

Anex

Gamemax RGB-1050 PRO

Lab ID#: GM10502192
 Receipt Date: May 30, 2023
 Test Date: Jun 12, 2023

Report: 23PS2192A

Report Date: Jun 13, 2023

DUT INFORMATION

Brand	Gamemax
Manufacturer (OEM)	Jiu Meng
Series	RGB SMART
Model Number	RGB-1050 PRO
Serial Number	
DUT Notes	It cannot operate for more than one minute with 110% load at about 40°C.

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-8
Rated Frequency (Hz)	47-63
Rated Power (W)	1050
Type	ATX12V
Cooling	140mm Fluid Dynamic Bearing Fan (No info)
Semi-Passive Operation	x
Cable Design	Fully 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 v3.0 PSU Power Excursion	✓

115V

Average Efficiency	89.454%
Efficiency With 10W (≤500W) or 2% (>500W)	70.534
Average Efficiency 5VSB	80.319%
Standby Power Consumption (W)	0.0925000
Average PF	0.990
Avg Noise Output	29.53 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A-

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	82	2.5	0.5
	Watts	125		984	12.5	6
Total Max. Power (W)		1050				

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

Hold-Up Time (ms)	23.6
AC Loss to PWR_OK Hold Up Time (ms)	21.2
PWR_OK Inactive to DC Loss Delay (ms)	2.4

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (650mm)	1	1	16-20AWG	No
4+4 pin EPS12V (700mm)	1	1	16AWG	No
6+2 pin PCIe (550mm)	3	3	16AWG	No
12+4 pin PCIe (500mm) (600W)	1	1	16-24AWG	No
SATA (500mm+150mm+150mm+150mm)	1	4	18AWG	No
4-pin Molex (450mm+150mm+150mm)	3	9	18AWG	No

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General Data	-
Manufacturer (OEM)	Jiu Meng
PCB Type	Double Sided
Primary Side	-
Transient Filter	4x Y caps, 3x X caps, 1x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor NTC5D-20 (50Ohm) & Relay
Bridge Rectifier(s)	2x
APFC MOSFETs	3x Sanrise Tech SRC60R090B (600V, 17.8A @ 125°C, Rds(on): 0.0090hm)
APFC Boost Diode	2x GPT G3S06506D (650V, 15.3A @ 100°C)
Bulk Cap(s)	1x Nichicon (400V, 1000uF, 2000h @ 105°C, GG(M))
Main Switchers	2x Sanrise Tech SRC60R068BS(600V, 21.5A @ 125°C, Rds(on): 68mOhm)
APFC Controller	Infineon ICE2PCS01
Resonant Controller	MPS HR1213
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	8x ZMJ ZMS008N04NC (40V, 195A @ 100°C, Rds(on): 0.91mOhm)
5V & 3.3V	DC-DC Converters: 4x All Power AP180N03G (30V, 115A @ 100°C, Rds(on): 2.1mOhm) PWM Controller(s): Micro uP3861P
Filtering Capacitors	Electrolytic: 2x Teapo (3-3,000 @ 105°C, SC), 3x Teapo (3-6,000 @ 105°C, SY) Polymer: 21x Teapo
IC Driver	MPS MP6924B
Supervisor IC	Grenergy GR8313 (OVP, UVP, PG)
Fan Model	no info
5VSB Circuit	-
Rectifier	ER2EL60CS
Standby PWM Controller	PN8141

