Thermaltake Toughpower SFX 850W (ATX v3.1)

Serial Number PSSTP0850FNFAPE10DCH00485

Lab ID TT85002580

Certification ID 252580

Test Result Report ID: 24PS2580A

Certificate Issue Date: Sep 25, 2024

Scheme: ETA-EMI PSU

115V: CYBENETICS PLATINUM

230V: CYBENETICS BRONZE 230v

Scheme: LAMBDA PSU

115V: CYBENETICS A-

230V: CYBENETICS A 230v

CYBENETICS ATX 3.1 PASS

Outside Validation Scope

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	Thermaltake
Model	Toughpower SFX 850W (ATX v3.1)
OEM/ODM	CE-Link
Serial Number	PSSTP0850FNFAPE10DCH00485
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-8

Rated Frequency (Hz)	50-60
Rated Power (W)	850
Operating Temperature (Continuous Full Load) (°C)	
Type	SFX
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	92mm Fluid Dynamic Bearing Fan (EFS-09C12H)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	TT85002580
Date of receipt	Sep 10, 2024
Testing Date	Sep 24, 2024
Report Issued Date	Sep 25, 2024
DUT Notes	The 5V and 3.3V rails experienced voltage drops during OCP testing under normal and hot conditions, but they shut down.
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Modular Cables				
Description	**Cable Count**	**Connector Count (Total)**	**Gauge**	In Cable Capacitors
ATX connector 24 pin (300mm)	1	1	16-22AWG	No
4+4 pin EPS12V (400mm)	2	2	16AWG	No
6+2 pin PCIe (400mm+150mm)	1	2	16-18AWG	No
12+4 pin PCIe (400mm) (600W)	1	1	16-26AWG	No
SATA (290mm+150mm+150mm+150mm)	2	8	18AWG	No
4-pin Molex (300mm+150mm+150mm+150mm) / FDD (+150mm)	1	4 / 1	18AWG	No

AC Power Cord (1380mm) - C13 coupler	1	1	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	✗

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	18	18	70.83	2.5	0.3
	Watts	120		850	12.5	3.6
Total Max. Power (W)		850				

Parts Description

General Data	
Manufacturer (OEM)	CE-Link
PCB Type	Single-Sided
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	1x NTC Thermistor MF72-5D15 (5 ohm @ 25°C) & Relay
Bridge Rectifier(s)	2x GBU2506L (600V, 25A @ 100°C)
APFC MOSFETs	2x Lonten LSD65R070GT (650V, 30A @ 100°C, Rds(on): 0.070Ohm)
APFC Boost Diode	1x Global Power G4S06510AT (650V, 10A @ 151°C)

Bulk Cap(s)	2x Rubycon (400V, 390uF or combined 780uF, 2,000h @ 105°C,MXE)
Main Switchers	4x Lonten LSD65R099GF (650V, 25.3A @ 100°C, Rds(on): 0.99Ohm) & 1x Champion CM03X (For no load consumption)
Resonant Controller	Champion CM6901T6X
APFC Controller	ATK AT6103ZSPC & Champion CM03AX
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	8x Lonten LSGN04R013WE (40V, 101A @ 100°C, Rds(on): 1.35mOhm)
5V & 3.3V	DC-DC Converters: 2x Xintan NDP23B0QB (30V, 20A @ 25°C, Rds(on): 3mOhm) PWM Controller(s): No Info
Filtering Capacitors	Electrolytic: 3x Rubycon (5-6,000h @105°C, ZLH) 1x Rubycon (4-10,000h @105°C, YXJ) 1x Rubycon (4-10,000h @105°C, YXF) Polymer: 55x Chengx (PC)
Supervisor IC	IN1S3151-SAG
Fan Model	EFS-09C12H (92mm, 12V, 0.40A, Fluid Dynamic Bearing Fan)
5VSB	
Rectifier	1x UTC MGBR10L45 (45V, 10A)
Standby PWM Controller	Esthome EST.2915HP

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.1 PSU Power Excursion	✓

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	89.628%
Average Noise Output (>1450 Load Combinations)	25.79dBA
Average PF (>1450 Load Combinations)	0.978
Efficiency With 10W (≤500W) or 2% (>500W) Load	70.105%
Standby Power Consumption	0.0932W
Non-Accredited	
12V Ripple (Full Load)	25.84mV
5V Ripple (Full Load)	14.84mV
3.3V Ripple (Full Load)	11.66mV
5VSB Ripple (Full Load)	13.26mV
12V Load Regulation	0.19%
5V Load Regulation	1.82%
3.3V Load Regulation	3.15%
5VSB Load Regulation	2.39%
Inrush Current	31.840A

230V

Accredited	
Average Efficiency (>1450 load combinations)	91.622%
Average Noise Output (>1450 Load Combinations)	24.40dBA
Average PF (>1450 Load Combinations)	0.917
Efficiency With 10W (≤500W) or 2% (>500W) Load	69.711%
Standby Power Consumption	0.1713W
Non-Accredited	
12V Ripple (Full Load)	25.93mV
5V Ripple (Full Load)	14.15mV
3.3V Ripple (Full Load)	11.98mV

