

Lab ID#: 482

Receipt Date: Sep 14, 2018

Test Date: Sep 24, 2018

Report:

Report Date: Sep 26, 2018

DUT INFORMATION

Brand	Thermaltake
Manufacturer (OEM)	Sirfa
Series	Toughpower Grand Gold
Model Number	TPG-0750F-S
Serial Number	PSTPG0750FPCGEUSLA000139
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10
Rated Frequency (Hz)	50-60
Rated Power (W)	750
Type	ATX12V
Cooling	140mm Hydro Dynamic Bearing Fan (TT-1425 [A1425L12S])
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	22	22	62.5	3	0.3
	Watts	120		750	15	3.6
Total Max. Power (W)		750				

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	18AWG	No
4+4 pin EPS12V (660mm)	1	1	16AWG	No
6+2 pin PCIe (500mm+155mm)	2	4	16-18AWG	No
SATA (510mm+155mm+155mm)	3	9	18AWG	No
4-pin Molex (500mm+150mm+150mm+150mm)	1	4	18AWG	No
RGB Cable (580mm+80mm)	1	1	26AWG	No
FDD Adapter (+160mm)	1	1	22AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

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General Data	
Manufacturer (OEM)	Sirfa / High Power
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x GBU1506 (600V, 10A @ 100°C)
APFC MOSFETS	2x China Wind CWS20N60AF (600V, 13A @ 100°C, 0.19Ohm)
APFC Boost Diode	1x UnitedSiC UJD06506TS (650V, 6A @ 153°C)
Hold-up Cap(s)	1x Rubycon (400V, 680uF, 2000h @ 105 °C, MXH)
Main Switchers	2x China Wind CWS20N60AF (600V, 13A @ 100°C, 0.19Ohm)
APFC Controller	Infineon ICE3PCS01G
Resonant Controller	Champion CM6901X
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	6x Infineon BSC027N04LS G (40V, 88A @ 100°C, 2.7mOhm)
5V & 3.3V	DC-DC Converters: 6x Infineon BSC0906NS (30V, 40A @ 100°C, 4.5mOhm) PWM Controller: APW7159C
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (1-5,000 @ 105°C, KZE), Nippon Chemi-Con (4-10,000 @ 105°C, KY), 1x Rubycon (4-10,000 @ 105°C, ZLH) Polymers: Nippon Chemi-Con, FPCAP
Supervisor IC	SITI PS224 (OVP, UVP, OCP,SCP, PG)
EEPROM	ATMEL AT24C02N
Fan Model	Thermaltake TT-1425 (Hong Sheng OEM, A1425L12S, 140mm, 12V, 0.30A, 1560 RPM, Hydro Dynamic Bearing)
5VSB Circuit	
Rectifier	1x PCF P10V45 SBR (45V, 10A) 2x Infineon BSC0906NS (30V, 40A @ 100°C, 4.5mOhm)
Standby PWM Controller	Sanken STR-A6069H
-12V Circuit	
Rectifier	KEC KIA7912PI

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	✓

115V

Average Efficiency	88.863%
Efficiency With 10W (≤500W) or 2% (>500W)	64.572
Average Efficiency 5VSB	78.140%
Standby Power Consumption (W)	0.0891583
Average PF	0.988
Avg Noise Output	29.31 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A-

230V

Average Efficiency	90.511%
Average Efficiency 5VSB	76.869%
Standby Power Consumption (W)	0.1662440
Average PF	0.943
Avg Noise Output	29.30 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A-

