



Thermaltake Toughpower GF A3 750W (CE-Link)

Serial Number PSTPD0750FNFAGULODVH00427

Lab ID TT75002527

Certification ID 252527

Test Result Report ID: 24PS2527A

Certificate Issue Date: Aug 6, 2024

Scheme: ETA-EMI PSU

115V

230V

115V

230V

Scheme: LAMBDA PSU

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 GF A3 750W (CE-Link)
OEM/ODM	CE-Link
Serial Number	PSTPD0750FNFAGULODVH00427
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-8

Rated Frequency (Hz)	50/60
Rated Power (W)	750
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Fluid Dynamic Bearing Fan (TT-1225 GQR1225D12M)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	TT75002527
Date of receipt	Jul 26, 2024
Testing Date	Aug 5, 2024
Report Issued Date	Aug 6, 2024
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 20+4 pin (600mm)	1	1	18-22AWG	No
4+4 pin EPS12V (650mm+150mm)	1	2	16-18AWG	No
6+2 pin PCIe (500mm+150mm)	2	4	16-18AWG	No
12+4 pin PCIe (610mm) (300W)	1	1	16-24AWG	No
SATA (510mm+150mm+150mm+150mm)	2	8	18AWG	No
4-pin Molex (500mm+150mm+150mm+150mm)	1	4	18AWG	No
FDD Adapter (+150mm)	1	1	22AWG	No

AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-
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Protection Features(Manufacturer)

Over Voltage Protection	✓
Under Voltage Protection	✓
Over Power Protection	✓
Over Current (+12V) Protection	✓
Over Temperature Protection	-
Short Circuit Protection	✗
Surge Protection	✓

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	62.5	3	0.3
	Watts	100		750	15	3.6
Total Max. Power (W)		750				

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 HS GBU15V08 (800V, 15A @ 40°C)
APFC MOSFETs	2x Lonten LSD55R140GT (550V, 15A @ 100°C, Rds(on): 0.14Ohm) & ChampionCM03X (for no load consumption)
APFC Boost Diode	1x Global Power G4S0658AT (650V, 8A @ 153°C)

Bulk Cap(s)	1x Nichicon (400V, 820uF, 2,000h @ 105°C, GL(M))
Main Switchers	2x Lonten LSD65R099GF (650V, 26A @ 100°C, Rds(on): 0.0990hm)
Resonant Controller	Champion CU6901T6X
APFC Controller	Champion 6500UNX
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	6x Lonten LSGN04R013WE (40V, 101A @ 100°C, Rds(on): 1.35mOhm)
5V & 3.3V	DC-DC Converters: 4x Vergiga Semiconductor VS3610GPMT (30V, 49A @ 100°C, Rds(on): 3.3mOhm) PWM Controller(s): 2x AnpecAPW7164
Filtering Capacitors	Electrolytic: 1x Nichicon (9-10,000h @ 105°C, HW(M)) 9x Teapo (3,000h @ 105°C, SC) 6x Teapo (2-6,000h @ 105°C, SY) Polymer: 18x Teapo
Supervisor IC	GREENERGY GR8329E (OVP, UVP, OCP,)
Fan Model	TT-1225 GQR1225D12M (120mm, 12V, 0.20A, Fluid Dynamic Bearing Fan)
5VSB	
Rectifier	1x Jiangsu SP1060L SBR (60V, 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)	89.412%
Average Noise Output (>1450 Load Combinations)	24.11dBA
Average PF (>1450 Load Combinations)	0.987
Efficiency With 10W ($\leq 500W$) or 2% (>500W) Load	65.668%
Standby Power Consumption	0.0631W
Non-Accredited	
12V Ripple (Full Load)	28.26mV
5V Ripple (Full Load)	36.34mV
3.3V Ripple (Full Load)	24.59mV
5VSB Ripple (Full Load)	21.47mV
12V Load Regulation	0.94%
5V Load Regulation	1.61%
3.3V Load Regulation	1.79%
5VSB Load Regulation	3.52%
Inrush Current	33.280A

230V

Accredited	
Average Efficiency (>1450 load combinations)	91.425%
Average Noise Output (>1450 Load Combinations)	25.50dBA
Average PF (>1450 Load Combinations)	0.945
Efficiency With 10W ($\leq 500W$) or 2% (>500W) Load	64.875%
Standby Power Consumption	0.1253W
Non-Accredited	
12V Ripple (Full Load)	26.67mV
5V Ripple (Full Load)	29.97mV
3.3V Ripple (Full Load)	20.72mV

