Anex

Cooler Master MWE Gold 550 V2

Lab ID#: CM55001771
Receipt Date: Dec 14, 2020
Test Date: Dec 23, 2020

Report: 20PS1771A
Report Date: Dec 24, 2020

DUT INFORMATION

Brand	Cooler Master
Manufacturer (OEM)	Huizhou Xin Hui Yuan Tech (Fusion Power)
Series	MWE Gold V2
Model Number	MPE-5501-AFAAG
Serial Number	
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60
Rated Power (W)	550
Type	ATX12V
Cooling	120mm Fluid Dynamic Bearing Fan (HA1225M12F-Z)
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	✓
ALPM (Alternative Low Power Mode) compatible	✓

115V

Average Efficiency	88.215%
Efficiency With 10W (≤500W) or 2% (>500W)	55.818
Average Efficiency 5VSB	80.902%
Standby Power Consumption (W)	0.0628072
Average PF	0.986
Avg Noise Output	29.75 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A-

230V

Average Efficiency	90.107%
Average Efficiency 5VSB	79.971%
Standby Power Consumption (W)	0.1153730
Average PF	0.924
Avg Noise Output	30.06 dB(A)
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	Standard++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	45.8	3	0.3
	Watts	100		549.6	15	3.6
Total Max. Power (W)		550				

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

Hold-Up Time (ms)	23
AC Loss to PWR_OK Hold Up Time (ms)	18.5
PWR_OK Inactive to DC Loss Delay (ms)	4.5

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (610mm)	1	1	18-22AWG	No
4+4 pin EPS12V (610mm)	1	1	18AWG	No
8 pin EPS12V (650mm)	1	1	18AWG	No
6+2 pin PCIe (560mm+125mm)	1	2	16-18AWG	No
SATA (500mm+125mm+125mm+125mm)	2	8	18AWG	No
4-pin Molex (500mm+125mm+125mm+125mm)	1	4	18-20AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	16AWG	-

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General Data	-
Manufacturer (OEM)	Huizhou Xin Hui Yuan Tech (Fusion Power)
PCB Type	Double Sided
Primary Side	**-**
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor MF72 5D15 (5Ohm) & Relay
Bridge Rectifier(s)	1x GBU1006 (600V, 10A @ 100°C)
APFC MOSFETs	2x NCE Power NCE65T360F (650V, 7A @ 100°C, Rds(on): 0.36Ohm)
APFC Boost Diode	1x GH3D08065I
Bulk Cap(s)	1x Elite (400V, 390uF, 2,000h @ 105°C, PL)
Main Switchers	4x Great Power GPT10N50ADG (500V, 9.7A, Rds(on): 0.7Ohm)
APFC Controller	ON Semiconductor NCP1654
Resonant Controller	Champion CM6901T6X
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	**-**
+12V MOSFETs	2x Excelliance MOS Corp EMP16N04HS (40V, 100A @ 100°C, Rds(on): 1.6mOhm)
5V & 3.3V	DC-DC Converters: 4x Excelliance MOS Corp EMB06N03HR (30V, 45A @ 100°C, Rds(on): 6mOhm) PWM Controller(s): ANPEC APW7159C
Filtering Capacitors	Electrolytic: 17x Elite (4-10,000h @ 105°C, EY) Polymer:2x FPCAP, 4x Elite, 4x no info
Supervisor IC	IN1S313I-DAG
Fan Model	Hong Hua HA1225M12F-Z (120mm, 12V, 0.45A, Fluid Dynamic Bearing Fan)
5VSB Circuit	**-**
Standby PWM Controller	Excelliance MOS Corp EM8569C

