

Lab ID#: 299

Receipt Date: Feb 17, 2018

Test Date: Feb 23, 2018

Report:

Report Date: Feb 26, 2018

DUT INFORMATION

Brand	SeaSonic
Manufacturer (OEM)	Seasonic
Series	Prime Titanium Ultra
Model Number	SSR-1000TR Ultra
Serial Number	R1711AA1A3130025
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	13-6.5
Rated Frequency (Hz)	50-60
Rated Power (W)	1000
Type	ATX12V
Cooling	135mm Fluid Dynamic Bearing Fan (HA13525L12F-Z)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	100	3	0.3
	Watts	125		996	15	3.6
Total Max. Power (W)		1000				

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	18-22AWG	No
4+4 pin EPS12V (660mm)	2	2	18AWG	No
6+2 pin PCIe (670mm+80mm)	2	4	18AWG	No
6+2 pin PCIe (760mm)	4	4	18AWG	No
SATA (350mm+150mm+150mm+150mm)	1	4	18AWG	No
SATA (410mm+110mm+110mm+110mm)	2	8	18AWG	No
SATA (300mm+150mm)	1	2	18AWG	No
4 pin Molex (450mm+120mm+120mm)	1	3	18AWG	No
4 pin Molex (350mm+120mm)	1	2	18AWG	No
4 pin Molex Adapter / SATA (150mm+150mm)	1	2	18AWG	No
FDD Adapter (+100mm)	1	1	22AWG	No
AC Power Cord (1370mm) - C13 coupler	1	1	18AWG	-

> The link to the original test results document should be provided in any case

General Data	
Manufacturer (OEM)	Seasonic
Platform Model	Prime Titanium
Primary Side	
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x Vishay LVB2560 (600V, 25A @ 105°C)
APFC MOSFETS	2x Infineon IPP60C7099 (650V, 14A @ 100°C, 0.099 Ohm)
APFC Boost Diode	1x STPSC10H065D (600V, 10A @ 135°C)
Hold-up Cap(s)	1x Hitachi (400V, 470uF, 2000h @ 105°C, HU) 1x Hitachi (400V, 820uF, 2000h @ 105°C, HU)
Main Switchers	4x Infineon IPP50R140CP (550V, 15A @ 100°C, 0.14 Ohm)
Drivers For Main Switchers	2x Silicon Labs Si8230BD
APFC Controller	ON Semiconductor NPC1654
Switching Controller	Champion CM6901
Topology	Primary side: Full-Bridge & LLC Resonant Converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	6x R638
5V & 3.3V	DC-DC Converters: 6x Infineon BSC0906NS PWM Controller: APW7159
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (1-5,000h @ 105°C, KZE), Nippon Chemi-Con (105°C, W), Nippon Chemi-Con (4,000-10,000h @ 105°C, KY), Chemi-Con (5-6,000h @ 105°C, KZH), Rubycon (3-6,000h @ 105°C, YXG) Polymers: FPCAP, Nippon Chemi-Con
Supervisor IC	Weltrend WT7527V (OVP, UVP, OCP, SCP, PG) & AS393M
Fan Model	Hong Hua HA13525M12F-Z (135mm, 12V, 0.36A, 1800 RPM, Fluid Dynamic Bearing)
5VSB Circuit	
Buck Converter	Leadtrend LD7750R
Rectifiers	STMicroelectronics STU6N65K3 (650V, 3A @ 100°C, 1.3Ohm) Infineon BSC0906NS (30V, 40A @ 100°C, 4.5 mOhm)
-12V Circuit	
Buck Converter	Lite-On LSP5523 (3A max output current)

RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	91.644%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	79.663%
Standby Power Consumption (W)	0.0532916
Average PF	0.992
Avg Noise Output	13.16 dB(A)
Efficiency Rating (ETA)	TITANIUM
Noise Rating (LAMBDA)	A++

230V

Average Efficiency	93.729%
Average Efficiency 5VSB	78.930%
Standby Power Consumption (W)	0.0841321
Average PF	0.960
Avg Noise Output	12.85 dB(A)
Efficiency Rating (ETA)	TITANIUM
Noise Rating (LAMBDA)	A++

