Seasonic Focus Plus Gold 550W

R1705AA135750743

Lab ID 133

Certification ID 25133

Test Result Report ID: 19PS133A

Certificate Issue Date: Jun 29, 2018

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 Plus Gold 550W
OEM/ODM	Seasonic
Serial Number	R1705AA135750743
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	8-4
□□□□ (Hz)	50-60

□□□□ (W)	550
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
□□□□□	✓ (selectable)
Cybenetics Testing Information	
Lab ID	133
Date of receipt	Jun 21, 2018
Testing Date	Jun 25, 2018
Report Issued Date	Jun 29, 2018
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□□			
□□	□□□□	□□□□□□	Gauge
ATX □□ 20+4 pin (610mm)	1	1	18-22AWG
4+4 pin EPS 12V □□ (655mm)	1	1	18AWG
6+2pin PCIe□□ (680mm+80mm)	1	2	18AWG
SATA□□ (460mm+115mm+115mm+115mm)	1	4	18AWG
SATA□□ (460mm+120mm)	1	2	18AWG
□ 4pin Molex□□ (460mm+120mm+120mm)	1	3	18AWG
□ 4pin □□ (+110mm)	1	1	22AWG

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	20	20	45	3	0.3
	□	100		540	15	3.6
□□□□□ (W)		550				

Parts Description

General Data	
Manufacturer (OEM)	Seasonic
Platform Model	FX
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Diode
Bridge Rectifier(s)	2x GBU1506 (600V, 15A @ 100°C)
APFC MOSFETS	2x UTC GPT18N50DG (500V, 18A @ 100°C, 0.265Ohm)
APFC Boost Diode	1x STMicroelectronics STTH8S06D (600V, 8A @ 125°C)
Hold-up Cap(s)	1x Nippon Chemi-Con (400V, 560uF, 2000h @ 105°C, CE)
Main Switchers	4x UTC GBT10N50ADG (500V, 10A @ 25°C, 0.61Ohm)
APFC Controller	Champion CM6500UNX
Resonant Controller	Champion CM6901T6X
Topology	Primary side: Full-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x Nexperia PSMN2R6-40YS (40V, 100A @ 25°C, 2.8mOhm)
5V & 3.3V	DC-DC Converters: 6x Infineon BSC0906NS (30V, 40A @ 100°C, 4.5mOhm) PWM Controller: APW7159
Filtering Capacitors	Electrolytics: Chemi-Con (1-5,000 @ 105°C, KZE), Chemi-Con (4-10,000 @ 105°C, KY), W Polymers: Chemi-Con
Supervisor IC	Weltrend WT7527V (OVP, UVP, OCP, SCP, PG)
Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, 2200 RPM, Fluid Dynamic Bearing)
5VSB Circuit	

Standby PWM Controller	Excelliance EM8569

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)	88.048%
Average Noise Output (>1450 Load Combinations)	23.19dBA
PF□□□ (>1450 Load Combinations)	0.984
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
□□□□□□	0.0456W
Non-Accredited	
12V Ripple (Full Load)	24.83mV
5V Ripple (Full Load)	12.48mV
3.3V Ripple (Full Load)	12.30mV
5VSB Ripple (Full Load)	9.31mV
12V Load Regulation	0.07%
5V Load Regulation	0.46%
3.3V Load Regulation	0.12%
5VSB Load Regulation	3.04%
Inrush Current	41.972A

230V

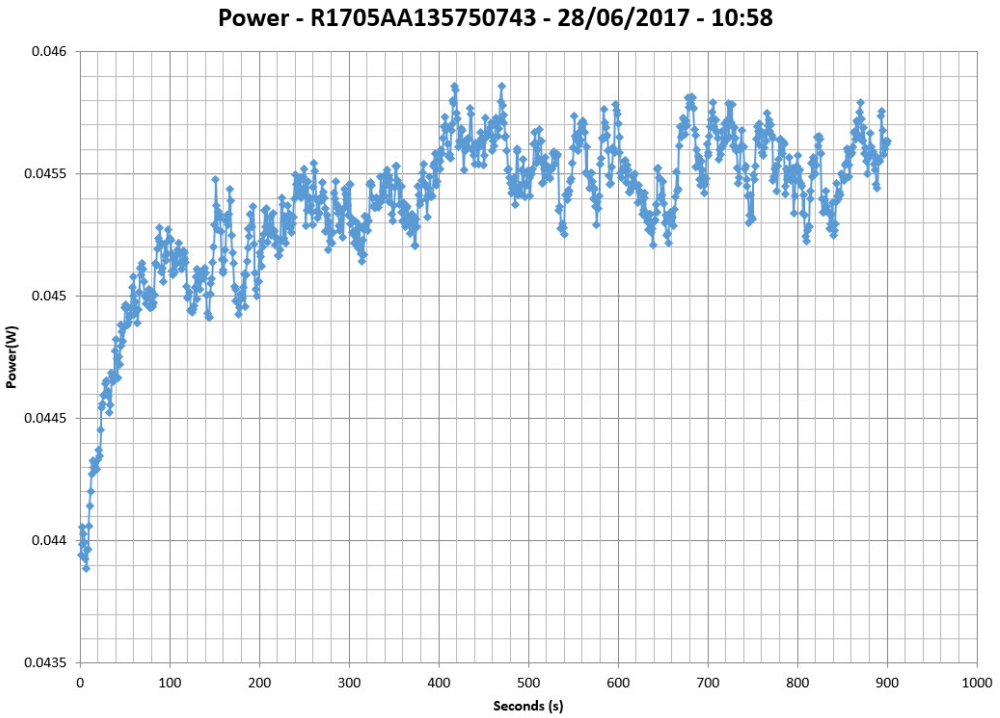
Accredited		
□□□□ (>1450 load combinations)		90.768%
Average Noise Output (>1450 Load Combinations)		18.68dBA
PF□□□ (>1450 Load Combinations)		0.926
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.0756W
Non-Accredited		
12V Ripple (Full Load)		22.87mV
5V Ripple (Full Load)		13.50mV
3.3V Ripple (Full Load)		13.51mV
5VSB Ripple (Full Load)		7.95mV
12V Load Regulation		0.11%
5V Load Regulation		0.32%
3.3V Load Regulation		0.54%
5VSB Load Regulation		2.67%
Inrush Current		54.244A
□□□□ & PG□□		23.70ms
AC Loss to PWR_OK Hold Up Time		19.50ms
PWR_OK Inactive to DC Loss Delay		4.20ms
OPP (0.00°C / 0.00°C)	-	-

