

Lab ID#: AD19750111
Receipt Date: Sep 17, 2019
Test Date: Sep 18, 2019

Report: 20PS817A

Report Date: Sep 19, 2019

DUT INFORMATION

Brand	XPG
Manufacturer (OEM)	Channel Well Technology
Series	Core Reactor Gold
Model Number	
Serial Number	
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63
Rated Power (W)	750
Type	ATX12V
Cooling	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
Semi-Passive Operation	X
Cable Design	Fully Modular

TEST EQUIPMENT

Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289, Keithley 2015 - THD
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

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PAGE 1/14

RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
ALPM (Alternative Low Power Mode) compatible	✓

115V

Average Efficiency	88.979%
Efficiency With 10W (≤500W) or 2% (>500W)	72.936
Average Efficiency 5VSB	79.781%
Standby Power Consumption (W)	0.0349467
Average PF	0.989
Avg Noise Output	21.19 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

230V

Average Efficiency	91.023%
Average Efficiency 5VSB	79.206%
Standby Power Consumption (W)	0.0526888
Average PF	0.958
Avg Noise Output	19.31 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A+

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	22	22	62.5	3	0.3
	Watts	120		750	15	3.6
Total Max. Power (W)		750				

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (650mm)	1	1	16-20AWG	No
4+4 pin EPS12V (650mm)	2	2	16AWG	No
6+2 pin PCIe (650mm+150mm)	2	4	16-18AWG	No
6+2 pin PCIe (650mm)	2	2	16AWG	No
SATA (500mm+145mm+145mm+145mm)	3	12	18AWG	No
4-pin Molex (500mm+150mm+150mm+150mm)	1	4	18AWG	No

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PAGE 3/14

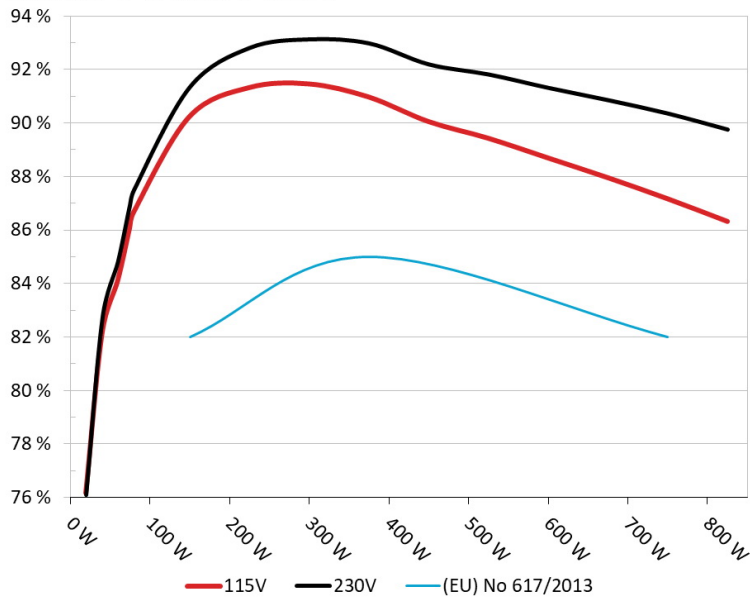
General Data	
Manufacturer (OEM)	CWT
PCB Type	Double Sided
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x GBU1506 (600V, 15A @ 100°C)
APFC MOSFETS	2x Vishay SiHF22N60E (600V, 13A @ 100°C, 0.180hm) & 1x SPN5003 FET (for reduced no-load consumption)
APFC Boost Diode	1x Power Integrations QH08TZ600 (600V, 8A @ 95°C)
Hold-up Cap(s)	1x Nippon Chemi-Con (420V, 560uF, 2,000h @ 105°C, KMR)
Main Switchers	2x Infineon IPA60R190P6 (600V, 12.7A @ 100°C, 0.1900hm)
APFC Controller	Champion CM6500UNX
Resonant Controllers	Champion CU6901V
Topology	Primary side: Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	6x Intentional Rectifier IRFH7004PBF (40V, 164A @ 100°C, 1.4mOhm)
5V & 3.3V	DC-DC Converters: 2x UBIQ QM3054M6 (30V, 61A @ 100°C, 4.8mOhm) & 2x UBIQ QN3107M6N (30V, 70A @ 100°C, 2.6mOhm) PWM Controllers: ANPEC APW7159C
Filtering Capacitors	Electrolytics: 8x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 2x Nippon Chemi-Con (105°C, W), 1x Nippon Chemi-Con (1-5,000h @ 105°C, KZE), 1x Rubycon (4-10,000h @ 105°C, YXJ) Polymers: 25x FPCAP
Supervisor IC	Weltrend WT7502 (OVP, UVP, PG, SCP)
Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, Fluid Dynamic Bearing Fan)
5VSB Circuit	
Rectifier	1x Galaxy Microelectronics D10PS45L SBR (45V, 10A) & InPower Semiconductor ISD04N65A (650V, 4A, 2.50hm)
Standby PWM Controller	On-Bright OB5282CP