TEST EQUIPMENT

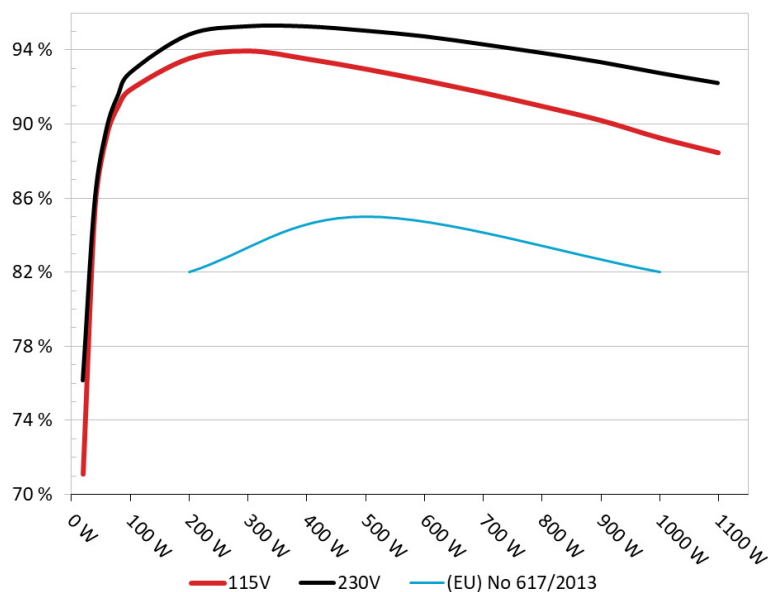
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, Chroma 61604	
Power Analyzers	N4L PPA1530, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Seasonic SSR-1000TR Ultra
Ambient: 36°C - 46°C (96.8°F - 114.8°F)

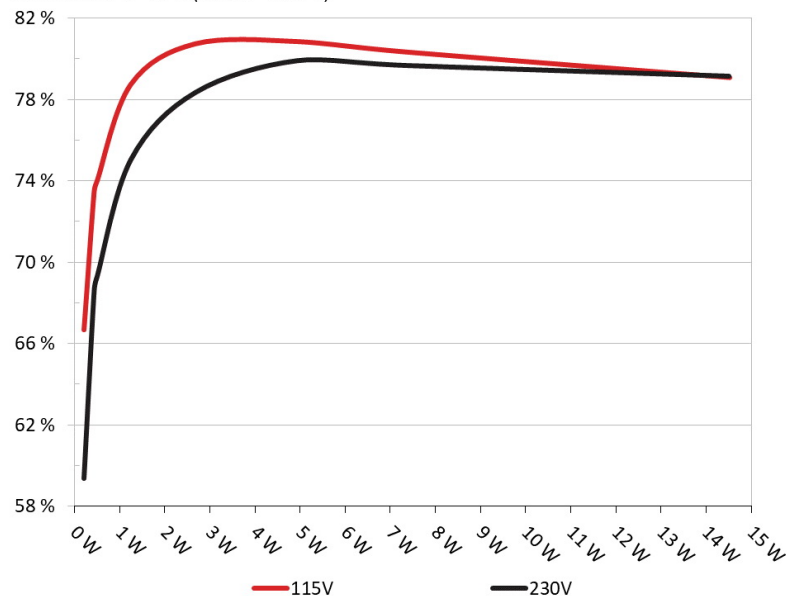


INFO

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 SSR-1000TR Ultra
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

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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.210	66.667%	0.041
	4.954V	0.315		115.11V
2	0.088A	0.434	73.435%	0.075
	4.952V	0.591		115.11V
3	0.542A	2.676	80.724%	0.288
	4.934V	3.315		115.11V
4	1.002A	4.927	80.837%	0.371
	4.915V	6.095		115.10V
5	1.502A	7.351	80.321%	0.417
	4.894V	9.152		115.10V
6	3.002A	14.515	79.066%	0.475
	4.835V	18.358		115.10V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.209	59.375%	0.012
	4.954V	0.352		230.23V
2	0.088A	0.435	68.612%	0.021
	4.952V	0.634		230.24V
3	0.543A	2.677	78.344%	0.105
	4.933V	3.417		230.24V
4	1.003A	4.927	79.906%	0.174
	4.914V	6.166		230.23V
5	1.502A	7.349	79.673%	0.233
	4.893V	9.224		230.23V
6	3.002A	14.496	79.144%	0.343
	4.829V	18.316		230.22V

