



Antec Signature Titanium 1000W

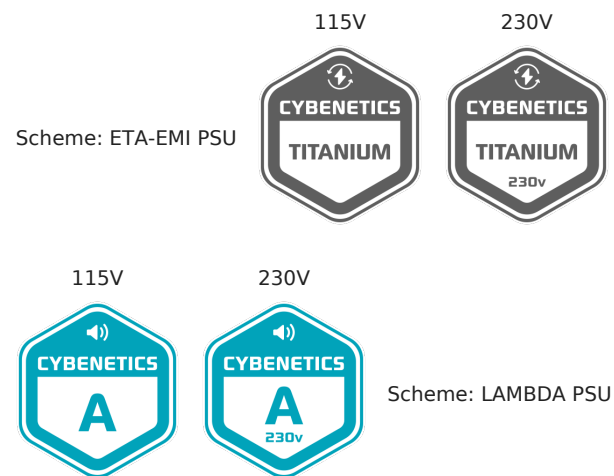
Serial Number ST1000GSN200200207

Lab ID AN10001615

Certification ID 251615

Test Result Report ID: 20PS1615A

Certificate Issue Date: Mar 4, 2020



A handwritten signature in blue ink, appearing to read "A. Bitziopoulos", enclosed within a circular stamp.

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	Signature Titanium 1000W
OEM/ODM	Seasonic
Serial Number	ST1000GSN200200207
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	13-6.5
Rated Frequency (Hz)	50-60

Rated Power (W)	1000
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	135mm Fluid Dynamic Bearing Fan (HA13525M12F-Z)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	AN10001615
Date of receipt	Feb 26, 2020
Testing Date	Mar 3, 2020
Report Issued Date	Mar 4, 2020
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

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	-

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				

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)	92.057%
Average Noise Output (>1450 Load Combinations)	23.28dBA
Average PF (>1450 Load Combinations)	0.990
Efficiency With 10W (≤500W) or 2% (>500W) Load	77.492%
Standby Power Consumption	0.0566W
Non-Accredited	
12V Ripple (Full Load)	18.02mV

5V Ripple (Full Load)	8.51mV
3.3V Ripple (Full Load)	17.20mV
5VSB Ripple (Full Load)	8.95mV
12V Load Regulation	0.05%
5V Load Regulation	0.51%
3.3V Load Regulation	0.68%
5VSB Load Regulation	3.04%
Inrush Current	26.180A

230V

Accredited		
Average Efficiency (>1450 load combinations)	93.873%	
Average Noise Output (>1450 Load Combinations)	22.83dBA	
Average PF (>1450 Load Combinations)	0.960	
Efficiency With 10W (≤500W) or 2% (>500W) Load	-	
Standby Power Consumption	0.0936W	
Non-Accredited		
12V Ripple (Full Load)	17.13mV	
5V Ripple (Full Load)	9.00mV	
3.3V Ripple (Full Load)	17.45mV	
5VSB Ripple (Full Load)	8.42mV	
12V Load Regulation	0.06%	
5V Load Regulation	0.51%	
3.3V Load Regulation	0.68%	
5VSB Load Regulation	3.00%	
Inrush Current	82.460A	
Hold-Up Time & PWR_OK Signal	24.80ms	
AC Loss to PWR_OK Hold Up Time	21.00ms	
PWR_OK Inactive to DC Loss Delay	3.80ms	
PSU Timings: T1 (20% / 100%)	132.0ms	144.0ms
PSU Timings: T3 (20% / 100%)	322.0ms	324.0ms
OPP (0.00°C / 0.00°C)	137.43%	-

