

Lab ID#: 162
Receipt Date: Aug 1, 2018
Test Date: Aug 14, 2018

Report:

Report Date: Aug 18, 2018

DUT INFORMATION

Brand	EVGA
Manufacturer (OEM)	HEC
Series	B
Model Number	
Serial Number	1603530425800472
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8-4
Rated Frequency (Hz)	50-60
Rated Power (W)	450
Type	ATX12V
Cooling	120mm Sleeve Bearing Fan (EFS-12E12H)
Semi-Passive Operation	X
Cable Design	Fixed cables

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	35	3	0.3
	Watts	120		420	15	3.6
Total Max. Power (W)		450				

CABLES AND CONNECTORS

Captive Cables

Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (560mm)	1	1	18-20AWG
4+4 pin EPS12V (620mm)	1	1	18AWG
6+2 pin PCIe (560mm)	1	1	20AWG
SATA (460mm+115mm)	2	4	20AWG
4 pin Molex (460mm+120mm+120mm)+FDD (+120mm)	1	3 / 1	20-22AWG

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 1/13

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	83.117%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	78.603%
Standby Power Consumption (W)	0.0556768
Average PF	0.966
Avg Noise Output	37.49 dB(A)
Efficiency Rating (ETA)	BRONZE
Noise Rating (LAMBDA)	S+

230V

Average Efficiency	85.145%
Average Efficiency 5VSB	77.556%
Standby Power Consumption (W)	0.1276500
Average PF	0.929
Avg Noise Output	35.96 dB(A)
Efficiency Rating (ETA)	BRONZE
Noise Rating (LAMBDA)	S+

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	

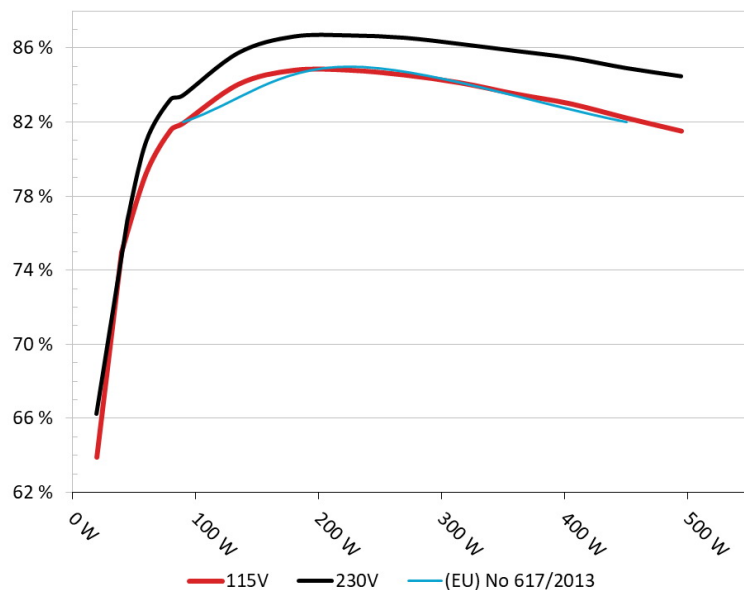
All data and graphs included in this test report can be used by any individual on the following conditions:

- › It should be mentioned that the test results are provided by Cybenetics
- › The link to the original test results document should be provided in any case

EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: EVGA 450B

Ambient: 30°C - 40°C (86°F - 104°F)



