EFFICIENCY AND NOISE LEVEL CERTIFICATIONS

Anex

SilverStone Extreme 1200R Platinum

Lab ID#: SL12002326
Receipt Date: Dec 12, 2023
Test Date: Jan 15, 2024

Report: 24PS2326A
Report Date: Jan 19, 2024

DUT INFORMATION

Brand	SilverStone
Manufacturer (OEM)	High Power
Series	Extreme R Platinum
Model Number	SST-SL1200MCPT-A
Serial Number	SST-EX1200R-PL
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	14-7
Rated Frequency (Hz)	60-50
Rated Power (W)	1200
Type	SFX-L
Cooling	120mm Fluid Dynamic Bearing Fan (HA1215H12SF-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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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 v3.1 PSU Power Excursion	✓

115V

Average Efficiency	89.434%
Efficiency With 10W (≤500W) or 2% (>500W)	60.894
Average Efficiency 5VSB	83.593%
Standby Power Consumption (W)	0.1218000
Average PF	0.991
Avg Noise Output	28.18 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A-

230V

Average Efficiency	91.734%
Average Efficiency 5VSB	82.399%
Standby Power Consumption (W)	0.1746000
Average PF	0.947
Avg Noise Output	26.72 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A-

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	100	3	0.3
	Watts	100		1200	15	3.6
Total Max. Power (W)		1200				

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

Hold-Up Time (ms)	13.3
AC Loss to PWR_OK Hold Up Time (ms)	12
PWR_OK Inactive to DC Loss Delay (ms)	1.3

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (300mm)	1	1	16-18AWG	No
4+4 pin EPS12V (410mm)	2	2	16AWG	No
6+2 pin PCIe (400mm+150mm)	2	4	16AWG	No
12+4 pin PCIe (410mm) (600W)	1	1	16-24AWG	No
SATA (300mm+95mm+95mm+95mm)	2	8	16AWG	No
4-pin Molex (300mm+200mm+200mm) / FDD (+100mm)	1	3 / 1	16-24AWG	No

