EFFICIENCY AND NOISE LEVEL CERTIFICATIONS

Anex

Seasonic SSR-1000GD Ultra

Lab ID#: 290
Receipt Date: -
Test Date: -

Report:

Report Date: Aug 2, 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	92.313
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	0.000
Average Efficiency 5VSB	79.537
Standby Power Consumption (W) -115V	0.0578760
Standby Power Consumption (W) -230V	0.0919840
Average PF	0.961
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	34.84
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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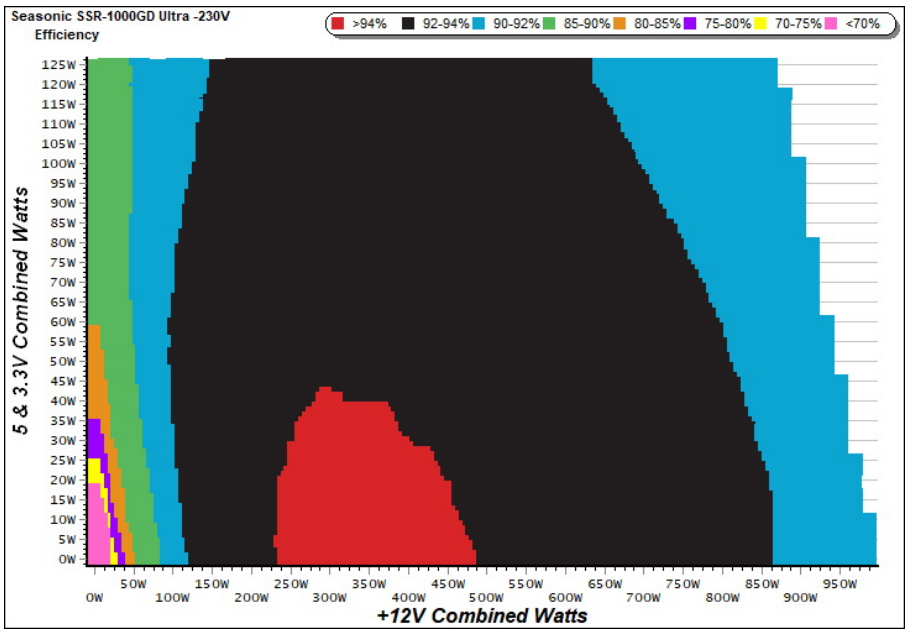
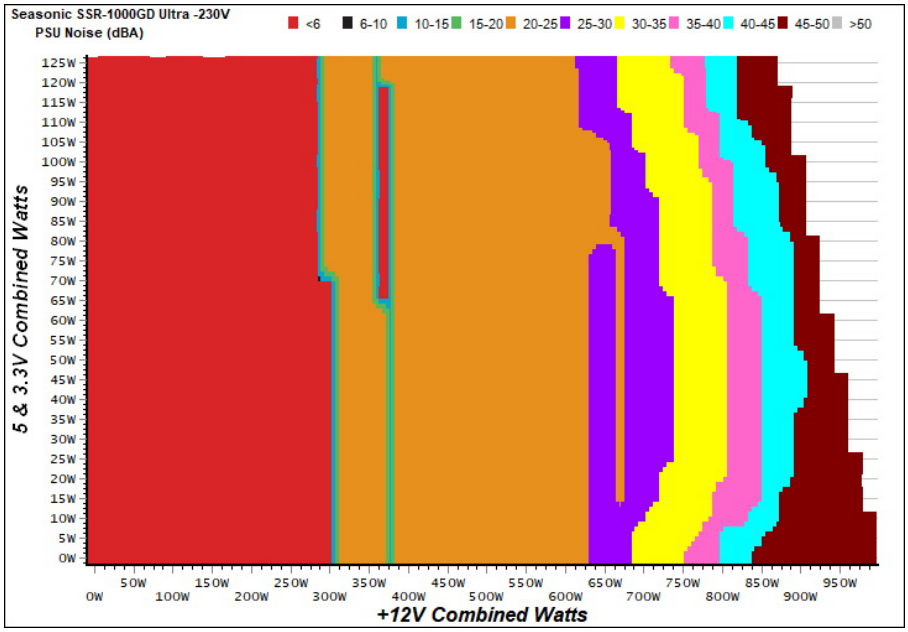
EFFICIENCY GRAPH



