EFFICIENCY AND NOISE LEVEL CERTIFICATIONS

Anex

Antec Signature Platinum 1300W

Lab ID#: AN13001657
Receipt Date: May 14, 2020
Test Date: May 21, 2020

Report: 20PS1657A
Report Date: Jun 1, 2020

DUT INFORMATION

Brand	Antec
Manufacturer (OEM)	Seasonic
Series	Signature Platinum
Model Number	X8000A506-18
Serial Number	SP1300GSN200200023
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-7.5
Rated Frequency (Hz)	50-60
Rated Power (W)	1300
Type	ATX12V
Cooling	135mm Fluid Dynamic Bearing Fan (HA13525H12F-Z)
Semi-Passive Operation	✗
Cable Design	Fully Modular

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	89.966%
Efficiency With 10W (≤500W) or 2% (>500W)	68.147
Average Efficiency 5VSB	79.824%
Standby Power Consumption (W)	0.0569095
Average PF	0.992
Avg Noise Output	47.79 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	None

230V

Average Efficiency	92.123%
Average Efficiency 5VSB	78.680%
Standby Power Consumption (W)	0.0934018
Average PF	0.966
Avg Noise Output	48.37 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	None

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	108	3	0.3
	Watts	125		1296	15	3.6
Total Max. Power (W)		1300				

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

Hold-Up Time (ms)	21
AC Loss to PWR_OK Hold Up Time (ms)	17.7
PWR_OK Inactive to DC Loss Delay (ms)	3.3

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	18-22AWG	Yes
4+4 pin EPS12V (650mm)	2	2	18AWG	Yes
6+2 pin PCIe (670mm+70mm)	6	12	18AWG	Yes
SATA (400mm+115mm+115mm+115mm)	2	8	18AWG	No
SATA (350mm+150mm+150mm+150mm)	1	4	18AWG	No
4-pin Molex (450mm+120mm+120mm)	1	3	18AWG	No
4-pin Molex (350mm+120mm)	1	2	18AWG	No
FDD Adapter (105mm)	1	1	22AWG	No
4 pin Molex to SATA 3.3V Adapter (150mm+150mm)	1	1	18AWG	No
OC Link Cable (460mm)	1	1	24AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	14AWG	-

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General Data	-
Manufacturer (OEM)	Seasonic
PCB Type	Double Sided
Primary Side	-
Transient Filter	6x Y caps, 3x X caps, 2x CM chokes, 1x MOV, 1x CMD02X (Discharge IC)
Inrush Protection	NTC Thermistor (MF72 5D-20) & Relay
Bridge Rectifier(s)	2x Vishay LVB2560 (600V, 25A @ 105°C)
APFC MOSFETs	2x Infineon IPP60R099C6 (650V, 24A @ 100°C, Rds(on): 0.099Ohm)
APFC Boost Diode	1x STMicro STPSC10H065D (650V, 10A @ 135°C)
Hold-up Cap(s)	1x Rubycon (400V, 820uF, 3,000h @ 105°C, MXK) & 1x Rubycon (400V, 470uF, 2,000h @ 105°C, MXH)
Main Switchers	4x Infineon IPP50R199CP (550V, 11A @ 100°C, Rds(on): 0.199Ohm)
IC Driver	2x Silicon Labs Si8230BD
APFC Controller	ON Semiconductor NPC1654
Resonant Controller	Champion CM6901T6X
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	8x Nexperia PSMN1R0-40YLD (40V, 198A @ 100°C, Rds(on): 1.93mOhm)
5V & 3.3V	DC-DC Converters: 6x Nexperia PSMN4R0-30YLD (30V, 67V @ 100°C, Rds(on): 6.6mOhm) PWM Controllers: Anpec APW7159
Filtering Capacitors	Electrolytic: 4x Nippon Chemi-Con (105°C, W), 2x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 1x Nippon Chemi-Con (4-10,000h @ 105°C, KYB), 1x Nippon Chemi-Con (5-6,000h @ 105°C, KZH), 1x Nippon Chemi-Con (1-5,000h @ 105°C, KZE), 1x Rubycon (3-6,000h @ 105°C, YXG) Polymer: 19x FPCAP, 14x NIC, 7x United Chemi-Con
Supervisor IC	Weltrend WT7527V (OVP, UVP, OCP, SCP, PG)
Fan Model	Hong Hua HA13525H12F-Z (135mm, 12V, 0.50A, Fluid Dynamic Bearing Fan)
5VSB Circuit	-
Rectifier	1x STMicroelectronics STF6N65K3 FET (650V, 3A @ 100°C, 1.3Ohm)
Standby PWM Controller	Leadtrend LD7750R
-12V Circuit	-
Buck Converter	Lite-On LSP5523 (3A max output current)

