Make It Yours.

Cooler Master MWE Bronze 450

MPE4501ACAAB1191400001

Lab ID CM19450054

Certification ID 25730

Test Result Report ID:

Certificate Issue Date: Jun 21, 2019

115V 230V

Scheme: ETA-EMI PSU



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 Bronze 450
OEM/ODM	Gospower
Serial Number	MPE4501ACAAB1191400001
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	8-4
□□□□ (Hz)	50-60

□□□□ (W)	450
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Rifle Bearing Fan (DF1202512SELN)
□□□□□	✓
Cybenetics Testing Information	
Lab ID	CM19450054
Date of receipt	Jul 5, 2019
Testing Date	Dec 6, 2019
Report Issued Date	Jun 21, 2019
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□				
□□	□□□□	□□□□□□	Gauge	In Cable Capacitors
ATX □□ 20+4 pin (610mm)	1	1	18-20AWG	□
4+4 pin EPS 12V □□ (630mm)	1	1	18AWG	□
6+2pin PCIe□□ (530mm+120mm)	1	2	18AWG	□
SATA□□ (520mm+120mm+120mm)	2	6	18-20AWG	□
4-pin Molex (510mm+120mm+120mm+120mm)	1	4	18-20AWG	□
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	20	20	37.5	3	0.3
	□	120		450	15	3.6
□□□□□ (W)		450				

Parts Description

General Data	
Manufacturer (OEM)	Gospower
PCB Type	Single Sided
Primary Side	
Transient Filter	3x Y caps, 2x X caps, 2x CM chokes
Inrush Protection	NTC Thermistor
Bridge Rectifier(s)	1x GBU808 (800V, 8A @ 100°C)
APFC MOSFETS	1x Sanrise Tech SRC60R140B (630V, 11.2A @ 125°C, 0.140Ohm)
APFC Boost Diode	1x Jilin Sino Microelectronics 15F60UHF (600V, 15A @ 100°C)
Hold-up Cap(s)	1x Elite (420V, 330uF, 2000h @ 85°C, GM)
Main Switchers	2x Jilin Sino Microelectronics JCS13N50FC (500V, 8A @ 100°C, 0.49Ohm)
APFC Controller	Champion CM6500UNX
Resonant Controllers	Champion CU6901V
Topology	Primary side: Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x Nce Power NCE4080 (40V, 56A @ 100°C, 6.5mOhm)
5V & 3.3V	DC-DC Converters: 4x IPS FTD05N03NA (30V, 75A @ 100°C, 6mOhm) PWM Controllers: ANPEC APW7159C
Filtering Capacitors	Electrolytics: 7x Elite (2-5,000h @ 105°C, ED), 4x Elite (2,000h @ 105°C, EL), 2x CapXon (2-5,000h @ 105°C, KF), 1x CapXon (3-10,000h @ 105°C, GH), 1x Rubycon (4-10,000 @ 105°C, YXJ) Polymers: CapXon
Supervisor IC	IN1S313I-SAG
Fan Model	Thermal Control DF1202512SELN (120mm, 12V, 0.25A, Rifle Bearing Fan)
5VSB Circuit	

Rectifier	-
Standby PWM Controller	On-Bright OB2365SP

Test Results

Temperature & Compliance Info

□□□□ (°C /°F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	✓
□□ (EU) No 617/2013□□	✓

Performance Summary

115V

Accredited	
□□□□ (>1450 load combinations)	84.602%
Average Noise Output (>1450 Load Combinations)	27.85dBA
PF□□□ (>1450 Load Combinations)	0.974
Efficiency With 10W (≤500W) or 2% (>500W) Load	71.924%
□□□□□□	0.0743W
Non-Accredited	
12V Ripple (Full Load)	45.42mV
5V Ripple (Full Load)	23.01mV
3.3V Ripple (Full Load)	30.24mV
5VSB Ripple (Full Load)	26.42mV
12V Load Regulation	1.29%
5V Load Regulation	2.91%
3.3V Load Regulation	2.94%
5VSB Load Regulation	3.91%
Inrush Current	60.395A

