



Antec Earth Watts Gold Pro 750W

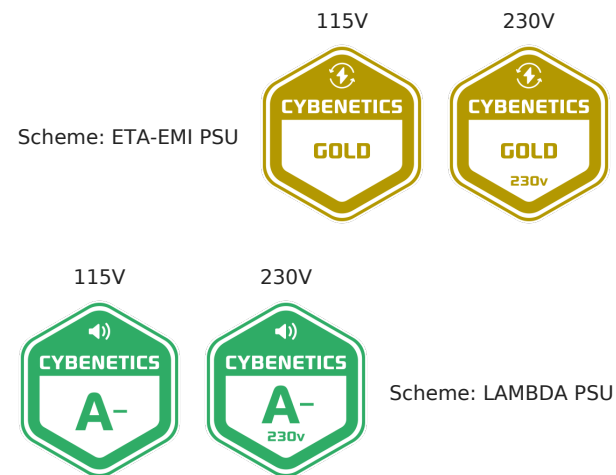
Serial Number EA750GSN174301204

Lab ID 223

Certification ID 25223

Test Result Report ID:

Certificate Issue Date: Nov 23, 2018



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	Antec
Model	Earth Watts Gold Pro 750W
OEM/ODM	Seasonic
Serial Number	EA750GSN174301204
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60

Rated Power (W)	750
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Semi Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Sleeve Bearing Fan (HA1225H12S-Z)
Semi-Passive Operation	<i>x</i>
Cybenetics Testing Information	
Lab ID	223
Date of receipt	Nov 13, 2018
Testing Date	Nov 20, 2018
Report Issued Date	Nov 23, 2018
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 (560mm)	1	1	18-22AWG	No
4+4 pin EPS12V (680mm)	2	2	18AWG	No
6+2 pin PCIe (680mm+150mm)	1	2	18AWG	No
Modular Cables				
6+2 pin PCIe (660mm+150mm)	1	2	18AWG	No
SATA (560mm+150mm+150mm) / 4 pin Molex (+150mm)	2	6 / 2	18AWG	No
SATA (560mm+150mm) / 4 pin Molex (+150mm)	1	2 / 1	18AWG	No
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	No

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	62	3	0.3
	Watts	100		744	15	3.6
Total Max. Power (W)		750				

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	✓

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	88.301%
Average Noise Output (>1450 Load Combinations)	28.65dBA
Average PF (>1450 Load Combinations)	0.985
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0481W
Non-Accredited	
12V Ripple (Full Load)	44.03mV
5V Ripple (Full Load)	23.64mV
3.3V Ripple (Full Load)	19.12mV
5VSB Ripple (Full Load)	12.36mV
12V Load Regulation	0.22%
5V Load Regulation	0.48%
3.3V Load Regulation	1.51%

5VSB Load Regulation	2.23%
Inrush Current	25.731A

230V

Accredited		
Average Efficiency (>1450 load combinations)	90.553%	
Average Noise Output (>1450 Load Combinations)	28.56dBA	
Average PF (>1450 Load Combinations)	0.935	
Efficiency With 10W (≤500W) or 2% (>500W) Load	-	
Standby Power Consumption	0.0817W	
Non-Accredited		
12V Ripple (Full Load)	47.63mV	
5V Ripple (Full Load)	23.87mV	
3.3V Ripple (Full Load)	19.87mV	
5VSB Ripple (Full Load)	10.57mV	
12V Load Regulation	0.14%	
5V Load Regulation	0.58%	
3.3V Load Regulation	1.48%	
5VSB Load Regulation	2.29%	
Inrush Current	70.225A	
Hold-Up Time & PWR_OK Signal	16.70ms	
AC Loss to PWR_OK Hold Up Time	15.10ms	
PWR_OK Inactive to DC Loss Delay	1.60ms	
OPP (0.00°C / 0.00°C)	-	-

