Seasonic Focus SGX-500W (#2)

R2008AA164510249

Lab ID SS50001840

Certification ID 251840

Test Result Report ID: 21PS1840A

Certificate Issue Date: Apr 26, 2021

Scheme: ETA-EMI PSU

115V



230V



Scheme: LAMBDA PSU

115V



230V





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 (#2)
OEM/ODM	Seasonic
Serial Number	R2008AA164510249
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	SS50001840
Date of receipt	Feb 27, 2021
Testing Date	Apr 26, 2021
Report Issued Date	Apr 26, 2021
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 □□ (410mm)	1	1	18AWG	□
6+2pin PCIe□□ (410mm+110mm)	1	2	18AWG	□
SATA□□ (310mm+200mm+100mm)	1	3	18AWG	□
4-pin Molex (300mm+200mm+200mm)	1	3	18AWG	□
AC Power Cord (1400mm) - 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)	88.959%
Average Noise Output (>1450 Load Combinations)	25.45dBA
PF□□□ (>1450 Load Combinations)	0.977
Efficiency With 10W (≤500W) or 2% (>500W) Load	63.323%
□□□□□□	0.0435W
Non-Accredited	
12V Ripple (Full Load)	30.28mV
5V Ripple (Full Load)	14.36mV
3.3V Ripple (Full Load)	15.78mV
5VSB Ripple (Full Load)	17.76mV
12V Load Regulation	0.11%
5V Load Regulation	0.44%
3.3V Load Regulation	2.19%

5VSB Load Regulation	2.01%
Inrush Current	64.550A

230V

Accredited		
□□□□ (>1450 load combinations)		90.836%
Average Noise Output (>1450 Load Combinations)		25.53dBA
PF□□□ (>1450 Load Combinations)		0.916
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.0687W
Non-Accredited		
12V Ripple (Full Load)		32.14mV
5V Ripple (Full Load)		14.83mV
3.3V Ripple (Full Load)		17.40mV
5VSB Ripple (Full Load)		17.63mV
12V Load Regulation		0.05%
5V Load Regulation		0.42%
3.3V Load Regulation		0.84%
5VSB Load Regulation		1.88%
Inrush Current		81.240A
□□□□ & PG□□		25.60ms
AC Loss to PWR_OK Hold Up Time		21.60ms
PWR_OK Inactive to DC Loss Delay		4.00ms
PSU Timings: T1 (20% / 100%)	88.0ms	87.0ms
PSU Timings: T3 (20% / 100%)	311.0ms	310.0ms
OPP (24.61°C / 41.20°C)	139.97%	139.99%