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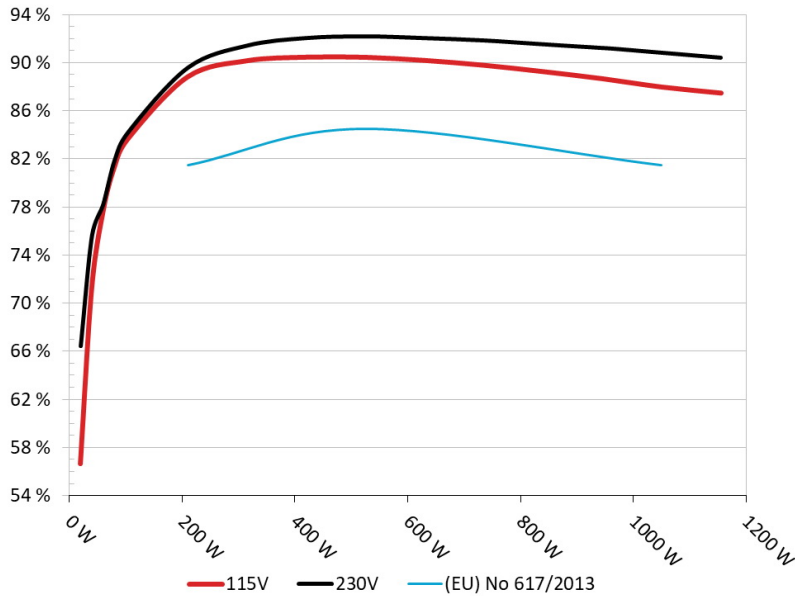
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Gamemax RGB-1050 Pro

Ambient: 30°C - 40°C (86°F - 104°F)



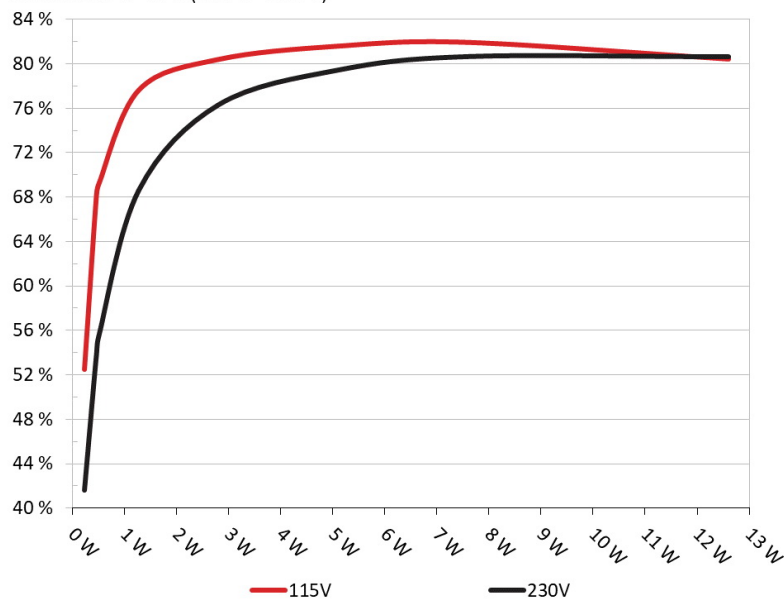
INFO

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: Gamemax RGB-1050 Pro

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 -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	52.482%	0.021
	5.115V	0.26W		114.91V
2	0.09A	0.46W	68.173%	0.056
	5.113V	0.675W		114.92V
3	0.55A	2.804W	80.381%	0.238
	5.099V	3.488W		114.91V
4	1A	5.085W	81.573%	0.339
	5.086V	6.234W		114.91V
5	1.5A	7.606W	81.911%	0.395
	5.071V	9.286W		114.91V
6	2.5A	12.598W	80.414%	0.461
	5.04V	15.666W		114.9V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	41.627%	0.013
	5.116V	0.554W		229.8V
2	0.09A	0.46W	53.847%	0.021
	5.112V	0.855W		229.8V
3	0.55A	2.804W	76.304%	0.088
	5.098V	3.676W		229.81V
4	1A	5.085W	79.415%	0.146
	5.085V	6.403W		229.8V
5	1.5A	7.607W	80.644%	0.196
	5.071V	9.433W		229.8V
6	2.5A	12.599W	80.622%	0.278
	5.04V	15.628W		229.8V

