

Anex

Corsair RM850x

Lab ID#: 79
Receipt Date: -
Test Date: -

Report:

Report Date: Jan 4, 2018

DUT INFORMATION	
Brand	Corsair
Manufacturer (OEM)	Channel Well Technology
Series	RMx
Model Number	RM850x
Serial Number	16447135000017590888
DUT Notes	CP-9020093 - Retested on 11/10/2017

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 (520mm+115mm+115mm)	2	6	18AWG	No
SATA (505mm+115mm+115mm+115mm)	1	4	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	6x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor
Bridge Rectifier(s)	2x GBJ1510 (700V, 15A @ 100°C)
APFC MOSFETS	2x Vishay SiHF22N60E (650V, 13A @ 100°C, 0.18 Ohm)
APFC Boost Diode	1x Power Intergrations QH08TZ600 (600V, 8A @ 150°C)
Hold-up Cap(s)	2x Nichicon (400V, 470uF each or 940uF combined, 2000h @ 105°C, GG)
Main Switchers	2x Vishay SiHG20N50C (560V, 11A @ 100°C, 0.27Ohm)
APFC Controller	Infineon ICE3PCS01G - CM03X
Switching Controller	Infineon ICE2HS01G
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: 4x QM3004D (30V, 40A @ 100°C, 8.5 mOhm) 2x 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), Nippon Chemi-Con (5-6,000 @ 105°C, KZH) Polymers: Fpcap
Supervisor IC	Weltrend WT7502 (OVP, UVP, SCP, PG), LM358
Fan Model	NR135L (12V, 0.22A, Rifle Bearing)
5VSB Circuit	
Rectifier	SD04N65A FET, QM3004D FET, MBRU2045CT SBR (45V, 20A @ 125°C)
Standby PWM Controller	On-Bright OB5269CP

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RESULTS		
Temperature Range (°C /°F)		30-32 / 86-89.6
Average Efficiency		88.315
Efficiency With 10W ($\leq 500W$) or 2% ($> 500W$) Load -115V		0.000
Average Efficiency 5VSB		81.310
Standby Power Consumption (W) -115V		0.0439193
Standby Power Consumption (W) -230V		0.0806408
Average PF		0.993
ErP Lot 3/6 Ready		✓
(EU) No 617/2013 Compliance		✓
Avg Noise Output		19.95
Efficiency Rating (ETA)		PLATINUM
Noise Rating (LAMBDA)		A+

