



## Fractal Design ION+ 860P

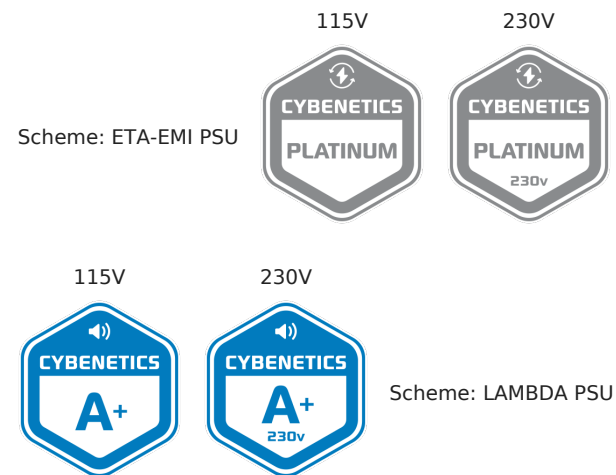
1918FD19270100399

Lab ID FD19860073

Certification ID 25764

Test Result Report ID:

Certificate Issue Date: Jul 18, 2019



A handwritten signature in blue ink, appearing to read 'A. Bitziopoulos', is positioned above the name of the Certification Body General Manager.

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                             | Fractal Design    |
| Model                             | ION+ 860P         |
| OEM/ODM                           | High Power        |
| Serial Number                     | 1918FD19270100399 |
| Product Specifications            |                   |
| Manufacturer-Provided Information |                   |
| □□□□ (Vrms)                       | 100-240           |
| □□□□ (Arms)                       | 10-5              |
| □□□□ (Hz)                         | 50-60             |

|                                                   |                                                                                     |
|---------------------------------------------------|-------------------------------------------------------------------------------------|
| □□□□ (W)                                          | 860                                                                                 |
| Operating Temperature (Continuous Full Load) (°C) |                                                                                     |
| □□                                                | ATX12V                                                                              |
| □□□□                                              | Fully Modular                                                                       |
| Warranty                                          | -                                                                                   |
| Cybenetics Measurements                           |                                                                                     |
| Dimensions (W x H x D)                            |                                                                                     |
| Weight                                            |                                                                                     |
| □□                                                | 140mm Fluid Dynamic Bearing Fan<br>(DYNAMIC X2 GP-14)                               |
| □□□□                                              | ✓ (selectable)                                                                      |
| Cybenetics Testing Information                    |                                                                                     |
| Lab ID                                            | FD19860073                                                                          |
| Date of receipt                                   | Nov 7, 2019                                                                         |
| Testing Date                                      | Jul 15, 2019                                                                        |
| Report Issued Date                                | Jul 18, 2019                                                                        |
| 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     | 18AWG    | □                   |
| 4+4 pin EPS 12V □□ (700mm)               | 1    | 1     | 16AWG    | □                   |
| 8 pin EPS 12V □□ (600mm)                 | 1    | 1     | 16AWG    | □                   |
| 6+2pin PCIe□□ (560mm+120mm)              | 3    | 6     | 16-18AWG | □                   |
| SATA□□ (650mm+120mm)                     | 1    | 2     | 18AWG    | □                   |
| SATA□□ (400mm+120mm+120mm+120mm)         | 2    | 8     | 18AWG    | □                   |
| □ 4pin Molex□□ (400mm+120mm+120mm+120mm) | 1    | 4     | 18AWG    | □                   |
| AC Power Cord (1400mm) - C13 coupler     | 1    | 1     | 16AWG    | -                   |



|          |    |      |    |      |      |      |
|----------|----|------|----|------|------|------|
| □        |    | 3.3V | 5V | 12V  | 5VSB | -12V |
| □□□□     | □□ | 22   | 22 | 71.6 | 3    | 0.3  |
|          | □  | 120  |    | 860  | 15   | 3.6  |
| □□□□ (W) |    | 860  |    |      |      |      |

## Parts Description

|                      |                                                                                                                                                                    |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General Data         |                                                                                                                                                                    |
| Manufacturer (OEM)   | High Power                                                                                                                                                         |
| PCB Type             | Double Sided                                                                                                                                                       |
| Primary Side         |                                                                                                                                                                    |
| Transient Filter     | 4x Y caps, 2x X caps, 3x CM chokes, 1x MOV,1x Discharge IC                                                                                                         |
| Inrush Protection    | NTC Thermistor & Relay                                                                                                                                             |
| Bridge Rectifier(s)  | 2x GBU1506 (600V, 15A @ 100°C)                                                                                                                                     |
| APFC MOSFETS         | 2x Infineon IPA60R099P7 (650V, 20A @ 100°C, 0.099Ohm)                                                                                                              |
| APFC Boost Diode     | 1x Infineon IDH08G65C5 (650V, 8A @ 145°C)                                                                                                                          |
| Hold-up Cap(s)       | 2x Rubycon (400V, 470uF each or 940uF combined, 2,000h @ 105°C, MXH)                                                                                               |
| Main Switchers       | 2x Infineon IPA60R099P7 (650V, 20A @ 100°C, 0.099Ohm)                                                                                                              |
| APFC Controller      | Infineon ICE3PCS01G                                                                                                                                                |
| Resonant Controllers | Champion CM6901X                                                                                                                                                   |
| Topology             | Primary side: Half-Bridge & LLC converter<br>Secondary side: Synchronous Rectification & DC-DC converters                                                          |
| Secondary Side       |                                                                                                                                                                    |
| +12V MOSFETS         | 8x Infineon BSC010N04LS (40V, 100A @ 100°C, 1mOhm)                                                                                                                 |
| 5V & 3.3V            | DC-DC Converters:8x Infineon BSC0906NS (30V, 40A @ 100°C, 4.5mOhm)<br>PWM Controllers: ANPEC APW7159C                                                              |
| Filtering Capacitors | Electrolytics: 4x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 5x Rubycon (3-6,000h @ 105°C, YXG), 1x Rubycon (6-10,000h @ 105°C, ZLH)<br>Polymers: 31x FPCAP, 6x NIC |
| Supervisor IC        | SITI PS224 (OCP, OVP, UVP, SCP, PG)                                                                                                                                |
| Micro Controller     | STC 15W408AS                                                                                                                                                       |
| Fan Model            | Fractal Design DYNAMIC X2 GP-14 (140mm, 3-12V, 0.40A, Fluid Dynamic Bearing Fan )                                                                                  |

|                        |                                                                                  |
|------------------------|----------------------------------------------------------------------------------|
| Fan Power Transistor   | STi 2SD882 (NPN)                                                                 |
| 5VSB Circuit           |                                                                                  |
| Rectifier              | 1x PFC P10V45SP SBR (45V, 10A) & 2x Infineon BSC0906NS (30V, 40A @ 100°C, 4.5mΩ) |
| Standby PWM Controller | Excelliance MOS Corp EM8569                                                      |
| -12V Circuit           |                                                                                  |
| Rectifier              | KEC KIA7912PI (-12V, 1A)                                                         |

