

Lab ID#: 146
Receipt Date: Jul 18, 2018
Test Date: Jul 22, 2018

Report:

Report Date: Jul 25, 2018

DUT INFORMATION

Brand	EVGA
Manufacturer (OEM)	Super Flower
Series	B3
Model Number	
Serial Number	1703460605800323
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10
Rated Frequency (Hz)	50-60
Rated Power (W)	650
Type	ATX12V
Cooling	130mm Sleeve Bearing Fan (S1282412H)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	54.1	3	0.5
	Watts	110		649.2	15	6
Total Max. Power (W)		650				

CABLES AND CONNECTORS

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 (600mm)	1	1	18-22AWG	Yes
6+2 pin PCIe (550mm+150mm)	1	2	18-22AWG	Yes
6+2 pin PCIe (550mm)	1	1	18-22AWG	Yes
SATA (500mm+100mm+100mm)	2	6	18-20AWG	No
4 pin Molex (500mm+100mm+100mm)	1	3	18AWG	No
FDD Adapter (+105mm)	1	1	24AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

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General Data	
Manufacturer (OEM)	RSY / Super Flower
Platform Model	Leadex Bronze
Primary Side	
Transient Filter	5x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor
Bridge Rectifier(s)	GBU1506 (600V, 15A @ 100°C)
APFC MOSFETS	2x AOTF22N50 (500V, 15A @ 100°C, 0.26Ohm)
APFC Boost Diode	1x STTH8R06D (600V, 8A @ 100°C)
Hold-up Cap(s)	1x Nippon Chemi-Con (400V, 470uF, 95°C, CE)
Main Switchers	2x AOTF22N50 (500V, 15A @ 100°C, 0.26Ohm)
APFC Controller	SF29603 & S9602 & ICE3PCS02G
Resonant Controller	SF29605
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x A&O AOT240L (40V, 82A @ 100°C, 4.7mOhm @ 125°C)
5V & 3.3V	DC-DC Converters: 4x A&O AON6516 (30V, 25A @ 100°C, 8mOhm) PWM Controller: 2x On Semiconductor NCP1587A
Filtering Capacitors	Electrolytics: Teapo (3000-6000h @ 105°C, SY) Polymers: Teapo
Supervisor IC	SF29605 & LM339A
Fan Model	S1282412H (120mm, 12V, 0.35A, Sleeve Bearing)
5VSB Circuit	
Rectifier	Mospec S10C60C
Standby PWM Controller	29604

RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	ErP Lot 3/6 2010: ✓ ErP Lot 3/6 2013: ✓ ErP Lot 3/6 2014, CEC: Partially
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	86.113%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	76.632%
Standby Power Consumption (W)	0.1277560
Average PF	0.990
Avg Noise Output	31.98 dB(A)
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	S++

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 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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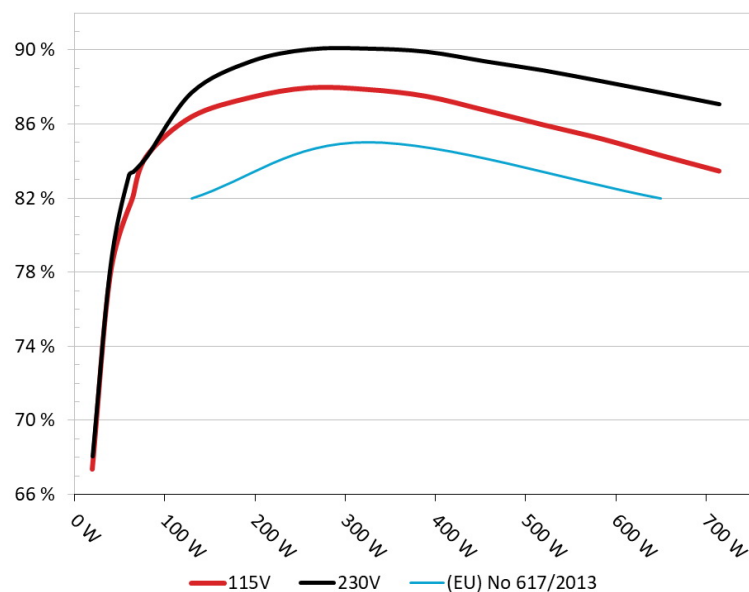
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: EVGA 650 B3