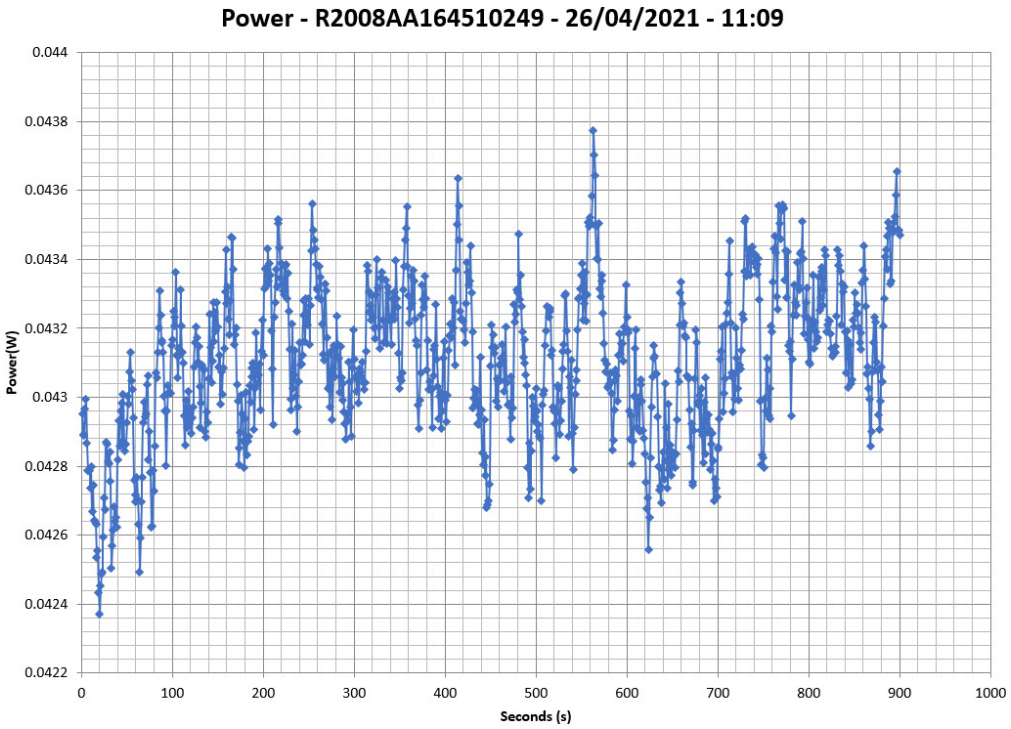
□□□□ & PG□□

Hold-Up Time (ms)	25.6
AC Loss to PWR_OK Hold Up Time (ms)	21.6

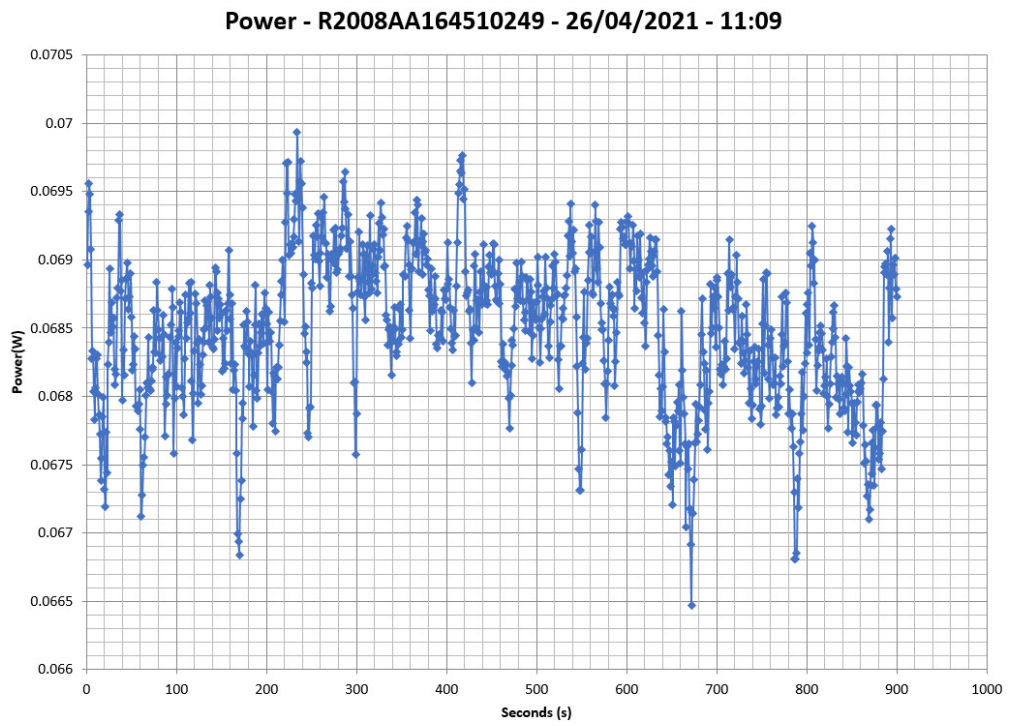
PWR_OK Inactive to DC Loss Delay (ms)	4

