

Lab ID#: SL19700124
Receipt Date: Sep 30, 2019
Test Date: Aug 10, 2019

Report:

Report Date: Oct 15, 2019

DUT INFORMATION

Brand	SilverStone
Manufacturer (OEM)	High Power
Series	PT Series
Model Number	SX700-PT
Serial Number	DESX700PT019280244
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10
Rated Frequency (Hz)	50-60
Rated Power (W)	700
Type	SFX
Cooling	92mm Fluid Dynamic Bearing Fan (S0921512HB)
Semi-Passive Operation	X
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	22	22	58.4	2.5	0.3
	Watts	110		700	12.5	3.6
Total Max. Power (W)		700				

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (300-330mm)	1	1	16-22AWG	No
4+4 pin EPS12V (550mm)	1	1	16AWG	No
4+4 pin EPS12V (405mm)	1	1	16AWG	No
6+2 pin PCIe (550mm+150mm)	1	2	16-18AWG	No
6+2 pin PCIe (400mm+150mm)	1	2	16-18AWG	No
SATA (300mm+200mm+100mm)	2	6	18AWG	No
4-pin Molex (300mm+200mm+200mm)	1	3	18AWG	No
FDD Adapter (+105mm)	1	1	22AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

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General Data	
Manufacturer (OEM)	High Power
PCB Type	Double Sided
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 3x CM chokes, 1x MOV, 1x Discharge IC
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x HY GBU1506L (600V, 15A @ 100°C)
APFC MOSFETS	2x Infineon IPA60R120C7 (650V, 7A @ 100°C, 0.120hm)
APFC Boost Diode	1x Infineon IDH08G65C6 (650V, 8A @ 145°C)
Hold-up Cap(s)	1x Rubycon (420V, 470uF, 3,000h @ 85°C, USH)
Main Switchers	2x Infineon IPA60R120C7 (650V, 7A @ 100°C, 0.120hm)
IC Driver	1x Silicon Labs Si8233BD
APFC Controller	Infineon ICE3PCS01G
Resonant Controllers	Champion CM6901
Topology	Primary side: Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	6x Toshiba TPHP8504PL (40V, 150A @ 25°C, 0.85mOhm)
5V & 3.3V	DC-DC Converters: 6x Infineon BSC0906NS (30V, 40A @ 100°C, 4.5mOhm) PWM Controllers: ANPEC APW7159
Filtering Capacitors	Electrolytics: 3x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 2x Nippon Chemi-Con (1-5,000h @ 105°C, KZE), 2x Rubycon (3-6,000h @ 105°C, YXG) Polymers: 18x FPCAP, 3x United Chemi-Con
Supervisor IC	SITI PS224 (OVP, UVP, OCP, SCP, PG)
Fan Controller	STC 15W408AS
Fan Model	Globe Fan S0921512HB (92mm, 12V, 0.45A, Fluid Dynamic Bearing Fan)
5VSB Circuit	
Rectifier	1x PFC P10V45SP SBR (45V, 10A)
Standby PWM Controller	Sanken STR-A6069H
-12V	
Rectifier	KEC KIA7912PI (-12V, 1A)

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	90.364%
Efficiency With 10W (≤500W) or 2% (>500W)	63.128
Average Efficiency 5VSB	78.398%
Standby Power Consumption (W)	0.0883097
Average PF	0.990
Avg Noise Output	36.22 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	S+

230V

Average Efficiency	92.102%
Average Efficiency 5VSB	76.692%
Standby Power Consumption (W)	0.1452270
Average PF	0.956
Avg Noise Output	35.84 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	S+

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	Briel & Kjaer 2270 G4
Microphone	Briel & 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, Keithley 2015 - THD
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

