# Sharkoon Rebel P20 1000

Lab ID SK10002383

Certification ID 252383

Test Result Report ID: 24PS2383A

Certificate Issue Date: Mar 14, 2024

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 | Sharkoon |
| Model | Rebel P20 1000 |
| OEM/ODM | Andyson |
| Serial Number | |
| Product Specifications | |
| Manufacturer-Provided Information | |
| □□□□ (Vrms) | 100-240 |

| | |
|---|---|
| □□□□ (Arms) | 12-6 |
| □□□□ (Hz) | 50-60 |
| □□□□ (W) | 1000 |
| Operating Temperature (Continuous Full Load) (°C) | |
| □□ | ATX12V |
| □□□□ | Fully Modular |
| Warranty | - |
| Cybenetics Measurements | |
| Dimensions (W x H x D) | |
| Weight | |
| □□ | 120mm Fluid Dynamic Bearing Fan<br>(HA1225M12F-Z) |
| □□□□□ | ✓ (selectable) |
| Cybenetics Testing Information | |
| Lab ID | SK10002383 |
| Date of receipt | Feb 12, 2024 |
| Testing Date | Mar 8, 2024 |
| Report Issued Date | Mar 14, 2024 |
| □□□□□ | Applicable to both black and white color models. |
| 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) | 2 | 2 | 18AWG | □ |
| 6+2pin PCIe□□ (550mm+150mm) | 2 | 4 | 18AWG | □ |

| | | | | |
|---|---|---|---|---|
| 12+4 pin PCIe (600mm) (600W) | 1 | 1 | 16-26AWG | □ |
| SATA□□ (500mm+150mm+150mm) | 1 | 3 | 18AWG | □ |
| SATA□□ (500mm+150mm+150mm+150mm) | 2 | 8 | 18AWG | □ |
| 4-pin Molex Adapter (+150mm) | 1 | 1 | 18AWG | □ |
| AC Power Cord (1360mm) - C13 coupler | 1 | 1 | 18AWG | - |

□□□□

| □ | | 3.3V | 5V | 12V | 5VSB | -12V |
|---|---|---|---|---|---|---|
| □□□□ | □□ | 20 | 20 | 83.3 | 3 | 0.3 |
| | □ | 100 | | 999.6 | 15 | 3.6 |
| □□□□□ (W) | | 1000 | | | | |

## Parts Description

| | |
|---|---|
| **General Data** | |
| Manufacturer (OEM) | Andyson |
| PCB Type | Double-Sided |
| **Primary Side** | |
| Transient Filter | 4x Y caps, 2x X caps, 2x CM chokes, 1x MOV |
| Inrush Protection | NTC Thermistor SCK205R0 (5 Ohm @ 25°C) & Relay |
| Bridge Rectifier(s) | 2x GBJ2510 (700V, 25A @ 100°C) |
| APFC MOSFETs | 2x Wayon WML53N60C4 (600V,26A @ 100°C, Rds(on): 0.07Ohm) |
| APFC Boost Diode | 1x CREE C3D10060A (600V, 10A @ 152°C) |
| Bulk Cap(s) | 2x Nippon Chemi-Con (420V, 560uF each or 1120uf combined, 2000h @ 105°C,KMR) |
| Main Switchers | 4x Wayon WML28N65F2 (650V, 13A @ 100°C, Rds(on): 0.19Ohm) |
| APFC Controller | Champion CM6500UNX |
| Resonant Controller | Champion CU6901VPA |
| Topology | Primary side: APFC, Full-Bridge & LLC converter<br>Secondary side: Synchronous Rectification & DC-DC converters |
| **Secondary Side** | |
| +12V MOSFETs | 8x Infineon BSC014N04LS (40V, 125A @ 100°C, Rds(on): 1.4mOhm) |
| 5V & 3.3V | DC-DC Converters: 6x Nexperia PSMN4R0-30YLD (30V, 95A @ 25°C, Rds(on): 4mOhm)<br>PWM Controller(s): ANPEC APW7159C |

| | |
|---|---|
| Filtering Capacitors | Electrolytic: 7x Nippon Chemi-Con (2-5,000 @ 105°C, KZE),<br>1x Nippon Chemi-Con (10,000 @ 105°C, LE)<br>4x Rubycon (6-10000 @ 105°C, ZLH),<br>1x Teapo (3-5,000 @ 105°C, TX)<br>Polymer: 26x Polycap, 5x FPCAP 1x Nichicon HE |
| Supervisor IC | Weltrend WT7527 (OCP, OTP, OVP, UVP, SCP, PG) |
| Fan Controller / Micro Controller | Weltrend WT51F104 |
| Fan Model | Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, Fluid Dynamic Bearing) |
| **5VSB Circuit** | |
| Rectifier | PJ335M |
| Standby PWM Controller | Excelliance MOS EM8569C |

# 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) | 89.207% |
| Average Noise Output (>1450 Load Combinations) | 24.61dBA |
| PF□□□ (>1450 Load Combinations) | 0.981 |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | 73.071% |
| □□□□□□ | 0.0516W |
| Non-Accredited | |

| | |
|---|---|
| 12V Ripple (Full Load) | 20.25mV |
| 5V Ripple (Full Load) | 17.79mV |
| 3.3V Ripple (Full Load) | 19.99mV |
| 5VSB Ripple (Full Load) | 33.81mV |
| 12V Load Regulation | 0.89% |
| 5V Load Regulation | 0.78% |
| 3.3V Load Regulation | 1.03% |
| 5VSB Load Regulation | 5.96% |
| Inrush Current | 33.250A |

