Make It Yours.

Cooler Master MWE Gold 550

Serial Number MPY5501AFAAG1192700062

Lab ID CM19550127

Certification ID 25876

Test Result Report ID: 19PS876A

Certificate Issue Date: Oct 22, 2019

Scheme: ETA-EMI PSU

115V

230V

115V

230V

Scheme: LAMBDA PSU

Aristeidis Bitziopoulos, Certification Body General Manager

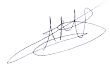
General Information

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 550
OEM/ODM	Huizhou Xin Hui Yuan Tech.
Serial Number	MPY5501AFAAG1192700062
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	7
Rated Frequency (Hz)	50-60

Rated Power (W)	550
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	CM19550127
Date of receipt	Sep 26, 2019
Testing Date	Oct 15, 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)	1	2	18AWG	No
SATA (400mm+120mm+120mm+120mm)	2	8	18AWG	No
4-pin Molex (410mm+120mm+120mm) / 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	45.8	2.5	0.3
	Watts	100		549.6	12.5	3.6
Total Max. Power (W)		550				

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 GBU1006 (600V, 10A @ 100°C)
APFC MOSFETS	2x AP 65SL380D
APFC Boost Diode	1x ON Semiconductor RHRP1560 (600V, 15A @ 140°C)
Hold-up Cap(s)	1x Elite (400V, 330uF, 2,000h @ 85°C, GM)
Main Switchers	4x Champion GPT10N50AD (500V, 9.7A, 0.7Ohm)
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	2x 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: 8x 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 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)	88.547%
Average Noise Output (>1450 Load Combinations)	31.96dBA
Average PF (>1450 Load Combinations)	0.989
Efficiency With 10W (≤500W) or 2% (>500W) Load	57.769%
Standby Power Consumption	0.0783W
Non-Accredited	
12V Ripple (Full Load)	56.73mV
5V Ripple (Full Load)	13.51mV
3.3V Ripple (Full Load)	29.86mV
5VSB Ripple (Full Load)	14.91mV
12V Load Regulation	0.98%
5V Load Regulation	1.61%
3.3V Load Regulation	2.44%
5VSB Load Regulation	3.11%
Inrush Current	32.429A

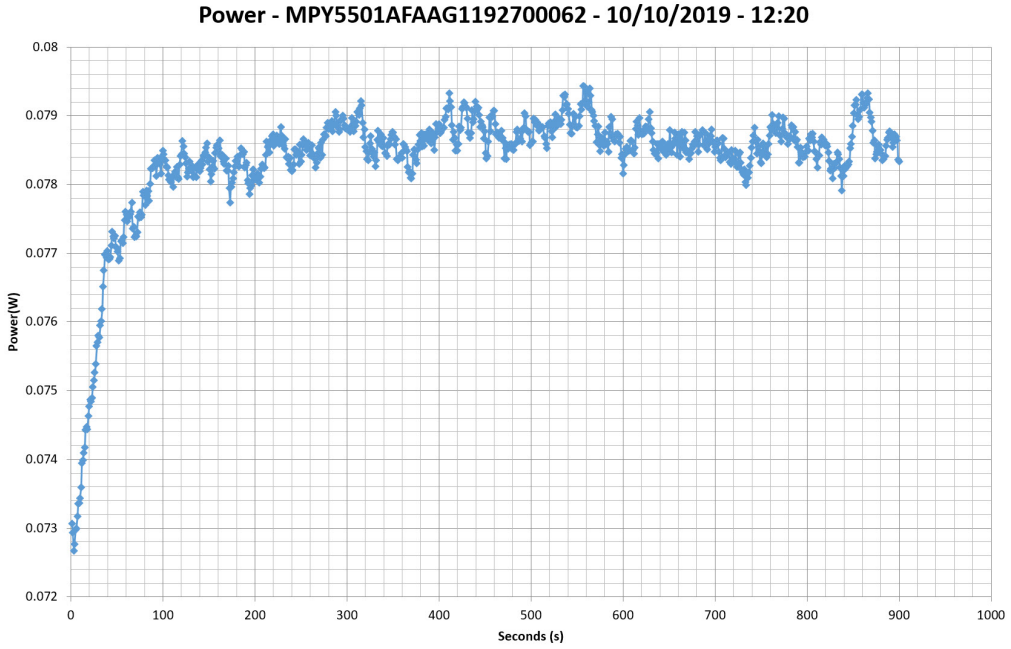
230V		
Accredited		
Average Efficiency (>1450 load combinations)		90.573%
Average Noise Output (>1450 Load Combinations)		30.63dBA
Average PF (>1450 Load Combinations)		0.943
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
Standby Power Consumption		0.1421W
Non-Accredited		
12V Ripple (Full Load)		56.66mV
5V Ripple (Full Load)		13.25mV
3.3V Ripple (Full Load)		32.77mV
5VSB Ripple (Full Load)		14.09mV
12V Load Regulation		0.96%
5V Load Regulation		1.63%
3.3V Load Regulation		2.44%
5VSB Load Regulation		3.07%
Inrush Current		45.294A
Hold-Up Time & PWR_OK Signal		17.10ms
AC Loss to PWR_OK Hold Up Time		14.80ms
PWR_OK Inactive to DC Loss Delay		2.30ms
PSU Timings: T1 (20% / 100%)	87.0ms	86.0ms
PSU Timings: T3 (20% / 100%)	200.0ms	200.0ms
OPP (0.00°C / 0.00°C)	129.80%	-

