Seasonic Focus SGX 500W

R1901AA112430005

Lab ID SS19500001

Certification ID 25641

Test Result Report ID:

Certificate Issue Date: Feb 26, 2019

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 SGX 500W
OEM/ODM	Seasonic
Serial Number	R1901AA112430005
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	6-3
□□□□ (Hz)	50-60

□□□□ (W)	500
Operating Temperature (Continuous Full Load) (°C)	
□□	SFX-L
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Fluid Dynamic Bearing Fan (S1201512HB)
□□□□□	✓
Cybenetics Testing Information	
Lab ID	SS19500001
Date of receipt	Feb 22, 2019
Testing Date	Feb 22, 2019
Report Issued Date	Feb 26, 2019
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□□ (Non-accredited measurements)

□□□□□				
□□	□□□□	□□□□□□	Gauge	In Cable Capacitors
ATX □□ 20+4 pin (360mm)	1	1	18AWG	□
4+4 pin EPS 12V □□ (400mm)	1	1	18AWG	□
6+2pin PCIe□□ (400mm+100mm)	1	2	18AWG	□
SATA□□ (300mm+200mm+100mm)	1	3	18AWG	□
□ 4pin Molex□□ (300mm+200mm+200mm)	1	3	18AWG	□
AC Power Cord (1370mm) - C13 coupler	1	1	18AWG	-

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	20	20	41	3	0.3
	□	100		492	15	3.6
□□□□□ (W)		500				

Test Results

Temperature & Compliance Info

□□□□ (°C /°F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	✓
□□ (EU) No 617/2013□□	✓

Performance Summary

115V

Accredited	
□□□□ (>1450 load combinations)	88.907%
Average Noise Output (>1450 Load Combinations)	31.11dBA
PF□□□ (>1450 Load Combinations)	0.981
Efficiency With 10W (≤500W) or 2% (>500W) Load	60.452%
□□□□□□	0.0444W
Non-Accredited	
12V Ripple (Full Load)	26.33mV
5V Ripple (Full Load)	23.73mV
3.3V Ripple (Full Load)	23.88mV
5VSB Ripple (Full Load)	14.62mV
12V Load Regulation	0.08%
5V Load Regulation	0.34%
3.3V Load Regulation	0.42%

5VSB Load Regulation	2.00%
Inrush Current	39.069A

230V

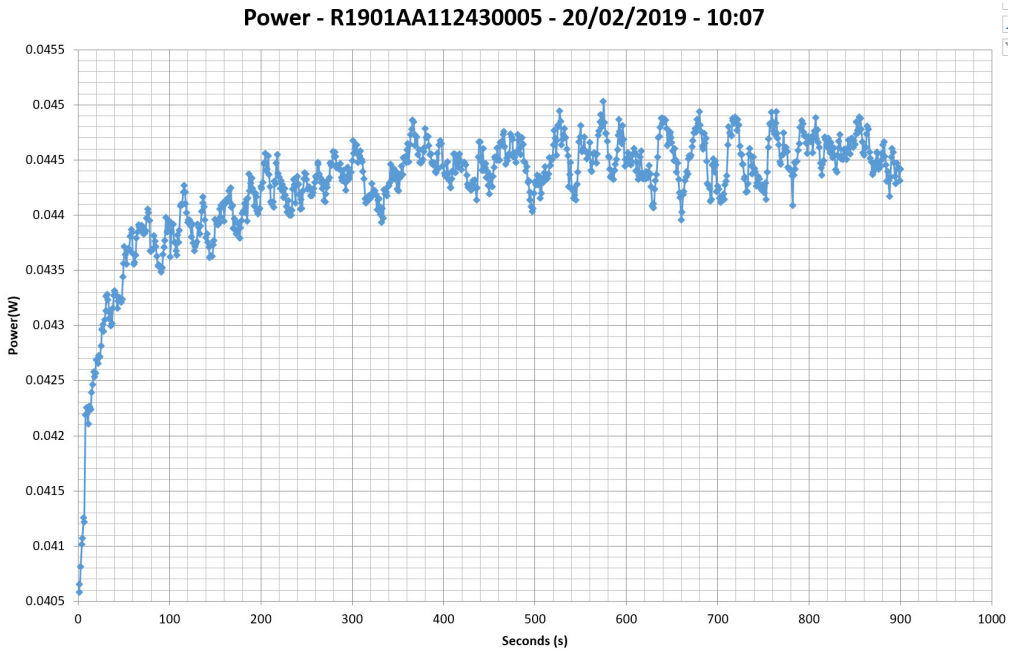
Accredited	
□□□□ (>1450 load combinations)	90.840%
Average Noise Output (>1450 Load Combinations)	29.07dBA
PF□□□ (>1450 Load Combinations)	0.927
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
□□□□□□	0.0678W
Non-Accredited	
12V Ripple (Full Load)	26.79mV
5V Ripple (Full Load)	24.23mV
3.3V Ripple (Full Load)	22.88mV
5VSB Ripple (Full Load)	12.98mV
12V Load Regulation	0.07%
5V Load Regulation	0.32%
3.3V Load Regulation	0.42%
5VSB Load Regulation	1.94%
Inrush Current	56.094A
□□□□ & PG□□	23.50ms
AC Loss to PWR_OK Hold Up Time	21.10ms
PWR_OK Inactive to DC Loss Delay	2.40ms
OPP (0.00°C / 0.00°C)	- -

