zalman

Zalman GV2SE 800W

Serial Number

Lab ID ZL80002491

Certification ID 252491

Test Result Report ID: 24PS2491A

Certificate Issue Date: Jul 2, 2024

230V

Scheme: ETA-EMI PSU



230V



Scheme: LAMBDA PSU



Aristeidis Bitziopoulos, Certification Body General Manager

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	Zalman
Model	GV2SE 800W
OEM/ODM	Jiumeng
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	200-240
Rated Current (Arms)	7
Rated Frequency (Hz)	50-60

Rated Power (W)	800
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Sleeve Bearing Fan (PY-1225M12S)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	ZL80002491
Date of receipt	Jun 25, 2024
Testing Date	Jul 2, 2024
Report Issued Date	Jul 2, 2024
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Captive Cables				
Description	**Cable Count**	**Connector Count (Total)**	**Gauge**	In Cable Capacitors
ATX connector 20+4 pin (570mm)	1	1	18-22AWG	No
4+4 pin EPS12V (750mm+150mm)	1	2	18AWG	No
6+2 pin PCIe (500mm+150mm)	2	4	18AWG	No
SATA (445mm+145mm+145mm+145mm)	2	8	18AWG	No
4-pin Molex (470mm+150mm)	1	2	18AWG	No
4-pin Molex (470mm+150mm) / FDD Adapter (+150mm)	1	2 / 1	18-20AWG	No

Protection Features(Manufacturer)

Over Power Protection	✓
Over Current (+12V) Protection	✓
Over Temperature Protection	✓
Short Circuit Protection	✓
Surge Protection	✗
Inrush Current Protection	✓
Fan Failure Protection	✗

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	66.66	3	0.5
	Watts	120		800	15	6
Total Max. Power (W)		800				

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	✓

Performance Summary 230V

Accredited	
Average Efficiency (>1450 load combinations)	87.532%
Average Noise Output (>1450 Load Combinations)	26.02dBA
Average PF (>1450 Load Combinations)	0.970
Efficiency With 10W (≤500W) or 2% (>500W) Load	-

Standby Power Consumption		0.1239W
Non-Accredited		
12V Ripple (Full Load)		70.13mV
5V Ripple (Full Load)		19.55mV
3.3V Ripple (Full Load)		25.10mV
5VSB Ripple (Full Load)		17.43mV
12V Load Regulation		1.65%
5V Load Regulation		3.46%
3.3V Load Regulation		3.89%
5VSB Load Regulation		3.13%
Inrush Current		88.870A
12V Transient Response (150%)		11.73V
5V Transient Response (150%)		4.970V
3.3V Transient Response (150%)		3.188V
5VSB Transient Response (150%)		5.015V
Hold-Up Time & PWR_OK Signal		17.30ms
AC Loss to PWR_OK Hold Up Time		16.10ms
PWR_OK Inactive to DC Loss Delay		1.20ms
PSU Timings: T1 (20% / 100%)	56.0ms	55.0ms
PSU Timings: T3 (20% / 100%)	121.0ms	122.0ms
12V OCP (28.1°C / 44.8°C)	81.00A (121.51%), 12.055V	78.60A (117.91%), 12.058V
5V OCP (28.1°C / 44.8°C)	24.4A (122.00%), 4.978V	23.3A (116.50%), 4.961V
3.3V OCP (28.1°C / 44.8°C)	23.8A (119.00%), 3.293V	22.7A (113.50%), 3.288V
5VSB OCP (28.1°C / 44.8°C)	3.7A (123.33%), 5.077V	3.6A (120.00%), 5.075V
OPP (27.27°C / 42.55°C)	119.89%	119.15%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	17.3
AC Loss to PWR_OK Hold Up Time (ms)	16.1
PWR_OK Inactive to DC Loss Delay (ms)	1.2