## 230V

| | |
|---|---|
| Accredited | |
| □□□□ (>1450 load combinations) | 91.263% |
| Average Noise Output (>1450 Load Combinations) | 24.98dBA |
| PF□□□ (>1450 Load Combinations) | 0.944 |
| Efficiency With 10W (≤500W) or 2% (>500W) Load | 72.555% |
| □□□□□□ | 0.1441W |
| Non-Accredited | |
| 12V Ripple (Full Load) | 16.50mV |
| 5V Ripple (Full Load) | 13.77mV |
| 3.3V Ripple (Full Load) | 16.55mV |
| 5VSB Ripple (Full Load) | 27.33mV |
| 12V Load Regulation | 0.80% |
| 5V Load Regulation | 0.97% |
| 3.3V Load Regulation | 1.28% |
| 5VSB Load Regulation | 5.76% |
| Inrush Current | 65.890A |
| 12V Transient Response (200%) | 11.55V |
| 5V Transient Response (200%) | 4.903V |
| 3.3V Transient Response (200%) | 3.220V |
| 5VSB Transient Response (200%) | 4.960V |
| □□□□ & PG□□ | 23.50ms |

| | | |
|---|---|---|
| AC Loss to PWR_OK Hold Up Time | | 19.10ms |
| PWR_OK Inactive to DC Loss Delay | | 4.40ms |
| PSU Timings: T1 (20% / 100%) | 87.0ms | 87.0ms |
| PSU Timings: T3 (20% / 100%) | 122.0ms | 120.0ms |
| OPP (28.23°C / 41.80°C) | 133.81% | 118.31% |

## □□□□ & PG□□

| | |
|---|---|
| Hold-Up Time (ms) | 23.5 |
| AC Loss to PWR_OK Hold Up Time (ms) | 19.1 |
| PWR_OK Inactive to DC Loss Delay (ms) | 4.4 |

## □□□□

### Tables

#### 115V

| Detailed Results | | | | | | |
|---|---|---|---|---|---|---|
| | Average | Min | Limit Min | Max | Limit Max | Result |
| Mains Voltage RMS: | 115.04 V | 115.01 V | 113.85 V | 115.09 V | 116.15 V | PASS |
| Mains Frequency: | 60.00 Hz | 59.99 Hz | 59.40 Hz | 60.02 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: | 0.052 W | 0.011 W | N/A | 0.081 W | N/A | N/A |
| Apparent Power: | 7.849 W | 7.672 W | N/A | 8.048 W | N/A | N/A |
| Power Factor: | 0.009 | N/A | N/A | N/A | N/A | N/A |

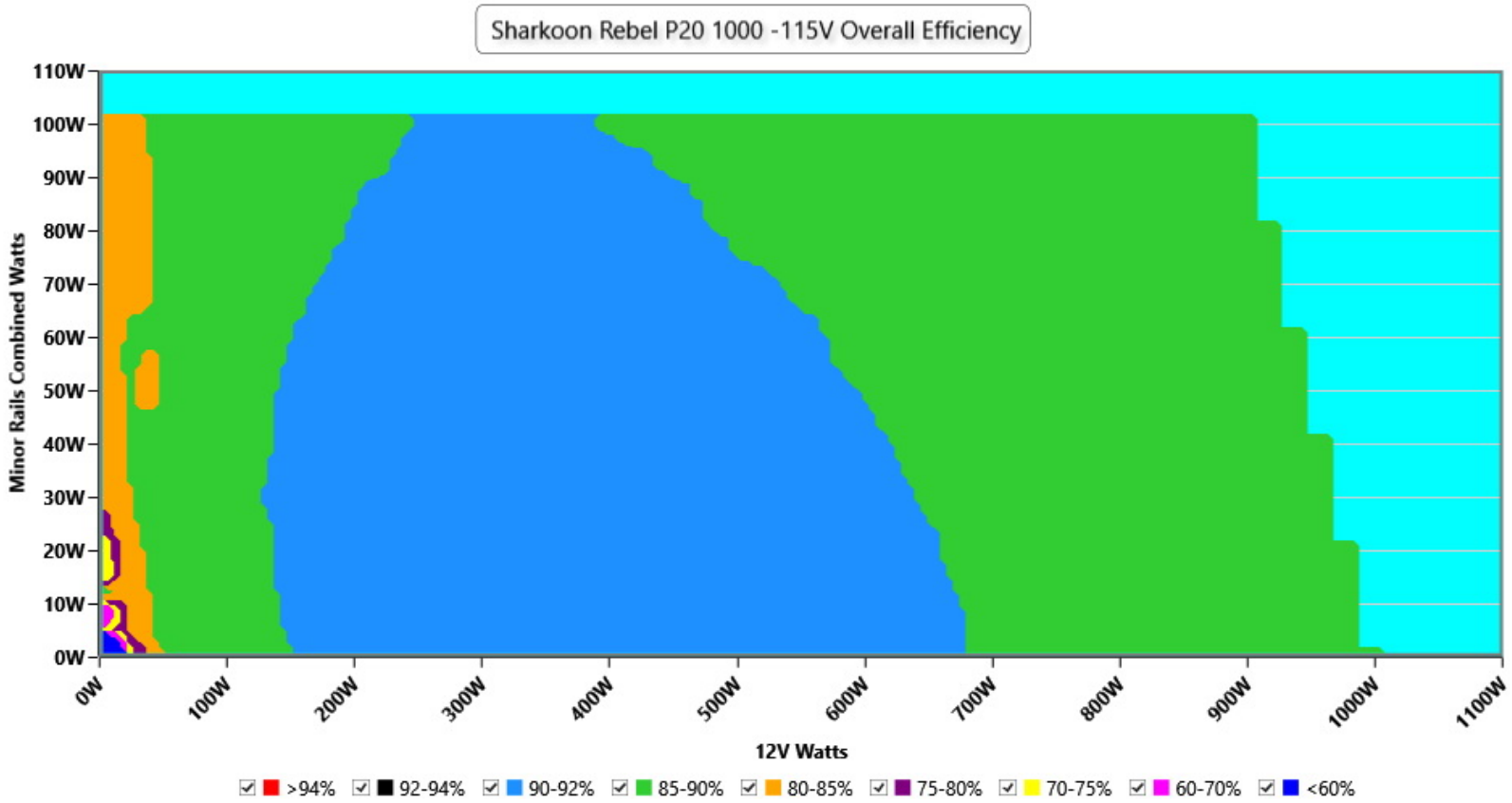
#### 230V

| Detailed Results | | | | | | |
|---|---|---|---|---|---|---|
| | Average | Min | Limit Min | Max | Limit Max | Result |

| | | | | | | |
|---|---|---|---|---|---|---|
| Mains Voltage RMS: | 231.00 V | 230.88 V | 227.70 V | 231.07 V | 232.30 V | PASS |
| Mains Frequency: | 50.00 Hz | 49.99 Hz | 49.50 Hz | 50.01 Hz | 50.50 Hz | PASS |
| Mains Voltage CF: | 1.417 | 1.416 | 1.340 | 1.419 | 1.490 | PASS |
| Mains Voltage THD: | 0.17 % | 0.14 % | N/A | 0.27 % | 2.00 % | PASS |
| Real Power: | 0.144 W | 0.125 W | N/A | 0.215 W | N/A | N/A |
| Apparent Power: | 25.970 W | 25.680 W | N/A | 26.301 W | N/A | N/A |
| Power Factor: | 0.005 | N/A | N/A | N/A | N/A | N/A |

