EVGA

EVGA SuperNOVA 1000 G3

Serial Number 1703441015899001

Lab ID 214

Certification ID 25214

Test Result Report ID:

Certificate Issue Date: Nov 13, 2018

115V

Scheme: ETA-EMI PSU



115V



Scheme: LAMBDA PSU



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	EVGA
Model	SuperNOVA 1000 G3
OEM/ODM	Super Flower
Serial Number	1703441015899001
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15
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	130mm Hydraulic Dynamic Bearing Fan (ED142512W-CA)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	214
Date of receipt	Nov 2, 2018
Testing Date	Nov 11, 2018
Report Issued Date	Nov 13, 2018
DUT Notes	Retested on 11/14/17
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 (600mm)	1	1	18-22AWG	Yes
4+4 pin EPS12V (700mm)	2	2	18-22AWG	Yes
6+2 pin PCIe (700mm)	2	2	18-20AWG	Yes
6+2 pin PCIe (700mm+150mm)	3	6	18-20AWG	Yes
SATA (550mm+100mm+100mm)	3	12	18-20AWG	No
4 pin Molex (550mm+100mm+100mm+100mm)	1	4	18AWG	No
FDD Adapter (+100mm)	1	1	20AWG	No

AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	No

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	24	24	83.3	3	0.5
	Watts	120		999.6	15	6
Total Max. Power (W)		1000				

Parts Description

General Data	
Manufacturer (OEM)	CWT
Platform Model	-
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Diode
Bridge Rectifier(s)	2x GBU1006 (600V, 10A @ 100°C)
APFC MOSFETS	2x Infineon IPW50R280CE (550V, 11.4A @ 100°C, 0.28Ohm)
APFC Boost Diode	1x Power Integrations QH08TZ600 (600V, 8A @ 150°C)
Hold-up Cap(s)	1x Nichicon (400V, 390uF, 2000h @ 105 °C, GG)
Main Switchers	2x Vishay SiHG20N50C (560V, 11A @ 100°C, 0.27Ohm)
Combo APFC/PWM Controller	Champion CM6800TX & CM03X Green PFC controller
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x APEC AP9990GH-HF (60V, 100A @ 25°C, 6mOhm)
5V & 3.3V	DC-DC Converters: 6x APEC AP72T03GP (30V, 47A @ 100°C, 9.5mOhm) PWM Controller: APW7159C
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (1-5,000 @ 105°C, KZE), Suscon (2-5,000h @ 105°C, MF), TAICON (105°C) Polymers: APAQ, EneSol
Supervisor IC	Weltrend WT7502 (OVP, UVP, SCP, PG)
Fan Model	Power Logic PLA13525S12M (12V, 0.40A, 111.1CFM, 41.6 dBA, Hydro Dynamic Bearing)

5VSB Circuit	
Rectifier	1x MBR2045CT SBR (45V, 20A) & CEF04N7G (700V, 4A, 3.3Ohm)
Standby PWM Controller	On-Bright OB5269CP
-12V Circuit	
Rectifier	UTC 2SB834L

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	ErP Lot 3/6 2010: ✓ ErP Lot 3/6 2013: Partially ErP Lot 3/6 2014, CEC: Partially
(EU) No 617/2013 Compliance	✓

