Make It Yours.

Cooler Master V550 Gold

Serial Number MPY5501AFAAGV1184300015

Lab ID 581

Certification ID 25581

Test Result Report ID: 19PS581A

Certificate Issue Date: Dec 27, 2018

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	V550 Gold
OEM/ODM	Chicony Electronics
Serial Number	MPY5501AFAAGV1184300015
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8
Rated Frequency (Hz)	50-60

Rated Power (W)	550
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	135mm Fluid Dynamic Bearing Fan (APISTEK SAC4H2H)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	581
Date of receipt	Dec 15, 2018
Testing Date	Dec 25, 2018
Report Issued Date	Dec 27, 2018
DUT Notes	MPY-5501-AFAAGV
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (650mm)	1	1	18-22AWG	No
4+4 pin EPS12V (650mm)	1	1	18AWG	No
6+2 pin PCIe (550mm+120mm)	1	2	18AWG	No
SATA (500mm+120mm+120mm+120mm)	2	8	18AWG	No
4 pin Molex (500mm+120mm+120mm+120mm)	1	4	18AWG	No
FDD Adapter (125mm)	1	1	22AWG	No
AC Power Cord (1350mm) - C13 coupler	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	45	3	0.3
	Watts	130		540	15	3.6
Total Max. Power (W)		550				

Parts Description

General Data	
Manufacturer (OEM)	Chicony
PCB Type	Single Layer
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes
Inrush Protection	-
Bridge Rectifier(s)	2x GBU15JL (600V, 15A @ 115°C)
APFC MOSFETS	1x Infineon IPW60R060P7 (650V, 30A @ 100°C, 0.06Ohm)
APFC Boost Diode	1x CREE C3D06060A (600V, 6A @ 154°C)
Hold-up Cap(s)	1x Nichicon (450V, 470uF, 2000h @ 105 °C, GG)
Main Switchers	2x Infineon IPA60R099P6 (600V, 25A @ 150°C, 0.125Ohm)
APFC Controller	Infineon ICE3PCS03G
Resonant Controllers	MPS HR1000A & 2x MPS MP6903
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x JA54
5V & 3.3V	DC-DC Converters: 6x APEC AP0403GH (30V, 50A @ 100°C, 4.5mOhm) PWM Controller: 2x APW7160A
Filtering Capacitors	Electrolytics: 6x Rubycon (6-10,000h @ 105°C, ZLH), 1x Chemi-Con (4-10,000 @ 105°C, KY), 2x Nippon Chemi-Con (5-6,000 @ 105°C, KZH), Polymers: FPCAP (FP5), Chemi-Con
Supervisor IC	CP006WD & LM358A
Fan Model	APISTEK SAC4H2H (135mm, 12V, 0.50A, 111.1CFM, 41.6 dBA, Hydro Dynamic Bearing)
5VSB Circuit	
Rectifier	AOTF3N80L FET (800V, 1.8A @ 100°C, 4.8Ohm) & MBR20100CTG SBR (100V, 1A)
Standby PWM Controller	400BBBBB2 PAJH
-12V Circuit	

Rectifier	UTC LM7912L (-12V, 1A)

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)	88.676%
Average Noise Output (>1450 Load Combinations)	22.23dBA
Average PF (>1450 Load Combinations)	0.982
Efficiency With 10W (≤500W) or 2% (>500W) Load	62.173%
Standby Power Consumption	0.0935W
Non-Accredited	
12V Ripple (Full Load)	22.71mV
5V Ripple (Full Load)	16.70mV
3.3V Ripple (Full Load)	29.28mV
5VSB Ripple (Full Load)	18.17mV
12V Load Regulation	0.81%
5V Load Regulation	0.72%
3.3V Load Regulation	1.16%
5VSB Load Regulation	3.60%
Inrush Current	81.542A

230V		
Accredited		
Average Efficiency (>1450 load combinations)	90.545%	
Average Noise Output (>1450 Load Combinations)	21.94dBA	
Average PF (>1450 Load Combinations)	0.901	
Efficiency With 10W (≤500W) or 2% (>500W) Load	-	
Standby Power Consumption	0.1813W	
Non-Accredited		
12V Ripple (Full Load)	17.92mV	
5V Ripple (Full Load)	17.03mV	
3.3V Ripple (Full Load)	27.56mV	
5VSB Ripple (Full Load)	16.94mV	
12V Load Regulation	0.77%	
5V Load Regulation	0.74%	
3.3V Load Regulation	1.13%	
5VSB Load Regulation	3.59%	
Inrush Current	70.610A	
Hold-Up Time & PWR_OK Signal	22.40ms	
AC Loss to PWR_OK Hold Up Time	17.40ms	
PWR_OK Inactive to DC Loss Delay	5.00ms	
OPP (0.00°C / 0.00°C)	-	-

