Anex

XPG Core Reactor II 850W

Lab ID#: AD85002216
Receipt Date: Jul 25, 2023
Test Date: Jul 31, 2023

Report: 23PS2216A
Report Date: Aug 25, 2023

DUT INFORMATION

Brand	XPG
Manufacturer (OEM)	Channel Well Technology
Series	Core Reactor II
Model Number	COREREACTORII850GOLD
Serial Number	4N1680815250
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	47-63
Rated Frequency (Hz)	12-6
Rated Power (W)	850
Type	ATX12V
Cooling	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
Semi-Passive Operation	✗
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 v3.0 PSU Power Excursion	✓

115V

Average Efficiency	89.464%
Efficiency With 10W (≤500W) or 2% (>500W)	71.503
Average Efficiency 5VSB	79.454%
Standby Power Consumption (W)	0.0403000
Average PF	0.990
Avg Noise Output	32.43 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	Standard++

230V

Average Efficiency	91.387%
Average Efficiency 5VSB	78.595%
Standby Power Consumption (W)	0.0724000
Average PF	0.962
Avg Noise Output	30.00 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	Standard++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	22	22	70.8	3	0.3
	Watts	120		850	15	3.6
Total Max. Power (W)		850				

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

Hold-Up Time (ms)	21.4
AC Loss to PWR_OK Hold Up Time (ms)	18.7
PWR_OK Inactive to DC Loss Delay (ms)	2.7

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (640mm)	1	1	16-20AWG	No
4+4 pin EPS12V (650mm)	2	2	16AWG	No
4+4 pin EPS12V (750mm)	1	1	16AWG	No
6+2 pin PCIe (650mm+150mm)	2	4	16-18AWG	No
6+2 pin PCIe (650mm)	2	2	16AWG	No
12+4 pin PCIe (650mm) (600W)	1	1	16-24AWG	No
SATA (500mm+150mm+150mm+150mm)	2	8	18AWG	No
4-pin Molex (500mm+150mm+150mm+150mm)	1	4	18AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

