

Anex

Seasonic Focus GX-1000 ATX3.0

Lab ID#: SS10002239
 Receipt Date: Aug 17, 2023
 Test Date: Sep 18, 2023

Report: 23PS2239A
 Report Date: Sep 19, 2023

DUT INFORMATION	
Brand	Seasonic
Manufacturer (OEM)	Seasonic
Series	Focus GX
Model Number	SSR-1000FX
Serial Number	
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	13-6.5
Rated Frequency (Hz)	50-60
Rated Power (W)	1000
Type	ATX12V
Cooling	135mm Fluid Dynamic Bearing Fan (HA13525H12F-Z)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

TEST EQUIPMENT	
Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P
Power Analyzers	RS HMC8015, N4L PPA1530, N4L PPA5530
Oscilloscopes	Picoscope 4444, Rigol DS7014, 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, Keithley 2015 - THD
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Isolation Transformer	4kVA

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Seasonic Focus GX-1000 ATX3.0

RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.0 PSU Power Excursion	✓

115V

Average Efficiency	88.916%
Efficiency With 10W (≤500W) or 2% (>500W)	72.451
Average Efficiency 5VSB	76.118%
Standby Power Consumption (W)	0.0505000
Average PF	0.977
Avg Noise Output	29.47 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A-

230V

Average Efficiency	91.061%
Average Efficiency 5VSB	74.844%
Standby Power Consumption (W)	0.1598000
Average PF	0.941
Avg Noise Output	29.46 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A-

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	83	3	0.3
	Watts	125		996	15	3.6
Total Max. Power (W)		1000				

HOLD-UP TIME & POWER OK SIGNAL (230V)

Hold-Up Time (ms)	21.4
AC Loss to PWR_OK Hold Up Time (ms)	16.4
PWR_OK Inactive to DC Loss Delay (ms)	5

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (620mm)	1	1	16-18AWG	No
4+4 pin EPS12V (610mm)	2	2	16AWG	No
6+2 pin PCIe (750mm)	3	3	16AWG	No
12+4 pin PCIe (750mm) (600W)	1	1	16-28AWG	No
SATA (510mm+155mm+155mm+155mm)	2	8	18AWG	No
SATA 3.3 (410mm+160mm)	1	2	18AWG	No
4-pin Molex (450mm+125mm+125mm)	1	3	18AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

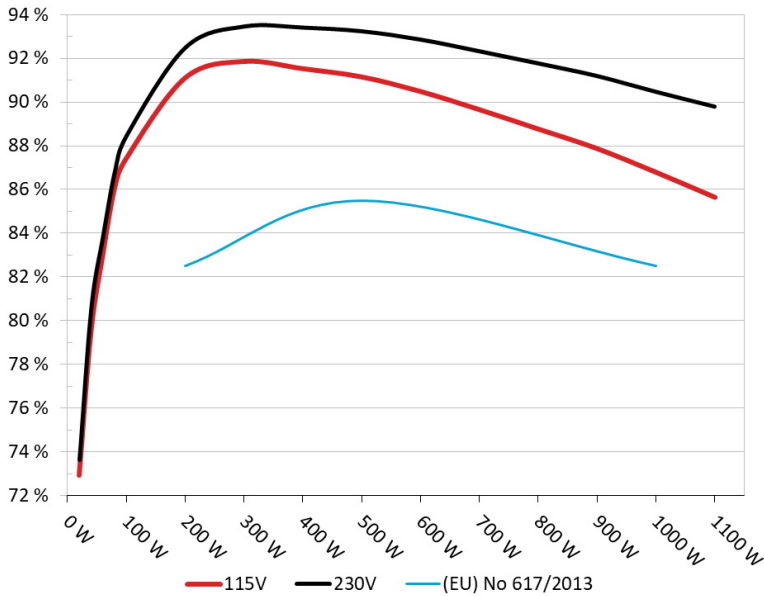
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Seasonic Focus GX-1000 ATX3.0

