



## Corsair RM650x

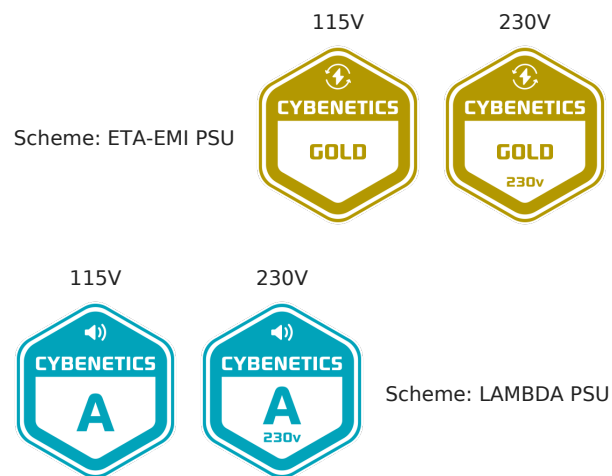
Serial Number 20277134000038960010

Lab ID CR65001734

Certification ID 251734

Test Result Report ID: 20PS1734A

Certificate Issue Date: Oct 17, 2020



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Aristeidis Bitziopoulos, Certification Body General Manager

## General Information

### Test Equipment

|                       |                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------|
| Electronic Loads      | Chroma 63601-5 x2<br>Chroma 63600-2<br>Chroma 63640-80-80 x10<br>Chroma 63610-80-20 |
| AC Sources            | Chroma 6530, APM SP300VAC4000W-P, GW Instek ASR-3500                                |
| Power Analyzers       | Rohde & Schwarz HMC8015 & NPA701                                                    |
| Oscilloscopes         | Picoscope 4444, Siglent SDS2104X PLUS                                               |
| Sound Analyzer        | Bruel & Kjaer 2270 G4                                                               |
| Microphone            | Bruel & Kjaer Type 4955-A                                                           |
| Temperature Logger    | Picoscope TC-08                                                                     |
| Tachometer            | UNI-T UT372                                                                         |
| Multimeters           | Keysight 34465A                                                                     |
| EMI Analyzer          | TekBox TBMR-110M-EU                                                                 |
| Isolation Transformer | 4kVA                                                                                |
| UPS                   | FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA                                      |
| Testing Methodology   | Cybenetics PSU Test Protocol                                                        |

### DUT Information(Non-accredited measurements)

|                                   |                         |
|-----------------------------------|-------------------------|
| Product Identification Details    |                         |
| Brand                             | Corsair                 |
| Model                             | RM650x                  |
| OEM/ODM                           | Channel Well Technology |
| Serial Number                     | 20277134000038960010    |
| Product Specifications            |                         |
| Manufacturer-Provided Information |                         |
| Rated Voltage (Vrms)              | 100-240                 |
| Rated Current (Arms)              | 10-5                    |
| Rated Frequency (Hz)              | 47-63                   |

|                                                   |                                                                                     |
|---------------------------------------------------|-------------------------------------------------------------------------------------|
| Rated Power (W)                                   | 650                                                                                 |
| Operating Temperature (Continuous Full Load) (°C) |                                                                                     |
| Type                                              | ATX12V                                                                              |
| Cable Design                                      | Fully Modular                                                                       |
| Warranty                                          | -                                                                                   |
| Cybenetics Measurements                           |                                                                                     |
| Dimensions (W x H x D)                            |                                                                                     |
| Weight                                            |                                                                                     |
| Cooling                                           | 140mm Magnetic Levitation Fan<br>(NR140ML)                                          |
| Semi-Passive Operation                            | ✓                                                                                   |
| Cybenetics Testing Information                    |                                                                                     |
| Lab ID                                            | CR65001734                                                                          |
| Date of receipt                                   | Oct 5, 2020                                                                         |
| Testing Date                                      | Oct 15, 2020                                                                        |
| Report Issued Date                                | Oct 17, 2020                                                                        |
| DUT Notes                                         | CP-9020198                                                                          |
| Engineer Name                                     | -                                                                                   |
| Authorized By the Laboratory Technical Manager    | Aristeidis Bitziopoulos                                                             |
| Signature                                         |  |

### Cables and Connectors(Non-accredited measurements)

| 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                       | 16-18AWG | Yes                 |
| SATA (500mm+110mm+110mm+110mm)        | 1           | 4                       | 18AWG    | No                  |
| SATA (520mm+110mm+110mm)              | 1           | 3                       | 18AWG    | No                  |
| 4 pin Molex (450mm+100mm+100mm+100mm) | 1           | 4                       | 18AWG    | No                  |
| AC Power Cord (1380mm) - C13 coupler  | 1           | 1                       | 18AWG    | -                   |

## Power Specifications

|                      |       |      |    |     |      |      |
|----------------------|-------|------|----|-----|------|------|
| Rail                 |       | 3.3V | 5V | 12V | 5VSB | -12V |
| Max. Power           | Amps  | 20   | 20 | 54  | 3    | 0.3  |
|                      | Watts | 130  |    | 648 | 15   | 3.6  |
| Total Max. Power (W) |       | 650  |    |     |      |      |

## Parts Description

|                      |                                                                                                                                                                       |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General Data         | -                                                                                                                                                                     |
| Manufacturer (OEM)   | CWT                                                                                                                                                                   |
| PCB Type             | Double Sided                                                                                                                                                          |
| Primary Side         | -                                                                                                                                                                     |
| Transient Filter     | 4x Y caps, 2x X caps, 2x CM chokes, 1x MOV                                                                                                                            |
| Inrush Protection    | NTC Thermistor SCK-037 (3 Ohm) & Relay                                                                                                                                |
| Bridge Rectifier(s)  | 2x GBU806 (600V, 8A @ 100°C)                                                                                                                                          |
| APFC MOSFETs         | 2x On Semiconductor FCPF190N60E (600V, 13.1A @ 100°C, Rds(on): 0.19Ohm)                                                                                               |
| APFC Boost Diode     | 1x Power Integrations QH08TZ600 (600V, 8A @ 95°C)                                                                                                                     |
| Bulk Cap(s)          | 2x Nippon Chemi-Con (400V, 330uF each or 660uF combined, 2,000h @ 105°C, KMR)                                                                                         |
| Main Switchers       | 2x Infineon IPA60R190P6 (650V, 12.7A @ 100°C, Rds(on): 0.19Ohm)                                                                                                       |
| APFC Controller      | Champion CM6500UNX & Champion CM03X                                                                                                                                   |
| Resonant Controller  | Champion CU6901VAC                                                                                                                                                    |
| Topology             | Primary side: APFC, Half-Bridge & LLC converter<br>Secondary side: Synchronous Rectification & DC-DC converters                                                       |
| Secondary Side       | -                                                                                                                                                                     |
| +12V MOSFETs         | 4x On Semiconductor NTMFS5C430N (40V, 131A @ 100°C, Rds(on): 1.7mOhm)                                                                                                 |
| 5V & 3.3V            | DC-DC Converters: 2x UBIQ QM3054M6 (30V, 61A @ 100°C, Rds(on): 4.8mOhm) & 3x UBIQ QN3107M6N (30V, 70A @ 100°C, Rds(on): 2.6mOhm)<br>PWM Controllers: UPI Semi uP3861P |
| Filtering Capacitors | Electrolytic: 6x Nippon Chemi-Con (1-5,000h @ 105°C, KZE), 4x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 1x Rubycon (4-10,000h @ @ 105°C, YXJ)<br>Polymer: 23x FPCAP   |
| Supervisor IC        | Weltrend WT7502R (OVP, UVP, SCP, PG)                                                                                                                                  |
| Fan Controller       | Microchip PIC16F1503                                                                                                                                                  |
| Fan Model            | Corsair NR140ML (140mm, 12V, 0.27A, Magnetic Levitation Bearing Fan)                                                                                                  |

