# FSP Technology VITA GM 850W

S4021000092

Lab ID FS85002470

Certification ID 252470

Test Result Report ID: 24PS2470A

Certificate Issue Date: Jun 11, 2024

Scheme: ETA-EMI PSU

115V




230V




115V




230V




Scheme: LAMBDA PSU




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 | FSP Technology |
| Model | VITA GM 850W |
| OEM/ODM | FSP |
| Serial Number | S4021000092 |
| Product Specifications | |
| Manufacturer-Provided Information | |
| □□□□ (Vrms) | 100-240 |
| □□□□ (Arms) | 5.5-11 |

| | |
|---|---|
| □□□□ (Hz) | 50-60 |
| □□□□ (W) | 850 |
| Operating Temperature (Continuous Full Load) (°C) | |
| □□ | ATX12V |
| □□□□ | Fully Modular |
| Warranty | - |
| Cybenetics Measurements | |
| Dimensions (W x H x D) | |
| Weight | |
| □□ | 120mm Rifle Bearing Fan<br>(D12SH-12) |
| □□□□□ | ✗ |
| Cybenetics Testing Information | |
| Lab ID | FS85002470 |
| Date of receipt | May 21, 2024 |
| Testing Date | Jun 11, 2024 |
| Report Issued Date | Jun 11, 2024 |
| 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 | 16AWG | □ |
| 6+2pin PCIe□□ (650mm+150mm) | 2 | 4 | 16-18AWG | □ |
| 12+4 pin PCIe (700mm) (600W) | 1 | 1 | 16-24AWG | □ |
| SATA□□ (500mm+150mm+150mm+150mm) | 1 | 4 | 18AWG | □ |
| SATA□□ (500mm+150mm) / 4-pin Molex (+155mm+100mm) | 2 | 4 / 4 | 18-20AWG | □ |
| AC Power Cord (1350mm) - 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 | ✗ |

## □□□□

| □ | | 3.3V | 5V | 12V | 5VSB | -12V |
|---|---|---|---|---|---|---|
| □□□□ | □□ | 20 | 20 | 70.83 | 3 | 0.3 |
| | □ | 100 | | 850 | 15 | 3.6 |
| □□□□□ (W) | | 850 | | | | |

## Parts Description

| | |
|---|---|
| **General Data** | |
| Manufacturer (OEM) | FSP |
| PCB Type | Double-Sided |
| **Primary Side** | |
| Transient Filter | 4x Y caps, 2x X caps, 2x CM chokes, 1x MOV |
| Inrush Protection | 1x NTC Thermistor SCK-056 (5 Ohm) & Relay |
| Bridge Rectifier(s) | 2x GBU1506 (600V, 15A @ 100°C) |
| APFC MOSFETs | 2x GP36S60YERD |
| APFC Boost Diode | 1x Toshiba TRS8E65F (650V, 8A, @ 175°C) |
| Bulk Cap(s) | 1x Nippon Chemi-con (450V, 680uF, 3,000h @ 105°C, KHS) |

| | |
|---|---|
| Main Switchers | 2x Toshiba TK25A60X5 (600V, 25A, @ 150°C, Rds(on): 0.14Ohm) |
| APFC Controller | Champion CM6500UNX |
| Resonant Controller | Champion CU6901VPA |
| Topology | Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters |
| **Secondary Side** | |
| +12V MOSFETs | 6x CYStek MTB1D6NO4RH8 (40V, 84A @ 100°C, Rds(on): 1.8mOhm) |
| 5V & 3.3V | DC-DC Converters: 4x XSEMI XP3R303GMT-L (30V, 25A @ 70°C, Rds(on): 3.3mOhm) PWM Controller(s): UPI uP3861P |
| Filtering Capacitors | Electrolytic: 4x Nippon Chemi-Con (105°C, W) 2x Nippon Chemi-Con (1-5,000h @ 105°C,KZE), 2x Nippon Chemi-Con (5-6,000h @ 105°C, ZKH), Polymer: 4x Nippon Chemi-Con, 2x Apaq, 26x |
| Supervisor IC | IN1T703I-SDG |
| Fan Model | Yate Loon D12SH-12 (120mm, 12V, 0.30A, Rifle Bearing Fan) |
| **5VSB Circuit** | |
| TVS Diode | 1x SMAJ15A |
| High Side Rectifier | US1MGR (1000V, 1A) |
| Standby PWM Controller | Grenery GR9230UK |

# Test Results

## Temperature & Compliance Info

| | |
|---|---|
| □□□□ (°C /°F) | 28-32 / 82.4-89.6 |
| □□ ErP Lot3/6□□ | ✓ |
| □□ (EU) No 617/2013□□ | ✓ |
| ALPM (Alternative Low Power Mode) compatible | ✓ |
| ATX v3.1 PSU Power Excursion | ✓ |

## Performance Summary

### 115V

| | |
|---|---|
| Accredited | |
| □□□□ (>1450 load combinations) | 90.089% |
| Average Noise Output (>1450 Load Combinations) | 21.74dBA |
| PF□□□ (>1450 Load Combinations) | 0.978 |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | 69.552% |
| □□□□□□ | 0.0475W |
| Non-Accredited | |
| 12V Ripple (Full Load) | 21.80mV |
| 5V Ripple (Full Load) | 14.16mV |
| 3.3V Ripple (Full Load) | 18.45mV |
| 5VSB Ripple (Full Load) | 19.77mV |
| 12V Load Regulation | 0.54% |
| 5V Load Regulation | 1.39% |
| 3.3V Load Regulation | 2.34% |
| 5VSB Load Regulation | 2.41% |
| Inrush Current | 32.270A |