Hold-Up Time & PWR_OK Signal

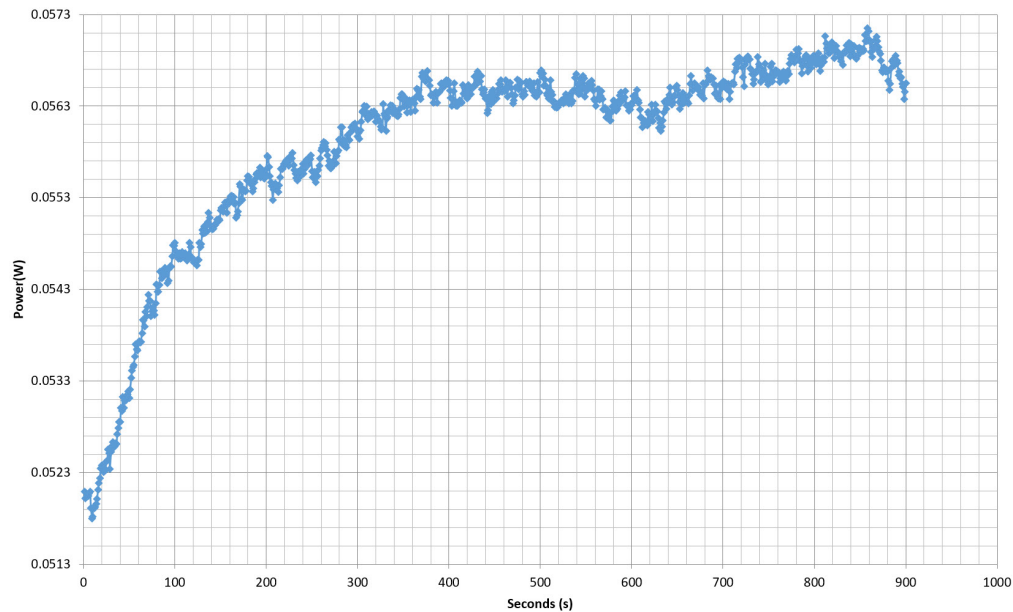
Hold-Up Time (ms)	24.8
AC Loss to PWR_OK Hold Up Time (ms)	21
PWR_OK Inactive to DC Loss Delay (ms)	3.8



