



## Cougar Polar 1200W

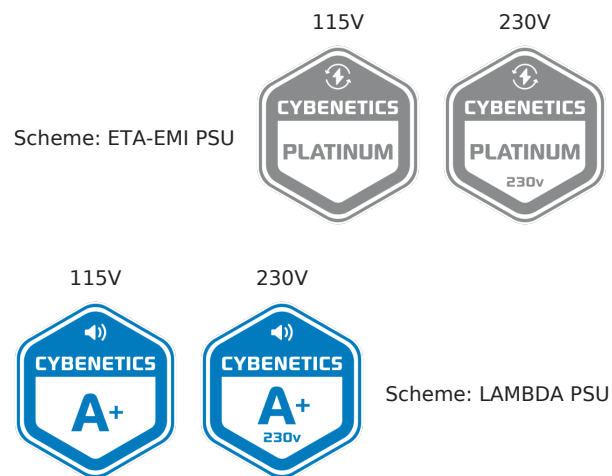
Serial Number 12BB02PR12000001

Lab ID CG12002004

Certification ID 252004

Test Result Report ID: 22PS2004A

Certificate Issue Date: Apr 15, 2022



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                             | Cougar           |
| Model                             | Polar 1200W      |
| OEM/ODM                           | XHY-Power        |
| Serial Number                     | 12BB02PR12000001 |
| Product Specifications            |                  |
| Manufacturer-Provided Information |                  |
| Rated Voltage (Vrms)              | 100-240          |
| Rated Current (Arms)              | 15-7             |
| Rated Frequency (Hz)              | 47-63            |

|                                                   |                                                                                     |
|---------------------------------------------------|-------------------------------------------------------------------------------------|
| Rated Power (W)                                   | 1200                                                                                |
| Operating Temperature (Continuous Full Load) (°C) |                                                                                     |
| Type                                              | ATX12V                                                                              |
| Cable Design                                      | Fully Modular                                                                       |
| Warranty                                          | -                                                                                   |
| Cybenetics Measurements                           |                                                                                     |
| Dimensions (W x H x D)                            |                                                                                     |
| Weight                                            |                                                                                     |
| Cooling                                           | 135mm Hydraulic Dynamic Bearing Fan<br>(DWPH EFF-14E12H)                            |
| Semi-Passive Operation                            | ✓                                                                                   |
| Cybenetics Testing Information                    |                                                                                     |
| Lab ID                                            | CG12002004                                                                          |
| Date of receipt                                   | Apr 5, 2022                                                                         |
| Testing Date                                      | Apr 15, 2022                                                                        |
| Report Issued Date                                | Apr 15, 2022                                                                        |
| 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 (650mm)        | 1           | 1                       | 18-22AWG | No                  |
| 4+4 pin EPS12V (650mm)                | 1           | 1                       | 16AWG    | No                  |
| 8 pin EPS12V (650mm)                  | 1           | 1                       | 16AWG    | No                  |
| 6+2 pin PCIe (650mm)                  | 7           | 7                       | 16AWG    | No                  |
| 6+2 pin PCIe (650mm+100mm)            | 1           | 2                       | 16AWG    | No                  |
| SATA (500mm+115mm+115mm+115mm)        | 3           | 12                      | 18AWG    | No                  |
| 4 pin Molex (500mm+120mm+120mm+120mm) | 1           | 4                       | 18AWG    | No                  |
| AC Power Cord (1400mm) - C13 coupler  | 1           | 1                       | 14AWG    | -                   |

## Power Specifications

|                      |       |      |    |      |      |      |
|----------------------|-------|------|----|------|------|------|
| Rail                 |       | 3.3V | 5V | 12V  | 5VSB | -12V |
| Max. Power           | Amps  | 20   | 20 | 100  | 3    | 0.3  |
|                      | Watts | 100  |    | 1200 | 15   | 3.6  |
| Total Max. Power (W) |       | 1200 |    |      |      |      |

## Parts Description

|                      |                                                                                                                                       |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| General Data         |                                                                                                                                       |
| Manufacturer (OEM)   | XHY-Power                                                                                                                             |
| PCB Type             | Double Sided                                                                                                                          |
| Primary Side         |                                                                                                                                       |
| Transient Filter     | 4x Y caps, 2x X caps, 2x CM chokes, 1x MOV                                                                                            |
| Inrush Protection    | 1x NTC Thermistor MF72-5D15 (5 Ohm) & Relay                                                                                           |
| Bridge Rectifier(s)  | 2x MCC GBU15KL (800V, 15A @ 100°C)                                                                                                    |
| APFC MOSFETs         | 2x 65R078W                                                                                                                            |
| APFC Boost Diode     | 1x G3S06510A                                                                                                                          |
| Bulk Cap(s)          | 2x Nippon Chemi-Con (450V, 560uF each or 1120uF combined, 2,000h @ 105°C, KMW)                                                        |
| Main Switchers       | 4x NCE Power NCE65TF130 (650V, 18A @ 100°C, Rds(on): 0.13Ohm)                                                                         |
| APFC Controller      | Champion CM6500UNX                                                                                                                    |
| Resonant Controller  | Champion CM6901T6X                                                                                                                    |
| Topology             | Primary side: APFC, Full-Bridge & LLC converter<br>Secondary side: Synchronous Rectification & DC-DC converters                       |
| Secondary Side       |                                                                                                                                       |
| +12V MOSFETs         | 8x Infineon BSC010N04LS (40V, 178A @ 100°C, Rds(on): 1mOhm)                                                                           |
| 5V & 3.3V            | DC-DC Converters: 6x Excelliance MOS EMB04N03H (30V, 45A @ 100°C, Rds(on): 4mOhm)<br>PWM Controller(s): uPI-Semi uP3861P              |
| Filtering Capacitors | Electrolytic: 4x Nippon Chemi-Con (105°C, W), 14x Nippon Chemi-Con (4-10,000h @ 105°C, KY)<br>Polymer: 9x FPCAP, 4x Elite, 8x no info |
| Supervisor IC        | IN1S4241-SDG                                                                                                                          |
| Fan Model            | DWPH EFF-14E12H (140mm, 12V, 0.30A, Hydraulic Bearing Fan)                                                                            |
| 5VSB Circuit         |                                                                                                                                       |

|                        |                         |
|------------------------|-------------------------|
| Rectifier              | 60R10S SBR              |
| Standby PWM Controller | Excelliance MOS EM8569C |

