NZXT

NZXT NP-C850M

31195125400201

Lab ID NZ85001672

Certification ID 251672

Test Result Report ID: 20PS1672A

Certificate Issue Date: Jul 10, 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	NZXT
Model	NP-C850M
OEM/ODM	Seasonic
Serial Number	31195125400201
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	12-6
□□□□ (Hz)	50-60

□□□□ (W)	850
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
□□□□□	✓ (selectable)
Cybenetics Testing Information	
Lab ID	NZ85001672
Date of receipt	Jun 25, 2020
Testing Date	Jul 2, 2020
Report Issued Date	Jul 10, 2020
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□□				
□□	□□□□	□□□□□□	Gauge	In Cable Capacitors
ATX □□ 20+4 pin (610mm)	1	1	18-22AWG	□
4+4 pin EPS 12V □□ (650mm)	2	2	18AWG	□
6+2pin PCIe□□ (680mm+80mm)	3	6	18AWG	□
SATA□□ (500mm+100mm+100mm+100mm)	2	8	18AWG	□
4-pin Molex (500+100mm+100mm)	2	6	18AWG	□
AC Power Cord (1400mm) - C13 coupler	1	1	16AWG	-

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	20	20	70	3	0.3
	□	100		840	15	3.6
□□□□□ (W)		850				

Parts Description

General Data	-
Manufacturer (OEM)	Seasonic
PCB Type	Double Sided
Primary Side	-
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x Champion CM02 (Discharge IC)
Inrush Protection	NTC Thermistor (MF72-5D15M) & Relay
Bridge Rectifier(s)	2x GBU1508 (800V, 15A @ 100°C)
APFC MOSFETs	2x Infineon IPA60R180P7S (650V, 11A @ 100°C, Rds(on): 0.18Ohm)
APFC Boost Diode	1x STMicroelectronics STTH8S06 (600V, 8A @ 25°C)
Bulk Cap(s)	1x Hitachi (400V, 470uF, 2,000h @ 105°C, HU)
Main Switchers	4x Great Power GPT13N50D (500V, 13A, Rds(on): 0.49Ohm)
APFC Controller	Champion CM6500UNX
Resonant Controller	Champion CM6901T6
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	4x Nexperia PSMN2R6-40YS (40V, 100A @ 100°C, Rds(on): 5.3mOhm)
5V & 3.3V	DC-DC Converters: 6x Infineon BSC0906NS (30V, 40A @ 100°C, 4.5mΩ) PWM Controller: ANPEC APW7159
Filtering Capacitors	Electrolytic: 2x Nippon Chemi-Con (105°C, W), 6x Nippon Chemi-Con (1-5,000h @ 105°C, KZE), 3x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 3x Rubycon (3-6,000h @ 105°C, YXG) Polymer: 6x Chemi-Con, 5x FPCAP, 6x NIC
Supervisor IC	Weltrend WT7527V (OCP, OVP, UVP, SCP, PG)
Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, 2200 RPM, Fluid Dynamic Bearing)
5VSB Circuit	-
Rectifier	1x MCC MBR1045ULPS SBR (45V, 10A @ 90°C)

Standby PWM Controller	Excelliance MOS EM8569

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)	88.746%
Average Noise Output (>1450 Load Combinations)	30.48dBA
PF□□□ (>1450 Load Combinations)	0.978
Efficiency With 10W (≤500W) or 2% (>500W) Load	65.414%
□□□□□□	0.0443W
Non-Accredited	
12V Ripple (Full Load)	17.30mV
5V Ripple (Full Load)	18.45mV
3.3V Ripple (Full Load)	18.58mV
5VSB Ripple (Full Load)	13.36mV
12V Load Regulation	0.49%
5V Load Regulation	0.42%
3.3V Load Regulation	0.51%
5VSB Load Regulation	2.53%
Inrush Current	29.170A

230V

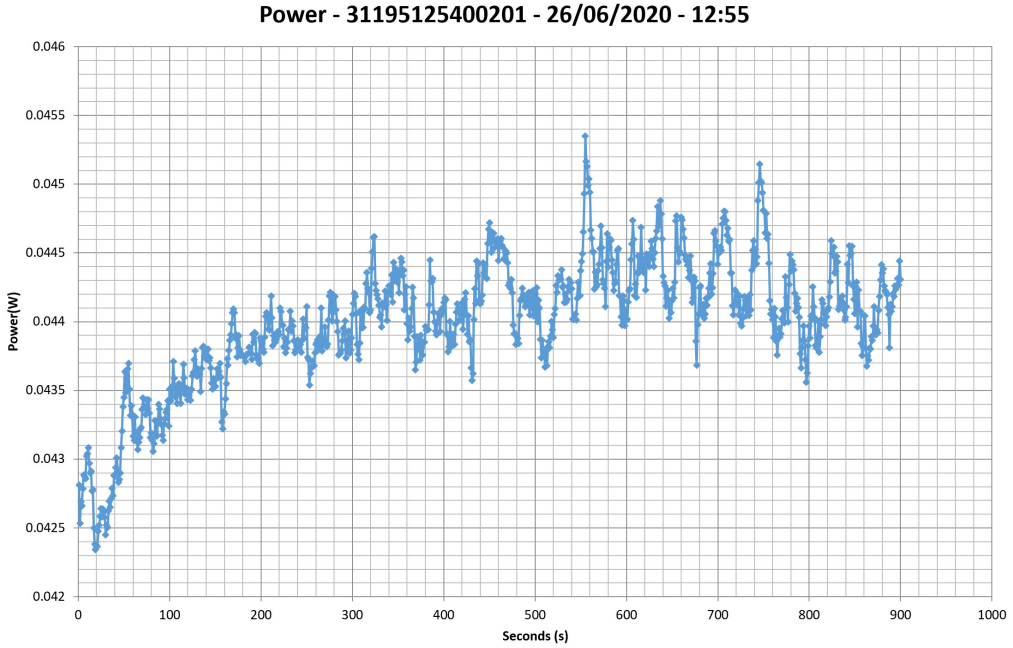
Accredited		
□□□□ (>1450 load combinations)		90.853%
Average Noise Output (>1450 Load Combinations)		30.27dBA
PF□□□ (>1450 Load Combinations)		0.943
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.0727W
Non-Accredited		
12V Ripple (Full Load)		17.72mV
5V Ripple (Full Load)		18.96mV
3.3V Ripple (Full Load)		18.57mV
5VSB Ripple (Full Load)		12.84mV
12V Load Regulation		0.63%
5V Load Regulation		0.34%
3.3V Load Regulation		0.54%
5VSB Load Regulation		2.49%
Inrush Current		73.840A
□□□□ & PG□□		20.90ms
AC Loss to PWR_OK Hold Up Time		16.80ms
PWR_OK Inactive to DC Loss Delay		4.10ms
PSU Timings: T1 (20% / 100%)	92.0ms	84.0ms
PSU Timings: T3 (20% / 100%)	325.0ms	324.0ms
OPP (0.00°C / 0.00°C)	127.07%	-

