Seasonic Prime PX-2200 ATX3

-

Lab ID SS22002782

Certification ID 252782

Test Result Report ID: 25PS2782A

Certificate Issue Date: Apr 7, 2025

230V

Scheme: ETA-EMI PSU



230V



Scheme: LAMBDA PSU



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	Prime PX-2200 ATX3
OEM/ODM	Seasonic
Serial Number	-
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	200-240
□□□□ (Arms)	15

□□□□ (Hz)	50-60
□□□□ (W)	2200
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	135mm Fluid Dynamic Bearing Fan (HA13525H12SF-Z)
□□□□□	✓ (selectable)
Cybenetics Testing Information	
Lab ID	SS22002782
Date of receipt	Feb 11, 2025
Testing Date	Apr 7, 2025
Report Issued Date	Apr 7, 2025
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□				
□□	□□□□	□□□□□	**Gauge**	In Cable Capacitors
ATX □□ 20+4 pin (600mm)	1	1	16-18AWG	□
4+4 pin EPS 12V □□ (700mm)	3	3	18AWG	□
6+2pin PCIe□□ (750mm)	4	4	16AWG	□
12+4 pin PCIe (700mm) (600W)	2	2	16-24AWG	□
12+2 pin PCIe (670mm) (600W)	2	2	16-24AWG	□
SATA□□ (500mm+150mm+150mm+150mm)	4	16	18AWG	□
SATA□□ 3.3 (400mm+150mm)	1	2	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
□□□□	□□	25	25	183.3	3	0.5
	□	125		2200	15	6
□□□□□ (W)		2200				

Parts Description

General Data	
Manufacturer (OEM)	Seasonic
PCB Type	Double-Sided
Primary Side	
Transient Filter	6x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	2x NTC Thermistor MF72-20D20M (20 Ohm) & Relay
Rectifier FETs	4x Infineon IPP60R125P6 600V, 2x
APFC MOSFETs	4x Infineon IPP60R125P6 (600V, 19A @ 100°C, Rds(on): 0.125Ohm)
APFC Boost Diode	2x Cree C3D08060A (600V, 8A @ 152°C)

Bulk Cap(s)	3x Nippon Chemi-Con (420V, 820uF each or 2460uF combined, 2,000h @ 105°C,KHE)
Main Switchers	4x Infineon IPP60R060P7 (650V, 30A @ 100°C, Rds(on): 0.060Ohm)
Drivers IC	2x Silicon Labs Si8233BD
APFC Controller	Texas Instruments UCD28070
Resonant Controller	Champion CM6901T2X
Topology	Primary side: Bridgeless, Interleaved PFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	16x Nexperia PSMN1R0-40YLD (40V, 198A @ 100°C, Rds(on): 1.93mOhm)
5V & 3.3V	DC-DC Converters
Filtering Capacitors	Electrolytic: 5x Nippon Chemi-Con (105°C, W), 1x Nippon Chemi-Con (5-6,000h @ 105°C,KZH), 2x Nippon Chemi-Con (2-5,000h @ 105°C, KZE), 4x Rubycon (6-10,000h @ 105°C, ZLH), 1x Rubycon (3-6,000h @ 105°C, YXG) Polymer: 20x Nippon Chemi-Con, 18x FPCAP
Supervisor IC	Weltrend WT7527RA (OCP, OVP, UVP, SCP, PG)
Fan Controller	Nuvoton M031
Fan Model	Hong Hua HA13525H12SF-Z (135mm, 12V, 0.50A, Fluid Dynamic Bearing Fan)
5VSB Circuit	
Rectifier	1x Infineon BSC100N06LS3 FET (60V, 36A @ 100°C, Rds(on): 10mOhm)
Standby PWM Controller	Power Integrations INN3164C

