

Anex

Cooler Master G700 Gold

Lab ID#: CM70001880
Receipt Date: Jul 21, 2021
Test Date: Jul 28, 2021

Report: 21PS1880A

Report Date: Jul 29, 2021

DUT INFORMATION

Brand	Cooler Master
Manufacturer (OEM)	Xin Hui Yuan Tech (Fusion Power)
Series	G Gold
Model Number	MPW-7001-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)	700
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	88.145%
Efficiency With 10W (≤500W) or 2% (>500W)	60.920
Average Efficiency 5VSB	81.203%
Standby Power Consumption (W)	0.0514311
Average PF	0.977
Avg Noise Output	37.67 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard+

230V

Average Efficiency	90.114%
Average Efficiency 5VSB	80.250%
Standby Power Consumption (W)	0.1074650
Average PF	0.940
Avg Noise Output	37.65 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard+

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	58.3	3	0.3
	Watts	100		699.6	15	3.6
Total Max. Power (W)		700				

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

Hold-Up Time (ms)	20
AC Loss to PWR_OK Hold Up Time (ms)	17.6
PWR_OK Inactive to DC Loss Delay (ms)	2.4

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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 (630mm)/ 4+4 pin EPS12V (+125mm)	1	1 / 1	18AWG	No
6+2 pin PCIe (590mm+125mm)	2	4	18AWG	No
SATA (530mm+120mm+120mm)	2	6	18AWG	No
4-pin Molex (500mm+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)	2x GBU1006 (600V, 10A @ 100°C)
APFC MOSFETs	2x NCE Power NCE65T180F (650V, 13.2A @ 100°C, Rds(on): 0.18Ohm)
APFC Boost Diode	1x Dongguan Hoen Semiconductor CH3D08065I (650V, 8A @ 150°C)
Bulk Cap(s)	1x Elite (400V, 470uF, 2,000h @ 105°C, PL)
Main Switchers	4x Great Power GPT10N50AD (500V, 9.7A @ 100°C, Rds(on): 0.70Ohm)
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	4x 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: 7x FPCAP, 2x Elite
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

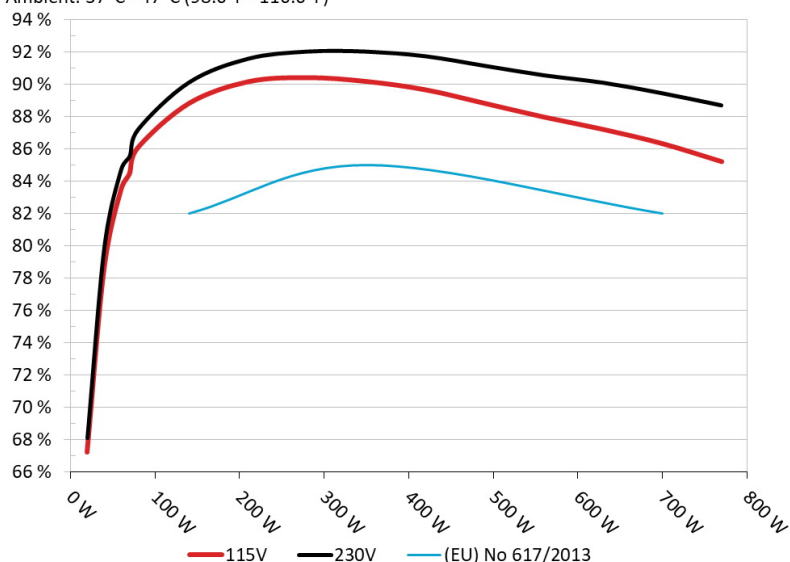
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Cooler Master G700 Gold
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