Graphs

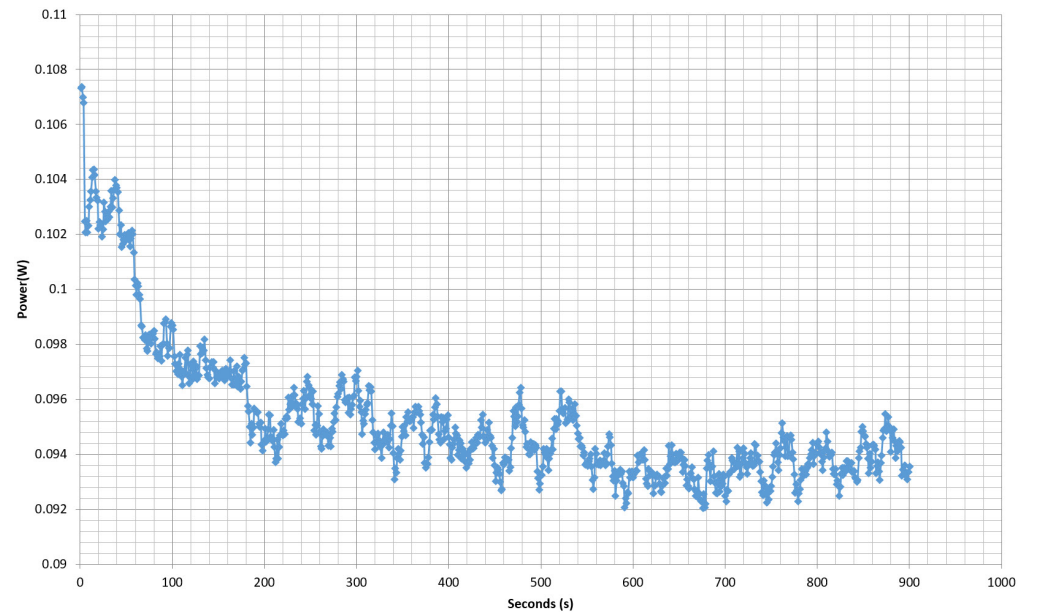
115V

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



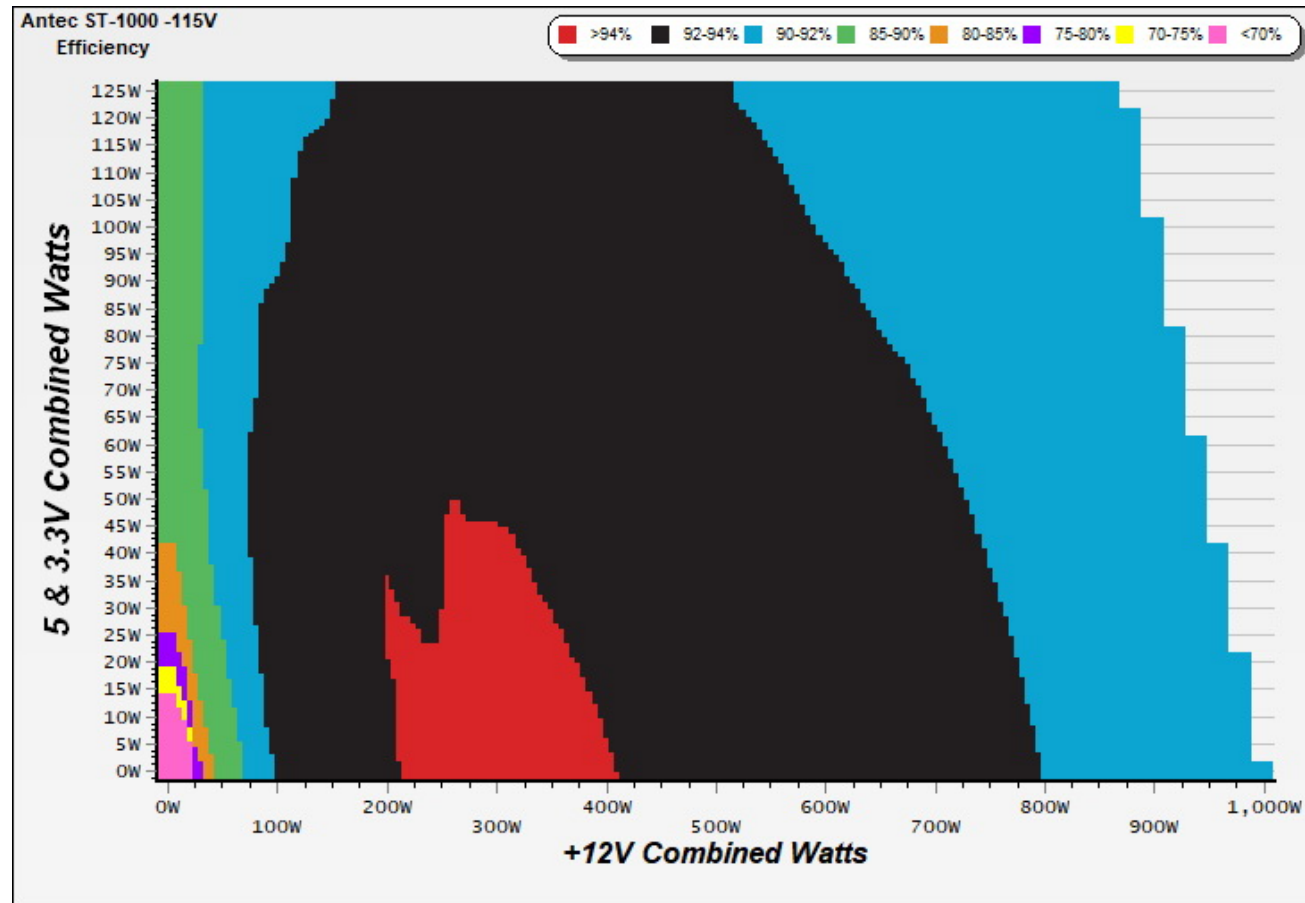
230V

