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

Be quiet! Straight Power 11 850W

Lab ID#: 279
Receipt Date: Jan 15, 2018
Test Date: Jan 20, 2018

Report: 20PS279A
Report Date: Jan 24, 2018

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	✗
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
				70.8					
	Watts	150		849.6				15	6
Total Max. Power (W)		850							

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 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	89.250%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	81.933%
Standby Power Consumption (W)	0.0392546
Average PF	0.995
Avg Noise Output	23.24 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

230V

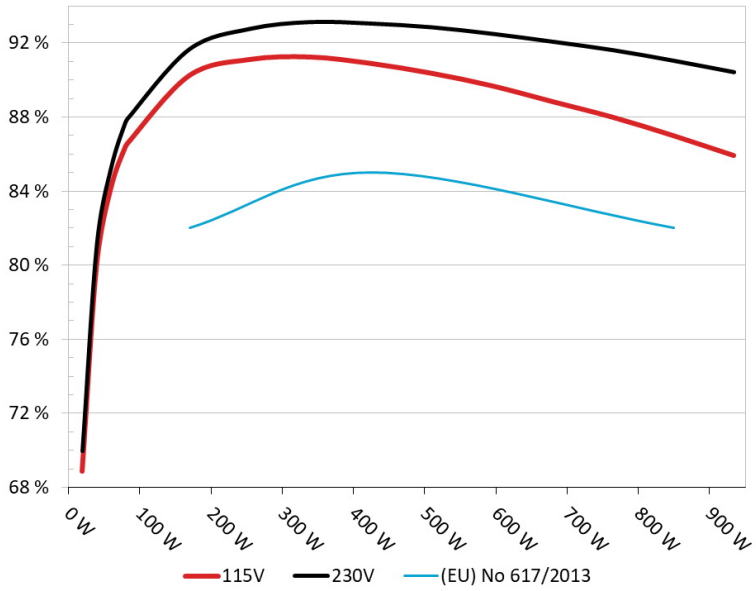
Average Efficiency	91.501%
Average Efficiency 5VSB	80.551%
Standby Power Consumption (W)	0.1014110
Average PF	0.976
Avg Noise Output	23.38 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

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	

EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: be quiet! E11-850
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

