Cougar Polar 1050W

Serial Number 12BB02PR10500001

Lab ID CG10502005

Certification ID 252005

Test Result Report ID: 22PS2005A

Certificate Issue Date: Apr 21, 2022

Scheme: ETA-EMI PSU

115V

230V

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	Cougar
Model	Polar 1050W
OEM/ODM	XHY-Power
Serial Number	12BB02PR10500001
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-7
Rated Frequency (Hz)	47-63

Rated Power (W)	1050
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 (DWPH EFF-14E12H)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	CG10502005
Date of receipt	Apr 5, 2022
Testing Date	Apr 21, 2022
Report Issued Date	Apr 21, 2022
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 (650mm)	1	1	18-22AWG	No
4+4 pin EPS12V (650mm)	1	1	16AWG	No
8 pin EPS12V (650mm)	1	1	16AWG	No
6+2 pin PCIe (650mm)	7	7	16AWG	No
6+2 pin PCIe (650mm+100mm)	1	2	16AWG	No
SATA (500mm+115mm+115mm+115mm)	3	12	18AWG	No
4 pin Molex (500mm+120mm+120mm+120mm)	1	4	18AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	14AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	87.5	3	0.3
	Watts	100		1050	15	3.6
Total Max. Power (W)		1050				

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)	90.351%
Average Noise Output (>1450 Load Combinations)	17.26dBA
Average PF (>1450 Load Combinations)	0.979
Efficiency With 10W (≤500W) or 2% (>500W) Load	69.526%
Standby Power Consumption	0.0502W
Non-Accredited	
12V Ripple (Full Load)	30.32mV
5V Ripple (Full Load)	11.48mV
3.3V Ripple (Full Load)	16.47mV
5VSB Ripple (Full Load)	10.86mV
12V Load Regulation	0.25%
5V Load Regulation	0.50%

3.3V Load Regulation	0.42%
5VSB Load Regulation	2.13%
Inrush Current	28.550A

230V

Accredited		
Average Efficiency (>1450 load combinations)		92.548%
Average Noise Output (>1450 Load Combinations)		17.49dBA
Average PF (>1450 Load Combinations)		0.947
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
Standby Power Consumption		0.0818W
Non-Accredited		
12V Ripple (Full Load)		31.54mV
5V Ripple (Full Load)		12.01mV
3.3V Ripple (Full Load)		15.86mV
5VSB Ripple (Full Load)		9.87mV
12V Load Regulation		0.19%
5V Load Regulation		0.58%
3.3V Load Regulation		0.48%
5VSB Load Regulation		2.17%
Inrush Current		72.280A
Hold-Up Time & PWR_OK Signal		21.10ms
AC Loss to PWR_OK Hold Up Time		18.00ms
PWR_OK Inactive to DC Loss Delay		3.10ms
PSU Timings: T1 (20% / 100%)	68.0ms	68.0ms
PSU Timings: T3 (20% / 100%)	143.0ms	141.0ms
OPP (24.33°C / 42.88°C)	147.48%	147.48%

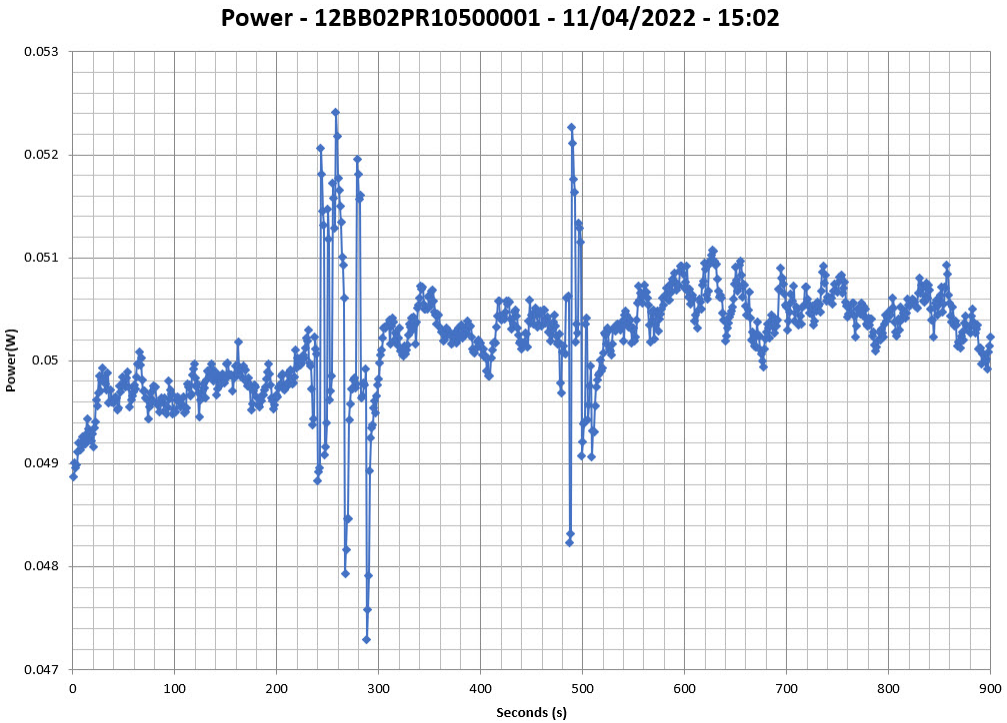
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	21.1
AC Loss to PWR_OK Hold Up Time (ms)	18
PWR_OK Inactive to DC Loss Delay (ms)	3.1