5VSB Ripple (Full Load)		12.78mV
12V Load Regulation		0.22%
5V Load Regulation		1.86%
3.3V Load Regulation		3.18%
5VSB Load Regulation		2.45%
Inrush Current		65.220A
12V Transient Response (200%)		11.35V
5V Transient Response (200%)		4.906V
3.3V Transient Response (200%)		3.192V
5VSB Transient Response (200%)		4.897V
Hold-Up Time & PWR_OK Signal		17.40ms
AC Loss to PWR_OK Hold Up Time		14.40ms
PWR_OK Inactive to DC Loss Delay		3.00ms
PSU Timings: T1 (20% / 100%)	120.0ms	120.0ms
PSU Timings: T3 (20% / 100%)	126.0ms	126.0ms
12V OCP (28.9°C / 42.7°C)	93.60A (132.15%), 12.021V	83.20A (117.46%), 12.023V
5V OCP (28.9°C / 42.7°C)	21A (116.67%), 4.832V*	20.5A (113.89%), 4.878V*
3.3V OCP (28.9°C / 42.7°C)		
5VSB OCP (28.9°C / 42.7°C)	21.3A (118.33%), 3.175V*	21.1A (117.22%), 3.187V*
OPP (29.07°C / 40.92°C)	130.93%	116.80%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	17.4
AC Loss to PWR_OK Hold Up Time (ms)	14.4
PWR_OK Inactive to DC Loss Delay (ms)	3

Vampire Power

Tables

115V

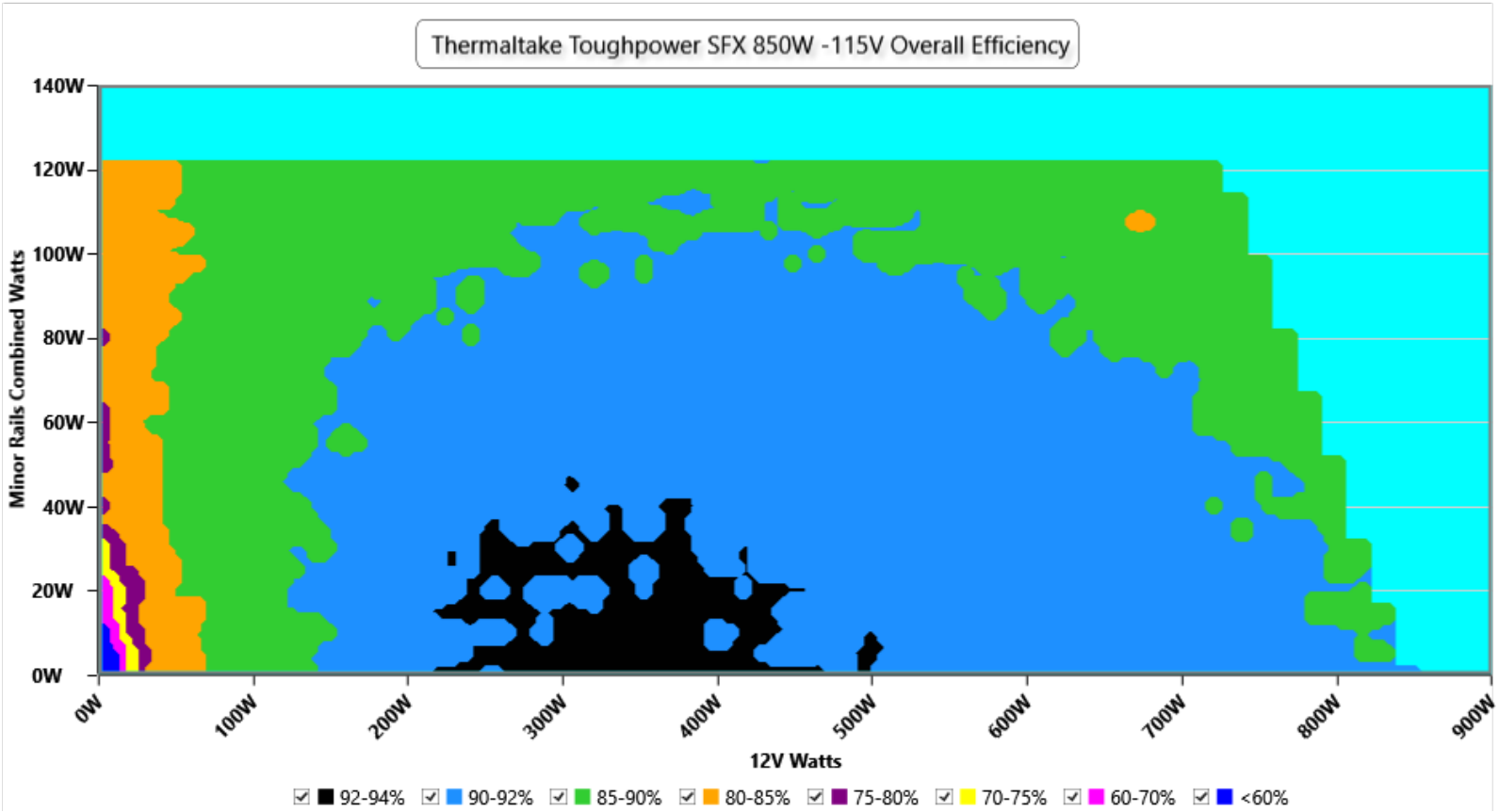
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.17 V	115.14 V	113.85 V	115.18 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.92 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.415	1.415	1.340	1.416	1.490	PASS
Mains Voltage THD:	0.13 %	0.11 %	N/A	0.15 %	2.00 %	PASS
Real Power:	0.093 W	0.085 W	N/A	0.112 W	N/A	N/A
Apparent Power:	11.929 W	11.925 W	N/A	11.932 W	N/A	N/A
Power Factor:	0.008	N/A	N/A	N/A	N/A	N/A

230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	230.44 V	230.40 V	227.70 V	230.45 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	50.00 Hz	49.50 Hz	50.00 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.415	1.415	1.340	1.416	1.490	PASS
Mains Voltage THD:	0.14 %	0.13 %	N/A	0.16 %	2.00 %	PASS
Real Power:	0.171 W	0.151 W	N/A	0.234 W	N/A	N/A
Apparent Power:	39.878 W	39.867 W	N/A	39.895 W	N/A	N/A
Power Factor:	0.004	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

