Duex Pulse 1000W

Lab ID DX10002497

Certification ID 252497

Test Result Report ID: 24PS2497A

Certificate Issue Date: Jul 12, 2024

115V

Scheme: ETA-EMI PSU



115V



Scheme: LAMBDA PSU



Aristeidis Bitziopoulos, Certification Body General Manager

General Information

Test Equipment

Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 Chroma 63640-80-80 x10 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	Duex
Model	Pulse 1000W
OEM/ODM	Kinpower
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	16
□□□□ (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 Rifle Bearing Fan (EFS-12E12H)
□□□□□	✓
Cybenetics Testing Information	
Lab ID	DX10002497
Date of receipt	Jul 1, 2024
Testing Date	Jul 4, 2024
Report Issued Date	Jul 12, 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	18AWG	□
6+2pin PCIe□□ (600mm+150mm)	2	4	18AWG	□
12+4 pin PCIe (600mm) (600W)	1	1	16-24AWG	□
SATA□□ (450mm+150mm+150mm)	2	6	18AWG	□
4-pin Molex (450mm+150mm+150mm)	1	3	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	83.5	3	0.3
	□	103		1000	15	3.6
□□□□□ (W)		1000				

Parts Description

General Data	
Manufacturer (OEM)	Kinpower
PCB Type	Double-Sided
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	1x NTC Thermistor M72 5D-20 (5 Ohm @25°C) & Relay
Bridge Rectifier(s)	2x HY Electronic GBU2506L (600V, 25A @ 150°C)
APFC MOSFETs	2x Way-On WMJ90N65SR (650V, 99A @ 25°C, Rds(on): 0.033Ohm)
APFC Boost Diode	1x Global Power Technology G3S06510A (650V, 10A @ 153.5°C)
Bulk Cap(s)	2x Nippon Chemi-Con (400V, 560uF each or 1120uF combined, 2000h @ 105°C,KMR)

Main Switchers	2x FuXin Semiconductor FXN65S55TF
APFC Controller	Champion CM6500UNX
Resonant Controller	Champion CM6901X
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	8x Alkaidsemi Technologies AKG60N023G (60V, 84A @ 100°C, Rds(on): 2.3mOhm)
5V & 3.3V	DC-DC Converters: 4x Excelliance EMB06N03R (20V, 45A @ 100°C, Rds(on): 6mOhm PWM Controller(s): 2x Aplustek AT8853ZSPC
Filtering Capacitors	Electrolytic: 3x TK (105°C, SZ) Polymer: 33x Chengx (PC), 1x TK (SZ)
Supervisor IC	IN1S4291-SCG
Fan Model	DWPH EFS-12E12H (120mm, 12V, 0.50A, Rifle Bearing Fan)
5VSB Circuit	
Low Side Rectifier	Dongke DK5V45R15S (45V, Rds(on): 15mOhm)
Standby PWM Controller	FuXin Semiconductor FXI8252S

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	✓

Performance Summary 115V

Accredited	
□□□□ (>1450 load combinations)	87.838%
Average Noise Output (>1450 Load Combinations)	34.20dBA

PF□□□ (>1450 Load Combinations)	0.981
Efficiency With 10W (≤500W) or 2% (>500W) Load	58.480%
□□□□□□	0.0371W
Non-Accredited	
12V Ripple (Full Load)	36.12mV
5V Ripple (Full Load)	23.14mV
3.3V Ripple (Full Load)	26.50mV
5VSB Ripple (Full Load)	32.73mV
12V Load Regulation	1.23%
5V Load Regulation	0.62%
3.3V Load Regulation	1.21%
5VSB Load Regulation	5.02%
Inrush Current	35.380A

□□□□ & PG□□

Hold-Up Time (ms)	32.2
AC Loss to PWR_OK Hold Up Time (ms)	29.2
PWR_OK Inactive to DC Loss Delay (ms)	3

