



Make It Yours.

Cooler Master MWE 600

Serial Number MPE6001ACABW1191400003

Lab ID CM19600031

Certification ID 25699

Test Result Report ID:

Certificate Issue Date: Nov 6, 2019

115V

230V

Scheme: ETA-EMI PSU



115V

230V



Scheme: LAMBDA PSU

A handwritten signature in blue ink, appearing to be "A. Bitziopoulos".

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 600
OEM/ODM	Gospower
Serial Number	MPE6001ACABW1191400003
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	200-240
Rated Current (Arms)	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	CM19600031
Date of receipt	Jul 5, 2019
Testing Date	May 13, 2019
Report Issued Date	Nov 6, 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 (510mm)	1	1	18-20AWG	No
8 pin EPS12V (540mm) / 4+4 pin EPS12V (120mm)	1	1 / 1	18AWG	No
6+2 pin PCIe (490mm+100mm)	2	4	16-18AWG	No
SATA (420mm+150mm+150mm)	2	6	18-20AWG	No
4-pin Molex (420mm+150mm+150mm)	1	3	18-20AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	18	18	49	3	0.3
	Watts	120		588	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 Diode Incorporated GBU608 (800V, 6A @ 100°C)
APFC MOSFETS	1x JILIN SINO-MICROELECTRONICS JCS18N50FH (500V, 11A @ 100°C, 0.270hm)
APFC Boost Diode	1x JILIN SINO-MICROELECTRONICS 10F60UHF (600V, 10A @ 100°C)
Hold-up Cap(s)	1x Elite (420V, 390uF, 2000h @ 85°C, GM)
Main Switchers	2x JILIN SINO-MICROELECTRONICS JCS18N50FH (500V, 11A @ 100°C, 0.270hm)
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), 2x 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 230V

Accredited		
Average Efficiency (>1450 load combinations)	87.618%	
Average Noise Output (>1450 Load Combinations)	37.93dBA	
Average PF (>1450 Load Combinations)	0.911	
Efficiency With 10W (≤500W) or 2% (>500W) Load	-	
Standby Power Consumption	0.1773W	
Non-Accredited		
12V Ripple (Full Load)	46.66mV	
5V Ripple (Full Load)	28.12mV	
3.3V Ripple (Full Load)	28.65mV	
5VSB Ripple (Full Load)	35.55mV	
12V Load Regulation	1.34%	
5V Load Regulation	2.61%	
3.3V Load Regulation	2.79%	
5VSB Load Regulation	3.40%	
Inrush Current	-	
Hold-Up Time & PWR_OK Signal	14.80ms	
AC Loss to PWR_OK Hold Up Time	51.20ms	
PWR_OK Inactive to DC Loss Delay	-36.40ms	
OPP (0.00°C / 0.00°C)	-	-

