thermaltake

Thermaltake Toughpower SFX 1000W (ATX v3.1)

Serial Number PSSTP1000FNFAPA10DCH00184

Lab ID TT10002575

Certification ID 252575

Test Result Report ID: 24PS2575A

Certificate Issue Date: Sep 25, 2024

Scheme: ETA-EMI PSU

115V: CYBENETICS PLATINUM

230V: CYBENETICS SILVER 230v

Scheme: LAMBDA PSU

115V: CYBENETICS STANDARD++

230V: CYBENETICS STANDARD++ 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 1000W (ATX v3.1)
OEM/ODM	CE-Link
Serial Number	PSSTP1000FNFAPA10DCH00184
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-8

Rated Frequency (Hz)	50-60
Rated Power (W)	1000
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	TT10002575
Date of receipt	Sep 10, 2024
Testing Date	Sep 19, 2024
Report Issued Date	Sep 25, 2024
DUT Notes	The unit had voltage drop during OCP testing and didn't shut down. This occurred under both normal and hot conditions.
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)	2	4	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 (1400mm) - C13 coupler	1	1	17AWG	-

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	83.3	2.5	0.3
	Watts	120		1000	12.5	3.6
Total Max. Power (W)		1000				

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, 470uF or combined 940uF, 2,000h @ 105°C, MXE)
Main Switchers	2x 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
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)	89.597%
Average Noise Output (>1450 Load Combinations)	31.46dBA
Average PF (>1450 Load Combinations)	0.980
Efficiency With 10W (≤500W) or 2% (>500W) Load	72.005%
Standby Power Consumption	0.0672W
Non-Accredited	
12V Ripple (Full Load)	27.95mV
5V Ripple (Full Load)	11.52mV
3.3V Ripple (Full Load)	13.38mV
5VSB Ripple (Full Load)	14.54mV
12V Load Regulation	0.29%
5V Load Regulation	1.76%
3.3V Load Regulation	2.82%
5VSB Load Regulation	2.25%
Inrush Current	34.110A

230V

Accredited	
Average Efficiency (>1450 load combinations)	91.728%
Average Noise Output (>1450 Load Combinations)	30.69dBA
Average PF (>1450 Load Combinations)	0.924
Efficiency With 10W (≤500W) or 2% (>500W) Load	71.636%
Standby Power Consumption	0.1627W
Non-Accredited	
12V Ripple (Full Load)	24.78mV
5V Ripple (Full Load)	15.70mV
3.3V Ripple (Full Load)	14.92mV

5VSB Ripple (Full Load)	14.96mV	
12V Load Regulation	0.52%	
5V Load Regulation	1.67%	
3.3V Load Regulation	3.03%	
5VSB Load Regulation	2.40%	
Inrush Current	64.240A	
12V Transient Response (200%)	11.34V	
5V Transient Response (200%)	4.918V	
3.3V Transient Response (200%)	3.219V	
5VSB Transient Response (200%)	4.924V	
Hold-Up Time & PWR_OK Signal	16.60ms	
AC Loss to PWR_OK Hold Up Time	13.50ms	
PWR_OK Inactive to DC Loss Delay	3.10ms	
PSU Timings: T1 (20% / 100%)	122.0ms	122.0ms
PSU Timings: T3 (20% / 100%)	126.0ms	126.0ms
12V OCP (30.0°C / 43.8°C)	115.00A (138.06%), 11.987V	107.00A (128.45%), 11.992V
5V OCP (30.0°C / 43.8°C)	21.8A (121.11%), 4.812V*	21.4A (118.89%), 4.808V*
3.3V OCP (30.0°C / 43.8°C)		
5VSB OCP (30.0°C / 43.8°C)	21A (116.67%), 3.271V*	20.8A (115.56%), 3.208V*
OPP (29.88°C / 44.25°C)	132.48%	116.54%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	16.6
AC Loss to PWR_OK Hold Up Time (ms)	13.5
PWR_OK Inactive to DC Loss Delay (ms)	3.1

