EVGA SuperNOVA 750 G5

1903140701803842

Lab ID EV19750107

Certification ID 25813

Test Result Report ID:

Certificate Issue Date: Sep 16, 2019

115V 230V

Scheme: ETA-EMI PSU



115V 230V





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 750 G5
OEM/ODM	FSP
Serial Number	1903140701803842
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	10-5
□□□□ (Hz)	50-60

□□□□ (W)	750
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	135mm Fluid Dynamic Bearing Fan (MGA13512HF-A25)
□□□□□	✓ (selectable)
Cybenetics Testing Information	
Lab ID	EV19750107
Date of receipt	Feb 9, 2019
Testing Date	Nov 9, 2019
Report Issued Date	Sep 16, 2019
□□□□□	Higher than 0.25W Vampire Power
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□□ (Non-accredited measurements)

□□□□□				
□□	□□□□	□□□□□□	Gauge	In Cable Capacitors
ATX □□ 20+4 pin (600mm)	1	1	18-22AWG	□
4+4 pin EPS 12V □□ (700mm)	2	2	18AWG	□
6+2pin PCIe□□ (700mm)	2	2	18AWG	□
6+2pin PCIe□□ (700mm+150mm)	2	4	18AWG	□
SATA□□ (550mm+100mm+100mm)	3	9	18AWG	□
4-pin Molex (550mm+100mm+100mm+100mm)	1	4	18AWG	□
□ 4pin □□ (100mm)	1	1	22AWG	□

AC Power Cord (1420mm) - C13 coupler	1	1	18AWG	-

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	24	24	62.5	3	0.5
	□	120		750	15	6
□□□□□ (W)		750				

Parts Description

General Data	
Manufacturer (OEM)	FSP
PCB Type	Double Sided
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 3x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	1x HY GBJ2506P (600V, 25A @ 100°C)
APFC MOSFETS	2x ROHM R6020KNX (600V, 20A, 0.196Ohm)
APFC Boost Diode	1x ROHM SCS306AM (650V, 6A @ 120°C)
Hold-up Cap(s)	1x Rubycon (450V, 390uF, 3,000h @ 105°C, MXG)
Main Switchers	1x Infineon IPA80R310CE (800V, 10.6A @ 100°C, 0.31Ohm)
Reset Switch	1x Infineon IPD80R1K4CE (800V, 2.3A @ 100°C, 1.4Ohm)
APFC/Switching Controller	FSP 6600 IC
Topology	Primary side: Active Clamp Reset Forward Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x Infineon IPP029N06N (60V, 100A @ 100°C, 2.9mOhm)
5V & 3.3V	DC-DC Converters:4x Infineon BSC042N03LS (30V, 59A @ 100°C, 4.2mOhm) PWM Controllers: ANPEC APW7159C
Filtering Capacitors	Electrolytics: 2x Nippon Chemi-Con (1-5,000 @ 105°C, KZE), 2x Rubycon (3-6,000 @ 105°C, YXG), 1x Rubycon (4-10,000 @ 105°C, YXF) Polymers: 15x United Chemi-Con
Supervisor IC	Weltrend WT7527 (OCP, OVP, UVP, SCP, PG)
Fan Model	Protechnic Electric MGA13512HF-A25 (135mm, 12V, 0.28A, Fluid Dynamic Bearing Fan)

5VSB Circuit	
Rectifier	1x CET CEF02N7G FET (700V, 1.3A @ 100°C, 6.75Ohm)
Standby PWM Controller	FSP 6601 IC

Test Results

Temperature & Compliance Info

□□□□ (°C /°F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	ErP Lot 6 2010: ✓ ErP Lot 6 2013: Partially ErP Lot 3 2014 & CEC: ✓
□□ (EU) No 617/2013□□	✓

Performance Summary

115V

Accredited	
□□□□ (>1450 load combinations)	88.446%
Average Noise Output (>1450 Load Combinations)	36.38dBA
PF□□□ (>1450 Load Combinations)	0.993
Efficiency With 10W (≤500W) or 2% (>500W) Load	62.635%
□□□□□□	0.1724W
Non-Accredited	
12V Ripple (Full Load)	25.36mV
5V Ripple (Full Load)	13.80mV
3.3V Ripple (Full Load)	35.15mV
5VSB Ripple (Full Load)	18.75mV
12V Load Regulation	0.32%
5V Load Regulation	0.45%
3.3V Load Regulation	0.54%
5VSB Load Regulation	1.72%

