



Corsair RM850e (ATX v3.1)

□ A9D9F4420002EL

Lab ID CR85002630

Certification ID 252630

Test Result Report ID: 24PS2630A

Certificate Issue Date: Nov 4, 2024

Scheme: ETA-EMI PSU

115V

A gold hexagonal label with a lightning bolt icon, the word "CYBENETICS", and "GOLD".

230V

A gold hexagonal label with a lightning bolt icon, the word "CYBENETICS", "GOLD", and "230v".

115V

A teal hexagonal label with a speaker icon, the word "CYBENETICS", and "A".

230V

A teal hexagonal label with a speaker icon, the word "CYBENETICS", "A", and "230v".

Scheme: LAMBDA PSU

A blue rounded rectangular label with a lightning bolt icon, the word "CYBENETICS", "ATX 3.1", and "PASS".

Outside Validation Scope

A handwritten signature in blue ink, consisting of several loops and a long horizontal stroke.

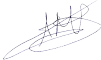
General Information

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		Corsair
Model		RM850e (ATX v3.1)
OEM/ODM		HEC
Serial Number		A9D9F4420002EL
Product Specifications		
Manufacturer-Provided Information		
 (Vrms)	100-240	
 (Arms)	5-10	

□□□□ (Hz)	47-63
□□□□ (W)	850
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Rifle Bearing Fan (HA1225H12SF-Z)
□□□□	✓
Cybenetics Testing Information	
Lab ID	CR85002630
Date of receipt	Oct 22, 2024
Testing Date	Nov 4, 2024
Report Issued Date	Nov 4, 2024
□□□□	The results apply to both the black and white variants.
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□				
□□	□□□□	□□□□□	Gauge	In Cable Capacitors
ATX □□ 24 pin (600mm)	1	1	18-20AWG	□
4+4 pin EPS 12V □□ (740mm)	2	2	18AWG	□
6+2pin PCIe□□ (640mm)	1	1	16AWG	□
2 x 6+2pin PCIe□□ (640mm)	1	2	16-18AWG	□
12+2 pin PCIe (640mm) (600W)	1	1	16-24AWG	□
SATA□□ (450mm+100mm+100mm+100mm)	1	4	18AWG	□

SATA⏏ (445mm+100mm) / 4-pin Molex (+95mm+100mm)	1	2 / 2	18AWG	⏏
AC Power Cord (1375mm) - 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	✗

⏏⏏⏏

⏏		3.3V	5V	12V	5VSB	-12V
⏏⏏⏏	⏏⏏	20	20	70.8	3	0
	⏏	150		850	15	0
⏏⏏⏏⏏ (W)		850				

Parts Description

General Data	-
Manufacturer (OEM)	HEC
PCB Type	Single-Sided
Primary Side	-
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV, 1x Power IntegrationsCAP200DG (Discharge IC)
Inrush Protection	NTC Thermistor SCK-056 (5 Ohm) & Relay
Bridge Rectifier(s)	2x GBU15KL (800V, 15A @ 100°C)
APFC MOSFETs	2x Great Power GP36S60YERD
APFC Boost Diode	1x Wolfspeed C6D08065A (650V, 8A @ 155°C)

Bulk Cap(s)	1x Teapo (400V, 470uF, 2,000h @ 105°C, LS)
Main Switchers	2x Infineon IPA60R120P7 (650V, 16A @ 100°C, Rds(on): 0.120Ohm)
APFC Controller	Champion CM6500UNX & CM03AX
Resonant Controller	Champion CM6901T6X
Topology	Primary side: APFC, Half-Bridge & LLC Resonant converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	no info
5V & 3.3V	DC-DC Converters: 4x Potens Semiconductor PDC3906X (30V, 51A @ 100°C, Rds(on): 5.5mOhm) PWM Controller(s): 1x ANPECAPW7159C
Filtering Capacitors	Electrolytic: 6x Teapo (1-3,000h @ 105°C, SC), 2x Nippon Chemi-con (2-5,000h @ 105°C, KZE) 1x Rubycon (4-10,000h @ 105°C, YXF) Polymer: 6x Teapo, 16x
Supervisor IC	Weltrend WT7527RT (OCP, OVP, UVP, SCP, PG)
Fan Controller	Nuvoton M031FB0AE
Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, Rifle Bearing Fan)
5VSB Circuit	-
Rectifier	1x PS1060L SBR (60V, 10A)
Standby PWM Controller	Excelliance MOS EM8569D

Test Results

Temperature & Compliance Info

□□□□ (°C / °F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	✓
□□ (EU) No 617/2013□□	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.1 PSU Power Excursion	✓

Performance Summary

115V

Accredited	
□□□□ (>1450 load combinations)	88.568%
Average Noise Output (>1450 Load Combinations)	22.81dBA
PF□□□ (>1450 Load Combinations)	0.982
Efficiency With 10W ($\leq$ 500W) or 2% (>500W) Load	66.870%
□□□□□	0.0490W
Non-Accredited	
12V Ripple (Full Load)	36.19mV
5V Ripple (Full Load)	13.82mV
3.3V Ripple (Full Load)	18.16mV
5VSB Ripple (Full Load)	30.55mV
12V Load Regulation	0.83%
5V Load Regulation	0.58%
3.3V Load Regulation	1.10%
5VSB Load Regulation	2.23%
Inrush Current	34.060A