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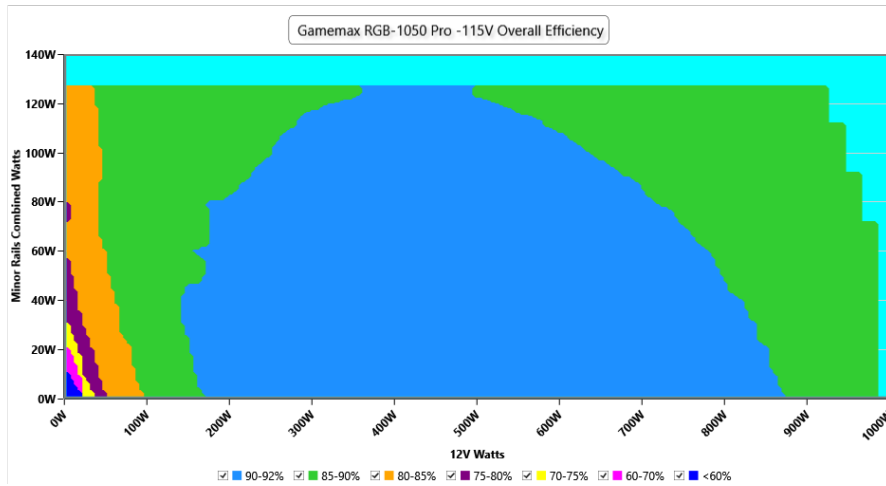
115V

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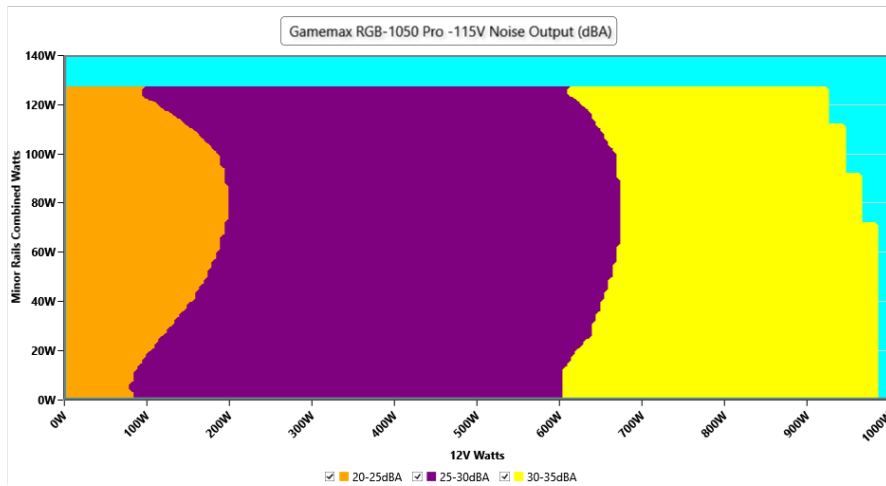
EFFICIENCY GRAPH 115V



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 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