|                        |                                                                                  |
|------------------------|----------------------------------------------------------------------------------|
| 5VSB Circuit           | -                                                                                |
| Rectifier              | 1x PS1045L SBR (45V, 10A) & IPS ISD04N65A (650V, 2.5A @ 100°C, Rds(on): 2.2 Ohm) |
| Standby PWM Controller | On-Bright OB5282                                                                 |

## Test Results

### Temperature & Compliance Info

|                                              |                   |
|----------------------------------------------|-------------------|
| Temperature Range (°C /°F)                   | 28-32 / 82.4-89.6 |
| ErP Lot 3/6 Ready                            | ✓                 |
| (EU) No 617/2013 Compliance                  | ✓                 |
| ALPM (Alternative Low Power Mode) compatible | ✓                 |

### Performance Summary

#### 115V

|                                                |          |
|------------------------------------------------|----------|
| Accredited                                     |          |
| Average Efficiency (>1450 load combinations)   | 88.530%  |
| Average Noise Output (>1450 Load Combinations) | 20.01dBA |
| Average PF (>1450 Load Combinations)           | 0.991    |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | 74.498%  |
| Standby Power Consumption                      | 0.0318W  |
| Non-Accredited                                 |          |
| 12V Ripple (Full Load)                         | 9.20mV   |
| 5V Ripple (Full Load)                          | 6.06mV   |
| 3.3V Ripple (Full Load)                        | 7.97mV   |
| 5VSB Ripple (Full Load)                        | 6.82mV   |
| 12V Load Regulation                            | 1.05%    |
| 5V Load Regulation                             | 0.40%    |
| 3.3V Load Regulation                           | 0.52%    |
| 5VSB Load Regulation                           | 1.54%    |
| Inrush Current                                 | 25.110A  |

## 230V

|                                                |          |         |
|------------------------------------------------|----------|---------|
| Accredited                                     |          |         |
| Average Efficiency (>1450 load combinations)   | 90.521%  |         |
| Average Noise Output (>1450 Load Combinations) | 20.02dBA |         |
| Average PF (>1450 Load Combinations)           | 0.959    |         |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | -        |         |
| Standby Power Consumption                      | 0.0443W  |         |
| Non-Accredited                                 |          |         |
| 12V Ripple (Full Load)                         | 9.41mV   |         |
| 5V Ripple (Full Load)                          | 6.32mV   |         |
| 3.3V Ripple (Full Load)                        | 8.07mV   |         |
| 5VSB Ripple (Full Load)                        | 6.53mV   |         |
| 12V Load Regulation                            | 1.05%    |         |
| 5V Load Regulation                             | 0.38%    |         |
| 3.3V Load Regulation                           | 0.48%    |         |
| 5VSB Load Regulation                           | 1.50%    |         |
| Inrush Current                                 | 91.670A  |         |
| Hold-Up Time & PWR_OK Signal                   | 21.40ms  |         |
| AC Loss to PWR_OK Hold Up Time                 | 20.30ms  |         |
| PWR_OK Inactive to DC Loss Delay               | 1.10ms   |         |
| PSU Timings: T1 (20% / 100%)                   | 52.0ms   | 52.0ms  |
| PSU Timings: T3 (20% / 100%)                   | 139.0ms  | 139.0ms |
| OPP (21.00°C / 41.00°C)                        | 128.30%  | 128.16% |

## Hold-Up Time & PWR\_OK Signal

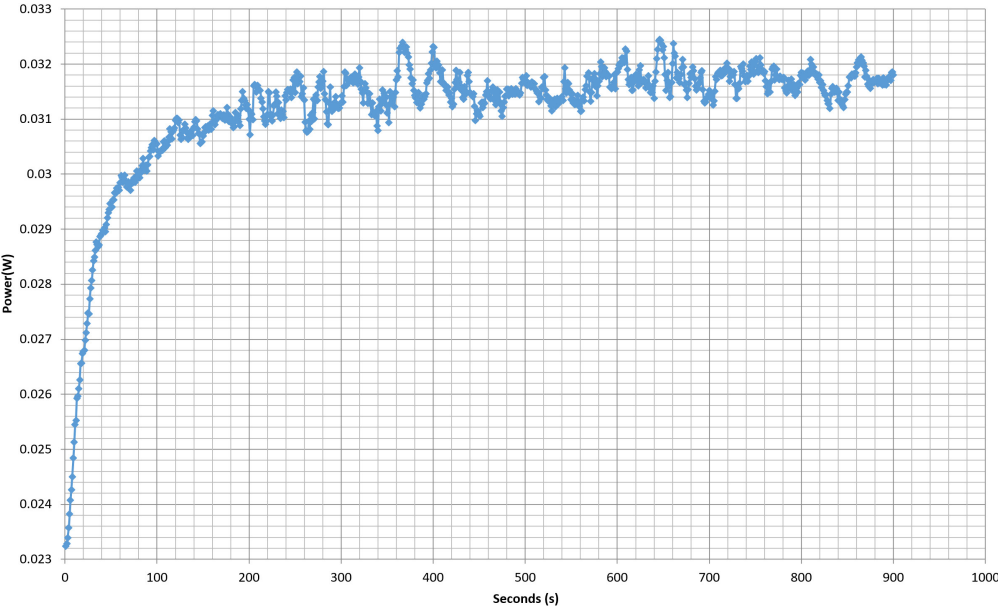
|                                       |      |
|---------------------------------------|------|
| Hold-Up Time (ms)                     | 21.4 |
| AC Loss to PWR_OK Hold Up Time (ms)   | 20.3 |
| PWR_OK Inactive to DC Loss Delay (ms) | 1.1  |

