

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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PAGE 1/14

RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
ALPM (Alternative Low Power Mode) compatible	✓

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				

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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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PAGE 3/14

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): 0.180hm)
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): 0.70hm)
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	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

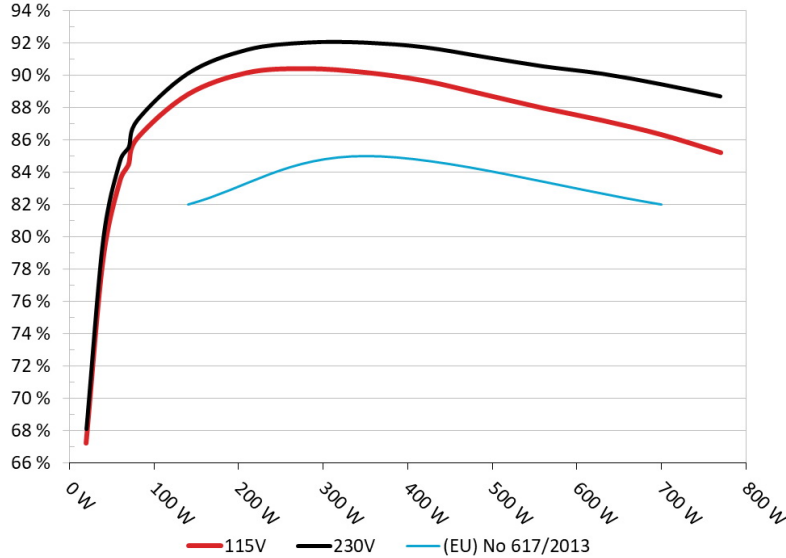
Rectifier	1x 45R10C
Standby PWM Controller	Excelliance MOS Corp EM8569C

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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)

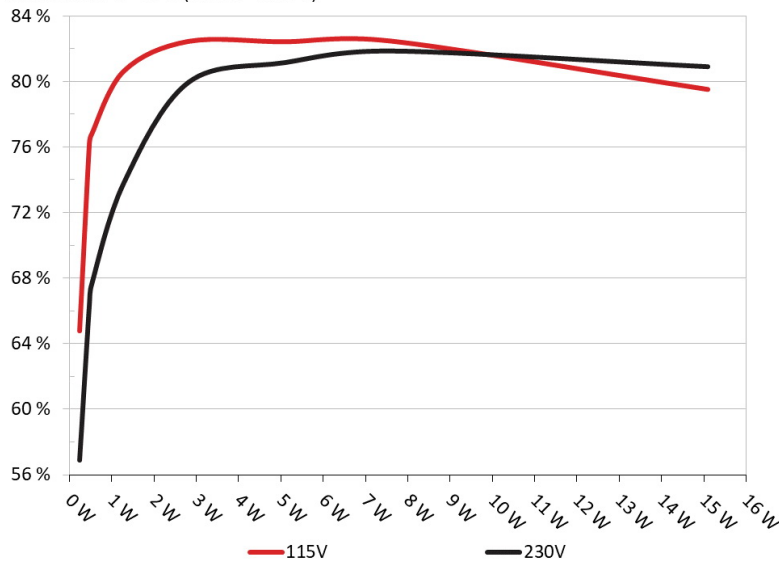


INFO

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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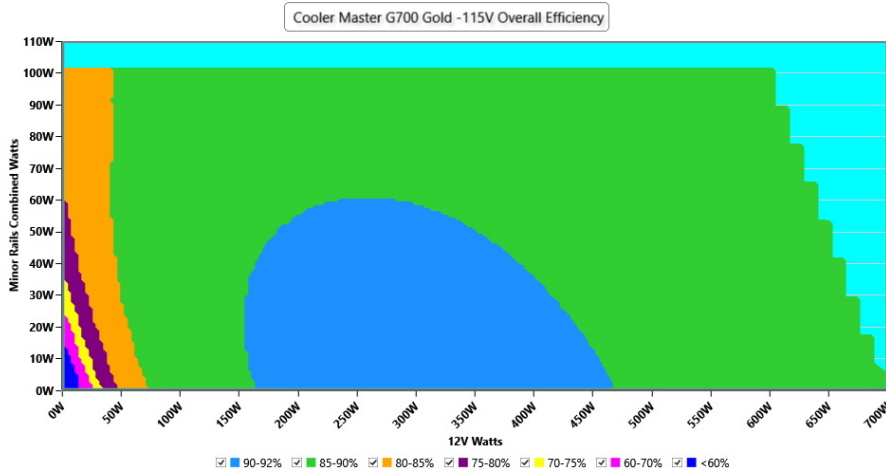
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PAGE 7/14

