

Lab ID#: 258  
Receipt Date: Dec 22, 2018  
Test Date: Dec 26, 2018

Report:  
Report Date: Dec 29, 2018

DUT INFORMATION	
Brand	SeaSonic
Manufacturer (OEM)	Seasonic
Series	Prime Titanium
Model Number	SSR-600TL
Serial Number	R1708TA105680169
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8-4
Rated Frequency (Hz)	50-60
Rated Power (W)	600
Type	ATX12V
Cooling	Passive
Semi-Passive Operation	X
Cable Design	Fully Modular

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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## 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	92.462%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	80.005%
Standby Power Consumption (W)	0.0544275
Average PF	0.987
Avg Noise Output	- dB(A)
Efficiency Rating (ETA)	TITANIUM
Noise Rating (LAMBDA)	A++

### 230V

Average Efficiency	93.957%
Average Efficiency 5VSB	78.666%
Standby Power Consumption (W)	0.0888056
Average PF	0.932
Avg Noise Output	- dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A++

## POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	50	2.5	0.3
	Watts	100		600	12.5	3.6
Total Max. Power (W)		600				

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## 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	Yes
4+4 pin EPS12V (650mm)	2	2	18AWG	No
6+2 pin PCIe (680mm+80mm)	2	4	18AWG	No
SATA (450mm+110mm+110mm+110mm)	1	4	18AWG	No
SATA (350mm+110mm)	1	2	18AWG	No
4 pin Molex (450mm+120mm+120mm)	1	3	18AWG	No
4 pin Molex (350mm+120mm)	1	2	18AWG	No
AC Power Cord (1350mm) - C13 coupler	1	1	18AWG	-

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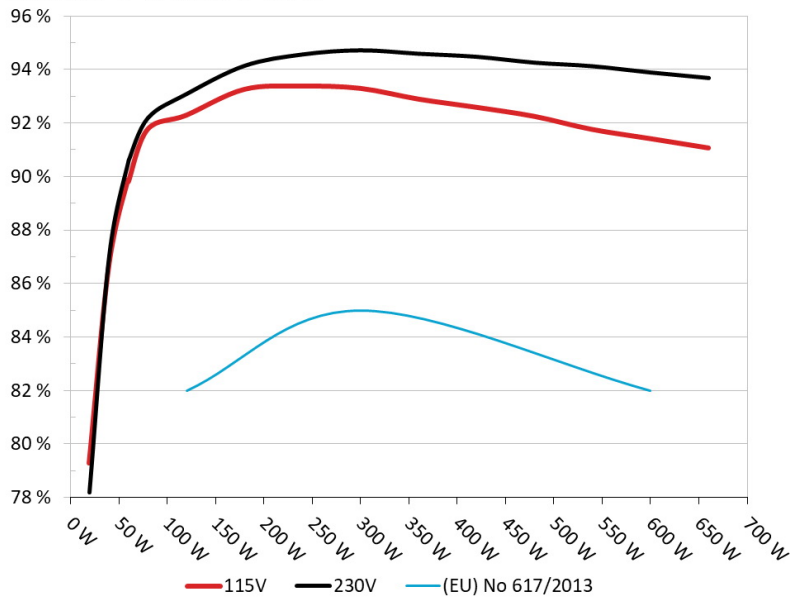
General Data	
Manufacturer (OEM)	Seasonic
Platform Model	Prime Fanless
Primary Side	
Transient Filter	6x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x Vishay LVB2560 (600V, 25A @ 105°C)
APFC MOSFETS	2x Infineon IPP50R140CP (550V, 15A @ 100°C, 0.14 Ohm)
APFC Boost Diode	1x CREE C3D06060A (600V, 6A @ 154°C)
Hold-up Cap(s)	1x Nippon Chemi-Con (400V, 450uF, 2000h @ 105°C, CE) 1x Nippon Chemi-Con (400V, 390uF, 2000h @ 105°C, CE)
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	4x Infineon BSC014N04LS (40V, 100A @ 25°C, 1.4mOhm)
5V & 3.3V	DC-DC Converters: 6x Infineon BSC0906NS PWM Controller: APW7159
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (105°C, W), Nippon Chemi-Con (4,000-10,000h @ 105°C, KY), Nippon Chemi-Con (4,000-10,000h @ 105°C, KYB), Rubycon (5VSB circuit, 3,000-6,000h @ 105°C, YXG), Nichicon (4,000-10,000h @ 105°C, HE) Polymers: FPCAP, Nippon Chemi-Con
Supervisor IC	Weltrend WT7527V (OVP, UVP, OCP, SCP, PG ) & AS393M
5VSB Circuit	
Buck Converter	AME5268 (3A)
Rectifiers	STMicroelectronics STU6N65K3 (650V, 3A @ 100°C, 1.30hm), 6A4 SBR (400V, 6A @ 75°C), Infineon BSC0906NS (30V, 40A @ 100°C, 4.5 mOhm)