Hold-Up Time & PWR_OK Signal

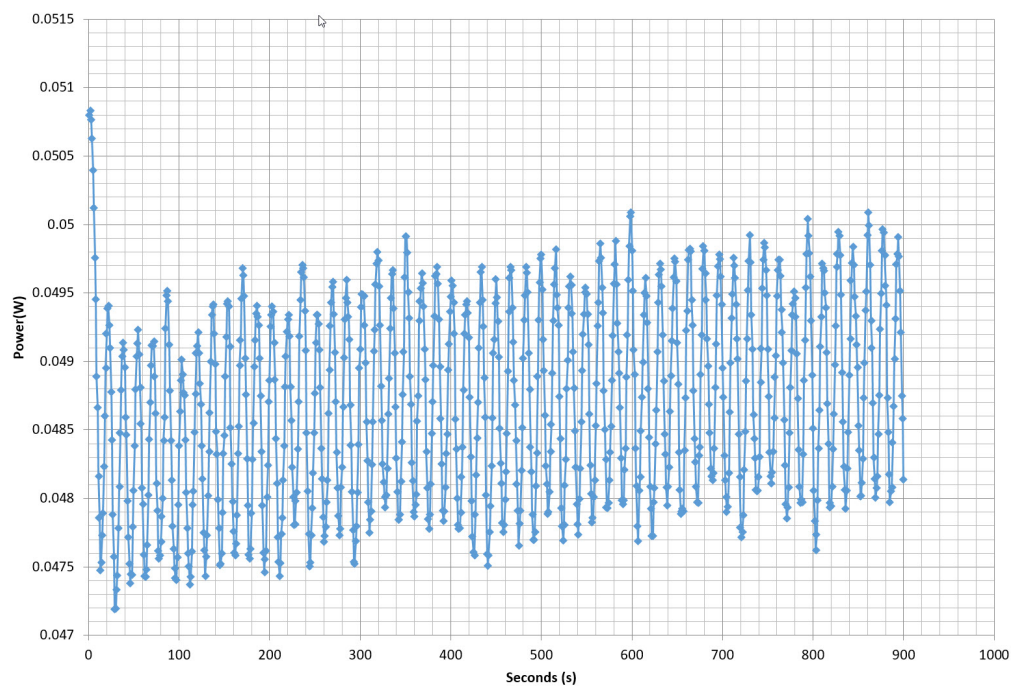
Hold-Up Time (ms)	16.7
AC Loss to PWR_OK Hold Up Time (ms)	15.1
PWR_OK Inactive to DC Loss Delay (ms)	1.6



