# Seasonic Focus Plus Gold 650W (#3)

Serial Number R1708AA174160086

Lab ID 236

Certification ID 25236

Test Result Report ID:

Certificate Issue Date: Jun 12, 2018

Scheme: ETA-EMI PSU

115V 230V

Scheme: LAMBDA PSU

115V 230V

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 | Seasonic |
| Model | Focus Plus Gold 650W (#3) |
| OEM/ODM | Seasonic |
| Serial Number | R1708AA174160086 |
| Product Specifications | |
| Manufacturer-Provided Information | |
| Rated Voltage (Vrms) | 100-240 |
| Rated Current (Arms) | 9-4.5 |
| Rated Frequency (Hz) | 50-60 |

| | |
|---|---|
| Rated Power (W) | 650 |
| Operating Temperature (Continuous Full Load) (°C) | |
| Type | ATX12V |
| Cable Design | Fully Modular |
| Warranty | - |
| Cybenetics Measurements | |
| Dimensions (W x H x D) | |
| Weight | |
| Cooling | 120mm Fluid Dynamic Bearing Fan<br>(HA1225H12F-Z) |
| Semi-Passive Operation | ✓ (selectable) |
| Cybenetics Testing Information | |
| Lab ID | 236 |
| Date of receipt | Jun 4, 2018 |
| Testing Date | Jun 10, 2018 |
| Report Issued Date | Jun 12, 2018 |
| 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 (610mm) | 1 | 1 | 18-22AWG | Yes |
| 4+4 pin EPS12V (655mm) | 1 | 1 | 18AWG | No |
| 6+2 pin PCIe (680mm+80mm) | 2 | 4 | 18AWG | No |
| SATA (455mm+115mm+115mm+115mm) | 2 | 8 | 18AWG | No |
| 4 pin Molex (460mm+125mm+125mm) | 1 | 3 | 18AWG | No |
| FDD Adapter (+110mm) | 1 | 1 | 22AWG | No |
| AC Power Cord (1400mm) - C13 coupler | 1 | 1 | 18AWG | No |

## Power Specifications

| Rail | | 3.3V | 5V | 12V | 5VSB | -12V |
|---|---|---|---|---|---|---|
| Max. Power | Amps | 20 | 20 | 54 | 3 | 0.3 |
| | Watts | 100 | | 648 | 15 | 3.6 |
| Total Max. Power (W) | | 650 | | | | |

## Parts Description

| General Data | |
|---|---|
| Manufacturer (OEM) | Seasonic |
| Platform Model | FX |
| 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 UTC GPT18N50DG (500V, 18A @ 100°C, 0.265Ohm) |
| APFC Boost Diode | 1x BYC8-600 (600V, 8A @ 109°C) |
| Hold-up Cap(s) | 1x Nippon Chemi-Con (400V, 450uF, 2000h @ 105°C, CE) |
| Main Switchers | 4x UTC GBT10N50ADG<br>(500V, 10A @ 25°C, 0.61Ohm) |
| APFC Controller | Champion CM6500UNX |
| Resonant Controller | Champion CM6901T6X |
| Topology | Primary side: Full-Bridge & LLC Resonant Controller<br>Secondary side: Synchronous Rectification & DC-DC converters |
| Secondary Side | |
| +12V MOSFETS | 2x Nexperia PSMN1R8-40YLC (40V, 100A @ 25°C, 1.8mOhm) |
| 5V & 3.3V | DC-DC Converters: 6x Infineon BSC0906NS (30V, 40A @ 100°C, 4.5mOhm)<br>PWM Controller: APW7159 |
| Filtering Capacitors | Electrolytics: Chemi-Con (1-5,000 @ 105°C, KZE), Chemi-Con (4-10,000 @ 105°C, KY), Chemi-Con (105°C, W)<br>Polymers: Chemi-Con |
| Supervisor IC | Weltrend WT7527V (OVP, UVP, OCP, SCP, PG) |
| Fan Model | Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, 2200 RPM, Fluid Dynamic Bearing) |
| 5VSB Circuit | |

| | |
|---|---|
| Standby PWM Controller | Excelliance EM8569 |

# 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 | ✓ |

## Performance Summary

### 115V

| | |
|---|---|
| Accredited | |
| Average Efficiency (>1450 load combinations) | 88.653% |
| Average Noise Output (>1450 Load Combinations) | 25.17dBA |
| Average PF (>1450 Load Combinations) | 0.983 |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | - |
| Standby Power Consumption | 0.0458W |
| Non-Accredited | |
| 12V Ripple (Full Load) | 28.73mV |
| 5V Ripple (Full Load) | 13.85mV |
| 3.3V Ripple (Full Load) | 9.60mV |
| 5VSB Ripple (Full Load) | 11.32mV |
| 12V Load Regulation | 0.06% |
| 5V Load Regulation | 0.34% |
| 3.3V Load Regulation | 0.51% |
| 5VSB Load Regulation | 2.54% |
| Inrush Current | 26.855A |