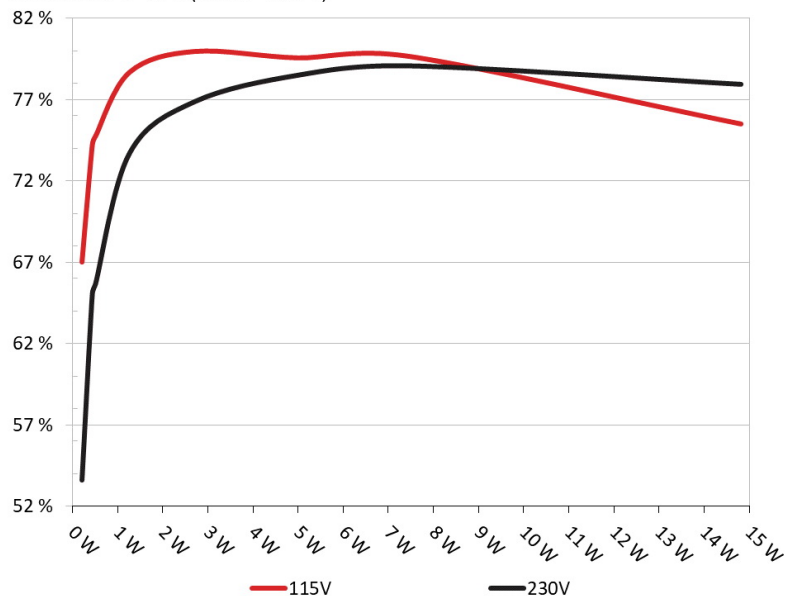
INFO

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: EVGA 450B

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

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.209	66.987%	0.057
	5.016V	0.312		115.17V
2	0.087A	0.437	74.194%	0.103
	5.015V	0.589		115.17V
3	0.542A	2.712	79.953%	0.305
	5.004V	3.392		115.16V
4	1.002A	5.000	79.554%	0.357
	4.991V	6.285		115.16V
5	1.502A	7.473	79.644%	0.385
	4.977V	9.383		115.16V
6	3.001A	14.815	75.490%	0.431
	4.936V	19.625		115.16V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.209	53.590%	0.023
	5.016V	0.390		230.41V
2	0.087A	0.437	65.030%	0.038
	5.015V	0.672		230.41V
3	0.542A	2.712	76.893%	0.168
	5.003V	3.527		230.40V
4	1.002A	4.999	78.514%	0.240
	4.989V	6.367		230.40V
5	1.502A	7.473	79.088%	0.282
	4.977V	9.449		230.40V
6	3.001A	14.812	77.954%	0.342
	4.935V	19.001		230.41V

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

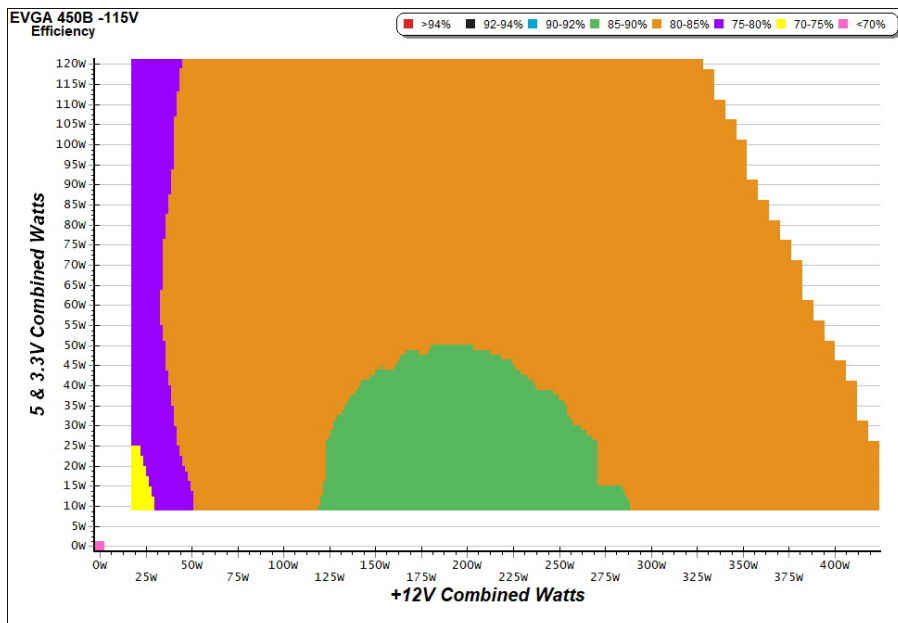
115V

All data and graphs included in this test report can be used by any individual on the following conditions:

- › It should be mentioned that the test results are provided by Cybenetics
- › The link to the original test results document should be provided in any case