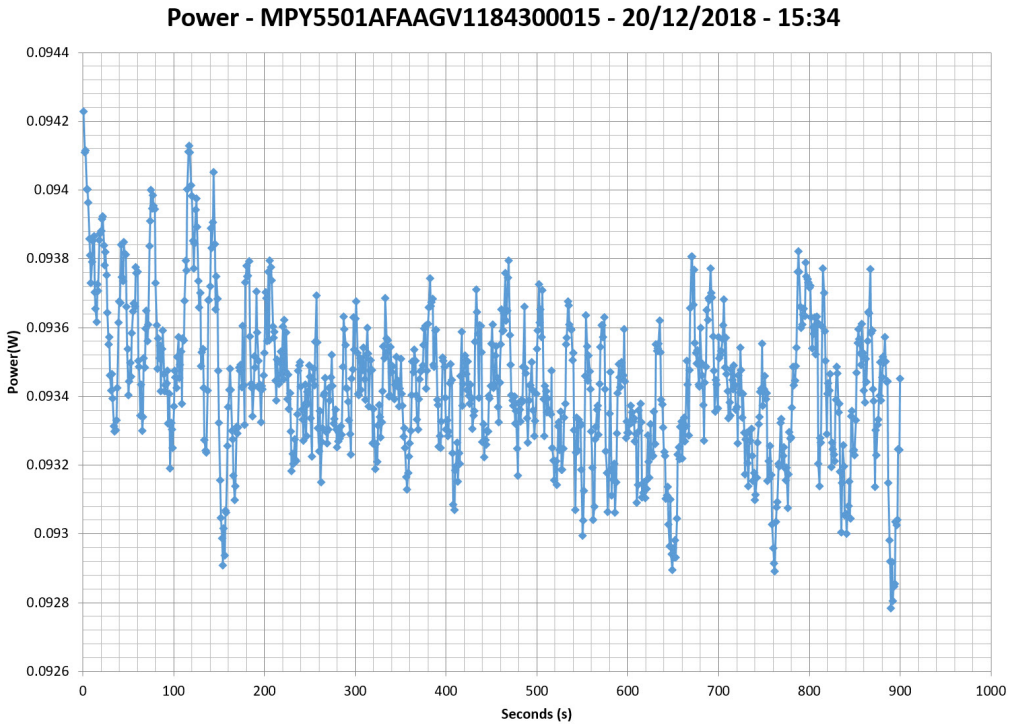
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	22.4
AC Loss to PWR_OK Hold Up Time (ms)	17.4
PWR_OK Inactive to DC Loss Delay (ms)	5.0

