Cougar GLE 1000W

Serial Number ZBD08GL10000005

Lab ID CG10002585

Certification ID 252585

Test Result Report ID: 24PS2585A

Certificate Issue Date: Oct 4, 2024

Scheme: ETA-EMI PSU

115V: CYBENETICS PLATINUM

230V: CYBENETICS PLATINUM 230v

Scheme: LAMBDA PSU

115V: CYBENETICS A-

230V: CYBENETICS A- 230v

CYBENETICS ATX 3.1 PASS

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	GLE 1000W
OEM/ODM	CE-Link
Serial Number	ZBD08GL10000005
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	50-60

Rated Frequency (Hz)	15-7.5
Rated Power (W)	1000
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	135mm Hydraulic Dynamic Bearing Fan (DF1352512FDMN)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	CG10002585
Date of receipt	Sep 16, 2024
Testing Date	Sep 30, 2024
Report Issued Date	Oct 4, 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 (590mm)	1	1	16-22AWG	No
4+4 pin EPS12V (650mm)	2	2	18AWG	No
6+2 pin PCIe (650mm+100mm)	3	6	16AWG	No
12+4 pin PCIe (650mm) (600W)	1	1	16-26AWG	No
SATA (510mm+150mm+150mm+150mm)	3	12	18AWG	No
4-pin Molex (500mm+150mm+150mm+150mm)	1	4	18AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	17AWG	-

Protection Features(Manufacturer)

Over Power Protection	✓
Over Current (+12V) Protection	✓
Over Temperature Protection	✓
Short Circuit Protection	✓
Surge Protection	✓
Inrush Current Protection	✓
Fan Failure Protection	✗

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	83.3	3	0.3
	Watts	120		1000	15	3.6
Total Max. Power (W)		1000				

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)	89.128%

Average Noise Output (>1450 Load Combinations)	27.81dBA
Average PF (>1450 Load Combinations)	0.987
Efficiency With 10W (≤500W) or 2% (>500W) Load	66.286%
Standby Power Consumption	0.0365W
Non-Accredited	
12V Ripple (Full Load)	25.84mV
5V Ripple (Full Load)	18.98mV
3.3V Ripple (Full Load)	15.37mV
5VSB Ripple (Full Load)	15.57mV
12V Load Regulation	1.37%
5V Load Regulation	0.26%
3.3V Load Regulation	0.48%
5VSB Load Regulation	1.54%
Inrush Current	36.960A

230V

Accredited	
Average Efficiency (>1450 load combinations)	91.249%
Average Noise Output (>1450 Load Combinations)	27.54dBA
Average PF (>1450 Load Combinations)	0.950
Efficiency With 10W (≤500W) or 2% (>500W) Load	67.232%
Standby Power Consumption	0.0707W
Non-Accredited	
12V Ripple (Full Load)	25.05mV
5V Ripple (Full Load)	19.85mV
3.3V Ripple (Full Load)	14.69mV
5VSB Ripple (Full Load)	15.82mV
12V Load Regulation	1.33%
5V Load Regulation	0.32%
3.3V Load Regulation	0.51%
5VSB Load Regulation	1.62%
Inrush Current	67.520A

12V Transient Response (200%)		11.20V
5V Transient Response (200%)		4.898V
3.3V Transient Response (200%)		3.205V
5VSB Transient Response (200%)		4.913V
Hold-Up Time & PWR_OK Signal		19.00ms
AC Loss to PWR_OK Hold Up Time		16.40ms
PWR_OK Inactive to DC Loss Delay		2.60ms
PSU Timings: T1 (20% / 100%)	105.0ms	86.0ms
PSU Timings: T3 (20% / 100%)	124.0ms	124.0ms
12V OCP (30.0°C / 42.6°C)	121.80A (146.22%), 11.880V	114.00A (136.85%), 11.935V
5V OCP (30.0°C / 42.6°C)	30A (150.00%), 4.954V	30.1A (150.50%), 4.967V
3.3V OCP (30.0°C / 42.6°C)	28A (140.00%), 3.302V	27.9A (139.50%), 3.306V
5VSB OCP (30.0°C / 42.6°C)	6.2A (206.67%), 4.892V	6.3A (210.00%), 4.886V
OPP (30.73°C / 42.85°C)	143.11%	131.31%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	19
AC Loss to PWR_OK Hold Up Time (ms)	16.4
PWR_OK Inactive to DC Loss Delay (ms)	2.6

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Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.08 V	115.04 V	113.85 V	115.12 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	1.419	1.490	PASS