Inrush Current	22.735A

230V

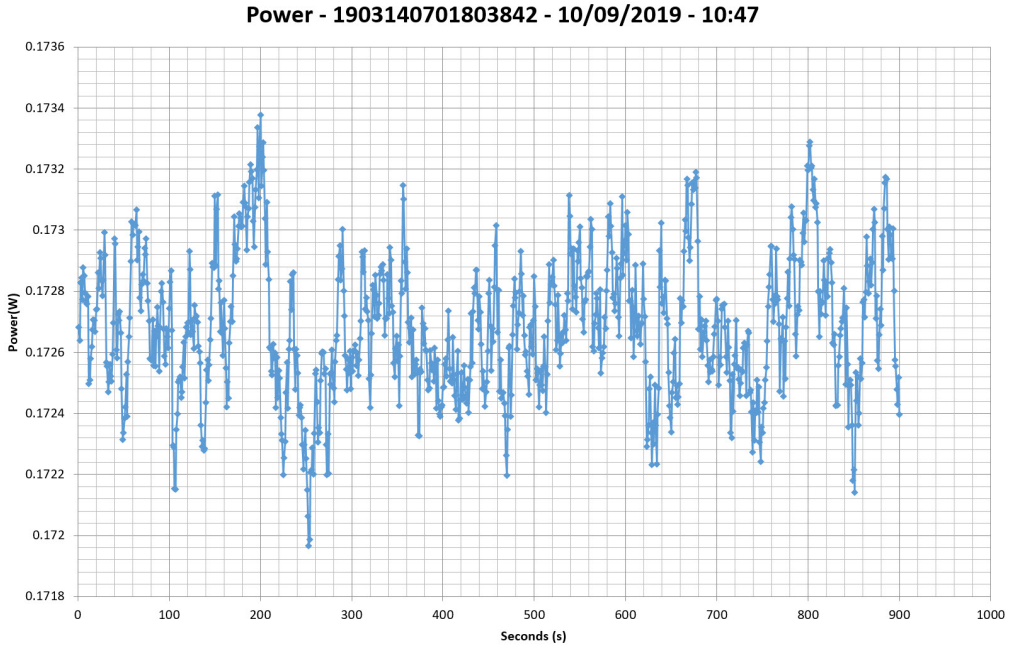
Accredited		
□□□□ (>1450 load combinations)		90.504%
Average Noise Output (>1450 Load Combinations)		36.73dBA
PF□□□ (>1450 Load Combinations)		0.969
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.2674W
Non-Accredited		
12V Ripple (Full Load)		17.93mV
5V Ripple (Full Load)		10.74mV
3.3V Ripple (Full Load)		27.71mV
5VSB Ripple (Full Load)		12.63mV
12V Load Regulation		0.32%
5V Load Regulation		0.47%
3.3V Load Regulation		0.57%
5VSB Load Regulation		1.80%
Inrush Current		48.114A
□□□□ & PG□□		23.50ms
AC Loss to PWR_OK Hold Up Time		20.20ms
PWR_OK Inactive to DC Loss Delay		3.30ms
PSU Timings: T1 (20% / 100%)	60.0ms	68.0ms
PSU Timings: T3 (20% / 100%)	294.0ms	294.0ms
OPP (0.00°C / 0.00°C)	135.19%	-

□□□□ & PG□□

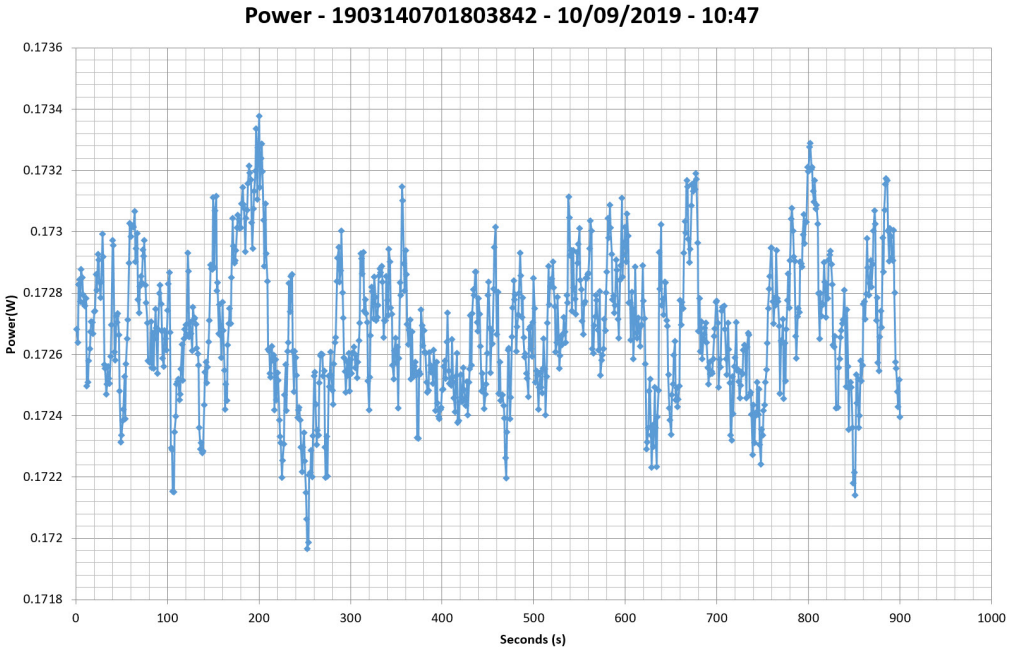
Hold-Up Time (ms)	23.5
AC Loss to PWR_OK Hold Up Time (ms)	20.2
PWR_OK Inactive to DC Loss Delay (ms)	3.3

