Seasonic Prime Gold 850W

Serial Number R1701TA101480009

Lab ID 73

Certification ID 2573

Test Result Report ID: 20PS73A

Certificate Issue Date: Jan 14, 2018

115V 230V

Scheme: ETA-EMI PSU

CYBENETICS PLATINUM

115V 230V

CYBENETICS STANDARD

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	Seasonic
Model	Prime Gold 850W
OEM/ODM	Sea Sonic Electronics Co., Ltd.
Serial Number	R1701TA101480009
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	11-5.5
Rated Frequency (Hz)	50-60

Rated Power (W)	850
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	135mm Fluid Dynamic Bearing Fan (HA13525M12F-Z)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	73
Date of receipt	Jan 4, 2018
Testing Date	Jan 10, 2018
Report Issued Date	Jan 14, 2018
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Modular Cables			
Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (610mm)	1	1	18-22AWG
4+4 pin EPS12V (650mm)	2	2	18AWG
6+2 pin PCIe (680mm+80mm)	3	6	18AWG
SATA (460mm+120mm+120mm+120mm)	2	8	18AWG
SATA (360mm+120mm)	1	2	18AWG
4 pin Molex (460mm+130mm+130mm)	1	3	18AWG
4 pin Molex (360mm+130mm)	1	2	18AWG
FDD Adapter (+110mm)	1	1	22AWG

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	70	2.5	0.3
	Watts	100		850	12.5	3.6
Total Max. Power (W)		850				

