XPG Core Reactor II VE 750

Serial Number

Lab ID AD75002401

Certification ID 252401

Test Result Report ID: 24PS2401A

Certificate Issue Date: Apr 2, 2024

Scheme: ETA-EMI PSU

115V



230V



Scheme: LAMBDA PSU

115V



230V





Outside Validation Scope



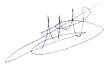
General Information

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 II VE 750
OEM/ODM	Channel Well Technology
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240

Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63
Rated Power (W)	750
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	AD75002401
Date of receipt	Mar 8, 2024
Testing Date	Mar 29, 2024
Report Issued Date	Apr 2, 2024
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors
(Non-accredited measurements)

Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (650mm)	1	1	18AWG	No
4+4 pin EPS12V (750mm)	2	2	18AWG	No
6+2 pin PCIe (550mm)	3	3	18AWG	No
12+4 pin PCIe (600mm) (600W)	1	1	16-24AWG	No

SATA (440mm+150mm+150mm) / 4-pin Molex (+150mm)	2	6 / 2	18AWG	No
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

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				

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.1 PSU Power Excursion	✓

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	88.316%
Average Noise Output (>1450 Load Combinations)	32.06dBA
Average PF (>1450 Load Combinations)	0.990
Efficiency With 10W (≤500W) or 2% (>500W) Load	74.344%
Standby Power Consumption	0.0161W
Non-Accredited	
12V Ripple (Full Load)	33.32mV
5V Ripple (Full Load)	18.19mV

3.3V Ripple (Full Load)	31.51mV
5VSB Ripple (Full Load)	14.18mV
12V Load Regulation	1.66%
5V Load Regulation	0.67%
3.3V Load Regulation	0.98%
5VSB Load Regulation	2.05%
Inrush Current	26.840A

230V

Accredited	
Average Efficiency (>1450 load combinations)	90.420%
Average Noise Output (>1450 Load Combinations)	31.55dBA
Average PF (>1450 Load Combinations)	0.960
Efficiency With 10W (≤500W) or 2% (>500W) Load	72.516%
Standby Power Consumption	0.0723W
Non-Accredited	
12V Ripple (Full Load)	33.01mV
5V Ripple (Full Load)	17.97mV
3.3V Ripple (Full Load)	31.71mV
5VSB Ripple (Full Load)	14.31mV
12V Load Regulation	1.68%
5V Load Regulation	0.69%
3.3V Load Regulation	1.01%
5VSB Load Regulation	2.05%
Inrush Current	48.930A
12V Transient Response (200%)	11.34V
5V Transient Response (200%)	5.003V
3.3V Transient Response (200%)	3.170V
5VSB Transient Response (200%)	4.888V
Hold-Up Time & PWR_OK Signal	21.90ms
AC Loss to PWR_OK Hold Up Time	19.10ms
PWR_OK Inactive to DC Loss Delay	2.80ms

PSU Timings: T1 (20% / 100%)	59.0ms	60.0ms
PSU Timings: T3 (20% / 100%)	126.0ms	128.0ms
OPP (27.38°C / 43.75°C)	122.79%	122.79%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	21.9
AC Loss to PWR_OK Hold Up Time (ms)	19.1
PWR_OK Inactive to DC Loss Delay (ms)	2.8

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Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.13 V	115.10 V	113.85 V	115.17 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 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:	0.016 W	0.014 W	N/A	0.018 W	N/A	N/A
Apparent Power:	9.882 W	9.879 W	N/A	9.887 W	N/A	N/A
Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