230V

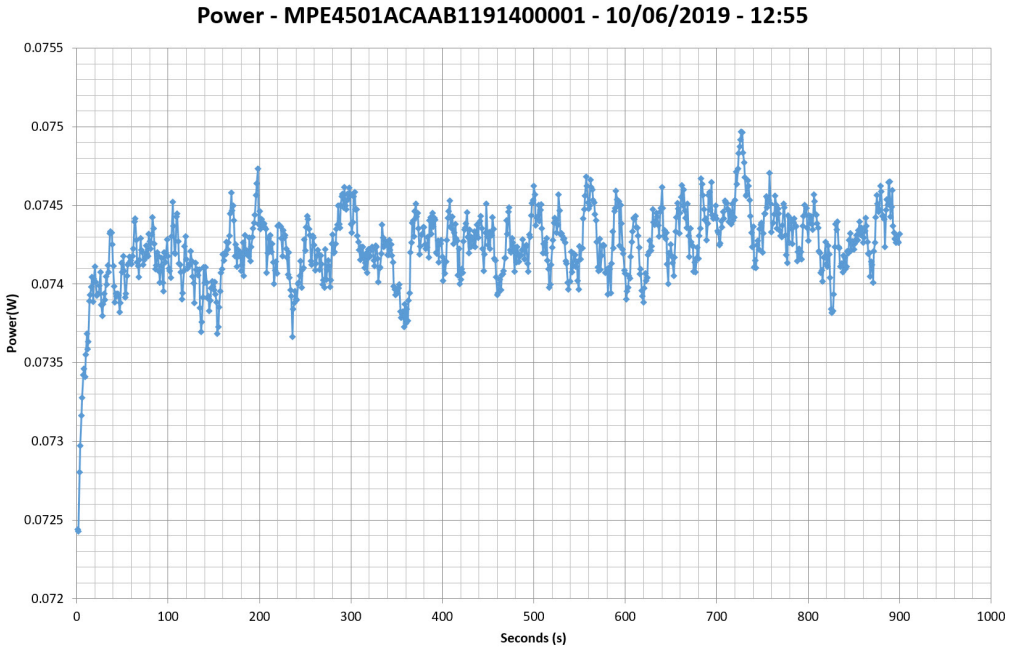
Accredited		
□□□□ (>1450 load combinations)		87.142%
Average Noise Output (>1450 Load Combinations)		27.32dBA
PF□□□ (>1450 Load Combinations)		0.892
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.1865W
Non-Accredited		
12V Ripple (Full Load)		44.34mV
5V Ripple (Full Load)		23.05mV
3.3V Ripple (Full Load)		30.02mV
5VSB Ripple (Full Load)		25.61mV
12V Load Regulation		1.32%
5V Load Regulation		2.85%
3.3V Load Regulation		2.85%
5VSB Load Regulation		3.80%
Inrush Current		59.320A
□□□□ & PG□□		17.50ms
AC Loss to PWR_OK Hold Up Time		15.80ms
PWR_OK Inactive to DC Loss Delay		1.70ms
OPP (0.00°C / 0.00°C)	-	-

□□□□ & PG□□

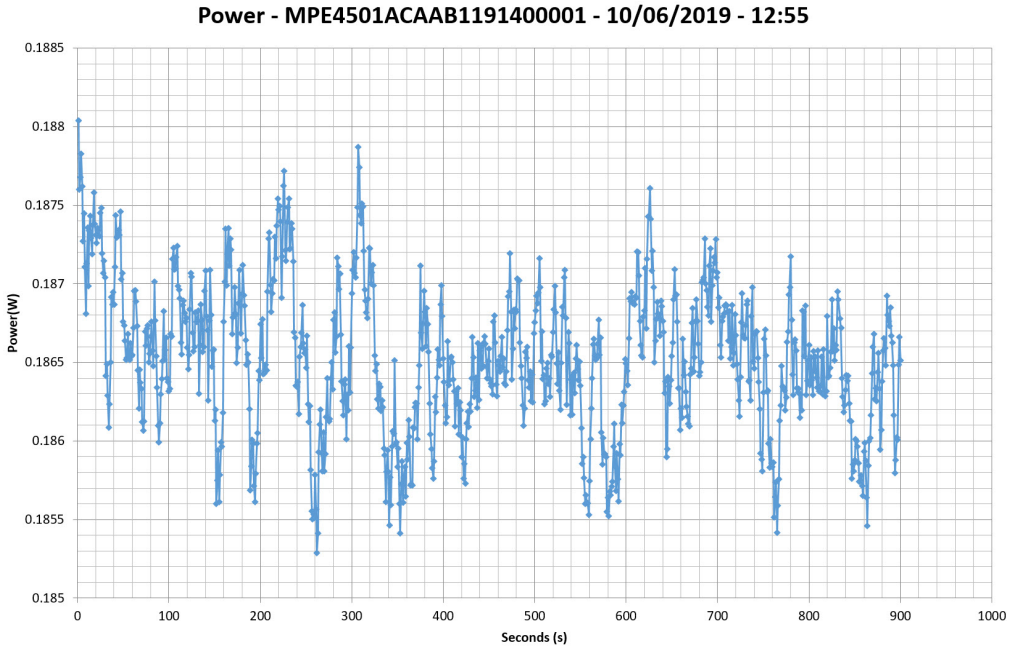
Hold-Up Time (ms)	17.5
AC Loss to PWR_OK Hold Up Time (ms)	15.8
PWR_OK Inactive to DC Loss Delay (ms)	1.7

