



Seasonic Prime Titanium Ultra 850W

Serial Number R1709AA181110127

Lab ID 230

Certification ID 25230

Test Result Report ID:

Certificate Issue Date: Apr 12, 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	Cybenetics PSU Test Protocol

DUT Information(Non-accredited measurements)

Product Identification Details	
Brand	Seasonic
Model	Prime Titanium Ultra 850W
OEM/ODM	Seasonic
Serial Number	R1709AA181110127
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 (HA13525L12F-Z)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	230
Date of receipt	Apr 4, 2018
Testing Date	Apr 8, 2018
Report Issued Date	Apr 12, 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	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	18-22AWG	No
4+4 pin EPS12V (660mm)	2	2	18AWG	No
6+2 pin PCIe (760mm)	6	6	18AWG	No
SATA (350mm+150mm+150mm+150mm)	1	4	18AWG	No
SATA (410mm+110mm+110mm+110mm)	1	4	18AWG	No
SATA (300mm+150mm)	1	2	18AWG	No
4 pin Molex (450mm+120mm+120mm)	1	3	18AWG	No
4 pin Molex (350mm+120mm)	1	2	18AWG	No

4 pin Molex Adapter / SATA (150mm+150mm)	1	2	18AWG	No
FDD Adapter (+100mm)	1	1	22AWG	No
AC Power Cord (1370mm) - C13 coupler	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	70	3	0.3
	Watts	100		840	15	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)	92.223%
Average Noise Output (>1450 Load Combinations)	10.68dBA
Average PF (>1450 Load Combinations)	0.989
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0560W
Non-Accredited	
12V Ripple (Full Load)	16.88mV
5V Ripple (Full Load)	5.41mV
3.3V Ripple (Full Load)	7.52mV
5VSB Ripple (Full Load)	6.01mV
12V Load Regulation	0.09%

5V Load Regulation	0.14%
3.3V Load Regulation	0.21%
5VSB Load Regulation	1.25%
Inrush Current	26.714A

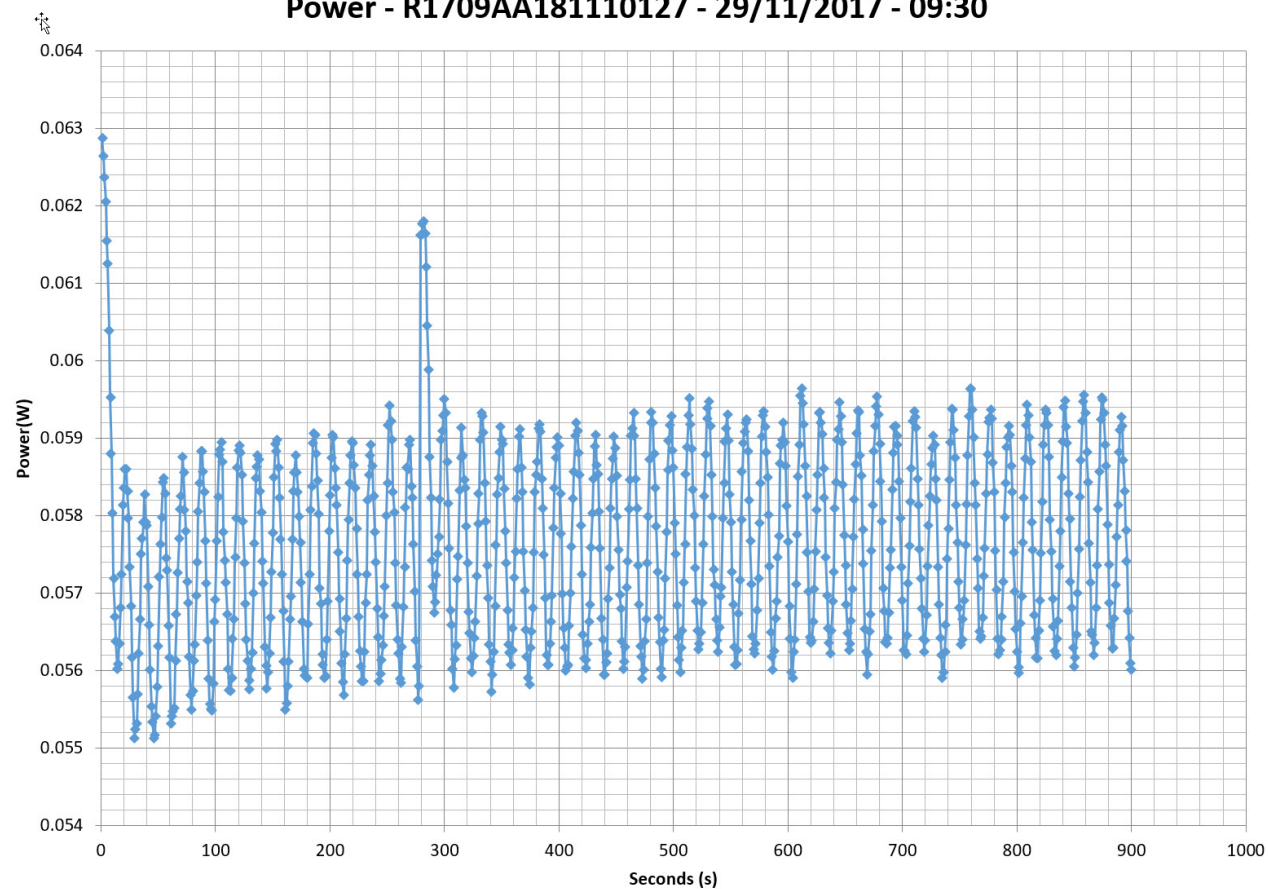
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	26.2
AC Loss to PWR_OK Hold Up Time (ms)	21.4
PWR_OK Inactive to DC Loss Delay (ms)	4.8



