



Seasonic Core GX-850 ATX3

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Lab ID SS85002750

Certification ID 252750

Test Result Report ID: 25PS2750A

Certificate Issue Date: Mar 6, 2025

115V

230V

Scheme: ETA-EMI PSU

115V

230V

Scheme: LAMBDA PSU

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	Seasonic
Model	Core GX-850 ATX3
OEM/ODM	Seasonic
Serial Number	-
Product Specifications	
Manufacturer-Provided Information	
$\square\square\square$ (Vrms)	100-240
$\square\square\square$ (Arms)	5.5-11

□□□□ (Hz)	50-60
□□□□ (W)	850
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
□□□□	✗
Cybenetics Testing Information	
Lab ID	SS85002750
Date of receipt	Feb 11, 2025
Testing Date	Feb 20, 2025
Report Issued Date	Mar 6, 2025
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

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□□	□□□□	□□□□□	Gauge	In Cable Capacitors
ATX □□ 20+4 pin (620mm)	1	1	16-18AWG	□
4+4 pin EPS 12V □□ (750mm)	2	2	16AWG	□
2x 6+2pin PCIe□□ (710mm)	1	2	16-18AWG	□
6+2pin PCIe□□ (750mm)	1	1	16-18AWG	□
12+4 pin PCIe (700mm) (600W)	1	1	16-28AWG	□
SATA□□ (455mm+155mm+155mm)	2	6	18AWG	□
4-pin Molex (455mm+125mm+125mm)	1	3	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	3	0.3
	□	100		840	15	3.6
□□□□ (W)		850				

Parts Description

General Data	
Manufacturer (OEM)	Seasonic
PCB Type	Double-Sided
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	1x NTC Thermistor MF72-5D20L (5 Ohm) & Relay
Bridge Rectifier(s)	2x GBU1508S (800V, 15A @ 100°C)
APFC MOSFETs	2x CRMicro CRJS140N65G2F (650V, 15A, @ 100°C, Rds(on): 140mOhm)
APFC Boost Diode	1x Global Power Technology G4S06508DT (650V, 8A, @ 152°C)
Bulk Cap(s)	1x Teapo (400V, 470uF, 2,000h @ 105°C, LG)

Main Switchers	4x Haujing Microelectronics CS13N50AOR (500V, 8.2A, @ 100°C, Rds(on): 0.5Ohm)
APFC Controller	Champion CM6500UNX
Resonant Controller	Champion CU6901VPA
Topology	Primary side: APFC, Full-Bridge & LLC Resonant converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	4x 33208B
5V & 3.3V	DC-DC Converters: 6x UBIQ QN3106M6N (30V, 57A @ 100°C, Rds(on): 3.8mOhm) PWM Controller(s): UPI-semiuP3861P
Filtering Capacitors	Electrolytic: 11x Teapo (2-5,000h @ 105°C, SC), Polymer: 21x
Supervisor IC	Weltrend WT7527RA (OVP, UVP, OCP, SCP, PG)
Fan Controller	Nuvoton M031FB0AE
Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, Fluid Dynamic Bearing Fan)
5VSB Circuit	
Low Side Rectifier	Dongke DK5V45R10S (45V, Rds(on): 10mOhm)
Standby PWM Controller	Excelliance MOS EM8569C

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)	89.073%
Average Noise Output (>1450 Load Combinations)	28.17dBA
PF□□□ (>1450 Load Combinations)	0.977
Efficiency With 10W ($\leq$ 500W) or 2% (>500W) Load	71.934%
□□□□□	0.0665W
Non-Accredited	
12V Ripple (Full Load)	28.89mV
5V Ripple (Full Load)	18.67mV
3.3V Ripple (Full Load)	20.21mV
5VSB Ripple (Full Load)	21.59mV
12V Load Regulation	1.14%
5V Load Regulation	0.44%
3.3V Load Regulation	0.73%
5VSB Load Regulation	4.07%
Inrush Current	32.720A

230V

Accredited	
□□□□ (>1450 load combinations)	91.095%
Average Noise Output (>1450 Load Combinations)	28.19dBA
PF□□□ (>1450 Load Combinations)	0.943
Efficiency With 10W ($\leq$ 500W) or 2% (>500W) Load	72.819%
□□□□□	0.1740W
Non-Accredited	
12V Ripple (Full Load)	29.48mV
5V Ripple (Full Load)	18.24mV
3.3V Ripple (Full Load)	20.05mV

5VSB Ripple (Full Load)	21.04mV	
12V Load Regulation	1.13%	
5V Load Regulation	0.42%	
3.3V Load Regulation	0.73%	
5VSB Load Regulation	4.07%	
Inrush Current	63.740A	
12V Transient Response (200%)	11.38V	
5V Transient Response (200%)	4.921V	
3.3V Transient Response (200%)	3.207V	
5VSB Transient Response (200%)	4.922V	
PG & PG	18.00ms	
AC Loss to PWR_OK Hold Up Time	14.70ms	
PWR_OK Inactive to DC Loss Delay	3.30ms	
PSU Timings: T1 (20% / 100%)	69.0ms	67.0ms
PSU Timings: T3 (20% / 100%)	125.0ms	127.0ms
12V OCP (28.5°C / 40.9°C)	78.20A (111.71%), 12.043V	77.60A (110.86%), 12.058V
5V OCP (28.5°C / 40.9°C)	27.5A (137.50%), 5V	27.4A (137.00%), 4.994V
3.3V OCP (28.5°C / 40.9°C)	29A (145.00%), 3.288V	29A (145.00%), 3.285V
5VSB OCP (28.5°C / 40.9°C)	6.2A (206.67%), 4.792V	6.2A (206.67%), 4.782V
OPP (28.12°C / 41.72°C)	110.63%	110.64%

