



EVGA 600W

Serial Number 1603530624804124

Lab ID 186

Certification ID 25186

Test Result Report ID:

Certificate Issue Date: Apr 10, 2018

115V

230V

Scheme: ETA-EMI PSU



115V

230V



Scheme: LAMBDA PSU

A handwritten signature in blue ink, appearing to be 'A. Bitziopoulos'.

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	Cybernetics PSU Test Protocol

DUT Information(Non-accredited measurements)

Product Identification Details	
Brand	EVGA
Model	600W
OEM/ODM	HEC
Serial Number	1603530624804124
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60

Rated Power (W)	600
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	X
Cybenetics Testing Information	
Lab ID	186
Date of receipt	Mar 27, 2018
Testing Date	Apr 7, 2018
Report Issued Date	Apr 10, 2018
DUT Notes	Intense coil whine noise with >50% load and 115V
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	49	3	0.3
	Watts	130		588	15	3.6
Total Max. Power (W)		600				

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)	82.449%
Average Noise Output (>1450 Load Combinations)	35.34dBA
Average PF (>1450 Load Combinations)	0.963
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0570W
Non-Accredited	
12V Ripple (Full Load)	49.21mV
5V Ripple (Full Load)	26.80mV
3.3V Ripple (Full Load)	47.11mV
5VSB Ripple (Full Load)	56.03mV
12V Load Regulation	2.04%
5V Load Regulation	1.49%
3.3V Load Regulation	3.37%
5VSB Load Regulation	3.62%
Inrush Current	63.971A

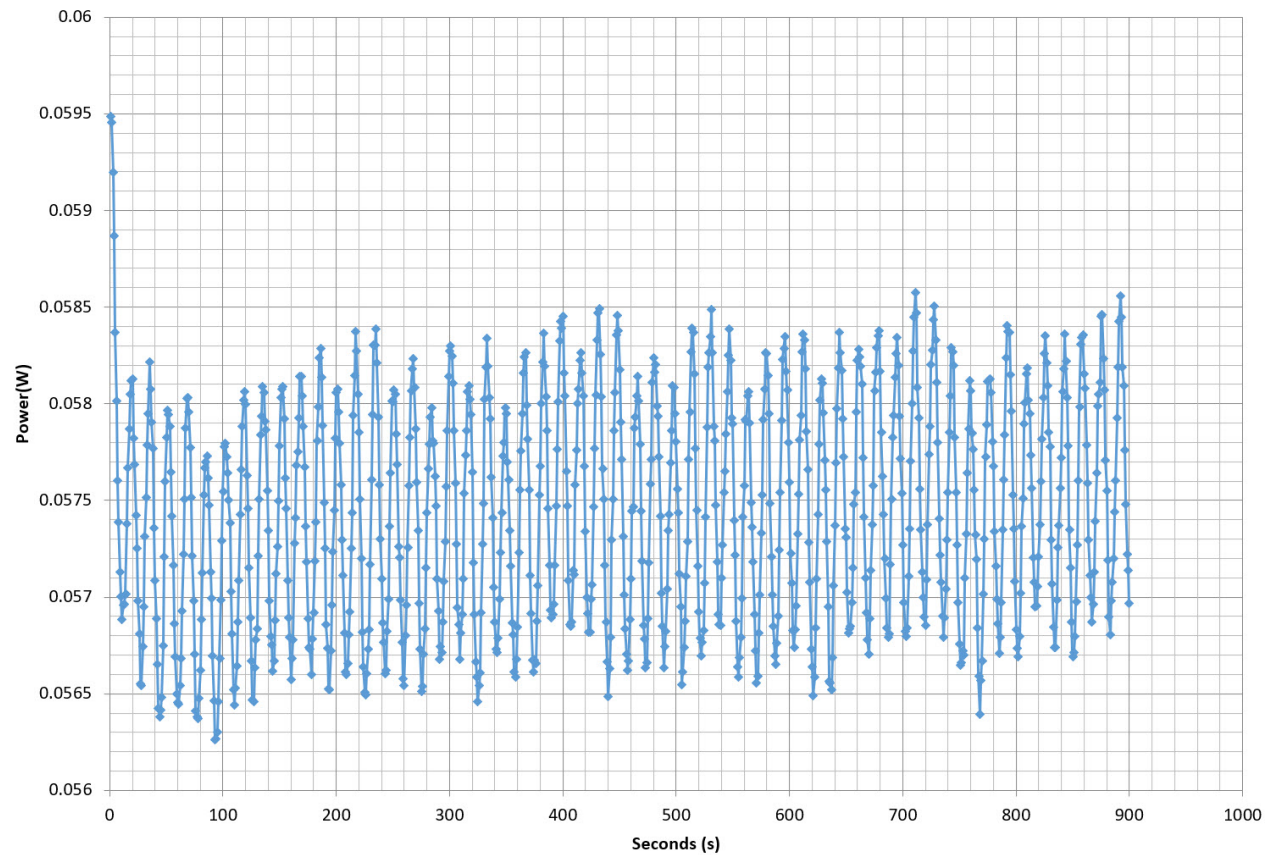
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	23.9
AC Loss to PWR_OK Hold Up Time (ms)	17.0
PWR_OK Inactive to DC Loss Delay (ms)	6.9

