

Lab ID#: 152  
Receipt Date: Dec 24, 2017  
Test Date: Jan 5, 2018

Report: 20PS152A  
Report Date: Jan 8, 2018

### DUT INFORMATION

Brand	be quiet!
Manufacturer (OEM)	High Power
Series	SFX L Power
Model Number	SFX-L-500
Serial Number	214P7230000009
DUT Notes	

### DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10
Rated Frequency (Hz)	50-60
Rated Power (W)	500
Type	SFX-L
Cooling	120mm Fluid Dynamic Bearing Fan (S1201512MB)
Semi-Passive Operation	X
Cable Design	Fully Modular

### 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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## 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	88.280%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	78.982%
Standby Power Consumption (W)	0.0763809
Average PF	0.994
Avg Noise Output	23.91 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

## POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	41.7	3	0.3
	Watts	105		500	15	3.6
Total Max. Power (W)		500				

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## CABLES AND CONNECTORS

### Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (300)	1	1	18AWG
4+4 pin EPS12V (405mm)	1	1	18AWG
6+2 pin PCIe (500mm+150mm)	1	2	18AWG
6+2 pin PCIe (405mm+150mm)	1	2	18AWG
SATA (500mm+150mm+150mm)	1	3	18AWG
SATA (300mm+150mm+150mm)	1	3	18AWG
4 pin Molex (300mm+200mm+200mm)	1	3	18AWG

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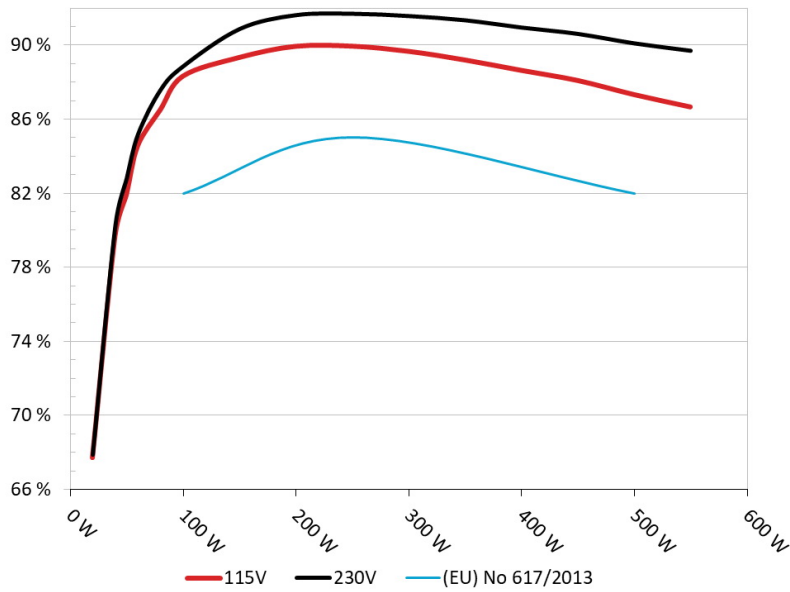
General Data	
Manufacturer (OEM)	CWT
Platform Model	-
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Diode
Bridge Rectifier(s)	2x GBU1006 (600V, 10A @ 100°C)
APFC MOSFETS	2x Infineon IPW50R280CE (550V, 11.4A @ 100°C, 0.28Ohm)
APFC Boost Diode	1x Power Integrations QH08TZ600 (600V, 8A @ 150°C)
Hold-up Cap(s)	1x Nichicon (400V, 390uF, 2000h @ 105 °C, GG)
Main Switchers	2x Vishay SiHG20N50C (560V, 11A @ 100°C, 0.27Ohm)
Combo APFC/PWM Controller	Champion CM6800TX & CM03X Green PFC controller
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x APEC AP9990GH-HF (60V, 100A @ 25°C, 6mOhm)
5V & 3.3V	DC-DC Converters: 6x APEC AP72T03GP (30V, 47A @ 100°C, 9.5mOhm) PWM Controller: APW7159C
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (1-5,000 @ 105°C, KZE), Su' scon (2-5,000h @ 105°C, MF), TAICON (105°C) Polymers: APAQ, EneSol
Supervisor IC	Weltrend WT7502 (OVP, UVP, SCP, PG)
Fan Model	Power Logic PLA13525S12M (12V, 0.40A, 111.1CFM, 41.6 dBA, Hydro Dynamic Bearing)
5VSB Circuit	
Rectifier	1x MBR2045CT SBR (45V, 20A) & CEF04N7G (700V, 4A, 3.30hm)
Standby PWM Controller	On-Bright OB5269CP
-12V Circuit	
Rectifier	UTC 2SB834L

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### EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

