

# be quiet! Pure Power 12 M 1000W

Anex

Lab ID#: BQ10002159 Receipt Date: Feb 17, 2023 Test Date: Mar 24, 2023

### Report: 23PS2159A

Report Date: Mar 30, 2023

| DUT INFORMATION    |                 |
|--------------------|-----------------|
| Brand              | be quiet!       |
| Manufacturer (OEM) | HEC             |
| Series             | Pure Power 12 M |
| Model Number       | L12-M-1000W     |
| Serial Number      | 345H2489000008  |
| DUT Notes          |                 |
|                    |                 |

# DUT SPECIFICATIONS

| Rated Voltage (Vrms)   | 100-240                                      |
|------------------------|--|
| Rated Current (Arms)   | 12-6   |
| Rated Frequency (Hz)   | 50-60  |
| Rated Power (W)        | 1000   |
| Туре                   | ATX12V                                       |
| Cooling                | 120mm Rifle Bearing Fan<br>(BQ QF2-12025-HS) |
| Semi-Passive Operation | ×  |
| Cable Design           | Fully Modular                                |

### **TEST EQUIPMENT** Chroma 63601-5 x2 Chroma 63600-2 **Electronic Loads** 63640-80-80 x10 63610-80-20 Chroma 6530, APM SP300VAC4000W-P AC Sources RS HMC8015, N4L PPA1530, N4L PPA5530 **Power Analyzers** Picoscope 4444, Rigol DS7014, Siglent SDS2104X PLUS Oscilloscopes Sound Analyzer Bruel & Kjaer 2270 G4 Microphone Bruel & Kjaer Type 4955-A Temperature Logger Picoscope TC-08 Tachometer **UNI-T UT372** Multimeters Keysight 34465A, Keithley 2015 - THD UPS FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA 4kVA Isolation Transformer

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

**PAGE 1/16** 

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



Anex

# EFFICIENCY AND NOISE LEVEL CERTIFICATIONS

# be quiet! Pure Power 12 M 1000W

# RESULTSTemperature Range (°C /°F)30-32 / 86-89.6ErP Lot 3/6 Ready.(EU) No 617/2013 Compliance.ALPM (Alternative Low Power Mode) compatible.ATX v3.0 PSU Power Excursion.

| 115V                                      |             | 230V                          |             |
|---|-------------|-------------------------------|-------------|
| Average Efficiency                        | 89.674%     | Average Efficiency            | 91.506%     |
| Efficiency With 10W (≤500W) or 2% (>500W) | 78.400      | Average Efficiency 5VSB       | 80.284%     |
| Average Efficiency 5VSB                   | 80.629%     | Standby Power Consumption (W) | 0.0955000   |
| Standby Power Consumption (W)             | 0.0552000   | Average PF                    | 0.955       |
| Average PF                                | 0.983       | Avg Noise Output              | 30.91 dB(A) |
| Avg Noise Output                          | 30.47 dB(A) | Efficiency Rating (ETA)       | PLATINUM    |
| Efficiency Rating (ETA)                   | PLATINUM    | Noise Rating (LAMBDA)         | Standard++  |
| Noise Rating (LAMBDA)                     | Standard++  |                               |             |

### **POWER SPECIFICATIONS**

| Rail                 |       | 3.3V | 5V | 12V(1) | 12V(2) | 5VSB | -12V |
|----------------------|-------|------|----|--------|--------|------|------|
| Max. Power           | Amps  | 22   | 22 | 46     | 42     | 3    | 0.3  |
|                      | Watts | 120  |    | 1000   |        | 15   | 3.6  |
| Total Max. Power (W) |       | 1000 |    |        |        |      |      |

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

| Hold-Up Time (ms)                     | 20.1 |
|---------------------------------------|------|
| AC Loss to PWR_OK Hold Up Time (ms)   | 17.3 |
| PWR_OK Inactive to DC Loss Delay (ms) | 2.8  |

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

 $\ensuremath{\mathsf{>}}\xspace$  lt should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

**PAGE 2/16** 

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



# be quiet! Pure Power 12 M 1000W

# **CABLES AND CONNECTORS**

Anex

| Description                                     | Cable Count | Connector Count (Total) | Gauge    | In Cable Capacitors |
|---|-------------|-------------------------|----------|---------------------|
| ATX connector 20+4 pin (550mm)                  | 1           | 1                       | 16-20AWG | No                  |
| 4+4 pin EPS12V (600mm)                          | 1           | 1                       | 18AWG    | No                  |
| 8 pin EPS12V (600mm)                            | 1           | 1                       | 18AWG    | No                  |
| 6+2 pin PCle (500mm+150mm)                      | 2           | 4                       | 16-18AWG | No                  |
| 12+4 pin PCle (600mm) (600W)                    | 1           | 1                       | 16-28AWG | No                  |
| SATA (500mm+150mm+150mm+150mm)                  | 1           | 4                       | 18AWG    | No                  |
| SATA (500mm+150mm) / 4-pin Molex (+150mm+150mm) | 1           | 2/2                     | 18AWG    | No                  |
| AC Power Cord (1400mm) - C13 coupler            | 1           | 1                       | 18AWG    | -                   |

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

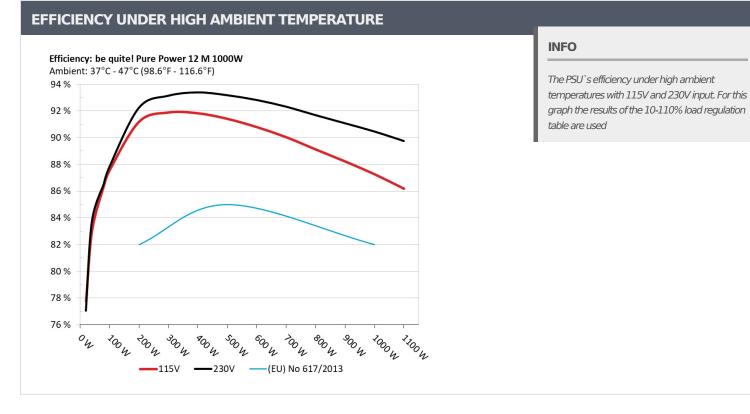
PAGE 3/16

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted

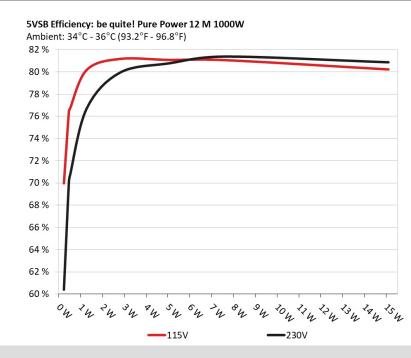


# Anex

# be quiet! Pure Power 12 M 1000W



# **5VSB EFFICIENCY**



INFO

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input

Ali 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

 $\ensuremath{\mathsf{>}}$  The link to the original test results document should be provided in any case

