

Anex

be quiet! E11-850

Lab ID#: 279

Receipt Date: -

Test Date: -

Report: 20PS279A

Report Date: Jan 24, 2000

DUT INFORMATION	
Brand	be quiet!
Manufacturer (OEM)	FSP
Series	Straight Power 11
Model Number	E11-850
Serial Number	284S7450000436
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60
Rated Power (W)	850
Type	ATX12V
Cooling	135mm Fluid Dynamic Bearing Fan (SIW3-13525-HF-26)
Semi-Passive Operation	x
Cable Design	Fully Modular

POWER SPECIFICATIONS									
Rail		3.3V	5V	12V1	12V2	12V3	12V4	5VSB	-12V
Max. Power	Amps	25	25	21	21	26	26	3	0.5
	Watts	150		70.8				15	6
Total Max. Power (W)		850		849.6					

CABLES AND CONNECTORS				
Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	18-22AWG	No
4+4 pin EPS12V (700mm)	1	1	16AWG	No
8 pin EPS12V (700mm)	1	1	16AWG	No
6+2 pin PCIe (2x600mm)	1	2	18AWG	No
6+2 pin PCIe (600mm)	2	2	18AWG	No
SATA (550mm+150mm+150mm)	1	3	18AWG	No
SATA (550mm+150mm+150mm+150mm)	1	4	18AWG	No
SATA (550mm+150mm) / 4 pin Molex (+150mm+150mm)	2	2 / 2	18AWG	No
FDD Adapter (+150mm)	1	1	22AWG	No
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

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RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	89.250
Efficiency With 10W ($\leq 500W$) or 2% ($> 500W$) Load -115V	0.000
Average Efficiency 5VSB	81.933
Standby Power Consumption (W) -115V	0.0392546
Standby Power Consumption (W) -230V	0.1014110
Average PF	0.995
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	23.24
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

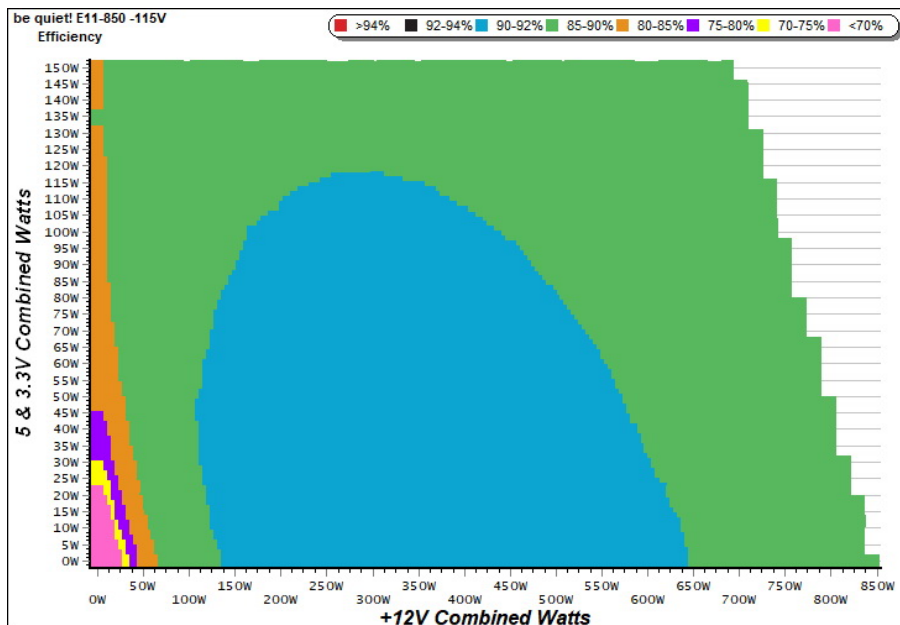
TEST EQUIPMENT		
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, Chroma 61604	
Power Analyzers	N4L PPA1530, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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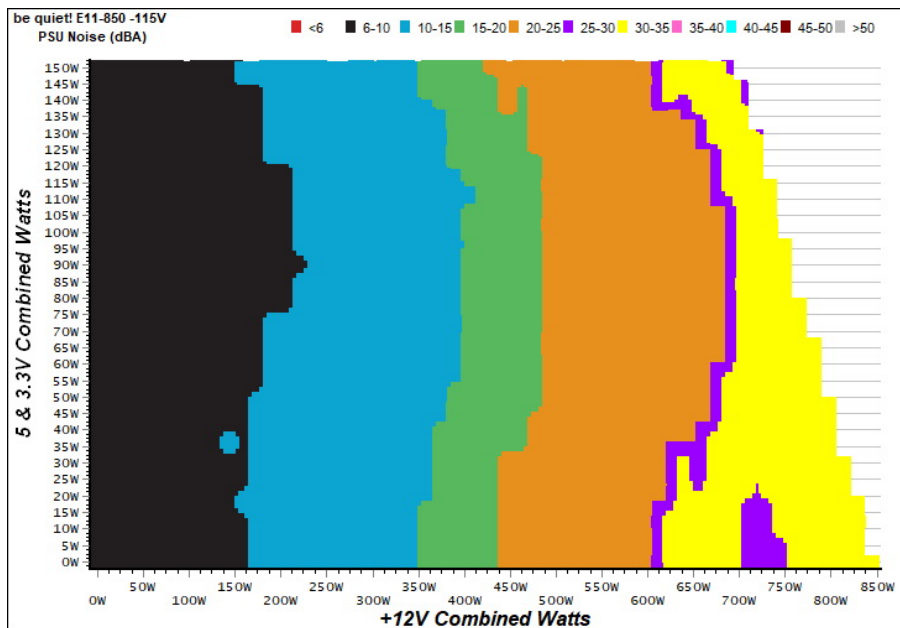
EFFICIENCY GRAPH