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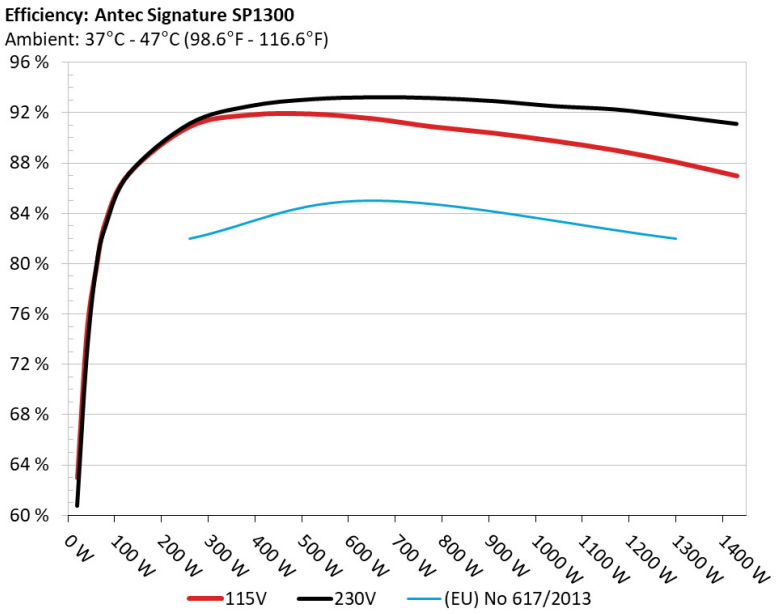
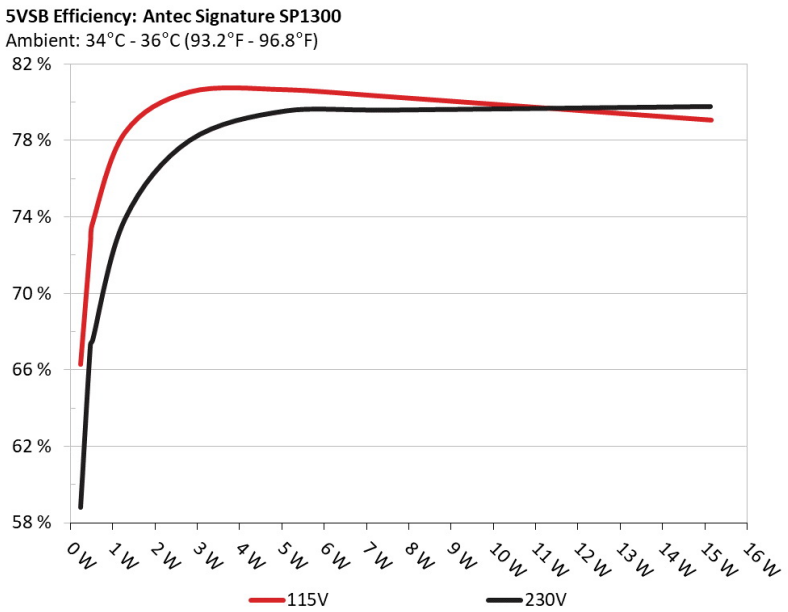
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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

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Antec Signature Platinum 1300W

5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	66.282%	0.036
	5.119V	0.347		115.16V
2	0.090A	0.461	72.598%	0.065
	5.118V	0.635		115.16V
3	0.550A	2.809	80.533%	0.269
	5.107V	3.488		115.16V
4	1.000A	5.096	80.646%	0.362
	5.097V	6.319		115.16V
5	1.500A	7.626	80.265%	0.415
	5.084V	9.501		115.16V
6	2.999A	15.143	79.059%	0.487
	5.049V	19.154		115.16V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	58.824%	0.012
	5.119V	0.391		230.28V
2	0.090A	0.461	67.299%	0.022
	5.118V	0.685		230.28V
3	0.550A	2.808	77.978%	0.107
	5.107V	3.601		230.29V
4	1.000A	5.096	79.526%	0.174
	5.096V	6.408		230.28V
5	1.500A	7.626	79.570%	0.234
	5.084V	9.584		230.29V
6	2.999A	15.140	79.751%	0.337
	5.048V	18.984		230.29V