□□□□ & PG□□

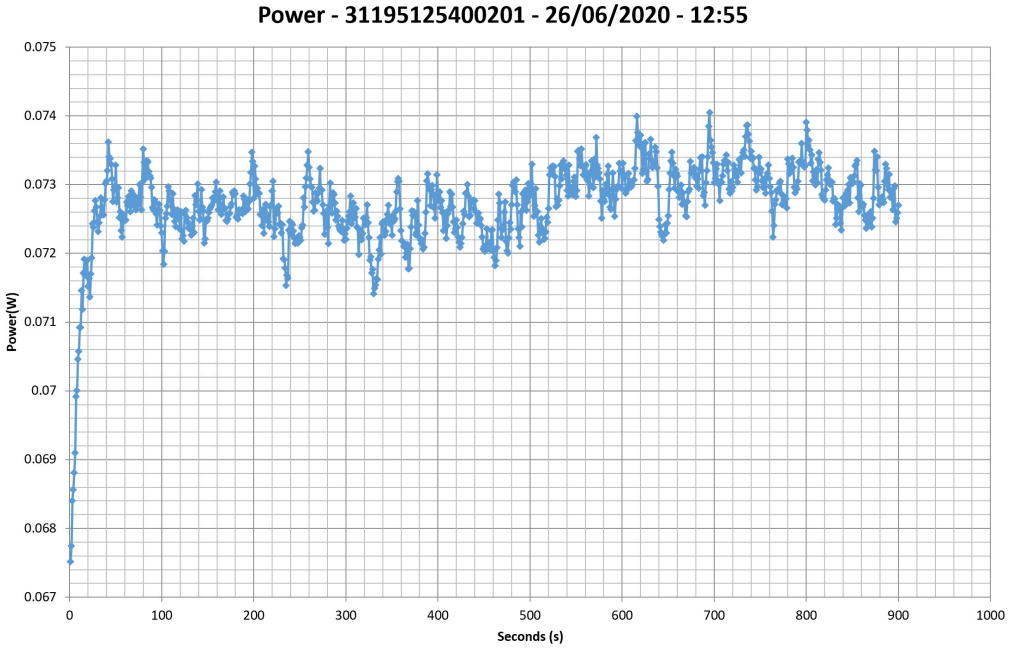
Hold-Up Time (ms)	20.9
AC Loss to PWR_OK Hold Up Time (ms)	16.8
PWR_OK Inactive to DC Loss Delay (ms)	4.1