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### EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

**Efficiency: Seasonic SSR-600TL**  
Ambient: 37°C - 45°C (98.6°F - 113°F)

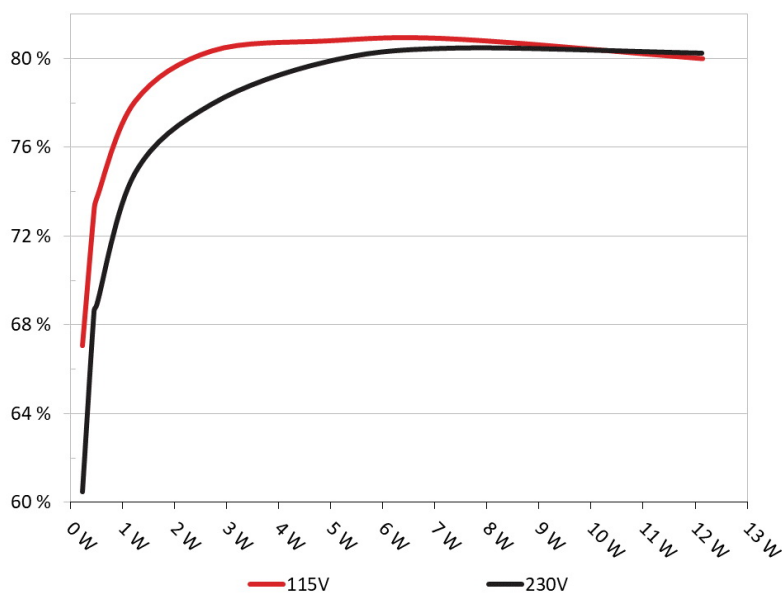


#### INFO

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-600TL**  
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	0.045A	0.222	67.069%	0.029
	4.938V	0.331		115.27V
2	0.090A	0.444	73.147%	0.053
	4.936V	0.607		115.27V
3	0.550A	2.706	80.344%	0.240
	4.920V	3.368		115.26V
4	1.000A	4.906	80.797%	0.343
	4.906V	6.072		115.25V
5	1.500A	7.335	80.889%	0.404
	4.890V	9.068		115.26V
6	2.500A	12.143	79.999%	0.464
	4.857V	15.179		115.25V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.222	60.490%	0.011
	4.937V	0.367		230.81V
2	0.090A	0.444	68.624%	0.019
	4.936V	0.647		230.81V
3	0.550A	2.705	77.954%	0.095
	4.918V	3.470		230.81V
4	1.000A	4.904	79.857%	0.158
	4.903V	6.141		230.81V
5	1.500A	7.330	80.479%	0.216
	4.886V	9.108		230.81V
6	2.500A	12.128	80.254%	0.298
	4.851V	15.112		230.81V

