Make It Yours.

Cooler Master MWE Gold 750

Serial Number MPY7501AFAAG1190101108

Lab ID CM19750125

Certification ID 25874

Test Result Report ID: 19PS874A

Certificate Issue Date: Oct 22, 2019

Scheme: ETA-EMI PSU

115V

230V

115V

230V

Scheme: LAMBDA PSU

Aristeidis Bitziopoulos, Certification Body General Manager

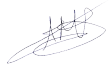
General Information

Test Equipment

Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 Chroma 63640-80-80 x10 Chroma 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P, GW Instek ASR-3500
Power Analyzers	Rohde & Schwarz HMC8015 & NPA701
Oscilloscopes	Picoscope 4444, Siglent SDS2104X PLUS
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Temperature Logger	Picoscope TC-08
Tachometer	UNI-T UT372
Multimeters	Keysight 34465A
EMI Analyzer	TekBox TBMR-110M-EU
Isolation Transformer	4kVA
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Testing Methodology	Cybenetics PSU Test Protocol

DUT Information(Non-accredited measurements)

Product Identification Details	
Brand	Cooler Master
Model	MWE Gold 750
OEM/ODM	Huizhou Xin Hui Yuan Tech.
Serial Number	MPY7501AFAAG1190101108
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10
Rated Frequency (Hz)	50-60

Rated Power (W)	750
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Rifle Bearing Fan (DF1202512RFLN)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	CM19750125
Date of receipt	Sep 26, 2019
Testing Date	Sep 10, 2019
Report Issued Date	Oct 22, 2019
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

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 (650mm)	1	1	18AWG	No
6+2 pin PCIe (610mm+120mm)	2	4	18AWG	No
SATA (400mm+120mm+120mm+120mm)	2	8	18AWG	No
4-pin Molex (400mm+120mm+120mm)	1	3	18AWG	No
4-pin Molex (410mm+115mm+115mm) / FDD (+120mm)	1	3 / 1	18-22AWG	No
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	15	15	62.5	2.5	0.3
	Watts	100		750	12.5	3.6
Total Max. Power (W)		750				

Parts Description

General Data	
Manufacturer (OEM)	Huizhou Xin Hui Yuan Tech
PCB Type	Double Sided
Primary Side	
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	1x GBU15J (600V, 15A @ 100°C)
APFC MOSFETS	2x NCE Power NCE65T180F (650V, 13.2A @ 100°C, 0.18Ohm)
APFC Boost Diode	1x ON Semiconductor RHRP1560 (600V, 15A @ 140°C)
Hold-up Cap(s)	1x Elite (400V, 470uF, 2,000h @ 85°C, GM)
Main Switchers	4x Champion GPT13N50D (500V, 13A, 0.49Ohm)
APFC Controller	ON Semiconductor NCP1654
Resonant Controllers	Champion CM6901T6
Topology	Primary side: Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x Excelliance MOS Corp EMP16N04HS (40V, 100A @ 100°C, 1.6mOhm)
5V & 3.3V	DC-DC Converters:4x Excelliance MOS Corp EMB06N03HR (30V, 45A @ 100°C, 6mOhm) PWM Controllers: uPI Semi uP3861P
Filtering Capacitors	Electrolytics: 13x Elite (4-10,000h @ 105°C, EY) Polymers: 10x Elite
Supervisor IC	Sitronix ST9S313-DAG (OVP, UVP, SCP)
Fan Model	CoolerMaster (A12025-25RB-3IN-F1) DF1202512RFLN (120mm, 12V, 0.16A, Rifle Bearing Fan)
5VSB Circuit	

Rectifier	1x Sapcon S20C45C SBR (45V, 20A)
Standby PWM Controller	Infineon ICE2QR4765

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	ErP Lot 6 2010: ✓ ErP Lot 6 2013: ✓ ErP Lot 3 2014 & CEC: Partially
(EU) No 617/2013 Compliance	✓

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	88.592%
Average Noise Output (>1450 Load Combinations)	32.29dBA
Average PF (>1450 Load Combinations)	0.990
Efficiency With 10W (≤500W) or 2% (>500W) Load	62.188%
Standby Power Consumption	0.0932W
Non-Accredited	
12V Ripple (Full Load)	46.66mV
5V Ripple (Full Load)	18.54mV
3.3V Ripple (Full Load)	30.05mV
5VSB Ripple (Full Load)	18.15mV
12V Load Regulation	1.01%
5V Load Regulation	1.84%
3.3V Load Regulation	2.84%
5VSB Load Regulation	3.57%
Inrush Current	26.613A

230V		
Accredited		
Average Efficiency (>1450 load combinations)		90.886%
Average Noise Output (>1450 Load Combinations)		32.24dBA
Average PF (>1450 Load Combinations)		0.954
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
Standby Power Consumption		0.1471W
Non-Accredited		
12V Ripple (Full Load)		48.38mV
5V Ripple (Full Load)		18.30mV
3.3V Ripple (Full Load)		28.17mV
5VSB Ripple (Full Load)		19.74mV
12V Load Regulation		0.98%
5V Load Regulation		1.80%
3.3V Load Regulation		2.81%
5VSB Load Regulation		3.54%
Inrush Current		50.053A
Hold-Up Time & PWR_OK Signal		19.20ms
AC Loss to PWR_OK Hold Up Time		15.90ms
PWR_OK Inactive to DC Loss Delay		3.30ms
PSU Timings: T1 (20% / 100%)	88.0ms	81.0ms
PSU Timings: T3 (20% / 100%)	263.0ms	274.0ms
OPP (0.00°C / 0.00°C)	130.18%	-

