



EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

Antec Signature Titanium 1000W

Lab ID#: AN10001615
Receipt Date: Feb 26, 2020
Test Date: Mar 3, 2020

Report: 20PS1615A
Report Date: Mar 4, 2020

DUT INFORMATION

Brand	Antec
Manufacturer (OEM)	Seasonic
Series	Signature Titanium
Model Number	X9000A505-18
Serial Number	ST1000GNS200200207
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 (HA13525M12F-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 (610mm)	1	1	18-22AWG	No
4+4 pin EPS12V (650mm)	2	2	18AWG	No
6+2 pin PCIe (750mm)	4	4	18AWG	No
6+2 pin PCIe (680mm+70mm)	2	4	18AWG	No
SATA (400mm+115mm+115mm+115mm)	2	8	18AWG	No
SATA (350mm+150mm+150mm+150mm)	1	4	18AWG	No
SATA (300mm+150mm)	1	2	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	2	18AWG	No
OC Link Cable (460mm)	1	1	24AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	16AWG	-

RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	92.057%
Efficiency With 10W (≤500W) or 2% (>500W)	77.492
Average Efficiency 5VSB	80.174%
Standby Power Consumption (W)	0.0565508
Average PF	0.990
Avg Noise Output	23.28 dB(A)
Efficiency Rating (ETA)	TTANIUM
Noise Rating (LAMBDA)	A

230V

Average Efficiency	93.873%
Average Efficiency 5VSB	79.128%
Standby Power Consumption (W)	0.0935603
Average PF	0.960
Avg Noise Output	22.83 dB(A)
Efficiency Rating (ETA)	TTANIUM
Noise Rating (LAMBDA)	A

TEST EQUIPMENT

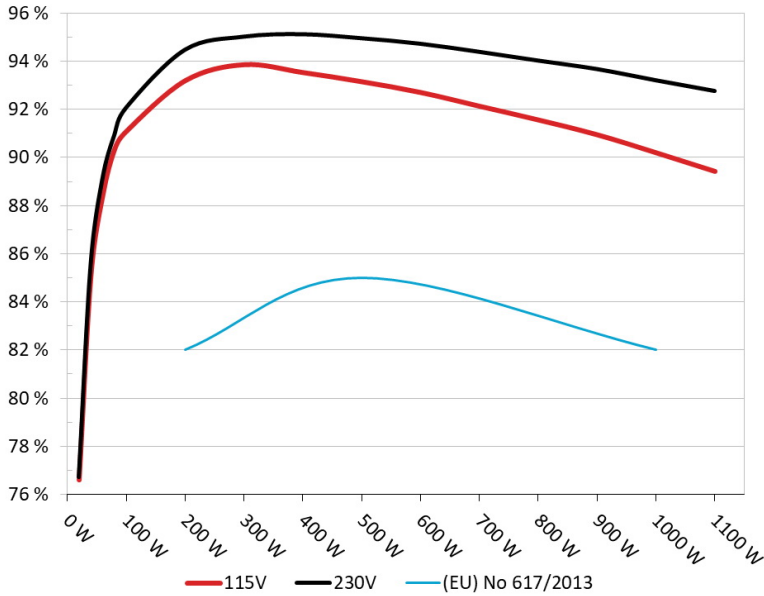
Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289, Keithley 2015 - THD
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Antec ST-1000
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

