# Gamer Storm PF700X

Serial Number -

Lab ID GA70002728

Certification ID 252728

Test Result Report ID: 25PS2728A

Certificate Issue Date: Feb 5, 2025

230V

Scheme: ETA-EMI PSU




230V




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 | Gamer Storm |
| Model | PF700X |
| OEM/ODM | CE-Link |
| Serial Number | - |
| Product Specifications | |
| Manufacturer-Provided Information | |
| Rated Voltage (Vrms) | 200-240 |
| Rated Current (Arms) | 5 |
| Rated Frequency (Hz) | 50-60 |

| | |
|---|---|
| Rated Power (W) | 700 |
| Operating Temperature (Continuous Full Load) (°C) | |
| Type | ATX12V |
| Cable Design | Fixed cables |
| Warranty | - |
| Cybenetics Measurements | |
| Dimensions (W x H x D) | |
| Weight | |
| Cooling | 120mm Fluid Dynamic Bearing Fan (HA1225M12F-Z) |
| Semi-Passive Operation | ✗ |
| Cybenetics Testing Information | |
| Lab ID | GA70002728 |
| Date of receipt | Jan 23, 2025 |
| Testing Date | Jan 30, 2025 |
| Report Issued Date | Feb 5, 2025 |
| Engineer Name | - |
| Authorized By the Laboratory Technical Manager | Aristeidis Bitziopoulos |
| Signature |  |

## Cables and Connectors(Non-accredited measurements)

| **Captive Cables** | | | | |
|---|---|---|---|---|
| **Description** | **Cable Count** | **Connector Count (Total)** | **Gauge** | In Cable Capacitors |
| ATX connector 20+4 pin (560mm) | 1 | 1 | 18-22AWG | No |
| 4+4 pin EPS12V (610mm+150mm) | 1 | 2 | 18AWG | No |
| 6+2 pin PCIe (510mm+150mm) | 2 | 4 | 18AWG | No |
| SATA (460mm+150mm+150mm) / 4-pin Molex (+150mm) | 2 | 6 / 2 | 18AWG | No |

## Protection Features(Manufacturer)

| | |
|---|---|
| Over Power Protection | ✓ |
| Over Current (+12V) Protection | ? |

| | |
|---|---|
| Over Temperature Protection | ✓ |
| Short Circuit Protection | ✓ |
| Surge Protection | ✓ |
| Inrush Current Protection | ✓ |
| Fan Failure Protection | ✗ |

## Power Specifications

| Rail | | 3.3V | 5V | 12V | 5VSB | -12V |
|---|---|---|---|---|---|---|
| Max. Power | Amps | 18 | 18 | 58.3 | 3 | 0.3 |
| | Watts | 110 | | 699.6 | 15 | 3.6 |
| Total Max. Power (W) | | 700 | | | | |

## Parts Description

| **General Data** | |
|---|---|
| Manufacturer (OEM) | CE LINK |
| PCB Type | Single-Sided |
| **Primary Side** | |
| Transient Filter | 4x Y caps, 2x X caps, 2x CM chokes, 1x MOV |
| Inrush Protection | 1x NTC Thermistor M72 1.3D15 (1.3 ohm) |
| Bridge Rectifier(s) | 1x GBU608 (800V, 6A @ 100°C) |
| APFC MOSFETs | 1x Lonten LND20N50W (500V, 12.5A @ 100°C, Rds(on): 0.29Ohm) |
| APFC Boost Diode | 1x Good-Ark MUR860F (600V, 8A @ 105°C) |
| Bulk Cap(s) | 1x Teapo (420V, 470uF, 6-10,000h @ 105°C, TC) |
| Main Switchers | 2x Lonten LND18N50 (500V, 13.5A @ 100°C, Rds(on): 0.28Ohm) |
| PFC/PWM Controller | Champion CM6800UX |

| | |
|---|---|
| Topology | Primary side: APFC, Double Forward Secondary side: Synchronous Rectification & DC-DC converters |
| **Secondary Side** | |
| +12V MOSFETs | 3x HB043N06GC |
| 5V & 3.3V | DC-DC Converters: 4x SLD3090T PWM Controller(s): 2x Anpec APW7164 |
| Filtering Capacitors | Electrolytic: 13x Teapo (1-3,000h @ 105°C, SC) 1x Toshincon (@105°C, UCE) Polymer: 2x |
| Supervisor IC | IN1S3151-SAG |
| Fan Model | Hong Hua HA1225M12F-Z (120mm, 12V, 0.45A, Fluid Dynamic Bearing Fan) |
| **5VSB** | |
| Rectifier | 1x Chongqing Pingwei PS1045L (45V, 10A) SBR |
| Standby PWM Controller | Esthome EST.2915HP |