PG & PG

Hold-Up Time (ms)	18
AC Loss to PWR_OK Hold Up Time (ms)	14.7
PWR_OK Inactive to DC Loss Delay (ms)	3.3



Tables

115V

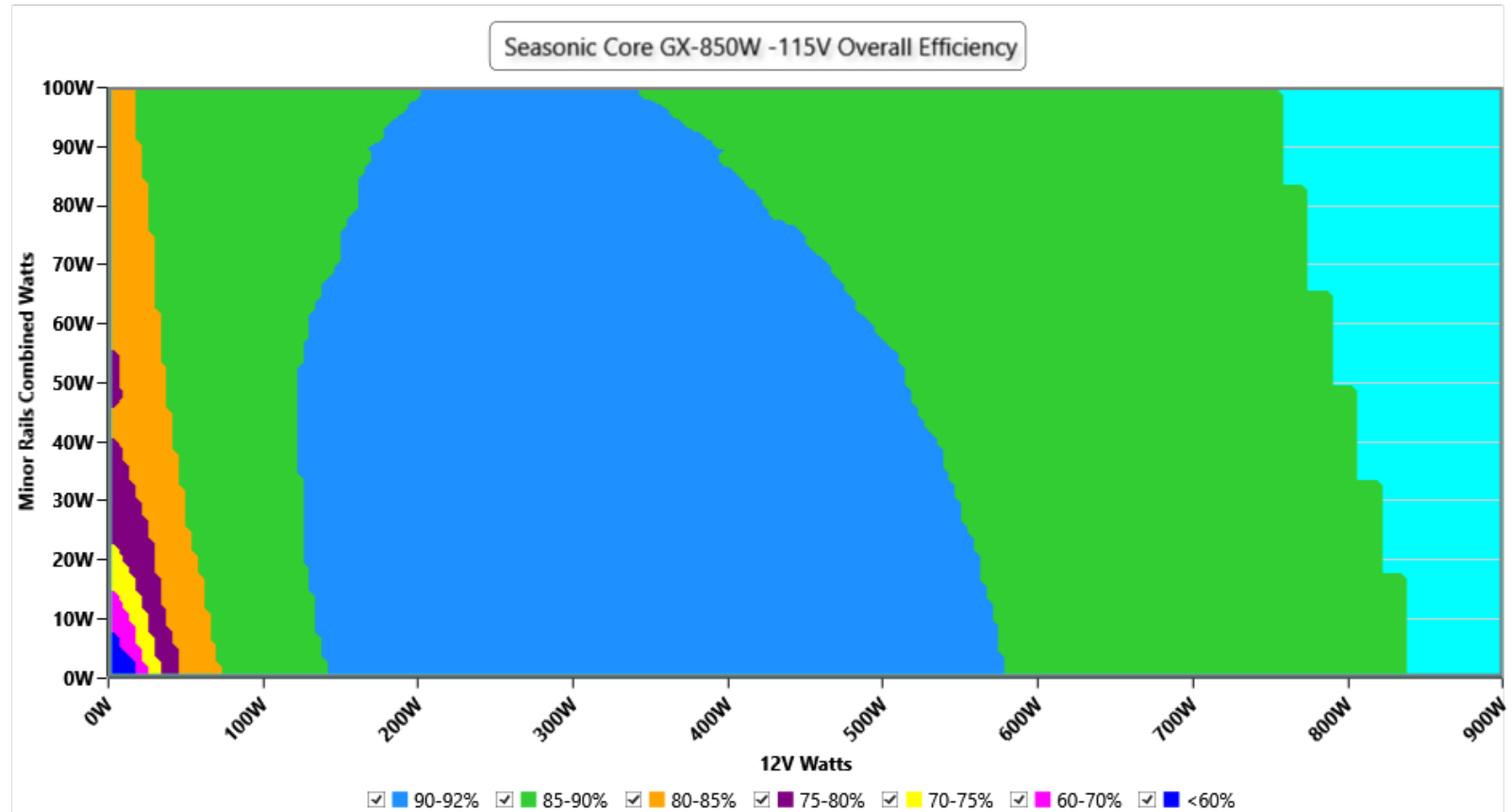
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.05 V	115.01 V	113.85 V	115.08 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.13 %	0.08 %	N/A	0.18 %	2.00 %	PASS
Real Power:	0.067 W	0.005 W	N/A	0.109 W	N/A	N/A
Apparent Power:	11.279 W	10.688 W	N/A	11.864 W	N/A	N/A
Power Factor:	0.006	N/A	N/A	N/A	N/A	N/A