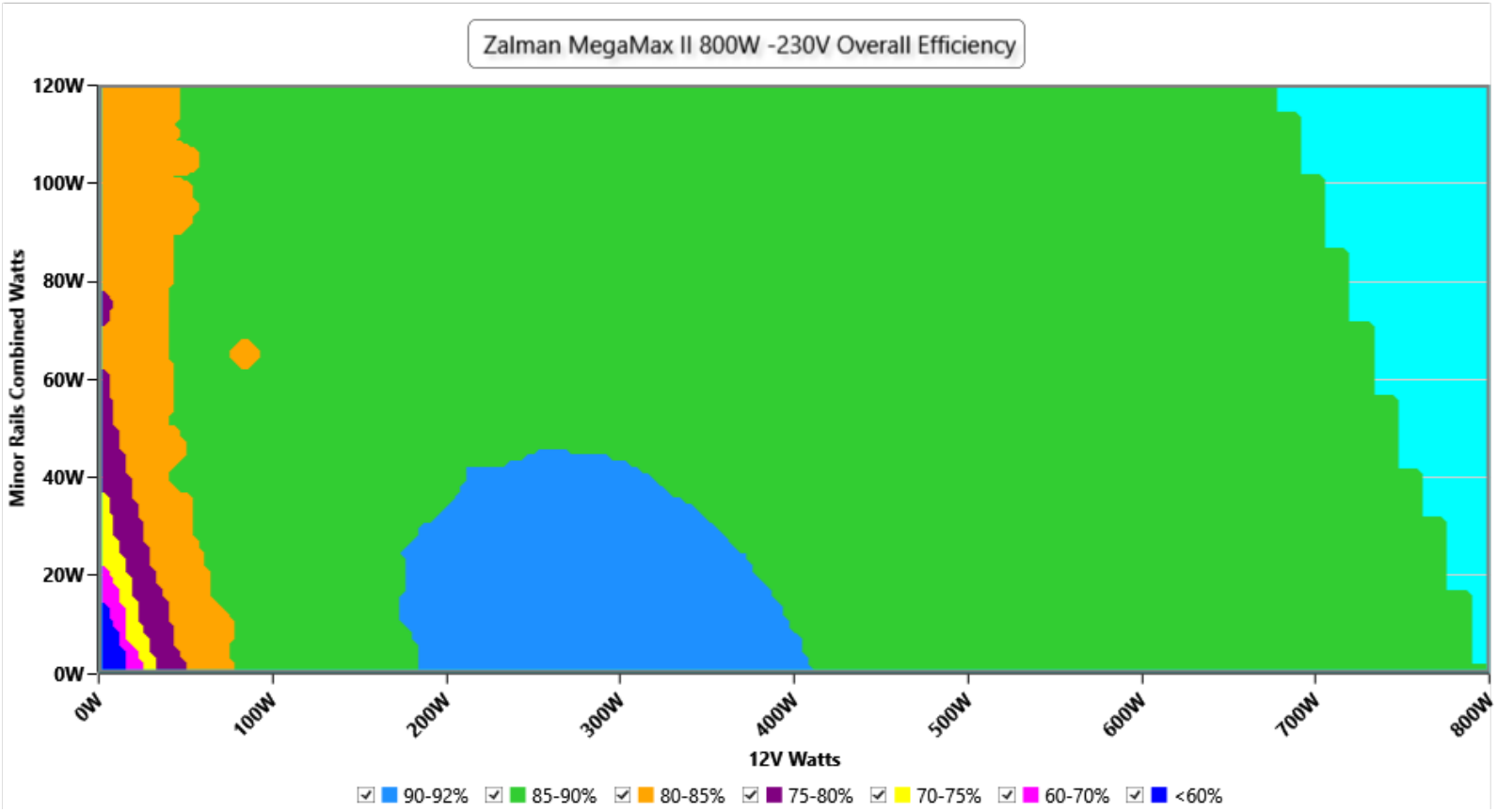
Vampire Power

Tables 230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.03 V	230.93 V	227.70 V	231.10 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	0.26 %	2.00 %	PASS
Real Power:	0.124 W	0.108 W	N/A	0.155 W	N/A	N/A
Apparent Power:	21.449 W	21.170 W	N/A	21.731 W	N/A	N/A
Power Factor:	0.006	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

