XPG Core Reactor 750W

4J3080248866

Lab ID AD75001629

Certification ID 251629

Test Result Report ID: 20PS1629A

Certificate Issue Date: Jun 1, 2020

Scheme: ETA-EMI PSU

115V



230V



Scheme: LAMBDA PSU

115V



230V





Aristeidis Bitziopoulos, Certification Body General Manager

General Information

Test Equipment

Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 Chroma 63640-80-80 x10 Chroma 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P, GW Instek ASR-3500
Power Analyzers	Rohde & Schwarz HMC8015 & NPA701
Oscilloscopes	Picoscope 4444, 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
EMI Analyzer	TekBox TBMR-110M-EU
Isolation Transformer	4kVA
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Testing Methodology	Cybenetics PSU Test Protocol

DUT Information
(Non-accredited measurements)

Product Identification Details	
Brand	XPG
Model	Core Reactor 750W
OEM/ODM	Channel Well Technology
Serial Number	4J3080248866
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	10-5

□□□□ (Hz)	47-63
□□□□ (W)	750
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
□□□□□	✗
Cybenetics Testing Information	
Lab ID	AD75001629
Date of receipt	Mar 7, 2020
Testing Date	Mar 27, 2020
Report Issued Date	Jun 1, 2020
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□□
(Non-accredited measurements)

□□□□□				
□□	□□□□	□□□□□□	Gauge	In Cable Capacitors
ATX □□ 20+4 pin (650mm)	1	1	16-20AWG	□
4+4 pin EPS 12V □□ (650mm)	2	2	16AWG	□
6+2pin PCIe□□ (650mm+150mm)	2	4	16-18AWG	□
6+2pin PCIe□□ (650mm)	2	2	16AWG	□
SATA□□ (500mm+145mm+145mm+145mm)	3	12	18AWG	□

4-pin Molex (500mm+150mm+150mm+150mm)	1	4	18AWG	□
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	22	22	62.5	3	0.3
	□	120		750	15	3.6
□□□□□ (W)		750				

Parts Description

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 On Semiconductor FCPF165N65S3L1 (650V, 12.3A @ 100°C, 0.165Ohm) &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 On Semiconductor FCPF165N65S3L1 (650V, 12.3A @ 100°C, 0.165Ohm)
APFC Controller	Champion CM6500UNX
Resonant Controller	Champion CU6901V
Topology	Primary side: Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	6x International Rectifier IRFH7004PBF (40V, 164A @ 100°C, 1.4mOhm)
5V & 3.3V	DC-DC Converters: 2x Excelliance Mos Corp EMB04N03HR (30V, 45A @ 100°C, 4mOhm) & 2x Excelliance Mos Corp EMB02N03HR (30V, 100A @ 100°C, 1.7mOhm) PWM Controllers: ANPEC APW7159C
Filtering Capacitors	Electrolytic: 8x Nippon Chemi-Con (4-10,000h @ 105°C, KY),1x Nippon Chemi-Con (1-5,000h @ 105°C, KZE), 2x Nichicon (2-5,000h @ 105°C, HD), 1x Nichicon (1,000h @ 105°C, VY) Polymer: 19x FPCAP, 6x United Chemi-Con
Supervisor IC	IN1S313I-SAG

Fan Model	Hang Hua HA1225H12F-Z (120mm, 12V, 0.58A, Fluid Dynamic Bearing Fan)
5VSB Circuit	-
Rectifier	Silan Microelectronics SVF4N65RDTR FET (650V, 2.5A @ 100°C, 2.7Ohm) & 1x PS1045L SBR (45V, 10A)
Standby PWM Controller	On-Bright OB5282CP

Test Results

Temperature & Compliance Info

□□□□ (°C /°F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	✓
□□ (EU) No 617/2013□□	✓
ALPM (Alternative Low Power Mode) compatible	✓

Performance Summary

115V

Accredited	
□□□□ (>1450 load combinations)	88.766%
Average Noise Output (>1450 Load Combinations)	26.12dBA
PF□□□ (>1450 Load Combinations)	0.987
Efficiency With 10W (≤500W) or 2% (>500W) Load	73.449%
□□□□□□	0.0326W
Non-Accredited	
12V Ripple (Full Load)	13.54mV
5V Ripple (Full Load)	8.42mV
3.3V Ripple (Full Load)	23.14mV
5VSB Ripple (Full Load)	8.72mV
12V Load Regulation	1.52%
5V Load Regulation	0.57%
3.3V Load Regulation	0.54%
5VSB Load Regulation	1.60%

