

Anex

EVGA SuperNOVA 1000 P6

Lab ID#: EV10001923
Receipt Date: Oct 20, 2021
Test Date: Oct 25, 2021

Report: 21PS1923A
Report Date: Oct 27, 2021

DUT INFORMATION

Brand	EVGA
Manufacturer (OEM)	Seasonic
Series	SuperNOVA P6
Model Number	
Serial Number	2104041009830061
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

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	89.795%
Efficiency With 10W (≤500W) or 2% (>500W)	76.834
Average Efficiency 5VSB	76.741%
Standby Power Consumption (W)	0.0592921
Average PF	0.979
Avg Noise Output	31.61 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	Standard++

230V

Average Efficiency	91.833%
Average Efficiency 5VSB	75.644%
Standby Power Consumption (W)	0.1168210
Average PF	0.939
Avg Noise Output	31.60 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	Standard++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	83.3	3	0.5
	Watts	125		1000	15	6
Total Max. Power (W)		1000				

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

Hold-Up Time (ms)	22.4
AC Loss to PWR_OK Hold Up Time (ms)	17.4
PWR_OK Inactive to DC Loss Delay (ms)	5

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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 (700mm)	2	2	18AWG	No
6+2 pin PCIe (700mm+125mm)	3	6	16-18AWG	No
6+2 pin PCIe (700mm)	2	2	18AWG	No
SATA (550mm+100mm+100mm)	4	12	18AWG	No
4-pin Molex (550mm+100mm+100mm+100mm)	1	4	18AWG	No
FDD Adapter (105mm)	1	1	22AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	16AWG	-

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General Data	-
Manufacturer (OEM)	Seasonic
PCB Type	Double Sided
Primary Side	-
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x Champion CM02X (Discharge IC)
Inrush Protection	NTC Thermistor MF72-5D20L (5 Ohm) & Relay
Bridge Rectifier(s)	2x Vishay GBUE2560 (600V, 25A @ 140°C)
APFC MOSFETs	2x Infineon IPA60R099P6 (600V, 24A @ 100°C, Rds(on): 0.099Ohm)
APFC Boost Diode	1x Infineon IDH10G65C6 (650V, 10A @ 140°C)
Bulk Cap(s)	2x Nippon Chemi-Con (420V, 470uF each or 940uF combined, 2,000h @ 105°C, KMZ)
Main Switchers	4x Infineon IPA60R125P6 (600V, 19A @ 100°C, Rds(on): 0.125Ohm)
APFC Controller	Champion CM6500UNX
Resonant Controller	Champion CU6901V
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	6x Nexperia PSMN1R0-40YLD (40V, 198A @ 100°C, Rds(on): 1.93mOhm)
5V & 3.3V	DC-DC Converters: 6x PWM Controller(s): ANPEC APW7159C
Filtering Capacitors	Electrolytic: 6x Nippon Chemi-Con (2-5,000h @ 105°C, KZE), 1x Nippon Chemi-Con (5-6,000h @ 105°C, KZH), 3x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 2x Rubycon (3-6,000h @ 105°C, YXG) Polymer: 20x Nippon Chemi-Con, 14x NIC
Supervisor IC	Weltrend WT7527RA (OCP, OVP, UVP, SCP, PG) & Weltrend WT51F104 (Firmware OPP)
Fan Controller	Weltrend WT51F104
Fan Model	Hong Hua HA13525H12F-Z (135mm, 12V, 0.50A, Fluid Dynamic Bearing Fan)
5VSB Circuit	-
Rectifier	1x MCC MRB1045ULPS SBR (45V, 10A)
Standby PWM Controller	Excelliance MOS EM8569C

