

Anex

Cooler Master G600 Gold

Lab ID#: CM60001882
Receipt Date: Jul 21, 2021
Test Date: Jul 28, 2021

Report: 21PS1882A

Report Date: Jul 30, 2021

DUT INFORMATION

Brand	Cooler Master
Manufacturer (OEM)	Xin Hui Yuan Tech (Fusion Power)
Series	G Gold
Model Number	MPW-6001-ACAAG
Serial Number	
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60
Rated Power (W)	600
Type	ATX12V
Cooling	120mm Rifle Bearing Fan (EFS-12E12M)
Semi-Passive Operation	X
Cable Design	Fixed cables

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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RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	87.645%
Efficiency With 10W (≤500W) or 2% (>500W)	56.662
Average Efficiency 5VSB	81.556%
Standby Power Consumption (W)	0.0457110
Average PF	0.980
Avg Noise Output	38.61 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard+

230V

Average Efficiency	89.658%
Average Efficiency 5VSB	80.204%
Standby Power Consumption (W)	0.0851385
Average PF	0.946
Avg Noise Output	38.53 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard+

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	50	3	0.3
	Watts	100		600	15	3.6
Total Max. Power (W)		600				

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

Hold-Up Time (ms)	21.7
AC Loss to PWR_OK Hold Up Time (ms)	18.5
PWR_OK Inactive to DC Loss Delay (ms)	3.2

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CABLES AND CONNECTORS

Captive Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (560mm)	1	1	18-22AWG	No
8 pin EPS12V (620mm)/ 4+4 pin EPS12V (+120mm)	1	1 / 1	18AWG	No
6+2 pin PCIe (590mm+120mm)	2	4	18AWG	No
SATA (540mm+120mm+120mm)	2	6	18AWG	No
4-pin Molex (520mm+120mm+120mm)	1	3	18AWG	No

Modular Cables

AC Power Cord (1400mm) - C13 coupler	1	1	17AWG	-
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General Data

Manufacturer (OEM)	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)	1x GBU1006 (600V, 10A @ 100°C)
APFC MOSFETs	2x Jilin Sing Microelectronics JCS18N50FH (500V, 11A @ 100°C, Rds(on): 0.27Ohm)
APFC Boost Diode	1x Dongguan Hoen Semiconductor CH3D08065I (650V, 8A @ 150°C)
Bulk Cap(s)	1x Elite (400V, 390uF, 2,000h @ 105°C, PL)
Main Switchers	4x Great Power GPT10N50AD (500V, 9.7A @ 100°C, Rds(on): 0.70hm)
APFC Controller	Champion CM6500UNX
Resonant Controller	Champion CM6901T6X
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters

Secondary Side

+12V MOSFETs	2x Excelliance MOS EMP16N04HS (40V, 100A @ 100°C, Rds(on): 1.6mOhm)
5V & 3.3V	DC-DC Converters: 4x Excelliance MOS EMB04N03A (30V, 55A @ 100°C, Rds(on): 4mOhm) PWM Controller(s): 2x Excelliance MOS EM5301F
Filtering Capacitors	Electrolytic: 5x Chengx (2-4,000h @ 105°C, GR), 2x Elite (4-10,000h @ 105°C, EY), 5x (105°C, WE) Polymer: 8x FPCAP
Supervisor IC	IN1S313I-SAG
Fan Model	Ever Cool EFS-12E12M (120mm, 12V, 0.25A, Rifle Bearing Fan)

