Chieftronic Power Up 850W

G201000017602

Lab ID CT85001763

Certification ID 251763

Test Result Report ID: 20PS1763A

Certificate Issue Date: Dec 7, 2020

Scheme: ETA-EMI PSU

115V



230V



115V



230V



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	Chieftronic
Model	Power Up 850W
OEM/ODM	
Serial Number	G201000017602
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	12
□□□□ (Hz)	47-63

□□□□ (W)	850
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Double Ball-Bearing Fan (D12BH-12)
□□□□□	✗
Cybenetics Testing Information	
Lab ID	CT85001763
Date of receipt	Nov 27, 2020
Testing Date	Dec 3, 2020
Report Issued Date	Dec 7, 2020
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□				
□□	□□□	□□□□□	Gauge	In Cable Capacitors
ATX □□ 20+4 pin (650mm)	1	1	18AWG	□
8 pin EPS 12V □□ (650mm) / 4+4 pin EPS 12V □□ (150mm)	1	1 / 1	18AWG	□
6+2pin PCIe□□ (500mm+150mm)	3	6	18AWG	□
SATA□□ (500mm+150mm+150mm)	3	9	18AWG	□
SATA□□ (480mm) / 4-pin Molex (+120mm+120mm) / FDD (+120mm)	1	1 / 2 / 1	18-20AWG	□
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

		3.3V	5V	12V	5VSB	-12V
		20	20	70.5	2.5	0.3
		110		846	12.5	3.6
(W)		850				

Parts Description

General Data	-
Manufacturer (OEM)	CWT
Platform	GPX
PCB Type	Double Sided
Primary Side	-
Transient FilterDis	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x Power Integrations CAP200DG (Discharge IC)
Inrush Protection	NTC Thermistor SCK-055 (5 Ohm) & Relay
Bridge Rectifier(s)	1x Lite-ON Semiconductor GBU1506 (600V, 15A @ 150°C)
APFC MOSFETs	2x Great Power GP28S506 (500V, 28A @ 150°C, Rds(on): 0.125Ohm)
APFC Boost Diode	1x On Semiconductor FFSP0665A (650V, 6A @ 153°C)
Bulk Cap(s)	1x Elite (400V, 560uF, 2,000h @ 85°C, GM)
Main Switchers	4x Silan Microelectronics SVF20N50F (500V, 12.6A @ 100°C, Rds(on): 0.27Ohm)
APFC Controller	Champion CM6500UNX & CM03X Green PFC Controller
Resonant Controller	Champion CM6901X
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	6x Infineon IRFH7004PBF (40V, 164A @ 100°C, Rds(on): 1.4mOhm)
5V & 3.3V	DC-DC Converters: 4x Sync Power SPN3006 (30V, 57A @ 100°C, Rds(on): 5.5mOhm) PWM Controllers: ANPEC APW7159C
Filtering Capacitors	Electrolytic: 10x Chengx (2-4,000h @ 105°C,GR) Polymer: 17x APAQ, 3x Elite, 3x Capxon
Supervisor IC	Sitronix ST9S429-PG14 (OCP, OVP, UVP, SCP, PG)
Fan Model	Yate Loon D12BH-12 (120mm, 12V, 0.60A, Double Ball-Bearing Fan)

5VSB Circuit	-
Standby PWM Controller	Power Integrations TNY287PG

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)	88.491%
Average Noise Output (>1450 Load Combinations)	20.67dBA
PF□□□ (>1450 Load Combinations)	0.977
Efficiency With 10W (≤500W) or 2% (>500W) Load	65.640%
□□□□□□	0.0467W
Non-Accredited	
12V Ripple (Full Load)	22.52mV
5V Ripple (Full Load)	18.99mV
3.3V Ripple (Full Load)	12.81mV
5VSB Ripple (Full Load)	12.57mV
12V Load Regulation	0.08%
5V Load Regulation	0.38%
3.3V Load Regulation	0.79%
5VSB Load Regulation	3.01%
Inrush Current	28.590A