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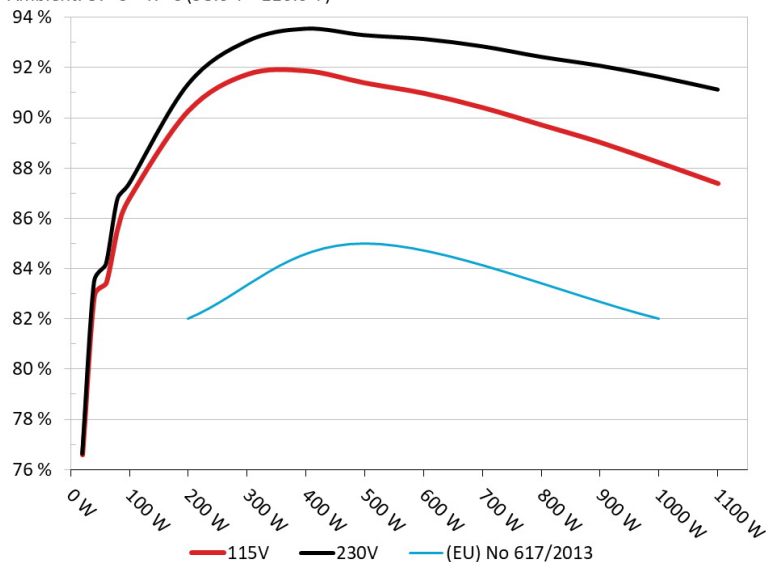
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: EVGA SuperNOVA 1000 P6

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



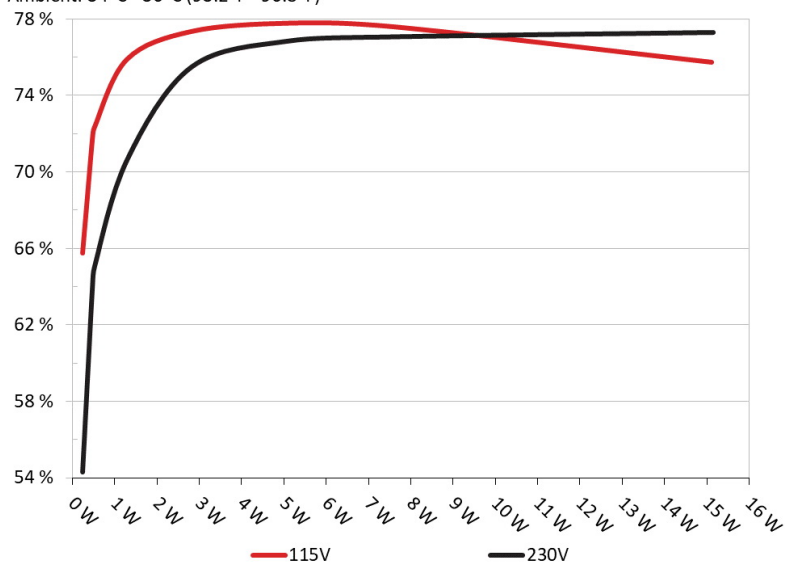
INFO

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: EVGA SuperNOVA 1000 P6

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	0.23W	65.736%	0.032
	5.12V	0.35W		115.13V
2	0.09A	0.461W	71.721%	0.058
	5.119V	0.643W		115.14V
3	0.55A	2.809W	77.344%	0.263
	5.108V	3.632W		115.14V
4	1A	5.098W	77.777%	0.365
	5.098V	6.554W		115.15V
5	1.5A	7.629W	77.581%	0.425
	5.086V	9.834W		115.15V
6	2.999A	15.114W	75.733%	0.502
	5.04V	19.958W		115.15V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	54.301%	0.012
	5.121V	0.424W		230.3V
2	0.09A	0.461W	63.945%	0.02
	5.119V	0.721W		230.3V
3	0.55A	2.809W	75.488%	0.1
	5.107V	3.721W		230.32V
4	1A	5.097W	76.84%	0.167
	5.097V	6.633W		230.32V
5	1.5A	7.627W	77.062%	0.227
	5.085V	9.898W		230.32V
6	2.999A	15.143W	77.288%	0.336
	5.049V	19.593W		230.32V

