



Cougar GEX PRO 850

Serial Number 12BD07GXP8500003

Lab ID CG85002581

Certification ID 252581

Test Result Report ID: 24PS2581A

Certificate Issue Date: Sep 26, 2024

Scheme: ETA-EMI PSU

115V



230V



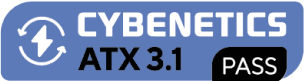
115V



230V



Scheme: LAMBDA PSU



Outside Validation Scope



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	Cougar
Model	GEX PRO 850
OEM/ODM	XHY
Serial Number	12BD07GXP8500003
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	50-60

Rated Frequency (Hz)	6-12
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	120mm Hydraulic Bearing Fan (DF1202512FDMN)
Semi-Passive Operation	X
Cybenetics Testing Information	
Lab ID	CG85002581
Date of receipt	Sep 16, 2024
Testing Date	Sep 25, 2024
Report Issued Date	Sep 26, 2024
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 24 pin (615mm)	1	1	18-22AWG	No
4+4 pin EPS12V (700mm)	1	1	18AWG	No
8 pin EPS12V (700mm)	1	1	18AWG	No
6+2 pin PCIe (750mm)	3	3	18AWG	No
12+4 pin PCIe (650mm) (600W)	1	1	16-24AWG	No
SATA (410mm+120mm+120mm+120mm)	2	8	18AWG	No
4-pin Molex (410mm+120mm+120mm)	1	3	18AWG	No

AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-
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Protection Features(Manufacturer)

Under Voltage Protection	✓
Over Power Protection	✓
Over Current (+12V) Protection	✓
Over Temperature Protection	✓
Short Circuit Protection	✓
Surge Protection	✓
Inrush Current Protection	✓

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	70.8	3	0.3
	Watts	100		849.6	15	3.6
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	✓
ATX v3.1 PSU Power Excursion	✓

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	88.750%
Average Noise Output (>1450 Load Combinations)	18.98dBA
Average PF (>1450 Load Combinations)	0.985
Efficiency With 10W ($\leq 500W$) or 2% (>500W) Load	65.880%
Standby Power Consumption	0.0431W
Non-Accredited	
12V Ripple (Full Load)	33.59mV
5V Ripple (Full Load)	15.60mV
3.3V Ripple (Full Load)	17.86mV
5VSB Ripple (Full Load)	18.46mV
12V Load Regulation	0.76%
5V Load Regulation	0.54%
3.3V Load Regulation	0.58%
5VSB Load Regulation	2.60%
Inrush Current	32.600A

230V

Accredited	
Average Efficiency (>1450 load combinations)	90.975%
Average Noise Output (>1450 Load Combinations)	19.52dBA
Average PF (>1450 Load Combinations)	0.957
Efficiency With 10W ($\leq 500W$) or 2% (>500W) Load	-
Standby Power Consumption	0.1145W
Non-Accredited	
12V Ripple (Full Load)	33.36mV
5V Ripple (Full Load)	15.56mV
3.3V Ripple (Full Load)	17.39mV

5VSB Ripple (Full Load)	19.24mV	
12V Load Regulation	0.65%	
5V Load Regulation	0.54%	
3.3V Load Regulation	0.61%	
5VSB Load Regulation	2.62%	
Inrush Current	66.540A	
12V Transient Response (200%)	11.15V	
5V Transient Response (200%)	4.932V	
3.3V Transient Response (200%)	3.182V	
5VSB Transient Response (200%)	4.921V	
Hold-Up Time & PWR_OK Signal	26.40ms	
AC Loss to PWR_OK Hold Up Time	23.30ms	
PWR_OK Inactive to DC Loss Delay	3.10ms	
PSU Timings: T1 (20% / 100%)	47.0ms	47.0ms
PSU Timings: T3 (20% / 100%)	120.0ms	122.0ms
12V OCP (28.9°C / 41.9°C)	80.00A (112.99%), 11.967V	80.00A (112.99%), 11.970V
5V OCP (28.9°C / 41.9°C)	24.0A (120.00%), 4.992V	23.8A (119.00%), 4.977V
3.3V OCP (28.9°C / 41.9°C)	24.4A (122.00%), 3.277V	23.7A (118.50%), 3.275V
5VSB OCP (28.9°C / 41.9°C)	4.4A (146.67%), 5.01V	4.4A (146.67%), 5.003V
OPP (29.95°C / 43.30°C)	123.84%	119.14%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	26.4
AC Loss to PWR_OK Hold Up Time (ms)	23.3
PWR_OK Inactive to DC Loss Delay (ms)	3.1