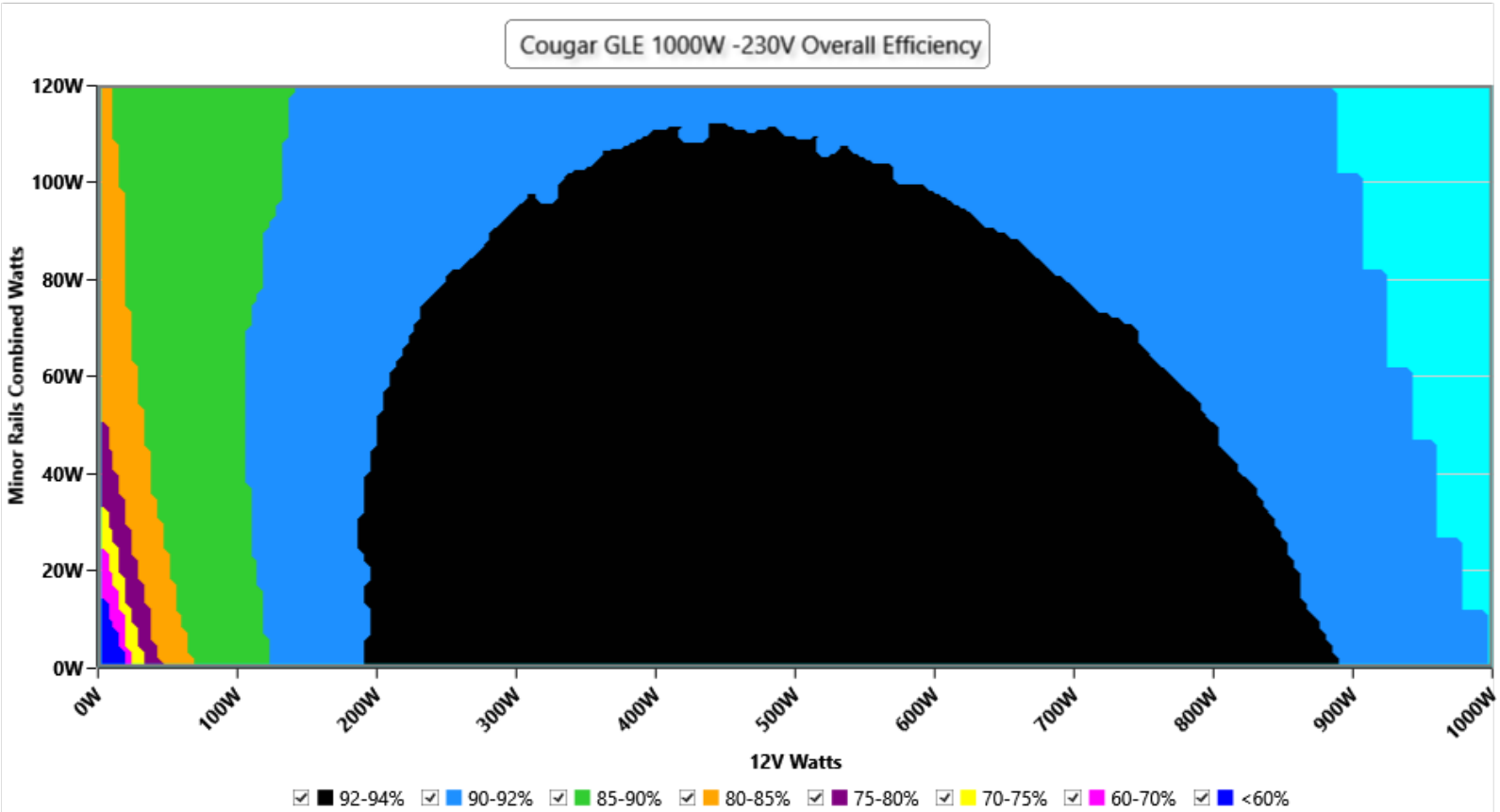
Mains Voltage THD:	0.13 %	0.08 %	N/A	0.21 %	2.00 %	PASS
Real Power:	0.037 W	-0.009 W	N/A	0.075 W	N/A	N/A
Apparent Power:	8.508 W	8.061 W	N/A	8.949 W	N/A	N/A
Power Factor:	0.007	N/A	N/A	N/A	N/A	N/A

230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.01 V	230.93 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 %	0.14 %	N/A	0.26 %	2.00 %	PASS
Real Power:	0.071 W	0.031 W	N/A	0.124 W	N/A	N/A
Apparent Power:	26.847 W	26.269 W	N/A	27.400 W	N/A	N/A
Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

