

Anex

Corsair RM650x (2018)

Lab ID#: 329

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 | - |

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| RESULTS | | |
|--|--|-----------------|
| Temperature Range (°C /°F) | | 30-32 / 86-89.6 |
| Average Efficiency | | 90.322 |
| Efficiency With 10W (≤500W) or 2% (>500W) Load -115V | | 0.000 |
| Average Efficiency 5VSB | | 77.008 |
| Standby Power Consumption (W) -115V | | 0.0339218 |
| Standby Power Consumption (W) -230V | | 0.0481427 |
| Average PF | | 0.962 |
| ErP Lot 3/6 Ready | | ✓ |
| (EU) No 617/2013 Compliance | | ✓ |
| Avg Noise Output | | 14.39 |
| Efficiency Rating (ETA) | | PLATINUM |
| Noise Rating (LAMBDA) | | A++ |

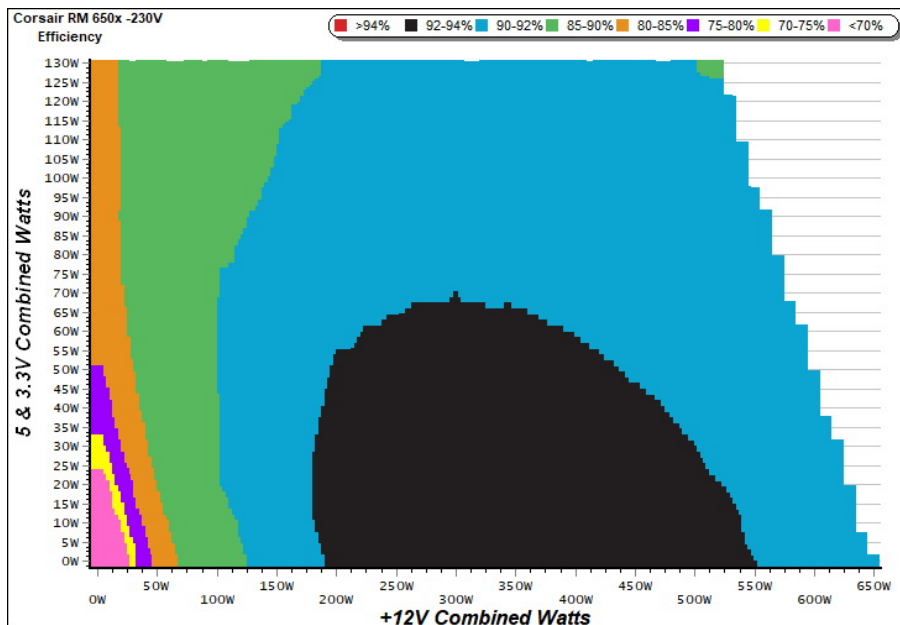
| TEST EQUIPMENT | | |
|------------------|--|---|
| Electronic Loads | Chroma 6314A x2 63123A x6 63102A 63101A | Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20 |
| AC Sources | Chroma 6530, Chroma 61604 | |
| Power Analyzers | N4L PPA1530, N4L PPA5530 | |
| Oscilloscopes | Picoscope 4444 & 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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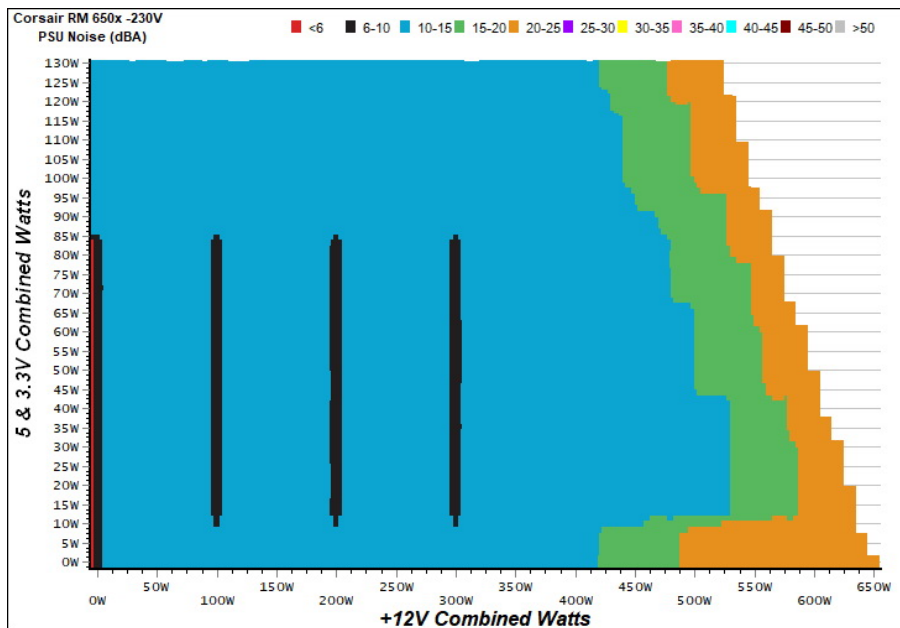
EFFICIENCY GRAPH