Inrush Current	24.880A

230V

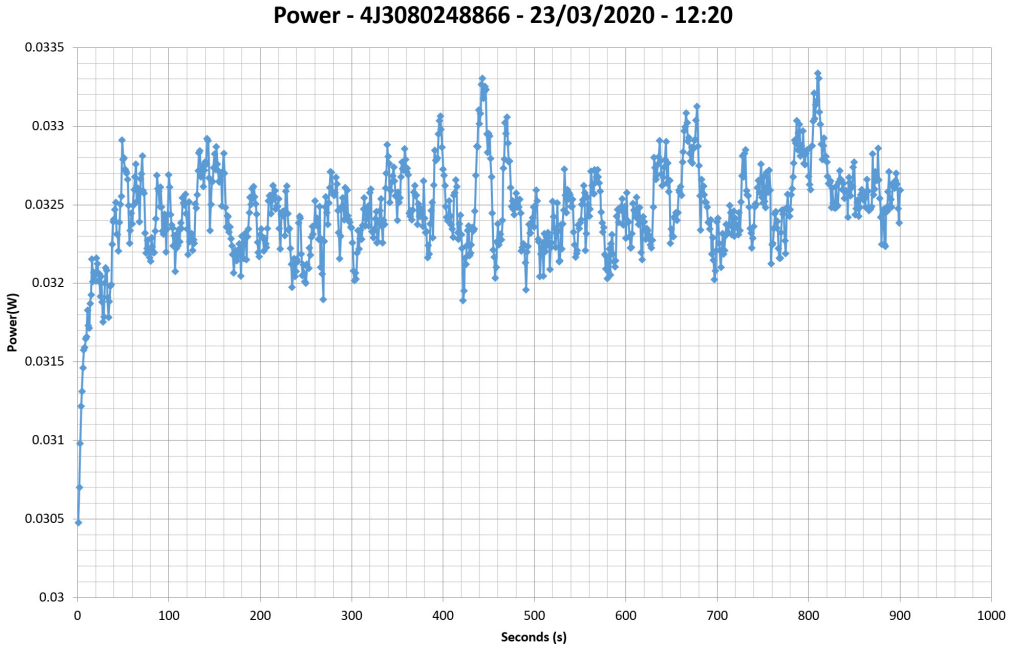
Accredited		
□□□□ (>1450 load combinations)		90.883%
Average Noise Output (>1450 Load Combinations)		25.05dBA
PF□□□ (>1450 Load Combinations)		0.957
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.0471W
Non-Accredited		
12V Ripple (Full Load)		14.13mV
5V Ripple (Full Load)		8.42mV
3.3V Ripple (Full Load)		24.00mV
5VSB Ripple (Full Load)		8.90mV
12V Load Regulation		0.91%
5V Load Regulation		0.55%
3.3V Load Regulation		0.54%
5VSB Load Regulation		1.56%
Inrush Current		51.550A
□□□□ & PG□□		21.10ms
AC Loss to PWR_OK Hold Up Time		18.30ms
PWR_OK Inactive to DC Loss Delay		2.80ms
PSU Timings: T1 (20% / 100%)	33.5ms	31.0ms
PSU Timings: T3 (20% / 100%)	137.5ms	138.0ms
OPP (0.00°C / 0.00°C)	120.22%	-

□□□□ & PG□□

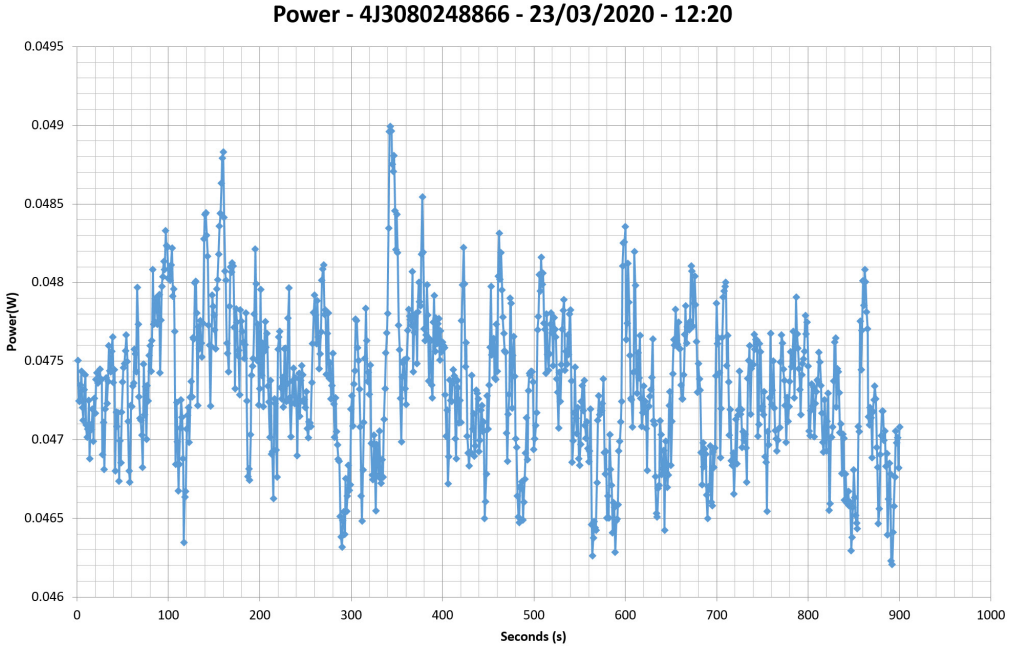
Hold-Up Time (ms)	21.1
AC Loss to PWR_OK Hold Up Time (ms)	18.3
PWR_OK Inactive to DC Loss Delay (ms)	2.8