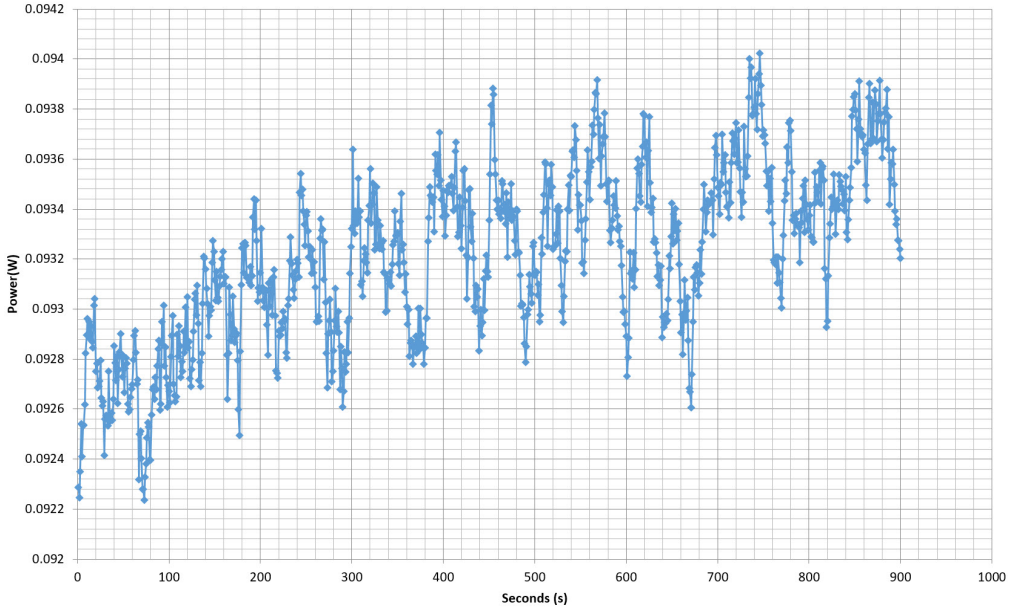
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	19.2
AC Loss to PWR_OK Hold Up Time (ms)	15.9
PWR_OK Inactive to DC Loss Delay (ms)	3.3