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



Efficiency Graph

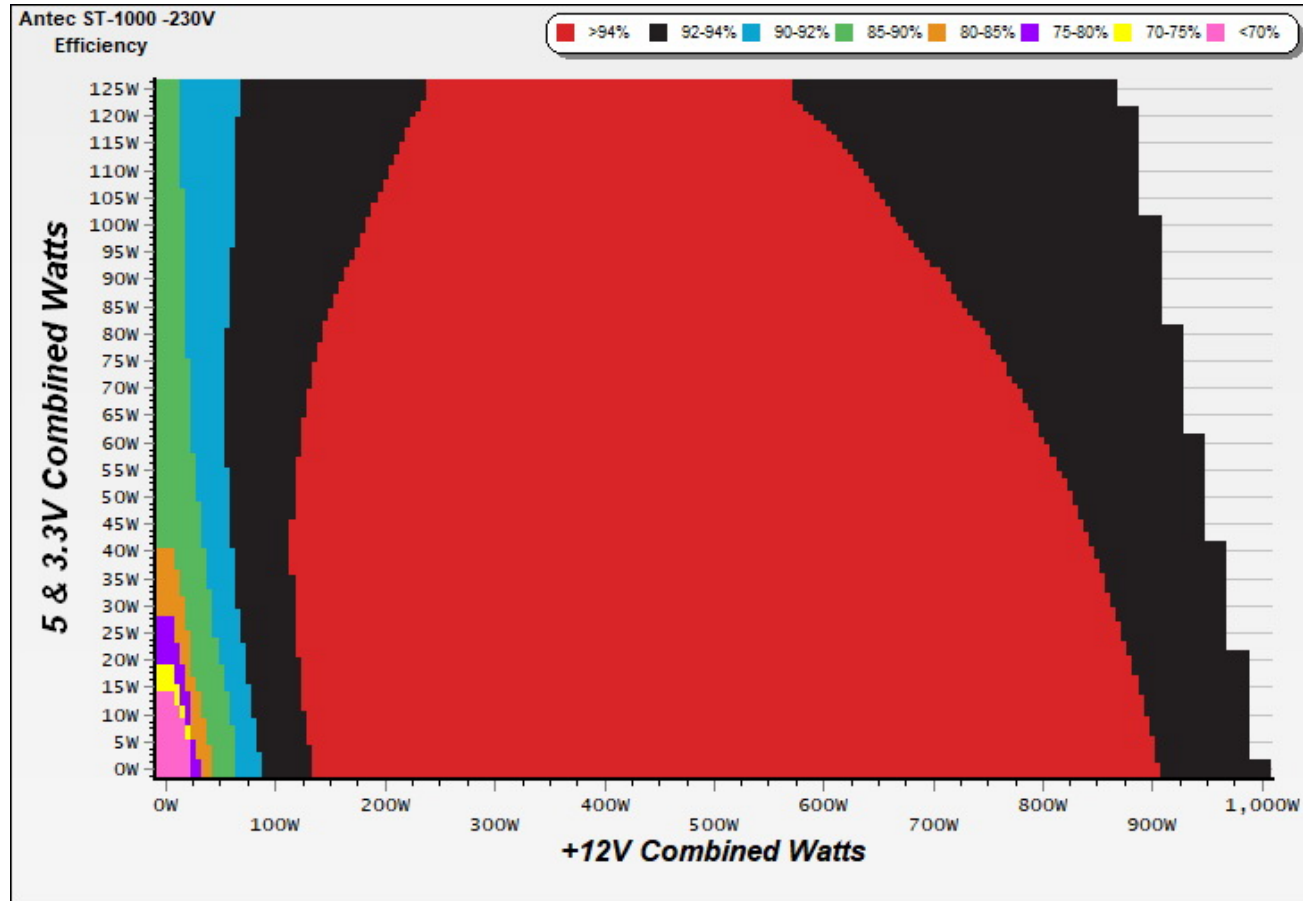
115V



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