Graphs

115V



230V



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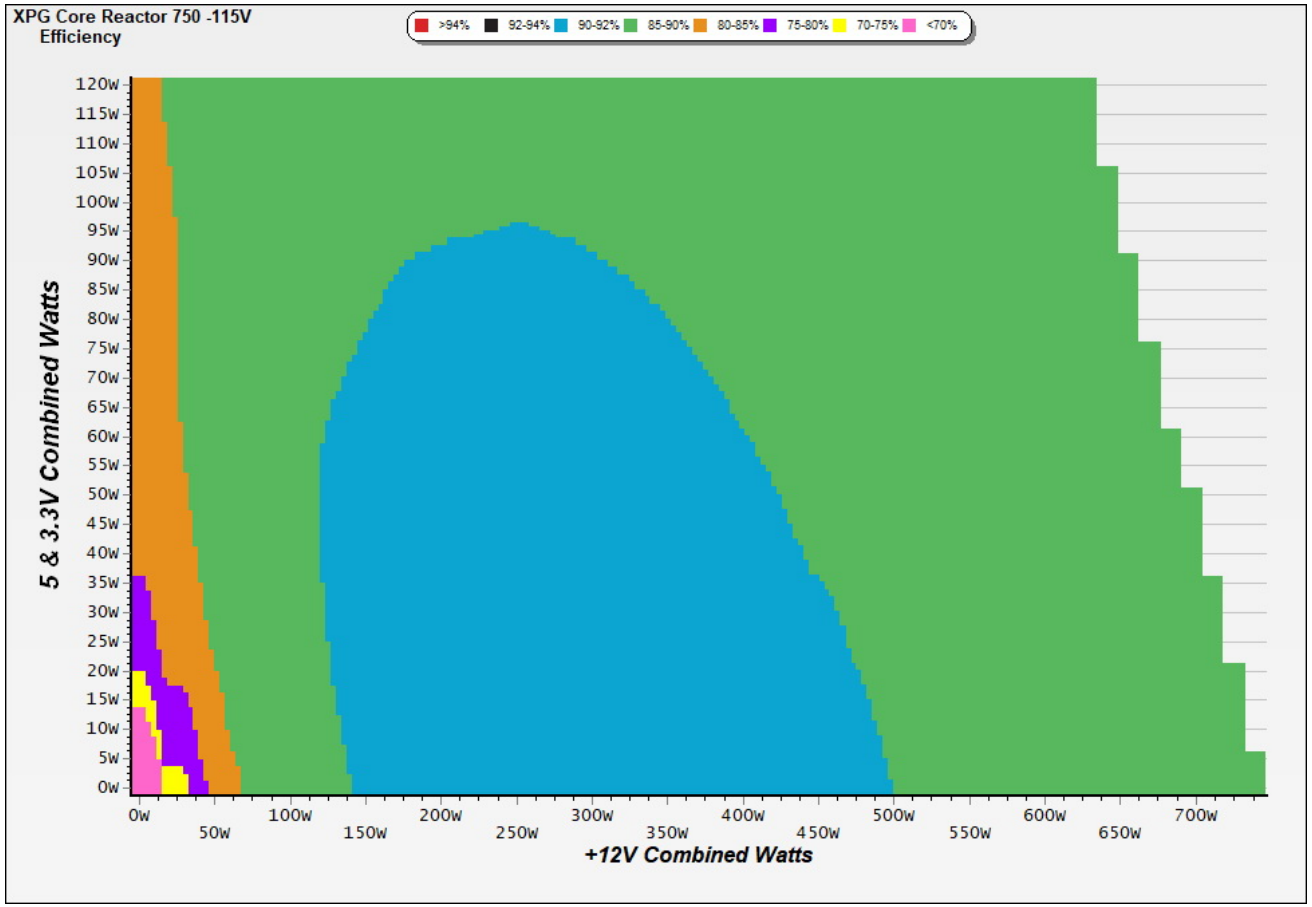
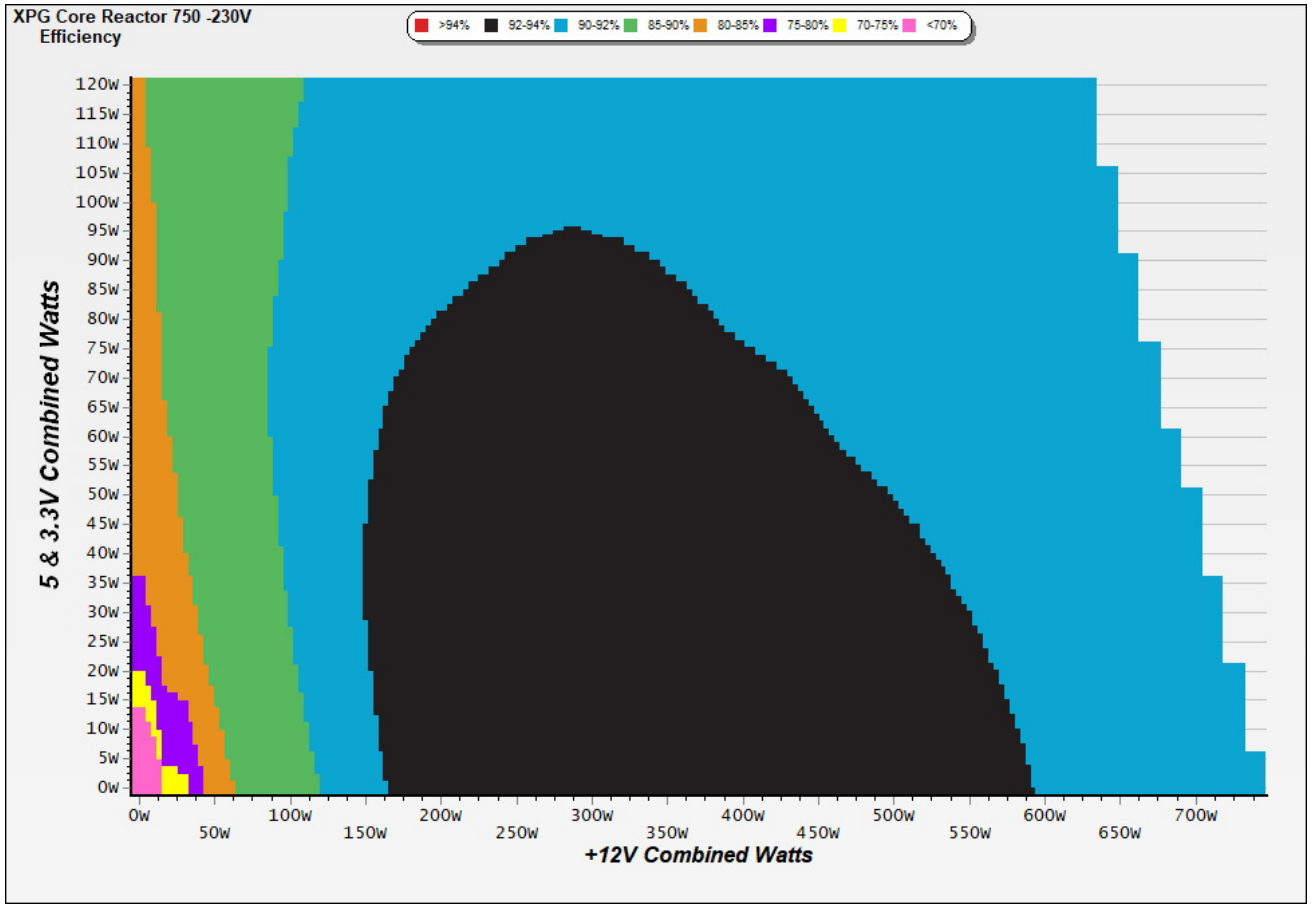
115V



