

Lab ID#: 128
Receipt Date: Jun 4, 2018
Test Date: Jun 16, 2018

Report:

Report Date: Jun 20, 2018

DUT INFORMATION

Brand	SilverStone
Manufacturer (OEM)	Enhance Electronics
Series	Strider Titanium
Model Number	ST60F-TI
Serial Number	155200448
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	9-4.5
Rated Frequency (Hz)	50-60
Rated Power (W)	600
Type	ATX12V
Cooling	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
Semi-Passive Operation	X
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	49	2.5	0.3
	Watts	100		588	12.5	3.6
Total Max. Power (W)		600				

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (560mm)	1	1	18-22AWG
4+4 pin EPS12V (755mm)	1	1	18AWG
6 pin PCIe (560mm)	2	2	18AWG
6+2 pin PCIe (560mm)	2	2	18AWG
SATA (600mm+140mm+140mm+140mm)	2	8	18AWG
4 pin Molex (610mm+150mm+150mm)	1	3	18AWG
FDD Adapter (+105mm)	1	1	22AWG

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Primary Side	
Transient Filter	4x Y caps, 4x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor
Bridge Rectifier(s)	2x Vishay BU1506 (600V, 15A @ 150°C)
APFC MOSFETS	2x Infineon IPP50R140CP (550V, 15A @ 100°C, 0.14 Ohm)
APFC Boost Diode	1x CREE C3D08060A (600V, 8A @ 152°C)
Hold-up Cap(s)	1x Nippon Chemi-Con (450V, 470uF, 2000h @ 105°C, KMQ)
Main Switchers	2x Infineon IPP50R140CP (550V, 15A @ 100°C, 0.14 Ohm) Driver IC: 1x Silicon Labs Si8230BD
APFC Controller	Champion CM6502S & CM03X Green PFC controller
Switching Controller	Champion CM6901
Topology	Primary side: Half-Bridge & LLC Resonant Converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	8x Infineon BSC014N04LS (40V, 100A @ 100°C, 1.4 mOhm)
5V & 3.3V	DC-DC Converters: 2x BSC050NE2LS FETs (25V, 37A @ 100°C, 5.0mΩ) 2x BSC018NE2LS FETs (25V, 97A @ 100°C, 1.8mΩ) PWM Controller: 2x APW7073
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (105°C, KY 4,000-10,000h, KZH 5,000-6,000h), Rubycon (105°C, ZLH 6,000-10,000h, YXG 3,000-6,000h) Polymers: Unicon (TW)
Supervisor IC	SITI PS223 (OVP, UVP, OCP, SCP, OTP)
Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, 2200RPM, Fluid Dynamic Bearing)
5VSB Circuit	
Rectifier	1x PFR10V45CT & 1x SG30N04D
Standby PWM Controller	Sanken STR-A6069H

RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	ErP Lot 6 2010: ✓ ErP Lot 6 2013: ✓ ErP Lot 3 2014: Partially
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	91.801%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	81.263%
Standby Power Consumption (W)	0.0586622
Average PF	0.975
Avg Noise Output	21.10 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

230V

Average Efficiency	92.961%
Average Efficiency 5VSB	78.300%
Standby Power Consumption (W)	0.0943343
Average PF	0.910
Avg Noise Output	20.79 dB(A)
Efficiency Rating (ETA)	BRONZE
Noise Rating (LAMBDA)	A