Performance Summary 115V

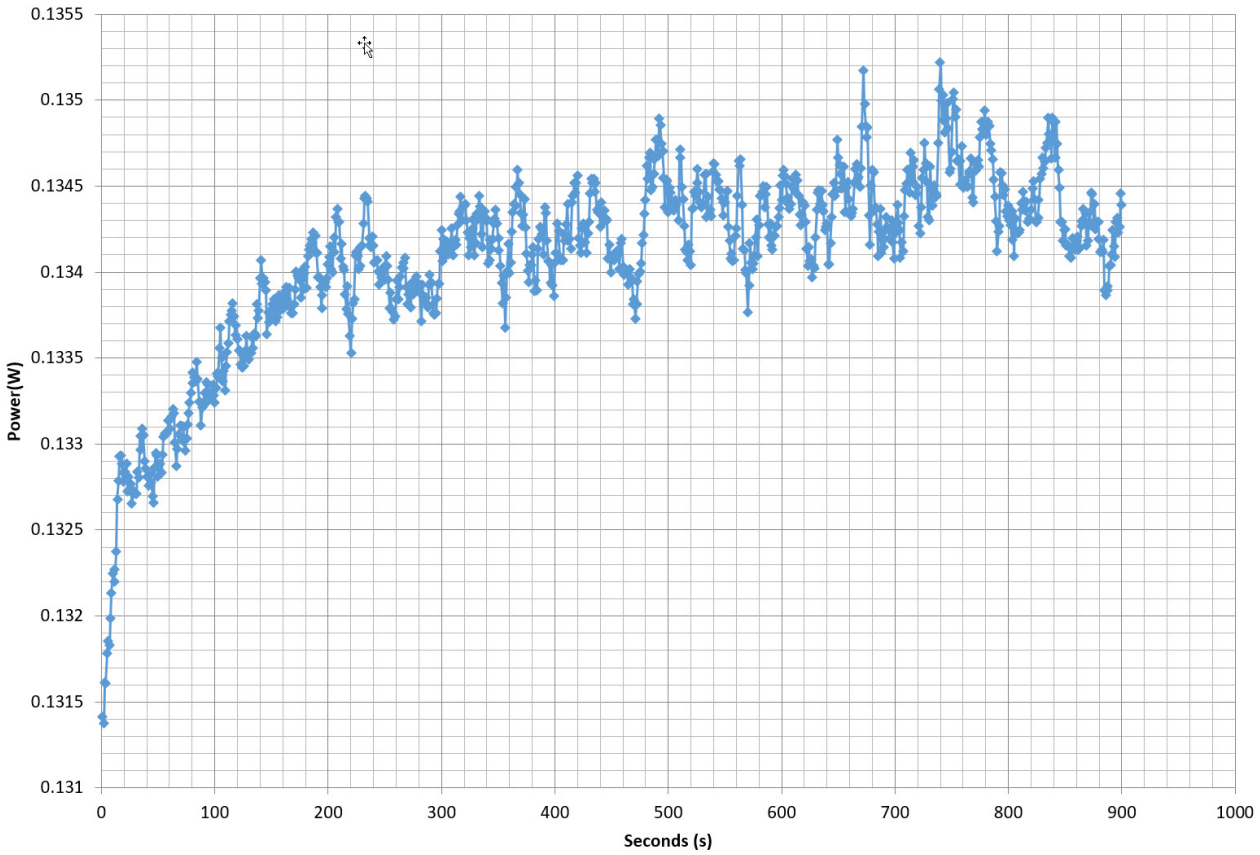
Accredited	
Average Efficiency (>1450 load combinations)	89.652%
Average Noise Output (>1450 Load Combinations)	33.81dBA
Average PF (>1450 Load Combinations)	0.987
Efficiency With 10W (≤500W) or 2% (>500W) Load	73.258%
Standby Power Consumption	0.1344W
Non-Accredited	
12V Ripple (Full Load)	11.85mV
5V Ripple (Full Load)	6.68mV
3.3V Ripple (Full Load)	9.18mV
5VSB Ripple (Full Load)	25.31mV
12V Load Regulation	0.16%
5V Load Regulation	0.10%
3.3V Load Regulation	0.15%
5VSB Load Regulation	1.85%

