



Seasonic Focus GX-750 (ATX v3.1)

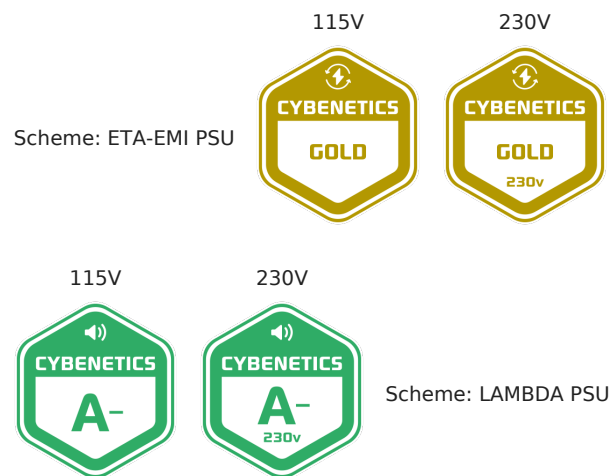


Lab ID SS75002579

Certification ID 252579

Test Result Report ID: 24PS2579A

Certificate Issue Date: Sep 24, 2024



Aristeidis Bitziopoulos, Certification Body General Manager

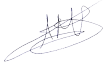
General Information

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	Cybernetics PSU Test Protocol

DUT Information(Non-accredited measurements)

Product Identification Details	
Brand	Seasonic
Model	Focus GX-750 (ATX v3.1)
OEM/ODM	Seasonic
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	10-5
□□□□ (Hz)	50-60

Power (W)	750
Operating Temperature (Continuous Full Load) (°C)	
PSU	ATX12V
PSU Type	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Fan	135mm Fluid Dynamic Bearing Fan (HA13525H12F-Z)
PSU Efficiency	✓ (selectable)
Cybenetics Testing Information	
Lab ID	SS75002579
Date of receipt	Sep 4, 2024
Testing Date	Sep 24, 2024
Report Issued Date	Sep 24, 2024
Notes	The DUT didn't have properly set OCP at 5VSB. The second sample, broke during +12V OCP at 137% load.
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

PSU (Non-accredited measurements)

PSU				
PSU	PSU	PSU	Gauge	In Cable Capacitors
ATX 20+4 pin (610mm)	1	1	16-18AWG	
4+4 pin EPS 12V (750mm)	2	2	16AWG	
6+2pin PCIe (750mm)	2	2	16-18AWG	
12+4 pin PCIe (700mm) (600W)	1	1	16-24AWG	
SATA (500mm+150mm+150mm+150mm)	2	8	18AWG	
4-pin Molex (450mm+120mm+120mm)	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	62	3	0.3
	□	100		744	15	3.6
□□□□ (W)		750				

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 5D-20L (5 ohm) & Relay
Bridge Rectifier(s)	2x GBU1508 (800V, 15A @ 40°C)
APFC MOSFETs	2x Alpha & Omega AOB190A60CL (600V, 12A @ 100°C, Rds(on): 0.190hm)
APFC Boost Diode	1x Infineon IDK08G65C5 (650V, 8A @ 145°C)
Bulk Cap(s)	1x Nichicon (400V, 560uF, 2,000h @ 105°C, GG(M))

Main Switchers	4x Great Power GPT130N50X (500V, 4.5A @ 25°C, Rds(on): 1.550hm)
Resonant Controller	Champion CU6901VPA
APFC Controller	Champion CM6500UNX
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	4x Nexperia PSMN1R4-40YLD (40V, 214A @ 100°C, Rds(on): 1.4mOhm)
5V & 3.3V	DC-DC Converters: 6x Nexperia PSMN4R0_30YLD (30V, 95A @ 100°C, Rds(on): 4mOhm) PWM Controller(s): AnpecAPW7159C
Filtering Capacitors	Electrolytic: 3x Nichicon (2-5,000h @ 105°C, HD), 1x Nippon Chemi-Con (1-5,000h @ 105°C, KZE), 5x Rubycon (3-6,000h @ 105°C, YXG) 2x Rubycon (6-10,000h @ 105°C, ZLH) Polymer: 7x Nippon Chemi-Con, 16x FPCAP
Supervisor IC	Weltrend WT7527RA (OVP, UVP, OCP, SCP, PG)
Fan Controller	Nuvoton M031FB0AE
Fan Model	Hong Hua HA13525H12F-Z (135mm, 12V, 0.50A, Fluid Dynamic Bearing Fan)
5VSB	
Rectifier	DK DK5V45R10S (45v, 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	✓

Performance Summary

115V

Accredited	
□□□□ (>1450 load combinations)	88.732%
Average Noise Output (>1450 Load Combinations)	27.81dBA
PF□□□ (>1450 Load Combinations)	0.971
Efficiency With 10W ($\leq$ 500W) or 2% (>500W) Load	71.463%
□□□□□	0.0639W
Non-Accredited	
12V Ripple (Full Load)	28.22mV
5V Ripple (Full Load)	18.76mV
3.3V Ripple (Full Load)	18.00mV
5VSB Ripple (Full Load)	16.17mV
12V Load Regulation	0.87%
5V Load Regulation	0.44%
3.3V Load Regulation	0.88%
5VSB Load Regulation	4.07%
Inrush Current	34.240A