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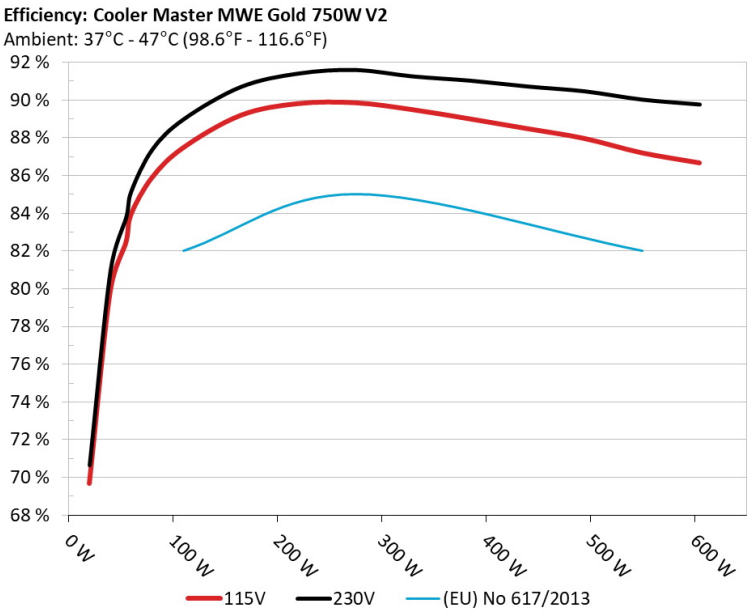
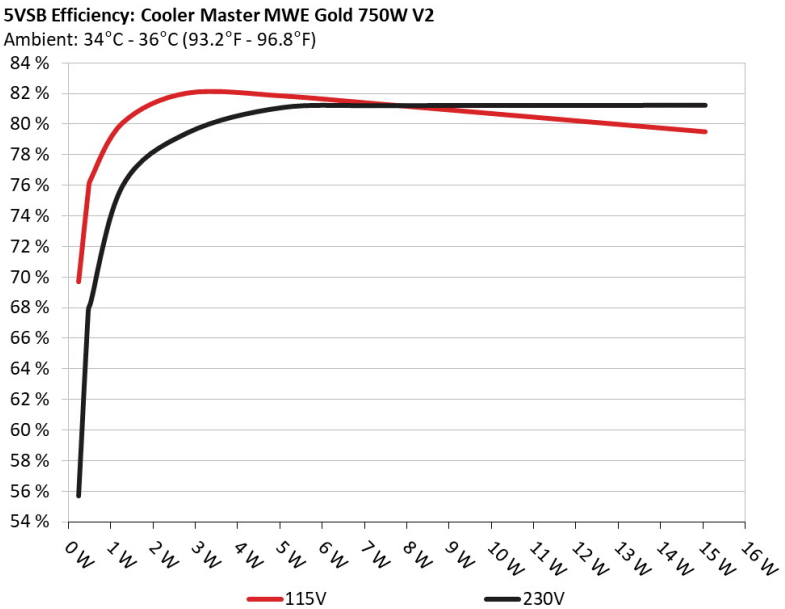
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	69.697%	0.040
	5.104V	0.330		115.14V
2	0.090A	0.459	75.618%	0.072
	5.103V	0.607		115.14V
3	0.550A	2.799	82.010%	0.285
	5.090V	3.413		115.12V
4	1.000A	5.077	81.821%	0.372
	5.078V	6.205		115.12V
5	1.500A	7.596	81.241%	0.420
	5.064V	9.350		115.12V
6	2.999A	15.062	79.483%	0.480
	5.022V	18.950		115.13V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	55.690%	0.015
	5.104V	0.413		230.27V
2	0.090A	0.459	67.799%	0.025
	5.103V	0.677		230.28V
3	0.550A	2.799	79.404%	0.119
	5.090V	3.525		230.26V
4	1.000A	5.077	81.076%	0.190
	5.078V	6.262		230.26V
5	1.500A	7.595	81.187%	0.249
	5.064V	9.355		230.26V
6	2.999A	15.061	81.213%	0.346
	5.022V	18.545		230.27V

