Make It Yours.

Cooler Master GX II 850 GOLD (MWE Gold 850 V3)

Serial Number PS58513CD2312020014A1GZ

Lab ID CM85002478

Certification ID 252478

Test Result Report ID: 24PS2478A

Certificate Issue Date: Jun 18, 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

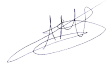
General Information

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	Cooler Master
Model	GX II 850 GOLD (MWE Gold 850 V3)
OEM/ODM	Lite-on
Serial Number	PS58513CD2312020014A1GZ
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	5-10

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	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	CM85002478
Date of receipt	May 29, 2024
Testing Date	Jun 17, 2024
Report Issued Date	Jun 18, 2024
DUT Notes	Also sold as: MWE Gold 850 V3
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 (605mm)	1	1	18-22AWG	No
4+4 pin EPS12V (600mm)	1	1	18AWG	No
8 pin EPS12V (600mm)	1	1	18AWG	No
6+2 pin PCIe (550mm)	3	3	16-18AWG	No
12+4 pin PCIe (650mm) (600W)	1	1	16-28AWG	No
SATA (500mm+120mm+120mm+120mm)	2	8	20AWG	No

4 pin Molex (500mm+120mm+120mm+120mm)	1	4	20AWG	No
AC Power Cord (1390mm) - C13 coupler	1	1	18AWG	-

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	70.8	3	0.3
	Watts	120		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)	89.579%
Average Noise Output (>1450 Load Combinations)	22.87dBA
Average PF (>1450 Load Combinations)	0.992
Efficiency With 10W (≤500W) or 2% (>500W) Load	82.480%
Standby Power Consumption	0.0680W
Non-Accredited	
12V Ripple (Full Load)	58.45mV
5V Ripple (Full Load)	17.33mV
3.3V Ripple (Full Load)	18.63mV
5VSB Ripple (Full Load)	16.20mV
12V Load Regulation	0.81%
5V Load Regulation	2.42%
3.3V Load Regulation	3.49%
5VSB Load Regulation	4.26%
Inrush Current	-

230V

Accredited	
Average Efficiency (>1450 load combinations)	91.725%
Average Noise Output (>1450 Load Combinations)	18.91dBA
Average PF (>1450 Load Combinations)	0.981
Efficiency With 10W (≤500W) or 2% (>500W) Load	77.935%
Standby Power Consumption	0.1253W
Non-Accredited	
12V Ripple (Full Load)	56.06mV
5V Ripple (Full Load)	17.50mV
3.3V Ripple (Full Load)	19.53mV

5VSB Ripple (Full Load)		16.10mV
12V Load Regulation		0.75%
5V Load Regulation		2.40%
3.3V Load Regulation		3.42%
5VSB Load Regulation		4.16%
Inrush Current		-
12V Transient Response (200%)		11.15V
5V Transient Response (200%)		4.803V
3.3V Transient Response (200%)		3.191V
5VSB Transient Response (200%)		4.941V
Hold-Up Time & PWR_OK Signal		20.90ms
AC Loss to PWR_OK Hold Up Time		18.20ms
PWR_OK Inactive to DC Loss Delay		2.70ms
PSU Timings: T1 (20% / 100%)	61.0ms	36.0ms
PSU Timings: T3 (20% / 100%)	125.0ms	126.0ms
12V OCP (26.3°C / °C)	- 5V	- 5V
5V OCP (26.3°C / °C)		
3.3V OCP (26.3°C / °C)		
5VSB OCP (26.3°C / °C)		
OPP (27.11°C / 0.00°C)	126.90%	-

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	20.9
AC Loss to PWR_OK Hold Up Time (ms)	18.2
PWR_OK Inactive to DC Loss Delay (ms)	2.7

