Anex

Cooler Master V550 Gold SFX (2021)

Lab ID#: CM55001834
Receipt Date: Apr 5, 2021
Test Date: Apr 16, 2021

Report: 21PS1834A
Report Date: Apr 21, 2021

DUT INFORMATION

Brand	Cooler Master
Manufacturer (OEM)	Gospower
Series	V Gold SFX Series
Model Number	MPY-5501-SFHAGV
Serial Number	MPY5501SFHAGVEU1210500001
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8-4
Rated Frequency (Hz)	50-60
Rated Power (W)	550
Type	SFX
Cooling	92mm Fluid Dynamic Bearing Fan (HA9215VH12FD-F00)
Semi-Passive Operation	✓
Cable Design	Fully Modular

TEST EQUIPMENT

Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289, Keithley 2015 - THD
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

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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	89.599%
Efficiency With 10W (≤500W) or 2% (>500W)	47.449
Average Efficiency 5VSB	78.868%
Standby Power Consumption (W)	0.0430254
Average PF	0.985
Avg Noise Output	30.50 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	Standard++

230V

Average Efficiency	91.430%
Average Efficiency 5VSB	79.087%
Standby Power Consumption (W)	0.0854975
Average PF	0.946
Avg Noise Output	31.87 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	Standard++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	45.8	3	0.3
	Watts	120		549.6	15	3.6
Total Max. Power (W)		550				

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

Hold-Up Time (ms)	20.8
AC Loss to PWR_OK Hold Up Time (ms)	15.6
PWR_OK Inactive to DC Loss Delay (ms)	5.2

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (300mm)	1	1	18-22AWG	No
4+4 pin EPS12V (460mm)	1	1	18AWG	No
8 pin EPS12V (460mm)	1	1	18AWG	No
6+2 pin PCIe (400mm+120mm)	2	4	18AWG	No
SATA (100mm+110mm+110mm+110mm)	2	8	18AWG	No
4 pin Molex (100mm+110mm+110mm+110mm)	1	4	18AWG	No
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

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General Data	-
Manufacturer (OEM)	Gospower
PCB Type	Double Sided
Primary Side	**-**
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x MPS HF81 (Discharge IC)
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	1x GBU2508 (800V, 25A @ 98°C)
APFC MOSFETs	2x STMicroelectronics STF33N60DM2 (650V, 15.5A @ 100°C, Rds(on): 0.13Ohm)
APFC Boost Diode	1x
Bulk Cap(s)	1x Nichicon (450V, 390uF, 2,000h @ 105°C, GM)
Main Switchers	2x Sanrise Tech SRC60R140BTFE (630V, 11.2A @ 125°C, Rds(on): 0.14Ohm)
APFC Controller	Champion CM6500UNX & CM03AX
Resonant Controller	Champion CU6901VAC
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	**-**
+12V MOSFETs	6x NCE Power NCEP40T15GU (40V, 106A @ 100°C, Rds(on): 1.35mOhm)
5V & 3.3V	DC-DC Converters: 6x On Semiconductor NTMFS4C022N (30V, 136A, Rds(on): 1.7mOhm) PWM Controller(s): ANPEC APW7159C
Filtering Capacitors	Electrolytic: 4x Rubycon (4-10,000h @ 105°C, YXF) Polymer: 29x FPCAP
Supervisor IC	-
Fan Model	Hong Hua HA9215VH12FD-F00 (92mm, 12V, 0.36A, Fluid Dynamic Bearing Fan)
5VSB Circuit	**-**
Standby PWM Controller	On-Bright OB2365SP