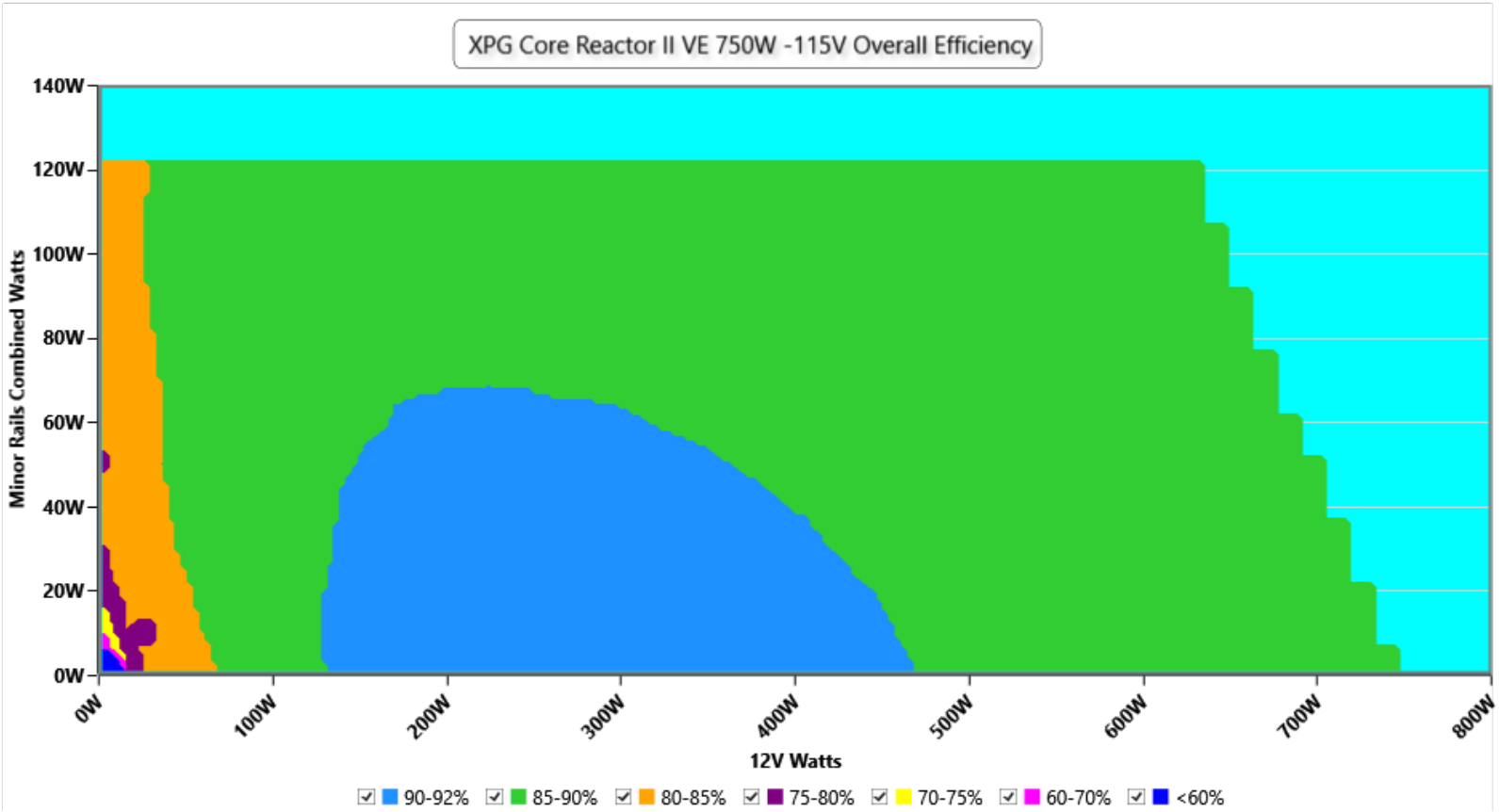
230V

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	50.01 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	0.063 W	N/A	0.081 W	N/A	N/A
Apparent Power:	33.058 W	33.049 W	N/A	33.065 W	N/A	N/A
Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

