

Anex

Cooler Master MWE Gold 850W V2

Lab ID#: CM85001769

Receipt Date: Dec 14, 2020

Test Date: Dec 17, 2020

Report: 20PS1769A

Report Date: Dec 22, 2020

DUT INFORMATION			
Brand	Cooler Master		
Manufacturer (OEM)	Huizhou Xin Hui Yuan Tech (Fusion Power)		
Series	MWE Gold V2		
Model Number	MPE-8501-AFAAG		
Serial Number			
DUT Notes			

DUT SPECIFICATIONS				
Rated Voltage (Vrms)	100-240			
Rated Current (Arms)	12-6			
Rated Frequency (Hz)	50-60			
Rated Power (W)	850			
Туре	ATX12V			
Cooling	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)			
Semi-Passive Operation	х			
Cable Design	Fully Modular			

POWER SPECIFICATIONS						
Rail		3.3V	5V	12V	5VSB	-12V
May Dayer	Amps	20	20	70.8	3	0.3
Max. Power	Watts	100		849.6	15	3.6
Total Max. Power (W)		850				

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 PCle (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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General Data	
Manufacturer (OEM)	Huizhou Xin Hui Yuan Tech (Fusion Power)
PCB Type	Double Sided
Primary Side	-
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor MF72 5D15 (50hm) & Relay
Bridge Rectifier(s)	2x GBU15J (600V, 15A @ 100°C)
APFC MOSFETs	2x NCE Power NCE65TF130 (650V, 18A @ 100°C, Rds(on): 0.13Ohm)
APFC Boost Diode	1x GH3D08065I
Bulk Cap(s)	1x Elite (400V, 680uF, 2,000h @ 105°C, PL)
Main Switchers	4x Great Power GPT13N50DG (500V, 13A, Rds(on): 0.49Ohm)
APFC Controller	ON Semiconductor NCP1654
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 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: 6x FPCAP, 4x Elite, 4x no info
Supervisor IC	IN1S313I-DAG
Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, Fluid Dynamic Bearing Fan)
5VSB Circuit	-
Standby PWM Controller	Excelliance MOS Corp EM8569C

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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	88.571%
Efficiency With 10W (≤500W) or 2% (>500W)	63.292
Average Efficiency 5VSB	80.659%
Standby Power Consumption (W)	0.0649975
Average PF	0.989
Avg Noise Output	35.18 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	S+

230V	
Average Efficiency	90.720%
Average Efficiency 5VSB	79.834%
Standby Power Consumption (W)	0.1226860
Average PF	0.954
Avg Noise Output	34.18 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	S++

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

HOLD-UP TIME & POWER OK SIGNAL (230V)	
Hold-Up Time (ms)	20.6
AC Loss to PWR_OK Hold Up Time (ms)	16.2
PWR_OK Inactive to DC Loss Delay (ms)	4.4