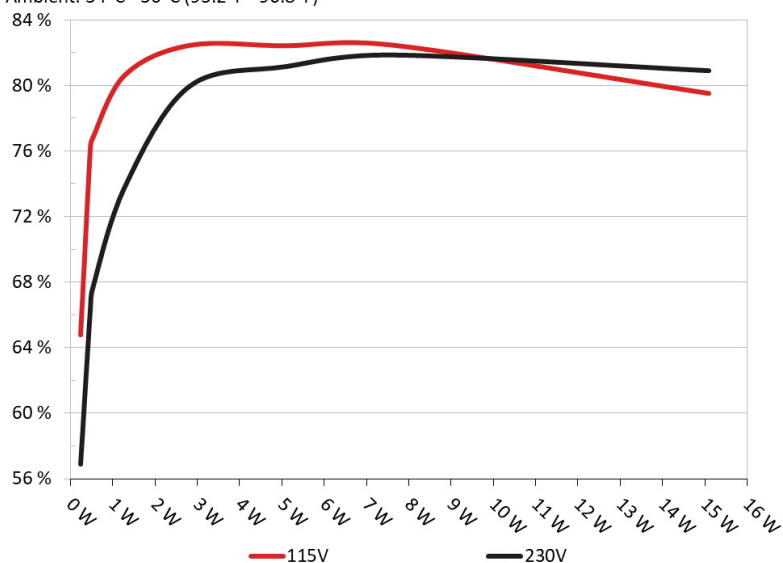


INFO

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 G700 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	64.804%	0.047
	5.117V	0.294W		115.13V
2	0.09A	0.461W	76.274%	0.094
	5.116V	0.604W		115.13V
3	0.55A	2.807W	82.466%	0.307
	5.102V	3.404W		115.13V
4	1A	5.091W	82.44%	0.389
	5.09V	6.175W		115.13V
5	1.5A	7.615W	82.481%	0.432
	5.076V	9.232W		115.13V
6	3.001A	15.097W	79.535%	0.485
	5.031V	18.981W		115.13V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	56.874%	0.02
	5.118V	0.406W		230.27V
2	0.09A	0.461W	66.361%	0.034
	5.116V	0.695W		230.27V
3	0.55A	2.807W	79.963%	0.152
	5.102V	3.51W		230.27V
4	1A	5.091W	81.171%	0.224
	5.09V	6.271W		230.27V
5	1.5A	7.614W	81.88%	0.281
	5.075V	9.299W		230.27V
6	3.001A	15.1W	80.922%	0.367
	5.032V	18.66W		230.27V

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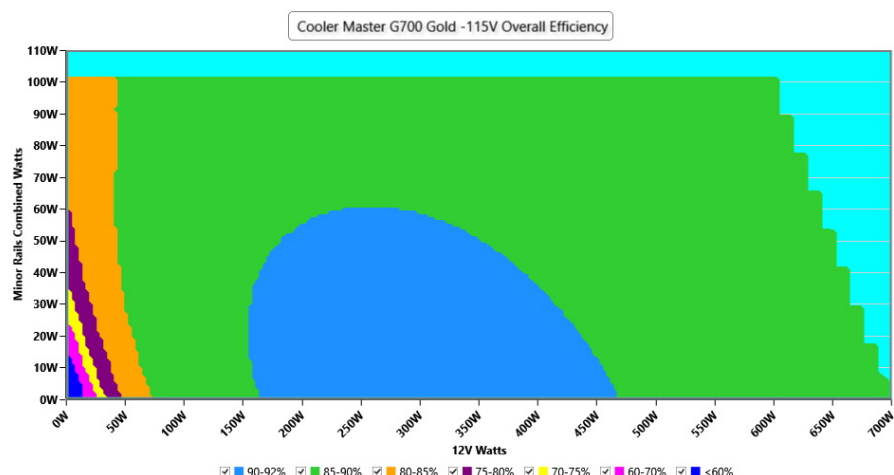
115V

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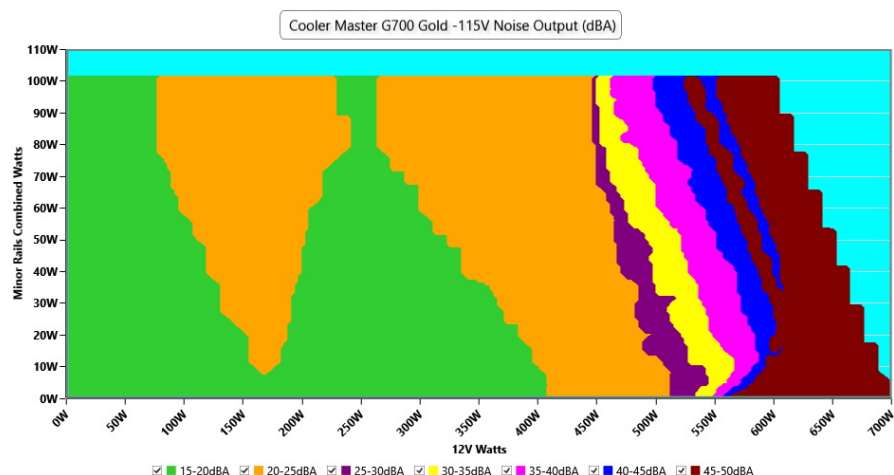
EFFICIENCY GRAPH 115V