230V

Accredited	
□□□□ (>1450 load combinations)	90.783%
Average Noise Output (>1450 Load Combinations)	22.84dBA
PF□□□ (>1450 Load Combinations)	0.956
Efficiency With 10W ($\leq$ 500W) or 2% (>500W) Load	68.969%
□□□□□	0.1191W
Non-Accredited	
12V Ripple (Full Load)	36.77mV
5V Ripple (Full Load)	14.29mV
3.3V Ripple (Full Load)	18.51mV

5VSB Ripple (Full Load)	29.50mV	
12V Load Regulation	0.83%	
5V Load Regulation	0.58%	
3.3V Load Regulation	1.10%	
5VSB Load Regulation	2.23%	
Inrush Current	67.740A	
12V Transient Response (200%)	11.40V	
5V Transient Response (200%)	4.885V	
3.3V Transient Response (200%)	3.203V	
5VSB Transient Response (200%)	4.885V	
□□□□ & PG□□	18.00ms	
AC Loss to PWR_OK Hold Up Time	15.50ms	
PWR_OK Inactive to DC Loss Delay	2.50ms	
PSU Timings: T1 (20% / 100%)	52.0ms	53.0ms
PSU Timings: T3 (20% / 100%)	121.0ms	124.0ms
12V OCP (27.3°C / 44.5°C)	82.62A (116.69%), 12.102V	82.42A (116.42%), 12.111V
5V OCP (27.3°C / 44.5°C)	29.2A (146.00%), 4.983V	28.1A (140.50%), 4.982V
3.3V OCP (27.3°C / 44.5°C)	28A (140.00%), 3.262V	26A (130.00%), 3.27V
5VSB OCP (27.3°C / 44.5°C)	4.1A (136.67%), 4.885V	4A (133.33%), 4.891V
OPP (28.63°C / 41.34°C)	116.92%	116.57%

□□□□ & PG□□

Hold-Up Time (ms)	18
AC Loss to PWR_OK Hold Up Time (ms)	15.5
PWR_OK Inactive to DC Loss Delay (ms)	2.5



Tables

115V

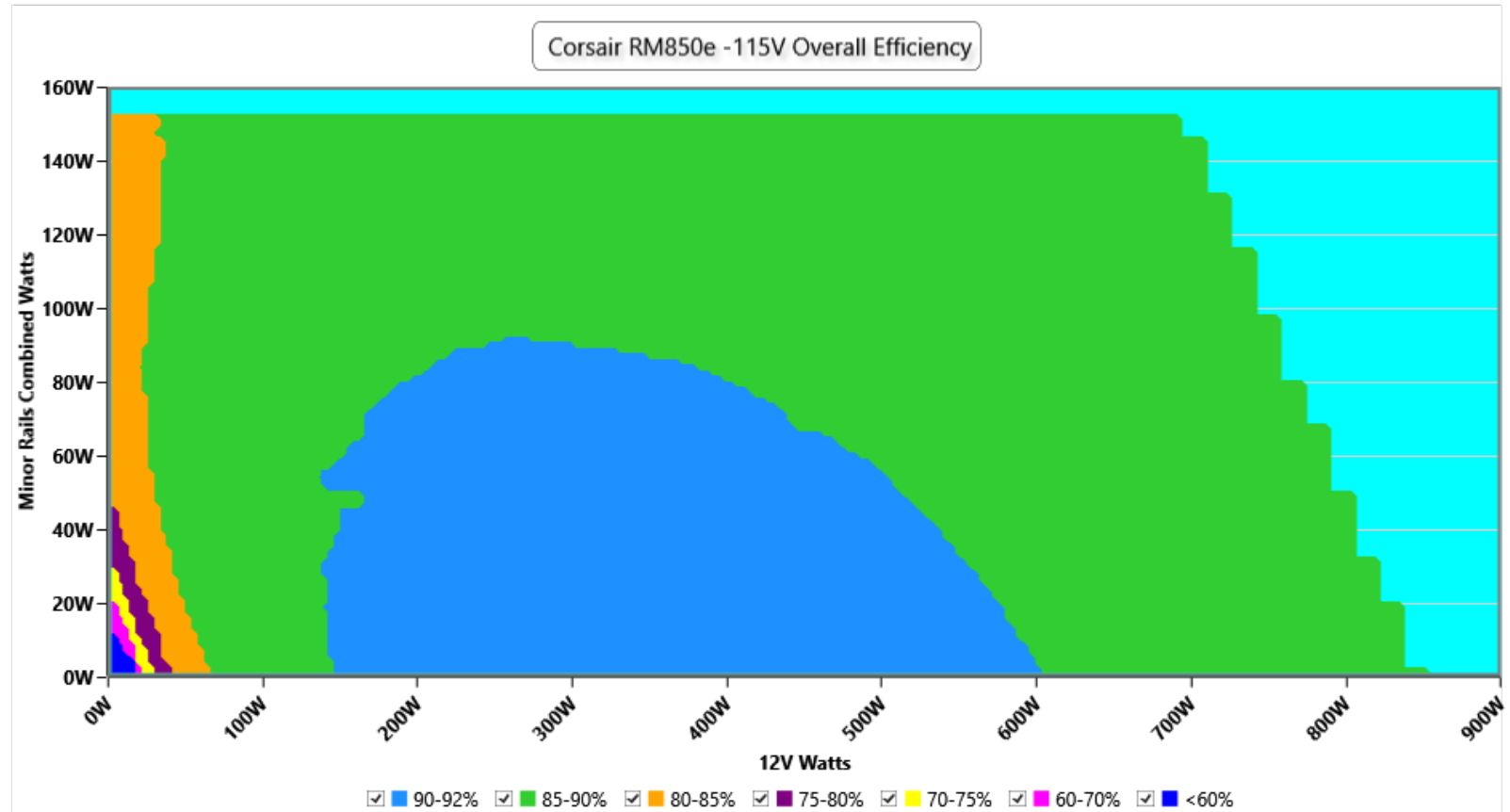
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.07 V	115.04 V	113.85 V	115.11 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.95 Hz	59.40 Hz	60.03 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.13 %	0.09 %	N/A	0.18 %	2.00 %	PASS
Real Power:	0.049 W	-0.004 W	N/A	0.093 W	N/A	N/A
Apparent Power:	10.224 W	10.100 W	N/A	10.351 W	N/A	N/A
Power Factor:	0.007	N/A	N/A	N/A	N/A	N/A