□□□□ & PG□□

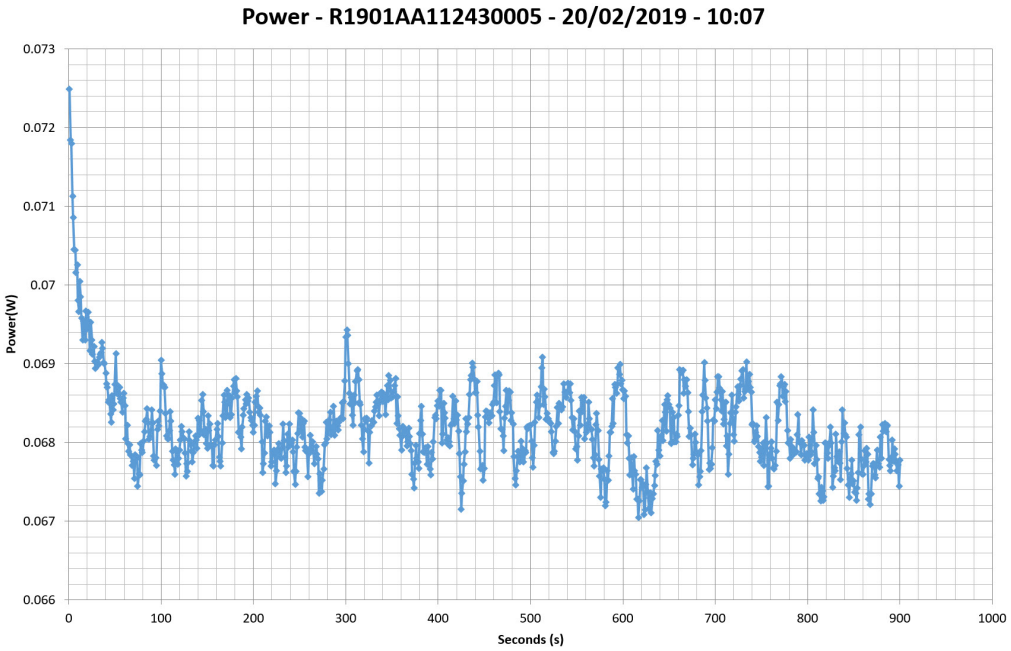
Hold-Up Time (ms)	23.5
AC Loss to PWR_OK Hold Up Time (ms)	21.1
PWR_OK Inactive to DC Loss Delay (ms)	2.4