5VSB Circuit

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

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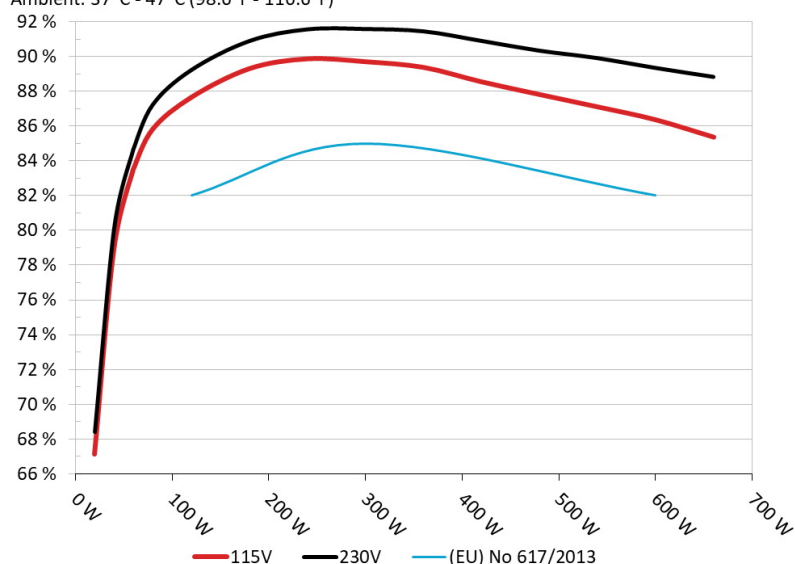
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Cooler Master G600 Gold

Ambient: 37°C - 47°C (98.6°F - 116.6°F)



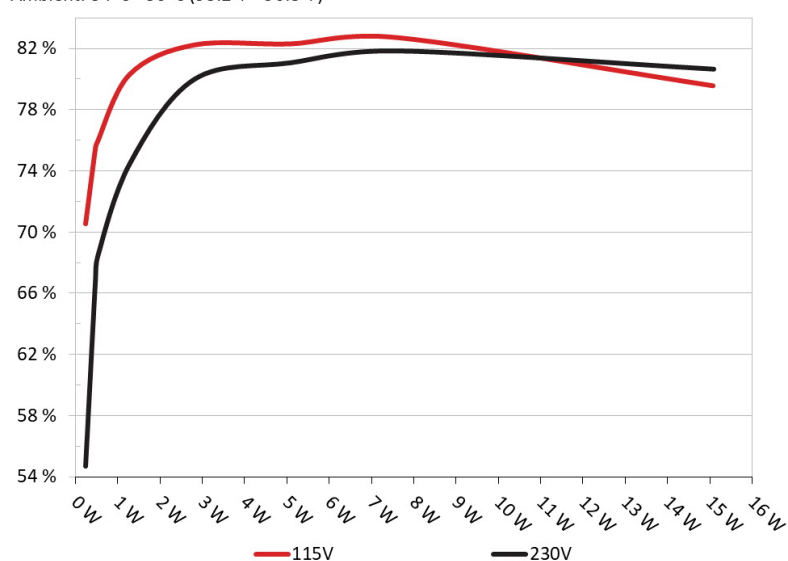
INFO

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 G600 Gold

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	0.23W	70.539%	0.056
	5.111V	0.326W		115.17V
2	0.09A	0.46W	75.442%	0.101
	5.11V	0.61W		115.17V
3	0.55A	2.804W	82.227%	0.339
	5.097V	3.41W		115.17V
4	1A	5.085W	82.294%	0.422
	5.084V	6.179W		115.15V
5	1.5A	7.607W	82.707%	0.463
	5.07V	9.197W		115.14V
6	3.001A	15.082W	79.558%	0.505
	5.027V	18.957W		115.14V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	54.669%	0.022
	5.112V	0.421W		230.39V
2	0.09A	0.46W	66.712%	0.036
	5.11V	0.69W		230.38V
3	0.55A	2.804W	79.983%	0.161
	5.097V	3.506W		230.38V
4	1A	5.085W	81.065%	0.247
	5.084V	6.273W		230.37V
5	1.5A	7.607W	81.838%	0.31
	5.07V	9.295W		230.36V
6	3.001A	15.085W	80.644%	0.392
	5.028V	18.706W		230.35V