Graphs

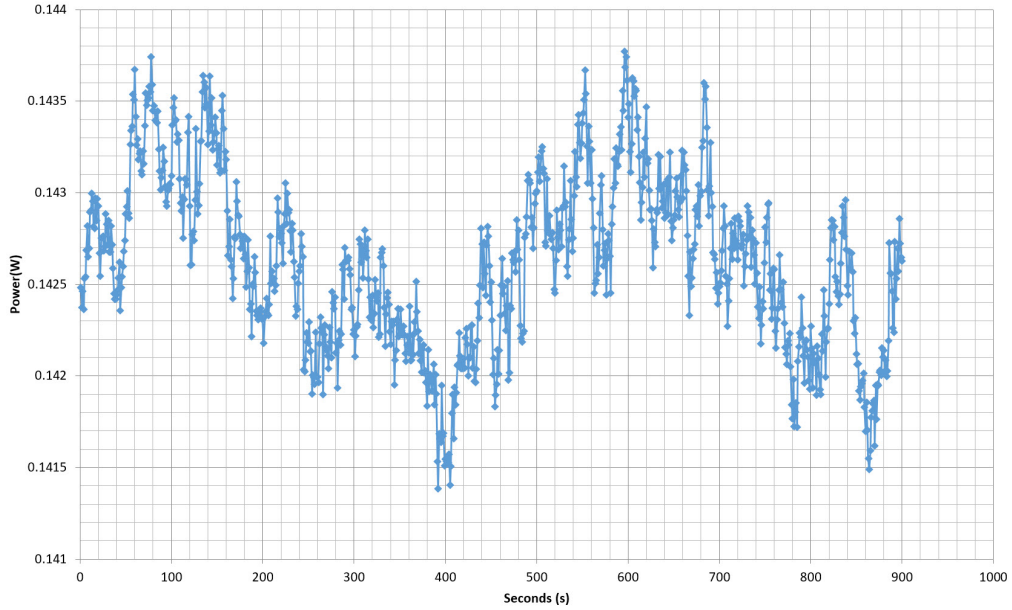
115V

Power - MPY7501AFAAG1190101108 - 07/10/2019 - 19:35



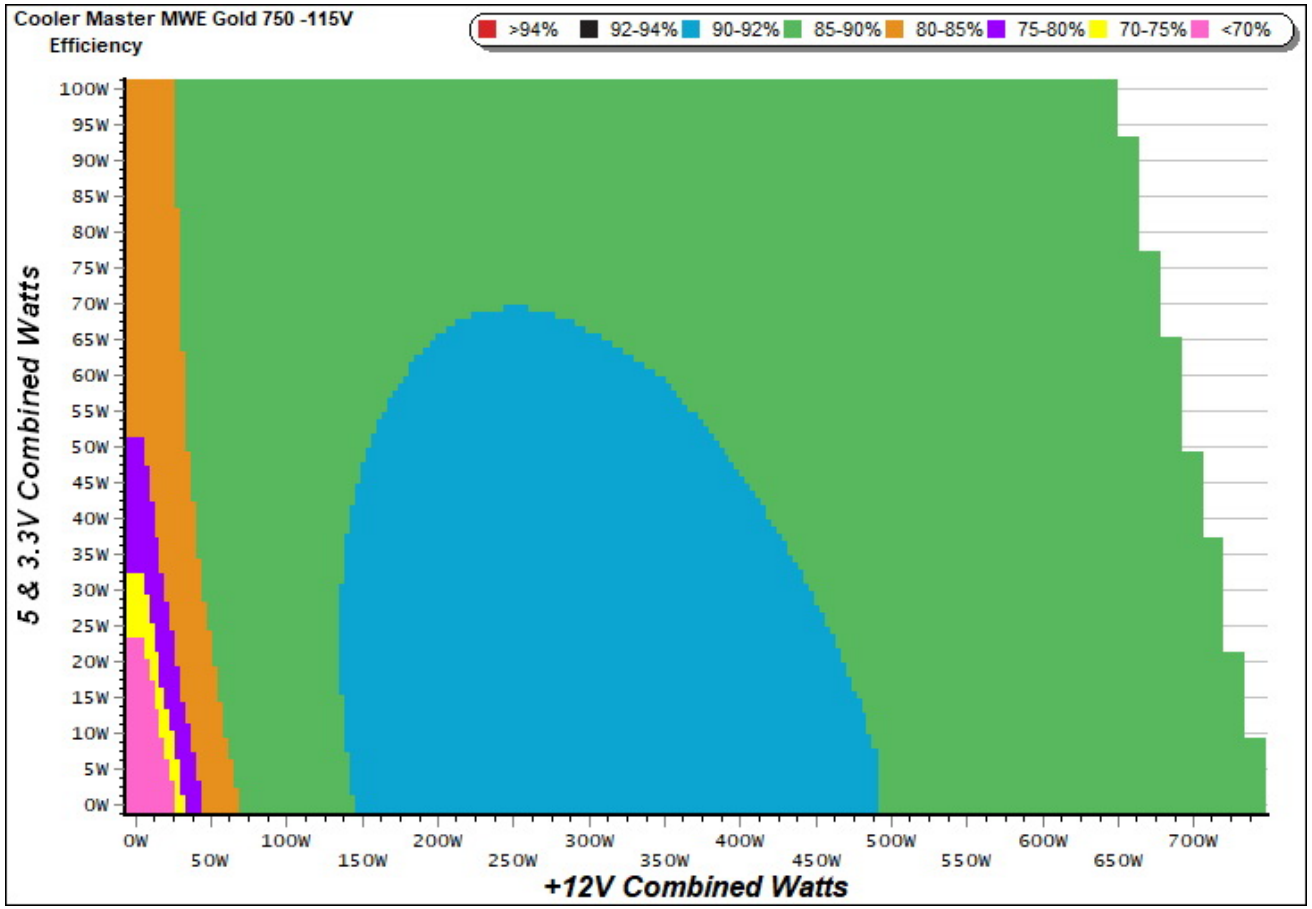
230V

Power - MPY6501AFAAG1192800444 - 08/10/2019 - 12:58



Efficiency Graph