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115V

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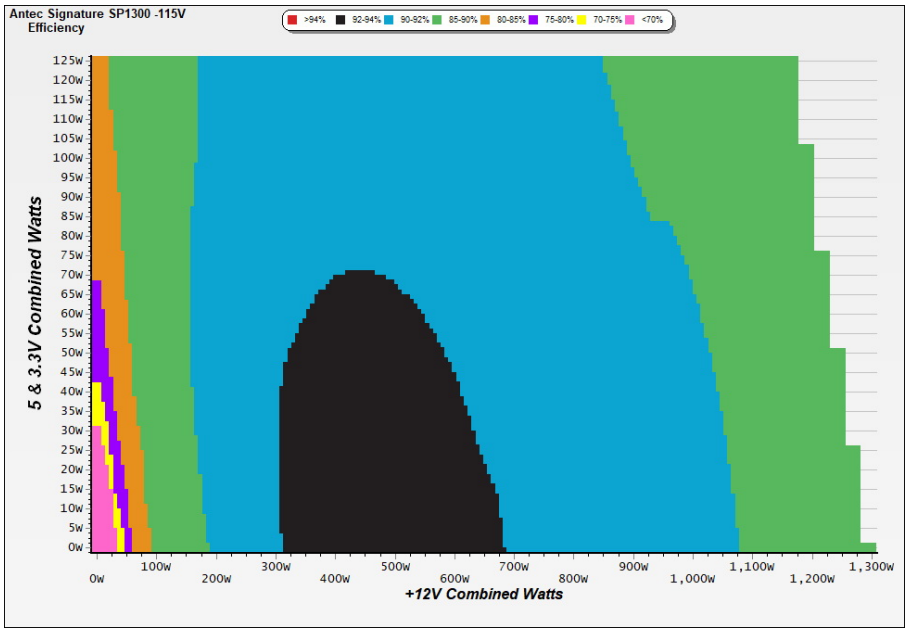
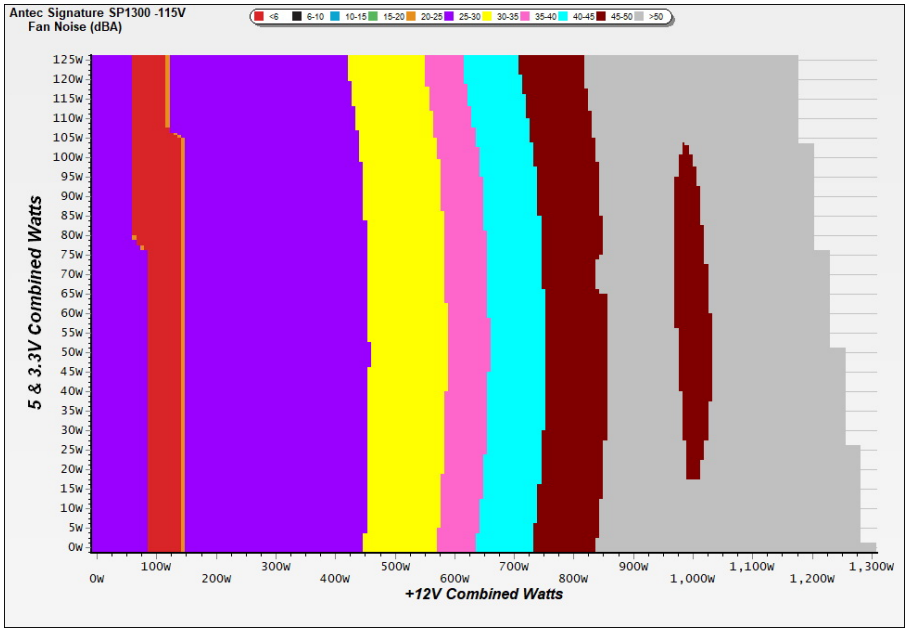
EFFICIENCY GRAPH 115V