### 230V

| | |
|---|---|
| Accredited | |
| □□□□ (>1450 load combinations) | 92.157% |
| Average Noise Output (>1450 Load Combinations) | 21.15dBA |
| PF□□□ (>1450 Load Combinations) | 0.938 |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | 67.428% |
| □□□□□□ | 0.1404W |
| Non-Accredited | |
| 12V Ripple (Full Load) | 22.26mV |
| 5V Ripple (Full Load) | 13.24mV |
| 3.3V Ripple (Full Load) | 18.79mV |

| | | |
|---|---|---|
| 5VSB Ripple (Full Load) | | 17.59mV |
| 12V Load Regulation | | 0.56% |
| 5V Load Regulation | | 1.41% |
| 3.3V Load Regulation | | 2.40% |
| 5VSB Load Regulation | | 2.43% |
| Inrush Current | | 65.070A |
| 12V Transient Response (200%) | | 11.50V |
| 5V Transient Response (200%) | | 4.988V |
| 3.3V Transient Response (200%) | | 3.187V |
| 5VSB Transient Response (200%) | | 4.928V |
| □□□□ & PG□□ | | 20.20ms |
| AC Loss to PWR_OK Hold Up Time | | 14.80ms |
| PWR_OK Inactive to DC Loss Delay | | 5.40ms |
| PSU Timings: T1 (20% / 100%) | 49.0ms | 49.0ms |
| PSU Timings: T3 (20% / 100%) | 113.0ms | 114.0ms |
| 12V OCP (27.2°C / 41.7°C) | 79.20A (111.82%), 12.007V | 75.60A (106.73%), 12.027V |
| 5V OCP (27.2°C / 41.7°C) | 25.4A (127.00%), 5.071V | 25.1A (125.50%), 5.072V |
| 3.3V OCP (27.2°C / 41.7°C) | 25.1A (125.50%), 3.327V | 24.9A (124.50%), 3.327V |
| 5VSB OCP (27.2°C / 41.7°C) | 4A (133.33%), 4.987V | 4A (133.33%), 4.993V |
| OPP (27.09°C / 41.93°C) | 121.48% | 116.77% |

## □□□□ & PG□□

| | |
|---|---|
| Hold-Up Time (ms) | 20.2 |
| AC Loss to PWR_OK Hold Up Time (ms) | 14.8 |
| PWR_OK Inactive to DC Loss Delay (ms) | 5.4 |

## Tables

### 115V

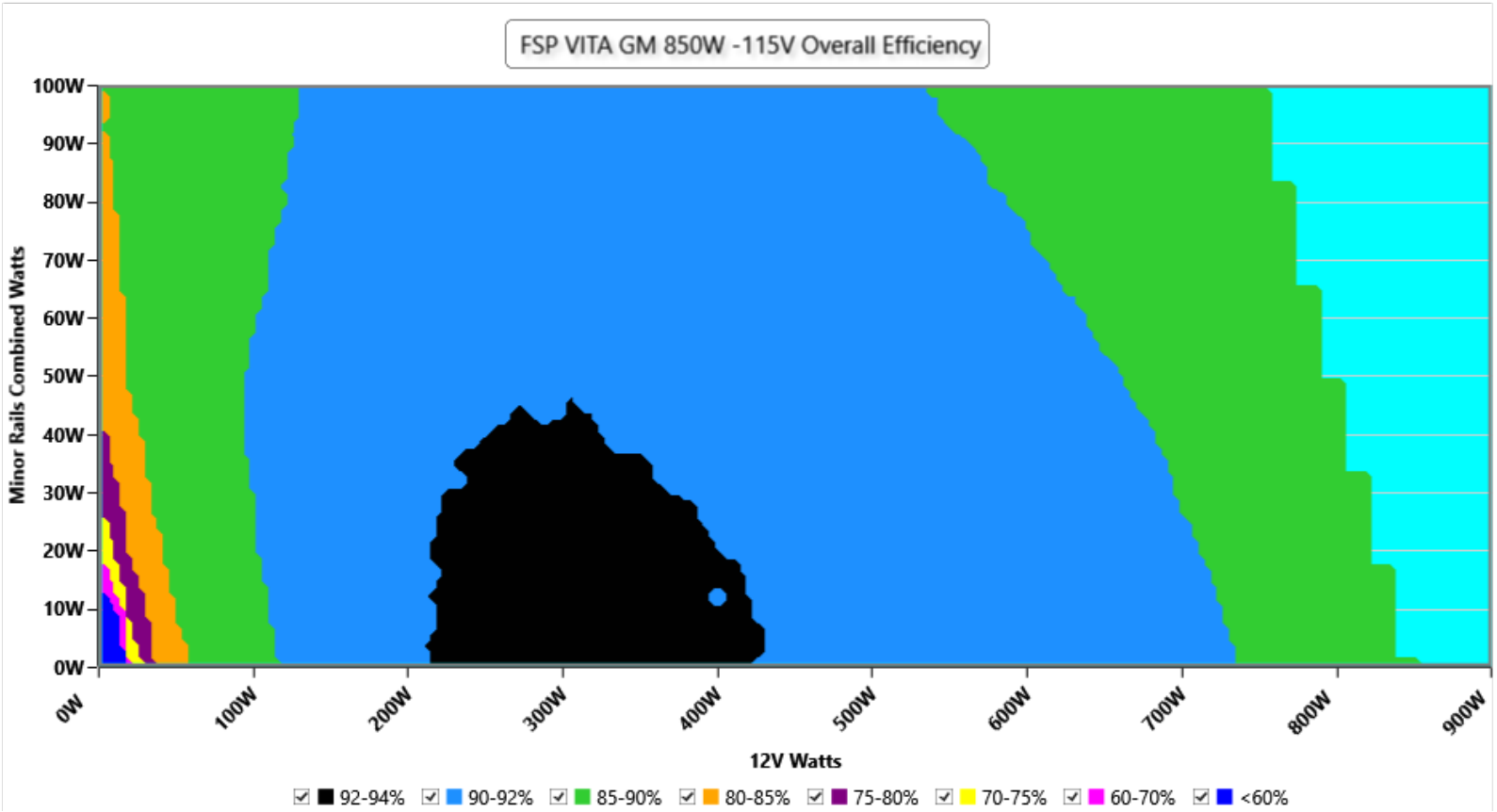
| Detailed Results | | | | | | |
|---|---|---|---|---|---|---|
| | Average | Min | Limit Min | Max | Limit Max | Result |
| Mains Voltage RMS: | 115.08 V | 115.04 V | 113.85 V | 115.11 V | 116.15 V | PASS |
| Mains Frequency: | 60.00 Hz | 59.96 Hz | 59.40 Hz | 60.03 Hz | 60.60 Hz | PASS |
| Mains Voltage CF: | 1.416 | 1.415 | 1.340 | 1.418 | 1.490 | PASS |
| Mains Voltage THD: | 0.13 % | 0.09 % | N/A | 0.19 % | 2.00 % | PASS |
| Real Power: | 0.048 W | 0.005 W | N/A | 0.087 W | N/A | N/A |
| Apparent Power: | 13.056 W | 12.996 W | N/A | 13.124 W | N/A | N/A |
| Power Factor: | 0.003 | N/A | N/A | N/A | N/A | N/A |

