Make It Yours.

Cooler Master MWE Bronze 600

Serial Number MPE6001ACAAB1191400001

Lab ID CM19600051

Certification ID 25727

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 600
OEM/ODM	Gospower
Serial Number	MPE6001ACAAB1191400001
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60

Rated Power (W)	600
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	CM19600051
Date of receipt	Jul 5, 2019
Testing Date	Jun 6, 2019
Report Issued Date	Jun 21, 2019
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Captive Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (610mm)	1	1	18-20AWG	No
8 pin EPS12V (630mm) / 4+4 pin EPS12V (120mm)	1	1 / 1	18AWG	No
6+2 pin PCIe (530mm+120mm)	1	2	18AWG	No
SATA (520mm+120mm+120mm)	2	6	18AWG	No
4-pin Molex (500mm+120mm+120mm+120mm)	1	4	18AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	50	3	0.3
	Watts	120		600	15	3.6
Total Max. Power (W)		600				

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 & Relay
Bridge Rectifier(s)	1x GBU1508 (800V, 15A @ 100°C)
APFC MOSFETS	2x Sanrise Tech SRC60R200 (630V, 7.1A @ 125°C, 0.2Ohm)
APFC Boost Diode	1x Jilin Sino Microelectronics 15F60UHF (600V, 15A @ 100°C)
Hold-up Cap(s)	1x Elite (420V, 560uF, 2000h @ 85°C, GM)
Main Switchers	2x Jilin Sino Microelectronics JCS18N50FH (500V, 11A @ 100°C, 0.27Ohm)
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: 5x Elite (2-5,000h @ 105°C, ED), 4x Elite (2,000h @ 105°C, EL), 1x CapXon (2-5,000h @ 105°C, KF), 1x CapXon (3-10,000h @ 105°C, GH) Polymers: CapXon
Supervisor IC	IN1S313I-SAG
Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, Fluid Dynamic Bearing Fan)
5VSB Circuit	

Rectifier	-
Standby PWM Controller	On-Bright OB2365SP

Test Results

Temperature & Compliance Info

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

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	85.801%
Average Noise Output (>1450 Load Combinations)	38.02dBA
Average PF (>1450 Load Combinations)	0.975
Efficiency With 10W (≤500W) or 2% (>500W) Load	72.047%
Standby Power Consumption	0.0734W
Non-Accredited	
12V Ripple (Full Load)	36.60mV
5V Ripple (Full Load)	21.85mV
3.3V Ripple (Full Load)	18.98mV
5VSB Ripple (Full Load)	41.53mV
12V Load Regulation	1.46%
5V Load Regulation	2.25%
3.3V Load Regulation	2.65%
5VSB Load Regulation	3.04%
Inrush Current	67.882A

230V		
Accredited		
Average Efficiency (>1450 load combinations)	88.099%	
Average Noise Output (>1450 Load Combinations)	37.76dBA	
Average PF (>1450 Load Combinations)	0.902	
Efficiency With 10W (≤500W) or 2% (>500W) Load	-	
Standby Power Consumption	0.1835W	
Non-Accredited		
12V Ripple (Full Load)	37.03mV	
5V Ripple (Full Load)	21.68mV	
3.3V Ripple (Full Load)	18.88mV	
5VSB Ripple (Full Load)	41.27mV	
12V Load Regulation	1.27%	
5V Load Regulation	2.19%	
3.3V Load Regulation	2.60%	
5VSB Load Regulation	3.01%	
Inrush Current	84.095A	
Hold-Up Time & PWR_OK Signal	21.40ms	
AC Loss to PWR_OK Hold Up Time	19.60ms	
PWR_OK Inactive to DC Loss Delay	1.80ms	
OPP (0.00°C / 0.00°C)	-	-

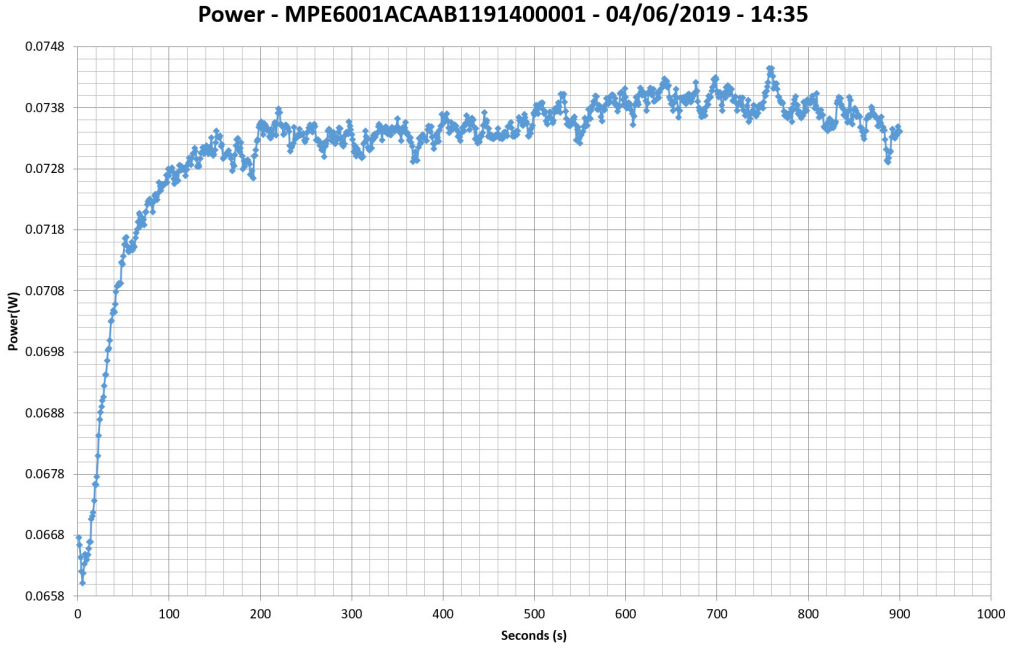
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	21.40
AC Loss to PWR_OK Hold Up Time (ms)	19.60
PWR_OK Inactive to DC Loss Delay (ms)	1.80