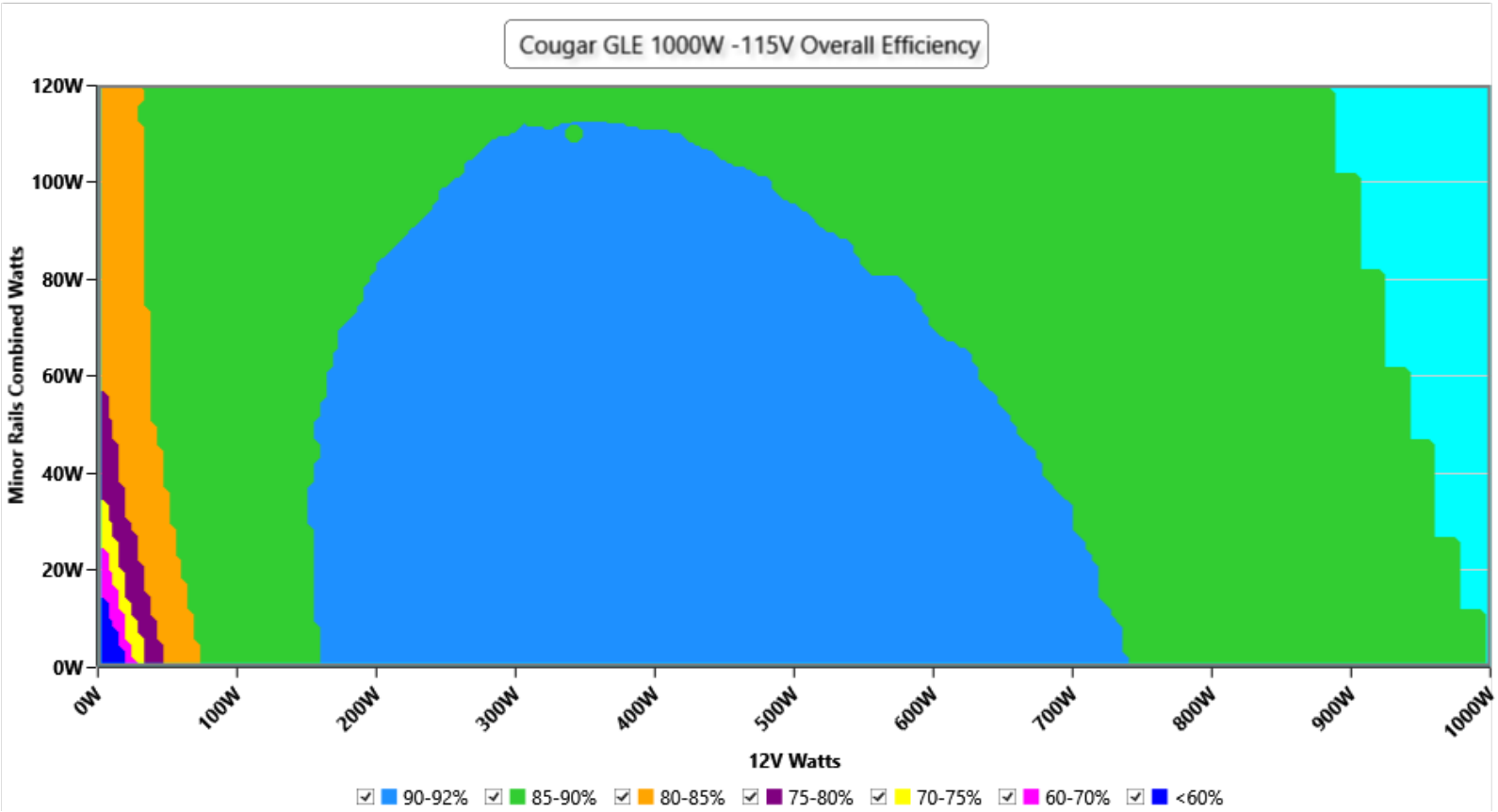
115V



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

230V



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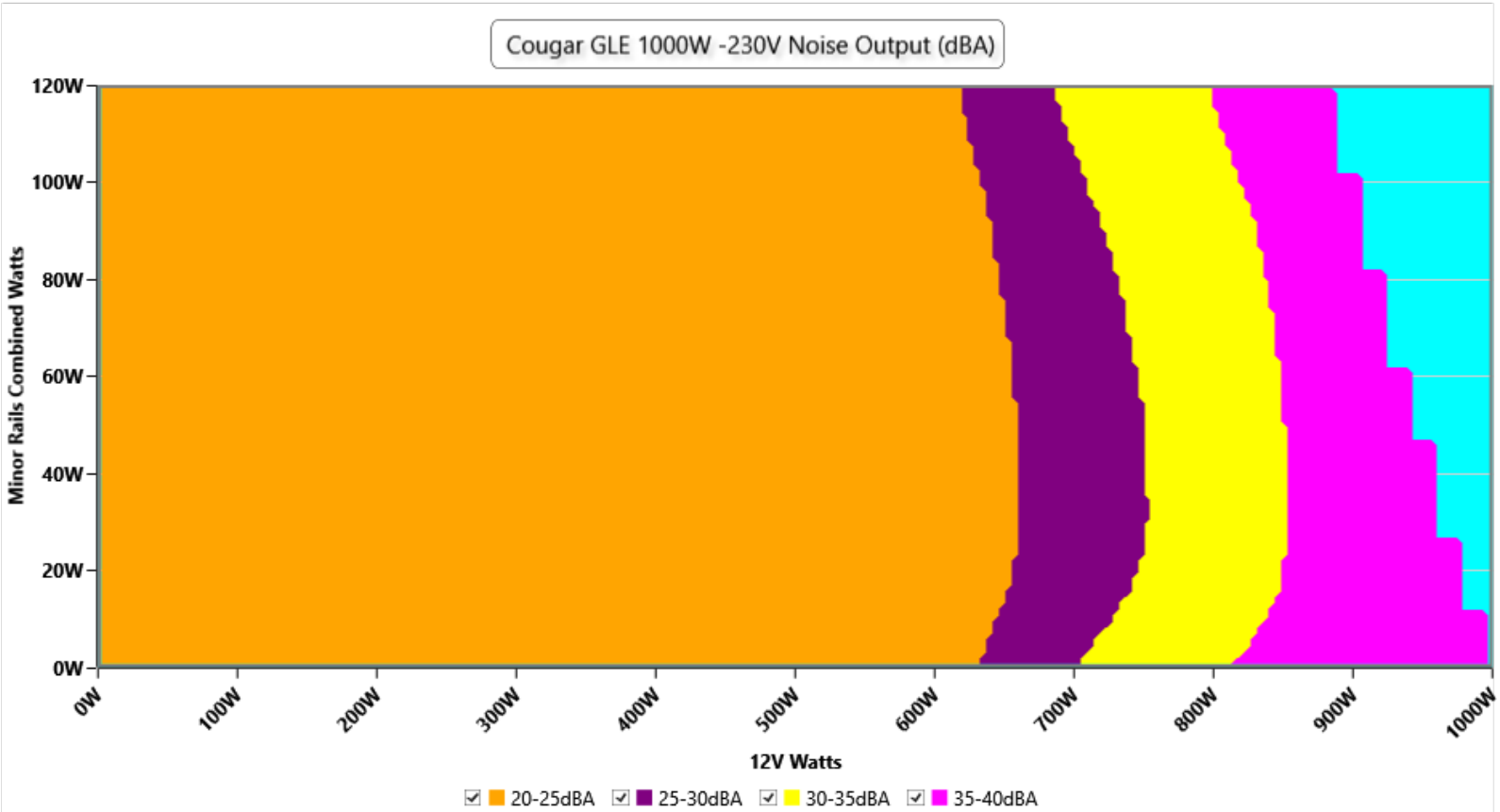
Noise Graph

