EVGA

EVGA 500B

Serial Number 1603530515803386

Lab ID 185

Certification ID 25185

Test Result Report ID:

Certificate Issue Date: Mar 10, 2018

115V

Scheme: ETA-EMI PSU



115V



Scheme: LAMBDA PSU



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	500B
OEM/ODM	HEC
Serial Number	1603530515803386
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	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Sleeve Bearing Fan (EFS-12E12H)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	185
Date of receipt	Feb 25, 2018
Testing Date	Mar 8, 2018
Report Issued Date	Mar 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 (560mm)	1	1	18-22AWG
4+4 pin EPS12V (620mm)	1	1	18AWG
6+2 pin PCIe (580mm+120mm)	1	2	20AWG
SATA (470mm+120mm+120mm)	2	6	20AWG
4 pin Molex (480mm+120mm+120mm) / FDD (+120mm)	1	3 / 1	20-22AWG

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				

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

Performance Summary 115V

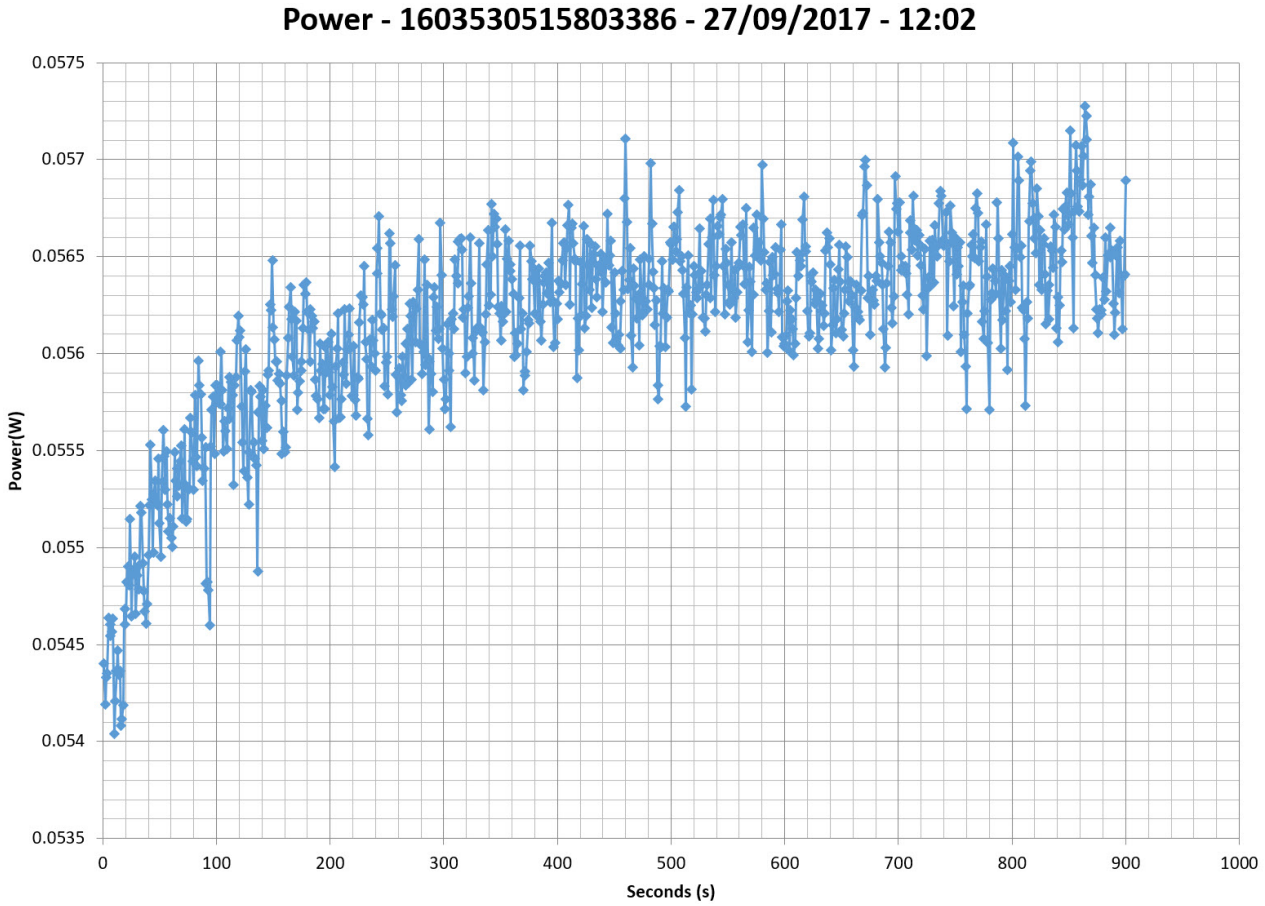
Accredited	
Average Efficiency (>1450 load combinations)	82.363%
Average Noise Output (>1450 Load Combinations)	35.75dBA
Average PF (>1450 Load Combinations)	0.963
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0569W
Non-Accredited	
12V Ripple (Full Load)	65.18mV
5V Ripple (Full Load)	26.09mV
3.3V Ripple (Full Load)	30.28mV
5VSB Ripple (Full Load)	24.27mV
12V Load Regulation	2.00%
5V Load Regulation	1.24%
3.3V Load Regulation	2.66%
5VSB Load Regulation	3.39%
Inrush Current	49.506A

