

## Anex

## Seasonic SSR-1000GD Ultra

Lab ID#: 227

Receipt Date: -

Test Date: -

Report:

Report Date: Nov 29, 2018

DUT INFORMATION	
Brand	Seasonic
Manufacturer (OEM)	Seasonic
Series	Prime Gold Ultra
Model Number	SSR-1000GD Ultra
Serial Number	R1709AA181090047
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

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				

CABLES AND CONNECTORS				
Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (610mm)	1	1	18-22AWG	No
4+4 pin EPS12V (650mm)	2	2	18AWG	No
6+2 pin PCIe (680mm+80mm)	4	8	18AWG	No
SATA (350mm+150mm+150mm+150mm)	1	4	18AWG	No
SATA (400mm+120mm+120mm+120mm)	2	8	18AWG	No
4 pin Molex (450mm+120mm+120mm)	1	3	18AWG	No
4 pin Molex (350mm+120mm)	1	2	18AWG	No
4-pin Molex Adapter / SATA (150mm+150mm)	1	2	18AWG	No
FDD Adapter (+100mm)	1	1	22AWG	No
AC Power Cord (1370mm) - C13 coupler	1	1	18AWG	-

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### RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	90.174
Efficiency With 10W ( $\leq 500W$ ) or 2% ( $> 500W$ ) Load -115V	0.000
Average Efficiency 5VSB	80.241
Standby Power Consumption (W) -115V	0.0578760
Standby Power Consumption (W) -230V	0.0919840
Average PF	0.991
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	35.25
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	Standard+

### TEST EQUIPMENT

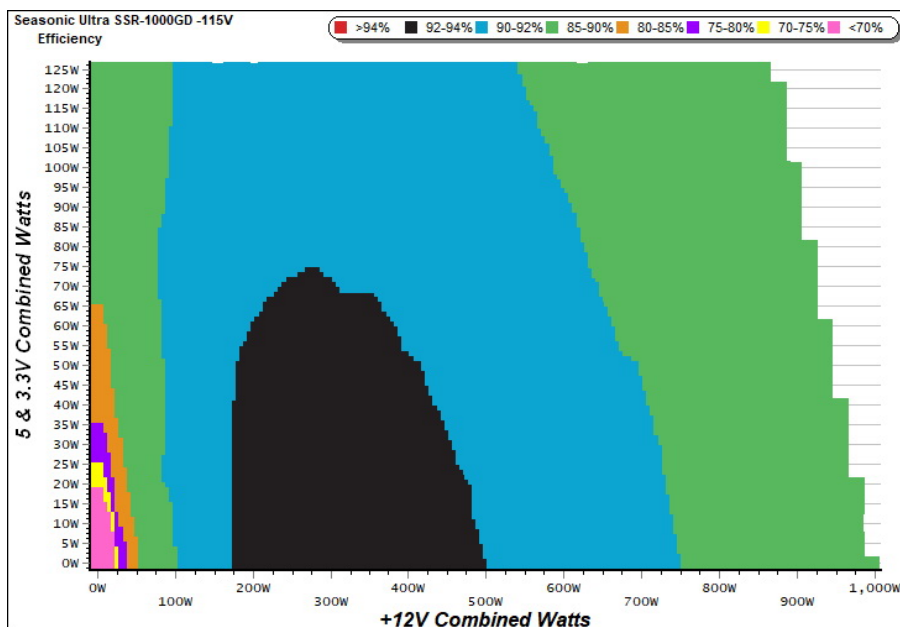
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, Chroma 61604	
Power Analyzers	N4L PPA1530, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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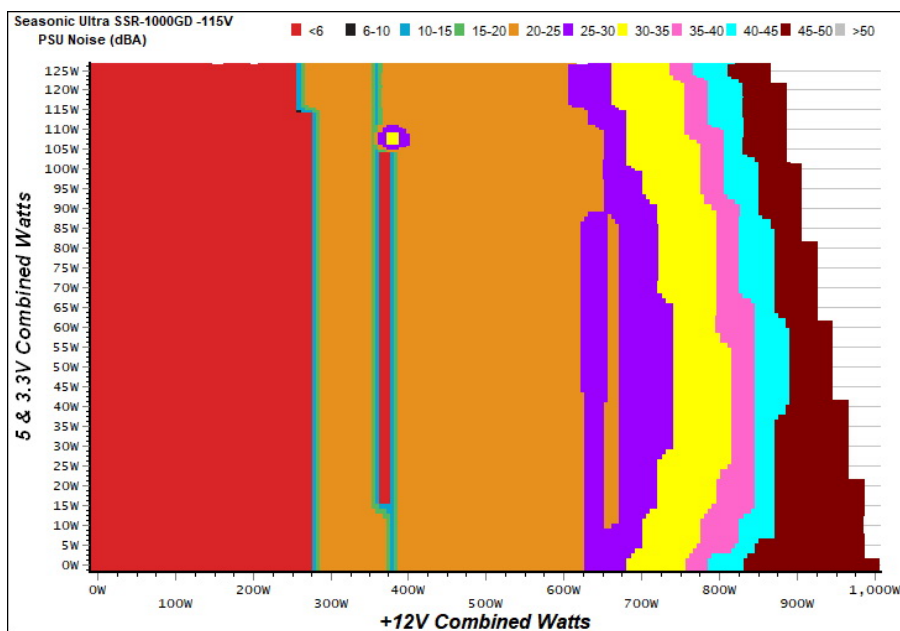
### EFFICIENCY GRAPH