Graphs

115V



230V



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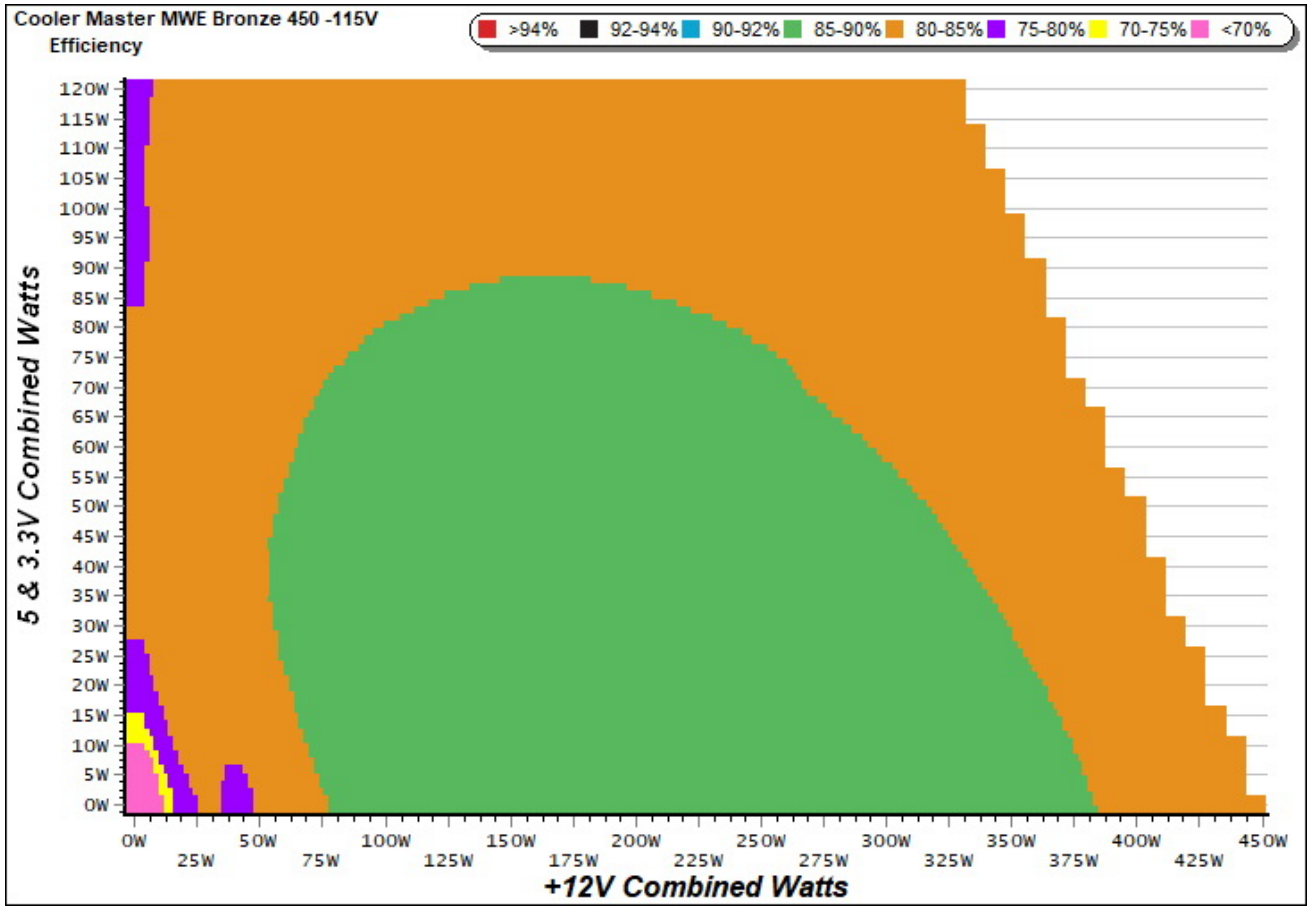
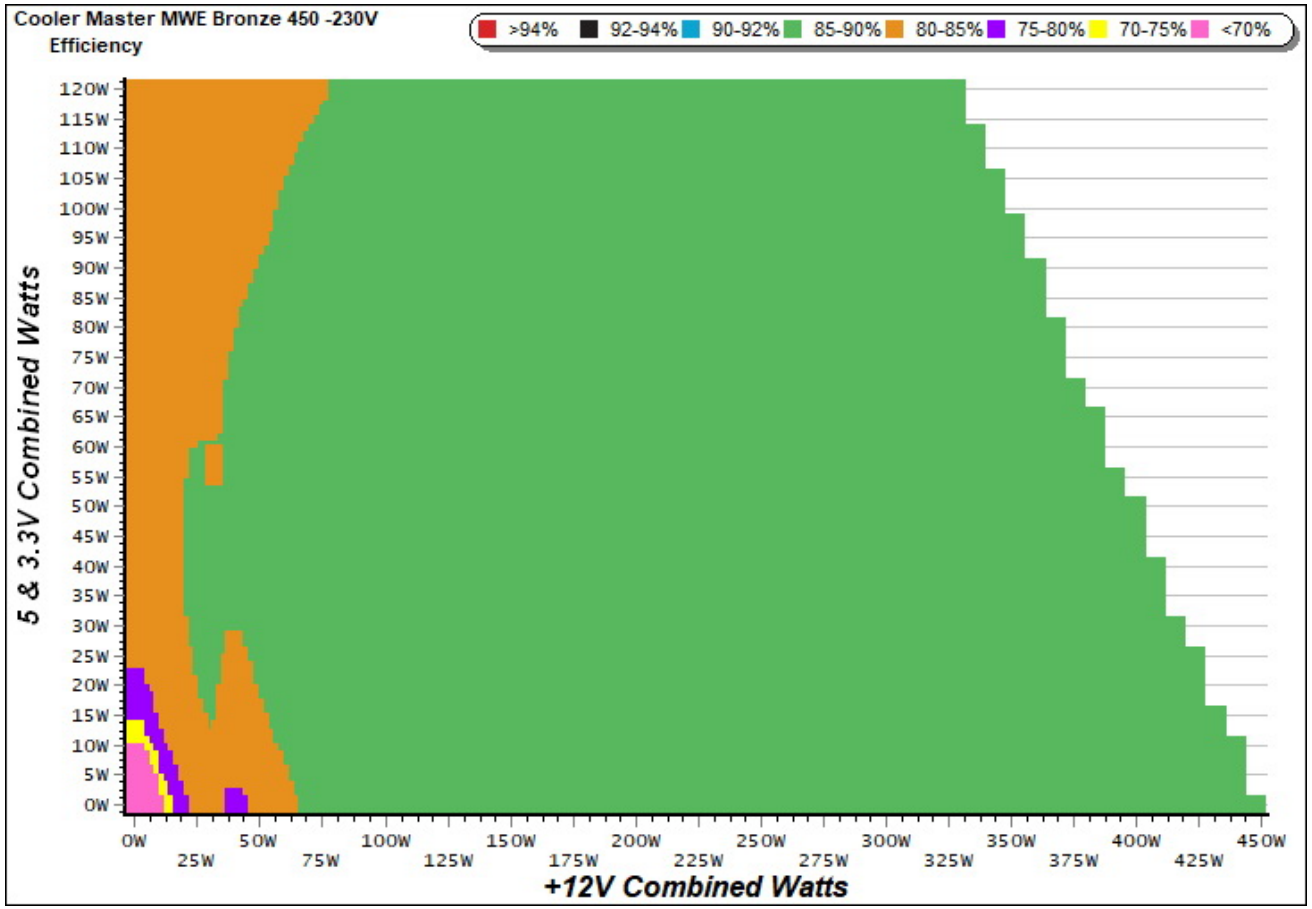
115V