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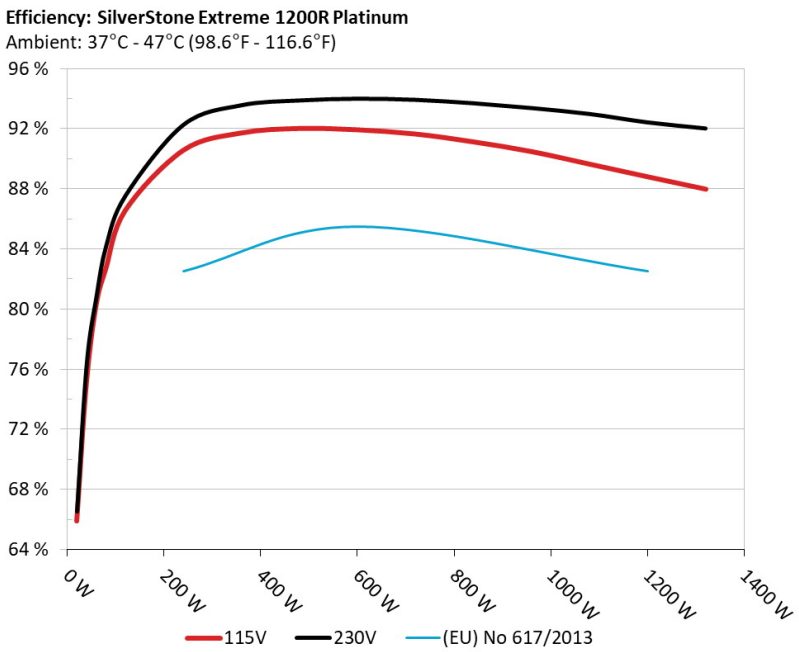
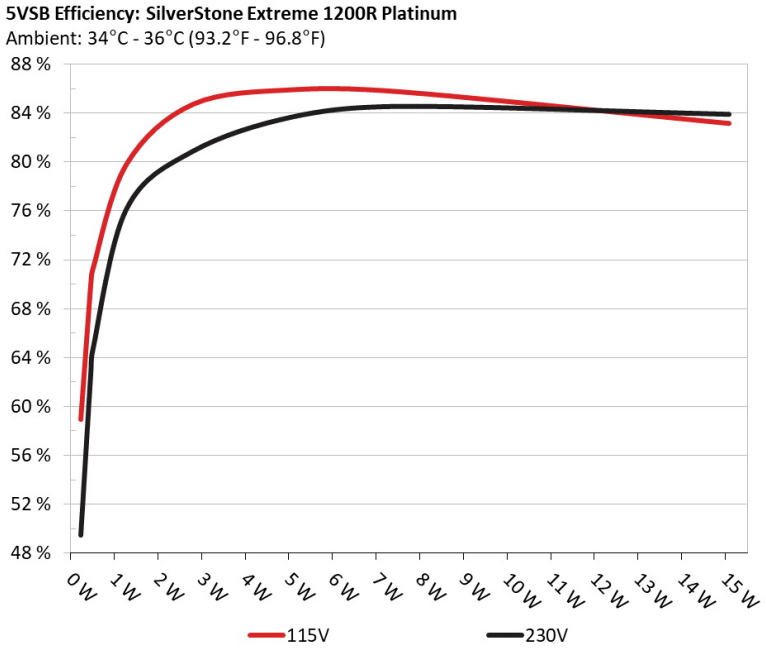
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	58.964%	0.023
	5.103V	0.39W		115.17V
2	0.09A	0.459W	70.058%	0.038
	5.102V	0.655W		115.16V
3	0.55A	2.801W	84.736%	0.176
	5.091V	3.306W		115.17V
4	1A	5.081W	85.928%	0.275
	5.079V	5.914W		115.16V
5	1.5A	7.602W	85.744%	0.347
	5.067V	8.866W		115.16V
6	3A	15.091W	83.174%	0.456
	5.03V	18.142W		115.15V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	49.493%	0.008
	5.103V	0.466W		230.4V
2	0.09A	0.459W	62.784%	0.013
	5.102V	0.731W		230.4V
3	0.55A	2.801W	80.917%	0.06
	5.091V	3.461W		230.4V
4	1A	5.081W	83.726%	0.103
	5.08V	6.07W		230.39V
5	1.5A	7.603W	84.588%	0.146
	5.067V	8.989W		230.39V
6	3A	15.092W	83.937%	0.253
	5.03V	17.981W		230.39V

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115V

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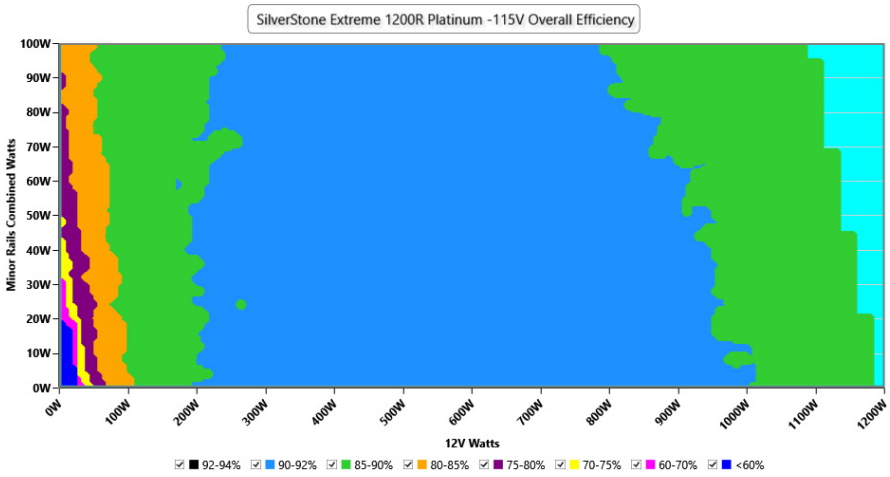
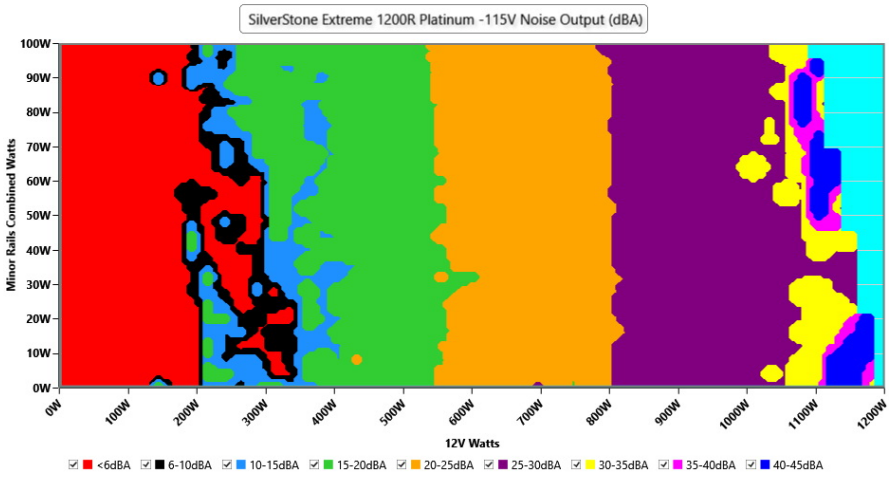
EFFICIENCY GRAPH 115V