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	15.62
AC Loss to PWR_OK Hold Up Time (ms)	10.10
PWR_OK Inactive to DC Loss Delay (ms)	5.52

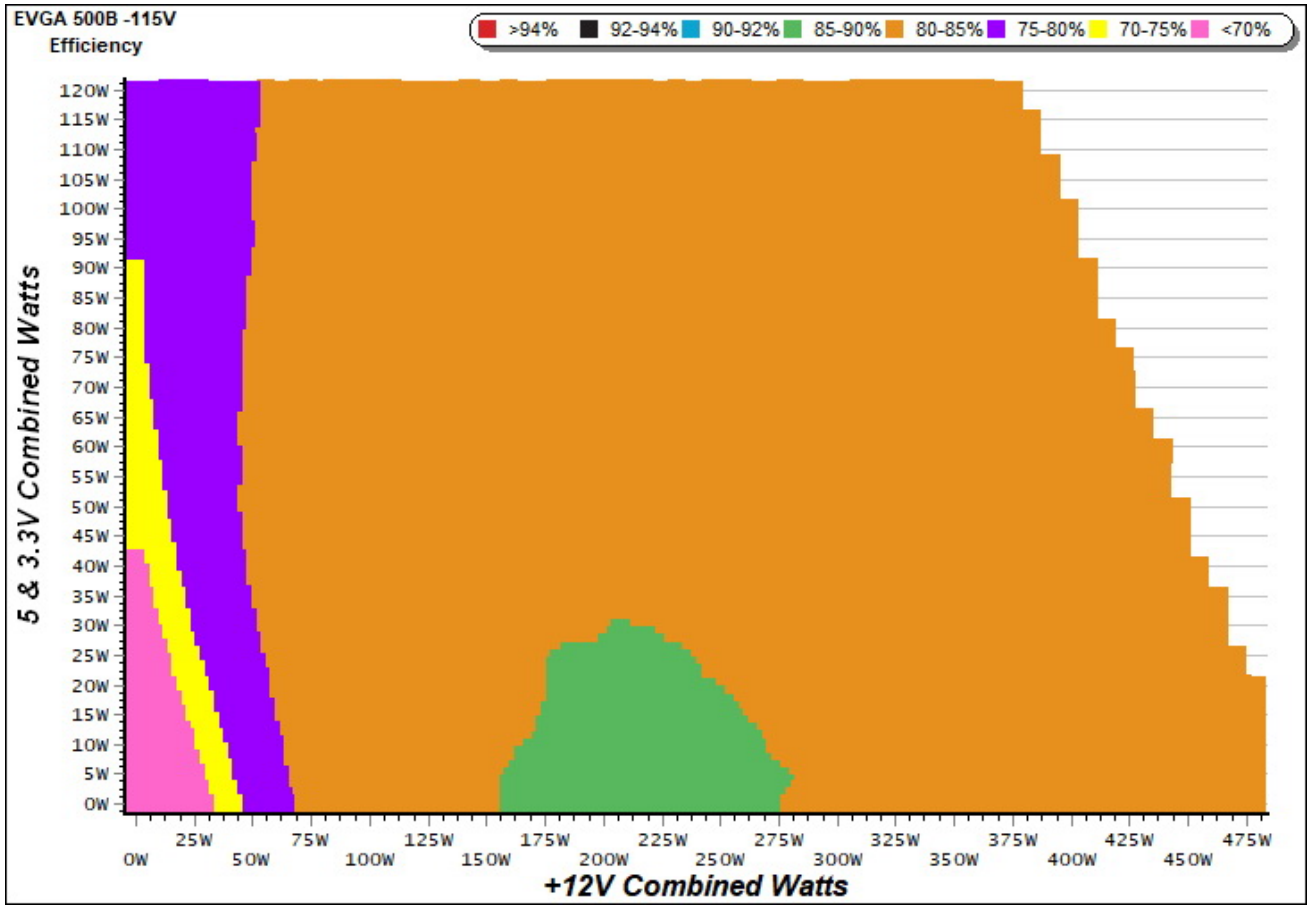
□□□□□□

Graphs 115V



Efficiency Graph

115V