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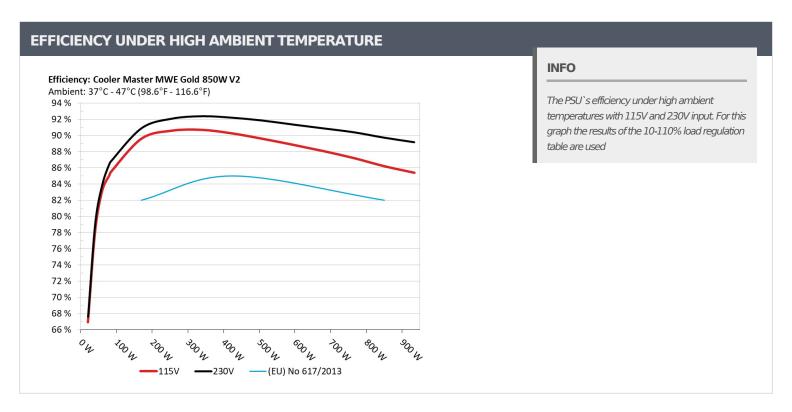
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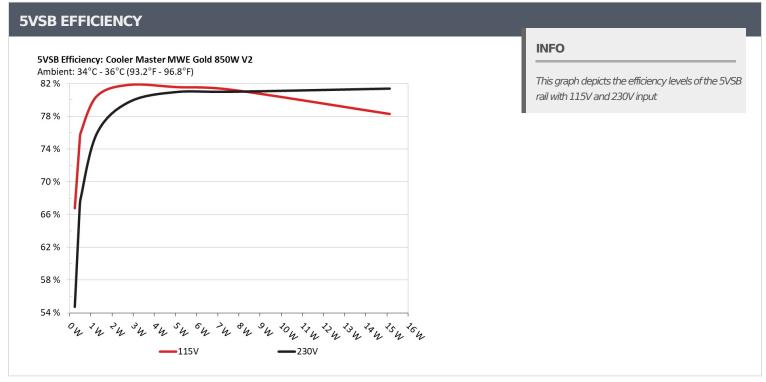
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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)				
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	CC 7C20/	0.041
1	5.127V	0.346	66.763%	115.12V
2	0.090A	0.461	74.0500/	0.072
2	5.126V	0.615	74.959%	115.12V
2	0.550A	2.813	81.821%	0.289
3	5.114V	3.438		115.11V
	1.000A	5.101	01 5000/	0.379
4	5.101V	6.256	81.538%	115.11V
_	1.500A	7.631	01.0040/	0.427
5	5.087V 9.395 81.224%	81.224%	115.12V	
	3.000A	15.136	78.267%	0.490
6	5.045V	19.339		115.12V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)				
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	E4.7200/	0.015
1	5.127V	0.422	54.739%	230.25V
2	0.090A	0.461	CC 0120/	0.025
2	5.126V	0.690	66.812%	230.25V
2	0.550A	2.813	70.7500/	0.118
3	5.113V	3.527	79.756%	230.26V
4	1.000A	5.101	00.05207	0.190
4	5.101V	6.300	80.968%	230.26V
-	1.500A	7.631	00.0020/	0.251
5	5.087V	9.423	80.983%	230.26V
	3.000A 15.136	07.2007	0.349	
6	5.045V	18.602	81.368%	230.26V