Hold-Up Time & PWR_OK Signal

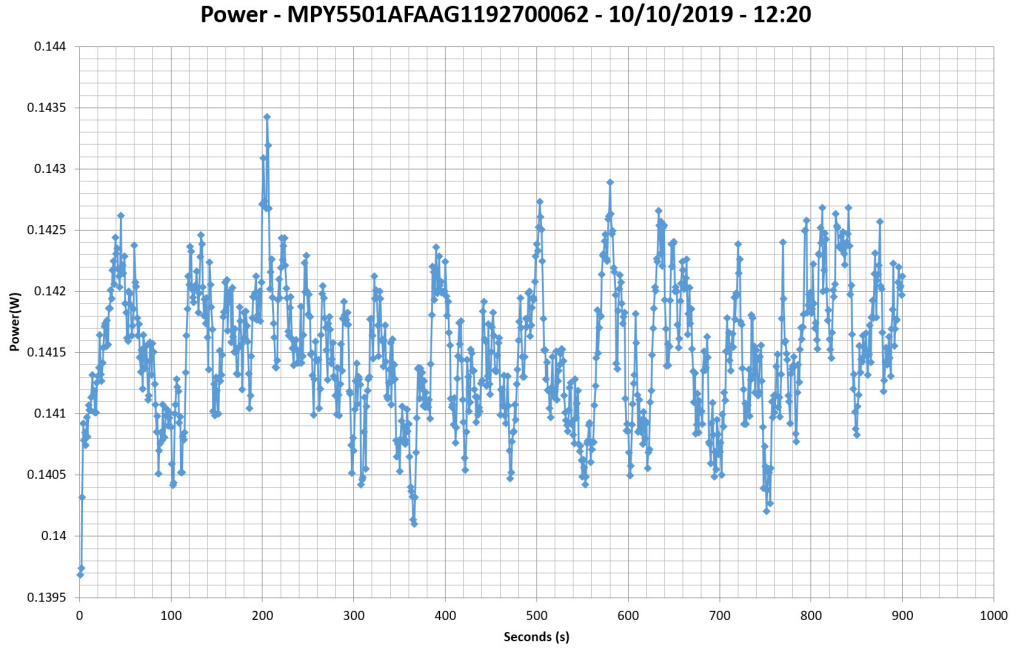
Hold-Up Time (ms)	17.10
AC Loss to PWR_OK Hold Up Time (ms)	14.80
PWR_OK Inactive to DC Loss Delay (ms)	2.30