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

Anex

SilverStone Extreme 1200R Platinum

VAMPIRE POWER -115V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.92 V	114.83 V	113.85 V	115.01 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.98 Hz	59.40 Hz	60.02 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.421	1.419	1.340	1.424	1.490	PASS
Mains Voltage THD:	0.32 %	0.20 %	N/A	0.41 %	2.00 %	PASS
Real Power:	0.122 W	0.098 W	N/A	0.147 W	N/A	N/A
Apparent Power:	17.178 W	17.159 W	N/A	17.200 W	N/A	N/A
Power Factor:	0.007	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%	8.162A	1.975A	1.981A	0.987A	119.997	86.057%	422	<6.0	40.02°C	0.986
	12.055V	5.063V	3.332V	5.069V	139.493				44.3°C	115.11V
20%	17.349A	2.971A	2.983A	1.187A	239.959	90.073%	1022	19.3	40.88°C	0.98
	12.050V	5.05V	3.319V	5.054V	266.428				45.4°C	115.09V
30%	26.844A	3.471A	3.49A	1.39A	359.261	91.227%	932	16.7	41.13°C	0.993
	12.040V	5.042V	3.309V	5.039V	393.819				46.13°C	115.08V
40%	36.461A	3.973A	4A	1.593A	479.66	91.528%	1081	21.1	41.54°C	0.997
	12.025V	5.034V	3.3V	5.023V	524.033				47.06°C	115.06V
50%	45.710A	4.975A	5.015A	1.798A	599.426	91.441%	1173	23.6	42.36°C	0.998
	12.008V	5.026V	3.29V	5.007V	655.533				48.36°C	115.03V
60%	55.058A	5.981A	6.037A	2.001A	719.956	91.16%	1289	26.7	42.68°C	0.999
	11.990V	5.017V	3.28V	4.991V	789.737				49.26°C	115.01V
70%	64.369A	6.992A	7.067A	2.212A	839.715	90.639%	1416	29.5	43.33°C	0.999
	11.971V	5.008V	3.269V	4.974V	926.48				50.35°C	114.98V
80%	73.782A	8.005A	8.103A	2.319A	959.707	89.992%	1417	29.5	43.86°C	0.999
	11.952V	4.997V	3.258V	4.959V	1066.591				51.95°C	114.95V
90%	83.539A	8.522A	8.621A	2.427A	1079.543	89.16%	2261	42.9	44.3°C	0.999
	11.935V	4.987V	3.247V	4.945V	1210.834				53.32°C	114.92V
100%	93.119A	9.04A	9.175A	3.051A	1199.625	88.319%	2320	43.7	45.74°C	0.999
	11.919V	4.978V	3.237V	4.917V	1358.313				55.75°C	114.89V
110%	102.708A	10.068A	10.328A	3.06A	1320.248	87.491%	2312	43.6	46.65°C	0.999
	11.897V	4.966V	3.224V	4.904V	1508.982				57.57°C	114.87V
CL1	0.117A	11.953A	11.996A	0A	101.307	80.452%	1334	27.6	41.28°C	0.988
	12.043V	5.036V	3.309V	5.087V	125.962				46.77°C	115.14V
CL2	0.116A	19.891A	0A	0A	101.398	79.614%	1175	23.6	40.15°C	0.988
	12.055V	5.027V	3.327V	5.092V	127.216				47.16°C	115.13V
CL3	0.116A	0A	19.962A	0A	67.392	74.016%	1073	21.0	40.13°C	0.978
	12.056V	5.062V	3.306V	5.088V	91.058				49.23°C	115.14V
CL4	100.566A	0A	0A	0.001A	1200.131	89.147%	1876	37.9	45.15°C	0.999
	11.934V	5.012V	3.266V	5.011V	1346.013				56.11°C	114.9V