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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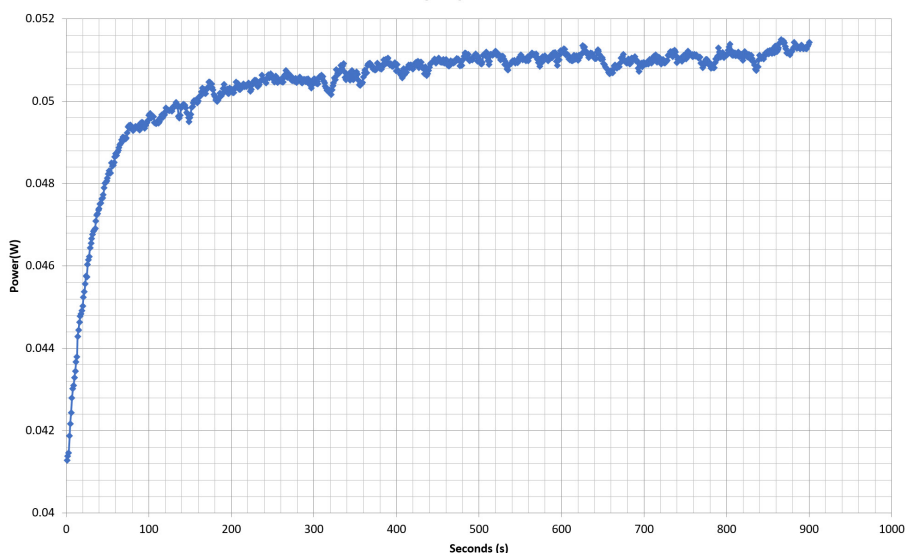
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Cooler Master G700 Gold

VAMPIRE POWER -115V

Power - 26/07/2021 - 12:49



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%	4.000A	1.982A	1.971A	0.984A	70.016	84.452%	661	20.9	40.11°C	0.963
	12.104V	5.046V	3.348V	5.08V	82.906				44.68°C	115.14V
20%	9.012A	2.98A	2.968A	1.185A	139.976	88.815%	667	21.7	40.66°C	0.968
	12.102V	5.035V	3.335V	5.064V	157.604				45.89°C	115.14V
30%	14.380A	3.483A	3.475A	1.387A	210.029	90.168%	672	20.6	41.44°C	0.969
	12.099V	5.025V	3.324V	5.049V	232.931				47.41°C	115.14V
40%	19.749A	3.989A	3.985A	1.59A	280.09	90.426%	675	20.0	41.8°C	0.974
	12.096V	5.015V	3.313V	5.033V	309.744				48.36°C	115.13V
50%	24.773A	4.997A	5.002A	1.795A	350.06	90.189%	677	20.1	42.36°C	0.979
	12.092V	5.004V	3.299V	5.016V	388.141				49.59°C	115.13V
60%	29.801A	6.011A	6.027A	2A	420.062	89.669%	716	20.9	43.02°C	0.982
	12.088V	4.992V	3.285V	4.999V	468.457				50.88°C	115.13V
70%	34.850A	7.029A	7.062A	2.209A	490.193	88.827%	1279	37.6	43.24°C	0.984
	12.082V	4.981V	3.272V	4.982V	551.849				51.56°C	115.12V
80%	39.910A	8.004A	8.105A	2.316A	559.587	87.982%	1767	46.9	43.77°C	0.986
	12.075V	4.97V	3.258V	4.967V	636.028				52.97°C	115.12V
90%	45.362A	8.573A	8.628A	2.424A	630.036	87.211%	1782	47.5	44.36°C	0.987
	12.070V	4.959V	3.245V	4.953V	722.431				54.08°C	115.11V
100%	50.565A	9.098A	9.188A	3.047A	699.648	86.334%	1792	47.0	45.59°C	0.988
	12.062V	4.948V	3.233V	4.924V	810.402				55.58°C	115.11V
110%	55.689A	10.135A	10.351A	3.056A	769.868	85.218%	1799	46.4	46.78°C	0.989
	12.059V	4.935V	3.217V	4.91V	903.414				57.56°C	115.11V
CL1	0.116A	11.992A	12.017A	0A	101.322	82.409%	693	22.2	42.67°C	0.975
	12.112V	5.022V	3.304V	5.085V	122.951				49.74°C	115.14V
CL2	0.116A	19.858A	0A	0A	101.429	80.282%	671	20.6	43.67°C	0.973
	12.114V	5.037V	3.327V	5.092V	126.343				51.81°C	115.14V
CL3	0.115A	0A	19.988A	0A	67.393	73.594%	689	21.9	44.92°C	0.97
	12.116V	5.016V	3.302V	5.089V	91.575				54.6°C	115.14V
CL4	58.023A	0.001A	0.001A	0A	700.195	87.42%	1787	47.6	45.37°C	0.988
	12.067V	4.97V	3.275V	5.031V	800.959				55.51°C	115.11V

