EVGA 500W

Serial Number 1603530514810517

Lab ID 187

Certification ID 25187

Test Result Report ID:

Certificate Issue Date: Apr 10, 2018

115V 230V

Scheme: ETA-EMI PSU

115V 230V

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	500W
OEM/ODM	HEC
Serial Number	1603530514810517
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	187
Date of receipt	Mar 24, 2018
Testing Date	Apr 6, 2018
Report Issued Date	Apr 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 (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

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	✓

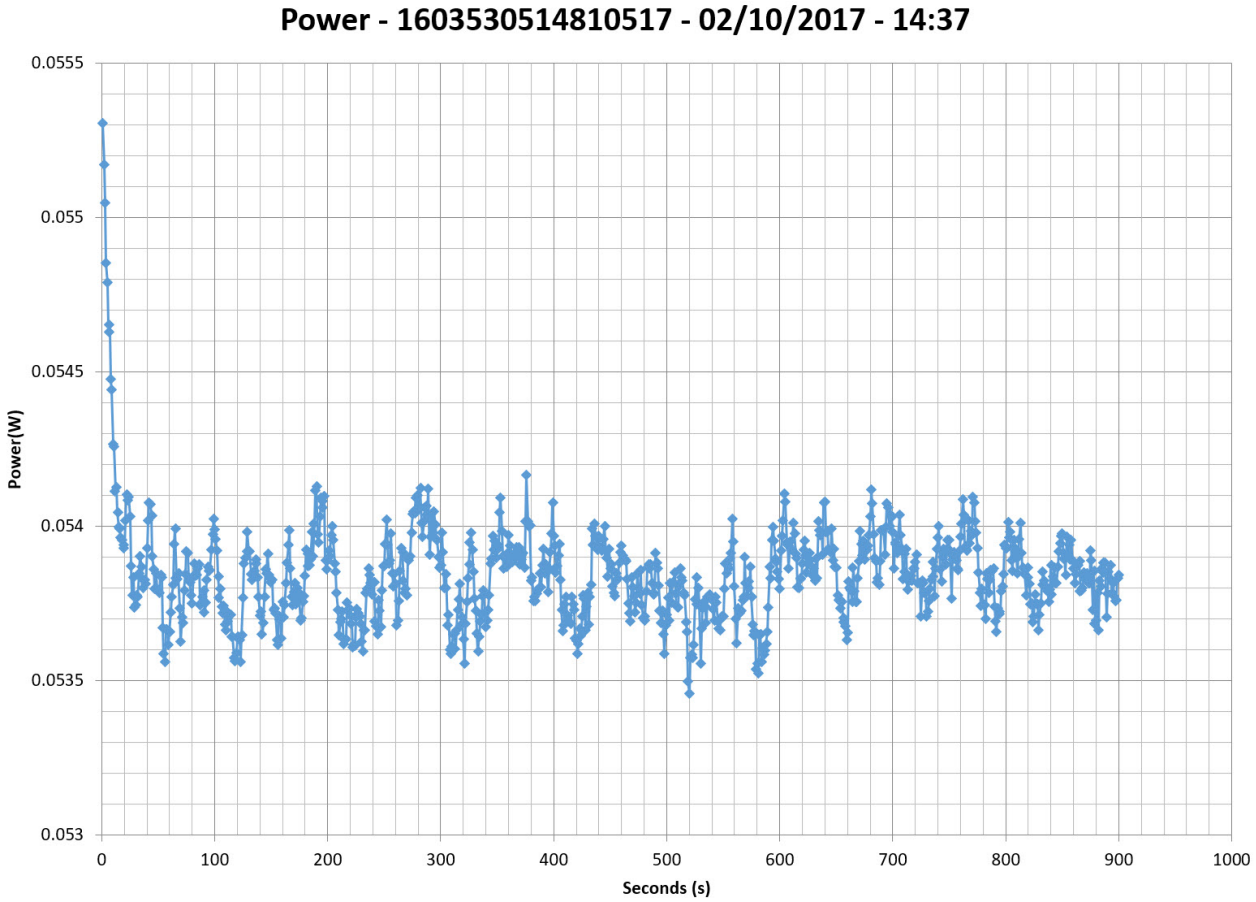
Performance Summary 115V

Accredited	