## Test Results

### Temperature & Compliance Info

|                       |                   |
|-----------------------|-------------------|
| □□□□ (°C /°F)         | 28-32 / 82.4-89.6 |
| □□ ErP Lot3/6□□       | ✓                 |
| □□ (EU) No 617/2013□□ | ✓                 |

### Performance Summary

| 115V                                           |          |
|------------------------------------------------|----------|
| Accredited                                     |          |
| □□□□ (>1450 load combinations)                 | 89.952%  |
| Average Noise Output (>1450 Load Combinations) | 18.05dBA |
| PF□□□ (>1450 Load Combinations)                | 0.993    |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | 49.980%  |
| □□□□□                                          | 0.1053W  |
| Non-Accredited                                 |          |
| 12V Ripple (Full Load)                         | 22.35mV  |
| 5V Ripple (Full Load)                          | 13.05mV  |
| 3.3V Ripple (Full Load)                        | 16.08mV  |
| 5VSB Ripple (Full Load)                        | 18.44mV  |
| 12V Load Regulation                            | 0.89%    |
| 5V Load Regulation                             | 0.60%    |
| 3.3V Load Regulation                           | 1.06%    |

|                      |         |
|----------------------|---------|
| 5VSB Load Regulation | 2.31%   |
| Inrush Current       | 29.398A |

## 230V

|                                                |          |   |
|------------------------------------------------|----------|---|
| Accredited                                     |          |   |
| □□□□ (>1450 load combinations)                 | 91.727%  |   |
| Average Noise Output (>1450 Load Combinations) | 17.99dBA |   |
| PF□□□ (>1450 Load Combinations)                | 0.961    |   |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | -        |   |
| □□□□□                                          | 0.1402W  |   |
| Non-Accredited                                 |          |   |
| 12V Ripple (Full Load)                         | 19.82mV  |   |
| 5V Ripple (Full Load)                          | 13.22mV  |   |
| 3.3V Ripple (Full Load)                        | 15.16mV  |   |
| 5VSB Ripple (Full Load)                        | 16.96mV  |   |
| 12V Load Regulation                            | 0.87%    |   |
| 5V Load Regulation                             | 0.64%    |   |
| 3.3V Load Regulation                           | 1.12%    |   |
| 5VSB Load Regulation                           | 2.41%    |   |
| Inrush Current                                 | 85.699A  |   |
| □□□□ & PG□□                                    | 17.60ms  |   |
| AC Loss to PWR_OK Hold Up Time                 | 16.00ms  |   |
| PWR_OK Inactive to DC Loss Delay               | 1.60ms   |   |
| OPP (0.00°C / 0.00°C)                          | 136.97%  | - |

## □□□□ & PG□□

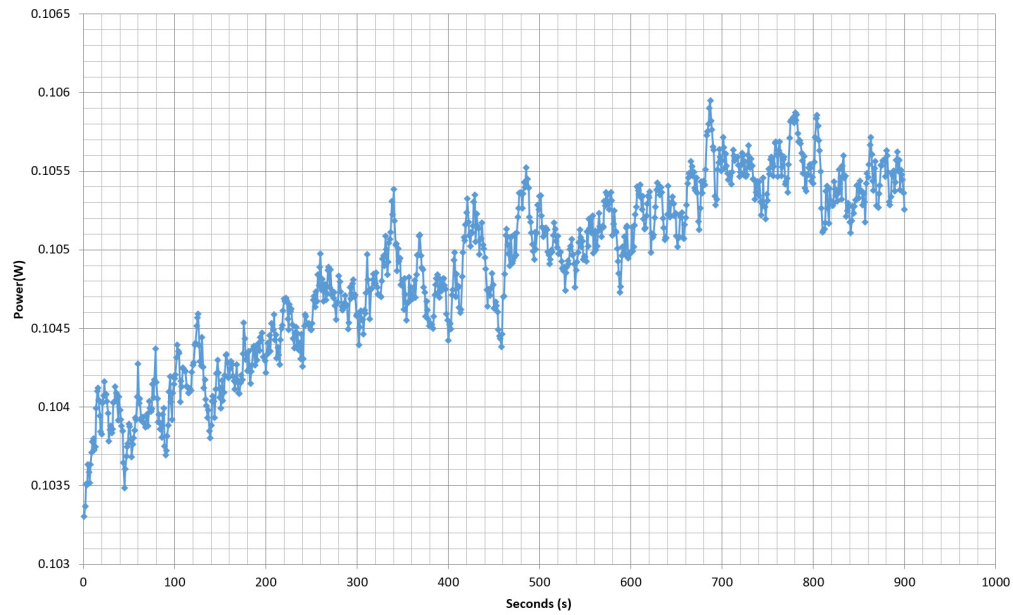
|                                       |      |
|---------------------------------------|------|
| Hold-Up Time (ms)                     | 17.6 |
| AC Loss to PWR_OK Hold Up Time (ms)   | 16   |
| PWR_OK Inactive to DC Loss Delay (ms) | 1.6  |