Graphs

115V

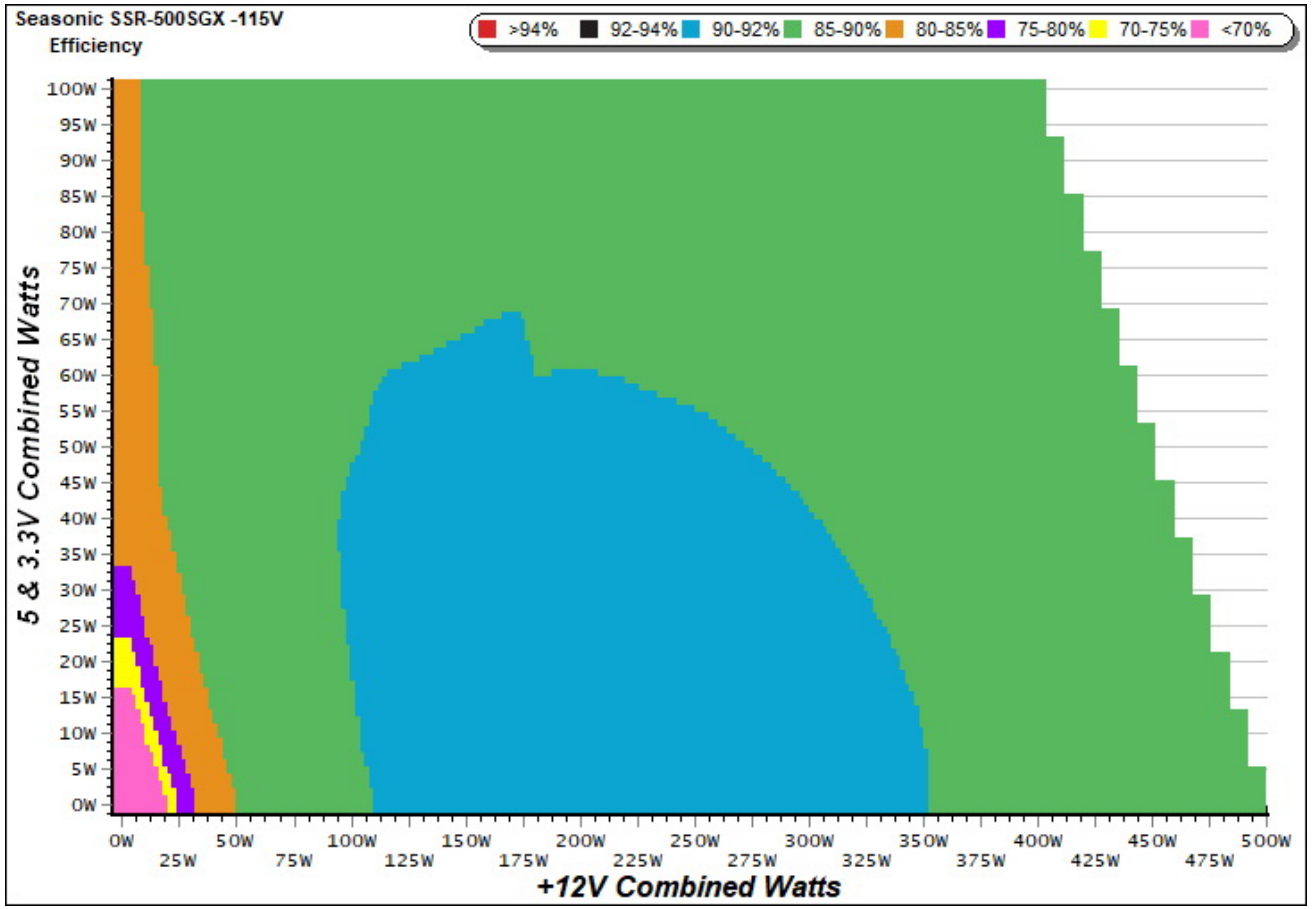


230V



□□□□□□

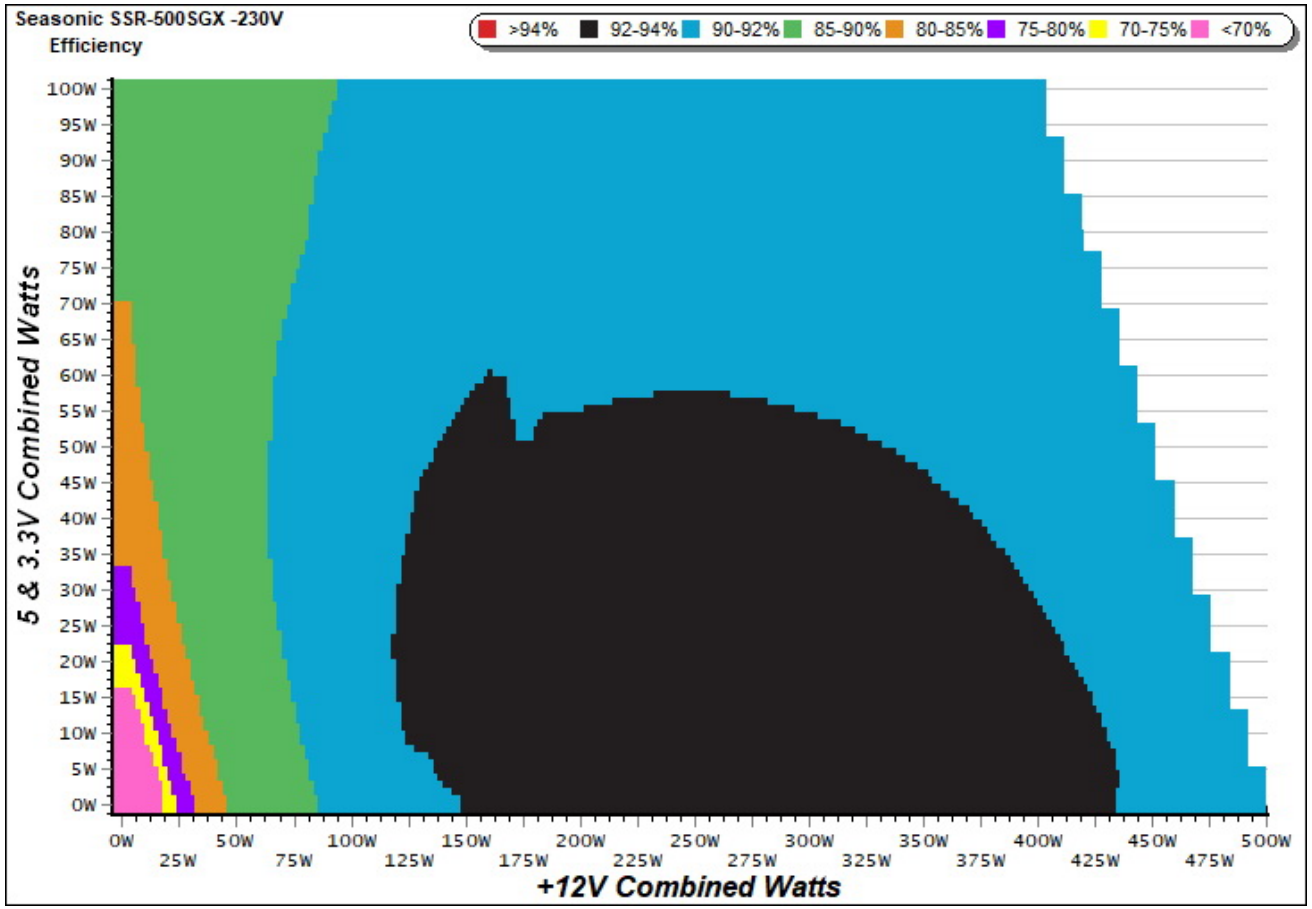
115V



□□

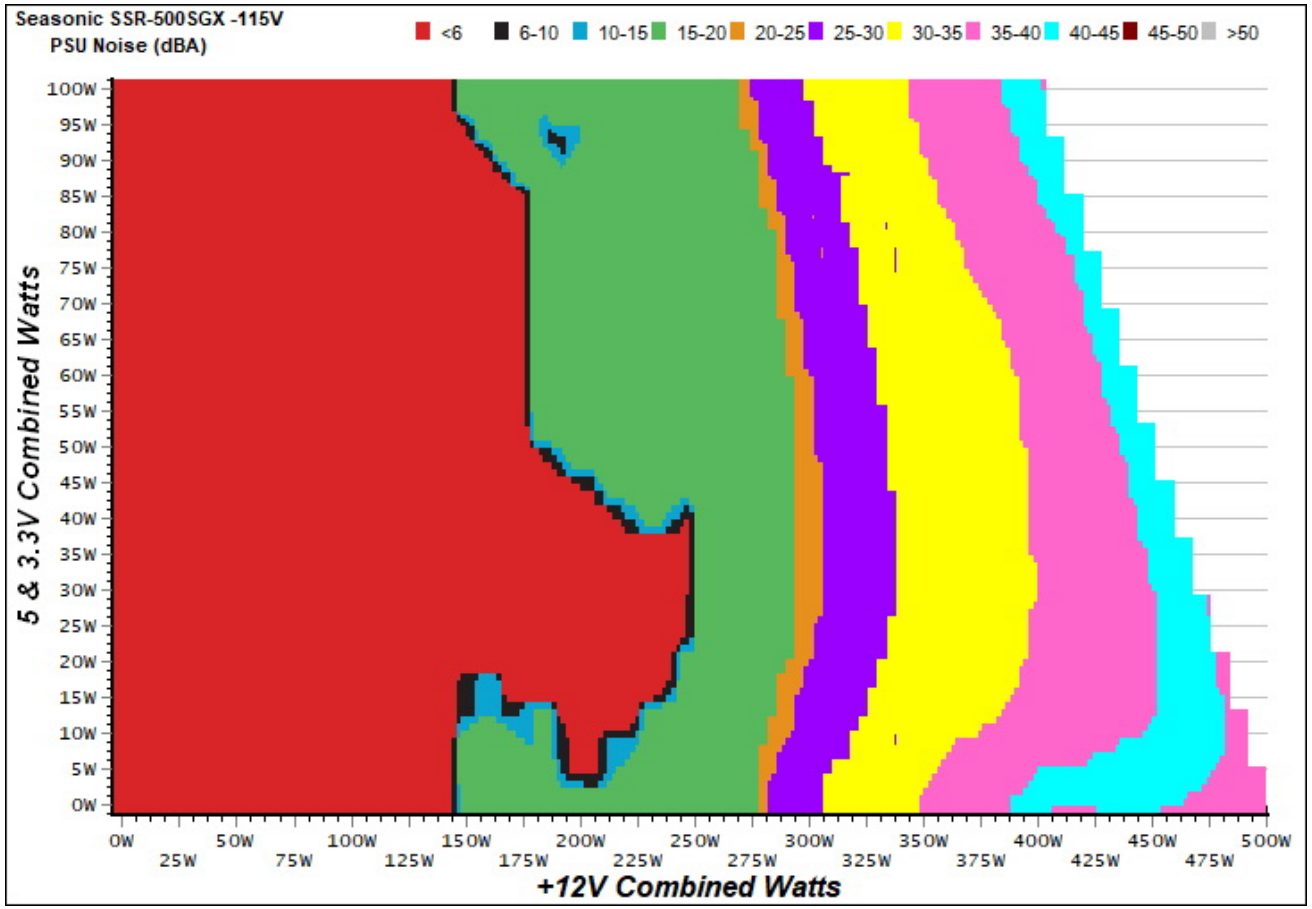
This graph depicts the PSU`s efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations.

230V



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.

