Anex

Corsair RM750x (2018) (Sample #2)

Lab ID#: 268
Receipt Date: -
Test Date: -

Report:
Report Date: Sep 1, 2018

DUT INFORMATION

Brand	Corsair
Manufacturer (OEM)	Channel Well Technology
Series	RMx
Model Number	RM750x (2018) (Sample #2)
Serial Number	17477137000034440117
DUT Notes	CP-9020179

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63
Rated Power (W)	750
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	62.5	3	0.8
	Watts	150		750	15	9.6
Total Max. Power (W)		750				

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)	2	4	18AWG	Yes
SATA (520mm+110mm+110mm)	3	9	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 Vishay SiHF22N60E (650V, 13A @ 100°C, 0.18Ohm) 1x SPN5003 FET (for reduced no load consumption)
APFC Boost Diode	1x Power Integrations QH08TZ600 (600V, 8A @ 150°C)
Hold-up Cap(s)	2x Nichicon (400V, 1x 470uF, 1x 390uF, 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 Inte ational 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	87.974
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	0.000
Average Efficiency 5VSB	77.953
Standby Power Consumption (W) -115V	0.0364795
Standby Power Consumption (W) -230V	0.0543663
Average PF	0.989
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	15.68
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 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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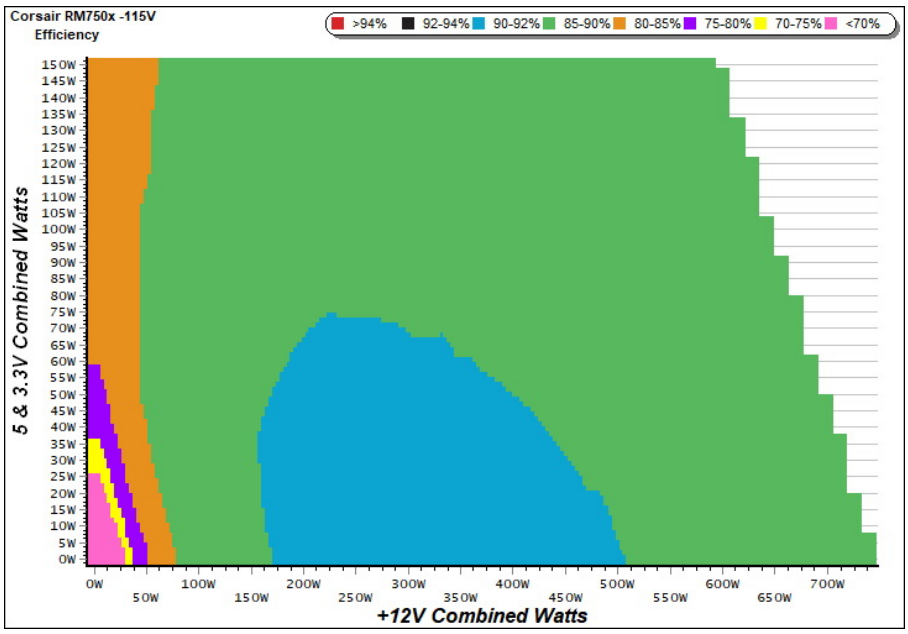
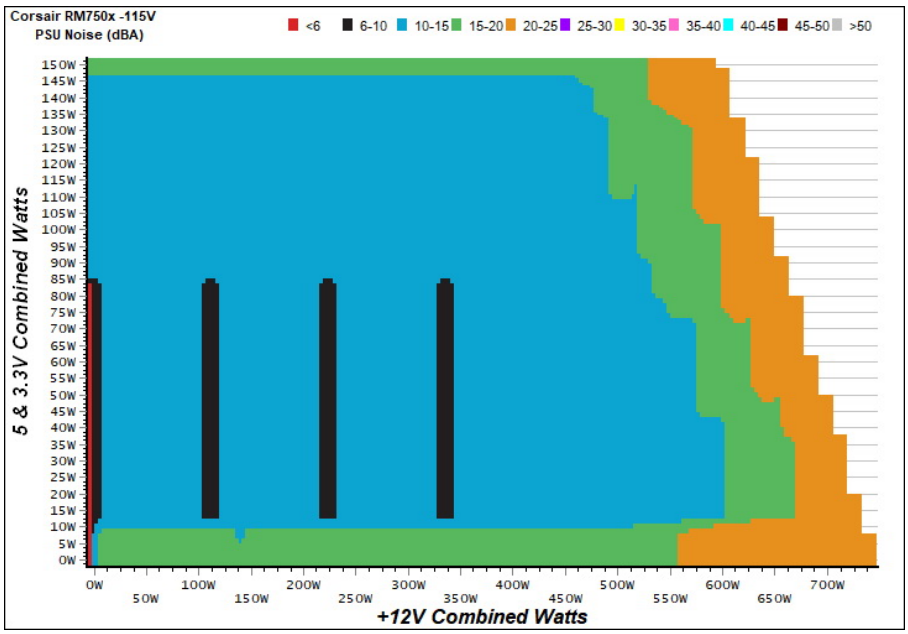
EFFICIENCY GRAPH