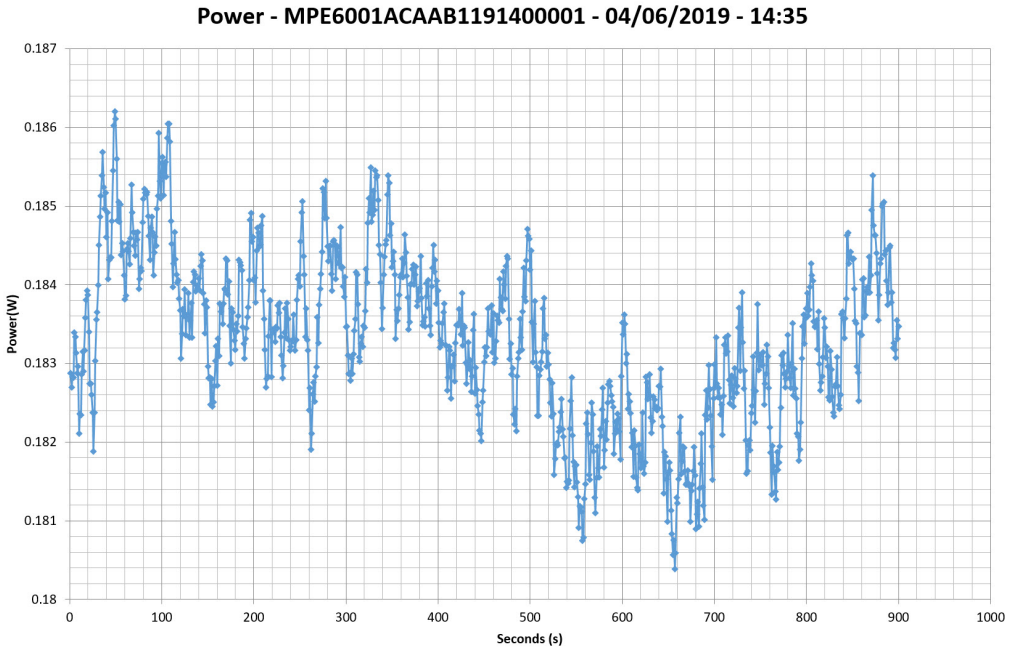
Vampire Power

Graphs

115V

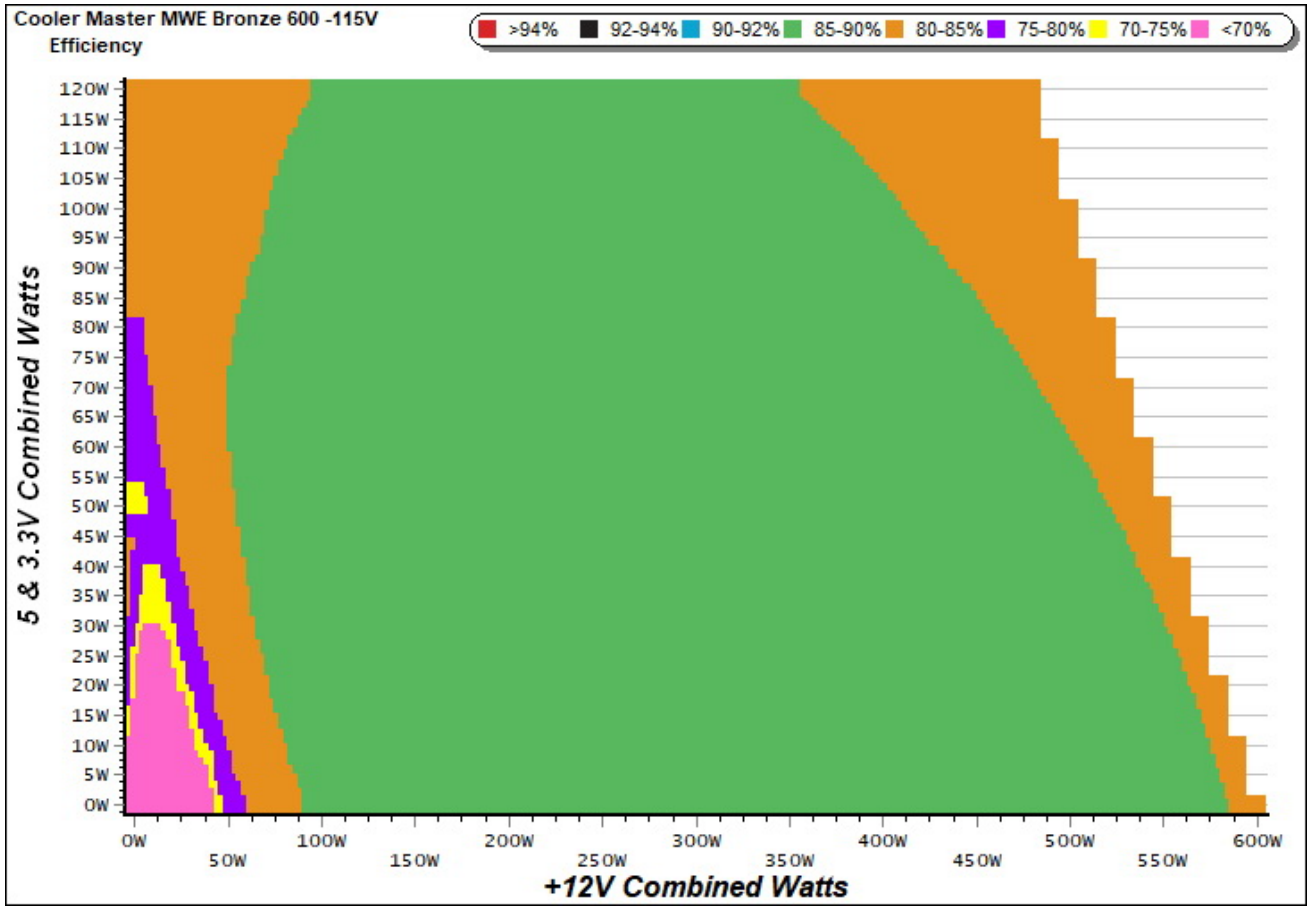


230V