Graphs

115V



230V



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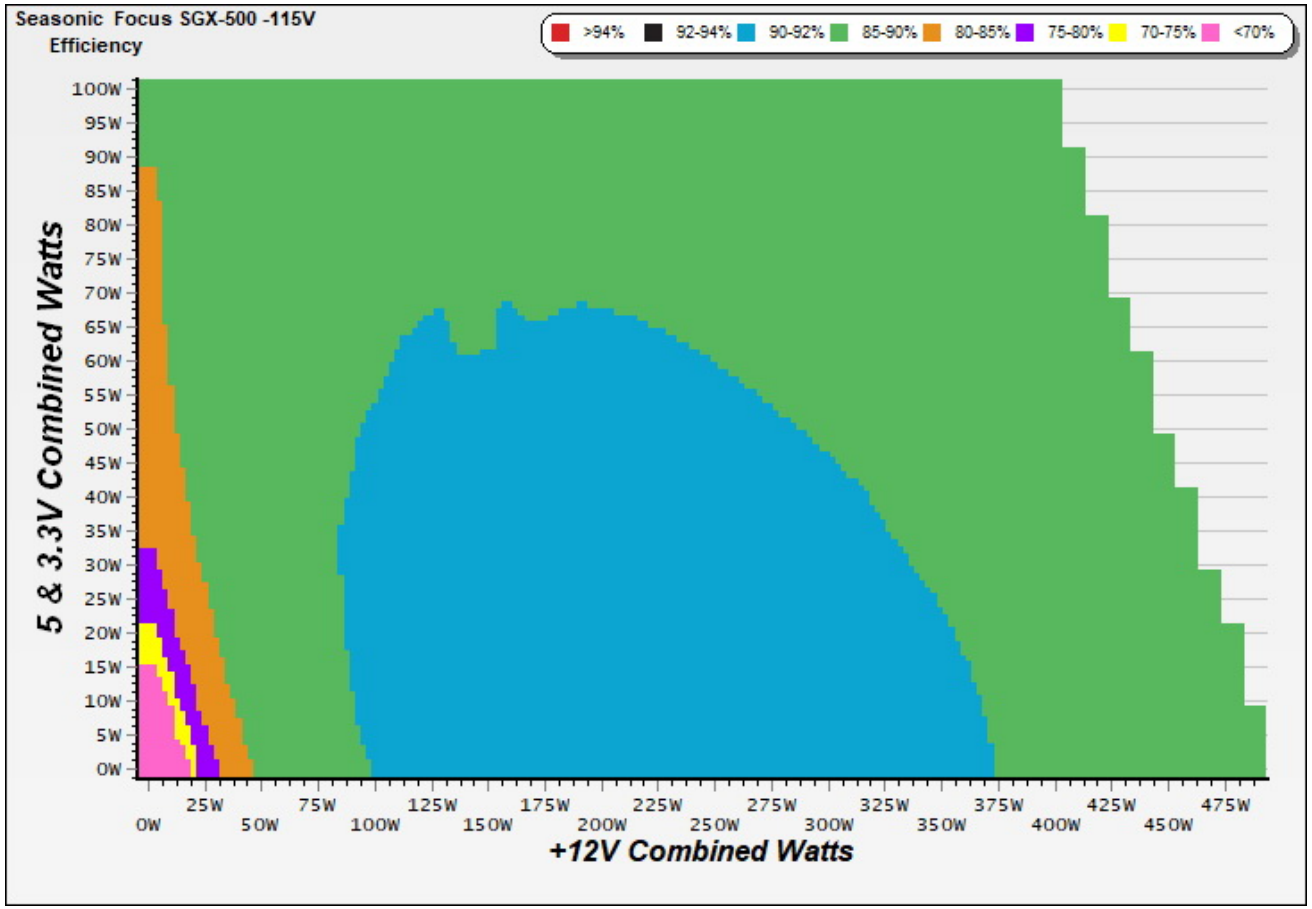
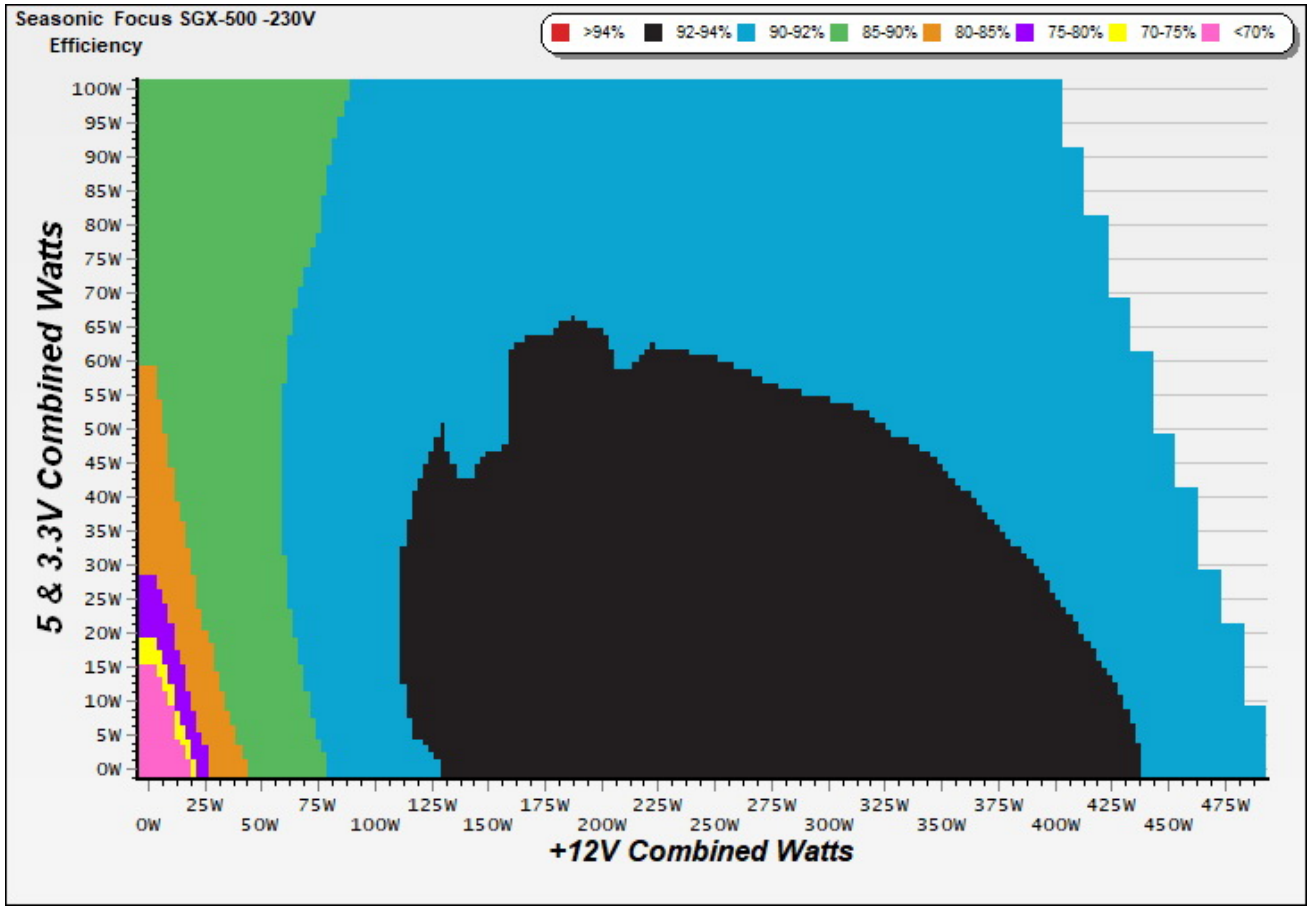
115V