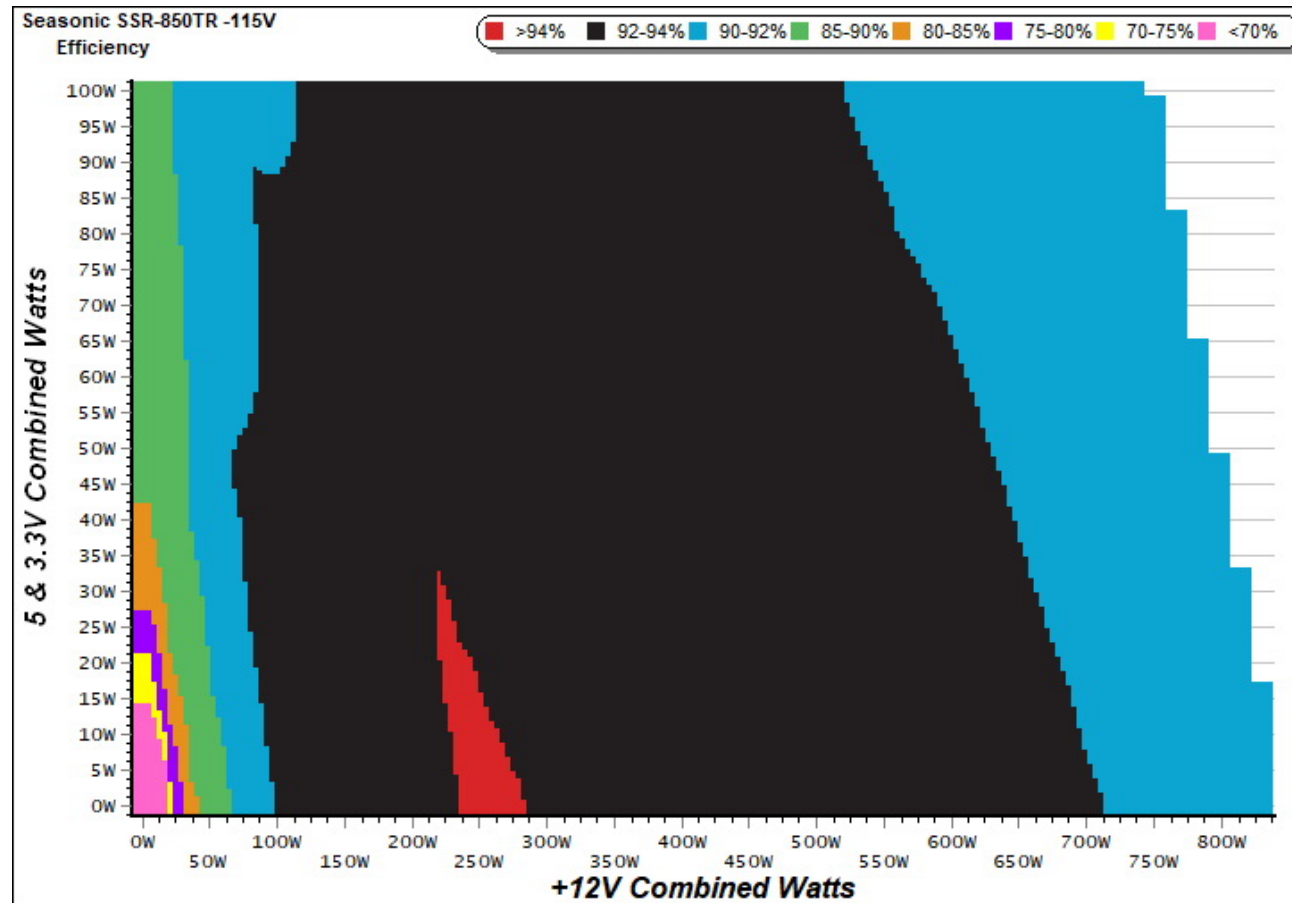
Graphs 115V

Power - R1709AA181110127 - 29/11/2017 - 09:30



Efficiency Graph

115V

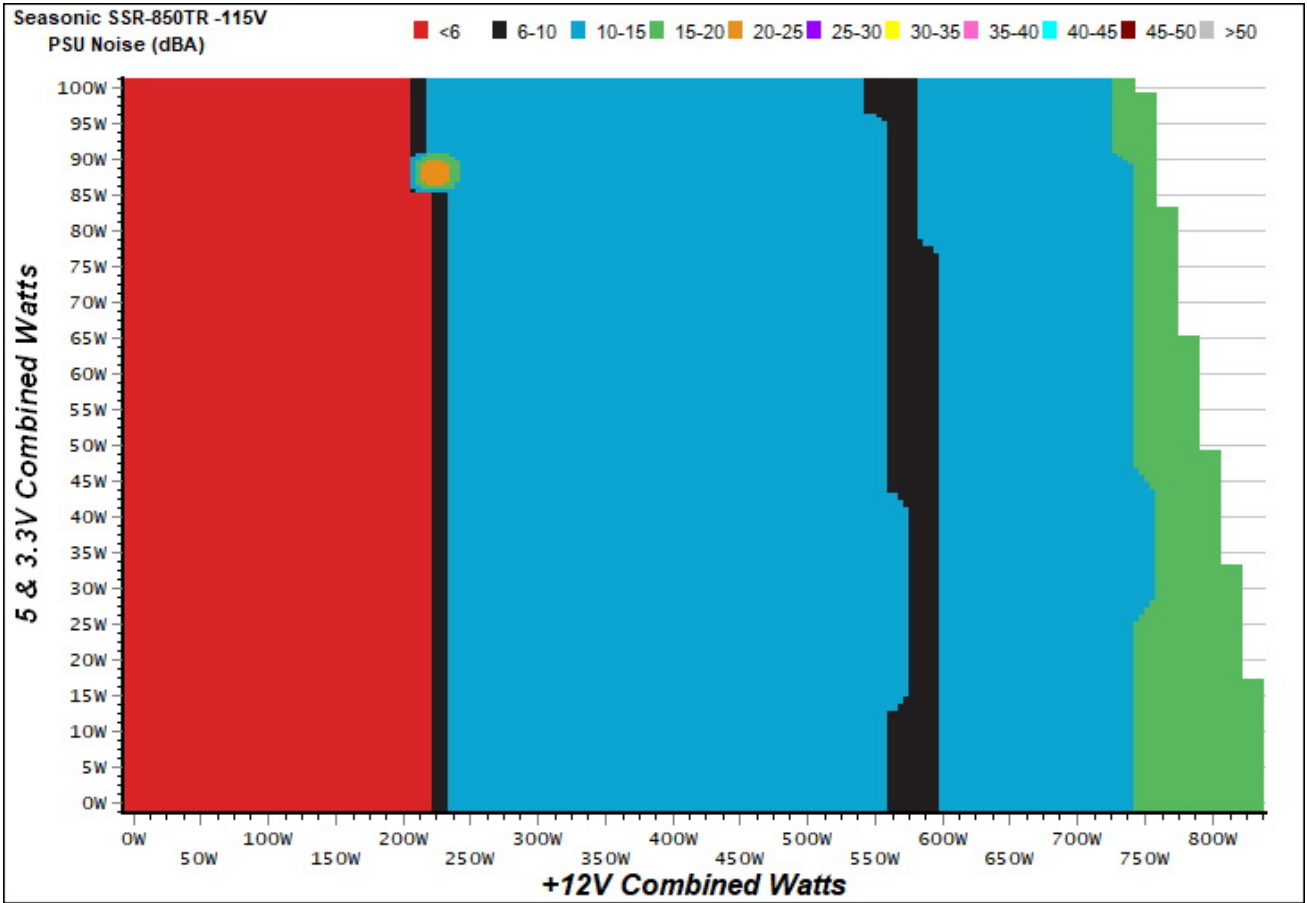