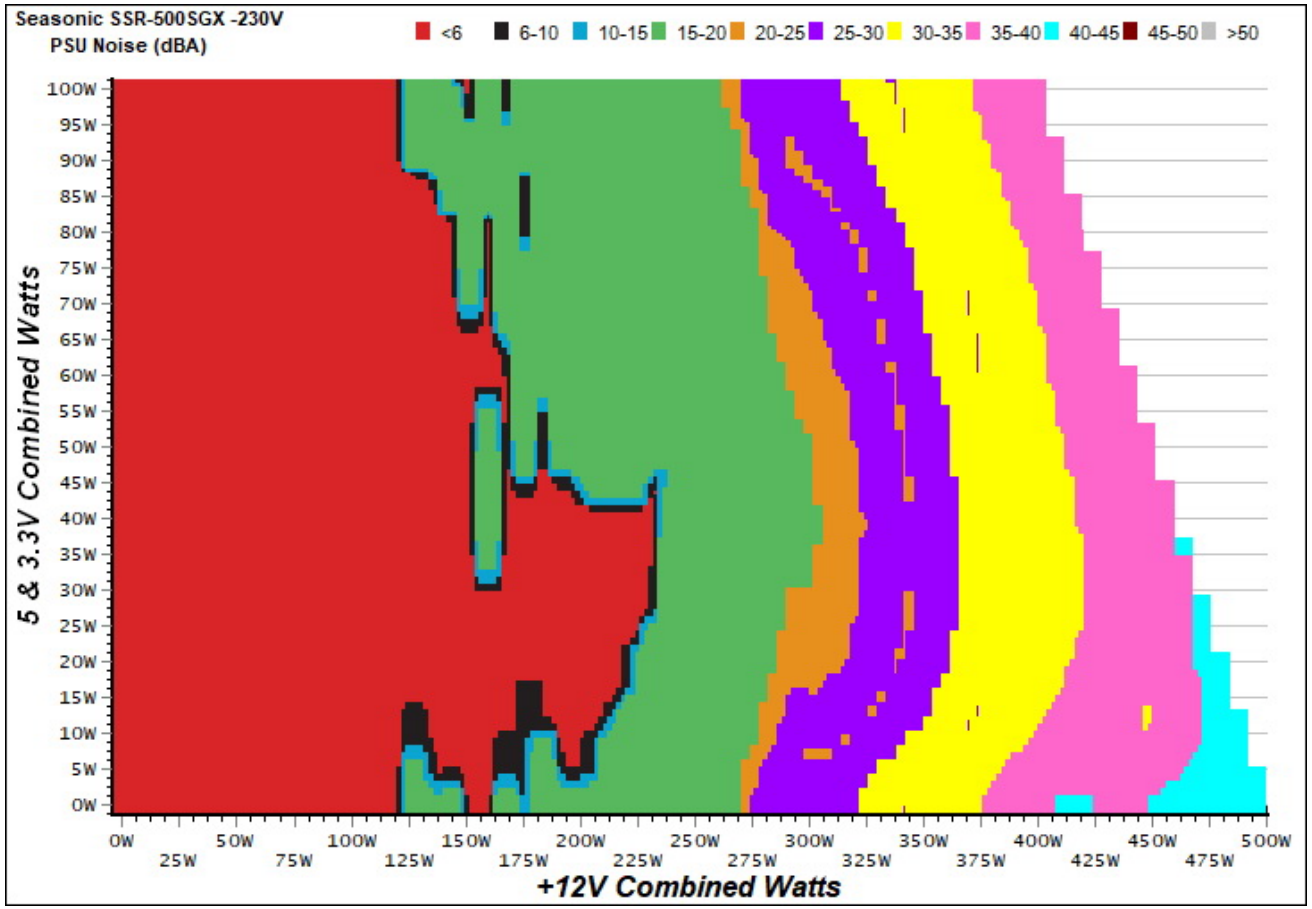
115V



□□

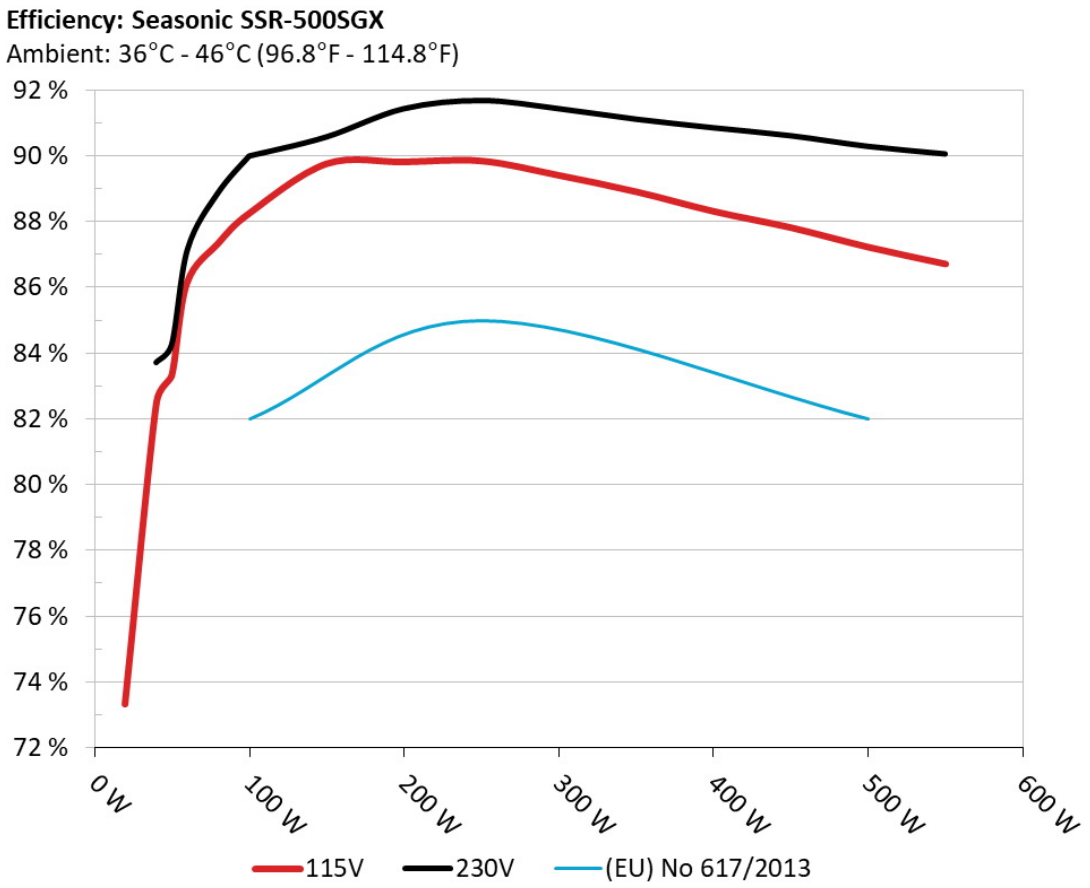
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