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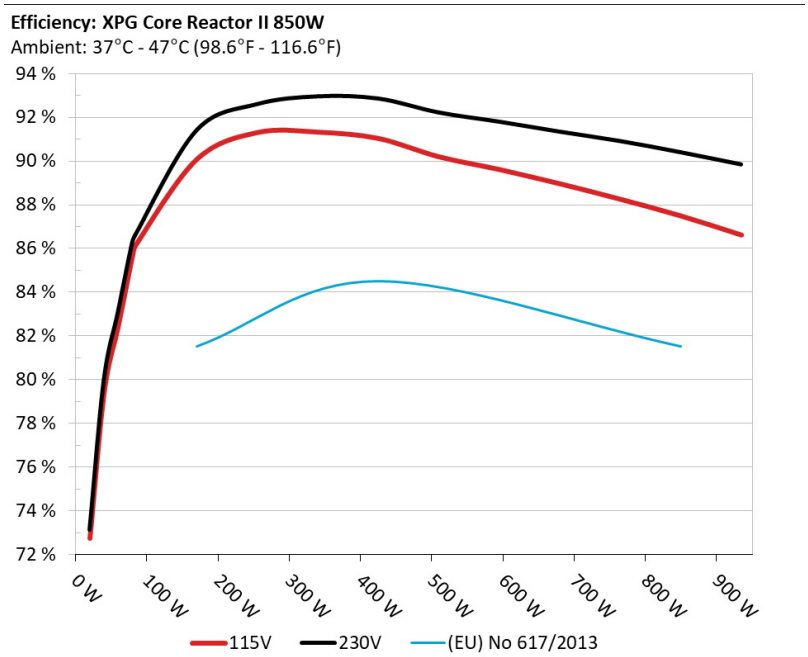
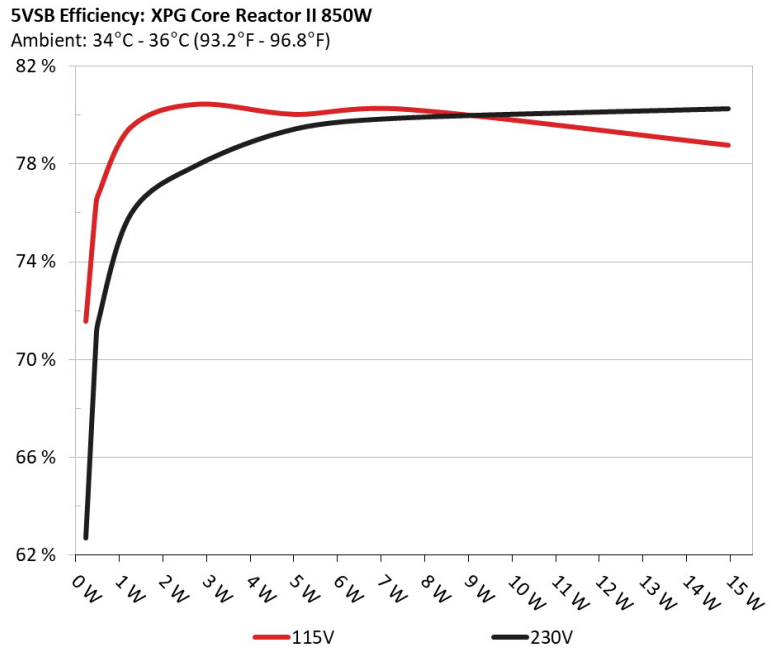
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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	0.228W	71.07%	0.032
	5.068V	0.321W		115.17V
2	0.09A	0.456W	75.777%	0.06
	5.067V	0.602W		115.16V
3	0.55A	2.78W	79.949%	0.269
	5.054V	3.477W		115.16V
4	1A	5.043W	79.531%	0.369
	5.042V	6.34W		115.17V
5	1.5A	7.543W	79.743%	0.42
	5.028V	9.459W		115.16V
6	3A	14.957W	78.274%	0.487
	4.985V	19.11W		115.16V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228W	62.2%	0.011
	5.068V	0.366W		230.39V
2	0.09A	0.456W	70.04%	0.02
	5.067V	0.651W		230.39V
3	0.55A	2.78W	77.447%	0.103
	5.054V	3.59W		230.39V
4	1A	5.042W	78.928%	0.171
	5.041V	6.387W		230.39V
5	1.5A	7.542W	79.373%	0.23
	5.027V	9.503W		230.39V
6	3A	14.956W	79.747%	0.334
	4.985V	18.757W		230.38V

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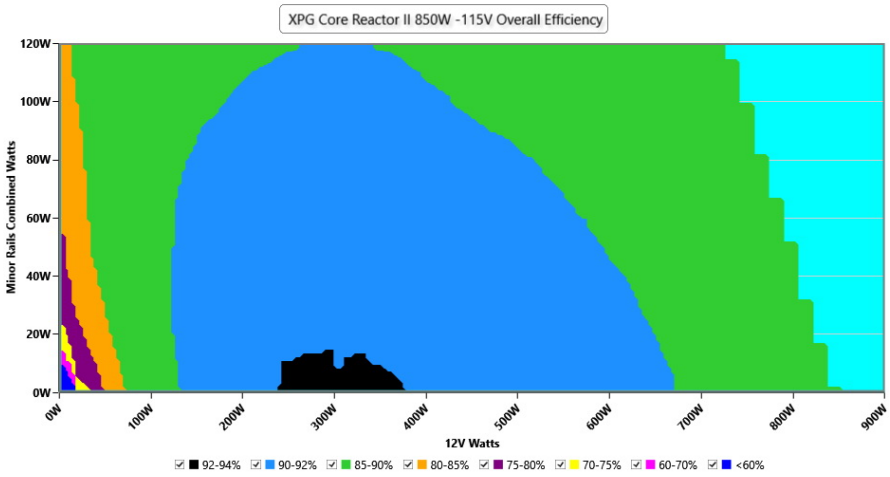
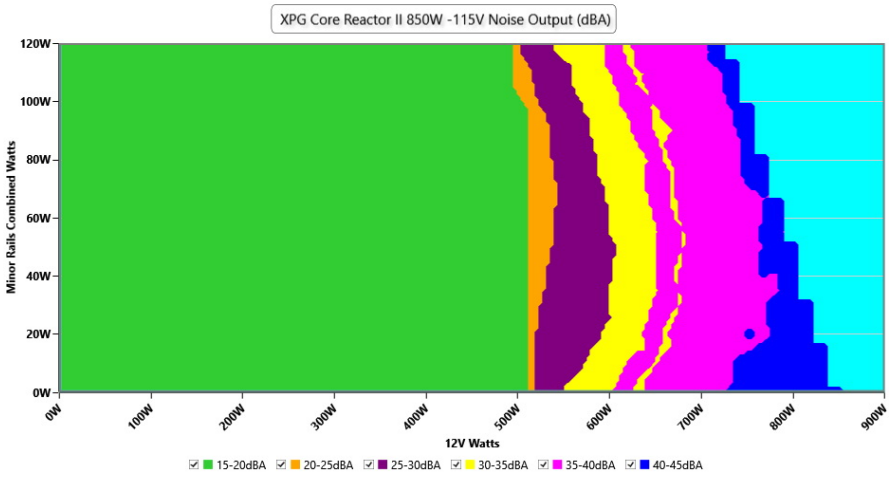
EFFICIENCY GRAPH 115V