Inrush Current	42.862A

Hold-Up Time & PWR_OK Signal

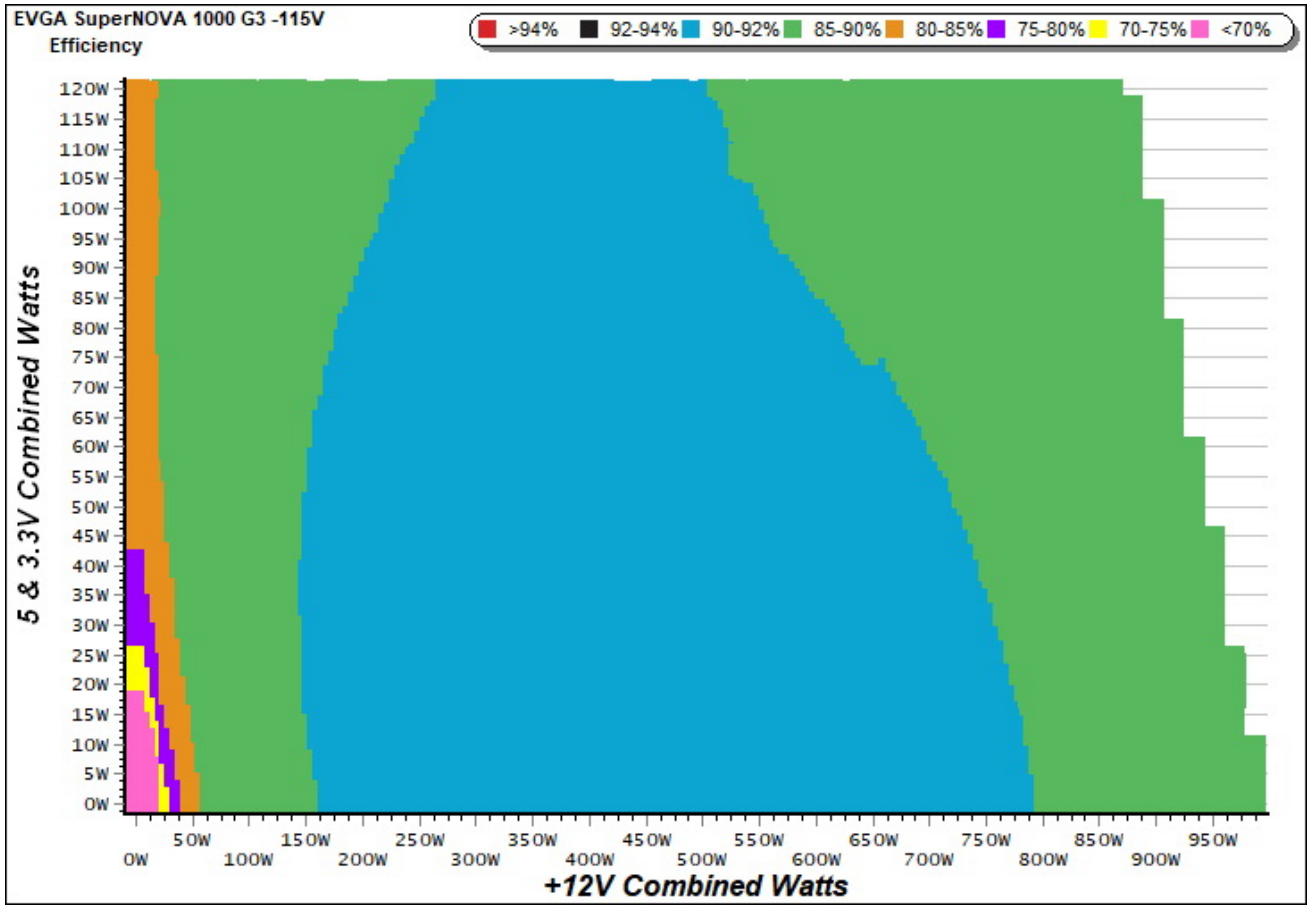
Hold-Up Time (ms)	22.52
AC Loss to PWR_OK Hold Up Time (ms)	20.90
PWR_OK Inactive to DC Loss Delay (ms)	1.62

Graphs 115V


Power - 1703441015899001 - 09/11/2017 - 14:14
Power(W)
0.1355
0.135
0.1345
0.134
0.1335
0.133
0.1325
0.132
0.1315
0.131
0
100
200
300
400
500
600
700
800
900
1000
Seconds (s)

