Anex

EVGA 500W

Lab ID#: 187
Receipt Date: Mar 24, 2018
Test Date: Apr 6, 2018

Report:
Report Date: Apr 10, 2018

DUT INFORMATION

Brand	EVGA
Manufacturer (OEM)	HEC
Series	W
Model Number	
Serial Number	1603530514810517
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8-4
Rated Frequency (Hz)	50-60
Rated Power (W)	500
Type	ATX12V
Cooling	120mm Sleeve Bearing Fan (EFS-12E12H)
Semi-Passive Operation	✗
Cable Design	Fixed cables

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
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	81.927%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	79.345%
Standby Power Consumption (W)	0.0538415
Average PF	0.977
Avg Noise Output	39.24 dB(A)
Efficiency Rating (ETA)	
Noise Rating (LAMBDA)	Standard+

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	24	20	40	3	0.3
	Watts	120		480	15	3.6
Total Max. Power (W)		500				

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

Hold-Up Time (ms)	15.90
AC Loss to PWR_OK Hold Up Time (ms)	10.02
PWR_OK Inactive to DC Loss Delay (ms)	5.88

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CABLES AND CONNECTORS

Captive Cables

Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (560mm)	1	1	18-22AWG
4+4 pin EPS12V (620mm)	1	1	18AWG
6+2 pin PCIe (570mm+120mm)	1	2	20AWG
SATA (470mm+120mm+120mm)	2	6	20AWG
4 pin Molex (470mm+120mm+120mm) / FDD (+120mm)	1	3 / 1	20-22AWG

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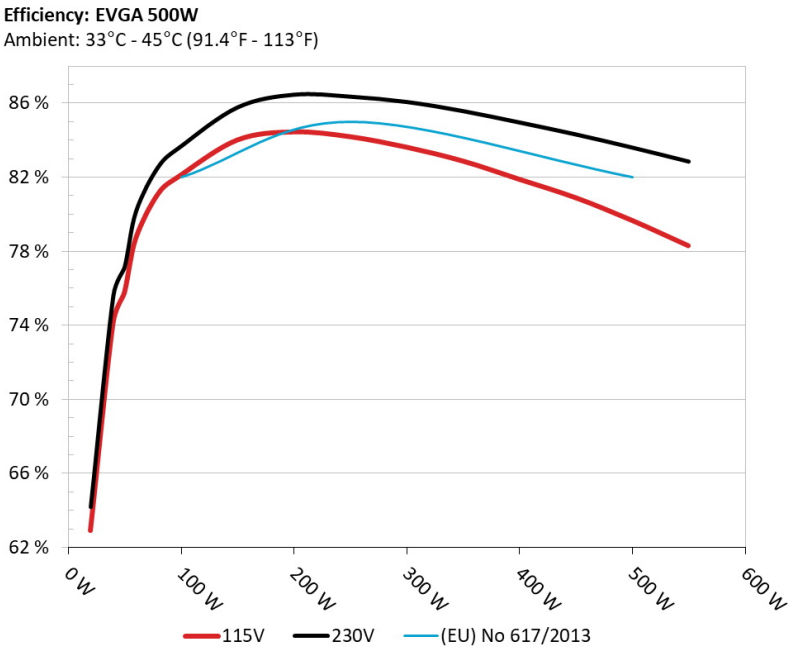
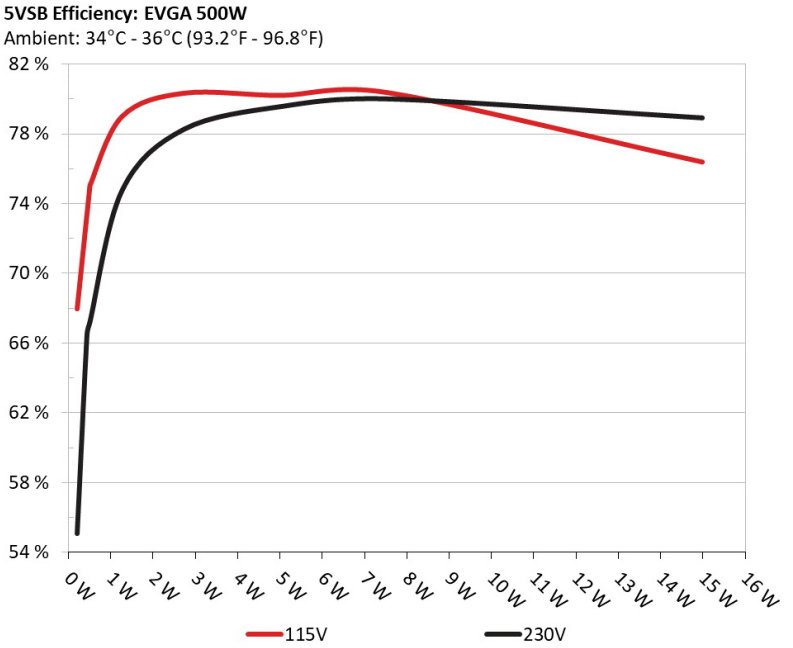
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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



