

Anex

Antec HCG1000 Extreme

Lab ID#: 429

Receipt Date: -

Test Date: -

Report:

Report Date: Jul 16, 2018

DUT INFORMATION	
Brand	Antec
Manufacturer (OEM)	Seasonic
Series	HCG Extreme
Model Number	HCG1000 Extreme
Serial Number	HCG1000XSN181500031
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	13-6.5
Rated Frequency (Hz)	50-60
Rated Power (W)	1000
Type	ATX12V
Cooling	135mm Fluid Dynamic Bearing Fan (HA13525H12F-Z)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

POWER SPECIFICATIONS						
Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	83	3	0.3
	Watts	125		996	15	3.6
Total Max. Power (W)		1000				

CABLES AND CONNECTORS				
Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (550mm)	1	1	18-22AWG	Yes
4+4 pin EPS12V (650mm)	2	2	16AWG	Yes
6+2 pin PCIe (550mm)	4	4	18AWG	Yes
6+2 pin PCIe (550mm+100mm)	2	4	18AWG	Yes
SATA (400mm+90mm+90mm+90mm)	2	8	18AWG	No
4 pin Molex (500mm+100mm+100mm+100mm)	1	4	18AWG	No
SATA (400mm+90mm+90mm+90mm) / 4 pin Molex (+100mm+100mm)	1	4 / 2	18AWG	No
FDD Adapter (+105mm)	1	1	22AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	16AWG	-

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RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	89.701
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	68.040
Average Efficiency 5VSB	77.484
Standby Power Consumption (W) -115V	0.0467253
Standby Power Consumption (W) -230V	0.0770330
Average PF	0.986
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	28.31
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A-

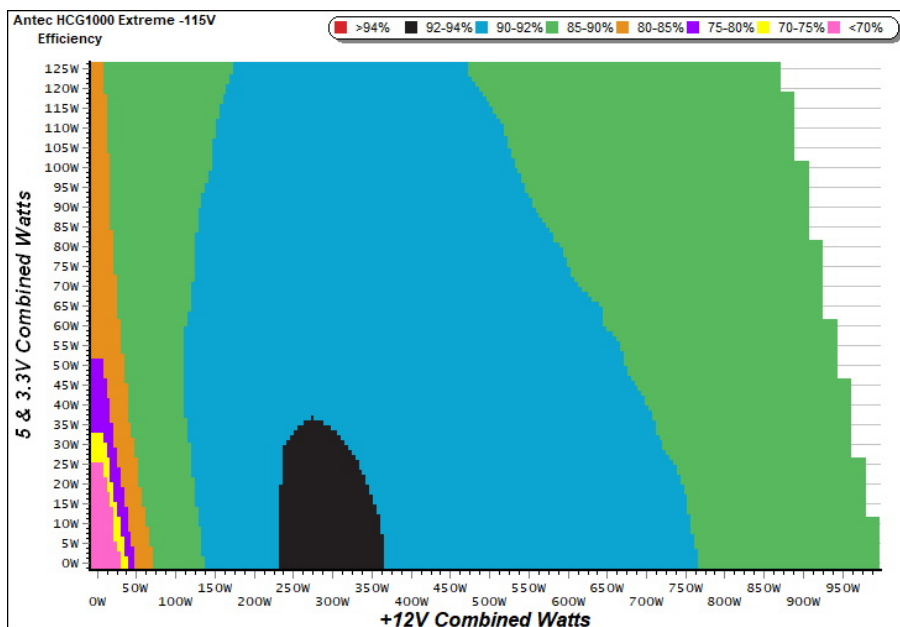
TEST EQUIPMENT		
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Chroma 61604, Keysight AC6804B	
Power Analyzers	N4L PPA1530 x2, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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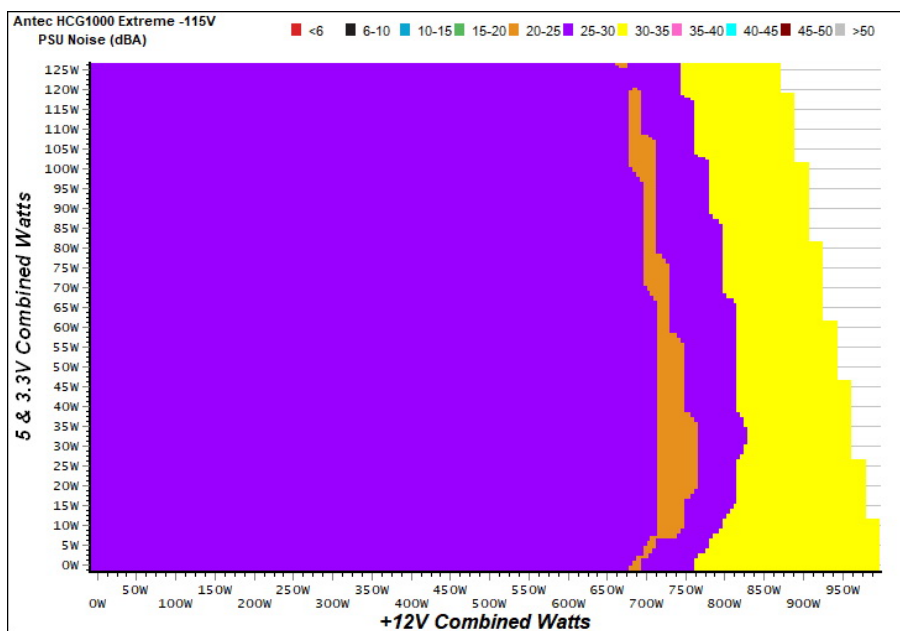
EFFICIENCY GRAPH



