



Seasonic Vertex GX-750

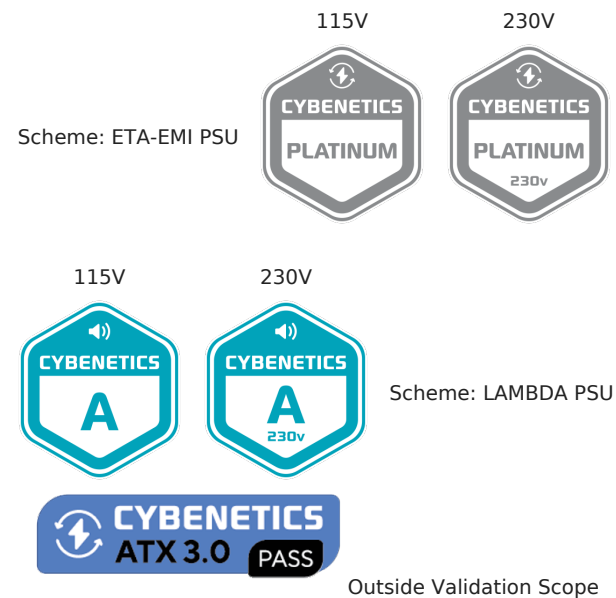
Serial Number

Lab ID SS75002120

Certification ID 252120

Test Result Report ID: 23PS2120A

Certificate Issue Date: Jan 25, 2023



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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	Vertex GX-750
OEM/ODM	Seasonic
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5

Rated Frequency (Hz)	50-60
Rated Power (W)	750
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	135mm Fluid Dynamic Bearing Fan (HA13525H12F-Z)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	SS75002120
Date of receipt	Dec 12, 2022
Testing Date	Jan 25, 2023
Report Issued Date	Jan 25, 2023
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 (620mm)	1	1	16-18AWG	No
4+4 pin EPS12V (710mm)	2	2	16AWG	No
6+2 pin PCIe (760mm)	2	2	16AWG	No
12+4 pin PCIe (760mm) (600W)	1	1	16-28AWG	No
SATA 3.3 (410mm+150mm)	1	2	18AWG	No
SATA (510mm+150mm+150mm+150mm)	3	12	18AWG	No
4-pin Molex (460mm+130mm+130mm)	1	3	18AWG	No

AC Power Cord (1390mm) - C13 coupler	1	1	18AWG	-
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Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	62	3	0.3
	Watts	100		744	15	3.6
Total Max. Power (W)		750				

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 v3.0 Compliance	✓

Performance Summary

115V	
Accredited	
Average Efficiency (>1450 load combinations)	89.615%
Average Noise Output (>1450 Load Combinations)	22.80dBA
Average PF (>1450 Load Combinations)	0.982
Efficiency With 10W (≤500W) or 2% (>500W) Load	73.527%
Standby Power Consumption	0.0699W
Non-Accredited	
12V Ripple (Full Load)	22.37mV
5V Ripple (Full Load)	10.48mV
3.3V Ripple (Full Load)	11.43mV

5VSB Ripple (Full Load)	26.82mV
12V Load Regulation	0.84%
5V Load Regulation	0.40%
3.3V Load Regulation	0.85%
5VSB Load Regulation	2.28%
Inrush Current	27.120A

230V

Accredited		
Average Efficiency (>1450 load combinations)	91.557%	
Average Noise Output (>1450 Load Combinations)	22.63dBA	
Average PF (>1450 Load Combinations)	0.945	
Efficiency With 10W (≤500W) or 2% (>500W) Load	72.087%	
Standby Power Consumption	0.1491W	
Non-Accredited		
12V Ripple (Full Load)	23.11mV	
5V Ripple (Full Load)	11.02mV	
3.3V Ripple (Full Load)	10.45mV	
5VSB Ripple (Full Load)	27.88mV	
12V Load Regulation	0.83%	
5V Load Regulation	0.40%	
3.3V Load Regulation	0.85%	
5VSB Load Regulation	2.24%	
Inrush Current	65.240A	
12V Transient Response (200%)	11.62V	
5V Transient Response (200%)	4.978V	
3.3V Transient Response (200%)	3.250V	
5VSB Transient Response (200%)	4.926V	
Hold-Up Time & PWR_OK Signal	22.60ms	
AC Loss to PWR_OK Hold Up Time	17.80ms	
PWR_OK Inactive to DC Loss Delay	4.80ms	
PSU Timings: T1 (20% / 100%)	77.0ms	77.0ms

PSU Timings: T3 (20% / 100%)	125.0ms	127.0ms
OPP (28.39°C / 38.93°C)	140.77%	138.15%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	22.6
AC Loss to PWR_OK Hold Up Time (ms)	17.8
PWR_OK Inactive to DC Loss Delay (ms)	4.8



Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.93 V	114.89 V	113.85 V	114.96 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.98 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.14 %	0.12 %	N/A	0.17 %	2.00 %	PASS
Real Power:	0.070 W	0.062 W	N/A	0.080 W	N/A	N/A
Apparent Power:	10.514 W	10.496 W	N/A	10.532 W	N/A	N/A
Power Factor:	0.007	N/A	N/A	N/A	N/A	N/A

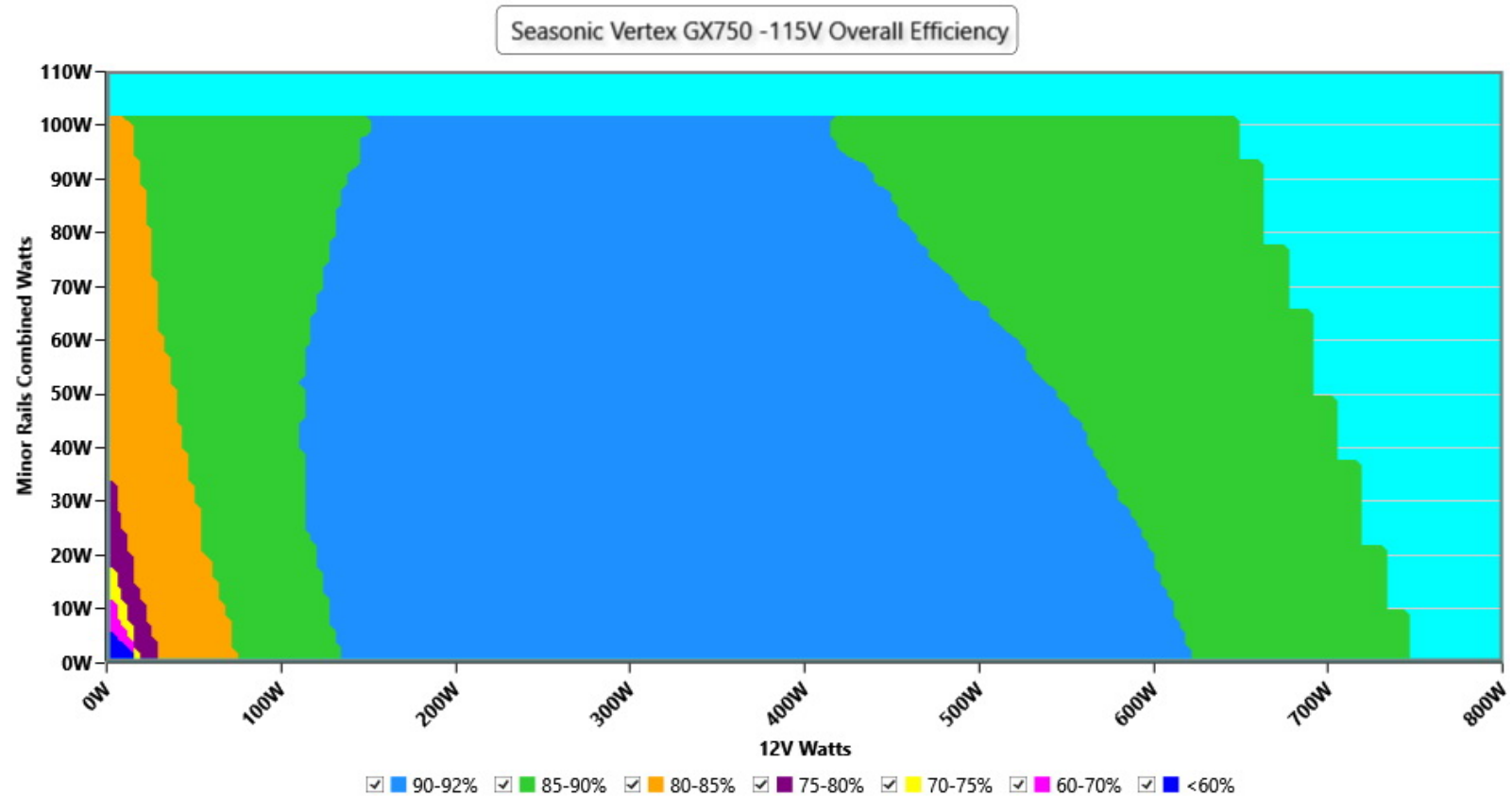
230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.88 V	229.84 V	227.70 V	229.93 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	50.00 Hz	49.50 Hz	50.01 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.416	1.490	PASS

Mains Voltage THD:	0.13 %	0.11 %	N/A	0.16 %	2.00 %	PASS
Real Power:	0.149 W	0.126 W	N/A	0.178 W	N/A	N/A
Apparent Power:	36.073 W	36.043 W	N/A	36.104 W	N/A	N/A
Power Factor:	0.004	N/A	N/A	N/A	N/A	N/A