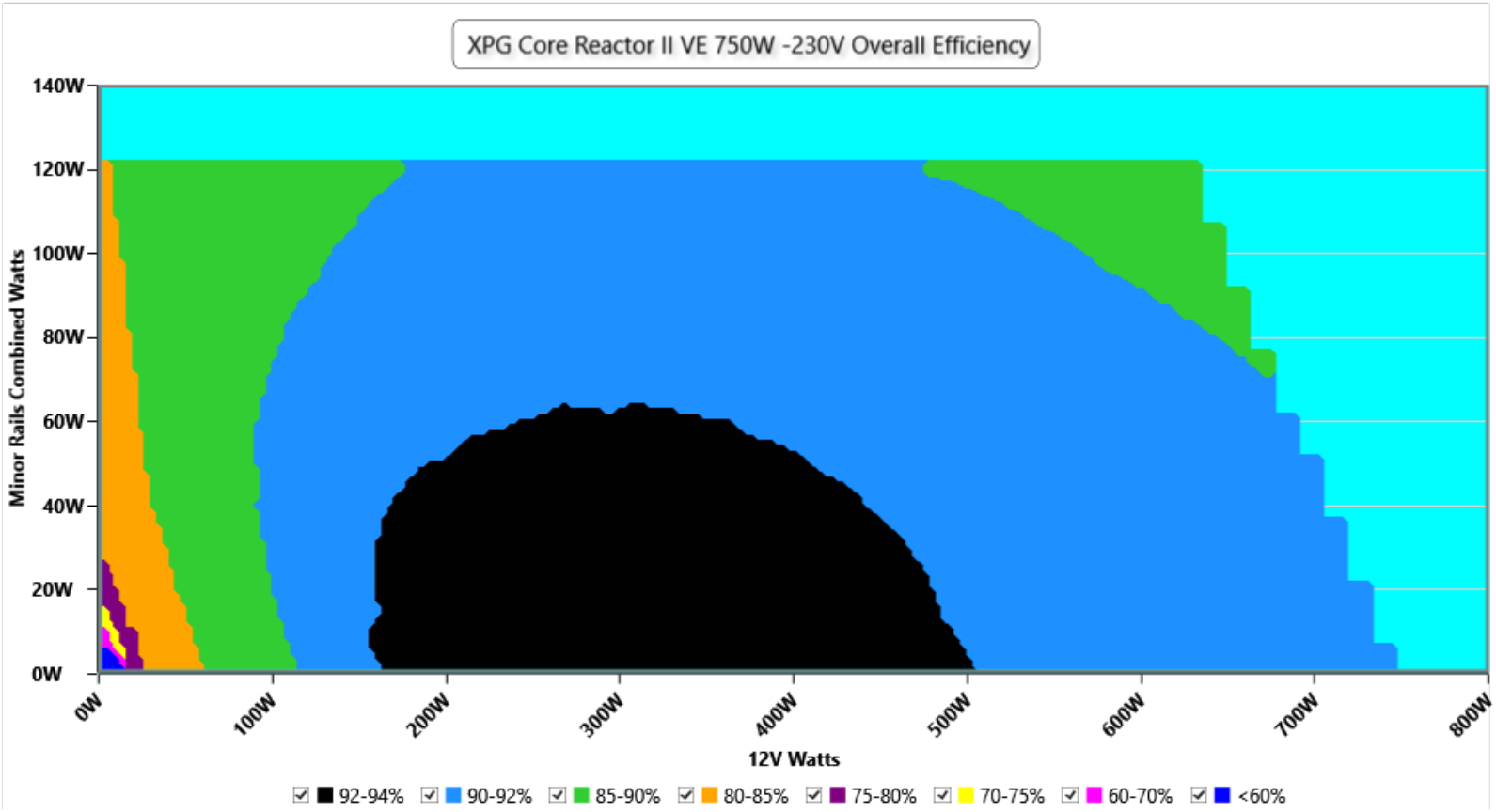
115V



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

230V

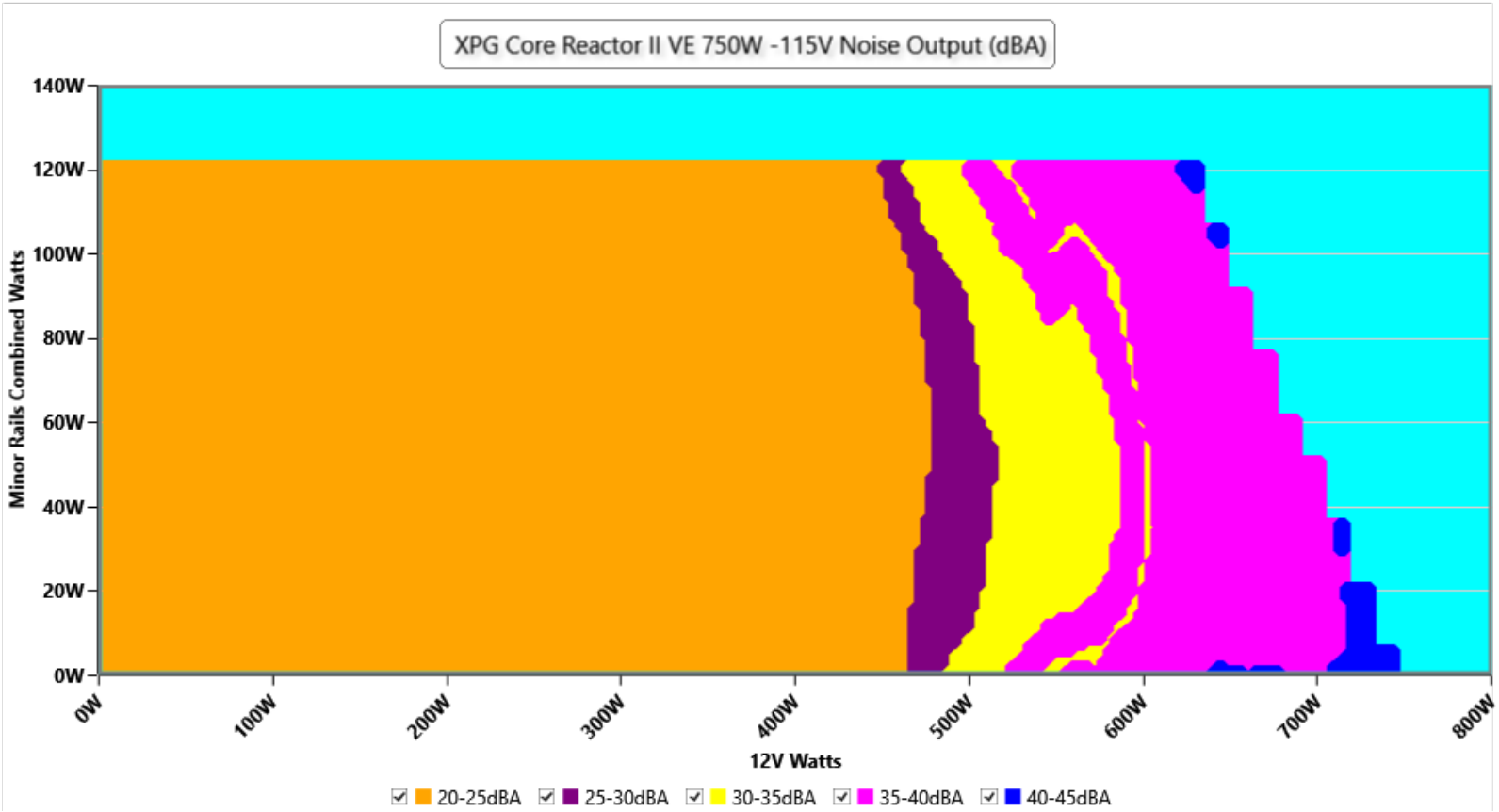


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Noise Graph

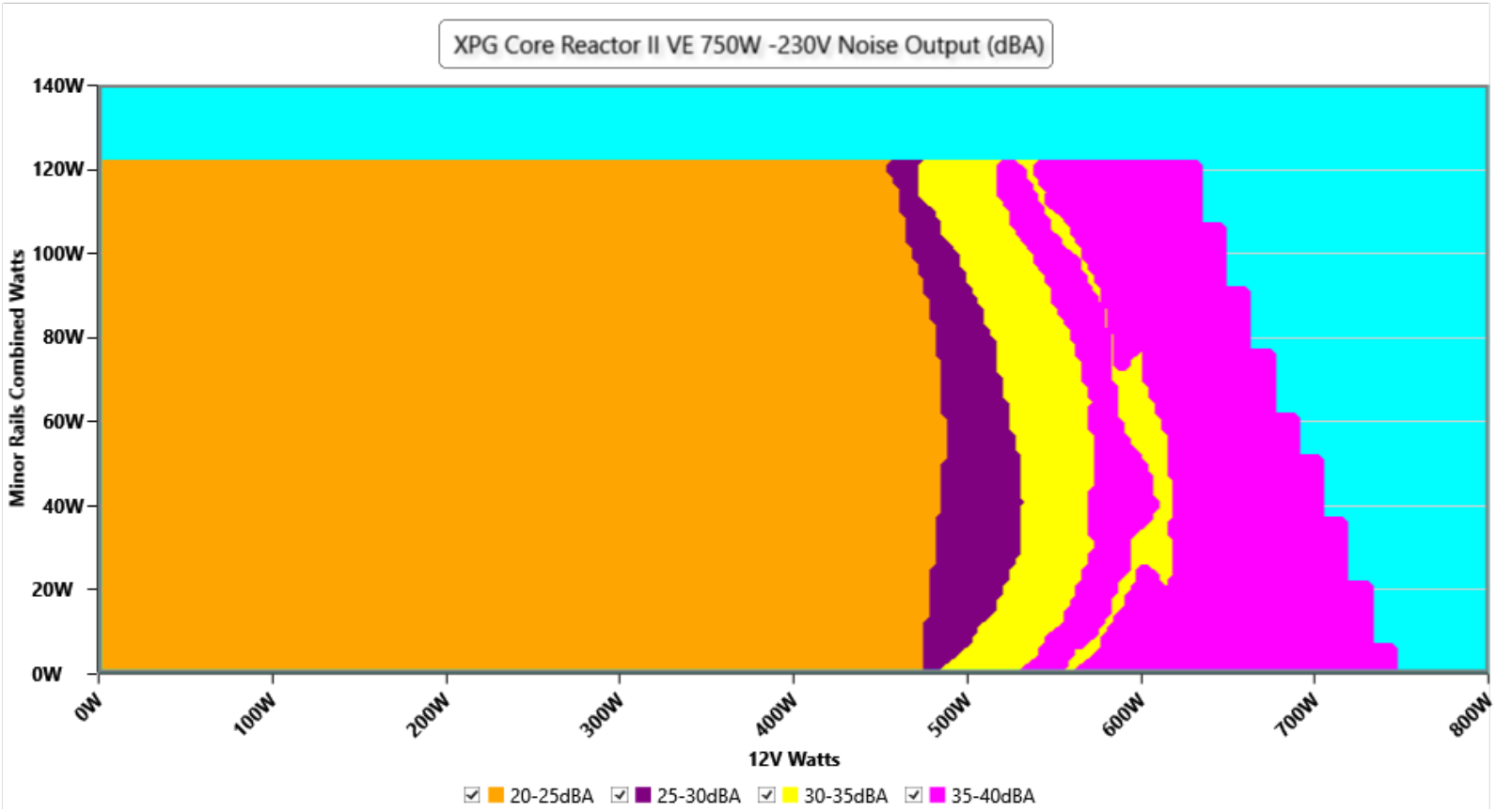
115V



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

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

Noise under high ambient temperature (indicative)

115V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	942 RPM · 22.2 dB(A) · 40.3 °C	942 RPM · 22.2 dB(A) · 40.3 °C	**+0.0 dB(A)**
20%	944 RPM · 22.3 dB(A) · 40.5 °C	944 RPM · 22.3 dB(A) · 40.5 °C	**+0.0 dB(A)**
50%	954 RPM · 22.6 dB(A) · 42.4 °C	954 RPM · 22.6 dB(A) · 42.4 °C	**+0.0 dB(A)**
100%	2414 RPM · 49.5 dB(A) · 45.5 °C	2414 RPM · 49.5 dB(A) · 45.5 °C	**+0.0 dB(A)**