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

Anex

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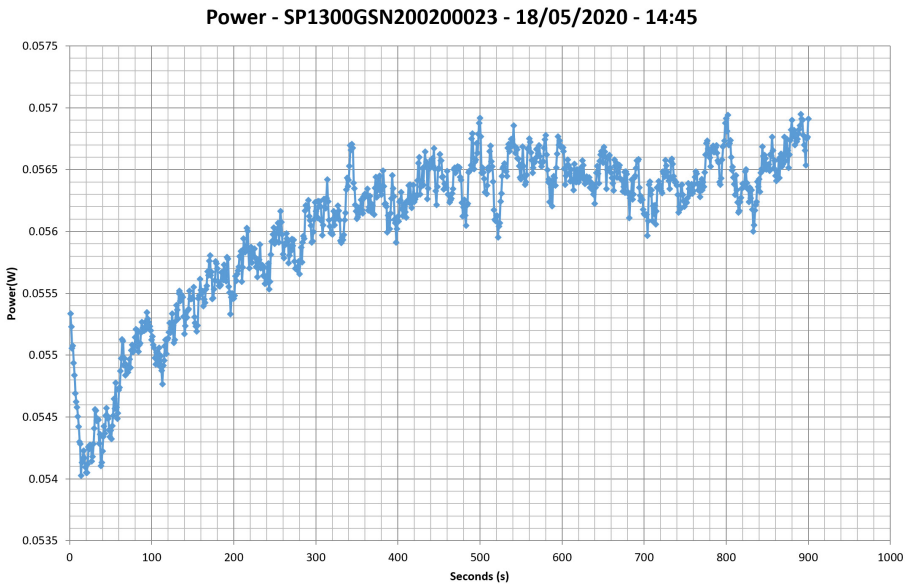
VAMPIRE POWER -115V



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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Antec Signature Platinum 1300W

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	8.804A	1.955A	1.964A	0.982A	129.982	87.170%	867	30.4	40.86°C	0.985
	12.311V	5.113V	3.362V	5.089V	149.114				45.01°C	115.16V
2	18.613A	2.936A	2.947A	1.182A	260.008	90.917%	882	30.8	41.41°C	0.985
	12.309V	5.110V	3.359V	5.075V	285.983				46.11°C	115.15V
3	28.723A	3.427A	3.440A	1.383A	389.515	91.844%	965	34.1	41.51°C	0.991
	12.306V	5.107V	3.357V	5.061V	424.106				46.47°C	115.15V
4	38.877A	3.920A	3.934A	1.585A	519.511	91.915%	1386	42.8	41.82°C	0.994
	12.303V	5.104V	3.355V	5.048V	565.206				47.82°C	115.14V
5	48.709A	4.902A	4.924A	1.788A	649.632	91.549%	1814	48.5	42.29°C	0.996
	12.300V	5.101V	3.352V	5.034V	709.604				48.77°C	115.13V
6	58.550A	5.886A	5.912A	1.992A	779.796	90.895%	2259	53.6	42.85°C	0.997
	12.297V	5.098V	3.349V	5.020V	857.911				49.81°C	115.13V
7	68.384A	6.872A	6.903A	2.196A	909.892	90.392%	2315	53.7	43.85°C	0.998
	12.295V	5.095V	3.347V	5.006V	1006.608				51.32°C	115.11V
8	78.231A	7.859A	7.894A	2.403A	1040.027	89.765%	2314	53.7	43.92°C	0.998
	12.292V	5.092V	3.344V	4.992V	1158.616				52.15°C	115.11V
9	88.460A	8.354A	8.378A	2.407A	1169.763	89.031%	2311	53.7	44.28°C	0.998
	12.291V	5.089V	3.341V	4.984V	1313.890				53.17°C	115.10V
10	98.468A	8.850A	8.894A	3.024A	1299.777	88.083%	2313	53.7	45.86°C	0.998
	12.289V	5.086V	3.339V	4.959V	1475.626				55.19°C	115.09V
11	109.069A	8.854A	8.897A	3.029A	1429.819	86.989%	2315	53.7	46.89°C	0.998
	12.287V	5.083V	3.337V	4.950V	1643.680				56.81°C	115.08V
CL1	0.100A	15.001A	14.997A	0.000A	128.081	82.077%	2290	53.7	42.80°C	0.987
	12.318V	5.104V	3.353V	5.103V	156.049				49.31°C	115.17V
CL2	108.016A	1.000A	0.999A	1.000A	1340.532	88.128%	2307	53.7	46.07°C	0.998
	12.286V	5.092V	3.345V	5.013V	1521.123				56.49°C	115.09V