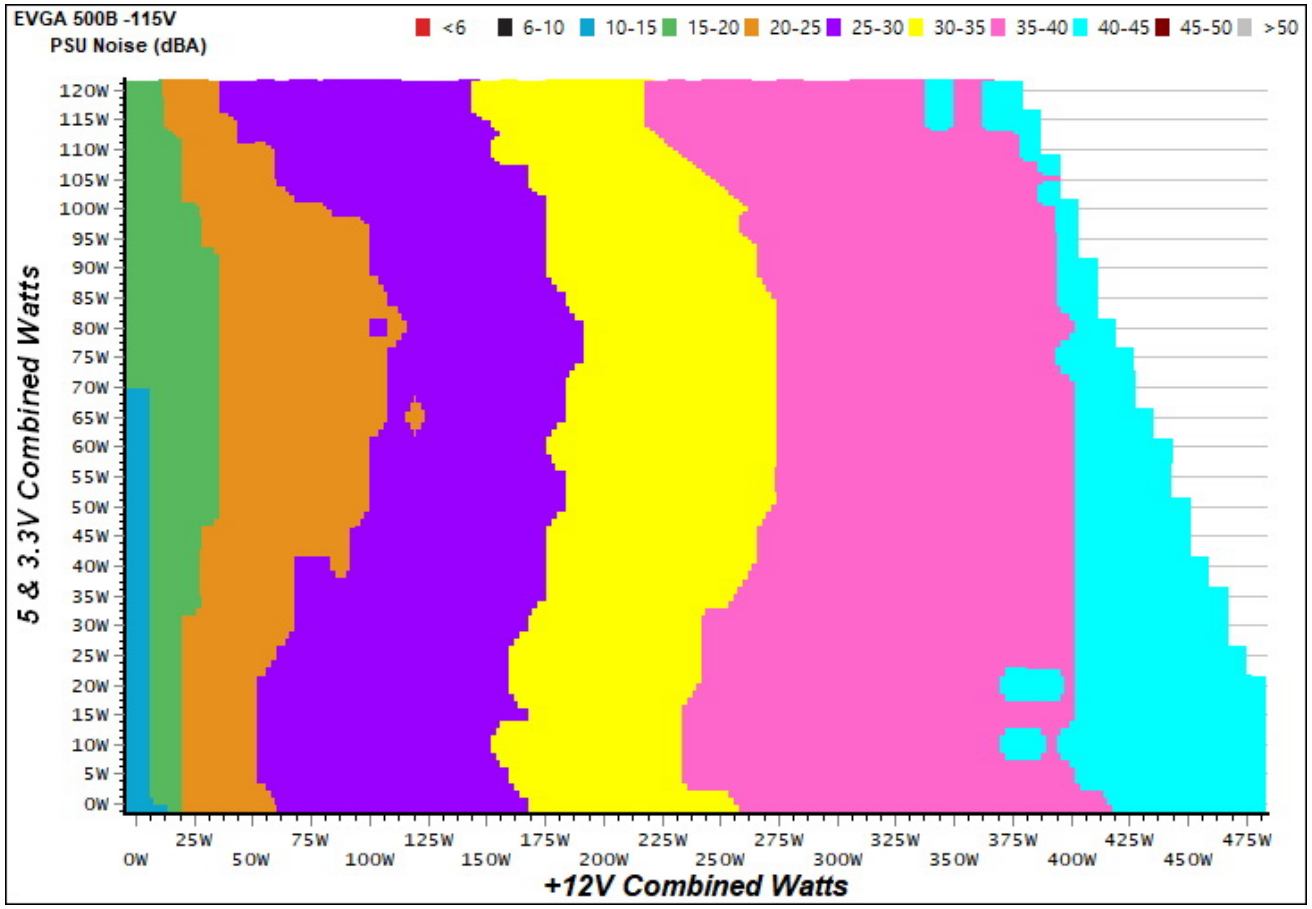


INFO

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

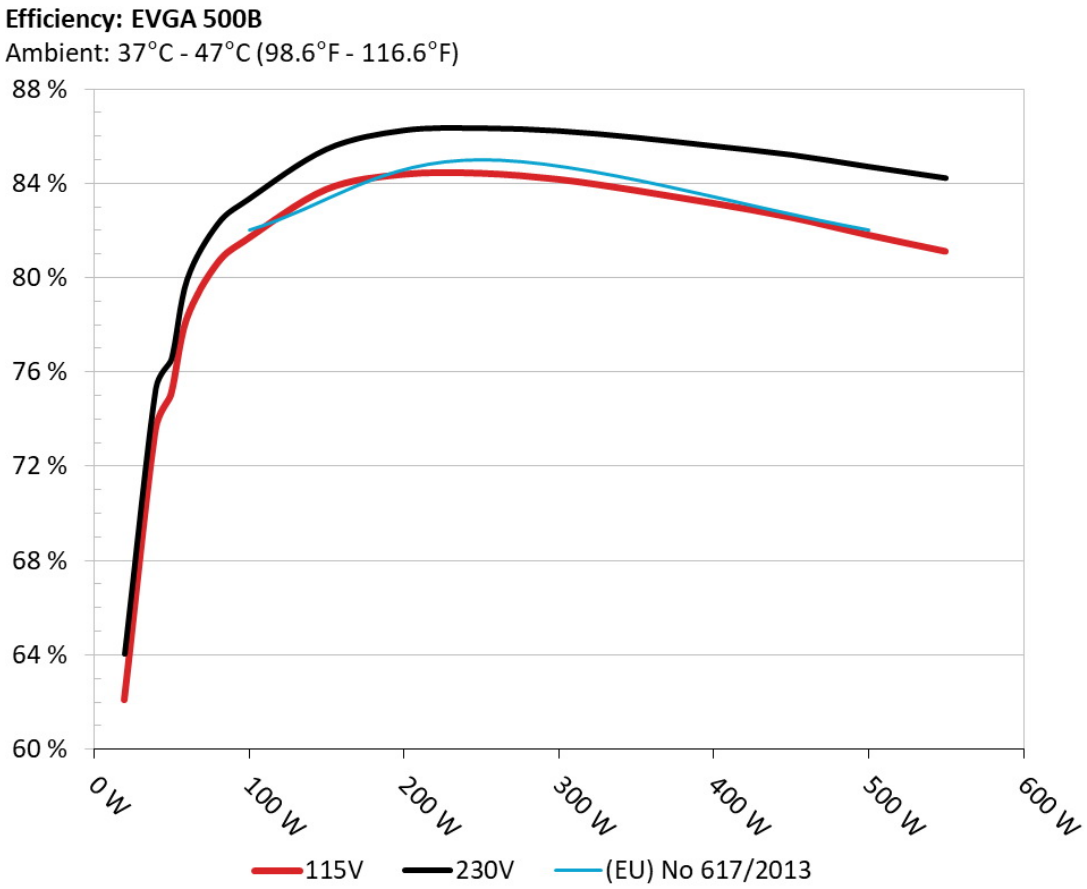


INFO

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

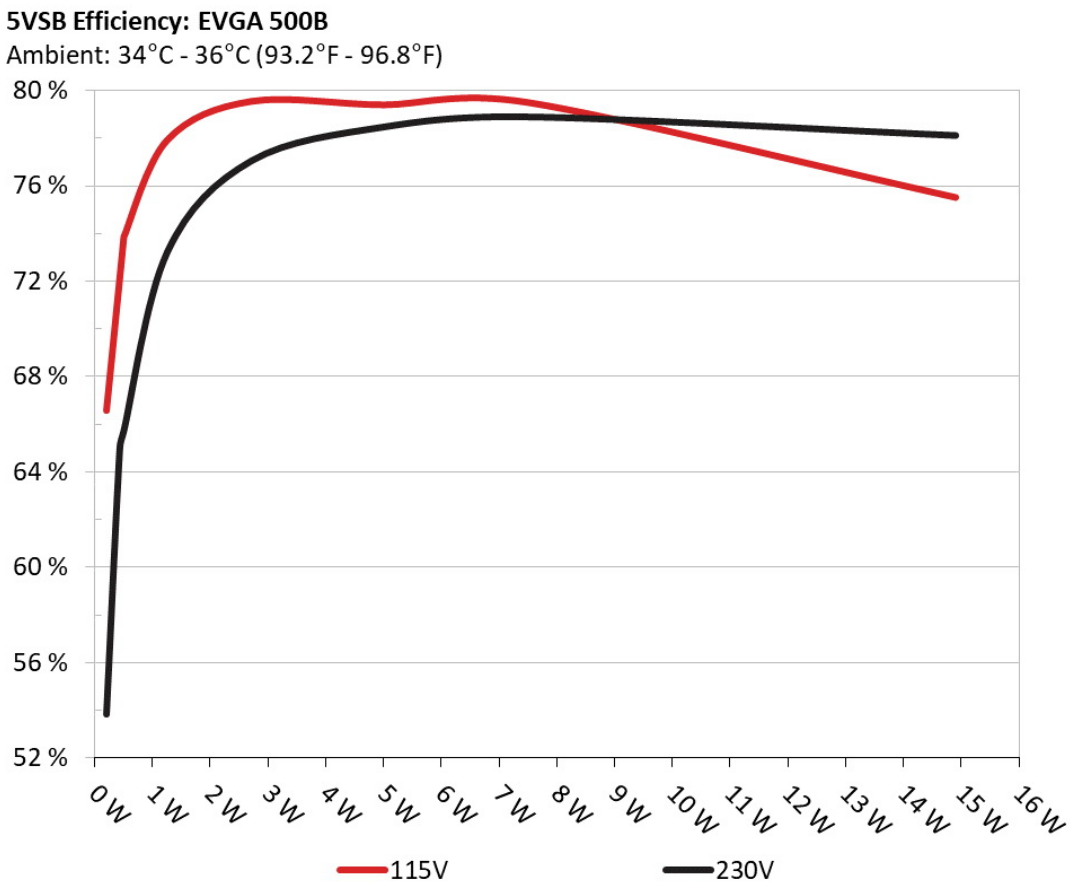
Efficiency under high ambient temperature



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.

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.209	66.561%	0.058
	5.025V	0.314		115.16V

2	0.087A	0.438	73.862%	0.104
	5.025V	0.593		115.16V
3	0.542A	2.719	79.549%	0.311
	5.016V	3.418		115.13V
4	1.002A	5.018	79.399%	0.365
	5.009V	6.320		115.14V
5	1.502A	7.504	79.500%	0.392
	4.997V	9.439		115.15V
6	3.001A	14.911	75.510%	0.438
	4.969V	19.747		115.15V