## 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)          | 90.029%  |
| Average Noise Output (>1450 Load Combinations)        | 19.66dBA |
| Average PF (>1450 Load Combinations)                  | 0.976    |
| Efficiency With 10W ( $\leq$ 500W) or 2% (>500W) Load | 69.186%  |
| Standby Power Consumption                             | 0.0536W  |
| Non-Accredited                                        |          |
| 12V Ripple (Full Load)                                | 29.50mV  |
| 5V Ripple (Full Load)                                 | 11.47mV  |
| 3.3V Ripple (Full Load)                               | 15.06mV  |
| 5VSB Ripple (Full Load)                               | 10.77mV  |
| 12V Load Regulation                                   | 0.43%    |
| 5V Load Regulation                                    | 0.54%    |
| 3.3V Load Regulation                                  | 0.45%    |
| 5VSB Load Regulation                                  | 2.36%    |
| Inrush Current                                        | 26.000A  |

## 230V

|                                                |          |         |
|------------------------------------------------|----------|---------|
| Accredited                                     |          |         |
| Average Efficiency (>1450 load combinations)   | 92.232%  |         |
| Average Noise Output (>1450 Load Combinations) | 17.97dBA |         |
| Average PF (>1450 Load Combinations)           | 0.937    |         |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | -        |         |
| Standby Power Consumption                      | 0.0898W  |         |
| Non-Accredited                                 |          |         |
| 12V Ripple (Full Load)                         | 30.55mV  |         |
| 5V Ripple (Full Load)                          | 11.31mV  |         |
| 3.3V Ripple (Full Load)                        | 16.16mV  |         |
| 5VSB Ripple (Full Load)                        | 10.76mV  |         |
| 12V Load Regulation                            | 0.40%    |         |
| 5V Load Regulation                             | 0.54%    |         |
| 3.3V Load Regulation                           | 0.42%    |         |
| 5VSB Load Regulation                           | 2.36%    |         |
| Inrush Current                                 | 69.200A  |         |
| Hold-Up Time & PWR_OK Signal                   | 18.80ms  |         |
| AC Loss to PWR_OK Hold Up Time                 | 17.20ms  |         |
| PWR_OK Inactive to DC Loss Delay               | 1.60ms   |         |
| PSU Timings: T1 (20% / 100%)                   | 68.0ms   | 68.0ms  |
| PSU Timings: T3 (20% / 100%)                   | 142.0ms  | 142.0ms |
| OPP (24.82°C / 41.92°C)                        | 108.17%  | 119.41% |

## Hold-Up Time & PWR\_OK Signal

|                                       |      |
|---------------------------------------|------|
| Hold-Up Time (ms)                     | 18.8 |
| AC Loss to PWR_OK Hold Up Time (ms)   | 17.2 |
| PWR_OK Inactive to DC Loss Delay (ms) | 1.6  |

## Vampire Power

### Tables

#### 115V

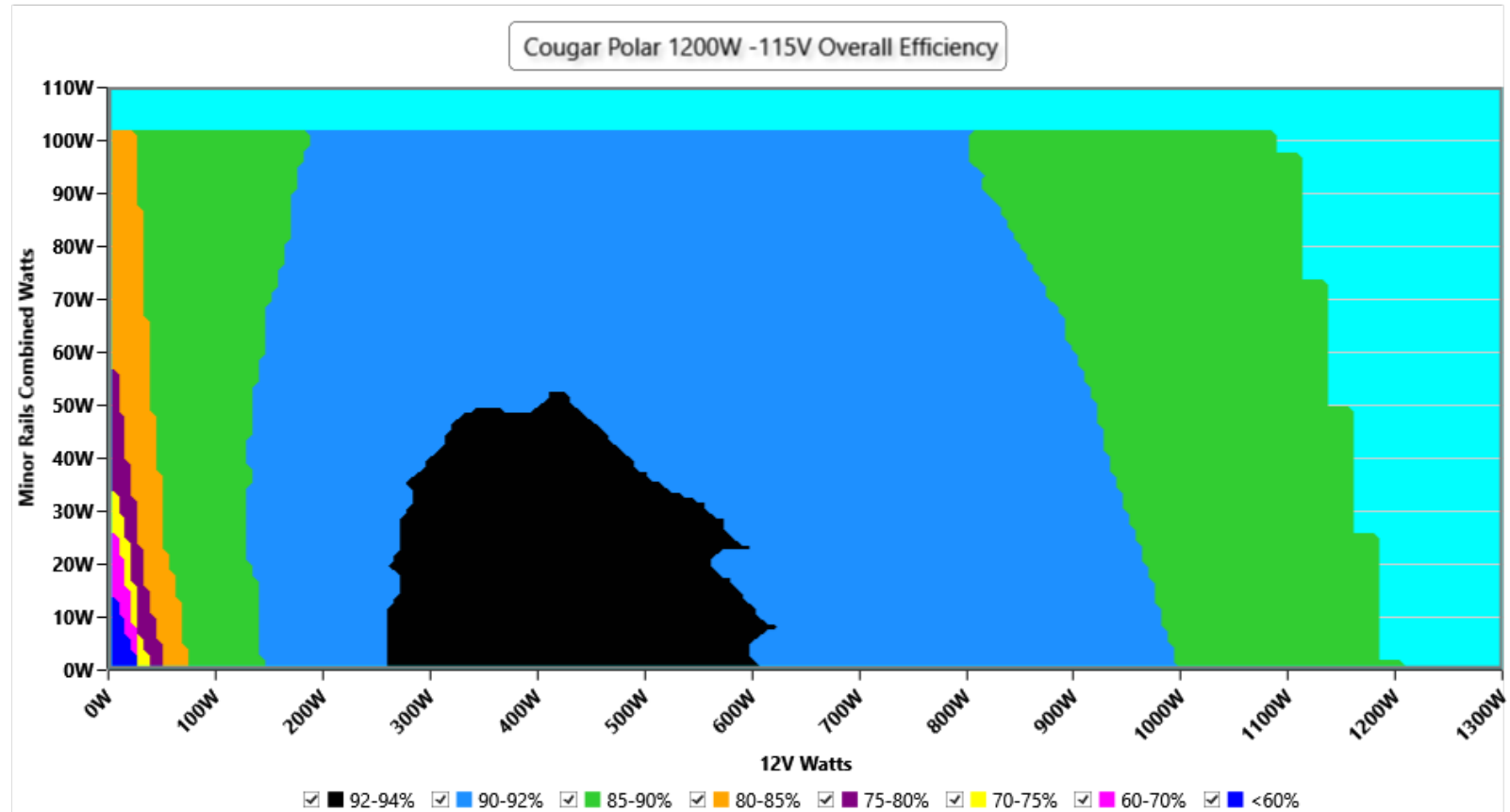
| Detailed Results   |          |          |           |          |           |        |
|--------------------|----------|----------|-----------|----------|-----------|--------|
|                    | Average  | Min      | Limit Min | Max      | Limit Max | Result |
| Mains Voltage RMS: | 115.12 V | 115.09 V | 113.85 V  | 115.16 V | 116.15 V  | PASS   |
| Mains Frequency:   | 60.00 Hz | 59.99 Hz | 59.40 Hz  | 60.01 Hz | 60.60 Hz  | PASS   |
| Mains Voltage CF:  | 1.416    | 1.415    | 1.340     | 1.418    | 1.490     | PASS   |
| Mains Voltage THD: | 0.13 %   | 0.10 %   | N/A       | 0.18 %   | 2.00 %    | PASS   |
| Real Power:        | 0.054 W  | 0.047 W  | N/A       | 0.063 W  | N/A       | N/A    |
| Apparent Power:    | 6.483 W  | 6.419 W  | N/A       | 6.541 W  | N/A       | N/A    |
| Power Factor:      | 0.008    | N/A      | N/A       | N/A      | N/A       | N/A    |