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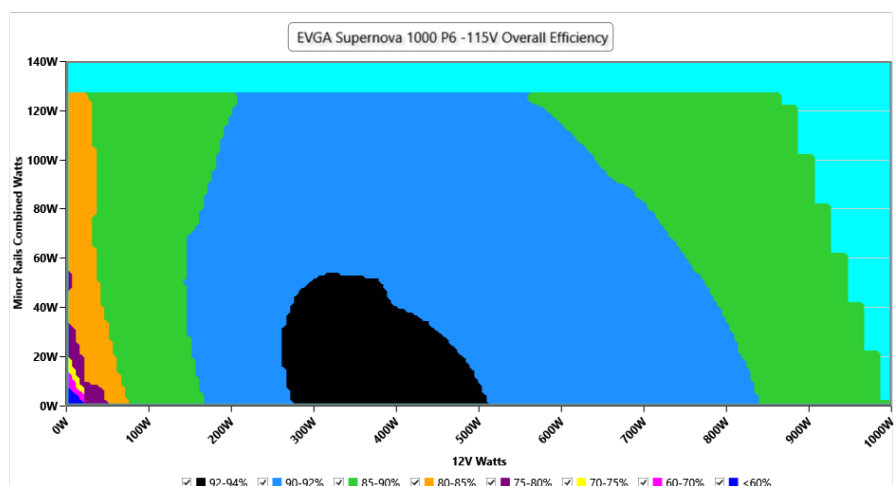
115V

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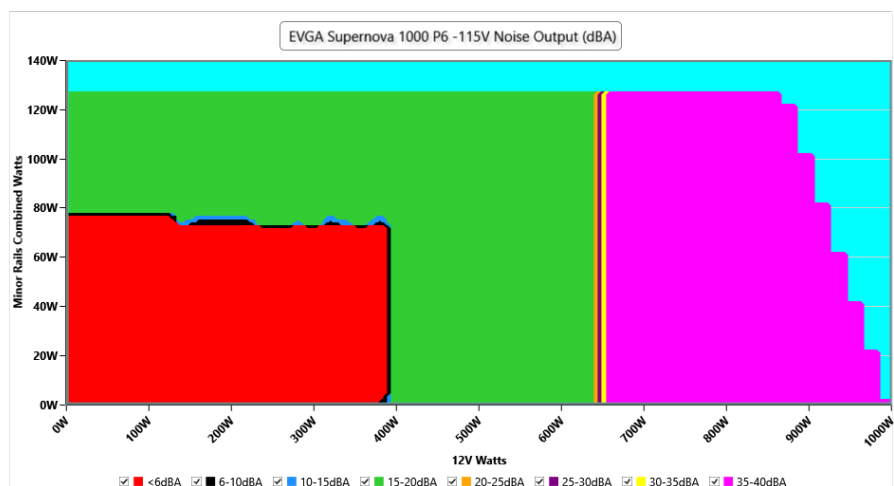
EFFICIENCY GRAPH 115V



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

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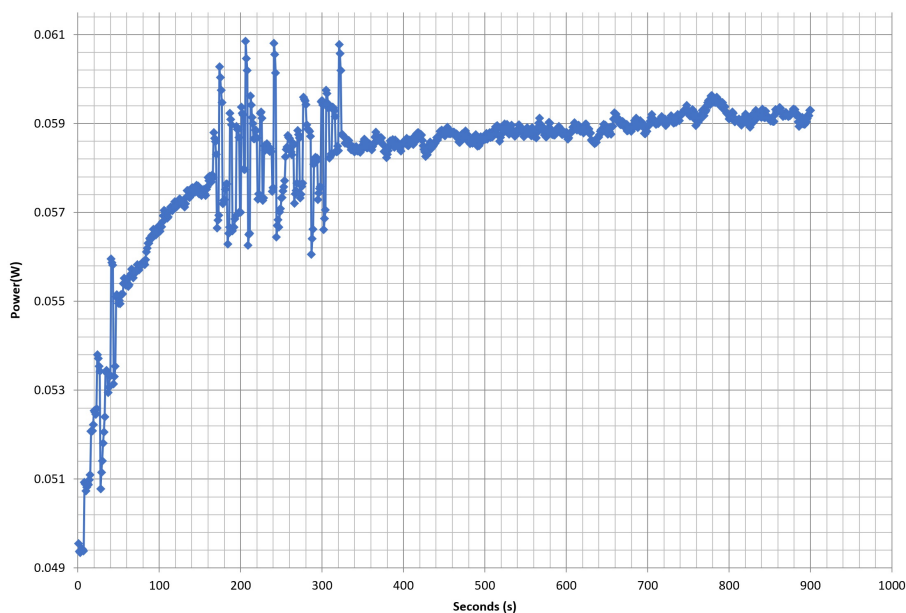
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VAMPIRE POWER -115V