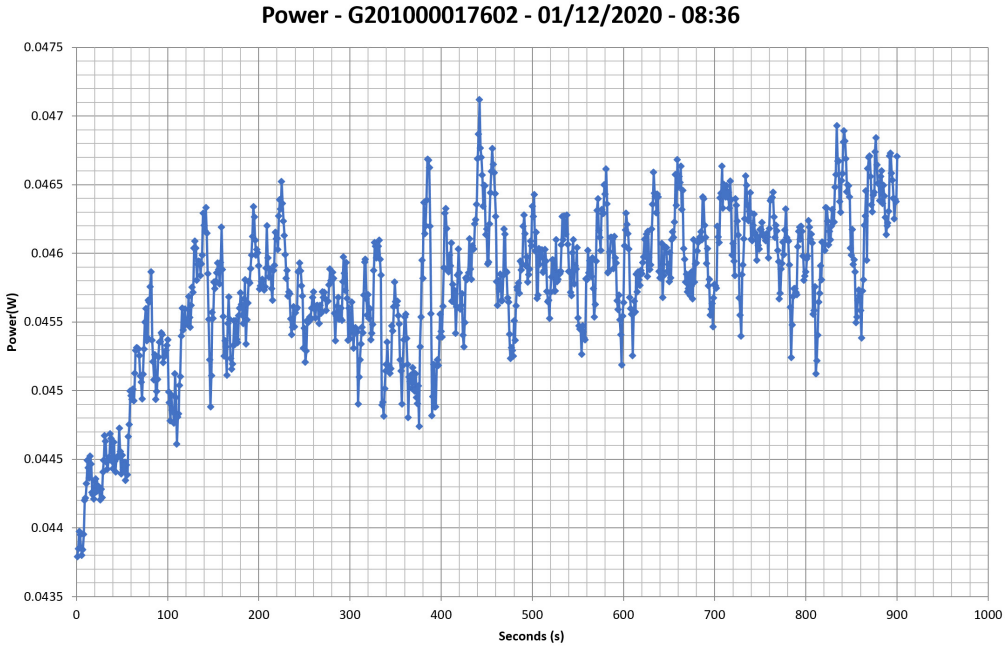
230V		
Accredited		
□□□□ (>1450 load combinations)		90.915%
Average Noise Output (>1450 Load Combinations)		20.36dBA
PF□□□ (>1450 Load Combinations)		0.930
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.0860W
Non-Accredited		
12V Ripple (Full Load)		21.49mV
5V Ripple (Full Load)		19.31mV
3.3V Ripple (Full Load)		13.61mV
5VSB Ripple (Full Load)		12.07mV
12V Load Regulation		0.10%
5V Load Regulation		0.38%
3.3V Load Regulation		0.79%
5VSB Load Regulation		2.90%
Inrush Current		52.290A
□□□□ & PG□□		15.10ms
AC Loss to PWR_OK Hold Up Time		12.00ms
PWR_OK Inactive to DC Loss Delay		3.10ms
PSU Timings: T1 (20% / 100%)	83.0ms	82.0ms
PSU Timings: T3 (20% / 100%)	332.0ms	332.0ms
OPP (24.60°C / 36.59°C)	124.19%	124.18%

□□□□ & PG□□

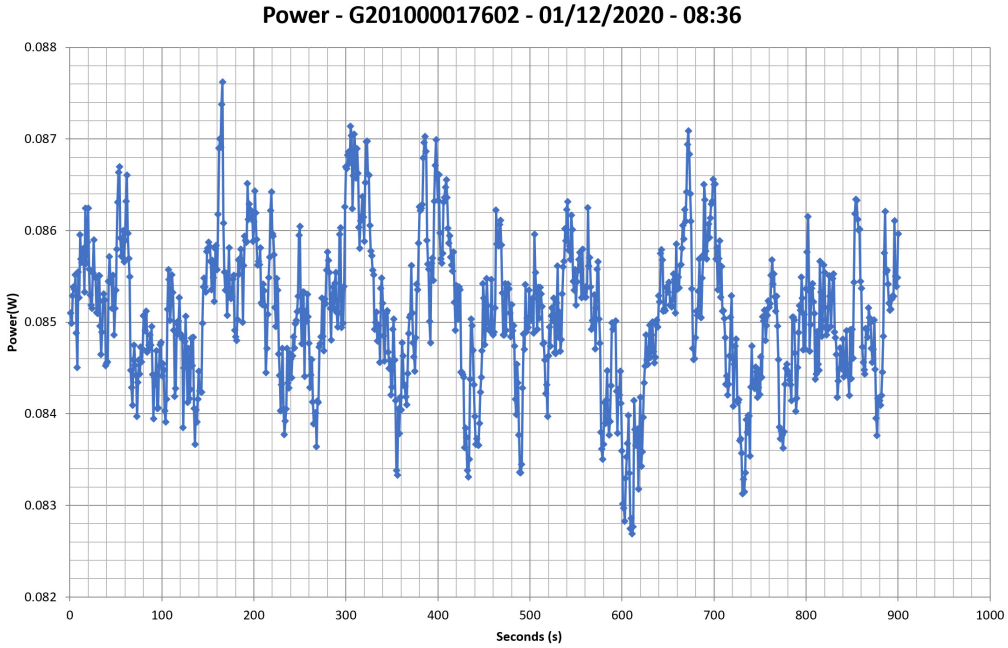
Hold-Up Time (ms)	15.1
AC Loss to PWR_OK Hold Up Time (ms)	12
PWR_OK Inactive to DC Loss Delay (ms)	3.1

