SILVERSTONE

SilverStone SFX 500W

DE17280517SX500G00

Lab ID 179

Certification ID 25179

Test Result Report ID:

Certificate Issue Date: Sep 21, 2018

115V

Scheme: ETA-EMI PSU



115V



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 500W
OEM/ODM	High Power
Serial Number	DE17280517SX500G00
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	10
□□□□ (Hz)	50-60

□□□□ (W)	500
Operating Temperature (Continuous Full Load) (°C)	
□□	SFX
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	92mm Fluid Dynamic Bearing Fan (S0921512MB)
□□□□□	✗
Cybenetics Testing Information	
Lab ID	179
Date of receipt	Sep 12, 2018
Testing Date	Sep 17, 2018
Report Issued Date	Sep 21, 2018
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□□			
□□	□□□	□□□□□	Gauge
ATX □□ 20+4 pin (300mm)	1	1	16-22AWG
4+4 pin EPS 12V □□ (410mm)	1	1	18AWG
6+2pin PCIe□□ (560mm)	1	1	18AWG
6+2pin PCIe□□ (410mm)	1	1	18AWG
SATA□□ (310mm+200mm+100mm)	2	6	18AWG
□ 4pin Molex□□ (300mm+200mm+200mm)	1	3	18AWG
□ 4pin □□ (+105mm)	1	1	22AWG

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	22	22	41.7	2.5	0.3
	□	110		500	12.5	3.6
□□□□□ (W)		500				

Parts Description

General Data	
Manufacturer (OEM)	High Power
Platform Model	-
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 3x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x GBU1506 (600V, 15A @ 100°C)
APFC MOSFETS	2x Toshiba TK12A60W (600V, 11.5A @ 150°C, 0.3Ohm)
APFC Boost Diode	1x Infineon IDH06G65C5 (650V, 6A @ 145°C)
Hold-up Cap(s)	1x Rubycon (420V, 470uF, 3000h @ 85 °C, USH)
Main Switchers	2x Toshiba TK12A60W (600V, 11.5A @ 150°C, 0.3Ohm) Driver IC: Silicon Labs Si8233BD
APFC Controller	Infineon ICE3PCS01G
LLC Resonant Controller	Champion CM6901
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x Infineon BSC027N04LSG (40V, 88A @ 100°C, 2.7 mOhm)
5V & 3.3V	DC-DC Converters: 6x Infineon BSC0906NS (30V, 40A @ 100°C, 4.5mOhm) PWM Controller: ANPEC APW7159C
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (1-5,000 @ 105°C, KZE), Nippon Chemi-Con (4-10,000 @ 105°C, KY) Polymers: Nippon Chemi-Con
Supervisor IC	SITI PS224 (OVP, UVP, OCP,SCP, PG)
Fan Controller	STC 15W408AS
Fan Model	Globe Fan S0921512MB (12V, 0.23A, Fluid Dynamic Bearing)

5VSB Circuit	
Rectifier	1x P10V45SP SBR (45V, 10A)
Standby PWM Controller	Sanken STR-A6069H
-12V Circuit	
Rectifier	KEC KIA7912PI (-12V, 1A)

Test Results

Temperature & Compliance Info

□□□□ (°C /°F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	✓
□□ (EU) No 617/2013□□	✓