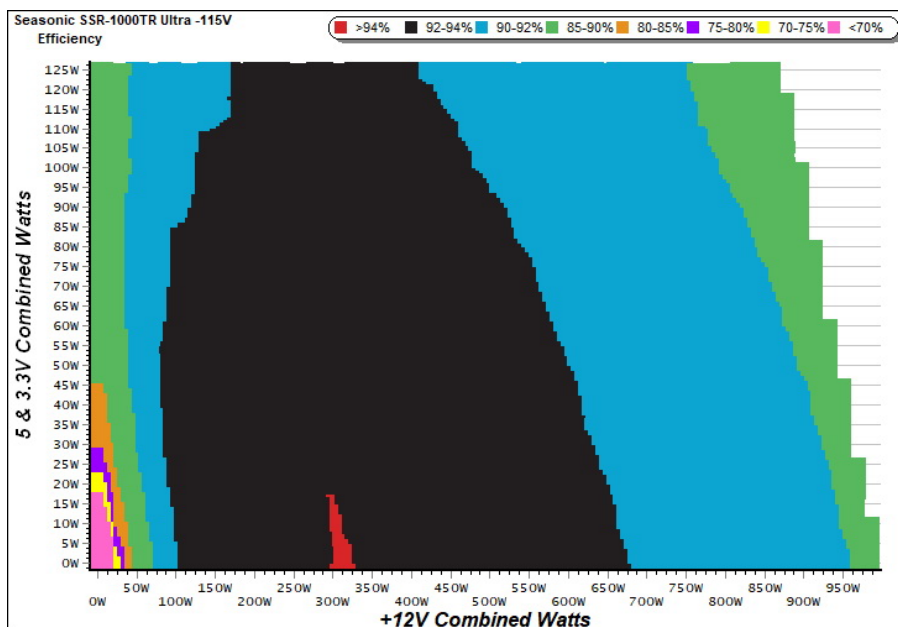
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115V