### 230V

| Detailed Results | | | | | | |
|---|---|---|---|---|---|---|
| | Average | Min | Limit Min | Max | Limit Max | Result |
| Mains Voltage RMS: | 231.02 V | 230.94 V | 227.70 V | 231.09 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 | 1.418 | 1.490 | PASS |
| Mains Voltage THD: | 0.17 % | 0.14 % | N/A | 0.24 % | 2.00 % | PASS |
| Real Power: | 0.140 W | 0.102 W | N/A | 0.191 W | N/A | N/A |
| Apparent Power: | 44.720 W | 44.456 W | N/A | 44.984 W | N/A | N/A |
| Power Factor: | 0.003 | N/A | N/A | N/A | N/A | N/A |

## □□□□□□

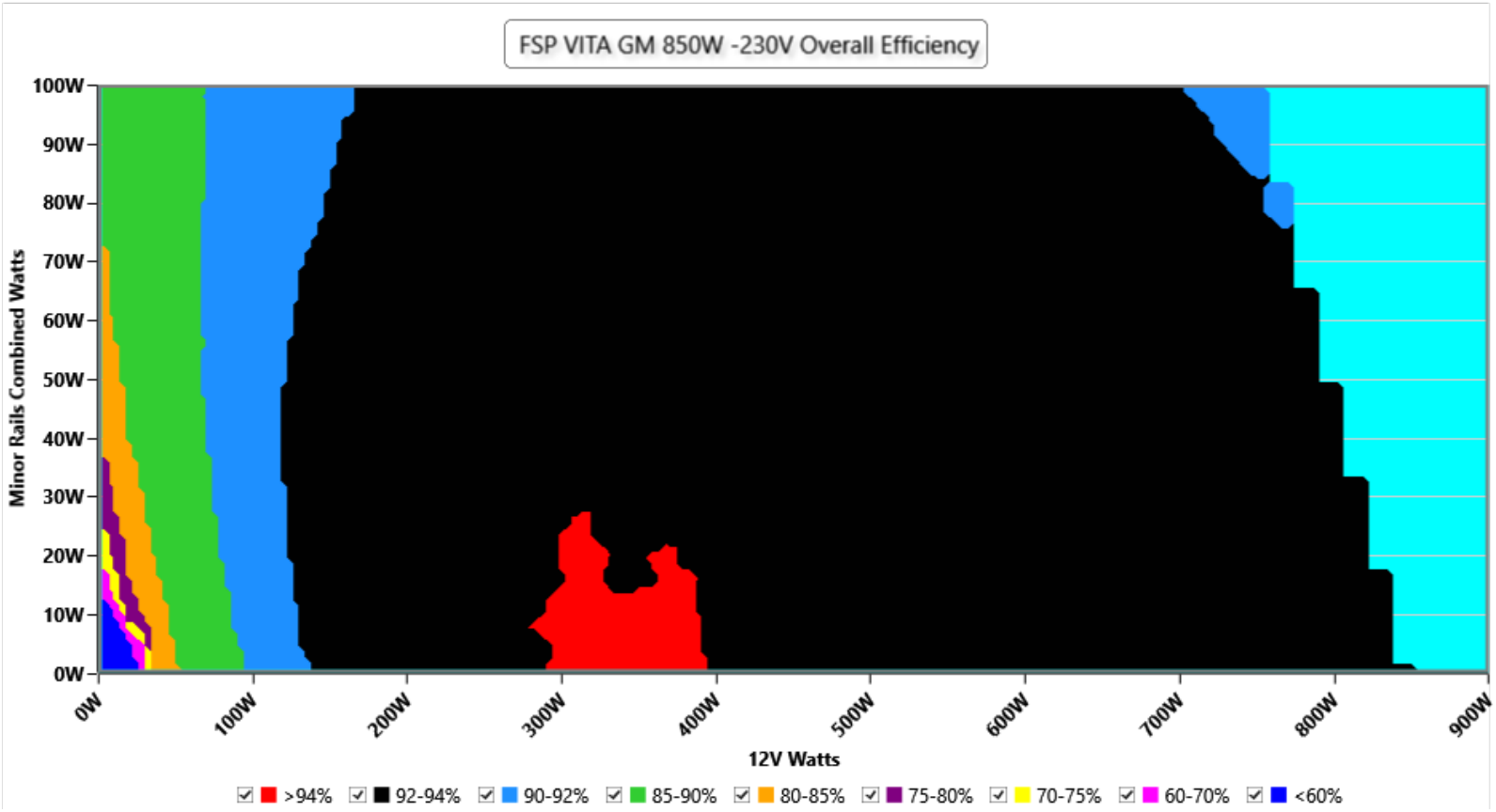
**115V**




□□

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