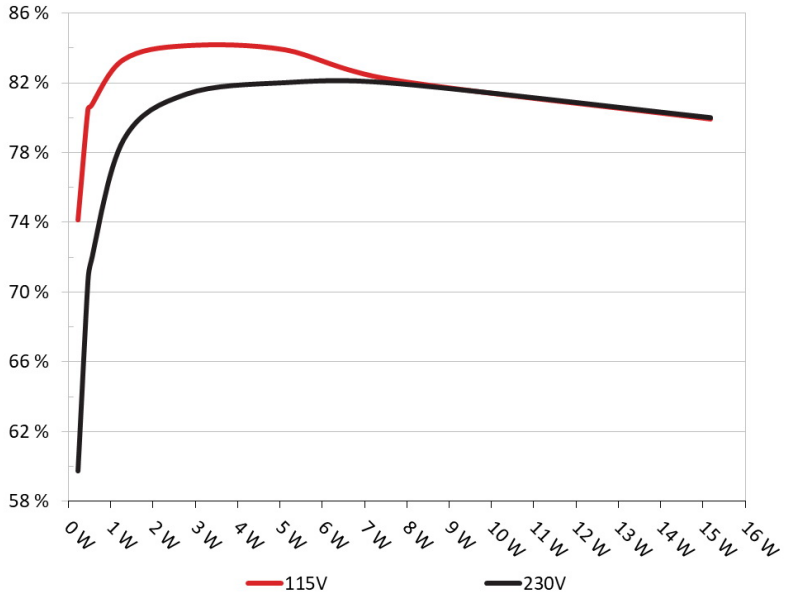


INFO

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

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

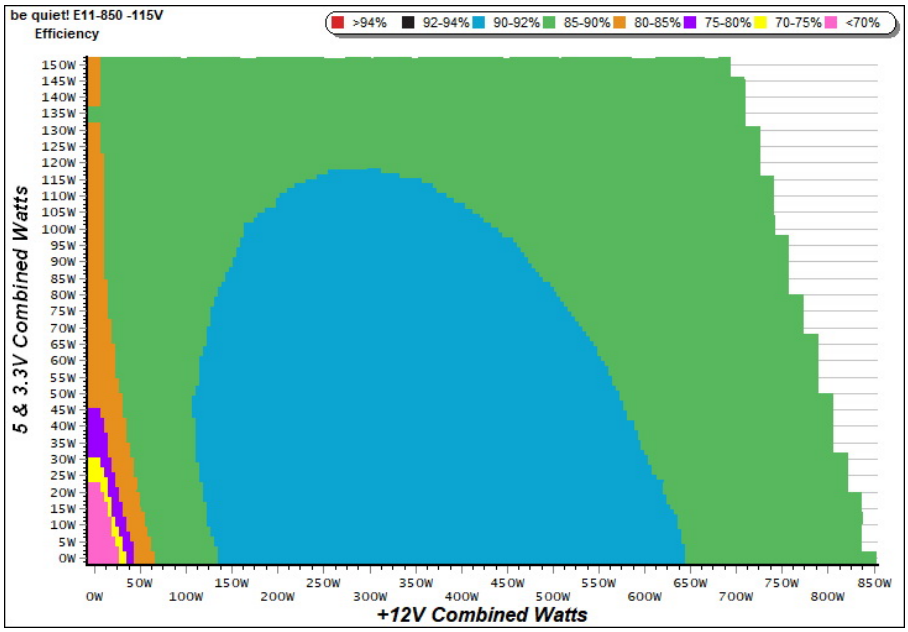
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.215	74.138%	0.034
	5.132V	0.290		115.06V
2	0.088A	0.450	80.501%	0.064
	5.132V	0.559		115.06V
3	0.543A	2.776	84.147%	0.278
	5.117V	3.299		115.06V
4	1.002A	5.116	83.910%	0.373
	5.104V	6.097		115.06V
5	1.502A	7.651	82.189%	0.425
	5.094V	9.309	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