Stromverbrauch im Ruhezustand

Tables

115V

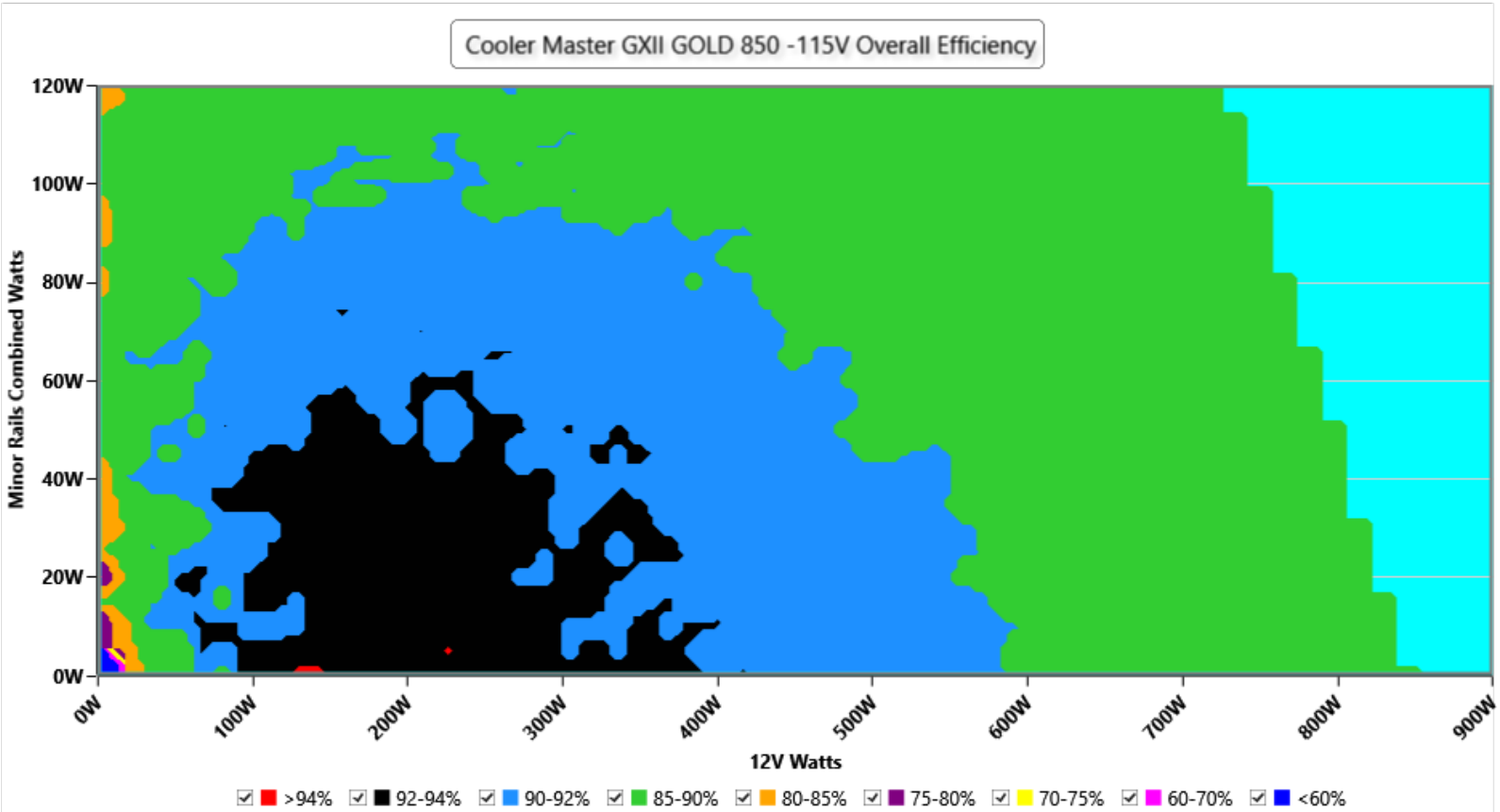
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.07 V	115.04 V	113.85 V	115.11 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.13 %	0.09 %	N/A	0.18 %	2.00 %	PASS
Real Power:	0.068 W	-0.002 W	N/A	0.125 W	N/A	N/A
Apparent Power:	7.900 W	7.539 W	N/A	8.267 W	N/A	N/A
Power Factor:	0.013	N/A	N/A	N/A	N/A	N/A

230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.03 V	230.92 V	227.70 V	231.09 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	0.27 %	2.00 %	PASS
Real Power:	0.125 W	0.079 W	N/A	0.210 W	N/A	N/A
Apparent Power:	25.453 W	24.984 W	N/A	25.920 W	N/A	N/A
Power Factor:	0.004	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