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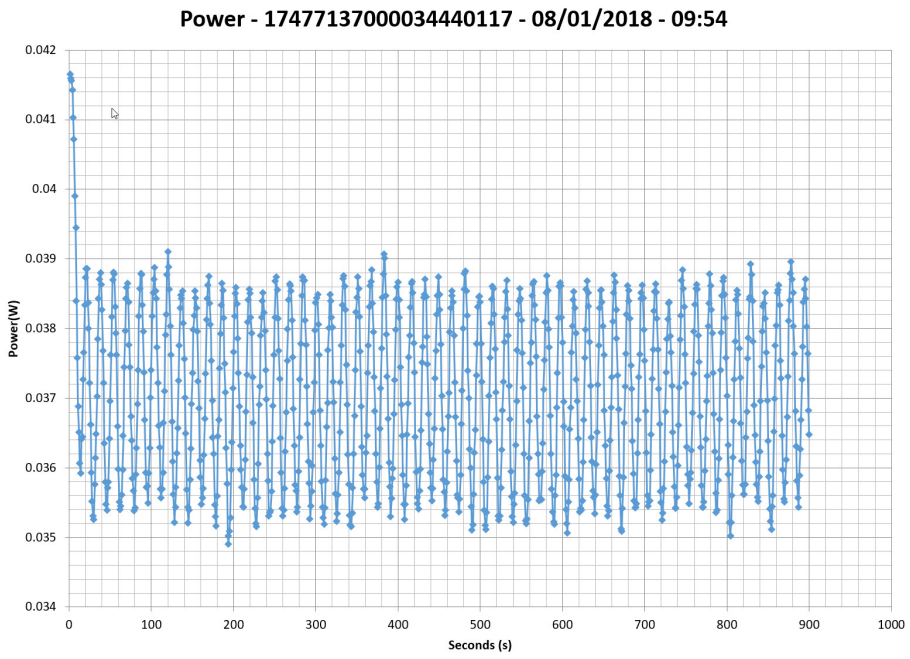
5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228	71.473%	0.024
	5.059V	0.319		115.26V
2	0.090A	0.455	75.707%	0.046
	5.058V	0.601		115.26V
3	0.550A	2.774	79.393%	0.218
	5.044V	3.494		115.25V
4	1.000A	5.031	78.609%	0.315
	5.031V	6.400		115.25V
5	1.500A	7.526	78.241%	0.374
	5.017V	9.619		115.25V
6	3.000A	14.927	76.832%	0.451
	4.976V	19.428		115.23V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228	66.472%	0.009
	5.059V	0.343		230.80V
2	0.090A	0.455	72.222%	0.016
	5.058V	0.630		230.79V
3	0.550A	2.774	77.725%	0.088
	5.044V	3.569		230.79V
4	1.000A	5.030	78.410%	0.149
	5.030V	6.415		230.79V
5	1.500A	7.527	78.276%	0.205
	5.018V	9.616		230.79V
6	3.000A	14.921	77.608%	0.312
	4.974V	19.226		230.78V

