Seasonic Focus Plus Platinum 550W

Serial Number R1707AA170390277

Lab ID 245

Certification ID 25245

Test Result Report ID:

Certificate Issue Date: Dec 13, 2018

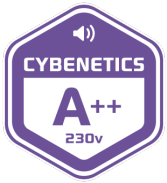
Scheme: ETA-EMI PSU

115V

230V

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	Seasonic
Model	Focus Plus Platinum 550W
OEM/ODM	Seasonic
Serial Number	R1707AA170390277
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8-4
Rated Frequency (Hz)	50-60

Rated Power (W)	550
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	245
Date of receipt	Dec 6, 2018
Testing Date	Dec 11, 2018
Report Issued Date	Dec 13, 2018
DUT Notes	Retested on 04/10/2018
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	Yes
4+4 pin EPS12V (650mm)	1	1	18AWG	Yes
6+2 pin PCIe (680mm+80mm)	1	2	18AWG	Yes
SATA (450mm+110mm+110mm+110mm)	1	4	18AWG	No
SATA (450mm+110mm)	1	2	18AWG	No
4 pin Molex (450mm+120mm+120mm)	1	3	18AWG	No
FDD Adapter (+105mm)	1	1	22AWG	No

AC Power Cord (1370mm) - C13 coupler	1	1	18AWG	No	

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	45	3	0.3
	Watts	100		540	15	3.6
Total Max. Power (W)		550				

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)	90.023%
Average Noise Output (>1450 Load Combinations)	14.83dBA
Average PF (>1450 Load Combinations)	0.985
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0495W
Non-Accredited	
12V Ripple (Full Load)	23.16mV
5V Ripple (Full Load)	12.50mV
3.3V Ripple (Full Load)	10.91mV
5VSB Ripple (Full Load)	8.24mV
12V Load Regulation	0.04%

5V Load Regulation	0.18%
3.3V Load Regulation	0.51%
5VSB Load Regulation	2.38%
Inrush Current	26.761A

230V

Accredited		
Average Efficiency (>1450 load combinations)	91.674%	
Average Noise Output (>1450 Load Combinations)	14.17dBA	
Average PF (>1450 Load Combinations)	0.935	
Efficiency With 10W (≤500W) or 2% (>500W) Load	-	
Standby Power Consumption	0.0825W	
Non-Accredited		
12V Ripple (Full Load)	22.91mV	
5V Ripple (Full Load)	12.14mV	
3.3V Ripple (Full Load)	10.96mV	
5VSB Ripple (Full Load)	6.04mV	
12V Load Regulation	0.03%	
5V Load Regulation	0.18%	
3.3V Load Regulation	0.54%	
5VSB Load Regulation	2.32%	
Inrush Current	62.631A	
Hold-Up Time & PWR_OK Signal	24.20ms	
AC Loss to PWR_OK Hold Up Time	19.50ms	
PWR_OK Inactive to DC Loss Delay	4.70ms	
OPP (0.00°C / 0.00°C)	-	-

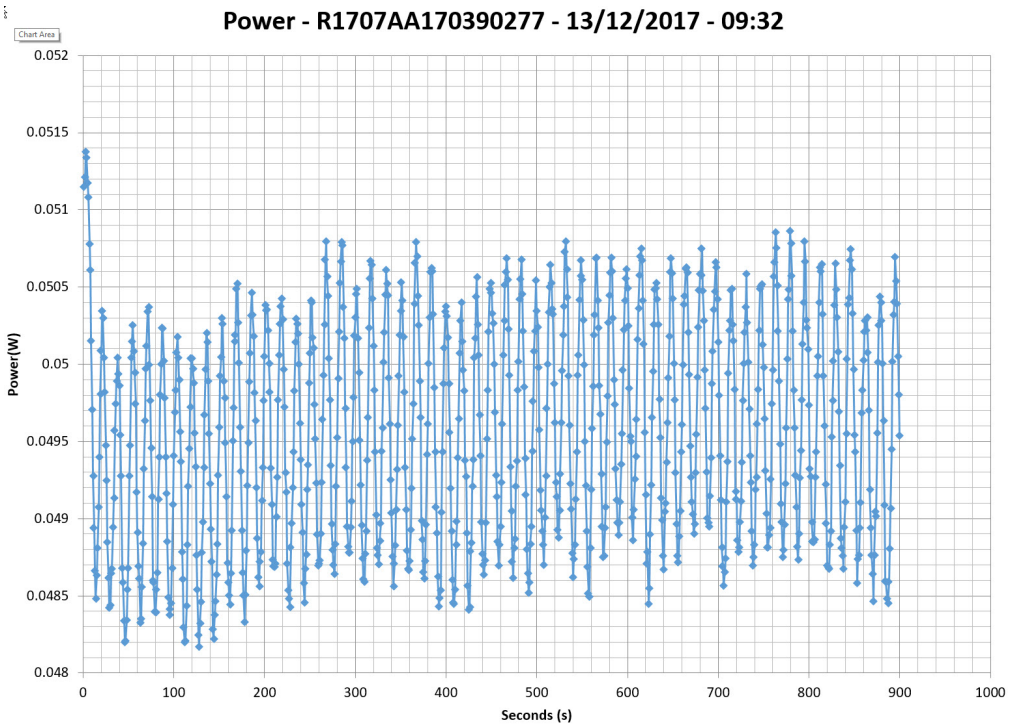
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	24.2
AC Loss to PWR_OK Hold Up Time (ms)	19.5

