

## Anex

## Seasonic SSR-550FX (Sample #2)

Lab ID#: 167

Receipt Date: -

Test Date: -

Report:

Report Date: Aug 28, 2018

DUT INFORMATION		DUT SPECIFICATIONS	
Brand	Seasonic	Rated Voltage (Vrms)	100-240
Manufacturer (OEM)	Seasonic	Rated Current (Arms)	8-4
Series	FOCUS Plus Gold	Rated Frequency (Hz)	50-60
Model Number	SSR-550FX (Sample #2)	Rated Power (W)	550
Serial Number	R1706AA135870304	Type	ATX12V
DUT Notes	87.975% AVG Efficiency - Taxed to ETA-B According	Cooling	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
		Semi-Passive Operation	✓ (selectable)
		Cable Design	Fully Modular

POWER SPECIFICATIONS						
Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	45	3	0.3
	Watts	100		540	15	3.6
Total Max. Power (W)		550				

CABLES AND CONNECTORS			
Modular Cables			
Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (610mm)	1	1	18-22AWG
4+4 pin EPS12V (655mm)	1	1	18AWG
6+2 pin PCIe (680mm+80mm)	1	2	18AWG
SATA (460mm+115mm+115mm+115mm)	1	4	18AWG
SATA (460mm+120mm)	1	2	18AWG
4 pin Molex (460mm+120mm+120mm)	1	3	18AWG
FDD Adapter (+110mm)	1	1	22AWG

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PAGE 1/8

## Anex

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RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	87.975
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	0.000
Average Efficiency 5VSB	76.828
Standby Power Consumption (W) -115V	0.0467196
Standby Power Consumption (W) -230V	0.0749146
Average PF	0.985
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	24.12
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

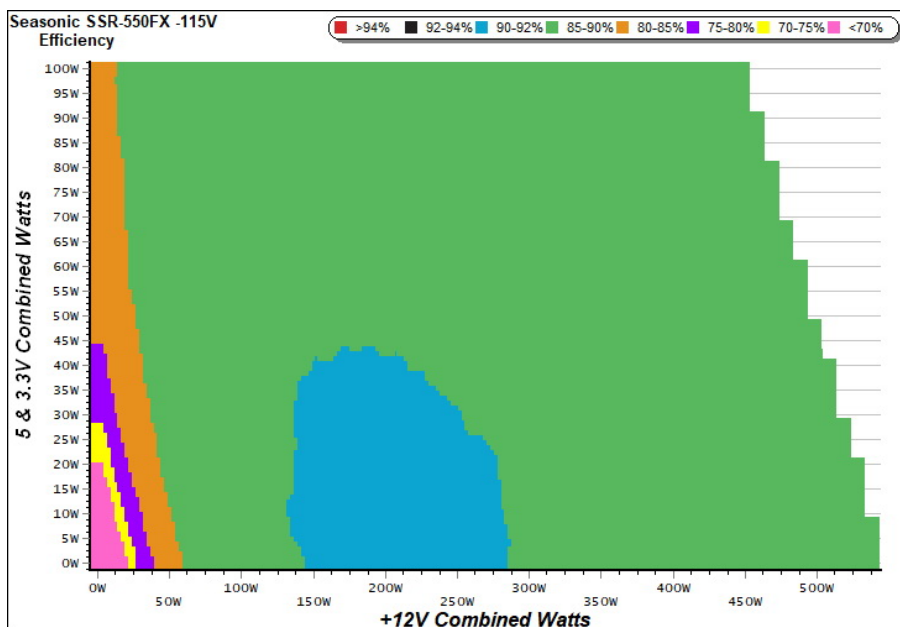
TEST EQUIPMENT		
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, Chroma 61604	
Power Analyzers	N4L PPA1530, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 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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PAGE 2/8

