

Lab ID#: BQ85002157
Receipt Date: Feb 17, 2023
Test Date: Mar 22, 2023

Report: 23PS2157A
Report Date: Mar 29, 2023

DUT INFORMATION

Brand	be quiet!
Manufacturer (OEM)	HEC
Series	Pure Power 12 M
Model Number	L12-M-850W
Serial Number	344H2489000021
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	12-6
Rated Frequency (Hz)	50-60
Rated Power (W)	850
Type	ATX12V
Cooling	120mm Rifle Bearing Fan (BQ QF2-12025-HS)
Semi-Passive Operation	x
Cable Design	Fully Modular

TEST EQUIPMENT

Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P
Power Analyzers	RS HMC8015, N4L PPA1530, N4L PPA5530
Oscilloscopes	Picoscope 4444, Rigol DS7014, Siglent SDS2104X PLUS
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Temperature Logger	Picoscope TC-08
Tachometer	UNI-T UT372
Multimeters	Keysight 34465A, Keithley 2015 - THD
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Isolation Transformer	4kVA

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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	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.0 PSU Power Excursion	✓

115V

Average Efficiency	89.807%
Efficiency With 10W (≤500W) or 2% (>500W)	76.310
Average Efficiency 5VSB	81.216%
Standby Power Consumption (W)	0.0555000
Average PF	0.983
Avg Noise Output	25.03 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A-

230V

Average Efficiency	91.772%
Average Efficiency 5VSB	80.871%
Standby Power Consumption (W)	0.1000000
Average PF	0.948
Avg Noise Output	24.64 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

POWER SPECIFICATIONS

Rail		3.3V	5V	12V(1)	12V(2)	5VSB	-12V
Max. Power	Amps	22	22	40	36	3	0.3
	Watts	120		850		15	3.6
Total Max. Power (W)		850					

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (550mm)	1	1	16-20AWG	No
4+4 pin EPS12V (600mm)	1	1	18AWG	No
8 pin EPS12V (600mm)	1	1	18AWG	No
6+2 pin PCIe (500mm+150mm)	2	4	16-18AWG	No
12+4 pin PCIe (600mm) (600W)	1	1	16-28AWG	No
SATA (500mm+150mm+150mm+150mm)	1	4	18AWG	No
SATA (500mm+150mm) / 4-pin Molex (+150mm+150mm)	1	2 / 2	18AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

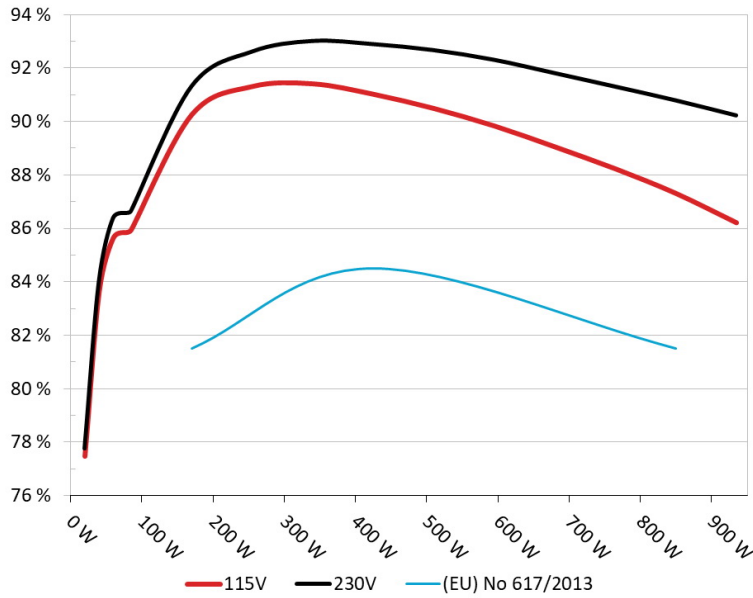
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: be quiet! Pure Power 12 M 850W