Graphs

115V



230V



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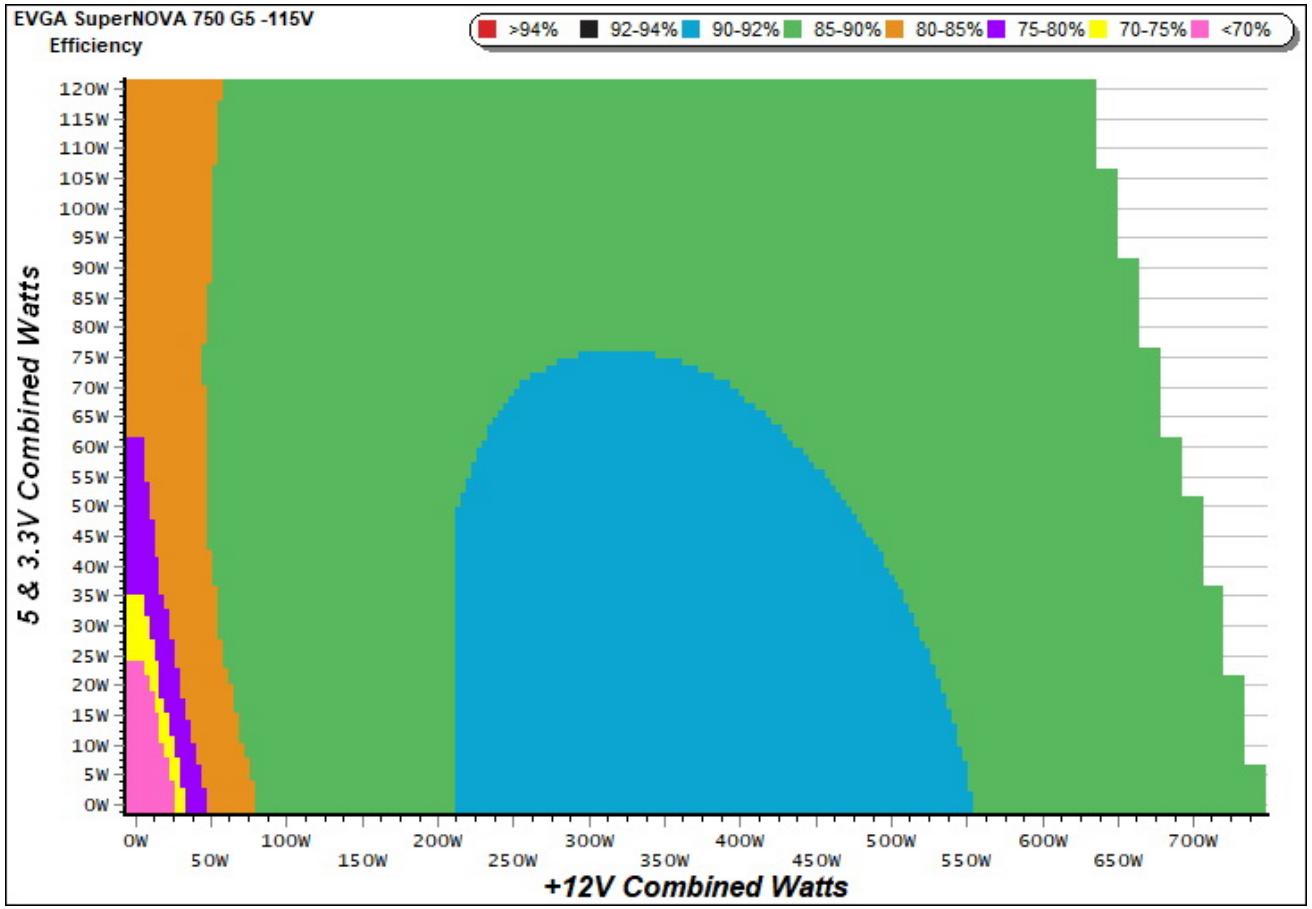
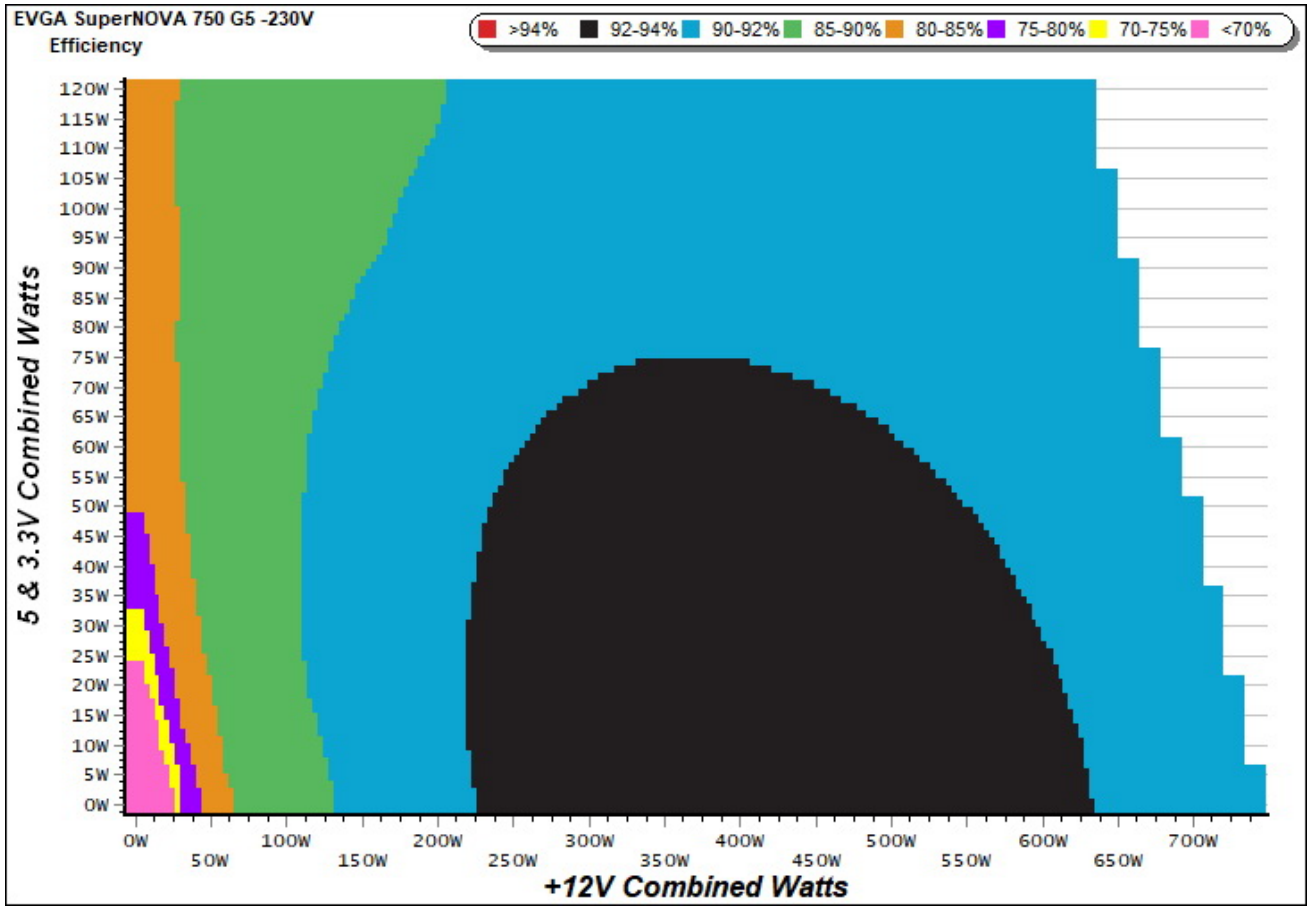
115V