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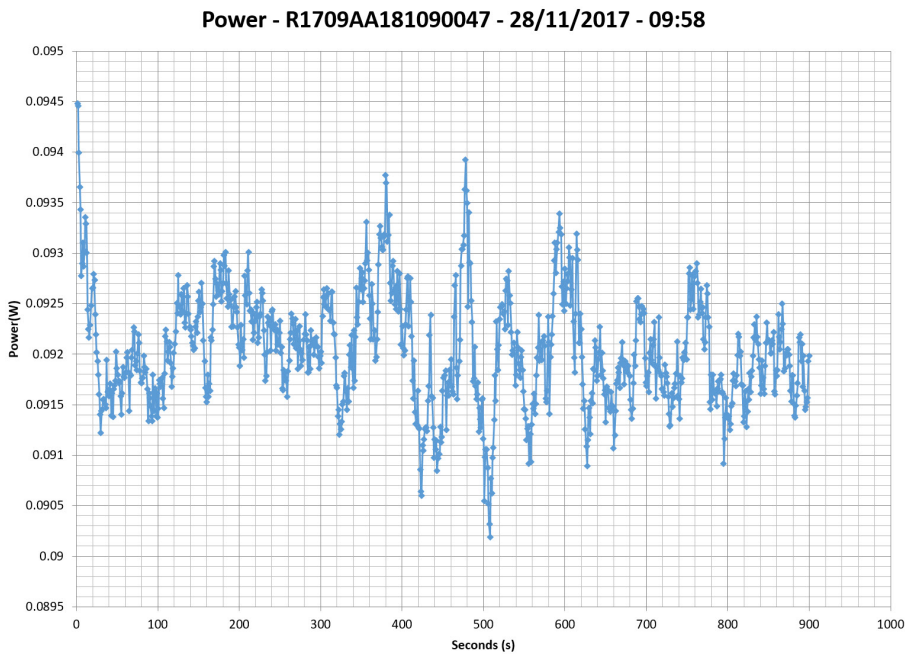
5VSB EFFICIENCY (ERP LOT 3/6 & CEC)

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 -230V



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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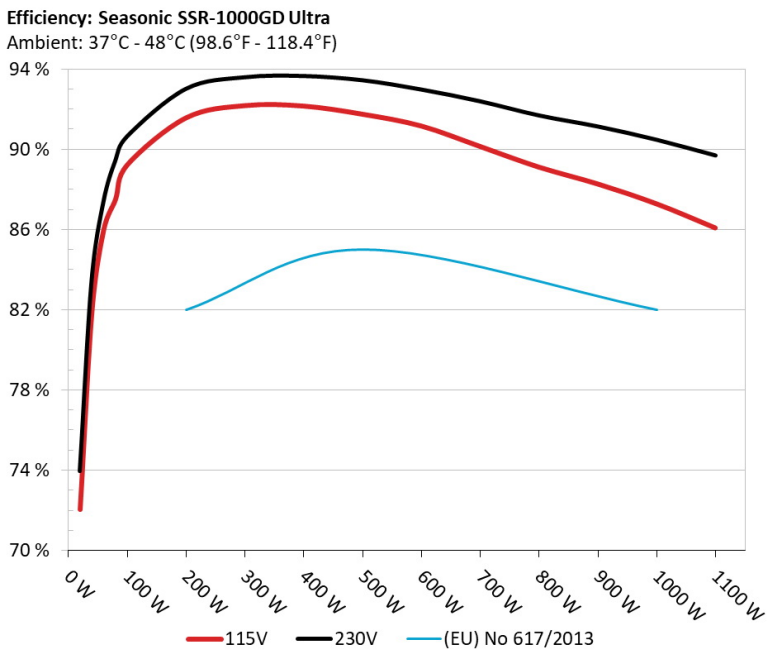
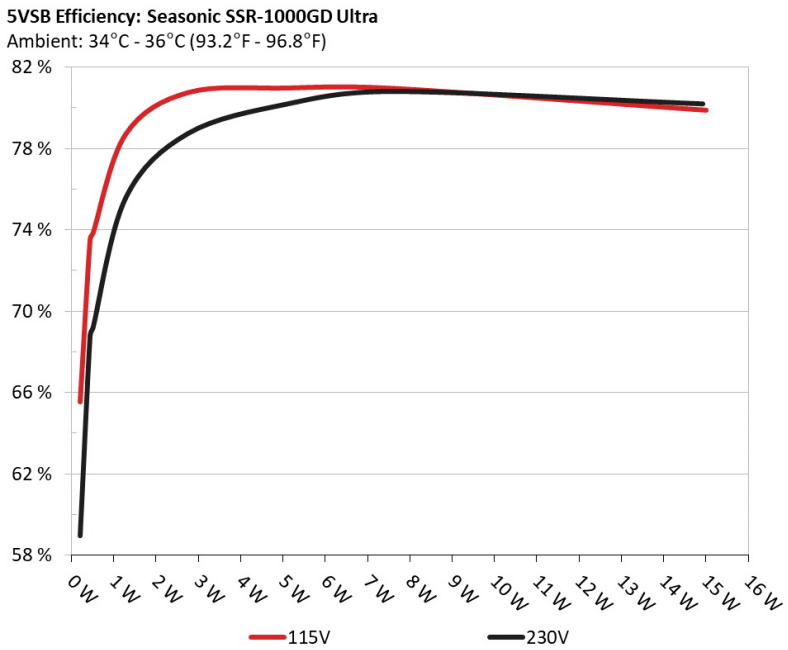
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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



