EVGA

# EVGA SuperNOVA 1000 G3

1703441015899001

Lab ID 214

Certification ID 25214

Test Result Report ID:

Certificate Issue Date: Nov 13, 2018

115V

Scheme: ETA-EMI PSU




115V




Scheme: LAMBDA PSU



Aristeidis Bitziopoulos, Certification Body General Manager

# General Information

## Test Equipment

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

## DUT Information(Non-accredited measurements)

| | |
|---|---|
| Product Identification Details | |
| Brand | EVGA |
| Model | SuperNOVA 1000 G3 |
| OEM/ODM | Super Flower |
| Serial Number | 1703441015899001 |
| Product Specifications | |
| Manufacturer-Provided Information | |
| □□□□ (Vrms) | 100-240 |
| □□□□ (Arms) | 15 |
| □□□□ (Hz) | 50-60 |

| | |
|---|---|
| □□□□ (W) | 1000 |
| Operating Temperature (Continuous Full Load) (°C) | |
| □□ | ATX12V |
| □□□□ | Fully Modular |
| Warranty | - |
| Cybenetics Measurements | |
| Dimensions (W x H x D) | |
| Weight | |
| □□ | 130mm Hydraulic Dynamic Bearing Fan<br>(ED142512W-CA) |
| □□□□□ | ✓ (selectable) |
| Cybenetics Testing Information | |
| Lab ID | 214 |
| Date of receipt | Nov 2, 2018 |
| Testing Date | Nov 11, 2018 |
| Report Issued Date | Nov 13, 2018 |
| □□□□□ | Retested on 11/14/17 |
| Engineer Name | - |
| Authorized By the Laboratory Technical Manager | Aristeidis Bitziopoulos |
| Signature |  |

## □□□□□ (Non-accredited measurements)

| □□□□□ | | | | |
|---|---|---|---|---|
| □□ | □□□□ | □□□□□□ | Gauge | In Cable Capacitors |
| ATX □□ 20+4 pin (600mm) | 1 | 1 | 18-22AWG | □ |
| 4+4 pin EPS 12V □□ (700mm) | 2 | 2 | 18-22AWG | □ |
| 6+2pin PCIe□□ (700mm) | 2 | 2 | 18-20AWG | □ |
| 6+2pin PCIe□□ (700mm+150mm) | 3 | 6 | 18-20AWG | □ |
| SATA□□ (550mm+100mm+100mm) | 3 | 12 | 18-20AWG | □ |
| □ 4pin Molex□□ (550mm+100mm+100mm+100mm) | 1 | 4 | 18AWG | □ |
| □ 4pin □□ (+100mm) | 1 | 1 | 20AWG | □ |

| | | | | | |
|---|---|---|---|---|---|
| AC Power Cord (1400mm) - C13 coupler | 1 | 1 | 18AWG | □ | |

□□□□

| □ | | 3.3V | 5V | 12V | 5VSB | -12V |
|---|---|---|---|---|---|---|
| □□□□ | □□ | 24 | 24 | 83.3 | 3 | 0.5 |
| | □ | 120 | | 999.6 | 15 | 6 |
| □□□□□ (W) | | 1000 | | | | |