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	2.311A	1.980A	1.955A	1.000A	49.767	75.032%	957	20.3	38.29°C	0.890
	12.195V	5.051V	3.375V	4.986V	66.328				43.31°C	115.18V
2	5.660A	2.972A	2.938A	1.206A	99.767	81.658%	1128	25.3	38.42°C	0.935
	12.172V	5.042V	3.366V	4.975V	122.176				43.65°C	115.18V
3	9.373A	3.467A	3.450A	1.410A	149.889	83.727%	1300	29.2	38.82°C	0.952
	12.143V	5.045V	3.358V	4.962V	179.021				44.35°C	115.19V
4	13.092A	3.962A	3.940A	1.616A	199.770	84.365%	1486	33.1	39.58°C	0.961
	12.113V	5.047V	3.349V	4.948V	236.792				45.69°C	115.19V
5	16.482A	4.969A	4.938A	1.823A	249.792	84.410%	1660	36.2	40.23°C	0.967
	12.091V	5.037V	3.339V	4.932V	295.926				47.14°C	115.19V
6	19.884A	5.965A	5.941A	2.035A	299.773	84.155%	1865	39.2	41.19°C	0.972
	12.070V	5.029V	3.330V	4.910V	356.216				48.94°C	115.19V
7	23.299A	6.975A	6.958A	2.245A	349.763	83.685%	2015	41.4	42.64°C	0.977
	12.046V	5.021V	3.318V	4.898V	417.954				51.29°C	115.20V
8	26.729A	7.978A	7.974A	2.455A	399.694	83.147%	2023	41.5	44.12°C	0.980
	12.021V	5.015V	3.309V	4.883V	480.710				53.83°C	115.20V

9	30.635A	8.472A	8.515A	2.460A	449.755	82.548%	2023	41.5	45.49°C	0.982
	11.985V	5.019V	3.299V	4.871V	544.843				57.17°C	115.21V
10	34.299A	8.968A	9.028A	3.094A	499.618	81.802%	2023	41.5	46.48°C	0.983
	11.951V	5.020V	3.290V	4.845V	610.768				59.11°C	115.23V
11	38.606A	8.948A	9.048A	3.097A	549.574	81.107%	2023	41.5	46.64°C	0.983
	11.912V	5.031V	3.282V	4.839V	677.593				59.94°C	115.25V
CL1	0.101A	14.026A	14.003A	0.004A	113.347	75.270%	2045	41.8	44.29°C	0.948
	12.528V	4.659V	3.336V	4.949V	150.587				53.05°C	115.19V
CL2	39.968A	1.003A	1.002A	1.002A	484.585	82.241%	2015	41.4	45.50°C	0.983
	11.787V	5.213V	3.316V	4.922V	589.228				56.76°C	115.22V

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	1.200A	0.492A	0.472A	0.196A	19.695	62.118%	787	15.6	0.837
	12.176V	5.089V	3.384V	5.015V	31.706				115.18V
2	2.423A	0.980A	0.975A	0.396A	39.754	73.542%	822	16.2	0.880
	12.175V	5.078V	3.380V	5.005V	54.056				115.18V
3	3.651A	1.470A	1.479A	0.601A	59.883	78.235%	957	20.3	0.907
	12.171V	5.069V	3.376V	4.995V	76.542				115.18V
4	4.865A	1.976A	1.953A	0.801A	79.777	80.606%	1040	22.8	0.920
	12.167V	5.062V	3.372V	4.989V	98.972				115.18V

The results above are not used in the certification process

Ripple Measurements 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	29.9 mV	18.0 mV	27.5 mV	18.0 mV	Pass
20% Load	31.4 mV	20.6 mV	32.4 mV	19.2 mV	Pass
30% Load	34.8 mV	18.9 mV	35.0 mV	18.0 mV	Pass
40% Load	36.4 mV	18.9 mV	26.8 mV	15.5 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	43.1 mV	18.8 mV	26.9 mV	18.5 mV	Pass
60% Load	46.0 mV	20.1 mV	27.1 mV	18.8 mV	Pass
70% Load	51.9 mV	21.3 mV	28.9 mV	18.9 mV	Pass
80% Load	57.8 mV	23.2 mV	30.4 mV	22.4 mV	Pass
90% Load	61.6 mV	24.3 mV	27.6 mV	24.1 mV	Pass
100% Load	65.2 mV	26.1 mV	30.3 mV	24.3 mV	Pass
110% Load	71.3 mV	26.5 mV	34.3 mV	27.2 mV	Pass
Crossload 1	42.7 mV	59.9 mV	27.0 mV	22.6 mV	Fail
Crossload 2	72.0 mV	57.4 mV	30.8 mV	29.6 mV	Fail

The results above are not used in the certification process

EVGA 500B



Top side



Power specifications label