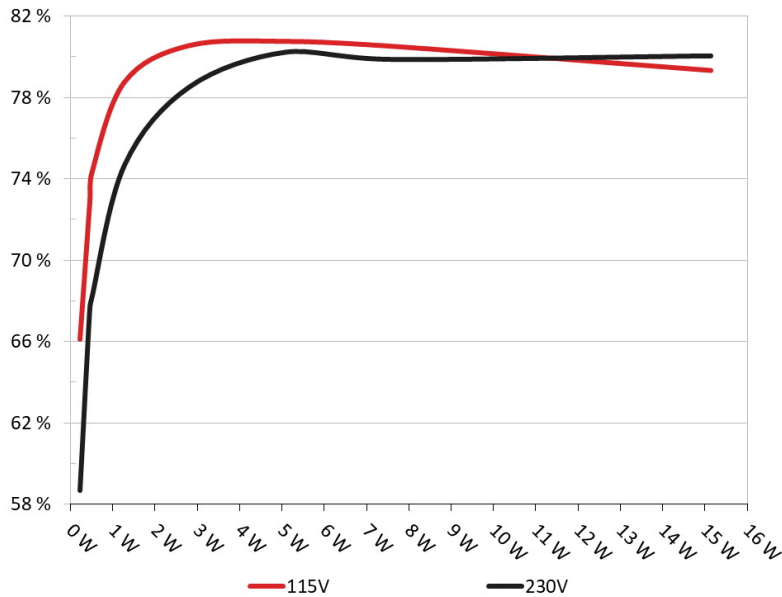


INFO

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 ST-1000
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	66.092%	0.036
	5.120V	0.348		115.10V
2	0.090A	0.461	72.828%	0.065
	5.119V	0.633		115.11V
3	0.550A	2.809	80.556%	0.272
	5.107V	3.487		115.11V
4	1.000A	5.096	80.761%	0.367
	5.096V	6.310		115.11V
5	1.500A	7.625	80.517%	0.420
	5.083V	9.470		115.11V
6	3.000A	15.138	79.331%	0.493
	5.046V	19.082		115.11V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	58.673%	0.012
	5.120V	0.392		230.25V
2	0.090A	0.461	67.595%	0.021
	5.119V	0.682		230.24V
3	0.550A	2.809	78.508%	0.106
	5.107V	3.578		230.23V
4	1.000A	5.096	80.227%	0.174
	5.096V	6.352		230.22V
5	1.500A	7.626	79.870%	0.234
	5.083V	9.548		230.22V
6	3.001A	15.138	80.044%	0.337
	5.045V	18.912		230.22V

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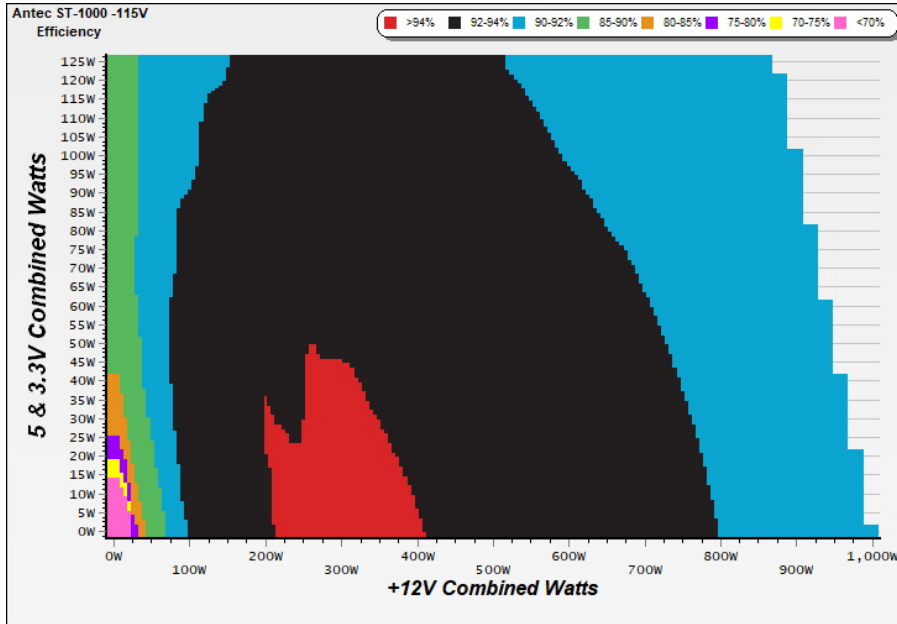
115V