TEST EQUIPMENT

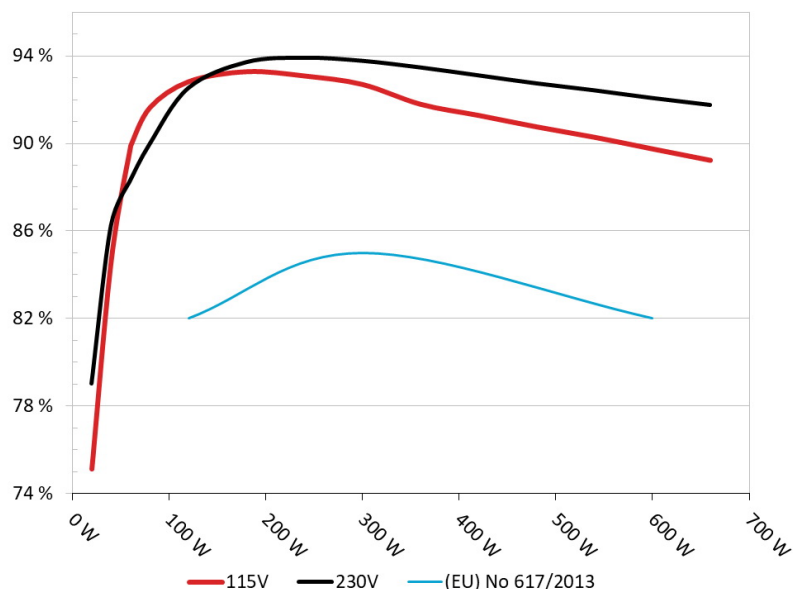
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, Chroma 61604	
Power Analyzers	N4L PPA1530, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: SilverStone SST-ST60F-TI
Ambient: 37°C - 46°C (98.6°F - 114.8°F)

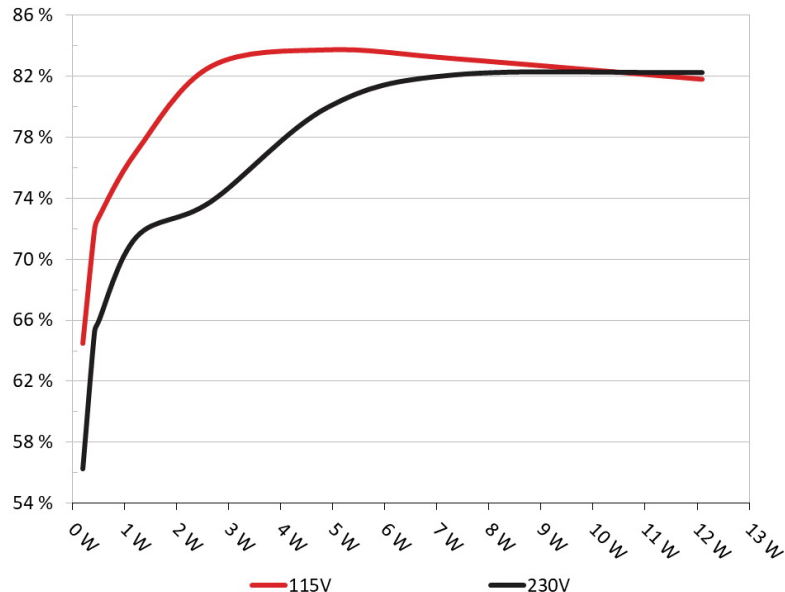


INFO

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 SST-ST60F-TI
Ambient: 34°C - 36°C (93.2°F - 96.8°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	0.042A	0.205	64.465%	0.021
	4.935V	0.318		115.14V
2	0.086A	0.426	71.838%	0.040
	4.933V	0.593		115.13V
3	0.542A	2.663	82.651%	0.185
	4.913V	3.222		115.12V
4	1.002A	4.903	83.740%	0.274
	4.894V	5.855		115.12V
5	1.502A	7.317	83.167%	0.330
	4.873V	8.798		115.13V
6	2.502A	12.088	81.808%	0.387
	4.832V	14.776		115.13V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.206	56.284%	0.007
	4.935V	0.366		230.35V
2	0.087A	0.430	65.250%	0.013
	4.933V	0.659		230.36V
3	0.542A	2.664	73.795%	0.071
	4.914V	3.610		230.35V
4	1.002A	4.905	79.977%	0.115
	4.895V	6.133		230.35V
5	1.502A	7.321	82.102%	0.159
	4.875V	8.917		230.35V
6	2.501A	12.093	82.260%	0.229
	4.835V	14.701		230.35V