## □□□□□□

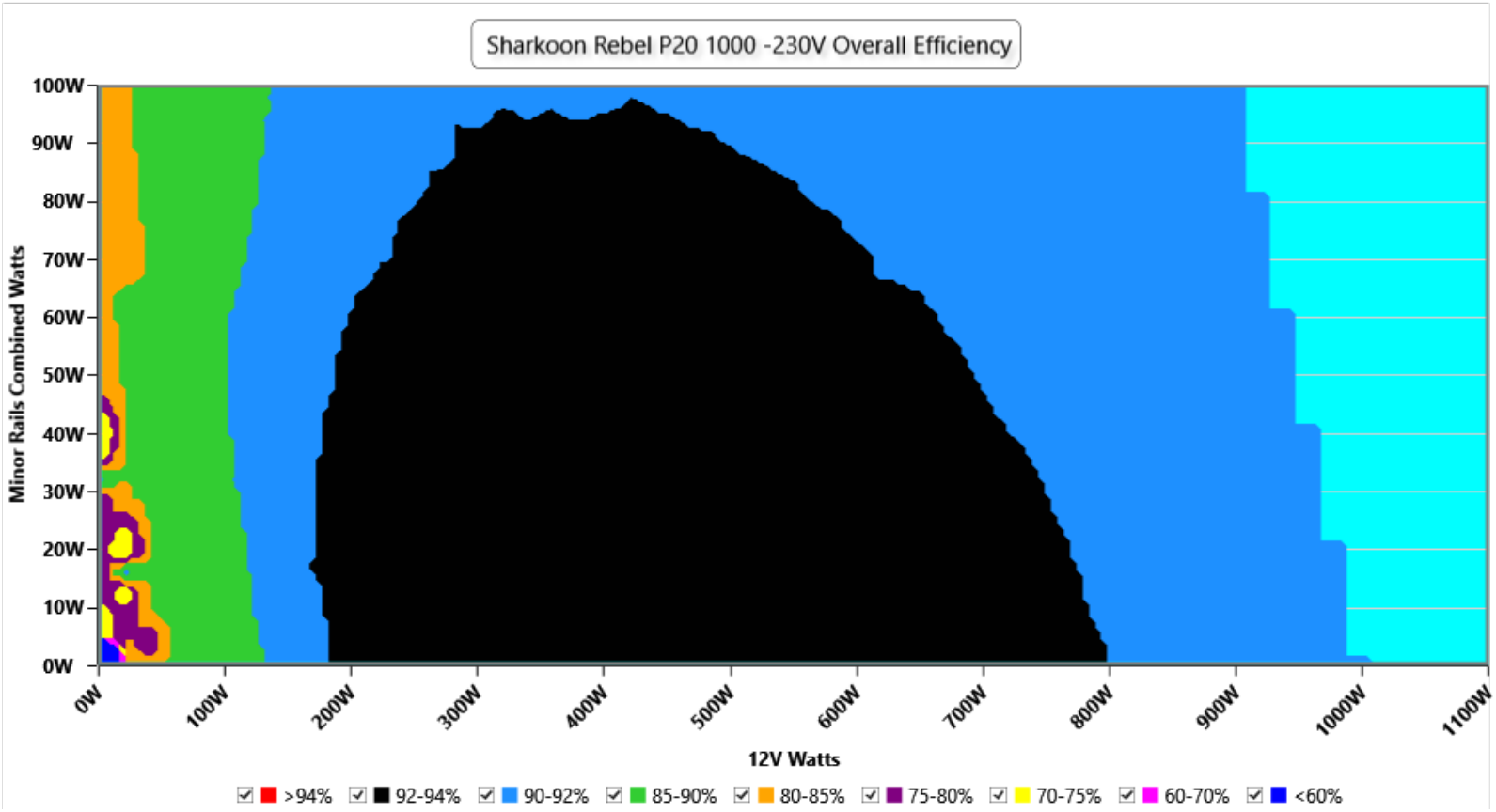
**115V**




□□

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

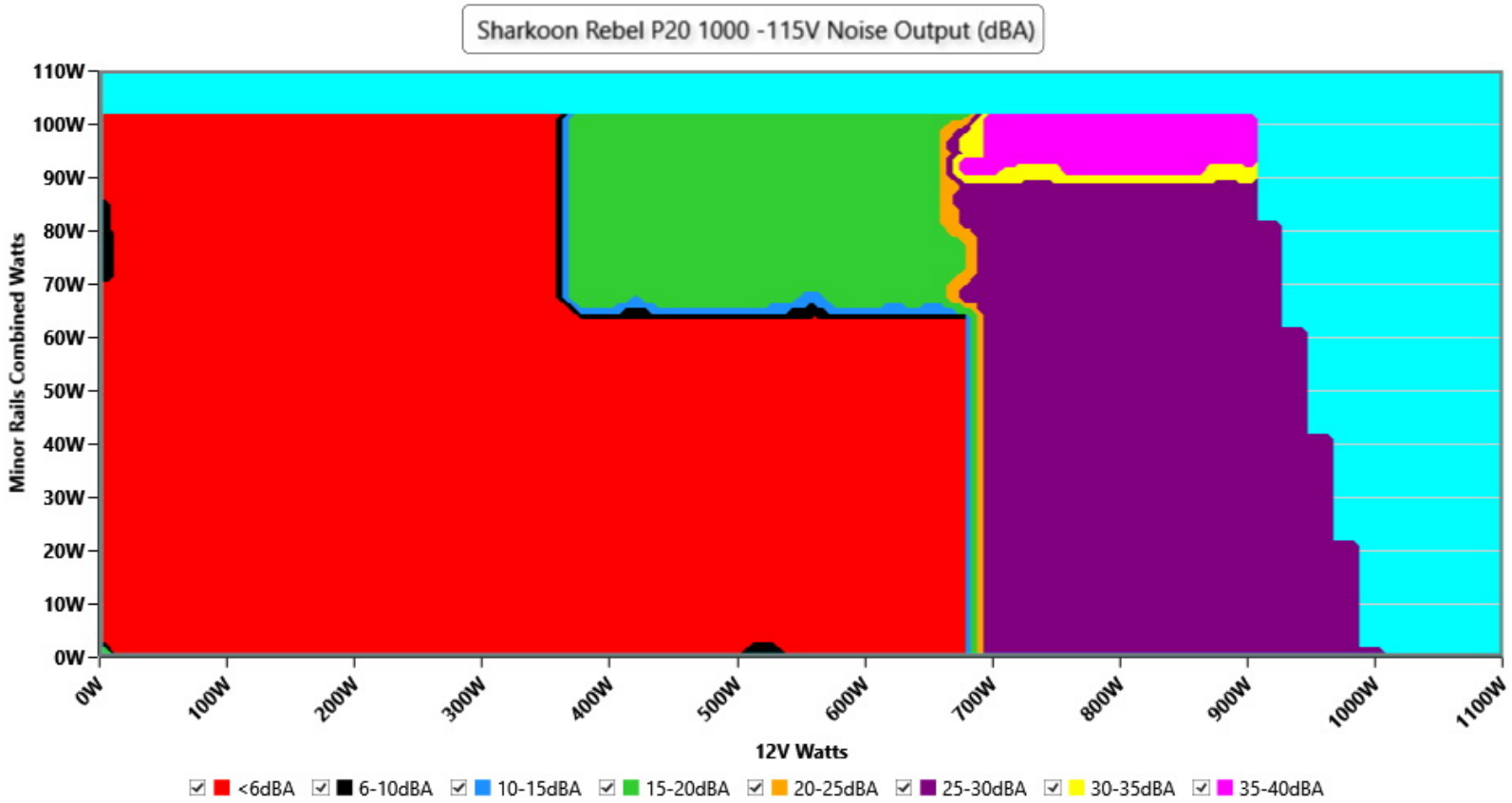
## 230V




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

## □□□□□

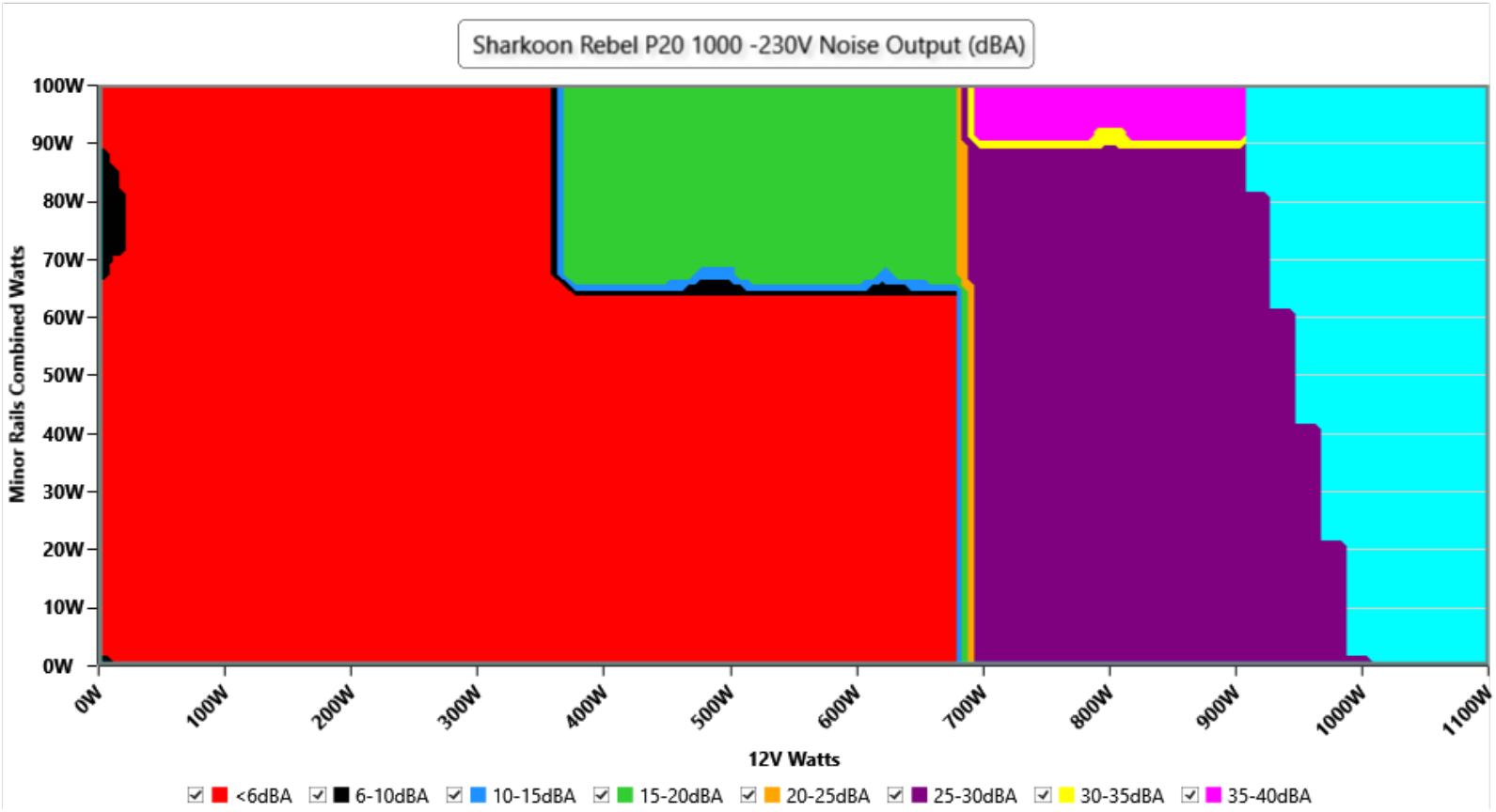
**115V**




□□

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

## Noise under high ambient temperature (indicative)

### 115V

| Load | Normal ambient<br>fan · noise · intake | High ambient<br>fan · noise · intake | Noise change |
|---|---|---|---|
| 10% | 0 RPM · <6.0 dB(A) · 44.6 °C | 0 RPM · <6.0 dB(A) · 44.6 °C | fan off in both |
| 20% | 0 RPM · <6.0 dB(A) · 45.2 °C | 0 RPM · <6.0 dB(A) · 45.2 °C | fan off in both |
| 50% | 897 RPM · 19.6 dB(A) · 42.2 °C | 897 RPM · 19.6 dB(A) · 42.2 °C | **+0.0 dB(A)** |
| 100% | 1524 RPM · 36.1 dB(A) · 46.0 °C | 1524 RPM · 36.1 dB(A) · 46.0 °C | **+0.0 dB(A)** |

