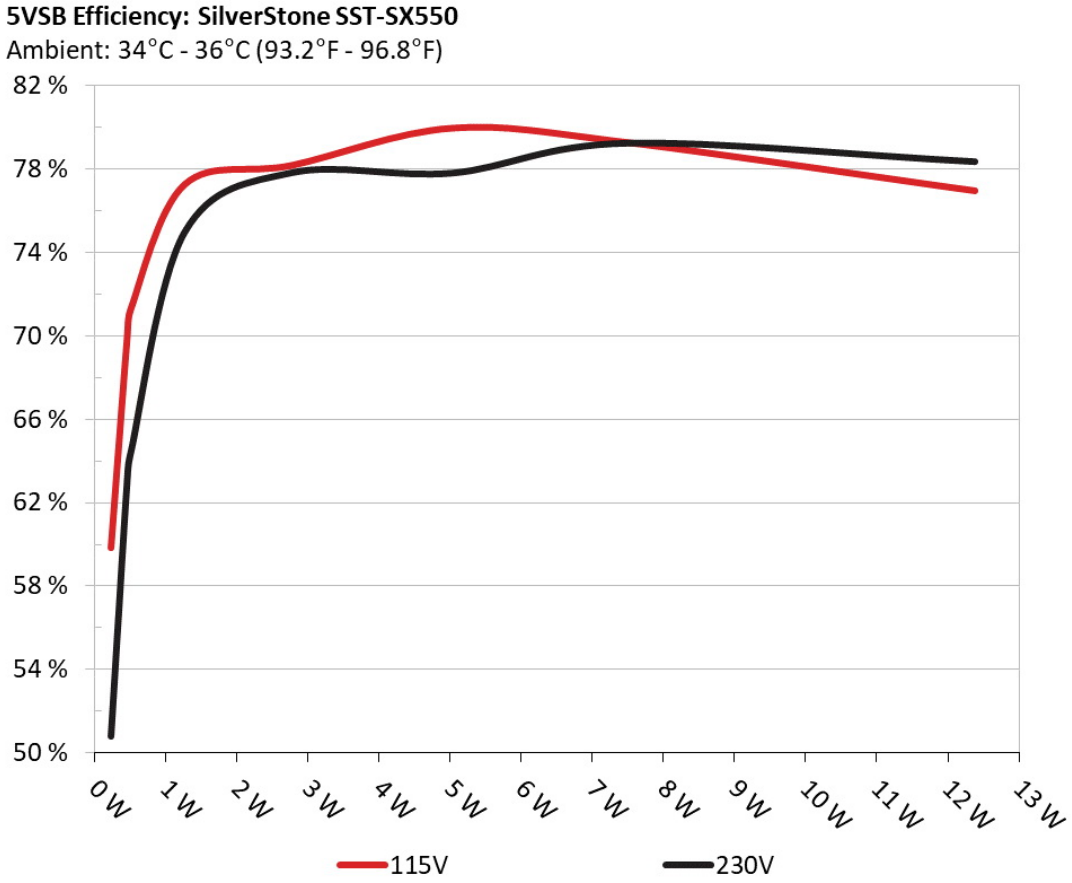
Efficiency under high ambient temperature



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	0.228	59.843%	0.035
	5.063V	0.381		115.39V

2	0.090A	0.456	69.939%	0.059
	5.063V	0.652		115.39V
3	0.550A	2.775	78.191%	0.256
	5.044V	3.549		115.38V
4	1.000A	5.024	79.975%	0.351
	5.024V	6.282		115.38V
5	1.500A	7.501	79.283%	0.409
	5.000V	9.461		115.37V
6	2.499A	12.380	76.971%	0.463
	4.953V	16.084		115.36V