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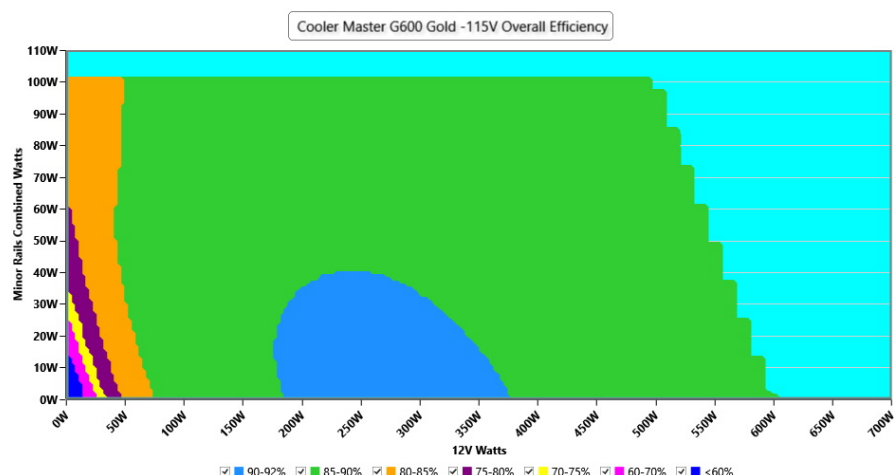
115V

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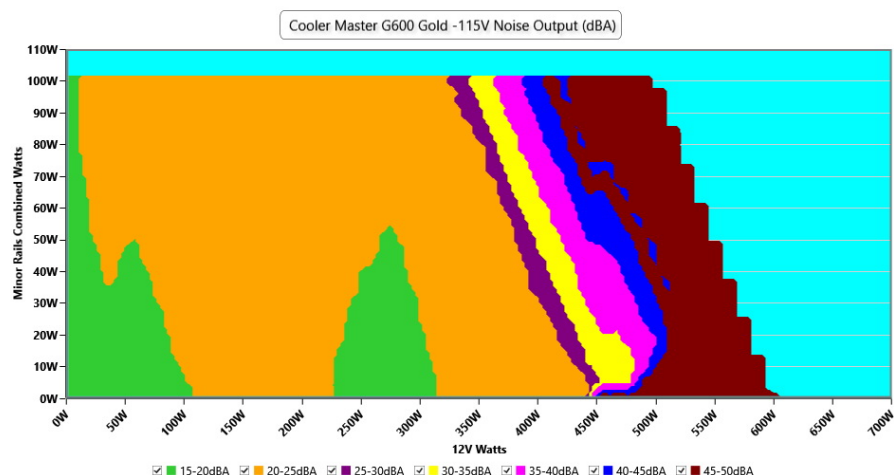
EFFICIENCY GRAPH 115V



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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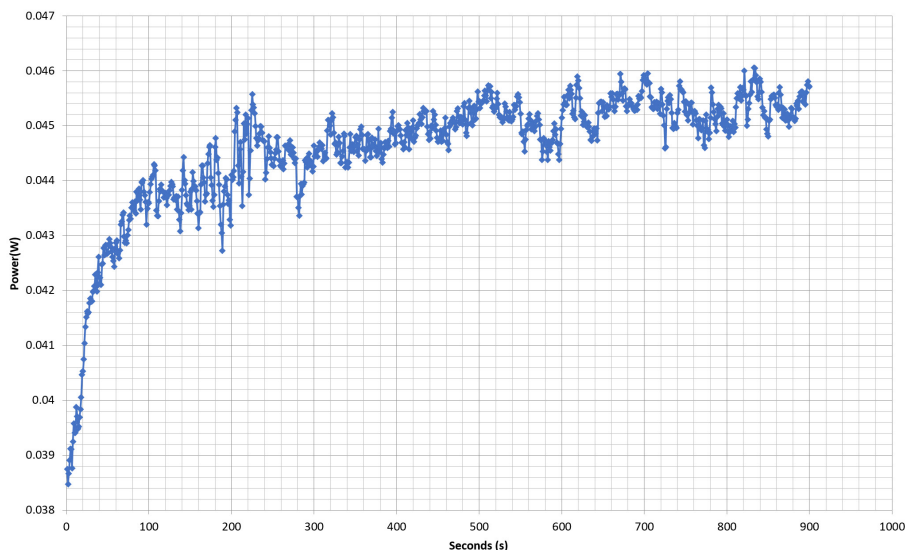
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VAMPIRE POWER -115V