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	0.042A	0.212	67.949%	0.060
	5.050V	0.312		115.06V
2	0.088A	0.442	75.042%	0.107
	5.049V	0.589		115.06V
3	0.543A	2.734	80.341%	0.315
	5.039V	3.403		115.05V
4	1.002A	5.044	80.216%	0.368
	5.033V	6.288		115.05V
5	1.502A	7.542	80.379%	0.396
	5.022V	9.383		115.05V
6	3.002A	14.984	76.391%	0.441
	4.991V	19.615		115.05V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.211	55.091%	0.023
	5.049V	0.383		230.22V
2	0.088A	0.442	66.466%	0.039
	5.049V	0.665		230.23V
3	0.542A	2.733	78.287%	0.170
	5.039V	3.491		230.20V
4	1.002A	5.041	79.599%	0.242
	5.029V	6.333		230.21V
5	1.502A	7.542	80.030%	0.285
	5.022V	9.424		230.21V
6	3.001A	14.979	78.945%	0.345
	4.991V	18.974		230.21V

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115V

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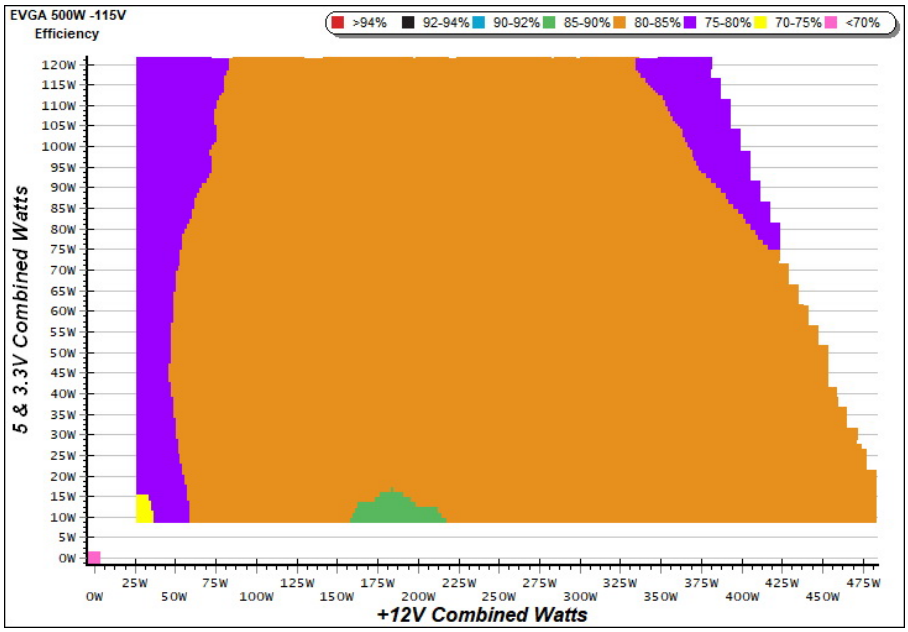
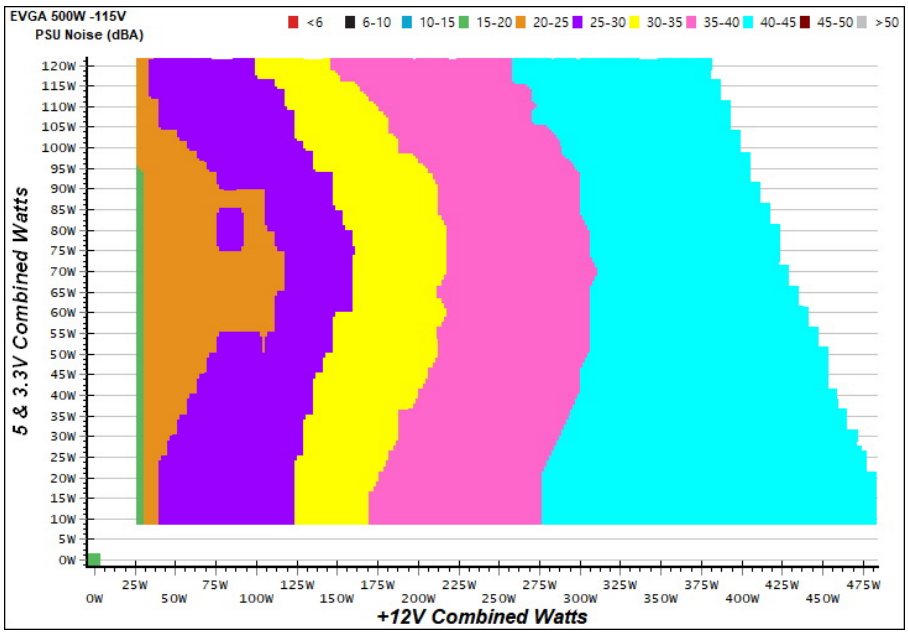
EFFICIENCY GRAPH 115V



