# MSI MAG A850GLS PCIE5

Serial Number -

Lab ID MS85002806

Certification ID 252806

Test Result Report ID: 25PS2806A

Certificate Issue Date: May 8, 2025

Scheme: ETA-EMI PSU

115V




230V




Scheme: LAMBDA PSU

115V




230V







Outside Validation Scope



# 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 | MSI |
| Model | MAG A850GLS PCIE5 |
| OEM/ODM | CWT |
| Serial Number | - |
| Product Specifications | |
| Manufacturer-Provided Information | |
| Rated Voltage (Vrms) | 100-240 |
| Rated Current (Arms) | 12 |

| | |
|---|---|
| Rated Frequency (Hz) | 47-63 |
| 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 | 135mm Fluid Dynamic Bearing Fan (ZFF132512H) |
| Semi-Passive Operation | ✗ |
| Cybenetics Testing Information | |
| Lab ID | MS85002806 |
| Date of receipt | Apr 23, 2025 |
| Testing Date | Mar 8, 2025 |
| Report Issued Date | May 8, 2025 |
| 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 | 16-20AWG | No |
| 8 pin EPS12V (650mm) | 2 | 2 | 18AWG | No |
| 6+2 pin PCIe (600mm) | 2 | 2 | 18AWG | No |
| 12+4 pin PCIe (600mm) (600W) | 1 | 1 | 16-24AWG | No |
| SATA (500mm+150mm+150mm) / 4-pin Molex (+150mm) | 1 | 3 / 1 | 18AWG | No |
| SATA (500mm+150mm) / 4-pin Molex (+150mm) / FDD (+150mm) | 2 | 4 / 2 / 2 | 18-20AWG | No |
| AC Power Cord (1390mm) - C13 coupler | 1 | 1 | 18AWG | - |

## 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 | 20 | 20 | 70.8 | 3 | 0.3 |
| | Watts | 100 | | 850 | 15 | 3.6 |
| Total Max. Power (W) | | 850 | | | | |

## Parts Description

| | |
|---|---|
| **General Data** | |
| Manufacturer (OEM) | CWT |
| PCB Type | Double-Sided |
| **Primary Side** | |
| Transient Filter | 6x Y caps, 2x X caps, 2x CM chokes, 1x MOV |
| Inrush Protection | 1x NTC Thermistor SCK207R0 (7 Ohm @25°C) & Relay |
| Bridge Rectifier(s) | 2x GBJ1506 (600V, 15A @ 100°C) |
| APFC MOSFETs | 2x STMicroelectronics STF33N60M2 (650V, 16A @ 100°C, Rds(on): 0.125Ohm) |
| APFC Boost Diode | 1x CRMicro CRXI08D065G2 (650V, 8A @ 165°C) |
| Bulk Cap(s) | 1x Teapo (420V, 560uF @ 105°C, TD(M)) |
| Main Switchers | 2x STMicroelectronics STW33N60DM2 (650V, 15.5A @ 100°C, Rds(on): 130mOhm) |
| APFC Controller | Champion CM6500UNX &<br>1x Sync Power SPN5003 (For no load consumption) |
| Resonant Controller | Champion CM6901X |

| | |
|---|---|
| Topology | Primary side: APFC, Half-Bridge & LLC Resonant converter<br>Secondary side: Synchronous Rectification & DC-DC converters |
| **Secondary Side** | |
| +12V MOSFETs | 6x InPower Semiconductor FTG014N04SA (40V, 145A @ 100°C, Rds(on): 1.4mOhm) |
| 5V & 3.3V | DC-DC Converters: 4x UBIQ QN3107M6N (30V, 70A @ 100°C, Rds(on): 2.6mOhm) |
| Filtering Capacitors | Electrolytic:<br>8x Chengx (2-3,000h @ 105°C, GR)<br>Polymer:<br>3x Teapo (FP), 9x BIOSTAR, 19x |
| Fan Controller | Nuvoton MS51FB9AE |
| Fan Model | ZIC ZFF132512H (135mm, 12V, 0.45A, Fluid Dynamic Bearing Fan) |
| **5VSB** | |
| Rectifier | 1x Dongke Semiconductor DK5V45R10S (45V, 10A) |
| Standby PWM Controller | On-Bright OB2365T |

# 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) | 89.955% |
| Average Noise Output (>1450 Load Combinations) | 18.07dBA |
| Average PF (>1450 Load Combinations) | 0.983 |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | 71.388% |

| | |
|---|---|
| Standby Power Consumption | 0.0370W |
| Non-Accredited | |
| 12V Ripple (Full Load) | 39.43mV |
| 5V Ripple (Full Load) | 18.63mV |
| 3.3V Ripple (Full Load) | 21.92mV |
| 5VSB Ripple (Full Load) | 25.91mV |
| 12V Load Regulation | 0.59% |
| 5V Load Regulation | 0.92% |
| 3.3V Load Regulation | 0.72% |
| 5VSB Load Regulation | 1.77% |
| Inrush Current | 24.950A |

**230V**

| | |
|---|---|
| Accredited | |
| Average Efficiency (>1450 load combinations) | 91.845% |
| Average Noise Output (>1450 Load Combinations) | 18.05dBA |
| Average PF (>1450 Load Combinations) | 0.947 |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | 72.113% |
| Standby Power Consumption | 0.0782W |
| Non-Accredited | |
| 12V Ripple (Full Load) | 39.66mV |
| 5V Ripple (Full Load) | 19.27mV |
| 3.3V Ripple (Full Load) | 23.37mV |
| 5VSB Ripple (Full Load) | 27.32mV |
| 12V Load Regulation | 0.65% |
| 5V Load Regulation | 0.86% |
| 3.3V Load Regulation | 0.57% |
| 5VSB Load Regulation | 1.73% |
| Inrush Current | 48.130A |
| 12V Transient Response (200%) | 11.37V |
| 5V Transient Response (200%) | 4.911V |
| 3.3V Transient Response (200%) | 3.251V |

| | | |
|---|---|---|
| 5VSB Transient Response (200%) | | 4.846V |
| Hold-Up Time & PWR_OK Signal | | 18.60ms |
| AC Loss to PWR_OK Hold Up Time | | 16.60ms |
| PWR_OK Inactive to DC Loss Delay | | 2.00ms |
| PSU Timings: T1 (20% / 100%) | 54.0ms | 53.0ms |
| PSU Timings: T3 (20% / 100%) | 120.0ms | 121.0ms |
| 12V OCP (28.6°C / 40.8°C) | 86.80A (122.60%), 11.937V | 87.70A (123.87%), 11.941V |
| 5V OCP (28.6°C / 40.8°C) | 30.8A (154.00%), 4.969V | 29.9A (149.50%), 4.964V |
| 3.3V OCP (28.6°C / 40.8°C) | 31.6A (158.00%), 3.35V | 29.8A (149.00%), 3.341V |
| 5VSB OCP (28.6°C / 40.8°C) | 5.7A (190.00%), 4.918V | 5.6A (186.67%), 4.901V |
| OPP (28.14°C / 41.95°C) | 121.49% | 121.50% |