230V

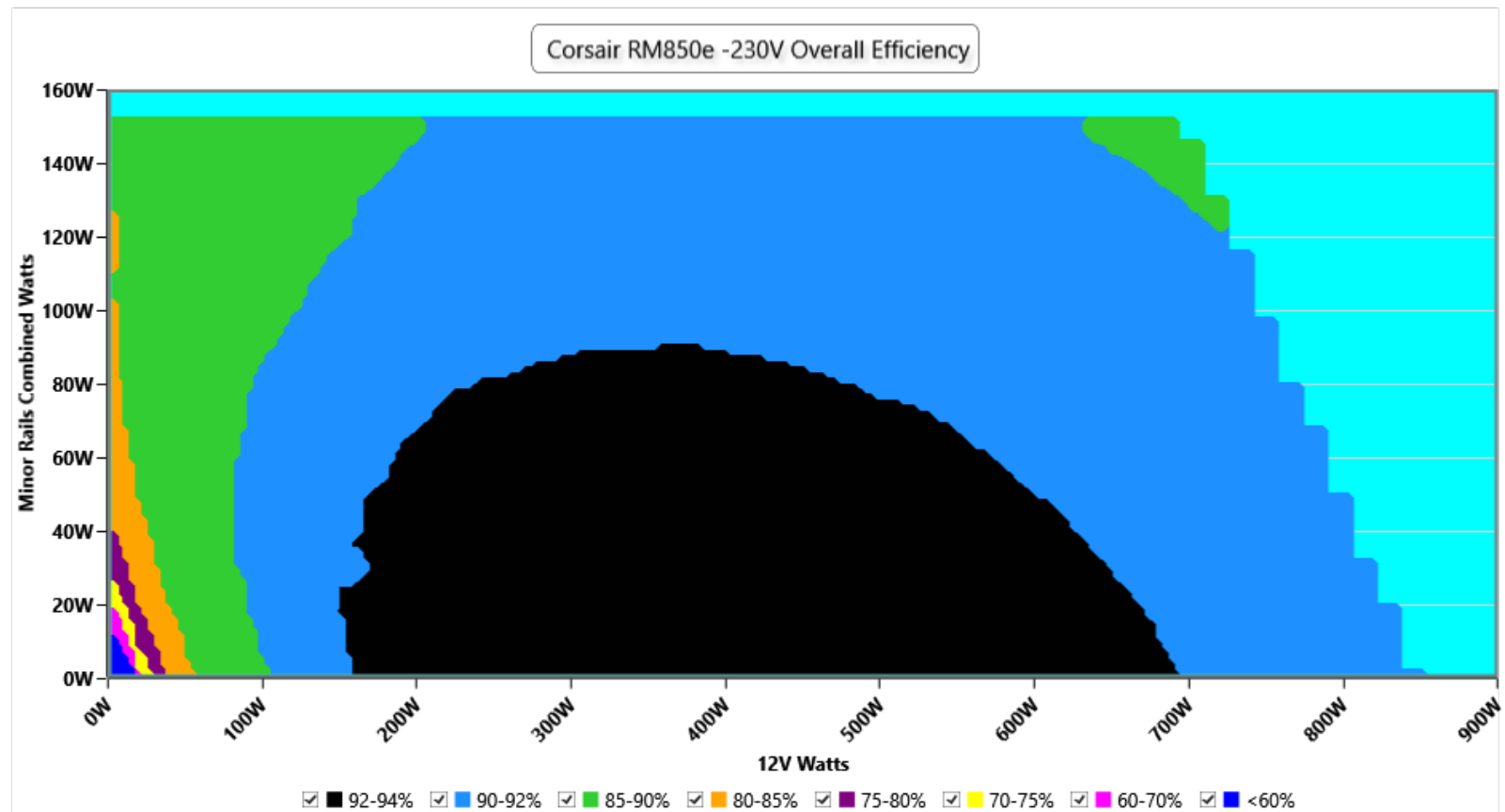
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.04 V	230.95 V	227.70 V	231.10 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	49.99 Hz	49.50 Hz	50.01 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.417	1.417	1.340	1.419	1.490	PASS
Mains Voltage THD:	0.17 %	0.15 %	N/A	0.26 %	2.00 %	PASS
Real Power:	0.119 W	0.074 W	N/A	0.183 W	N/A	N/A
Apparent Power:	34.822 W	34.508 W	N/A	35.150 W	N/A	N/A
Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A