□□

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



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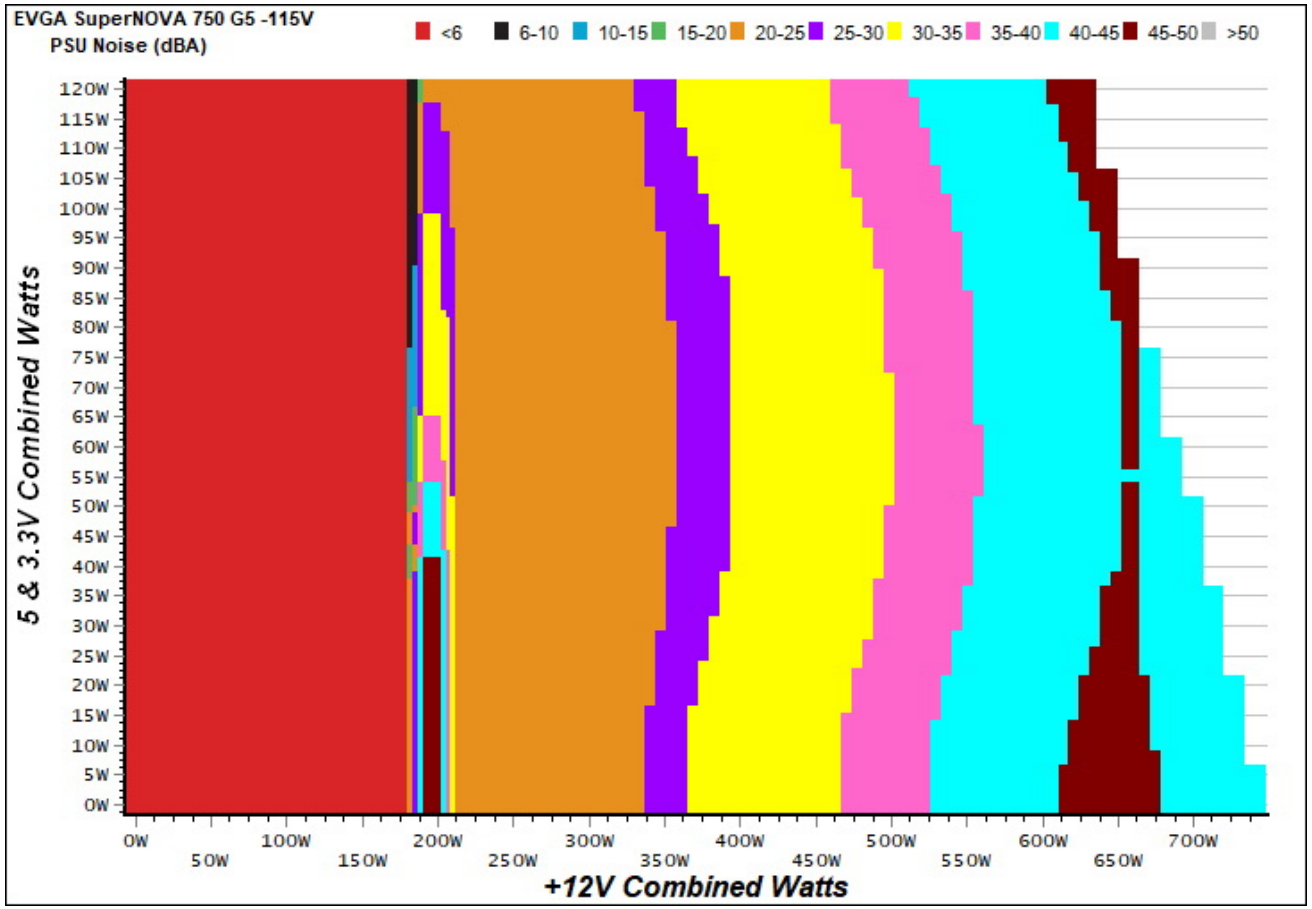
□□□□□