## Hold-Up Time & PWR_OK Signal

| | |
|---|---|
| Hold-Up Time (ms) | 18.6 |
| AC Loss to PWR_OK Hold Up Time (ms) | 16.6 |
| PWR_OK Inactive to DC Loss Delay (ms) | 2 |

## Stromverbrauch im Ruhezustand

### Tables

**115V**

| Detailed Results | | | | | | |
|---|---|---|---|---|---|---|
| | Average | Min | Limit Min | Max | Limit Max | Result |
| Mains Voltage RMS: | 115.05 V | 115.02 V | 113.85 V | 115.10 V | 116.15 V | PASS |
| Mains Frequency: | 60.00 Hz | 59.99 Hz | 59.40 Hz | 60.01 Hz | 60.60 Hz | PASS |
| Mains Voltage CF: | 1.416 | 1.415 | 1.340 | 1.418 | 1.490 | PASS |
| Mains Voltage THD: | 0.13 % | 0.08 % | N/A | 0.18 % | 2.00 % | PASS |
| Real Power: | 0.037 W | -0.000 W | N/A | 0.061 W | N/A | N/A |
| Apparent Power: | 10.237 W | 10.173 W | N/A | 10.303 W | N/A | N/A |

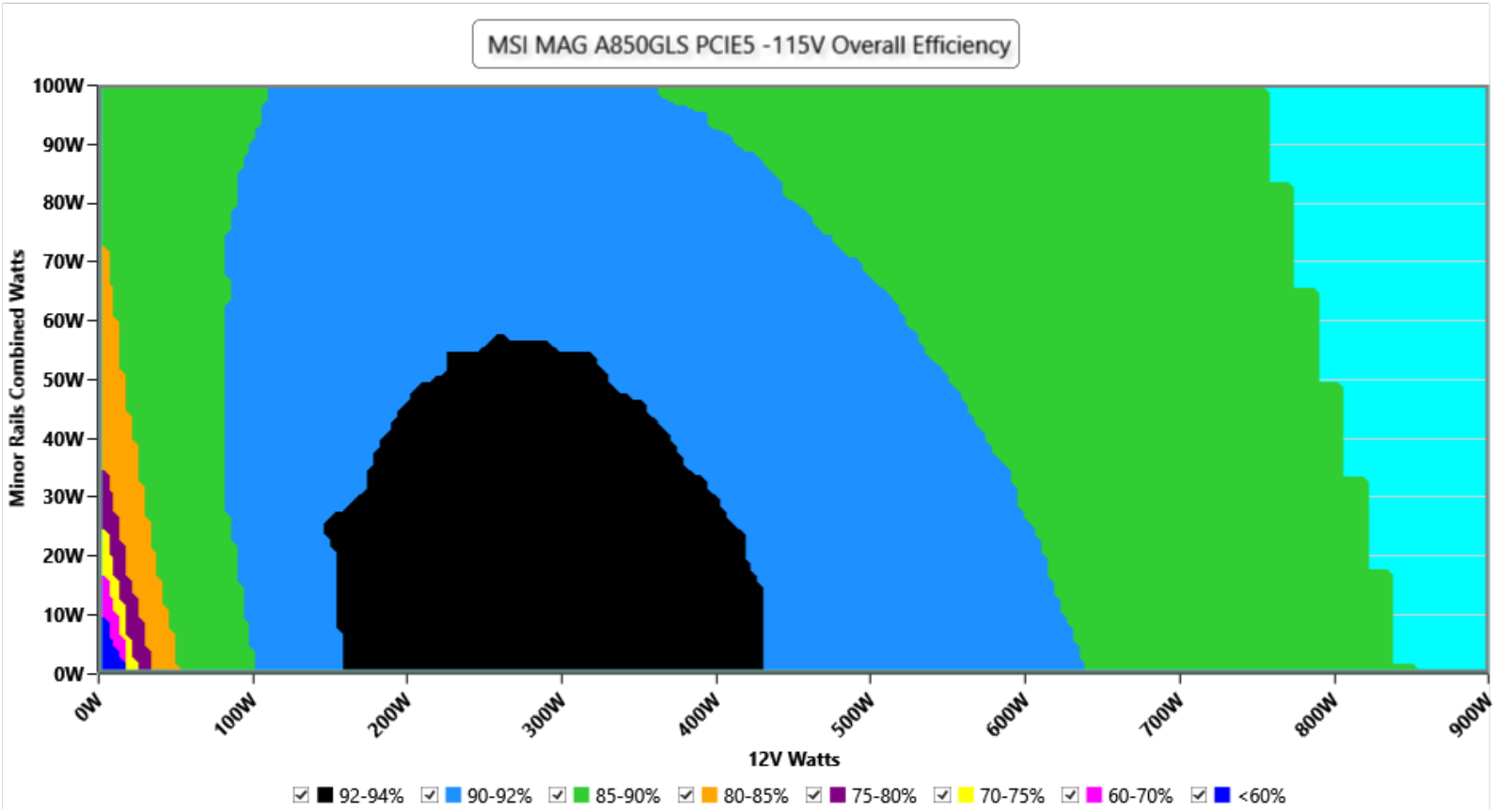
| | | | | | | |
|---|---|---|---|---|---|---|
| Power Factor: | 0.005 | N/A | N/A | N/A | N/A | N/A |

## 230V

| Detailed Results | | | | | | |
|---|---|---|---|---|---|---|
| | Average | Min | Limit Min | Max | Limit Max | Result |
| Mains Voltage RMS: | 231.00 V | 230.90 V | 227.70 V | 231.06 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 | 0.27 % | 2.00 % | PASS |
| Real Power: | 0.078 W | 0.040 W | N/A | 0.150 W | N/A | N/A |
| Apparent Power: | 35.076 W | 34.819 W | N/A | 35.372 W | N/A | N/A |
| Power Factor: | 0.003 | N/A | N/A | N/A | N/A | N/A |