## Parts Description

| General Data | |
|---|---|
| Manufacturer (OEM) | CWT |
| Platform Model | - |
| Primary Side | |
| Transient Filter | 4x Y caps, 2x X caps, 2x CM chokes, 1x MOV |
| Inrush Protection | NTC Thermistor & Diode |
| Bridge Rectifier(s) | 2x GBU1006 (600V, 10A @ 100°C) |
| APFC MOSFETS | 2x Infineon IPW50R280CE (550V, 11.4A @ 100°C, 0.28Ohm) |
| APFC Boost Diode | 1x Power Integrations QH08TZ600 (600V, 8A @ 150°C) |
| Hold-up Cap(s) | 1x Nichicon (400V, 390uF, 2000h @ 105 °C, GG) |
| Main Switchers | 2x Vishay SiHG20N50C<br>(560V, 11A @ 100°C, 0.27Ohm) |
| Combo APFC/PWM Controller | Champion CM6800TX & CM03X Green PFC controller |
| Topology | Primary side: Half-Bridge & LLC Resonant Controller<br>Secondary side: Synchronous Rectification & DC-DC converters |
| Secondary Side | |
| +12V MOSFETS | 4x APEC AP9990GH-HF (60V, 100A @ 25°C, 6mOhm) |
| 5V & 3.3V | DC-DC Converters: 6x APEC AP72T03GP (30V, 47A @ 100°C, 9.5mOhm)<br>PWM Controller: APW7159C |
| Filtering Capacitors | Electrolytics: Nippon Chemi-Con (1-5,000 @ 105°C, KZE), Suscon (2-5,000h @ 105°C, MF), TAICON (105°C)<br>Polymers: APAQ, EneSol |
| Supervisor IC | Weltrend WT7502 (OVP, UVP, SCP, PG) |
| Fan Model | Power Logic PLA13525S12M (12V, 0.40A, 111.1CFM, 41.6 dBA, Hydro Dynamic Bearing) |

| | |
|---|---|
| 5VSB Circuit | |
| Rectifier | 1x MBR2045CT SBR (45V, 20A) & CEF04N7G (700V, 4A, 3.3Ohm) |
| Standby PWM Controller | On-Bright OB5269CP |
| -12V Circuit | |
| Rectifier | UTC 2SB834L |

# Test Results

## Temperature & Compliance Info

| | |
|---|---|
| □□□□ (°C /°F) | 28-32 / 82.4-89.6 |
| □□ ErP Lot3/6□□ | ErP Lot 3/6 2010: ✓<br>ErP Lot 3/6 2013: Partially<br>ErP Lot 3/6 2014, CEC: Partially |
| □□ (EU) No 617/2013□□ | ✓ |

## Performance Summary 115V

| | |
|---|---|
| Accredited | |
| □□□□ (>1450 load combinations) | 89.652% |
| Average Noise Output (>1450 Load Combinations) | 33.81dBA |
| PF□□□ (>1450 Load Combinations) | 0.987 |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | 73.258% |
| □□□□□□ | 0.1344W |
| Non-Accredited | |
| 12V Ripple (Full Load) | 11.85mV |
| 5V Ripple (Full Load) | 6.68mV |
| 3.3V Ripple (Full Load) | 9.18mV |
| 5VSB Ripple (Full Load) | 25.31mV |
| 12V Load Regulation | 0.16% |
| 5V Load Regulation | 0.10% |
| 3.3V Load Regulation | 0.15% |
| 5VSB Load Regulation | 1.85% |