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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: XPG Core Reactor 750
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

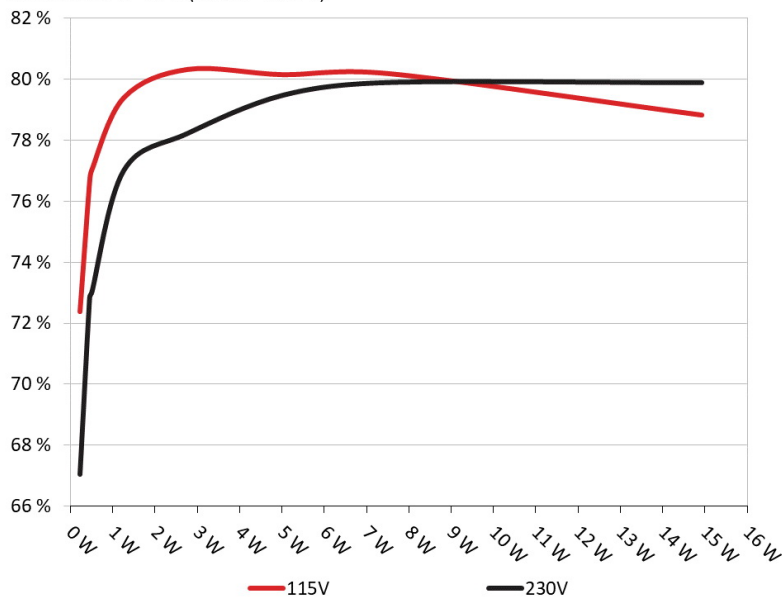


INFO

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: XPG Core Reactor 750
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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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228	72.381%	0.032
	5.057V	0.315		115.16V
2	0.090A	0.456	76.639%	0.059
	5.056V	0.595		115.16V
3	0.550A	2.774	80.313%	0.256
	5.043V	3.454		115.17V
4	1.000A	5.032	80.140%	0.342
	5.030V	6.279		115.17V
5	1.500A	7.526	80.175%	0.390
	5.016V	9.387		115.17V
6	3.000A	14.924	78.817%	0.457
	4.975V	18.935		115.16V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228	67.059%	0.010
	5.056V	0.340		230.34V
2	0.090A	0.456	72.843%	0.019
	5.055V	0.626		230.33V
3	0.550A	2.774	78.229%	0.101
	5.043V	3.546		230.35V
4	1.000A	5.031	79.479%	0.166
	5.030V	6.330		230.34V
5	1.500A	7.526	79.894%	0.221
	5.016V	9.420		230.34V
6	3.000A	14.923	79.888%	0.318
	4.975V	18.680		230.34V

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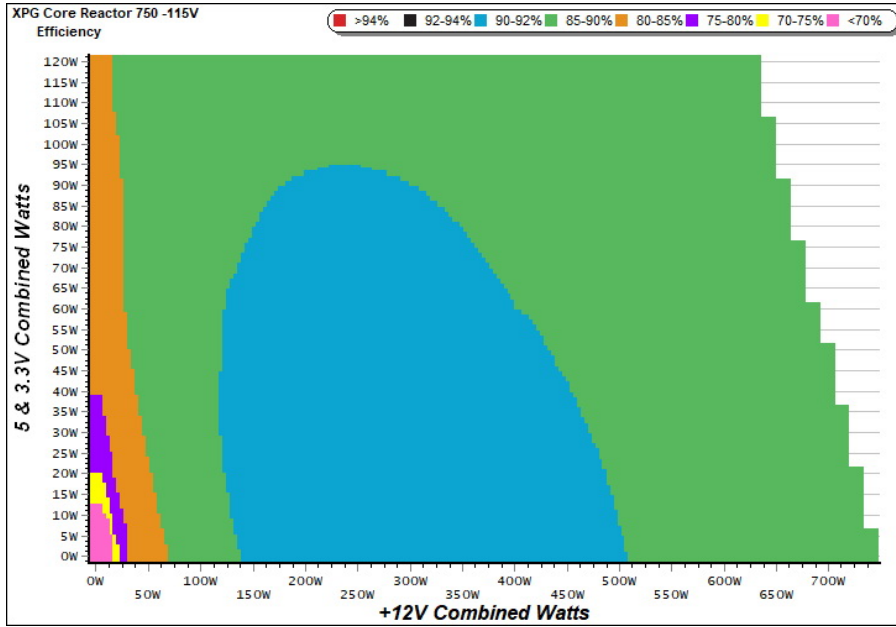
115V