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



INFO

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

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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

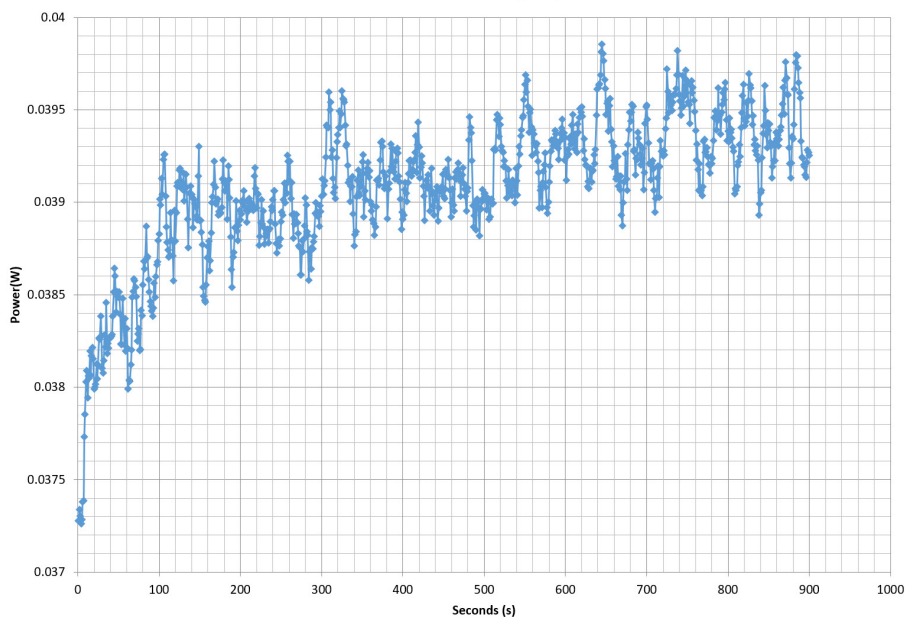
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.215	74.138%	0.034
	5.132V	0.290		115.06V
2	0.088A	0.450	80.501%	0.064
	5.132V	0.559		115.06V
3	0.543A	2.776	84.147%	0.278
	5.117V	3.299		115.06V
4	1.002A	5.116	83.910%	0.373
	5.104V	6.097		115.06V
5	1.502A	7.651	82.189%	0.425
	5.094V	9.309		115.06V
6	3.002A	15.174	79.935%	0.487
	5.055V	18.983		115.06V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.215	59.722%	0.013
	5.132V	0.360		230.19V
2	0.088A	0.449	70.597%	0.023
	5.132V	0.636		230.19V
3	0.543A	2.776	81.360%	0.112
	5.117V	3.412		230.19V
4	1.003A	5.119	82.022%	0.186
	5.105V	6.241		230.20V
5	1.502A	7.655	81.994%	0.246
	5.095V	9.336		230.20V
6	3.002A	15.183	80.012%	0.349
	5.058V	18.976		230.20V