### 230V

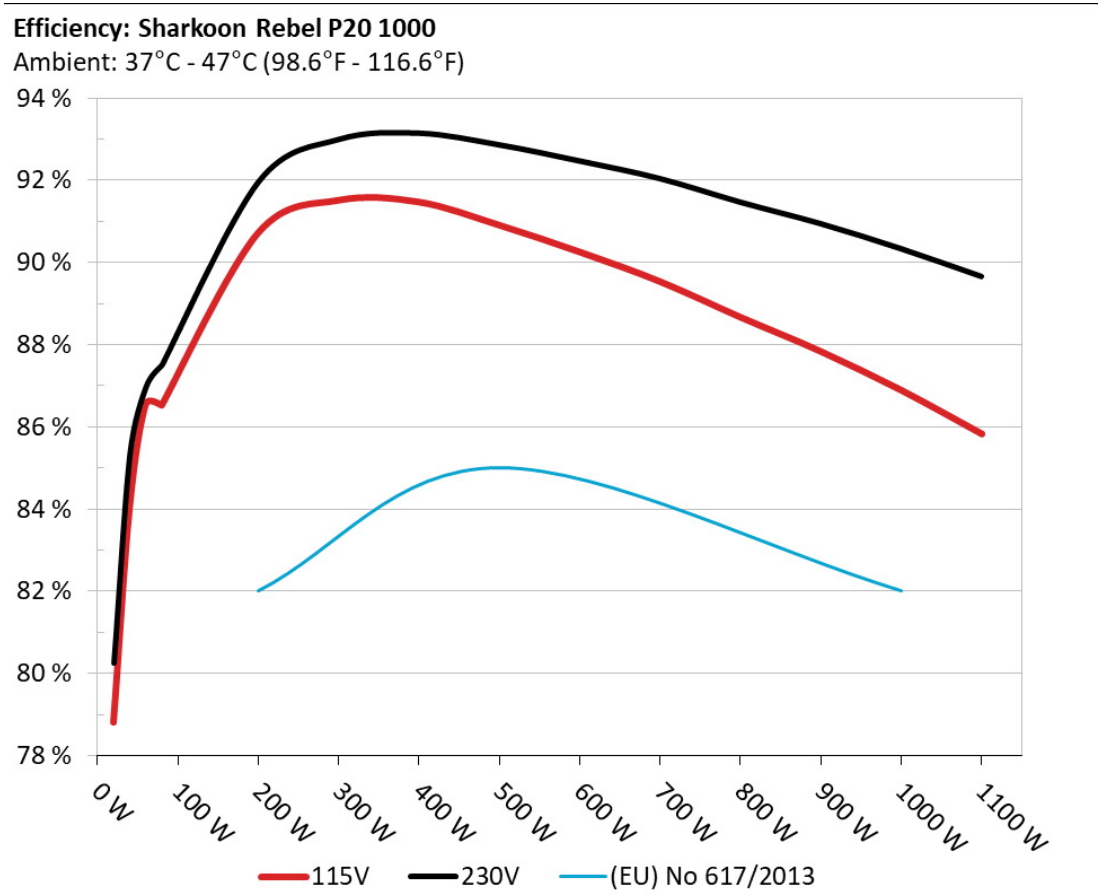
| Load | Normal ambient<br>fan · noise · intake | High ambient<br>fan · noise · intake | Noise change |
|---|---|---|---|
| 10% | 0 RPM · <6.0 dB(A) · 44.5 °C | 0 RPM · <6.0 dB(A) · 44.5 °C | fan off in both |
| 20% | 0 RPM · <6.0 dB(A) · 45.2 °C | 0 RPM · <6.0 dB(A) · 45.2 °C | fan off in both |
| 50% | 900 RPM · 19.6 dB(A) · 42.4 °C | 900 RPM · 19.6 dB(A) · 42.4 °C | **+0.0 dB(A)** |
| 100% | 1528 RPM · 36.2 dB(A) · 45.4 °C | 1528 RPM · 36.2 dB(A) · 45.4 °C | **+0.0 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: the fan is stopped or too quiet to measure (the fan speed column says which); with the fan stopped, the intake sensor can read higher than the chamber air.

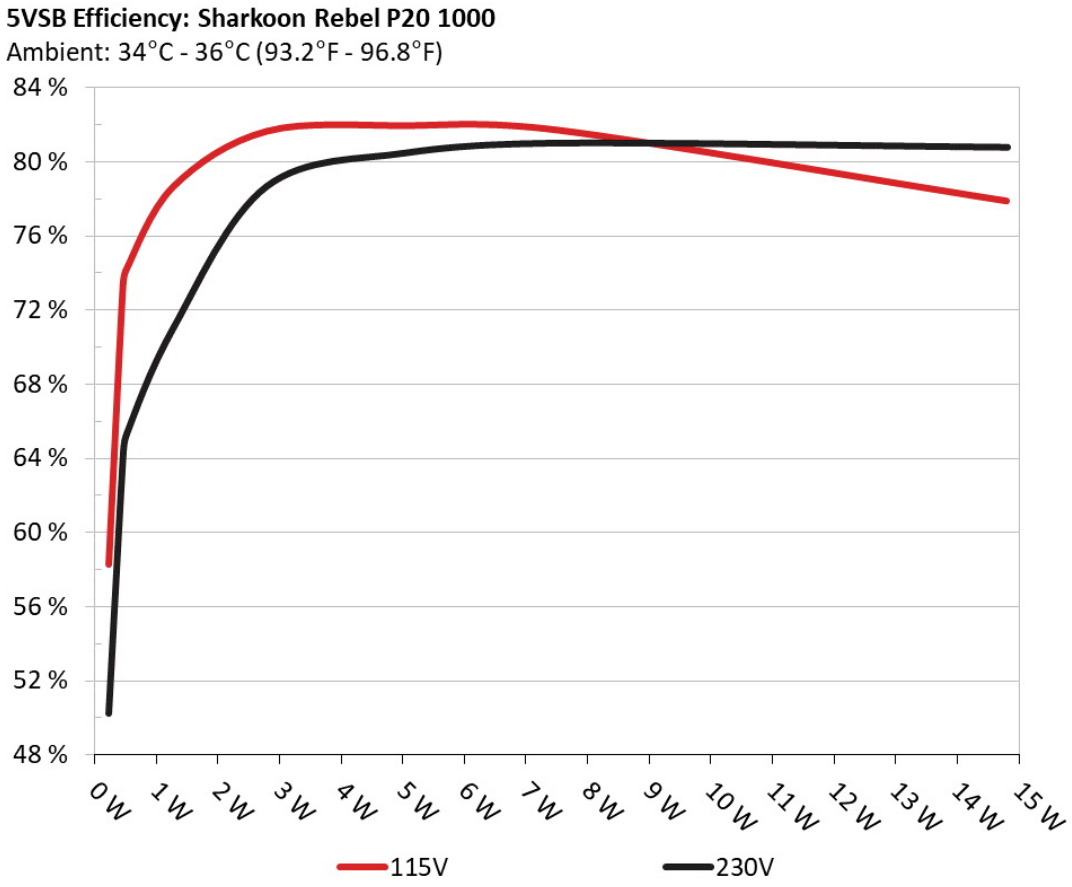
*Informational. Not part of the ETA or LAMBDA rating.*

