



Make It Yours.

Cooler Master MWE 500

Serial Number MPE5001ACABW1191400004

Lab ID CM19500033

Certification ID 25697

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 "Aristeidis 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 500
OEM/ODM	Gospower
Serial Number	MPE5001ACABW1191400004
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	200-240
Rated Current (Arms)	5
Rated Frequency (Hz)	50-60

Rated Power (W)	500
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Rifle Bearing Fan (DF1202512SELN)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	CM19500033
Date of receipt	Jul 5, 2019
Testing Date	May 15, 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
4+4 pin EPS12V (530mm)	1	1	18AWG	No
6+2 pin PCIe (490mm+100mm)	1	2	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	16	16	41	3	0.3
	Watts	110		492	15	3.6
Total Max. Power (W)		500				

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 Diode Incorporated GBU608 (800V, 6A @ 100°C)
APFC MOSFETS	1x JILIN SINO-MICROELECTRONICS JCS13N50FC (500V, 8A @ 100°C, 0.490hm)
APFC Boost Diode	1x JILIN SINO-MICROELECTRONICS 10F60UHF (600V, 10A @ 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, 0.490hm)
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	2x 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: 4x 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	Thermal Control DF1202512SELN (120mm, 12V, 0.25A, Rifle 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)	86.127%	
Average Noise Output (>1450 Load Combinations)	31.55dBA	
Average PF (>1450 Load Combinations)	0.909	
Efficiency With 10W (≤500W) or 2% (>500W) Load	-	
Standby Power Consumption	0.1894W	
Non-Accredited		
12V Ripple (Full Load)	47.73mV	
5V Ripple (Full Load)	23.21mV	
3.3V Ripple (Full Load)	24.34mV	
5VSB Ripple (Full Load)	27.89mV	
12V Load Regulation	1.52%	
5V Load Regulation	2.57%	
3.3V Load Regulation	2.77%	
5VSB Load Regulation	3.41%	
Inrush Current	57.370A	
Hold-Up Time & PWR_OK Signal	21.00ms	
AC Loss to PWR_OK Hold Up Time	19.40ms	
PWR_OK Inactive to DC Loss Delay	1.60ms	
OPP (0.00°C / 0.00°C)	-	-

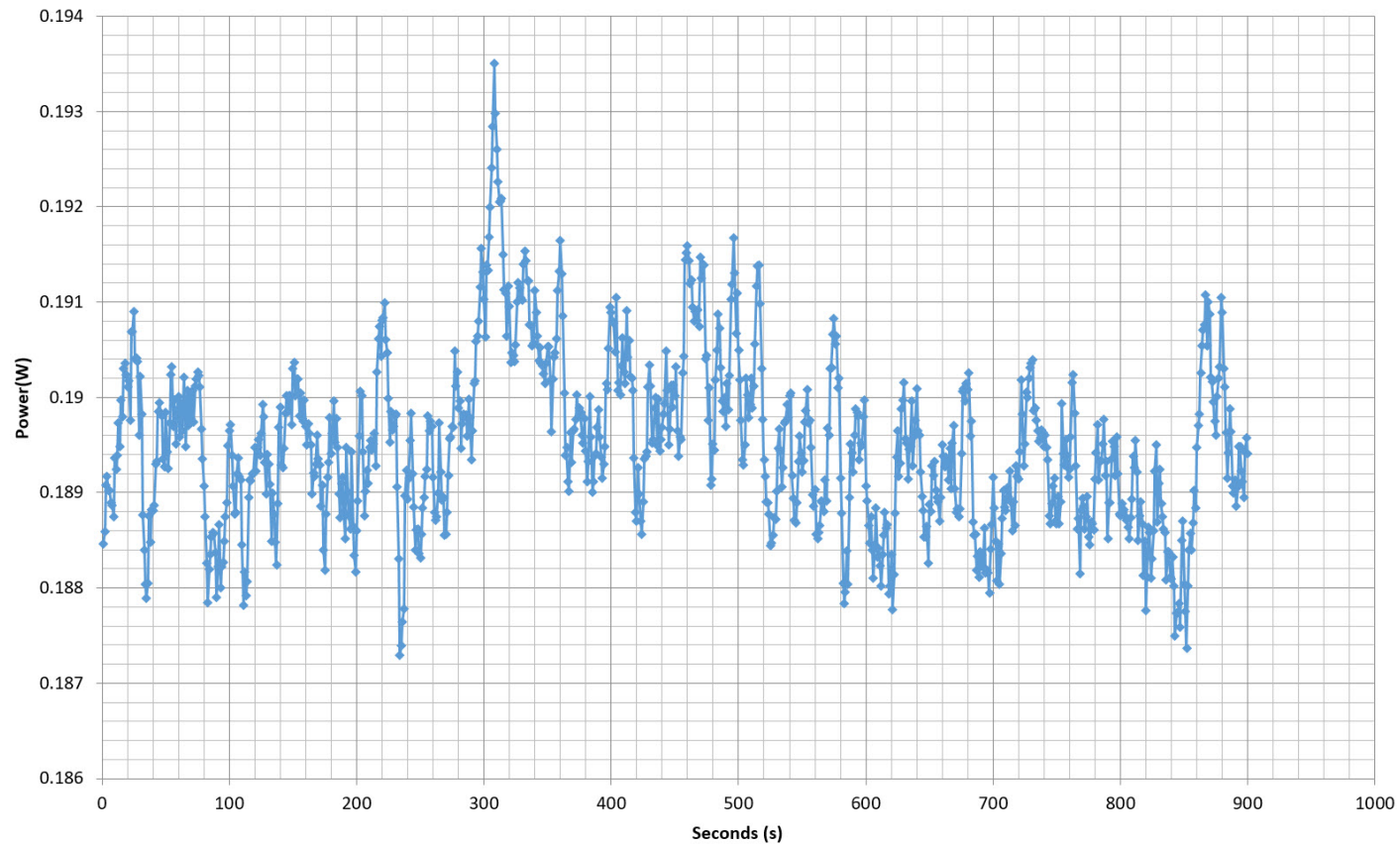
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	21
AC Loss to PWR_OK Hold Up Time (ms)	19.4
PWR_OK Inactive to DC Loss Delay (ms)	1.6