Efficiency Graph

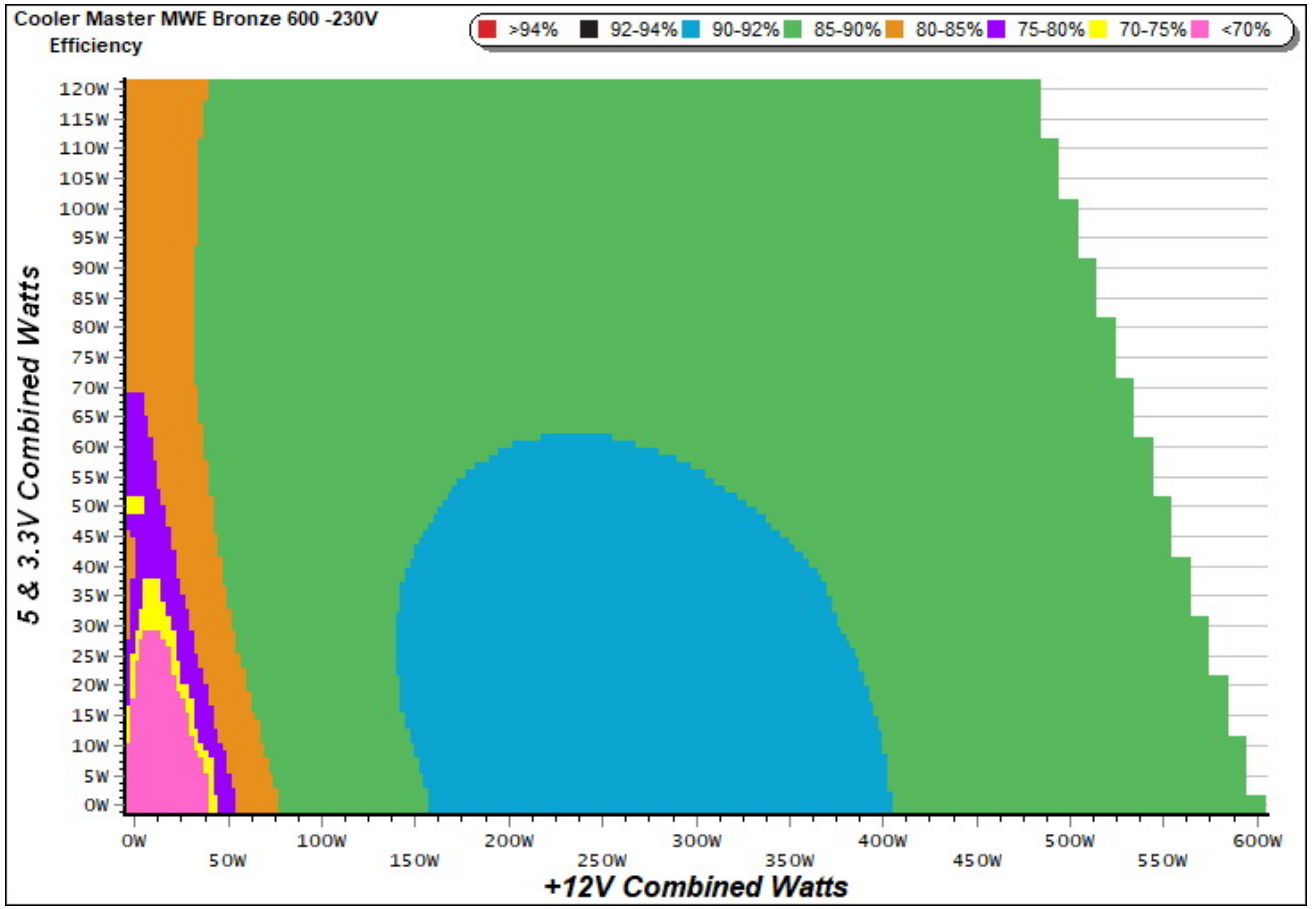
115V



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