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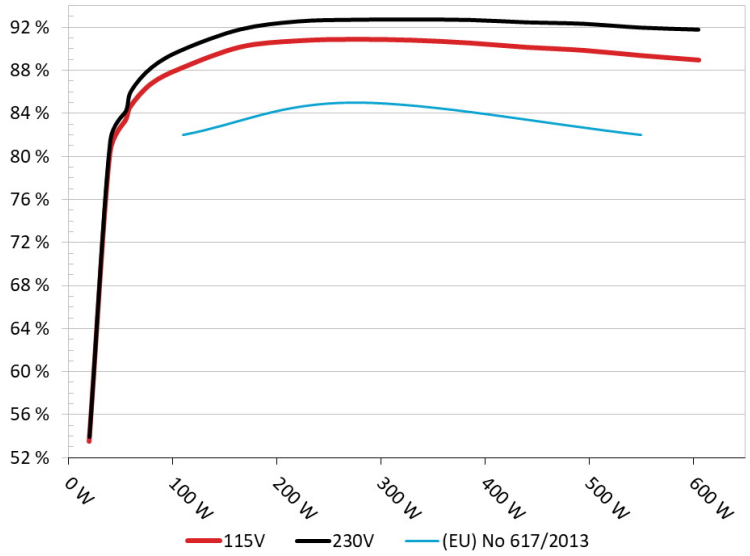
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Cooler Master V550 Gold SFX
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

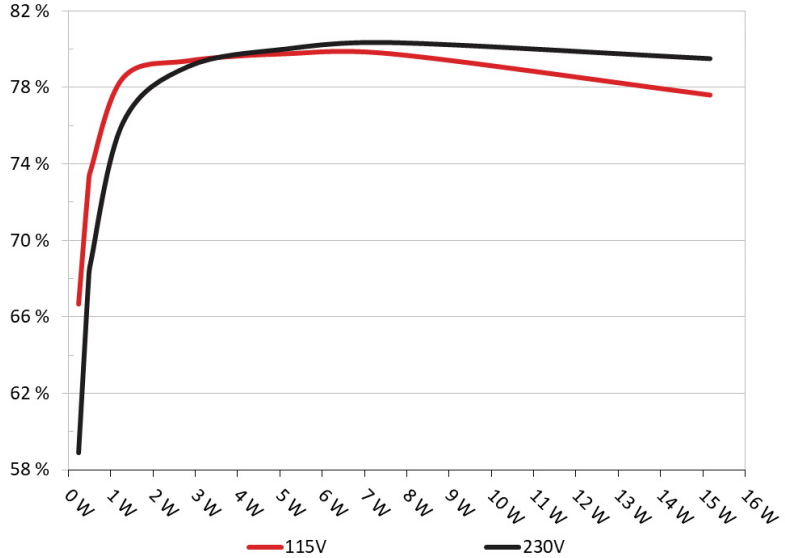


INFO

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 Gold SFX
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 SFX (2021)

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.232	66.667%	0.041
	5.145V	0.348		115.16V
2	0.090A	0.463	72.913%	0.074
	5.144V	0.635		115.15V
3	0.550A	2.822	79.381%	0.295
	5.131V	3.555		115.15V
4	1.000A	5.119	79.748%	0.386
	5.118V	6.419		115.14V
5	1.500A	7.657	79.744%	0.433
	5.103V	9.602		115.14V
6	3.000A	15.179	77.594%	0.502
	5.060V	19.562		115.11V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.232	58.883%	0.014
	5.144V	0.394		230.34V
2	0.090A	0.463	67.789%	0.025
	5.143V	0.683		230.34V
3	0.550A	2.822	79.092%	0.119
	5.130V	3.568		230.30V
4	1.000A	5.118	80.006%	0.193
	5.117V	6.397		230.30V
5	1.500A	7.656	80.344%	0.253
	5.103V	9.529		230.30V
6	3.000A	15.177	79.507%	0.351
	5.059V	19.089		230.31V