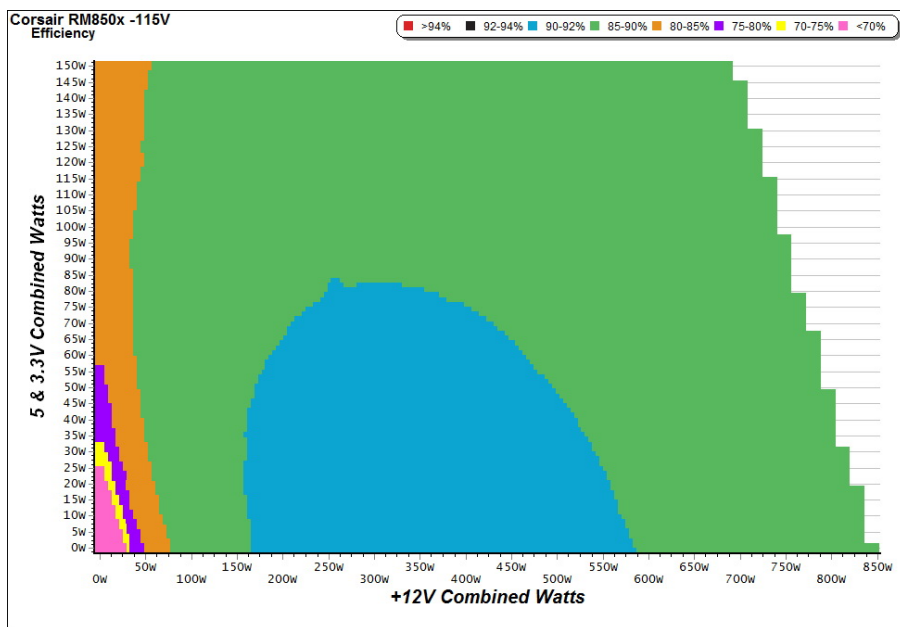
TEST EQUIPMENT		
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, Chroma 61604	
Power Analyzers	N4L PPA1530, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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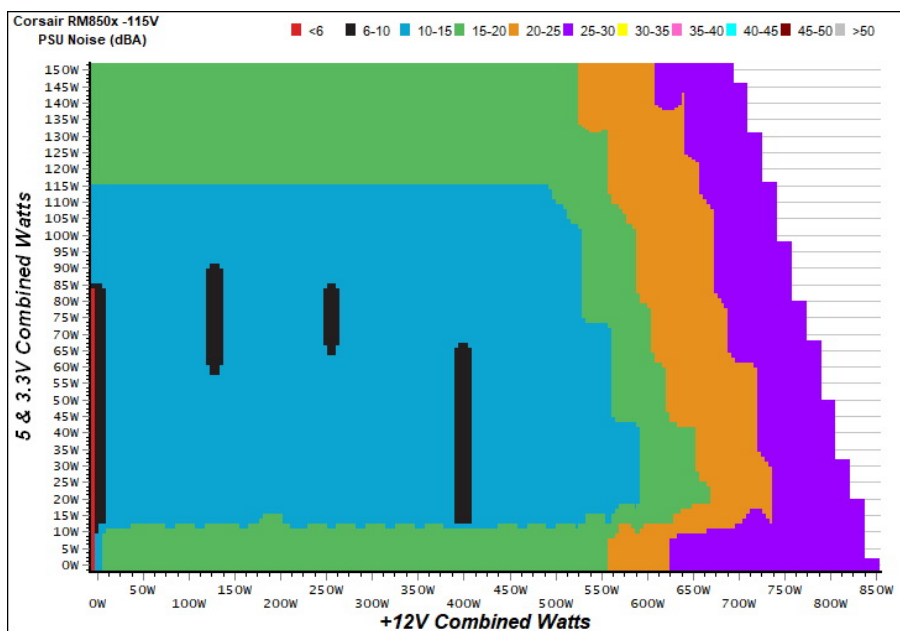
EFFICIENCY GRAPH



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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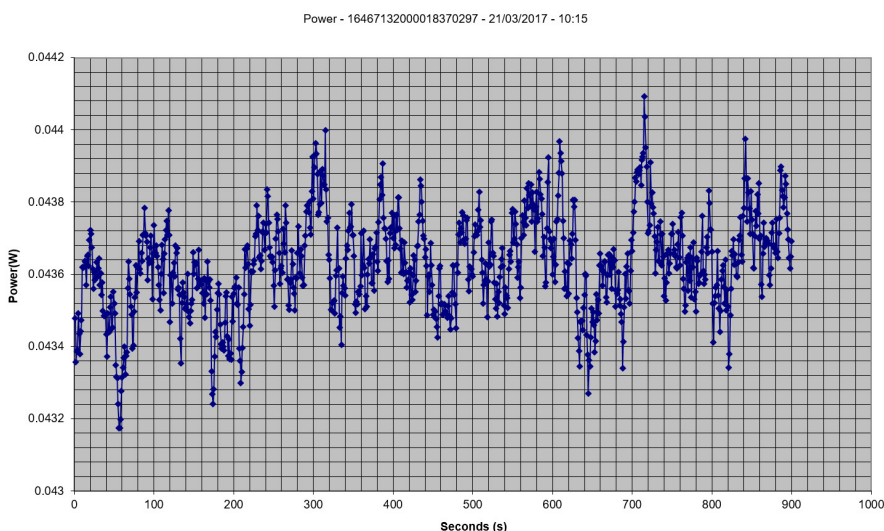
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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)				
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.041A	0.210	69.767%	0.030
	5.077V	0.301		115.06V
2	0.087A	0.441	76.034%	0.057
	5.075V	0.580		115.06V
3	0.532A	2.693	81.879%	0.246
	5.064V	3.289		115.05V
4	3.001A	15.015	80.782%	0.445
	5.003V	18.587		115.04V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)				
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.210	60.694%	0.011
	5.076V	0.346		230.11V
2	0.087A	0.441	69.778%	0.019
	5.075V	0.632		230.13V
3	0.532A	2.692	79.387%	0.097
	5.064V	3.391		230.13V
4	3.001A	15.015	80.553%	0.316
	5.003V	18.640		230.12V