# Vampire Power

## Graphs

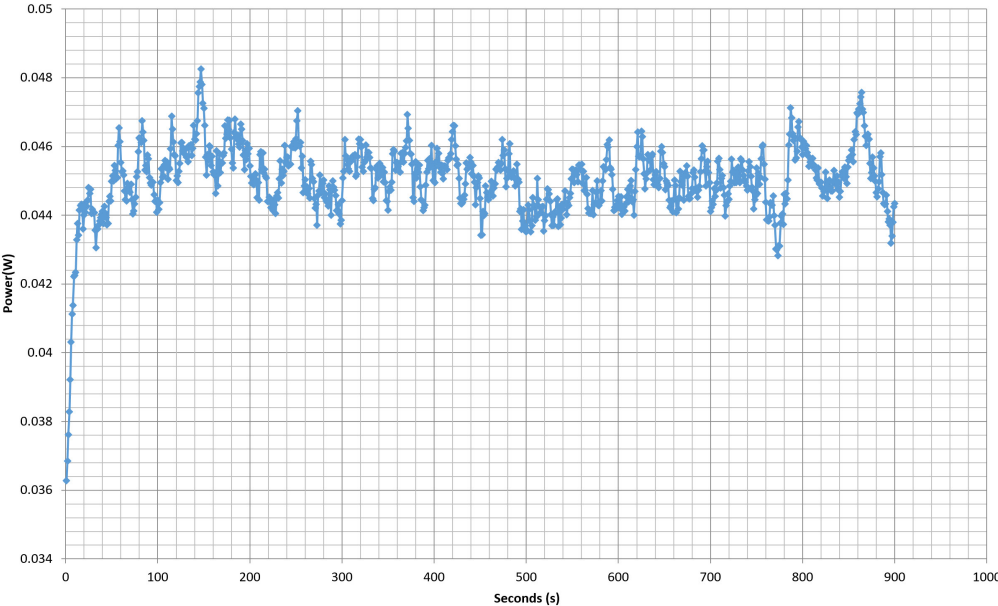
115V

Power - 20277134000038960010 - 09/10/2020 - 10:07



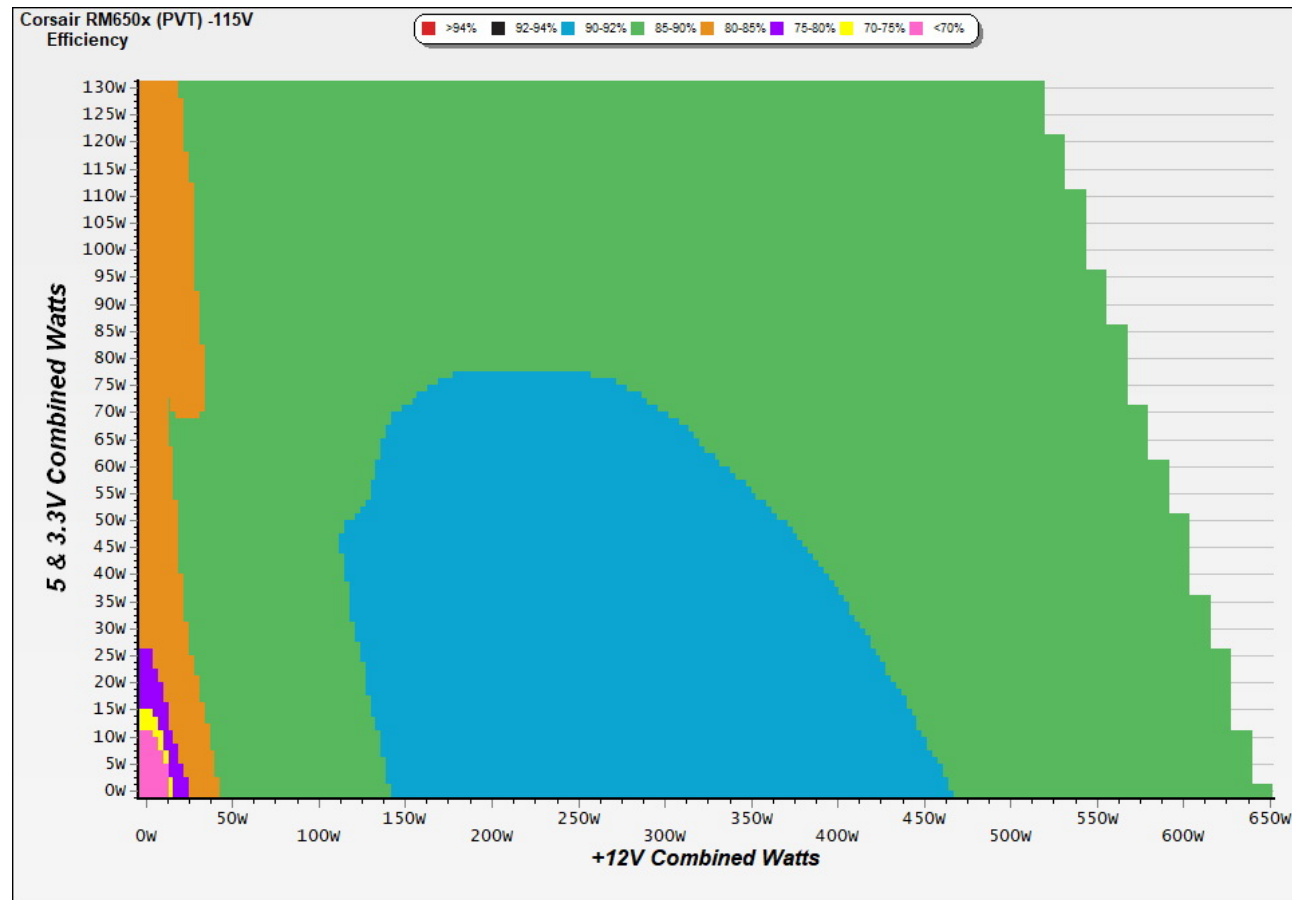
230V

Power - 20277134000038960010 - 09/10/2020 - 10:07



## Efficiency Graph

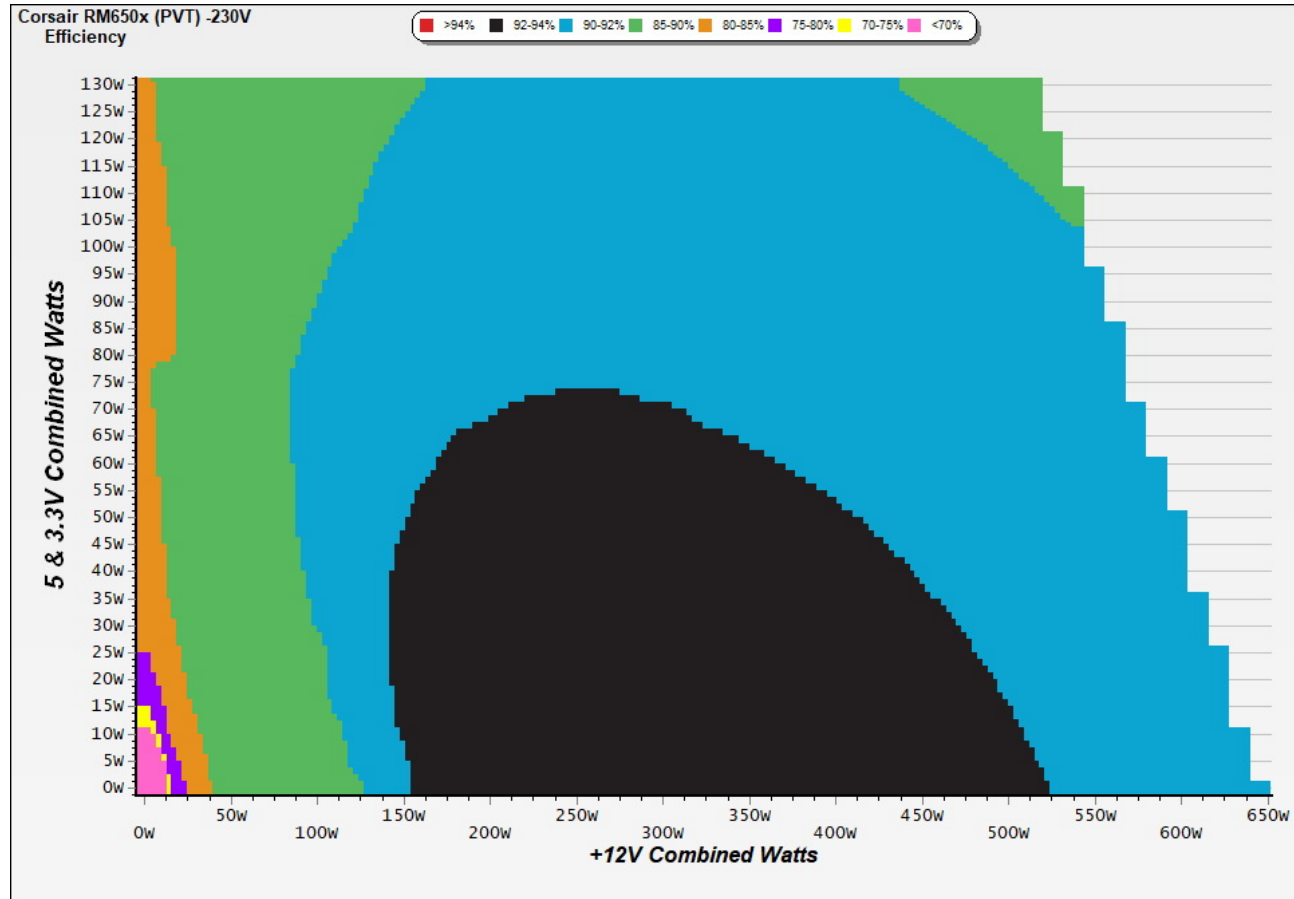