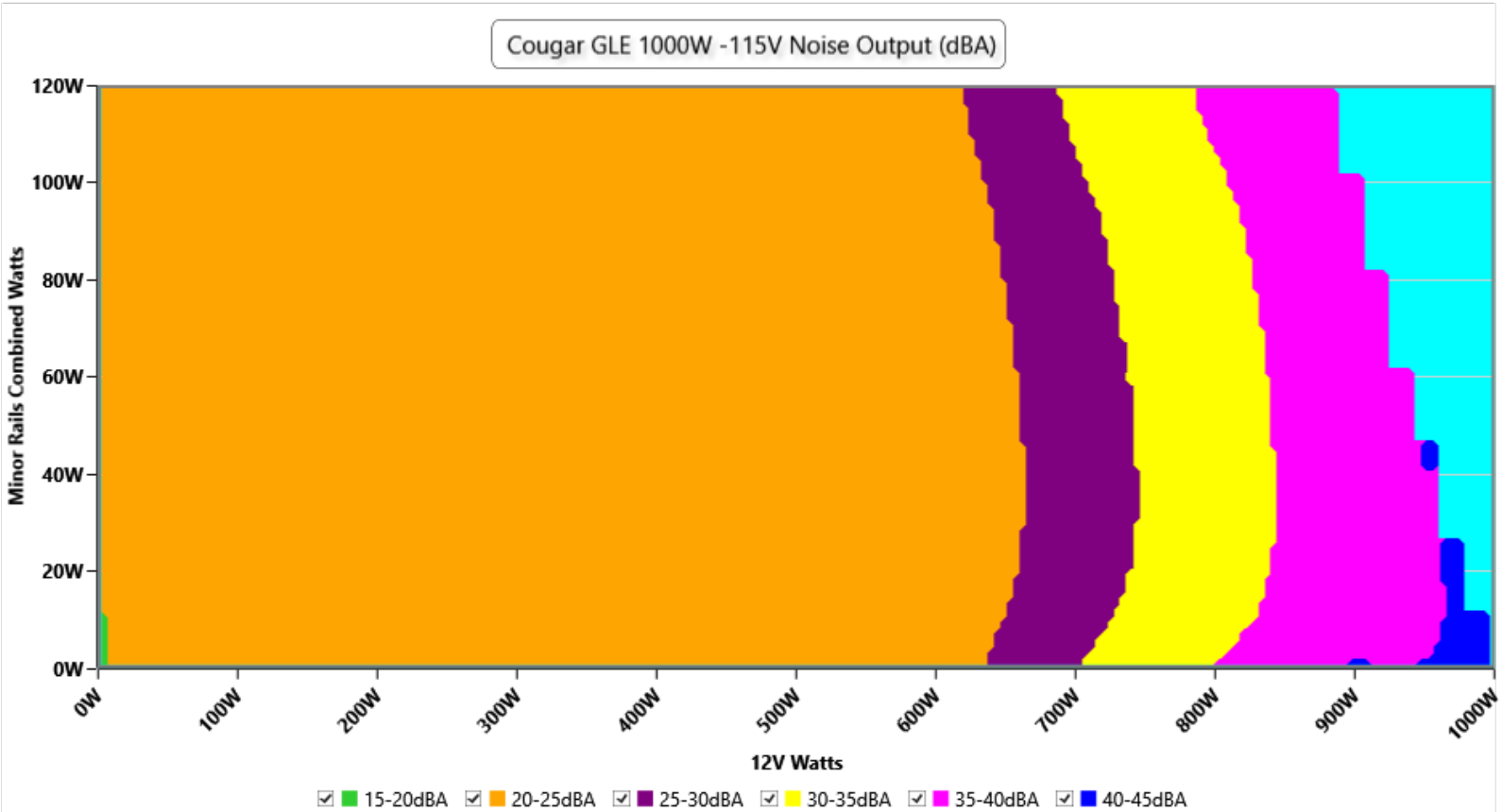
115V



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

230V

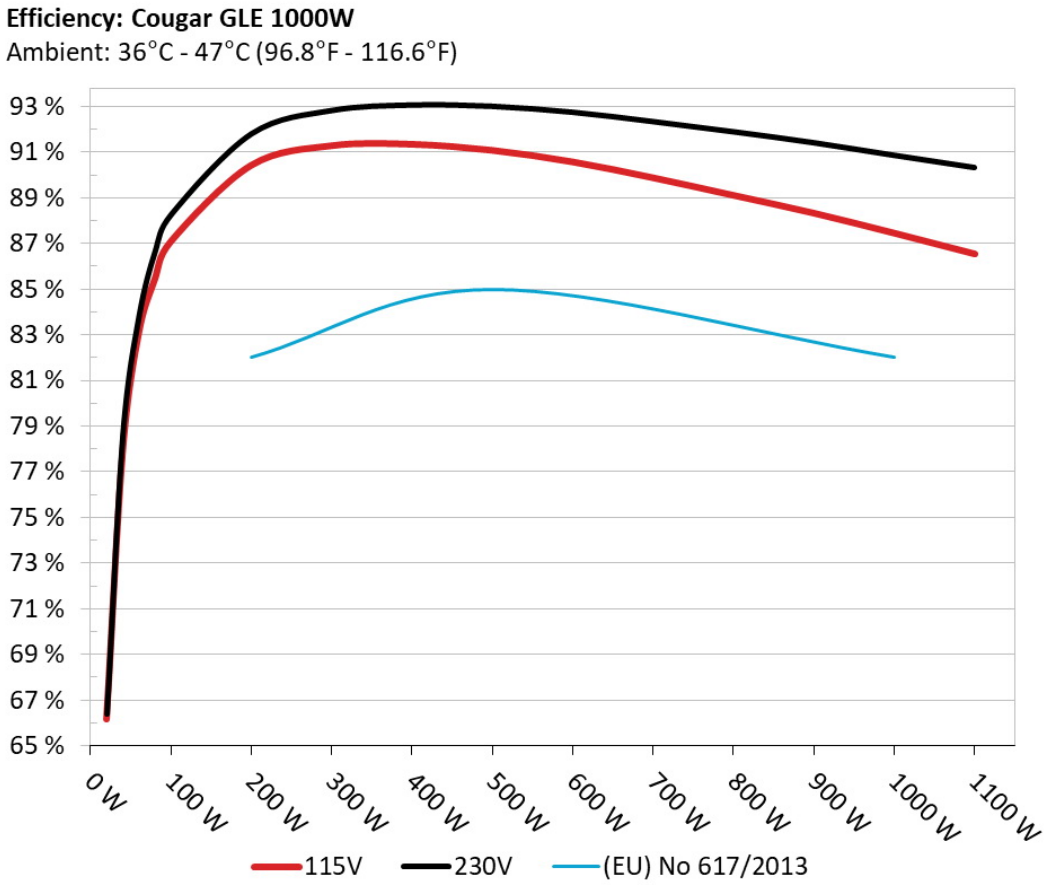


INFO

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

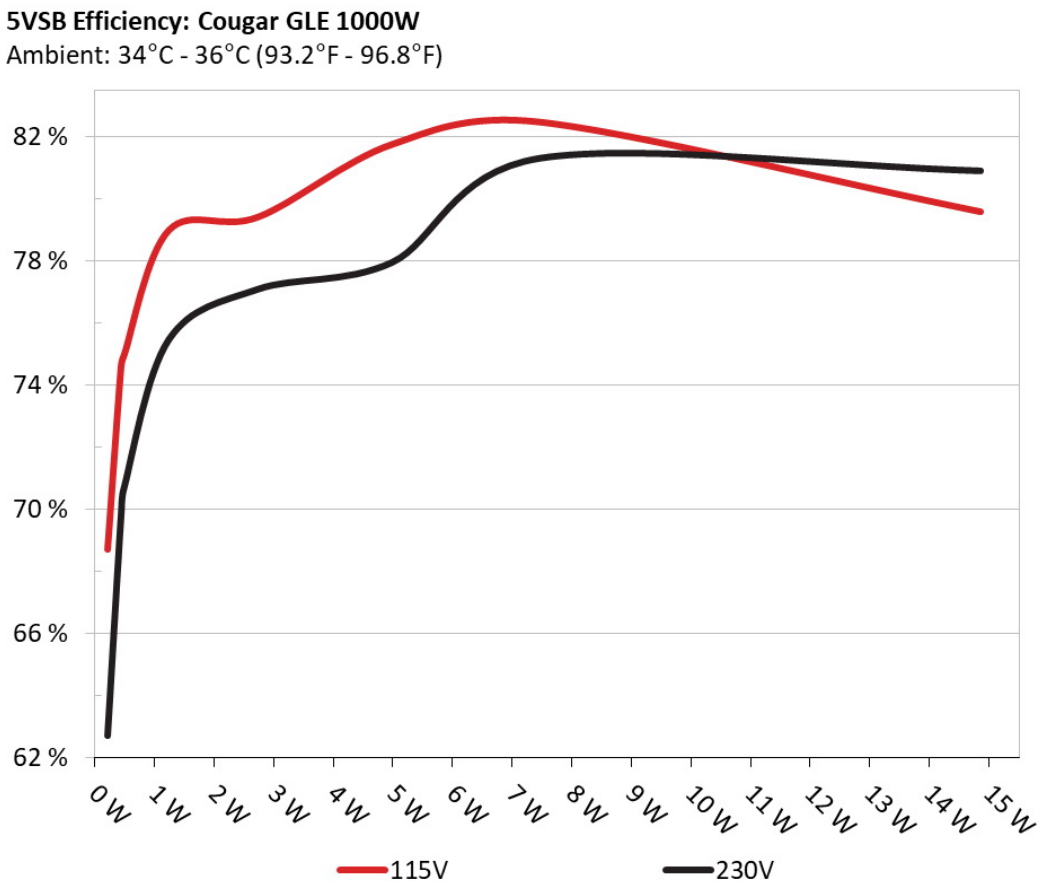
Efficiency under high ambient temperature



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

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

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.226W	68.723%	0.041
	5.011V	0.329W		114.92V
2	**0.09A**	0.451W	74.613%	0.074
	5.011V	0.605W		114.92V
3	**0.55A**	2.751W	79.433%	0.297
	5.001V	3.464W		114.92V
4	**1A**	4.993W	81.772%	0.37
	4.993V	6.106W		114.91V
5	**1.5A**	7.475W	82.492%	0.419
	4.983V	9.061W		114.92V
6	**3A**	14.861W	79.602%	0.481
	4.954V	18.669W		114.91V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.226W	62.737%	0.013
	5.011V	0.362W		229.89V
2	**0.09A**	0.451W	69.809%	0.024
	5.011V	0.646W		229.89V
3	**0.55A**	2.751W	77.104%	0.122
	5.001V	3.567W		229.89V
4	**1A**	4.993W	77.961%	0.198
	4.993V	6.403W		229.89V
5	**1.5A**	7.475W	81.315%	0.238
	4.983V	9.193W		229.89V
6	**3A**	14.859W	80.908%	0.343
	4.953V	18.365W		229.89V

Protection Features

OCP (Normal @ 30.0°C)	12V: 121.80A (146.22%), 11.880V 5V: 30A (150.00%), 4.954V 3.3V: 28A (140.00%), 3.302V 5VSB: 6.2A (206.67%), 4.892V