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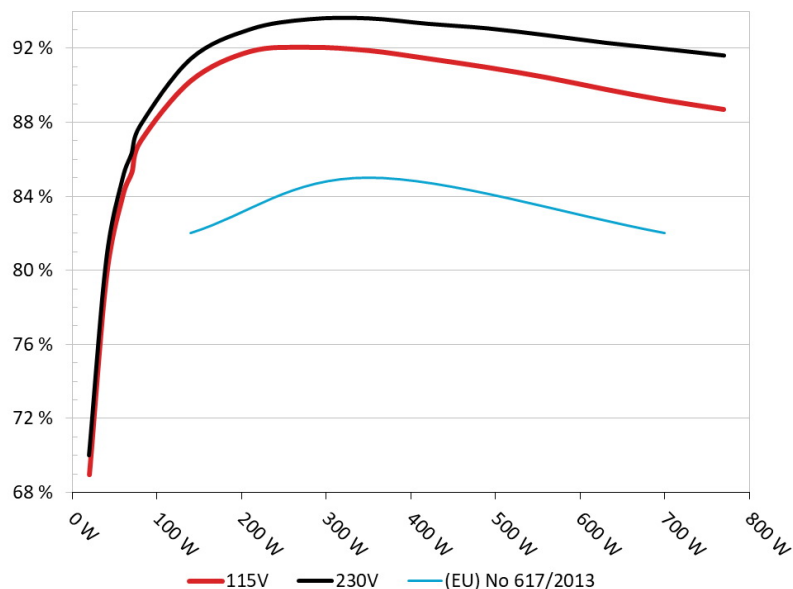
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: SilverStone SX700-PT

Ambient: 32°C - 41°C (89.6°F - 105.8°F)



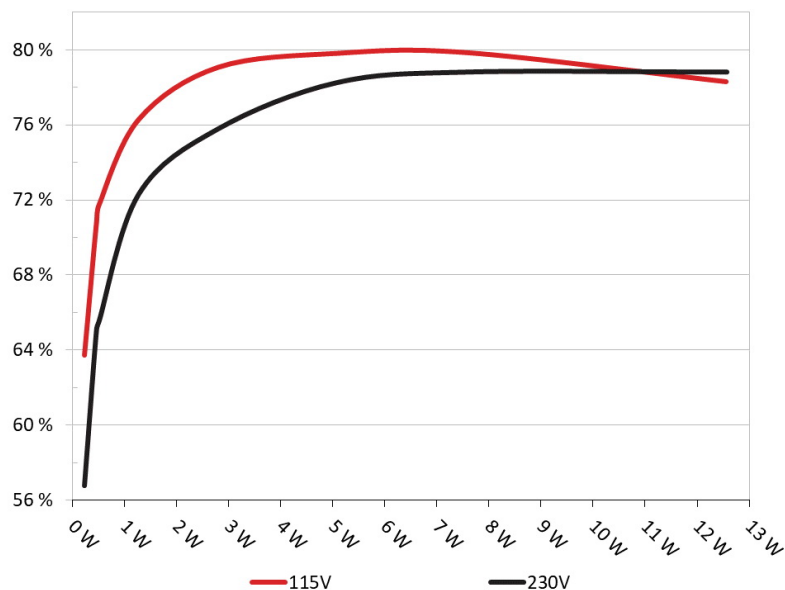
INFO

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: SilverStone SX700-PT

Ambient: 28°C - 32°C (82.4°F - 89.6°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	0.230	63.712%	0.062
	5.101V	0.361		115.12V
2	0.090A	0.460	70.769%	0.107
	5.099V	0.650		115.12V
3	0.550A	2.798	79.062%	0.324
	5.086V	3.539		115.13V
4	1.000A	5.074	79.805%	0.383
	5.073V	6.358		115.13V
5	1.500A	7.591	79.838%	0.414
	5.060V	9.508		115.13V
6	2.500A	12.549	78.294%	0.446
	5.019V	16.028		115.12V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	56.790%	0.021
	5.100V	0.405		230.27V
2	0.090A	0.460	65.064%	0.037
	5.098V	0.707		230.27V
3	0.550A	2.794	75.800%	0.164
	5.080V	3.686		230.27V
4	1.000A	5.069	78.262%	0.236
	5.068V	6.477		230.26V
5	1.500A	7.582	78.831%	0.285
	5.054V	9.618		230.27V
6	2.500A	12.567	78.830%	0.337
	5.026V	15.942		230.27V