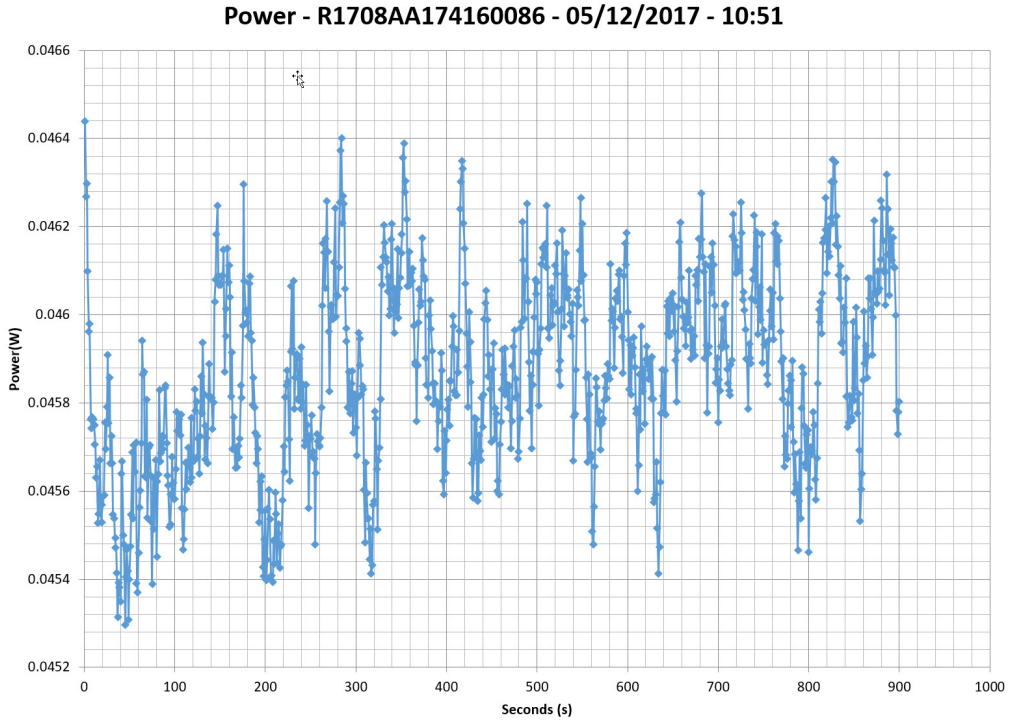
| 230V | | |
|---|---|---|
| Accredited | | |
| Average Efficiency (>1450 load combinations) | 90.679% | |
| Average Noise Output (>1450 Load Combinations) | 25.40dBA | |
| Average PF (>1450 Load Combinations) | 0.931 | |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | - | |
| Standby Power Consumption | 0.0742W | |
| Non-Accredited | | |
| 12V Ripple (Full Load) | 28.36mV | |
| 5V Ripple (Full Load) | 13.77mV | |
| 3.3V Ripple (Full Load) | 9.31mV | |
| 5VSB Ripple (Full Load) | 6.65mV | |
| 12V Load Regulation | 0.04% | |
| 5V Load Regulation | 0.36% | |
| 3.3V Load Regulation | 0.54% | |
| 5VSB Load Regulation | 2.46% | |
| Inrush Current | 54.955A | |
| Hold-Up Time & PWR_OK Signal | 17.00ms | |
| AC Loss to PWR_OK Hold Up Time | 15.00ms | |
| PWR_OK Inactive to DC Loss Delay | 2.00ms | |
| OPP (0.00°C / 0.00°C) | - | - |

## Hold-Up Time & PWR_OK Signal

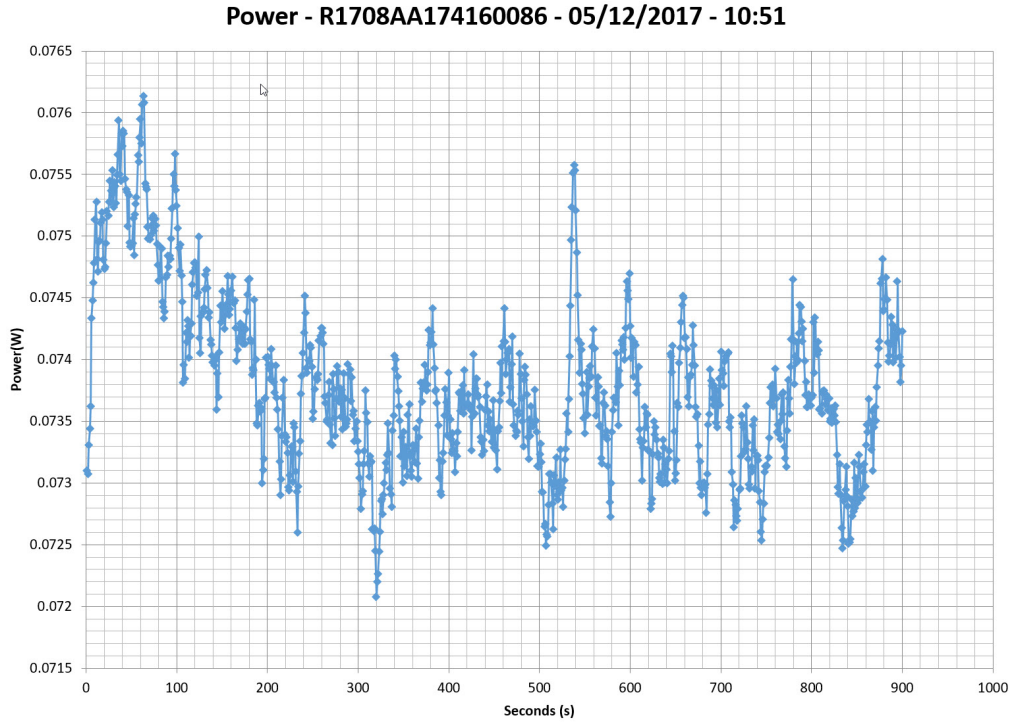
| | |
|---|---|
| Hold-Up Time (ms) | 17 |
| AC Loss to PWR_OK Hold Up Time (ms) | 15 |
| PWR_OK Inactive to DC Loss Delay (ms) | 2 |