230V

Accredited	
□□□□ (>1450 load combinations)	90.991%
Average Noise Output (>1450 Load Combinations)	28.81dBA
PF□□□ (>1450 Load Combinations)	0.934
Efficiency With 10W ($\leq$ 500W) or 2% (>500W) Load	-
□□□□□	0.1620W
Non-Accredited	
12V Ripple (Full Load)	29.95mV
5V Ripple (Full Load)	19.00mV
3.3V Ripple (Full Load)	18.42mV

5VSB Ripple (Full Load)	16.01mV	
12V Load Regulation	0.87%	
5V Load Regulation	0.44%	
3.3V Load Regulation	0.88%	
5VSB Load Regulation	4.07%	
Inrush Current	63.840A	
12V Transient Response (200%)	11.42V	
5V Transient Response (200%)	4.924V	
3.3V Transient Response (200%)	3.220V	
5VSB Transient Response (200%)	4.886V	
□□□□ & PG□□	20.10ms	
AC Loss to PWR_OK Hold Up Time	15.60ms	
PWR_OK Inactive to DC Loss Delay	4.50ms	
PSU Timings: T1 (20% / 100%)	74.0ms	74.0ms
PSU Timings: T3 (20% / 100%)	125.0ms	127.0ms
12V OCP (26.1°C / °C)	6.6A (220.00%), 4.774V	
5V OCP (26.1°C / °C)		
3.3V OCP (26.1°C / °C)		
5VSB OCP (26.1°C / °C)		
OPP (28.55°C / 0.00°C)	137.28%	-

□□□□ & PG□□

Hold-Up Time (ms)	20.1
AC Loss to PWR_OK Hold Up Time (ms)	15.6
PWR_OK Inactive to DC Loss Delay (ms)	4.5



Tables

115V

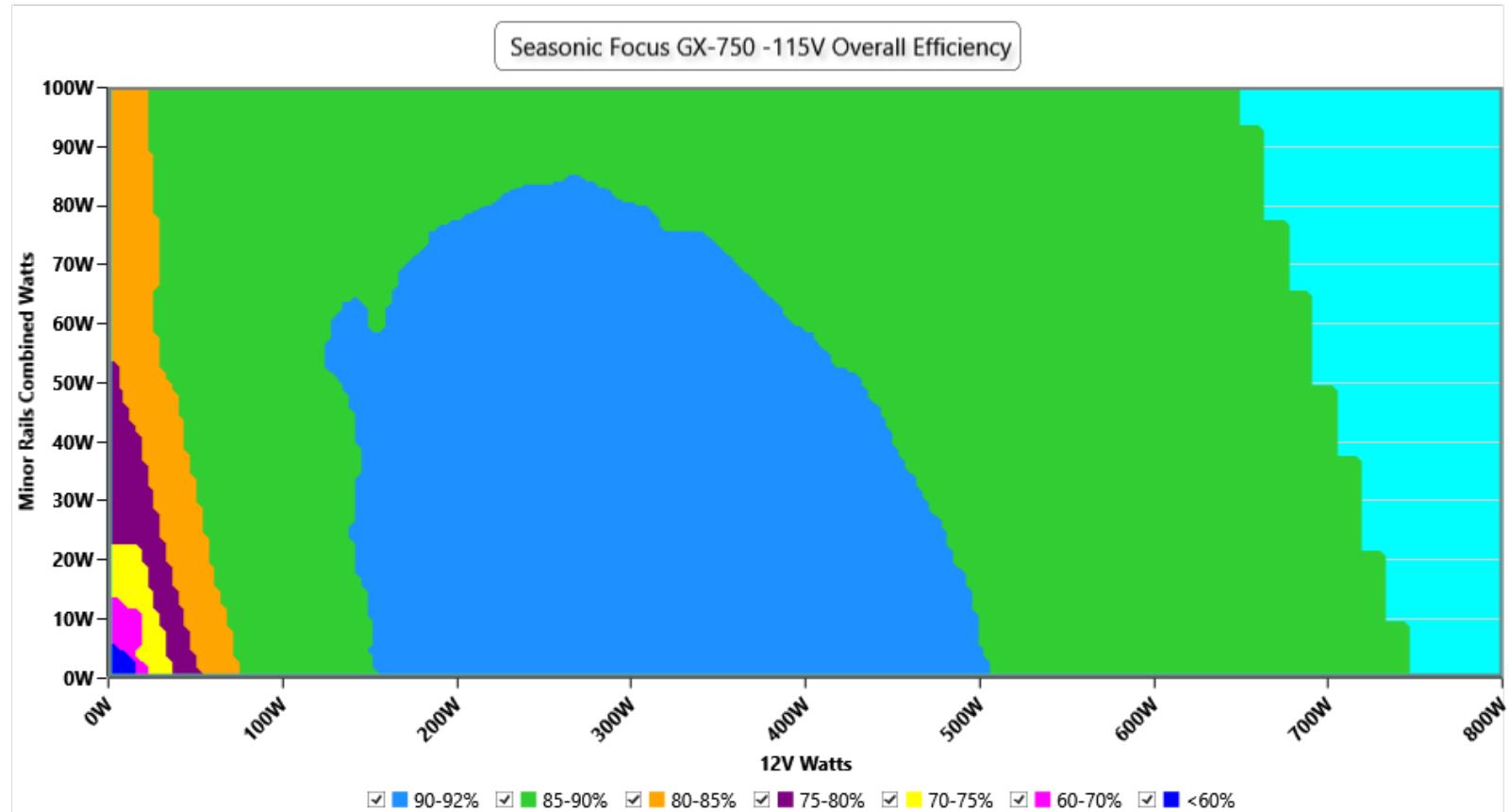
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.09 V	115.05 V	113.85 V	115.13 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.13 %	0.08 %	N/A	0.19 %	2.00 %	PASS
Real Power:	0.064 W	0.007 W	N/A	0.098 W	N/A	N/A
Apparent Power:	11.754 W	11.012 W	N/A	12.483 W	N/A	N/A
Power Factor:	0.007	N/A	N/A	N/A	N/A	N/A