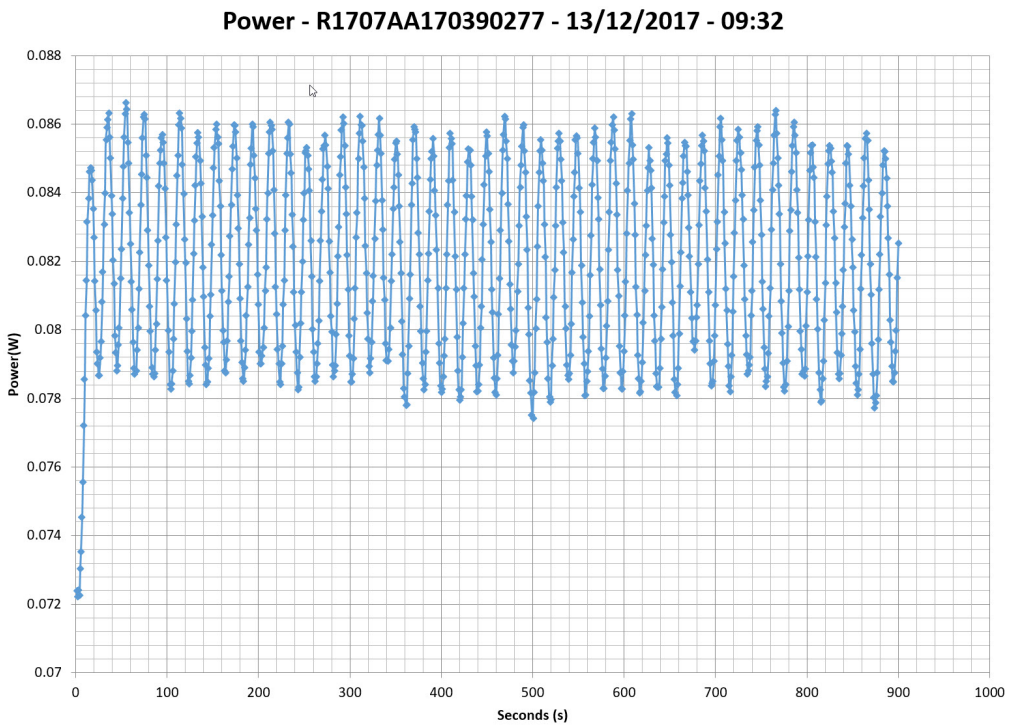
PWR_OK Inactive to DC Loss Delay (ms)	4.7