□□

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

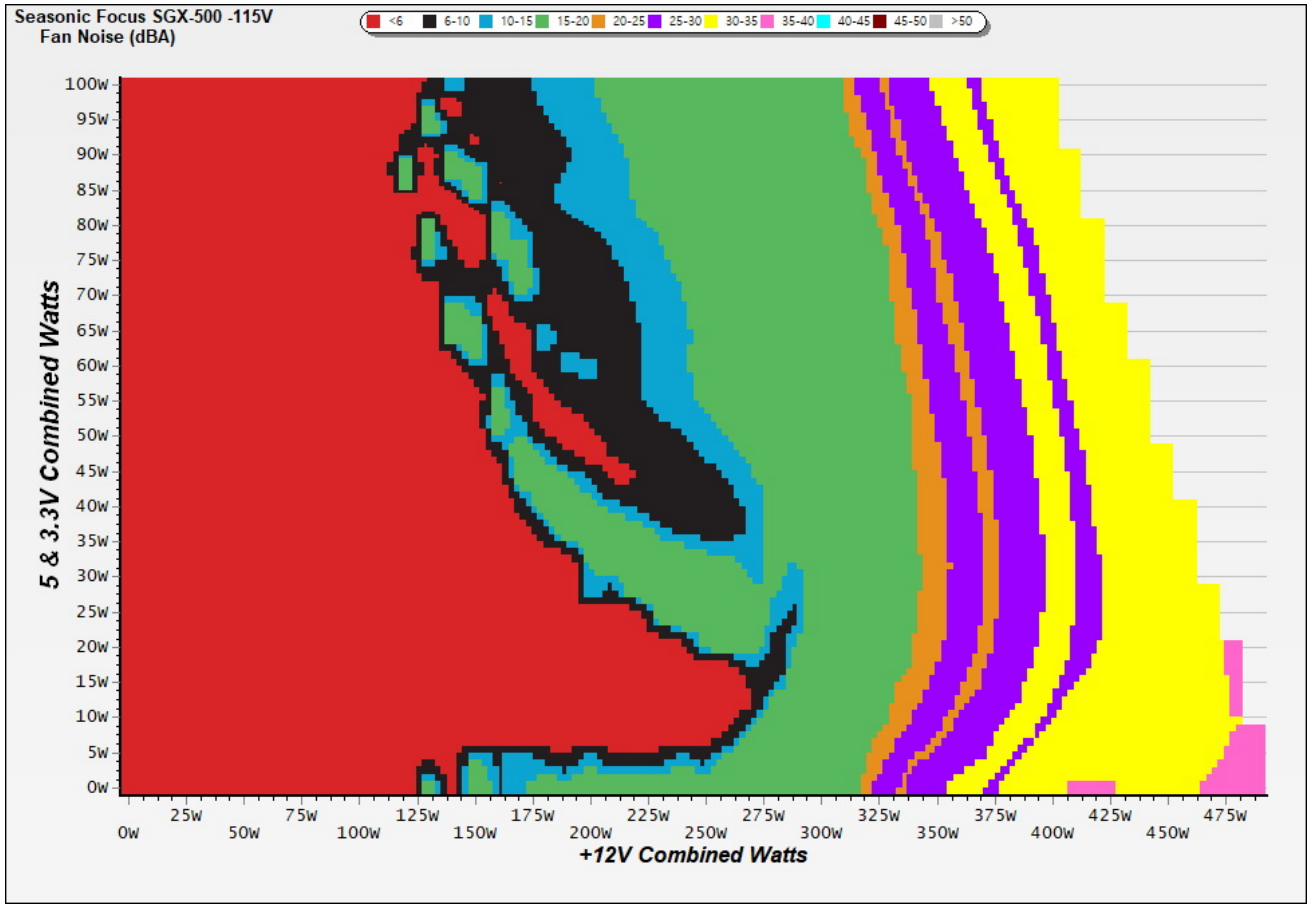
230V



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