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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	1.204A	0.489A	0.489A	0.196A	19.977	62.961%	0	<6.0	0.851
	12.311V	5.122V	3.369V	5.115V	31.729				115.14V
2	2.410A	0.978A	0.980A	0.391A	39.970	74.432%	840	29.3	0.927
	12.311V	5.117V	3.365V	5.109V	53.700				115.16V
3	3.619A	1.467A	1.470A	0.588A	60.002	79.651%	843	29.5	0.952
	12.311V	5.115V	3.364V	5.102V	75.331				115.16V
4	4.822A	1.953A	1.962A	0.785A	79.955	83.337%	851	29.8	0.971
	12.312V	5.114V	3.363V	5.096V	95.942				115.16V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	8.80mV	7.40mV	11.50mV	4.90mV	Pass
20% Load	11.70mV	7.20mV	12.80mV	5.10mV	Pass
30% Load	9.40mV	7.60mV	12.80mV	5.70mV	Pass
40% Load	7.20mV	7.60mV	13.40mV	6.50mV	Pass
50% Load	7.30mV	8.30mV	14.70mV	6.70mV	Pass
60% Load	8.60mV	8.60mV	15.20mV	7.40mV	Pass
70% Load	8.60mV	8.90mV	17.20mV	8.00mV	Pass
80% Load	9.10mV	10.70mV	18.20mV	8.90mV	Pass
90% Load	15.60mV	11.80mV	19.20mV	9.50mV	Pass
100% Load	27.00mV	13.60mV	20.40mV	12.10mV	Pass
110% Load	27.50mV	13.20mV	21.70mV	12.70mV	Pass
Crossload1	16.00mV	10.90mV	20.20mV	7.50mV	Pass
Crossload2	26.00mV	8.70mV	15.00mV	11.20mV	Pass

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230V

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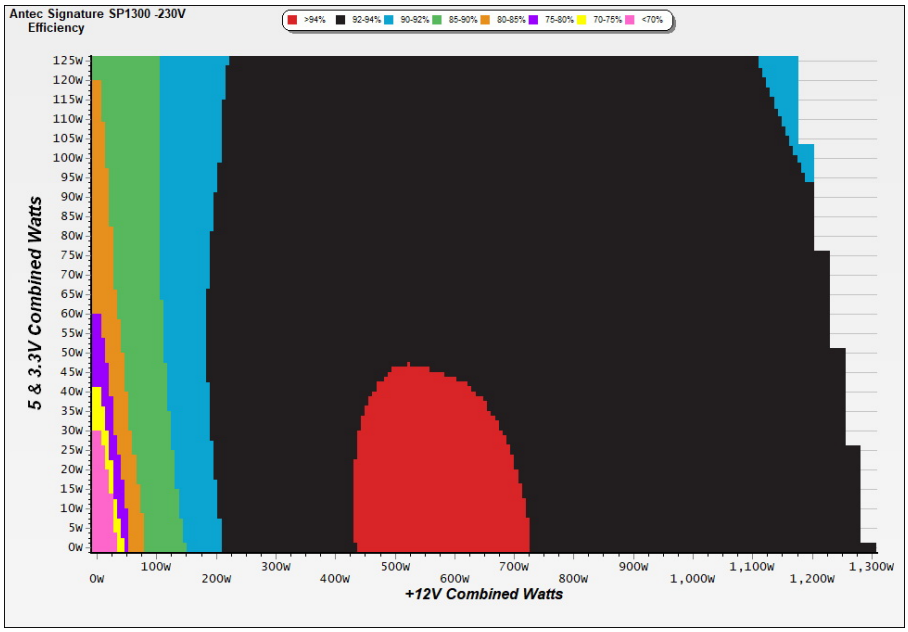
EFFICIENCY GRAPH 230V



