



## Enermax Revolution D.F.12 850W

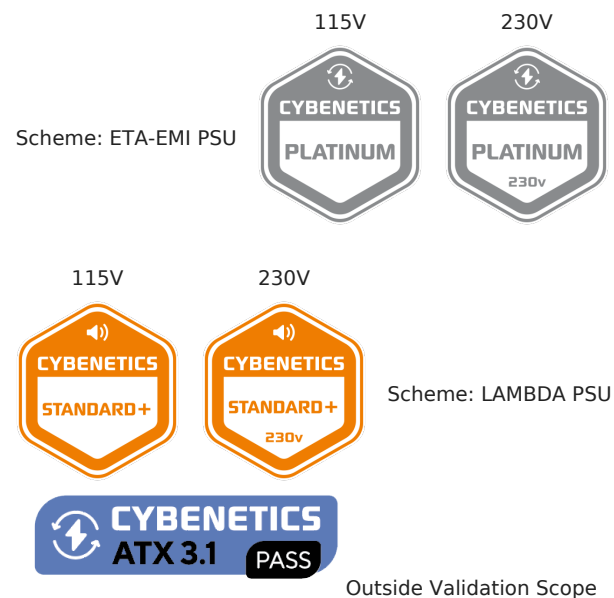
Serial Number 2412120180008

Lab ID EM85002391

Certification ID 252391

Test Result Report ID: 24PS2391A

Certificate Issue Date: Mar 22, 2024



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## 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                             | Enermax                |
| Model                             | Revolution D.F.12 850W |
| OEM/ODM                           | RSY                    |
| Serial Number                     | 2412120180008          |
| Product Specifications            |                        |
| Manufacturer-Provided Information |                        |
| Rated Voltage (Vrms)              | 100-240                |
| Rated Current (Arms)              | 10                     |

|                                                   |                                                                                     |
|---------------------------------------------------|-------------------------------------------------------------------------------------|
| Rated Frequency (Hz)                              | 50-60                                                                               |
| Rated Power (W)                                   | 850                                                                                 |
| Operating Temperature (Continuous Full Load) (°C) |                                                                                     |
| Type                                              | ATX12V                                                                              |
| Cable Design                                      | Fully Modular                                                                       |
| Warranty                                          | -                                                                                   |
| Cybenetics Measurements                           |                                                                                     |
| Dimensions (W x H x D)                            |                                                                                     |
| Weight                                            |                                                                                     |
| Cooling                                           | 120mm Double Ball Bearing Fan<br>(ZFB122512M)                                       |
| Semi-Passive Operation                            | ✓                                                                                   |
| Cybenetics Testing Information                    |                                                                                     |
| Lab ID                                            | EM85002391                                                                          |
| Date of receipt                                   | Feb 27, 2024                                                                        |
| Testing Date                                      | Mar 15, 2024                                                                        |
| Report Issued Date                                | Mar 22, 2024                                                                        |
| 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                       | 16-22AWG | No                  |
| 4+4 pin EPS12V (700mm)                | 2           | 2                       | 18AWG    | No                  |
| 6+2 pin PCIe (600mm)                  | 3           | 3                       | 18AWG    | No                  |
| 12+4 pin PCIe (600mm) (600W)          | 1           | 1                       | 16-24AWG | No                  |
| SATA (450mm+150mm+150mm+150mm)        | 2           | 8                       | 18AWG    | No                  |
| 4-pin Molex (450mm+150mm+150mm+150mm) | 1           | 4                       | 18AWG    | No                  |
| AC Power Cord (1100mm) - C13 coupler  | 1           | 1                       | 18AWG    | -                   |

## Power Specifications

|                      |       |      |    |       |      |      |
|----------------------|-------|------|----|-------|------|------|
| Rail                 |       | 3.3V | 5V | 12V   | 5VSB | -12V |
| Max. Power           | Amps  | 20   | 20 | 70.8  | 3    | 0.4  |
|                      | Watts | 100  |    | 849.6 | 15   | 4.8  |
| Total Max. Power (W) |       | 850  |    |       |      |      |

## Parts Description

|                      |                                                                                                                                                                                         |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General Data         |                                                                                                                                                                                         |
| Manufacturer (OEM)   | RSY                                                                                                                                                                                     |
| PCB Type             | Double-Sided                                                                                                                                                                            |
| Primary Side         |                                                                                                                                                                                         |
| Transient Filter     | 2x Y caps, 1x X caps, 2x CM chokes, 1x MOV                                                                                                                                              |
| Inrush Protection    | 1x NTC Thermistor & Relay                                                                                                                                                               |
| Bridge Rectifier(s)  | 1x                                                                                                                                                                                      |
| APFC MOSFETs         | 2x WayOn WML28N60C4 (650V, 23A @ 25°C, Rds(on): 0.160hm)                                                                                                                                |
| APFC Boost Diode     | 1x Maplesemi MSP08065G1 (650V, 27A @ 25°C)                                                                                                                                              |
| Bulk Cap(s)          | 2x Rubycon (420V, 270uFeach or 540both, 3000h @ 105°C ,MXK)                                                                                                                             |
| Main Switchers       | 4x Convert CS13N50FF (500V, 13A , Rds(on): 0.460hm)                                                                                                                                     |
| APFC Controller      | 1x Texas Instrument UCC28180 & SPN5003 (for no load consumption)                                                                                                                        |
| Topology             | Primary side: APFC, Full-Bridge & LLC converter<br>Secondary side: Synchronous Rectification & DC-DC converters                                                                         |
| Secondary Side       |                                                                                                                                                                                         |
| +12V MOSFETs         | 4x HUAYI Microelectronics HYG020N04 (40V, 220A @ 25°C, Rds(on): 2.3mOhm)                                                                                                                |
| 5V & 3.3V            | DC-DC Converters: 4x Fets<br>PWM Controller(s): 2x ANPEC APW7164                                                                                                                        |
| Filtering Capacitors | Electrolytic:<br>1x Rubycon (4-10,000 @ 105°C, YXJ),<br>3x Rubycon (3-6,000 @ 105°C, YXS),<br>1x Rubycon (6-10000 @ 105°C, ZLH),<br>Polymer: 4x CAPS , 11x United Chemi-Con ,26x Unicon |
| Supervisor IC        | 1S313I-SAG                                                                                                                                                                              |
| Fan Model            | ZIC ZFB122512M (120mm, 12V, 0.25A, Double Ball Bearing Fan)                                                                                                                             |

|                        |                                                                                 |
|------------------------|---------------------------------------------------------------------------------|
| 5VSB Circuit           |                                                                                 |
| High Side Rectifier    | 1x Shenzhen Foster Semiconductor FIR4N70BLG (700V, 2.5A @ 100°C, Rds(on):3mOhm) |
| Standby PWM Controller | INFSitronix IN2P070C                                                            |

## 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 | ✓                 |
| ATX v3.1 PSU Power Excursion                 | ✓                 |