□□□□

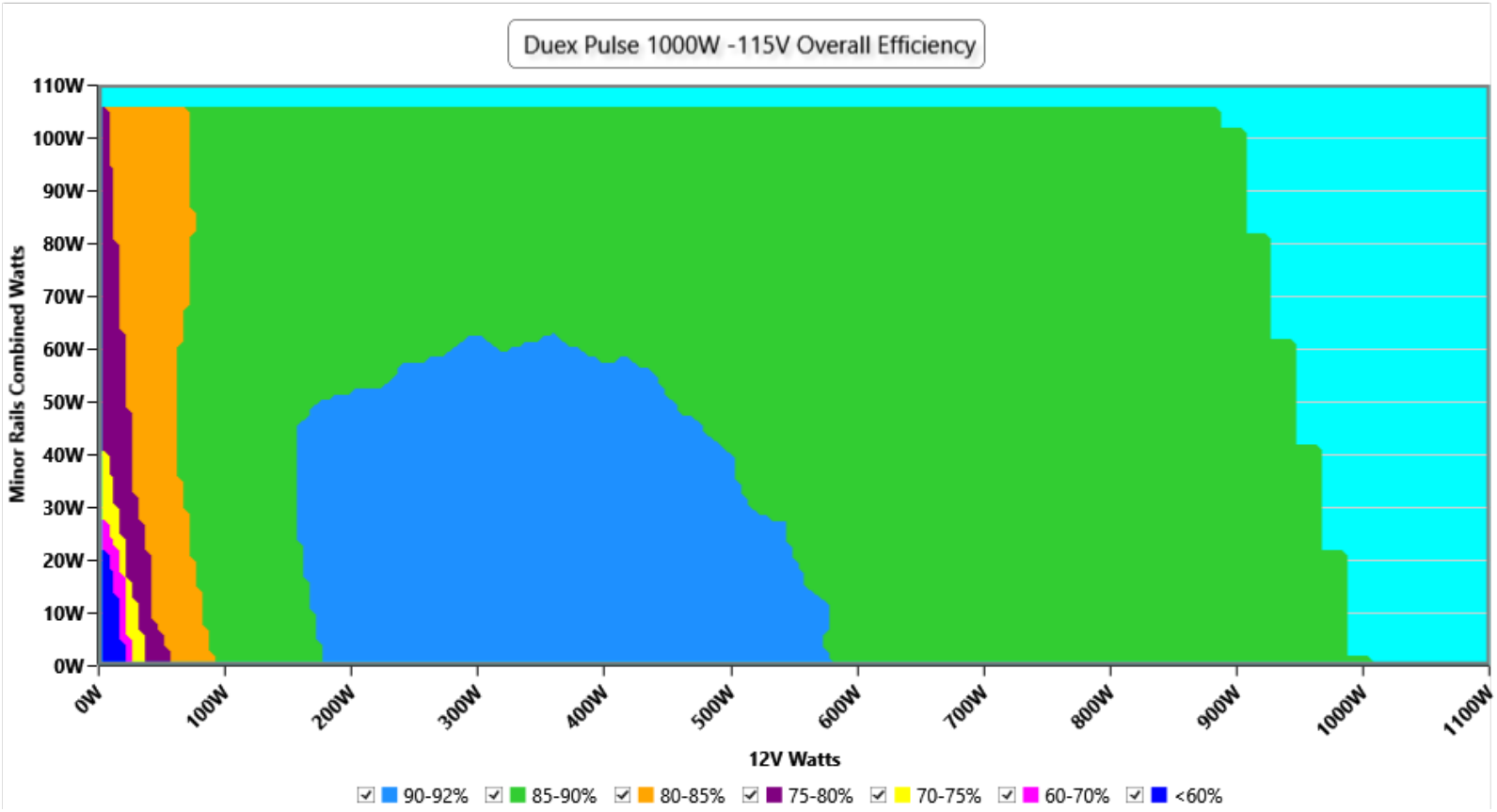
Tables 115V

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	59.99 Hz	59.40 Hz	60.01 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:	0.037 W	-0.000 W	N/A	0.068 W	N/A	N/A
Apparent Power:	2.368 W	2.298 W	N/A	2.453 W	N/A	N/A