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

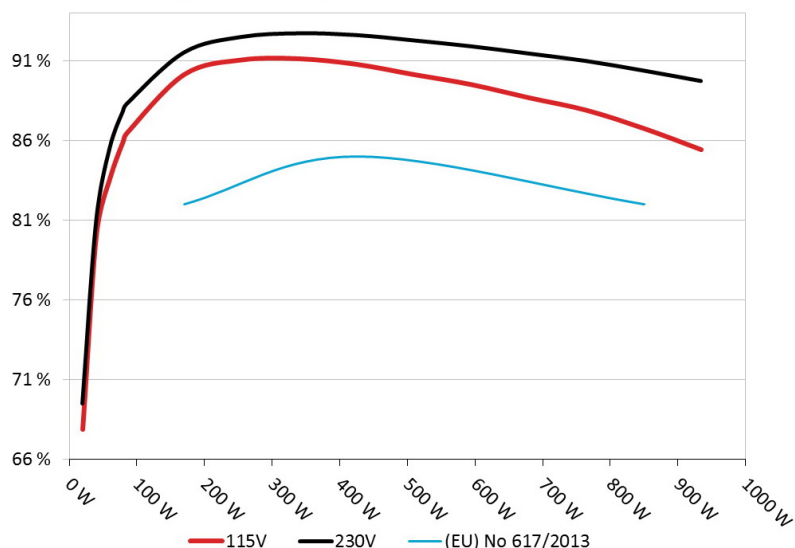
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Corsair RM850x
Ambient: 36°C - 49°C (96.8°F - 120.2°F)