115V



### 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

## 230V

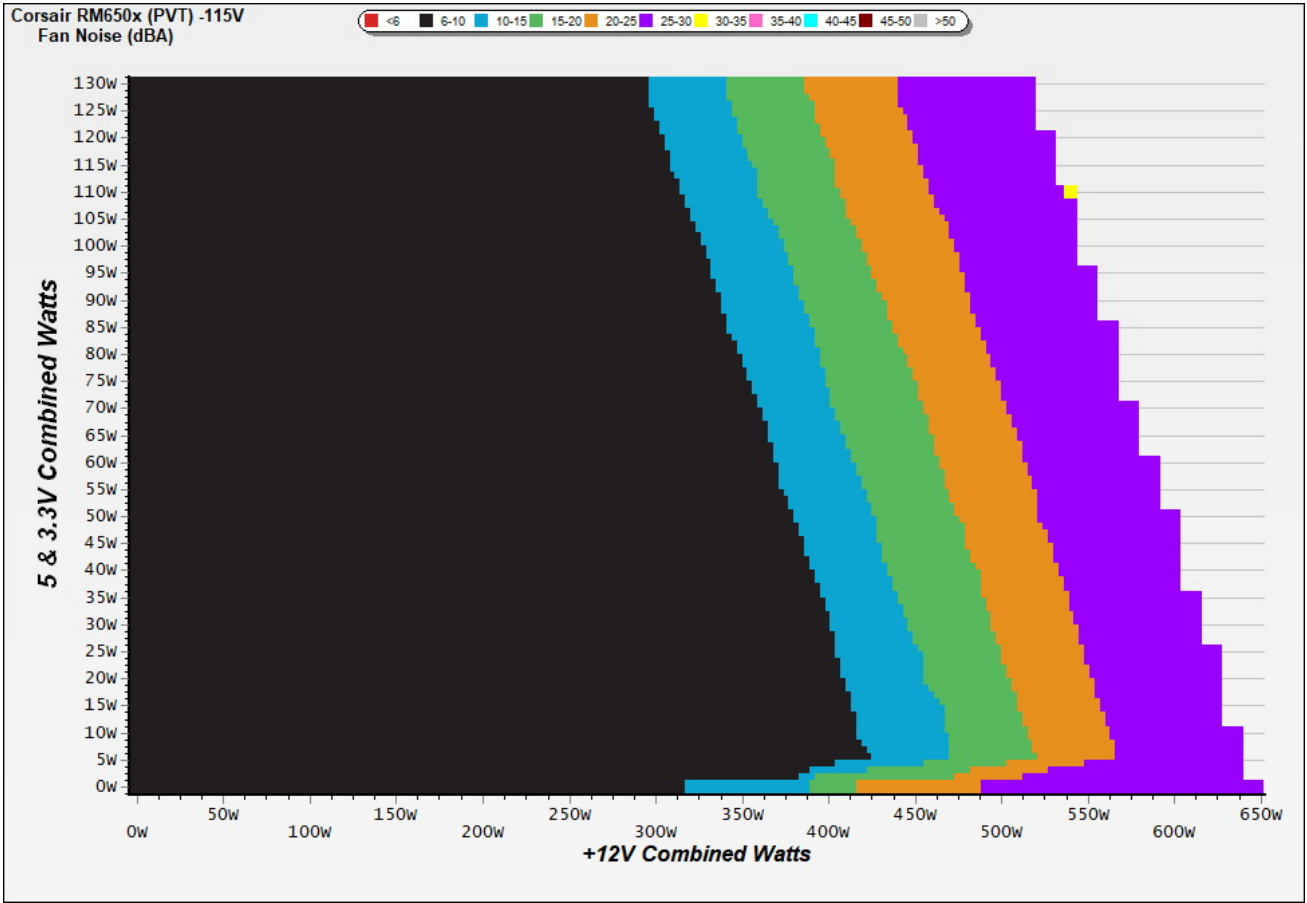


### INFO

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

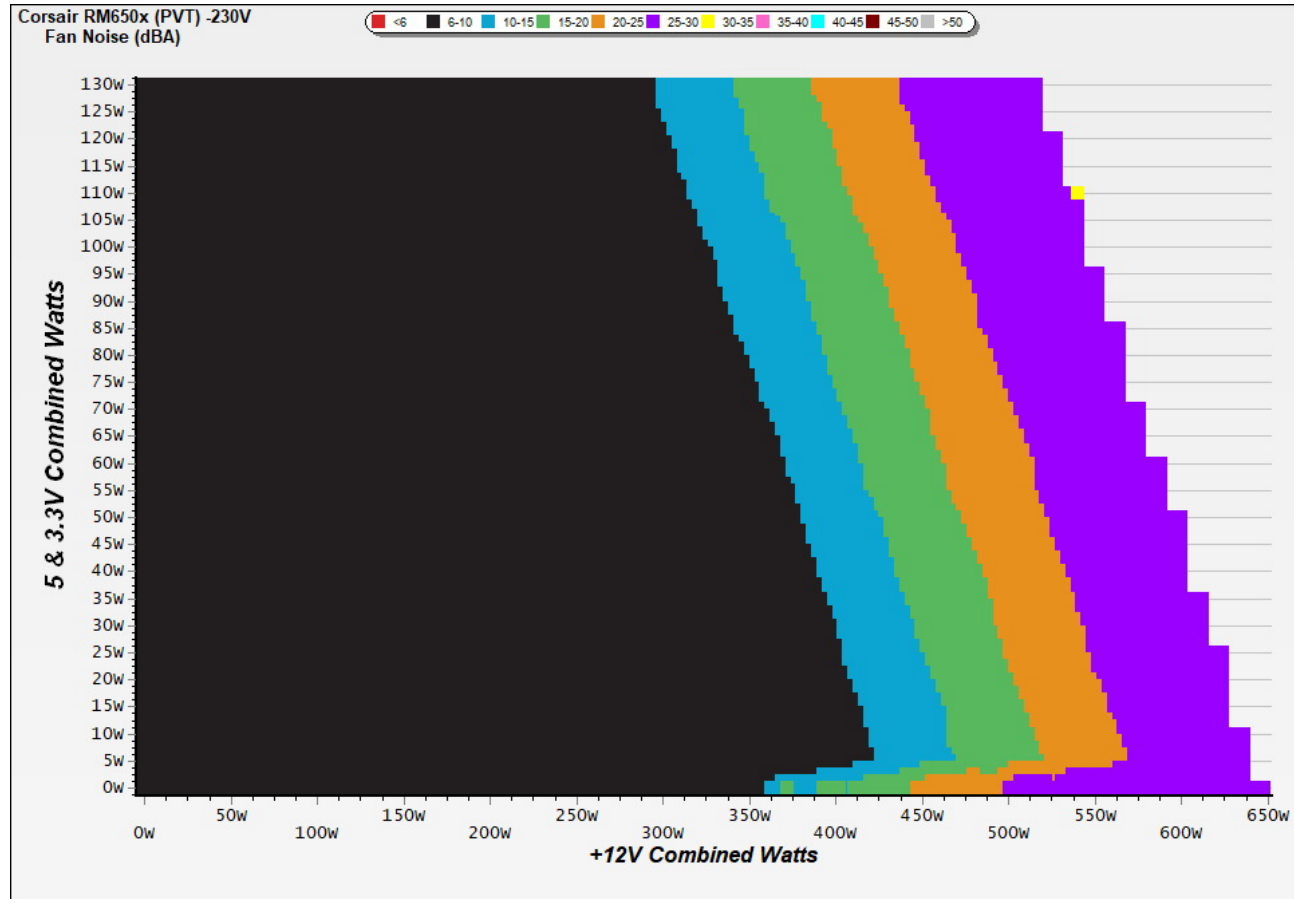
115V