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 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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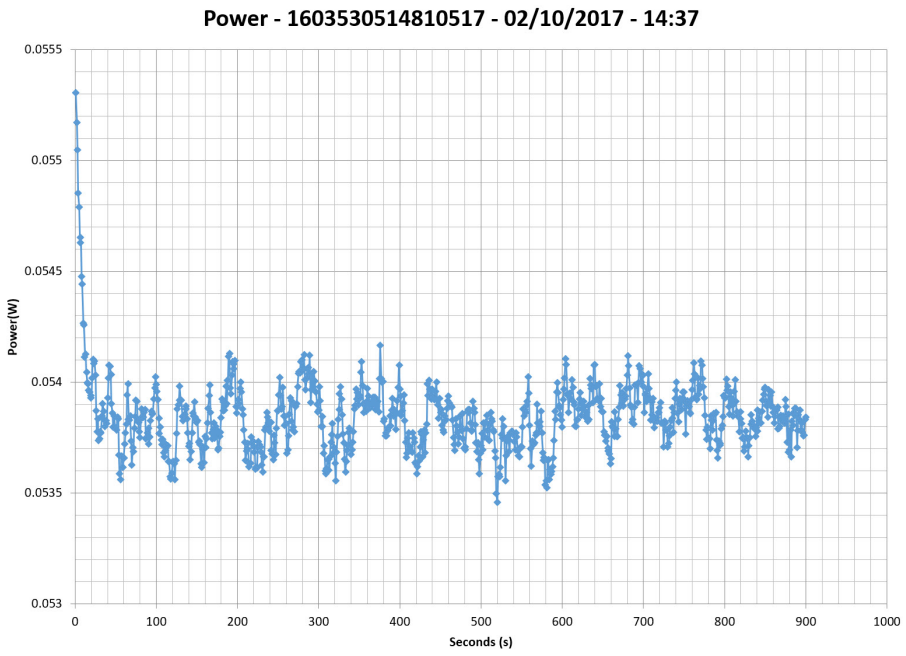
VAMPIRE POWER -115V