230V



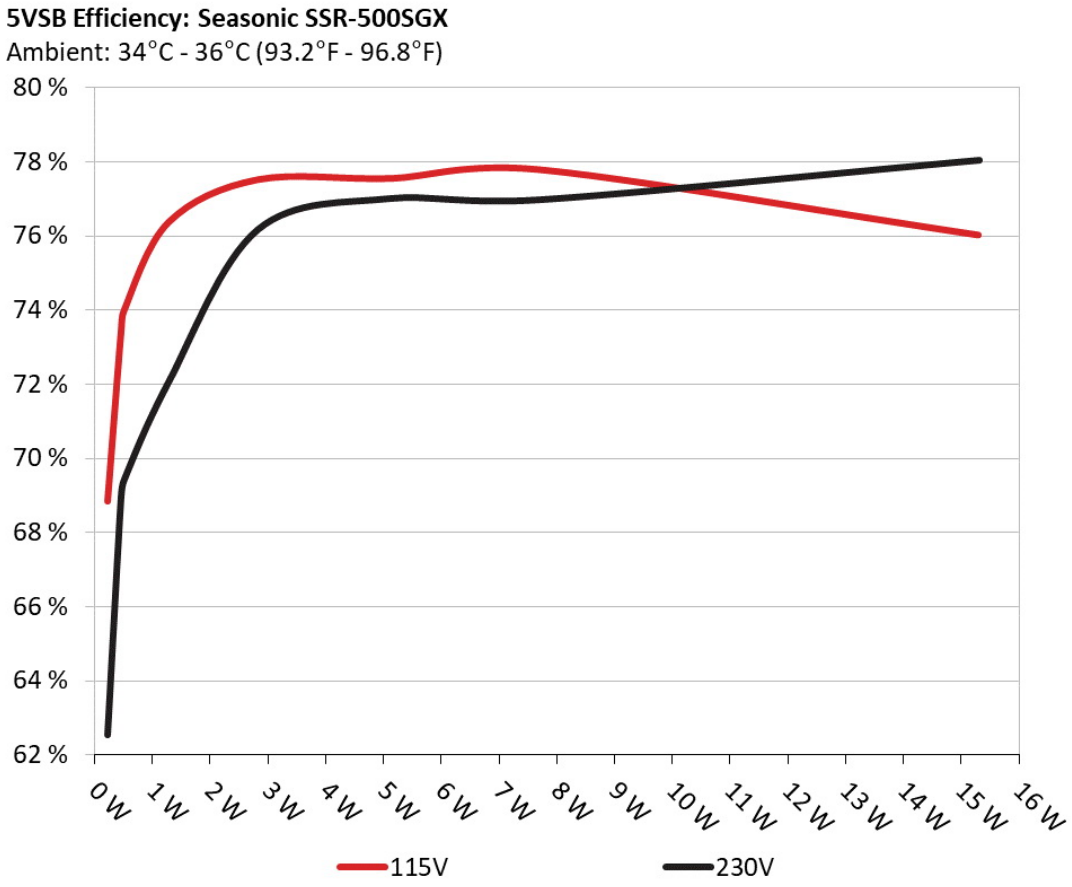
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance



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□□□□



□□

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input.

□□□□ □□ 5Vsb □□ (ErP Lot3/6 & CEC)

115V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.232	68.843%	0.055
	5.152V	0.337		115.09V
2	0.090A	0.464	73.418%	0.100
	5.151V	0.632		115.09V
3	0.550A	2.829	77.528%	0.335
	5.143V	3.649		115.09V
4	1.000A	5.136	77.560%	0.403
	5.136V	6.622		115.09V
5	1.500A	7.692	77.799%	0.437
	5.127V	9.887		115.09V
6	3.000A	15.290	76.032%	0.481
	5.096V	20.110		115.08V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.232	62.534%	0.018
	5.152V	0.371		230.26V
2	0.090A	0.464	68.945%	0.033
	5.151V	0.673		230.26V
3	0.550A	2.829	76.171%	0.161
	5.142V	3.714		230.24V
4	1.000A	5.136	77.013%	0.242
	5.135V	6.669		230.24V
5	1.500A	7.690	76.977%	0.297
	5.126V	9.990		230.25V
6	3.001A	15.306	78.044%	0.371
	5.101V	19.612		230.25V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	2.333A	2.000A	1.984A	0.975A	49.518	83.324%	0	<6.0	43.89°C	0.934
	11.973V	4.999V	3.320V	5.128V	59.428				39.40°C	115.09V
2	5.739A	3.002A	2.980A	1.172A	99.611	88.256%	0	<6.0	44.38°C	0.972
	11.975V	4.996V	3.318V	5.119V	112.866				39.75°C	115.09V
3	9.480A	3.503A	3.465A	1.370A	149.523	89.764%	0	<6.0	45.16°C	0.981
	11.976V	4.995V	3.317V	5.110V	166.574				40.07°C	115.08V
4	13.223A	4.004A	3.980A	1.568A	199.550	89.821%	939	19.8	40.60°C	0.985
	11.976V	4.994V	3.316V	5.101V	222.163				45.94°C	115.09V
5	16.630A	5.007A	4.976A	1.768A	249.682	89.851%	1014	23.2	41.18°C	0.988
	11.977V	4.994V	3.315V	5.093V	277.886				46.78°C	115.09V
6	20.034A	6.007A	5.973A	1.967A	299.761	89.414%	1338	33.2	41.95°C	0.987
	11.978V	4.993V	3.315V	5.084V	335.249				47.87°C	115.09V
7	23.441A	7.010A	6.969A	2.168A	349.889	88.914%	1489	36.7	42.31°C	0.988
	11.979V	4.992V	3.314V	5.074V	393.514				48.36°C	115.09V
8	26.851A	8.016A	7.966A	2.370A	400.017	88.317%	1797	41.5	42.71°C	0.989
	11.978V	4.990V	3.313V	5.065V	452.931				48.86°C	115.09V
9	30.657A	8.523A	8.452A	2.373A	449.759	87.826%	2028	44.1	43.11°C	0.990
	11.979V	4.989V	3.312V	5.059V	512.105				49.77°C	115.12V
10	34.231A	9.024A	8.971A	2.975A	499.788	87.232%	2082	44.1	44.26°C	0.991
	11.980V	4.987V	3.310V	5.043V	572.942				51.03°C	115.13V
11	38.404A	9.027A	8.971A	2.978A	549.815	86.720%	2084	44.1	46.09°C	0.992
	11.981V	4.986V	3.309V	5.038V	634.013				53.27°C	115.12V
CL1	0.140A	12.000A	11.998A	0.000A	101.367	83.622%	1245	31.4	41.74°C	0.973
	11.977V	4.995V	3.313V	5.124V	121.220				46.13°C	115.18V

