

## Anex

## Montech Gamma II 750W

Lab ID#: MT75001695  
Receipt Date: Jul 22, 2020  
Test Date: Jul 29, 2020

Report: 20PS1695A

Report Date: Jul 3, 2020

### DUT INFORMATION

Brand	Montech
Manufacturer (OEM)	Channel Well Technology
Series	Gamma II
Model Number	GPS750S-G
Serial Number	GAMMA750200500177
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	120mm Sleeve Bearing Fan (D12SM-12)
Semi-Passive Operation	X
Cable Design	Fixed cables

### 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
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

### 115V

Average Efficiency	88.503%
Efficiency With 10W (≤500W) or 2% (>500W)	62.587
Average Efficiency 5VSB	75.845%
Standby Power Consumption (W)	0.1019680
Average PF	0.984
Avg Noise Output	31.11 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard++

### 230V

Average Efficiency	90.152%
Average Efficiency 5VSB	75.640%
Standby Power Consumption (W)	0.1274420
Average PF	0.944
Avg Noise Output	31.02 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard++

## POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	22	22	62	2.5	0.3
	Watts	120		744	12.5	3.6
Total Max. Power (W)		750				

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

Hold-Up Time (ms)	9
AC Loss to PWR_OK Hold Up Time (ms)	10.8
PWR_OK Inactive to DC Loss Delay (ms)	-1.8

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## CABLES AND CONNECTORS

### Native Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Caps
ATX connector 20+4 pin (500mm)	1	1	18AWG	No
8 pin EPS12V (560mm) / 4+4 pin EPS12V (+150mm)	1	1 / 1	18AWG	No
6+2 pin PCIe (470mm+150mm)	2	4	18AWG	No
SATA (450mm+150mm+150mm+150mm)	2	8	20AWG	No
4-pin Molex (450mm+150mm+150mm) / FDD (+150mm)	1	3 / 1	20AWG	No

### Modular Cables

AC Power Cord (1400mm) - C13 coupler	1	1	16AWG	-
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## Montech Gamma II 750W

General Data	-
Manufacturer (OEM)	CWT
Platform	GPS
PCB Type	Single Sided
Primary Side	-
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x CAP004DG Discharge IC
Inrush Protection	NTC Thermistor SCK-085 & Relay
Bridge Rectifier(s)	1x GBU15L06 (800V, 10A @ 100°C)
APFC MOSFETs	2x Great Power GP28S50G (500V, 28A @ 150°C, Rds(on): 0.125Ohm)
APFC Boost Diode	1x On Semiconductor FFSP0865A (650V, 8A @ 155°C)
Bulk Cap(s)	1x Nippon Chemi-Con (400V, 470uF, 2,000h @ 105°C, KMW)
Main Switchers	2x On Semiconductor FCPF125N65S3 (650V, 15A @ 100°C, Rds(on): 0.125Ohm)
APFC Controller	Champion CM6502S & CM03X Phantom Power Remover
Resonant Controller	Champion CM6901X
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	6x SG40N01D
5V & 3.3V	DC-DC Converters: 4x UBIQ QM3006D (30V, 57A @ 100°C, Rds(on): 5.5mOhm) PWM Controllers: ANPEC APW7159C
Filtering Capacitors	Electrolytic: 10x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 1x Nichicon (4-10,000h @ 105°C, HE) Polymer: 12x APAQ
Supervisor IC	Sitronix ST9S313-DAG (OVP, UVP, SCP)
Fan Model	Yate Loon D12SM-12 (120mm, 12V, 0.30A, Rifle Bearing Fan)
5VSB Circuit	-
Rectifier	1x PFC PFS5V45 SBR(45V, 5A)
Standby PWM Controller	Power Integrations TNY177PN