INFO

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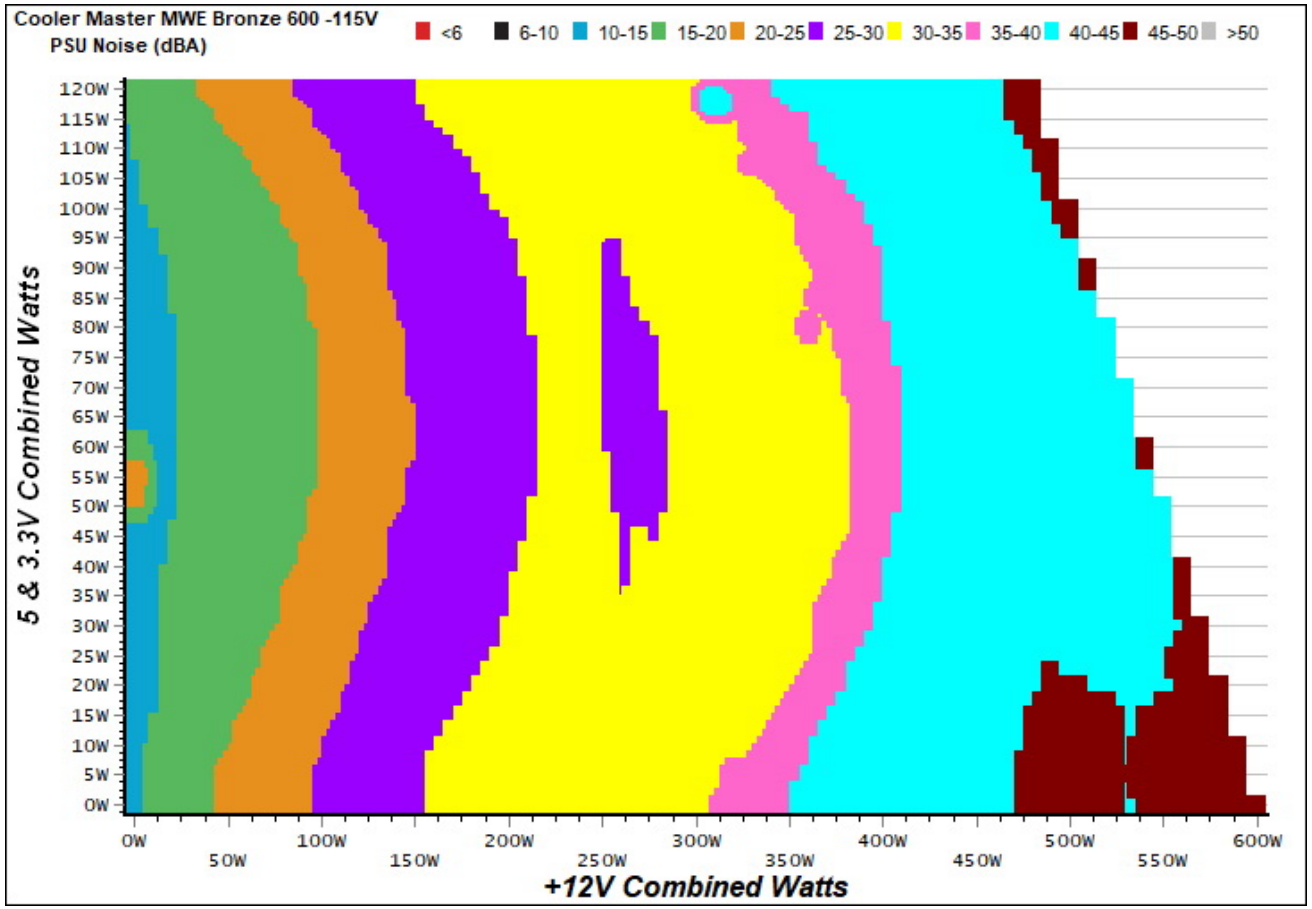
Noise Graph

