

## Anex

## Cooler Master MWE Gold 750W V2

Lab ID#: CM75001770  
 Receipt Date: Dec 14, 2020  
 Test Date: Dec 23, 2020

Report: 20PS1770A  
 Report Date: Dec 24, 2020

### DUT INFORMATION

Brand	Cooler Master
Manufacturer (OEM)	Huizhou Xin Hui Yuan Tech (Fusion Power)
Series	MWE Gold V2
Model Number	MPE-7501-AFAAG
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	120mm Fluid Dynamic Bearing Fan (HA1225M12F-Z)
Semi-Passive Operation	X
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

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### 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	88.405%
Efficiency With 10W (≤500W) or 2% (>500W)	62.473
Average Efficiency 5VSB	80.172%
Standby Power Consumption (W)	0.0692381
Average PF	0.986
Avg Noise Output	30.19 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard++

### 230V

Average Efficiency	90.383%
Average Efficiency 5VSB	80.172%
Standby Power Consumption (W)	0.1136480
Average PF	0.941
Avg Noise Output	29.90 dB(A)
Efficiency Rating (ETA)	GOLD
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)	23.6
AC Loss to PWR_OK Hold Up Time (ms)	18.8
PWR_OK Inactive to DC Loss Delay (ms)	4.8

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### CABLES AND CONNECTORS

#### Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (610mm)	1	1	18-22AWG	No
4+4 pin EPS12V (610mm)	1	1	18AWG	No
8 pin EPS12V (650mm)	1	1	18AWG	No
6+2 pin PCIe (560mm+125mm)	2	4	16-18AWG	No
SATA (500mm+125mm+125mm+125mm)	3	12	18AWG	No
4-pin Molex (500mm+125mm+125mm+125mm)	1	4	18-20AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	16AWG	-

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<b>General Data</b>	-
Manufacturer (OEM)	Huizhou Xin Hui Yuan Tech (Fusion Power)
PCB Type	Double Sided
<b>Primary Side</b>	-
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor MF72 5D15 (50hm) & Relay
Bridge Rectifier(s)	1x GBU15J (600V, 15A @ 100°C)
APFC MOSFETs	2x NCE Power NCE65T180F (650V, 13.2A @ 100°C, Rds(on): 0.180hm)
APFC Boost Diode	1x GH3D08065I
Bulk Cap(s)	1x Elite (400V, 560uF, 2,000h @ 105°C, PL)
Main Switchers	4x Great Power GPT10N50ADG (500V, 9.7A, Rds(on): 0.70hm)
APFC Controller	ON Semiconductor NCP1654
Resonant Controller	Champion CM6901T6X
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
<b>Secondary Side</b>	-
+12V MOSFETs	4x Excelliance MOS Corp EMP16N04HS (40V, 100A @ 100°C, Rds(on): 1.6mOhm)
5V & 3.3V	DC-DC Converters: 4x Excelliance MOS Corp EMB06N03HR (30V, 45A @ 100°C, Rds(on): 6mOhm) PWM Controller(s): ANPEC APW7159C
Filtering Capacitors	Electrolytic: 10x Elite (4-10,000h @ 105°C, EY), 7x Lelon (105°C, LZG) Polymer: 4x FPCAP, 4x Elite, 4x no info
Supervisor IC	IN1S313I-DAG
Fan Model	Hong Hua HA1225M12F-Z (120mm, 12V, 0.45A, Fluid Dynamic Bearing Fan)
<b>5VSB Circuit</b>	-
Standby PWM Controller	Excelliance MOS Corp EM8569C