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115V

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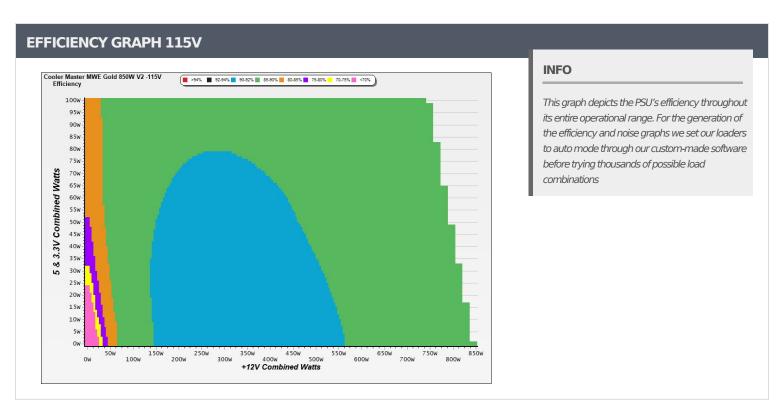
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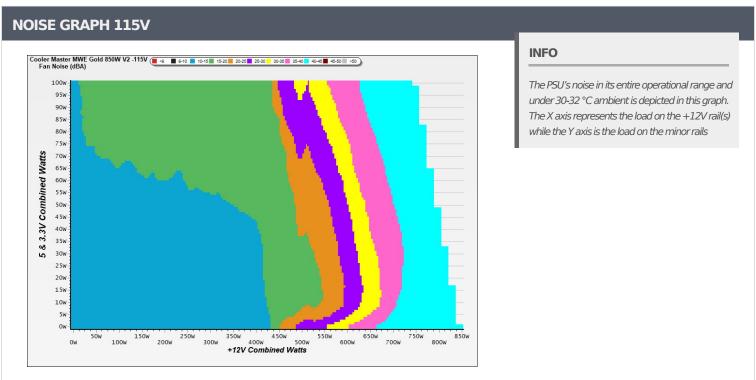
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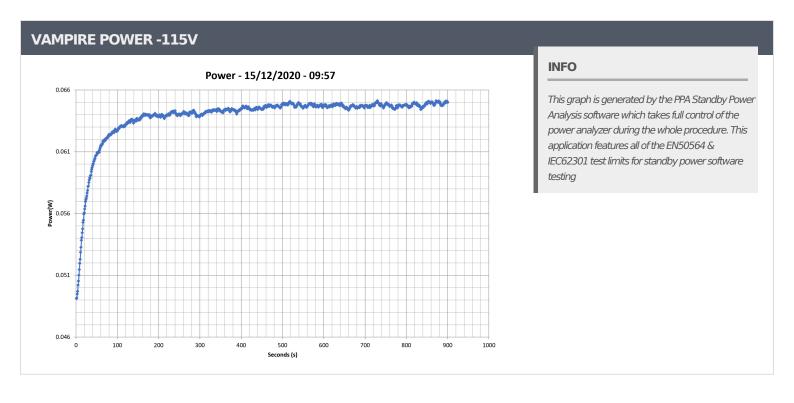
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10-1	10% LOA	D TESTS	115V							
Test#	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
	5.273A	1.977A	1.965A	0.983A	84.963	05 5100/	788	15.9	40.13°C	0.972
1	12.017V	5.058V	3.359V	5.085V	99.350	85.519%			43.35°C	115.10V
2	11.582A	2.968A	2.950A	1.184A	170.033	00.000/	788	15.9	40.51°C	0.980
2 12.013V	12.013V	5.054V	3.355V	5.068V	189.769	89.600%			44.36°C	115.10V
2	18.234A	3.464A	3.445A	1.386A	255.042	00 5040/	702	161	41.04°C	0.987
3	12.010V	5.052V	3.353V	5.051V	281.553	90.584%	793	16.1	45.46°C	115.10V
4	24.890A	3.962A	3.941A	1.589A	340.059	00.6959/	000	165	41.83°C	0.992
4	12.007V	5.049V	3.350V	5.034V	374.991	90.685%	800	16.5	47.41°C	115.09V
31.196A	31.196A	4.955A	4.930A	1.795A	424.948	90.243% 1065	1005	24.6	42.04°C	0.994
5	12.003V	5.046V	3.346V	5.016V	470.893		24.6	48.32°C	115.09V	
_	37.475A	5.951A	5.923A	2.000A	509.463	00.5700/	1694	38.1	42.97°C	0.996
6	11.999V	5.042V	3.343V	4.997V	568.739	89.578%			50.27°C	115.08V
7	43.824A	6.947A	6.917A	2.210A	594.781	00.0420/	2032	43.0	43.28°C	0.996
7	11.995V	5.039V	3.340V	4.979V	669.478	88.843%			51.37°C	115.08V
0	50.179A	7.946A	7.912A	2.420A	680.105	00 0E70/	2044	43.1	43.80°C	0.997
8	11.991V	5.035V	3.336V	4.961V	772.347	88.057%	2044		52.27°C	115.07V
0	56.938A	8.447A	8.398A	2.426A	765.015	07.2020/	2051	43.2	44.72°C	0.997
9	11.987V	5.032V	3.333V	4.948V	877.277	87.203%	2051		53.85°C	115.07V
10	63.429A	8.946A	8.916A	3.051A	849.836	06 2010/	2050	43.3	45.83°C	0.997
10	11.984V	5.030V	3.331V	4.918V	985.874	86.201%	2056		55.66°C	115.06V
11	70.513A	8.952A	8.924A	3.058A	934.592	05 2070/	2064	42 A	46.77°C	0.998
11	11.982V	5.027V	3.328V	4.907V	1094.535	85.387%	2064	43.4	57.48°C	115.05V
Cl 1	0.117A	12.001A	11.998A	0.000A	102.085	02 5060/	927	17.2	42.27°C	0.986
CL1	12.018V	5.042V	3.348V	5.090V	123.610	82.586%	827	17.2	48.47°C	115.10V
CI 2	70.834A	1.001A	1.001A	1.000A	862.325	06.0000/	2057	42.2	45.34°C	0.997
CL2	11.985V	5.042V	3.339V	4.991V	992.347	86.898%	2057	43.3	55.25°C	115.06V