## Efficiency Graph

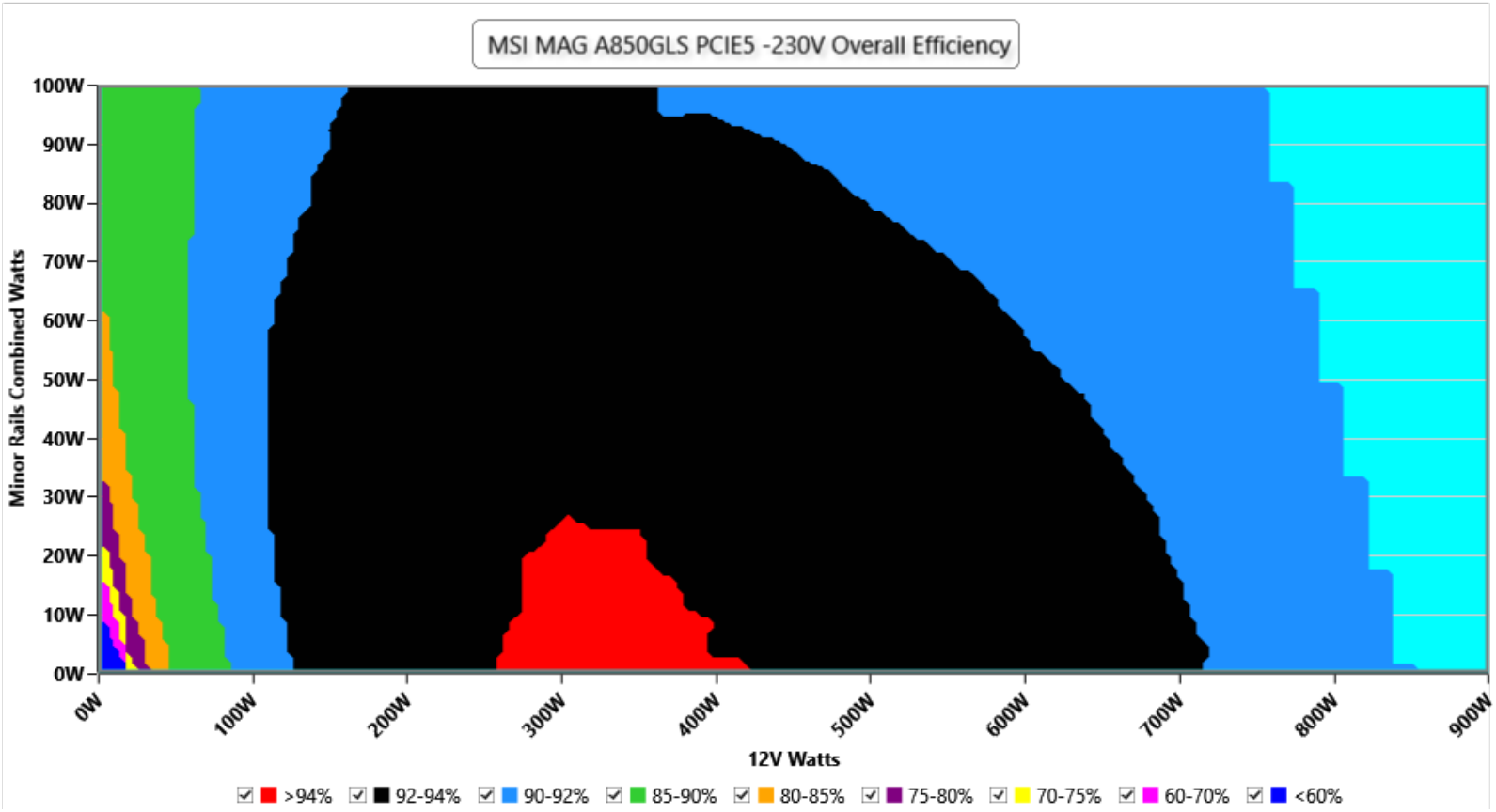
**115V**




**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

## 230V

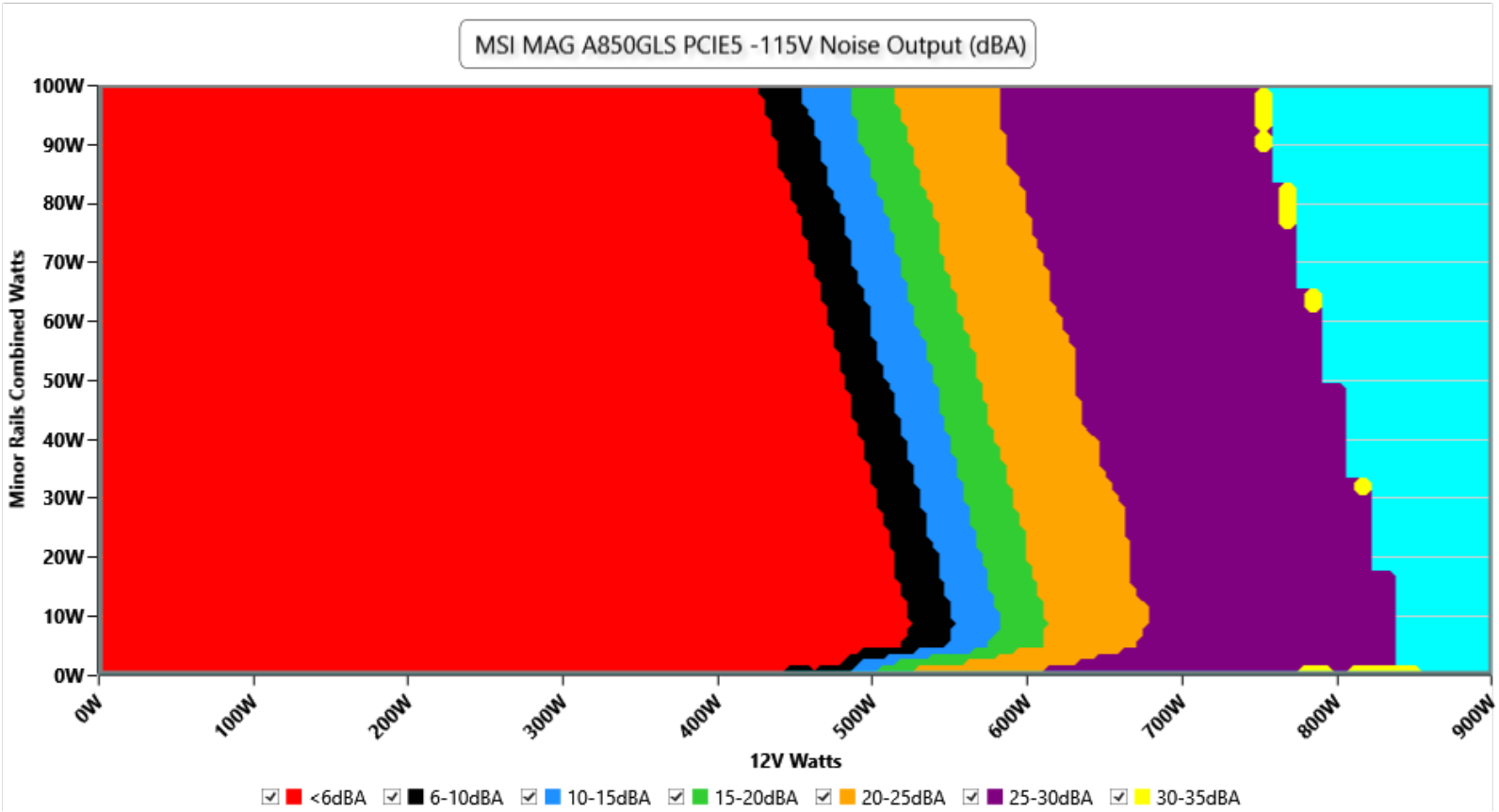



### INFO

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

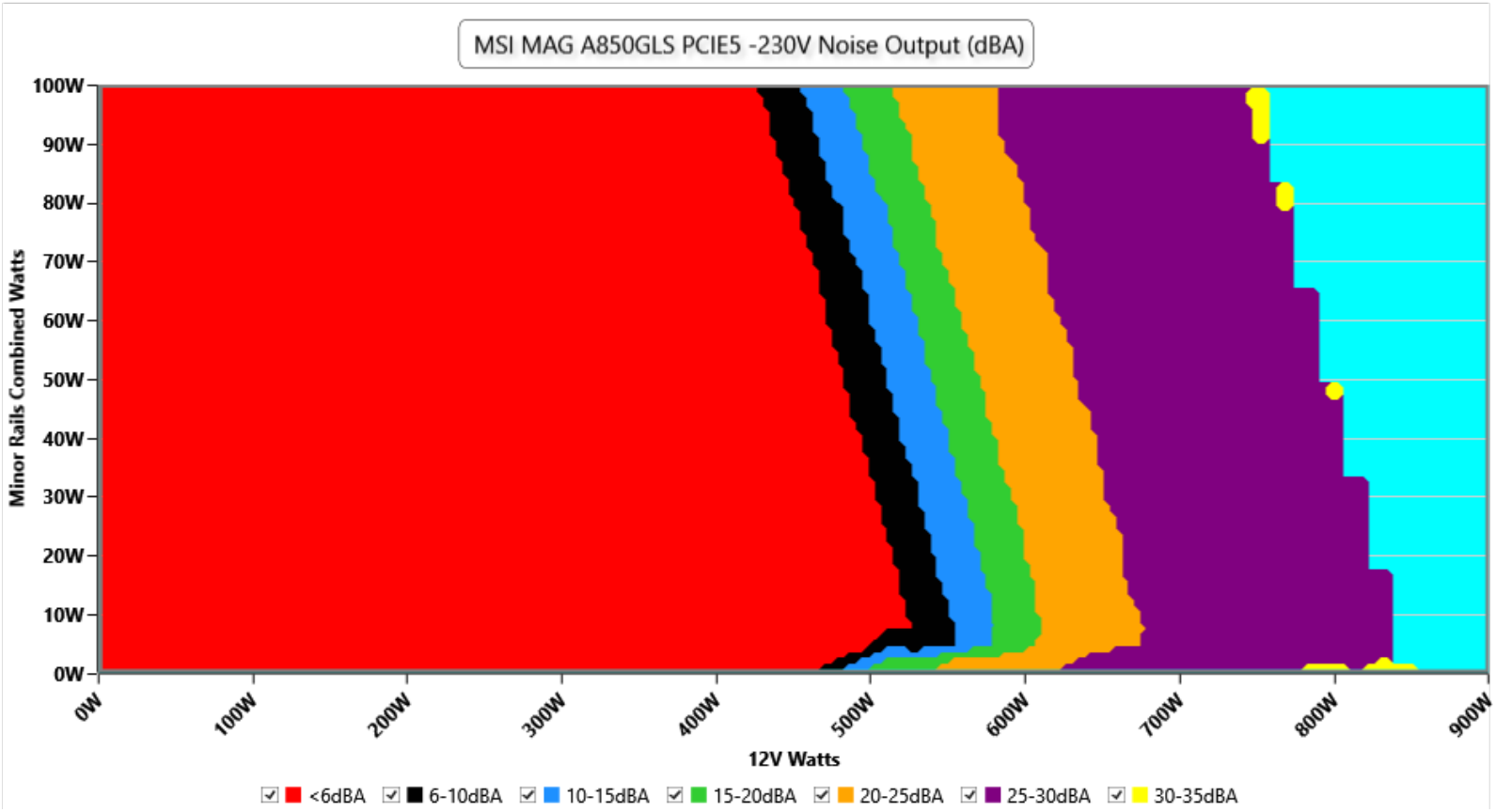
**115V**




**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

## 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)

### 115V

| Load | Normal ambient<br>fan · noise · intake | High ambient<br>fan · noise · intake | Noise change |
|---|---|---|---|
| 10% | 410 RPM · <6.0 dB(A) · 30.6 °C | 413 RPM · <6.0 dB(A) · 40.2 °C | fan off in both |
| 20% | 408 RPM · <6.0 dB(A) · 30.5 °C | 414 RPM · <6.0 dB(A) · 40.7 °C | fan off in both |