Vampire Power

Tables

115V

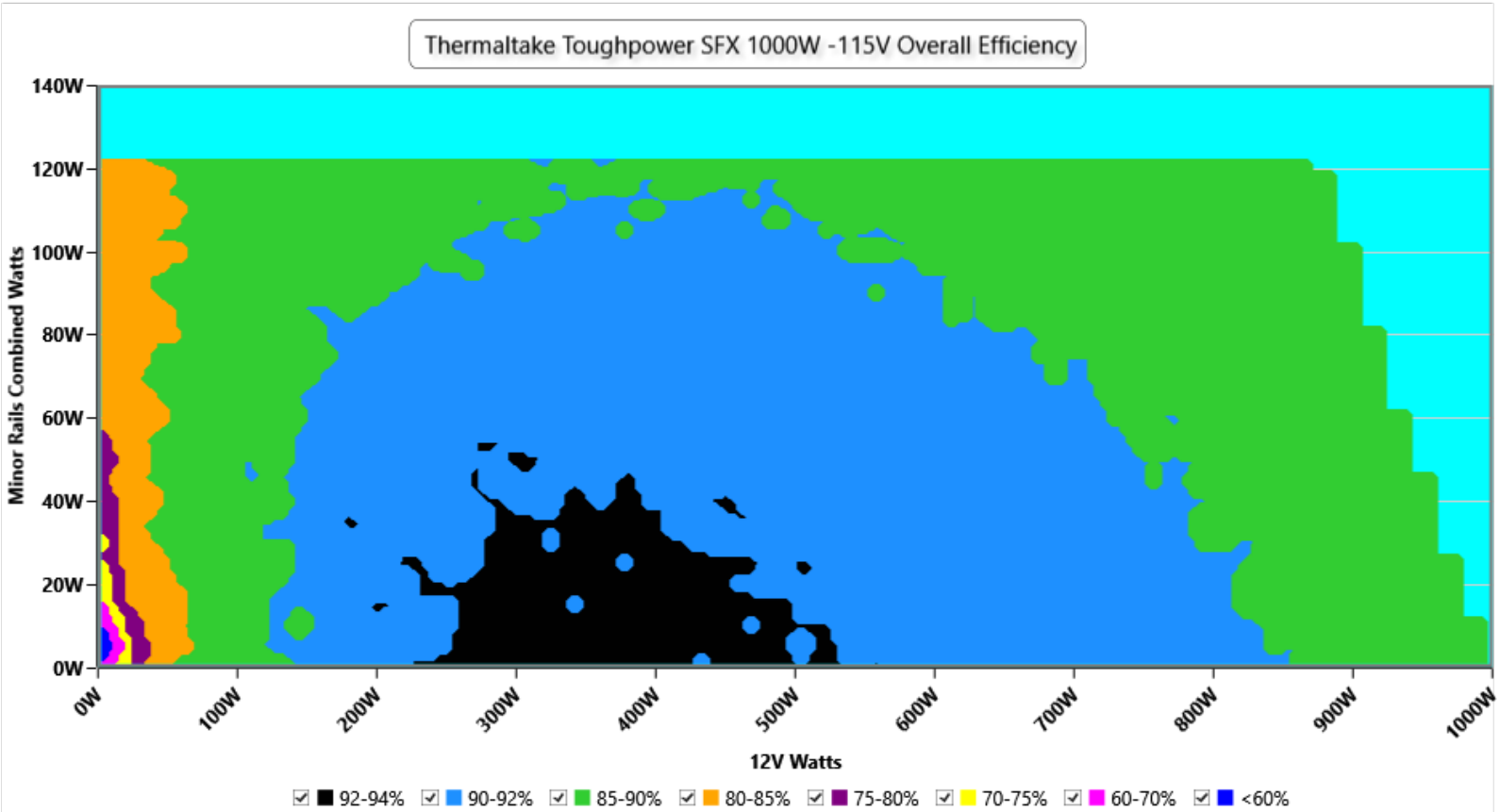
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.09 V	115.04 V	113.85 V	115.12 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.95 Hz	59.40 Hz	60.02 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.14 %	0.08 %	N/A	0.20 %	2.00 %	PASS
Real Power:	0.067 W	0.009 W	N/A	0.115 W	N/A	N/A
Apparent Power:	14.374 W	13.455 W	N/A	15.265 W	N/A	N/A
Power Factor:	0.006	N/A	N/A	N/A	N/A	N/A

230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.02 V	230.91 V	227.70 V	231.09 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	49.99 Hz	49.50 Hz	50.01 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.417	1.416	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.17 %	0.15 %	N/A	0.26 %	2.00 %	PASS
Real Power:	0.163 W	0.123 W	N/A	0.234 W	N/A	N/A
Apparent Power:	44.265 W	43.275 W	N/A	45.221 W	N/A	N/A
Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

