Anex

Corsair CX650F RGB

Lab ID#: CR65001675
Receipt Date: Jun 29, 2020
Test Date: Jul 6, 2020

Report: 20PS1675A
Report Date: Jul 6, 2020

DUT INFORMATION

Brand	Corsair
Manufacturer (OEM)	HEC
Series	CX-F
Model Number	RPS0134
Serial Number	
DUT Notes	CP-9020217

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63
Rated Power (W)	650
Type	ATX12V
Cooling	120mm Rifle Bearing Fan (NR120L)
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	86.970%
Efficiency With 10W (≤500W) or 2% (>500W)	61.250
Average Efficiency 5VSB	78.668%
Standby Power Consumption (W)	0.0553588
Average PF	0.984
Avg Noise Output	31.15 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard++

230V

Average Efficiency	89.331%
Average Efficiency 5VSB	78.154%
Standby Power Consumption (W)	0.0898534
Average PF	0.948
Avg Noise Output	30.68 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	54	3	0.3
	Watts	130		648	15	3.6
Total Max. Power (W)		650				

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

Hold-Up Time (ms)	16.6
AC Loss to PWR_OK Hold Up Time (ms)	14.3
PWR_OK Inactive to DC Loss Delay (ms)	2.3

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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	18-20AWG	No
4+4 pin EPS12V (650mm)	2	2	18AWG	No
6+2 pin PCIe (600mm+150mm)	2	4	16-18AWG	No
SATA (450mm+115mm+115mm+115mm)	1	4	18AWG	No
SATA (500mm+100mm+100mm)	1	3	18AWG	No
4 pin Molex (450mm+100mm+100mm+100mm)	1	4	18AWG	No
iCUE RGB cable (500mm)	1	1	28AWG	No
Motherboard ARGB cable (300mm)	1	1	28AWG	No
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

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General Data	-
Manufacturer (OEM)	HEC
PCB Type	Single Sided
Primary Side	**-**
Transient Filter	4x Y caps, 3x X caps, 1x CM choke, 1x DM chokes, 1x MOV, 1x Discharge IC (CAP200DG)
Inrush Protection	NTC Thermistor SCK-2R58
Bridge Rectifier(s)	2x MCC GBU8K (800V, 8A @ 100°C)
APFC MOSFETs	2x Infineon IPA60R180P7 (650V, 11A @ 100°C, 0.18Ohm)
APFC Boost Diode	1x Infineon IDH06G65C6 (650V, 4A @ 150°C)
Hold-up Cap(s)	1x Hitachi (400V, 390uF, 2,000h @ 105°C, HU)
Main Switchers	2x Champion GPT18N50DG (500V, 18A, 0.27Ohm)
IC Driver	MPS MP6924A
APFC Controller	Champion CM6500UNX & Champion CM03X
Resonant Controller	MPS HR1001C
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	**-**
+12V MOSFETs	4x Nexperia PSMN2R6-40YS (40V, 100A @ 100°C, 5.3mOhm @ 175°C)
5V & 3.3V	DC-DC Converters: 8x Potens Semiconductor PDD3906 (30V, 51A @ 100°C, 6mOhm) PWM Controllers: ANPEC APW7073
Filtering Capacitors	Electrolytic: 12x Teapo (1-3,000h @ 105°C, SC) , 2x Nippon Chemi-Con (1-5,000h @ 105°C, KZE) Polymer: 18x Teapo
Supervisor IC	Weltrend WT7527 (OCP, OVP, UVP, SCP, PG)
Fan Model	Corsair NR120L (120mm, 12V, 0.22A, RGB, Rifle Bearing Fan)
5VSB Circuit	**-**
Rectifier	1x PS1060L SBR (60V, 10A)
Standby PWM Controller	Power Integrations TNY290PG
-12V	**-**
Rectifier	1x KEC KIA7912PI (-12V, 1A)