Graphs

115V

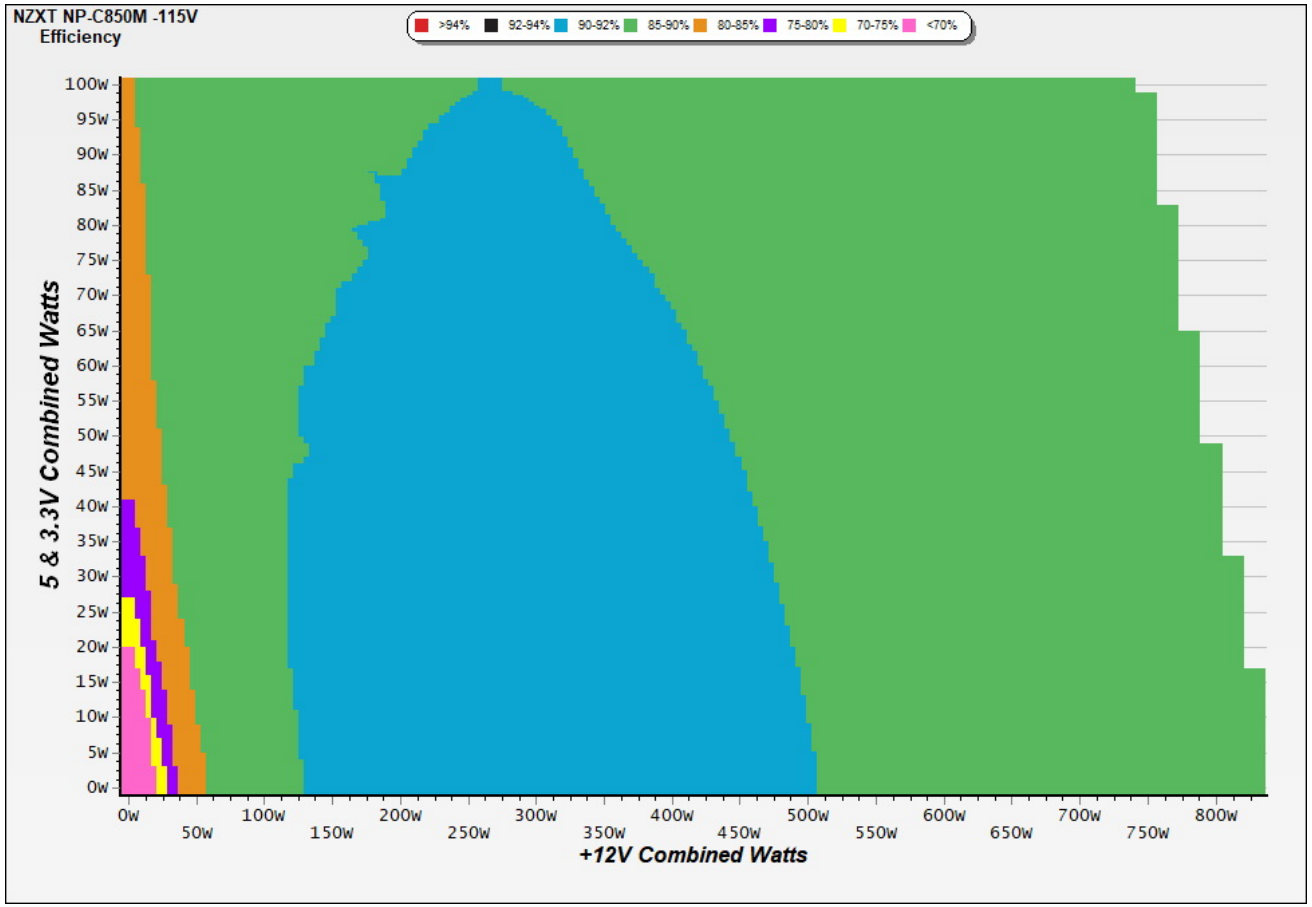


230V



□□□□□□

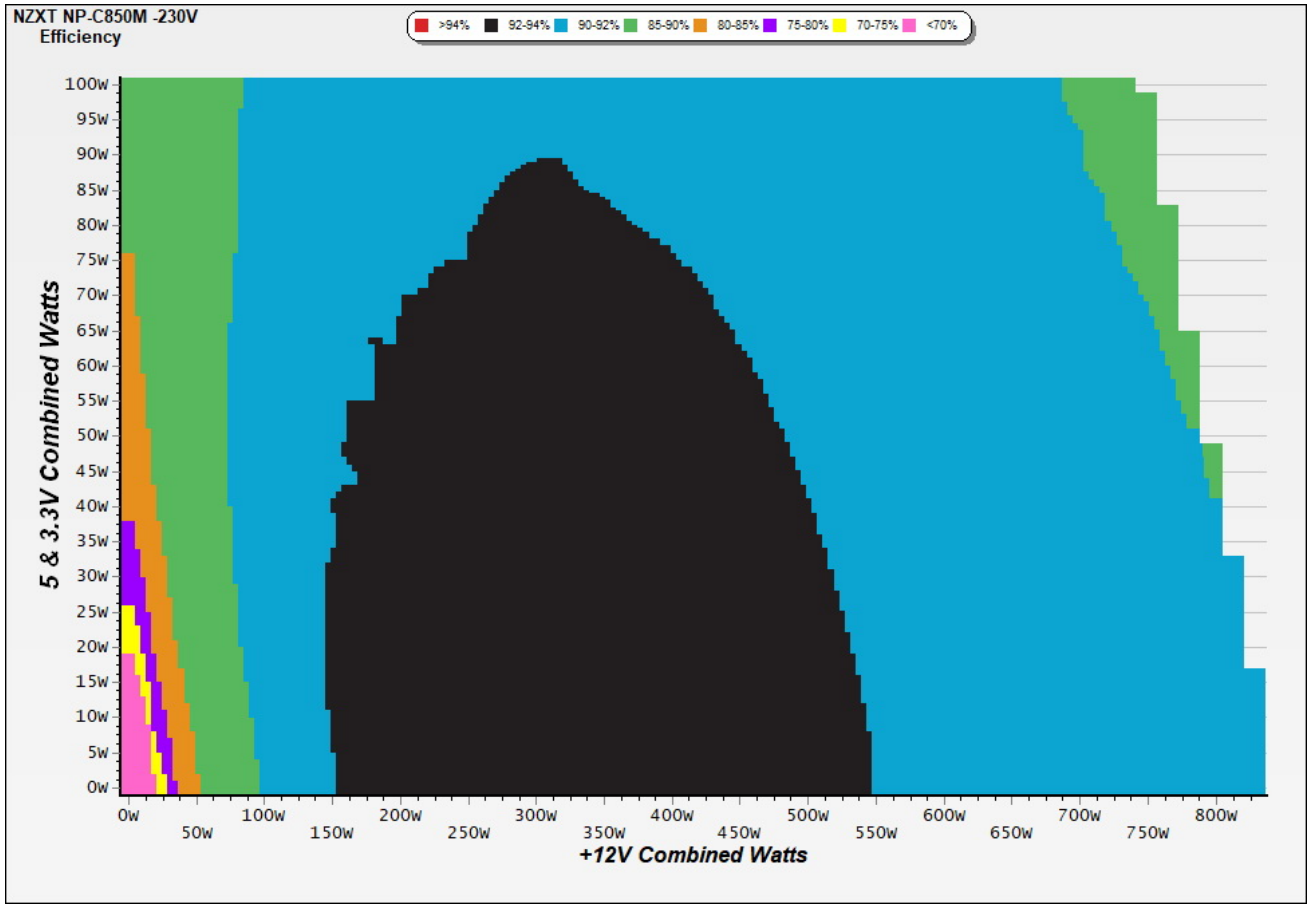
115V



□□

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

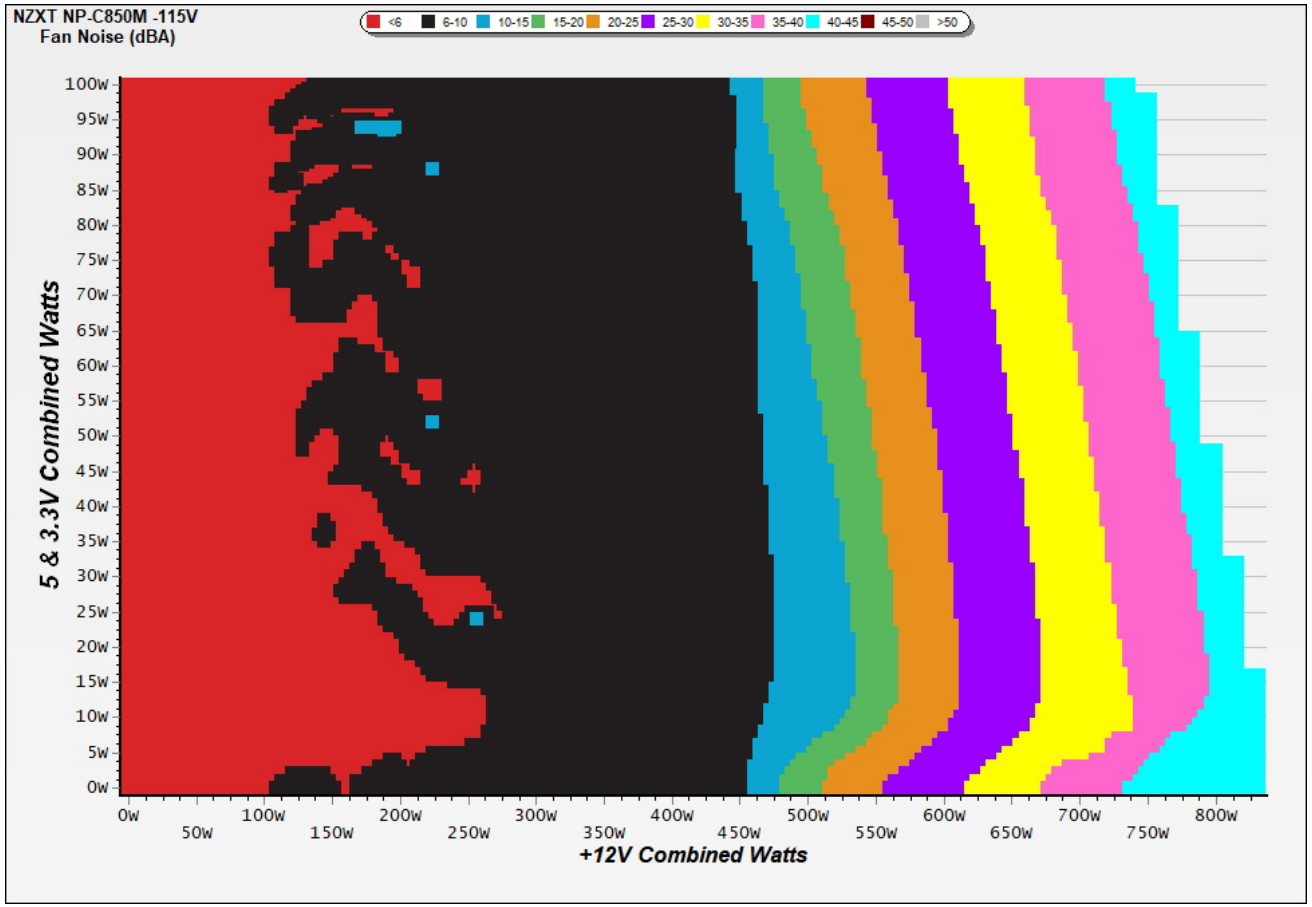
230V



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

□□□□□

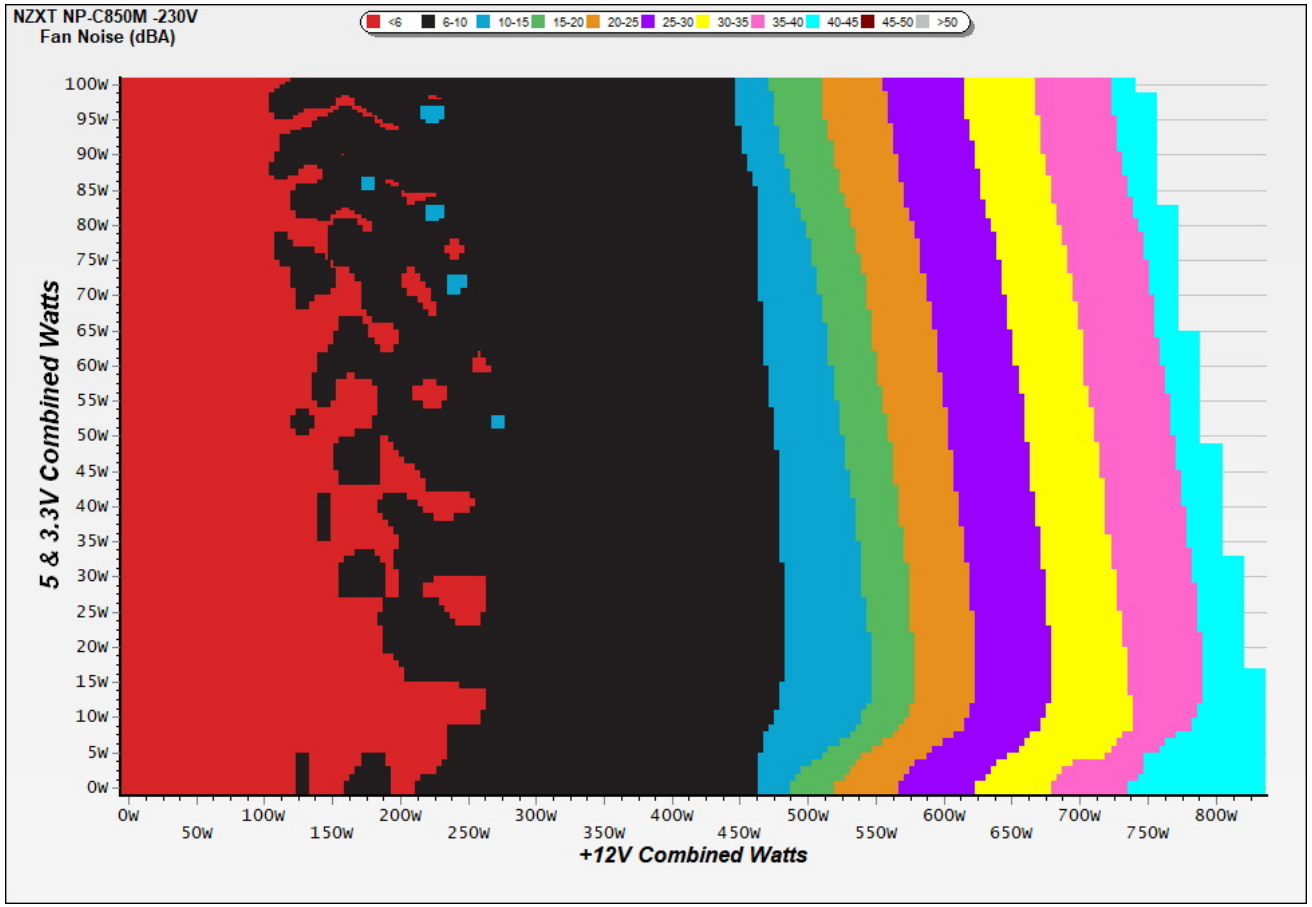
115V



□□

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 fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	0 RPM · <6.0 dB(A) · 45.2 °C	0 RPM · <6.0 dB(A) · 45.2 °C	fan off in both
20%	0 RPM · <6.0 dB(A) · 46.2 °C	0 RPM · <6.0 dB(A) · 46.2 °C	fan off in both
50%	557 RPM · 9.9 dB(A) · 42.0 °C	557 RPM · 9.9 dB(A) · 42.0 °C	**+0.0 dB(A)**
100%	2086 RPM · 44.6 dB(A) · 45.5 °C	2086 RPM · 44.6 dB(A) · 45.5 °C	**+0.0 dB(A)**

230V

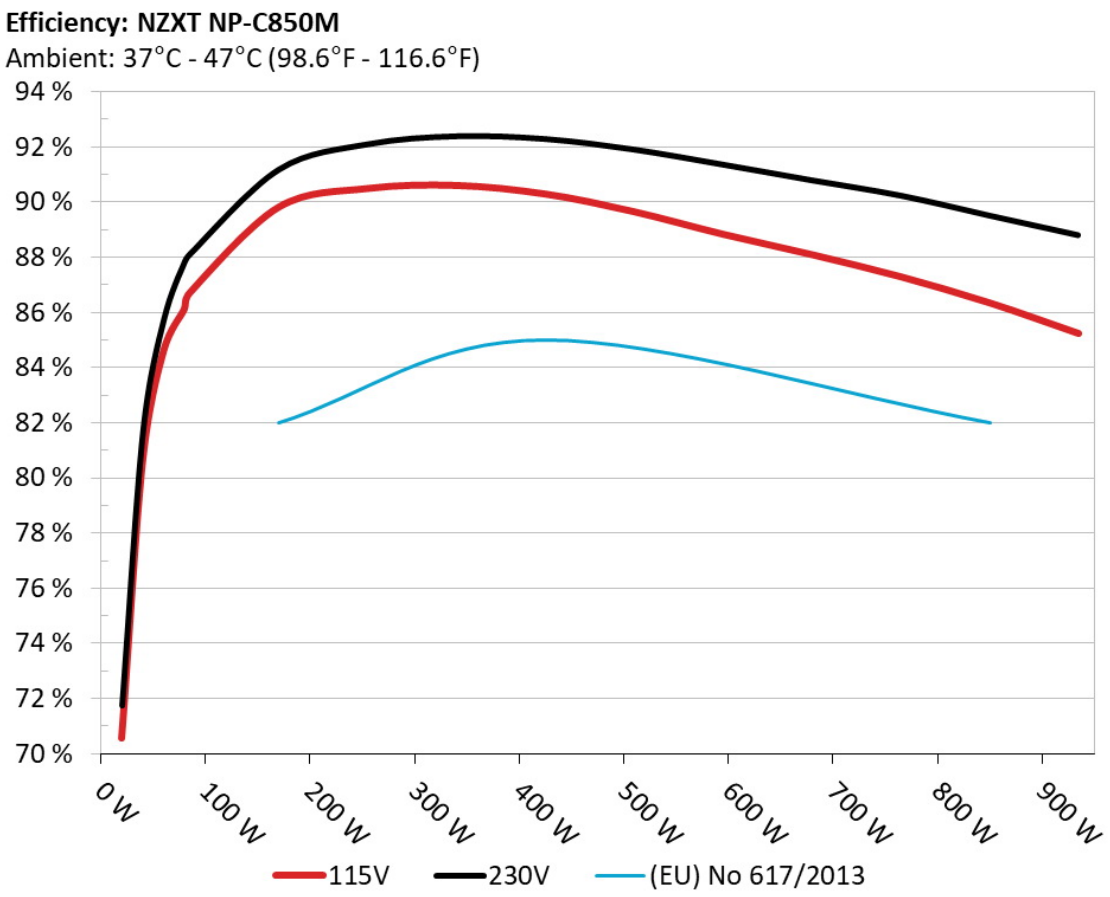
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	0 RPM · <6.0 dB(A) · 44.3 °C	0 RPM · <6.0 dB(A) · 44.3 °C	fan off in both
20%	533 RPM · 9.4 dB(A) · 40.8 °C	533 RPM · 9.4 dB(A) · 40.8 °C	**+0.0 dB(A)**
50%	560 RPM · 10.0 dB(A) · 42.6 °C	560 RPM · 10.0 dB(A) · 42.6 °C	**+0.0 dB(A)**
100%	2095 RPM · 44.7 dB(A) · 45.8 °C	2095 RPM · 44.7 dB(A) · 45.8 °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.