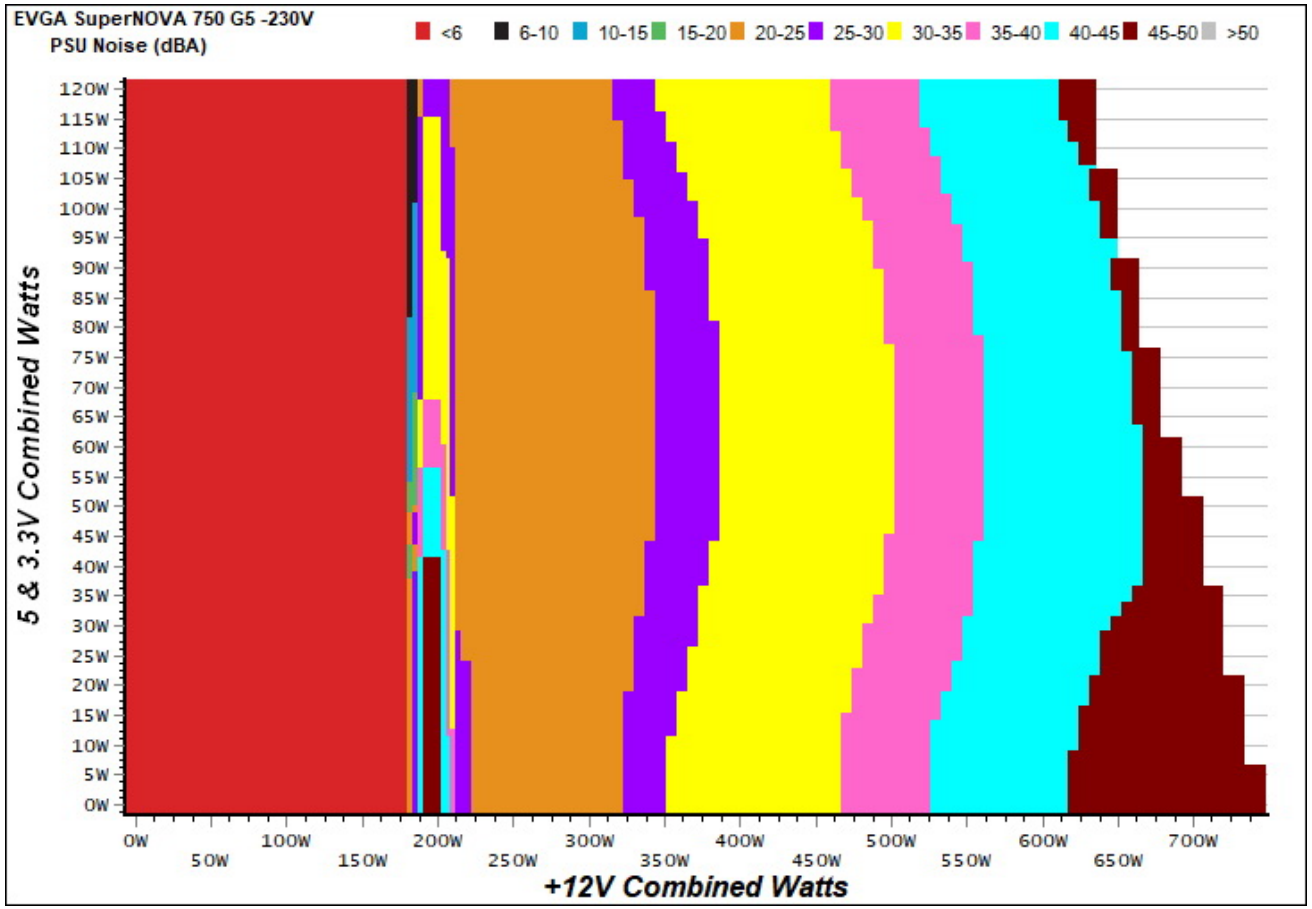
115V



□□

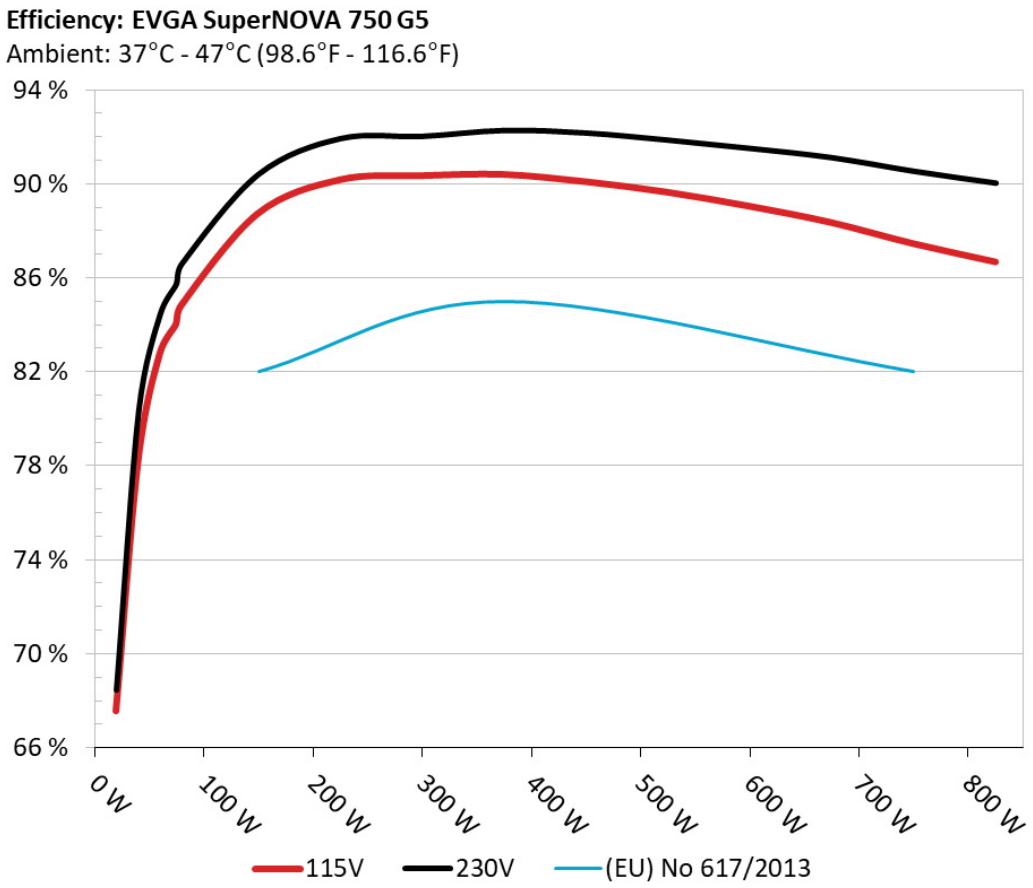
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

230V



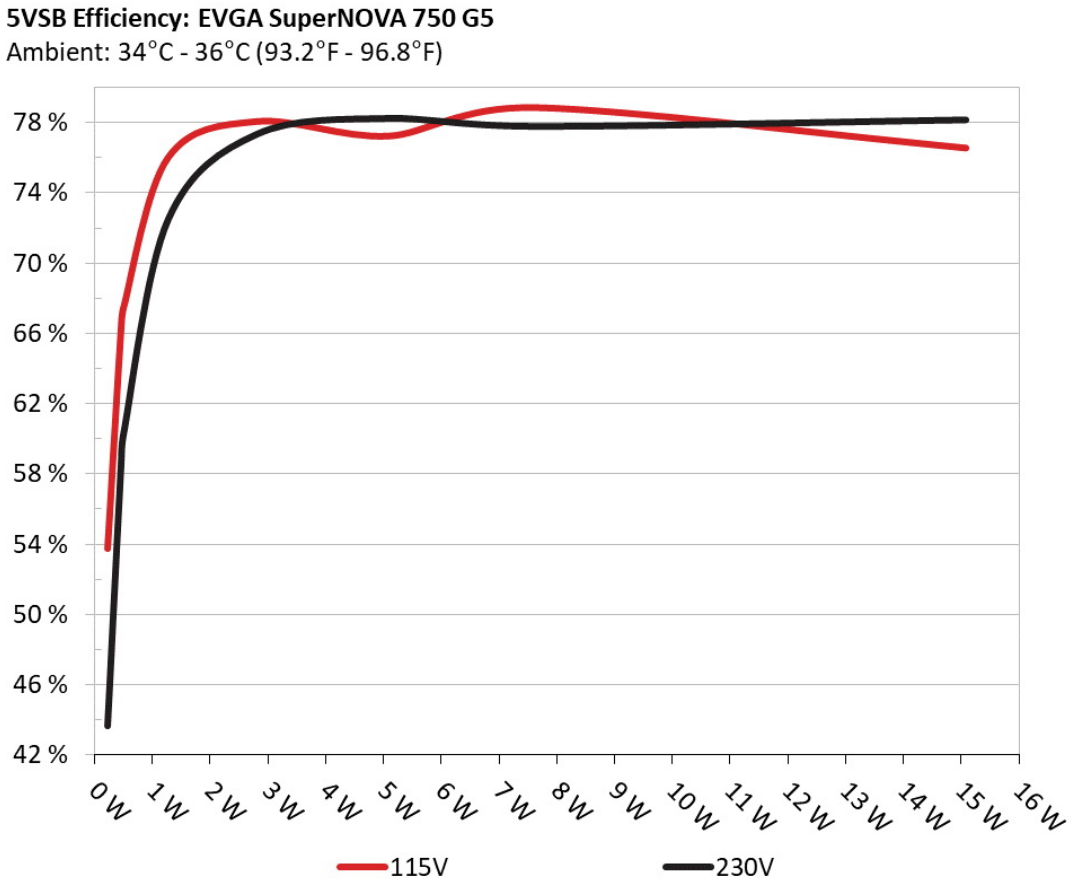
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance



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□□□□



□□

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input.