Graphs

115V

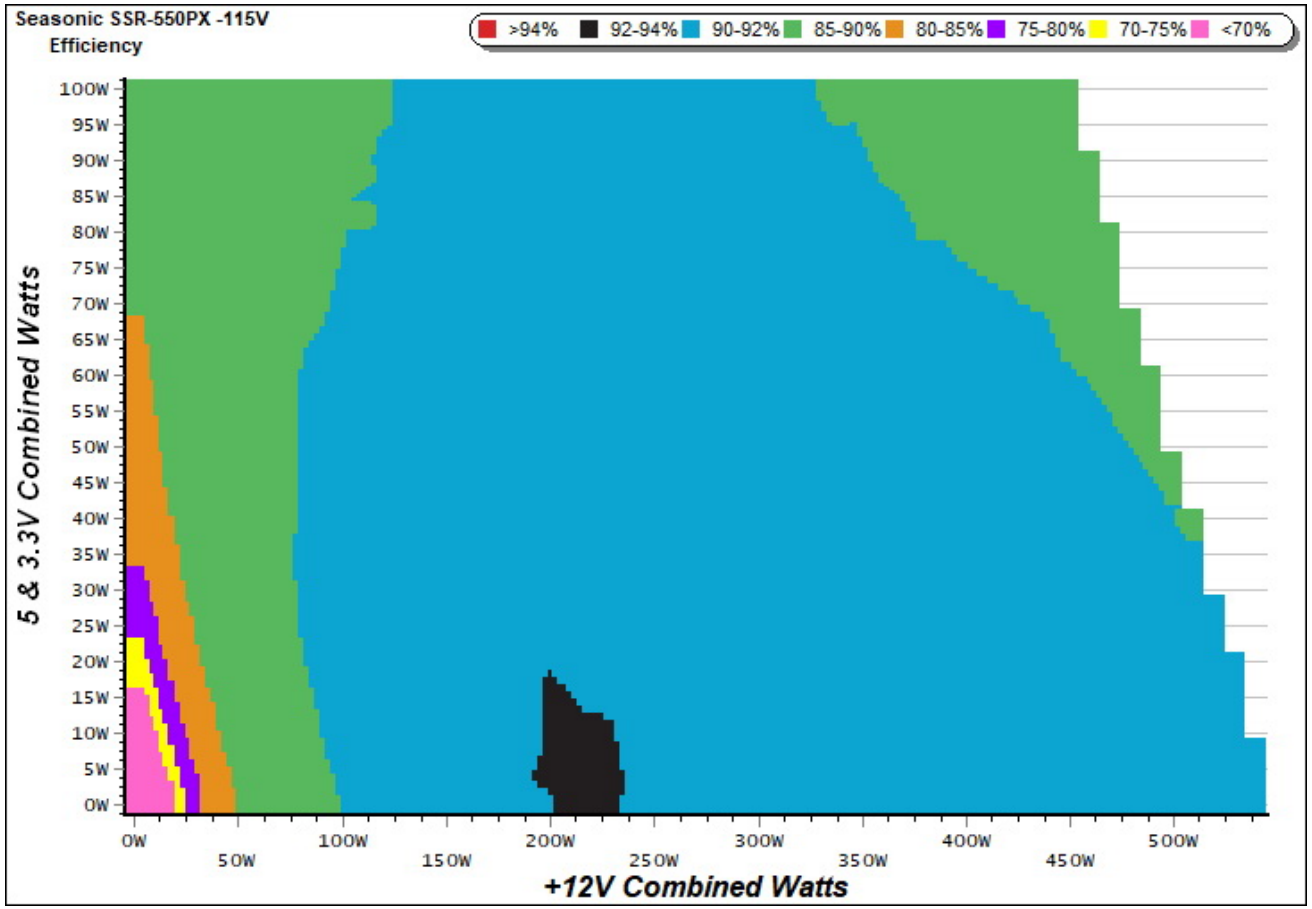


230V



Efficiency Graph

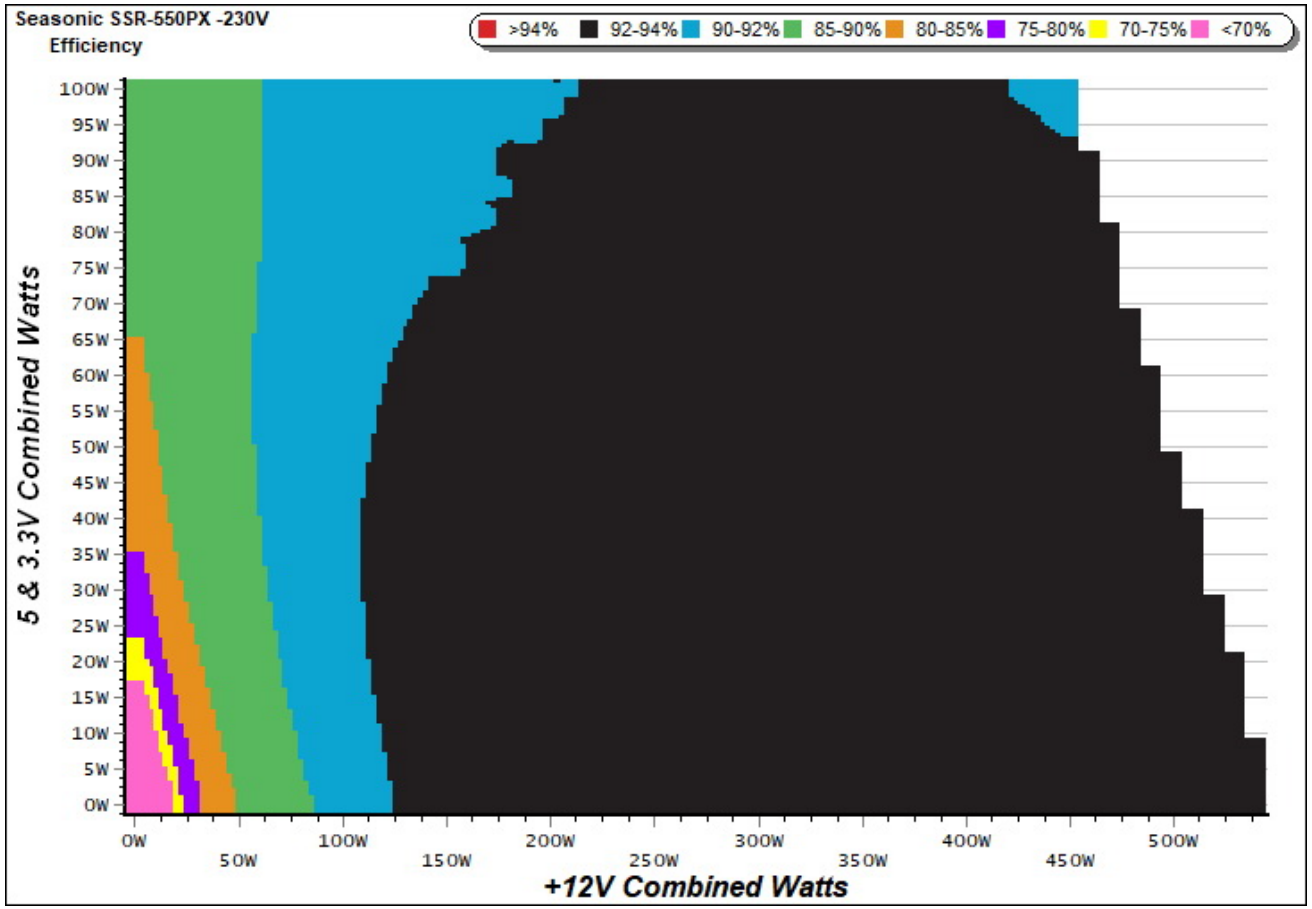
115V



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.