## 230V

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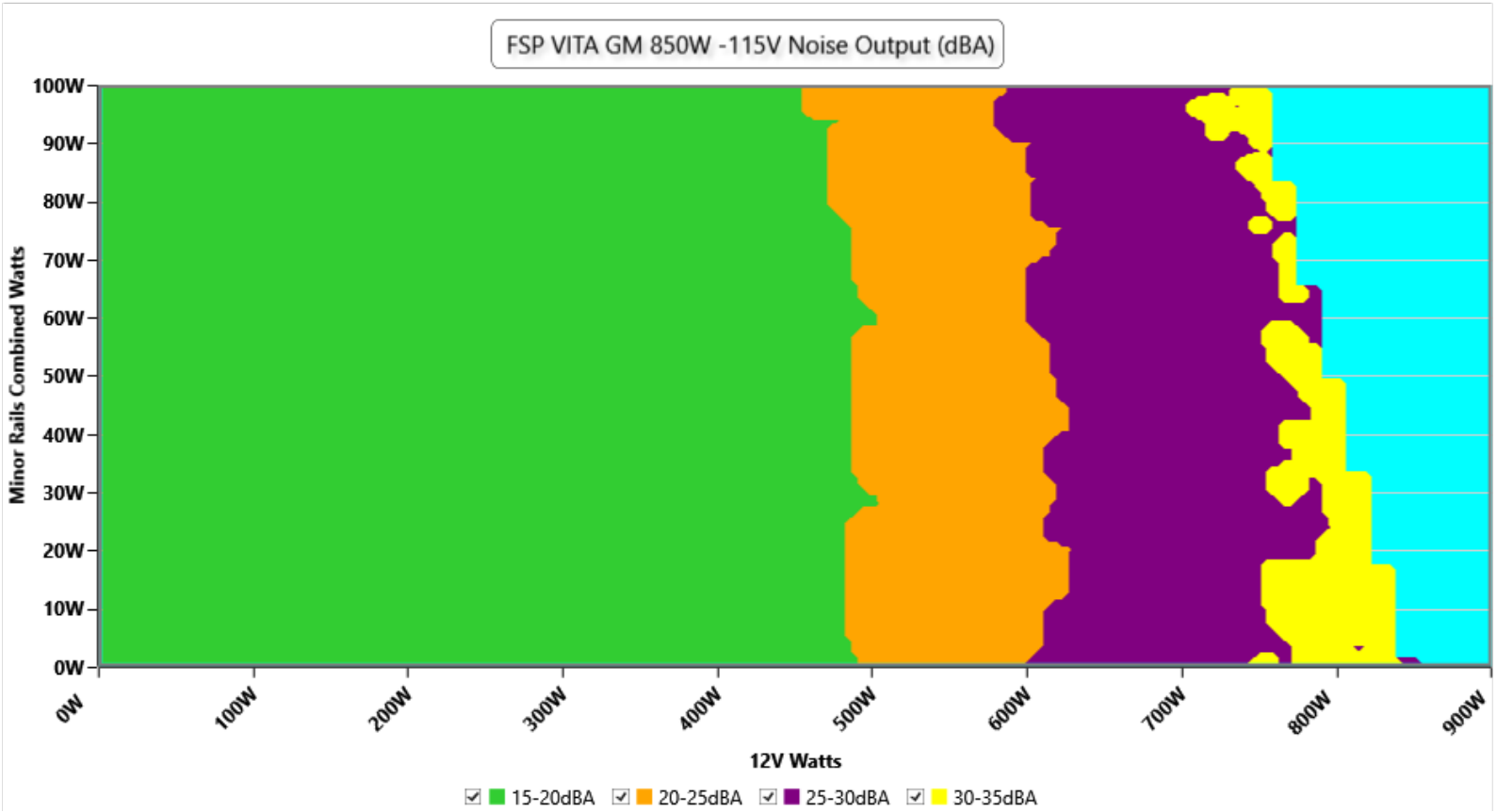
## □□□□□

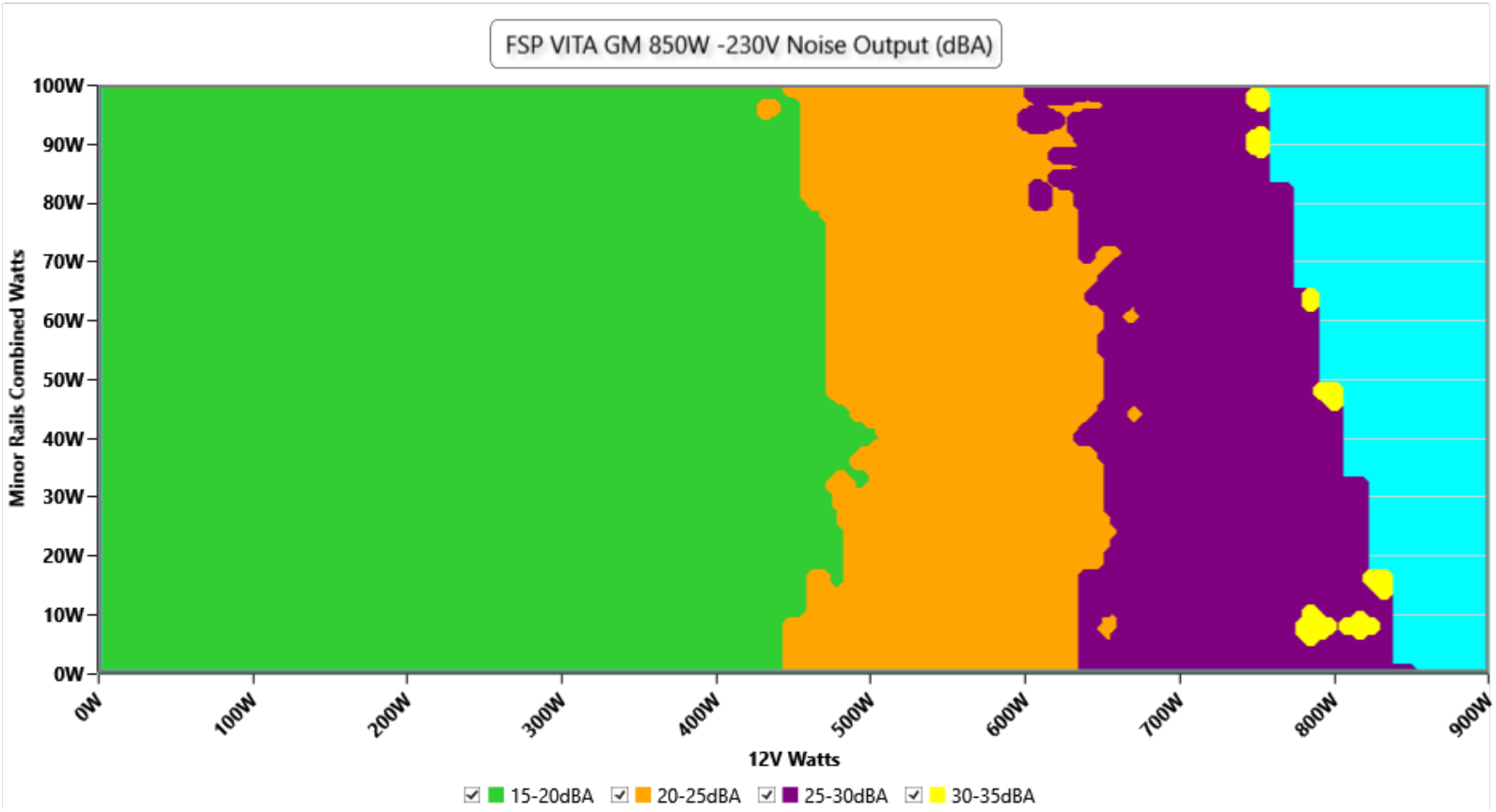
**115V**




### □□

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

## 230V




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% | 728 RPM · 16.0 dB(A) · 30.9 °C | 747 RPM · 16.8 dB(A) · 40.1 °C | **+0.8 dB(A)** |
| 20% | 730 RPM · 16.1 dB(A) · 30.3 °C | 749 RPM · 16.9 dB(A) · 40.9 °C | **+0.8 dB(A)** |
| 50% | 730 RPM · 16.1 dB(A) · 30.3 °C | 787 RPM · 17.4 dB(A) · 42.4 °C | **+1.3 dB(A)** |
| 100% | 730 RPM · 16.1 dB(A) · 30.9 °C | 1522 RPM · 36.3 dB(A) · 45.2 °C | **+20.2 dB(A)** |

