

## Anex

Corsair RM650x (2018)

Lab ID#: 328

Receipt Date: -

Test Date: -

Report:

Report Date: Mar 21, 2018

DUT INFORMATION	
Brand	Corsair
Manufacturer (OEM)	Channel Well Technology
Series	RMx
Model Number	RM650x (2018)
Serial Number	17477136000034430139
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63
Rated Power (W)	650
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	54	3	0.8
	Watts	130		648	15	9.6
Total Max. Power (W)		650				

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)	1	1	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)	1	4	18AWG	No
FDD Adapter (+100mm)	1	1	20AWG	No
AC Power Cord (1430mm) - C13 coupler	1	1	18AWG	-

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 1/8

## Anex

Corsair RM650x (2018)

RESULTS		
Temperature Range (°C /°F)		30-32 / 86-89.6
Average Efficiency		88.123
Efficiency With 10W ( $\leq 500W$ ) or 2% ( $> 500W$ ) Load -115V		0.000
Average Efficiency 5VSB		76.852
Standby Power Consumption (W) -115V		0.0339218
Standby Power Consumption (W) -230V		0.0481427
Average PF		0.991
ErP Lot 3/6 Ready		✓
(EU) No 617/2013 Compliance		✓
Avg Noise Output		14.50
Efficiency Rating (ETA)		PLATINUM
Noise Rating (LAMBDA)		A++

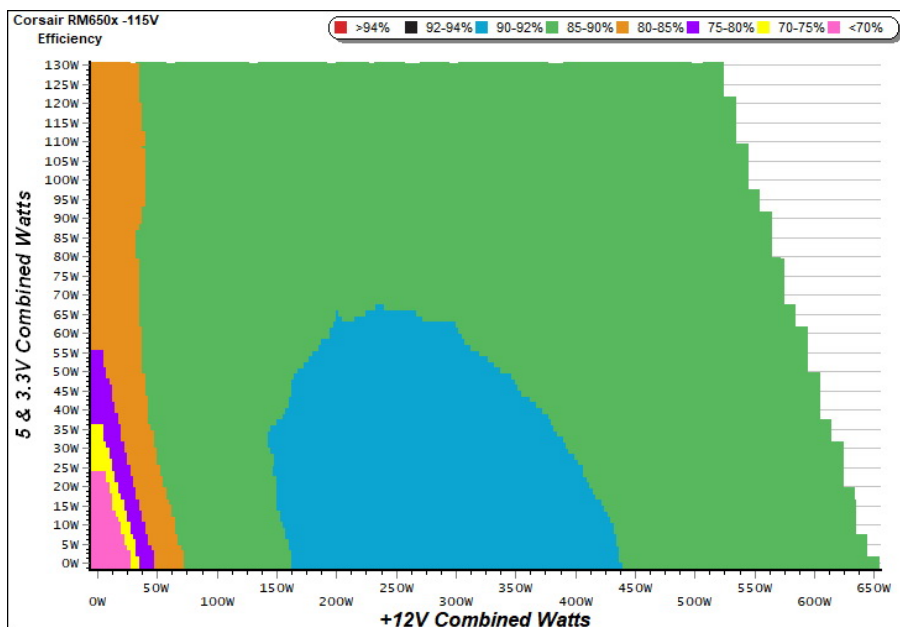
TEST EQUIPMENT		
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, Chroma 61604	
Power Analyzers	N4L PPA1530, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 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	

All data and graphs included in this test report can be used by any individual on the following conditions:

- › It should be mentioned that the test results are provided by Cybenetics
- › The link to the original test results document should be provided in any case