Power - 2104041009830061 - 19/10/2021 - 09:54



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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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
10%	6.444A	2A	1.999A	0.982A	99.993	86.811%	0	<6.0	44.43°C	0.972
	12.166V	4.999V	3.302V	5.091V	115.185				40.21°C	115.18V
20%	13.894A	3.002A	3A	1.181A	199.927	90.28%	0	<6.0	45.39°C	0.969
	12.166V	4.997V	3.299V	5.079V	221.452				40.74°C	115.17V
30%	21.719A	3.504A	3.503A	1.381A	299.954	91.729%	0	<6.0	46.21°C	0.974
	12.150V	4.995V	3.297V	5.068V	327.001				41.01°C	115.17V
40%	29.488A	4.004A	4.006A	1.582A	399.382	91.871%	680	17.8	41.74°C	0.979
	12.147V	4.995V	3.294V	5.058V	434.719				47.72°C	115.14V
50%	36.938A	5.008A	5.012A	1.784A	499.088	91.39%	1505	41.6	42.38°C	0.982
	12.145V	4.992V	3.292V	5.044V	546.111				48.68°C	115.13V
60%	44.442A	6.014A	6.019A	1.987A	599.619	90.979%	1504	41.6	42.54°C	0.985
	12.147V	4.988V	3.289V	5.033V	659.075				49.29°C	115.12V
70%	51.875A	7.021A	7.028A	2.19A	699.345	90.41%	1505	41.6	43.58°C	0.986
	12.149V	4.986V	3.287V	5.02V	773.523				50.76°C	115.11V
80%	59.377A	8.002A	8.035A	2.293A	799.228	89.72%	1856	47.2	43.81°C	0.988
	12.150V	4.984V	3.284V	5.012V	890.805				51.32°C	115.1V
90%	67.196A	8.53A	8.528A	2.397A	899.128	89.027%	1858	47.2	44.34°C	0.989
	12.154V	4.981V	3.282V	5.003V	1009.945				52.43°C	115.1V
100%	74.797A	9.037A	9.052A	3.01A	999.142	88.223%	1859	47.2	45.81°C	0.99
	12.160V	4.978V	3.28V	4.982V	1132.525				54.72°C	115.09V
110%	82.322A	10.046A	10.158A	3.014A	1099.749	87.386%	1858	47.2	46.67°C	0.991
	12.165V	4.976V	3.277V	4.975V	1258.498				56.54°C	115.08V
CL1	0.113A	15.076A	15.074A	0A	126.267	82.487%	1507	41.6	42.95°C	0.979
	12.187V	4.994V	3.29V	5.102V	153.074				48.66°C	115.15V
CL2	0.113A	24.997A	0A	0A	126.375	80.784%	1840	47.3	43.3°C	0.976
	12.166V	5.001V	3.294V	5.106V	156.437				50.42°C	115.14V
CL3	0.113A	0A	25.059A	0A	83.862	75.048%	1848	47.2	44.44°C	0.969
	12.162V	4.996V	3.292V	5.103V	111.745				52.83°C	115.14V
CL4	82.312A	0A	0A	0.001A	999.741	89.049%	1863	47.3	45.58°C	0.989
	12.146V	4.986V	3.29V	5.061V	1122.685				54.83°C	115.08V