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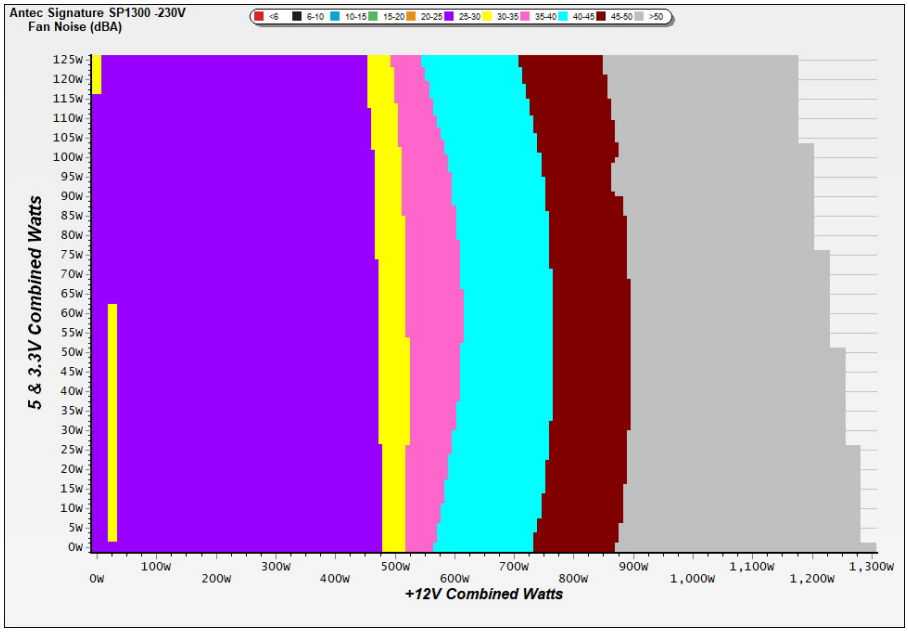
NOISE GRAPH 230V



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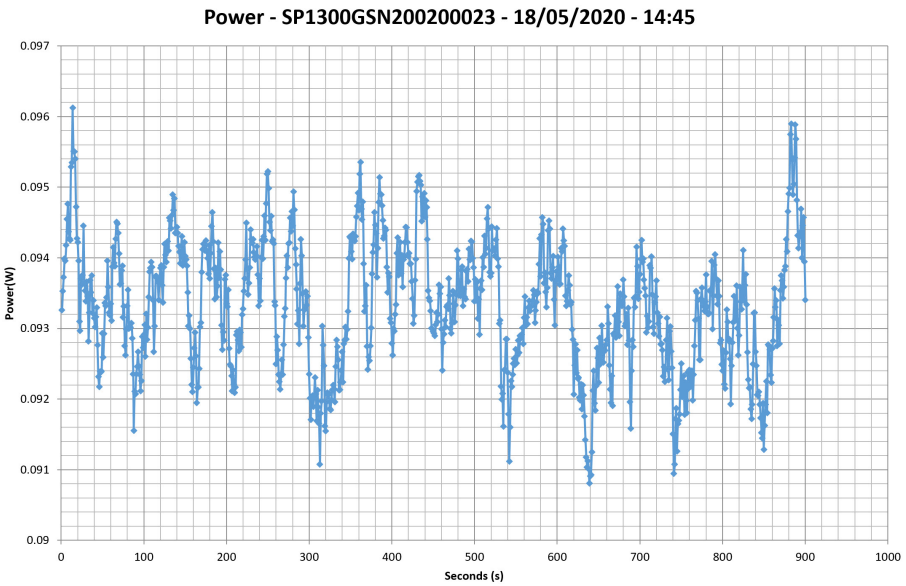
VAMPIRE POWER -230V



