



Seasonic Focus Plus Platinum 850W

Serial Number R1708AA174090120

Lab ID 226

Certification ID 25226

Test Result Report ID:

Certificate Issue Date: Nov 28, 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	Focus Plus Platinum 850W
OEM/ODM	Seasonic
Serial Number	R1708AA174090120
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	12-6
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	120mm Fluid Dynamic Bearing Fan (HA1225M12F-Z)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	226
Date of receipt	Nov 19, 2018
Testing Date	Nov 25, 2018
Report Issued Date	Nov 28, 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 (610mm)	1	1	18-22AWG	Yes
4+4 pin EPS12V (660mm)	2	2	18AWG	Yes
6+2 pin PCIe (680mm+80mm)	3	6	18AWG	Yes
SATA (460mm+115mm+115mm+115mm)	2	8	18AWG	No
SATA (460mm+115mm)	1	2	18AWG	No
4 pin Molex (460mm+120mm+120mm)	1	3	18AWG	No
4 pin Molex (360mm+120mm)	1	2	18AWG	No
FDD Adapter (+105mm)	1	1	22AWG	No

AC Power Cord (1360mm) - C13 coupler	1	1	18AWG	No
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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)	90.404%
Average Noise Output (>1450 Load Combinations)	27.27dBA
Average PF (>1450 Load Combinations)	0.984
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0492W
Non-Accredited	
12V Ripple (Full Load)	17.27mV
5V Ripple (Full Load)	11.82mV
3.3V Ripple (Full Load)	12.00mV
5VSB Ripple (Full Load)	7.76mV
12V Load Regulation	0.11%
5V Load Regulation	0.16%
3.3V Load Regulation	0.30%

5VSB Load Regulation	2.15%
Inrush Current	26.491A

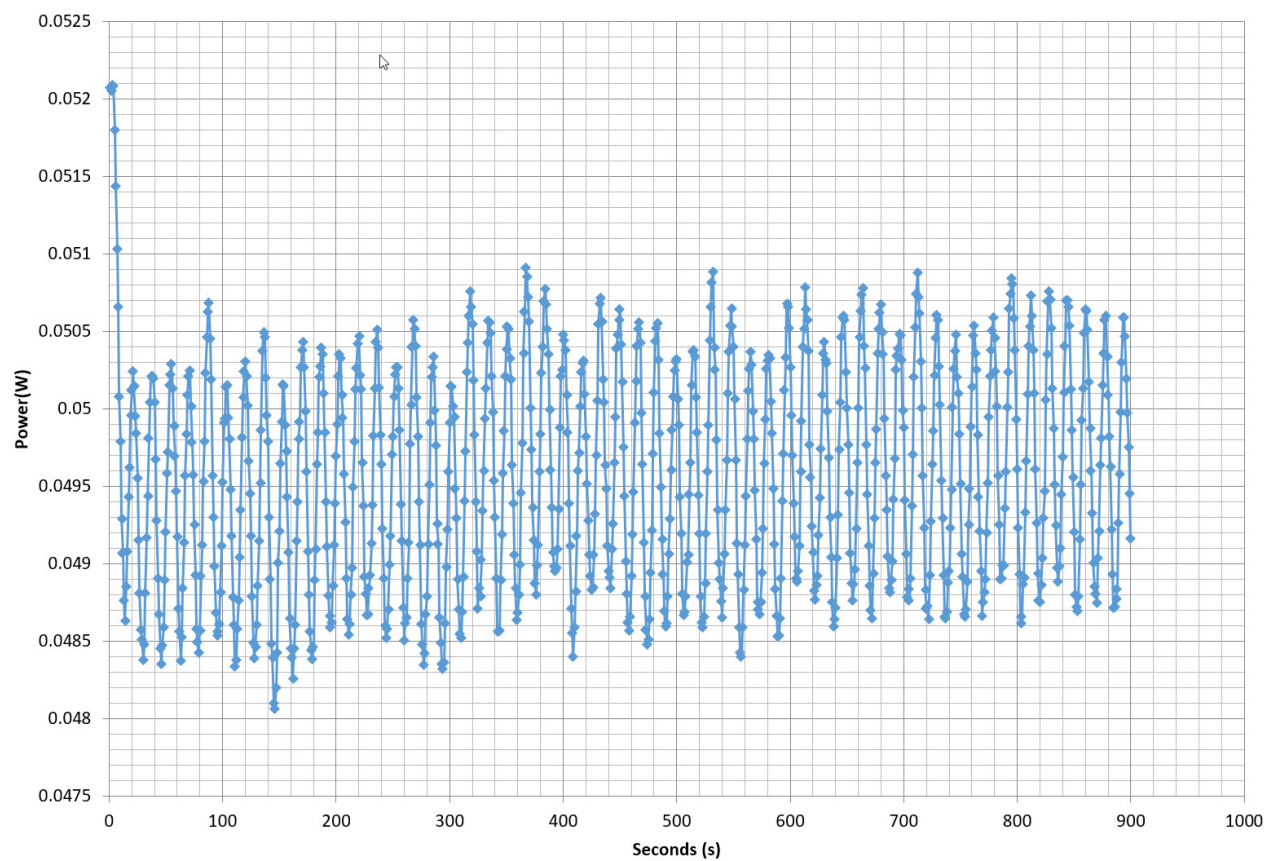
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	23.6
AC Loss to PWR_OK Hold Up Time (ms)	19
PWR_OK Inactive to DC Loss Delay (ms)	4.6