Anex

SilverStone Extreme 1200R Platinum

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	1.228A	0.492A	0.493A	0.196A	19.995	65.415%	0	<6.0	39.74°C	0.63
	12.098V	5.084V	3.349V	5.099V	30.581				36.67°C	115.14V
40W	2.706A	0.689A	0.69A	0.295A	39.995	74.608%	0	<6.0	40.69°C	0.675
	12.080V	5.082V	3.347V	5.094V	53.62				37.38°C	115.13V
60W	4.186A	0.886A	0.888A	0.393A	59.994	79.792%	0	<6.0	42.73°C	0.974
	12.069V	5.079V	3.345V	5.09V	75.189				38.92°C	115.13V
80W	5.664A	1.083A	1.086A	0.492A	79.947	82.192%	0	<6.0	43.5°C	0.977
	12.063V	5.077V	3.342V	5.086V	97.258				39.56°C	115.12V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.07mV	9.03mV	8.34mV	8.87mV	Pass
20% Load	12.47mV	15.51mV	12.51mV	11.26mV	Pass
30% Load	17.61mV	13.01mV	11.09mV	11.05mV	Pass
40% Load	21.68mV	15.40mV	13.02mV	12.84mV	Pass
50% Load	24.02mV	15.81mV	13.22mV	15.03mV	Pass
60% Load	26.87mV	17.04mV	14.14mV	11.77mV	Pass
70% Load	31.50mV	17.50mV	15.21mV	12.18mV	Pass
80% Load	35.87mV	18.36mV	16.99mV	12.23mV	Pass
90% Load	40.60mV	19.18mV	18.56mV	14.01mV	Pass
100% Load	50.48mV	22.14mV	20.21mV	15.40mV	Pass
110% Load	54.31mV	22.17mV	21.53mV	16.18mV	Pass
Crossload1	13.91mV	11.16mV	12.53mV	9.34mV	Pass
Crossload2	12.47mV	11.53mV	7.83mV	4.23mV	Pass
Crossload3	11.25mV	9.13mV	15.36mV	5.09mV	Pass
Crossload4	49.20mV	20.27mV	17.56mV	12.50mV	Pass