**PAGE 4/16** 

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



# Anex

# be quiet! Pure Power 12 M 1000W

| 5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC) |        |               |            |             |  |  |
|---|--------|---------------|------------|-------------|--|--|
| Test #                                    | 5VSB   | DC/AC (Watts) | Efficiency | PF/AC Volts |  |  |
| 1   | 0.045A | 0.23W         |            | 0.03        |  |  |
| 1   | 5.103V | 0.329W        | 69.975%    | 114.87V     |  |  |
| 2   | 0.09A  | 0.459W        |            | 0.054       |  |  |
| 2   | 5.102V | 0.601W        | 76.457%    | 114.87V     |  |  |
| 3   | 0.55A  | 2.8W          | 01 1710/   | 0.25        |  |  |
|   | 5.092V | 3.449W        | 81.171%    | 114.87V     |  |  |
| 4   | 1A     | 5.081W        | 01 0770/   | 0.352       |  |  |
| 4   | 5.081V | 6.267W        | 81.077%    | 114.86V     |  |  |
| -   | 1.5A   | 7.605W        | 01.0000/   | 0.405       |  |  |
| 5   | 5.07V  | 9.381W        | 81.062%    | 114.87V     |  |  |
| 6   | 3A     | 15.108W       | 00.00.40/  | 0.477       |  |  |
| 6   | 5.036V | 18.832W       | 80.224%    | 114.86V     |  |  |

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

| Test # | 5VSB   | DC/AC (Watts) | Efficiency | PF/AC Volts |
|--------|--------|---------------|------------|-------------|
| 1      | 0.045A | 0.23W         |            | 0.01        |
|        | 5.103V | 0.382W        | 60.403%    | 229.88V     |
| 2      | 0.09A  | 0.459W        | 70,1070/   | 0.018       |
|        | 5.102V | 0.656W        | 70.127%    | 229.88V     |
| 3      | 0.55A  | 2.8W          | 70.0440/   | 0.091       |
|        | 5.092V | 3.503W        | 79.944%    | 229.88V     |
| 4      | 1A     | 5.081W        | - 00 7000/ | 0.154       |
| 4      | 5.081V | 6.29W         | 80.788%    | 229.88V     |
| -      | 1.5A   | 7.605W        | - 01 200/  | 0.209       |
| 5      | 5.07V  | 9.345W        | 81.39%     | 229.88V     |
| C      | ЗА     | 15.108W       | 00.0740/   | 0.32        |
| 6      | 5.036V | 18.68W        | 80.874%    | 229.88V     |
|        |        |               |            |             |

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

**PAGE 5/16** 

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



Anex

# **EFFICIENCY AND NOISE LEVEL CERTIFICATIONS**

be quiet! Pure Power 12 M 1000W

# **115V**

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

**PAGE 6/16** 

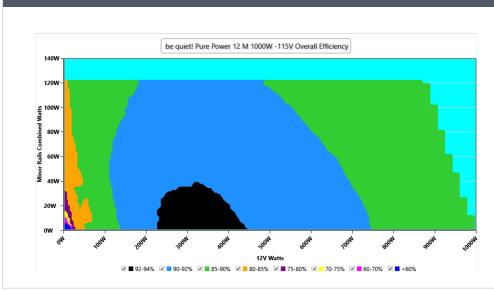
Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



# be quiet! Pure Power 12 M 1000W

# Anex

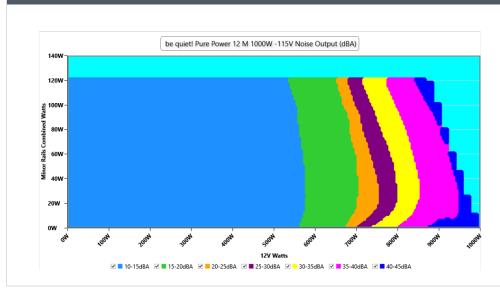
### **EFFICIENCY GRAPH 115V**



### 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

## **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

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

**PAGE 7/16** 

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



# be quiet! Pure Power 12 M 1000W

# Anex

### VAMPIRE POWER -115V

| Detailed Results   |          |          |           |          |           |        |  |  |
|--------------------|----------|----------|-----------|----------|-----------|--------|--|--|
|                    | Average  | Min      | Limit Min | Max      | Limit Max | Result |  |  |
| Mains Voltage RMS: | 114.88 V | 114.82 V | 113.85 V  | 114.93 V | 116.15 V  | PASS   |  |  |
| Mains Frequency:   | 60.00 Hz | 59.98 Hz | 59.40 Hz  | 60.01 Hz | 60.60 Hz  | PASS   |  |  |
| Mains Voltage CF:  | 1.418    | 1.417    | 1.340     | 1.421    | 1.490     | PASS   |  |  |
| Mains Voltage THD: | 0.15 %   | 0.09 %   | N/A       | 0.27 %   | 2.00 %    | PASS   |  |  |
| Real Power:        | 0.055 W  | 0.033 W  | N/A       | 0.080 W  | N/A       | N/A    |  |  |
| Apparent Power:    | 11.136 W | 11.104 W | N/A       | 11.170 W | N/A       | N/A    |  |  |
| Power Factor:      | 0.006    | N/A      | N/A       | N/A      | N/A       | N/A    |  |  |

### INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case



# Anex

# be quiet! Pure Power 12 M 1000W

| 10-1  | 10-110% LOAD TESTS 115V |         |         |        |                  |            |                       |                      |                   |                |
|-------|-------------------------|---------|---------|--------|------------------|------------|-----------------------|----------------------|-------------------|----------------|
| Test  | 12V                     | 5V      | 3.3V    | 5VSB   | DC/AC<br>(Watts) | Efficiency | Fan<br>Speed<br>(RPM) | PSU Noise<br>(dB[A]) | Temps<br>(In/Out) | PF/AC<br>Volts |
| 10%   | 6.470A                  | 2.008A  | 2.008A  | 0.984A | 99.963           | 87.549%    | 734                   | 12.4                 | 40.22°C           | 0.958          |
| 10 %  | 12.113V                 | 4.978V  | 3.285V  | 5.081V | 114.181          | 07.04970   | 754                   | 12.4                 | 44.45°C           | 114.84V        |
| 20%   | 13.989A                 | 3.014A  | 3.016A  | 1.184A | 199.899          | 91.181%    | 734                   | 12.4                 | 40.81°C           | 0.975          |
| 2070  | 12.081V                 | 4.975V  | 3.282V  | 5.067V | 219.231          | 91.10170   | 7.54                  | 12.4                 | 45.51°C           | 114.8V         |
| 30%   | 21.874A                 | 3.518A  | 3.521A  | 1.384A | 299.934          | 91.875%    | 736                   | 12.4                 | 41.36°C           | 0.978          |
| 50%   | 12.064V                 | 4.974V  | 3.28V   | 5.056V | 326.462          | 91.075%    | 750                   | 12.4                 | 46.39°C           | 114.77V        |
| 400/  | 29.726A                 | 4.022A  | 4.027A  | 1.586A | 399.385          | 01 01 00/  | 737                   | 12.4                 | 41.72°C           | 0.982          |
| 40%   | 12.049V                 | 4.972V  | 3.278V  | 5.045V | 434.974          | 91.818%    | 151                   | 12.4                 | 47.21°C           | 114.74V        |
| 50%   | 37.278A                 | 5.031A  | 5.038A  | 1.788A | 499.129          | 91.404%    | 753                   | 13.3                 | 42.39°C           | 0.986          |
| JU /0 | 12.035V                 | 4.969V  | 3.275V  | 5.033V | 546.074          | 91.40470   | 733                   | 13.3                 | 48.41°C           | 114.7V         |
| 60%   | 44.916A                 | 6.04A   | 6.052A  | 1.992A | 599.681          | 90.785%    | 870                   | 17.7                 | 42.52°C           | 0.99           |
| 00 %  | 12.020V                 | 4.967V  | 3.272V  | 5.021V | 660.551          | 90.76576   | 870                   | 17.7                 | 49.18°C           | 114.67V        |
| 70%   | 52.511A                 | 7.05A   | 7.067A  | 2.196A | 699.435          | 90.031%    | 1% 1216               | 28.4                 | 43.18°C           | 0.992          |
| 7070  | 12.004V                 | 4.964V  | 3.269V  | 5.009V | 776.875          | 90.03176   |                       |                      | 50.24°C           | 114.63V        |
| 80%   | 60.199A                 | 8.001A  | 8.083A  | 2.3A   | 799.191          | 89.119%    | 1791                  | 39.5                 | 43.92°C           | 0.994          |
| 0070  | 11.986V                 | 4.962V  | 3.266V  | 4.999V | 896.772          | 09.11970   | 1751                  | 59.5                 | 52.05°C           | 114.6V         |
| 90%   | 68.242A                 | 8.569A  | 8.58A   | 2.405A | 899.291          | 88.219%    | 1886                  | 1886 41.3            | 44.5°C            | 0.995          |
| 9070  | 11.970V                 | 4.96V   | 3.263V  | 4.99V  | 1019.396         | 00.21970   | 1000                  | 41.5                 | 53.58°C           | 114.55V        |
| 100%  | 76.105A                 | 9.077A  | 9.109A  | 3.02A  | 999.339          | 87.261%    | 1883                  | 41.2                 | 45.66°C           | 0.996          |
| 10070 | 11.953V                 | 4.958V  | 3.26V   | 4.968V | 1145.231         | 07.20170   | 1005                  | 41.2                 | 55.69°C           | 115.04V        |
| 110%  | 83.924A                 | 10.09A  | 10.223A | 3.025A | 1099.964         | 86.174%    | 1882                  | 41.2                 | 46.65°C           | 0.997          |
| 11070 | 11.935V                 | 4.955V  | 3.257V  | 4.959V | 1276.451         | 00.17470   | 1002                  | 41.2                 | 57.59°C           | 115.06V        |
| CL1   | 0.114A                  | 14.564A | 14.572A | 0A     | 121.301          | 84.078%    | 797                   | 15.1                 | 41.02°C           | 0.96           |
|       | 12.119V                 | 4.958V  | 3.273V  | 5.088V | 144.272          | 04.07070   | 191                   | 13.1                 | 46.56°C           | 115.93V        |
| CL2   | 0.114A                  | 22.205A | 0A      | 0A     | 111.304          | 82.549%    | 766                   | 14.0                 | 41.34°C           | 0.964          |
|       | 12.125V                 | 4.95V   | 3.286V  | 5.096V | 134.837          | 02.34970   | 700                   | 14.0                 | 48.42°C           | 115.95V        |
| CL3   | 0.114A                  | 0A      | 22.189A | 0A     | 73.982           | 76.456%    | 747                   | 13.0                 | 41.19°C           | 0.953          |
|       | 12.124V                 | 4.981V  | 3.272V  | 5.09V  | 96.766           | / 0.40/0   | /4/                   | 13.0                 | 50.27°C           | 115.97V        |
| CL4   | 83.601A                 | 0A      | 0A      | 0A     | 999.875          | 87.95%     | 1892                  | 41.6                 | 45.79°C           | 0.996          |
|       | 11.960V                 | 4.977V  | 3.273V  | 5.049V | 1136.882         | 0/66.10    | 1092                  | 41.0                 | 56.74°C           | 115.21V        |
|       |                         |         |         |        |                  |            |                       |                      |                   |                |

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

PAGE 9/16

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



# Anex

# be quiet! Pure Power 12 M 1000W

| 20-80W LOAD TESTS 115V |         |        |        |        |                  |             |                    |                      |                   |                |
|------------------------|---------|--------|--------|--------|------------------|-------------|--------------------|----------------------|-------------------|----------------|
| Test                   | 12V     | 5V     | 3.3V   | 5VSB   | DC/AC<br>(Watts) | Efficiency  | Fan Speed<br>(RPM) | PSU Noise<br>(dB[A]) | Temps<br>(In/Out) | PF/AC<br>Volts |
| 2014                   | 1.225A  | 0.501A | 0.501A | 0.196A | 19.985           | 77 7710/    | 700                | 10                   | 36.53°C           | 0.827          |
| 20W                    | 12.109V | 4.984V | 3.29V  | 5.099V | 25.696           | 77.771%     | 729                | 12                   | 39.58°C           | 114.86V        |
| 40144                  | 2.700A  | 0.702A | 0.702A | 0.294A | 39.987           | 00.0000/    | 728                | 12.1                 | 37.35°C           | 0.912          |
| 40W                    | 12.105V | 4.982V | 3.288V | 5.097V | 48.178           | 82.999%     |                    |                      | 40.68°C           | 114.86V        |
| C0144                  | 4.174A  | 0.903A | 0.903A | 0.392A | 59.986           | 86.362% 728 | 10.1               | 38.02°C              | 0.941             |                |
| 60W                    | 12.102V | 4.981V | 3.288V | 5.094V | 69.459           |             | 728                | 12.1                 | 41.79°C           | 114.85V        |
| 00144                  | 5.638A  | 1.104A | 1.104A | 0.491A | 79.914           | 05 2020/    | 700                | 12.2                 | 39.07°C           | 0.952          |
| 80W                    | 12.112V | 4.98V  | 3.287V | 5.094V | 93.695           | 85.293%     | 733                |                      | 43.05°C           | 114.84V        |

### **RIPPLE MEASUREMENTS 115V**

| Test       | 12V     | 5V      | 3.3V    | 5VSB    | Pass/Fail |
|------------|---------|---------|---------|---------|-----------|
| 10% Load   | 11.46mV | 10.93mV | 9.08mV  | 11.13mV | Pass      |
| 20% Load   | 18.67mV | 11.50mV | 9.13mV  | 11.44mV | Pass      |
| 30% Load   | 14.07mV | 10.62mV | 9.85mV  | 11.08mV | Pass      |
| 40% Load   | 13.81mV | 11.39mV | 9.75mV  | 11.29mV | Pass      |
| 50% Load   | 14.27mV | 11.96mV | 11.19mV | 11.60mV | Pass      |
| 60% Load   | 14.32mV | 11.91mV | 11.24mV | 12.73mV | Pass      |
| 70% Load   | 14.73mV | 12.52mV | 11.70mV | 12.26mV | Pass      |
| 80% Load   | 15.39mV | 11.80mV | 12.82mV | 12.47mV | Pass      |
| 90% Load   | 15.19mV | 13.29mV | 12.47mV | 12.42mV | Pass      |
| 100% Load  | 22.03mV | 14.76mV | 14.59mV | 16.09mV | Pass      |
| 110% Load  | 23.58mV | 14.91mV | 15.69mV | 17.43mV | Pass      |
| Crossload1 | 15.23mV | 19.20mV | 19.66mV | 13.14mV | Pass      |
| Crossload2 | 16.01mV | 21.09mV | 17.14mV | 11.19mV | Pass      |
| Crossload3 | 17.69mV | 15.81mV | 16.78mV | 10.16mV | Pass      |
| Crossload4 | 22.41mV | 11.49mV | 10.12mV | 13.04mV | Pass      |
|            |         |         |         |         |           |

