Anex

Corsair RM850 (2019)

Lab ID#: CR19850010
Receipt Date: Mar 21, 2019
Test Date: Mar 28, 2019

Report:
Report Date: Jan 4, 2019

DUT INFORMATION

Brand	Corsair
Manufacturer (OEM)	Channel Well Technology
Series	RM
Model Number	
Serial Number	19027122000038940011
DUT Notes	CP-9020196

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63
Rated Power (W)	850
Type	ATX12V
Cooling	140mm Rifle Bearing Fan (HA1425M12F-Z)
Semi-Passive Operation	✓
Cable Design	Fully Modular

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	

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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	88.454%
Efficiency With 10W (≤500W) or 2% (>500W)	76.881
Average Efficiency 5VSB	77.259%
Standby Power Consumption (W)	0.0404938
Average PF	0.989
Avg Noise Output	26.16 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A-

230V

Average Efficiency	90.640%
Average Efficiency 5VSB	76.600%
Standby Power Consumption (W)	0.0756172
Average PF	0.964
Avg Noise Output	26.11 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A-

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	70.8	3	0.3
	Watts	150		849.6	15	3.6
Total Max. Power (W)		850				

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

Hold-Up Time (ms)	16.90
AC Loss to PWR_OK Hold Up Time (ms)	13.70
PWR_OK Inactive to DC Loss Delay (ms)	3.20

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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)	3	6	16-18AWG	No
SATA (460mm+110mm+110mm+110mm)	3	12	18AWG	No
4 pin Molex (450mm+100mm+100mm+100mm)	1	4	18AWG	No
AC Power Cord (1420mm) - C13 coupler	1	1	16AWG	-

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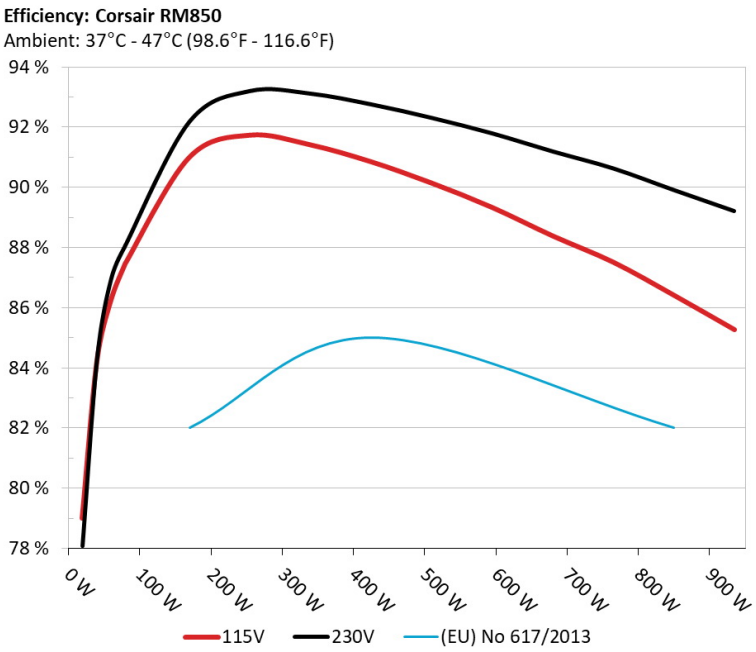
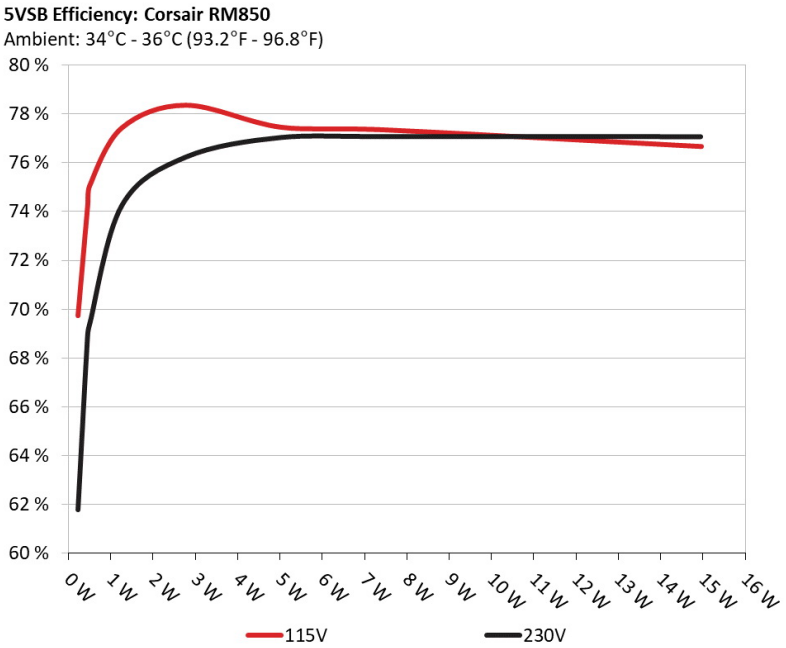
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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	0.228	69.725%	0.033
	5.057V	0.327		115.10V
2	0.090A	0.455	74.225%	0.060
	5.056V	0.613		115.10V
3	0.550A	2.775	78.368%	0.259
	5.045V	3.541		115.10V
4	1.000A	5.035	77.462%	0.348
	5.034V	6.500		115.10V
5	1.500A	7.534	77.351%	0.398
	5.022V	9.740		115.10V
6	3.000A	14.955	76.673%	0.461
	4.985V	19.505		115.10V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228	61.789%	0.011
	5.056V	0.369		230.31V
2	0.090A	0.455	68.939%	0.020
	5.055V	0.660		230.31V
3	0.550A	2.775	76.236%	0.103
	5.044V	3.640		230.30V
4	1.000A	5.034	77.043%	0.169
	5.033V	6.534		230.30V
5	1.500A	7.532	77.077%	0.225
	5.021V	9.772		230.30V
6	3.000A	14.948	77.071%	0.323
	4.983V	19.395		230.30V