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)

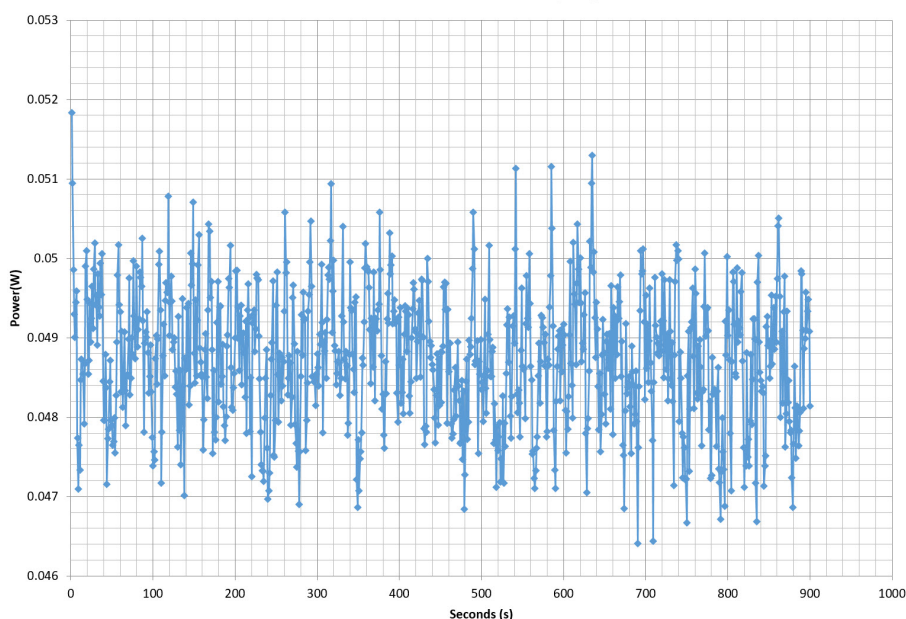
| Test # | 5VSB | DC/AC (Watts) | Efficiency | PF/AC Volts |
|--------|--------|---------------|------------|-------------|
| 1 | 0.042A | 0.213 | 70.764% | 0.030 |
| | 5.039V | 0.301 | | 115.10V |
| 2 | 0.088A | 0.442 | 75.556% | 0.058 |
| | 5.038V | 0.585 | | 115.10V |
| 3 | 0.543A | 2.726 | 78.491% | 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 -230V

Power - 17477136000034430139 - 16/03/2018 - 14:04



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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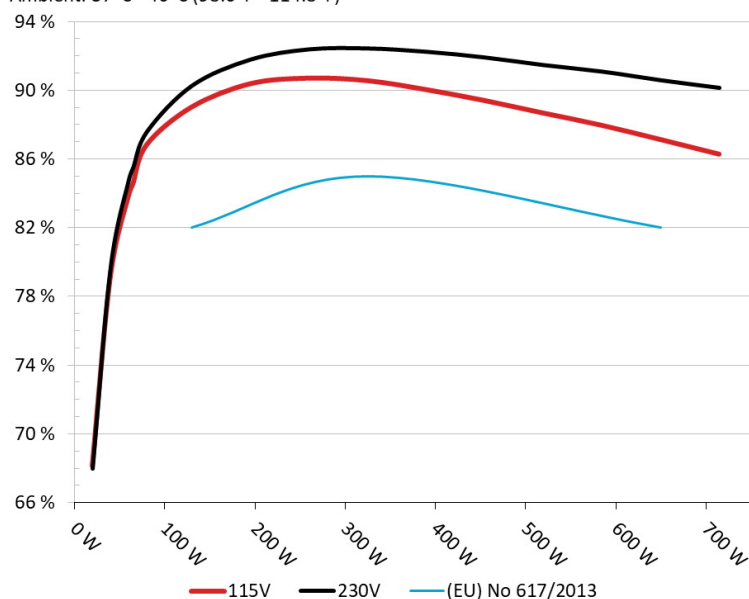
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Corsair RM650x