Graphs

115V



230V



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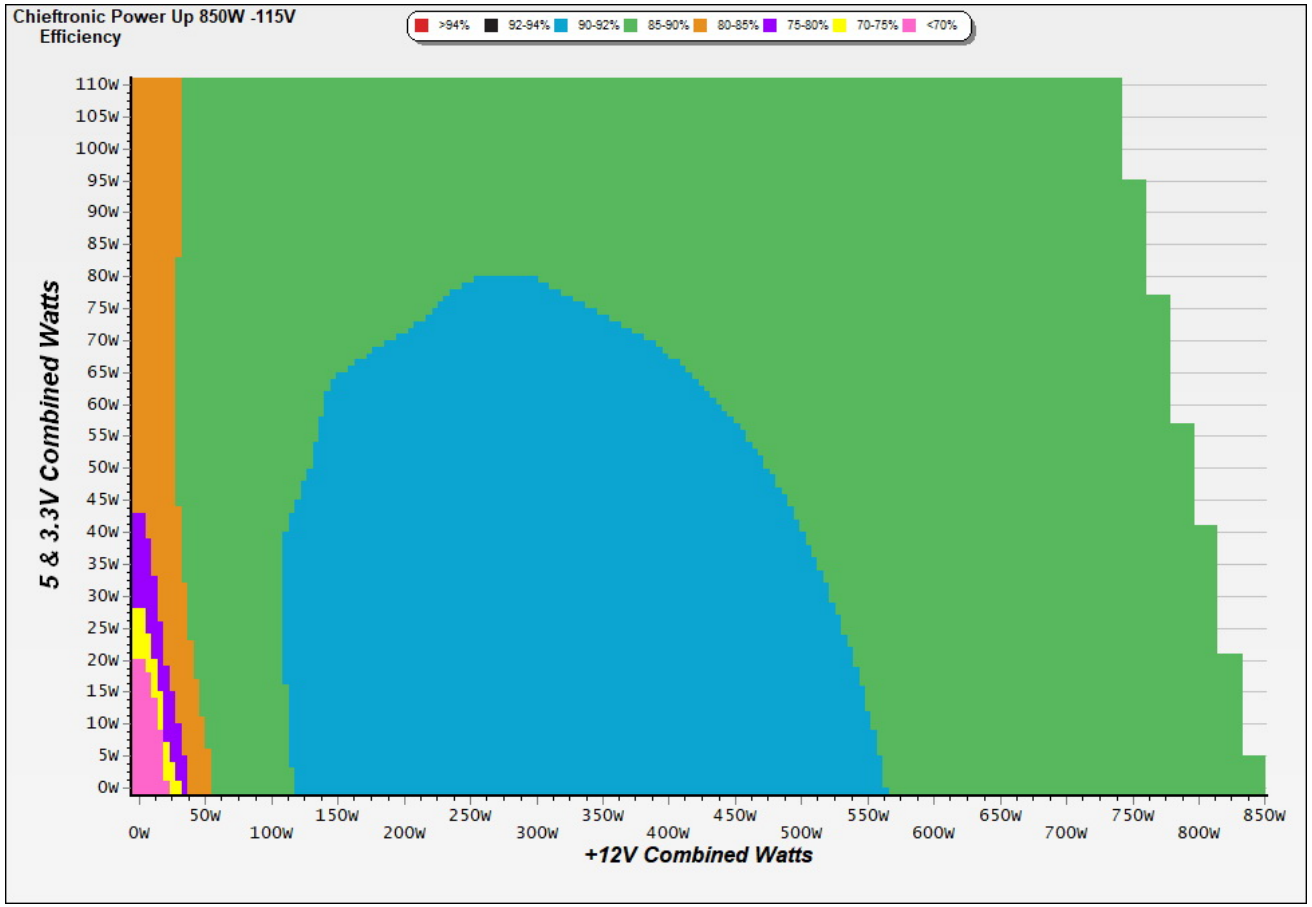
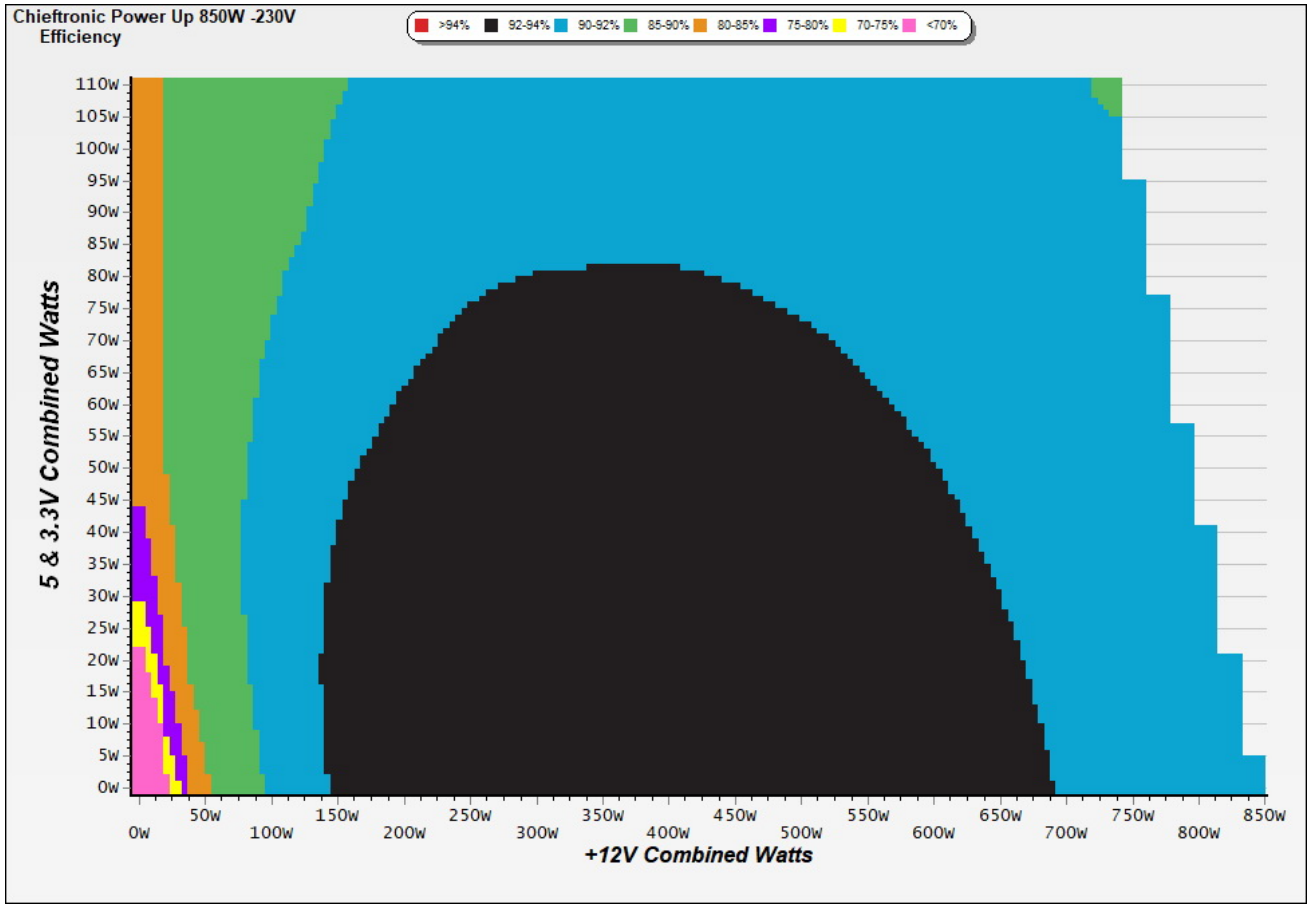
115V