Power - 27/07/2021 - 11:29



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 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%	3.174A	1.974A	1.975A	0.985A	60.009	82.659%	658	20.2	40.33°C	0.968
	12.102V	5.066V	3.343V	5.076V	72.598				44.71°C	115.09V
20%	7.364A	2.969A	2.971A	1.186A	119.958	87.631%	663	21.7	40.43°C	0.979
	12.095V	5.054V	3.332V	5.061V	136.889				45.09°C	115.12V
30%	11.908A	3.471A	3.475A	1.387A	180.002	89.282%	666	21.8	41.04°C	0.977
	12.088V	5.043V	3.324V	5.048V	201.611				46.23°C	115.13V
40%	16.458A	3.975A	3.982A	1.59A	240.05	89.85%	669	21.2	41.95°C	0.977
	12.081V	5.033V	3.315V	5.034V	267.167				47.71°C	115.1V
50%	20.664A	4.98A	4.994A	1.794A	300.005	89.684%	673	20.0	42.36°C	0.98
	12.074V	5.021V	3.304V	5.019V	334.514				48.8°C	115.11V
60%	24.884A	5.993A	6.014A	1.999A	360.048	89.357%	679	20.6	42.65°C	0.983
	12.065V	5.008V	3.293V	5.004V	402.931				49.66°C	115.1V
70%	29.082A	7.01A	7.041A	2.206A	419.777	88.531%	1228	36.6	43.67°C	0.985
	12.058V	4.995V	3.281V	4.988V	474.159				51.46°C	115.11V
80%	33.340A	8.003A	8.072A	2.312A	479.653	87.803%	1741	45.9	43.99°C	0.987
	12.054V	4.983V	3.271V	4.975V	546.282				52.43°C	115.1V
90%	37.944A	8.551A	8.586A	2.418A	539.619	87.093%	1777	47.8	44.05°C	0.988
	12.047V	4.972V	3.261V	4.963V	619.592				53.01°C	115.11V
100%	42.349A	9.074A	9.135A	3.039A	599.579	86.353%	1788	47.3	46.02°C	0.989
	12.040V	4.96V	3.251V	4.937V	694.333				55.73°C	115.11V
110%	46.706A	10.109A	10.278A	3.046A	660.219	85.344%	1792	47.0	46.74°C	0.99
	12.031V	4.947V	3.24V	4.926V	773.603				57.66°C	115.12V
CL1	0.116A	12.01A	12.03A	0A	101.312	81.816%	701	22.5	42.29°C	0.978
	12.077V	5.013V	3.3V	5.076V	123.829				48.7°C	115.14V
CL2	0.116A	19.974A	0A	0A	101.4	79.5%	676	20.0	43.19°C	0.978
	12.081V	5.007V	3.314V	5.089V	127.548				50.77°C	115.14V
CL3	0.116A	0A	19.98A	0A	67.397	72.699%	695	22.3	44.77°C	0.971
	12.073V	5.039V	3.303V	5.077V	92.707				52.99°C	115.15V
CL4	49.803A	0.001A	0.002A	0.001A	600.242	87.293%	1785	47.6	45.8°C	0.989
	12.052V	5.005V	3.288V	5.044V	687.619				55.16°C	115.12V