| 50% | 409 RPM · <6.0 dB(A) · 30.6 °C | 419 RPM · <6.0 dB(A) · 42.4 °C | fan off in both |
| 100% | 1214 RPM · 30.2 dB(A) · 30.5 °C | 2151 RPM · 46.3 dB(A) · 45.1 °C | **+16.1 dB(A)** |

### 230V

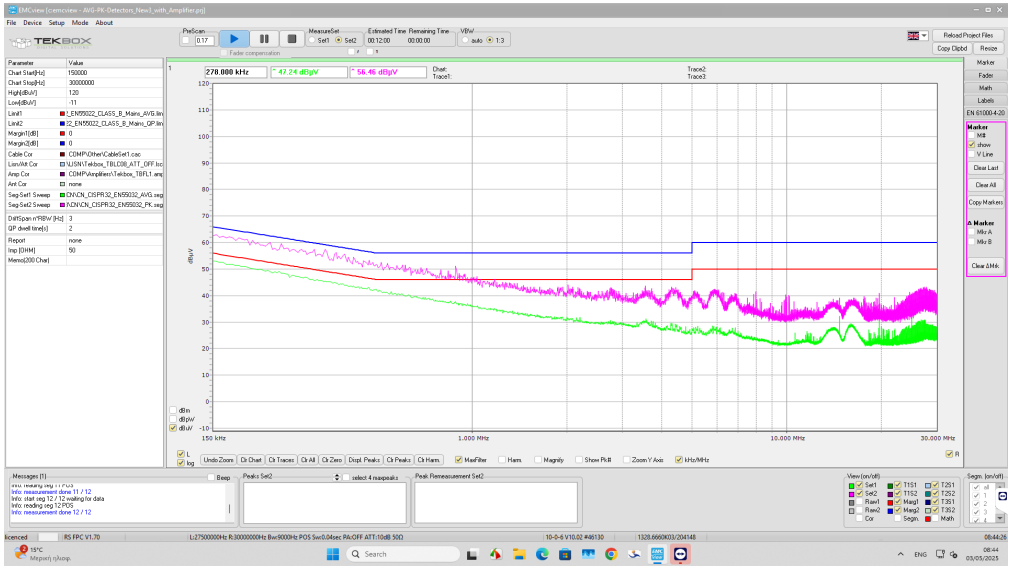
| Load | Normal ambient<br>fan · noise · intake | High ambient<br>fan · noise · intake | Noise change |
|---|---|---|---|
| 10% | 393 RPM · <6.0 dB(A) · 30.0 °C | 420 RPM · <6.0 dB(A) · 40.3 °C | fan off in both |
| 20% | 396 RPM · <6.0 dB(A) · 30.6 °C | 420 RPM · <6.0 dB(A) · 40.6 °C | fan off in both |
| 50% | 399 RPM · <6.0 dB(A) · 30.4 °C | 424 RPM · <6.0 dB(A) · 42.2 °C | fan off in both |
| 100% | 1204 RPM · 29.7 dB(A) · 30.9 °C | 2077 RPM · 45.4 dB(A) · 45.1 °C | **+15.7 dB(A)** |