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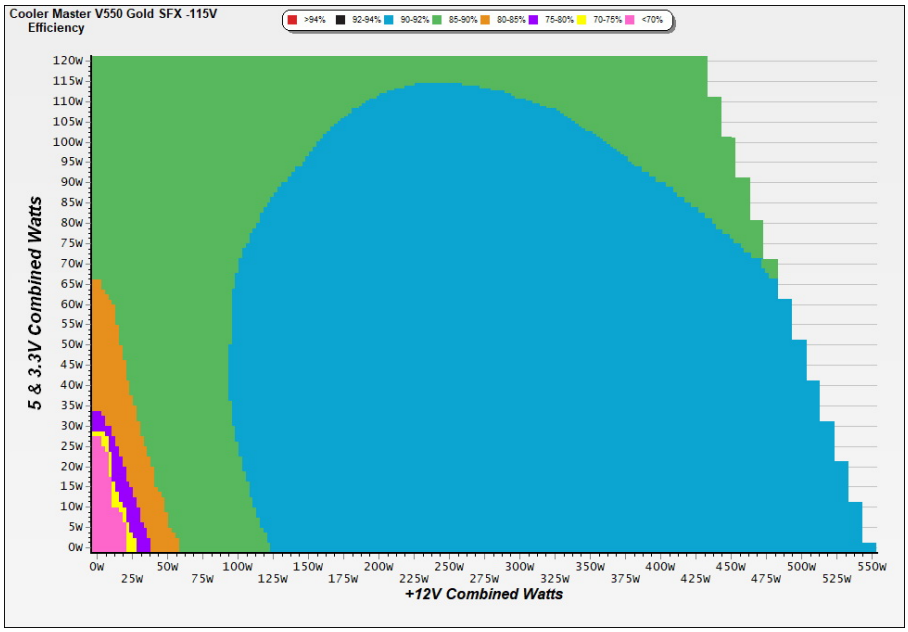
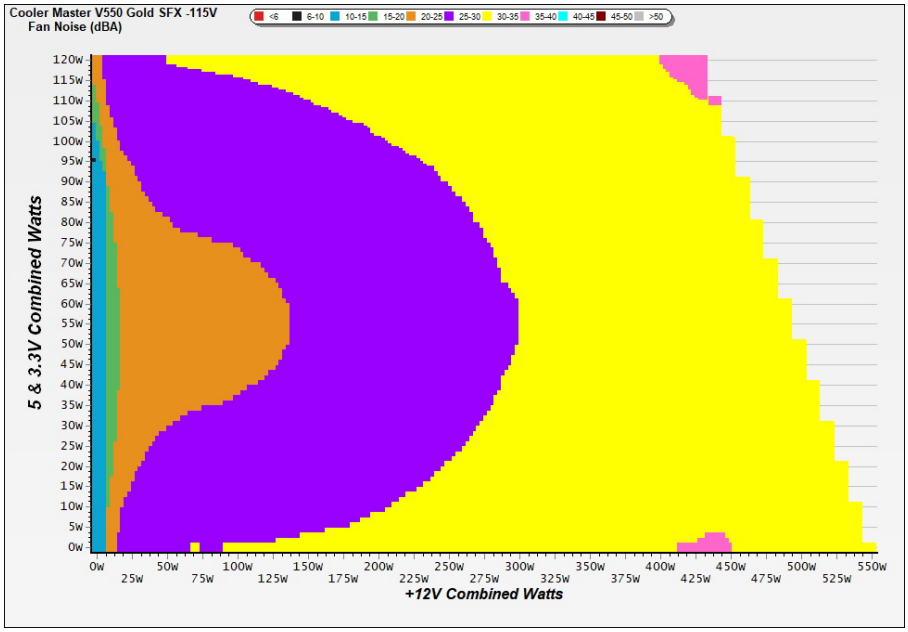
EFFICIENCY GRAPH 115V