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Cooler Master G600 Gold

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	1.226A	0.492A	0.492A	0.196A	20.005	67.12%	639	18.8	36.74°C	0.915
	12.111V	5.078V	3.353V	5.105V	29.805				38.87°C	115.14V
40W	2.700A	0.69A	0.689A	0.294A	40.004	78.911%	643	19.3	37.85°C	0.955
	12.109V	5.075V	3.35V	5.1V	50.695				40.64°C	115.12V
60W	4.174A	0.888A	0.887A	0.393A	60.004	83.498%	647	20.3	38.19°C	0.967
	12.106V	5.071V	3.347V	5.095V	71.862				41.23°C	115.05V
80W	5.646A	1.086A	1.086A	0.491A	79.966	85.796%	653	20.2	39.8°C	0.971
	12.103V	5.068V	3.344V	5.09V	93.205				43.58°C	115.07V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.38mV	10.99mV	8.09mV	8.05mV	Pass
20% Load	13.45mV	11.76mV	9.52mV	8.87mV	Pass
30% Load	17.54mV	12.58mV	11.21mV	9.49mV	Pass
40% Load	19.73mV	13.50mV	13.46mV	10.40mV	Pass
50% Load	22.39mV	15.34mV	15.87mV	11.47mV	Pass
60% Load	21.26mV	17.13mV	20.06mV	12.44mV	Pass
70% Load	23.19mV	18.61mV	21.65mV	14.33mV	Pass
80% Load	27.12mV	20.15mV	28.15mV	16.26mV	Pass
90% Load	30.80mV	23.32mV	30.09mV	17.59mV	Pass
100% Load	48.43mV	25.72mV	34.71mV	19.78mV	Pass
110% Load	54.40mV	27.78mV	39.01mV	22.75mV	Pass
Crossload1	18.05mV	19.01mV	25.22mV	9.89mV	Pass
Crossload2	12.94mV	14.11mV	33.01mV	8.62mV	Pass
Crossload3	10.43mV	20.66mV	20.88mV	9.59mV	Pass
Crossload4	54.17mV	22.58mV	23.59mV	18.58mV	Pass

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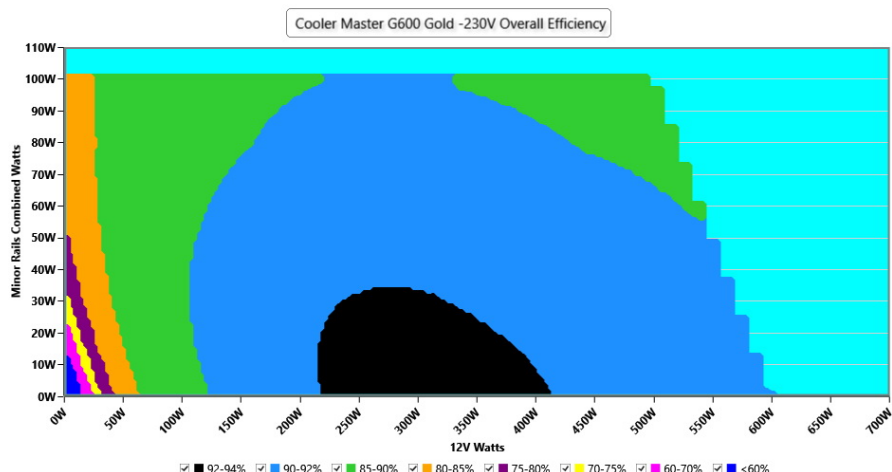
230V