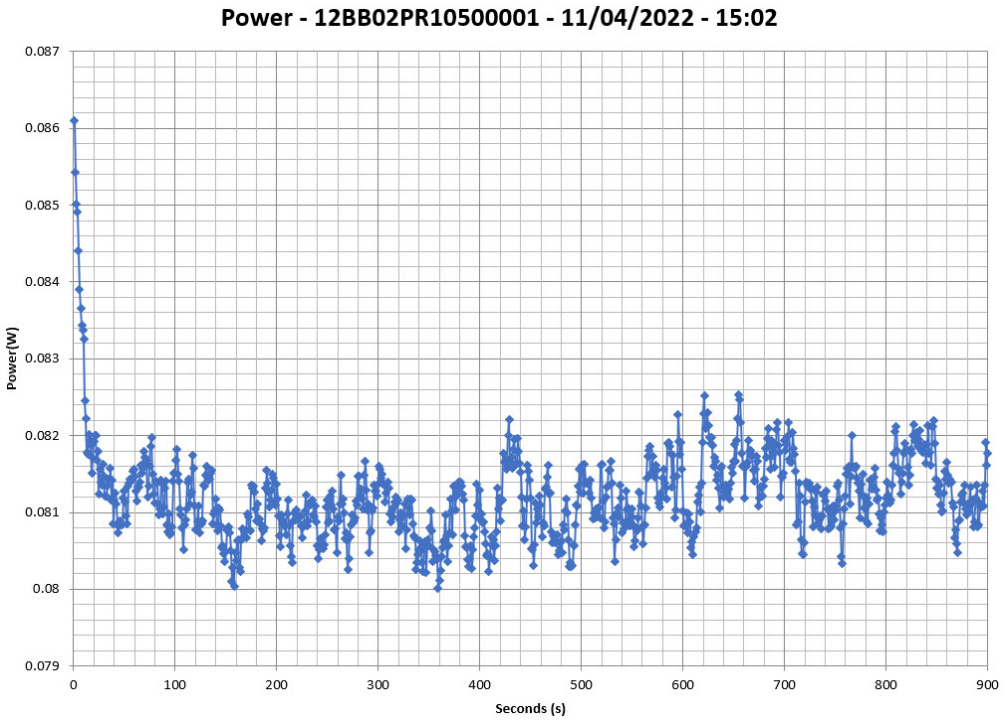
Vampire Power

Graphs

115V

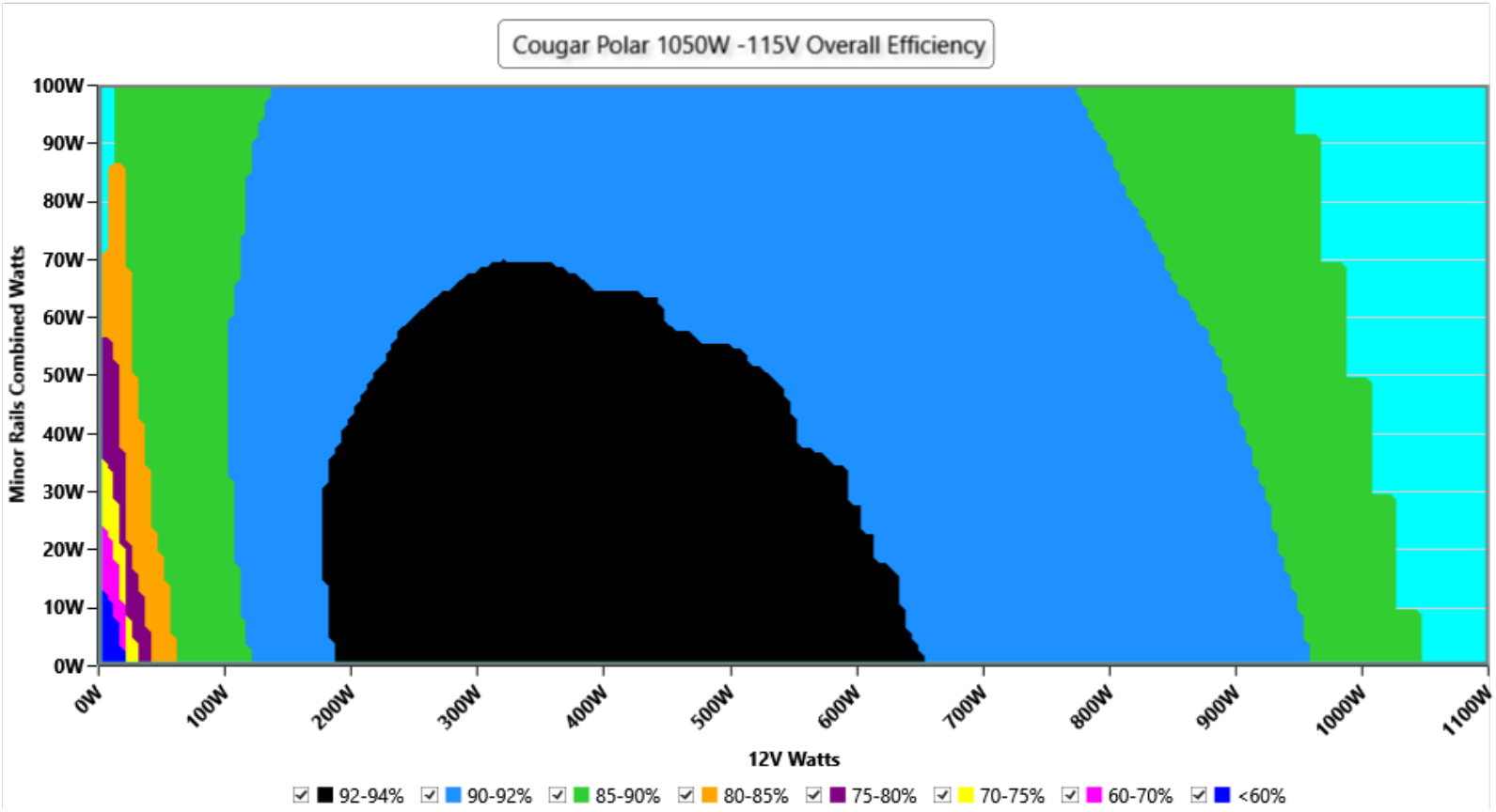