Graphs

115V

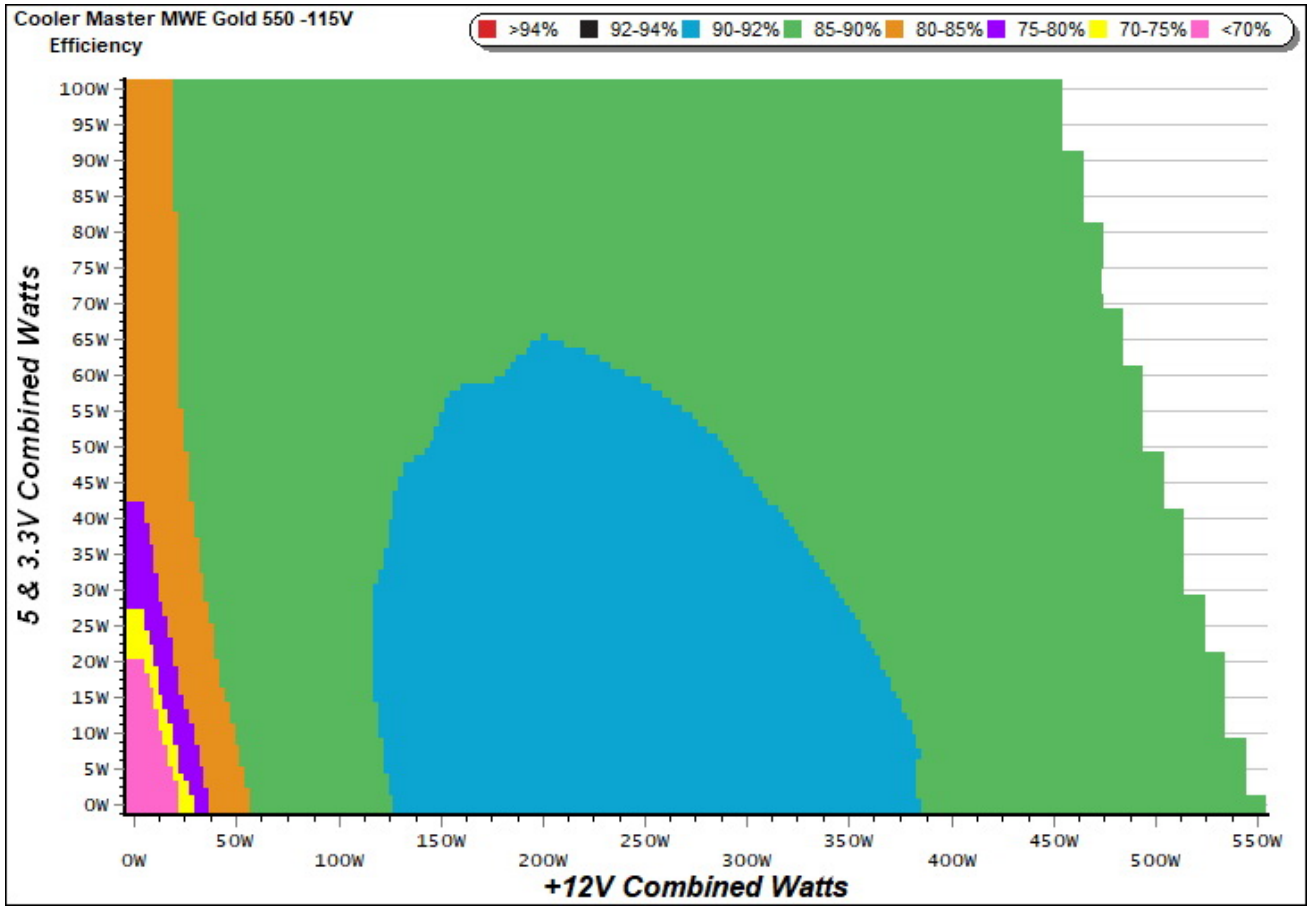


230V



Efficiency Graph

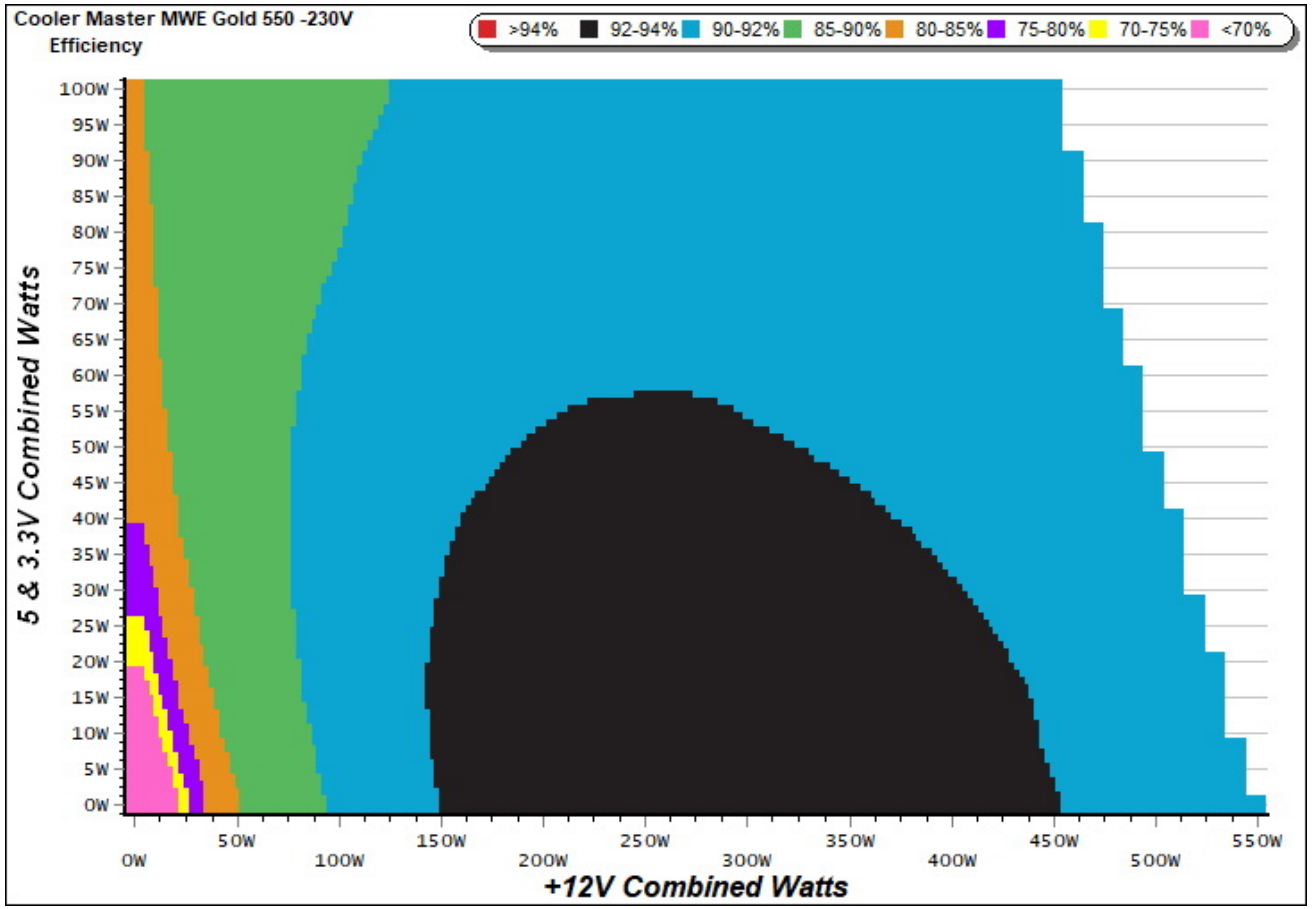
115V