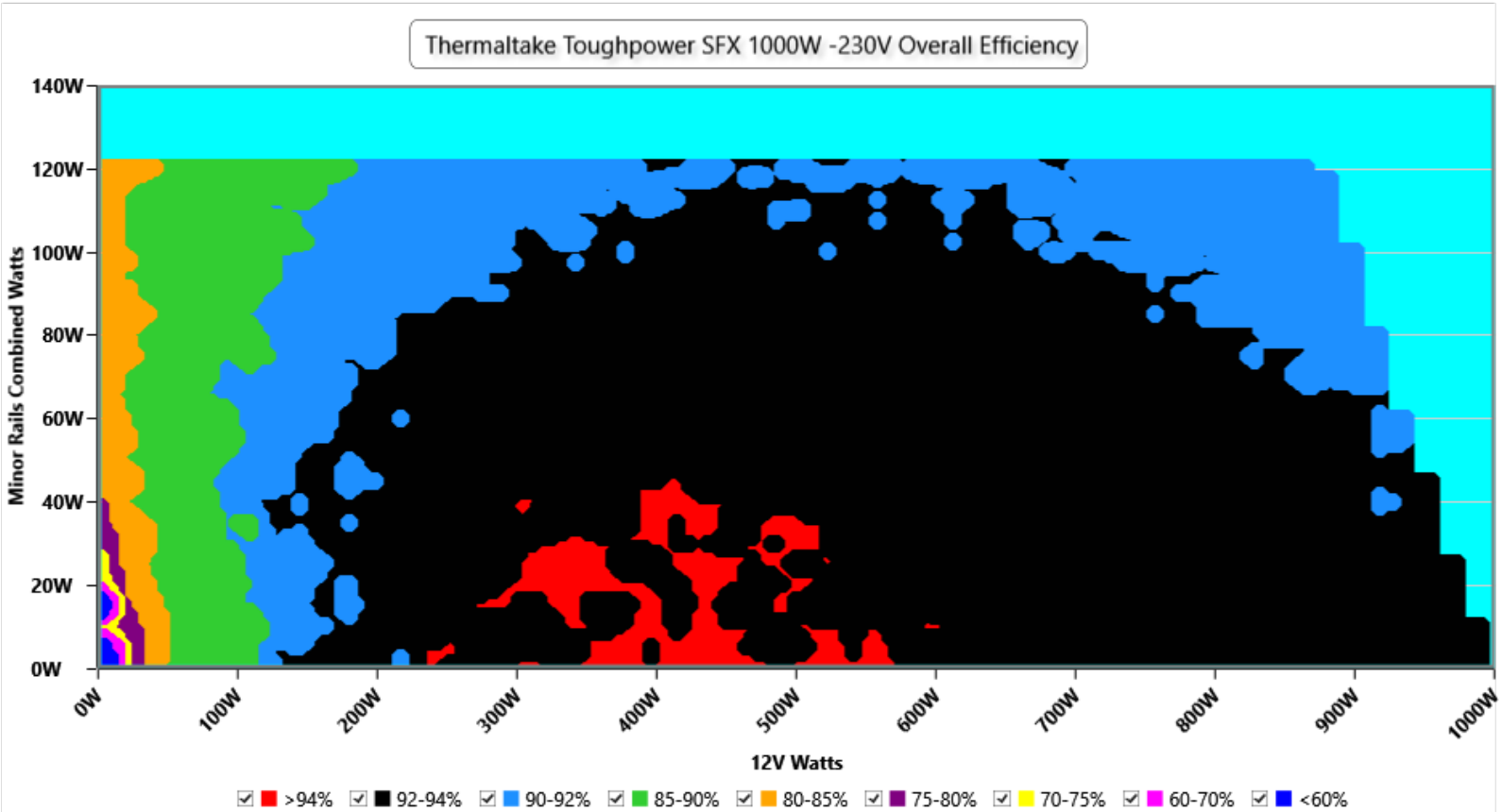
115V



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

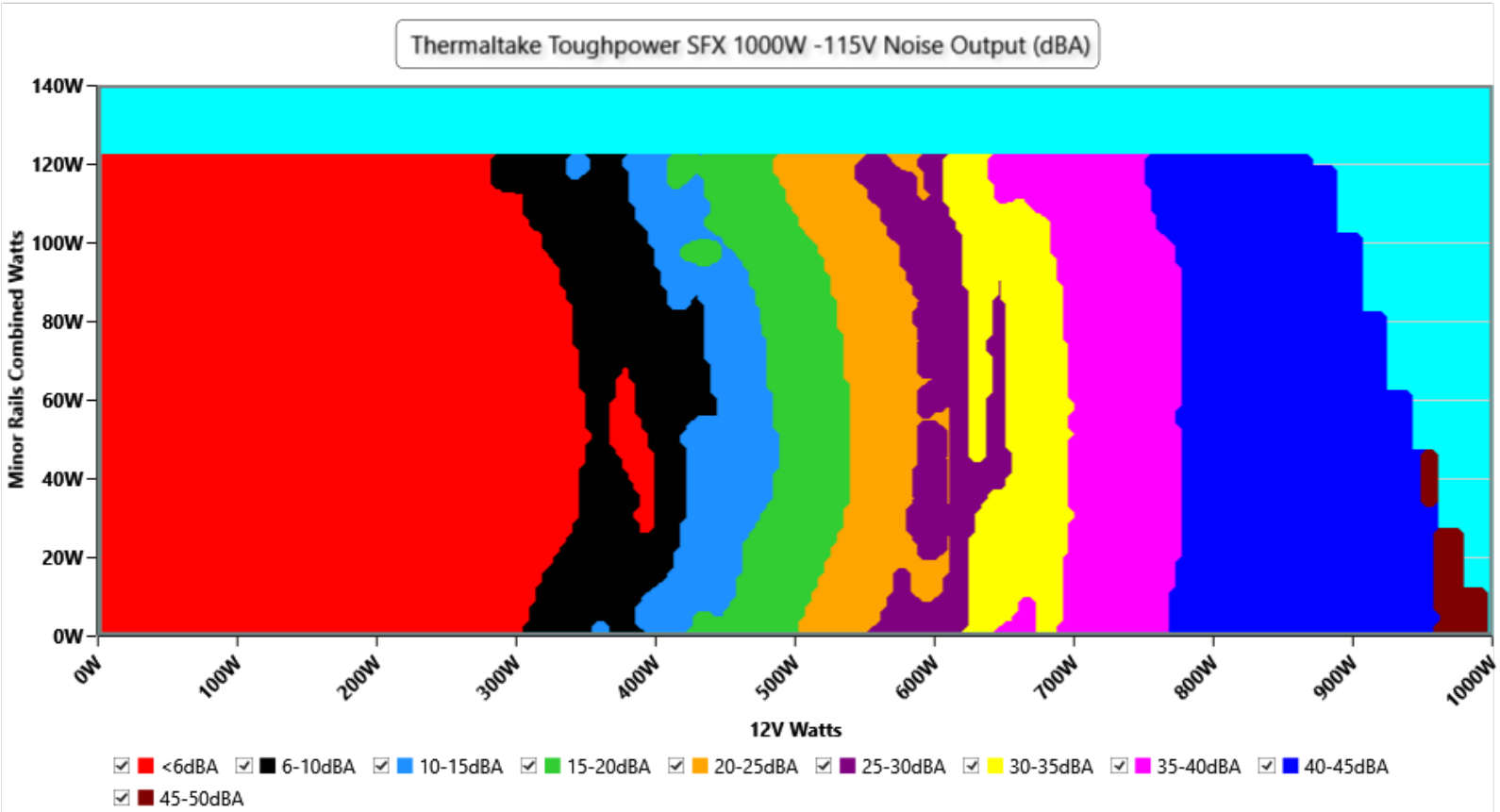


INFO