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



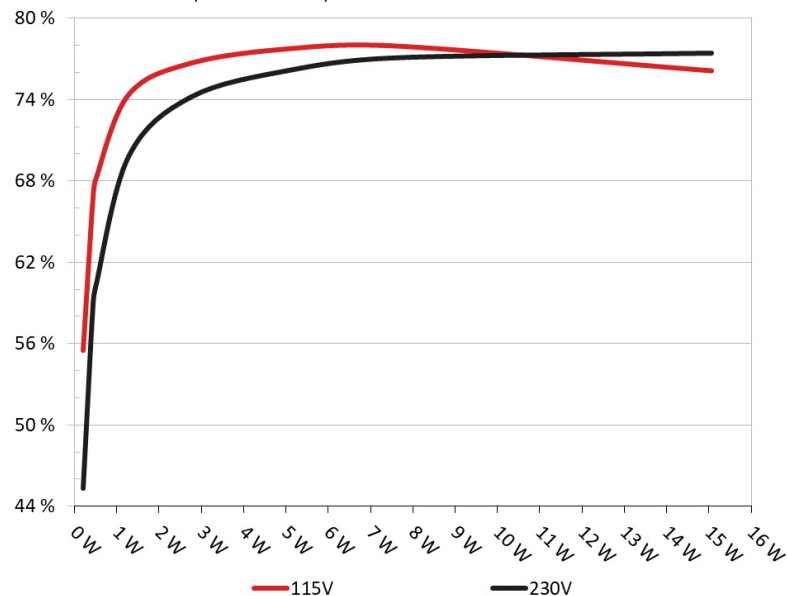
INFO

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 650 B3

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	0.041A	0.212	55.497%	0.041
	5.135V	0.382		115.19V
2	0.087A	0.445	66.817%	0.071
	5.133V	0.666		115.19V
3	0.542A	2.770	76.689%	0.271
	5.115V	3.612		115.17V
4	1.002A	5.106	77.752%	0.349
	5.098V	6.567		115.17V
5	1.501A	7.624	77.939%	0.391
	5.079V	9.782		115.18V
6	3.001A	15.053	76.114%	0.447
	5.016V	19.777		115.18V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.041A	0.212	45.299%	0.015
	5.134V	0.468		230.45V
2	0.087A	0.445	58.862%	0.025
	5.132V	0.756		230.46V
3	0.542A	2.770	74.203%	0.113
	5.115V	3.733		230.44V
4	1.001A	5.105	76.171%	0.183
	5.098V	6.702		230.45V
5	1.501A	7.624	77.088%	0.236
	5.079V	9.890		230.45V
6	3.001A	15.069	77.428%	0.324
	5.021V	19.462		230.45V

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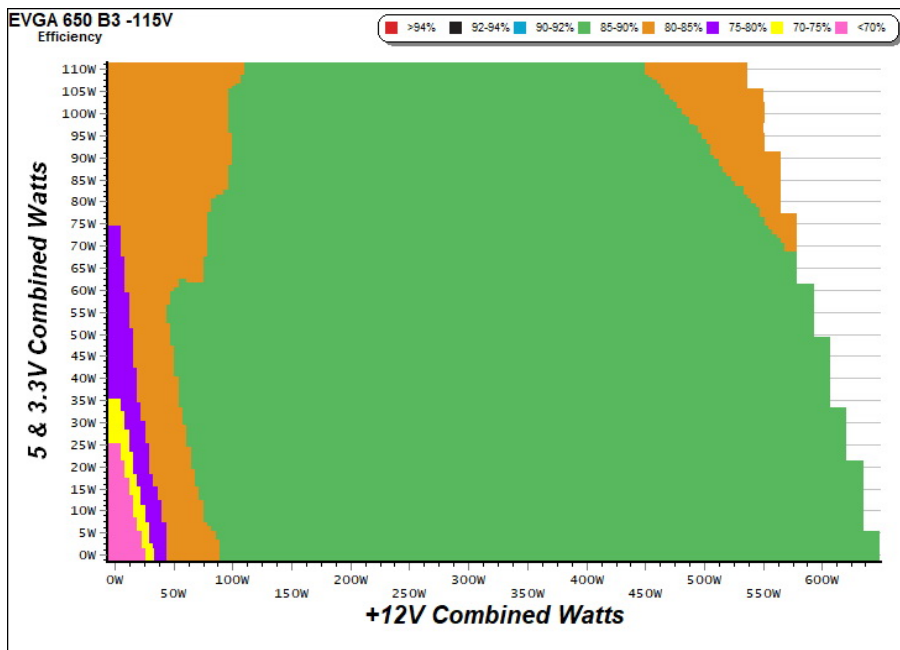
115V

