

Lab ID#: MS75001951
Receipt Date: Dec 9, 2021
Test Date: Dec 17, 2021

Report: 21PS1951A

Report Date: Dec 21, 2021

DUT INFORMATION

Brand	MSI
Manufacturer (OEM)	CWT
Series	MPG
Model Number	
Serial Number	3067ZP0B17CE010117001150
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10
Rated Frequency (Hz)	47-63
Rated Power (W)	750
Type	ATX12V
Cooling	140mm Double Ball Bearing Fan (HA1425M12B-Z)
Semi-Passive Operation	X
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	✓

115V

Average Efficiency	89.180%
Efficiency With 10W (≤500W) or 2% (>500W)	66.033
Average Efficiency 5VSB	77.384%
Standby Power Consumption (W)	0.0462483
Average PF	0.977
Avg Noise Output	32.15 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	Standard++

230V

Average Efficiency	90.805%
Average Efficiency 5VSB	77.340%
Standby Power Consumption (W)	0.0669612
Average PF	0.930
Avg Noise Output	32.07 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V(1)	12V(2)	12V(3)	12V(4)	5VSB	-12V
Max. Power	Amps	22	22	25	25	35	35	2.5	0.3
	Watts	120		750				12.5	3.6
Total Max. Power (W)		750							

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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	18AWG	No
4+4 pin EPS12V (700mm)	2	2	18AWG	No
6+2 pin PCIe (500mm)	2	2	18AWG	No
6+2 pin PCIe (500mm+150mm)	2	4	18AWG	No
SATA (500mm+150mm+150mm+150mm)	2	8	18AWG	No
4 pin Molex (500mm+150mm+150mm+150mm) / FDD (+150mm)	1	4 / 1	18-20AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

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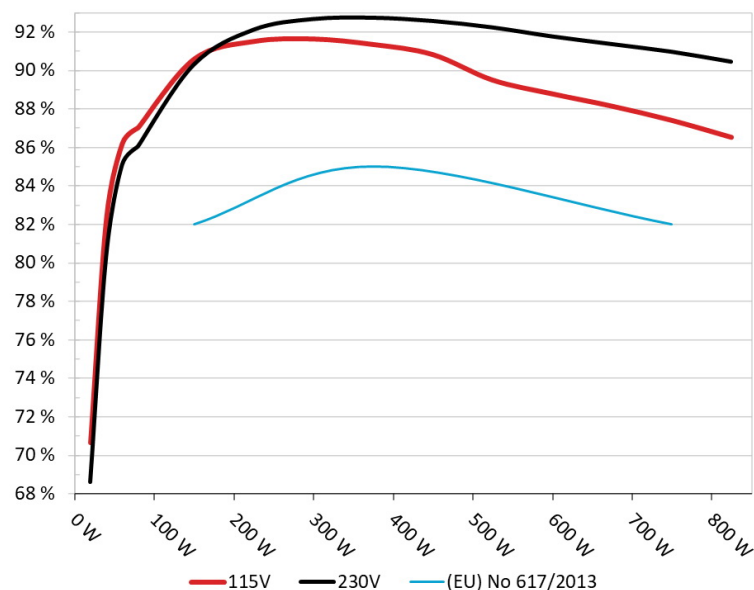
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General Data	-
Manufacturer (OEM)	CWT
PCB Type	Double Sided
Primary Side	-
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x Power Integrations CAP200DG (Discharge IC)
Inrush Protection	NTC Thermistor SCK-055 (5 Ohm) & Relay
Bridge Rectifier(s)	2x GBU1506 (800V, 15A @ 120°C)
APFC MOSFETs	2x Infineon IPA60R125P6 (600V, 19A @ 100°C, Rds(on): 0.125Ohm)
APFC Boost Diode	1x On Semiconductor FFSP0665A (650V, 6A @ 153°C)
Bulk Cap(s)	1x Nippon Chemi-Con (420V, 560uF, 2,000h @ 105°C, KMR)
Main Switchers	2x Infineon IPA60R125P6 (600V, 19A @ 100°C, Rds(on): 0.125Ohm)
APFC Controller	Champion CM6502UHH & CM03X
Resonant Controller	Champion CM6901X
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	6x Infineon BSC014N04LS (40V, 125A @ 100°C, Rds(on): 1.4mOhm)
5V & 3.3V	DC-DC Converters: 2x UBIQ QM3006D (30V, 57A @ 100°C, Rds(on): 5.5mOhm) 2x UBIQ QM3016D (30V, 68A @ 100°C, Rds(on): 4mOhm) PWM Controller(s): ANPEC APW7159C
Filtering Capacitors	Electrolytic: 6x Nichicon (4-10,000h @ 105°C, HE), 3x Rubycon (4-10,000h @ 105°C, YXF), 2x Rubycon (6-10,000h @ 105°C, ZLH), 5x Nichicon (4-10,000h @ 105°C, KY), 2x Nippon Chemi-Con (4-10,000h @ 105°C, KYA) Polymer: 17x FPCAP, 1x Nippon Chemi-Con
Supervisor IC	Sitronix ST9S429-PG14 (OCP, OVP, UVP, SCP, PG) & EST EST7618 (OCP, SC)
Fan Model	Hong Hua HA1425M12B-Z (140mm, 12V, 0.36A, Ball Bearing Fan)
5VSB Circuit	-
Standby PWM Controller	Power Integrations TNY177PN

EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: MSI MPG A750GF

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



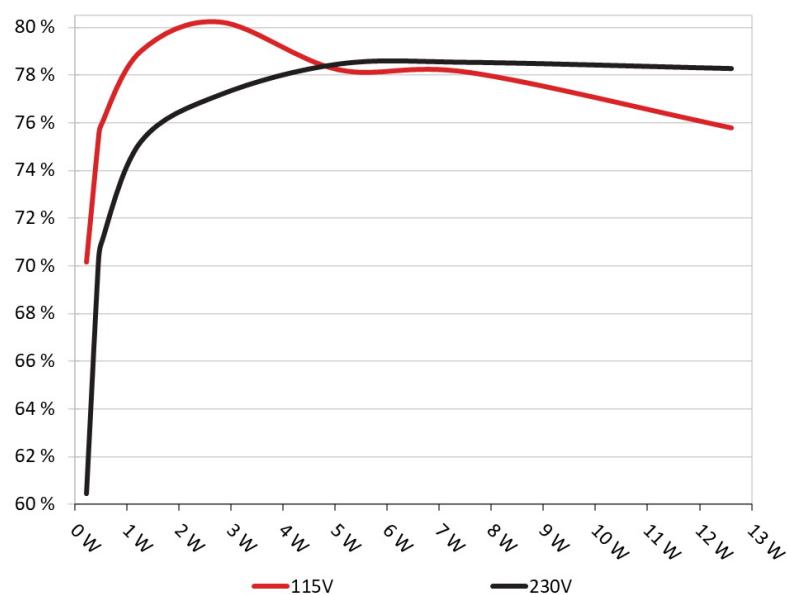
INFO

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: MSI MPG A750GF

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	0.23W	70.143%	0.033
	5.101V	0.328W		115.18V
2	0.09A	0.459W	75.309%	0.06
	5.1V	0.609W		115.18V
3	0.55A	2.801W	80.232%	0.253
	5.091V	3.491W		115.18V
4	1A	5.083W	78.224%	0.353
	5.081V	6.498W		115.18V
5	1.5A	7.607W	78.107%	0.407
	5.07V	9.739W		115.18V
6	2.501A	12.625W	75.781%	0.464
	5.049V	16.66W		115.18V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	60.426%	0.011
	5.101V	0.381W		230.38V
2	0.09A	0.459W	70.128%	0.019
	5.1V	0.655W		230.37V
3	0.55A	2.801W	77.182%	0.103
	5.091V	3.629W		230.38V
4	1A	5.083W	78.472%	0.167
	5.081V	6.478W		230.38V
5	1.5A	7.607W	78.542%	0.226
	5.07V	9.685W		230.37V
6	2.501A	12.626W	78.281%	0.304
	5.049V	16.129W		230.37V