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



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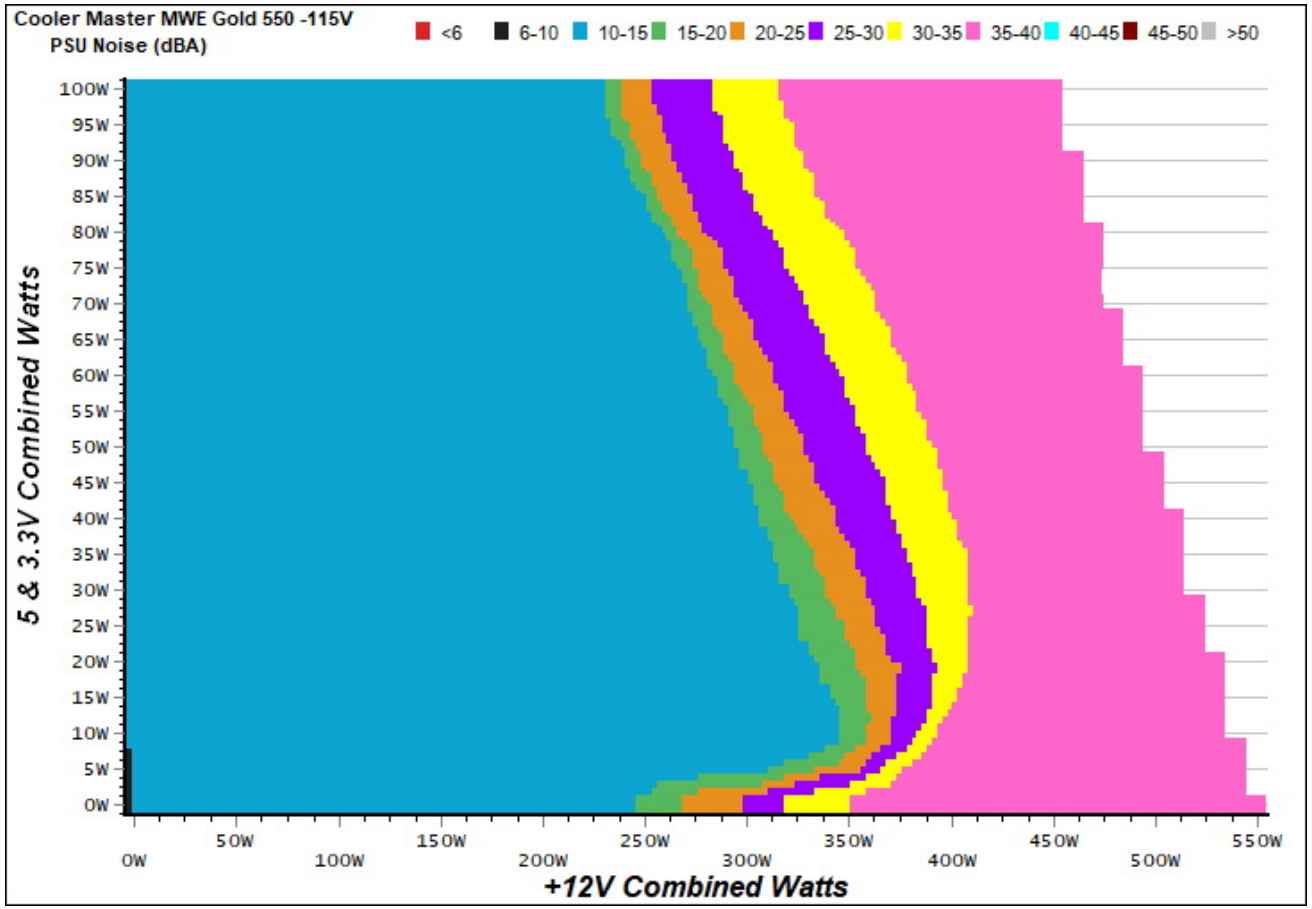
Noise Graph