## Graphs

### 115V

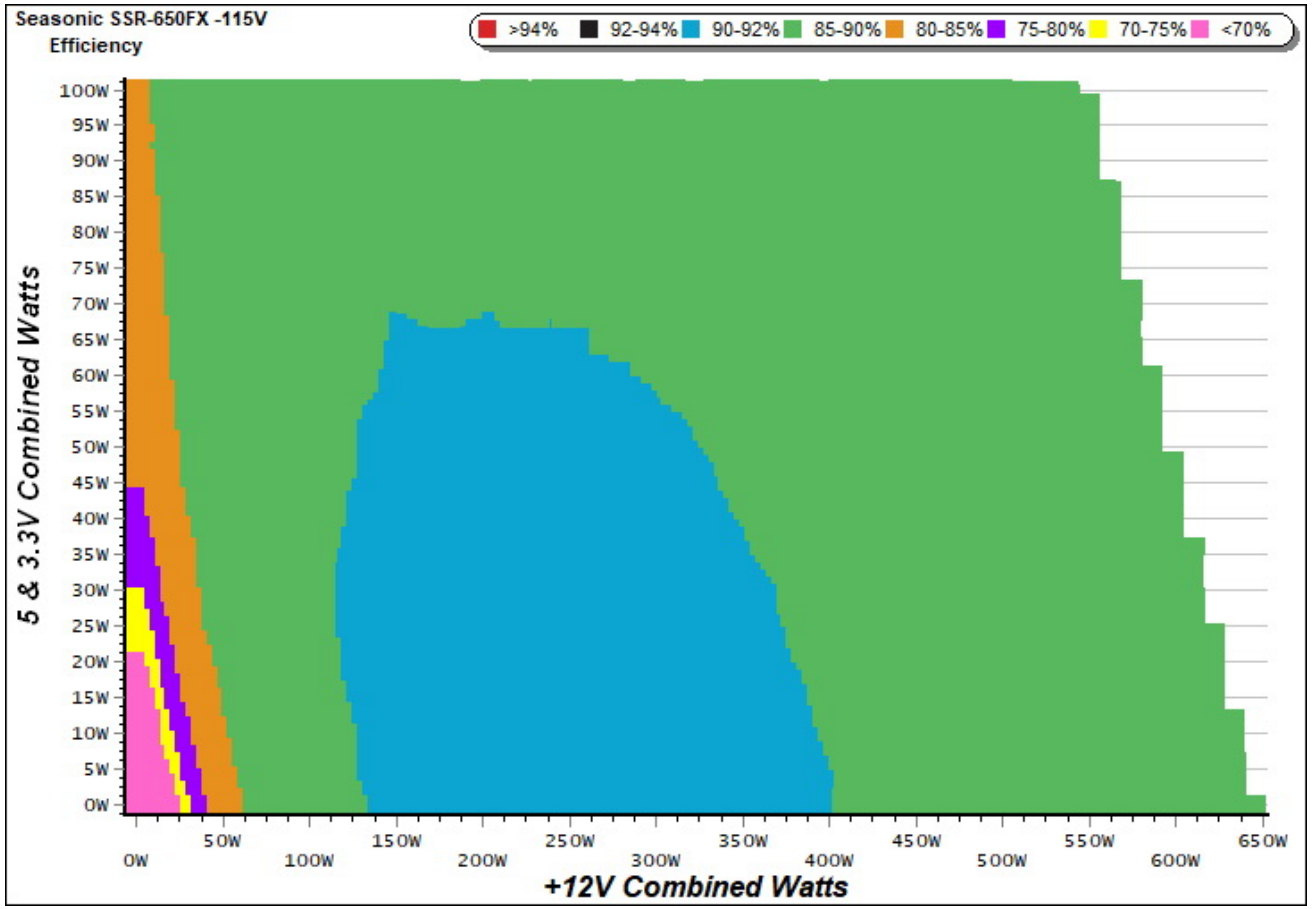



### 230V



## Efficiency Graph

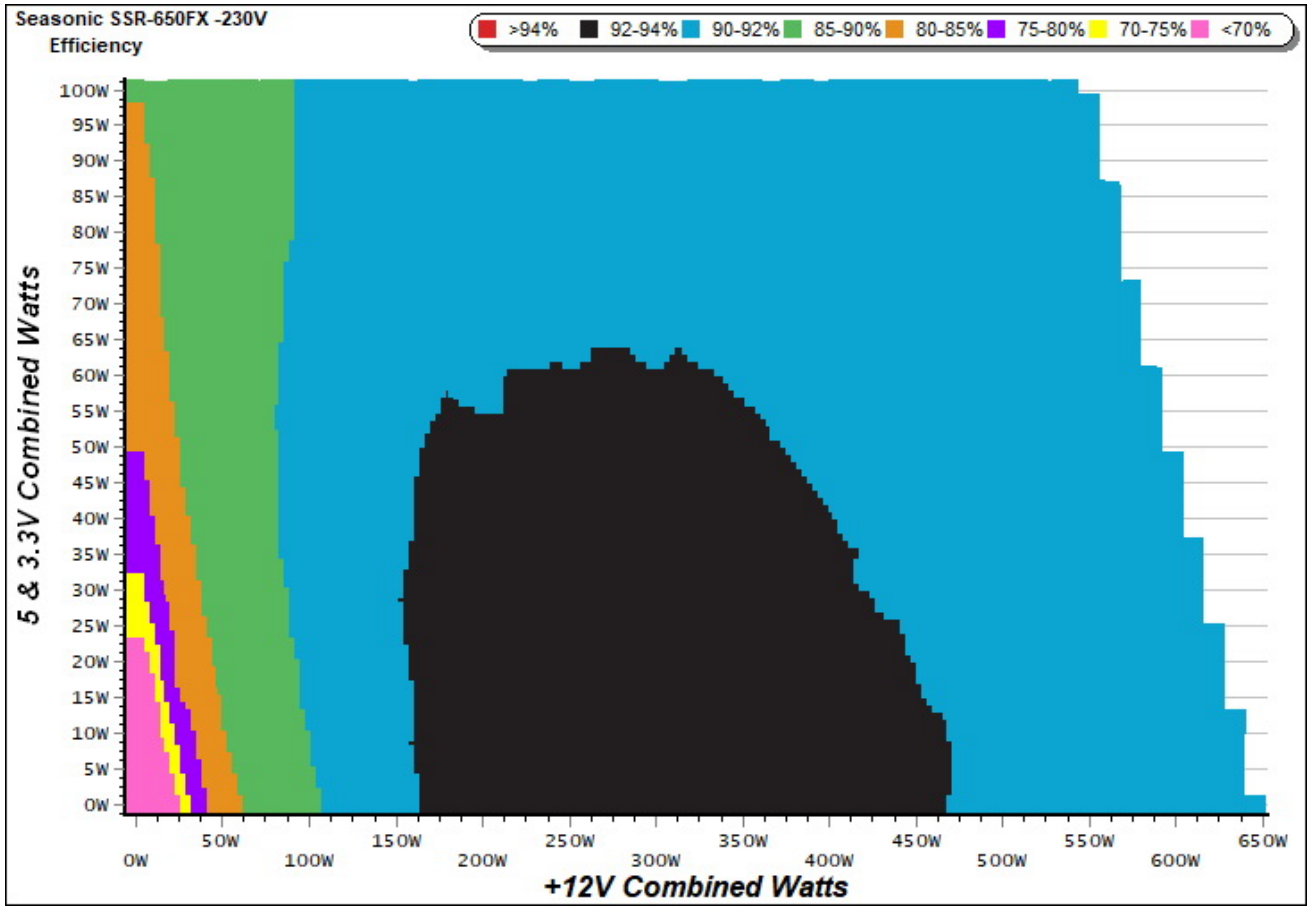
**115V**




**