□□□□ & PG□□

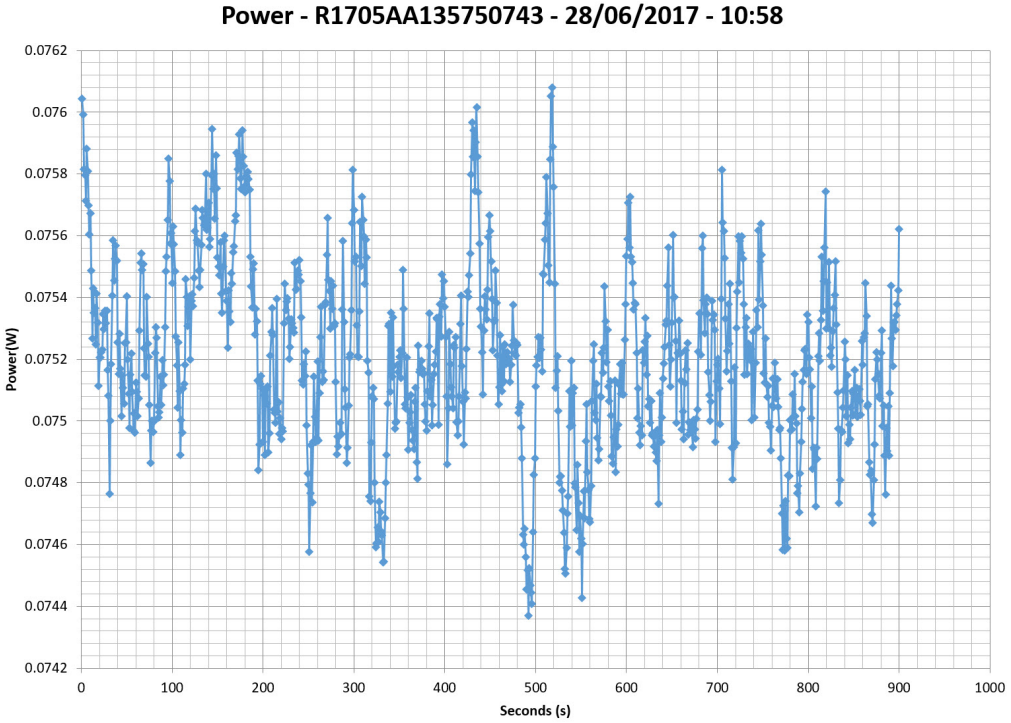
Hold-Up Time (ms)	23.7
AC Loss to PWR_OK Hold Up Time (ms)	19.5
PWR_OK Inactive to DC Loss Delay (ms)	4.2