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



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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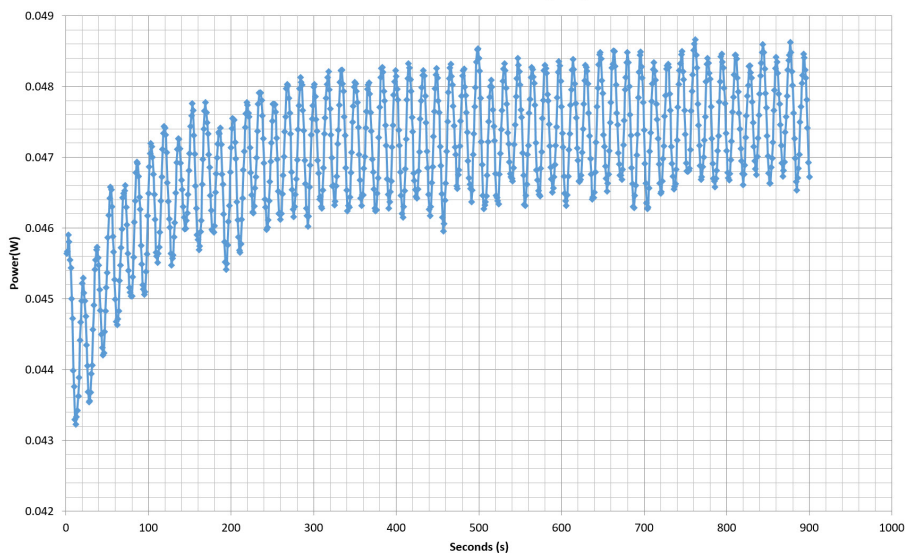
Antec HCG1000 Extreme

5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)				
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.232	68.235%	0.034
	5.126V	0.340		115.37V
2	0.090A	0.462	73.101%	0.062
	5.125V	0.632		115.37V
3	0.550A	2.815	77.805%	0.269
	5.115V	3.618		115.36V
4	1.000A	5.107	78.136%	0.359
	5.106V	6.536		115.36V
5	1.501A	7.644	78.352%	0.409
	5.094V	9.756		115.35V
6	3.001A	15.171	76.148%	0.471
	5.056V	19.923		115.34V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)				
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.232	60.574%	0.013
	5.126V	0.383		231.02V
2	0.090A	0.462	67.151%	0.023
	5.125V	0.688		231.02V
3	0.550A	2.815	76.495%	0.117
	5.115V	3.680		230.91V
4	1.000A	5.107	77.250%	0.191
	5.105V	6.611		230.96V
5	1.500A	7.643	78.069%	0.249
	5.094V	9.790		231.00V
6	3.001A	15.169	77.067%	0.348
	5.055V	19.683		231.00V

