

Lab ID#: TT10002072
Receipt Date: Sep 22, 2022
Test Date: Oct 10, 2022

Report: 22PS2072A
Report Date: Oct 10, 2022

DUT INFORMATION	
Brand	Thermaltake
Manufacturer (OEM)	CWT
Series	Toughpower GF3
Model Number	TPD-1000AH3FCG
Serial Number	PSTPD1000FNFACE4SI000035
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	13-6.5
Rated Frequency (Hz)	50-60
Rated Power (W)	1000
Type	ATX12V
Cooling	135mm Fluid Dynamic Bearing Fan (HA13525H12SF-Z)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

TEST EQUIPMENT	
Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289, Keithley 2015 - THD
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

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RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.0 PSU Power Excursion	✓

115V

Average Efficiency	88.619%
Efficiency With 10W (≤500W) or 2% (>500W)	79.663
Average Efficiency 5VSB	78.660%
Standby Power Consumption (W)	0.0158000
Average PF	0.984
Avg Noise Output	37.48 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard+

230V

Average Efficiency	90.568%
Average Efficiency 5VSB	78.030%
Standby Power Consumption (W)	0.0716000
Average PF	0.961
Avg Noise Output	37.47 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard+

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	22	22	83.5	3	0.3
	Watts	120		999.6	15	3.6
Total Max. Power (W)		1000				

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	16AWG	No
8 pin EPS12V (700mm)	1	1	16AWG	No
4+4 pin EPS12V (700mm)	1	1	16AWG	No
6+2 pin PCIe (500mm+150mm)	2	4	16-18AWG	No
12+4 pin PCIe (600mm) (450W)	1	1	16-24AWG	No
SATA (500mm+150mm+150mm+150mm)	3	12	18AWG	No
4-pin Molex (500mm+150mm+150mm+150mm)	1	4	18AWG	No
FDD Adapter (100mm)	1	1	22AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

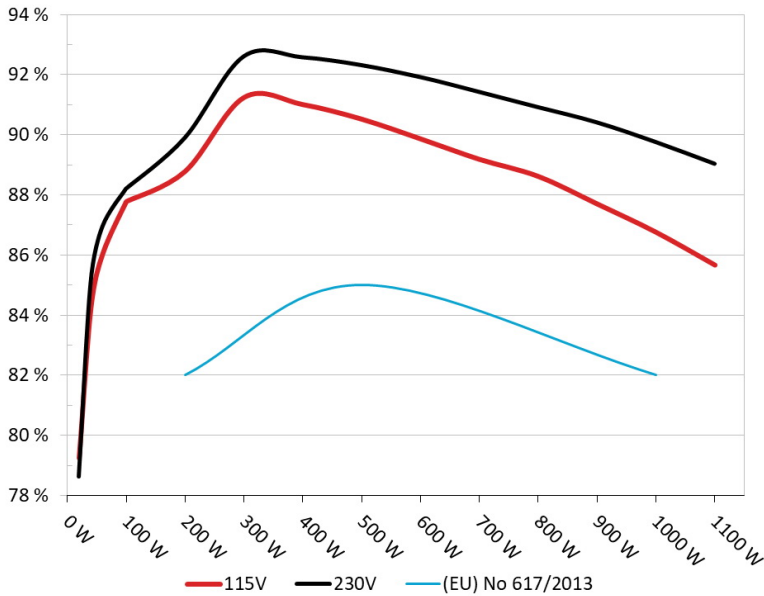
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Thermaltake Toughpower GF3 1000W

Ambient: 37°C - 47°C (98.6°F - 116.6°F)



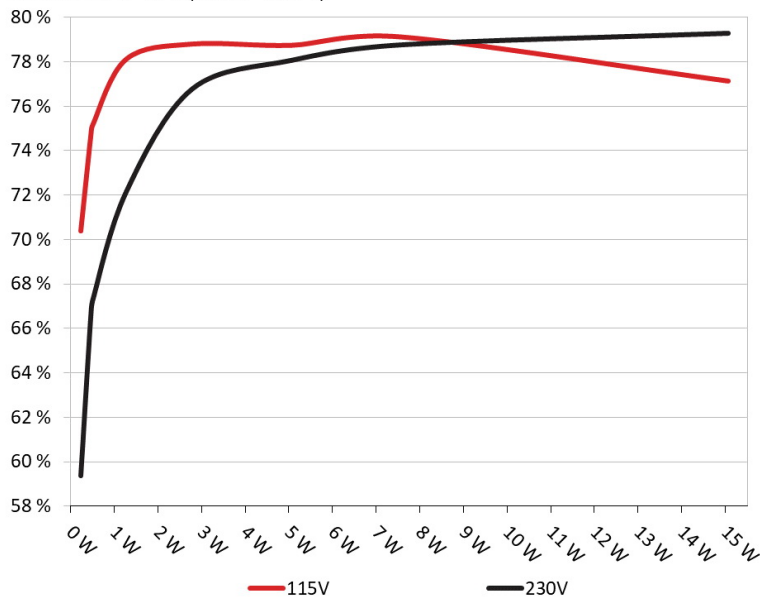
INFO

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

5VSB Efficiency: Thermaltake Toughpower GF3 1000W

Ambient: 34°C - 36°C (93.2°F - 96.8°F)