CL2	41.008A	1.004A	0.997A	1.000A	504.765	88.169%	2089	44.1	44.76°C	0.991
	11.982V	4.992V	3.317V	5.088V	572.496				51.15°C	115.10V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	2.340A	2.000A	1.985A	0.975A	49.602	84.250%	0	<6.0	45.02°C	0.712
	11.972V	4.999V	3.320V	5.127V	58.875				39.46°C	230.26V
2	5.745A	3.002A	2.982A	1.173A	99.691	89.362%	0	<6.0	45.34°C	0.856
	11.975V	4.996V	3.318V	5.117V	111.559				39.59°C	230.27V
3	9.489A	3.503A	3.465A	1.370A	149.621	90.559%	935	19.7	40.45°C	0.907
	11.975V	4.995V	3.317V	5.109V	165.219				46.43°C	230.28V
4	13.231A	4.005A	3.981A	1.569A	199.644	91.417%	941	19.9	40.85°C	0.934
	11.975V	4.994V	3.316V	5.100V	218.388				46.93°C	230.28V
5	16.640A	5.007A	4.977A	1.768A	249.769	91.666%	1010	23.2	41.38°C	0.948
	11.975V	4.994V	3.315V	5.092V	272.476				47.77°C	230.29V
6	20.042A	6.010A	5.973A	1.968A	299.844	91.419%	1375	33.2	41.89°C	0.958
	11.977V	4.992V	3.314V	5.083V	327.988				48.39°C	230.29V
7	23.450A	7.013A	6.970A	2.169A	349.993	91.100%	1624	41.8	42.05°C	0.964
	11.978V	4.992V	3.314V	5.072V	384.184				49.17°C	230.30V
8	26.857A	8.015A	7.969A	2.370A	400.091	90.837%	1846	42.3	42.74°C	0.969
	11.978V	4.990V	3.313V	5.064V	440.449				49.90°C	230.30V
9	30.665A	8.520A	8.454A	2.373A	449.805	90.598%	2039	44.2	43.80°C	0.972
	11.978V	4.989V	3.311V	5.058V	496.483				51.26°C	230.31V
10	34.239A	9.023A	8.972A	2.975A	499.846	90.273%	2078	45.4	44.20°C	0.975
	11.979V	4.987V	3.310V	5.043V	553.705				52.40°C	230.31V
11	38.412A	9.027A	8.974A	2.978A	549.873	90.045%	2084	44.1	46.25°C	0.977
	11.980V	4.985V	3.309V	5.038V	610.667				54.73°C	230.32V
CL1	0.144A	11.999A	12.001A	0.000A	101.419	84.659%	1277	30.1	41.70°C	0.866
	11.976V	4.995V	3.313V	5.123V	119.797				47.97°C	230.32V

CL2	41.014A	1.003A	0.999A	1.000A	504.797	91.227%	2081	44.1	44.03°C	0.975
	11.981V	4.992V	3.317V	5.088V	553.344				52.42°C	230.32V

The results above are not used in the certification process

20-80□□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.194A	0.499A	0.477A	0.194A	19.373	73.341%	0	<6.0	0.816
	11.967V	5.008V	3.326V	5.146V	26.415				115.08V
2	2.466A	0.997A	0.989A	0.389A	39.796	82.532%	0	<6.0	0.919
	11.971V	5.004V	3.324V	5.140V	48.219				115.08V
3	3.668A	1.499A	1.471A	0.584A	59.298	86.131%	0	<6.0	0.949
	11.973V	5.001V	3.321V	5.135V	68.846				115.08V
4	4.936A	2.000A	1.987A	0.780A	79.698	87.354%	0	<6.0	0.962
	11.974V	4.999V	3.320V	5.129V	91.236				115.08V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	2.882A	0.501A	0.477A	0.195A	39.578	83.708%	0	<6.0	0.654
	11.964V	5.007V	3.326V	5.143V	47.281				230.25V
2	4.149A	1.000A	0.990A	0.389A	59.961	87.164%	0	<6.0	0.749
	11.971V	5.003V	3.324V	5.137V	68.791				230.25V
3	5.348A	1.499A	1.474A	0.585A	79.419	88.852%	0	<6.0	0.813
	11.972V	5.000V	3.321V	5.132V	89.383				230.24V
4	6.615A	2.000A	1.986A	0.780A	99.793	89.979%	0	<6.0	0.855
	11.974V	4.998V	3.319V	5.126V	110.907				230.24V