Stromverbrauch im Ruhezustand

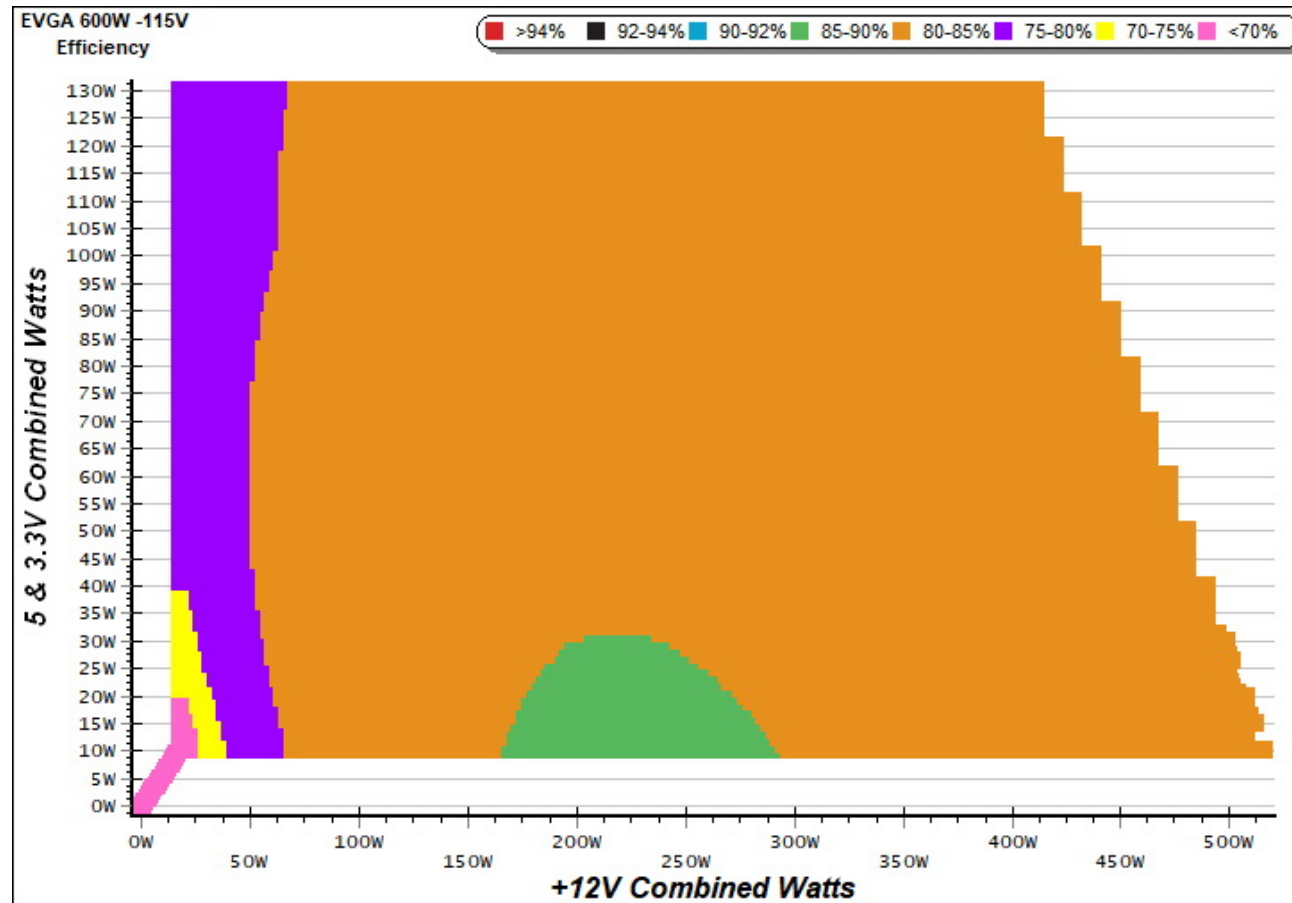
Graphs 115V

Power - 1603530514810517 - 02/10/2017 - 10:44



Efficiency Graph

115V