□□

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

230V



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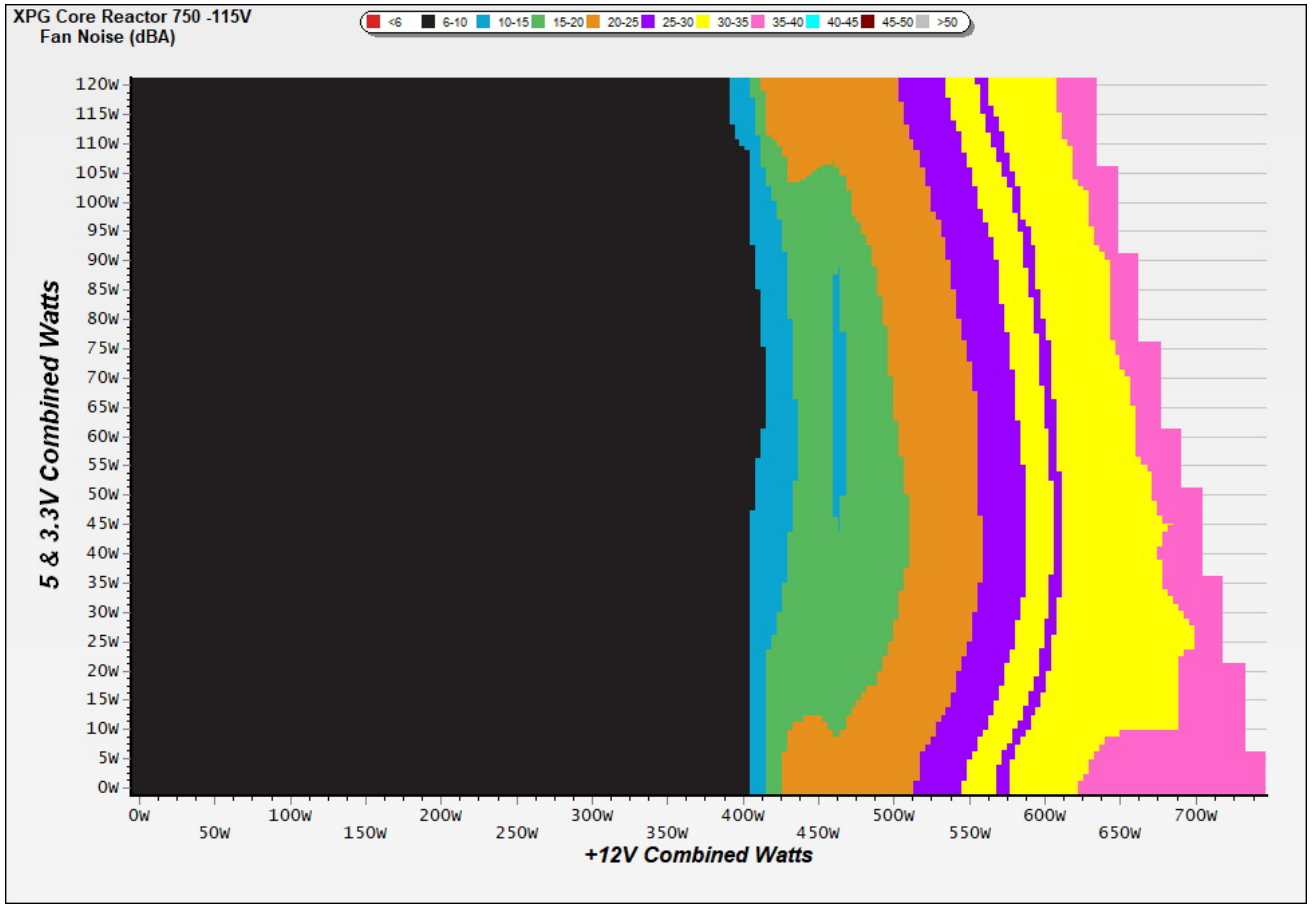
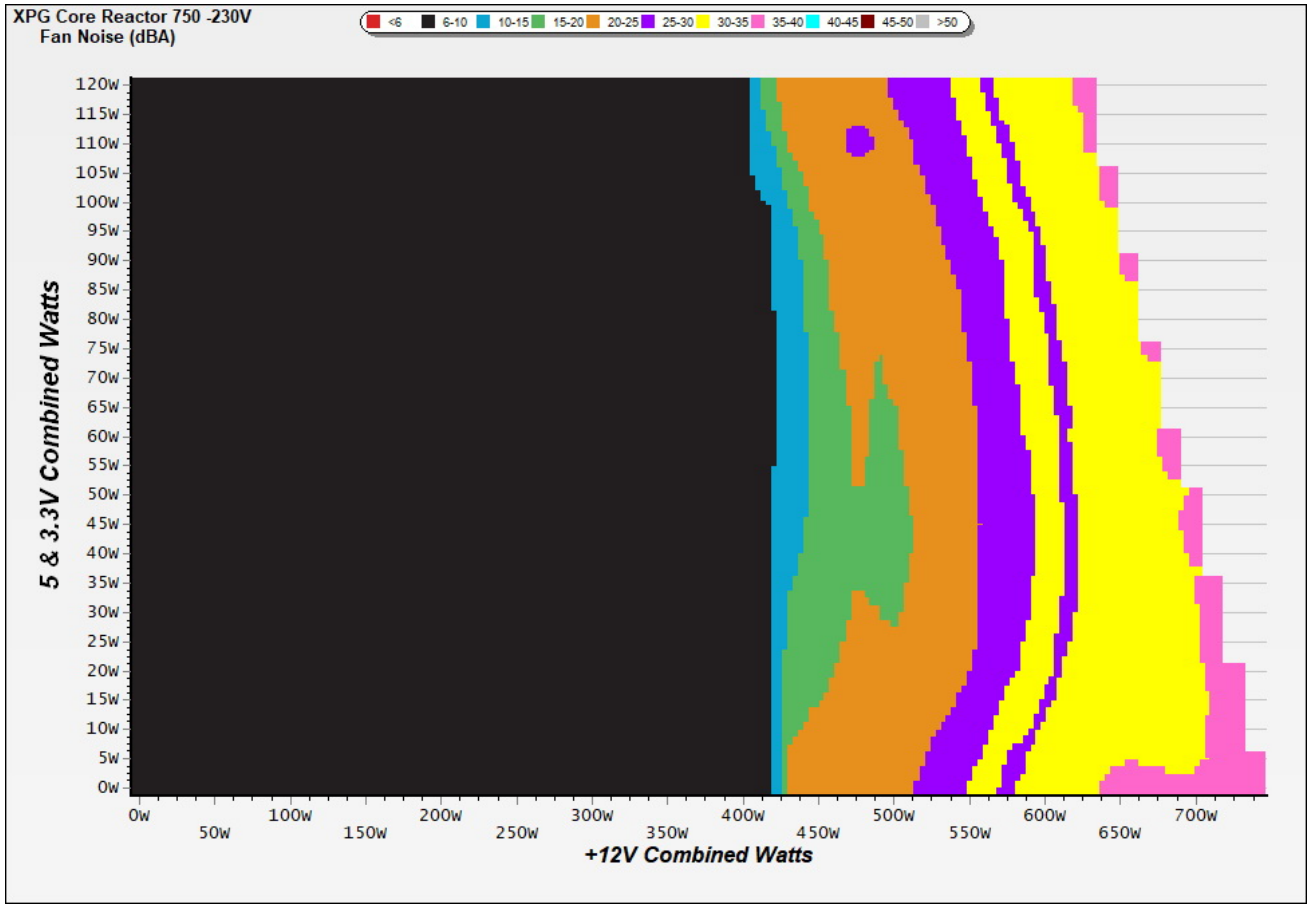
115V