Stromverbrauch im Ruhezustand

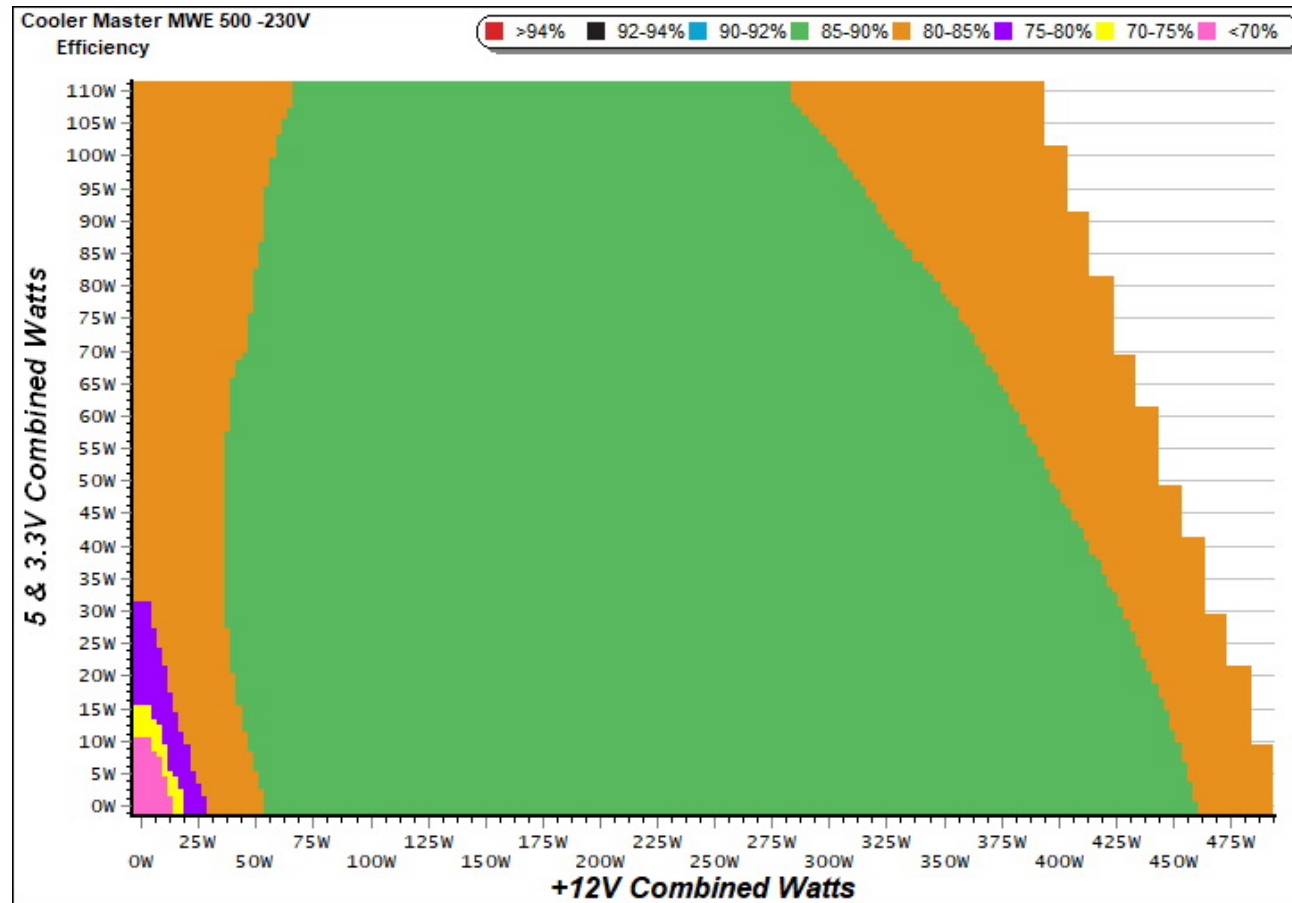
Graphs 230V

Power - MPE5001ACABW1191400004 - 14/05/2019 - 10:48