230V

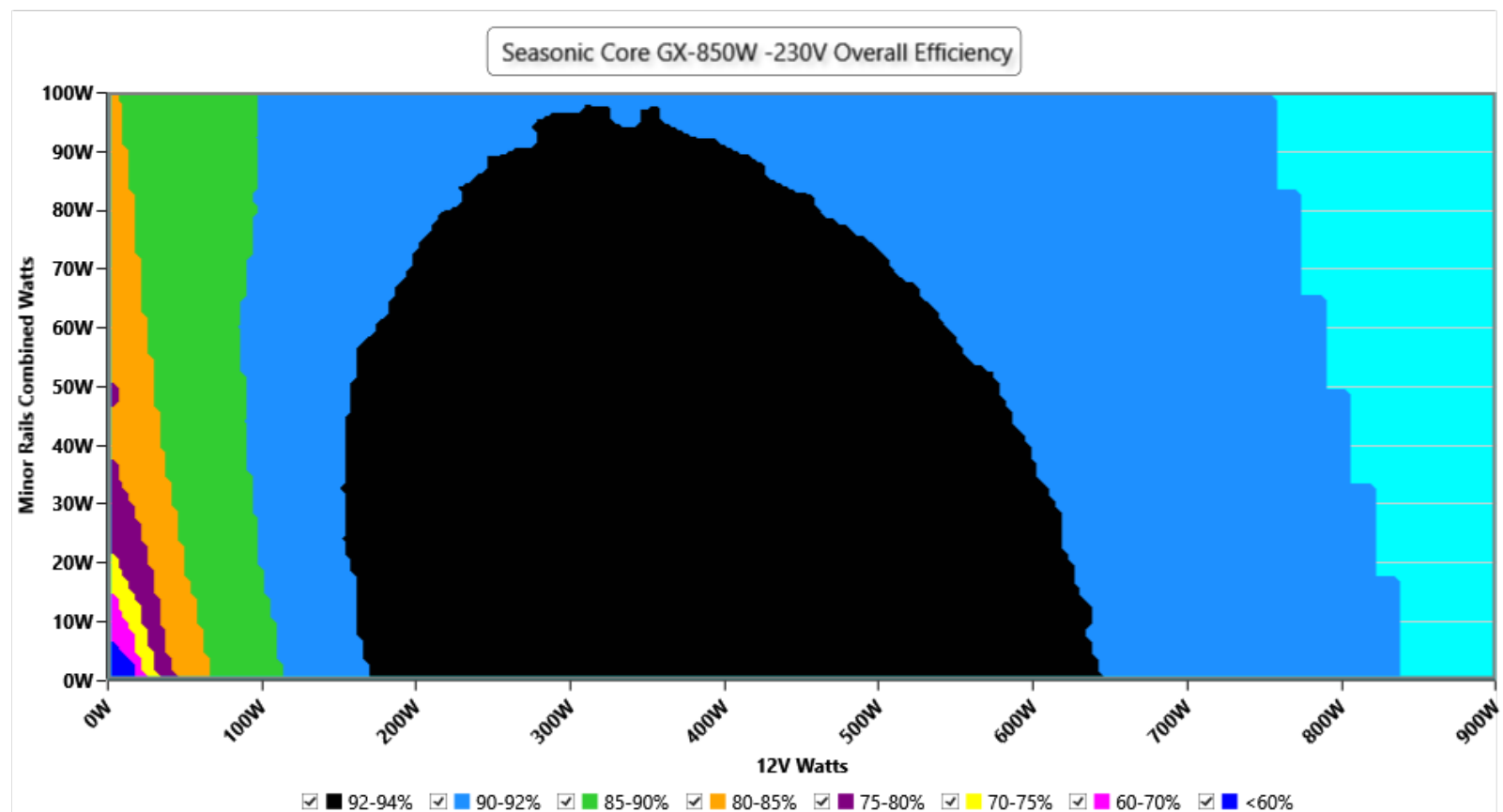
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.01 V	230.90 V	227.70 V	231.08 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	49.99 Hz	49.50 Hz	50.01 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.417	1.416	1.340	1.419	1.490	PASS
Mains Voltage THD:	0.17 %	0.15 %	N/A	0.26 %	2.00 %	PASS
Real Power:	0.174 W	0.134 W	N/A	0.299 W	N/A	N/A
Apparent Power:	36.075 W	35.442 W	N/A	36.840 W	N/A	N/A
Power Factor:	0.005	N/A	N/A	N/A	N/A	N/A