VAMPIRE POWER -115V

Power - 284S7450000436 - 18/01/2018 - 11:03



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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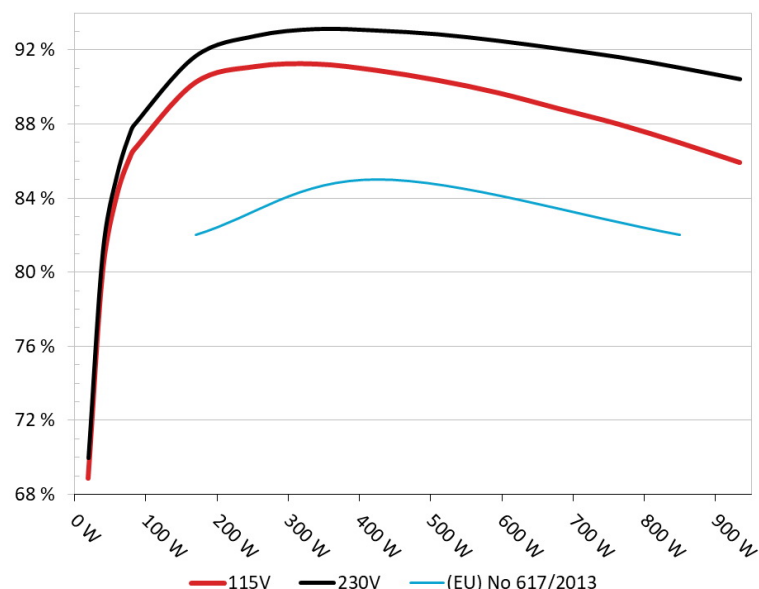
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: be quiet! E11-850