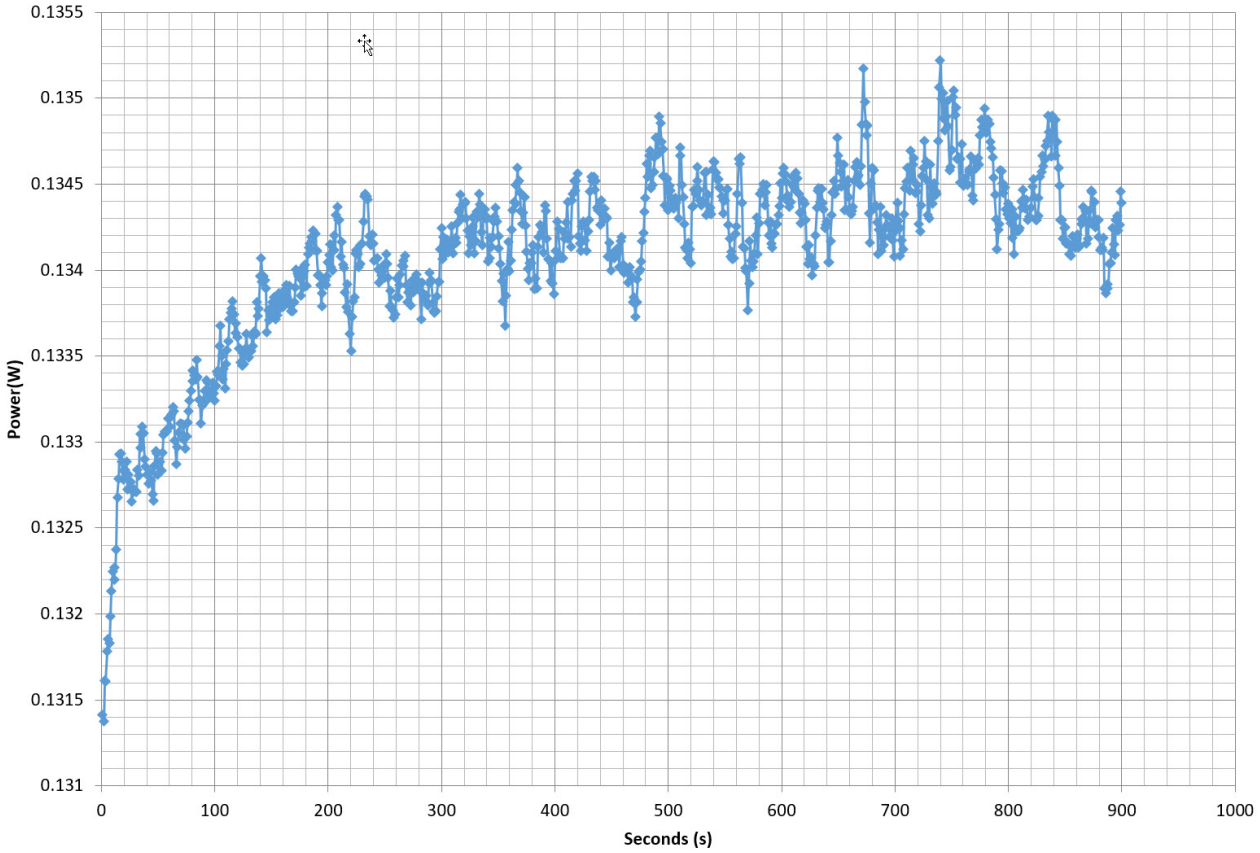
| | |
|---|---|
| Inrush Current | 42.862A |

## □□□□ & PG□□

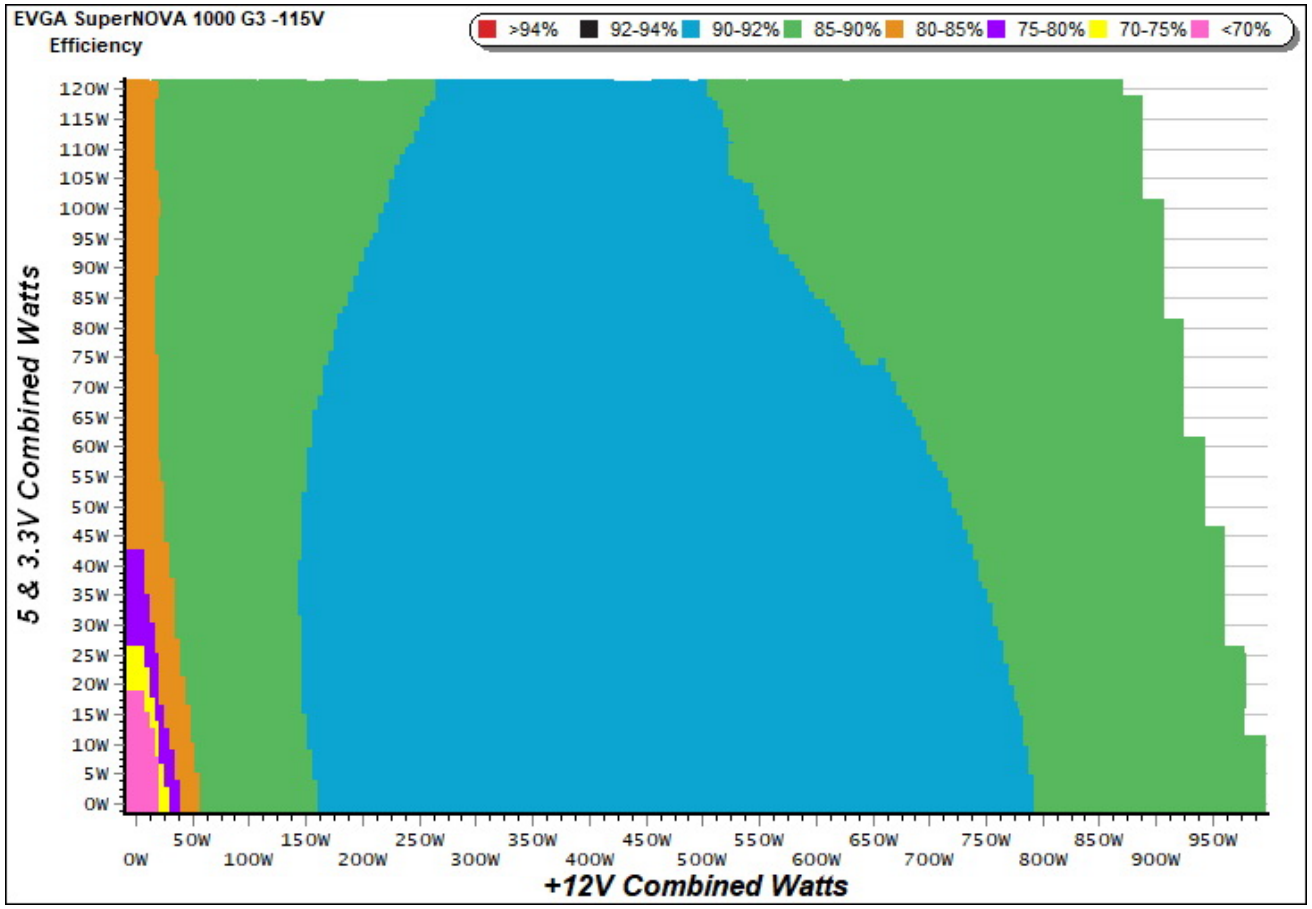
| | |
|---|---|
| Hold-Up Time (ms) | 22.52 |
| AC Loss to PWR_OK Hold Up Time (ms) | 20.90 |
| PWR_OK Inactive to DC Loss Delay (ms) | 1.62 |