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Cooler Master G700 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	1.228A	0.495A	0.491A	0.196A	20.012	67.197%	638	18.8	37.08°C	0.869
	12.102V	5.055V	3.361V	5.111V	29.78				39.27°C	115.14V
40W	2.702A	0.693A	0.688A	0.294A	40.012	78.569%	646	20.0	37.73°C	0.939
	12.103V	5.053V	3.358V	5.106V	50.926				40.48°C	115.14V
60W	4.176A	0.891A	0.885A	0.392A	60.013	83.472%	651	20.3	38.37°C	0.963
	12.103V	5.049V	3.355V	5.1V	71.896				41.55°C	115.14V
80W	5.648A	1.09A	1.083A	0.491A	79.978	86.082%	653	20.2	39.12°C	0.971
	12.102V	5.047V	3.351V	5.095V	92.91				42.91°C	115.14V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.64mV	12.51mV	14.01mV	6.81mV	Pass
20% Load	14.48mV	14.61mV	27.77mV	7.21mV	Pass
30% Load	17.33mV	16.75mV	19.02mV	8.34mV	Pass
40% Load	17.79mV	17.98mV	21.07mV	8.14mV	Pass
50% Load	17.86mV	21.45mV	25.47mV	8.70mV	Pass
60% Load	19.29mV	23.85mV	27.51mV	9.01mV	Pass
70% Load	22.26mV	24.36mV	29.00mV	9.47mV	Pass
80% Load	24.20mV	26.10mV	33.44mV	10.85mV	Pass
90% Load	31.98mV	27.84mV	36.26mV	11.36mV	Pass
100% Load	48.70mV	31.83mV	39.72mV	13.66mV	Pass
110% Load	64.40mV	35.47mV	44.40mV	14.23mV	Pass
Crossload1	19.99mV	21.52mV	31.39mV	11.51mV	Pass
Crossload2	12.59mV	14.76mV	36.77mV	9.83mV	Pass
Crossload3	12.13mV	31.87mV	20.97mV	10.70mV	Pass
Crossload4	55.77mV	29.49mV	31.70mV	15.73mV	Pass

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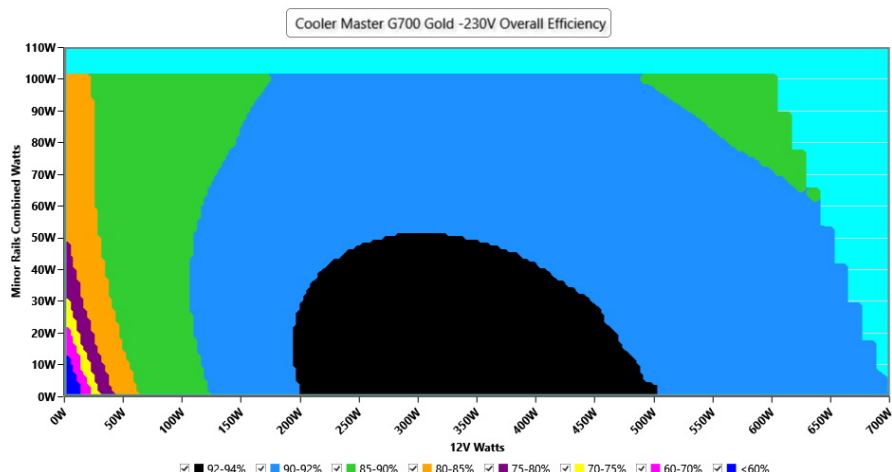
230V