# Test Results

## Temperature & Compliance Info

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

## Performance Summary 230V

| | |
|---|---|
| Accredited | |
| Average Efficiency (>1450 load combinations) | 87.479% |
| Average Noise Output (>1450 Load Combinations) | 26.39dBA |
| Average PF (>1450 Load Combinations) | 0.967 |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | 61.529% |
| Standby Power Consumption | 0.1587W |

| | | |
|---|---|---|
| Non-Accredited | | |
| 12V Ripple (Full Load) | | 72.37mV |
| 5V Ripple (Full Load) | | 34.52mV |
| 3.3V Ripple (Full Load) | | 28.99mV |
| 5VSB Ripple (Full Load) | | 24.94mV |
| 12V Load Regulation | | 0.36% |
| 5V Load Regulation | | 2.55% |
| 3.3V Load Regulation | | 3.72% |
| 5VSB Load Regulation | | 4.44% |
| Inrush Current | | 231.700A |
| 12V Transient Response (150%) | | 11.62V |
| 5V Transient Response (150%) | | 4.929V |
| 3.3V Transient Response (150%) | | 3.194V |
| 5VSB Transient Response (150%) | | 4.973V |
| Hold-Up Time & PWR_OK Signal | | 13.40ms |
| AC Loss to PWR_OK Hold Up Time | | 12.10ms |
| PWR_OK Inactive to DC Loss Delay | | 1.30ms |
| PSU Timings: T1 (20% / 100%) | 44.0ms | 43.0ms |
| PSU Timings: T3 (20% / 100%) | 126.0ms | 125.0ms |
| 12V OCP (28.4°C / 41.7°C) | 77.20A (132.42%), 11.498V *High Ripple (175.43mV), Voltage Drop (11.266V@77.6A), Stopped | 76.80A (131.73%), 11.412V *High Ripple(185.25mV), Voltage Drop (11.15V@77.2A), Stopped |
| 5V OCP (28.4°C / 41.7°C) | 27A (150.00%), 5.022V | 25.6A (142.22%), 5.015V |
| 3.3V OCP (28.4°C / 41.7°C) | 28.5A (158.33%), 3.304V | 28.1A (156.11%), 3.304V |
| 5VSB OCP (28.4°C / 41.7°C) | 5.5A (183.33%), 4.986V | 5.3A (176.67%), 4.988V |
| OPP (29.27°C / 42.41°C) | 127.23% | 124.24% |

## Hold-Up Time & PWR_OK Signal

| | |
|---|---|
| Hold-Up Time (ms) | 13.4 |
| AC Loss to PWR_OK Hold Up Time (ms) | 12.1 |
| PWR_OK Inactive to DC Loss Delay (ms) | 1.3 |