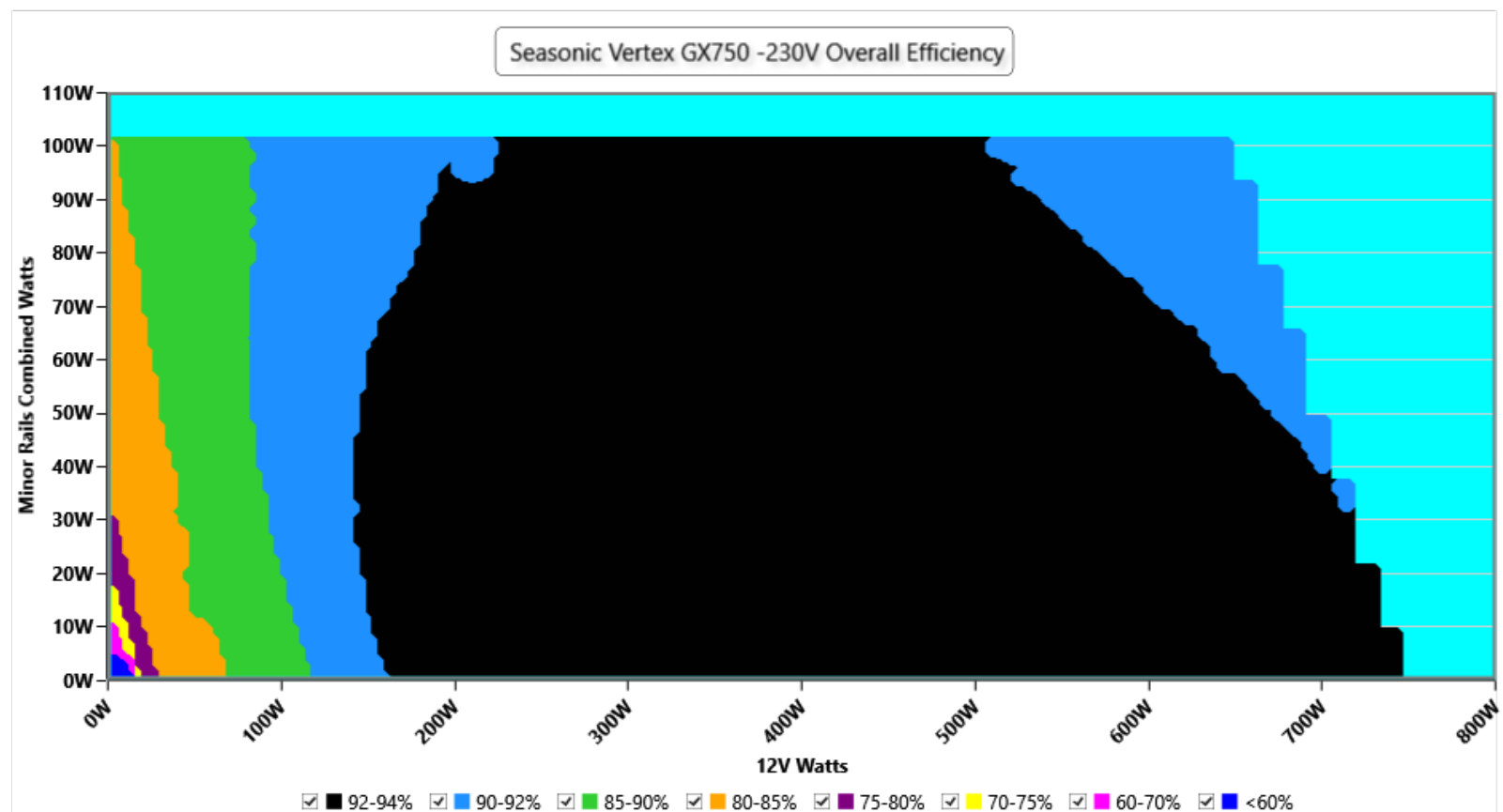
Efficiency Graph

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