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	✓

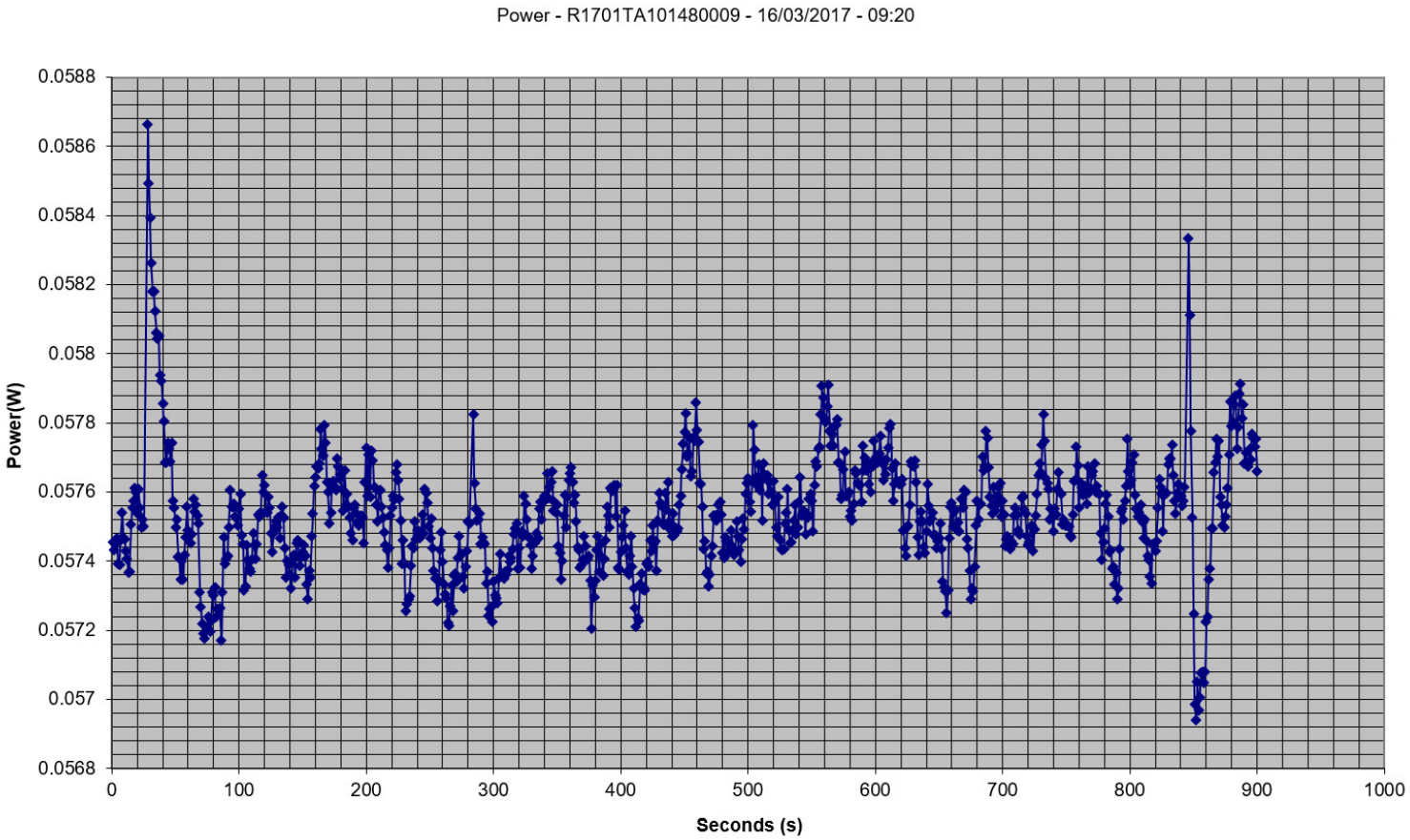
Performance Summary 115V

Accredited	
Average Efficiency (>1450 load combinations)	89.650%
Average Noise Output (>1450 Load Combinations)	43.25dBA
Average PF (>1450 Load Combinations)	0.989
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0577W
Non-Accredited	
12V Ripple (Full Load)	22.93mV