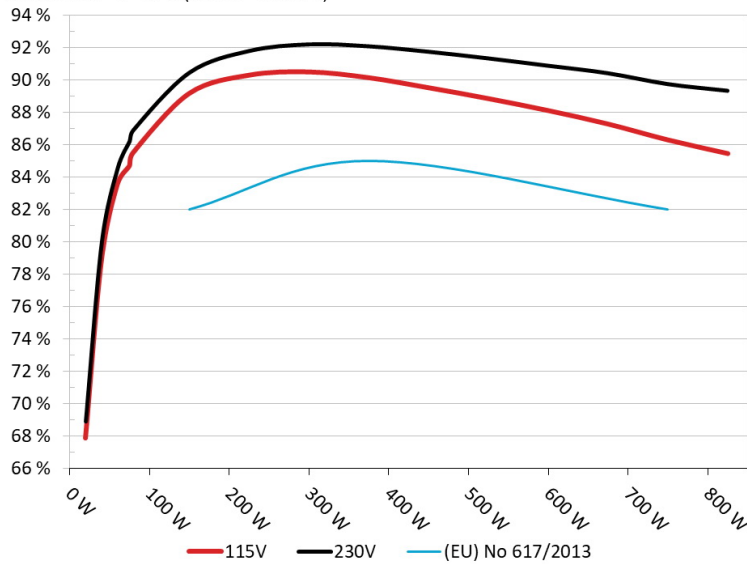
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### EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

#### Efficiency: Cooler Master MWE Gold 750W V2

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



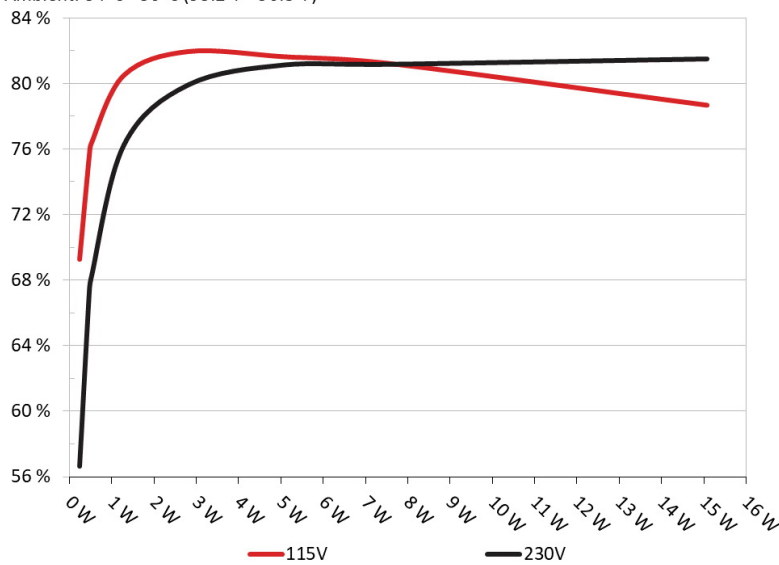
#### INFO

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 MWE Gold 750W V2

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	0.230	69.277%	0.039
	5.112V	0.332		115.12V
2	0.090A	0.460	75.658%	0.071
	5.111V	0.608		115.12V
3	0.550A	2.804	81.964%	0.285
	5.097V	3.421		115.12V
4	1.000A	5.084	81.644%	0.375
	5.083V	6.227		115.12V
5	1.500A	7.603	81.220%	0.425
	5.068V	9.361		115.12V
6	3.000A	15.067	78.687%	0.490
	5.022V	19.148		115.12V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	56.650%	0.015
	5.112V	0.406		230.24V
2	0.090A	0.460	67.350%	0.024
	5.111V	0.683		230.24V
3	0.550A	2.804	79.909%	0.117
	5.097V	3.509		230.24V
4	1.000A	5.084	81.123%	0.188
	5.083V	6.267		230.24V
5	1.500A	7.603	81.159%	0.248
	5.068V	9.368		230.25V
6	3.000A	15.068	81.484%	0.347
	5.023V	18.492		230.24V

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Cooler Master MWE Gold 750W V2