115V



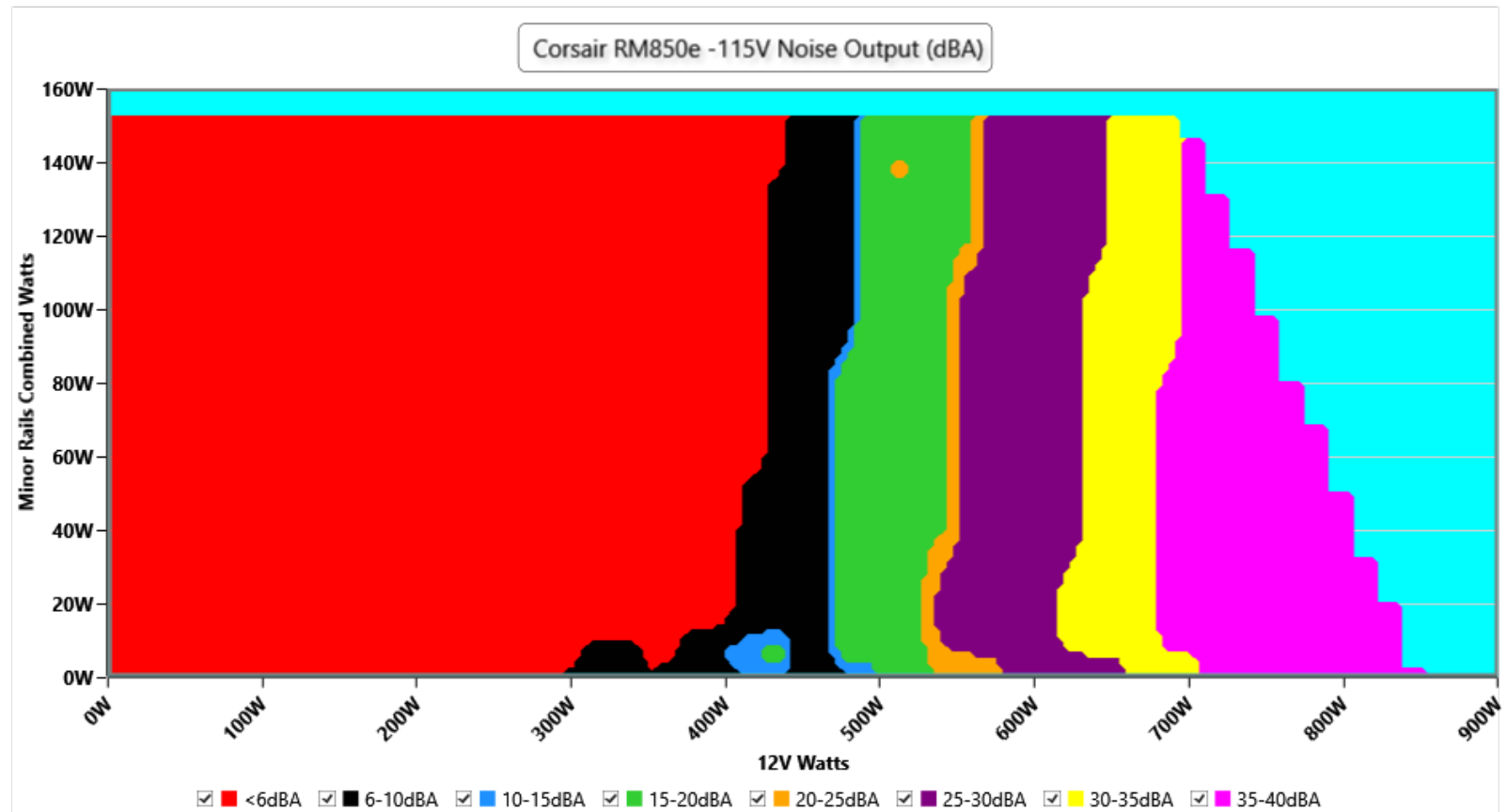
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