Efficiency Graph

115V

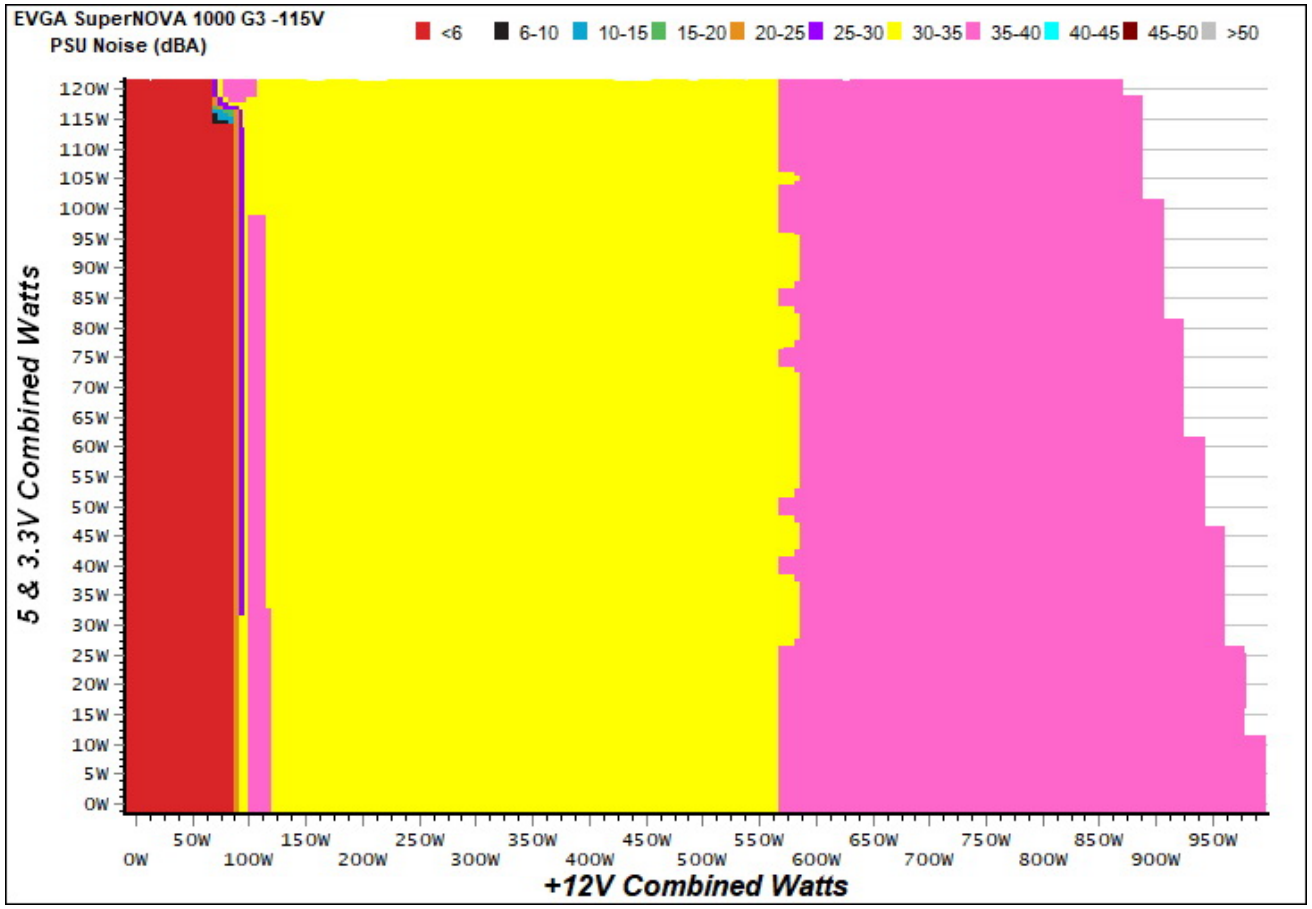


INFO

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