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115V

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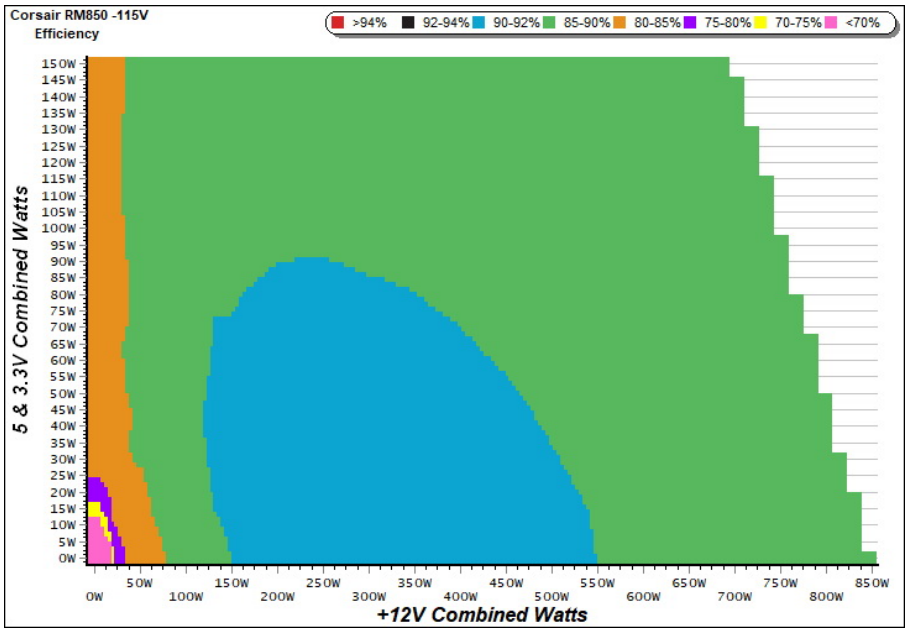
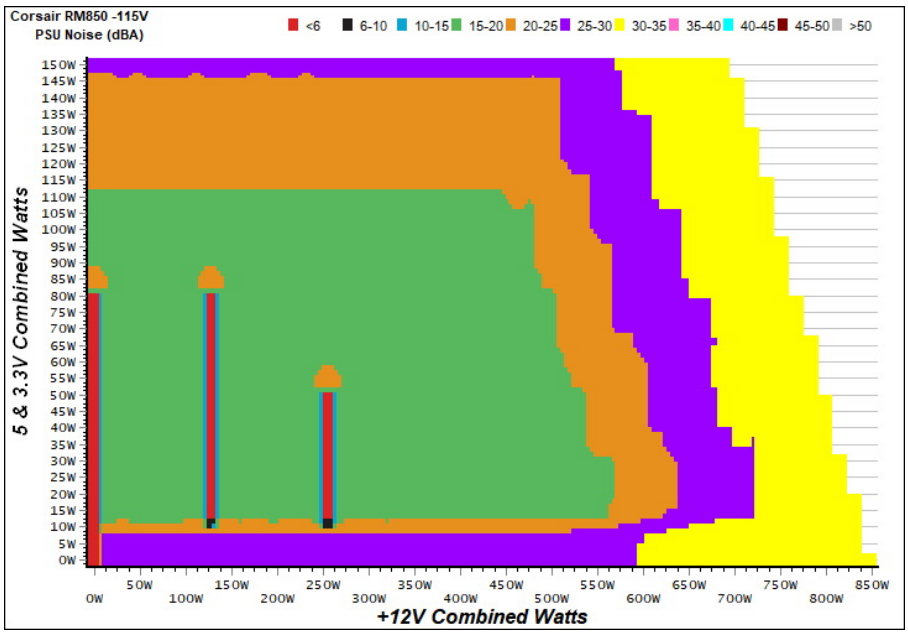
EFFICIENCY GRAPH 115V