230V



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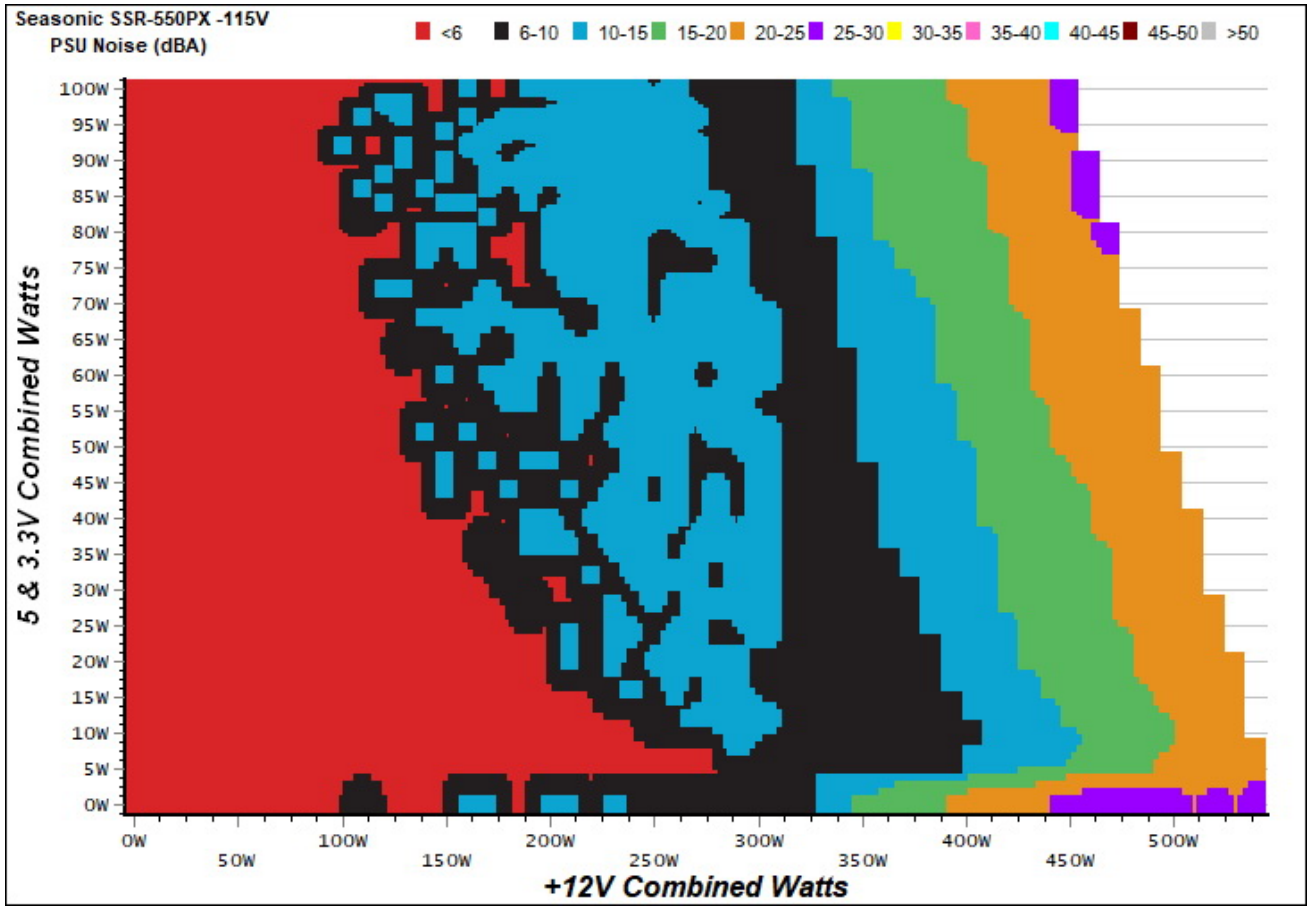
Noise Graph