Graphs

115V



230V



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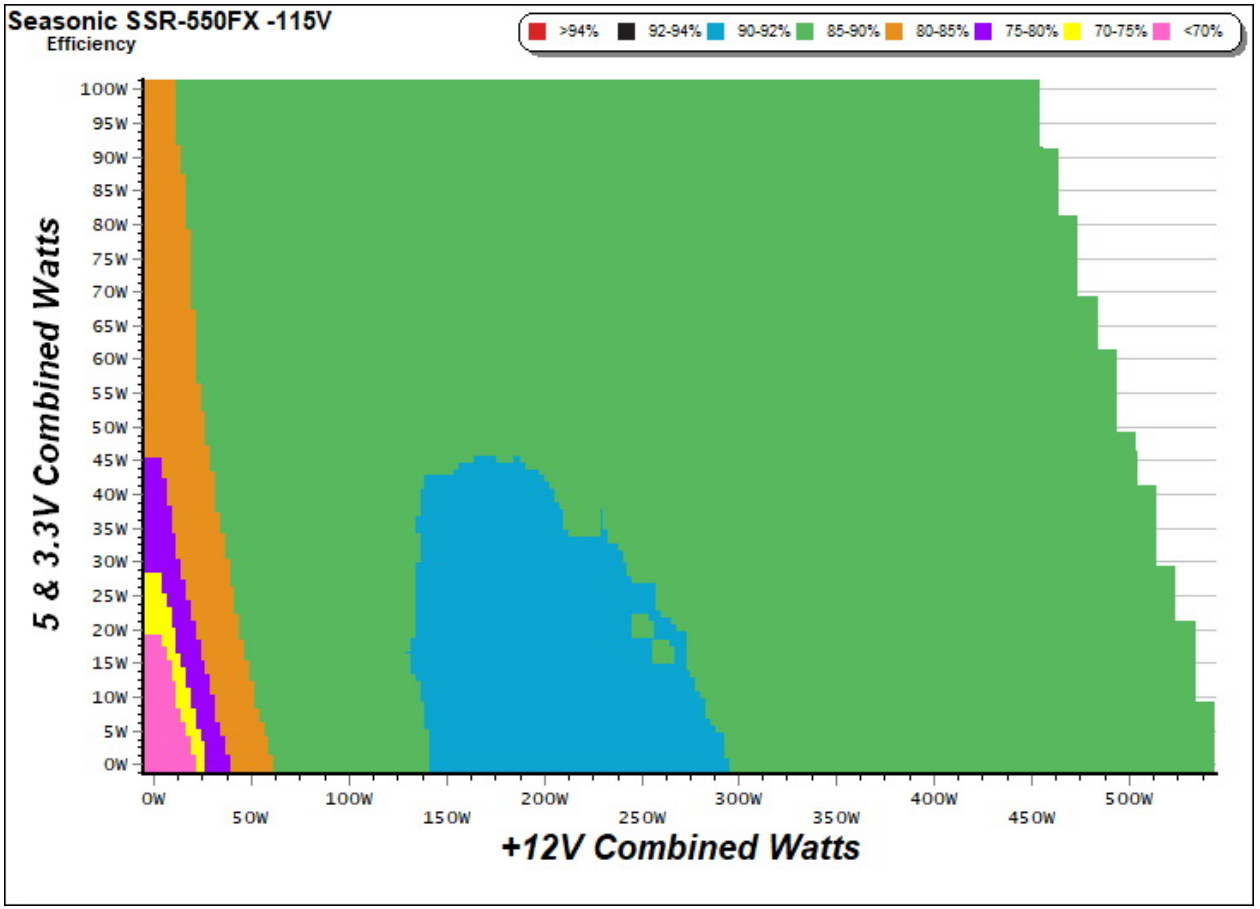
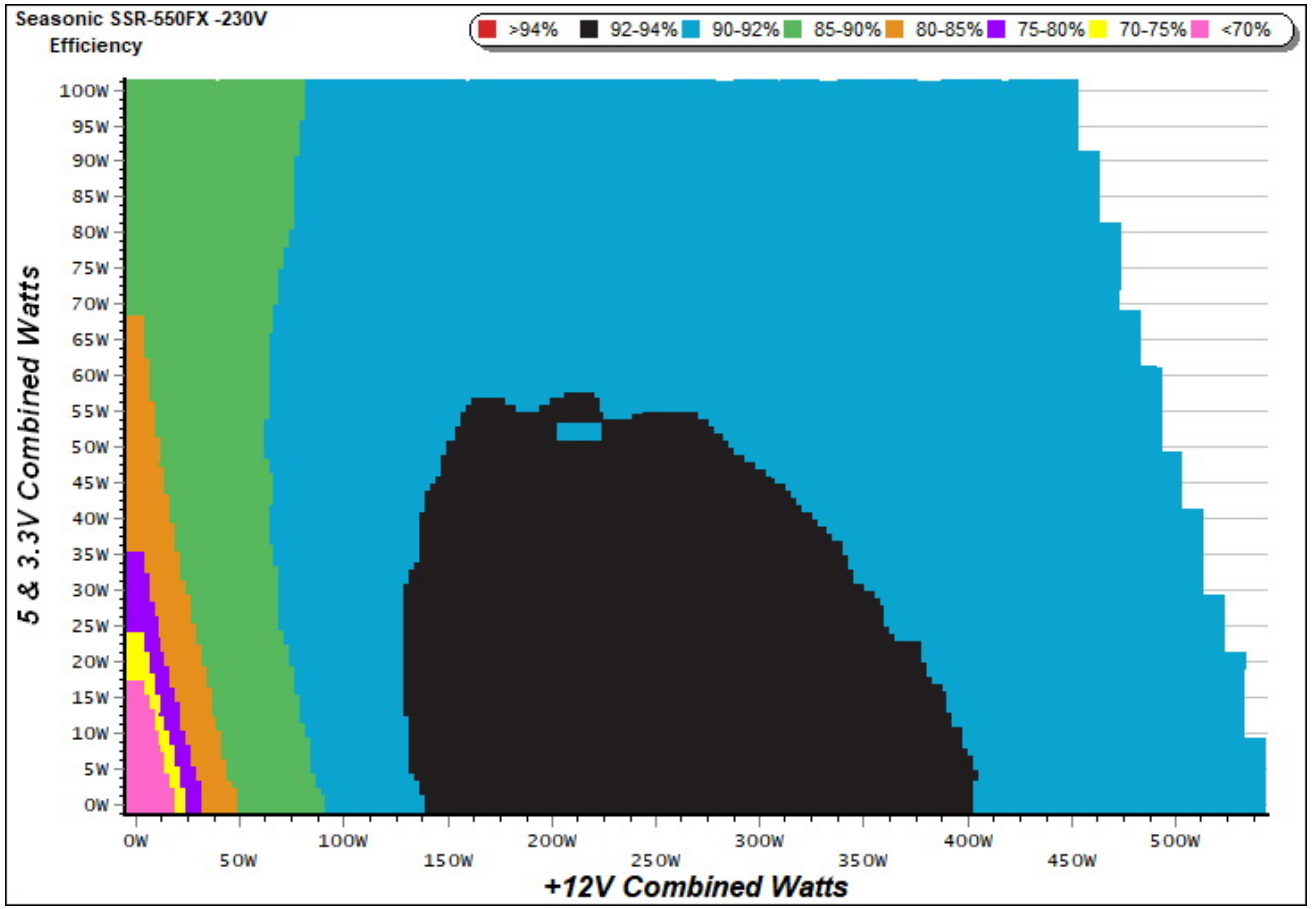
115V