230V



Efficiency Graph

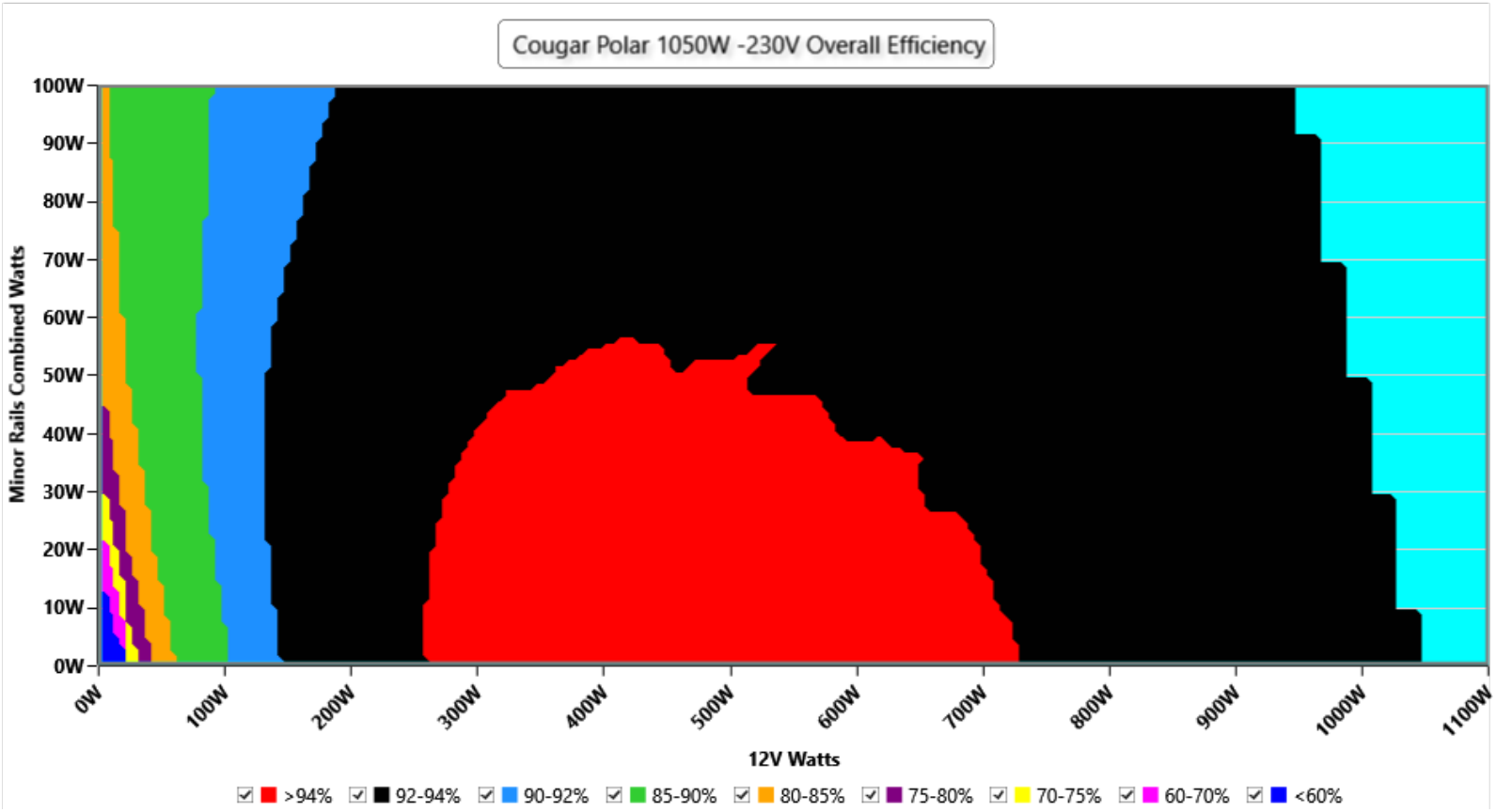
115V



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