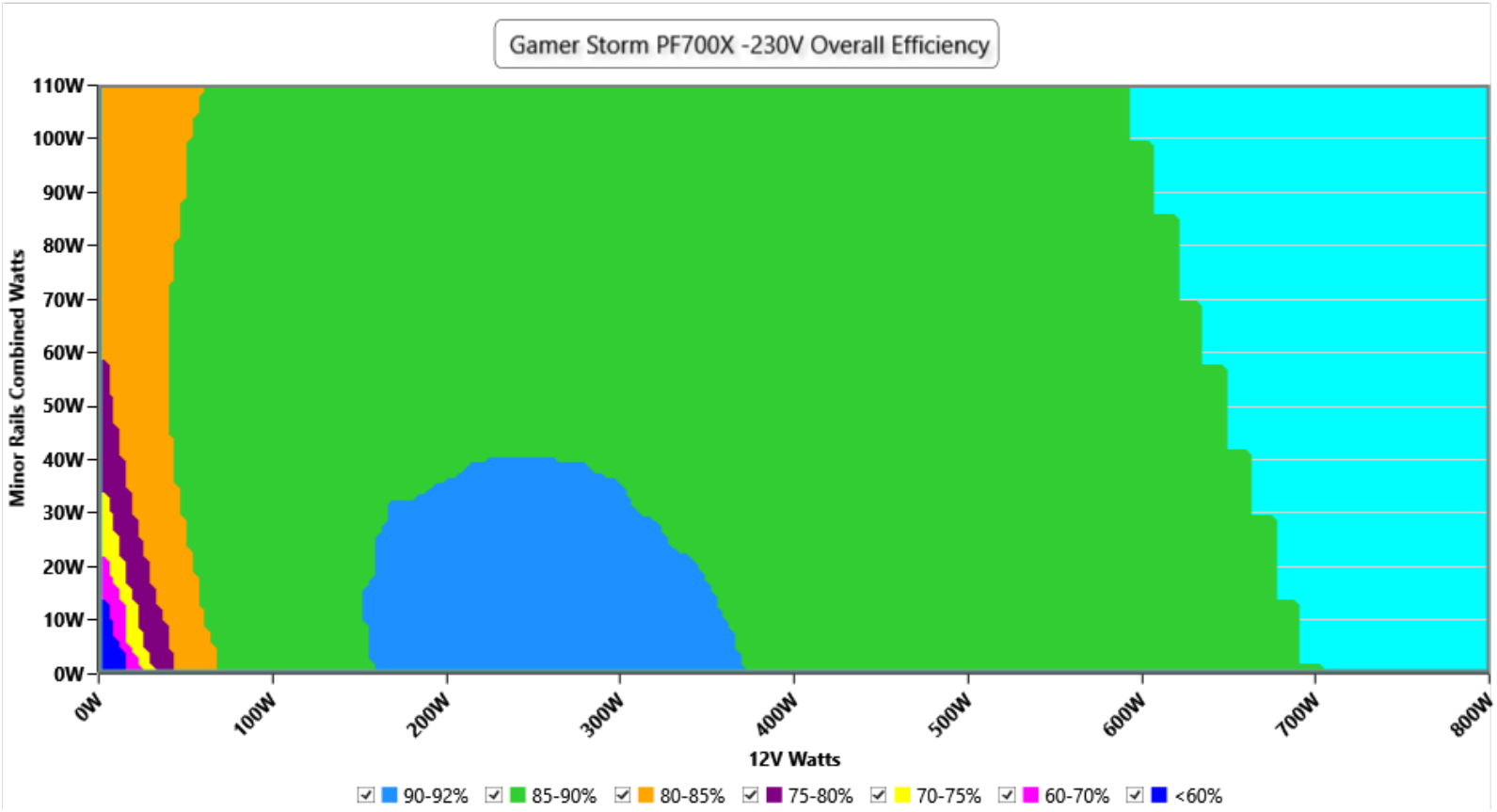
# Vampire Power

## Tables 230V

| Detailed Results | | | | | | |
|---|---|---|---|---|---|---|
| | Average | Min | Limit Min | Max | Limit Max | Result |
| Mains Voltage RMS: | 231.00 V | 230.88 V | 227.70 V | 231.07 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: | 1.417 | 1.416 | 1.340 | 1.419 | 1.490 | PASS |
| Mains Voltage THD: | 0.17 % | 0.14 % | N/A | 0.29 % | 2.00 % | PASS |
| Real Power: | 0.159 W | 0.120 W | N/A | 0.212 W | N/A | N/A |
| Apparent Power: | 16.358 W | 16.154 W | N/A | 16.602 W | N/A | N/A |
| Power Factor: | 0.011 | N/A | N/A | N/A | N/A | N/A |