INFO

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

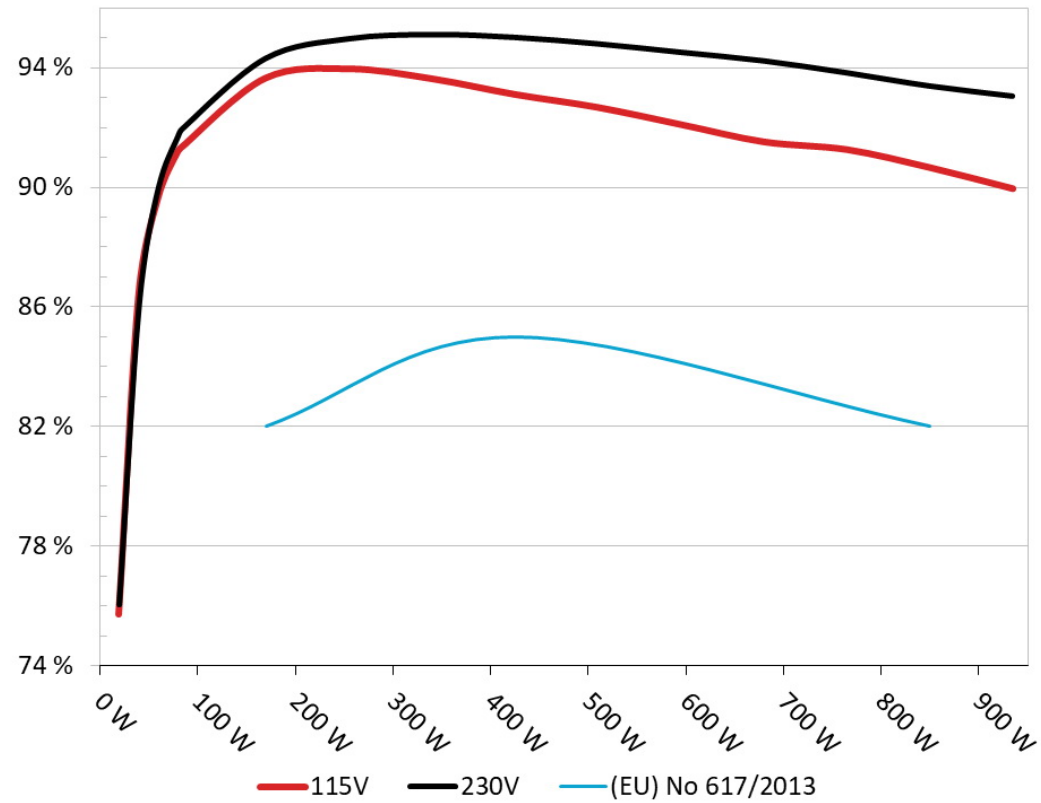
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance

Efficiency under high ambient temperature

Efficiency: Seasonic Ultra SSR-850TR

Ambient: 37°C - 47°C (98.6°F - 116.6°F)