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20-80	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	1.235A	0.494A	0.490A	0.195A	19.990	CC 0210/	700	15.0	0.834
1	12.019V	5.062V	3.362V	5.118V	29.871	66.921%	780	15.3	115.11V
2	2.470A	0.987A	0.981A	0.392A	39.979	70.1070/	702	15.6	0.923
2	12.018V	5.060V	3.361V	5.109V	51.172	78.127%	783	15.6	115.11V
2	3.708A	1.483A	1.473A	0.588A	60.010	02.1020/	705	15.7	0.962
3	12.017V	5.059V	3.360V	5.101V	72.143	83.182%	785	15.7	115.11V
4	4.940A	1.976A	1.964A	0.786A	79.962	05.0030/	707	15.0	0.968
4	12.018V	5.058V	3.359V	5.092V	94.003	85.063%	787	15.9	115.10V

RIPPLE MEASUREMENTS 115V								
Test	12V	5V	3.3V	5VSB	Pass/Fail			
10% Load	11.60mV	7.60mV	13.70mV	8.40mV	Pass			
20% Load	15.20mV	7.60mV	13.50mV	8.80mV	Pass			
30% Load	14.50mV	8.30mV	14.00mV	8.60mV	Pass			
40% Load	13.10mV	11.50mV	15.40mV	9.20mV	Pass			
50% Load	13.00mV	12.50mV	16.00mV	9.90mV	Pass			
60% Load	12.30mV	10.70mV	15.00mV	10.60mV	Pass			
70% Load	12.80mV	10.40mV	14.80mV	12.20mV	Pass			
80% Load	14.00mV	11.50mV	15.70mV	13.00mV	Pass			
90% Load	14.40mV	12.60mV	16.50mV	13.50mV	Pass			
100% Load	28.30mV	16.90mV	34.70mV	16.30mV	Pass			
110% Load	30.20mV	18.30mV	35.80mV	17.00mV	Pass			
Crossload1	16.60mV	10.60mV	20.30mV	8.10mV	Pass			
Crossload2	24.20mV	14.20mV	19.80mV	15.10mV	Pass			

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Cooler Master MWE Gold 850W V2