### INFO

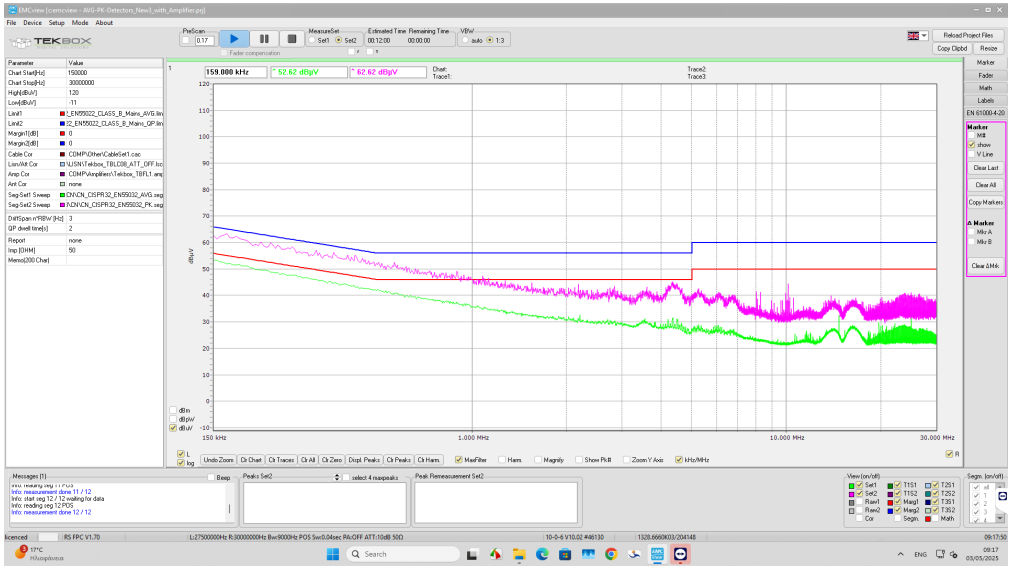
Fan speed, noise and the measured intake temperature at 10, 20, 50 and 100 % load, from the two load regulation tests: at normal ambient (about 30-32 °C) and at high ambient (about 40-47 °C). These are stabilized readings at fixed loads, not averages over the certification sweep, so they are indicative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