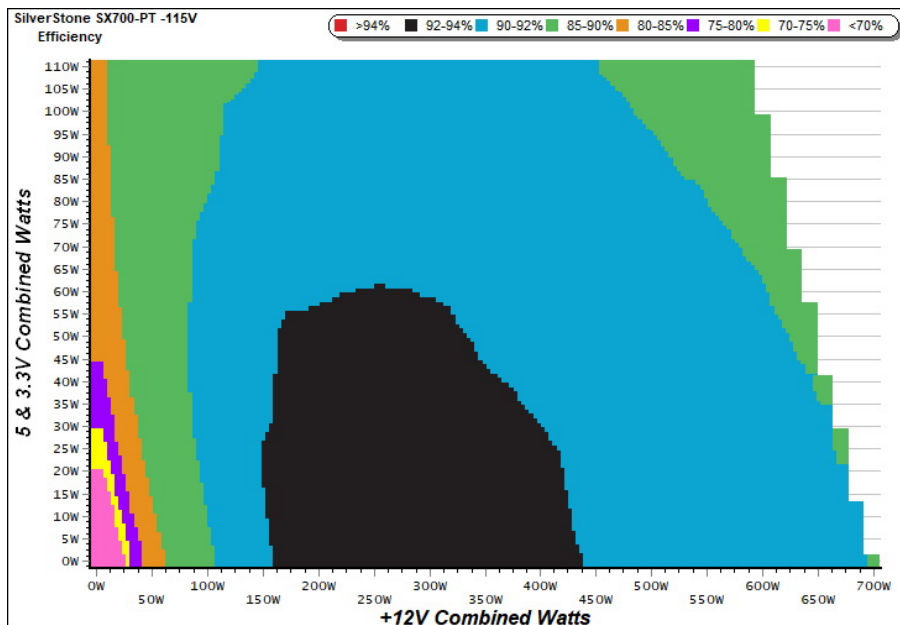
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115V

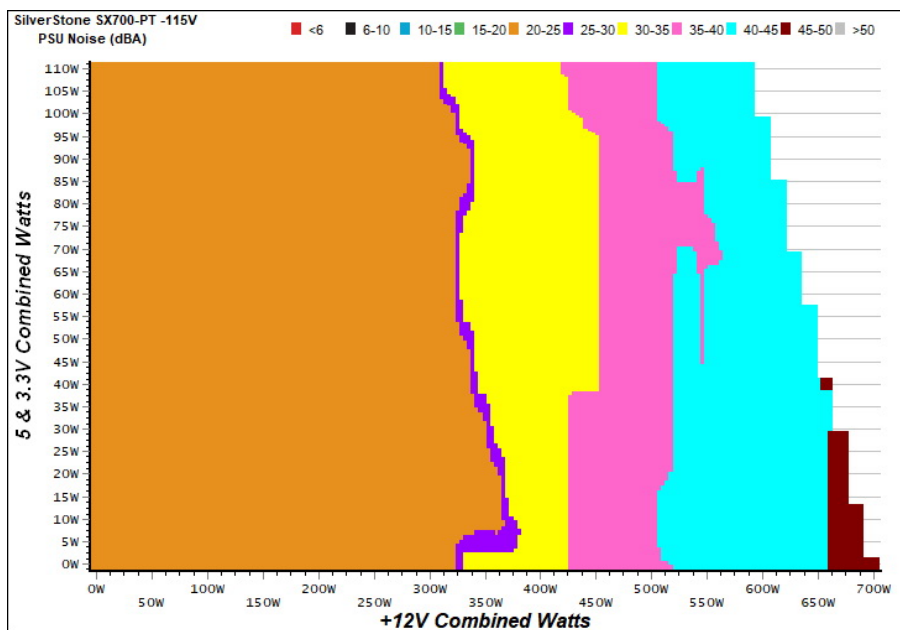
EFFICIENCY GRAPH 115V



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

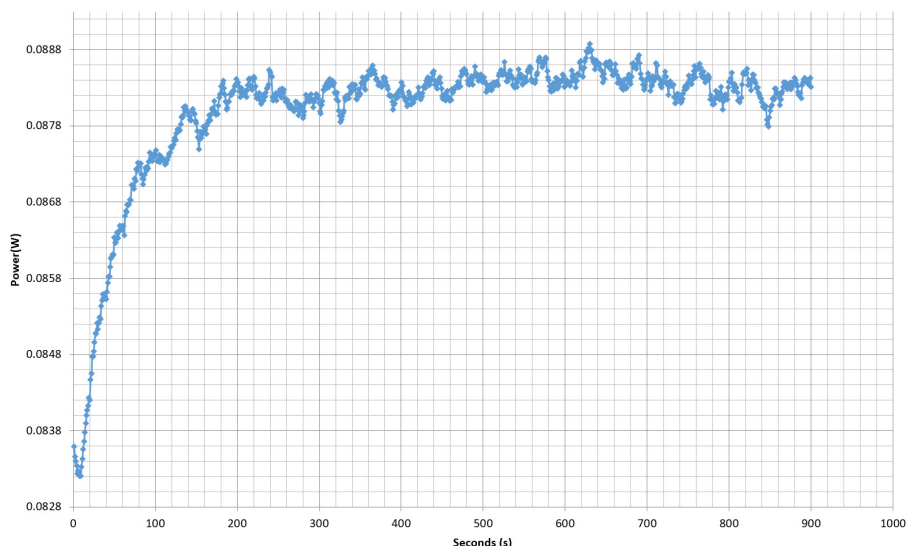
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - DESX700PT019280244 - 04/10/2019 - 18:30