Performance Summary 115V

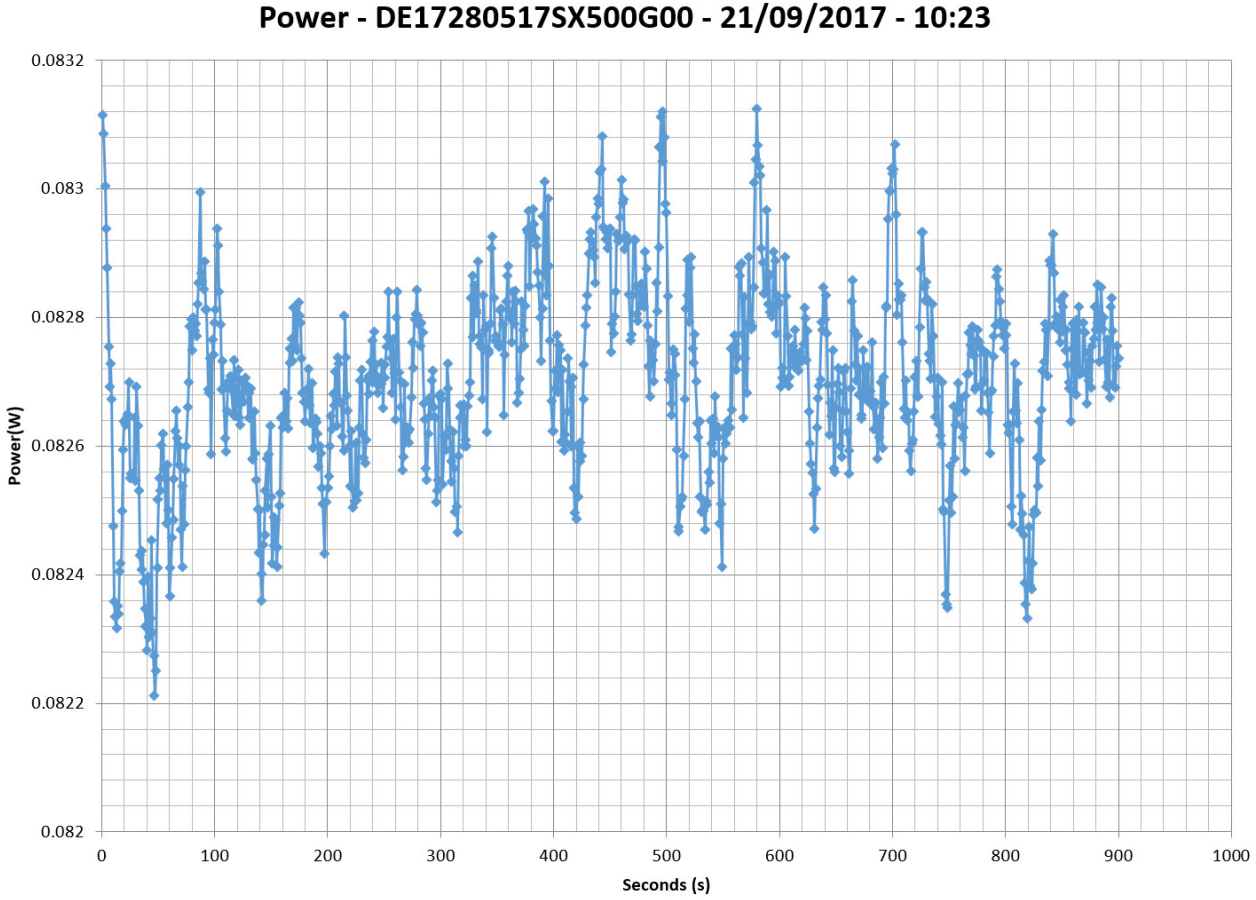
Accredited	
□□□□ (>1450 load combinations)	88.788%
Average Noise Output (>1450 Load Combinations)	30.78dBA
PF□□□ (>1450 Load Combinations)	0.987
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
□□□□□□	0.0827W
Non-Accredited	
12V Ripple (Full Load)	35.35mV
5V Ripple (Full Load)	36.01mV
3.3V Ripple (Full Load)	36.49mV
5VSB Ripple (Full Load)	32.02mV
12V Load Regulation	0.81%
5V Load Regulation	0.98%
3.3V Load Regulation	1.82%
5VSB Load Regulation	2.51%
Inrush Current	31.479A