□□

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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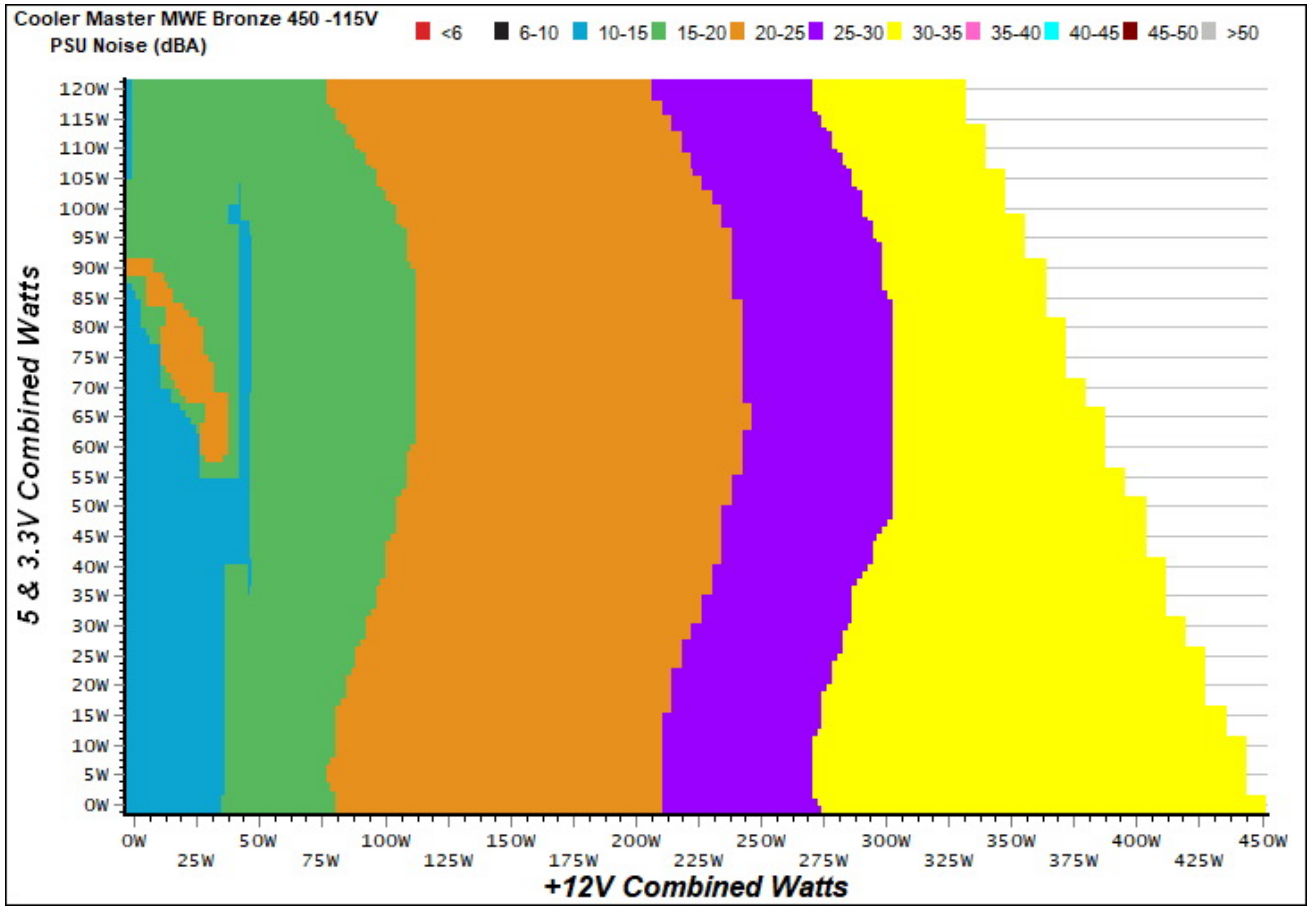
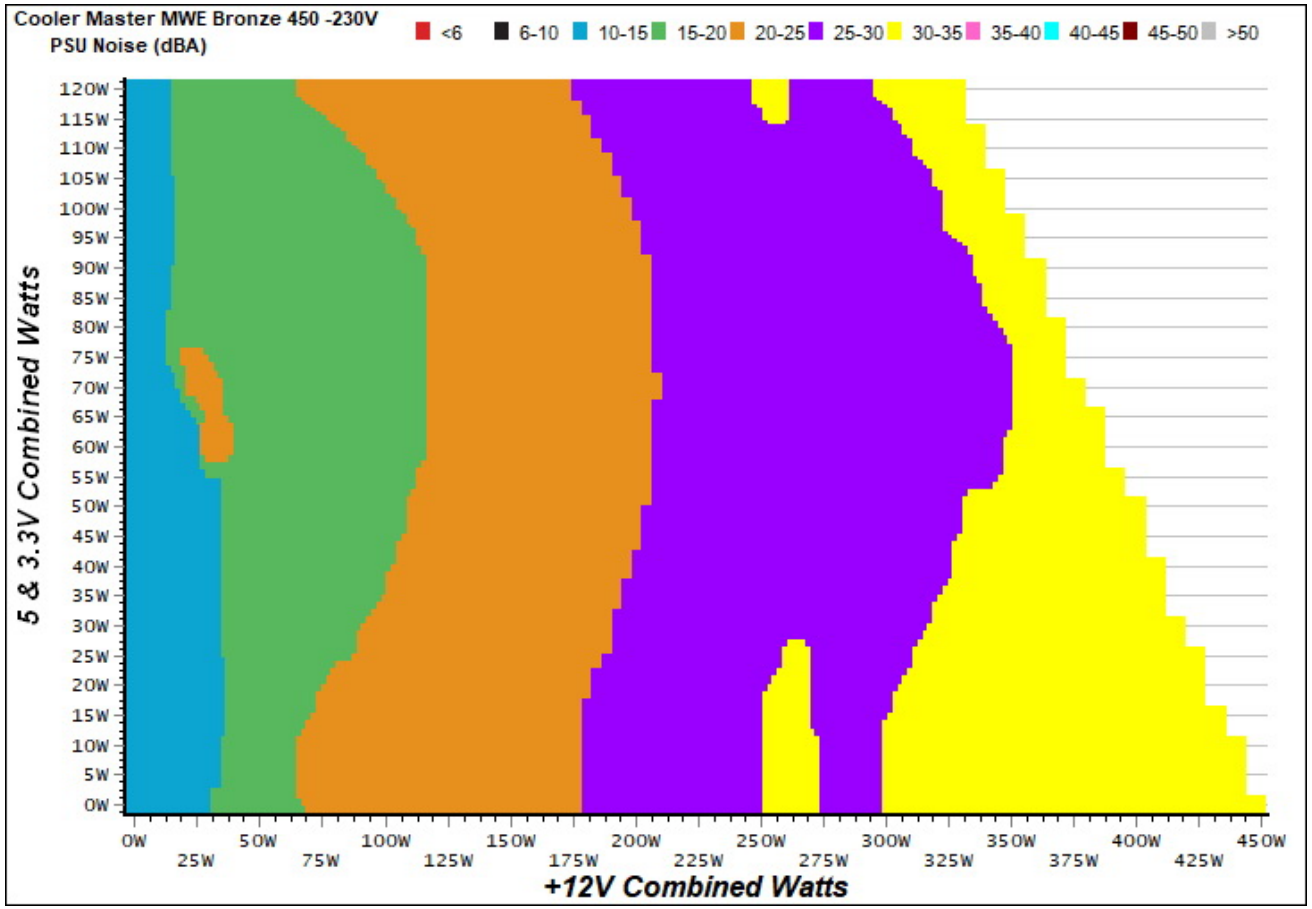
115V