230V

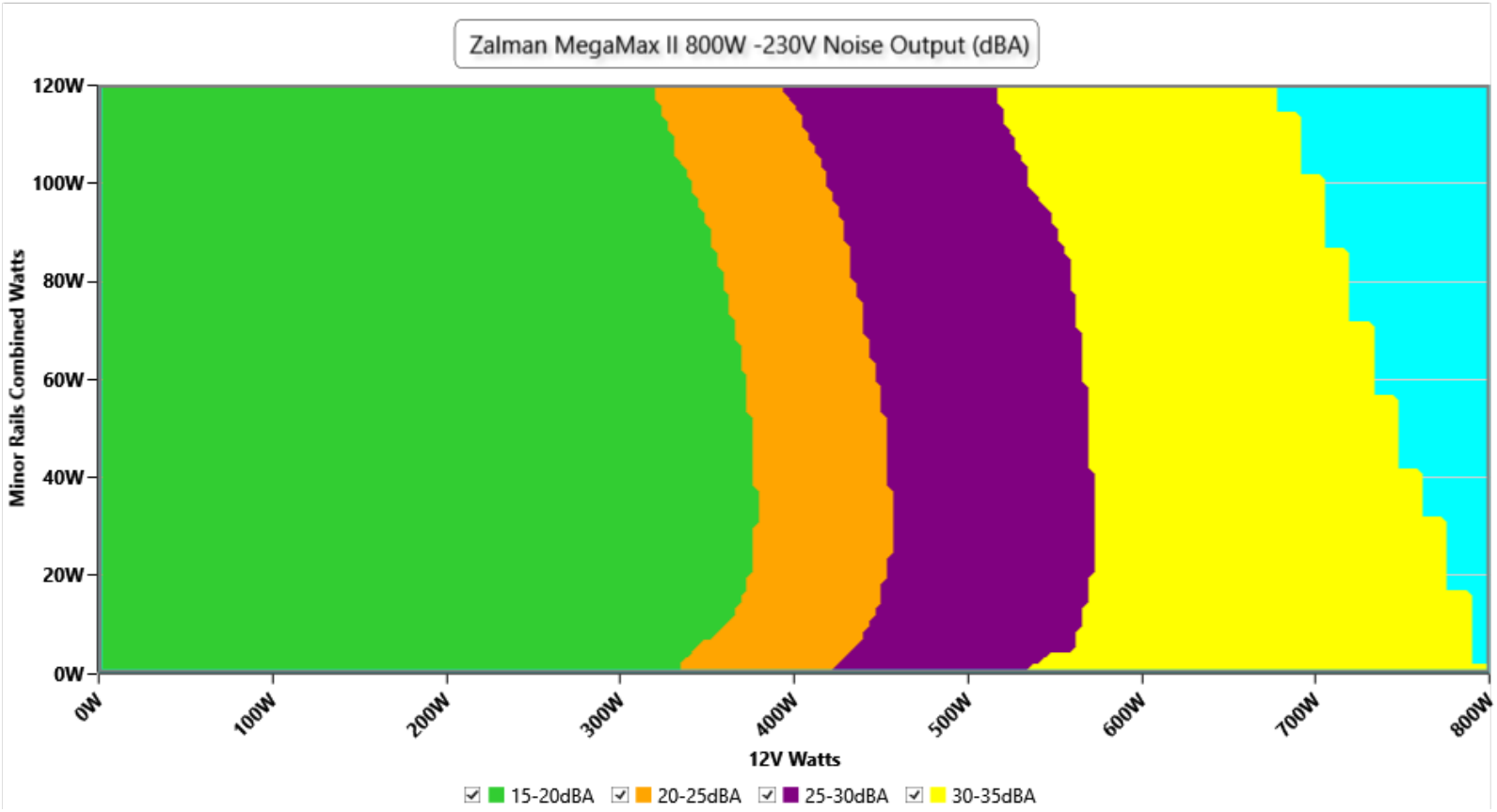


INFO

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

Noise under high ambient temperature (indicative)