5VSB Ripple (Full Load)	19.38mV	
12V Load Regulation	0.95%	
5V Load Regulation	1.59%	
3.3V Load Regulation	1.73%	
5VSB Load Regulation	3.43%	
Inrush Current	66.660A	
12V Transient Response (200%)	11.57V	
5V Transient Response (200%)	4.964V	
3.3V Transient Response (200%)	3.157V	
5VSB Transient Response (200%)	4.937V	
Hold-Up Time & PWR_OK Signal	22.30ms	
AC Loss to PWR_OK Hold Up Time	19.90ms	
PWR_OK Inactive to DC Loss Delay	2.40ms	
PSU Timings: T1 (20% / 100%)	91.0ms	89.0ms
PSU Timings: T3 (20% / 100%)	112.0ms	112.0ms
12V OCP (24.7°C / 0.0°C)	92.20A (147.52%), 11.675V	92.00A (147.20%), 12.003V
5V OCP (24.7°C / 0.0°C)	31A (155.00%), 4.967V	31A (155.00%), 4.962V
3.3V OCP (24.7°C / 0.0°C)	28.9A (144.50%), 3.305V	29.2A (146.00%), 3.266V
5VSB OCP (24.7°C / 0.0°C)	5.5A (183.33%), 4.911V	5.3A (176.67%), 4.915V
OPP (42.07°C / 25.14°C)	144.62%	134.68%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	22.3
AC Loss to PWR_OK Hold Up Time (ms)	19.9
PWR_OK Inactive to DC Loss Delay (ms)	2.4

Vampire Power

Tables

115V

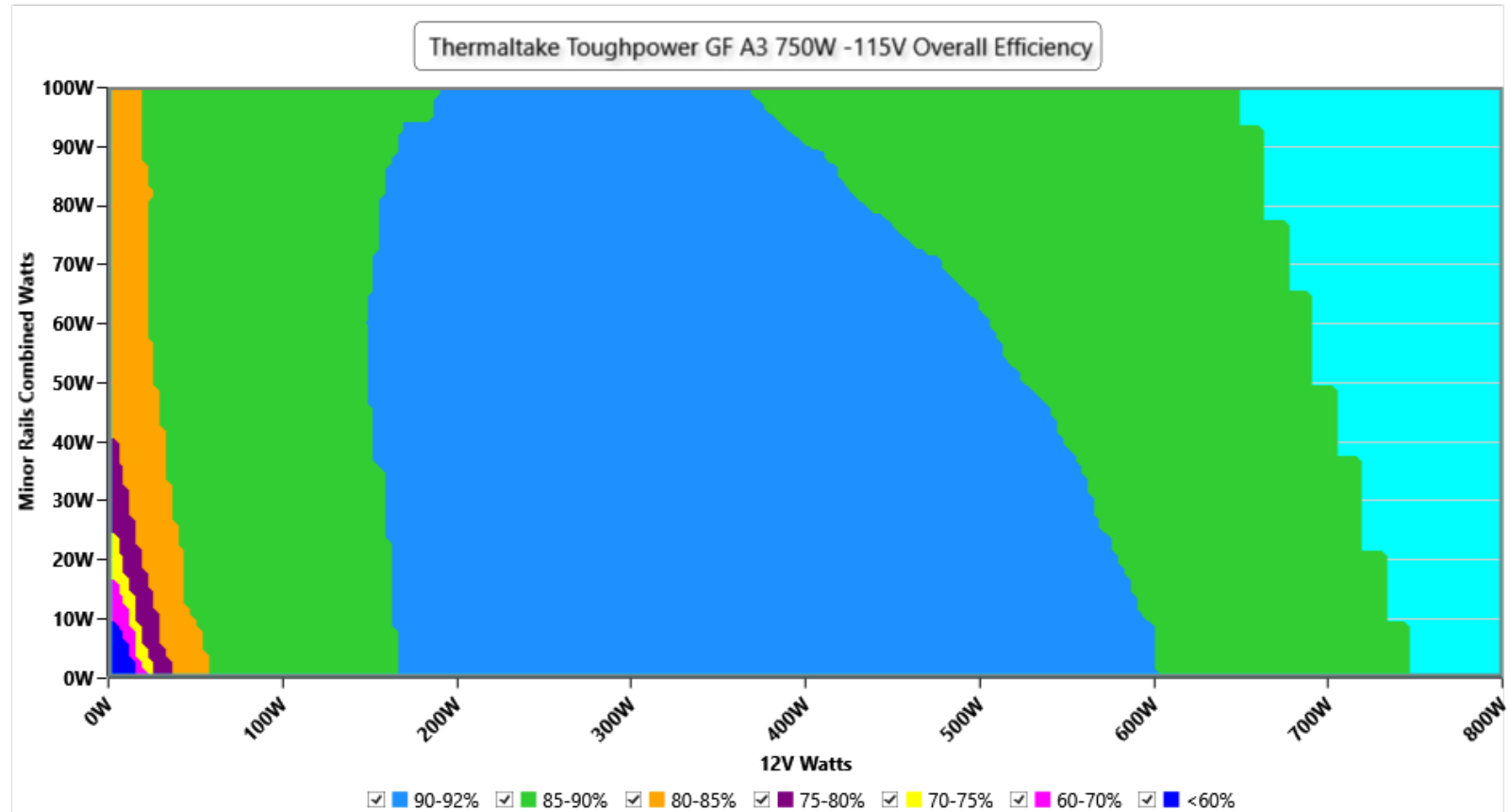
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.08 V	115.05 V	113.85 V	115.13 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.13 %	0.09 %	N/A	0.18 %	2.00 %	PASS
Real Power:	0.063 W	-0.007 W	N/A	0.104 W	N/A	N/A
Apparent Power:	8.337 W	7.827 W	N/A	8.864 W	N/A	N/A
Power Factor:	0.011	N/A	N/A	N/A	N/A	N/A