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115V

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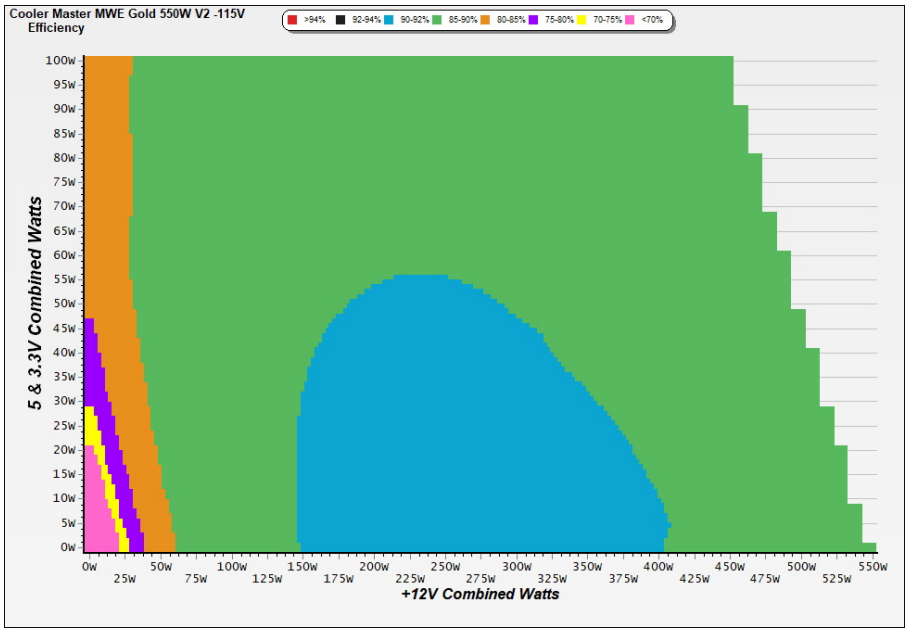
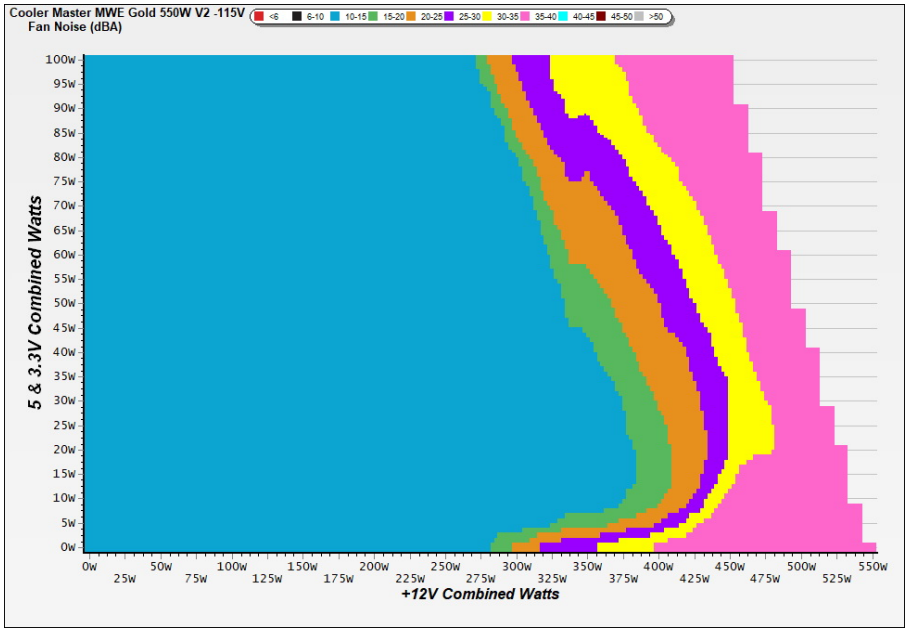
EFFICIENCY GRAPH 115V