5V Ripple (Full Load)	8.44mV
3.3V Ripple (Full Load)	15.25mV
5VSB Ripple (Full Load)	19.39mV
12V Load Regulation	0.66%
5V Load Regulation	0.10%
3.3V Load Regulation	0.66%
5VSB Load Regulation	4.02%
Inrush Current	27.211A

Hold-Up Time & PWR_OK Signal

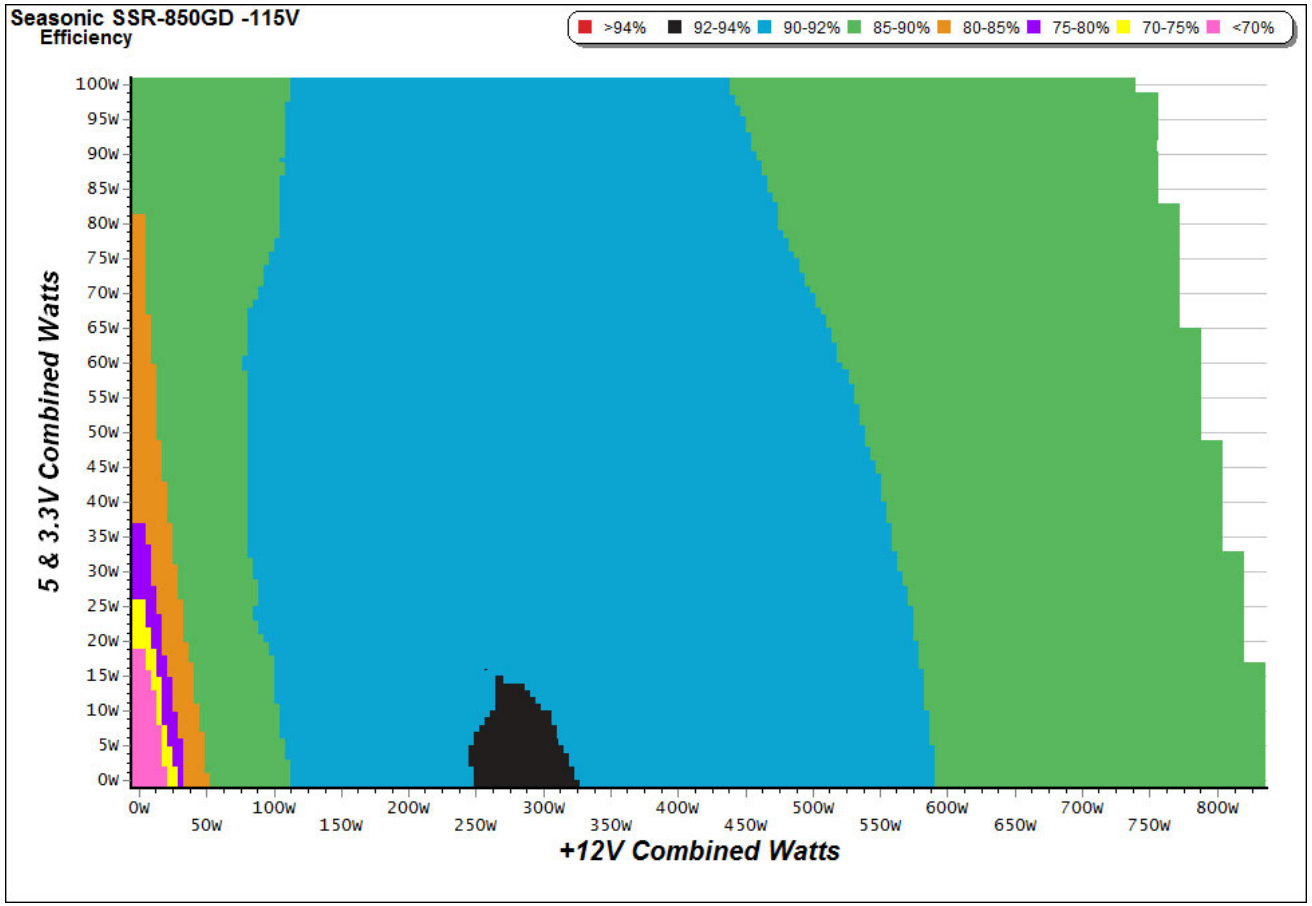
Hold-Up Time (ms)	24.4
AC Loss to PWR_OK Hold Up Time (ms)	20
PWR_OK Inactive to DC Loss Delay (ms)	4.4