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230V

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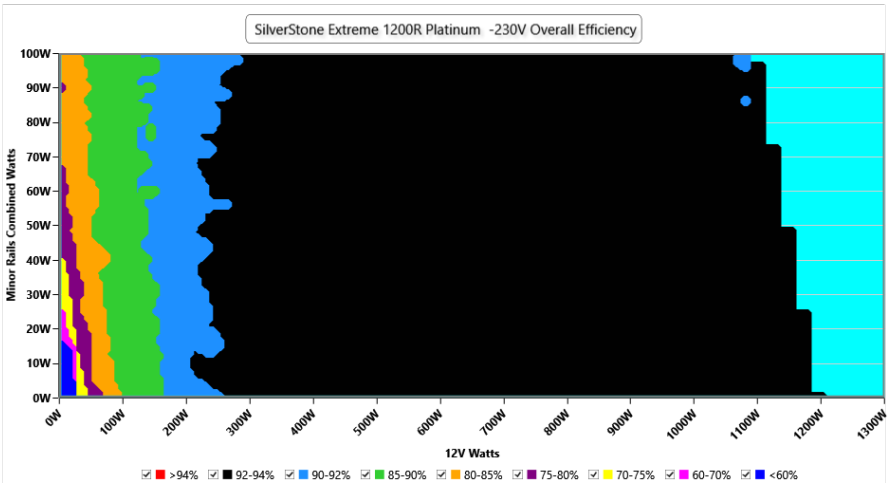
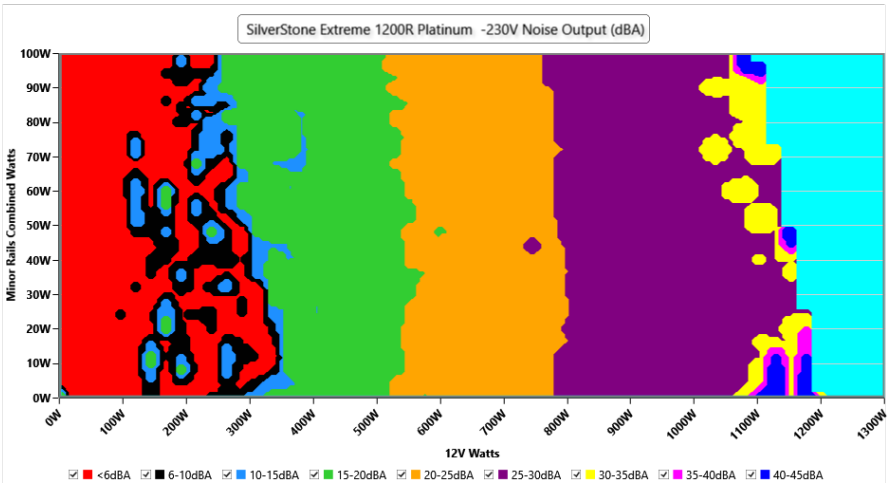
EFFICIENCY GRAPH 230V



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

Anex

SilverStone Extreme 1200R Platinum

VAMPIRE POWER -230V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	230.38 V	230.37 V	227.70 V	230.41 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	50.00 Hz	49.50 Hz	50.00 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.415	1.415	1.340	1.416	1.490	PASS
Mains Voltage THD:	0.14 %	0.13 %	N/A	0.16 %	2.00 %	PASS
Real Power:	0.175 W	0.155 W	N/A	0.195 W	N/A	N/A
Apparent Power:	56.847 W	56.841 W	N/A	56.861 W	N/A	N/A
Power Factor:	0.003	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 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%	8.158A	1.976A	1.981A	0.987A	120.018	87.036%	472	<6.0	40.24°C	0.87
	12.065V	5.063V	3.332V	5.068V	137.969				44.49°C	230.38V
20%	17.347A	2.971A	2.983A	1.188A	239.983	91.755%	819	13.5	40.8°C	0.923
	12.052V	5.05V	3.319V	5.053V	261.541				45.38°C	230.37V
30%	26.850A	3.472A	3.49A	1.39A	359.353	93.056%	931	16.7	41.07°C	0.943
	12.041V	5.042V	3.309V	5.038V	386.46				46.21°C	230.35V
40%	36.462A	3.974A	4A	1.593A	479.719	93.38%	1072	21.0	41.97°C	0.958
	12.026V	5.034V	3.3V	5.023V	513.719				47.48°C	230.35V
50%	45.707A	4.976A	5.015A	1.798A	599.475	93.495%	1083	21.1	42.35°C	0.966
	12.010V	5.026V	3.29V	5.007V	641.171				48.37°C	230.34V
60%	55.050A	5.982A	6.038A	2.001A	720.006	93.421%	1262	26.1	42.71°C	0.969
	11.993V	5.017V	3.28V	4.99V	770.714				49.26°C	230.33V
70%	64.350A	6.992A	7.067A	2.212A	839.754	93.194%	1288	26.7	43.06°C	0.974
	11.975V	5.007V	3.269V	4.973V	901.057				50.09°C	230.32V
80%	73.752A	8.005A	8.103A	2.319A	959.739	92.876%	1418	29.5	43.91°C	0.979
	11.957V	4.997V	3.258V	4.959V	1033.322				52.01°C	230.31V
90%	83.514A	8.522A	8.622A	2.427A	1079.545	92.483%	2339	43.8	44.7°C	0.984
	11.938V	4.987V	3.247V	4.944V	1167.274				53.79°C	230.3V
100%	93.073A	9.039A	9.175A	3.051A	1199.621	91.923%	2329	43.8	45.78°C	0.987
	11.925V	4.978V	3.237V	4.916V	1305.012				55.85°C	230.3V
110%	102.638A	10.067A	10.327A	3.059A	1320.249	91.517%	2322	43.7	46.91°C	0.99
	11.906V	4.966V	3.224V	4.904V	1442.653				57.84°C	230.29V
CL1	0.117A	11.953A	11.996A	0A	101.308	81.429%	1284	26.5	40.79°C	0.845
	12.048V	5.036V	3.309V	5.087V	124.47				46.28°C	230.38V
CL2	0.116A	19.892A	0A	0A	101.4	80.38%	1234	25.4	40.56°C	0.85
	12.057V	5.027V	3.327V	5.092V	126.127				47.62°C	230.38V
CL3	0.116A	0A	19.962A	0A	67.393	75.337%	1073	21.0	40.2°C	0.776
	12.058V	5.062V	3.306V	5.088V	89.441				49.24°C	230.39V
CL4	100.529A	0A	0A	0.001A	1200.143	92.642%	1498	31.5	45.64°C	0.987
	11.938V	5.012V	3.266V	5.011V	1295.534				56.59°C	230.29V