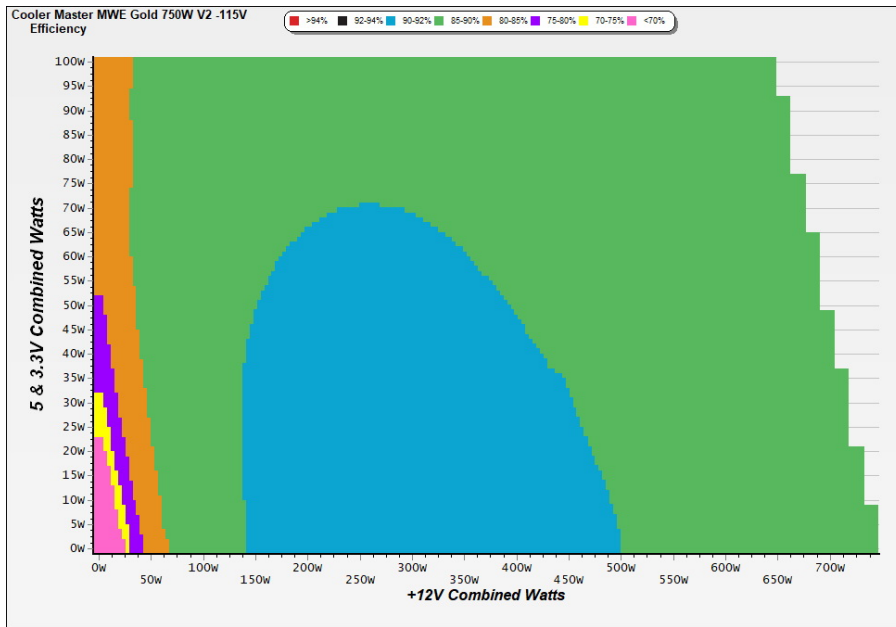
# 115V

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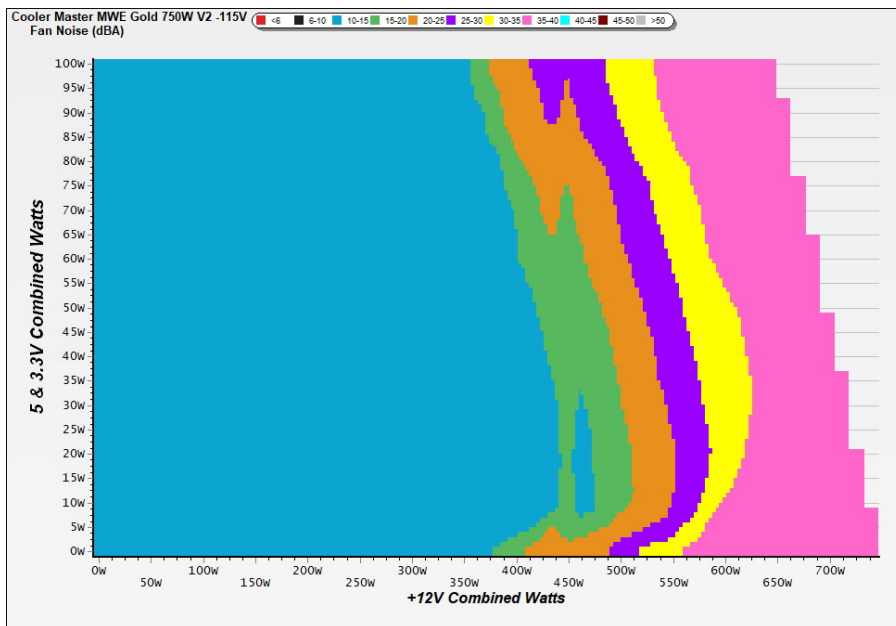
### EFFICIENCY GRAPH 115V



#### 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

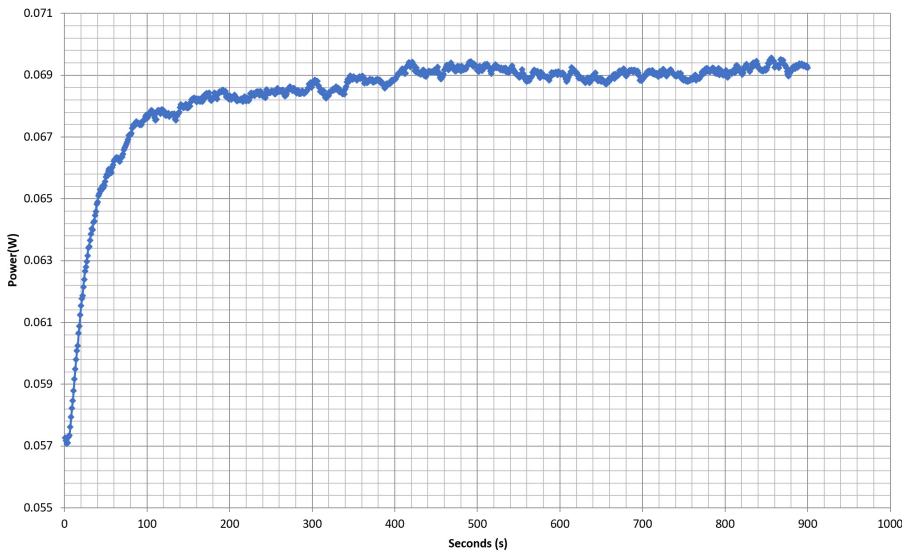
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**VAMPIRE POWER -115V**