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

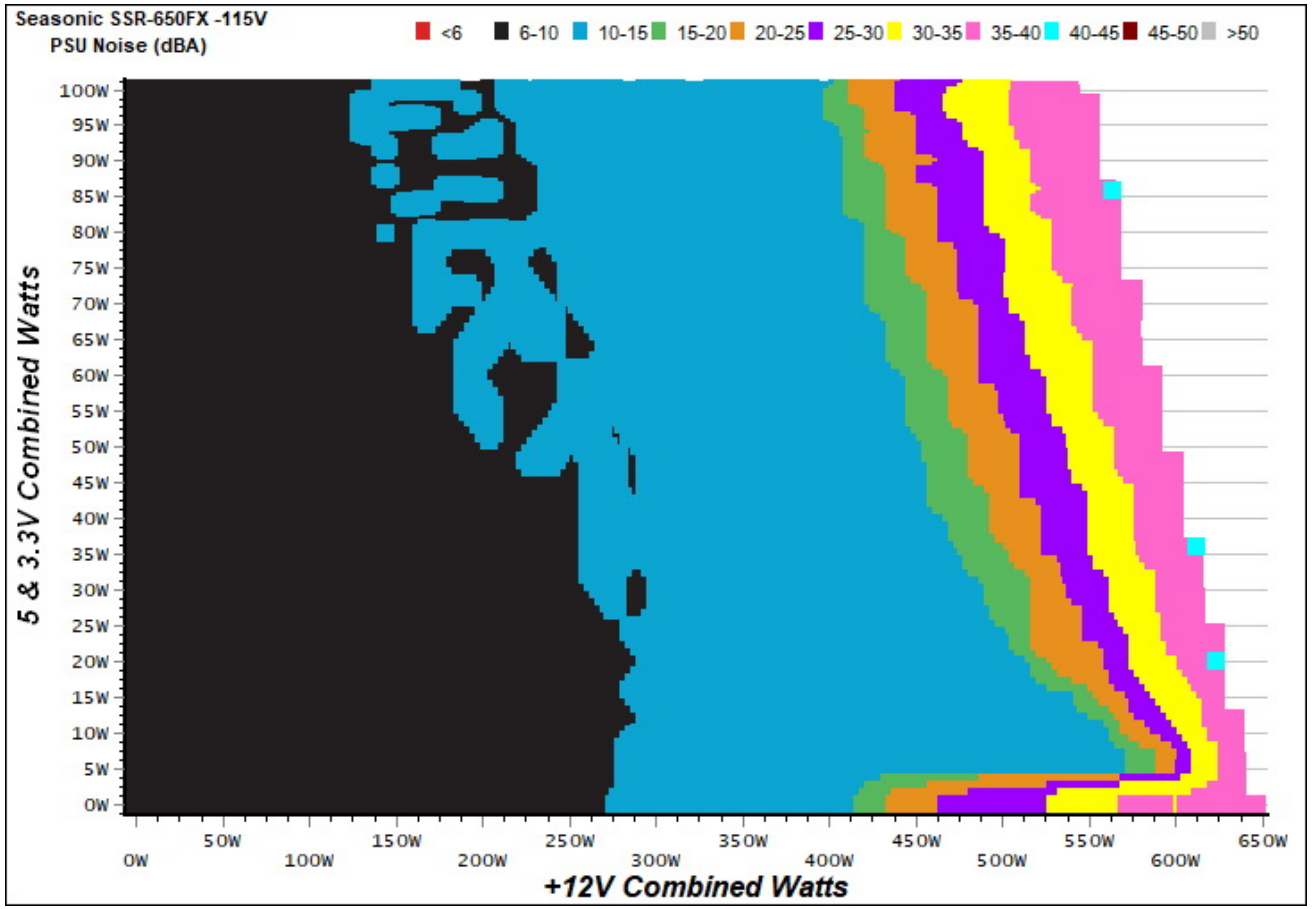



### INFO

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

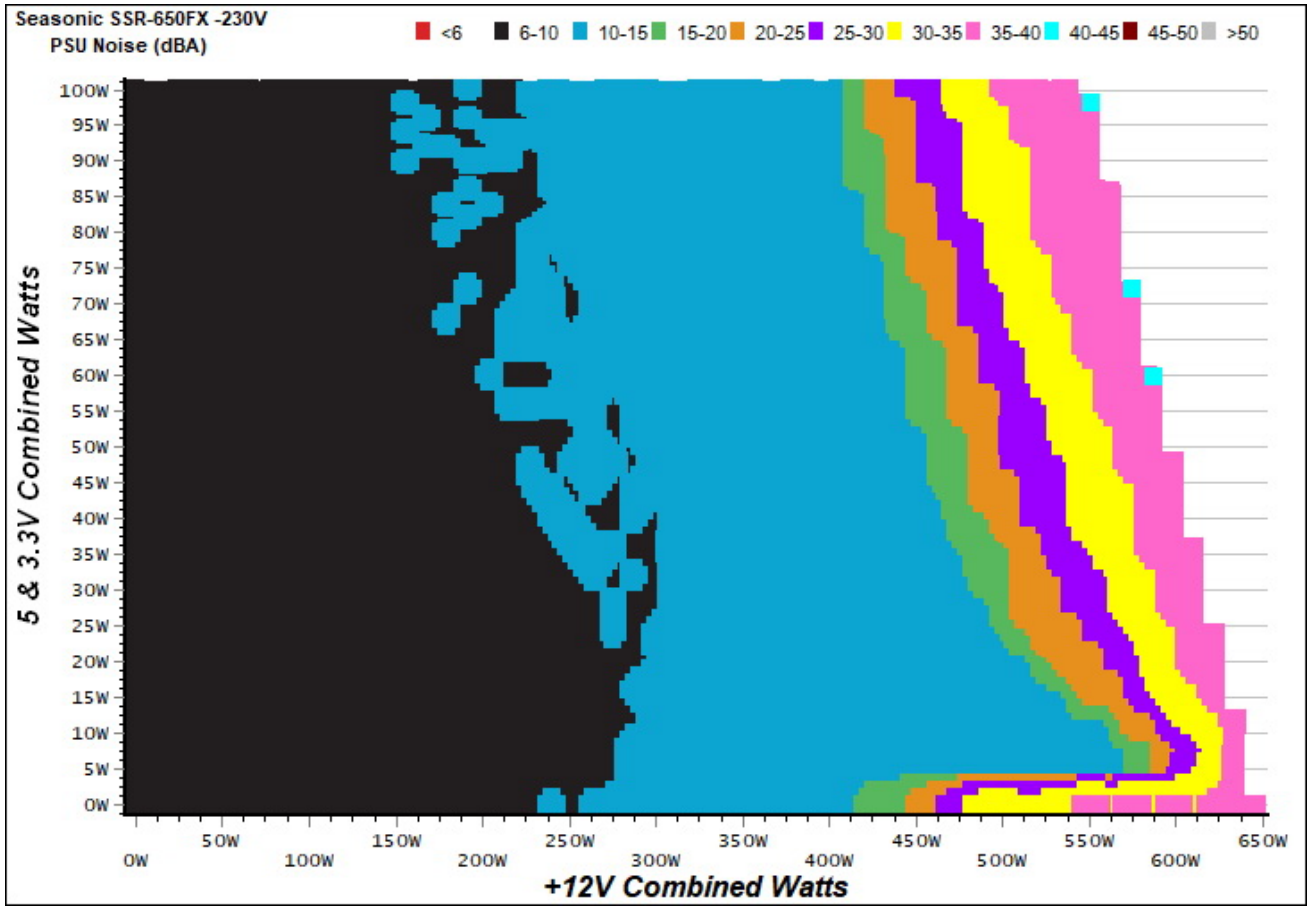