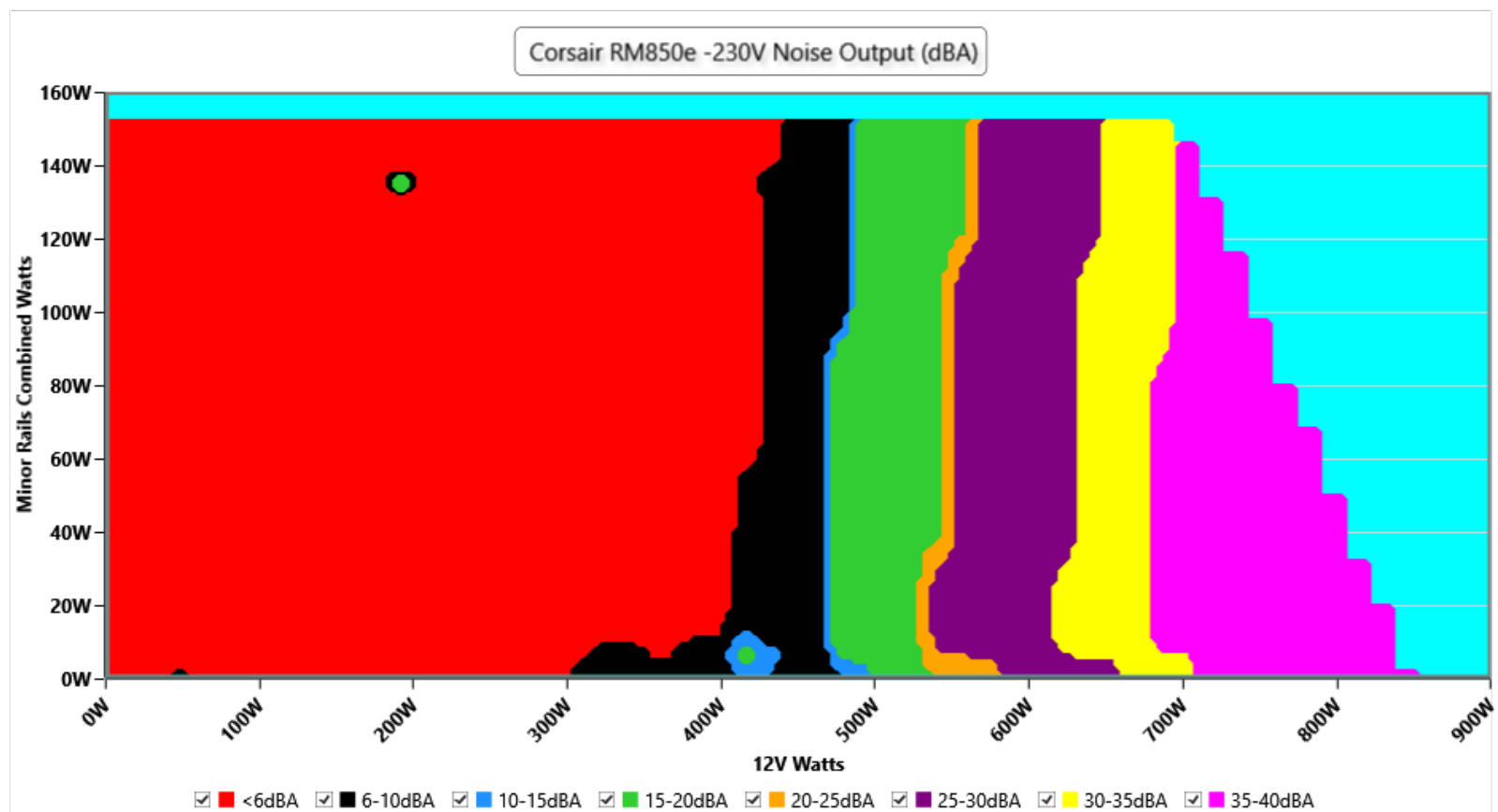
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



115V

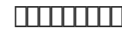


The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails



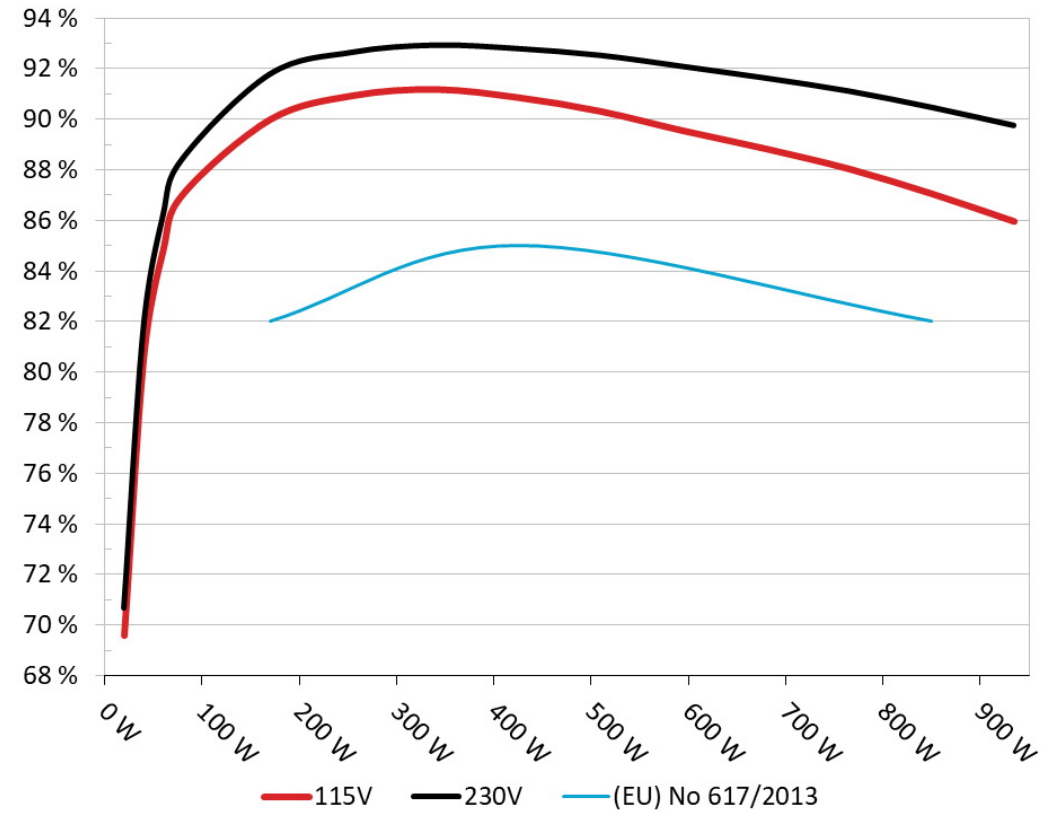
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance



Efficiency: Corsair RM850e

Ambient: 37°C - 46°C (98.6°F - 114.8°F)

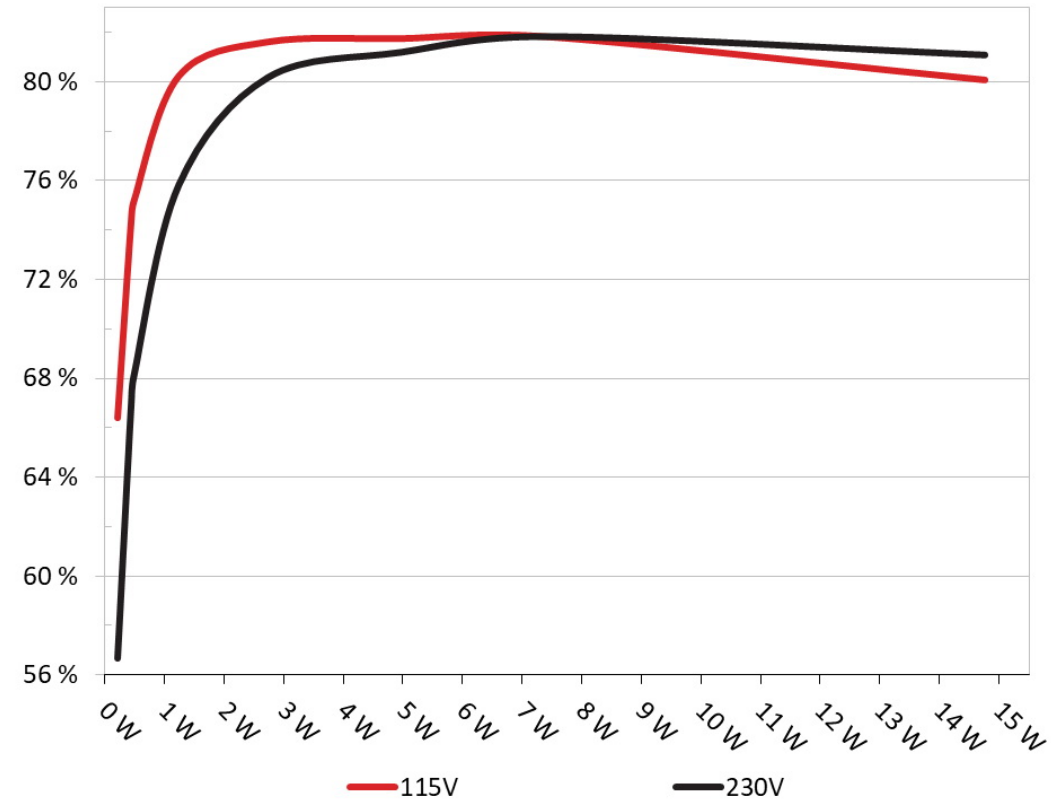


The PSU's efficiency under high ambient temperatures with 115V and 230V input. For this graph the results of the 10-110% load regulation table are used

5Vsb

5VSB Efficiency: Corsair RM850e

Ambient: 34°C - 36°C (93.2°F - 96.8°F)



□

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input

5Vsb (ErP Lot3/6 & CEC)

115V

#	5VSB	DC/AC (%)		PF/AC
1	0.045A	0.225W	66.4%	0.034
	5.002V	0.339W		115.17V
2	0.09A	0.45W	74.298%	0.06
	5.001V	0.606W		115.18V
3	0.55A	2.745W	81.598%	0.26
	4.99V	3.364W		115.17V
4	1A	4.98W	81.731%	0.357
	4.979V	6.093W		115.17V
5	1.5A	7.451W	81.798%	0.407
	4.966V	9.109W		115.17V
6	3.001A	14.757W	80.058%	0.478
	4.918V	18.433W		115.17V

230V

#	5VSB	DC/AC (%)		PF/AC
1	0.045A	0.225W	56.661%	0.012
	5.004V	0.398W		230.43V
2	0.09A	0.45W	66.83%	0.02
	5.002V	0.674W		230.43V
3	0.55A	2.745W	80.155%	0.098
	4.99V	3.425W		230.41V
4	1A	4.979W	81.176%	0.164
	4.978V	6.134W		230.41V
5	1.5A	7.45W	81.813%	0.221
	4.965V	9.107W		230.42V
6	3.001A	14.768W	81.069%	0.325
	4.922V	18.218W		230.42V

Protection Features

OCP (Normal @ 27.3°C)	12V: 82.62A (116.69%), 12.102V 5V: 29.2A (146.00%), 4.983V 3.3V: 28A (140.00%), 3.262V 5VSB: 4.1A (136.67%), 4.885V
OCP (Hot @ 44.5°C)	12V: 82.42A (116.42%), 12.111V 5V: 28.1A (140.50%), 4.982V 3.3V: 26A (130.00%), 3.27V 5VSB: 4A (133.33%), 4.891V
OPP (Normal @ 28.6°C)	993.81W (116.92%)
OPP (Hot @ 41.3°C)	990.88W (116.57%)
OTP	✓ (125°C @ Heat Sink)
SCP	12V to Earth: ✓ 5V to Earth: ✓ 3.3V to Earth: ✓ 5VSB to Earth: ✓
PWR_OK	Proper Operation
NLO	✓
Fan Failure Protection	✗
SIP	Surge: MOV Inrush: NTC & Bypass Relay