## 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

## 230V



### INFO

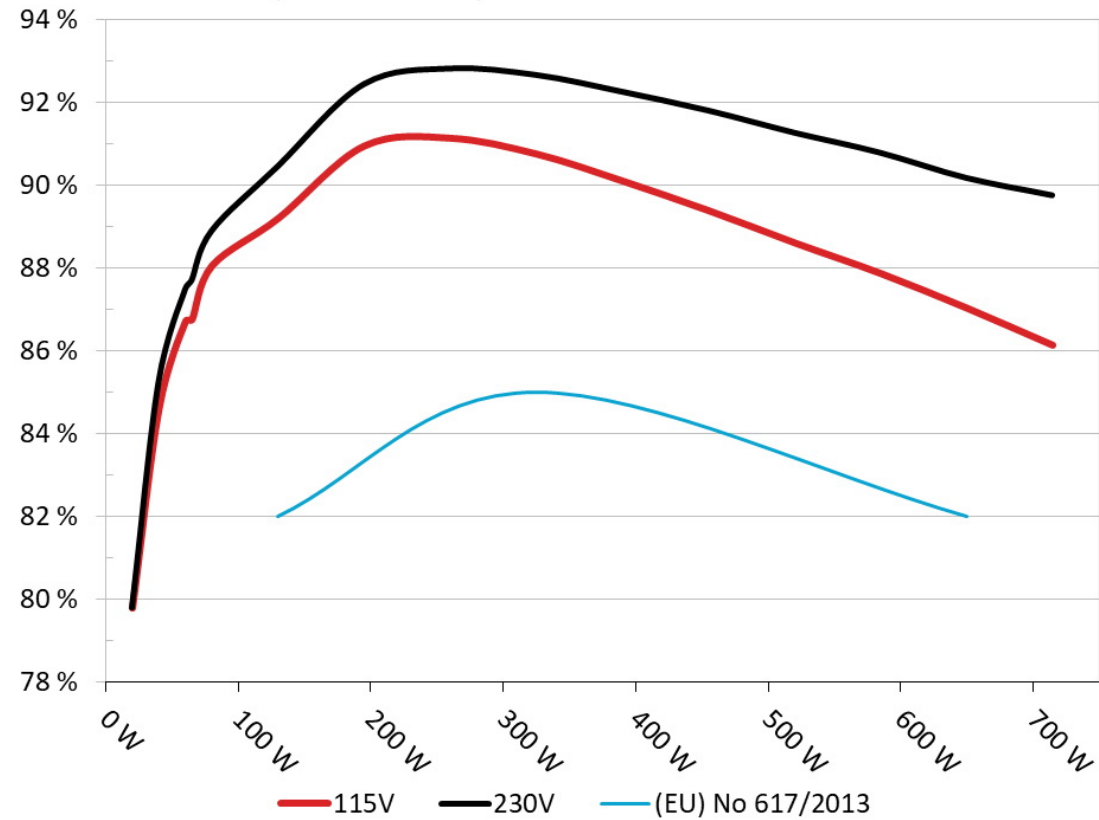
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

## Indicative Performance

### Efficiency under high ambient temperature

Efficiency: Corsair RM650x (PVT)