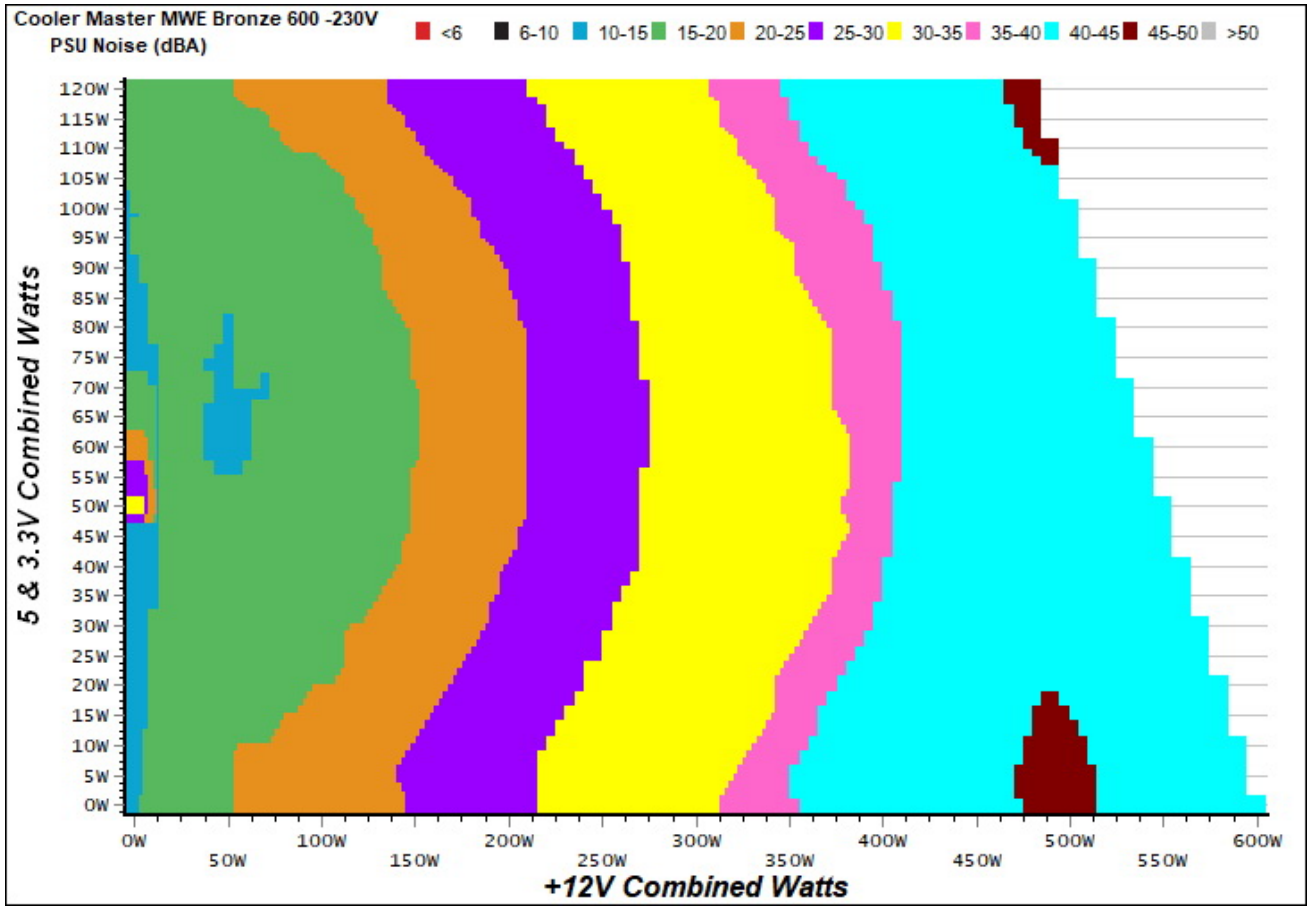
115V



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

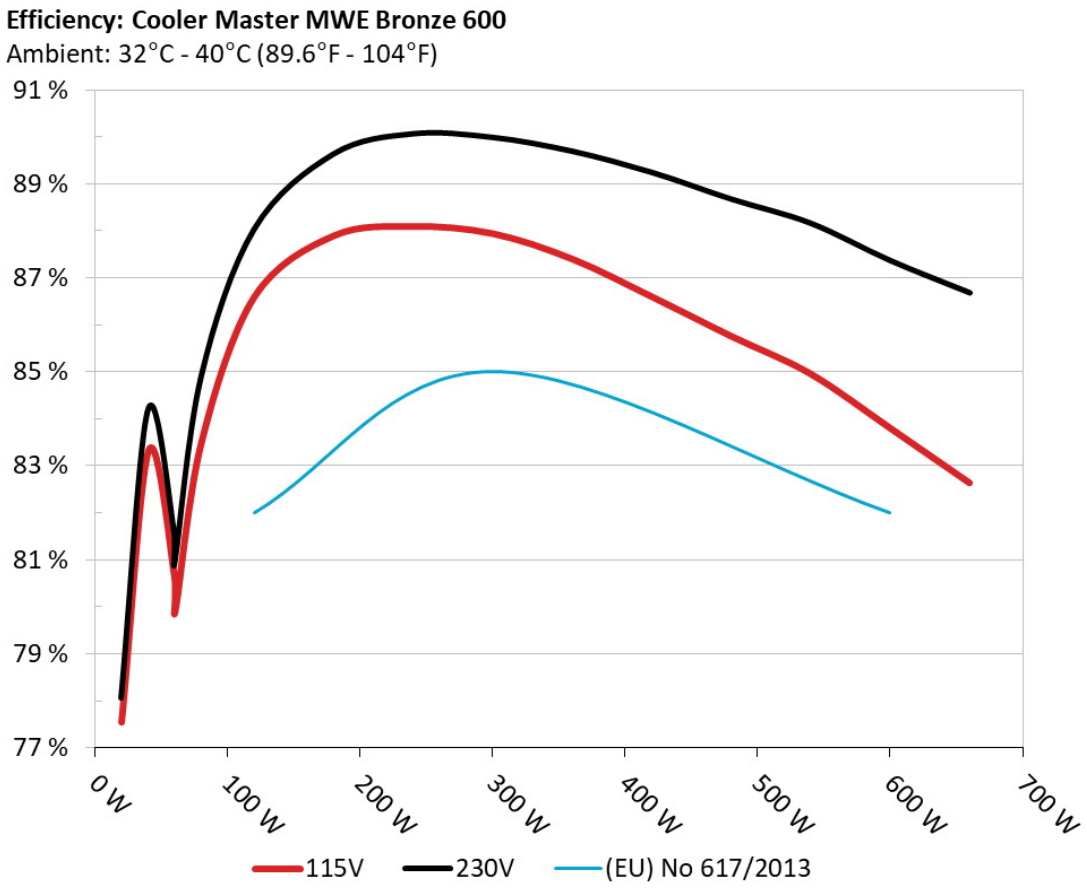