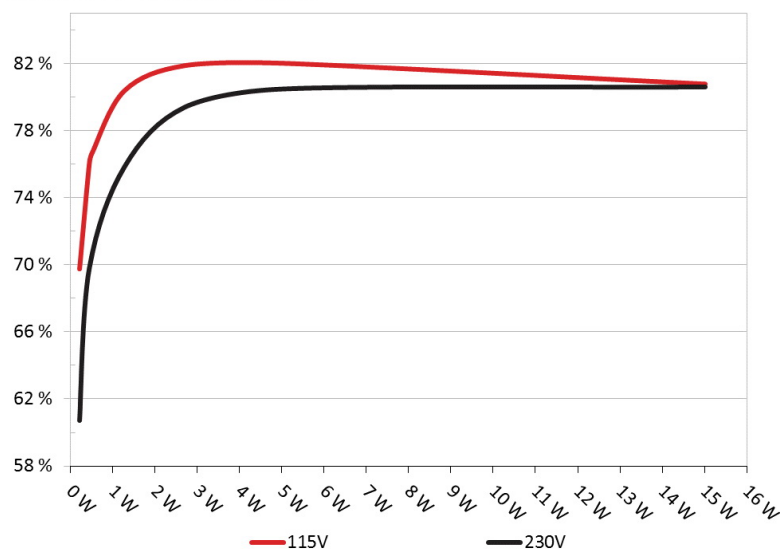


INFO

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	5.242A	1.985A	1.995A	0.996A	84.812	86.449%	0	<6.0	45.31°C	0.969
	12.062V	5.034V	3.307V	5.013V	98.106				39.46°C	115.07V
2	11.523A	2.979A	2.994A	1.196A	169.695	90.130%	0	<6.0	47.15°C	0.989
	12.048V	5.031V	3.303V	5.008V	188.279				41.10°C	115.08V
3	18.180A	3.483A	3.513A	1.398A	254.911	91.046%	0	<6.0	47.64°C	0.994
	12.036V	5.028V	3.300V	5.001V	279.980				41.33°C	115.07V
4	24.835A	3.980A	4.000A	1.601A	339.755	91.119%	0	<6.0	48.63°C	0.996
	12.022V	5.025V	3.298V	4.995V	372.868				41.99°C	115.07V
5	31.164A	4.977A	5.004A	1.802A	424.649	90.768%	0	<6.0	50.18°C	0.996
	12.007V	5.021V	3.294V	4.989V	467.840				43.39°C	115.07V
6	37.509A	5.977A	6.014A	2.006A	509.665	90.127%	633	10.9	45.52°C	0.997
	11.994V	5.018V	3.291V	4.984V	565.495				61.47°C	115.07V
7	43.865A	6.985A	7.024A	2.208A	594.661	89.499%	658	12.7	44.35°C	0.997
	11.981V	5.015V	3.288V	4.977V	664.436				60.76°C	115.06V
8	50.233A	7.986A	8.038A	2.410A	679.579	88.675%	843	20.4	44.64°C	0.997
	11.968V	5.010V	3.284V	4.972V	766.368				61.45°C	115.06V
9	57.055A	8.485A	8.564A	2.411A	764.601	87.892%	943	24.5	45.29°C	0.997
	11.954V	5.007V	3.281V	4.970V	869.931				62.97°C	115.06V
10	63.636A	9.000A	9.059A	3.026A	849.468	86.751%	1071	28.0	46.95°C	0.997
	11.939V	5.004V	3.278V	4.953V	979.202				66.21°C	115.05V
11	70.843A	9.007A	9.065A	3.030A	934.401	85.420%	1282	34.4	48.97°C	0.997
	11.923V	5.001V	3.276V	4.950V	1093.889				68.80°C	115.05V
CL1	0.099A	18.027A	18.003A	0.003A	150.752	82.474%	811	19.1	46.13°C	0.989
	12.033V	5.012V	3.288V	5.068V	182.788				59.02°C	115.09V
CL2	70.794A	1.003A	1.003A	1.001A	858.821	87.104%	1103	28.7	47.20°C	0.997
	11.943V	5.015V	3.289V	4.995V	985.976				65.50°C	115.06V

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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	1.209A	0.491A	0.482A	0.197A	19.662	67.884%	0	<6.0	0.843
	12.077V	5.038V	3.310V	5.033V	28.964				115.07V
2	2.447A	0.990A	0.996A	0.395A	39.810	80.078%	0	<6.0	0.936
	12.073V	5.036V	3.309V	5.028V	49.714				115.07V
3	3.682A	1.478A	1.512A	0.596A	59.874	83.612%	0	<6.0	0.954
	12.069V	5.035V	3.307V	5.023V	71.609				115.07V
4	4.908A	1.985A	1.993A	0.797A	79.794	85.974%	0	<6.0	0.966
	12.064V	5.034V	3.307V	5.019V	92.812				115.07V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	4.8 mV	5.4 mV	6.7 mV	3.3 mV	Pass
20% Load	5.2 mV	5.1 mV	6.3 mV	3.5 mV	Pass
30% Load	5.9 mV	5.2 mV	6.4 mV	3.8 mV	Pass
40% Load	6.4 mV	5.4 mV	6.7 mV	4.8 mV	Pass
50% Load	6.3 mV	5.7 mV	7.3 mV	4.7 mV	Pass
60% Load	7.2 mV	5.8 mV	8.3 mV	5.7 mV	Pass
70% Load	7.7 mV	5.8 mV	8.8 mV	6.2 mV	Pass
80% Load	8.0 mV	5.7 mV	9.7 mV	6.6 mV	Pass
90% Load	8.6 mV	6.0 mV	9.5 mV	7.1 mV	Pass
100% Load	10.7 mV	5.9 mV	10.0 mV	8.1 mV	Pass
110% Load	13.9 mV	6.4 mV	9.8 mV	9.6 mV	Pass
Crossload 1	7.3 mV	5.9 mV	8.0 mV	5.8 mV	Pass
Crossload 2	11.0 mV	7.0 mV	8.7 mV	8.5 mV	Pass

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

Hold-Up Time (ms)	29.4
AC Loss to PWR_OK Hold Up Time (ms)	21.8
PWR_OK Inactive to DC Loss Delay (ms)	7.6



Top side



Power specifications label

CERTIFICATIONS



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