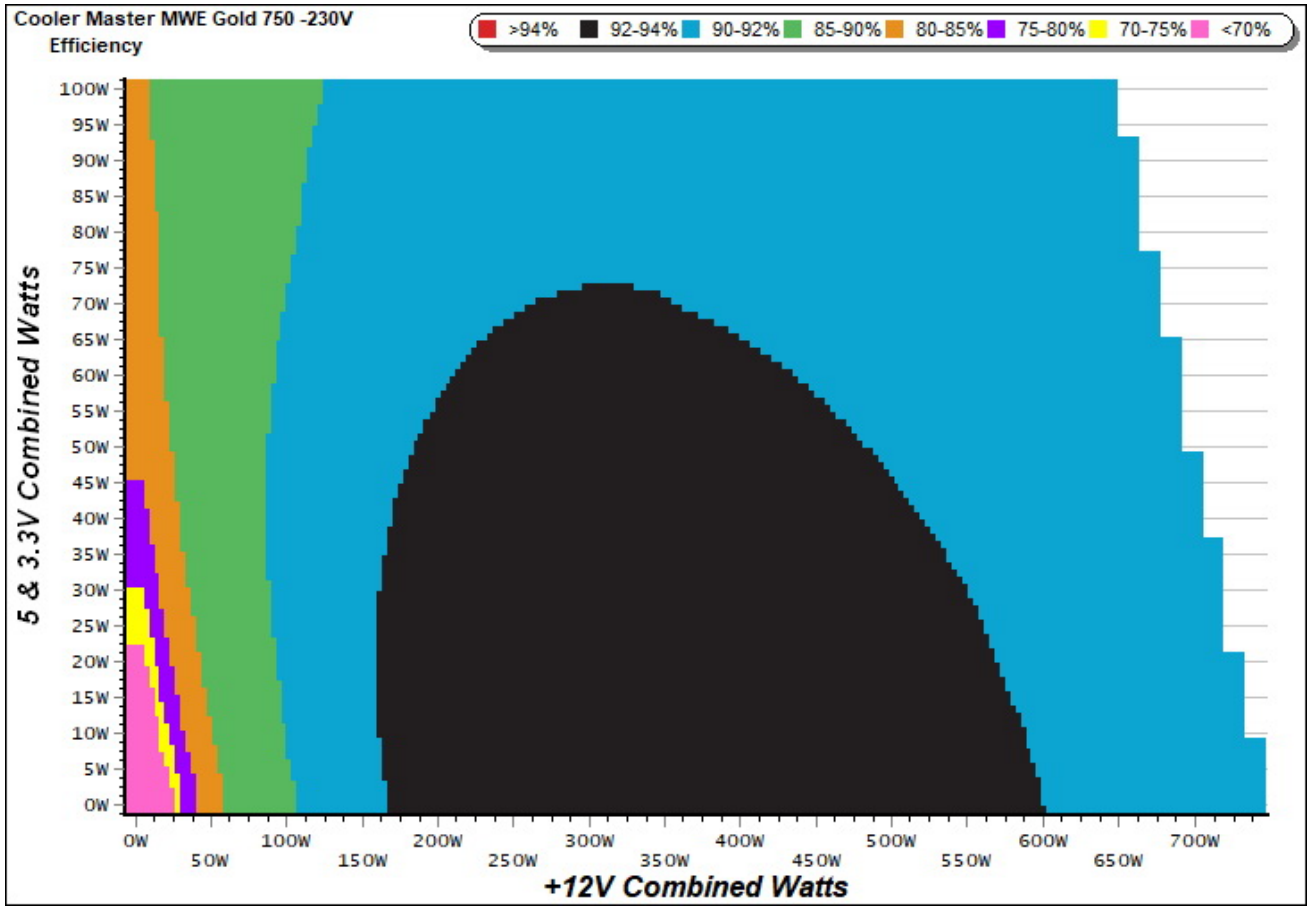
115V



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.

230V



INFO

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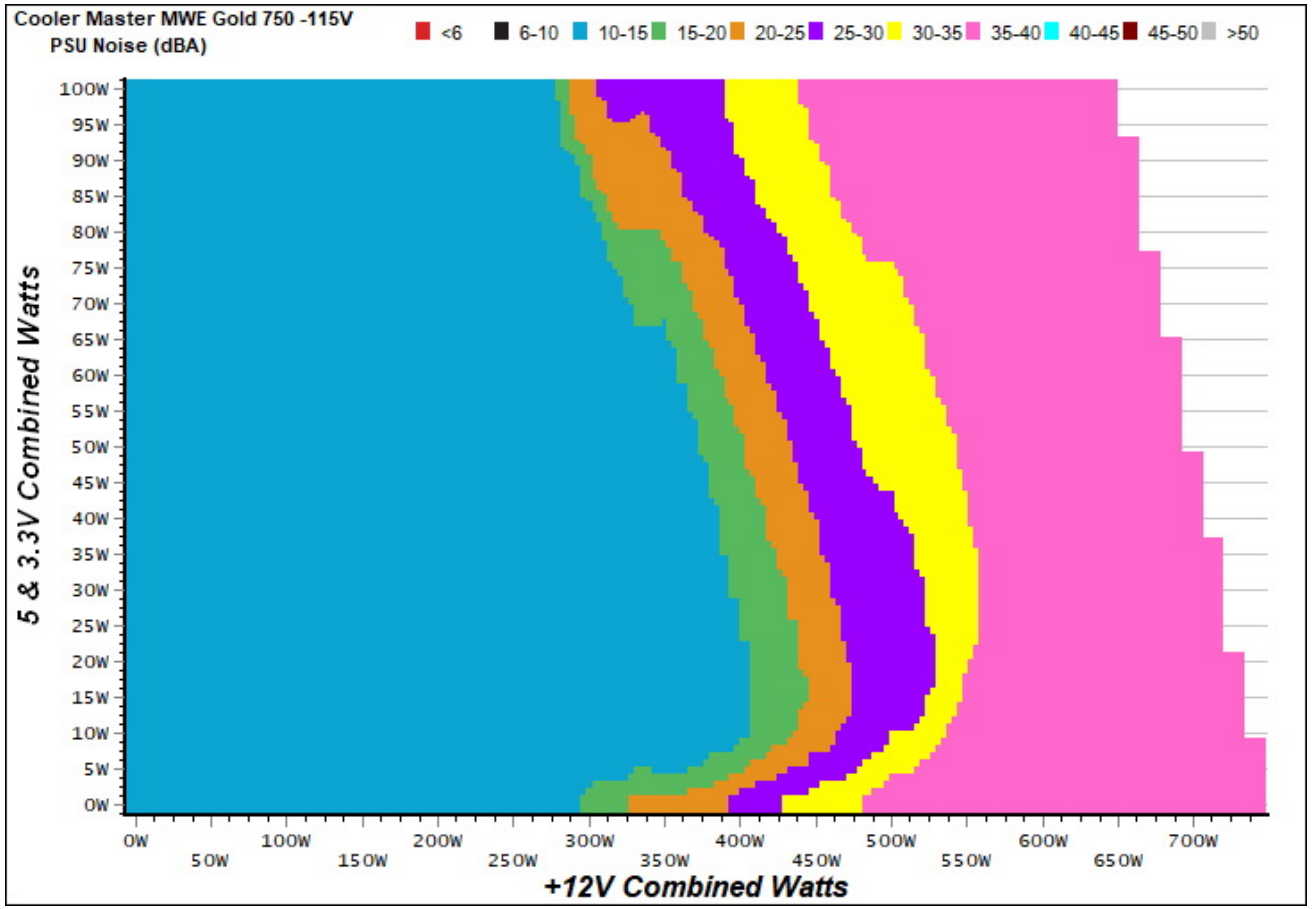
Noise Graph