Average Efficiency (>1450 load combinations)	81.927%
Average Noise Output (>1450 Load Combinations)	39.24dBA
Average PF (>1450 Load Combinations)	0.977
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0538W
Non-Accredited	
12V Ripple (Full Load)	39.14mV
5V Ripple (Full Load)	19.29mV
3.3V Ripple (Full Load)	25.47mV
5VSB Ripple (Full Load)	26.66mV
12V Load Regulation	1.74%
5V Load Regulation	1.49%
3.3V Load Regulation	2.81%
5VSB Load Regulation	3.29%
Inrush Current	54.777A

Hold-Up Time & PWR_OK Signal

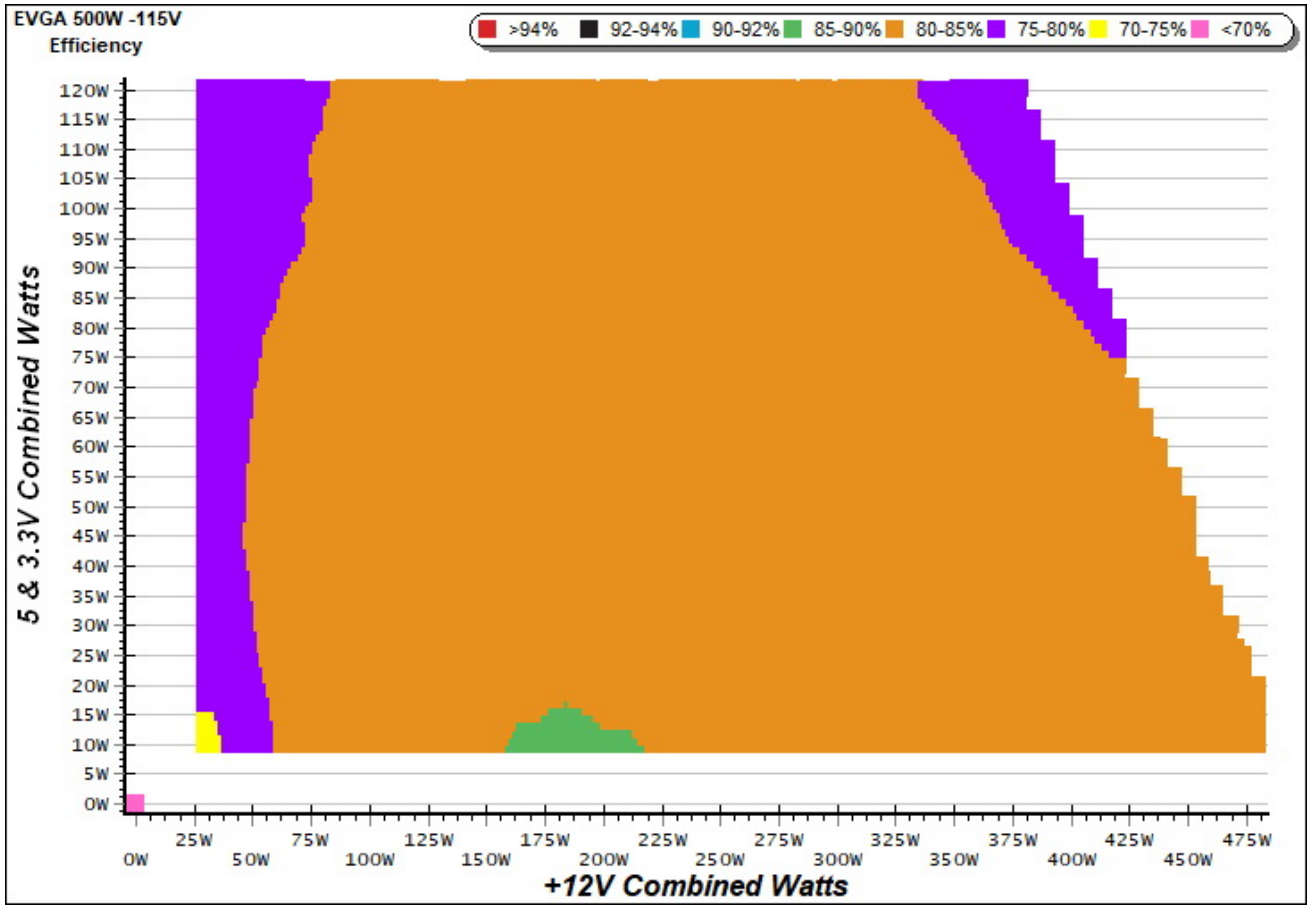
Hold-Up Time (ms)	15.90
AC Loss to PWR_OK Hold Up Time (ms)	10.02
PWR_OK Inactive to DC Loss Delay (ms)	5.88