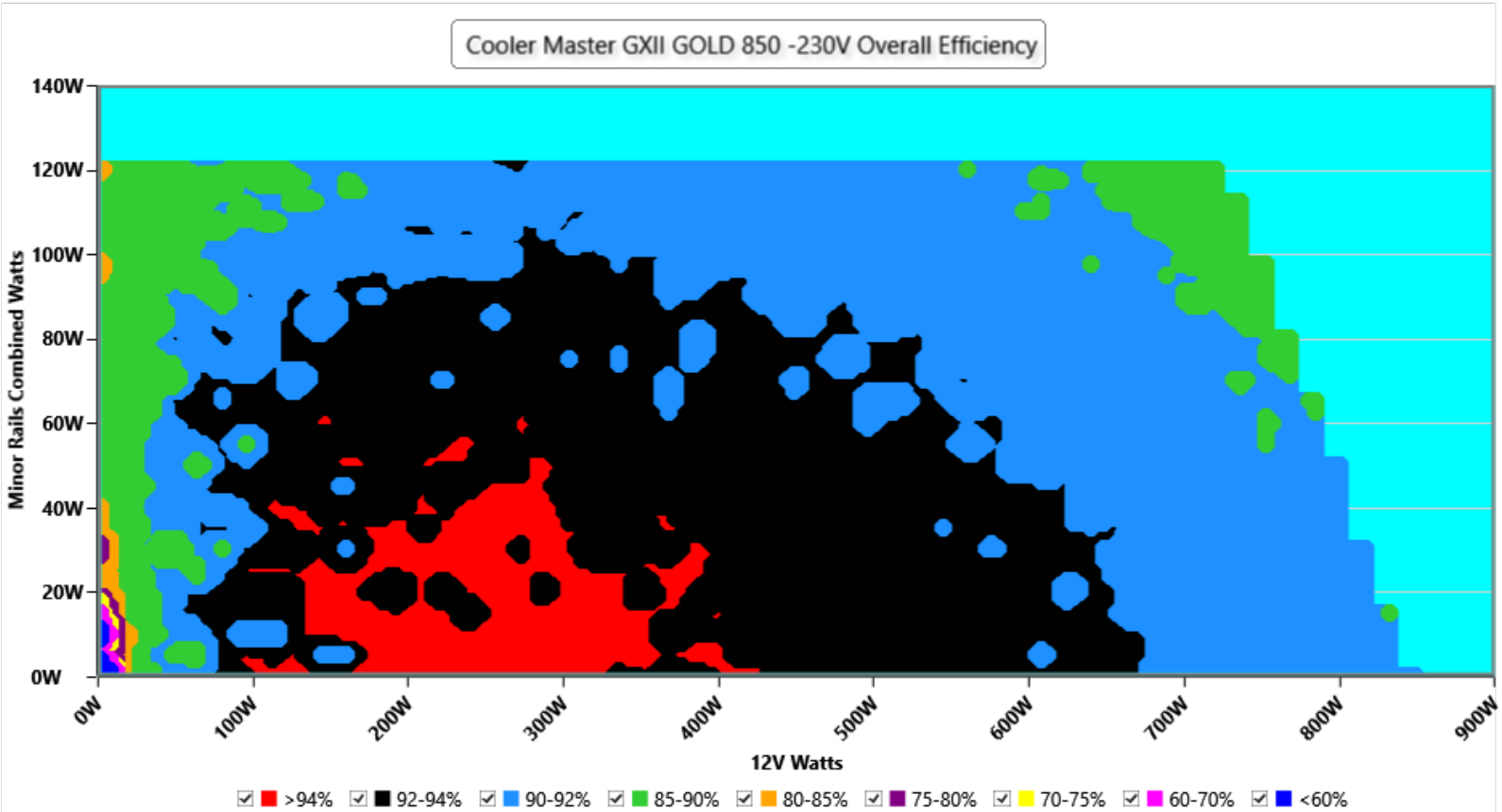
115V



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



INFO

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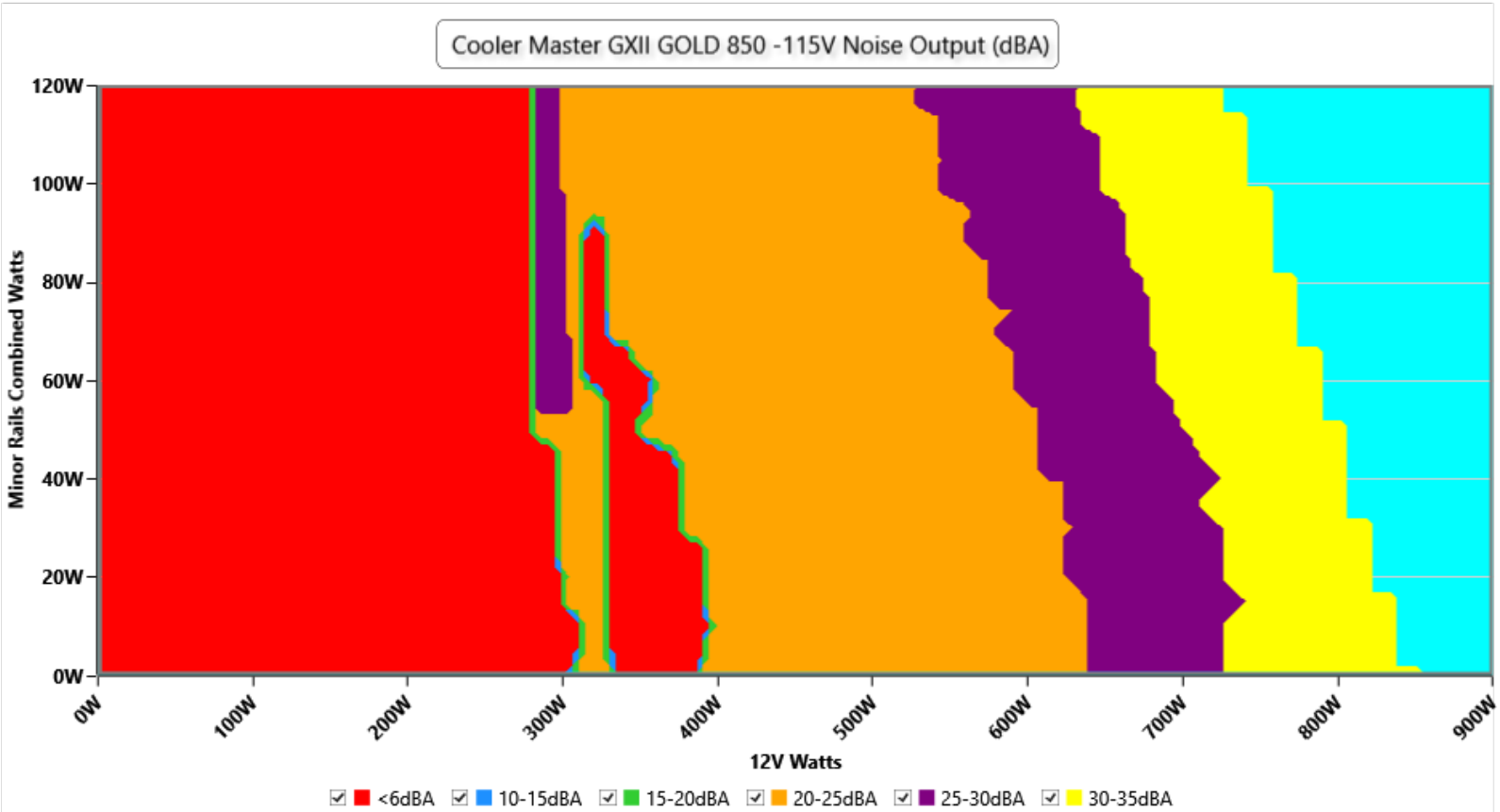
Noise Graph