□□

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



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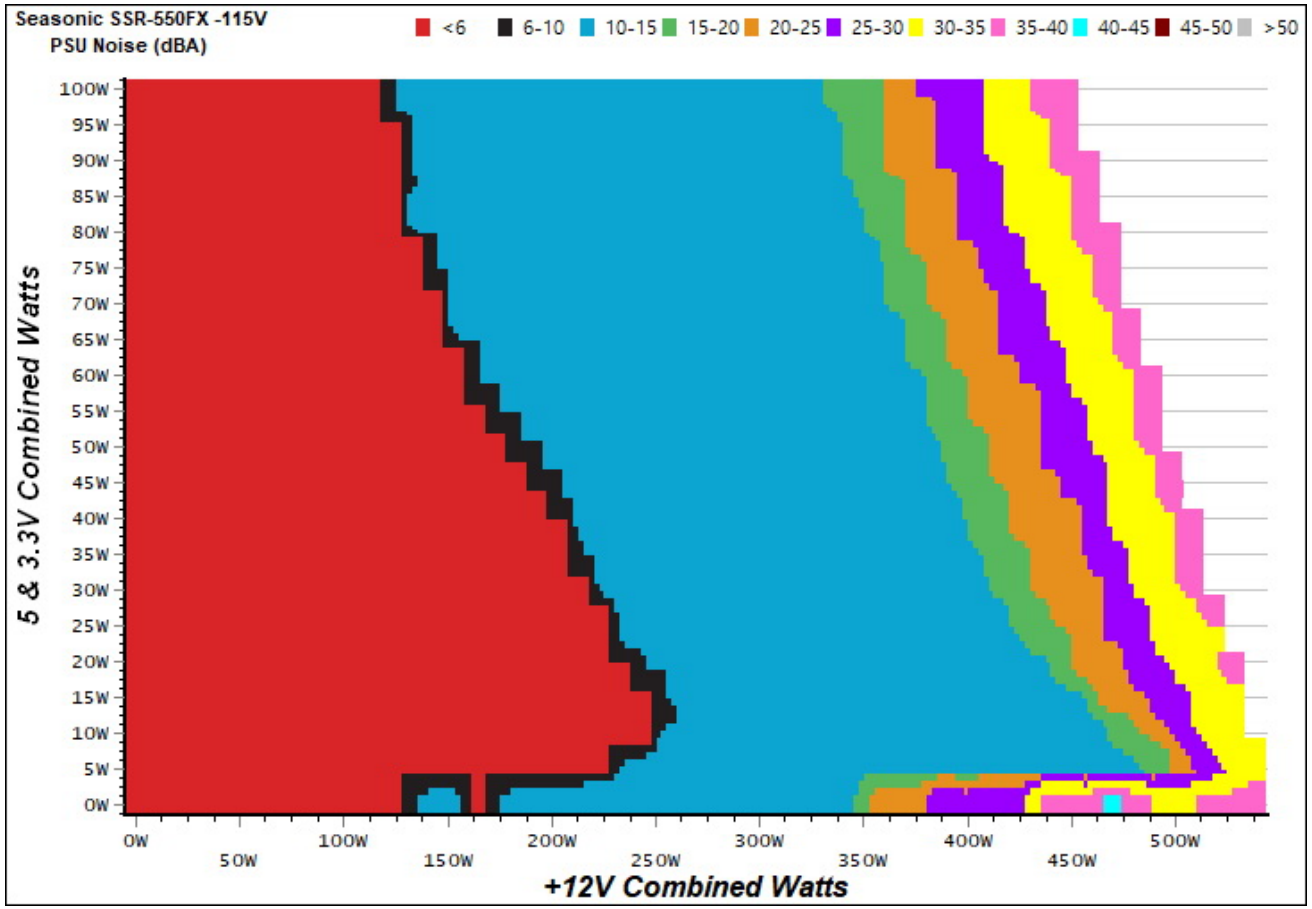
□□□□□