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

PAGE 10/16

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



Anex

# EFFICIENCY AND NOISE LEVEL CERTIFICATIONS

be quiet! Pure Power 12 M 1000W

# **230V**

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

PAGE 11/16

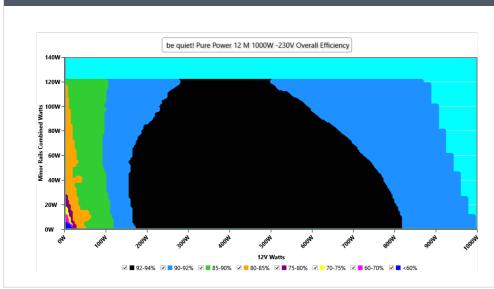
Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



# be quiet! Pure Power 12 M 1000W

# Anex

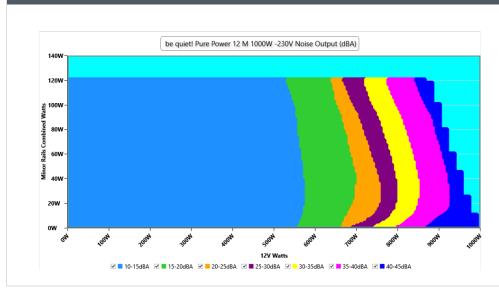
### **EFFICIENCY GRAPH 230V**



### 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 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

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

PAGE 12/16

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



# be quiet! Pure Power 12 M 1000W

# Anex

### VAMPIRE POWER -230V

| Detailed Results   |          |          |           |          |           |        |  |  |  |
|--------------------|----------|----------|-----------|----------|-----------|--------|--|--|--|
|                    | Average  | Min      | Limit Min | Мах      | Limit Max | Result |  |  |  |
| Mains Voltage RMS: | 229.88 V | 229.82 V | 227.70 V  | 229.95 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 %   | 0.09 %   | N/A       | 0.20 %   | 2.00 %    | PASS   |  |  |  |
| Real Power:        | 0.095 W  | 0.049 W  | N/A       | 0.150 W  | N/A       | N/A    |  |  |  |
| Apparent Power:    | 37.542 W | 37.496 W | N/A       | 37.588 W | N/A       | N/A    |  |  |  |
| Power Factor:      | 0.002    | N/A      | N/A       | N/A      | N/A       | N/A    |  |  |  |

### INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



# Anex

# be quiet! Pure Power 12 M 1000W

| <table-container><table-container><table-container><table-container><table-container><table-container><table-container><table-container><table-container><table-container><table-container><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row><table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-row></table-container></table-container></table-container></table-container></table-container></table-container></table-container></table-container></table-container></table-container></table-container>   | 10-1  | 10% LOA | D TESTS | 230V    |        |          |            |       |               |         |         |
|--|-------|---------|---------|---------|--------|----------|------------|-------|---------------|---------|---------|
| 10%<br>10%12112V4.979V3.286V5.08V113.83887.814%74013.144.57°C229.86V20%<br>12.079V3.014A3.015A1.184A199.904 $_{2.23\%}$ $_{737}$ $_{12.4}$ 40.73°C0.93320%<br>12.079V4.976V3.283V5.067V216.747 $_{2.23\%}$ $_{737}$ $_{12.4}$ 4.54°C229.85V30%<br>12.062V4.974V3.51A3.52A1.385A299.38 $_{93.135\%}$ $_{737}$ $_{12.4}$ 4.64°C229.85V40%<br>12.062V4.974V3.281V5.055V322.042 $_{93.135\%}$ $_{737}$ $_{12.4}$ 4.13°C0.95440%<br>12.046V4.973V3.276V5.044V427.676 $_{93.135\%}$ $_{738}$ $_{12.7}$ 4.18°C0.96350%<br>12.02V4.97V3.275V5.033V535.669 $_{93.177\%}$ $_{738}$ $_{12.6}$ 4.33°C2.29.8V60%<br>12.017V4.968V3.275V5.033V535.669 $_{93.177\%}$ $_{750}$ $_{13.6}$ 43.3°C0.97670%<br>12.02V4.96V3.275V5.03V55.757 $_{23.27\%}$ $_{23.27\%}$ $_{23.27\%}$ $_{23.17}$ 4.33°C0.97970%<br>12.02V4.96V3.267V5.V87.1555 $_{20.97\%}$ $_{23.27\%}$ $_{23.17\%}$ $_{33.86\%}$ 0.97270%<br>12.02V4.96V3.267V5.V87.1555 $_{20.27\%}$ $_{23.17\%}$ $_{23.17\%}$ $_{23.17\%}$ $_{23.17\%}$ $_{23.17\%}$ <  | Test  | 12V     | 5V      | 3.3V    | 5VSB   |          | Efficiency | Speed |               | -       |         |
| 12.112v         4.979v         3.286v         5.08v         113.838         44.57°         229.68v           20%         13.993A         3.014A         3.015A         1.184A         199.04u $2.23^{\circ}$ $737$ $12.4$ $40.73^{\circ}$ C $29.33$ 30% $21.079v$ $4.976v$ $32.83v$ $5067v$ $216.747$ $92.33^{\circ}$ $737$ $12.4$ $40.36^{\circ}$ C $229.85v$ $30\%$ $21.078v$ $4.974v$ $3524v$ $1385A$ $299.38v$ $737$ $12.4$ $40.36^{\circ}$ C $229.85v$ $40\%$ $22073v$ $4.974v$ $32.8v$ $505v$ $322.8v$ $738$ $12.7$ $41.8^{\circ}$ C $29.38v$ $40\%$ $4.973v$ $32.78v$ $504v$ $42.767c$ $93.386\%$ $738$ $12.0$ $4.97v$ $229.8v$ $93.17\%$ $12.01v$ $4.97v$ $32.78v$ $5034v$ $52.518$ $7049$ $32.75v$ $50.3v$ $57.57v$ $92.18\%$ $864$ $17.5$ $43.3^{\circ}$ C $9.97v$ $20.02v$ $4.965v$ <td>100/</td> <td>6.470A</td> <td>2.008A</td> <td>2.008A</td> <td>0.984A</td> <td>99.967</td> <td>07 01 /0/</td> <td>740</td> <td>10.1</td> <td>40.36°C</td> <td>0.857</td>   | 100/  | 6.470A  | 2.008A  | 2.008A  | 0.984A | 99.967   | 07 01 /0/  | 740   | 10.1          | 40.36°C | 0.857   |
| 20%<br>112.079V4.976V3.283V5.067V216.74792.23%73712.445.48°C229.85V30%<br>12.062V4.974V3.52A1.385A299.9389.3.135%73712.441.36°C0.95430%<br>12.062V4.974V3.281V5.055V322.0429.3.135%73712.441.66°C229.83V40%<br>12.062V4.974V3.281V5.055V322.0429.3.86%73812.741.81°C0.96340%<br>12.046V4.973V3.278V5.044V427.6769.3.86%73812.741.81°C0.96350%<br>12.032V4.97V3.275V5.033V535.6699.3.17%75013.043.55°C229.8V60%<br>12.017V4.968V3.273V5.021V646.05992.818%8641.7549.56°C0.97670%<br>12.002V4.964V3.27V5.009V75.75792.322%1.20549.33°C0.979229.7V70%<br>12.002V4.964V3.27V5.009V75.7579.1689%1.7643.84°C0.9829.77V80%<br>11.984V4.964V3.264V4.99V97.21991.689%1.7663.81°C229.75V80%<br>11.986V4.964V3.264V4.99V97.2811.7663.81°C2.917V80%<br>11.986V4.961V3.264V4.99V987.2811.7663.81°C2.917V8111.986V4.961V3.264V4.99V987.2811.8851.  | 10%   | 12.112V | 4.979V  | 3.286V  | 5.08V  | 113.838  | 07.014%    | 740   | 13.1          | 44.57°C | 229.86V |
| 12.079V       4.976V       3.283V       5.067V       216.747       45.48°C       229.85V         30%       21.878A       3.51A       3.52A       1.385A       299.938 $_{3.135%}$ 737 $_{1.24}$ 4.1.36°C       229.85V         40%       20.734A       4.022A       4.026A       1.586A       399.392 $_{3.386\%}$ 737 $_{1.24}$ 4.18°C       0.963         40%       20.734A       4.022A       4.026A       1.586A       399.392 $_{3.386\%}$ 738 $_{1.24}$ 4.18°C       0.963         50%       32.284Z       5.03A       5.03A       1.788A       499.124 $_{3.377}$ $_{737}$ $_{1.02}$ 4.234°C       0.97         2002V       4.97V       3.275V       5.03V       535.669 $_{2.1876}$ $_{7.50}$ $_{1.30}$ 42.36°C       0.976         40.04       6.039A       6.05A       1.992A       599.66 $_{2.2187A}$ $_{2.017V}$ 4.383°C       2.29.87V         12002V       4.964V       3.27V       5.009V       75.57 $_{2.328^{-1}}$ $_{2.318^{-1}}$ $_{2.33^{-1}}$ $_{3.33^{-1}}$ $_{3.33^{-1}}$ $_{3.38^{-1}}$ $_{3.38^{-$  | 209/  | 13.993A | 3.014A  | 3.015A  | 1.184A | 199.904  | - 02 220/  | דכד   | 10.4          | 40.73°C | 0.933   |
| 30%12.062V4.974V3.281V5.055V322.04293.135%73712.446.4°C22.9.33V40%29.734A4.022A4.026A1.586A399.92293.386%73812.741.81°C0.96312.046V4.973V3.278V5.044V427.67693.386%73812.741.81°C229.82V50%37.286A5.03A5.037A1.788A499.12493.177%75013.042.34°C0.9750%44.924A6.039A6.05A1.992A599.6692.818%86417.542.56°C0.97660%12.017V4.968V3.273V5.021V646.05992.818%86417.542.56°C0.97612.002V4.966V3.273V5.01V646.05992.818%86417.543.33°C0.97970%25.18A7.049A7.065A2.196A699.39992.322%120528.143.33°C0.97970%60207A8A808A2.3A799.15191.88%17.63.03°C229.75V80%11.984V4.963V3.267V5V871.59591.68%17.63.18°C229.75V90%11.968V4.961V3.264V4.99V987.28117.63.18°C229.75V100%4.961V3.264V4.99V987.281188341.25.506°C229.72V110%4.961V3.264V4.99V987.281188541.25.506°C229.72   | 20%   | 12.079V | 4.976V  | 3.283V  | 5.067V | 216.747  | 92.2370    | 151   | 12.4          | 45.48°C | 229.85V |
| 12.062V       4.974V       3.281V       5.055V       322.042       46.46°C       229.83V $40\%$ 29.73AA       4.022A       4.026A       1.586A       39.932 $738$ $12.7$ 41.81°C       0.963 $12.045V$ 4.973V       3.278V       5.044V       427.676 $738$ $12.7$ 41.81°C       0.963 $50\%$ $7.286A$ 5.03A       5.037A       1.788A       49.124 $93.17\%$ $750$ $13.0$ 42.34°C       0.97 $12.032V$ 4.97V       3.275V       5.033V       535669 $91.17\%$ $750$ $13.0$ 42.56°C       0.976 $12.017V$ 4.968V       3.273V       5.021V       646.059 $92.818\%$ $864$ $17.5$ 42.56°C       0.976 $12.017V$ 4.968V       3.273V       5.021V       646.059 $92.818\%$ $864$ $17.5$ 43.33°C       0.979 $12.007V$ 4.964V       3.27V       5.021V       646.059 $92.325\%$ $1205$ $43.33°C$ 0.979 $12.007V$ 4.964V       3.27V       5.039V       75.577 $91.68\%$ $120.5$ $3$   | 200/  | 21.878A | 3.517A  | 3.52A   | 1.385A | 299.938  | 02 1250/   | דכד   | 10.4          | 41.36°C | 0.954   |