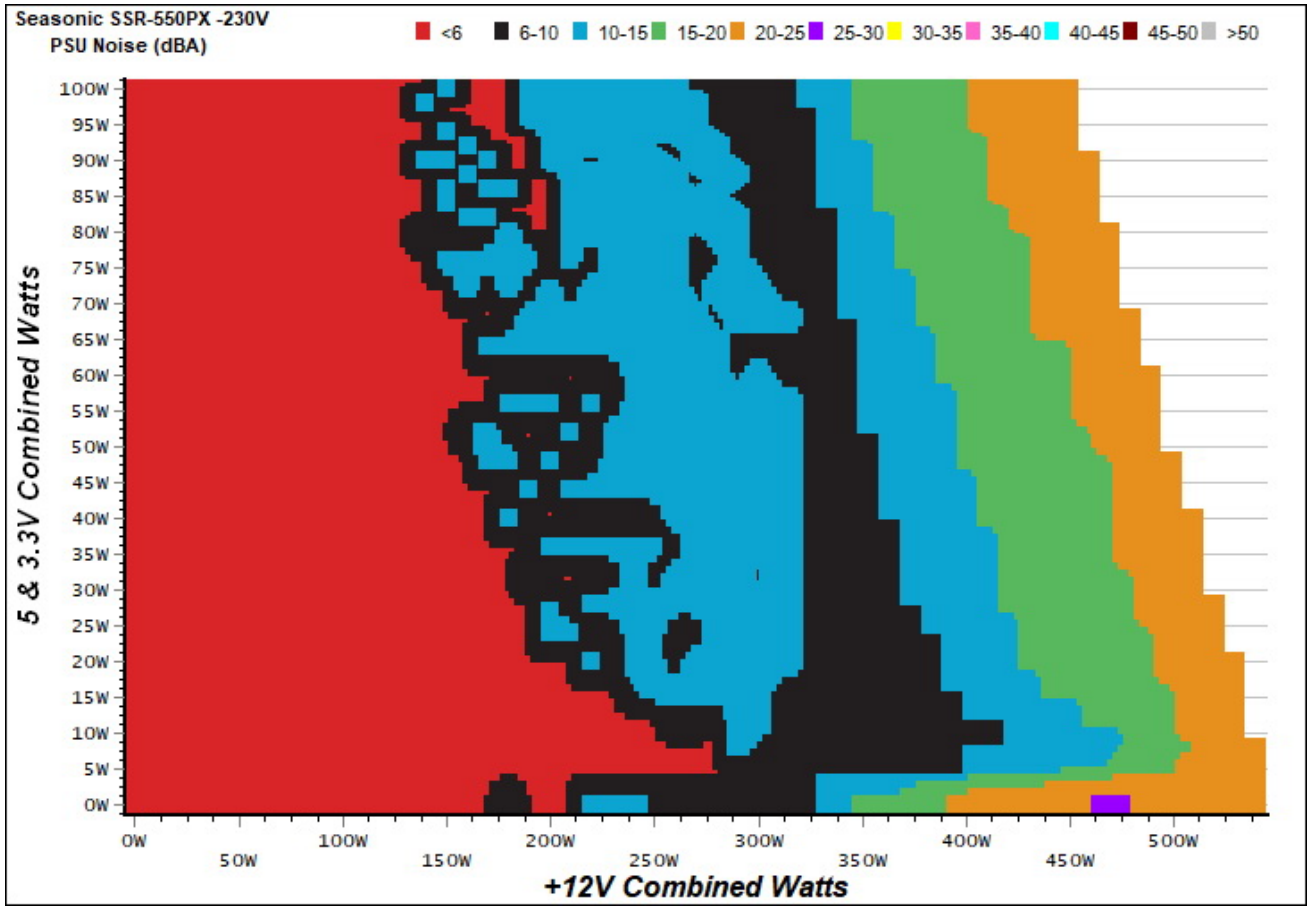
115V



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.

230V



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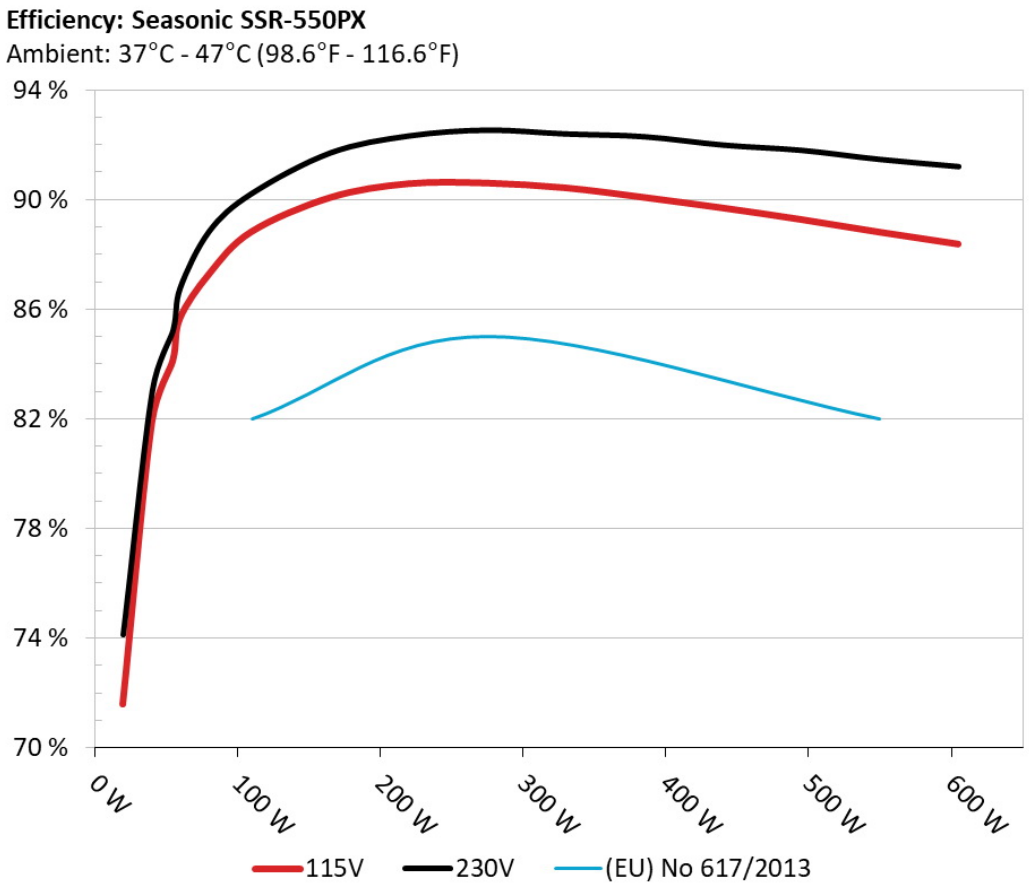
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance

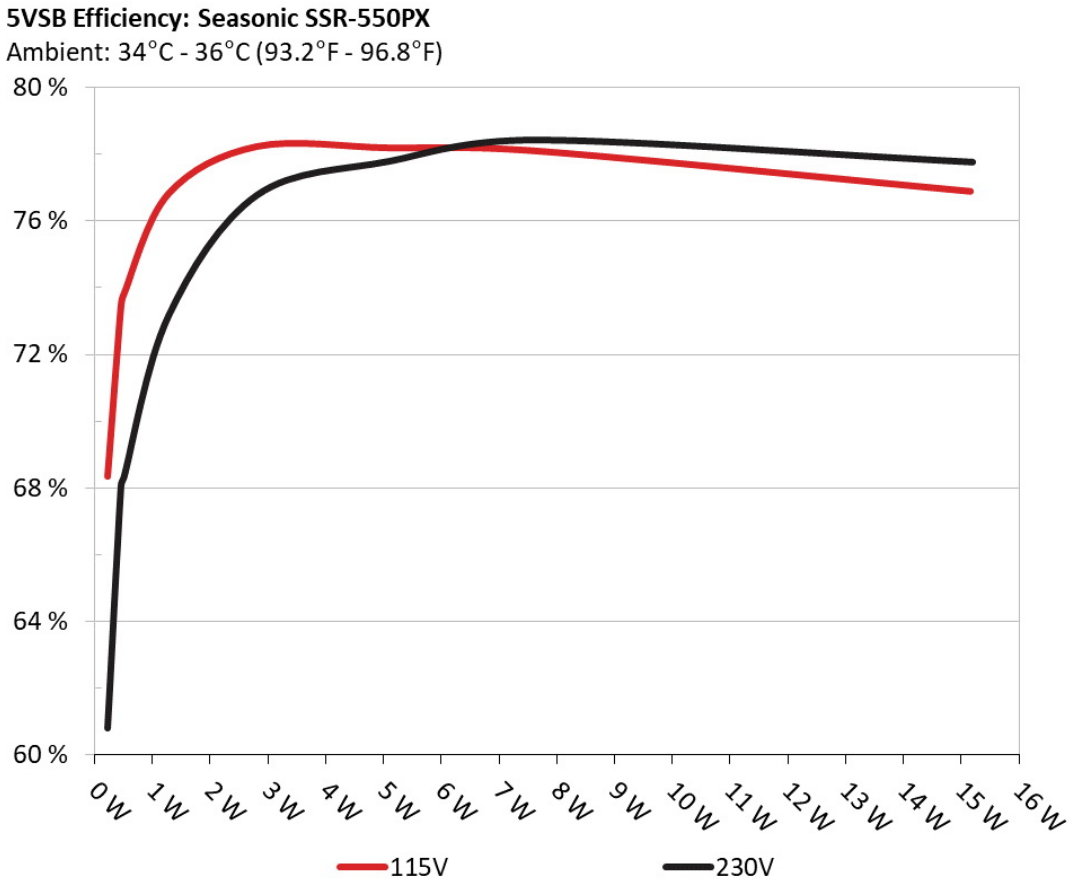
Efficiency under high ambient temperature



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	0.045A	0.231	68.343%	0.034
	5.136V	0.338		115.27V
2	0.090A	0.462	73.450%	0.062
	5.135V	0.629		115.27V
3	0.550A	2.818	78.234%	0.273
	5.124V	3.602		115.26V
4	1.000A	5.113	78.192%	0.367
	5.114V	6.539		115.25V
5	1.500A	7.653	78.100%	0.418
	5.102V	9.799		115.25V
6	3.000A	15.167	76.888%	0.479
	5.056V	19.726		115.24V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	60.789%	0.013
	5.136V	0.380		230.83V
2	0.090A	0.462	68.041%	0.023
	5.135V	0.679		230.82V
3	0.550A	2.818	76.764%	0.117
	5.124V	3.671		230.71V
4	1.000A	5.114	77.779%	0.191
	5.114V	6.575		230.76V
5	1.500A	7.654	78.414%	0.251
	5.103V	9.761		230.81V
6	3.000A	15.203	77.753%	0.351
	5.068V	19.553		230.81V