#### 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



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

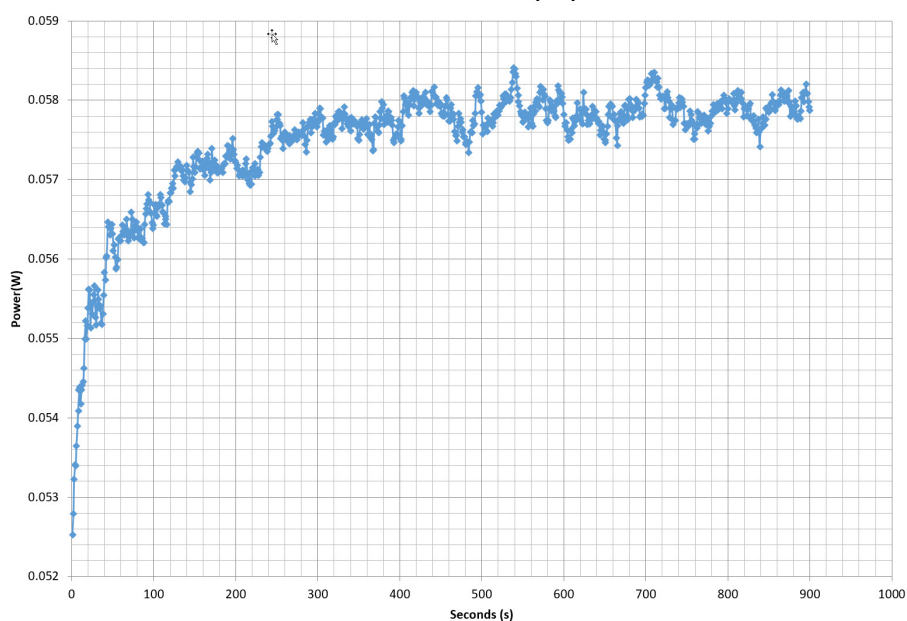
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.213	65.538%	0.035
	5.121V	0.325		115.07V
2	0.087A	0.447	73.520%	0.064
	5.119V	0.608		115.07V
3	0.542A	2.764	80.771%	0.271
	5.097V	3.422		115.04V
4	1.002A	5.087	80.990%	0.365
	5.076V	6.281		115.05V
5	1.502A	7.589	80.975%	0.417
	5.054V	9.372		115.05V
6	3.001A	14.995	79.901%	0.486
	4.996V	18.767		115.05V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.214	58.953%	0.012
	5.121V	0.363		230.22V
2	0.087A	0.447	68.769%	0.021
	5.119V	0.650		230.21V
3	0.542A	2.763	78.740%	0.106
	5.096V	3.509		230.22V
4	1.002A	5.081	80.180%	0.176
	5.071V	6.337		230.21V
5	1.502A	7.578	80.806%	0.234
	5.046V	9.378		230.21V
6	3.002A	14.921	80.195%	0.337
	4.971V	18.606		230.21V