115V

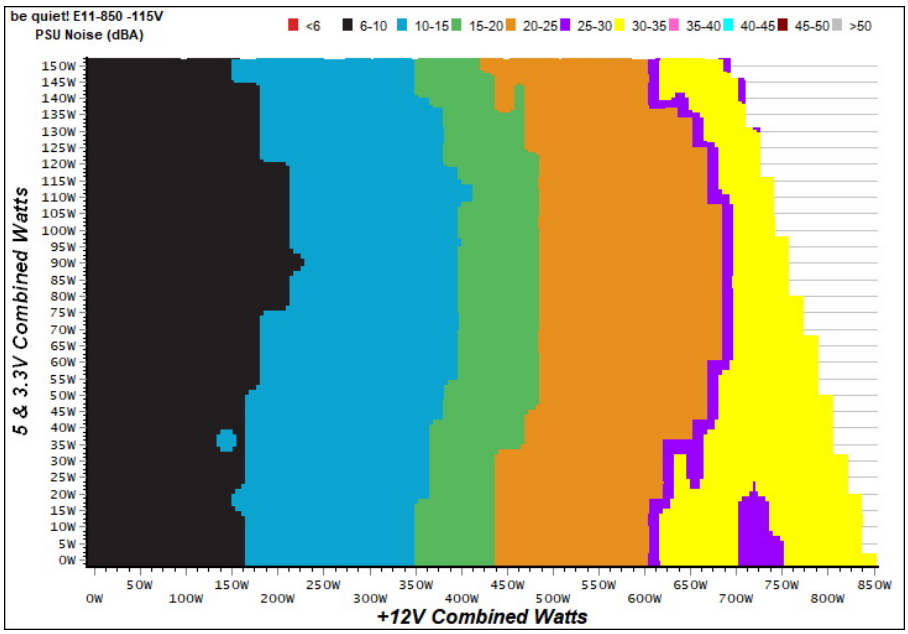
EFFICIENCY GRAPH 115V



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

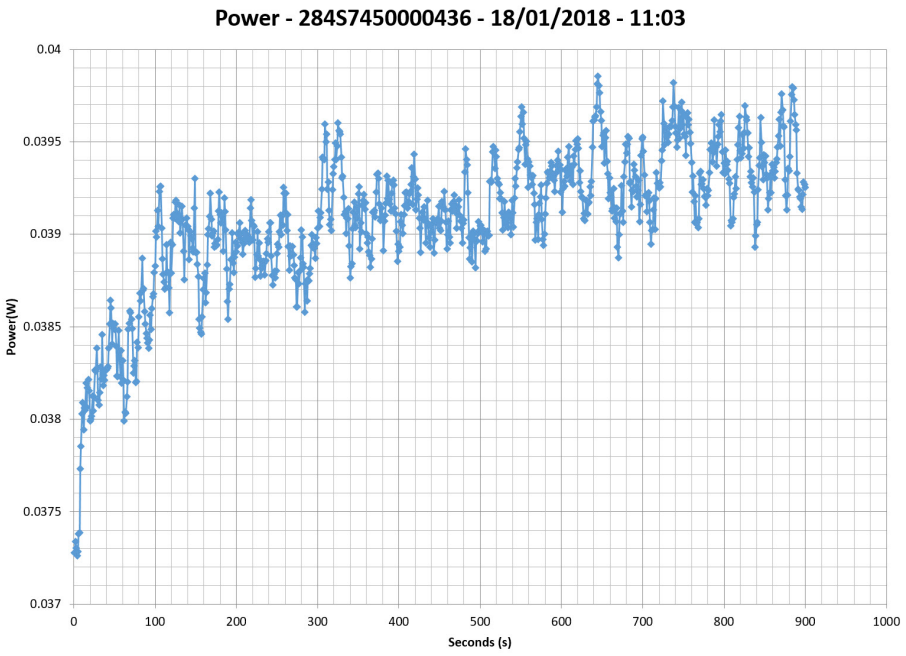
NOISE GRAPH 115V



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

VAMPIRE POWER -115V



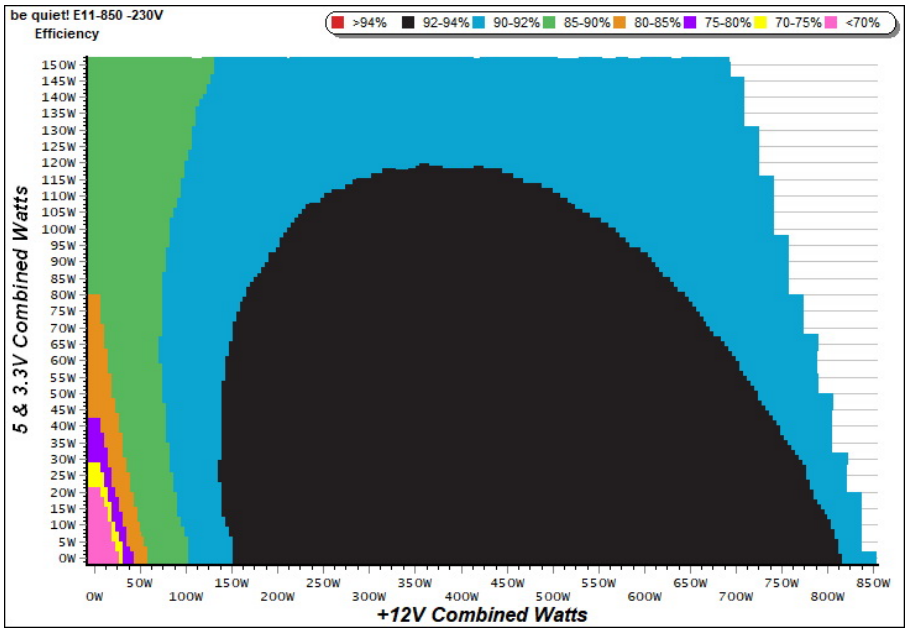
INFO

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

COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

230V

EFFICIENCY GRAPH 230V