Vampire Power

Tables

115V

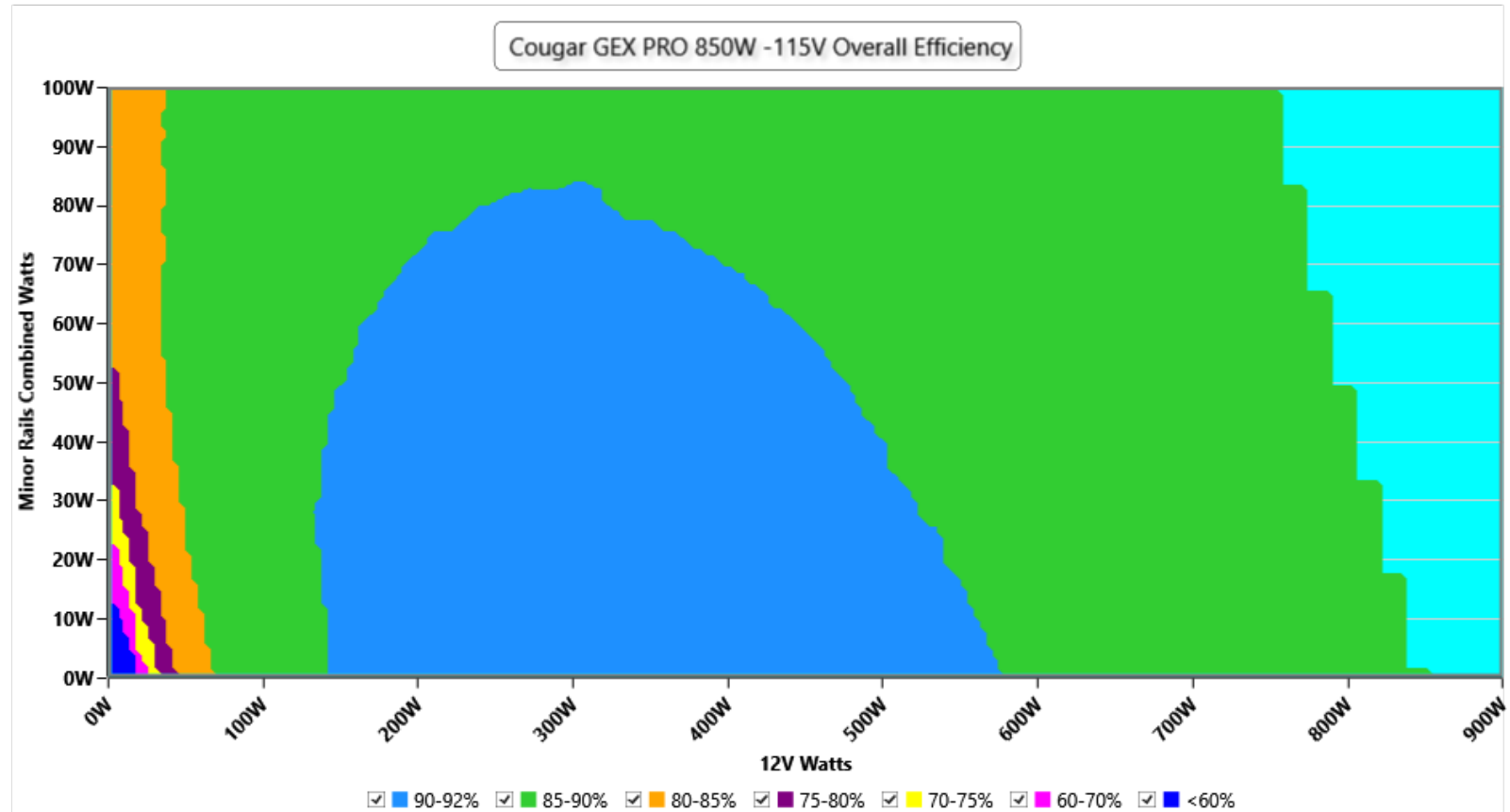
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.07 V	115.04 V	113.85 V	115.11 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.13 %	0.08 %	N/A	0.20 %	2.00 %	PASS
Real Power:	0.043 W	-0.005 W	N/A	0.086 W	N/A	N/A
Apparent Power:	6.693 W	6.314 W	N/A	7.010 W	N/A	N/A
Power Factor:	0.007	N/A	N/A	N/A	N/A	N/A

230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.01 V	230.90 V	227.70 V	231.08 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	49.99 Hz	49.50 Hz	50.01 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.417	1.416	1.340	1.419	1.490	PASS
Mains Voltage THD:	0.17 %	0.15 %	N/A	0.27 %	2.00 %	PASS
Real Power:	0.114 W	0.071 W	N/A	0.173 W	N/A	N/A
Apparent Power:	21.096 W	20.619 W	N/A	21.590 W	N/A	N/A
Power Factor:	0.007	N/A	N/A	N/A	N/A	N/A