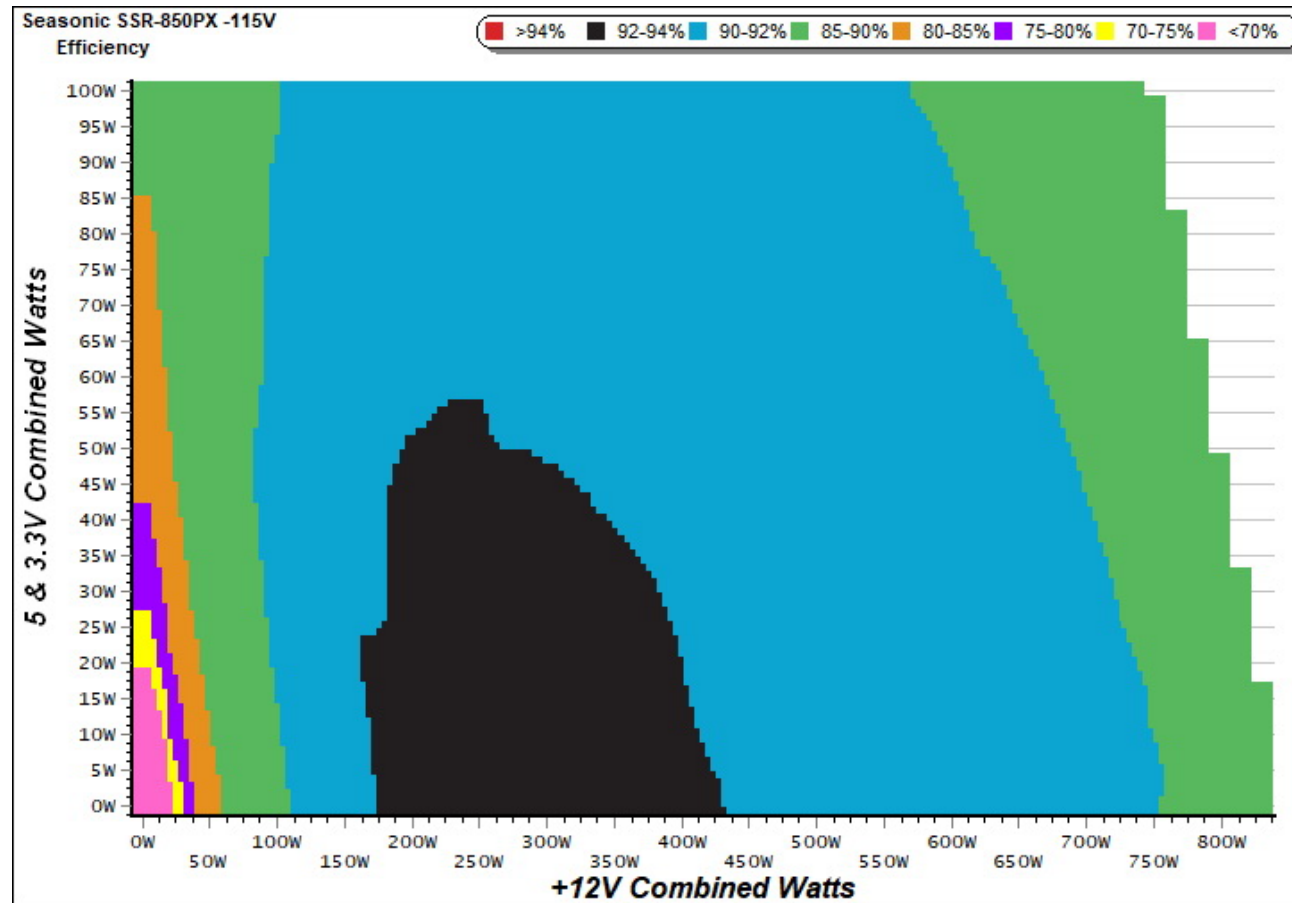
Graphs 115V

Power - R1708AA174090120 - 27/11/2017 - 09:32