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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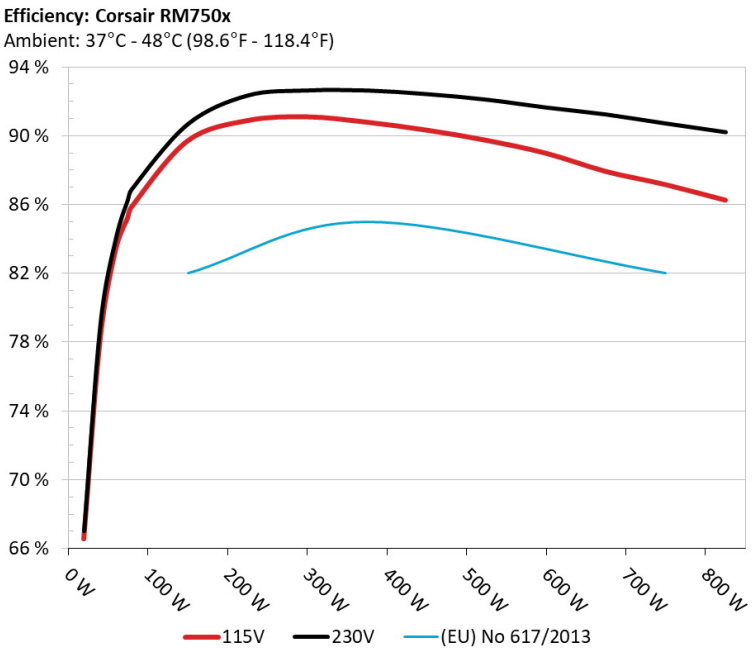
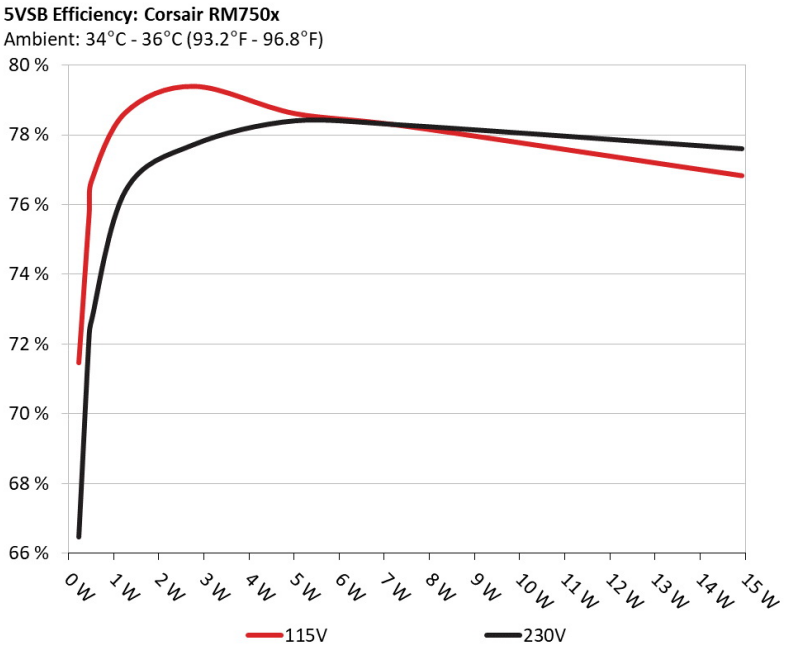
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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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Corsair RM750x (2018) (Sample #2)

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	4.380A	1.984A	1.988A	0.997A	74.419	85.230%	0	<6.0	51.33°C	0.967
	12.058V	5.041V	3.320V	5.019V	87.316				38.04°C	115.25V
2	9.827A	2.977A	2.983A	1.197A	149.337	89.687%	0	<6.0	54.80°C	0.986
	12.052V	5.039V	3.318V	5.015V	166.509				38.38°C	115.16V
3	15.665A	3.474A	3.466A	1.398A	224.840	90.880%	0	<6.0	55.72°C	0.991
	12.055V	5.038V	3.316V	5.010V	247.402				38.73°C	115.05V
4	21.447A	3.973A	3.982A	1.599A	299.603	91.095%	610	10.2	39.29°C	0.991
	12.048V	5.037V	3.314V	5.004V	328.890				56.57°C	115.03V
5	26.912A	4.967A	4.979A	1.801A	374.519	90.785%	610	10.2	40.15°C	0.990
	12.040V	5.034V	3.312V	4.999V	412.535				57.53°C	114.93V
6	32.380A	5.961A	5.982A	2.003A	449.434	90.327%	610	10.2	40.74°C	0.991
	12.033V	5.033V	3.310V	4.994V	497.563				58.62°C	114.81V
7	37.886A	6.957A	6.982A	2.205A	524.762	89.731%	610	10.2	41.36°C	0.993
	12.027V	5.032V	3.308V	4.990V	584.815				59.60°C	114.81V
8	43.397A	7.952A	7.986A	2.407A	600.086	88.975%	843	20.4	42.79°C	0.994
	12.021V	5.031V	3.306V	4.986V	674.445				61.42°C	114.68V
9	49.281A	8.452A	8.474A	2.408A	674.620	87.926%	1049	27.0	43.99°C	0.995
	12.015V	5.029V	3.304V	4.986V	767.263				63.03°C	114.65V
10	54.969A	8.951A	8.994A	3.019A	749.837	87.155%	1282	34.4	46.02°C	0.995
	12.009V	5.029V	3.302V	4.969V	860.353				65.40°C	114.53V
11	61.260A	8.953A	8.999A	3.020A	825.071	86.251%	1428	36.9	47.82°C	0.996
	12.004V	5.027V	3.300V	4.968V	956.597				67.33°C	114.40V
CL1	0.736A	18.004A	18.000A	0.000A	159.143	82.202%	785	18.1	43.90°C	0.989
	12.038V	5.035V	3.313V	5.078V	193.601				56.91°C	115.10V
CL2	62.514A	1.001A	1.001A	1.000A	764.582	87.725%	1236	33.2	46.43°C	0.995
	12.017V	5.032V	3.304V	5.007V	871.562				62.25°C	114.53V