115V



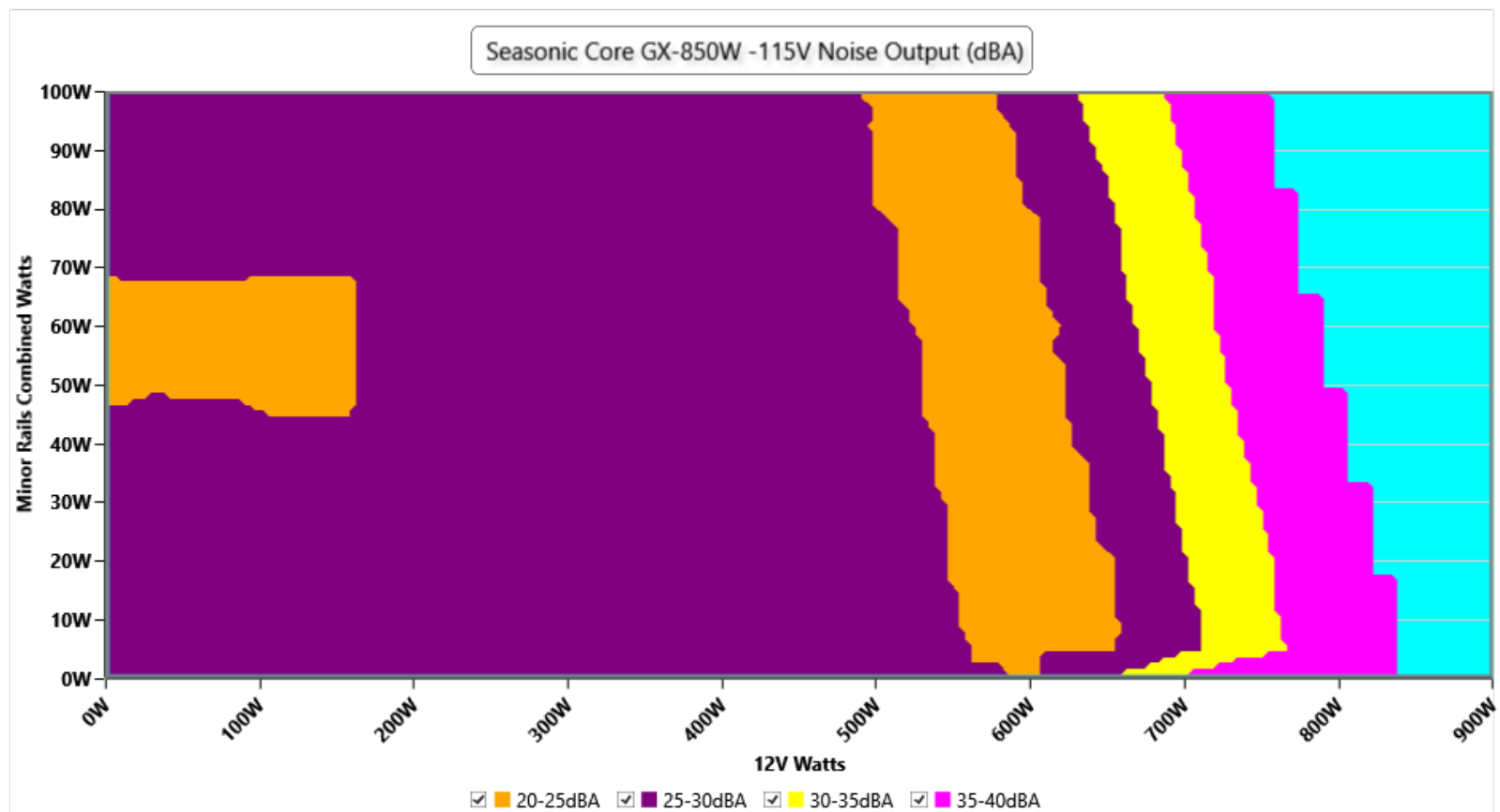
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