## Efficiency Graph

### 230V

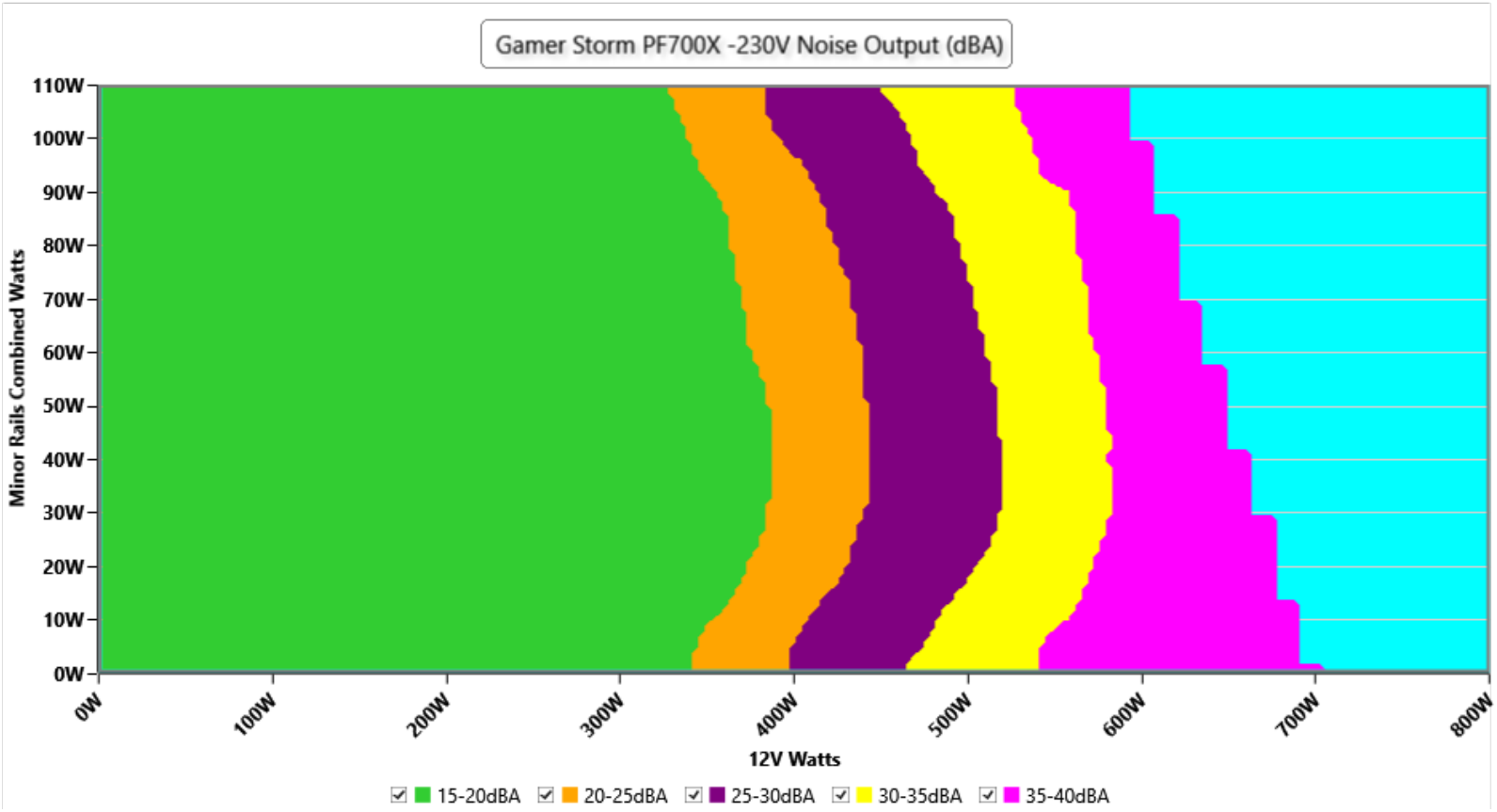



### INFO

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

## Noise under high ambient temperature (indicative)

### 230V

| Load | Normal ambient<br>fan · noise · intake | High ambient<br>fan · noise · intake | Noise change |
|---|---|---|---|
| 10% | 758 RPM · 16.8 dB(A) · 30.6 °C | 773 RPM · 17.5 dB(A) · 40.5 °C | **+0.7 dB(A)** |
| 20% | 764 RPM · 16.9 dB(A) · 31.0 °C | 777 RPM · 17.6 dB(A) · 40.8 °C | **+0.7 dB(A)** |
| 50% | 774 RPM · 17.6 dB(A) · 30.9 °C | 1177 RPM · 29.6 dB(A) · 42.4 °C | **+12.0 dB(A)** |
| 100% | 1576 RPM · 37.8 dB(A) · 30.3 °C | 2004 RPM · 43.6 dB(A) · 45.7 °C | **+5.8 dB(A)** |