□□□□ & PG□□

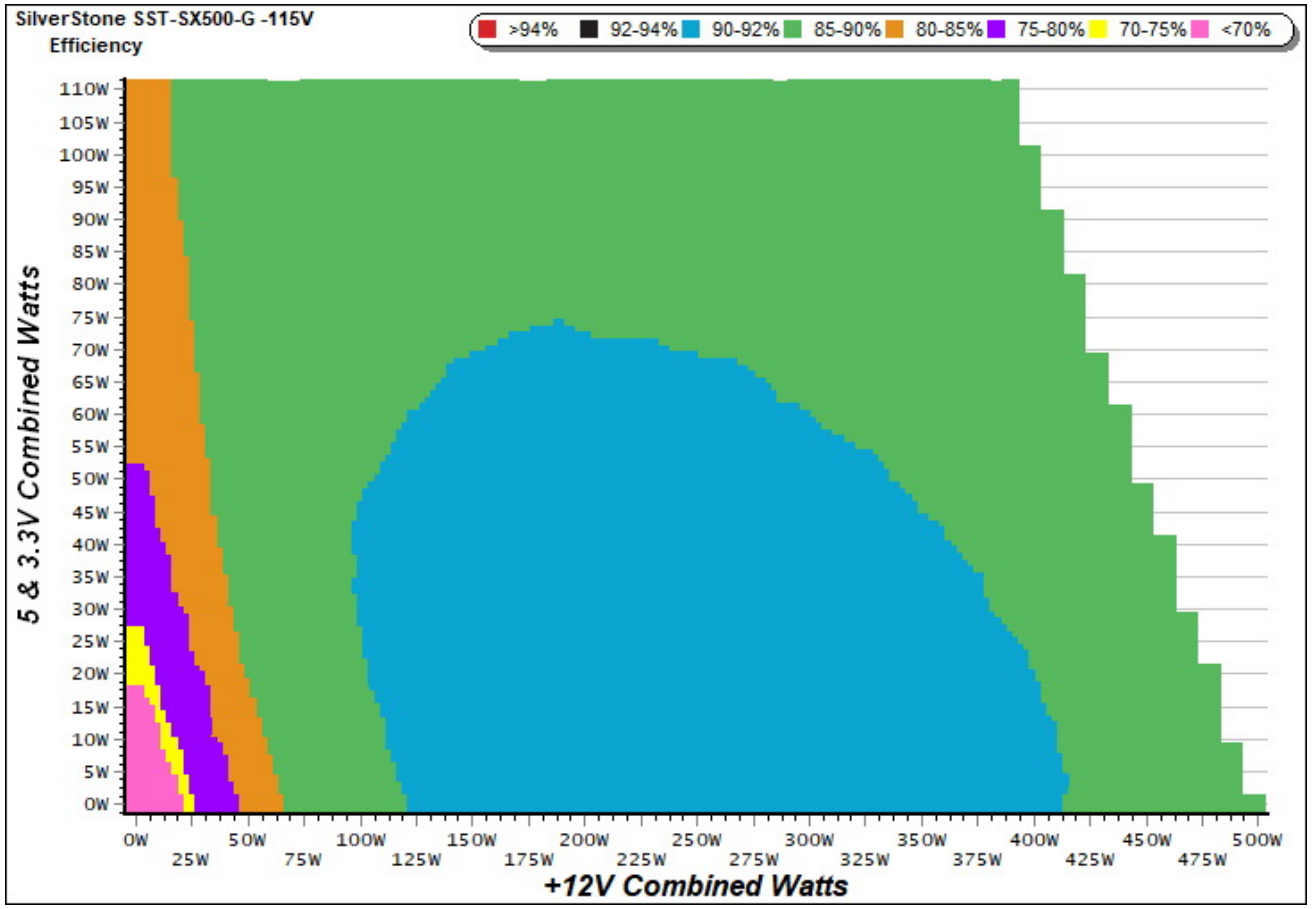
Hold-Up Time (ms)	23.7
AC Loss to PWR_OK Hold Up Time (ms)	19.8
PWR_OK Inactive to DC Loss Delay (ms)	3.9