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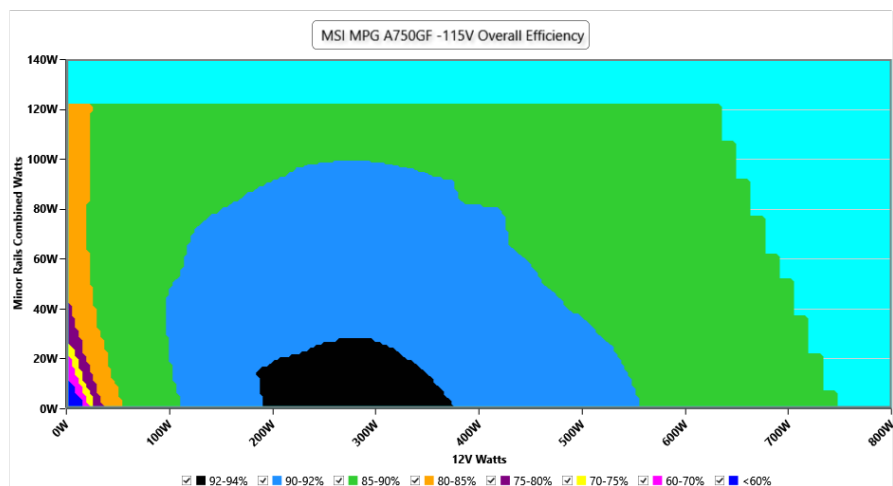
115V

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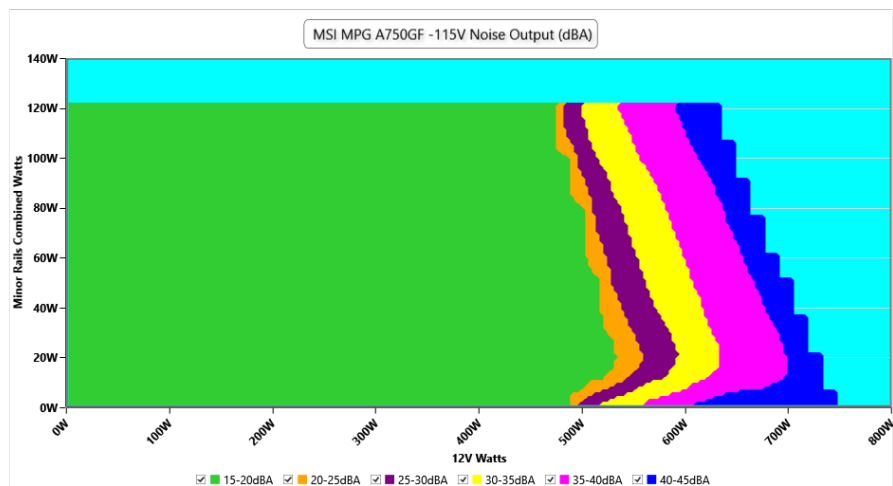
EFFICIENCY GRAPH 115V