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



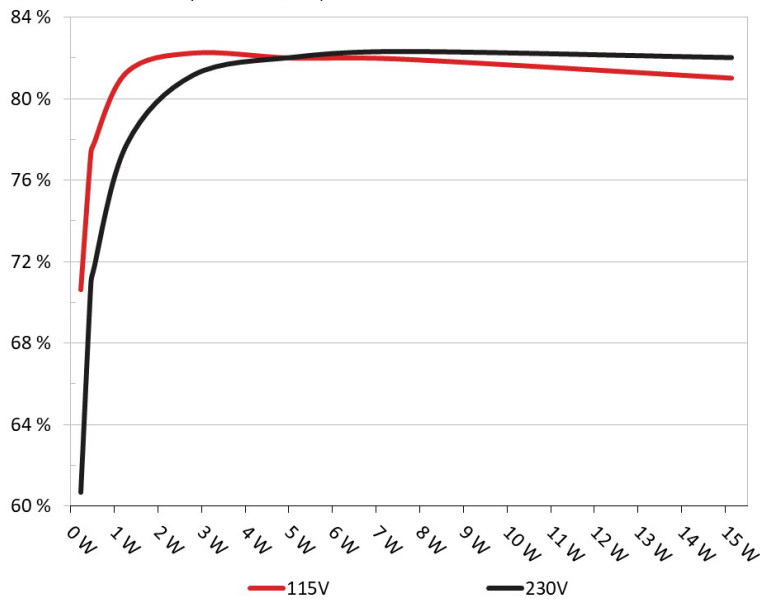
INFO

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! Pure Power 12 M 850W

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	0.23W	70.112%	0.029
	5.113V	0.328W		114.87V
2	0.09A	0.46W	76.86%	0.053
	5.112V	0.599W		114.88V
3	0.55A	2.806W	81.76%	0.248
	5.102V	3.432W		114.87V
4	1A	5.092W	81.509%	0.352
	5.092V	6.247W		114.87V
5	1.5A	7.621W	81.457%	0.406
	5.081V	9.357W		114.87V
6	3A	15.142W	80.524%	0.48
	5.048V	18.804W		114.87V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	60.188%	0.01
	5.113V	0.383W		229.77V
2	0.09A	0.46W	70.441%	0.017
	5.112V	0.654W		229.77V
3	0.55A	2.806W	80.662%	0.09
	5.102V	3.478W		229.77V
4	1A	5.092W	81.54%	0.152
	5.092V	6.245W		229.77V
5	1.5A	7.621W	81.82%	0.205
	5.081V	9.314W		229.77V
6	2.999A	15.142W	81.521%	0.316
	5.048V	18.573W		229.77V

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115V

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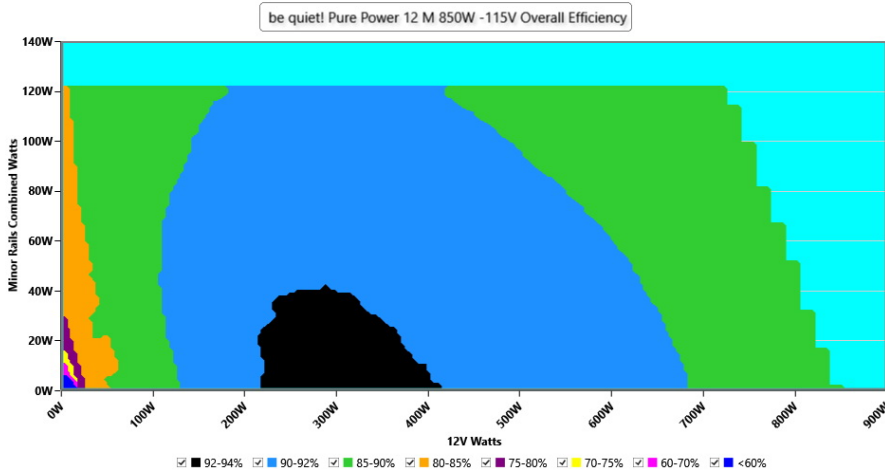
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EFFICIENCY GRAPH 115V