### 230V

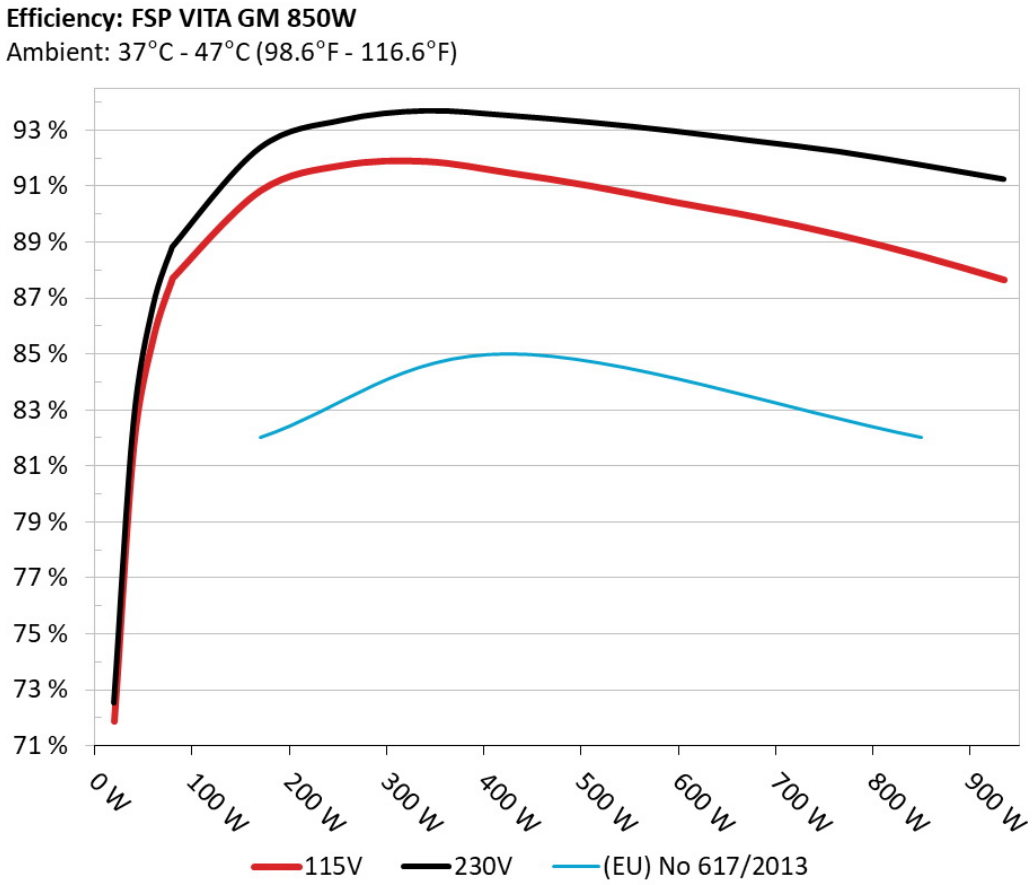
| Load | Normal ambient<br>fan · noise · intake | High ambient<br>fan · noise · intake | Noise change |
|---|---|---|---|
| 10% | 726 RPM · 15.9 dB(A) · 29.9 °C | 744 RPM · 16.7 dB(A) · 40.3 °C | **+0.8 dB(A)** |
| 20% | 730 RPM · 16.1 dB(A) · 30.2 °C | 748 RPM · 16.8 dB(A) · 40.6 °C | **+0.7 dB(A)** |
| 50% | 736 RPM · 16.5 dB(A) · 30.4 °C | 783 RPM · 17.2 dB(A) · 42.4 °C | **+0.7 dB(A)** |
| 100% | 1142 RPM · 28.7 dB(A) · 30.9 °C | 1686 RPM · 39.7 dB(A) · 45.6 °C | **+11.0 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.

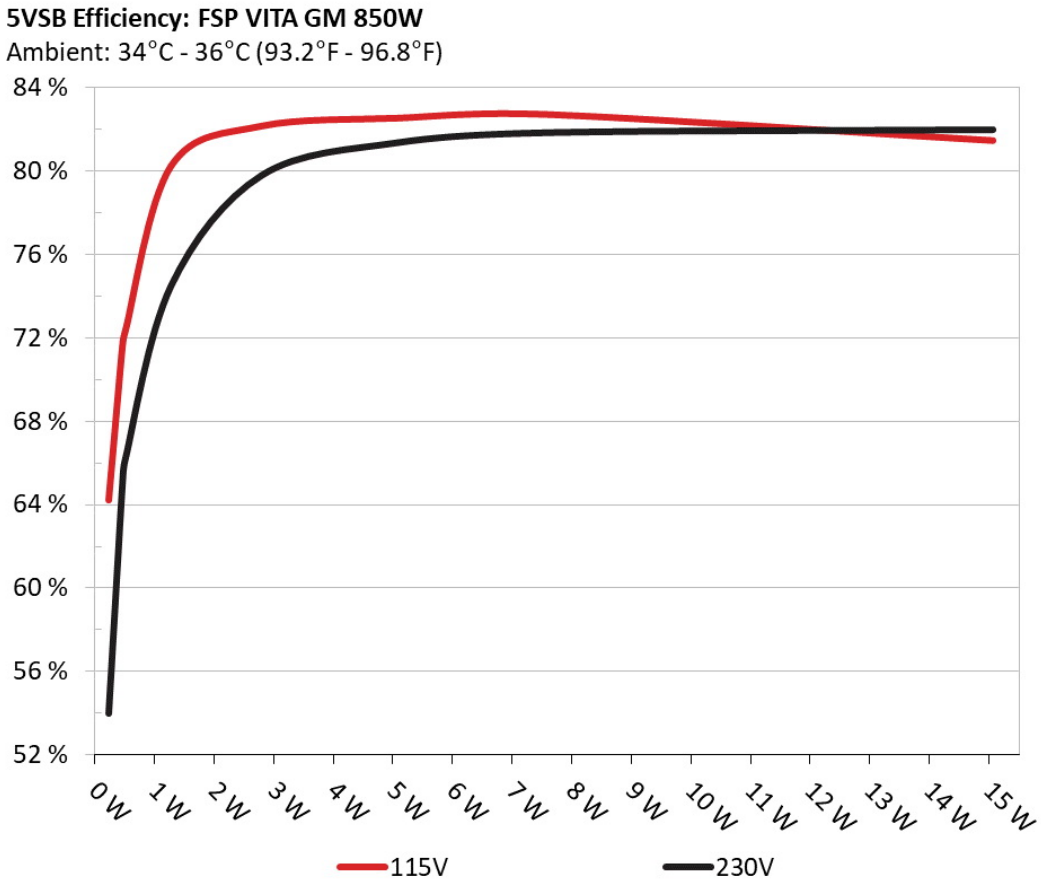
*Informational. Not part of the ETA or LAMBDA rating.*