#### 230V

| Detailed Results   |          |          |           |          |           |        |
|--------------------|----------|----------|-----------|----------|-----------|--------|
|                    | Average  | Min      | Limit Min | Max      | Limit Max | Result |
| Mains Voltage RMS: | 230.27 V | 230.17 V | 227.70 V  | 230.34 V | 232.30 V  | PASS   |
| Mains Frequency:   | 50.00 Hz | 49.99 Hz | 49.50 Hz  | 50.01 Hz | 50.50 Hz  | PASS   |
| Mains Voltage CF:  | 1.416    | 1.415    | 1.340     | 1.417    | 1.490     | PASS   |
| Mains Voltage THD: | 0.13 %   | 0.10 %   | N/A       | 0.22 %   | 2.00 %    | PASS   |
| Real Power:        | 0.090 W  | 0.075 W  | N/A       | 0.116 W  | N/A       | N/A    |
| Apparent Power:    | 21.232 W | 21.093 W | N/A       | 21.365 W | N/A       | N/A    |
| Power Factor:      | 0.004    | N/A      | N/A       | N/A      | N/A       | N/A    |

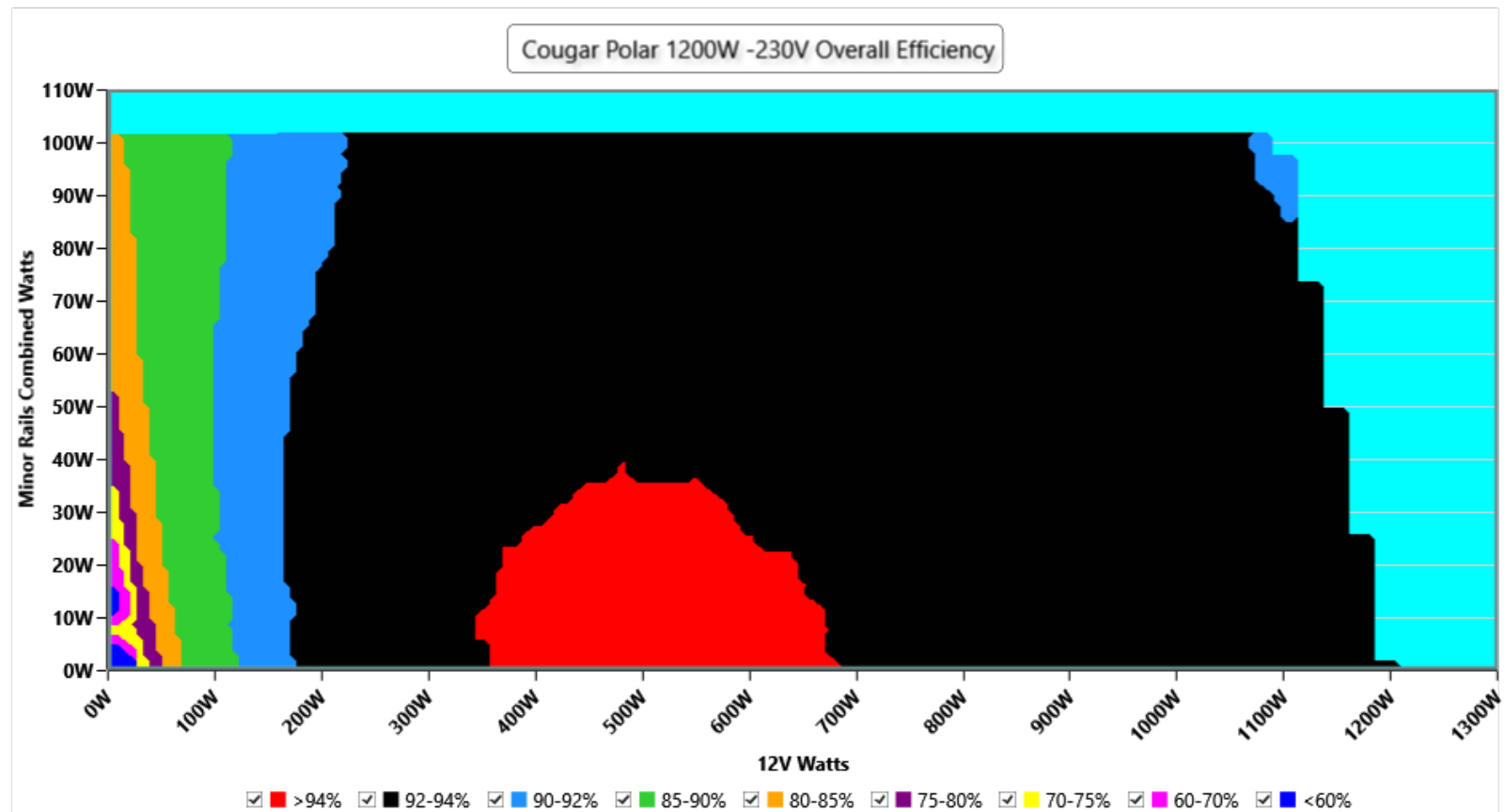
## Efficiency Graph

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

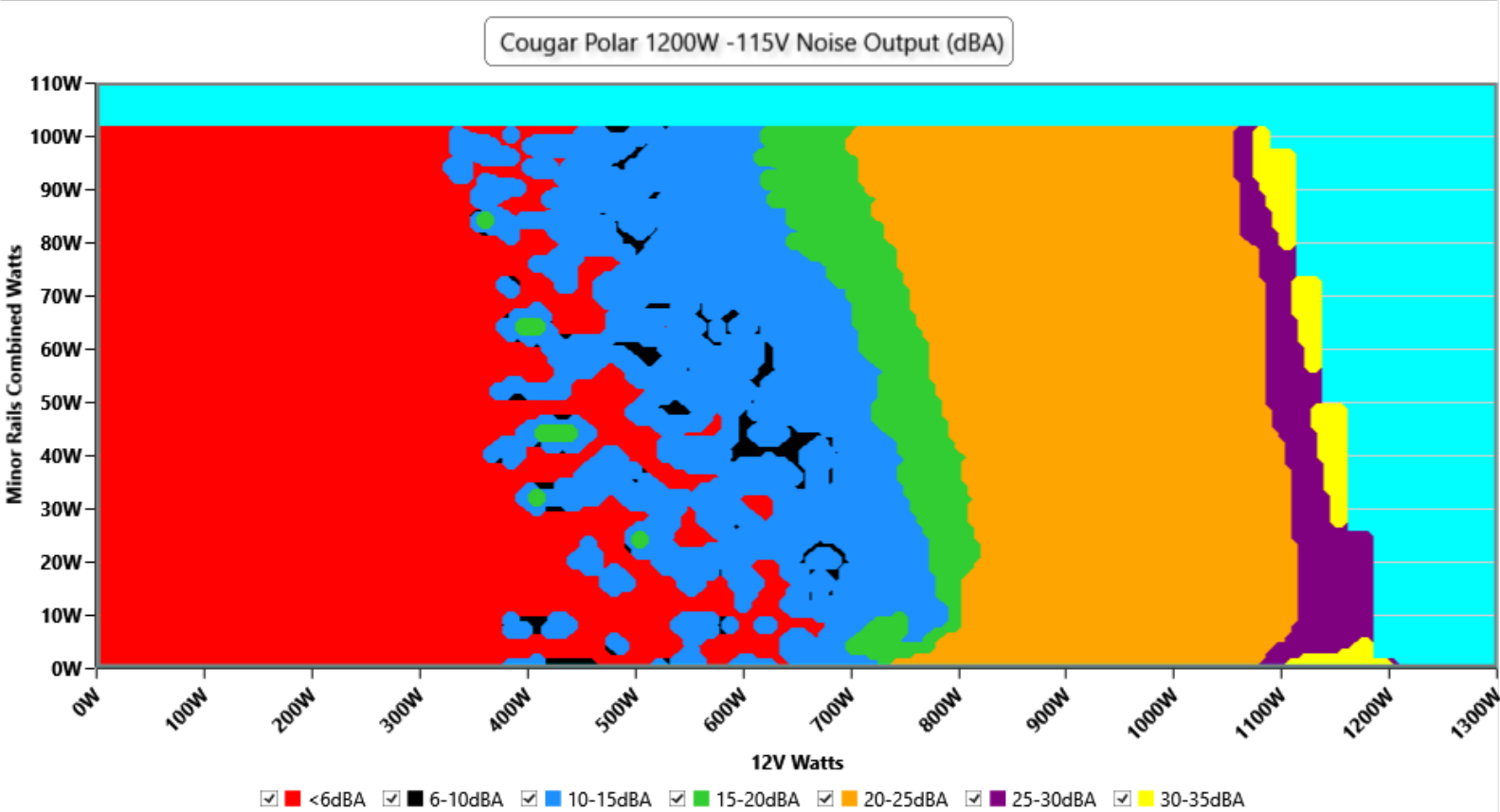


### INFO

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

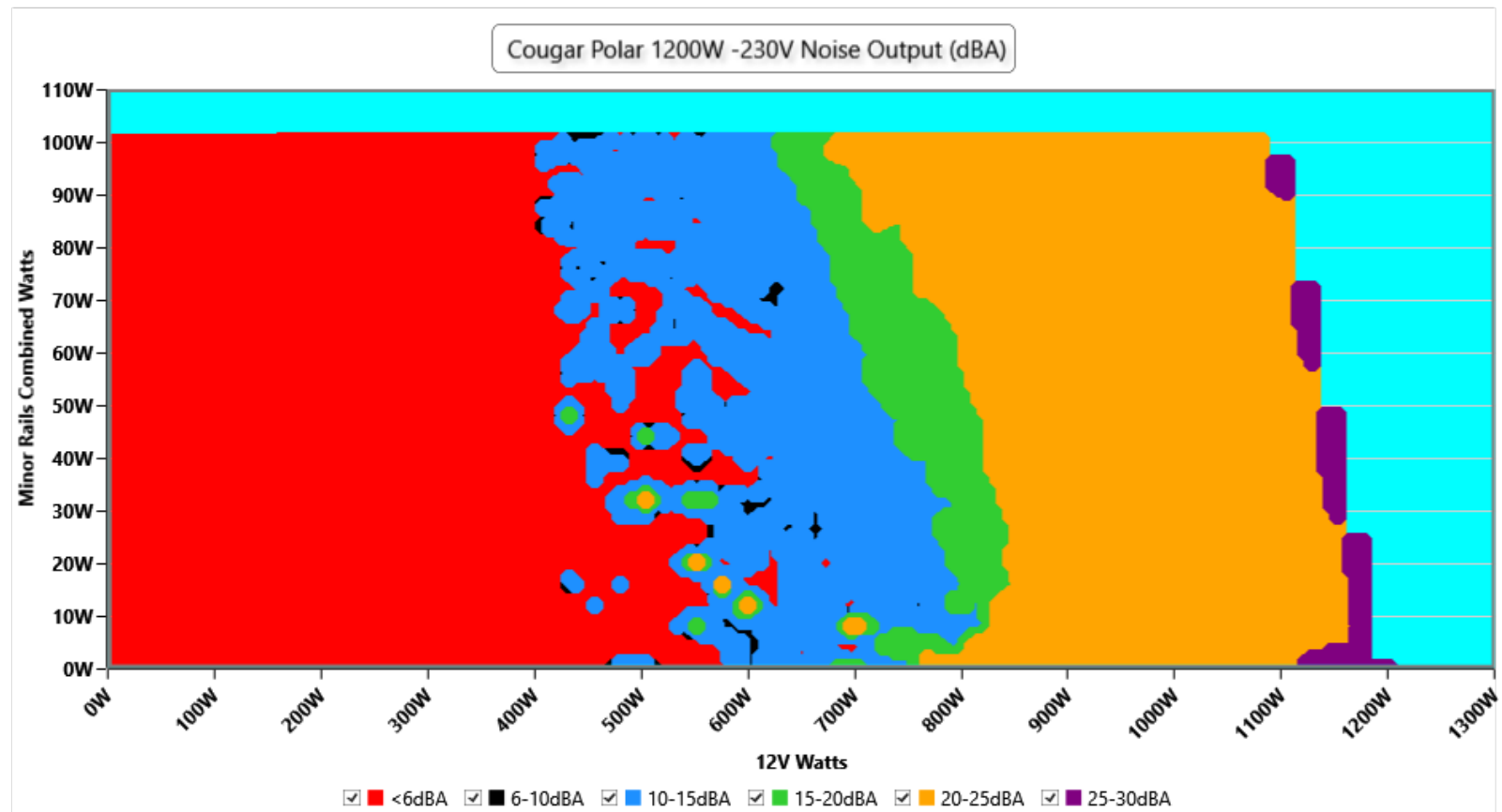
# Noise Graph

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



### INFO

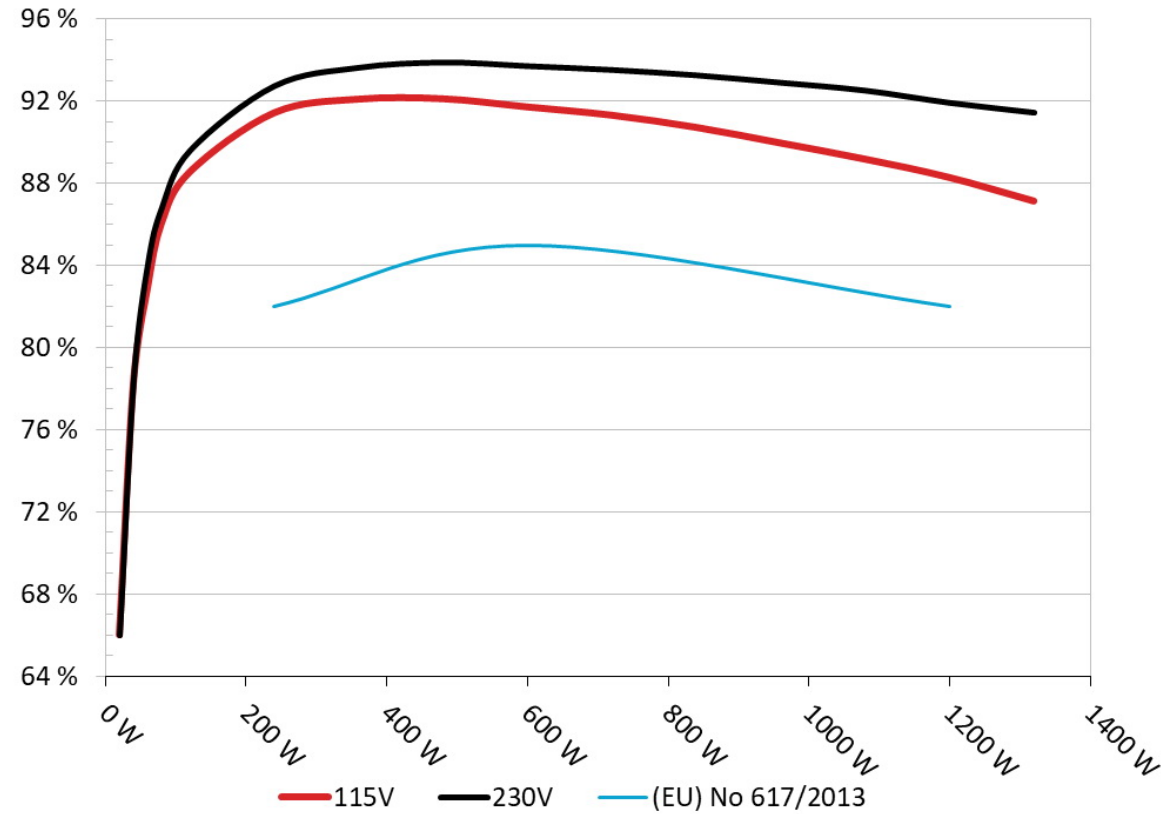
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