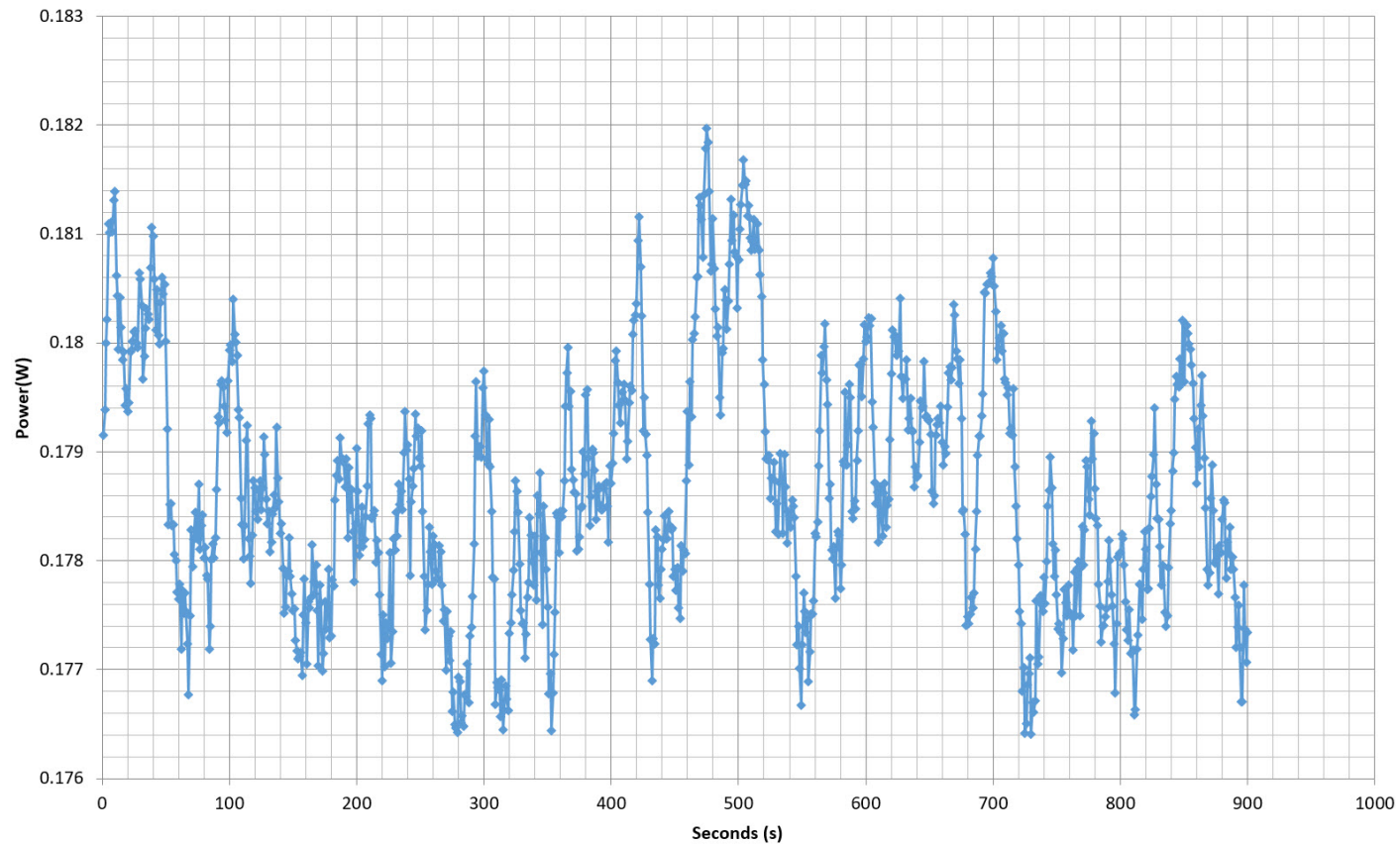
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	14.80
AC Loss to PWR_OK Hold Up Time (ms)	51.20
PWR_OK Inactive to DC Loss Delay (ms)	-36.40