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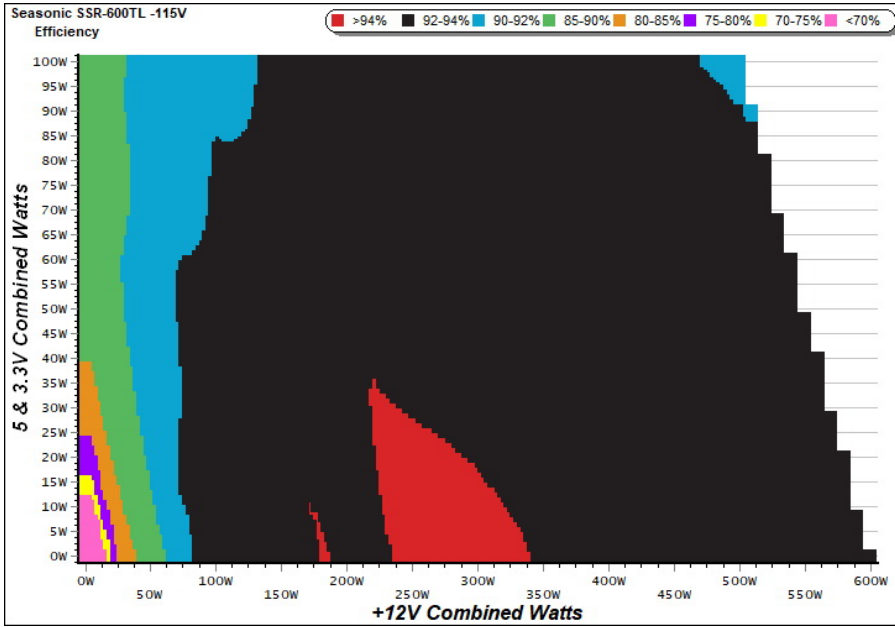
# 115V

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**EFFICIENCY GRAPH 115V**



**INFO**

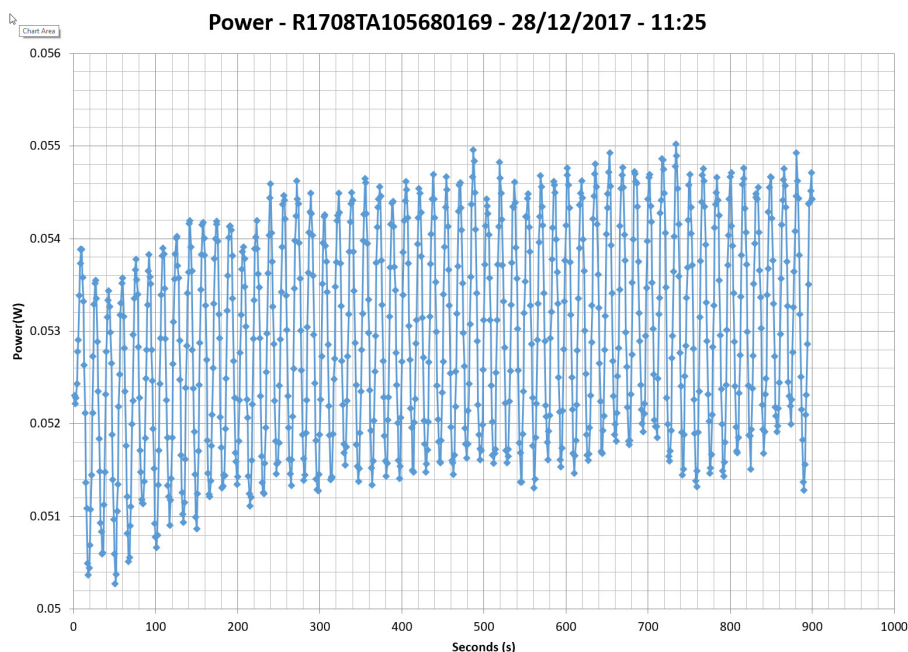
*This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations*