## 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** | **0.045A** | 0.229W | 64.244% | 0.027 |
| | 5.095V | 0.357W | | 114.87V |
| **2** | **0.09A** | 0.458W | 71.596% | 0.049 |
| | 5.093V | 0.64W | | 114.88V |
| **3** | **0.55A** | 2.794W | 82.134% | 0.22 |
| | 5.081V | 3.402W | | 114.86V |
| **4** | **1A** | 5.07W | 82.513% | 0.323 |
| | 5.07V | 6.144W | | 114.85V |
| **5** | **1.5A** | 7.586W | 82.687% | 0.383 |
| | 5.057V | 9.175W | | 114.86V |
| **6** | **3A** | 15.058W | 81.444% | 0.468 |
| | 5.019V | 18.488W | | 114.85V |

### 230V

| □□ # | 5VSB | DC/AC (□ ) | □□ | PF/AC □□ |
|---|---|---|---|---|
| **1** | **0.045A** | 0.229W | 53.979% | 0.01 |
| | 5.095V | 0.425W | | 229.94V |
| **2** | **0.09A** | 0.458W | 64.949% | 0.016 |
| | 5.093V | 0.706W | | 229.94V |
| **3** | **0.55A** | 2.794W | 79.795% | 0.077 |
| | 5.081V | 3.503W | | 229.94V |
| **4** | **1A** | 5.07W | 81.361% | 0.131 |
| | 5.07V | 6.231W | | 229.94V |
| **5** | **1.5A** | 7.586W | 81.843% | 0.183 |
| | 5.057V | 9.269W | | 229.94V |
| **6** | **3A** | 15.057W | 81.982% | 0.293 |
| | 5.019V | 18.367W | | 229.94V |

## Protection Features

| | |
|---|---|
| OCP (Cold @ 27.2°C) | 12V: 79.20A (111.82%), 12.007V<br>5V: 25.4A (127.00%), 5.071V<br>3.3V: 25.1A (125.50%), 3.327V<br>5VSB: 4A (133.33%), 4.987V |
| OCP (Hot) @ 41.7°C) | 12V: 75.60A (106.73%), 12.027V<br>5V: 25.1A (125.50%), 5.072V<br>3.3V: 24.9A (124.50%), 3.327V<br>5VSB: 4A (133.33%), 4.993V |
| OCP (Cold @ 27.1°C) | 1032.61W (121.48%) |
| OCP (Hot @ 41.9°C) | 992.59W (116.77%) |
| OTP | ✓ (134°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 & Bypass Relay |

## Supplementary Tests (For Reference)

### 10-110%□□□□

**115V**

| □□ | 12V | 5V | 3.3V | 5VSB | DC/AC (□ ) | □□ | □□□□ (RPM) | □□□□□□□ (dB[A]) | □□ (□□ /□□ ) | PF/AC □□ |
|---|---|---|---|---|---|---|---|---|---|---|
| **10%** | **5.252A** | **1.955A** | **1.962A** | **0.986A** | 85.001 | 87.543% | 747 | 16.8 | 40.14°C | 0.965 |
| | 12.071V | 5.115V | 3.364V | 5.071V | 97.097 | | | | 41.95°C | 114.83V |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **20%** | **11.525A** | **2.937A** | **2.95A** | **1.185A** | 169.932 | 90.815% | 749 | 16.9 | 40.85°C | 0.976 |
| | 12.063V | 5.107V | 3.355V | 5.062V | 187.119 | | | | 43.07°C | 114.8V |
| **30%** | **18.155A** | **3.431A** | **3.449A** | **1.386A** | 254.935 | 91.728% | 751 | 16.9 | 41.14°C | 0.976 |
| | 12.056V | 5.101V | 3.348V | 5.052V | 277.927 | | | | 44.49°C | 114.77V |
| **40%** | **24.799A** | **3.926A** | **3.95A** | **1.587A** | 340.022 | 91.863% | 755 | 17 | 41.82°C | 0.977 |
| | 12.050V | 5.094V | 3.341V | 5.042V | 370.139 | | | | 46.3°C | 114.75V |
| **50%** | **31.083A** | **4.915A** | **4.95A** | **1.789A** | 424.832 | 91.46% | 787 | 17.4 | 42.44°C | 0.98 |
| | 12.043V | 5.087V | 3.333V | 5.032V | 464.494 | | | | 48.49°C | 114.71V |
| **60%** | **37.350A** | **5.907A** | **5.955A** | **1.992A** | 509.36 | 90.99% | 958 | 22.7 | 42.66°C | 0.983 |
| | 12.036V | 5.08V | 3.325V | 5.022V | 559.801 | | | | 49.92°C | 114.69V |
| **70%** | **43.692A** | **6.903A** | **6.965A** | **2.195A** | 594.685 | 90.417% | 1079 | 26.4 | 43.39°C | 0.985 |
| | 12.029V | 5.072V | 3.317V | 5.012V | 657.712 | | | | 51.97°C | 114.66V |
| **80%** | **50.042A** | **7.899A** | **7.979A** | **2.298A** | 679.491 | 89.877% | 1154 | 29 | 43.85°C | 0.987 |
| | 12.022V | 5.064V | 3.308V | 5.004V | 756.02 | | | | 54.29°C | 114.62V |
| **90%** | **56.799A** | **8.404A** | **8.483A** | **2.402A** | 764.921 | 89.233% | 1264 | 31 | 44.85°C | 0.987 |
| | 12.015V | 5.057V | 3.301V | 4.996V | 857.221 | | | | 56.49°C | 114.6V |
| **100%** | **63.296A** | **8.911A** | **9.019A** | **3.016A** | 849.731 | 88.484% | 1522 | 36.3 | 45.21°C | 0.988 |
| | 12.007V | 5.05V | 3.293V | 4.975V | 960.332 | | | | 57.62°C | 114.56V |
| **110%** | **69.680A** | **9.917A** | **10.139A** | **3.019A** | 934.296 | 87.637% | 1827 | 41.9 | 46.17°C | 0.989 |
| | 11.998V | 5.042V | 3.284V | 4.969V | 1066.093 | | | | 59.06°C | 114.53V |
| **CL1** | **0.115A** | **11.827A** | **11.881A** | **0A** | 101.292 | 84.819% | 851 | 20.2 | 40.27°C | 0.973 |
| | 12.073V | 5.09V | 3.341V | 5.097V | 119.424 | | | | 47.31°C | 114.81V |
| **CL2** | **0.115A** | **19.664A** | **0A** | **0A** | 101.386 | 83.524% | 848 | 20.2 | 41.6°C | 0.973 |
| | 12.073V | 5.085V | 3.357V | 5.098V | 121.384 | | | | 45.6°C | 114.81V |
| **CL3** | **0.115A** | **0A** | **19.784A** | **0A** | 67.382 | 79.081% | 791 | 17.6 | 40.09°C | 0.964 |
| | 12.070V | 5.103V | 3.336V | 5.094V | 85.207 | | | | 44.13°C | 114.84V |
| **CL4** | **70.729A** | **0A** | **0A** | **0.001A** | 849.551 | 89.046% | 1635 | 38.1 | 45.28°C | 0.988 |
| | 12.012V | 5.071V | 3.313V | 5.06V | 954.062 | | | | 56.22°C | 114.58V |