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	2.697A	1.979A	1.984A	0.979A	54.289	84.099%	0	<6.0	44.57°C	0.938
	12.130V	5.044V	3.323V	5.107V	64.554				38.04°C	115.30V
2	6.456A	2.972A	2.981A	1.177A	109.204	88.804%	0	<6.0	45.26°C	0.982
	12.131V	5.043V	3.321V	5.097V	122.972				38.54°C	115.23V
3	10.611A	3.470A	3.465A	1.376A	164.724	90.060%	450	9.9	38.69°C	0.989
	12.131V	5.043V	3.320V	5.087V	182.905				45.85°C	115.15V
4	14.700A	3.966A	3.977A	1.576A	219.534	90.566%	450	9.9	38.78°C	0.992
	12.132V	5.042V	3.318V	5.077V	242.403				46.65°C	115.07V
5	18.460A	4.960A	4.976A	1.776A	274.460	90.587%	445	9.6	39.42°C	0.993
	12.132V	5.041V	3.316V	5.067V	302.979				47.47°C	115.09V
6	22.220A	5.953A	5.976A	1.978A	329.397	90.416%	590	15.2	40.38°C	0.993
	12.133V	5.040V	3.313V	5.056V	364.312				49.24°C	115.01V
7	26.012A	6.947A	6.975A	2.181A	384.707	90.065%	985	23.9	41.40°C	0.992
	12.133V	5.039V	3.311V	5.045V	427.144				50.96°C	114.93V
8	29.804A	7.942A	7.977A	2.384A	440.014	89.679%	1495	32.0	42.16°C	0.992
	12.133V	5.037V	3.309V	5.034V	490.656				52.40°C	114.85V
9	33.960A	8.440A	8.463A	2.387A	494.538	89.261%	1915	40.7	44.94°C	0.993
	12.133V	5.036V	3.308V	5.028V	554.036				55.29°C	114.87V
10	37.918A	8.937A	8.984A	2.996A	549.762	88.798%	2005	41.1	45.22°C	0.993
	12.133V	5.035V	3.306V	5.008V	619.114				56.13°C	114.79V
11	42.466A	8.938A	8.985A	2.999A	604.982	88.363%	2025	41.2	46.67°C	0.993
	12.134V	5.035V	3.305V	5.002V	684.654				58.40°C	114.71V
CL1	0.733A	12.002A	11.999A	0.000A	109.145	86.395%	445	9.6	43.66°C	0.982
	12.130V	5.041V	3.313V	5.111V	126.332				51.72°C	115.22V

CL2	45.001A	1.001A	0.999A	1.000A	559.507	89.426%	2025	41.2	45.60°C	0.993
	12.135V	5.039V	3.315V	5.064V	625.668				56.45°C	114.79V

The results above are not used in the certification process

230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	2.708A	1.982A	1.984A	0.979A	54.436	85.232%	0	<6.0	48.02°C	0.682
	12.129V	5.044V	3.323V	5.107V	63.868				38.02°C	230.81V
2	6.466A	2.973A	2.979A	1.177A	109.320	90.205%	450	9.9	38.19°C	0.861
	12.130V	5.044V	3.321V	5.096V	121.191				48.28°C	230.83V
3	10.619A	3.471A	3.464A	1.376A	164.820	91.695%	485	9.3	38.85°C	0.925
	12.131V	5.043V	3.319V	5.086V	179.749				49.09°C	230.84V
4	14.709A	3.965A	3.979A	1.576A	219.626	92.310%	445	9.6	39.08°C	0.951
	12.131V	5.042V	3.317V	5.077V	237.922				48.79°C	230.80V
5	18.466A	4.962A	4.976A	1.777A	274.536	92.521%	465	9.8	39.41°C	0.965
	12.132V	5.040V	3.315V	5.066V	296.727				49.56°C	230.75V
6	22.224A	5.954A	5.976A	1.979A	329.448	92.386%	565	14.1	40.43°C	0.973
	12.133V	5.039V	3.313V	5.055V	356.598				49.12°C	230.70V
7	26.015A	6.949A	6.977A	2.181A	384.753	92.284%	900	21.8	41.31°C	0.978
	12.133V	5.038V	3.311V	5.045V	416.923				48.04°C	230.66V
8	29.806A	7.944A	7.978A	2.385A	440.053	91.978%	1495	32.0	42.42°C	0.980
	12.133V	5.037V	3.309V	5.033V	478.435				48.10°C	230.72V
9	33.963A	8.441A	8.465A	2.387A	494.578	91.789%	1780	38.8	43.27°C	0.983
	12.133V	5.036V	3.307V	5.028V	538.823				48.14°C	230.68V
10	37.920A	8.939A	8.984A	2.996A	549.796	91.457%	2005	41.1	45.23°C	0.985
	12.133V	5.035V	3.306V	5.008V	601.153				49.71°C	230.64V
11	42.466A	8.942A	8.986A	2.999A	605.005	91.195%	2025	41.2	46.18°C	0.986
	12.134V	5.035V	3.305V	5.002V	663.419				50.94°C	230.59V
CL1	0.735A	12.002A	11.998A	0.000A	109.166	87.456%	445	9.6	43.37°C	0.867
	12.130V	5.041V	3.313V	5.111V	124.824				51.93°C	230.97V

CL2	45.003A	1.002A	0.999A	1.000A	559.535	92.123%	2005	41.1	44.87°C	0.985
	12.135V	5.039V	3.314V	5.064V	607.378				49.35°C	230.64V