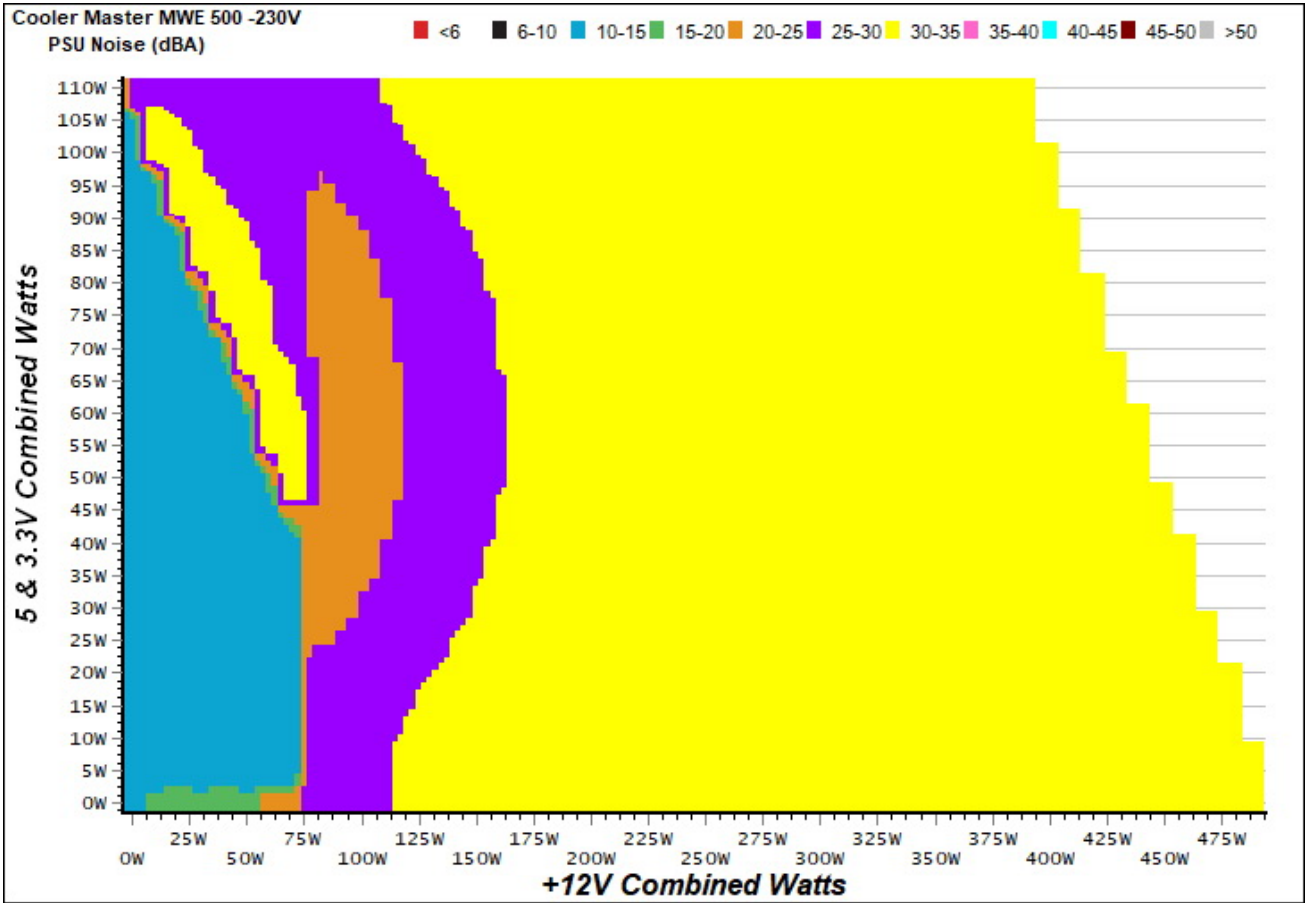
Efficiency Graph

230V



Noise Graph

230V



INFO

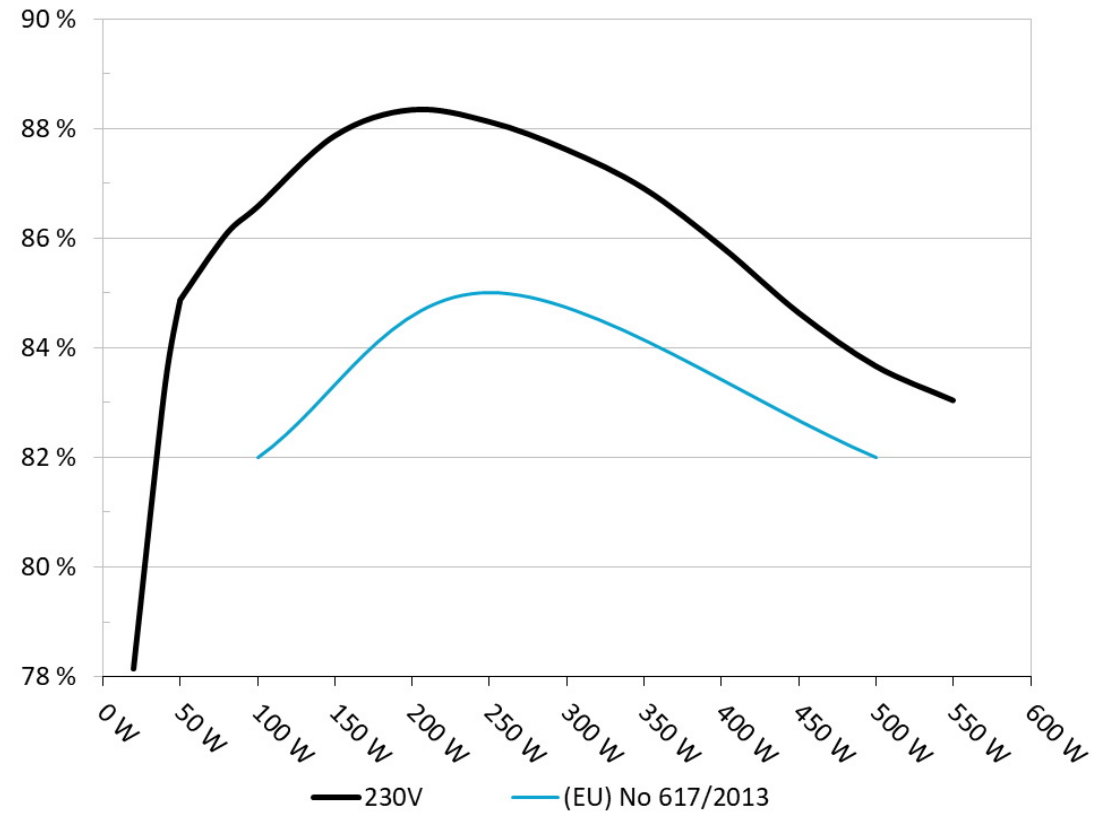
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance

Efficiency under high ambient temperature

Efficiency: Cooler Master MWE 500

Ambient: 32°C - 40°C (89.6°F - 104°F)