### Performance Summary

#### 115V

|                                                |          |
|------------------------------------------------|----------|
| Accredited                                     |          |
| Average Efficiency (>1450 load combinations)   | 89.589%  |
| Average Noise Output (>1450 Load Combinations) | 37.87dBA |
| Average PF (>1450 Load Combinations)           | 0.990    |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | 73.475%  |
| Standby Power Consumption                      | 0.0734W  |
| Non-Accredited                                 |          |
| 12V Ripple (Full Load)                         | 23.82mV  |
| 5V Ripple (Full Load)                          | 15.40mV  |
| 3.3V Ripple (Full Load)                        | 15.61mV  |
| 5VSB Ripple (Full Load)                        | 18.18mV  |
| 12V Load Regulation                            | 0.28%    |
| 5V Load Regulation                             | 1.30%    |
| 3.3V Load Regulation                           | 2.35%    |

|                      |         |
|----------------------|---------|
| 5VSB Load Regulation | 2.96%   |
| Inrush Current       | 32.460A |

## 230V

|                                                        |         |          |
|--------------------------------------------------------|---------|----------|
| Accredited                                             |         |          |
| Average Efficiency (>1450 load combinations)           |         | 91.668%  |
| Average Noise Output (>1450 Load Combinations)         |         | 37.49dBA |
| Average PF (>1450 Load Combinations)                   |         | 0.949    |
| Efficiency With 10W ( $\leq 500W$ ) or 2% (>500W) Load |         | 73.160%  |
| Standby Power Consumption                              |         | 0.1460W  |
| Non-Accredited                                         |         |          |
| 12V Ripple (Full Load)                                 |         | 25.60mV  |
| 5V Ripple (Full Load)                                  |         | 16.01mV  |
| 3.3V Ripple (Full Load)                                |         | 16.32mV  |
| 5VSB Ripple (Full Load)                                |         | 17.22mV  |
| 12V Load Regulation                                    |         | 0.28%    |
| 5V Load Regulation                                     |         | 1.32%    |
| 3.3V Load Regulation                                   |         | 2.35%    |
| 5VSB Load Regulation                                   |         | 2.94%    |
| Inrush Current                                         |         | 65.300A  |
| 12V Transient Response (200%)                          |         | 11.49V   |
| 5V Transient Response (200%)                           |         | 4.867V   |
| 3.3V Transient Response (200%)                         |         | 3.166V   |
| 5VSB Transient Response (200%)                         |         | 4.949V   |
| Hold-Up Time & PWR_OK Signal                           |         | 21.00ms  |
| AC Loss to PWR_OK Hold Up Time                         |         | 19.30ms  |
| PWR_OK Inactive to DC Loss Delay                       |         | 1.70ms   |
| PSU Timings: T1 (20% / 100%)                           | 110.0ms | 118.0ms  |
| PSU Timings: T3 (20% / 100%)                           | 124.0ms | 123.0ms  |
| OPP (26.43°C / 43.18°C)                                | 134.76% | 117.40%  |

## Hold-Up Time & PWR\_OK Signal

|                                       |      |
|---------------------------------------|------|
| Hold-Up Time (ms)                     | 21   |
| AC Loss to PWR_OK Hold Up Time (ms)   | 19.3 |
| PWR_OK Inactive to DC Loss Delay (ms) | 1.7  |

## Vampire Power

### Tables

#### 115V

| Detailed Results   |          |          |           |          |           |        |
|--------------------|----------|----------|-----------|----------|-----------|--------|
|                    | Average  | Min      | Limit Min | Max      | Limit Max | Result |
| Mains Voltage RMS: | 115.12 V | 115.10 V | 113.85 V  | 115.15 V | 116.15 V  | PASS   |
| Mains Frequency:   | 60.00 Hz | 59.97 Hz | 59.40 Hz  | 60.01 Hz | 60.60 Hz  | PASS   |
| Mains Voltage CF:  | 1.415    | 1.415    | 1.340     | 1.416    | 1.490     | PASS   |
| Mains Voltage THD: | 0.13 %   | 0.11 %   | N/A       | 0.14 %   | 2.00 %    | PASS   |
| Real Power:        | 0.073 W  | 0.064 W  | N/A       | 0.087 W  | N/A       | N/A    |
| Apparent Power:    | 8.541 W  | 8.538 W  | N/A       | 8.547 W  | N/A       | N/A    |
| Power Factor:      | 0.009    | N/A      | N/A       | N/A      | N/A       | N/A    |