□□□□

Graphs 115V



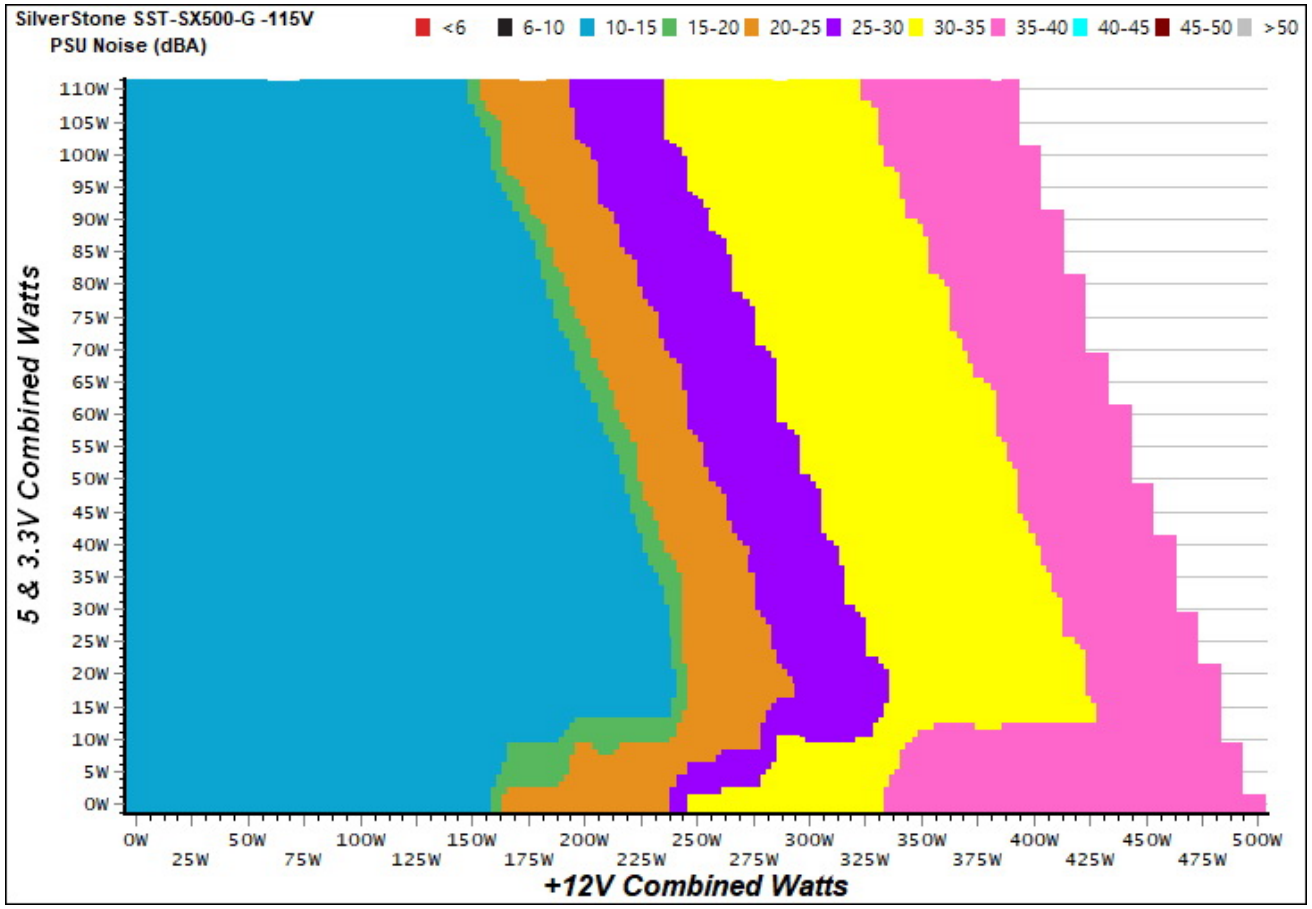
115V



□□

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.

