

Anex

Corsair RM850x (2018) (Sample #4)

Lab ID#: 479

Receipt Date: -

Test Date: -

Report:

Report Date: Sep 22, 2018

DUT INFORMATION	
Brand	Corsair
Manufacturer (OEM)	Channel Well Technology
Series	RMx
Model Number	RM850x (2018) (Sample #4)
Serial Number	17477138000034450136
DUT Notes	CP-9020180

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	12-6
Rated Frequency (Hz)	47-63
Rated Power (W)	850
Type	ATX12V
Cooling	135mm Rifle Bearing Fan (NR135L)
Semi-Passive Operation	✓
Cable Design	Fully Modular

POWER SPECIFICATIONS						
Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	70.8	3	0.8
	Watts	150		850	15	9.6
Total Max. Power (W)		850				

CABLES AND CONNECTORS				
Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	18-20AWG	Yes
4+4 pin EPS12V (650mm)	2	2	18AWG	Yes
6+2 pin PCIe (600mm+150mm)	3	6	18AWG	Yes
SATA (500mm+110mm+110mm+110mm)	1	4	18AWG	No
SATA (520mm+110mm+110mm)	2	6	18AWG	No
4 pin Molex (450mm+100mm+100mm+100mm)	2	8	18AWG	No
FDD Adapter (+100mm)	1	1	20AWG	No
AC Power Cord (1430mm) - C13 coupler	1	1	16AWG	-

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General Data	
Manufacturer (OEM)	CWT
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x GBU1506 (600V, 15A @ 100°C)
APFC MOSFETS	2x Infineon IPA60R125C6 (650V, 19A @ 100°C, 0.125 Ohm) 1x SPN5003 FET (for reduced no load consumption)
APFC Boost Diode	1x CREE C3D08060A (600V, 8A @ 152°C)
Hold-up Cap(s)	2x Nichicon (400V, 470uF each or 940uF combined, 2000h @ 105°C, GG)
Main Switchers	2x Infineon IPA60R190P6 (650V, 12.7A @ 100°C, 0.190 Ohm)
APFC Controller	Champion CM6500UNX
Switching Controller	Champion CM6901X
Fan Controller	PIC16F1503
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	6x International Rectifier IRFH7004TRPBF (40V, 164A @ 100°C, 1.4 mOhm)
5V & 3.3V	DC-DC Converters: 6x QM3006D (30V, 57A @ 100°C, 5.5 mOhm) PWM Controller: ANPEC APW7159
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (1-5,000 @ 105°C, KZE), Nippon Chemi-Con (4-10,000 @ 105°C, KY) Polymers: FPCAP
Supervisor IC	Weltrend WT7502 (OVP, UVP, SCP, PG) & LM393G
Fan Model	NR135L (12V, 0.22A, Rifle Bearing)
5VSB Circuit	
Rectifier	ISD04N65A, QM3004D, LS64 10L45 SBR
Step-Down Converter	AME5268
Standby PWM Controller	On-Bright OB5269CP

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RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	88.504
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	64.124
Average Efficiency 5VSB	76.753
Standby Power Consumption (W) -115V	0.0324437
Standby Power Consumption (W) -230V	0.0490140
Average PF	0.989
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	15.83
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A+

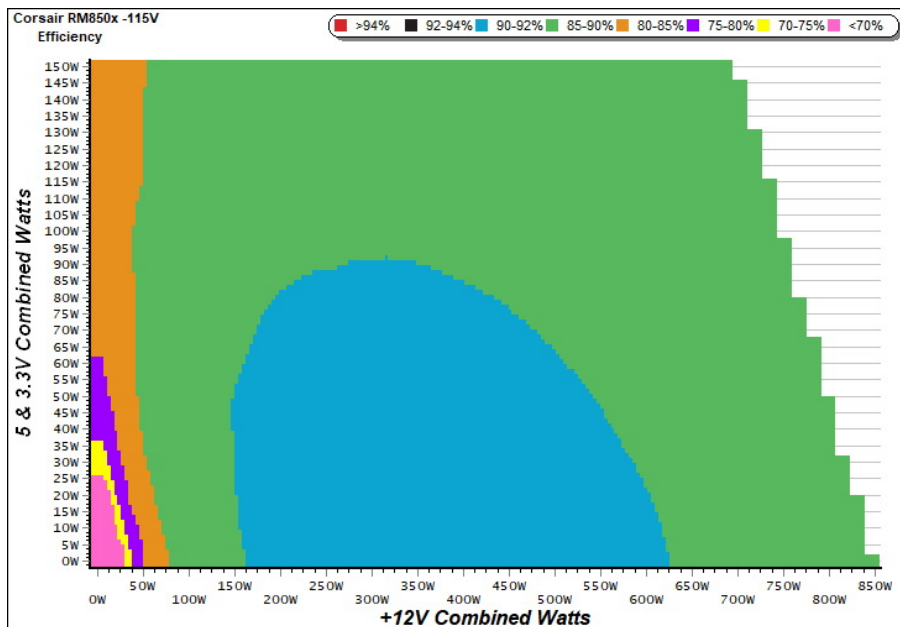
TEST EQUIPMENT		
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Chroma 61604, Keysight AC6804B	
Power Analyzers	N4L PPA1530 x2, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol 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	