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	✓

Conducted Emissions EN 55032 & CISPR 32	Passed

Performance Summary 230V

Accredited		
□□□□ (>1450 load combinations)		93.096%
Average Noise Output (>1450 Load Combinations)		34.44dBA
PF□□□ (>1450 Load Combinations)		0.957
Efficiency With 10W (≤500W) or 2% (>500W) Load		77.594%
□□□□□□		0.0946W
Non-Accredited		
12V Ripple (Full Load)		43.09mV
5V Ripple (Full Load)		18.16mV
3.3V Ripple (Full Load)		20.31mV
5VSB Ripple (Full Load)		37.02mV
12V Load Regulation		2.68%
5V Load Regulation		0.50%
3.3V Load Regulation		0.63%
5VSB Load Regulation		0.68%
Inrush Current		35.950A
12V Transient Response (200%)		11.40V
5V Transient Response (200%)		5.014V
3.3V Transient Response (200%)		3.277V
5VSB Transient Response (200%)		4.844V
□□□□ & PG□□		15.60ms
AC Loss to PWR_OK Hold Up Time		12.30ms
PWR_OK Inactive to DC Loss Delay		3.30ms
PSU Timings: T1 (20% / 100%)	67.0ms	39.0ms
PSU Timings: T3 (20% / 100%)	127.0ms	125.0ms
12V OCP (27.9°C / 40.6°C)	235.20A (128.31%), 11.893V	235.10A (128.26%), 11.887V
5V OCP (27.9°C / 40.6°C)	34.1A (136.40%), 5.061V	33.9A (135.60%), 5.057V
3.3V OCP (27.9°C / 40.6°C)	35.8A (143.20%), 3.326V	35.8A (143.20%), 3.323V
5VSB OCP (27.9°C / 40.6°C)	4.81A (160.33%), 5.150V	4.8A (160.00%), 5.146V

OPP (29.22°C / 43.31°C)	126.23%	115.23%

□□□□ & PG□□

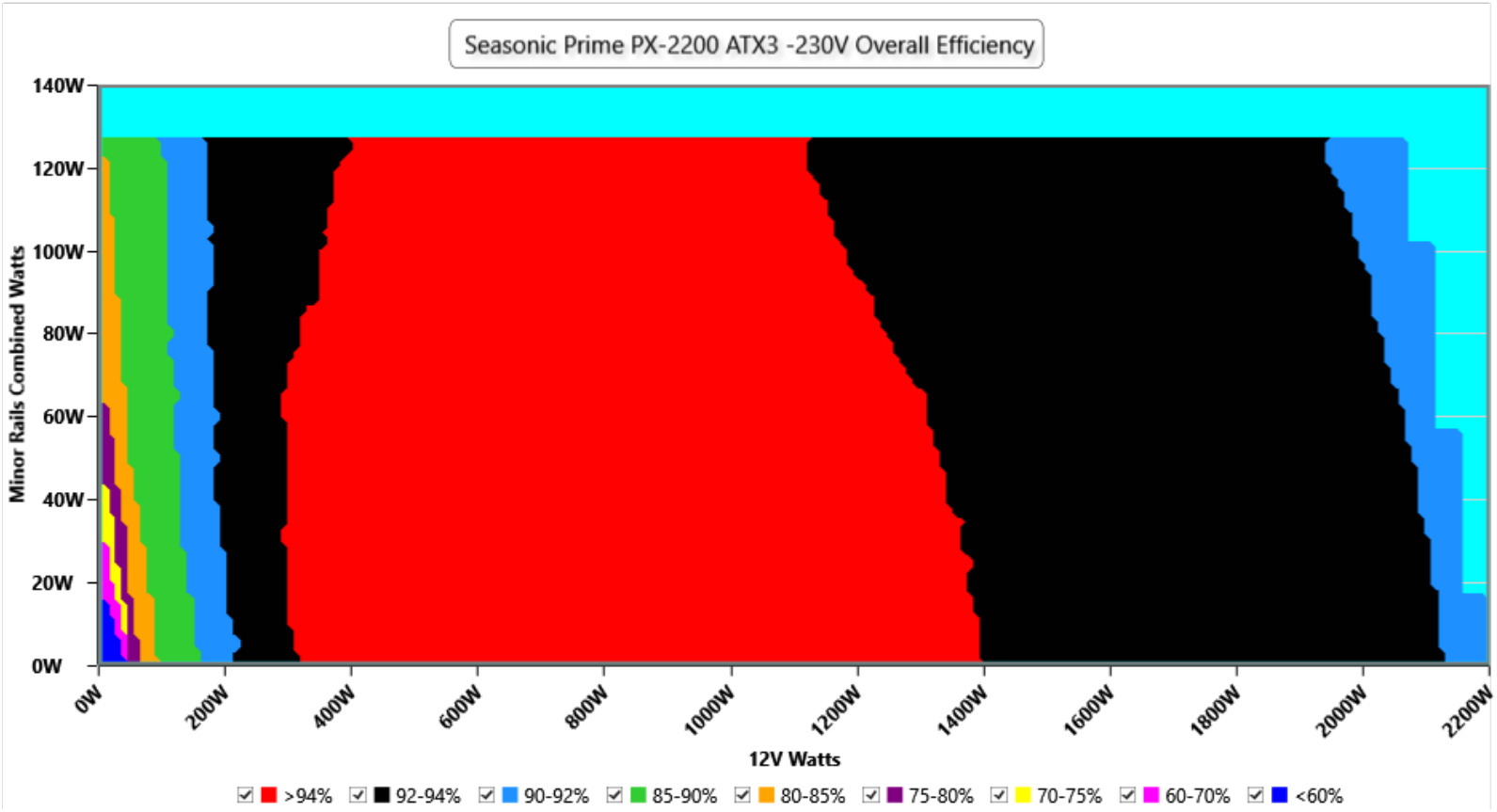
Hold-Up Time (ms)	15.6
AC Loss to PWR_OK Hold Up Time (ms)	12.3
PWR_OK Inactive to DC Loss Delay (ms)	3.3