INFO

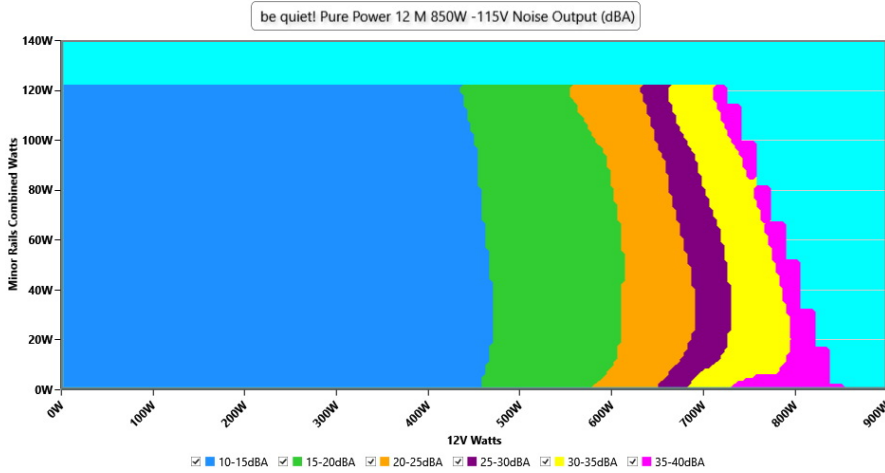
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



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

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.90 V	114.82 V	113.85 V	114.97 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.96 Hz	59.40 Hz	60.03 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.419	1.417	1.340	1.421	1.490	PASS
Mains Voltage THD:	0.21 %	0.16 %	N/A	0.29 %	2.00 %	PASS
Real Power:	0.056 W	0.035 W	N/A	0.081 W	N/A	N/A
Apparent Power:	11.389 W	11.357 W	N/A	11.426 W	N/A	N/A
Power Factor:	0.006	N/A	N/A	N/A	N/A	N/A

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	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
10%	5.216A	2.007A	2A	0.982A	84.992	86.439%	743	12.8	40.51°C	0.958
	12.154V	4.983V	3.3V	5.092V	98.327				44.54°C	114.85V
20%	11.462A	3.012A	3.002A	1.181A	169.918	90.757%	742	12.8	40.67°C	0.971
	12.128V	4.98V	3.297V	5.08V	187.225				45.01°C	114.82V
50%	30.963A	5.025A	5.011A	1.783A	424.776	91.522%	859	17.3	42.29°C	0.985
	12.087V	4.976V	3.293V	5.049V	464.125				47.73°C	114.74V
100%	63.225A	9.06A	9.043A	3.006A	849.75	87.799%	1859	40.6	45.36°C	0.995
	12.021V	4.966V	3.284V	4.991V	967.835				55.45°C	114.56V

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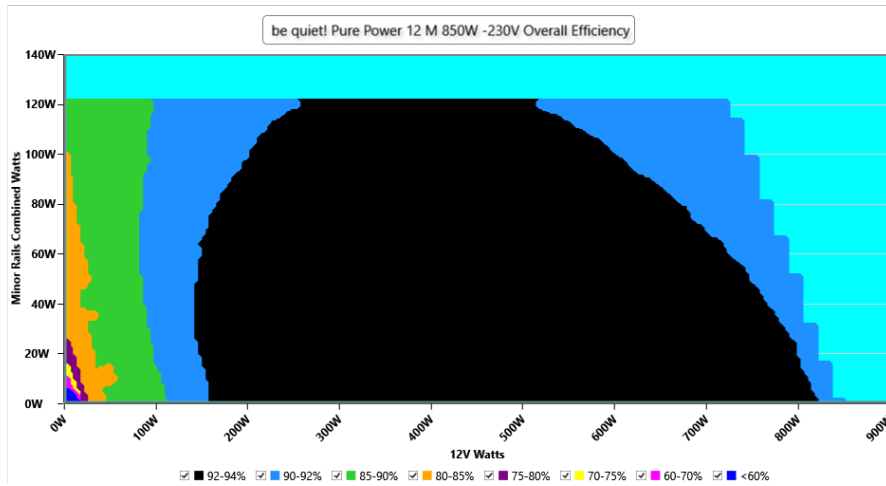
230V