Graphs

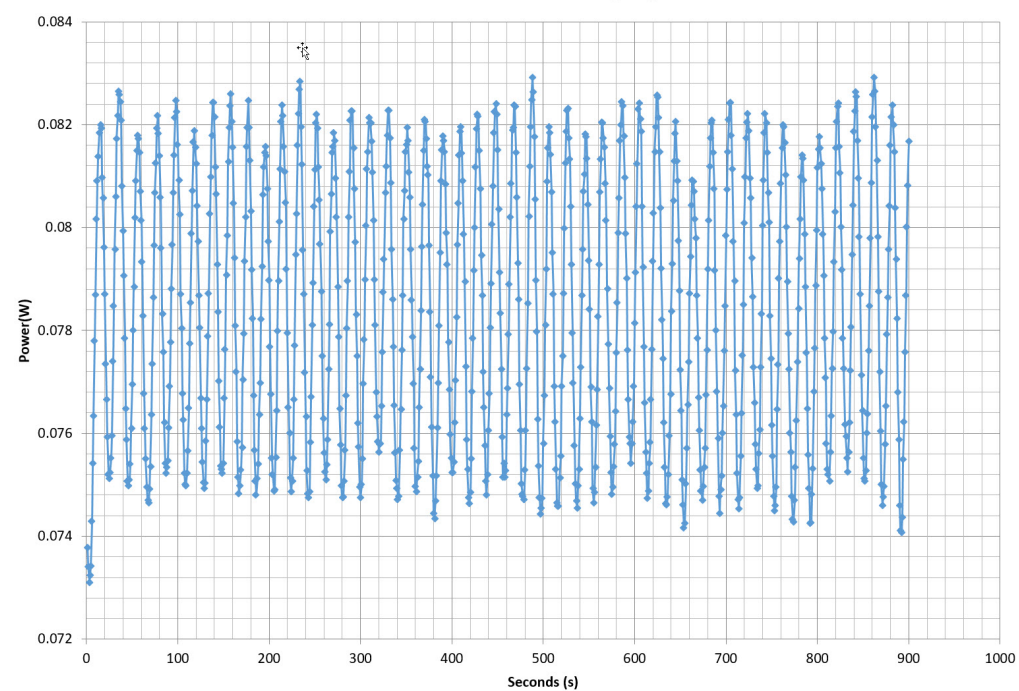
115V

Power - EA750GSN174301204 - 22/11/2017 - 11:44



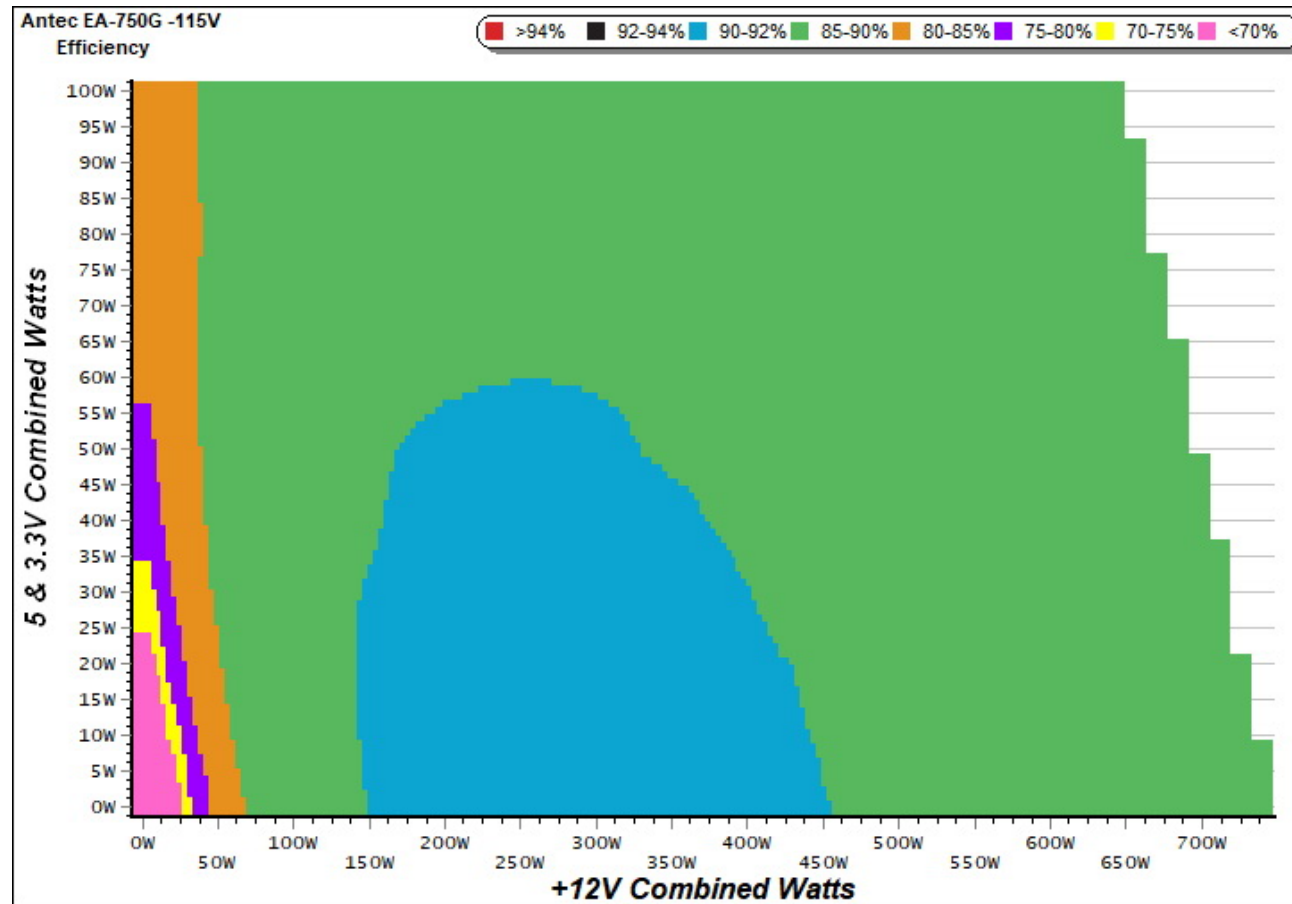
230V

Power - EA750GSN174301204 - 22/11/2017 - 11:44



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.