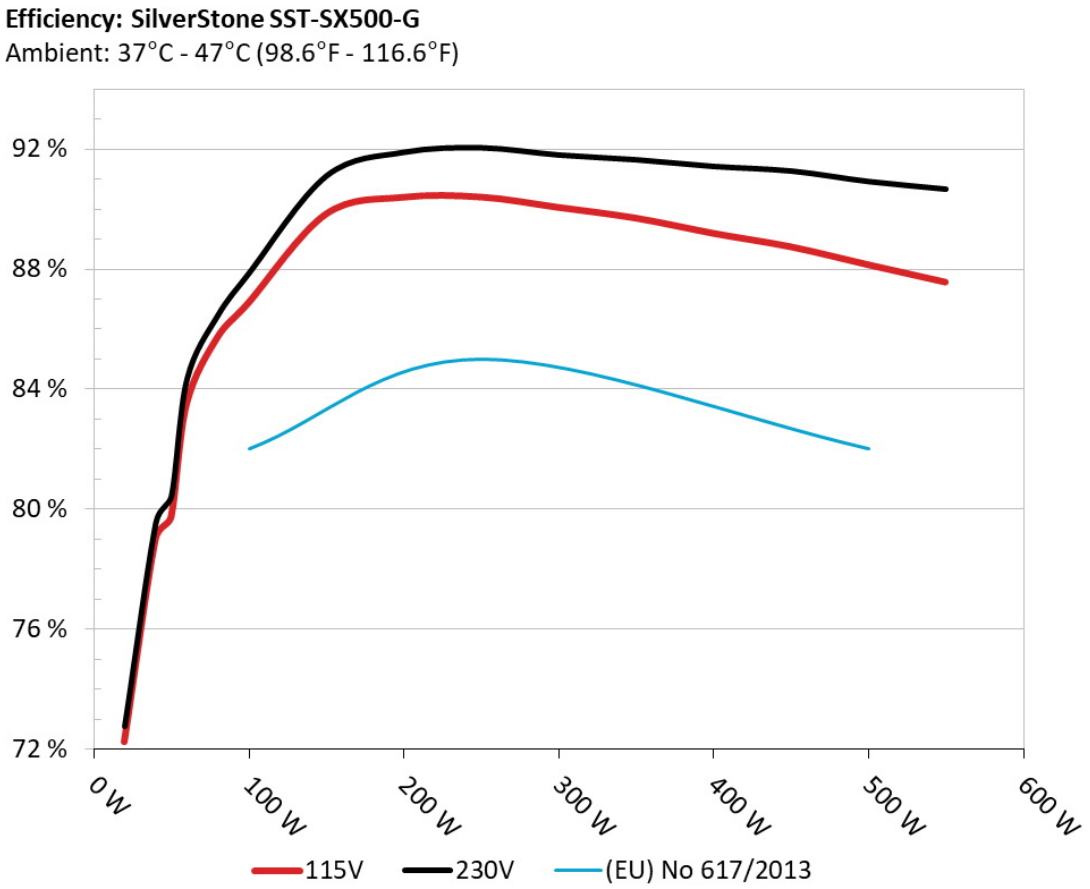
115V



□□

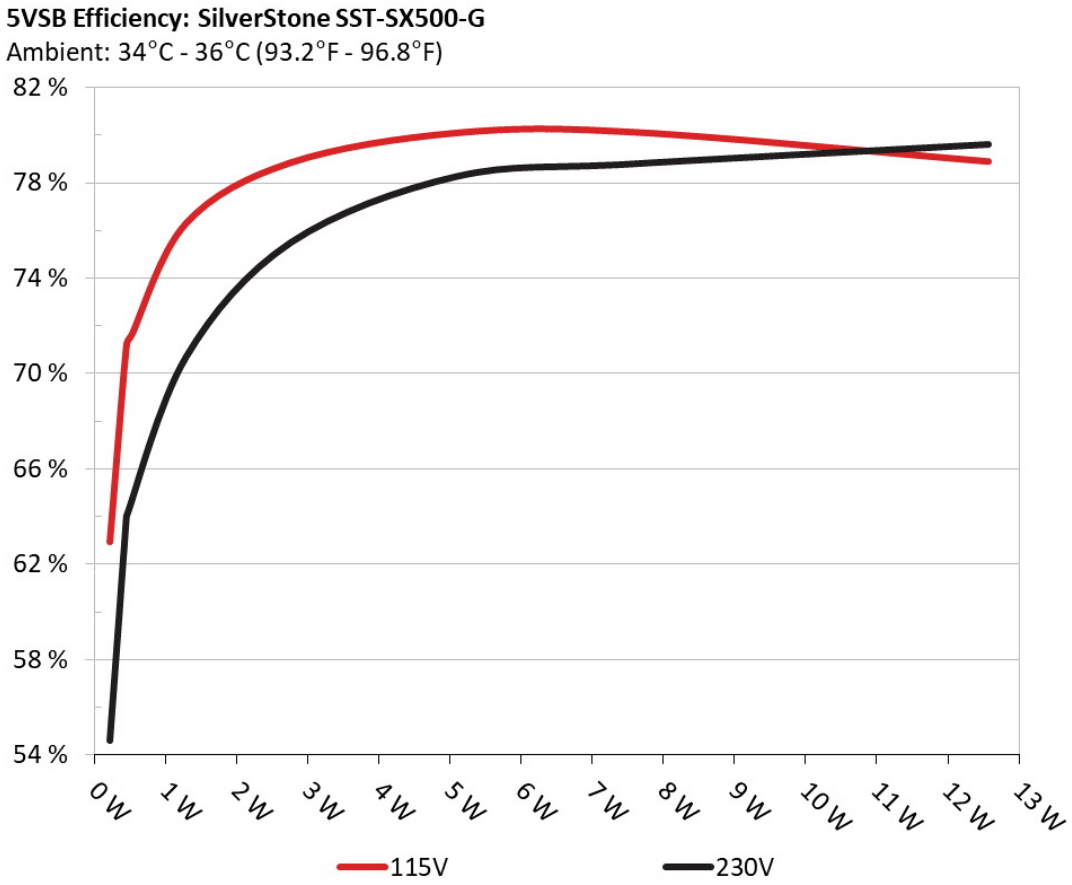
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance



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□□□□



□□

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

□□□□ □□ 5Vsb □□ (ErP Lot3/6 & CEC) 115V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.042A	0.214	62.941%	0.056
	5.112V	0.340		115.13V

2	0.087A	0.447	71.178%	0.099
	5.110V	0.628		115.15V
3	0.542A	2.762	78.869%	0.316
	5.094V	3.502		115.13V
4	1.002A	5.093	80.116%	0.379
	5.081V	6.357		115.14V
5	1.502A	7.607	80.141%	0.412
	5.065V	9.492		115.14V
6	2.501A	12.571	78.914%	0.446
	5.026V	15.930		115.14V

Supplementary Tests (For Reference)

10-110%□□□□ 115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	2.305A	1.965A	1.970A	0.986A	49.780	79.716%	898	13.2	38.04°C	0.961
	12.228V	5.098V	3.344V	5.060V	62.447				48.55°C	115.18V