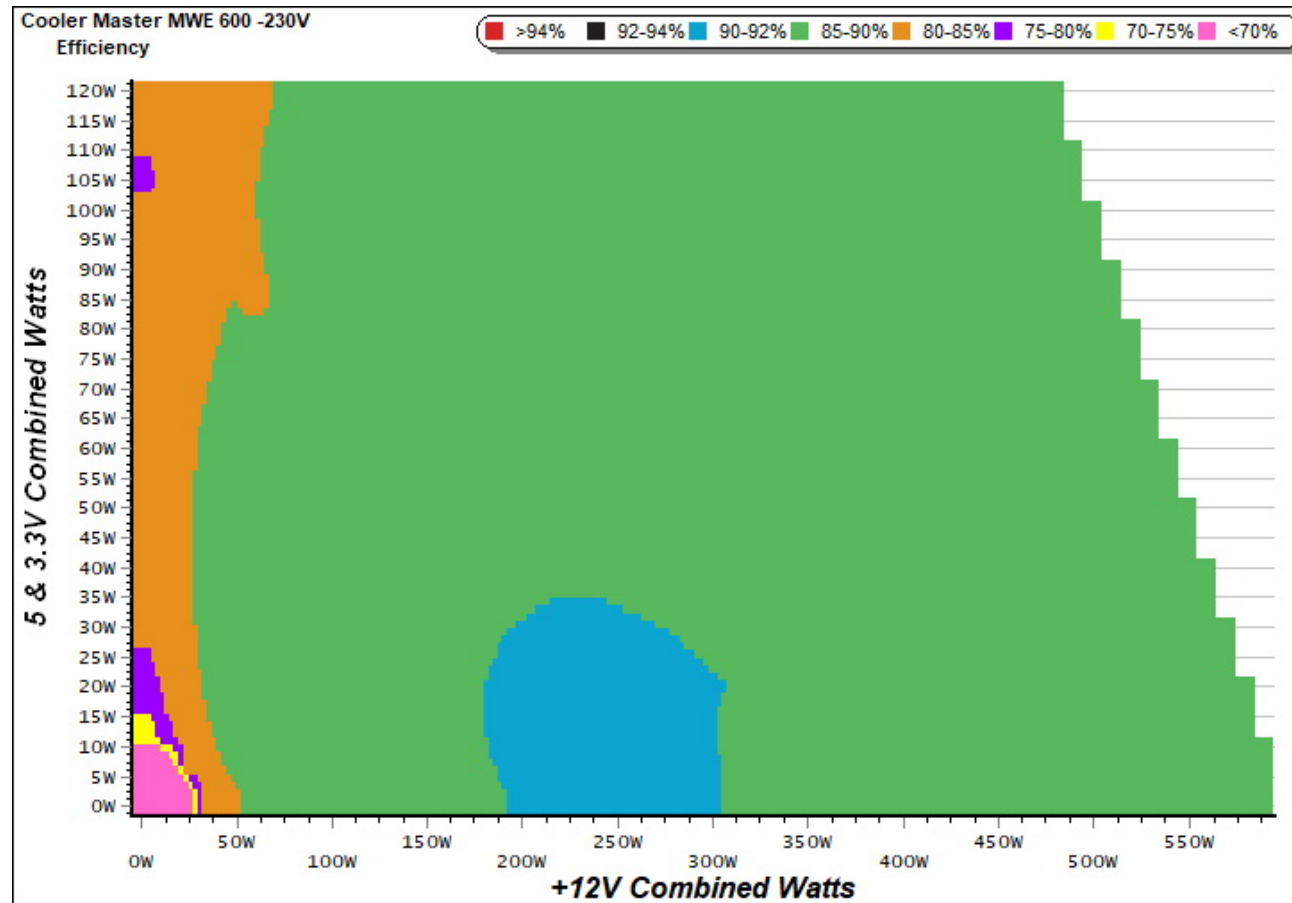
Graphs 230V

Power - MPE6001ACABW1191400003 - 13/05/2019 - 11:38



Efficiency Graph

