



EVGA SuperNOVA 850 G6

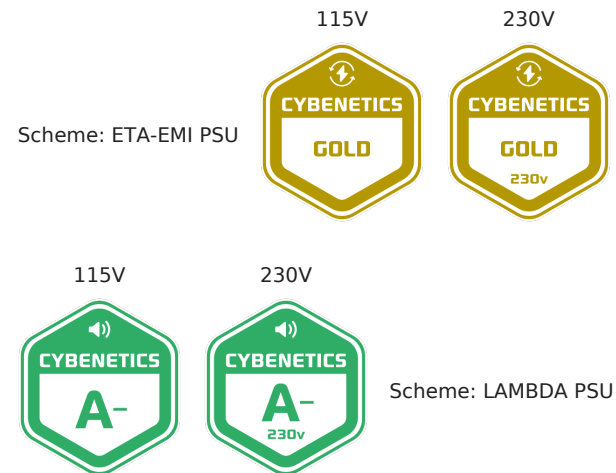
Serial Number 2104040800830099

Lab ID EV85001869

Certification ID 251869

Test Result Report ID: 21PS1869A

Certificate Issue Date: Jul 19, 2021



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	Brueel & Kjaer 2270 G4
Microphone	Brueel & 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 850 G6
OEM/ODM	Seasonic
Serial Number	2104040800830099
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	12-6
Rated Frequency (Hz)	50-60

Rated Power (W)	850
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	135mm Fluid Dynamic Bearing Fan (HA13525M12F-Z)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	EV85001869
Date of receipt	Jul 10, 2021
Testing Date	Jul 9, 2021
Report Issued Date	Jul 19, 2021
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 (610mm)	1	1	18-22AWG	No
4+4 pin EPS12V (700mm)	2	2	18AWG	No
6+2 pin PCIe (700mm+125mm)	2	4	16-18AWG	No
6+2 pin PCIe (700mm)	2	2	18AWG	No
SATA (560mm+110mm+110mm)	3	9	18AWG	No
4-pin Molex (560mm+100mm+100mm+100mm)	1	4	18AWG	No
FDD Adapter (105mm)	1	1	22AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	16AWG	-

Power Specifications

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

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
ALPM (Alternative Low Power Mode) compatible	✓

Performance Summary

115V	
Accredited	
Average Efficiency (>1450 load combinations)	88.438%
Average Noise Output (>1450 Load Combinations)	26.99dBA
Average PF (>1450 Load Combinations)	0.980
Efficiency With 10W (≤500W) or 2% (>500W) Load	72.209%
Standby Power Consumption	0.0588W
Non-Accredited	
12V Ripple (Full Load)	15.15mV
5V Ripple (Full Load)	14.66mV
3.3V Ripple (Full Load)	15.87mV
5VSB Ripple (Full Load)	15.33mV
12V Load Regulation	0.55%
5V Load Regulation	0.84%

3.3V Load Regulation	1.12%
5VSB Load Regulation	3.25%
Inrush Current	36.720A

230V

Accredited		
Average Efficiency (>1450 load combinations)	90.679%	
Average Noise Output (>1450 Load Combinations)	26.72dBA	
Average PF (>1450 Load Combinations)	0.939	
Efficiency With 10W (≤500W) or 2% (>500W) Load	-	
Standby Power Consumption	0.1159W	
Non-Accredited		
12V Ripple (Full Load)	15.72mV	
5V Ripple (Full Load)	15.00mV	
3.3V Ripple (Full Load)	16.60mV	
5VSB Ripple (Full Load)	14.74mV	
12V Load Regulation	0.54%	
5V Load Regulation	0.80%	
3.3V Load Regulation	1.09%	
5VSB Load Regulation	3.21%	
Inrush Current	91.490A	
Hold-Up Time & PWR_OK Signal	25.50ms	
AC Loss to PWR_OK Hold Up Time	21.20ms	
PWR_OK Inactive to DC Loss Delay	4.30ms	
PSU Timings: T1 (20% / 100%)	88.0ms	88.0ms
PSU Timings: T3 (20% / 100%)	134.0ms	134.0ms
OPP (31.00°C / 44.34°C)	124.46%	123.53%

Hold-Up Time & PWR_OK Signal

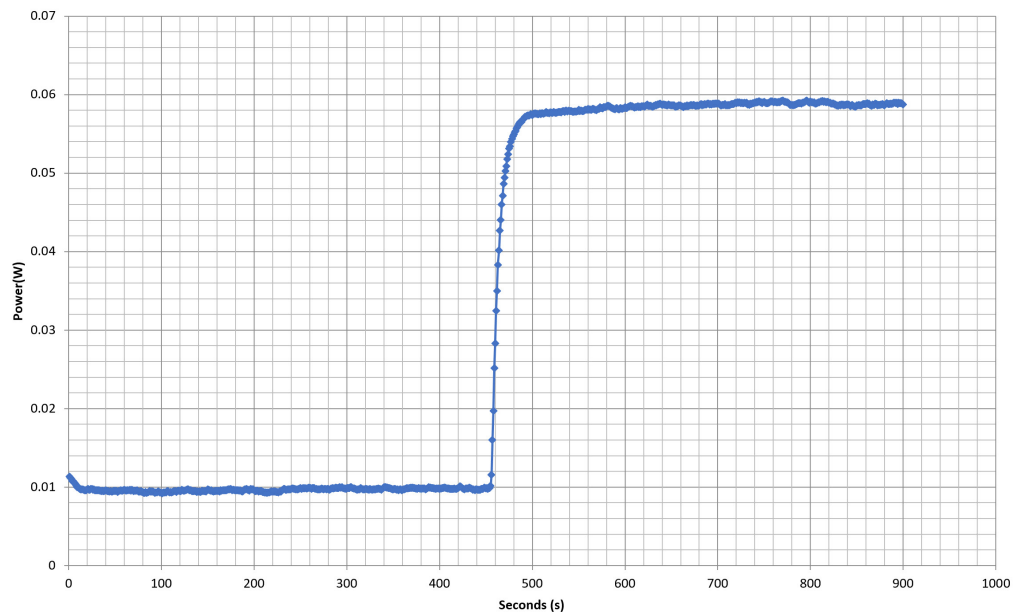
Hold-Up Time (ms)	25.5
AC Loss to PWR_OK Hold Up Time (ms)	21.2
PWR_OK Inactive to DC Loss Delay (ms)	4.3