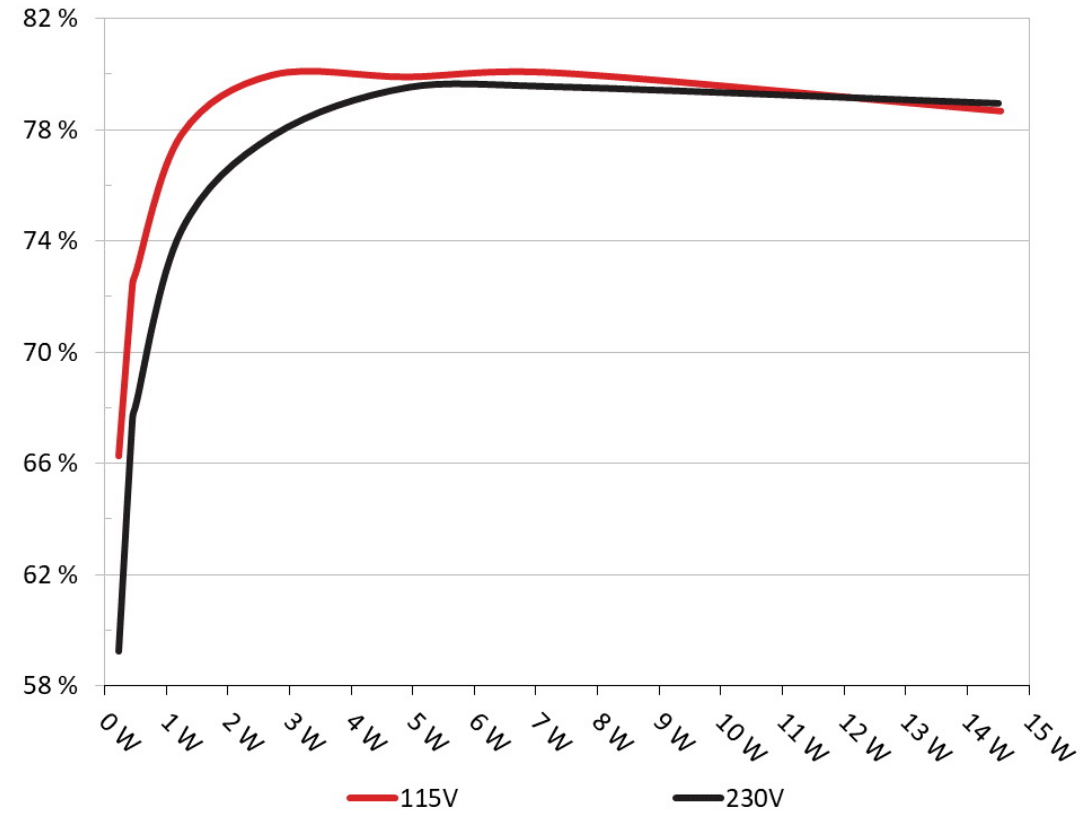
INFO

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: Seasonic Ultra SSR-850TR

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	0.224	66.272%	0.029
	4.973V	0.338		115.27V

2	0.090A	0.447	72.447%	0.052
	4.971V	0.617		115.28V
3	0.550A	2.723	79.994%	0.237
	4.951V	3.404		115.26V
4	1.000A	4.931	79.919%	0.341
	4.932V	6.170		115.26V
5	1.500A	7.366	80.065%	0.405
	4.911V	9.200		115.26V
6	2.999A	14.543	78.692%	0.490
	4.849V	18.481		115.24V

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	5.180A	1.986A	1.987A	0.998A	84.686	91.364%	0	<6.0	43.20°C	0.966
	12.180V	5.032V	3.321V	5.011V	92.691				38.07°C	115.27V
2	11.357A	2.979A	2.980A	1.198A	169.185	93.639%	0	<6.0	43.51°C	0.990
	12.178V	5.031V	3.320V	5.007V	180.678				38.18°C	115.16V
3	17.928A	3.478A	3.465A	1.399A	254.306	93.955%	395	10.5	38.54°C	0.996
	12.177V	5.031V	3.319V	5.003V	270.669				44.55°C	115.03V
4	24.503A	3.976A	3.977A	1.601A	339.521	93.626%	395	10.5	38.83°C	0.992
	12.175V	5.030V	3.318V	4.998V	362.636				44.93°C	115.02V
5	30.748A	4.971A	4.971A	1.802A	424.851	93.098%	435	10.7	38.98°C	0.992
	12.175V	5.030V	3.317V	4.995V	456.347				45.33°C	114.91V
6	36.933A	5.966A	5.968A	2.004A	509.381	92.667%	290	9.0	40.18°C	0.993
	12.173V	5.029V	3.316V	4.991V	549.688				46.75°C	114.80V
7	43.179A	6.961A	6.966A	2.206A	594.717	92.092%	415	10.0	41.44°C	0.995
	12.173V	5.028V	3.316V	4.987V	645.784				48.48°C	114.77V
8	49.430A	7.957A	7.963A	2.408A	680.069	91.510%	490	13.3	42.30°C	0.995
	12.172V	5.028V	3.315V	4.984V	743.166				49.76°C	114.64V