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

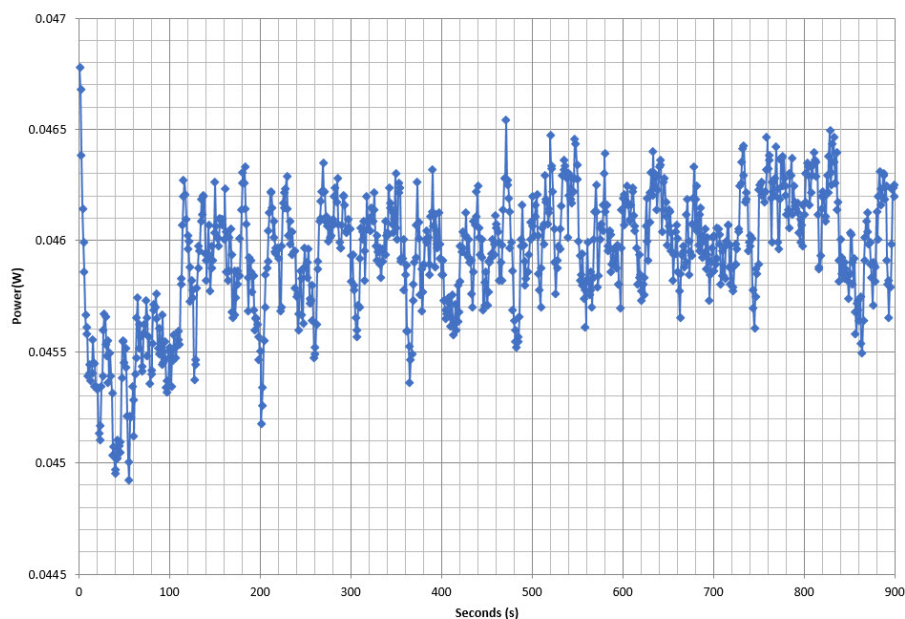
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - 3067ZPOB17CE010117001150 - 13/12/2021 - 10:28



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%	4.424A	1.99A	1.975A	0.985A	75.005	87.034%	711	20.1	40.72°C	0.959
	12.069V	5.027V	3.341V	5.077V	86.179				45.45°C	115.18V
20%	9.870A	2.987A	2.965A	1.184A	149.969	90.585%	713	20.2	41.09°C	0.978
	12.063V	5.024V	3.339V	5.07V	165.557				46.21°C	115.18V
50%	26.925A	4.985A	4.949A	1.783A	374.703	91.352%	718	20.3	42.72°C	0.979
	12.041V	5.017V	3.335V	5.049V	410.173				49.25°C	115.18V
100%	55.209A	8.998A	8.93A	2.492A	749.944	87.409%	1723	45.0	46°C	0.983
	12.004V	5.002V	3.326V	5.016V	857.974				56.21°C	115.18V

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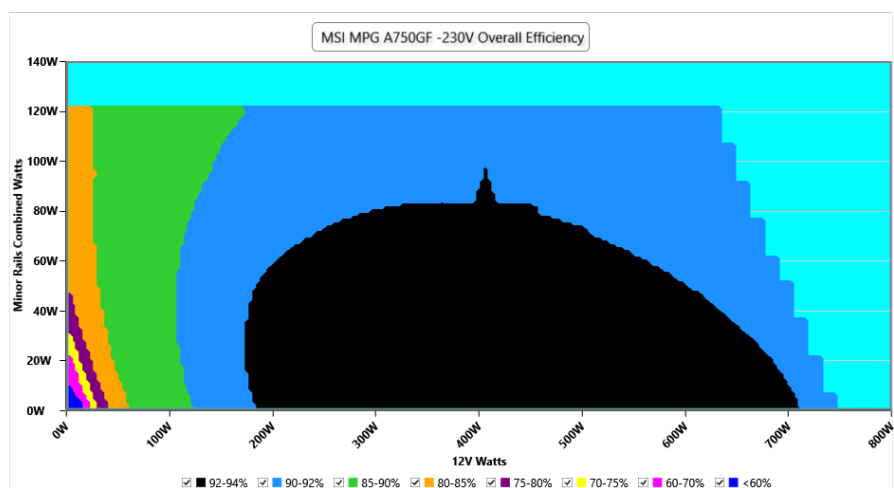
230V