OCP (Hot @ 42.6°C)	12V: 114.00A (136.85%), 11.935V 5V: 30.1A (150.50%), 4.967V 3.3V: 27.9A (139.50%), 3.306V 5VSB: 6.3A (210.00%), 4.886V
OPP (Normal @ 30.7°C)	1431.11W (143.11%)
OPP (Hot @ 42.9°C)	1313.12W (131.31%)
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%	**6.477A**	**1.989A**	**1.986A**	**0.999A**	100.012	87.079%	931	22.4	40.21°C	0.974
	12.106V	5.027V	3.323V	5.006V	114.853				42.67°C	114.88V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20%	**13.985A**	**2.985A**	**2.981A**	**1.2A**	199.969	90.413%	935	22.4	40.71°C	0.98
	12.089V	5.026V	3.322V	5.002V	221.172				44.51°C	114.84V
30%	**21.865A**	**3.483A**	**3.479A**	**1.401A**	300.022	91.272%	940	22.6	41.05°C	0.982
	12.073V	5.025V	3.321V	4.996V	328.71				46.4°C	114.82V
40%	**29.727A**	**3.981A**	**3.977A**	**1.604A**	399.612	91.334%	948	22.8	41.51°C	0.987
	12.057V	5.025V	3.32V	4.99V	437.531				48.72°C	114.78V
50%	**37.278A**	**4.977A**	**4.973A**	**1.806A**	499.319	91.071%	962	23.2	42.11°C	0.991
	12.040V	5.024V	3.318V	4.985V	548.274				50.8°C	114.74V
60%	**44.918A**	**5.974A**	**5.971A**	**2A**	599.801	90.563%	1184	29.5	42.59°C	0.993
	12.023V	5.023V	3.317V	4.981V	662.306				52.74°C	114.7V