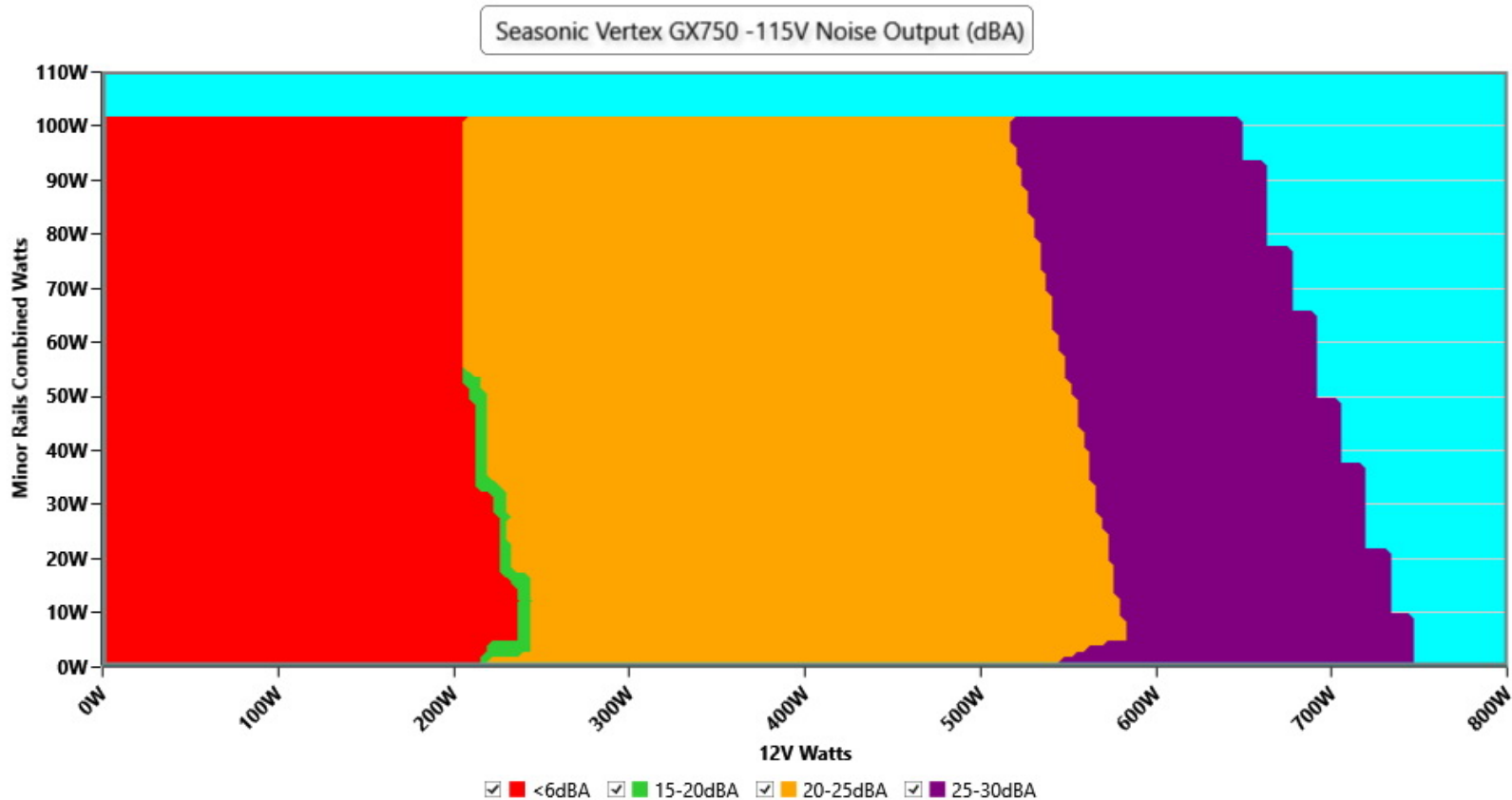


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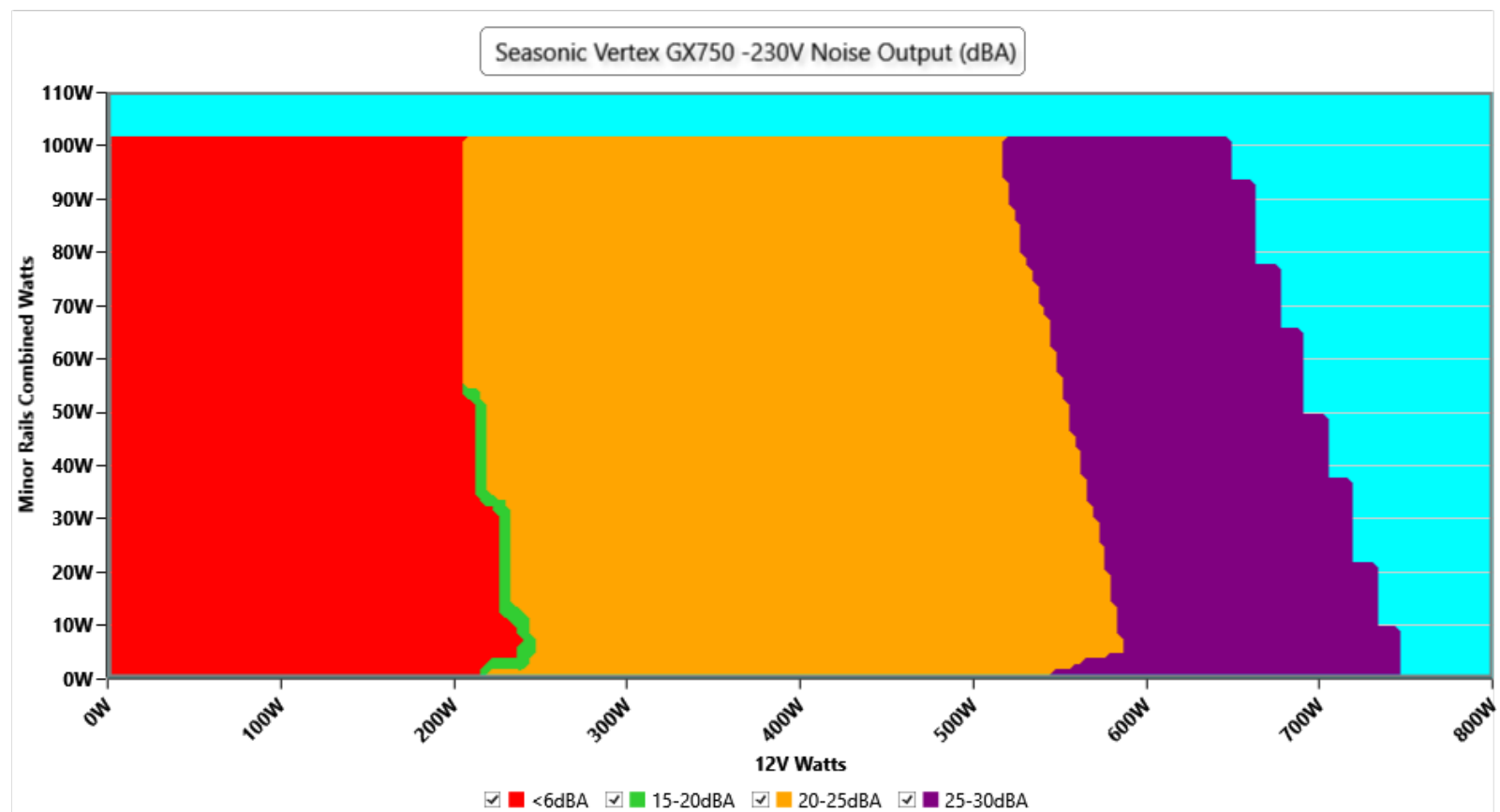
Noise Graph