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

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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	3.946A	1.975A	1.965A	0.989A	69.727	85.291%	1299	20.0	34.35°C	0.960
	12.197V	5.063V	3.357V	5.058V	81.752				38.48°C	115.12V
2	8.941A	2.968A	2.956A	1.190A	139.821	90.258%	1303	20.1	34.85°C	0.981
	12.182V	5.054V	3.349V	5.044V	154.913				39.53°C	115.12V
5	24.642A	4.970A	4.956A	1.796A	349.886	91.885%	1310	20.2	35.42°C	0.995
	12.149V	5.034V	3.328V	5.010V	380.785				42.03°C	115.12V
10	50.676A	9.009A	9.034A	2.520A	700.255	89.196%	3072	45.7	39.76°C	0.997
	12.097V	4.997V	3.288V	4.962V	785.071				49.35°C	115.11V

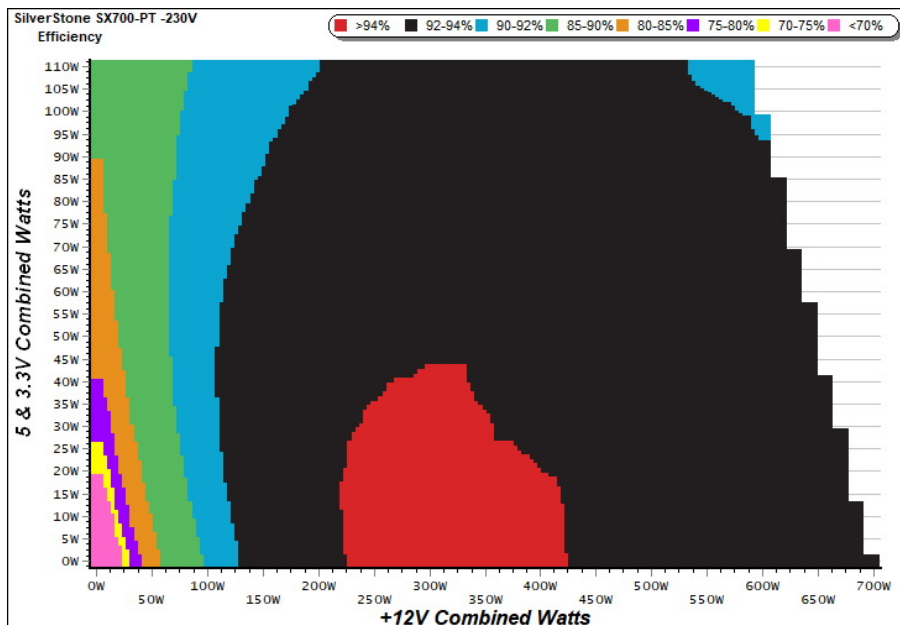
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230V