230V

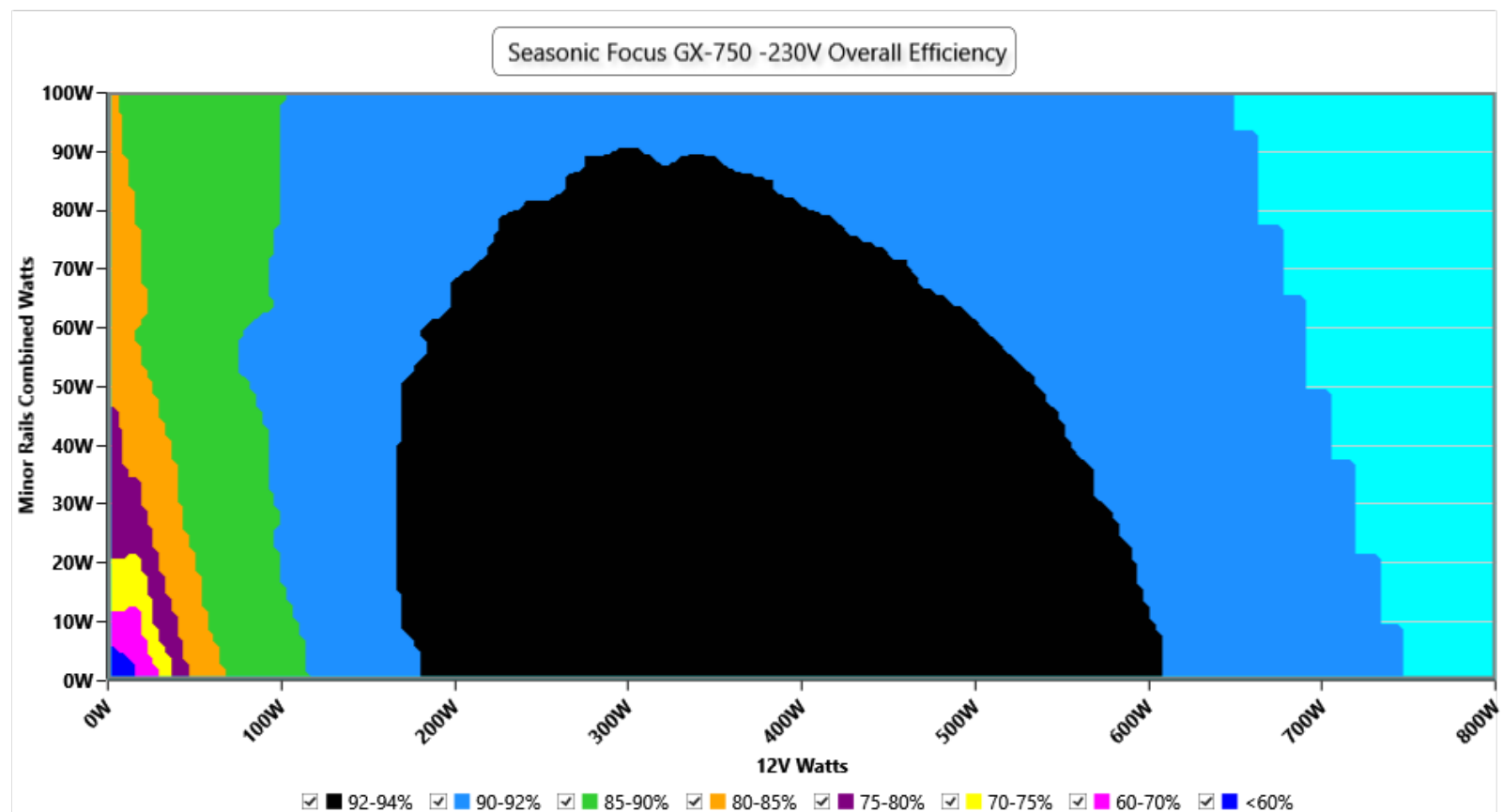
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.03 V	230.93 V	227.70 V	231.10 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	49.99 Hz	49.50 Hz	50.01 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.417	1.416	1.340	1.419	1.490	PASS
Mains Voltage THD:	0.17 %	0.15 %	N/A	0.26 %	2.00 %	PASS
Real Power:	0.162 W	0.117 W	N/A	0.217 W	N/A	N/A
Apparent Power:	36.375 W	35.479 W	N/A	37.278 W	N/A	N/A
Power Factor:	0.004	N/A	N/A	N/A	N/A	N/A