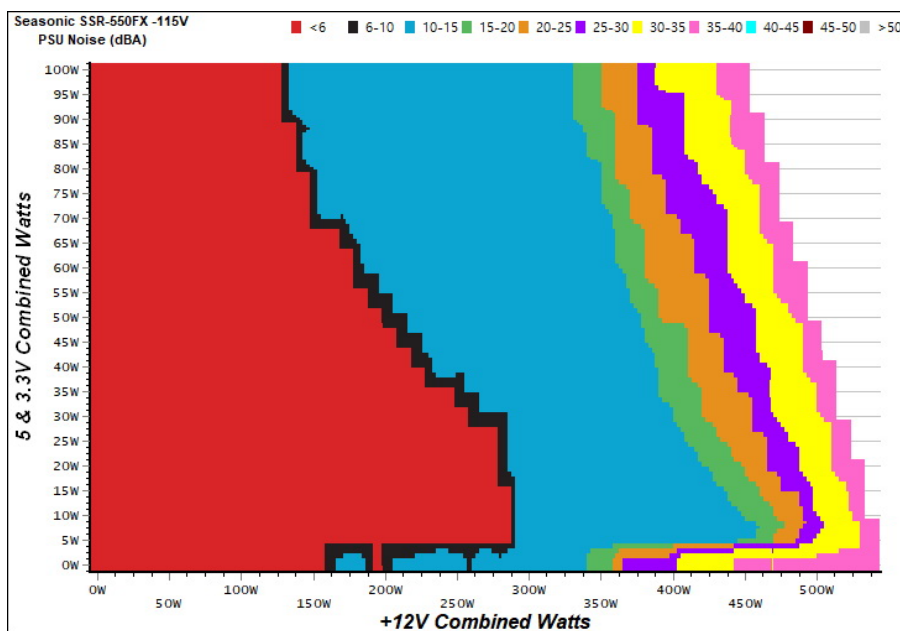
#### EFFICIENCY GRAPH



#### 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



#### 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

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

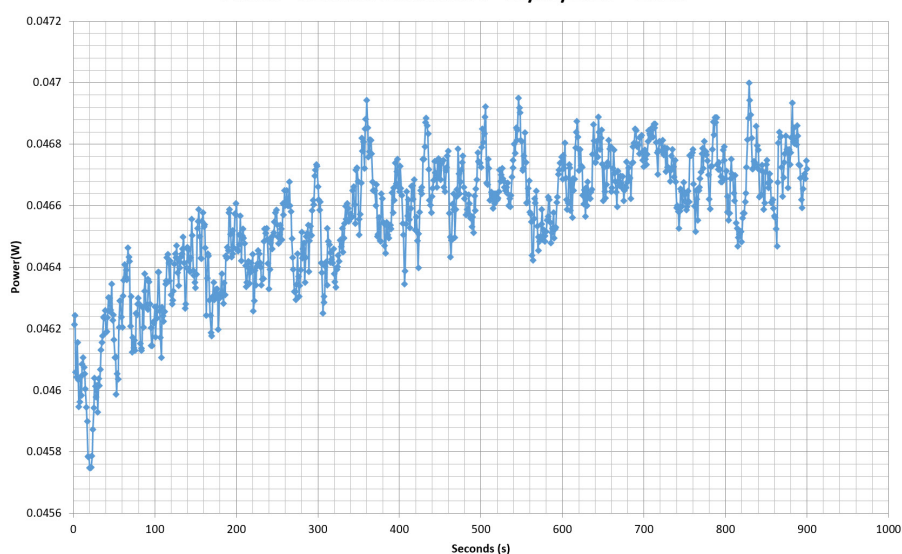
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.214	68.153%	0.051
	5.132V	0.314		115.19V
2	0.087A	0.447	73.520%	0.096
	5.130V	0.608		115.19V
3	0.542A	2.774	77.313%	0.333
	5.119V	3.588		115.18V
4	1.002A	5.118	77.346%	0.405
	5.108V	6.617		115.19V
5	1.502A	7.652	77.153%	0.441
	5.096V	9.918		115.19V
6	3.001A	15.158	75.980%	0.485
	5.051V	19.950		115.19V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.214	60.452%	0.017
	5.132V	0.354		230.45V
2	0.087A	0.447	67.830%	0.032
	5.130V	0.659		230.46V
3	0.542A	2.775	75.737%	0.157
	5.119V	3.664		230.45V
4	1.002A	5.118	76.778%	0.240
	5.108V	6.666		230.45V
5	1.501A	7.653	77.420%	0.294
	5.097V	9.885		230.45V
6	3.001A	15.186	76.926%	0.371
	5.060V	19.741		230.45V