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



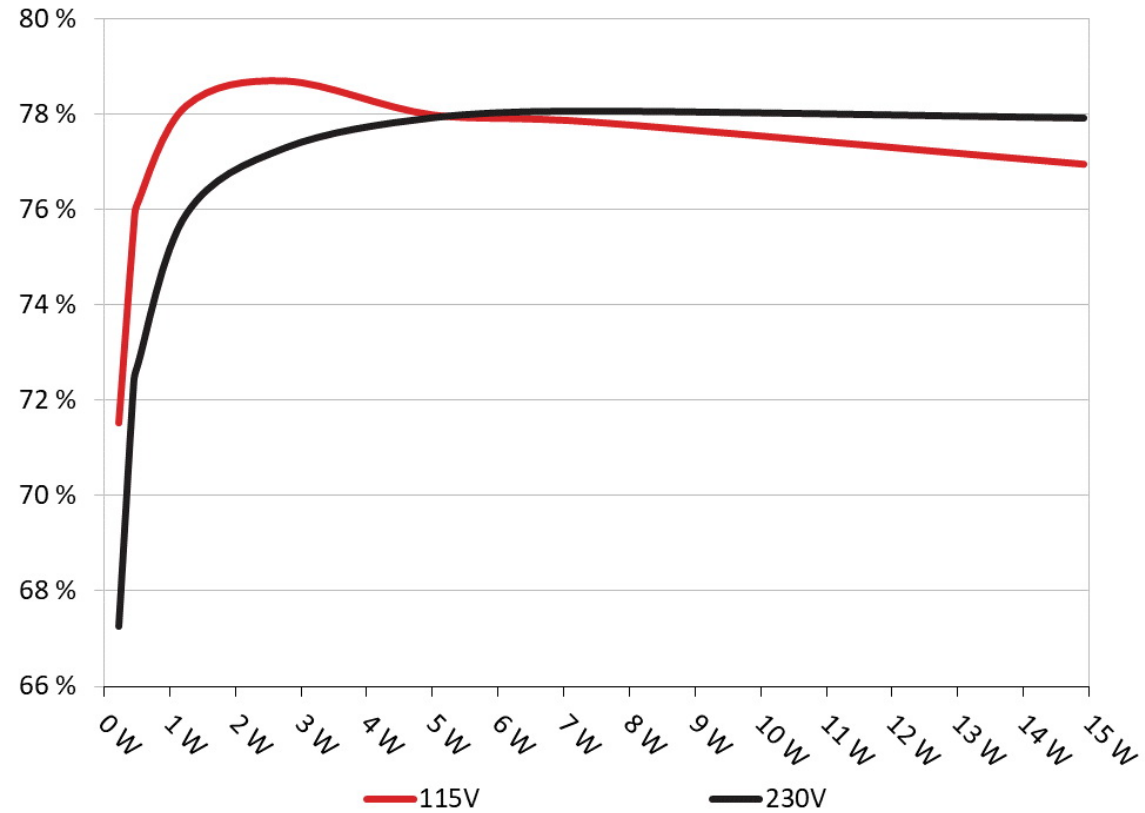
### INFO

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 RM650x (PVT)

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

### 5VSB Efficiency (ERP LOT 3/6 & CEC)

#### 115V

| Test # | 5VSB   | DC/AC (Watts) | Efficiency | PF/AC Volts |
|--------|--------|---------------|------------|-------------|
| 1      | 0.045A | 0.226         | 71.519%    | 0.017       |
|        | 5.035V | 0.316         |            | 115.18V     |
| 2      | 0.090A | 0.453         | 75.626%    | 0.058       |
|        | 5.032V | 0.599         |            | 115.19V     |
| 3      | 0.550A | 2.762         | 78.689%    | 0.253       |
|        | 5.022V | 3.510         |            | 115.17V     |
| 4      | 1.000A | 5.013         | 77.975%    | 0.341       |
|        | 5.013V | 6.429         |            | 115.17V     |
| 5      | 1.500A | 7.505         | 77.820%    | 0.390       |
|        | 5.003V | 9.644         |            | 115.17V     |
| 6      | 3.000A | 14.917        | 76.943%    | 0.453       |
|        | 4.973V | 19.387        |            | 115.17V     |

#### 230V

| Test # | 5VSB   | DC/AC (Watts) | Efficiency | PF/AC Volts |
|--------|--------|---------------|------------|-------------|
| 1      | 0.045A | 0.226         | 67.262%    | 0.010       |
|        | 5.034V | 0.336         |            | 230.32V     |
| 2      | 0.090A | 0.453         | 72.364%    | 0.018       |
|        | 5.032V | 0.626         |            | 230.32V     |
| 3      | 0.550A | 2.763         | 77.287%    | 0.098       |
|        | 5.024V | 3.575         |            | 230.32V     |
| 4      | 1.000A | 5.014         | 77.918%    | 0.162       |
|        | 5.015V | 6.435         |            | 230.32V     |
| 5      | 1.500A | 7.508         | 78.054%    | 0.217       |
|        | 5.005V | 9.619         |            | 230.30V     |
| 6      | 3.000A | 14.923        | 77.911%    | 0.315       |
|        | 4.974V | 19.154        |            | 230.30V     |

## Supplementary Tests (For Reference)

### Typical Load Tests

#### 115V

| Test # | 12V     | 5V      | 3.3V    | 5VSB   | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | Temps (In/Out) | PF/AC Volts |
|--------|---------|---------|---------|--------|---------------|------------|-----------------|-------------------|----------------|-------------|
| 1      | 3.611A  | 1.981A  | 2.000A  | 0.994A | 64.956        | 86.751%    | 0               | <6.0              | 43.90°C        | 0.969       |
|        | 12.007V | 5.048V  | 3.299V  | 5.032V | 74.876        |            |                 |                   | 38.30°C        | 115.17V     |
| 2      | 8.181A  | 2.972A  | 3.004A  | 1.193A | 130.016       | 89.195%    | 0               | <6.0              | 45.21°C        | 0.989       |
|        | 12.115V | 5.047V  | 3.297V  | 5.029V | 145.766       |            |                 |                   | 39.12°C        | 115.17V     |
| 3      | 13.147A | 3.470A  | 3.505A  | 1.393A | 195.014       | 90.945%    | 0               | <6.0              | 46.80°C        | 0.993       |
|        | 12.091V | 5.045V  | 3.295V  | 5.024V | 214.430       |            |                 |                   | 40.30°C        | 115.17V     |
| 4      | 18.122A | 3.967A  | 4.009A  | 1.594A | 260.016       | 91.132%    | 0               | <6.0              | 48.59°C        | 0.995       |
|        | 12.074V | 5.043V  | 3.294V  | 5.019V | 285.319       |            |                 |                   | 41.41°C        | 115.16V     |
| 5      | 22.766A | 4.961A  | 5.013A  | 1.795A | 325.048       | 90.751%    | 0               | <6.0              | 50.62°C        | 0.996       |
|        | 12.059V | 5.041V  | 3.292V  | 5.015V | 358.174       |            |                 |                   | 42.99°C        | 115.16V     |
| 6      | 27.381A | 5.955A  | 6.018A  | 1.996A | 389.408       | 90.103%    | 532             | 10.7              | 43.15°C        | 0.995       |
|        | 12.037V | 5.040V  | 3.291V  | 5.012V | 432.179       |            |                 |                   | 51.77°C        | 115.16V     |
| 7      | 32.090A | 6.951A  | 7.024A  | 2.196A | 454.744       | 89.384%    | 725             | 20.4              | 44.01°C        | 0.995       |
|        | 12.017V | 5.038V  | 3.289V  | 5.008V | 508.751       |            |                 |                   | 52.87°C        | 115.16V     |
| 8      | 36.803A | 7.948A  | 8.031A  | 2.398A | 520.053       | 88.602%    | 992             | 30.3              | 44.31°C        | 0.995       |
|        | 12.000V | 5.035V  | 3.287V  | 5.004V | 586.952       |            |                 |                   | 53.49°C        | 115.16V     |
| 9      | 41.891A | 8.445A  | 8.523A  | 2.399A | 584.942       | 87.862%    | 1251            | 36.3              | 45.15°C        | 0.996       |
|        | 11.994V | 5.033V  | 3.285V  | 5.002V | 665.750       |            |                 |                   | 55.92°C        | 115.15V     |
| 10     | 46.720A | 8.946A  | 9.046A  | 3.007A | 649.775       | 87.027%    | 1433            | 39.7              | 45.45°C        | 0.996       |
|        | 11.988V | 5.030V  | 3.283V  | 4.988V | 746.636       |            |                 |                   | 57.03°C        | 115.15V     |
| 11     | 52.140A | 8.951A  | 9.051A  | 3.009A | 714.601       | 86.131%    | 1745            | 44.9              | 46.65°C        | 0.997       |
|        | 11.985V | 5.028V  | 3.281V  | 4.985V | 829.668       |            |                 |                   | 59.50°C        | 115.15V     |
| CL1    | 0.099A  | 16.001A | 15.999A | 0.000A | 134.560       | 83.388%    | 411             | 8.4               | 43.63°C        | 0.990       |
|        | 12.103V | 5.040V  | 3.295V  | 5.082V | 161.366       |            |                 |                   | 50.75°C        | 115.18V     |