Efficiency Graph

115V

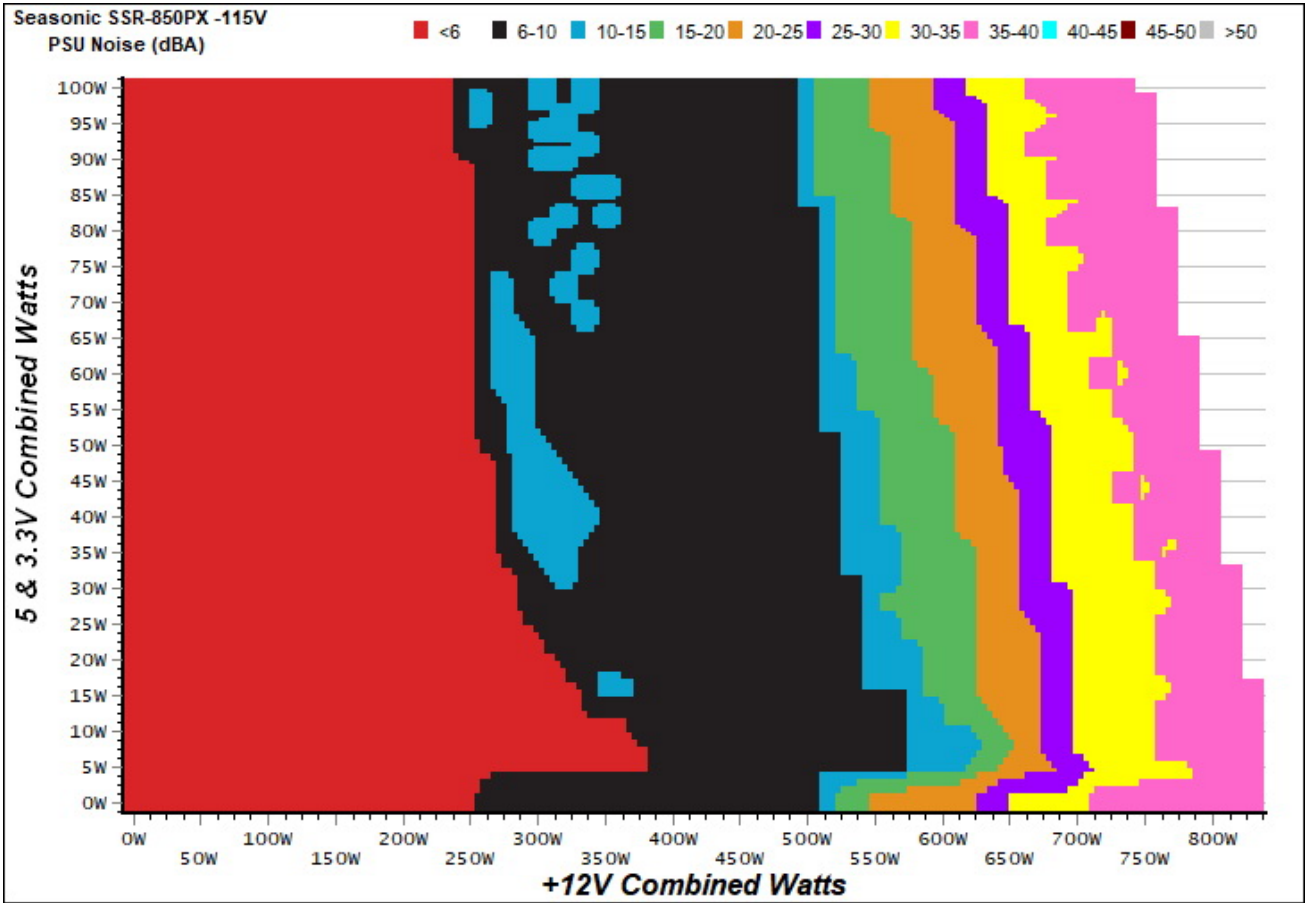


INFO

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