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

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XPG Core Reactor II 850W

VAMPIRE POWER -115V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.15 V	115.14 V	113.85 V	115.17 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	60.00 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.415	1.415	1.340	1.416	1.490	PASS
Mains Voltage THD:	0.13 %	0.11 %	N/A	0.15 %	2.00 %	PASS
Real Power:	0.040 W	0.036 W	N/A	0.044 W	N/A	N/A
Apparent Power:	9.904 W	9.900 W	N/A	9.907 W	N/A	N/A
Power Factor:	0.004	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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XPG Core Reactor II 850W

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%	5.182A	1.965A	1.99A	0.986A	85.001	86.674%	895	20.6	40.54°C	0.977
	12.235V	5.09V	3.316V	5.072V	98.07				44.75°C	115.14V
20%	11.450A	2.949A	2.987A	1.185A	169.952	90.559%	900	20.9	40.67°C	0.99
	12.143V	5.086V	3.314V	5.065V	187.668				45.23°C	115.12V
30%	18.039A	3.443A	3.486A	1.384A	254.958	91.789%	902	20.8	41.49°C	0.993
	12.135V	5.083V	3.313V	5.058V	277.765				46.58°C	115.09V
40%	24.608A	3.937A	3.985A	1.584A	340.05	91.808%	905	20.9	41.9°C	0.99
	12.144V	5.081V	3.312V	5.053V	370.391				47.31°C	115.07V
50%	30.739A	4.924A	4.983A	1.784A	425.044	91.518%	915	21.5	42.44°C	0.992
	12.185V	5.079V	3.312V	5.047V	464.436				48.37°C	115.05V
60%	36.937A	5.913A	5.983A	1.984A	509.587	90.682%	1513	37.0	42.82°C	0.993
	12.177V	5.074V	3.31V	5.04V	561.951				49.25°C	115.02V
70%	43.214A	6.905A	6.985A	2.186A	594.918	90.094%	1812	41.4	43.37°C	0.994
	12.168V	5.07V	3.307V	5.033V	660.33				50.38°C	115V
80%	49.501A	7.897A	7.987A	2.288A	679.755	89.446%	2027	44.9	43.87°C	0.995
	12.159V	5.065V	3.305V	5.028V	759.961				52.02°C	114.98V
90%	56.162A	8.395A	8.473A	2.389A	765.186	88.732%	2335	48.8	44.73°C	0.995
	12.156V	5.063V	3.304V	5.024V	862.365				53.77°C	114.95V
100%	62.586A	8.894A	8.991A	2.996A	850.036	87.97%	2335	48.8	45.39°C	0.996
	12.149V	5.06V	3.303V	5.007V	966.278				55.46°C	114.92V
110%	68.874A	9.89A	10.085A	2.998A	934.609	87.101%	2341	49.0	46.56°C	0.996
	12.143V	5.056V	3.301V	5.005V	1073.021				57.48°C	114.9V
CL1	0.115A	14.199A	14.408A	0A	121.3	83.559%	1303	33.2	42.01°C	0.986
	12.168V	5.085V	3.31V	5.109V	145.168				47.51°C	115.13V
CL2	0.115A	21.568A	0A	0A	111.389	82.422%	921	21.6	41.7°C	0.985
	12.169V	5.1V	3.314V	5.145V	135.146				48.73°C	115.14V
CL3	0.114A	0A	21.837A	0A	73.991	77.575%	901	20.9	41.45°C	0.975
	12.237V	5.095V	3.324V	5.087V	95.38				50.47°C	115.15V
CL4	69.897A	0A	0.001A	0A	849.936	88.385%	2333	48.7	45.81°C	0.996
	12.160V	5.072V	3.313V	5.077V	961.631				56.75°C	114.93V