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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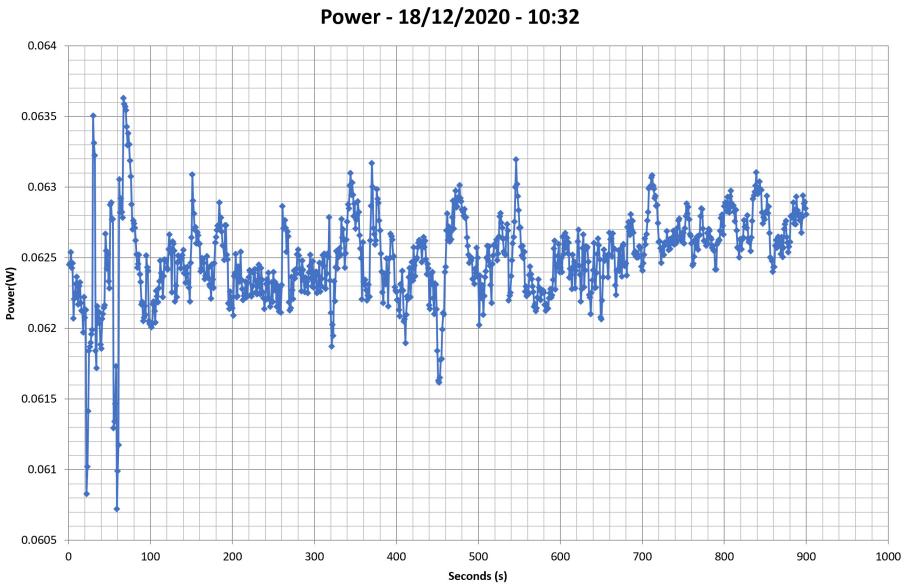
VAMPIRE POWER -115V



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 MWE Gold 550 V2

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	2.771A	1.975A	1.973A	0.987A	54.946	82.426%	634	12.0	40.03°C	0.952
	12.035V	5.062V	3.345V	5.065V	66.661				43.52°C	115.14V
2	6.574A	2.965A	2.962A	1.188A	109.996	87.475%	635	12.0	41.13°C	0.980
	12.031V	5.060V	3.343V	5.050V	125.746				45.17°C	115.14V
3	10.719A	3.459A	3.456A	1.390A	164.982	89.190%	635	12.0	41.22°C	0.984
	12.029V	5.059V	3.341V	5.035V	184.979				45.59°C	115.13V
4	14.867A	3.953A	3.952A	1.593A	219.979	89.812%	636	12.0	41.50°C	0.987
	12.026V	5.057V	3.340V	5.021V	244.932				46.76°C	115.13V
5	18.669A	4.947A	4.943A	1.798A	274.964	89.856%	666	12.9	42.46°C	0.990
	12.023V	5.055V	3.338V	5.005V	306.006				48.52°C	115.13V
6	22.474A	5.939A	5.936A	2.000A	329.930	89.491%	1396	32.6	43.10°C	0.992
	12.020V	5.053V	3.336V	4.990V	368.673				49.77°C	115.13V
7	26.286A	6.931A	6.930A	2.211A	385.015	88.999%	1674	37.7	43.36°C	0.994
	12.018V	5.051V	3.334V	4.974V	432.604				50.97°C	115.13V
8	30.080A	7.926A	7.921A	2.420A	439.813	88.483%	1681	37.7	44.01°C	0.995
	12.015V	5.048V	3.332V	4.958V	497.060				52.56°C	115.13V
9	34.284A	8.419A	8.407A	2.424A	494.302	87.966%	1684	37.8	44.98°C	0.995
	12.012V	5.047V	3.330V	4.949V	561.924				54.11°C	115.13V
10	38.293A	8.919A	8.921A	3.047A	549.539	87.202%	1690	37.8	45.46°C	0.996
	12.009V	5.045V	3.328V	4.921V	630.193				55.63°C	115.13V
11	42.901A	8.920A	8.926A	3.052A	604.744	86.671%	1692	37.8	46.68°C	0.996
	12.006V	5.043V	3.327V	4.913V	697.746				57.47°C	115.13V
CL1	0.115A	11.999A	11.999A	0.000A	102.078	82.463%	841	18.0	42.01°C	0.980
	12.031V	5.055V	3.337V	5.063V	123.787				48.59°C	115.16V
CL2	45.820A	0.999A	1.000A	1.000A	563.625	88.132%	1689	37.8	45.95°C	0.996
	12.009V	5.050V	3.334V	4.994V	639.524				56.12°C	115.13V

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Cooler Master MWE Gold 550 V2