## Graphs

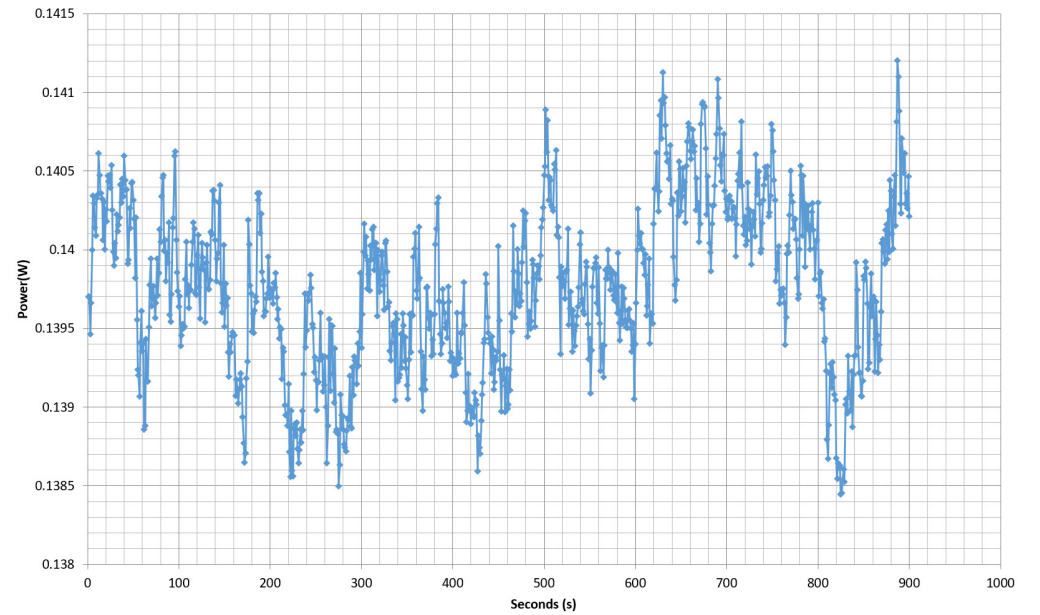
115V

Power - 1918FD19270100399 - 12/07/2019 - 12:01



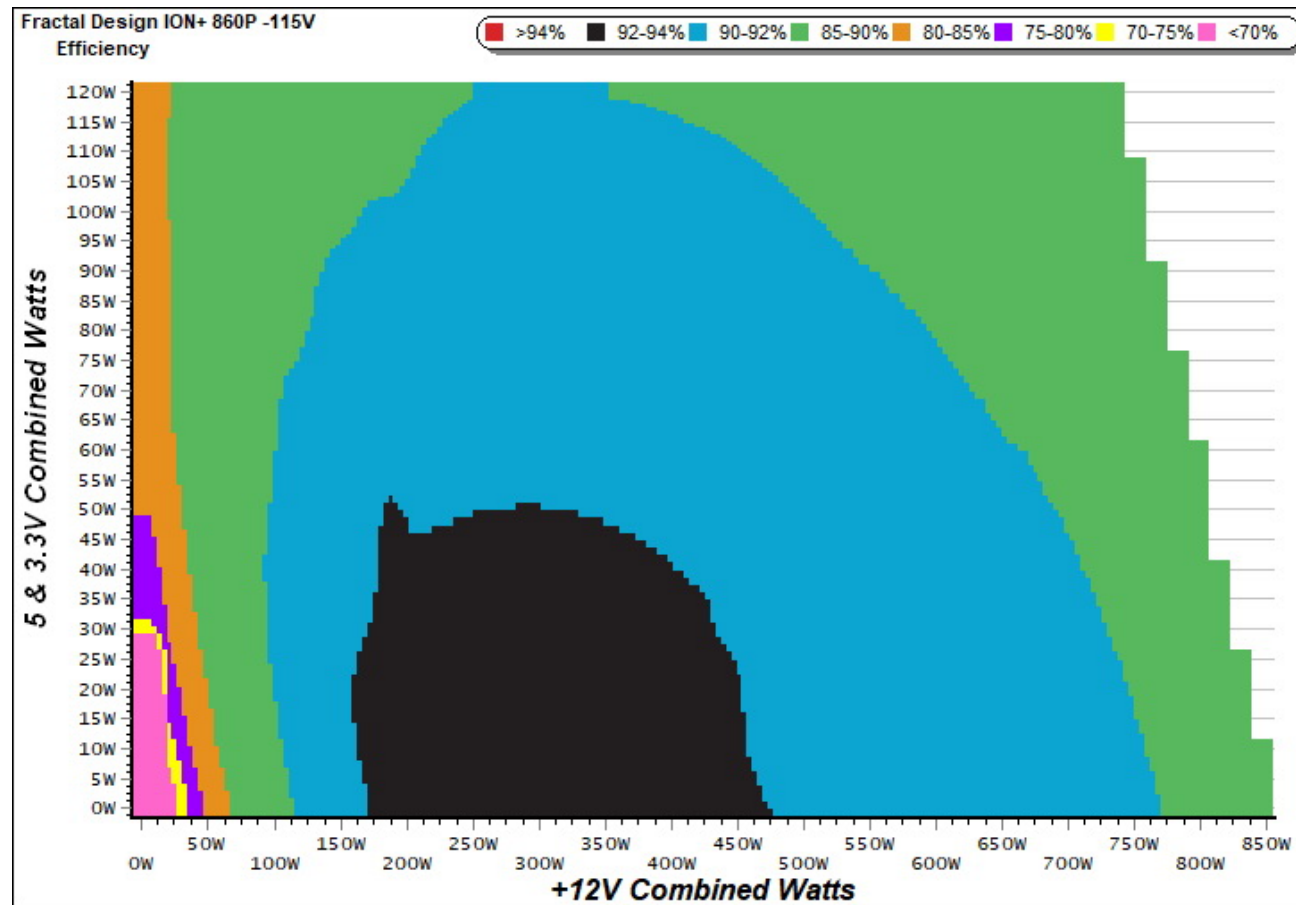
230V

Power - 1918FD19270100399 - 12/07/2019 - 12:01