□□□□

Tables 230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.84 V	229.77 V	227.70 V	229.88 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	50.00 Hz	49.50 Hz	50.00 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.419	1.418	1.340	1.419	1.490	PASS
Mains Voltage THD:	0.16 %	0.14 %	N/A	0.18 %	2.00 %	PASS
Real Power:	0.095 W	0.084 W	N/A	0.107 W	N/A	N/A
Apparent Power:	35.568 W	35.544 W	N/A	35.591 W	N/A	N/A
Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A

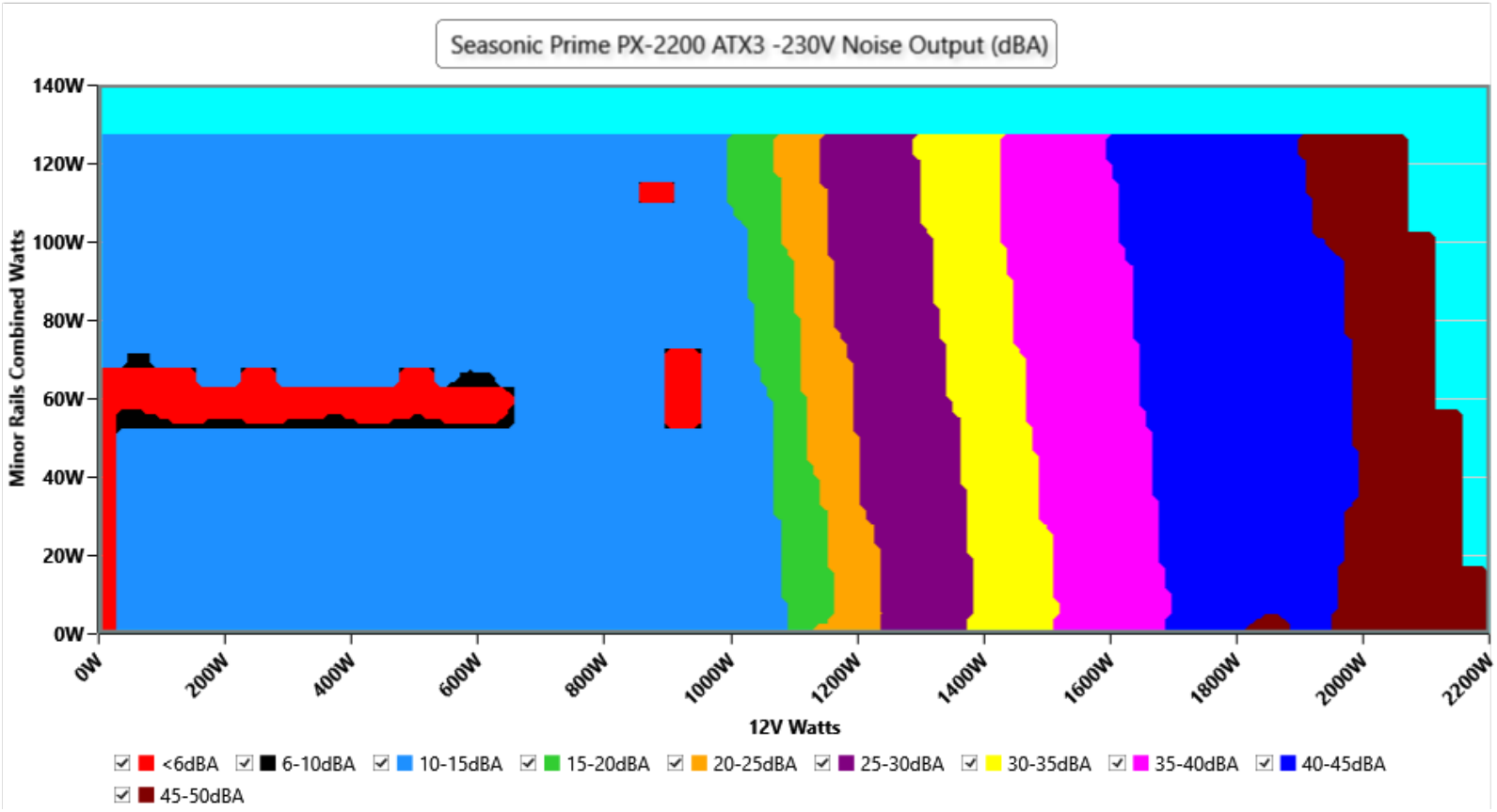
230V



□□