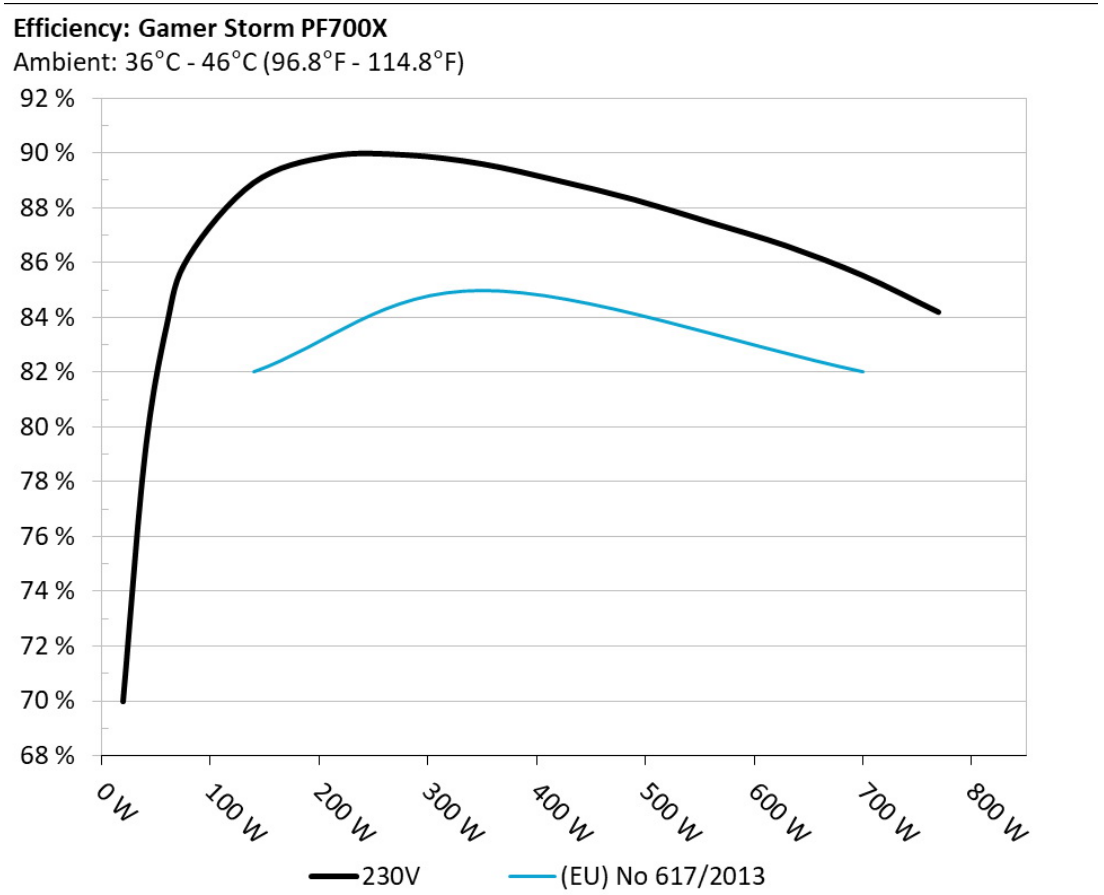
### INFO

Fan speed, noise and the measured intake temperature at 10, 20, 50 and 100 % load, from the two load regulation tests: at normal ambient (about 30-32 °C) and at high ambient (about 40-47 °C). These are stabilized readings at fixed loads, not averages over the certification sweep, so they are indicative of how the fan behaves when it is hot. "<6.0" is the floor of our sound meter: the fan is stopped or too quiet to measure (the fan speed column says which); with the fan stopped, the intake sensor can read higher than the chamber air.