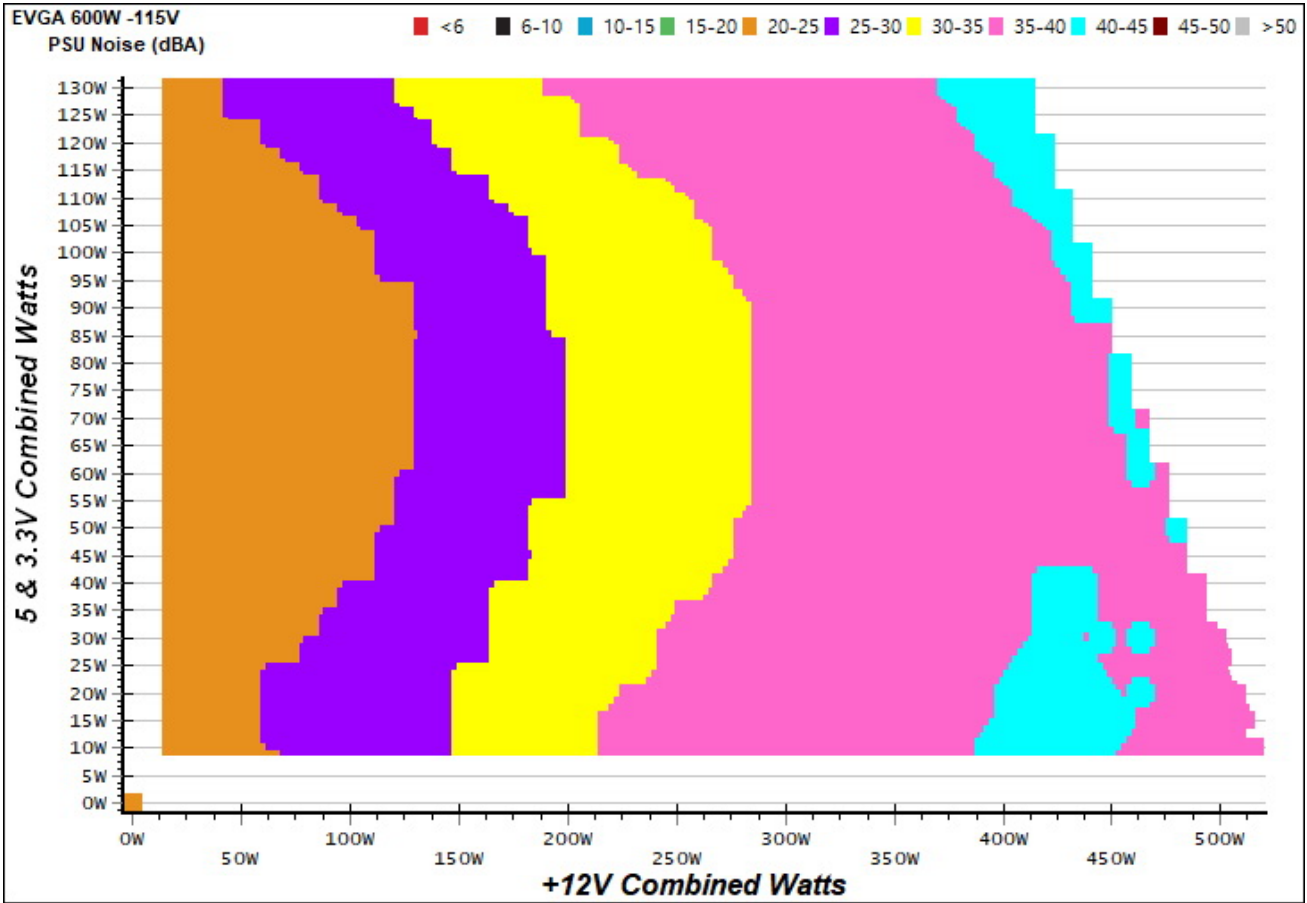


INFO

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

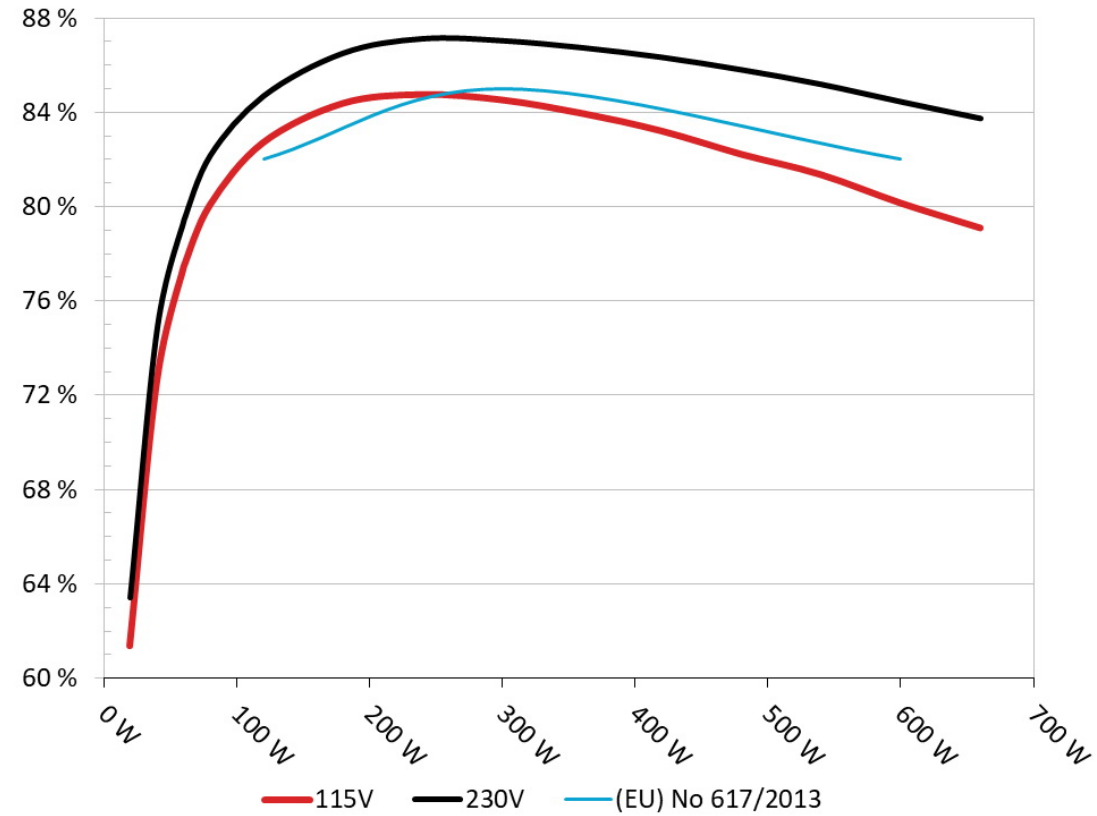
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance

Efficiency under high ambient temperature

Efficiency: EVGA 600W

Ambient: 32°C - 43°C (89.6°F - 109.4°F)