Vampire Power

Graphs

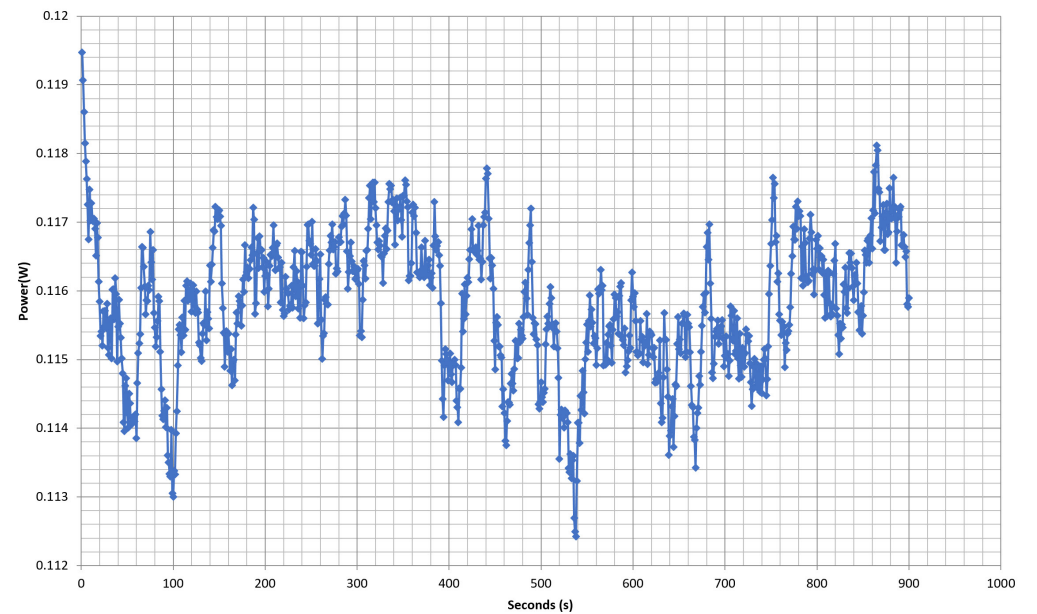
115V

Power - 2104040800830099 - 06/07/2021 - 10:05



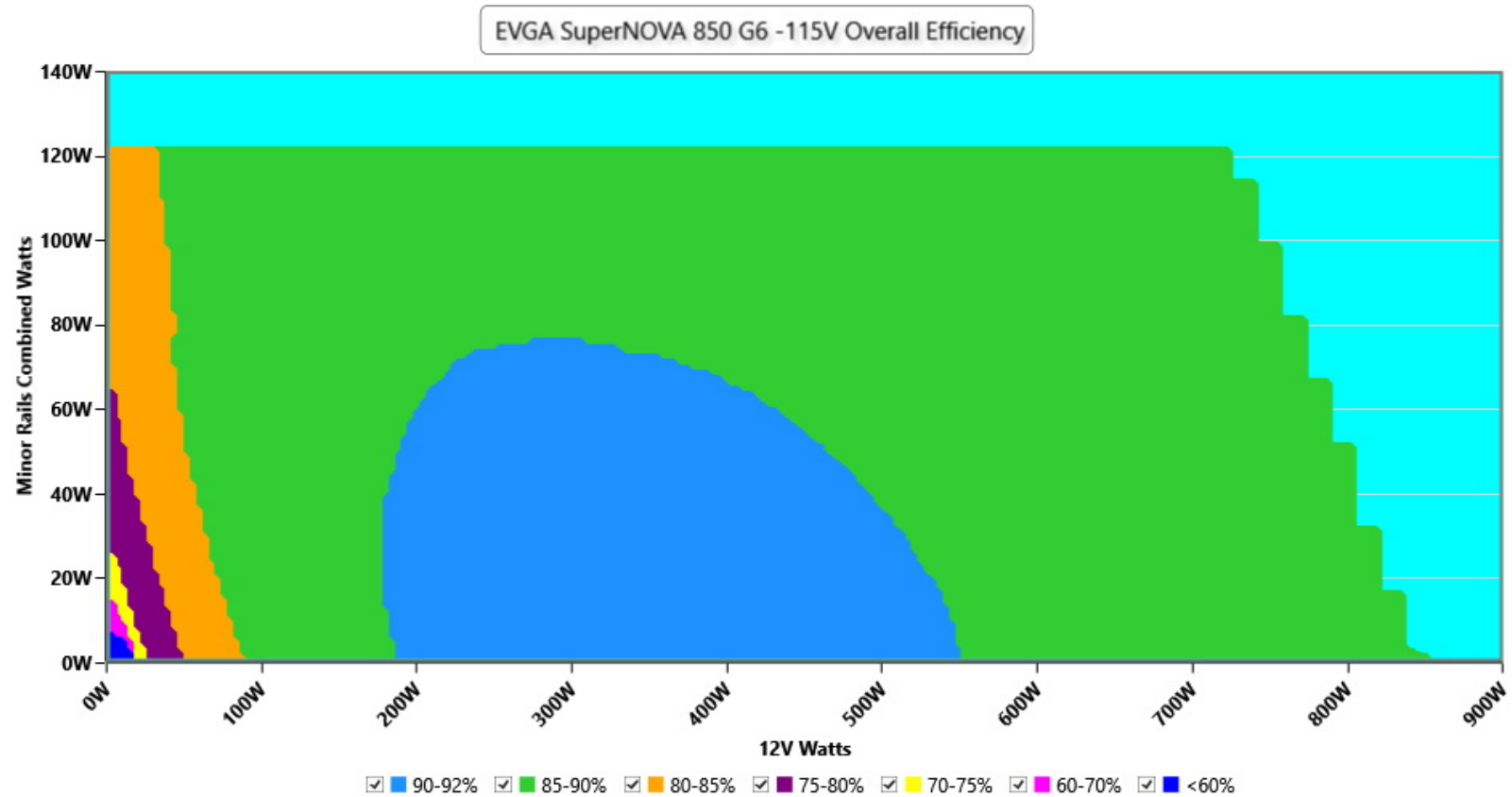