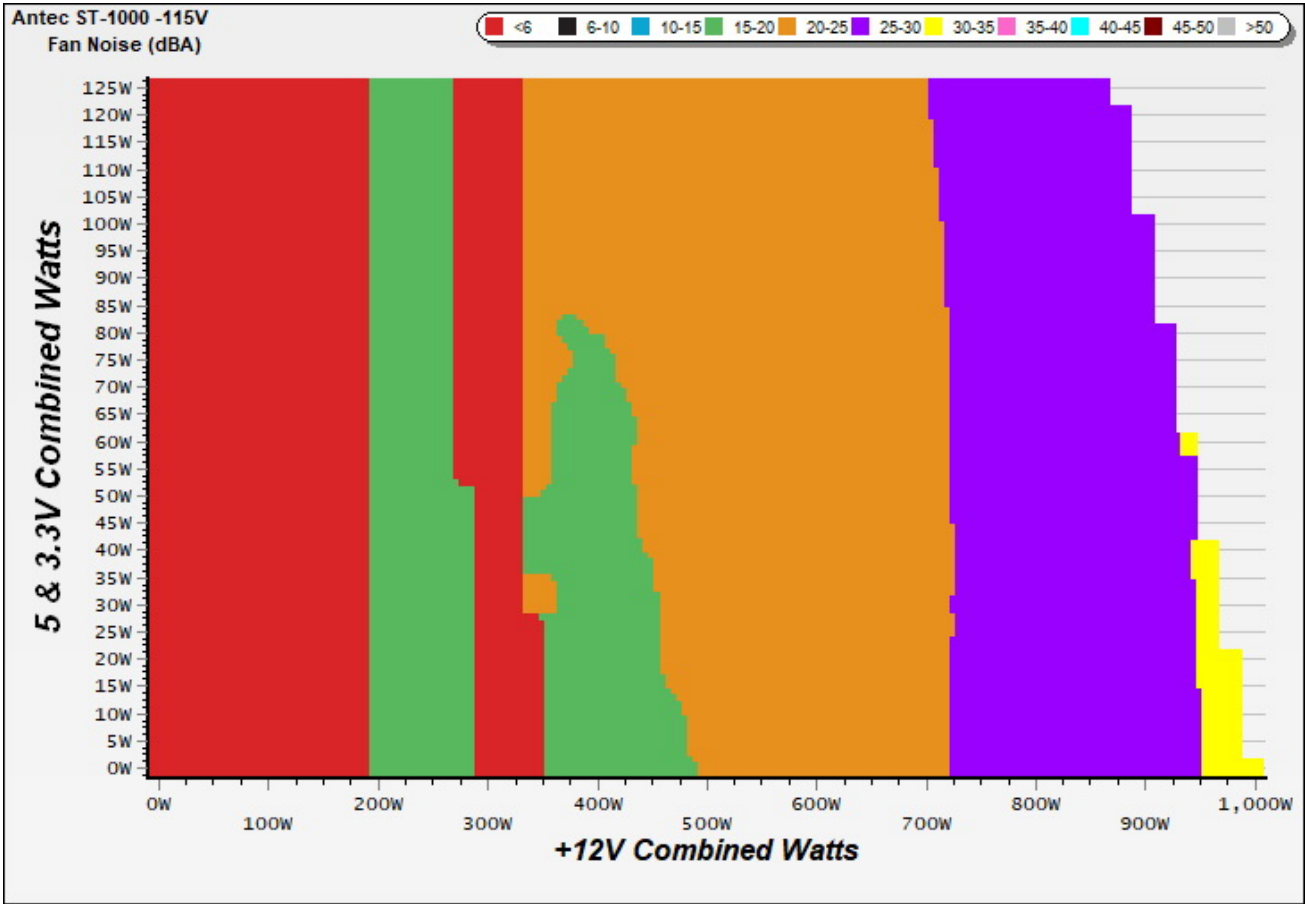


INFO

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Noise Graph

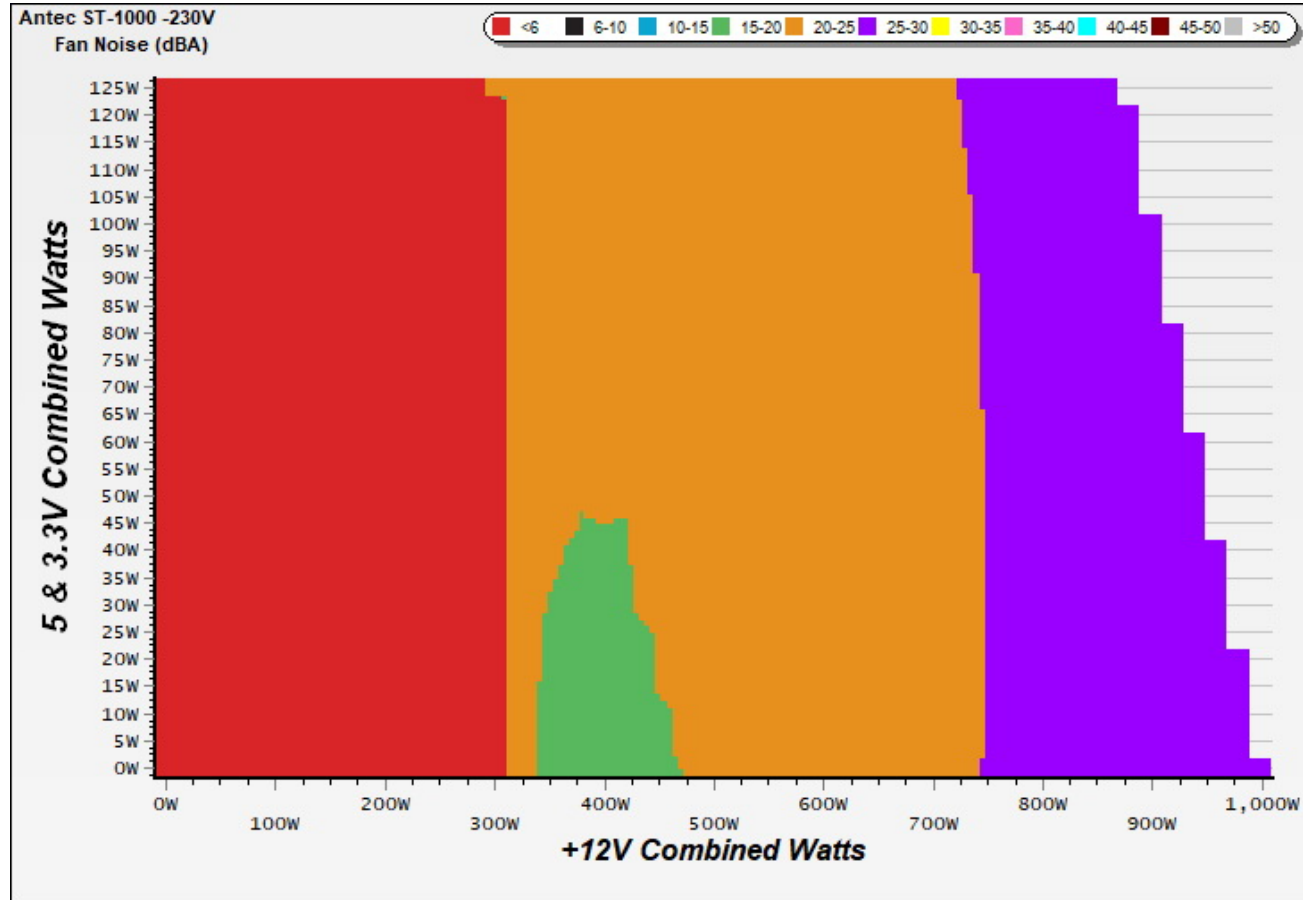