INFO

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

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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228W	70.369%	0.032
	5.073V	0.324W		115.15V
2	0.09A	0.456W	74.64%	0.06
	5.072V	0.611W		115.16V
3	0.55A	2.785W	78.78%	0.272
	5.065V	3.535W		115.16V
4	1A	5.056W	78.722%	0.375
	5.057V	6.423W		115.15V
5	1.5A	7.572W	79.098%	0.428
	5.049V	9.573W		115.15V
6	2.999A	15.066W	77.115%	0.504
	5.024V	19.538W		115.15V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228W	59.361%	0.012
	5.073V	0.384W		230.34V
2	0.09A	0.456W	66.524%	0.021
	5.072V	0.686W		230.34V
3	0.55A	2.785W	76.775%	0.104
	5.065V	3.627W		230.34V
4	1A	5.056W	78.058%	0.173
	5.057V	6.477W		230.34V
5	1.5A	7.572W	78.757%	0.233
	5.049V	9.615W		230.34V
6	2.999A	15.065W	79.276%	0.341
	5.024V	19.003W		230.34V

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115V

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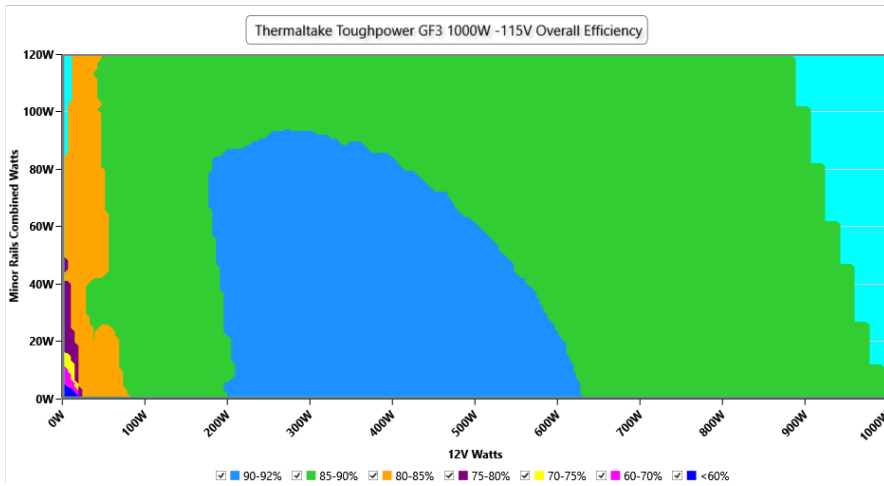
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EFFICIENCY GRAPH 115V

INFO

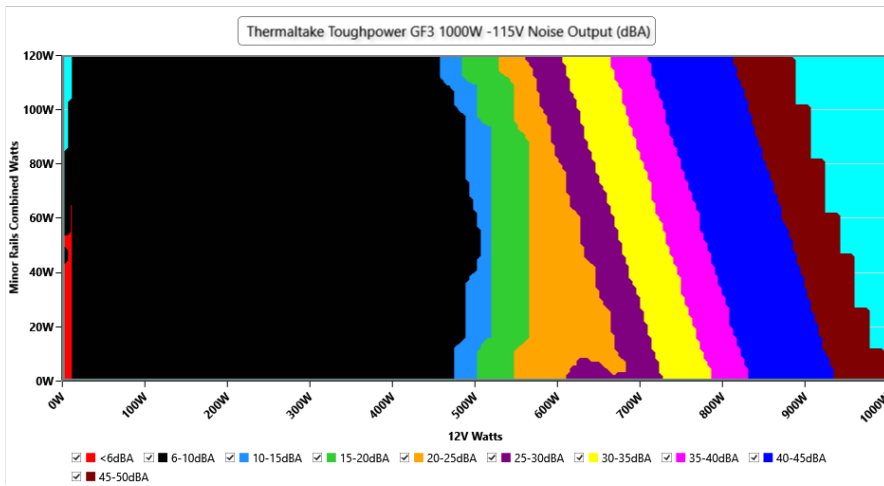
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



NOISE GRAPH 115V

INFO

The PSU's noise in its entire operational range and under 30-32 °C (+2 °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



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VAMPIRE POWER -115V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.15 V	115.12 V	113.85 V	115.20 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	1.419	1.490	PASS
Mains Voltage THD:	0.13 %	0.10 %	N/A	0.17 %	2.00 %	PASS
Real Power:	0.016 W	0.011 W	N/A	0.020 W	N/A	N/A
Apparent Power:	10.287 W	10.199 W	N/A	10.372 W	N/A	N/A
Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 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%	6.464A	1.988A	2.005A	0.991A	100.008	85.673%	0	<6.0	44.29°C	0.975
	12.128V	5.032V	3.292V	5.047V	116.729				40.07°C	115.14V
20%	13.939A	2.982A	3.009A	1.191A	199.933	88.789%	0	<6.0	44.79°C	0.984
	12.127V	5.031V	3.29V	5.038V	225.177				40.24°C	115.11V
50%	37.088A	4.976A	5.028A	1.765A	499.121	90.53%	417	7.8	42.59°C	0.985
	12.096V	5.024V	3.281V	5.099V	551.328				48.59°C	115.02V
100%	75.299A	8.973A	9.076A	2.967A	999.178	86.773%	1927	50.1	45.94°C	0.992
	12.079V	5.014V	3.271V	5.055V	1151.491				55.99°C	114.83V