□□

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

230V



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

Noise under high ambient temperature (indicative)

115V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	679 RPM · 10.7 dB(A) · 41.1 °C	679 RPM · 10.7 dB(A) · 41.1 °C	**+0.0 dB(A)**
20%	682 RPM · 10.8 dB(A) · 41.5 °C	682 RPM · 10.8 dB(A) · 41.5 °C	**+0.0 dB(A)**
50%	688 RPM · 11.0 dB(A) · 42.8 °C	688 RPM · 11.0 dB(A) · 42.8 °C	**+0.0 dB(A)**
100%	2330 RPM · 47.0 dB(A) · 45.1 °C	2330 RPM · 47.0 dB(A) · 45.1 °C	**+0.0 dB(A)**

230V

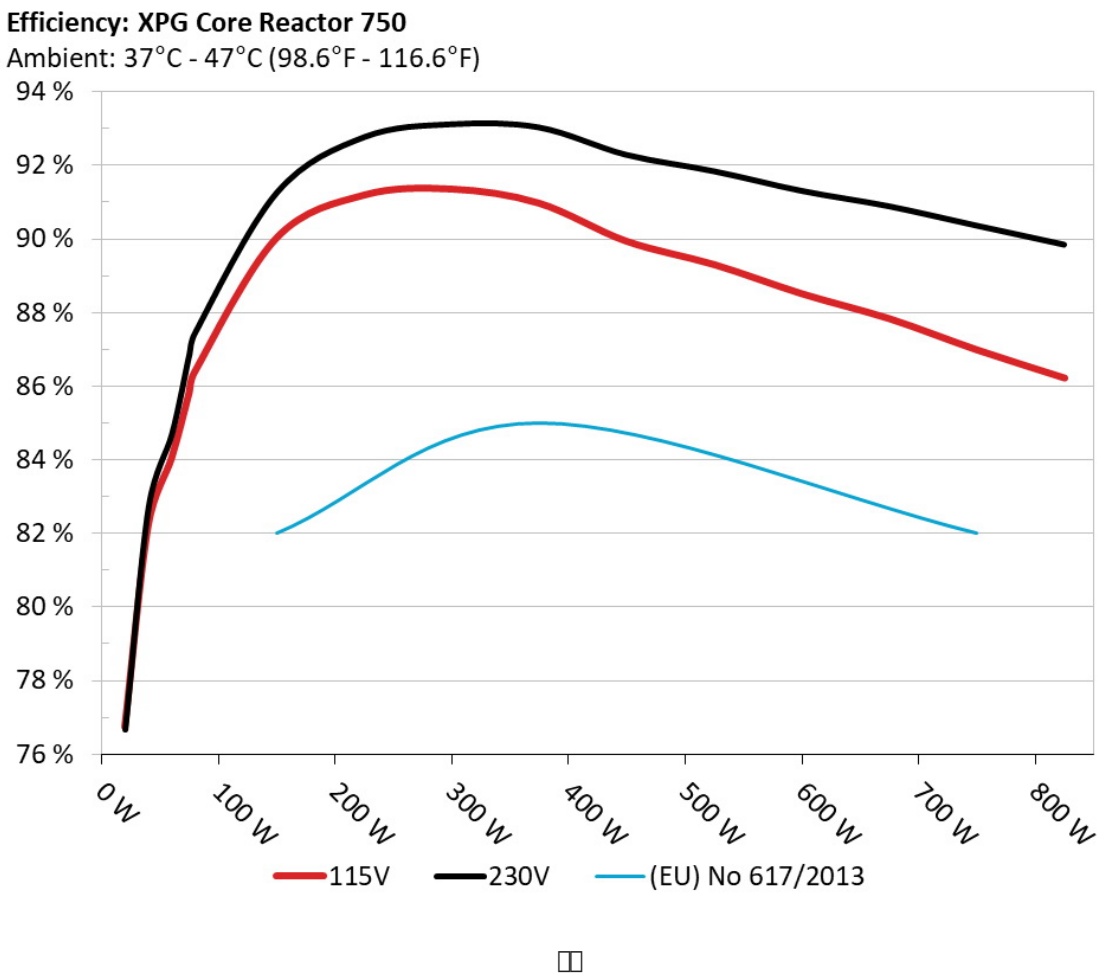
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	673 RPM · 10.5 dB(A) · 40.6 °C	673 RPM · 10.5 dB(A) · 40.6 °C	**+0.0 dB(A)**
20%	677 RPM · 10.6 dB(A) · 40.8 °C	677 RPM · 10.6 dB(A) · 40.8 °C	**+0.0 dB(A)**
