Anex

EVGA SuperNOVA 850 G3

Lab ID#: 57
Receipt Date: -
Test Date: -

Report: 19PS57A
Report Date: Apr 3, 2018

DUT INFORMATION

Brand	EVGA
Manufacturer (OEM)	Super Flower
Series	SuperNOVA G3
Model Number	SuperNOVA 850 G3
Serial Number	1603440815899001
DUT Notes	Retested on 4/9/17

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10
Rated Frequency (Hz)	50-60
Rated Power (W)	850
Type	ATX12V
Cooling	130mm Hydraulic Dynamic Bearing Fan (H1282412H)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	24	24	70.8	3	0.5
	Watts	120		849.6	15	6
Total Max. Power (W)		850				

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (600mm)	1	1	18-22AWG
4+4 pin EPS12V (700mm)	2	2	18AWG
6+2 pin PCIe (700mm+150mm)	2	4	18AWG
6+2 pin PCIe (700mm)	2	2	18AWG
SATA (550mm+100mm+100mm)	3	9	18AWG
4 pin Molex (550mm+100mm+100mm+100mm)	1	4	18AWG
FDD Adapter (+100mm)	1	1	20AWG

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General Data	
Manufacturer (OEM)	Super Flower
Platform Model	Leadex II
Primary Side	
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Diode
Bridge Rectifier(s)	1x
APFC MOSFETS	2x Infineon IPA50R140CP (550V, 15A @ 100°C, 0.14Ohm)
APFC Boost Diode	1x CREE C3D08060A (600V, 8A @ 152°C)
Hold-up Cap(s)	1x Nippon Chemi-Con (400V, 680uF, 2000h @ 105°C, KMR)
Main Switchers	2x Infineon IPA50R140CP (550V, 15A @ 100°C, 0.14Ohm)
APFC Controller	SF29603
PWM Controller	SF201T
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x InfineonÂ IPP023N04N G (40V, 90A @ 100°C, 2.3mOhm)
5V & 3.3V	DC-DC Converters: 8x Infineon BSC0906NS (30V, 40A @ 100°C, 4.5mOhm) PWM Controller: no info
Filtering Capacitors	Electrolytics: Chemi-Con (1-5,000 @ 105°C, KZE), Chemi-Con (4-10,000 @ 105°C, KY), Chemi-Con (105°C, W), Chemi-Con (1,000 @ 105°C, KRG) Polymers: Chemi-Con
Supervisor IC	SF201T (probably) & LM324ADG & LM339A
Fan Model	EVGA H1282412HÂ (12V, 0.35A, 2170 RPM, Hydro Dynamic Bearing)
5VSB Circuit	
Rectifier	Mospec S10C60C
Standby PWM Controller	29604

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RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	89.416
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	0.000
Average Efficiency 5VSB	76.367
Standby Power Consumption (W) -115V	0.1446130
Standby Power Consumption (W) -230V	0.2437680
Average PF	0.986
ErP Lot 3/6 Ready	ErP Lot 6 2010: ✓ ErP Lot 6 2013: Partially ErP Lot 3 2014: ✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	33.81
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	Standard++