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



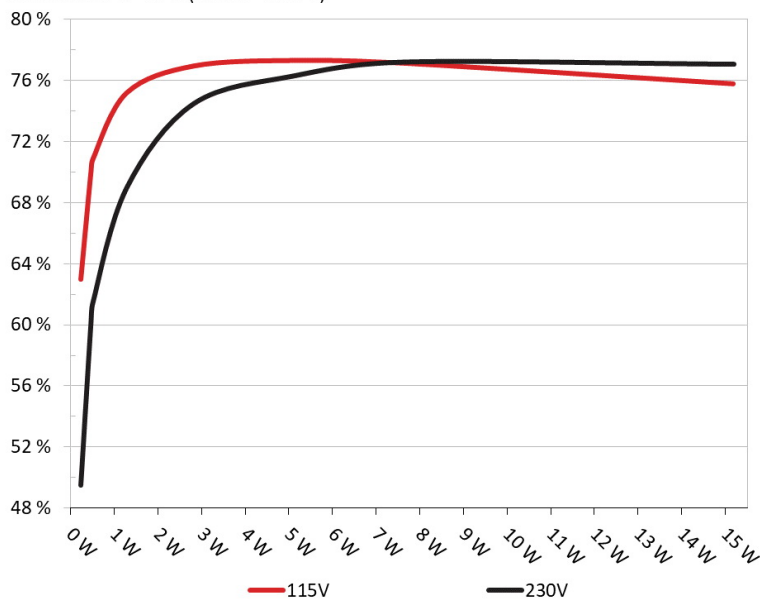
INFO

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 Focus GX-1000 ATX3.0

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

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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	62.481%	0.035
	5.137V	0.37W		114.91V
2	0.09A	0.462W	69.493%	0.062
	5.136V	0.665W		114.92V
3	0.55A	2.819W	76.441%	0.27
	5.125V	3.688W		114.92V
4	1A	5.115W	76.803%	0.37
	5.114V	6.66W		114.91V
5	1.5A	7.653W	76.619%	0.42
	5.102V	9.989W		114.91V
6	3A	15.18W	75.279%	0.492
	5.06V	20.165W		114.91V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	48.999%	0.013
	5.137V	0.473W		229.88V
2	0.09A	0.462W	59.602%	0.022
	5.135V	0.776W		229.88V
3	0.55A	2.818W	73.998%	0.103
	5.124V	3.807W		229.88V
4	1A	5.114W	75.815%	0.17
	5.114V	6.745W		229.88V
5	1.5A	7.653W	76.722%	0.223
	5.101V	9.976W		229.88V
6	3A	15.191W	76.582%	0.335
	5.064V	19.838W		229.88V

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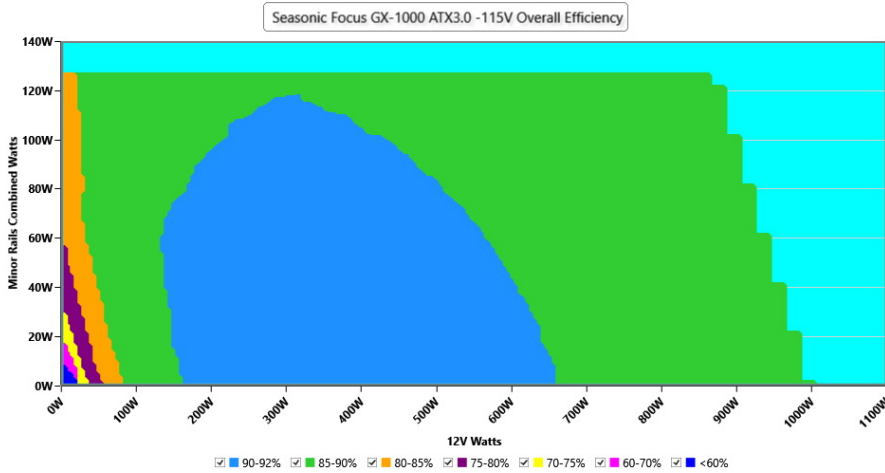
115V