230V

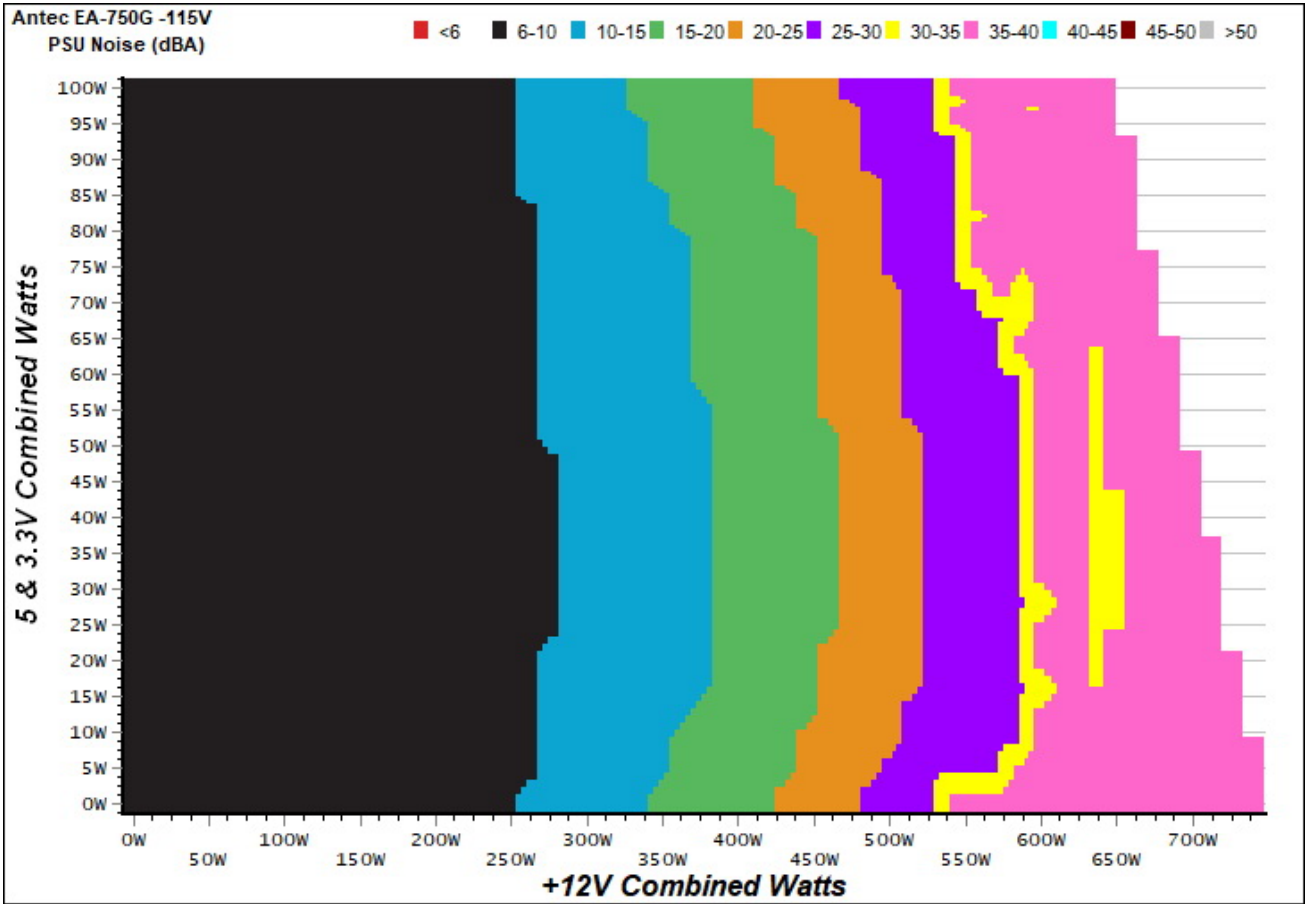


INFO

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

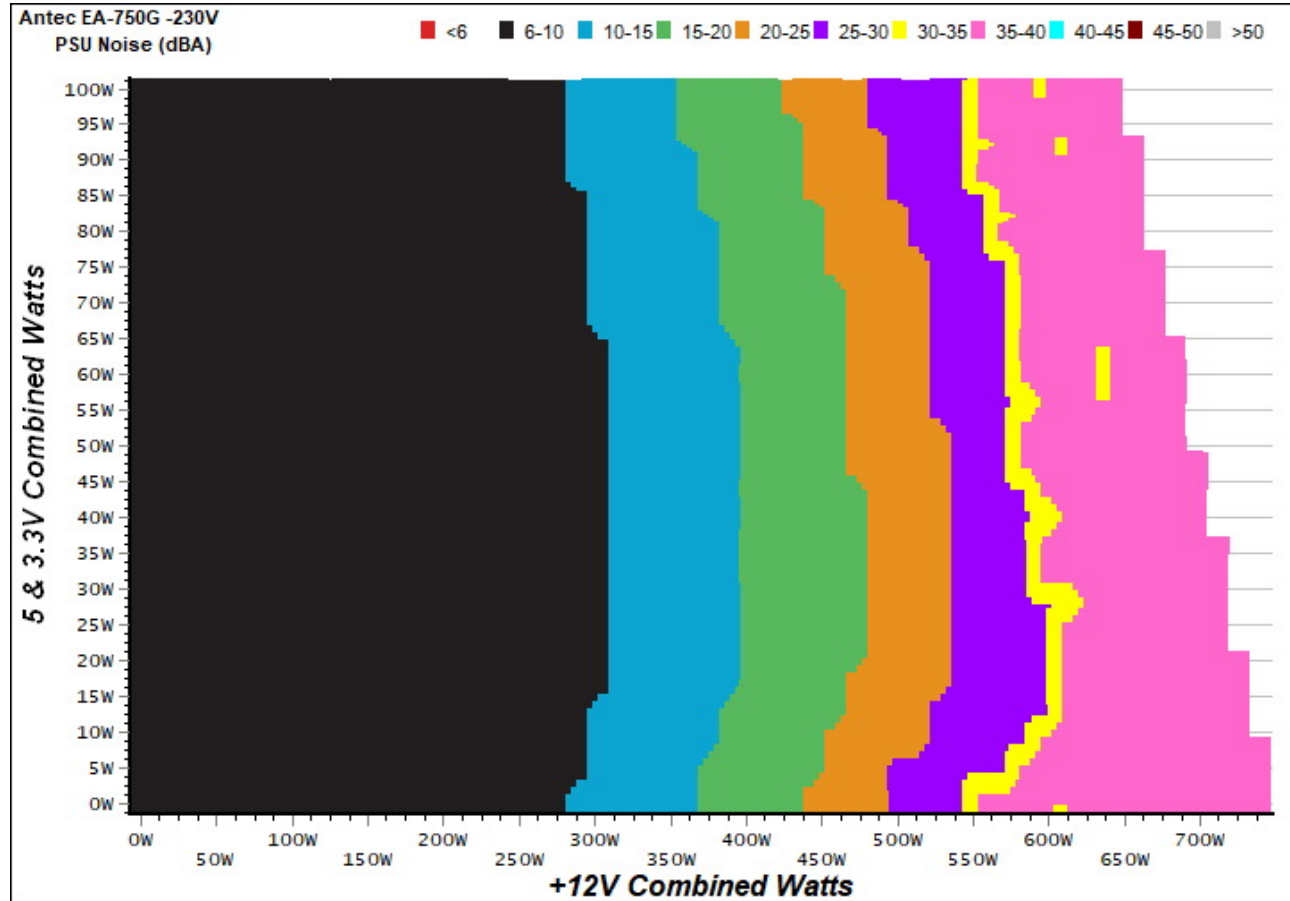
115V