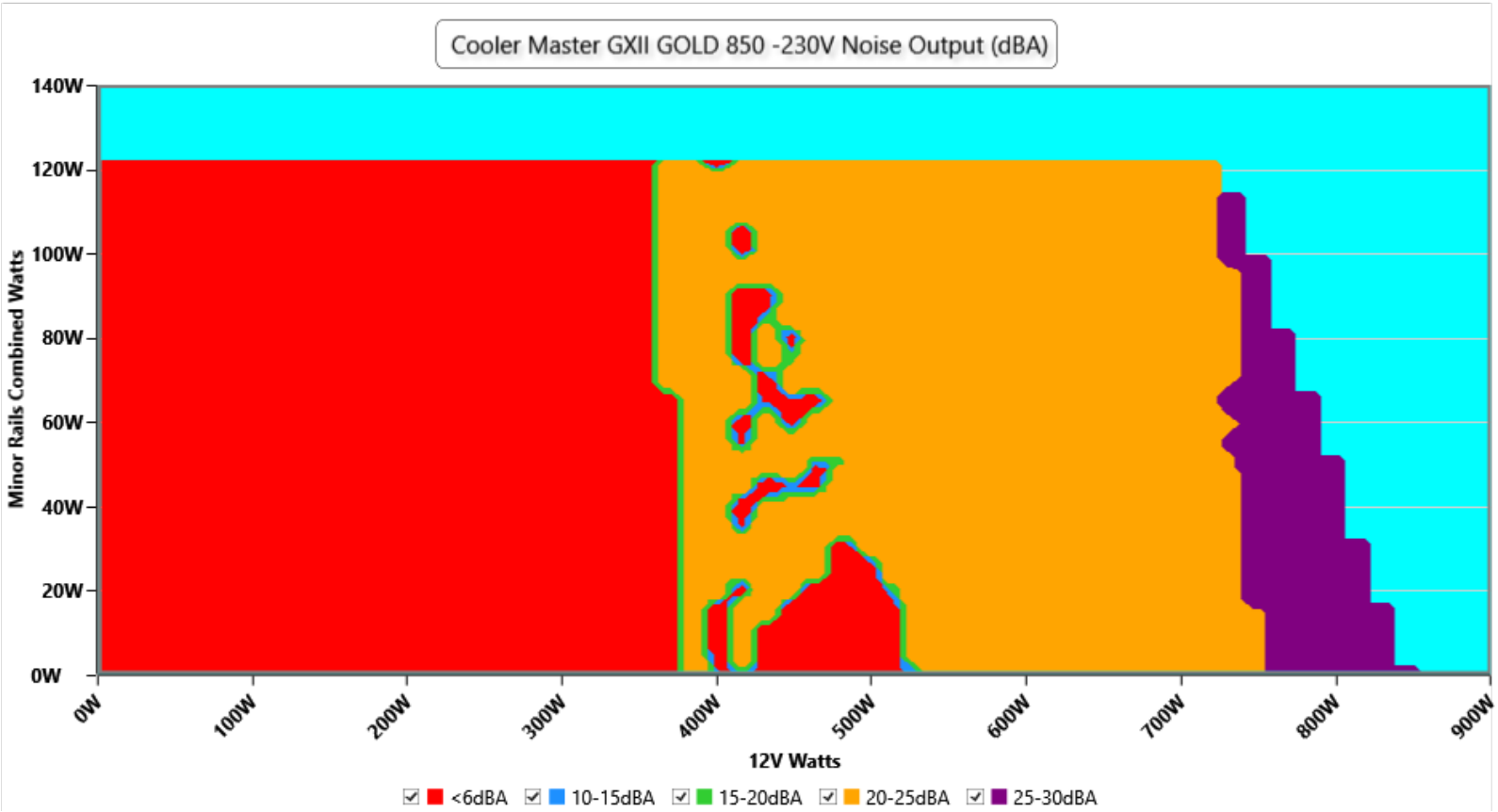
115V



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

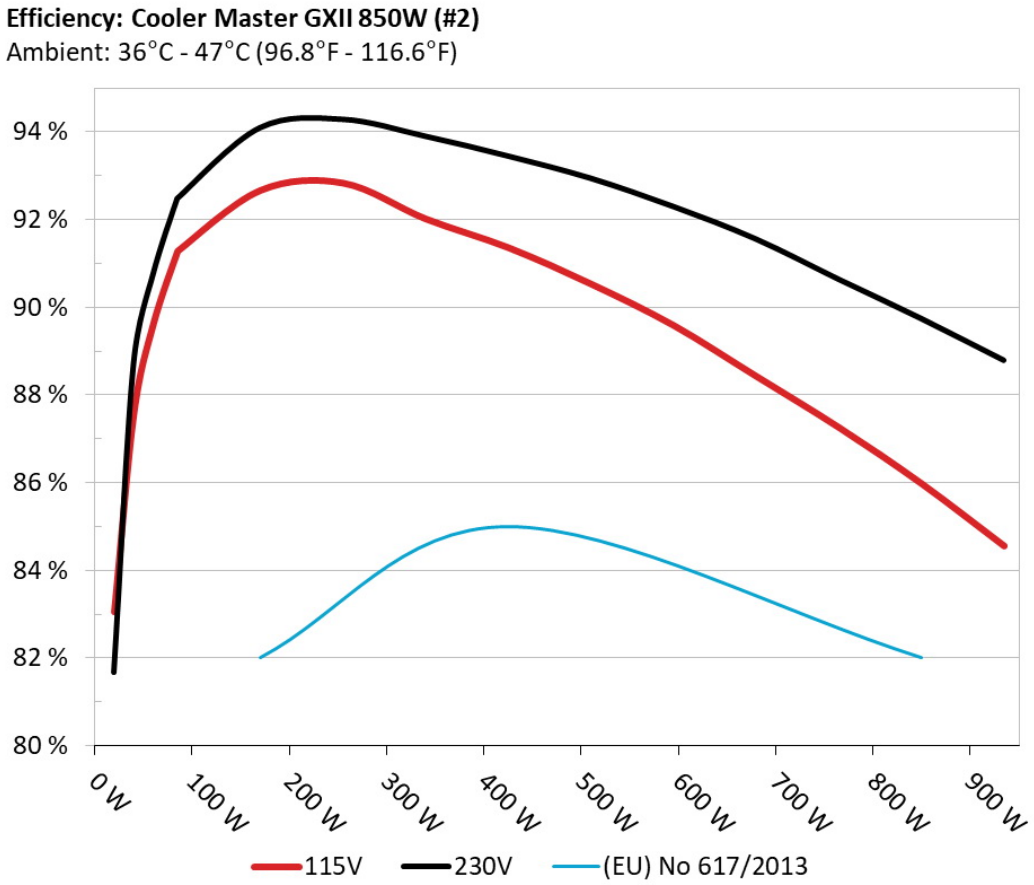