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

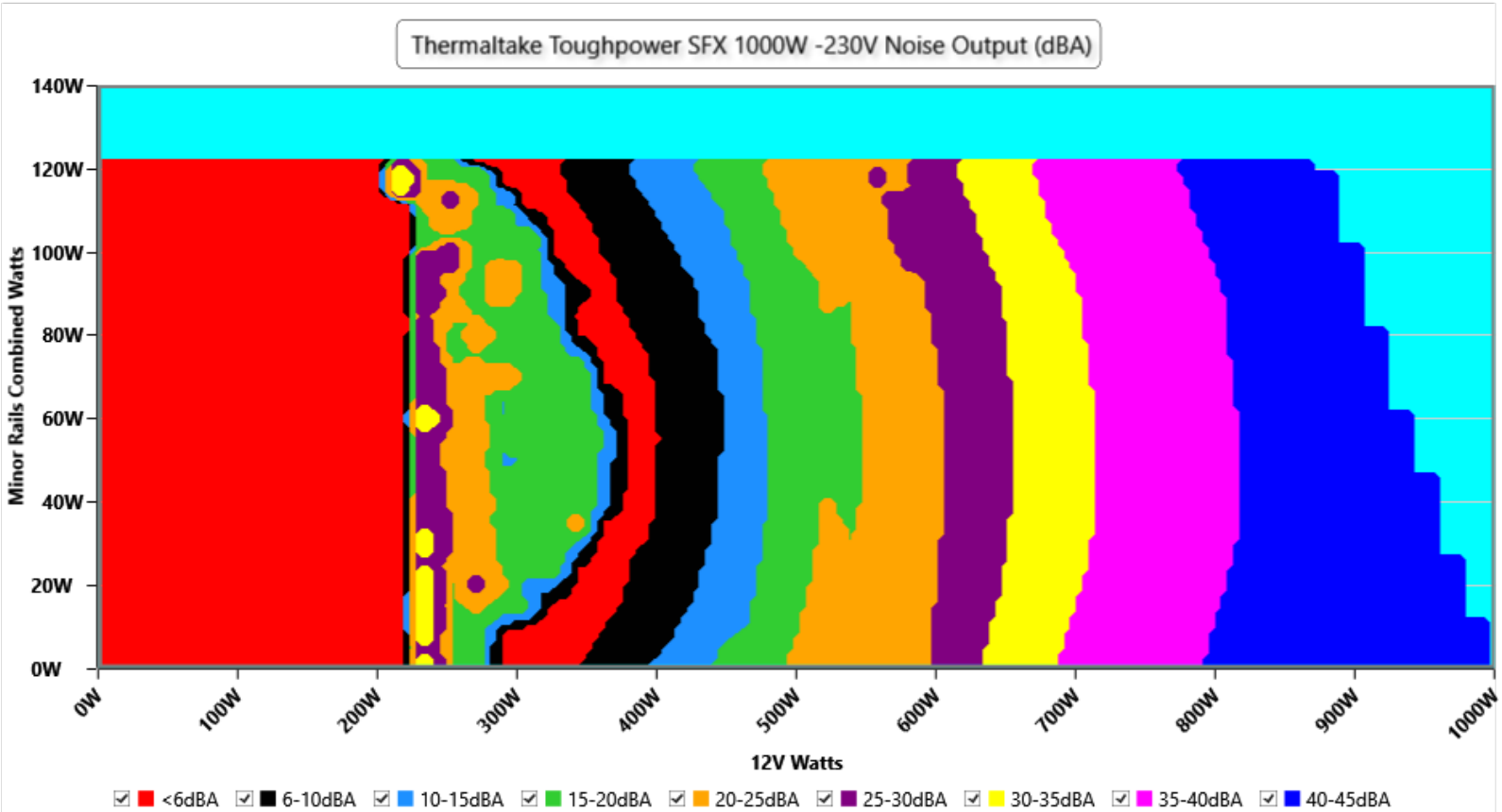
115V



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

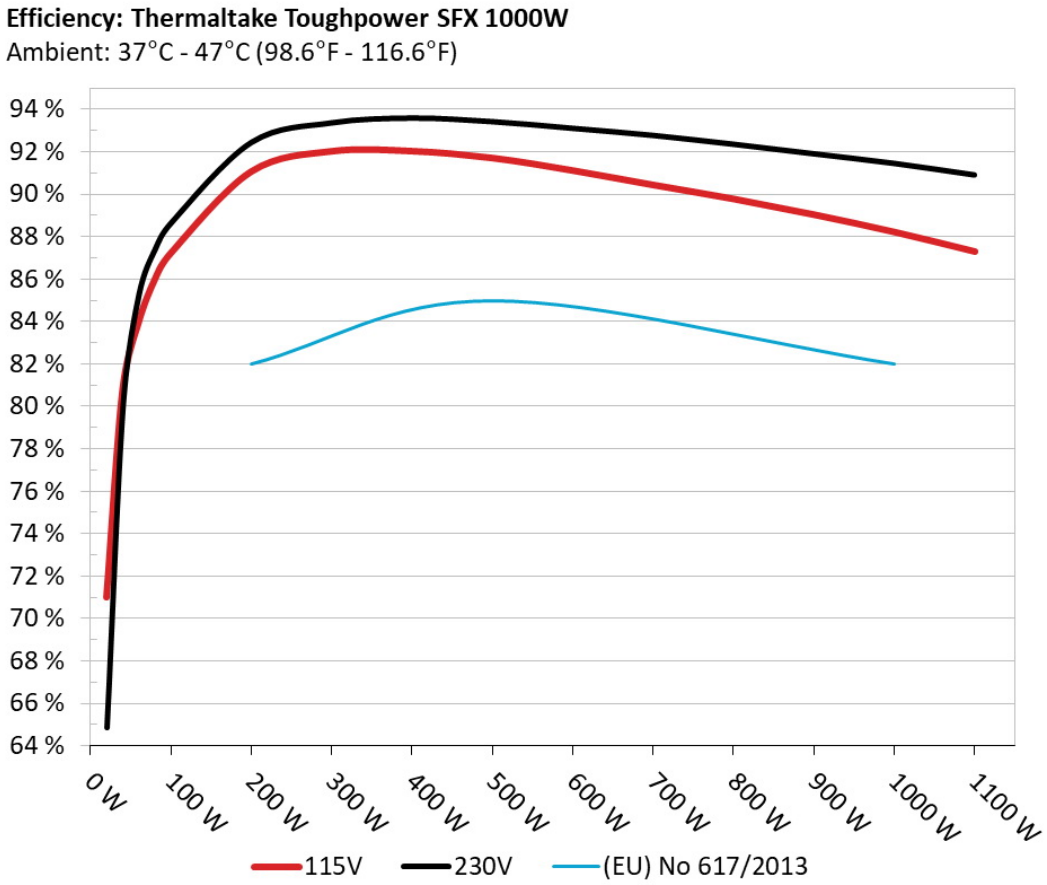