**115V**




**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

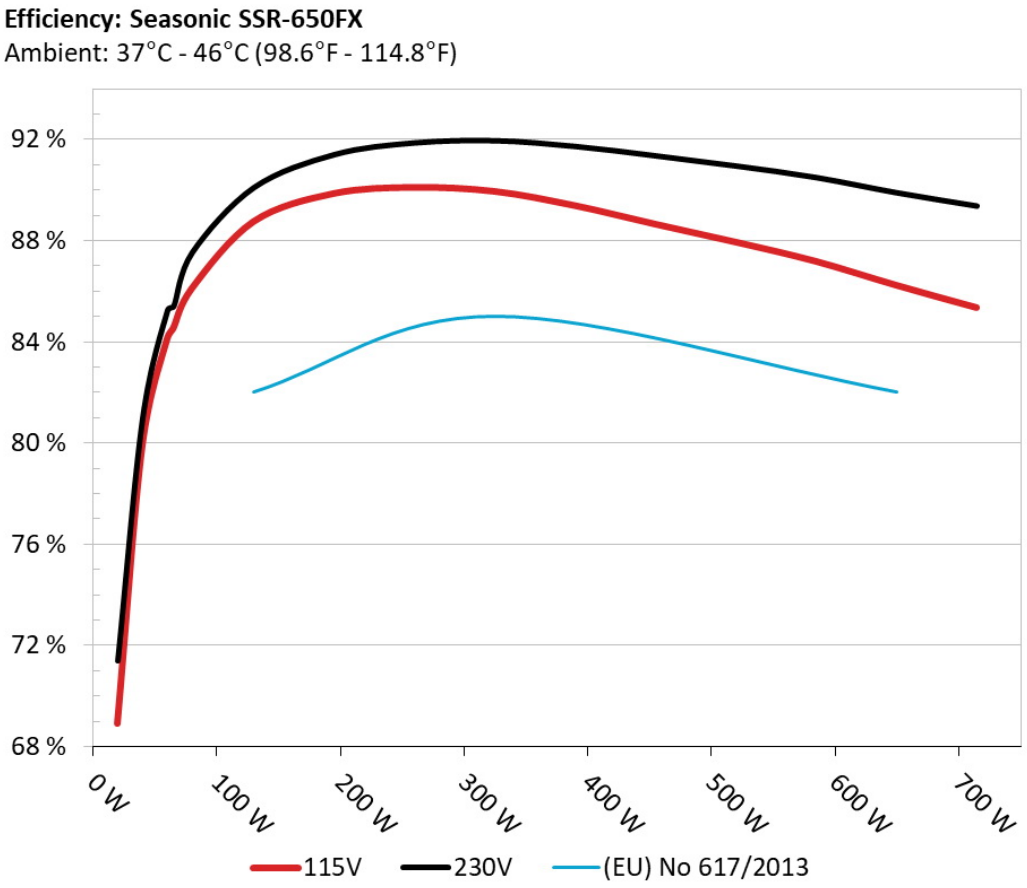



### INFO

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.