2	5.642A	2.941A	2.962A	1.186A	99.754	86.861%	898	13.2	38.42°C	0.983
	12.213V	5.092V	3.338V	5.047V	114.843				51.11°C	115.18V
3	9.321A	3.443A	3.478A	1.387A	149.888	89.825%	898	13.2	38.85°C	0.987
	12.209V	5.087V	3.332V	5.036V	166.867				53.92°C	115.18V
4	13.002A	3.934A	3.967A	1.591A	199.769	90.385%	898	13.2	39.15°C	0.989
	12.197V	5.081V	3.326V	5.028V	221.020				57.92°C	115.17V
5	16.353A	4.929A	4.968A	1.794A	249.791	90.392%	898	13.2	40.14°C	0.993
	12.187V	5.075V	3.319V	5.013V	276.343				62.69°C	115.17V
6	19.707A	5.914A	5.977A	2.001A	299.727	90.047%	1405	22.9	40.51°C	0.995
	12.176V	5.069V	3.312V	4.998V	332.857				64.10°C	115.17V
7	23.074A	6.918A	6.988A	2.204A	349.766	89.690%	1575	25.3	41.24°C	0.996
	12.163V	5.064V	3.305V	4.986V	389.971				66.10°C	115.17V
8	26.446A	7.906A	8.006A	2.410A	399.717	89.183%	2048	33.6	42.34°C	0.996
	12.151V	5.058V	3.296V	4.977V	448.198				66.99°C	115.17V

