Make It Yours.

Cooler Master MWE 700

Serial Number MPE7001ACABW1191400003

Lab ID CM19700030

Certification ID 25701

Test Result Report ID:

Certificate Issue Date: Nov 6, 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 700
OEM/ODM	Gospower
Serial Number	MPE7001ACABW1191400003
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	200-240
Rated Current (Arms)	6
Rated Frequency (Hz)	50-60

Rated Power (W)	700
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	CM19700030
Date of receipt	Sep 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 (530mm) / 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	20	20	58	3	0.3
	Watts	120		696	15	3.6
Total Max. Power (W)		700				

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 GBU808 (800V, 8A @ 100°C)
APFC MOSFETS	2x Sanrise Tech SRC60R200TFE (630V, 7.1A @ 125°C, 0.2Ohm)
APFC Boost Diode	1x JILIN SINO-MICROELECTRONICS 10F60UHF (600V, 10A @ 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 NCEP40T11K (40V, 85A @ 100°C, 2.8mOhm)
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

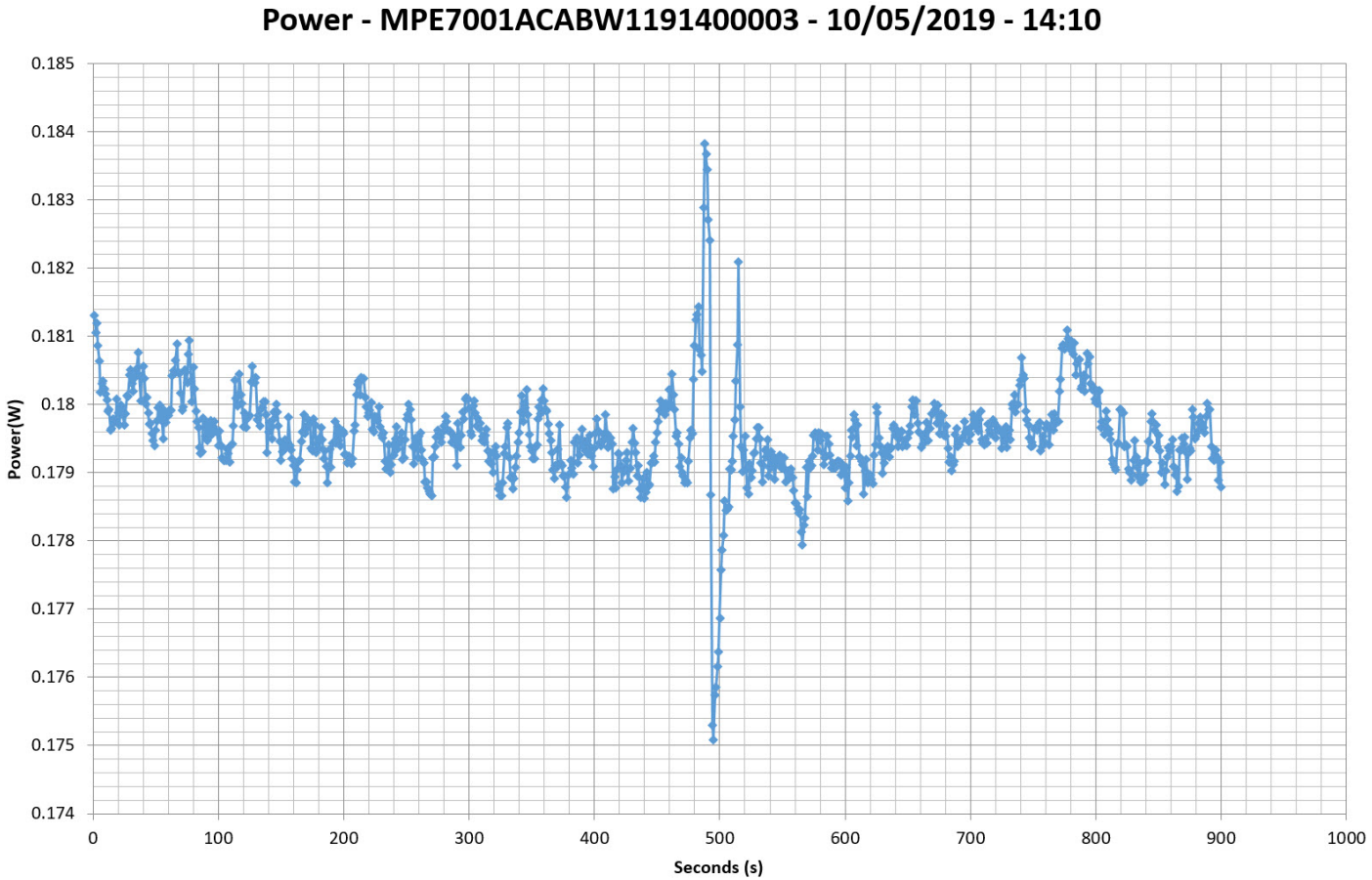
Accredited		
Average Efficiency (>1450 load combinations)		87.274%
Average Noise Output (>1450 Load Combinations)		37.41dBA
Average PF (>1450 Load Combinations)		0.917
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
Standby Power Consumption		0.1788W
Non-Accredited		
12V Ripple (Full Load)		44.67mV
5V Ripple (Full Load)		29.25mV
3.3V Ripple (Full Load)		28.32mV
5VSB Ripple (Full Load)		32.03mV
12V Load Regulation		1.46%
5V Load Regulation		2.96%
3.3V Load Regulation		2.94%
5VSB Load Regulation		3.73%
Inrush Current		65.413A
Hold-Up Time & PWR_OK Signal		28.00ms
AC Loss to PWR_OK Hold Up Time		72.00ms
PWR_OK Inactive to DC Loss Delay		-44.00ms
OPP (0.00°C / 0.00°C)	129.90%	-