9	56.076A	8.455A	8.447A	2.408A	764.999	91.252%	590	17.4	43.92°C	0.996
	12.171V	5.027V	3.314V	4.984V	838.337				52.03°C	114.53V
10	62.465A	8.954A	8.962A	3.020A	849.855	90.651%	900	29.6	45.17°C	0.997
	12.169V	5.027V	3.314V	4.969V	937.498				53.52°C	114.49V
11	69.443A	8.954A	8.965A	3.020A	934.620	89.948%	1355	41.6	46.88°C	0.997
	12.167V	5.027V	3.312V	4.968V	1039.063				55.55°C	114.35V
CL1	0.737A	12.002A	11.999A	0.000A	109.245	89.765%	460	11.9	43.78°C	0.980
	12.181V	5.031V	3.324V	5.058V	121.701				47.82°C	115.22V
CL2	70.004A	1.001A	1.001A	1.000A	865.094	90.829%	900	29.6	45.20°C	0.997
	12.167V	5.029V	3.313V	5.004V	952.443				50.78°C	114.47V

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	1.165A	0.491A	0.479A	0.199A	19.242	75.711%	0	<6.0	0.784
	12.168V	5.037V	3.323V	5.032V	25.415				115.35V
2	2.414A	0.991A	0.990A	0.398A	39.677	86.416%	0	<6.0	0.902
	12.179V	5.034V	3.321V	5.025V	45.914				115.32V
3	3.598A	1.486A	1.473A	0.598A	59.197	89.620%	0	<6.0	0.947
	12.180V	5.033V	3.321V	5.021V	66.053				115.30V
4	4.848A	1.985A	1.987A	0.797A	79.633	91.190%	0	<6.0	0.962
	12.180V	5.032V	3.321V	5.016V	87.326				115.28V

The results above are not used in the certification process

Ripple Measurements 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.8 mV	3.2 mV	3.8 mV	2.5 mV	Pass
20% Load	14.1 mV	3.2 mV	4.1 mV	2.7 mV	Pass
30% Load	8.9 mV	3.4 mV	4.3 mV	3.1 mV	Pass
40% Load	9.9 mV	3.5 mV	4.7 mV	3.4 mV	Pass

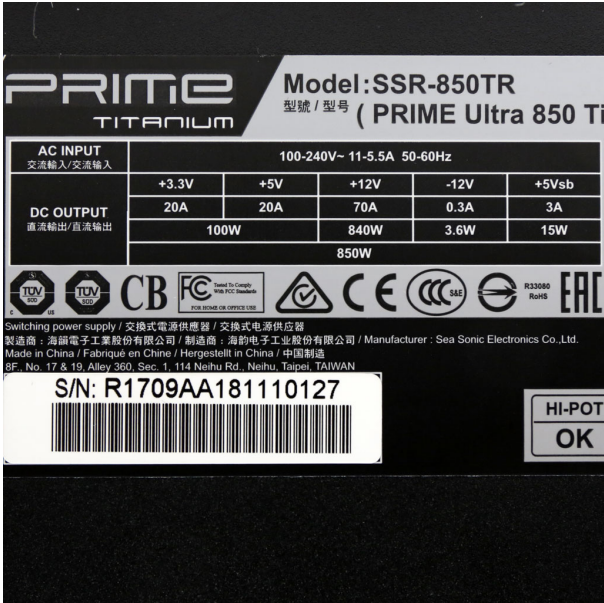
Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	10.6 mV	4.2 mV	5.4 mV	4.3 mV	Pass
60% Load	12.1 mV	4.9 mV	5.8 mV	4.3 mV	Pass
70% Load	13.5 mV	5.1 mV	5.8 mV	4.5 mV	Pass
80% Load	14.9 mV	4.9 mV	6.6 mV	4.7 mV	Pass
90% Load	16.4 mV	5.0 mV	7.3 mV	5.4 mV	Pass
100% Load	16.9 mV	5.4 mV	7.5 mV	6.0 mV	Pass
110% Load	17.7 mV	5.8 mV	8.2 mV	6.6 mV	Pass
Crossload 1	13.0 mV	5.4 mV	7.2 mV	3.2 mV	Pass
Crossload 2	17.2 mV	3.4 mV	5.0 mV	5.3 mV	Pass

The results above are not used in the certification process

Seasonic Prime Titanium Ultra 850W



Top side



Power specifications label

Cybenetics

ETA

LAMBDA

SAFE

DELTA

PHI

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