| $ \begin{array}{ c c c c c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabual}{ c c c c c } \hline \begin{tabual}{ c c c c c } \hline \begin{tabual}{ c c c c c c c c } \hline \begin{tabual}{ c c c c c c c } \hline \begin{tabual}{ c c c c c c c } \hline \begin{tabual}{ c c c c c c c } \hline \begin{tabual}{ c c c c c c c } \hline \begin{tabual}{ c c c c c c c c } \hline \begin{tabual}{ c c c c c c c c c c c c c c c c c c c$   | 50%   | 12.062V | 4.974V  | 3.281V  | 5.055V | 322.042  | 95.155%    | 151   | 12.4          | 46.46°C | 229.83V |
| $ \begin{array}{ c c c c c c } \hline 12.046V & 4.973V & 3.278V & 5.044V & 427.576 & 47.37^{\circ}C & 229.82V \\ \hline 12.032V & 4.97V & 3.278V & 5.037V & 535.669 & 9.177\% & 750 & 1.30 & 42.34^{\circ}C & 0.97 \\ \hline 48.35^{\circ}C & 229.8V & 49.7V & 3.275V & 5.033V & 535.669 & 9.2818\% & 864 & 1.75 & 42.56^{\circ}C & 0.976 \\ \hline 44.924A & 6.039A & 6.05A & 1.992A & 599.66 & 9.2818\% & 864 & 1.75 & 42.56^{\circ}C & 0.976 \\ \hline 12.017V & 4.968V & 3.273V & 5.021V & 646.059 & 9.2818\% & 864 & 1.75 & 42.56^{\circ}C & 0.976 \\ \hline 12.017V & 4.968V & 3.273V & 5.021V & 646.059 & 9.2818\% & 864 & 1.75 & 43.33^{\circ}C & 0.979 \\ \hline 12.002V & 4.966V & 3.27V & 5.009V & 75.75 & 9.232\% & 1.05 & 28.1 & 60.939C & 229.77V \\ \hline 12.002V & 4.966V & 3.27V & 5.009V & 75.75 & 9.232\% & 1.05 & 3.019C & 0.982 \\ \hline 11.964V & 4.963V & 3.267V & 5.V & 871.595 & 91.689\% & 1.76 & 3.91 & 1.89^{\circ}C & 2.29.75V \\ \hline 11.968V & 4.961V & 3.264V & 4.99V & 987.281 & 91.689\% & 1.76 & 3.91 & 1.89^{\circ}C & 2.29.75V \\ \hline 11.968V & 4.961V & 3.264V & 4.99V & 987.281 & 91.689\% & 1.76 & 3.18^{\circ}C & 2.29.75V \\ \hline 11.968V & 4.961V & 3.264V & 4.99V & 987.281 & 91.689\% & 1.76 & 3.18^{\circ}C & 2.29.75V \\ \hline 11.968V & 4.961V & 3.264V & 4.99V & 987.281 & 91.689\% & 1.65\% & 0.985 \\ \hline 11.968V & 4.961V & 3.264V & 4.99V & 987.281 & 90.465\% & 1.883 & 41.2 & 55.66^{\circ}C & 2.29.75V \\ \hline 11.968V & 4.961V & 3.264V & 4.969V & 1104.584 & 90.465\% & 1.883 & 41.2 & 55.66^{\circ}C & 2.29.72V \\ \hline 11.952V & 4.959V & 3.261V & 4.969V & 1104.584 & 90.465\% & 1.883 & 41.2 & 55.66^{\circ}C & 2.29.72V \\ \hline 11.952V & 4.957V & 3.258V & 4.961V & 1.225.537 & 8.748\% & 1.877 & 4.11 & 65.99^{\circ}C & 0.986 \\ \hline 11.935V & 4.957V & 3.258V & 4.961V & 1.225.537 & 8.748\% & 7.55 & 1.34 & 40.81^{\circ}C & 0.989 \\ \hline 11.935V & 4.957V & 3.258V & 4.961V & 1.225.537 & 8.478\% & 7.55 & 1.34 & 40.81^{\circ}C & 0.29.6V \\ \hline 11.104V & 4.96V & 3.275V & 5.088V & 142.898 & 8.317\% & 7.63 & 1.38 & 40.36^{\circ}C & 0.29.6V \\ \hline 11.114V & 1.4559A & 1.4567A & 0.4 & 1.11.298 & 8.317\% & 7.63 & 1.38 & 40.36^{\circ}C & 0.98 \\ \hline 11.2116V & 4.96V & 3.275V & 5.088V & 142.898 & 8.317\% & 7.63 & 1.38 & 1.38 & 1.38 & 1.38 & 1.38 & 1.38 & 1$  | 400/  | 29.734A | 4.022A  | 4.026A  | 1.586A | 399.392  | 02 2060/   | 720   | 10.7          | 41.81°C | 0.963   |
| $ \begin{array}{ c c c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c c } \hline \begin{tabular}{ c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$  | 40%   | 12.046V | 4.973V  | 3.278V  | 5.044V | 427.676  | 95.500%    | 100   | 12.7          | 47.37°C | 229.82V |
| $ \begin{array}{ c c c c c c } \hline 12.032V & 4.97V & 3.275V & 5.033V & 535.669 \\ \hline 12.032V & 49.7V & 3.275V & 5.033V & 535.669 \\ \hline 44.924A & 6.039A & 6.05A & 1.992A & 599.66 \\ \hline 12.017V & 4.968V & 3.273V & 5.021V & 646.059 \\ \hline 12.017V & 4.968V & 3.273V & 5.021V & 646.059 \\ \hline 12.002V & 4.966V & 3.27V & 5.09V & 757.57 \\ \hline 12.002V & 4.966V & 3.27V & 5.09V & 757.57 \\ \hline 12.002V & 4.966V & 3.27V & 5.09V & 757.57 \\ \hline 60.207A & 8A & 8.08A & 2.3A & 799.151 \\ \hline 11.984V & 4.963V & 3.267V & 5V & 871.595 \\ \hline 11.984V & 4.963V & 3.267V & 5V & 871.595 \\ \hline 68.247A & 8.566A & 8.577A & 2.404A & 899.219 \\ \hline 11.968V & 4.961V & 3.264V & 4.99V & 987.281 \\ \hline 11.968V & 4.961V & 3.264V & 4.99V & 987.281 \\ \hline 11.968V & 4.961V & 3.264V & 4.99V & 987.281 \\ \hline 11.952V & 4.959V & 3.261V & 4.969V & 1104.584 \\ \hline 11.952V & 4.959V & 3.261V & 4.969V & 1104.584 \\ \hline 11.952V & 4.959V & 3.261V & 4.969V & 1104.584 \\ \hline 11.952V & 4.959V & 3.261V & 4.969V & 1104.584 \\ \hline 11.952V & 4.959V & 3.261V & 4.969V & 1104.584 \\ \hline 11.935V & 4.957V & 3.258V & 4.961V & 1.225.537 \\ \hline 11.935V & 4.957V & 3.258V & 4.961V & 1.225.537 \\ \hline 11.16V & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.121 & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.121 & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.1228 & 8.317\% & 763 & 1.38 \\ \hline 11.128 & 8.317\% & 763 & 1.38 \\ \hline 11.128 & 8.317\% & 763 & 1.38 \\ \hline 11.128 & 4.036^{2} & 0.985 \\ \hline 11.128 & 4.036^{2} & 0.985 \\ \hline 11.128 & 8.317\% & 763 & 1.38 \\ \hline 11.12$ | E00/  | 37.286A | 5.03A   | 5.037A  | 1.788A | 499.124  | 02 1770/   | 750   | 12.0          | 42.34°C | 0.97    |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | 50%   | 12.032V | 4.97V   | 3.275V  | 5.033V | 535.669  | 95.177%    | 750   | 15.0          | 48.35°C | 229.8V  |
| $ \begin{array}{ c c c c c c c c c c } \hline 12.017V & 4.968V & 3.273V & 5.021V & 646.059 \\ \hline 12.017V & 4.968V & 3.273V & 5.021V & 646.059 \\ \hline 5.2518A & 7.049A & 7.065A & 2.196A & 699.399 \\ \hline 12.002V & 4.966V & 3.27V & 5.009V & 757.57 \\ \hline 12.002V & 4.966V & 3.27V & 5.009V & 757.57 \\ \hline 60.207A & 8A & 8.08A & 2.3A & 799.151 \\ \hline 11.984V & 4.963V & 3.267V & 5V & 871.595 \\ \hline 11.984V & 4.963V & 3.267V & 5V & 871.595 \\ \hline 68.247A & 8.566A & 8.577A & 2.404A & 899.219 \\ \hline 11.968V & 4.961V & 3.264V & 4.99V & 987.281 \\ \hline 11.968V & 4.961V & 3.264V & 4.99V & 987.281 \\ \hline 11.968V & 4.961V & 3.264V & 4.99V & 987.281 \\ \hline 11.952V & 4.959V & 3.261V & 4.96V & 1104.584 \\ \hline 11.952V & 4.959V & 3.261V & 4.969V & 1104.584 \\ \hline 11.952V & 4.959V & 3.261V & 4.969V & 1104.584 \\ \hline 11.952V & 4.957V & 3.258V & 4.961V & 1225.537 \\ \hline 11.935V & 4.957V & 3.258V & 4.961V & 1225.537 \\ \hline 11.935V & 4.957V & 3.258V & 4.961V & 1225.537 \\ \hline 11.935V & 4.957V & 3.258V & 4.961V & 1225.537 \\ \hline 11.935V & 4.957V & 3.258V & 4.961V & 1225.537 \\ \hline 11.935V & 4.957V & 3.258V & 4.961V & 1225.537 \\ \hline 11.910W & 1.0114A & 14.559A & 14.567A & 0A & 121.29 \\ \hline 11.912W & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.912W & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.912W & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.912W & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.912W & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.912W & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.912W & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.912W & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.912W & 4.96V & 3.275V & 5.088V & 142.898 \\ \hline 11.912W & 763 & 13.8 \\ \hline 11.912W & 4.96C & 0.88 \\ \hline 11$                        | 60%   | 44.924A | 6.039A  | 6.05A   | 1.992A | 599.66   | 02.0100/   | 964   | 175           | 42.56°C | 0.976   |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | 00 /0 | 12.017V | 4.968V  | 3.273V  | 5.021V | 646.059  | 92.01070   | 004   | 17.5          | 49.17°C | 229.78V |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | 70%   | 52.518A | 7.049A  | 7.065A  | 2.196A | 699.399  | - 02 3220/ | 1205  | 20.1          | 43.33°C | 0.979   |