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



□□

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

Noise under high ambient temperature (indicative)

230V

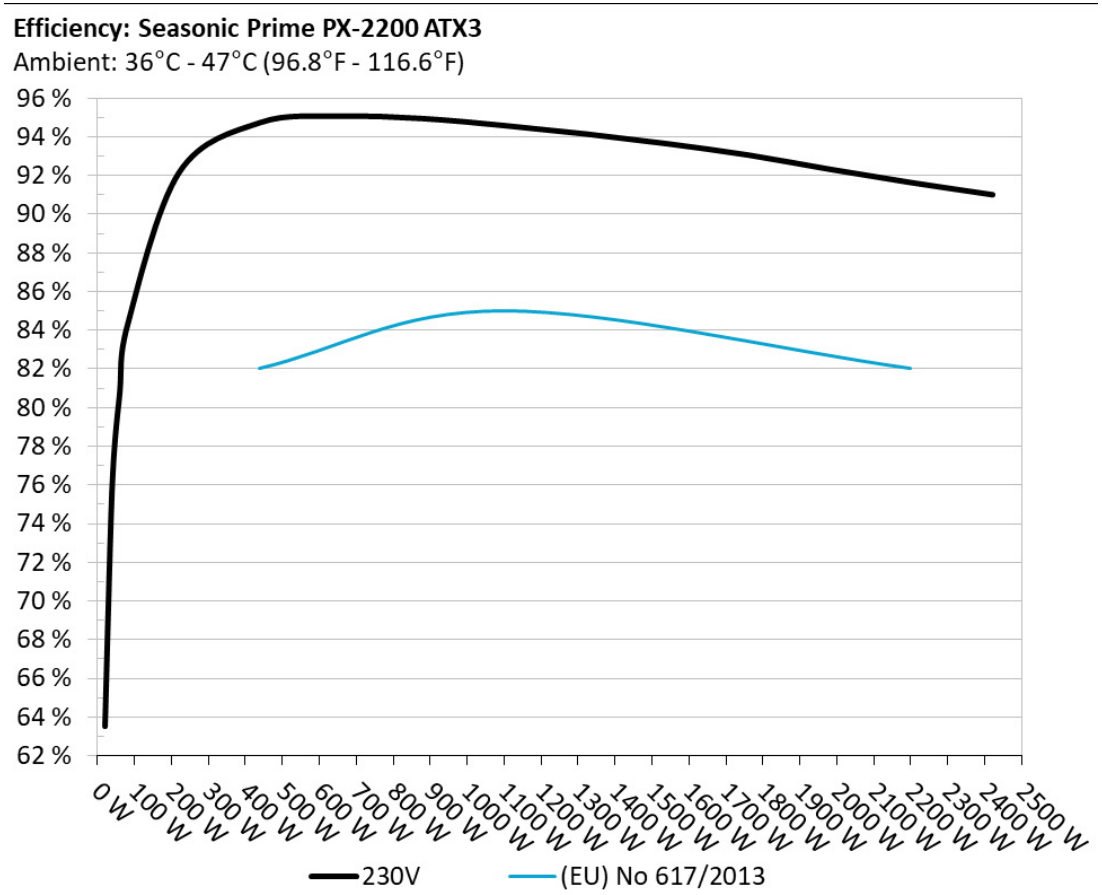
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	0 RPM · <6.0 dB(A) · 30.9 °C	0 RPM · <6.0 dB(A) · 41.4 °C	fan off in both
20%	0 RPM · <6.0 dB(A) · 31.6 °C	0 RPM · <6.0 dB(A) · 42.4 °C	fan off in both
50%	578 RPM · 12.1 dB(A) · 30.1 °C	583 RPM · 12.3 dB(A) · 42.3 °C	**+0.2 dB(A)**
100%	1700 RPM · 43.6 dB(A) · 30.2 °C	2381 RPM · 53.1 dB(A) · 45.8 °C	**+9.5 dB(A)**