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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])	Temps (In/Out)	PF/AC Volts
20W	1.226A	0.5A	0.499A	0.196A	19.994	76.592%	0	<6.0	39.42°C	0.789
	12.101V	5.004V	3.306V	5.115V	26.105				37.14°C	115.19V
40W	2.700A	0.699A	0.699A	0.293A	39.993	82.924%	0	<6.0	40.35°C	0.918
	12.107V	5.004V	3.305V	5.111V	48.228				37.73°C	115.19V
60W	4.154A	0.9A	0.899A	0.392A	59.993	83.417%	0	<6.0	41.58°C	0.948
	12.163V	5.002V	3.304V	5.108V	71.919				38.42°C	115.19V
80W	5.616A	1.1A	1.099A	0.49A	79.95	85.612%	0	<6.0	42.97°C	0.959
	12.165V	5.001V	3.303V	5.104V	93.387				39.33°C	115.18V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	5.52mV	4.62mV	5.26mV	8.55mV	Pass
20% Load	8.51mV	4.42mV	5.41mV	9.41mV	Pass
30% Load	8.08mV	5.49mV	5.91mV	10.12mV	Pass
40% Load	7.19mV	6.10mV	6.62mV	10.78mV	Pass
50% Load	7.64mV	7.88mV	7.68mV	13.76mV	Pass
60% Load	7.60mV	8.23mV	7.63mV	10.93mV	Pass
70% Load	7.75mV	8.84mV	7.99mV	16.85mV	Pass
80% Load	8.40mV	8.39mV	9.81mV	16.85mV	Pass
90% Load	8.61mV	11.44mV	13.35mV	14.37mV	Pass
100% Load	12.43mV	14.10mV	14.89mV	15.07mV	Pass
110% Load	12.35mV	16.23mV	16.37mV	15.30mV	Pass
Crossload1	5.98mV	6.42mV	10.30mV	9.72mV	Pass
Crossload2	5.42mV	7.32mV	5.66mV	8.15mV	Pass
Crossload3	5.82mV	4.07mV	10.01mV	8.30mV	Pass
Crossload4	12.44mV	12.43mV	13.37mV	13.90mV	Pass

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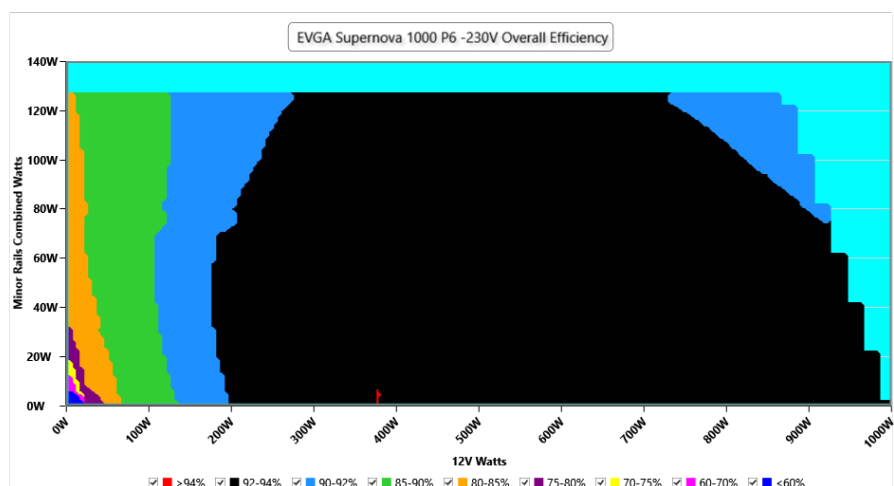
230V

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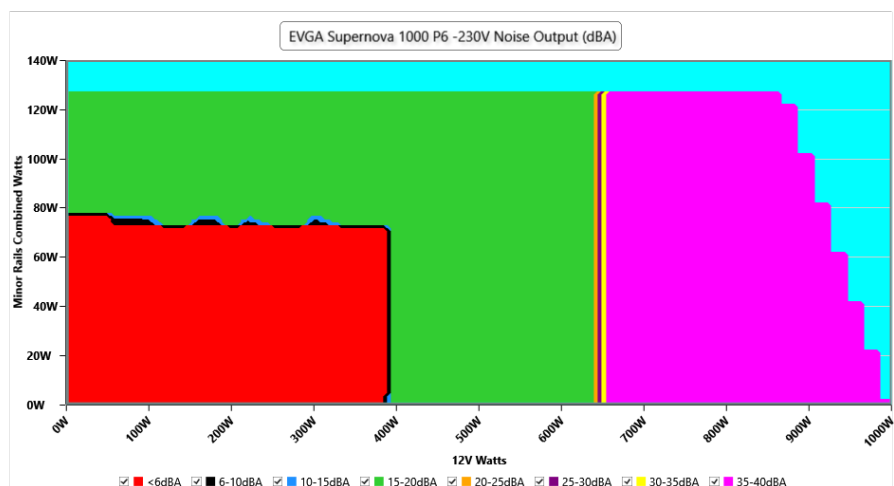
EFFICIENCY GRAPH 230V