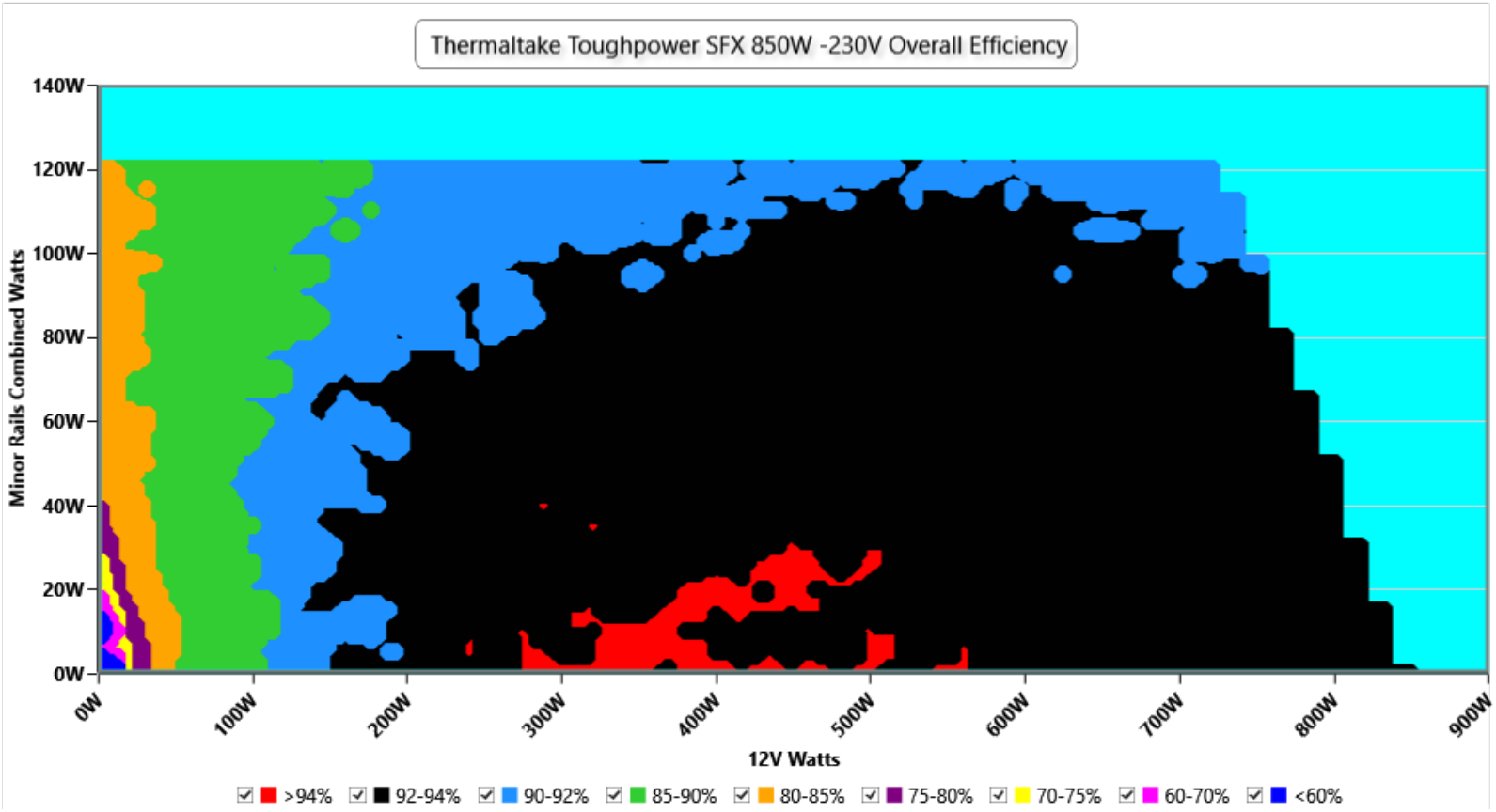
115V



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

230V

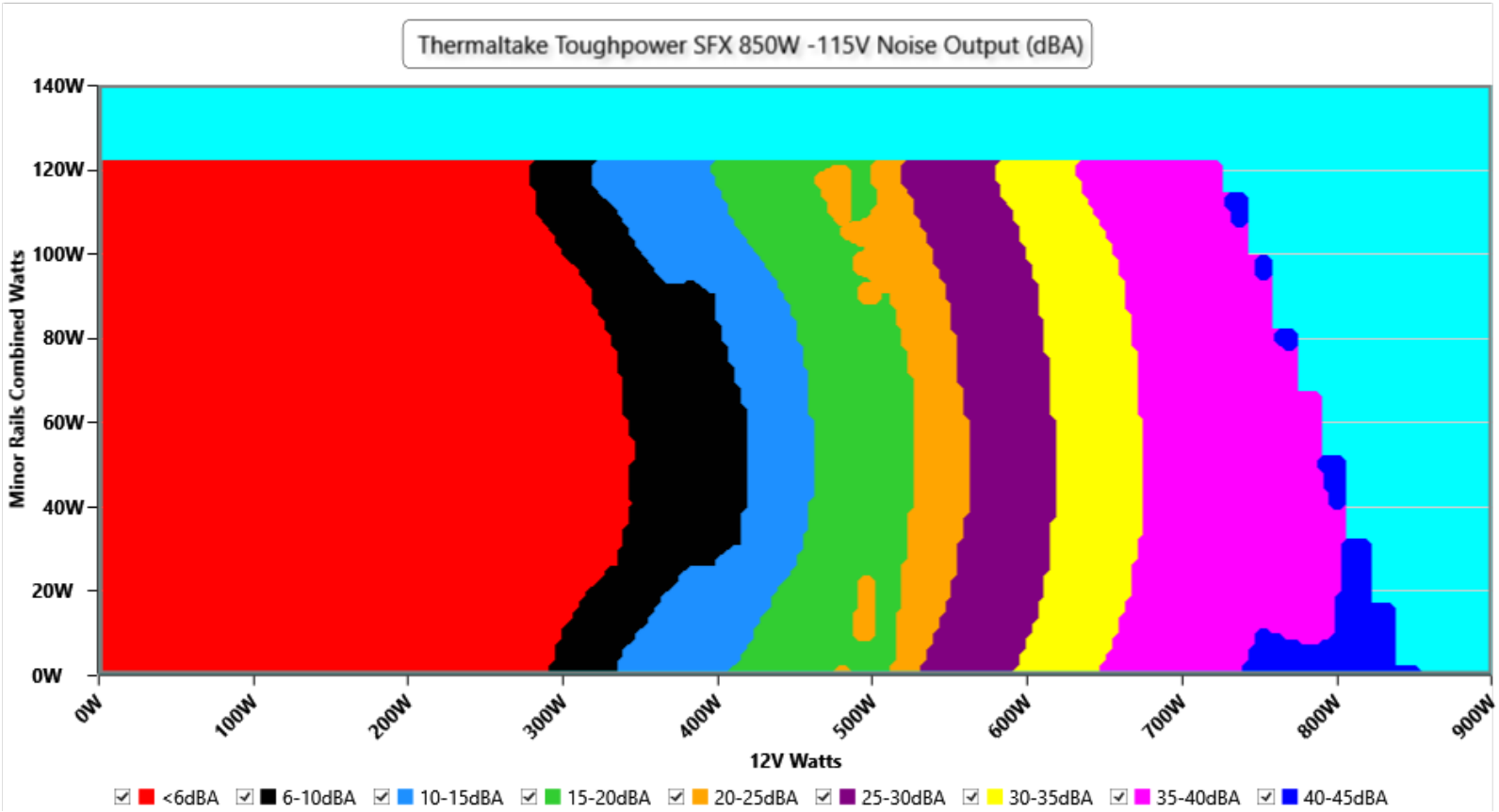


INFO

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

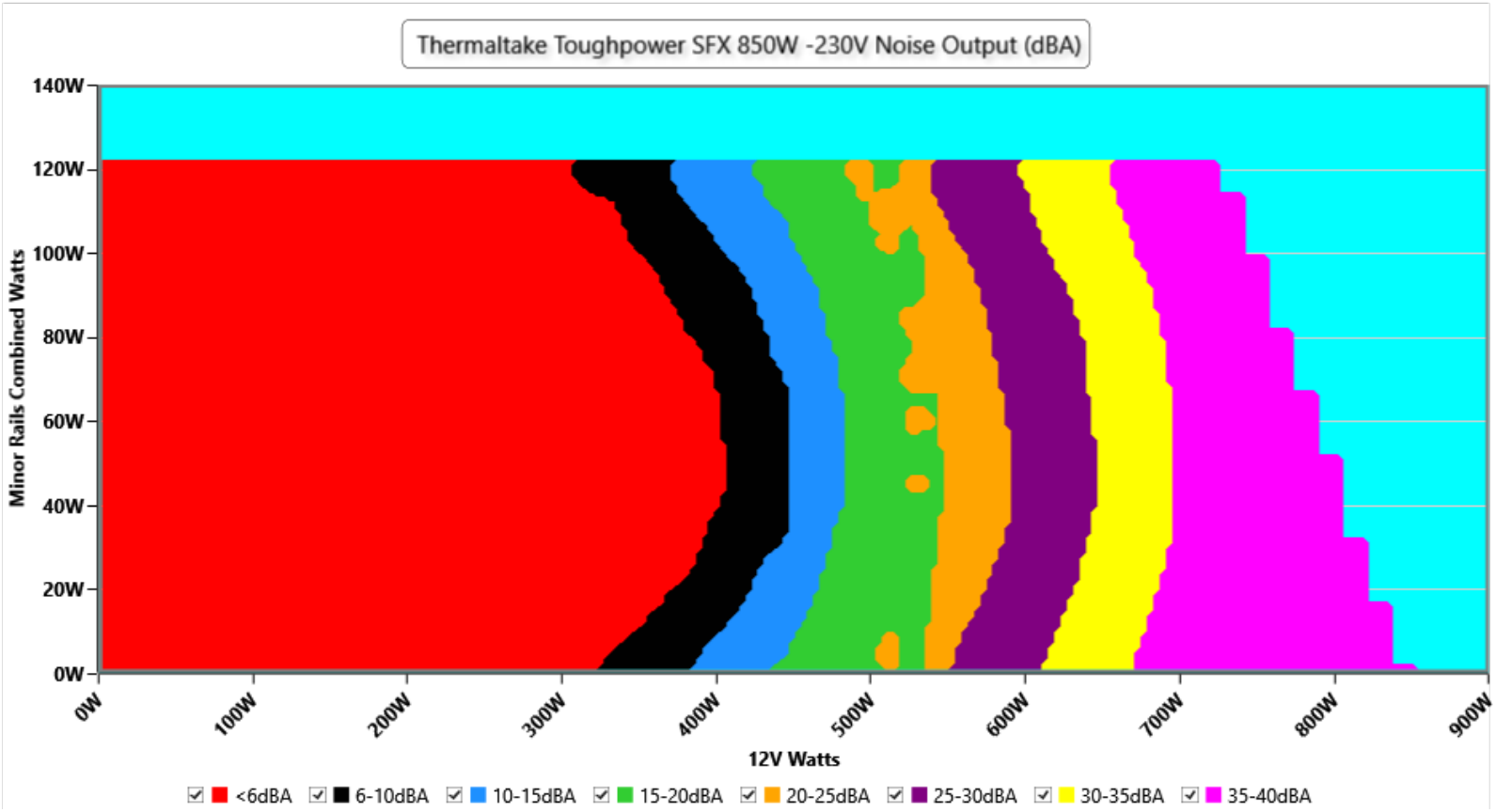
115V



INFO

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



INFO

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) · 34.6 °C	0 RPM · <6.0 dB(A) · 42.3 °C	fan off in both
20%	0 RPM · <6.0 dB(A) · 36.3 °C	0 RPM · <6.0 dB(A) · 43.7 °C	fan off in both
50%	0 RPM · <6.0 dB(A) · 40.2 °C	1605 RPM · 29.3 dB(A) · 42.3 °C	fan starts (<6.0 → 29.3)
100%	2191 RPM · 37.6 dB(A) · 30.2 °C	3042 RPM · 48.1 dB(A) · 46.0 °C	**+10.5 dB(A)**

230V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	0 RPM · <6.0 dB(A) · 43.8 °C	0 RPM · <6.0 dB(A) · 46.9 °C	fan off in both
20%	0 RPM · <6.0 dB(A) · 44.1 °C	0 RPM · <6.0 dB(A) · 47.3 °C	fan off in both
50%	0 RPM · <6.0 dB(A) · 49.3 °C	1252 RPM · 20.8 dB(A) · 42.1 °C	fan starts (<6.0 → 20.8)
100%	2297 RPM · 39.1 dB(A) · 30.5 °C	3030 RPM · 47.7 dB(A) · 45.6 °C	**+8.6 dB(A)**