TEST EQUIPMENT

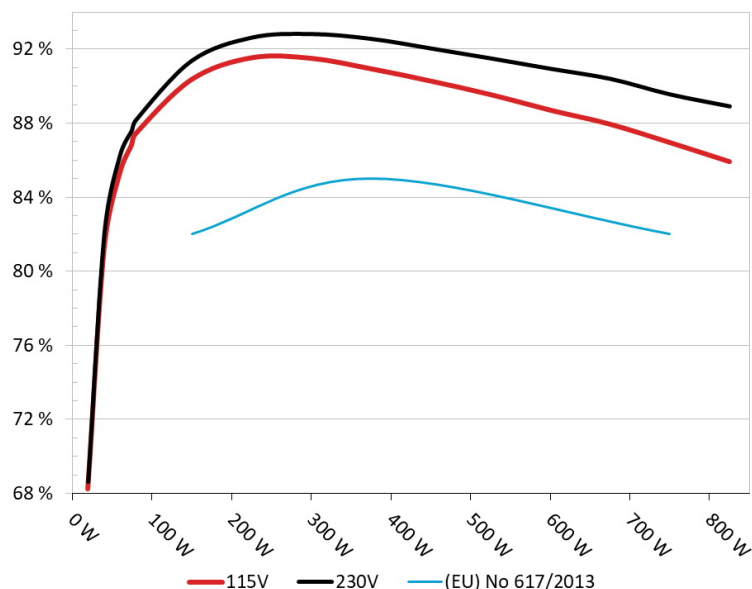
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Chroma 61604, Keysight AC6804B	
Power Analyzers	N4L PPA1530 x2, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Thermaltake TPG-0750F-S
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

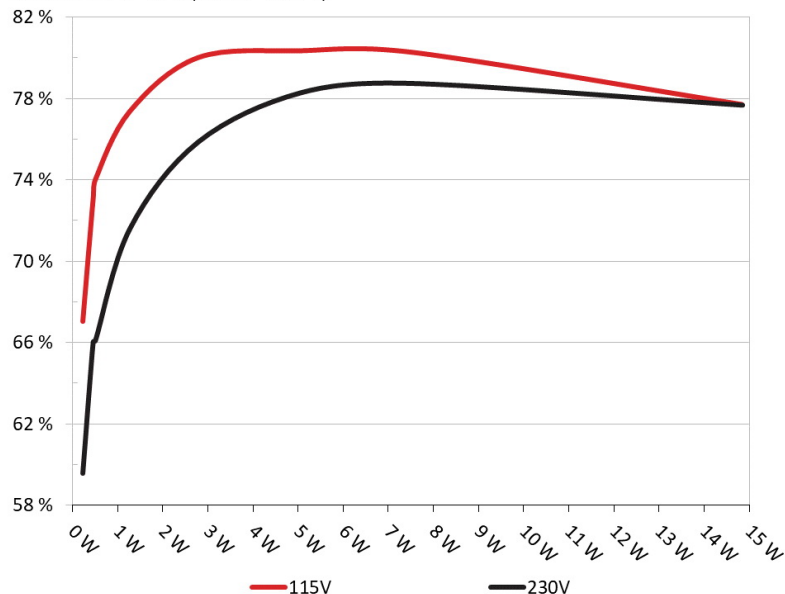


INFO

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 TPG-0750F-S
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	0.230	67.055%	0.042
	5.091V	0.343		115.06V
2	0.090A	0.459	73.089%	0.075
	5.089V	0.628		115.06V
3	0.550A	2.788	80.000%	0.250
	5.068V	3.485		115.06V
4	1.000A	5.048	80.331%	0.300
	5.047V	6.284		115.06V
5	1.500A	7.536	80.256%	0.326
	5.023V	9.390		115.06V
6	3.000A	14.843	77.700%	0.364
	4.947V	19.103		115.06V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	59.585%	0.016
	5.092V	0.386		230.20V
2	0.090A	0.459	66.043%	0.029
	5.089V	0.695		230.20V
3	0.550A	2.787	75.878%	0.131
	5.066V	3.673		230.20V
4	1.000A	5.046	78.293%	0.191
	5.046V	6.445		230.20V
5	1.500A	7.535	78.760%	0.231
	5.022V	9.567		230.20V
6	3.000A	14.852	77.690%	0.287
	4.950V	19.117		230.20V