|     |         |        |        |        |         |         |      |      |         |         |
|-----|---------|--------|--------|--------|---------|---------|------|------|---------|---------|
| CL2 | 53.995A | 0.999A | 1.001A | 1.000A | 661.104 | 87.818% | 1144 | 34.0 | 45.17°C | 0.996   |
|     | 11.997V | 5.032V | 3.284V | 5.012V | 752.810 |         |      |      | 57.67°C | 115.15V |

The results above are not used in the certification process

## 230V

| Test # | 12V     | 5V      | 3.3V    | 5VSB   | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | Temps (In/Out) | PF/AC Volts |
|--------|---------|---------|---------|--------|---------------|------------|-----------------|-------------------|----------------|-------------|
| 1      | 3.611A  | 1.980A  | 2.002A  | 0.993A | 64.953        | 87.702%    | 0               | <6.0              | 45.29°C        | 0.791       |
|        | 12.007V | 5.049V  | 3.297V  | 5.033V | 74.061        |            |                 |                   | 40.02°C        | 230.33V     |
| 2      | 8.182A  | 2.971A  | 3.003A  | 1.193A | 130.004       | 90.460%    | 0               | <6.0              | 46.30°C        | 0.920       |
|        | 12.113V | 5.048V  | 3.296V  | 5.030V | 143.715       |            |                 |                   | 40.30°C        | 230.33V     |
| 3      | 13.150A | 3.468A  | 3.507A  | 1.393A | 194.998       | 92.446%    | 0               | <6.0              | 47.22°C        | 0.955       |
|        | 12.087V | 5.046V  | 3.294V  | 5.026V | 210.931       |            |                 |                   | 40.73°C        | 230.33V     |
| 4      | 18.126A | 3.965A  | 4.007A  | 1.593A | 259.992       | 92.823%    | 0               | <6.0              | 48.81°C        | 0.970       |
|        | 12.071V | 5.044V  | 3.293V  | 5.021V | 280.093       |            |                 |                   | 41.77°C        | 230.33V     |
| 5      | 22.772A | 4.957A  | 5.014A  | 1.794A | 325.023       | 92.668%    | 0               | <6.0              | 49.61°C        | 0.979       |
|        | 12.055V | 5.043V  | 3.292V  | 5.018V | 350.738       |            |                 |                   | 42.09°C        | 230.32V     |
| 6      | 27.375A | 5.950A  | 6.019A  | 1.994A | 389.286       | 92.265%    | 427             | 8.5               | 42.90°C        | 0.984       |
|        | 12.036V | 5.042V  | 3.290V  | 5.014V | 421.920       |            |                 |                   | 50.99°C        | 230.32V     |
| 7      | 32.082A | 6.947A  | 7.026A  | 2.195A | 454.608       | 91.809%    | 671             | 18.0              | 43.86°C        | 0.987       |
|        | 12.016V | 5.040V  | 3.288V  | 5.010V | 495.165       |            |                 |                   | 52.51°C        | 230.32V     |
| 8      | 36.797A | 7.942A  | 8.031A  | 2.397A | 519.928       | 91.271%    | 901             | 27.1              | 44.30°C        | 0.988       |
|        | 11.999V | 5.037V  | 3.287V  | 5.006V | 569.655       |            |                 |                   | 53.51°C        | 230.32V     |
| 9      | 41.890A | 8.437A  | 8.523A  | 2.397A | 584.820       | 90.786%    | 1146            | 34.1              | 44.37°C        | 0.990       |
|        | 11.992V | 5.035V  | 3.285V  | 5.005V | 644.175       |            |                 |                   | 54.53°C        | 230.32V     |
| 10     | 46.714A | 8.942A  | 9.045A  | 3.005A | 649.651       | 90.179%    | 1432            | 39.6              | 45.08°C        | 0.991       |
|        | 11.987V | 5.032V  | 3.283V  | 4.991V | 720.400       |            |                 |                   | 56.30°C        | 230.32V     |
| 11     | 52.145A | 8.944A  | 9.049A  | 3.006A | 714.432       | 89.759%    | 1517            | 41.3              | 46.72°C        | 0.992       |
|        | 11.981V | 5.031V  | 3.281V  | 4.989V | 795.947       |            |                 |                   | 59.37°C        | 230.31V     |
| CL1    | 0.098A  | 16.000A | 15.999A | 0.000A | 134.543       | 84.455%    | 639             | 16.4              | 42.41°C        | 0.934       |
|        | 12.103V | 5.041V  | 3.294V  | 5.083V | 159.308       |            |                 |                   | 49.45°C        | 230.32V     |

|     |         |        |        |        |         |         |      |      |         |         |
|-----|---------|--------|--------|--------|---------|---------|------|------|---------|---------|
| CL2 | 53.989A | 1.000A | 1.002A | 1.000A | 661.094 | 90.847% | 1344 | 38.2 | 45.43°C | 0.991   |
|     | 11.998V | 5.032V | 3.283V | 5.013V | 727.697 |         |      |      | 56.93°C | 230.32V |

The results above are not used in the certification process

### Light Load Tests

#### 115V

| Test # | 12V     | 5V     | 3.3V   | 5VSB   | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | PF/AC Volts |
|--------|---------|--------|--------|--------|---------------|------------|-----------------|-------------------|-------------|
| 1      | 1.233A  | 0.494A | 0.499A | 0.197A | 19.983        | 79.776%    | 0               | <6.0              | 0.821       |
|        | 12.026V | 5.069V | 3.312V | 5.066V | 25.049        |            |                 |                   | 115.18V     |
| 2      | 2.469A  | 0.989A | 1.000A | 0.397A | 39.974        | 84.596%    | 0               | <6.0              | 0.934       |
|        | 12.020V | 5.050V | 3.300V | 5.044V | 47.253        |            |                 |                   | 115.17V     |
| 3      | 3.710A  | 1.485A | 1.502A | 0.595A | 60.005        | 86.706%    | 0               | <6.0              | 0.965       |
|        | 12.010V | 5.048V | 3.298V | 5.039V | 69.205        |            |                 |                   | 115.17V     |
| 4      | 4.943A  | 1.981A | 2.001A | 0.794A | 79.955        | 88.049%    | 0               | <6.0              | 0.977       |
|        | 12.009V | 5.047V | 3.298V | 5.035V | 90.807        |            |                 |                   | 115.17V     |