INFO

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

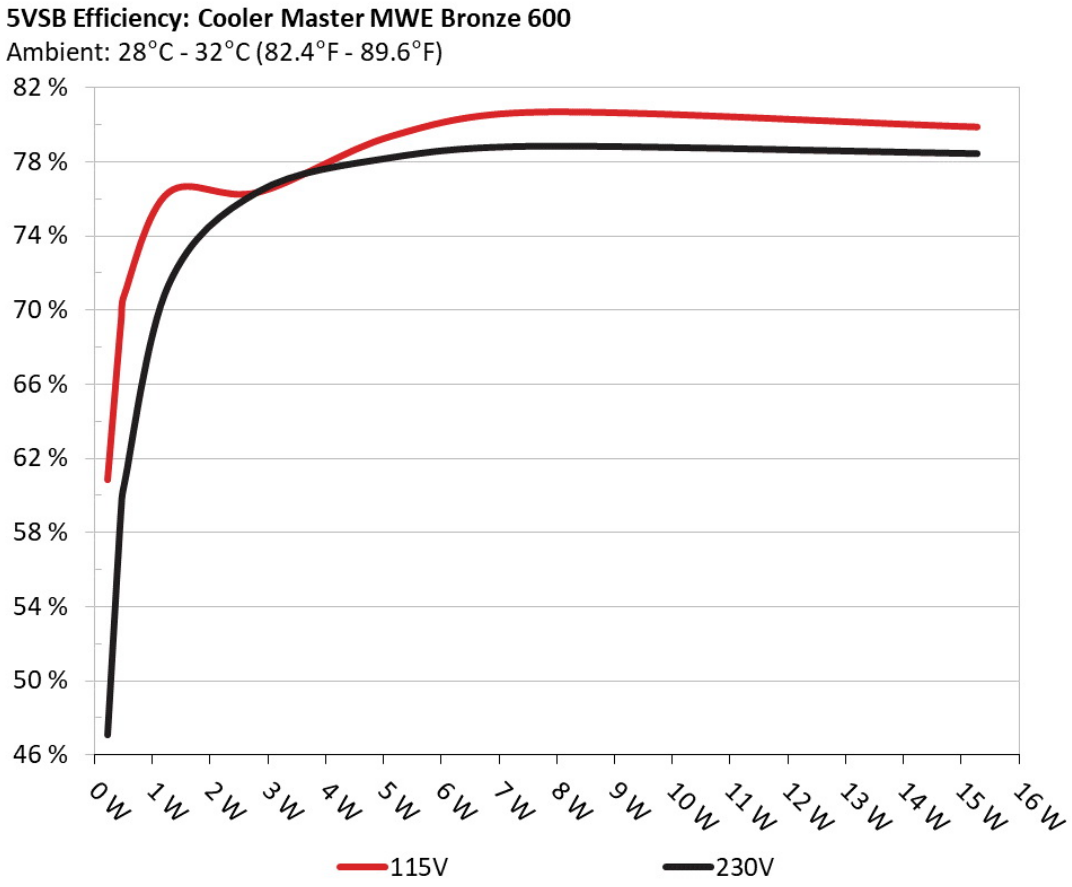
Efficiency under high ambient temperature