Power Factor:	0.025	N/A	N/A	N/A	N/A	N/A

□□□□□□

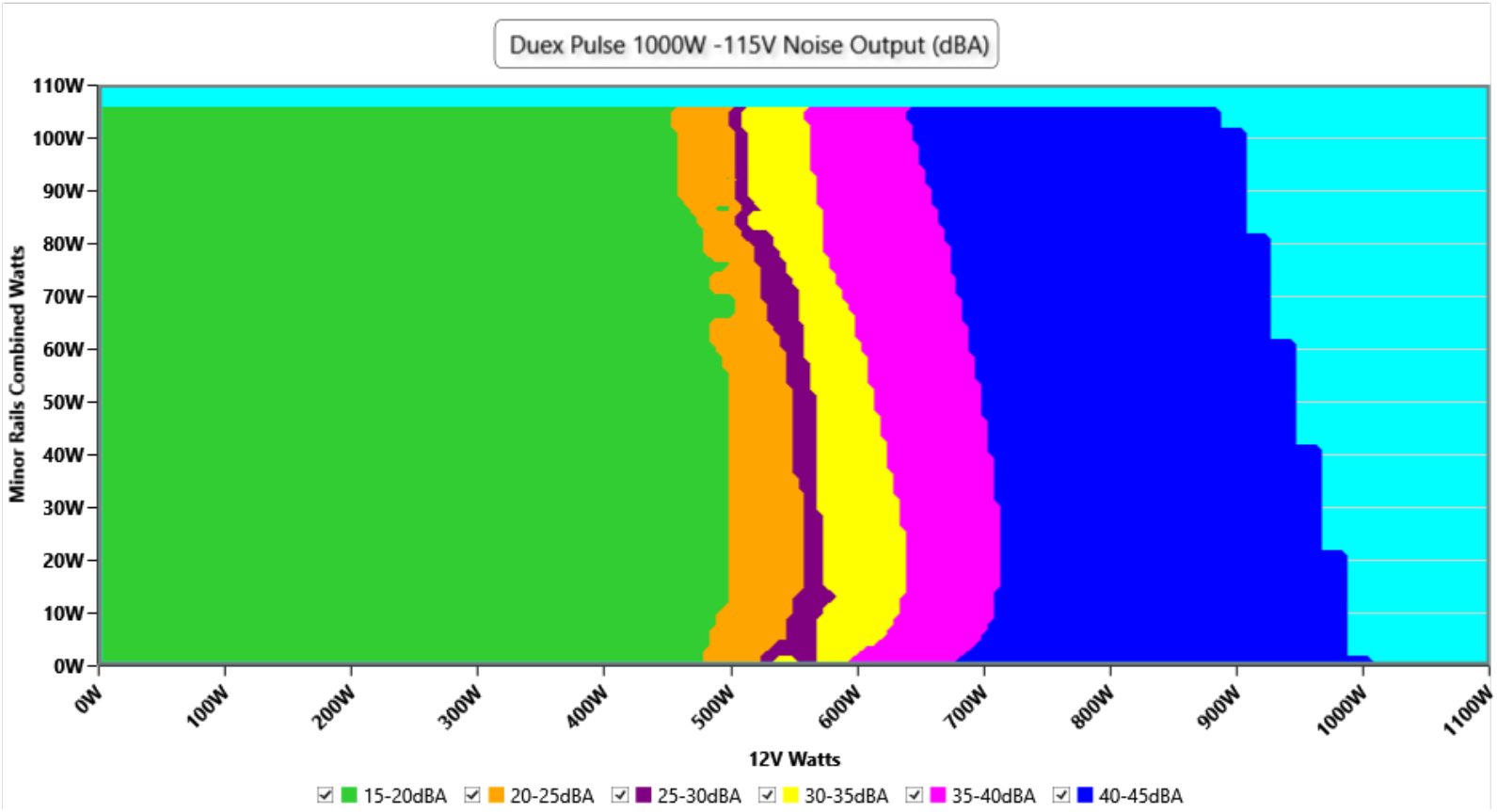
115V



□□

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

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

Noise under high ambient temperature (indicative)