EFFICIENCY GRAPH 115V

INFO

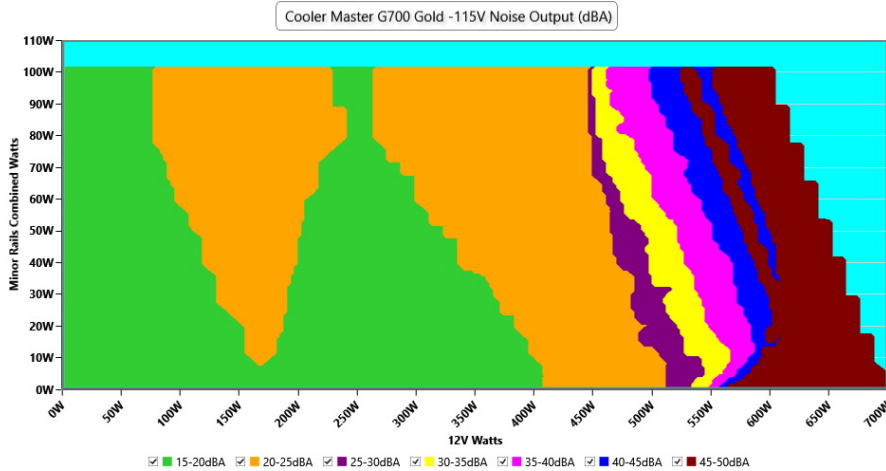
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



NOISE GRAPH 115V

INFO

The PSU's noise in its entire operational range and under 30-32 °C (+2 °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

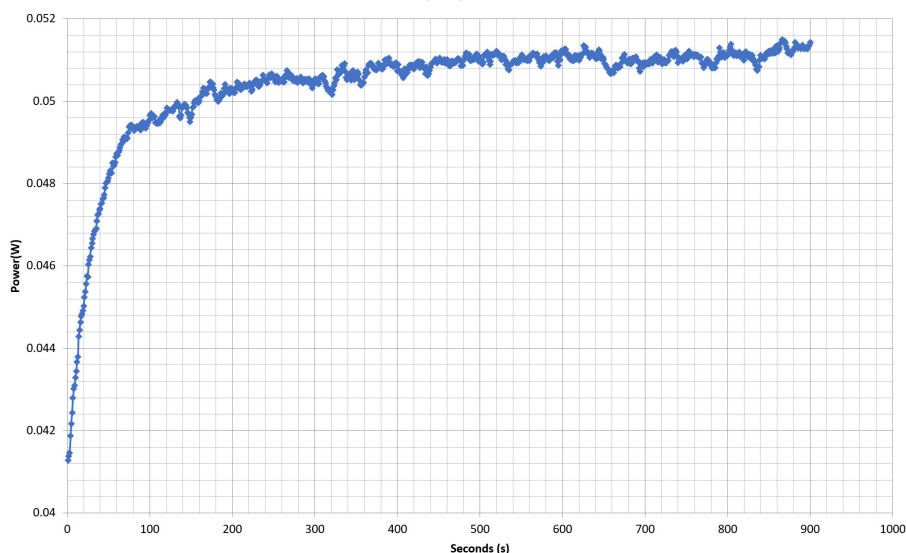


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VAMPIRE POWER -115V

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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COMMISSION REGULATION (EU) NO 617/2013 TESTING 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
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
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