70%	**52.516A**	**6.972A**	**6.97A**	**2.211A**	699.559	89.867%	1477	35.6	43.03°C	0.994
	12.005V	5.021V	3.315V	4.976V	778.433				53.66°C	114.67V
80%	**60.207A**	**7.969A**	**7.969A**	**2.312A**	799.583	89.102%	1759	40.7	43.62°C	0.284
	11.986V	5.019V	3.313V	4.974V	897.7				54.91°C	114.86V
90%	**68.253A**	**8.468A**	**8.455A**	**2.414A**	899.351	88.321%	2054	45.1	44.68°C	0.996
	11.969V	5.018V	3.312V	4.971V	1018.273				56.19°C	114.59V
100%	**76.125A**	**8.968A**	**8.972A**	**3.03A**	999.35	87.447%	2299	48.1	45.87°C	0.996
	11.950V	5.017V	3.311V	4.951V	1142.815				57.87°C	114.56V
110%	**83.954A**	**9.966A**	**10.064A**	**3.028A**	1099.983	86.534%	2308	48.1	47°C	0.996
	11.931V	5.016V	3.309V	4.953V	1271.165				61.16°C	114.51V
CL1	**0.116A**	**14.389A**	**14.415A**	**0A**	121.3	82.583%	961	23.2	41.03°C	0.98
	12.100V	5.017V	3.309V	5.092V	146.887				50.02°C	114.87V
CL2	**0.116A**	**19.917A**	**0A**	**0A**	101.35	81.762%	948	22.8	40.08°C	0.974
	12.110V	5.018V	3.322V	5.115V	123.96				47.66°C	114.88V
CL3	**0.114A**	**0A**	**19.936A**	**0A**	67.401	75.852%	942	22.7	40.62°C	0.963
	12.108V	5.029V	3.311V	5.038V	88.859				46.39°C	114.89V
CL4	**83.606A**	**0A**	**0A**	**0A**	999.95	88.188%	2252	47.2	45.92°C	0.996
	11.960V	5.03V	3.324V	5.011V	1133.897				57.12°C	114.57V