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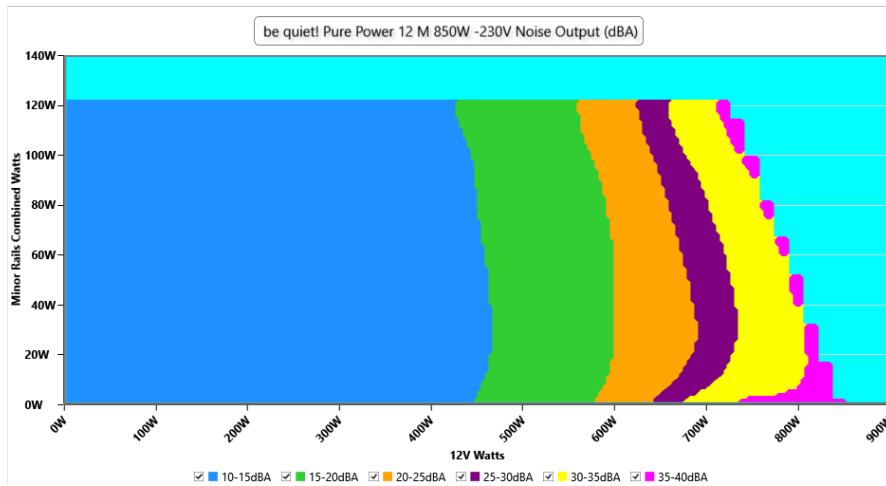
EFFICIENCY GRAPH 230V



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 230V



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 -230V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.77 V	229.71 V	227.70 V	229.85 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	50.00 Hz	49.50 Hz	50.00 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.417	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.15 %	0.13 %	N/A	0.18 %	2.00 %	PASS
Real Power:	0.100 W	0.053 W	N/A	0.177 W	N/A	N/A
Apparent Power:	38.599 W	38.516 W	N/A	38.711 W	N/A	N/A
Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

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

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
10%	5.214A	2.007A	2A	0.982A	84.993	87.129%	744	12.7	40.45°C	0.83
	12.157V	4.983V	3.299V	5.092V	97.548				44.54°C	229.76V
20%	11.462A	3.012A	3.003A	1.181A	169.917	91.794%	743	12.8	40.68°C	0.918
	12.129V	4.98V	3.297V	5.081V	185.108				45.01°C	229.75V
50%	30.955A	5.025A	5.011A	1.782A	424.706	93.376%	860	17.3	42.38°C	0.966
	12.088V	4.975V	3.293V	5.05V	454.832				47.85°C	229.7V
100%	63.213A	9.061A	9.042A	3.004A	849.639	91.27%	1860	40.6	45.22°C	0.982
	12.022V	4.965V	3.284V	4.992V	930.905				55.32°C	229.62V

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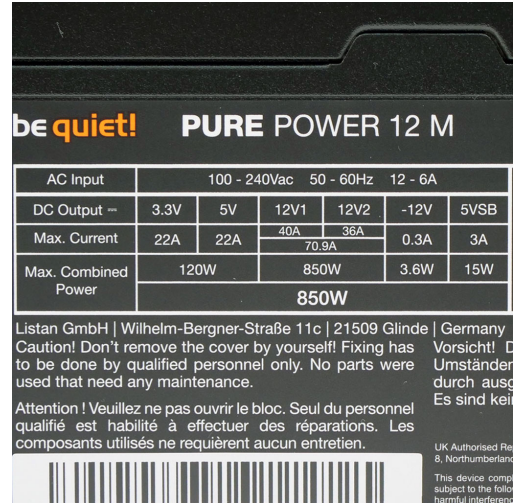
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EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

be quiet! Pure Power 12 M 850W

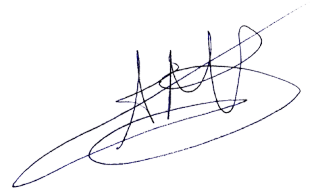


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Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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