230V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	949 RPM · 22.5 dB(A) · 40.5 °C	949 RPM · 22.5 dB(A) · 40.5 °C	**+0.0 dB(A)**
20%	952 RPM · 22.6 dB(A) · 40.8 °C	952 RPM · 22.6 dB(A) · 40.8 °C	**+0.0 dB(A)**
50%	961 RPM · 22.9 dB(A) · 42.0 °C	961 RPM · 22.9 dB(A) · 42.0 °C	**+0.0 dB(A)**
100%	2421 RPM · 49.7 dB(A) · 45.8 °C	2421 RPM · 49.7 dB(A) · 45.8 °C	**+0.0 dB(A)**

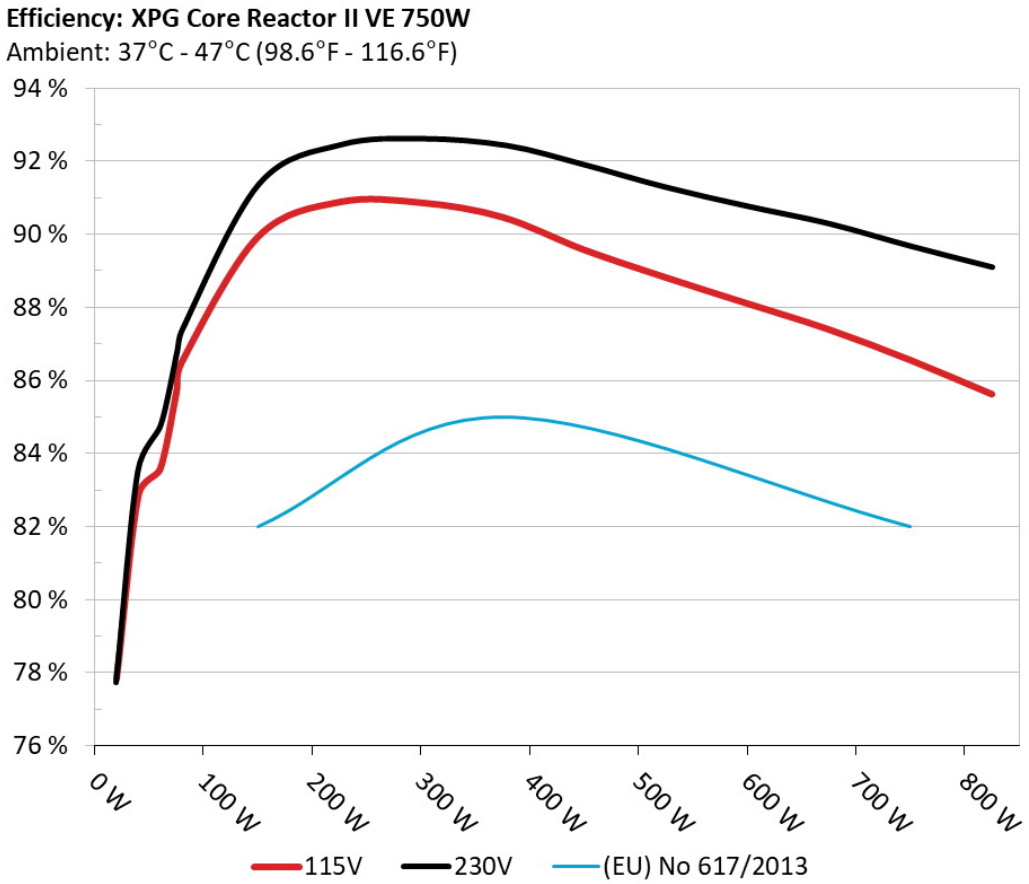
INFO

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

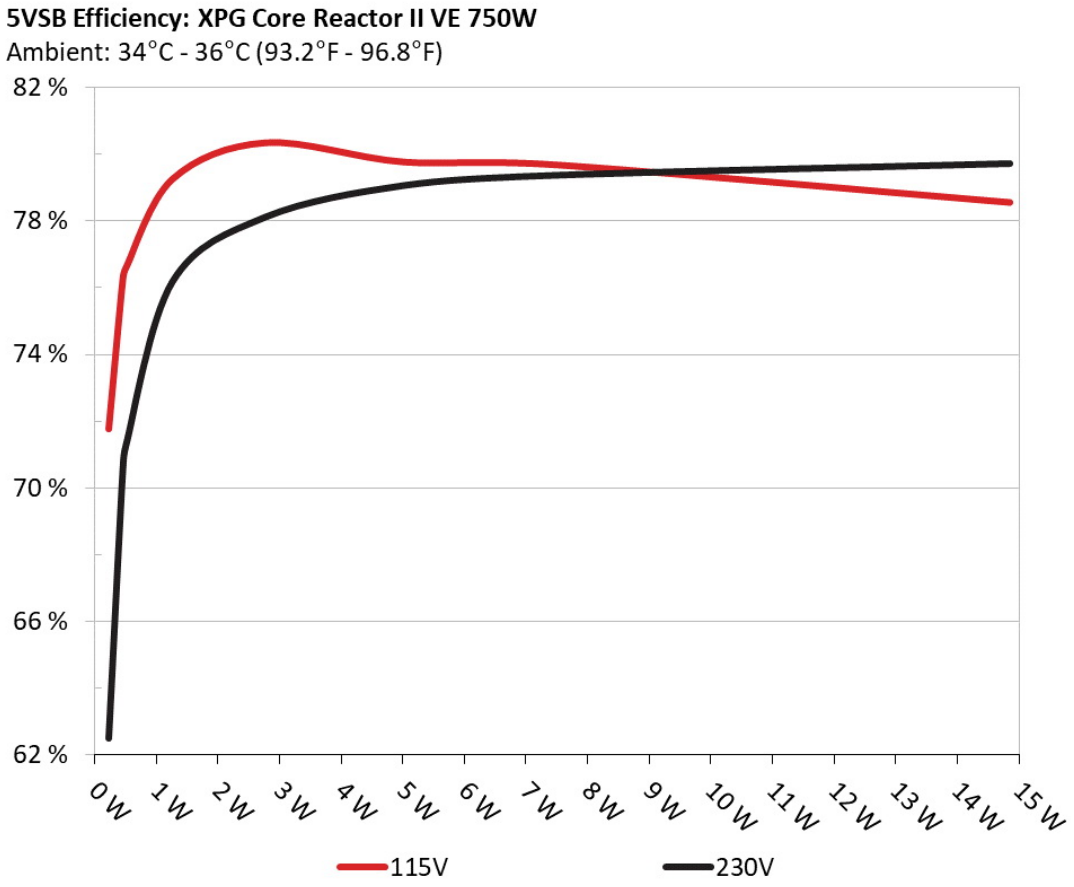
Efficiency under high ambient temperature



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

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

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227W	71.786%	0.032
	5.052V	0.316W		115.17V
2	0.09A	0.455W	76.254%	0.059
	5.051V	0.597W		115.17V
3	0.55A	2.77W	80.332%	0.264
	5.035V	3.448W		115.17V
4	1A	5.021W	79.756%	0.356
	5.02V	6.296W		115.17V
5	1.5A	7.506W	79.669%	0.408
	5.003V	9.421W		115.17V
6	3.001A	14.853W	78.551%	0.475
	4.95V	18.91W		115.16V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227W	62.516%	0.011
	5.052V	0.363W		230.41V
2	0.09A	0.455W	70.547%	0.02
	5.05V	0.646W		230.41V
3	0.55A	2.77W	78.11%	0.102
	5.034V	3.546W		230.41V
4	1A	5.021W	79.057%	0.169
	5.019V	6.351W		230.41V
5	1.5A	7.505W	79.362%	0.228
	5.002V	9.459W		230.41V
6	3.001A	14.852W	79.71%	0.328
	4.95V	18.636W		230.41V

Supplementary Tests (For Reference)

Typical 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%	4.377A	1.97A	1.999A	0.99A	75.009	85.695%	942	22.2	40.31°C	0.971
	12.201V	5.077V	3.302V	5.053V	87.532				44.32°C	115.16V
20%	9.834A	2.957A	3.002A	1.189A	149.975	89.938%	944	22.3	40.51°C	0.99
	12.108V	5.074V	3.299V	5.047V	166.754				44.81°C	115.14V