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PAGE 6/16

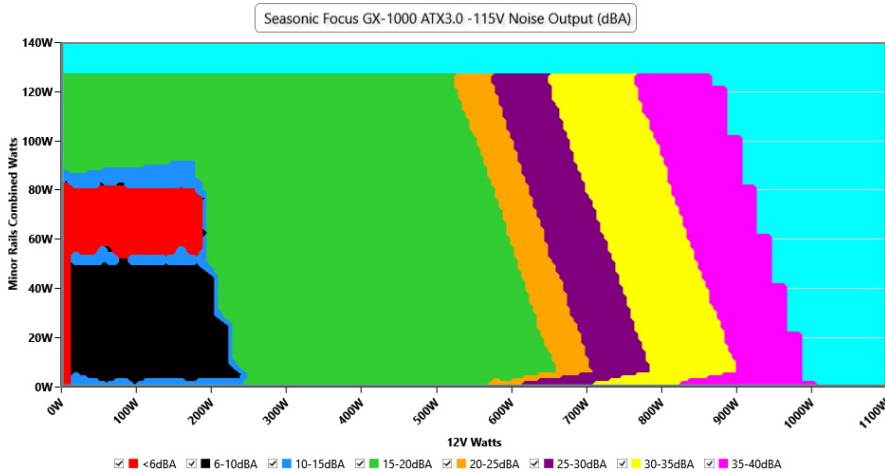
EFFICIENCY GRAPH 115V



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

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VAMPIRE POWER -115V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.91 V	114.82 V	113.85 V	115.01 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.95 Hz	59.40 Hz	60.06 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.421	1.419	1.340	1.424	1.490	PASS
Mains Voltage THD:	0.32 %	0.25 %	N/A	0.41 %	2.00 %	PASS
Real Power:	0.051 W	-0.003 W	N/A	0.092 W	N/A	N/A
Apparent Power:	10.810 W	10.782 W	N/A	10.844 W	N/A	N/A
Power Factor:	0.006	N/A	N/A	N/A	N/A	N/A

INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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10-110% 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
10%	6.462A	1.987A	1.982A	0.98A	99.989	86.931%	0	<6.0	44.69°C	0.945
	12.131V	5.033V	3.331V	5.103V	115.018				40.41°C	114.88V
20%	13.956A	2.982A	2.974A	1.179A	199.938	90.618%	0	<6.0	45.31°C	0.969
	12.112V	5.03V	3.328V	5.09V	220.639				40.59°C	114.85V
30%	21.792A	3.48A	3.472A	1.379A	299.982	91.373%	0	<6.0	46.39°C	0.977
	12.111V	5.028V	3.327V	5.078V	328.306				41.3°C	114.82V
40%	29.568A	3.98A	3.97A	1.579A	399.573	91.042%	664	15.9	41.8°C	0.982
	12.120V	5.026V	3.325V	5.066V	438.884				47.38°C	114.78V
50%	37.037A	4.977A	4.966A	1.781A	499.256	90.668%	664	15.9	42.18°C	0.983
	12.117V	5.023V	3.323V	5.054V	550.645				48.26°C	114.75V
60%	44.559A	5.977A	5.963A	1.984A	599.761	89.997%	660	15.7	42.8°C	0.985
	12.118V	5.02V	3.321V	5.042V	666.423				49.37°C	114.7V
70%	52.009A	6.977A	6.962A	2.187A	699.487	89.168%	823	22.9	43.33°C	0.987
	12.121V	5.017V	3.318V	5.029V	784.461				50.38°C	114.67V
80%	59.521A	7.978A	7.962A	2.291A	799.514	88.28%	1018	29.9	43.98°C	0.988
	12.123V	5.015V	3.316V	5.019V	905.662				52.01°C	114.62V
90%	67.360A	8.478A	8.448A	2.395A	899.292	87.385%	1194	34.4	44.37°C	0.99
	12.126V	5.012V	3.314V	5.01V	1029.123				53.45°C	114.59V
100%	74.989A	8.98A	8.967A	3.007A	999.278	86.304%	1536	41.8	45.54°C	0.991
	12.130V	5.01V	3.312V	4.987V	1157.853				55.57°C	114.55V
110%	82.549A	9.983A	10.061A	3.012A	1099.92	85.149%	1957	51.5	46.76°C	0.991
	12.134V	5.008V	3.31V	4.98V	1291.764				57.69°C	114.49V
CL1	0.114A	15.025A	14.973A	0A	126.29	83.986%	620	13.5	40.53°C	0.958
	12.138V	5.011V	3.313V	5.118V	150.37				46.02°C	114.87V
CL2	0.114A	24.935A	0A	0A	126.235	82.277%	768	20.7	40.23°C	0.958
	12.133V	5.007V	3.32V	5.121V	153.425				47.33°C	114.87V
CL3	0.114A	0A	24.911A	0A	83.899	76.256%	765	20.5	40.12°C	0.945
	12.148V	5.017V	3.312V	5.121V	110.023				49.14°C	114.88V
CL4	82.552A	0A	0A	0A	999.884	87.267%	1397	38.8	45.12°C	0.99
	12.112V	5.025V	3.325V	5.069V	1145.787				56.1°C	114.55V