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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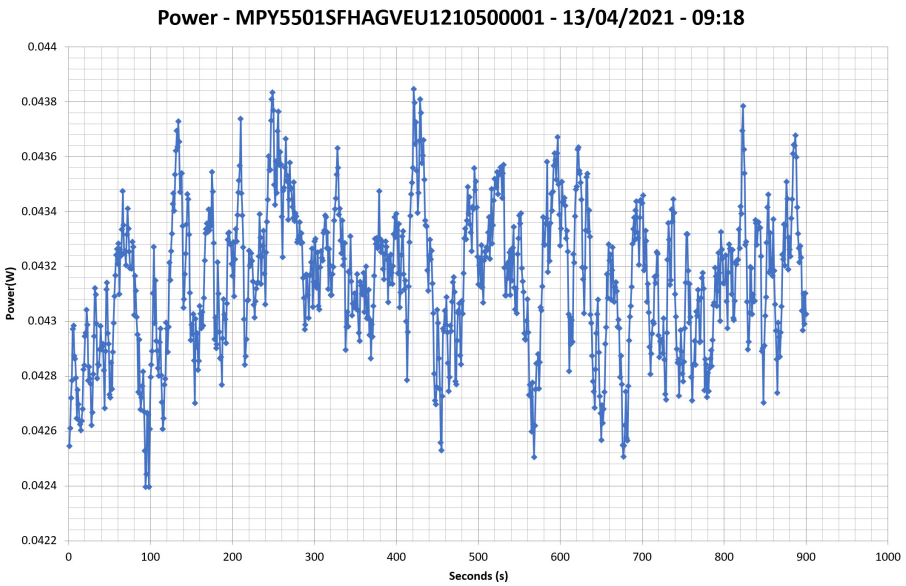
VAMPIRE POWER -115V



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 SFX (2021)

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	2.749A	2.000A	1.955A	0.979A	54.962	83.354%	1911	32.8	40.19°C	0.973
	12.139V	4.998V	3.374V	5.108V	65.938				42.79°C	115.16V
2	6.528A	3.003A	2.939A	1.177A	110.028	88.254%	2123	35.6	40.72°C	0.980
	12.122V	4.993V	3.369V	5.098V	124.672				44.21°C	115.15V
3	10.651A	3.510A	3.432A	1.376A	165.024	90.151%	2148	36.2	40.73°C	0.988
	12.109V	4.987V	3.364V	5.088V	183.052				44.75°C	115.14V
4	14.783A	4.016A	3.929A	1.576A	220.026	90.732%	2310	38.2	41.39°C	0.980
	12.096V	4.982V	3.360V	5.077V	242.502				45.84°C	115.13V
5	18.576A	5.025A	4.920A	1.777A	275.018	90.869%	2360	38.8	42.20°C	0.982
	12.086V	4.976V	3.354V	5.066V	302.654				47.27°C	115.15V
6	22.380A	6.037A	5.914A	1.979A	330.011	90.787%	2459	40.1	42.41°C	0.986
	12.073V	4.971V	3.349V	5.054V	363.499				48.68°C	115.18V
7	26.196A	7.051A	6.911A	2.182A	385.092	90.527%	2544	41.2	43.01°C	0.989
	12.062V	4.965V	3.343V	5.043V	425.389				49.79°C	115.22V
8	30.016A	8.002A	7.910A	2.386A	439.803	90.131%	2730	42.9	43.52°C	0.991
	12.051V	4.959V	3.337V	5.030V	487.960				50.88°C	115.19V
9	34.234A	8.579A	8.400A	2.389A	494.646	89.842%	2781	42.9	44.20°C	0.993
	12.039V	4.954V	3.333V	5.025V	550.576				52.42°C	115.19V
10	38.260A	9.095A	8.926A	3.001A	549.860	89.361%	2852	43.7	45.53°C	0.994
	12.027V	4.948V	3.327V	5.001V	615.327				54.66°C	115.18V
11	42.895A	9.106A	8.938A	3.004A	605.097	88.942%	2965	45.3	46.71°C	0.995
	12.015V	4.943V	3.323V	4.994V	680.331				56.46°C	115.20V
CL1	0.117A	14.003A	13.999A	0.000A	118.150	84.690%	2678	42.4	42.96°C	0.985
	12.133V	4.984V	3.353V	5.114V	139.508				47.63°C	115.13V
CL2	45.845A	1.000A	1.000A	1.000A	564.284	89.995%	2656	41.6	45.90°C	0.994
	12.017V	4.954V	3.339V	5.073V	627.017				54.68°C	115.15V

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Cooler Master V550 Gold SFX (2021)