230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.06 V	230.94 V	227.70 V	231.11 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	1.419	1.490	PASS
Mains Voltage THD:	0.17 %	0.14 %	N/A	0.27 %	2.00 %	PASS
Real Power:	0.125 W	0.087 W	N/A	0.185 W	N/A	N/A
Apparent Power:	26.687 W	26.087 W	N/A	27.358 W	N/A	N/A
Power Factor:	0.004	N/A	N/A	N/A	N/A	N/A

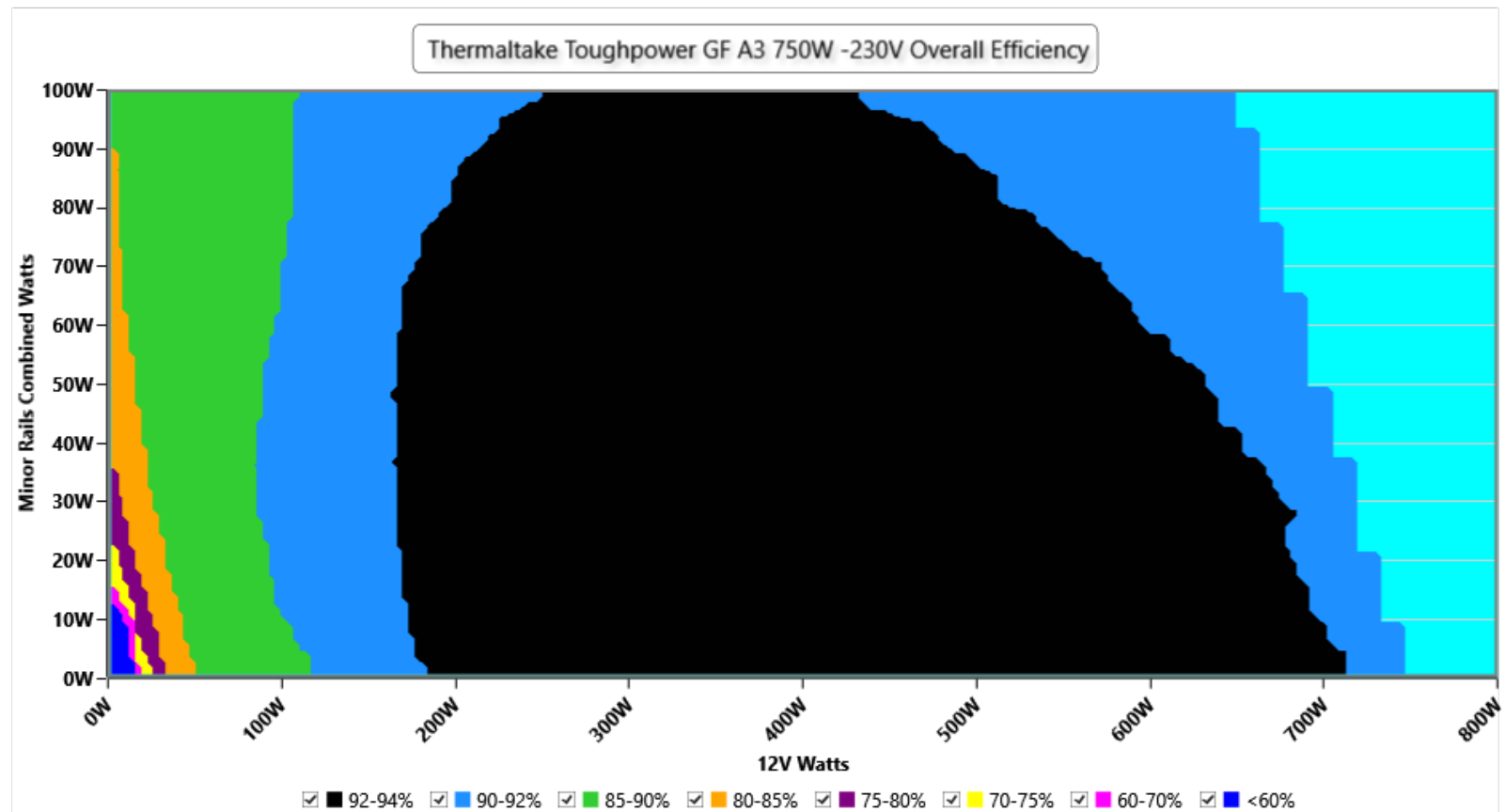
Efficiency Graph

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

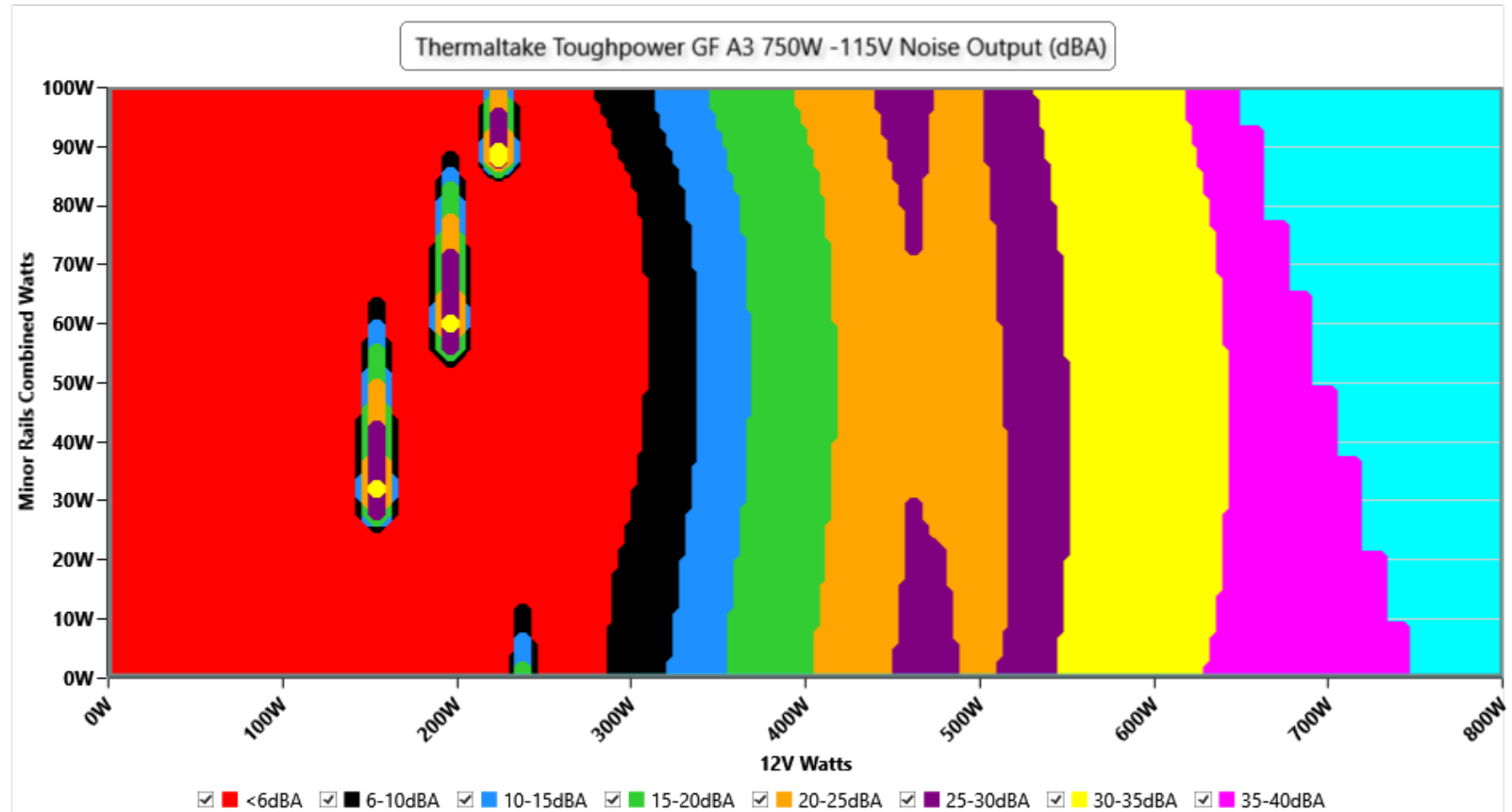


INFO

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

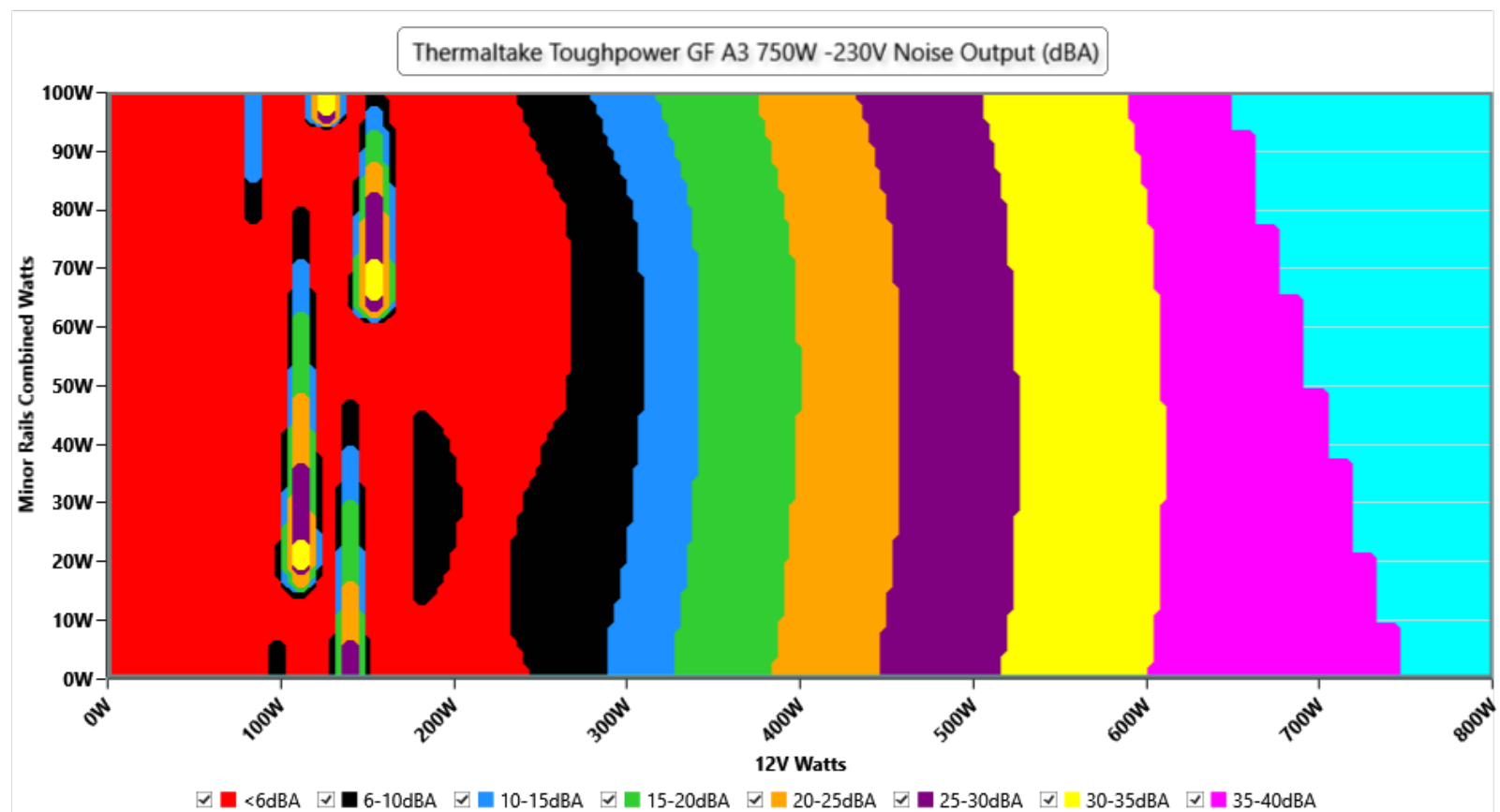