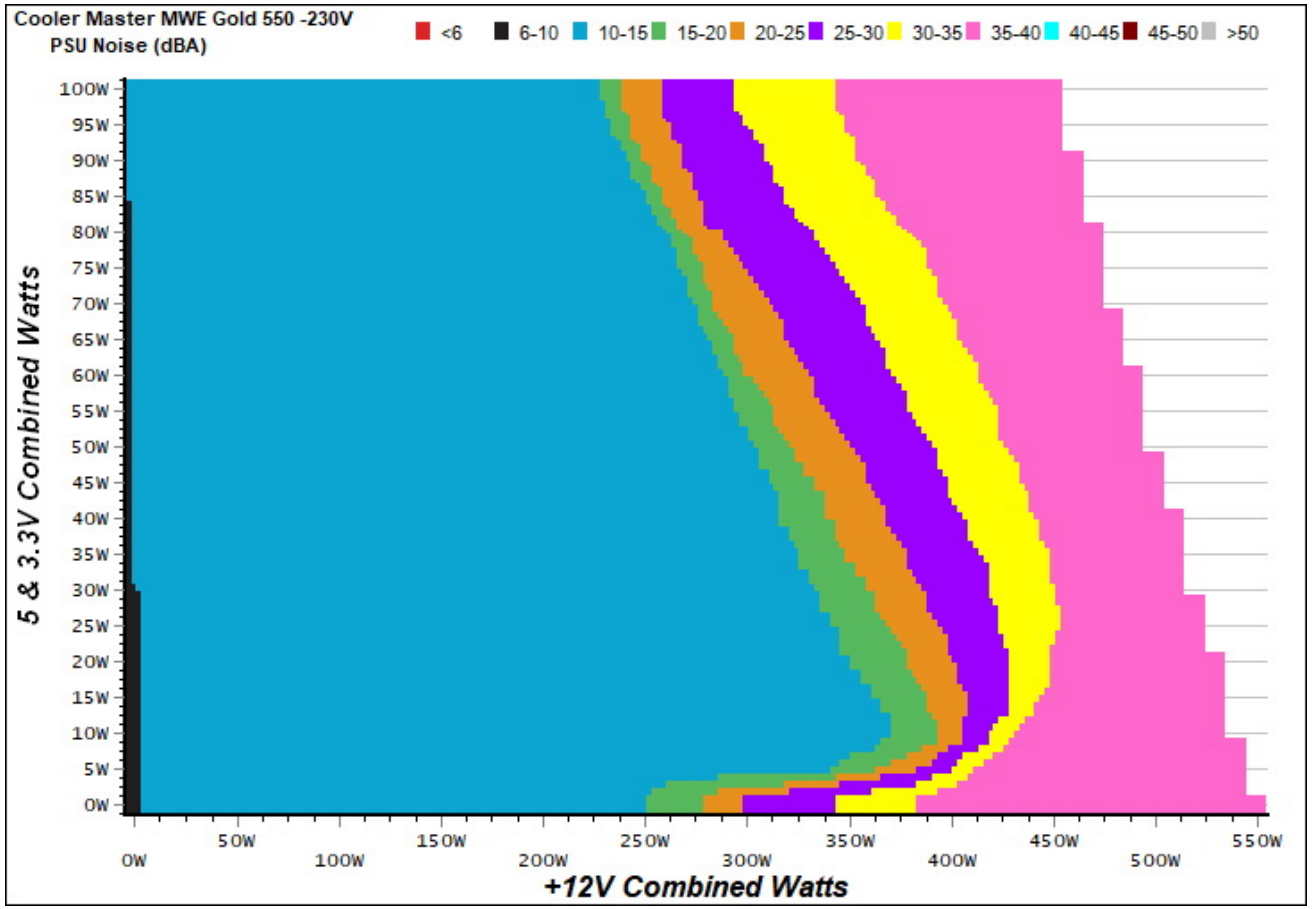
115V



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

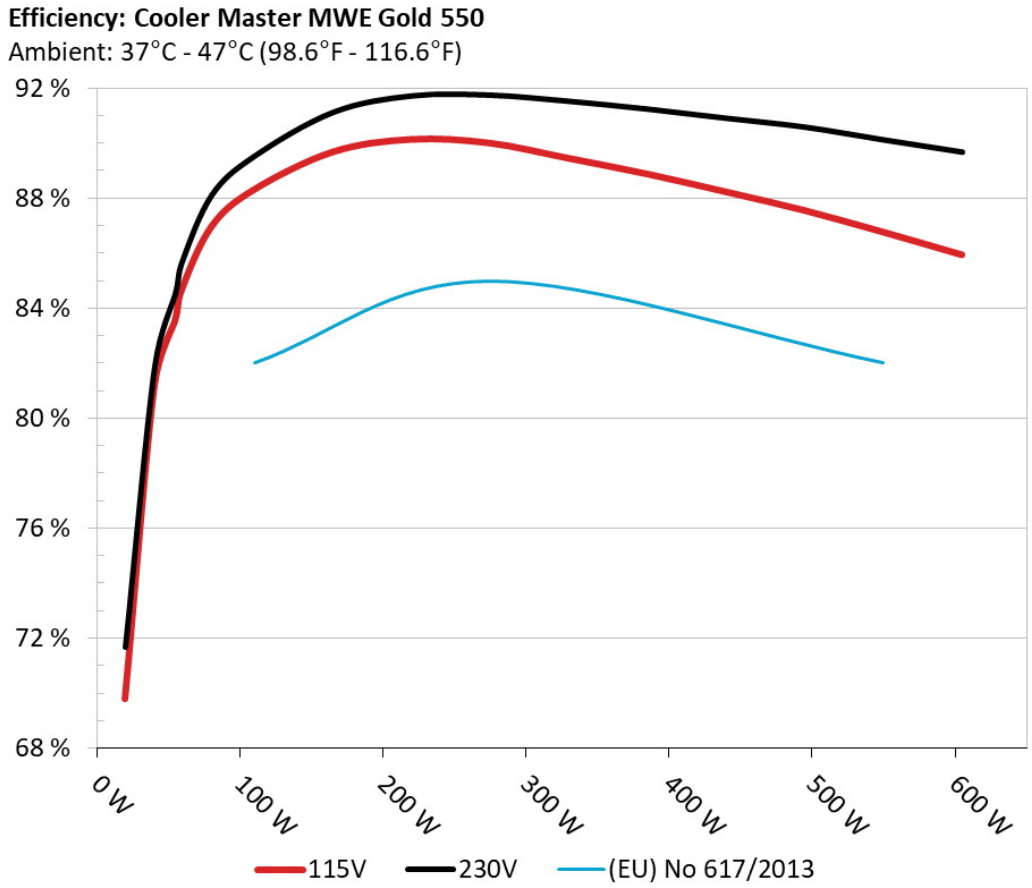