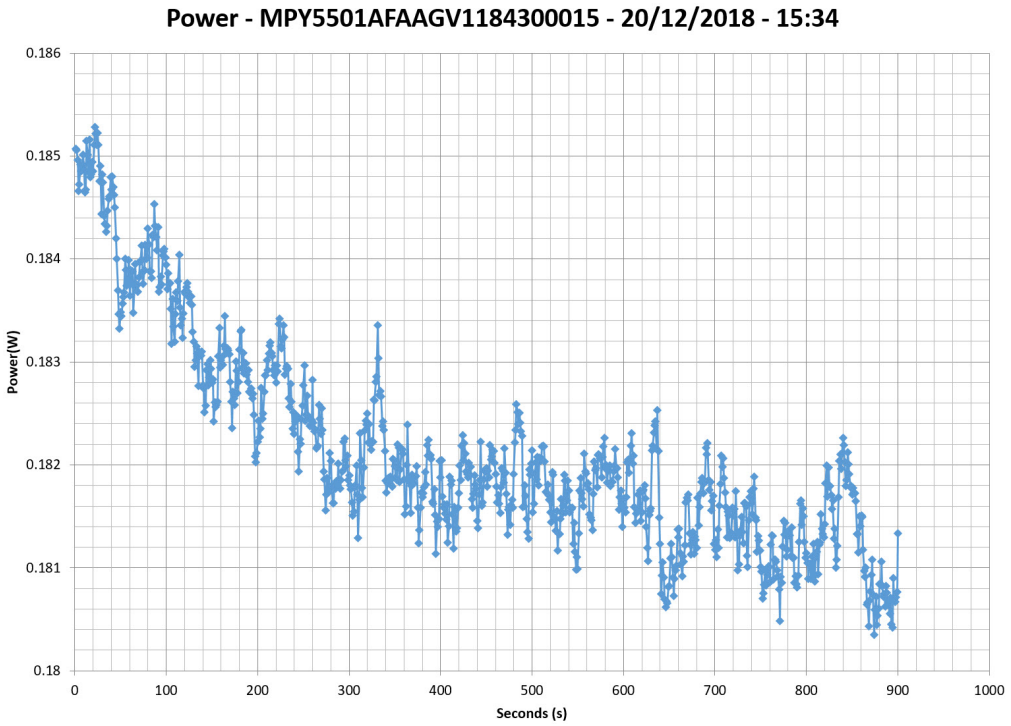
Vampire Power

Graphs

115V

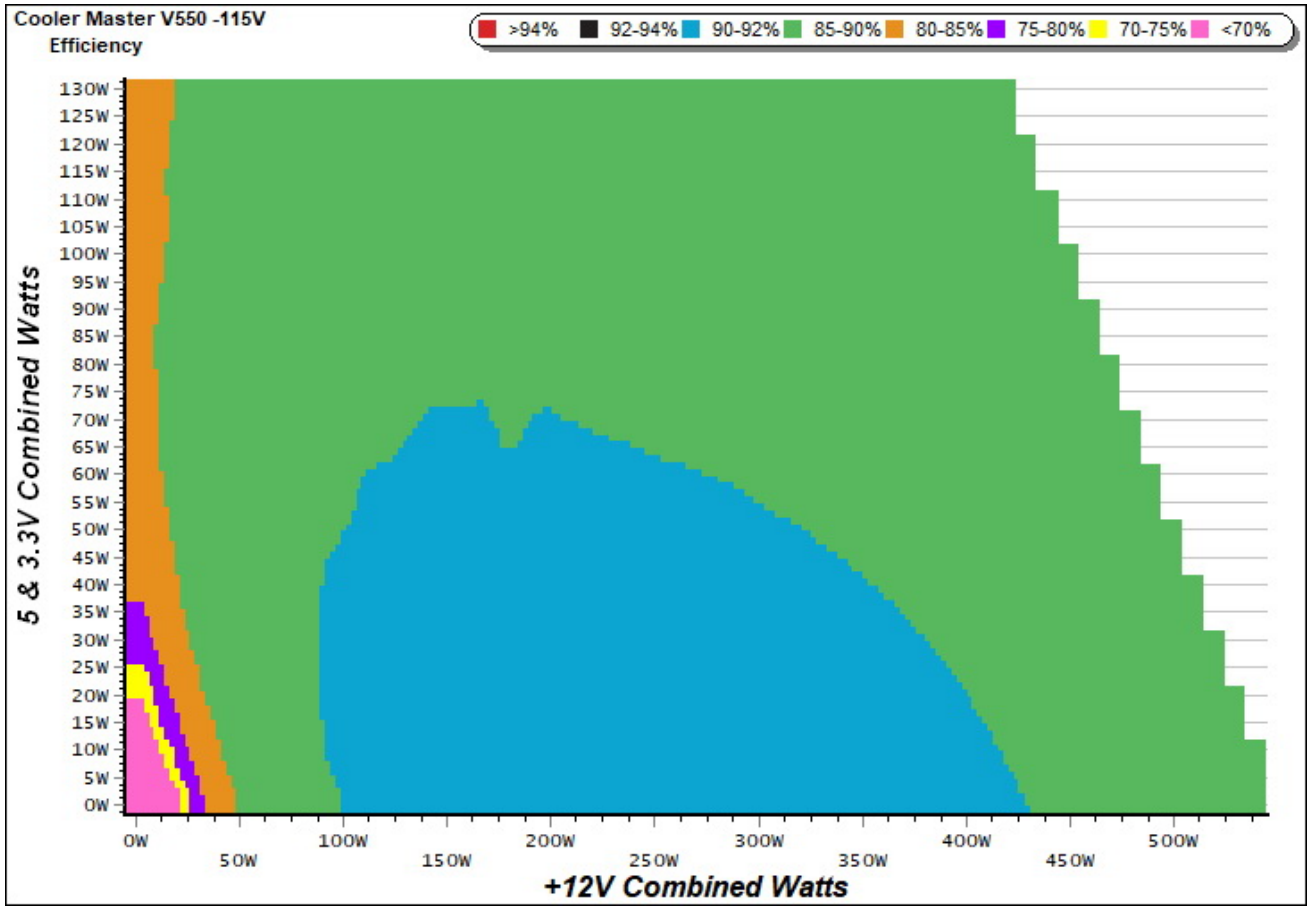


230V



Efficiency Graph

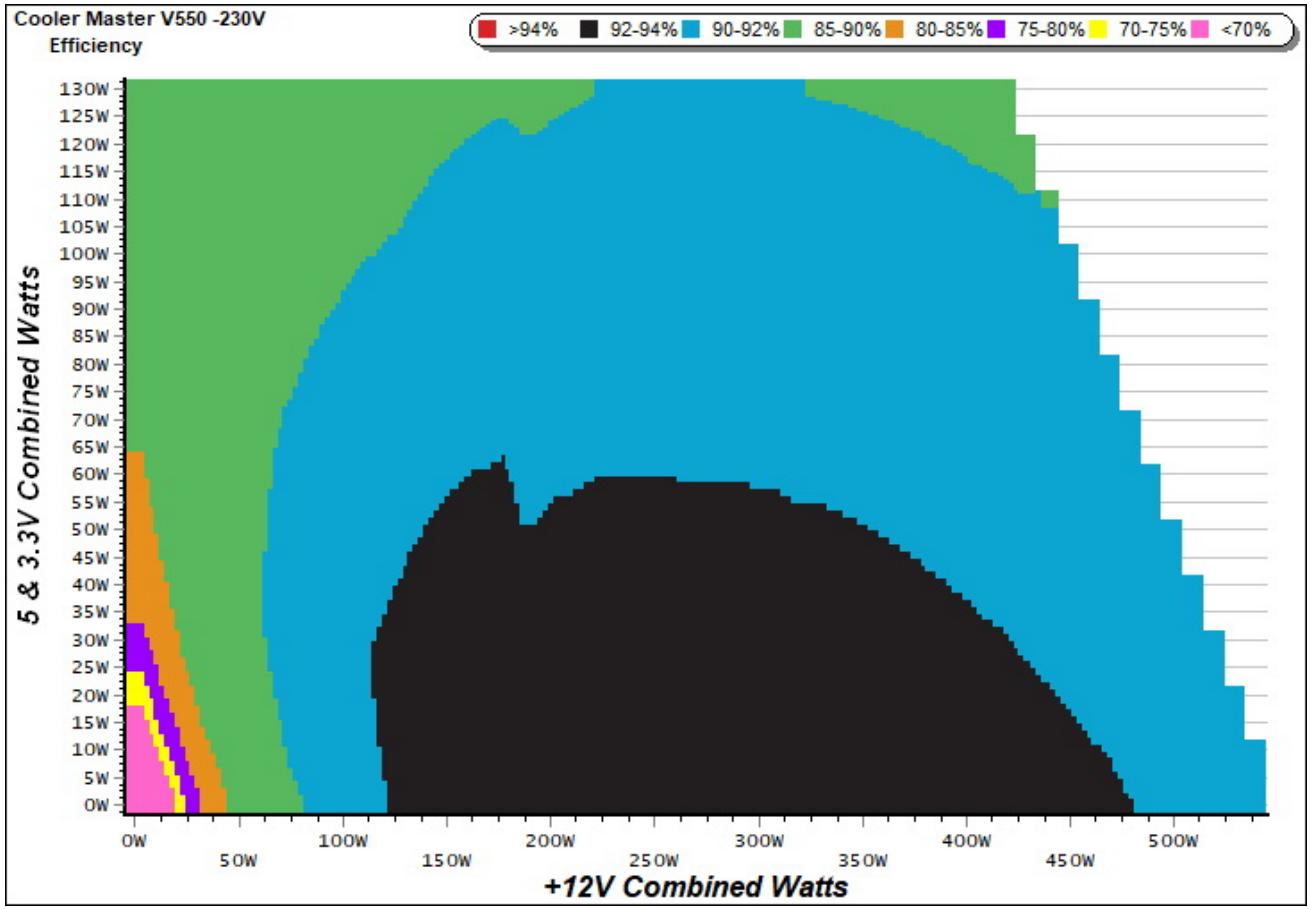