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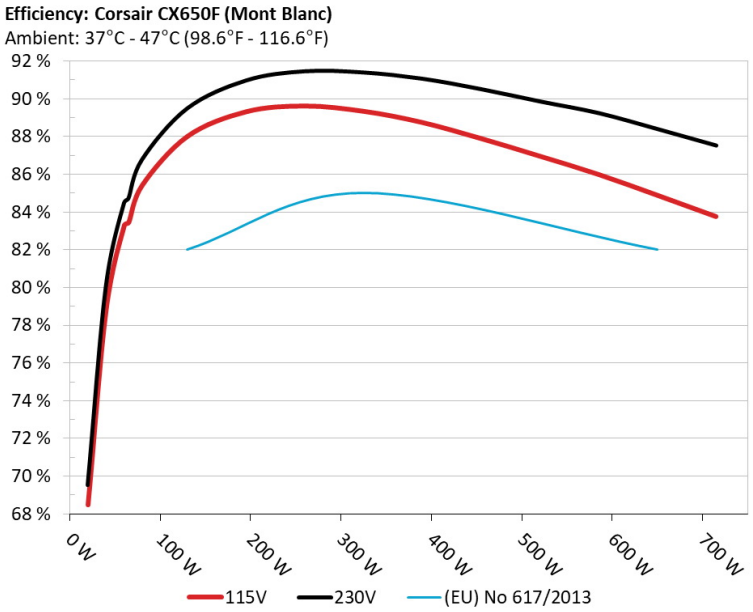
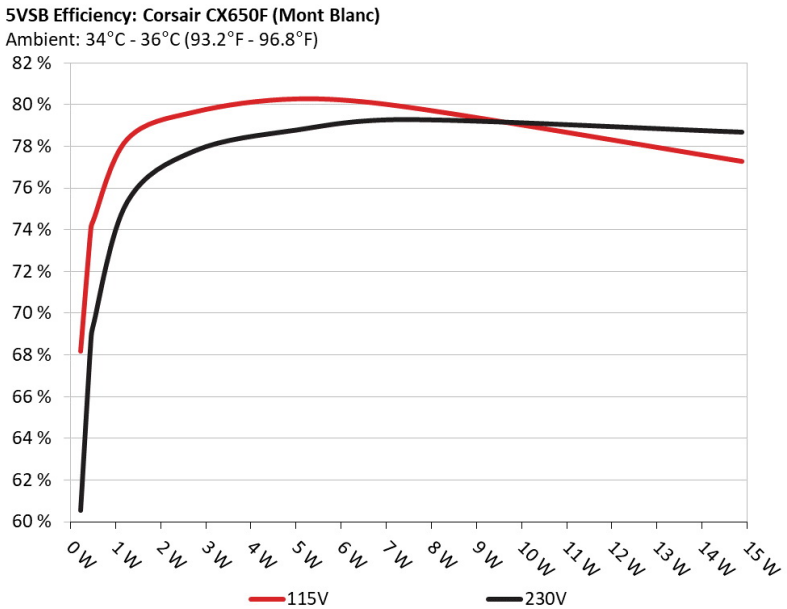
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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	0.227	68.168%	0.040
	5.035V	0.333		115.15V
2	0.090A	0.453	74.020%	0.072
	5.033V	0.612		115.15V
3	0.550A	2.761	79.637%	0.288
	5.019V	3.467		115.16V
4	1.000A	5.009	80.260%	0.370
	5.008V	6.241		115.16V
5	1.500A	7.497	79.857%	0.416
	4.997V	9.388		115.15V
6	3.000A	14.886	77.266%	0.481
	4.962V	19.266		115.13V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227	60.533%	0.014
	5.032V	0.375		230.33V
2	0.090A	0.453	68.636%	0.024
	5.031V	0.660		230.33V
3	0.550A	2.762	77.781%	0.120
	5.020V	3.551		230.34V
4	1.000A	5.010	78.774%	0.192
	5.009V	6.360		230.33V
5	1.500A	7.497	79.275%	0.251
	4.997V	9.457		230.33V
6	3.000A	14.886	78.674%	0.352
	4.962V	18.921		230.31V