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PAGE 7/14

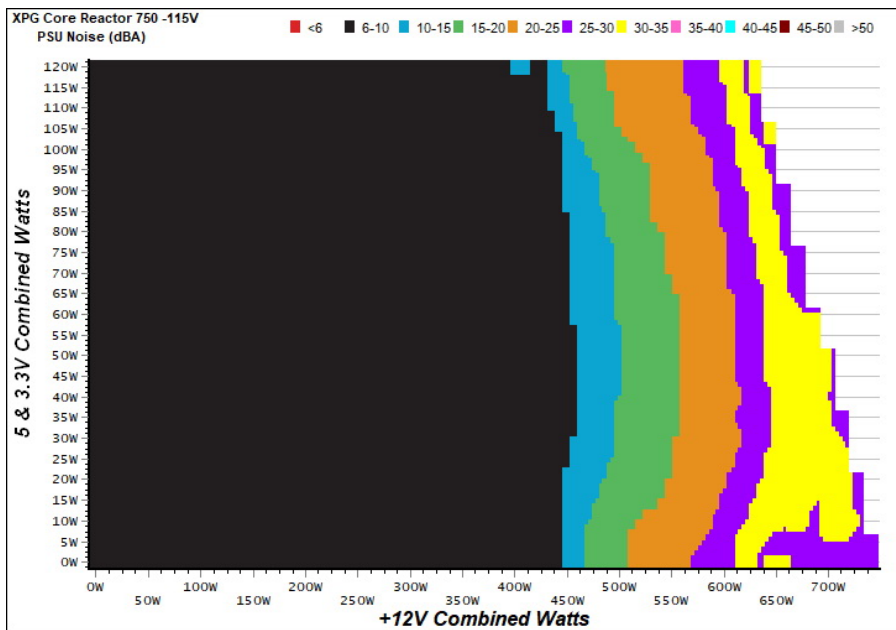
EFFICIENCY GRAPH 115V



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

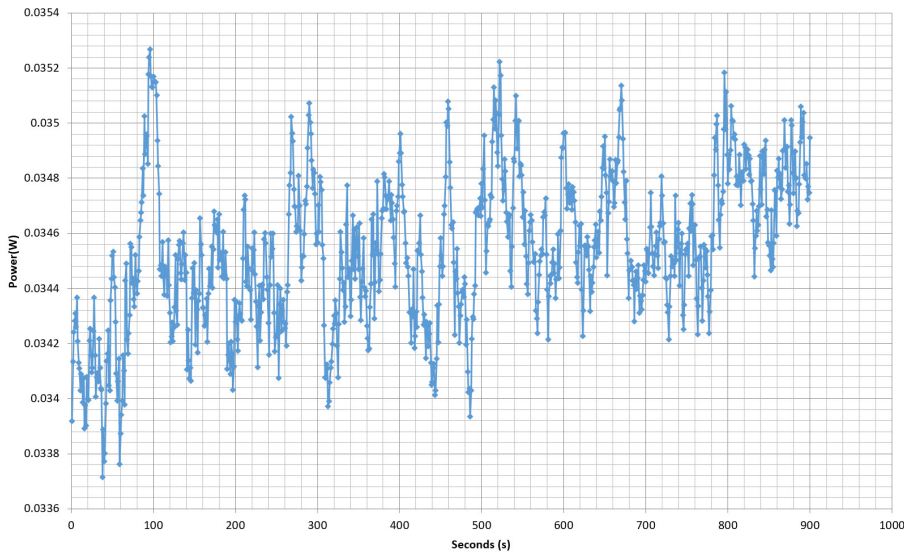
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - 16/09/2019 - 17:28