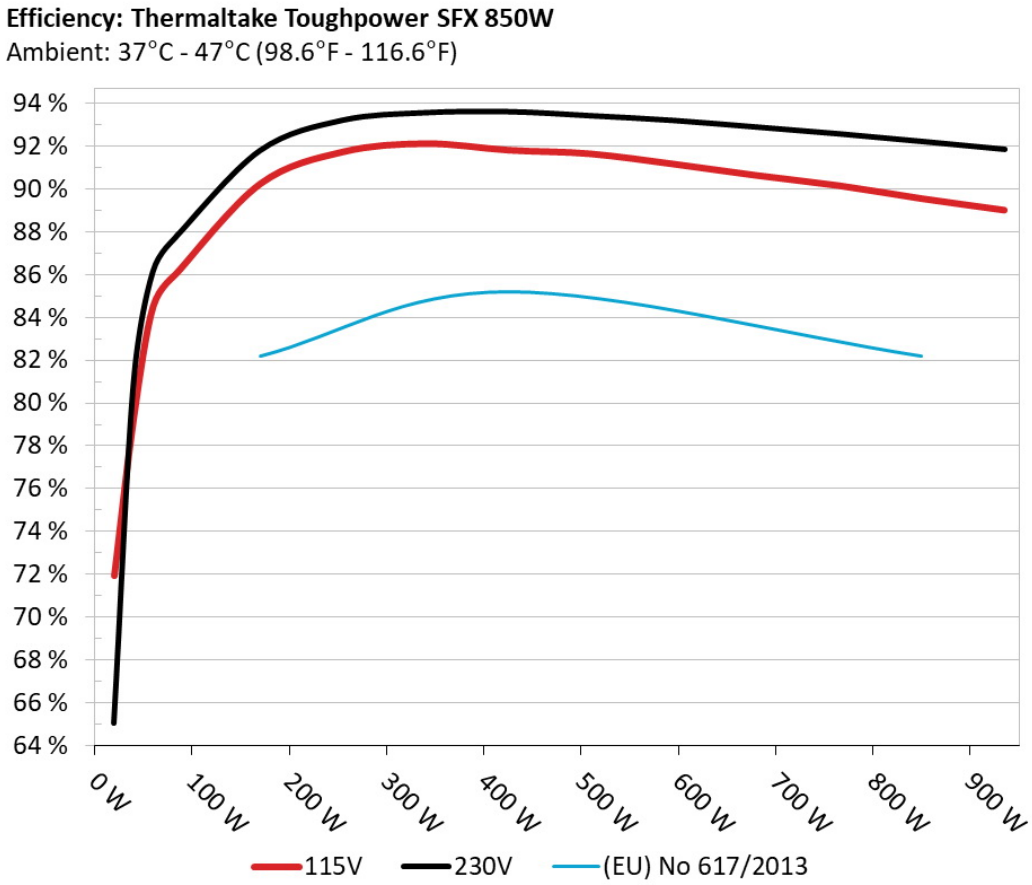
INFO

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

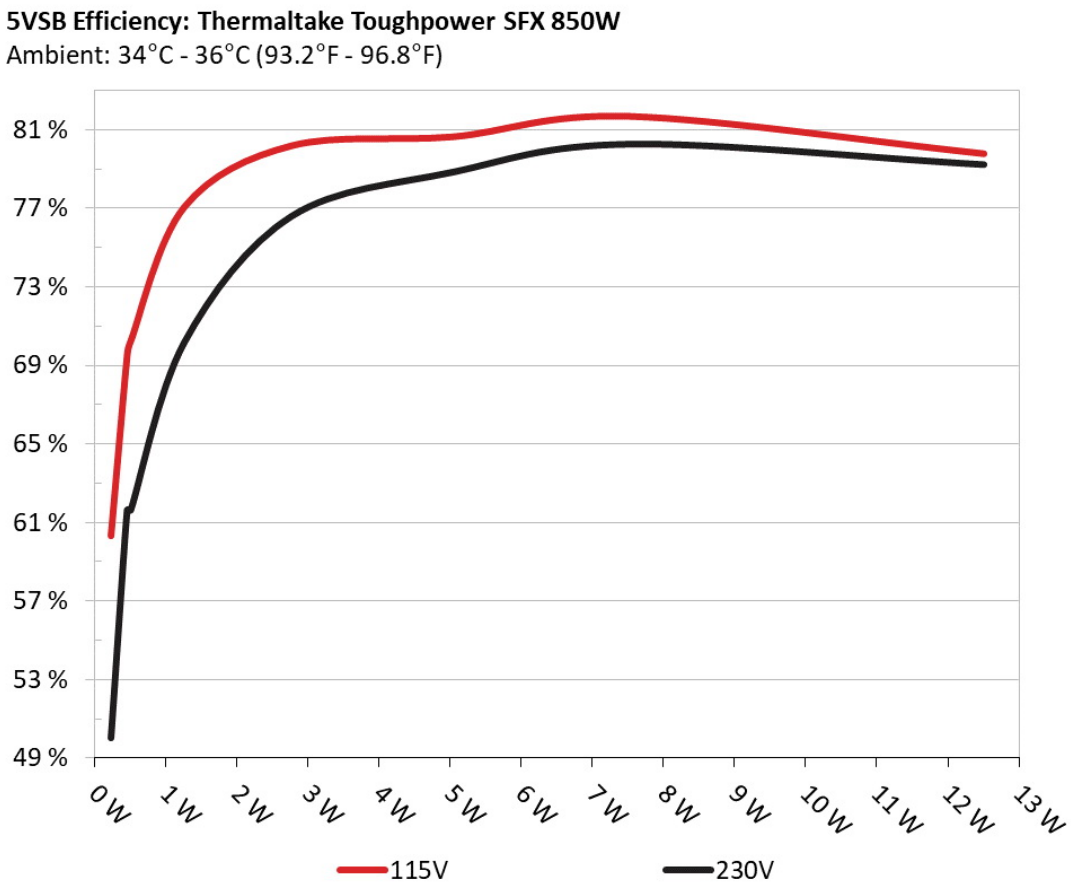
Efficiency under high ambient temperature



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



INFO

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

5VSB Efficiency (ERP LOT 3/6 & CEC)

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.227W	60.342%	0.03
	5.044V	0.376W		115.18V
2	**0.09A**	0.454W	69.482%	0.052
	5.044V	0.653W		115.17V
3	**0.55A**	2.77W	80.173%	0.227
	5.035V	3.455W		115.16V
4	**1A**	5.029W	80.624%	0.326
	5.027V	6.238W		115.16V
5	**1.5A**	7.53W	81.663%	0.38
	5.018V	9.222W		115.17V
6	**2.501A**	12.506W	79.768%	0.441
	5.001V	15.678W		115.17V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.227W	50.011%	0.011
	5.044V	0.454W		230.4V
2	**0.09A**	0.454W	62.273%	0.018