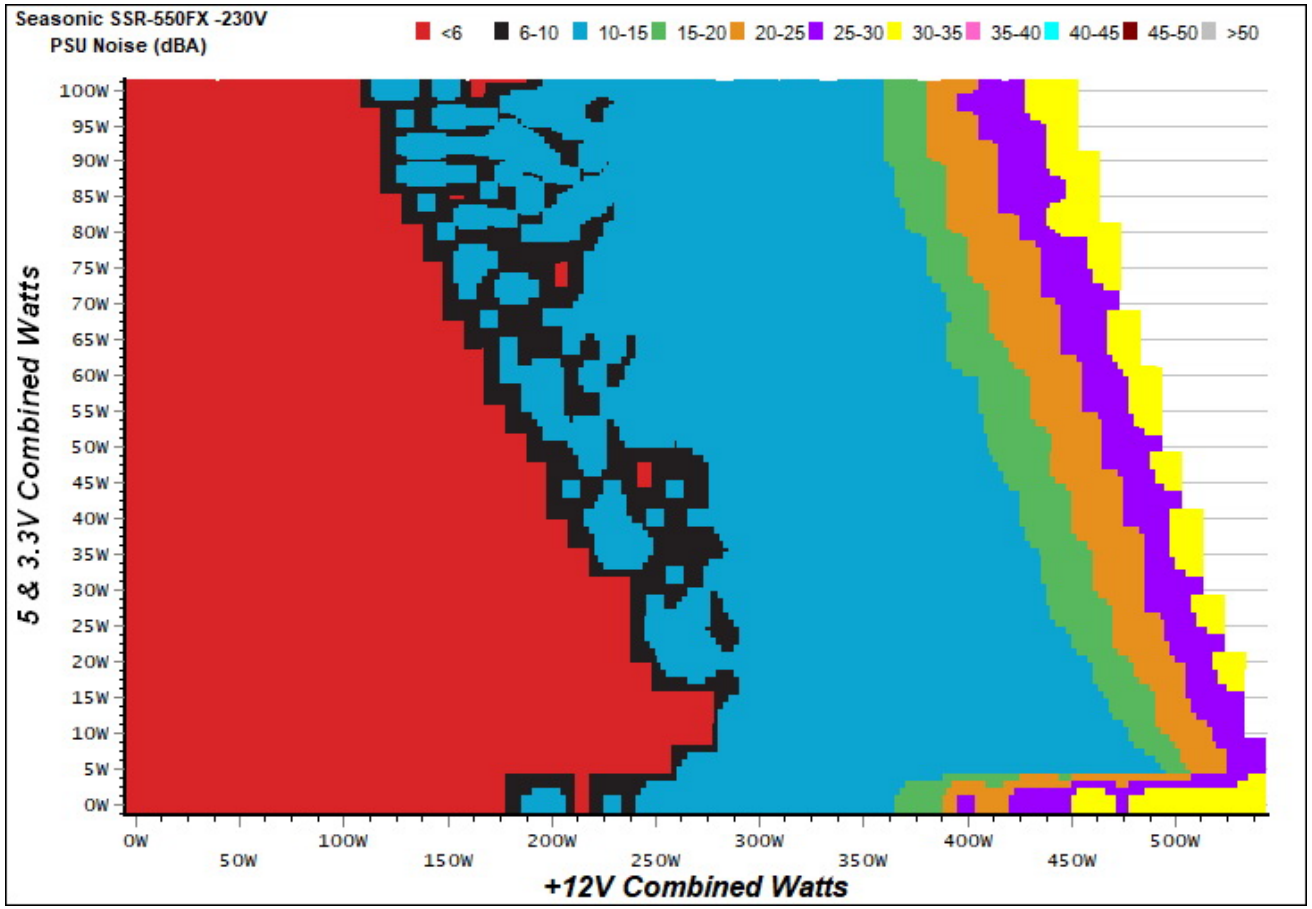
115V



□□

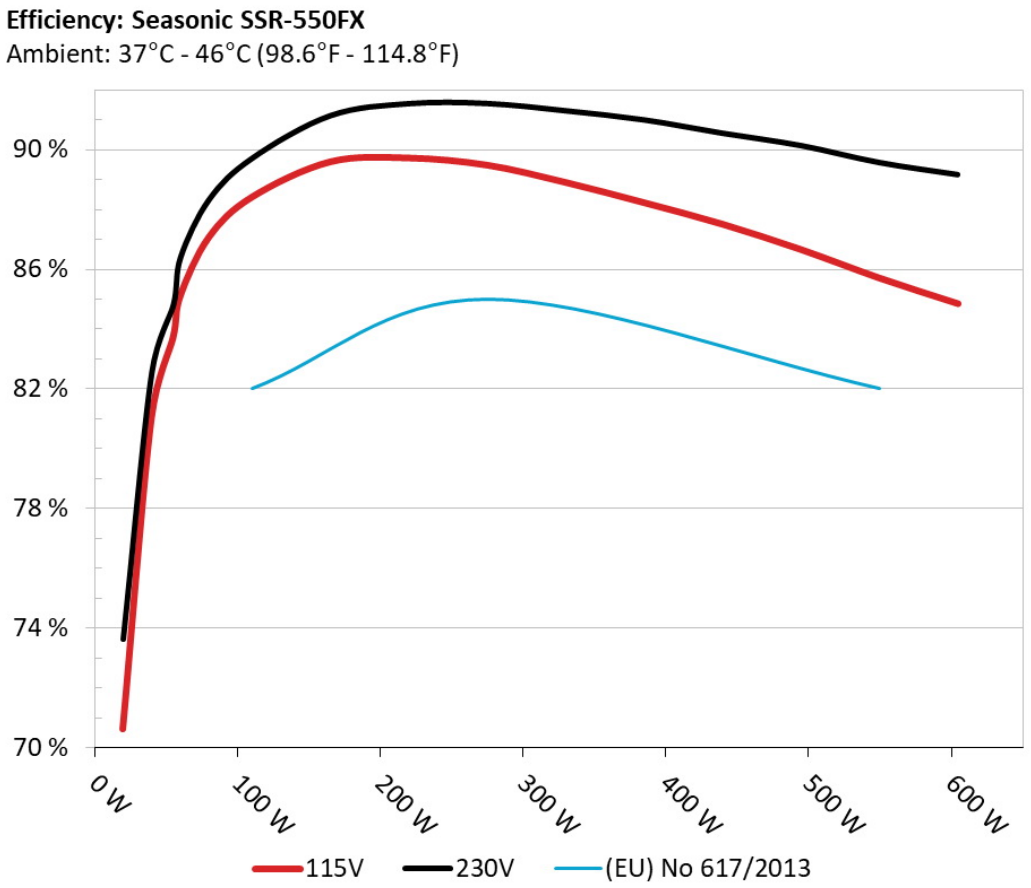
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

