

Anex

Cooler Master XG 750

Lab ID#: CM75001889
 Receipt Date: Aug 3, 2021
 Test Date: Aug 27, 2021

Report: 21PS1889A

Report Date: Aug 30, 2021

DUT INFORMATION

Brand	Cooler Master
Manufacturer (OEM)	Huizhou Xin Hui Yuan Tech (Fusion Power)
Series	XG
Model Number	MPG-7501-AFBAP
Serial Number	
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60
Rated Power (W)	750
Type	ATX12V
Cooling	140mm Fluid Dynamic Bearing Fan (DWPH EFC-14E12D)
Semi-Passive Operation	✓ (selectable)
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

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 1/17

Anex

Cooler Master XG 750

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	✓

115V

Average Efficiency	90.025%
Efficiency With 10W (≤500W) or 2% (>500W)	67.637
Average Efficiency 5VSB	81.990%
Standby Power Consumption (W)	0.0465930
Average PF	0.984
Avg Noise Output	20.31 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

230V

Average Efficiency	91.777%
Average Efficiency 5VSB	81.192%
Standby Power Consumption (W)	0.0835391
Average PF	0.940
Avg Noise Output	20.24 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	62.5	3	0.3
	Watts	100		750	15	3.6
Total Max. Power (W)		750				

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

Hold-Up Time (ms)	24.7
AC Loss to PWR_OK Hold Up Time (ms)	20.7
PWR_OK Inactive to DC Loss Delay (ms)	4

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

CABLES AND CONNECTORS

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 (650mm)	1	1	18AWG	No
8 pin EPS12V (650mm)	1	1	18AWG	No
6+2 pin PCIe (550mm+125mm)	2	4	16-18AWG	No
SATA (500mm+125mm+125mm+125mm)	3	12	18AWG	No
4 pin Molex (500mm+125mm+125mm+125mm)	1	4	18AWG	No

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 3/17

Anex

Cooler Master XG 750

General Data

Manufacturer (OEM)	Huizhou Xin Hui Yuan Tech (Fusion Power)
PCB Type	Double Sided

Primary Side

Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	1x NTC Thermistor MF72-5D15 (5 Ohm) & Relay
Bridge Rectifier(s)	2x MCC GBU15KL (800V, 15A @ 100°C)
APFC MOSFETs	2x NCE Power NCE65TF099 (650V, 24A @ 100°C, Rds(on): 0.109Ohm)
APFC Boost Diode	1x CDP0865G1
Bulk Cap(s)	1x TK (450V, 560uF, 2,000h @ 105°C, LGW)
Main Switchers	4x NCE Power NCE65TF130 (650V, 18A @ 100°C, Rds(on): 0.130Ohm)
Digital Controllers	Champion CM6500UNX
MCU	Champion CM6901T6X
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters

Secondary Side

+12V MOSFETs	4x Infineon BSC010N04LS (40V, 178A @ 100°C, Rds(on): 1mOhm)
5V & 3.3V	DC-DC Converters: 2x Excelliance MOS EMB04N03A (30V, 55A @ 100°C, Rds(on): 4mOhm) & 2x Excelliance MOS EMB07N03 (30V, 17A @ 100°C, Rds(on): 7mOhm) PWM Controller(s): ANPEC APW7159C
Filtering Capacitors	Electrolytic: 2x Nippon Chemi-Con (105°C, W), 4x Nippon Chemi-Con (2-5,000h @ 105°C, KZE), 8x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 2x Nippon Chemi-Con (5-6,000h @ 105°C, KZH) Polymer: 22x FPCAP
Supervisor IC	IN1S313I-SAG
Fan Model	DWPH EFC-14E12D (140mm, 12V, 0.80A, Fluid Dynamic Bearing Fan)

