



EVGA 500 BQ

Serial Number 1701230515800453

Lab ID 191

Certification ID 25191

Test Result Report ID:

Certificate Issue Date: Sep 10, 2018

115V

230V

Scheme: ETA-EMI PSU



115V

230V



Scheme: LAMBDA PSU

A handwritten signature in blue ink, appearing to be 'A. Bitziopoulos', written over a faint circular stamp.

Aristeidis Bitziopoulos, Certification Body General Manager

General Information

Test Equipment

Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 Chroma 63640-80-80 x10 Chroma 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P, GW Instek ASR-3500
Power Analyzers	Rohde & Schwarz HMC8015 & NPA701
Oscilloscopes	Picoscope 4444, 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
EMI Analyzer	TekBox TBMR-110M-EU
Isolation Transformer	4kVA
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Testing Methodology	Cybenetics PSU Test Protocol

DUT Information(Non-accredited measurements)

Product Identification Details	
Brand	EVGA
Model	500 BQ
OEM/ODM	Andyson
Serial Number	1701230515800453
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8-4
Rated Frequency (Hz)	50-60

Rated Power (W)	500
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Semi Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Fluid Dynamic Bearing Fan (S1202512L)
Semi-Passive Operation	X
Cybenetics Testing Information	
Lab ID	191
Date of receipt	Aug 30, 2018
Testing Date	Sep 8, 2018
Report Issued Date	Sep 10, 2018
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

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

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				

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
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	✓

Performance Summary 115V

Accredited	
Average Efficiency (>1450 load combinations)	86.019%
Average Noise Output (>1450 Load Combinations)	37.07dBA
Average PF (>1450 Load Combinations)	0.989
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0915W
Non-Accredited	
12V Ripple (Full Load)	21.15mV
5V Ripple (Full Load)	12.25mV
3.3V Ripple (Full Load)	13.22mV
5VSB Ripple (Full Load)	16.61mV
12V Load Regulation	0.26%
5V Load Regulation	0.06%
3.3V Load Regulation	0.47%