□□□□□

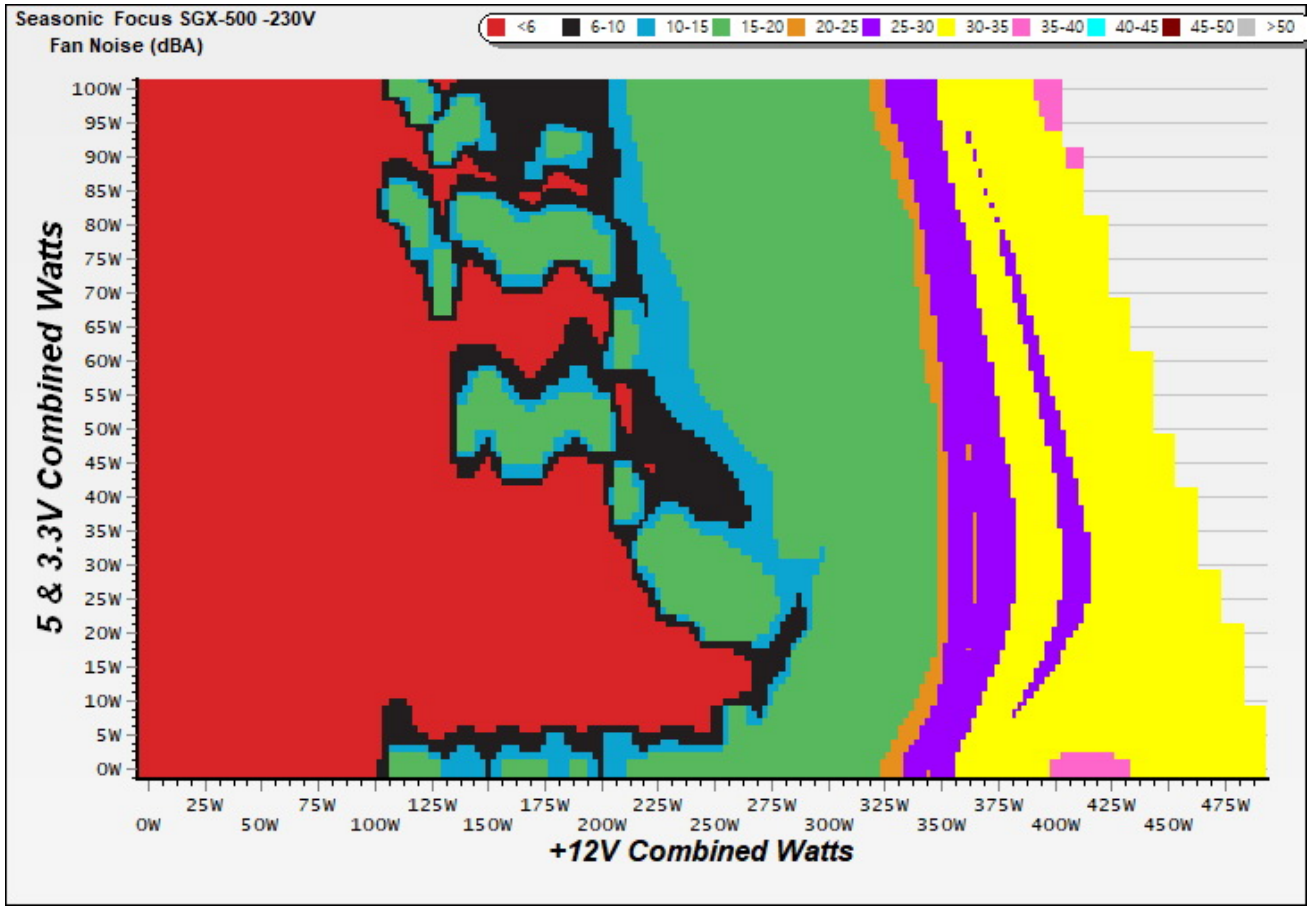
115V



□□

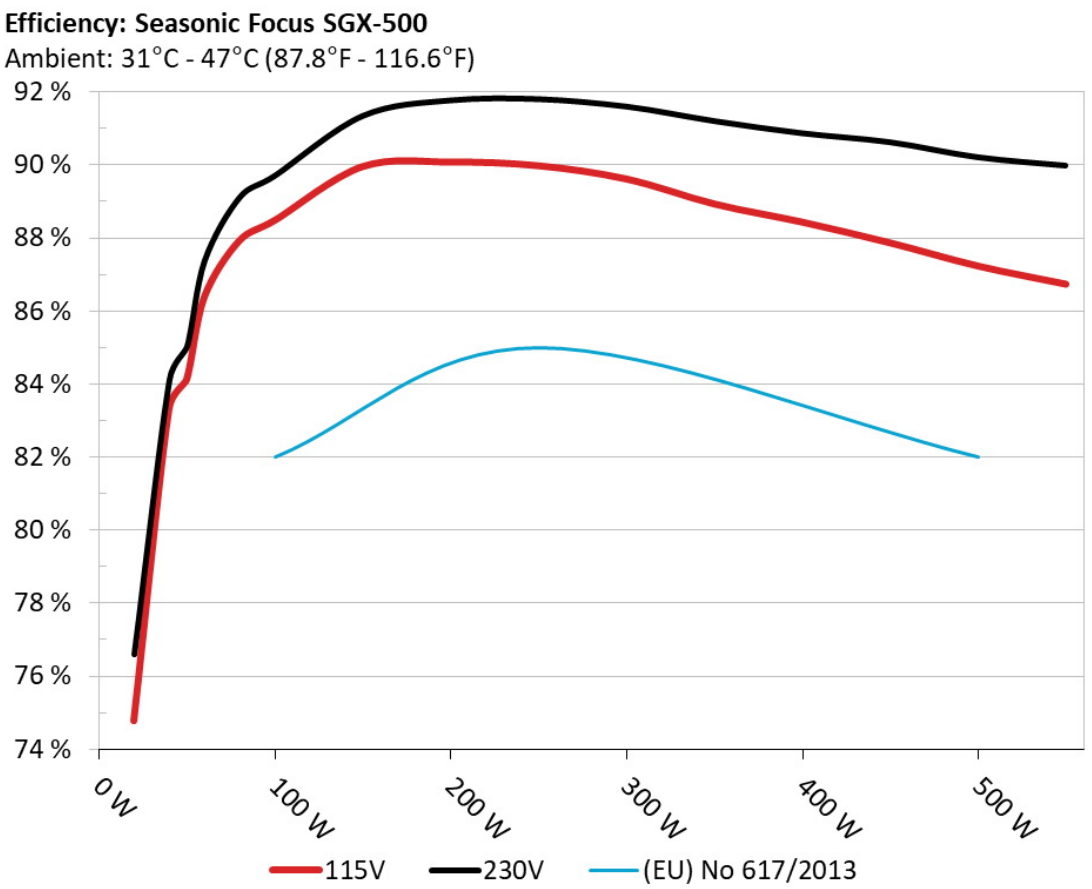
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