## Indicative Performance

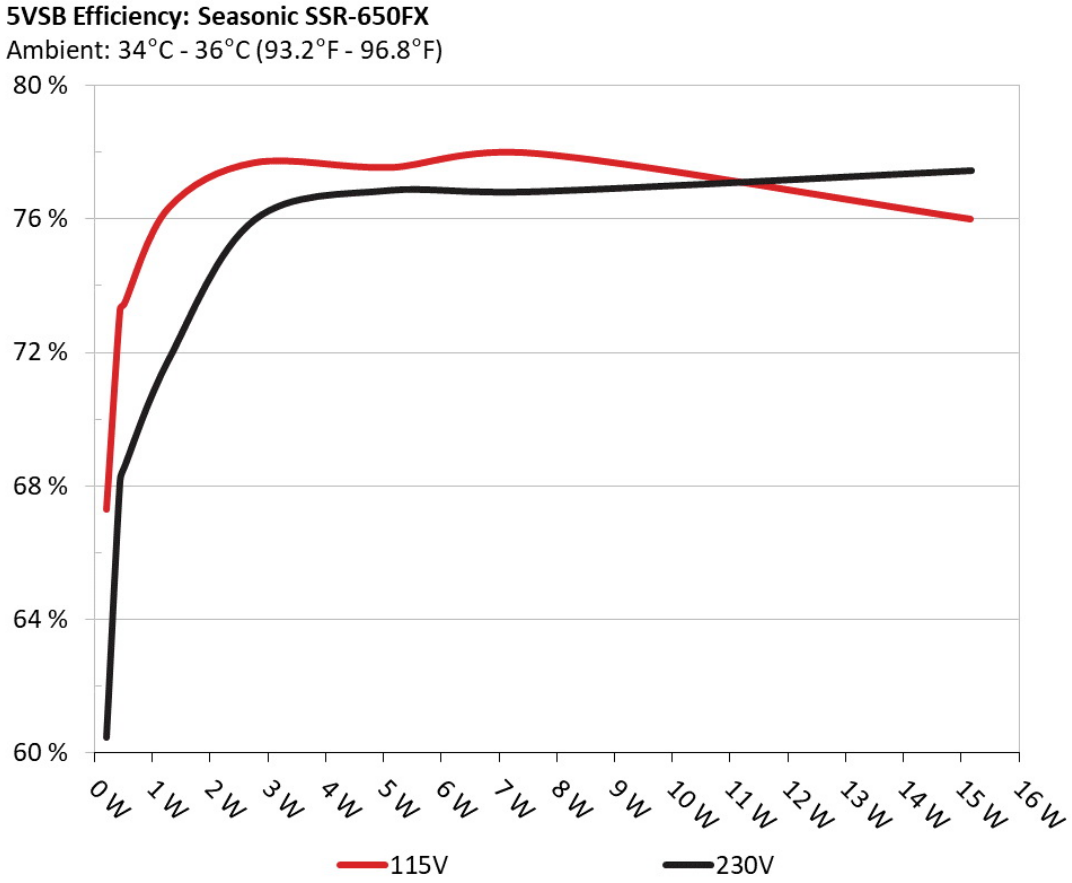
### Efficiency under high ambient temperature




**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 | 0.042A | 0.214 | 67.296% | 0.052 |
| | 5.126V | 0.318 | | 115.03V |
| 2 | 0.087A | 0.447 | 73.279% | 0.097 |
| | 5.125V | 0.610 | | 115.04V |
| 3 | 0.542A | 2.774 | 77.681% | 0.327 |
| | 5.115V | 3.571 | | 115.03V |
| 4 | 1.002A | 5.115 | 77.535% | 0.397 |
| | 5.104V | 6.597 | | 115.03V |
| 5 | 1.502A | 7.649 | 77.956% | 0.431 |
| | 5.093V | 9.812 | | 115.03V |
| 6 | 3.001A | 15.155 | 75.992% | 0.478 |
| | 5.050V | 19.943 | | 115.03V |

### 230V

| Test # | 5VSB | DC/AC (Watts) | Efficiency | PF/AC Volts |
|---|---|---|---|---|
| 1 | 0.042A | 0.214 | 60.452% | 0.018 |
| | 5.126V | 0.354 | | 230.15V |
| 2 | 0.087A | 0.447 | 68.140% | 0.032 |
| | 5.125V | 0.656 | | 230.15V |
| 3 | 0.542A | 2.774 | 75.979% | 0.157 |
| | 5.115V | 3.651 | | 230.14V |
| 4 | 1.002A | 5.116 | 76.863% | 0.239 |
| | 5.104V | 6.656 | | 230.14V |
| 5 | 1.502A | 7.648 | 76.826% | 0.293 |
| | 5.093V | 9.955 | | 230.15V |
| 6 | 3.001A | 15.182 | 77.455% | 0.367 |
| | 5.059V | 19.601 | | 230.15V |