Power - 18/12/2020 - 12:31



**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
1	4.435A	1.985A	1.981A	0.987A	74.960	84.704%	599	10.9	40.44°C	0.965
	12.032V	5.037V	3.330V	5.068V	88.496				43.52°C	115.10V
2	9.904A	2.981A	2.975A	1.188A	150.021	89.193%	601	10.9	40.61°C	0.970
	12.028V	5.032V	3.326V	5.050V	168.198				44.34°C	115.10V
3	15.716A	3.482A	3.477A	1.391A	225.028	90.326%	604	11.2	41.28°C	0.977
	12.024V	5.028V	3.322V	5.033V	249.128				45.72°C	115.10V
4	21.533A	3.982A	3.978A	1.595A	300.036	90.526%	611	11.3	41.55°C	0.989
	12.020V	5.024V	3.319V	5.016V	331.436				46.49°C	115.10V
5	26.969A	4.980A	4.978A	1.801A	374.524	90.170%	943	21.4	42.09°C	0.993
	12.015V	5.018V	3.315V	4.997V	415.351				47.36°C	115.09V
6	32.441A	5.987A	5.981A	2.000A	449.411	89.550%	1454	34.7	42.50°C	0.995
	12.011V	5.012V	3.310V	4.979V	501.857				48.78°C	115.09V
7	37.951A	6.994A	6.989A	2.218A	524.796	88.874%	1641	37.4	43.29°C	0.996
	12.007V	5.006V	3.306V	4.960V	590.496				50.26°C	115.08V
8	43.468A	8.002A	7.996A	2.429A	600.109	88.128%	1651	37.5	44.34°C	0.996
	12.002V	5.000V	3.301V	4.941V	680.952				52.10°C	115.08V
9	49.347A	8.511A	8.490A	2.436A	674.632	87.301%	1655	37.5	44.63°C	0.997
	11.999V	4.995V	3.298V	4.928V	772.767				53.52°C	115.08V
10	55.035A	9.020A	9.018A	3.065A	749.857	86.313%	1661	37.7	46.77°C	0.997
	11.995V	4.990V	3.293V	4.896V	868.765				56.56°C	115.07V
11	61.329A	9.027A	9.025A	3.071A	825.050	85.469%	1663	37.7	46.50°C	0.997
	11.990V	4.987V	3.290V	4.886V	965.323				57.32°C	115.07V
CL1	0.118A	12.002A	11.996A	0.000A	101.281	82.260%	854	19.0	42.17°C	0.983
	12.028V	5.005V	3.317V	5.072V	123.123				47.82°C	115.11V
CL2	62.511A	1.001A	0.999A	1.000A	763.116	87.076%	1659	37.6	46.12°C	0.997
	11.995V	5.015V	3.303V	4.977V	876.384				56.17°C	115.07V

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## Cooler Master MWE Gold 750W V2

### 20-80W LOAD TESTS 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.231A	0.497A	0.495A	0.196A	19.987	67.840%	591	10.4	0.834
	12.047V	5.044V	3.334V	5.103V	29.462				115.08V
2	2.465A	0.991A	0.989A	0.393A	39.977	78.847%	595	10.4	0.921
	12.042V	5.042V	3.332V	5.093V	50.702				115.10V
3	3.699A	1.488A	1.487A	0.590A	60.008	83.571%	595	10.4	0.960
	12.046V	5.039V	3.331V	5.083V	71.805				115.10V
4	4.932A	1.984A	1.983A	0.788A	79.959	85.544%	597	10.7	0.969
	12.037V	5.037V	3.329V	5.073V	93.471				115.10V

### RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.40mV	7.60mV	10.60mV	8.60mV	Pass
20% Load	16.60mV	7.50mV	10.80mV	9.60mV	Pass
30% Load	13.00mV	8.20mV	10.40mV	9.80mV	Pass
40% Load	12.70mV	9.60mV	12.40mV	11.00mV	Pass
50% Load	13.10mV	12.70mV	15.80mV	12.70mV	Pass
60% Load	13.30mV	11.90mV	15.00mV	13.30mV	Pass
70% Load	13.90mV	11.00mV	13.40mV	14.70mV	Pass
80% Load	15.50mV	11.40mV	14.80mV	15.90mV	Pass
90% Load	15.90mV	12.30mV	15.70mV	17.00mV	Pass
100% Load	26.00mV	13.70mV	16.40mV	18.40mV	Pass
110% Load	27.90mV	15.00mV	17.00mV	20.30mV	Pass
Crossload1	18.60mV	9.60mV	15.50mV	12.10mV	Pass
Crossload2	26.20mV	13.20mV	14.90mV	18.00mV	Pass

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Cooler Master MWE Gold 750W V2

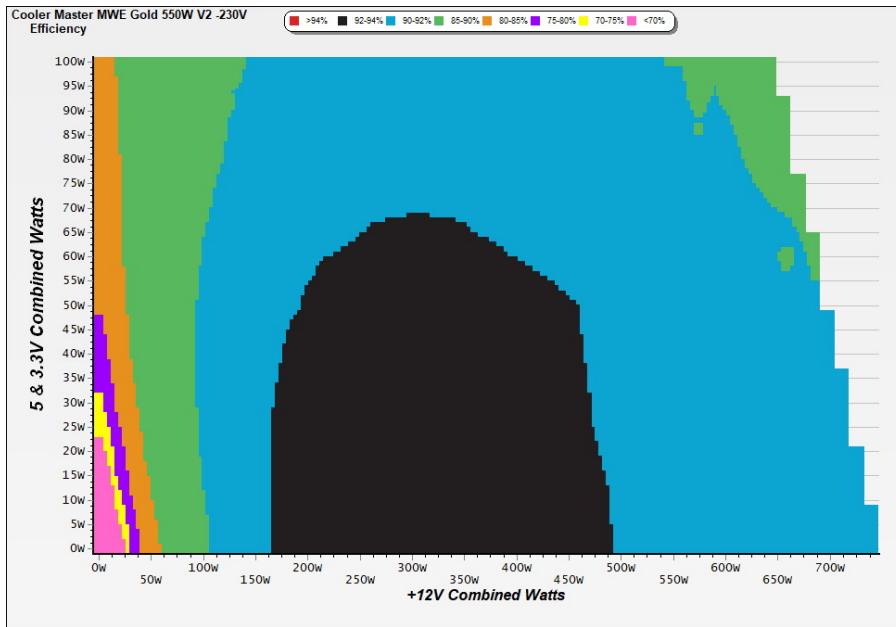
# 230V

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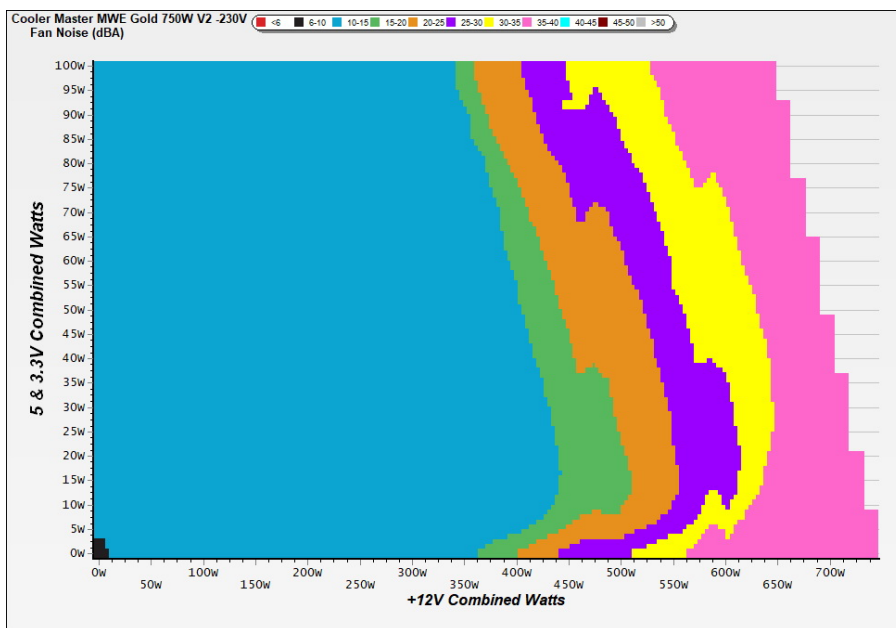
### EFFICIENCY GRAPH 230V



#### INFO

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### NOISE GRAPH 230V



#### INFO

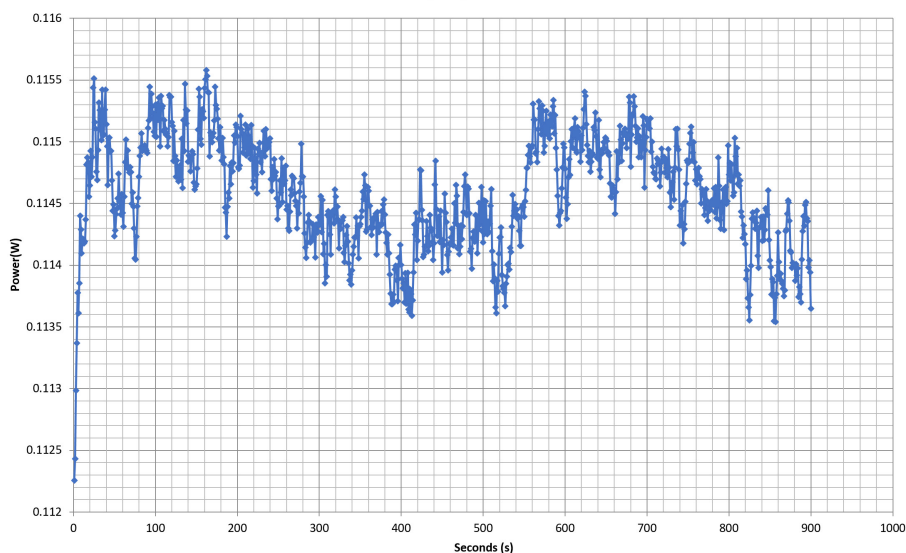
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### 10-110% LOAD TESTS 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	4.435A	1.986A	1.984A	0.987A	74.978	86.224%	601	10.9	40.09°C	0.801
	12.034V	5.036V	3.329V	5.066V	86.957				43.26°C	230.29V
2	9.910A	2.983A	2.980A	1.189A	150.076	90.475%	603	11.2	40.67°C	0.905
	12.024V	5.031V	3.325V	5.048V	165.875				44.23°C	230.29V