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.

230V



INFO

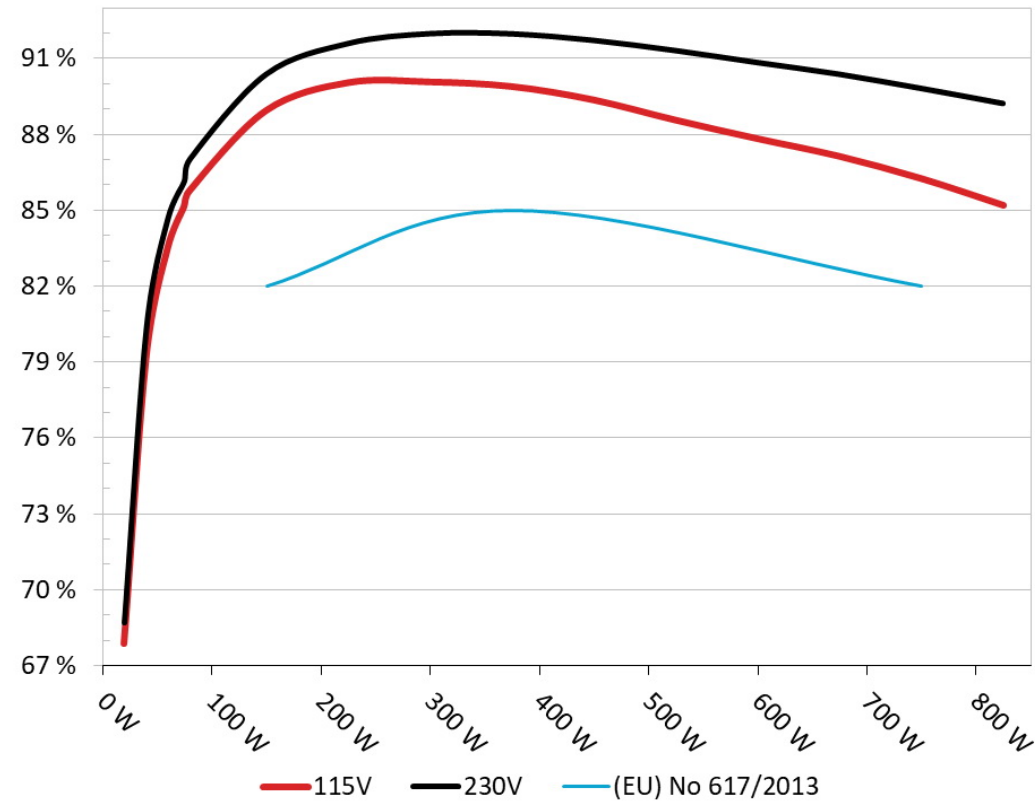
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance

Efficiency under high ambient temperature

Efficiency: Antec EA-750G

Ambient: 37°C - 48°C (98.6°F - 118.4°F)



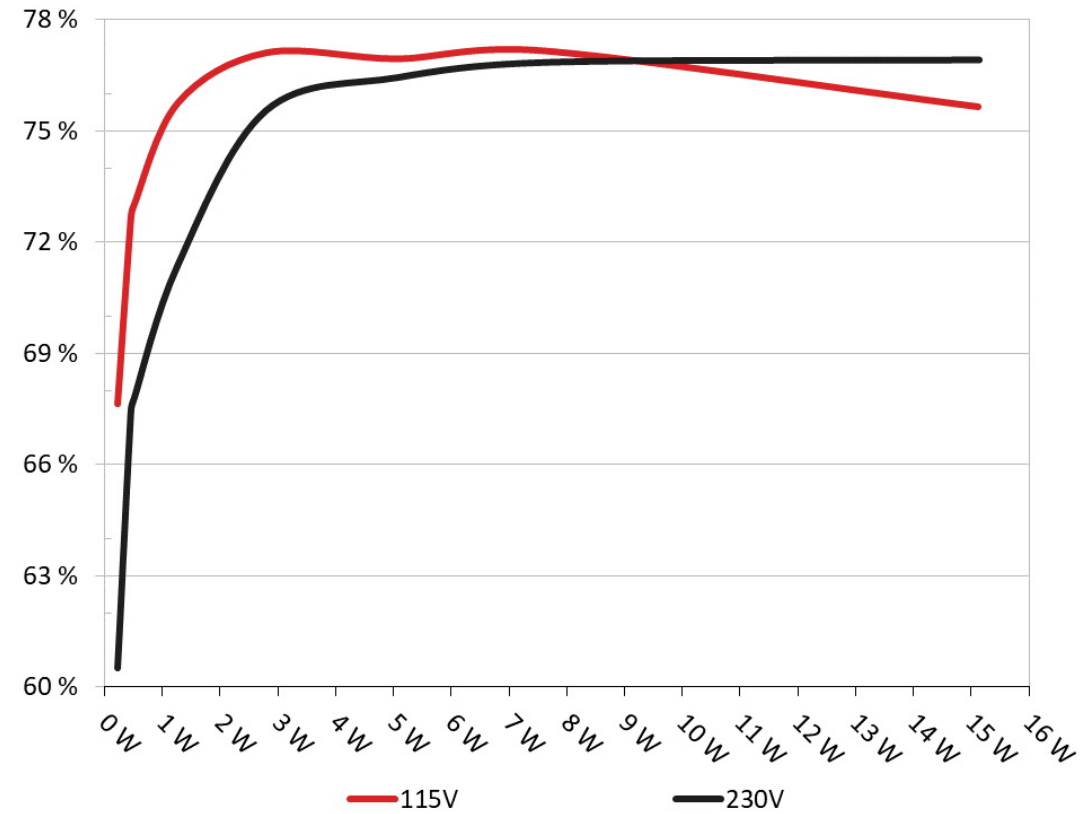
INFO

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: Antec EA-750G

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.

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

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	67.647%	0.032
	5.109V	0.340		115.27V
2	0.090A	0.460	72.670%	0.059
	5.107V	0.633		115.28V
3	0.550A	2.804	77.118%	0.264
	5.098V	3.636		115.27V
4	1.000A	5.089	76.954%	0.358
	5.089V	6.613		115.26V
5	1.500A	7.619	77.170%	0.409
	5.079V	9.873		115.26V
6	3.000A	15.124	75.662%	0.470
	5.042V	19.989		115.25V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	60.526%	0.012
	5.109V	0.380		230.83V
2	0.090A	0.460	67.449%	0.022
	5.107V	0.682		230.84V
3	0.550A	2.804	75.559%	0.114
	5.098V	3.711		230.83V
4	1.000A	5.089	76.446%	0.186
	5.089V	6.657		230.82V
5	1.500A	7.619	76.851%	0.246
	5.079V	9.914		230.82V
6	3.000A	15.146	76.918%	0.344
	5.049V	19.691		230.82V

Supplementary Tests (For Reference)