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.90 V	114.82 V	113.85 V	114.97 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.98 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.419	1.417	1.340	1.421	1.490	PASS
Mains Voltage THD:	0.21 %	0.16 %	N/A	0.30 %	2.00 %	PASS
Real Power:	0.092 W	0.016 W	N/A	0.152 W	N/A	N/A
Apparent Power:	12.209 W	12.164 W	N/A	12.262 W	N/A	N/A
Power Factor:	0.009	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 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%	6.902A	1.982A	1.976A	0.979A	104.938	84.184%	1045	23.6	33.61°C	0.958
	12.074V	5.046V	3.34V	5.106V	124.647				37.87°C	114.88V
20%	14.835A	2.975A	2.967A	1.178A	209.928	89.283%	1070	24.1	34.05°C	0.992
	12.067V	5.042V	3.337V	5.094V	235.123				38.63°C	114.84V
30%	23.126A	3.472A	3.463A	1.377A	314.939	90.626%	1127	25.2	35.44°C	0.991
	12.059V	5.04V	3.335V	5.082V	347.518				40.49°C	114.81V
40%	31.397A	3.97A	3.961A	1.578A	419.517	90.925%	1216	27.6	35.89°C	0.993
	12.049V	5.038V	3.332V	5.07V	461.388				41.4°C	114.77V
50%	39.399A	4.966A	4.957A	1.779A	524.833	90.913%	1281	28.4	36.4°C	0.994
	12.039V	5.034V	3.329V	5.058V	577.293				42.31°C	114.73V
60%	47.347A	5.964A	5.954A	1.982A	629.348	90.656%	1338	28.6	36.64°C	0.994
	12.029V	5.031V	3.326V	5.046V	694.211				43.15°C	114.69V
70%	55.399A	6.963A	6.954A	2.185A	734.696	90.253%	1385	30.5	37.31°C	0.995
	12.014V	5.027V	3.322V	5.033V	814.036				44.34°C	114.64V
80%	63.483A	7.964A	7.956A	2.289A	839.521	89.725%	1443	32.1	37.89°C	0.995
	11.997V	5.023V	3.318V	5.023V	935.662				46.02°C	114.6V
90%	72.011A	8.464A	8.444A	2.393A	944.897	89.134%	1504	33.9	38.72°C	0.995
	11.977V	5.02V	3.316V	5.014V	1060.081				48.04°C	114.55V
100%	80.505A	8.968A	8.965A	2.498A	1049.605	88.442%	1559	34.3	39.73°C	0.994
	11.954V	5.017V	3.313V	5.004V	1186.777				49.77°C	114.52V
110%	88.726A	9.967A	10.055A	2.502A	1154.921	87.942%	1310	28.3	40.41°C	0.994
	11.937V	5.016V	3.312V	4.996V	1313.263				51.32°C	114.49V
CL1	0.115A	15.03A	15.013A	0A	126.294	80.531%	1363	29.5	35.26°C	0.977
	12.074V	5.009V	3.304V	5.129V	156.829				40.79°C	114.85V
CL2	0.115A	24.987A	0A	0A	126.245	78.871%	1352	28.8	35.13°C	0.979
	12.075V	4.997V	3.318V	5.131V	160.068				42.23°C	114.84V
CL3	0.114A	0A	25.03A	0A	83.9	71.973%	1280	28.4	34.61°C	0.932
	12.075V	5.03V	3.297V	5.13V	116.575				43.64°C	114.88V
CL4	87.778A	0A	0A	0A	1049.496	89.044%	1496	33.2	39.69°C	0.995
	11.956V	5.04V	3.325V	5.082V	1178.622				50.66°C	114.53V

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20-80W LOAD TESTS 115V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
20W	1.229A	0.495A	0.494A	0.195A	19.992	57.119%	912	20.5	0.848
	12.078V	5.049V	3.339V	5.134V	35.003				114.9V
40W	2.706A	0.693A	0.691A	0.292A	39.992	71.65%	927	19.8	0.916
	12.077V	5.049V	3.341V	5.13V	55.817				114.9V
60W	4.184A	0.891A	0.889A	0.39A	59.992	78.06%	954	21.3	0.924
	12.076V	5.049V	3.341V	5.126V	76.854				114.89V
80W	5.656A	1.089A	1.086A	0.488A	79.932	81.747%	994	22.7	0.954
	12.076V	5.048V	3.341V	5.122V	97.78				114.88V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.59mV	14.05mV	16.73mV	8.39mV	Pass
20% Load	10.64mV	14.10mV	16.42mV	8.49mV	Pass
30% Load	11.56mV	15.33mV	16.98mV	8.69mV	Pass
40% Load	11.97mV	14.00mV	16.68mV	8.95mV	Pass
50% Load	15.40mV	15.12mV	17.70mV	9.16mV	Pass
60% Load	19.29mV	15.99mV	18.67mV	9.36mV	Pass
70% Load	22.15mV	15.79mV	19.13mV	9.82mV	Pass
80% Load	26.30mV	15.43mV	20.26mV	11.10mV	Pass
90% Load	27.27mV	15.68mV	19.85mV	12.07mV	Pass
100% Load	35.31mV	18.56mV	21.10mV	13.89mV	Pass
110% Load	33.91mV	21.82mV	21.03mV	13.72mV	Pass
Crossload1	11.97mV	18.41mV	17.48mV	10.93mV	Pass
Crossload2	14.63mV	27.64mV	17.70mV	10.08mV	Pass
Crossload3	11.36mV	15.53mV	22.10mV	10.33mV	Pass
Crossload4	33.74mV	16.87mV	19.28mV	13.94mV	Pass

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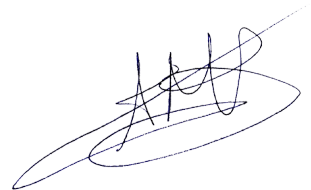


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Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

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