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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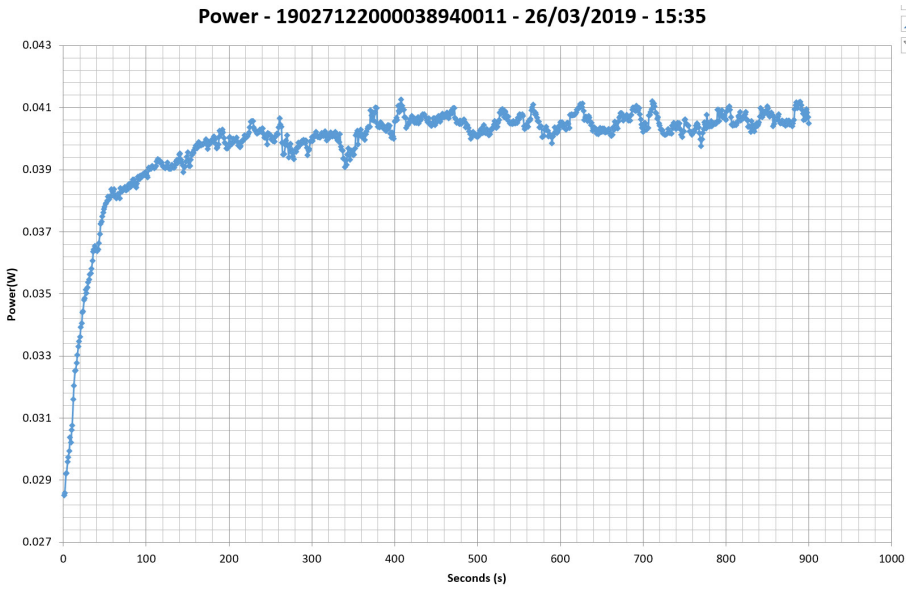
VAMPIRE POWER -115V



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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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	5.233A	1.987A	2.003A	0.997A	84.842	87.458%	0			