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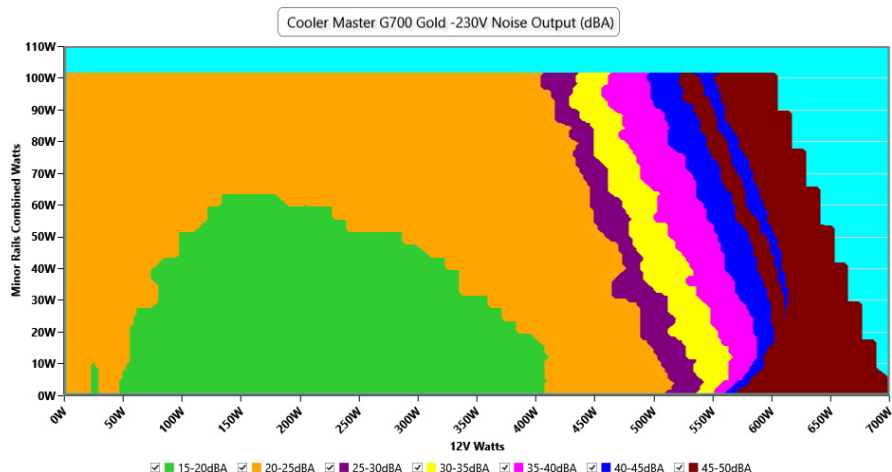
EFFICIENCY GRAPH 230V



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NOISE GRAPH 230V



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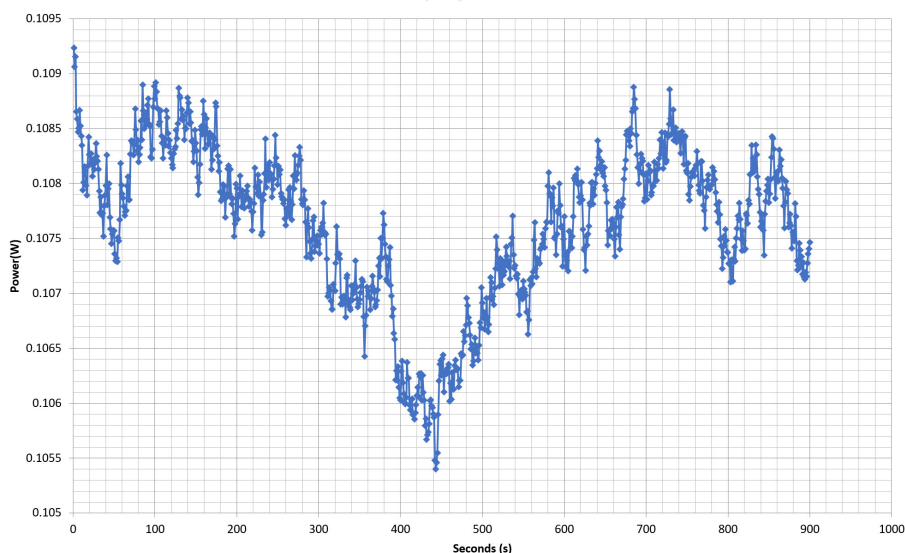
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10-110% LOAD TESTS 230V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
10%	4.000A	1.983A	1.971A	0.984A	70.018	85.544%	662	21.1	40.31°C	0.82
	12.104V	5.045V	3.348V	5.08V	81.85				44.87°C	230.28V
20%	9.014A	2.98A	2.969A	1.185A	139.982	90.112%	663	21.7	40.56°C	0.909
	12.100V	5.034V	3.335V	5.064V	155.343				45.77°C	230.28V
30%	14.383A	3.484A	3.475A	1.387A	210.035	91.584%	666	21.8	41.68°C	0.938
	12.096V	5.024V	3.324V	5.048V	229.335				47.63°C	230.28V
40%	19.754A	3.99A	3.985A	1.59A	280.095	92.028%	669	21.2	42.5°C	0.948
	12.093V	5.014V	3.312V	5.032V	304.358				48.74°C	230.28V
50%	24.777A	5A	5.003A	1.795A	350.069	92.026%	673	20.0	42.81°C	0.957
	12.090V	5.002V	3.299V	5.016V	380.403				49.86°C	230.28V
60%	29.809A	6.013A	6.029A	2A	420.082	91.737%	677	20.1	43.43°C	0.961
	12.086V	4.99V	3.285V	4.998V	457.921				51.26°C	230.28V
70%	34.859A	7.032A	7.065A	2.209A	490.21	91.145%	1328	38.6	43.67°C	0.964
	12.080V	4.979V	3.271V	4.981V	537.835				51.89°C	230.28V
80%	39.917A	8.004A	8.108A	2.317A	559.587	90.563%	1769	47.2	43.84°C	0.967
	12.073V	4.968V	3.257V	4.966V	617.901				52.78°C	230.28V
90%	45.374A	8.578A	8.631A	2.424A	630.066	90.098%	1780	47.8	44.7°C	0.971
	12.067V	4.957V	3.244V	4.952V	699.314				53.98°C	230.28V
100%	50.568A	9.104A	9.192A	3.048A	699.684	89.45%	1793	47.0	45.47°C	0.973
	12.062V	4.945V	3.231V	4.923V	782.21				55.61°C	230.28V
110%	55.694A	10.142A	10.353A	3.056A	769.897	88.7%	1803	46.4	47.16°C	0.974
	12.058V	4.932V	3.216V	4.91V	867.979				57.84°C	230.28V
CL1	0.116A	12A	12.02A	0A	101.33	83.644%	699	22.4	42.67°C	0.884
	12.112V	5.018V	3.303V	5.085V	121.144				50.21°C	230.28V
CL2	0.116A	19.876A	0A	0A	101.434	81.285%	676	20.0	43.28°C	0.888
	12.115V	5.033V	3.326V	5.092V	124.789				51.85°C	230.28V
CL3	0.116A	0A	19.992A	0A	67.396	74.437%	694	22.3	44.46°C	0.838
	12.117V	5.015V	3.301V	5.089V	90.541				53.68°C	230.28V
CL4	58.035A	0.001A	0.001A	0A	700.268	90.346%	1787	47.6	45.85°C	0.972
	12.066V	4.968V	3.274V	5.031V	775.098				55.98°C	230.27V