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XPG Core Reactor II 850W

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	1.230A	0.491A	0.498A	0.197A	20.003	73.218%	874	19.6	36.53°C	0.811
	12.070V	5.089V	3.314V	5.087V	27.32				39.58°C	115.17V
40W	2.708A	0.688A	0.697A	0.295A	40	79.911%	882	20.0	37.84°C	0.927
	12.071V	5.09V	3.315V	5.086V	50.058				41.09°C	115.15V
60W	4.130A	0.884A	0.896A	0.393A	59.999	82.966%	887	20.4	38.21°C	0.962
	12.234V	5.09V	3.315V	5.084V	72.314				41.99°C	115.15V
80W	5.586A	1.081A	1.095A	0.492A	79.954	86.171%	889	20.4	38.93°C	0.974
	12.233V	5.089V	3.315V	5.081V	92.785				42.91°C	115.14V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.24mV	4.14mV	5.37mV	6.17mV	Pass
20% Load	12.55mV	4.35mV	6.81mV	6.37mV	Pass
30% Load	10.52mV	5.98mV	8.85mV	7.29mV	Pass
40% Load	11.80mV	5.22mV	9.01mV	7.39mV	Pass
50% Load	12.62mV	5.58mV	10.03mV	7.44mV	Pass
60% Load	13.74mV	6.24mV	12.08mV	8.26mV	Pass
70% Load	15.17mV	6.80mV	13.00mV	9.28mV	Pass
80% Load	16.14mV	7.62mV	18.17mV	9.58mV	Pass
90% Load	17.47mV	8.18mV	19.29mV	9.89mV	Pass
100% Load	23.98mV	9.67mV	20.80mV	11.86mV	Pass
110% Load	25.17mV	9.97mV	22.86mV	12.29mV	Pass
Crossload1	21.63mV	5.85mV	13.96mV	6.80mV	Pass
Crossload2	17.71mV	8.08mV	6.19mV	7.95mV	Pass
Crossload3	7.20mV	4.55mV	15.46mV	6.53mV	Pass
Crossload4	23.66mV	8.52mV	16.42mV	10.89mV	Pass

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230V

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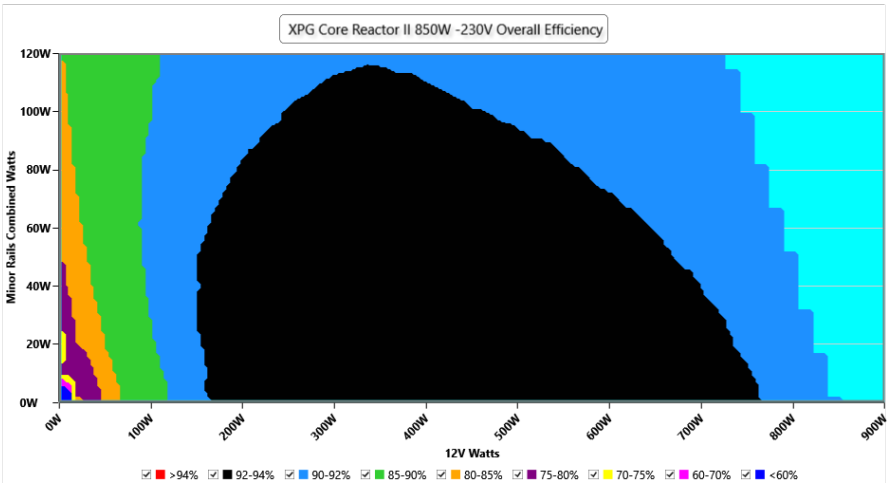
EFFICIENCY GRAPH 230V