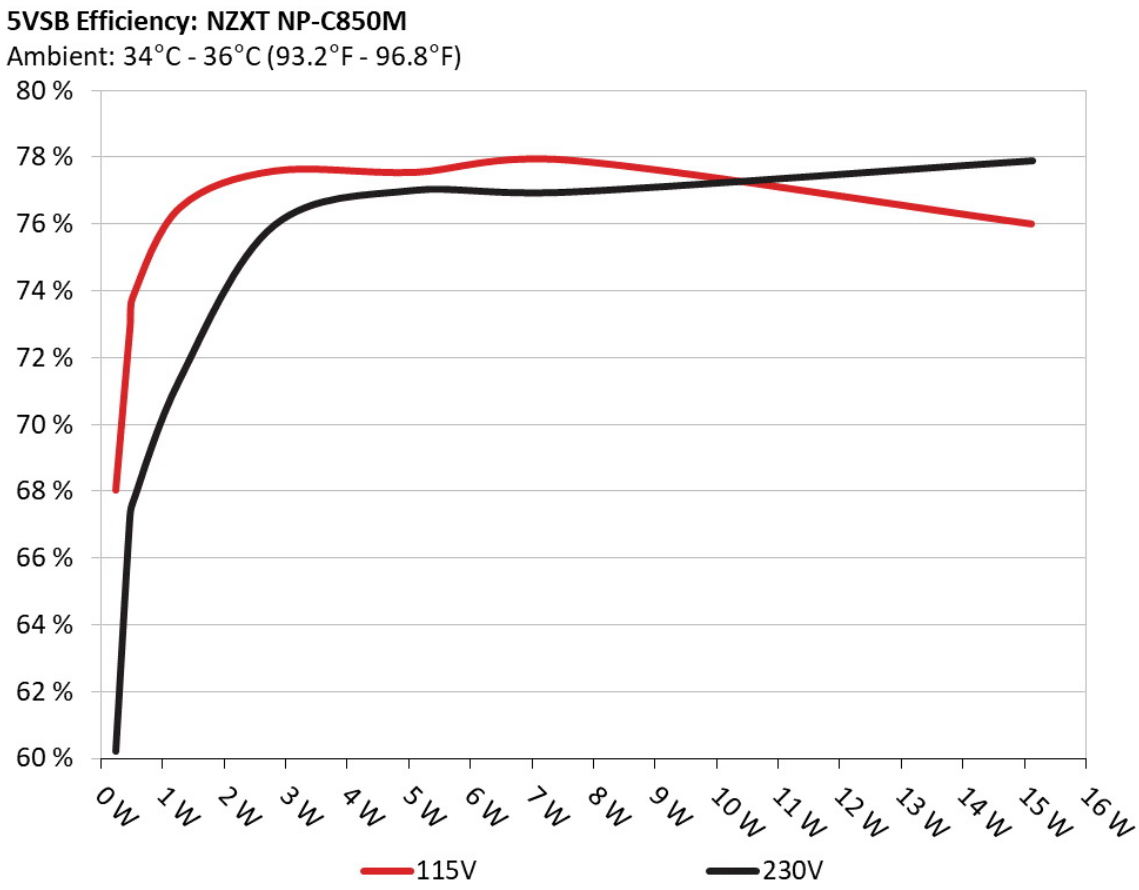
Informational. Not part of the ETA or LAMBDA rating.

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	0.230	68.047%	0.054
	5.112V	0.338		115.14V
2	0.090A	0.460	72.900%	0.097
	5.111V	0.631		115.14V
3	0.550A	2.804	77.587%	0.330
	5.101V	3.614		115.13V
4	1.000A	5.090	77.544%	0.400
	5.091V	6.564		115.13V
5	1.500A	7.621	77.908%	0.435
	5.081V	9.782		115.13V
6	2.999A	15.122	76.005%	0.482
	5.043V	19.896		115.13V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.230	60.209%	0.019
	5.112V	0.382		230.29V
2	0.090A	0.460	67.251%	0.033
	5.111V	0.684		230.30V
3	0.550A	2.805	75.955%	0.159
	5.101V	3.693		230.26V
4	1.000A	5.091	77.008%	0.240
	5.092V	6.611		230.26V
5	1.500A	7.620	76.954%	0.296
	5.081V	9.902		230.26V
6	2.999A	15.140	77.889%	0.372
	5.049V	19.438		230.28V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	5.263A	1.984A	1.984A	0.984A	84.956	86.711%	0	<6.0	45.23°C	0.953
	12.038V	5.042V	3.325V	5.081V	97.976				40.77°C	115.19V
2	11.560A	2.977A	2.981A	1.184A	170.024	89.821%	0	<6.0	46.22°C	0.973
	12.034V	5.039V	3.324V	5.069V	189.291				41.04°C	115.19V
3	18.200A	3.474A	3.475A	1.384A	255.028	90.500%	537	9.5	41.20°C	0.982
	12.032V	5.038V	3.322V	5.058V	281.800				47.07°C	115.18V
4	24.844A	3.971A	3.977A	1.585A	340.033	90.610%	543	9.6	41.56°C	0.985
	12.028V	5.038V	3.320V	5.047V	375.273				48.25°C	115.18V
5	31.139A	4.967A	4.975A	1.787A	424.868	90.299%	557	9.9	42.04°C	0.987
	12.022V	5.035V	3.318V	5.036V	470.511				49.09°C	115.18V
6	37.421A	5.964A	5.972A	1.991A	509.390	89.661%	818	19.5	42.83°C	0.988
	12.014V	5.032V	3.316V	5.023V	568.132				50.85°C	115.17V
7	43.785A	6.960A	6.970A	2.194A	594.699	88.841%	1197	31.4	43.27°C	0.989
	12.004V	5.030V	3.314V	5.012V	669.397				51.81°C	115.17V
8	50.161A	7.957A	7.969A	2.399A	680.036	88.099%	1664	39.4	43.73°C	0.990
	11.994V	5.029V	3.312V	5.000V	771.904				53.27°C	115.16V
9	56.927A	8.455A	8.456A	2.403A	764.933	87.297%	2060	44.3	44.30°C	0.991
	11.988V	5.027V	3.310V	4.994V	876.238				54.52°C	115.16V
10	63.437A	8.957A	8.974A	3.016A	849.744	86.349%	2086	44.6	45.52°C	0.992
	11.981V	5.025V	3.309V	4.974V	984.086				56.57°C	115.15V
11	70.541A	8.963A	8.980A	3.020A	934.497	85.244%	2096	44.8	46.84°C	0.992
	11.976V	5.021V	3.307V	4.966V	1096.260				58.77°C	115.14V
CL1	0.100A	11.999A	11.999A	0.000A	101.443	84.686%	563	10.1	42.45°C	0.961
	12.041V	5.034V	3.320V	5.088V	119.787				49.45°C	115.19V