INFO

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

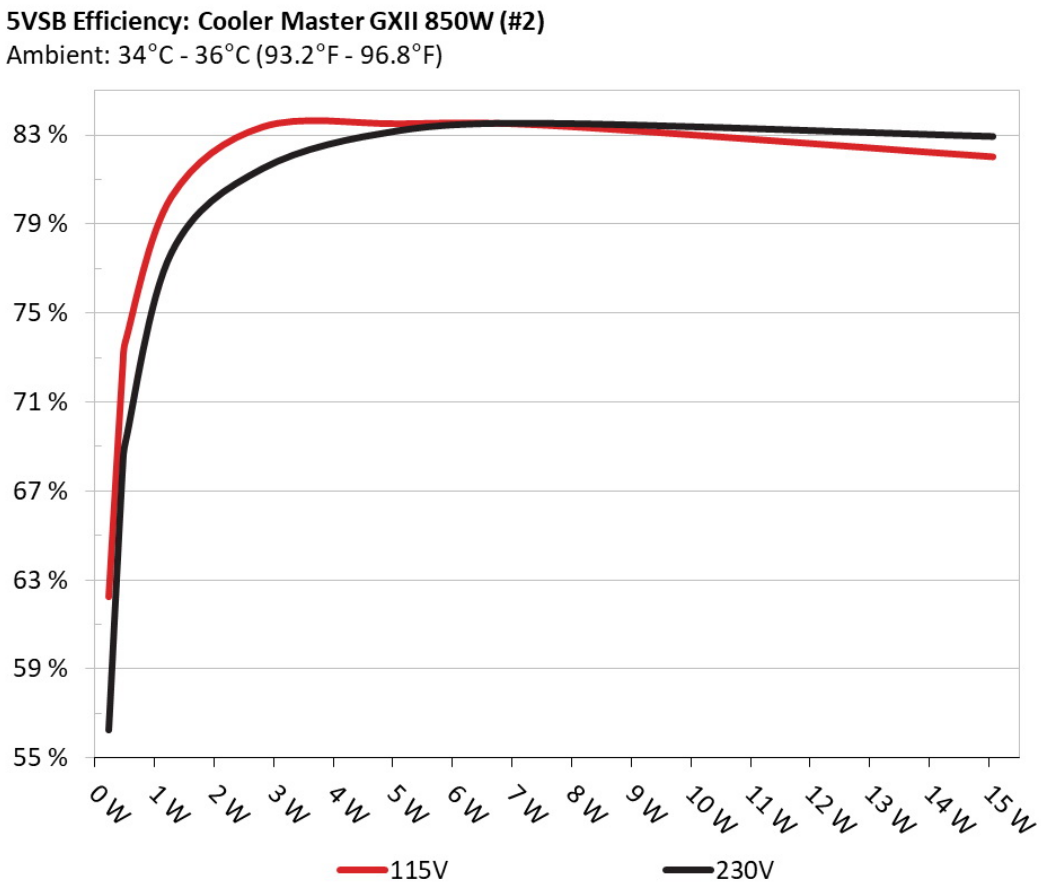
Efficiency under high ambient temperature