INFO

Fan speed, noise and the measured intake temperature at 10, 20, 50 and 100 % load, from the two load regulation tests: at normal ambient (about 30-32 °C) and at high ambient (about 40-47 °C). These are stabilized readings at fixed loads, not averages over the certification sweep, so they are indicative of how the fan behaves when it is hot. "<6.0" is the floor of our sound meter, with the fan stopped; with the fan stopped, the intake sensor can read higher than the chamber air.

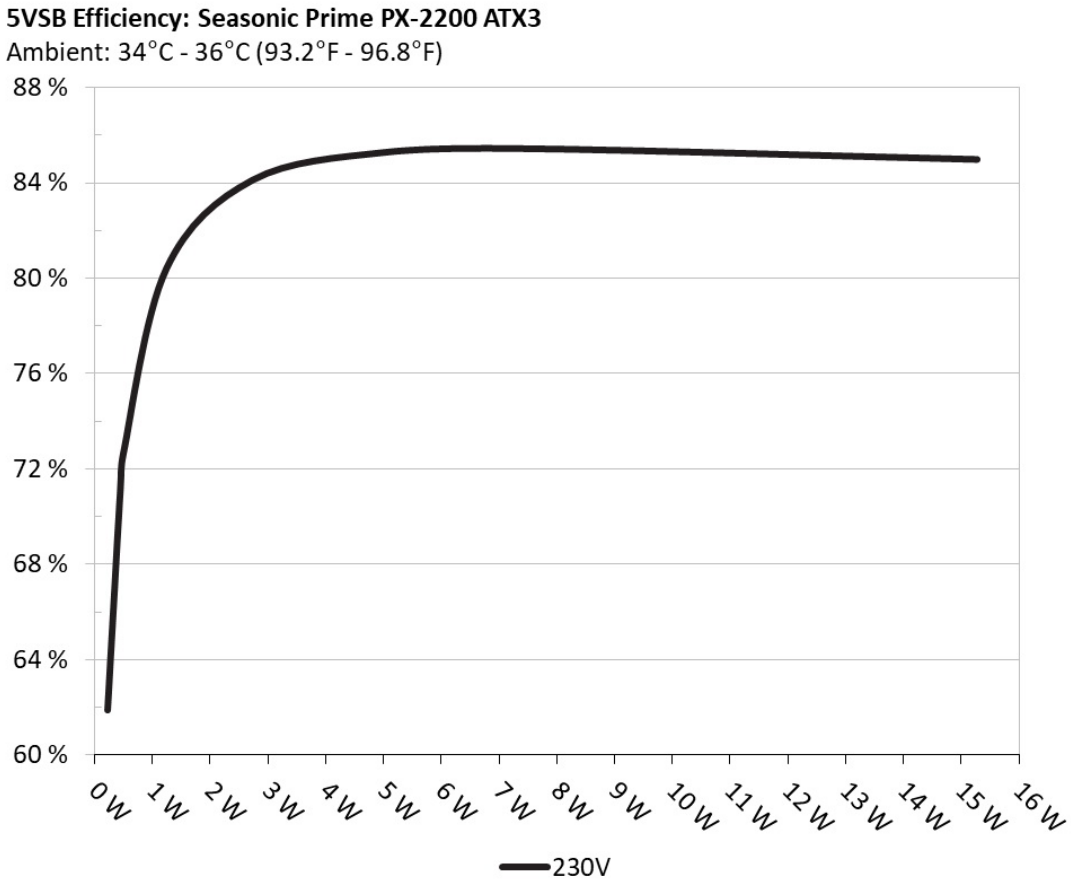
Informational. Not part of the ETA or LAMBDA rating.