*Informational. Not part of the ETA or LAMBDA rating.*

## Indicative Performance

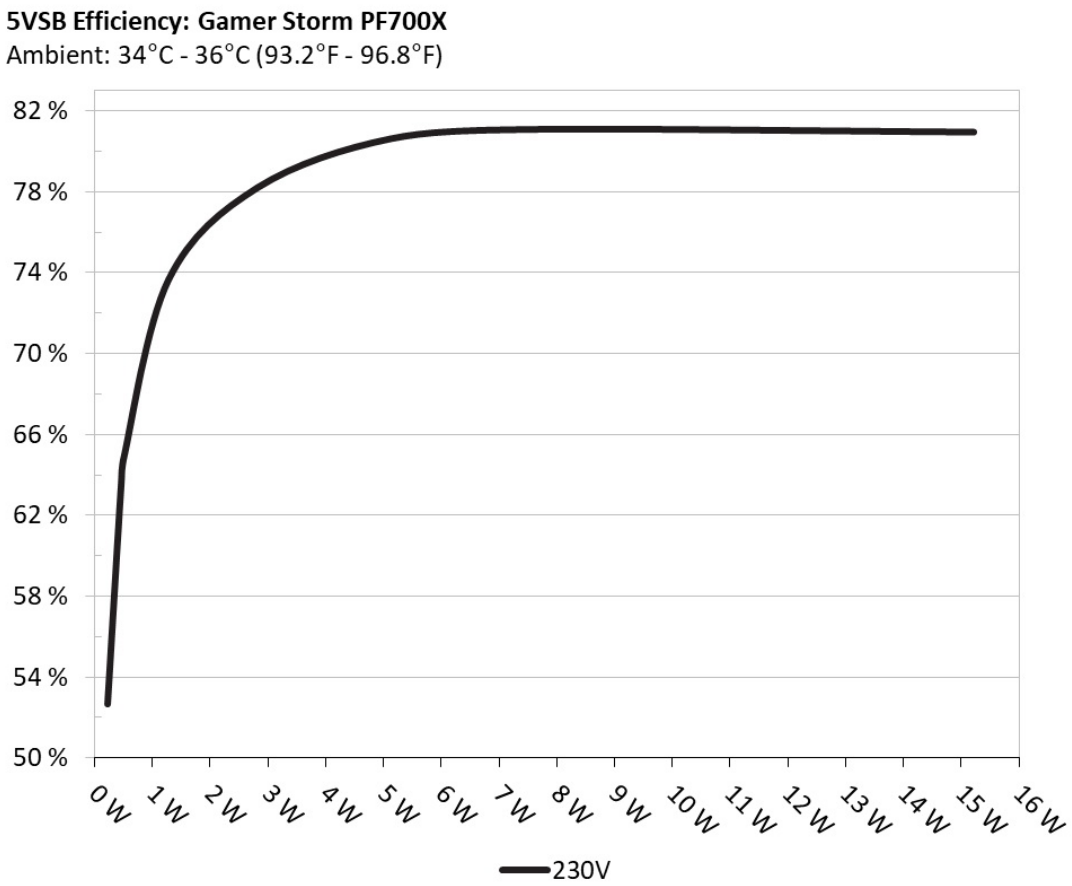
### Efficiency under high ambient temperature




**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




### INFO

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

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

| Test # | 5VSB | DC/AC (Watts) | Efficiency | PF/AC Volts |
|---|---|---|---|---|
| **1** | **0.045A** | 0.232W | 52.671% | 0.025 |
| | 5.157V | 0.443W | | 229.89V |

| | | | | |
|---|---|---|---|---|
| **2** | **0.09A** | 0.464W | 63.432% | 0.041 |
| | 5.156V | 0.733W | | 229.89V |
| **3** | **0.55A** | 2.828W | 78.222% | 0.174 |
| | 5.142V | 3.617W | | 229.88V |
| **4** | **1A** | 5.129W | 80.635% | 0.243 |
| | 5.129V | 6.361W | | 229.88V |
| **5** | **1.5A** | 7.673W | 81.098% | 0.291 |
| | 5.115V | 9.462W | | 229.89V |
| **6** | **3A** | 15.211W | 80.962% | 0.357 |
| | 5.071V | 18.789W | | 229.88V |