□□

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



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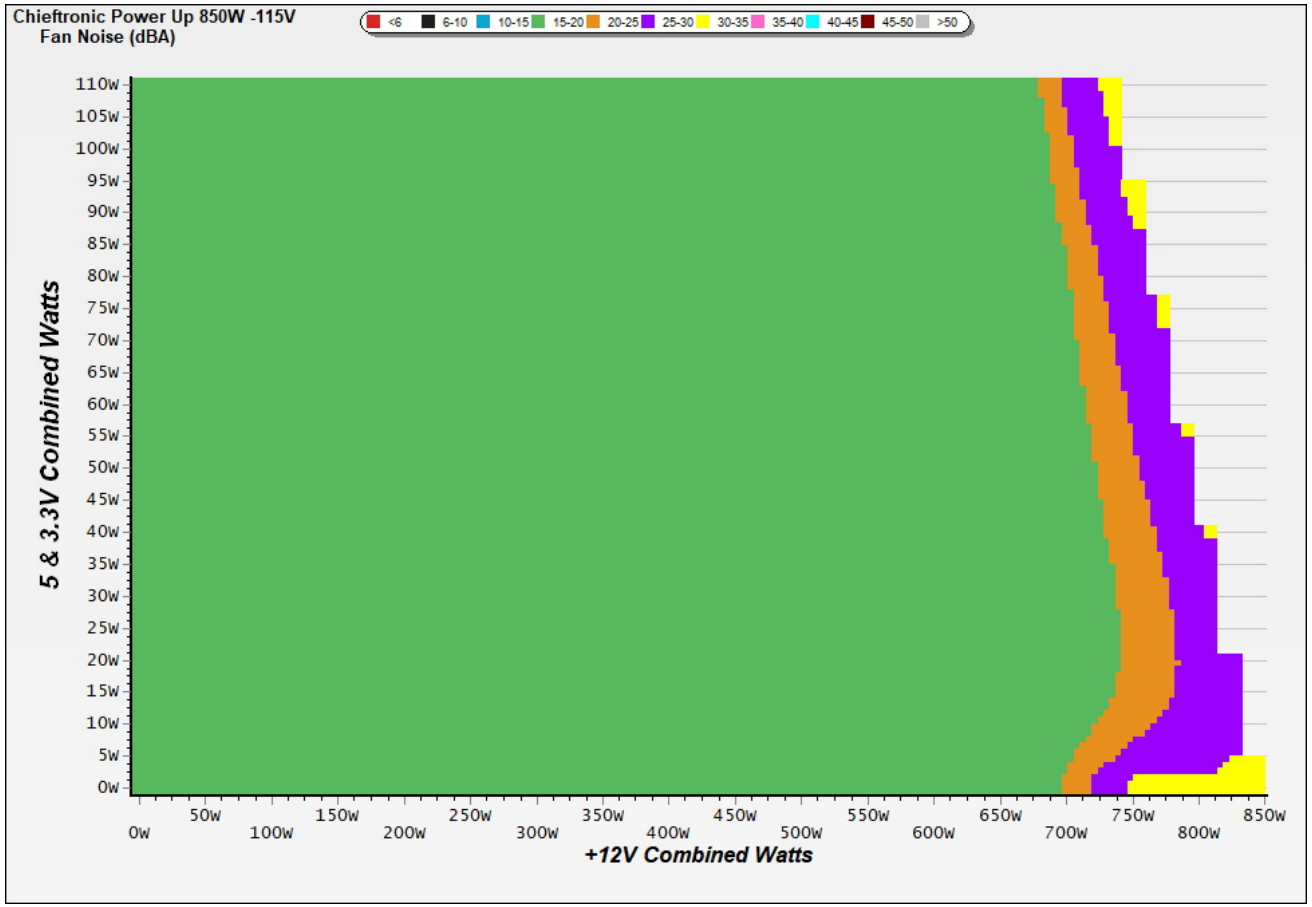
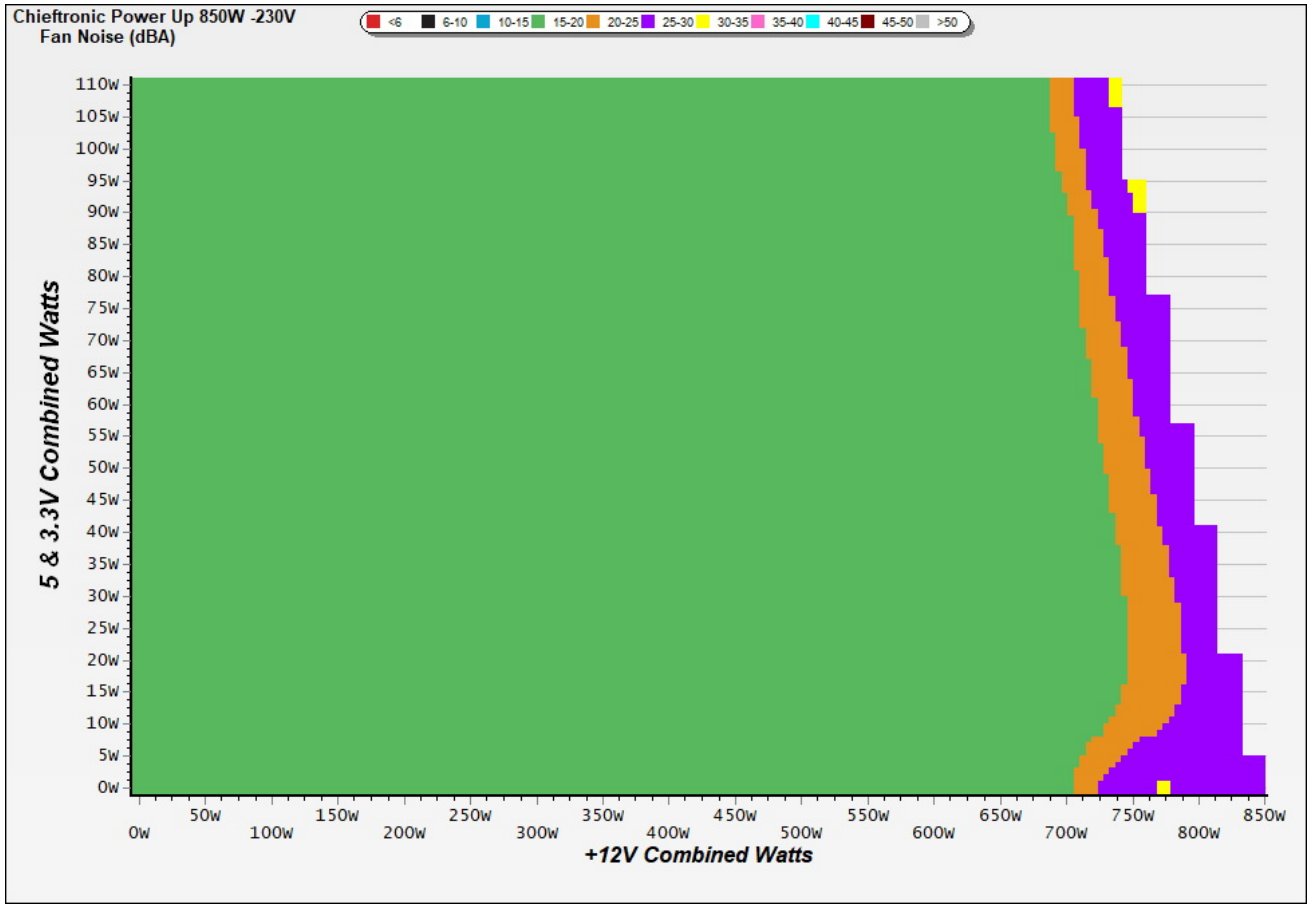
115V