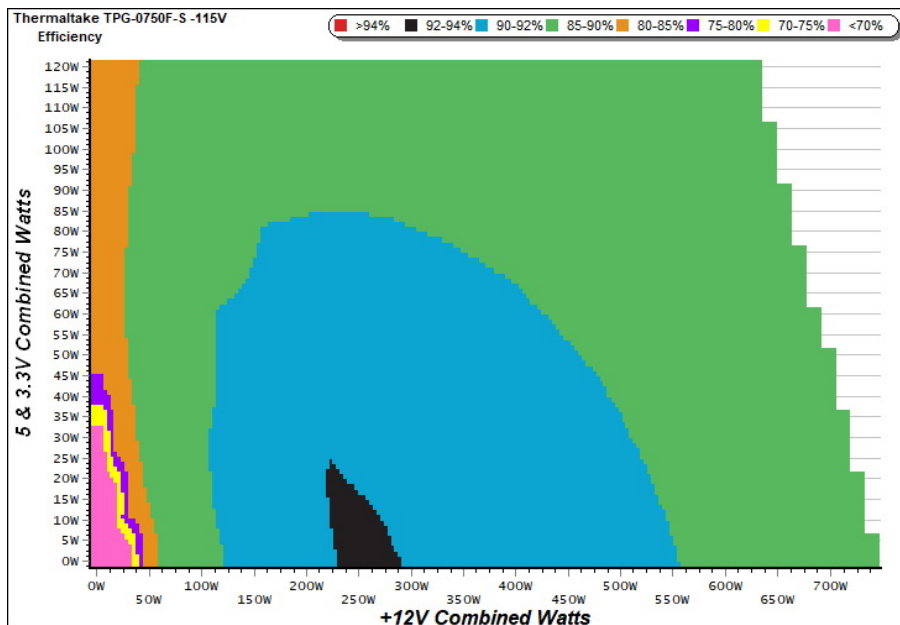
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115V

