

Anex

Zalman GigaMax III 650W

Lab ID#: ZL65002251
Receipt Date: Sep 26, 2023
Test Date: Oct 3, 2023

Report: 23PS2251A
Report Date: Oct 5, 2023

DUT INFORMATION	
Brand	Zalman
Manufacturer (OEM)	Jiumeng
Series	GigaMax III
Model Number	
Serial Number	
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	200-240
Rated Current (Arms)	5
Rated Frequency (Hz)	50-60
Rated Power (W)	650
Type	ATX12V
Cooling	120mm Fluid Dynamic Bearing Fan (D12BM-12)
Semi-Passive Operation	X
Cable Design	Semi Modular

TEST EQUIPMENT	
Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P
Power Analyzers	RS HMC8015, N4L PPA1530, N4L PPA5530
Oscilloscopes	Picoscope 4444, Rigol DS7014, 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, Keithley 2015 - THD
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Isolation Transformer	4kVA

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RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.1 PSU Power Excursion	✓

230V

Average Efficiency	87.752%
Average Efficiency 5VSB	76.185%
Standby Power Consumption (W)	0.1555000
Average PF	0.957
Avg Noise Output	31.66 dB(A)
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	Standard++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	54.16	3	0.3
	Watts	110		650	15	3.6
Total Max. Power (W)		650				

HOLD-UP TIME & POWER OK SIGNAL (230V)

Hold-Up Time (ms)	20.3
AC Loss to PWR_OK Hold Up Time (ms)	16.9
PWR_OK Inactive to DC Loss Delay (ms)	3.4

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CABLES AND CONNECTORS

Captive Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (550mm)	1	1	18-20AWG	No
8 pin EPS12V (720mm) / 4+4pin EPS12V (+150mm)	1	1/1	18AWG	No
6+2 pin PCIe (570mm+150mm)	1	2	18AWG	No
SATA (450mm+140mm+140mm)	2	6	18AWG	No
4-pin Molex (450mm+140mm+140mm)	1	3	18AWG	No

Modular Cables

12+4 pin PCIe (600mm) (450W)	1	1	18-26AWG	No
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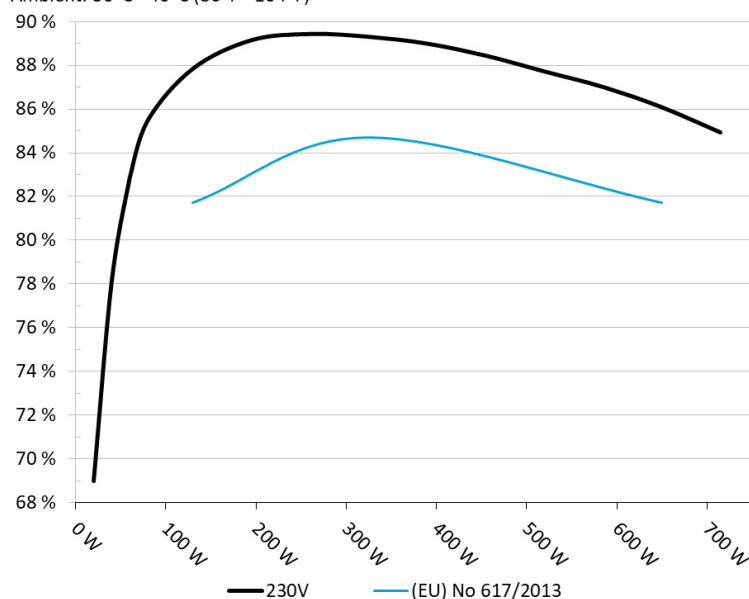
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Zalman GigaMax III 650W

Ambient: 30°C - 40°C (86°F - 104°F)