□□

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 fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	697 RPM · 18.3 dB(A) · 40.2 °C	697 RPM · 18.3 dB(A) · 40.2 °C	**+0.0 dB(A)**
20%	697 RPM · 18.3 dB(A) · 40.9 °C	697 RPM · 18.3 dB(A) · 40.9 °C	**+0.0 dB(A)**
50%	696 RPM · 18.3 dB(A) · 43.0 °C	696 RPM · 18.3 dB(A) · 43.0 °C	**+0.0 dB(A)**
100%	1438 RPM · 39.4 dB(A) · 45.7 °C	1438 RPM · 39.4 dB(A) · 45.7 °C	**+0.0 dB(A)**

230V

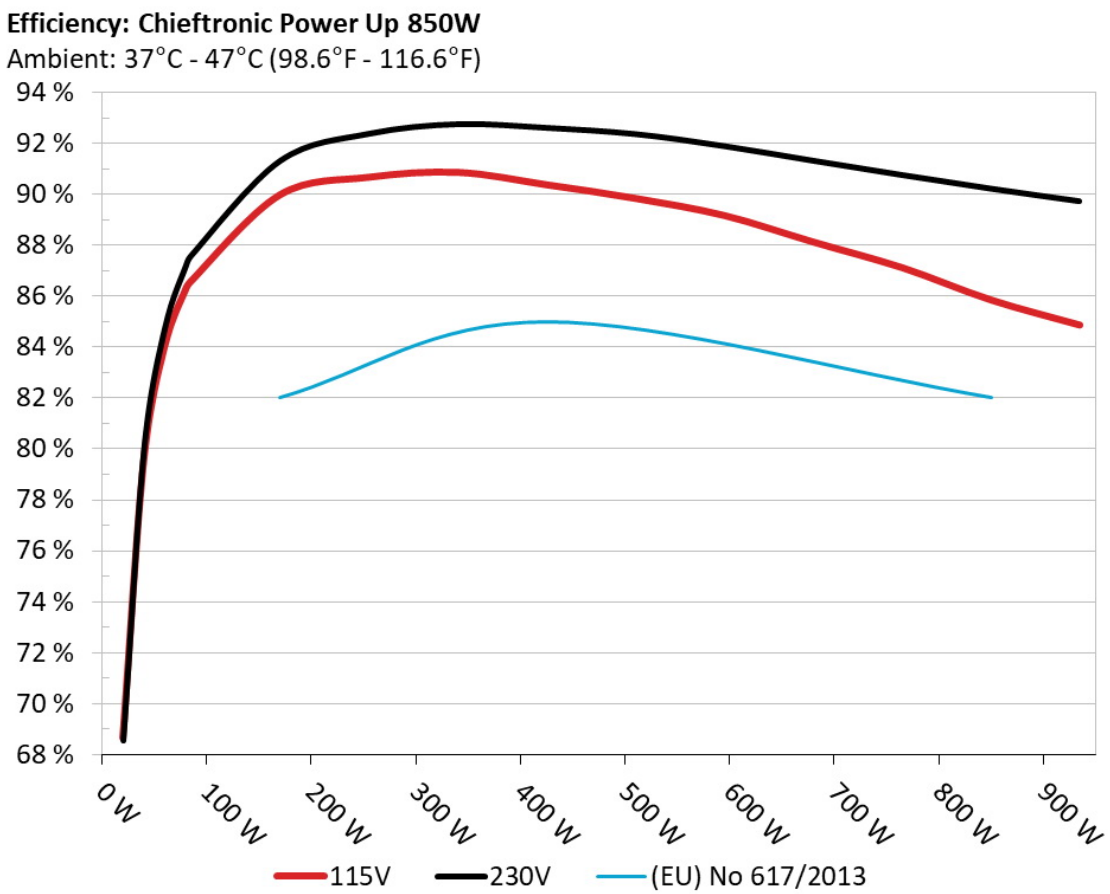