115V



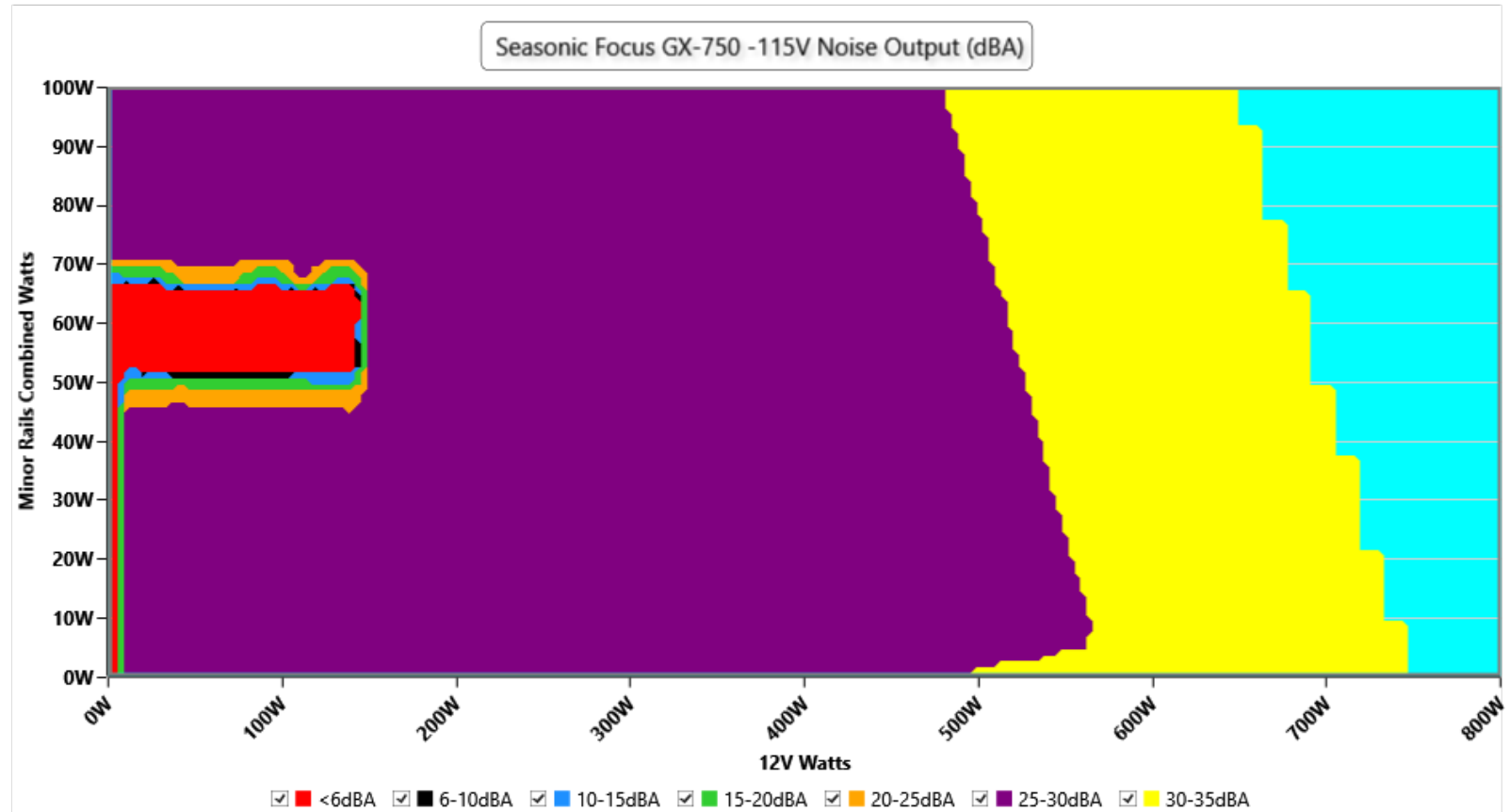
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