115V



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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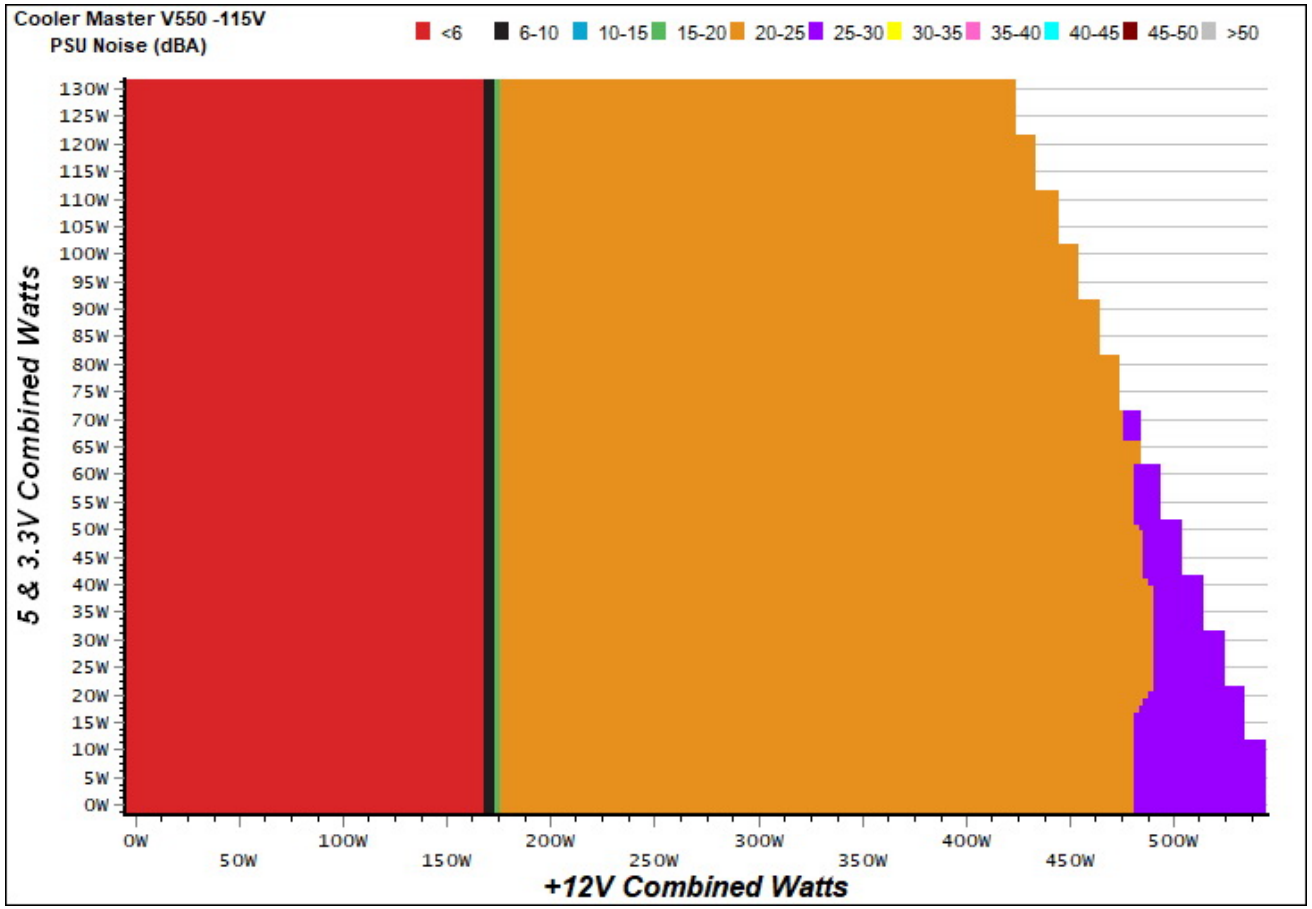
Noise Graph