230V

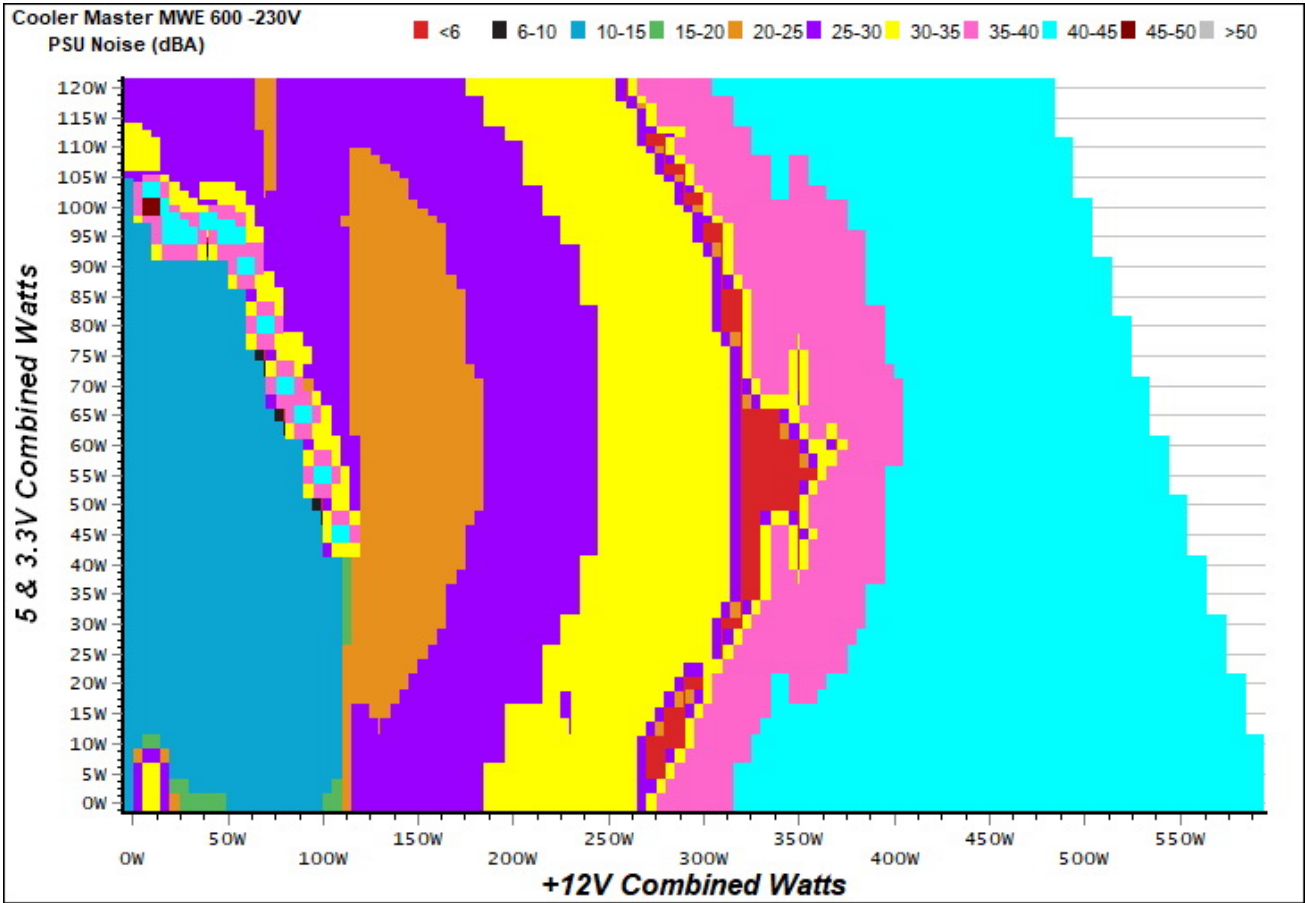


INFO

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.