□□

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



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.

Noise under high ambient temperature (indicative)

115V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
20%	870 RPM · 18.5 dB(A) · 36.0 °C	870 RPM · 18.5 dB(A) · 36.0 °C	**+0.0 dB(A)**
50%	1141 RPM · 27.4 dB(A) · 37.4 °C	1141 RPM · 27.4 dB(A) · 37.4 °C	**+0.0 dB(A)**
100%	1481 RPM · 33.1 dB(A) · 39.9 °C	1481 RPM · 33.1 dB(A) · 39.9 °C	**+0.0 dB(A)**

230V

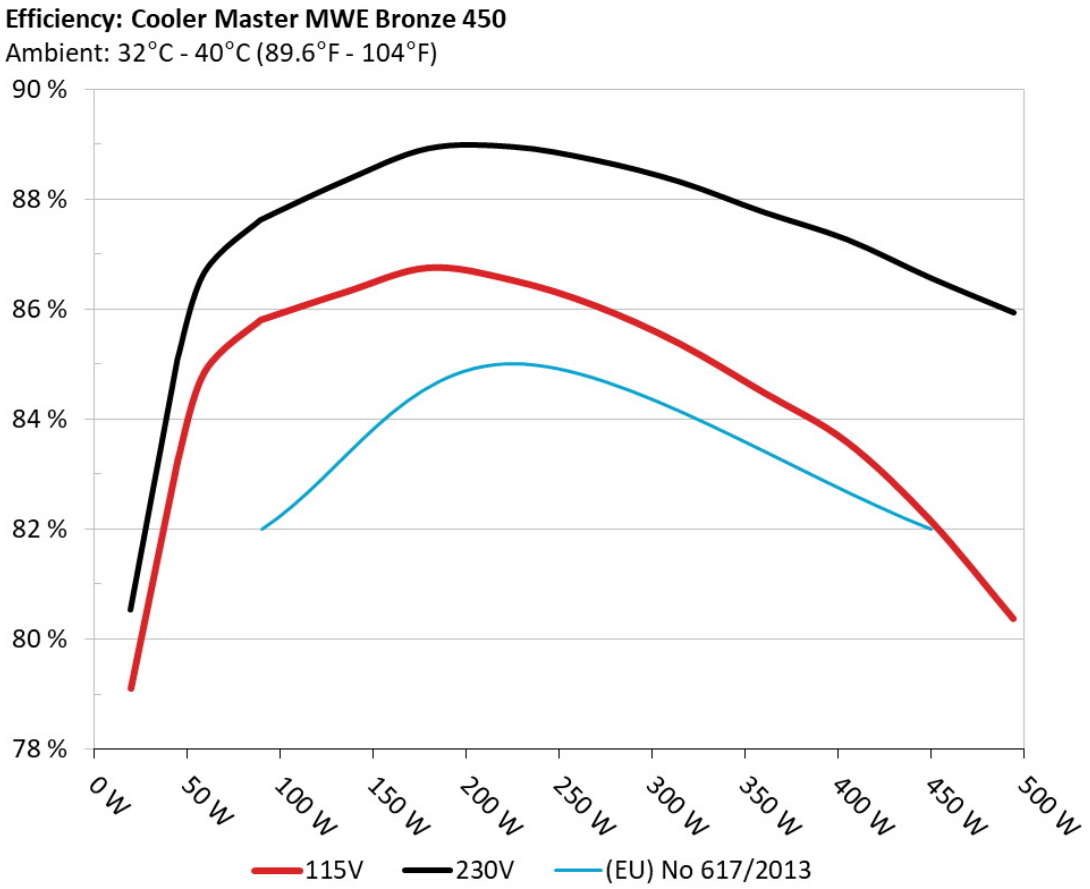
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
20%	832 RPM · 17.7 dB(A) · 35.6 °C	832 RPM · 17.7 dB(A) · 35.6 °C	**+0.0 dB(A)**
50%	1137 RPM · 26.9 dB(A) · 37.5 °C	1137 RPM · 26.9 dB(A) · 37.5 °C	**+0.0 dB(A)**