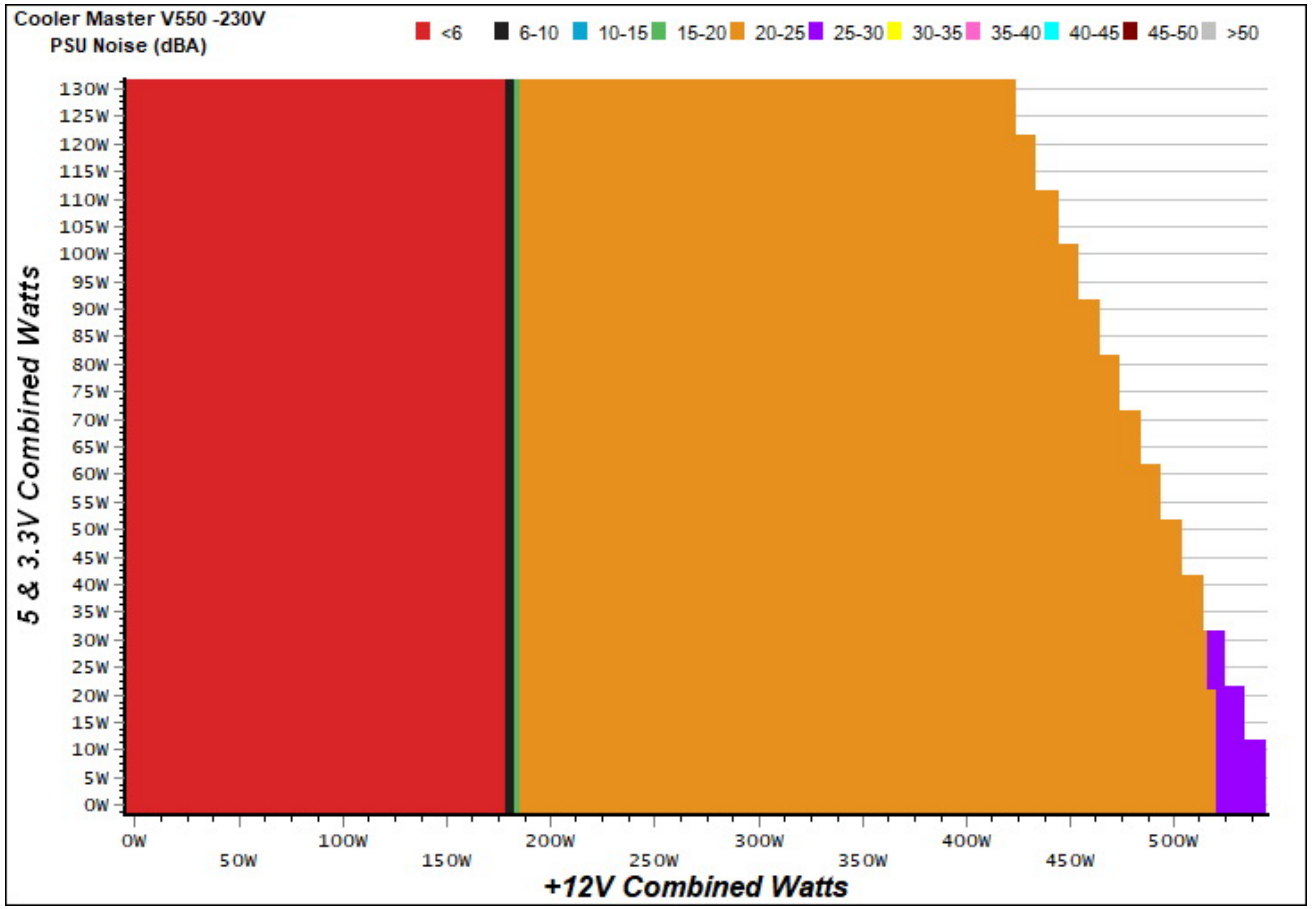
115V



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

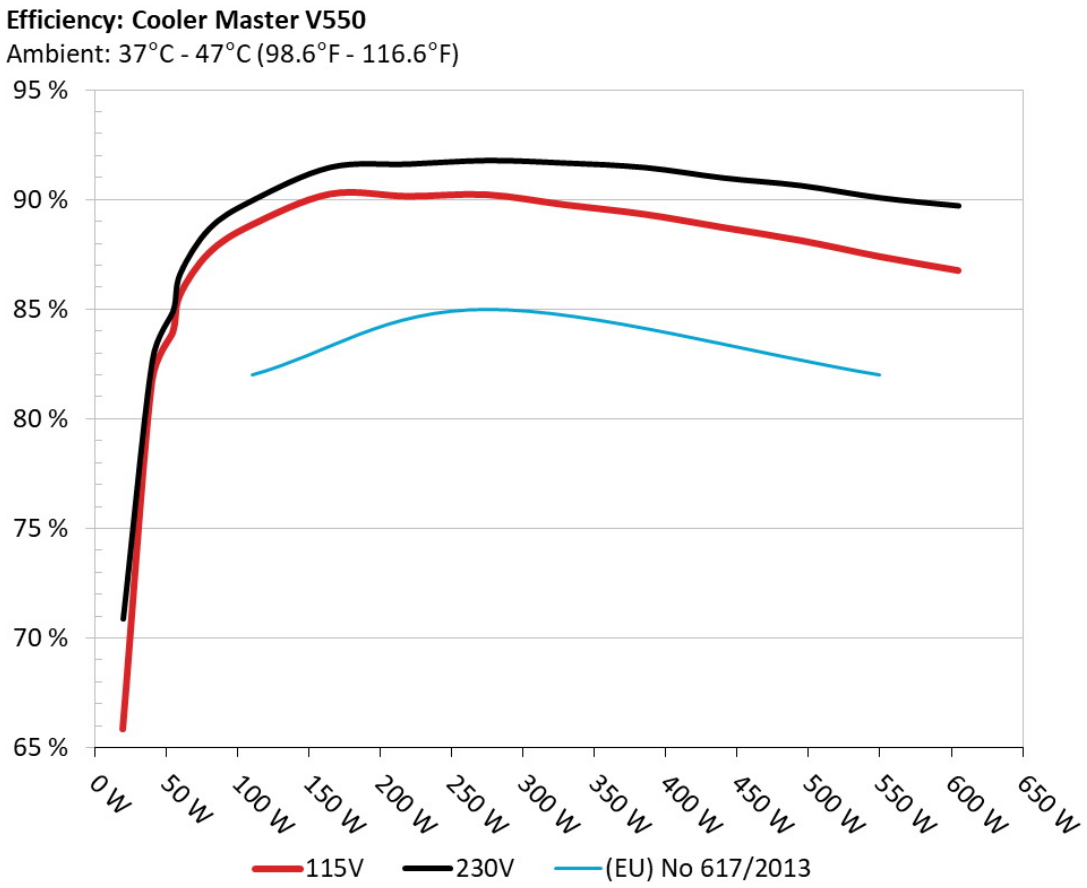