## Indicative Performance




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 | 0.23W | 58.789% | 0.049 |
| | 5.115V | 0.391W | | 114.93V |
| 2 | 0.09A | 0.46W | 73.826% | 0.077 |
| | 5.112V | 0.623W | | 114.93V |
| 3 | 0.55A | 2.796W | 82.131% | 0.3 |
| | 5.084V | 3.404W | | 114.93V |
| 4 | 1A | 5.055W | 82.429% | 0.39 |
| | 5.055V | 6.133W | | 114.92V |
| 5 | 1.5A | 7.534W | 82.183% | 0.43 |
| | 5.022V | 9.168W | | 114.92V |
| 6 | 3A | 14.799W | 78.373% | 0.493 |
| | 4.933V | 18.883W | | 114.91V |

### 230V

| □□ # | 5VSB | DC/AC (□ ) | □□ | PF/AC □□ |
|---|---|---|---|---|
| 1 | 0.045A | 0.23W | 50.748% | 0.017 |
| | 5.116V | 0.456W | | 229.88V |
| 2 | 0.09A | 0.46W | 64.47% | 0.027 |
| | 5.113V | 0.717W | | 229.89V |
| 3 | 0.55A | 2.797W | 79.183% | 0.124 |
| | 5.086V | 3.532W | | 229.88V |
| 4 | 1A | 5.061W | 80.983% | 0.199 |
| | 5.061V | 6.242W | | 229.88V |
| 5 | 1.5A | 7.548W | 81.51% | 0.259 |
| | 5.031V | 9.26W | | 229.88V |
| 6 | 3A | 14.822W | 81.284% | 0.351 |
| | 4.941V | 18.235W | | 229.88V |

## Supplementary Tests (For Reference)

### 10-110%□□□□

#### 115V

| □□ | 12V | 5V | 3.3V | 5VSB | DC/AC (□ ) | □□ | □□□□ (RPM) | □□□□□□□□ (dB[A]) | □□ (□□ /□□ ) | PF/AC □□ |
|---|---|---|---|---|---|---|---|---|---|---|
| 10% | 6.457A | 1.998A | 1.989A | 0.99A | 99.988 | 86.534% | 0 | <6.0 | 44.58°C | 0.961 |
| | 12.140V | 5.004V | 3.319V | 5.051V | 115.546 | | | | 40.48°C | 114.89V |
| 20% | 13.923A | 2.999A | 2.986A | 1.194A | 199.936 | 90.726% | 0 | <6.0 | 45.19°C | 0.981 |
| | 12.140V | 5.001V | 3.316V | 5.027V | 220.376 | | | | 40.84°C | 114.86V |
| 30% | 21.772A | 3.5A | 3.485A | 1.399A | 299.993 | 91.519% | 0 | <6.0 | 46.27°C | 0.985 |
| | 12.123V | 5V | 3.314V | 5.003V | 327.793 | | | | 41.49°C | 114.82V |
| 40% | 29.567A | 4.003A | 3.986A | 1.607A | 399.539 | 91.476% | 0 | <6.0 | 46.7°C | 0.987 |
| | 12.119V | 4.997V | 3.312V | 4.98V | 436.772 | | | | 41.67°C | 114.78V |
| 50% | 37.038A | 5.008A | 4.989A | 1.816A | 499.267 | 90.915% | 897 | 19.6 | 42.24°C | 0.986 |
| | 12.116V | 4.992V | 3.308V | 4.955V | 549.162 | | | | 47.72°C | 114.74V |
| 60% | 44.589A | 6.018A | 5.996A | 2A | 599.67 | 90.262% | 895 | 19.5 | 42.71°C | 0.987 |
| | 12.111V | 4.986V | 3.303V | 4.932V | 664.371 | | | | 48.73°C | 114.71V |
| 70% | 52.059A | 7.028A | 7.003A | 2.243A | 699.542 | 89.542% | 890 | 19.4 | 43.7°C | 0.988 |
| | 12.110V | 4.981V | 3.299V | 4.904V | 781.248 | | | | 50.76°C | 114.68V |
| 80% | 59.611A | 8.037A | 8.013A | 2.354A | 799.562 | 88.675% | 1526 | 36.1 | 43.87°C | 0.989 |
| | 12.106V | 4.976V | 3.295V | 4.885V | 901.673 | | | | 51.89°C | 114.63V |
| 90% | 67.491A | 8.545A | 8.507A | 2.466A | 899.371 | 87.844% | 1526 | 36.1 | 44.01°C | 0.99 |
| | 12.104V | 4.973V | 3.291V | 4.865V | 1023.835 | | | | 53.09°C | 114.59V |
| 100% | 75.138A | 9.053A | 9.033A | 3.114A | 999.376 | 86.901% | 1524 | 36.1 | 45.99°C | 0.991 |
| | 12.107V | 4.97V | 3.288V | 4.818V | 1150.018 | | | | 56.04°C | 114.54V |
| 110% | 82.691A | 10.067A | 10.141A | 3.121A | 1099.997 | 85.835% | 1523 | 36.1 | 46.58°C | 0.991 |
| | 12.114V | 4.966V | 3.284V | 4.807V | 1281.526 | | | | 57.49°C | 114.5V |
| CL1 | 0.115A | 12.066A | 12.007A | 0A | 101.304 | 82.057% | 903 | 19.7 | 40.71°C | 0.965 |
| | 12.205V | 4.989V | 3.307V | 5.09V | 123.455 | | | | 46.19°C | 114.88V |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CL2 | 0.115A | 20.058A | 0A | 0A | 101.342 | 80.211% | 1541 | 36.4 | 41.16°C | 0.966 |
| | 12.176V | 4.983V | 3.313V | 5.095V | 126.342 | | | | 48.22°C | 114.87V |
| CL3 | 0.115A | 0A | 19.981A | 0A | 67.401 | 77.018% | 1547 | 36.6 | 40.01°C | 0.945 |
| | 12.066V | 5.002V | 3.304V | 5.095V | 87.562 | | | | 49.1°C | 114.88V |
| CL4 | 82.782A | 0A | 0A | 0.001A | 999.964 | 87.805% | 1525 | 36.1 | 46.35°C | 0.99 |
| | 12.080V | 4.99V | 3.302V | 5.005V | 1138.866 | | | | 57.32°C | 114.55V |