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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	1.193A	0.497A	0.485A	0.199A	19.457	79.000%	0	<6.0	0.833
	12.037V	5.034V	3.289V	5.031V	24.629				115.10V
2	2.459A	0.993A	0.999A	0.398A	39.905	84.181%	0	<6.0	0.932
	12.043V	5.035V	3.294V	5.029V	47.404				115.10V
3	3.656A	1.490A	1.485A	0.597A	59.419	86.214%	0	<6.0	0.964
	12.043V	5.034V	3.293V	5.024V	68.920				115.11V
4	4.898A	1.985A	2.003A	0.797A	79.781	86.763%	0	<6.0	0.973
	12.085V	5.034V	3.293V	5.020V	91.953				115.11V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	4.5 mV	6.1 mV	12.8 mV	8.9 mV	Pass
20% Load	11.5 mV	6.3 mV	12.7 mV	9.0 mV	Pass
30% Load	7.8 mV	7.3 mV	13.2 mV	9.1 mV	Pass
40% Load	7.9 mV	7.9 mV	14.0 mV	10.4 mV	Pass
50% Load	8.4 mV	8.4 mV	14.1 mV	9.0 mV	Pass
60% Load	10.3 mV	9.2 mV	16.6 mV	10.7 mV	Pass
70% Load	10.5 mV	10.3 mV	17.7 mV	9.5 mV	Pass
80% Load	12.4 mV	10.8 mV	18.5 mV	10.1 mV	Pass
90% Load	14.0 mV	11.6 mV	19.9 mV	10.2 mV	Pass
100% Load	17.4 mV	13.1 mV	20.8 mV	9.6 mV	Pass
110% Load	18.6 mV	13.8 mV	20.1 mV	9.8 mV	Pass
Crossload 1	17.4 mV	9.5 mV	23.3 mV	9.3 mV	Pass
Crossload 2	17.8 mV	11.3 mV	16.7 mV	9.5 mV	Pass

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230V

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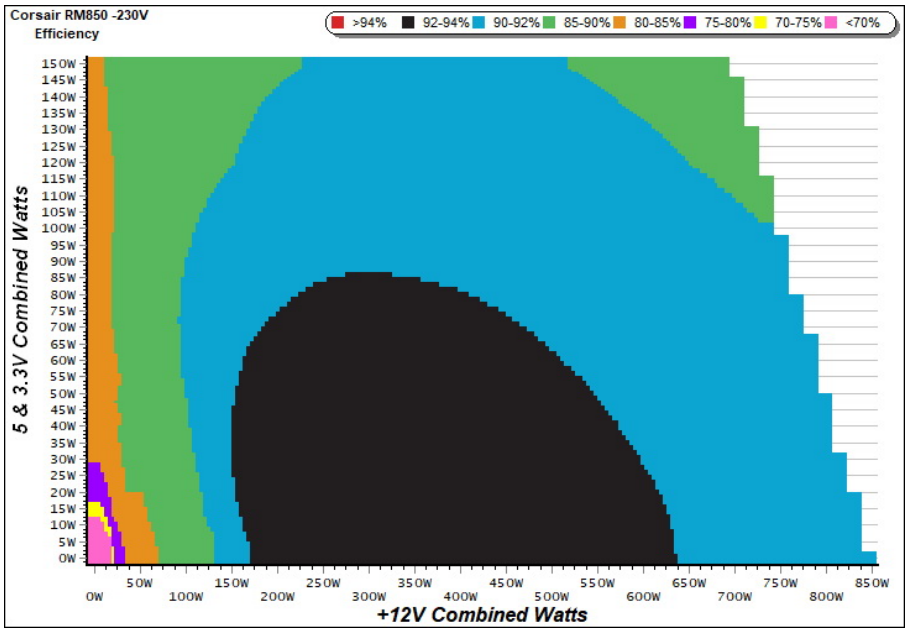
EFFICIENCY GRAPH 230V



INFO

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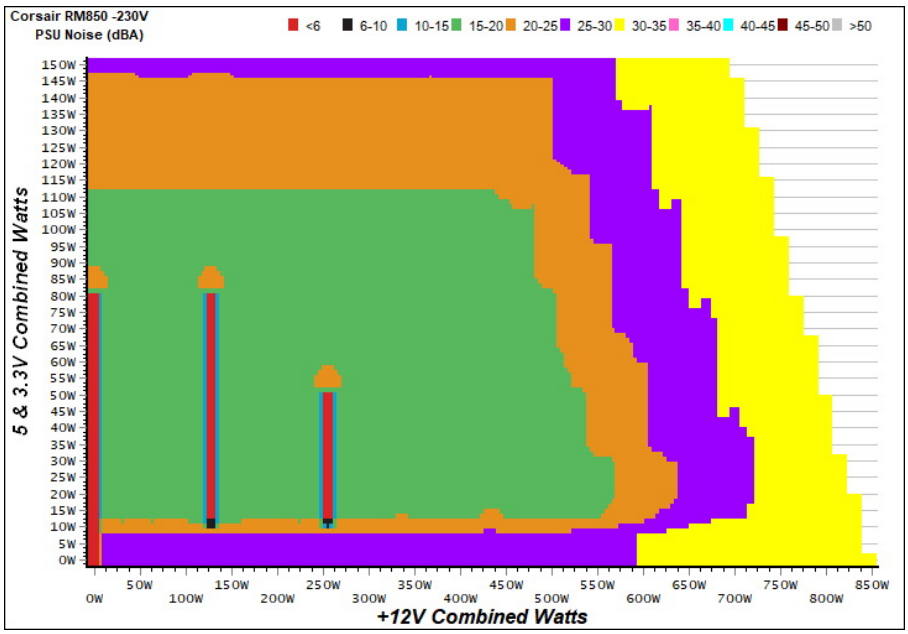
NOISE GRAPH 230V