INFO

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

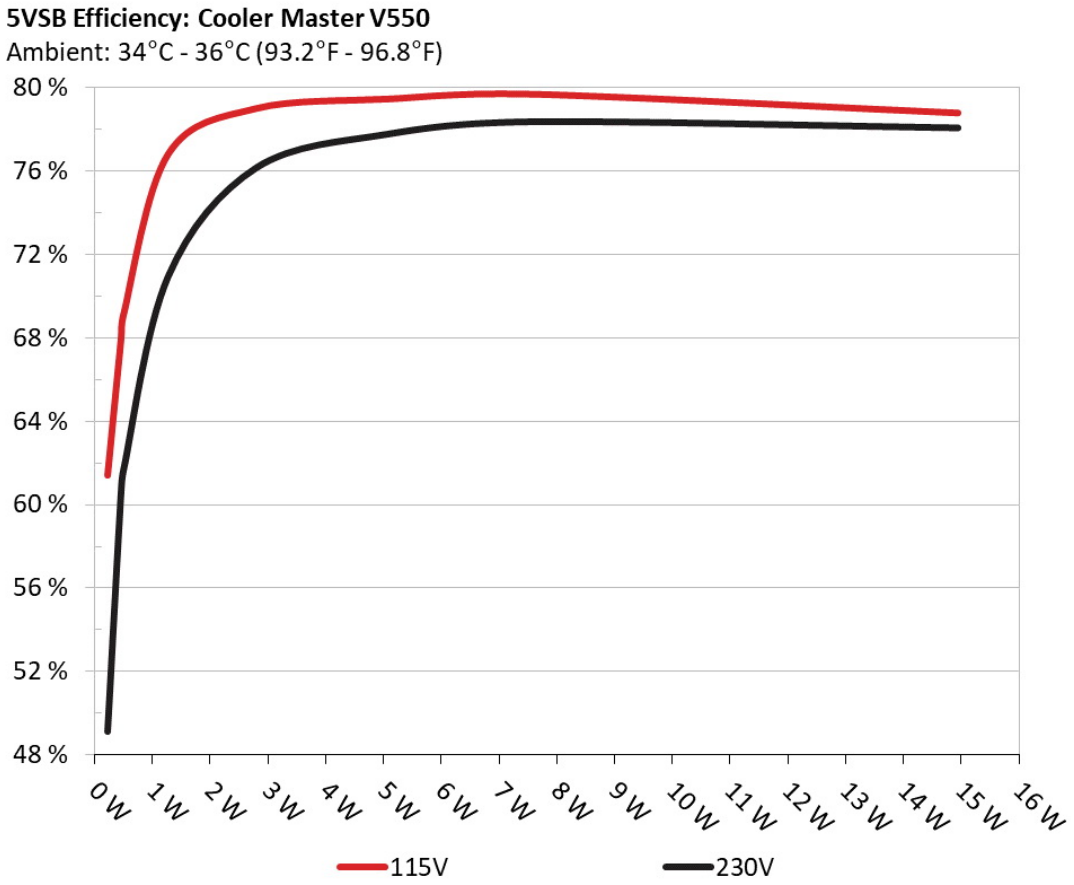
Efficiency under high ambient temperature