100%	1476 RPM · 33.1 dB(A) · 39.7 °C	1476 RPM · 33.1 dB(A) · 39.7 °C	**+0.0 dB(A)**

INFO

Fan speed, noise and the measured intake temperature at 10, 20, 50 and 100 % load, from the two load regulation tests: at normal ambient (about 30-32 °C) and at high ambient (about 40-47 °C). These are stabilized readings at fixed loads, not averages over the certification sweep, so they are indicative of how the fan behaves when it is hot. "<6.0" is the floor of our sound meter, with the fan stopped; with the fan stopped, the intake sensor can read higher than the chamber air.

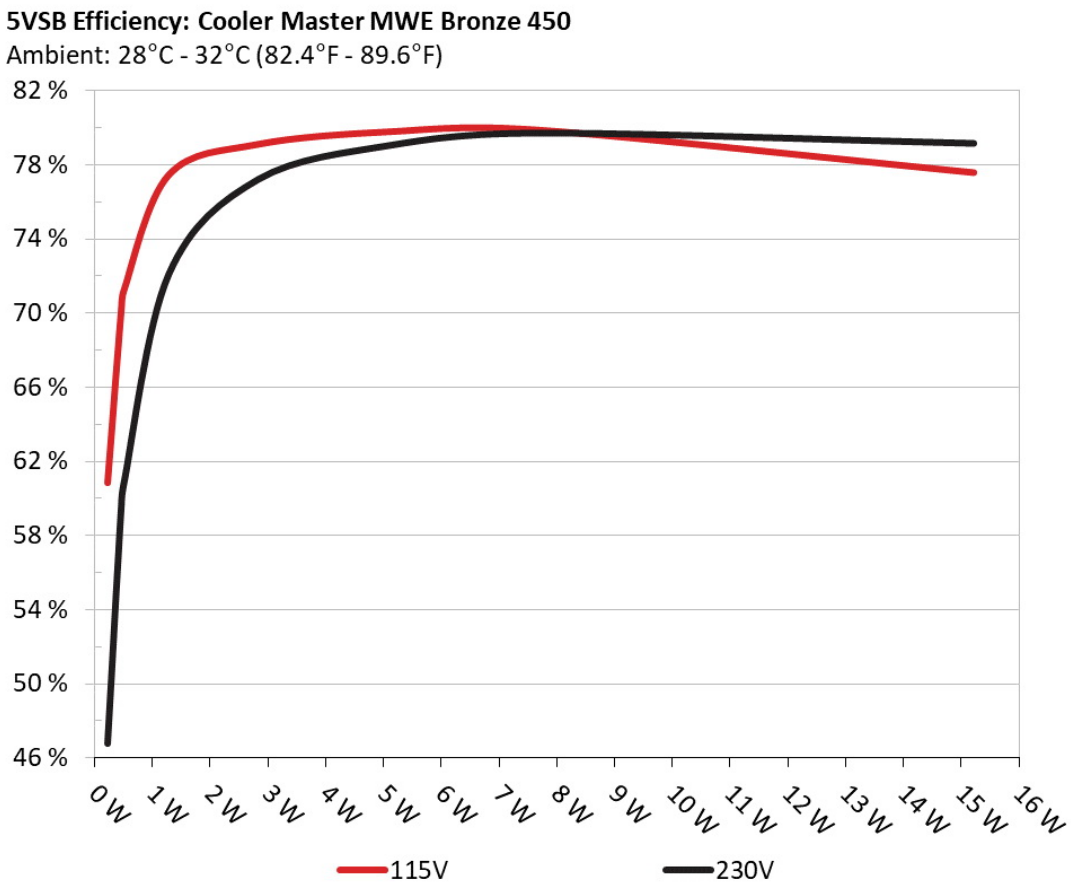
Informational. Not part of the ETA or LAMBDA rating.