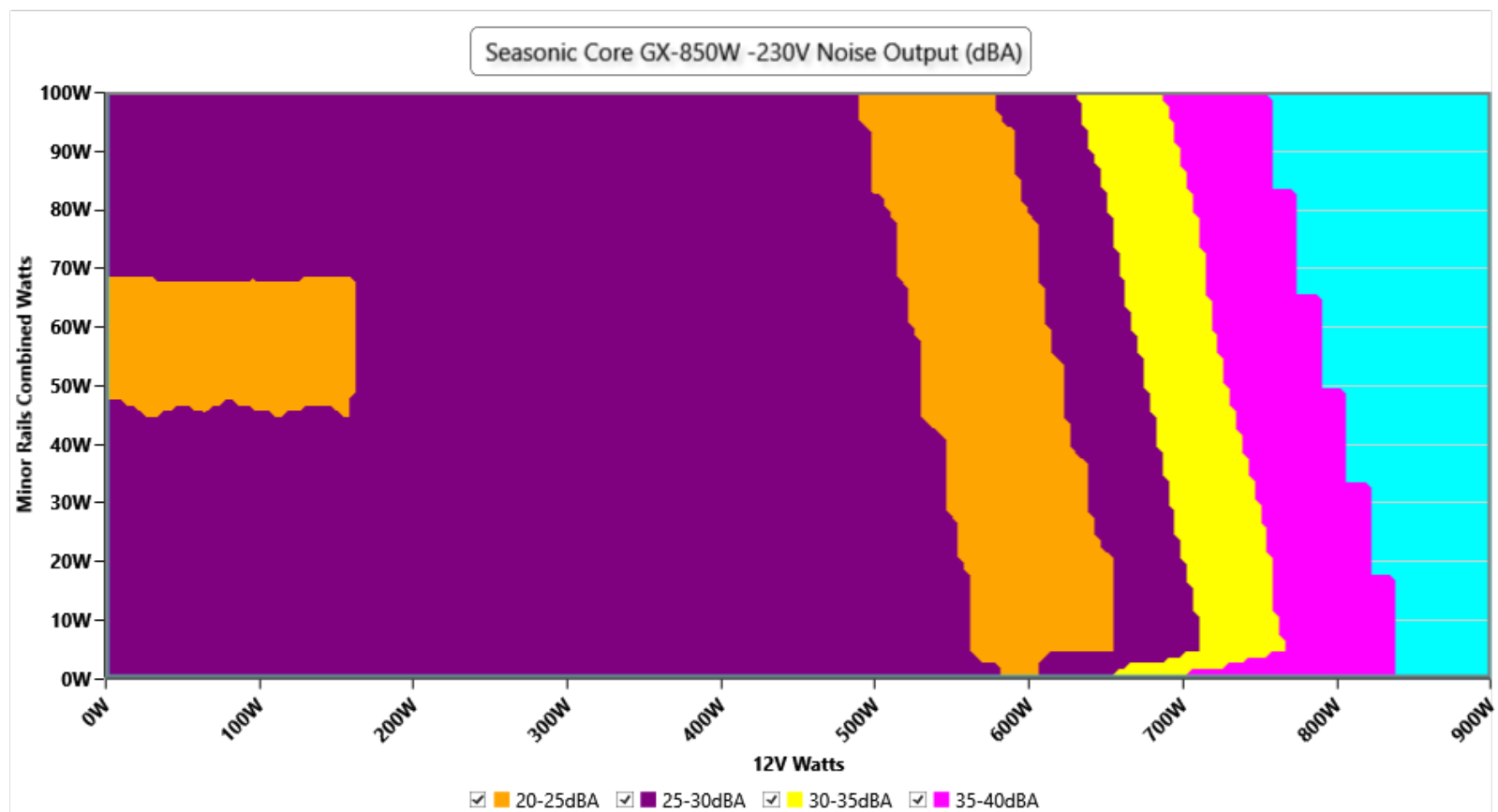
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



115V

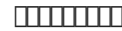


The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails



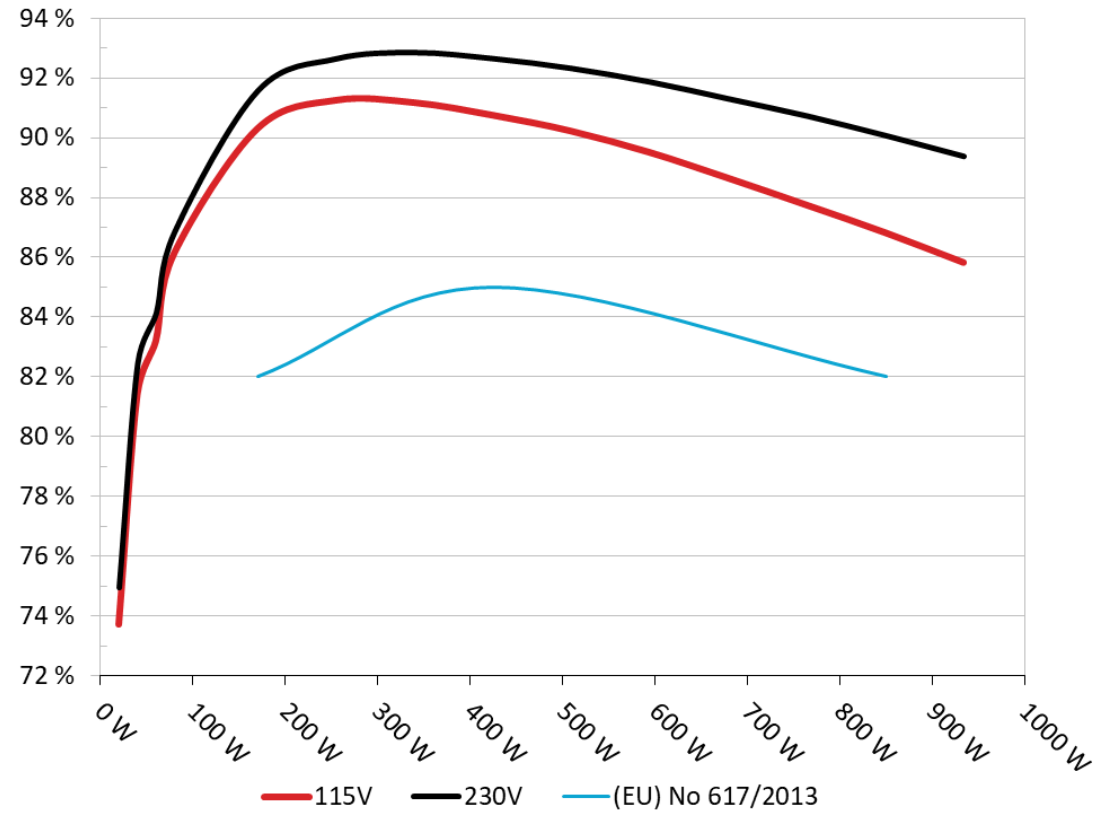
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance



Efficiency: Seasonic Core GX-850W

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

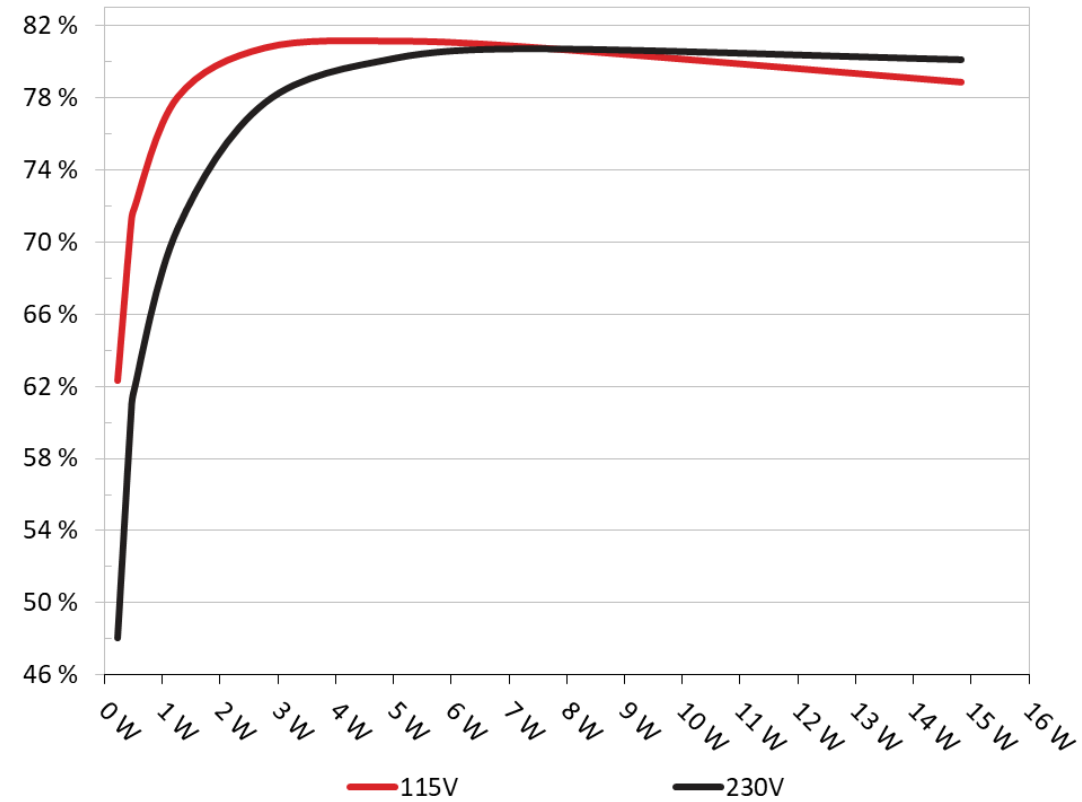


The PSU's efficiency under high ambient temperatures with 115V and 230V input. For this graph the results of the 10-110% load regulation table are used

5Vsb

5VSB Efficiency: Seasonic Core GX-850W

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	0.228W	62.324%	0.035
	5.072V	0.366W		114.91V
2	0.09A	0.456W	70.859%	0.061
	5.07V	0.644W		114.92V
3	0.55A	2.777W	80.78%	0.257
	5.049V	3.438W		114.91V
4	1A	5.03W	81.15%	0.356
	5.03V	6.198W		114.91V
5	1.5A	7.512W	80.783%	0.405
	5.007V	9.299W		114.92V
6	3A	14.82W	78.876%	0.481
	4.94V	18.79W		114.91V

230V

#	5VSB	DC/AC (%)		PF/AC
1	0.045A	0.228W	48.061%	0.013
	5.072V	0.475W		229.89V
2	0.09A	0.456W	60.201%	0.021
	5.07V	0.759W		229.88V
3	0.55A	2.777W	77.705%	0.097
	5.049V	3.575W		229.88V
4	1A	5.03W	80.17%	0.16
	5.029V	6.274W		229.88V
5	1.5A	7.512W	80.69%	0.206
	5.007V	9.31W		229.89V
6	3A	14.822W	80.089%	0.317
	4.941V	18.508W		229.88V

Protection Features

OCP (Normal @ 28.5°C)	12V: 78.20A (111.71%), 12.043V 5V: 27.5A (137.50%), 5V 3.3V: 29A (145.00%), 3.288V 5VSB: 6.2A (206.67%), 4.792V
OCP (Hot @ 40.9°C)	12V: 77.60A (110.86%), 12.058V 5V: 27.4A (137.00%), 4.994V 3.3V: 29A (145.00%), 3.285V 5VSB: 6.2A (206.67%), 4.782V
OPP (Normal @ 28.1°C)	940.37W (110.63%)
OPP (Hot @ 41.7°C)	940.43W (110.64%)
OTP	✓ (128°C @ Heat Sink)
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)