INFO

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

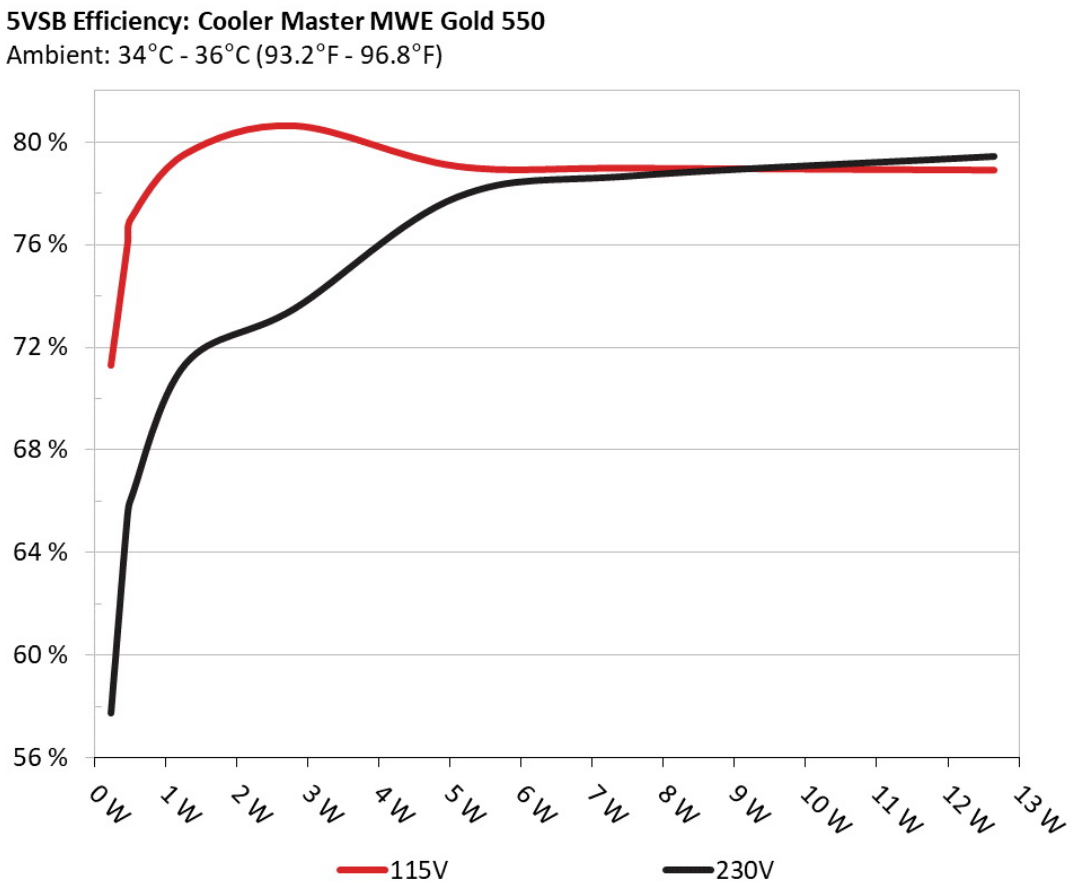
Efficiency under high ambient temperature