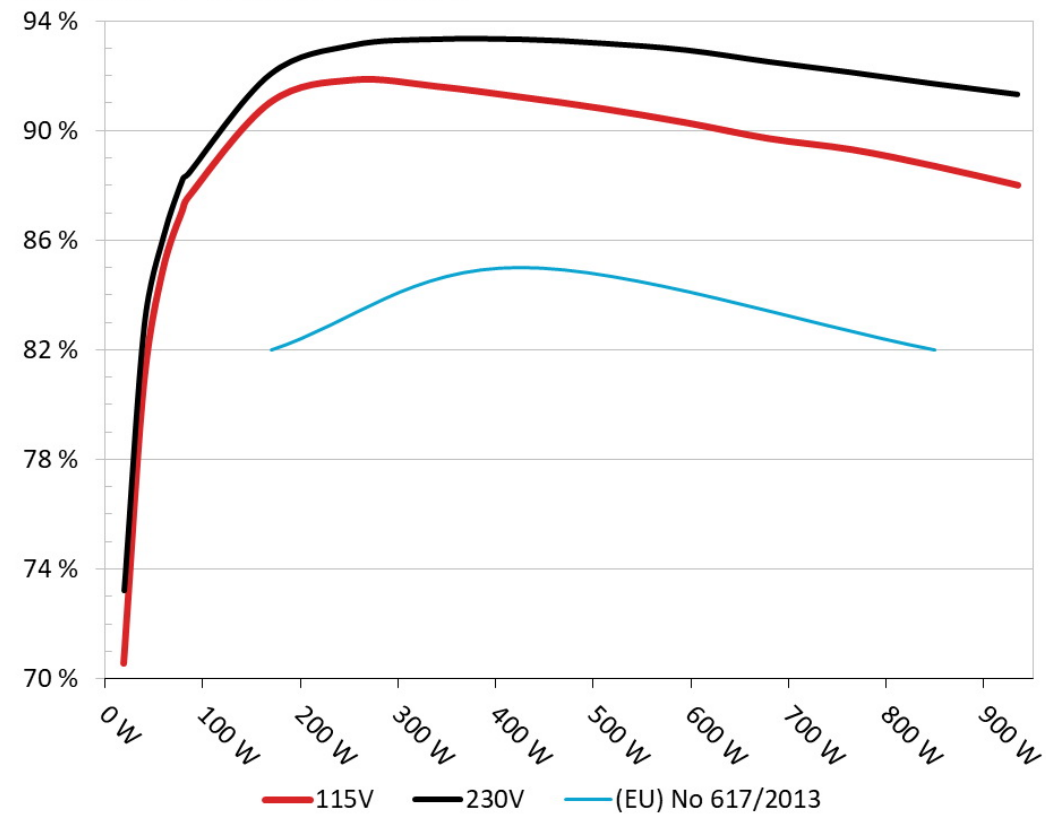
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance

