

Lab ID#: SL70001739
Receipt Date: Oct 8, 2020
Test Date: Oct 21, 2020

Report: 20PS1739A
Report Date: Oct 23, 2020

DUT INFORMATION	
Brand	SilverStone
Manufacturer (OEM)	Seasonic
Series	Nightjar
Model Number	NJ700
Serial Number	
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	9.4-4.5
Rated Frequency (Hz)	50-60
Rated Power (W)	700
Type	ATX12V
Cooling	Fanless
Semi-Passive Operation	X
Cable Design	Fully Modular

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	Bruel & Kjaer 2270 G4
Microphone	Bruel & 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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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	92.102%
Efficiency With 10W (≤500W) or 2% (>500W)	70.864
Average Efficiency 5VSB	80.464%
Standby Power Consumption (W)	0.0547903
Average PF	0.984
Avg Noise Output	- dB(A)
Efficiency Rating (ETA)	TITANIUM
Noise Rating (LAMBDA)	A++

230V

Average Efficiency	93.637%
Average Efficiency 5VSB	79.403%
Standby Power Consumption (W)	0.0834928
Average PF	0.928
Avg Noise Output	- dB(A)
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	A++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	58	2.5	0.3
	Watts	100		696	12.5	3.6
Total Max. Power (W)		700				

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (620mm)	1	1	18-22AWG	No
4+4 pin EPS12V (1000mm)	2	2	18AWG	No
6+2 pin PCIe (680mm+80mm)	2	4	18AWG	No
SATA (350mm+150mm+150mm+150mm)	1	4	18AWG	No
SATA (450mm+120mm+120mm+120mm)	1	4	18AWG	No
4 pin Molex (450mm+120mm+120mm)	2	6	18AWG	No
SATA (550mm+150mm) / 4 pin Molex (+150mm)	1	2 / 1	18AWG	-

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PAGE 3/14

General Data	-
Manufacturer (OEM)	Seasonic
PCB Type	Double Sided
Primary Side	-
Transient Filter	5x Y caps, 3x X caps, 2x CM chokes, 1x MOV, 1x Discharge IC
Inrush Protection	NTC Thermistor MF72-5D20L (5 Ohm) & Relay
Bridge Rectifier(s)	2x Vishay LVB2560 (600V, 25A @ 105°C)
APFC MOSFETs	2x Infineon IPP60R099C7 (650V, 14A @ 100°C, Rds(on): 0.099Ohm)
APFC Boost Diode	1x CREE C3D06060A (600V, 6A @ 154°C)
Bulk Cap(s)	2x Nippon Chemi-Con (400V, 470uF each or 940uF combined, 2,000h @ 105°C, KMR)
Main Switchers	4x Infineon IPP50R140CP (550V, 15A @ 100°C, Rds(on): 0.14Ohm)
IC Driver	2x Silicon Labs Si8230BD
APFC Controller	ON Semiconductor NCP1654
Resonant Controller	Champion CM6901T2X
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	8x Infineon BSC014N04LS (40V, 125A @ 100°C, Rds(on): 1.4mOhm)
5V & 3.3V	DC-DC Converters: 6x Infineon BSC0906NS (30V, 40A @ 100°C, Rds(on): 4.5mOhm) PWM Controllers: ANPEC APW7159C
Filtering Capacitors	Electrolytic: 1x Nippon Chemi-Con (4-10,000h @ 105°C, KYB), 1x Nippon Chemi-Con (5-6,000h @ 105°C, KZH), 1x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 1x Nichicon (2-5,000h @ 105°C, HD), 1x Nichicon (4-10,000h @ 105°C, HE), 1x Rubycon (3-6,000h @ 105°C, YXG) Polymer: 2x United Chemi-Con, 8x NIC, 14x FPCAP
Supervisor IC	Weltrend WT7527V (OCP, OVP, UVP, SCP, PG)
5VSB Circuit	-
Rectifiers	1x Infineon IPA65R1K5CE FET (700V, 3.3A @ 100°C, Rds(on): 1.5Ohm), 1x SBR
Standby PWM Controller	1x