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	0.231	61.436%	0.053
	5.119V	0.376		115.11V
2	0.090A	0.461	67.894%	0.092
	5.117V	0.679		115.11V
3	0.550A	2.804	78.986%	0.269
	5.096V	3.550		115.11V
4	1.000A	5.077	79.440%	0.317
	5.076V	6.391		115.11V
5	1.500A	7.582	79.668%	0.342
	5.054V	9.517		115.11V
6	3.000A	14.950	78.775%	0.381
	4.984V	18.978		115.10V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	49.149%	0.020
	5.119V	0.470		230.28V
2	0.090A	0.461	60.499%	0.033
	5.117V	0.762		230.28V
3	0.550A	2.803	76.168%	0.138
	5.096V	3.680		230.28V
4	1.000A	5.076	77.781%	0.205
	5.075V	6.526		230.28V
5	1.500A	7.579	78.376%	0.251
	5.052V	9.670		230.28V
6	3.000A	14.947	78.081%	0.317
	4.983V	19.143		230.28V

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	2.702A	1.998A	1.962A	0.988A	54.441	83.915%	0	<6.0	45.82°C	0.926
	12.151V	5.012V	3.360V	5.063V	64.876				38.97°C	115.11V
2	6.461A	2.995A	2.949A	1.189A	109.340	88.808%	0	<6.0	46.70°C	0.959
	12.140V	5.010V	3.355V	5.049V	123.119				39.38°C	115.20V
3	10.621A	3.498A	3.429A	1.391A	164.827	90.239%	0	<6.0	47.84°C	0.974
	12.130V	5.002V	3.352V	5.035V	182.657				40.24°C	115.13V
4	14.723A	3.994A	3.942A	1.594A	219.636	90.134%	834	23.8	41.09°C	0.982
	12.120V	5.007V	3.346V	5.022V	243.678				48.95°C	115.13V
5	18.499A	4.995A	4.937A	1.798A	274.548	90.207%	837	23.9	41.81°C	0.989
	12.111V	5.006V	3.342V	5.007V	304.355				50.05°C	115.13V
6	22.284A	6.000A	5.933A	2.003A	329.462	89.745%	839	23.9	42.15°C	0.992
	12.101V	5.000V	3.338V	4.992V	367.107				50.89°C	115.13V
7	26.111A	7.008A	6.928A	2.211A	384.789	89.318%	842	24.1	42.68°C	0.994
	12.090V	4.995V	3.334V	4.977V	430.806				51.74°C	115.13V
8	29.945A	8.022A	7.928A	2.419A	440.112	88.712%	1050	30.4	43.52°C	0.995
	12.079V	4.987V	3.330V	4.961V	496.111				53.64°C	115.13V
9	34.151A	8.528A	8.416A	2.421A	494.639	88.118%	1307	36.4	44.06°C	0.996
	12.068V	4.985V	3.326V	4.957V	561.336				54.88°C	115.13V
10	38.163A	9.036A	8.938A	3.048A	549.834	87.385%	1494	39.6	45.13°C	0.996
	12.057V	4.981V	3.322V	4.922V	629.208				56.58°C	115.14V
11	42.776A	9.046A	8.945A	3.051A	605.040	86.748%	1666	42.1	46.54°C	0.997
	12.047V	4.976V	3.320V	4.919V	697.470				58.60°C	115.13V
CL1	0.139A	16.001A	15.999A	0.000A	134.567	83.964%	0	<6.0	50.68°C	0.968
	12.128V	4.968V	3.337V	5.084V	160.267				41.67°C	115.14V

CL2	45.000A	1.001A	0.998A	1.000A	555.989	88.286%	1503	39.7	45.39°C	0.996
	12.059V	4.969V	3.336V	5.030V	629.758				56.57°C	115.12V

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	2.701A	1.994A	1.961A	0.988A	54.402	84.912%	0	<6.0	45.03°C	0.681
	12.150V	5.013V	3.359V	5.063V	64.069				39.25°C	230.30V
2	6.458A	2.997A	2.947A	1.189A	109.292	89.952%	0	<6.0	46.25°C	0.808
	12.139V	5.007V	3.356V	5.048V	121.500				39.89°C	230.30V
3	10.610A	3.498A	3.427A	1.391A	164.690	91.496%	0	<6.0	47.36°C	0.869
	12.130V	5.003V	3.352V	5.034V	179.996				40.50°C	230.22V
4	14.712A	3.991A	3.943A	1.593A	219.493	91.641%	838	23.9	41.26°C	0.900
	12.120V	5.009V	3.346V	5.022V	239.514				48.75°C	230.29V
5	18.505A	4.997A	4.936A	1.798A	274.608	91.805%	840	23.9	42.08°C	0.919
	12.110V	5.006V	3.342V	5.006V	299.122				49.80°C	230.24V
6	22.294A	6.001A	5.932A	2.005A	329.546	91.690%	842	24.1	42.93°C	0.929
	12.099V	5.000V	3.338V	4.990V	359.415				51.56°C	230.27V
7	26.122A	7.012A	6.929A	2.212A	384.873	91.485%	846	24.2	43.53°C	0.939
	12.088V	4.993V	3.333V	4.975V	420.694				52.75°C	230.33V
8	29.956A	8.023A	7.930A	2.421A	440.195	91.007%	1102	31.6	44.09°C	0.945
	12.077V	4.987V	3.329V	4.959V	483.696				53.92°C	230.29V
9	34.157A	8.528A	8.420A	2.423A	494.654	90.657%	1300	36.1	44.04°C	0.951
	12.066V	4.985V	3.325V	4.955V	545.630				54.87°C	230.34V
10	38.162A	9.037A	8.940A	3.049A	549.823	90.102%	1517	39.9	45.25°C	0.959
	12.057V	4.980V	3.322V	4.920V	610.221				56.37°C	230.30V
11	42.780A	9.044A	8.947A	3.052A	605.030	89.735%	1554	40.4	45.85°C	0.964
	12.046V	4.976V	3.319V	4.916V	674.243				58.44°C	230.30V
CL1	0.140A	16.001A	15.998A	0.000A	134.511	85.085%	0	<6.0	49.92°C	0.846
	12.127V	4.964V	3.337V	5.082V	158.090				42.36°C	230.27V