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	28.0
AC Loss to PWR_OK Hold Up Time (ms)	72.0
PWR_OK Inactive to DC Loss Delay (ms)	-44.0

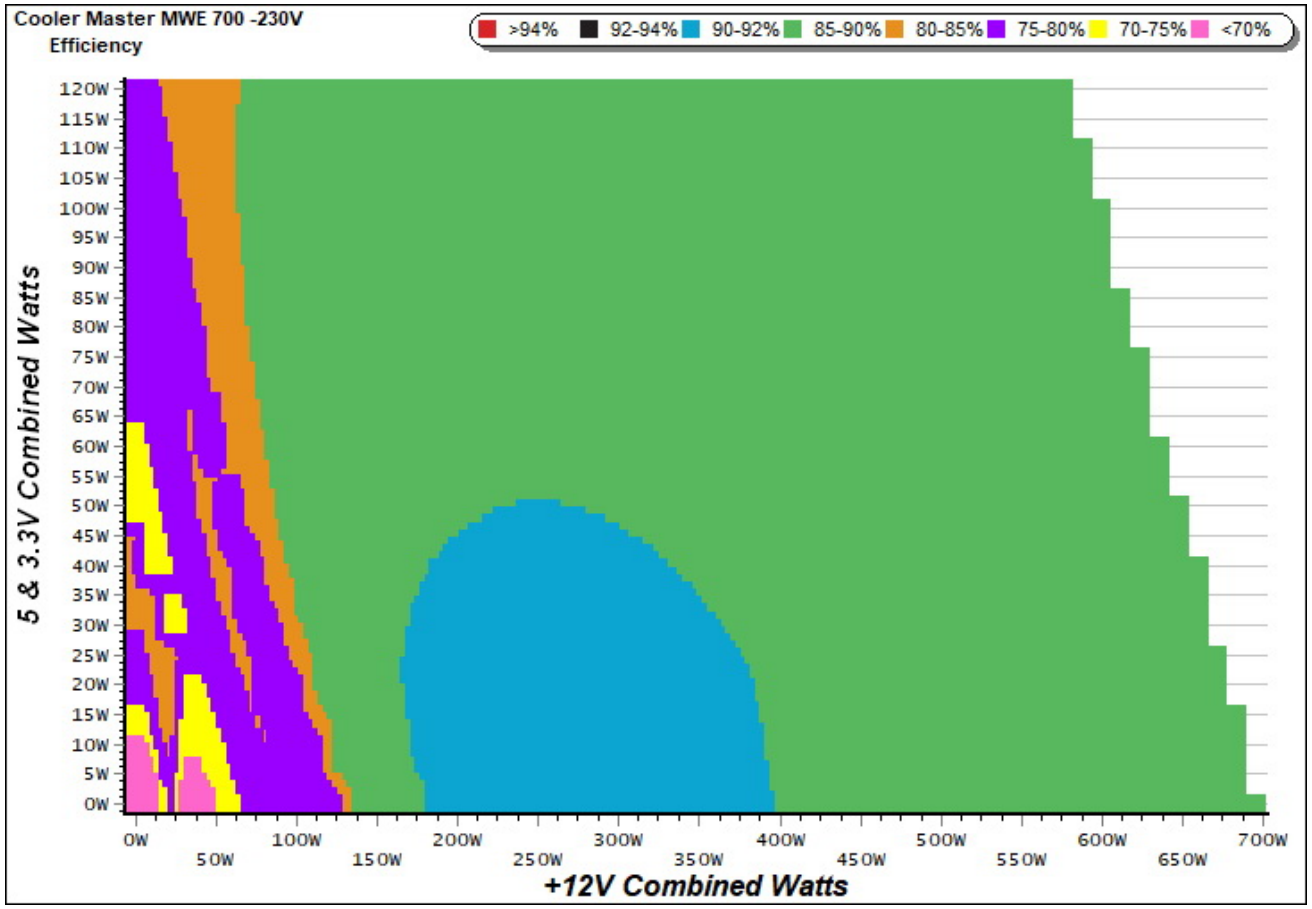
Vampire Power

Graphs 230V



Efficiency Graph

230V

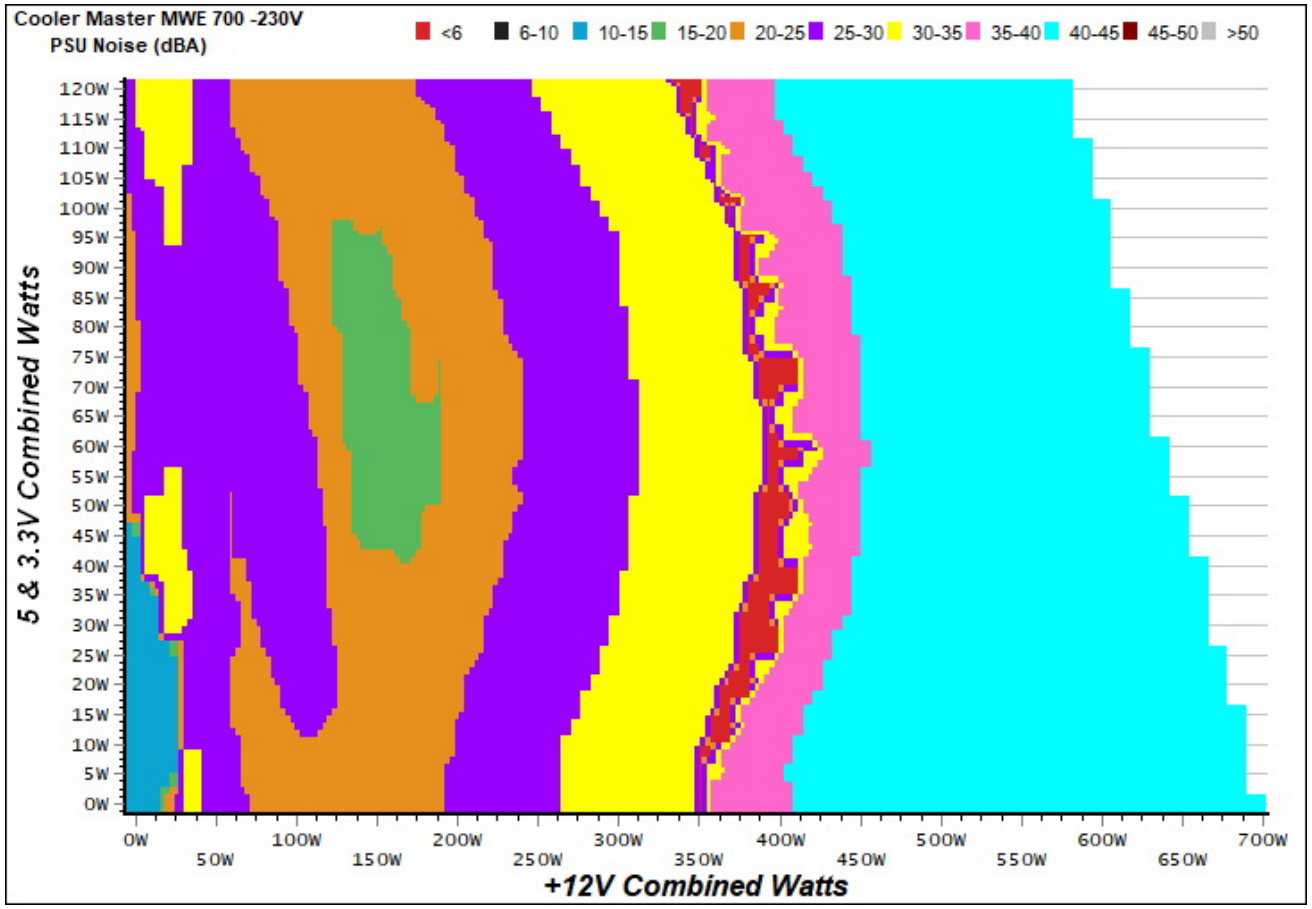


INFO

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

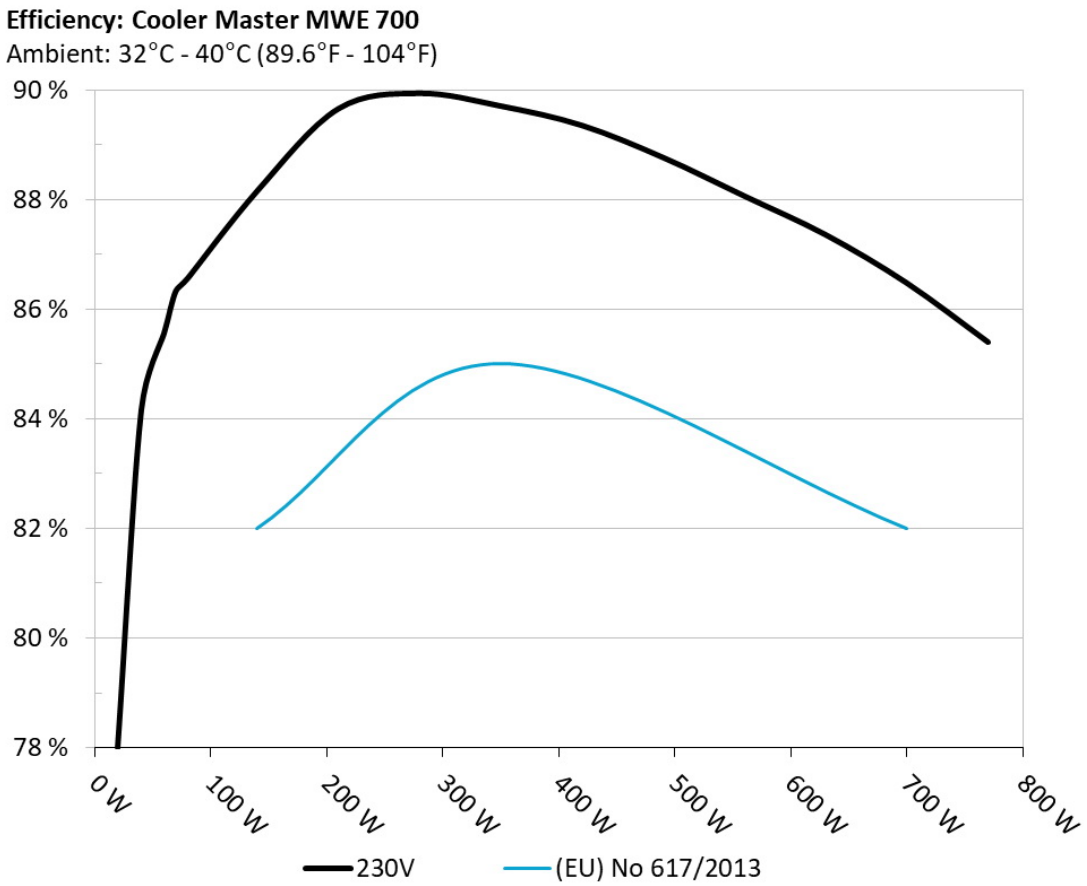


INFO

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

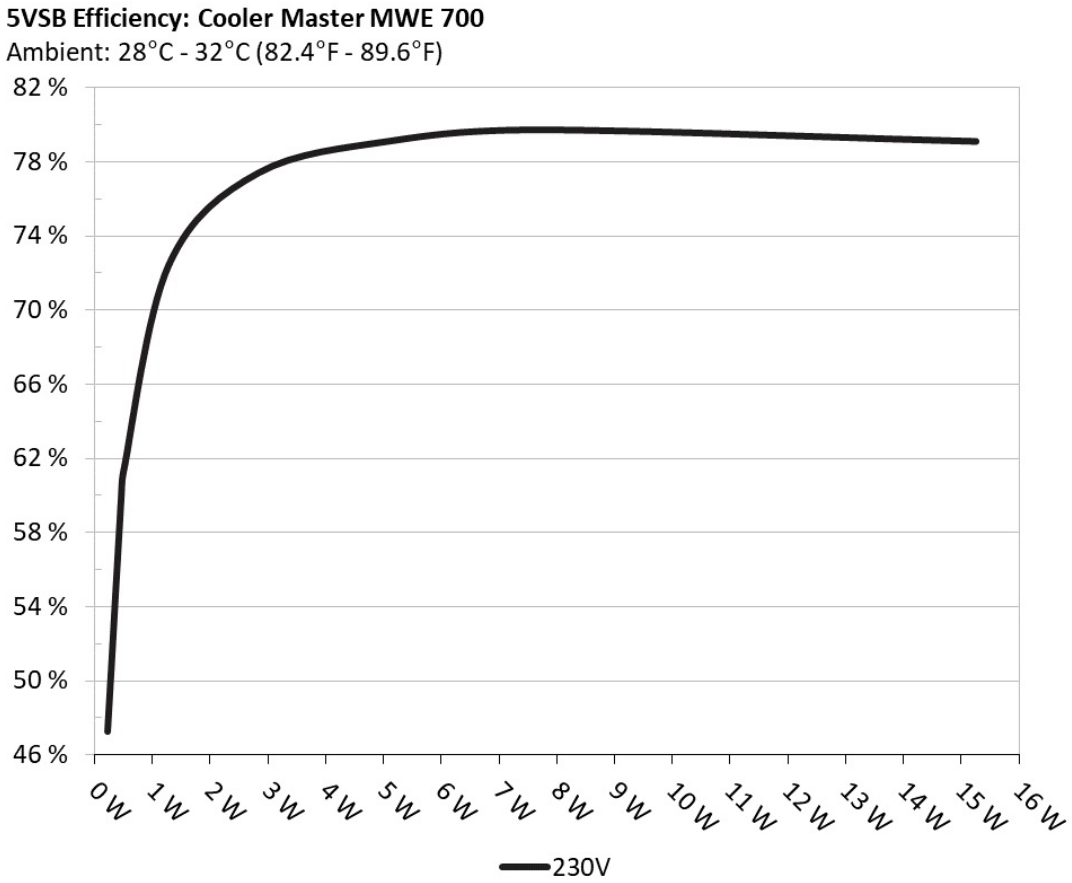