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

# Conducted Emissions EN 55032 & CISPR 32



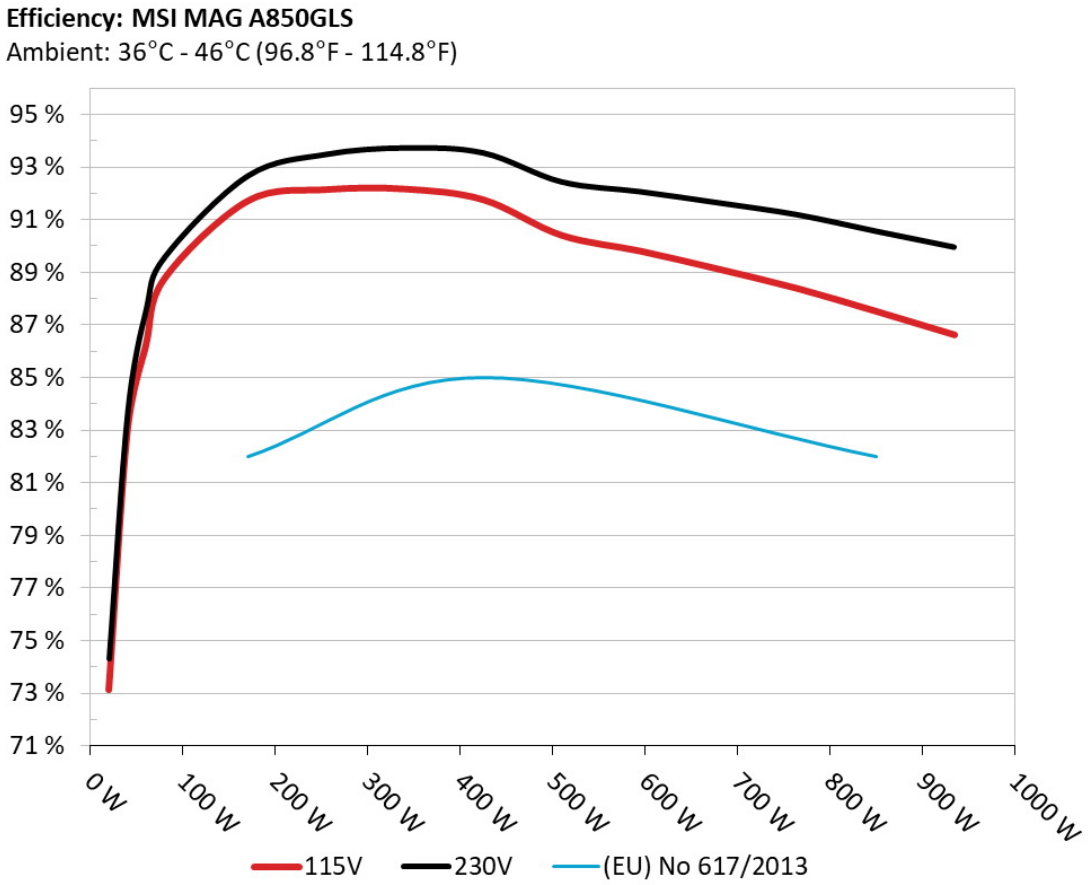
NEUTRAL



PHASE

## Indicative Performance

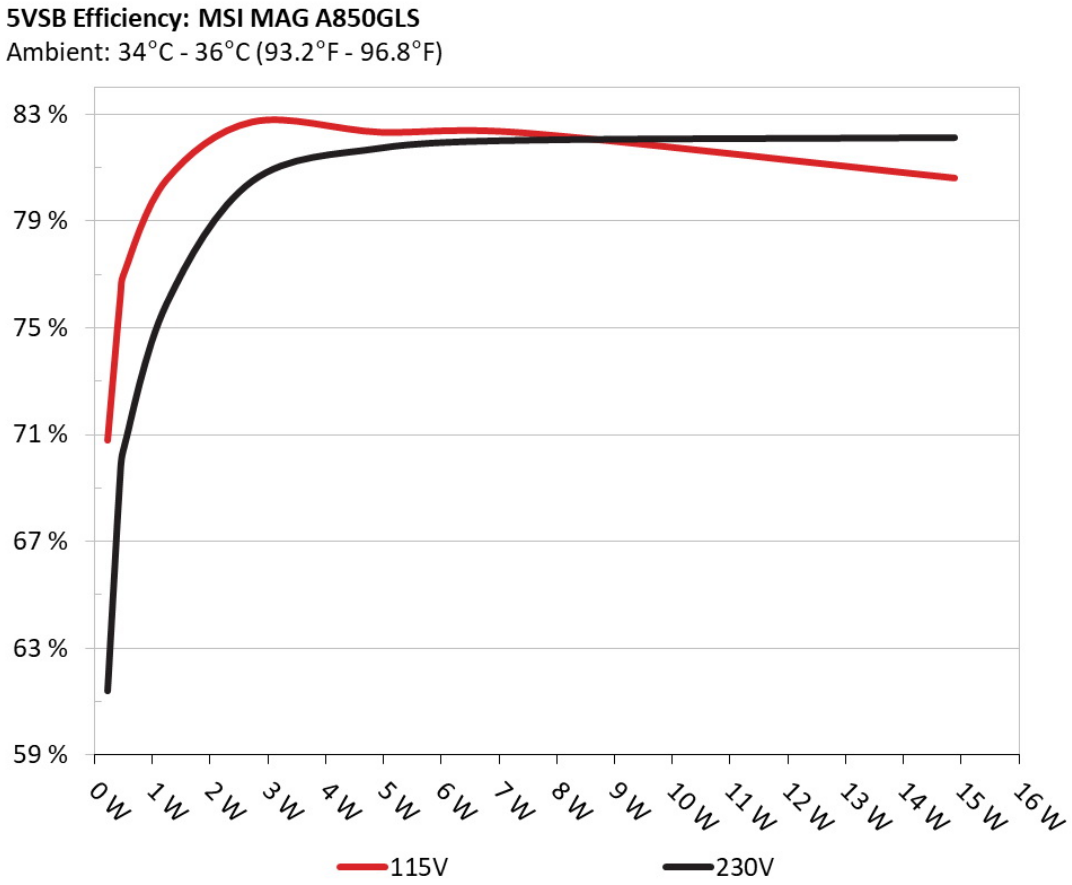
### Efficiency under high ambient temperature




**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)

### 115V

| Test # | 5VSB | DC/AC (Watts) | Efficiency | PF/AC Volts |
|---|---|---|---|---|
| **1** | **0.045A** | 0.223W | 70.776% | 0.03 |
| | 4.954V | 0.315W | | 114.84V |
| **2** | **0.09A** | 0.446W | 76.224% | 0.055 |
| | 4.954V | 0.585W | | 114.84V |
| **3** | **0.55A** | 2.726W | 82.695% | 0.254 |
| | 4.955V | 3.296W | | 114.83V |
| **4** | **1A** | 4.956W | 82.308% | 0.362 |
| | 4.956V | 6.021W | | 114.82V |
| **5** | **1.5A** | 7.436W | 82.284% | 0.411 |
| | 4.957V | 9.037W | | 114.83V |
| **6** | **3A** | 14.878W | 80.595% | 0.495 |
| | 4.959V | 18.461W | | 114.83V |

### 230V

| Test # | 5VSB | DC/AC (Watts) | Efficiency | PF/AC Volts |
|---|---|---|---|---|
| **1** | **0.045A** | 0.223W | 61.417% | 0.01 |
| | 4.953V | 0.363W | | 229.82V |
| **2** | **0.09A** | 0.446W | 69.684% | 0.018 |
| | 4.954V | 0.64W | | 229.83V |
| **3** | **0.55A** | 2.725W | 80.506% | 0.093 |
| | 4.955V | 3.385W | | 229.82V |
| **4** | **1A** | 4.956W | 81.744% | 0.157 |
| | 4.956V | 6.063W | | 229.82V |
| **5** | **1.5A** | 7.436W | 82.034% | 0.216 |
| | 4.957V | 9.065W | | 229.82V |
| **6** | **3A** | 14.879W | 82.131% | 0.312 |
| | 4.96V | 18.115W | | 229.82V |

## Protection Features

| | |
|---|---|
| OCP (Normal @ 28.6°C) | 12V: 86.80A (122.60%), 11.937V<br>5V: 30.8A (154.00%), 4.969V<br>3.3V: 31.6A (158.00%), 3.35V<br>5VSB: 5.7A (190.00%), 4.918V |
| OCP (Hot @ 40.8°C) | 12V: 87.70A (123.87%), 11.941V<br>5V: 29.9A (149.50%), 4.964V<br>3.3V: 29.8A (149.00%), 3.341V<br>5VSB: 5.6A (186.67%), 4.901V |
| OPP (Normal @ 28.1°C) | 1032.67W (121.49%) |
| OPP (Hot @ 42.0°C) | 1032.72W (121.50%) |
| OTP | ✓ (115°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 |
| UVP (Full Load @ 90V) | ✓ |
| UVP (No Damage @ 80V) | ✓ |
| Conducted Emissions EN55032 & CISPR 32 | ✓ |
| NLO | ✓ |
| Fan Failure Protection | ✗ |
| SIP | Surge: MOV<br>Inrush: NTC & Bypass Relay |