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	2.737A	1.966A	1.958A	0.998A	54.473	82.258%	1412	15.8	38.29°C	0.962
	12.011V	5.087V	3.369V	5.011V	66.222				46.83°C	115.31V
2	6.547A	2.957A	2.947A	1.202A	109.366	87.493%	1412	15.8	38.60°C	0.980
	11.984V	5.074V	3.359V	4.995V	125.000				48.55°C	115.23V
3	10.761A	3.456A	3.430A	1.406A	164.872	89.239%	1412	15.8	39.15°C	0.989
	11.976V	5.064V	3.352V	4.979V	184.753				49.84°C	115.14V
4	14.908A	3.960A	3.946A	1.612A	219.690	89.562%	1594	20.0	39.39°C	0.995
	11.972V	5.053V	3.345V	4.964V	245.293				51.52°C	115.16V
5	18.738A	4.962A	4.946A	1.820A	274.582	89.470%	1919	25.2	40.07°C	0.997
	11.958V	5.040V	3.336V	4.948V	306.899				53.20°C	115.07V
6	22.577A	5.970A	5.952A	2.029A	329.510	89.145%	2265	30.2	40.84°C	0.998
	11.946V	5.026V	3.326V	4.931V	369.632				55.27°C	114.99V
7	26.472A	6.983A	6.964A	2.240A	384.809	88.587%	2602	34.2	42.13°C	0.998
	11.926V	5.012V	3.317V	4.913V	434.385				58.24°C	115.01V
8	30.402A	8.005A	7.983A	2.453A	440.109	87.845%	2957	38.4	42.55°C	0.999
	11.897V	4.998V	3.307V	4.895V	501.004				61.20°C	114.92V

9	34.754A	8.522A	8.489A	2.457A	494.630	87.030%	3250	40.7	44.29°C	0.999
	11.858V	4.988V	3.299V	4.886V	568.343				63.97°C	114.83V
10	39.131A	9.043A	9.027A	2.567A	549.744	85.951%	3460	42.2	45.73°C	0.999
	11.820V	4.977V	3.291V	4.870V	639.602				66.99°C	114.84V
11	44.160A	9.055A	9.046A	2.572A	604.956	84.953%	3460	42.2	46.73°C	0.999
	11.724V	4.971V	3.284V	4.862V	712.108				69.73°C	114.75V
CL1	0.737A	14.003A	13.999A	0.000A	125.036	82.678%	2745	35.6	44.38°C	0.985
	11.993V	4.981V	3.318V	5.026V	151.233				58.28°C	115.19V
CL2	45.005A	1.002A	1.000A	1.000A	545.702	86.687%	3450	42.0	45.35°C	0.999
	11.829V	5.046V	3.322V	4.960V	629.508				63.22°C	114.77V

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	1.204A	0.490A	0.473A	0.198A	19.564	68.547%	1412	15.8	0.826
	12.015V	5.101V	3.379V	5.054V	28.541				115.36V
2	2.465A	0.984A	0.978A	0.397A	39.934	79.834%	1412	15.8	0.939
	12.015V	5.096V	3.375V	5.043V	50.021				115.33V
3	3.669A	1.473A	1.451A	0.597A	59.458	83.994%	1412	15.8	0.965
	12.010V	5.090V	3.371V	5.031V	70.788				115.30V
4	4.937A	1.967A	1.961A	0.797A	79.862	86.137%	1412	15.8	0.972
	12.003V	5.085V	3.366V	5.019V	92.715				115.27V

The results above are not used in the certification process

Ripple Measurements 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.9 mV	15.9 mV	13.7 mV	11.5 mV	Pass
20% Load	28.6 mV	23.1 mV	15.5 mV	14.5 mV	Pass
30% Load	28.0 mV	22.7 mV	14.9 mV	7.8 mV	Pass
40% Load	29.2 mV	22.9 mV	15.6 mV	8.7 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	33.2 mV	25.5 mV	16.5 mV	9.3 mV	Pass
60% Load	33.9 mV	28.8 mV	18.9 mV	10.2 mV	Pass
70% Load	36.6 mV	32.1 mV	20.7 mV	10.6 mV	Pass
80% Load	38.0 mV	33.2 mV	20.9 mV	11.0 mV	Pass
90% Load	46.3 mV	36.5 mV	22.9 mV	12.3 mV	Pass
100% Load	61.6 mV	39.4 mV	26.1 mV	14.1 mV	Pass
110% Load	97.3 mV	41.8 mV	27.3 mV	15.2 mV	Pass
Crossload 1	33.4 mV	26.5 mV	18.7 mV	17.0 mV	Pass
Crossload 2	60.2 mV	38.3 mV	25.4 mV	18.2 mV	Pass

The results above are not used in the certification process

SilverStone SFX 550W

Top side

Power specifications label

All data and graphs included in this test report can be used by any individual on the following conditions:
› It should be mentioned that the test results are provided by Cybenetics
› The link to the original test results document should be provided in any case

Cybenetics runs voluntary certification programs for power supplies - ETA for efficiency, LAMBDA for noise and SAFE for safety and correct operation - and for cooling products, with DELTA for chassis soundproofing and PHI for fan airflow and static pressure. THETA rates cooler performance on AMD AM5 and Intel LGA1851 outside ISO 17065 and accreditation scope

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