30%	15.621A	3.451A	3.505A	1.389A	224.986	90.891%	946	22.4	41.22°C	0.993
	12.094V	5.072V	3.296V	5.039V	247.532				45.95°C	115.12V
40%	21.420A	3.946A	4.009A	1.591A	300.079	90.874%	949	22.5	41.65°C	0.991
	12.086V	5.07V	3.293V	5.031V	330.212				46.67°C	115.09V
50%	26.721A	4.936A	5.016A	1.792A	374.733	90.481%	954	22.6	42.39°C	0.991
	12.134V	5.066V	3.29V	5.024V	414.157				47.87°C	115.07V
60%	32.140A	5.928A	6.026A	1.994A	449.647	89.588%	1428	35.9	42.95°C	0.992
	12.129V	5.062V	3.286V	5.016V	501.903				49.09°C	115.05V
70%	37.583A	6.923A	7.04A	2.197A	524.566	88.832%	1753	40.9	43.12°C	0.993
	12.118V	5.057V	3.282V	5.008V	590.512				50.19°C	115.03V
80%	43.104A	7.917A	8.055A	2.299A	599.776	88.118%	2007	44.4	43.62°C	0.994
	12.107V	5.053V	3.278V	5.003V	680.648				51.71°C	115V
90%	48.960A	8.417A	8.551A	2.402A	674.822	87.407%	2289	48.8	44.77°C	0.995
	12.098V	5.05V	3.274V	4.997V	772.053				53.88°C	114.98V
100%	54.615A	8.917A	9.078A	3.016A	750.041	86.566%	2414	49.5	45.5°C	0.995
	12.091V	5.047V	3.272V	4.975V	866.445				55.52°C	114.95V
110%	60.138A	9.914A	10.189A	3.016A	825.081	85.634%	2413	49.5	46.59°C	0.996
	12.085V	5.044V	3.268V	4.974V	963.498				57.51°C	114.93V
CL1	0.116A	14.289A	14.502A	0A	121.309	83.582%	970	23.2	41.14°C	0.987
	12.134V	5.053V	3.289V	5.111V	145.138				46.59°C	115.15V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	0.115A	21.744A	0A	0A	111.402	81.781%	972	23.3	41.48°C	0.984
	12.147V	5.059V	3.31V	5.152V	136.222				48.52°C	115.14V
CL3	0.115A	0A	22.052A	0A	73.996	76.888%	949	22.5	41°C	0.978
	12.148V	5.08V	3.292V	5.075V	96.239				50.06°C	115.15V
CL4	62.033A	0.001A	0.004A	0.001A	749.843	87.421%	2411	49.4	45.61°C	0.995
	12.088V	5.071V	3.287V	5.06V	857.741				56.57°C	114.95V