230V

Power - 2104040800830099 - 06/07/2021 - 10:05



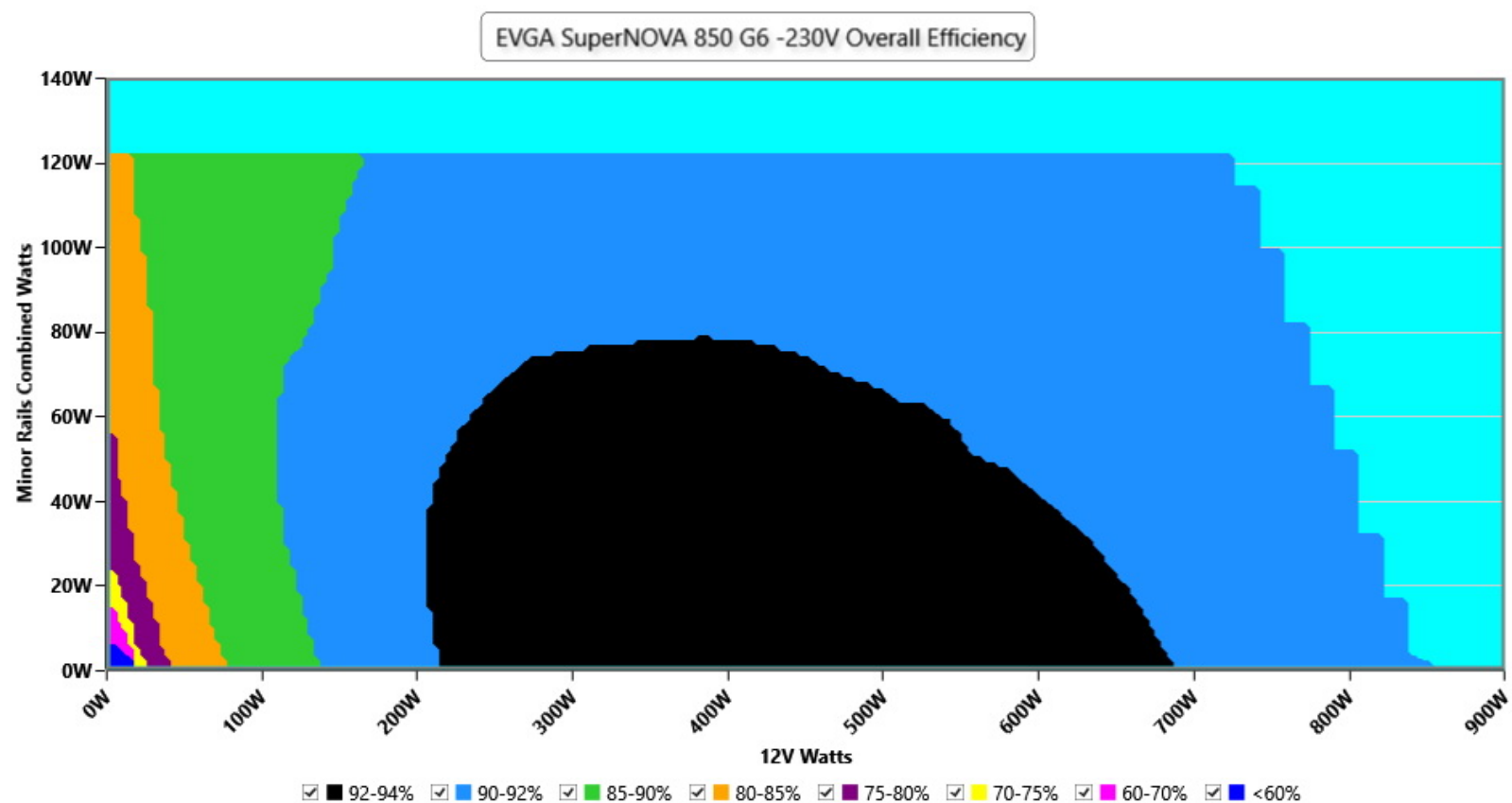
Efficiency Graph

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