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



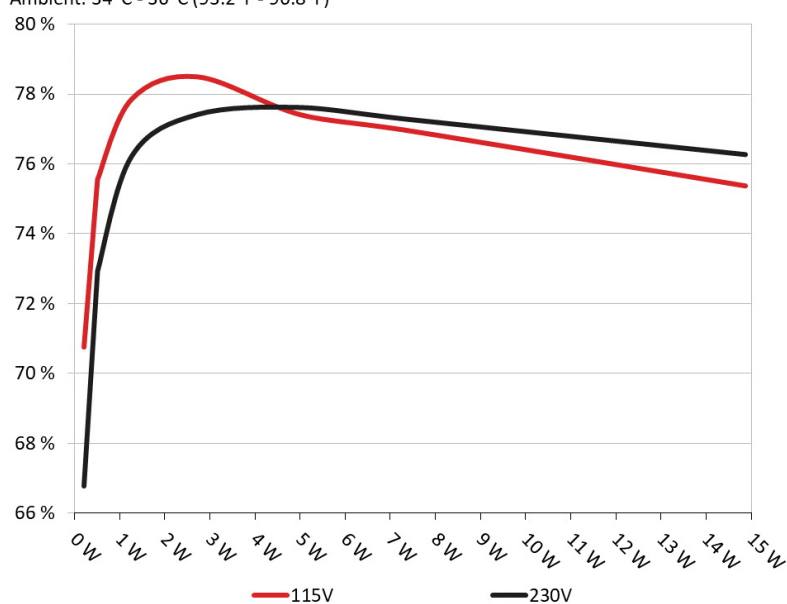
INFO

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

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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 | 3.569A | 1.985A | 1.998A | 0.997A | 64.775 | 85.535% | 0 | <6.0 | 44.46°C | 0.806 |
| | 12.108V | 5.029V | 3.298V | 5.005V | 75.729 | | | | 38.90°C | 365.14V |
| 2 | 8.177A | 2.982A | 2.997A | 1.200A | 129.801 | 90.288% | 677 | 13.2 | 39.24°C | 0.923 |
| | 12.099V | 5.026V | 3.297V | 4.999V | 143.764 | | | | 45.00°C | 230.29V |
| 3 | 13.137A | 3.487A | 3.517A | 1.401A | 194.889 | 91.811% | 633 | 10.9 | 39.86°C | 0.956 |
| | 12.088V | 5.021V | 3.295V | 4.991V | 212.273 | | | | 46.08°C | 230.28V |
| 4 | 18.099A | 3.985A | 4.003A | 1.603A | 259.756 | 92.405% | 633 | 10.9 | 40.52°C | 0.971 |
| | 12.077V | 5.019V | 3.293V | 4.985V | 281.106 | | | | 47.20°C | 230.28V |
| 5 | 22.732A | 4.979A | 5.008A | 1.806A | 324.746 | 92.458% | 610 | 10.2 | 41.06°C | 0.978 |
| | 12.066V | 5.017V | 3.293V | 4.979V | 351.238 | | | | 48.03°C | 230.28V |
| 6 | 27.369A | 5.984A | 6.013A | 2.009A | 389.754 | 92.265% | 610 | 10.2 | 41.47°C | 0.982 |
| | 12.056V | 5.015V | 3.291V | 4.975V | 422.431 | | | | 49.26°C | 230.28V |
| 7 | 32.006A | 6.989A | 7.017A | 2.210A | 454.682 | 91.931% | 785 | 18.1 | 42.08°C | 0.985 |
| | 12.047V | 5.013V | 3.290V | 4.970V | 494.593 | | | | 50.47°C | 230.27V |
| 8 | 36.656A | 7.986A | 8.024A | 2.416A | 519.627 | 91.490% | 916 | 23.6 | 43.08°C | 0.987 |
| | 12.037V | 5.011V | 3.288V | 4.966V | 567.958 | | | | 51.81°C | 230.27V |
| 9 | 41.752A | 8.487A | 8.547A | 2.416A | 584.719 | 91.106% | 1087 | 28.4 | 43.85°C | 0.988 |
| | 12.026V | 5.009V | 3.288V | 4.965V | 641.800 | | | | 52.83°C | 230.28V |
| 10 | 46.599A | 8.994A | 9.038A | 3.030A | 649.597 | 90.606% | 1210 | 32.5 | 44.67°C | 0.989 |
| | 12.015V | 5.007V | 3.285V | 4.946V | 716.946 | | | | 54.25°C | 230.28V |
| 11 | 52.045A | 8.998A | 9.040A | 3.030A | 714.557 | 90.164% | 1348 | 35.5 | 45.79°C | 0.990 |
| | 12.006V | 5.005V | 3.284V | 4.945V | 792.510 | | | | 56.04°C | 230.29V |
| CL1 | 0.099A | 16.028A | 16.002A | 0.004A | 134.611 | 83.757% | 633 | 10.9 | 41.80°C | 0.935 |
| | 12.079V | 5.020V | 3.308V | 5.062V | 160.717 | | | | 50.45°C | 230.30V |
| CL2 | 53.965A | 1.003A | 1.002A | 1.002A | 662.080 | 91.215% | 1180 | 31.7 | 44.16°C | 0.989 |
| | 12.022V | 5.013V | 3.281V | 4.988V | 725.844 | | | | 53.52°C | 230.29V |