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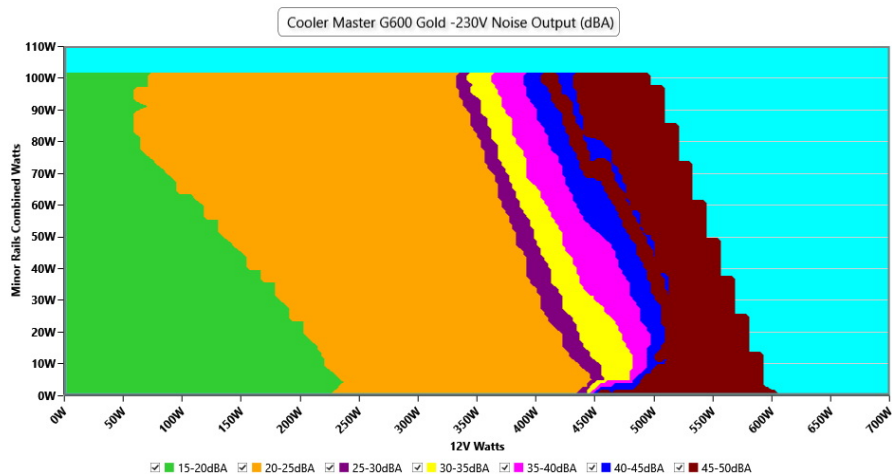
EFFICIENCY GRAPH 230V



INFO

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NOISE GRAPH 230V



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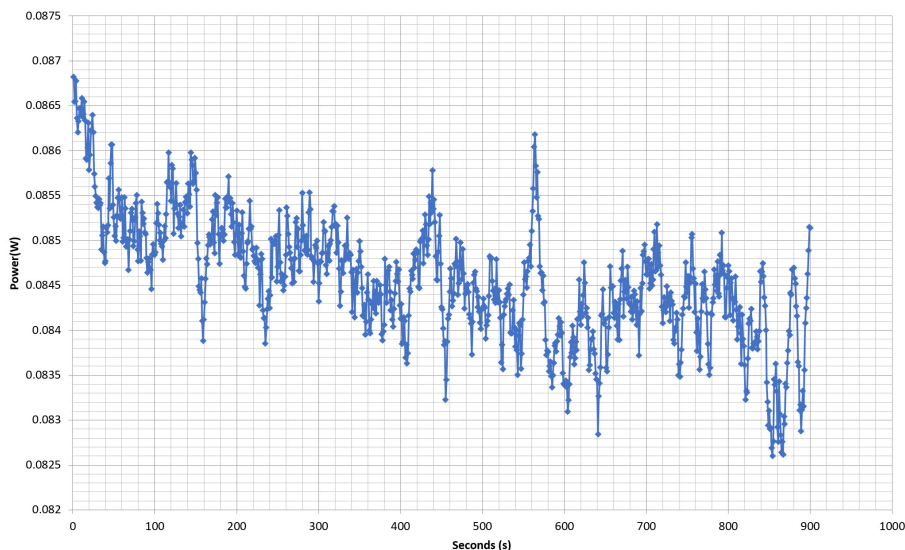
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VAMPIRE POWER -230V

