

Anex

EVGA 500 BQ

Lab ID#: 191
Receipt Date: Aug 30, 2018
Test Date: Sep 8, 2018

Report:

Report Date: Sep 10, 2018

DUT INFORMATION

Brand	EVGA
Manufacturer (OEM)	Andyson
Series	BQ
Model Number	
Serial Number	1701230515800453
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 Fluid Dynamic Bearing Fan (S1202512L)
Semi-Passive Operation	X
Cable Design	Semi Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	41.6	2.5	0.3
	Watts	110		499.2	12.5	3.6
Total Max. Power (W)		500				

CABLES AND CONNECTORS

Captive Cables

Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (610mm)	1	1	18-22AWG
4+4 pin EPS12V (620mm)	1	1	18AWG

Modular Cables

6+2 pin PCIe (600mm+100mm)	1	2	18AWG
SATA (460mm+120mm+120mm)	2	6	18AWG
4 pin Molex (470mm+120mm+120mm) / FDD (+120mm)	1	3 / 1	18AWG

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RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6
ErP Lot 3/6 Ready	ErP Lot 3/6 2010: ✓ ErP Lot 3/6 2013: ✓ ErP Lot 3/6 2014, CEC: Partially
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	86.019%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	76.807%
Standby Power Consumption (W)	0.0915093
Average PF	0.989
Avg Noise Output	37.07 dB(A)
Efficiency Rating (ETA)	SILVER
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	

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

Hold-Up Time (ms)	15
AC Loss to PWR_OK Hold Up Time (ms)	12.4
PWR_OK Inactive to DC Loss Delay (ms)	2.6

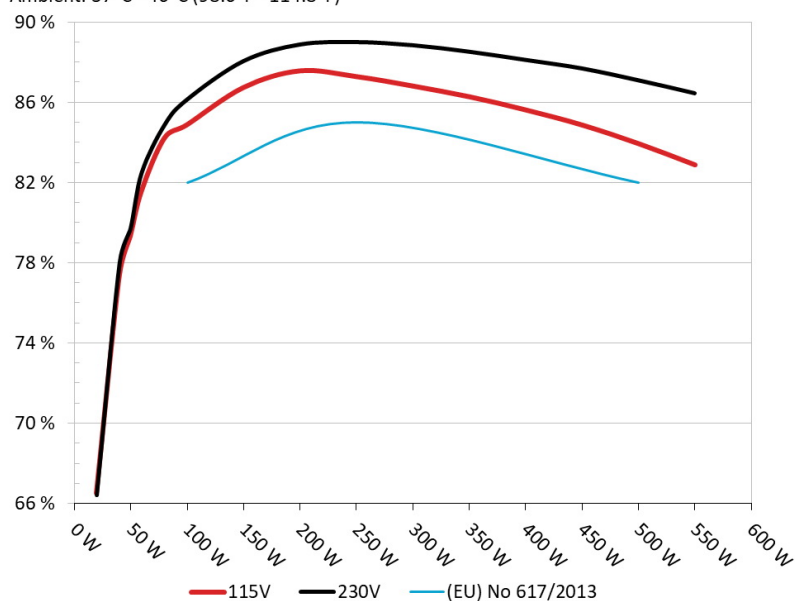
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: EVGA 500 BQ

Ambient: 37°C - 46°C (98.6°F - 114.8°F)