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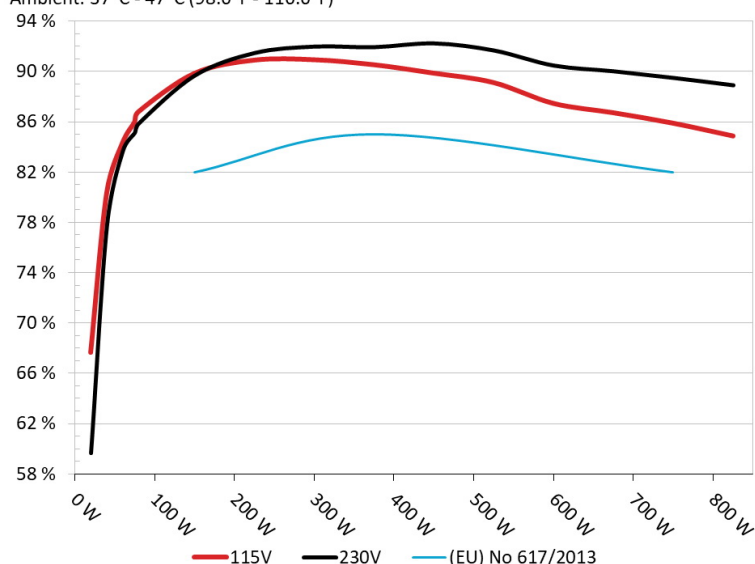
## Anex

## Montech Gamma II 750W

### EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

#### Efficiency: Montech GPS750S-G

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



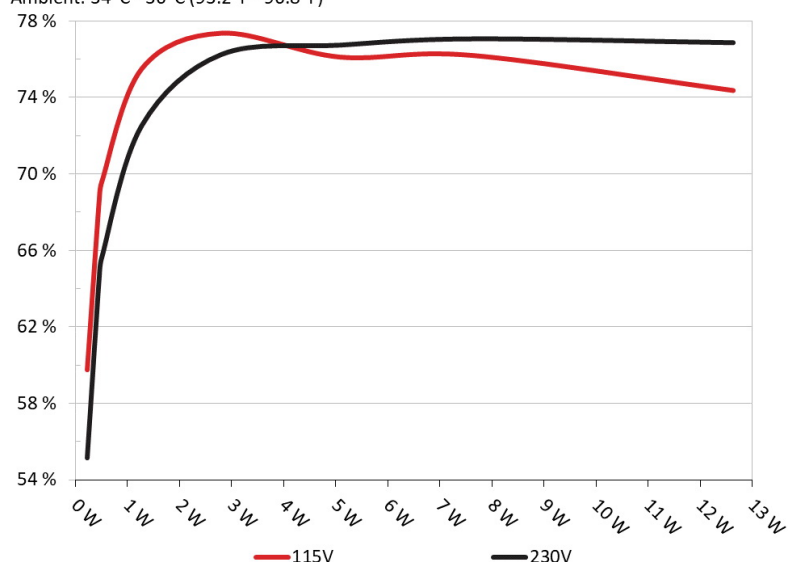
#### INFO

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: Montech GPS750S-G

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	59.740%	0.036
	5.103V	0.385		115.13V
2	0.090A	0.459	68.610%	0.061
	5.102V	0.669		115.13V
3	0.550A	2.801	77.354%	0.264
	5.092V	3.621		115.13V
4	1.000A	5.083	76.104%	0.370
	5.082V	6.679		115.13V
5	1.500A	7.611	76.194%	0.430
	5.074V	9.989		115.13V
6	2.500A	12.631	74.357%	0.478
	5.052V	16.987		115.12V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	55.156%	0.012
	5.102V	0.417		230.29V
2	0.090A	0.459	64.557%	0.020
	5.101V	0.711		230.29V
3	0.550A	2.802	76.245%	0.100
	5.092V	3.675		230.29V
4	1.000A	5.084	76.740%	0.169
	5.083V	6.625		230.30V
5	1.500A	7.610	77.063%	0.229
	5.072V	9.875		230.30V
6	2.501A	12.632	76.865%	0.311
	5.051V	16.434		230.30V