5VSB Circuit

Rectifier	1x 45R10C SBR
Standby PWM Controller	Excelliance MOS EM8569C

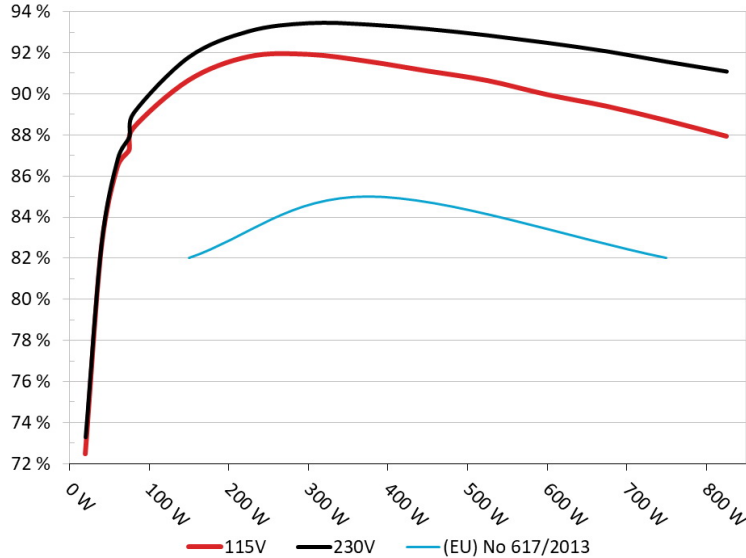
All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 4/17

EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Cooler Master XG 750W
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

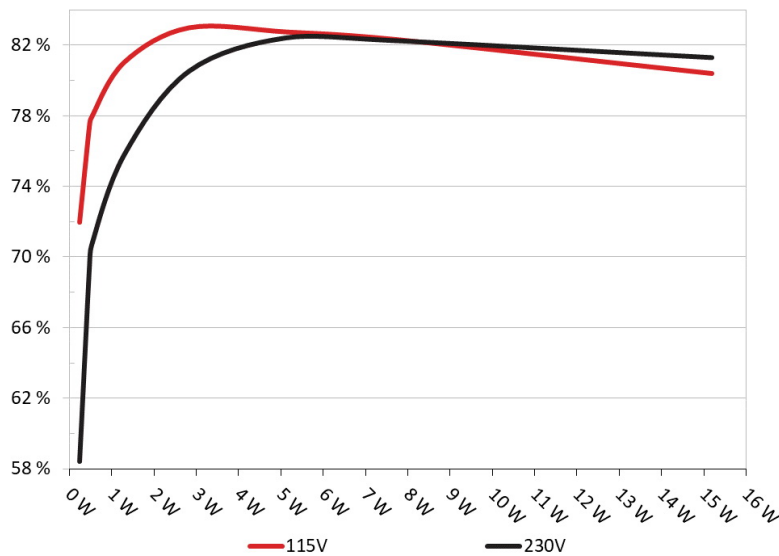


INFO

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: Cooler Master XG 750W
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

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

Anex

Cooler Master XG 750

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

5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts	
1	0.045A	0.232W	71.978%	0.054
	5.142V	0.322W		115.18V
2	0.09A	0.463W	77.426%	0.096
	5.141V	0.598W		115.18V
3	0.55A	2.822W	83%	0.329
	5.129V	3.4W		115.17V
4	1A	5.119W	82.764%	0.402
	5.117V	6.185W		115.17V
5	1.5A	7.658W	82.347%	0.441
	5.104V	9.3W		115.17V
6	3.001A	15.196W	80.409%	0.49
	5.064V	18.898W		115.16V

Test

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

5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts	
1	0.045A	0.232W	58.396%	0.02
	5.142V	0.397W		230.37V
2	0.09A	0.463W	69.397%	0.034
	5.141V	0.667W		230.37V
3	0.55A	2.822W	80.509%	0.156
	5.129V	3.505W		230.37V
4	1A	5.118W	82.399%	0.236
	5.117V	6.211W		230.37V
5	1.5A	7.658W	82.245%	0.293
	5.104V	9.311W		230.37V
6	3.001A	15.197W	81.279%	0.377
	5.065V	18.697W		230.37V