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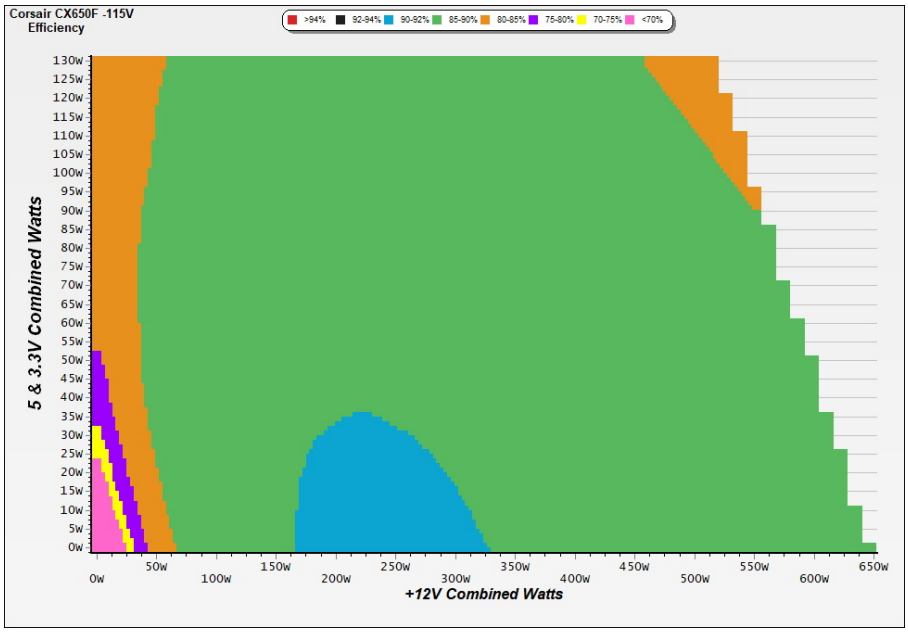
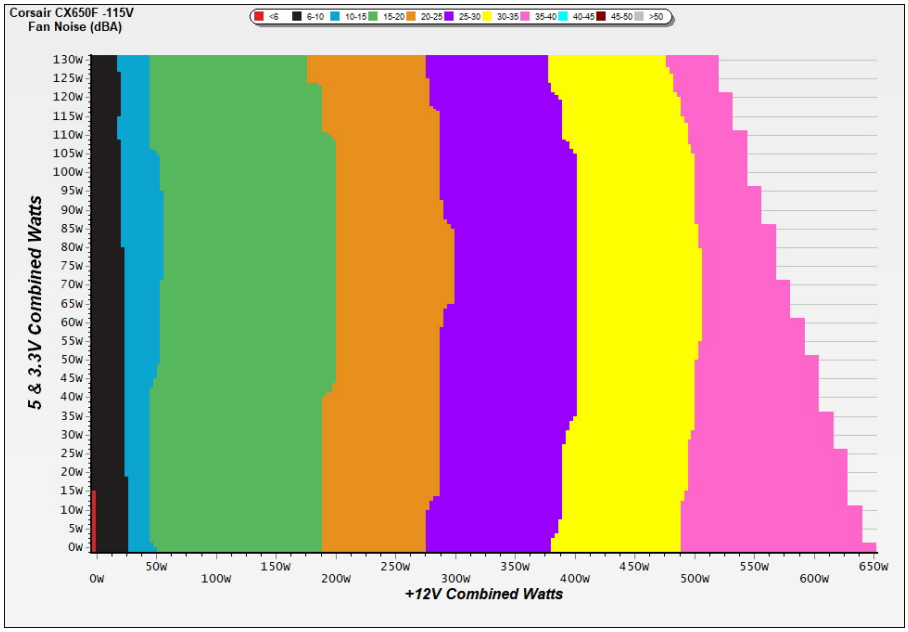
EFFICIENCY GRAPH 115V



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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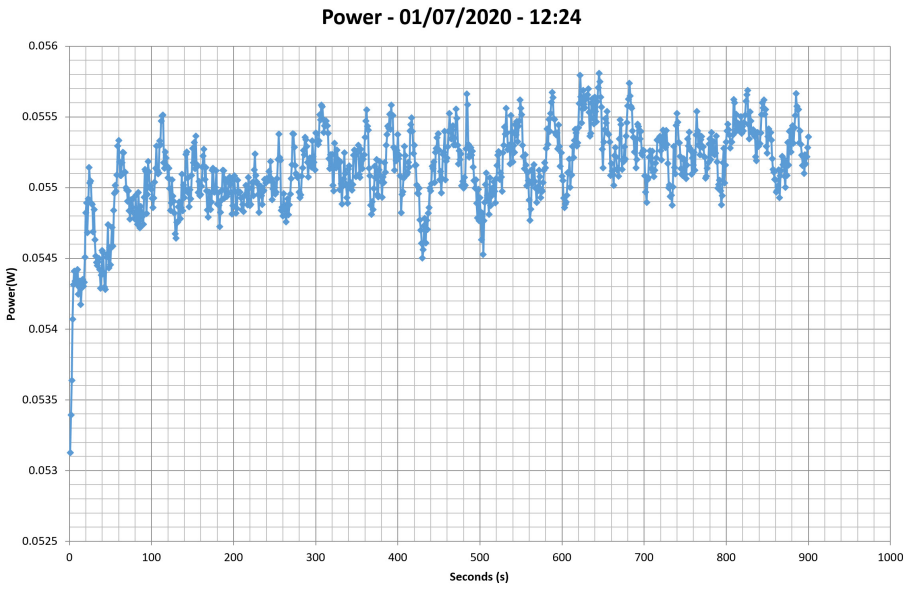
VAMPIRE POWER -115V