The results above are not used in the certification process

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%	4.464A	2.001A	2A	1A	76.289	86.797%	949	22.5	40.45°C	0.838
	12.202V	5.077V	3.301V	5.053V	87.895				44.71°C	230.42V
20%	9.922A	3.001A	3A	1.2A	151.302	91.37%	952	22.6	40.78°C	0.933
	12.105V	5.074V	3.298V	5.047V	165.592				45.36°C	230.41V
30%	15.748A	3.501A	3.501A	1.4A	226.758	92.45%	956	22.7	41.4°C	0.959
	12.091V	5.072V	3.296V	5.04V	245.274				46.46°C	230.4V
40%	21.567A	4.001A	4.001A	1.6A	302.031	92.614%	958	22.8	41.62°C	0.972
	12.080V	5.07V	3.293V	5.032V	326.119				47.14°C	230.39V
50%	27.049A	5.002A	5.001A	1.801A	378.813	92.428%	961	22.9	42.01°C	0.978
	12.126V	5.065V	3.289V	5.024V	409.845				48.09°C	230.38V
60%	32.170A	5.93A	6.028A	1.994A	449.607	91.907%	1458	35.3	42.89°C	0.982
	12.117V	5.061V	3.285V	5.016V	489.203				49.43°C	230.34V
70%	37.617A	6.925A	7.042A	2.197A	524.535	91.29%	1768	41.2	43.32°C	0.984
	12.107V	5.056V	3.281V	5.008V	574.584				50.42°C	230.33V
80%	43.142A	7.919A	8.056A	2.299A	599.765	90.769%	2042	44.8	43.95°C	0.986
	12.096V	5.051V	3.277V	5.003V	660.765				51.98°C	230.32V
90%	49.013A	8.42A	8.554A	2.402A	674.804	90.29%	2304	49.2	44.84°C	0.988
	12.085V	5.048V	3.273V	4.998V	747.378				53.88°C	230.31V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	54.689A	8.92A	9.082A	3.016A	750.026	89.674%	2421	49.7	45.76°C	0.988
	12.074V	5.046V	3.27V	4.975V	836.394				55.79°C	230.3V
110%	60.244A	9.919A	10.194A	3.016A	825.08	89.098%	2424	49.8	46.57°C	0.989
	12.063V	5.041V	3.266V	4.974V	926.034				57.49°C	230.3V
CL1	0.116A	14.286A	14.496A	0A	121.307	84.607%	982	23.7	41.86°C	0.917
	12.126V	5.054V	3.29V	5.116V	143.373				47.39°C	230.39V
CL2	0.115A	21.751A	0A	0A	111.401	82.71%	987	23.8	41.57°C	0.909
	12.146V	5.057V	3.309V	5.156V	134.692				48.63°C	230.39V
CL3	0.115A	0A	22.055A	0A	73.996	77.323%	964	23.0	40.53°C	0.854
	12.145V	5.08V	3.292V	5.075V	95.699				49.55°C	230.4V
CL4	62.133A	0.001A	0.004A	0.001A	749.821	90.526%	2405	49.4	45.23°C	0.988
	12.067V	5.069V	3.285V	5.059V	828.295				56.19°C	230.31V

The results above are not used in the certification process

Light 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	1.238A	0.492A	0.499A	0.197A	20.01	77.851%	927	21.8	36.89°C	0.825
	12.001V	5.081V	3.304V	5.077V	25.702				39.94°C	115.18V
40W	2.722A	0.689A	0.699A	0.296A	40.007	82.869%	932	21.9	37.49°C	0.932
	12.010V	5.08V	3.303V	5.073V	48.279				40.79°C	115.17V
60W	4.142A	0.887A	0.9A	0.395A	60.006	83.58%	936	22.1	38.62°C	0.965
	12.198V	5.078V	3.302V	5.069V	71.796				42.37°C	115.16V
80W	5.602A	1.084A	1.1A	0.494A	79.974	86.513%	939	22.1	39.49°C	0.974
	12.198V	5.078V	3.302V	5.066V	92.44				43.48°C	115.16V