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	1.232A	0.493A	0.493A	0.196A	19.976	69.666%	629	11.8	0.833
	12.036V	5.066V	3.348V	5.095V	28.674				115.14V
2	2.465A	0.987A	0.986A	0.393A	39.964	79.856%	629	11.8	0.925
	12.036V	5.064V	3.346V	5.086V	50.045				115.14V
3	3.702A	1.481A	1.479A	0.591A	59.996	83.939%	631	11.8	0.960
	12.034V	5.063V	3.346V	5.077V	71.476				115.14V
4	4.933A	1.974A	1.973A	0.789A	79.948	85.883%	635	12.0	0.974
	12.033V	5.062V	3.345V	5.067V	93.089				115.14V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	13.20mV	6.90mV	7.60mV	9.00mV	Pass
20% Load	18.30mV	8.30mV	9.50mV	10.10mV	Pass
30% Load	25.60mV	9.50mV	10.90mV	11.20mV	Pass
40% Load	22.50mV	7.80mV	9.90mV	11.20mV	Pass
50% Load	19.80mV	7.70mV	9.60mV	12.00mV	Pass
60% Load	17.50mV	9.40mV	12.40mV	12.80mV	Pass
70% Load	15.50mV	9.50mV	11.90mV	14.20mV	Pass
80% Load	22.40mV	10.20mV	17.20mV	15.80mV	Pass
90% Load	15.50mV	12.30mV	17.50mV	15.40mV	Pass
100% Load	24.60mV	14.90mV	20.30mV	17.80mV	Pass
110% Load	26.50mV	14.60mV	20.10mV	18.70mV	Pass
Crossload1	20.90mV	11.40mV	15.90mV	10.90mV	Pass
Crossload2	24.80mV	13.30mV	17.40mV	16.70mV	Pass

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230V

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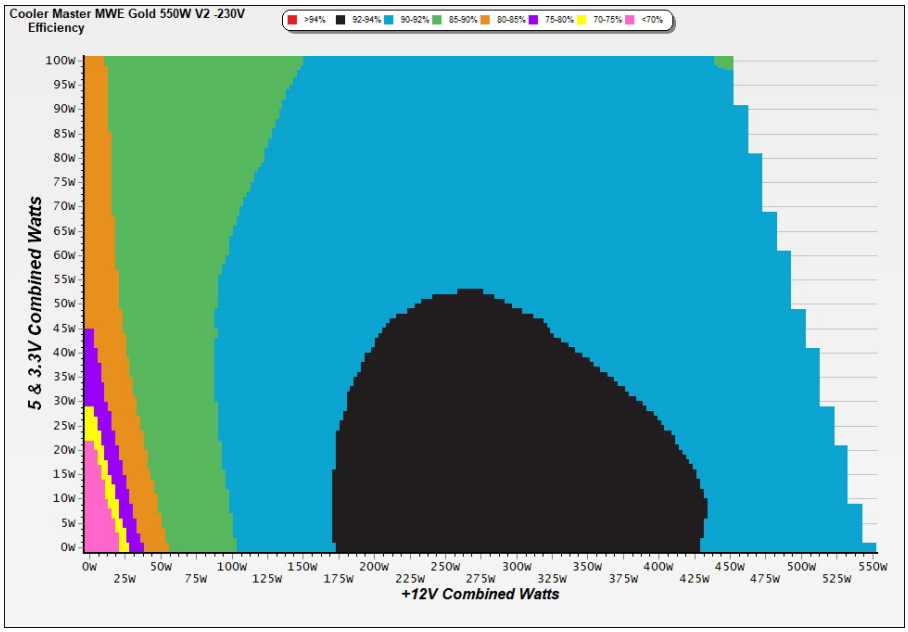
EFFICIENCY GRAPH 230V