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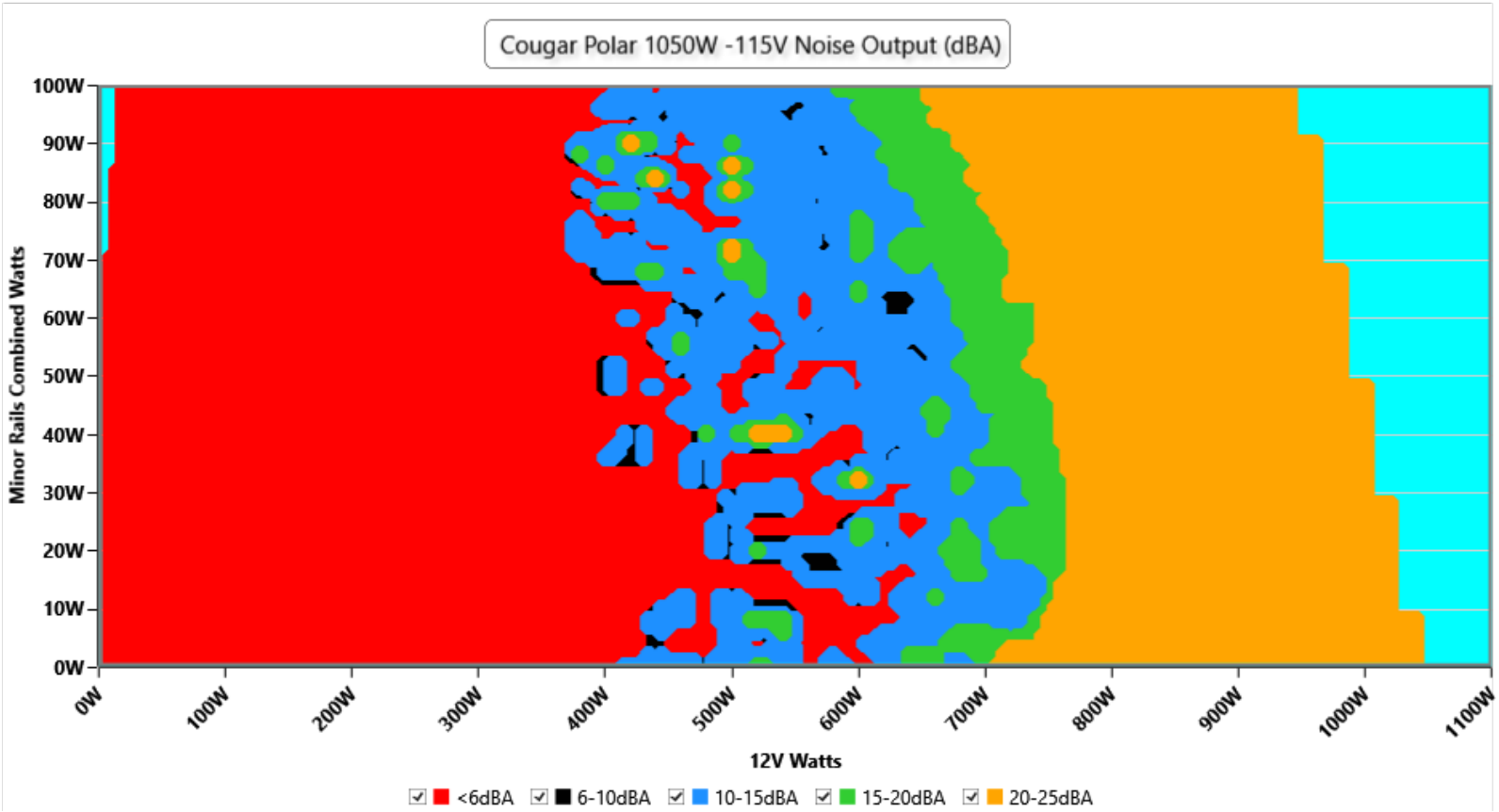
Noise Graph