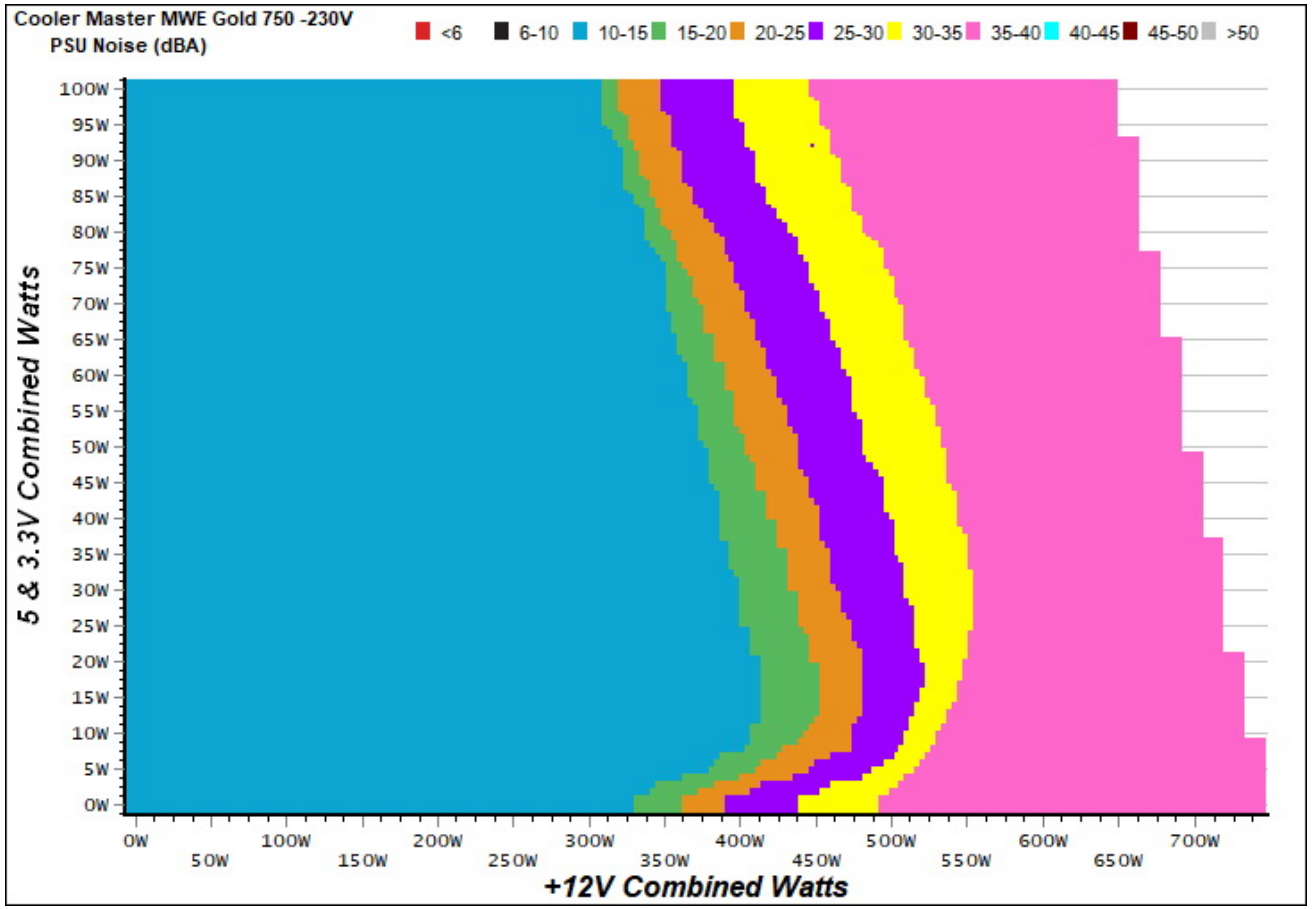
115V



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.