### VAMPIRE POWER -115V

Power - R1709AA181090047 - 28/11/2017 - 09:58



#### 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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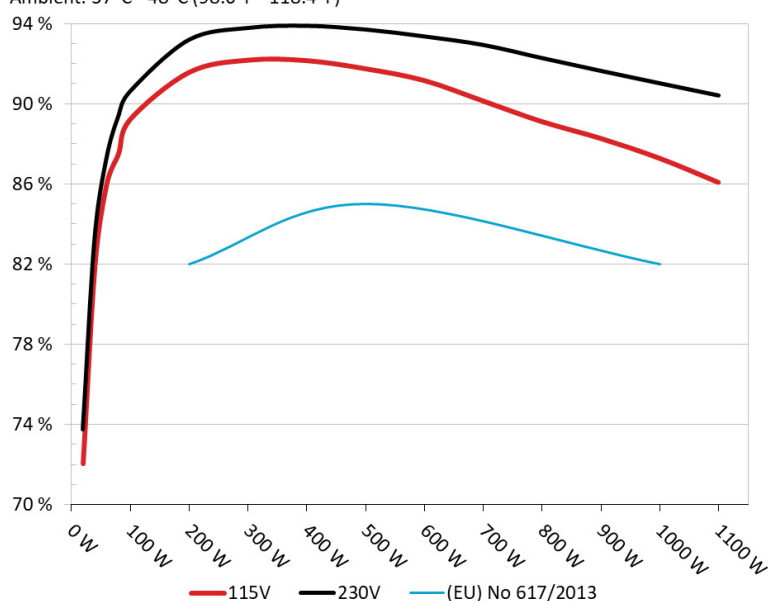
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### EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Seasonic SSR-1000GD Ultra

Ambient: 37°C - 48°C (98.6°F - 118.4°F)