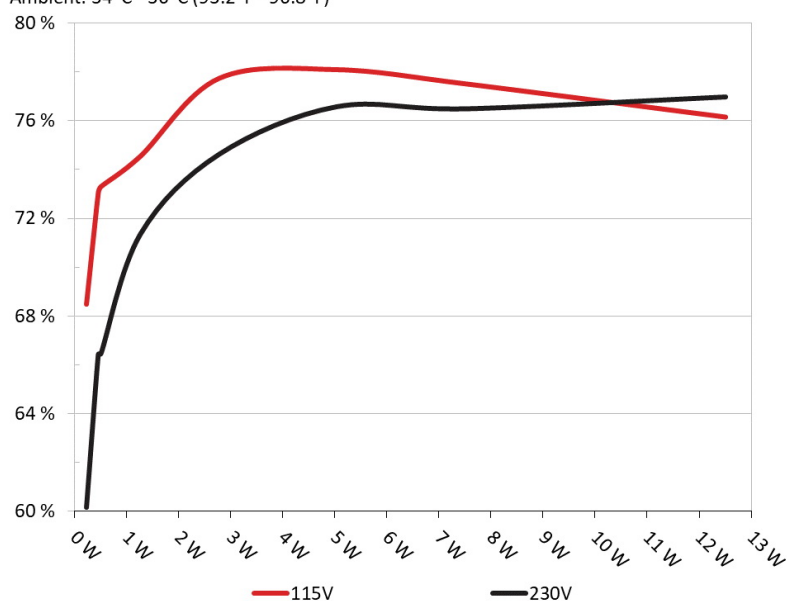
INFO

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: EVGA 500 BQ

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	0.228	68.468%	0.029
	5.052V	0.333		115.39V
2	0.090A	0.455	73.034%	0.053
	5.051V	0.623		115.39V
3	0.550A	2.774	77.747%	0.236
	5.042V	3.568		115.38V
4	1.000A	5.034	78.107%	0.320
	5.034V	6.445		115.37V
5	1.500A	7.537	77.517%	0.367
	5.024V	9.723		115.38V
6	2.500A	12.511	76.157%	0.413
	5.004V	16.428		115.36V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228	60.158%	0.012
	5.052V	0.379		230.85V
2	0.090A	0.455	66.423%	0.020
	5.051V	0.685		230.86V
3	0.550A	2.774	74.610%	0.104
	5.042V	3.718		230.85V
4	1.000A	5.034	76.563%	0.169
	5.033V	6.575		230.85V
5	1.500A	7.537	76.479%	0.226
	5.024V	9.855		230.85V
6	2.500A	12.512	76.964%	0.297
	5.004V	16.257		230.84V