50%	684 RPM · 10.8 dB(A) · 42.6 °C	684 RPM · 10.8 dB(A) · 42.6 °C	**+0.0 dB(A)**
100%	2198 RPM · 43.6 dB(A) · 44.8 °C	2198 RPM · 43.6 dB(A) · 44.8 °C	**+0.0 dB(A)**

INFO

Fan speed, noise and the measured intake temperature at 10, 20, 50 and 100 % load, from the two load regulation tests: at normal ambient (about 30-32 °C) and at high ambient (about 40-47 °C). These are stabilized readings at fixed loads, not averages over the certification sweep, so they are indicative of how the fan behaves when it is hot. "<6.0" is the floor of our sound meter: the fan is stopped or too quiet to measure (the fan speed column says which); with the fan stopped, the intake sensor can read higher than the chamber air.

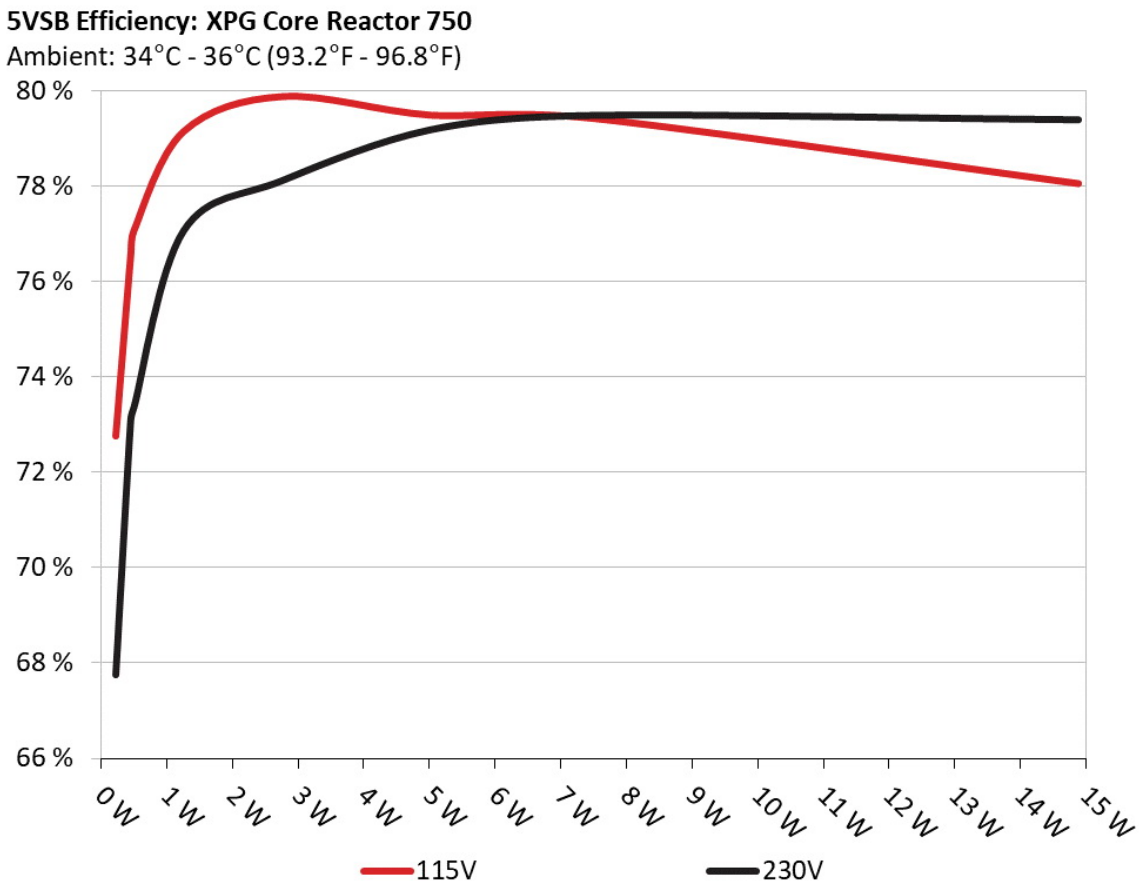
Informational. Not part of the ETA or LAMBDA rating.