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

Anex

Corsair CX650F RGB

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	3.564A	1.974A	1.987A	0.999A	64.963	83.454%	709	15.9	40.90°C	0.972
	12.165V	5.068V	3.323V	5.005V	77.843				45.65°C	115.11V
2	8.160A	2.969A	2.988A	1.202A	130.030	88.029%	749	18.7	40.94°C	0.976
	12.147V	5.053V	3.316V	4.992V	147.713				46.60°C	115.15V
3	13.108A	3.472A	3.489A	1.406A	195.035	89.334%	788	20.6	41.30°C	0.975
	12.128V	5.043V	3.310V	4.981V	218.322				47.47°C	115.12V
4	18.074A	3.975A	3.996A	1.610A	260.045	89.638%	844	24.3	41.95°C	0.983
	12.108V	5.032V	3.304V	4.969V	290.105				48.96°C	115.15V
5	22.713A	4.984A	5.005A	1.816A	325.083	89.355%	900	25.4	42.82°C	0.987
	12.089V	5.017V	3.297V	4.956V	363.812				50.64°C	115.15V
6	27.319A	6.001A	6.022A	2.001A	389.470	88.768%	989	28.4	42.92°C	0.988
	12.071V	5.000V	3.289V	4.943V	438.750				51.97°C	115.16V
7	32.011A	7.024A	7.041A	2.232A	454.921	87.913%	1094	31.7	43.71°C	0.989
	12.052V	4.985V	3.282V	4.929V	517.469				53.52°C	115.13V
8	36.716A	8.002A	8.065A	2.441A	519.962	86.978%	1243	36.9	44.07°C	0.991
	12.033V	4.968V	3.274V	4.916V	597.810				54.46°C	115.12V
9	41.836A	8.578A	8.569A	2.445A	585.136	86.005%	1412	39.5	44.76°C	0.992
	12.014V	4.956V	3.268V	4.909V	680.350				56.22°C	115.11V
10	46.711A	9.102A	9.105A	3.071A	649.966	84.905%	1571	42.0	45.15°C	0.993
	11.994V	4.945V	3.262V	4.886V	765.518				57.38°C	115.12V
11	52.207A	9.115A	9.118A	3.074A	714.791	83.779%	1736	44.3	46.54°C	0.994
	11.973V	4.939V	3.257V	4.880V	853.183				59.46°C	115.11V
CL1	0.117A	16.002A	16.001A	0.000A	132.573	81.892%	1155	34.8	42.94°C	0.970
	12.163V	4.916V	3.280V	4.986V	161.887				51.61°C	115.15V
CL2	54.015A	1.000A	1.000A	1.000A	660.705	85.542%	1499	41.8	45.29°C	0.993
	11.986V	5.031V	3.288V	4.963V	772.378				57.52°C	115.10V

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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	1.219A	0.492A	0.495A	0.199A	19.991	68.490%	625	11.7	0.912
	12.174V	5.086V	3.330V	5.031V	29.188				115.14V
2	2.439A	0.985A	0.991A	0.398A	39.981	78.842%	646	12.3	0.955
	12.169V	5.080V	3.327V	5.024V	50.710				115.14V
3	3.663A	1.479A	1.490A	0.598A	60.012	83.296%	668	15.4	0.973
	12.164V	5.073V	3.324V	5.016V	72.047				115.10V
4	4.881A	1.973A	1.989A	0.799A	79.960	85.435%	699	15.8	0.978
	12.160V	5.067V	3.322V	5.009V	93.592				115.11V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	12.60mV	11.50mV	13.10mV	11.60mV	Pass
20% Load	13.60mV	13.10mV	13.40mV	11.70mV	Pass
30% Load	13.10mV	13.20mV	13.60mV	12.10mV	Pass
40% Load	19.20mV	13.50mV	14.40mV	13.00mV	Pass
50% Load	17.60mV	14.00mV	14.60mV	15.00mV	Pass
60% Load	19.90mV	14.70mV	17.20mV	15.40mV	Pass
70% Load	23.40mV	15.50mV	16.70mV	16.60mV	Pass
80% Load	24.40mV	16.60mV	20.70mV	19.70mV	Pass
90% Load	32.90mV	16.80mV	20.20mV	21.70mV	Pass
100% Load	47.10mV	23.00mV	22.60mV	25.70mV	Pass
110% Load	52.50mV	24.60mV	26.90mV	27.20mV	Pass
Crossload1	21.20mV	21.60mV	24.20mV	9.80mV	Pass
Crossload2	47.60mV	21.90mV	16.20mV	19.50mV	Pass