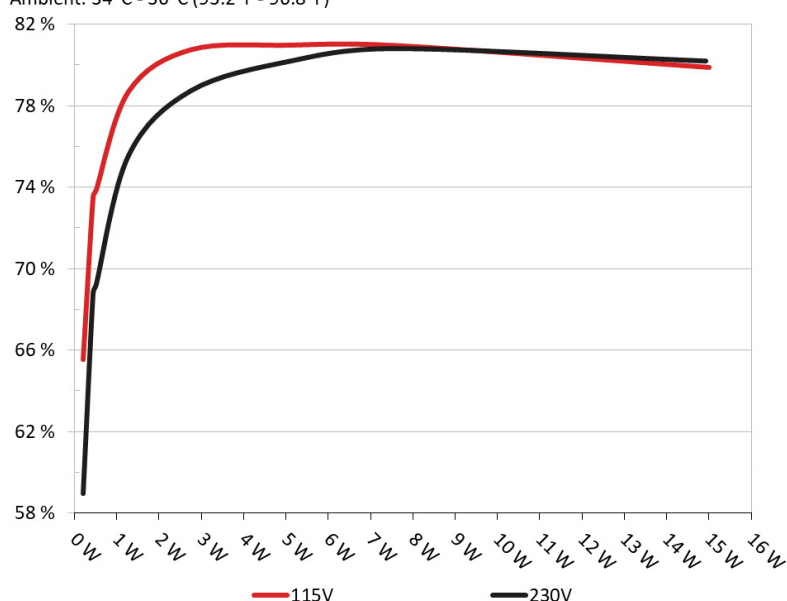
#### INFO

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 SSR-1000GD Ultra

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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### 10-110% LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	6.398A	1.974A	1.985A	0.986A	99.794	89.208%	0	<6.0	42.03°C	0.982
	12.226V	5.058V	3.323V	5.062V	111.867				38.13°C	115.12V
2	13.806A	2.959A	2.976A	1.186A	199.630	91.552%	0	<6.0	42.76°C	0.989
	12.227V	5.055V	3.321V	5.044V	218.050				38.69°C	115.11V
3	21.570A	3.466A	3.493A	1.391A	299.853	92.164%	0	<6.0	43.08°C	0.987
	12.228V	5.053V	3.318V	5.027V	325.346				38.88°C	115.09V
4	29.317A	3.956A	3.977A	1.596A	399.688	92.141%	0	<6.0	43.81°C	0.991
	12.229V	5.053V	3.316V	5.008V	433.781				39.40°C	115.08V
5	36.737A	4.957A	4.975A	1.801A	499.686	91.732%	610	22.2	39.27°C	0.993
	12.227V	5.049V	3.314V	4.990V	544.721				44.87°C	115.08V
6	44.149A	5.943A	5.972A	2.010A	599.633	91.146%	630	26.8	40.56°C	0.995
	12.228V	5.048V	3.313V	4.972V	657.884				47.17°C	115.08V
7	51.563A	6.939A	6.975A	2.219A	699.564	90.126%	1300	38.8	41.90°C	0.996
	12.227V	5.047V	3.311V	4.952V	776.207				49.10°C	115.08V
8	58.980A	7.928A	7.975A	2.430A	799.468	89.097%	1795	49.0	42.78°C	0.997
	12.226V	5.044V	3.310V	4.935V	897.302				50.34°C	115.08V
9	66.815A	8.436A	8.494A	2.433A	899.501	88.258%	2123	51.2	44.10°C	0.997
	12.226V	5.042V	3.308V	4.928V	1019.175				51.89°C	115.09V
10	74.392A	8.930A	8.981A	3.065A	999.292	87.271%	2123	51.2	45.92°C	0.997
	12.227V	5.041V	3.307V	4.889V	1145.045				53.94°C	115.10V
11	82.550A	8.933A	8.985A	3.070A	1099.129	86.072%	2132	51.7	47.77°C	0.998
	12.228V	5.040V	3.305V	4.883V	1276.994				56.58°C	115.11V
CL1	0.098A	15.020A	15.002A	0.004A	127.086	86.561%	726	26.0	43.78°C	0.983
	12.226V	5.059V	3.325V	5.101V	146.817				48.27°C	115.13V
CL2	82.933A	1.001A	1.003A	1.002A	1027.483	87.226%	2132	51.7	45.66°C	0.997
	12.228V	5.044V	3.310V	4.999V	1177.951				52.79°C	115.11V

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### 20-80W LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.195A	0.491A	0.479A	0.196A	19.686	72.044%	0	<6.0	0.821
	12.224V	5.062V	3.326V	5.108V	27.325				115.11V
2	2.411A	0.980A	0.991A	0.391A	39.716	81.911%	0	<6.0	0.920
	12.224V	5.059V	3.323V	5.097V	48.487				115.11V
3	3.634A	1.476A	1.503A	0.585A	59.862	85.990%	0	<6.0	0.957
	12.225V	5.058V	3.323V	5.087V	69.615				115.11V
4	4.840A	1.976A	1.983A	0.786A	79.746	87.487%	0	<6.0	0.968
	12.226V	5.058V	3.323V	5.074V	91.152				115.12V

### RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.6 mV	4.0 mV	6.6 mV	7.3 mV	Pass
20% Load	9.0 mV	4.9 mV	7.2 mV	8.3 mV	Pass
30% Load	10.7 mV	5.1 mV	7.3 mV	9.1 mV	Pass
40% Load	9.3 mV	4.3 mV	7.5 mV	10.6 mV	Pass
50% Load	8.0 mV	4.8 mV	8.0 mV	12.8 mV	Pass
60% Load	8.7 mV	4.7 mV	9.2 mV	15.0 mV	Pass
70% Load	8.8 mV	4.9 mV	9.4 mV	18.0 mV	Pass
80% Load	10.3 mV	5.3 mV	9.9 mV	18.3 mV	Pass
90% Load	11.2 mV	5.3 mV	10.9 mV	19.5 mV	Pass
100% Load	12.6 mV	6.2 mV	12.0 mV	29.3 mV	Pass
110% Load	19.6 mV	6.6 mV	12.8 mV	26.0 mV	Pass
Crossload 1	7.8 mV	5.1 mV	7.9 mV	6.7 mV	Pass
Crossload 2	14.3 mV	5.3 mV	11.2 mV	19.6 mV	Pass

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

Hold-Up Time (ms)	32.80
AC Loss to PWR_OK Hold Up Time (ms)	28.34
PWR_OK Inactive to DC Loss Delay (ms)	4.46



Top side



Power specifications label

## CERTIFICATIONS



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