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	696 RPM · 18.3 dB(A) · 40.2 °C	696 RPM · 18.3 dB(A) · 40.2 °C	**+0.0 dB(A)**
20%	696 RPM · 18.3 dB(A) · 41.3 °C	696 RPM · 18.3 dB(A) · 41.3 °C	**+0.0 dB(A)**
50%	695 RPM · 18.3 dB(A) · 42.6 °C	695 RPM · 18.3 dB(A) · 42.6 °C	**+0.0 dB(A)**
100%	1292 RPM · 36.9 dB(A) · 45.6 °C	1292 RPM · 36.9 dB(A) · 45.6 °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.

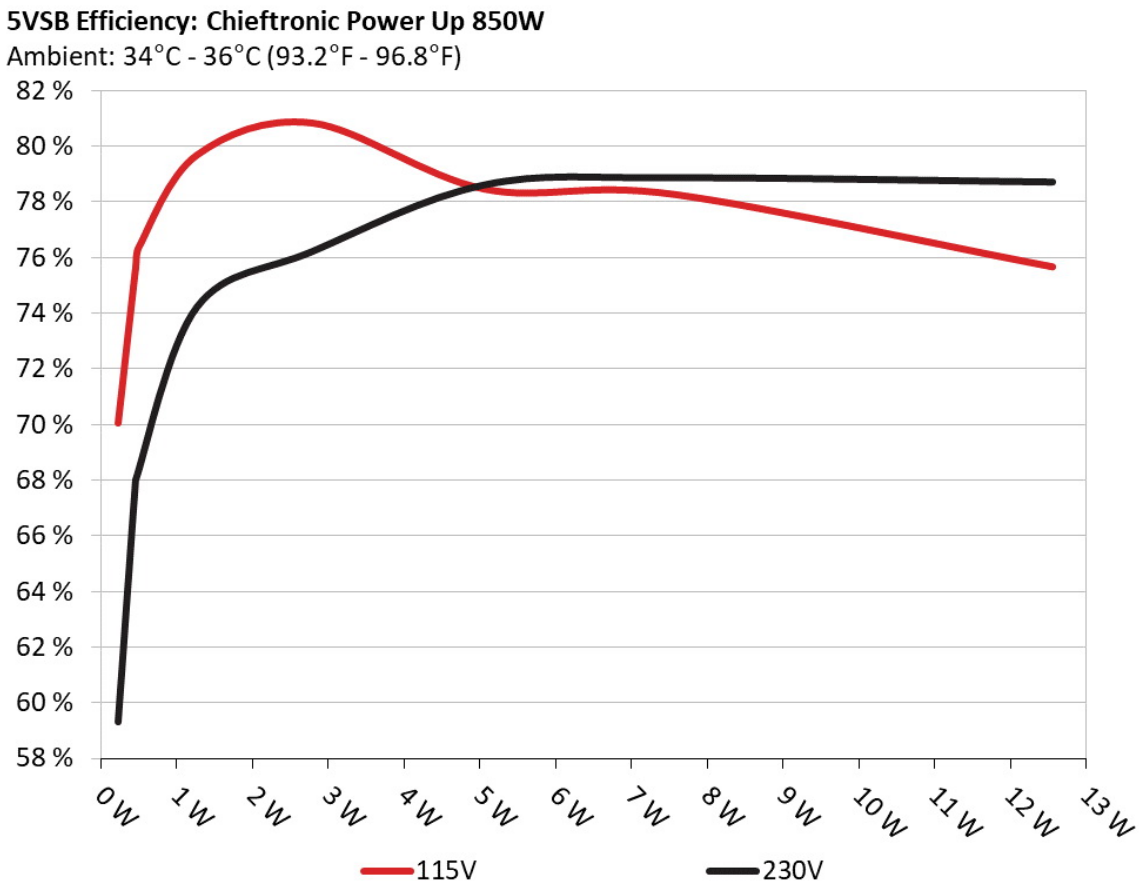
Informational. Not part of the ETA or LAMBDA rating.