Typical 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	4.370A	1.981A	1.989A	0.984A	74.345	85.140%	474	9.2	38.23°C	0.969
	12.072V	5.043V	3.317V	5.084V	87.321				47.06°C	115.28V
2	9.806A	2.977A	2.988A	1.183A	149.254	88.917%	474	9.2	38.44°C	0.985
	12.070V	5.038V	3.312V	5.074V	167.858				49.59°C	115.18V
3	15.644A	3.476A	3.478A	1.382A	224.777	90.029%	556	10.1	38.51°C	0.989
	12.067V	5.034V	3.307V	5.065V	249.671				52.09°C	115.07V
4	21.415A	3.974A	3.999A	1.583A	299.547	90.056%	812	16.0	39.77°C	0.988
	12.064V	5.031V	3.301V	5.055V	332.624				54.10°C	115.07V
5	26.859A	4.972A	5.002A	1.784A	374.474	89.875%	1046	22.0	40.89°C	0.988
	12.062V	5.030V	3.297V	5.045V	416.662				56.50°C	114.96V
6	32.307A	5.966A	6.012A	1.986A	449.423	89.347%	1287	29.1	41.52°C	0.988
	12.060V	5.029V	3.293V	5.035V	503.009				57.59°C	114.86V
7	37.788A	6.962A	7.028A	2.189A	524.738	88.549%	1698	35.9	42.49°C	0.988
	12.058V	5.027V	3.286V	5.025V	592.598				58.83°C	114.83V
8	43.272A	7.959A	8.048A	2.393A	600.044	87.812%	2017	41.3	43.52°C	0.989
	12.055V	5.026V	3.280V	5.015V	683.331				60.54°C	114.72V
9	49.122A	8.461A	8.551A	2.396A	674.565	87.122%	2030	40.8	44.52°C	0.990
	12.053V	5.023V	3.274V	5.009V	774.274				63.15°C	114.60V
10	54.784A	8.968A	9.088A	3.006A	749.801	86.242%	2046	40.1	46.05°C	0.991
	12.049V	5.019V	3.268V	4.990V	869.416				68.10°C	114.57V
11	61.047A	8.980A	9.105A	3.010A	825.030	85.185%	2046	40.1	47.70°C	0.991
	12.045V	5.013V	3.262V	4.984V	968.514				73.39°C	114.44V
CL1	0.735A	12.001A	11.998A	0.000A	109.510	83.031%	1180	25.7	43.97°C	0.983
	12.064V	5.069V	3.318V	5.091V	131.891				55.00°C	115.21V

CL2	62.009A	1.000A	0.999A	1.000A	760.496	86.936%	2046	40.1	46.31°C	0.991
	12.050V	4.990V	3.262V	5.039V	874.781				67.91°C	114.58V

The results above are not used in the certification process

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	4.403A	1.984A	1.988A	0.981A	74.779	86.311%	474	9.2	38.03°C	0.793
	12.082V	5.043V	3.316V	5.081V	86.639				45.83°C	230.29V
2	9.841A	2.970A	2.986A	1.181A	149.730	90.442%	474	9.2	38.24°C	0.892
	12.081V	5.038V	3.312V	5.071V	165.553				47.82°C	230.28V
3	15.627A	3.477A	3.505A	1.381A	224.817	91.612%	474	9.2	38.71°C	0.928
	12.078V	5.033V	3.305V	5.061V	245.400				50.76°C	230.28V
4	21.404A	3.974A	3.997A	1.580A	299.636	91.930%	705	13.2	39.57°C	0.946
	12.076V	5.030V	3.300V	5.052V	325.940				51.94°C	230.29V
5	26.845A	4.971A	5.004A	1.784A	374.609	91.913%	949	19.5	39.86°C	0.956
	12.074V	5.028V	3.296V	5.042V	407.567				53.02°C	230.29V
6	32.282A	5.969A	6.011A	1.986A	449.511	91.668%	1234	27.4	40.46°C	0.963
	12.073V	5.026V	3.291V	5.029V	490.366				53.97°C	230.29V
7	37.726A	6.967A	7.029A	2.191A	524.482	91.249%	1580	35.0	41.15°C	0.967
	12.071V	5.024V	3.285V	5.020V	574.781				54.86°C	230.29V
8	43.167A	7.965A	8.049A	2.396A	599.428	90.751%	1948	40.0	42.59°C	0.971
	12.070V	5.023V	3.279V	5.009V	660.520				56.54°C	230.29V
9	49.041A	8.472A	8.584A	2.396A	674.428	90.268%	2030	40.8	43.68°C	0.974
	12.068V	5.019V	3.273V	5.002V	747.142				58.71°C	230.28V
10	54.663A	8.981A	9.089A	3.007A	749.218	89.634%	2046	40.1	44.82°C	0.976
	12.065V	5.014V	3.267V	4.983V	835.861				62.83°C	230.28V
11	60.880A	8.991A	9.106A	3.011A	823.998	88.888%	2046	40.1	46.12°C	0.978
	12.061V	5.009V	3.262V	4.977V	927.006				68.59°C	230.28V
CL1	0.099A	12.013A	12.006A	0.005A	101.986	83.900%	1046	22.0	43.61°C	0.853
	12.070V	5.072V	3.318V	5.092V	121.556				54.23°C	230.29V