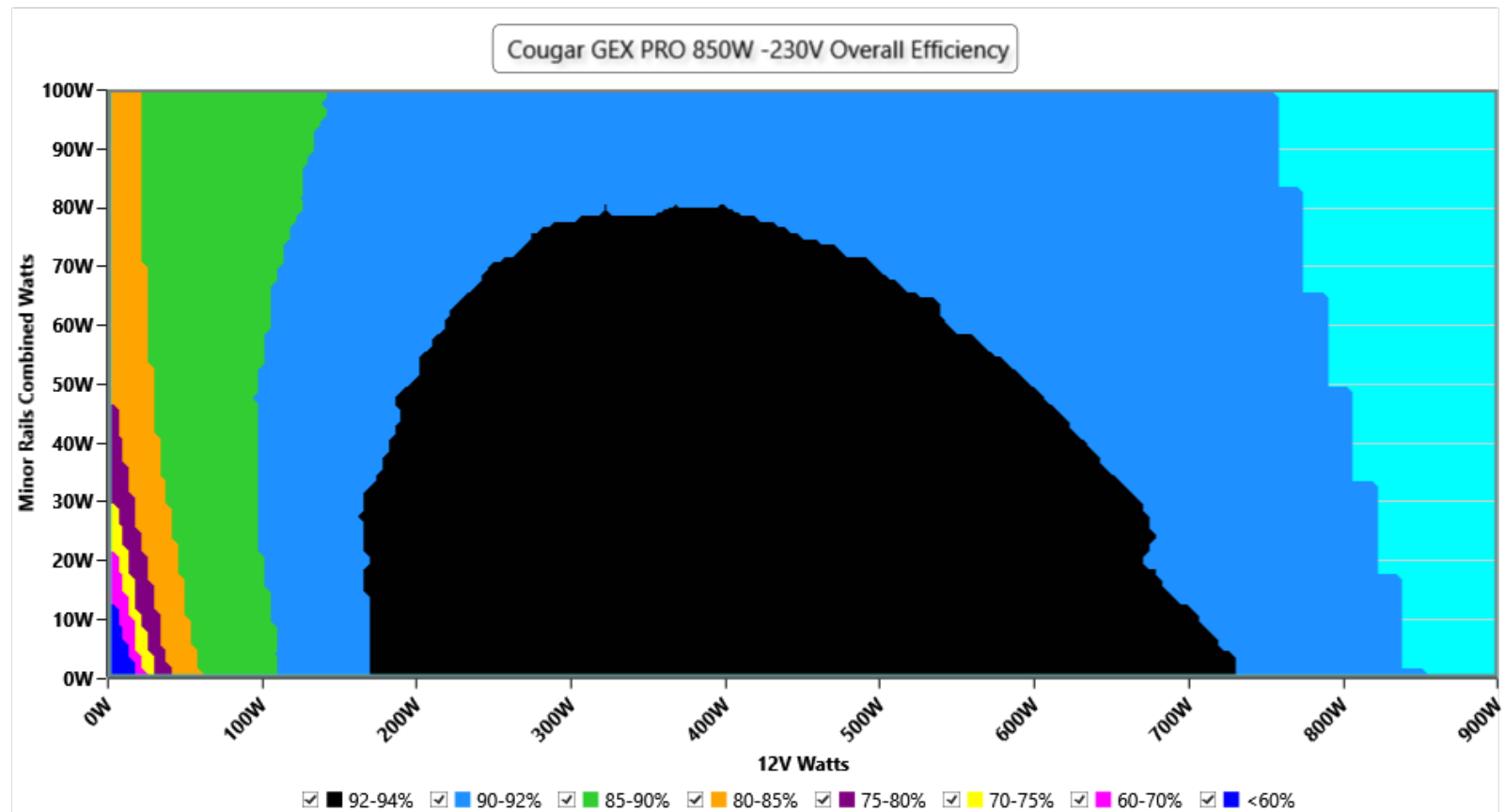
Efficiency Graph

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

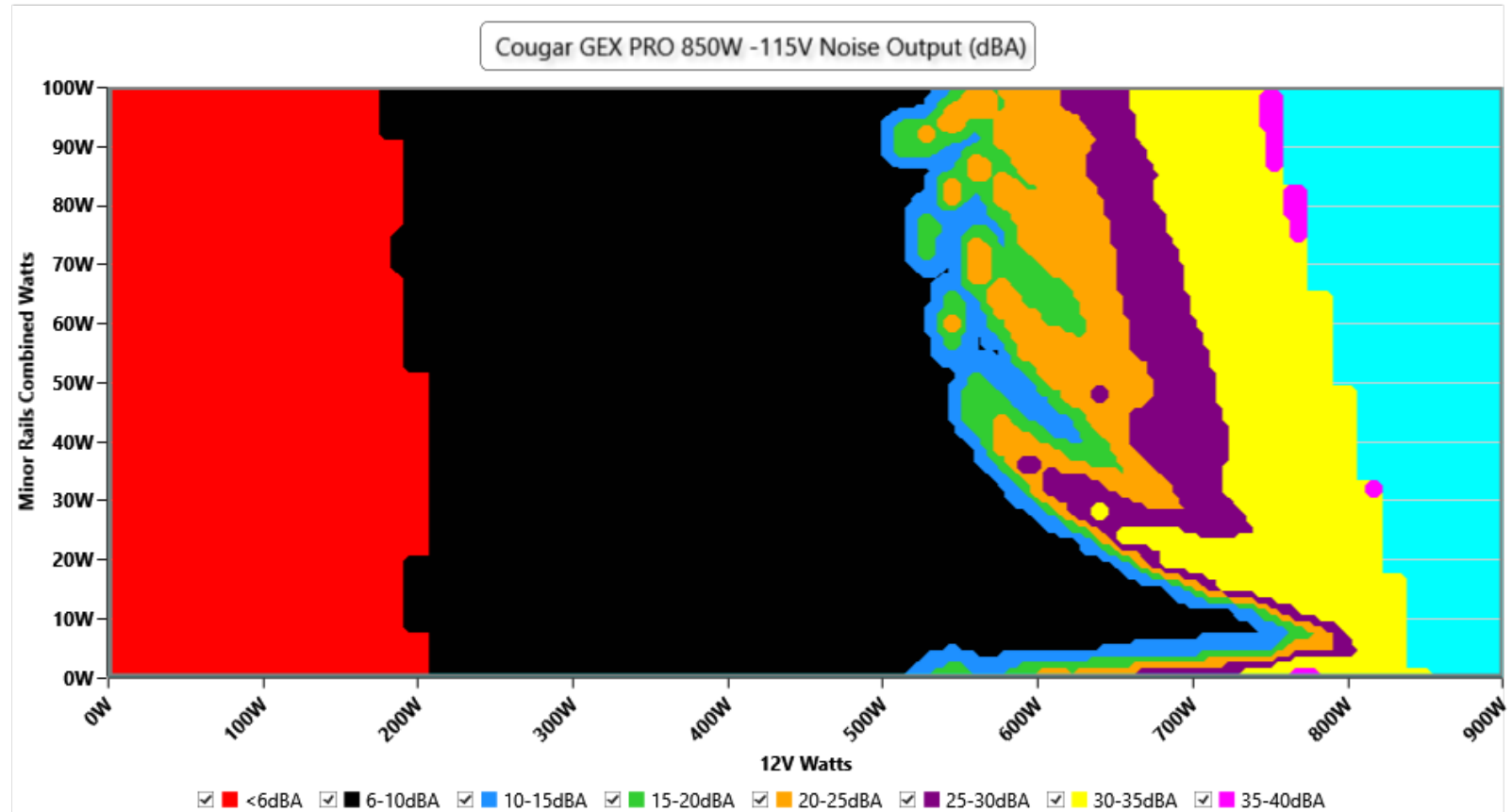


INFO