INFO

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

Indicative Performance

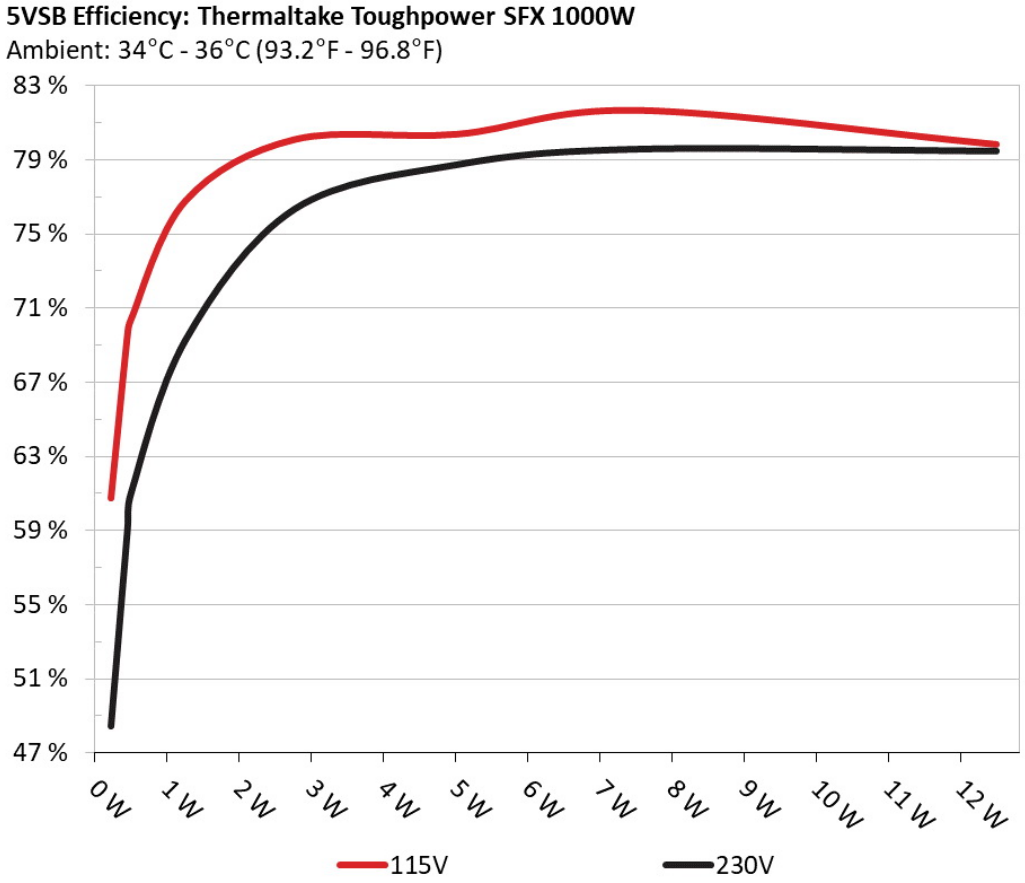
Efficiency under high ambient temperature