230V



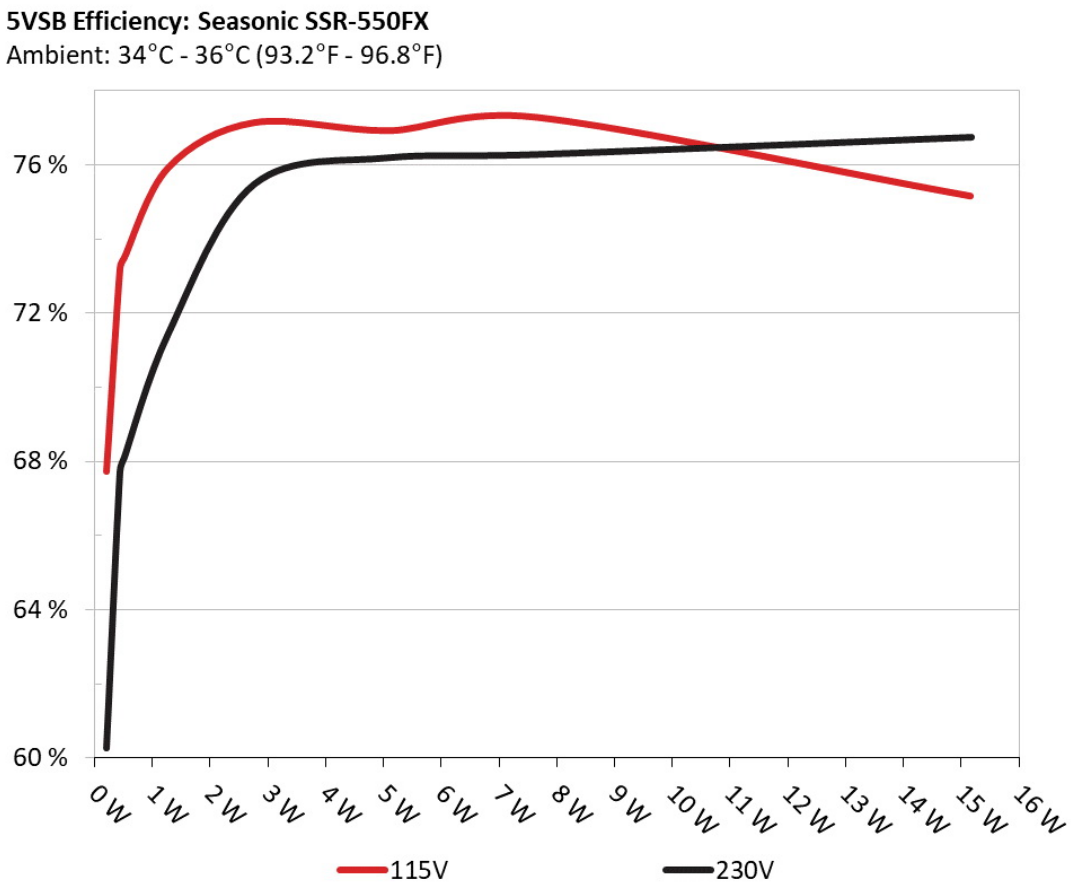
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

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	0.042A	0.214	67.722%	0.053
	5.133V	0.316		115.15V
2	0.087A	0.448	73.203%	0.099
	5.132V	0.612		115.16V
3	0.542A	2.776	77.133%	0.332
	5.120V	3.599		115.16V
4	1.002A	5.121	76.915%	0.401
	5.109V	6.658		115.16V
5	1.502A	7.655	77.276%	0.436
	5.098V	9.906		115.16V
6	3.002A	15.168	75.152%	0.483
	5.053V	20.183		115.16V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.042A	0.214	60.282%	0.018
	5.133V	0.355		230.40V
2	0.087A	0.447	67.727%	0.033
	5.131V	0.660		230.40V
3	0.542A	2.776	75.476%	0.162
	5.120V	3.678		230.39V
4	1.002A	5.119	76.187%	0.245
	5.109V	6.719		230.40V
5	1.502A	7.653	76.271%	0.299
	5.096V	10.034		230.40V
6	3.002A	15.186	76.736%	0.371
	5.059V	19.790		230.40V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	2.730A	1.994A	1.984A	0.980A	54.808	83.708%	0	| 6.0	45.00°C	0.939
	12.165V	5.024V	3.318V	5.098V	65.475				38.78°C	115.19V
2	6.486A	2.982A	2.978A	1.178A	109.739	88.402%	0	| 6.0	46.60°C	0.975
	12.164V	5.021V	3.318V	5.085V	124.136				39.53°C	115.20V
3	10.588A	3.488A	3.492A	1.379A	164.875	89.589%	0	| 6.0	47.93°C	0.984
	12.164V	5.019V	3.317V	5.071V	184.034				40.10°C	115.18V
4	14.685A	3.986A	3.975A	1.580A	219.771	89.716%	700	14.6	41.30°C	0.988
	12.162V	5.017V	3.316V	5.059V	244.963				50.56°C	115.18V
5	18.438A	4.981A	4.973A	1.780A	274.687	89.479%	550	10.4	41.47°C	0.990
	12.162V	5.014V	3.316V	5.044V	306.985				50.75°C	115.18V
6	22.196A	5.987A	5.967A	1.986A	329.709	88.901%	560	10.5	41.98°C	0.990
	12.161V	5.012V	3.316V	5.030V	370.872				52.26°C	115.18V
7	25.952A	6.990A	6.964A	2.190A	384.664	88.226%	880	20.6	43.32°C	0.990
	12.160V	5.009V	3.316V	5.015V	435.998				53.00°C	115.17V
8	29.705A	7.991A	7.961A	2.399A	439.578	87.505%	1325	31.4	43.51°C	0.991
	12.159V	5.007V	3.315V	4.999V	502.349				52.32°C	115.17V
9	33.891A	8.489A	8.474A	2.400A	494.604	86.656%	1880	40.2	44.10°C	0.992
	12.158V	5.005V	3.315V	4.991V	570.765				51.76°C	115.17V
10	37.824A	9.004A	8.961A	3.015A	549.515	85.704%	2310	45.1	44.97°C	0.992
	12.156V	5.003V	3.314V	4.969V	641.178				52.00°C	115.16V
11	42.344A	9.006A	8.962A	3.020A	604.455	84.852%	2320	45.2	46.06°C	0.992
	12.156V	5.002V	3.313V	4.961V	712.362				53.42°C	115.16V
CL1	0.098A	12.012A	12.003A	0.004A	101.375	85.128%	720	14.9	45.85°C	0.973
	12.165V	5.011V	3.330V	5.096V	119.086				48.74°C	115.20V