Efficiency under high ambient temperature

Efficiency: Seasonic SSR-850PX

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



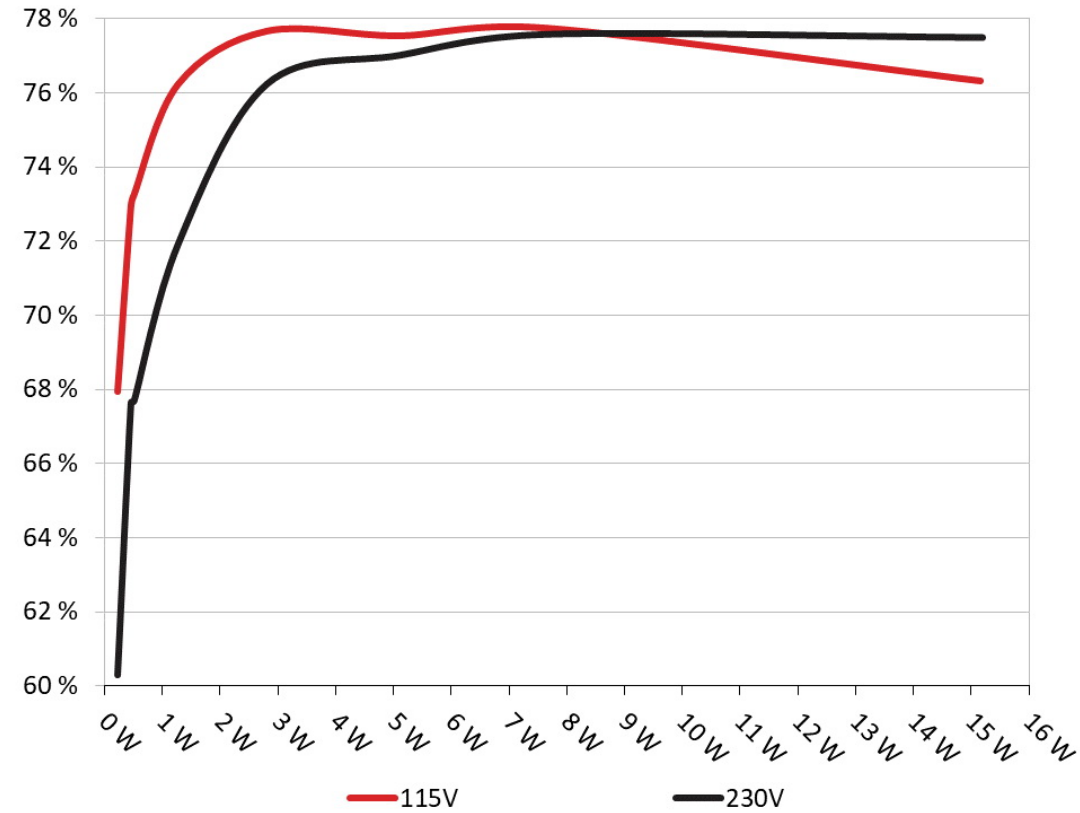
INFO

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 SSR-850PX

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	0.231	67.941%	0.032
	5.130V	0.340		115.26V

2	0.090A	0.461	72.943%	0.059
	5.129V	0.632		115.27V
3	0.550A	2.815	77.677%	0.265
	5.118V	3.624		115.26V
4	1.000A	5.108	77.547%	0.361
	5.108V	6.587		115.25V
5	1.500A	7.646	77.759%	0.412
	5.098V	9.833		115.25V
6	3.000A	15.157	76.331%	0.478
	5.053V	19.857		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	5.177A	1.991A	1.984A	0.980A	84.619	87.552%	0	<6.0	44.91°C	0.945
	12.178V	5.013V	3.321V	5.105V	96.650				38.02°C	115.17V
2	11.350A	2.990A	2.977A	1.177A	169.116	91.040%	0	<6.0	45.88°C	0.985
	12.180V	5.013V	3.321V	5.096V	185.761				38.37°C	115.16V
3	17.917A	3.489A	3.462A	1.376A	254.233	91.863%	0	<6.0	46.79°C	0.994
	12.181V	5.014V	3.320V	5.087V	276.752				38.84°C	115.04V
4	24.479A	3.987A	3.975A	1.576A	339.437	91.626%	550	10.8	39.22°C	0.992
	12.184V	5.013V	3.320V	5.077V	370.458				47.59°C	114.92V
5	30.714A	4.988A	4.971A	1.776A	424.776	91.241%	445	9.5	39.73°C	0.992
	12.186V	5.012V	3.318V	5.068V	465.552				48.55°C	114.91V
6	36.880A	5.987A	5.969A	1.977A	509.289	90.814%	465	9.8	40.48°C	0.993
	12.188V	5.011V	3.316V	5.059V	560.807				49.51°C	114.79V
7	43.116A	6.984A	6.966A	2.179A	594.625	90.300%	900	21.8	41.73°C	0.993
	12.189V	5.010V	3.315V	5.049V	658.498				51.29°C	114.66V
8	49.358A	7.988A	7.966A	2.382A	679.973	89.719%	1495	32.0	42.92°C	0.994
	12.188V	5.008V	3.313V	5.039V	757.893				52.87°C	114.64V