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	1.171A	0.492A	0.478A	0.195A	19.278	71.575%	0	<6.0	0.730
	12.128V	5.049V	3.327V	5.130V	26.934				115.25V
2	2.425A	0.990A	0.991A	0.390A	39.695	81.872%	0	<6.0	0.890
	12.128V	5.043V	3.323V	5.123V	48.484				115.23V
3	3.616A	1.485A	1.472A	0.586A	59.236	85.644%	0	<6.0	0.943
	12.129V	5.043V	3.323V	5.117V	69.165				115.19V
4	4.869A	1.981A	1.986A	0.783A	79.650	87.263%	0	<6.0	0.967
	12.130V	5.043V	3.322V	5.110V	91.276				115.27V

The results above are not used in the certification process

230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.190A	0.494A	0.480A	0.195A	19.526	74.136%	0	<6.0	0.442
	12.130V	5.050V	3.328V	5.129V	26.338				230.84V
2	2.441A	0.990A	0.993A	0.391A	39.905	83.014%	0	<6.0	0.584
	12.129V	5.045V	3.324V	5.122V	48.070				230.83V
3	3.630A	1.486A	1.474A	0.587A	59.429	86.773%	0	<6.0	0.705
	12.130V	5.044V	3.323V	5.116V	68.488				230.81V
4	4.882A	1.981A	1.986A	0.783A	79.809	88.838%	0	<6.0	0.793
	12.130V	5.044V	3.322V	5.109V	89.837				230.80V

The results above are not used in the certification process

Ripple Measurements

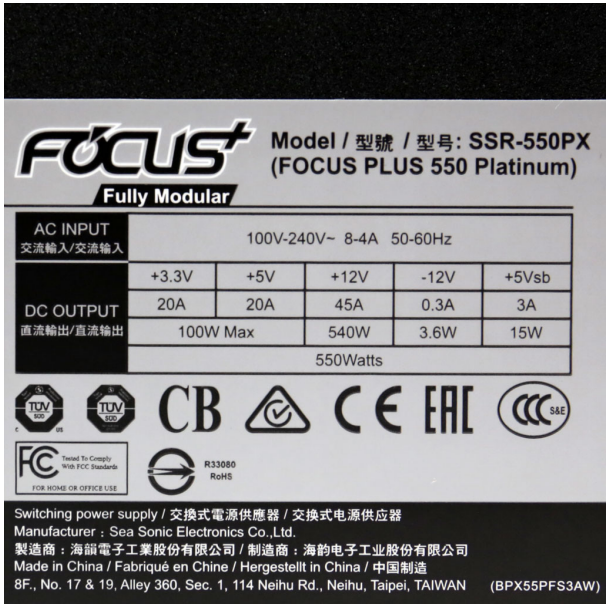
115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.6 mV	6.2 mV	4.8 mV	3.4 mV	Pass
20% Load	9.9 mV	7.0 mV	5.6 mV	3.5 mV	Pass
30% Load	12.7 mV	7.1 mV	5.9 mV	3.6 mV	Pass
40% Load	14.3 mV	7.6 mV	6.1 mV	4.1 mV	Pass
50% Load	16.4 mV	8.4 mV	7.1 mV	4.8 mV	Pass
60% Load	17.9 mV	9.9 mV	7.4 mV	5.0 mV	Pass
70% Load	19.5 mV	10.4 mV	8.5 mV	6.0 mV	Pass
80% Load	20.4 mV	11.0 mV	9.8 mV	7.5 mV	Pass
90% Load	22.3 mV	11.2 mV	10.3 mV	7.5 mV	Pass
100% Load	23.2 mV	12.5 mV	10.9 mV	8.2 mV	Pass
110% Load	23.9 mV	12.5 mV	11.3 mV	10.0 mV	Pass
Crossload 1	10.7 mV	11.2 mV	9.7 mV	4.4 mV	Pass
Crossload 2	23.0 mV	7.8 mV	6.0 mV	6.9 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.0 mV	6.0 mV	4.6 mV	3.3 mV	Pass
20% Load	9.6 mV	6.5 mV	5.3 mV	3.4 mV	Pass
30% Load	11.9 mV	7.1 mV	5.7 mV	3.5 mV	Pass
40% Load	14.1 mV	7.4 mV	6.2 mV	3.8 mV	Pass
50% Load	16.0 mV	8.8 mV	6.9 mV	3.9 mV	Pass
60% Load	17.5 mV	9.3 mV	7.4 mV	4.2 mV	Pass
70% Load	19.3 mV	10.1 mV	8.1 mV	4.2 mV	Pass
80% Load	20.3 mV	11.0 mV	9.6 mV	4.8 mV	Pass



Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	22.0 mV	11.5 mV	10.1 mV	5.0 mV	Pass
100% Load	22.9 mV	12.1 mV	11.0 mV	6.0 mV	Pass
110% Load	24.8 mV	12.8 mV	11.4 mV	6.1 mV	Pass
Crossload 1	9.9 mV	11.4 mV	10.0 mV	4.0 mV	Pass
Crossload 2	23.1 mV	7.9 mV	6.2 mV	4.4 mV	Pass

The results above are not used in the certification process

Seasonic Focus Plus Platinum 550W

Top side

Power specifications label

Cybenetics 提供自願性認證方案: 電源供應器方面有 ETA (效率)、 LAMBDA (噪音) 與 SAFE (安全與正確運作)；散熱產品方面有 DELTA (機殼隔音) 與 PHI (風扇風量與靜壓)