Seasonic Focus Plus Gold 750W (#2)

R1705AA135880160

Lab ID 165

Certification ID 25165

Test Result Report ID:

Certificate Issue Date: Aug 25, 2018

115V

Scheme: ETA-EMI PSU



115V



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 Gold 750W (#2)
OEM/ODM	Seasonic
Serial Number	R1705AA135880160
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	10-5
□□□□ (Hz)	50-60

□□□□ (W)	750
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	165
Date of receipt	Aug 12, 2018
Testing Date	Aug 21, 2018
Report Issued Date	Aug 25, 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)	2	2	18AWG
6+2pin PCIe□□ (680mm+80mm)	2	4	18AWG
SATA□□ (455mm+115mm+115mm+115mm)	2	8	18AWG
□ 4pin Molex□□ (460mm+125mm+125mm)	1	3	18AWG
□ 4pin □□ (+110mm)	1	1	22AWG

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	20	20	62	3	0.3
	□	100		744	15	3.6
□□□□□ (W)		750				

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	WeltrendWT7527V (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	ExcellianceEM8569

Test Results

Temperature & Compliance Info

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

Performance Summary 115V

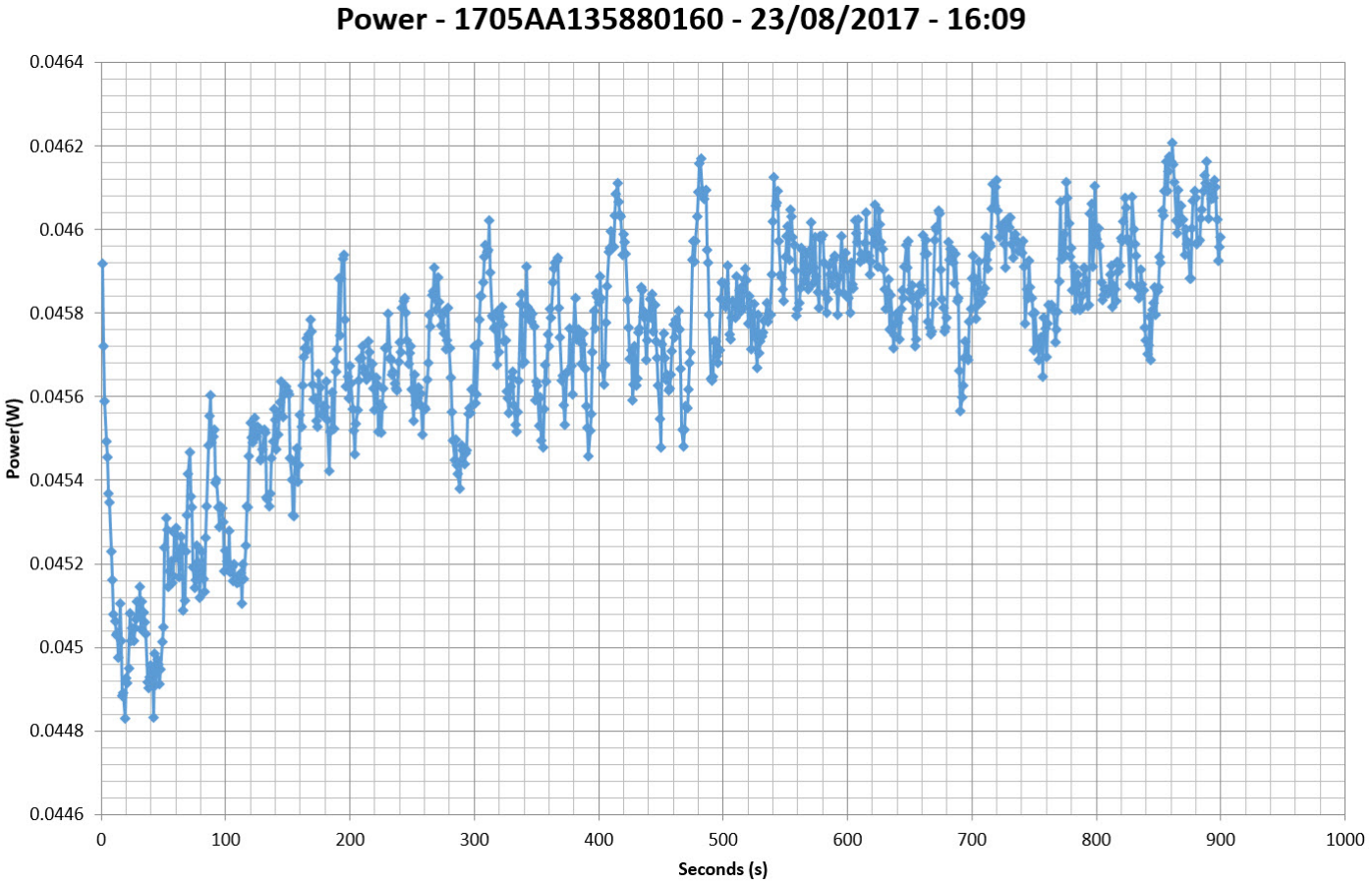
Accredited	
□□□□ (>1450 load combinations)	88.261%
Average Noise Output (>1450 Load Combinations)	34.75dBA
PF□□□ (>1450 Load Combinations)	0.986
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
□□□□□□	0.0460W
Non-Accredited	
12V Ripple (Full Load)	27.90mV
5V Ripple (Full Load)	13.22mV
3.3V Ripple (Full Load)	14.56mV
5VSB Ripple (Full Load)	11.64mV
12V Load Regulation	0.12%
5V Load Regulation	0.84%
3.3V Load Regulation	1.12%
5VSB Load Regulation	2.81%
Inrush Current	40.372A