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	1.221A	0.501A	0.487A	0.195A	19.992	53.489%	1638	28.1	0.940
	12.153V	5.002V	3.379V	5.136V	37.376				115.17V
2	2.442A	1.001A	0.976A	0.390A	39.981	80.356%	1670	28.7	0.961
	12.154V	5.000V	3.377V	5.128V	49.755				115.17V
3	3.673A	1.501A	1.466A	0.586A	60.011	84.687%	1848	31.9	0.976
	12.132V	4.998V	3.375V	5.120V	70.862				115.16V
4	4.894A	2.002A	1.957A	0.782A	79.960	86.776%	1887	32.3	0.978
	12.129V	4.996V	3.373V	5.113V	92.145				115.16V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.10mV	5.40mV	3.90mV	6.60mV	Pass
20% Load	10.70mV	6.10mV	4.50mV	8.20mV	Pass
30% Load	9.10mV	6.70mV	4.80mV	8.30mV	Pass
40% Load	9.10mV	7.40mV	5.20mV	9.10mV	Pass
50% Load	9.50mV	7.40mV	4.70mV	10.00mV	Pass
60% Load	8.40mV	7.70mV	4.80mV	10.60mV	Pass
70% Load	8.30mV	8.30mV	5.10mV	11.70mV	Pass
80% Load	8.90mV	8.30mV	9.00mV	13.00mV	Pass
90% Load	9.30mV	9.40mV	8.70mV	14.00mV	Pass
100% Load	12.40mV	10.40mV	9.40mV	15.10mV	Pass
110% Load	13.10mV	11.00mV	9.80mV	15.90mV	Pass
Crossload1	14.20mV	8.40mV	10.40mV	7.70mV	Pass
Crossload2	12.80mV	9.80mV	5.80mV	12.90mV	Pass

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230V

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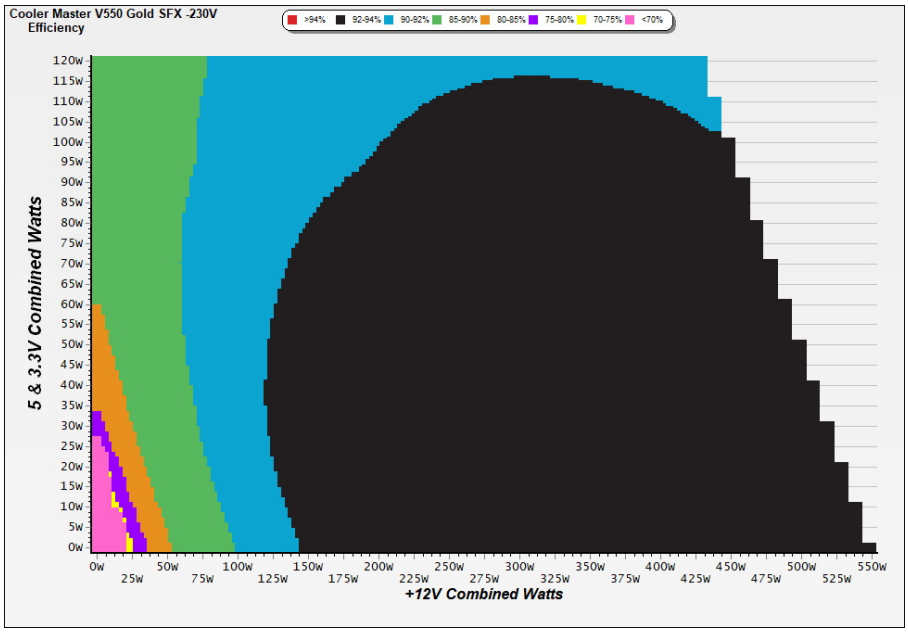
EFFICIENCY GRAPH 230V