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PAGE 5/13

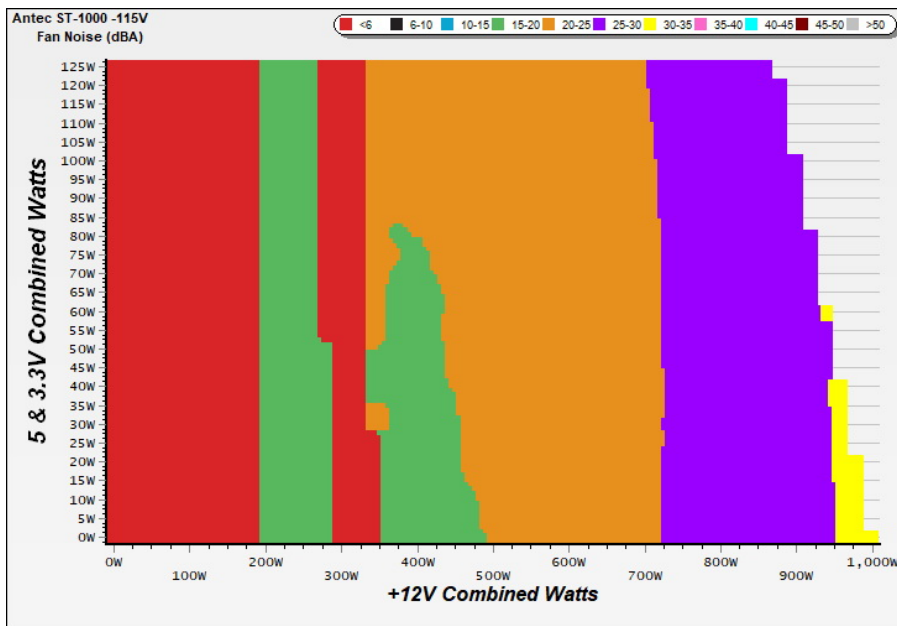
EFFICIENCY GRAPH 115V



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

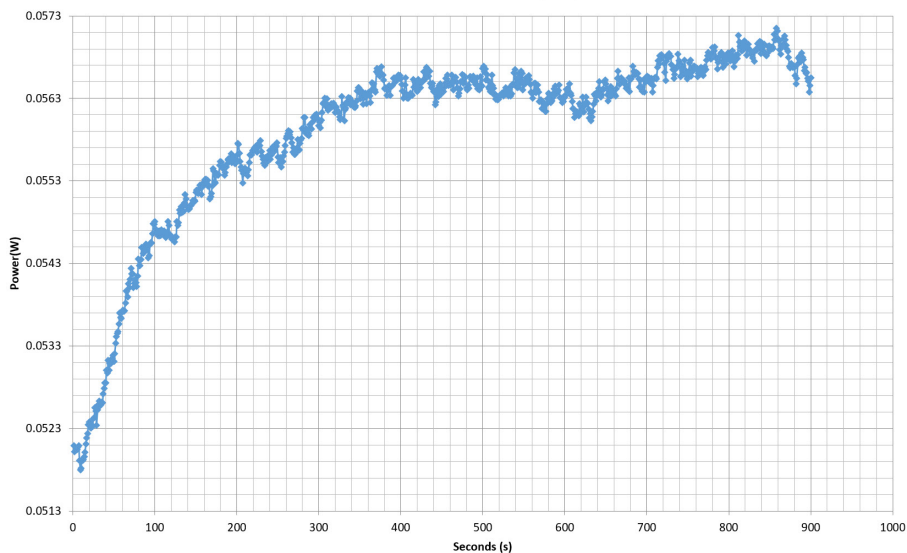
The PSU's noise in its entire operational range and under 30-32 °C (+-2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - ST1000GSN200200207 - 27/02/2020 - 08:36



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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COMMISSION REGULATION (EU) NO 617/2013 TESTING 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	6.370A	1.962A	1.959A	1.006A	100.006	91.091%	0	<6.0	43.26°C	0.972
	12.309V	5.097V	3.368V	4.969V	109.787				40.64°C	115.11V
2	13.741A	2.945A	2.942A	1.211A	200.040	93.201%	0	<6.0	44.78°C	0.988
	12.309V	5.094V	3.365V	4.956V	214.633				41.12°C	115.10V
5	36.516A	4.914A	4.915A	1.831A	499.807	93.161%	652	20.9	42.21°C	0.994
	12.304V	5.088V	3.359V	4.917V	536.496				48.27°C	115.10V
10	73.938A	8.868A	8.873A	3.096A	999.880	90.208%	1012	35.2	45.40°C	0.998
	12.310V	5.075V	3.347V	4.845V	1108.417				54.53°C	115.08V

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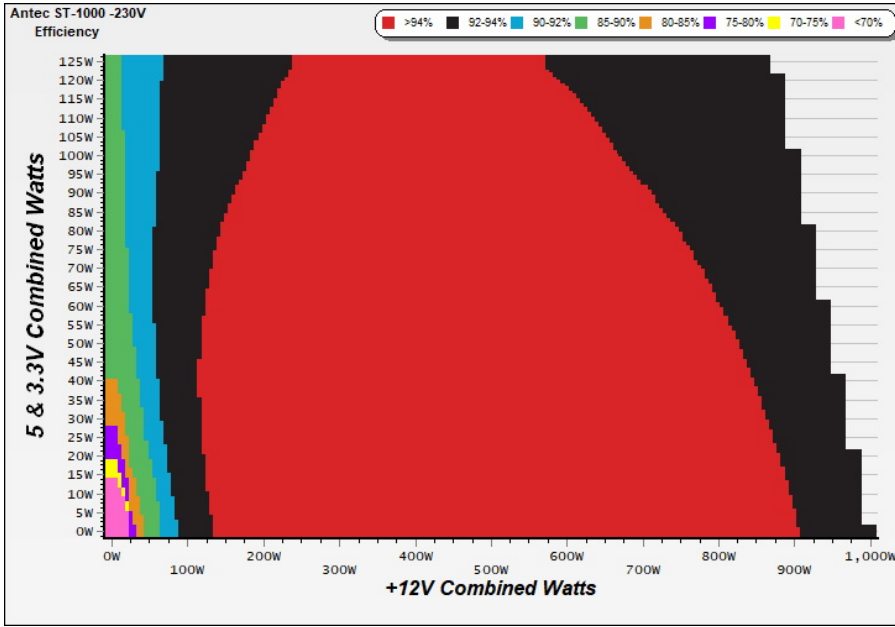
230V