115V

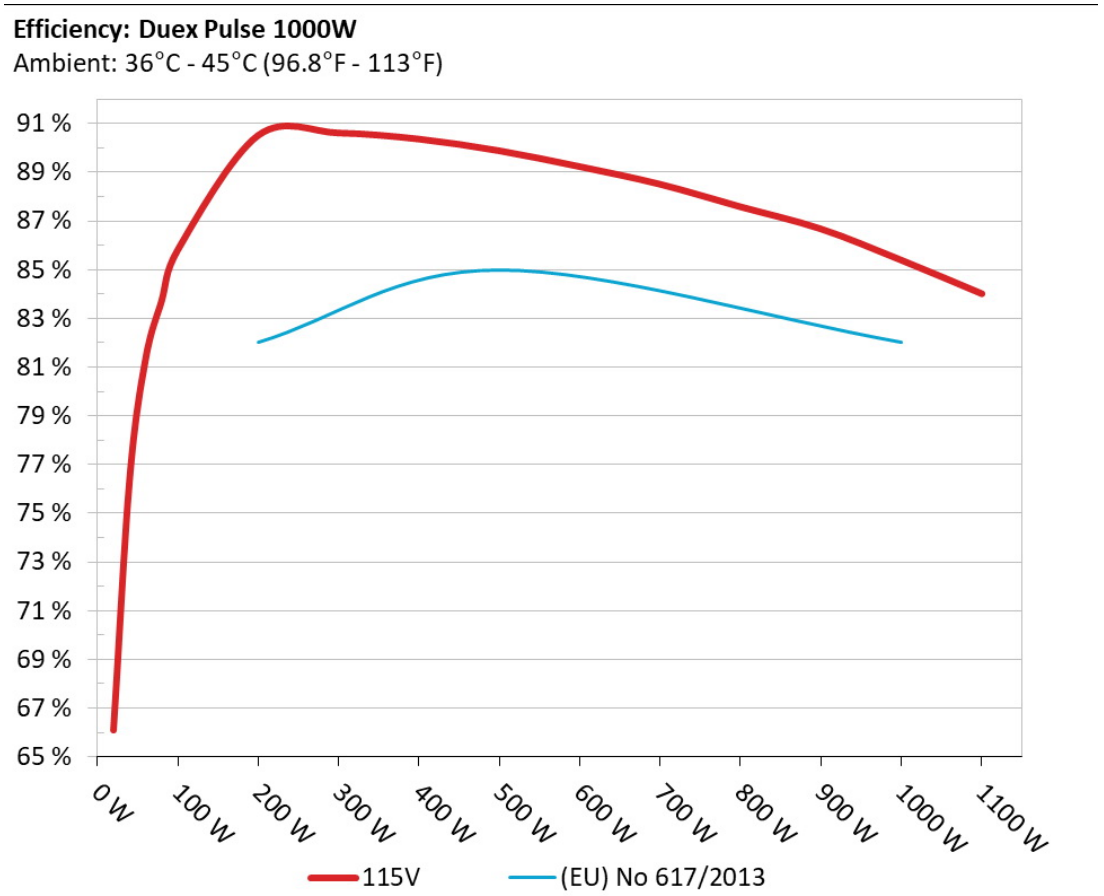
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	851 RPM · 19.5 dB(A) · 30.1 °C	870 RPM · 20.4 dB(A) · 40.3 °C	**+0.9 dB(A)**
20%	857 RPM · 19.6 dB(A) · 30.9 °C	872 RPM · 20.5 dB(A) · 40.5 °C	**+0.9 dB(A)**
50%	869 RPM · 20.4 dB(A) · 30.1 °C	1677 RPM · 40.4 dB(A) · 42.5 °C	**+20.0 dB(A)**
100%	1822 RPM · 43.9 dB(A) · 30.0 °C	1819 RPM · 43.9 dB(A) · 45.0 °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, with the fan stopped; with the fan stopped, the intake sensor can read higher than the chamber air.

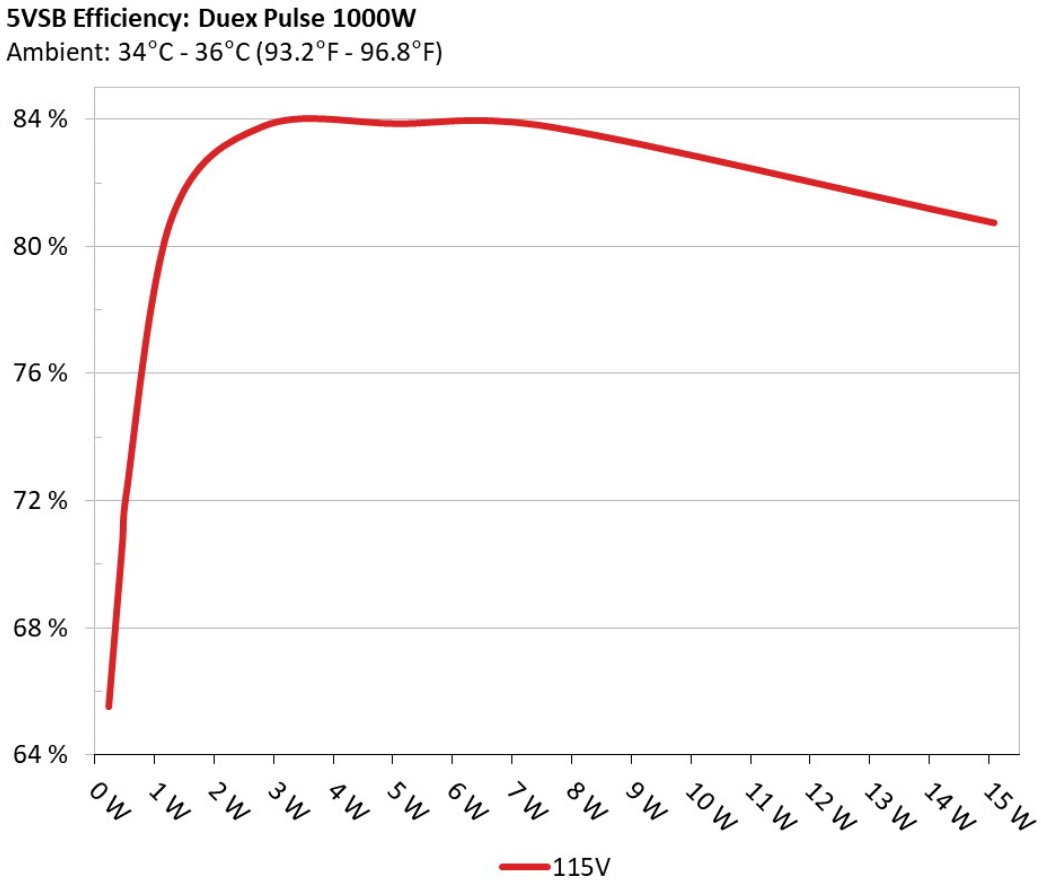
Informational. Not part of the ETA or LAMBDA rating.