## Indicative Performance

### Efficiency under high ambient temperature

Efficiency: Cougar Polar 1200W

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

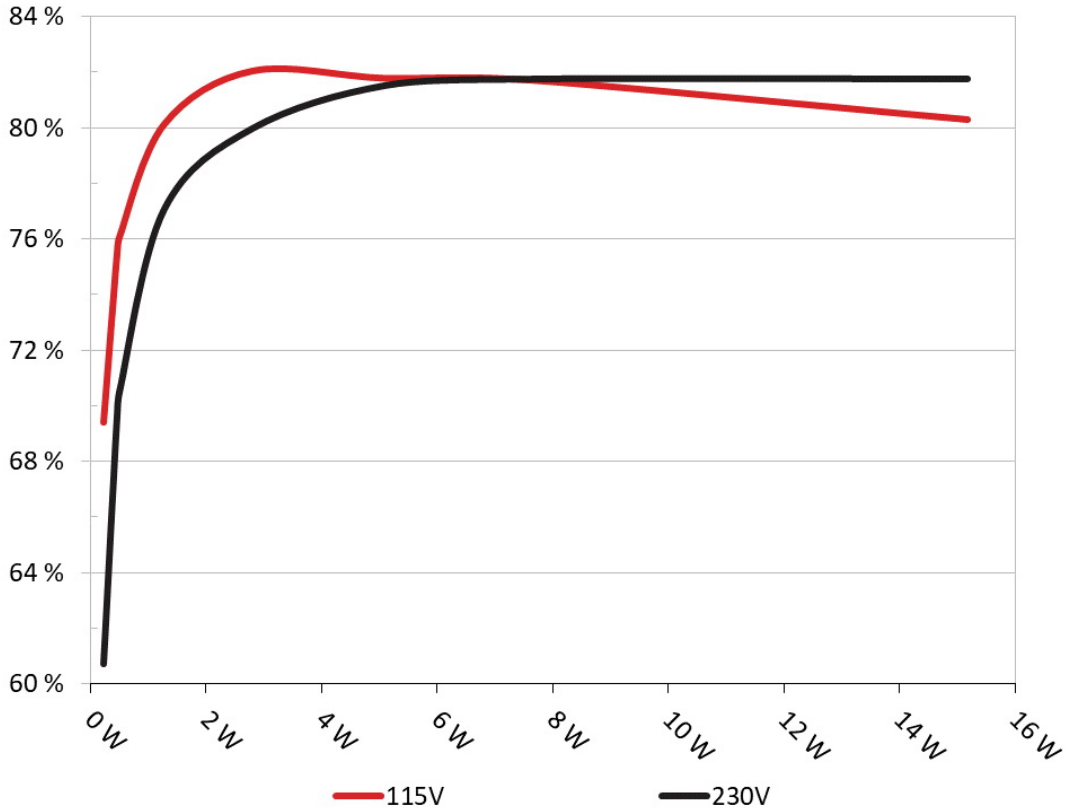


### INFO

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: Cougar Polar 1200W  
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 | 0.23W         | 69.391%    | 0.051       |
|        | 5.119V | 0.332W        |            | 115.12V     |
| 2      | 0.09A  | 0.461W        | 75.429%    | 0.091       |
|        | 5.118V | 0.611W        |            | 115.12V     |
| 3      | 0.55A  | 2.81W         | 82.065%    | 0.327       |
|        | 5.109V | 3.424W        |            | 115.12V     |
| 4      | 1A     | 5.101W        | 81.8%      | 0.409       |
|        | 5.1V   | 6.236W        |            | 115.12V     |
| 5      | 1.5A   | 7.636W        | 81.728%    | 0.444       |
|        | 5.09V  | 9.343W        |            | 115.12V     |
| 6      | 3A     | 15.177W       | 80.311%    | 0.496       |
|        | 5.059V | 18.898W       |            | 115.11V     |

#### 230V

| Test # | 5VSB   | DC/AC (Watts) | Efficiency | PF/AC Volts |
|--------|--------|---------------|------------|-------------|
| 1      | 0.045A | 0.23W         | 60.728%    | 0.018       |
|        | 5.119V | 0.379W        |            | 230.28V     |
| 2      | 0.09A  | 0.461W        | 69.57%     | 0.031       |
|        | 5.118V | 0.663W        |            | 230.28V     |
| 3      | 0.55A  | 2.81W         | 79.998%    | 0.149       |
|        | 5.109V | 3.513W        |            | 230.28V     |
| 4      | 1A     | 5.1W          | 81.539%    | 0.229       |
|        | 5.1V   | 6.255W        |            | 230.28V     |
| 5      | 1.5A   | 7.636W        | 81.773%    | 0.29        |
|        | 5.09V  | 9.337W        |            | 230.28V     |
| 6      | 3A     | 15.181W       | 81.778%    | 0.375       |
|        | 5.06V  | 18.565W       |            | 230.28V     |

## 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 |
|------|----------|---------|---------|--------|---------------|------------|-----------------|-------------------|----------------|-------------|
| 10%  | 8.094A   | 1.981A  | 1.97A   | 0.981A | 119.965       | 88.518%    | 0               | <6.0              | 45.73°C        | 0.98        |
|      | 12.154V  | 5.047V  | 3.349V  | 5.097V | 135.526       |            |                 |                   | 40.88°C        | 115.14V     |
| 20%  | 17.204A  | 2.973A  | 2.957A  | 1.179A | 239.905       | 91.401%    | 0               | <6.0              | 46.33°C        | 0.965       |
|      | 12.149V  | 5.044V  | 3.348V  | 5.087V | 262.475       |            |                 |                   | 41.04°C        | 115.14V     |
| 30%  | 26.592A  | 3.471A  | 3.451A  | 1.379A | 358.975       | 92.064%    | 0               | <6.0              | 47.29°C        | 0.968       |
|      | 12.143V  | 5.042V  | 3.346V  | 5.077V | 389.92        |            |                 |                   | 41.36°C        | 115.14V     |
| 40%  | 36.092A  | 3.969A  | 3.946A  | 1.579A | 479.376       | 92.087%    | 0               | <6.0              | 47.79°C        | 0.975       |
|      | 12.141V  | 5.038V  | 3.345V  | 5.066V | 520.571       |            |                 |                   | 41.49°C        | 115.13V     |
| 50%  | 45.206A  | 4.965A  | 4.934A  | 1.78A  | 599.094       | 91.69%     | 707             | 22.6              | 42.83°C        | 0.98        |
|      | 12.136V  | 5.036V  | 3.344V  | 5.056V | 653.39        |            |                 |                   | 49.65°C        | 115.13V     |
| 60%  | 54.398A  | 5.96A   | 5.923A  | 1.982A | 719.63        | 91.288%    | 717             | 22.9              | 43.35°C        | 0.983       |
|      | 12.130V  | 5.034V  | 3.343V  | 5.046V | 788.309       |            |                 |                   | 50.83°C        | 115.12V     |
| 70%  | 63.532A  | 6.957A  | 6.913A  | 2.183A | 839.367       | 90.696%    | 719             | 23.0              | 43.73°C        | 0.985       |
|      | 12.124V  | 5.031V  | 3.342V  | 5.036V | 925.471       |            |                 |                   | 51.5°C         | 115.11V     |
| 80%  | 72.731A  | 7.958A  | 7.9A    | 2.287A | 959.356       | 89.935%    | 738             | 23.4              | 44.28°C        | 0.987       |
|      | 12.120V  | 5.028V  | 3.34V   | 5.027V | 1066.727      |            |                 |                   | 52.65°C        | 115.11V     |
| 90%  | 82.276A  | 8.456A  | 8.383A  | 2.39A  | 1079.162      | 89.154%    | 1325            | 39.5              | 44.83°C        | 0.989       |
|      | 12.114V  | 5.025V  | 3.338V  | 5.018V | 1210.444      |            |                 |                   | 53.83°C        | 115.1V      |
| 100% | 91.645A  | 8.958A  | 8.896A  | 2.999A | 1199.203      | 88.261%    | 1700            | 46.2              | 45.46°C        | 0.99        |
|      | 12.106V  | 5.022V  | 3.337V  | 5V     | 1358.708      |            |                 |                   | 55.2°C         | 115.09V     |
| 110% | 100.940A | 9.961A  | 9.98A   | 3.003A | 1319.82       | 87.108%    | 1717            | 46.7              | 47.04°C        | 0.991       |
|      | 12.102V  | 5.019V  | 3.335V  | 4.993V | 1515.162      |            |                 |                   | 57.84°C        | 115.08V     |
| CL1  | 0.113A   | 11.955A | 11.839A | 0A     | 101.264       | 82.874%    | 718             | 22.9              | 42.47°C        | 0.974       |
|      | 12.159V  | 5.035V  | 3.352V  | 5.107V | 122.191       |            |                 |                   | 49.52°C        | 115.17V     |