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	0.231	71.296%	0.045
	5.126V	0.324		115.16V
2	0.090A	0.462	75.987%	0.083
	5.125V	0.608		115.15V
3	0.550A	2.812	80.642%	0.316
	5.112V	3.487		115.16V
4	1.000A	5.101	79.061%	0.401
	5.100V	6.452		115.16V
5	1.500A	7.632	78.990%	0.444
	5.087V	9.662		115.15V
6	2.501A	12.653	78.914%	0.486
	5.060V	16.034		115.15V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	57.750%	0.017
	5.126V	0.400		230.33V
2	0.090A	0.461	65.390%	0.030
	5.125V	0.705		230.33V
3	0.550A	2.812	73.497%	0.146
	5.112V	3.826		230.33V
4	1.000A	5.101	77.842%	0.220
	5.100V	6.553		230.33V
5	1.500A	7.632	78.680%	0.280
	5.087V	9.700		230.33V
6	2.501A	12.653	79.424%	0.349
	5.060V	15.931		230.33V

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	2.715A	1.990A	1.989A	0.983A	54.549	83.545%	803	11.1	40.48°C	0.951
	12.130V	5.030V	3.320V	5.090V	65.293				42.84°C	115.18V
2	6.482A	2.989A	2.988A	1.183A	109.449	88.291%	805	11.2	40.53°C	0.980
	12.117V	5.022V	3.311V	5.074V	123.964				43.43°C	115.18V
3	10.651A	3.492A	3.481A	1.383A	164.936	89.674%	807	11.2	41.08°C	0.989
	12.105V	5.014V	3.303V	5.060V	183.928				44.47°C	115.17V
4	14.763A	3.994A	4.005A	1.586A	219.726	90.134%	826	10.4	41.95°C	0.993
	12.093V	5.006V	3.296V	5.046V	243.777				45.98°C	115.17V
5	18.552A	5.005A	5.020A	1.790A	274.628	89.999%	1503	25.9	42.06°C	0.997
	12.080V	4.998V	3.287V	5.030V	305.147				46.80°C	115.16V
6	22.352A	6.014A	6.040A	1.995A	329.533	89.447%	2297	37.8	42.13°C	0.995
	12.067V	4.990V	3.278V	5.014V	368.411				47.35°C	115.15V
7	26.193A	7.030A	7.067A	2.201A	384.849	88.874%	2323	38.2	43.19°C	0.994
	12.054V	4.981V	3.269V	4.998V	433.027				49.18°C	115.15V
8	30.045A	8.049A	8.098A	2.409A	440.155	88.222%	2330	38.3	43.26°C	0.994
	12.040V	4.971V	3.260V	4.982V	498.920				50.08°C	115.14V
9	34.267A	8.568A	8.613A	2.414A	494.675	87.552%	2345	38.5	44.95°C	0.995
	12.028V	4.961V	3.251V	4.973V	565.009				52.29°C	115.14V
10	38.498A	9.086A	9.160A	2.521A	549.796	86.764%	2350	38.6	45.59°C	0.996
	12.016V	4.952V	3.243V	4.960V	633.667				53.71°C	115.14V
11	43.135A	9.106A	9.182A	2.525A	605.010	85.935%	2358	38.7	46.64°C	0.996
	12.004V	4.943V	3.235V	4.952V	704.029				55.09°C	115.14V
CL1	0.146A	12.001A	12.002A	0.000A	101.365	83.877%	1637	28.2	42.06°C	0.979
	12.096V	5.007V	3.292V	5.084V	120.849				46.55°C	115.16V

CL2	45.847A	1.001A	1.000A	1.000A	564.962	87.516%	2349	38.6	45.09°C	0.996
	12.034V	4.957V	3.257V	5.020V	645.555				53.16°C	115.15V

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	2.713A	1.985A	1.987A	0.983A	54.495	84.528%	801	11.2	40.01°C	0.739
	12.128V	5.033V	3.320V	5.090V	64.470				42.04°C	230.37V
2	6.481A	2.986A	2.987A	1.183A	109.421	89.513%	802	11.1	40.76°C	0.879
	12.115V	5.026V	3.312V	5.074V	122.241				43.02°C	230.38V
3	10.653A	3.488A	3.479A	1.384A	164.931	91.128%	807	11.2	41.68°C	0.930
	12.103V	5.017V	3.304V	5.060V	180.988				44.36°C	230.38V
4	14.766A	3.996A	4.004A	1.586A	219.748	91.724%	815	10.4	41.84°C	0.953
	12.091V	5.008V	3.296V	5.046V	239.575				45.09°C	230.38V
5	18.559A	5.000A	5.019A	1.790A	274.657	91.751%	1739	31.8	42.21°C	0.965
	12.078V	5.000V	3.287V	5.030V	299.351				46.17°C	230.39V
6	22.358A	6.014A	6.041A	1.995A	329.570	91.530%	2303	37.9	42.64°C	0.973
	12.065V	4.991V	3.278V	5.014V	360.068				47.43°C	230.40V
7	26.201A	7.028A	7.070A	2.202A	384.891	91.243%	2329	38.3	43.50°C	0.978
	12.052V	4.981V	3.268V	4.998V	421.829				48.85°C	230.40V
8	30.050A	8.045A	8.099A	2.409A	440.156	90.908%	2326	38.3	43.89°C	0.982
	12.038V	4.973V	3.260V	4.983V	484.178				49.74°C	230.40V
9	34.274A	8.564A	8.612A	2.414A	494.711	90.589%	2327	38.3	44.94°C	0.985
	12.026V	4.965V	3.252V	4.973V	546.107				51.42°C	230.40V
10	38.511A	9.091A	9.167A	2.521A	549.854	90.126%	2348	38.6	45.62°C	0.986
	12.013V	4.951V	3.241V	4.959V	610.094				52.80°C	230.40V
11	43.150A	9.109A	9.188A	2.526A	605.071	89.680%	2357	38.7	46.59°C	0.988
	12.001V	4.942V	3.233V	4.951V	674.703				54.88°C	230.40V
CL1	0.150A	12.001A	12.000A	0.000A	101.442	85.152%	1455	26.3	42.05°C	0.875
	12.093V	5.010V	3.292V	5.084V	119.131				46.53°C	230.38V