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



INFO

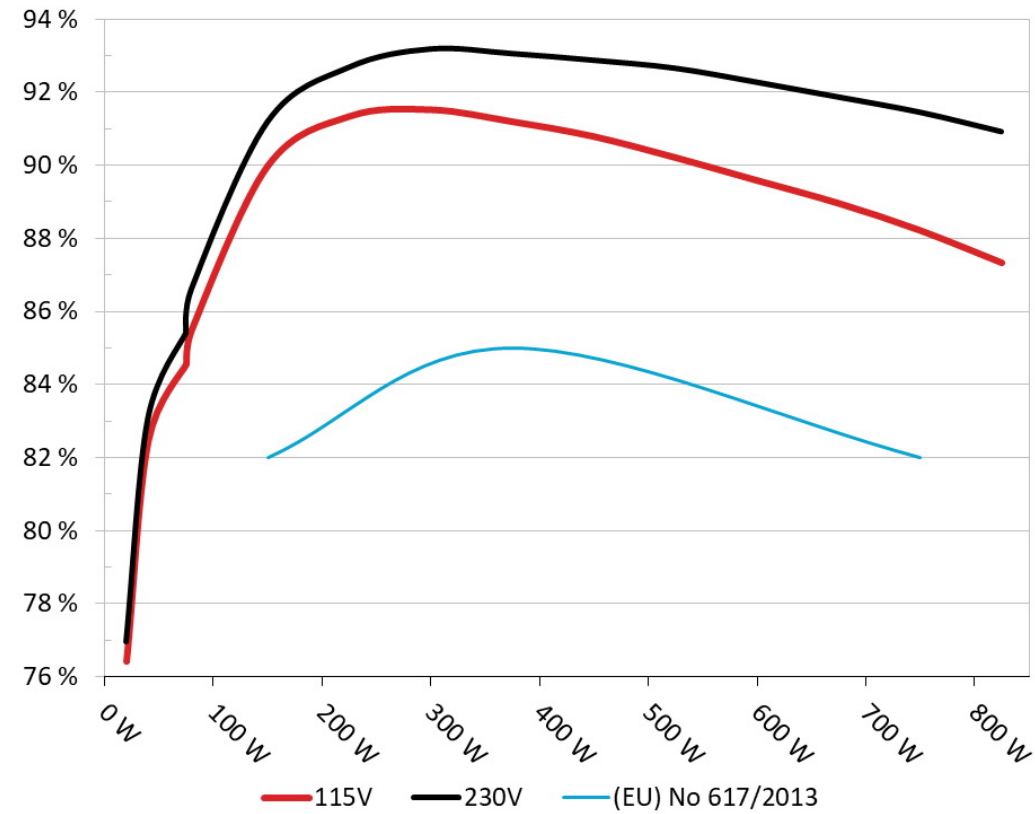
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance

Efficiency under high ambient temperature

Efficiency: Seasonic Vertex GX750

Ambient: 37°C - 47°C (98.6°F - 116.6°F)