Test

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 6/17

Anex

Cooler Master XG 750

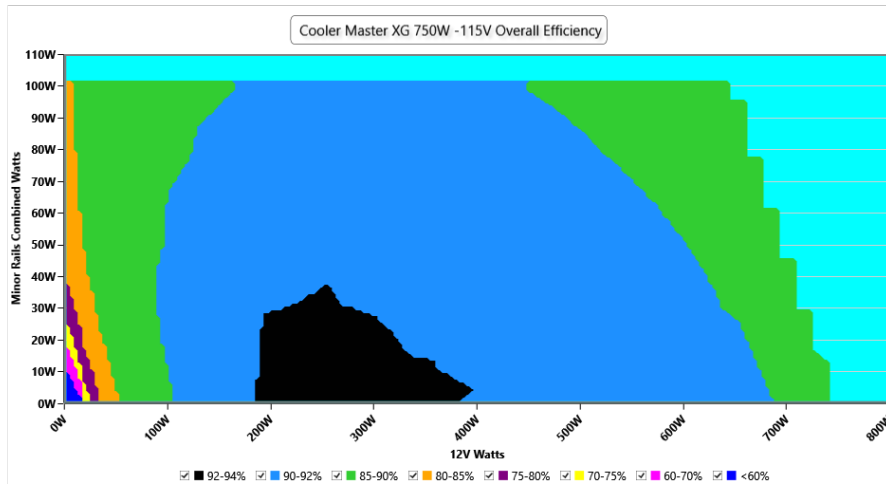
115V

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 7/17

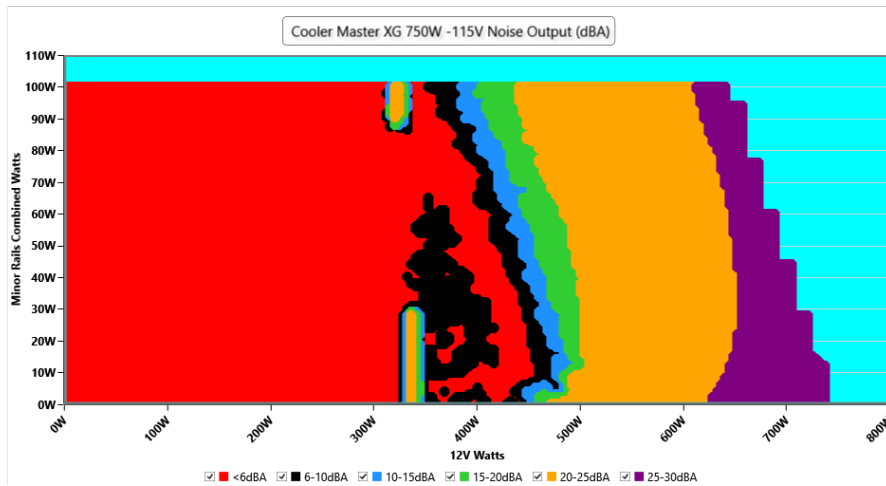
EFFICIENCY GRAPH 115V



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

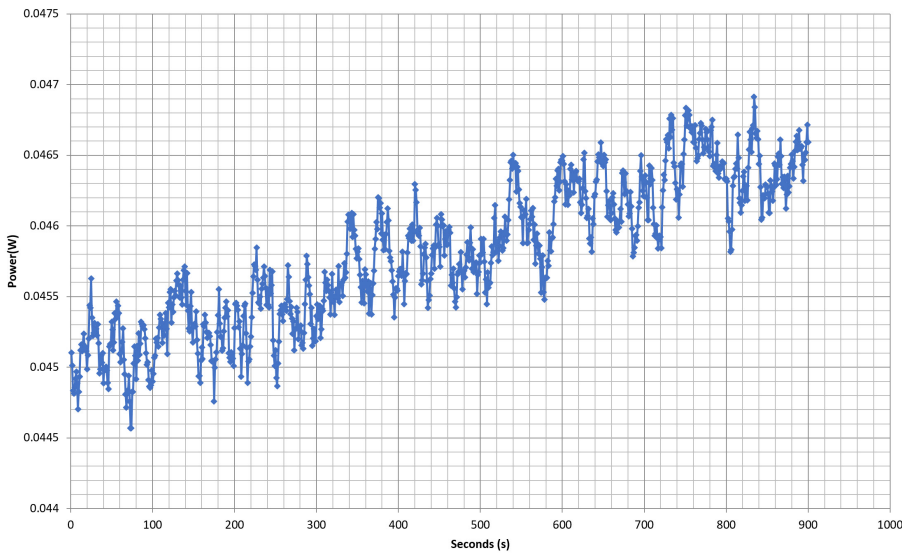
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