115V



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

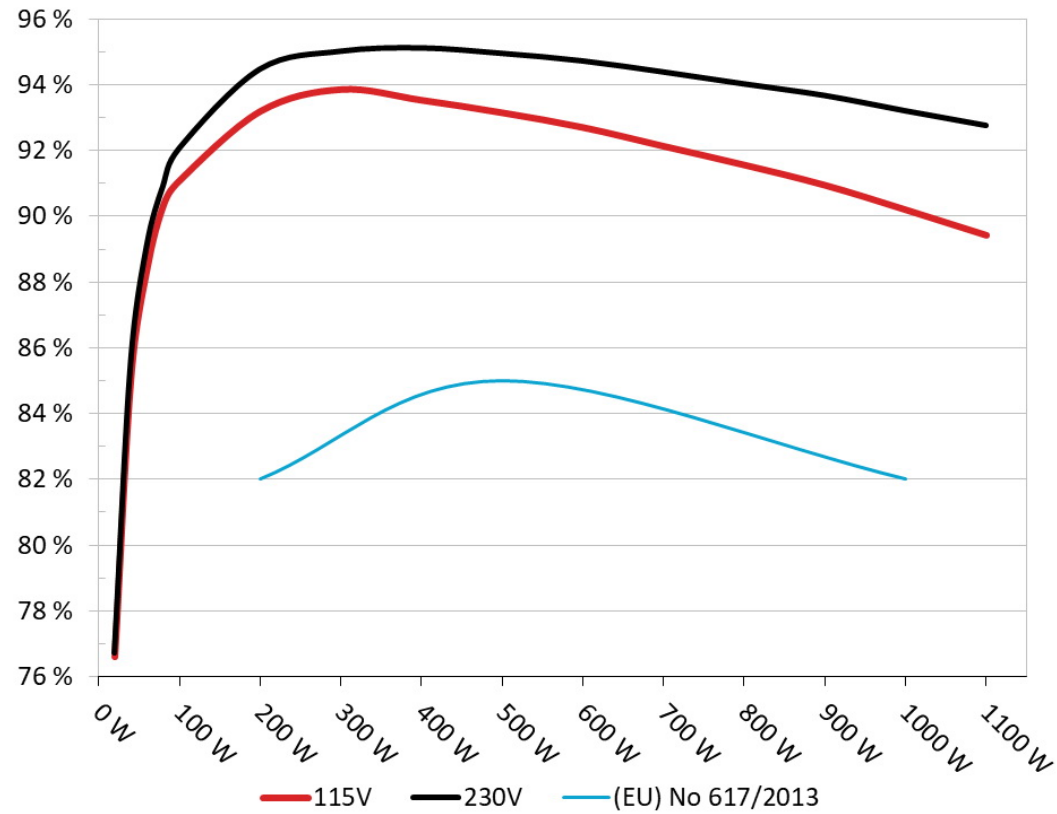
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance

Efficiency under high ambient temperature

Efficiency: Antec ST-1000

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

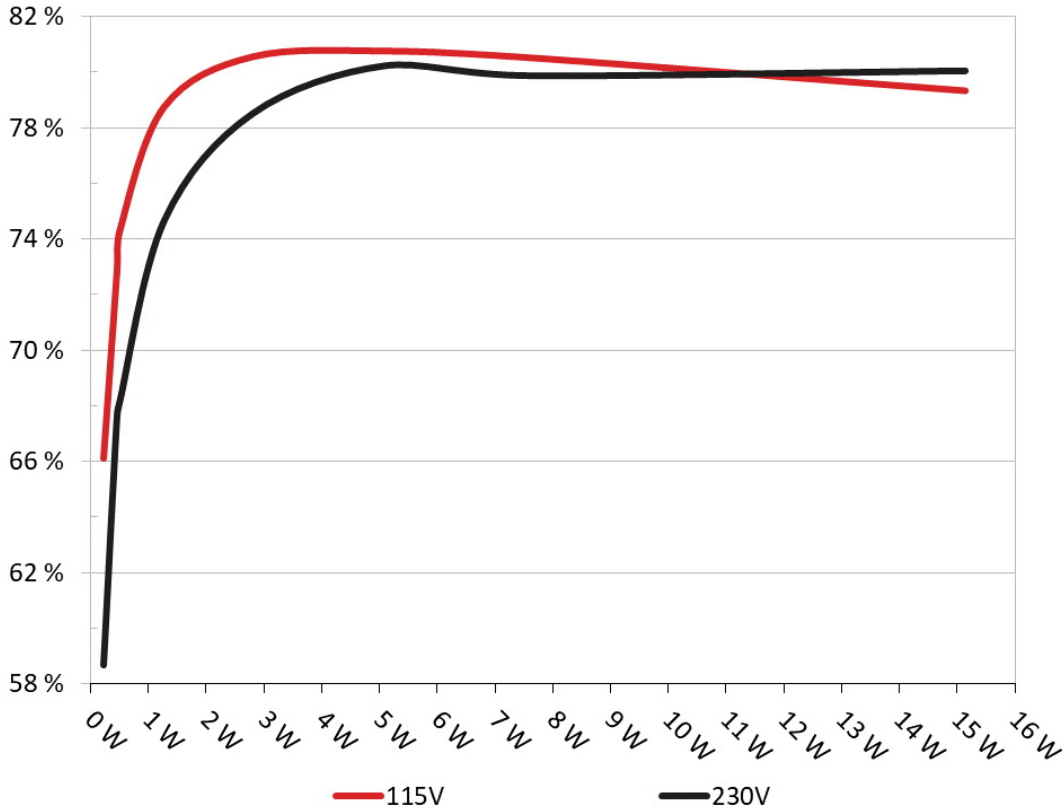


INFO

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

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

115V

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

230V

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

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	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
3	21.443A	3.436A	3.436A	1.416A	300.014	93.867%	0	<6.0	45.53°C	0.995
	12.310V	5.092V	3.363V	4.943V	319.617				41.52°C	115.10V
4	29.127A	3.930A	3.928A	1.623A	399.672	93.542%	636	20.1	41.76°C	0.995
	12.307V	5.090V	3.361V	4.930V	427.263				47.20°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
6	43.889A	5.902A	5.901A	2.000A	599.724	92.713%	707	23.7	43.29°C	0.995
	12.306V	5.085V	3.356V	4.905V	646.860				49.85°C	115.09V
7	51.234A	6.889A	6.890A	2.250A	699.658	92.142%	781	27.0	43.42°C	0.996
	12.307V	5.082V	3.354V	4.890V	759.326				50.39°C	115.09V
8	58.643A	7.878A	7.876A	2.461A	800.183	91.569%	857	29.8	44.96°C	0.997
	12.308V	5.079V	3.351V	4.876V	873.859				52.72°C	115.09V
9	66.370A	8.371A	8.359A	2.465A	899.455	90.958%	939	32.1	45.24°C	0.997
	12.309V	5.077V	3.350V	4.870V	988.866				53.48°C	115.08V
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
11	82.056A	8.872A	8.878A	3.100A	1099.896	89.433%	1443	43.8	46.53°C	0.998
	12.311V	5.073V	3.345V	4.839V	1229.849				56.42°C	115.08V
CL1	0.101A	15.002A	14.997A	0.000A	127.741	88.643%	839	29.2	42.75°C	0.980
	12.339V	5.077V	3.356V	5.010V	144.108				48.69°C	115.11V

CL2	83.008A	1.000A	1.000A	1.000A	1034.919	90.329%	1010	35.2	45.65°C	0.998
	12.307V	5.084V	3.352V	4.905V	1145.728				54.22°C	115.08V