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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COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	4.353A	1.974A	1.997A	0.991A	74.532	86.070%	664	10.2	40.25°C	0.970
	12.159V	5.068V	3.303V	5.049V	86.595				44.67°C	115.16V
2	9.816A	2.962A	2.998A	1.190A	149.440	90.241%	666	10.3	40.47°C	0.988
	12.076V	5.065V	3.301V	5.044V	165.601				45.53°C	115.16V
5	26.918A	4.946A	5.010A	1.792A	374.667	90.987%	884	17.3	42.27°C	0.990
	12.042V	5.057V	3.294V	5.025V	411.782				49.00°C	115.15V
10	54.691A	8.932A	9.051A	3.009A	749.995	87.181%	2142	43.1	45.76°C	0.994
	12.073V	5.039V	3.281V	4.987V	860.273				56.11°C	115.14V

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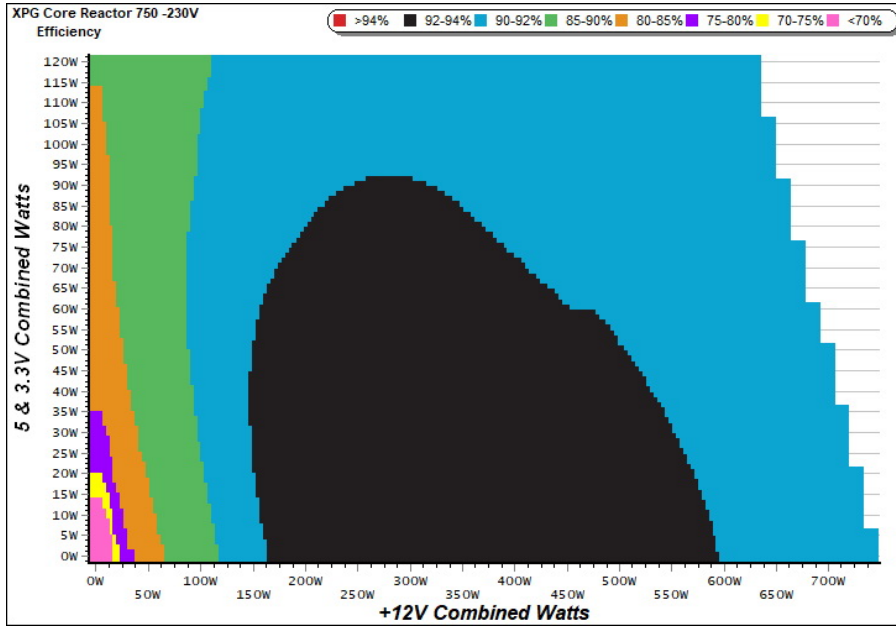
230V