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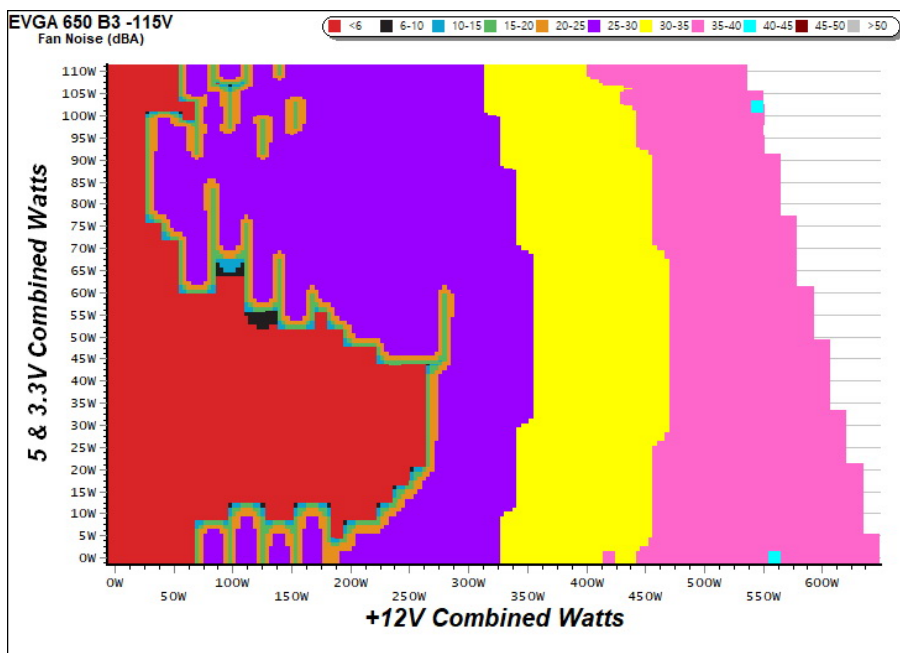
EFFICIENCY GRAPH 115V



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

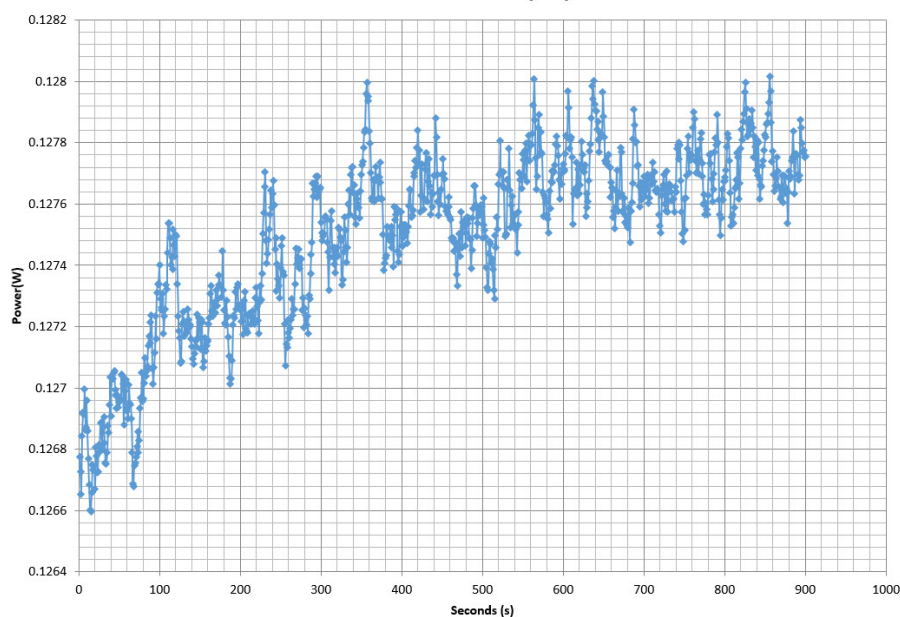
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - 1703460605800323 - 24/07/2017 - 16:04



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

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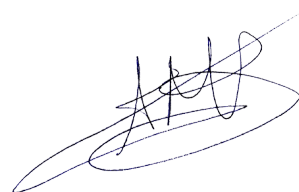


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Power specifications label

CERTIFICATIONS 115V

Aris Mpitsiopoulos
Lab Director

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