## 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%** | **5.274A** | **1.99A** | **1.976A** | **1.011A** | 85.007 | 88.53% | 413 | <6.0 | 40.22°C | 0.967 |
| | 12.021V | 5.024V | 3.34V | 4.944V | 96.018 | | | | 42.27°C | 114.81V |
| **20%** | **11.575A** | **2.989A** | **2.966A** | **1.216A** | 169.95 | 91.724% | 414 | <6.0 | 40.66°C | 0.978 |
| | 12.013V | 5.019V | 3.338V | 4.936V | 185.288 | | | | 43.59°C | 114.78V |
| **30%** | **18.235A** | **3.489A** | **3.463A** | **1.42A** | 254.959 | 92.162% | 416 | <6.0 | 41.48°C | 0.983 |
| | 12.005V | 5.016V | 3.336V | 4.929V | 276.641 | | | | 45.75°C | 114.75V |
| **40%** | **24.909A** | **3.991A** | **3.96A** | **1.626A** | 340.051 | 92.184% | 417 | <6.0 | 41.78°C | 0.982 |
| | 11.998V | 5.012V | 3.334V | 4.921V | 368.883 | | | | 47.61°C | 114.73V |
| **50%** | **31.226A** | **4.993A** | **4.954A** | **1.832A** | 424.886 | 91.776% | 419 | <6.0 | 42.36°C | 0.983 |
| | 11.990V | 5.007V | 3.331V | 4.912V | 462.957 | | | | 50.13°C | 114.69V |
| **60%** | **37.491A** | **5.998A** | **5.95A** | **2A** | 509.222 | 90.426% | 636 | 8.4 | 42.96°C | 0.987 |
| | 11.992V | 5.002V | 3.328V | 4.902V | 563.134 | | | | 52.72°C | 114.67V |
| **70%** | **43.862A** | **7.005A** | **6.95A** | **2.249A** | 594.77 | 89.824% | 1100 | 27.2 | 43.32°C | 0.989 |
| | 11.984V | 4.997V | 3.324V | 4.891V | 662.15 | | | | 53.2°C | 114.63V |
| **80%** | **50.243A** | **8.013A** | **7.949A** | **2.356A** | 679.578 | 89.135% | 1384 | 34 | 43.6°C | 0.99 |
| | 11.975V | 4.992V | 3.321V | 4.882V | 762.415 | | | | 53.93°C | 114.6V |
| **90%** | **57.032A** | **8.521A** | **8.432A** | **2.463A** | 765 | 88.398% | 1832 | 42 | 44.64°C | 0.991 |
| | 11.967V | 4.988V | 3.321V | 4.873V | 865.402 | | | | 54.7°C | 114.56V |
| **100%** | **63.565A** | **9.029A** | **8.95A** | **3.084A** | 849.825 | 87.532% | 2151 | 46.3 | 45.06°C | 0.992 |
| | 11.958V | 4.984V | 3.318V | 4.865V | 970.874 | | | | 54.88°C | 114.53V |
| **110%** | **69.979A** | **10.043A** | **10.048A** | **3.089A** | 934.411 | 86.639% | 2269 | 47.5 | 46.05°C | 0.993 |
| | 11.949V | 4.978V | 3.314V | 4.858V | 1078.514 | | | | 56.12°C | 114.5V |
| **CL1** | **0.117A** | **12.052A** | **11.915A** | **0A** | 101.305 | 85.668% | 438 | <6.0 | 42.01°C | 0.972 |
| | 12.026V | 4.995V | 3.332V | 4.928V | 118.254 | | | | 59.68°C | 114.79V |

| Test | 12V | 5V | 3.3V | 5VSB | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | Temps (In/Out) | PF/AC Volts |
|---|---|---|---|---|---|---|---|---|---|---|
| **CL2** | **0.117A** | **20.031A** | **0A** | **0A** | 101.348 | 84.329% | 435 | <6.0 | 42.92°C | 0.972 |
| | 12.027V | 4.99V | 3.32V | 4.932V | 120.181 | | | | 58.63°C | 114.8V |
| **CL3** | **0.115A** | **0A** | **19.735A** | **0A** | 67.389 | 80.593% | 433 | <6.0 | 42.32°C | 0.965 |
| | 12.027V | 5.006V | 3.344V | 4.933V | 83.615 | | | | 56.56°C | 114.81V |
| **CL4** | **71.030A** | **0A** | **0A** | **0.001A** | 849.584 | 88.328% | 1617 | 38.8 | 45.5°C | 0.992 |
| | 11.961V | 5.009V | 3.321V | 4.883V | 961.85 | | | | 52.94°C | 114.54V |

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%** | **5.274A** | **1.99A** | **1.975A** | **1.012A** | 85.009 | 89.424% | 420 | <6.0 | 40.26°C | 0.834 |
| | 12.022V | 5.025V | 3.341V | 4.944V | 95.061 | | | | 43.36°C | 229.81V |
| **20%** | **11.575A** | **2.988A** | **2.964A** | **1.216A** | 169.959 | 92.656% | 420 | <6.0 | 40.61°C | 0.92 |
| | 12.013V | 5.02V | 3.34V | 4.936V | 183.427 | | | | 44.23°C | 229.79V |
| **30%** | **18.235A** | **3.489A** | **3.46A** | **1.421A** | 254.971 | 93.477% | 421 | <6.0 | 41.46°C | 0.944 |
| | 12.005V | 5.017V | 3.338V | 4.928V | 272.763 | | | | 45.78°C | 229.78V |
| **40%** | **24.912A** | **3.99A** | **3.957A** | **1.626A** | 340.072 | 93.722% | 423 | <6.0 | 41.92°C | 0.956 |
| | 11.997V | 5.014V | 3.337V | 4.921V | 362.852 | | | | 47.36°C | 229.76V |
| **50%** | **31.232A** | **4.992A** | **4.948A** | **1.832A** | 424.93 | 93.532% | 424 | <6.0 | 42.18°C | 0.963 |
| | 11.988V | 5.009V | 3.335V | 4.912V | 454.315 | | | | 49.47°C | 229.76V |
| **60%** | **37.499A** | **5.996A** | **5.941A** | **2A** | 509.266 | 92.434% | 681 | 10.2 | 42.89°C | 0.974 |
| | 11.991V | 5.005V | 3.334V | 4.902V | 550.954 | | | | 52.27°C | 229.74V |
| **70%** | **43.873A** | **7.002A** | **6.934A** | **2.249A** | 594.789 | 92.06% | 993 | 24.2 | 43.2°C | 0.977 |
| | 11.982V | 5V | 3.332V | 4.892V | 646.094 | | | | 51.95°C | 229.73V |
| **80%** | **50.259A** | **8.008A** | **7.927A** | **2.355A** | 679.601 | 91.636% | 1267 | 31.6 | 43.69°C | 0.979 |
| | 11.972V | 4.995V | 3.33V | 4.884V | 741.634 | | | | 52.2°C | 229.71V |
| **90%** | **57.052A** | **8.515A** | **8.414A** | **2.462A** | 765.017 | 91.184% | 1621 | 38.8 | 44.33°C | 0.981 |
| | 11.963V | 4.991V | 3.328V | 4.875V | 838.976 | | | | 53.49°C | 229.7V |