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	0.233	60.836%	0.025
	5.165V	0.383		115.11V
2	0.090A	0.465	69.403%	0.044
	5.164V	0.670		115.11V
3	0.550A	2.835	78.121%	0.208
	5.153V	3.629		115.11V
4	1.000A	5.142	78.780%	0.312
	5.142V	6.527		115.11V
5	1.500A	7.695	78.923%	0.378
	5.129V	9.750		115.11V
6	3.001A	15.276	76.799%	0.454
	5.091V	19.891		115.11V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.233	47.071%	0.010
	5.165V	0.495		230.24V
2	0.090A	0.465	59.236%	0.015
	5.164V	0.785		230.24V
3	0.550A	2.835	76.395%	0.070
	5.152V	3.711		230.24V
4	1.000A	5.142	78.241%	0.120
	5.141V	6.572		230.24V
5	1.500A	7.694	78.856%	0.170
	5.129V	9.757		230.24V
6	3.001A	15.276	78.455%	0.277
	5.091V	19.471		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	3.164A	2.017A	1.971A	0.975A	60.175	79.914%	981	20.3	34.15°C	0.936
	12.190V	4.961V	3.348V	5.130V	75.300				39.97°C	115.13V
2	7.304A	3.032A	2.964A	1.173A	119.834	86.597%	967	20.0	34.52°C	0.964
	12.176V	4.949V	3.338V	5.117V	138.381				40.81°C	115.12V
3	11.832A	3.543A	3.453A	1.372A	179.708	87.902%	1171	25.7	35.02°C	0.963
	12.145V	4.940V	3.331V	5.105V	204.442				41.71°C	115.12V
4	16.365A	4.058A	3.972A	1.572A	239.727	88.104%	1512	32.7	35.82°C	0.974
	12.131V	4.930V	3.322V	5.091V	272.095				42.88°C	115.11V
5	20.578A	5.086A	4.980A	1.773A	299.805	87.952%	1630	33.1	36.03°C	0.980
	12.115V	4.917V	3.312V	5.077V	340.874				43.72°C	115.11V
6	24.801A	6.119A	5.995A	1.976A	359.902	87.411%	2006	41.2	36.69°C	0.984
	12.100V	4.904V	3.302V	5.064V	411.736				44.99°C	115.11V
7	29.005A	7.159A	7.015A	2.179A	419.609	86.611%	2207	42.8	37.03°C	0.987
	12.084V	4.891V	3.292V	5.050V	484.475				46.45°C	115.11V
8	33.282A	8.202A	8.041A	2.384A	480.118	85.763%	2427	45.5	37.58°C	0.988
	12.070V	4.878V	3.282V	5.035V	559.820				47.60°C	115.11V
9	37.904A	8.730A	8.553A	2.389A	539.440	84.970%	2424	45.4	38.24°C	0.990
	12.055V	4.868V	3.274V	5.026V	634.862				48.87°C	115.11V
10	42.373A	9.265A	9.096A	3.001A	599.844	83.809%	2425	45.5	39.41°C	0.991
	12.039V	4.858V	3.265V	5.001V	715.725				50.39°C	115.11V
11	47.414A	9.276A	9.116A	3.006A	659.866	82.639%	2424	45.4	40.44°C	0.991
	12.025V	4.852V	3.258V	4.992V	798.491				52.30°C	115.10V
CL1	0.144A	14.004A	13.999A	0.000A	116.484	80.418%	2108	41.5	36.32°C	0.961
	12.162V	4.886V	3.308V	5.123V	144.849				43.45°C	115.12V

CL2	50.014A	1.002A	1.000A	1.000A	615.697	84.318%	2427	45.5	39.46°C	0.991
	12.045V	4.912V	3.291V	5.065V	730.210				50.72°C	115.11V

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	3.163A	2.016A	1.970A	0.975A	60.158	80.965%	907	18.1	34.01°C	0.636
	12.191V	4.961V	3.348V	5.130V	74.301				39.91°C	230.27V
2	7.303A	3.032A	2.964A	1.173A	119.822	88.031%	1065	22.8	34.73°C	0.800
	12.176V	4.949V	3.338V	5.117V	136.113				40.87°C	230.26V
3	11.834A	3.544A	3.452A	1.372A	179.713	89.636%	1203	26.4	35.03°C	0.872
	12.144V	4.939V	3.330V	5.104V	200.492				41.59°C	230.27V
4	16.368A	4.058A	3.975A	1.572A	239.733	90.069%	1452	32.4	35.74°C	0.910
	12.129V	4.929V	3.321V	5.091V	266.165				42.89°C	230.27V
5	20.580A	5.087A	4.983A	1.773A	299.813	89.993%	1773	38.1	36.03°C	0.930
	12.114V	4.916V	3.311V	5.077V	333.152				43.73°C	230.26V
6	24.807A	6.118A	5.998A	1.976A	359.915	89.698%	2036	41.5	36.64°C	0.944
	12.098V	4.903V	3.301V	5.063V	401.251				44.84°C	230.26V
7	29.009A	7.160A	7.019A	2.179A	419.627	89.251%	2245	43.0	37.34°C	0.949
	12.083V	4.890V	3.291V	5.048V	470.166				46.18°C	230.27V
8	33.292A	8.205A	8.045A	2.385A	480.153	88.677%	2432	45.7	37.56°C	0.956
	12.067V	4.877V	3.281V	5.034V	541.462				46.81°C	230.27V
9	37.915A	8.734A	8.556A	2.389A	539.460	88.170%	2426	45.5	38.23°C	0.961
	12.052V	4.867V	3.272V	5.025V	611.841				48.22°C	230.27V
10	42.381A	9.266A	9.102A	3.001A	599.869	87.372%	2425	45.5	39.67°C	0.965
	12.037V	4.858V	3.264V	5.000V	686.566				50.27°C	230.27V
11	47.429A	9.276A	9.121A	3.006A	659.890	86.686%	2429	45.6	40.28°C	0.966
	12.022V	4.851V	3.256V	4.991V	761.242				52.15°C	230.27V
CL1	0.144A	14.005A	13.999A	0.000A	116.488	81.736%	2108	41.5	36.27°C	0.811
	12.159V	4.886V	3.308V	5.124V	142.518				43.66°C	230.27V

CL2	50.014A	1.002A	1.001A	1.000A	615.597	87.975%	2424	45.5	39.32°C	0.964
	12.043V	4.911V	3.290V	5.065V	699.741				50.61°C	230.27V