INFO

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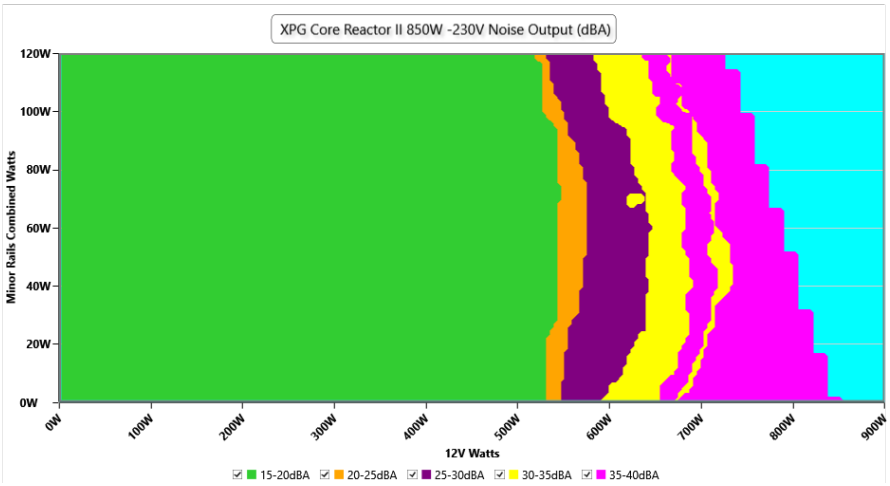
NOISE GRAPH 230V



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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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VAMPIRE POWER -230V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	230.38 V	230.36 V	227.70 V	230.40 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:	0.072 W	0.061 W	N/A	0.096 W	N/A	N/A
Apparent Power:	33.110 W	33.103 W	N/A	33.119 W	N/A	N/A
Power Factor:	0.002	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%	5.180A	1.965A	1.99A	0.986A	85.003	87.159%	896	20.6	40.41°C	0.842
	12.238V	5.09V	3.316V	5.072V	97.527				44.66°C	230.39V
20%	11.450A	2.95A	2.987A	1.185A	169.961	91.884%	896	20.6	40.65°C	0.938
	12.145V	5.086V	3.314V	5.065V	184.978				45.29°C	230.38V
30%	18.041A	3.444A	3.487A	1.384A	254.971	93.086%	896	20.6	41.49°C	0.964
	12.134V	5.083V	3.313V	5.058V	273.908				46.63°C	230.37V
40%	24.616A	3.938A	3.986A	1.584A	340.06	93.443%	903	20.8	41.78°C	0.974
	12.140V	5.08V	3.312V	5.051V	363.919				47.31°C	230.36V
50%	30.744A	4.924A	4.983A	1.784A	425.074	93.343%	907	20.9	42.62°C	0.98
	12.183V	5.079V	3.312V	5.047V	455.386				48.65°C	230.35V
60%	36.933A	5.912A	5.982A	1.984A	509.617	92.708%	1626	38.5	42.85°C	0.984
	12.179V	5.075V	3.31V	5.041V	549.696				49.49°C	230.34V
70%	43.217A	6.905A	6.984A	2.186A	595.016	92.283%	1904	42.6	43.58°C	0.986
	12.169V	5.071V	3.308V	5.033V	644.766				50.66°C	230.33V
80%	49.485A	7.895A	7.985A	2.287A	679.821	91.829%	2172	46.3	43.66°C	0.988
	12.164V	5.067V	3.306V	5.029V	740.304				51.74°C	230.32V
90%	56.175A	8.395A	8.473A	2.389A	765.237	91.396%	2300	49.1	44.06°C	0.988
	12.154V	5.063V	3.304V	5.023V	837.275				53.35°C	230.31V
100%	62.600A	8.895A	8.992A	2.997A	850.089	90.885%	2323	48.8	45.68°C	0.989
	12.146V	5.059V	3.303V	5.006V	935.341				55.77°C	230.3V
110%	68.888A	9.889A	10.084A	2.997A	934.647	90.332%	2328	48.7	46.76°C	0.99
	12.141V	5.057V	3.302V	5.005V	1034.678				57.69°C	230.29V
CL1	0.115A	14.197A	14.405A	0A	121.303	84.486%	1282	32.5	42.85°C	0.91
	12.165V	5.085V	3.311V	5.109V	143.576				48.39°C	230.39V
CL2	0.115A	21.565A	0A	0A	111.39	83.362%	920	21.6	41.75°C	0.9
	12.170V	5.101V	3.315V	5.145V	133.621				48.78°C	230.39V
CL3	0.114A	0A	21.861A	0A	73.992	78.168%	896	20.6	39.41°C	0.836
	12.232V	5.089V	3.321V	5.081V	94.659				48.48°C	230.39V
CL4	69.924A	0A	0.001A	0A	849.983	91.407%	2326	48.8	45.78°C	0.989
	12.156V	5.071V	3.313V	5.076V	929.891				56.77°C	230.3V