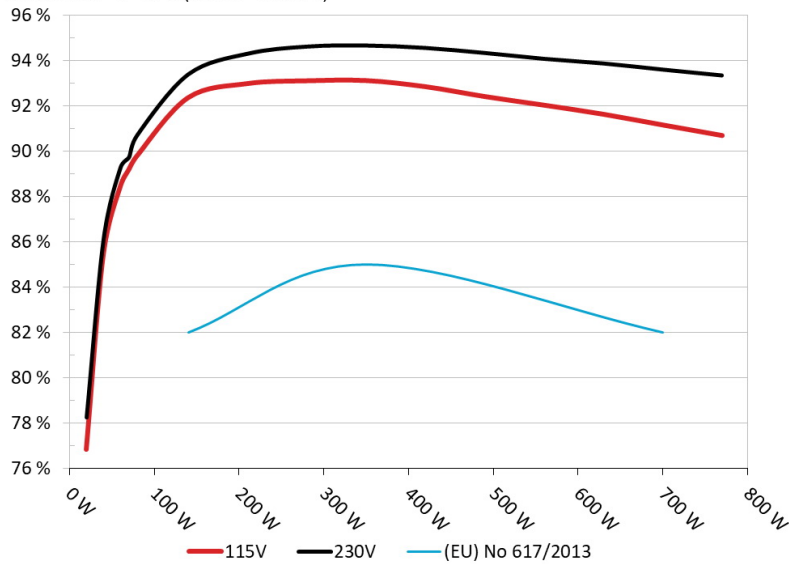
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: SilverStone NJ700

Ambient: 37°C - 47°C (98.6°F - 116.6°F)



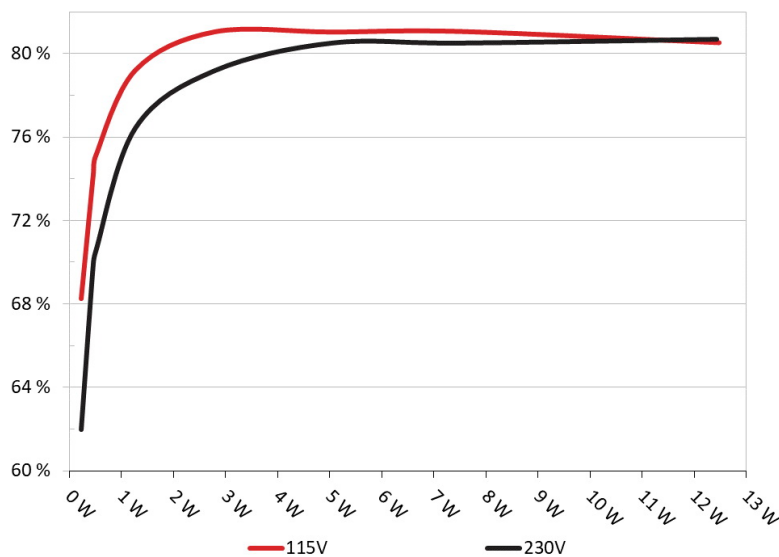
INFO

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 NJ700

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	0.230	68.249%	0.033
	5.099V	0.337		115.16V
2	0.090A	0.459	74.152%	0.059
	5.097V	0.619		115.16V
3	0.550A	2.793	81.050%	0.256
	5.076V	3.446		115.16V
4	1.000A	5.056	81.039%	0.353
	5.055V	6.239		115.16V
5	1.500A	7.551	81.063%	0.410
	5.033V	9.315		115.16V
6	2.501A	12.485	80.528%	0.466
	4.993V	15.504		115.16V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	61.995%	0.011
	5.099V	0.371		230.36V
2	0.090A	0.459	69.863%	0.019
	5.096V	0.657		230.36V
3	0.550A	2.791	79.177%	0.097
	5.073V	3.525		230.36V
4	1.000A	5.050	80.504%	0.161
	5.049V	6.273		230.36V
5	1.500A	7.534	80.500%	0.219
	5.022V	9.359		230.36V
6	2.500A	12.433	80.681%	0.298
	4.973V	15.410		230.35V