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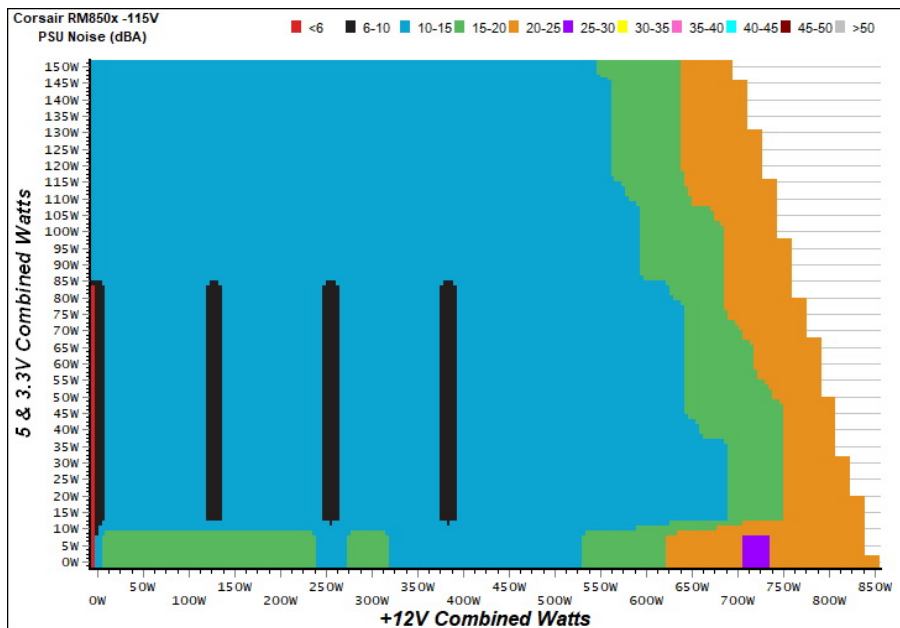
EFFICIENCY GRAPH



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



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

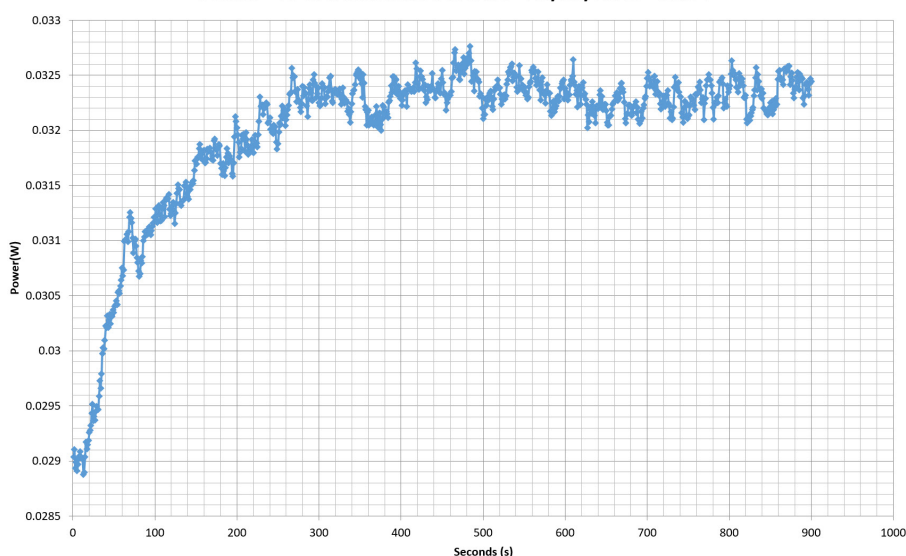
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228	71.924%	0.030
	5.049V	0.317		115.06V
2	0.090A	0.455	75.581%	0.057
	5.048V	0.602		115.06V
3	0.550A	2.769	78.822%	0.251
	5.033V	3.513		115.06V
4	1.000A	5.021	78.124%	0.340
	5.020V	6.427		115.06V
5	1.500A	7.510	77.775%	0.391
	5.006V	9.656		115.06V
6	3.000A	14.897	76.258%	0.453
	4.965V	19.535		115.06V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.046A	0.228	67.456%	0.158
	5.007V	0.338		230.19V
2	0.090A	0.455	72.684%	0.018
	5.048V	0.626		230.19V
3	0.550A	2.769	77.498%	0.098
	5.033V	3.573		230.22V
4	1.000A	5.021	78.026%	0.162
	5.019V	6.435		230.19V
5	1.500A	7.511	77.891%	0.218
	5.006V	9.643		230.21V
6	3.001A	14.889	77.133%	0.314
	4.962V	19.303		230.20V

