

Lab ID#: CM75002167
Receipt Date: Mar 28, 2023
Test Date: Apr 5, 2023

Report: 23PS2167A
Report Date: Apr 5, 2023

| DUT INFORMATION | |
|--------------------|---------------|
| Brand | Cooler Master |
| Manufacturer (OEM) | Chicony Power |
| Series | Vi Gold |
| Model Number | MPZ-7501-AFAG |
| Serial Number | |
| DUT Notes | |

| DUT SPECIFICATIONS | |
|------------------------|---|
| Rated Voltage (Vrms) | 100-240 |
| Rated Current (Arms) | 10-6 |
| Rated Frequency (Hz) | 50-60 |
| Rated Power (W) | 750 |
| Type | ATX12V |
| Cooling | 135mm Fluid Dynamic Bearing Fan (YY14025M12B) |
| Semi-Passive Operation | ✓ |
| Cable Design | Fully Modular |

| TEST EQUIPMENT | |
|-----------------------|---|
| Electronic Loads | Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20 |
| AC Sources | Chroma 6530, APM SP300VAC4000W-P |
| Power Analyzers | RS HMC8015, N4L PPA1530, N4L PPA5530 |
| Oscilloscopes | Picoscope 4444, Rigol DS7014, 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, Keithley 2015 - THD |
| UPS | FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA |
| Isolation Transformer | 4kVA |

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RESULTS

| | |
|--|------------------------------------|
| Temperature Range (°C /°F) | 30-32 / 86-89.6 (+-2°C / +- 3.6°F) |
| ErP Lot 3/6 Ready | ✓ |
| (EU) No 617/2013 Compliance | ✓ |
| ALPM (Alternative Low Power Mode) compatible | ✓ |
| ATX v3.0 PSU Power Excursion | ✓ |

115V

| | |
|---|-------------|
| Average Efficiency | 89.578% |
| Efficiency With 10W (≤500W) or 2% (>500W) | 72.803 |
| Average Efficiency 5VSB | 82.168% |
| Standby Power Consumption (W) | 0.0474000 |
| Average PF | 0.991 |
| Avg Noise Output | 22.80 dB(A) |
| Efficiency Rating (ETA) | PLATINUM |
| Noise Rating (LAMBDA) | A |

230V

| | |
|-------------------------------|-------------|
| Average Efficiency | 91.487% |
| Average Efficiency 5VSB | 81.523% |
| Standby Power Consumption (W) | 0.1291000 |
| Average PF | 0.952 |
| Avg Noise Output | 22.82 dB(A) |
| Efficiency Rating (ETA) | PLATINUM |
| Noise Rating (LAMBDA) | A |

POWER SPECIFICATIONS

| Rail | | 3.3V | 5V | 12V | 5VSB | -12V |
|----------------------|-------|------|----|------|------|------|
| Max. Power | Amps | 20 | 20 | 62.5 | 3 | 0.3 |
| | Watts | 120 | | 750 | 15 | 3.6 |
| Total Max. Power (W) | | 750 | | | | |

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CABLES AND CONNECTORS

Modular Cables

| Description | Cable Count | Connector Count (Total) | Gauge | In Cable Capacitors |
|---------------------------------------|-------------|-------------------------|----------|---------------------|
| ATX connector 20+4 pin (650mm) | 1 | 1 | 18-22AWG | No |
| 4+4 pin EPS12V (650mm) | 1 | 1 | 18AWG | No |
| 8 pin EPS12V (650mm) | 1 | 1 | 18AWG | No |
| 6+2 pin PCIe (550mm) | 3 | 3 | 16-18AWG | No |
| 12+4 pin PCIe (650mm) (300W) | 1 | 1 | 16-24AWG | No |
| SATA (500mm+120mm+120mm+120mm) | 3 | 12 | 18AWG | No |
| 4 pin Molex (400mm+120mm+120mm+120mm) | 1 | 4 | 18AWG | No |
| Motherboard USB Cable (810mm) | 1 | 1 | 24AWG | No |
| AC Power Cord (1400mm) - C13 coupler | 1 | 1 | 14AWG | - |