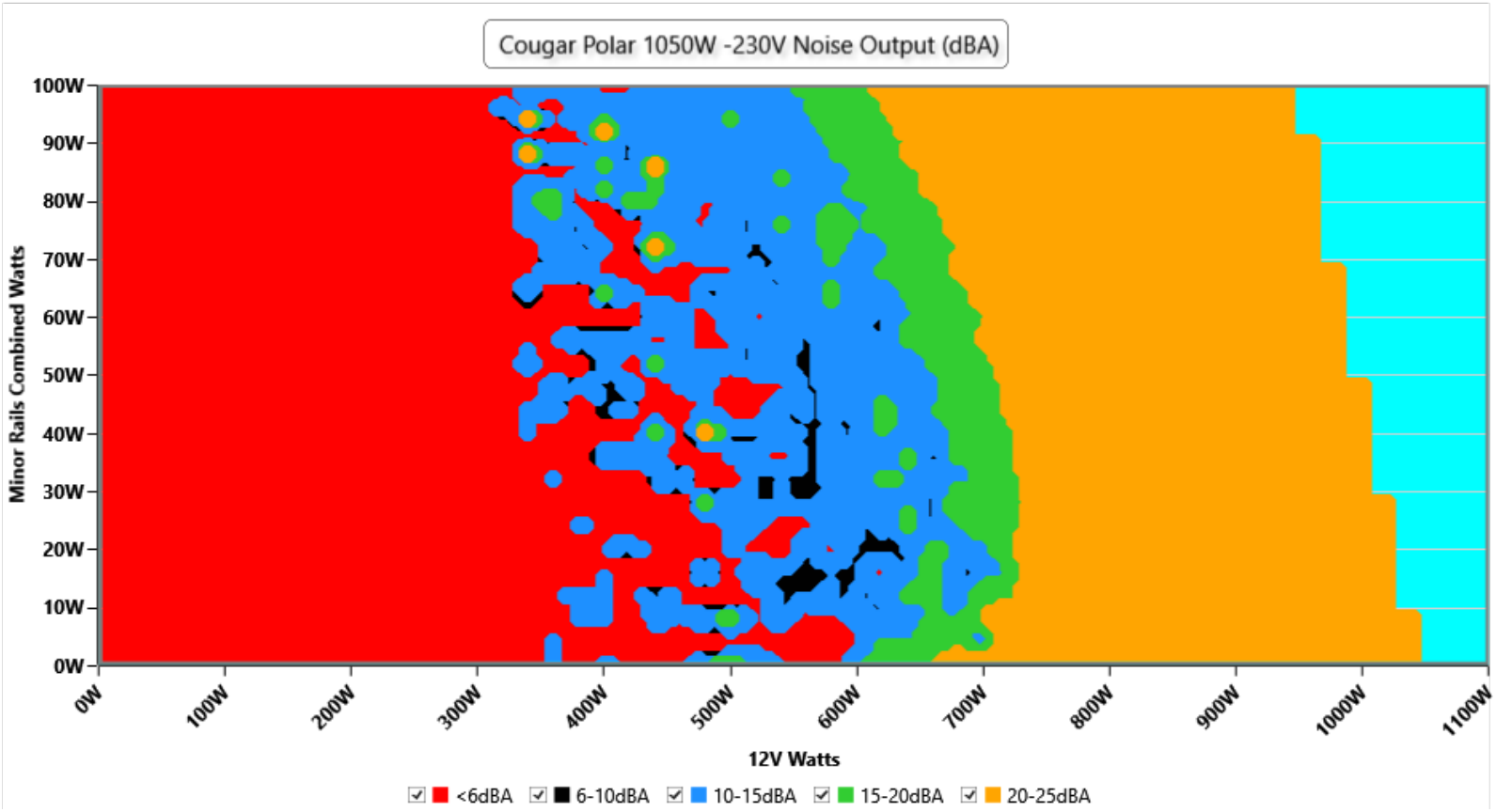
115V



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



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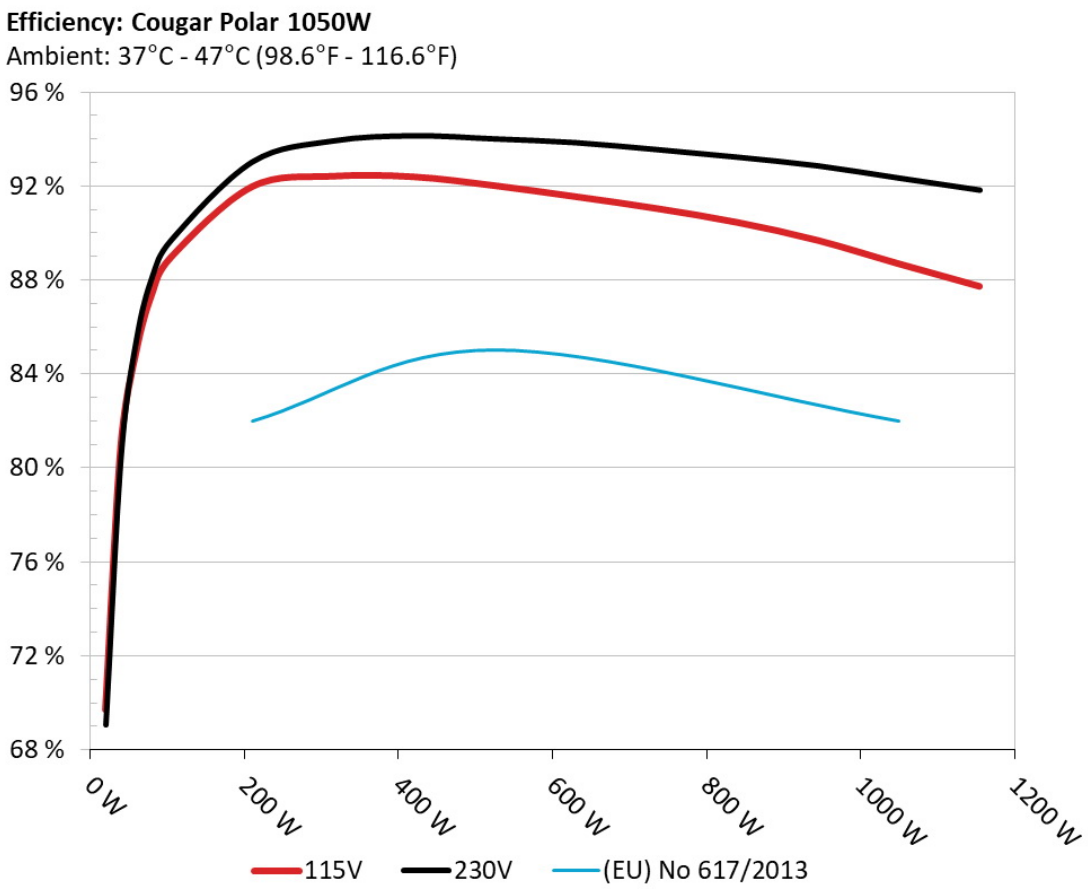
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance

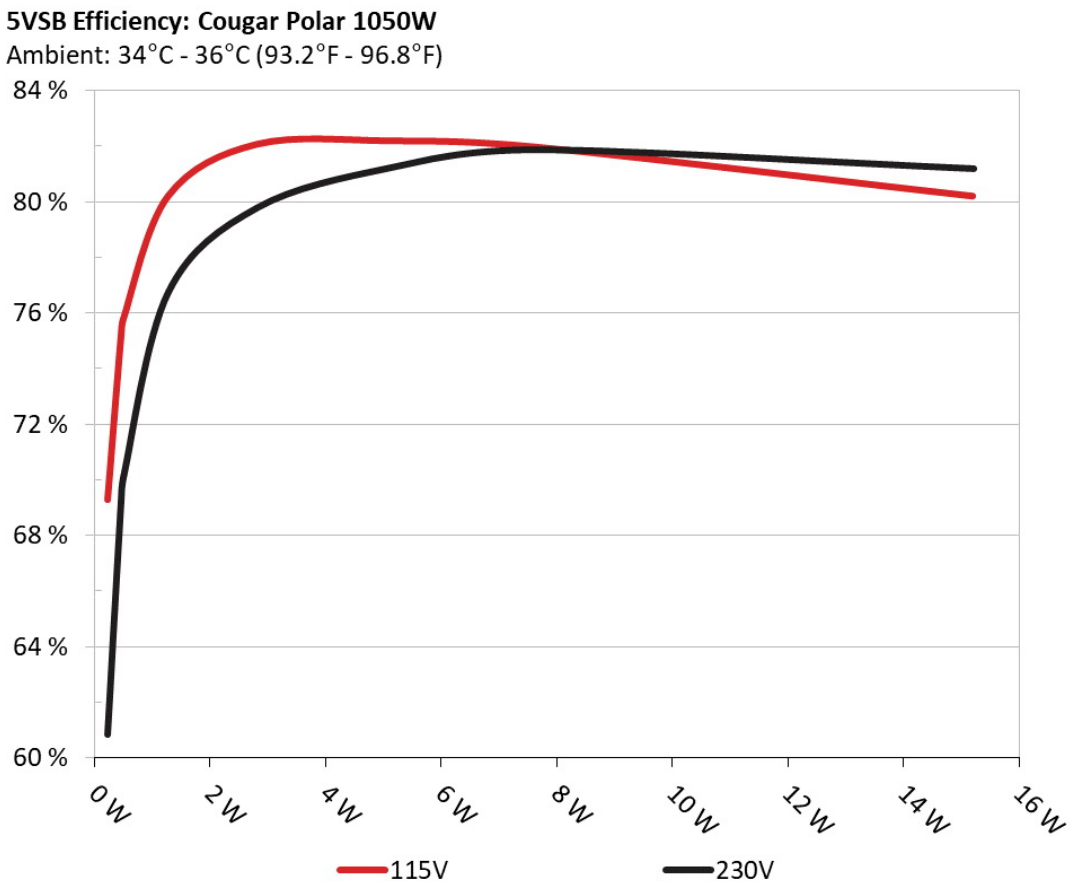
Efficiency under high ambient temperature



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	0.231W	69.286%	0.05
	5.129V	0.333W		115.12V
2	0.09A	0.461W	75.128%	0.09
	5.129V	0.614W		115.12V
3	0.55A	2.815W	82.086%	0.321
	5.119V	3.429W		115.12V
4	1A	5.11W	82.207%	0.399
	5.111V	6.216W		115.12V
5	1.5A	7.651W	81.984%	0.442
	5.101V	9.332W		115.12V
6	2.999A	15.205W	80.218%	0.498
	5.071V	18.954W		115.12V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	60.826%	0.018
	5.13V	0.38W		230.23V
2	0.09A	0.461W	69.115%	0.031
	5.129V	0.667W		230.22V
3	0.55A	2.815W	79.797%	0.148
	5.12V	3.528W		230.23V
4	1A	5.11W	81.235%	0.229
	5.112V	6.29W		230.23V
5	1.5A	7.651W	81.89%	0.287
	5.102V	9.343W		230.23V
6	2.999A	15.209W	81.21%	0.376
	5.072V	18.728W		230.23V