□□□□ & PG□□

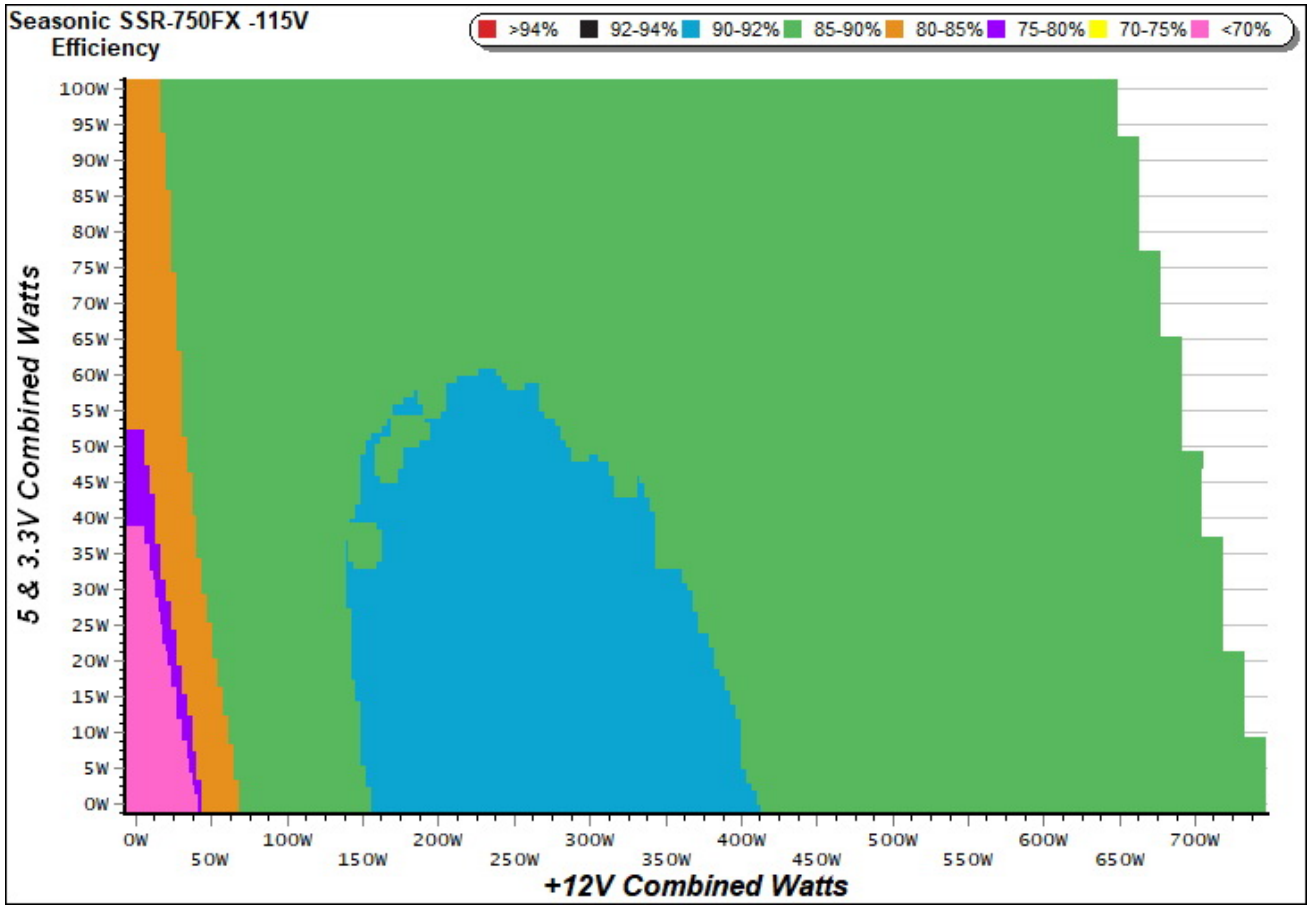
Hold-Up Time (ms)	23.4
AC Loss to PWR_OK Hold Up Time (ms)	20
PWR_OK Inactive to DC Loss Delay (ms)	3.4