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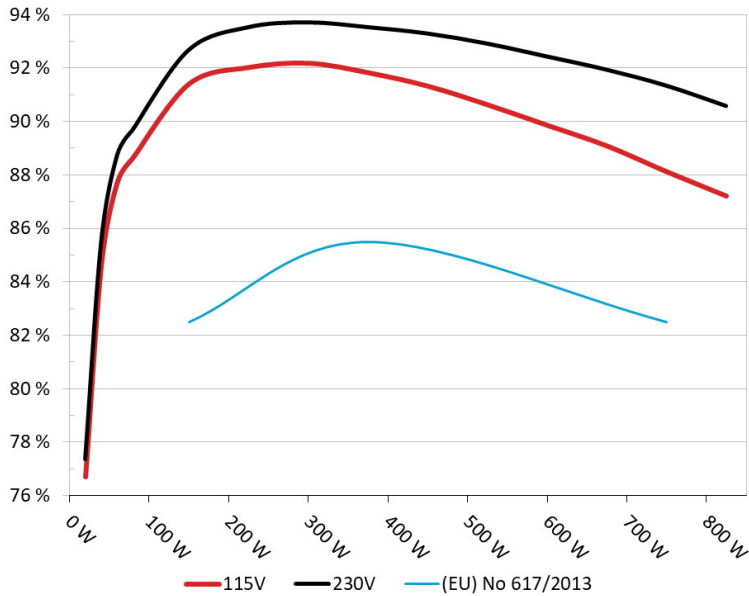
| | |
|------------------------|---|
| General Data | - |
| Manufacturer (OEM) | Chicony Power |
| PCB Type | Double Sided |
| Primary Side | - |
| Transient Filter | 4x Y caps, 2x X caps, 2x CM chokes, 1x MOV |
| Inrush Protection | 1x NTC Thermistor JNR15S100L (10 Ohm) & Relay |
| Bridge Rectifier(s) | 2x Diodes GBU15JL (600V, 15A @ 115°C) |
| APFC MOSFETs | 2x Infineon IPP60R120P7 (600V, 16A @ 100°C, Rds(on): 0.1200Ohm) & 1x Champion CM03X (reduce the no load consumption) |
| APFC Boost Diode | 1x CREE C6D08065A (650V, 8A @ 155°C) |
| Bulk Cap(s) | 1x Rubycon (450V, 680uF, 3,000h @ 105°C, MXK) |
| Main Switchers | 2x Infineon IPA60R120P7 (600V, 16A @ 100°C, Rds(on): 0.1200Ohm) |
| APFC Controller | Infineon ICE2PCS01G |
| Resonant Controller | MPS HR100A |
| Topology | Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters |
| Secondary Side | - |
| +12V MOSFETs | - |
| 5V & 3.3V | DC-DC Converters: 4x Alpha & Omega AON6144 (40V, 89A @ 100°C, Rds(on): 2.4mOhm) PWM Controller(s): ANPEK APW7159C |
| Filtering Capacitors | Electrolytic: 3x Nippon Chemi-Con (2-5,000h @ 105°C, KZE), 2x Nichicon (5-6,000h @ 105°C, HV), 1x Nichicon (2-4,000h @ 105°C, HD), 2x Rubycon (6-10,000h @ 105°C, ZLH) Polymer: 11x Nippon Chemi-Con, 7x FPCAP, 10x NIC, 2x Nichicon |
| Supervisor IC | Weltrend WT7502R |
| ARM Microcontroller | Nuvoton M032EC1AE (USB connectivity & Fan control) |
| Fan Model | Snowfan YY14025M12B (135mm, 12V, 0.40A, Fluid Dynamic Bearing Fan) |
| 5VSB Circuit | - |
| Rectifier | STMicroelectronics STD4N80K5 FET(800V, 1.7A @ 100°C, Rds(on): 2.50hm) & 1x Advanced Power AP6N6R5LMT-L FET (60V, 16.9A @ 70°C, Rds(on): 6.5mOhm) |
| Standby PWM Controller | OnSemiconductor NCP12400 |
| -12V Circuit | - |
| Rectifier | UTC LM7912L (-12V, 1A) |