PAGE 2/8

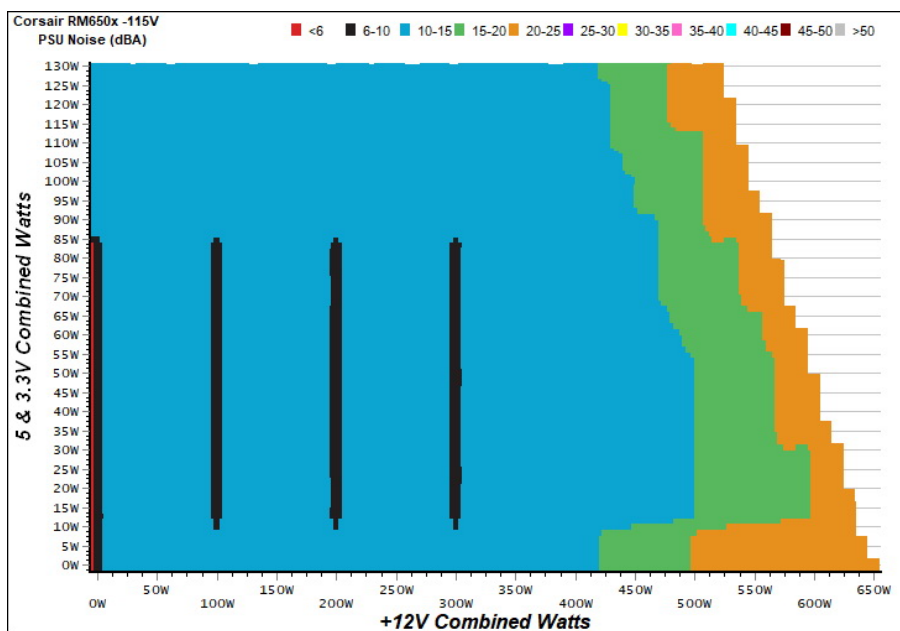
#### EFFICIENCY GRAPH



#### 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

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

Anex

Corsair RM650x (2018)

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

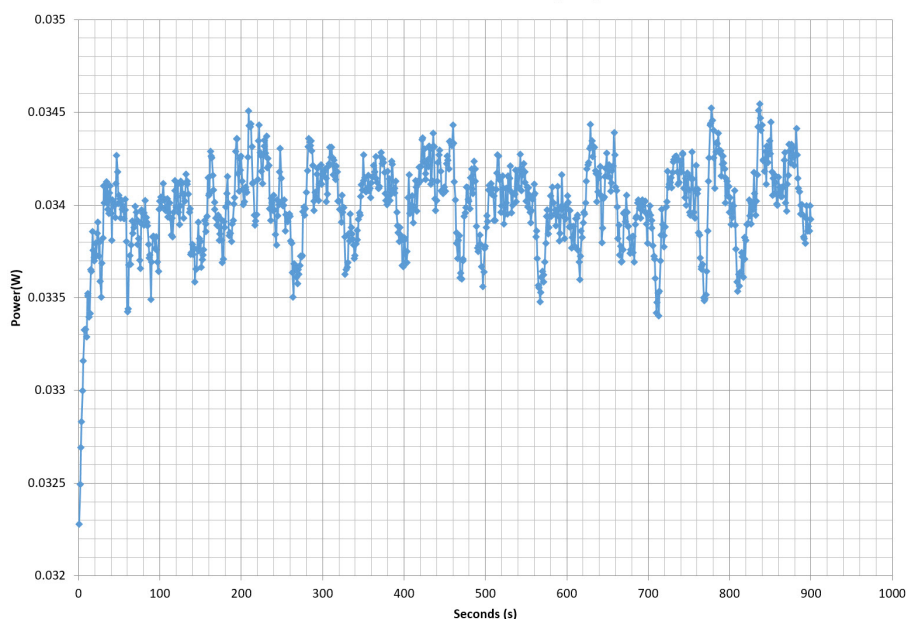
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.213	70.764%	0.030
	5.039V	0.301		115.10V
2	0.088A	0.442	75.556%	0.058
	5.038V	0.585		115.10V
3	0.543A	2.726	78.491%	0.257
	5.024V	3.473		115.10V
4	1.002A	5.022	77.404%	0.347
	5.010V	6.488		115.10V
5	1.502A	7.504	76.933%	0.397
	4.996V	9.754		115.10V
6	3.002A	14.875	75.374%	0.462
	4.955V	19.735		115.09V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.213	66.771%	0.010
	5.039V	0.319		230.24V
2	0.088A	0.442	72.937%	0.018
	5.038V	0.606		230.24V
3	0.543A	2.726	77.421%	0.101
	5.024V	3.521		230.24V
4	1.003A	5.023	77.623%	0.169
	5.009V	6.471		230.24V
5	1.502A	7.505	77.268%	0.226
	4.996V	9.713		230.24V
6	3.002A	14.866	76.275%	0.325
	4.952V	19.490		230.24V