Graphs 115V



Efficiency Graph

115V

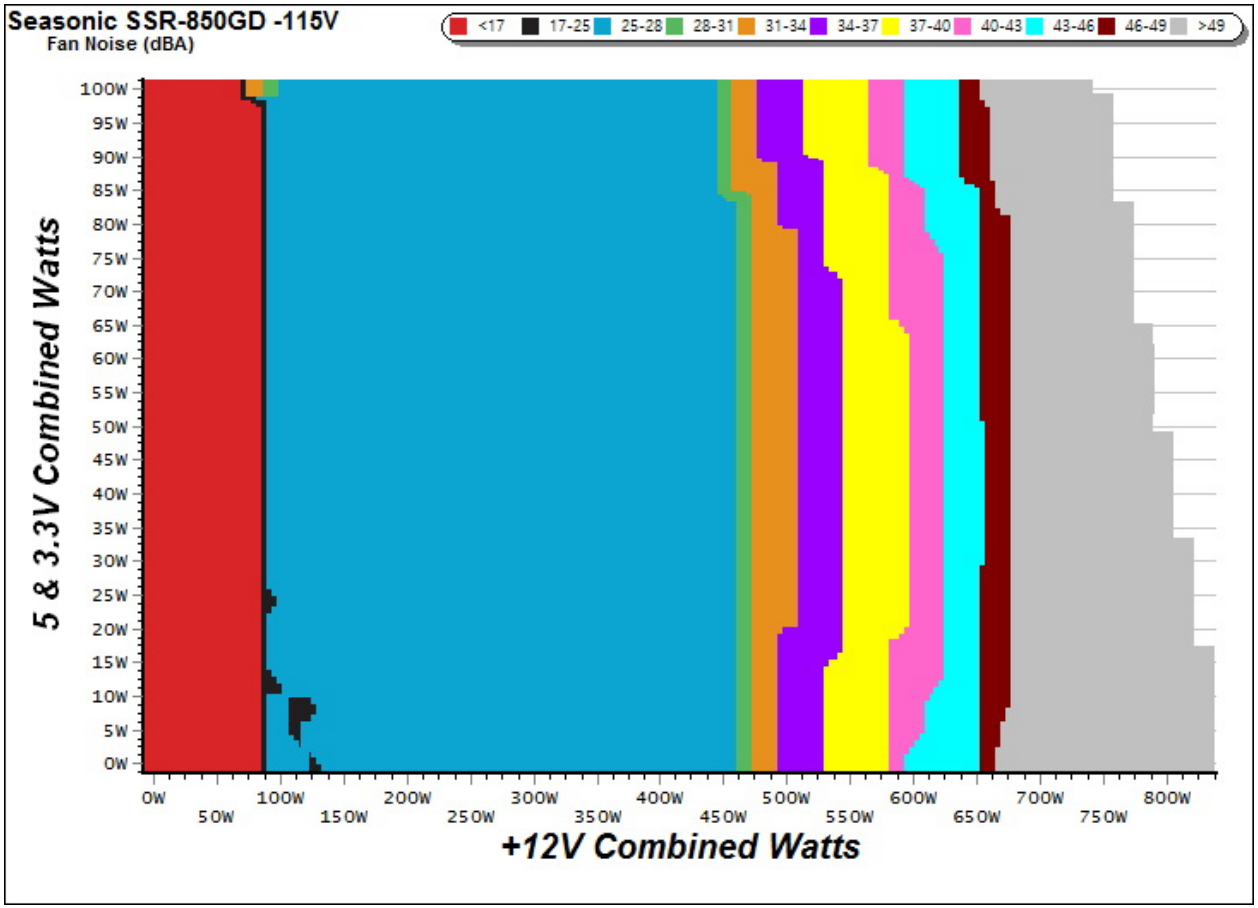


INFO

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

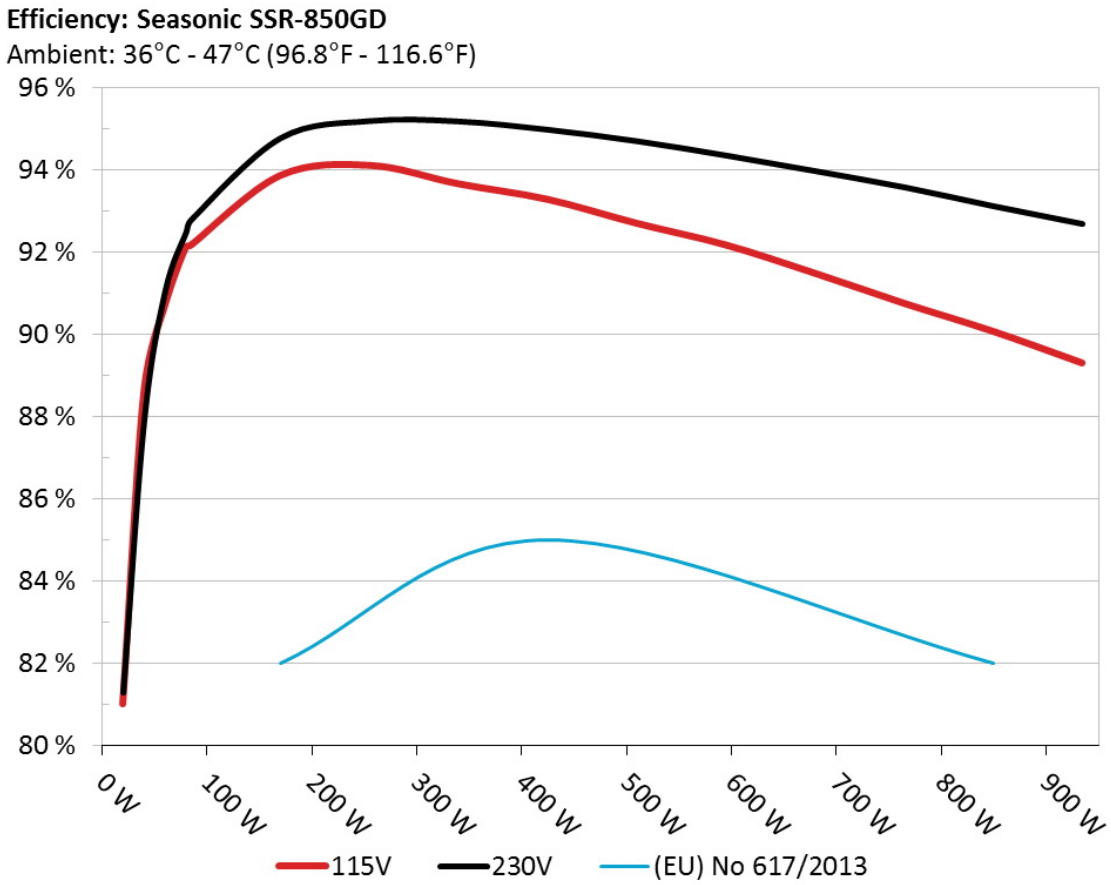


INFO

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

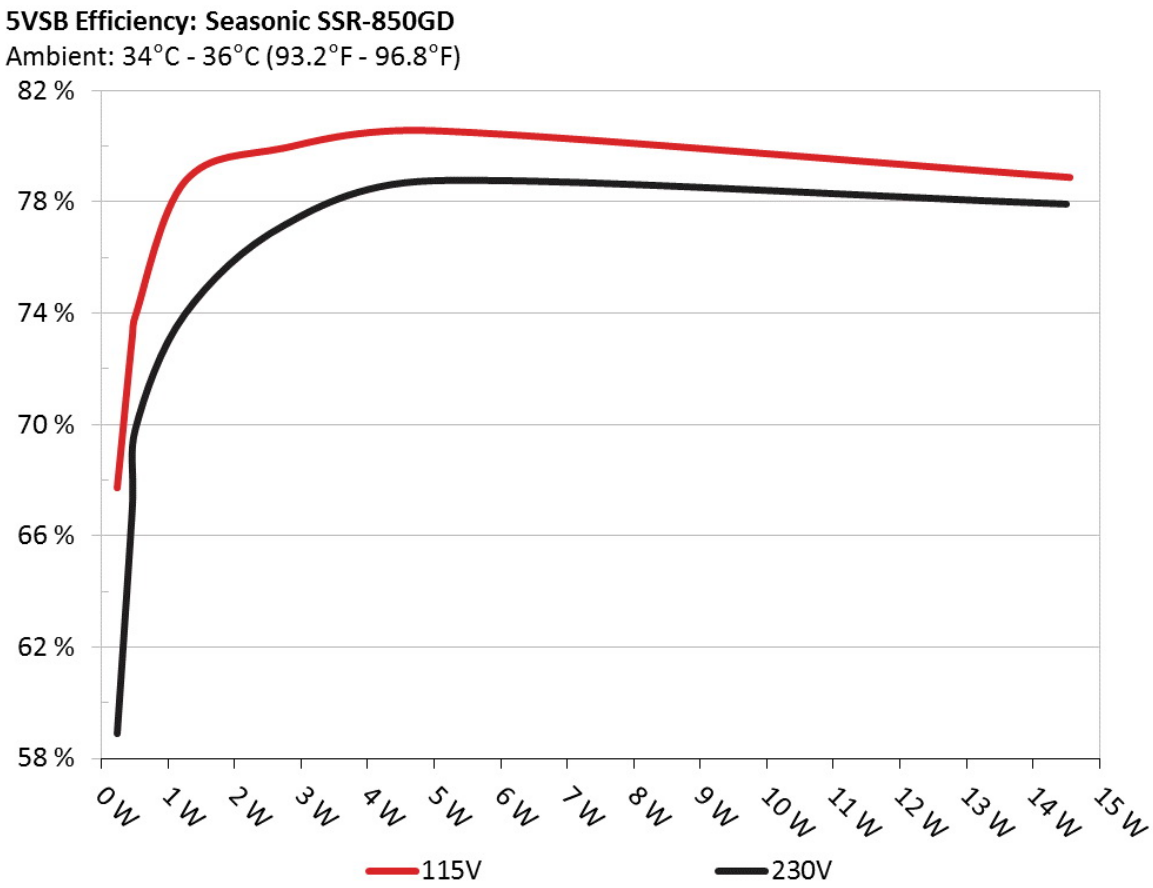
Efficiency under high ambient temperature



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	0.041A	0.212	64.634%	0.036
	5.111V	0.328		115.08V

2	0.087A	0.444	71.729%	0.067
	5.109V	0.619		115.08V
3	0.532A	2.705	79.653%	0.278
	5.088V	3.396		115.09V
4	2.501A	12.496	78.919%	0.481
	4.996V	15.834		115.08V

Supplementary Tests (For Reference)