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Anex

Cooler Master G700 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	1.228A	0.495A	0.491A	0.196A	20.012	68.095%	641	19.3	37.02°C	0.581
	12.102V	5.055V	3.361V	5.111V	29.389				39.37°C	230.28V
40W	2.702A	0.693A	0.688A	0.294A	40.013	79.891%	652	20.2	37.89°C	0.726
	12.104V	5.052V	3.358V	5.105V	50.085				40.74°C	230.28V
60W	4.176A	0.891A	0.886A	0.392A	60.014	84.734%	654	20.3	38.85°C	0.789
	12.103V	5.049V	3.354V	5.1V	70.826				42.32°C	230.28V
80W	5.648A	1.09A	1.083A	0.491A	79.983	87.208%	656	20.3	39.64°C	0.84
	12.102V	5.046V	3.351V	5.094V	91.715				43.9°C	230.28V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.59mV	12.72mV	14.27mV	6.76mV	Pass
20% Load	13.85mV	14.51mV	16.98mV	7.47mV	Pass
30% Load	17.73mV	16.55mV	21.12mV	7.78mV	Pass
40% Load	18.81mV	19.46mV	21.42mV	8.39mV	Pass
50% Load	18.22mV	22.06mV	23.88mV	8.49mV	Pass
60% Load	19.50mV	23.19mV	27.72mV	9.01mV	Pass
70% Load	22.62mV	25.43mV	29.66mV	9.57mV	Pass
80% Load	25.79mV	25.69mV	33.45mV	10.70mV	Pass
90% Load	32.34mV	27.68mV	36.87mV	11.15mV	Pass
100% Load	51.84mV	30.85mV	39.43mV	13.22mV	Pass
110% Load	62.09mV	32.30mV	42.97mV	13.98mV	Pass
Crossload1	18.27mV	20.58mV	31.40mV	11.40mV	Pass
Crossload2	11.72mV	14.76mV	31.60mV	9.47mV	Pass
Crossload3	11.00mV	27.68mV	20.81mV	10.59mV	Pass
Crossload4	56.72mV	26.30mV	29.62mV	15.35mV	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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