The results above are not used in the certification process

## 230V

| □□ | 12V | 5V | 3.3V | 5VSB | DC/AC (□ ) | □□ | □□□□ (RPM) | □□□□□□□ (dB[A]) | □□ (□□ /□□ ) | PF/AC □□ |
|---|---|---|---|---|---|---|---|---|---|---|
| **10%** | **5.253A** | **1.955A** | **1.962A** | **0.986A** | 85.003 | 88.748% | 744 | 16.7 | 40.26°C | 0.817 |
| | 12.070V | 5.117V | 3.364V | 5.071V | 95.785 | | | | 41°C | 229.93V |
| **20%** | **11.527A** | **2.936A** | **2.95A** | **1.186A** | 169.938 | 92.359% | 748 | 16.8 | 40.63°C | 0.91 |
| | 12.062V | 5.109V | 3.356V | 5.061V | 183.995 | | | | 41.93°C | 229.92V |
| **30%** | **18.158A** | **3.43A** | **3.449A** | **1.386A** | 254.942 | 93.352% | 749 | 16.9 | 41.17°C | 0.939 |
| | 12.055V | 5.103V | 3.349V | 5.051V | 273.103 | | | | 43.09°C | 229.9V |
| **40%** | **24.804A** | **3.925A** | **3.95A** | **1.587A** | 340.031 | 93.683% | 751 | 16.9 | 41.62°C | 0.952 |
| | 12.047V | 5.096V | 3.342V | 5.041V | 362.961 | | | | 44.3°C | 229.89V |
| **50%** | **31.090A** | **4.913A** | **4.95A** | **1.789A** | 424.841 | 93.518% | 783 | 17.2 | 42.39°C | 0.96 |
| | 12.040V | 5.089V | 3.333V | 5.031V | 454.283 | | | | 46.5°C | 229.87V |
| **60%** | **37.359A** | **5.905A** | **5.955A** | **1.992A** | 509.377 | 93.27% | 937 | 21.9 | 42.84°C | 0.965 |
| | 12.033V | 5.082V | 3.325V | 5.021V | 546.133 | | | | 48.1°C | 229.86V |
| **70%** | **43.704A** | **6.9A** | **6.966A** | **2.196A** | 594.701 | 92.963% | 1022 | 24.6 | 43.44°C | 0.969 |
| | 12.026V | 5.074V | 3.317V | 5.01V | 639.718 | | | | 48.96°C | 229.85V |
| **80%** | **50.054A** | **7.896A** | **7.981A** | **2.299A** | 679.513 | 92.6% | 1187 | 29.2 | 43.74°C | 0.972 |
| | 12.019V | 5.066V | 3.308V | 5.002V | 733.815 | | | | 50.36°C | 229.83V |
| **90%** | **56.812A** | **8.402A** | **8.484A** | **2.403A** | 764.947 | 92.228% | 1592 | 37.8 | 44.49°C | 0.974 |
| | 12.013V | 5.059V | 3.3V | 4.995V | 829.414 | | | | 51.8°C | 229.82V |
| **100%** | **63.314A** | **8.908A** | **9.021A** | **3.017A** | 849.761 | 91.748% | 1686 | 39.7 | 45.64°C | 0.975 |
| | 12.005V | 5.051V | 3.292V | 4.973V | 926.192 | | | | 53.13°C | 229.81V |
| **110%** | **69.701A** | **9.914A** | **10.141A** | **3.02A** | 934.347 | 91.242% | 1701 | 40 | 46.49°C | 0.977 |
| | 11.995V | 5.043V | 3.283V | 4.967V | 1024.045 | | | | 53.79°C | 229.79V |
| **CL1** | **0.115A** | **11.822A** | **11.881A** | **0A** | 101.296 | 85.978% | 818 | 18.4 | 40.42°C | 0.855 |
| | 12.071V | 5.092V | 3.341V | 5.096V | 117.819 | | | | 47.43°C | 229.92V |
| **CL2** | **0.115A** | **19.655A** | **0A** | **0A** | 101.388 | 84.693% | 785 | 17.3 | 41.02°C | 0.857 |
| | 12.071V | 5.088V | 3.357V | 5.097V | 119.714 | | | | 45.99°C | 229.93V |
| **CL3** | **0.115A** | **0A** | **19.787A** | **0A** | 67.383 | 79.814% | 787 | 17.4 | 40.42°C | 0.79 |
| | 12.068V | 5.106V | 3.335V | 5.093V | 84.427 | | | | 44.19°C | 229.93V |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **CL4** | **70.747A** | **0A** | **0A** | **0.001A** | 849.492 | 92.466% | 1425 | 34.2 | 45.97°C | 0.975 |
| | 12.008V | 5.074V | 3.313V | 5.058V | 918.701 | | | | 51.61°C | 229.81V |