CL2	45.849A	1.003A	0.999A	1.000A	564.906	91.007%	2335	38.4	45.58°C	0.987
	12.032V	4.961V	3.258V	5.020V	620.728				52.50°C	230.41V

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	1.198A	0.498A	0.481A	0.195A	19.642	69.796%	790	13.1	0.842
	12.133V	5.037V	3.327V	5.119V	28.142				115.18V
2	2.454A	0.994A	0.994A	0.392A	40.089	81.160%	794	12.0	0.928
	12.135V	5.033V	3.324V	5.110V	49.395				115.18V
3	3.640A	1.492A	1.476A	0.588A	59.561	84.710%	798	11.2	0.956
	12.130V	5.031V	3.321V	5.101V	70.312				115.18V
4	4.896A	1.991A	1.990A	0.786A	79.976	86.956%	801	11.2	0.970
	12.125V	5.027V	3.317V	5.092V	91.973				115.18V

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	0.497A	0.479A	0.195A	19.589	71.657%	788	12.9	0.537
	12.138V	5.040V	3.328V	5.119V	27.337				230.37V
2	2.449A	0.994A	0.991A	0.392A	40.019	81.852%	790	13.1	0.674
	12.133V	5.037V	3.325V	5.110V	48.892				230.37V
3	3.636A	1.490A	1.476A	0.588A	59.503	85.721%	796	11.5	0.756
	12.129V	5.034V	3.321V	5.101V	69.415				230.37V
4	4.892A	1.988A	1.990A	0.786A	79.912	88.109%	798	11.2	0.820
	12.123V	5.031V	3.318V	5.092V	90.697				230.37V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	22.5 mV	6.3 mV	13.7 mV	9.1 mV	Pass
20% Load	28.1 mV	6.5 mV	14.6 mV	8.9 mV	Pass
30% Load	31.4 mV	7.7 mV	15.6 mV	10.1 mV	Pass
40% Load	33.2 mV	8.4 mV	16.9 mV	9.9 mV	Pass
50% Load	30.0 mV	9.1 mV	18.7 mV	10.8 mV	Pass
60% Load	28.3 mV	9.5 mV	22.4 mV	10.5 mV	Pass
70% Load	30.8 mV	10.1 mV	24.5 mV	11.1 mV	Pass
80% Load	34.5 mV	10.7 mV	27.2 mV	12.4 mV	Pass
90% Load	36.0 mV	11.4 mV	28.0 mV	12.8 mV	Pass
100% Load	56.7 mV	13.5 mV	29.9 mV	14.9 mV	Pass
110% Load	59.8 mV	14.5 mV	31.6 mV	14.8 mV	Pass
Crossload 1	34.3 mV	8.7 mV	22.2 mV	22.4 mV	Pass
Crossload 2	57.2 mV	12.0 mV	25.0 mV	14.7 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	24.6 mV	6.2 mV	13.1 mV	9.7 mV	Pass
20% Load	28.9 mV	6.5 mV	14.0 mV	9.6 mV	Pass
30% Load	31.5 mV	8.2 mV	16.2 mV	10.0 mV	Pass
40% Load	33.7 mV	8.6 mV	16.1 mV	9.9 mV	Pass
50% Load	28.8 mV	9.0 mV	18.6 mV	10.5 mV	Pass
60% Load	27.0 mV	8.6 mV	20.3 mV	10.9 mV	Pass
70% Load	28.6 mV	9.5 mV	22.3 mV	11.7 mV	Pass
80% Load	31.0 mV	10.5 mV	26.0 mV	12.1 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	34.6 mV	11.2 mV	26.4 mV	13.2 mV	Pass
100% Load	56.7 mV	13.3 mV	32.8 mV	14.1 mV	Pass
110% Load	60.1 mV	14.0 mV	34.1 mV	14.8 mV	Pass
Crossload 1	36.5 mV	8.2 mV	22.5 mV	22.9 mV	Pass
Crossload 2	58.3 mV	12.5 mV	25.9 mV	15.9 mV	Pass

The results above are not used in the certification process

Cooler Master MWE Gold 550

Top side

Power specifications label