Noise Graph

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



INFO

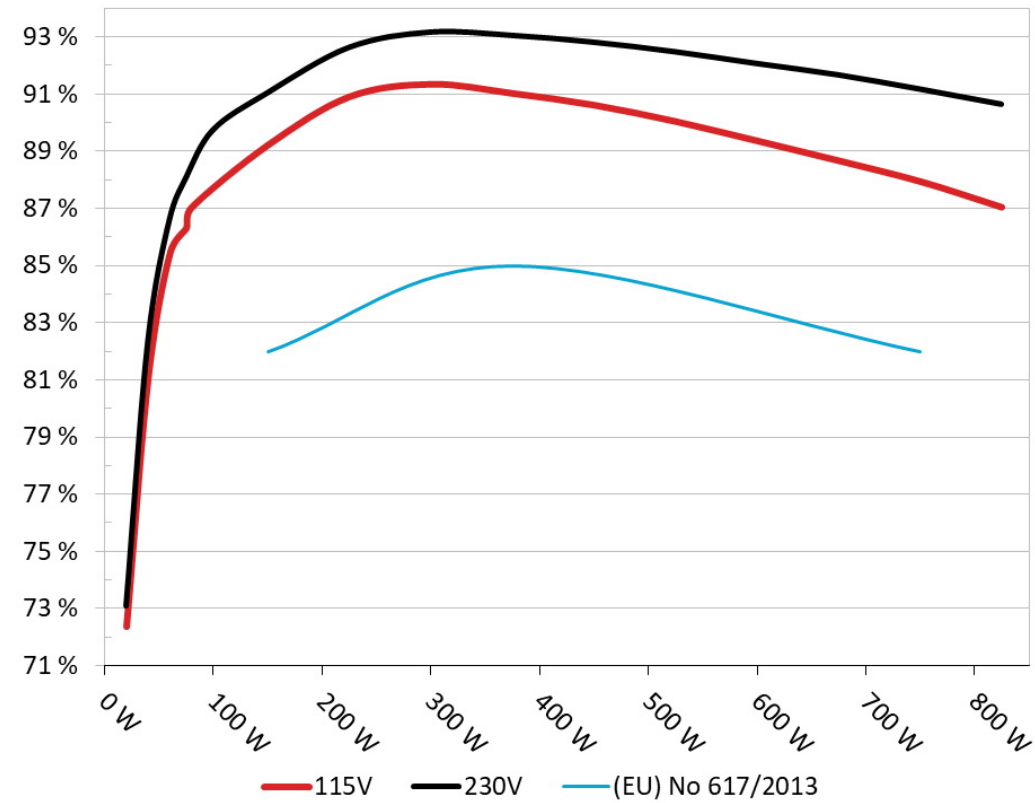
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance

Efficiency under high ambient temperature

Efficiency: Thermaltake Toughpower GF A3 750W

Ambient: 36°C - 46°C (96.8°F - 114.8°F)



