

Lab ID#: 440
Receipt Date: Jul 11, 2018
Test Date: Jul 23, 2018

Report: 19PS440A
Report Date: Jul 27, 2018

DUT INFORMATION

Brand	SilverStone
Manufacturer (OEM)	Enhance Electronics
Series	Nightjar
Model Number	NJ450-SXL
Serial Number	DB18160797J450SXL0
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8-4
Rated Frequency (Hz)	50-60
Rated Power (W)	450
Type	SFX-L
Cooling	Fanless
Semi-Passive Operation	
Cable Design	Fully Modular

TEST EQUIPMENT

Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Chroma 61604, Keysight AC6804B	
Power Analyzers	N4L PPA1530 x2, 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 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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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	91.649%
Efficiency With 10W (≤500W) or 2% (>500W)	63.855
Average Efficiency 5VSB	82.179%
Standby Power Consumption (W)	0.0539478
Average PF	0.952
Avg Noise Output	- dB(A)
Efficiency Rating (ETA)	BRONZE
Noise Rating (LAMBDA)	A++

230V

Average Efficiency	92.825%
Average Efficiency 5VSB	80.946%
Standby Power Consumption (W)	0.0889980
Average PF	0.895
Avg Noise Output	5.00 dB(A)
Efficiency Rating (ETA)	
Noise Rating (LAMBDA)	A++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	16	15	37.5	2.5	0.3
	Watts	80		450	12.5	3.6
Total Max. Power (W)		450				

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (300mm)	1	1	16-22AWG	No
4+4 pin EPS12V (400mm)	1	1	16AWG	No
6+2 pin PCIe (400mm+150mm)	2	4	16-18AWG	No
SATA (300mm+200mm+90mm+90mm)	2	8	18AWG	No
4 pin Molex (300mm+200mm+200mm)	1	3	18AWG	No
FDD Adapter (+105mm)	1	1	22AWG	No
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

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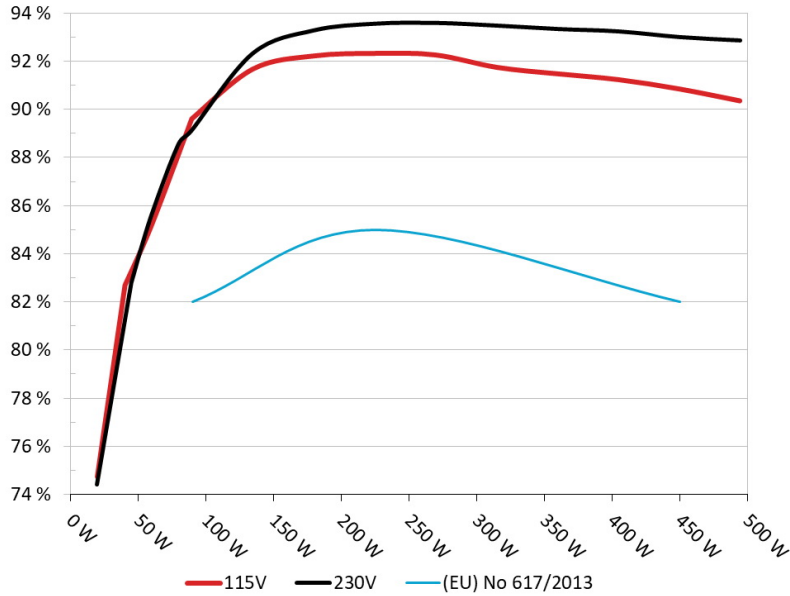
General Data	
Manufacturer (OEM)	Enhance Electronics
Primary Side	
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor
Bridge Rectifier(s)	2x GBU15J (600V, 15A @ 100°C)
APFC MOSFETS	2x Infineon IPL60R104C7 (650V, 15A @ 100°C, 0.104Ohm)
APFC Boost Diode	1x CREE C3D08060A (600V, 8A @ 152°C)
Hold-up Cap(s)	1x Hitachi (450V, 390uF, 2000h @ 105°C, HU)
Main Switchers	2x Infineon IPB50R140CP (550V, 15A @ 100°C, 0.14Ohm) Driver IC: Si8230BD
APFC Controller	ATK AT6101L
Resonant Controller	Champion CM6901T6X
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	8x Infineon BSC014N04LS (40V, 100A @ 100°C, 1.4mOhm)
5V & 3.3V	DC-DC Converters: 4x Infineon BSC018NE2LS (25V, 97A @ 100°C, 1.4mOhm), 2x Infineon BSC050N04LS (40V, 54A @ 100°C, 5mOhm) PWM Controller: 2x Anpec APW7160A
Filtering Capacitors	Polymers: FPCAP, Suncon, Unicon (2000h @ 125°C, UPL, UPH)
Supervisor IC	SITI PS223 (OCP, OTP, OVP, UVP, SCP, PG)
5VSB Circuit	
Rectifiers	MOSPEC S10L45 (45V, 10A) , SVF2N70MJ (700V, 2A, 6.5Ohm)
Standby PWM Controller	ATK AT6002H