TEST EQUIPMENT		
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, Chroma 61604	
Power Analyzers	N4L PPA1530, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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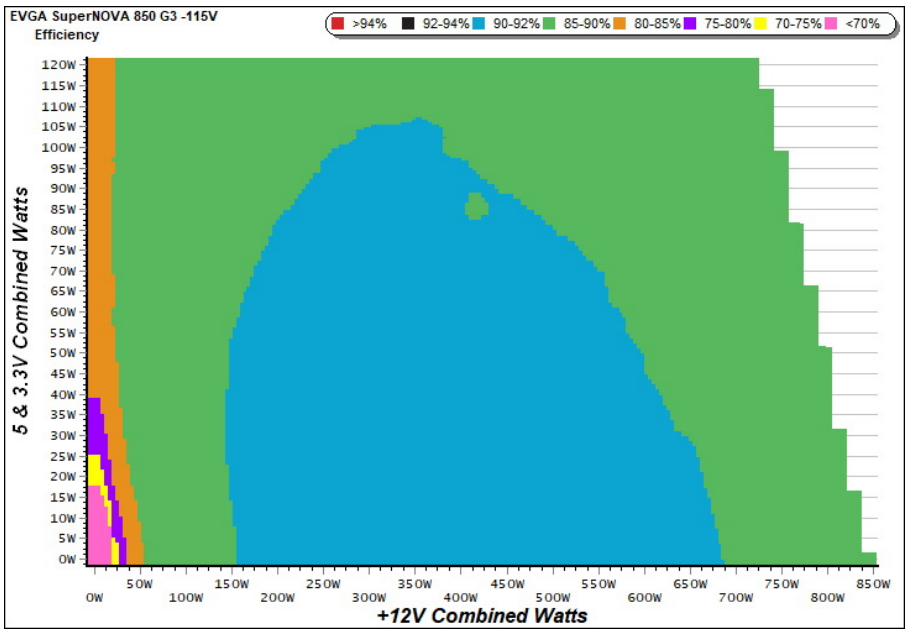
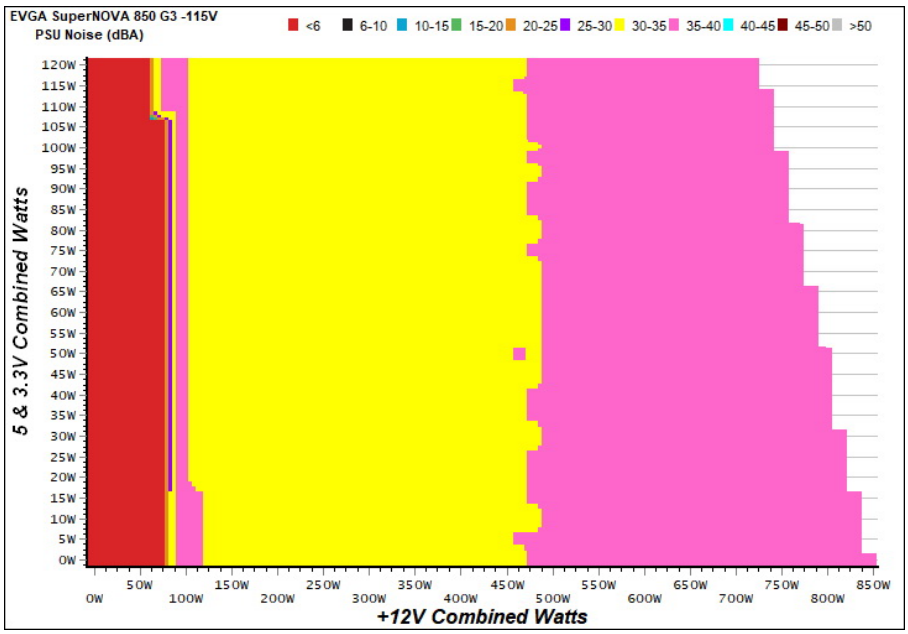
EFFICIENCY GRAPH



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



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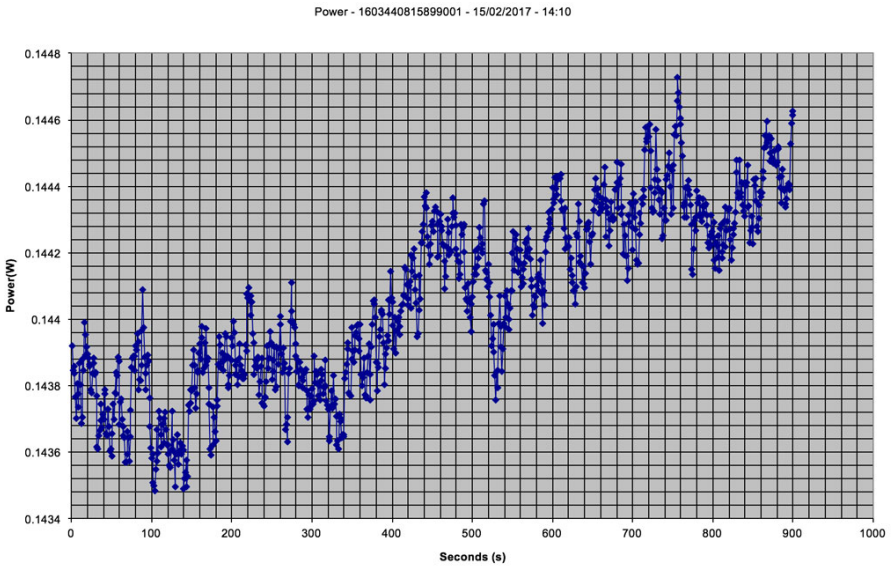
5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.214	52.195%	0.030
	5.102V	0.410		114.98V
2	0.087A	0.444	64.348%	0.051
	5.101V	0.690		114.98V
3	0.532A	2.708	76.003%	0.222
	5.090V	3.563		114.97V
4	3.002A	15.085	76.302%	0.478
	5.025V	19.770		114.97V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.214	41.879%	0.011
	5.102V	0.511		230.05V
2	0.088A	0.449	56.336%	0.018
	5.101V	0.797		230.06V
3	0.542A	2.759	73.573%	0.081
	5.090V	3.750		230.05V
4	3.002A	15.109	77.474%	0.298
	5.033V	19.502		230.04V