Graphs 115V



Efficiency Graph

115V

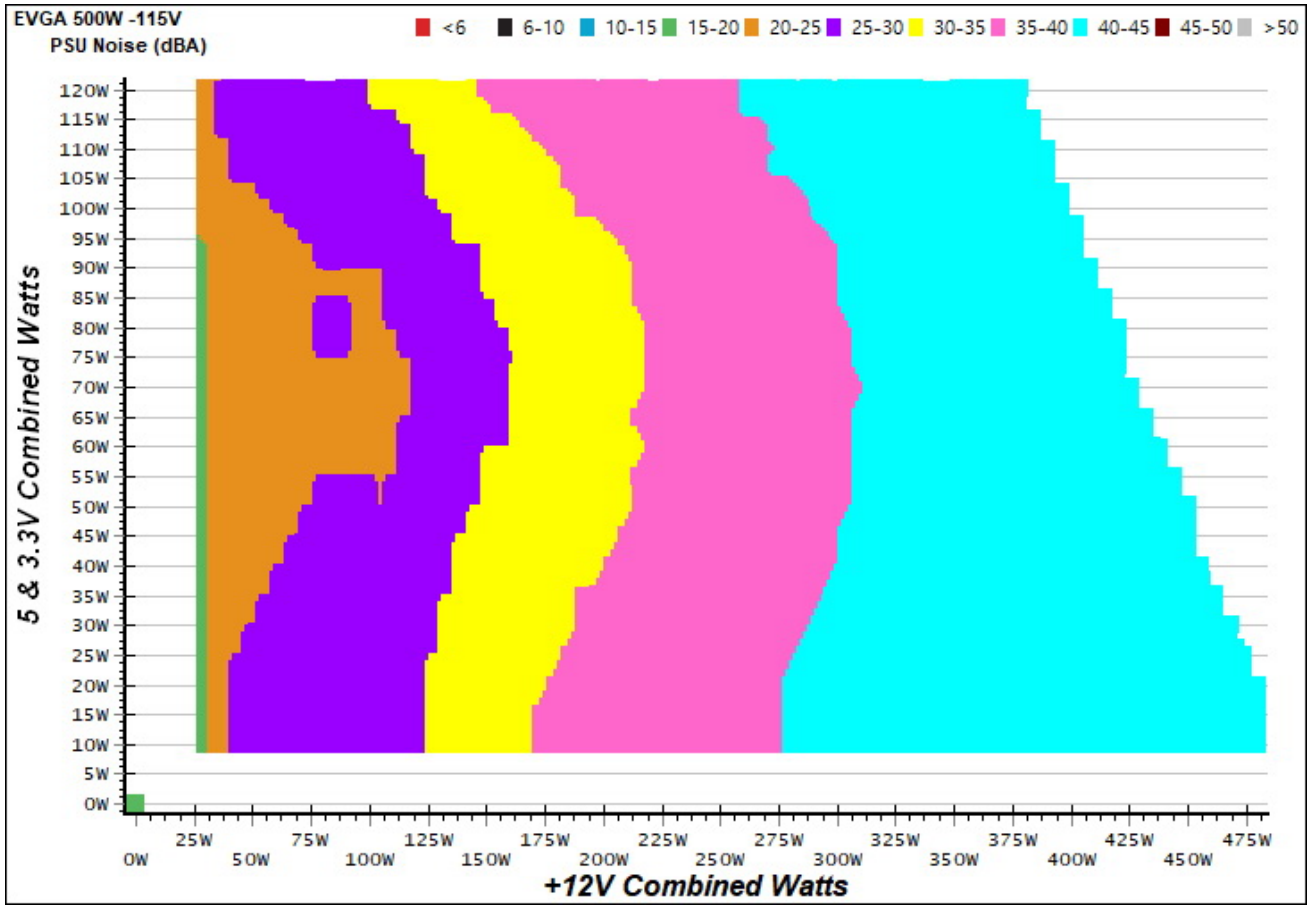


INFO

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

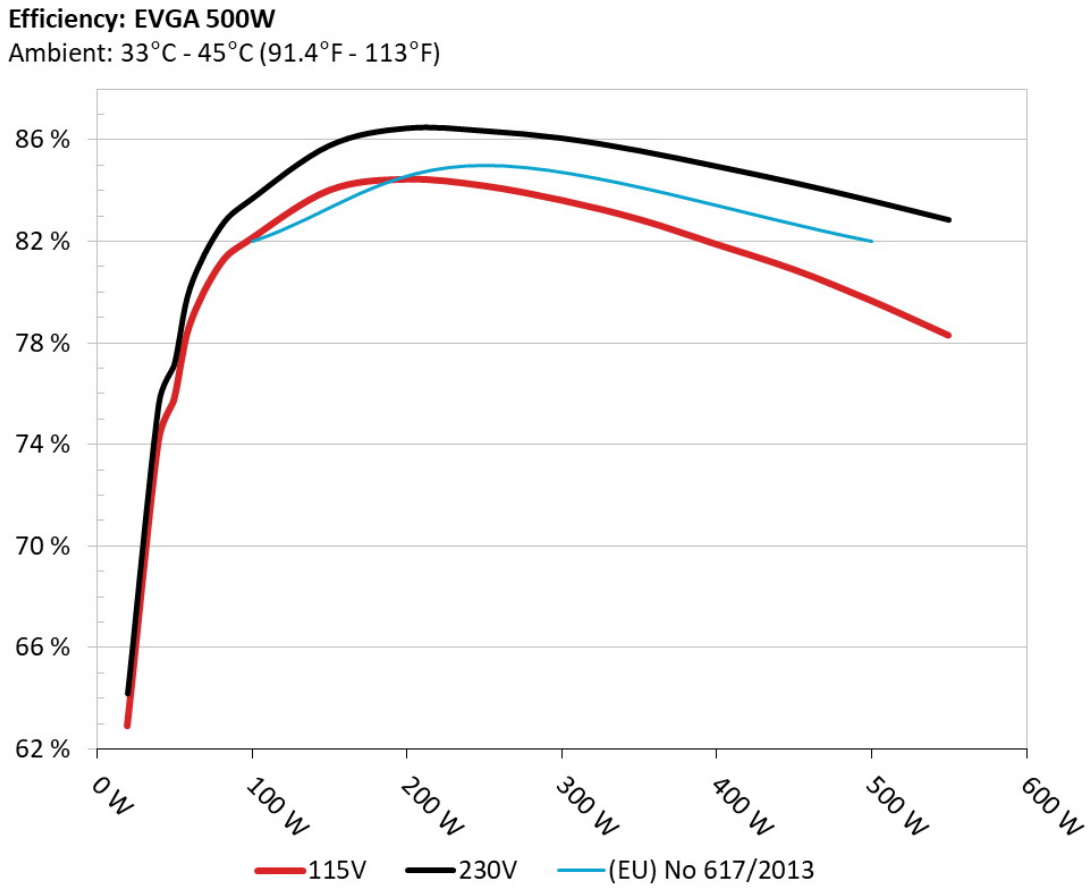


INFO

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

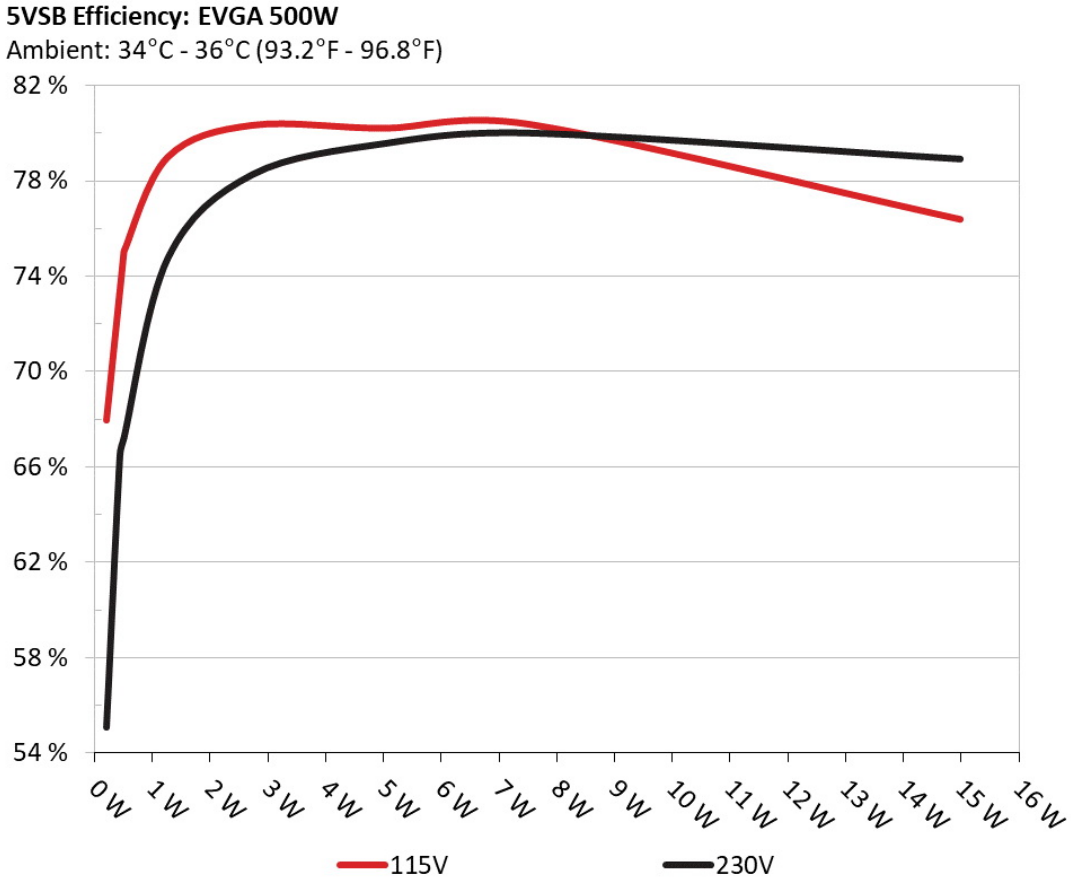
Efficiency under high ambient temperature



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	0.212	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

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	2.308A	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

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	1.198A	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

The results above are not used in the certification process

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

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

The results above are not used in the certification process

EVGA 500W

Top side

Power specifications label