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230V

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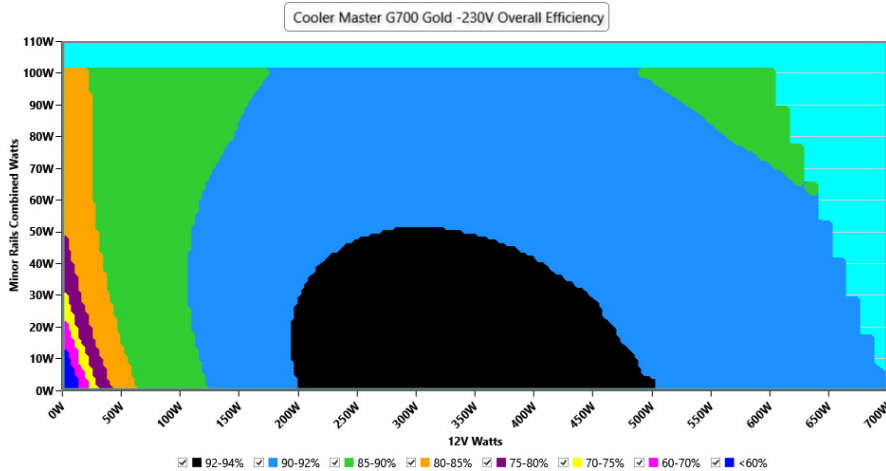
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PAGE 11/14

EFFICIENCY GRAPH 230V

INFO

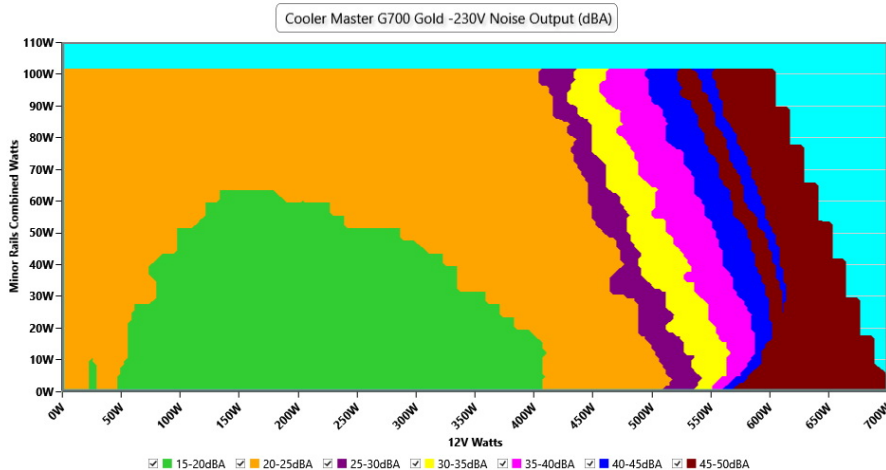
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



NOISE GRAPH 230V

INFO

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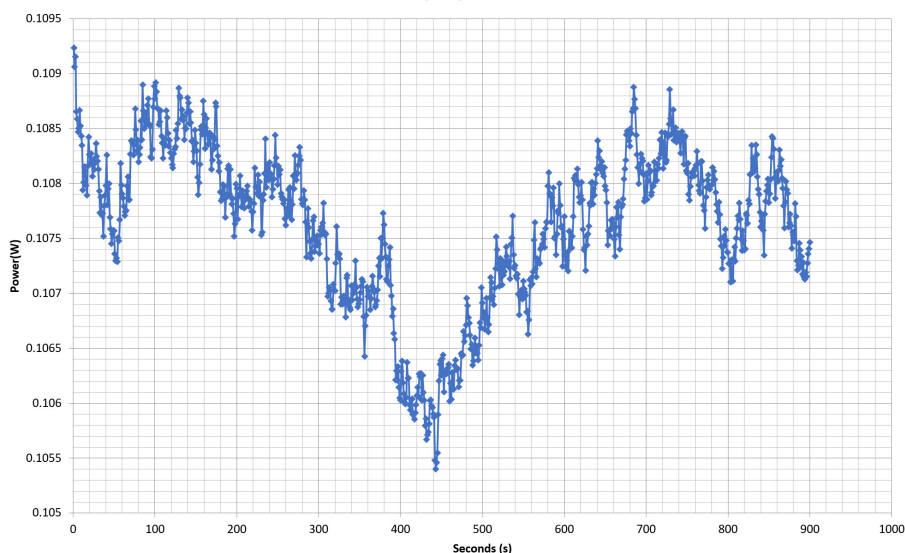


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VAMPIRE POWER -230V

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 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
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
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

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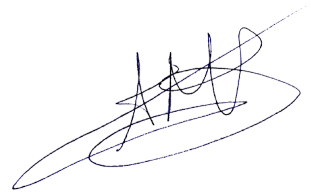


Top side



Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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