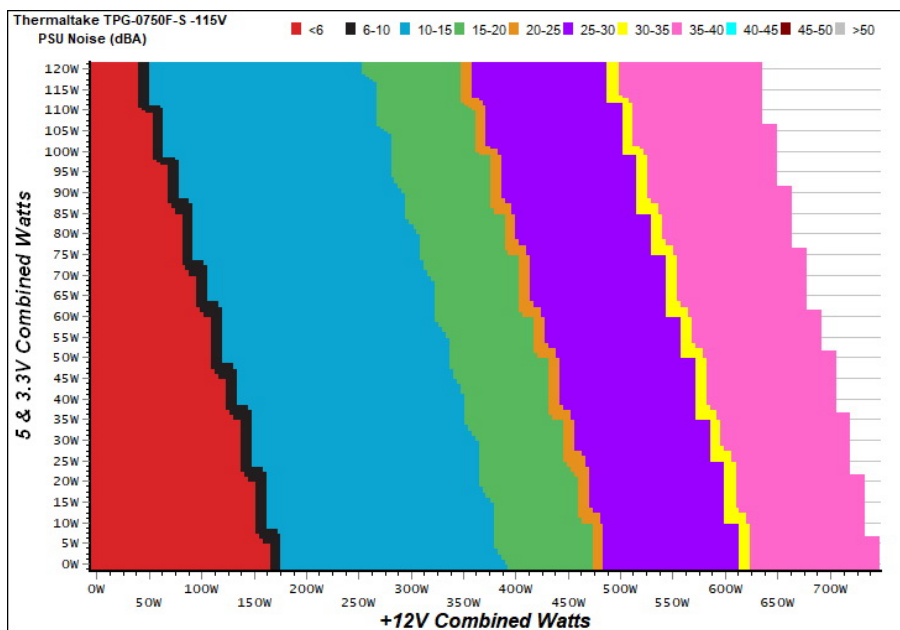
EFFICIENCY GRAPH 115V



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

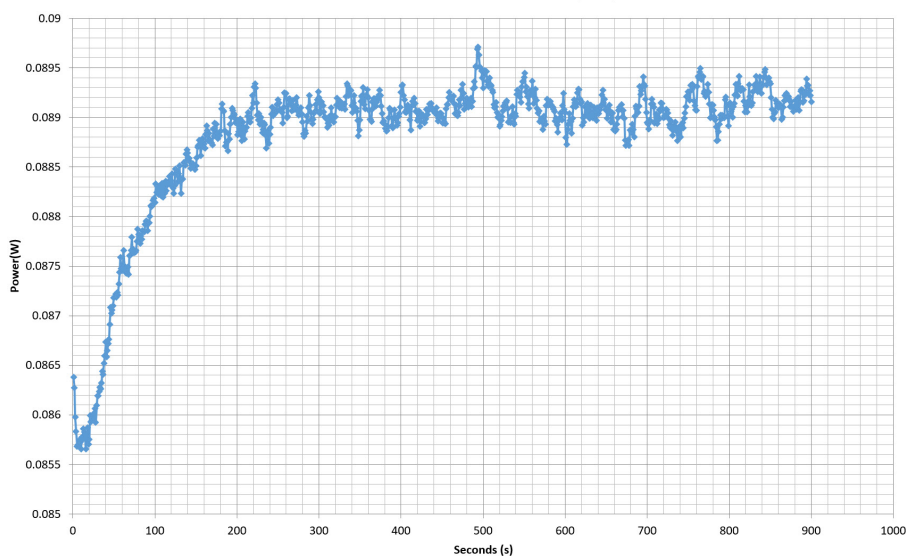
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - PSTPG0750FPCGEUSLA000139 - 19/09/2018 - 11:05



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

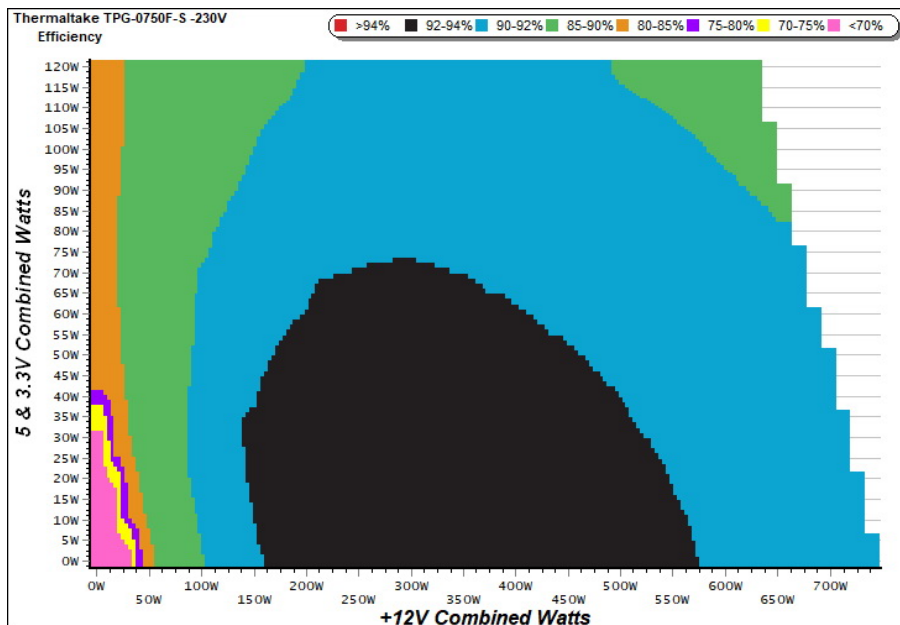
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230V