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



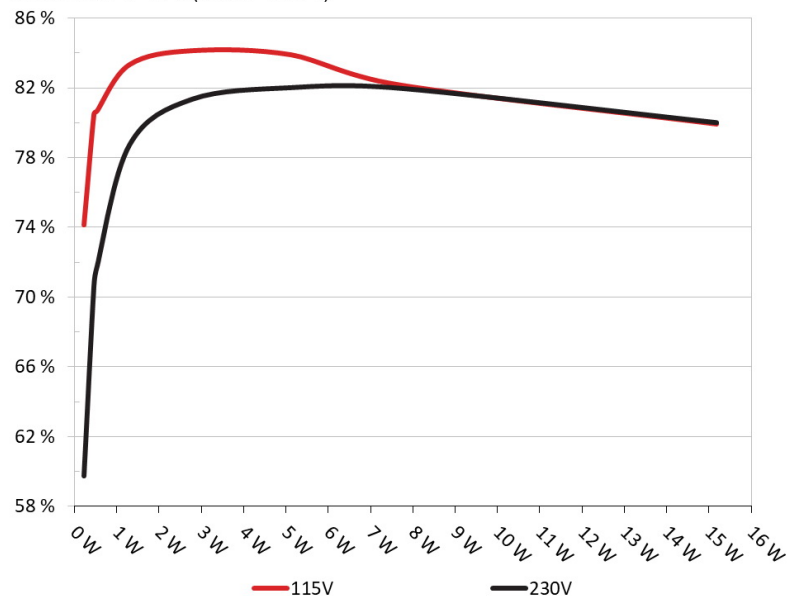
INFO

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: be quiet! E11-850

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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10-110% LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	5.218A	1.990A	1.980A	0.981A	84.819	86.650%	418	10.2	37.63°C	0.979
	12.117V	5.025V	3.330V	5.095V	97.887				43.42°C	115.09V
2	11.464A	2.985A	2.981A	1.177A	169.668	90.230%	464	12.0	38.07°C	0.995
	12.108V	5.017V	3.321V	5.086V	188.040				44.06°C	115.06V
3	18.081A	3.499A	3.499A	1.376A	254.878	91.110%	565	14.7	38.59°C	0.996
	12.100V	5.008V	3.312V	5.077V	279.748				44.74°C	115.07V
4	24.692A	4.004A	3.994A	1.575A	339.739	91.241%	700	17.8	38.68°C	0.997
	12.091V	4.999V	3.303V	5.067V	372.354				45.28°C	115.06V
5	30.967A	5.010A	5.006A	1.778A	424.610	90.897%	885	22.7	39.33°C	0.997
	12.082V	4.988V	3.294V	5.055V	467.135				46.39°C	115.07V
6	37.255A	6.028A	6.025A	1.981A	509.563	90.367%	1086	28.0	40.02°C	0.998
	12.073V	4.977V	3.285V	5.043V	563.882				47.58°C	115.08V
7	43.557A	7.040A	7.051A	2.183A	594.480	89.690%	1300	32.7	41.56°C	0.998
	12.063V	4.968V	3.275V	5.032V	662.818				49.59°C	115.08V
8	49.871A	8.069A	8.084A	2.386A	679.491	88.837%	1550	37.4	42.39°C	0.998
	12.053V	4.959V	3.265V	5.024V	764.870				51.52°C	115.08V
9	56.619A	8.589A	8.629A	2.390A	764.503	87.989%	1782	40.7	43.06°C	0.998
	12.044V	4.949V	3.255V	5.017V	868.859				52.70°C	115.07V
10	63.119A	9.109A	9.147A	3.003A	849.263	86.999%	1987	43.4	44.46°C	0.998
	12.034V	4.940V	3.247V	4.992V	976.178				54.66°C	115.06V
11	70.213A	9.128A	9.171A	3.006A	934.015	85.924%	2010	43.6	45.87°C	0.998
	12.025V	4.932V	3.238V	4.986V	1087.022				56.88°C	115.08V
CL1	0.099A	18.030A	18.003A	0.005A	150.565	83.820%	1490	37.1	43.07°C	0.995
	12.094V	4.989V	3.299V	5.105V	179.630				50.25°C	115.08V
CL2	70.774A	1.003A	1.003A	1.002A	865.561	87.420%	1987	43.4	44.89°C	0.998
	12.042V	4.956V	3.261V	5.048V	990.116				55.11°C	115.08V

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20-80W LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.205A	0.492A	0.476A	0.196A	19.681	68.877%	388	8.5	0.892
	12.126V	5.034V	3.339V	5.121V	28.574				115.09V
2	2.437A	0.988A	0.987A	0.391A	39.807	79.953%	388	8.5	0.950
	12.123V	5.031V	3.336V	5.114V	49.788				115.09V
3	3.667A	1.487A	1.496A	0.586A	59.907	84.160%	418	10.2	0.968
	12.121V	5.029V	3.334V	5.107V	71.182				115.09V
4	4.887A	1.986A	1.979A	0.781A	79.779	86.347%	418	10.2	0.976
	12.118V	5.026V	3.332V	5.099V	92.394				115.09V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	20.8 mV	5.0 mV	10.3 mV	15.8 mV	Pass
20% Load	19.8 mV	4.4 mV	8.1 mV	23.8 mV	Pass
30% Load	17.6 mV	5.2 mV	9.2 mV	29.1 mV	Pass
40% Load	18.9 mV	5.6 mV	10.4 mV	31.4 mV	Pass
50% Load	21.1 mV	6.8 mV	12.4 mV	38.1 mV	Pass
60% Load	23.3 mV	7.4 mV	12.2 mV	40.0 mV	Pass
70% Load	25.4 mV	8.2 mV	12.4 mV	45.3 mV	Pass
80% Load	27.2 mV	8.6 mV	13.5 mV	47.1 mV	Pass
90% Load	28.6 mV	9.5 mV	15.2 mV	46.8 mV	Pass
100% Load	30.9 mV	10.8 mV	16.7 mV	25.1 mV	Pass
110% Load	33.1 mV	11.3 mV	17.6 mV	29.3 mV	Pass
Crossload 1	21.9 mV	6.4 mV	10.3 mV	10.1 mV	Pass
Crossload 2	31.2 mV	8.7 mV	16.1 mV	25.2 mV	Pass

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HOLD-UP TIME & POWER OK SIGNAL (230V)

Hold-Up Time (ms)	17.88
AC Loss to PWR_OK Hold Up Time (ms)	17.18
PWR_OK Inactive to DC Loss Delay (ms)	0.70



Top side

be quiet! STRAIGHT POWER 11

AC Input	100 - 240Vac				50 - 60Hz		10 - 5A			
DC Output	3.3V	5V	12V1	12V2	12V3	12V4	-12V	5VSB		
Max. Current	25A	25A	21A	21A	26A	26A	0.5A	3A		
			70.8A							
Max. Combined Power	150W		849.6W				6W	15W		
			850W							

Vorsicht! Die Abdeckung des Netzteils unter keinen Umständen selbst abnehmen! Reparaturen bitte nur durch ausgebildetes Fachpersonal vornehmen lassen. Es sind keine zu wartenden Bauteile vorhanden.

Cautions! Don't done by qualifi maintenance.

Attention ! Veuillez est habilité à e ne requièrent a

This device complies with P to the following two condit interference, and (2) it received, including interfe

Product concept

S/N: 284S7450000436

Power specifications label

CERTIFICATIONS



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