Efficiency under high ambient temperature



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) 230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.233	47.262%	0.010
	5.179V	0.493		230.33V

2	0.090A	0.466	59.744%	0.015
	5.178V	0.780		230.33V
3	0.550A	2.841	77.390%	0.069
	5.164V	3.671		230.31V
4	1.000A	5.151	79.124%	0.119
	5.150V	6.510		230.32V
5	1.500A	7.703	79.716%	0.168
	5.134V	9.663		230.32V
6	3.000A	15.261	79.089%	0.277
	5.087V	19.296		230.32V

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	3.960A	2.019A	1.982A	0.974A	69.611	77.066%	1195	26.3	34.19°C	0.720
	12.125V	4.954V	3.326V	5.136V	90.327				40.69°C	230.30V
2	8.987A	3.038A	2.983A	1.172A	139.697	85.985%	1325	29.2	34.56°C	0.840
	12.107V	4.937V	3.316V	5.120V	162.467				41.64°C	230.30V
3	14.373A	3.554A	3.475A	1.372A	209.595	89.646%	1233	27.6	35.12°C	0.894
	12.078V	4.925V	3.307V	5.104V	233.802				42.67°C	230.30V
4	19.776A	4.072A	4.001A	1.573A	279.621	89.929%	1466	32.7	35.67°C	0.924
	12.056V	4.912V	3.298V	5.088V	310.936				43.65°C	230.30V
5	24.853A	5.107A	5.017A	1.775A	349.721	89.698%	1822	38.1	36.21°C	0.941
	12.040V	4.895V	3.287V	5.071V	389.888				44.56°C	230.30V
6	29.952A	6.150A	6.043A	1.979A	419.848	89.344%	1949	40.2	36.67°C	0.952
	12.021V	4.878V	3.276V	5.053V	469.922				45.68°C	230.30V
7	35.064A	7.200A	7.077A	2.185A	489.980	88.758%	2167	42.7	37.28°C	0.959
	12.003V	4.861V	3.265V	5.035V	552.038				47.07°C	230.30V
8	40.192A	8.259A	8.115A	2.392A	560.106	88.054%	2334	44.2	37.97°C	0.965
	11.985V	4.844V	3.253V	5.017V	636.096				48.51°C	230.30V