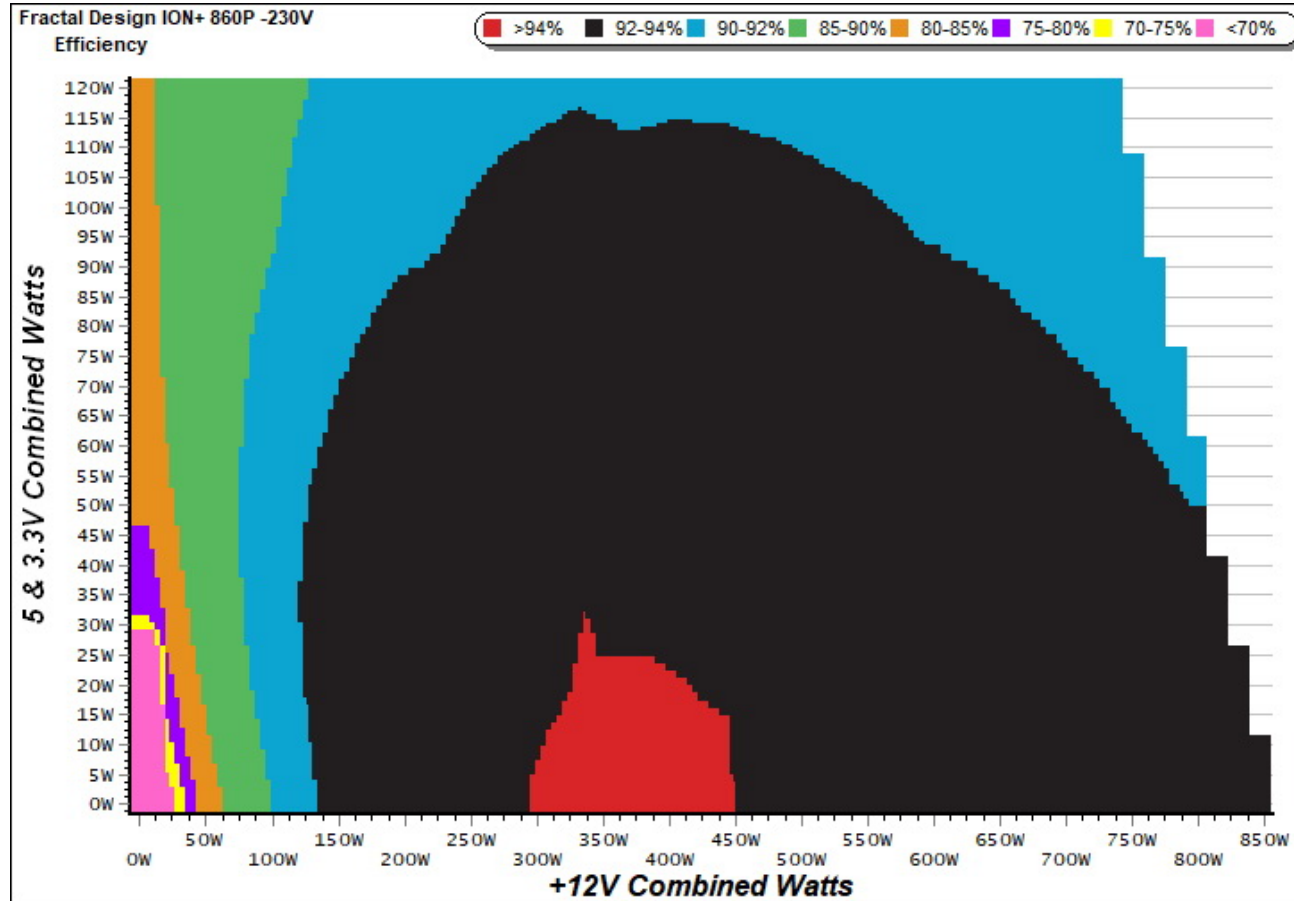


115V



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.

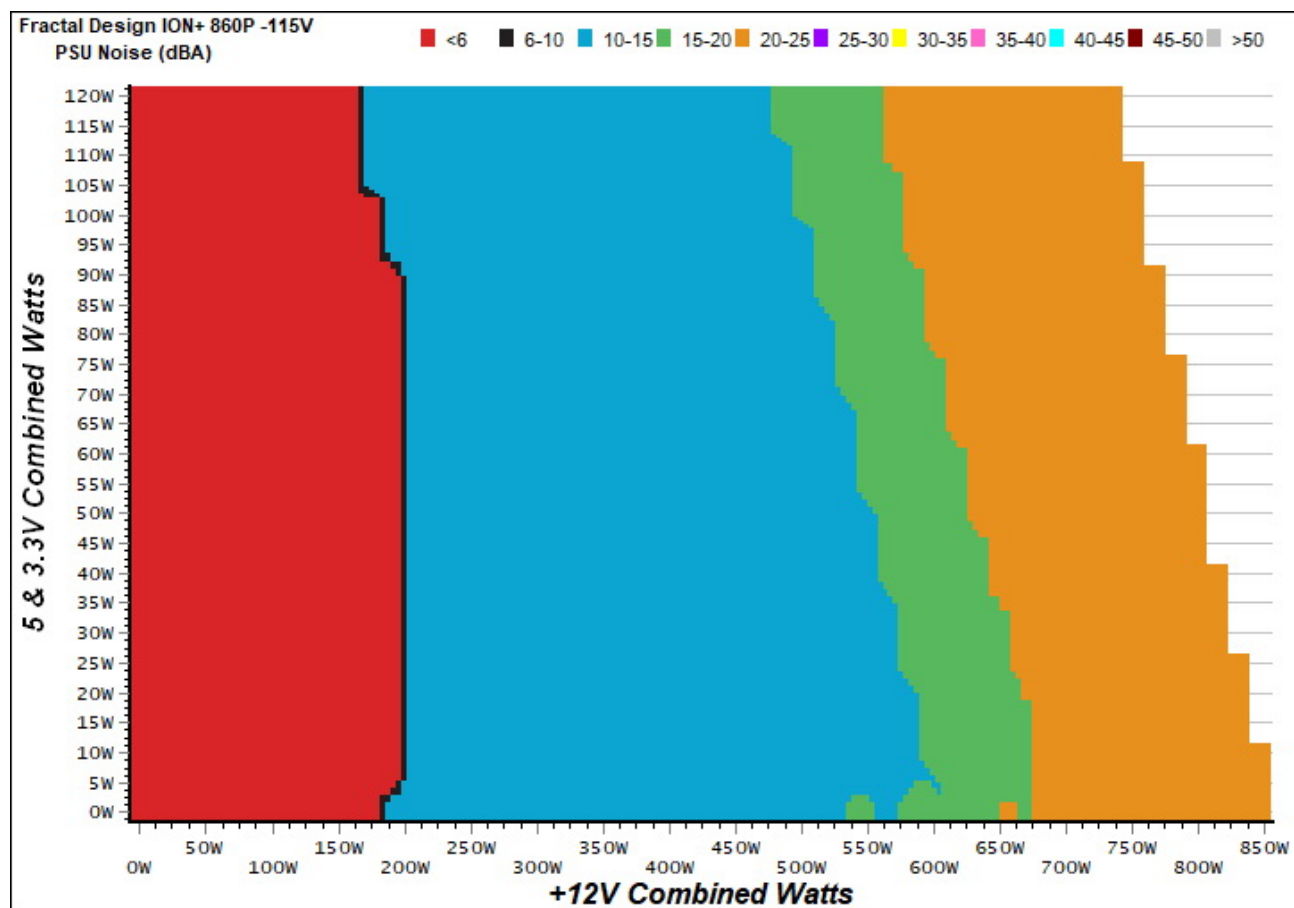
## 230V



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.