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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 | 1.207A | 0.492A | 0.483A | 0.196A | 19.671 | 67.983% | 0 | <6.0 | 0.486 |
| | 12.111V | 5.029V | 3.299V | 5.024V | 28.935 | | | | 230.38V |
| 2 | 2.435A | 0.989A | 0.999A | 0.396A | 39.742 | 79.736% | 0 | <6.0 | 0.677 |
| | 12.109V | 5.029V | 3.299V | 5.019V | 49.842 | | | | 230.34V |
| 3 | 3.671A | 1.487A | 1.516A | 0.596A | 59.910 | 84.821% | 0 | <6.0 | 0.786 |
| | 12.107V | 5.028V | 3.299V | 5.013V | 70.631 | | | | 230.34V |
| 4 | 4.891A | 1.986A | 1.999A | 0.796A | 79.766 | 87.598% | 0 | <6.0 | 0.849 |
| | 12.104V | 5.028V | 3.298V | 5.008V | 91.059 | | | | 230.32V |

RIPPLE MEASUREMENTS

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|-------------|---------|---------|---------|---------|-----------|
| 10% Load | 4.0 mV | 3.9 mV | 11.0 mV | 4.3 mV | Pass |
| 20% Load | 6.0 mV | 4.4 mV | 11.0 mV | 5.2 mV | Pass |
| 30% Load | 10.2 mV | 4.2 mV | 11.4 mV | 4.4 mV | Pass |
| 40% Load | 9.8 mV | 5.1 mV | 12.1 mV | 6.7 mV | Pass |
| 50% Load | 9.0 mV | 4.7 mV | 11.6 mV | 4.8 mV | Pass |
| 60% Load | 10.4 mV | 15.0 mV | 13.3 mV | 14.9 mV | Pass |
| 70% Load | 9.1 mV | 12.9 mV | 12.2 mV | 11.9 mV | Pass |
| 80% Load | 8.1 mV | 5.3 mV | 11.9 mV | 5.1 mV | Pass |
| 90% Load | 8.1 mV | 4.6 mV | 11.0 mV | 4.5 mV | Pass |
| 100% Load | 8.4 mV | 5.5 mV | 15.4 mV | 5.4 mV | Pass |
| 110% Load | 9.4 mV | 6.8 mV | 13.5 mV | 6.8 mV | Pass |
| Crossload 1 | 5.8 mV | 6.1 mV | 12.8 mV | 6.3 mV | Pass |
| Crossload 2 | 8.2 mV | 5.6 mV | 13.9 mV | 5.9 mV | Pass |

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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 | | | | |
| 直流輸出 DC 출력 | +3.3V | +5V | +12V | -12V | +5Vsb |
| 最大電流 최대 부하 | MAX LOAD 최대 부하 | 25A | 25A | 54A | 0.8A 3A |
| 最大瓦特數 최대 결합 와트 | MAXIMUM COMBINED WATTAGE | 130W | 648W | 9.6W | 15W |
| 總功率 總功率 총 전력 | | | | | |
| TOTAL POWER: 650W | | | | | |


FC




UL




TUV




VDE




CCC




SAE



CE



KCC

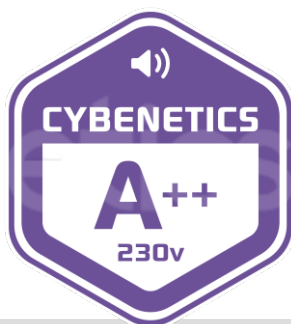


S/N: 17477136000034430139

Q.C.
PASSED

Power specifications table

CERTIFICATIONS



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