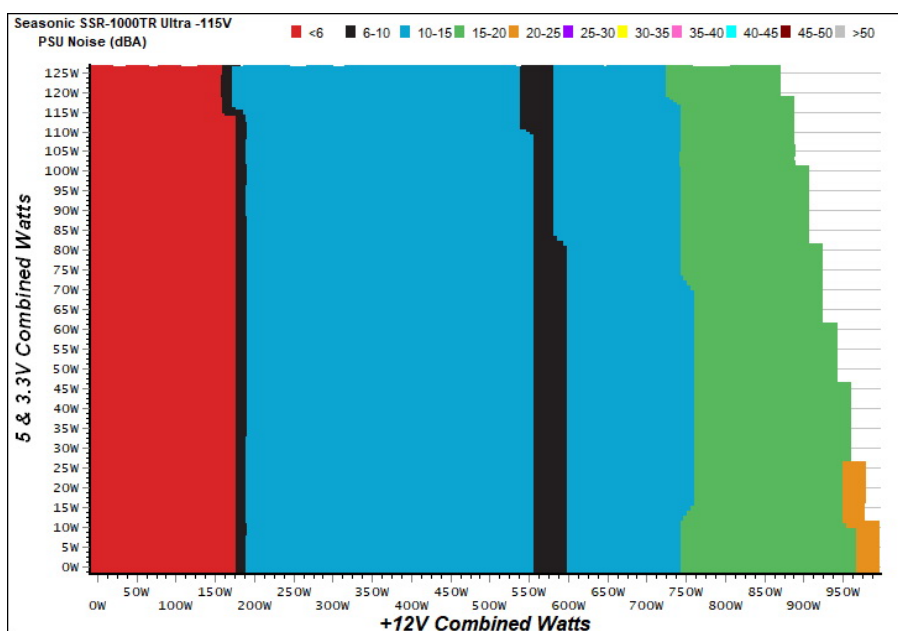
EFFICIENCY GRAPH 115V



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

NOISE GRAPH 115V



INFO

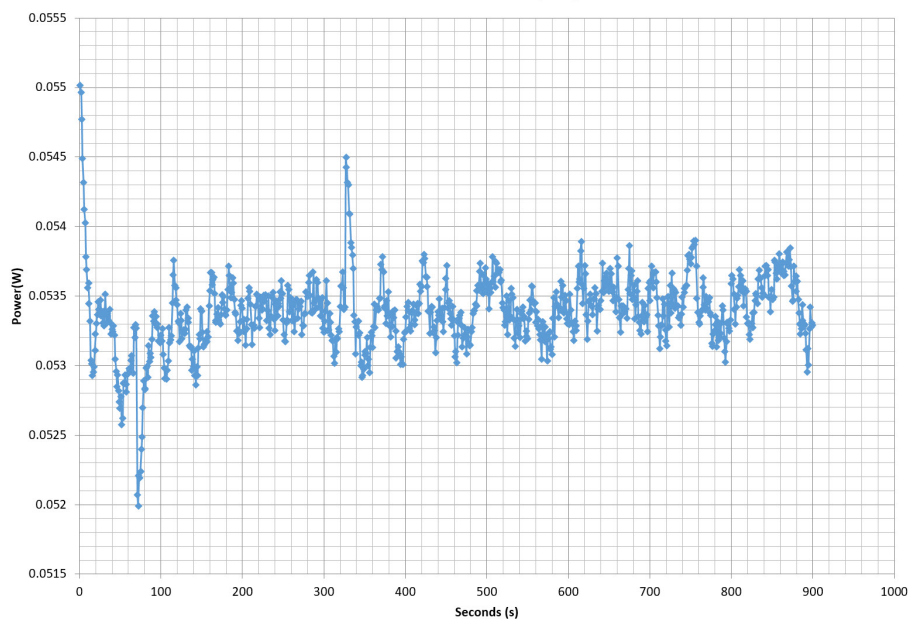
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - R1711AA1A3130025 - 23/02/2018 - 07:45



INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

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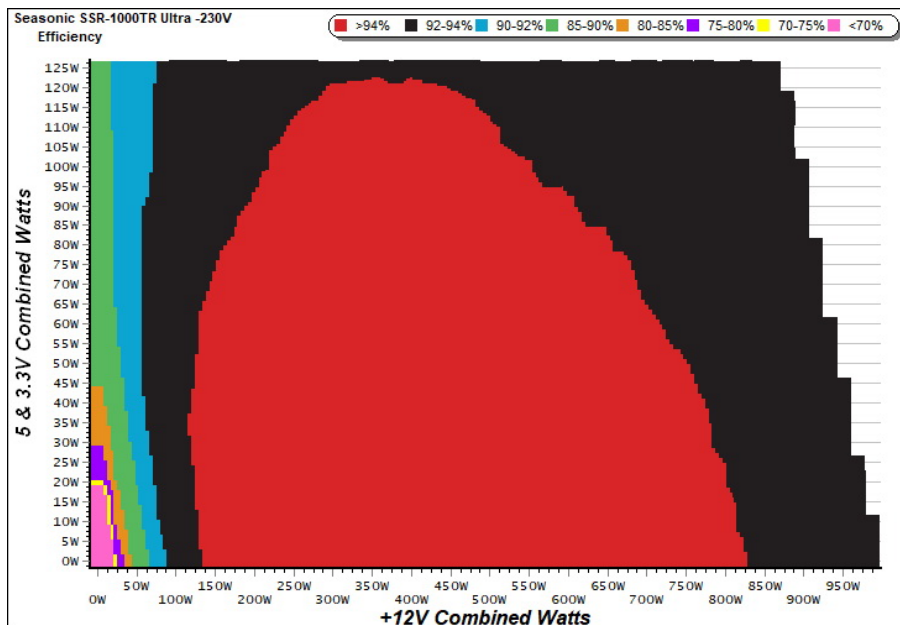
230V

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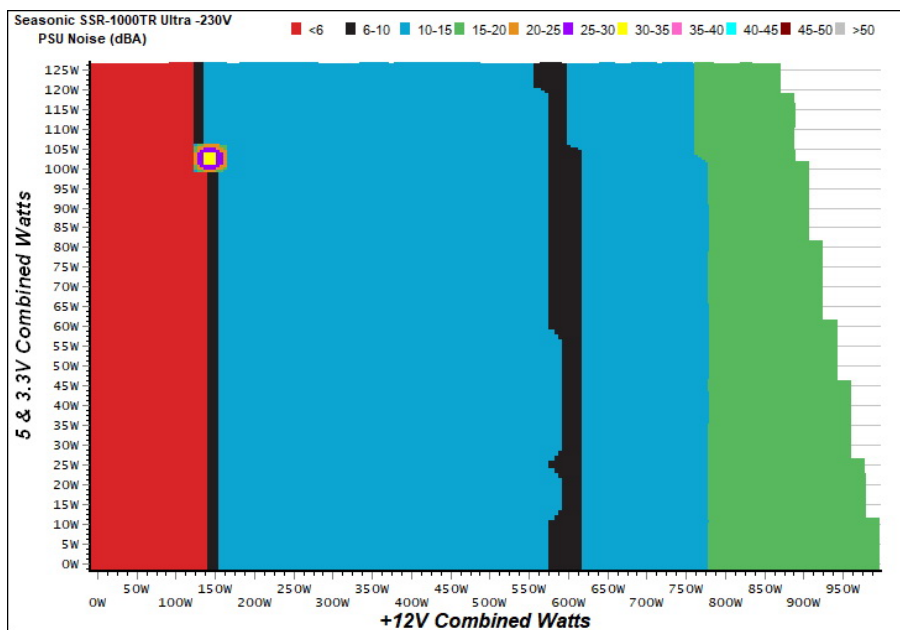
EFFICIENCY GRAPH 230V