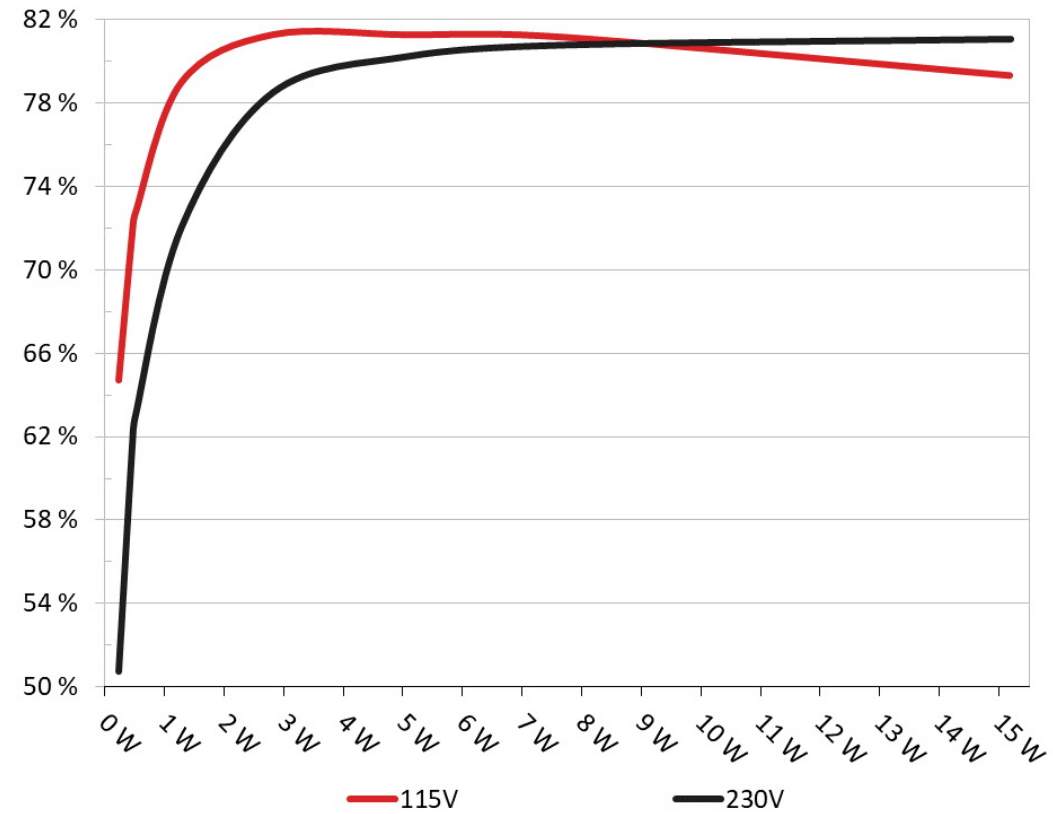
INFO

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

5VSB Efficiency: Seasonic Vertex GX750

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



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	65.228%	0.033
	5.126V	0.354W		114.94V
2	0.09A	0.461W	72.379%	0.059
	5.125V	0.637W		114.92V
3	0.55A	2.814W	81.743%	0.259
	5.115V	3.443W		114.92V
4	1A	5.106W	81.735%	0.365
	5.105V	6.247W		114.93V
5	1.5A	7.642W	81.634%	0.417
	5.094V	9.362W		114.93V
6	3A	15.183W	79.794%	0.497
	5.061V	19.028W		114.93V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	51.253%	0.012
	5.125V	0.451W		229.9V
2	0.09A	0.461W	62.255%	0.02
	5.124V	0.742W		229.89V
3	0.55A	2.813W	79.009%	0.095
	5.115V	3.56W		229.89V
4	1A	5.105W	80.756%	0.159
	5.105V	6.323W		229.89V
5	1.5A	7.642W	81.287%	0.208
	5.094V	9.402W		229.88V
6	3A	15.187W	81.575%	0.322
	5.062V	18.617W		229.88V