# 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.567A | 1.994A | 1.980A | 0.981A | 64.823 | 84.546% | 0 | <6.0 | 48.07°C | 0.944 |
| | 12.120V | 5.015V | 3.331V | 5.093V | 76.672 | | | | 38.07°C | 115.08V |
| 2 | 8.162A | 2.988A | 2.968A | 1.181A | 129.797 | 88.769% | 0 | <6.0 | 49.17°C | 0.974 |
| | 12.121V | 5.014V | 3.330V | 5.081V | 146.219 | | | | 38.46°C | 115.08V |
| 3 | 13.101A | 3.494A | 3.482A | 1.380A | 194.914 | 89.877% | 621 | 11.6 | 39.51°C | 0.984 |
| | 12.122V | 5.013V | 3.329V | 5.070V | 216.868 | | | | 50.93°C | 115.08V |
| 4 | 18.031A | 3.994A | 3.968A | 1.580A | 259.766 | 90.117% | 550 | 10.4 | 39.76°C | 0.988 |
| | 12.122V | 5.010V | 3.324V | 5.060V | 288.253 | | | | 51.70°C | 115.07V |
| 5 | 22.626A | 4.988A | 4.962A | 1.781A | 324.734 | 89.959% | 560 | 10.5 | 39.98°C | 0.990 |
| | 12.122V | 5.008V | 3.323V | 5.050V | 360.981 | | | | 52.34°C | 115.07V |
| 6 | 27.214A | 5.992A | 5.958A | 1.981A | 389.683 | 89.396% | 560 | 10.5 | 40.21°C | 0.990 |
| | 12.123V | 5.007V | 3.321V | 5.038V | 435.908 | | | | 52.80°C | 115.07V |
| 7 | 31.799A | 6.997A | 6.956A | 2.185A | 454.631 | 88.664% | 845 | 20.4 | 41.79°C | 0.991 |
| | 12.124V | 5.005V | 3.320V | 5.028V | 512.760 | | | | 54.64°C | 115.07V |
| 8 | 36.396A | 7.996A | 7.957A | 2.390A | 519.579 | 87.955% | 1300 | 32.4 | 42.66°C | 0.991 |
| | 12.122V | 5.003V | 3.317V | 5.016V | 590.736 | | | | 56.01°C | 115.06V |
| 9 | 41.418A | 8.500A | 8.473A | 2.395A | 584.571 | 87.196% | 1890 | 40.5 | 43.26°C | 0.992 |
| | 12.120V | 5.000V | 3.315V | 5.009V | 670.407 | | | | 57.12°C | 115.06V |
| 10 | 46.191A | 9.010A | 8.962A | 3.005A | 649.510 | 86.249% | 2320 | 45.2 | 45.17°C | 0.992 |
| | 12.119V | 4.998V | 3.314V | 4.988V | 753.061 | | | | 59.34°C | 115.06V |
| 11 | 51.541A | 9.011A | 8.963A | 3.008A | 714.394 | 85.367% | 2020 | 42.8 | 46.22°C | 0.993 |
| | 12.120V | 4.998V | 3.313V | 4.982V | 836.853 | | | | 60.47°C | 115.05V |
| CL1 | 0.102A | 12.011A | 12.003A | 0.004A | 101.413 | 84.734% | 510 | 6.0 | 42.36°C | 0.969 |
| | 12.123V | 5.013V | 3.328V | 5.103V | 119.684 | | | | 55.07°C | 115.10V |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CL2 | 53.969A | 1.002A | 1.002A | 1.002A | 667.605 | 86.542% | 2320 | 45.2 | 45.22°C | 0.992 |
| | 12.122V | 5.002V | 3.319V | 5.045V | 771.421 | | | | 59.24°C | 115.06V |

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.564A | 1.995A | 1.981A | 0.981A | 64.809 | 85.390% | 0 | <6.0 | 49.82°C | 0.733 |
| | 12.122V | 5.017V | 3.332V | 5.093V | 75.898 | | | | 37.99°C | 230.25V |
| 2 | 8.159A | 2.989A | 2.969A | 1.181A | 129.795 | 90.092% | 0 | <6.0 | 50.93°C | 0.871 |
| | 12.123V | 5.016V | 3.331V | 5.081V | 144.069 | | | | 38.30°C | 230.24V |
| 3 | 13.099A | 3.494A | 3.483A | 1.380A | 194.908 | 91.395% | 621 | 11.6 | 38.42°C | 0.919 |
| | 12.123V | 5.013V | 3.329V | 5.071V | 213.258 | | | | 52.21°C | 230.24V |
| 4 | 18.028A | 3.995A | 3.966A | 1.580A | 259.729 | 91.856% | 459 | 9.9 | 38.88°C | 0.942 |
| | 12.122V | 5.010V | 3.324V | 5.060V | 282.756 | | | | 52.87°C | 230.25V |
| 5 | 22.622A | 4.990A | 4.965A | 1.781A | 324.704 | 91.941% | 550 | 10.4 | 39.31°C | 0.955 |
| | 12.122V | 5.008V | 3.323V | 5.049V | 353.166 | | | | 53.82°C | 230.25V |
| 6 | 27.212A | 5.994A | 5.959A | 1.982A | 389.654 | 91.714% | 560 | 10.5 | 40.17°C | 0.963 |
| | 12.122V | 5.007V | 3.321V | 5.039V | 424.860 | | | | 55.04°C | 230.25V |
| 7 | 31.796A | 6.997A | 6.957A | 2.185A | 454.598 | 91.345% | 800 | 18.4 | 41.14°C | 0.969 |
| | 12.124V | 5.005V | 3.320V | 5.028V | 497.674 | | | | 56.61°C | 230.24V |
| 8 | 36.389A | 7.997A | 7.957A | 2.391A | 519.547 | 90.942% | 1270 | 32.7 | 42.41°C | 0.974 |
| | 12.123V | 5.003V | 3.318V | 5.016V | 571.292 | | | | 58.58°C | 230.25V |
| 9 | 41.424A | 8.500A | 8.473A | 2.395A | 584.640 | 90.485% | 1960 | 41.4 | 43.79°C | 0.977 |
| | 12.120V | 5.000V | 3.315V | 5.008V | 646.118 | | | | 60.22°C | 230.25V |
| 10 | 46.187A | 9.011A | 8.961A | 3.006A | 649.481 | 89.883% | 2310 | 45.1 | 45.18°C | 0.980 |
| | 12.119V | 4.999V | 3.314V | 4.989V | 722.584 | | | | 62.02°C | 230.25V |
| 11 | 51.540A | 9.011A | 8.962A | 3.008A | 714.390 | 89.360% | 2320 | 45.2 | 46.10°C | 0.982 |
| | 12.120V | 4.998V | 3.314V | 4.983V | 799.454 | | | | 63.83°C | 230.25V |
| CL1 | 0.099A | 12.013A | 12.004A | 0.004A | 101.403 | 85.917% | 510 | 6.0 | 43.42°C | 0.838 |
| | 12.123V | 5.013V | 3.329V | 5.103V | 118.025 | | | | 55.70°C | 230.25V |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CL2 | 53.969A | 1.004A | 1.003A | 1.002A | 667.617 | 90.310% | 2320 | 45.2 | 45.61°C | 0.980 |
| | 12.122V | 5.001V | 3.319V | 5.045V | 739.247 | | | | 61.10°C | 230.25V |