## Graphs 115V

### Power - 1703441015899001 - 09/11/2017 - 14:14



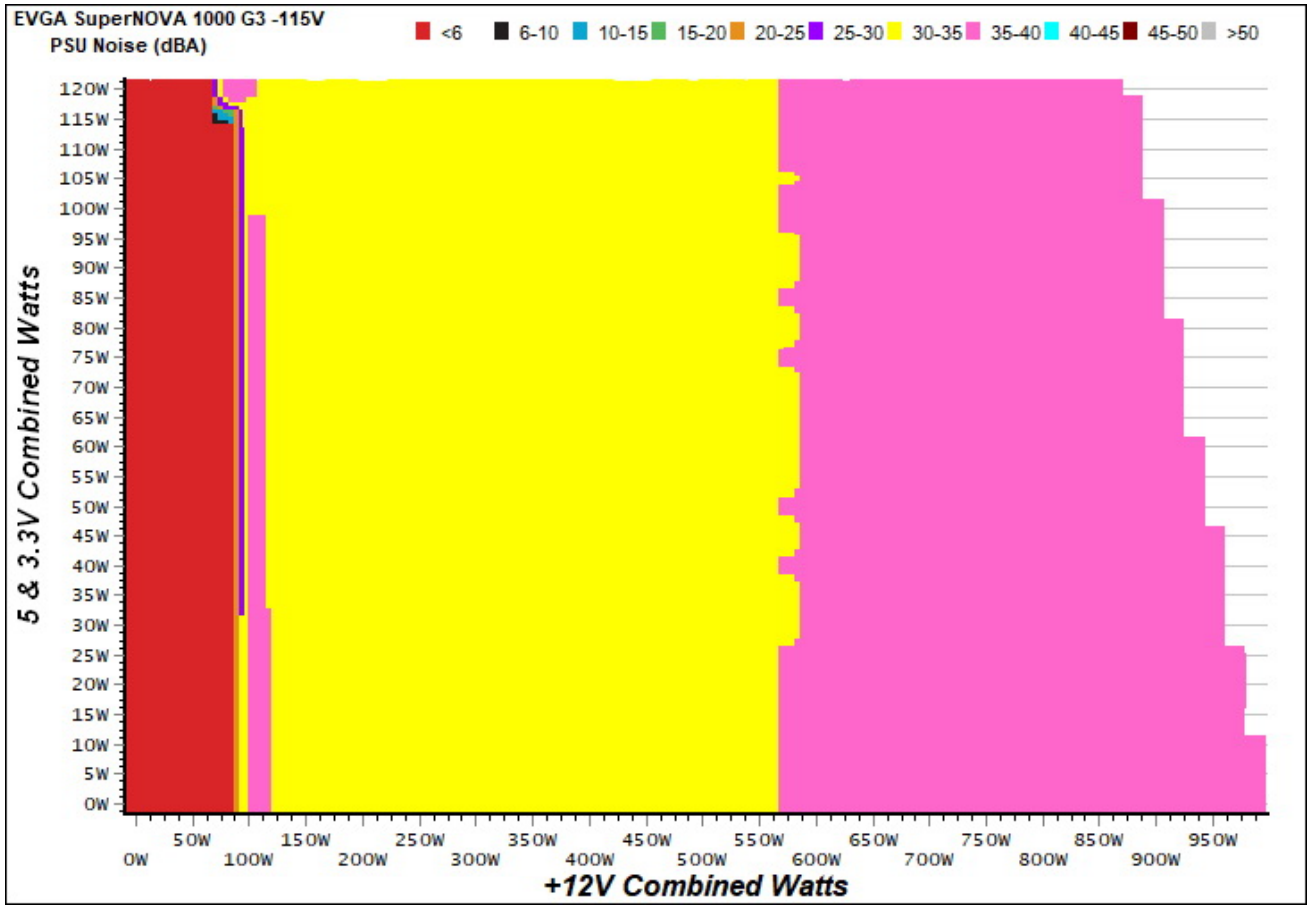
**115V**




□□

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.