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%	**6.477A**	**1.989A**	**1.986A**	**0.999A**	100.013	88.252%	933	22.5	40.42°C	0.843
	12.107V	5.027V	3.323V	5.006V	113.328				42.68°C	229.87V
20%	**13.982A**	**2.985A**	**2.981A**	**1.2A**	199.965	91.79%	936	22.4	40.61°C	0.927
	12.091V	5.026V	3.322V	5.001V	217.85				43.81°C	229.85V
30%	**21.860A**	**3.483A**	**3.478A**	**1.402A**	300.017	92.808%	942	22.7	41.3°C	0.95
	12.075V	5.025V	3.321V	4.995V	323.266				45.47°C	229.83V
40%	**29.719A**	**3.981A**	**3.976A**	**1.604A**	399.608	93.046%	949	22.9	41.81°C	0.961
	12.060V	5.025V	3.32V	4.989V	429.47				46.74°C	229.82V
50%	**37.265A**	**4.977A**	**4.973A**	**1.806A**	499.319	92.993%	963	23.2	42.13°C	0.967
	12.044V	5.023V	3.318V	4.984V	536.944				48.15°C	229.8V
60%	**44.900A**	**5.974A**	**5.971A**	**2A**	599.798	92.731%	1187	29.4	42.58°C	0.972
	12.027V	5.022V	3.316V	4.979V	646.817				49.4°C	229.78V
70%	**52.494A**	**6.973A**	**6.97A**	**2.212A**	699.559	92.323%	1457	35.3	43°C	0.975
	12.010V	5.02V	3.315V	4.974V	757.732				49.57°C	229.77V
80%	**60.182A**	**7.97A**	**7.97A**	**2.313A**	799.573	91.878%	1715	40	43.61°C	0.978
	11.992V	5.018V	3.312V	4.972V	870.251				50.06°C	229.75V
90%	**68.226A**	**8.47A**	**8.456A**	**2.416A**	899.344	91.4%	2008	44.2	44.62°C	0.98
	11.973V	5.017V	3.311V	4.968V	983.966				50.97°C	229.73V
100%	**76.099A**	**8.971A**	**8.973A**	**3.032A**	999.363	90.85%	2289	47.8	45.39°C	0.981
	11.954V	5.015V	3.31V	4.948V	1100.012				51.77°C	229.71V
110%	**83.923A**	**9.97A**	**10.066A**	**3.03A**	1099.983	90.31%	2301	48.1	46.4°C	0.983
	11.936V	5.014V	3.308V	4.95V	1218.011				53.29°C	229.69V
CL1	**0.116A**	**14.393A**	**14.417A**	**0A**	121.299	84.111%	954	23	40.46°C	0.885
	12.099V	5.016V	3.309V	5.089V	144.216				47.01°C	229.86V
CL2	**0.116A**	**19.919A**	**0A**	**0A**	101.348	83.085%	945	22.7	40.63°C	0.858
	12.108V	5.018V	3.321V	5.112V	121.978				45.8°C	229.87V
CL3	**0.114A**	**0A**	**19.937A**	**0A**	67.401	77.133%	939	22.6	40.27°C	0.796
	12.108V	5.029V	3.311V	5.038V	87.384				44.92°C	229.87V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL4	**83.581A**	**0A**	**0A**	**0A**	999.95	91.475%	2224	46.7	45.84°C	0.981
	11.964V	5.03V	3.324V	5.011V	1093.15				51.91°C	229.72V