**Efficiency: be quiet! SFX-L-500**  
Ambient: 38°C - 46°C (100.4°F - 114.8°F)

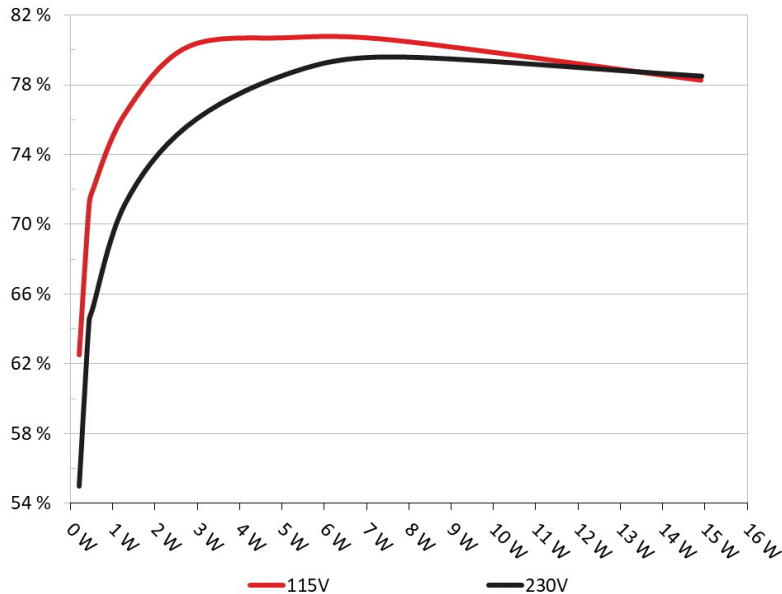


#### INFO

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: be quiet! SFX-L-500**  
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	0.041A	0.210	62.500%	0.048
	5.111V	0.336		115.20V
2	0.087A	0.442	71.061%	0.085
	5.109V	0.622		115.20V
3	0.541A	2.755	80.157%	0.268
	5.088V	3.437		115.18V
4	1.001A	5.074	80.706%	0.318
	5.067V	6.287		115.18V
5	1.501A	7.571	80.585%	0.343
	5.044V	9.395		115.18V
6	3.001A	14.914	78.268%	0.382
	4.970V	19.055		115.18V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.041A	0.210	54.974%	0.017
	5.111V	0.382		230.47V
2	0.087A	0.442	64.431%	0.029
	5.109V	0.686		230.46V
3	0.541A	2.754	75.639%	0.137
	5.087V	3.641		230.46V
4	1.001A	5.073	78.602%	0.204
	5.066V	6.454		230.46V
5	1.501A	7.570	79.626%	0.250
	5.043V	9.507		230.47V
6	3.001A	14.918	78.524%	0.317
	4.971V	18.998		230.47V

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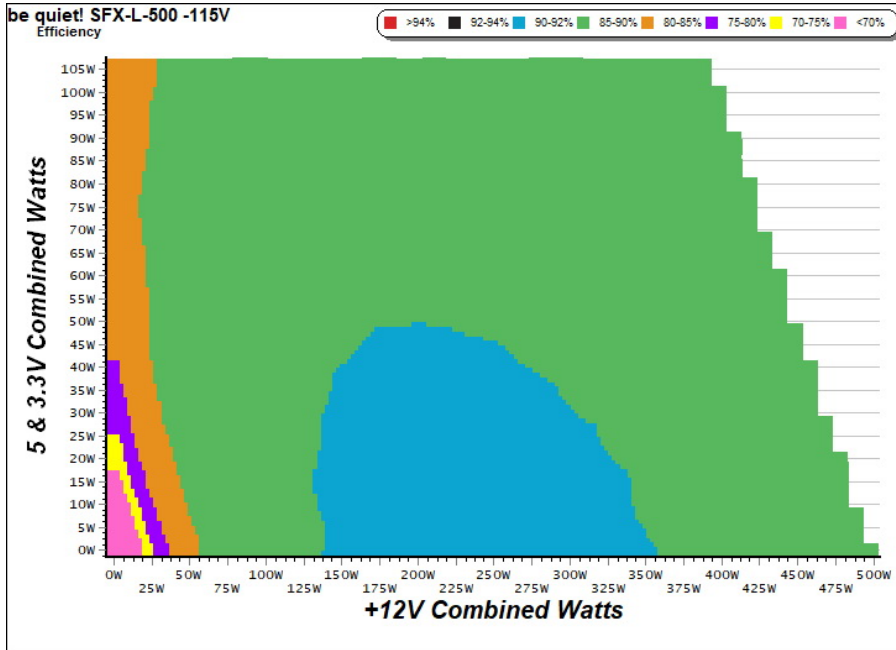
# 115V