| Test | 12V     | 5V      | 3.3V    | 5VSB   | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | Temps (In/Out) | PF/AC Volts |
|------|---------|---------|---------|--------|---------------|------------|-----------------|-------------------|----------------|-------------|
| CL2  | 0.113A  | 19.961A | 0A      | 0A     | 101.375       | 81.179%    | 477             | 13.7              | 43.97°C        | 0.974       |
|      | 12.158V | 5.01V   | 3.346V  | 5.111V | 124.879       |            |                 |                   | 52.34°C        | 115.16V     |
| CL3  | 0.113A  | 0A      | 19.691A | 0A     | 67.36         | 75.279%    | 433             | 11.2              | 44.7°C         | 0.975       |
|      | 12.162V | 5.04V   | 3.351V  | 5.108V | 89.49         |            |                 |                   | 54.44°C        | 115.16V     |
| CL4  | 99.059A | 0A      | 0A      | 0A     | 1199.912      | 88.819%    | 1625            | 44.7              | 45.66°C        | 0.989       |
|      | 12.113V | 5.029V  | 3.335V  | 5.067V | 1350.967      |            |                 |                   | 55.88°C        | 115.09V     |

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 |
|------|---------|--------|--------|--------|---------------|------------|-----------------|-------------------|----------------|-------------|
| 10%  | 8.094A  | 1.981A | 1.971A | 0.981A | 119.982       | 89.611%    | 0               | <6.0              | 45.9°C         | 0.889       |
|      | 12.155V | 5.048V | 3.348V | 5.096V | 133.891       |            |                 |                   | 40.9°C         | 230.3V      |
| 20%  | 17.204A | 2.974A | 2.958A | 1.18A  | 239.925       | 92.754%    | 0               | <6.0              | 46.76°C        | 0.931       |
|      | 12.149V | 5.045V | 3.347V | 5.086V | 258.668       |            |                 |                   | 41.17°C        | 230.3V      |
| 30%  | 26.596A | 3.471A | 3.452A | 1.379A | 359.076       | 93.642%    | 0               | <6.0              | 47.22°C        | 0.943       |
|      | 12.145V | 5.042V | 3.345V | 5.075V | 383.455       |            |                 |                   | 41.29°C        | 230.31V     |
| 40%  | 36.096A | 3.97A  | 3.948A | 1.579A | 479.479       | 93.901%    | 0               | <6.0              | 48.02°C        | 0.95        |
|      | 12.141V | 5.038V | 3.344V | 5.065V | 510.622       |            |                 |                   | 41.5°C         | 230.31V     |
| 50%  | 45.208A | 4.964A | 4.936A | 1.781A | 599.163       | 93.723%    | 709             | 22.6              | 42.13°C        | 0.956       |
|      | 12.136V | 5.037V | 3.343V | 5.054V | 639.291       |            |                 |                   | 49.3°C         | 230.31V     |
| 60%  | 54.401A | 5.96A  | 5.925A | 1.982A | 719.709       | 93.536%    | 716             | 22.8              | 42.6°C         | 0.959       |
|      | 12.130V | 5.034V | 3.342V | 5.044V | 769.443       |            |                 |                   | 50.29°C        | 230.32V     |
| 70%  | 63.527A | 6.956A | 6.914A | 2.183A | 839.336       | 93.276%    | 717             | 22.9              | 43.25°C        | 0.963       |
|      | 12.125V | 5.032V | 3.341V | 5.036V | 899.837       |            |                 |                   | 51.46°C        | 230.3V      |
| 80%  | 72.729A | 7.955A | 7.901A | 2.286A | 959.328       | 92.914%    | 727             | 23.1              | 43.72°C        | 0.967       |
|      | 12.120V | 5.029V | 3.34V  | 5.027V | 1032.496      |            |                 |                   | 52.73°C        | 230.28V     |
| 90%  | 82.271A | 8.452A | 8.383A | 2.39A  | 1079.095      | 92.534%    | 1134            | 35.2              | 44.01°C        | 0.969       |
|      | 12.114V | 5.027V | 3.338V | 5.019V | 1166.157      |            |                 |                   | 53.49°C        | 230.28V     |

| Test | 12V      | 5V      | 3.3V    | 5VSB   | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | Temps (In/Out) | PF/AC Volts |
|------|----------|---------|---------|--------|---------------|------------|-----------------|-------------------|----------------|-------------|
| 100% | 91.637A  | 8.954A  | 8.897A  | 2.998A | 1199.18       | 91.935%    | 1693            | 45.8              | 45.57°C        | 0.971       |
|      | 12.107V  | 5.024V  | 3.337V  | 5.001V | 1304.376      |            |                 |                   | 55.62°C        | 230.27V     |
| 110% | 100.939A | 9.957A  | 9.98A   | 3.002A | 1319.8        | 91.457%    | 1712            | 46.6              | 46.68°C        | 0.973       |
|      | 12.101V  | 5.021V  | 3.335V  | 4.995V | 1443.082      |            |                 |                   | 57.49°C        | 230.27V     |
| CL1  | 0.113A   | 11.951A | 11.839A | 0A     | 101.263       | 84.061%    | 719             | 22.7              | 42°C           | 0.879       |
|      | 12.159V  | 5.036V  | 3.352V  | 5.108V | 120.464       |            |                 |                   | 49.17°C        | 230.29V     |
| CL2  | 0.113A   | 19.959A | 0A      | 0A     | 101.378       | 82.156%    | 709             | 22.6              | 43.73°C        | 0.881       |
|      | 12.161V  | 5.01V   | 3.346V  | 5.111V | 123.398       |            |                 |                   | 51.79°C        | 230.29V     |
| CL3  | 0.113A   | 0A      | 19.687A | 0A     | 67.362        | 76.196%    | 410             | 9.8               | 44.02°C        | 0.836       |
|      | 12.162V  | 5.043V  | 3.352V  | 5.108V | 88.41         |            |                 |                   | 53.02°C        | 230.28V     |
| CL4  | 99.040A  | 0A      | 0A      | 0A     | 1199.842      | 92.474%    | 1450            | 41.8              | 45.67°C        | 0.971       |
|      | 12.114V  | 5.031V  | 3.335V  | 5.067V | 1297.491      |            |                 |                   | 55.53°C        | 230.28V     |