Noise Graph

230V



INFO

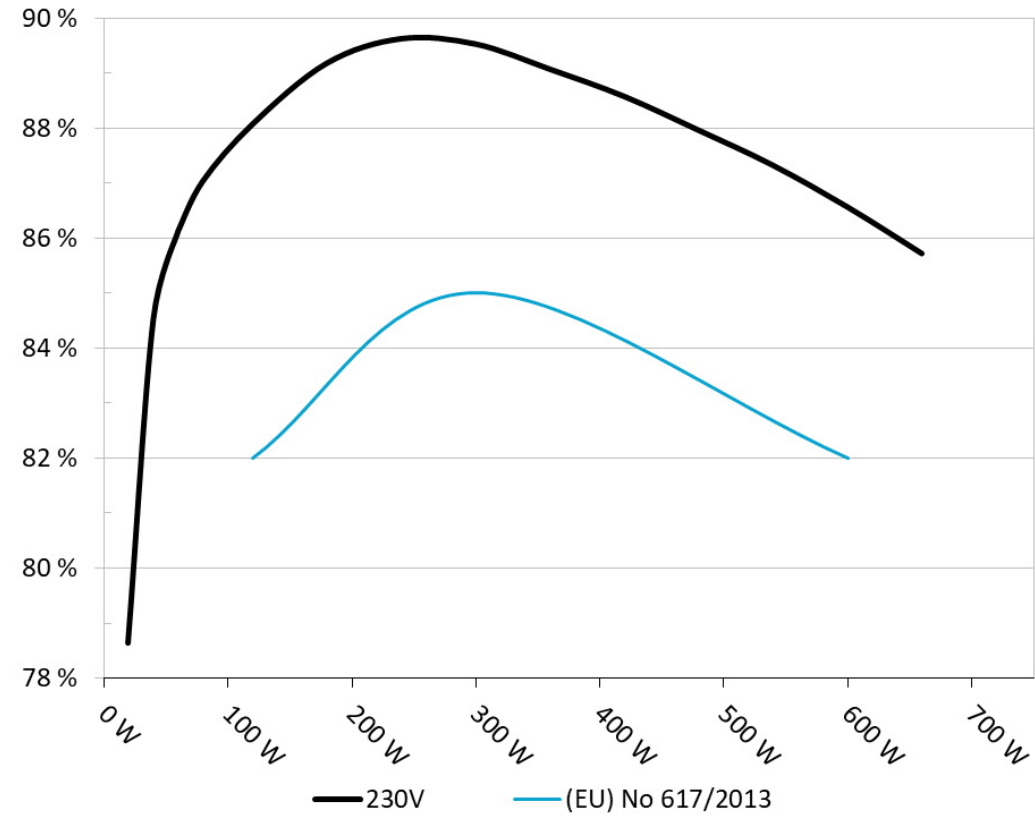
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance

Efficiency under high ambient temperature

Efficiency: Cooler Master MWE 600

Ambient: 32°C - 40°C (89.6°F - 104°F)