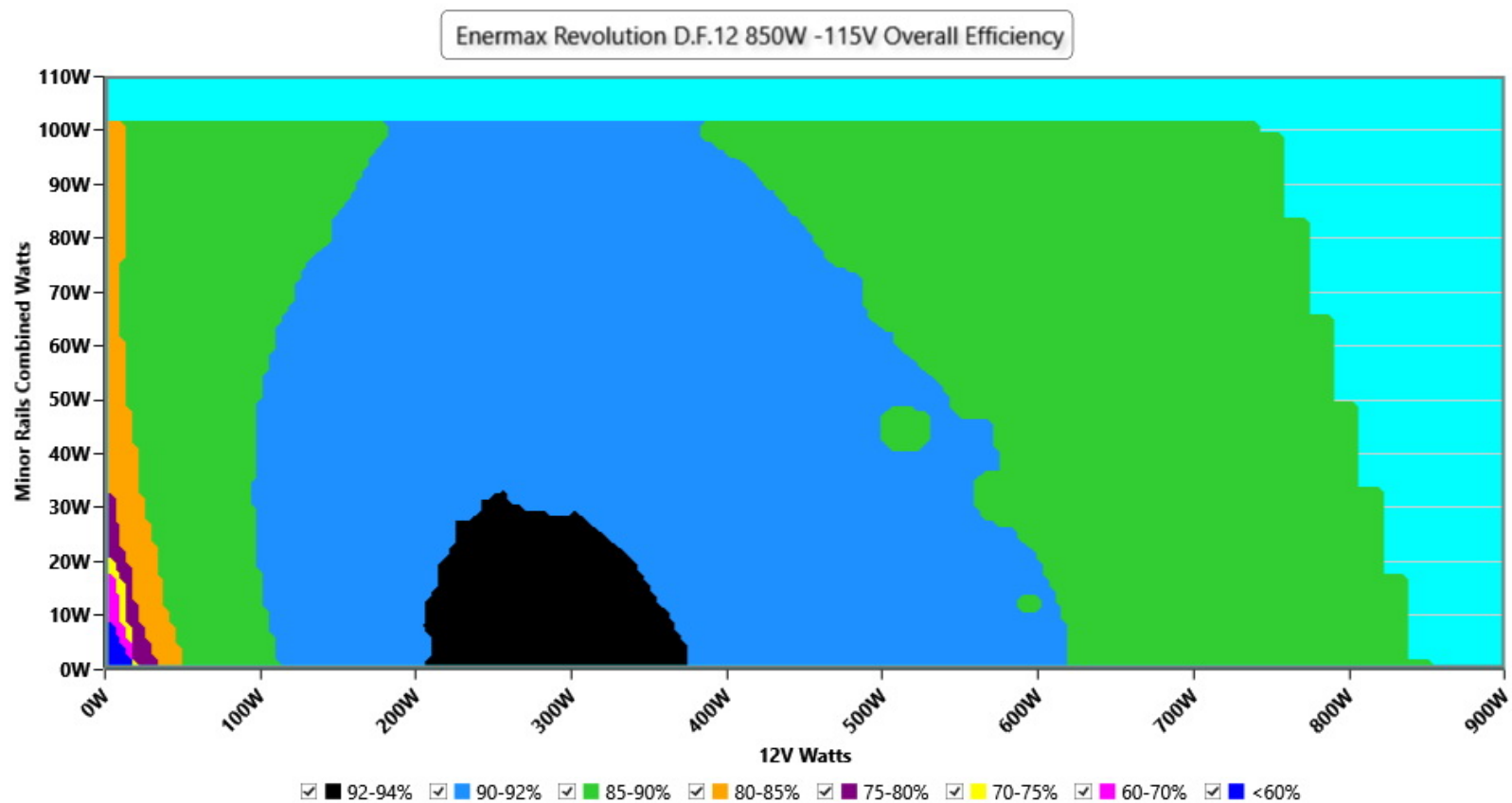
#### 230V

| Detailed Results   |          |          |           |          |           |        |
|--------------------|----------|----------|-----------|----------|-----------|--------|
|                    | Average  | Min      | Limit Min | Max      | Limit Max | Result |
| Mains Voltage RMS: | 230.34 V | 230.33 V | 227.70 V  | 230.37 V | 232.30 V  | PASS   |
| Mains Frequency:   | 50.00 Hz | 50.00 Hz | 49.50 Hz  | 50.01 Hz | 50.50 Hz  | PASS   |
| Mains Voltage CF:  | 1.415    | 1.415    | 1.340     | 1.416    | 1.490     | PASS   |
| Mains Voltage THD: | 0.14 %   | 0.13 %   | N/A       | 0.16 %   | 2.00 %    | PASS   |
| Real Power:        | 0.146 W  | 0.125 W  | N/A       | 0.188 W  | N/A       | N/A    |
| Apparent Power:    | 28.599 W | 28.586 W | N/A       | 28.613 W | N/A       | N/A    |

|               |       |     |     |     |     |     |
|---------------|-------|-----|-----|-----|-----|-----|
| Power Factor: | 0.005 | N/A | N/A | N/A | N/A | N/A |
|---------------|-------|-----|-----|-----|-----|-----|