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%	6.826A	1.991A	1.985A	0.98A	104.929	88.976%	0	<6.0	44.95°C	0.977
	12.210V	5.022V	3.323V	5.102V	117.929				40.57°C	115.14V
20%	14.666A	2.989A	2.979A	1.178A	209.912	91.984%	0	<6.0	45.64°C	0.984
	12.206V	5.019V	3.322V	5.092V	228.205				40.73°C	115.14V
30%	22.851A	3.489A	3.477A	1.377A	314.91	92.437%	0	<6.0	46.42°C	0.98
	12.203V	5.016V	3.321V	5.083V	340.673				41.17°C	115.14V
40%	30.991A	3.991A	3.976A	1.577A	419.379	92.411%	0	<6.0	47.53°C	0.977
	12.203V	5.012V	3.319V	5.074V	453.82				41.79°C	115.14V
50%	38.860A	4.988A	4.971A	1.777A	524.733	92.036%	489	14.0	42.92°C	0.978
	12.204V	5.012V	3.319V	5.065V	570.138				49.11°C	115.14V
60%	46.681A	5.988A	5.966A	1.978A	629.235	91.568%	716	22.8	43.15°C	0.98
	12.198V	5.011V	3.319V	5.055V	687.181				50.24°C	115.13V
70%	54.571A	6.99A	6.962A	2.179A	734.555	91.065%	722	23.0	43.82°C	0.982
	12.194V	5.008V	3.318V	5.046V	806.628				51.36°C	115.12V
80%	62.459A	7.994A	7.956A	2.281A	839.365	90.472%	729	23.1	44.21°C	0.985
	12.192V	5.005V	3.316V	5.039V	927.765				52.61°C	115.12V
90%	70.734A	8.495A	8.443A	2.384A	944.732	89.697%	913	29.4	44.81°C	0.986
	12.190V	5.001V	3.315V	5.031V	1053.247				53.91°C	115.11V
100%	78.774A	8.998A	8.959A	2.991A	1049.573	88.702%	1298	39.1	45.33°C	0.987
	12.186V	5V	3.314V	5.014V	1183.259				55.38°C	115.1V
110%	86.698A	10.003A	10.048A	2.994A	1154.183	87.741%	1710	46.7	46.76°C	0.988
	12.179V	4.997V	3.313V	5.009V	1315.446				57.64°C	115.1V
CL1	0.113A	12.024A	11.936A	0A	101.262	84.332%	719	23.0	43.35°C	0.979
	12.222V	5.006V	3.325V	5.111V	120.075				49.93°C	115.16V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	0.112A	20.091A	0A	0A	101.373	82.69%	393	8.8	43.97°C	0.981
	12.223V	4.977V	3.319V	5.115V	122.596				51.33°C	115.16V
CL3	0.112A	0A	19.889A	0A	67.361	76.579%	0	<6.0	53.01°C	0.973
	12.227V	5.001V	3.318V	5.112V	87.97				44.61°C	115.15V
CL4	86.056A	0A	0A	0A	1049.324	89.665%	806	26.0	45.25°C	0.987
	12.193V	5V	3.309V	5.08V	1170.273				55.32°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%	6.826A	1.991A	1.986A	0.98A	104.918	89.716%	0	<6.0	44.17°C	0.869
	12.209V	5.022V	3.323V	5.103V	116.944				39.63°C	230.25V
20%	14.665A	2.989A	2.98A	1.178A	209.895	93.041%	0	<6.0	45.61°C	0.933
	12.206V	5.018V	3.322V	5.094V	225.595				40.56°C	230.25V
30%	22.849A	3.489A	3.478A	1.376A	314.887	93.939%	0	<6.0	46.92°C	0.953
	12.203V	5.015V	3.321V	5.085V	335.204				41.24°C	230.26V
40%	30.992A	3.99A	3.976A	1.576A	419.327	94.157%	0	<6.0	47.62°C	0.958
	12.201V	5.012V	3.319V	5.076V	445.35				41.6°C	230.25V
50%	38.861A	4.988A	4.971A	1.777A	524.722	94.025%	509	14.9	42.33°C	0.963
	12.203V	5.012V	3.319V	5.065V	558.069				48.82°C	230.27V
60%	46.683A	5.988A	5.967A	1.977A	629.21	93.866%	699	22.0	42.41°C	0.965
	12.197V	5.01V	3.318V	5.057V	670.327				49.51°C	230.27V
70%	54.566A	6.993A	6.964A	2.178A	734.465	93.57%	720	23.0	42.88°C	0.968
	12.194V	5.005V	3.317V	5.047V	784.934				50.93°C	230.26V
80%	62.463A	7.995A	7.957A	2.281A	839.303	93.245%	728	23.1	44.2°C	0.969
	12.190V	5.004V	3.316V	5.04V	900.108				52.81°C	230.26V
90%	70.736A	8.498A	8.445A	2.383A	944.681	92.872%	868	28.2	44.53°C	0.971
	12.190V	4.999V	3.314V	5.032V	1017.191				53.61°C	230.26V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	78.772A	9.002A	8.961A	2.99A	1049.56	92.354%	1389	40.7	45.39°C	0.973
	12.186V	4.998V	3.313V	5.014V	1136.451				55.54°C	230.27V
110%	86.691A	10.009A	10.051A	2.993A	1154.17	91.84%	1711	46.6	47.15°C	0.974
	12.180V	4.994V	3.312V	5.009V	1256.712				58.02°C	230.26V
CL1	0.113A	12.029A	11.939A	0A	101.259	84.972%	720	23.0	42.19°C	0.875
	12.223V	5.004V	3.324V	5.112V	119.169				48.59°C	230.28V
CL2	0.112A	20.124A	0A	0A	101.373	82.969%	0	<6.0	50.87°C	0.877
	12.224V	4.969V	3.316V	5.116V	122.184				43.31°C	230.28V
CL3	0.112A	0A	19.881A	0A	67.359	77.345%	0	<6.0	52.94°C	0.829
	12.226V	5.004V	3.319V	5.112V	87.09				44.79°C	230.28V
CL4	86.050A	0A	0A	0A	1049.315	93.014%	1108	34.7	45.79°C	0.972
	12.194V	4.997V	3.308V	5.08V	1128.127				55.84°C	230.26V