## Protection Features

| | |
|---|---|
| OCP (Normal @ 28.4°C) | 12V: 77.20A (132.42%), 11.498V *High Ripple (175.43mV), Voltage Drop (11.266V@77.6A), Stopped<br>5V: 27A (150.00%), 5.022V<br>3.3V: 28.5A (158.33%), 3.304V<br>5VSB: 5.5A (183.33%), 4.986V |
| OCP (Hot @ 41.7°C) | 12V: 76.80A (131.73%), 11.412V *High Ripple(185.25mV), Voltage Drop (11.15V@77.2A), Stopped<br>5V: 25.6A (142.22%), 5.015V<br>3.3V: 28.1A (156.11%), 3.304V<br>5VSB: 5.3A (176.67%), 4.988V |
| OPP (Normal @ 29.3°C) | 890.59W (127.23%) |
| OPP (Hot @ 42.4°C) | 869.65W (124.24%) |
| OTP | ✓ (116°C @ Heat Sink) |
| SCP | 12V to Earth: ✓<br>5V to Earth: ✓<br>3.3V to Earth: ✓<br>5VSB to Earth: ✓<br>-12V to Earth: ✓ |
| PWR_OK | Proper Operation |
| NLO | ✓ |
| Fan Failure Protection | ✗ |
| SIP | Surge: MOV<br>Inrush: NTC |

## Supplementary Tests (For Reference)

### Typical Load Tests 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%** | **3.990A** | **1.965A** | **1.966A** | **0.977A** | 70.007 | 84.46% | 773 | 17.5 | 40.54°C | 0.894 |
| | 12.131V | 5.09V | 3.358V | 5.116V | 82.887 | | | | 42.57°C | 229.88V |
| **20%** | **8.992A** | **2.955A** | **2.959A** | **1.177A** | 139.949 | 88.917% | 777 | 17.6 | 40.78°C | 0.947 |
| | 12.127V | 5.076V | 3.346V | 5.097V | 157.391 | | | | 43.4°C | 229.87V |
| **30%** | **14.348A** | **3.455A** | **3.463A** | **1.379A** | 209.995 | 89.886% | 779 | 17.6 | 41.41°C | 0.964 |
| | 12.123V | 5.065V | 3.335V | 5.078V | 233.625 | | | | 44.2°C | 229.86V |
| **40%** | **19.709A** | **3.958A** | **3.971A** | **1.581A** | 280.045 | 89.933% | 916 | 21.8 | 41.82°C | 0.972 |
| | 12.118V | 5.054V | 3.325V | 5.06V | 311.394 | | | | 45.79°C | 229.84V |
| **50%** | **24.723A** | **4.96A** | **4.982A** | **1.786A** | 350.008 | 89.605% | 1177 | 29.6 | 42.42°C | 0.977 |
| | 12.114V | 5.041V | 3.312V | 5.04V | 390.615 | | | | 46.36°C | 229.83V |
| **60%** | **29.731A** | **5.968A** | **6.003A** | **1.993A** | 419.831 | 88.997% | 1416 | 34.6 | 42.62°C | 0.979 |
| | 12.110V | 5.027V | 3.299V | 5.019V | 471.74 | | | | 47.26°C | 229.82V |
| **70%** | **34.765A** | **6.982A** | **7.031A** | **2.201A** | 489.943 | 88.303% | 1644 | 38.5 | 43.01°C | 0.982 |
| | 12.105V | 5.014V | 3.286V | 4.999V | 554.839 | | | | 48.36°C | 229.8V |
| **80%** | **39.804A** | **7.999A** | **8.066A** | **2.309A** | 559.533 | 87.474% | 1787 | 40.5 | 43.53°C | 0.984 |
| | 12.100V | 5V | 3.273V | 4.98V | 639.658 | | | | 48.84°C | 229.79V |
| **90%** | **45.244A** | **8.52A** | **8.585A** | **2.418A** | 629.752 | 86.614% | 1981 | 43.5 | 44.56°C | 0.986 |
| | 12.096V | 4.987V | 3.261V | 4.963V | 727.08 | | | | 51.63°C | 229.77V |
| **100%** | **50.425A** | **9.046A** | **9.142A** | **3.042A** | 699.374 | 85.547% | 2004 | 43.6 | 45.71°C | 0.987 |
| | 12.091V | 4.974V | 3.249V | 4.931V | 817.538 | | | | 54.39°C | 229.76V |
| **110%** | **55.543A** | **10.086A** | **10.296A** | **3.053A** | 769.576 | 84.2% | 2008 | 43.6 | 46.02°C | 0.987 |
| | 12.086V | 4.956V | 3.234V | 4.914V | 913.985 | | | | 57.64°C | 229.74V |
| **CL1** | **0.116A** | **13.155A** | **13.201A** | **0A** | 111.295 | 80.531% | 838 | 19.8 | 40.3°C | 0.939 |
| | 12.128V | 5.031V | 3.311V | 5.113V | 138.205 | | | | 45.43°C | 229.87V |
| **CL2** | **0.114A** | **17.845A** | **0A** | **0A** | 91.381 | 79.782% | 768 | 17.2 | 41.19°C | 0.926 |
| | 12.131V | 5.043V | 3.334V | 5.13V | 114.538 | | | | 45.25°C | 229.87V |