□□□□ □□ 5Vsb □□ (ErP Lot3/6 & CEC)

115V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.231	53.721%	0.043
	5.123V	0.430		115.14V
2	0.090A	0.461	66.141%	0.068
	5.122V	0.697		115.14V
3	0.550A	2.809	78.093%	0.273
	5.107V	3.597		115.13V
4	1.000A	5.093	77.260%	0.376
	5.092V	6.592		115.13V
5	1.500A	7.615	78.887%	0.429
	5.076V	9.653		115.14V
6	3.000A	15.077	76.580%	0.503
	5.026V	19.688		115.13V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.231	43.667%	0.016
	5.123V	0.529		230.36V
2	0.090A	0.461	58.354%	0.024
	5.122V	0.790		230.36V
3	0.550A	2.809	77.362%	0.103
	5.107V	3.631		230.36V
4	1.000A	5.093	78.270%	0.171
	5.091V	6.507		230.35V
5	1.500A	7.613	77.811%	0.233
	5.074V	9.784		230.36V
6	3.000A	15.077	78.180%	0.342
	5.025V	19.285		230.35V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	4.384A	2.026A	1.993A	1.018A	74.581	84.032%	0	<6.0	45.19°C	0.966
	12.085V	4.936V	3.311V	4.913V	88.753				40.29°C	115.15V
2	9.812A	3.042A	2.990A	1.223A	149.434	88.737%	0	<6.0	46.38°C	0.988
	12.080V	4.934V	3.309V	4.908V	168.401				41.08°C	115.15V
3	15.648A	3.548A	3.477A	1.429A	224.971	90.185%	0	<6.0	47.09°C	0.993
	12.076V	4.933V	3.307V	4.902V	249.455				41.49°C	115.15V
4	21.418A	4.060A	3.993A	1.636A	299.743	90.356%	1379	37.5	41.78°C	0.997
	12.071V	4.927V	3.306V	4.892V	331.737				48.33°C	115.16V
5	26.864A	5.080A	4.994A	1.843A	374.686	90.407%	1481	40.2	42.03°C	0.999
	12.067V	4.924V	3.304V	4.886V	414.442				49.27°C	115.16V
6	32.315A	6.097A	5.997A	2.049A	449.630	90.102%	1670	42.6	42.88°C	0.999
	12.063V	4.922V	3.302V	4.881V	499.025				50.75°C	115.16V
7	37.800A	7.117A	7.001A	2.257A	524.955	89.649%	1773	46.1	43.23°C	0.999
	12.059V	4.920V	3.300V	4.876V	585.570				51.67°C	115.16V
8	43.294A	8.137A	8.008A	2.465A	600.283	89.053%	1882	46.2	43.80°C	0.999
	12.054V	4.917V	3.297V	4.870V	674.074				52.45°C	115.16V
9	49.150A	8.648A	8.496A	2.464A	674.816	88.359%	1930	47.9	44.66°C	0.999
	12.051V	4.915V	3.296V	4.871V	763.723				53.67°C	115.17V
10	54.808A	9.159A	9.017A	3.095A	750.044	87.460%	1935	48.8	45.89°C	0.999
	12.048V	4.914V	3.294V	4.849V	857.587				55.14°C	115.18V
11	61.074A	9.161A	9.020A	3.095A	825.282	86.681%	1937	48.9	46.67°C	0.999
	12.044V	4.913V	3.292V	4.848V	952.094				56.52°C	115.17V
CL1	0.155A	14.001A	14.001A	0.000A	117.073	80.557%	0	<6.0	49.25°C	0.984
	12.082V	4.933V	3.295V	5.004V	145.329				41.76°C	115.17V

CL2	62.528A	1.004A	1.001A	1.000A	766.544	87.976%	1935	48.8	45.96°C	0.999
	12.049V	4.923V	3.299V	4.899V	871.306				55.53°C	115.17V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	4.379A	2.027A	1.991A	1.018A	74.514	85.759%	0	<6.0	44.59°C	0.851
	12.084V	4.936V	3.311V	4.913V	86.888				40.16°C	230.33V
2	9.809A	3.041A	2.991A	1.223A	149.387	90.415%	0	<6.0	45.86°C	0.936
	12.079V	4.934V	3.309V	4.908V	165.224				41.21°C	230.33V
3	15.644A	3.549A	3.476A	1.428A	224.903	91.951%	0	<6.0	46.72°C	0.965
	12.075V	4.932V	3.308V	4.902V	244.591				41.55°C	230.33V
4	21.413A	4.060A	3.993A	1.635A	299.689	92.043%	1576	41.4	41.89°C	0.978
	12.071V	4.929V	3.306V	4.893V	325.598				47.58°C	230.33V
5	26.861A	5.078A	4.994A	1.842A	374.644	92.298%	1484	40.2	42.46°C	0.985
	12.067V	4.925V	3.304V	4.887V	405.908				48.54°C	230.34V
6	32.316A	6.096A	5.995A	2.049A	449.597	92.188%	1656	42.3	43.22°C	0.989
	12.062V	4.922V	3.302V	4.881V	487.695				49.86°C	230.34V
7	37.802A	7.115A	6.999A	2.256A	524.922	91.884%	1828	44.9	43.49°C	0.992
	12.058V	4.920V	3.300V	4.877V	571.290				50.62°C	230.34V
8	43.292A	8.135A	8.006A	2.464A	600.255	91.531%	1922	47.8	43.93°C	0.994
	12.054V	4.918V	3.298V	4.871V	655.797				51.89°C	230.35V
9	49.147A	8.647A	8.495A	2.463A	674.779	91.139%	1929	47.9	44.86°C	0.994
	12.051V	4.916V	3.296V	4.872V	740.386				53.41°C	230.35V
10	54.815A	9.161A	9.018A	3.094A	750.027	90.559%	1929	47.9	45.61°C	0.995
	12.046V	4.914V	3.294V	4.849V	828.223				54.57°C	230.36V
11	61.082A	9.164A	9.020A	3.096A	825.263	90.054%	1931	47.9	46.71°C	0.996
	12.042V	4.912V	3.292V	4.847V	916.404				56.41°C	230.37V
CL1	0.155A	14.002A	14.000A	0.000A	117.075	82.330%	0	<6.0	48.57°C	0.922
	12.081V	4.932V	3.296V	5.004V	142.202				42.19°C	230.37V