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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	8.801A	1.957A	1.962A	0.983A	129.985	87.127%	2002	50.6	40.02°C	0.882
	12.315V	5.112V	3.362V	5.088V	149.190				44.83°C	230.33V
2	18.606A	2.937A	2.948A	1.182A	260.012	91.132%	2274	53.6	40.36°C	0.951
	12.314V	5.108V	3.358V	5.074V	285.313				45.45°C	230.33V
3	28.717A	3.428A	3.443A	1.383A	389.535	92.539%	2273	53.6	40.77°C	0.971
	12.309V	5.106V	3.356V	5.061V	420.943				46.48°C	230.33V
4	38.866A	3.922A	3.935A	1.585A	519.533	93.073%	2315	53.7	42.09°C	0.980
	12.307V	5.102V	3.354V	5.048V	558.202				48.20°C	230.32V
5	48.690A	4.904A	4.925A	1.788A	649.641	93.237%	2311	53.7	42.10°C	0.987
	12.305V	5.099V	3.351V	5.034V	696.761				48.89°C	230.32V
6	58.526A	5.889A	5.914A	1.992A	779.796	93.171%	2316	53.7	42.82°C	0.989
	12.302V	5.096V	3.348V	5.020V	836.955				50.24°C	230.32V
7	68.356A	6.875A	6.906A	2.197A	909.892	92.935%	2315	53.7	43.46°C	0.990
	12.300V	5.093V	3.345V	5.006V	979.065				51.49°C	230.32V
8	78.198A	7.861A	7.896A	2.403A	1040.006	92.526%	2315	53.7	43.59°C	0.991
	12.297V	5.090V	3.343V	4.992V	1124.012				52.11°C	230.32V
9	88.438A	8.355A	8.379A	2.407A	1169.756	92.269%	2319	53.8	44.47°C	0.991
	12.294V	5.088V	3.341V	4.983V	1267.764				53.28°C	230.31V
10	98.429A	8.852A	8.894A	3.025A	1299.775	91.713%	2318	53.7	45.97°C	0.992
	12.294V	5.084V	3.338V	4.958V	1417.223				55.13°C	230.32V
11	109.023A	8.855A	8.901A	3.030A	1429.795	91.119%	2314	53.7	46.67°C	0.993
	12.292V	5.081V	3.336V	4.950V	1569.155				56.58°C	230.31V
CL1	0.100A	15.001A	14.998A	0.000A	128.039	83.328%	2297	53.7	42.11°C	0.887
	12.321V	5.102V	3.352V	5.102V	153.656				48.22°C	230.34V
CL2	108.001A	1.000A	1.000A	1.000A	1340.671	91.921%	2316	53.7	45.55°C	0.992
	12.289V	5.090V	3.344V	5.013V	1458.498				55.54°C	230.31V

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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	1.204A	0.488A	0.490A	0.196A	19.982	60.754%	1455	43.8	0.545
	12.318V	5.119V	3.367V	5.115V	32.890				230.34V
2	2.409A	0.978A	0.980A	0.391A	39.970	72.447%	1853	49.0	0.689
	12.318V	5.114V	3.364V	5.109V	55.171				230.33V
3	3.618A	1.466A	1.471A	0.588A	60.001	79.559%	1669	46.8	0.763
	12.316V	5.113V	3.363V	5.102V	75.417				230.33V
4	4.819A	1.956A	1.963A	0.785A	79.953	82.898%	1793	48.4	0.815
	12.316V	5.113V	3.362V	5.096V	96.447				230.33V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	14.50mV	4.60mV	6.40mV	3.40mV	Pass
20% Load	15.50mV	4.10mV	6.50mV	3.50mV	Pass
30% Load	12.70mV	4.90mV	7.30mV	3.60mV	Pass
40% Load	9.00mV	4.50mV	7.20mV	3.80mV	Pass
50% Load	8.30mV	4.70mV	7.40mV	4.00mV	Pass
60% Load	8.90mV	4.90mV	8.10mV	4.20mV	Pass
70% Load	9.30mV	5.30mV	8.30mV	4.50mV	Pass
80% Load	14.80mV	6.60mV	9.70mV	4.90mV	Pass
90% Load	18.00mV	8.60mV	10.80mV	5.00mV	Pass
100% Load	27.70mV	8.50mV	11.30mV	6.70mV	Pass
110% Load	27.60mV	9.00mV	11.20mV	6.60mV	Pass
Crossload1	18.10mV	7.50mV	11.10mV	4.60mV	Pass
Crossload2	25.80mV	5.10mV	8.50mV	5.70mV	Pass

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Anex

Antec Signature Platinum 1300W

Top side

Power specifications label

CERTIFICATIONS 115V

CYBENETICS PLATINUM

CERTIFICATIONS 230V

CYBENETICS PLATINUM 230v

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Lab Director