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

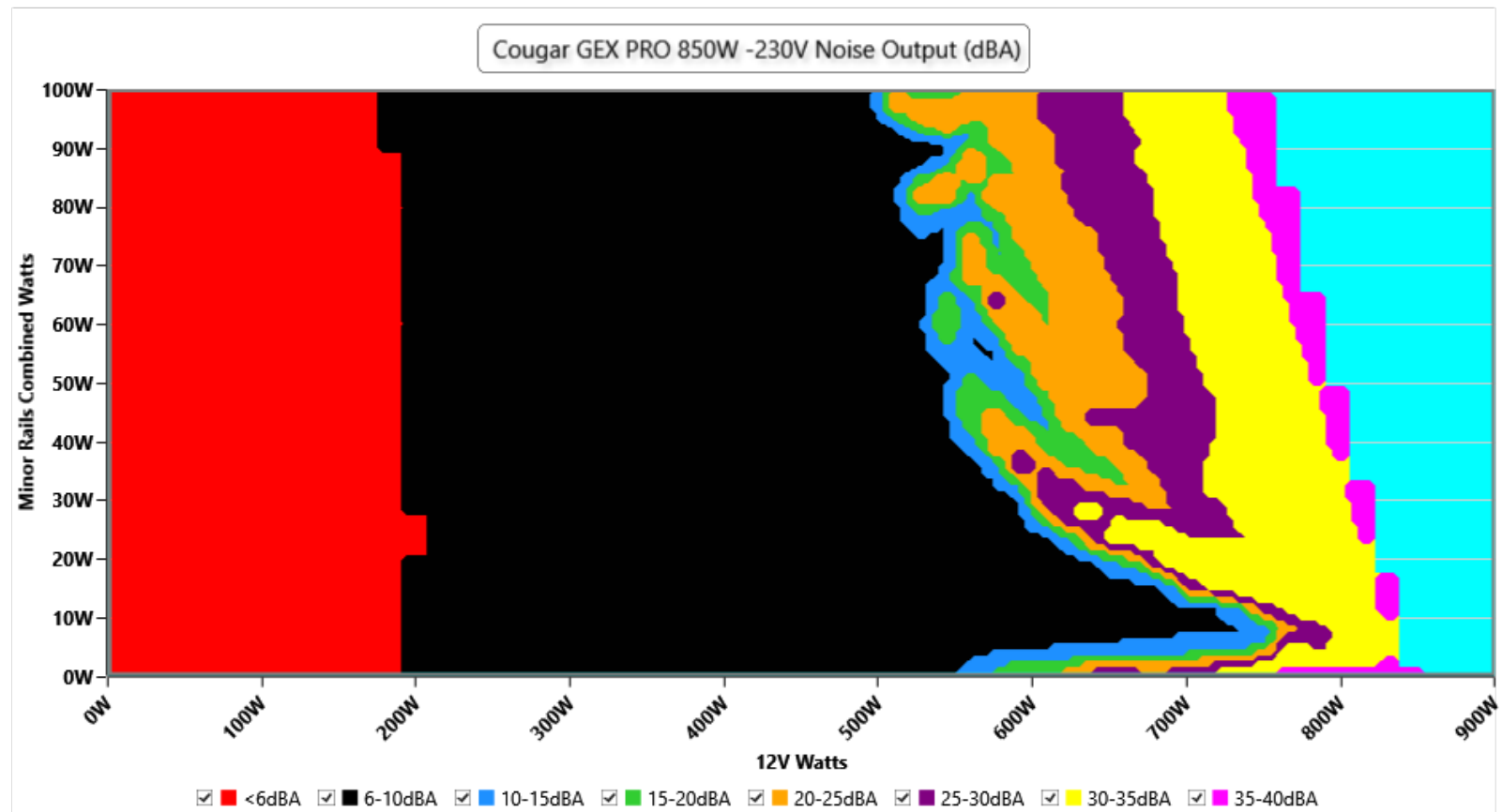
Noise Graph

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

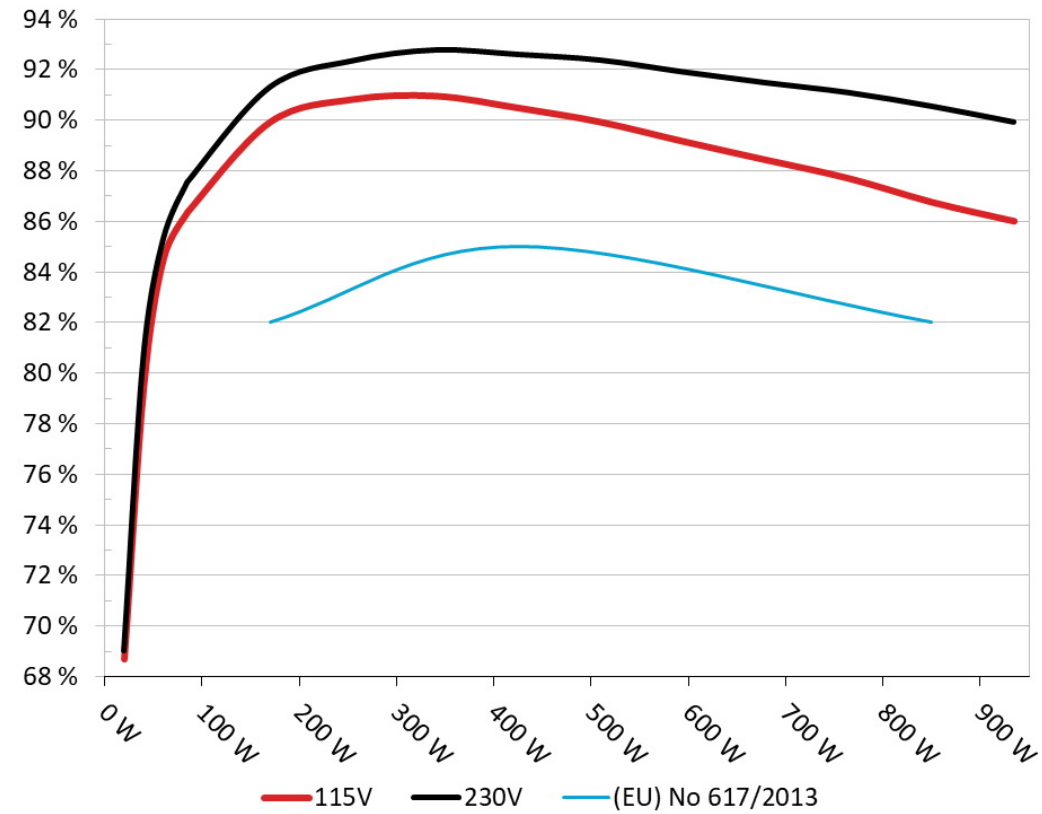
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance

Efficiency under high ambient temperature

Efficiency: Cougar GEX PRO 850W

Ambient: 36°C - 47°C (96.8°F - 116.6°F)