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**	0.231W	62.265%	0.05
	5.14V	0.371W		114.94V
2	**0.09A**	0.463W	72.567%	0.083
	5.138V	0.639W		114.94V
3	**0.55A**	2.816W	83.392%	0.265
	5.12V	3.377W		114.92V
4	**1A**	5.101W	83.532%	0.319
	5.101V	6.106W		114.92V
5	**1.5A**	7.622W	83.456%	0.347
	5.081V	9.135W		114.92V
6	**3A**	15.059W	82.045%	0.387
	5.02V	18.354W		114.91V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.232W	56.245%	0.017
	5.144V	0.418W		229.9V
2	**0.09A**	0.463W	67.99%	0.027
	5.141V	0.684W		229.88V
3	**0.55A**	2.816W	81.485%	0.126
	5.121V	3.459W		229.89V
4	**1A**	5.102W	83.186%	0.193
	5.102V	6.135W		229.88V
5	**1.5A**	7.623W	83.508%	0.243
	5.081V	9.131W		229.88V
6	**3A**	15.059W	82.919%	0.316
	5.02V	18.163W		229.88V

Protection Features

Protection Features	
OCP (Cold @ 26.3°C)	12V: - 5V: - 3.3V: - 5VSB: 5.8A (193.33%), 4.9V
OCP (Hot @ - C)	12V: - 5V: - 3.3V: - 5VSB: -
OPP (Cold @ 27.11°C)	1078.68W (126.90%)
OPP (Hot @ - C)	-
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%	**5.264A**	**1.975A**	**1.957A**	**0.98A**	85	91.283%	0	<6.0	51.96°C	0.973
	12.042V	5.063V	3.372V	5.1V	93.149				40.09°C	114.89V
20%	**11.555A**	**2.969A**	**2.946A**	**1.18A**	169.936	92.666%	0	<6.0	54.04°C	0.985
	12.033V	5.051V	3.361V	5.083V	183.448				40.85°C	114.87V
30%	**18.204A**	**3.471A**	**3.447A**	**1.382A**	254.939	92.835%	0	<6.0	56.68°C	0.991
	12.024V	5.042V	3.351V	5.066V	274.558				41.03°C	114.84V
40%	**24.871A**	**3.976A**	**3.952A**	**1.584A**	340.027	92.018%	1260	25.5	41.91°C	0.994
	12.015V	5.031V	3.341V	5.05V	369.508				47.88°C	114.81V
50%	**31.183A**	**4.982A**	**4.957A**	**1.789A**	424.819	91.363%	1258	25.5	42.2°C	0.995
	12.004V	5.018V	3.328V	5.031V	464.942				48.39°C	114.79V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
60%	**37.479A**	**5.994A**	**5.971A**	**1.995A**	509.347	90.54%	1258	25.5	42.95°C	0.996
	11.994V	5.006V	3.317V	5.014V	562.53				50.22°C	114.74V
70%	**43.852A**	**7.011A**	**6.992A**	**2.202A**	594.668	89.59%	1310	26.9	43.15°C	0.997
	11.985V	4.993V	3.304V	4.996V	663.766				52.37°C	114.72V
80%	**50.235A**	**8.031A**	**8.019A**	**2.308A**	679.484	88.432%	2541	45.4	43.84°C	0.997
	11.975V	4.98V	3.292V	4.982V	768.396				52.02°C	114.68V
90%	**57.032A**	**8.551A**	**8.532A**	**2.415A**	764.896	87.259%	2556	45.6	44.15°C	0.997
	11.965V	4.969V	3.282V	4.969V	876.595				51.74°C	114.64V
100%	**63.573A**	**9.074A**	**9.08A**	**3.041A**	849.724	85.98%	2868	49.1	45.51°C	0.997
	11.955V	4.958V	3.271V	4.933V	988.268				53.59°C	114.61V
110%	**69.993A**	**10.111A**	**10.222A**	**3.047A**	934.317	84.563%	2865	49	46.77°C	0.997
	11.945V	4.944V	3.258V	4.923V	1104.9				56.39°C	114.57V
CL1	**0.116A**	**14.425A**	**14.357A**	**0A**	121.29	84.775%	0	<6.0	56.13°C	0.981