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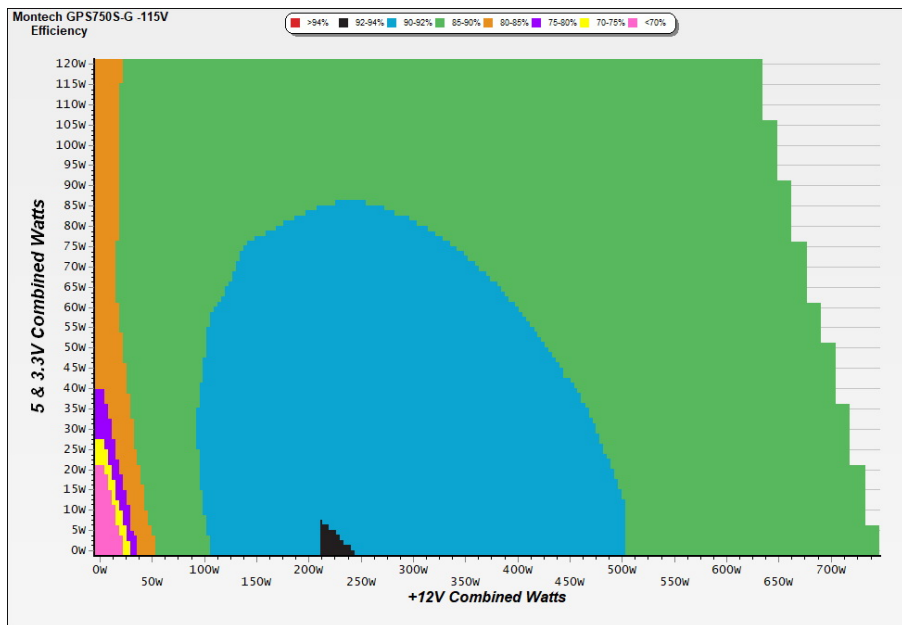
# 115V

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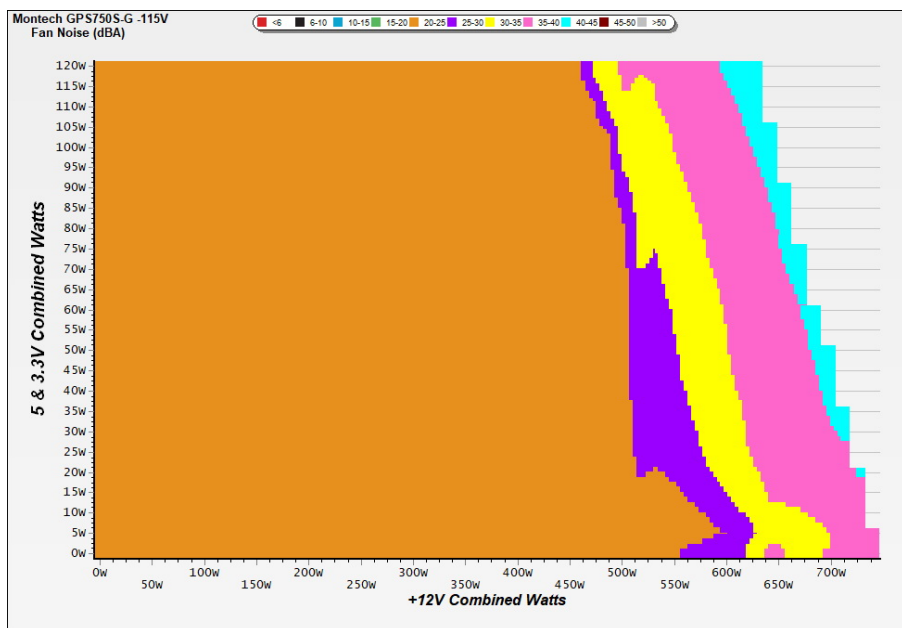
### EFFICIENCY GRAPH 115V



#### 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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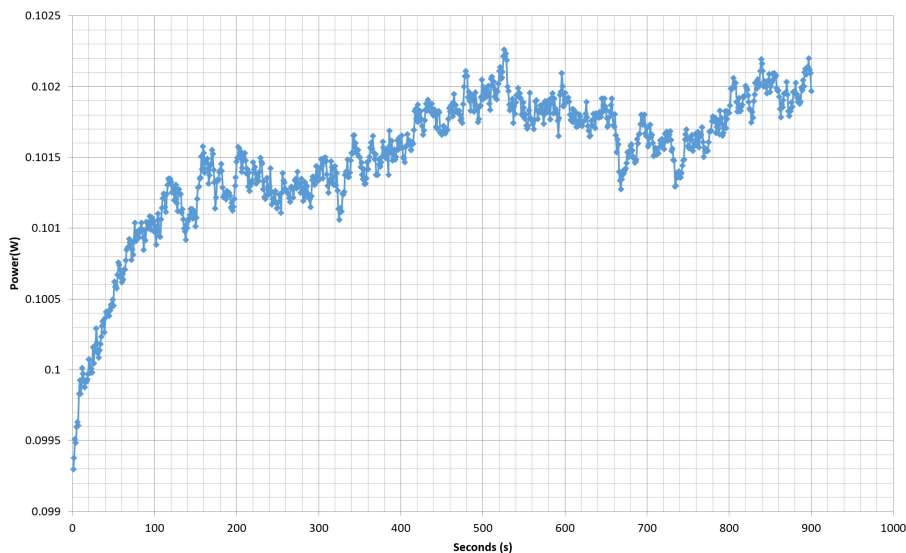