9	55.989A	8.489A	8.453A	2.384A	764.896	89.316%	2025	41.2	44.70°C	0.994
	12.188V	5.007V	3.312V	5.034V	856.396				55.04°C	114.50V
10	62.359A	8.989A	8.971A	2.991A	849.734	88.711%	2035	41.3	45.66°C	0.995
	12.188V	5.006V	3.311V	5.015V	957.872				57.09°C	114.47V
11	69.302A	8.990A	8.971A	2.994A	934.493	88.015%	2055	41.4	47.13°C	0.995
	12.190V	5.006V	3.310V	5.011V	1061.741				59.62°C	114.33V
CL1	0.731A	12.000A	11.999A	0.000A	108.949	86.494%	465	9.8	43.68°C	0.968
	12.185V	5.013V	3.324V	5.118V	125.961				52.87°C	115.22V
CL2	69.995A	1.001A	0.997A	1.000A	866.620	89.045%	2035	41.3	45.50°C	0.995
	12.190V	5.009V	3.311V	5.066V	973.236				56.68°C	114.45V

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	1.160A	0.497A	0.479A	0.195A	19.208	70.545%	0	<6.0	0.596
	12.175V	5.017V	3.324V	5.125V	27.228				115.25V
2	2.411A	0.995A	0.991A	0.391A	39.632	80.697%	0	<6.0	0.821
	12.175V	5.011V	3.320V	5.120V	49.112				115.23V
3	3.594A	1.493A	1.473A	0.587A	59.138	84.900%	0	<6.0	0.895
	12.176V	5.012V	3.321V	5.115V	69.656				115.20V
4	4.843A	1.993A	1.984A	0.783A	79.557	87.132%	0	<6.0	0.936
	12.178V	5.013V	3.321V	5.109V	91.306				115.17V

The results above are not used in the certification process

Ripple Measurements 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.3 mV	5.8 mV	5.5 mV	4.2 mV	Pass
20% Load	9.4 mV	6.8 mV	6.2 mV	4.5 mV	Pass
30% Load	11.5 mV	7.3 mV	6.8 mV	5.0 mV	Pass
40% Load	13.8 mV	8.0 mV	7.5 mV	5.8 mV	Pass

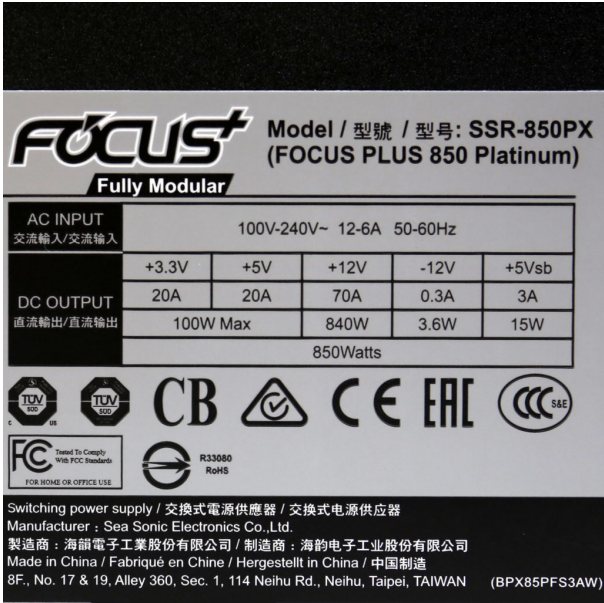
Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	15.2 mV	8.3 mV	8.3 mV	5.4 mV	Pass
60% Load	13.6 mV	9.3 mV	8.6 mV	6.1 mV	Pass
70% Load	13.4 mV	9.9 mV	9.4 mV	6.5 mV	Pass
80% Load	14.0 mV	10.2 mV	10.2 mV	6.7 mV	Pass
90% Load	16.0 mV	11.1 mV	10.6 mV	6.9 mV	Pass
100% Load	17.3 mV	11.8 mV	12.0 mV	7.8 mV	Pass
110% Load	19.5 mV	12.1 mV	12.1 mV	9.8 mV	Pass
Crossload 1	7.5 mV	11.5 mV	11.0 mV	3.9 mV	Pass
Crossload 2	18.0 mV	7.4 mV	7.2 mV	7.3 mV	Pass

The results above are not used in the certification process

Seasonic Focus Plus Platinum 850W



Top side



Power specifications label

Cybenetics ETA LAMBDA SAFE DELTA PHI