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%	4.374A	1.98A	1.981A	0.981A	75.003	84.379%	0	<6.0	44.85°C	0.955
	12.208V	5.051V	3.331V	5.098V	88.893				40.46°C	114.92V
20%	9.759A	2.971A	2.974A	1.179A	149.946	89.978%	0	<6.0	45.69°C	0.975
	12.199V	5.049V	3.328V	5.088V	166.644				40.87°C	114.91V
30%	15.498A	3.467A	3.473A	1.378A	224.953	91.327%	0	<6.0	46.87°C	0.982
	12.188V	5.048V	3.326V	5.079V	246.316				41.52°C	114.88V
40%	21.239A	3.963A	3.972A	1.578A	300.045	91.508%	0	<6.0	47.68°C	0.987
	12.187V	5.046V	3.323V	5.07V	327.889				41.68°C	114.86V
50%	26.593A	4.957A	4.97A	1.779A	374.533	91.184%	749	20.2	42.24°C	0.988
	12.185V	5.044V	3.32V	5.06V	410.738				48.68°C	114.84V
60%	31.983A	5.951A	5.969A	1.98A	449.453	90.776%	745	20.0	42.99°C	0.988
	12.183V	5.041V	3.317V	5.05V	495.124				49.89°C	114.83V
70%	37.372A	6.947A	6.971A	2.183A	524.379	90.203%	813	22.6	43.35°C	0.989
	12.182V	5.039V	3.314V	5.04V	581.324				50.63°C	114.8V
80%	42.824A	7.944A	7.971A	2.286A	599.595	89.576%	948	27.8	43.68°C	0.991
	12.182V	5.037V	3.311V	5.032V	669.365				51.75°C	114.79V
90%	48.604A	8.441A	8.461A	2.388A	674.618	88.951%	1049	30.8	44.29°C	0.992
	12.183V	5.036V	3.309V	5.025V	758.424				53.32°C	114.76V
100%	54.184A	8.941A	8.982A	2.997A	749.852	88.208%	1129	32.7	45.16°C	0.993
	12.183V	5.034V	3.306V	5.006V	850.078				55.19°C	114.74V
110%	59.631A	9.939A	10.079A	3A	824.879	87.325%	1508	41.3	46.92°C	0.993
	12.185V	5.032V	3.303V	5V	944.57				57.85°C	114.72V
CL1	0.115A	11.944A	11.931A	0A	101.309	83.403%	728	19.4	44.54°C	0.968
	12.222V	5.042V	3.327V	5.106V	121.468				50.02°C	114.89V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	0.114A	19.853A	0A	0A	101.416	82.499%	799	21.9	43.12°C	0.967
	12.223V	5.038V	3.333V	5.112V	122.93				50.2°C	114.9V
CL3	0.114A	0A	19.826A	0A	67.382	76.088%	798	21.8	41.65°C	0.956
	12.215V	5.056V	3.328V	5.107V	88.558				50.66°C	114.91V
CL4	61.545A	0A	0A	0A	749.621	89.007%	1115	32.4	47.34°C	0.992
	12.180V	5.047V	3.313V	5.079V	842.201				57.97°C	114.74V

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%	4.374A	1.98A	1.981A	0.981A	75.003	85.451%	0	<6.0	44.45°C	0.797
	12.209V	5.051V	3.331V	5.098V	87.776				40.02°C	229.88V
20%	9.759A	2.971A	2.975A	1.179A	149.95	91.189%	0	<6.0	45.61°C	0.903
	12.198V	5.049V	3.328V	5.088V	164.443				40.71°C	229.88V
30%	15.499A	3.467A	3.473A	1.378A	224.958	92.681%	0	<6.0	46.49°C	0.941
	12.188V	5.048V	3.326V	5.079V	242.725				41.19°C	229.87V
40%	21.239A	3.963A	3.972A	1.578A	300.054	93.182%	0	<6.0	47.36°C	0.959
	12.187V	5.046V	3.323V	5.07V	322.01				41.73°C	229.86V
50%	26.596A	4.957A	4.971A	1.779A	374.531	93.056%	749	20.2	42.32°C	0.968
	12.184V	5.043V	3.32V	5.06V	402.479				48.34°C	229.85V
60%	31.986A	5.952A	5.97A	1.98A	449.448	92.875%	745	20.0	42.65°C	0.974
	12.181V	5.041V	3.317V	5.051V	483.927				49.27°C	229.84V
70%	37.377A	6.947A	6.972A	2.182A	524.361	92.657%	804	22.1	43.27°C	0.978
	12.180V	5.039V	3.314V	5.041V	565.918				50.35°C	229.83V
80%	42.826A	7.944A	7.972A	2.285A	599.578	92.275%	940	27.5	43.56°C	0.981
	12.181V	5.037V	3.311V	5.033V	649.769				51.65°C	229.82V
90%	48.608A	8.441A	8.461A	2.388A	674.604	91.87%	1027	30.0	44.1°C	0.983
	12.181V	5.035V	3.309V	5.026V	734.302				53.12°C	229.82V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	54.193A	8.941A	8.983A	2.996A	749.823	91.452%	1127	32.6	45.02°C	0.984
	12.181V	5.034V	3.306V	5.007V	819.913				55.11°C	229.8V
110%	59.635A	9.938A	10.079A	3A	824.843	90.922%	1418	41.4	46.94°C	0.985
	12.183V	5.032V	3.303V	5.001V	907.199				57.88°C	229.79V
CL1	0.114A	11.942A	11.93A	0A	101.295	84.731%	643	<6.0	40.63°C	0.858
	12.215V	5.042V	3.327V	5.107V	119.55				46.16°C	229.88V
CL2	0.114A	19.85A	0A	0A	101.404	83.546%	800	21.9	41.8°C	0.861
	12.220V	5.038V	3.333V	5.112V	121.376				48.86°C	229.88V
CL3	0.115A	0A	19.831A	0A	67.386	76.843%	799	21.9	42.91°C	0.797
	12.217V	5.055V	3.328V	5.107V	87.695				52.02°C	229.88V
CL4	61.531A	0A	0A	0A	749.766	91.999%	1153	33.2	45.05°C	0.984
	12.185V	5.047V	3.313V	5.079V	814.978				55.96°C	229.81V