### VAMPIRE POWER -115V

Power - R1706AA135870304 - 25/08/2017 - 16:15



#### 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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PAGE 4/8

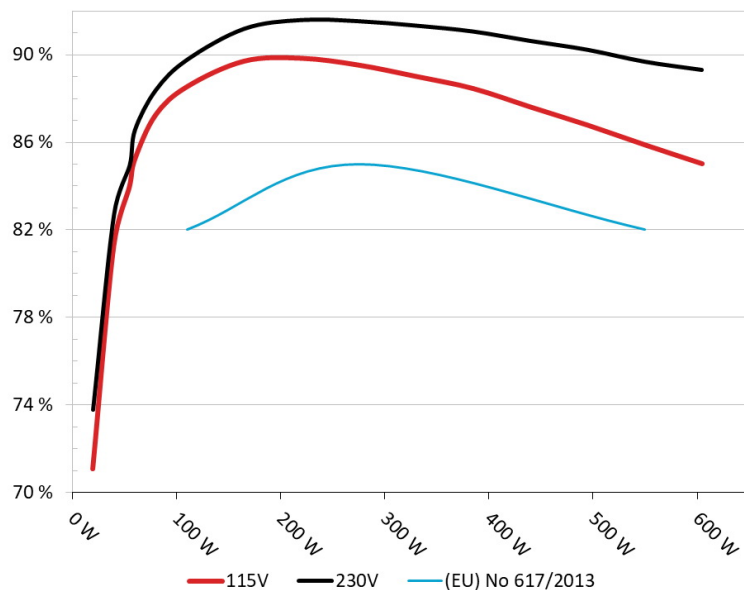
## Anex

## Seasonic SSR-550FX (Sample #2)

### EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

#### Efficiency: Seasonic SSR-550FX

Ambient: 37°C - 46°C (98.6°F - 114.8°F)



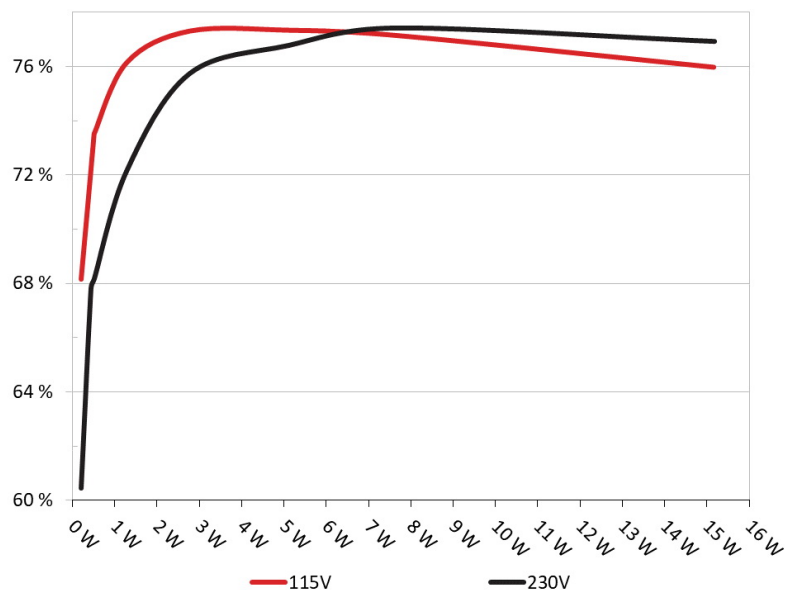
#### INFO

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-550FX

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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## Seasonic SSR-550FX (Sample #2)