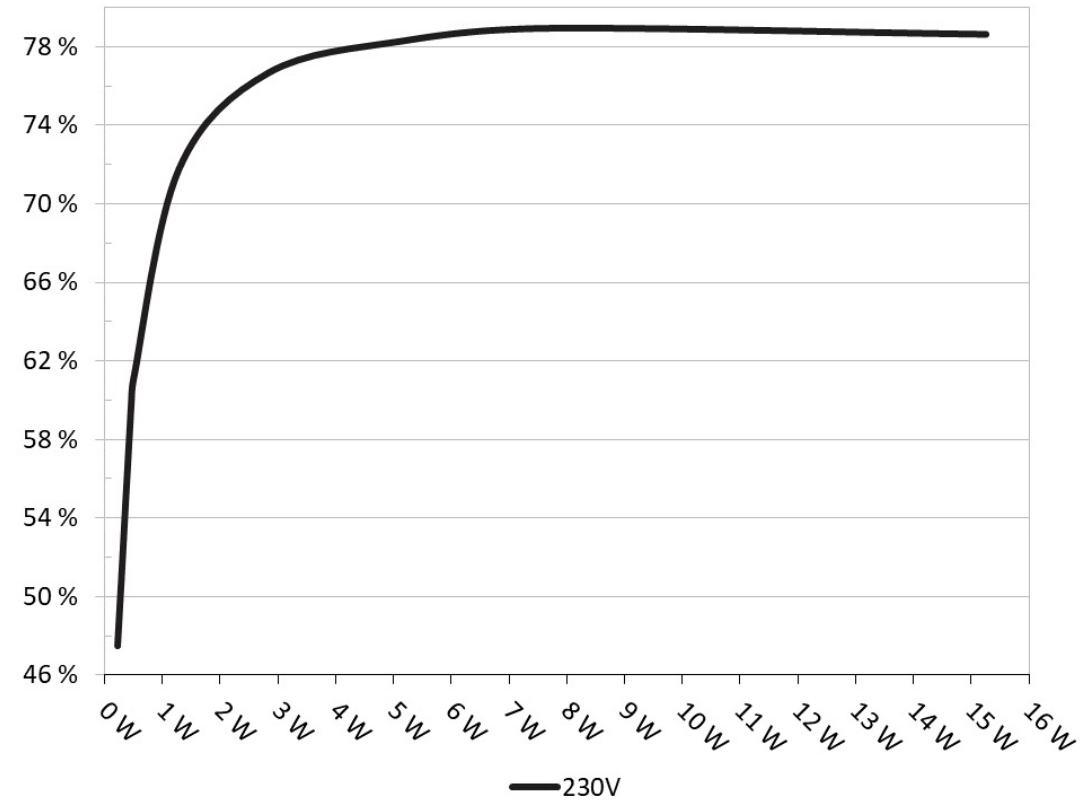
INFO

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

5VSB Efficiency: Cooler Master MWE 600

Ambient: 28°C - 32°C (82.4°F - 89.6°F)



INFO

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

5VSB Efficiency (ERP LOT 3/6 & CEC) 230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.046A	0.234	47.465%	0.139
	5.136V	0.493		230.26V

2	0.090A	0.467	59.642%	0.015
	5.183V	0.783		230.26V
3	0.550A	2.843	76.651%	0.070
	5.168V	3.709		230.26V
4	1.000A	5.154	78.269%	0.119
	5.153V	6.585		230.26V
5	1.500A	7.706	78.923%	0.169
	5.137V	9.764		230.26V
6	3.000A	15.263	78.614%	0.277
	5.088V	19.415		230.26V

Supplementary Tests (For Reference)

Typical Load 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
1	3.170A	2.012A	1.982A	0.972A	60.017	85.543%	0	<6.0	41.58°C	0.652
	12.120V	4.971V	3.328V	5.142V	70.160				34.68°C	230.24V
2	7.361A	3.025A	2.983A	1.170A	119.713	88.060%	0	<6.0	42.85°C	0.812
	12.067V	4.956V	3.318V	5.127V	135.945				35.67°C	230.24V
3	11.902A	3.542A	3.475A	1.369A	179.619	89.168%	1083	23.2	35.91°C	0.879
	12.067V	4.941V	3.308V	5.114V	201.439				43.55°C	230.24V
4	16.467A	4.058A	3.999A	1.569A	239.623	89.615%	1309	28.8	36.13°C	0.914
	12.050V	4.929V	3.299V	5.099V	267.391				44.04°C	230.24V
5	20.709A	5.089A	5.016A	1.770A	299.716	89.520%	1504	32.6	36.54°C	0.937
	12.034V	4.914V	3.289V	5.084V	334.805				45.22°C	230.24V
6	24.962A	6.125A	6.039A	1.973A	359.823	89.063%	1939	40.0	36.86°C	0.950
	12.019V	4.899V	3.278V	5.069V	404.008				46.52°C	230.24V
7	29.192A	7.169A	7.068A	2.178A	419.538	88.570%	2122	42.4	37.44°C	0.958
	12.004V	4.884V	3.268V	5.053V	473.678				47.43°C	230.24V
8	33.502A	8.219A	8.105A	2.383A	480.033	87.952%	2340	44.2	37.69°C	0.963
	11.988V	4.868V	3.257V	5.037V	545.791				48.57°C	230.24V