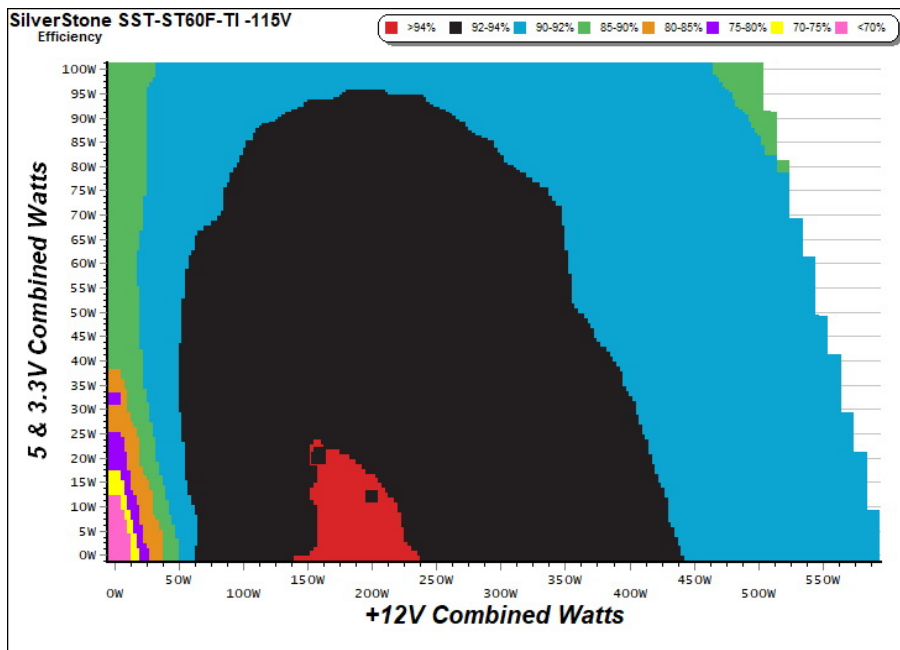
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115V