CL2	45.006A	1.002A	0.998A	1.000A	555.992	91.061%	1312	36.4	45.26°C	0.959
	12.057V	4.990V	3.333V	5.029V	610.573				56.41°C	230.30V

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	1.183A	0.500A	0.476A	0.196A	19.499	65.831%	0	<6.0	0.820
	12.162V	5.020V	3.363V	5.106V	29.620				115.09V
2	2.437A	0.998A	0.979A	0.393A	39.924	81.684%	0	<6.0	0.902
	12.156V	5.017V	3.361V	5.094V	48.876				115.12V
3	3.627A	1.497A	1.454A	0.591A	59.468	85.621%	0	<6.0	0.931
	12.151V	5.015V	3.359V	5.083V	69.455				115.11V
4	4.877A	1.998A	1.964A	0.789A	79.845	87.546%	0	<6.0	0.945
	12.146V	5.011V	3.358V	5.071V	91.203				115.16V

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	1.183A	0.499A	0.475A	0.196A	19.488	70.858%	0	<6.0	0.482
	12.160V	5.020V	3.362V	5.105V	27.503				230.29V
2	2.435A	0.997A	0.979A	0.393A	39.892	82.666%	0	<6.0	0.615
	12.155V	5.017V	3.361V	5.093V	48.257				230.30V
3	3.624A	1.496A	1.454A	0.590A	59.414	86.633%	0	<6.0	0.703
	12.149V	5.015V	3.359V	5.082V	68.581				230.30V
4	4.873A	1.996A	1.964A	0.789A	79.782	88.686%	0	<6.0	0.759
	12.145V	5.012V	3.358V	5.071V	89.960				230.31V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	7.4 mV	9.7 mV	12.7 mV	7.9 mV	Pass
20% Load	6.3 mV	10.3 mV	14.7 mV	8.4 mV	Pass
30% Load	6.8 mV	14.2 mV	15.7 mV	8.8 mV	Pass
40% Load	7.4 mV	14.8 mV	18.5 mV	8.9 mV	Pass
50% Load	7.4 mV	13.6 mV	18.6 mV	9.3 mV	Pass
60% Load	9.1 mV	14.1 mV	20.5 mV	10.9 mV	Pass
70% Load	11.1 mV	14.1 mV	22.1 mV	10.8 mV	Pass
80% Load	12.1 mV	14.9 mV	23.8 mV	10.7 mV	Pass
90% Load	16.3 mV	16.2 mV	25.7 mV	12.3 mV	Pass
100% Load	22.7 mV	16.7 mV	29.3 mV	18.2 mV	Pass
110% Load	23.8 mV	17.4 mV	28.9 mV	18.3 mV	Pass
Crossload 1	9.3 mV	13.8 mV	21.8 mV	12.4 mV	Pass
Crossload 2	20.7 mV	15.1 mV	25.0 mV	14.5 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	7.0 mV	10.2 mV	13.3 mV	7.4 mV	Pass
20% Load	6.4 mV	10.0 mV	14.2 mV	8.0 mV	Pass
30% Load	6.7 mV	13.0 mV	22.2 mV	8.2 mV	Pass
40% Load	7.3 mV	14.7 mV	21.3 mV	9.3 mV	Pass
50% Load	7.4 mV	14.0 mV	18.7 mV	9.2 mV	Pass
60% Load	7.6 mV	13.9 mV	19.9 mV	9.6 mV	Pass
70% Load	9.4 mV	14.5 mV	21.0 mV	10.8 mV	Pass
80% Load	10.7 mV	15.0 mV	23.7 mV	13.5 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	12.8 mV	14.9 mV	24.3 mV	13.7 mV	Pass
100% Load	17.9 mV	17.0 mV	27.6 mV	16.9 mV	Pass
110% Load	21.0 mV	17.4 mV	27.6 mV	17.2 mV	Pass
Crossload 1	9.0 mV	13.9 mV	21.2 mV	12.2 mV	Pass
Crossload 2	16.7 mV	15.3 mV	25.0 mV	14.8 mV	Pass

The results above are not used in the certification process

Cooler Master V550 Gold

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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