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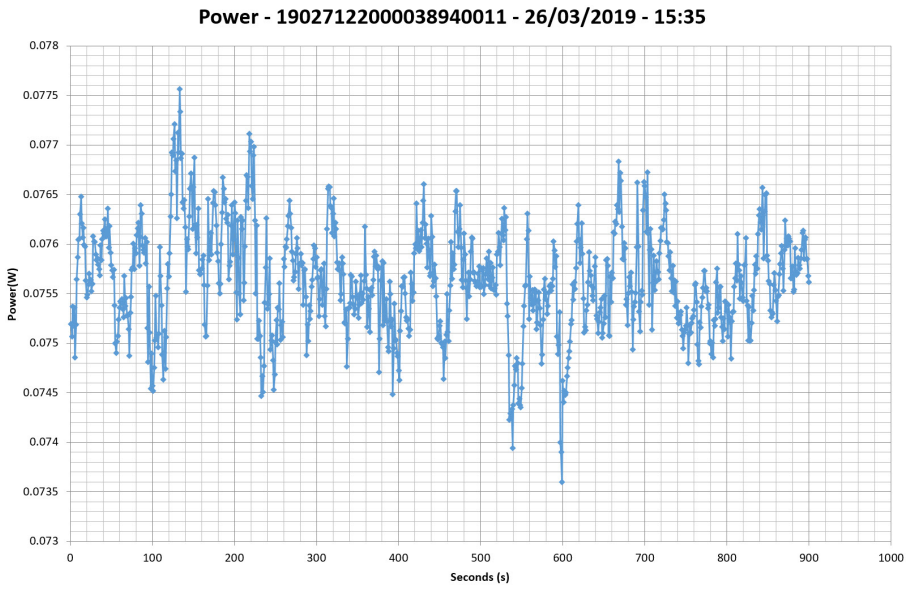
VAMPIRE POWER -230V