VAMPIRE POWER -115V

Power - 23/08/2021 - 14:52



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

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

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%	4.421A	1.989A	1.982A	0.978A	75.009	87.28%	0	<6.0	44.5°C	0.956
	12.081V	5.028V	3.33V	5.115V	85.941				40.22°C	115.2V
20%	9.856A	2.985A	2.974A	1.176A	149.974	90.685%	0	<6.0	45.87°C	0.987
	12.080V	5.026V	3.329V	5.103V	165.38				41.09°C	115.19V
30%	15.639A	3.484A	3.47A	1.375A	224.982	91.829%	0	<6.0	47.51°C	0.991
	12.080V	5.025V	3.329V	5.092V	245.002				42.18°C	115.19V
40%	21.427A	3.982A	3.967A	1.575A	300.074	91.94%	0	<6.0	48.71°C	0.992
	12.081V	5.023V	3.328V	5.081V	326.38				42.87°C	115.18V
50%	26.840A	4.98A	4.959A	1.776A	374.783	91.6%	0	<6.0	49.77°C	0.987
	12.082V	5.022V	3.327V	5.07V	409.151				43.3°C	115.18V
60%	32.268A	5.978A	5.953A	1.978A	449.714	91.129%	755	22.9	43.41°C	0.986
	12.083V	5.02V	3.327V	5.058V	493.492		50.41°C		115.17V	
70%	37.717A	6.977A	6.948A	2.181A	524.635	90.667%	758	23.0	43.86°C	0.987
	12.077V	5.018V	3.325V	5.046V	578.64		51.78°C		115.17V	
80%	43.213A	7.978A	7.942A	2.284A	599.881	89.982%	980	30.9	44.27°C	0.988
	12.079V	5.016V	3.324V	5.036V	666.667		52.8°C		115.17V	
90%	49.053A	8.478A	8.425A	2.388A	674.915	89.411%	1078	33.5	44.57°C	0.989
	12.077V	5.015V	3.324V	5.027V	754.841		53.64°C		115.17V	
100%	54.691A	8.98A	8.938A	2.998A	750.141	88.718%	1361	39.8	45.53°C	0.99
	12.076V	5.012V	3.323V	5.004V	845.539		55.27°C		115.17V	
110%	60.200A	9.981A	10.023A	3.002A	825.18	87.951%	1562	43.9	46.85°C	0.991
	12.074V	5.011V	3.322V	4.997V	938.225		57.74°C		115.17V	
CL1	0.116A	11.99A	11.945A	0A	101.322	84.279%	0	<6.0	49.52°C	0.976
	12.087V	5.022V	3.324V	5.126V	120.223				42.66°C	115.21V
CL2	0.116A	19.913A	0A	0A	101.407	81.037%	0	<6.0	50.86°C	0.976
	12.092V	5.022V	3.323V	5.135V	125.141				43.31°C	115.21V
CL3	0.116A	0A	19.85A	0A	67.402	77.152%	0	<6.0	52.6°C	0.958
	12.091V	5.015V	3.325V	5.124V	87.364				44.43°C	115.21V
CL4	62.083A	0A	0A	0A	749.908	89.575%	1264	38.1	45.34°C	0.99
	12.079V	5.016V	3.328V	5.097V	837.189				55.11°C	115.18V