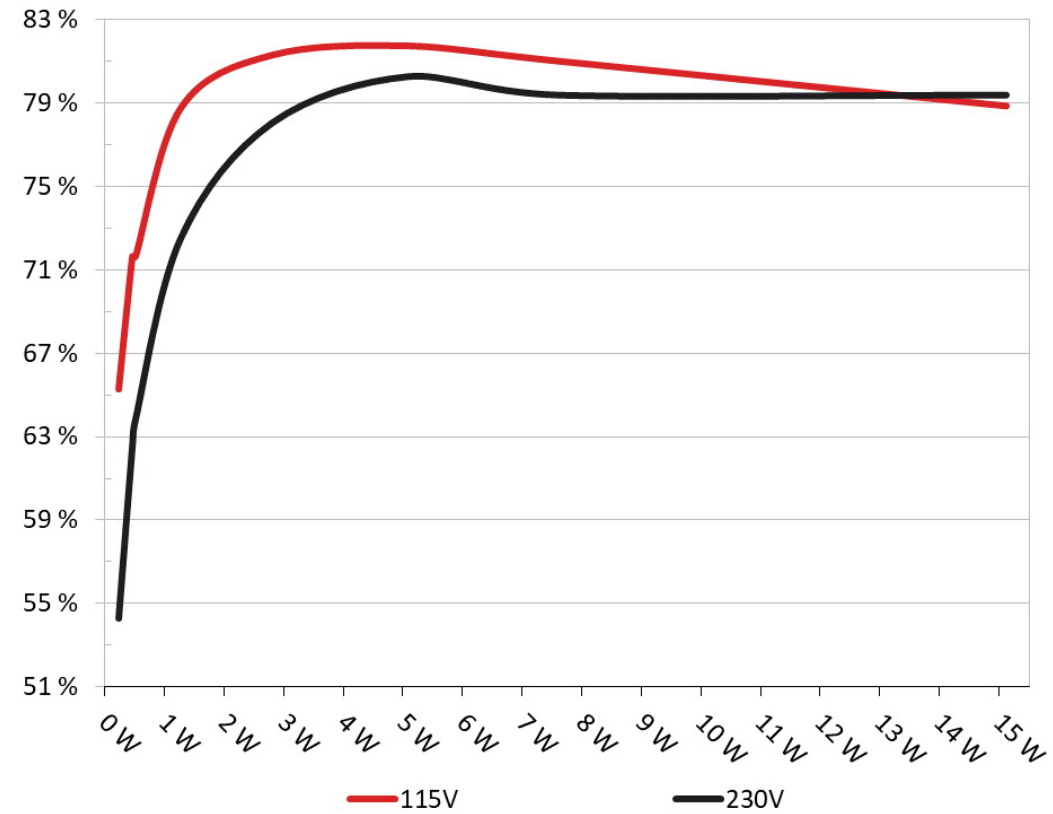
INFO

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: Cougar GEX PRO 850W

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	0.23W	65.291%	0.056
	5.103V	0.353W		114.91V
2	0.09A	0.459W	71.641%	0.098
	5.102V	0.641W		114.91V
3	0.55A	2.801W	81.275%	0.328
	5.093V	3.447W		114.92V
4	1A	5.084W	81.723%	0.404
	5.084V	6.221W		114.91V
5	1.5A	7.611W	80.99%	0.439
	5.073V	9.397W		114.91V
6	3A	15.122W	78.844%	0.494
	5.04V	19.179W		114.91V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	54.298%	0.02
	5.104V	0.425W		229.88V
2	0.09A	0.46W	62.595%	0.034
	5.103V	0.737W		229.88V
3	0.55A	2.802W	78.023%	0.151
	5.095V	3.59W		229.91V
4	1A	5.085W	80.248%	0.231
	5.085V	6.338W		229.89V
5	1.5A	7.612W	79.363%	0.295
	5.074V	9.591W		229.89V
6	3A	15.125W	79.363%	0.38
	5.042V	19.057W		229.88V

Protection Features

OCP (Normal @ 28.9°C)	12V: 80.00A (112.99%), 11.967V 5V: 24.0A (120.00%), 4.992V 3.3V: 24.4A (122.00%), 3.277V 5VSB: 4.4A (146.67%), 5.01V
OCP (Hot @ 41.9°C)	12V: 80.00A (112.99%), 11.970V 5V: 23.8A (119.00%), 4.977V 3.3V: 23.7A (118.50%), 3.275V 5VSB: 4.4A (146.67%), 5.003V
OPP (Normal @ 29.9°C)	1052.67W (123.84%)
OPP (Hot @ 43.3°C)	1012.66W (119.14%)
OTP	✗ (Didn't shut down)
SCP	12V to Earth: ✓ 5V to Earth: ✓ 3.3V to Earth: ✓ 5VSB to Earth: ✓ -12V to Earth: ✓
PWR_OK	Proper Operation
NLO	✓
Fan Failure Protection	✗
SIP	Surge: MOV Inrush: NTC & Bypass Relay