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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	1.183A	0.493A	0.480A	0.199A	19.353	66.567%	0	<6.0	0.828
	12.063V	5.041V	3.322V	5.036V	29.073				115.33V
2	2.448A	0.990A	0.992A	0.398A	39.812	78.152%	0	<6.0	0.926
	12.061V	5.040V	3.321V	5.032V	50.942				115.30V
3	3.646A	1.487A	1.474A	0.597A	59.362	83.391%	0	<6.0	0.958
	12.060V	5.040V	3.321V	5.028V	71.185				115.29V
4	4.910A	1.985A	1.986A	0.796A	79.802	85.885%	0	<6.0	0.968
	12.058V	5.040V	3.320V	5.024V	92.917				115.25V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	2.3 mV	5.0 mV	3.3 mV	4.0 mV	Pass
20% Load	2.8 mV	6.0 mV	3.8 mV	4.4 mV	Pass
30% Load	6.8 mV	5.6 mV	4.1 mV	4.4 mV	Pass
40% Load	7.8 mV	11.9 mV	5.5 mV	10.6 mV	Pass
50% Load	6.8 mV	6.3 mV	4.3 mV	4.8 mV	Pass
60% Load	7.0 mV	7.7 mV	6.4 mV	5.9 mV	Pass
70% Load	7.3 mV	8.4 mV	6.5 mV	6.2 mV	Pass
80% Load	7.4 mV	9.2 mV	7.9 mV	7.9 mV	Pass
90% Load	7.2 mV	7.2 mV	6.2 mV	5.7 mV	Pass
100% Load	8.1 mV	10.1 mV	6.8 mV	7.9 mV	Pass
110% Load	8.7 mV	10.2 mV	6.6 mV	8.8 mV	Pass
Crossload 1	12.1 mV	8.9 mV	9.2 mV	6.6 mV	Pass
Crossload 2	6.6 mV	7.2 mV	4.1 mV	6.4 mV	Pass

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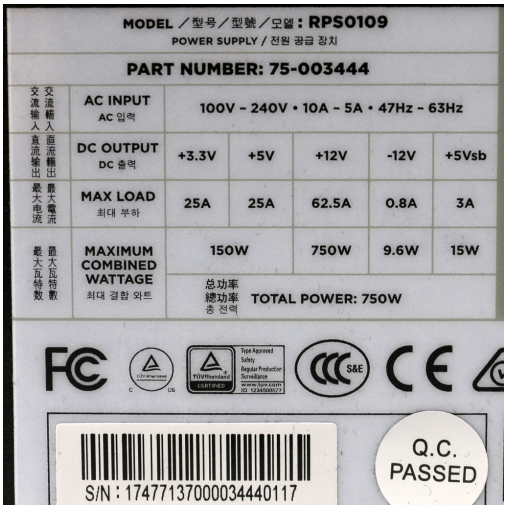
HOLD-UP TIME & POWER OK SIGNAL (230V)	
Hold-Up Time (ms)	23.8
AC Loss to PWR_OK Hold Up Time (ms)	21.0
PWR_OK Inactive to DC Loss Delay (ms)	2.8

Top side



Power specifications table

CERTIFICATIONS

CYBENETICS PLATINUM

CYBENETICS A+