230V



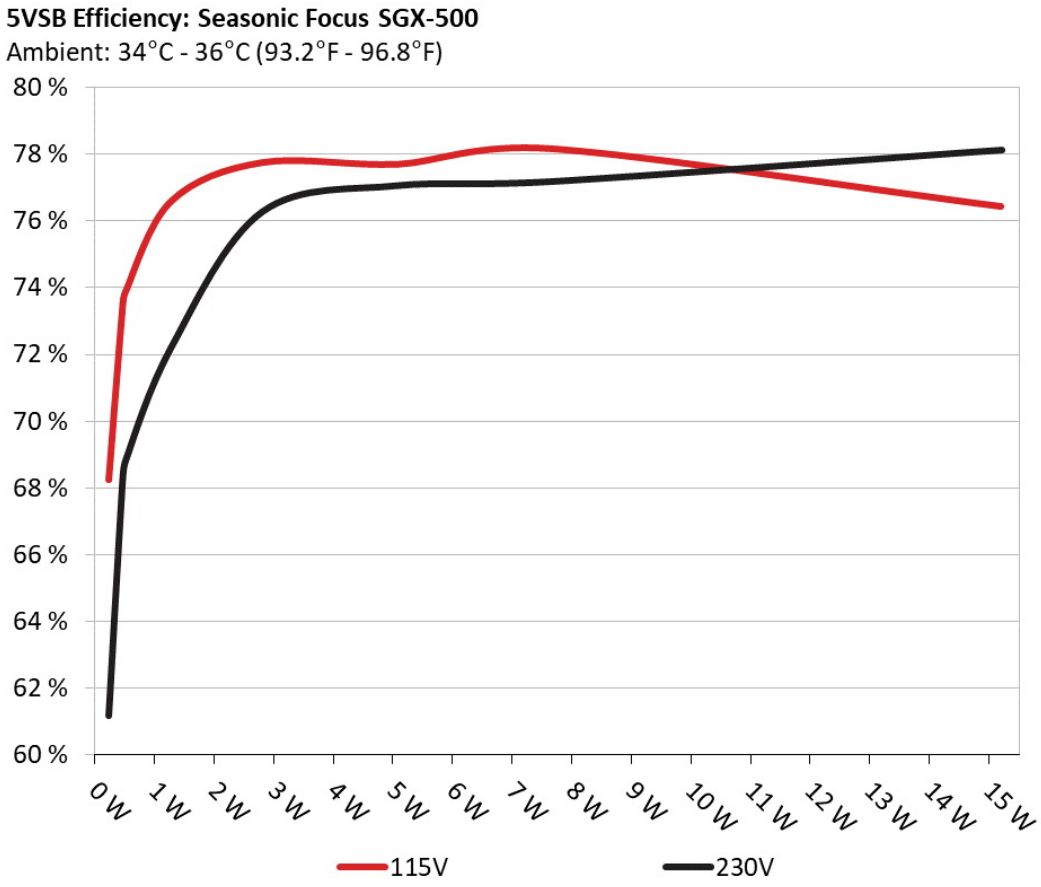
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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	0.230	68.249%	0.053
	5.123V	0.337		115.14V
2	0.090A	0.461	73.408%	0.097
	5.122V	0.628		115.14V
3	0.550A	2.812	77.744%	0.332
	5.114V	3.617		115.14V
4	1.000A	5.106	77.693%	0.402
	5.106V	6.572		115.15V
5	1.500A	7.647	78.158%	0.438
	5.098V	9.784		115.15V
6	2.999A	15.204	76.429%	0.489
	5.069V	19.893		115.15V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.230	61.170%	0.019
	5.122V	0.376		230.30V
2	0.090A	0.461	68.195%	0.033
	5.121V	0.676		230.30V
3	0.550A	2.812	76.289%	0.159
	5.113V	3.686		230.30V
4	1.000A	5.105	77.068%	0.240
	5.106V	6.624		230.31V
5	1.500A	7.646	77.186%	0.296
	5.097V	9.906		230.31V
6	2.999A	15.215	78.130%	0.371
	5.073V	19.474		230.31V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	2.360A	1.983A	1.985A	0.980A	49.986	84.133%	0	<6.0	36.38°C	0.930
	12.029V	5.042V	3.325V	5.101V	59.413				40.77°C	115.14V
2	10.397A	2.722A	1.502A	1.315A	100.418	88.503%	0	<6.0	26.71°C	0.629
	12.018V	5.041V	3.326V	5.107V	113.463				31.48°C	115.14V
3	9.468A	3.473A	3.479A	1.377A	149.937	89.966%	0	<6.0	36.58°C	0.983
	12.031V	5.039V	3.320V	5.084V	166.660				41.92°C	115.13V
4	13.198A	3.973A	3.978A	1.576A	199.975	90.091%	850	17.3	42.40°C	0.985
	12.031V	5.035V	3.318V	5.075V	221.970				48.96°C	115.13V
5	16.584A	4.968A	4.976A	1.776A	249.997	89.989%	952	20.1	42.63°C	0.986
	12.031V	5.032V	3.316V	5.066V	277.808				49.47°C	115.13V
6	19.960A	5.964A	5.976A	1.977A	299.941	89.626%	1129	27.6	43.35°C	0.985
	12.031V	5.031V	3.313V	5.057V	334.658				50.33°C	115.14V
7	23.351A	6.963A	7.098A	2.179A	350.033	88.941%	1500	36.2	43.49°C	0.985
	12.031V	5.028V	3.256V	5.046V	393.556				51.04°C	115.14V
8	26.722A	7.962A	7.987A	2.382A	399.867	88.443%	1642	40.5	44.46°C	0.985
	12.031V	5.026V	3.304V	5.036V	452.120				52.74°C	115.14V
9	30.515A	8.458A	8.478A	2.385A	449.602	87.879%	1909	43.2	44.77°C	0.985
	12.031V	5.024V	3.302V	5.030V	511.616				53.55°C	115.15V
10	34.075A	8.960A	9.000A	2.990A	499.633	87.243%	2052	44.4	45.66°C	0.985
	12.031V	5.023V	3.299V	5.015V	572.690				55.80°C	115.15V
11	38.229A	8.961A	9.003A	2.994A	549.641	86.745%	2108	44.8	46.46°C	0.986
	12.032V	5.022V	3.298V	5.010V	633.631				57.91°C	115.14V
CL1	0.116A	11.999A	11.998A	0.000A	101.435	84.177%	1159	29.5	46.47°C	0.975
	12.035V	5.034V	3.303V	5.100V	120.502				53.26°C	115.17V