CL2	61.935A	1.002A	1.004A	1.002A	760.868	90.289%	2046	40.1	45.77°C	0.977
	12.070V	4.984V	3.262V	5.034V	842.705				63.06°C	230.29V

The results above are not used in the certification process

Light Load Tests

115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.184A	0.496A	0.479A	0.196A	19.385	67.882%	474	9.2	0.826
	12.078V	5.031V	3.318V	5.104V	28.557				115.35V
2	2.445A	0.991A	0.992A	0.392A	39.809	79.241%	474	9.2	0.929
	12.075V	5.041V	3.318V	5.099V	50.238				115.32V
3	3.638A	1.484A	1.476A	0.589A	59.305	83.483%	474	9.2	0.959
	12.074V	5.043V	3.317V	5.093V	71.038				115.30V
4	4.899A	1.982A	1.988A	0.786A	79.732	85.779%	474	9.2	0.973
	12.073V	5.042V	3.317V	5.088V	92.951				115.28V

The results above are not used in the certification process

230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.207A	0.490A	0.479A	0.196A	19.642	69.206%	474	9.2	0.520
	12.086V	5.031V	3.318V	5.102V	28.382				230.27V
2	2.441A	0.991A	0.993A	0.391A	39.781	80.310%	474	9.2	0.658
	12.085V	5.041V	3.317V	5.096V	49.534				230.28V
3	3.676A	1.477A	1.505A	0.585A	59.841	84.777%	474	9.2	0.749
	12.084V	5.044V	3.316V	5.092V	70.586				230.28V
4	4.900A	1.985A	1.988A	0.785A	79.796	87.051%	474	9.2	0.804
	12.082V	5.043V	3.316V	5.086V	91.666				230.28V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	21.0 mV	15.7 mV	14.9 mV	5.3 mV	Pass
20% Load	29.6 mV	15.4 mV	12.5 mV	6.1 mV	Pass
30% Load	34.9 mV	17.7 mV	16.3 mV	7.3 mV	Pass
40% Load	38.5 mV	18.6 mV	18.3 mV	8.1 mV	Pass
50% Load	33.3 mV	17.9 mV	18.1 mV	8.6 mV	Pass
60% Load	32.4 mV	19.5 mV	16.8 mV	9.4 mV	Pass
70% Load	33.0 mV	20.8 mV	14.9 mV	9.7 mV	Pass
80% Load	35.3 mV	21.7 mV	18.7 mV	10.7 mV	Pass
90% Load	37.9 mV	22.8 mV	19.1 mV	11.6 mV	Pass
100% Load	44.0 mV	23.6 mV	19.1 mV	12.4 mV	Pass
110% Load	52.3 mV	23.9 mV	19.0 mV	12.6 mV	Pass
Crossload 1	27.9 mV	21.3 mV	17.5 mV	7.4 mV	Pass
Crossload 2	44.7 mV	19.9 mV	18.3 mV	11.3 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	20.4 mV	15.1 mV	16.2 mV	5.2 mV	Pass
20% Load	29.0 mV	14.7 mV	13.4 mV	5.9 mV	Pass
30% Load	34.8 mV	17.3 mV	17.3 mV	6.7 mV	Pass
40% Load	37.7 mV	18.7 mV	19.5 mV	7.4 mV	Pass
50% Load	33.2 mV	18.8 mV	18.7 mV	8.0 mV	Pass
60% Load	32.3 mV	19.6 mV	16.8 mV	8.2 mV	Pass
70% Load	32.8 mV	21.6 mV	16.4 mV	8.4 mV	Pass
80% Load	35.6 mV	21.6 mV	18.5 mV	9.3 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	41.1 mV	22.4 mV	18.6 mV	10.2 mV	Pass
100% Load	47.6 mV	23.9 mV	19.9 mV	10.6 mV	Pass
110% Load	55.4 mV	23.8 mV	19.3 mV	11.1 mV	Pass
Crossload 1	27.9 mV	20.5 mV	16.2 mV	6.9 mV	Pass
Crossload 2	47.5 mV	20.3 mV	17.8 mV	9.8 mV	Pass

The results above are not used in the certification process

Antec Earth Watts Gold Pro 750W



Top side



Power specifications label

Cybenetics [REDACTED] ETA[REDACTED] LAMBDA[REDACTED] SAFE[REDACTED] DELTA[REDACTED] PHI[REDACTED]

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