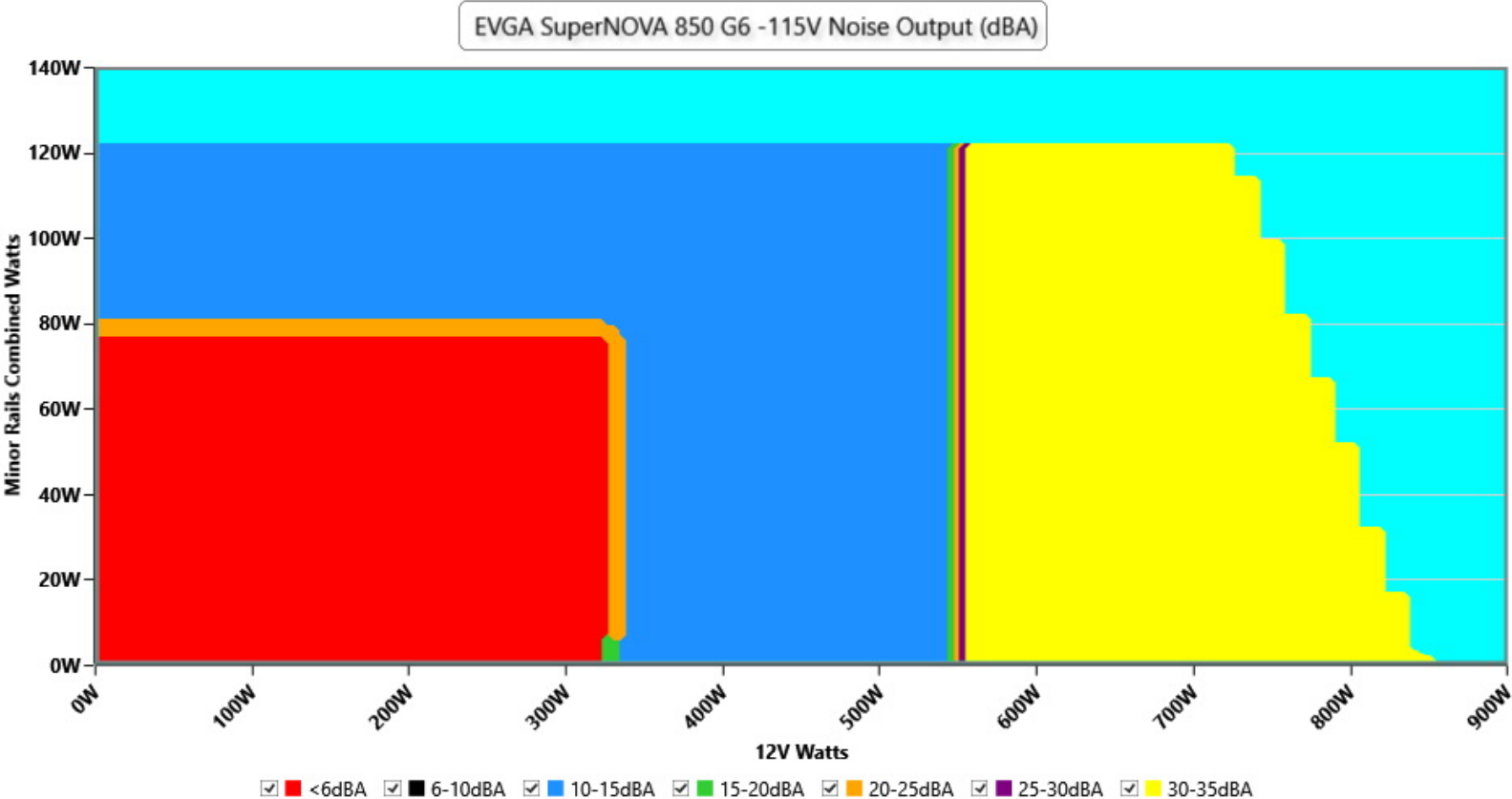


INFO

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

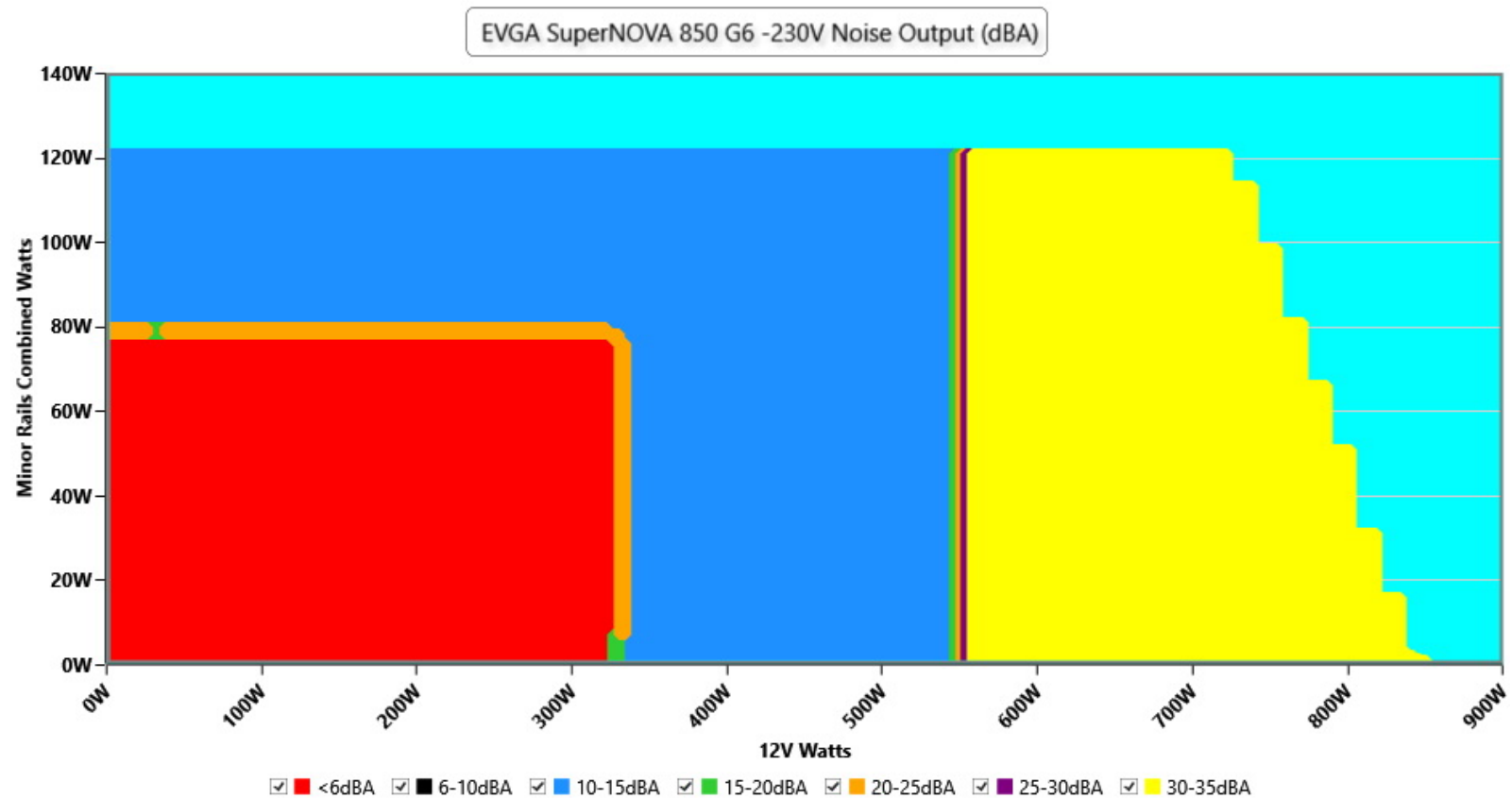
Noise Graph