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]) | Temps (In/Out) | PF/AC Volts |
|------|---------|--------|--------|--------|---------------|------------|-----------------|-------------------|----------------|-------------|
| 20W  | 1.221A  | 0.495A | 0.492A | 0.195A | 19.983        | 65.989%    | 0               | <6.0              | 40.09°C        | 0.897       |
|      | 12.150V | 5.048V | 3.352V | 5.118V | 30.282        |            |                 |                   | 36.84°C        | 115.15V     |
| 40W  | 2.688A  | 0.693A | 0.689A | 0.293A | 39.984        | 78.233%    | 0               | <6.0              | 41.19°C        | 0.947       |
|      | 12.158V | 5.049V | 3.352V | 5.115V | 51.109        |            |                 |                   | 37.39°C        | 115.15V     |
| 60W  | 4.156A  | 0.891A | 0.886A | 0.391A | 59.984        | 82.888%    | 0               | <6.0              | 42.3°C         | 0.966       |
|      | 12.156V | 5.049V | 3.35V  | 5.112V | 72.367        |            |                 |                   | 38.11°C        | 115.15V     |
| 80W  | 5.618A  | 1.089A | 1.083A | 0.489A | 79.92         | 86.034%    | 0               | <6.0              | 44.82°C        | 0.979       |
|      | 12.156V | 5.049V | 3.349V | 5.109V | 92.894        |            |                 |                   | 40.37°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 |
|------|---------|--------|--------|--------|---------------|------------|-----------------|-------------------|----------------|-------------|
| 20W  | 1.222A  | 0.495A | 0.492A | 0.195A | 19.986        | 66.001%    | 0               | <6.0              | 39.88°C        | 0.576       |
|      | 12.146V | 5.051V | 3.351V | 5.119V | 30.281        |            |                 |                   | 36.77°C        | 230.26V     |
| 40W  | 2.688A  | 0.693A | 0.689A | 0.293A | 39.987        | 78.546%    | 0               | <6.0              | 41.29°C        | 0.728       |
|      | 12.155V | 5.051V | 3.351V | 5.115V | 50.908        |            |                 |                   | 37.78°C        | 230.27V     |
| 60W  | 4.156A  | 0.891A | 0.887A | 0.391A | 59.986        | 84.089%    | 0               | <6.0              | 42.56°C        | 0.798       |
|      | 12.155V | 5.05V  | 3.349V | 5.112V | 71.336        |            |                 |                   | 38.74°C        | 230.28V     |
| 80W  | 5.619A  | 1.089A | 1.084A | 0.489A | 79.932        | 86.843%    | 0               | <6.0              | 43.62°C        | 0.839       |
|      | 12.155V | 5.05V  | 3.349V | 5.109V | 92.042        |            |                 |                   | 39.41°C        | 230.28V     |

The results above are not used in the certification process

## Ripple Measurements

## 115V

| Test       | 12V     | 5V      | 3.3V    | 5VSB    | Pass/Fail |
|------------|---------|---------|---------|---------|-----------|
| 10% Load   | 16.18mV | 4.37mV  | 6.78mV  | 7.24mV  | Pass      |
| 20% Load   | 18.00mV | 4.83mV  | 7.64mV  | 7.14mV  | Pass      |
| 30% Load   | 15.22mV | 5.39mV  | 7.99mV  | 7.54mV  | Pass      |
| 40% Load   | 14.66mV | 5.95mV  | 8.29mV  | 7.34mV  | Pass      |
| 50% Load   | 13.80mV | 6.40mV  | 9.00mV  | 8.25mV  | Pass      |
| 60% Load   | 15.19mV | 6.45mV  | 9.91mV  | 8.70mV  | Pass      |
| 70% Load   | 15.75mV | 6.91mV  | 9.70mV  | 9.01mV  | Pass      |
| 80% Load   | 17.32mV | 7.42mV  | 11.93mV | 8.80mV  | Pass      |
| 90% Load   | 18.88mV | 9.91mV  | 13.25mV | 9.26mV  | Pass      |
| 100% Load  | 29.50mV | 11.47mV | 15.06mV | 10.77mV | Pass      |
| 110% Load  | 31.60mV | 11.92mV | 16.03mV | 11.41mV | Pass      |
| Crossload1 | 20.91mV | 10.03mV | 14.43mV | 9.53mV  | Pass      |
| Crossload2 | 16.68mV | 12.81mV | 13.14mV | 9.01mV  | Pass      |

| Test       | 12V     | 5V      | 3.3V    | 5VSB    | Pass/Fail |
|------------|---------|---------|---------|---------|-----------|
| Crossload3 | 12.74mV | 5.74mV  | 14.36mV | 8.70mV  | Pass      |
| Crossload4 | 31.16mV | 13.71mV | 12.50mV | 13.25mV | Pass      |

The results above are not used in the certification process

## 230V

| Test       | 12V     | 5V      | 3.3V    | 5VSB    | Pass/Fail |
|------------|---------|---------|---------|---------|-----------|
| 10% Load   | 18.92mV | 4.07mV  | 6.62mV  | 6.88mV  | Pass      |
| 20% Load   | 20.89mV | 4.52mV  | 7.54mV  | 7.39mV  | Pass      |
| 30% Load   | 16.23mV | 5.28mV  | 7.74mV  | 7.44mV  | Pass      |
| 40% Load   | 16.38mV | 5.29mV  | 7.79mV  | 7.19mV  | Pass      |
| 50% Load   | 14.88mV | 5.90mV  | 8.34mV  | 8.04mV  | Pass      |
| 60% Load   | 14.78mV | 6.40mV  | 9.05mV  | 8.45mV  | Pass      |
| 70% Load   | 16.25mV | 7.07mV  | 9.15mV  | 8.65mV  | Pass      |
| 80% Load   | 16.84mV | 7.57mV  | 12.34mV | 8.76mV  | Pass      |
| 90% Load   | 18.02mV | 9.81mV  | 12.74mV | 9.31mV  | Pass      |
| 100% Load  | 30.55mV | 11.31mV | 16.16mV | 10.76mV | Pass      |
| 110% Load  | 31.82mV | 12.51mV | 15.97mV | 10.94mV | Pass      |
| Crossload1 | 21.17mV | 10.18mV | 14.67mV | 9.68mV  | Pass      |
| Crossload2 | 17.40mV | 13.46mV | 13.30mV | 8.76mV  | Pass      |
| Crossload3 | 15.12mV | 5.74mV  | 16.13mV | 9.31mV  | Pass      |
| Crossload4 | 29.82mV | 7.22mV  | 10.73mV | 12.06mV | Pass      |

The results above are not used in the certification process

Cougar Polar 1200W



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

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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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