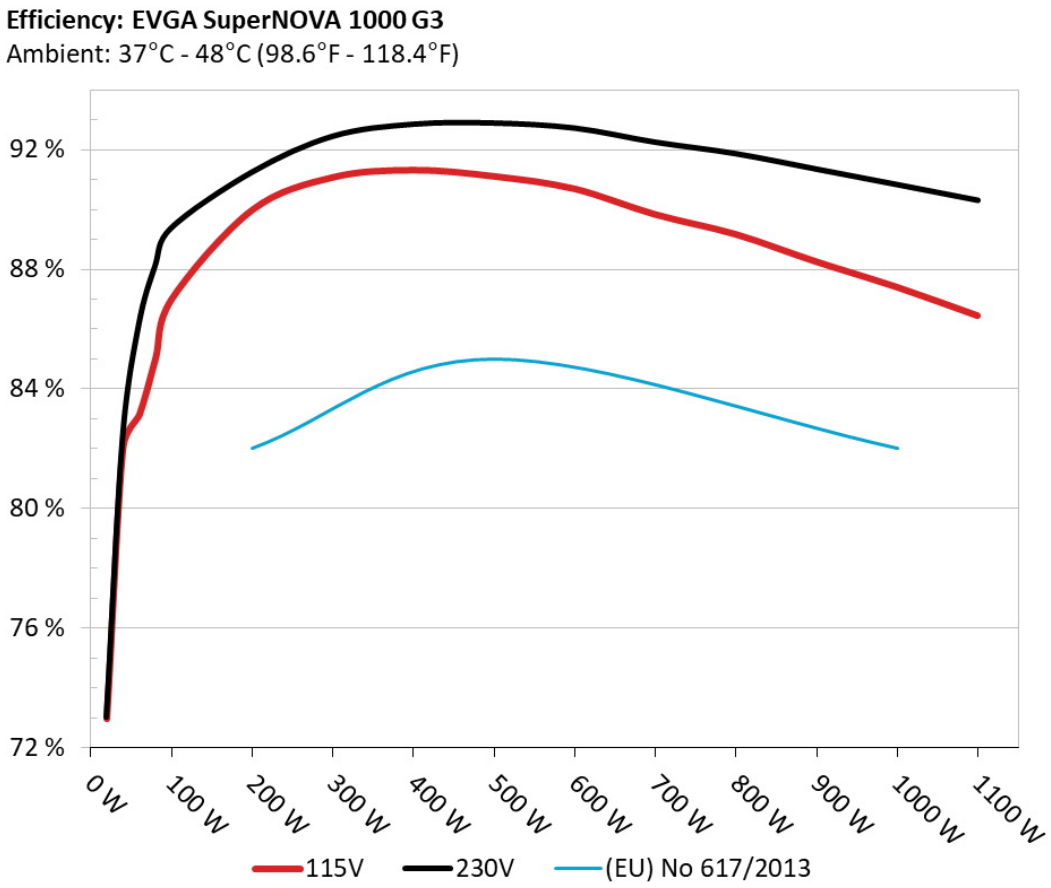
**115V**




□□

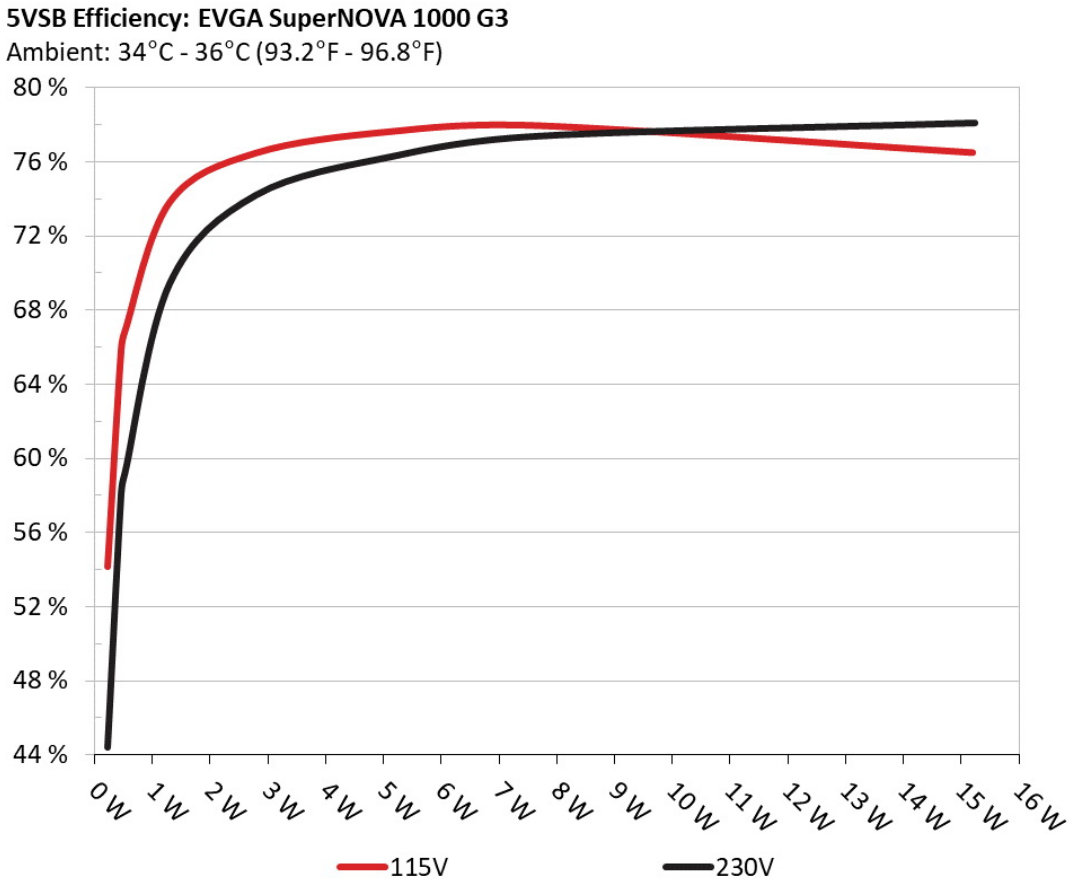
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