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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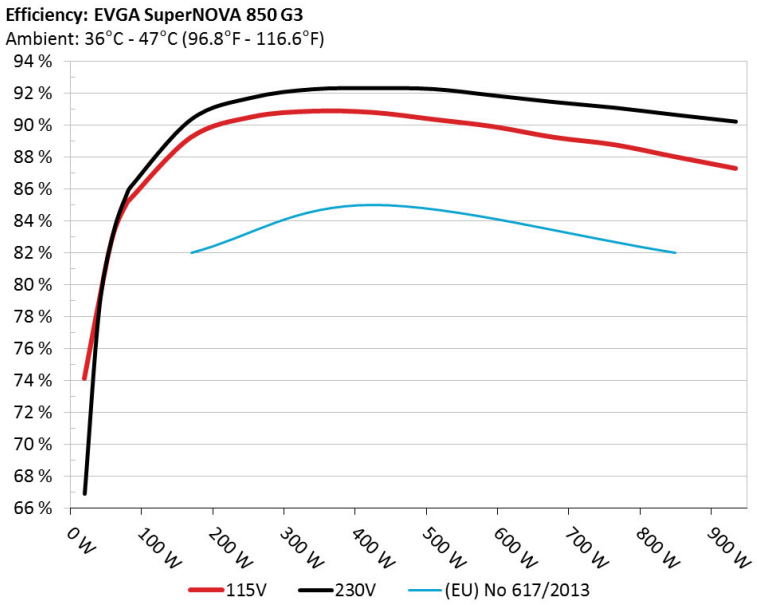
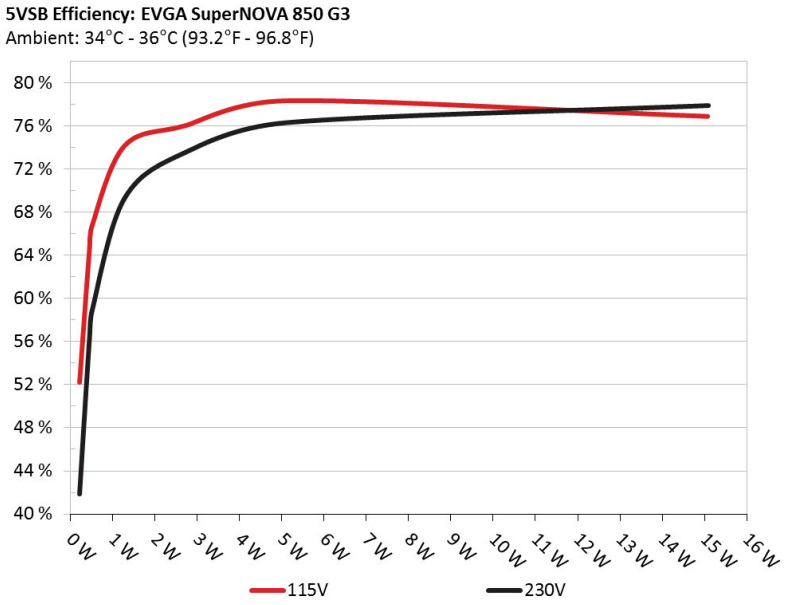
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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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10-110% LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	5.234A	2.004A	1.990A	0.984A	84.791	85.408%	1592	37.2	38.51°C	0.953
	12.074V	4.991V	3.316V	5.075V	99.278				40.37°C	115.08V
2	11.503A	3.000A	2.986A	1.179A	169.639	89.250%	1653	38.1	39.86°C	0.976
	12.066V	4.990V	3.315V	5.068V	190.072				42.21°C	115.07V
3	18.144A	3.508A	3.498A	1.380A	254.875	90.525%	1688	38.7	40.53°C	0.985
	12.059V	4.989V	3.314V	5.060V	281.553				43.47°C	115.12V
4	24.774A	4.009A	3.980A	1.581A	339.724	90.885%	1750	39.3	41.19°C	0.990
	12.051V	4.988V	3.313V	5.054V	373.794				44.67°C	115.22V
5	31.062A	5.009A	4.977A	1.780A	424.622	90.807%	1790	40.4	42.06°C	0.992
	12.046V	4.988V	3.312V	5.045V	467.607				46.14°C	115.24V
6	37.354A	6.015A	5.976A	1.981A	509.630	90.372%	1835	41.7	42.51°C	0.994
	12.043V	4.988V	3.312V	5.038V	563.924				47.30°C	115.09V
7	43.638A	7.016A	6.975A	2.185A	594.558	89.913%	1890	42.6	43.39°C	0.995
	12.042V	4.986V	3.311V	5.031V	661.260				48.68°C	115.12V
8	49.934A	8.024A	7.975A	2.386A	679.546	89.242%	1910	42.8	43.77°C	0.996
	12.039V	4.986V	3.310V	5.023V	761.462				50.00°C	115.09V
9	56.665A	8.523A	8.491A	2.390A	764.610	88.777%	1981	44.0	44.67°C	0.996
	12.036V	4.985V	3.310V	5.020V	861.275				51.64°C	115.11V
10	63.133A	9.035A	8.976A	2.997A	849.382	88.024%	2045	44.7	45.55°C	0.996
	12.033V	4.983V	3.308V	5.001V	964.944				53.48°C	115.18V
11	70.211A	9.042A	8.983A	3.000A	934.374	87.293%	2124	45.5	46.67°C	0.996
	12.030V	4.981V	3.307V	4.997V	1070.390				55.29°C	115.09V
CL1	0.099A	14.024A	14.005A	0.003A	118.149	82.328%	1981	44.0	44.16°C	0.974
	12.064V	5.012V	3.331V	5.092V	143.510				48.03°C	115.09V
CL2	70.794A	1.002A	1.003A	1.001A	864.929	88.437%	2019	44.6	46.23°C	0.996
	12.029V	4.968V	3.299V	5.055V	978.020				53.70°C	115.11V