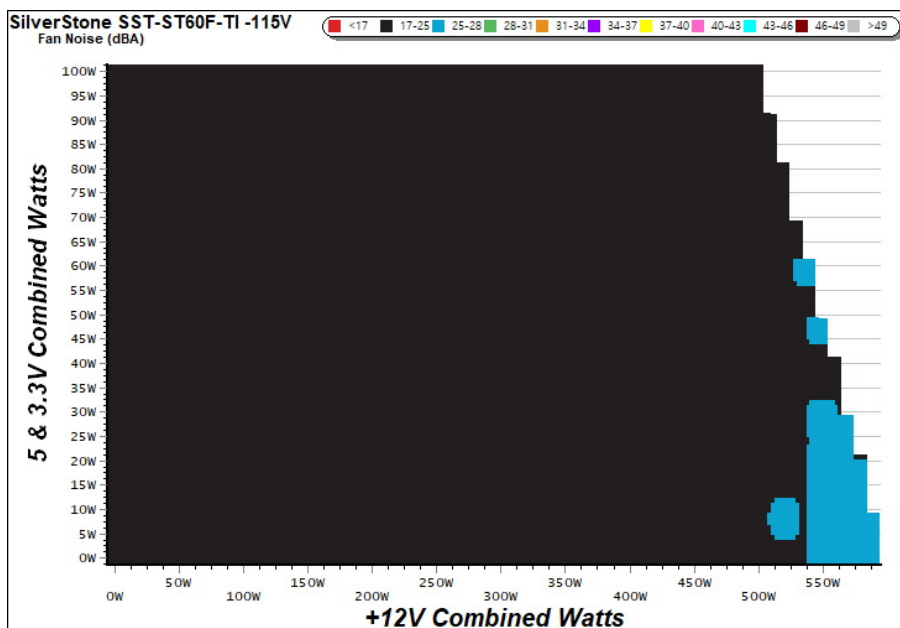
EFFICIENCY GRAPH 115V



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

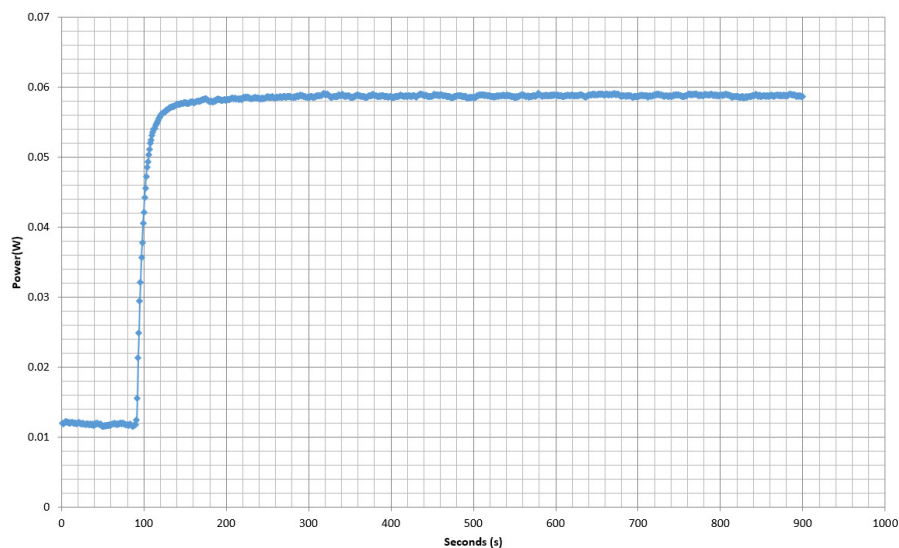
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - 155200448 - 19/06/2017 - 12:05



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

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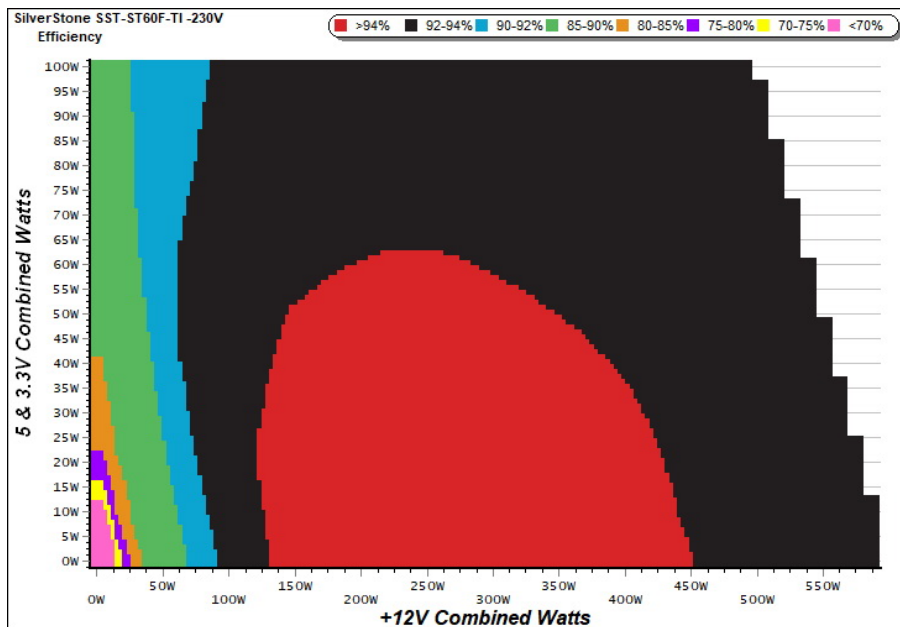
230V