3	15.716A	3.480A	3.478A	1.392A	225.095	91.818%	606	11.2	41.86°C	0.932
	12.029V	5.027V	3.321V	5.031V	245.153				45.91°C	230.29V
4	21.529A	3.984A	3.978A	1.596A	300.100	92.226%	616	11.3	42.34°C	0.939
	12.025V	5.023V	3.318V	5.014V	325.395				46.78°C	230.28V
5	26.966A	4.983A	4.980A	1.802A	374.636	92.106%	913	20.7	42.86°C	0.960
	12.020V	5.017V	3.314V	4.995V	406.744				47.82°C	230.27V
6	32.433A	5.988A	5.983A	2.000A	449.480	91.771%	1293	30.6	43.02°C	0.972
	12.016V	5.011V	3.310V	4.978V	489.783				49.09°C	230.27V
7	37.938A	6.995A	6.988A	2.219A	524.835	91.358%	1641	37.4	44.31°C	0.983
	12.012V	5.006V	3.306V	4.959V	574.481				51.19°C	230.26V
8	43.451A	8.004A	7.997A	2.430A	600.180	90.902%	1650	37.5	44.99°C	0.986
	12.008V	5.000V	3.301V	4.939V	660.249				52.73°C	230.25V
9	49.334A	8.509A	8.489A	2.436A	674.715	90.440%	1654	37.5	45.11°C	0.987
	12.004V	4.996V	3.298V	4.927V	746.032				53.27°C	230.25V
10	55.023A	9.018A	9.016A	3.065A	749.931	89.767%	1660	37.6	46.17°C	0.988
	11.999V	4.991V	3.294V	4.895V	835.418				55.61°C	230.25V
11	61.310A	9.023A	9.021A	3.071A	825.120	89.354%	1663	37.7	46.80°C	0.989
	11.995V	4.989V	3.291V	4.885V	923.431				57.47°C	230.25V
CL1	0.117A	12.002A	12.000A	0.000A	101.294	83.641%	767	16.8	41.87°C	0.867
	12.033V	5.006V	3.317V	5.071V	121.106				48.11°C	230.25V
CL2	62.514A	1.000A	1.000A	1.000A	763.403	90.561%	1659	37.6	45.95°C	0.988
	11.999V	5.016V	3.305V	4.977V	842.975				55.15°C	230.24V