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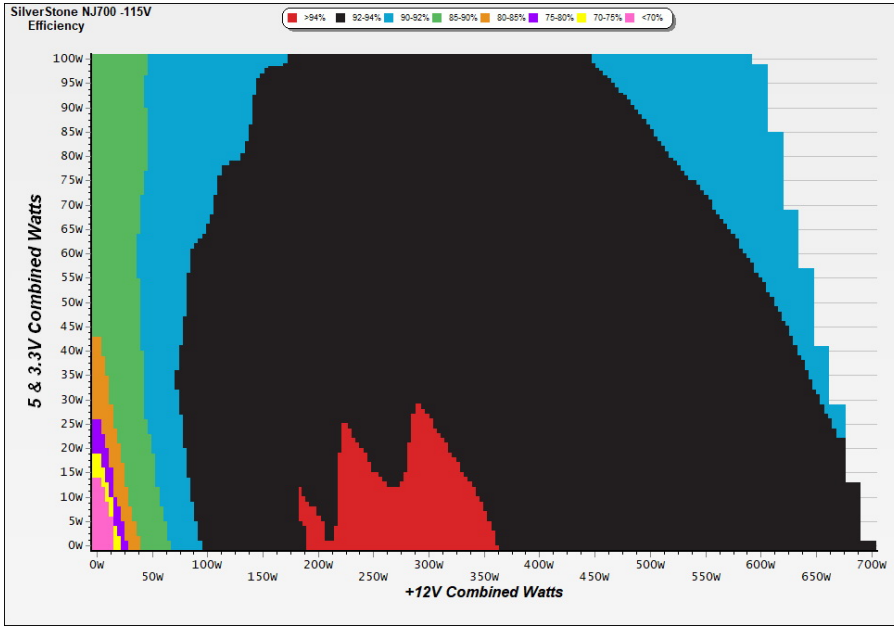
115V

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PAGE 7/14

EFFICIENCY GRAPH 115V



INFO

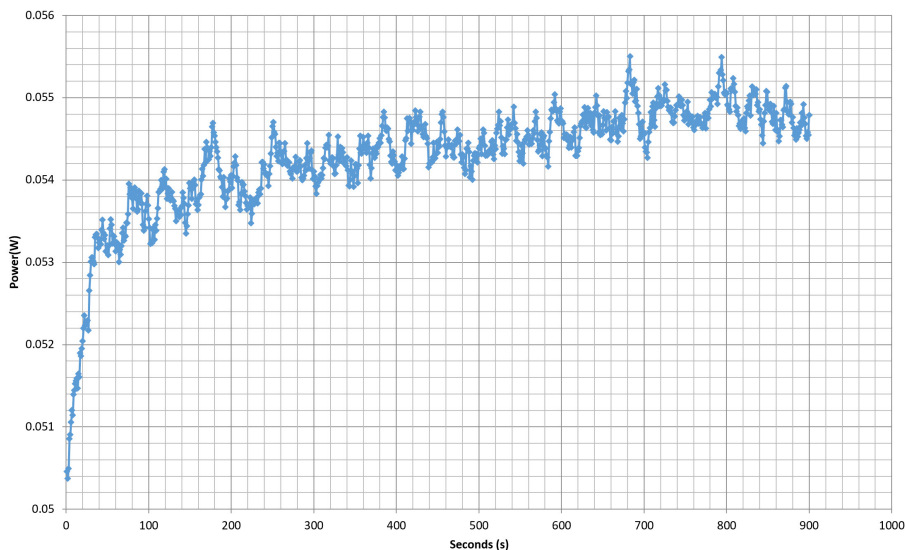
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations

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VAMPIRE POWER -115V

Power - 16/10/2020 - 13:17



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	Temps (In/Out)	PF/AC Volts
1	3.984A	1.954A	1.968A	1.012A	70.006	89.182%	45.63°C	0.947
	12.147V	5.120V	3.358V	4.941V	78.498		40.32°C	115.18V
2	8.978A	2.933A	2.958A	1.220A	140.044	92.367%	46.64°C	0.977
	12.155V	5.116V	3.350V	4.920V	151.617		40.65°C	115.19V
5	24.650A	4.902A	4.953A	1.851A	350.061	93.122%	50.21°C	0.994
	12.152V	5.102V	3.331V	4.865V	375.915		42.26°C	115.16V
10	50.479A	8.869A	9.012A	2.604A	700.332	91.157%	56.70°C	0.996
	12.146V	5.075V	3.296V	4.801V	768.274		45.76°C	115.18V