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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Cooler Master V750i Gold
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

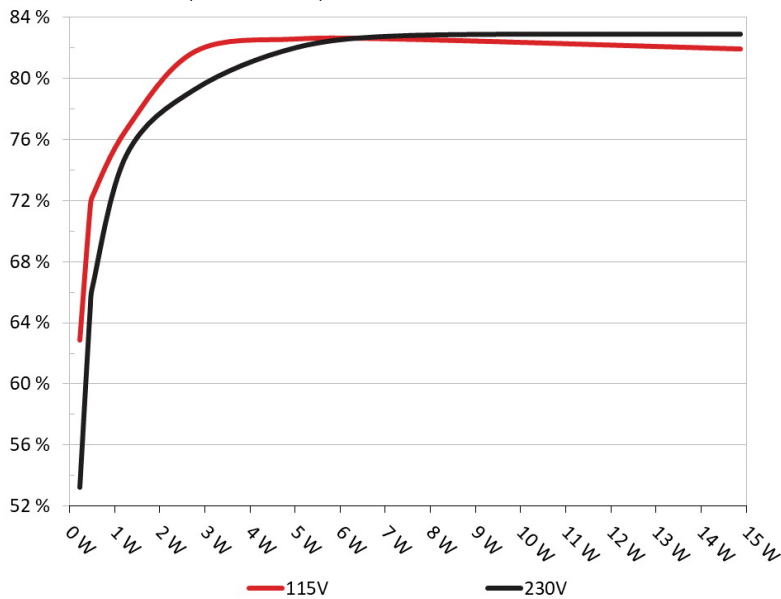


INFO

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

5VSB Efficiency: Cooler Master V750i Gold
Ambient: 34°C - 36°C (93.2°F - 96.8°F)



INFO

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input

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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

| Test # | 5VSB | DC/AC (Watts) | Efficiency | PF/AC Volts |
|--------|--------|---------------|------------|-------------|
| 1 | 0.045A | 0.228W | 63.362% | 0.051 |
| | 5.075V | 0.36W | | 115.16V |
| 2 | 0.09A | 0.457W | 72.039% | 0.088 |
| | 5.072V | 0.634W | | 115.16V |
| 3 | 0.55A | 2.776W | 82.259% | 0.333 |
| | 5.045V | 3.375W | | 115.16V |
| 4 | 1A | 5.027W | 83.087% | 0.43 |
| | 5.025V | 6.05W | | 115.16V |
| 5 | 1.5A | 7.516W | 83.066% | 0.481 |
| | 5.01V | 9.048W | | 115.16V |
| 6 | 3A | 14.877W | 82.431% | 0.533 |
| | 4.958V | 18.049W | | 115.16V |

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)

| Test # | 5VSB | DC/AC (Watts) | Efficiency | PF/AC Volts |
|--------|--------|---------------|------------|-------------|
| 1 | 0.045A | 0.228W | 53.716% | 0.018 |
| | 5.074V | 0.425W | | 230.4V |
| 2 | 0.09A | 0.457W | 65.395% | 0.03 |
| | 5.072V | 0.699W | | 230.39V |
| 3 | 0.55A | 2.776W | 79.775% | 0.139 |
| | 5.046V | 3.48W | | 230.39V |
| 4 | 1A | 5.026W | 82.516% | 0.219 |
| | 5.025V | 6.091W | | 230.38V |
| 5 | 1.5A | 7.514W | 83.304% | 0.285 |
| | 5.008V | 9.02W | | 230.37V |
| 6 | 3A | 14.877W | 83.394% | 0.389 |
| | 4.958V | 17.84W | | 230.37V |