## VAMPIRE POWER -115V

Power - 17477136000034430139 - 19/03/2018 - 07:51



### 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

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 4/8

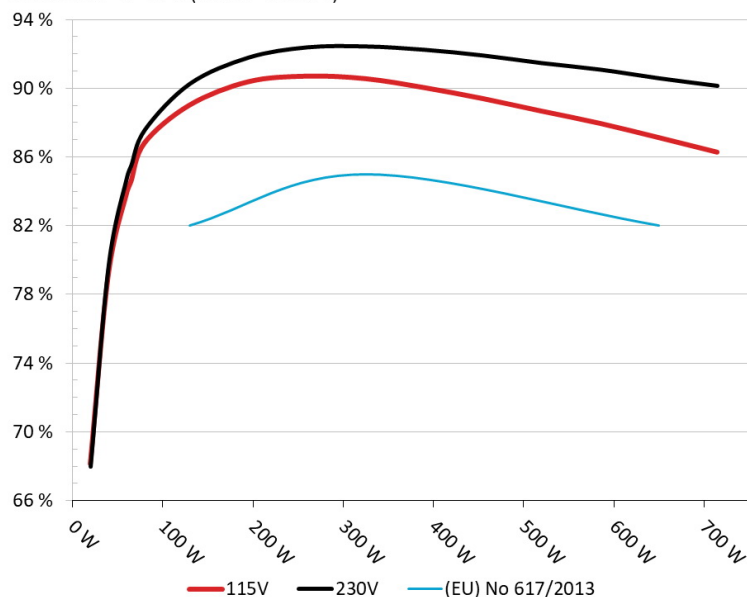
## Anex

Corsair RM650x (2018)

### EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

#### Efficiency: Corsair RM650x

Ambient: 37°C - 46°C (98.6°F - 114.8°F)



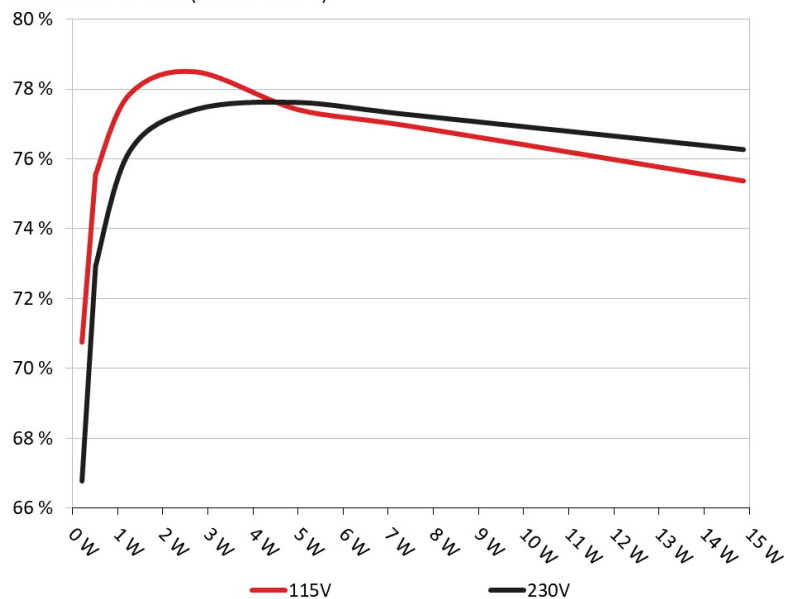
#### INFO

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 RM650x

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

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 5/8

## Anex

Corsair RM650x (2018)

### 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	3.571A	1.984A	1.998A	0.996A	64.796	84.566%	0	<6.0	45.24°C	0.969
	12.110V	5.029V	3.298V	5.005V	76.622				39.06°C	115.09V
2	8.180A	2.980A	2.999A	1.200A	129.813	89.011%	610	10.2	39.59°C	0.989
	12.097V	5.026V	3.296V	4.999V	145.840				46.37°C	115.08V
3	13.137A	3.486A	3.518A	1.401A	194.900	90.369%	633	10.9	40.29°C	0.992
	12.089V	5.021V	3.295V	4.991V	215.671				47.35°C	115.10V
4	18.098A	3.984A	4.006A	1.602A	259.783	90.692%	633	10.9	41.13°C	0.994
	12.079V	5.019V	3.294V	4.985V	286.446				48.67°C	115.07V
5	22.728A	4.980A	5.009A	1.806A	324.756	90.547%	610	10.2	41.86°C	0.994
	12.068V	5.017V	3.293V	4.980V	358.661				49.89°C	115.06V
6	27.363A	5.981A	6.014A	2.008A	389.753	90.026%	677	13.2	42.44°C	0.993
	12.059V	5.016V	3.291V	4.975V	432.932				51.37°C	115.07V
7	32.006A	6.988A	7.020A	2.210A	454.693	89.389%	785	18.1	43.10°C	0.994
	12.047V	5.014V	3.290V	4.970V	508.666				52.35°C	115.08V
8	36.661A	7.984A	8.026A	2.416A	519.663	88.663%	955	24.8	43.87°C	0.994
	12.036V	5.012V	3.289V	4.966V	586.108				53.57°C	115.07V
9	41.753A	8.484A	8.547A	2.416A	584.684	87.947%	1087	28.4	44.03°C	0.995
	12.025V	5.010V	3.288V	4.965V	664.813				54.25°C	115.07V
10	46.597A	8.993A	9.040A	3.030A	649.591	87.123%	1235	33.2	44.95°C	0.995
	12.015V	5.008V	3.286V	4.946V	745.606				55.63°C	115.09V
11	52.044A	8.997A	9.042A	3.030A	714.566	86.271%	1386	36.3	45.83°C	0.996
	12.006V	5.007V	3.284V	4.945V	828.285				56.84°C	115.09V
CL1	0.100A	16.029A	16.003A	0.004A	134.616	82.397%	677	13.2	41.97°C	0.990
	12.081V	5.019V	3.308V	5.062V	163.375				51.33°C	115.13V
CL2	53.971A	1.002A	1.002A	1.002A	662.145	87.676%	1180	31.7	44.56°C	0.996
	12.022V	5.012V	3.281V	4.987V	755.220				55.21°C	115.08V