	5.043V	0.733W		230.39V
3	**0.55A**	2.77W	76.587%	0.084
	5.034V	3.618W		230.41V
4	**1A**	5.028W	78.822%	0.141
	5.027V	6.38W		230.4V
5	**1.5A**	7.529W	80.25%	0.193
	5.018V	9.381W		230.4V
6	**2.501A**	12.505W	79.209%	0.274
	5.001V	15.787W		230.39V

Protection Features

OCP (Normal @ 28.9°C)	12V: 93.60A (132.15%), 12.021V 5V: 21A (116.67%), 4.832V* *Voltage Drop (4.369@21.2A) 3.3V: 21.3A (118.33%), 3.175V* *Voltage Drop (2.652@21.6A) 5VSB: 4.1A (164.00%), 4.951V
OCP (Hot @ 42.7°C)	12V: 83.20A (117.46%), 12.023V 5V: 20.5A (113.89%), 4.878V* *Voltage Drop (4.387@20.7A) 3.3V: 21.1A (117.22%), 3.187V* *Voltage Drop (2.638@21.5A) 5VSB: 4A (160.00%), 4.952V
OPP (Normal @ 29.1°C)	1112.90W (130.93%)
OPP (Hot @ 40.9°C)	992.84W (116.80%)
OTP	✓ (108°C @ Secondary Side)
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)