INFO

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NOISE GRAPH 230V



INFO

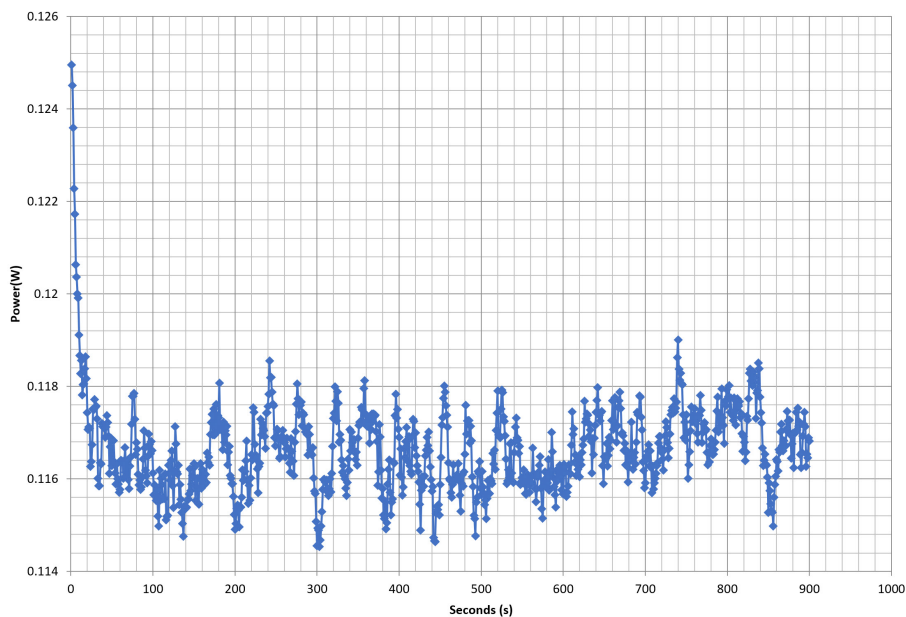
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10-110% LOAD TESTS 230V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
10%	6.443A	2A	1.999A	0.982A	99.975	87.401%	684	17.9	40.28°C	0.821
	12.165V	5.001V	3.301V	5.091V	114.387				45.45°C	230.3V
20%	13.896A	3.001A	3.001A	1.181A	199.912	91.352%	682	17.8	40.79°C	0.912
	12.163V	4.999V	3.299V	5.079V	218.836				46.32°C	230.3V
30%	21.725A	3.502A	3.503A	1.381A	299.956	93.056%	681	17.8	41.32°C	0.937
	12.147V	4.997V	3.297V	5.068V	322.34				47.48°C	230.3V
40%	29.492A	4.005A	4.006A	1.582A	399.38	93.554%	679	16.8	41.64°C	0.951
	12.145V	4.994V	3.294V	5.058V	426.897				48.32°C	230.3V
50%	36.937A	5.009A	5.012A	1.784A	499.12	93.297%	1506	41.6	42.01°C	0.957
	12.146V	4.991V	3.292V	5.045V	534.98				49.17°C	230.3V
60%	44.448A	6.015A	6.02A	1.987A	599.666	93.146%	1505	41.6	42.99°C	0.962
	12.146V	4.988V	3.289V	5.033V	643.793				50.87°C	230.3V
70%	51.876A	7.022A	7.029A	2.19A	699.385	92.854%	1505	41.6	43.25°C	0.968
	12.150V	4.985V	3.286V	5.02V	753.207				51.54°C	230.31V
80%	59.374A	8.002A	8.036A	2.293A	799.28	92.436%	1859	47.2	43.6°C	0.971
	12.152V	4.983V	3.284V	5.012V	864.687				52.42°C	230.31V
90%	67.191A	8.531A	8.53A	2.397A	899.186	92.083%	1858	47.2	44.72°C	0.973
	12.156V	4.981V	3.281V	5.003V	976.498				53.86°C	230.31V
100%	74.806A	9.038A	9.053A	3.01A	999.192	91.643%	1862	47.3	45.89°C	0.975
	12.159V	4.978V	3.279V	4.982V	1090.306				55.45°C	230.31V
110%	82.312A	10.048A	10.159A	3.014A	1099.813	91.132%	1861	47.3	46.66°C	0.976
	12.168V	4.975V	3.277V	4.975V	1206.83				56.58°C	230.32V
CL1	0.113A	15.078A	15.077A	0A	126.273	83.653%	1512	42.0	42.88°C	0.869
	12.188V	4.994V	3.289V	5.102V	150.948				49.03°C	230.33V
CL2	0.113A	25.011A	0A	0A	126.38	81.689%	1843	47.2	43.01°C	0.872
	12.174V	4.998V	3.294V	5.106V	154.708				50.48°C	230.33V
CL3	0.113A	0A	25.065A	0A	83.866	75.779%	1843	47.2	44.48°C	0.813
	12.166V	4.995V	3.291V	5.103V	110.671				52.63°C	230.33V
CL4	82.262A	0A	0A	0.001A	999.89	92.271%	1864	47.3	45.2°C	0.974
	12.155V	4.987V	3.289V	5.061V	1083.649				54.58°C	230.32V