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20-80W 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
20W	1.234A	0.496A	0.495A	0.195A	20.004	72.418%	0	<6.0	39.79°C	0.799
	12.031V	5.039V	3.334V	5.129V	27.623				36.72°C	114.93V
40W	2.720A	0.695A	0.693A	0.293A	40.004	78.99%	0	<6.0	40.48°C	0.891
	12.021V	5.038V	3.333V	5.125V	50.641				37.18°C	114.91V
60W	4.167A	0.893A	0.891A	0.391A	59.999	82.518%	0	<6.0	42.22°C	0.924
	12.126V	5.037V	3.333V	5.121V	72.71				38.39°C	114.9V
80W	5.632A	1.092A	1.089A	0.489A	79.94	85.551%	0	<6.0	43.09°C	0.937
	12.128V	5.035V	3.332V	5.117V	93.44				39.16°C	114.89V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.21mV	8.58mV	9.62mV	16.73mV	Pass
20% Load	16.27mV	11.29mV	11.05mV	17.29mV	Pass
30% Load	16.06mV	10.07mV	10.54mV	21.23mV	Pass
40% Load	17.70mV	11.55mV	12.38mV	20.92mV	Pass
50% Load	19.24mV	13.90mV	13.81mV	23.12mV	Pass
60% Load	20.21mV	13.28mV	14.27mV	25.57mV	Pass
70% Load	21.49mV	14.15mV	14.43mV	25.42mV	Pass
80% Load	23.89mV	16.25mV	16.22mV	25.27mV	Pass
90% Load	23.33mV	18.49mV	17.04mV	27.77mV	Pass
100% Load	29.16mV	20.65mV	19.73mV	35.58mV	Pass
110% Load	30.19mV	23.24mV	22.48mV	36.15mV	Pass
Crossload1	27.59mV	11.70mV	12.31mV	17.36mV	Pass
Crossload2	17.34mV	19.87mV	11.10mV	16.27mV	Pass
Crossload3	11.72mV	10.68mV	16.37mV	17.19mV	Pass
Crossload4	29.30mV	18.31mV	19.42mV	38.96mV	Pass