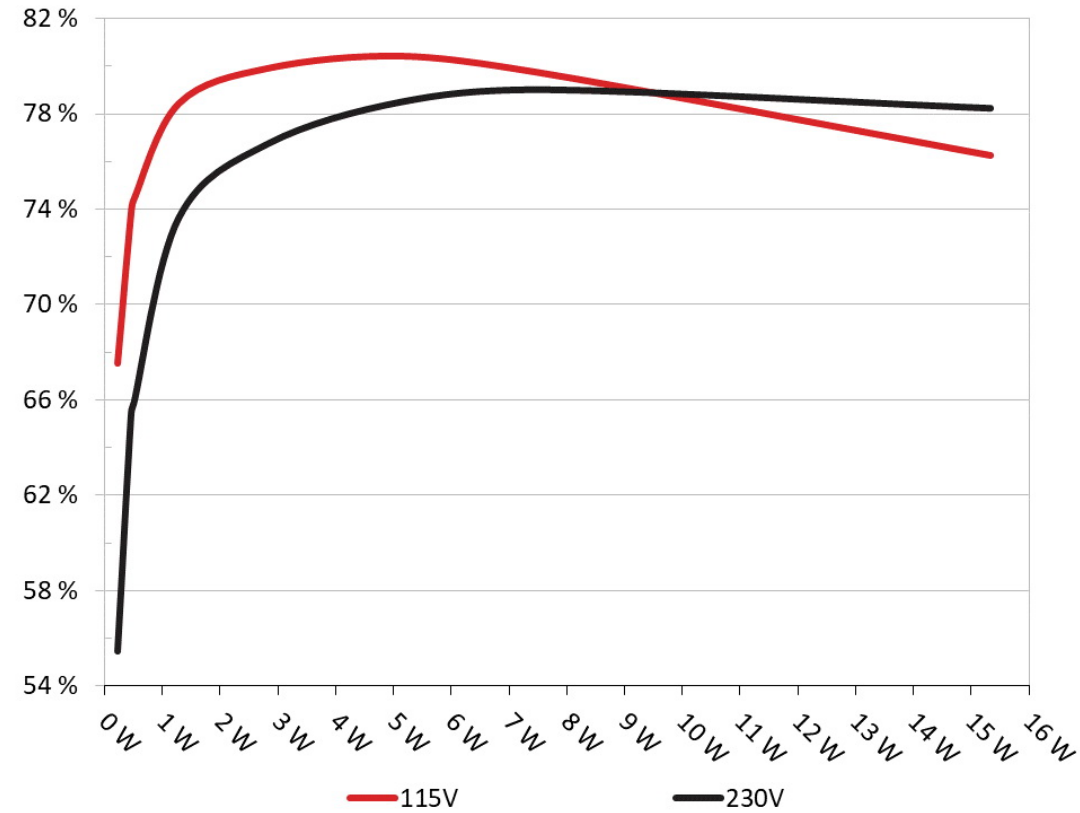
INFO

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 600W

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	0.233	67.536%	0.058
	5.179V	0.345		115.38V

2	0.090A	0.466	73.851%	0.102
	5.178V	0.631		115.38V
3	0.550A	2.842	79.899%	0.311
	5.166V	3.557		115.38V
4	1.000A	5.157	80.402%	0.367
	5.156V	6.414		115.37V
5	1.500A	7.718	79.633%	0.399
	5.144V	9.692		115.37V
6	3.000A	15.327	76.246%	0.444
	5.109V	20.102		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	3.167A	1.967A	1.955A	0.973A	60.169	76.844%	874	20.1	34.29°C	0.902
	12.177V	5.086V	3.375V	5.141V	78.300				38.85°C	115.35V
2	7.321A	2.957A	2.944A	1.171A	119.893	82.717%	918	21.7	34.95°C	0.945
	12.154V	5.077V	3.363V	5.124V	144.944				40.54°C	115.31V
3	11.860A	3.448A	3.430A	1.371A	179.778	84.382%	1044	25.2	35.92°C	0.955
	12.122V	5.077V	3.353V	5.109V	213.052				42.14°C	115.31V
4	16.422A	3.941A	3.949A	1.571A	239.781	84.763%	1214	30.5	36.24°C	0.962
	12.092V	5.077V	3.342V	5.093V	282.884				43.43°C	115.30V
5	20.661A	4.935A	4.956A	1.773A	299.884	84.530%	1405	34.3	36.89°C	0.965
	12.070V	5.066V	3.330V	5.077V	354.767				44.60°C	115.25V
6	24.919A	5.934A	5.969A	1.978A	359.991	83.962%	1598	38.3	37.73°C	0.971
	12.046V	5.057V	3.318V	5.057V	428.757				46.63°C	115.22V
7	29.159A	6.939A	6.989A	2.186A	419.698	83.217%	1777	41.1	38.98°C	0.974
	12.023V	5.046V	3.305V	5.035V	504.343				48.40°C	115.22V
8	33.493A	7.943A	8.021A	2.392A	480.200	82.222%	1900	43.8	40.03°C	0.975
	11.996V	5.037V	3.292V	5.018V	584.030				50.54°C	115.37V