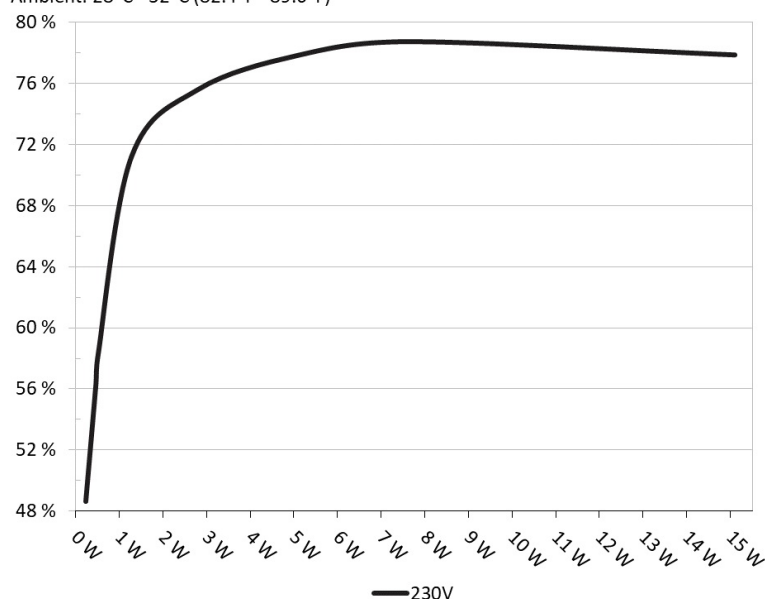
INFO

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: Zalman GigaMax III 650W

Ambient: 28°C - 32°C (82.4°F - 89.6°F)



INFO

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

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	48.131%	0.016
	5.117V	0.479W		229.88V
2	0.09A	0.46W	55.775%	0.027
	5.113V	0.826W		229.91V
3	0.55A	2.805W	75.098%	0.116
	5.1V	3.735W		229.89V
4	1A	5.088W	77.328%	0.185
	5.088V	6.581W		229.89V
5	1.5A	7.613W	78.224%	0.216
	5.075V	9.734W		229.89V
6	3A	15.101W	77.357%	0.319
	5.034V	19.522W		229.88V

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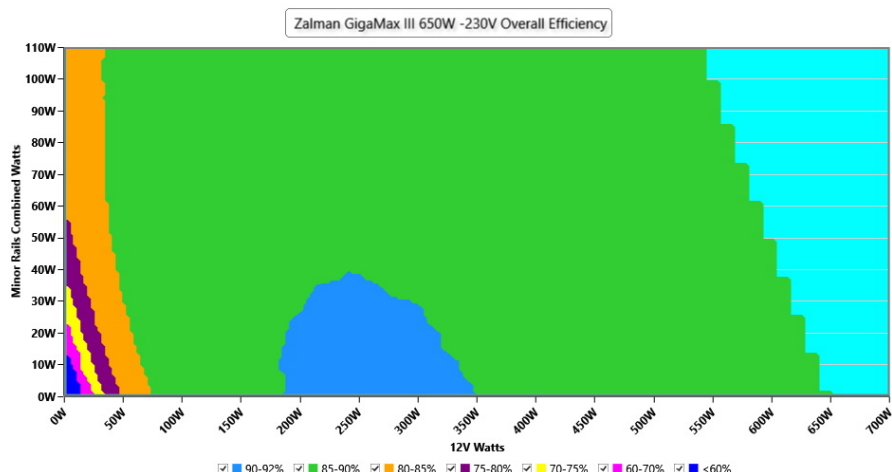
230V