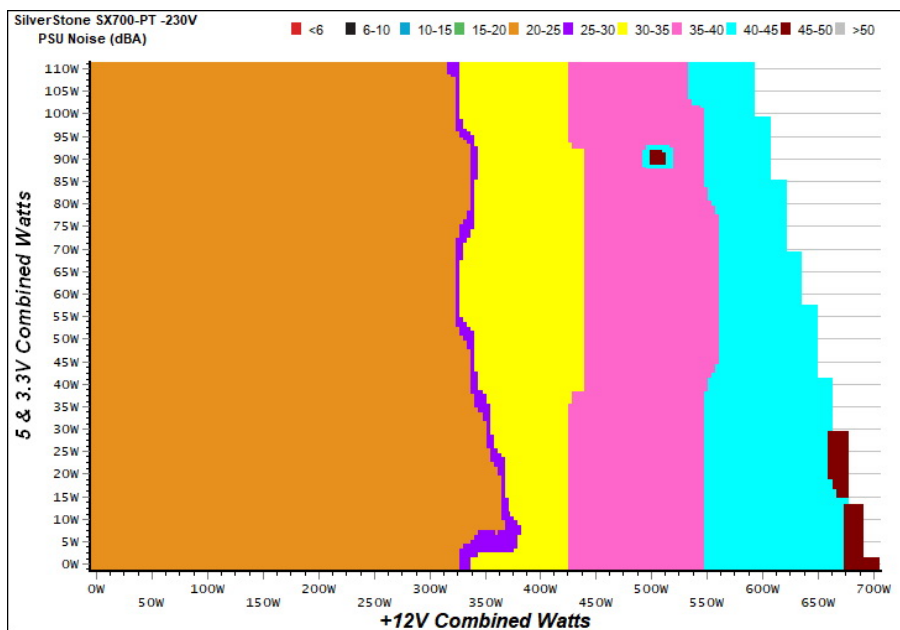
EFFICIENCY GRAPH 230V



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 230V



INFO

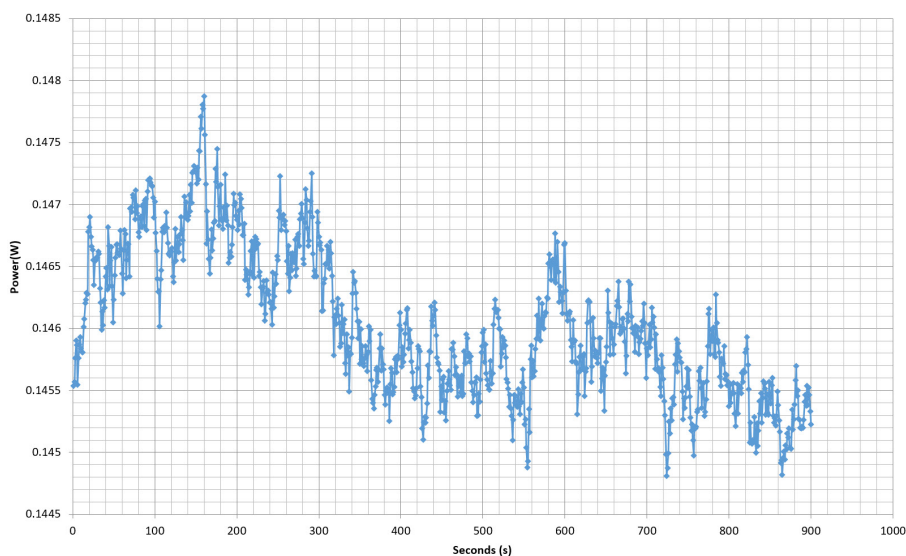
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COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	3.941A	1.975A	1.964A	0.989A	69.686	86.295%	1311	20.3	35.34°C	0.828
	12.202V	5.064V	3.358V	5.058V	80.753				39.69°C	230.24V
2	8.934A	2.968A	2.954A	1.190A	139.778	91.432%	1311	20.3	35.59°C	0.930
	12.187V	5.055V	3.350V	5.043V	152.876				40.46°C	230.24V
5	24.631A	4.967A	4.958A	1.796A	349.848	93.618%	1317	20.4	37.52°C	0.979
	12.153V	5.035V	3.328V	5.010V	373.698				43.51°C	230.25V
10	50.668A	9.008A	9.033A	2.519A	700.256	91.961%	3062	45.6	39.87°C	0.994
	12.099V	4.998V	3.288V	4.963V	761.469				49.11°C	230.26V

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

SilverStone SFX Platinum 700W

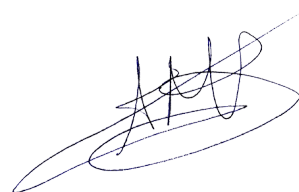


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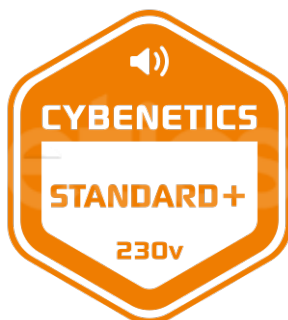
Power specifications label

CERTIFICATIONS 115V

Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



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