

Anex

Cooler Master V550 Gold

Lab ID#: 581

Receipt Date: Dec 15, 2018

Test Date: Dec 25, 2018

Report: 19PS581A

Report Date: Dec 27, 2018

DUT INFORMATION

Brand	Cooler Master
Manufacturer (OEM)	Chicony Electronics
Series	V Gold Series
Model Number	
Serial Number	MPY5501AFAAGV1184300015
DUT Notes	MPY-5501-AFAAGV

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8
Rated Frequency (Hz)	50-60
Rated Power (W)	550
Type	ATX12V
Cooling	135mm Fluid Dynamic Bearing Fan (APISTEK SAC4H2H)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

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				

CABLES AND CONNECTORS

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	-

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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)

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RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	88.676%
Efficiency With 10W (≤500W) or 2% (>500W)	62.173
Average Efficiency 5VSB	78.673%
Standby Power Consumption (W)	0.0934521
Average PF	0.982
Avg Noise Output	22.23 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

230V

Average Efficiency	90.545%
Average Efficiency 5VSB	76.882%
Standby Power Consumption (W)	0.1813370
Average PF	0.901
Avg Noise Output	21.94 dB(A)
Efficiency Rating (ETA)	
Noise Rating (LAMBDA)	A

TEST EQUIPMENT

Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Chroma 61604, Keysight AC6804B	
Power Analyzers	N4L PPA1530 x2, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

HOLD-UP TIME & POWER OK SIGNAL (230V)

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

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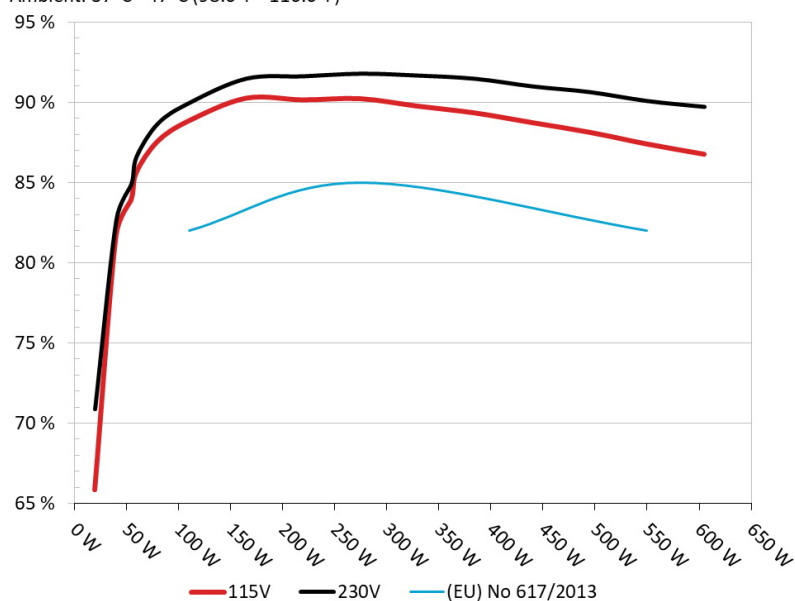
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Cooler Master V550

Ambient: 37°C - 47°C (98.6°F - 116.6°F)



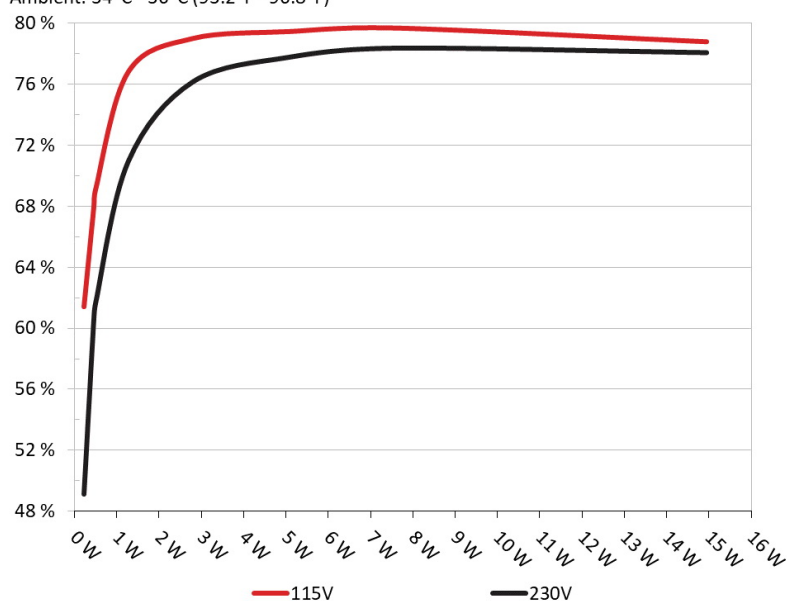
INFO

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 V550

Ambient: 34°C - 36°C (93.2°F - 96.8°F)