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PAGE 10/16

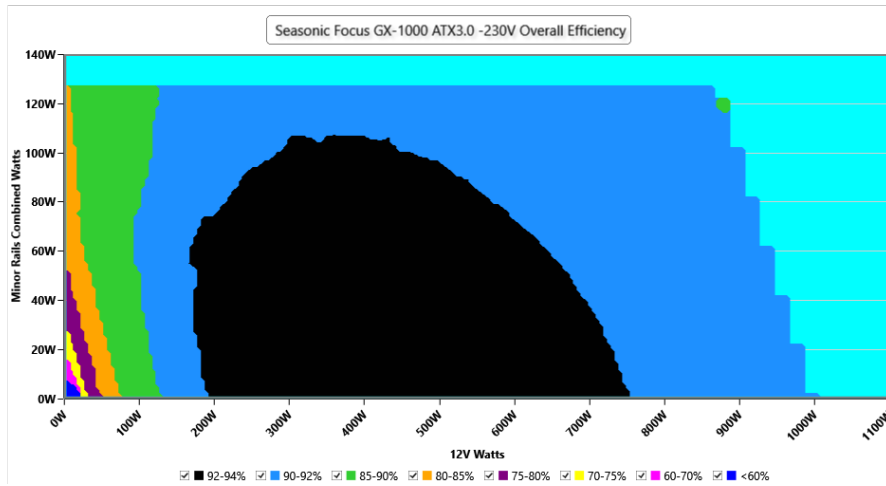
230V

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PAGE 11/16

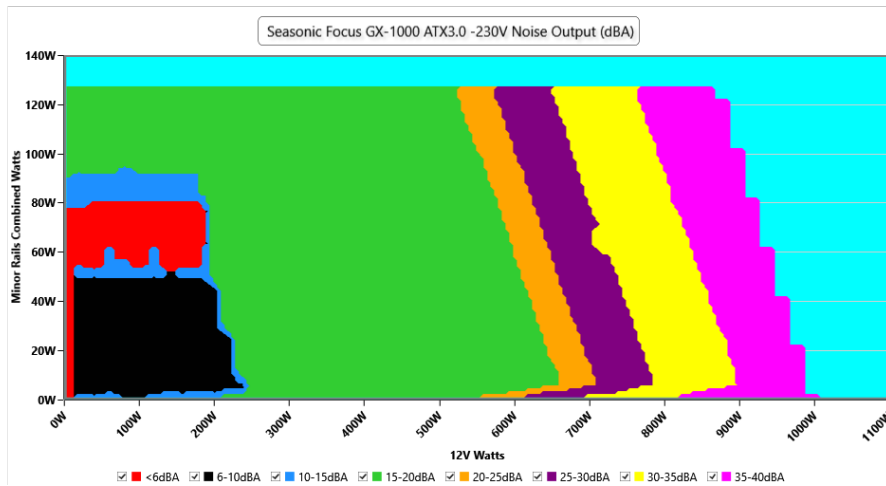
EFFICIENCY GRAPH 230V



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 230V



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

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VAMPIRE POWER -230V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.90 V	229.80 V	227.70 V	230.00 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	49.97 Hz	49.50 Hz	50.02 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.417	1.415	1.340	1.419	1.490	PASS
Mains Voltage THD:	0.19 %	0.15 %	N/A	0.26 %	2.00 %	PASS
Real Power:	0.160 W	0.111 W	N/A	0.219 W	N/A	N/A
Apparent Power:	36.816 W	36.751 W	N/A	36.887 W	N/A	N/A
Power Factor:	0.004	N/A	N/A	N/A	N/A	N/A

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PAGE 13/16

10-110% LOAD TESTS 230V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
10%	6.460A	1.987A	1.982A	0.98A	99.991	87.954%	0	<6.0	44.72°C	0.816
	12.136V	5.032V	3.33V	5.102V	113.687				40.5°C	229.87V
20%	13.954A	2.982A	2.975A	1.179A	199.938	91.982%	0	<6.0	45.46°C	0.906
	12.114V	5.03V	3.328V	5.09V	217.361				40.92°C	229.85V
30%	21.789A	3.481A	3.473A	1.379A	299.987	92.949%	0	<6.0	46.55°C	0.937
	12.114V	5.027V	3.326V	5.077V	322.746				41.51°C	229.83V
40%	29.580A	3.98A	3.971A	1.579A	399.506	92.899%	667	16.0	41.81°C	0.953
	12.113V	5.026V	3.324V	5.066V	430.039				47.25°C	229.82V
50%	37.047A	4.977A	4.967A	1.781A	499.233	92.733%	666	16.0	42.04°C	0.961
	12.112V	5.023V	3.322V	5.054V	538.36				48.12°C	229.8V
60%	44.573A	5.977A	5.964A	1.984A	599.762	92.351%	661	15.8	42.77°C	0.967
	12.114V	5.02V	3.32V	5.042V	649.44				49.32°C	229.78V
70%	52.020A	6.977A	6.963A	2.187A	699.5	91.82%	824	22.9	43.28°C	0.971
	12.118V	5.017V	3.318V	5.029V	761.815				50.32°C	229.77V
80%	59.535A	7.978A	7.963A	2.291A	799.52	91.264%	1020	30.0	43.9°C	0.974
	12.121V	5.015V	3.315V	5.019V	876.054				51.98°C	229.75V
90%	67.370A	8.478A	8.449A	2.395A	899.317	90.69%	1197	34.5	44.2°C	0.976
	12.125V	5.012V	3.314V	5.01V	991.639				53.23°C	229.73V
100%	74.981A	8.98A	8.967A	3.008A	999.304	89.97%	1518	41.4	45.04°C	0.978
	12.132V	5.01V	3.312V	4.987V	1110.706				55.08°C	229.71V
110%	82.555A	9.983A	10.061A	3.012A	1099.939	89.288%	1957	51.5	46.79°C	0.98
	12.133V	5.008V	3.31V	4.98V	1231.913				57.71°C	229.69V
CL1	0.114A	15.022A	14.971A	0A	126.286	85.247%	631	14.2	40.44°C	0.862
	12.124V	5.012V	3.313V	5.119V	148.139				45.89°C	229.86V
CL2	0.114A	24.929A	0A	0A	126.238	83.508%	773	20.9	40.12°C	0.865
	12.125V	5.009V	3.32V	5.121V	151.171				47.17°C	229.86V
CL3	0.114A	0A	24.904A	0A	83.899	77.256%	768	20.7	40.26°C	0.807
	12.144V	5.018V	3.313V	5.122V	108.595				49.35°C	229.87V
CL4	82.574A	0A	0A	0A	999.918	90.773%	1368	38.3	45.19°C	0.978
	12.109V	5.026V	3.325V	5.069V	1101.561				56.17°C	229.72V