| Test | 12V | 5V | 3.3V | 5VSB | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | Temps (In/Out) | PF/AC Volts |
|---|---|---|---|---|---|---|---|---|---|---|
| **CL3** | **0.114A** | **0A** | **17.838A** | **0A** | 60.796 | 74.701% | 770 | 17.4 | 40.54°C | 0.892 |
| | 12.131V | 5.066V | 3.33V | 5.128V | 81.388 | | | | 44.31°C | 229.87V |
| **CL4** | **57.878A** | **0A** | **0A** | **0.001A** | 699.966 | 86.645% | 2002 | 43.6 | 45.62°C | 0.987 |
| | 12.094V | 5.018V | 3.289V | 5.045V | 807.863 | | | | 52.06°C | 229.76V |

The results above are not used in the certification process

## Light Load Tests 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** | **1.224A** | **0.49A** | **0.49A** | **0.194A** | 20.01 | 69.996% | 763 | 16.9 | 36.2°C | 0.704 |
| | 12.134V | 5.101V | 3.37V | 5.15V | 28.586 | | | | 37.13°C | 229.88V |
| **40W** | **2.695A** | **0.687A** | **0.686A** | **0.292A** | 40.005 | 78.955% | 766 | 17.1 | 37.13°C | 0.823 |
| | 12.132V | 5.098V | 3.367V | 5.143V | 50.668 | | | | 38.36°C | 229.88V |
| **60W** | **4.166A** | **0.883A** | **0.883A** | **0.389A** | 60.003 | 83.695% | 769 | 17.3 | 38.08°C | 0.875 |
| | 12.131V | 5.095V | 3.363V | 5.137V | 71.691 | | | | 39.47°C | 229.88V |
| **80W** | **5.632A** | **1.08A** | **1.08A** | **0.487A** | 79.954 | 86.199% | 772 | 17.5 | 39.19°C | 0.907 |
| | 12.130V | 5.092V | 3.36V | 5.13V | 92.755 | | | | 40.68°C | 229.88V |

The results above are not used in the certification process

## Ripple Measurements 230V

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| 10% Load | 16.53mV | 15.02mV | 13.56mV | 12.89mV | Pass |
| 20% Load | 19.85mV | 17.42mV | 14.07mV | 12.38mV | Pass |
| 30% Load | 23.84mV | 17.42mV | 13.97mV | 14.02mV | Pass |
| 40% Load | 26.19mV | 16.66mV | 14.79mV | 15.14mV | Pass |
| 50% Load | 29.88mV | 19.00mV | 17.39mV | 13.66mV | Pass |
| 60% Load | 35.81mV | 21.81mV | 17.49mV | 16.47mV | Pass |
| 70% Load | 40.06mV | 24.32mV | 18.21mV | 17.44mV | Pass |
| 80% Load | 46.14mV | 26.46mV | 20.87mV | 18.16mV | Pass |
| 90% Load | 53.97mV | 29.73mV | 22.71mV | 19.54mV | Pass |

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| 100% Load | 72.37mV | 34.52mV | 28.99mV | 24.94mV | Pass |
| 110% Load | 81.80mV | 36.68mV | 30.90mV | 25.80mV | Pass |
| Crossload1 | 21.42mV | 23.60mV | 24.23mV | 15.94mV | Pass |
| Crossload2 | 18.42mV | 21.82mV | 15.30mV | 15.55mV | Pass |
| Crossload3 | 18.21mV | 20.03mV | 22.10mV | 15.04mV | Pass |
| Crossload4 | 77.17mV | 33.36mV | 24.61mV | 24.89mV | Pass |

The results above are not used in the certification process

## Gamer Storm PF700X



Top side




Power specifications label

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 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