Indicative Performance



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□□□□



□□

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

□□□□ □□ 5Vsb □□ (ErP Lot3/6 & CEC)

115V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.233	60.836%	0.025
	5.172V	0.383		115.13V
2	0.090A	0.466	70.075%	0.043
	5.171V	0.665		115.12V
3	0.550A	2.836	79.107%	0.197
	5.155V	3.585		115.13V
4	1.000A	5.142	79.795%	0.288
	5.140V	6.444		115.12V
5	1.500A	7.686	79.879%	0.347
	5.123V	9.622		115.12V
6	3.000A	15.217	77.582%	0.427
	5.072V	19.614		115.12V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.233	46.787%	0.010
	5.173V	0.498		230.30V
2	0.090A	0.466	59.439%	0.015
	5.171V	0.784		230.30V
3	0.550A	2.837	77.197%	0.069
	5.156V	3.675		230.30V
4	1.000A	5.142	79.047%	0.118
	5.141V	6.505		230.30V
5	1.500A	7.687	79.699%	0.164
	5.124V	9.645		230.30V
6	3.000A	15.218	79.141%	0.264
	5.072V	19.229		230.30V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	1.927A	2.014A	1.983A	0.976A	44.892	83.235%	0	<6.0	40.71°C	0.900
	12.084V	4.968V	3.327V	5.127V	53.934				35.00°C	115.13V
2	4.839A	3.031A	2.985A	1.175A	89.409	84.754%	870	18.5	35.99°C	0.958
	12.089V	4.951V	3.316V	5.110V	105.492				42.21°C	115.12V
3	8.167A	3.545A	3.477A	1.375A	134.501	86.311%	904	21.2	36.46°C	0.974
	12.060V	4.939V	3.306V	5.094V	155.833				43.38°C	115.12V
4	11.504A	4.062A	4.002A	1.576A	179.727	86.760%	987	23.1	36.65°C	0.972
	12.041V	4.926V	3.297V	5.078V	207.154				44.16°C	115.12V
5	14.517A	5.093A	5.021A	1.779A	225.026	86.532%	1141	27.4	37.35°C	0.977
	12.022V	4.909V	3.286V	5.060V	260.050				45.33°C	115.12V
6	17.472A	6.134A	6.046A	1.984A	269.545	86.070%	1292	29.0	37.93°C	0.981
	12.004V	4.892V	3.275V	5.042V	313.170				46.84°C	115.12V
7	20.503A	7.181A	7.078A	2.190A	314.851	85.381%	1473	33.0	38.40°C	0.984
	11.986V	4.875V	3.263V	5.023V	368.761				48.00°C	115.12V
8	23.543A	8.236A	8.117A	2.398A	360.171	84.492%	1480	33.1	38.64°C	0.986
	11.968V	4.858V	3.252V	5.005V	426.279				48.69°C	115.13V
9	26.992A	8.774A	8.633A	2.404A	405.067	83.590%	1481	33.1	39.34°C	0.988
	11.950V	4.845V	3.243V	4.994V	484.585				49.74°C	115.13V
10	30.182A	9.315A	9.187A	3.024A	449.876	82.170%	1481	33.1	39.93°C	0.989
	11.933V	4.832V	3.233V	4.961V	547.497				50.93°C	115.13V
11	33.991A	9.332A	9.209A	3.030A	494.681	80.377%	1480	33.1	40.05°C	0.990
	11.914V	4.823V	3.225V	4.952V	615.448				51.56°C	115.15V
CL1	0.142A	14.002A	14.000A	0.000A	115.472	79.624%	1408	32.1	37.64°C	0.972
	12.060V	4.853V	3.272V	5.110V	145.022				45.98°C	115.13V

CL2	37.512A	1.003A	0.998A	1.000A	461.016	83.187%	1482	33.1	39.69°C	0.990
	11.937V	4.906V	3.266V	5.056V	554.190				50.66°C	115.13V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	1.928A	2.013A	1.984A	0.976A	44.906	84.717%	0	<6.0	41.00°C	0.576
	12.086V	4.968V	3.327V	5.126V	53.007				34.86°C	230.32V
2	4.839A	3.030A	2.986A	1.175A	89.404	86.442%	832	17.7	35.64°C	0.762
	12.089V	4.951V	3.316V	5.109V	103.427				42.15°C	230.32V
3	8.167A	3.543A	3.478A	1.375A	134.492	88.326%	874	18.9	36.01°C	0.845
	12.060V	4.938V	3.306V	5.094V	152.268				43.25°C	230.31V
4	11.503A	4.062A	4.002A	1.576A	179.714	88.917%	1034	24.2	36.75°C	0.888
	12.041V	4.926V	3.297V	5.078V	202.114				44.37°C	230.31V
5	14.515A	5.093A	5.021A	1.779A	225.002	88.948%	1137	26.9	37.50°C	0.913
	12.022V	4.909V	3.286V	5.060V	252.958				45.83°C	230.31V
6	17.472A	6.134A	6.044A	1.984A	269.521	88.705%	1272	29.1	37.84°C	0.929
	12.003V	4.892V	3.275V	5.042V	303.840				46.49°C	230.32V
7	20.503A	7.181A	7.077A	2.190A	314.831	88.314%	1428	32.5	38.09°C	0.940
	11.985V	4.875V	3.263V	5.024V	356.492				47.10°C	230.32V
8	23.544A	8.236A	8.119A	2.398A	360.144	87.761%	1480	33.1	38.92°C	0.948
	11.966V	4.858V	3.252V	5.005V	410.370				48.85°C	230.33V
9	26.996A	8.773A	8.633A	2.403A	405.051	87.263%	1475	33.1	39.37°C	0.955
	11.948V	4.845V	3.243V	4.994V	464.174				49.78°C	230.32V
10	30.188A	9.315A	9.186A	3.024A	449.856	86.568%	1476	33.1	39.71°C	0.959
	11.930V	4.832V	3.233V	4.962V	519.655				50.48°C	230.32V
11	33.995A	9.332A	9.209A	3.030A	494.664	85.936%	1476	33.1	40.39°C	0.962
	11.912V	4.823V	3.225V	4.953V	575.620				52.10°C	230.32V
CL1	0.144A	14.002A	13.999A	0.000A	115.478	81.503%	1449	32.9	37.81°C	0.832
	12.057V	4.852V	3.272V	5.109V	141.686				45.70°C	230.31V