□□□□

Graphs 115V



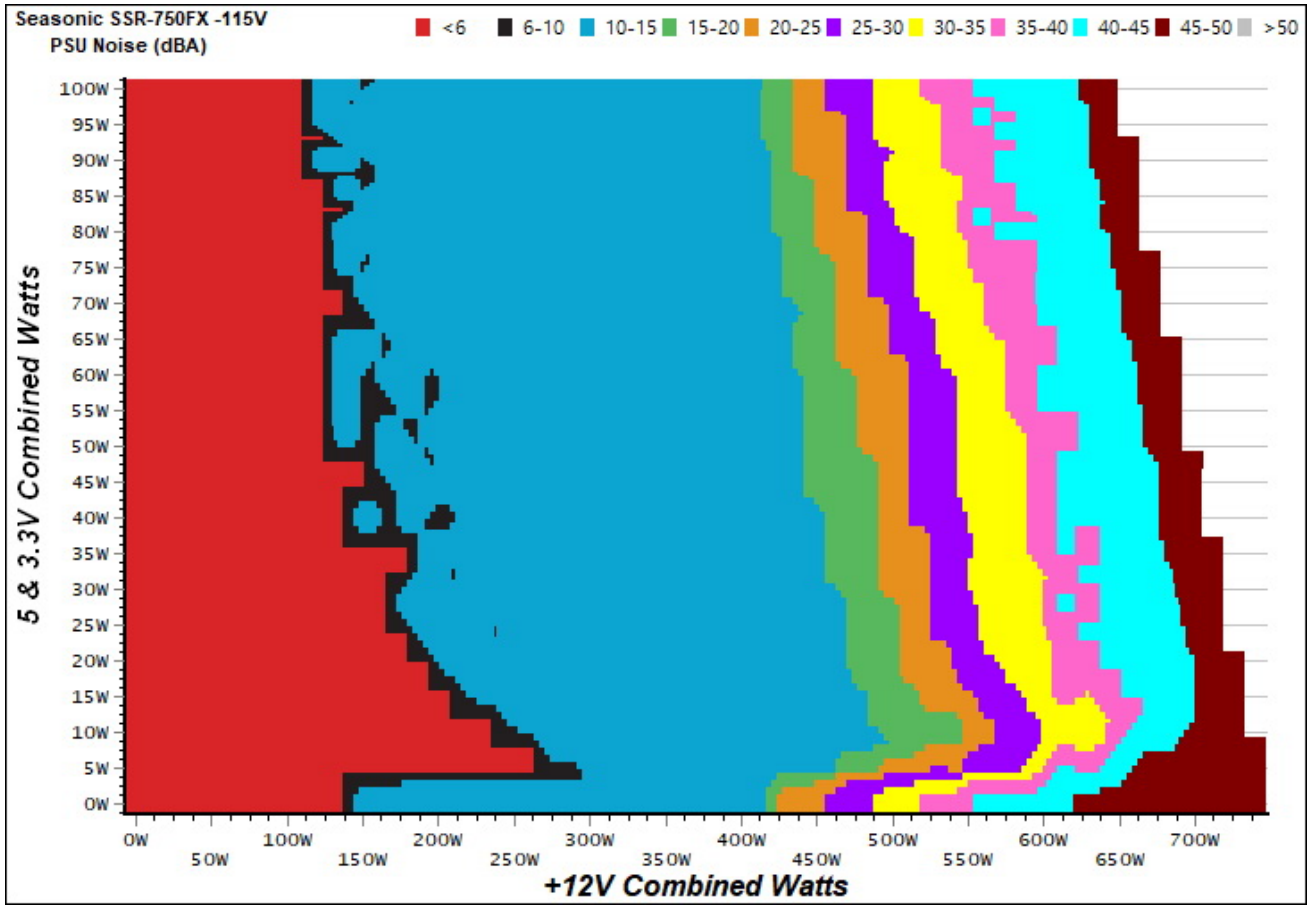
115V



□□

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.