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PAGE 9/13

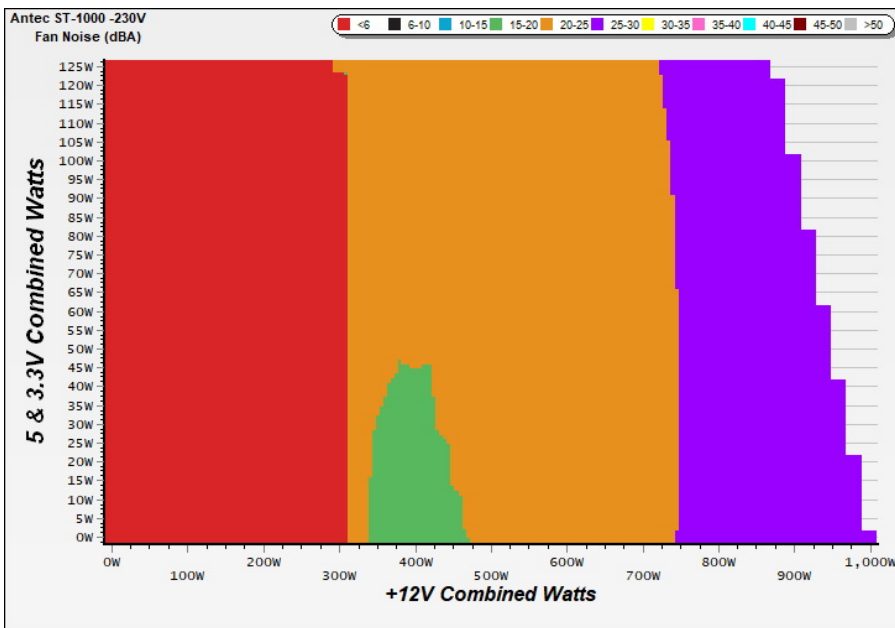
EFFICIENCY GRAPH 230V



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NOISE GRAPH 230V



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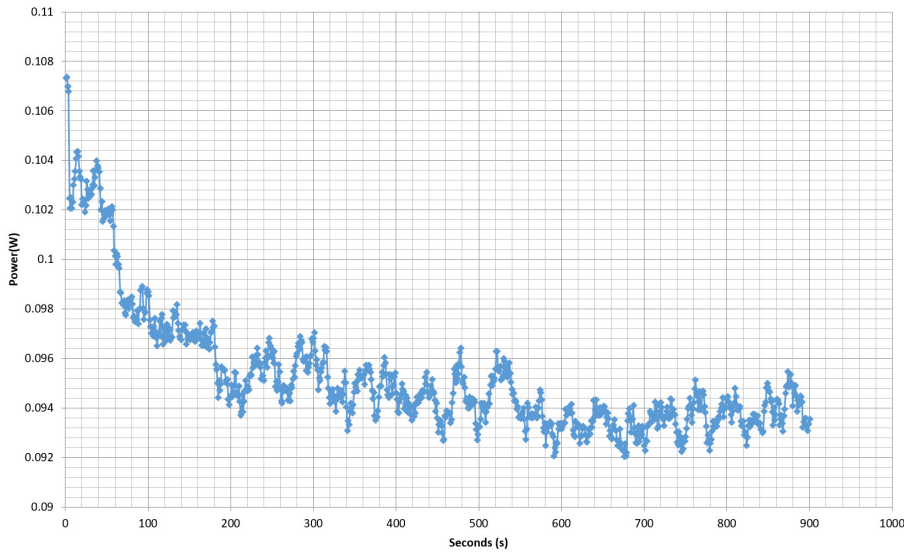
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VAMPIRE POWER -230V

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

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1	6.368A	1.962A	1.962A	1.006A	100.007	92.043%	0	<6.0	42.80°C	0.822
	12.312V	5.097V	3.367V	4.969V	108.652				39.84°C	230.24V
2	13.739A	2.944A	2.942A	1.211A	200.038	94.459%	0	<6.0	44.47°C	0.921
	12.311V	5.094V	3.365V	4.955V	211.772				40.77°C	230.24V
5	36.511A	4.913A	4.913A	1.831A	499.802	94.942%	670	23.1	42.09°C	0.975
	12.306V	5.088V	3.358V	4.917V	526.427				47.87°C	230.23V
10	73.943A	8.869A	8.872A	3.096A	999.873	93.194%	1005	34.2	45.25°C	0.990
	12.309V	5.075V	3.347V	4.846V	1072.891				54.31°C	230.24V

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CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

Antec Signature Titanium 1000W

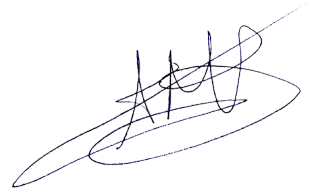


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Power specifications label

CERTIFICATIONS 115V

Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



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