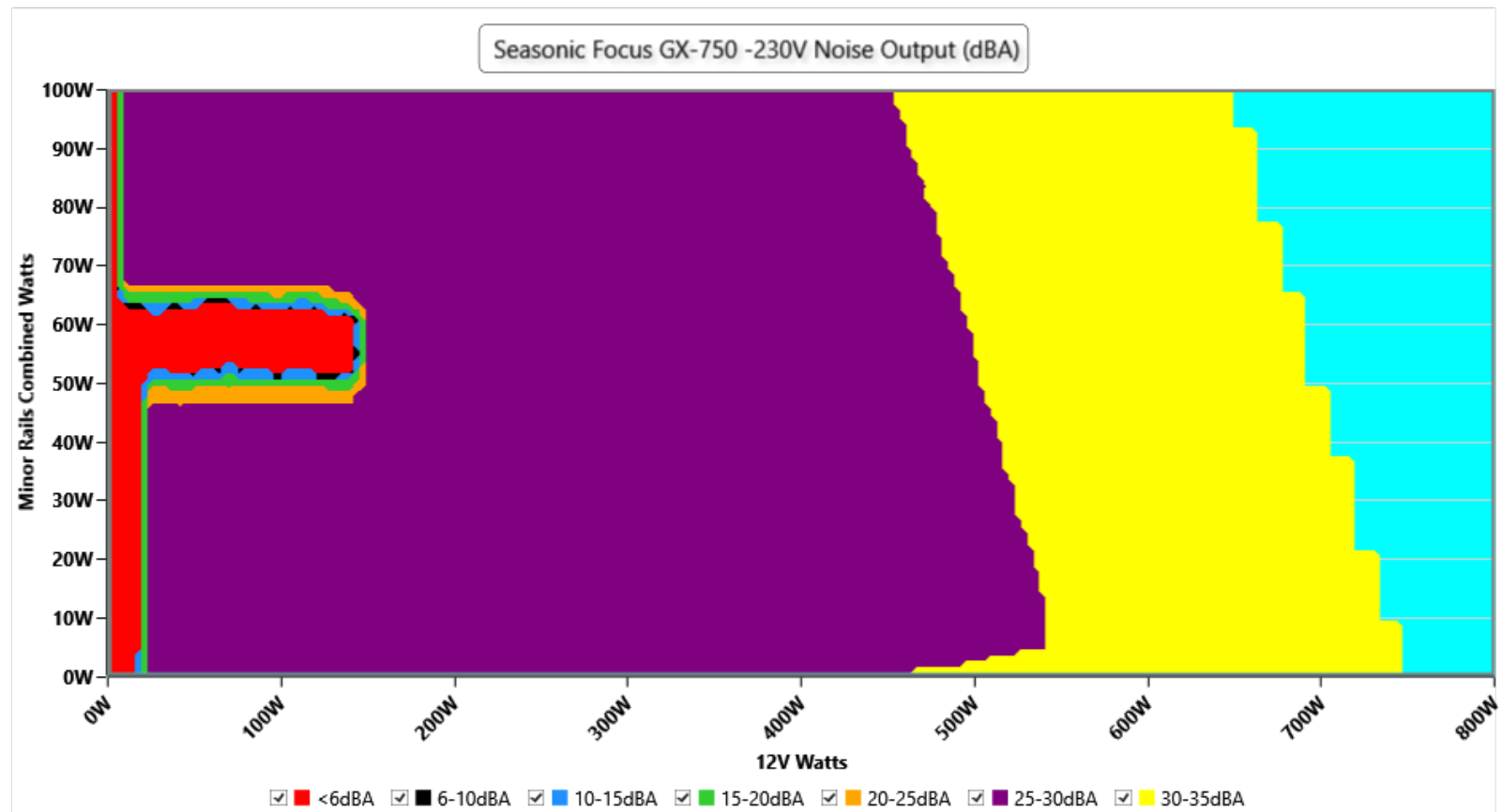
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



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



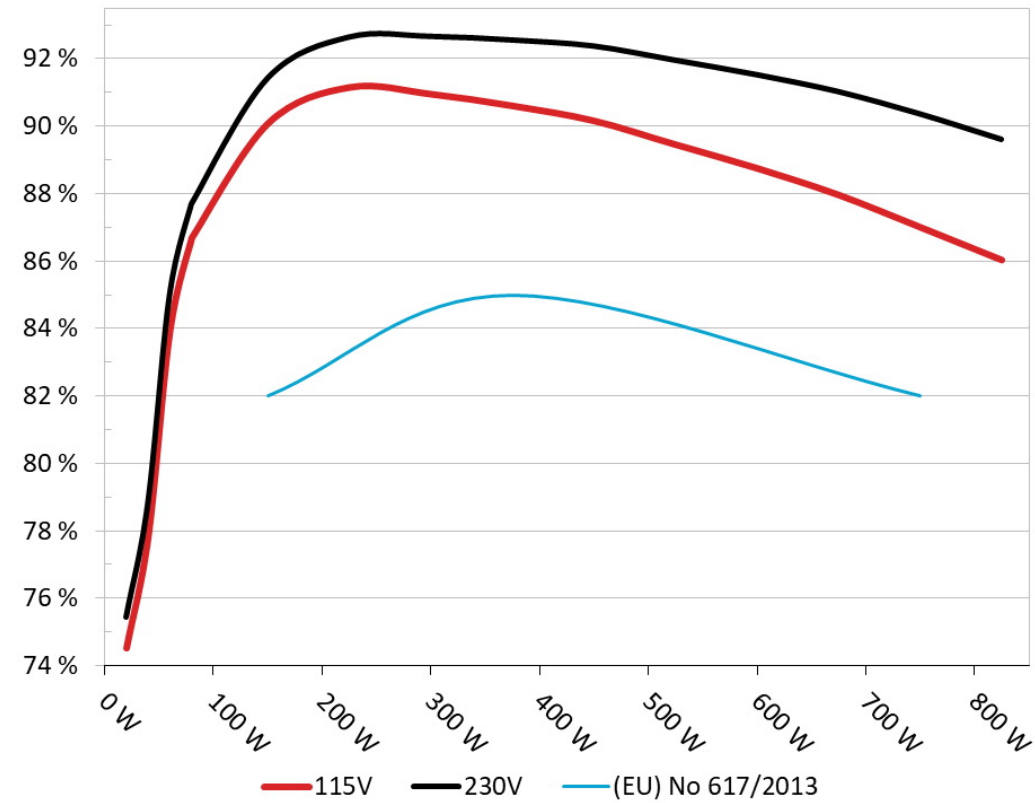
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance



Efficiency: Seasonic Focus GX-750

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

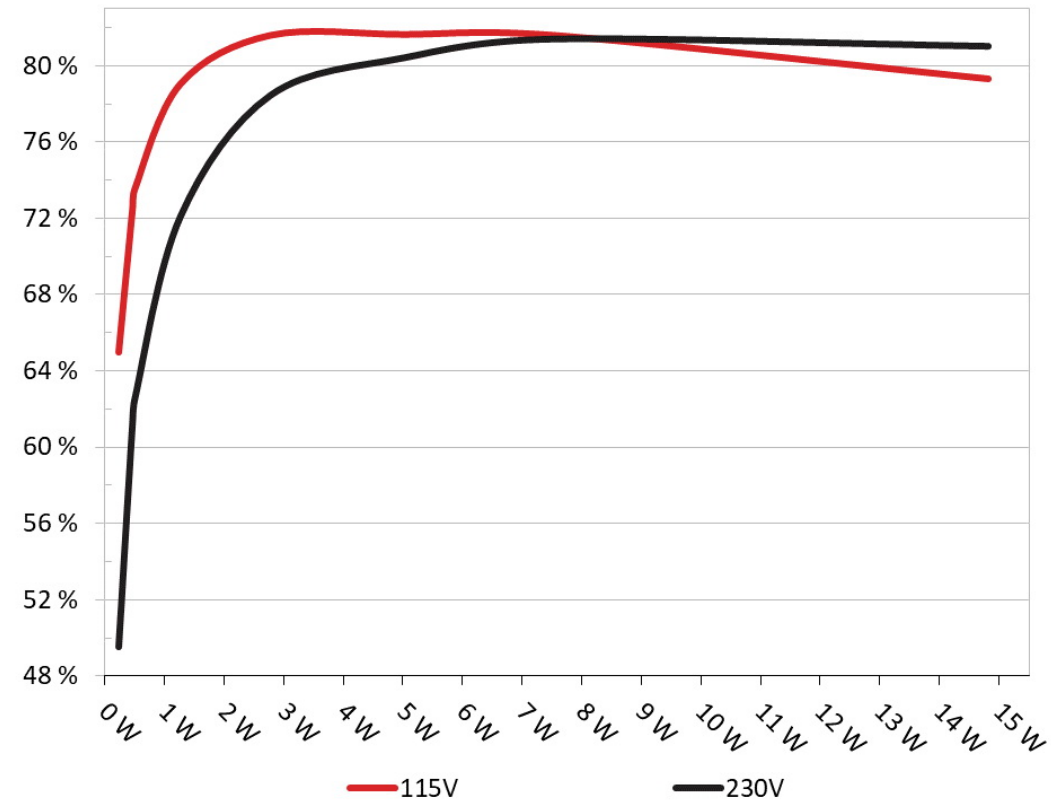


The PSU's efficiency under high ambient temperatures with 115V and 230V input. For this graph the results of the 10-110% load regulation table are used

5Vsb

5VSB Efficiency: Seasonic Focus GX-750

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	64.995%	0.034
	5.071V	0.351W		114.86V
2	0.09A	0.456W	72.4%	0.06
	5.069V	0.63W		114.88V
3	0.55A	2.777W	81.61%	0.257
	5.049V	3.403W		114.87V
4	1A	5.029W	81.656%	0.359
	5.029V	6.159W		114.86V
5	1.5A	7.511W	81.614%	0.411
	5.007V	9.203W		114.86V
6	3A	14.822W	79.33%	0.488
	4.941V	18.684W		114.86V

230V

#	5VSB	DC/AC (%)		PF/AC
1	0.045A	0.228W	49.553%	0.013
	5.071V	0.461W		229.94V
2	0.09A	0.456W	61.112%	0.021
	5.069V	0.747W		229.94V
3	0.55A	2.777W	78.441%	0.097
	5.047V	3.54W		229.94V
4	1A	5.029W	80.409%	0.161
	5.028V	6.254W		229.93V
5	1.5A	7.511W	81.381%	0.214
	5.007V	9.23W		229.94V
6	3A	14.822W	81.004%	0.323
	4.94V	18.297W		229.94V