CL2	70.002A	0.999A	1.001A	1.000A	851.704	86.788%	2087	44.6	45.75°C	0.991
	11.976V	5.026V	3.311V	5.025V	981.364				56.69°C	115.14V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	5.264A	1.983A	1.986A	0.984A	84.955	88.132%	0	<6.0	44.31°C	0.820
	12.035V	5.043V	3.325V	5.080V	96.395				40.50°C	230.31V
2	11.564A	2.972A	2.979A	1.184A	170.007	91.200%	533	9.4	40.83°C	0.917
	12.030V	5.043V	3.324V	5.069V	186.412				45.02°C	230.31V
3	18.209A	3.469A	3.477A	1.384A	255.008	92.117%	539	9.5	41.74°C	0.947
	12.025V	5.043V	3.322V	5.058V	276.832				46.50°C	230.31V
4	24.862A	3.968A	3.974A	1.585A	340.013	92.406%	545	9.6	41.80°C	0.962
	12.019V	5.041V	3.320V	5.047V	367.955				47.47°C	230.32V
5	31.156A	4.963A	4.972A	1.787A	424.809	92.307%	560	10.0	42.57°C	0.969
	12.014V	5.038V	3.318V	5.036V	460.211				49.34°C	230.31V
6	37.439A	5.960A	5.972A	1.990A	509.340	91.926%	811	19.0	42.73°C	0.974
	12.007V	5.035V	3.316V	5.024V	554.074				50.12°C	230.31V
7	43.799A	6.956A	6.971A	2.194A	594.661	91.379%	1212	31.6	43.86°C	0.978
	11.999V	5.034V	3.314V	5.013V	650.762				52.32°C	230.31V
8	50.174A	7.951A	7.971A	2.399A	679.993	90.808%	1675	39.6	43.97°C	0.980
	11.990V	5.032V	3.312V	5.001V	748.827				53.22°C	230.31V
9	56.971A	8.449A	8.457A	2.402A	764.889	90.252%	2035	44.0	44.70°C	0.983
	11.978V	5.030V	3.310V	4.995V	847.499				54.67°C	230.31V
10	63.552A	8.949A	8.975A	3.015A	849.702	89.527%	2095	44.7	45.81°C	0.984
	11.959V	5.028V	3.308V	4.975V	949.103				56.73°C	230.31V
11	70.670A	8.955A	8.983A	3.019A	934.484	88.819%	2104	44.9	46.90°C	0.986
	11.954V	5.025V	3.306V	4.968V	1052.123				58.68°C	230.31V
CL1	0.100A	11.999A	12.000A	0.000A	101.471	86.051%	562	10.1	42.12°C	0.857
	12.038V	5.037V	3.319V	5.088V	117.919				49.63°C	230.33V

CL2	69.976A	1.000A	1.002A	1.000A	850.213	89.917%	2092	44.7	45.95°C	0.984
	11.959V	5.026V	3.311V	5.027V	945.548				56.95°C	230.31V

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	0.494A	0.496A	0.196A	19.985	70.569%	0	<6.0	0.792
	12.040V	5.039V	3.326V	5.103V	28.320				115.18V
2	2.465A	0.992A	0.992A	0.392A	39.975	80.609%	0	<6.0	0.889
	12.040V	5.039V	3.326V	5.098V	49.591				115.18V
3	3.701A	1.488A	1.490A	0.589A	60.006	84.613%	0	<6.0	0.924
	12.039V	5.038V	3.325V	5.092V	70.918				115.18V
4	4.932A	1.982A	1.983A	0.786A	79.957	86.132%	0	<6.0	0.948
	12.036V	5.046V	3.326V	5.087V	92.831				115.19V

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	0.495A	0.497A	0.196A	19.981	71.740%	0	<6.0	0.505
	12.038V	5.044V	3.326V	5.103V	27.852				230.31V
2	2.465A	0.991A	0.993A	0.392A	39.971	81.680%	0	<6.0	0.650
	12.037V	5.044V	3.326V	5.097V	48.936				230.31V
3	3.702A	1.487A	1.488A	0.589A	60.003	85.764%	0	<6.0	0.743
	12.036V	5.043V	3.325V	5.091V	69.963				230.32V
4	4.932A	1.983A	1.985A	0.786A	79.955	87.860%	0	<6.0	0.807
	12.035V	5.043V	3.325V	5.085V	91.003				230.31V