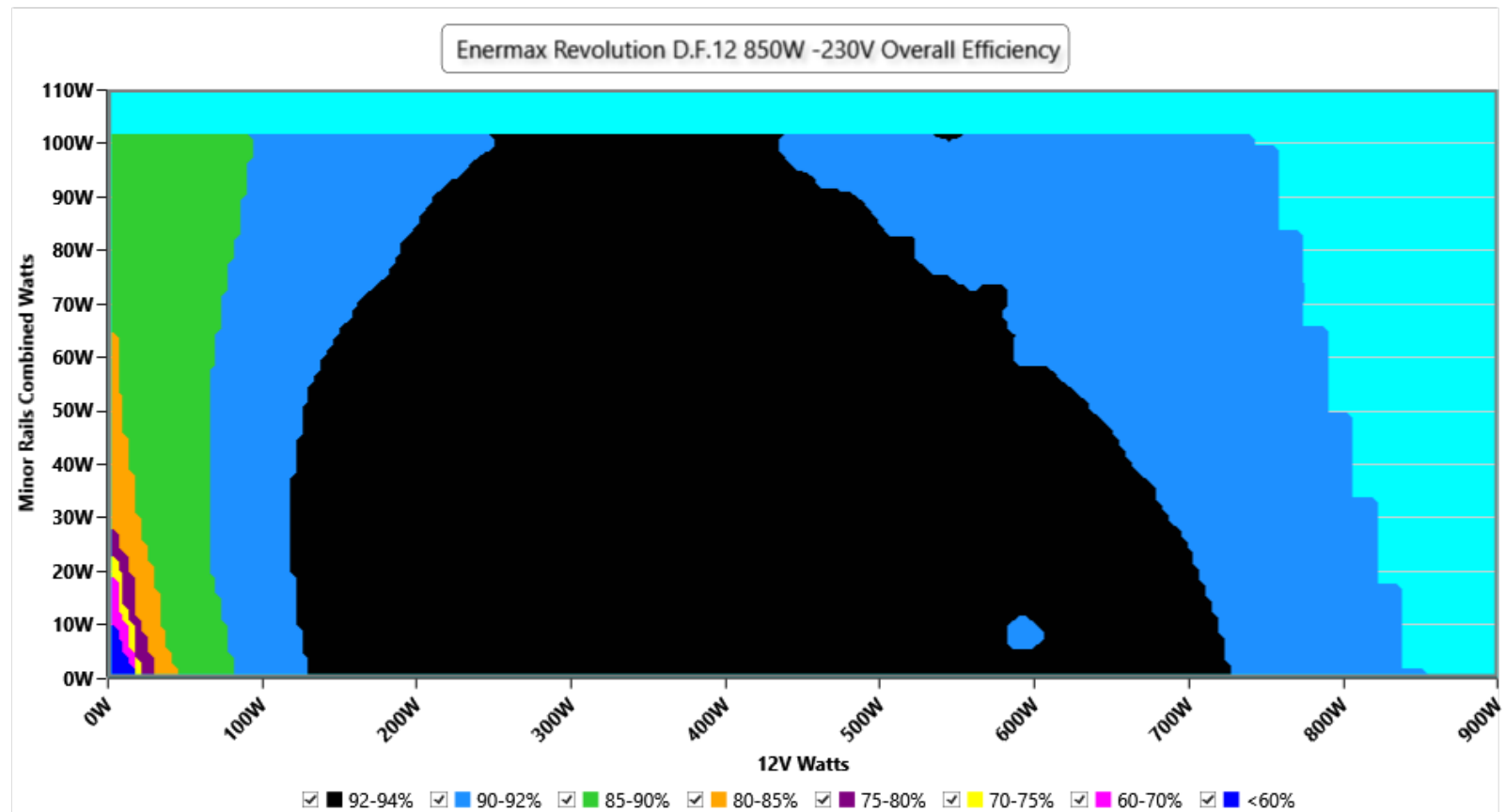
## Efficiency Graph

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

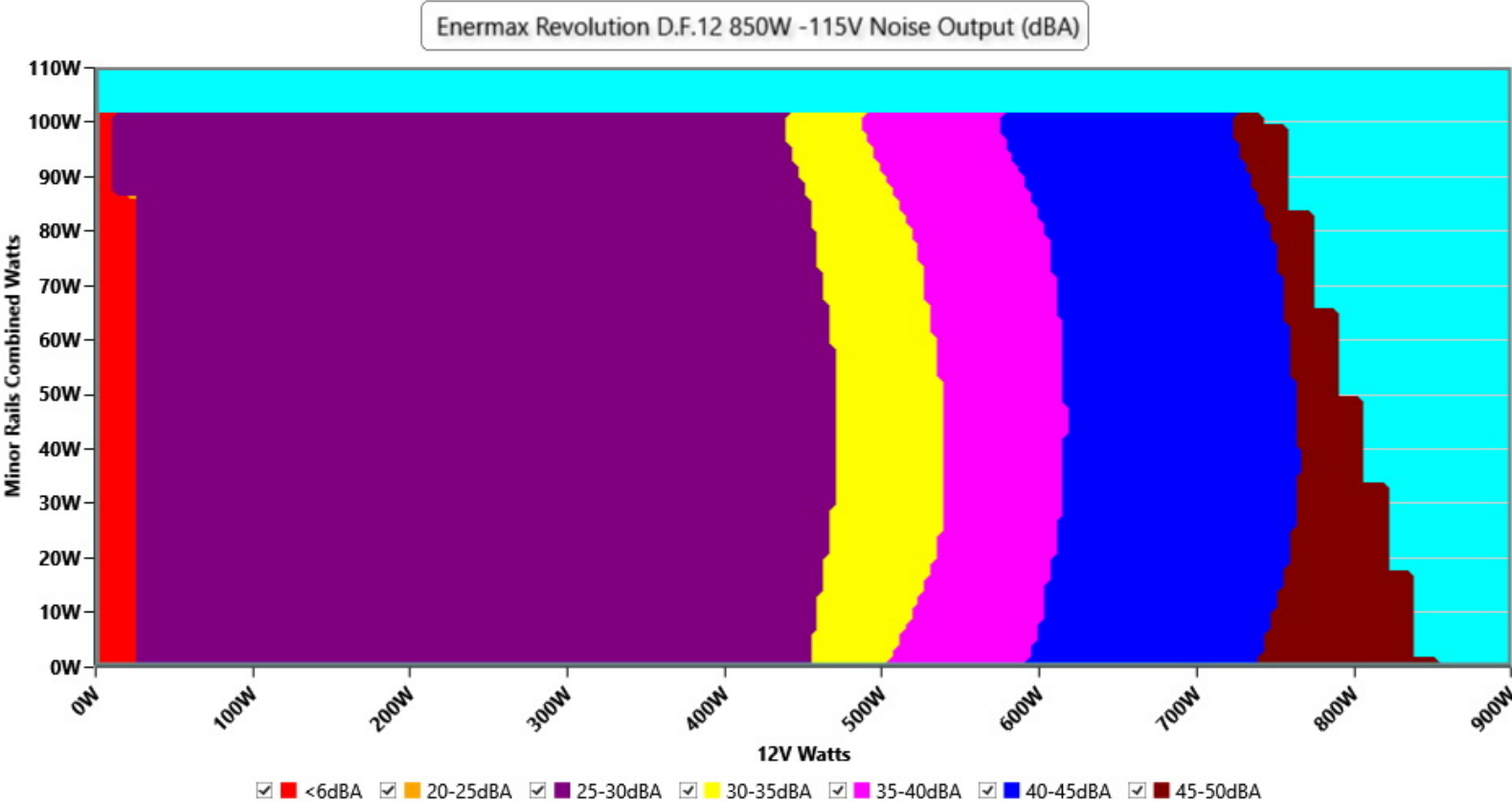


### INFO

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

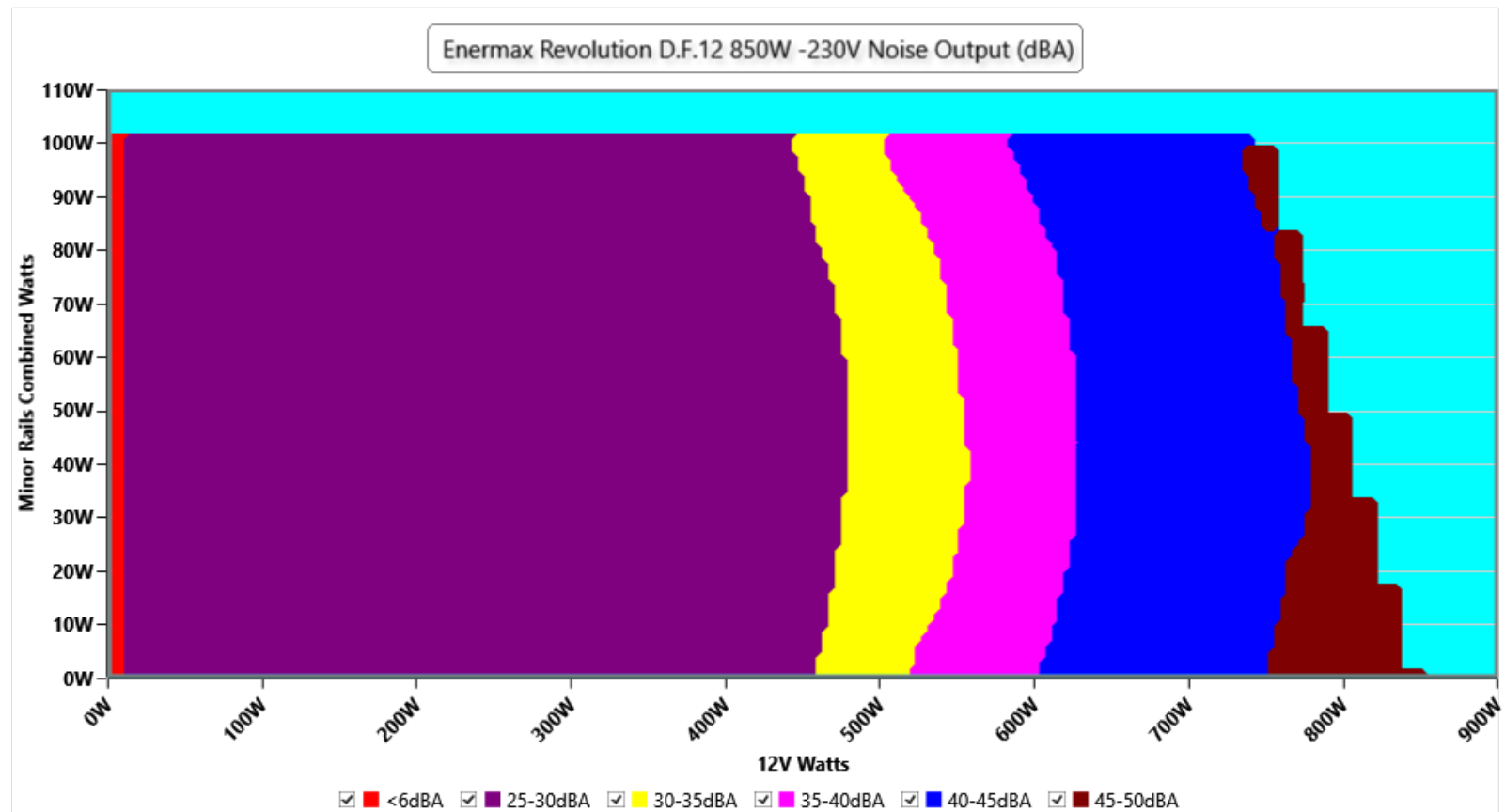
Noise Graph

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

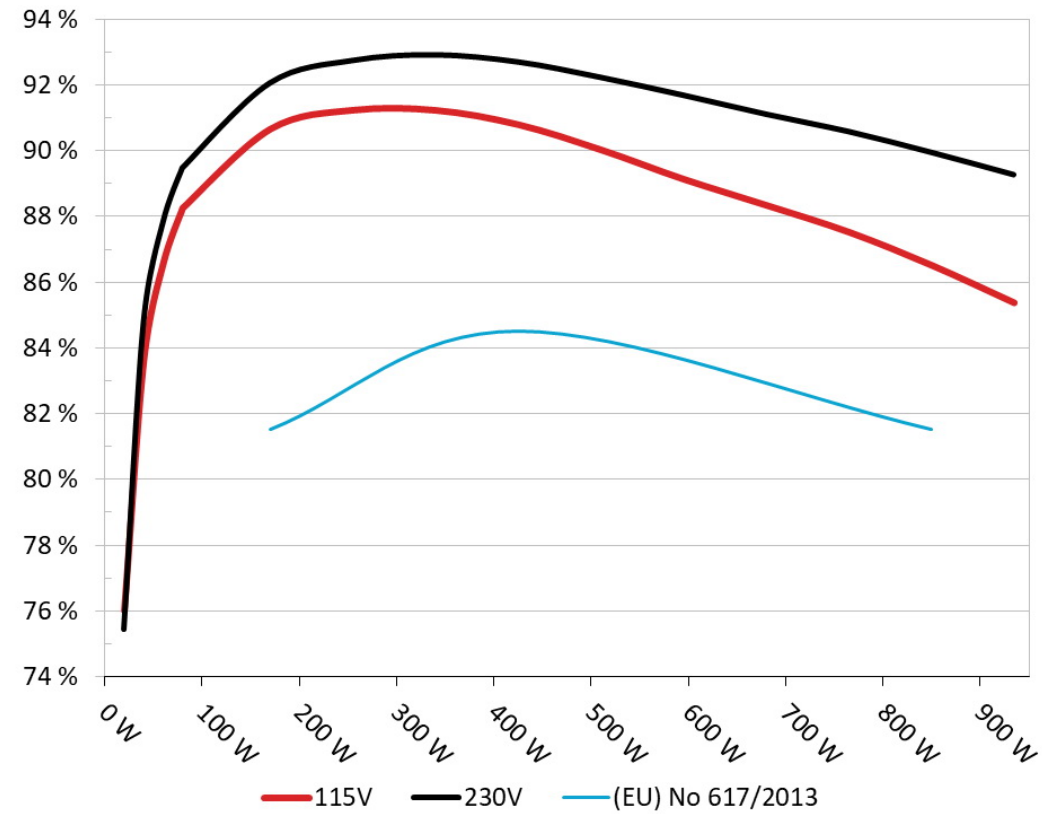