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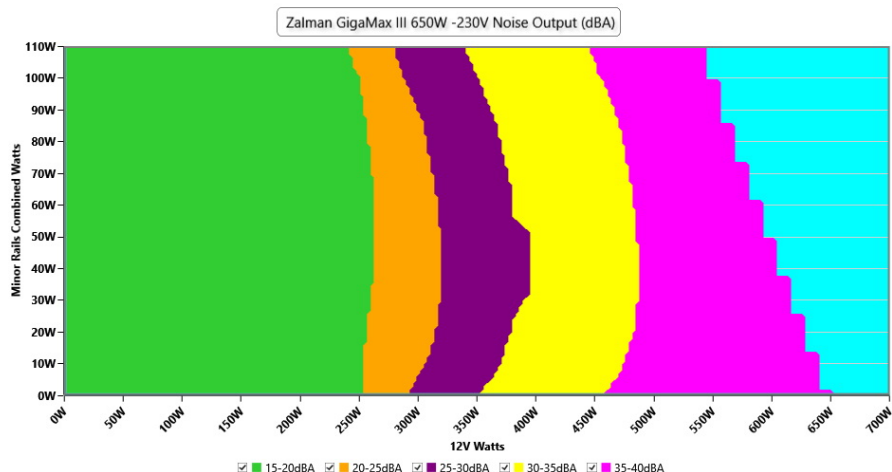
EFFICIENCY GRAPH 230V



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 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:	229.90 V	229.87 V	227.70 V	229.96 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	50.00 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:	0.14 %	0.12 %	N/A	0.17 %	2.00 %	PASS
Real Power:	0.155 W	0.133 W	N/A	0.181 W	N/A	N/A
Apparent Power:	30.254 W	30.238 W	N/A	30.272 W	N/A	N/A
Power Factor:	0.005	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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10-110% LOAD TESTS 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%	3.544A	1.95A	1.969A	0.983A	65.001	83.165%	756	19.2	34.41°C	0.818
	12.245V	5.127V	3.352V	5.085V	78.158				38.64°C	229.87V
20%	8.096A	2.934A	2.962A	1.183A	129.928	88.137%	754	19.2	34.8°C	0.922
	12.233V	5.113V	3.343V	5.072V	147.418				39.39°C	229.86V
30%	13.001A	3.43A	3.464A	1.383A	194.926	89.442%	757	19.2	35.14°C	0.953
	12.221V	5.102V	3.334V	5.06V	217.937				40.27°C	229.85V
40%	17.921A	3.929A	3.971A	1.585A	260.006	89.722%	775	19.6	35.97°C	0.966
	12.210V	5.09V	3.324V	5.049V	289.766				41.49°C	229.84V
50%	22.504A	4.926A	4.979A	1.787A	324.998	89.596%	1062	26.6	36.29°C	0.974
	12.197V	5.076V	3.314V	5.036V	362.733				42.29°C	229.83V
60%	27.043A	5.928A	5.992A	1.991A	389.306	89.283%	1229	30.9	36.92°C	0.979
	12.184V	5.061V	3.304V	5.023V	436.036				43.52°C	229.81V
70%	31.676A	6.937A	7.013A	2.196A	454.633	88.73%	1384	33.9	37.41°C	0.983
	12.171V	5.046V	3.294V	5.009V	512.379				44.43°C	229.8V
80%	36.321A	7.951A	8.041A	2.301A	519.473	88.008%	1529	36.9	37.65°C	0.985
	12.158V	5.03V	3.283V	4.998V	590.262				45.66°C	229.79V
90%	41.370A	8.467A	8.551A	2.406A	584.916	87.295%	1688	39.7	38.96°C	0.986
	12.144V	5.018V	3.275V	4.987V	670.041				48.04°C	229.78V
100%	46.170A	8.989A	9.1A	3.023A	649.774	86.369%	1810	42.0	39.73°C	0.987
	12.130V	5.006V	3.264V	4.963V	752.323				49.81°C	229.76V
110%	50.846A	10.027A	10.248A	3.028A	714.417	85.222%	1848	43.6	40.31°C	0.989
	12.117V	4.986V	3.25V	4.955V	838.294				51.23°C	229.76V
CL1	0.115A	13.209A	13.281A	0A	111.301	82.053%	893	22.2	34.8°C	0.912
	12.235V	5.011V	3.291V	5.097V	135.647				40.29°C	229.86V
CL2	0.113A	19.989A	0A	0A	101.336	81.956%	755	19.2	34.1°C	0.9
	12.240V	5V	3.313V	5.102V	123.646				41.13°C	229.86V
CL3	0.113A	0A	20.054A	0A	67.395	76.546%	750	19.1	34.67°C	0.844
	12.240V	5.078V	3.292V	5.102V	88.045				43.72°C	229.87V
CL4	53.525A	0A	0A	0.001A	649.542	86.548%	1721	40.1	40.02°C	0.988
	12.135V	5.092V	3.306V	5.06V	750.507				50.99°C	229.76V