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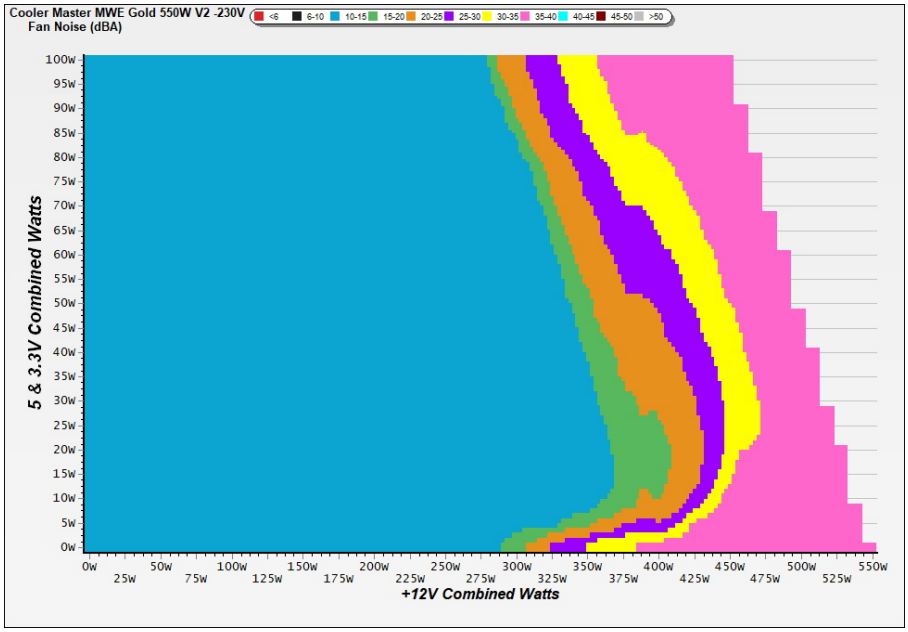
NOISE GRAPH 230V



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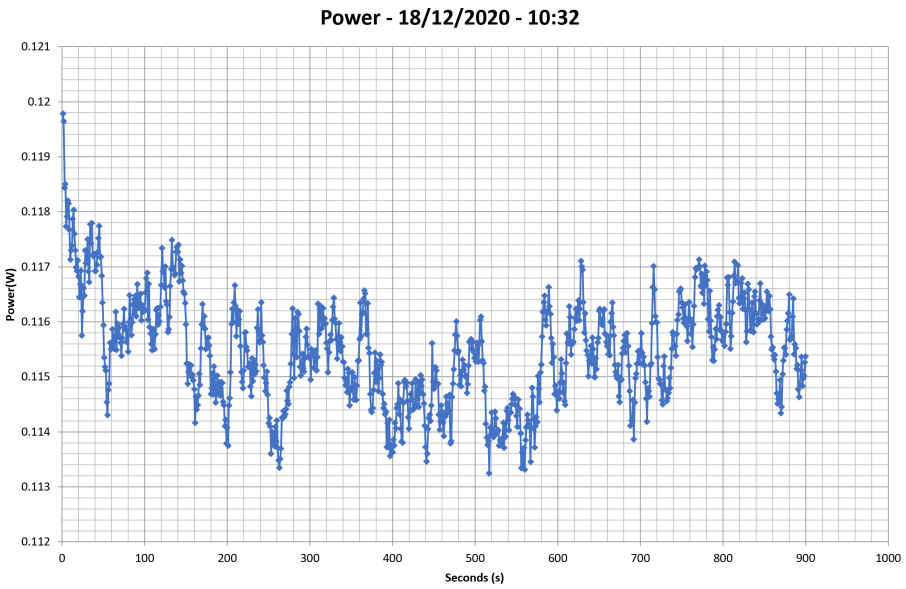
VAMPIRE POWER -230V