	12.032V	5.004V	3.323V	5.131V	143.088				40.34°C	114.87V
CL2	**0.115A**	**19.97A**	**0A**	**0A**	101.339	83.131%	0	<6.0	55.79°C	0.978
	12.040V	5.005V	3.357V	5.139V	121.921				40.91°C	114.87V
CL3	**0.115A**	**0A**	**19.834A**	**0A**	67.395	78.832%	0	<6.0	54.76°C	0.972
	12.040V	5.041V	3.328V	5.139V	85.518				40.83°C	114.89V
CL4	**70.997A**	**0A**	**0A**	**0A**	849.481	86.705%	2859	48.9	45.17°C	0.997
	11.966V	5.002V	3.31V	5.075V	979.761				53.15°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%	**5.266A**	**1.975A**	**1.958A**	**0.981A**	85.002	92.475%	0	<6.0	48.65°C	0.949
	12.041V	5.062V	3.371V	5.099V	91.966				40.42°C	229.88V
20%	**11.556A**	**2.97A**	**2.947A**	**1.181A**	169.941	94.09%	0	<6.0	48.97°C	0.973
	12.032V	5.05V	3.36V	5.083V	180.662				40.53°C	229.86V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
30%	**18.203A**	**3.472A**	**3.447A**	**1.382A**	254.937	94.283%	0	<6.0	52.07°C	0.981
	12.024V	5.041V	3.351V	5.066V	270.402				41.05°C	229.85V
40%	**24.870A**	**3.976A**	**3.952A**	**1.584A**	340.02	93.897%	1254	25.5	41.96°C	0.986
	12.015V	5.03V	3.34V	5.05V	362.206				44.9°C	229.83V
50%	**31.180A**	**4.983A**	**4.957A**	**1.789A**	424.802	93.446%	1254	25.5	42.13°C	0.989
	12.005V	5.018V	3.328V	5.032V	454.691				45.21°C	229.82V
60%	**37.475A**	**5.994A**	**5.97A**	**1.995A**	509.338	92.942%	1256	25.5	42.67°C	0.991
	11.996V	5.005V	3.317V	5.014V	548.035				47.01°C	229.8V
70%	**43.848A**	**7.011A**	**6.991A**	**2.202A**	594.671	92.296%	1257	25.5	43.08°C	0.992
	11.986V	4.993V	3.305V	4.996V	644.357				48.32°C	229.79V
80%	**50.231A**	**8.031A**	**8.018A**	**2.308A**	679.496	91.556%	1473	30.3	43.78°C	0.994
	11.976V	4.98V	3.293V	4.983V	742.118				49.84°C	229.77V
90%	**57.026A**	**8.552A**	**8.531A**	**2.415A**	764.909	90.634%	2443	44.4	44.14°C	0.995
	11.967V	4.969V	3.282V	4.969V	843.908				49.51°C	229.76V
100%	**63.570A**	**9.076A**	**9.08A**	**3.041A**	849.738	89.737%	2863	49	45.28°C	0.995
	11.956V	4.957V	3.271V	4.933V	946.923				50.06°C	229.74V
110%	**69.988A**	**10.112A**	**10.221A**	**3.047A**	934.321	88.789%	2866	49.1	46.81°C	0.996
	11.946V	4.943V	3.258V	4.923V	1052.298				53.05°C	229.73V
CL1	**0.115A**	**14.426A**	**14.355A**	**0A**	121.287	86.106%	0	<6.0	50.79°C	0.967
	12.032V	5.004V	3.323V	5.131V	140.941				40.92°C	229.87V
CL2	**0.115A**	**19.967A**	**0A**	**0A**	101.337	84.306%	0	<6.0	51.51°C	0.962
	12.040V	5.006V	3.357V	5.138V	120.261				40.58°C	229.87V
CL3	**0.115A**	**0A**	**19.83A**	**0A**	67.395	79.996%	0	<6.0	51.17°C	0.943
	12.040V	5.042V	3.329V	5.138V	84.304				40°C	229.88V
CL4	**70.995A**	**0A**	**0A**	**0A**	849.485	90.474%	2862	49	45.96°C	0.995
	11.966V	5.002V	3.31V	5.075V	938.946				50.95°C	229.75V