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

## Indicative Performance

### Efficiency under high ambient temperature

Efficiency: Enermax Revolution D.F.12 850W

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



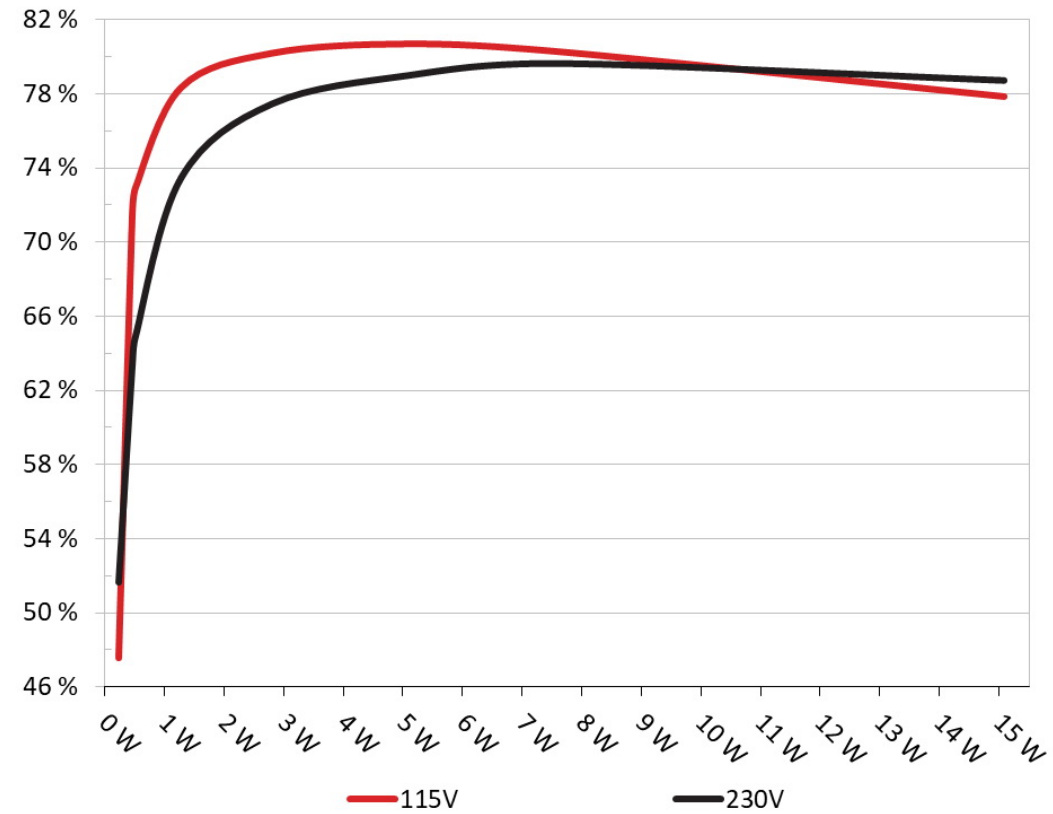
### INFO

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: Enermax Revolution D.F.12 850W