INFO

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

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Cooler Master V550 Gold

5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

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

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

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

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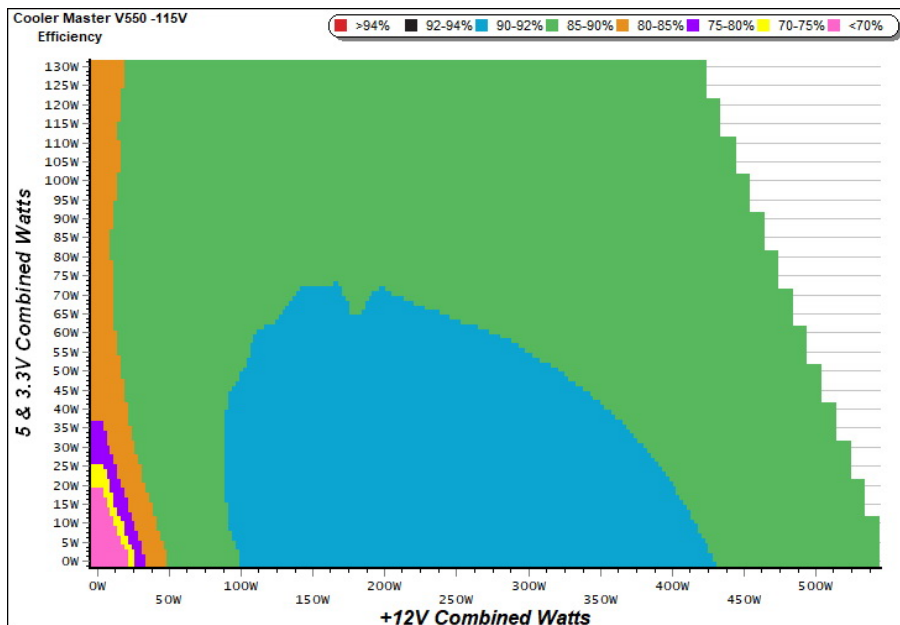
115V

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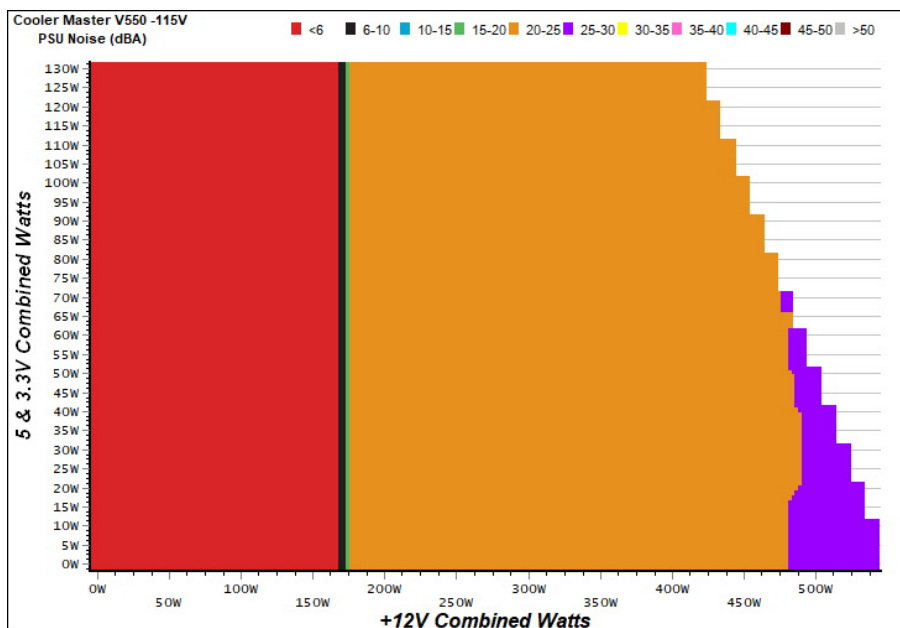
EFFICIENCY GRAPH 115V