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230V

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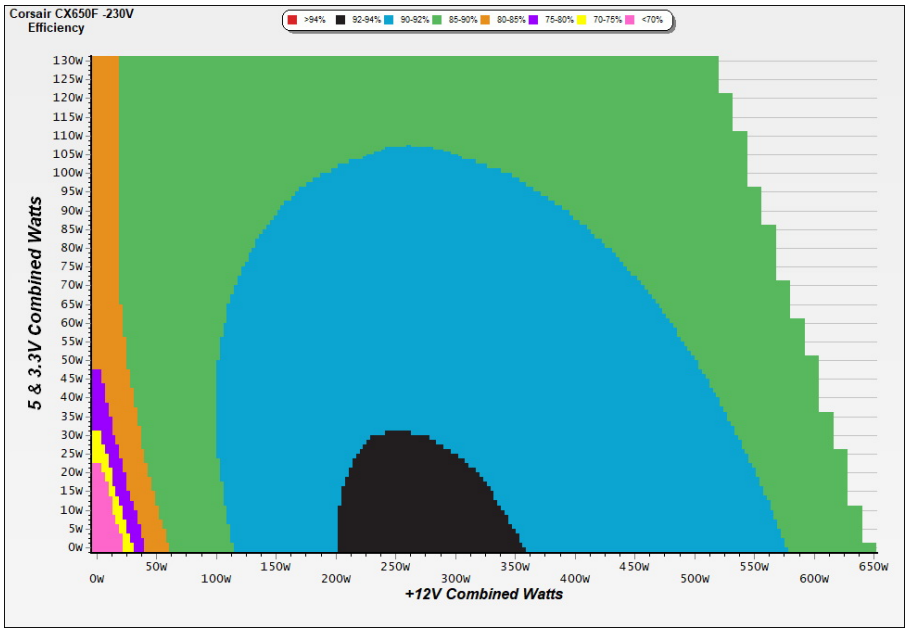
EFFICIENCY GRAPH 230V



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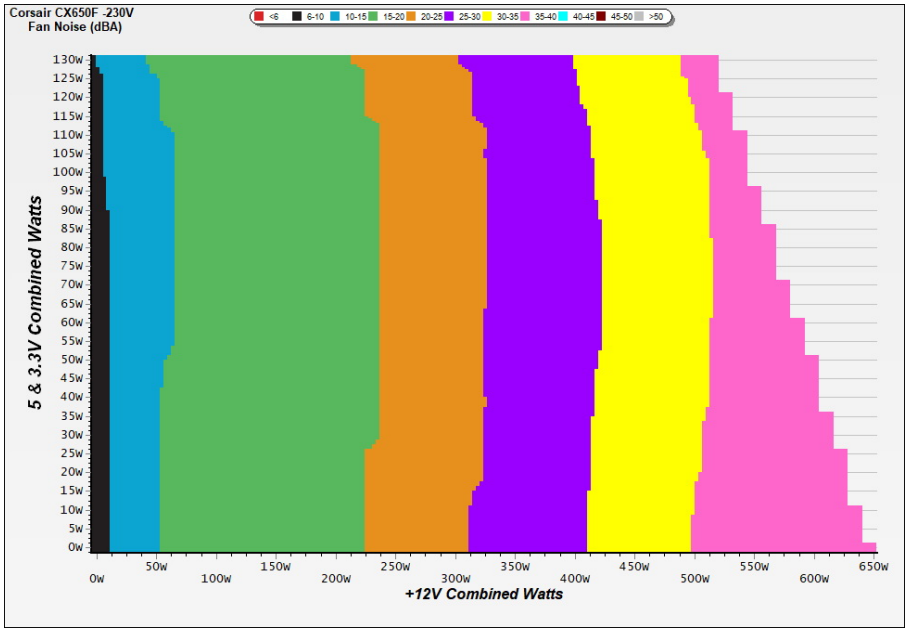
NOISE GRAPH 230V