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         | 48.033%    | 0.03        |
|        | 5.113V | 0.258W        |            | 115.17V     |
| 2      | 0.09A  | 0.46W         | 72.222%    | 0.073       |
|        | 5.111V | 0.637W        |            | 115.16V     |
| 3      | 0.55A  | 2.804W        | 80.663%    | 0.277       |
|        | 5.098V | 3.477W        |            | 115.17V     |
| 4      | 1A     | 5.087W        | 81.166%    | 0.35        |
|        | 5.085V | 6.267W        |            | 115.16V     |
| 5      | 1.5A   | 7.61W         | 80.75%     | 0.393       |
|        | 5.072V | 9.425W        |            | 115.16V     |
| 6      | 3A     | 15.092W       | 78.326%    | 0.452       |
|        | 5.03V  | 19.27W        |            | 115.16V     |

#### 230V

| Test # | 5VSB   | DC/AC (Watts) | Efficiency | PF/AC Volts |
|--------|--------|---------------|------------|-------------|
| 1      | 0.045A | 0.23W         | 52.143%    | 0.015       |
|        | 5.116V | 0.442W        |            | 230.4V      |
| 2      | 0.09A  | 0.46W         | 63.973%    | 0.025       |
|        | 5.112V | 0.719W        |            | 230.4V      |
| 3      | 0.55A  | 2.804W        | 77.936%    | 0.117       |
|        | 5.097V | 3.597W        |            | 230.4V      |
| 4      | 1A     | 5.087W        | 79.465%    | 0.187       |
|        | 5.085V | 6.404W        |            | 230.4V      |
| 5      | 1.5A   | 7.609W        | 80.109%    | 0.24        |
|        | 5.072V | 9.497W        |            | 230.4V      |
| 6      | 3A     | 15.091W       | 79.198%    | 0.33        |
|        | 5.03V  | 19.054W       |            | 230.4V      |

## 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%  | 5.233A  | 2.01A   | 1.999A  | 0.984A | 85.008        | 88.735%    | 0               | <6.0              | 44.49°C        | 0.977       |
|      | 12.116V | 4.977V  | 3.302V  | 5.083V | 95.8          |            |                 |                   | 40.48°C        | 115.16V     |
| 20%  | 11.482A | 3.018A  | 3.005A  | 1.184A | 169.979       | 91.136%    | 0               | <6.0              | 45.01°C        | 0.985       |
|      | 12.112V | 4.971V  | 3.295V  | 5.071V | 186.51        |            |                 |                   | 40.67°C        | 115.14V     |
| 30%  | 18.081A | 3.526A  | 3.513A  | 1.384A | 254.99        | 91.713%    | 916             | 27.1              | 41.18°C        | 0.991       |
|      | 12.108V | 4.965V  | 3.288V  | 5.059V | 278.034       |            |                 |                   | 45.95°C        | 115.11V     |
| 40%  | 24.694A | 4.033A  | 4.023A  | 1.586A | 340.081       | 91.709%    | 916             | 27.1              | 41.76°C        | 0.993       |
|      | 12.103V | 4.96V   | 3.281V  | 5.047V | 370.824       |            |                 |                   | 46.79°C        | 115.09V     |
| 50%  | 30.956A | 5.048A  | 5.042A  | 1.788A | 425.097       | 91.272%    | 916             | 27.1              | 42.28°C        | 0.994       |
|      | 12.100V | 4.954V  | 3.273V  | 5.034V | 465.745       |            |                 |                   | 47.82°C        | 115.07V     |
| 60%  | 37.186A | 6.066A  | 6.065A  | 1.992A | 509.632       | 90.51%     | 1245            | 33.7              | 42.77°C        | 0.994       |
|      | 12.097V | 4.947V  | 3.265V  | 5.021V | 563.068       |            |                 |                   | 48.79°C        | 115.04V     |
| 70%  | 43.483A | 7.086A  | 7.093A  | 2.197A | 594.964       | 89.614%    | 1609            | 41.5              | 43.19°C        | 0.994       |
|      | 12.093V | 4.941V  | 3.257V  | 5.008V | 663.921       |            |                 |                   | 50.21°C        | 115.02V     |
| 80%  | 49.786A | 8.109A  | 8.126A  | 2.301A | 679.808       | 88.822%    | 1863            | 44.6              | 43.77°C        | 0.995       |
|      | 12.089V | 4.933V  | 3.249V  | 4.998V | 765.358       |            |                 |                   | 51.86°C        | 114.99V     |
| 90%  | 56.493A | 8.626A  | 8.637A  | 2.406A | 765.264       | 88%        | 2091            | 47.2              | 44.48°C        | 0.995       |
|      | 12.086V | 4.928V  | 3.242V  | 4.988V | 869.614       |            |                 |                   | 53.54°C        | 114.96V     |
| 100% | 62.931A | 9.146A  | 9.183A  | 3.023A | 850.078       | 86.993%    | 2175            | 47.6              | 45.42°C        | 0.994       |
|      | 12.082V | 4.921V  | 3.234V  | 4.962V | 977.18        |            |                 |                   | 55.51°C        | 114.93V     |
| 110% | 69.241A | 10.177A | 10.324A | 3.028A | 934.666       | 85.855%    | 2173            | 47.6              | 46.75°C        | 0.994       |
|      | 12.079V | 4.914V  | 3.225V  | 4.954V | 1088.655      |            |                 |                   | 57.69°C        | 114.92V     |
| CL1  | 0.116A  | 12.14A  | 12.107A | 0A     | 101.318       | 83.701%    | 921             | 27.2              | 40.46°C        | 0.978       |
|      | 12.112V | 4.959V  | 3.279V  | 5.104V | 121.048       |            |                 |                   | 45.98°C        | 115.15V     |

| Test | 12V     | 5V      | 3.3V    | 5VSB   | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | Temps (In/Out) | PF/AC Volts |
|------|---------|---------|---------|--------|---------------|------------|-----------------|-------------------|----------------|-------------|
| CL2  | 0.116A  | 20.184A | 0A      | 0A     | 101.407       | 81.995%    | 932             | 27.7              | 40.58°C        | 0.978       |
|      | 12.113V | 4.954V  | 3.3V    | 5.109V | 123.675       |            |                 |                   | 47.61°C        | 115.15V     |
| CL3  | 0.116A  | 0A      | 20.181A | 0A     | 67.398        | 77.349%    | 914             | 27                | 40.07°C        | 0.978       |
|      | 12.108V | 4.974V  | 3.27V   | 5.102V | 87.138        |            |                 |                   | 49.16°C        | 115.16V     |
| CL4  | 70.352A | 0A      | 0A      | 0A     | 849.798       | 87.788%    | 2183            | 47.7              | 45.23°C        | 0.994       |
|      | 12.080V | 4.94V   | 3.257V  | 5.062V | 968.017       |            |                 |                   | 56.19°C        | 114.94V     |