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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10-110% LOAD TESTS 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	2.308A	1.975A	1.954A	0.996A	49.762	75.771%	874	20.1	33.90°C	0.912
	12.216V	5.055V	3.374V	5.012V	65.674				38.63°C	115.11V
2	5.651A	2.969A	2.938A	1.201A	99.796	82.132%	898	21.2	34.70°C	0.947
	12.197V	5.047V	3.364V	4.998V	121.507				40.20°C	115.11V
3	9.354A	3.466A	3.453A	1.400A	149.890	84.035%	1044	25.2	34.82°C	0.966
	12.169V	5.047V	3.355V	4.988V	178.366				41.40°C	115.12V
4	13.062A	3.964A	3.941A	1.606A	199.800	84.470%	1242	31.0	35.97°C	0.972
	12.143V	5.047V	3.347V	4.975V	236.535				43.17°C	115.13V
5	16.440A	4.970A	4.941A	1.811A	249.816	84.209%	1465	35.6	37.06°C	0.977
	12.124V	5.035V	3.338V	4.959V	296.661				44.87°C	115.14V
6	19.820A	5.968A	5.950A	2.020A	299.729	83.643%	1678	39.3	38.26°C	0.981
	12.107V	5.026V	3.326V	4.943V	358.345				46.79°C	115.15V
7	23.220A	6.981A	6.964A	2.230A	349.755	82.893%	1850	42.9	39.38°C	0.984
	12.087V	5.017V	3.315V	4.926V	421.934				48.76°C	115.15V
8	26.640A	7.987A	7.988A	2.440A	399.764	81.906%	2046	45.2	40.96°C	0.985
	12.064V	5.009V	3.304V	4.910V	488.078				51.50°C	115.17V
9	30.518A	8.481A	8.528A	2.445A	449.719	80.911%	2078	45.7	41.48°C	0.986
	12.030V	5.012V	3.295V	4.900V	555.821				53.90°C	115.18V
10	34.147A	8.983A	9.041A	3.075A	499.562	79.686%	2078	45.7	42.97°C	0.986
	12.003V	5.011V	3.284V	4.875V	626.916				57.48°C	115.19V
11	38.417A	8.969A	9.064A	3.079A	549.437	78.320%	2078	45.7	44.54°C	0.985
	11.967V	5.020V	3.276V	4.866V	701.527				60.90°C	115.22V
CL1	0.098A	14.026A	14.003A	0.004A	113.047	73.902%	2104	46.1	43.21°C	0.961
	12.568V	4.644V	3.332V	4.976V	152.969				49.82°C	115.14V
CL2	39.969A	1.003A	1.000A	1.001A	486.261	80.372%	2058	45.3	44.75°C	0.986
	11.828V	5.224V	3.312V	4.951V	605.015				57.18°C	115.19V

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20-80W LOAD TESTS 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.198A	0.491A	0.472A	0.196A	19.699	62.924%	823	18.8	0.866
	12.195V	5.098V	3.383V	5.041V	31.306				115.09V
2	2.419A	0.980A	0.975A	0.396A	39.771	74.146%	823	18.8	0.901
	12.195V	5.085V	3.379V	5.031V	53.639				115.10V
3	3.643A	1.467A	1.479A	0.596A	59.851	78.705%	863	19.3	0.922
	12.194V	5.074V	3.374V	5.025V	76.045				115.10V
4	4.858A	1.975A	1.956A	0.796A	79.814	81.136%	863	19.3	0.937
	12.191V	5.066V	3.370V	5.016V	98.371				115.11V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.6 mV	6.4 mV	12.9 mV	16.5 mV	Pass
20% Load	10.7 mV	6.7 mV	14.7 mV	11.3 mV	Pass
30% Load	10.7 mV	6.5 mV	12.7 mV	12.7 mV	Pass
40% Load	13.5 mV	7.6 mV	13.2 mV	13.7 mV	Pass
50% Load	15.0 mV	8.6 mV	13.3 mV	15.6 mV	Pass
60% Load	18.1 mV	10.1 mV	14.1 mV	15.8 mV	Pass
70% Load	21.7 mV	11.5 mV	14.5 mV	23.0 mV	Pass
80% Load	24.9 mV	13.9 mV	15.4 mV	24.8 mV	Pass
90% Load	27.9 mV	15.3 mV	19.2 mV	24.1 mV	Pass
100% Load	39.1 mV	19.3 mV	25.5 mV	26.7 mV	Pass
110% Load	56.4 mV	24.6 mV	19.1 mV	33.0 mV	Pass
Crossload 1	23.7 mV	52.3 mV	22.2 mV	15.3 mV	Fail
Crossload 2	41.0 mV	12.6 mV	15.3 mV	21.8 mV	Pass

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Top side

Power specifications label

CERTIFICATIONS 115V

CYBENETICS
STANDARD+

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