The results above are not used in the certification process

## 230V

| □□ | 12V | 5V | 3.3V | 5VSB | DC/AC (□ ) | □□ | □□□□ (RPM) | □□□□□□□ (dB[A]) | □□ (□□ /□□ ) | PF/AC □□ |
|---|---|---|---|---|---|---|---|---|---|---|
| 10% | 6.441A | 1.997A | 1.986A | 0.989A | 100.004 | 87.503% | 0 | <6.0 | 44.48°C | 0.813 |
| | 12.173V | 5.008V | 3.323V | 5.055V | 114.287 | | | | 40.47°C | 229.87V |
| 20% | 13.895A | 2.997A | 2.983A | 1.193A | 199.958 | 91.956% | 0 | <6.0 | 45.21°C | 0.918 |
| | 12.167V | 5.005V | 3.319V | 5.032V | 217.455 | | | | 40.94°C | 229.86V |
| 30% | 21.740A | 3.499A | 3.483A | 1.398A | 300.015 | 92.987% | 0 | <6.0 | 46.17°C | 0.95 |
| | 12.142V | 5.002V | 3.316V | 5.009V | 322.642 | | | | 41.32°C | 229.84V |
| 40% | 29.531A | 4.001A | 3.985A | 1.605A | 399.592 | 93.138% | 0 | <6.0 | 46.85°C | 0.963 |
| | 12.136V | 4.999V | 3.313V | 4.986V | 429.032 | | | | 41.78°C | 229.82V |
| 50% | 37.014A | 5.009A | 4.99A | 1.814A | 499.322 | 92.856% | 900 | 19.6 | 42.38°C | 0.97 |
| | 12.125V | 4.992V | 3.307V | 4.962V | 537.743 | | | | 47.89°C | 229.8V |
| 60% | 44.589A | 6.02A | 6A | 2A | 599.731 | 92.462% | 898 | 19.6 | 42.9°C | 0.974 |
| | 12.111V | 4.984V | 3.3V | 4.939V | 648.622 | | | | 49.01°C | 229.79V |
| 70% | 52.068A | 7.031A | 7.009A | 2.239A | 699.569 | 92.034% | 892 | 19.4 | 43.44°C | 0.977 |
| | 12.108V | 4.979V | 3.297V | 4.913V | 760.118 | | | | 50.47°C | 229.77V |
| 80% | 59.631A | 8.041A | 8.021A | 2.35A | 799.589 | 91.462% | 1531 | 36.2 | 43.51°C | 0.979 |
| | 12.103V | 4.974V | 3.291V | 4.894V | 874.237 | | | | 51.59°C | 229.75V |
| 90% | 67.520A | 8.549A | 8.516A | 2.461A | 899.378 | 90.94% | 1531 | 36.2 | 44.83°C | 0.98 |
| | 12.099V | 4.97V | 3.288V | 4.876V | 988.979 | | | | 53.92°C | 229.73V |
| 100% | 75.177A | 9.058A | 9.042A | 3.107A | 999.382 | 90.332% | 1528 | 36.2 | 45.44°C | 0.981 |
| | 12.101V | 4.967V | 3.285V | 4.829V | 1106.341 | | | | 55.52°C | 229.71V |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 110% | 82.740A | 10.071A | 10.15A | 3.116A | 1100.002 | 89.654% | 1526 | 36.1 | 46.57°C | 0.982 |
| | 12.107V | 4.964V | 3.281V | 4.815V | 1226.943 | | | | 57.55°C | 229.69V |
| CL1 | 0.115A | 12.066A | 12.009A | 0A | 101.303 | 82.711% | 901 | 19.6 | 45.66°C | 0.83 |
| | 12.203V | 4.989V | 3.306V | 5.09V | 122.475 | | | | 51.09°C | 229.87V |
| CL2 | 0.114A | 20.057A | 0A | 0A | 101.343 | 80.853% | 1542 | 36.4 | 40.97°C | 0.833 |
| | 12.176V | 4.983V | 3.313V | 5.095V | 125.34 | | | | 47.99°C | 229.87V |
| CL3 | 0.115A | 0A | 19.985A | 0A | 67.399 | 77.388% | 1549 | 36.6 | 39.96°C | 0.739 |
| | 12.071V | 5.001V | 3.303V | 5.095V | 87.092 | | | | 48.98°C | 229.88V |
| CL4 | 82.827A | 0A | 0A | 0.001A | 999.944 | 91.039% | 1525 | 36.1 | 44.92°C | 0.981 |
| | 12.073V | 4.989V | 3.301V | 5.005V | 1098.365 | | | | 55.89°C | 229.72V |