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%  | 5.233A  | 2.009A | 1.999A | 0.984A | 85.006        | 89.964%    | 0               | <6.0              | 44.52°C        | 0.833       |
|      | 12.116V | 4.978V | 3.302V | 5.083V | 94.487        |            |                 |                   | 40.46°C        | 230.38V     |
| 20%  | 11.481A | 3.018A | 3.005A | 1.183A | 169.964       | 92.545%    | 0               | <6.0              | 44.98°C        | 0.931       |
|      | 12.112V | 4.971V | 3.295V | 5.071V | 183.657       |            |                 |                   | 40.69°C        | 230.38V     |
| 30%  | 18.079A | 3.525A | 3.513A | 1.384A | 254.975       | 93.231%    | 917             | 27.1              | 41.23°C        | 0.959       |
|      | 12.109V | 4.966V | 3.288V | 5.059V | 273.487       |            |                 |                   | 46.05°C        | 230.37V     |
| 40%  | 24.694A | 4.033A | 4.023A | 1.586A | 340.066       | 93.402%    | 918             | 27.1              | 41.74°C        | 0.97        |
|      | 12.102V | 4.96V  | 3.281V | 5.047V | 364.089       |            |                 |                   | 46.79°C        | 230.36V     |
| 50%  | 30.956A | 5.048A | 5.042A | 1.788A | 425.07        | 93.185%    | 918             | 27.1              | 42.19°C        | 0.971       |
|      | 12.100V | 4.954V | 3.273V | 5.034V | 456.16        |            |                 |                   | 47.69°C        | 230.35V     |
| 60%  | 37.184A | 6.066A | 6.065A | 1.992A | 509.603       | 92.721%    | 1249            | 33.8              | 42.8°C         | 0.97        |
|      | 12.096V | 4.947V | 3.265V | 5.021V | 549.611       |            |                 |                   | 48.87°C        | 230.35V     |
| 70%  | 43.484A | 7.087A | 7.094A | 2.197A | 594.945       | 92.176%    | 1581            | 41.3              | 43.34°C        | 0.969       |
|      | 12.092V | 4.94V  | 3.257V | 5.008V | 645.442       |            |                 |                   | 50.37°C        | 230.33V     |
| 80%  | 49.787A | 8.109A | 8.127A | 2.302A | 679.791       | 91.598%    | 1868            | 44.6              | 43.85°C        | 0.97        |
|      | 12.089V | 4.933V | 3.248V | 4.997V | 742.145       |            |                 |                   | 52.1°C         | 230.33V     |
| 90%  | 56.491A | 8.626A | 8.638A | 2.406A | 765.246       | 91.069%    | 2104            | 47.1              | 44.64°C        | 0.97        |
|      | 12.086V | 4.927V | 3.241V | 4.988V | 840.295       |            |                 |                   | 53.65°C        | 230.31V     |

| Test | 12V     | 5V      | 3.3V    | 5VSB   | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | Temps (In/Out) | PF/AC Volts |
|------|---------|---------|---------|--------|---------------|------------|-----------------|-------------------|----------------|-------------|
| 100% | 62.930A | 9.146A  | 9.184A  | 3.024A | 850.06        | 90.437%    | 2177            | 47.7              | 45.36°C        | 0.969       |
|      | 12.082V | 4.921V  | 3.234V  | 4.962V | 939.954       |            |                 |                   | 55.44°C        | 230.3V      |
| 110% | 69.233A | 10.176A | 10.323A | 3.028A | 934.579       | 89.762%    | 2184            | 47.7              | 46.57°C        | 0.968       |
|      | 12.080V | 4.914V  | 3.225V  | 4.954V | 1041.178      |            |                 |                   | 57.55°C        | 230.3V      |
| CL1  | 0.116A  | 12.14A  | 12.108A | 0A     | 101.312       | 85.392%    | 922             | 27.3              | 41.32°C        | 0.872       |
|      | 12.112V | 4.959V  | 3.279V  | 5.103V | 118.642       |            |                 |                   | 46.8°C         | 230.4V      |
| CL2  | 0.116A  | 20.185A | 0A      | 0A     | 101.405       | 83.214%    | 932             | 27.7              | 40.46°C        | 0.876       |
|      | 12.113V | 4.954V  | 3.3V    | 5.109V | 121.862       |            |                 |                   | 47.54°C        | 230.4V      |
| CL3  | 0.116A  | 0.017A  | 20.169A | 0.011A | 67.479        | 77.672%    | 911             | 27                | 40.22°C        | 0.822       |
|      | 12.112V | 4.973V  | 3.269V  | 5.103V | 86.847        |            |                 |                   | 49.27°C        | 230.4V      |
| CL4  | 70.366A | 0A      | 0A      | 0A     | 849.787       | 91.269%    | 2190            | 47.8              | 45.62°C        | 0.969       |
|      | 12.077V | 4.94V   | 3.258V  | 5.063V | 931.079       |            |                 |                   | 56.59°C        | 230.31V     |

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  | 1.226A  | 0.502A | 0.498A | 0.196A | 20.009        | 76.489%    | 0               | <6.0              | 39.79°C        | 0.847       |
|      | 12.116V | 4.985V | 3.31V  | 5.109V | 26.16         |            |                 |                   | 36.75°C        | 115.18V     |
| 40W  | 2.698A  | 0.702A | 0.698A | 0.294A | 40.006        | 84.096%    | 0               | <6.0              | 41.14°C        | 0.926       |
|      | 12.116V | 4.983V | 3.308V | 5.105V | 47.573        |            |                 |                   | 37.76°C        | 115.17V     |
| 60W  | 4.171A  | 0.904A | 0.898A | 0.392A | 60.005        | 87.043%    | 0               | <6.0              | 42.37°C        | 0.959       |
|      | 12.115V | 4.982V | 3.307V | 5.101V | 68.936        |            |                 |                   | 38.56°C        | 115.17V     |
| 80W  | 5.640A  | 1.105A | 1.099A | 0.491A | 79.974        | 89.16%     | 0               | <6.0              | 43.24°C        | 0.977       |
|      | 12.115V | 4.98V  | 3.305V | 5.098V | 89.696        |            |                 |                   | 39.26°C        | 115.16V     |

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  | 1.226A  | 0.501A | 0.498A | 0.196A | 20.002        | 75.947%    | 0               | <6.0              | 39.68°C        | 0.534       |
|      | 12.114V | 4.986V | 3.31V  | 5.108V | 26.335        |            |                 |                   | 36.67°C        | 230.37V     |
| 40W  | 2.698A  | 0.702A | 0.698A | 0.294A | 40.001        | 85.234%    | 0               | <6.0              | 40.78°C        | 0.69        |
|      | 12.113V | 4.985V | 3.309V | 5.104V | 46.931        |            |                 |                   | 37.51°C        | 230.37V     |
| 60W  | 4.172A  | 0.903A | 0.898A | 0.392A | 60            | 88.302%    | 0               | <6.0              | 42.16°C        | 0.765       |
|      | 12.113V | 4.983V | 3.307V | 5.101V | 67.949        |            |                 |                   | 38.67°C        | 230.37V     |
| 80W  | 5.640A  | 1.104A | 1.098A | 0.491A | 79.956        | 90.21%     | 0               | <6.0              | 42.87°C        | 0.821       |
|      | 12.113V | 4.981V | 3.305V | 5.097V | 88.632        |            |                 |                   | 39.02°C        | 230.38V     |