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	**1.227A**	**0.497A**	**0.496A**	**0.199A**	20.009	66.169%	923	21.8	36.3°C	0.845
	12.110V	5.03V	3.327V	5.027V	30.239				39.66°C	114.9V
40W	**2.699A**	**0.696A**	**0.695A**	**0.299A**	40.004	77.894%	924	21.9	37.58°C	0.926
	12.114V	5.028V	3.325V	5.023V	51.354				40.01°C	114.9V
60W	**4.172A**	**0.895A**	**0.893A**	**0.398A**	60.002	83.079%	926	22	38.01°C	0.954
	12.114V	5.027V	3.324V	5.019V	72.221				40.38°C	114.89V
80W	**5.642A**	**1.094A**	**1.092A**	**0.498A**	79.956	85.411%	928	22.1	39.03°C	0.964
	12.110V	5.027V	3.324V	5.017V	93.611				41.26°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	**1.226A**	**0.497A**	**0.496A**	**0.199A**	20.003	66.367%	923	21.8	36.04°C	0.514
	12.109V	5.031V	3.327V	5.028V	30.141				39.31°C	229.88V
40W	**2.699A**	**0.696A**	**0.695A**	**0.299A**	40.003	78.687%	924	21.9	37.24°C	0.652
	12.113V	5.029V	3.326V	5.023V	50.838				39.4°C	229.88V
60W	**4.172A**	**0.895A**	**0.893A**	**0.398A**	60.003	83.803%	926	22	38.06°C	0.745
	12.113V	5.028V	3.325V	5.019V	71.601				39.88°C	229.88V
80W	**5.642A**	**1.094A**	**1.092A**	**0.498A**	79.958	86.639%	928	22.1	38.28°C	0.805
	12.110V	5.027V	3.324V	5.017V	92.289				40.75°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	18.6 mV	14.9 mV	11.8 mV	11.9 mV	Pass
20% Load	18.8 mV	15.5 mV	12.2 mV	12.1 mV	Pass
30% Load	16.3 mV	15.7 mV	13.1 mV	12.3 mV	Pass
40% Load	15.3 mV	16.1 mV	14.0 mV	12.8 mV	Pass
50% Load	14.7 mV	15.5 mV	13.0 mV	12.8 mV	Pass
60% Load	14.7 mV	16.5 mV	12.6 mV	13.0 mV	Pass
70% Load	15.5 mV	16.8 mV	13.3 mV	14.2 mV	Pass
80% Load	16.5 mV	12.1 mV	10.4 mV	9.7 mV	Pass
90% Load	17.0 mV	18.6 mV	15.4 mV	15.1 mV	Pass
100% Load	25.8 mV	19.0 mV	15.4 mV	15.6 mV	Pass
110% Load	25.1 mV	20.5 mV	15.4 mV	16.5 mV	Pass
Crossload 1	28.7 mV	18.5 mV	15.8 mV	13.4 mV	Pass
Crossload 2	18.4 mV	22.3 mV	13.3 mV	13.3 mV	Pass
Crossload 3	17.6 mV	16.6 mV	16.8 mV	12.4 mV	Pass
Crossload 4	25.1 mV	16.7 mV	14.1 mV	14.7 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.9 mV	15.6 mV	12.9 mV	12.1 mV	Pass
20% Load	20.2 mV	15.9 mV	13.4 mV	12.6 mV	Pass
30% Load	17.5 mV	16.3 mV	16.1 mV	13.2 mV	Pass
40% Load	16.3 mV	16.0 mV	14.6 mV	14.2 mV	Pass
50% Load	15.5 mV	17.3 mV	14.1 mV	13.2 mV	Pass
60% Load	14.7 mV	16.7 mV	14.5 mV	13.3 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
70% Load	15.1 mV	16.9 mV	12.8 mV	14.3 mV	Pass
80% Load	15.5 mV	18.2 mV	14.4 mV	13.7 mV	Pass
90% Load	16.1 mV	19.6 mV	15.1 mV	14.6 mV	Pass
100% Load	25.1 mV	19.9 mV	14.7 mV	15.8 mV	Pass
110% Load	26.7 mV	21.0 mV	16.3 mV	16.6 mV	Pass
Crossload 1	29.4 mV	20.7 mV	15.9 mV	12.9 mV	Pass
Crossload 2	19.9 mV	23.5 mV	13.3 mV	13.3 mV	Pass
Crossload 3	17.5 mV	15.3 mV	16.2 mV	11.9 mV	Pass
Crossload 4	24.9 mV	15.7 mV	13.9 mV	15.2 mV	Pass

The results above are not used in the certification process

Cougar GLE 1000W

Top side

Power specifications label