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## VAMPIRE POWER -115V

Power - GAMMA750200500177 - 24/07/2020 - 09:14



### 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
1	4.406A	1.982A	1.954A	0.986A	74.968	85.955%	833	22.5	40.41°C	0.964
	12.112V	5.047V	3.378V	5.071V	87.218				45.24°C	115.13V
2	9.844A	2.980A	2.943A	1.186A	150.036	89.833%	832	22.4	40.76°C	0.984
	12.102V	5.034V	3.364V	5.060V	167.017				46.15°C	115.13V
3	15.628A	3.484A	3.444A	1.387A	225.044	90.885%	834	22.5	41.10°C	0.988
	12.093V	5.024V	3.353V	5.049V	247.614				47.23°C	115.12V
4	21.425A	3.990A	3.950A	1.588A	300.063	90.916%	837	22.6	41.83°C	0.990
	12.082V	5.014V	3.342V	5.038V	330.044				48.79°C	115.12V
5	26.854A	5.000A	4.961A	1.791A	374.672	90.522%	838	22.7	42.35°C	0.989
	12.071V	5.001V	3.328V	5.026V	413.900				49.86°C	115.12V
6	32.320A	6.016A	5.977A	1.995A	449.621	89.852%	892	24.6	42.57°C	0.989
	12.061V	4.988V	3.313V	5.013V	500.404				50.89°C	115.12V
7	37.822A	7.036A	7.004A	2.201A	524.910	89.102%	1151	30.8	43.05°C	0.989
	12.051V	4.975V	3.299V	5.001V	589.109				52.13°C	115.12V
8	43.348A	8.003A	8.043A	2.407A	599.936	87.447%	1836	42.7	43.52°C	0.988
	12.038V	4.961V	3.283V	4.988V	686.057				53.12°C	115.12V
9	49.235A	8.589A	8.559A	2.411A	674.774	86.707%	2121	46.5	44.65°C	0.989
	12.029V	4.950V	3.272V	4.980V	778.224				54.55°C	115.11V
10	55.131A	9.114A	9.113A	2.516A	749.902	85.877%	2117	46.5	45.69°C	0.990
	12.020V	4.939V	3.260V	4.970V	873.229				55.89°C	115.11V
11	61.440A	9.132A	9.138A	2.520A	825.139	84.858%	2117	46.5	47.01°C	0.991
	12.010V	4.931V	3.251V	4.963V	972.377				57.73°C	115.11V
CL1	0.100A	14.005A	14.000A	0.000A	116.943	83.571%	832	22.4	42.27°C	0.981
	12.090V	4.973V	3.292V	5.071V	139.932				49.52°C	115.14V
CL2	62.018A	1.000A	1.002A	1.000A	759.334	86.504%	2116	46.5	45.56°C	0.990
	12.029V	4.985V	3.315V	5.012V	877.807				55.20°C	115.11V

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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
1	1.225A	0.494A	0.488A	0.196A	19.996	67.664%	834	22.5	0.821
	12.115V	5.062V	3.395V	5.096V	29.552				115.13V
2	2.450A	0.987A	0.974A	0.393A	39.985	80.294%	835	22.6	0.919
	12.120V	5.056V	3.389V	5.089V	49.798				115.13V
3	3.678A	1.486A	1.462A	0.590A	60.017	84.330%	832	22.4	0.954
	12.117V	5.051V	3.383V	5.083V	71.169				115.13V
4	4.901A	1.982A	1.954A	0.788A	79.968	86.794%	831	22.3	0.967
	12.113V	5.046V	3.378V	5.076V	92.135				115.13V

### RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	15.40mV	18.90mV	10.70mV	14.90mV	Pass
20% Load	19.40mV	20.20mV	11.50mV	16.20mV	Pass
30% Load	19.80mV	20.40mV	12.20mV	14.90mV	Pass
40% Load	21.90mV	25.60mV	20.00mV	15.00mV	Pass
50% Load	23.40mV	27.60mV	22.80mV	15.70mV	Pass
60% Load	28.80mV	26.60mV	24.30mV	23.00mV	Pass
70% Load	34.20mV	25.10mV	16.90mV	18.50mV	Pass
80% Load	28.90mV	27.20mV	19.40mV	17.90mV	Pass
90% Load	32.20mV	32.10mV	29.90mV	18.00mV	Pass
100% Load	43.90mV	34.60mV	34.40mV	21.80mV	Pass
110% Load	45.80mV	35.70mV	38.10mV	22.90mV	Pass
Crossload1	32.10mV	21.80mV	15.90mV	11.70mV	Pass
Crossload2	40.40mV	32.90mV	35.20mV	18.80mV	Pass

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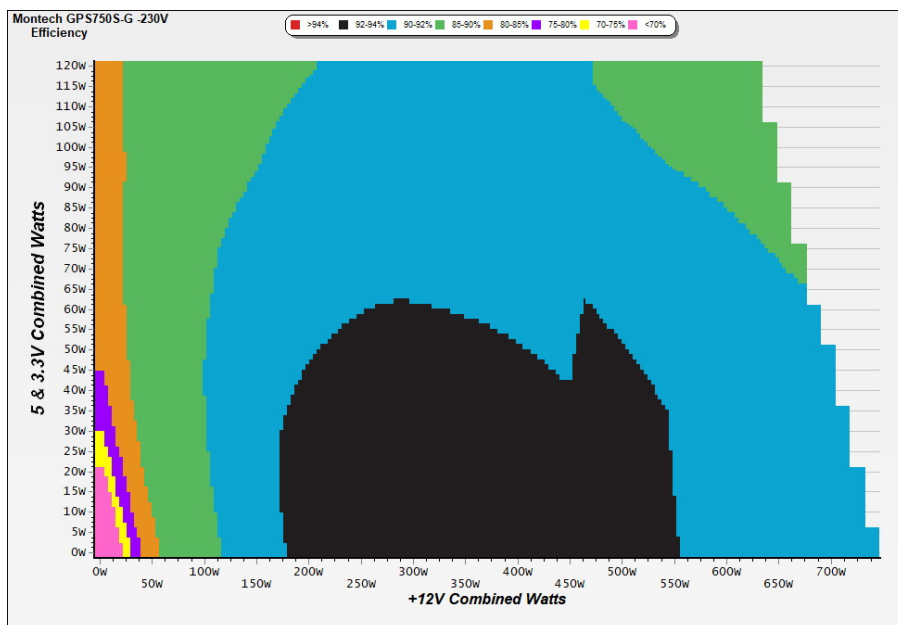
# 230V

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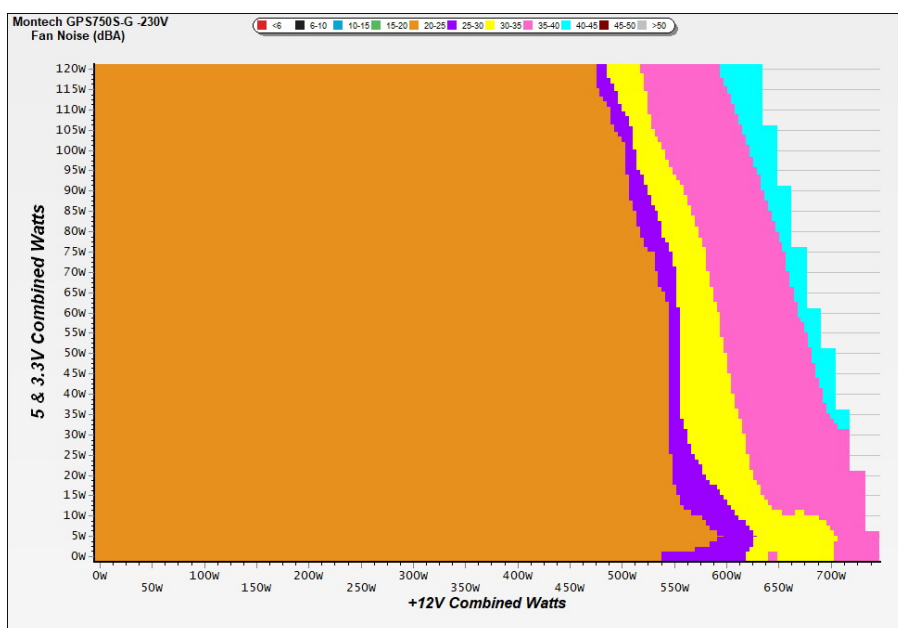
### EFFICIENCY GRAPH 230V