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



INFO

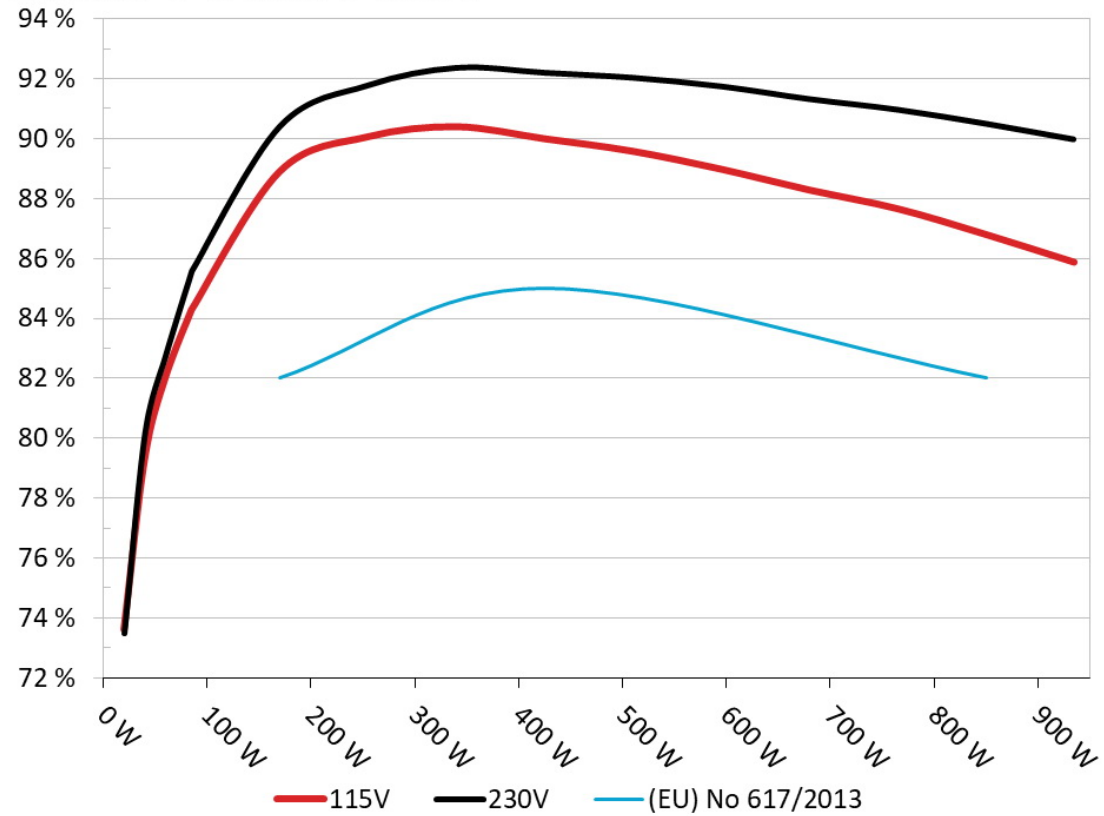
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance

Efficiency under high ambient temperature

Efficiency: EVGA SuperNOVA 850 G6

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



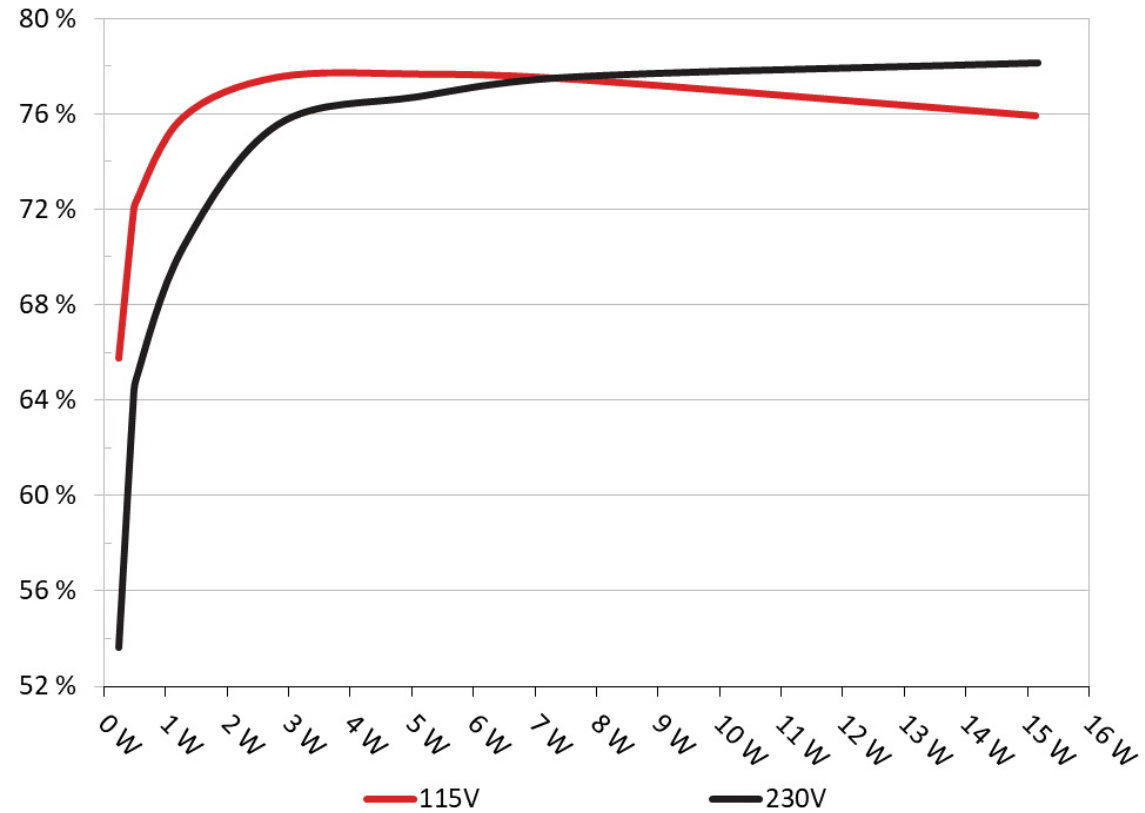
INFO

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 850 G6

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

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

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	65.782%	0.033
	5.124V	0.351W		115.12V
2	0.09A	0.461W	71.707%	0.06
	5.123V	0.643W		115.12V
3	0.55A	2.813W	77.558%	0.264
	5.113V	3.627W		115.12V
4	1A	5.103W	77.688%	0.363
	5.102V	6.569W		115.12V
5	1.5A	7.637W	77.465%	0.42
	5.091V	9.858W		115.11V
6	3A	15.138W	75.942%	0.492
	5.045V	19.934W		115.12V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	53.614%	0.012
	5.124V	0.431W		230.25V
2	0.09A	0.461W	63.737%	0.021
	5.123V	0.723W		230.25V
3	0.55A	2.812W	75.559%	0.103
	5.112V	3.722W		230.24V
4	1A	5.103W	76.74%	0.17
	5.102V	6.65W		230.24V
5	1.5A	7.638W	77.568%	0.228
	5.091V	9.847W		230.24V
6	3A	15.175W	78.154%	0.334
	5.058V	19.417W		230.24V