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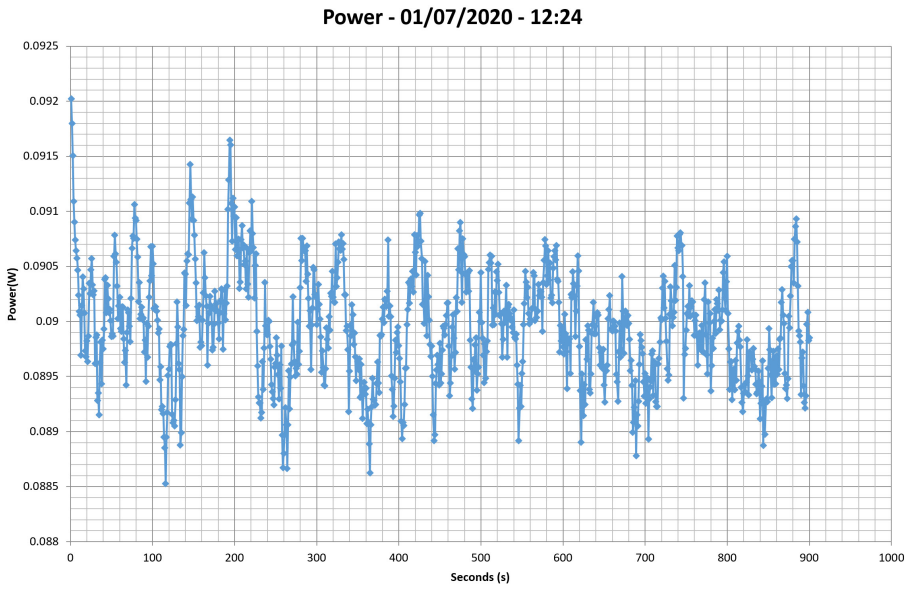
VAMPIRE POWER -230V



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10-110% LOAD TESTS 230V

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1	3.564A	1.972A	1.987A	0.999A	64.961	84.717%	731	16.9	40.23°C	0.833
	12.165V	5.072V	3.323V	5.005V	76.680				44.57°C	230.35V
2	8.159A	2.967A	2.987A	1.202A	130.025	89.494%	770	20.2	40.31°C	0.917
	12.148V	5.058V	3.315V	4.992V	145.289				45.40°C	230.34V
3	13.106A	3.467A	3.490A	1.406A	195.029	90.974%	789	20.8	41.20°C	0.942
	12.130V	5.048V	3.309V	4.981V	214.378				47.17°C	230.34V
4	18.068A	3.971A	3.997A	1.610A	260.033	91.462%	846	24.7	41.91°C	0.955
	12.111V	5.038V	3.304V	4.969V	284.307				48.78°C	230.33V
5	22.706A	4.976A	5.006A	1.816A	325.066	91.396%	896	25.8	42.44°C	0.963
	12.092V	5.025V	3.296V	4.956V	355.668				50.37°C	230.32V
6	27.311A	5.990A	6.020A	2.000A	389.416	91.071%	972	28.2	42.65°C	0.966
	12.073V	5.010V	3.288V	4.943V	427.597				51.74°C	230.32V
7	32.005A	7.002A	7.040A	2.232A	454.865	90.514%	1078	30.9	43.09°C	0.968
	12.053V	5.000V	3.281V	4.929V	502.538				53.04°C	230.32V
8	36.714A	8.000A	8.065A	2.441A	520.104	89.862%	1225	36.7	43.68°C	0.970
	12.033V	4.991V	3.273V	4.916V	578.780				54.61°C	230.32V
9	41.840A	8.532A	8.572A	2.445A	585.095	89.242%	1364	38.5	44.15°C	0.973
	12.012V	4.982V	3.267V	4.909V	655.624				56.09°C	230.34V
10	46.716A	9.053A	9.107A	3.071A	649.933	88.400%	1527	41.7	44.51°C	0.974
	11.992V	4.972V	3.261V	4.886V	735.215				56.56°C	230.35V
11	52.213A	9.065A	9.123A	3.074A	714.755	87.529%	1729	44.3	45.66°C	0.975
	11.971V	4.965V	3.256V	4.880V	816.589				58.43°C	230.35V
CL1	0.117A	16.001A	16.000A	0.000A	133.316	83.830%	1129	32.7	42.38°C	0.916
	12.160V	4.964V	3.279V	4.985V	159.032				50.25°C	230.34V
CL2	54.018A	1.001A	1.001A	1.000A	660.645	88.971%	1514	41.7	44.02°C	0.974
	11.984V	5.034V	3.287V	4.963V	742.542				56.59°C	230.33V