Anex

SilverStone Extreme 1200R Platinum

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	1.228A	0.492A	0.493A	0.196A	20.007	66.031%	0	<6.0	39.71°C	0.383
	12.095V	5.083V	3.349V	5.098V	30.299				36.65°C	230.41V
40W	2.707A	0.689A	0.69A	0.295A	40.004	75.862%	0	<6.0	40.96°C	0.511
	12.079V	5.08V	3.346V	5.094V	52.747				37.59°C	230.4V
60W	4.187A	0.887A	0.888A	0.393A	60.002	80.297%	0	<6.0	41.89°C	0.729
	12.068V	5.078V	3.344V	5.09V	74.741				38.3°C	230.4V
80W	5.666A	1.084A	1.086A	0.492A	79.969	83.671%	0	<6.0	39.02°C	0.79
	12.063V	5.076V	3.342V	5.085V	95.568				42.91°C	230.39V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.86mV	8.98mV	8.14mV	8.66mV	Pass
20% Load	12.47mV	16.12mV	12.67mV	11.26mV	Pass
30% Load	15.88mV	12.19mV	10.98mV	5.71mV	Pass
40% Load	23.26mV	15.25mV	12.61mV	13.09mV	Pass
50% Load	25.64mV	15.61mV	12.92mV	15.28mV	Pass
60% Load	27.02mV	16.63mV	14.09mV	11.92mV	Pass
70% Load	30.68mV	17.19mV	14.85mV	12.02mV	Pass
80% Load	34.96mV	18.16mV	16.63mV	12.63mV	Pass
90% Load	39.54mV	19.08mV	18.16mV	13.09mV	Pass
100% Load	49.06mV	21.71mV	20.31mV	15.09mV	Pass
110% Load	52.34mV	22.51mV	21.50mV	16.00mV	Pass
Crossload1	14.22mV	10.97mV	12.48mV	9.03mV	Pass
Crossload2	14.04mV	11.88mV	8.24mV	5.30mV	Pass
Crossload3	11.55mV	8.82mV	14.95mV	4.74mV	Pass
Crossload4	48.45mV	20.70mV	17.34mV	16.15mV	Pass

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Anex

SilverStone Extreme 1200R Platinum

Top side

Power specifications label

CERTIFICATIONS 115V

CERTIFICATIONS 230V

Aristeidis Bitziopoulos
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