230V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	748 RPM · 15.5 dB(A) · 30.2 °C	767 RPM · 16.0 dB(A) · 40.1 °C	**+0.5 dB(A)**
20%	749 RPM · 15.6 dB(A) · 30.3 °C	768 RPM · 16.1 dB(A) · 40.8 °C	**+0.5 dB(A)**
50%	754 RPM · 15.8 dB(A) · 30.3 °C	1124 RPM · 26.6 dB(A) · 42.2 °C	**+10.8 dB(A)**
100%	1496 RPM · 34.7 dB(A) · 30.3 °C	1727 RPM · 39.5 dB(A) · 45.8 °C	**+4.8 dB(A)**

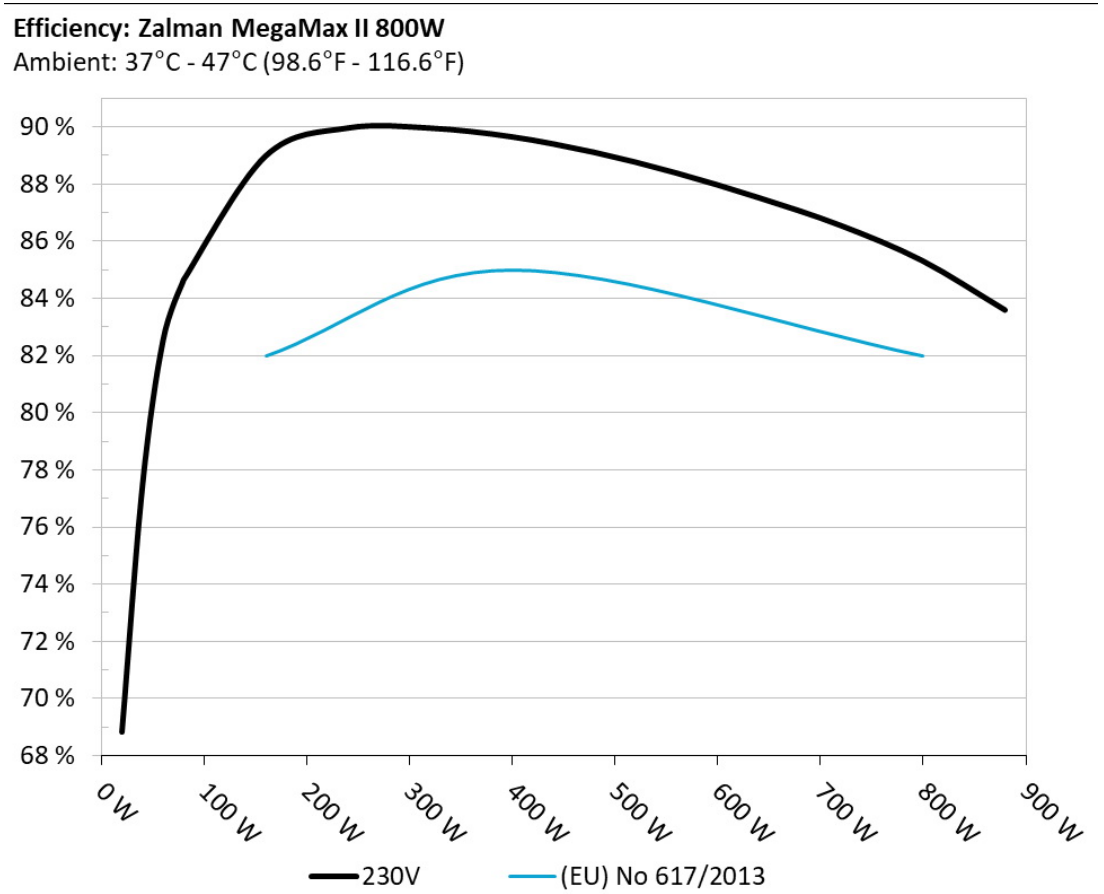
INFO

Fan speed, noise and the measured intake temperature at 10, 20, 50 and 100 % load, from the two load regulation tests: at normal ambient (about 30-32 °C) and at high ambient (about 40-47 °C). These are stabilized readings at fixed loads, not averages over the certification sweep, so they are indicative of how the fan behaves when it is hot. "<6.0" is the floor of our sound meter: the fan is stopped or too quiet to measure (the fan speed column says which); with the fan stopped, the intake sensor can read higher than the chamber air.