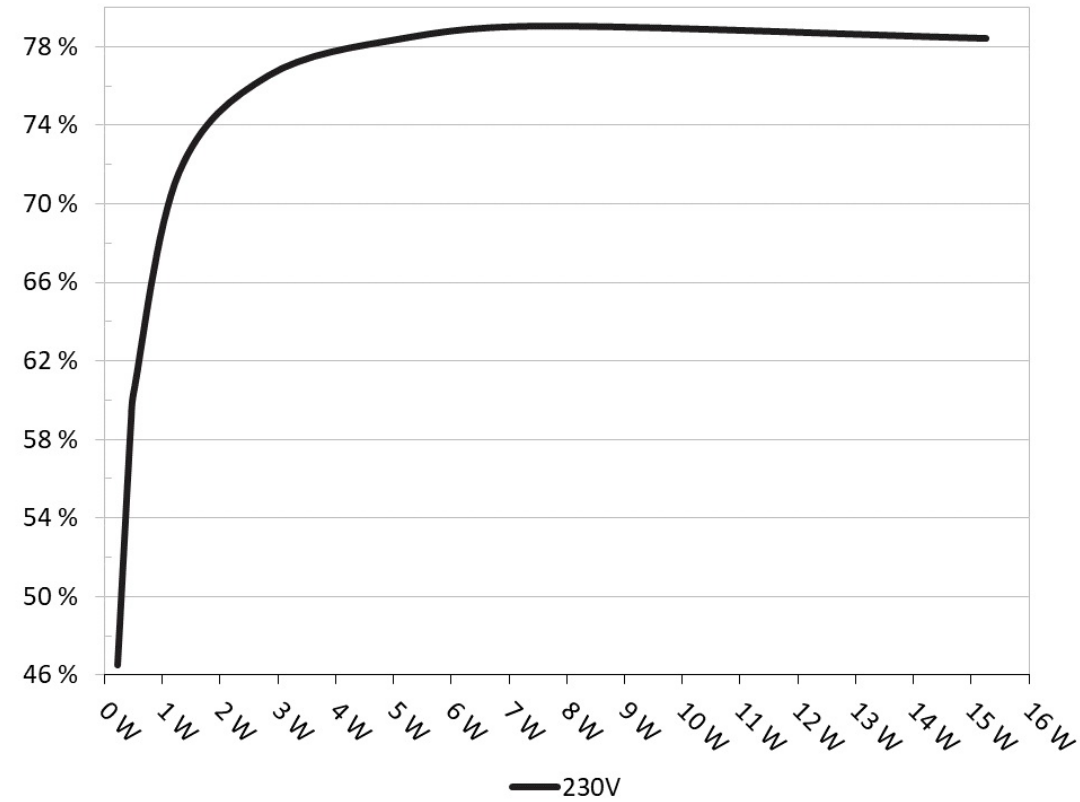
INFO

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 500

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	0.045A	0.234	46.521%	0.010
	5.177V	0.503		230.25V

2	0.090A	0.466	58.987%	0.015
	5.176V	0.790		230.25V
3	0.550A	2.840	76.550%	0.068
	5.162V	3.710		230.31V
4	1.000A	5.149	78.443%	0.115
	5.148V	6.564		230.31V
5	1.500A	7.701	79.082%	0.161
	5.133V	9.738		230.31V
6	3.000A	15.262	78.452%	0.261
	5.087V	19.454		230.29V

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	2.306A	2.010A	1.945A	0.974A	49.644	83.549%	0	<6.0	40.85°C	0.616
	12.163V	4.976V	3.389V	5.137V	59.419				34.06°C	230.25V
2	5.683A	3.024A	2.929A	1.172A	99.749	86.578%	0	<6.0	41.58°C	0.802
	12.115V	4.961V	3.378V	5.121V	115.213				34.47°C	230.25V
3	9.391A	3.539A	3.414A	1.371A	149.640	87.871%	1315	31.8	35.05°C	0.863
	12.101V	4.946V	3.367V	5.107V	170.295				42.94°C	230.25V
4	13.115A	4.055A	3.932A	1.571A	199.631	88.347%	1431	32.8	35.59°C	0.917
	12.080V	4.932V	3.357V	5.094V	225.962				43.81°C	230.25V
5	16.519A	5.086A	4.929A	1.773A	249.756	88.128%	1450	33.0	36.05°C	0.938
	12.062V	4.917V	3.346V	5.078V	283.401				44.86°C	230.25V
6	19.927A	6.119A	5.937A	1.976A	299.830	87.617%	1450	33.0	36.96°C	0.949
	12.045V	4.903V	3.336V	5.062V	342.206				46.26°C	230.24V
7	23.348A	7.161A	6.946A	2.181A	349.940	86.906%	1450	33.0	37.21°C	0.956
	12.028V	4.889V	3.325V	5.046V	402.663				47.49°C	230.24V
8	26.777A	8.208A	7.963A	2.387A	400.045	85.845%	1454	33.0	37.65°C	0.962
	12.012V	4.874V	3.314V	5.029V	466.007				48.57°C	230.24V