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
10%	5.215A	1.982A	1.981A	0.982A	85.018	83.812%	591	11.8	40.58°C	0.962
	12.160V	5.045V	3.332V	5.09V	101.439				44.65°C	115.14V
20%	11.450A	2.976A	2.975A	1.182A	169.992	88.921%	591	11.8	40.87°C	0.973
	12.148V	5.042V	3.328V	5.075V	191.171				45.47°C	115.14V
30%	18.052A	3.474A	3.475A	1.383A	255.016	90.082%	592	11.9	41.32°C	0.974
	12.130V	5.038V	3.324V	5.062V	283.093				46.66°C	115.14V
40%	24.653A	3.973A	3.975A	1.585A	340.125	90.415%	589	11.8	41.74°C	0.979
	12.125V	5.035V	3.321V	5.049V	376.183				47.56°C	115.13V
50%	30.920A	4.972A	4.976A	1.788A	425.198	90.013%	1391	39.2	42.02°C	0.982
	12.118V	5.029V	3.316V	5.033V	472.374				48.37°C	115.13V
60%	37.145A	5.972A	5.978A	1.993A	509.702	89.597%	1393	39.3	42.67°C	0.984
	12.111V	5.025V	3.313V	5.018V	568.884				49.65°C	115.12V
70%	43.442A	6.973A	6.981A	2.199A	595.024	88.996%	1395	39.4	43.24°C	0.986
	12.105V	5.021V	3.31V	5.004V	668.597				51.21°C	115.12V
80%	49.739A	7.978A	7.987A	2.304A	679.86	88.302%	1754	45.9	43.69°C	0.987
	12.102V	5.016V	3.306V	4.992V	769.926				52.15°C	115.11V
90%	56.428A	8.481A	8.48A	2.411A	765.281	87.672%	1758	45.9	44.76°C	0.989
	12.100V	5.013V	3.302V	4.979V	872.887				53.77°C	115.11V
100%	62.856A	8.985A	9.004A	3.028A	850.092	86.815%	1761	45.9	45.51°C	0.99
	12.097V	5.011V	3.299V	4.955V	979.2				55.26°C	115.1V
110%	69.137A	9.989A	10.103A	3.035A	934.664	85.892%	1764	46.0	46.92°C	0.99
	12.097V	5.007V	3.296V	4.944V	1088.185				57.67°C	115.1V
CL1	0.116A	14.316A	14.272A	0A	121.335	82.205%	1406	40.0	42.11°C	0.98
	12.167V	5.045V	3.342V	5.091V	147.599				48.22°C	115.14V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	0.115A	23.785A	0A	0A	121.442	80.038%	1747	45.7	43.22°C	0.98
	12.160V	5.047V	3.324V	5.098V	151.731				49.86°C	115.14V
CL3	0.115A	0A	23.61A	0A	80.592	74.938%	1744	45.6	44.9°C	0.964
	12.153V	5.042V	3.354V	5.095V	107.545				52.08°C	115.14V
CL4	70.264A	0A	0A	0.001A	849.752	87.636%	1759	45.9	45.86°C	0.989
	12.094V	5.017V	3.296V	5.04V	969.638				55.31°C	115.1V

The results above are not used in the certification process

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%	5.214A	1.982A	1.981A	0.982A	85.016	85.556%	0	<6.0	44.85°C	0.797
	12.162V	5.046V	3.332V	5.09V	99.369				40.09°C	230.28V
20%	11.449A	2.976A	2.975A	1.182A	169.982	90.43%	590	11.8	40.63°C	0.901
	12.148V	5.042V	3.328V	5.076V	187.971				45.99°C	230.28V
30%	18.050A	3.474A	3.475A	1.383A	255.001	91.797%	591	11.8	41.13°C	0.936
	12.130V	5.038V	3.324V	5.062V	277.789				46.94°C	230.28V
40%	24.652A	3.973A	3.976A	1.585A	340.104	92.38%	591	11.8	41.48°C	0.95
	12.124V	5.034V	3.32V	5.049V	368.158				47.83°C	230.28V
50%	30.918A	4.972A	4.976A	1.788A	425.148	92.214%	1388	39.2	42.38°C	0.959
	12.117V	5.029V	3.316V	5.034V	461.044				49.42°C	230.28V
60%	37.143A	5.973A	5.978A	1.993A	509.662	92.049%	1391	39.2	42.61°C	0.963
	12.111V	5.024V	3.312V	5.02V	553.683				50.11°C	230.28V
70%	43.433A	6.974A	6.981A	2.199A	594.943	91.759%	1393	39.3	43.37°C	0.967
	12.106V	5.02V	3.309V	5.005V	648.377				51.51°C	230.28V
80%	49.731A	7.977A	7.986A	2.304A	679.803	91.336%	1753	45.9	43.6°C	0.971
	12.103V	5.017V	3.306V	4.993V	744.287				52.51°C	230.28V
90%	56.429A	8.483A	8.481A	2.41A	765.243	90.979%	1754	45.9	44.31°C	0.973
	12.099V	5.012V	3.302V	4.981V	841.118				53.6°C	230.28V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	62.857A	8.988A	9.005A	3.027A	850.066	90.512%	1759	45.9	45.16°C	0.975
	12.096V	5.009V	3.298V	4.957V	939.172				55.44°C	230.28V
110%	69.151A	9.991A	10.102A	3.034A	934.635	89.99%	1761	45.9	46.74°C	0.976
	12.095V	5.006V	3.296V	4.945V	1038.602				57.68°C	230.28V
CL1	0.115A	14.318A	14.266A	0A	121.332	83.721%	1404	39.9	42.59°C	0.87
	12.166V	5.044V	3.343V	5.091V	144.925				49.1°C	230.28V
CL2	0.115A	23.782A	0A	0A	121.441	81.415%	1743	45.5	43.24°C	0.874
	12.161V	5.048V	3.324V	5.098V	149.162				50.22°C	230.28V
CL3	0.115A	0A	23.585A	0A	80.594	76.003%	1745	45.6	44.08°C	0.813
	12.155V	5.044V	3.358V	5.095V	106.04				51.68°C	230.28V
CL4	70.269A	0A	0A	0.001A	849.731	91.283%	1758	45.9	45.95°C	0.974
	12.093V	5.017V	3.296V	5.041V	930.879				54.7°C	230.28V