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□□□□



□□

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	0.229	70.031%	0.031
	5.086V	0.327		115.16V
2	0.090A	0.458	75.578%	0.057
	5.086V	0.606		115.16V
3	0.550A	2.790	80.823%	0.252
	5.074V	3.452		115.16V
4	1.000A	5.063	78.447%	0.351
	5.063V	6.454		115.16V
5	1.500A	7.574	78.252%	0.405
	5.050V	9.679		115.16V
6	2.499A	12.559	75.652%	0.458
	5.026V	16.601		115.16V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.229	59.326%	0.011
	5.086V	0.386		230.30V
2	0.090A	0.458	67.953%	0.019
	5.086V	0.674		230.31V
3	0.550A	2.791	76.215%	0.099
	5.076V	3.662		230.31V
4	1.000A	5.064	78.609%	0.162
	5.065V	6.442		230.30V
5	1.500A	7.577	78.861%	0.220
	5.051V	9.608		230.30V
6	2.499A	12.563	78.711%	0.299
	5.027V	15.961		230.30V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	5.262A	1.994A	2.014A	0.990A	84.952	86.597%	697	18.3	40.18°C	0.967
	12.040V	5.017V	3.275V	5.049V	98.100				43.72°C	115.16V
2	11.556A	2.992A	3.025A	1.192A	170.013	89.993%	697	18.3	40.88°C	0.979
	12.038V	5.014V	3.272V	5.036V	188.917				45.21°C	115.16V
3	18.189A	3.492A	3.533A	1.394A	255.011	90.687%	697	18.3	41.21°C	0.981
	12.038V	5.012V	3.269V	5.022V	281.198				46.09°C	115.16V
4	24.826A	3.992A	4.043A	1.597A	340.013	90.879%	696	18.3	41.80°C	0.980
	12.036V	5.010V	3.267V	5.009V	374.138				47.37°C	115.16V
5	31.101A	4.994A	5.055A	1.803A	424.813	90.390%	696	18.3	42.98°C	0.976
	12.035V	5.008V	3.264V	4.993V	469.980				49.22°C	115.16V
6	37.351A	5.993A	6.073A	2.000A	509.298	89.860%	696	18.3	43.24°C	0.977
	12.035V	5.008V	3.262V	4.978V	566.768				50.04°C	115.15V
7	43.674A	6.996A	7.088A	2.216A	594.601	89.186%	697	18.3	43.36°C	0.979
	12.032V	5.005V	3.259V	4.964V	666.697				51.11°C	115.15V
8	49.993A	7.996A	8.107A	2.426A	679.976	88.141%	692	18.2	43.71°C	0.981
	12.033V	5.004V	3.256V	4.947V	771.460				52.41°C	115.15V
9	56.714A	8.497A	8.607A	2.431A	764.882	87.133%	868	23.5	44.28°C	0.984
	12.032V	5.002V	3.253V	4.936V	877.834				53.63°C	115.14V
10	63.378A	9.003A	9.135A	2.538A	849.642	85.868%	1438	39.4	45.65°C	0.983
	12.030V	4.999V	3.251V	4.925V	989.477				55.84°C	115.14V
11	70.436A	9.007A	9.140A	2.542A	934.406	84.884%	1858	45.3	46.67°C	0.983
	12.028V	4.997V	3.249V	4.917V	1100.800				57.56°C	115.14V
CL1	0.117A	12.999A	12.997A	0.000A	109.074	82.218%	694	18.3	42.76°C	0.972
	12.047V	5.018V	3.265V	5.051V	132.664				48.92°C	115.18V