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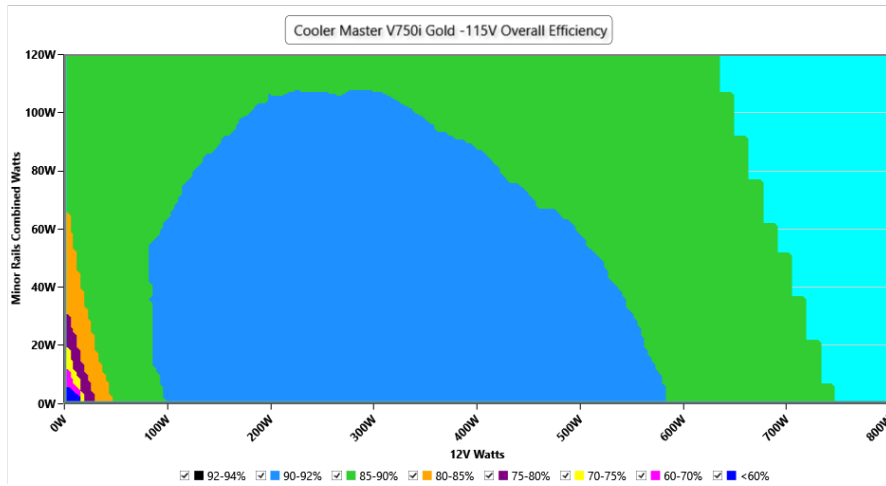
115V

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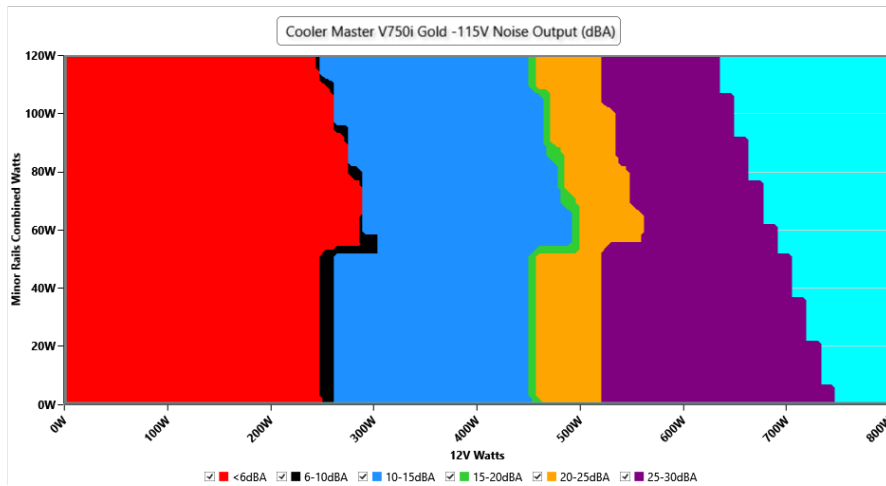
EFFICIENCY GRAPH 115V



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

NOISE GRAPH 115V



INFO

The PSU's noise in its entire operational range and under 30-32 °C (+2 °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

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VAMPIRE POWER -115V

Detailed Results

| | Average | Min | Limit Min | Max | Limit Max | Result |
|--------------------|----------|----------|-----------|----------|-----------|--------|
| Mains Voltage RMS: | 115.12 V | 115.11 V | 113.85 V | 115.15 V | 116.15 V | PASS |
| Mains Frequency: | 60.00 Hz | 59.95 Hz | 59.40 Hz | 60.01 Hz | 60.60 Hz | PASS |
| Mains Voltage CF: | 1.415 | 1.415 | 1.340 | 1.416 | 1.490 | PASS |
| Mains Voltage THD: | 0.13 % | 0.10 % | N/A | 0.15 % | 2.00 % | PASS |
| Real Power: | 0.047 W | 0.011 W | N/A | 0.070 W | N/A | N/A |
| Apparent Power: | 6.968 W | 6.962 W | N/A | 6.986 W | N/A | N/A |
| Power Factor: | 0.009 | N/A | N/A | N/A | N/A | N/A |

INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

| Test | 12V | 5V | 3.3V | 5VSB | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | Temps (In/Out) | PF/AC Volts |
|------|---------|--------|--------|--------|------------------|------------|--------------------|----------------------|-------------------|----------------|
| 10% | 4.430A | 1.982A | 2.002A | 0.996A | 74.995 | 88.141% | 0 | <6.0 | 43.85°C | 0.954 |
| | 12.052V | 5.047V | 3.296V | 5.022V | 85.086 | | | | 39.69°C | 115.15V |
| 20% | 9.884A | 2.975A | 3.005A | 1.198A | 149.946 | 90.891% | 0 | <6.0 | 44.77°C | 0.985 |
| | 12.045V | 5.042V | 3.294V | 5.008V | 164.975 | | | | 40.19°C | 115.13V |
| 50% | 26.938A | 4.971A | 5.017A | 1.812A | 374.495 | 91.316% | 441 | 10.1 | 42.37°C | 0.996 |
| | 12.027V | 5.03V | 3.289V | 4.969V | 410.104 | | | | 48.31°C | 115.07V |
| 100% | 55.031A | 8.984A | 9.051A | 3.064A | 749.864 | 87.608% | 1469 | 41.3 | 45.17°C | 0.998 |
| | 11.996V | 5.009V | 3.28V | 4.896V | 855.928 | | | | 55.25°C | 114.98V |

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230V

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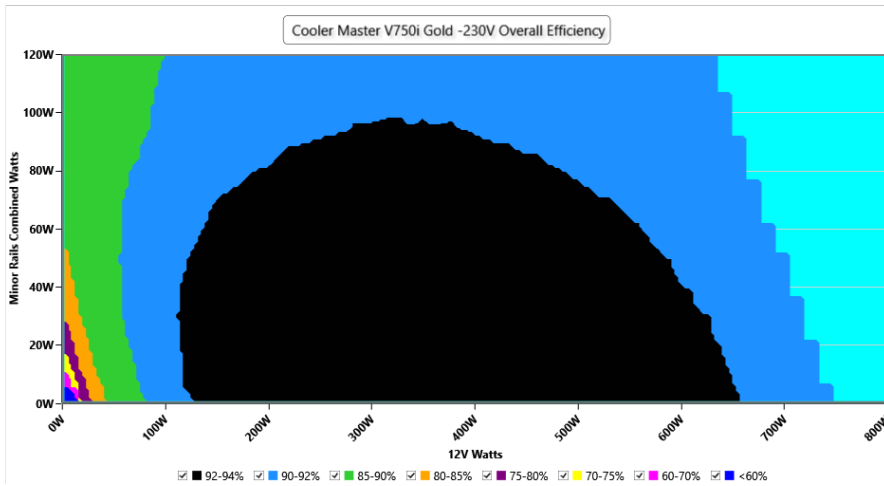
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EFFICIENCY GRAPH 230V

INFO

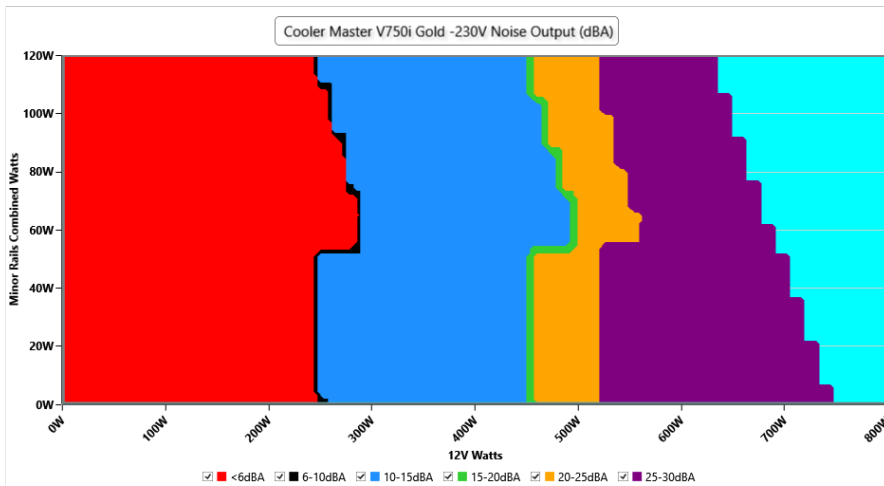
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