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 | 1.234A | 0.499A | 0.497A | 0.196A | 19.992 | 78.82% | 0 | <6.0 | 39.61°C | 0.684 |
| | 12.034V | 5.009V | 3.322V | 5.105V | 25.364 | | | | 36.55°C | 114.93V |
| 40W | 2.716A | 0.699A | 0.695A | 0.294A | 39.993 | 84.063% | 0 | <6.0 | 40.5°C | 0.863 |
| | 12.038V | 5.009V | 3.322V | 5.097V | 47.575 | | | | 37.16°C | 114.91V |
| 60W | 4.196A | 0.898A | 0.894A | 0.393A | 59.993 | 86.565% | 0 | <6.0 | 42.69°C | 0.924 |
| | 12.043V | 5.008V | 3.321V | 5.09V | 69.304 | | | | 38.96°C | 114.91V |
| 80W | 5.670A | 1.098A | 1.093A | 0.492A | 79.936 | 88.106% | 0 | <6.0 | 43.15°C | 0.948 |
| | 12.047V | 5.007V | 3.32V | 5.082V | 90.727 | | | | 39.2°C | 114.9V |

The results above are not used in the certification process

## 230V

| □□ | 12V | 5V | 3.3V | 5VSB | DC/AC (□ ) | □□ | □□□□ (RPM) | □□□□□□□ (dB[A]) | □□ (□□ /□□ ) | PF/AC □□ |
|---|---|---|---|---|---|---|---|---|---|---|
| 20W | 1.230A | 0.499A | 0.496A | 0.196A | 20.009 | 80.247% | 0 | <6.0 | 39.99°C | 0.408 |
| | 12.077V | 5.015V | 3.327V | 5.107V | 24.934 | | | | 36.98°C | 229.89V |
| 40W | 2.708A | 0.698A | 0.694A | 0.294A | 40.005 | 85.34% | 0 | <6.0 | 40.69°C | 0.566 |
| | 12.076V | 5.014V | 3.326V | 5.099V | 46.877 | | | | 37.42°C | 229.88V |
| 60W | 4.184A | 0.898A | 0.893A | 0.393A | 60.003 | 86.967% | 0 | <6.0 | 41.78°C | 0.668 |
| | 12.077V | 5.013V | 3.325V | 5.091V | 68.995 | | | | 38.25°C | 229.88V |
| 80W | 5.614A | 1.097A | 1.092A | 0.492A | 79.954 | 85.373% | 0 | <6.0 | 42.98°C | 0.761 |
| | 12.171V | 5.011V | 3.324V | 5.084V | 93.656 | | | | 39.12°C | 229.88V |

The results above are not used in the certification process

## □□□□

## 115V

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| 10% Load | 14.99mV | 15.58mV | 15.60mV | 20.26mV | Pass |
| 20% Load | 13.50mV | 13.69mV | 14.27mV | 20.82mV | Pass |
| 30% Load | 14.48mV | 14.31mV | 14.32mV | 21.18mV | Pass |
| 40% Load | 15.50mV | 17.32mV | 16.32mV | 22.66mV | Pass |
| 50% Load | 15.45mV | 14.76mV | 17.14mV | 24.55mV | Pass |
| 60% Load | 15.14mV | 15.63mV | 16.68mV | 25.93mV | Pass |
| 70% Load | 15.96mV | 16.25mV | 16.83mV | 25.73mV | Pass |
| 80% Load | 16.32mV | 16.55mV | 18.16mV | 29.46mV | Pass |
| 90% Load | 15.81mV | 16.50mV | 18.57mV | 29.05mV | Pass |
| 100% Load | 20.25mV | 17.79mV | 19.99mV | 33.81mV | Pass |
| 110% Load | 20.81mV | 17.64mV | 21.40mV | 34.37mV | Pass |
| Crossload1 | 15.78mV | 15.06mV | 16.54mV | 18.10mV | Pass |
| Crossload2 | 16.37mV | 19.21mV | 15.24mV | 16.93mV | Pass |

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| Crossload3 | 24.51mV | 11.03mV | 14.12mV | 13.71mV | Pass |
| Crossload4 | 19.02mV | 17.55mV | 18.65mV | 26.19mV | Pass |

The results above are not used in the certification process

**230V**

| Test | 12V | 5V | 3.3V | 5VSB | Pass/Fail |
|---|---|---|---|---|---|
| 10% Load | 10.90mV | 11.14mV | 10.79mV | 17.59mV | Pass |
| 20% Load | 11.21mV | 10.37mV | 10.74mV | 17.80mV | Pass |
| 30% Load | 11.15mV | 10.88mV | 11.05mV | 17.95mV | Pass |
| 40% Load | 11.30mV | 14.10mV | 12.89mV | 18.67mV | Pass |
| 50% Load | 12.48mV | 11.60mV | 12.33mV | 20.15mV | Pass |
| 60% Load | 11.46mV | 11.65mV | 13.40mV | 20.76mV | Pass |
| 70% Load | 11.87mV | 11.80mV | 12.74mV | 22.92mV | Pass |
| 80% Load | 11.56mV | 12.26mV | 14.12mV | 23.99mV | Pass |
| 90% Load | 12.28mV | 12.67mV | 15.81mV | 24.30mV | Pass |
| 100% Load | 16.50mV | 13.77mV | 16.55mV | 27.33mV | Pass |
| 110% Load | 16.80mV | 14.44mV | 16.35mV | 28.38mV | Pass |
| Crossload1 | 13.21mV | 12.15mV | 13.74mV | 15.42mV | Pass |
| Crossload2 | 12.63mV | 15.84mV | 10.64mV | 13.86mV | Pass |
| Crossload3 | 23.48mV | 11.39mV | 14.68mV | 14.01mV | Pass |
| Crossload4 | 16.41mV | 13.12mV | 14.90mV | 22.07mV | Pass |

The results above are not used in the certification process

# Sharkoon Rebel P20 1000

Top side

| Model | REBEL P20 1000 | | | | |
|---|---|---|---|---|---|
| Input (AC) | Input Voltage | | Current | Frequency | |
| | 100 - 240 V~ | | 12 - 6A | 50 - 60 Hz | |
| Output (DC) | +3.3 V | +5 V | +12 V | -12 V | +5 Vsb |
| Max. Output Current | 20 A | 20 A | 83.3 A | 0.3 A | 3 A |
| Max. Combined Power | 100 W | | 999.6 W | 3.6 W | 15 W |
| Total Power | 1000 W | | | | |

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

Cybenetics 提供自愿性认证计划：电源方面有ETA（效率）、LAMBDA（噪声）与SAFE（安全与正确运行）；散热产品方面有DELTA（机箱隔音）与PHI（风扇风量与静压）

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