CL2	40.996A	1.000A	1.000A	1.000A	506.721	88.176%	2104	44.6	45.67°C	0.985
	12.034V	5.032V	3.316V	5.057V	574.672				57.56°C	115.15V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	2.360A	1.983A	1.986A	0.980A	49.983	85.033%	0	<6.0	38.52°C	0.664
	12.028V	5.042V	3.324V	5.100V	58.781				42.96°C	230.27V
2	5.744A	2.976A	2.982A	1.178A	99.991	89.717%	0	<6.0	38.74°C	0.838
	12.029V	5.040V	3.320V	5.091V	111.452				43.36°C	230.27V
3	9.468A	3.473A	3.481A	1.377A	149.937	91.354%	0	<6.0	39.43°C	0.903
	12.031V	5.039V	3.318V	5.083V	164.127				44.54°C	230.27V
4	13.198A	3.973A	3.981A	1.576A	199.968	91.779%	597	7.8	41.78°C	0.932
	12.031V	5.036V	3.316V	5.075V	217.881				47.59°C	230.27V
5	16.584A	4.969A	4.980A	1.776A	249.992	91.811%	950	19.9	42.65°C	0.947
	12.030V	5.032V	3.313V	5.066V	272.290				49.26°C	230.27V
6	19.960A	5.965A	5.982A	1.977A	299.938	91.608%	1135	28.1	43.45°C	0.956
	12.031V	5.031V	3.310V	5.057V	327.414				50.54°C	230.27V
7	23.348A	6.961A	6.985A	2.178A	349.999	91.211%	1456	33.5	43.85°C	0.962
	12.031V	5.029V	3.307V	5.048V	383.724				51.85°C	230.27V
8	26.708A	7.960A	7.987A	2.380A	399.712	90.878%	1625	39.5	43.91°C	0.966
	12.031V	5.027V	3.304V	5.039V	439.835				52.54°C	230.27V
9	30.502A	8.456A	8.476A	2.383A	449.428	90.635%	1858	41.8	44.64°C	0.969
	12.031V	5.025V	3.302V	5.034V	495.865				54.26°C	230.27V
10	34.059A	8.956A	8.998A	2.988A	499.448	90.221%	2046	44.2	44.65°C	0.971
	12.032V	5.024V	3.300V	5.019V	553.582				55.56°C	230.27V
11	38.218A	8.959A	9.001A	2.990A	549.464	89.993%	2097	44.4	46.19°C	0.973
	12.032V	5.022V	3.298V	5.014V	610.563				57.97°C	230.27V
CL1	0.115A	11.998A	11.997A	0.000A	101.410	85.692%	935	19.2	39.73°C	0.850
	12.033V	5.034V	3.304V	5.101V	118.342				46.20°C	230.27V

CL2	40.981A	1.000A	1.000A	1.000A	506.456	91.240%	1957	43.8	43.18°C	0.971
	12.032V	5.031V	3.317V	5.060V	555.082				53.55°C	230.27V

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	1.233A	0.495A	0.495A	0.195A	19.978	74.782%	0	<6.0	0.762
	12.024V	5.046V	3.331V	5.118V	26.715				115.14V
2	2.468A	0.991A	0.991A	0.391A	39.967	83.332%	0	<6.0	0.904
	12.024V	5.045V	3.329V	5.112V	47.961				115.14V
3	3.705A	1.488A	1.488A	0.587A	59.998	86.389%	0	<6.0	0.947
	12.026V	5.041V	3.326V	5.107V	69.451				115.14V
4	4.935A	1.984A	1.985A	0.784A	79.950	87.935%	0	<6.0	0.965
	12.027V	5.041V	3.324V	5.101V	90.919				115.14V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.233A	0.495A	0.495A	0.195A	19.974	76.590%	0	<6.0	0.448
	12.028V	5.047V	3.330V	5.117V	26.079				230.28V
2	2.466A	0.991A	0.991A	0.391A	39.963	84.118%	0	<6.0	0.599
	12.028V	5.046V	3.328V	5.112V	47.508				230.29V
3	3.704A	1.487A	1.488A	0.587A	59.995	87.385%	0	<6.0	0.710
	12.028V	5.042V	3.325V	5.106V	68.656				230.28V
4	4.934A	1.984A	1.986A	0.784A	79.947	89.122%	0	<6.0	0.788
	12.028V	5.041V	3.323V	5.101V	89.705				230.27V