The results above are not used in the certification process

#### 230V

| Test # | 12V     | 5V     | 3.3V   | 5VSB   | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | PF/AC Volts |
|--------|---------|--------|--------|--------|---------------|------------|-----------------|-------------------|-------------|
| 1      | 1.233A  | 0.494A | 0.499A | 0.197A | 19.984        | 79.792%    | 0               | <6.0              | 0.427       |
|        | 12.026V | 5.071V | 3.310V | 5.067V | 25.045        |            |                 |                   | 230.35V     |
| 2      | 2.469A  | 0.990A | 0.998A | 0.397A | 39.973        | 85.239%    | 0               | <6.0              | 0.646       |
|        | 12.020V | 5.051V | 3.299V | 5.044V | 46.895        |            |                 |                   | 230.35V     |
| 3      | 3.710A  | 1.486A | 1.500A | 0.595A | 60.003        | 87.481%    | 0               | <6.0              | 0.768       |
|        | 12.010V | 5.049V | 3.297V | 5.039V | 68.590        |            |                 |                   | 230.35V     |
| 4      | 4.943A  | 1.980A | 2.001A | 0.794A | 79.954        | 88.897%    | 0               | <6.0              | 0.839       |
|        | 12.009V | 5.049V | 3.297V | 5.036V | 89.940        |            |                 |                   | 230.34V     |

The results above are not used in the certification process

## Ripple Measurements

### 115V

| Test       | 12V    | 5V      | 3.3V    | 5VSB   | Pass/Fail |
|------------|--------|---------|---------|--------|-----------|
| 10% Load   | 4.10mV | 3.40mV  | 4.20mV  | 5.40mV | Pass      |
| 20% Load   | 4.10mV | 3.50mV  | 4.80mV  | 5.00mV | Pass      |
| 30% Load   | 8.10mV | 4.20mV  | 5.30mV  | 5.40mV | Pass      |
| 40% Load   | 7.60mV | 4.30mV  | 5.30mV  | 5.30mV | Pass      |
| 50% Load   | 6.60mV | 3.90mV  | 5.60mV  | 5.30mV | Pass      |
| 60% Load   | 6.90mV | 4.30mV  | 5.80mV  | 4.90mV | Pass      |
| 70% Load   | 6.40mV | 4.40mV  | 9.10mV  | 5.30mV | Pass      |
| 80% Load   | 6.40mV | 10.30mV | 14.50mV | 9.10mV | Pass      |
| 90% Load   | 6.10mV | 5.10mV  | 9.80mV  | 5.50mV | Pass      |
| 100% Load  | 9.20mV | 6.10mV  | 8.00mV  | 6.80mV | Pass      |
| 110% Load  | 9.60mV | 6.30mV  | 8.40mV  | 6.70mV | Pass      |
| Crossload1 | 4.80mV | 5.00mV  | 7.00mV  | 5.60mV | Pass      |
| Crossload2 | 8.60mV | 5.40mV  | 6.80mV  | 5.90mV | Pass      |

The results above are not used in the certification process

### 230V

| Test     | 12V    | 5V      | 3.3V    | 5VSB   | Pass/Fail |
|----------|--------|---------|---------|--------|-----------|
| 10% Load | 4.00mV | 3.50mV  | 4.00mV  | 5.50mV | Pass      |
| 20% Load | 4.00mV | 3.60mV  | 4.60mV  | 5.00mV | Pass      |
| 30% Load | 9.00mV | 4.70mV  | 5.30mV  | 5.80mV | Pass      |
| 40% Load | 7.40mV | 4.90mV  | 5.10mV  | 5.50mV | Pass      |
| 50% Load | 6.90mV | 4.30mV  | 5.60mV  | 5.50mV | Pass      |
| 60% Load | 6.50mV | 4.50mV  | 6.20mV  | 5.20mV | Pass      |
| 70% Load | 6.30mV | 4.50mV  | 10.80mV | 5.50mV | Pass      |
| 80% Load | 6.70mV | 10.40mV | 15.10mV | 9.60mV | Pass      |

| Test       | 12V    | 5V     | 3.3V    | 5VSB   | Pass/Fail |
|------------|--------|--------|---------|--------|-----------|
| 90% Load   | 6.50mV | 5.40mV | 12.40mV | 5.80mV | Pass      |
| 100% Load  | 9.40mV | 6.30mV | 8.10mV  | 6.50mV | Pass      |
| 110% Load  | 9.40mV | 6.50mV | 8.20mV  | 6.50mV | Pass      |
| Crossload1 | 4.80mV | 5.20mV | 7.30mV  | 6.10mV | Pass      |
| Crossload2 | 9.30mV | 5.30mV | 7.40mV  | 5.70mV | Pass      |

The results above are not used in the certification process

### Corsair RM650x



Top side

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

CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus

| MODEL / MODELO / 型号 / 型號 / 모델: RPS0122<br>POWER SUPPLY / FUENTE DE ALIMENTACIÓN / 전원 공급 장치 |                                     |                                      |       |      |      |       |
|--------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------|-------|------|------|-------|
| PART NUMBER: CP-9020198 / 75-003896                                                        |                                     |                                      |       |      |      |       |
| 交流輸入<br>AC INPUT                                                                           | AC 입력<br>Entrada de CA              | 100V – 240V • 10A – 5A • 47Hz – 63Hz |       |      |      |       |
| 直流輸出<br>DC OUTPUT                                                                          | DC 출력<br>Salida de CC               | +5V                                  | +3.3V | +12V | -12V | +5Vsb |
| 最大電流<br>MAX LOAD                                                                           | 최대 부하<br>Carga Máximo               | 20A                                  | 20A   | 54A  | 0.3A | 3A    |
| 最大瓦特數<br>MAX POWER                                                                         | 최대 결합 와트<br>Wataje Combinado Máximo | 130W                                 | 648W  | 3.6W | 15W  |       |
| TOTAL POWER: 650W<br>PODER TOTAL / 总功率 / 總功率 / 총출력                                         |                                     |                                      |       |      |      |       |
| FCC CE EAC TUV Rheinland CCC XXXXX XXXXX                                                   |                                     |                                      |       |      |      |       |

Power specifications label

Cybenetics runs voluntary certification programs for power supplies - ETA for efficiency, LAMBDA for noise and SAFE for safety and correct operation - and for cooling products, with DELTA for chassis soundproofing and PHI for fan airflow and static pressure. THETA rates cooler performance on AMD AM5 and Intel LGA1851 outside ISO 17065 and accreditation scope

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