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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: SilverStone NJ450-SXL
Ambient: 37°C - 46°C (98.6°F - 114.8°F)

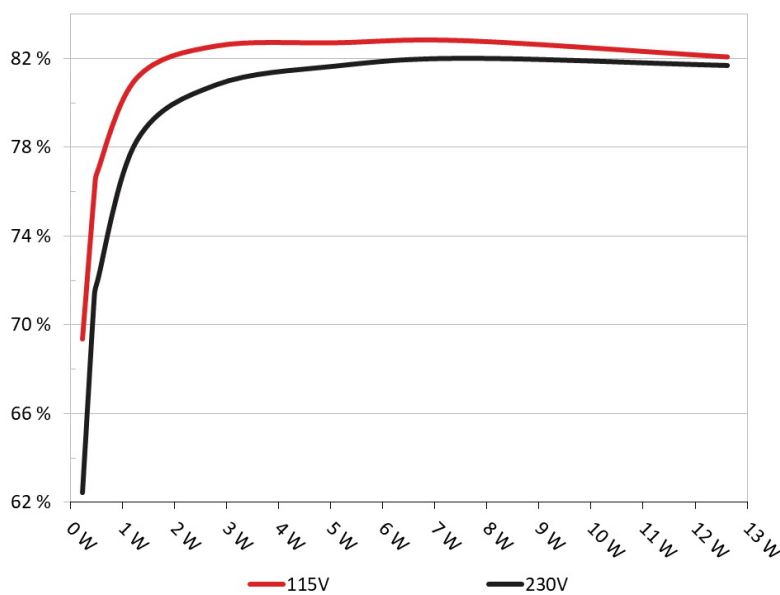


INFO

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 NJ450-SXL
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	0.045A	0.231	69.369%	0.019
	5.119V	0.333		115.38V
2	0.090A	0.461	76.073%	0.034
	5.118V	0.606		115.38V
3	0.550A	2.808	82.588%	0.171
	5.104V	3.400		115.38V
4	1.000A	5.092	82.729%	0.263
	5.091V	6.155		115.36V
5	1.500A	7.616	82.819%	0.327
	5.076V	9.196		115.38V
6	2.501A	12.619	82.091%	0.395
	5.046V	15.372		115.36V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	62.432%	0.007
	5.119V	0.370		230.96V
2	0.090A	0.461	71.362%	0.011
	5.118V	0.646		230.95V
3	0.550A	2.808	80.829%	0.059
	5.104V	3.474		230.95V
4	1.000A	5.092	81.668%	0.103
	5.091V	6.235		230.95V
5	1.500A	7.616	82.016%	0.147
	5.076V	9.286		230.95V
6	2.500A	12.619	81.692%	0.219
	5.047V	15.447		230.95V