10-110%□□□□

115V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	5.234A	1.992A	1.993A	0.996A	84.999	86.01%	836	25.4	40.01°C	0.947
	12.114V	5.019V	3.311V	5.021V	98.824				42.99°C	114.88V

20%	11.500A	2.99A	2.992A	1.199A	169.931	90.3%	833	24.8	40.59°C	0.966
	12.089V	5.016V	3.309V	5.006V	188.184				44.66°C	114.86V
30%	18.115A	3.49A	3.493A	1.403A	254.933	91.253%	827	24.1	41.43°C	0.975
	12.083V	5.015V	3.307V	4.991V	279.371				47.16°C	114.83V
40%	24.740A	3.99A	3.994A	1.608A	340.019	91.173%	863	24.8	41.81°C	0.979
	12.078V	5.013V	3.305V	4.975V	372.941				49.36°C	114.8V
50%	30.997A	4.99A	4.997A	1.815A	424.79	90.753%	855	24.3	42.22°C	0.982
	12.074V	5.01V	3.302V	4.959V	468.074				51.63°C	114.77V
60%	37.238A	5.991A	6.002A	2A	509.223	90.222%	847	26.1	42.68°C	0.984
	12.072V	5.008V	3.299V	4.943V	564.41				54.26°C	114.74V
70%	43.544A	6.993A	7.009A	2.233A	594.641	89.506%	836	25.4	43.37°C	0.986
	12.069V	5.006V	3.296V	4.925V	664.363				56.84°C	114.71V
80%	49.848A	7.994A	8.016A	2.341A	679.465	88.648%	824	23.7	43.79°C	0.989
	12.068V	5.003V	3.293V	4.913V	766.477				60.38°C	114.67V
90%	56.560A	8.496A	8.506A	2.449A	764.898	87.739%	1138	33.4	44.12°C	0.991
	12.065V	5.001V	3.291V	4.9V	871.788				60.29°C	114.64V
100%	63.030A	8.998A	9.027A	3.084A	849.708	86.819%	1729	43.7	45.73°C	0.992
	12.058V	5V	3.29V	4.864V	978.712				56.94°C	114.6V
110%	69.380A	10A	10.127A	3.088A	934.288	85.82%	2157	49.8	46.22°C	0.993
	12.050V	4.999V	3.288V	4.857V	1088.665				56.29°C	114.57V
CL1	0.115A	12.023A	12.049A	0A	101.287	83.573%	881	26.7	40.57°C	0.956
	12.125V	5.006V	3.295V	5.056V	121.196				49.87°C	114.87V
CL2	0.114A	19.988A	0A	0A	101.342	82.657%	880	26.6	40.94°C	0.954
	12.120V	5.001V	3.3V	5.059V	122.603				48.74°C	114.87V
CL3	0.114A	0A	20.061A	0A	67.393	76.45%	881	26.7	40.7°C	0.943
	12.118V	5.007V	3.29V	5.059V	88.153				46.67°C	114.88V
CL4	70.478A	0A	0A	0A	849.476	87.683%	1518	41.6	45.17°C	0.991
	12.053V	5.008V	3.302V	5.017V	968.815				55.16°C	114.61V

The results above are not used in the certification process

230V

項目	12V	5V	3.3V	5VSB	DC/AC (V)	電圧 (%)	回転数 (RPM)	騒音 (dB[A])	温度 (室温 / 室温)	PF/AC 電圧
10%	5.234A	1.992A	1.993A	0.996A	84.999	86.887%	837	25.5	40.33℃	0.832
	12.114V	5.019V	3.311V	5.021V	97.827				42.4℃	229.88V
20%	11.500A	2.99A	2.992A	1.199A	169.934	91.573%	833	24.8	40.79℃	0.912
	12.089V	5.017V	3.309V	5.006V	185.569				43.54℃	229.86V
30%	18.116A	3.49A	3.493A	1.403A	254.941	92.65%	827	24.1	41.12℃	0.94
	12.082V	5.015V	3.307V	4.991V	275.165				45.29℃	229.85V
40%	24.741A	3.99A	3.995A	1.608A	340.03	92.857%	863	24.8	41.99℃	0.955
	12.078V	5.013V	3.305V	4.975V	366.187				46.84℃	229.84V
50%	31.003A	4.99A	4.997A	1.815A	424.828	92.655%	855	24.3	42.02℃	0.963
	12.073V	5.011V	3.302V	4.959V	458.503				48.79℃	229.82V
60%	37.244A	5.991A	6.002A	2A	509.266	92.329%	846	26.1	42.59℃	0.969
	12.070V	5.008V	3.299V	4.944V	551.578				51.28℃	229.8V
70%	43.550A	6.993A	7.009A	2.233A	594.682	91.873%	837	25.5	43.06℃	0.973
	12.068V	5.006V	3.296V	4.925V	647.285				53.51℃	229.79V
80%	49.856A	7.993A	8.016A	2.341A	679.508	91.309%	825	23.9	43.68℃	0.977
	12.067V	5.003V	3.293V	4.913V	744.187				55.81℃	229.77V
90%	56.572A	8.495A	8.506A	2.449A	764.932	90.731%	1142	33.9	44.42℃	0.979
	12.063V	5.002V	3.292V	4.901V	843.081				55.75℃	229.76V
100%	63.041A	8.997A	9.027A	3.084A	849.738	90.078%	1718	43.7	45.05℃	0.981
	12.056V	5.001V	3.29V	4.864V	943.334				53.95℃	229.74V
110%	69.395A	10A	10.128A	3.088A	934.312	89.382%	2158	49.8	46.69℃	0.982
	12.048V	4.999V	3.288V	4.857V	1045.308				55.01℃	229.72V
CL1	0.116A	12.025A	12.051A	0A	101.291	84.516%	882	26.8	41.11℃	0.865
	12.125V	5.005V	3.294V	5.055V	119.846				51.1℃	229.87V
CL2	0.114A	19.992A	0A	0A	101.343	83.506%	880	26.6	41.66℃	0.866
	12.122V	5V	3.299V	5.058V	121.361				49.79℃	229.87V
CL3	0.114A	0A	20.067A	0A	67.396	77.035%	882	26.8	41.19℃	0.815
	12.120V	5.007V	3.289V	5.059V	87.488				48.15℃	229.88V