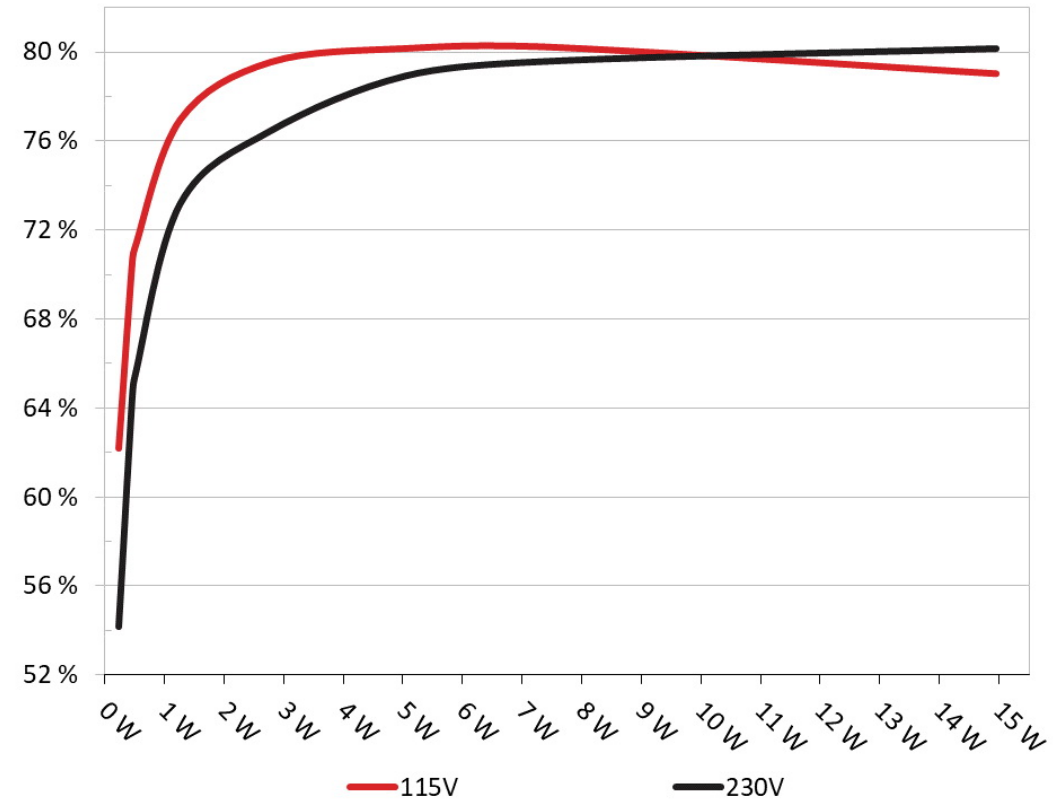
INFO

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 GF A3 750W

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

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

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228W	62.188%	0.045
	5.058V	0.367W		114.87V
2	0.09A	0.455W	70.565%	0.077
	5.057V	0.645W		114.88V
3	0.55A	2.775W	79.545%	0.299
	5.045V	3.489W		114.87V
4	1A	5.034W	80.161%	0.372
	5.034V	6.28W		114.87V
5	1.5A	7.534W	80.213%	0.422
	5.022V	9.392W		114.87V
6	3A	14.952W	79.029%	0.48
	4.984V	18.919W		114.86V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228W	54.16%	0.015
	5.058V	0.421W		229.94V
2	0.09A	0.455W	64.494%	0.025
	5.058V	0.706W		229.94V
3	0.55A	2.775W	76.449%	0.123
	5.045V	3.63W		229.94V
4	1A	5.034W	78.915%	0.196
	5.034V	6.379W		229.94V
5	1.5A	7.533W	79.592%	0.236
	5.022V	9.465W		229.94V
6	3A	14.955W	80.149%	0.341
	4.985V	18.66W		229.94V