| 80%         11.984V         4.963V         3.267V         5V         871.595         91.689%         1776         39.1         51.89°C         229.75V           90%         68.247A         8.566A         8.577A         2.404A         899.219 $_{1088\%}$ $_{1885}$ $_{122}$ $_{44.17°C}$ 0.982           90%         11.968V         4.961V         3.264V         4.99V         987.281 $_{1088\%}$ $_{1885}$ $_{122}$ $_{44.17°C}$ 0.982           100%         76.108A         9.073A         9.105A         3.019A         999.263 $_{90.465\%}$ $_{1883}$ $_{1.2}$ $_{45.05°C}$ 0.985           11.052V         4.959V         3.261V         4.969V         1104.584 $_{90.465\%}$ $_{1883}$ $_{1.2}$ $_{45.05°C}$ 0.985           11.052V         4.959V         3.261V         4.969V         1104.584 $_{99.483}$ $_{89.748\%}$ $_{1877}$ $_{41.1}$ $_{45.05°C}$ 0.986           11.052V         4.957V         3.258V         4.961V         1225.537 $_{89.748\%}$ $_{87.75\%}$ $_{13.4}$ $_{40.81°C}$ 0.89  | 7076  | 12.002V | 4.966V  | 3.27V   | 5.009V | 757.57   | 92.32270   | 1205  | 20.1          | 50.39°C | 229.77V |
| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$  | 000/  | 60.207A | 8A      | 8.08A   | 2.3A   | 799.151  | 01 680%    | 1776  | 20.1          | 43.84°C | 0.98    |
| $ \begin{array}{ c c c c c c c c c c } \hline 90\% & 11.968 & 4.961 & 3.264 & 4.99 & 987.281 & 91.081\% & 1885 & 41.2 & 53.18^{\circ} C & 229.73 & \\ \hline 11.968 & 9.073 & 9.105 & 3.019 & 999.263 & 90.465\% & 1883 & 41.2 & 45.05^{\circ} C & 0.985 & \\ \hline 11.952 & 4.959 & 3.261 & 4.969 & 1104.584 & 90.465\% & 1883 & 41.2 & 55.06^{\circ} C & 229.72 & \\ \hline 11.952 & 4.959 & 3.261 & 4.969 & 1104.584 & 1099.893 & 90.465\% & 1883 & 41.2 & 55.06^{\circ} C & 229.72 & \\ \hline 11.935 & 4.957 & 3.258 & 4.961 & 1225.537 & 89.748\% & 1877 & 41.1 & 46.59^{\circ} C & 0.986 & \\ \hline 11.935 & 4.957 & 3.258 & 4.961 & 1225.537 & 89.748\% & 1877 & 41.1 & 46.59^{\circ} C & 0.986 & \\ \hline 11.935 & 4.957 & 3.258 & 4.961 & 1225.537 & 89.748\% & 755 & 13.4 & 40.81^{\circ} C & 0.89 & \\ \hline 11.916 & 4.96 & 3.275 & 5.088 & 142.898 & 84.879\% & 755 & 13.4 & 40.81^{\circ} C & 0.89 & \\ \hline 12.116 & 4.96 & 3.275 & 5.088 & 142.898 & 83.17\% & 763 & 13.8 & 40.36^{\circ} C & 0.88 & \\ \hline 11.916 & 40.36^{\circ} C & 0.88 & 111.298 & 83.17\% & 763 & 13.8 & 40.36^{\circ} C & 0.88 & \\ \hline 11.916 & 40.36^{\circ} C & 0.88 & 111.298 & 83.17\% & 763 & 13.8 & 40.36^{\circ} C & 0.88 & \\ \hline 11.916 & 40.36^{\circ} C & 0.88 & 111.298 & 83.17\% & 763 & 13.8 & 40.36^{\circ} C & 0.88 & \\ \hline 11.916 & 40.36^{\circ} C & 0.88 & 40.36^{\circ} C & 0.88 & \\ \hline 11.916 & 40.36^{\circ} C & 0.88 & 111.298 & 83.17\% & 763 & 13.8 & 40.36^{\circ} C & 0.88 & \\ \hline 11.916 & 40.36^{\circ} C & 0.88 & 40.36^{\circ} C & 0.88 & \\ \hline 11.916 & 40.36^{\circ} C & 0.88 & 111.298 & 83.17\% & 763 & 13.8 & \\ \hline 11.916 & 40.36^{\circ} C & 0.88 & 111.298 & 83.17\% & 763 & 13.8 & \\ \hline 11.916 & 40.36^{\circ} C & 0.88 & 140.36^{\circ} C & 0.88 & \\ \hline 11.916 & 40.36^{\circ} C & 0.88 & 110.28 & 11$  | 00 /0 | 11.984V | 4.963V  | 3.267V  | 5V     | 871.595  | 91.00970   | 1770  | 59.1          | 51.89°C | 229.75V |
| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$  | 0.00/ | 68.247A | 8.566A  | 8.577A  | 2.404A | 899.219  | 01 0010/   | 1005  | <i>4</i> 1 C  | 44.17°C | 0.982   |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | 9076  | 11.968V | 4.961V  | 3.264V  | 4.99V  | 987.281  | 91.00170   | 1003  | 41.2          | 53.18°C | 229.73V |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | 100%  | 76.108A | 9.073A  | 9.105A  | 3.019A | 999.263  | 00.465%    | 1000  | <i>4</i> 1 C  | 45.05°C | 0.985   |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | 10070 | 11.952V | 4.959V  | 3.261V  | 4.969V | 1104.584 | 90.40370   | 1003  | 41.2          | 55.06°C | 229.72V |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | 1100/ | 83.919A | 10.087A | 10.219A | 3.024A | 1099.893 | 00 7/00/   | 1077  | <i>4</i> 1 1  | 46.59°C | 0.986   |
| CL1       12.116V       4.96V       3.275V       5.088V       142.898       755       13.4       46.27°C       229.86V         0.114A       22.197A       0A       0A       111.298       83.17%       763       13.8       40.36°C       0.88   | 11070 | 11.935V | 4.957V  | 3.258V  | 4.961V | 1225.537 | 09.74070   | 10//  | 41.1          | 57.51°C | 229.7V  |
| 12.116V       4.96V       3.275V       5.088V       142.898       46.27°C       229.86V         0.114A       22.197A       0A       0A       111.298       83.17%       763       13.8       40.36°C       0.88  | CI 1  | 0.114A  | 14.559A | 14.567A | 0A     | 121.29   | 04.0700/   | 755   | 13.4          | 40.81°C | 0.89    |
| CL2 83.17% 763 13.8  |       | 12.116V | 4.96V   | 3.275V  | 5.088V | 142.898  | 04.079%    | 755   |               | 46.27°C | 229.86V |
| 12.122V         4.952V         3.287V         5.096V         133.825         765         15.6         47.38°C         229.86V  | CI 2  | 0.114A  | 22.197A | 0A      | 0A     | 111.298  | 93 1 7%    | 762   | 12.0          | 40.36°C | 0.88    |
|  |       | 12.122V | 4.952V  | 3.287V  | 5.096V | 133.825  | 05.1770    | 705   | 15.0          | 47.38°C | 229.86V |
| CL3 0.113A 0A 22.186A 0A 73.98 77.294% 745 12.8 41.38°C 0.832  | CL 3  | 0.113A  | 0A      | 22.186A | 0A     | 73.98    | 77.294%    | 745   | 12.8          | 41.38°C | 0.832   |
| 12.122V         4.981V         3.272V         5.091V         95.707         74.5         12.6         50.41°C         229.86V  |       | 12.122V | 4.981V  | 3.272V  | 5.091V | 95.707   |            |       |               | 50.41°C | 229.86V |
| 83.603A         0A         0A         999.834         91.071%         1891         41.5         45.04°C         0.984  | CL /  | 83.603A | 0A      | 0A      | 0A     | 999.834  | 01 0710/   | 1001  | <i>/</i> 11 5 | 45.04°C | 0.984   |
| CL4 11.959V 4.978V 3.273V 5.05V 1097.864 91.071% 1891 41.5 55.99°C 229.72V   | UL4   | 11.959V | 4.978V  | 3.273V  | 5.05V  | 1097.864 | 91.0/170   | 1021  | 41.J          | 55.99°C | 229.72V |