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

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	0.497A	0.495A	0.195A	20.01	72.482%	0	<6.0	39.2°C	0.762
	12.079V	5.03V	3.331V	5.14V	27.609				36.88°C	115.21V
40W	2.707A	0.696A	0.694A	0.292A	40.009	82.472%	0	<6.0	40.79°C	0.891
	12.080V	5.029V	3.331V	5.136V	48.512				37.98°C	115.21V
60W	4.183A	0.895A	0.892A	0.39A	60.008	86.437%	0	<6.0	41.84°C	0.943
	12.080V	5.028V	3.33V	5.132V	69.423				38.55°C	115.21V
80W	5.657A	1.094A	1.09A	0.488A	79.976	88.336%	0	<6.0	43.24°C	0.959
	12.081V	5.028V	3.33V	5.128V	90.536				39.31°C	115.2V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.79mV	6.70mV	4.35mV	7.19mV	Pass
20% Load	12.24mV	7.01mV	4.61mV	7.29mV	Pass
30% Load	13.77mV	7.36mV	4.86mV	7.34mV	Pass
40% Load	13.36mV	7.57mV	5.27mV	8.01mV	Pass
50% Load	12.87mV	8.13mV	5.63mV	8.01mV	Pass
60% Load	14.15mV	9.00mV	5.89mV	8.06mV	Pass
70% Load	14.10mV	8.90mV	5.99mV	8.46mV	Pass
80% Load	13.53mV	8.75mV	10.75mV	8.46mV	Pass
90% Load	16.04mV	9.20mV	11.36mV	9.38mV	Pass
100% Load	22.17mV	10.53mV	12.21mV	9.34mV	Pass
110% Load	22.87mV	10.69mV	12.97mV	10.35mV	Pass
Crossload1	16.26mV	10.32mV	12.84mV	9.99mV	Pass
Crossload2	12.46mV	9.16mV	4.14mV	9.43mV	Pass
Crossload3	12.05mV	10.33mV	17.65mV	10.04mV	Pass
Crossload4	20.96mV	7.31mV	6.08mV	8.36mV	Pass