#### 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

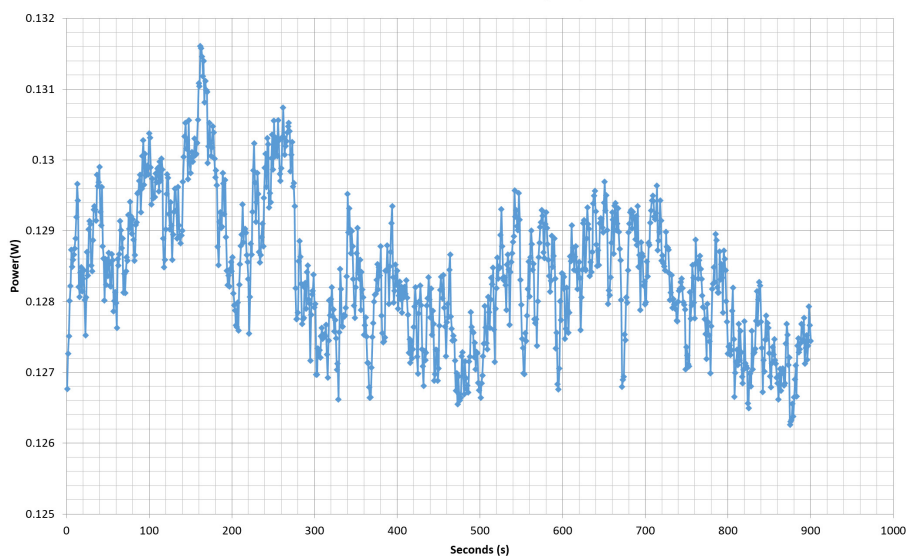
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### VAMPIRE POWER -230V

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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
1	4.410A	1.982A	1.954A	0.986A	74.975	85.094%	844	22.8	40.20°C	0.810
	12.102V	5.046V	3.378V	5.070V	88.108				44.27°C	230.27V
2	9.851A	2.980A	2.944A	1.186A	150.060	89.637%	843	22.8	40.26°C	0.914
	12.096V	5.033V	3.364V	5.059V	167.408				45.06°C	230.27V
3	15.632A	3.484A	3.445A	1.387A	225.074	91.436%	842	22.8	41.44°C	0.943
	12.092V	5.023V	3.353V	5.048V	246.154				47.25°C	230.28V
4	21.429A	3.990A	3.951A	1.589A	300.092	91.945%	835	22.6	41.50°C	0.958
	12.081V	5.013V	3.342V	5.036V	326.383				48.17°C	230.28V
5	26.863A	5.000A	4.961A	1.792A	374.754	91.900%	851	22.7	42.14°C	0.965
	12.070V	5.001V	3.328V	5.024V	407.783				49.43°C	230.28V
6	32.331A	6.017A	5.980A	1.996A	449.700	92.198%	880	24.1	42.52°C	0.973
	12.059V	4.987V	3.313V	5.011V	487.756				50.49°C	230.28V
7	37.837A	7.041A	7.006A	2.201A	525.015	91.635%	1259	33.5	43.61°C	0.976
	12.049V	4.973V	3.297V	4.999V	572.939				52.21°C	230.27V
8	43.351A	8.004A	8.044A	2.408A	600.009	90.439%	1897	44.0	43.98°C	0.974
	12.039V	4.960V	3.282V	4.986V	663.440				53.02°C	230.28V
9	49.236A	8.592A	8.561A	2.411A	674.839	89.984%	2128	46.5	44.37°C	0.975
	12.030V	4.949V	3.271V	4.979V	749.956				54.13°C	230.28V
10	55.140A	9.120A	9.117A	2.517A	749.973	89.459%	2127	46.5	45.87°C	0.977
	12.019V	4.938V	3.258V	4.969V	838.344				56.01°C	230.27V
11	61.457A	9.134A	9.142A	2.521A	825.206	88.872%	2128	46.5	46.54°C	0.978
	12.008V	4.929V	3.249V	4.961V	928.532				57.42°C	230.27V
CL1	0.101A	14.006A	14.001A	0.000A	116.936	83.216%	846	22.8	41.78°C	0.894
	12.082V	4.972V	3.291V	5.069V	140.521				49.24°C	230.28V
CL2	62.025A	1.000A	1.001A	1.000A	759.350	90.180%	2126	46.5	45.43°C	0.977
	12.028V	4.985V	3.314V	5.011V	842.038				56.09°C	230.28V