VAMPIRE POWER -115V

Power - HCG1000XSN181500031 - 11/07/2018 - 21:55



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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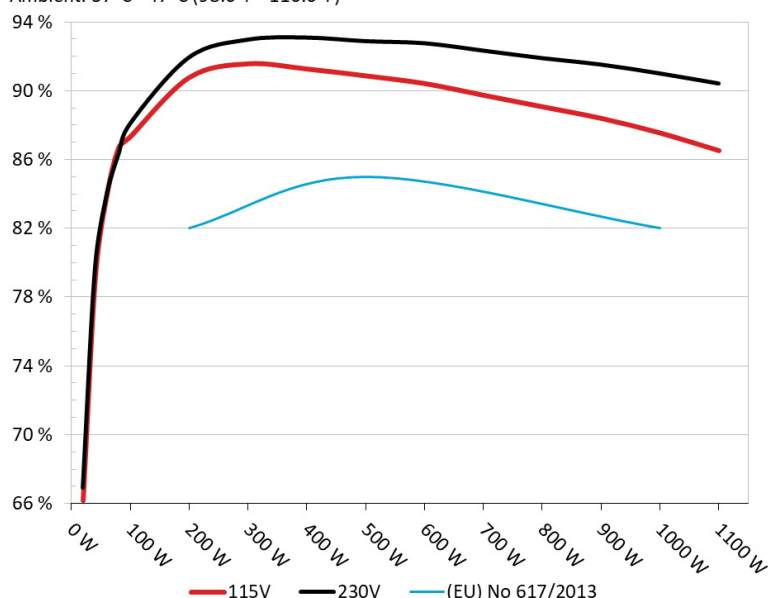
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Antec HCG1000 Extreme