CL2	44.966A	1.004A	1.003A	1.002A	559.997	86.334%	2320	45.2	45.17°C	0.992
	12.156V	5.009V	3.306V	5.036V	648.643				52.51°C	115.18V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	2.730A	1.995A	1.989A	0.981A	54.838	84.975%	0	<6.0	53.92°C	0.702
	12.171V	5.022V	3.314V	5.099V	64.534				39.59°C	230.24V
2	6.486A	2.980A	2.986A	1.176A	109.762	89.871%	0	<6.0	54.56°C	0.854
	12.169V	5.020V	3.312V	5.089V	122.133				39.57°C	230.24V
3	10.586A	3.488A	3.502A	1.376A	164.894	91.180%	0	<6.0	41.34°C	0.912
	12.168V	5.019V	3.310V	5.076V	180.844				52.37°C	230.25V
4	14.681A	3.986A	3.988A	1.576A	219.800	91.689%	440	10.5	40.86°C	0.936
	12.167V	5.018V	3.308V	5.065V	239.723				56.92°C	230.25V
5	18.435A	4.979A	4.989A	1.781A	274.760	91.708%	560	10.5	40.88°C	0.952
	12.166V	5.017V	3.307V	5.054V	299.602				57.13°C	230.25V
6	22.196A	5.985A	5.989A	1.981A	329.777	91.487%	560	10.5	41.13°C	0.961
	12.164V	5.014V	3.304V	5.042V	360.464				57.83°C	230.25V
7	25.950A	6.991A	6.991A	2.186A	384.722	91.166%	755	16.1	41.15°C	0.967
	12.162V	5.012V	3.302V	5.030V	422.001				58.42°C	230.25V
8	29.705A	7.987A	8.000A	2.391A	439.623	90.763%	1120	27.7	41.81°C	0.972
	12.160V	5.010V	3.300V	5.017V	484.362				57.31°C	230.25V
9	33.892A	8.484A	8.516A	2.394A	494.677	90.421%	1695	37.7	41.31°C	0.975
	12.159V	5.009V	3.299V	5.010V	547.081				55.64°C	230.26V
10	37.834A	8.993A	9.009A	3.006A	549.701	89.924%	1935	42.1	42.16°C	0.978
	12.158V	5.007V	3.296V	4.988V	611.298				54.03°C	230.24V
11	42.349A	8.992A	9.010A	3.008A	604.519	89.461%	2320	45.2	42.54°C	0.980
	12.157V	5.005V	3.295V	4.983V	675.738				54.53°C	230.24V
CL1	0.101A	12.013A	12.004A	0.005A	101.222	86.540%	0	<6.0	46.19°C	0.846
	12.170V	5.015V	3.309V	5.109V	116.965				41.29°C	230.26V

CL2	44.982A	1.003A	1.001A	1.002A	560.286	90.576%	1990	42.8	39.66°C	0.978
	12.158V	5.011V	3.302V	5.053V	618.578				52.32°C	230.24V

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	1.199A	0.493A	0.480A	0.195A	19.663	70.646%	0	| 6.0	0.776
	12.166V	5.033V	3.321V	5.125V	27.833				115.19V
2	2.422A	0.992A	0.992A	0.391A	39.740	81.049%	0	| 6.0	0.907
	12.165V	5.026V	3.317V	5.117V	49.032				115.19V
3	3.652A	1.488A	1.504A	0.585A	59.883	85.108%	0	| 6.0	0.948
	12.165V	5.025V	3.318V	5.109V	70.361				115.19V
4	4.864A	1.994A	1.988A	0.781A	79.767	87.060%	0	| 6.0	0.963
	12.165V	5.024V	3.318V	5.099V	91.623				115.19V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.203A	0.490A	0.480A	0.196A	19.705	73.799%	0	<6.0	0.486
	12.172V	5.030V	3.318V	5.126V	26.701				230.22V
2	2.424A	0.990A	0.994A	0.391A	39.773	82.721%	0	<6.0	0.607
	12.172V	5.023V	3.314V	5.118V	48.081				230.24V
3	3.652A	1.487A	1.506A	0.586A	59.904	86.535%	0	<6.0	0.721
	12.171V	5.023V	3.314V	5.111V	69.225				230.23V
4	4.866A	1.994A	1.989A	0.781A	79.812	88.480%	0	<6.0	0.789
	12.171V	5.022V	3.313V	5.102V	90.203				230.24V