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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%	3.174A	1.975A	1.975A	0.985A	60.008	83.91%	655	20.3	40.27°C	0.824
	12.100V	5.065V	3.342V	5.076V	71.515				44.56°C	230.32V
20%	7.364A	2.969A	2.972A	1.186A	119.954	89.218%	659	20.3	40.68°C	0.913
	12.093V	5.053V	3.332V	5.061V	134.45				45.49°C	230.33V
30%	11.910A	3.471A	3.476A	1.387A	179.995	90.889%	662	21.1	41.32°C	0.938
	12.086V	5.043V	3.323V	5.047V	198.039				46.53°C	230.35V
40%	16.461A	3.975A	3.984A	1.59A	240.042	91.561%	668	21.7	41.88°C	0.954
	12.079V	5.032V	3.314V	5.033V	262.167				47.73°C	230.37V
50%	20.671A	4.982A	4.996A	1.794A	299.999	91.579%	673	20.0	42.31°C	0.96
	12.070V	5.019V	3.303V	5.018V	327.586				48.66°C	230.38V
60%	24.890A	5.995A	6.016A	1.999A	360.039	91.447%	677	20.1	43.38°C	0.965
	12.062V	5.006V	3.292V	5.003V	393.716				50.42°C	230.38V
70%	29.085A	7.011A	7.042A	2.206A	419.744	90.901%	1021	33.5	43.83°C	0.97
	12.056V	4.993V	3.281V	4.987V	461.759				51.58°C	230.38V
80%	33.342A	8.003A	8.074A	2.312A	479.609	90.34%	1752	46.3	44.7°C	0.972
	12.052V	4.981V	3.27V	4.974V	530.893				52.89°C	230.37V
90%	37.949A	8.553A	8.589A	2.419A	539.584	89.913%	1777	47.8	45.11°C	0.973
	12.045V	4.97V	3.26V	4.962V	600.12				53.81°C	230.35V
100%	42.356A	9.077A	9.138A	3.04A	599.594	89.348%	1787	47.6	45.68°C	0.975
	12.038V	4.959V	3.25V	4.936V	671.08				55.16°C	230.34V
110%	46.707A	10.112A	10.28A	3.046A	660.223	88.83%	1792	47.0	46.81°C	0.977
	12.030V	4.945V	3.239V	4.926V	743.249				57.68°C	230.41V
CL1	0.116A	12.011A	12.03A	0A	101.307	83.38%	694	22.3	42.05°C	0.901
	12.077V	5.012V	3.3V	5.076V	121.5				48.65°C	230.36V
CL2	0.116A	19.986A	0A	0A	101.396	80.75%	667	21.7	43.65°C	0.905
	12.082V	5.004V	3.314V	5.088V	125.568				50.87°C	230.34V
CL3	0.116A	0A	19.978A	0A	67.395	74.264%	690	22.0	44.55°C	0.863
	12.074V	5.038V	3.304V	5.076V	90.751				53.08°C	230.35V
CL4	49.794A	0.001A	0.002A	0.001A	600.229	90.374%	1777	47.8	45.44°C	0.975
	12.054V	5.004V	3.287V	5.043V	664.159				55.5°C	230.36V

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Cooler Master G600 Gold

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	1.240A	0.5A	0.5A	0.2A	20.261	68.407%	635	19.4	36.81°C	0.636
	12.110V	5.078V	3.353V	5.105V	29.618				39.15°C	230.34V
40W	2.720A	0.7A	0.7A	0.3A	40.363	80.176%	641	19.3	37.04°C	0.755
	12.106V	5.075V	3.35V	5.1V	50.343				39.88°C	230.32V
60W	4.175A	0.888A	0.887A	0.393A	60.002	84.671%	645	20.0	38.47°C	0.822
	12.104V	5.071V	3.347V	5.094V	70.865				41.83°C	230.32V
80W	5.648A	1.086A	1.086A	0.491A	79.963	87.22%	650	20.3	39.48°C	0.865
	12.100V	5.067V	3.344V	5.089V	91.68				43.28°C	230.31V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.11mV	10.89mV	7.83mV	7.80mV	Pass
20% Load	13.91mV	11.76mV	9.52mV	8.36mV	Pass
30% Load	18.45mV	12.63mV	11.87mV	9.63mV	Pass
40% Load	21.27mV	13.91mV	13.87mV	9.79mV	Pass
50% Load	23.11mV	15.44mV	15.45mV	10.76mV	Pass
60% Load	22.75mV	17.23mV	18.07mV	11.93mV	Pass
70% Load	23.85mV	18.97mV	21.19mV	13.46mV	Pass
80% Load	26.30mV	20.30mV	28.40mV	14.78mV	Pass
90% Load	29.88mV	23.22mV	30.55mV	16.31mV	Pass
100% Load	50.12mV	26.66mV	34.14mV	19.48mV	Pass
110% Load	56.32mV	27.16mV	36.90mV	20.22mV	Pass
Crossload1	18.64mV	20.88mV	24.51mV	9.04mV	Pass
Crossload2	13.04mV	12.68mV	29.63mV	6.53mV	Pass
Crossload3	10.94mV	21.99mV	21.75mV	9.33mV	Pass
Crossload4	55.85mV	22.54mV	23.08mV	15.99mV	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

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