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### VAMPIRE POWER -115V



#### 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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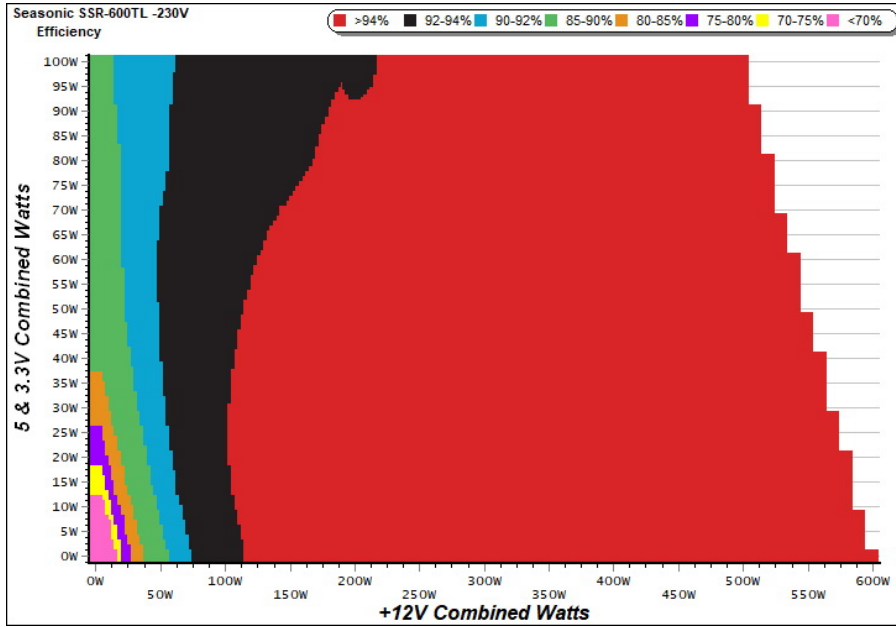
# 230V

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**EFFICIENCY GRAPH 230V**



**INFO**

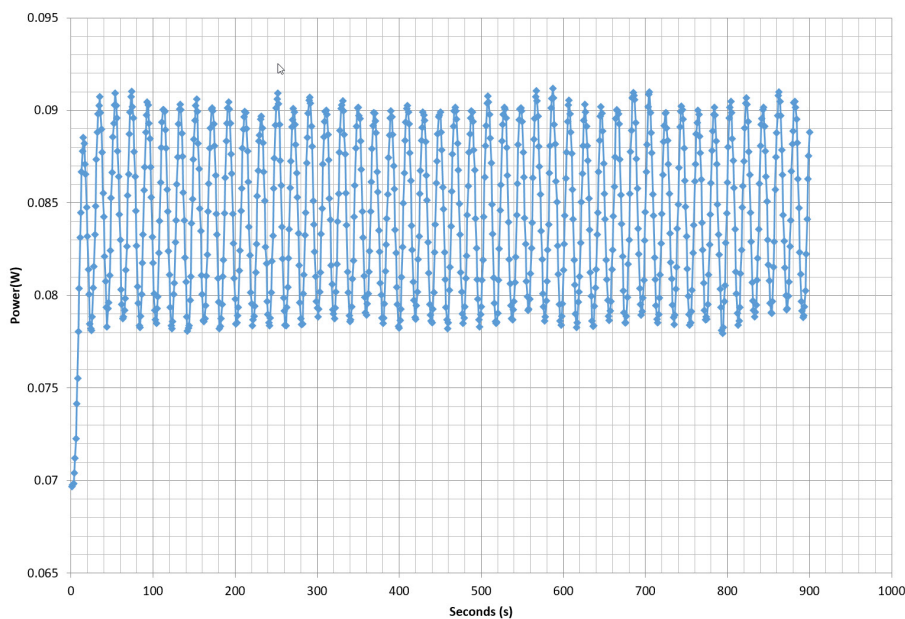
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**VAMPIRE POWER -230V**

**Power - R1708TA105680169 - 28/12/2017 - 11:25**



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

## SeaSonic Prime Titanium Fanless 600W

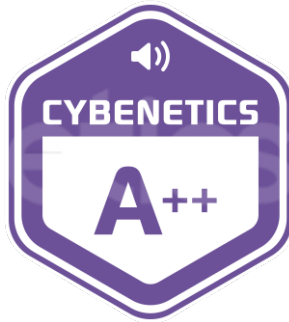
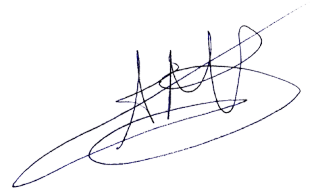


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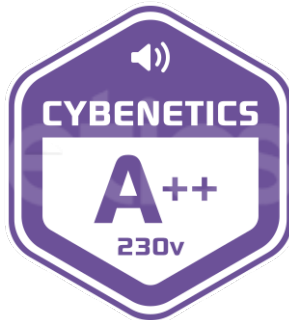
Power specifications label

### CERTIFICATIONS 115V

**Aris Mpitsiopoulos**  
Lab Director

### CERTIFICATIONS 230V



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