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20-80W LOAD TESTS 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	1.212A	0.486A	0.49A	0.196A	19.995	69.278%	747	19	29.82°C	0.518
	12.253V	5.148V	3.366V	5.111V	28.86				32.91°C	229.88V
40W	2.668A	0.68A	0.687A	0.294A	39.998	78.416%	742	18.8	31.47°C	0.705
	12.249V	5.145V	3.363V	5.106V	51.011				34.81°C	229.87V
60W	4.126A	0.875A	0.884A	0.392A	60	83.232%	745	18.9	32.75°C	0.797
	12.246V	5.14V	3.359V	5.102V	72.09				36.24°C	229.87V
80W	5.581A	1.071A	1.082A	0.49A	79.951	85.774%	749	19.1	33.03°C	0.856
	12.242V	5.136V	3.356V	5.097V	93.213				36.89°C	229.87V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	13.97mV	10.78mV	9.92mV	11.92mV	Pass
20% Load	13.56mV	11.50mV	11.76mV	12.63mV	Pass
30% Load	14.07mV	11.80mV	13.71mV	14.32mV	Pass
40% Load	13.66mV	12.11mV	14.42mV	14.22mV	Pass
50% Load	14.63mV	13.69mV	17.19mV	16.73mV	Pass
60% Load	17.29mV	15.12mV	19.59mV	18.77mV	Pass
70% Load	17.55mV	16.09mV	21.74mV	20.82mV	Pass
80% Load	17.75mV	15.94mV	22.92mV	19.23mV	Pass
90% Load	24.92mV	18.44mV	25.27mV	22.30mV	Pass
100% Load	26.43mV	20.75mV	30.30mV	30.67mV	Pass
110% Load	29.86mV	22.16mV	32.00mV	31.87mV	Pass
Crossload1	19.13mV	16.17mV	19.65mV	15.80mV	Pass
Crossload2	16.47mV	22.17mV	15.55mV	11.92mV	Pass
Crossload3	15.55mV	10.83mV	17.60mV	14.58mV	Pass
Crossload4	29.77mV	18.07mV	27.20mV	23.17mV	Pass

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Top side

GigaMax III 650W

zalman

Model : ZM650-GV3

Intel ATX Ver 3.0

AC Input (~)	200-240V~, 5A, 50-60Hz			
DC Output (±)	+3.3V	+5V	+12V	-12V
Max. output Current	20A	20A	54.16A	0.3A
Max. Combined Wattage	110W		650W	3.6W
Total Power	650W			

CAUTION!

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Do not remove this cover. Trained service personnel only. No user serviceable components inside.

Nie pas otwierać! Ryzyko d'electrocution ou d'arc électrique. En cas de problème technique, confier le bloc d'alimentation à une personne qualifiée.

Öffnen Sie das Netzteillagehäuse nicht. Dieses Produkt enthält keine austauschbaren Teile. Reparaturen ausschließlich von Fachpersonal durchführen lassen.

No abrir! Riesgo de electrocución o arco eléctrico. En caso de problema técnico, haga revisar la fuente de alimentación a especialista.

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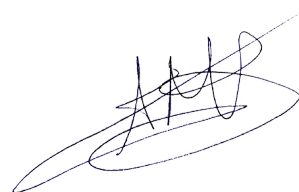
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RoHS

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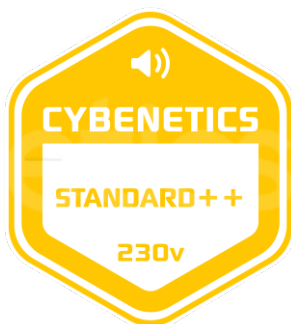
CE

Power specifications label



Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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