Indicative Performance



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□□□□



□□

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

□□□□ □□ 5Vsb □□ (ErP Lot3/6 & CEC)

115V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.227	72.756%	0.032
	5.038V	0.312		115.14V
2	0.090A	0.453	76.520%	0.059
	5.037V	0.592		115.14V
3	0.550A	2.765	79.867%	0.264
	5.026V	3.462		115.14V
4	1.000A	5.015	79.477%	0.359
	5.014V	6.310		115.15V
5	1.500A	7.504	79.407%	0.412
	5.002V	9.450		115.15V
6	3.000A	14.889	78.043%	0.481
	4.963V	19.078		115.14V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.227	67.761%	0.010
	5.038V	0.335		230.30V
2	0.090A	0.453	73.065%	0.019
	5.037V	0.620		230.32V
3	0.550A	2.764	78.101%	0.102
	5.025V	3.539		230.32V
4	1.000A	5.015	79.163%	0.169
	5.014V	6.335		230.31V
5	1.500A	7.503	79.464%	0.227
	5.001V	9.442		230.31V
6	3.000A	14.888	79.373%	0.331
	4.962V	18.757		230.30V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	4.378A	1.970A	1.985A	0.989A	74.965	85.796%	679	10.7	41.13°C	0.973
	12.189V	5.077V	3.323V	5.059V	87.376				44.32°C	115.16V
2	9.852A	2.957A	2.981A	1.188A	150.047	90.024%	682	10.8	41.54°C	0.988
	12.093V	5.074V	3.321V	5.053V	166.675				45.25°C	115.15V
3	15.652A	3.452A	3.479A	1.388A	225.053	91.190%	683	10.8	41.95°C	0.991
	12.075V	5.071V	3.319V	5.046V	246.796				46.27°C	115.15V
4	21.419A	3.947A	3.980A	1.588A	300.066	91.353%	686	10.9	42.48°C	0.990
	12.085V	5.069V	3.318V	5.041V	328.468				47.45°C	115.11V
5	26.692A	4.938A	4.978A	1.788A	374.693	90.969%	688	11.0	42.80°C	0.990
	12.145V	5.065V	3.316V	5.034V	411.892				48.53°C	115.10V
6	32.085A	5.928A	5.977A	1.989A	449.624	89.937%	1311	29.6	43.13°C	0.991
	12.149V	5.063V	3.314V	5.029V	499.932				49.50°C	115.10V
7	37.542A	6.922A	6.977A	2.191A	524.965	89.299%	1497	32.2	43.81°C	0.991
	12.142V	5.059V	3.312V	5.022V	587.876				50.78°C	115.10V
8	42.998A	7.916A	7.980A	2.393A	600.291	88.504%	1814	38.8	44.21°C	0.992
	12.137V	5.055V	3.309V	5.016V	678.266				51.95°C	115.10V
9	48.814A	8.416A	8.465A	2.394A	674.833	87.830%	2097	42.6	44.76°C	0.993
	12.134V	5.052V	3.308V	5.014V	768.338				52.98°C	115.09V
10	54.435A	8.915A	8.984A	3.002A	750.073	86.982%	2330	47.0	45.12°C	0.993
	12.131V	5.050V	3.306V	4.997V	862.332				54.35°C	115.08V
11	60.642A	8.918A	8.985A	3.003A	825.304	86.215%	2378	48.3	46.65°C	0.994
	12.130V	5.048V	3.305V	4.996V	957.259				56.55°C	115.08V
CL1	0.120A	14.003A	14.001A	0.000A	118.721	83.400%	1180	26.4	42.86°C	0.984
	12.111V	5.064V	3.311V	5.093V	142.352				48.28°C	115.16V