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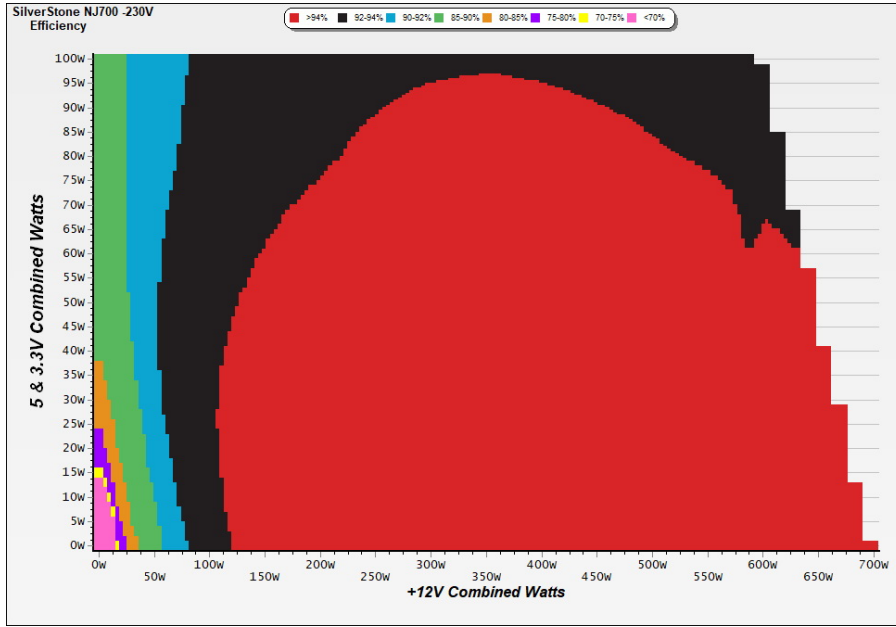
230V

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PAGE 11/14

EFFICIENCY GRAPH 230V



INFO

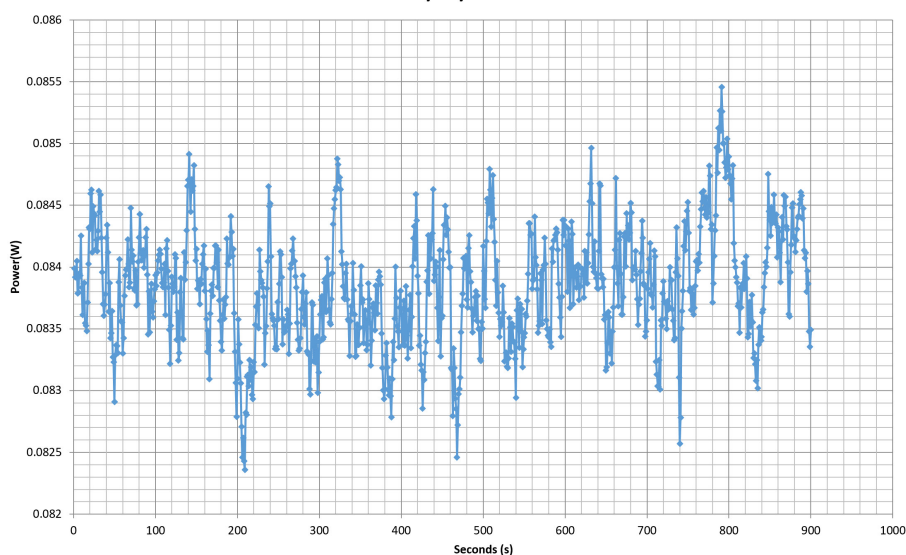
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VAMPIRE POWER -230V

Power - 16/10/2020 - 13:17



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

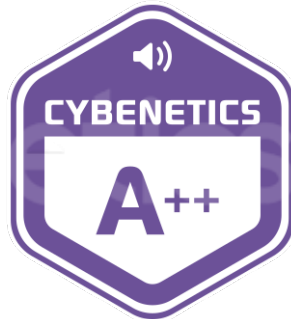

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Temps (In/Out)	PF/AC Volts
1	3.985A	1.953A	1.965A	1.012A	70.000	89.741%	45.50°C	0.736
	12.146V	5.120V	3.358V	4.941V	78.002		40.19°C	230.36V
2	8.978A	2.933A	2.955A	1.220A	140.027	93.408%	46.74°C	0.866
	12.154V	5.116V	3.350V	4.921V	149.909		40.62°C	230.37V
5	24.656A	4.901A	4.953A	1.850A	350.031	94.682%	50.56°C	0.956
	12.148V	5.103V	3.331V	4.866V	369.690		42.04°C	230.39V
10	50.484A	8.868A	9.012A	2.604A	700.246	93.617%	56.51°C	0.983
	12.143V	5.076V	3.296V	4.801V	747.993		45.39°C	230.40V

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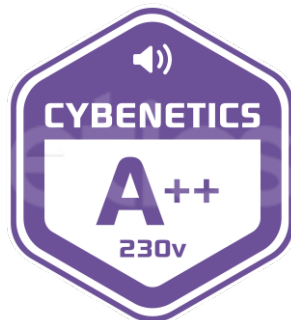


CERTIFICATIONS 115V

Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



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