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230V

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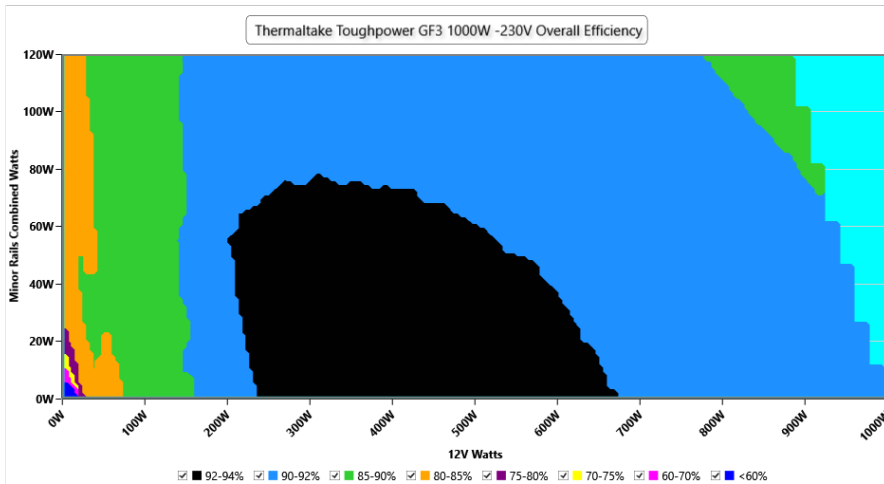
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EFFICIENCY GRAPH 230V

INFO

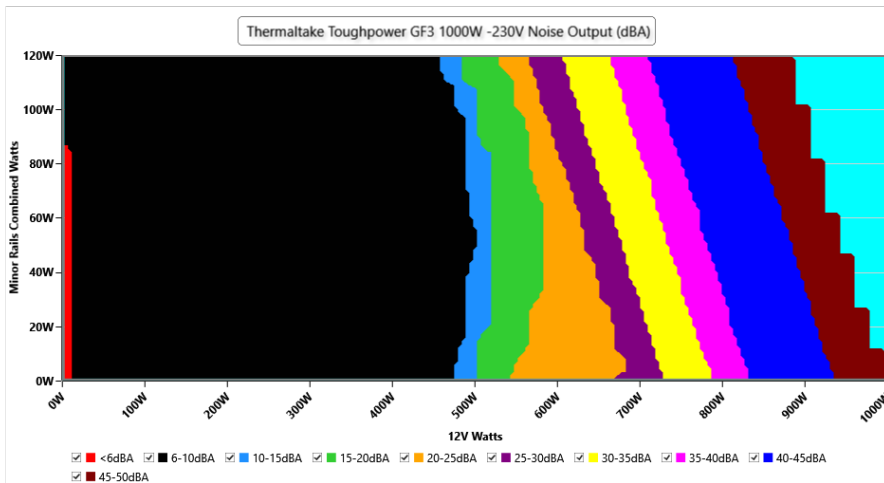
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



NOISE GRAPH 230V

INFO

The PSU's noise in its entire operational range and under 30-32 °C (+2 °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



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VAMPIRE POWER -230V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	230.34 V	230.20 V	227.70 V	230.37 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:	1.416	1.415	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.13 %	0.10 %	N/A	0.23 %	2.00 %	PASS
Real Power:	0.072 W	0.064 W	N/A	0.086 W	N/A	N/A
Apparent Power:	34.746 W	34.502 W	N/A	35.018 W	N/A	N/A
Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 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%	6.462A	1.987A	2.004A	0.991A	99.979	86.76%	0	<6.0	44.84°C	0.888
	12.129V	5.032V	3.293V	5.047V	115.238				40.46°C	230.32V
20%	13.938A	2.982A	3.009A	1.191A	199.909	89.903%	0	<6.0	45.63°C	0.946
	12.126V	5.03V	3.29V	5.038V	222.367				40.98°C	230.31V
50%	37.097A	4.979A	5.026A	1.765A	499.145	92.329%	418	7.8	42.55°C	0.975
	12.094V	5.022V	3.283V	5.098V	540.612				48.69°C	230.27V
100%	75.336A	8.979A	9.072A	2.968A	999.219	89.769%	1928	50.1	45.3°C	0.983
	12.074V	5.011V	3.272V	5.053V	1113.113				55.37°C	230.19V

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EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

Thermaltake Toughpower GF3 1000W

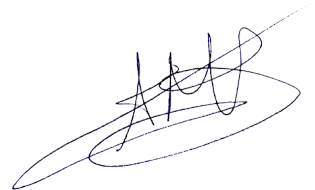


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Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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