5VSB Load Regulation	2.72%
Inrush Current	98.637A

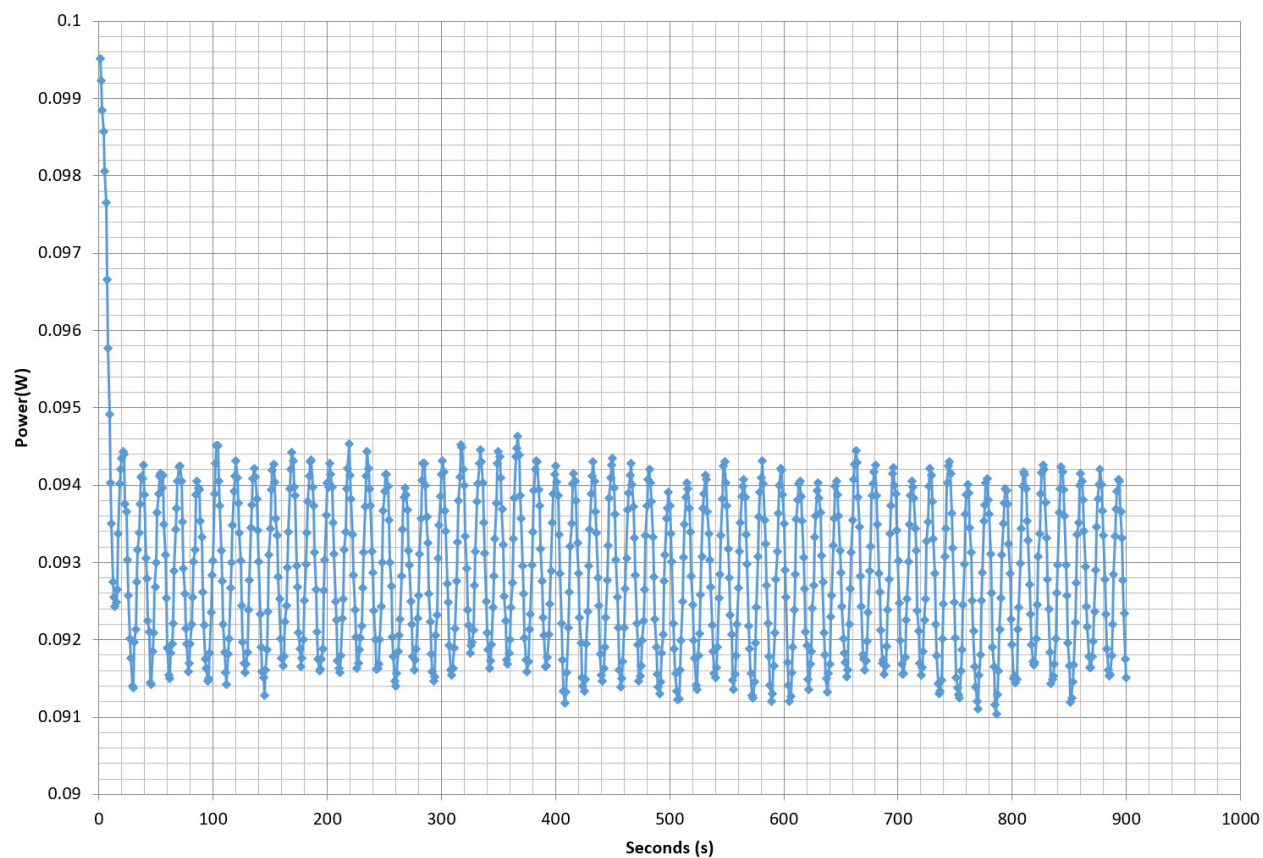
Hold-Up Time & PWR_OK Signal

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