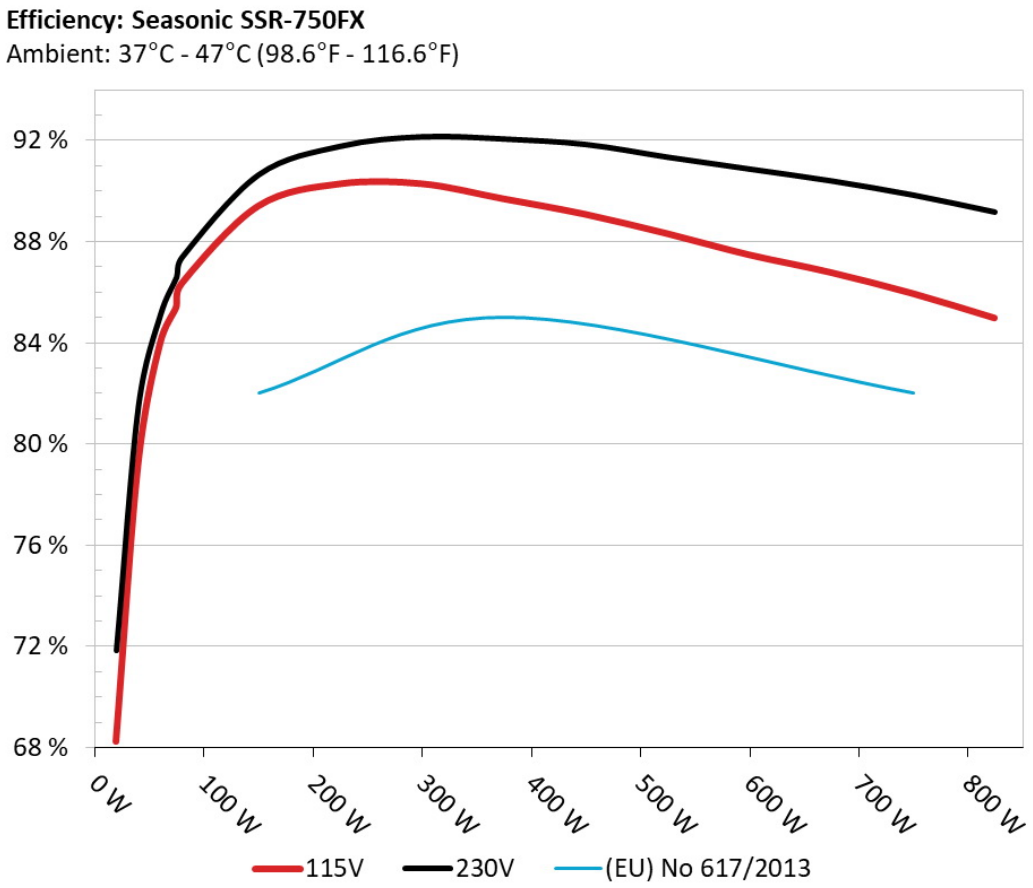
115V



□□

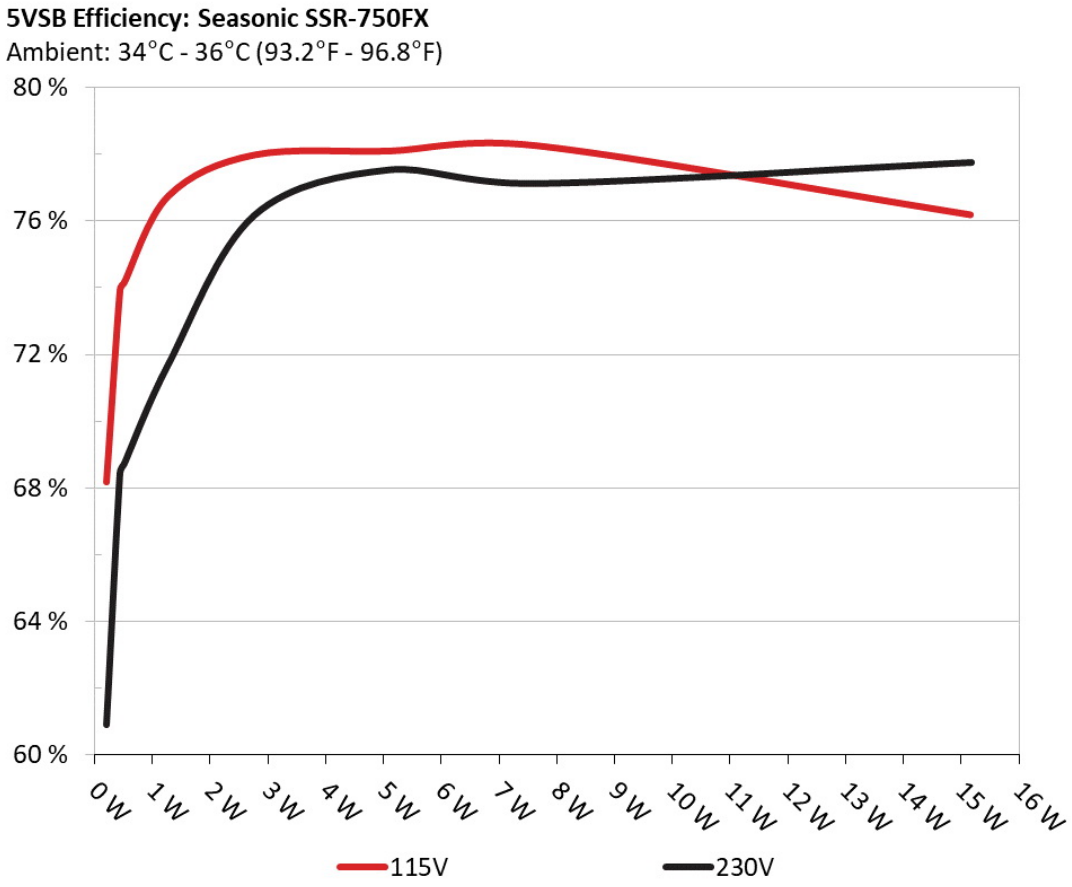
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

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	0.041A	0.212	68.167%	0.050
	5.128V	0.311		115.21V

2	0.087A	0.445	73.920%	0.095
	5.126V	0.602		115.21V
3	0.542A	2.771	77.968%	0.329
	5.116V	3.554		115.38V
4	1.002A	5.113	78.085%	0.400
	5.105V	6.548		115.34V
5	1.501A	7.647	78.246%	0.436
	5.094V	9.773		115.34V
6	3.001A	15.153	76.176%	0.485
	5.049V	19.892		115.33V

Supplementary Tests (For Reference)