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PAGE 11/14

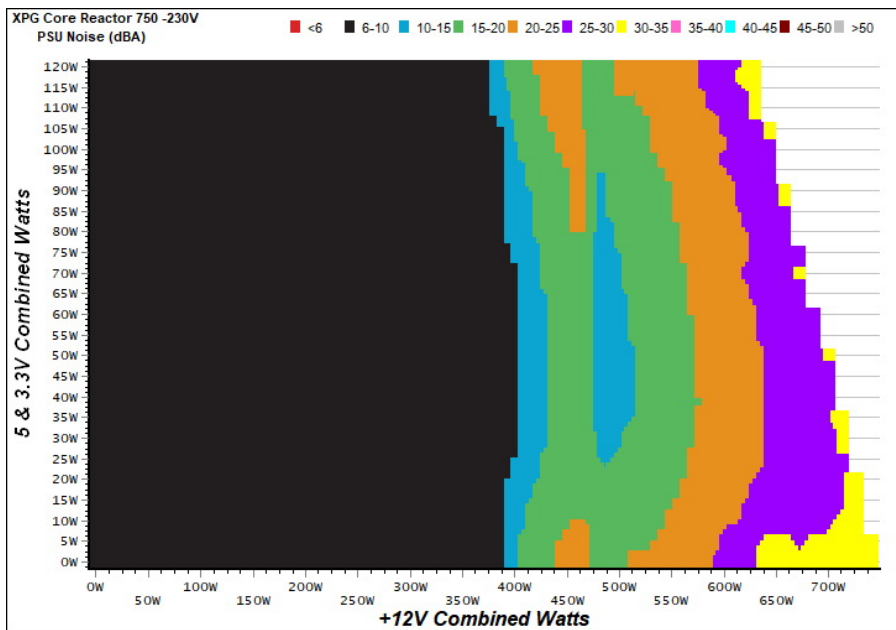
EFFICIENCY GRAPH 230V



INFO

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NOISE GRAPH 230V



INFO

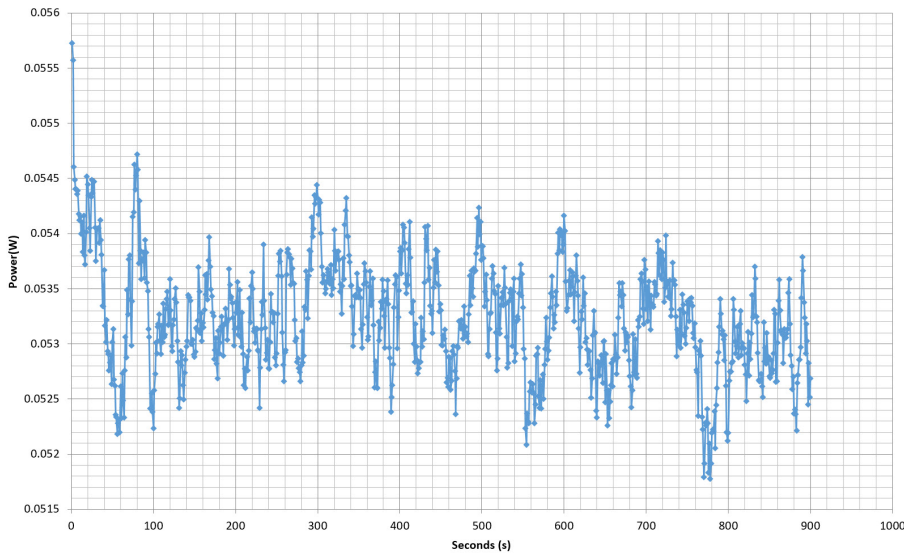
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VAMPIRE POWER -230V

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

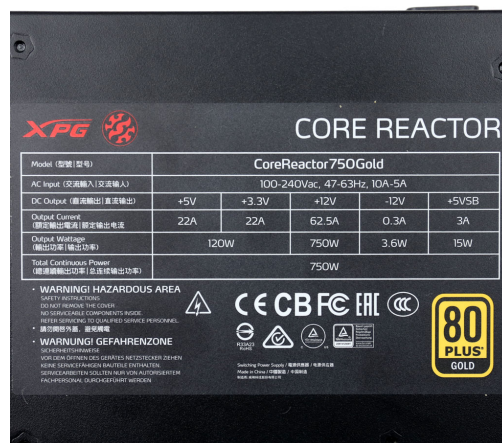
Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	4.348A	1.975A	1.997A	0.991A	74.508	86.929%	655	9.9	39.74°C	0.831
	12.167V	5.067V	3.303V	5.049V	85.711				44.02°C	230.35V
2	9.815A	2.963A	2.999A	1.190A	149.403	91.339%	661	10.1	40.97°C	0.927
	12.073V	5.064V	3.301V	5.043V	163.570				45.75°C	230.35V
5	26.920A	4.945A	5.009A	1.792A	374.628	92.990%	670	10.4	42.48°C	0.975
	12.040V	5.057V	3.294V	5.025V	402.868				48.88°C	230.35V
10	54.696A	8.932A	9.049A	3.009A	749.881	90.366%	1990	41.8	45.86°C	0.987
	12.070V	5.039V	3.281V	4.986V	829.829				56.14°C	230.35V

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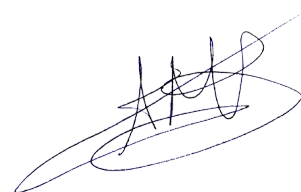


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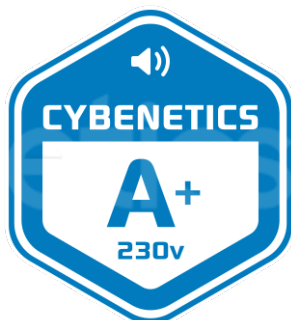
Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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