NOISE GRAPH 230V

INFO

The PSU's noise in its entire operational range and under 30-32 °C (+2 °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



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VAMPIRE POWER -230V

Detailed Results

| | Average | Min | Limit Min | Max | Limit Max | Result |
|--------------------|----------|----------|-----------|----------|-----------|--------|
| Mains Voltage RMS: | 230.25 V | 230.22 V | 227.70 V | 230.31 V | 232.30 V | PASS |
| Mains Frequency: | 50.00 Hz | 50.00 Hz | 49.50 Hz | 50.01 Hz | 50.50 Hz | PASS |
| Mains Voltage CF: | 1.415 | 1.415 | 1.340 | 1.415 | 1.490 | PASS |
| Mains Voltage THD: | 0.14 % | 0.13 % | N/A | 0.16 % | 2.00 % | PASS |
| Real Power: | 0.129 W | 0.117 W | N/A | 0.141 W | N/A | N/A |
| Apparent Power: | 23.260 W | 23.238 W | N/A | 23.277 W | N/A | N/A |
| Power Factor: | 0.005 | N/A | N/A | N/A | N/A | N/A |

INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

| Test | 12V | 5V | 3.3V | 5VSB | DC/AC (Watts) | Efficiency | Fan Speed (RPM) | PSU Noise (dB[A]) | Temps (In/Out) | PF/AC Volts |
|------|---------|--------|--------|--------|------------------|------------|--------------------|----------------------|-------------------|----------------|
| 10% | 4.430A | 1.982A | 2.002A | 0.996A | 74.988 | 89.211% | 0 | <6.0 | 43.86°C | 0.792 |
| | 12.053V | 5.045V | 3.296V | 5.022V | 84.058 | | | | 39.57°C | 230.33V |
| 20% | 9.880A | 2.976A | 3.005A | 1.198A | 149.919 | 92.187% | 0 | <6.0 | 45.27°C | 0.901 |
| | 12.046V | 5.041V | 3.294V | 5.008V | 162.626 | | | | 40.45°C | 230.33V |
| 50% | 26.927A | 4.971A | 5.016A | 1.811A | 374.375 | 93.044% | 440 | 10.1 | 42.65°C | 0.972 |
| | 12.028V | 5.029V | 3.289V | 4.97V | 402.366 | | | | 49.11°C | 230.31V |
| 100% | 55.022A | 8.983A | 9.051A | 3.064A | 749.743 | 90.851% | 997 | 30.3 | 45.28°C | 0.99 |
| | 11.996V | 5.009V | 3.28V | 4.897V | 825.246 | | | | 55.37°C | 230.26V |



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Top side

| | | | | | |
|-------------|---|-------|-------|------|-------|
| 750W | | | | | |
| AC INPUT | 100-240V~, 10-6A, 50-60Hz | | | | |
| 交流輸入/交流輸入 | 200-240V~, 6A, 50-60Hz, For Korea Use Only 200-240V~, 6A, 50-60Hz, 适用于中国地区使用 | | | | |
| DC OUTPUT | +5V | +3.3V | +12V | -12V | +5VSB |
| 直流輸出/直流輸出 | 20A | 20A | 62.5A | 0.3A | 3A |
| TOTAL POWER | 120W | 750W | 3.6W | 15W | |
| 總功率/總功率 | 750W | | | | |

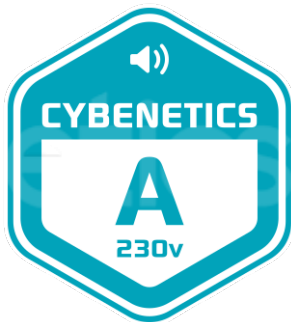
Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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