9	30.619A	8.741A	8.470A	2.391A	449.757	84.641%	1454	33.0	38.31°C	0.968
	11.994V	4.864V	3.305V	5.020V	531.373				49.62°C	230.24V
10	34.233A	9.275A	9.010A	3.006A	499.741	83.664%	1451	33.0	39.37°C	0.972
	11.978V	4.852V	3.296V	4.990V	597.320				50.92°C	230.24V
11	38.452A	9.290A	9.030A	3.011A	549.718	83.040%	1455	33.0	40.28°C	0.974
	11.963V	4.845V	3.289V	4.984V	661.991				52.36°C	230.24V
CL1	0.133A	13.002A	12.998A	0.000A	108.525	81.791%	1444	32.9	36.15°C	0.832
	12.103V	4.882V	3.342V	5.133V	132.685				44.76°C	230.24V
CL2	41.001A	0.999A	0.999A	0.000A	499.637	84.382%	1452	33.0	39.18°C	0.972
	11.985V	4.920V	3.329V	5.103V	592.110				50.86°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	1.189A	0.501A	0.471A	0.194A	19.552	78.139%	0	<6.0	0.346
	12.152V	4.991V	3.398V	5.168V	25.022				230.25V
2	2.440A	1.001A	0.972A	0.388A	39.980	83.330%	0	<6.0	0.548
	12.168V	4.984V	3.394V	5.159V	47.978				230.26V
3	3.626A	1.507A	1.443A	0.583A	59.429	84.874%	0	<6.0	0.669
	12.144V	4.978V	3.389V	5.149V	70.020				230.26V
4	4.886A	2.010A	1.949A	0.778A	79.861	86.088%	0	<6.0	0.745
	12.131V	4.972V	3.385V	5.139V	92.767				230.26V

The results above are not used in the certification process

Ripple Measurements 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	66.2 mV	17.9 mV	12.8 mV	20.0 mV	Pass
20% Load	80.5 mV	18.9 mV	15.2 mV	19.6 mV	Pass
30% Load	32.2 mV	18.2 mV	15.0 mV	16.2 mV	Pass
40% Load	33.1 mV	18.8 mV	15.7 mV	18.2 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	32.6 mV	19.3 mV	18.0 mV	19.3 mV	Pass
60% Load	32.7 mV	19.9 mV	18.6 mV	21.4 mV	Pass
70% Load	32.2 mV	20.9 mV	20.0 mV	22.0 mV	Pass
80% Load	32.3 mV	20.2 mV	21.8 mV	24.2 mV	Pass
90% Load	32.9 mV	21.0 mV	21.8 mV	25.3 mV	Pass
100% Load	47.7 mV	23.2 mV	24.3 mV	27.9 mV	Pass
110% Load	47.7 mV	24.0 mV	23.9 mV	29.1 mV	Pass
Crossload 1	37.1 mV	23.6 mV	20.8 mV	16.0 mV	Pass
Crossload 2	45.5 mV	22.0 mV	20.4 mV	25.0 mV	Pass

The results above are not used in the certification process

Cooler Master MWE 500



Top side

500W MODEL / 型 Switching Power S					
AC INPUT 交流輸入/交流输入	200-240V~, 5A, 50-60Hz				
DC OUTPUT 直流輸出/直流输出	+5V	+3.3V	+12V	-12V	+5VSB
	16A	16A	41A	0.3A	3A
TOTAL POWER 總功率/总功率	110W 492W 3.6W 15W				
	500W				

Power specifications label

Cybenetics bietet freiwillige Zertifizierungsprogramme für Netzteile – ETA für Effizienz, LAMBDA für Lautstärke und SAFE für Sicherheit und korrekten Betrieb – sowie für Kühlprodukte mit DELTA für die Schalldämmung von Gehäusen und PHI für Luftstrom und statischen Druck von Lüftern

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