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□□□□



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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**	0.232W	65.518%	0.121
	5.159V	0.354W		114.86V

2	**0.09A**	0.464W	70.756%	0.192
	5.157V	0.656W		114.86V
3	**0.55A**	2.826W	83.785%	0.361
	5.137V	3.373W		114.85V
4	**1A**	5.118W	83.866%	0.393
	5.118V	6.102W		114.85V
5	**1.5A**	7.645W	83.764%	0.417
	5.096V	9.127W		114.85V
6	**3A**	15.089W	80.746%	0.46
	5.03V	18.687W		114.84V

Protection Features

OCP (Cold @ 26.5°C)	12V: 100.00A (119.76%), 11.960V 5V: 25A (125.00%), 5.072V 3.3V: 25A (125.00%), 3.298V 5VSB: 4.7A (156.67%), 4.938V
OCP (Hot) @ 40.5°C)	12V: 98.00A (117.37%), 11.967V 5V: 25A (125.00%), 5.064V 3.3V: 25.2A (126.00%), 3.275V 5VSB: 4.7A (156.67%), 4.936V
OPP (Cold @ 26.7°C)	1105.38W (110.54%)
OPP (Hot @ 43.0°C)	1100.44W (110.04%)
OTP	✓ (120°C @ Heat Sink)
SCP	12V to Earth: ✓ 5V to Earth: ✓ 3.3V to Earth: ✓ 5VSB to Earth: ✓ -12V to Earth: ✓
PWR_OK	Proper Operation
NLO	✓
Fan Failure Protection	✗
SIP	Surge: MOV Inrush: NTC & Bypass Relay

Supplementary Tests (For Reference)