9	30.242A	8.413A	8.533A	2.411A	449.745	88.733%	2048	33.6	43.17°C	0.997
	12.140V	5.054V	3.293V	4.972V	506.851				70.74°C	115.16V
10	34.006A	8.916A	9.035A	2.515A	499.669	88.137%	2325	37.6	44.23°C	0.997
	12.129V	5.050V	3.287V	4.965V	566.922				73.58°C	115.16V
11	38.158A	8.919A	9.045A	2.518A	549.652	87.556%	2375	37.7	46.54°C	0.997
	12.119V	5.048V	3.284V	4.960V	627.771				78.87°C	115.16V
CL1	0.098A	13.021A	13.004A	0.005A	110.387	83.444%	898	13.2	44.27°C	0.994
	12.226V	5.080V	3.308V	5.073V	132.289				65.89°C	115.19V
CL2	41.619A	1.004A	1.001A	1.002A	518.247	88.692%	2390	37.9	44.19°C	0.997
	12.129V	5.074V	3.316V	5.026V	584.321				75.76°C	115.17V

The results above are not used in the certification process

20-80□□□□□ 115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.195A	0.486A	0.473A	0.196A	19.674	72.238%	898	13.2	0.863
	12.226V	5.103V	3.350V	5.093V	27.235				115.18V
2	2.412A	0.980A	0.984A	0.391A	39.765	78.998%	898	13.2	0.946
	12.225V	5.100V	3.348V	5.082V	50.337				115.18V
3	3.635A	1.467A	1.494A	0.591A	59.883	83.500%	898	13.2	0.962
	12.218V	5.098V	3.344V	5.071V	71.716				115.18V
4	4.848A	1.965A	1.974A	0.786A	79.810	85.718%	898	13.2	0.979
	12.216V	5.095V	3.341V	5.065V	93.108				115.18V

The results above are not used in the certification process

□□□□ 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	24.9 mV	17.1 mV	21.9 mV	16.6 mV	Pass
20% Load	36.8 mV	14.3 mV	14.4 mV	15.3 mV	Pass
30% Load	24.2 mV	17.9 mV	15.4 mV	21.2 mV	Pass
40% Load	23.9 mV	21.1 mV	21.4 mV	23.9 mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	23.1 mV	21.7 mV	23.9 mV	20.4 mV	Pass
60% Load	25.8 mV	29.0 mV	28.9 mV	23.8 mV	Pass
70% Load	29.0 mV	27.0 mV	33.1 mV	27.4 mV	Pass
80% Load	30.9 mV	30.2 mV	36.0 mV	30.4 mV	Pass
90% Load	31.7 mV	32.4 mV	30.8 mV	34.3 mV	Pass
100% Load	35.4 mV	36.0 mV	36.5 mV	32.0 mV	Pass
110% Load	37.1 mV	35.0 mV	36.6 mV	34.2 mV	Pass
Crossload 1	32.9 mV	28.1 mV	38.2 mV	30.0 mV	Pass
Crossload 2	34.6 mV	47.7 mV	46.8 mV	28.9 mV	Pass

The results above are not used in the certification process

SilverStone SFX 500W

Top side

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

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