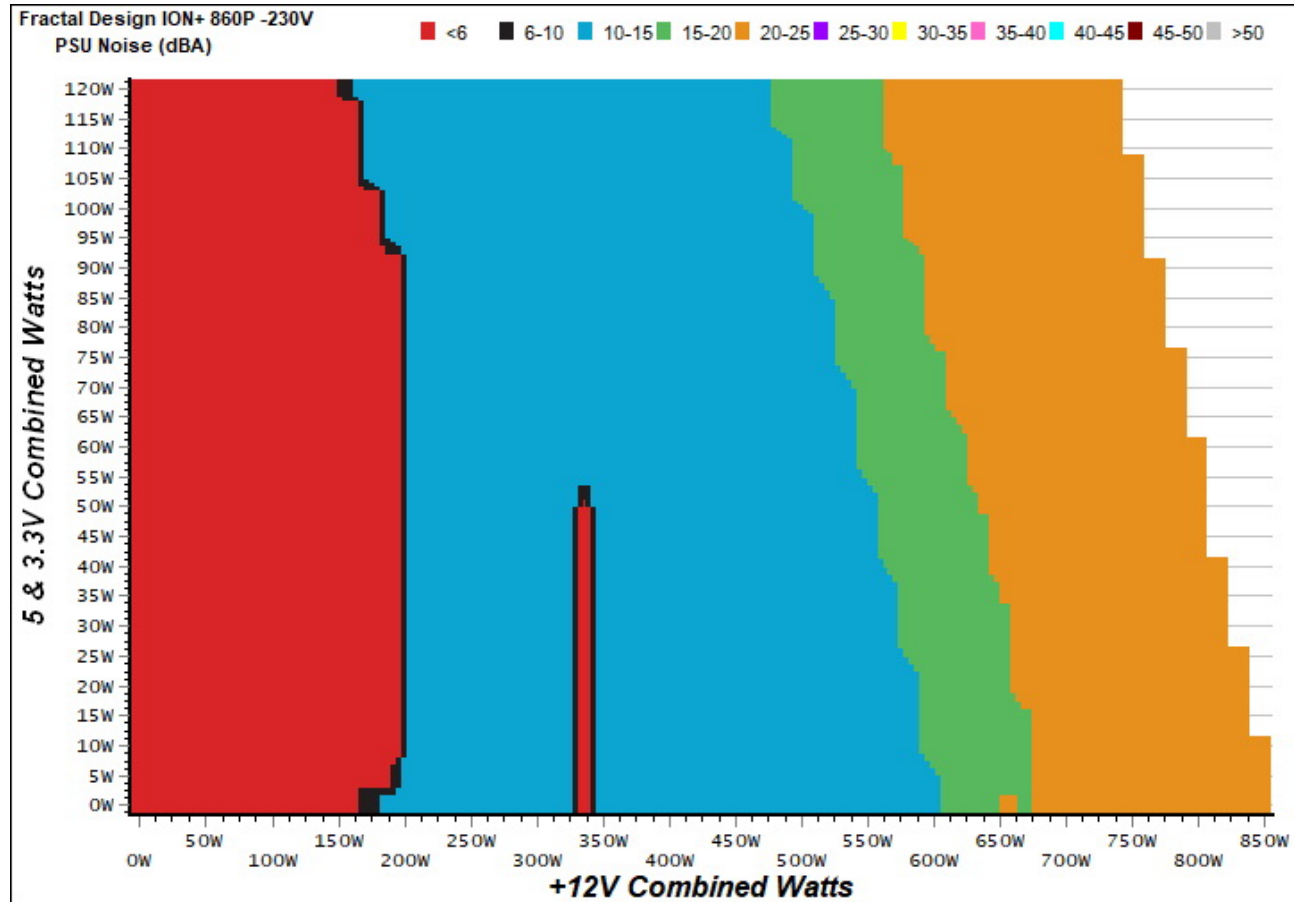


## 115V



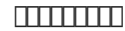
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