Protection Features

OCP (Cold @ 24.7°C)	12V: 92.20A (147.52%), 11.675V 5V: 31A (155.00%), 4.967V 3.3V: 28.9A (144.50%), 3.305V 5VSB: 5.5A (183.33%), 4.911V
OCP (Hot) @ 0.0°C)	12V: 92.00A (147.20%), 12.003V 5V: 31A (155.00%), 4.962V 3.3V: 29.2A (146.00%), 3.266V 5VSB: 5.3A (176.67%), 4.915V
OPP (Cold @ 42.1°C)	1084.63W (144.62%)
OPP (Hot @ 25.1°C)	1010.08W (134.68%)
OTP	
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%	4.404A	1.964A	1.971A	0.989A	74.997	86.326%	0	<6.0	47.16°C	0.96
	12.124V	5.093V	3.349V	5.055V	86.875				40.59°C	114.84V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20%	9.827A	2.951A	2.963A	1.191A	149.924	89.223%	967	24.3	40.85°C	0.974
	12.112V	5.083V	3.341V	5.039V	168.036				50.2°C	114.82V
30%	15.605A	3.448A	3.463A	1.393A	224.934	90.915%	873	20.8	41.26°C	0.985
	12.103V	5.076V	3.336V	5.025V	247.414				49.78°C	114.8V
40%	21.395A	3.946A	3.965A	1.597A	300.035	91.356%	1052	27.3	41.65°C	0.99
	12.098V	5.069V	3.33V	5.011V	328.424				50.31°C	114.78V
50%	26.809A	4.942A	4.966A	1.801A	374.482	91.036%	1305	33.4	42.31°C	0.993
	12.084V	5.06V	3.323V	4.997V	411.352				51.72°C	114.75V
60%	32.278A	5.942A	5.972A	2A	449.462	90.627%	1430	35.6	42.81°C	0.995
	12.073V	5.05V	3.316V	4.982V	495.946				52.71°C	114.72V
70%	37.752A	6.943A	6.978A	2.214A	524.414	90.056%	1550	37.6	43.09°C	0.996
	12.060V	5.043V	3.311V	4.969V	582.323				53.61°C	114.69V
80%	43.305A	7.946A	7.987A	2.32A	599.603	89.377%	1684	39.9	43.71°C	0.996
	12.047V	5.034V	3.305V	4.959V	670.877				54.75°C	114.66V
90%	49.203A	8.454A	8.485A	2.425A	674.63	88.681%	1761	40.9	44.61°C	0.997
	12.034V	5.027V	3.3V	4.949V	760.734				56.91°C	114.64V
100%	54.906A	8.965A	9.015A	3.049A	749.767	87.953%	1792	41.5	45.74°C	0.997
	12.022V	5.02V	3.294V	4.92V	852.455				59.38°C	114.61V
110%	60.500A	9.982A	10.126A	3.054A	824.787	87.053%	1799	41.7	46.35°C	0.997
	12.008V	5.009V	3.288V	4.912V	947.456				62.25°C	114.58V
CL1	0.116A	11.928A	11.904A	0A	101.303	82.692%	1114	28.7	40.19°C	0.975
	12.112V	5.047V	3.335V	5.098V	122.509				49.07°C	114.84V
CL2	0.115A	19.877A	0A	0A	101.376	81.468%	986	24.9	41.79°C	0.974
	12.117V	5.03V	3.352V	5.118V	124.435				49.43°C	114.83V
CL3	0.114A	0A	19.82A	0A	67.383	76.947%	747	16.3	41.31°C	0.96
	12.118V	5.092V	3.33V	5.09V	87.571				48.87°C	114.85V
CL4	62.293A	0A	0A	0A	749.476	88.839%	1779	41.3	45.64°C	0.997
	12.032V	5.063V	3.313V	5.055V	843.631				57.12°C	114.61V

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%	4.404A	1.963A	1.971A	0.989A	74.998	88.076%	0	<6.0	50.73°C	0.786
	12.125V	5.093V	3.348V	5.055V	85.151				40.43°C	229.93V
20%	9.826A	2.951A	2.963A	1.191A	149.923	91.045%	0	<6.0	49.6°C	0.904
	12.113V	5.083V	3.341V	5.039V	164.669				40.56°C	229.92V
30%	15.603A	3.448A	3.464A	1.393A	224.924	92.633%	717	14.9	41.2°C	0.94
	12.105V	5.075V	3.335V	5.024V	242.814				45.21°C	229.91V
40%	21.392A	3.946A	3.965A	1.596A	300.018	93.169%	812	18.8	41.63°C	0.958
	12.099V	5.069V	3.329V	5.011V	322.018				45.81°C	229.9V
50%	26.798A	4.942A	4.966A	1.801A	374.401	93.052%	1100	28.1	42.32°C	0.966
	12.086V	5.059V	3.323V	4.996V	402.354				46.45°C	229.88V
60%	32.261A	5.941A	5.971A	2A	449.295	92.817%	1319	33.5	42.92°C	0.973
	12.074V	5.05V	3.317V	4.982V	484.066				47.67°C	229.87V
70%	37.736A	6.942A	6.978A	2.213A	524.241	92.483%	1506	37.1	43.36°C	0.977
	12.061V	5.043V	3.311V	4.969V	566.852				48.86°C	229.86V
80%	43.289A	7.944A	7.986A	2.318A	599.433	92.071%	1647	39.1	43.83°C	0.979
	12.048V	5.034V	3.305V	4.96V	651.06				49.37°C	229.84V
90%	49.187A	8.452A	8.482A	2.423A	674.488	91.675%	1747	40.7	44.57°C	0.981
	12.035V	5.028V	3.301V	4.951V	735.743				50.36°C	229.83V
100%	54.896A	8.962A	9.011A	3.046A	749.698	91.176%	1791	41.5	45.16°C	0.983
	12.023V	5.021V	3.296V	4.924V	822.26				52.09°C	229.82V
110%	60.489A	9.977A	10.12A	3.051A	824.718	90.649%	1801	41.7	46.3°C	0.985
	12.010V	5.011V	3.29V	4.916V	909.798				53.88°C	229.81V
CL1	0.114A	11.924A	11.9A	0A	101.287	84.34%	928	23.1	40.07°C	0.862
	12.113V	5.048V	3.336V	5.098V	120.094				45.42°C	229.93V
CL2	0.114A	19.871A	0A	0A	101.365	82.998%	848	20.5	40.96°C	0.864
	12.118V	5.031V	3.352V	5.118V	122.133				45.7°C	229.93V
CL3	0.114A	0A	19.81A	0A	67.376	78.648%	479	<6.0	40.23°C	0.788
	12.118V	5.093V	3.331V	5.091V	85.669				45.67°C	229.93V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL4	62.299A	0A	0A	0A	749.509	91.813%	1781	41.3	45.7°C	0.983
	12.031V	5.065V	3.313V	5.057V	816.34				50.6°C	229.82V