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EVGA 500 BQ

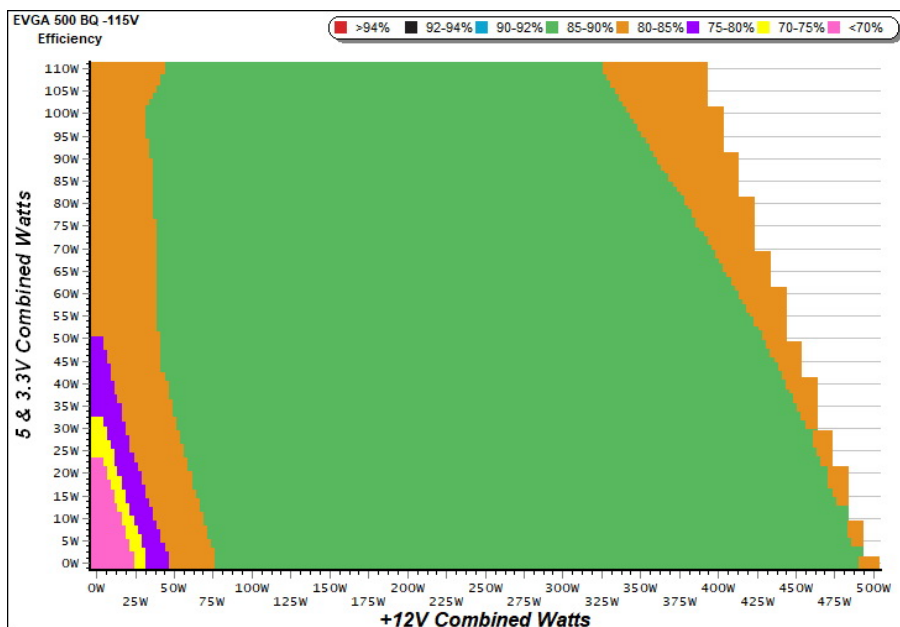
115V

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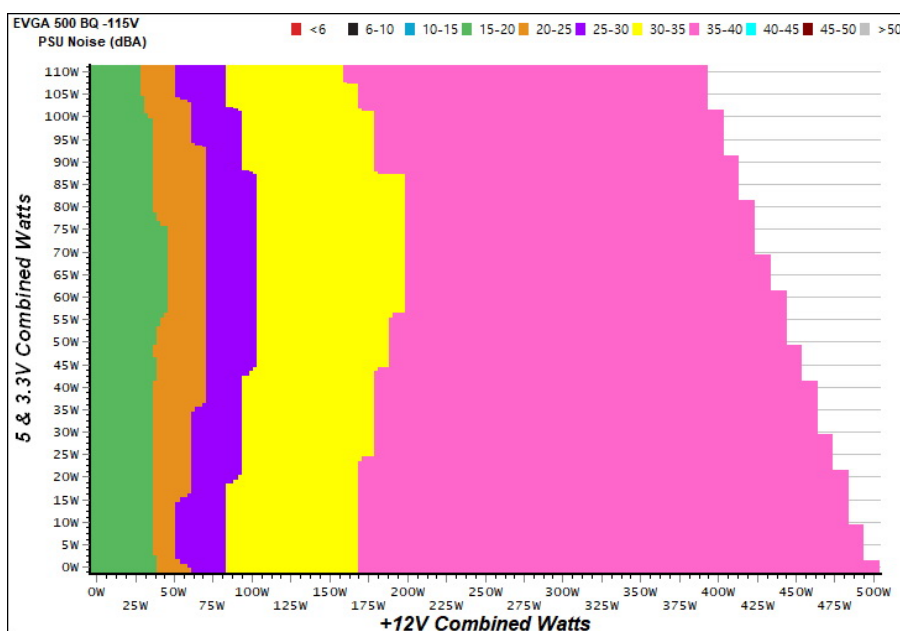
EFFICIENCY GRAPH 115V



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

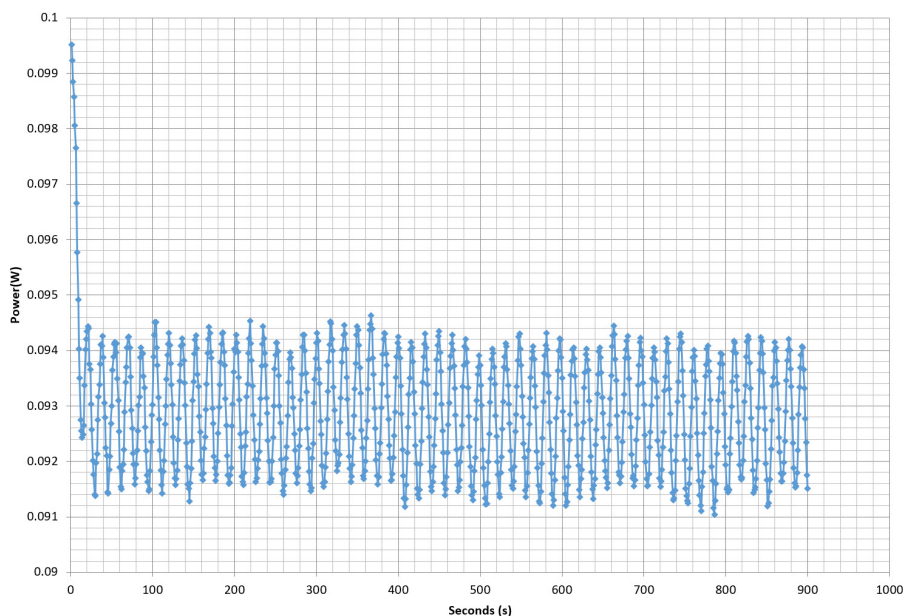
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - 1701230515800453 - 07/10/2017 - 09:26