Typical Load Tests

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%	**5.273A**	**1.993A**	**1.982A**	**1A**	85.012	85.923%	0	<6.0	42.34°C	0.864
	12.023V	5.019V	3.33V	5.002V	99.01				40.11°C	115.17V
20%	**11.562A**	**2.995A**	**2.983A**	**1.202A**	169.997	90.045%	0	<6.0	43.67°C	0.962
	12.030V	5.01V	3.319V	4.991V	188.857				40.75°C	115.15V
30%	**18.204A**	**3.5A**	**3.489A**	**1.406A**	255.02	91.539%	0	<6.0	44.79°C	0.98
	12.028V	5.002V	3.311V	4.981V	278.588				41.32°C	115.13V
40%	**24.855A**	**4.007A**	**3.999A**	**1.61A**	340.132	91.925%	922	12.1	41.71°C	0.988
	12.026V	4.994V	3.302V	4.97V	370.039				58.44°C	115.12V
50%	**31.162A**	**5.019A**	**5.015A**	**1.816A**	425.219	91.62%	1605	29.3	42.3°C	0.992
	12.024V	4.983V	3.291V	4.957V	464.105				54.51°C	115.08V
60%	**37.426A**	**6.033A**	**6.036A**	**2.001A**	509.576	91.45%	1620	29.4	42.64°C	0.995
	12.020V	4.974V	3.281V	4.947V	557.136				55.98°C	115.06V
70%	**43.762A**	**7.053A**	**7.066A**	**2.23A**	594.993	90.97%	2042	37.1	43.13°C	0.996
	12.017V	4.965V	3.27V	4.934V	654.027				57.18°C	115.04V
80%	**50.104A**	**8.075A**	**8.101A**	**2.336A**	679.817	90.445%	2411	40.9	43.64°C	0.997
	12.013V	4.954V	3.259V	4.924V	751.66				58.26°C	115.02V
90%	**56.848A**	**8.594A**	**8.616A**	**2.442A**	765.23	89.962%	2720	43.8	44.39°C	0.998
	12.010V	4.946V	3.25V	4.915V	850.575				60.27°C	114.99V
100%	**63.526A**	**9.115A**	**9.166A**	**2.549A**	849.959	89.36%	3042	48.1	45.97°C	0.998
	12.007V	4.938V	3.24V	4.905V	951.234				63.33°C	114.97V
110%	**69.945A**	**10.147A**	**10.313A**	**2.553A**	935.328	88.819%	3047	48.3	46.02°C	0.998
	12.003V	4.928V	3.229V	4.897V	1053.119				63.89°C	114.95V
CL1	**0.117A**	**14.546A**	**14.552A**	**0A**	121.307	80.538%	1222	19.9	40.98°C	0.954
	12.026V	4.964V	3.278V	5.006V	150.636				51.31°C	115.14V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	**0.116A**	**18.366A**	**0A**	**0A**	91.403	79.114%	330	<6.0	40.01°C	0.972
	12.030V	4.901V	3.329V	5.018V	115.612				42.17°C	115.14V
CL3	**0.116A**	**0A**	**18.147A**	**0A**	60.796	74.587%	242	<6.0	40.14°C	0.849
	12.025V	5.017V	3.273V	5.014V	81.535				35.39°C	115.16V
CL4	**70.734A**	**0A**	**0A**	**0A**	849.761	90.294%	3007	47.4	45.49°C	0.998
	12.014V	4.98V	3.281V	4.963V	941.1				61.95°C	114.98V

The results above are not used in the certification process

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%	**5.271A**	**1.992A**	**1.981A**	**1A**	85.005	87.644%	0	<6.0	46.86°C	0.688
	12.027V	5.02V	3.331V	5.002V	97.031				40.09°C	230.4V
20%	**11.558A**	**2.995A**	**2.982A**	**1.203A**	169.973	91.609%	0	<6.0	47.33°C	0.873
	12.032V	5.011V	3.32V	4.991V	185.627				40.7°C	230.39V
30%	**18.199A**	**3.499A**	**3.488A**	**1.406A**	254.989	93.028%	0	<6.0	51.02°C	0.911
	12.030V	5.003V	3.312V	4.98V	274.115				41.03°C	230.39V
40%	**24.852A**	**4.006A**	**3.997A**	**1.611A**	340.085	93.382%	841	9.7	41.69°C	0.931
	12.027V	4.994V	3.303V	4.968V	364.153				53.86°C	230.39V
50%	**31.155A**	**5.017A**	**5.013A**	**1.816A**	425.08	93.43%	1252	20.8	42.1°C	0.946
	12.023V	4.984V	3.292V	4.956V	454.953				52.17°C	230.38V
60%	**37.423A**	**6.033A**	**6.036A**	**2.001A**	509.5	93.242%	1571	28.5	42.61°C	0.955
	12.019V	4.974V	3.281V	4.945V	546.404				51.5°C	230.37V
70%	**43.759A**	**7.053A**	**7.065A**	**2.23A**	594.916	93.018%	1993	37.1	43.06°C	0.96
	12.016V	4.964V	3.27V	4.933V	639.593				51.28°C	230.36V
80%	**50.103A**	**8.076A**	**8.1A**	**2.337A**	679.735	92.713%	2413	40.9	43.89°C	0.966
	12.012V	4.954V	3.259V	4.922V	733.19				51.74°C	230.35V
90%	**56.848A**	**8.594A**	**8.616A**	**2.443A**	765.163	92.394%	2781	44.7	44.21°C	0.971
	12.009V	4.946V	3.249V	4.912V	828.148				52.21°C	230.34V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	**63.526A**	**9.115A**	**9.166A**	**2.55A**	849.868	92.039%	3030	47.7	45.57°C	0.976
	12.006V	4.937V	3.24V	4.902V	923.478				53.79°C	230.33V
110%	**69.947A**	**10.149A**	**10.311A**	**2.554A**	935.244	91.671%	3033	47.8	46.11°C	0.98
	12.002V	4.927V	3.229V	4.894V	1020.3				54.17°C	230.32V
CL1	**0.116A**	**14.546A**	**14.548A**	**0A**	121.298	82.078%	1119	17.1	40.25°C	0.835
	12.027V	4.964V	3.278V	5.005V	147.811				48.02°C	230.39V
CL2	**0.116A**	**18.26A**	**0A**	**0A**	91.394	80.905%	0	<6.0	43.83°C	0.787
	12.030V	4.929V	3.33V	5.018V	112.953				40.24°C	230.38V
CL3	**0.116A**	**0A**	**18.13A**	**0A**	60.789	76.321%	0	<6.0	45.77°C	0.646
	12.026V	5.016V	3.276V	5.013V	79.837				41.23°C	230.39V
CL4	**70.740A**	**0A**	**0A**	**0A**	849.703	92.98%	2964	46.5	45.07°C	0.975
	12.012V	4.979V	3.28V	4.961V	913.66				52.74°C	230.33V