10-110%□□□□ 115V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	**6.467A**	**1.979A**	**1.98A**	**0.98A**	99.981	85.835%	870	20.4	40.28°C	0.952
	12.120V	5.051V	3.333V	5.102V	116.472				44.12°C	114.82V
20%	**13.958A**	**2.972A**	**2.974A**	**1.182A**	199.928	90.532%	872	20.5	40.54°C	0.978
	12.110V	5.047V	3.328V	5.078V	220.827				45.61°C	114.77V
30%	**21.823A**	**3.469A**	**3.474A**	**1.385A**	299.966	90.633%	875	20.5	41.42°C	0.773
	12.094V	5.044V	3.325V	5.055V	100.715				48.02°C	45.99V
40%	**29.662A**	**3.967A**	**3.975A**	**1.59A**	399.464	90.381%	1176	29.8	41.88°C	0.989
	12.078V	5.041V	3.321V	5.03V	441.911				50.03°C	114.71V
50%	**37.203A**	**4.962A**	**4.975A**	**1.798A**	499.185	89.903%	1677	40.4	42.48°C	0.993
	12.060V	5.038V	3.317V	5.005V	555.246				52.43°C	114.68V
60%	**44.846A**	**5.958A**	**5.977A**	**2A**	599.683	89.248%	1810	43.5	42.71°C	0.995
	12.040V	5.036V	3.313V	4.979V	671.936				51.86°C	114.64V
70%	**52.421A**	**6.956A**	**6.985A**	**2.221A**	699.452	88.528%	1820	43.9	43.45°C	0.996
	12.025V	5.032V	3.307V	4.953V	790.08				55.73°C	114.61V
80%	**60.100A**	**7.957A**	**7.997A**	**2.333A**	799.487	87.6%	1820	43.9	43.71°C	0.997
	12.007V	5.026V	3.301V	4.929V	912.671				58.71°C	114.57V
90%	**68.129A**	**8.46A**	**8.49A**	**2.445A**	899.278	86.697%	1818	43.9	44.19°C	0.997
	11.990V	5.023V	3.297V	4.908V	1037.273				62.01°C	114.53V
100%	**75.981A**	**8.964A**	**9.019A**	**3.087A**	999.318	85.412%	1819	43.9	45.02°C	0.997
	11.972V	5.02V	3.293V	4.858V	1170.003				66.85°C	114.49V
110%	**83.775A**	**9.964A**	**10.123A**	**3.098A**	1099.831	84.029%	1827	44.1	44°C	0.997
	11.955V	5.017V	3.289V	4.842V	1308.922				64.51°C	114.43V
CL1	**0.114A**	**12.329A**	**12.398A**	**0A**	104.281	79.396%	878	20.5	42.65°C	0.959
	12.113V	5.029V	3.298V	5.13V	131.345				54.25°C	114.8V
CL2	**0.114A**	**19.927A**	**0A**	**0A**	101.328	78.424%	878	20.5	41.41°C	0.958
	12.119V	5.016V	3.312V	5.137V	129.205				49.55°C	114.8V

CL3	**0.114A**	**0A**	**20.174A**	**0A**	67.38	69.15%	865	20.2	41°C	0.946
	12.110V	5.02V	3.271V	5.136V	97.428				47.44°C	114.83V
CL4	**83.370A**	**0A**	**0A**	**0.003A**	999.919	86.371%	1837	44.1	45.19°C	0.997
	11.994V	5.03V	3.315V	5.027V	1157.717				61.72°C	114.49V

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	**1.224A**	**0.494A**	**0.494A**	**0.194A**	19.991	66.106%	861	20.1	36.02°C	0.87
	12.128V	5.057V	3.342V	5.151V	30.239				37.08°C	114.84V
40W	**2.695A**	**0.692A**	**0.692A**	**0.292A**	39.994	76.405%	864	20.2	37.4°C	0.909
	12.128V	5.056V	3.34V	5.144V	52.346				39.46°C	114.84V
60W	**4.167A**	**0.89A**	**0.889A**	**0.389A**	59.994	81.37%	865	20.2	38.29°C	0.936
	12.126V	5.054V	3.338V	5.137V	73.731				41.22°C	114.83V
80W	**5.634A**	**1.088A**	**1.088A**	**0.487A**	79.93	83.747%	866	20.3	39.1°C	0.946
	12.124V	5.053V	3.337V	5.129V	95.448				42.51°C	114.82V

The results above are not used in the certification process

□□□□ 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	35.34mV	16.99mV	17.13mV	11.29mV	Pass
20% Load	19.74mV	15.81mV	15.34mV	11.90mV	Pass
30% Load	20.71mV	17.71mV	15.65mV	15.24mV	Pass
40% Load	18.52mV	14.63mV	13.34mV	13.75mV	Pass
50% Load	22.91mV	18.73mV	16.78mV	18.06mV	Pass
60% Load	21.63mV	21.81mV	15.85mV	17.60mV	Pass
70% Load	25.32mV	22.63mV	20.21mV	20.99mV	Pass
80% Load	26.80mV	21.40mV	23.24mV	22.63mV	Pass
90% Load	28.03mV	21.50mV	23.24mV	24.53mV	Pass
100% Load	36.12mV	23.14mV	26.50mV	32.73mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
110% Load	35.13mV	26.34mV	27.55mV	35.72mV	Pass
Crossload1	28.13mV	26.23mV	29.34mV	13.34mV	Pass
Crossload2	20.82mV	23.56mV	21.70mV	11.44mV	Pass
Crossload3	39.02mV	26.84mV	20.62mV	9.23mV	Pass
Crossload4	33.13mV	18.12mV	14.88mV	24.57mV	Pass

The results above are not used in the certification process

Duex Pulse 1000W

Top side

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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