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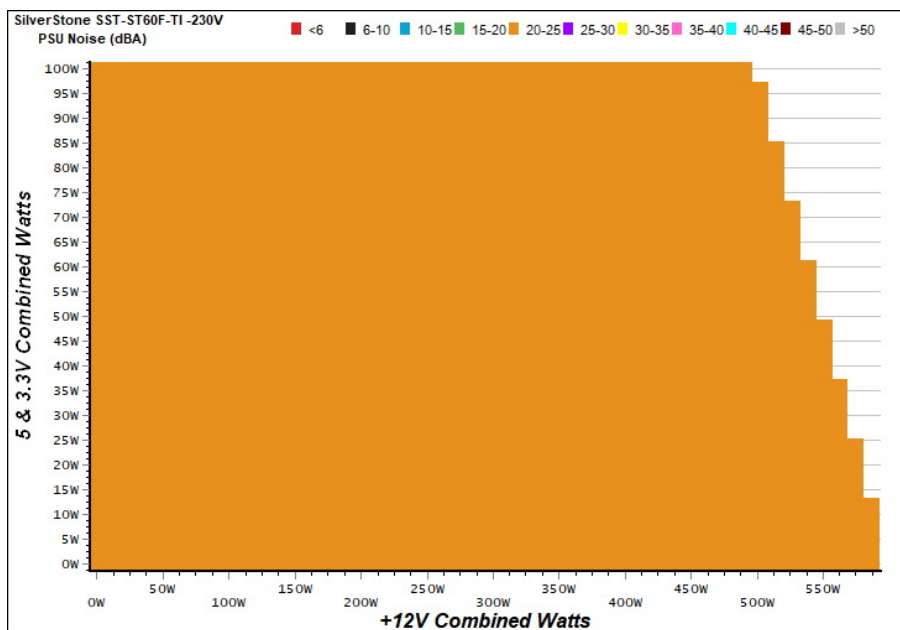
EFFICIENCY GRAPH 230V



INFO

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NOISE GRAPH 230V



INFO

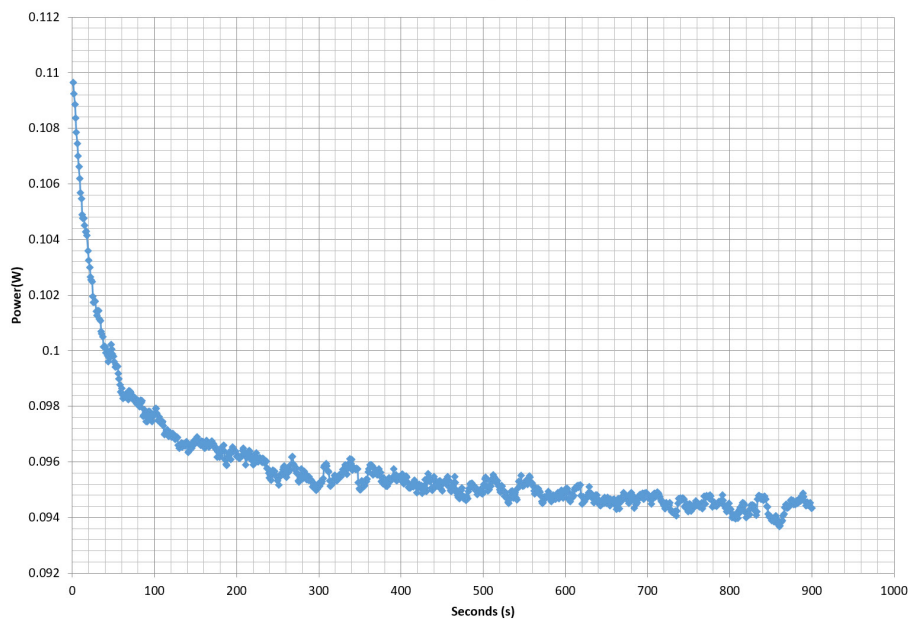
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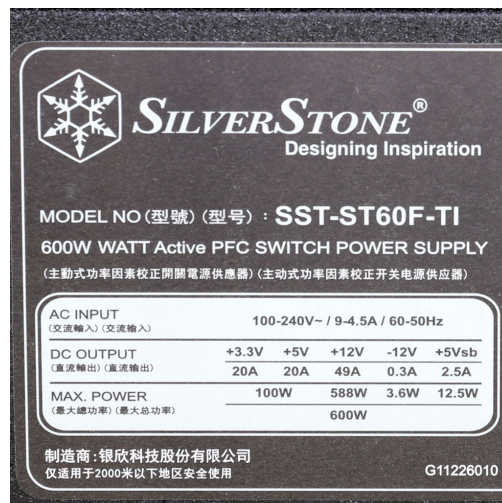
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EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

SilverStone Strider Titanium 600W

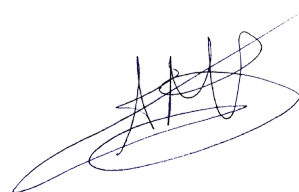


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Power specifications label

CERTIFICATIONS 115V

Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



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