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20-80W LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.210A	0.501A	0.478A	0.197A	19.687	74.106%	0	<6.0	0.743
	12.065V	4.989V	3.315V	5.095V	26.566				115.07V
2	2.445A	1.000A	0.996A	0.390A	39.788	78.830%	1615	37.5	0.875
	12.070V	4.989V	3.315V	5.092V	50.473				115.07V
3	3.678A	1.496A	1.507A	0.586A	59.863	83.104%	1542	37.5	0.924
	12.077V	4.991V	3.316V	5.086V	72.034				115.07V
4	4.901A	2.004A	1.990A	0.786A	79.768	85.165%	1565	36.8	0.947
	12.074V	4.991V	3.316V	5.080V	93.663				115.08V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.6 mV	3.0 mV	4.2 mV	8.0 mV	Pass
20% Load	7.4 mV	3.5 mV	4.3 mV	7.7 mV	Pass
30% Load	8.6 mV	3.5 mV	4.4 mV	10.6 mV	Pass
40% Load	8.5 mV	4.6 mV	4.7 mV	10.8 mV	Pass
50% Load	9.0 mV	3.8 mV	5.1 mV	10.6 mV	Pass
60% Load	9.2 mV	4.3 mV	5.4 mV	10.7 mV	Pass
70% Load	9.7 mV	4.4 mV	6.1 mV	12.0 mV	Pass
80% Load	10.3 mV	4.5 mV	6.6 mV	10.2 mV	Pass
90% Load	10.6 mV	4.8 mV	7.1 mV	11.7 mV	Pass
100% Load	12.5 mV	6.0 mV	7.6 mV	11.8 mV	Pass
110% Load	13.0 mV	6.1 mV	8.2 mV	14.4 mV	Pass
Crossload 1	7.4 mV	4.3 mV	4.5 mV	20.5 mV	Pass
Crossload 2	11.2 mV	5.6 mV	7.3 mV	11.9 mV	Pass

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HOLD-UP TIME & POWER OK SIGNAL (230V)	
Hold-Up Time (ms)	16.84
AC Loss to PWR_OK Hold Up Time (ms)	16.1
PWR_OK Inactive to DC Loss Delay (ms)	0.74

Top side

Labels on the unit`s bottom side

CERTIFICATIONS