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20-80W LOAD TESTS 230V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20W	1.234A	0.496A	0.495A	0.195A	19.994	73.132%	0	<6.0	39.76°C	0.449
	12.036V	5.039V	3.334V	5.129V	27.345				36.71°C	229.88V
40W	2.718A	0.695A	0.693A	0.293A	39.994	80.057%	0	<6.0	40.82°C	0.618
	12.028V	5.038V	3.333V	5.125V	49.956				37.46°C	229.88V
60W	4.166A	0.893A	0.891A	0.39A	59.994	83.342%	0	<6.0	41.93°C	0.718
	12.130V	5.037V	3.332V	5.121V	71.989				38.42°C	229.87V
80W	5.630A	1.092A	1.09A	0.489A	79.937	86.291%	0	<6.0	42.83°C	0.776
	12.132V	5.034V	3.331V	5.117V	92.637				39.02°C	229.87V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.66mV	8.73mV	9.82mV	17.24mV	Pass
20% Load	15.09mV	11.24mV	10.44mV	18.62mV	Pass
30% Load	16.73mV	10.47mV	11.15mV	20.26mV	Pass
40% Load	17.34mV	12.62mV	13.10mV	23.53mV	Pass
50% Load	19.03mV	12.82mV	14.58mV	25.22mV	Pass
60% Load	20.77mV	13.59mV	13.35mV	24.45mV	Pass
70% Load	21.44mV	14.20mV	14.58mV	23.43mV	Pass
80% Load	22.61mV	16.04mV	16.01mV	25.57mV	Pass
90% Load	22.87mV	18.24mV	16.68mV	26.04mV	Pass
100% Load	29.72mV	20.14mV	18.81mV	32.06mV	Pass
110% Load	30.26mV	22.61mV	21.44mV	32.36mV	Pass
Crossload1	28.11mV	11.63mV	11.23mV	15.69mV	Pass
Crossload2	18.23mV	20.08mV	10.13mV	15.50mV	Pass
Crossload3	11.72mV	10.63mV	15.86mV	16.72mV	Pass
Crossload4	29.16mV	18.63mV	18.04mV	28.65mV	Pass

All data and graphs included in this test report can be used by any individual on the following conditions:

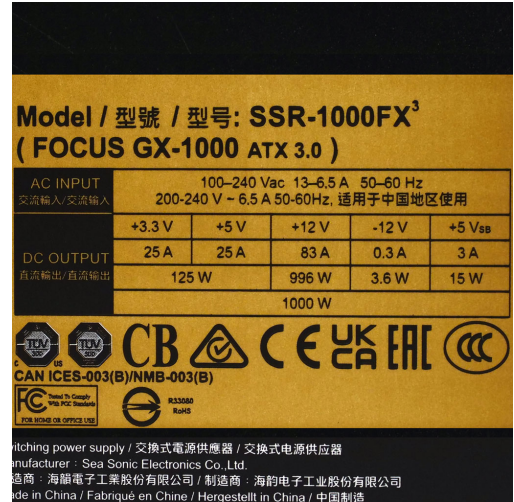
- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

Anex

Seasonic Focus GX-1000 ATX3.0

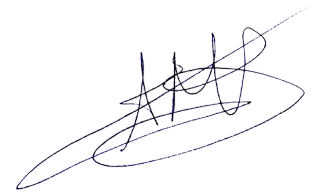


Top side



Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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