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □
10%	5.209A	2A	2.003A	1.006A	85.01	86.799%	0	<6.0	50.41°C	0.931
	12.173V	5.002V	3.296V	4.974V	97.941				40.42°C	115.15V

20%	11.435A	3.001A	3.007A	1.209A	169.98	89.975%	0	<6.0	50.74°C	0.957
	12.162V	4.999V	3.293V	4.966V	188.919				40.83°C	115.13V
30%	18.043A	3.503A	3.511A	1.412A	254.997	90.921%	0	<6.0	55.56°C	0.981
	12.135V	4.997V	3.29V	4.958V	280.465				41.38°C	115.09V
40%	24.605A	4.005A	4.016A	1.616A	340.094	91.166%	0	<6.0	58.38°C	0.985
	12.147V	4.995V	3.287V	4.951V	373.047				41.82°C	115.07V
50%	30.873A	5.01A	5.026A	1.822A	425.187	90.844%	411	<6.0	42.1°C	0.988
	12.136V	4.991V	3.283V	4.942V	468.041				50.97°C	115.04V
60%	37.109A	6.017A	6.039A	2.001A	509.598	90.299%	615	7.1	42.57°C	0.989
	12.124V	4.988V	3.279V	4.935V	564.352				50.6°C	115.01V
70%	43.428A	7.024A	7.055A	2.234A	595.06	89.527%	856	19.1	43.37°C	0.991
	12.111V	4.985V	3.275V	4.925V	664.674				50.72°C	114.99V
80%	49.757A	8.033A	8.072A	2.338A	679.899	88.816%	1067	27.4	43.94°C	0.992
	12.098V	4.981V	3.271V	4.92V	765.518				50.84°C	114.97V
90%	56.492A	8.538A	8.57A	2.443A	765.339	88.024%	1275	32.9	44.33°C	0.993
	12.087V	4.979V	3.268V	4.913V	869.465				51.62°C	114.94V
100%	62.971A	9.045A	9.099A	3.067A	850.156	87.045%	1724	42.2	45.24°C	0.993
	12.076V	4.976V	3.264V	4.891V	976.691				52.73°C	114.9V
110%	69.338A	10.055A	10.214A	3.069A	934.72	85.953%	2111	46.8	46.28°C	0.992
	12.064V	4.973V	3.26V	4.888V	1087.489				53.78°C	114.87V
CL1	0.116A	18.119A	18.19A	0A	151.317	82.89%	1588	39.4	40.41°C	0.958
	12.149V	4.984V	3.277V	4.995V	182.556				46.45°C	115.13V
CL2	0.115A	20.046A	0A	0A	101.405	82.881%	847	18.6	40.93°C	0.942
	12.163V	4.989V	3.3V	5.003V	122.35				45.63°C	115.15V
CL3	0.115A	0A	20.13A	0A	67.399	77.353%	552	<6.0	40.69°C	0.927
	12.162V	5.002V	3.278V	5V	87.131				46.1°C	115.15V
CL4	70.314A	0A	0A	0A	849.774	87.976%	1493	37.3	45.24°C	0.993
	12.086V	4.987V	3.277V	4.982V	965.928				50.34°C	114.89V

The results above are not used in the certification process

230V

項目	12V	5V	3.3V	5VSB	DC/AC (V)	項目	回転数 (RPM)	騒音レベル (dB[A])	温度 (°C / °F)	PF/AC 電圧
10%	5.208A	2A	2.002A	1.005A	85.01	88.321%	0	<6.0	49.22°C	0.83
	12.175V	5.002V	3.297V	4.975V	96.252				40.08°C	230.41V
20%	11.432A	3.001A	3.007A	1.208A	169.983	91.783%	0	<6.0	49.54°C	0.906
	12.165V	4.999V	3.293V	4.967V	185.202				40.92°C	230.4V
30%	18.009A	3.503A	3.511A	1.412A	255	92.655%	0	<6.0	51.97°C	0.96
	12.158V	4.997V	3.29V	4.959V	275.215				41.12°C	230.39V
40%	24.601A	4.005A	4.016A	1.616A	340.1	92.933%	0	<6.0	53.44°C	0.967
	12.149V	4.995V	3.288V	4.951V	365.961				41.56°C	230.38V
50%	30.874A	5.01A	5.026A	1.821A	425.201	92.797%	411	<6.0	42.32°C	0.972
	12.136V	4.991V	3.283V	4.943V	458.209				49.42°C	230.37V
60%	37.109A	6.017A	6.039A	2.001A	509.609	92.53%	615	7.1	42.84°C	0.974
	12.124V	4.988V	3.279V	4.936V	550.749				49.52°C	230.36V
70%	43.427A	7.025A	7.055A	2.234A	595.079	92.087%	856	19.1	43.19°C	0.977
	12.111V	4.984V	3.275V	4.926V	646.215				48.88°C	230.35V
80%	49.755A	8.033A	8.072A	2.338A	679.905	91.628%	1068	27.4	43.84°C	0.979
	12.099V	4.981V	3.271V	4.921V	742.022				49.19°C	230.34V
90%	56.491A	8.538A	8.57A	2.444A	765.341	91.115%	1274	32.9	44.86°C	0.98
	12.087V	4.979V	3.267V	4.912V	839.972				49.95°C	230.32V
100%	62.967A	9.045A	9.099A	3.067A	850.145	90.473%	1714	42.1	45.96°C	0.981
	12.077V	4.976V	3.264V	4.892V	939.669				50.89°C	230.31V
110%	69.343A	10.056A	10.215A	3.069A	934.728	89.757%	2114	46.9	46.23°C	0.982
	12.063V	4.973V	3.26V	4.889V	1041.406				51.22°C	230.29V
CL1	0.116A	18.12A	18.19A	0A	151.319	84.496%	1589	39.4	41.51°C	0.906
	12.149V	4.984V	3.277V	4.996V	179.084				46.5°C	230.41V
CL2	0.115A	20.048A	0A	0A	101.407	84.306%	1106	28.5	41.52°C	0.864
	12.164V	4.988V	3.3V	5.004V	120.283				44.81°C	230.42V
CL3	0.115A	0A	20.131A	0A	67.403	78.635%	552	<6.0	40.23°C	0.813
	12.161V	5.001V	3.278V	5V	85.714				45.07°C	230.42V