230V

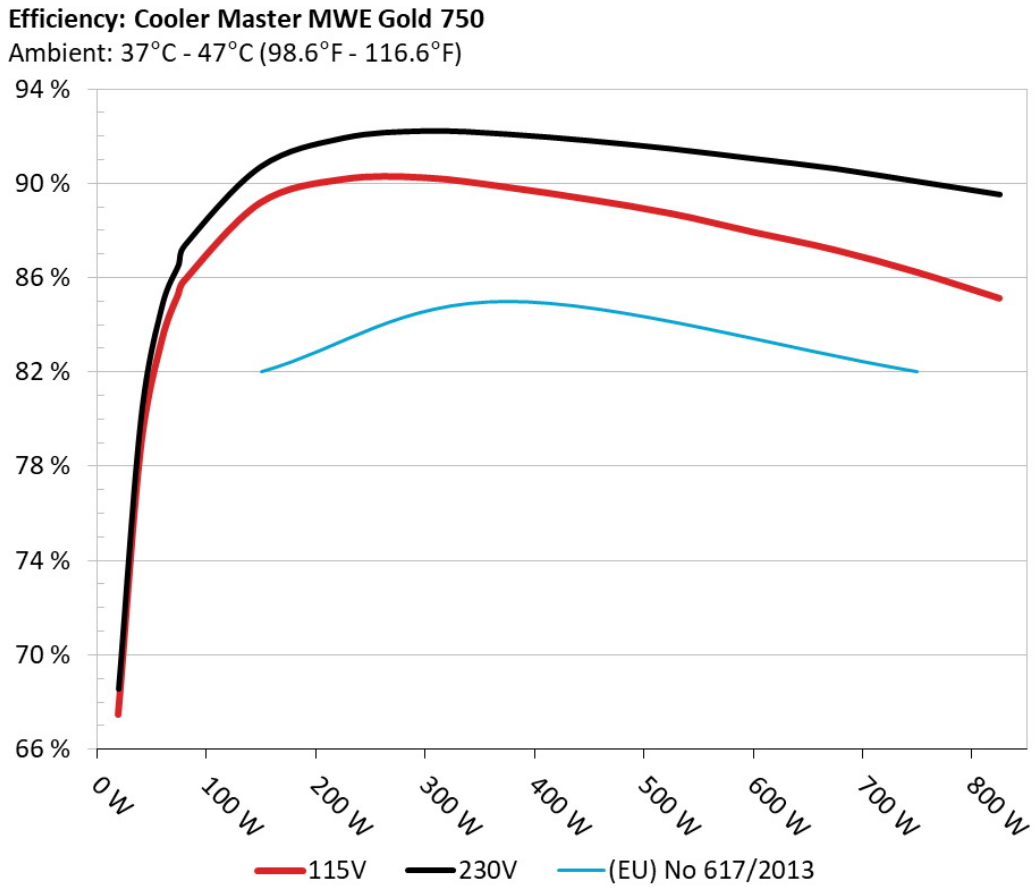


INFO

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.

Indicative Performance

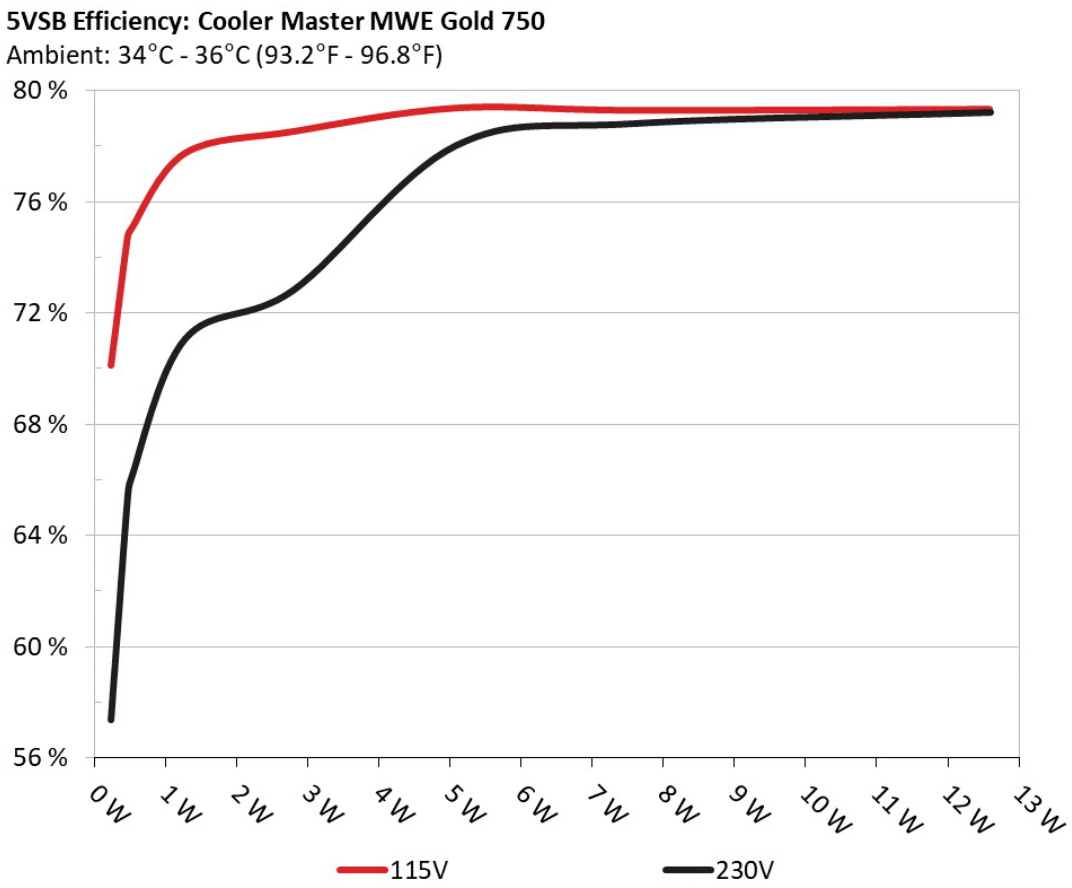
Efficiency under high ambient temperature



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



INFO

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input.