9	38.189A	8.444A	8.536A	2.397A	539.496	81.368%	1964	44.3	41.11°C	0.975
	11.966V	5.035V	3.281V	5.008V	663.033				51.96°C	115.45V
10	42.772A	8.934A	9.089A	3.010A	599.907	80.154%	1964	44.3	42.82°C	0.972
	11.928V	5.039V	3.268V	4.984V	748.444				56.38°C	115.63V
11	47.959A	8.919A	9.114A	3.015A	659.892	79.097%	1964	44.3	43.21°C	0.971
	11.889V	5.047V	3.258V	4.975V	834.277				57.98°C	115.84V
CL1	0.741A	16.003A	16.000A	0.000A	138.434	75.745%	1927	43.9	42.16°C	0.950
	12.421V	4.754V	3.322V	5.101V	182.763				49.65°C	115.29V
CL2	49.013A	1.002A	1.000A	0.000A	585.376	80.580%	2046	45.2	43.88°C	0.974
	11.769V	5.232V	3.299V	5.025V	726.457				55.79°C	115.59V

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	1.184A	0.490A	0.473A	0.194A	19.521	61.358%	863	19.3	0.829
	12.167V	5.123V	3.387V	5.171V	31.815				115.37V
2	2.441A	0.979A	0.976A	0.388A	40.004	72.616%	863	19.3	0.871
	12.166V	5.111V	3.382V	5.160V	55.090				115.35V
3	3.625A	1.471A	1.452A	0.582A	59.504	77.457%	874	20.1	0.901
	12.165V	5.101V	3.377V	5.153V	76.822				115.35V
4	4.876A	1.965A	1.959A	0.778A	79.916	80.075%	874	20.1	0.915
	12.162V	5.092V	3.373V	5.143V	99.801				115.34V

The results above are not used in the certification process

Ripple Measurements 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.9 mV	10.6 mV	19.0 mV	9.5 mV	Pass
20% Load	12.6 mV	11.6 mV	21.0 mV	12.2 mV	Pass
30% Load	14.9 mV	13.0 mV	22.3 mV	12.4 mV	Pass
40% Load	16.4 mV	13.8 mV	25.2 mV	15.8 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	19.9 mV	16.1 mV	28.3 mV	17.1 mV	Pass
60% Load	24.0 mV	17.6 mV	30.8 mV	22.7 mV	Pass
70% Load	27.1 mV	19.6 mV	34.1 mV	30.2 mV	Pass
80% Load	29.5 mV	19.4 mV	35.8 mV	28.4 mV	Pass
90% Load	38.1 mV	23.1 mV	39.7 mV	37.6 mV	Pass
100% Load	49.2 mV	26.8 mV	47.1 mV	56.0 mV	Fail
110% Load	57.1 mV	27.0 mV	51.5 mV	66.9 mV	Fail
Crossload 1	14.0 mV	43.8 mV	28.7 mV	17.5 mV	Pass
Crossload 2	57.4 mV	23.5 mV	44.3 mV	48.6 mV	Pass

The results above are not used in the certification process

EVGA 600W



Top side



Power specifications label

Cybenetics bietet freiwillige Zertifizierungsprogramme für Netzteile – ETA für Effizienz, LAMBDA für Lautstärke und SAFE für Sicherheit und korrekten Betrieb – sowie für Kühlprodukte mit DELTA für die Schalldämmung von Gehäusen und PHI für Luftstrom und statischen Druck von Lüftern

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