Protection Features

OCP (Cold @ 26.1°C)	5VSB: 6.6A (220.00%), 4.774V
OCP (Hot @ -°C)	-
OPP (Normal @ 28.6°C)	1029.62W (137.28%)
OPP (Hot @ -°C)	-
OTP	-
SCP	-
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%	4.410A	1.993A	1.981A	0.996A	75.006	85.564%	0	<6.0	44.24°C	0.931
	12.108V	5.018V	3.331V	5.02V	87.66				40.14°C	114.85V
20%	9.851A	2.991A	2.975A	1.199A	149.954	90.064%	0	<6.0	42.5°C	0.955
	12.086V	5.016V	3.328V	5.004V	166.498				40.76°C	114.83V
30%	15.635A	3.49A	3.473A	1.403A	224.953	91.134%	0	<6.0	53.51°C	0.968
	12.081V	5.015V	3.326V	4.988V	246.839				41.15°C	114.8V
40%	21.425A	3.991A	3.974A	1.609A	300.03	90.934%	947	27.1	41.6°C	0.974
	12.080V	5.012V	3.322V	4.973V	329.945				50.55°C	114.77V
50%	26.813A	4.991A	4.971A	1.816A	374.426	90.588%	941	26.9	42.22°C	0.975
	12.080V	5.009V	3.319V	4.957V	413.328				51.59°C	114.74V

60%	32.242A	5.992A	5.971A	2A	449.223	90.148%	934	26.7	42.97°C	0.979
	12.081V	5.007V	3.316V	4.942V	498.314				53.11°C	114.72V
70%	37.668A	6.994A	6.972A	2.234A	524.258	89.443%	985	28.7	43.26°C	0.982
	12.083V	5.005V	3.314V	4.924V	586.134				55.4°C	114.69V
80%	43.159A	7.994A	7.974A	2.341A	599.445	88.741%	1061	30.9	43.87°C	0.984
	12.084V	5.003V	3.311V	4.911V	675.502				57.6°C	114.66V
90%	48.981A	8.497A	8.464A	2.449A	674.489	87.951%	1136	32.8	44.12°C	0.987
	12.086V	5.001V	3.308V	4.899V	766.897				59.83°C	114.63V
100%	54.600A	9.001A	8.985A	3.085A	749.699	86.994%	1454	40	45.04°C	0.989
	12.088V	4.999V	3.305V	4.863V	861.781				61.7°C	114.6V
110%	60.092A	10.005A	10.083A	3.089A	824.718	86.022%	1831	51.3	46.09°C	0.99
	12.089V	4.997V	3.302V	4.855V	958.734				62.13°C	114.57V
CL1	0.114A	12.015A	11.939A	0A	101.288	83.747%	958	27.5	40.28°C	0.947
	12.112V	5.01V	3.325V	5.052V	120.946				53.46°C	114.83V
CL2	0.114A	19.962A	0A	0A	101.366	82.621%	954	27.4	40.41°C	0.945
	12.112V	5.008V	3.334V	5.058V	122.688				49.98°C	114.84V
CL3	0.114A	0A	19.866A	0A	67.379	76.744%	958	27.5	40.66°C	0.93
	12.106V	5.02V	3.322V	5.054V	87.797				48.58°C	114.85V
CL4	62.017A	0A	0A	0A	749.526	87.847%	1314	37	45.3°C	0.988
	12.086V	5.009V	3.313V	5.013V	853.225				59.04°C	114.61V

The results above are not used in the certification process

230V

	12V	5V	3.3V	5VSB	DC/AC ()		(RPM)	(dB[A])	(/)	PF/AC
10%	4.410A	1.992A	1.981A	0.996A	74.999	86.561%	0	<6.0	49.76°C	0.811
	12.109V	5.019V	3.332V	5.02V	86.643				40.32°C	229.93V
20%	9.848A	2.99A	2.974A	1.199A	149.929	91.425%	0	<6.0	50.66°C	0.895
	12.087V	5.017V	3.329V	5.004V	163.993				40.55°C	229.91V
30%	15.633A	3.49A	3.473A	1.403A	224.927	92.65%	0	<6.0	49.88°C	0.927
	12.082V	5.015V	3.326V	4.989V	242.772				41.31°C	229.9V

40%	21.423A	3.991A	3.973A	1.609A	300.01	92.67%	945	27	41.8°C	0.944
	12.081V	5.012V	3.323V	4.973V	323.737				48.87°C	229.89V
50%	26.810A	4.991A	4.971A	1.816A	374.389	92.563%	940	26.9	42.41°C	0.953
	12.081V	5.01V	3.319V	4.957V	404.47				50.22°C	229.87V
60%	32.239A	5.992A	5.971A	2A	449.195	92.385%	933	26.7	42.95°C	0.96
	12.082V	5.007V	3.316V	4.941V	486.217				51.59°C	229.86V
70%	37.666A	6.994A	6.972A	2.234A	524.229	91.966%	984	28.7	43.38°C	0.966
	12.083V	5.005V	3.314V	4.924V	570.027				53.59°C	229.85V
80%	43.157A	7.994A	7.973A	2.341A	599.421	91.535%	1066	31	43.86°C	0.969
	12.085V	5.003V	3.311V	4.911V	654.855				55.64°C	229.84V
90%	48.977A	8.497A	8.463A	2.449A	674.473	91.033%	1139	32.9	44.75°C	0.973
	12.087V	5.001V	3.308V	4.899V	740.915				57.96°C	229.83V
100%	54.599A	9.001A	8.985A	3.085A	749.686	90.373%	1457	40	45.67°C	0.975
	12.088V	4.999V	3.305V	4.862V	829.545				59.59°C	229.82V
110%	60.092A	10.005A	10.083A	3.09A	824.707	89.616%	1880	51.2	46.29°C	0.978
	12.088V	4.997V	3.302V	4.855V	920.267				59.97°C	229.8V
CL1	0.114A	12.015A	11.939A	0A	101.285	84.763%	956	27.4	41.46°C	0.862
	12.112V	5.01V	3.325V	5.052V	119.494				52.3°C	229.93V
CL2	0.114A	19.962A	0A	0A	101.362	83.641%	954	27.4	40.71°C	0.863
	12.113V	5.009V	3.334V	5.057V	121.184				49.72°C	229.92V
CL3	0.114A	0A	19.864A	0A	67.377	77.667%	958	27.5	41.42°C	0.812
	12.107V	5.02V	3.322V	5.054V	86.749				48.2°C	229.93V
CL4	62.018A	0A	0A	0A	749.495	91.162%	1255	35.7	46.61°C	0.974
	12.085V	5.009V	3.313V	5.014V	822.165				56.65°C	229.82V