The results above are not used in the certification process

□□□□

115V

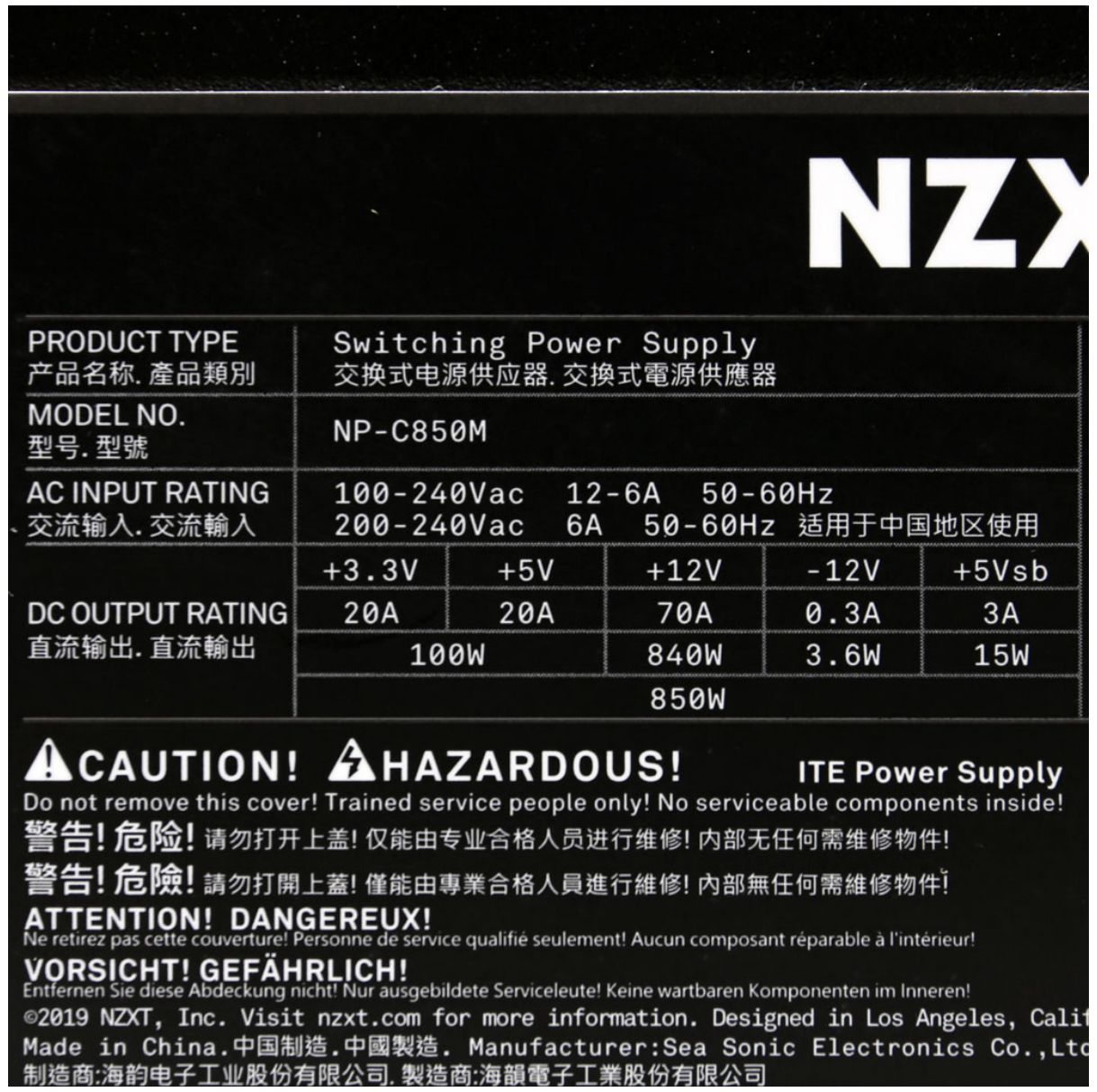
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.10mV	10.00mV	10.80mV	8.20mV	Pass
20% Load	13.80mV	10.80mV	11.20mV	8.60mV	Pass
30% Load	16.40mV	11.50mV	12.10mV	9.10mV	Pass
40% Load	10.90mV	12.50mV	12.60mV	9.50mV	Pass
50% Load	10.70mV	14.10mV	14.20mV	9.40mV	Pass
60% Load	11.20mV	14.60mV	14.90mV	9.80mV	Pass
70% Load	11.90mV	15.50mV	15.50mV	10.30mV	Pass
80% Load	11.60mV	14.70mV	15.30mV	10.90mV	Pass
90% Load	13.40mV	16.70mV	16.30mV	13.30mV	Pass
100% Load	17.30mV	18.50mV	18.60mV	13.40mV	Pass
110% Load	18.50mV	19.20mV	17.80mV	13.70mV	Pass
Crossload1	13.30mV	17.80mV	15.10mV	10.60mV	Pass
Crossload2	17.30mV	14.10mV	13.90mV	11.70mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.40mV	10.40mV	12.50mV	8.10mV	Pass
20% Load	14.40mV	11.10mV	12.80mV	8.70mV	Pass
30% Load	15.90mV	11.30mV	12.20mV	9.10mV	Pass
40% Load	10.50mV	11.90mV	14.70mV	9.50mV	Pass
50% Load	10.50mV	13.80mV	14.80mV	9.40mV	Pass
60% Load	11.00mV	14.60mV	15.40mV	9.70mV	Pass
70% Load	11.10mV	14.80mV	15.30mV	9.80mV	Pass
80% Load	12.60mV	16.00mV	16.40mV	11.10mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	12.90mV	16.80mV	16.50mV	11.10mV	Pass
100% Load	17.70mV	19.00mV	18.60mV	12.80mV	Pass
110% Load	18.50mV	18.70mV	18.80mV	12.80mV	Pass
Crossload1	13.90mV	17.90mV	14.90mV	10.80mV	Pass
Crossload2	17.40mV	14.70mV	14.60mV	10.80mV	Pass

The results above are not used in the certification process

NZXT NP-C850M

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)

CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus

www.cybenetics.com - info@cybenetics.com