9	45.729A	8.798A	8.632A	2.398A	629.841	87.352%	2444	45.9	38.65°C	0.969
	11.969V	4.831V	3.244V	5.006V	721.040				49.76°C	230.31V
10	51.057A	9.343A	9.185A	3.016A	699.896	86.471%	2446	45.9	39.82°C	0.971
	11.951V	4.817V	3.234V	4.975V	809.398				51.31°C	230.32V
11	56.995A	9.361A	9.208A	3.023A	769.942	85.394%	2443	45.9	40.42°C	0.972
	11.935V	4.808V	3.225V	4.963V	901.631				52.76°C	230.32V
CL1	0.147A	14.001A	14.001A	0.000A	115.761	77.104%	2251	43.0	36.55°C	0.822
	12.102V	4.855V	3.286V	5.131V	150.136				44.50°C	230.32V
CL2	58.017A	1.003A	0.999A	1.000A	707.102	87.228%	2445	45.9	39.89°C	0.972
	11.960V	4.888V	3.262V	5.057V	810.637				51.24°C	230.34V

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	0.478A	0.194A	19.532	78.003%	0	<6.0	0.364
	12.115V	4.975V	3.338V	5.170V	25.040				230.30V
2	2.444A	1.006A	0.986A	0.388A	39.925	84.159%	0	<6.0	0.547
	12.126V	4.970V	3.334V	5.160V	47.440				230.31V
3	3.626A	1.513A	1.469A	0.583A	59.369	74.853%	1113	24.0	0.689
	12.127V	4.959V	3.329V	5.151V	79.314				230.31V
4	4.884A	2.019A	1.983A	0.778A	79.797	78.817%	1184	25.9	0.747
	12.122V	4.953V	3.325V	5.141V	101.243				230.30V

The results above are not used in the certification process

Ripple Measurements 230V

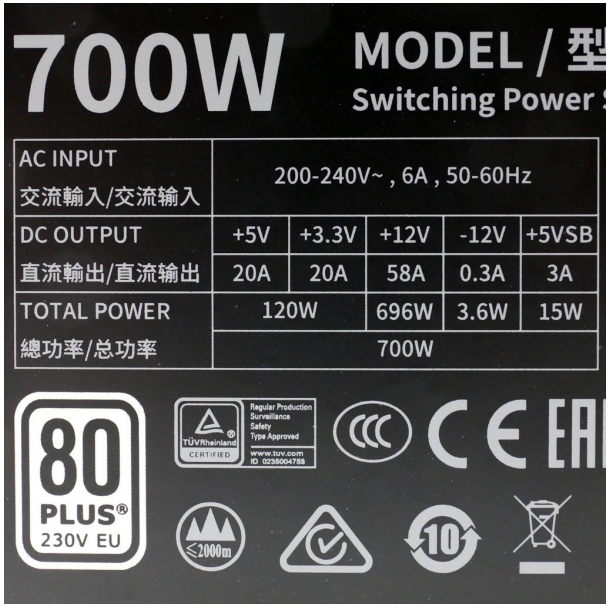
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	15.6 mV	21.4 mV	16.4 mV	18.9 mV	Pass
20% Load	18.0 mV	20.9 mV	16.2 mV	19.9 mV	Pass
30% Load	34.2 mV	22.3 mV	17.0 mV	21.5 mV	Pass
40% Load	32.0 mV	22.6 mV	17.7 mV	22.8 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	29.0 mV	22.3 mV	17.5 mV	22.5 mV	Pass
60% Load	27.8 mV	22.5 mV	21.0 mV	24.7 mV	Pass
70% Load	27.0 mV	24.1 mV	21.5 mV	25.7 mV	Pass
80% Load	27.8 mV	24.6 mV	24.9 mV	26.4 mV	Pass
90% Load	28.4 mV	24.3 mV	26.5 mV	26.3 mV	Pass
100% Load	44.7 mV	29.3 mV	28.3 mV	32.0 mV	Pass
110% Load	48.0 mV	27.9 mV	28.0 mV	32.9 mV	Pass
Crossload 1	42.5 mV	27.0 mV	32.4 mV	19.9 mV	Pass
Crossload 2	44.7 mV	26.9 mV	18.2 mV	29.5 mV	Pass

The results above are not used in the certification process

Cooler Master MWE 700

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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