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	2.336A	1.982A	1.959A	0.996A	49.688	79.360%	1353	32.6	38.04°C	0.957
	12.017V	5.051V	3.371V	5.022V	62.611				41.17°C	115.31V
2	5.733A	2.970A	2.941A	1.198A	99.796	84.876%	1509	38.1	38.90°C	0.984
	12.015V	5.052V	3.369V	5.009V	117.579				42.08°C	115.24V
3	9.466A	3.466A	3.415A	1.401A	149.721	86.727%	1579	37.7	39.05°C	0.991
	12.013V	5.051V	3.367V	4.997V	172.635				42.49°C	115.17V
4	13.199A	3.961A	3.924A	1.605A	199.744	87.560%	1737	39.3	39.48°C	0.995
	12.011V	5.051V	3.365V	4.985V	228.122				43.09°C	115.20V
5	16.601A	4.953A	4.906A	1.811A	249.861	87.273%	1770	39.9	39.82°C	0.992
	12.008V	5.050V	3.363V	4.972V	286.299				44.24°C	115.12V
6	20.002A	5.942A	5.891A	2.017A	299.952	86.804%	1770	39.9	40.26°C	0.991
	12.006V	5.050V	3.361V	4.959V	345.549				45.97°C	115.05V
7	23.410A	6.933A	6.876A	2.225A	350.084	86.268%	1776	39.9	41.18°C	0.992
	12.002V	5.050V	3.360V	4.945V	405.811				48.31°C	114.97V
8	26.821A	7.923A	7.862A	2.435A	400.190	85.610%	1776	39.9	42.52°C	0.993
	11.997V	5.050V	3.358V	4.931V	467.455				50.75°C	114.99V
9	30.637A	8.418A	8.343A	2.439A	449.916	84.860%	1776	39.9	44.16°C	0.993
	11.992V	5.051V	3.356V	4.920V	530.186				53.50°C	114.92V
10	34.455A	8.912A	8.856A	2.547A	500.238	83.925%	1776	39.9	45.64°C	0.994
	11.987V	5.051V	3.355V	4.908V	596.056				56.59°C	114.83V
11	38.607A	8.911A	8.858A	2.552A	549.861	82.875%	1776	39.9	46.42°C	0.994
	11.983V	5.052V	3.354V	4.900V	663.482				60.89°C	114.74V
CL1	0.742A	13.002A	13.002A	0.000A	118.436	83.118%	1770	39.9	44.69°C	0.987
	12.004V	5.055V	3.369V	4.998V	142.491				51.92°C	115.21V
CL2	41.682A	1.002A	1.000A	1.000A	513.017	84.242%	1776	39.9	46.27°C	0.994
	11.987V	5.050V	3.356V	4.959V	608.979				57.18°C	114.82V

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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	1.201A	0.495A	0.476A	0.198A	19.535	66.527%	1015	25.3	0.860
	12.019V	5.047V	3.369V	5.045V	29.364				115.35V
2	2.464A	0.991A	0.980A	0.397A	39.918	77.399%	1133	28.3	0.939
	12.018V	5.049V	3.370V	5.037V	51.574				115.33V
3	3.666A	1.485A	1.454A	0.597A	59.461	81.581%	1275	32.0	0.966
	12.018V	5.051V	3.370V	5.030V	72.886				115.30V
4	4.931A	1.980A	1.958A	0.797A	79.850	84.219%	1393	34.9	0.976
	12.016V	5.051V	3.369V	5.022V	94.812				115.27V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	4.8 mV	7.3 mV	6.9 mV	7.1 mV	Pass
20% Load	6.4 mV	7.4 mV	7.7 mV	7.7 mV	Pass
30% Load	8.5 mV	8.2 mV	8.2 mV	8.9 mV	Pass
40% Load	9.8 mV	8.8 mV	8.9 mV	9.8 mV	Pass
50% Load	11.3 mV	10.2 mV	9.4 mV	10.9 mV	Pass
60% Load	12.4 mV	10.7 mV	10.2 mV	11.9 mV	Pass
70% Load	14.8 mV	11.4 mV	11.0 mV	13.2 mV	Pass
80% Load	18.4 mV	11.5 mV	12.5 mV	14.1 mV	Pass
90% Load	21.2 mV	10.8 mV	11.7 mV	14.4 mV	Pass
100% Load	21.2 mV	12.3 mV	13.2 mV	16.6 mV	Pass
110% Load	22.5 mV	13.4 mV	14.1 mV	17.1 mV	Pass
Crossload 1	8.5 mV	9.6 mV	11.0 mV	17.6 mV	Pass
Crossload 2	22.3 mV	12.1 mV	11.1 mV	13.0 mV	Pass

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CERTIFICATIONS 115V



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