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 6/8

## Anex

Corsair RM650x (2018)

### 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	0.483A	0.196A	19.693	68.135%	0	<6.0	0.849
	12.113V	5.030V	3.299V	5.025V	28.903				115.10V
2	2.437A	0.990A	0.998A	0.396A	39.776	79.194%	0	<6.0	0.938
	12.112V	5.029V	3.299V	5.019V	50.226				115.08V
3	3.672A	1.486A	1.513A	0.596A	59.913	83.874%	0	<6.0	0.966
	12.109V	5.028V	3.298V	5.013V	71.432				115.08V
4	4.893A	1.985A	2.000A	0.796A	79.798	86.808%	0	<6.0	0.977
	12.106V	5.028V	3.298V	5.009V	91.925				115.08V

### RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	4.1 mV	3.8 mV	9.2 mV	4.0 mV	Pass
20% Load	5.8 mV	5.1 mV	9.2 mV	5.4 mV	Pass
30% Load	10.4 mV	4.7 mV	10.4 mV	5.0 mV	Pass
40% Load	9.1 mV	5.1 mV	10.3 mV	5.7 mV	Pass
50% Load	8.9 mV	4.6 mV	10.1 mV	4.6 mV	Pass
60% Load	9.9 mV	15.7 mV	11.8 mV	15.2 mV	Pass
70% Load	9.2 mV	13.1 mV	11.2 mV	11.7 mV	Pass
80% Load	7.6 mV	4.5 mV	9.8 mV	4.6 mV	Pass
90% Load	8.1 mV	5.1 mV	10.8 mV	5.0 mV	Pass
100% Load	8.7 mV	5.7 mV	12.6 mV	6.0 mV	Pass
110% Load	8.8 mV	6.2 mV	13.3 mV	6.2 mV	Pass
Crossload 1	6.3 mV	6.3 mV	13.5 mV	5.4 mV	Pass
Crossload 2	8.0 mV	6.2 mV	13.6 mV	6.0 mV	Pass

All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 7/8



## Anex

Corsair RM650x (2018)

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


Hold-Up Time (ms)	21.5
AC Loss to PWR_OK Hold Up Time (ms)	20.5
PWR_OK Inactive to DC Loss Delay (ms)	1.0



Top side


MODEL / 型号 / 型號 / 모델 : RPS0108					
POWER SUPPLY / 전원 공급 장치					
PART NUMBER: 75-003443					
交流輸入 AC 입력	100V - 240V • 10A - 5A • 47Hz - 63Hz				
DC OUTPUT DC 출력	+3.3V	+5V	+12V	-12V	+5Vsb
MAX LOAD 최대 부하	25A	25A	54A	0.8A	3A
MAXIMUM COMBINED WATTAGE 최대 결합 와트	130W		648W	9.6W	15W
最大瓦特數 최대 출력 總功率	總功率 TOTAL POWER: 650W 중 전력				

FC




C

OS




UL


Recognized  
Safety  
Hazard  
Insulation  
www.ul.com  
UL 131000009




SAE



CE



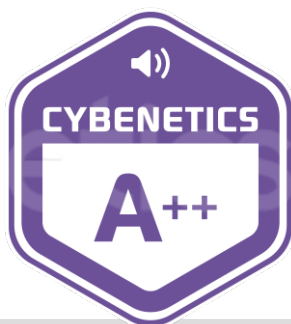


S/N : 17477136000034430139

Q.C.  
PASSED

Power specifications table

## CERTIFICATIONS



All data and graphs included in this test report can be used by any individual on the following conditions:

- > It should be mentioned that the test results are provided by Cybenetics
- > The link to the original test results document should be provided in any case

PAGE 8/8