CL2	62.531A	1.004A	1.000A	1.000A	766.453	91.049%	1930	47.9	45.44°C	0.995
	12.047V	4.923V	3.300V	4.898V	841.800				54.36°C	230.37V

The results above are not used in the certification process

20-80□□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.203A	0.508A	0.480A	0.203A	19.641	67.551%	0	<6.0	0.881
	12.088V	4.937V	3.313V	4.934V	29.076				115.16V
2	2.463A	1.012A	0.996A	0.406A	40.065	78.287%	0	<6.0	0.935
	12.087V	4.936V	3.312V	4.929V	51.177				115.16V
3	3.651A	1.520A	1.479A	0.609A	59.520	82.740%	0	<6.0	0.955
	12.085V	4.935V	3.311V	4.925V	71.936				115.15V
4	4.908A	2.027A	1.992A	0.813A	79.911	84.868%	0	<6.0	0.969
	12.085V	4.935V	3.311V	4.920V	94.159				115.15V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.198A	0.507A	0.481A	0.203A	19.579	68.470%	0	<6.0	0.552
	12.087V	4.937V	3.314V	4.934V	28.595				230.33V
2	2.457A	1.014A	0.996A	0.406A	39.998	80.379%	0	<6.0	0.721
	12.085V	4.935V	3.313V	4.927V	49.762				230.33V
3	3.646A	1.521A	1.479A	0.610A	59.465	84.446%	0	<6.0	0.808
	12.084V	4.935V	3.312V	4.922V	70.418				230.33V
4	4.902A	2.029A	1.992A	0.814A	79.847	86.640%	0	<6.0	0.861
	12.084V	4.935V	3.311V	4.917V	92.160				230.33V

The results above are not used in the certification process

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	12.4 mV	5.6 mV	12.0 mV	7.1 mV	Pass
20% Load	10.0 mV	6.0 mV	12.2 mV	7.1 mV	Pass
30% Load	10.4 mV	6.8 mV	12.9 mV	7.7 mV	Pass
40% Load	13.7 mV	7.1 mV	14.1 mV	8.1 mV	Pass
50% Load	14.4 mV	6.6 mV	15.8 mV	8.4 mV	Pass
60% Load	15.7 mV	6.9 mV	16.8 mV	8.8 mV	Pass
70% Load	18.0 mV	7.9 mV	19.4 mV	9.7 mV	Pass
80% Load	18.3 mV	8.8 mV	22.2 mV	9.9 mV	Pass
90% Load	21.5 mV	9.8 mV	25.3 mV	10.7 mV	Pass
100% Load	25.4 mV	13.8 mV	35.2 mV	18.8 mV	Pass
110% Load	27.1 mV	15.0 mV	42.2 mV	21.2 mV	Pass
Crossload 1	8.0 mV	7.5 mV	16.8 mV	9.2 mV	Pass
Crossload 2	24.8 mV	11.7 mV	27.8 mV	14.6 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	14.1 mV	6.5 mV	11.7 mV	9.5 mV	Pass
20% Load	10.5 mV	5.8 mV	12.1 mV	7.8 mV	Pass
30% Load	10.8 mV	6.3 mV	13.4 mV	8.3 mV	Pass
40% Load	11.5 mV	6.9 mV	14.0 mV	8.2 mV	Pass
50% Load	11.3 mV	6.6 mV	15.6 mV	8.7 mV	Pass
60% Load	12.4 mV	7.1 mV	17.1 mV	9.8 mV	Pass
70% Load	14.2 mV	7.7 mV	19.0 mV	9.9 mV	Pass
80% Load	15.1 mV	8.3 mV	21.0 mV	10.2 mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	16.5 mV	8.8 mV	22.8 mV	11.4 mV	Pass
100% Load	17.3 mV	8.9 mV	22.4 mV	11.7 mV	Pass
110% Load	19.0 mV	11.4 mV	30.8 mV	13.7 mV	Pass
Crossload 1	16.1 mV	7.3 mV	16.9 mV	8.9 mV	Pass
Crossload 2	16.8 mV	9.9 mV	24.0 mV	12.0 mV	Pass

The results above are not used in the certification process

EVGA SuperNOVA 750 G5

Top side

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由 Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

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