Indicative Performance



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□□□□



□□

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

□□□□ □□ 5Vsb □□ (ErP Lot3/6 & CEC) 230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	**0.045A**	0.223W	61.903%	0.01
	4.959V	0.362W		229.85V

2	**0.09A**	0.446W	71.265%	0.018
	4.954V	0.626W		229.85V
3	**0.55A**	2.733W	84.13%	0.088
	4.968V	3.249W		229.82V
4	**1A**	4.996W	85.283%	0.151
	4.995V	5.857W		229.82V
5	**1.5A**	7.539W	85.445%	0.212
	5.025V	8.823W		229.82V
6	**3.001A**	15.281W	84.995%	0.317
	5.093V	17.979W		229.82V

Protection Features

OCP (Normal @ 27.9°C)	12V: 235.20A (128.31%), 11.893V 5V: 34.1A (136.40%), 5.061V 3.3V: 35.8A (143.20%), 3.326V 5VSB: 4.81A (160.33%), 5.150V
OCP (Hot @ 40.6°C)	12V: 235.10A (128.26%), 11.887V 5V: 33.9A (135.60%), 5.057V 3.3V: 35.8A (143.20%), 3.323V 5VSB: 4.8A (160.00%), 5.146V
OPP (Normal @ 29.2°C)	2777.03W (126.23%)
OPP (Hot @ 43.3°C)	2535.11W (115.23%)
OTP	✓ (110°C @ Heat Sink)
SCP	12V to Earth: ✓ 5V to Earth: ✓ 3.3V to Earth: ✓ 5VSB to Earth: ✓ -12V to Earth: ✓
PWR_OK	Proper Operation
UVP (Full Load @ 180V)	✓
UVP (Damage @ 170V)	✓
Conducted Emissions EN55032 & CISPR 32A	✓
NLO	✓

Fan Failure Protection	✓
SIP	Surge: MOV Inrush: NTC & Bypass Relay

Supplementary Tests (For Reference)