230V

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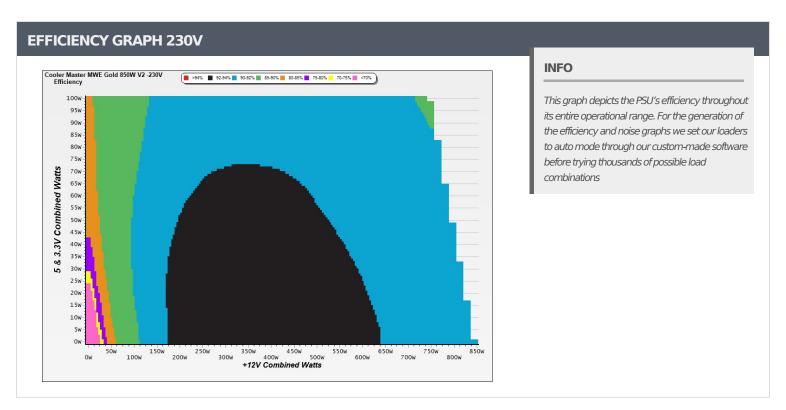
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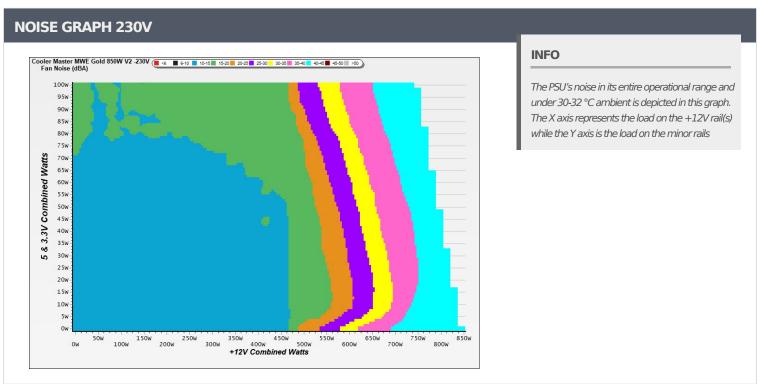
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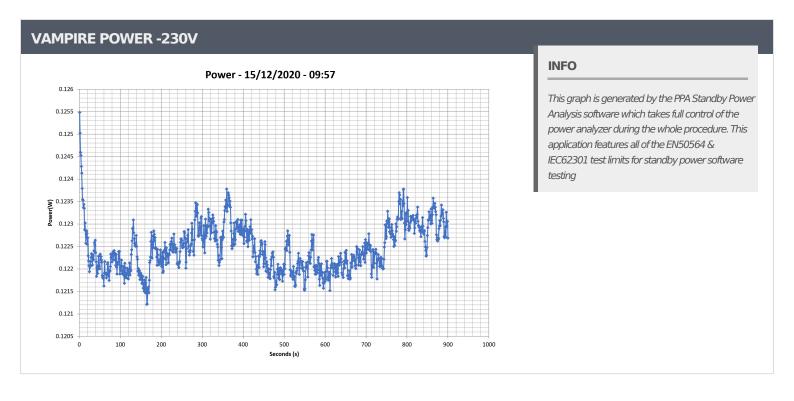
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10-1	10% LOA	D TESTS	230V							
Test#	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
	5.272A	1.976A	1.966A	0.983A	84.956	06.0620/	789	15.9	40.03°C	0.825
1	12.018V	5.058V	3.358V	5.087V	97.805	86.863%			43.99°C	230.23V
2	11.580A	2.968A	2.951A	1.184A	170.014	00.0120/	790	16.0	40.44°C	0.925
2 12.013V	12.013V	5.054V	3.355V	5.069V	187.010	90.912%			45.05°C	230.23V
2	18.232A	3.465A	3.446A	1.386A	255.021	02.0050/	702	161	41.23°C	0.954
3	12.010V	5.051V	3.352V	5.052V	276.942	92.085%	793	16.1	46.49°C	230.23V
4	24.888A	3.962A	3.941A	1.589A	340.038	92.388%	002	165	41.69°C	0.971
4	12.007V	5.049V	3.350V	5.035V	368.053		802	16.5	47.85°C	230.22V
31.195A	31.195A	4.956A	4.931A	1.794A	424.905	92.202% 1140	1140	27.6	42.15°C	0.978
5	12.002V	5.045V	3.346V	5.017V	460.842		1140		49.13°C	230.23V
_	37.480A	5.951A	5.924A	2.000A	509.454	01.0520/	1609	37.0	42.32°C	0.984
6	11.997V	5.042V	3.343V	4.999V	554.648	91.852%			50.21°C	230.23V
7	43.828A	6.948A	6.918A	2.209A	594.784	01.2620/	2029	42.9	43.16°C	0.985
7	11.994V	5.038V	3.340V	4.980V	651.019	91.362%			51.70°C	230.23V
0	50.180A	7.948A	7.910A	2.419A	680.118	- 00.0000/	2042	43.1	43.77°C	0.987
8	11.991V	5.035V	3.336V	4.962V	748.305	90.888%	2042		52.76°C	230.23V
0	56.940A	8.446A	8.400A	2.425A	765.039	- 00.4000/	2040	43.2	44.52°C	0.988
9	11.987V	5.032V	3.333V	4.949V	846.195	90.409%	2048		53.98°C	230.24V
10	63.436A	8.950A	8.920A	3.051A	849.871	00.7420/	2050	43.3	45.86°C	0.989
10	11.983V	5.029V	3.330V	4.918V	947.015	89.742%	2056		56.04°C	230.24V
11	70.520A	8.954A	8.926A	3.058A	934.624	90 1770/	2062	12.1	46.70°C	0.990
11	11.981V	5.027V	3.328V	4.907V	1048.057	89.177%	2062	43.4	57.46°C	230.24V
CI 1	0.117A	12.002A	11.998A	0.000A	102.089		922	17.0	42.40°C	0.877
CL1	12.018V	5.042V	3.348V	5.090V	121.648	83.922%	822	17.0	49.60°C	230.25V
CI 2	70.846A	1.000A	0.998A	1.000A	862.314	00.2200/	2057	42.2	45.78°C	0.989
CL2	11.983V	5.041V	3.339V	4.992V	954.542	90.338%	2057	43.3	55.86°C	230.25V