## 230V

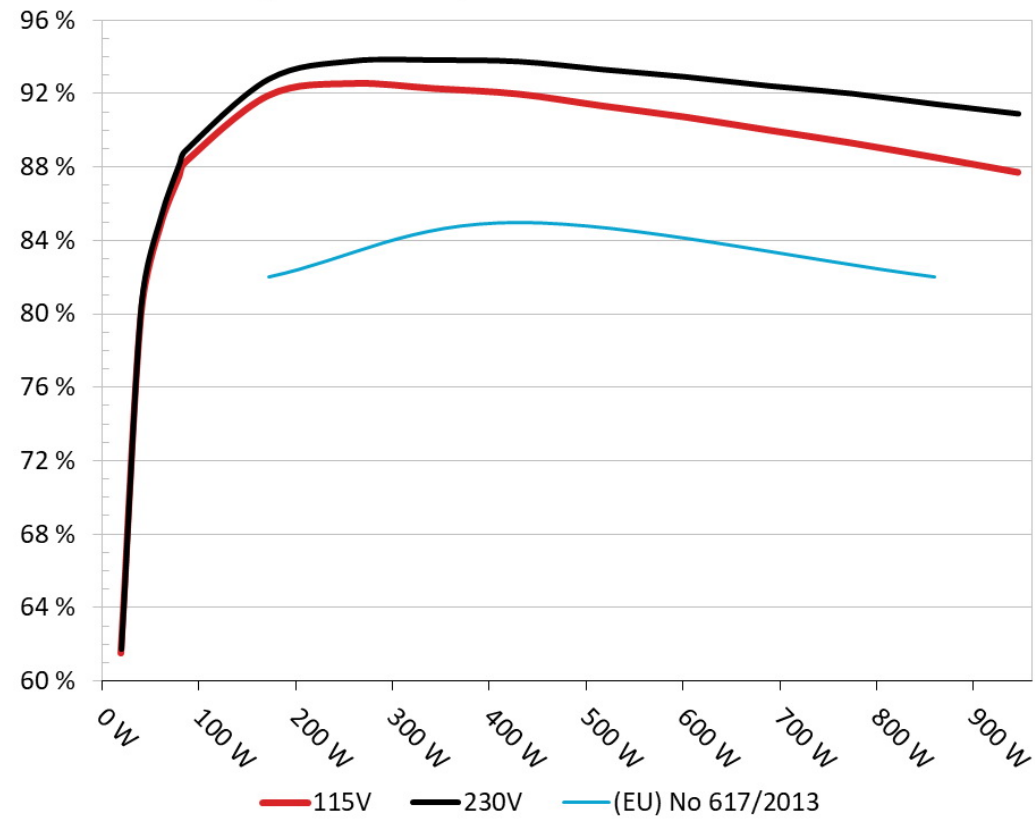


The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

## Indicative Performance



**Efficiency: Fractal Design ION+ 860P**  
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

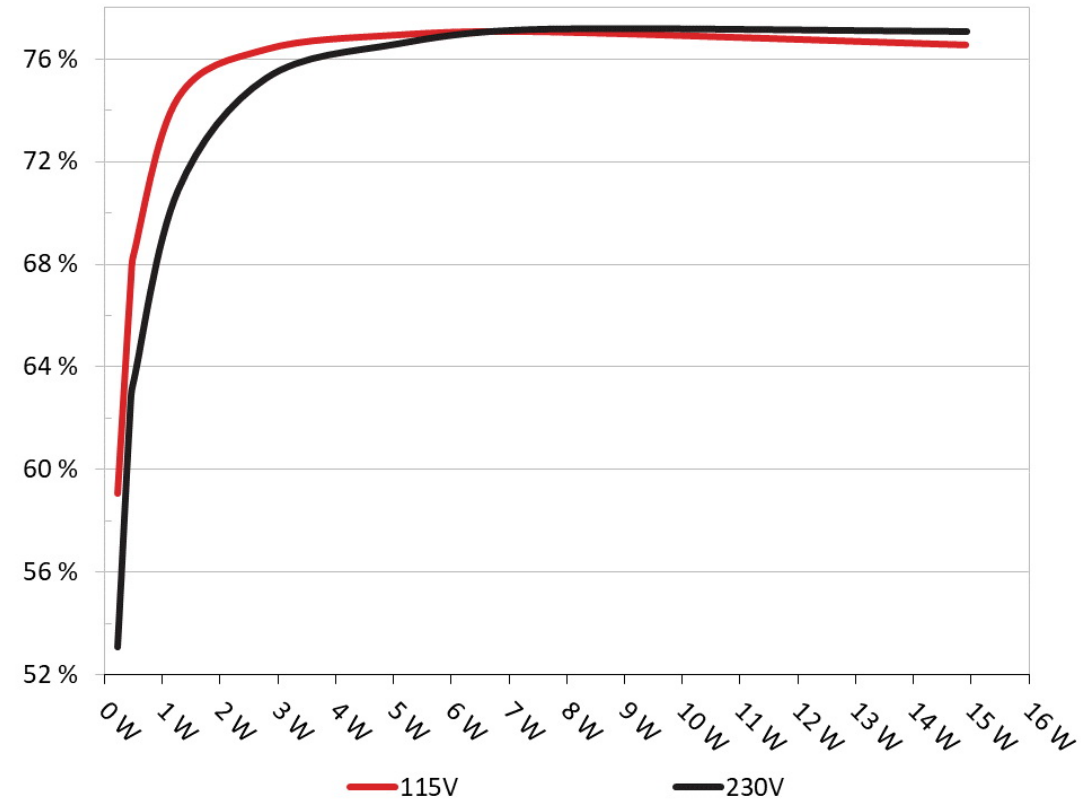


The PSU's efficiency under high ambient temperatures with 115V and 230V input. For this graph the results of the 10-110% load regulation table are used.

### 5Vsb

#### 5VSB Efficiency: Fractal Design ION+ 860P

Ambient: 34°C - 36°C (93.2°F - 96.8°F)



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 | 0.046A | 0.231     | 59.079% | 0.247   |
|   | 5.040V | 0.391     |         | 115.12V |
| 2 | 0.090A | 0.460     | 67.350% | 0.092   |
|   | 5.106V | 0.683     |         | 115.12V |
| 3 | 0.550A | 2.798     | 76.365% | 0.315   |
|   | 5.086V | 3.664     |         | 115.12V |
| 4 | 1.000A | 5.067     | 76.924% | 0.392   |
|   | 5.066V | 6.587     |         | 115.12V |
| 5 | 1.500A | 7.566     | 77.047% | 0.434   |
|   | 5.044V | 9.820     |         | 115.12V |
| 6 | 3.000A | 14.914    | 76.537% | 0.487   |
|   | 4.971V | 19.486    |         | 115.12V |

230V

| # | 5VSB   | DC/AC (%) |         | PF/AC   |
|---|--------|-----------|---------|---------|
| 1 | 0.046A | 0.231     | 53.103% | 0.102   |
|   | 5.041V | 0.435     |         | 230.27V |
| 2 | 0.090A | 0.460     | 62.756% | 0.031   |
|   | 5.106V | 0.733     |         | 230.27V |
| 3 | 0.550A | 2.798     | 75.235% | 0.143   |
|   | 5.085V | 3.719     |         | 230.27V |
| 4 | 1.000A | 5.066     | 76.572% | 0.221   |
|   | 5.065V | 6.616     |         | 230.26V |
| 5 | 1.500A | 7.564     | 77.144% | 0.278   |
|   | 5.042V | 9.805     |         | 230.27V |
| 6 | 3.000A | 14.918    | 77.056% | 0.365   |
|   | 4.972V | 19.360    |         | 230.27V |