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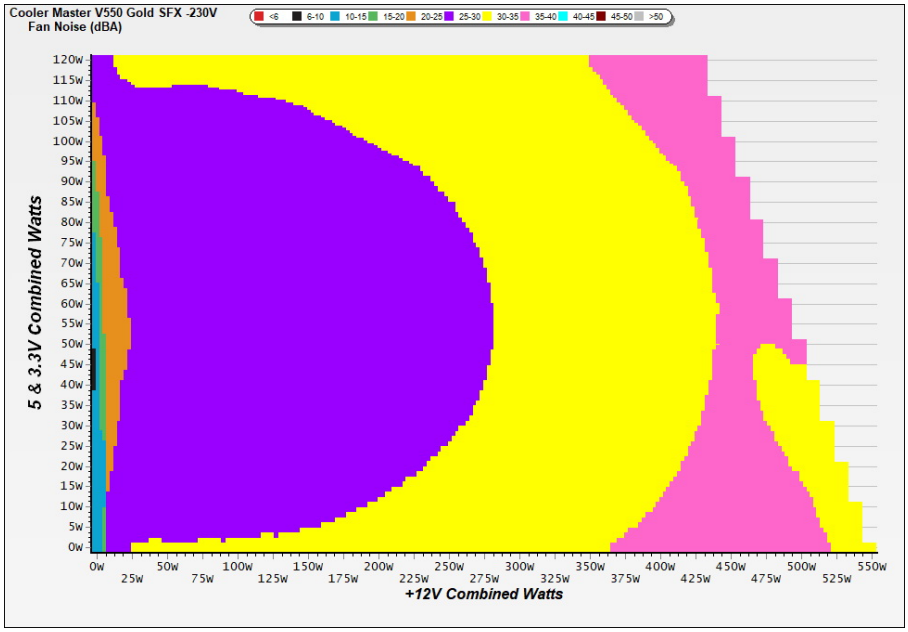
NOISE GRAPH 230V



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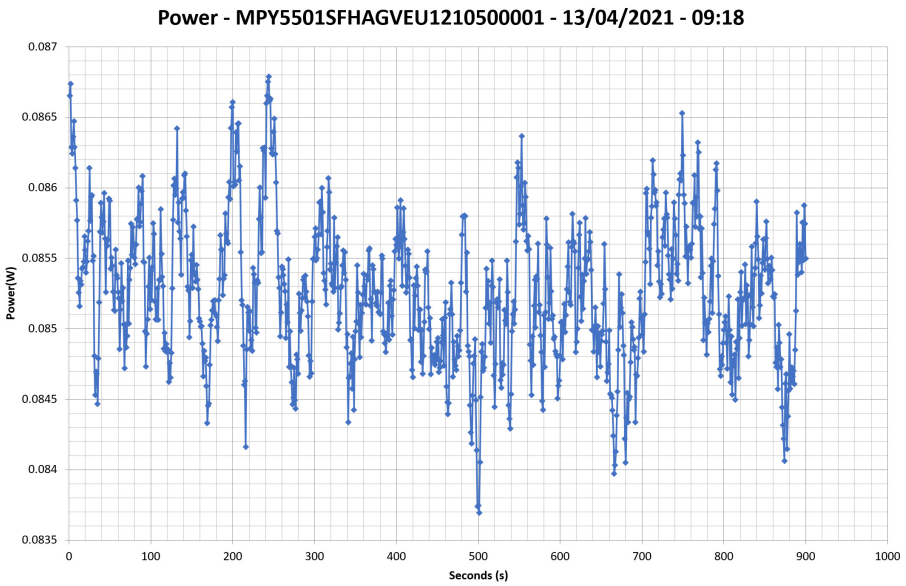
VAMPIRE POWER -230V