The results above are not used in the certification process

□□□□

115V

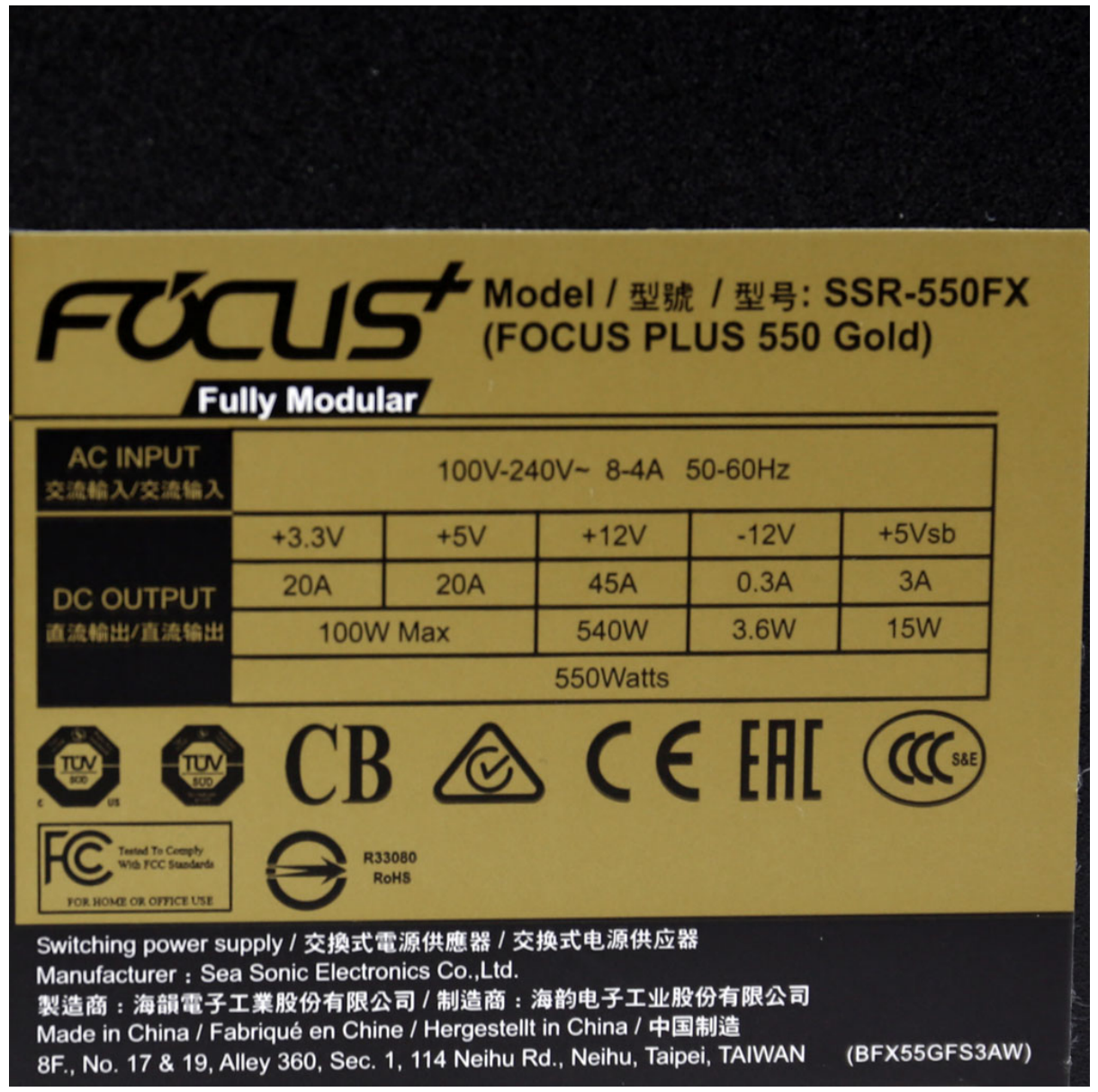
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	8.7 mV	5.5 mV	6.9 mV	5.8 mV	Pass
20% Load	11.9 mV	6.8 mV	9.3 mV	6.3 mV	Pass
30% Load	13.8 mV	7.4 mV	9.6 mV	5.9 mV	Pass
40% Load	15.8 mV	7.3 mV	11.3 mV	5.6 mV	Pass
50% Load	17.2 mV	8.0 mV	9.7 mV	7.0 mV	Pass
60% Load	19.1 mV	9.5 mV	8.2 mV	6.0 mV	Pass
70% Load	20.5 mV	9.5 mV	8.2 mV	6.6 mV	Pass
80% Load	21.8 mV	10.9 mV	9.2 mV	7.7 mV	Pass
90% Load	23.6 mV	11.9 mV	9.7 mV	8.3 mV	Pass
100% Load	24.8 mV	12.5 mV	12.3 mV	9.3 mV	Pass
110% Load	26.3 mV	14.6 mV	12.4 mV	9.3 mV	Pass
Crossload 1	13.2 mV	10.9 mV	9.8 mV	8.0 mV	Pass
Crossload 2	24.4 mV	10.4 mV	11.6 mV	8.6 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	7.4 mV	5.1 mV	7.4 mV	5.4 mV	Pass
20% Load	10.8 mV	5.7 mV	8.0 mV	5.3 mV	Pass
30% Load	13.4 mV	5.9 mV	7.8 mV	5.6 mV	Pass
40% Load	14.9 mV	6.5 mV	8.9 mV	5.7 mV	Pass
50% Load	16.0 mV	7.2 mV	8.8 mV	6.0 mV	Pass
60% Load	17.4 mV	8.1 mV	8.6 mV	6.0 mV	Pass
70% Load	18.8 mV	9.4 mV	8.6 mV	6.1 mV	Pass
80% Load	19.8 mV	9.3 mV	9.3 mV	6.3 mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	20.8 mV	10.6 mV	10.2 mV	6.8 mV	Pass
100% Load	22.9 mV	13.5 mV	13.5 mV	8.0 mV	Pass
110% Load	23.9 mV	14.6 mV	14.7 mV	7.9 mV	Pass
Crossload 1	11.1 mV	10.0 mV	9.9 mV	7.2 mV	Pass
Crossload 2	22.8 mV	9.3 mV	13.4 mV	7.2 mV	Pass

The results above are not used in the certification process

Seasonic Focus Plus Gold 550W

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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