PAGE 5/13

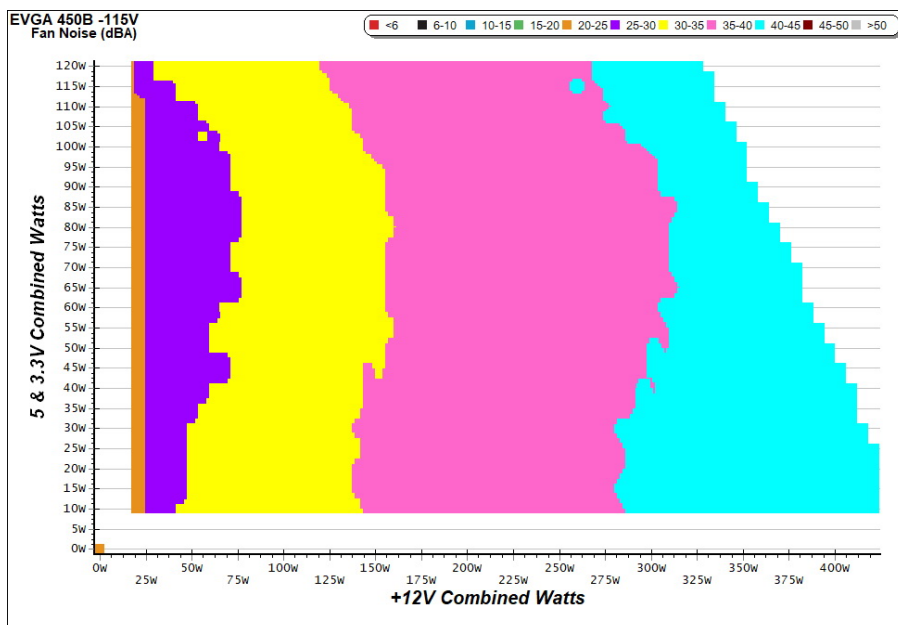
EFFICIENCY GRAPH 115V



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

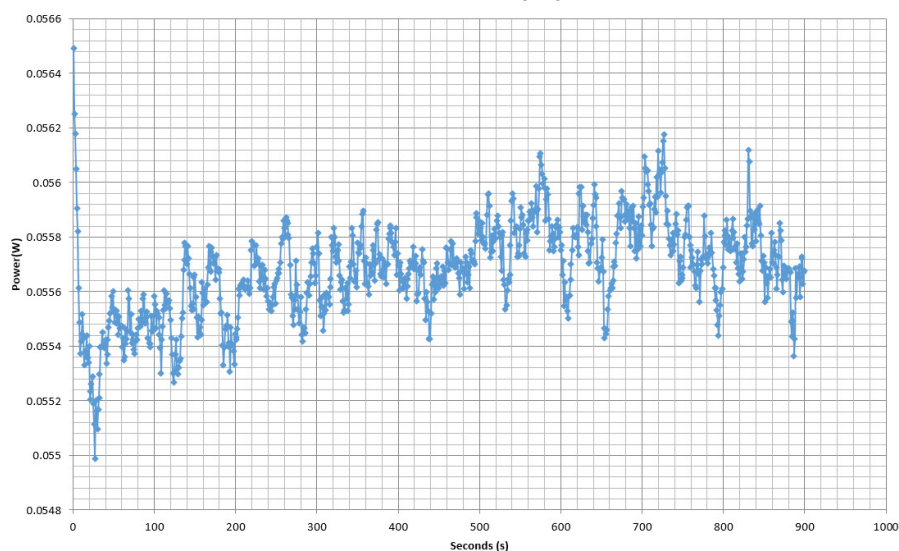
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

VAMPIRE POWER -115V

Power - 1603530425800472 - 18/08/2017 - 10:22



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

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 7/13

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

All data and graphs included in this test report can be used by any individual on the following conditions:

- › It should be mentioned that the test results are provided by Cybenetics
- › The link to the original test results document should be provided in any case

PAGE 8/13

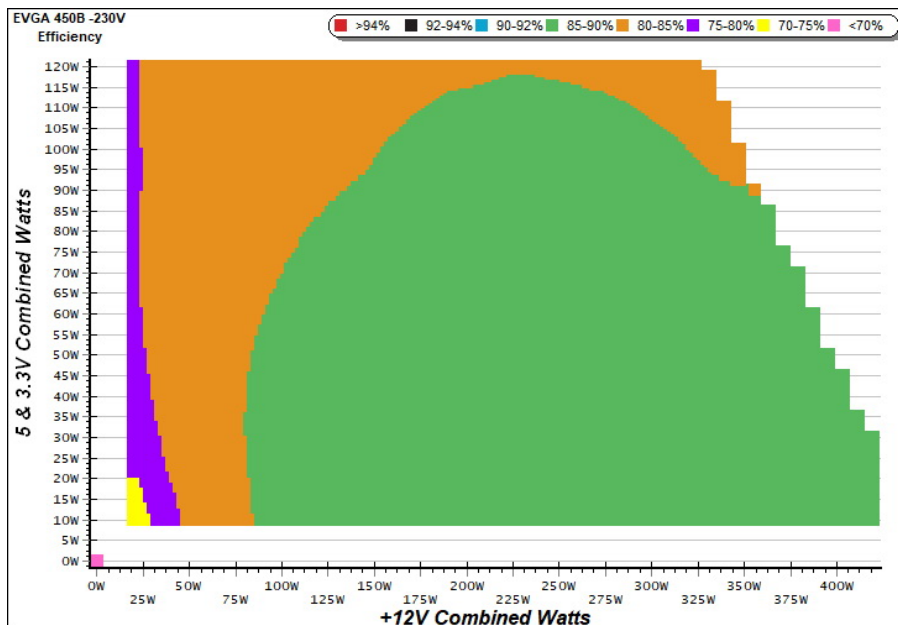
230V

All data and graphs included in this test report can be used by any individual on the following conditions:

- › It should be mentioned that the test results are provided by Cybenetics
- › The link to the original test results document should be provided in any case