## Supplementary Tests (For Reference)

10-110%☐☐☐☐

115V

| #   | 12V     | 5V      | 3.3V    | 5VSB   | DC/AC ( ) |         | (RPM) | (dB[A]) | ( / )   | PF/AC   |
|-----|---------|---------|---------|--------|-----------|---------|-------|---------|---------|---------|
| 1   | 5.338A  | 1.996A  | 2.004A  | 1.003A | 85.828    | 88.273% | 0     | <6.0    | 43.85°C | 0.969   |
|     | 12.028V | 5.016V  | 3.299V  | 4.985V | 97.230    |         |       |         | 40.30°C | 115.12V |
| 2   | 11.733A | 2.997A  | 3.009A  | 1.206A | 171.908   | 91.918% | 0     | <6.0    | 45.00°C | 0.990   |
|     | 12.016V | 5.011V  | 3.292V  | 4.976V | 187.023   |         |       |         | 40.73°C | 115.12V |
| 3   | 18.476A | 3.496A  | 3.497A  | 1.409A | 257.808   | 92.573% | 0     | <6.0    | 46.29°C | 0.997   |
|     | 12.005V | 5.008V  | 3.288V  | 4.967V | 278.492   |         |       |         | 41.29°C | 115.12V |
| 4   | 25.230A | 3.993A  | 4.008A  | 1.611A | 343.806   | 92.299% | 595   | 12.5    | 41.78°C | 0.996   |
|     | 11.993V | 5.013V  | 3.295V  | 4.966V | 372.493   |         |       |         | 47.71°C | 115.12V |
| 5   | 31.667A | 4.997A  | 5.020A  | 1.817A | 429.928   | 92.001% | 598   | 12.6    | 42.31°C | 0.997   |
|     | 11.981V | 5.006V  | 3.288V  | 4.956V | 467.308   |         |       |         | 49.40°C | 115.11V |
| 6   | 38.112A | 6.003A  | 6.034A  | 2.022A | 516.020   | 91.359% | 602   | 12.6    | 42.60°C | 0.998   |
|     | 11.970V | 5.001V  | 3.281V  | 4.946V | 564.825   |         |       |         | 51.10°C | 115.11V |
| 7   | 44.572A | 7.009A  | 7.056A  | 2.229A | 602.156   | 90.746% | 657   | 14.6    | 43.01°C | 0.998   |
|     | 11.959V | 4.996V  | 3.274V  | 4.936V | 663.559   |         |       |         | 52.44°C | 115.11V |
| 8   | 51.042A | 8.019A  | 8.057A  | 2.437A | 688.273   | 90.032% | 847   | 22.7    | 43.99°C | 0.998   |
|     | 11.948V | 4.990V  | 3.277V  | 4.926V | 764.477   |         |       |         | 53.67°C | 115.10V |
| 9   | 57.932A | 8.526A  | 8.557A  | 2.438A | 773.999   | 89.333% | 972   | 26.8    | 44.58°C | 0.998   |
|     | 11.936V | 4.987V  | 3.272V  | 4.924V | 866.424   |         |       |         | 55.37°C | 115.10V |
| 10  | 64.594A | 9.029A  | 9.090A  | 3.063A | 860.005   | 88.546% | 1332  | 36.2    | 45.55°C | 0.999   |
|     | 11.925V | 4.986V  | 3.267V  | 4.899V | 971.250   |         |       |         | 56.85°C | 115.10V |
| 11  | 71.869A | 9.030A  | 9.095A  | 3.064A | 945.971   | 87.731% | 1705  | 42.9    | 46.56°C | 0.999   |
|     | 11.914V | 4.985V  | 3.266V  | 4.897V | 1078.261  |         |       |         | 58.27°C | 115.10V |
| CL1 | 0.154A  | 14.005A | 13.999A | 0.000A | 117.609   | 83.815% | 0     | <6.0    | 49.30°C | 0.981   |
|     | 12.004V | 4.994V  | 3.273V  | 5.053V | 140.319   |         |       |         | 42.30°C | 115.12V |

|     |         |        |        |        |         |         |     |      |         |         |
|-----|---------|--------|--------|--------|---------|---------|-----|------|---------|---------|
| CL2 | 71.667A | 1.002A | 1.000A | 1.000A | 868.900 | 89.484% | 914 | 24.9 | 45.51°C | 0.999   |
|     | 11.939V | 5.005V | 3.287V | 4.967V | 971.017 |         |     |      | 56.18°C | 115.09V |

The results above are not used in the certification process

### 230V

| #   | 12V     | 5V      | 3.3V    | 5VSB   | DC/AC ( ) |         | (RPM) | (dB[A]) | ( / )   | PF/AC   |
|-----|---------|---------|---------|--------|-----------|---------|-------|---------|---------|---------|
| 1   | 5.334A  | 1.996A  | 2.000A  | 1.003A | 85.758    | 88.890% | 0     | <6.0    | 42.65°C | 0.830   |
|     | 12.027V | 5.014V  | 3.300V  | 4.984V | 96.477    |         |       |         | 40.01°C | 230.25V |
| 2   | 11.729A | 2.990A  | 3.007A  | 1.204A | 171.831   | 92.788% | 0     | <6.0    | 43.71°C | 0.927   |
|     | 12.015V | 5.019V  | 3.292V  | 4.985V | 185.187   |         |       |         | 40.67°C | 230.25V |
| 3   | 18.471A | 3.497A  | 3.498A  | 1.410A | 257.747   | 93.769% | 0     | <6.0    | 44.63°C | 0.959   |
|     | 12.004V | 5.007V  | 3.290V  | 4.967V | 274.873   |         |       |         | 41.19°C | 230.26V |
| 4   | 25.225A | 4.001A  | 4.017A  | 1.615A | 343.745   | 93.824% | 591   | 12.5    | 41.81°C | 0.970   |
|     | 11.993V | 5.003V  | 3.286V  | 4.956V | 366.372   |         |       |         | 45.50°C | 230.25V |
| 5   | 31.666A | 4.998A  | 5.017A  | 1.817A | 429.885   | 93.747% | 596   | 12.5    | 42.27°C | 0.980   |
|     | 11.980V | 5.006V  | 3.289V  | 4.956V | 458.561   |         |       |         | 46.27°C | 230.26V |
| 6   | 38.111A | 6.001A  | 6.035A  | 2.023A | 515.980   | 93.315% | 602   | 12.6    | 42.76°C | 0.984   |
|     | 11.969V | 5.002V  | 3.282V  | 4.946V | 552.947   |         |       |         | 47.70°C | 230.25V |
| 7   | 44.573A | 7.009A  | 7.056A  | 2.229A | 602.126   | 92.911% | 657   | 14.6    | 43.09°C | 0.987   |
|     | 11.958V | 4.996V  | 3.274V  | 4.936V | 648.066   |         |       |         | 49.01°C | 230.25V |
| 8   | 51.051A | 8.017A  | 8.056A  | 2.437A | 688.262   | 92.423% | 848   | 22.7    | 43.58°C | 0.991   |
|     | 11.946V | 4.990V  | 3.277V  | 4.925V | 744.690   |         |       |         | 50.17°C | 230.25V |
| 9   | 57.935A | 8.526A  | 8.558A  | 2.438A | 773.988   | 92.000% | 917   | 24.9    | 44.70°C | 0.994   |
|     | 11.935V | 4.987V  | 3.273V  | 4.924V | 841.287   |         |       |         | 52.01°C | 230.26V |
| 10  | 64.599A | 9.027A  | 9.093A  | 3.063A | 860.011   | 91.427% | 1335  | 36.2    | 45.56°C | 0.996   |
|     | 11.924V | 4.987V  | 3.267V  | 4.900V | 940.652   |         |       |         | 53.28°C | 230.26V |
| 11  | 71.876A | 9.031A  | 9.097A  | 3.064A | 945.983   | 90.899% | 1710  | 43.0    | 46.72°C | 0.996   |
|     | 11.913V | 4.985V  | 3.265V  | 4.897V | 1040.696  |         |       |         | 55.02°C | 230.26V |
| CL1 | 0.149A  | 14.005A | 14.002A | 0.000A | 117.613   | 84.414% | 0     | <6.0    | 46.71°C | 0.886   |
|     | 12.003V | 4.996V  | 3.275V  | 5.054V | 139.328   |         |       |         | 41.97°C | 230.27V |