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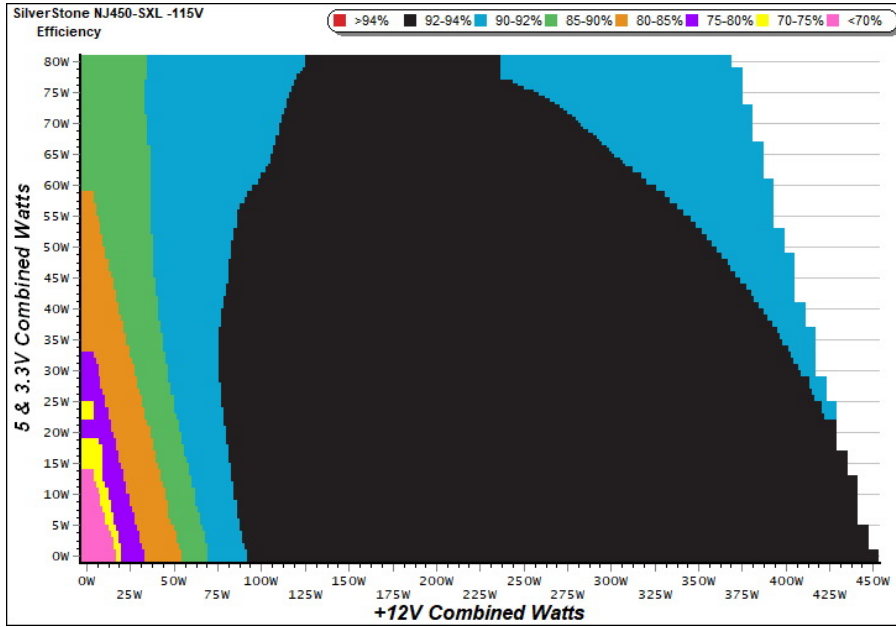
115V

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EFFICIENCY GRAPH 115V



INFO

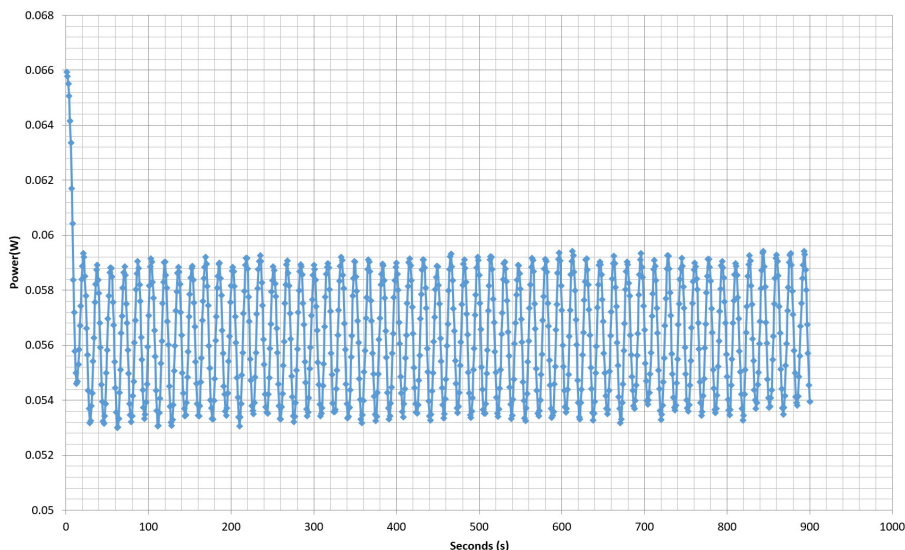
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations

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VAMPIRE POWER -115V

Power - DB18160797J450SXLO - 25/07/2018 - 08:59



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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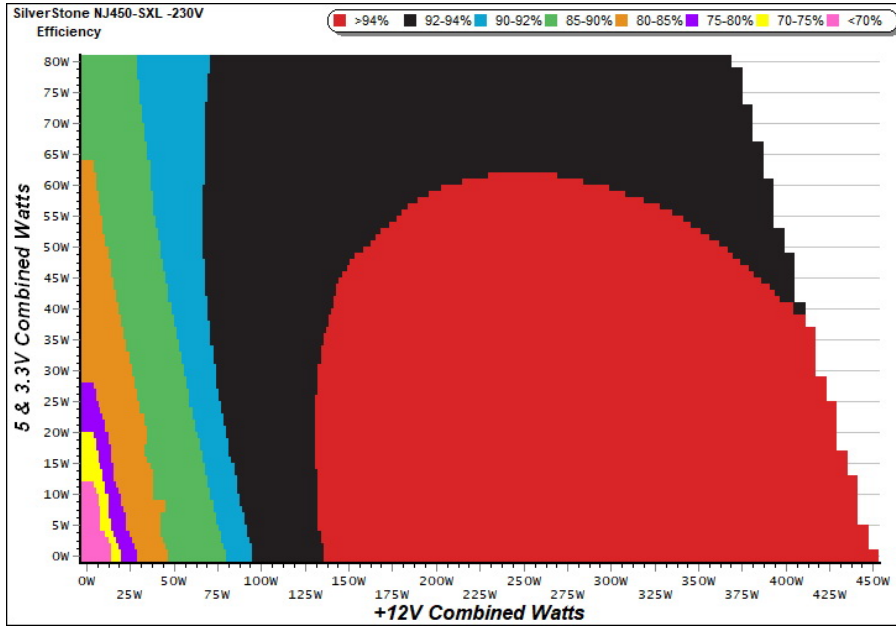
230V

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EFFICIENCY GRAPH 230V



INFO

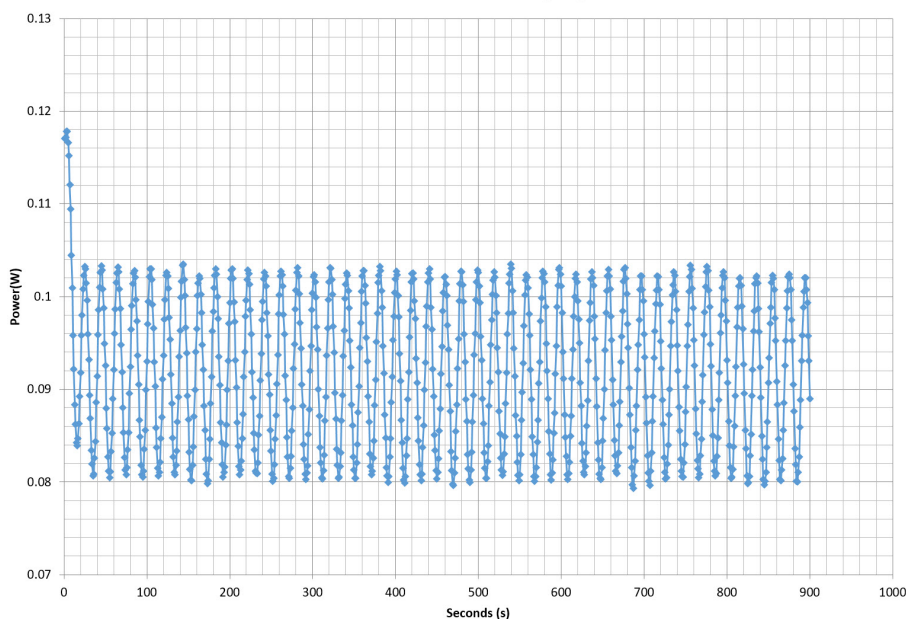
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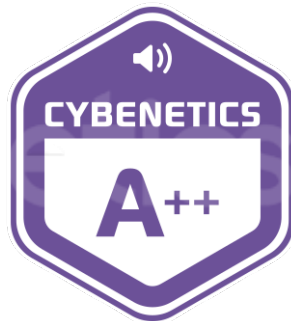
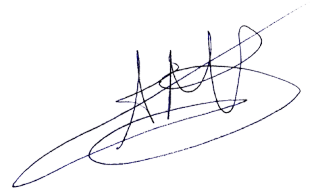


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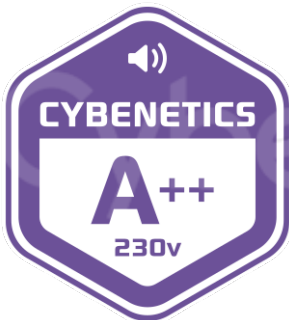
Power specifications label

CERTIFICATIONS 115V

Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



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