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



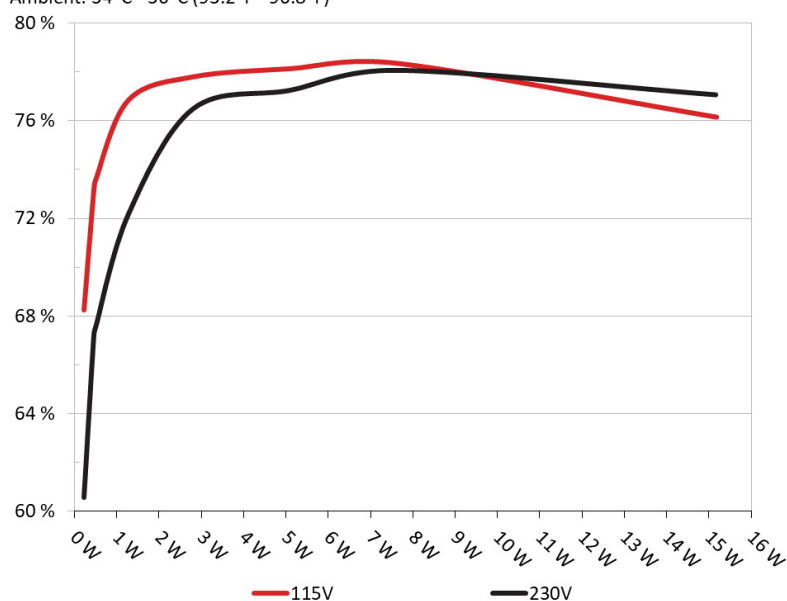
INFO

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: Antec HCG1000 Extreme

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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10-110% LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	6.501A	1.996A	1.986A	0.981A	100.176	87.319%	570	25.5	39.43°C	0.963
	12.085V	5.014V	3.325V	5.098V	114.724				44.74°C	115.24V
2	13.982A	2.994A	2.978A	1.180A	199.912	90.746%	570	25.5	40.19°C	0.988
	12.087V	5.013V	3.324V	5.087V	220.299				45.98°C	115.21V
3	21.789A	3.493A	3.462A	1.379A	299.423	91.545%	573	26.4	40.87°C	0.991
	12.089V	5.013V	3.323V	5.077V	327.079				47.39°C	115.07V
4	29.659A	3.991A	3.975A	1.579A	399.851	91.247%	580	26.6	41.49°C	0.989
	12.092V	5.013V	3.322V	5.068V	438.208				48.61°C	115.04V
5	37.160A	4.992A	4.971A	1.781A	499.982	90.846%	586	26.7	41.93°C	0.990
	12.095V	5.012V	3.321V	5.055V	550.365				50.18°C	114.90V
6	44.660A	5.990A	5.963A	1.982A	600.123	90.399%	600	26.9	42.44°C	0.992
	12.098V	5.012V	3.321V	5.046V	663.859				51.57°C	114.75V
7	52.109A	6.988A	6.960A	2.186A	699.856	89.722%	630	27.3	43.24°C	0.993
	12.104V	5.011V	3.320V	5.034V	780.028				53.17°C	114.70V
8	59.637A	7.987A	7.956A	2.390A	800.398	89.048%	1030	31.1	44.65°C	0.993
	12.106V	5.011V	3.319V	5.023V	898.835				55.91°C	114.54V
9	67.513A	8.487A	8.442A	2.393A	899.714	88.380%	1143	33.1	45.45°C	0.994
	12.104V	5.010V	3.318V	5.017V	1018.001				57.75°C	114.48V
10	75.207A	8.988A	8.955A	3.005A	1000.121	87.529%	1140	33.1	46.39°C	0.994
	12.105V	5.010V	3.317V	4.994V	1142.620				59.97°C	114.31V
11	83.455A	8.988A	8.959A	3.009A	1100.132	86.502%	1140	33.1	46.88°C	0.994
	12.107V	5.010V	3.316V	4.987V	1271.796				61.60°C	114.26V
CL1	0.143A	15.004A	15.002A	0.000A	126.917	85.101%	589	26.8	42.87°C	0.978
	12.106V	5.015V	3.329V	5.106V	149.137				52.09°C	115.20V
CL2	83.040A	1.003A	1.001A	1.000A	1017.848	87.960%	1136	33.0	46.38°C	0.994
	12.096V	5.012V	3.316V	5.050V	1157.169				59.57°C	114.32V

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20-80W LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.211A	0.501A	0.484A	0.196A	19.758	66.175%	570	25.5	0.661
	12.082V	5.016V	3.327V	5.120V	29.857				115.34V
2	2.472A	0.999A	0.995A	0.391A	40.196	79.025%	570	25.5	0.835
	12.087V	5.014V	3.325V	5.114V	50.865				115.31V
3	3.663A	1.498A	1.474A	0.588A	59.693	83.840%	573	26.4	0.906
	12.088V	5.014V	3.325V	5.108V	71.199				115.28V
4	4.920A	1.996A	1.988A	0.784A	80.096	86.664%	573	26.4	0.945
	12.089V	5.014V	3.325V	5.103V	92.421				115.26V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.5 mV	5.9 mV	5.1 mV	4.5 mV	Pass
20% Load	20.8 mV	6.2 mV	5.7 mV	4.9 mV	Pass
30% Load	21.7 mV	6.9 mV	6.4 mV	5.1 mV	Pass
40% Load	21.3 mV	8.1 mV	7.2 mV	5.4 mV	Pass
50% Load	14.4 mV	9.3 mV	8.3 mV	6.1 mV	Pass
60% Load	13.5 mV	9.2 mV	7.7 mV	6.5 mV	Pass
70% Load	14.1 mV	9.3 mV	8.0 mV	6.6 mV	Pass
80% Load	14.5 mV	9.8 mV	9.2 mV	11.3 mV	Pass
90% Load	15.6 mV	11.0 mV	9.5 mV	11.9 mV	Pass
100% Load	17.1 mV	10.9 mV	10.1 mV	12.0 mV	Pass
110% Load	22.5 mV	16.5 mV	17.2 mV	16.2 mV	Pass
Crossload 1	18.6 mV	9.4 mV	9.7 mV	5.6 mV	Pass
Crossload 2	17.5 mV	9.5 mV	6.2 mV	9.6 mV	Pass

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

Hold-Up Time (ms)	18.0
AC Loss to PWR_OK Hold Up Time (ms)	15.5
PWR_OK Inactive to DC Loss Delay (ms)	2.5



Top side

Switching power supply / Bloc d'alimentation / Schaltnetzteil / Fuente de Alimentación / 交換式電源供應器 / 开关电源 AC Input / Entrée / Eingang / Entrada / 交流輸入 / 交流輸入: 100-240VAC, 50Hz-60Hz, 13A-6.5A Model / Modèle / Modell / Modelo / 型號 / 型号: HCG1000 Extreme					
直流輸出/ 直流輸出	DC Output	+3.3V	+5V	+12V	-12V +5VSB
Max.最大	25A	25A	83A	0.3A	3.0A
合併瓦數/合併瓦數 瓦數配比/ 瓦數配比	Max. Combined	125W	996W	3.6W	15W
總瓦數/總瓦數 Total	1000W				



Power specifications label

CERTIFICATIONS



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