Informational. Not part of the ETA or LAMBDA rating.

Indicative Performance

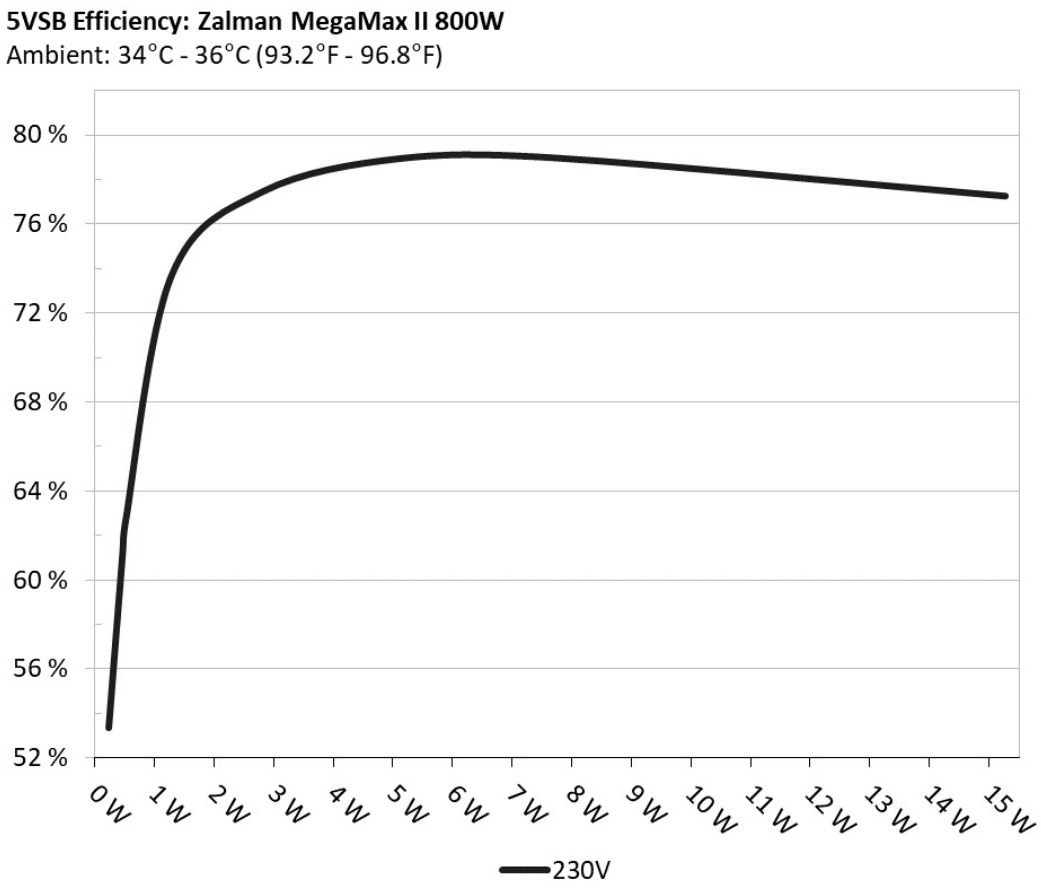
Efficiency under high ambient temperature



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



INFO

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

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.231W	53.349%	0.021
	5.142V	0.434W		230.35V

2	**0.09A**	0.463W	61.192%	0.036
	5.141V	0.757W		230.35V
3	**0.55A**	2.824W	77.493%	0.153
	5.133V	3.645W		230.34V
4	**1A**	5.127W	78.973%	0.23
	5.125V	6.492W		230.34V
5	**1.5A**	7.677W	79.004%	0.281
	5.117V	9.717W		230.34V
6	**3A**	15.273W	77.281%	0.358
	5.091V	19.762W		230.34V