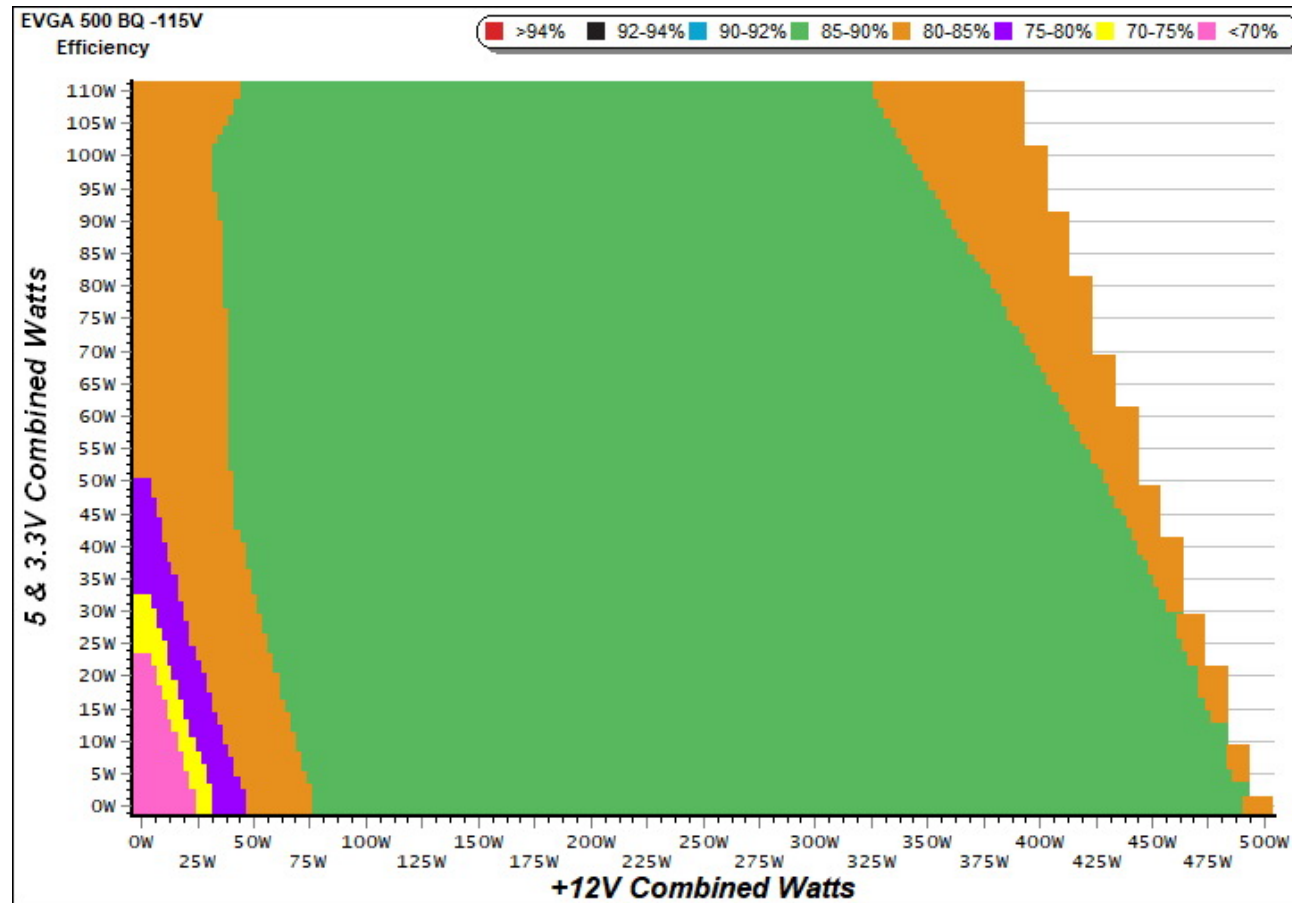
Graphs 115V

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



Efficiency Graph

115V

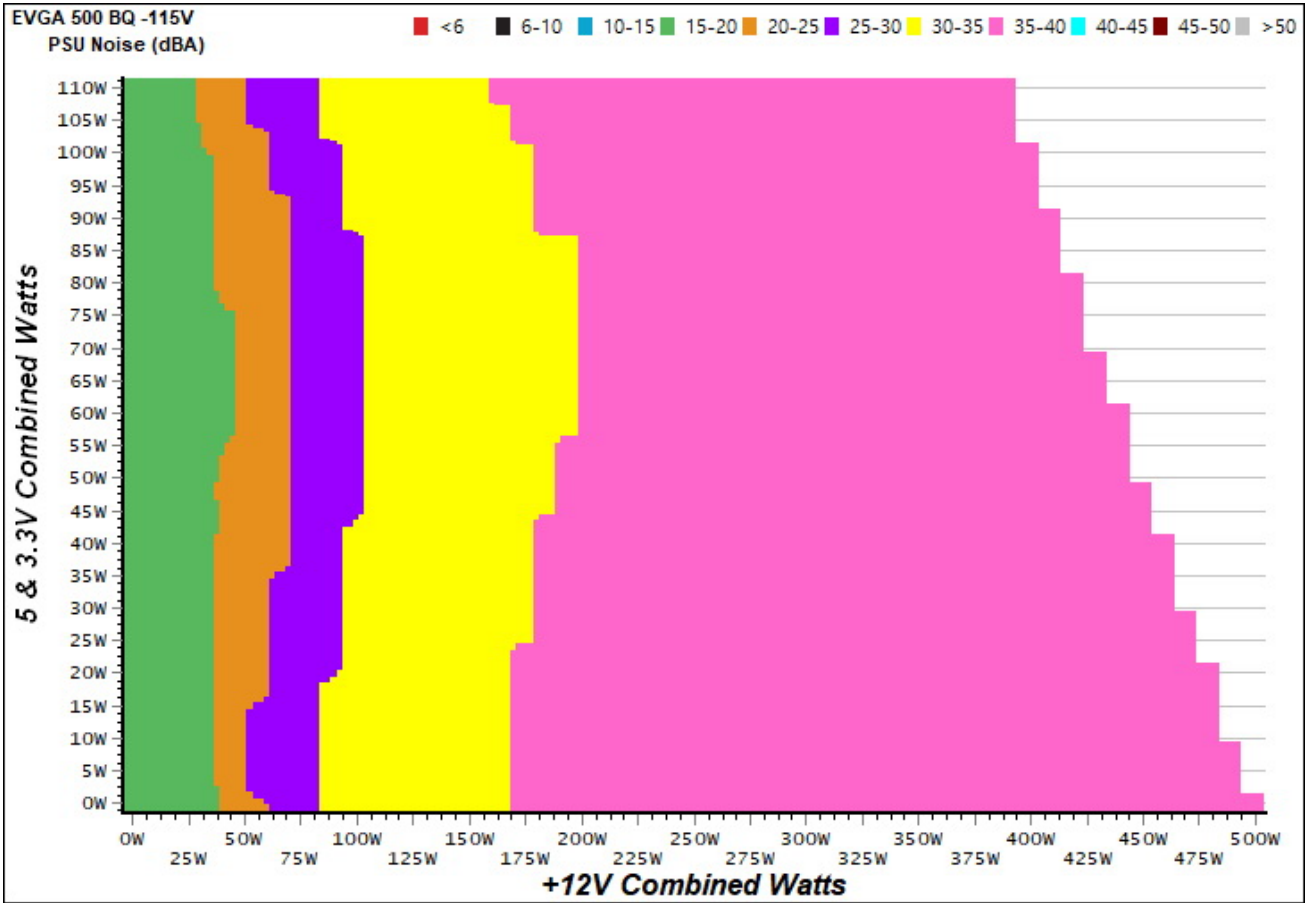