PAGE 9/13

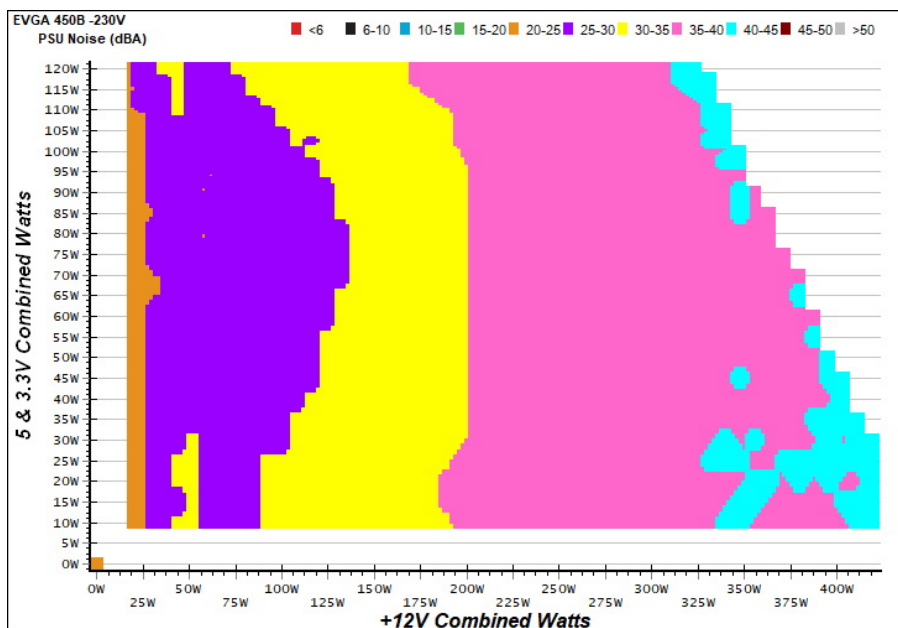
EFFICIENCY GRAPH 230V



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

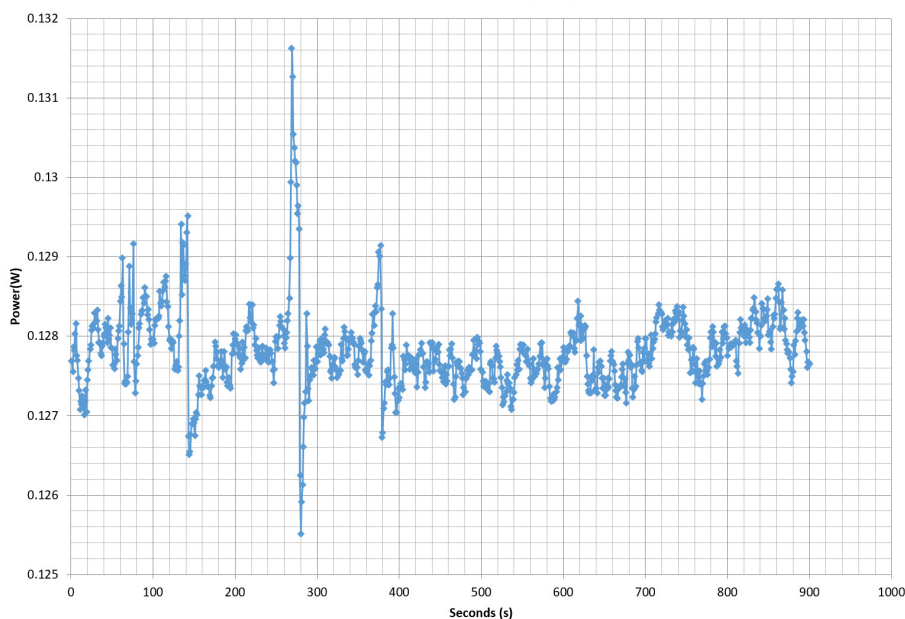
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

VAMPIRE POWER -230V

Power - 1603530425800472 - 18/08/2017 - 10:22



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

All data and graphs included in this test report can be used by any individual on the following conditions:

- › It should be mentioned that the test results are provided by Cybenetics
- › The link to the original test results document should be provided in any case

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

All data and graphs included in this test report can be used by any individual on the following conditions:

- › It should be mentioned that the test results are provided by Cybenetics
- › The link to the original test results document should be provided in any case

PAGE 12/13



Top side



+40°C ambient @ full load					
AC Input	AC 100-240V~, 50-60 Hz, 8/4A				
DC Output	+5V	+3.3V	+12V	-12V	+5Vsb
Max Output, A	20A	20A	35A	0.3A	3A
Combined, W	120W	420W	3.6W	15W	
Output Power, P _{cont}	450W @ +40°C				

Power specifications label

CERTIFICATIONS 115V




Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



All data and graphs included in this test report can be used by any individual on the following conditions:

- › It should be mentioned that the test results are provided by Cybenetics
- › The link to the original test results document should be provided in any case