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20-80	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	1.235A	0.492A	0.491A	0.195A	19.984	67.6070/	704	15.0	0.539
1	12.020V	5.062V	3.362V	5.119V	29.559	67.607%	784	15.6	230.22V
2	2.469A	0.988A	0.982A	0.391A	39.972	70.1040/	705	15.7	0.678
2	12.019V	5.060V	3.361V	5.110V	50.518	79.124%	785		230.22V
2	3.708A	1.482A	1.471A	0.588A	60.003	02.0700/	705	15.7	0.761
3	12.018V	5.059V	3.360V	5.102V	71.458	83.970%	785	15.7	230.22V
4	4.939A	1.977A	1.965A	0.785A	79.954	06 5360/	700	15.0	0.812
4	12.018V	5.058V	3.359V	5.093V	92.405	86.526%	789	15.9	230.23V

RIPPLE MEASUREMENTS 230V								
Test	12V	5V	3.3V	5VSB	Pass/Fail			
10% Load	13.30mV	7.80mV	13.30mV	8.70mV	Pass			
20% Load	17.50mV	8.10mV	13.60mV	8.70mV	Pass			
30% Load	16.60mV	9.00mV	12.90mV	8.70mV	Pass			
40% Load	14.80mV	11.70mV	15.30mV	9.00mV	Pass			
50% Load	12.40mV	12.70mV	17.40mV	9.50mV	Pass			
60% Load	12.70mV	10.80mV	16.30mV	10.10mV	Pass			
70% Load	13.20mV	10.90mV	15.90mV	10.40mV	Pass			
80% Load	14.20mV	11.80mV	16.80mV	10.70mV	Pass			
90% Load	14.70mV	12.90mV	16.90mV	10.90mV	Pass			
100% Load	23.40mV	14.30mV	18.70mV	12.30mV	Pass			
110% Load	26.80mV	15.00mV	19.60mV	13.10mV	Pass			
Crossload1	17.00mV	10.50mV	18.80mV	7.80mV	Pass			
Crossload2	24.00mV	13.10mV	19.00mV	11.90mV	Pass			

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

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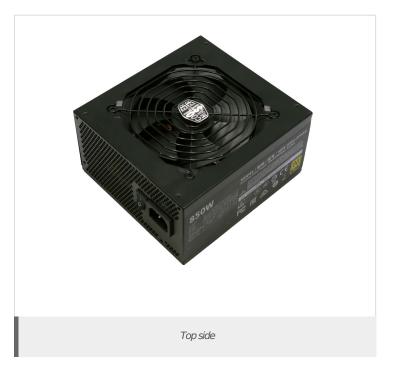
> It should be mentioned that the test results are provided by Cybenetics

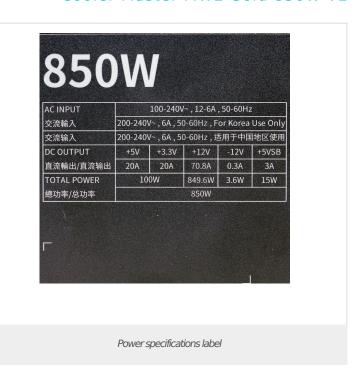
> The link to the original test results document should be provided in any case



Anex

Cooler Master MWE Gold 850W V2











CERTIFICATIONS 230V





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- > It should be mentioned that the test results are provided by Cybenetics
- $\,{}^{\backprime}$ The link to the original test results document should be provided in any case

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