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

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

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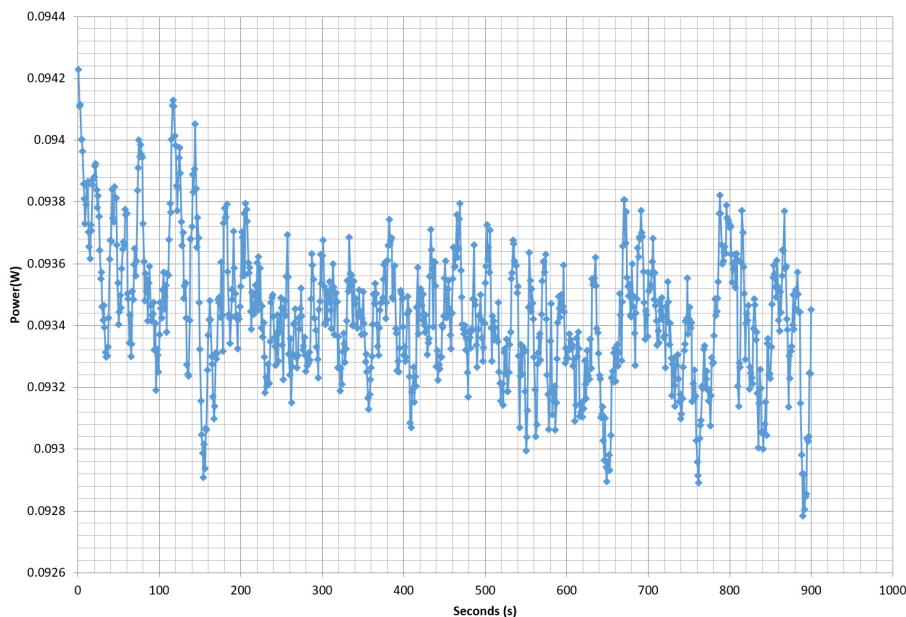
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Anex

Cooler Master V550 Gold

VAMPIRE POWER -115V

Power - MPY5501AFAAGV1184300015 - 20/12/2018 - 15:34



INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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Cooler Master V550 Gold