The results above are not used in the certification process

□□□

115V

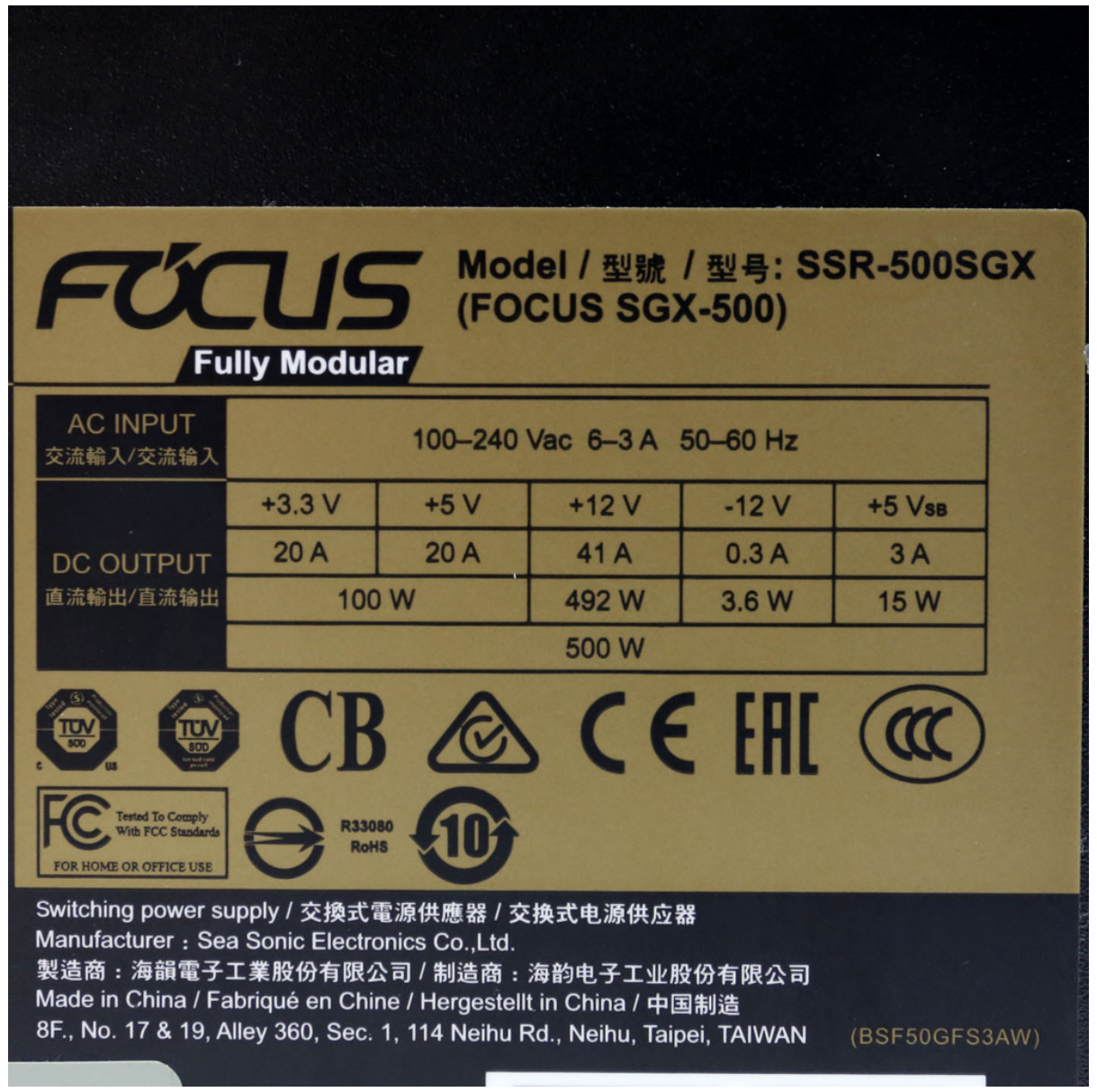
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.8 mV	9.2 mV	14.2 mV	9.8 mV	Pass
20% Load	13.5 mV	10.8 mV	15.1 mV	10.1 mV	Pass
30% Load	12.5 mV	11.9 mV	15.7 mV	10.4 mV	Pass
40% Load	12.6 mV	12.8 mV	16.0 mV	10.4 mV	Pass
50% Load	13.4 mV	14.7 mV	16.8 mV	10.7 mV	Pass
60% Load	14.8 mV	16.5 mV	17.8 mV	11.2 mV	Pass
70% Load	15.7 mV	17.7 mV	19.1 mV	11.6 mV	Pass
80% Load	17.1 mV	20.8 mV	21.6 mV	12.6 mV	Pass
90% Load	17.8 mV	22.7 mV	23.4 mV	12.8 mV	Pass
100% Load	26.3 mV	23.7 mV	23.9 mV	14.6 mV	Pass
110% Load	27.4 mV	24.7 mV	24.8 mV	15.6 mV	Pass
Crossload 1	22.0 mV	21.9 mV	23.2 mV	10.2 mV	Pass
Crossload 2	24.8 mV	14.5 mV	17.7 mV	13.4 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.9 mV	9.0 mV	14.7 mV	9.2 mV	Pass
20% Load	12.7 mV	10.5 mV	16.3 mV	9.4 mV	Pass
30% Load	11.7 mV	11.3 mV	15.4 mV	10.1 mV	Pass
40% Load	12.3 mV	12.3 mV	17.1 mV	10.7 mV	Pass
50% Load	12.8 mV	14.4 mV	16.9 mV	10.6 mV	Pass
60% Load	13.4 mV	15.8 mV	18.6 mV	11.4 mV	Pass
70% Load	14.6 mV	18.0 mV	44.5 mV	28.1 mV	Pass
80% Load	16.1 mV	20.7 mV	22.0 mV	11.6 mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	16.9 mV	21.4 mV	22.8 mV	11.9 mV	Pass
100% Load	26.8 mV	24.2 mV	22.9 mV	13.0 mV	Pass
110% Load	27.6 mV	24.7 mV	24.1 mV	13.6 mV	Pass
Crossload 1	20.9 mV	21.2 mV	22.7 mV	10.1 mV	Pass
Crossload 2	24.8 mV	14.3 mV	17.9 mV	12.5 mV	Pass

The results above are not used in the certification process

Seasonic Focus SGX 500W

Top side

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由 Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

Cybenetics 提供自愿性认证计划：电源方面有 ETA (效率)、 LAMBDA (噪声) 与 SAFE (安全与正确运行)；散热产品方面有 DELTA (机箱隔音) 与 PHI (风扇风量与静压)

CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus

www.cybenetics.com - info@cybenetics.com