The results above are not used in the certification process

20-80mmHg

115V

項目	12V	5V	3.3V	5VSB	DC/AC (項目)	項目	項目 (RPM)	項目項目 (dB[A])	項目 (項目 /項目)	PF/AC 項目
20W	1.236A	0.498A	0.495A	0.198A	19.993	74.53%	0	<6.0	44.12°C	0.843
	12.003V	5.021V	3.334V	5.061V	26.825				36.8°C	114.87V
40W	2.700A	0.697A	0.693A	0.297A	39.994	77.856%	0	<6.0	45.52°C	0.9
	12.107V	5.021V	3.333V	5.055V	51.372				37.55°C	114.86V
60W	4.174A	0.896A	0.891A	0.396A	59.994	83.955%	0	<6.0	45.53°C	0.921
	12.106V	5.02V	3.333V	5.049V	71.459				38.14°C	114.85V
80W	5.642A	1.096A	1.089A	0.496A	79.94	86.676%	0	<6.0	41.42°C	0.933
	12.107V	5.02V	3.332V	5.043V	92.231				39.15°C	114.85V

The results above are not used in the certification process

230V

項目	12V	5V	3.3V	5VSB	DC/AC (項目)	項目	項目 (RPM)	項目項目 (dB[A])	項目 (項目 /項目)	PF/AC 項目
20W	1.236A	0.498A	0.495A	0.198A	19.995	75.444%	0	<6.0	46.94°C	0.51
	12.004V	5.021V	3.334V	5.06V	26.502				36.96°C	229.95V
40W	2.700A	0.697A	0.693A	0.297A	39.995	78.832%	0	<6.0	46.42°C	0.698
	12.107V	5.021V	3.333V	5.054V	50.733				37.24°C	229.94V
60W	4.174A	0.896A	0.891A	0.396A	59.996	85.02%	0	<6.0	45.99°C	0.773
	12.106V	5.02V	3.333V	5.049V	70.567				38.46°C	229.93V
80W	5.642A	1.096A	1.089A	0.496A	79.937	87.697%	0	<6.0	48.73°C	0.819
	12.108V	5.02V	3.332V	5.043V	91.149				39.47°C	229.93V

The results above are not used in the certification process



115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	13.0 mV	12.4 mV	12.8 mV	11.2 mV	Pass
20% Load	31.3 mV	12.1 mV	13.9 mV	10.3 mV	Pass
30% Load	19.1 mV	13.2 mV	14.0 mV	12.8 mV	Pass
40% Load	16.1 mV	13.1 mV	14.1 mV	12.0 mV	Pass
50% Load	16.7 mV	13.7 mV	14.4 mV	12.6 mV	Pass
60% Load	17.9 mV	14.0 mV	13.6 mV	13.4 mV	Pass
70% Load	17.6 mV	14.8 mV	14.4 mV	13.2 mV	Pass
80% Load	18.4 mV	16.2 mV	15.1 mV	14.0 mV	Pass
90% Load	18.9 mV	16.6 mV	15.3 mV	14.6 mV	Pass
100% Load	28.2 mV	18.8 mV	18.0 mV	16.2 mV	Pass
110% Load	29.4 mV	19.5 mV	18.3 mV	16.6 mV	Pass
Crossload 1	22.7 mV	20.0 mV	17.6 mV	12.9 mV	Pass
Crossload 2	16.3 mV	18.8 mV	18.5 mV	13.1 mV	Pass
Crossload 3	12.8 mV	13.9 mV	17.4 mV	12.9 mV	Pass
Crossload 4	27.7 mV	16.1 mV	16.0 mV	15.8 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	13.2 mV	12.9 mV	13.0 mV	11.6 mV	Pass
20% Load	37.2 mV	13.1 mV	13.3 mV	11.1 mV	Pass
30% Load	21.1 mV	13.4 mV	13.5 mV	11.8 mV	Pass
40% Load	17.4 mV	14.5 mV	14.5 mV	12.5 mV	Pass
50% Load	16.1 mV	14.1 mV	14.0 mV	12.6 mV	Pass
60% Load	17.1 mV	14.4 mV	14.7 mV	13.1 mV	Pass