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10-110% 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	2.747A	2.001A	1.956A	0.979A	54.963	84.198%	2071	34.9	40.12°C	0.815
	12.143V	4.999V	3.375V	5.108V	65.278				43.75°C	230.32V
2	6.528A	3.004A	2.938A	1.177A	110.029	89.926%	2058	34.6	40.74°C	0.908
	12.122V	4.993V	3.369V	5.097V	122.355				44.60°C	230.32V
3	10.652A	3.509A	3.434A	1.376A	165.025	91.795%	2166	36.4	41.50°C	0.937
	12.108V	4.987V	3.364V	5.087V	179.775				45.87°C	230.32V
4	14.784A	4.016A	3.927A	1.576A	220.028	92.528%	2246	37.3	42.11°C	0.952
	12.096V	4.982V	3.359V	5.077V	237.797				47.23°C	230.32V
5	18.579A	5.025A	4.920A	1.777A	275.023	92.683%	2540	41.1	42.85°C	0.959
	12.084V	4.977V	3.354V	5.066V	296.734				48.60°C	230.32V
6	22.375A	6.036A	5.914A	1.980A	330.016	92.710%	2562	41.2	43.04°C	0.965
	12.076V	4.971V	3.349V	5.053V	355.965				49.43°C	230.33V
7	26.198A	7.052A	6.912A	2.182A	385.099	92.665%	2573	41.1	43.69°C	0.967
	12.061V	4.965V	3.343V	5.043V	415.581				50.81°C	230.35V
8	30.020A	8.002A	7.911A	2.386A	439.823	92.444%	2700	42.6	43.87°C	0.970
	12.050V	4.959V	3.337V	5.030V	475.773				51.82°C	230.34V
9	34.241A	8.583A	8.403A	2.389A	494.674	92.307%	2733	42.9	44.07°C	0.973
	12.037V	4.953V	3.332V	5.025V	535.903				52.85°C	230.33V
10	38.269A	9.097A	8.926A	3.001A	549.899	91.954%	2877	44.2	45.55°C	0.975
	12.025V	4.948V	3.327V	5.000V	598.015				54.85°C	230.37V
11	42.914A	9.104A	8.938A	3.002A	605.103	91.764%	2927	44.8	46.54°C	0.976
	12.010V	4.943V	3.323V	4.998V	659.409				56.31°C	230.36V
CL1	0.117A	14.001A	14.001A	0.000A	118.146	86.188%	2685	42.4	42.29°C	0.917
	12.134V	4.984V	3.353V	5.113V	137.080				48.47°C	230.37V
CL2	45.845A	1.000A	1.000A	1.000A	564.241	92.663%	2629	41.3	45.44°C	0.974
	12.016V	4.954V	3.339V	5.073V	608.914				54.59°C	230.35V

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Cooler Master V550 Gold SFX (2021)

20-80W LOAD TESTS 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.221A	0.500A	0.489A	0.195A	19.992	53.965%	1770	30.5	0.682
	12.152V	5.002V	3.379V	5.136V	37.046				230.39V
2	2.442A	1.000A	0.977A	0.390A	39.981	81.497%	1856	31.9	0.757
	12.155V	5.000V	3.377V	5.127V	49.058				230.33V
3	3.672A	1.502A	1.466A	0.586A	60.011	86.072%	1842	31.7	0.826
	12.134V	4.998V	3.375V	5.120V	69.722				230.33V
4	4.894A	2.002A	1.957A	0.783A	79.960	88.276%	1942	33.2	0.867
	12.128V	4.996V	3.373V	5.112V	90.580				230.32V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	22.90mV	6.10mV	4.20mV	7.10mV	Pass
20% Load	12.80mV	6.30mV	4.40mV	8.20mV	Pass
30% Load	9.50mV	6.80mV	4.80mV	8.80mV	Pass
40% Load	9.80mV	7.80mV	4.30mV	8.70mV	Pass
50% Load	10.50mV	7.90mV	5.60mV	10.40mV	Pass
60% Load	9.90mV	7.80mV	5.30mV	11.10mV	Pass
70% Load	10.50mV	8.70mV	5.40mV	11.80mV	Pass
80% Load	9.50mV	8.60mV	9.00mV	12.90mV	Pass
90% Load	10.10mV	9.00mV	8.20mV	13.40mV	Pass
100% Load	14.20mV	10.60mV	9.40mV	15.30mV	Pass
110% Load	14.70mV	10.40mV	9.80mV	16.50mV	Pass
Crossload1	15.90mV	8.60mV	10.60mV	8.40mV	Pass
Crossload2	14.10mV	9.50mV	5.70mV	12.30mV	Pass

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Anex

Cooler Master V550 Gold SFX (2021)

Top side

Power specifications label

CERTIFICATIONS 115V

CYBENETICS PLATINUM

CYBENETICS STANDARD++

CERTIFICATIONS 230V

CYBENETICS PLATINUM 230v

CYBENETICS STANDARD++ 230v