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 □□ |
|---|---|---|---|---|---|---|---|---|---|---|
| **20W** | **1.231A** | **0.488A** | **0.49A** | **0.196A** | 19.996 | 71.88% | 736 | 16.5 | 36.46°C | 0.855 |
| | 12.064V | 5.12V | 3.37V | 5.095V | 27.82 | | | | 37.04°C | 114.86V |
| **40W** | **2.710A** | **0.684A** | **0.686A** | **0.295A** | 39.997 | 81.726% | 737 | 16.5 | 37.11°C | 0.928 |
| | 12.062V | 5.118V | 3.369V | 5.091V | 48.941 | | | | 38.04°C | 114.84V |
| **60W** | **4.186A** | **0.879A** | **0.882A** | **0.393A** | 59.997 | 85.553% | 741 | 16.6 | 38.43°C | 0.947 |
| | 12.072V | 5.117V | 3.367V | 5.088V | 70.131 | | | | 39.58°C | 114.84V |
| **80W** | **5.659A** | **1.075A** | **1.078A** | **0.492A** | 79.937 | 87.704% | 743 | 16.7 | 39.67°C | 0.964 |
| | 12.071V | 5.117V | 3.366V | 5.085V | 91.146 | | | | 40.89°C | 114.83V |

The results above are not used in the certification process

### 230V

| □□ | 12V | 5V | 3.3V | 5VSB | DC/AC (□ ) | □□ | □□□□ (RPM) | □□□□□□□□ (dB[A]) | □□ (□□ /□□ ) | PF/AC □□ |
|---|---|---|---|---|---|---|---|---|---|---|
| **20W** | **1.231A** | **0.488A** | **0.489A** | **0.196A** | 19.999 | 72.54% | 734 | 16.4 | 36.81°C | 0.459 |
| | 12.063V | 5.122V | 3.371V | 5.094V | 27.569 | | | | 37.29°C | 229.94V |
| **40W** | **2.710A** | **0.684A** | **0.686A** | **0.295A** | 39.998 | 82.519% | 736 | 16.5 | 37.78°C | 0.642 |
| | 12.062V | 5.121V | 3.369V | 5.09V | 48.474 | | | | 38.4°C | 229.93V |
| **60W** | **4.186A** | **0.879A** | **0.882A** | **0.393A** | 59.998 | 86.68% | 738 | 16.5 | 38.86°C | 0.741 |
| | 12.072V | 5.12V | 3.367V | 5.087V | 69.217 | | | | 39.39°C | 229.93V |
| **80W** | **5.659A** | **1.075A** | **1.078A** | **0.492A** | 79.942 | 88.823% | 740 | 16.6 | 39.11°C | 0.803 |
| | 12.070V | 5.119V | 3.366V | 5.084V | 90 | | | | 40.24°C | 229.93V |

The results above are not used in the certification process

## 115V

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| **10% Load** | 15.5 mV | 9.5 mV | 10.2 mV | 9.3 mV | Pass |
| **20% Load** | 16.2 mV | 10.5 mV | 11.2 mV | 10.0 mV | Pass |
| **30% Load** | 13.8 mV | 9.4 mV | 10.6 mV | 12.1 mV | Pass |
| **40% Load** | 13.3 mV | 23.6 mV | 23.9 mV | 11.7 mV | Pass |
| **50% Load** | 13.4 mV | 23.7 mV | 20.7 mV | 12.4 mV | Pass |
| **60% Load** | 13.5 mV | 13.3 mV | 14.7 mV | 13.8 mV | Pass |
| **70% Load** | 15.1 mV | 12.7 mV | 14.5 mV | 14.2 mV | Pass |
| **80% Load** | 19.8 mV | 17.0 mV | 20.4 mV | 15.8 mV | Pass |
| **90% Load** | 14.4 mV | 13.5 mV | 17.3 mV | 15.3 mV | Pass |
| **100% Load** | 21.8 mV | 14.2 mV | 18.5 mV | 19.8 mV | Pass |
| **110% Load** | 22.7 mV | 14.0 mV | 19.5 mV | 21.2 mV | Pass |
| **Crossload 1** | 23.1 mV | 10.0 mV | 11.5 mV | 7.2 mV | Pass |
| **Crossload 2** | 16.2 mV | 12.0 mV | 9.9 mV | 7.3 mV | Pass |
| **Crossload 3** | 13.3 mV | 9.1 mV | 11.9 mV | 7.0 mV | Pass |
| **Crossload 4** | 21.3 mV | 13.9 mV | 18.2 mV | 15.6 mV | Pass |

The results above are not used in the certification process

## 230V

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| **10% Load** | 16.4 mV | 9.0 mV | 9.3 mV | 9.6 mV | Pass |
| **20% Load** | 17.1 mV | 10.9 mV | 10.9 mV | 10.0 mV | Pass |
| **30% Load** | 14.0 mV | 9.2 mV | 10.5 mV | 12.1 mV | Pass |
| **40% Load** | 12.9 mV | 24.2 mV | 25.0 mV | 11.8 mV | Pass |
| **50% Load** | 13.5 mV | 24.5 mV | 21.5 mV | 12.2 mV | Pass |
| **60% Load** | 12.9 mV | 13.7 mV | 15.2 mV | 14.9 mV | Pass |





| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| **70% Load** | 13.4 mV | 11.9 mV | 14.4 mV | 13.4 mV | Pass |
| **80% Load** | 13.6 mV | 12.3 mV | 15.4 mV | 14.4 mV | Pass |
| **90% Load** | 14.3 mV | 12.1 mV | 16.2 mV | 14.9 mV | Pass |
| **100% Load** | 22.3 mV | 13.2 mV | 18.8 mV | 17.6 mV | Pass |
| **110% Load** | 22.3 mV | 14.5 mV | 19.4 mV | 18.3 mV | Pass |
| **Crossload 1** | 23.7 mV | 10.6 mV | 12.2 mV | 6.8 mV | Pass |
| **Crossload 2** | 18.4 mV | 12.9 mV | 9.4 mV | 6.5 mV | Pass |
| **Crossload 3** | 15.3 mV | 8.9 mV | 11.3 mV | 6.7 mV | Pass |
| **Crossload 4** | 22.3 mV | 13.2 mV | 18.9 mV | 15.4 mV | Pass |

The results above are not used in the certification process

## FSP Technology VITA GM 850W

Top side

Power specifications label

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