5VSB Efficiency (ERP LOT 3/6 & CEC)

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	70.122%	0.046
	5.103V	0.328		115.15V
2	0.090A	0.460	74.675%	0.084
	5.102V	0.616		115.15V
3	0.550A	2.800	78.519%	0.319
	5.090V	3.566		115.16V
4	1.000A	5.079	79.359%	0.399
	5.078V	6.400		115.16V
5	1.500A	7.598	79.278%	0.441
	5.064V	9.584		115.15V
6	2.500A	12.594	79.317%	0.485
	5.037V	15.878		115.15V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	58.524%	0.017
	5.093V	0.393		230.24V
2	0.090A	0.459	66.234%	0.029
	5.092V	0.693		230.24V
3	0.550A	2.795	74.613%	0.144
	5.080V	3.746		230.24V
4	1.000A	5.069	77.366%	0.222
	5.068V	6.552		230.23V
5	1.500A	7.583	78.038%	0.282
	5.055V	9.717		230.24V
6	2.500A	12.571	78.407%	0.353
	5.028V	16.033		230.24V

Supplementary Tests (For Reference)

Typical 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	4.360A	1.998A	1.977A	0.989A	74.485	85.317%	855	11.6	40.07°C	0.979
	12.126V	5.010V	3.339V	5.059V	87.304				42.31°C	115.17V
2	9.782A	3.001A	2.971A	1.190A	149.397	89.195%	858	12.3	40.52°C	0.984
	12.114V	5.001V	3.329V	5.042V	167.494				43.14°C	115.15V
3	15.611A	3.506A	3.460A	1.393A	224.921	90.194%	865	13.5	41.44°C	0.985
	12.102V	4.993V	3.321V	5.025V	249.375				44.43°C	115.14V
4	21.380A	4.014A	3.986A	1.598A	299.694	90.263%	1369	23.0	41.89°C	0.990
	12.090V	4.984V	3.312V	5.008V	332.022				45.31°C	115.15V
5	26.840A	5.027A	4.998A	1.803A	374.623	89.858%	2164	37.0	42.34°C	0.994
	12.076V	4.973V	3.302V	4.992V	416.905				46.13°C	115.14V
6	32.309A	6.046A	6.017A	2.011A	449.556	89.343%	2327	38.3	42.84°C	0.995
	12.063V	4.963V	3.291V	4.975V	503.180				47.02°C	115.15V
7	37.827A	7.068A	7.040A	2.220A	524.879	88.741%	2338	38.4	43.64°C	0.996
	12.049V	4.953V	3.280V	4.956V	591.475				48.52°C	115.15V
8	43.356A	8.096A	8.076A	2.432A	600.207	87.950%	2351	38.6	44.16°C	0.997
	12.035V	4.942V	3.269V	4.937V	682.440				49.55°C	115.15V
9	49.256A	8.620A	8.593A	2.437A	674.725	87.195%	2356	38.7	44.72°C	0.997
	12.023V	4.932V	3.259V	4.925V	773.815				50.65°C	115.16V
10	55.174A	9.146A	9.142A	2.547A	749.855	86.246%	2365	38.8	45.42°C	0.997
	12.010V	4.921V	3.249V	4.910V	869.441				51.80°C	115.17V
11	61.501A	9.165A	9.169A	2.553A	825.102	85.143%	2372	38.9	46.67°C	0.997
	11.998V	4.911V	3.239V	4.898V	969.080				53.50°C	115.18V
CL1	0.150A	12.002A	12.000A	0.000A	101.641	83.130%	1680	28.9	42.88°C	0.989
	12.098V	5.000V	3.318V	5.055V	122.268				46.02°C	115.16V

CL2	62.525A	1.003A	1.000A	1.000A	765.351	86.871%	2362	38.8	45.61°C	0.997
	12.030V	4.925V	3.263V	4.972V	881.021				51.41°C	115.19V

The results above are not used in the certification process

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	4.361A	1.998A	1.977A	0.989A	74.493	86.553%	858	12.3	40.34°C	0.819
	12.125V	5.011V	3.339V	5.059V	86.066				42.78°C	230.35V
2	9.785A	3.001A	2.971A	1.190A	149.417	90.705%	862	12.8	40.46°C	0.920
	12.112V	5.002V	3.329V	5.042V	164.728				43.28°C	230.35V
3	15.615A	3.507A	3.462A	1.393A	224.941	91.919%	869	14.7	41.33°C	0.952
	12.100V	4.992V	3.320V	5.025V	244.716				44.65°C	230.36V
4	21.387A	4.015A	3.985A	1.597A	299.727	92.222%	1469	25.4	41.81°C	0.966
	12.088V	4.983V	3.311V	5.009V	325.005				45.66°C	230.36V
5	26.846A	5.030A	4.998A	1.803A	374.652	92.085%	2003	35.3	41.96°C	0.975
	12.074V	4.973V	3.301V	4.992V	406.854				46.26°C	230.36V
6	32.317A	6.047A	6.016A	2.011A	449.585	91.810%	2323	38.2	42.74°C	0.979
	12.061V	4.963V	3.290V	4.975V	489.691				47.57°C	230.36V
7	37.833A	7.069A	7.043A	2.220A	524.914	91.463%	2338	38.4	43.23°C	0.984
	12.048V	4.952V	3.279V	4.956V	573.911				48.33°C	230.36V
8	43.365A	8.098A	8.080A	2.431A	600.233	91.046%	2338	38.4	43.65°C	0.986
	12.033V	4.941V	3.268V	4.938V	659.260				49.86°C	230.36V
9	49.267A	8.620A	8.592A	2.437A	674.750	90.622%	2347	38.6	44.96°C	0.987
	12.021V	4.931V	3.259V	4.926V	744.577				51.78°C	230.35V
10	55.184A	9.150A	9.144A	2.546A	749.877	90.078%	2358	38.7	46.18°C	0.988
	12.008V	4.921V	3.248V	4.910V	832.472				53.35°C	230.35V
11	61.506A	9.168A	9.170A	2.553A	825.111	89.523%	2364	38.8	46.51°C	0.989
	11.997V	4.910V	3.239V	4.899V	921.679				54.16°C	230.35V
CL1	0.149A	12.001A	12.002A	0.000A	101.643	84.577%	1864	31.8	41.04°C	0.882
	12.097V	5.001V	3.318V	5.055V	120.178				45.91°C	230.36V