9	38.156A	8.752A	8.618A	2.387A	539.344	87.322%	2396	45.0	38.24°C	0.968
	11.973V	4.857V	3.248V	5.028V	617.653				49.54°C	230.24V
10	42.653A	9.288A	9.171A	3.002A	599.754	86.562%	2393	44.6	39.19°C	0.971
	11.958V	4.846V	3.238V	4.998V	692.861				50.73°C	230.23V
11	47.731A	9.300A	9.192A	3.007A	659.765	85.718%	2404	45.1	40.34°C	0.973
	11.943V	4.840V	3.231V	4.989V	769.691				52.55°C	230.24V
CL1	0.137A	14.002A	13.997A	0.000A	115.657	80.688%	2014	41.1	36.32°C	0.828
	12.083V	4.863V	3.280V	5.144V	143.338				45.34°C	230.23V
CL2	49.004A	1.002A	1.000A	1.000A	599.760	87.465%	2396	45.0	39.32°C	0.971
	11.968V	4.919V	3.270V	5.080V	685.718				51.01°C	230.23V

The results above are not used in the certification process

Light Load Tests 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.192A	0.501A	0.479A	0.193A	19.510	78.650%	0	<6.0	0.348
	12.093V	4.985V	3.337V	5.176V	24.806				230.24V
2	2.449A	1.003A	0.988A	0.387A	39.945	84.529%	0	<6.0	0.538
	12.111V	4.979V	3.333V	5.166V	47.256				230.24V
3	3.632A	1.508A	1.471A	0.582A	59.420	86.132%	0	<6.0	0.648
	12.120V	4.974V	3.330V	5.157V	68.987				230.24V
4	4.896A	2.013A	1.983A	0.777A	79.823	87.030%	0	<6.0	0.725
	12.097V	4.968V	3.326V	5.147V	91.719				230.24V

The results above are not used in the certification process

Ripple Measurements 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	84.8 mV	20.9 mV	15.0 mV	20.9 mV	Pass
20% Load	91.9 mV	23.8 mV	17.4 mV	21.9 mV	Pass
30% Load	30.7 mV	21.6 mV	18.2 mV	22.9 mV	Pass
40% Load	29.6 mV	23.4 mV	19.9 mV	24.6 mV	Pass

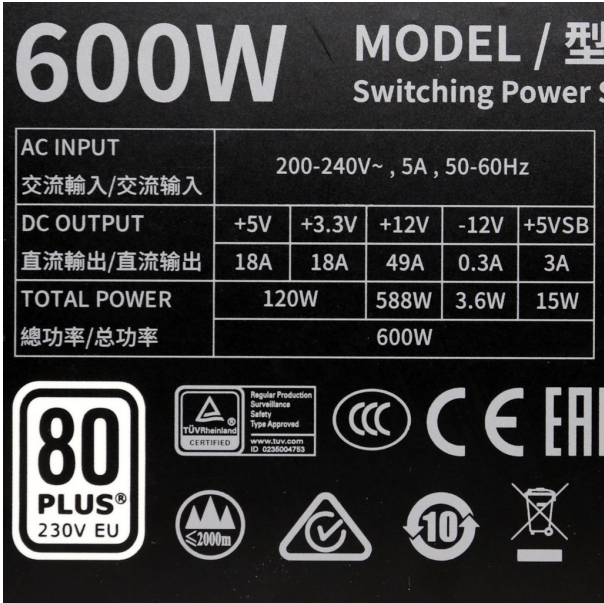
Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	28.2 mV	23.2 mV	20.7 mV	25.2 mV	Pass
60% Load	28.5 mV	24.0 mV	22.9 mV	26.5 mV	Pass
70% Load	29.1 mV	23.8 mV	23.9 mV	27.1 mV	Pass
80% Load	28.9 mV	24.2 mV	25.3 mV	30.5 mV	Pass
90% Load	29.0 mV	25.2 mV	27.4 mV	31.4 mV	Pass
100% Load	46.7 mV	28.1 mV	28.7 mV	35.6 mV	Pass
110% Load	47.0 mV	27.8 mV	29.6 mV	36.6 mV	Pass
Crossload 1	92.4 mV	28.3 mV	29.9 mV	23.5 mV	Pass
Crossload 2	44.8 mV	27.0 mV	22.9 mV	29.9 mV	Pass

The results above are not used in the certification process

Cooler Master MWE 600



Top side



Power specifications label

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