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	60.721%	0.03
	5.04V	0.374W		115.16V
2	**0.09A**	0.454W	69.506%	0.053
	5.039V	0.653W		115.16V
3	**0.55A**	2.768W	80.113%	0.232
	5.03V	3.455W		115.18V
4	**1A**	5.023W	80.401%	0.335
	5.021V	6.247W		115.17V
5	**1.5A**	7.519W	81.692%	0.392
	5.011V	9.204W		115.16V
6	**2.501A**	12.482W	79.846%	0.456
	4.991V	15.632W		115.16V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.227W	48.424%	0.011
	5.04V	0.469W		230.42V
2	**0.09A**	0.454W	58.977%	0.019
	5.039V	0.771W		230.41V
3	**0.55A**	2.767W	76.349%	0.086
	5.03V	3.625W		230.41V
4	**1A**	5.022W	78.753%	0.143
	5.021V	6.377W		230.4V
5	**1.5A**	7.518W	79.586%	0.198
	5.011V	9.444W		230.4V
6	**2.501A**	12.479W	79.484%	0.278
	4.991V	15.699W		230.4V

Protection Features

OCP (Normal @ 30.0°C)	12V: 115.00A (138.06%), 11.987V 5V: 21.8A (121.11%), 4.812V* *Didn't shut down. Voltage Drop (4.561V@22A) 3.3V: 21A (116.67%), 3.271V* *Didn't shut down. Voltage Drop (2.888V@21.2A) 5VSB: 4.1A (164.00%), 4.965
OCP (Hot @ 43.8°C)	12V: 107.00A (128.45%), 11.992V 5V: 21.4A (118.89%), 4.808V* *Didn't shut down. Voltage Drop (4.572V@21.6A) 3.3V: 20.8A (115.56%), 3.208V* *Didn't shut down. Voltage Drop (2.968V@21A) 5VSB: 4.1A (164.00%), 4.963V
OPP (Normal @ 29.9°C)	1324.82W (132.48%)
OPP (Hot @ 44.3°C)	1165.39W (116.54%)
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)

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%	**6.536A**	**1.993A**	**1.975A**	**0.997A**	100.039	87.206%	0	<6.0	48.12°C	0.971
	12.001V	5.019V	3.343V	5.017V	114.723				40.21°C	115.16V
20%	**14.085A**	**2.996A**	**2.971A**	**1.199A**	200	91.046%	0	<6.0	49.66°C	0.97
	12.005V	5.009V	3.333V	5.006V	219.669				40.67°C	115.14V
30%	**21.996A**	**3.5A**	**3.474A**	**1.402A**	300.056	92.006%	0	<6.0	53.18°C	0.985
	12.002V	5.002V	3.325V	4.996V	326.119				41.05°C	115.12V
40%	**29.889A**	**4.006A**	**3.98A**	**1.605A**	399.88	92.011%	983	13.7	41.86°C	0.991
	12.000V	4.995V	3.317V	4.985V	434.63				54.47°C	115.09V
50%	**37.440A**	**5.016A**	**4.989A**	**1.81A**	499.578	91.689%	1323	23.1	42.22°C	0.991
	11.994V	4.985V	3.308V	4.974V	544.863				53.97°C	115.06V
60%	**45.061A**	**6.031A**	**6.004A**	**2.001A**	600.014	91.098%	1783	31.8	42.86°C	0.996
	11.990V	4.976V	3.298V	4.964V	658.677				54.08°C	115.04V
70%	**52.622A**	**7.049A**	**7.026A**	**2.222A**	699.799	90.417%	2243	38	43.48°C	0.995
	11.985V	4.967V	3.288V	4.952V	774.003				54.46°C	115.01V
80%	**60.261A**	**8.07A**	**8.052A**	**2.327A**	799.824	89.76%	2608	43.2	43.89°C	0.996
	11.980V	4.957V	3.279V	4.943V	891.182				55.45°C	114.99V
90%	**68.238A**	**8.587A**	**8.561A**	**2.433A**	899.606	89.02%	2993	47.2	44.98°C	0.997
	11.975V	4.95V	3.271V	4.934V	1010.578				57.42°C	114.97V
100%	**76.288A**	**9.106A**	**9.104A**	**2.539A**	1000.34	88.196%	3307	48.8	45.33°C	0.998
	11.970V	4.943V	3.262V	4.925V	1134.235				59.43°C	114.94V
110%	**83.934A**	**10.138A**	**10.239A**	**2.543A**	1100.175	87.278%	3374	49.4	46.51°C	0.998
	11.966V	4.932V	3.252V	4.917V	1260.499				62.17°C	114.91V
CL1	**0.117A**	**14.549A**	**14.427A**	**0A**	121.313	81.148%	1299	21.9	41.34°C	0.954
	12.019V	4.963V	3.306V	5.024V	149.471				49.81°C	115.15V