The results above are not used in the certification process

□□□□

115V

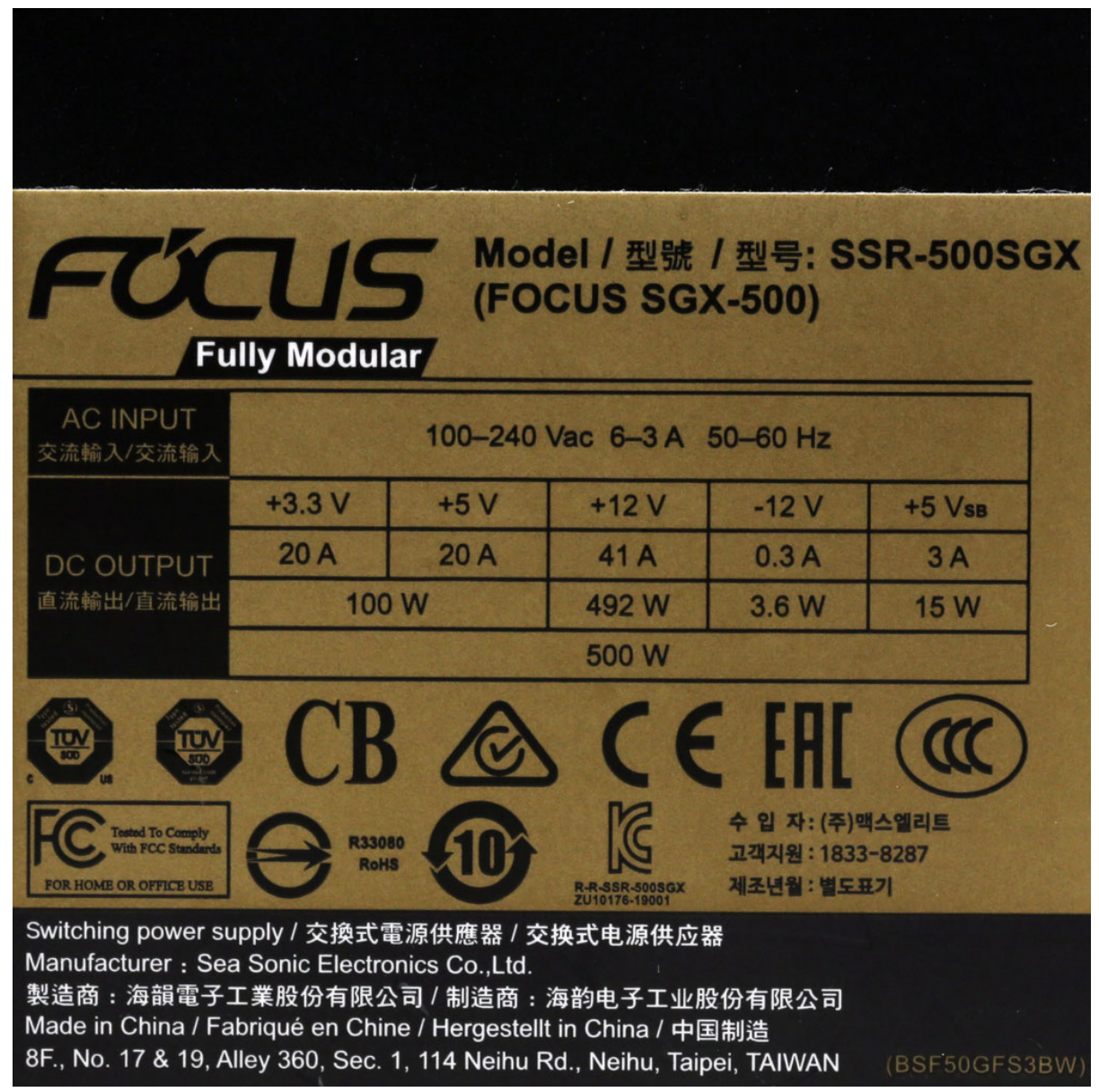
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.10mV	8.11mV	7.19mV	10.83mV	Pass
20% Load	5.52mV	7.18mV	6.23mV	7.55mV	Pass
30% Load	13.72mV	9.25mV	9.13mV	11.49mV	Pass
40% Load	14.27mV	9.48mV	9.81mV	12.55mV	Pass
50% Load	15.84mV	10.60mV	10.56mV	13.18mV	Pass
60% Load	15.94mV	11.00mV	11.67mV	13.63mV	Pass
70% Load	17.54mV	11.66mV	12.68mV	13.05mV	Pass
80% Load	18.90mV	12.25mV	14.37mV	14.64mV	Pass
90% Load	20.27mV	12.37mV	14.75mV	14.82mV	Pass
100% Load	30.28mV	14.36mV	15.78mV	17.76mV	Pass
110% Load	31.25mV	14.45mV	16.64mV	18.20mV	Pass
Crossload1	19.99mV	11.10mV	15.82mV	11.66mV	Pass
Crossload2	29.03mV	12.29mV	11.17mV	17.08mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	14.74mV	8.20mV	7.43mV	11.28mV	Pass
20% Load	18.54mV	8.65mV	8.62mV	11.87mV	Pass
30% Load	19.19mV	9.10mV	9.28mV	11.99mV	Pass
40% Load	20.22mV	9.79mV	9.81mV	12.72mV	Pass
50% Load	21.80mV	10.95mV	10.82mV	12.96mV	Pass
60% Load	23.77mV	11.49mV	12.01mV	13.59mV	Pass
70% Load	25.47mV	12.30mV	12.84mV	14.38mV	Pass
80% Load	27.23mV	12.97mV	15.45mV	14.70mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	28.90mV	13.18mV	15.82mV	14.73mV	Pass
100% Load	32.14mV	14.83mV	17.40mV	17.63mV	Pass
110% Load	32.42mV	15.41mV	17.49mV	17.06mV	Pass
Crossload1	19.99mV	11.07mV	16.97mV	12.55mV	Pass
Crossload2	30.40mV	12.98mV	11.97mV	15.80mV	Pass

The results above are not used in the certification process

Seasonic Focus SGX-500W (#2)

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

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