10-110% 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

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Cooler Master V550 Gold

20-80W 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

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

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Cooler Master V550 Gold

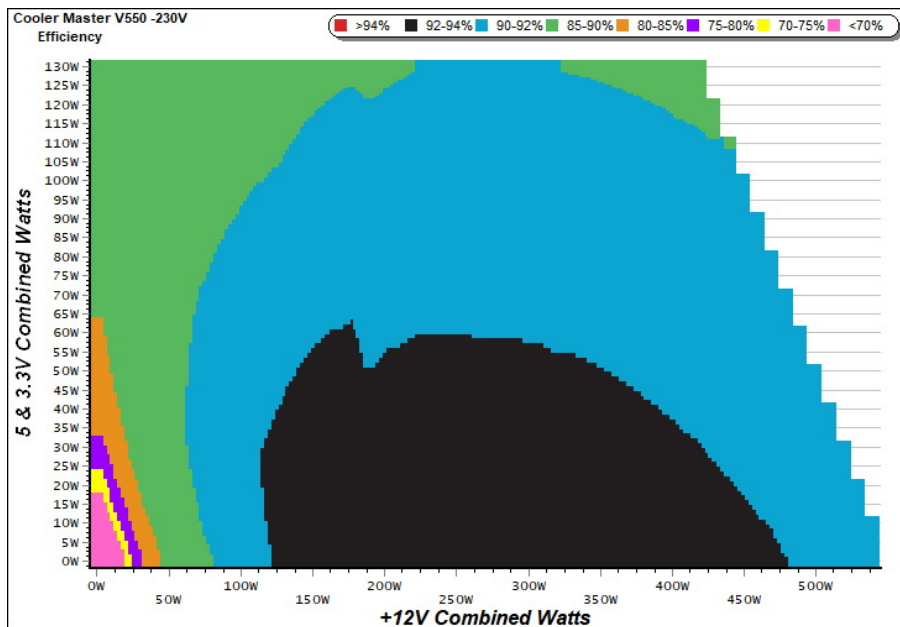
230V

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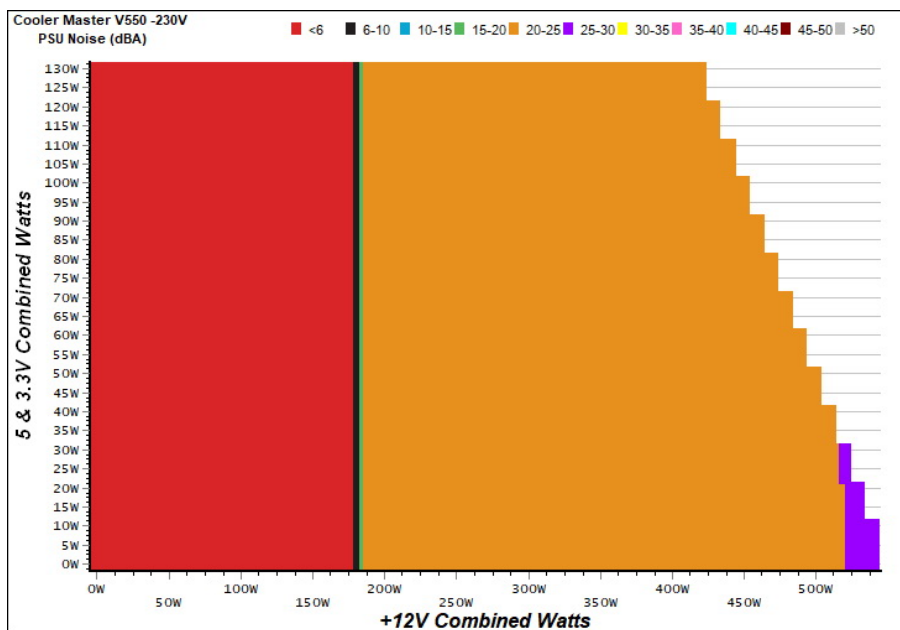
EFFICIENCY GRAPH 230V



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

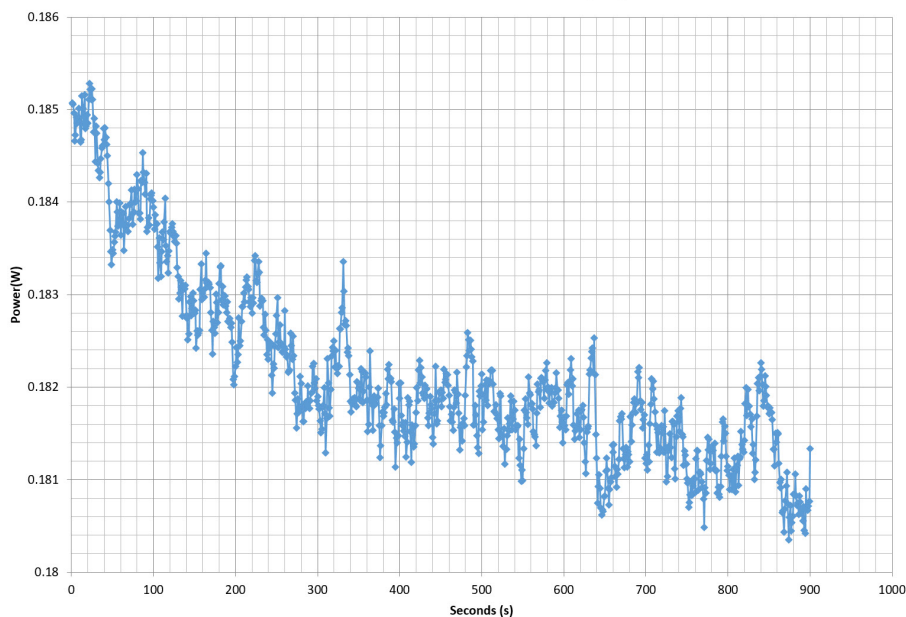
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VAMPIRE POWER -230V

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Cooler Master V550 Gold

10-110% LOAD TESTS 230V

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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

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20-80W LOAD TESTS 230V

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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

RIPPLE MEASUREMENTS 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
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

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

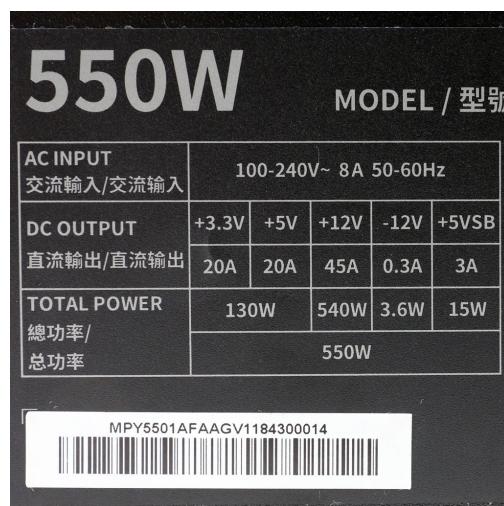
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Anex

Cooler Master V550 Gold



Top side



Power specifications label

CERTIFICATIONS 115V



CERTIFICATIONS 230V



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