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	1.196A	0.503A	0.477A	0.194A	19.684	77.536%	0	<6.0	0.699
	12.190V	4.975V	3.357V	5.158V	25.387				115.15V
2	2.441A	1.006A	0.986A	0.389A	40.132	83.327%	0	<6.0	0.873
	12.217V	4.970V	3.354V	5.150V	48.162				115.15V
3	3.624A	1.511A	1.463A	0.584A	59.586	80.644%	687	11.0	0.932
	12.191V	4.965V	3.350V	5.141V	73.888				115.15V
4	4.869A	2.018A	1.972A	0.779A	79.934	83.494%	886	17.4	0.942
	12.185V	4.959V	3.346V	5.133V	95.736				115.14V

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	1.193A	0.504A	0.478A	0.194A	19.659	78.068%	0	<6.0	0.337
	12.192V	4.977V	3.358V	5.157V	25.182				230.30V
2	2.436A	1.007A	0.984A	0.389A	40.077	84.210%	0	<6.0	0.503
	12.219V	4.972V	3.355V	5.149V	47.592				230.30V
3	3.619A	1.511A	1.464A	0.584A	59.534	81.616%	779	13.9	0.633
	12.192V	4.966V	3.350V	5.141V	72.944				230.28V
4	4.867A	2.017A	1.970A	0.779A	79.900	84.893%	872	16.9	0.710
	12.185V	4.960V	3.346V	5.133V	94.119				230.27V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.6 mV	17.9 mV	11.5 mV	17.7 mV	Pass
20% Load	25.1 mV	17.8 mV	11.8 mV	24.1 mV	Pass
30% Load	24.4 mV	18.2 mV	12.3 mV	29.7 mV	Pass
40% Load	23.6 mV	18.1 mV	12.0 mV	31.6 mV	Pass
50% Load	22.0 mV	18.0 mV	12.6 mV	32.8 mV	Pass
60% Load	22.5 mV	17.5 mV	13.9 mV	32.4 mV	Pass
70% Load	23.8 mV	18.8 mV	15.0 mV	33.6 mV	Pass
80% Load	25.0 mV	19.1 mV	17.3 mV	36.1 mV	Pass
90% Load	24.3 mV	19.8 mV	17.1 mV	35.5 mV	Pass
100% Load	36.6 mV	21.9 mV	19.0 mV	41.5 mV	Pass
110% Load	38.6 mV	22.0 mV	18.7 mV	42.8 mV	Pass
Crossload 1	37.1 mV	25.5 mV	19.5 mV	26.7 mV	Pass
Crossload 2	35.9 mV	20.6 mV	14.7 mV	37.1 mV	Pass

The results above are not used in the certification process

230V

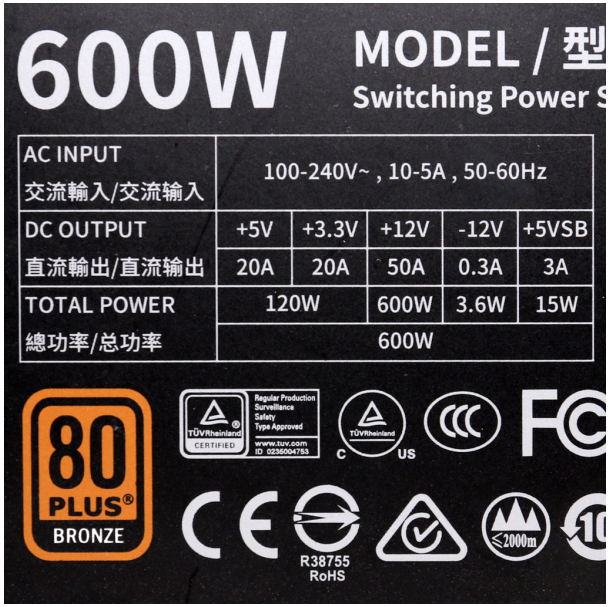
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.9 mV	18.4 mV	11.2 mV	19.9 mV	Pass
20% Load	25.3 mV	18.0 mV	11.5 mV	20.3 mV	Pass
30% Load	24.8 mV	17.5 mV	12.0 mV	24.2 mV	Pass
40% Load	24.1 mV	17.5 mV	12.4 mV	27.9 mV	Pass
50% Load	23.1 mV	17.9 mV	12.5 mV	29.4 mV	Pass
60% Load	22.7 mV	17.4 mV	14.1 mV	31.2 mV	Pass
70% Load	22.8 mV	19.7 mV	15.6 mV	35.6 mV	Pass
80% Load	24.4 mV	19.6 mV	16.8 mV	34.5 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	24.1 mV	20.1 mV	17.1 mV	36.0 mV	Pass
100% Load	37.0 mV	21.7 mV	18.9 mV	41.3 mV	Pass
110% Load	39.2 mV	21.5 mV	19.6 mV	41.7 mV	Pass
Crossload 1	41.8 mV	25.4 mV	18.6 mV	23.0 mV	Pass
Crossload 2	38.7 mV	22.4 mV	14.0 mV	38.5 mV	Pass

The results above are not used in the certification process

Cooler Master MWE Bronze 600

Top side



Power specifications label

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

Cybenetics runs voluntary certification programs for power supplies - ETA for efficiency, LAMBDA for noise and SAFE for safety and correct operation - and for cooling products, with DELTA for chassis soundproofing and PHI for fan airflow and static pressure. THETA rates cooler performance on AMD AM5 and Intel LGA1851 outside ISO 17065 and accreditation scope

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