|     |         |        |        |        |         |         |      |      |         |         |
|-----|---------|--------|--------|--------|---------|---------|------|------|---------|---------|
| CL2 | 71.680A | 1.003A | 1.003A | 1.000A | 868.838 | 92.014% | 1327 | 36.1 | 45.61°C | 0.996   |
|     | 11.936V | 4.997V | 3.286V | 4.958V | 944.241 |         |      |      | 53.69°C | 230.27V |

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 | 1.208A  | 0.500A | 0.483A | 0.200A | 19.724    | 61.509% | 0     | <6.0    | 0.866   |
|   | 12.097V | 5.021V | 3.307V | 5.015V | 32.067    |         |       |         | 115.13V |
| 2 | 2.479A  | 0.999A | 1.000A | 0.400A | 40.142    | 79.853% | 0     | <6.0    | 0.925   |
|   | 12.032V | 5.016V | 3.302V | 5.004V | 50.270    |         |       |         | 115.12V |
| 3 | 3.675A  | 1.499A | 1.488A | 0.601A | 59.620    | 84.684% | 0     | <6.0    | 0.949   |
|   | 12.028V | 5.011V | 3.296V | 4.994V | 70.403    |         |       |         | 115.12V |
| 4 | 4.939A  | 1.996A | 2.001A | 0.801A | 80.021    | 87.555% | 0     | <6.0    | 0.966   |
|   | 12.028V | 5.016V | 3.300V | 4.993V | 91.395    |         |       |         | 115.13V |

The results above are not used in the certification process

### 230V

| # | 12V     | 5V     | 3.3V   | 5VSB   | DC/AC ( ) |         | (RPM) | (dB[A]) | PF/AC   |
|---|---------|--------|--------|--------|-----------|---------|-------|---------|---------|
| 1 | 1.201A  | 0.498A | 0.485A | 0.199A | 19.630    | 61.733% | 0     | <6.0    | 0.533   |
|   | 12.092V | 5.029V | 3.306V | 5.024V | 31.798    |         |       |         | 230.25V |
| 2 | 2.472A  | 0.998A | 1.000A | 0.400A | 40.050    | 80.388% | 0     | <6.0    | 0.651   |
|   | 12.031V | 5.015V | 3.303V | 5.003V | 49.821    |         |       |         | 230.25V |
| 3 | 3.669A  | 1.497A | 1.483A | 0.601A | 59.534    | 85.109% | 0     | <6.0    | 0.751   |
|   | 12.027V | 5.015V | 3.302V | 4.998V | 69.950    |         |       |         | 230.25V |
| 4 | 4.933A  | 1.995A | 1.999A | 0.801A | 79.937    | 88.215% | 0     | <6.0    | 0.818   |
|   | 12.028V | 5.015V | 3.301V | 4.993V | 90.616    |         |       |         | 230.25V |

The results above are not used in the certification process



### 115V

| Test        | 12V     | 5V      | 3.3V    | 5VSB    | Pass/Fail |
|-------------|---------|---------|---------|---------|-----------|
| 10% Load    | 11.9 mV | 7.2 mV  | 10.3 mV | 9.4 mV  | Pass      |
| 20% Load    | 9.6 mV  | 8.0 mV  | 9.7 mV  | 10.5 mV | Pass      |
| 30% Load    | 10.4 mV | 9.7 mV  | 10.6 mV | 12.0 mV | Pass      |
| 40% Load    | 13.7 mV | 8.9 mV  | 10.5 mV | 13.2 mV | Pass      |
| 50% Load    | 12.8 mV | 9.8 mV  | 11.4 mV | 14.8 mV | Pass      |
| 60% Load    | 14.2 mV | 10.3 mV | 12.8 mV | 15.5 mV | Pass      |
| 70% Load    | 15.6 mV | 11.3 mV | 13.5 mV | 16.2 mV | Pass      |
| 80% Load    | 16.8 mV | 11.9 mV | 13.3 mV | 16.8 mV | Pass      |
| 90% Load    | 17.8 mV | 12.1 mV | 12.8 mV | 16.4 mV | Pass      |
| 100% Load   | 22.4 mV | 13.1 mV | 16.1 mV | 18.4 mV | Pass      |
| 110% Load   | 23.6 mV | 14.5 mV | 15.5 mV | 19.7 mV | Pass      |
| Crossload 1 | 16.2 mV | 9.2 mV  | 12.8 mV | 11.0 mV | Pass      |
| Crossload 2 | 5.4 mV  | 5.3 mV  | 7.0 mV  | 12.8 mV | Pass      |

The results above are not used in the certification process

### 230V

| Test     | 12V     | 5V      | 3.3V    | 5VSB    | Pass/Fail |
|----------|---------|---------|---------|---------|-----------|
| 10% Load | 11.4 mV | 8.0 mV  | 10.5 mV | 9.4 mV  | Pass      |
| 20% Load | 8.6 mV  | 8.4 mV  | 10.9 mV | 9.8 mV  | Pass      |
| 30% Load | 9.0 mV  | 10.5 mV | 11.4 mV | 11.2 mV | Pass      |
| 40% Load | 10.3 mV | 9.8 mV  | 11.8 mV | 11.7 mV | Pass      |
| 50% Load | 12.5 mV | 27.7 mV | 33.8 mV | 25.0 mV | Pass      |
| 60% Load | 12.5 mV | 11.4 mV | 13.8 mV | 13.1 mV | Pass      |
| 70% Load | 13.5 mV | 12.0 mV | 13.4 mV | 13.8 mV | Pass      |
| 80% Load | 15.2 mV | 11.9 mV | 13.9 mV | 14.6 mV | Pass      |