10-110%□□□□ 230V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	**16.668A**	**1.976A**	**1.986A**	**0.999A**	219.985	92.158%	0	<6.0	41.41°C	0.903
	11.902V	5.06V	3.323V	5.007V	238.709				40.26°C	229.79V
20%	**34.315A**	**2.965A**	**2.981A**	**1.199A**	439.548	94.745%	0	<6.0	42.38°C	0.944
	11.909V	5.058V	3.321V	5.006V	463.933				40.75°C	229.76V
30%	**52.332A**	**3.461A**	**3.479A**	**1.398A**	659.14	95.072%	0	<6.0	45.08°C	0.956
	11.907V	5.056V	3.32V	5.007V	693.304				41.26°C	229.72V
40%	**70.429A**	**3.956A**	**3.977A**	**1.597A**	879.524	94.955%	549	10.6	41.63°C	0.964
	11.903V	5.056V	3.319V	5.008V	926.255				51.86°C	229.68V
50%	**88.127A**	**4.946A**	**4.975A**	**1.798A**	1099.306	94.592%	583	12.3	42.31°C	0.971
	11.901V	5.054V	3.317V	5.006V	1162.157				54.16°C	229.65V
60%	**105.899A**	**5.938A**	**5.972A**	**1.998A**	1319.849	94.158%	904	26.8	42.74°C	0.977
	11.898V	5.052V	3.315V	5.005V	1401.735				55.74°C	229.62V
70%	**123.610A**	**6.93A**	**6.971A**	**2.199A**	1539.57	93.653%	1178	34.8	43.45°C	0.981
	11.896V	5.051V	3.314V	5.003V	1643.915				57.35°C	229.58V
80%	**141.402A**	**7.922A**	**7.971A**	**2.301A**	1759.608	93.067%	1417	40.6	43.76°C	0.983
	11.893V	5.048V	3.312V	4.998V	1890.683				58.45°C	229.54V
90%	**159.540A**	**8.422A**	**8.459A**	**2.405A**	1979.422	92.332%	2104	49	44.75°C	0.985
	11.890V	5.046V	3.31V	4.991V	2143.807				58.97°C	229.5V
100%	**177.476A**	**8.921A**	**8.977A**	**2.999A**	2199.424	91.641%	2381	53.1	45.77°C	0.986
	11.887V	5.044V	3.308V	5.003V	2400.036				59.92°C	229.45V
110%	**195.343A**	**9.916A**	**10.069A**	**3.004A**	2419.949	91.014%	2381	53.1	46.79°C	0.987
	11.885V	5.042V	3.307V	4.994V	2658.882				61.64°C	229.41V

CL1	**0.119A**	**14.918A**	**14.966A**	**0A**	126.318	84.845%	552	10.7	44.75°C	0.851
	11.907V	5.048V	3.314V	4.966V	148.886				61.87°C	229.8V
CL2	**0.118A**	**24.679A**	**0A**	**0A**	126.244	83.715%	550	10.6	43.31°C	0.853
	11.907V	5.059V	3.31V	4.968V	150.815				59.92°C	229.81V
CL3	**0.116A**	**0A**	**24.815A**	**0A**	83.889	77.887%	550	10.6	41.87°C	0.803
	11.966V	5.046V	3.324V	4.967V	107.705				57.7°C	229.82V
CL4	**185.037A**	**0A**	**0A**	**0.001A**	2199.955	92.036%	2225	50.1	45.68°C	0.986
	11.889V	5.059V	3.318V	4.891V	2390.342				59.28°C	229.45V