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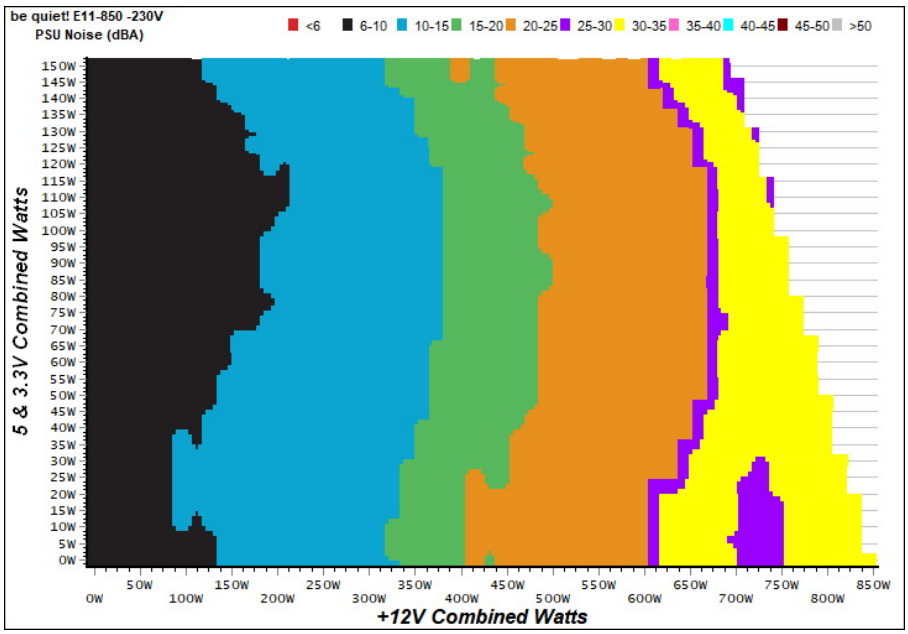
NOISE GRAPH 230V



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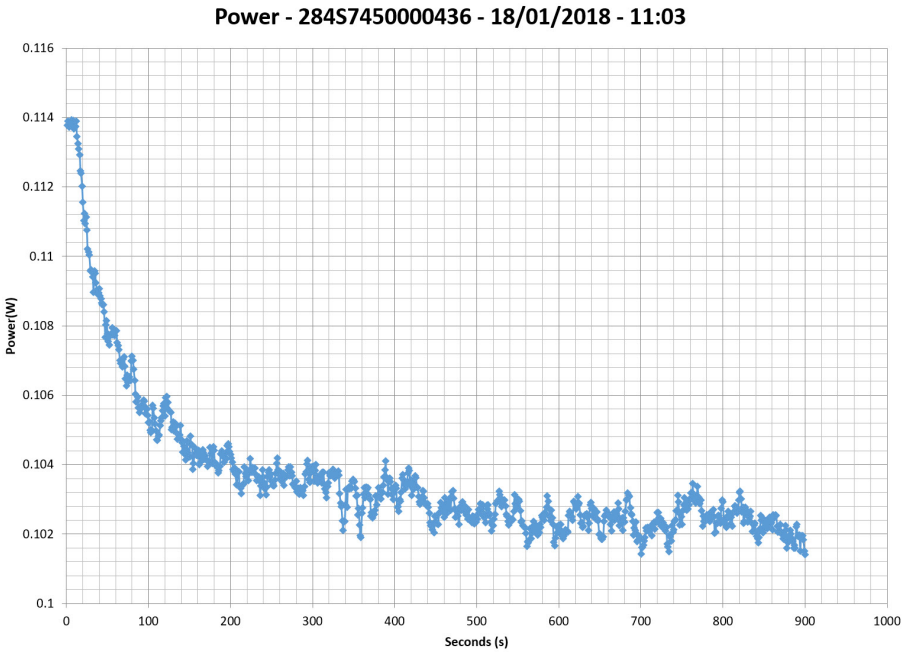
VAMPIRE POWER -230V



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Top side

Power specifications label

CERTIFICATIONS 115V

CYBENETICS PLATINUM

CYBENETICS A

CERTIFICATIONS 230V

CYBENETICS PLATINUM 230v

CYBENETICS A 230v

Aris Mpitsiopoulos
Lab Director