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

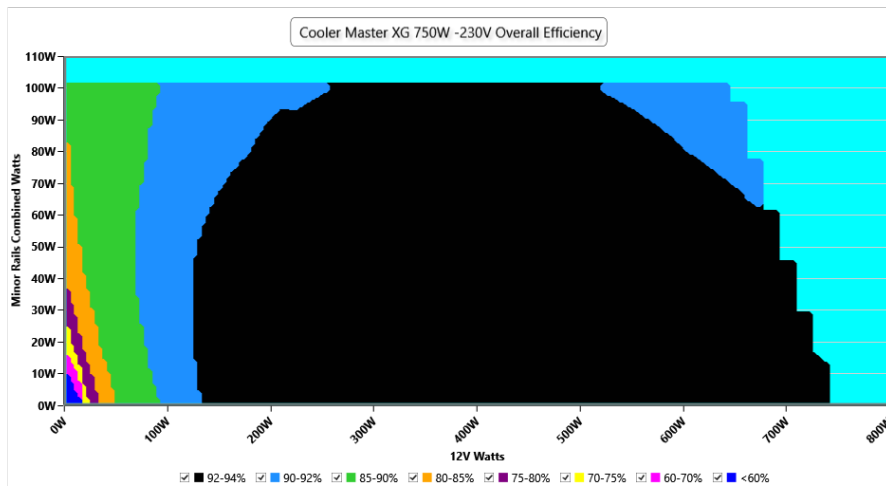
230V

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 12/17

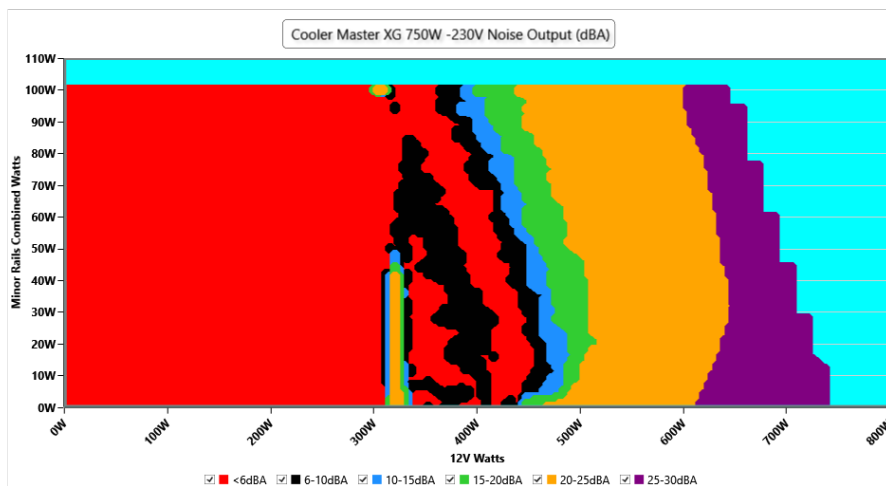
EFFICIENCY GRAPH 230V



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

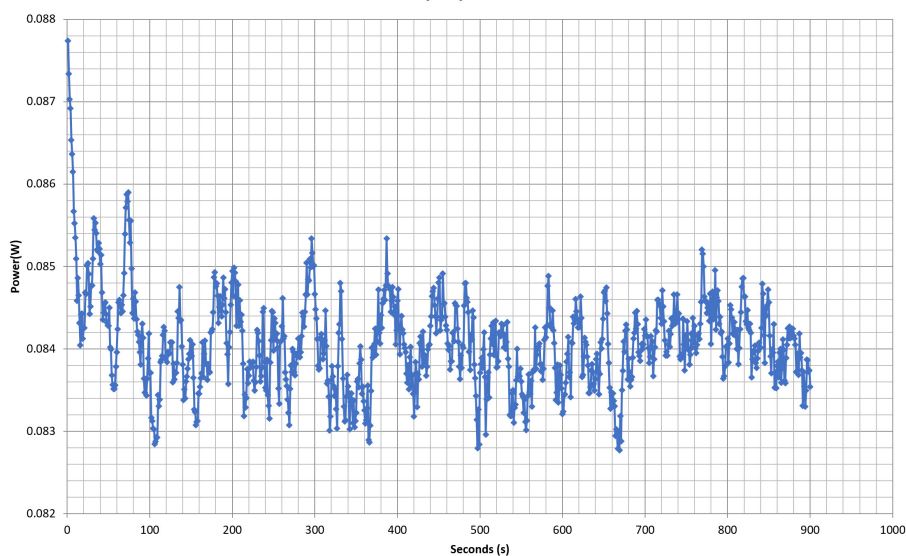
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