VAMPIRE POWER -115V

Power - 17477138000034450136 - 10/09/2018 - 09:04



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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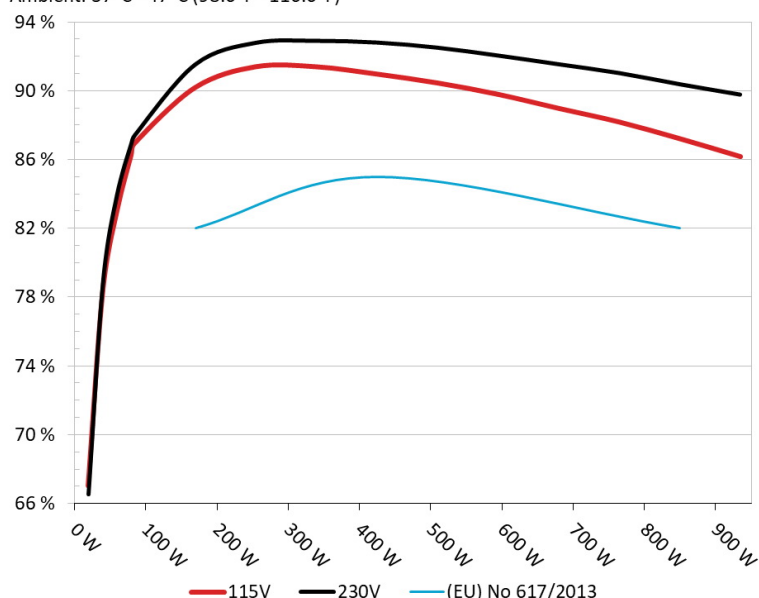
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Corsair RM850x