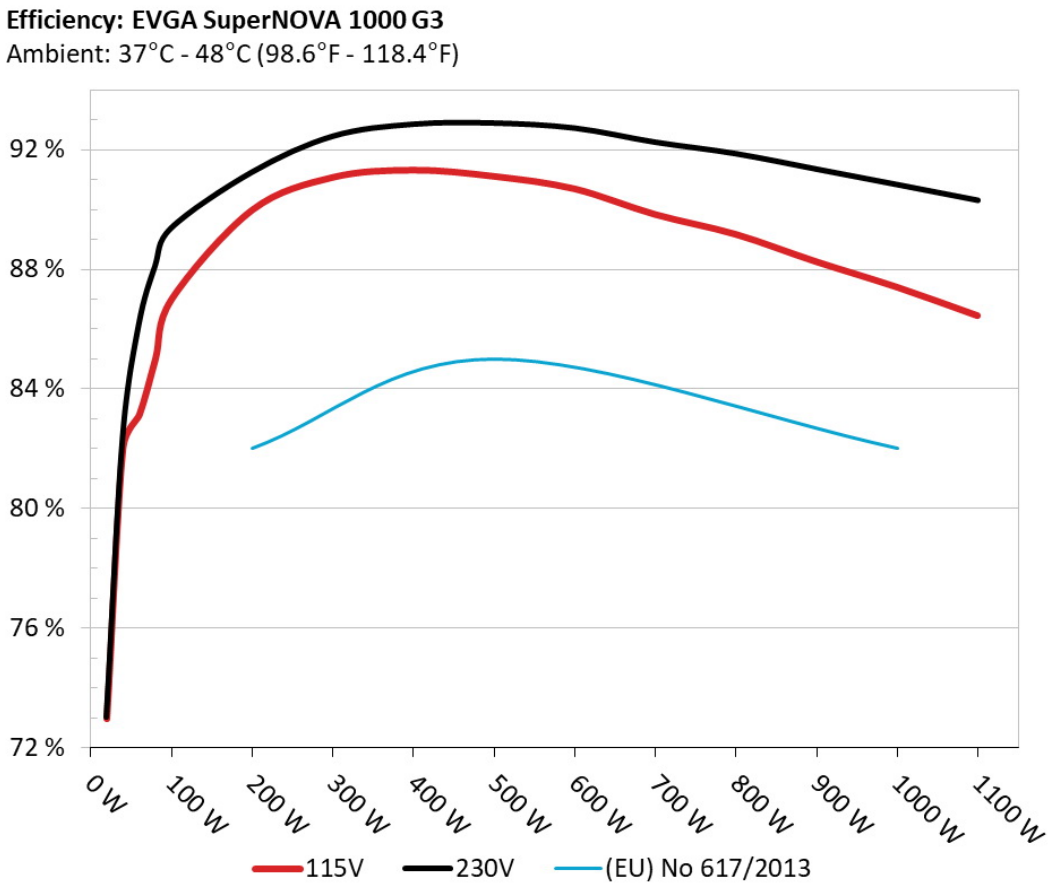


INFO

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.