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

PAGE 14/16

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



# Anex

# be quiet! Pure Power 12 M 1000W

| 20-8     | OW LOAD                             | TESTS  | 230V   |        |                  |            |                    |                      |                   |                |
|----------|-------------------------------------|--|--------|--------|------------------|------------|--------------------|----------------------|-------------------|----------------|
| Test     | 12V                                 | 5V   | 3.3V   | 5VSB   | DC/AC<br>(Watts) | Efficiency | Fan Speed<br>(RPM) | PSU Noise<br>(dB[A]) | Temps<br>(In/Out) | PF/AC<br>Volts |
| 2014     | 1.226A                              | 0.501A   | 0.501A | 0.196A | 19.985           | 77.0400/   | 705                | 11.0                 | 36.52°C           | 0.468          |
| 20W      | 12.102V                             | 2V         4.984V         3.291V         5.099V         25.941         77.048%         725 | 725    | 11.9   | 39.57°C          | 229.88V    |                    |                      |                   |                |
| 40144    | 2.700A                              | 0.702A   | 0.702A | 0.294A | 39.987           | 00.676%    | 700                | 10                   | 37.2℃             | 0.659          |
| 4077     | 40W 12.099V 4.982V 3                | 3.289V   | 5.097V | 47.79  | 83.676%          | 726        | 12                 | 40.56°C              | 229.89V           |                |
| COLM     | 4.176A                              | 0.903A   | 0.903A | 0.393A | 59.987           | 06 40 40/  | 700                | 10.1                 | 38.01°C           | 0.761          |
| 60W      | 12.098V 4.981V 3.288V 5.094V 69.368 | 86.484%  | 728    | 12.1   | 41.54°C          | 229.88V    |                    |                      |                   |                |
| 00144    | 5.638A                              | 1.104A   | 1.104A | 0.491A | 79.917           | 00.0070/   | 735                | 12.4                 | 39.12°C           | 0.827          |
| 80W 12.1 | 12.110V                             | 4.981V   | 3.288V | 5.094V | 92.852           | 86.067%    |                    |                      | 42.96°C           | 229.87V        |

### **RIPPLE MEASUREMENTS 230V**

| 12V     | 5V  | 3.3V  | 5VSB  | Pass/Fail  |
|---------|---|---|---|--|
| 12.58mV | 11.44mV   | 9.23mV  | 10.72mV   | Pass   |
| 19.64mV | 10.98mV   | 9.44mV  | 11.14mV   | Pass   |
| 15.75mV | 10.83mV   | 9.54mV  | 10.62mV   | Pass   |
| 15.09mV | 11.96mV   | 9.90mV  | 11.60mV   | Pass   |
| 15.04mV | 11.29mV   | 10.52mV   | 11.24mV   | Pass   |
| 15.09mV | 12.37mV   | 10.88mV   | 11.55mV   | Pass   |
| 15.34mV | 12.32mV   | 11.34mV   | 12.31mV   | Pass   |
| 15.04mV | 13.60mV   | 12.83mV   | 12.78mV   | Pass   |
| 16.32mV | 12.99mV   | 12.98mV   | 12.37mV   | Pass   |
| 22.76mV | 14.91mV   | 15.00mV   | 15.82mV   | Pass   |
| 23.78mV | 15.72mV   | 16.08mV   | 16.74mV   | Pass   |
| 15.76mV | 18.65mV   | 19.08mV   | 12.59mV   | Pass   |
| 18.05mV | 22.53mV   | 17.91mV   | 10.72mV   | Pass   |
| 16.27mV | 16.12mV   | 16.78mV   | 10.21mV   | Pass   |
| 23.58mV | 12.89mV   | 10.22mV   | 11.74mV   | Pass   |
|         | 12.58mV         19.64mV         19.64mV         15.75mV         15.75mV         15.09mV         15.04mV         15.04mV         15.04mV         15.04mV         2000000000000000000000000000000000000 | 12.58mV       11.44mV         19.64mV       10.98mV         15.75mV       10.83mV         15.09mV       11.96mV         15.04mV       11.29mV         15.04mV       12.37mV         15.09mV       12.37mV         15.04mV       12.32mV         15.04mV       12.32mV         15.04mV       12.90mV         15.04mV       13.60mV         15.04mV       12.99mV         15.04mV       15.04mV         15.04mV       13.60mV         15.04mV       13.60mV         15.04mV       12.99mV         16.32mV       15.76mV         18.05mV       22.53mV         18.05mV       22.53mV         16.27mV       16.12mV | 12.58mV       11.44mV       9.23mV         19.64mV       10.98mV       9.44mV         15.75mV       10.83mV       9.54mV         15.09mV       11.96mV       9.90mV         15.09mV       11.29mV       10.52mV         15.04mV       12.37mV       10.88mV         15.04mV       12.37mV       10.88mV         15.04mV       12.32mV       11.34mV         15.04mV       12.32mV       11.34mV         15.04mV       12.90mV       12.83mV         15.04mV       13.60mV       12.98mV         16.32mV       12.99mV       12.98mV         16.32mV       15.72mV       16.08mV         15.76mV       18.65mV       19.08mV         18.05mV       22.53mV       17.91mV         16.27mV       16.12mV       16.78mV | 12.58mV         11.44mV         9.23mV         10.72mV           19.64mV         10.98mV         9.44mV         11.14mV           15.75mV         10.83mV         9.54mV         10.62mV           15.09mV         11.96mV         9.90mV         11.60mV           15.09mV         11.96mV         9.90mV         11.60mV           15.09mV         11.29mV         10.52mV         11.24mV           15.04mV         12.37mV         10.88mV         11.55mV           15.34mV         12.37mV         10.88mV         12.31mV           15.04mV         13.60mV         12.83mV         12.78mV           16.32mV         12.99mV         12.98mV         12.37mV           16.32mV         15.72mV         15.00mV         15.82mV           15.76mV         18.65mV         19.08mV         12.59mV           15.76mV         18.65mV         19.08mV         12.59mV           18.05mV         22.53mV         17.91mV         10.72mV           16.27mV         16.12mV         16.78mV         10.21mV |

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

> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case

PAGE 15/16

Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



# Anex

# be quiet! Pure Power 12 M 1000W



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

- > The link to the original test results document should be provided in any case

PAGE 16/16