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	1.226A	0.495A	0.495A	0.195A	20.001	76.424%	0	<6.0	39.71°C	0.821
	12.106V	5.054V	3.334V	5.12V	26.171				36.58°C	114.92V
40W	2.700A	0.693A	0.693A	0.293A	40	82.46%	0	<6.0	40.59°C	0.91
	12.108V	5.053V	3.333V	5.116V	48.509				37.25°C	114.93V
60W	4.172A	0.89A	0.891A	0.391A	60	84.559%	0	<6.0	42.61°C	0.941
	12.112V	5.053V	3.332V	5.113V	70.957				38.87°C	114.93V
80W	5.598A	1.088A	1.09A	0.489A	79.953	85.491%	0	<6.0	43.1°C	0.956
	12.204V	5.052V	3.332V	5.109V	93.518				39.17°C	114.92V

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	0.495A	0.495A	0.195A	20	76.971%	0	<6.0	39.62°C	0.454
	12.109V	5.054V	3.334V	5.119V	25.988				36.53°C	229.89V
40W	2.700A	0.693A	0.693A	0.293A	40	83.073%	0	<6.0	40.37°C	0.638
	12.110V	5.053V	3.333V	5.116V	48.152				37.03°C	229.88V
60W	4.172A	0.89A	0.891A	0.391A	60	85.417%	0	<6.0	41.59°C	0.744
	12.114V	5.053V	3.332V	5.112V	70.243				38.11°C	229.88V
80W	5.598A	1.088A	1.09A	0.489A	79.954	86.608%	0	<6.0	42.89°C	0.807
	12.206V	5.052V	3.331V	5.109V	92.319				39.09°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	7.63mV	6.13mV	8.39mV	7.93mV	Pass
20% Load	24.48mV	5.67mV	7.11mV	6.45mV	Pass
30% Load	16.65mV	5.62mV	7.57mV	8.04mV	Pass
40% Load	13.74mV	6.33mV	7.46mV	9.52mV	Pass
50% Load	13.58mV	7.82mV	8.59mV	22.16mV	Pass
60% Load	12.82mV	7.97mV	7.87mV	22.57mV	Pass
70% Load	13.51mV	8.22mV	8.69mV	23.28mV	Pass
80% Load	14.33mV	9.30mV	10.23mV	24.62mV	Pass
90% Load	14.53mV	9.34mV	10.79mV	24.41mV	Pass
100% Load	22.37mV	10.48mV	11.43mV	26.82mV	Pass
110% Load	23.02mV	11.56mV	12.45mV	27.55mV	Pass
Crossload1	9.56mV	9.47mV	11.35mV	22.57mV	Pass
Crossload2	7.57mV	9.40mV	8.44mV	20.37mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	8.34mV	8.58mV	13.60mV	19.91mV	Pass
Crossload4	21.39mV	10.84mV	9.24mV	28.00mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	7.73mV	6.38mV	8.69mV	8.04mV	Pass
20% Load	27.60mV	5.62mV	7.31mV	6.55mV	Pass
30% Load	18.19mV	5.57mV	7.21mV	8.19mV	Pass
40% Load	15.02mV	6.02mV	7.36mV	9.16mV	Pass
50% Load	13.64mV	8.38mV	8.03mV	21.96mV	Pass
60% Load	13.84mV	8.58mV	7.72mV	22.88mV	Pass
70% Load	13.43mV	8.63mV	9.36mV	23.54mV	Pass
80% Load	13.48mV	9.04mV	10.12mV	24.05mV	Pass
90% Load	14.28mV	9.70mV	12.22mV	24.87mV	Pass
100% Load	23.11mV	11.02mV	10.45mV	27.88mV	Pass
110% Load	24.44mV	12.79mV	12.66mV	30.47mV	Pass
Crossload1	8.90mV	7.08mV	9.83mV	9.92mV	Pass
Crossload2	7.57mV	9.70mV	8.49mV	21.55mV	Pass
Crossload3	9.01mV	8.27mV	14.32mV	20.73mV	Pass
Crossload4	23.72mV	11.54mV	9.07mV	29.36mV	Pass

The results above are not used in the certification process

Seasonic Vertex GX-750



Top side



Power specifications label

Cybenetics [REDACTED]

ETA [REDACTED]

LAMBDA [REDACTED]

SAFE [REDACTED]

DELTA [REDACTED]

PHI [REDACTED]

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