Protection Features

OCP (Cold @ 28.1°C)	12V: 81.00A (121.51%), 12.055V 5V: 24.4A (122.00%), 4.978V 3.3V: 23.8A (119.00%), 3.293V 5VSB: 3.7A (123.33%), 5.077V
OCP (Hot) @ 44.8°C)	12V: 78.60A (117.91%), 12.058V 5V: 23.3A (116.50%), 4.961V 3.3V: 22.7A (113.50%), 3.288V 5VSB: 3.6A (120.00%), 5.075V
OCP (Cold @ 27.3°C)	959.15W (119.89%)
OCP (Hot @ 42.5°C)	953.16W (119.15%)
OTP	✓ (115°C @ Heat Sink)
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: None Inrush: NTC & Bypass Relay

Supplementary Tests (For Reference)

Typical 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%	**4.756A**	**1.954A**	**1.971A**	**0.978A**	80.002	84.632%	767	16	40.11°C	0.894
	12.280V	5.119V	3.348V	5.115V	94.528				41.99°C	230.37V
20%	**10.526A**	**2.941A**	**2.968A**	**1.177A**	159.956	88.961%	768	16.1	40.83°C	0.942
	12.260V	5.102V	3.335V	5.1V	179.802				42.99°C	230.36V
30%	**16.661A**	**3.44A**	**3.474A**	**1.376A**	239.998	89.937%	769	16.1	41.17°C	0.964
	12.242V	5.089V	3.325V	5.087V	266.85				43.91°C	230.35V
40%	**22.815A**	**3.942A**	**3.984A**	**1.577A**	320.05	89.934%	873	19.4	41.91°C	0.976
	12.222V	5.074V	3.314V	5.073V	355.874				46.13°C	230.34V
50%	**28.592A**	**4.946A**	**4.999A**	**1.78A**	399.39	89.633%	1124	26.6	42.15°C	0.981
	12.202V	5.056V	3.301V	5.059V	445.584				47.17°C	230.34V
60%	**34.486A**	**5.956A**	**6.023A**	**1.983A**	479.918	89.089%	1303	31.2	42.94°C	0.984
	12.182V	5.038V	3.287V	5.044V	538.696				48.42°C	230.33V
70%	**40.335A**	**6.975A**	**7.056A**	**2.188A**	559.638	88.369%	1438	33.9	43.09°C	0.986
	12.161V	5.019V	3.274V	5.029V	633.297				49.35°C	230.32V
80%	**46.272A**	**8A**	**8.097A**	**2.293A**	639.66	87.509%	1549	36.1	43.8°C	0.988
	12.140V	5V	3.26V	5.016V	730.968				50.84°C	230.3V
90%	**52.559A**	**8.526A**	**8.619A**	**2.399A**	719.47	86.541%	1639	37.5	44.25°C	0.989
	12.119V	4.985V	3.248V	5.004V	831.366				52.78°C	230.29V
100%	**58.679A**	**9.059A**	**9.179A**	**3.012A**	799.513	85.302%	1727	39.5	45.79°C	0.991
	12.097V	4.968V	3.235V	4.981V	937.278				56.44°C	230.28V
110%	**64.762A**	**10.114A**	**10.345A**	**3.02A**	880.142	83.578%	1785	40	46.61°C	0.992
	12.073V	4.944V	3.219V	4.968V	1053.096				59.8°C	230.27V
CL1	**0.114A**	**14.509A**	**14.518A**	**0A**	121.294	81.058%	890	19.8	40.67°C	0.936
	12.260V	4.976V	3.285V	5.102V	149.64				46.94°C	230.36V
CL2	**0.114A**	**20.043A**	**0A**	**0A**	101.394	80.574%	767	16	40.03°C	0.921
	12.275V	4.989V	3.316V	5.119V	125.841				45.08°C	230.36V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL3	**0.114A**	**0A**	**20.014A**	**0A**	67.388	74.602%	763	16	41.37°C	0.887
	12.272V	5.052V	3.297V	5.111V	90.328				44.63°C	230.36V
CL4	**66.086A**	**0A**	**0A**	**0A**	800.021	85.894%	1701	39.1	45.41°C	0.991
	12.106V	5.057V	3.275V	5.054V	931.423				55.05°C	230.28V