Typical Load Tests 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	Fan Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	5.169A	1.985A	1.983A	0.986A	84.798	87.211%	750	25.1	38.21°C	0.968
	12.235V	5.040V	3.324V	5.054V	97.233				41.84°C	115.12V
2	11.352A	2.970A	2.976A	1.190A	169.643	90.569%	750	25.1	38.81°C	0.990
	12.227V	5.040V	3.323V	5.035V	187.309				43.44°C	115.11V
3	17.907A	3.477A	3.489A	1.395A	254.921	91.390%	785	27.4	39.72°C	0.985
	12.219V	5.039V	3.321V	5.016V	278.938				45.03°C	115.10V
4	24.452A	3.970A	3.974A	1.601A	339.720	91.269%	1111	39.0	40.05°C	0.988
	12.210V	5.038V	3.319V	4.996V	372.218				45.53°C	115.10V
5	30.667A	4.968A	4.972A	1.805A	424.656	90.702%	1584	44.3	41.01°C	0.991
	12.202V	5.037V	3.317V	4.978V	468.186				46.10°C	115.10V
6	36.897A	5.954A	5.971A	2.015A	509.621	90.008%	1842	49.8	41.41°C	0.993
	12.192V	5.037V	3.315V	4.960V	566.196				46.73°C	115.10V
7	43.133A	6.950A	6.972A	2.225A	594.584	89.209%	2061	52.4	42.11°C	0.995
	12.184V	5.036V	3.313V	4.939V	666.505				47.84°C	115.10V
8	49.375A	7.943A	7.974A	2.437A	679.539	88.503%	2061	52.4	43.06°C	0.996
	12.174V	5.036V	3.310V	4.920V	767.816				49.59°C	115.10V
9	56.052A	8.445A	8.489A	2.441A	764.528	87.641%	2061	52.4	44.27°C	0.996
	12.166V	5.036V	3.310V	4.910V	872.345				51.87°C	115.11V
10	62.683A	8.941A	8.979A	2.551A	849.283	86.672%	2061	52.4	45.99°C	0.995
	12.157V	5.036V	3.307V	4.892V	979.886				55.03°C	115.10V

11	69.725A	8.940A	8.984A	2.555A	934.095	85.576%	2061	52.4	46.53°C	0.993
	12.147V	5.035V	3.305V	4.885V	1091.540				56.84°C	115.08V
CL1	0.098A	12.012A	12.005A	0.004A	101.816	83.508%	2061	52.4	43.43°C	0.983
	12.248V	5.057V	3.317V	5.084V	121.923				48.43°C	115.14V
CL2	69.948A	1.003A	1.003A	1.002A	862.778	87.012%	2061	52.4	44.20°C	0.996
	12.142V	5.026V	3.315V	4.985V	991.563				52.59°C	115.11V

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)	Fan Noise (dB[A])	PF/AC Volts
1	1.193A	0.493A	0.480A	0.195A	19.672	69.878%	750	25.1	0.833
	12.240V	5.043V	3.331V	5.097V	28.152				115.12V
2	2.411A	0.991A	0.989A	0.391A	39.762	80.778%	750	25.1	0.924
	12.238V	5.041V	3.329V	5.086V	49.224				115.12V
3	3.628A	1.477A	1.500A	0.590A	59.803	84.782%	750	25.1	0.956
	12.236V	5.040V	3.327V	5.074V	70.537				115.12V
4	4.841A	1.985A	1.983A	0.787A	79.793	86.887%	750	25.1	0.965
	12.235V	5.041V	3.325V	5.064V	91.835				115.12V

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	6.3 mV	7.0 mV	7.3 mV	Pass
20% Load	12.9 mV	5.4 mV	9.6 mV	8.2 mV	Pass
30% Load	15.7 mV	6.6 mV	12.4 mV	9.7 mV	Pass
40% Load	17.8 mV	7.9 mV	14.1 mV	10.7 mV	Pass
50% Load	15.1 mV	8.0 mV	14.6 mV	11.6 mV	Pass
60% Load	12.4 mV	7.6 mV	14.5 mV	13.5 mV	Pass
70% Load	13.8 mV	7.8 mV	14.5 mV	15.6 mV	Pass
80% Load	14.6 mV	7.8 mV	14.0 mV	16.8 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	18.2 mV	8.1 mV	14.1 mV	18.6 mV	Pass
100% Load	22.9 mV	8.4 mV	15.3 mV	19.4 mV	Pass
110% Load	26.7 mV	9.3 mV	19.2 mV	21.2 mV	Pass
Crossload 1	9.2 mV	5.9 mV	8.9 mV	7.3 mV	Pass
Crossload 2	22.5 mV	8.5 mV	13.5 mV	18.1 mV	Pass

The results above are not used in the certification process

Seasonic Prime Gold 850W

Top side

Power specifications label