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Anex

EVGA SuperNOVA 1000 P6

20-80W 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
20W	1.226A	0.499A	0.499A	0.195A	19.985	76.644%	0	<6.0	39.63°C	0.418
	12.103V	5.005V	3.306V	5.115V	26.075				37.44°C	230.3V
40W	2.699A	0.699A	0.699A	0.293A	39.986	83.479%	0	<6.0	40.43°C	0.587
	12.109V	5.004V	3.305V	5.112V	47.899				37.51°C	230.29V
60W	4.153A	0.899A	0.899A	0.391A	59.986	84.175%	0	<6.0	41.35°C	0.699
	12.164V	5.003V	3.304V	5.108V	71.263				37.9°C	230.29V
80W	5.614A	1.1A	1.099A	0.489A	79.924	86.791%	0	<6.0	42.57°C	0.767
	12.166V	5.001V	3.303V	5.105V	92.088				38.51°C	230.29V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	5.42mV	5.54mV	5.56mV	9.01mV	Pass
20% Load	8.51mV	4.93mV	6.02mV	8.96mV	Pass
30% Load	8.48mV	5.33mV	6.22mV	9.41mV	Pass
40% Load	6.71mV	5.79mV	6.57mV	10.63mV	Pass
50% Load	7.14mV	7.42mV	7.58mV	13.97mV	Pass
60% Load	8.05mV	8.08mV	8.29mV	12.09mV	Pass
70% Load	7.60mV	8.39mV	8.29mV	15.89mV	Pass
80% Load	8.35mV	8.74mV	10.36mV	17.76mV	Pass
90% Load	8.46mV	11.54mV	12.94mV	12.40mV	Pass
100% Load	13.12mV	13.92mV	15.03mV	14.04mV	Pass
110% Load	13.46mV	15.72mV	15.79mV	14.78mV	Pass
Crossload1	5.73mV	6.70mV	9.62mV	9.56mV	Pass
Crossload2	5.26mV	7.01mV	5.96mV	8.40mV	Pass
Crossload3	5.72mV	4.27mV	10.26mV	8.45mV	Pass
Crossload4	12.92mV	13.10mV	13.90mV	14.19mV	Pass

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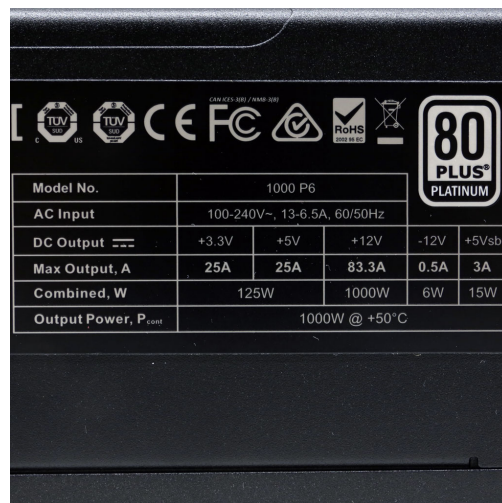
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Anex

EVGA SuperNOVA 1000 P6



Top side

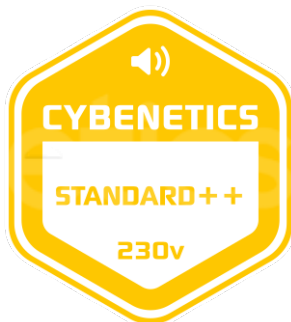


Power specifications label

CERTIFICATIONS 115V



CERTIFICATIONS 230V



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