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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	5.227A	1.986A	2.003A	0.998A	84.776	88.071%	0	<6.0	43.32°C	0.855
	12.088V	5.033V	3.292V	5.014V	96.259				40.62°C	230.27V
2	11.474A	2.982A	3.006A	1.198A	169.259	92.162%	0	<6.0	44.45°C	0.938
	12.060V	5.029V	3.289V	5.008V	183.653				41.45°C	230.27V
3	18.136A	3.480A	3.496A	1.400A	254.376	93.191%	0	<6.0	45.51°C	0.962
	12.042V	5.026V	3.287V	5.000V	272.963				42.14°C	230.27V
4	24.832A	3.979A	4.011A	1.602A	339.595	93.106%	792	16.3	42.85°C	0.972
	12.017V	5.025V	3.289V	4.995V	364.740				47.18°C	230.28V
5	31.169A	4.983A	5.024A	1.806A	425.010	92.748%	789	16.3	43.02°C	0.978
	12.015V	5.019V	3.284V	4.986V	458.243				48.68°C	230.31V
6	37.463A	5.984A	6.034A	2.009A	509.545	92.303%	788	16.2	43.74°C	0.981
	12.005V	5.014V	3.281V	4.978V	552.035				50.09°C	230.31V
7	43.849A	6.986A	7.041A	2.213A	594.890	91.785%	895	20.5	44.22°C	0.984
	11.991V	5.010V	3.280V	4.972V	648.132				51.51°C	230.32V
8	50.222A	7.991A	8.051A	2.418A	680.217	91.184%	1076	26.5	44.63°C	0.985
	11.983V	5.006V	3.279V	4.965V	745.986				52.87°C	230.34V
9	57.023A	8.496A	8.540A	2.418A	765.130	90.621%	1266	32.1	45.07°C	0.986
	11.971V	5.003V	3.279V	4.963V	844.314				53.80°C	230.33V
10	63.542A	9.002A	9.062A	3.035A	849.927	89.905%	1478	36.4	45.71°C	0.987
	11.964V	5.000V	3.277V	4.944V	945.365				55.23°C	230.32V
11	70.670A	9.009A	9.067A	3.037A	934.720	89.206%	1735	40.6	46.74°C	0.988
	11.957V	4.997V	3.275V	4.941V	1047.821				57.22°C	230.34V
CL1	0.139A	18.001A	17.998A	0.000A	150.934	84.153%	1079	26.6	43.23°C	0.938
	12.073V	5.012V	3.280V	5.058V	179.357				48.65°C	230.31V
CL2	70.837A	1.003A	0.999A	1.000A	861.404	90.333%	1518	37.1	45.53°C	0.987
	11.973V	5.003V	3.273V	4.984V	953.592				55.25°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	1.192A	0.496A	0.483A	0.199A	19.439	78.081%	0	<6.0	0.462
	12.042V	5.032V	3.287V	5.030V	24.896				230.27V
2	2.454A	0.993A	1.000A	0.398A	39.852	84.288%	0	<6.0	0.669
	12.046V	5.034V	3.292V	5.027V	47.281				230.27V
3	3.651A	1.489A	1.484A	0.597A	59.364	86.922%	0	<6.0	0.780
	12.047V	5.034V	3.292V	5.023V	68.296				230.27V
4	4.893A	1.985A	2.002A	0.797A	79.713	87.508%	0	<6.0	0.845
	12.085V	5.033V	3.292V	5.019V	91.092				230.27V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	4.7 mV	5.8 mV	12.1 mV	8.9 mV	Pass
20% Load	13.7 mV	6.3 mV	14.5 mV	9.2 mV	Pass
30% Load	8.3 mV	7.0 mV	13.8 mV	9.1 mV	Pass
40% Load	7.2 mV	8.1 mV	13.8 mV	8.3 mV	Pass
50% Load	8.6 mV	8.6 mV	14.5 mV	9.1 mV	Pass
60% Load	8.4 mV	9.4 mV	16.4 mV	9.1 mV	Pass
70% Load	8.7 mV	10.1 mV	16.4 mV	9.0 mV	Pass
80% Load	10.1 mV	11.3 mV	20.6 mV	9.2 mV	Pass
90% Load	11.8 mV	11.5 mV	19.7 mV	9.2 mV	Pass
100% Load	15.7 mV	13.0 mV	20.2 mV	8.9 mV	Pass
110% Load	16.6 mV	13.4 mV	21.3 mV	8.2 mV	Pass
Crossload 1	19.6 mV	9.4 mV	23.3 mV	8.1 mV	Pass
Crossload 2	14.9 mV	11.2 mV	16.6 mV	8.1 mV	Pass

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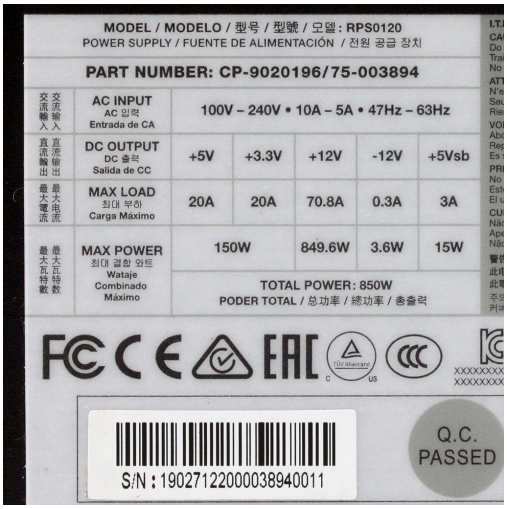
Top side



Power specifications label

CERTIFICATIONS 115V

CERTIFICATIONS 230V

Aristeidis Bitziopoulos
Lab Director