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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	2.772A	1.976A	1.972A	0.987A	54.956	83.754%	633	12.0	40.57°C	0.729
	12.035V	5.061V	3.345V	5.064V	65.616				44.06°C	230.35V
2	6.577A	2.965A	2.963A	1.188A	110.028	88.962%	634	12.0	41.39°C	0.862
	12.031V	5.059V	3.342V	5.049V	123.680				45.21°C	230.35V
3	10.721A	3.461A	3.458A	1.391A	165.022	90.680%	636	12.0	41.64°C	0.904
	12.029V	5.057V	3.341V	5.034V	181.982				45.93°C	230.35V
4	14.869A	3.956A	3.954A	1.594A	220.019	91.387%	639	12.1	42.12°C	0.921
	12.026V	5.056V	3.339V	5.019V	240.754				46.93°C	230.35V
5	18.673A	4.949A	4.944A	1.799A	275.016	91.574%	659	12.8	42.31°C	0.944
	12.023V	5.054V	3.337V	5.003V	300.322				47.60°C	230.35V
6	22.479A	5.941A	5.937A	2.000A	329.986	91.234%	1680	37.7	43.48°C	0.960
	12.020V	5.052V	3.335V	4.987V	361.691				49.53°C	230.36V
7	26.291A	6.934A	6.932A	2.213A	385.086	91.008%	1684	37.8	43.59°C	0.970
	12.018V	5.050V	3.333V	4.971V	423.132				50.56°C	230.36V
8	30.093A	7.927A	7.923A	2.422A	439.975	90.701%	1689	37.8	44.15°C	0.981
	12.015V	5.048V	3.331V	4.955V	485.085				51.85°C	230.36V
9	34.295A	8.422A	8.408A	2.425A	494.435	90.445%	1693	37.8	44.29°C	0.983
	12.012V	5.046V	3.329V	4.947V	546.672				52.71°C	230.36V
10	38.298A	8.921A	8.924A	3.048A	549.617	90.008%	1697	37.9	45.55°C	0.985
	12.009V	5.044V	3.328V	4.921V	610.634				54.77°C	230.35V
11	42.906A	8.922A	8.924A	3.053A	604.804	89.747%	1699	37.9	45.56°C	0.987
	12.006V	5.043V	3.326V	4.913V	673.902				56.36°C	230.34V
CL1	0.116A	11.998A	11.997A	0.000A	102.069	84.022%	717	14.6	42.06°C	0.861
	12.032V	5.055V	3.336V	5.062V	121.479				47.75°C	230.35V
CL2	45.822A	1.000A	1.000A	1.000A	563.652	90.996%	1697	37.9	45.15°C	0.986
	12.009V	5.049V	3.333V	4.994V	619.427				54.62°C	230.34V

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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	1.233A	0.494A	0.491A	0.196A	19.985	70.638%	626	11.6	0.520
	12.036V	5.064V	3.347V	5.095V	28.292				230.34V
2	2.466A	0.988A	0.985A	0.393A	39.975	80.946%	628	11.6	0.661
	12.035V	5.063V	3.346V	5.085V	49.385				230.34V
3	3.702A	1.482A	1.481A	0.591A	60.005	85.163%	631	11.8	0.746
	12.034V	5.062V	3.345V	5.076V	70.459				230.34V
4	4.933A	1.975A	1.975A	0.789A	79.955	87.355%	632	11.8	0.805
	12.033V	5.061V	3.344V	5.066V	91.529				230.34V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.10mV	7.80mV	8.40mV	9.50mV	Pass
20% Load	21.70mV	8.60mV	9.30mV	9.30mV	Pass
30% Load	31.10mV	9.10mV	10.00mV	10.10mV	Pass
40% Load	37.10mV	7.60mV	9.30mV	10.70mV	Pass
50% Load	25.70mV	8.30mV	9.70mV	11.30mV	Pass
60% Load	20.30mV	9.20mV	10.50mV	12.00mV	Pass
70% Load	17.10mV	9.30mV	11.40mV	13.40mV	Pass
80% Load	15.50mV	9.60mV	15.70mV	14.40mV	Pass
90% Load	16.50mV	12.10mV	16.70mV	15.10mV	Pass
100% Load	24.80mV	14.70mV	19.70mV	18.10mV	Pass
110% Load	26.80mV	15.10mV	19.80mV	18.50mV	Pass
Crossload1	22.70mV	10.70mV	15.30mV	10.70mV	Pass
Crossload2	10.80mV	12.60mV	16.40mV	16.70mV	Pass

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Anex

Cooler Master MWE Gold 550 V2

Top side

550W

AC INPUT 交流輸入/交流输入	100-240V~ , 10-5A , 50-60Hz 200-240V~ , 6A , 50-60Hz , 适用于中国地区使用				
DC OUTPUT	+5V	+3.3V	+12V	-12V	+5VSB
直流輸出/直流输出	20A	20A	45.8A	0.3A	3A
TOTAL POWER	100W		549.6W	3.6W	15W
總功率/总功率	550W				

Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V

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