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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	1.219A	0.492A	0.494A	0.199A	19.990	69.543%	668	15.4	0.573
	12.176V	5.086V	3.329V	5.032V	28.745				230.35V
2	2.439A	0.984A	0.990A	0.398A	39.979	80.030%	689	15.4	0.734
	12.171V	5.081V	3.327V	5.024V	49.955				230.35V
3	3.663A	1.477A	1.490A	0.598A	60.009	84.472%	708	15.9	0.819
	12.165V	5.075V	3.324V	5.016V	71.040				230.35V
4	4.881A	1.973A	1.987A	0.799A	79.959	86.782%	730	16.9	0.863
	12.160V	5.070V	3.322V	5.009V	92.138				230.35V

RIPPLE MEASUREMENTS 230V

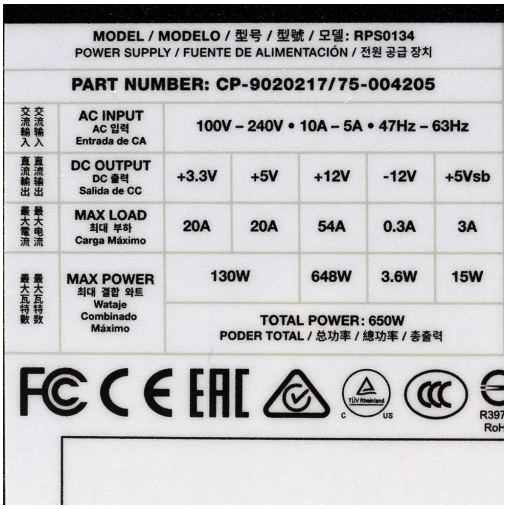
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	14.00mV	11.10mV	12.70mV	11.20mV	Pass
20% Load	13.40mV	12.20mV	13.40mV	11.10mV	Pass
30% Load	13.40mV	12.60mV	13.60mV	11.90mV	Pass
40% Load	15.70mV	12.80mV	13.80mV	13.30mV	Pass
50% Load	18.10mV	13.40mV	15.10mV	15.10mV	Pass
60% Load	19.30mV	13.70mV	15.70mV	15.50mV	Pass
70% Load	21.80mV	14.70mV	17.40mV	16.70mV	Pass
80% Load	24.80mV	15.50mV	22.00mV	20.70mV	Pass
90% Load	31.40mV	16.60mV	20.40mV	20.90mV	Pass
100% Load	47.10mV	22.30mV	22.50mV	25.60mV	Pass
110% Load	51.90mV	23.50mV	23.20mV	26.00mV	Pass
Crossload1	22.80mV	20.30mV	24.30mV	9.70mV	Pass
Crossload2	47.20mV	21.50mV	16.60mV	19.60mV	Pass

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

Anex

Corsair CX650F RGB

Top side



MODEL / MODELO / 型号 / 型號 / 모델: RPS0134
POWER SUPPLY / FUENTE DE ALIMENTACIÓN / 전원 공급 장치

PART NUMBER: CP-9020217/75-004205

交流輸入	AC INPUT AC 입력 Entrada de CA	100V – 240V • 10A – 5A • 47Hz – 63Hz				
直流輸出	DC OUTPUT DC 출력 Salida de CC	+3.3V	+5V	+12V	-12V	+5Vsb
最大電流	MAX LOAD 최대 부하 Carga Máximo	20A	20A	54A	0.3A	3A
最大瓦特數	MAX POWER 최대 결합 와트 Wataje Combinado Máximo	130W		648W	3.6W	15W
		TOTAL POWER: 650W PODER TOTAL / 总功率 / 總功率 / 총출력				

Power specifications label

CERTIFICATIONS 115V

CERTIFICATIONS 230V

Aristeidis Bitziopoulos
Lab Director