The results above are not used in the certification process

Light Load Tests

115V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20W	**1.236A**	**0.497A**	**0.494A**	**0.199A**	20.008	71.746%	0	<6.0	38.48°C	0.695
	12.023V	5.028V	3.342V	5.022V	27.967				36.32°C	115.16V
40W	**2.720A**	**0.696A**	**0.692A**	**0.299A**	40.007	79.149%	0	<6.0	39.17°C	0.798
	12.023V	5.027V	3.34V	5.019V	50.602				37.82°C	115.17V
60W	**4.203A**	**0.896A**	**0.89A**	**0.399A**	60.007	84.336%	0	<6.0	40.31°C	0.837
	12.023V	5.025V	3.337V	5.016V	71.217				38.64°C	115.17V
80W	**5.684A**	**1.096A**	**1.089A**	**0.499A**	79.98	86.109%	0	<6.0	41.1°C	0.86
	12.023V	5.023V	3.335V	5.012V	92.901				39.17°C	115.17V

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20W	**1.235A**	**0.497A**	**0.493A**	**0.199A**	20.006	64.859%	0	<6.0	42.24°C	0.391
	12.030V	5.029V	3.343V	5.022V	27.097				36.46°C	230.4V
40W	**2.718A**	**0.696A**	**0.691A**	**0.299A**	40.003	80.671%	0	<6.0	43.98°C	0.532
	12.029V	5.028V	3.341V	5.019V	49.586				39.84°C	230.4V
60W	**4.201A**	**0.896A**	**0.89A**	**0.399A**	60.001	85.944%	0	<6.0	44.11°C	0.616
	12.029V	5.026V	3.338V	5.015V	69.796				38.31°C	230.4V
80W	**5.682A**	**1.095A**	**1.088A**	**0.499A**	79.966	87.695%	0	<6.0	45.4°C	0.676
	12.028V	5.024V	3.336V	5.012V	91.239				39.3°C	230.4V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.1 mV	9.4 mV	6.3 mV	14.6 mV	Pass
20% Load	16.9 mV	9.5 mV	6.3 mV	15.5 mV	Pass
30% Load	12.6 mV	9.3 mV	7.0 mV	14.4 mV	Pass
40% Load	13.0 mV	10.4 mV	6.6 mV	12.9 mV	Pass
50% Load	14.4 mV	10.2 mV	7.1 mV	14.8 mV	Pass
60% Load	15.6 mV	11.6 mV	7.8 mV	13.3 mV	Pass
70% Load	16.1 mV	12.5 mV	9.3 mV	13.1 mV	Pass
80% Load	17.6 mV	15.3 mV	11.1 mV	12.8 mV	Pass
90% Load	23.5 mV	20.7 mV	13.7 mV	19.7 mV	Pass
100% Load	25.8 mV	14.8 mV	11.7 mV	13.3 mV	Pass
110% Load	27.6 mV	15.1 mV	13.0 mV	13.3 mV	Pass
Crossload 1	22.3 mV	17.6 mV	12.7 mV	10.5 mV	Pass
Crossload 2	11.0 mV	11.2 mV	8.7 mV	8.0 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload 3	9.0 mV	10.5 mV	9.6 mV	8.5 mV	Pass
Crossload 4	26.5 mV	12.7 mV	10.8 mV	10.3 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	12.1 mV	9.5 mV	6.3 mV	14.6 mV	Pass
20% Load	19.2 mV	9.5 mV	6.3 mV	16.4 mV	Pass
30% Load	13.9 mV	10.0 mV	6.6 mV	15.5 mV	Pass
40% Load	13.9 mV	9.4 mV	6.6 mV	13.3 mV	Pass
50% Load	14.7 mV	10.8 mV	6.9 mV	14.4 mV	Pass
60% Load	14.8 mV	10.4 mV	8.4 mV	13.6 mV	Pass
70% Load	15.5 mV	11.8 mV	8.4 mV	13.5 mV	Pass
80% Load	16.7 mV	14.0 mV	11.0 mV	13.3 mV	Pass
90% Load	18.3 mV	13.7 mV	11.3 mV	12.4 mV	Pass
100% Load	25.9 mV	14.2 mV	12.0 mV	12.8 mV	Pass
110% Load	28.3 mV	15.2 mV	12.2 mV	13.1 mV	Pass
Crossload 1	24.8 mV	17.0 mV	12.0 mV	9.4 mV	Pass
Crossload 2	10.8 mV	11.4 mV	8.9 mV	8.2 mV	Pass
Crossload 3	8.9 mV	10.7 mV	9.6 mV	8.0 mV	Pass
Crossload 4	25.2 mV	11.6 mV	10.9 mV	9.9 mV	Pass

The results above are not used in the certification process

Thermaltake Toughpower SFX 850W (ATX v3.1)



Top side



Power specifications label

All data and graphs included in this test report can be used by any individual on the following conditions:

› It should be mentioned that the test results are provided by Cybenetics

› The link to the original test results document should be provided in any case

Cybenetics runs voluntary certification programs for power supplies - ETA for efficiency, LAMBDA for noise and SAFE for safety and correct operation - and for cooling products, with DELTA for chassis soundproofing and PHI for fan airflow and static pressure. THETA rates cooler performance on AMD AM5 and Intel LGA1851 outside ISO 17065 and accreditation scope

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