CL2	62.525A	1.004A	1.001A	1.000A	765.232	90.761%	2351	38.6	45.91°C	0.988
	12.028V	4.924V	3.262V	4.973V	843.132				52.98°C	230.35V

The results above are not used in the certification process

Light Load Tests

115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.195A	0.500A	0.477A	0.197A	19.609	67.466%	847	11.4	0.857
	12.136V	5.015V	3.346V	5.092V	29.065				115.16V
2	2.451A	0.999A	0.985A	0.394A	40.041	78.736%	849	11.5	0.937
	12.133V	5.013V	3.344V	5.082V	50.855				115.17V
3	3.634A	1.499A	1.465A	0.592A	59.486	83.366%	850	11.5	0.962
	12.129V	5.011V	3.341V	5.073V	71.355				115.17V
4	4.892A	1.998A	1.974A	0.790A	79.914	85.885%	852	11.6	0.977
	12.125V	5.009V	3.338V	5.064V	93.048				115.17V

The results above are not used in the certification process

230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.194A	0.499A	0.477A	0.197A	19.592	68.535%	847	11.4	0.560
	12.135V	5.016V	3.347V	5.093V	28.587				230.35V
2	2.449A	0.999A	0.986A	0.394A	40.020	80.040%	850	11.5	0.699
	12.132V	5.014V	3.345V	5.083V	50.000				230.35V
3	3.634A	1.498A	1.464A	0.592A	59.476	84.835%	852	11.6	0.780
	12.128V	5.011V	3.342V	5.074V	70.108				230.35V
4	4.892A	1.998A	1.976A	0.790A	79.913	87.360%	853	11.6	0.829
	12.123V	5.009V	3.339V	5.064V	91.476				230.35V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.4 mV	7.1 mV	15.3 mV	9.4 mV	Pass
20% Load	17.1 mV	7.7 mV	15.3 mV	9.3 mV	Pass
30% Load	20.1 mV	8.9 mV	15.8 mV	10.7 mV	Pass
40% Load	18.0 mV	9.9 mV	17.9 mV	12.9 mV	Pass
50% Load	21.3 mV	11.5 mV	18.5 mV	13.3 mV	Pass
60% Load	23.6 mV	12.8 mV	19.8 mV	13.4 mV	Pass
70% Load	27.0 mV	13.8 mV	22.2 mV	13.7 mV	Pass
80% Load	28.6 mV	15.0 mV	24.9 mV	15.1 mV	Pass
90% Load	31.9 mV	16.0 mV	25.3 mV	14.7 mV	Pass
100% Load	46.7 mV	18.5 mV	30.1 mV	18.2 mV	Pass
110% Load	53.0 mV	19.7 mV	28.7 mV	19.0 mV	Pass
Crossload 1	18.4 mV	8.3 mV	22.3 mV	23.8 mV	Pass
Crossload 2	48.5 mV	17.1 mV	23.6 mV	17.9 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	14.5 mV	6.8 mV	13.6 mV	9.6 mV	Pass
20% Load	18.3 mV	7.3 mV	15.2 mV	9.9 mV	Pass
30% Load	21.8 mV	8.5 mV	14.7 mV	12.3 mV	Pass
40% Load	18.2 mV	10.5 mV	16.2 mV	14.1 mV	Pass
50% Load	20.7 mV	11.7 mV	17.7 mV	12.2 mV	Pass
60% Load	24.5 mV	12.2 mV	19.3 mV	13.1 mV	Pass
70% Load	26.3 mV	13.3 mV	20.7 mV	14.6 mV	Pass
80% Load	29.4 mV	14.9 mV	25.1 mV	14.6 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	31.8 mV	15.6 mV	25.5 mV	15.5 mV	Pass
100% Load	48.4 mV	18.3 mV	28.2 mV	19.7 mV	Pass
110% Load	54.6 mV	20.1 mV	30.0 mV	19.8 mV	Pass
Crossload 1	21.1 mV	8.2 mV	22.7 mV	23.0 mV	Pass
Crossload 2	50.9 mV	17.1 mV	24.1 mV	17.5 mV	Pass

The results above are not used in the certification process

Cooler Master MWE Gold 750

Top side

Power specifications label