10-110%□□□□ 115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	4.380A	1.996A	1.994A	0.981A	74.721	85.411%	0	|6	42.05°C	0.955
	12.131V	5.012V	3.303V	5.095V	87.484				38.38°C	115.20V
2	9.797A	2.992A	2.999A	1.180A	149.732	89.414%	0	|6	42.62°C	0.983
	12.132V	5.008V	3.299V	5.083V	167.459				38.80°C	115.20V
3	15.560A	3.498A	3.517A	1.379A	224.860	90.296%	700	14.6	38.85°C	0.989
	12.132V	5.004V	3.295V	5.071V	249.026				52.18°C	115.19V
4	21.307A	4.004A	4.008A	1.580A	299.705	90.300%	550	10.4	39.00°C	0.991
	12.132V	5.000V	3.292V	5.059V	331.900				53.36°C	115.19V
5	26.716A	5.002A	5.014A	1.780A	374.628	89.703%	560	10.5	40.37°C	0.990
	12.134V	4.996V	3.288V	5.045V	417.633				55.25°C	115.27V
6	32.118A	6.016A	6.026A	1.985A	449.554	89.092%	735	15.4	40.60°C	0.991
	12.135V	4.990V	3.284V	5.034V	504.597				55.86°C	115.17V
7	37.534A	7.018A	7.042A	2.190A	524.474	88.327%	1325	31.4	42.34°C	0.991
	12.133V	4.986V	3.279V	5.019V	593.787				57.82°C	115.17V
8	42.959A	8.034A	8.062A	2.395A	599.416	87.492%	1960	41.4	43.07°C	0.992
	12.128V	4.981V	3.275V	5.006V	685.112				59.02°C	115.16V

9	48.809A	8.539A	8.586A	2.400A	674.436	86.791%	2310	45.1	44.06°C	0.992
	12.126V	4.977V	3.271V	4.998V	777.079				60.62°C	115.16V
10	54.388A	9.058A	9.085A	3.011A	749.284	85.960%	2320	45.2	45.87°C	0.993
	12.127V	4.973V	3.268V	4.977V	871.661				62.87°C	115.15V
11	60.564A	9.067A	9.093A	3.015A	824.135	84.992%	2320	45.2	47.30°C	0.993
	12.126V	4.970V	3.265V	4.970V	969.658				65.69°C	115.15V
CL1	0.099A	12.013A	12.004A	0.004A	100.757	84.378%	560	10.5	43.09°C	0.973
	12.145V	4.998V	3.290V	5.101V	119.412				55.37°C	115.21V
CL2	61.936A	1.005A	1.002A	1.001A	764.309	86.243%	2320	45.2	46.36°C	0.993
	12.125V	4.982V	3.279V	5.037V	886.231				62.78°C	115.16V

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	1.205A	0.493A	0.482A	0.195A	19.665	68.239%	0	<6.0	0.750
	12.115V	5.017V	3.308V	5.121V	28.818				115.20V
2	2.433A	0.991A	0.997A	0.391A	39.753	79.148%	0	<6.0	0.884
	12.120V	5.015V	3.305V	5.114V	50.226				115.20V
3	3.665A	1.487A	1.509A	0.585A	59.862	83.966%	0	<6.0	0.938
	12.124V	5.013V	3.304V	5.106V	71.293				115.20V
4	4.880A	1.996A	1.995A	0.780A	79.756	86.353%	0	<6.0	0.959
	12.128V	5.012V	3.303V	5.099V	92.360				115.21V

The results above are not used in the certification process

□□□□ 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	8.9 mV	6.0 mV	8.2 mV	5.7 mV	Pass
20% Load	12.7 mV	6.1 mV	8.5 mV	5.9 mV	Pass
30% Load	15.2 mV	6.3 mV	8.5 mV	6.1 mV	Pass
40% Load	17.1 mV	7.8 mV	10.4 mV	6.5 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	18.3 mV	7.8 mV	9.1 mV	6.5 mV	Pass
60% Load	20.2 mV	10.4 mV	10.6 mV	7.2 mV	Pass
70% Load	21.9 mV	11.4 mV	11.6 mV	8.4 mV	Pass
80% Load	23.0 mV	11.6 mV	11.8 mV	9.4 mV	Pass
90% Load	26.2 mV	13.1 mV	13.1 mV	9.8 mV	Pass
100% Load	27.9 mV	13.2 mV	14.6 mV	11.6 mV	Pass
110% Load	28.6 mV	15.4 mV	15.9 mV	12.2 mV	Pass
Crossload 1	12.3 mV	11.3 mV	9.4 mV	8.2 mV	Pass
Crossload 2	27.2 mV	10.6 mV	12.8 mV	9.2 mV	Pass

The results above are not used in the certification process

Seasonic Focus Plus Gold 750W (#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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