INFO

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

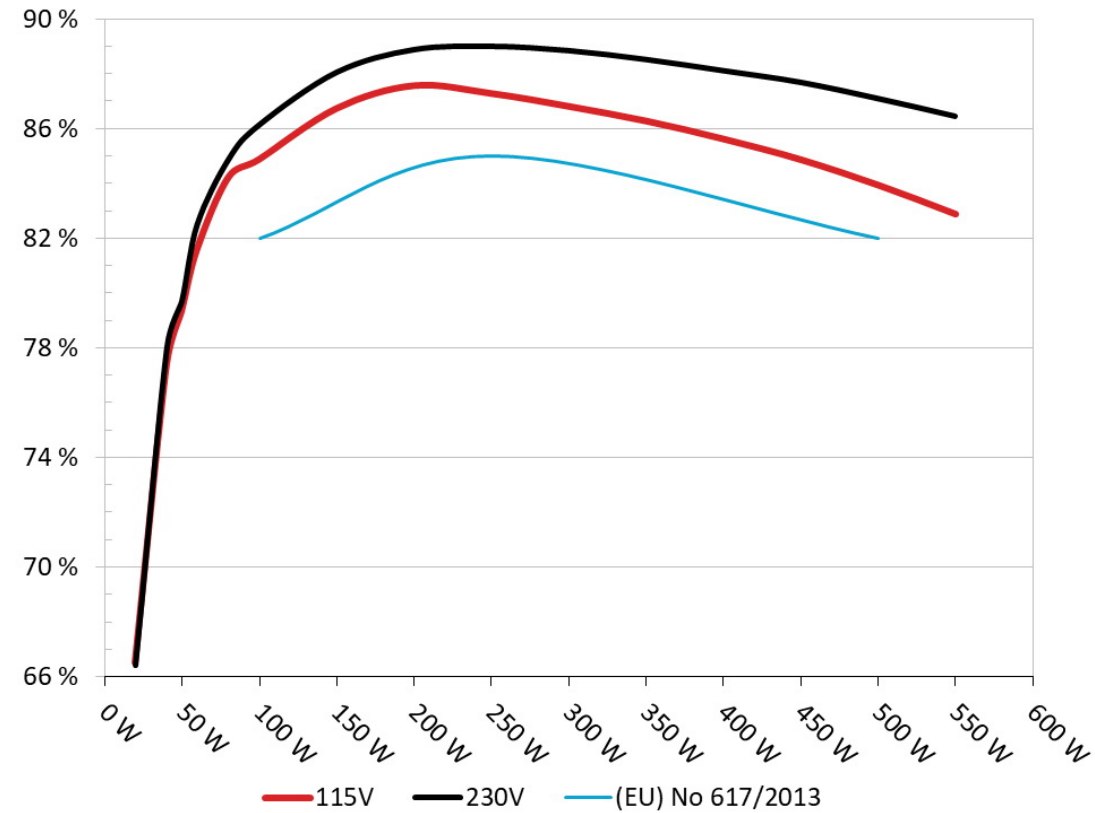
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance

Efficiency under high ambient temperature

Efficiency: EVGA 500 BQ

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

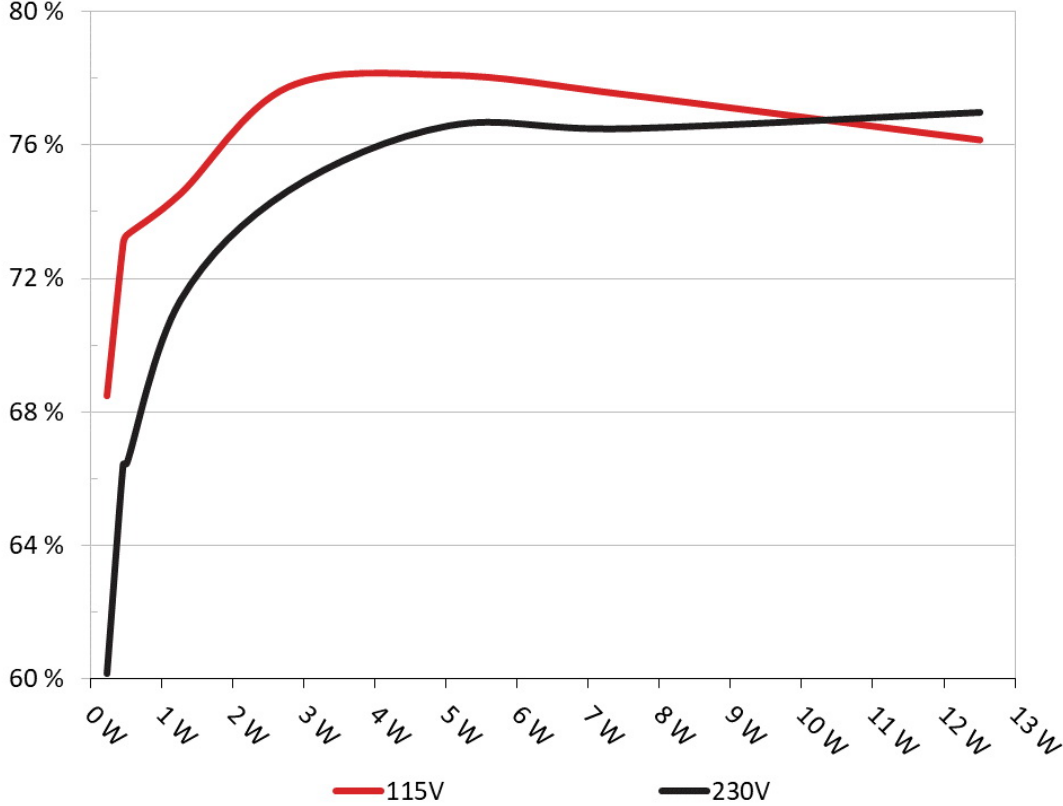


INFO

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.

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

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

Supplementary Tests (For Reference)

Typical 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

The results above are not used in the certification process

Light 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

The results above are not used in the certification process

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

Test	12V	5V	3.3V	5VSB	Pass/Fail
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

The results above are not used in the certification process

EVGA 500 BQ



Top side



Power specifications label

Cybenetics ETA LAMBDA SAFE DELTA PHI

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