| Test | 12V | 5V | 3.3V | 5VSB | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | Temps (In/Out) | PF/AC Volts |
|---|---|---|---|---|---|---|---|---|---|---|
| **100%** | **63.588A** | **9.023A** | **8.936A** | **3.083A** | 849.843 | 90.559% | 2077 | 45.4 | 45.08°C | 0.981 |
| | 11.954V | 4.987V | 3.324V | 4.866V | 938.444 | | | | 54.48°C | 229.68V |
| **110%** | **70.005A** | **10.036A** | **10.03A** | **3.088A** | 934.427 | 89.955% | 2208 | 46.9 | 44.4°C | 0.983 |
| | 11.945V | 4.982V | 3.32V | 4.858V | 1038.774 | | | | 54.5°C | 229.67V |
| **CL1** | **0.117A** | **12.053A** | **11.899A** | **0A** | 101.306 | 86.523% | 437 | <6.0 | 42.54°C | 0.872 |
| | 12.025V | 4.995V | 3.336V | 4.928V | 117.085 | | | | 57.28°C | 229.81V |
| **CL2** | **0.117A** | **20.035A** | **0A** | **0A** | 101.35 | 85.107% | 435 | <6.0 | 42.63°C | 0.874 |
| | 12.026V | 4.989V | 3.322V | 4.933V | 119.086 | | | | 56.1°C | 229.81V |
| **CL3** | **0.115A** | **0A** | **19.71A** | **0A** | 67.389 | 81.128% | 432 | <6.0 | 42.83°C | 0.811 |
| | 12.025V | 5.008V | 3.348V | 4.933V | 83.064 | | | | 54.23°C | 229.81V |
| **CL4** | **71.056A** | **0A** | **0A** | **0.001A** | 849.593 | 91.35% | 1553 | 37.4 | 44.06°C | 0.981 |
| | 11.957V | 5.012V | 3.324V | 4.883V | 930.043 | | | | 51.4°C | 229.68V |

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** | **1.234A** | **0.497A** | **0.494A** | **0.2A** | 19.99 | 73.143% | 405 | <6.0 | 36.67°C | 0.878 |
| | 12.029V | 5.03V | 3.342V | 4.951V | 27.331 | | | | 37.57°C | 114.84V |
| **40W** | **2.718A** | **0.696A** | **0.691A** | **0.303A** | 40.001 | 82.943% | 408 | <6.0 | 37.07°C | 0.931 |
| | 12.025V | 5.028V | 3.342V | 4.949V | 48.228 | | | | 38.22°C | 114.83V |
| **60W** | **4.203A** | **0.895A** | **0.889A** | **0.404A** | 60.002 | 86.23% | 410 | <6.0 | 38.05°C | 0.952 |
| | 12.023V | 5.027V | 3.341V | 4.947V | 69.583 | | | | 39.59°C | 114.82V |
| **80W** | **5.683A** | **1.094A** | **1.087A** | **0.506A** | 79.948 | 88.764% | 412 | <6.0 | 39.46°C | 0.966 |
| | 12.022V | 5.026V | 3.341V | 4.946V | 90.066 | | | | 41.15°C | 114.8V |

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** | **1.234A** | **0.497A** | **0.494A** | **0.2A** | 19.996 | 74.32% | 414 | <6.0 | 36.06°C | 0.49 |
| | 12.031V | 5.03V | 3.343V | 4.95V | 26.905 | | | | 40.95°C | 229.82V |
| **40W** | **2.718A** | **0.696A** | **0.691A** | **0.303A** | 40.004 | 83.671% | 416 | <6.0 | 37.03°C | 0.674 |
| | 12.027V | 5.029V | 3.342V | 4.949V | 47.812 | | | | 40.77°C | 229.82V |
| **60W** | **4.202A** | **0.895A** | **0.889A** | **0.404A** | 60.003 | 87.586% | 417 | <6.0 | 38.21°C | 0.771 |
| | 12.024V | 5.028V | 3.342V | 4.947V | 68.511 | | | | 41.51°C | 229.81V |
| **80W** | **5.683A** | **1.094A** | **1.086A** | **0.506A** | 79.951 | 89.568% | 418 | <6.0 | 39.31°C | 0.824 |
| | 12.022V | 5.027V | 3.341V | 4.945V | 89.263 | | | | 42.25°C | 229.81V |

The results above are not used in the certification process

## Ripple Measurements

### 115V

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| 10% Load | 19.43mV | 15.91mV | 16.83mV | 11.85mV | Pass |
| 20% Load | 21.28mV | 15.60mV | 15.70mV | 12.01mV | Pass |
| 30% Load | 22.81mV | 15.70mV | 17.08mV | 12.37mV | Pass |
| 40% Load | 23.94mV | 15.91mV | 17.49mV | 13.24mV | Pass |
| 50% Load | 26.85mV | 17.09mV | 19.34mV | 13.65mV | Pass |
| 60% Load | 26.34mV | 17.91mV | 19.03mV | 14.68mV | Pass |
| 70% Load | 26.24mV | 17.65mV | 19.44mV | 14.78mV | Pass |
| 80% Load | 26.54mV | 18.42mV | 20.57mV | 18.27mV | Pass |
| 90% Load | 28.28mV | 17.65mV | 21.96mV | 21.04mV | Pass |
| 100% Load | 39.43mV | 18.63mV | 21.92mV | 25.91mV | Pass |
| 110% Load | 40.55mV | 18.58mV | 24.98mV | 29.11mV | Pass |
| Crossload1 | 26.15mV | 15.71mV | 17.57mV | 13.89mV | Pass |
| Crossload2 | 20.82mV | 18.99mV | 16.26mV | 13.80mV | Pass |

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| Crossload3 | 18.56mV | 15.24mV | 17.44mV | 12.93mV | Pass |
| Crossload4 | 40.72mV | 18.54mV | 21.64mV | 19.00mV | Pass |

The results above are not used in the certification process

**230V**

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| 10% Load | 19.85mV | 15.75mV | 16.01mV | 11.49mV | Pass |
| 20% Load | 18.41mV | 13.86mV | 14.37mV | 10.06mV | Pass |
| 30% Load | 21.53mV | 15.86mV | 16.78mV | 11.85mV | Pass |
| 40% Load | 26.49mV | 15.34mV | 17.14mV | 12.21mV | Pass |
| 50% Load | 26.90mV | 16.37mV | 17.60mV | 13.60mV | Pass |
| 60% Load | 25.01mV | 17.14mV | 19.70mV | 14.68mV | Pass |
| 70% Load | 25.62mV | 17.96mV | 19.86mV | 15.70mV | Pass |
| 80% Load | 27.57mV | 18.53mV | 21.39mV | 18.57mV | Pass |
| 90% Load | 29.77mV | 17.91mV | 21.55mV | 19.91mV | Pass |
| 100% Load | 39.66mV | 19.27mV | 23.37mV | 27.32mV | Pass |
| 110% Load | 41.95mV | 20.02mV | 24.22mV | 30.03mV | Pass |
| Crossload1 | 25.55mV | 16.31mV | 17.47mV | 15.26mV | Pass |
| Crossload2 | 22.45mV | 21.81mV | 19.44mV | 13.91mV | Pass |
| Crossload3 | 19.95mV | 15.81mV | 19.86mV | 13.50mV | Pass |
| Crossload4 | 40.13mV | 18.26mV | 22.51mV | 18.28mV | Pass |

The results above are not used in the certification process

## MSI MAG A850GLS PCIE5



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Power specifications label

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