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	1.214A	0.497A	0.496A	0.195A	19.983	69.693%	0	<6.0	39.75°C	0.882
	12.216V	5.025V	3.328V	5.121V	28.673				36.65°C	115.15V
40W	2.676A	0.697A	0.694A	0.293A	39.985	80.947%	0	<6.0	40.67°C	0.943
	12.214V	5.025V	3.327V	5.119V	49.396				37.29°C	115.15V
60W	4.136A	0.895A	0.893A	0.391A	59.985	84.964%	0	<6.0	42.66°C	0.958
	12.212V	5.024V	3.325V	5.116V	70.601				38.89°C	115.15V
80W	5.593A	1.094A	1.092A	0.489A	79.923	87.381%	0	<6.0	44.48°C	0.974
	12.212V	5.024V	3.324V	5.113V	91.465				40.45°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	1.215A	0.497A	0.496A	0.195A	19.981	69.048%	0	<6.0	40.27°C	0.579
	12.209V	5.027V	3.329V	5.123V	28.938				37.17°C	230.24V
40W	2.676A	0.696A	0.694A	0.293A	39.983	80.618%	0	<6.0	40.99°C	0.714
	12.209V	5.026V	3.327V	5.12V	49.596				37.77°C	230.25V
60W	4.138A	0.895A	0.893A	0.391A	59.982	85.518%	0	<6.0	42.39°C	0.783
	12.208V	5.025V	3.325V	5.117V	70.14				38.84°C	230.25V
80W	5.594A	1.094A	1.092A	0.489A	79.913	88.127%	0	<6.0	42.76°C	0.831
	12.209V	5.024V	3.324V	5.114V	90.679				39.08°C	230.25V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	14.51mV	4.47mV	7.68mV	7.19mV	Pass
20% Load	16.99mV	5.34mV	8.09mV	7.09mV	Pass
30% Load	16.58mV	5.23mV	8.19mV	7.34mV	Pass
40% Load	16.03mV	5.89mV	8.90mV	7.44mV	Pass
50% Load	15.42mV	6.20mV	9.60mV	7.29mV	Pass
60% Load	14.46mV	6.81mV	10.61mV	7.99mV	Pass
70% Load	16.30mV	7.47mV	10.67mV	8.25mV	Pass
80% Load	17.47mV	8.33mV	13.14mV	9.06mV	Pass
90% Load	18.53mV	10.17mV	13.65mV	9.16mV	Pass
100% Load	30.32mV	11.48mV	16.47mV	10.86mV	Pass
110% Load	32.47mV	12.28mV	16.62mV	10.56mV	Pass
Crossload1	19.82mV	11.40mV	14.44mV	9.55mV	Pass
Crossload2	14.30mV	15.65mV	11.33mV	9.46mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	12.18mV	6.10mV	15.98mV	9.31mV	Pass
Crossload4	29.64mV	7.41mV	11.11mV	12.34mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	16.58mV	4.68mV	7.13mV	7.18mV	Pass
20% Load	18.51mV	4.93mV	8.04mV	6.63mV	Pass
30% Load	16.03mV	5.29mV	8.65mV	7.39mV	Pass
40% Load	17.55mV	5.74mV	8.80mV	7.54mV	Pass
50% Load	16.23mV	6.66mV	9.45mV	7.74mV	Pass
60% Load	15.64mV	7.07mV	9.86mV	8.25mV	Pass
70% Load	15.90mV	7.93mV	11.02mV	8.55mV	Pass
80% Load	17.11mV	8.28mV	12.99mV	9.01mV	Pass
90% Load	18.28mV	10.67mV	14.21mV	9.06mV	Pass
100% Load	31.54mV	12.01mV	15.86mV	9.87mV	Pass
110% Load	32.94mV	12.52mV	16.97mV	10.63mV	Pass
Crossload1	20.08mV	11.28mV	14.38mV	9.52mV	Pass
Crossload2	16.23mV	15.14mV	11.07mV	9.05mV	Pass
Crossload3	13.35mV	6.10mV	16.83mV	10.12mV	Pass
Crossload4	30.98mV	6.95mV	10.91mV	12.02mV	Pass

The results above are not used in the certification process

Cougar Polar 1050W

Top side

Power specifications label

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

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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