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%	5.298A	1.99A	2.001A	0.986A	85.002	86.385%	435	6.8	40.02°C	0.967
	11.969V	5.025V	3.299V	5.073V	98.398				45.29°C	114.89V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20%	11.618A	2.987A	3.003A	1.186A	169.945	89.942%	438	6.8	40.51°C	0.975
	11.968V	5.022V	3.297V	5.061V	188.95				47.67°C	114.86V
30%	18.293A	3.486A	3.505A	1.386A	254.959	90.838%	441	6.8	41.07°C	0.982
	11.967V	5.02V	3.295V	5.05V	280.678				51.55°C	114.83V
40%	24.975A	3.986A	4.008A	1.588A	340.061	90.971%	446	6.6	41.5°C	0.987
	11.966V	5.018V	3.294V	5.039V	373.813				56.01°C	114.8V
50%	31.289A	4.986A	5.014A	1.791A	424.918	90.498%	454	7	42.01°C	0.99
	11.966V	5.015V	3.291V	5.027V	469.533				62.59°C	114.77V
60%	37.578A	5.988A	6.022A	1.995A	509.47	89.941%	466	6.6	42.91°C	0.992
	11.966V	5.011V	3.289V	5.014V	566.449				68.33°C	114.73V
70%	43.932A	6.99A	7.03A	2.199A	594.773	89.172%	951	21.8	43.22°C	0.993
	11.965V	5.008V	3.287V	5.002V	666.996				65.94°C	114.7V
80%	50.287A	7.989A	8.038A	2.303A	679.557	88.44%	1348	32.8	43.61°C	0.994
	11.964V	5.006V	3.285V	4.994V	768.386				63.38°C	114.68V
90%	57.043A	8.492A	8.529A	2.407A	764.952	87.708%	1659	38.6	44.96°C	0.995
	11.964V	5.004V	3.283V	4.986V	872.159				63.71°C	114.64V
100%	63.531A	8.995A	9.051A	3.021A	849.761	86.771%	1704	39.5	45.9°C	0.995
	11.964V	5.002V	3.282V	4.966V	979.319				66.95°C	114.6V
110%	69.884A	10.006A	10.155A	3.025A	934.293	86.02%	1710	39.6	46.46°C	0.996
	11.963V	4.996V	3.279V	4.959V	1086.177				66.49°C	114.57V
CL1	0.116A	12.041A	12.089A	0A	101.286	82.08%	468	7	40.31°C	0.978
	11.970V	4.999V	3.284V	5.08V	123.402				59.62°C	114.88V
CL2	0.116A	20.041A	0A	0A	101.336	80.016%	464	6.6	40.75°C	0.977
	11.970V	4.987V	3.286V	5.083V	126.643				56.43°C	114.88V
CL3	0.115A	0A	20.113A	0A	67.395	74.378%	460	6.8	40.48°C	0.962
	11.973V	5.012V	3.282V	5.082V	90.613				54.08°C	114.9V
CL4	70.992A	0A	0A	0A	849.505	87.757%	1698	39.4	45.73°C	0.995
	11.966V	5.019V	3.294V	5.038V	968.024				65.44°C	114.61V

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%	5.298A	1.99A	2.001A	0.986A	85.005	87.569%	443	6.6	40.04°C	0.847
	11.969V	5.025V	3.299V	5.072V	97.072				43.9°C	229.87V
20%	11.619A	2.987A	3.003A	1.186A	169.948	91.331%	445	6.5	40.83°C	0.932
	11.967V	5.022V	3.297V	5.061V	186.083				45.76°C	229.86V
30%	18.293A	3.486A	3.505A	1.386A	254.955	92.377%	449	6.1	41.01°C	0.957
	11.967V	5.02V	3.295V	5.05V	275.993				48.05°C	229.85V
40%	24.974A	3.986A	4.008A	1.588A	340.05	92.802%	454	7	41.52°C	0.968
	11.967V	5.018V	3.294V	5.039V	366.423				50.96°C	229.83V
50%	31.287A	4.985A	5.014A	1.791A	424.888	92.627%	460	6.8	42.5°C	0.975
	11.966V	5.015V	3.291V	5.027V	458.71				55.03°C	229.82V
60%	37.576A	5.987A	6.022A	1.994A	509.43	92.401%	468	7	42.89°C	0.98
	11.966V	5.012V	3.289V	5.015V	551.323				59.17°C	229.8V
70%	43.929A	6.989A	7.03A	2.199A	594.733	91.934%	943	21.5	43.33°C	0.982
	11.965V	5.009V	3.287V	5.003V	646.912				59.11°C	229.79V
80%	50.287A	7.988A	8.038A	2.303A	679.548	91.508%	1329	32.1	43.55°C	0.984
	11.964V	5.006V	3.285V	4.995V	742.608				57.16°C	229.77V
90%	57.045A	8.49A	8.529A	2.407A	764.955	91.114%	1640	38.2	44.7°C	0.986
	11.963V	5.005V	3.283V	4.986V	839.559				57.11°C	229.76V
100%	63.535A	8.994A	9.051A	3.021A	849.768	90.577%	1704	39.5	45.6°C	0.987
	11.963V	5.003V	3.281V	4.966V	938.171				59.36°C	229.74V
110%	69.890A	10A	10.155A	3.025A	934.36	89.951%	1718	39.7	46.63°C	0.989
	11.963V	4.999V	3.279V	4.958V	1038.736				62.91°C	229.73V
CL1	0.117A	12.039A	12.088A	0A	101.294	83.318%	470	7.4	41.37°C	0.882
	11.970V	5V	3.284V	5.08V	121.577				55.46°C	229.87V
CL2	0.116A	20.042A	0A	0A	101.34	81.216%	466	6.6	41.51°C	0.885
	11.970V	4.987V	3.285V	5.083V	124.78				53.8°C	229.87V
CL3	0.116A	0A	20.116A	0A	67.397	75.579%	461	6.8	41.75°C	0.828
	11.971V	5.011V	3.282V	5.082V	89.174				52.83°C	229.88V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL4	70.995A	0A	0A	0A	849.52	91.357%	1699	39.4	45.78°C	0.987
	11.966V	5.019V	3.294V	5.038V	929.892				58.52°C	229.74V