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**	**18.158A**	**0A**	**0A**	91.396	80.77%	0	<6.0	44.04°C	0.972
	12.013V	4.956V	3.349V	5.034V	113.138				41.35°C	115.14V
CL3	**0.116A**	**0A**	**18.193A**	**0A**	60.793	74.499%	0	<6.0	43.28°C	0.738
	12.008V	5.016V	3.265V	5.03V	81.671				40.85°C	115.17V
CL4	**83.549A**	**0A**	**0A**	**0A**	1000.099	89.011%	3186	48.6	45.29°C	0.998
	11.970V	4.984V	3.297V	4.981V	1123.549				58.68°C	114.94V

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%	**6.487A**	**1.983A**	**1.971A**	**1A**	100.032	88.654%	0	<6.0	47.43°C	0.718
	12.090V	5.046V	3.35V	5V	112.842				40.34°C	230.42V
20%	**13.982A**	**2.979A**	**2.965A**	**1.203A**	199.99	92.453%	0	<6.0	48.15°C	0.897
	12.093V	5.036V	3.339V	4.989V	216.363				40.76°C	230.41V
30%	**21.841A**	**3.481A**	**3.468A**	**1.405A**	300.047	93.374%	0	<6.0	50.23°C	0.931
	12.086V	5.029V	3.331V	4.981V	321.337				41.28°C	230.4V
40%	**29.688A**	**3.984A**	**3.974A**	**1.61A**	399.816	93.595%	0	<6.0	51.35°C	0.947
	12.079V	5.022V	3.322V	4.971V	427.202				41.79°C	230.39V
50%	**37.198A**	**4.988A**	**4.982A**	**1.815A**	499.54	93.43%	1256	20.8	42.08°C	0.959
	12.071V	5.014V	3.312V	4.959V	534.731				47.71°C	230.38V
60%	**44.783A**	**5.996A**	**5.996A**	**2.001A**	599.983	93.113%	1748	30.9	42.51°C	0.964
	12.064V	5.005V	3.303V	4.948V	644.349				47.91°C	230.37V
70%	**52.311A**	**7.007A**	**7.016A**	**2.229A**	699.83	92.78%	2311	39.2	43.02°C	0.969
	12.057V	4.997V	3.293V	4.935V	754.317				48.4°C	230.36V
80%	**59.914A**	**8.021A**	**8.043A**	**2.335A**	799.855	92.363%	2763	44.4	43.84°C	0.974
	12.049V	4.988V	3.282V	4.926V	866.04				49.52°C	230.35V
90%	**67.855A**	**8.535A**	**8.554A**	**2.441A**	899.636	91.913%	3131	48.7	44.51°C	0.979
	12.042V	4.98V	3.273V	4.916V	978.687				50.41°C	230.33V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	**75.877A**	**9.051A**	**9.098A**	**2.548A**	1000.34	91.458%	3395	49.6	45.11°C	0.983
	12.034V	4.973V	3.264V	4.907V	1093.666				51.55°C	230.32V
110%	**83.521A**	**10.075A**	**10.238A**	**2.552A**	1100.146	90.917%	3403	49.7	46.29°C	0.986
	12.025V	4.963V	3.252V	4.899V	1210.056				53.23°C	230.3V
CL1	**0.116A**	**14.441A**	**14.482A**	**0A**	121.309	82.046%	706	<6.0	40.32°C	0.85
	12.083V	5V	3.293V	5.013V	147.86				48.78°C	230.38V
CL2	**0.115A**	**18.092A**	**0A**	**0A**	91.398	81.653%	0	<6.0	45.91°C	0.716
	12.091V	4.975V	3.342V	5.017V	112.08				41.11°C	230.38V
CL3	**0.115A**	**0A**	**18.097A**	**0A**	60.789	75.362%	0	<6.0	43.08°C	0.651
	12.089V	5.038V	3.282V	5.019V	80.715				41.64°C	230.37V
CL4	**83.041A**	**0A**	**0A**	**0A**	1000.111	92.242%	3188	48.7	45.15°C	0.982
	12.043V	5.009V	3.305V	4.969V	1084.273				50.27°C	230.3V

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	**1.240A**	**0.497A**	**0.492A**	**0.199A**	20.014	70.982%	0	<6.0	41.22°C	0.621
	11.992V	5.03V	3.354V	5.036V	28.216				36.57°C	115.19V
40W	**2.726A**	**0.696A**	**0.689A**	**0.298A**	40.011	80.775%	0	<6.0	42.07°C	0.689
	11.994V	5.027V	3.351V	5.033V	49.549				37.33°C	115.19V
60W	**4.213A**	**0.896A**	**0.887A**	**0.398A**	60.011	83.954%	0	<6.0	44.16°C	0.72
	11.995V	5.025V	3.35V	5.03V	71.509				38.07°C	115.19V
80W	**5.698A**	**1.095A**	**1.084A**	**0.498A**	79.99	85.96%	0	<6.0	46.07°C	0.738
	11.998V	5.024V	3.349V	5.027V	93.072				39.11°C	115.2V