CL2	70.496A	0.998A	1.000A	1.000A	861.572	86.323%	1400	37.3	45.67°C	0.985
	12.034V	5.004V	3.257V	4.972V	998.074				55.50°C	115.15V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	5.262A	1.991A	2.015A	0.990A	84.952	87.618%	696	18.3	40.23°C	0.810
	12.042V	5.018V	3.275V	5.048V	96.957				43.59°C	230.26V
2	11.554A	2.991A	3.025A	1.192A	170.009	91.337%	696	18.3	41.27°C	0.903
	12.040V	5.015V	3.272V	5.035V	186.134				45.40°C	230.27V
3	18.189A	3.492A	3.531A	1.394A	255.007	92.402%	695	18.3	41.78°C	0.931
	12.038V	5.013V	3.269V	5.021V	275.975				46.32°C	230.27V
4	24.824A	3.992A	4.041A	1.598A	340.013	92.779%	696	18.3	42.33°C	0.944
	12.037V	5.011V	3.267V	5.007V	366.476				47.21°C	230.29V
5	31.098A	4.992A	5.056A	1.803A	424.805	92.633%	695	18.3	42.57°C	0.952
	12.036V	5.009V	3.264V	4.993V	458.589				48.37°C	230.29V
6	37.354A	5.993A	6.070A	2.000A	509.287	92.390%	695	18.3	42.80°C	0.955
	12.034V	5.008V	3.262V	4.978V	551.236				49.53°C	230.30V
7	43.672A	6.995A	7.088A	2.215A	594.620	91.916%	695	18.3	43.12°C	0.957
	12.033V	5.006V	3.259V	4.965V	646.920				50.61°C	230.29V
8	49.990A	7.996A	8.105A	2.425A	679.933	91.342%	692	18.2	43.91°C	0.960
	12.033V	5.004V	3.256V	4.949V	744.379				52.24°C	230.29V
9	56.710A	8.495A	8.603A	2.429A	764.827	90.781%	898	24.7	44.73°C	0.961
	12.032V	5.003V	3.254V	4.939V	842.495				53.90°C	230.29V
10	63.372A	9.000A	9.134A	2.536A	849.557	90.247%	1292	36.9	45.58°C	0.962
	12.030V	5.000V	3.251V	4.928V	941.366				55.57°C	230.28V
11	70.436A	9.005A	9.139A	2.539A	934.321	89.753%	1786	43.4	46.80°C	0.963
	12.027V	4.997V	3.249V	4.922V	1040.986				57.50°C	230.29V
CL1	0.116A	12.999A	12.996A	0.000A	109.070	83.493%	694	18.3	42.72°C	0.862
	12.045V	5.019V	3.265V	5.053V	130.634				48.27°C	230.30V

CL2	70.493A	1.000A	1.000A	1.000A	861.477	90.950%	1298	36.8	45.05°C	0.961
	12.033V	5.004V	3.258V	4.974V	947.194				55.45°C	230.29V

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	1.233A	0.498A	0.503A	0.197A	19.979	68.685%	693	18.3	0.833
	12.029V	5.019V	3.278V	5.078V	29.088				115.16V
2	2.467A	0.996A	1.006A	0.394A	39.969	79.589%	694	18.3	0.918
	12.030V	5.018V	3.277V	5.070V	50.219				115.16V
3	3.702A	1.494A	1.511A	0.593A	60.001	84.069%	696	18.3	0.946
	12.035V	5.017V	3.276V	5.063V	71.371				115.16V
4	4.930A	1.993A	2.014A	0.791A	79.952	86.281%	697	18.3	0.967
	12.040V	5.017V	3.275V	5.056V	92.665				115.16V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.232A	0.499A	0.503A	0.197A	19.979	68.564%	698	18.6	0.467
	12.033V	5.021V	3.279V	5.076V	29.139				230.25V
2	2.466A	0.996A	1.007A	0.394A	39.968	80.058%	697	18.3	0.631
	12.032V	5.020V	3.277V	5.069V	49.924				230.26V
3	3.702A	1.494A	1.509A	0.593A	60.000	84.808%	697	18.3	0.735
	12.036V	5.019V	3.276V	5.062V	70.748				230.26V
4	4.930A	1.991A	2.015A	0.791A	79.952	87.222%	696	18.3	0.799
	12.041V	5.018V	3.276V	5.055V	91.665				230.27V

The results above are not used in the certification process

□□□□

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	16.60mV	8.60mV	7.50mV	6.20mV	Pass
20% Load	19.10mV	9.90mV	7.40mV	13.00mV	Pass
30% Load	20.50mV	16.10mV	7.40mV	7.20mV	Pass
40% Load	13.00mV	9.70mV	7.70mV	13.20mV	Pass
50% Load	11.80mV	10.40mV	8.20mV	9.60mV	Pass
60% Load	11.90mV	10.70mV	8.60mV	11.40mV	Pass
70% Load	11.90mV	12.40mV	9.30mV	12.00mV	Pass
80% Load	12.40mV	13.90mV	11.00mV	11.60mV	Pass
90% Load	13.40mV	18.00mV	11.60mV	13.80mV	Pass
100% Load	22.50mV	19.00mV	12.80mV	12.60mV	Pass
110% Load	23.60mV	20.40mV	13.10mV	13.00mV	Pass
Crossload1	24.40mV	16.80mV	17.60mV	5.60mV	Pass
Crossload2	20.60mV	17.60mV	10.60mV	13.70mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	17.10mV	8.80mV	7.30mV	6.50mV	Pass
20% Load	22.70mV	10.00mV	8.10mV	7.50mV	Pass
30% Load	24.40mV	16.90mV	8.90mV	13.60mV	Pass
40% Load	16.20mV	10.50mV	8.70mV	9.80mV	Pass
50% Load	15.40mV	11.70mV	9.00mV	9.80mV	Pass
60% Load	12.40mV	11.20mV	8.80mV	11.80mV	Pass
70% Load	17.40mV	13.20mV	10.00mV	12.00mV	Pass
80% Load	13.00mV	16.50mV	11.40mV	11.90mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	13.70mV	16.50mV	12.80mV	12.70mV	Pass
100% Load	21.50mV	19.30mV	13.60mV	12.10mV	Pass
110% Load	23.40mV	18.90mV	12.90mV	13.20mV	Pass
Crossload1	23.80mV	18.90mV	18.40mV	5.40mV	Pass
Crossload2	21.10mV	17.10mV	10.40mV	15.00mV	Pass

The results above are not used in the certification process

Chieftronic Power Up 850W

Top side

Power specifications label

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在任何情况下都应提供原始测试结果文档的网站链接

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