CL4	70.320A	0A	0A	0A	849.832	91.268%	1494	37.3	45.81°C	0.981
	12.086V	4.987V	3.277V	4.982V	931.139				48.94°C	230.32V

The results above are not used in the certification process

20-80

115V

	12V	5V	3.3V	5VSB	DC/AC ()		(RPM)	(dB[A])	(/)	PF/AC
20W	1.220A	0.5A	0.5A	0.2A	20.009	69.599%	0	<6.0	44.73°C	0.824
	12.176V	5.005V	3.3V	5V	28.75				36.86°C	115.16V
40W	2.686A	0.7A	0.7A	0.3A	40.008	80.597%	0	<6.0	46.36°C	0.89
	12.175V	5.004V	3.299V	4.998V	49.639				37.72°C	115.16V
60W	4.151A	0.9A	0.901A	0.401A	60.007	84.815%	0	<6.0	46.11°C	0.914
	12.175V	5.003V	3.298V	4.992V	70.752				38.31°C	115.16V
80W	5.614A	1.1A	1.101A	0.501A	79.972	87.01%	0	<6.0	47.56°C	0.927
	12.173V	5.003V	3.297V	4.988V	91.913				39.11°C	115.15V

The results above are not used in the certification process

230V

	12V	5V	3.3V	5VSB	DC/AC ()		(RPM)	(dB[A])	(/)	PF/AC
20W	1.220A	0.5A	0.5A	0.2A	20.011	70.664%	0	<6.0	44.32°C	0.507
	12.177V	5.005V	3.3V	5.001V	28.345				36.65°C	230.42V
40W	2.686A	0.7A	0.7A	0.3A	40.008	81.714%	0	<6.0	44.61°C	0.68
	12.176V	5.004V	3.299V	4.998V	48.961				37.32°C	230.42V
60W	4.151A	0.9A	0.901A	0.401A	60.007	86.152%	0	<6.0	47.27°C	0.77
	12.175V	5.003V	3.298V	4.993V	69.652				38.29°C	230.41V
80W	5.614A	1.1A	1.102A	0.502A	79.98	88.425%	0	<6.0	50.4°C	0.818
	12.175V	5.002V	3.296V	4.987V	90.449				39.08°C	230.43V

The results above are not used in the certification process



115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.99mV	6.94mV	4.73mV	14.83mV	Pass
20% Load	14.89mV	8.11mV	5.54mV	15.54mV	Pass
30% Load	16.79mV	7.60mV	5.85mV	17.93mV	Pass
40% Load	17.33mV	9.79mV	7.98mV	19.26mV	Pass
50% Load	19.08mV	13.72mV	12.51mV	19.97mV	Pass
60% Load	19.90mV	15.51mV	15.82mV	20.33mV	Pass
70% Load	21.02mV	16.07mV	17.29mV	21.96mV	Pass
80% Load	21.83mV	15.45mV	16.28mV	21.45mV	Pass
90% Load	23.00mV	13.06mV	16.43mV	21.70mV	Pass
100% Load	36.19mV	13.82mV	18.16mV	30.55mV	Pass
110% Load	38.67mV	14.10mV	18.81mV	29.91mV	Pass
Crossload1	21.68mV	9.30mV	14.28mV	16.55mV	Pass
Crossload2	10.99mV	6.94mV	4.37mV	11.56mV	Pass
Crossload3	9.62mV	6.38mV	14.14mV	10.75mV	Pass
Crossload4	35.07mV	10.49mV	10.52mV	22.03mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.94mV	6.78mV	5.64mV	14.37mV	Pass
20% Load	14.23mV	8.21mV	5.54mV	15.59mV	Pass
30% Load	16.28mV	7.35mV	5.49mV	17.73mV	Pass
40% Load	16.78mV	11.02mV	9.56mV	18.34mV	Pass
50% Load	18.63mV	13.06mV	12.87mV	18.85mV	Pass
60% Load	19.13mV	14.69mV	16.83mV	19.87mV	Pass