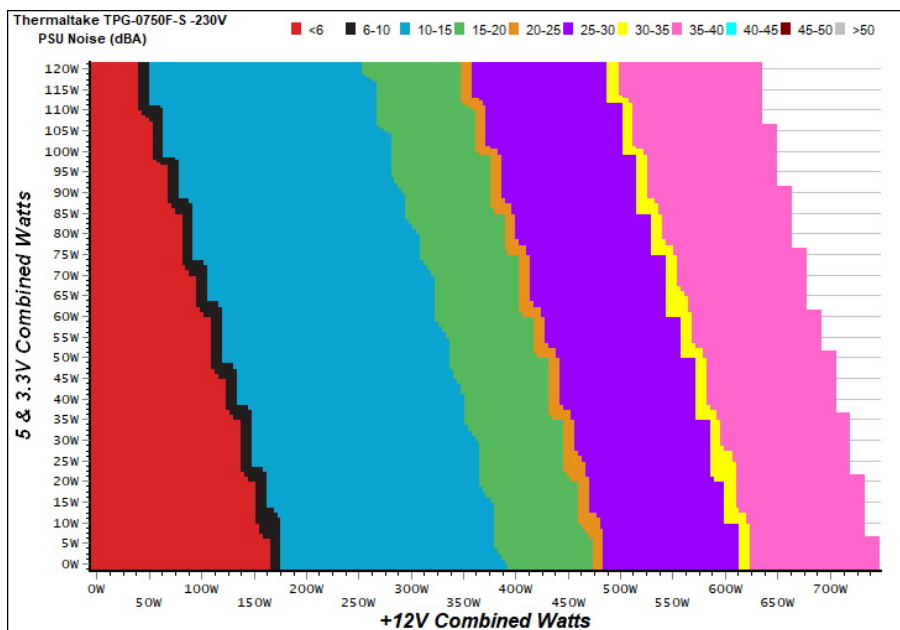
EFFICIENCY GRAPH 230V



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NOISE GRAPH 230V



INFO

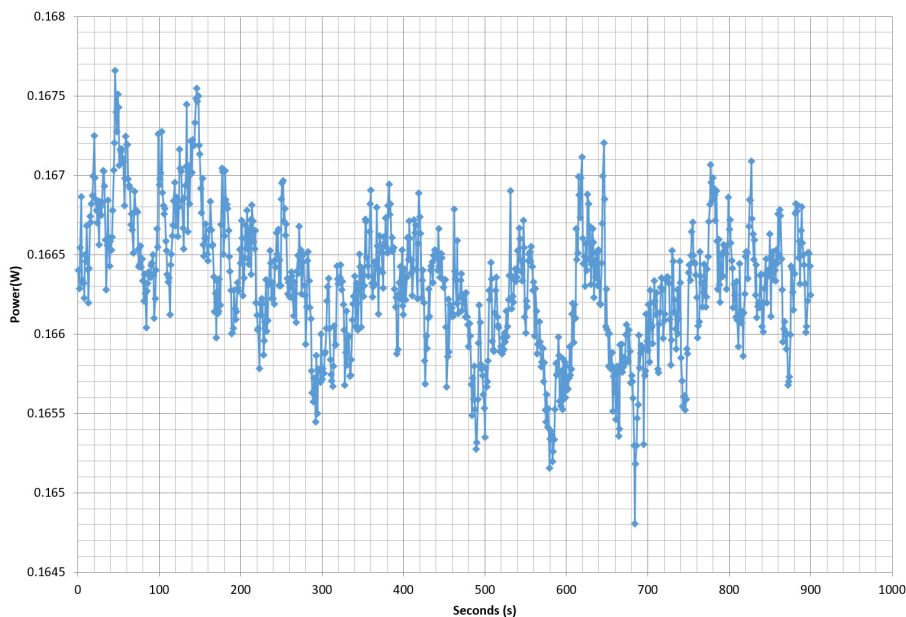
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VAMPIRE POWER -230V

Power - PSTPG0750FPCGEUSLA000139 - 19/09/2018 - 11:05



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COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

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

Thermaltake Toughpower Grand Gold 750W

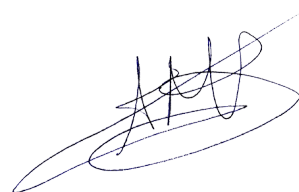


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Power specifications label

CERTIFICATIONS 115V

Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



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