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



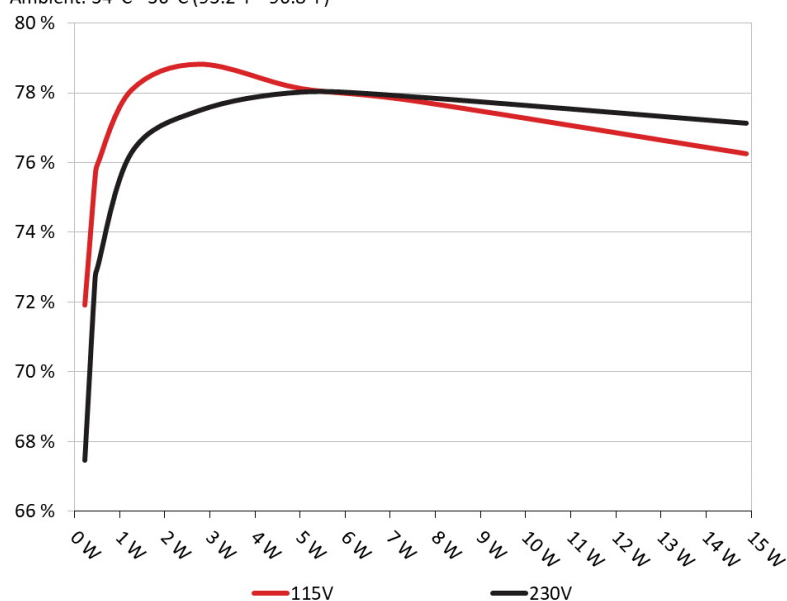
INFO

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: Corsair RM850x

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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10-110% LOAD TESTS										
Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	5.225A	1.980A	1.985A	0.994A	84.913	86.974%	0	<6.0	47.19°C	0.970
	12.115V	5.054V	3.326V	5.032V	97.630				40.12°C	115.05V
2	11.434A	2.970A	2.977A	1.194A	169.435	90.199%	0	<6.0	48.54°C	0.985
	12.116V	5.052V	3.323V	5.028V	187.846				40.99°C	115.05V
3	18.046A	3.466A	3.464A	1.394A	254.532	91.416%	0	<6.0	49.23°C	0.991
	12.109V	5.051V	3.321V	5.023V	278.433				41.17°C	115.05V
4	24.673A	3.962A	3.978A	1.595A	339.754	91.411%	0	<6.0	50.97°C	0.988
	12.100V	5.050V	3.318V	5.017V	371.676				41.78°C	115.05V
5	30.991A	4.955A	4.977A	1.796A	425.070	90.984%	610	10.2	41.98°C	0.989
	12.086V	5.047V	3.316V	5.012V	467.194				51.88°C	115.05V
6	37.258A	5.948A	5.977A	1.998A	509.599	90.471%	610	10.2	42.61°C	0.990
	12.072V	5.046V	3.313V	5.007V	563.272				53.01°C	115.05V
7	43.589A	6.942A	6.978A	2.200A	594.887	89.808%	610	10.2	43.30°C	0.991
	12.062V	5.044V	3.310V	5.002V	662.398				54.30°C	115.05V
8	49.928A	7.935A	7.982A	2.402A	680.257	88.988%	888	22.2	43.90°C	0.993
	12.054V	5.043V	3.308V	4.998V	764.437				55.60°C	115.04V
9	56.673A	8.434A	8.472A	2.402A	765.203	88.194%	1130	30.3	44.46°C	0.994
	12.046V	5.041V	3.305V	4.998V	867.641				56.50°C	115.04V
10	63.158A	8.931A	8.994A	3.013A	850.023	87.226%	1415	36.7	46.20°C	0.995
	12.038V	5.040V	3.303V	4.981V	974.511				58.61°C	115.04V
11	70.244A	8.935A	8.998A	3.014A	934.759	86.187%	1440	37.1	46.71°C	0.996
	12.030V	5.038V	3.301V	4.979V	1084.566				59.59°C	115.03V
CL1	0.146A	18.004A	17.999A	0.000A	152.460	81.936%	714	16.5	41.96°C	0.985
	12.097V	5.053V	3.318V	5.102V	186.071				51.73°C	115.06V
CL2	70.846A	1.000A	1.000A	1.000A	866.348	87.734%	1300	34.5	46.78°C	0.995
	12.040V	5.041V	3.306V	5.015V	987.473				58.74°C	115.04V

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20-80W LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.194A	0.495A	0.482A	0.198A	19.562	67.048%	0	<6.0	0.874
	12.108V	5.053V	3.328V	5.048V	29.176				115.05V
2	2.451A	0.989A	0.991A	0.397A	39.984	78.325%	0	<6.0	0.936
	12.112V	5.053V	3.327V	5.044V	51.049				115.05V
3	3.638A	1.484A	1.474A	0.595A	59.472	82.943%	0	<6.0	0.961
	12.114V	5.053V	3.327V	5.041V	71.702				115.05V
4	4.897A	1.979A	1.986A	0.794A	79.922	86.304%	0	<6.0	0.966
	12.113V	5.053V	3.326V	5.037V	92.605				115.05V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	1.6 mV	3.8 mV	2.8 mV	1.9 mV	Pass
20% Load	8.0 mV	5.0 mV	4.8 mV	3.5 mV	Pass
30% Load	6.6 mV	4.3 mV	3.2 mV	2.4 mV	Pass
40% Load	5.9 mV	5.7 mV	5.3 mV	3.7 mV	Pass
50% Load	5.7 mV	5.8 mV	5.0 mV	3.6 mV	Pass
60% Load	6.2 mV	5.5 mV	4.4 mV	3.4 mV	Pass
70% Load	6.2 mV	8.1 mV	5.7 mV	5.6 mV	Pass
80% Load	6.3 mV	6.4 mV	5.9 mV	4.1 mV	Pass
90% Load	7.0 mV	7.2 mV	6.9 mV	5.1 mV	Pass
100% Load	7.2 mV	8.5 mV	7.2 mV	5.7 mV	Pass
110% Load	7.3 mV	8.4 mV	6.4 mV	5.7 mV	Pass
Crossload 1	7.0 mV	7.3 mV	6.5 mV	3.3 mV	Pass
Crossload 2	6.9 mV	6.1 mV	4.0 mV	4.2 mV	Pass

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

Hold-Up Time (ms)	19.2
AC Loss to PWR_OK Hold Up Time (ms)	16.0
PWR_OK Inactive to DC Loss Delay (ms)	3.2



Top side



MODEL / 型号 / 型號 : RP50110		POWER SUPPLY / 電源 / 電源		PART NUMBER: 75-003445	
AC INPUT AC 輸入 100V - 240V • 12A - 6A • 47Hz - 63Hz 中国仅使用220V- 6A 47Hz - 63Hz					
DC OUTPUT DC 輸出		+3.3V	+5V	+12V	-12V +5Vsb
MAX LOAD 最大負載		25A	25A	70.8A	0.8A 3A
MAXIMUM COMBINED WATTAGE 最大總功率		150W	850W	9.6W	15W
TOTAL POWER: 850W					

Power specifications table

CERTIFICATIONS



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