The results above are not used in the certification process

20-80□□□□ 230V

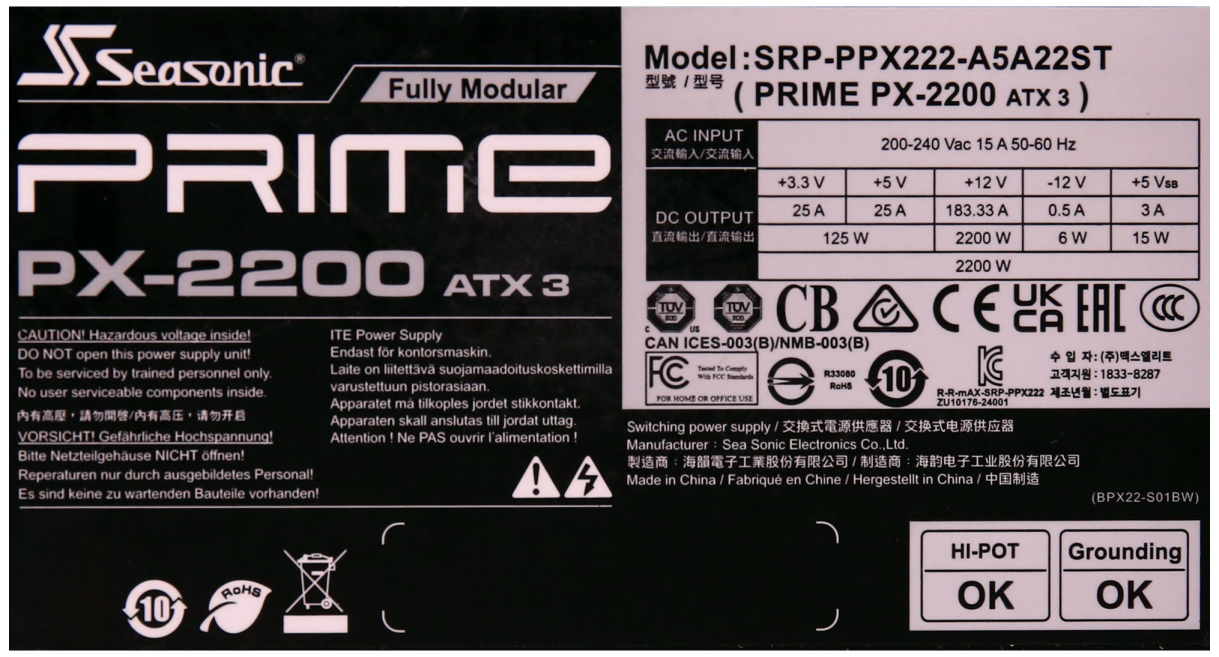
□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
20W	**1.216A**	**0.493A**	**0.496A**	**0.2A**	19.989	63.496%	0	<6.0	42.08°C	0.505
	12.205V	5.069V	3.329V	4.974V	31.492				36.11°C	229.82V
40W	**2.704A**	**0.691A**	**0.694A**	**0.301A**	39.996	76.157%	0	<6.0	43.63°C	0.641
	12.089V	5.066V	3.327V	4.978V	52.522				37.77°C	229.82V
60W	**4.192A**	**0.888A**	**0.893A**	**0.401A**	59.996	80.813%	0	<6.0	42.65°C	0.727
	12.054V	5.063V	3.325V	4.981V	74.233				38.9°C	229.81V
80W	**5.690A**	**1.086A**	**1.092A**	**0.501A**	79.929	84.21%	0	<6.0	42.05°C	0.778
	12.003V	5.062V	3.325V	4.985V	94.916				39.98°C	229.81V

The results above are not used in the certification process

□□□□ 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	17.54mV	15.04mV	14.98mV	27.81mV	Pass
20% Load	23.94mV	15.40mV	15.34mV	27.45mV	Pass
30% Load	23.06mV	18.01mV	17.60mV	28.32mV	Pass
40% Load	22.15mV	17.65mV	17.50mV	17.91mV	Pass
50% Load	22.81mV	16.58mV	16.31mV	25.45mV	Pass
60% Load	23.32mV	17.29mV	16.93mV	23.76mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
70% Load	25.06mV	18.07mV	18.63mV	29.15mV	Pass
80% Load	25.72mV	17.91mV	18.16mV	30.89mV	Pass
90% Load	26.13mV	19.81mV	21.50mV	32.02mV	Pass
100% Load	43.09mV	18.16mV	20.31mV	37.02mV	Pass
110% Load	44.02mV	17.34mV	20.63mV	37.57mV	Pass
Crossload1	24.80mV	15.93mV	18.60mV	8.83mV	Pass
Crossload2	23.73mV	19.81mV	19.60mV	8.67mV	Pass
Crossload3	17.54mV	17.19mV	20.78mV	8.67mV	Pass
Crossload4	43.77mV	17.45mV	18.94mV	15.42mV	Pass

The results above are not used in the certification process

Seasonic Prime PX-2200 ATX3

Top side

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

Cybenetics 提供自愿性认证计划：电源方面有ETA（效率）、LAMBDA（噪声）与SAFE（安全与正确运行）；散热产品方面有DELTA（机箱隔音）与PHI（风扇风量与静压）

CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus
www.cybenetics.com - info@cybenetics.com