10-110% LOAD TESTS										
Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	2.734A	1.996A	1.980A	0.981A	54.779	83.958%	0	<6.0	47.11°C	0.946
	12.141V	5.008V	3.328V	5.097V	65.246				38.61°C	115.20V
2	6.497A	2.992A	2.975A	1.179A	109.735	88.540%	0	<6.0	48.21°C	0.979
	12.141V	5.005V	3.323V	5.084V	123.939				39.00°C	115.20V
3	10.607A	3.504A	3.489A	1.379A	164.892	89.718%	0	<6.0	49.90°C	0.986
	12.142V	5.001V	3.321V	5.070V	183.790				39.35°C	115.20V
4	14.709A	4.008A	3.973A	1.580A	219.801	89.850%	645	11.9	39.49°C	0.989
	12.142V	4.998V	3.318V	5.057V	244.633				59.63°C	115.19V
5	18.465A	5.009A	4.977A	1.783A	274.694	89.539%	550	10.4	40.75°C	0.990
	12.143V	4.990V	3.313V	5.042V	306.786				61.01°C	115.19V
6	22.230A	6.016A	5.980A	1.986A	329.684	89.021%	560	10.5	41.00°C	0.990
	12.142V	4.986V	3.309V	5.027V	370.342				63.75°C	115.19V
7	25.990A	7.024A	6.985A	2.194A	384.637	88.467%	880	20.6	41.63°C	0.990
	12.142V	4.981V	3.305V	5.011V	434.780				61.30°C	115.21V
8	29.753A	8.046A	7.999A	2.400A	439.575	87.623%	1325	31.4	42.45°C	0.991
	12.139V	4.975V	3.299V	4.994V	501.668				58.38°C	115.23V
9	33.952A	8.552A	8.523A	2.405A	494.626	86.792%	1850	40.2	43.72°C	0.992
	12.136V	4.970V	3.296V	4.985V	569.899				56.43°C	115.18V
10	37.892A	9.067A	9.020A	3.020A	549.503	85.891%	2310	45.1	44.95°C	0.992
	12.134V	4.967V	3.293V	4.961V	639.765				57.10°C	115.17V
11	42.424A	9.070A	9.024A	3.026A	604.425	85.029%	2320	45.2	46.28°C	0.992
	12.133V	4.964V	3.290V	4.951V	710.849				60.03°C	115.16V
CL1	0.099A	12.014A	12.004A	0.004A	100.991	85.016%	621	11.6	44.12°C	0.976
	12.149V	4.991V	3.316V	5.091V	118.791				54.60°C	115.20V
CL2	44.972A	1.005A	1.004A	1.002A	558.916	86.521%	2310	45.1	45.36°C	0.992
	12.131V	4.979V	3.304V	5.030V	645.992				57.63°C	115.18V

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PAGE 6/8

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### 20-80W LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.202A	0.490A	0.479A	0.196A	19.643	71.080%	0	<6.0	0.783
	12.134V	5.014V	3.333V	5.124V	27.635				115.20V
2	2.428A	0.991A	0.990A	0.391A	39.724	81.250%	0	<6.0	0.911
	12.136V	5.008V	3.328V	5.116V	48.891				115.20V
3	3.658A	1.489A	1.499A	0.585A	59.832	85.206%	0	<6.0	0.952
	12.137V	5.008V	3.328V	5.108V	70.220				115.20V
4	4.874A	1.996A	1.983A	0.781A	79.738	87.243%	0	<6.0	0.968
	12.139V	5.007V	3.326V	5.099V	91.398				115.20V

### RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.1 mV	5.6 mV	8.2 mV	6.3 mV	Pass
20% Load	12.7 mV	5.7 mV	8.7 mV	6.0 mV	Pass
30% Load	15.1 mV	6.1 mV	8.2 mV	5.7 mV	Pass
40% Load	16.4 mV	6.9 mV	8.3 mV	6.2 mV	Pass
50% Load	18.1 mV	6.6 mV	8.8 mV	6.6 mV	Pass
60% Load	19.6 mV	7.5 mV	9.7 mV	6.9 mV	Pass
70% Load	21.2 mV	8.2 mV	10.1 mV	8.0 mV	Pass
80% Load	22.8 mV	8.7 mV	9.9 mV	8.0 mV	Pass
90% Load	24.6 mV	10.4 mV	10.7 mV	7.9 mV	Pass
100% Load	26.4 mV	12.8 mV	12.7 mV	10.3 mV	Pass
110% Load	28.1 mV	13.1 mV	13.4 mV	10.2 mV	Pass
Crossload 1	15.6 mV	9.4 mV	8.6 mV	7.9 mV	Pass
Crossload 2	25.5 mV	10.8 mV	11.4 mV	9.5 mV	Pass

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PAGE 7/8



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### HOLD-UP TIME & POWER OK SIGNAL (230V)

Hold-Up Time (ms)	23.26
AC Loss to PWR_OK Hold Up Time (ms)	18.84
PWR_OK Inactive to DC Loss Delay (ms)	4.42



Top side



Power specifications label

## CERTIFICATIONS



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PAGE 8/8