The results above are not used in the certification process

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	1.240A	0.5A	0.5A	0.2A	20.097	77.729%	932	21.9	36.59°C	0.454
	12.000V	5.081V	3.303V	5.077V	25.856				39.65°C	230.43V
40W	2.720A	0.7A	0.7A	0.3A	40.063	83.507%	937	18.6	37.53°C	0.656
	12.009V	5.08V	3.302V	5.073V	47.973				40.85°C	230.42V
60W	4.224A	0.9A	0.9A	0.4A	61.087	84.775%	941	22.2	38.53°C	0.788
	12.195V	5.078V	3.301V	5.068V	72.058				41.99°C	230.42V
80W	5.704A	1.1A	1.1A	0.5A	81.314	87.413%	944	22.3	39.02°C	0.849
	12.195V	5.077V	3.301V	5.066V	93.024				42.85°C	230.42V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.97mV	5.71mV	5.29mV	5.19mV	Pass
20% Load	14.01mV	6.17mV	7.22mV	5.40mV	Pass
30% Load	12.57mV	7.19mV	9.82mV	6.47mV	Pass
40% Load	13.43mV	8.31mV	12.36mV	6.88mV	Pass
50% Load	16.03mV	9.49mV	14.85mV	7.90mV	Pass
60% Load	18.27mV	10.35mV	17.60mV	8.87mV	Pass
70% Load	20.76mV	12.60mV	20.35mV	10.14mV	Pass
80% Load	22.95mV	13.77mV	25.38mV	10.75mV	Pass
90% Load	25.14mV	16.02mV	28.28mV	12.94mV	Pass
100% Load	33.32mV	18.19mV	31.51mV	14.18mV	Pass
110% Load	35.47mV	18.87mV	35.03mV	15.98mV	Pass
Crossload1	27.12mV	8.29mV	12.48mV	6.72mV	Pass
Crossload2	16.17mV	11.43mV	6.76mV	8.20mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	7.84mV	5.81mV	13.22mV	5.40mV	Pass
Crossload4	32.35mV	15.71mV	27.43mV	12.82mV	Pass

The results above are not used in the certification process

230V

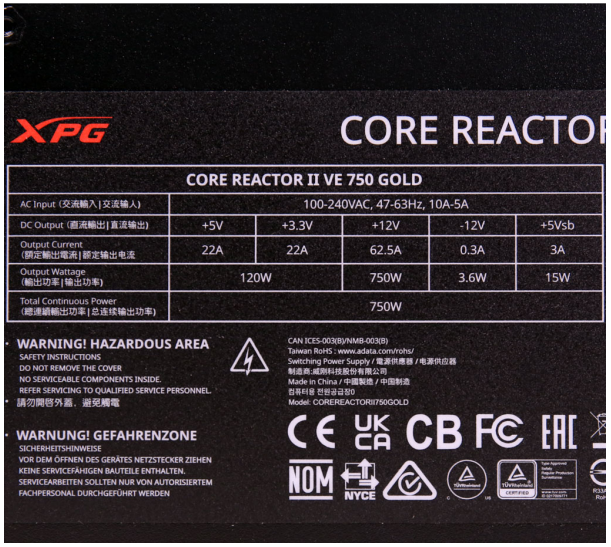
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.51mV	5.56mV	5.19mV	5.25mV	Pass
20% Load	15.84mV	5.92mV	7.27mV	5.30mV	Pass
30% Load	12.52mV	7.25mV	9.92mV	6.11mV	Pass
40% Load	13.94mV	8.06mV	12.81mV	7.08mV	Pass
50% Load	15.72mV	9.54mV	15.01mV	7.74mV	Pass
60% Load	18.06mV	10.92mV	17.34mV	8.87mV	Pass
70% Load	20.61mV	13.01mV	20.09mV	10.34mV	Pass
80% Load	22.28mV	14.13mV	24.92mV	10.64mV	Pass
90% Load	25.34mV	17.14mV	27.92mV	12.94mV	Pass
100% Load	33.01mV	17.97mV	31.71mV	14.31mV	Pass
110% Load	35.90mV	19.01mV	35.23mV	15.75mV	Pass
Crossload1	28.17mV	9.34mV	12.95mV	7.02mV	Pass
Crossload2	17.88mV	12.60mV	7.17mV	9.68mV	Pass
Crossload3	8.04mV	5.87mV	13.63mV	5.66mV	Pass
Crossload4	32.69mV	15.79mV	27.85mV	12.99mV	Pass

The results above are not used in the certification process

XPG Core Reactor II VE 750



Top side



Power specifications label

Cybenetics □□□□□□□□□□□□□□□□□□ ETA□□□□□ LAMBDA□□□□□ SAFE□□□□□□□□□□□□□□□□□□ DELTA□□□□□□□ PHI□□□□□□□□□

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