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	1.224A	0.49A	0.492A	0.196A	19.996	72.381%	0	<6.0	41.31°C	0.82
	12.135V	5.101V	3.353V	5.093V	27.626				36.05°C	114.86V
40W	2.694A	0.687A	0.689A	0.295A	39.995	81.113%	0	<6.0	43.69°C	0.915
	12.130V	5.098V	3.352V	5.087V	49.306				37.61°C	114.85V
60W	4.166A	0.883A	0.886A	0.394A	59.995	85.456%	0	<6.0	45.26°C	0.951
	12.127V	5.096V	3.351V	5.081V	70.207				38.34°C	114.85V
80W	5.634A	1.08A	1.084A	0.493A	79.933	87.048%	0	<6.0	47.1°C	0.962
	12.123V	5.095V	3.349V	5.075V	91.827				39.55°C	114.84V

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	1.223A	0.49A	0.492A	0.196A	19.991	73.115%	0	<6.0	44.61°C	0.482
	12.137V	5.101V	3.353V	5.093V	27.342				36.67°C	229.94V
40W	2.694A	0.687A	0.689A	0.295A	39.991	82.357%	0	<6.0	43.39°C	0.641
	12.132V	5.098V	3.352V	5.087V	48.558				37.23°C	229.94V
60W	4.165A	0.883A	0.886A	0.394A	59.992	86.642%	0	<6.0	43.91°C	0.738
	12.129V	5.096V	3.35V	5.081V	69.24				38.16°C	229.93V
80W	5.633A	1.08A	1.084A	0.493A	79.927	88.639%	0	<6.0	47.6°C	0.8
	12.125V	5.094V	3.349V	5.074V	90.171				39.38°C	229.93V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.80mV	25.40mV	15.05mV	22.20mV	Pass
20% Load	12.68mV	20.86mV	14.27mV	15.33mV	Pass
30% Load	26.64mV	18.44mV	14.79mV	13.89mV	Pass
40% Load	17.06mV	26.53mV	15.00mV	24.11mV	Pass
50% Load	15.52mV	20.71mV	16.14mV	14.76mV	Pass
60% Load	16.34mV	21.38mV	15.10mV	15.69mV	Pass
70% Load	16.70mV	21.95mV	16.60mV	15.59mV	Pass
80% Load	18.41mV	26.02mV	16.75mV	18.58mV	Pass
90% Load	18.71mV	32.61mV	18.62mV	24.16mV	Pass
100% Load	28.26mV	36.34mV	24.59mV	21.47mV	Pass
110% Load	28.37mV	28.49mV	26.48mV	19.63mV	Pass
Crossload1	11.82mV	27.92mV	23.23mV	18.05mV	Pass
Crossload2	11.50mV	23.91mV	16.86mV	11.87mV	Pass
Crossload3	11.44mV	16.28mV	23.89mV	12.85mV	Pass
Crossload4	27.32mV	22.08mV	16.75mV	16.85mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.80mV	29.11mV	14.58mV	24.67mV	Pass
20% Load	13.04mV	28.59mV	14.17mV	23.18mV	Pass
30% Load	27.75mV	22.25mV	15.05mV	16.31mV	Pass
40% Load	16.45mV	24.73mV	14.43mV	22.04mV	Pass
50% Load	16.39mV	22.26mV	16.24mV	15.95mV	Pass
60% Load	16.24mV	24.63mV	18.15mV	16.67mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
70% Load	16.86mV	23.91mV	15.98mV	17.19mV	Pass
80% Load	17.07mV	28.85mV	18.87mV	19.98mV	Pass
90% Load	17.74mV	28.85mV	18.87mV	21.16mV	Pass
100% Load	26.67mV	29.97mV	20.72mV	19.38mV	Pass
110% Load	28.08mV	31.98mV	24.76mV	18.81mV	Pass
Crossload1	13.06mV	23.49mV	21.45mV	15.03mV	Pass
Crossload2	12.06mV	26.43mV	16.70mV	11.82mV	Pass
Crossload3	13.82mV	34.88mV	27.87mV	29.63mV	Pass
Crossload4	26.72mV	24.92mV	15.88mV	16.90mV	Pass

The results above are not used in the certification process

A black, rectangular ATX 12V power supply unit (PSU) is shown from a three-quarter perspective. The top surface features a dense grid of ventilation holes and a central square logo with the ThermalTake 'TT' emblem and the brand name. The front panel has a recessed area with the ThermalTake logo and the text 'TOUGHPower SERIES ATX 12V Power Supply'. Below this, the model 'TOUGHPower GF A3 750W' is printed in large, bold letters. On the left side, a black sliding switch is labeled 'ON/OFF'. A small, white label with technical specifications is visible on the bottom left of the front panel. The PSU is set against a plain white background.

- › 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

www.cybenetics.com - info@cybenetics.com



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