Indicative Performance

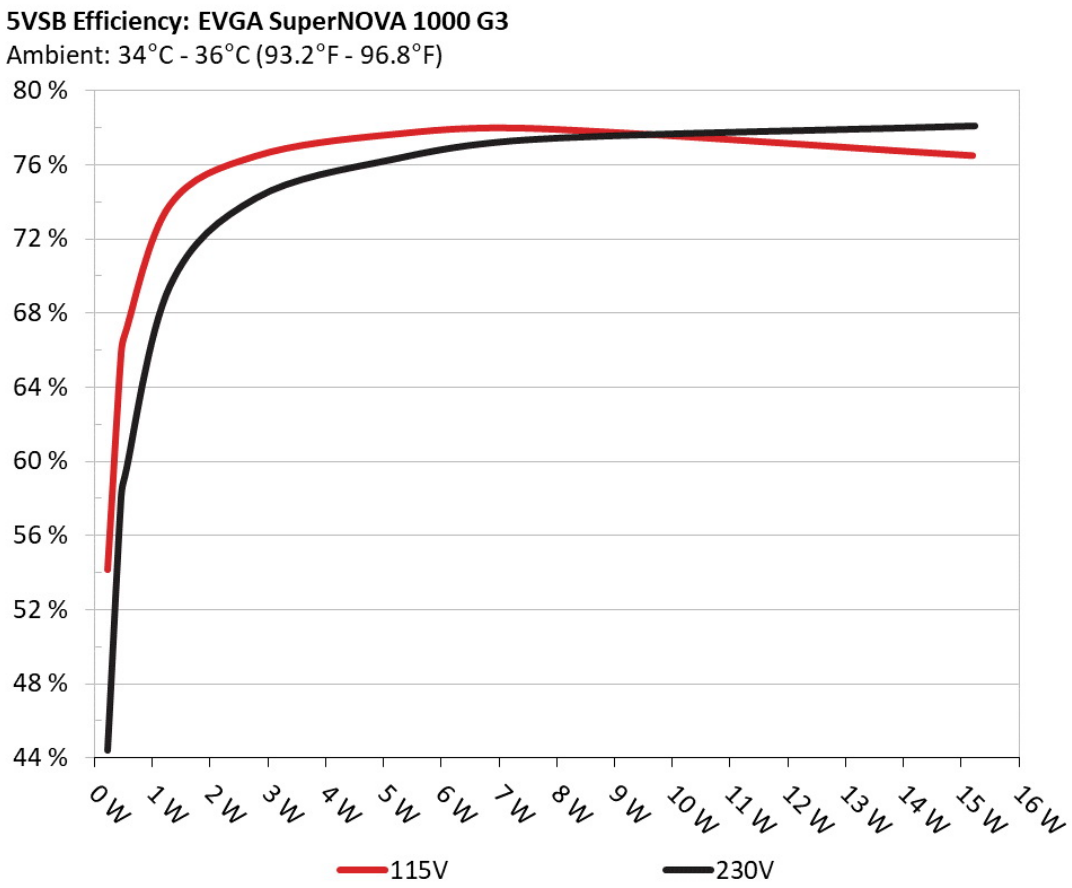
Efficiency under high ambient temperature



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.

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.215	54.156%	0.031
	5.143V	0.397		115.09V

2	0.087A	0.449	65.836%	0.052
	5.142V	0.682		115.09V
3	0.542A	2.781	76.443%	0.233
	5.131V	3.638		115.08V
4	1.002A	5.132	77.605%	0.336
	5.121V	6.613		115.08V
5	1.502A	7.675	77.919%	0.397
	5.110V	9.850		115.08V
6	3.002A	15.206	76.466%	0.478
	5.066V	19.886		115.08V

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	6.457A	1.994A	1.991A	0.976A	99.840	87.002%	1565	36.8	38.05°C	0.974
	12.121V	5.008V	3.310V	5.120V	114.756				43.05°C	115.04V
2	13.933A	2.989A	2.987A	1.171A	199.683	89.988%	1592	37.2	38.35°C	0.978
	12.118V	5.009V	3.310V	5.111V	221.899				43.72°C	115.04V
3	21.778A	3.497A	3.499A	1.371A	299.956	91.085%	1615	37.5	38.75°C	0.987
	12.116V	5.009V	3.310V	5.103V	329.315				44.52°C	115.07V
4	29.599A	3.995A	3.983A	1.567A	399.738	91.327%	1653	38.1	39.12°C	0.992
	12.114V	5.008V	3.310V	5.096V	437.699				45.03°C	115.05V
5	37.075A	4.986A	4.981A	1.766A	499.690	91.119%	1698	38.9	40.06°C	0.994
	12.117V	5.009V	3.310V	5.090V	548.395				46.17°C	115.06V
6	44.545A	5.985A	5.977A	1.966A	599.615	90.700%	1750	39.3	40.58°C	0.995
	12.119V	5.010V	3.312V	5.083V	661.098				47.27°C	115.07V
7	52.021A	6.990A	6.972A	2.165A	699.644	89.844%	1850	41.7	42.16°C	0.995
	12.121V	5.010V	3.312V	5.075V	778.733				49.29°C	115.07V
8	59.486A	7.981A	7.963A	2.365A	799.515	89.181%	1924	43.2	43.76°C	0.995
	12.123V	5.012V	3.313V	5.067V	896.512				50.94°C	115.08V