## Indicative Performance




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□□□□




□□

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

### □□□□ □□ 5Vsb □□ (ErP Lot3/6 & CEC) 115V

| □□ # | 5VSB | DC/AC (□ ) | □□ | PF/AC □□ |
|---|---|---|---|---|
| 1 | 0.042A | 0.215 | 54.156% | 0.031 |
| | 5.143V | 0.397 | | 115.09V |

| | | | | |
|---|---|---|---|---|
| 2 | 0.087A | 0.449 | 65.836% | 0.052 |
| | 5.142V | 0.682 | | 115.09V |
| 3 | 0.542A | 2.781 | 76.443% | 0.233 |
| | 5.131V | 3.638 | | 115.08V |
| 4 | 1.002A | 5.132 | 77.605% | 0.336 |
| | 5.121V | 6.613 | | 115.08V |
| 5 | 1.502A | 7.675 | 77.919% | 0.397 |
| | 5.110V | 9.850 | | 115.08V |
| 6 | 3.002A | 15.206 | 76.466% | 0.478 |
| | 5.066V | 19.886 | | 115.08V |

## Supplementary Tests (For Reference)

**10-110%□□□□ 115V**

| □□ # | 12V | 5V | 3.3V | 5VSB | DC/AC (□ ) | □□ | □□□□ (RPM) | □□□□□□□ (dB[A]) | □□ (□□ /□□ ) | PF/AC □□ |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.457A | 1.994A | 1.991A | 0.976A | 99.840 | 87.002% | 1565 | 36.8 | 38.05°C | 0.974 |
| | 12.121V | 5.008V | 3.310V | 5.120V | 114.756 | | | | 43.05°C | 115.04V |
| 2 | 13.933A | 2.989A | 2.987A | 1.171A | 199.683 | 89.988% | 1592 | 37.2 | 38.35°C | 0.978 |
| | 12.118V | 5.009V | 3.310V | 5.111V | 221.899 | | | | 43.72°C | 115.04V |
| 3 | 21.778A | 3.497A | 3.499A | 1.371A | 299.956 | 91.085% | 1615 | 37.5 | 38.75°C | 0.987 |
| | 12.116V | 5.009V | 3.310V | 5.103V | 329.315 | | | | 44.52°C | 115.07V |
| 4 | 29.599A | 3.995A | 3.983A | 1.567A | 399.738 | 91.327% | 1653 | 38.1 | 39.12°C | 0.992 |
| | 12.114V | 5.008V | 3.310V | 5.096V | 437.699 | | | | 45.03°C | 115.05V |
| 5 | 37.075A | 4.986A | 4.981A | 1.766A | 499.690 | 91.119% | 1698 | 38.9 | 40.06°C | 0.994 |
| | 12.117V | 5.009V | 3.310V | 5.090V | 548.395 | | | | 46.17°C | 115.06V |
| 6 | 44.545A | 5.985A | 5.977A | 1.966A | 599.615 | 90.700% | 1750 | 39.3 | 40.58°C | 0.995 |
| | 12.119V | 5.010V | 3.312V | 5.083V | 661.098 | | | | 47.27°C | 115.07V |
| 7 | 52.021A | 6.990A | 6.972A | 2.165A | 699.644 | 89.844% | 1850 | 41.7 | 42.16°C | 0.995 |
| | 12.121V | 5.010V | 3.312V | 5.075V | 778.733 | | | | 49.29°C | 115.07V |
| 8 | 59.486A | 7.981A | 7.963A | 2.365A | 799.515 | 89.181% | 1924 | 43.2 | 43.76°C | 0.995 |
| | 12.123V | 5.012V | 3.313V | 5.067V | 896.512 | | | | 50.94°C | 115.08V |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 67.379A | 8.482A | 8.482A | 2.368A | 899.502 | 88.264% | 2007 | 44.5 | 44.90°C | 0.996 |
| | 12.124V | 5.012V | 3.313V | 5.062V | 1019.102 | | | | 52.29°C | 115.09V |
| 10 | 75.026A | 8.988A | 8.964A | 2.970A | 999.392 | 87.415% | 2096 | 45.3 | 46.37°C | 0.996 |
| | 12.125V | 5.010V | 3.312V | 5.045V | 1143.269 | | | | 54.23°C | 115.09V |
| 11 | 83.267A | 8.988A | 8.971A | 2.972A | 1099.312 | 86.461% | 2124 | 45.5 | 47.73°C | 0.996 |
| | 12.125V | 5.009V | 3.310V | 5.042V | 1271.453 | | | | 56.90°C | 115.05V |
| CL1 | 0.100A | 14.025A | 14.006A | 0.005A | 118.927 | 82.902% | 1890 | 42.6 | 43.32°C | 0.969 |
| | 12.105V | 5.046V | 3.350V | 5.141V | 143.455 | | | | 47.82°C | 115.09V |
| CL2 | 83.264A | 1.002A | 1.002A | 1.002A | 1023.383 | 87.714% | 2045 | 44.7 | 46.07°C | 0.996 |
| | 12.130V | 4.984V | 3.288V | 5.092V | 1166.729 | | | | 53.15°C | 115.09V |