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**	**0.492A**	**0.487A**	**0.194A**	19.998	83.062%	0	<6.0	48.65°C	0.916
	12.052V	5.078V	3.385V	5.143V	24.093				36.75°C	114.91V
40W	**2.713A**	**0.69A**	**0.683A**	**0.292A**	39.997	87.574%	0	<6.0	48.93°C	0.955
	12.048V	5.075V	3.382V	5.137V	45.704				37.1°C	114.9V
60W	**4.194A**	**0.887A**	**0.879A**	**0.39A**	59.996	89.615%	0	<6.0	49.19°C	0.966
	12.046V	5.072V	3.379V	5.13V	66.949				38.63°C	114.9V
80W	**5.672A**	**1.085A**	**1.075A**	**0.488A**	79.942	91.496%	0	<6.0	51.07°C	0.972
	12.044V	5.068V	3.376V	5.123V	87.411				39.07°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	**1.232A**	**0.492A**	**0.488A**	**0.195A**	19.998	81.674%	0	<6.0	42.5°C	0.575
	12.046V	5.076V	3.383V	5.138V	24.167				36.15°C	229.89V
40W	**2.714A**	**0.69A**	**0.683A**	**0.292A**	39.997	88.674%	0	<6.0	44.31°C	0.842
	12.044V	5.074V	3.381V	5.134V	45.297				37.03°C	229.88V
60W	**4.196A**	**0.887A**	**0.879A**	**0.39A**	59.996	90.733%	0	<6.0	45.57°C	0.918
	12.043V	5.07V	3.378V	5.127V	66.123				38.3°C	229.88V
80W	**5.674A**	**1.085A**	**1.076A**	**0.488A**	79.942	92.778%	0	<6.0	46.74°C	0.945
	12.041V	5.067V	3.375V	5.121V	86.239				38.92°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	24.8 mV	12.1 mV	12.5 mV	10.3 mV	Pass
20% Load	26.8 mV	11.8 mV	11.9 mV	10.4 mV	Pass
30% Load	28.6 mV	13.4 mV	19.0 mV	10.7 mV	Pass
40% Load	27.5 mV	12.2 mV	17.9 mV	11.2 mV	Pass
50% Load	30.4 mV	12.3 mV	13.4 mV	10.9 mV	Pass
60% Load	34.7 mV	13.0 mV	13.0 mV	10.7 mV	Pass
70% Load	36.1 mV	12.6 mV	13.2 mV	11.9 mV	Pass
80% Load	49.1 mV	14.7 mV	15.0 mV	12.3 mV	Pass
90% Load	45.1 mV	15.0 mV	15.9 mV	12.6 mV	Pass
100% Load	58.5 mV	17.3 mV	18.6 mV	16.2 mV	Pass
110% Load	66.5 mV	22.6 mV	31.0 mV	14.7 mV	Pass
Crossload 1	34.1 mV	16.1 mV	14.8 mV	18.6 mV	Pass
Crossload 2	31.4 mV	19.8 mV	13.0 mV	19.3 mV	Pass
Crossload 3	34.0 mV	13.4 mV	16.9 mV	19.1 mV	Pass
Crossload 4	49.8 mV	14.5 mV	18.0 mV	18.2 mV	Pass

The results above are not used in the certification process

230V

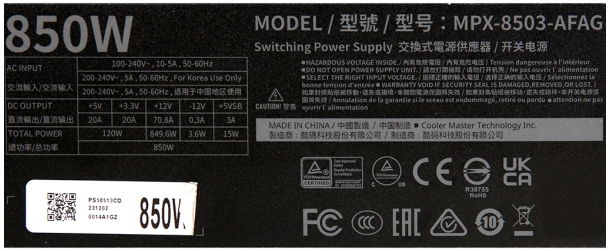
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	24.5 mV	12.6 mV	12.7 mV	11.7 mV	Pass
20% Load	26.8 mV	12.4 mV	13.9 mV	11.4 mV	Pass
30% Load	31.7 mV	13.5 mV	18.2 mV	11.1 mV	Pass
40% Load	31.5 mV	13.5 mV	19.4 mV	10.9 mV	Pass
50% Load	31.0 mV	12.9 mV	12.8 mV	10.8 mV	Pass
60% Load	32.1 mV	12.2 mV	13.7 mV	11.4 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
70% Load	35.7 mV	12.9 mV	13.5 mV	10.8 mV	Pass
80% Load	43.1 mV	15.2 mV	15.6 mV	12.0 mV	Pass
90% Load	48.2 mV	15.0 mV	16.4 mV	12.4 mV	Pass
100% Load	56.1 mV	17.5 mV	19.5 mV	16.1 mV	Pass
110% Load	65.1 mV	26.3 mV	23.3 mV	15.6 mV	Pass
Crossload 1	32.1 mV	15.4 mV	15.1 mV	18.5 mV	Pass
Crossload 2	30.0 mV	20.4 mV	12.8 mV	18.8 mV	Pass
Crossload 3	32.7 mV	13.7 mV	15.6 mV	18.9 mV	Pass
Crossload 4	51.6 mV	15.3 mV	17.6 mV	18.1 mV	Pass

The results above are not used in the certification process

Cooler Master GX II 850 GOLD (MWE Gold 850 V3)

Top side



Power specifications label

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