CL4	70.486A	0A	0A	0A	849.501	90.804%	1518	41.6	45.01°C	0.98
	12.052V	5.007V	3.301V	5.017V	935.543				52.14°C	229.75V

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	1.240A	0.498A	0.498A	0.198A	20.002	73.706%	850	25.8	36.48°C	0.849
	11.978V	5.022V	3.314V	5.062V	27.137				37.11°C	114.9V
40W	2.728A	0.697A	0.697A	0.297A	40	81.408%	852	25.8	37.15°C	0.91
	11.984V	5.021V	3.313V	5.056V	49.134				38.87°C	114.9V
60W	4.172A	0.896A	0.896A	0.396A	59.997	83.184%	836	25.1	38.54°C	0.933
	12.113V	5.02V	3.313V	5.05V	72.127				41.26°C	114.89V
80W	5.639A	1.096A	1.096A	0.496A	79.939	86.126%	835	25.4	39.41°C	0.945
	12.114V	5.02V	3.312V	5.045V	92.817				42.17°C	114.88V

The results above are not used in the certification process

230V

	12V	5V	3.3V	5VSB	DC/AC ()		(RPM)	(dB[A])	(/)	PF/AC
20W	1.240A	0.498A	0.498A	0.198A	19.996	74.948%	853	24.6	36.19°C	0.494
	11.979V	5.022V	3.314V	5.062V	26.681				37.23°C	229.9V
40W	2.727A	0.697A	0.697A	0.297A	39.994	82.45%	854	24.5	37.1°C	0.676
	11.985V	5.021V	3.314V	5.056V	48.507				38.07°C	229.89V
60W	4.171A	0.896A	0.896A	0.396A	59.993	84.123%	836	25.4	38.25°C	0.771
	12.113V	5.021V	3.313V	5.05V	71.317				39.73°C	229.88V
80W	5.639A	1.095A	1.096A	0.496A	79.936	86.846%	836	25.4	39.25°C	0.822
	12.113V	5.02V	3.312V	5.044V	92.044				41.32°C	229.88V

The results above are not used in the certification process



115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	13.66mV	14.46mV	14.89mV	15.24mV	Pass
20% Load	26.79mV	14.82mV	15.55mV	16.06mV	Pass
30% Load	18.37mV	17.32mV	17.55mV	16.11mV	Pass
40% Load	16.88mV	15.74mV	15.24mV	16.26mV	Pass
50% Load	17.70mV	14.46mV	14.53mV	16.98mV	Pass
60% Load	20.05mV	15.48mV	15.24mV	18.16mV	Pass
70% Load	18.52mV	15.89mV	16.01mV	19.39mV	Pass
80% Load	20.05mV	16.25mV	17.44mV	17.75mV	Pass
90% Load	19.54mV	17.73mV	18.31mV	18.41mV	Pass
100% Load	28.89mV	18.67mV	20.21mV	21.59mV	Pass
110% Load	28.77mV	17.84mV	19.25mV	19.54mV	Pass
Crossload1	15.46mV	16.26mV	18.66mV	17.03mV	Pass
Crossload2	15.30mV	20.28mV	16.83mV	16.52mV	Pass
Crossload3	14.99mV	16.66mV	23.22mV	18.01mV	Pass
Crossload4	29.35mV	16.29mV	16.64mV	18.33mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	14.94mV	15.17mV	16.06mV	16.06mV	Pass
20% Load	31.70mV	15.94mV	16.06mV	16.78mV	Pass
30% Load	18.05mV	17.27mV	18.21mV	16.88mV	Pass
40% Load	18.16mV	17.11mV	17.24mV	17.34mV	Pass
50% Load	17.91mV	16.09mV	15.96mV	19.23mV	Pass
60% Load	18.26mV	16.61mV	16.68mV	18.93mV	Pass