INFO

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input

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TYPICAL 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	6.400A	1.972A	1.984A	0.986A	99.802	90.644%	0	<6.0	48.84°C	0.837
	12.226V	5.058V	3.323V	5.059V	110.103				38.81°C	230.22V
2	13.812A	2.959A	2.980A	1.190A	199.661	93.024%	600	22.2	39.55°C	0.934
	12.222V	5.055V	3.321V	5.040V	214.633				49.93°C	230.21V
3	21.589A	3.467A	3.493A	1.391A	299.862	93.604%	600	22.2	39.63°C	0.960
	12.218V	5.052V	3.318V	5.020V	320.353				50.51°C	230.20V
4	29.350A	3.961A	3.978A	1.600A	399.695	93.665%	600	22.2	39.98°C	0.972
	12.215V	5.049V	3.315V	4.999V	426.729				51.24°C	230.24V
5	36.779A	4.959A	4.978A	1.806A	499.697	93.453%	620	22.4	40.68°C	0.981
	12.213V	5.047V	3.313V	4.980V	534.702				52.35°C	230.21V
6	44.210A	5.944A	5.976A	2.015A	599.623	92.991%	910	28.4	41.44°C	0.984
	12.211V	5.045V	3.312V	4.960V	644.815				53.31°C	230.21V
7	51.650A	6.947A	6.981A	2.225A	699.607	92.402%	1456	42.8	42.34°C	0.988
	12.207V	5.042V	3.309V	4.939V	757.137				54.57°C	230.22V
8	59.085A	7.935A	7.982A	2.439A	799.447	91.695%	2043	48.8	43.40°C	0.989
	12.204V	5.039V	3.307V	4.917V	871.850				56.14°C	230.21V
9	66.949A	8.444A	8.501A	2.443A	899.514	91.143%	2132	51.7	44.52°C	0.990
	12.202V	5.036V	3.304V	4.908V	986.921				57.50°C	230.24V
10	74.558A	8.942A	8.991A	3.078A	999.311	90.479%	2132	51.7	46.14°C	0.990
	12.200V	5.035V	3.303V	4.868V	1104.473				59.58°C	230.23V
11	82.750A	8.942A	8.997A	3.085A	1099.079	89.699%	2132	51.7	48.06°C	0.991
	12.198V	5.034V	3.300V	4.859V	1225.301				62.21°C	230.22V
CL1	0.098A	15.020A	15.005A	0.005A	127.012	87.792%	1172	34.8	44.39°C	0.889
	12.224V	5.054V	3.324V	5.096V	144.673				54.07°C	230.25V
CL2	82.938A	1.003A	1.003A	1.002A	1025.128	90.601%	2132	51.7	47.84°C	0.990
	12.199V	5.042V	3.308V	4.982V	1131.477				59.77°C	230.23V

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LIGHT 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	0.480A	0.196A	19.697	73.940%	0	<6.0	0.501
	12.227V	5.064V	3.329V	5.108V	26.639				230.22V
2	2.413A	0.978A	0.991A	0.391A	39.740	83.454%	0	<6.0	0.660
	12.227V	5.060V	3.326V	5.095V	47.619				230.23V
3	3.637A	1.476A	1.502A	0.589A	59.923	87.402%	0	<6.0	0.749
	12.227V	5.059V	3.324V	5.084V	68.560				230.22V
4	4.841A	1.975A	1.982A	0.786A	79.750	89.419%	0	<6.0	0.802
	12.226V	5.058V	3.324V	5.071V	89.187				230.22V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	7.1 mV	4.0 mV	7.8 mV	7.4 mV	Pass
20% Load	9.9 mV	5.3 mV	8.6 mV	8.2 mV	Pass
30% Load	10.8 mV	5.1 mV	8.9 mV	8.9 mV	Pass
40% Load	9.4 mV	5.0 mV	8.6 mV	11.9 mV	Pass
50% Load	7.9 mV	5.5 mV	9.3 mV	13.1 mV	Pass
60% Load	8.3 mV	5.6 mV	9.3 mV	14.3 mV	Pass
70% Load	8.3 mV	5.6 mV	10.3 mV	18.1 mV	Pass
80% Load	9.3 mV	5.9 mV	11.2 mV	16.9 mV	Pass
90% Load	10.1 mV	5.9 mV	11.6 mV	19.4 mV	Pass
100% Load	16.2 mV	6.7 mV	12.4 mV	23.9 mV	Pass
110% Load	19.1 mV	7.1 mV	12.3 mV	25.8 mV	Pass
Crossload 1	9.1 mV	5.7 mV	9.8 mV	6.9 mV	Pass
Crossload 2	16.4 mV	6.0 mV	11.3 mV	18.7 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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