The results above are not used in the certification process

**20-80□□□□□ 115V**

| □□ # | 12V | 5V | 3.3V | 5VSB | DC/AC (□ ) | □□ | □□□□ (RPM) | □□□□□□□ (dB[A]) | PF/AC □□ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.198A | 0.489A | 0.481A | 0.197A | 19.653 | 73.258% | 0 | <6.0 | 0.745 |
| | 12.191V | 5.017V | 3.310V | 5.083V | 26.827 | | | | 115.04V |
| 2 | 2.421A | 0.988A | 0.996A | 0.391A | 39.745 | 82.438% | 0 | <6.0 | 0.866 |
| | 12.187V | 5.017V | 3.310V | 5.078V | 48.212 | | | | 115.04V |
| 3 | 3.648A | 1.485A | 1.510A | 0.592A | 59.903 | 83.524% | 0 | <6.0 | 0.924 |
| | 12.184V | 5.018V | 3.312V | 5.073V | 71.719 | | | | 115.05V |
| 4 | 4.854A | 1.994A | 1.989A | 0.785A | 79.767 | 85.020% | 1760 | 39.6 | 0.945 |
| | 12.195V | 5.018V | 3.312V | 5.069V | 93.821 | | | | 115.05V |

The results above are not used in the certification process

**□□□□ 115V**

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| 10% Load | 5.3 mV | 3.6 mV | 7.9 mV | 8.4 mV | Pass |
| 20% Load | 6.6 mV | 4.3 mV | 4.7 mV | 10.3 mV | Pass |
| 30% Load | 7.4 mV | 4.3 mV | 5.1 mV | 12.2 mV | Pass |
| 40% Load | 8.0 mV | 4.7 mV | 5.5 mV | 13.0 mV | Pass |

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| 50% Load | 8.1 mV | 4.3 mV | 5.9 mV | 14.4 mV | Pass |
| 60% Load | 8.3 mV | 4.3 mV | 6.5 mV | 15.8 mV | Pass |
| 70% Load | 9.2 mV | 5.1 mV | 7.1 mV | 18.9 mV | Pass |
| 80% Load | 10.2 mV | 5.8 mV | 7.6 mV | 20.3 mV | Pass |
| 90% Load | 10.7 mV | 5.7 mV | 8.5 mV | 22.1 mV | Pass |
| 100% Load | 11.9 mV | 6.7 mV | 9.2 mV | 25.3 mV | Pass |
| 110% Load | 12.8 mV | 8.3 mV | 9.9 mV | 28.3 mV | Pass |
| Crossload 1 | 5.9 mV | 3.6 mV | 4.6 mV | 18.9 mV | Pass |
| Crossload 2 | 10.3 mV | 5.7 mV | 8.3 mV | 22.5 mV | Pass |

The results above are not used in the certification process

## EVGA SuperNOVA 1000 G3

Top side

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由 Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

Cybenetics 提供自愿性认证计划：电源方面有 ETA (效率)、 LAMBDA (噪声) 与 SAFE (安全与正确运行)；散热产品方面有 DELTA (机箱隔音) 与 PHI (风扇风量与静压)