The results above are not used in the certification process

## Ripple Measurements

## 115V

| Test       | 12V     | 5V      | 3.3V    | 5VSB    | Pass/Fail |
|------------|---------|---------|---------|---------|-----------|
| 10% Load   | 7.68mV  | 7.40mV  | 4.63mV  | 8.26mV  | Pass      |
| 20% Load   | 8.24mV  | 7.91mV  | 5.04mV  | 9.27mV  | Pass      |
| 30% Load   | 9.87mV  | 9.28mV  | 6.10mV  | 10.50mV | Pass      |
| 40% Load   | 11.15mV | 10.20mV | 6.76mV  | 10.34mV | Pass      |
| 50% Load   | 12.82mV | 10.46mV | 7.32mV  | 11.41mV | Pass      |
| 60% Load   | 14.86mV | 10.92mV | 8.34mV  | 11.87mV | Pass      |
| 70% Load   | 16.03mV | 11.99mV | 9.36mV  | 12.53mV | Pass      |
| 80% Load   | 16.13mV | 13.93mV | 13.22mV | 13.55mV | Pass      |
| 90% Load   | 17.20mV | 13.82mV | 14.09mV | 16.05mV | Pass      |
| 100% Load  | 23.82mV | 15.40mV | 15.61mV | 18.18mV | Pass      |
| 110% Load  | 25.08mV | 17.25mV | 16.19mV | 20.86mV | Pass      |
| Crossload1 | 15.32mV | 14.99mV | 12.74mV | 20.28mV | Pass      |
| Crossload2 | 10.99mV | 16.93mV | 7.73mV  | 19.92mV | Pass      |

| Test       | 12V     | 5V      | 3.3V    | 5VSB    | Pass/Fail |
|------------|---------|---------|---------|---------|-----------|
| Crossload3 | 13.74mV | 11.88mV | 14.75mV | 17.58mV | Pass      |
| Crossload4 | 20.59mV | 10.50mV | 10.60mV | 16.43mV | Pass      |

The results above are not used in the certification process

## 230V

| Test       | 12V     | 5V      | 3.3V    | 5VSB    | Pass/Fail |
|------------|---------|---------|---------|---------|-----------|
| 10% Load   | 7.28mV  | 7.35mV  | 4.53mV  | 8.30mV  | Pass      |
| 20% Load   | 8.55mV  | 8.01mV  | 5.49mV  | 10.09mV | Pass      |
| 30% Load   | 9.92mV  | 8.77mV  | 6.00mV  | 11.16mV | Pass      |
| 40% Load   | 11.19mV | 9.28mV  | 6.82mV  | 9.99mV  | Pass      |
| 50% Load   | 12.77mV | 9.85mV  | 7.43mV  | 10.85mV | Pass      |
| 60% Load   | 14.09mV | 11.02mV | 8.14mV  | 12.02mV | Pass      |
| 70% Load   | 15.27mV | 12.29mV | 9.46mV  | 12.79mV | Pass      |
| 80% Load   | 15.82mV | 13.82mV | 13.17mV | 12.79mV | Pass      |
| 90% Load   | 17.25mV | 14.13mV | 13.68mV | 15.08mV | Pass      |
| 100% Load  | 25.60mV | 16.01mV | 16.32mV | 17.22mV | Pass      |
| 110% Load  | 27.34mV | 17.10mV | 16.76mV | 18.87mV | Pass      |
| Crossload1 | 15.15mV | 15.11mV | 13.99mV | 20.50mV | Pass      |
| Crossload2 | 10.18mV | 17.40mV | 8.04mV  | 19.92mV | Pass      |
| Crossload3 | 14.45mV | 12.19mV | 14.55mV | 18.49mV | Pass      |
| Crossload4 | 21.72mV | 10.56mV | 11.14mV | 16.00mV | Pass      |

The results above are not used in the certification process

Enermax Revolution D.F.12 850W



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

| ENERMAX                                                                                                                                                                                                                                                                                                                            |                          | D.F.12<br>REVOLUTION     |        |      |       |                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------|------|-------|------------------------|
| Model/型號/型号                                                                                                                                                                                                                                                                                                                        |                          | ETV850G                  |        |      |       |                        |
|                                                                                                                                                                                                                                                                                                                                    |                          | Active PFC/主動式PFC/主动式PFC |        |      |       |                        |
| AC Input<br>交流輸入/交流輸入                                                                                                                                                                                                                                                                                                              | 100-240VAC, 10A, 50-60Hz |                          |        |      |       | Total Power<br>總瓦數/总瓦数 |
| DC Output<br>直流輸出/直流輸出                                                                                                                                                                                                                                                                                                             | +3.3V                    | +5V                      | +12V   | -12V | +5Vsb |                        |
|                                                                                                                                                                                                                                                                                                                                    | 20A                      | 20A                      | 70.8A  | 0.4A | 3A    |                        |
|                                                                                                                                                                                                                                                                                                                                    |                          | 100W                     | 849.6W | 4.8W | 15W   | 850W                   |
| <div>⚡ CE FC ENE R42200 RoHS</div>                                                                                                                                                                                                                                                                                                 |                          |                          |        |      |       |                        |
| Importer: Coolergiant Computers Handels GmbH / Address: Billbrookdeich 32, 22113, Hamburg, Germany<br>Importer: Enerpoint Computers France / Address: 6 Avenue des Marguerites, 94380 Bonneuil-sur-Marne, France                                                                                                                   |                          |                          |        |      |       |                        |
| <div>⚡ CAUTION! Do not remove this cover! No user serviceable components inside!<br/>ACHTUNG! Beim Öffnen des Gerätes erlischt jede Gewährleistung.<br/>Avertissement! Ne pas enlever cette couverture! Aucun composant réparable par l'utilisateur à l'intérieur!<br/>注意! 不可自行拆卸產品; 保持空氣流通口暢通。<br/>注意! 不可自行拆卸產品; 保持空氣流通口暢通。</div> |                          |                          |        |      |       |                        |
| <div>OK OK OK<br/>HI-POT BURN-IN ATS</div>                                                                                                                                                                                                                                                                                         |                          |                          |        |      |       |                        |
| <div>PN: ETV850G SN: 2412120180008</div>                                                                                                                                                                                                                                                                                           |                          |                          |        |      |       |                        |
| <div>Switching Power Supply<br/>交換式電源供應器 / 交換式電源供應器<br/>Made in China<br/>中國製造/中国制造<br/>Manufacturer: ENERMAX Technology Corporation<br/>製造商: 偉銳科技股份有限公司/製造商: 偉銳科技股份有限公司</div>                                                                                                                                                     |                          |                          |        |      |       |                        |

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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