The results above are not used in the certification process

Light 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	**1.208A**	**0.486A**	**0.491A**	**0.195A**	20.001	68.837%	763	16	36.81°C	0.639
	12.296V	5.14V	3.361V	5.137V	29.057				38.81°C	230.38V
40W	**2.660A**	**0.681A**	**0.688A**	**0.292A**	39.999	77.455%	765	16	37.91°C	0.787
	12.290V	5.136V	3.358V	5.133V	51.64				39.92°C	230.38V
60W	**4.113A**	**0.877A**	**0.885A**	**0.39A**	59.998	82.513%	765	16	38.69°C	0.852
	12.285V	5.132V	3.355V	5.129V	72.714				40.38°C	230.38V
80W	**5.564A**	**1.073A**	**1.083A**	**0.488A**	79.953	85.232%	766	16	39.29°C	0.893
	12.280V	5.128V	3.352V	5.125V	93.806				40.91°C	230.37V

The results above are not used in the certification process

Ripple Measurements 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.98mV	11.94mV	9.56mV	7.49mV	Pass
20% Load	19.59mV	12.45mV	10.07mV	8.05mV	Pass
30% Load	30.38mV	12.70mV	10.38mV	9.02mV	Pass
40% Load	34.39mV	13.62mV	10.63mV	9.22mV	Pass
50% Load	31.90mV	13.87mV	11.39mV	9.73mV	Pass
60% Load	34.09mV	14.94mV	12.11mV	10.60mV	Pass
70% Load	49.56mV	15.51mV	13.79mV	11.56mV	Pass
80% Load	61.31mV	17.04mV	20.19mV	11.97mV	Pass
90% Load	68.23mV	17.44mV	21.26mV	12.94mV	Pass

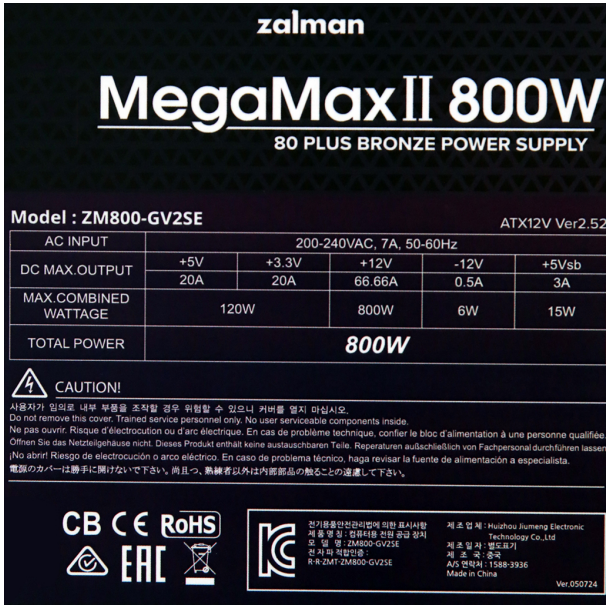
Test	12V	5V	3.3V	5VSB	Pass/Fail
100% Load	70.13mV	19.55mV	25.10mV	17.43mV	Pass
110% Load	76.54mV	21.01mV	26.99mV	18.07mV	Pass
Crossload1	22.34mV	23.43mV	25.97mV	10.82mV	Pass
Crossload2	18.37mV	30.91mV	8.24mV	8.71mV	Pass
Crossload3	13.53mV	11.48mV	31.94mV	10.85mV	Pass
Crossload4	59.44mV	14.12mV	15.21mV	10.35mV	Pass

The results above are not used in the certification process

Zalman GV2SE 800W



Top side



Power specifications label

All data and graphs included in this test report can be used by any individual on the following conditions:
› 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

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

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