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]) | PF/AC Volts |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.209A | 0.488A | 0.478A | 0.196A | 19.694 | 68.932% | 0 | <6.0 | 0.764 |
| | 12.116V | 5.019V | 3.334V | 5.118V | 28.570 | | | | 115.07V |
| 2 | 2.435A | 0.989A | 0.990A | 0.391A | 39.758 | 79.904% | 0 | <6.0 | 0.895 |
| | 12.117V | 5.014V | 3.330V | 5.111V | 49.757 | | | | 115.07V |
| 3 | 3.667A | 1.486A | 1.499A | 0.586A | 59.872 | 84.131% | 0 | <6.0 | 0.937 |
| | 12.118V | 5.015V | 3.331V | 5.102V | 71.165 | | | | 115.07V |
| 4 | 4.886A | 1.994A | 1.979A | 0.782A | 79.788 | 86.118% | 0 | <6.0 | 0.956 |
| | 12.119V | 5.014V | 3.331V | 5.096V | 92.650 | | | | 115.07V |

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]) PF/AC Volts 1 1.206A0.491A 0.476A 0.196A 19.667 71.379% 0000 <6.0 0.486 12.122V 5.021V 3.336V 5.117V 27.553 230.23V 2 2.436A0.990A0.989A 0.391A 39.779 80.983% 0000 <6.0 0.605 12.122V 5.016V 3.332V 5.110V 49.120 230.26V 3 3.666A 1.486A 1.499A 0.586A 59.881 85.234% 0000 <6.0 0.710 12.122V 5.017V 3.332V 5.102V 70.255 230.25V 4 4.885A 1.995A 1.979A 0.783A 79.787 87.515% 0000 <6.0 0.782 12.122V 5.016V 3.331V 5.096V 91.170 230.25V
The results above are not used in the certification process

## Ripple Measurements

### 115V

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| 10% Load | 9.7 mV | 6.3 mV | 5.3 mV | 4.7 mV | Pass |

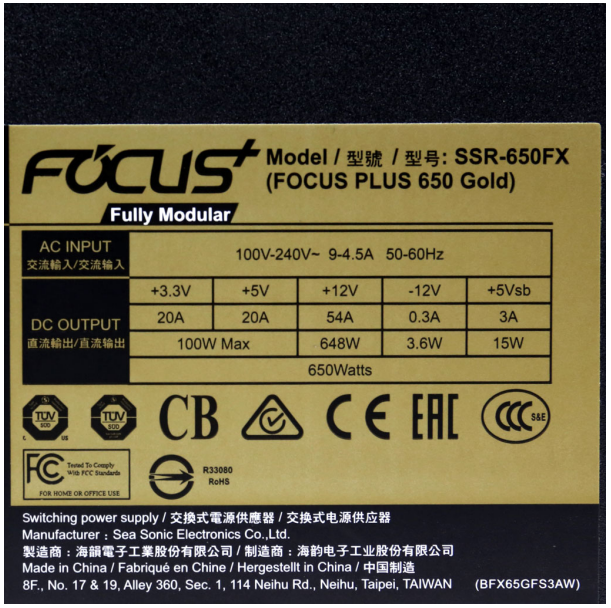
| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| 20% Load | 13.4 mV | 7.1 mV | 5.7 mV | 4.7 mV | Pass |
| 30% Load | 16.4 mV | 7.8 mV | 6.5 mV | 4.8 mV | Pass |
| 40% Load | 18.9 mV | 8.9 mV | 7.0 mV | 4.9 mV | Pass |
| 50% Load | 20.6 mV | 9.5 mV | 6.9 mV | 5.4 mV | Pass |
| 60% Load | 22.0 mV | 10.0 mV | 7.8 mV | 6.2 mV | Pass |
| 70% Load | 23.5 mV | 11.3 mV | 8.0 mV | 6.9 mV | Pass |
| 80% Load | 24.8 mV | 11.6 mV | 7.9 mV | 7.9 mV | Pass |
| 90% Load | 26.5 mV | 12.4 mV | 8.9 mV | 8.5 mV | Pass |
| 100% Load | 28.7 mV | 13.9 mV | 9.6 mV | 11.3 mV | Pass |
| 110% Load | 30.0 mV | 14.1 mV | 10.1 mV | 10.4 mV | Pass |
| Crossload 1 | 12.5 mV | 11.4 mV | 7.1 mV | 6.4 mV | Pass |
| Crossload 2 | 28.3 mV | 9.3 mV | 9.1 mV | 8.3 mV | Pass |

The results above are not used in the certification process

**230V**

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| 10% Load | 8.5 mV | 5.9 mV | 5.2 mV | 4.4 mV | Pass |
| 20% Load | 13.1 mV | 7.1 mV | 5.5 mV | 4.6 mV | Pass |
| 30% Load | 16.1 mV | 8.2 mV | 5.9 mV | 4.6 mV | Pass |
| 40% Load | 18.9 mV | 8.9 mV | 6.9 mV | 4.8 mV | Pass |
| 50% Load | 20.4 mV | 9.2 mV | 6.7 mV | 5.1 mV | Pass |
| 60% Load | 21.9 mV | 10.0 mV | 7.2 mV | 5.6 mV | Pass |
| 70% Load | 23.3 mV | 11.0 mV | 8.1 mV | 5.8 mV | Pass |
| 80% Load | 24.8 mV | 11.3 mV | 8.1 mV | 6.1 mV | Pass |
| 90% Load | 26.3 mV | 12.4 mV | 9.0 mV | 6.0 mV | Pass |
| 100% Load | 28.4 mV | 13.8 mV | 9.3 mV | 6.7 mV | Pass |
| 110% Load | 30.2 mV | 14.1 mV | 9.6 mV | 6.6 mV | Pass |
| Crossload 1 | 11.7 mV | 11.4 mV | 7.1 mV | 6.4 mV | Pass |
| Crossload 2 | 28.3 mV | 9.6 mV | 8.6 mV | 5.9 mV | Pass |

The results above are not used in the certification process



## Seasonic Focus Plus Gold 650W (#3)

Top side

Power specifications label

Cybenetics 提供自願性認證方案: 電源供應器方面有 ETA (效率)、 LAMBDA (噪音) 與 SAFE (安全與正確運作)；散熱產品方面有 DELTA (機殼隔音) 與 PHI (風扇風量與靜壓)

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