VAMPIRE POWER -230V

Power - 23/08/2021 - 14:52



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

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

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%	4.422A	1.989A	1.982A	0.978A	75.009	87.891%	0	<6.0	45.85°C	0.74
	12.076V	5.029V	3.33V	5.114V	85.343				40.51°C	230.45V
20%	9.859A	2.984A	2.974A	1.176A	149.975	91.778%	0	<6.0	47.23°C	0.892
	12.077V	5.027V	3.329V	5.103V	163.411				41.23°C	230.45V
30%	15.643A	3.483A	3.47A	1.375A	224.982	93.031%	0	<6.0	48.59°C	0.939
	12.077V	5.026V	3.329V	5.092V	241.834				42.14°C	230.45V
40%	21.432A	3.982A	3.967A	1.575A	300.078	93.426%	0	<6.0	49.82°C	0.958
	12.078V	5.024V	3.328V	5.081V	321.193				42.92°C	230.45V
50%	26.847A	4.979A	4.959A	1.776A	374.801	93.36%	0	<6.0	50.97°C	0.969
	12.080V	5.022V	3.327V	5.069V	401.46				43.81°C	230.45V
60%	32.276A	5.977A	5.953A	1.978A	449.714	93.14%	0	<6.0	52.1°C	0.974
	12.080V	5.021V	3.327V	5.058V	482.839				44.45°C	230.45V
70%	37.722A	6.975A	6.947A	2.181A	524.65	92.834%	750	22.8	44.63°C	0.977
	12.076V	5.02V	3.326V	5.046V	565.152		52.72°C		230.45V	
80%	43.229A	7.976A	7.942A	2.284A	599.919	92.469%	890	28.0	44.91°C	0.978
	12.075V	5.017V	3.325V	5.036V	648.776		53.74°C		230.45V	
90%	49.059A	8.478A	8.424A	2.388A	674.958	92.053%	1105	34.2	45.14°C	0.981
	12.076V	5.015V	3.324V	5.027V	733.228		54.43°C		230.45V	
100%	54.703A	8.98A	8.938A	2.999A	750.232	91.546%	1349	39.6	45.85°C	0.981
	12.074V	5.013V	3.323V	5.003V	819.51		55.81°C		230.46V	
110%	60.218A	9.979A	10.023A	3.003A	825.225	91.074%	1491	42.3	46.89°C	0.982
	12.071V	5.012V	3.323V	4.997V	906.108		57.63°C		230.45V	
CL1	0.116A	11.988A	11.945A	0A	101.328	85.134%	0	<6.0	50.72°C	0.838
	12.086V	5.023V	3.324V	5.126V	119.023				43.55°C	230.46V
CL2	0.116A	19.915A	0A	0A	101.416	81.57%	0	<6.0	52.58°C	0.848
	12.092V	5.022V	3.324V	5.135V	124.332				44.53°C	230.47V
CL3	0.116A	0A	19.842A	0A	67.409	78.252%	0	<6.0	54.72°C	0.752
	12.086V	5.022V	3.326V	5.124V	86.145				45.44°C	230.47V
CL4	62.103A	0A	0A	0A	749.977	92.388%	1215	37.0	45.06°C	0.981
	12.076V	5.017V	3.329V	5.097V	811.771				55.01°C	230.46V

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

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	1.241A	0.5A	0.5A	0.2A	20.197	73.296%	0	<6.0	39.96°C	0.466
	12.077V	5.031V	3.331V	5.14V	27.559				36.79°C	230.45V
40W	2.721A	0.7A	0.7A	0.3A	40.255	82.714%	0	<6.0	41.26°C	0.598
	12.077V	5.03V	3.331V	5.136V	48.667				37.67°C	230.46V
60W	4.224A	0.9A	0.9A	0.4A	60.604	86.836%	0	<6.0	43.15°C	0.687
	12.078V	5.03V	3.331V	5.132V	69.791				38.77°C	230.46V
80W	5.704A	1.1A	1.1A	0.5A	80.663	89.066%	0	<6.0	44.84°C	0.757
	12.079V	5.029V	3.33V	5.128V	90.565				39.78°C	230.46V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.13mV	6.65mV	4.71mV	7.70mV	Pass
20% Load	11.78mV	6.90mV	4.86mV	7.54mV	Pass
30% Load	13.32mV	7.72mV	4.81mV	7.95mV	Pass
40% Load	13.32mV	7.57mV	5.32mV	7.95mV	Pass
50% Load	12.72mV	8.18mV	5.83mV	8.26mV	Pass
60% Load	13.33mV	8.33mV	5.94mV	8.31mV	Pass
70% Load	13.23mV	8.75mV	5.94mV	8.36mV	Pass
80% Load	14.15mV	8.95mV	11.05mV	8.36mV	Pass
90% Load	15.12mV	9.25mV	11.72mV	8.01mV	Pass
100% Load	23.60mV	10.57mV	12.33mV	9.35mV	Pass
110% Load	23.83mV	10.65mV	13.15mV	9.24mV	Pass
Crossload1	15.89mV	10.08mV	12.94mV	9.81mV	Pass
Crossload2	11.34mV	9.05mV	3.79mV	9.48mV	Pass
Crossload3	12.00mV	9.82mV	16.63mV	10.25mV	Pass
Crossload4	22.30mV	7.89mV	6.22mV	8.86mV	Pass

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

Anex

Cooler Master XG 750

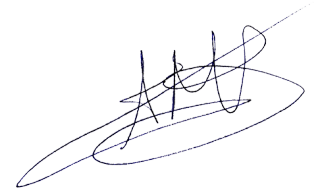


Top side



Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case