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XPG Core Reactor II 850W

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	1.230A	0.491A	0.498A	0.197A	20.003	73.624%	879	20.0	36.76°C	0.444
	12.073V	5.09V	3.314V	5.087V	27.295				39.85°C	230.39V
40W	2.708A	0.688A	0.697A	0.295A	40.002	80.472%	881	20.0	36.93°C	0.639
	12.072V	5.09V	3.315V	5.085V	49.707				40.23°C	230.39V
60W	4.130A	0.884A	0.896A	0.394A	60	83.616%	883	20.1	37.65°C	0.765
	12.233V	5.089V	3.315V	5.083V	71.76				41.17°C	230.39V
80W	5.586A	1.081A	1.095A	0.492A	79.959	86.774%	885	20.2	38.56°C	0.829
	12.233V	5.089V	3.315V	5.08V	92.15				42.29°C	230.39V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	8.48mV	4.25mV	5.42mV	6.53mV	Pass
20% Load	12.96mV	4.40mV	6.60mV	6.42mV	Pass
30% Load	10.50mV	5.52mV	8.44mV	6.88mV	Pass
40% Load	11.39mV	5.22mV	8.60mV	7.03mV	Pass
50% Load	12.52mV	5.68mV	10.08mV	8.16mV	Pass
60% Load	13.99mV	6.39mV	11.31mV	8.62mV	Pass
70% Load	15.53mV	7.47mV	12.69mV	8.87mV	Pass
80% Load	16.24mV	7.57mV	17.86mV	9.59mV	Pass
90% Load	17.42mV	8.08mV	19.14mV	10.50mV	Pass
100% Load	23.75mV	9.37mV	21.62mV	11.72mV	Pass
110% Load	26.79mV	10.14mV	23.17mV	11.70mV	Pass
Crossload1	23.08mV	5.71mV	13.67mV	6.81mV	Pass
Crossload2	18.37mV	8.54mV	6.09mV	7.44mV	Pass
Crossload3	7.00mV	4.76mV	15.61mV	6.12mV	Pass
Crossload4	24.77mV	8.69mV	16.45mV	11.04mV	Pass

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Anex

XPG Core Reactor II 850W

Top side

Power specifications label

CERTIFICATIONS 115V

CYBENETICS PLATINUM

CYBENETICS STANDARD++

CERTIFICATIONS 230V

CYBENETICS PLATINUM 230v

CYBENETICS STANDARD++ 230v

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Lab Director