CL2	62.534A	0.999A	1.000A	1.000A	772.324	87.434%	2275	45.3	44.70°C	0.993
	12.136V	5.060V	3.315V	5.042V	883.322				54.22°C	115.10V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	4.379A	1.970A	1.986A	0.989A	74.960	86.874%	673	10.5	40.59°C	0.835
	12.185V	5.077V	3.322V	5.059V	86.286				43.54°C	230.32V
2	9.853A	2.957A	2.982A	1.188A	150.031	91.275%	677	10.6	40.75°C	0.929
	12.090V	5.074V	3.320V	5.053V	164.373				44.48°C	230.32V
3	15.651A	3.452A	3.482A	1.387A	225.035	92.781%	680	10.7	41.57°C	0.958
	12.074V	5.072V	3.319V	5.047V	242.545				45.56°C	230.32V
4	21.420A	3.947A	3.978A	1.587A	300.039	93.129%	682	10.7	41.74°C	0.968
	12.084V	5.069V	3.317V	5.040V	322.174				46.20°C	230.32V
5	26.685A	4.937A	4.978A	1.788A	374.606	93.043%	684	10.8	42.64°C	0.975
	12.145V	5.066V	3.315V	5.035V	402.615				47.85°C	230.32V
6	32.089A	5.927A	5.980A	1.989A	449.511	92.299%	1264	28.3	42.71°C	0.980
	12.144V	5.063V	3.313V	5.029V	487.018				48.40°C	230.32V
7	37.543A	6.918A	6.978A	2.191A	524.842	91.851%	1383	31.0	43.17°C	0.983
	12.139V	5.059V	3.311V	5.023V	571.405				49.39°C	230.31V
8	42.999A	7.915A	7.977A	2.393A	600.167	91.317%	1880	39.7	43.84°C	0.984
	12.134V	5.056V	3.309V	5.016V	657.237				50.62°C	230.31V
9	48.817A	8.412A	8.464A	2.394A	674.701	90.901%	2034	42.2	44.27°C	0.985
	12.131V	5.053V	3.307V	5.015V	742.236				51.66°C	230.31V
10	54.460A	8.912A	8.986A	3.002A	749.872	90.373%	2198	43.6	44.76°C	0.986
	12.122V	5.050V	3.305V	4.998V	829.752				53.14°C	230.29V
11	60.643A	8.915A	8.988A	3.003A	825.129	89.857%	2374	48.2	47.01°C	0.987
	12.127V	5.049V	3.304V	4.996V	918.266				56.69°C	230.29V
CL1	0.118A	14.003A	14.000A	0.000A	118.736	84.998%	710	11.7	42.24°C	0.917
	12.105V	5.067V	3.311V	5.094V	139.693				47.90°C	230.34V

CL2	62.521A	1.001A	1.000A	1.000A	771.802	90.851%	2157	43.3	44.64°C	0.986
	12.130V	5.060V	3.315V	5.042V	849.526				53.39°C	230.30V

The results above are not used in the certification process

20-80□□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.238A	0.492A	0.496A	0.197A	19.995	76.736%	661	10.1	0.860
	11.991V	5.080V	3.325V	5.078V	26.057				115.16V
2	2.474A	0.982A	0.993A	0.394A	39.985	82.201%	668	10.4	0.945
	12.004V	5.079V	3.324V	5.073V	48.643				115.16V
3	3.657A	1.476A	1.490A	0.592A	60.015	84.036%	673	10.5	0.965
	12.187V	5.078V	3.323V	5.068V	71.416				115.16V
4	4.871A	1.969A	1.986A	0.790A	79.964	86.386%	677	10.6	0.973
	12.188V	5.077V	3.323V	5.064V	92.566				115.16V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.238A	0.492A	0.496A	0.197A	19.993	76.666%	660	10.1	0.485
	11.990V	5.080V	3.324V	5.078V	26.078				230.31V
2	2.473A	0.984A	0.993A	0.395A	39.981	82.710%	664	10.2	0.681
	12.002V	5.078V	3.323V	5.072V	48.339				230.33V
3	3.658A	1.478A	1.488A	0.592A	60.011	84.704%	668	10.4	0.797
	12.182V	5.077V	3.323V	5.068V	70.848				230.33V
4	4.872A	1.970A	1.987A	0.790A	79.959	87.468%	671	10.4	0.845
	12.183V	5.077V	3.322V	5.063V	91.415				230.33V

The results above are not used in the certification process

□□□□

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	4.60mV	4.50mV	12.20mV	5.30mV	Pass
20% Load	13.70mV	4.90mV	13.10mV	5.20mV	Pass
30% Load	8.40mV	5.00mV	13.40mV	5.60mV	Pass
40% Load	8.20mV	5.60mV	14.40mV	5.70mV	Pass
50% Load	8.10mV	5.90mV	14.70mV	6.30mV	Pass
60% Load	8.60mV	5.90mV	16.10mV	6.10mV	Pass
70% Load	9.30mV	6.50mV	16.80mV	6.90mV	Pass
80% Load	10.10mV	7.40mV	21.50mV	7.30mV	Pass
90% Load	11.00mV	7.40mV	22.00mV	7.30mV	Pass
100% Load	13.50mV	8.40mV	23.10mV	8.70mV	Pass
110% Load	14.10mV	8.90mV	24.10mV	8.80mV	Pass
Crossload1	7.10mV	6.60mV	20.80mV	5.90mV	Pass
Crossload2	14.00mV	7.70mV	19.20mV	8.20mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	4.90mV	4.80mV	14.40mV	5.80mV	Pass
20% Load	15.20mV	5.20mV	14.50mV	5.80mV	Pass
30% Load	9.30mV	5.20mV	15.90mV	5.70mV	Pass
40% Load	8.80mV	5.70mV	16.00mV	6.00mV	Pass
50% Load	8.30mV	6.30mV	17.80mV	6.50mV	Pass
60% Load	8.80mV	6.40mV	17.10mV	6.90mV	Pass
70% Load	9.30mV	6.90mV	18.60mV	7.90mV	Pass
80% Load	9.70mV	7.60mV	23.70mV	7.80mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	10.30mV	7.80mV	23.70mV	7.80mV	Pass
100% Load	14.10mV	8.40mV	24.00mV	8.90mV	Pass
110% Load	15.40mV	8.80mV	24.60mV	9.10mV	Pass
Crossload1	6.30mV	6.30mV	20.00mV	6.10mV	Pass
Crossload2	14.50mV	8.30mV	20.90mV	8.50mV	Pass

The results above are not used in the certification process

XPG Core Reactor 750W

Top side

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由 Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

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