CL2	37.514A	1.002A	0.999A	1.000A	460.927	87.572%	1475	33.1	39.95°C	0.959
	11.934V	4.906V	3.266V	5.056V	526.339				50.48°C	230.32V

The results above are not used in the certification process

20-80□□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.201A	0.501A	0.479A	0.194A	19.588	79.108%	0	<6.0	0.750
	12.066V	4.985V	3.336V	5.163V	24.761				115.13V
2	2.460A	1.005A	0.988A	0.388A	40.005	83.276%	0	<6.0	0.884
	12.079V	4.977V	3.331V	5.151V	48.039				115.13V
3	3.652A	1.510A	1.472A	0.584A	59.489	84.881%	0	<6.0	0.929
	12.072V	4.970V	3.326V	5.140V	70.085				115.13V
4	4.917A	2.016A	1.984A	0.780A	79.881	85.811%	0	<6.0	0.956
	12.058V	4.962V	3.321V	5.128V	93.090				115.12V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.203A	0.502A	0.479A	0.194A	19.627	80.544%	0	<6.0	0.353
	12.074V	4.986V	3.337V	5.162V	24.368				230.32V
2	2.462A	1.005A	0.990A	0.389A	40.055	85.100%	0	<6.0	0.540
	12.084V	4.978V	3.331V	5.150V	47.068				230.32V
3	3.654A	1.511A	1.472A	0.584A	59.526	86.674%	0	<6.0	0.654
	12.074V	4.970V	3.326V	5.139V	68.678				230.32V
4	4.919A	2.015A	1.986A	0.780A	79.906	87.620%	0	<6.0	0.732
	12.058V	4.962V	3.321V	5.127V	91.196				230.32V

The results above are not used in the certification process

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	81.2 mV	18.2 mV	15.2 mV	18.6 mV	Pass
20% Load	38.5 mV	16.0 mV	17.4 mV	18.9 mV	Pass
30% Load	34.1 mV	16.7 mV	19.2 mV	20.2 mV	Pass
40% Load	32.4 mV	17.1 mV	18.3 mV	20.0 mV	Pass
50% Load	30.7 mV	16.7 mV	19.9 mV	19.6 mV	Pass
60% Load	32.0 mV	17.7 mV	20.6 mV	19.9 mV	Pass
70% Load	39.3 mV	18.0 mV	23.6 mV	20.0 mV	Pass
80% Load	32.6 mV	20.6 mV	26.8 mV	21.1 mV	Pass
90% Load	33.2 mV	20.9 mV	28.2 mV	23.2 mV	Pass
100% Load	45.4 mV	23.0 mV	30.2 mV	26.4 mV	Pass
110% Load	45.3 mV	22.4 mV	29.3 mV	25.6 mV	Pass
Crossload 1	41.9 mV	26.9 mV	34.9 mV	20.1 mV	Pass
Crossload 2	44.5 mV	17.6 mV	15.6 mV	23.2 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	75.1 mV	16.9 mV	15.4 mV	18.9 mV	Pass
20% Load	41.2 mV	15.7 mV	16.8 mV	19.2 mV	Pass
30% Load	35.9 mV	17.2 mV	17.0 mV	18.5 mV	Pass
40% Load	33.9 mV	17.1 mV	18.3 mV	19.4 mV	Pass
50% Load	32.0 mV	16.9 mV	18.0 mV	18.7 mV	Pass
60% Load	32.1 mV	17.6 mV	20.4 mV	19.3 mV	Pass
70% Load	37.6 mV	18.8 mV	23.1 mV	21.5 mV	Pass
80% Load	31.7 mV	20.1 mV	27.5 mV	21.2 mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	31.3 mV	20.5 mV	28.0 mV	20.8 mV	Pass
100% Load	44.3 mV	23.1 mV	30.0 mV	25.6 mV	Pass
110% Load	45.5 mV	22.1 mV	29.8 mV	24.2 mV	Pass
Crossload 1	41.3 mV	26.5 mV	35.1 mV	19.5 mV	Pass
Crossload 2	44.7 mV	17.4 mV	15.8 mV	22.4 mV	Pass

The results above are not used in the certification process

Cooler Master MWE Bronze 450

Top side

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由 Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

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