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

NOISE GRAPH 230V



INFO

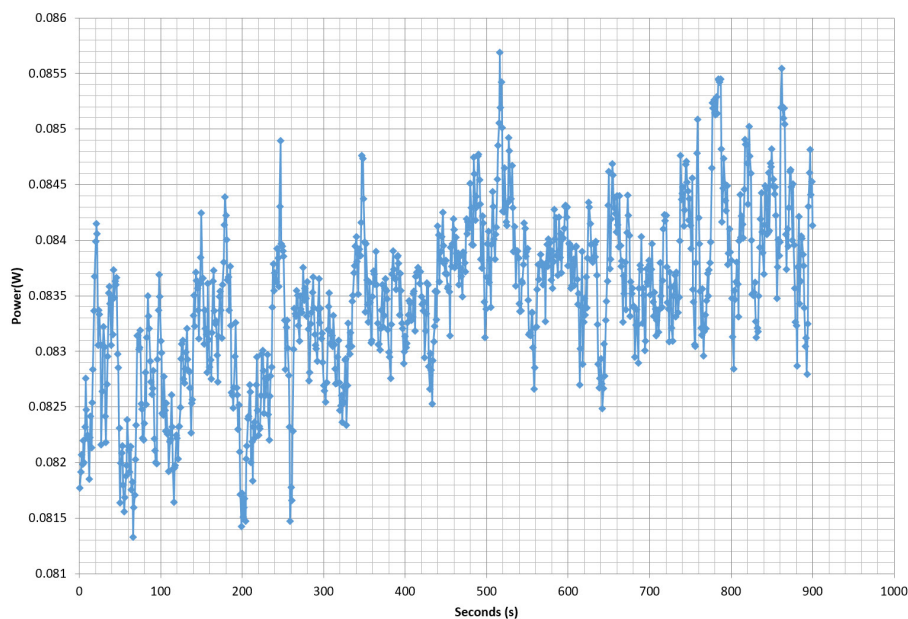
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VAMPIRE POWER -230V

Power - R1711AA1A3130025 - 22/02/2018 - 15:50



INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

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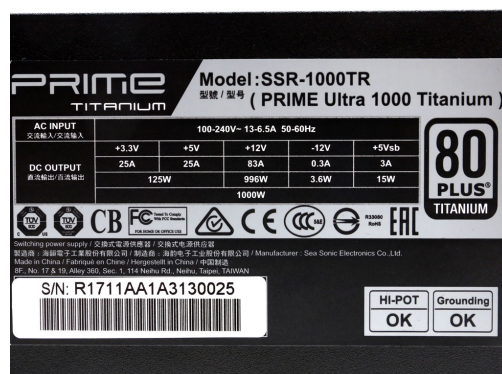
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EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

SeaSonic Prime Titanium Ultra 1000W (#2)

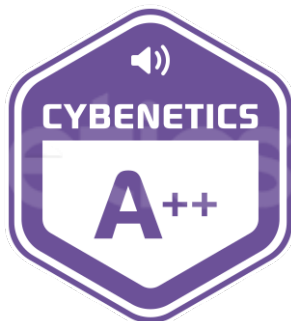


Top side



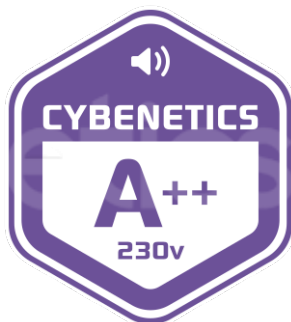
Power specifications label

CERTIFICATIONS 115V




Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



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