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	1.232A	0.497A	0.5A	0.196A	20.002	68.695%	436	6.6	36.96°C	0.858
	12.054V	5.029V	3.301V	5.095V	29.116				43.66°C	114.91V
40W	2.722A	0.696A	0.7A	0.295A	40	79.5%	434	7.2	37.54°C	0.931
	12.008V	5.028V	3.301V	5.092V	50.315				43.45°C	114.9V
60W	4.222A	0.895A	0.9A	0.393A	59.998	84.497%	433	7.5	38.23°C	0.952
	11.967V	5.028V	3.301V	5.088V	71.008				43.77°C	114.9V
80W	5.708A	1.094A	1.1A	0.492A	79.943	86.394%	434	7.2	39.36°C	0.962
	11.969V	5.027V	3.3V	5.084V	92.534				44.53°C	114.89V

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	1.234A	0.497A	0.5A	0.196A	20.003	69.026%	434	7.2	36.34°C	0.553
	12.040V	5.03V	3.301V	5.096V	28.978				40.31°C	229.89V
40W	2.724A	0.696A	0.7A	0.295A	40.001	80.661%	435	6.8	37.21°C	0.692
	11.998V	5.029V	3.301V	5.092V	49.594				40.84°C	229.88V
60W	4.224A	0.895A	0.9A	0.393A	60.001	85.262%	436	6.6	38.23°C	0.775
	11.965V	5.028V	3.301V	5.088V	70.374				41.72°C	229.88V
80W	5.708A	1.094A	1.1A	0.492A	79.949	87.674%	438	6.8	39.16°C	0.833
	11.968V	5.027V	3.3V	5.084V	91.191				42.46°C	229.88V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	26.74mV	12.31mV	14.89mV	15.24mV	Pass
20% Load	29.51mV	12.67mV	16.11mV	15.65mV	Pass
30% Load	22.19mV	12.31mV	14.99mV	15.09mV	Pass
40% Load	21.22mV	12.21mV	14.43mV	15.34mV	Pass
50% Load	20.70mV	14.26mV	16.98mV	16.22mV	Pass
60% Load	18.86mV	15.07mV	17.29mV	16.68mV	Pass
70% Load	18.91mV	14.00mV	17.50mV	16.42mV	Pass
80% Load	19.73mV	14.66mV	16.57mV	16.63mV	Pass
90% Load	20.14mV	14.26mV	15.96mV	17.75mV	Pass
100% Load	33.59mV	15.60mV	17.86mV	18.46mV	Pass
110% Load	33.98mV	16.22mV	18.40mV	19.50mV	Pass
Crossload1	41.06mV	17.68mV	17.65mV	15.92mV	Pass
Crossload2	30.32mV	22.12mV	16.98mV	15.24mV	Pass
Crossload3	26.00mV	15.99mV	18.01mV	15.19mV	Pass
Crossload4	30.86mV	12.64mV	16.98mV	18.17mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	27.64mV	11.60mV	14.84mV	14.37mV	Pass
20% Load	28.53mV	12.36mV	14.78mV	15.19mV	Pass
30% Load	22.60mV	11.90mV	14.89mV	15.24mV	Pass
40% Load	21.22mV	12.57mV	13.91mV	15.09mV	Pass
50% Load	22.03mV	13.64mV	16.52mV	15.70mV	Pass
60% Load	18.86mV	14.51mV	17.04mV	16.62mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
70% Load	19.73mV	15.07mV	17.65mV	16.63mV	Pass
80% Load	19.48mV	13.03mV	15.09mV	16.78mV	Pass
90% Load	20.80mV	15.02mV	17.03mV	16.93mV	Pass
100% Load	33.36mV	15.56mV	17.39mV	19.24mV	Pass
110% Load	35.85mV	15.61mV	17.97mV	19.70mV	Pass
Crossload1	40.67mV	16.39mV	16.74mV	16.40mV	Pass
Crossload2	30.68mV	21.61mV	15.70mV	15.55mV	Pass
Crossload3	28.31mV	14.30mV	17.65mV	15.45mV	Pass
Crossload4	31.47mV	12.66mV	18.48mV	19.65mV	Pass

The results above are not used in the certification process

Cougar GEX PRO 850



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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