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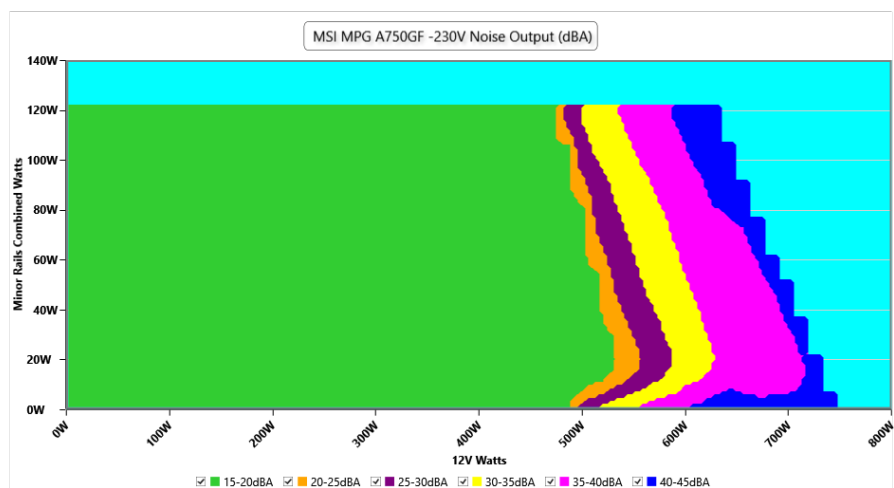
EFFICIENCY GRAPH 230V



INFO

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NOISE GRAPH 230V



INFO

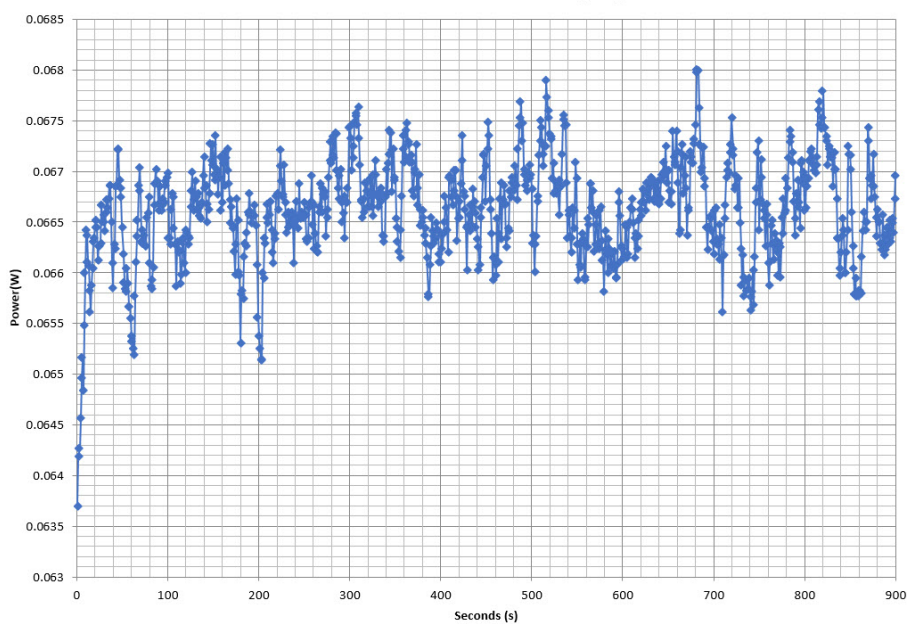
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COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
10%	4.430A	1.99A	1.976A	0.985A	75	86.048%	707	19.9	40.13°C	0.789
	12.054V	5.026V	3.34V	5.077V	87.161				44.35°C	230.35V
20%	9.874A	2.987A	2.966A	1.184A	149.952	90.291%	712	20.1	40.45°C	0.893
	12.057V	5.023V	3.338V	5.07V	166.078				44.87°C	230.35V
50%	26.931A	4.987A	4.951A	1.783A	374.623	92.729%	717	20.3	42.26°C	0.948
	12.035V	5.014V	3.333V	5.048V	403.999				47.65°C	230.37V
100%	55.280A	9.009A	8.941A	2.493A	749.893	90.965%	1722	45.0	45.76°C	0.962
	11.988V	4.996V	3.321V	5.016V	824.377				56.09°C	230.41V

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Power specifications label

CERTIFICATIONS 115V




Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



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