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	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
3	21.448A	3.437A	3.434A	1.416A	300.012	95.006%	632	20.1	41.46°C	0.953
	12.307V	5.093V	3.363V	4.943V	315.781				45.76°C	230.24V
4	29.133A	3.927A	3.926A	1.623A	399.670	95.106%	636	20.1	41.62°C	0.967
	12.305V	5.091V	3.361V	4.930V	420.237				46.55°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
6	43.894A	5.901A	5.904A	2.000A	599.739	94.712%	724	24.5	42.57°C	0.981
	12.305V	5.085V	3.355V	4.905V	633.225				48.85°C	230.23V
7	51.238A	6.888A	6.891A	2.250A	699.654	94.378%	783	27.0	43.42°C	0.984
	12.306V	5.083V	3.353V	4.890V	741.333				50.29°C	230.23V
8	58.646A	7.878A	7.878A	2.461A	800.179	94.012%	853	29.8	43.65°C	0.987
	12.307V	5.080V	3.351V	4.877V	851.149				51.11°C	230.24V
9	66.379A	8.372A	8.360A	2.465A	899.442	93.662%	925	32.2	44.22°C	0.989
	12.307V	5.078V	3.349V	4.870V	960.302				52.50°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
11	82.062A	8.869A	8.879A	3.100A	1099.889	92.750%	1316	41.6	46.55°C	0.991
	12.310V	5.074V	3.345V	4.840V	1185.863				56.34°C	230.23V
CL1	0.101A	15.000A	14.998A	0.000A	127.749	89.546%	814	28.4	42.16°C	0.873
	12.335V	5.077V	3.357V	5.009V	142.663				47.51°C	230.25V

CL2	83.018A	1.000A	1.001A	1.000A	1035.050	93.422%	1008	35.2	45.61°C	0.990
	12.307V	5.085V	3.352V	4.906V	1107.930				54.81°C	230.24V

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	1.207A	0.489A	0.488A	0.200A	19.991	76.606%	0	<6.0	0.810
	12.303V	5.106V	3.373V	4.997V	26.096				115.11V
2	2.412A	0.981A	0.979A	0.401A	39.981	85.104%	0	<6.0	0.911
	12.304V	5.101V	3.370V	4.990V	46.979				115.11V
3	3.622A	1.471A	1.467A	0.602A	60.012	88.426%	0	<6.0	0.946
	12.305V	5.099V	3.369V	4.983V	67.867				115.11V
4	4.823A	1.962A	1.959A	0.804A	79.963	90.332%	0	<6.0	0.964
	12.308V	5.098V	3.368V	4.976V	88.521				115.11V

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	1.206A	0.490A	0.489A	0.200A	19.994	76.708%	0	<6.0	0.463
	12.308V	5.105V	3.373V	4.997V	26.065				230.25V
2	2.412A	0.979A	0.980A	0.401A	39.985	85.518%	0	<6.0	0.629
	12.309V	5.100V	3.369V	4.990V	46.756				230.25V
3	3.620A	1.472A	1.469A	0.602A	60.014	89.090%	0	<6.0	0.718
	12.310V	5.098V	3.368V	4.983V	67.363				230.25V
4	4.822A	1.962A	1.961A	0.804A	79.964	90.896%	0	<6.0	0.784
	12.310V	5.097V	3.368V	4.976V	87.973				230.25V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.20mV	6.40mV	12.20mV	3.60mV	Pass
20% Load	11.60mV	6.50mV	12.80mV	4.10mV	Pass
30% Load	11.00mV	7.00mV	14.20mV	4.50mV	Pass
40% Load	8.60mV	7.40mV	13.90mV	5.20mV	Pass
50% Load	8.50mV	8.00mV	15.50mV	5.40mV	Pass
60% Load	8.90mV	7.40mV	14.90mV	5.90mV	Pass
70% Load	9.70mV	7.50mV	15.70mV	6.50mV	Pass
80% Load	10.60mV	8.70mV	16.40mV	6.60mV	Pass
90% Load	11.30mV	8.20mV	16.30mV	7.20mV	Pass
100% Load	18.00mV	8.50mV	17.20mV	9.00mV	Pass
110% Load	18.90mV	8.90mV	17.10mV	9.30mV	Pass
Crossload1	13.50mV	9.00mV	18.80mV	4.30mV	Pass
Crossload2	18.30mV	7.80mV	13.80mV	8.80mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.30mV	6.40mV	13.30mV	3.50mV	Pass
20% Load	11.50mV	6.90mV	12.90mV	4.20mV	Pass
30% Load	10.60mV	6.80mV	15.00mV	4.20mV	Pass
40% Load	7.90mV	8.00mV	14.70mV	4.70mV	Pass
50% Load	8.10mV	8.00mV	15.20mV	5.60mV	Pass
60% Load	9.10mV	7.70mV	15.40mV	6.10mV	Pass
70% Load	9.40mV	7.40mV	15.50mV	6.40mV	Pass
80% Load	10.40mV	7.80mV	16.00mV	6.50mV	Pass