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	**1.228A**	**0.495A**	**0.491A**	**0.199A**	20.012	64.834%	0	<6.0	41.85°C	0.452
	12.097V	5.056V	3.363V	5.025V	30.866				36.63°C	230.43V
40W	**2.704A**	**0.693A**	**0.687A**	**0.299A**	40.01	79.992%	0	<6.0	42.54°C	0.544
	12.095V	5.054V	3.36V	5.022V	50.018				37.49°C	230.43V
60W	**4.179A**	**0.891A**	**0.885A**	**0.399A**	60.01	85.299%	0	<6.0	43.65°C	0.623
	12.093V	5.051V	3.358V	5.019V	70.393				38.49°C	230.43V
80W	**5.653A**	**1.09A**	**1.082A**	**0.499A**	79.985	87.409%	0	<6.0	45.62°C	0.677
	12.091V	5.05V	3.356V	5.012V	91.416				39.28°C	230.43V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	27.7 mV	8.5 mV	5.6 mV	13.4 mV	Pass
20% Load	11.7 mV	8.2 mV	5.7 mV	14.9 mV	Pass
30% Load	10.6 mV	8.4 mV	6.2 mV	15.1 mV	Pass
40% Load	12.3 mV	9.0 mV	6.2 mV	13.5 mV	Pass
50% Load	13.8 mV	9.0 mV	6.7 mV	15.4 mV	Pass
60% Load	15.7 mV	9.4 mV	7.4 mV	12.4 mV	Pass
70% Load	16.1 mV	9.5 mV	8.0 mV	13.7 mV	Pass
80% Load	18.5 mV	10.6 mV	11.3 mV	14.7 mV	Pass
90% Load	20.5 mV	10.7 mV	12.6 mV	14.0 mV	Pass
100% Load	28.0 mV	11.5 mV	13.4 mV	14.5 mV	Pass
110% Load	32.7 mV	12.4 mV	13.8 mV	14.7 mV	Pass
Crossload 1	21.7 mV	10.6 mV	13.7 mV	9.4 mV	Pass
Crossload 2	18.4 mV	7.6 mV	8.5 mV	6.8 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload 3	8.6 mV	8.6 mV	13.7 mV	9.8 mV	Pass
Crossload 4	27.5 mV	11.7 mV	11.5 mV	8.5 mV	Pass

The results above are not used in the certification process

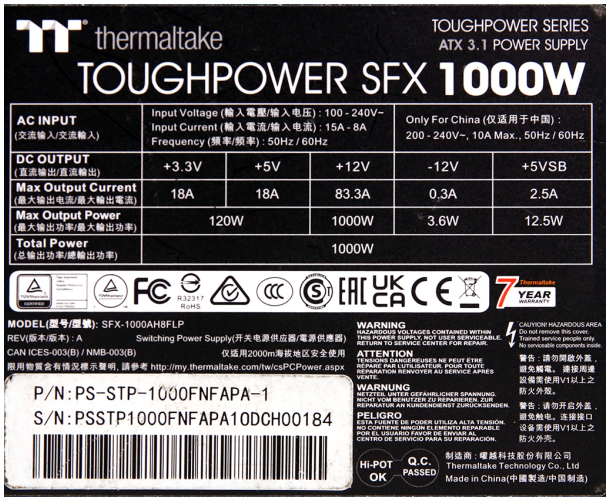
230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.8 mV	8.3 mV	6.6 mV	12.5 mV	Pass
20% Load	15.0 mV	8.3 mV	6.9 mV	13.0 mV	Pass
30% Load	12.0 mV	8.5 mV	7.4 mV	13.1 mV	Pass
40% Load	12.2 mV	9.3 mV	8.2 mV	13.3 mV	Pass
50% Load	12.7 mV	10.0 mV	8.4 mV	12.2 mV	Pass
60% Load	13.6 mV	11.4 mV	8.4 mV	12.5 mV	Pass
70% Load	15.6 mV	13.2 mV	10.1 mV	12.5 mV	Pass
80% Load	16.8 mV	13.4 mV	13.5 mV	12.9 mV	Pass
90% Load	18.1 mV	16.0 mV	13.6 mV	13.4 mV	Pass
100% Load	24.8 mV	15.7 mV	14.9 mV	15.0 mV	Pass
110% Load	26.7 mV	16.7 mV	16.3 mV	16.6 mV	Pass
Crossload 1	15.7 mV	17.0 mV	16.7 mV	11.9 mV	Pass
Crossload 2	10.3 mV	8.6 mV	9.4 mV	9.7 mV	Pass
Crossload 3	7.4 mV	9.2 mV	11.2 mV	9.1 mV	Pass
Crossload 4	24.8 mV	13.1 mV	14.0 mV	11.1 mV	Pass

The results above are not used in the certification process

Thermaltake Toughpower SFX 1000W (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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