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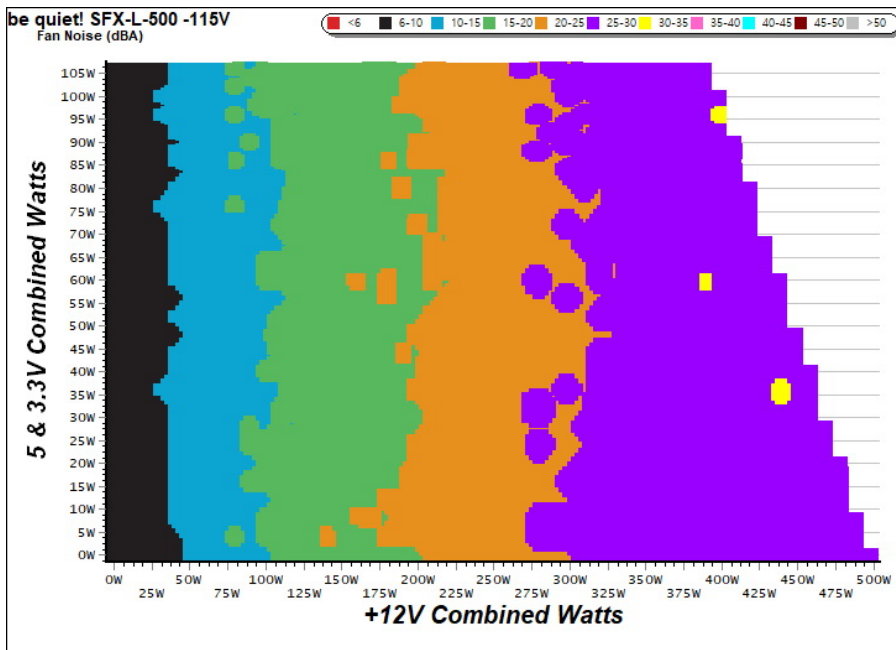
### EFFICIENCY GRAPH 115V



#### 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

### 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

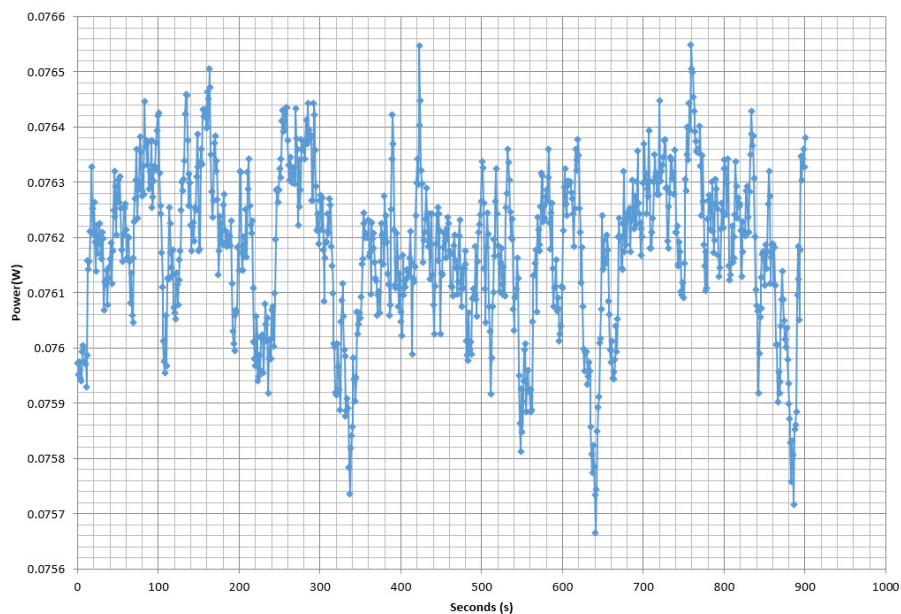
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### VAMPIRE POWER -115V

Power - 214P723000009 - 31/07/2017 - 11:54



#### 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**

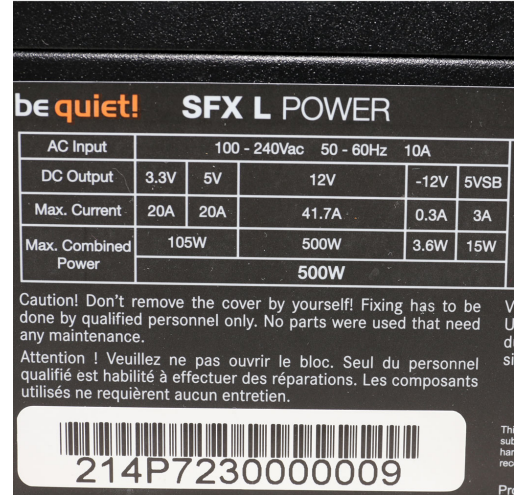
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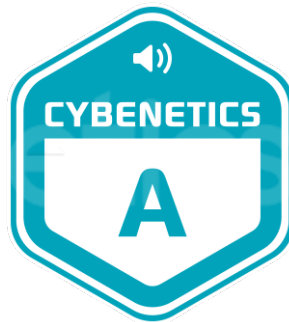
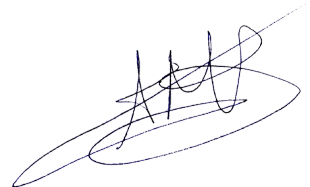


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Power specifications label

## CERTIFICATIONS 115V

**Aristeidis Bitziopoulos**  
Lab Director

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