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### 20-80W LOAD TESTS 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.236A	0.496A	0.493A	0.196A	20.001	68.872%	598	10.7	0.530
	12.019V	5.044V	3.333V	5.101V	29.041				230.28V
2	2.471A	0.991A	0.992A	0.393A	39.993	79.916%	597	10.7	0.673
	12.017V	5.040V	3.331V	5.091V	50.044				230.29V
3	3.707A	1.488A	1.486A	0.591A	60.025	84.554%	596	10.6	0.758
	12.025V	5.038V	3.330V	5.082V	70.990				230.29V
4	4.934A	1.987A	1.982A	0.789A	79.978	86.937%	599	10.9	0.812
	12.033V	5.036V	3.329V	5.072V	91.995				230.29V

### RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	12.20mV	7.10mV	11.50mV	8.00mV	Pass
20% Load	17.30mV	7.50mV	10.90mV	9.00mV	Pass
30% Load	17.90mV	8.30mV	11.80mV	9.90mV	Pass
40% Load	15.70mV	9.90mV	14.70mV	10.70mV	Pass
50% Load	13.90mV	12.50mV	16.10mV	11.80mV	Pass
60% Load	13.30mV	11.70mV	16.10mV	13.10mV	Pass
70% Load	14.20mV	10.70mV	15.10mV	14.10mV	Pass
80% Load	14.60mV	11.30mV	14.70mV	14.80mV	Pass
90% Load	15.40mV	12.20mV	15.00mV	16.00mV	Pass
100% Load	26.60mV	13.00mV	17.80mV	18.30mV	Pass
110% Load	27.70mV	13.40mV	18.10mV	18.90mV	Pass
Crossload1	18.50mV	10.00mV	16.60mV	11.80mV	Pass
Crossload2	26.30mV	12.20mV	15.60mV	17.30mV	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 MWE Gold 750W V2**

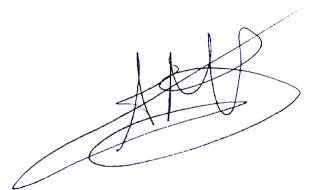


Top side

<b>750W</b>					
AC INPUT	100-240V~, 10-5A, 50-60Hz				
交流輸入	200-240V~, 6A, 50-60Hz, For Korea Use Only				
交流輸入	200-240V~, 6A, 50-60Hz, 适用于中国地区使用				
DC OUTPUT	+5V	+3.3V	+12V	-12V	+5VSB
直流輸出/直流輸出	20A	20A	62.5A	0.3A	3A
TOTAL POWER	100W	750W	3.6W	15W	
總功率/總功率	750W				

Power specifications label

**CERTIFICATIONS 115V**

**Aristeidis Bitziopoulos**  
Lab Director

**CERTIFICATIONS 230V**



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