9	67.379A	8.482A	8.482A	2.368A	899.502	88.264%	2007	44.5	44.90°C	0.996
	12.124V	5.012V	3.313V	5.062V	1019.102				52.29°C	115.09V
10	75.026A	8.988A	8.964A	2.970A	999.392	87.415%	2096	45.3	46.37°C	0.996
	12.125V	5.010V	3.312V	5.045V	1143.269				54.23°C	115.09V
11	83.267A	8.988A	8.971A	2.972A	1099.312	86.461%	2124	45.5	47.73°C	0.996
	12.125V	5.009V	3.310V	5.042V	1271.453				56.90°C	115.05V
CL1	0.100A	14.025A	14.006A	0.005A	118.927	82.902%	1890	42.6	43.32°C	0.969
	12.105V	5.046V	3.350V	5.141V	143.455				47.82°C	115.09V
CL2	83.264A	1.002A	1.002A	1.002A	1023.383	87.714%	2045	44.7	46.07°C	0.996
	12.130V	4.984V	3.288V	5.092V	1166.729				53.15°C	115.09V

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	1.198A	0.489A	0.481A	0.197A	19.653	73.258%	0	<6.0	0.745
	12.191V	5.017V	3.310V	5.083V	26.827				115.04V
2	2.421A	0.988A	0.996A	0.391A	39.745	82.438%	0	<6.0	0.866
	12.187V	5.017V	3.310V	5.078V	48.212				115.04V
3	3.648A	1.485A	1.510A	0.592A	59.903	83.524%	0	<6.0	0.924
	12.184V	5.018V	3.312V	5.073V	71.719				115.05V
4	4.854A	1.994A	1.989A	0.785A	79.767	85.020%	1760	39.6	0.945
	12.195V	5.018V	3.312V	5.069V	93.821				115.05V

The results above are not used in the certification process

Ripple Measurements 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	5.3 mV	3.6 mV	7.9 mV	8.4 mV	Pass
20% Load	6.6 mV	4.3 mV	4.7 mV	10.3 mV	Pass
30% Load	7.4 mV	4.3 mV	5.1 mV	12.2 mV	Pass
40% Load	8.0 mV	4.7 mV	5.5 mV	13.0 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	8.1 mV	4.3 mV	5.9 mV	14.4 mV	Pass
60% Load	8.3 mV	4.3 mV	6.5 mV	15.8 mV	Pass
70% Load	9.2 mV	5.1 mV	7.1 mV	18.9 mV	Pass
80% Load	10.2 mV	5.8 mV	7.6 mV	20.3 mV	Pass
90% Load	10.7 mV	5.7 mV	8.5 mV	22.1 mV	Pass
100% Load	11.9 mV	6.7 mV	9.2 mV	25.3 mV	Pass
110% Load	12.8 mV	8.3 mV	9.9 mV	28.3 mV	Pass
Crossload 1	5.9 mV	3.6 mV	4.6 mV	18.9 mV	Pass
Crossload 2	10.3 mV	5.7 mV	8.3 mV	22.5 mV	Pass

The results above are not used in the certification process

EVGA SuperNOVA 1000 G3



Top side



Power specifications label