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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])	PF/AC Volts
1	1.226A	0.494A	0.485A	0.196A	20.001	59.628%	840	22.7	0.500
	12.117V	5.062V	3.395V	5.094V	33.543				230.28V
2	2.452A	0.988A	0.974A	0.393A	39.992	77.709%	839	22.7	0.652
	12.111V	5.056V	3.389V	5.088V	51.464				230.27V
3	3.682A	1.485A	1.462A	0.591A	60.023	83.670%	841	22.7	0.757
	12.106V	5.051V	3.383V	5.081V	71.738				230.28V
4	4.906A	1.982A	1.953A	0.789A	79.974	85.840%	843	22.8	0.823
	12.102V	5.046V	3.378V	5.073V	93.166				230.27V

### RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.20mV	21.70mV	13.40mV	13.90mV	Pass
20% Load	34.10mV	21.40mV	14.70mV	14.00mV	Pass
30% Load	28.90mV	21.40mV	12.70mV	15.00mV	Pass
40% Load	23.90mV	23.20mV	13.40mV	15.60mV	Pass
50% Load	24.30mV	24.50mV	14.30mV	16.10mV	Pass
60% Load	26.70mV	25.50mV	22.50mV	19.50mV	Pass
70% Load	33.50mV	23.40mV	19.20mV	20.40mV	Pass
80% Load	27.70mV	28.20mV	20.40mV	17.30mV	Pass
90% Load	29.50mV	28.70mV	28.80mV	17.50mV	Pass
100% Load	43.70mV	33.60mV	33.90mV	21.50mV	Pass
110% Load	44.80mV	35.60mV	34.70mV	21.90mV	Pass
Crossload1	18.70mV	21.40mV	16.20mV	11.70mV	Pass
Crossload2	40.30mV	32.80mV	33.80mV	19.60mV	Pass

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

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## Anex

## Montech Gamma II 750W



Top side

# GAMMA II 75

Switching Power Supply/スイッチモード電源/電源供應器/電源供應器  
Model/モデル/型號/型号:GPS750S-G

AC INPUT/ AC入力/交流輸入/交流輸入	100-240Vac 47-63Hz 10.0A				
DC OUTPUT/ DC出力/直流輸出/直流輸出	+3.3V	+5V	+12V	-12V	+5VSB
	22A	22A	62A	0.3A	2.5A
Max. POWER 最大電源容量/最大總功率/ 最大總功率	120W		744W	3.6W	12.5W
	750W				

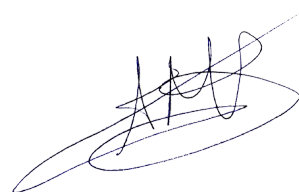
CAUTION! 警告  
IF THE SEALED STICKER WAS REMOVED, DAMAGED OR LOST,  
IT WOULD LOSE THE WARRANTY VALIDITY!  
如果封條貼紙被移動、破壞、或遺失，此電源保固將失效  
如果封條貼紙被移動、破壞、或遺失，此電源保固將失效  
Made in China/中國製造/中國製造  
Trade mark: CWT/廣達電通 廣達科技股份有限公司/  
製造商: 廣達電通科技股份有限公司



This device complies with part 15 of the FCC Rules.  
Operation is subject to the following two conditions:  
(1) This device may not cause harmful interference, and  
(2) this device must accept any interference received,  
including interference that may cause undesired operation.  
ROHS資訊: <http://www.cwt.com.tw/QueryROHS.aspx>

Power specifications label

## CERTIFICATIONS 115V

**Aristeidis Bitziopoulos**  
Lab Director

## CERTIFICATIONS 230V



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