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])	Temps (In/Out)	PF/AC Volts
20W	1.228A	0.495A	0.495A	0.195A	20.015	73.631%	0	<6.0	39.04°C	0.803
	12.105V	5.053V	3.336V	5.116V	27.182				36.89°C	115.14V
40W	2.700A	0.693A	0.693A	0.294A	40.014	79.344%	0	<6.0	39.89°C	0.927
	12.111V	5.052V	3.336V	5.112V	50.431				37.4°C	115.14V
60W	4.154A	0.891A	0.891A	0.392A	60.015	82.056%	0	<6.0	41.33°C	0.95
	12.164V	5.051V	3.334V	5.108V	73.138				38.34°C	115.14V
80W	5.619A	1.09A	1.089A	0.49A	79.982	84.302%	0	<6.0	42.75°C	0.962
	12.164V	5.049V	3.333V	5.103V	94.876				39.22°C	115.14V

The results above are not used in the certification process

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	1.228A	0.495A	0.495A	0.196A	20.009	73.475%	0	<6.0	39.43°C	0.45
	12.099V	5.049V	3.334V	5.116V	27.233				37.22°C	230.28V
40W	2.701A	0.693A	0.693A	0.294A	40.01	80.173%	0	<6.0	41.21°C	0.611
	12.106V	5.049V	3.334V	5.112V	49.905				38.28°C	230.28V
60W	4.156A	0.892A	0.891A	0.392A	60.011	82.776%	0	<6.0	42.28°C	0.714
	12.159V	5.048V	3.332V	5.108V	72.498				38.86°C	230.28V
80W	5.620A	1.09A	1.09A	0.49A	79.974	85.588%	0	<6.0	43.23°C	0.78
	12.160V	5.046V	3.332V	5.103V	93.44				39.28°C	230.28V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	8.04mV	10.32mV	11.45mV	4.86mV	Pass
20% Load	18.24mV	10.37mV	10.84mV	5.48mV	Pass
30% Load	10.80mV	10.16mV	11.20mV	6.09mV	Pass
40% Load	10.18mV	11.29mV	11.87mV	7.11mV	Pass
50% Load	10.39mV	11.95mV	16.01mV	11.31mV	Pass
60% Load	10.69mV	12.82mV	12.53mV	8.75mV	Pass
70% Load	10.54mV	13.53mV	12.63mV	14.53mV	Pass
80% Load	10.95mV	13.64mV	14.11mV	12.49mV	Pass
90% Load	11.26mV	13.17mV	13.76mV	11.77mV	Pass
100% Load	15.15mV	14.66mV	15.87mV	15.33mV	Pass
110% Load	15.46mV	17.23mV	18.05mV	15.33mV	Pass
Crossload1	9.38mV	12.12mV	12.60mV	6.20mV	Pass
Crossload2	8.04mV	10.98mV	11.30mV	5.58mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	8.96mV	10.01mV	13.30mV	5.43mV	Pass
Crossload4	15.22mV	13.82mV	14.33mV	13.78mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.98mV	10.88mV	19.07mV	4.76mV	Pass
20% Load	19.57mV	10.83mV	12.37mV	5.37mV	Pass
30% Load	11.31mV	10.37mV	11.04mV	6.14mV	Pass
40% Load	9.57mV	10.42mV	11.66mV	7.06mV	Pass
50% Load	11.05mV	11.49mV	12.53mV	11.82mV	Pass
60% Load	10.23mV	13.13mV	12.83mV	8.85mV	Pass
70% Load	10.08mV	12.97mV	12.48mV	14.07mV	Pass
80% Load	10.49mV	12.41mV	13.65mV	10.75mV	Pass
90% Load	10.95mV	13.33mV	13.91mV	11.62mV	Pass
100% Load	15.72mV	15.00mV	16.60mV	14.74mV	Pass
110% Load	15.95mV	16.75mV	17.80mV	15.19mV	Pass
Crossload1	9.48mV	12.48mV	13.72mV	6.01mV	Pass
Crossload2	8.29mV	11.59mV	11.20mV	5.83mV	Pass
Crossload3	8.44mV	9.70mV	13.25mV	5.17mV	Pass
Crossload4	15.88mV	15.06mV	16.01mV	13.66mV	Pass

The results above are not used in the certification process

EVGA SuperNOVA 850 G6



Top side

All data and graphs included in this test report can be used by any individual on the following conditions:

- › It should be mentioned that the test results are provided by Cybenetics
- › The link to the original test results document should be provided in any case

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Power specifications label

Cybenetics runs voluntary certification programs for power supplies - ETA for efficiency, LAMBDA for noise and SAFE for safety and correct operation - and for cooling products, with DELTA for chassis soundproofing and PHI for fan airflow and static pressure. THETA rates cooler performance on AMD AM5 and Intel LGA1851 outside ISO 17065 and accreditation scope

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